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CATÁLOGO GENERAL

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LÍNEAS DE CONTROLADORES LÓGICOS PROGRAMABLES (PLC'S)

SERIE PLC AH

AH - Automation System for High-level Applications

The new generation AH Series PLC provides automation solutions for high-level applications. The combination of modularized hardware structure, advanced functions, and the highly integrated software provides a system solution for process control applications. In addition to various function blocks, excellent performance, and an abundant selection of extension modules, the AH Series PLC also provides exceptional system expandability and full redundant solution, greatly reducing the system cost for a broad range of applications.



» Highly integrated software ISPSoft: graphical interface with 5 programming languages

» Enhanced flexibility: Max. 100m or 2 km (optical fiber) between 2 local extension racks

» Redundant and hot-swapping functions keep the system running for improved maintainability

» Reliable operations of the supported modules in severe conditions
  * Operating condition: -20 ~ 60°C / 5 ~ 95% (Non-condensing)
  * Storage condition: -40 ~ 70°C / 5 ~ 95% (Non-condensing)

- Utilizes 32-bit processor
- Max. I/O points:
  DIO: Max. 4,352 points
  AIO: Max. 544 channels
  RIO: >100,000 points
- Program capacity: Max. 1 M steps (4 MB)
  Data register (D+L): 512 k words
- Excellent program execution speed: LD instruction execution speed: 0.02 μs
- CPU built-in with fully isolated RS-232 / 422 / 485, Mini-USB, Ethernet and SDHC card slot
- Abundant selection of DIO modules,AIO modules, temperature measurement modules, network modules, pulse-train modules and DMCNET / EtherCAT motion control modules



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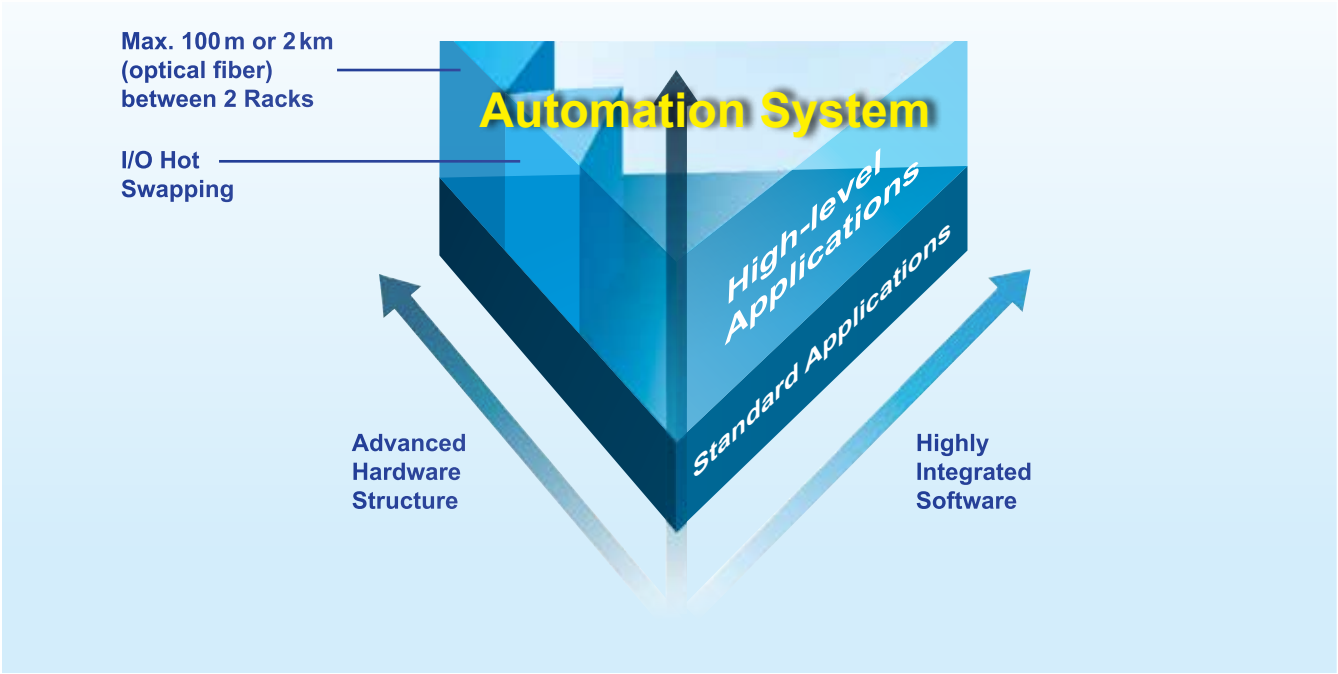
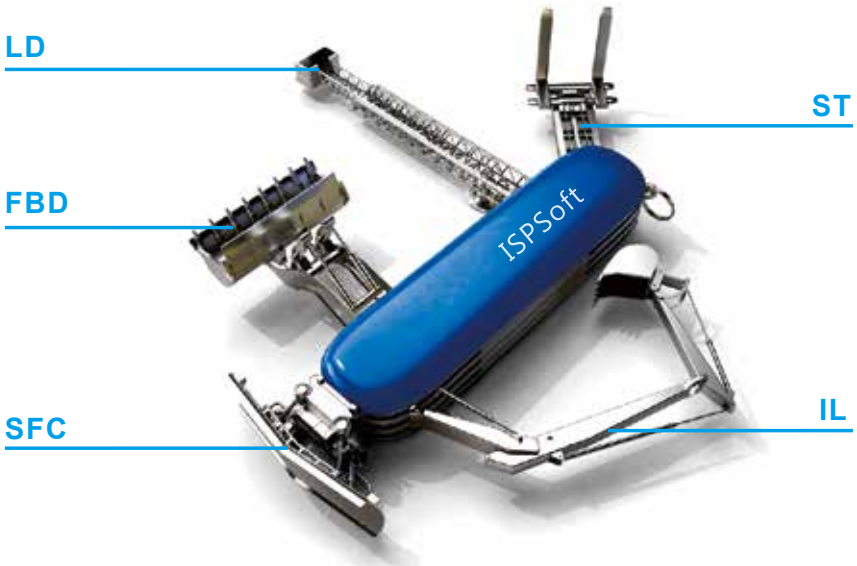
AH Series PLC – Automation System with Fully Integrated Hardware and Software Interfaces



Highly Integrated Software – Excellent Accessibility

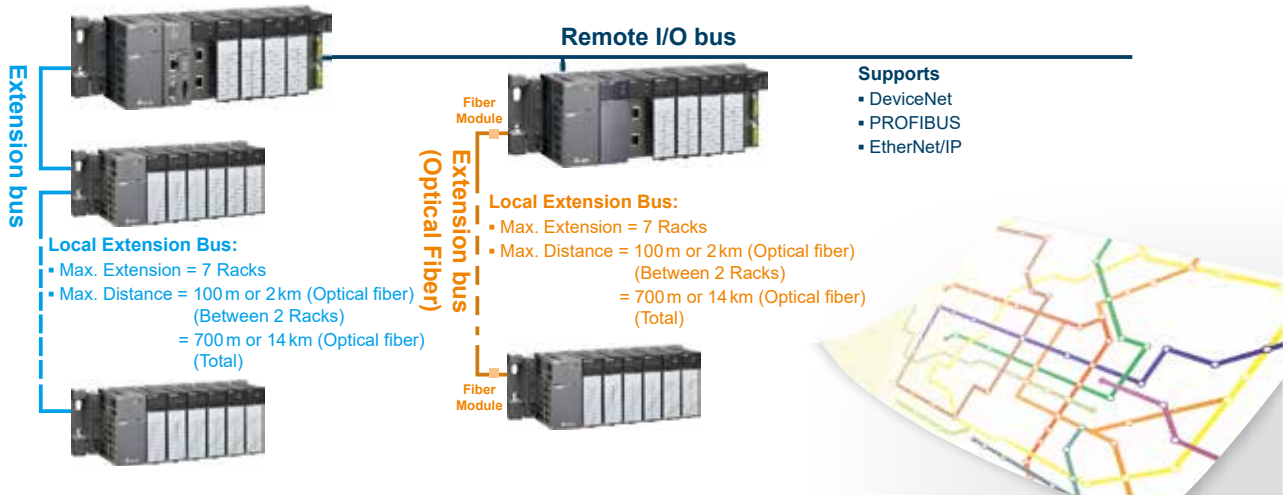
AH PLCs adopt the highly accessible programming software ISPSoft, integrating the main functions that include control process programming, hardware configuration, network configuration, and providing a graphical interface for these functions. In addition, users of ISPSoft can choose their most efficient programming tools from the 5 supported languages: Ladder Diagram (LD), Function Block Diagram (FBD), Sequential Function Chart (SFC), Instruction List (IL) and Structured Text (ST).



Enhanced Flexibility – Extends the System Freely

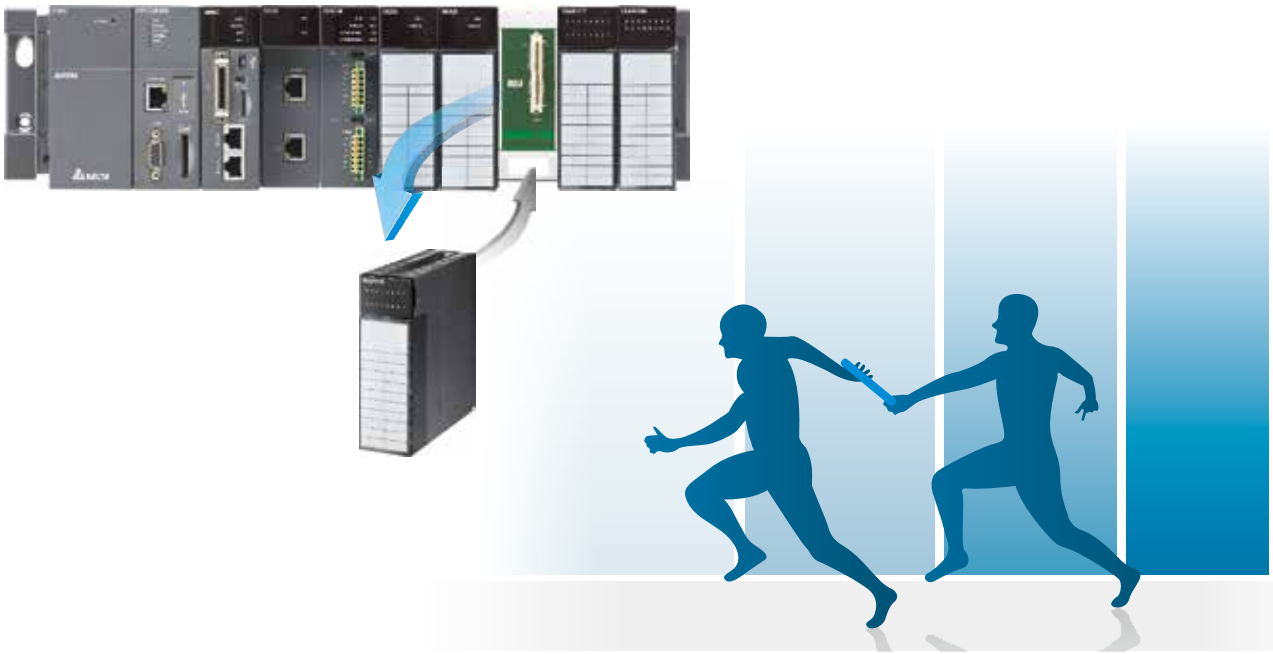
The length of extension cables between each AH local extension rack can reach a maximum of 100 m or 2 km (optical fiber), greatly enhancing wiring flexibility. In addition, the AH provides modularized backplanes and modules applicable for not only CPU racks but also for remote I/O racks. This feature improves the flexibility of system planning and reduces the additional cost that might be generated by preparing two different types of spare backplanes and modules.

System Extension Structure



Improved Maintainability – Keeps the System Running

The hot-swap function provided for AIO and DIO modules increases maintainability when I/O modules fail. Users can replace modules without stopping the operation of the CPU module, preventing a possible loss due to a pause in the system's operation.

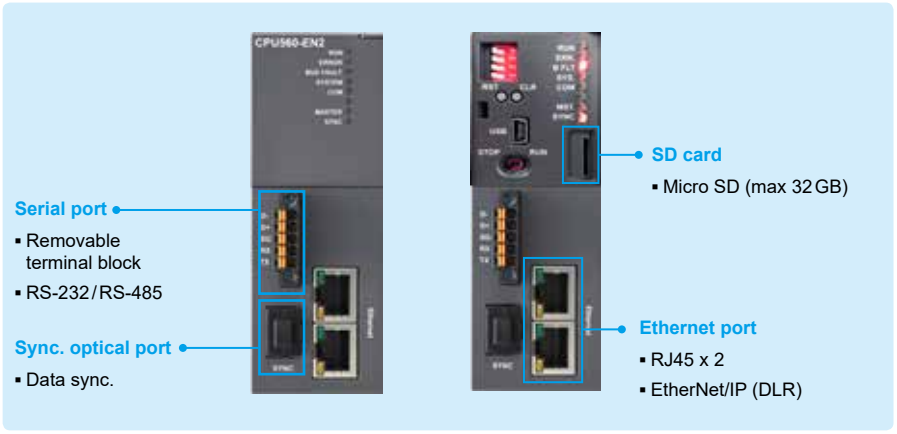


Redundant CPU

The redundant CPU of the AH Series adopts a reliable redundancy structure, and integrates synchronous modules, Ethernet ports and serial communication interfaces for a more competitive control solution.

AHCPU560-EN2





Redundant Backplane

The redundant backplane of the AH Series provides redundant power supply and communciation interfaces for a complete control solution.

Redundant main backplane: AHBP04MR1-5A (4-slot), AHBP06MR1-5A (6-slot), AHBP08MR1-5A (8-slot)



Redundant expansion backplane: AHBP06ER1-5A (6-slot)



Redundant System

Full Redundancy Structure

Redundant CPU	Redundant main backplane	Redundant power	Redundant ext. ports	Ring topology

Modules

Main backplane	Expansion backplane	RTU rack
▪ Ethernet module - AH10EN-5A (V3) ▪ Serial module - AH10SCM-5A (V3)	▪ DIO ▪ AIO (includes temperature modules) ▪ Serial modules - AH10SCM-5A, AH15SCM-5A	▪ DIO ▪ AIO (include temperature modules)

Tasks

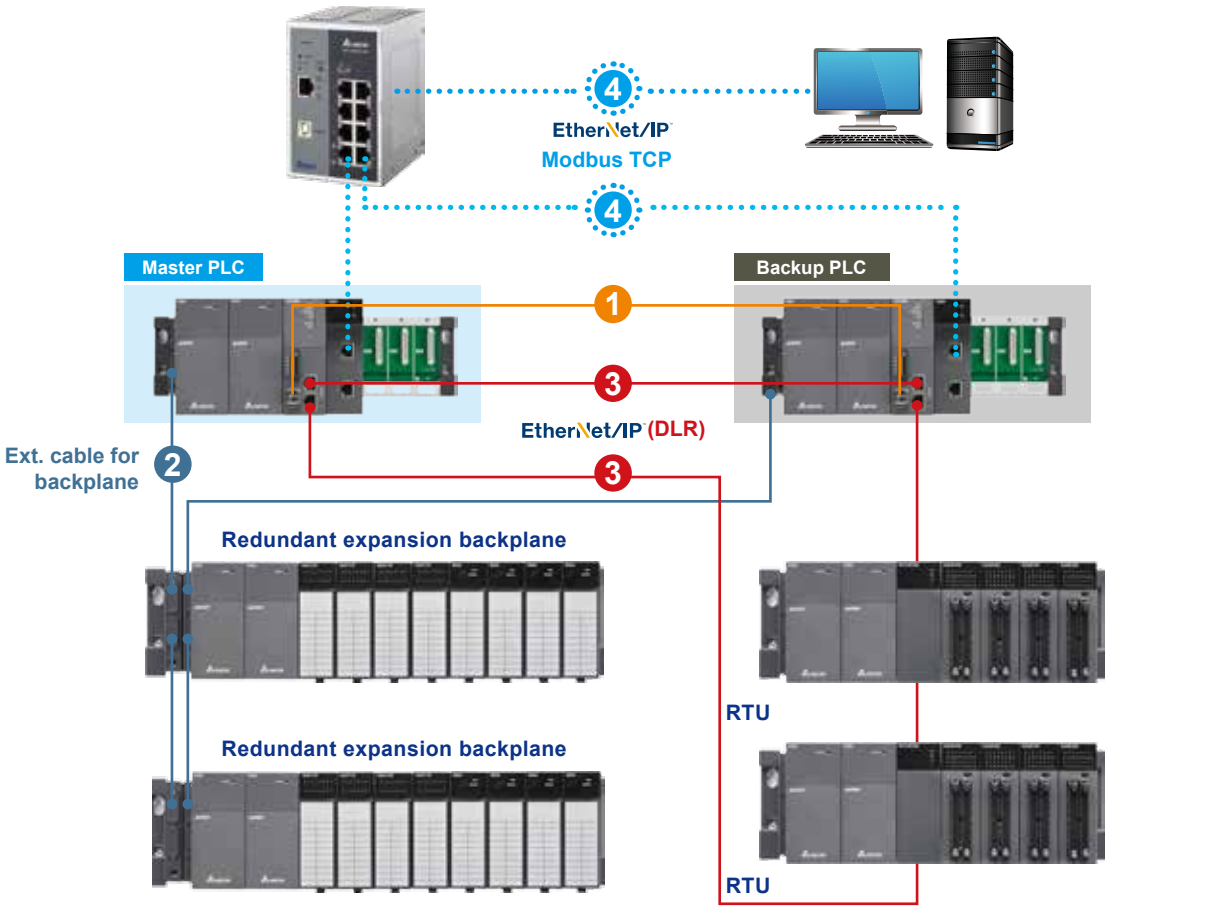
Cyclic	Timer interrupt

CPU built-in sync. module

CPU switch-over time: 20 ms

RTU nodes to support expansion backplanes

Standard backplanes available (under some conditions)



1 Sync. optical fiber

2 Ext. cable for backplane

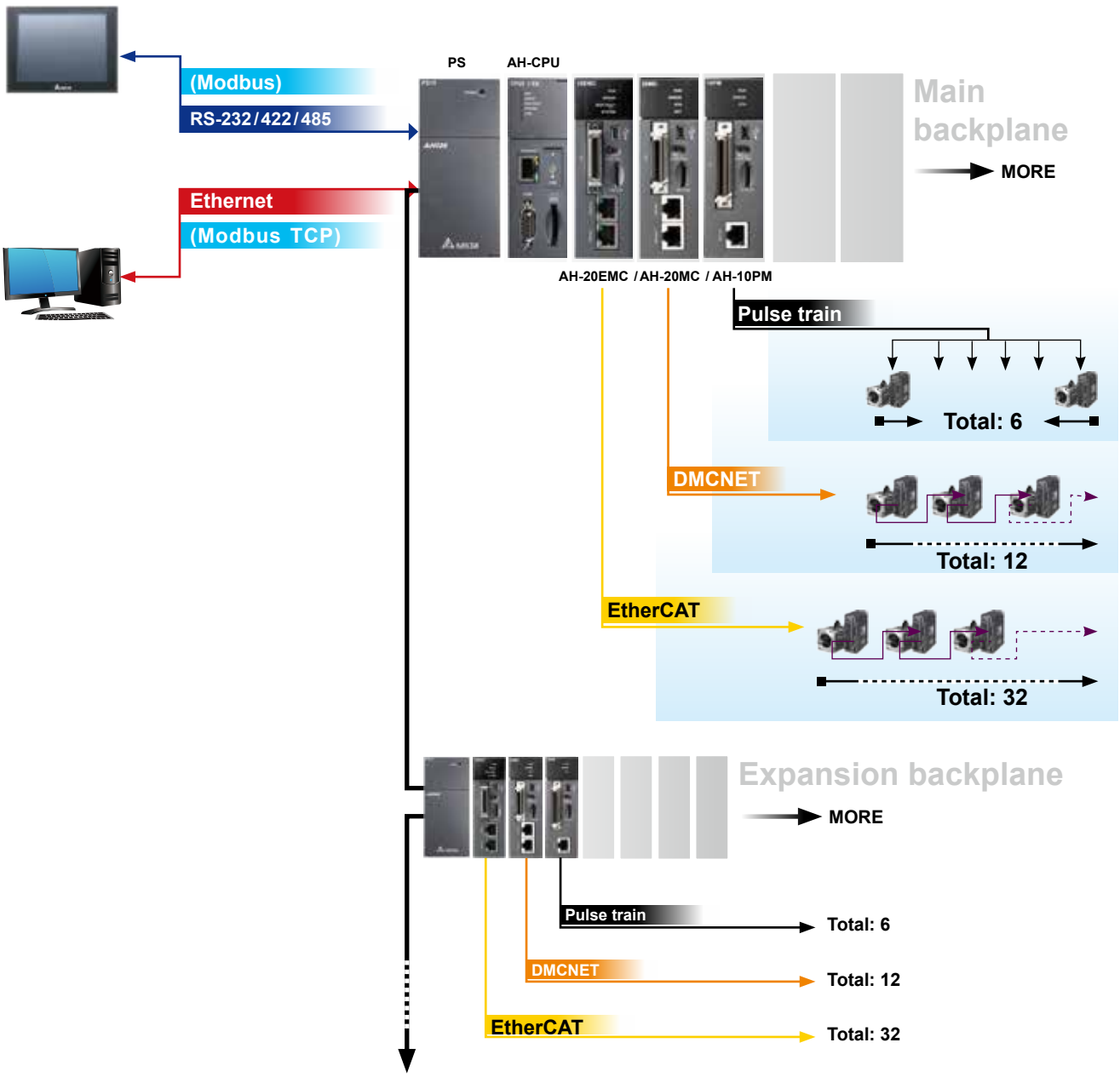
3 EtherNet/IP ring topology (DLR)

4 Star topology EtherNet/IP, Modbus TCP

Standard Motion Control System

- Provides EtherCAT, DMCNET and pulse train solutions for customers.
- Motion modules can independently take care of both the logic and motion control. Users can write and download the programs to the motion modules.
- All motion modules support the standard motion control system.
- All motion modules can be installed on the local backplanes.
- Motion control functions:
  - » Performance:
    -Pulse train module: Max. 1 MHz output
    -DMCNET module: Min. synchronization time at 12 axes is 1 ms
    -EtherCAT module: Min. synchronization time at 8 / 16 / 32 axes is 0.5 / 1 / 2 ms
  - » Supports UD / PD / AB / 4AB input modes
  - » Supports MPD inputs / E-Cam / G-code / 2 ~ 6 axes linear interpolation / 2 axes arc interpolation / 3 axes helical interpolation

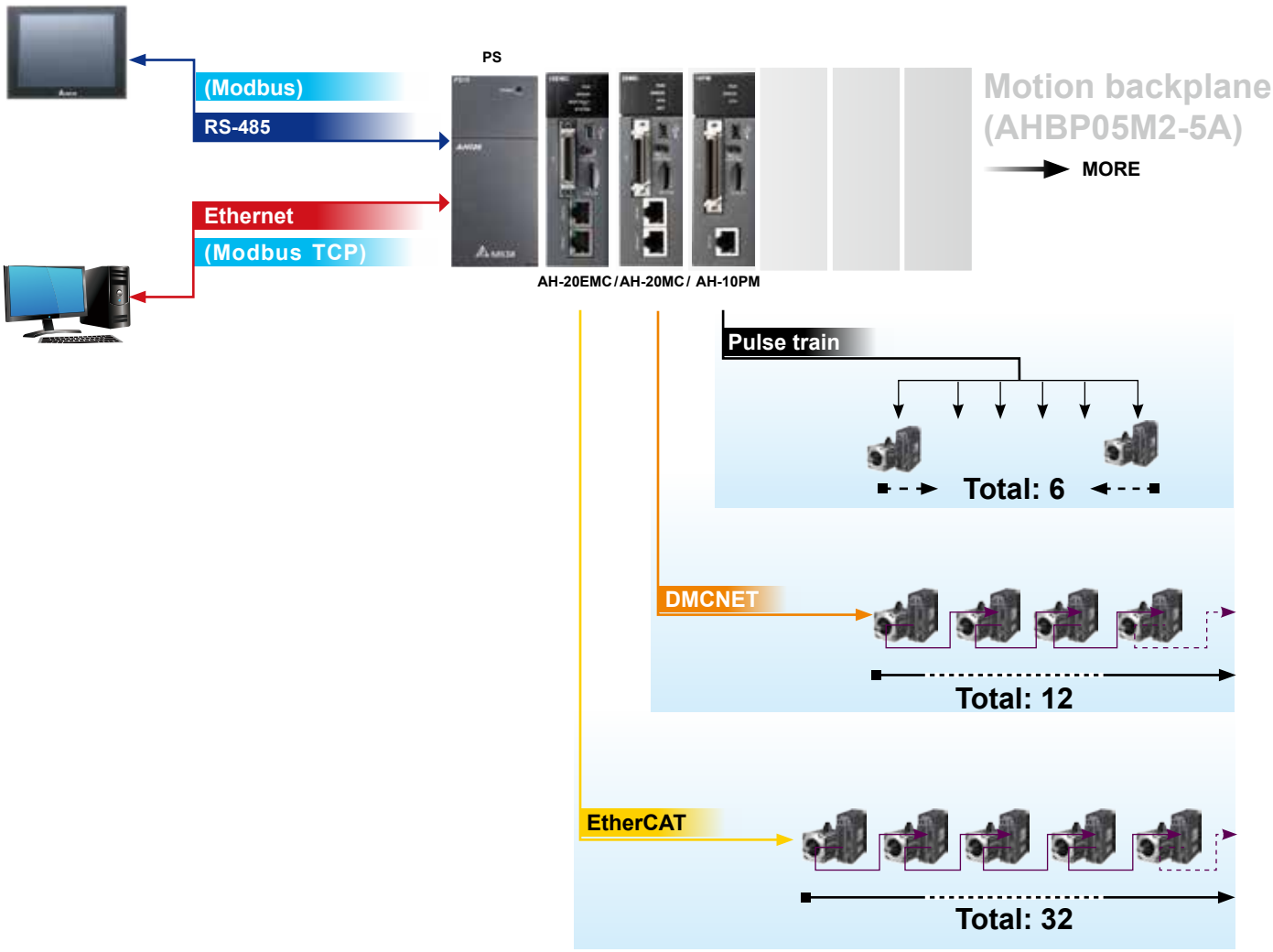
Note: The EtherCAT motion modules (AHxxEMC-5A) do not yet have support installed on the I/O slots.



Compact Motion Control System

- Provides EtherCAT, DMCNET and pulse train solutions for customers.
- AHxxEMC-5A motion controller can be installed on the CPU slot of the specific motion backplane and works as a CPU module.
- Compact motion control system does not support the expansion backplane.
- Motion modules can be installed on the I/O slot of the motion backplane.
- Motion control functions:
  - » Performance:
    - -Pulse train module: Max. 1 MHz output
    - -DMCNET module: Min. synchronization time at 12 axes is 1 ms
    - -EtherCAT module: Min. synchronization time at 8 / 16 / 32 axes is 0.5 / 1 / 2 ms
  - » Supports UD / PD / AB / 4AB input modes
  - » Supports MPD inputs / E-Cam / G-code / 2 ~ 6 axes linear interpolation / 2 axes arc interpolation / 3 axes helical interpolation

Note: The EtherCAT motion modules (AHxxEMC-5A) do not yet have support installed on the I/O slots.



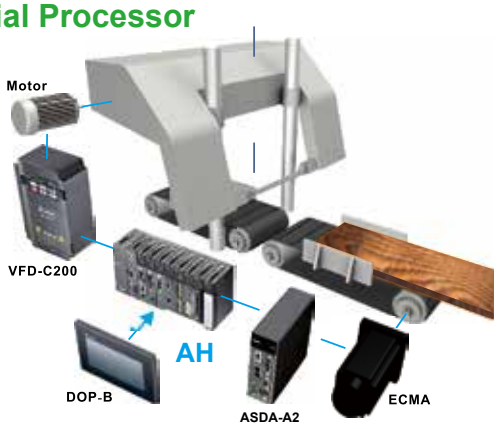


Applications

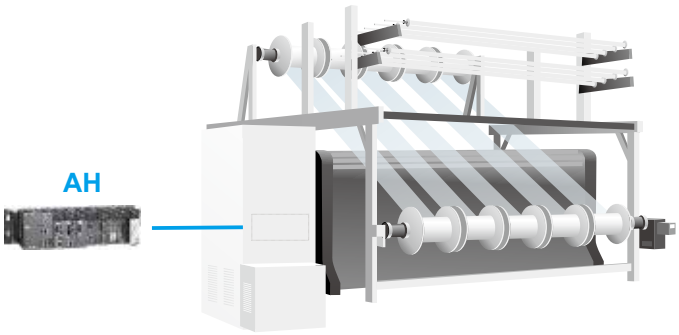
Large Scale Industrial Machines

The features of the AH can easily fulfill the system requirements of large scale industrial machines. By utilizing its unique local extension capability with versatile combinations of I/O modules, the AH can simplify the complex remote I/O system structure in large scale industrial machines with a local I/O system consisting of a single CPU rack and local extension racks, maintaining a high execution speed and lowering the wiring cost.

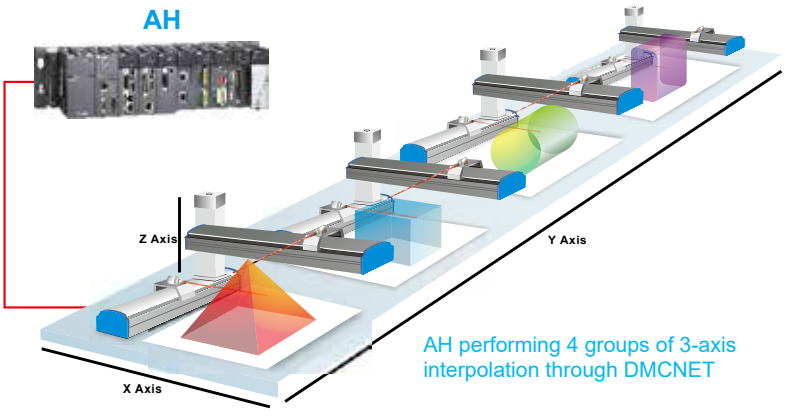
Building Material Processor



Warp Knitting Machine



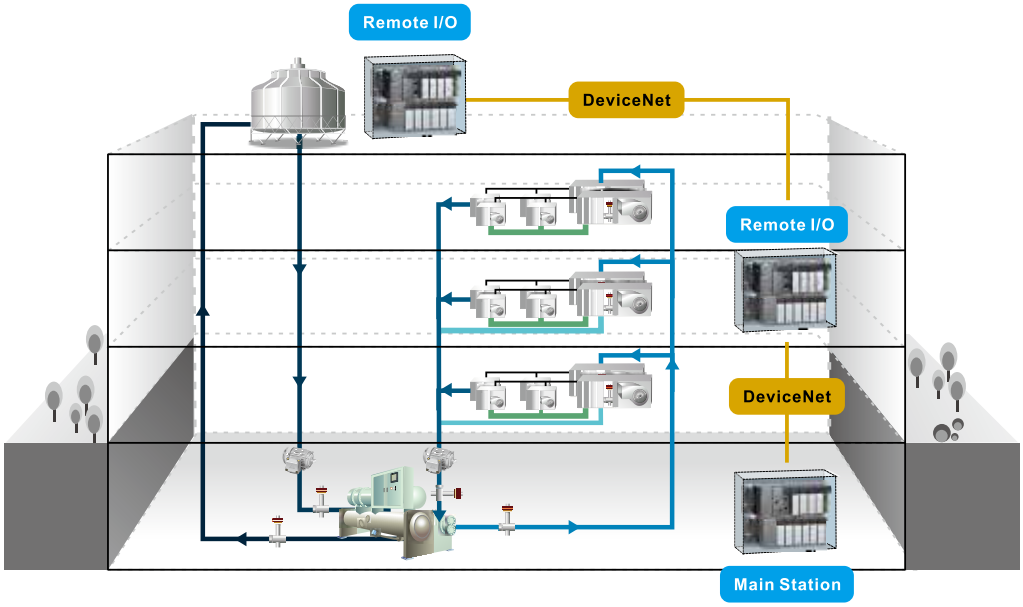
The AH also supports excellent motion control functions including 3-axis linear interpolation, 2-axis arc interpolation, and 3-axis helical interpolation. In addition, the AH is capable of controlling up to 12 axes or 4 groups of 3-axis interpolation synchronously through Delta's high speed motion control network DMCNET.



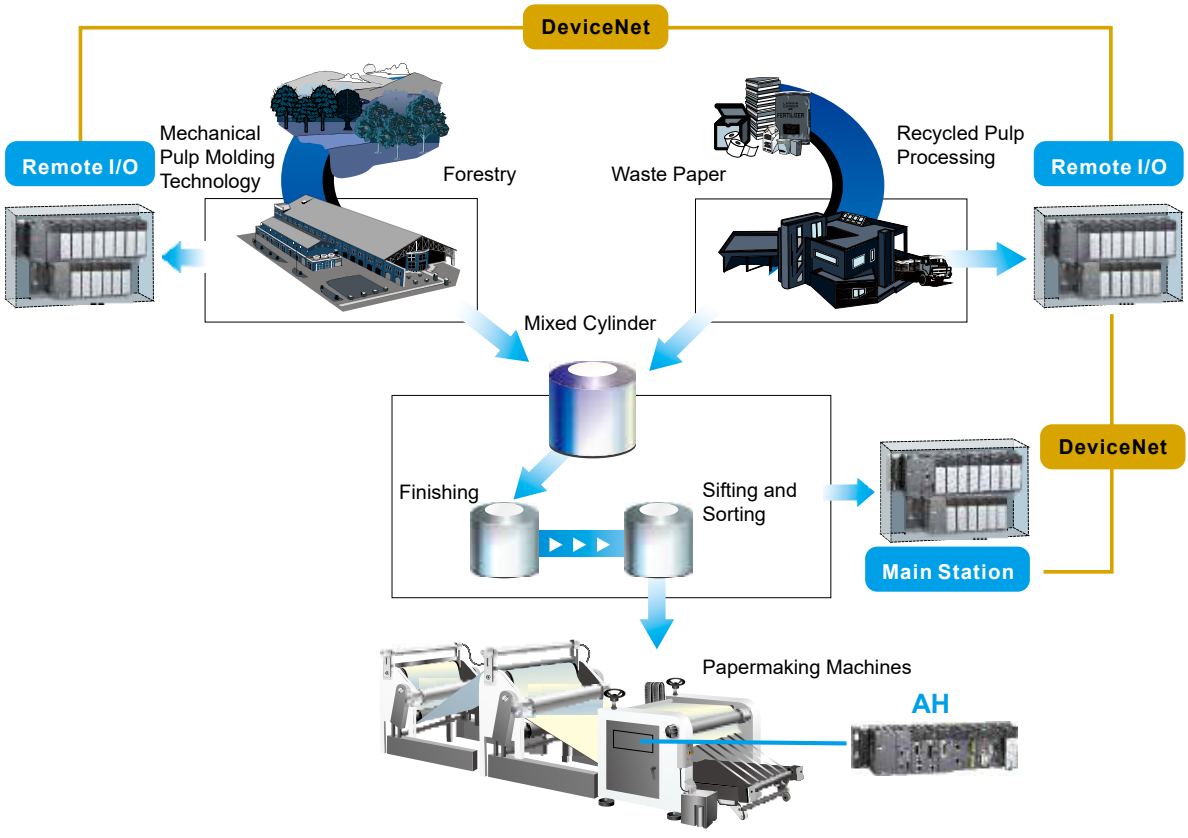
System Applications

The AH is a modular system controller designed for almost all kinds of high-level automation tasks. The abundant selection of I/O modules and the flexible system structure provide the best solutions for all types of system integration requirements. Through the remote I/O expandability, you can build up the AH main station as a central control system and allocate the remote I/O systems on different floors for HVAC applications, or in different processing stations for the paper-making industry. The AH can not only fulfill the application requirements of industrial machines or devices, but it can also provide total solutions for automation systems.

HVAC

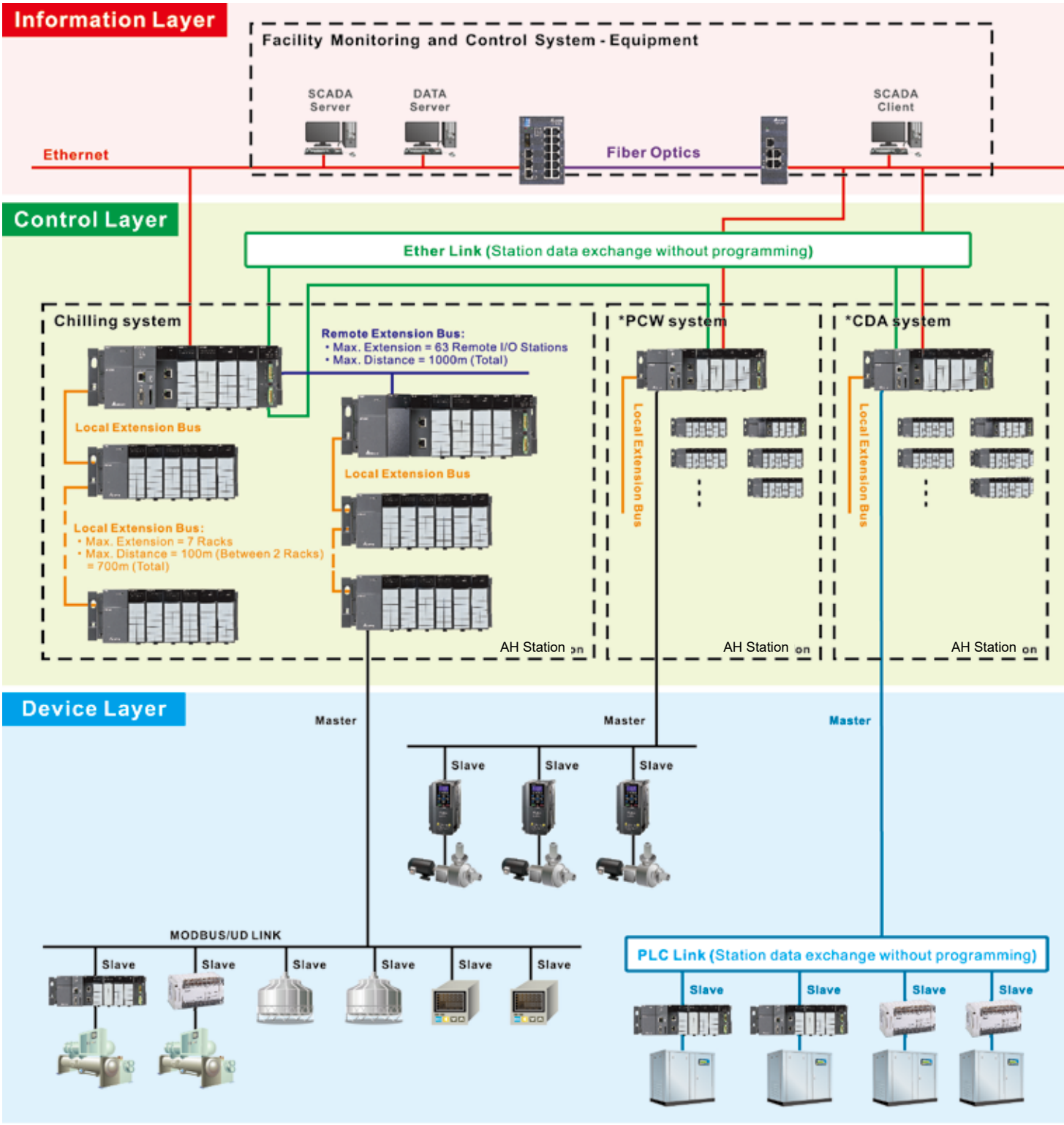


Papermaking Industries



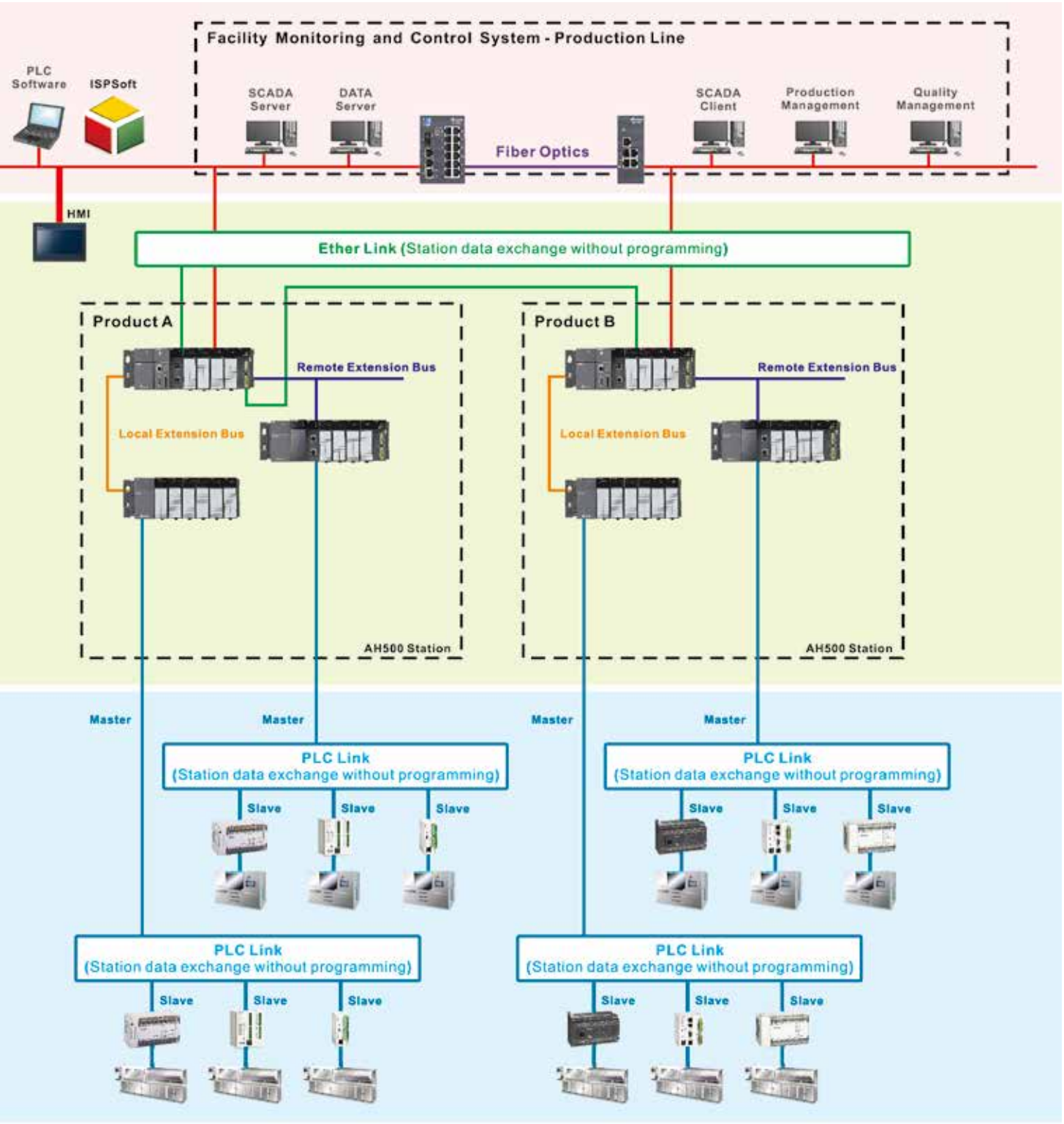
AH System Structure –
Facility Monitoring and Control System

The system configuration of the AH is well demonstrated by the Facility Monitoring and Control System (FMCS).
The AH in the control layer connects multiple facility systems and product processing systems and performs data exchange without programming through Delta's convenient PLC Link and Ether Link. PLC Link can be applied for data exchange between masters and slaves, and Ether Link can be applied for data exchange between AH master stations. The smart communication feature can save you time spent in programming.



*【Note】 PCW system: Process Cooling Water System ; CDA system: Clean Dry Air System

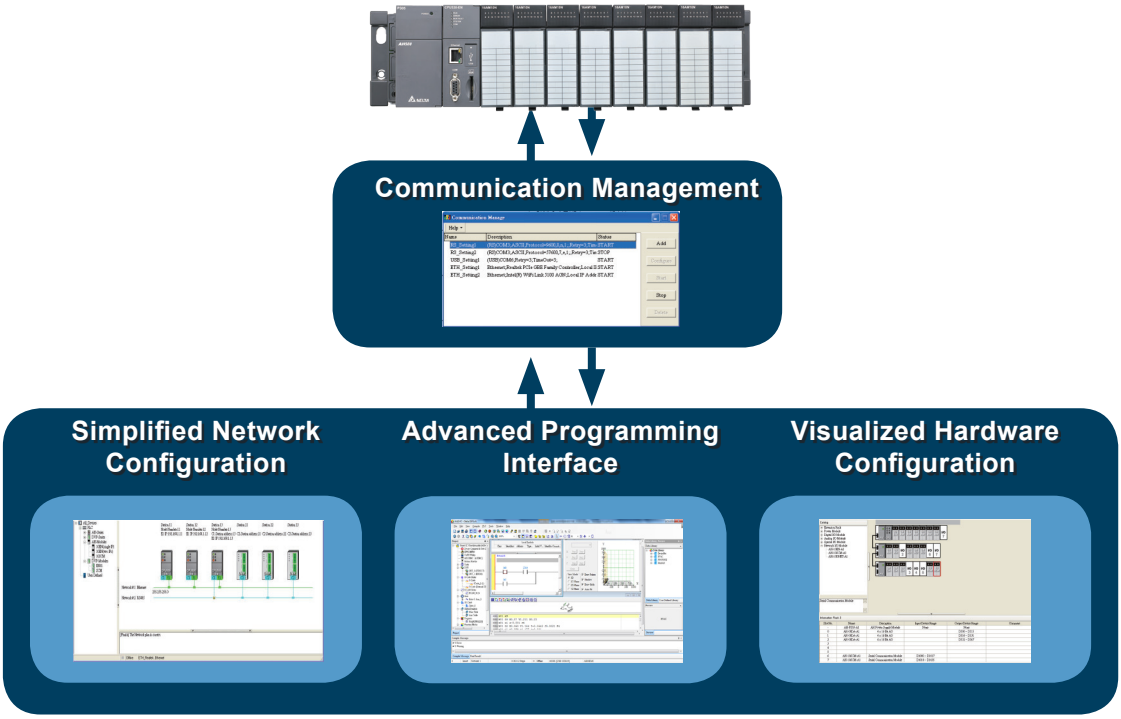
In addition to AH PLCs, Delta's industrial automation solution includes human machine interfaces (HMI),
DVS series industrial Ethernet switches, DVP series PLCs, AC motor drives, AC servo drives and temperature controllers.
You can find the best solution for your industry from our product lines across the device layer, control layer and information layer.



ISPSoft V3.0
Highly Accessible Programming Software

Fully Integrated Interface

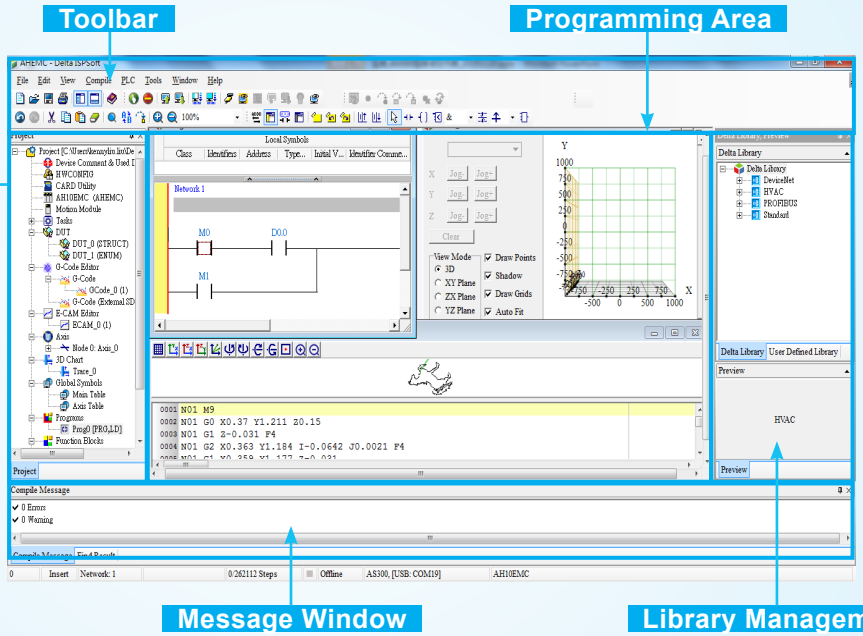
Advanced Programming Interface + Visualized Hardware Configuration + Simplified Network Configuration + Data Tracer & Logger + Motion programming



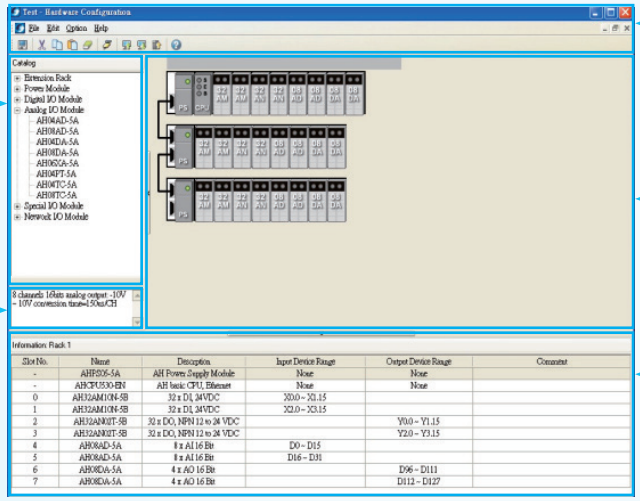
Advanced Programming Interface

Project Management Window

- **New Functions:** Network configuration, hardware configuration and PLC card.
- Supports 5 programming languages (LD/FBD/SFC/IL/ST)
- **Function Blocks:** Symbols can be introduced in call-by-value or call-by-reference types. Function blocks can be called in function block for up to 32 levels.
- **Monitor Table:** It can be stored and managed separately. Multiple monitor tables can be stored in a single project.
- **User Library:** Users can design frequently used instructions for specific applications in different industries.
- **Task:** Supports cyclic, I/O interrupt, timer interrupt, external interrupt, and more. Software will provide usable tasks for different CPUs.



Visualized Hardware Configuration



Module Selection

Module Description

Toolbar

- System hardware configuration can be monitored in On-Line mode
- Hardware configuration can be displayed by Scan function

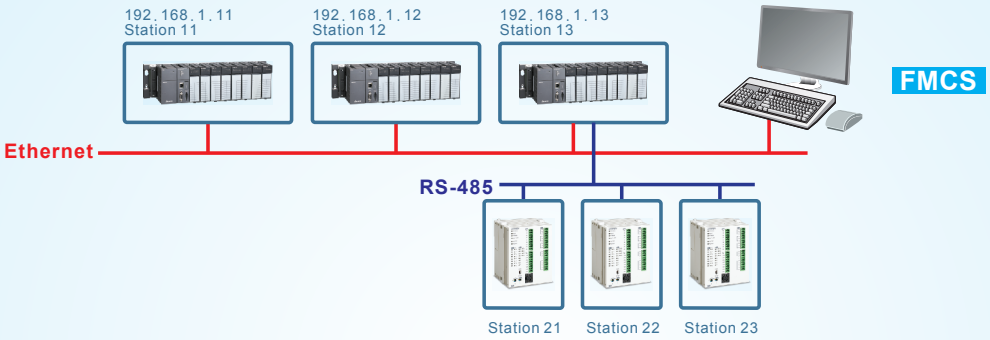
Hardware Configuration Area

- Operations of Cut / Copy / Paste / Delete are available for modules and racks
- Parameters of each module can be directly configured

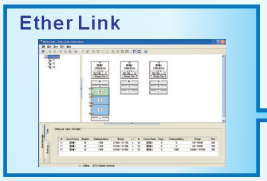
Rack Information

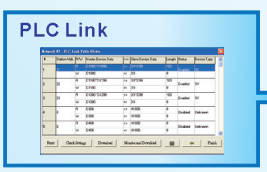
- I/O device range can be specified by the user

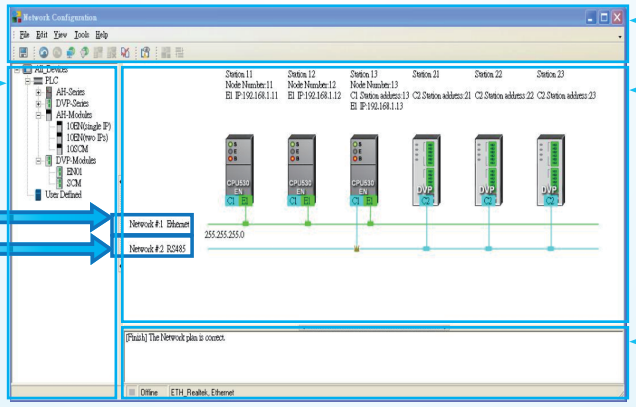
Simplified Network Configuration



Network Device Selection







Toolbar

Network Configuration Area

- Master device settings
- Ether Link editing function
- PLC Link editing function

Network Information

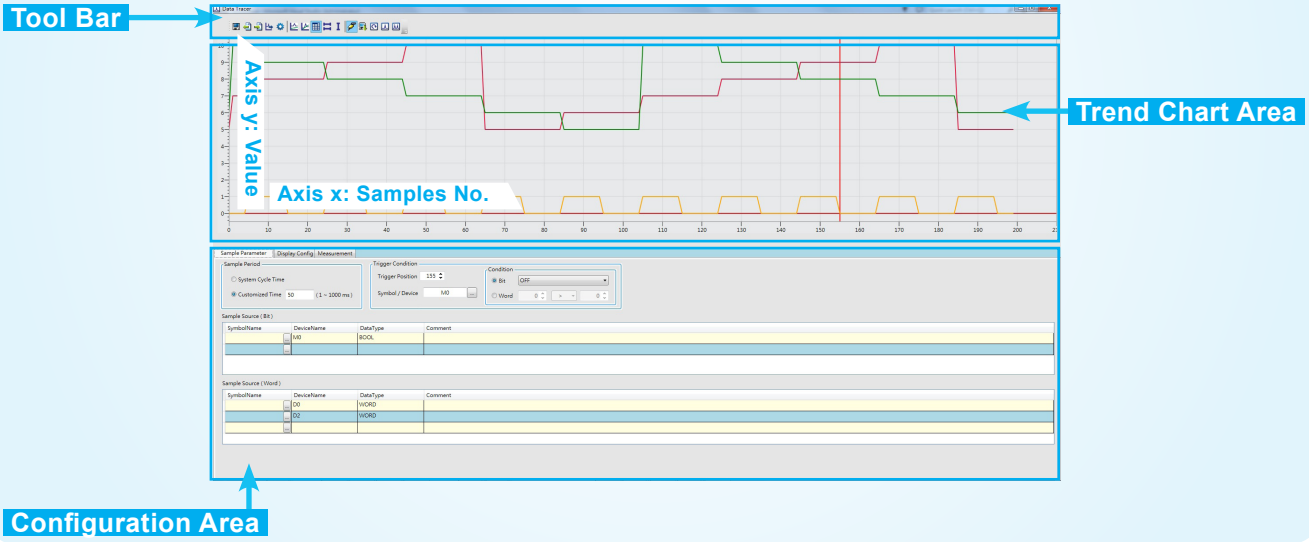
Data Tracer & Logger

Data Tracer

Provides high speed data log ability and the interval could be 1 CPU scan. Users can easily analyze the program logic with this function.

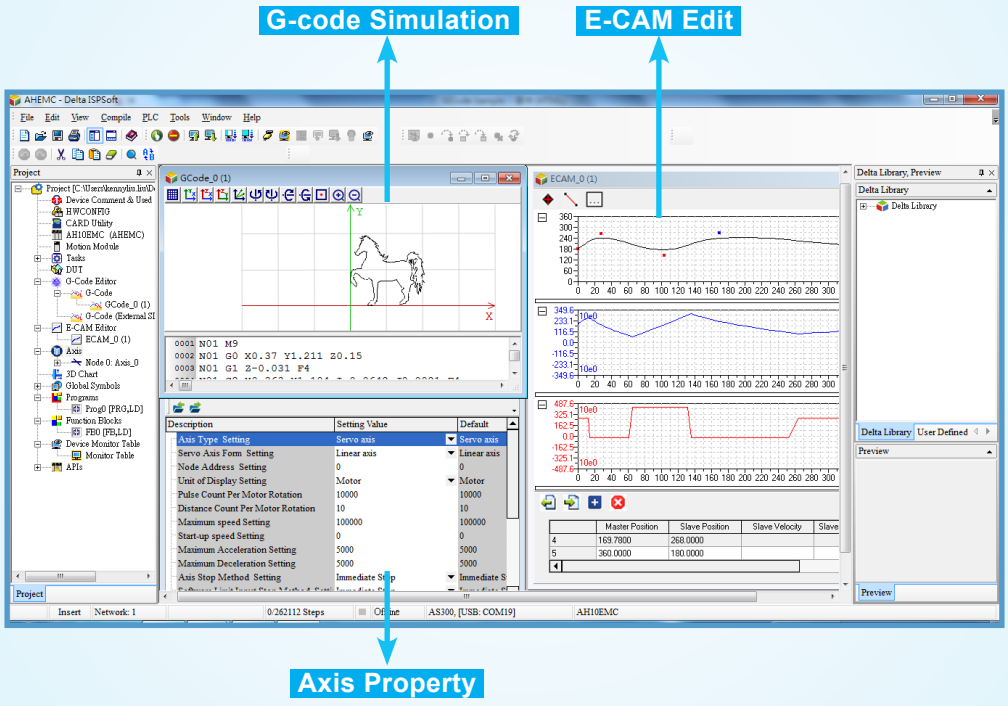
Data Logger

Provides big data log ability and adjustable intervals. Users can log critical system data and then analyze the system operation status.



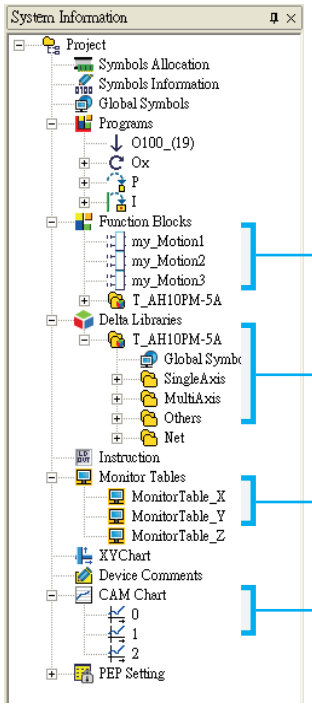
Integrated Motion Programming

ISPSoft V3 integrates the logic and motion program editors into one software



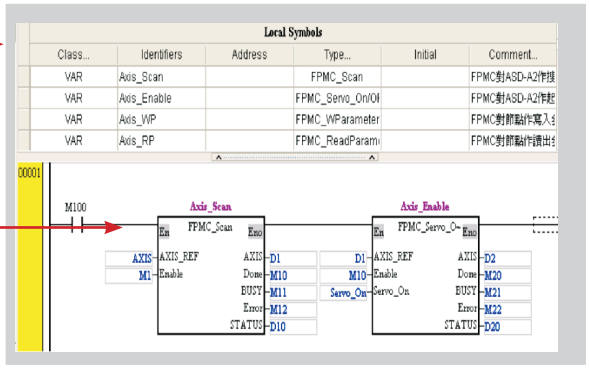
PMSoft V2.0

This programming software is for G-code editing, motion trajectory simulation, positioning route instruction and electronic cam establishment.



Variable Declaration

Separate from the program. The corresponding physical I/O point of the variable is defined only after the program is compiled. Users do not need to modify the program.

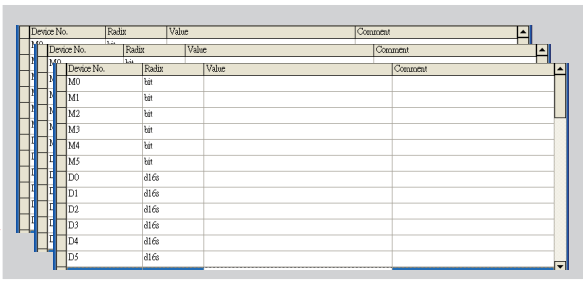


Function Block

A complicated project can be divided into many function blocks. A function block can be used repeatedly. The import/export function makes the programming more convenient.

Function Block for Motion Control

Provides function block features specifically for motion control, making programming more convenient

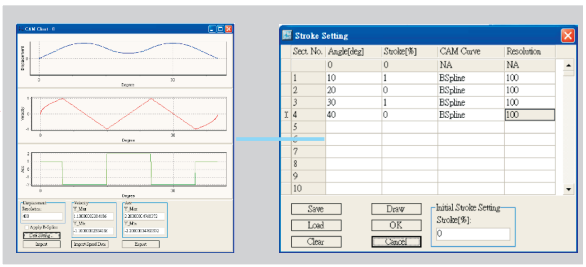


Convenient Monitor Table Management

Users can save and manage monitor tables independently according to their needs.

Electronic Cam

Electronic cam editing



CFC Editor

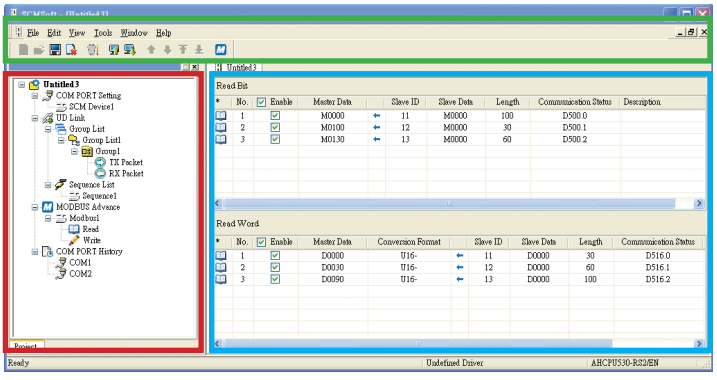
Supports CFC programming language

SCMSoft V1.0 Communication Editing Software

Provides SCM module with automatic data exchange setup function

Project Management Interface

- Supports user defined protocol (UD Link)
- Supports Modbus protocol
- Supports data monitoring for communication ports



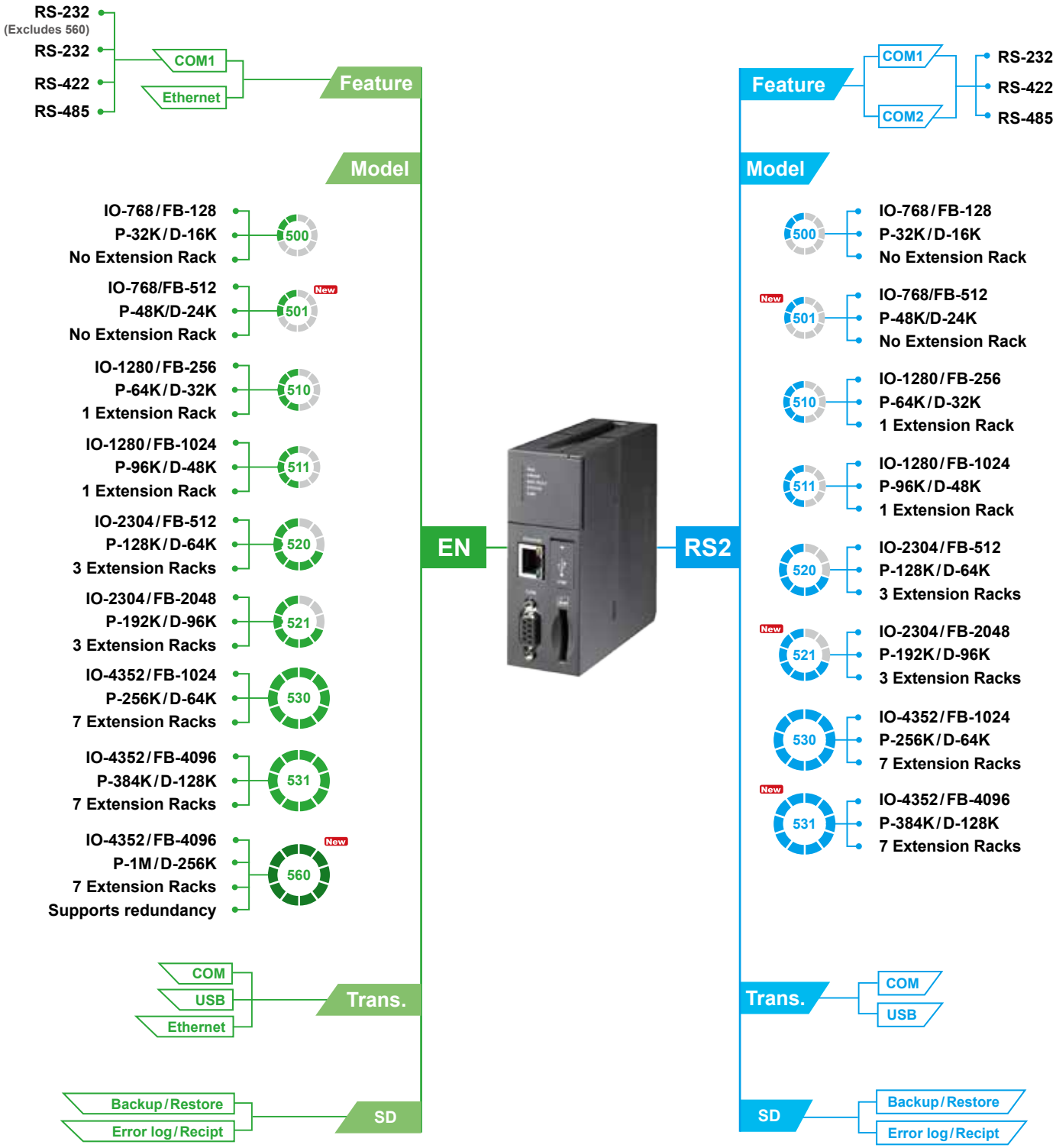
Toolbar

- Upload / Download setup files
- Supports wizards

Editing Area

- Data exchange setup
- Status display

Specification Tree



CPU Selection Table

Item	Specifications	Check	CPU Model																
			AH500		AH510		AH520		AH530		AH501		AH511		AH521		AH531		AH560
			RS2	EN	RS2	EN	RS2	EN	RS2	EN	RS2	EN	RS2	EN	RS2	EN	RS2	EN	EN2
Local I/O points	< 768	☐	•								•								
	< 1280	☐			•								•						
	< 2304	☐					•								•				
	< 4352	☐							•								•		•
Program capacity	< 32 k steps	☐	•																
	< 48k steps	☐									•								
	< 64k steps	☐			•														
	< 96k steps	☐											•						
	< 128 k steps	☐					•												
	< 192 k steps	☐													•				
	< 256k steps	☐							•										
	< 384 k steps	☐															•		
	< 1M steps	☐																	•
Expansion capacity	None	☐	•								•								
	< 1 expansion rack	☐			•								•						
	< 3 expansion racks	☐					•								•				
	< 7 expansion racks	☐							•								•		•
Built-in communication	1 COM port	☐		•		•		•		•		•		•		•		•	•
	2 COM ports	☐	•		•		•		•		•		•		•		•		
	Ethernet	☐		•		•		•		•		•		•		•		•	•
	Mini-USB	☐	•		•		•		•		•		•		•		•		•
Protocol supported	Modbus	☐	•		•		•		•		•		•		•		•		•
	Modbus TCP	☐		•		•		•		•		•		•		•		•	•
	EtherNet/IP	☐										•		•		•		•	•
SD card	V 1.0	☐	•		•		•		•										
	V 2.0 (SDHC)	☐									•		•		•		•		•
Redundancy	CPU	☐																	•

Model Name

AH CPU

AHCPU500-RS2

AH	CPU	5	0	0	-	RS2
Series	Classification	Model	Function	Version		Type
	CPU		0: No expansion rack 1: 1 expansion rack 2: 3 expansion racks 3: 7 expansion racks 6: Redundant CPU			RS2: 2 COM ports EN: 1 COM & 1 Ethernet ports EN2: 1 COM & 2 Ethernet ports

AH Power Supply Module

AHPS05-5A

AH	PS	05	-	5A
Series	Classification	Function		Type
	Power supply	05: AC input (100~240 V) 15: DC input (24 V)		

AH RTU Module

AHRTU-DNET-5A

AH	RTU	-	DNET	-	5A
Series	Classification		Function		Type
	Remote terminal unit		DNET: DeviceNet PFBS: PROFIBUS ETHN: EtherNet/IP		

AH Digital I/O Module

AH16AM10N-5A

AH	16	AM	1	0	N	-	5A
Series	I/O points	Classification	Function	Function	Function		Type
	16: 16 points 32: 32 points 64: 64 points	AM: Digital input AN: Digital output AP: Digital input/output AR: Digital input with interrupt	0: No input 1: DC input (24 V) 3: AC input (120~240 V)	0: No output 1: 0.5A transistor/TRIAC output or 2A relay output 2: 0.1A transistor output	N: No output R: Relay output T: NPN output P: PNP output S: TRIAC output		5A: Removable terminal 5B: DB37 connector 5C: MIL

AH Analog I/O Module

AH04AD-5A

AH	04	AD	-	5A
Series	I/O Channels	Classification		Type
	04: 4-channel 06: 6-channel 08: 8-channel	AD: Analog input DA: Analog output XA: Analog input/output		5A: Voltage/Current 5B: Voltage 5C: Current

AH Backplane

AHBP04M1-5A

AH	BP	04		M1	-	5A
Series	Classification	Function		Function		Type
	Backplane	00: No slot 03: 3-slot 04: 4-slot 05: 5-slot	06: 6-slot 07: 7-slot 08: 8-slot 12: 12-slot	M1: Main backplane M2: Main backplane for motion E1: Expansion backplane MR1: Redundant main backplane ER1: Redundant expansion backplane		

AH Network Module

AH10EN-5A

AH	10	EN		-	5A
Series	Function	Classification			Type
	10: Basic 15: Advanced	EN: Ethernet SCM: Serial communication DNET: DeviceNet	PFBM: PROFIBUS master PFBS: PROFIBUS slave COPM: CANopen		

AH Motion Module

AH02HC-5A

AH	02		HC	-	5A
Series	Function		Classification		Type
	02: 2-channel 04: 4-channel 05: Simple type (PM) 10: Standard type (PM) 15: Advanced type (PM)	20: DMCNET 08E: EtherCAT (8-axis) 10E: EtherCAT (16-axis) 20E: EtherCAT (32-axis)	HC: High speed counter PM: Motion controller (Pulse train) MC: Motion controller (Network)		

AH Temperature Module

AH04PT-5A

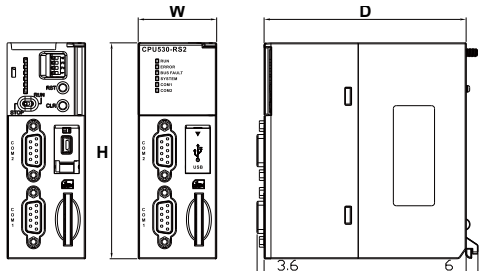
AH	04	PT	-	5A
Series	I/O channels	Classification		Type
	04: 4-channel 08: 8-channel	PT: Platinum resistance thermometer TC: Thermocouple PTG: Platinum resistance thermometer (channel isolation)		

Dimensions

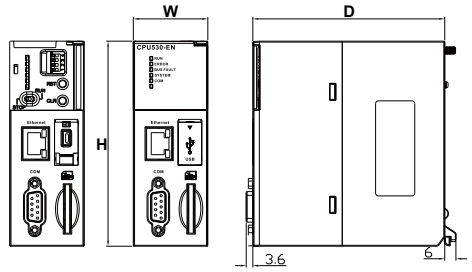
Dimensions are in mm

CPU Modules

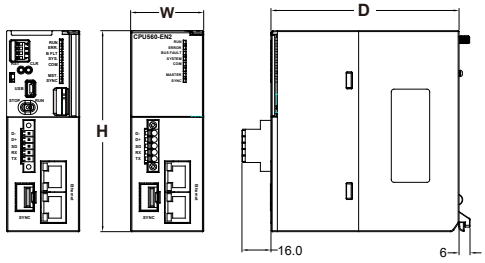
Model Name	H	W	D
AHCPU500-RS2	110	40	103
AHCPU501-RS2 New	110	40	103
AHCPU510-RS2	110	40	103
AHCPU511-RS2	110	40	103
AHCPU520-RS2	110	40	103
AHCPU521-RS2 New	110	40	103
AHCPU530-RS2	110	40	103
AHCPU531-RS2 New	110	40	103



Model Name	H	W	D
AHCPU500-EN	110	40	103
AHCPU501-EN New	110	40	103
AHCPU510-EN	110	40	103
AHCPU511-EN	110	40	103
AHCPU520-EN	110	40	103
AHCPU521-EN	110	40	103
AHCPU530-EN	110	40	103
AHCPU531-EN	110	40	103

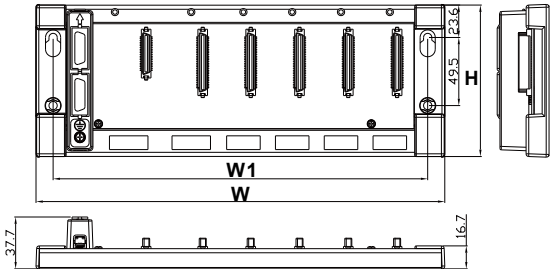


Model Name	H	W	D
AHCPU560-EN2 New	110	40	103

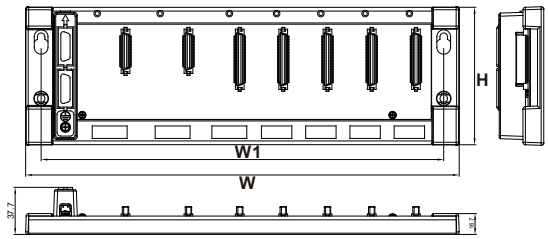


Backplanes

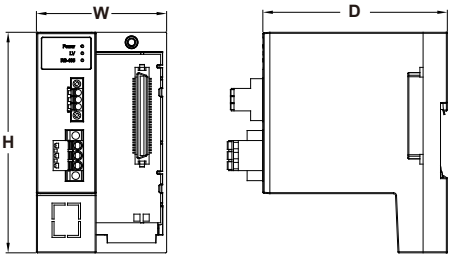
Model Name	H	W	W1
AHBP04M1-5A	110	298	272.5
AHBP06M1-5A	110	369	343.5
AHBP08M1-5A	110	440	414.5
AHBP12M1-5A	110	582	556.5
AHBP03M2-5A	110	257	232.4
AHBP05M2-5A	110	328	303
AHBP07M2-5A	110	399	374
AHBP06E1-5A	110	328	303
AHBP08E1-5A	110	399	374



Model Name	H	W	W1
AHBP04MR1-5A New	110	348	323
AHBP06MR1-5A New	110	419	394
AHBP08MR1-5A New	110	490	465
AHBP06ER1-5A New	110	398	373
AHBP08ER1-5A New	110	469	444

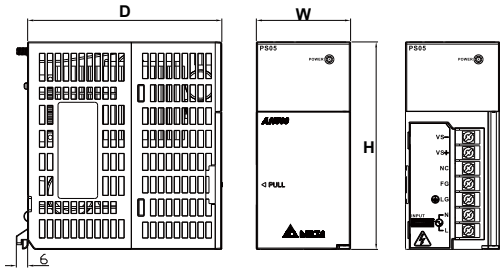


Model Name	H	W	D
AHBP00M2-5A New	110	65	92.1



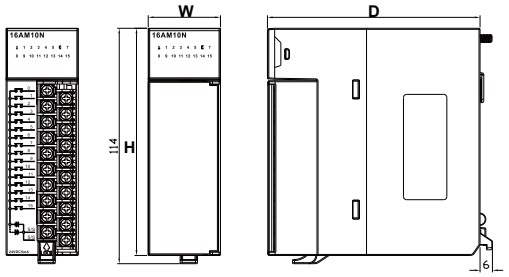
Power Supply Modules

Model Name	H	W	D
AHPS05-5A	110	50	103
AHPS15-5A	110	50	103



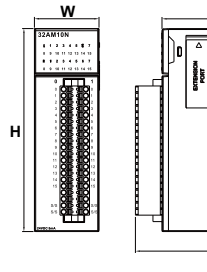
16-point Digital I/O Modules

Model Name	H	W	D
AH16AM10N-5A	110	35	103
AH16AM30N-5A	110	35	103
AH16AN01R-5A	110	35	103
AH16AN01T-5A	110	35	103
AH16AN01P-5A	110	35	103
AH16AN01S-5A	110	35	103
AH16AP11R-5A	110	35	103
AH16AP11T-5A	110	35	103
AH16AP11P-5A	110	35	103
AH16AR10N-5A	110	35	103



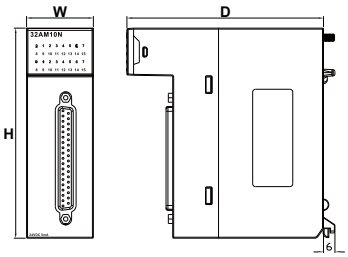
32-point Digital I/O Modules

Model Name	H	W	D
AH32AM10N-5A	110	35	103
AH32AN02T-5A	110	35	103
AH32AN02P-5A	110	35	103



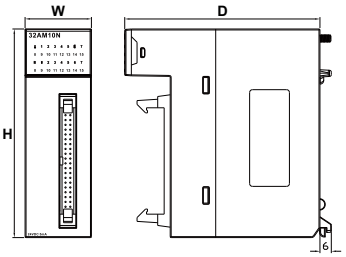
32-point Digital I/O Modules

Model Name	H	W	D
AH32AM10N-5B	110	35	103
AH32AN02T-5B	110	35	103
AH32AN02P-5B	110	35	103



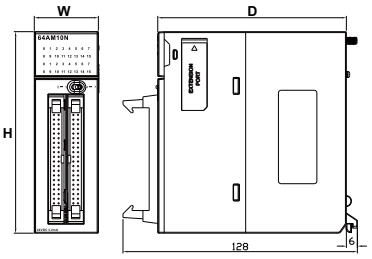
32-point Digital I/O Modules

Model Name	H	W	D
AH32AM10N-5C	110	35	103
AH32AN02T-5C	110	35	103
AH32AN02P-5C	110	35	103



64-point Digital I/O Modules

Model Name	H	W	D
AH64AM10N-5C	110	35	103
AH64AN02T-5C	110	35	103
AH64AN02P-5C	110	35	103

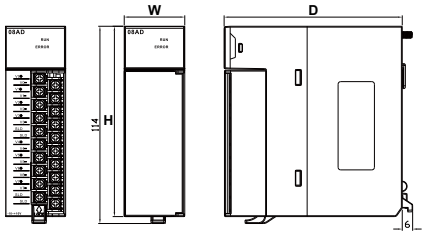


Dimensions

Dimensions are in mm

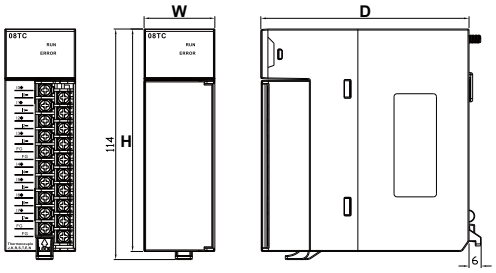
Analog I/O Modules

Model Name	H	W	D
AH04AD-5A	110	35	103
AH08AD-5B	110	35	103
AH08AD-5C	110	35	103
AH04DA-5A	110	35	103
AH08DA-5B	110	35	103
AH08DA-5C	110	35	103
AH06XA-5A	110	35	103



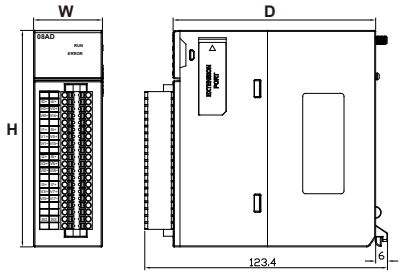
Temperature Measurement Modules

Model Name	H	W	D
AH04PT-5A	110	35	103
AH04TC-5A	110	35	103
AH08TC-5A	110	35	103



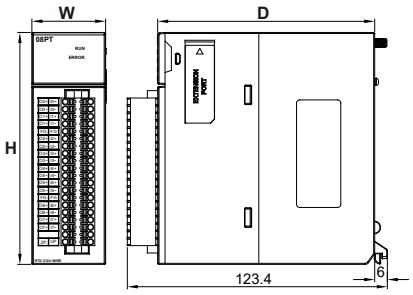
Analog I/O Modules

Model Name	H	W	D
AH08AD-5A	110	35	103
AH08DA-5A	110	35	103



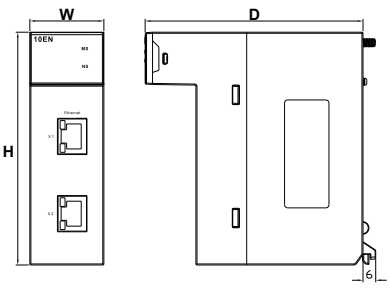
Temperature Measurement Module

Model Name	H	W	D
AH08PTG-5A	110	35	103



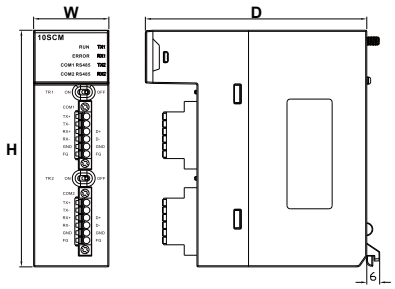
Network Module

Model Name	H	W	D
AH10EN-5A	110	35	103
AH15EN-5A	110	35	103



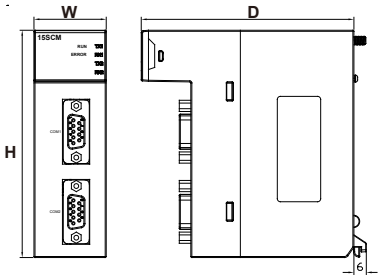
Network Module

Model Name	H	W	D
AH10SCM-5A	110	35	103



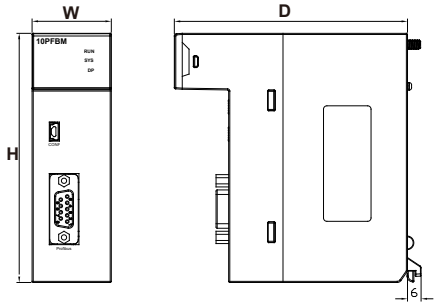
Network Module

Model Name	H	W	D
AH15SCM-5A	110	35	103



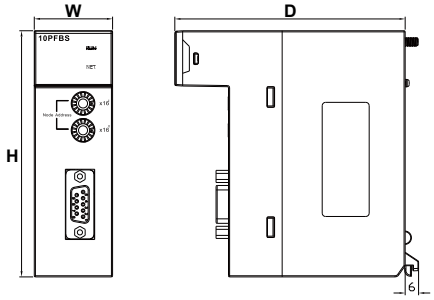
Network Module

Model Name	H	W	D
AH10PFBM-5A	110	35	103



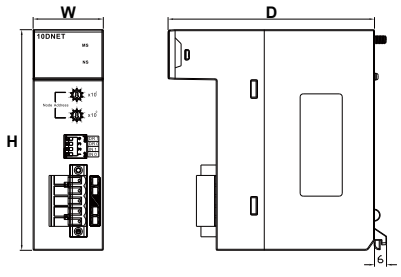
Network Module

Model Name	H	W	D
AH10PFBS-5A	110	35	103



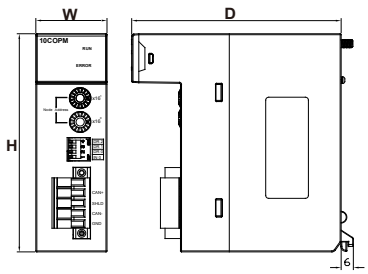
Network Module

Model Name	H	W	D
AH10DNET-5A	110	35	103



Network Module

Model Name	H	W	D
AH10COPM-5A	110	35	103

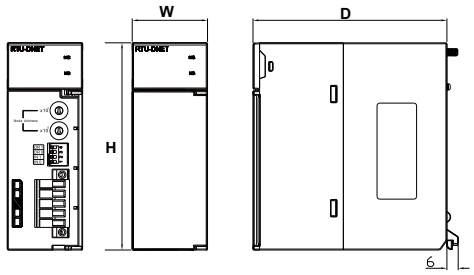


Dimensions

Dimensions are in mm

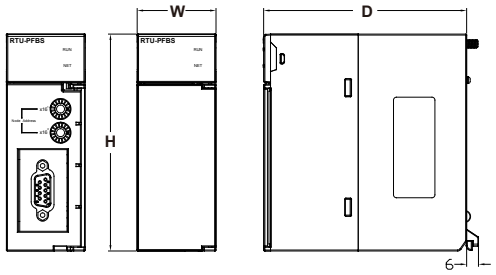
RTU Module

Model Name	H	W	D
AHRTU-DNET-5A	110	40	103



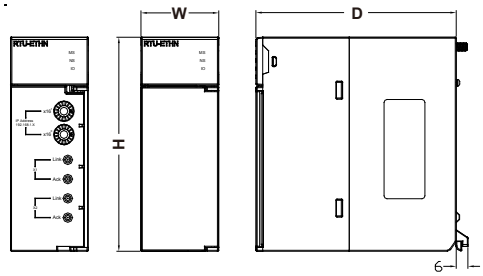
RTU Module

Model Name	H	W	D
AHRTU-PFBS-5A	110	40	103



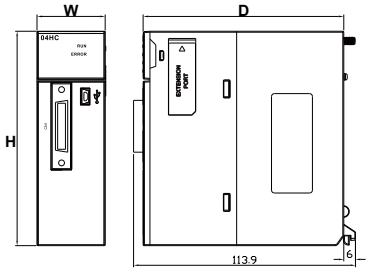
RTU Module

Model Name	H	W	D
AHRTU-ETHN-5A	110	40	103



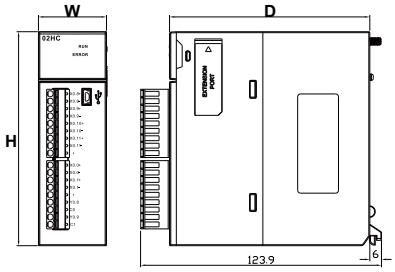
Motion Control Module

Model Name	H	W	D
AH04HC-5A	110	35	103



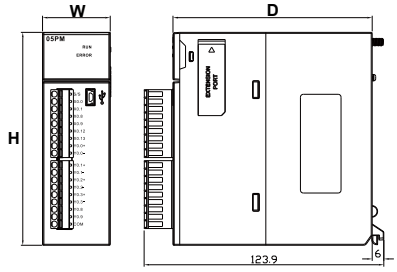
Motion Control Module

Model Name	H	W	D
AH02HC-5A	110	35	103



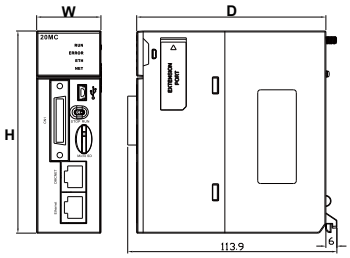
Motion Control Module

Model Name	H	W	D
AH05PM-5A	110	35	103



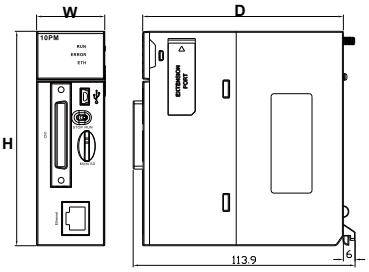
Motion Control Module

Model Name	H	W	D
AH20MC-5A	110	35	103
AH08EMC-5A	110	35	103
AH10EMC-5A	110	35	103
AH20EMC-5A	110	35	103



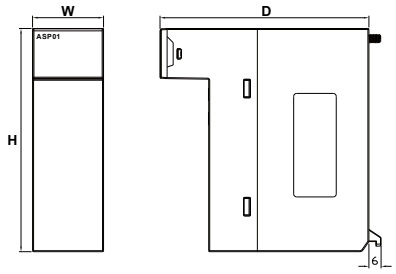
Motion Control Modules

Model Name	H	W	D
AH10PM-5A	110	35	103
AH15PM-5A	110	35	103



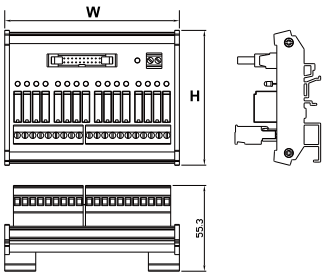
Dummy Module

Model Name	H	W	D
AHASP01-5A	110	35	103



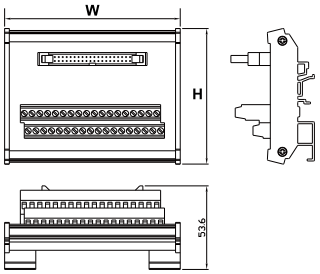
External Terminal Modules

Model Name	H	W
UB-10-OR16A	87	113
UB-10-OR16B	87	113



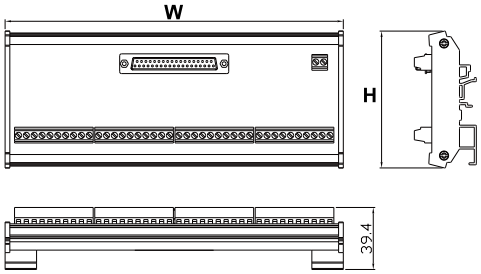
External Terminal Modules

Model Name	H	W
UB-10-ID32A	87	113
UB-10-OT32A	87	113



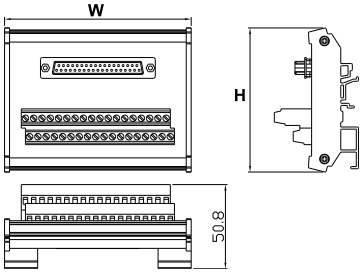
External Terminal Modules

Model Name	H	W
UB-10-OR32A	87	215
UB-10-OR32B	87	215



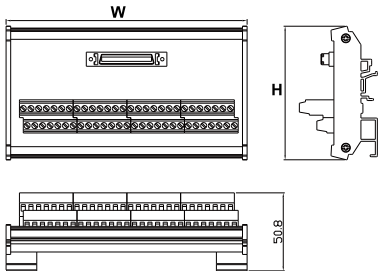
External Terminal Modules

Model Name	H	W
UB-10-ID32B	87	113
UB-10-OT32B	87	113



External Terminal Modules

Model Name	H	W
UB-10-IO16C	87	125
UB-10-IO22C	87	125
UB-10-IO24C	87	157
UB-10-IO34C	87	157

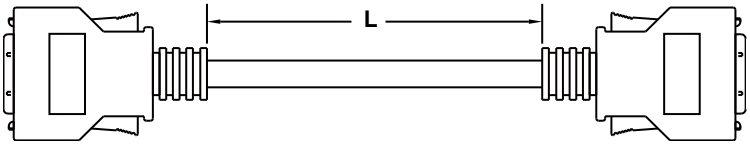


Dimensions

Dimensions are in m

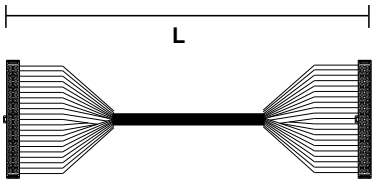
Cables (HDC)

Model Name	L	Model Name	L	Model Name	L
AHACAB06-5A	0.6	AHACABA5-5A	15.0	AHACABG0-5A	70.0
AHACAB10-5A	1.0	AHACABB0-5A	20.0	AHACABH0-5A	80.0
AHACAB15-5A	1.5	AHACABC0-5A	30.0	AHACABJ0-5A	90.0
AHACAB30-5A	3.0	AHACABD0-5A	40.0	AHACABK0-5A	100.0
AHACAB50-5A	5.0	AHACABE0-5A	50.0	UC-ET010-13B	1.0
AHACABA0-5A	10.0	AHACABF0-5A	60.0	UC-ET010-15B	1.0



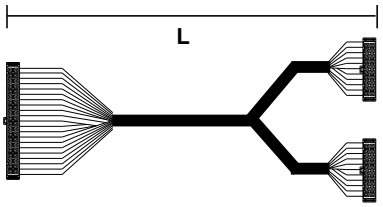
Cable (MIL)

Model Name	L
UC-ET010-24B	1.0
UC-ET020-24B	2.0
UC-ET030-24B	3.0



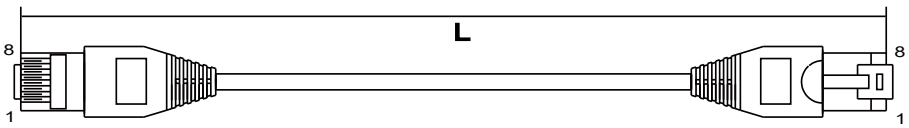
Cable (MIL)

Model Name	L
UC-ET010-24D	1.0
UC-ET020-24D	2.0
UC-ET030-24D	3.0



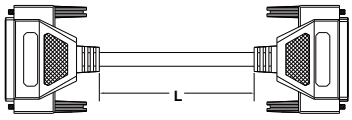
Cables (RJ45)

Model Name	L	Model Name	L	Model Name	L
UC-CMC003-01A	0.3	UC-EMC003-02A	0.3	UC-EMC003-02B	0.3
UC-CMC005-01A	0.5	UC-EMC005-02A	0.5	UC-EMC005-02B	0.5
UC-CMC010-01A	1.0	UC-EMC010-02A	1.0	UC-EMC010-02B	1.0
UC-CMC015-01A	1.5				
UC-CMC020-01A	2.0	UC-EMC020-02A	2.0	UC-EMC020-02B	2.0
UC-CMC030-01A	3.0			UC-EMC030-02B	3.0
UC-CMC050-01A	5.0	UC-EMC050-02A	5.0	UC-EMC050-02B	5.0
UC-CMC100-01A	10.0	UC-EMC100-02A	10.0	UC-EMC100-02B	10.0
UC-CMC200-01A	20.0	UC-EMC200-02A	20.0		



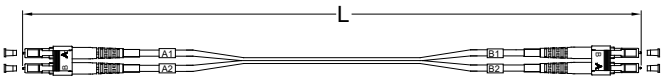
Cable (DB37)

Model Name	L
UC-ET010-33B	1.0



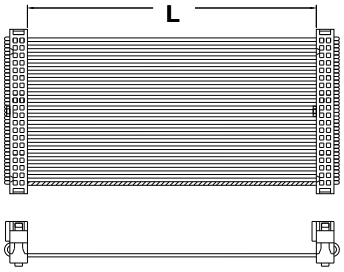
Cables (Fiber Optic)

Model Name	L
UC-FB010-01A New	1.0
UC-FB030-01A New	3.0
UC-FB010-02A New	1.0
UC-FB030-02A New	3.0



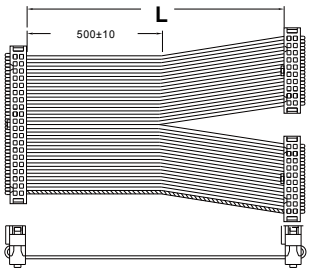
Cable (MIL)

Model Name	L
UC-ET010-24A	1.0



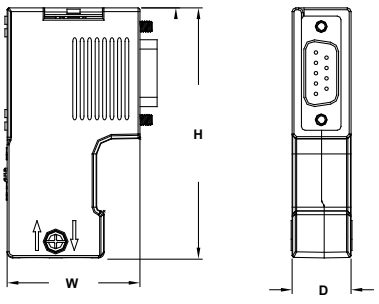
Cable (MIL)

Model Name	L
UC-ET010-24C	1.0



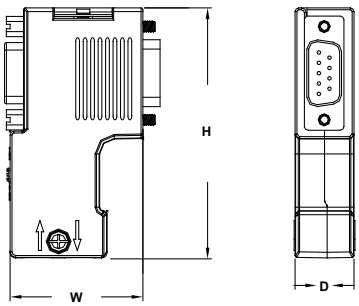
PROFIBUS Connector

Model Name	H	W	D
UN-03PF-01A	67	35.6	15.8



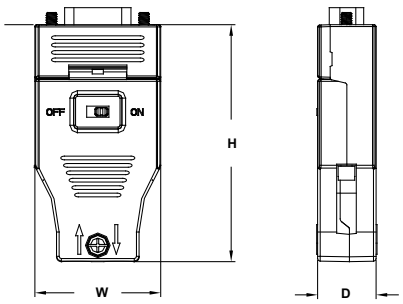
PROFIBUS Connector

Model Name	H	W	D
UN-03PF-02A	67	35.6	15.8



PROFIBUS Connector

Model Name	H	W	D
UN-03PF-03A	64	35.6	15.8

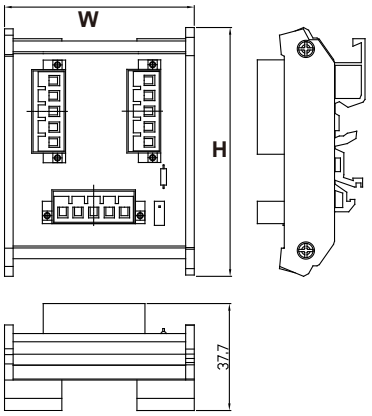


Dimensions

Dimensions are in m

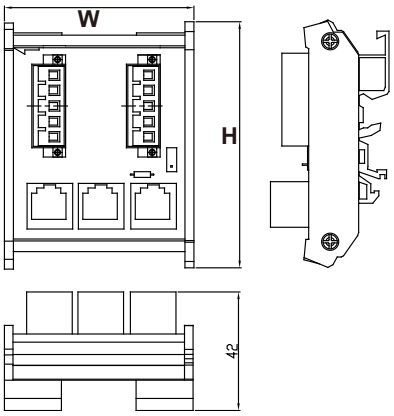
CANopen Distribution Box

Model Name	H	W
TAP-CN01	87	66.5



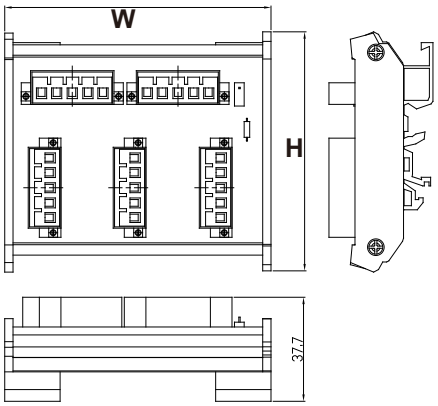
CANopen Distribution Box

Model Name	H	W
TAP-CN03	87	66.5



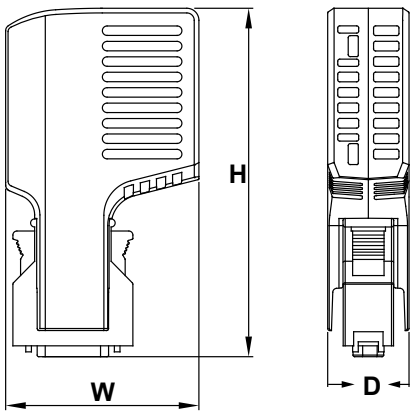
CANopen Distribution Box

Model Name	H	W
TAP-CN02	87	96.5

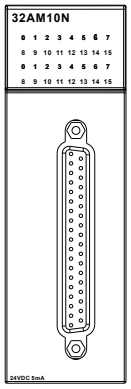
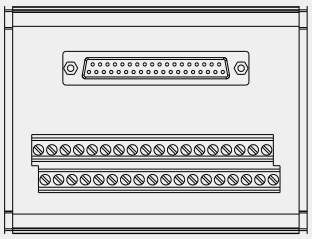


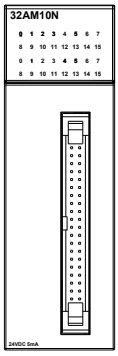
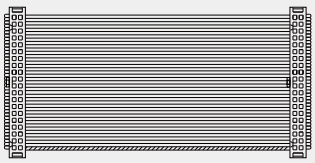
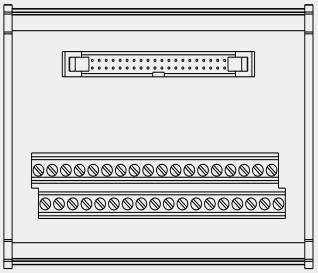
Fiber Optics Modules for Backplanes

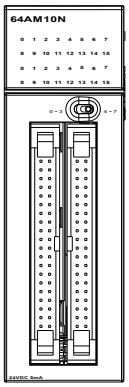
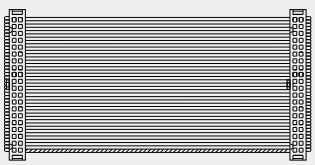
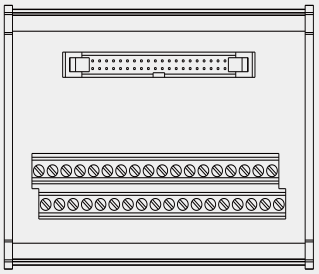
Model Name	H	W	D
AHAADP01EF-5A	86.5	48	20.2
AHAADP02EF-5A	86.5	48	20.2



Accessory Selection for High-density Modules

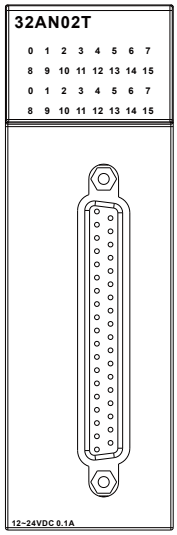
Model Name		
AH32AM10N-5B	UC-ET010-33B	UB-10-ID32B
		

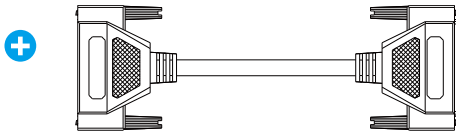
Model Name		
AH32AM10N-5C	UC-ET010-24A	UB-10-ID32A
	 UC-ET010-24B / UC-ET020-24B / UC-ET030-24B 	

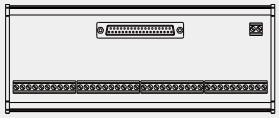
Model Name		
AH64AM10N-5C	UC-ET010-24A	UB-10-ID32A
	 UC-ET010-24B / UC-ET020-24B / UC-ET030-24B 	 x2

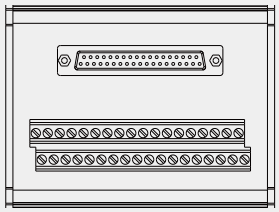
Accessory Selection for High-density Modules

Model Name		
AH32AN02T-5B	UC-ET010-33B	1 UB-10-OR32A (for relay output) OR 2 UB-10-OT32B (for transistor output)

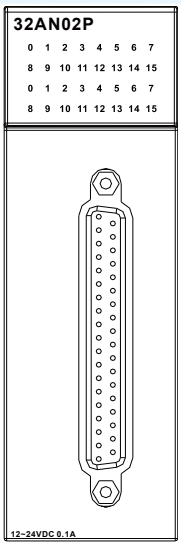


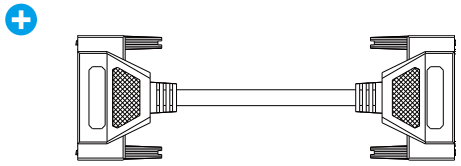


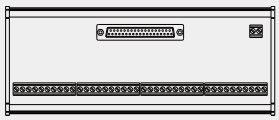


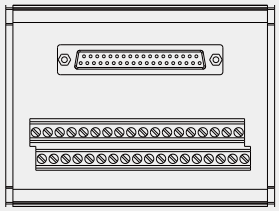


Model Name		
AH32AN02P-5B	UC-ET010-33B	1 UB-10-OR32B (for relay output) OR 2 UB-10-OT32B (for transistor output)



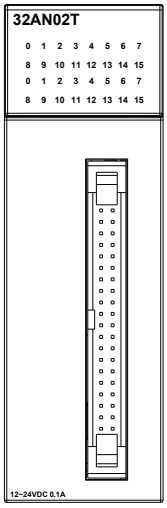




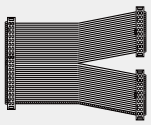


Model Name

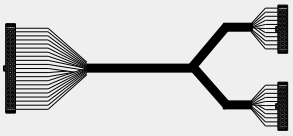
AH32AN02T-5C



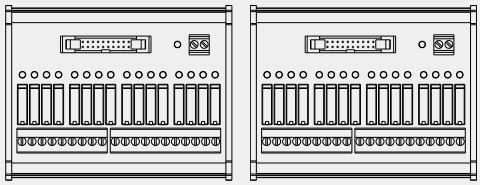
A-1 UC-ET010-24C



A-2 UC-ET010-24D / UC-ET020-24D / UC-ET030-24D



UB-10-OR16A (for relay output)



OR

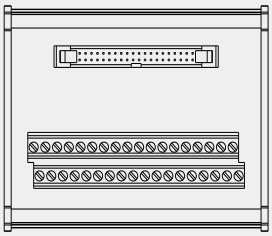
B-1 UC-ET010-24A



B-2 UC-ET010-24B / UC-ET020-24B / UC-ET030-24B

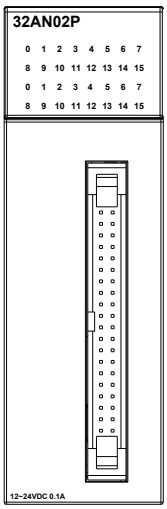


UB-10-OT32A (for transistor output)

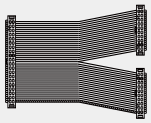


Model Name

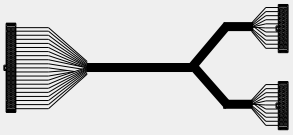
AH32AN02P-5C



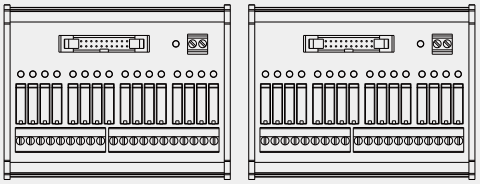
A-1 UC-ET010-24C



A-2 UC-ET010-24D / UC-ET020-24D / UC-ET030-24D



UB-10-OR16B (for relay output)



OR

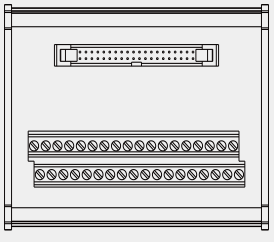
B-1 UC-ET010-24A



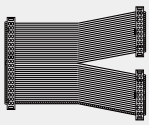
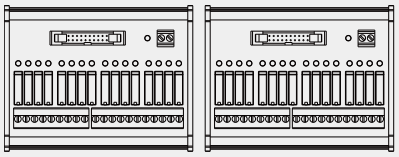
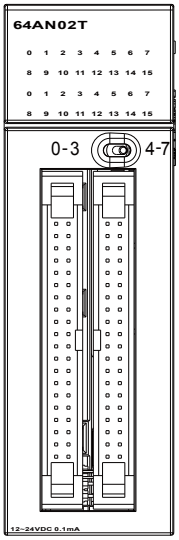
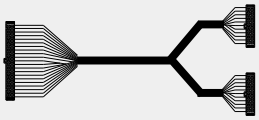
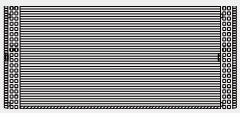
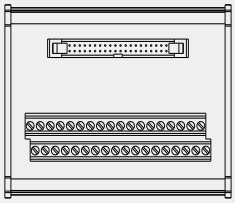
B-2 UC-ET010-24B / UC-ET020-24B / UC-ET030-24B

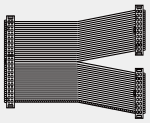
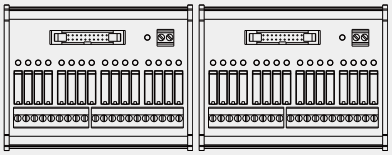
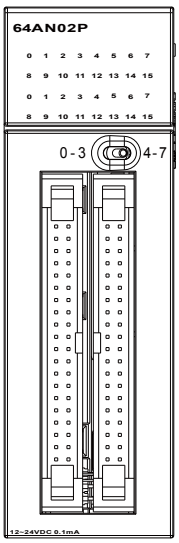
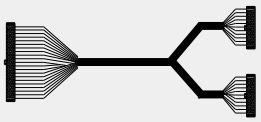
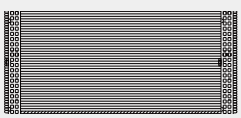
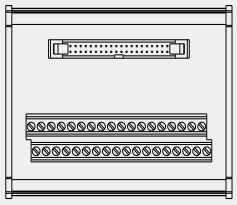


UB-10-OT32A (for transistor output)

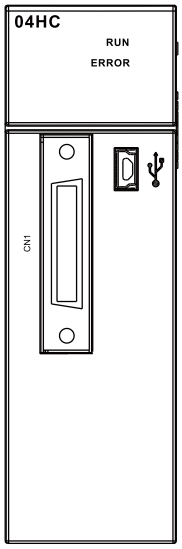


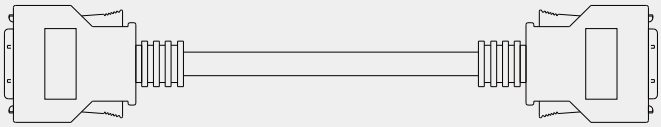
Accessory Selection for High-density Modules

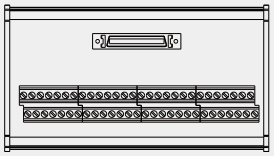
Model Name			
AH64AN02T-5C	A-1 UC-ET010-24C		UB-10-OR16A (for relay output)  x2
	A-2 UC-ET010-24D/ UC-ET010-24D/UC-ET030-24D		
	OR		
	B-1 UC-ET010-24A		UB-10-OT32A (for transistor output)  x2
	B-2 UC-ET010-24B/ UC-ET020-24B/UC-ET030-24B		

Model Name			
H64AN02P-5C	A-1 UC-ET010-24C		UB-10-OR16B (for relay output)  x2
	A-2 UC-ET010-24D/ UC-ET010-24D/UC-ET030-24D		
	OR		
	B-1 UC-ET010-24A		UB-10-OT32A (for transistor output)  x2
	B-2 UC-ET010-24B/ UC-ET020-24B/UC-ET030-24B		

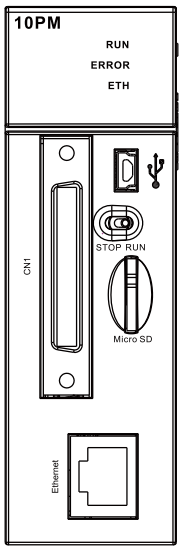
Model Name		
AH04HC-5A	UC-ET010-13B	UB-10-IO16C

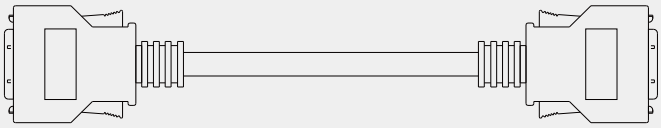


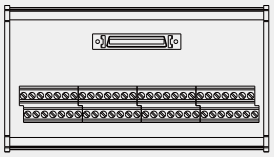




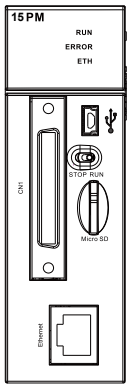
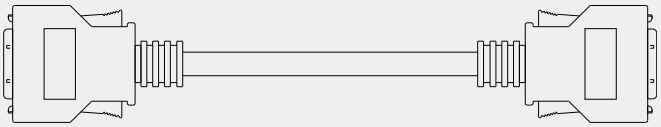
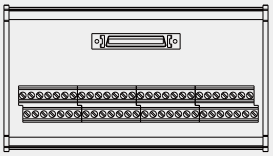
Model Name		
AH10PM-5A	UC-ET010-15B	UB-10-IO24C

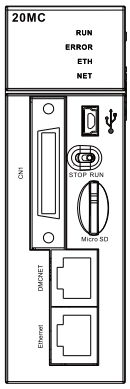
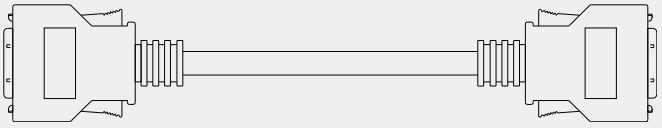
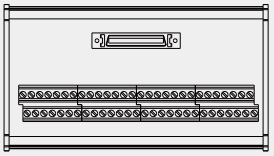


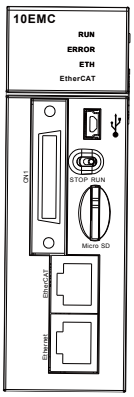
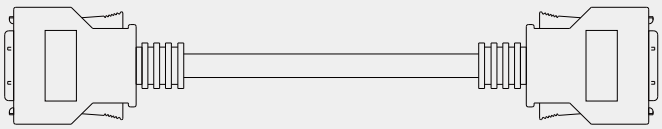
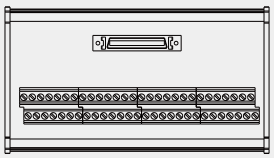




Accessory Selection for High-density Modules

Model Name		
AH15PM-5A	UC-ET010-15B	UB-10-IO34C
		

Model Name		
AH20MC-5A	UC-ET010-13B	UB-10-IO16C
		

Model Name		
AH08EMC-5A AH10EMC-5A AH20EMC-5A	UC-ET010-13B	UB-10-IO22C
		

Ordering Information

CPU Modules

Model	Local I/O points	Program capacity	Data register D/L/B (note)	Function blocks	Extension backplane	LD execution speed (μs)	Power consumption (Internal)	Specifications	Certificates
AHCPU 500-RS2	768	32k steps (128 KB)	16k/16k/512k words	128	0	0.1	2 w	▪ Built-in RS-232/422/485 multi-modes communication port x 2 (RS-232: 115.2 kbps/ RS-422/485: 921.6 kbps) ▪ Built-in SD card slot (supports max. 2 GB for AHCPU5_0 or 32 GB for AHCPU5_1) ▪ Built-in Mini-USB programming port ▪ System diagnosis/ status light / online editing and debug functions ▪ PLC Link automatic data exchange function ▪ Modbus RTU/ASCII ▪ LD/SFC/FBD/IL/ST languages ▪ 256 interrupts (Timed/IO/External/ Low voltage/Communication) ▪ 2048 timers and counters ▪ No battery required ▪ RTC function (max. 30 days after power off) ▪ CPU RAM/ROM capacity AHCPU5_0: 32 MB/8 MB AHCPU5_1: 128 MB/128 MB ▪ CPU clock AHCPU5_0: 133 MHz AHCPU5_1: 800 MHz	CE cULus
New **AHCPU 501-RS2**	768	48k steps (196 KB)	24k/24k/512K words	512	0	0.02	2.9 w		
AHCPU 510-RS2	1280	64k steps (256 KB)	32k/32k/1024k words	256	1	0.1	2w		
AHCPU 511-RS2	1280	96k steps (384 KB)	48k/48k/1024k words	1024	1	0.02	2.9 w		
AHCPU 520-RS2	2304	128k steps (512 KB)	64k/64k/2048k words	512	3	0.1	2 w		
New **AHCPU 521-RS2**	2304	192k steps (768 KB)	96k/96k/2048k words	2048	3	0.02	2.9 w		
AHCPU 530-RS2	4352	256k steps (1 MB)	64k/64k/4096k words	1024	7	0.1	2 w		
New **AHCPU 531-RS2**	4352	384k steps (1.5 MB)	128k/128k/4096k words	4096	7	0.02	2.9 w		

Note: Data Register B is for the use of function blocks

Accessory Selection for High-density Modules

CPU Modules

Model	Local I/O points	Program capacity	Data register D/L/B (note)	Function blocks	Extension backplane	LD execution speed (μs)	Power consumption (Internal)	Specifications	Certificates
AHCPU 500-EN	768	32k steps (128 KB)	16k/16k/512k words	128	0	0.1	2 w	▪ Built-in RS-232/422/485 multi-modes communication port x1 (RS-232:115.2 kbps/ RS-422/485: 921.6 kbps) ▪ Built-in Ethernet communication port (100 Mbps) ▪ Built-in SD card slot (supports max. 2 GB for AHCPU5_0 or 32 GB for AHCPU5_1) ▪ Built-in Mini-USB programming port ▪ System diagnose/ status light/online editing and debug functions ▪ PLC Link automatic data exchange function ▪ Modbus RTU/ASCII, Modbus TCP ▪ EtherNet/IP (AHCPU5_1 only) - Scanner & Adapter mode - Supports I/O connection & explicit message - Connections: TCP=32~128; CIP=64~256 - RPI: 1~1,000ms - 250 words/connection ▪ LD/SFC/FBD/IL/ST languages ▪ 256 interrupts (Timed/IO/External/ Low voltage/Communication) ▪ 2048 timers and counters ▪ No battery required ▪ RTC function (max. 30 days after power off) ▪ NTP network time correction function ▪ WEB/E-mail/IP Filter function ▪ CPU RAM/ROM capacity AHCPU5_0: 32 MB/8 MB AHCPU5_1: 128 MB/128 MB ▪ CPU clock AHCPU5_0: 133 MHz AHCPU5_1: 800 MHz	CE cULus
New **AHCPU 501-EN**	768	48k steps (196 KB)	24k/24k/512K words	512	0	0.02	2.9 w		
AHCPU 510-EN	1280	64k steps (256 KB)	32k/32k/1024k words	256	1	0.1	2 w		
AHCPU 511-EN	1280	96k steps (384 KB)	48k/48k/1024k words	1024	1	0.02	2.9 w		
AHCPU 520-EN	2304	128k steps (512 KB)	64k/64k/2048k words	512	3	0.1	2 w		
AHCPU 521-EN	2304	192k steps (768 KB)	96k/96k/2048k words	2048	3	0.02	2.9 w		
AHCPU 530-EN	4352	256k steps (1MB)	64k/64k/4096k words	1024	7	0.1	2 w		
AHCPU 531-EN	4352	384k steps (1.5 MB)	128k/128k/4096k words	4096	7	0.02	2.9 w		

Note: Data Register B is for the use of function blocks

Redundant CPU Modules

Model	Local I/O points	Program capacity	Data register D/L/B (note)	Function blocks	Extension backplane	LD execution speed (μs)	Power consumption (Internal)	Specifications	Certificates
New **AHCPU 560-EN2**	4352	1M steps (4 MB)	256 k/256 k/4096 k words	4096	7	0.02	4.5 w	▪ Built-in RS-232/485 multi-modes communication port x1 (RS-232:115.2 kbps/ RS-485: 921.6 kbps) ▪ Built-in Ethernet communication port (100 Mbps) ▪ Built-in SD card slot (supports max. 32 GB) ▪ Built-in Mini-USB programming port ▪ System diagnosis/status light/online editing and debug functions ▪ PLC Link automatic data exchange function ▪ Modbus RTU/ASCII, Modbus TCP ▪ EtherNet/IP - Scanner & Adapter mode - Supports I/O connection & explicit message - Connections: TCP=128; CIP=256 - RPI: 1~1,000 ms - 250 words/connection ▪ LD/SFC/FBD/IL/ST languages ▪ 256 interrupts (Time d/IO/External/ Low voltage/Communication) ▪ Redundant mode only supports timed interrupt ▪ 2048 timers and counters ▪ No battery required ▪ RTC function (max. 30 days after power off) ▪ NTP network time correction function ▪ WEB/E-mail/IP Filter function ▪ Supports redundant system - CPU switch-over time: 20 ms - Built-in sync. function and no specific sync. module required (needs fiber optic module) ▪ CPU RAM/ROM capacity: 256 MB/128 MB ▪ CPU clock: 1 GHz	CE cULus

Ordering Information

Power Supply Modules

Model	Power input	Output	Specifications	Certificates
AHPS05-5A	100~240 V_{AC} 50/60Hz	60W	▪ Power supply for the modules on the racks ▪ LED power indicator ▪ Provides external DC power abnormal signal detection input and triggered interrupt function	CE c UL us
AHPS15-5A	24 V_{DC}	36W		

Main Backplanes

Model	Slot	Power consumption (Internal)	Specifications	Certificates
AHBP04M1-5A	4	0.01w	▪ Supports CPU modules ▪ Supports remote I/O communication modules (RTU) ▪ Built-in communication port for extension backplanes ▪ Slot spaces are not occupied by Power/CPU/RTU modules ▪ Supports redundant power (AHBPxxMR1-5A only)	CE c UL us
AHBP06M1-5A	6	0.01w		
AHBP08M1-5A	8	0.01w		
AHBP12M1-5A	12	0.01w		
New AHBP04MR1-5A	4	0.2w		
New AHBP06MR1-5A	6	0.2w		
New AHBP08MR1-5A	8	0.2w		
New AHBP00M2-5A	0	1.41w	▪ Supports AHxxEMC-5A installed on CPU slot only (Do not support CPU/RTU modules) ▪ Built-in serial communication port ▪ Slot spaces are not occupied by Power/CPU ▪ No need to install AH power modules (AHBP00M2-5A only)	
AHBP03M2-5A	3	1.41w		
AHBP05M2-5A	5	1.41w		
AHBP07M2-5A	7	1.41w		

Extension Backplanes

Model	Slot	Power consumption (Internal)	Specifications	Certificates
AHBP06E1-5A	6	1.41w	▪ For main backplane extension ▪ Built-in communication port for extension backplanes ▪ Slot spaces are not occupied by power modules ▪ Supports redundant ext. ports (AHBPxxER1-5A only) ▪ Supports redundant power (AHBPxxER1-5A only)	CE c UL us
AHBP08E1-5A	8	1.41w		
New AHBP06ER1-5A	6	1w		
New AHBP08ER1-5A	8	1w		

Digital I/O Modules (Input)

Model	Points	Signals	Terminal block type	Power consumption (Internal/ External)	Accessories (optional)	Specifications	Certificates
AH16AM10N-5A	16	24 V_{DC} 5 mA	JIS removable terminal block	0.1 w/1.9 w	-	▪ PNP/NPN mixed mode design ▪ Hot-swapping function ▪ Individual LED status indicator	CE cULus
AH16AM30N-5A	16	120~240 V_{AC} 4.5~9 mA	JIS removable terminal block	0.1 w/-	-		
AH32AM10N-5A	32	24 V_{DC} 5 mA	EU removable terminal block	0.2 w/3.8 w	-		
AH32AM10N-5B	32	24 V_{DC} 5 mA	DB37	0.2 w/3.8 w	UC-ET010-33B UB-10-ID32B		
AH32AM10N-5C	32	24 V_{DC} 5 mA	MIL	0.2 w/3.8 w	UC-ET010-24A UC-ET010-24B UC-ET020-24B UC-ET030-24B UB-10-ID32A		
AH64AM10N-5C	64	24 V_{DC} 3.2 mA	MIL	0.2 w/4.9 w		▪ PNP/NPN mixed mode design ▪ Hot-swapping function ▪ Individual LED status indicator (32 points)	
AH16AR10N-5A	16	24 V_{DC} 5 mA	JIS removable terminal block	0.5 w/1.9 w	-	▪ PNP/NPN mixed mode design ▪ Hot-swapping function ▪ Individual LED status indicator ▪ I/O interuuption function ▪ Rising / falling-edge trigger modes ▪ Signal time-delay setting for 0.1/0.5/3/15/20 ms ▪ Provides user-defined option for signal time-delay setting (Unit: 0.1ms)	

Digital I/O Modules (Mixed)

Model	Inputs	Outputs	Input signals	Output signals	Terminal block type	Power consumption (Internal/ External)	Specifications	Certificates
AH16AP11R-5A	8	8	24 V_{DC} 5 mA	Relay 240 V_{AC}/ 24 V_{DC} 2A	JIS removable terminal block	1.1 w/-	▪ PNP/ NPN mixed mode design ▪ Hot-swapping function ▪ Individual LED status indicator ▪ Supports keep-last-value function when CPU shuts down	CE cULus
AH16AP11T-5A	8	8	24 V_{DC} 5 mA	NPN (Sink) 12~24 V_{DC} 0.5A	JIS removable terminal block	0.2 w/0.2 w		
AH16AP11P-5A	8	8	24 V_{DC} 5 mA	PNP (Source) 12~24 V_{DC} 0.5A	JIS removable terminal block	0.2 w/0.2 w		

Ordering Information

Digital I/O Modules (Output)

Model	Points	Signals	Terminal block type	Power consumption (Internal/ External)	Accessories (optional)	Specifications	Certificates
AH16AN01R-5A	16	Relay 240 V_{AC}/24 V_{DC} 2A	JIS removable terminal block	2.1w/-	-	▪ Hot-swapping function ▪ Individual LED status indicator ▪ Supports keep-last-value function when CPU shuts down	CE cULus
AH16AN01T-5A	16	NPN (Sink) 12~24 V_{DC} 0.5A	JIS removable terminal block	0.2w/0.4w	-		
AH16AN01P-5A	16	PNP (Source) 12~24 V_{DC} 0.5A	JIS removable terminal block	0.2w/0.4w	-		
AH16AN01S-5A	16	TRIAC 120/240 V_{AC} 0.5A	JIS removable terminal block	0.6w/-	-		
AH32AN02T-5A	32	NPN (Sink) 12~24 V_{DC} 0.1A	EU removable terminal block	0.4w/0.8w	-		
AH32AN02P-5A	32	PNP (Source) 12~24 V_{DC} 0.1A	EU removable terminal block	0.4w/0.8w	-		
AH32AN02T-5B	32	NPN (Sink) 12~24 V_{DC} 0.1A	DB37	0.4w/0.8w	UC-ET010-33B UB-10-OR32A UB-10-OT32B		
AH32AN02P-5B	32	PNP (Source) 12~24 V_{DC} 0.1A	DB37	0.4w/0.8w	UC-ET010-33B UB-10-OR32B UB-10-OT32B		
AH32AN02T-5C	32	NPN (Sink) 12~24 V_{DC} 0.1A	MIL	0.4w/0.8w	UC-ET010-24A, UC-ET010-24B, UC-ET020-24B, UC-ET030-24B, UC-ET010-24C, UC-ET010-24D, UC-ET020-24D, UC-ET030-24D, UB-10-OR16A, UB-10-OT32A		
AH32AN02P-5C	32	PNP (Source) 12~24 V_{DC} 0.1A	MIL	0.4w/0.8w	UC-ET010-24A, UC-ET010-24B, UC-ET020-24B, UC-ET030-24B, UC-ET010-24C, UC-ET010-24D, UC-ET020-24D, UC-ET030-24D, UB-10-OR16B, UB-10-OT32A		
AH64AN02T-5C	64	NPN (Sink) 12~24 V_{DC} 0.1A	MIL	0.6w/1.5w	UC-ET010-24A, UC-ET010-24B, UC-ET020-24B, UC-ET030-24B, UC-ET010-24C, UC-ET010-24D, UC-ET020-24D, UC-ET030-24D, UB-10-OR16A, UB-10-OT32A	▪ Hot-swapping function ▪ Individual LED status indicator (32 points) ▪ Supports keep-last-value function when CPU shuts down	
AH64AN02P-5C	64	PNP (Source) 12~24 V_{DC} 0.1A	MIL	0.6w/1.5w	UC-ET010-24A, UC-ET010-24B, UC-ET020-24B, UC-ET030-24B, UC-ET010-24C, UC-ET010-24D, UC-ET020-24D, UC-ET030-24D, UB-10-OR16B, UB-10-OT32A		

Analog I/O Modules (Input)

Model	Channels	Signals	Terminal block type	Power consumption (Internal/ External)	Specifications	Certificates
AH04AD-5A	4	0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA ±20mA	JIS removable terminal block	0.35w/1w	▪ Hardware resolution: 16-bit ▪ Conversion time: 150 μs/channel ▪ Base error (ambient temp.): Voltage mode ±0.1% Current mode ±0.1% ▪ Base error (full temp. range): Voltage mode ±0.45% Current mode ±0.2% ▪ Linearity error (ambient temp.): Voltage mode ±0.07% Current mode ±0.05% ▪ Linearity error (full temp. range): Voltage mode ±0.12% Current mode ±0.23% ▪ Hot-swapping function ▪ Isolated signal design ▪ Diagnosis function ▪ Module status LED indicator ▪ Supports interrupt function	CE cULus
AH08AD-5A	8	0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA, ±20mA	EU removable terminal block	1.5w/-		
AH08AD-5B	8	0/1V~5V, ±5V, 0V~10V, ±10V	JIS removable terminal block	1.9w/-		
AH08AD-5C	8	0/4mA~20mA, ±20mA	JIS removable terminal block	1.6w/-		

Analog I/O Modules (Output)

Model	Channels	Signals	Terminal block type	Power consumption (Internal/ External)	Specifications	Certificates
AH04DA-5A	4	0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA	JIS removable terminal block	0.34w/2.6w	▪ Hardware resolution: 16-bit ▪ Conversion time: 150 μs/channel ▪ Base error (ambient temp.): Voltage mode ±0.02% Current mode ±0.06% ▪ Base error (full temp. range): Voltage mode ±0.04% Current mode ±0.07% ▪ Linearity error (ambient temp.): Voltage mode ±0.004% Current mode ±0.01% ▪ Linearity error (full temp. range): Voltage mode ±0.004% Current mode ±0.01% ▪ Hot-swapping function ▪ Isolated signal design ▪ Diagnosis function ▪ Module status LED indicator ▪ Supports interrupt function ▪ Supports keep-last-value function when CPU shuts down	CE cULus
AH08DA-5A	8	0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA	EU removable terminal block	1w/5w		
AH08DA-5B	8	0/1V~5V, ±5V, 0V~10V, ±10V	JIS removable terminal block	0.25w/2.2w		
AH08DA-5C	8	0/4mA~20mA	JIS removable terminal block	0.25w/3.7w		

Analog I/O Modules (Mixed)

Model	Channels	Signals	Terminal block type	Power consumption (Internal/ External)	Specifications	Certificates
AH06XA-5A	Inputs: 4 Outputs: 2	Input: 0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA, ±20mA Output: 0/1V~5V, ±5V, 0V~10V, ±10V 0/4mA~20mA	JIS removable terminal block	0.34w/1.4w	▪ Hardware resolution: 16-bit ▪ Conversion time: 150μs/channel ▪ Input accuracy: same as AH04AD-5A ▪ Output accuracy: same as AH04DA-5A ▪ Hot-swapping function ▪ Isolated signal design ▪ Diagnosis function ▪ Module status LED indicator ▪ Supports interrupt function ▪ Supports keep-last-value function when CPU shuts down	CE cULus

Ordering Information

Temperature Measurement Modules

Model	Channels	Signals	Resolution	Conversion time	Terminal block type	Power consumption (Internal/ External)	Specifications	Certificates
AH04PT-5A	4	(2/3/4-wire RTD input) Pt100, Pt1000, Ni100, Ni1000, 0Ω~300Ω	0.1°C/0.1°F 0.1% (0Ω~300Ω)	2/4-wire: 150 ms/channel 3-wire: 300 ms/channel	JIS removable terminal block	2w/-	▪ Effective resolution: 16-bit ▪ Accuracy: ±0.6% (Full Scale) ▪ Supports hot-swapping function ▪ Signal isolated design ▪ Diagnosis function ▪ PID function ▪ Module status LED indicator ▪ Supports interrupt function ▪ Supports disconnection detection function ▪ Fully isolated channel design (AH08PTG-5A)	CE cULus
AH04TC-5A	4	Thermocouple input J,K,R,S,T,E,N, ±150 mV	0.1°C/0.1°F	200 ms/channel	JIS removable terminal block	1.5w/-		
AH08TC-5A	8	Thermocouple input J,K,R,S,T,E,N, ±150 mV	0.1°C/0.1°F	200 ms/channel	JIS removable terminal block	1.5w/-		
AH08PTG-5A	8	(2/3/4-wire TD input) Pt100, Pt1000, Ni100, Ni1000, 0Ω~300Ω	0.1°C/0.1°F 0.1% (0Ω~300Ω)	2/4-wire: 20 ms (fast) ~ 100 ms (normal)/channel 3-wire: 200 ms/channel	EU removable terminal block	0.7w/4w		

Remote I/O Modules

Model	Power consumption (Internal/ External)	Specifications		Certificates
AHRTU-DNET-5A	0.75w/0.72w	▪ DeviceNet remote I/O module ▪ Supports max. speed of 1 Mbps ▪ Supports AH DIO modules, AIO modules, temperature measurement modules, and the serial communication module AH10SCM	▪ Installing on the main backplane required ▪ Supports up to 7 extension racks ▪ Diagnosis function ▪ Module status LED indicator	CE cULus
AHRTU-PFBS-5A	1.9w/-	▪ PROFIBUS-DP remote I/O module ▪ Max. speed: 12 Mbps ▪ Supports AH digital I/O modules, analog I/O modules, temperature measurement modules ▪ Installs on main backplane	▪ Supports 7 extension backplanes ▪ Diagnosis function ▪ Module status LED indicator ▪ Configurable I/O capacity: 122 words for input/122 words for output	
AHRTU-ETHN-5A	2.2w/-	▪ EtherNet/IP remote I/O module ▪ Supports I/O connection & explicit message ▪ Connections: TCP=48 ; CIP=96 ▪ RPI: 1~1,000ms ▪ PPS: 10,000 ▪ 250 words/connection ▪ Supports AH digital I/O modules, analog I/O modules, temperature measurement modules	▪ Installed on main backplane ▪ Supports 7 extension backplanes ▪ Diagnosis function ▪ Module status LED indicator ▪ 2 Ethernet ports (switch function) ▪ Configurable I/O capacity: 234 words IN ; 234 words OUT	

Ordering Information

Network Modules

Model	Power consumption (Internal/ External)	Specifications			Certificates
AH10EN-5A	1.6w/-	▪ Ethernet communication module (Master/Slave) ▪ 100Mbps communication port×2 (switch function available) ▪ Ether Link function ▪ Modbus TCP function ▪ Automatic data exchange function ▪ NTP network time correction function	▪ SNMP/E-mail/IP Filter function ▪ EtherNet/IP - Scanner & Adapter mode - Supports I/O connection & explicit message - Connections: TCP=64 ; CIP=64 - RPI: 1~1,000ms - PPS: 6,400 - 250 words/connection	▪ Supports hot-swapping function ▪ Diagnosis function ▪ Module status LED indicator	CE cULus
AH15EN-5A	1.6w/-	▪ Ethernet communication module (Master/Slave) ▪ 100Mbps communication port×2 (switch function available) ▪ Ether Link function ▪ Modbus TCP function ▪ Automatic data exchange function ▪ NTP network time correction function	▪ SNMP/E-mail/IP Filter function ▪ Supports IEC60870		
AH10SCM-5A	1.2w/-	▪ Serial communication module (Master/Slave) ▪ Full isolation design in power & signal circuits ▪ Built-in RS-422/RS-485 with communication port×2 (multiple modes, 460.8Kbps) ▪ Supports PLC Link function	▪ Supports user defined communication format (UD Link) ▪ Modbus RTU/ASCII function available ▪ Supports automatic data exchange function ▪ Supports BACnet Slave function		
AH15SCM-5A	1w/-	▪ Serial communication module (Master/Slave) ▪ Full isolation design in power & signal circuits ▪ Built-in RS-232 with communication port×2 (multiple modes, 460.8Kbps) ▪ Supports PLC Link function			
AH10DNET-5A	0.9w/0.72w	▪ DeviceNet communication module (Master/Slave) ▪ Supports max. speed of 1Mbps ▪ Switchable between master and slave modes	▪ Connects up to 63 slave stations in master mode ▪ RIO capacity in master mode: 490 words IN/OUT		
AH10PFBM-5A	2w/-	▪ PROFIBUS-DP master module ▪ Supports DPV0/DPV1 ▪ Max. speed: 12Mbps	▪ Connects up to 124 slaves ▪ Configurable I/O capacity: 2880 words for input/2880 words for output		
AH10PFBS-5A	1w/-	▪ PROFIBUS-DP slave module ▪ Supports DPV0 ▪ Max. speed: 12Mbps	▪ Configurable I/O capacity: 100 words for input/100 words for output		
AH10COPM-5A	1w/-	▪ CANopen module (Master/Slave) ▪ Max. speed: 1Mbps ▪ Connects up to 100 slaves in master mode			

Ordering Information

Motion Control Modules

Model	Channels / Axes	Terminal block type	Power consumption (Internal)	Accessories (optional)	Specifications		Certificates
AH02HC-5A	2	EU removable terminal block	2.4 w	-	▪ High speed counter	▪ 200 kHz input ▪ UD / PD / AB / 4AB modes	
AH04HC-5A	4	HDC	2.4 w	UC-ET010-13B UB-10-IO16C	▪ High speed counter	▪ Supports interrupt function ▪ Hot-swapping function ▪ Diagnosis function ▪ Module status LED indicator	
AH05PM-5A	2	EU removable terminal block	2.7 w	-	▪ Pulse train motion control module ▪ Supports 1MHz output ▪ Supports 2-axis linear interpolation, 2-axis arc interpolation	▪ CPU execution speed: LD instruction @ 0.13 μs ▪ Program capacity: 64k steps ▪ Data register: D=10k words / W=64k words ▪ Supports UD / PD / AB / 4AB input modes ▪ Built-in Mini USB programming communication port ▪ Independent programming, program download and execution available ▪ Supports G-code ▪ Hot-swapping function ▪ Diagnosis function ▪ Module status LED indicator	
AH10PM-5A	6	HDC	2.7 w	UC-ET010-15B UB-10-IO24C	▪ Pulse train motion control module ▪ Supports 1MHz output (4 axes) 200 kHz output (2 axes) ▪ Supports 2 ~ 6-axis linear interpolation, 2-axis arc interpolation and 3-axis helical interpolation ▪ Built in Ethernet communication port ▪ Supports Micro SD card		
AH15PM-5A	4	HDC	2.7 w	UC-ET010-15B UB-10-IO34C	▪ Pulse type motion control module ▪ Supports 1MHz output ▪ Supports 2 ~ 4-axis linear interpolation, 2-axis arc interpolation, 3-axis helical interpolation ▪ Built-in Ethernet communication port ▪ Supports Micro SD card ▪ Supports limit switch (LSP / LSN) input		
AH20MC-5A	12	HDC	3 w	UC-ET010-13B UB-10-IO16C	▪ DMCNET communication motion control module (10 Mbps) ▪ Min. synchronization time at 12 axes is 1ms ▪ Supports 2 ~ 6-axis linear interpolation, 2-axis arc interpolation and 3-axis helical interpolation ▪ Built in Ethernet communication port ▪ Supports Micro SD card		
AH08EMC-5A	8	HDC	3.3 w	UC-ET010-13B UB-10-IO22C	▪ EtherCAT communication motion control (100 Mbps) ▪ Min. synchronization time at 8 / 16 / 32 axes is 0.5 / 1 / 2 ms ▪ Supports 2 ~ 6-axis linear interpolation, 2-axis arc interpolation and 3-axis helical interpolation ▪ Built in Ethernet communication port ▪ Supports Micro SD card ▪ Supports EtherNet/IP - Adapter mode - Supports I/O connection & explicit message - Connections: TCP = 16 ; CIP = 32 - RPI: 2 ~ 1,000 ms - PPS: 3,200 - 250 words / connection ▪ CPU execution speed: LD instruction @ 0.08 μs	▪ Program capacity: 256k steps ▪ Data register: D=64k words / L=64k words ▪ Supports UD / PD / AB / 4AB input modes ▪ Built-in Mini USB programming communication port ▪ Supports G-code ▪ Hot-swapping function ▪ Diagnosis function ▪ Module status LED indicator ▪ Supports installation on CPU slot of motion backplane and working as CPU (Note) ▪ Max. quantity of FB instance is 4096	
AH10EMC-5A	16						
AH20EMC-5A	32						

Note: Supports DIO(except interrupt module), AIO, MC, PM, HC, COPM and SCM modules in the first stage.

Software

Software	Model	License	Descriptions	Compatible Products
ISPSoft [V3]	-	Free	PLC programming software	AH series , DVP series PLCs
COMMGR [V1]	-	Free	Communication management software	AH series , DVP series PLCs
PMSoft [V2]	-	Free	Motion control programming software	AH series , DVP series motion controllers
DCISoft [V1]	-	Free	Ethernet configuration software	AH series Ethernet/serial communication modules, DVP series built-in Ethernet PLCs, DVP series Ethernet/serial communication modules, IFD series Ethernet modules, CMC series Ethernet cards for Delta motor drives
DeviceNet Builder [V2]	-	Free	DeviceNet configuration software	AH series DeviceNet modules, DVP series DeviceNet modules, CMC series DeviceNet cards for Delta motor drives
CANopen Builder [V2]	-	Free	CANopen configuration software	AH series CANopen modules, DVP series built-in CANopen PLCs, DVP series CANopen modules, DVP10MC motion controller
SYCON.net [V1]	-	Free	PROFIBUS DP configuration software	AH series PROFIBUS DP modules
Delta OPC [V1]	HASP-20-OPC01	Hardware license (USB)	Delta OPC server	AH series PLCs
ECAT Builder [V1]	-	Free	EtherCAT configuration software	AH series , DVP series PLCs
EIP Builder [V1]	-	Free	EtherNet/IP configuration software	AH series , DVP series PLCs

Ordering Information

Accessories

Products	Descriptions	Models	Specifications	Applicable Modules	Certificates
Cables	Extension cable for connecting extension backplane	AHACAB06-5A	0.6 m	AHBP04M1-5A AHBP06M1-5A AHBP08M1-5A AHBP12M1-5A AHBP06E1-5A AHBP08E1-5A AHBP04MR1-5A AHBP06MR1-5A AHBP08MR1-5A AHBP06ER1-5A AHBP08ER1-5A	c UL us
		AHACAB10-5A	1.0 m		
		AHACAB15-5A	1.5 m		
		AHACAB30-5A	3.0 m		
		AHACAB50-5A	5.0 m		
		AHACABA0-5A	10.0 m		
		AHACABA5-5A	15.0 m		
		AHACABB0-5A	20.0 m		
		AHACABC0-5A	30.0 m		
		AHACABD0-5A	40.0 m		
		AHACABE0-5A	50.0 m		
		AHACABF0-5A	60.0 m		
		AHACABG0-5A	70.0 m		
		AHACABH0-5A	80.0 m		
		AHACABJ0-5A	90.0 m		
		AHACABK0-5A	100.0 m		
	I/O extension cable for connecting external terminal modules	UC-ET010-24A	1.0 m / MIL	AH32AM10N-5C AH32AN02T-5C AH32AN02P-5C AH64AM10N-5C AH64AN02T-5C AH64AN02P-5C	
		UC-ET010-24B	1.0 m / MIL (Shielded)		
		UC-ET020-24B	2.0 m / MIL (Shielded)		
		UC-ET030-24B	3.0 m / MIL (Shielded)		
		UC-ET010-24C	1.0 m / MIL	AH32AN02T-5C AH32AN02P-5C AH64AN02T-5C AH64AN02P-5C	
		UC-ET010-24D	1.0 m / MIL (Shielded)		
		UC-ET020-24D	2.0 m / MIL (Shielded)		
		UC-ET030-24D	3.0 m / MIL (Shielded)		
		UC-ET010-33B	1.0 m / DB37	AH32AM10N-5B AH32AN02T-5B AH32AN02P-5B	
		UC-ET010-13B	1.0 m / HDC	AH04HC-5A AH20MC-5A AH08EMC-5A AH10EMC-5A AH20EMC-5A	
		UC-ET010-15B	1.0 m / HDC	AH10PM-5A AH15PM-5A	
	CANopen / DeviceNet cables	UC-DN01Z-01A(Note)	305.0 m (Thick / Trunk Cable)	AH10COPM-5A AH10DNET-5A AHRTU-DNET-5A TAP-CN01 TAP-CN02 TAP-CN03	
		UC-DN01Z-02A(Note)	305.0 m (Thin / Drop Cable)		
	CANopen / DeviceNet / DMCNET cables	UC-CMC003-01A	0.3 m / RJ45	AH20MC-5A TAP-CN03	
		UC-CMC005-01A	0.5 m / RJ45		
		UC-CMC010-01A	1.0 m / RJ45		
		UC-CMC015-01A	1.5 m / RJ45		
		UC-CMC020-01A	2.0 m / RJ45		
		UC-CMC030-01A	3.0 m / RJ45		
		UC-CMC050-01A	5.0 m / RJ45		
		UC-CMC100-01A	10.0 m / RJ45		
		UC-CMC200-01A	20.0 m / RJ45		

Note:
- Ordering unit: meter
- Not available in Taiwan

Accessories

Products	Descriptions	Models	Specifications	Applicable Modules	Certificates
Cables	EtherCAT cables (ETG approved)	UC-EMC003-02A	0.3 m / RJ45	AH08EMC-5A AH10EMC-5A AH20EMC-5A	c UL us
		UC-EMC005-02A	0.5 m / RJ45		
		UC-EMC010-02A	1.0 m / RJ45		
		UC-EMC020-02A	2.0 m / RJ45		
		UC-EMC050-02A	5.0 m / RJ45		
		UC-EMC100-02A	10.0 m / RJ45		
		UC-EMC200-02A	20.0 m / RJ45		
	EtherCAT cables	UC-EMC003-02B	0.3 m / RJ45		
		UC-EMC005-02B	0.5 m / RJ45		
		UC-EMC010-02B	1.0 m / RJ45		
		UC-EMC020-02B	2.0 m / RJ45		
		UC-EMC030-02B	3.0 m / RJ45		
		UC-EMC050-02B	5.0 m / RJ45		
		UC-EMC100-02B	10.0 m / RJ45		
	PROFIBUS cables	UC-PF01Z-01A(Note)	305.0 m	AH10PFBM-5A AH10PFBS-5A AHRTU-PFBS-5A	
	Fiber optic cables New	UC-FB010-01A	1.0m / single-mode / LC connector	AHCPU560-EN2	
		UC-FB030-01A	3.0m / single-mode / LC connector		
		UC-FB010-02A	1.0m / multi-mode / LC connector		
		UC-FB030-02A	3.0m / multi-mode / LC connector		
External terminal modules	For digital input modules	UB-10-ID32A	MIL	AH32AM10N-5C AH64AM10N-5C	CE
		UB-10-ID32B	DB37	AH32AM10N-5B	
	For digital output modules	UB-10-OR16A	16 points relay output (240 V_{AC} / 24 V_{DC}, 2A) MIL	AH32AN02T-5C AH64AN02T-5C	
		UB-10-OR16B	16 points relay output (240 V_{AC} / 24 V_{DC}, 2A) MIL	AH32AN02P-5C AH64AN02P-5C	
		UB-10-OR32A	32 points relay output (240 V_{AC} / 24 V_{DC}, 2A) DB37	AH32AN02T-5B	
		UB-10-OR32B	32 points relay output (240 V_{AC} / 24 V_{DC}, 2A) DB37	AH32AN02P-5B	
		UB-10-OT32A	Transistor output MIL	AH32AN02T-5C AH32AN02P-5C AH64AN02T-5C AH64AN02P-5C	
		UB-10-OT32B	Transistor output DB37	AH32AN02T-5B AH32AN02P-5B	
	For motion control modules	UB-10-IO16C	HDC	AH04HC-5A AH20MC-5A	
		UB-10-IO22C	HDC	AH08EMC-5A AH10EMC-5A AH20EMC-5A	
		UB-10-IO24C	HDC	AH10PM-5A	
		UB-10-IO34C	HDC	AH15PM-5A	

Note:
- **Ordering unit: meter**
- **Not available in Taiwan**

Ordering Information

Accessories

Products	Descriptions	Models	Specifications	Applicable Modules	Certificates
Connectors	PROFIBUS connectors	UN-03PF-01A	90° connector		CE
		UN-03PF-02A	90° connector with programming port		
		UN-03PF-03A	180° connector		
Terminal resistors	DMCNET terminal resistors (RJ45)	ASD-TR-DM0008			
	CANopen / DeviceNet terminal resistors (RJ45)	TAP-TR01			
Distribution box	CANopen / DeviceNet distribution Box	TAP-CP01	Power distribution box		CE
		TAP-CN01	1 for 2		
		TAP-CN02	1 for 4		
		TAP-CN03	1 for 4 (RJ45)		
Dummy modules	To protect empty slots	AHASP01-5A			
DIN rail	Used on DIN rail for rack installation	AHADINADP1-5A			
Fiber optics modules for backplanes	Used for backplane extension via fiber optics (installs at the backplane's lower extension port)	AHAADP01EF-5A	▪ Optical fiber connector: SC ▪ Supported optical fiber types: multi-modes, 62.5 / 125 µm or 50 / 125 µm ▪ Optical fiber max. length: 2 km	AHBP04M1-5A AHBP06M1-5A AHBP08M1-5A AHBP12M1-5A AHBP06E1-5A AHBP08E1-5A AHBP04MR1-5A AHBP06MR1-5A AHBP08MR1-5A AHBP06ER1-5A AHBP08ER1-5A	
	Used for backplane extension via fiber optics (installs at the backplane's upper extension port)	AHAADP02EF-5A		AHBP06E1-5A AHBP08E1-5A AHBP06ER1-5A AHBP08ER1-5A	
FE SFP Fiber Transceiver	Used for redundant CPU	LCP-100MMF LCP-100MMFT	▪ Connector: LC ▪ Fiber optics: Multi-mode ▪ Max. cable length: 2 km ▪ Operation temperature: …MMF: -5 ~ 70 °C …MMFT: -40 ~ 85 °C	AHCPU560-EN2	CE c UL us
		LCP-100SMF30 LCP-100SMF30T	▪ Connector: LC ▪ Fiber optics: Single-mode ▪ Max. cable length: 30 km ▪ Operation temperature: …F30: -5 ~ 70 °C …DRTJ: -40 ~ 85 °C		
		LCP-100SMF60 LCP-100SMF60T	▪ Connector: LC ▪ Fiber optics: Single-mode ▪ Max. cable length: 60 km ▪ Operation temperature: …F60: -5 ~ 70 °C …F60T: -40 ~ 85 °C		
Memory card	SD card: 1 GB	FMC-SD001G	▪ Capacity: 1 GB ▪ Overwrite: 10,000 times	▪ Speed (Read / Write) : Max. 18 / 15 MB / s ▪ Operation temperature: -40 ~ 85 °C	

Specification Information

General Modules

Item	Specifications
Operating Conditions	▪ Temperature: -20 ~ 60 °C ▪ Relative Humidity: 5 ~ 95% (Non-Condensing) ▪ IP Rating: IP20
Storage Conditions	▪ Temperature: -40 ~ 70 °C ▪ Relative Humidity: 5 ~ 95% (Non-Condensing)
Certificates	CE cULus

Ethernet Connection Information

Connection type	Modbus (Server)	Modbus (Client)	EtherNet/IP (TCP)	EtherNet/IP (CIP)
AHCPU500/510/520/530-EN	32	16/32/64/128	-	-
AHCPU501/511/521/531-EN **AHCPU560-EN2**	48/64/96/160/160 (Note)	16/32/64/128/128	16/32/64/128/128	32/64/128/256/256
AH08/10/20EMC-5A	32	128	16	32
AH10EN-5A	128	64	64	64
AHRTU-ETHN-5A	-	-	48	96

Note: Firmware version is v2.02 and higher.

SERIE PLC AS

Flexible, Smart, Friendly - The Best Choice for a Controller of Automated Equipment

AS Series

The AS Series Compact Modular Mid-range PLC is a high performance multi-purpose controller designed for all kinds of automated equipment. It features Delta's self-developed 32-bit SoC CPUs for enhanced execution speed (40k steps/ms) and supports up to 32 extension modules or up to 1,024 inputs/outputs. The AS series provides accurate positioning control for up to 8 axes via CANopen motion network and 6 axes via pulse control (200 kHz). It is widely used in diverse automated equipment such as electronics manufacturing, labeling, food packaging, and textile machines.

The AS Series Controller is equipped with CANopen and EtherNet/IP network communication for high-speed data transmission. The professional yet simple editing software ISPSoft delivers quick hardware and network configuration with built-in function blocks for different industries. It also provides multi-layer password protection for enhanced system security.

The AS Series adopts a rackless design and patented DIN rail clips for fast vertical module installation. The simple shape and dark gray exterior of the AS series help resist stains and dirt in harsh industrial environments.





High Efficiency Computing

- Advanced CPU performance
- Optimized execution efficiency
- Optimized I/O update rate
- Permanent data backup, no battery required



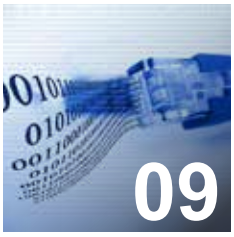
Accurate Axis Control

- Delta CANopen positioning control
- Simple control instructions
- High-speed pulse positioning control
- High-speed counter



Simple Installation

- Easy installation process
- Convenient grounding protection
- Screwless installation procedure
- Loose-proof clip-type terminal block



Industrial Network Solution

- EtherNet/IP solution
- Remote I/O solution
- Serial communication solution



Programming and Diagnosis Functions

- Modular programming structure
- Convenient editing environment
- Easy hardware configuration and parameter setting
- Complete setting tools
- Multiple password protection



Models and Specifications

- Model name explanation
- CPU
- AS Series I/O modules
- High-density modules and accessories
- Dimensions
- Ordering information

High Efficiency Computing



Delta's self-developed AS Series CPU provides 32-bit high-performance computing. As the core of a high-efficiency controller, it helps increase productivity and adaptability to demanding equipment.



Advanced CPU Performance

▪ High speed execution up to 40k steps/ms

(Condition: 40 % LD instruction/60% MOV instruction)

- Max. number of inputs/outputs: 1,024
- Program capacity: 128k steps
- Data registers: 60k words
- Max. extension ability: 32 modules

LD instruction	25 ns
MOV instruction	0.15 µs
Floating point operation instruction	1.6 µs
Trigonometric function instruction	3.5 µs

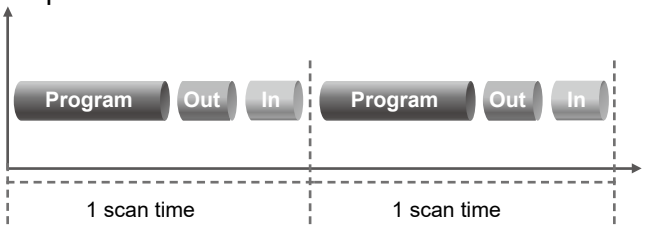


Optimized Execution Efficiency

General Scanning Method

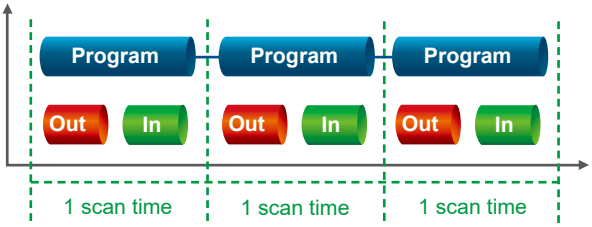
Standard simplex scanning which sequentially goes through instructions by fixed schedule operation (e.g. I/O update).

It significantly affects overall execution speed.



AS Series Scanning Method

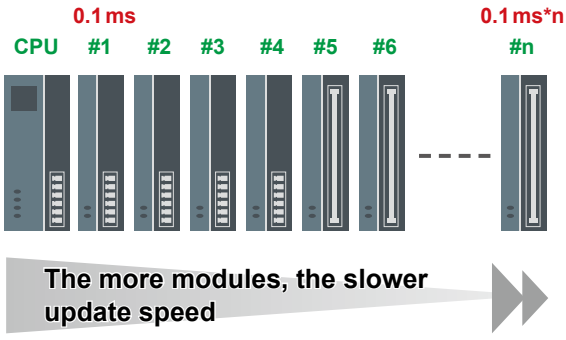
Fixed schedule operations will be automatically processed by CPU background program when scanning starts. It significantly enhances execution speed.



Optimized I/O updates

Common in the industry: PLC module bus update via serial communication

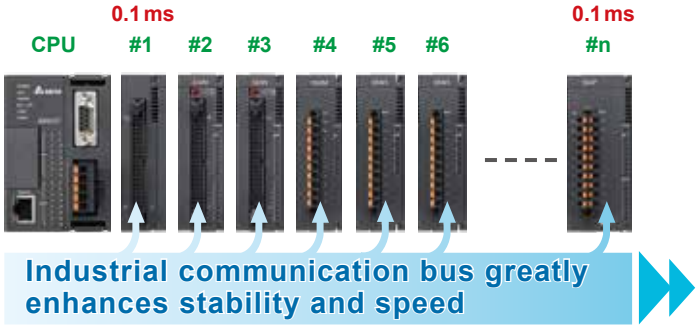
- General serial communication: the signal is sequentially sent from the 1st module to the last module. The more modules the longer I/O update time it takes.



AS Series: PLC module bus update via parallel communication

- Industrial communication: the signal is sent via parallel communication. The I/O update time is not significantly prolonged even with more modules.

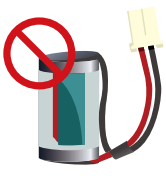
Industrial communication bus greatly enhances stability and speed.



Note: The real updating performance will be different by different extension modules.

Permanent data backup, no battery required

Non-volatile memory material for data backup



	PLC power off
PLC programs	permanent backup
Latched area	permanent backup

Lithium button battery for Real Time Clock (RTC) function



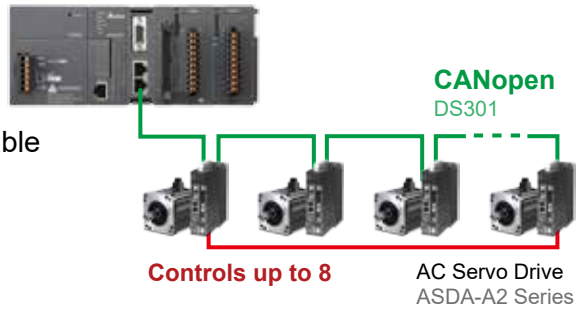
	PLC power off
RTC	keeps accurate time

Accurate Axis Control - Positioning Control Solution



Positioning control - Delta's CANopen Control

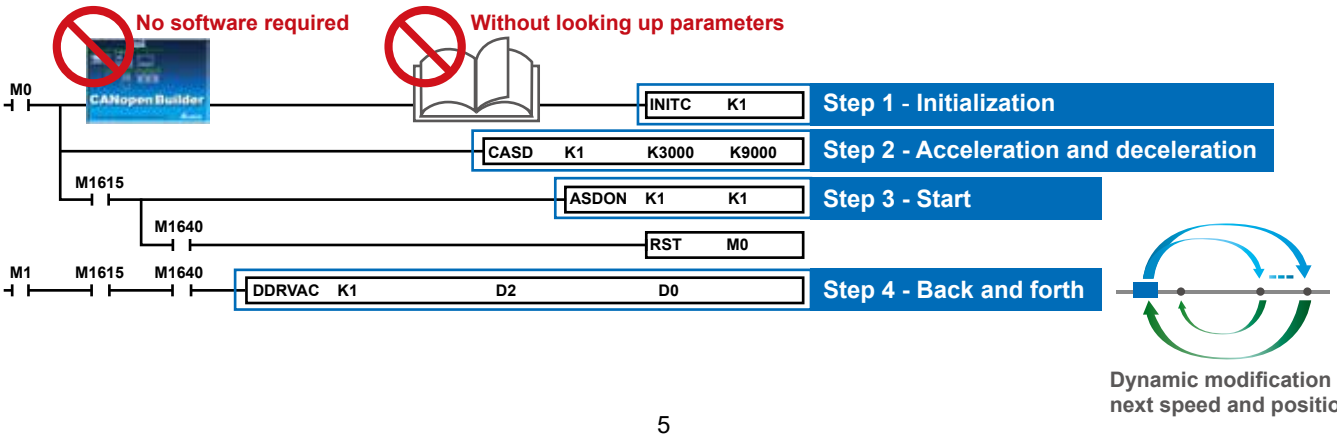
- Delivers up to 8-axis CANopen positioning control with AS-FCOPM communication card
- Fast positioning configuration in one initialization instruction without building CANopen data exchange table
- Batch download programmable servo drive parameters avoids risk of loss
- Axis control by instructions provides easy maintenance and high PLC program readability

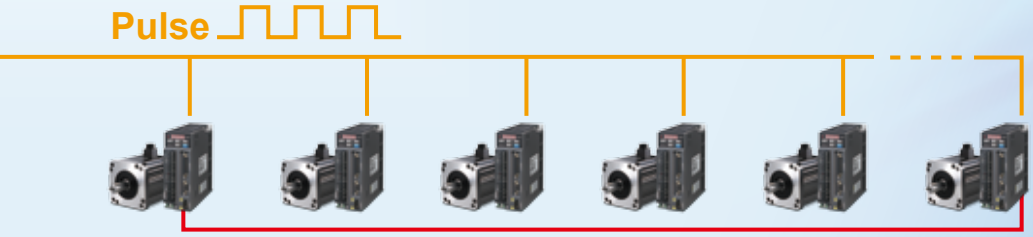


Simple control instructions for AC Servo Drive ASDA-A2 Series

- Initialization: INITC
- Relative positioning: DRVIC
- Read and write parameter: COPRW
- Acceleration and deceleration: CASD
- Constant speed control: PLSVC
- Absolute positioning: DRVAC
- Start / Stop: ASDON
- Homing: ZRNC

ASDA-A2 back and forth motion control in 4 steps



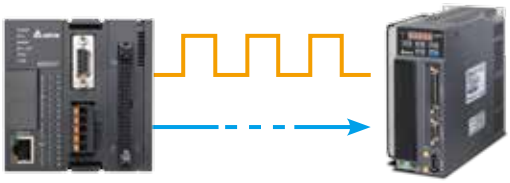


Motion control of max. 6
Delta AC Servo Drives ASDA-B2 Series

Positioning control - high-speed pulse

- AS332T-A/AS332P-A transistor CPU: 6 axes (or 12 channels) 200 kHz
- AS324MT-A differential CPU: 2 axes 4 MHz + 4 axes 200 kHz
- Supports positioning planning table for fast positioning planning and path simulation
- Choose any given 2 axes for linear and arc interpolation

* Note: Please refer to the product specification section (P.23) for more information on CPU models

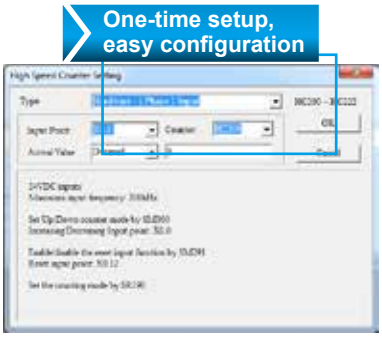


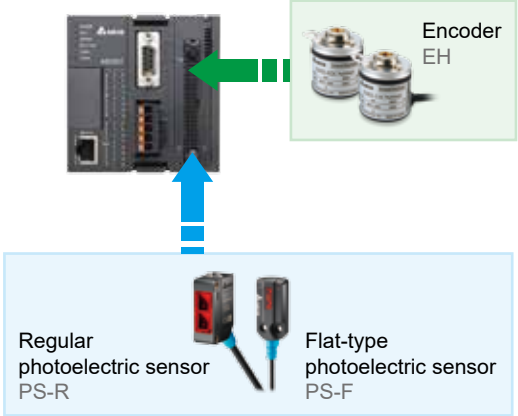
AC Servo Drive
ASDA-B2 Series

High-speed counter

- Real-time high precision monitoring:
  AS332T-A/AS332P-A transistor CPU: 6 channels 200 kHz
  AS324MT-A differential CPU: 2 channels 4 MHz/4 channels 200 kHz
- Up to 16 external input interrupts
- High-speed counter setting tools

* Note: Please refer to the product specification section (P.23) for more information on CPU models



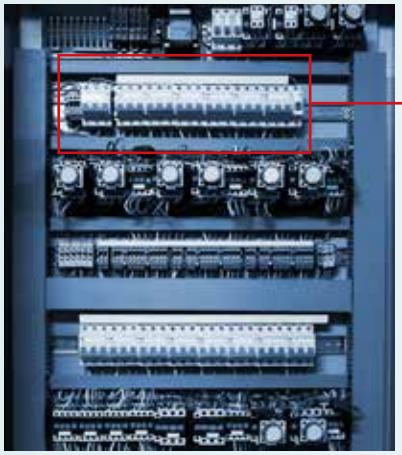


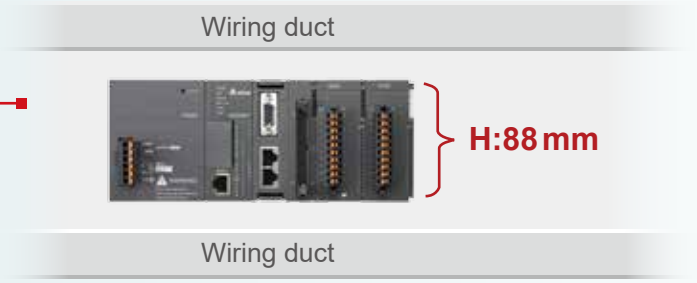
Simple Installation



Easy installation design

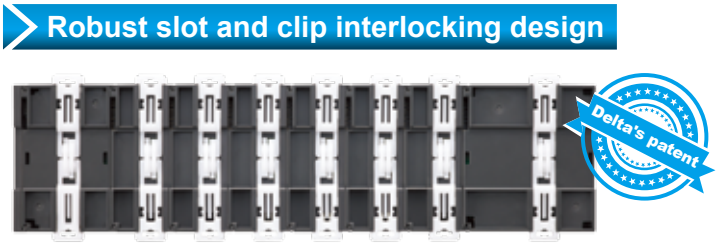
- Space-saving design suitable for installation in control panels





Rackless Din-rail installation

- Delta patented design



Fast disassembly

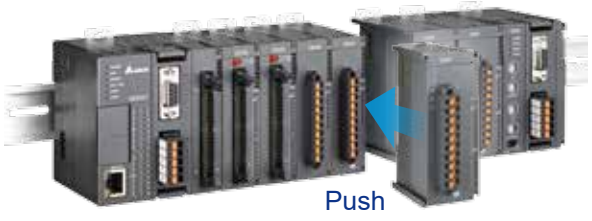
- Release the clip ring to easily take out the module from the front without moving adjacent modules



Simple installation process

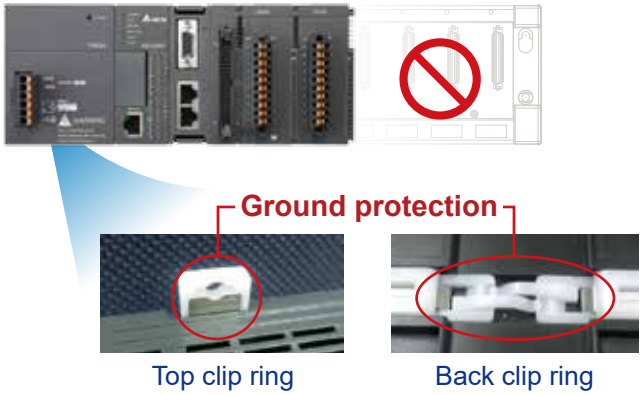
- Press the clip rings and push the module to the desired position until hearing a "click" to finish installation



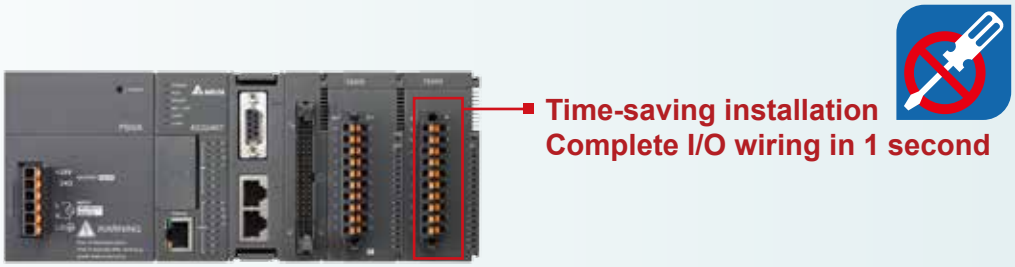


Convenient grounding protection

- Install on Din-rail: CPU module and expansion modules can be installed directly on Din-rail without backplane
- Install with screw: pull out the installation clip ring and directly install it on the panel
- Both methods are equipped with ground protection

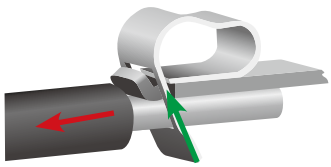


Screwless and time-saving installation



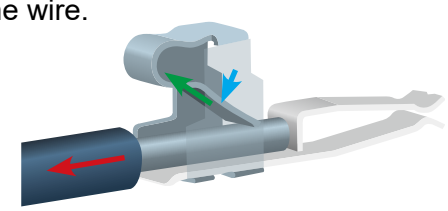
Robust Loose-proof spring clamp terminal block

- In commonly used spring clamp terminal blocks, the clamping force is determined by the spring material, which decreases with the aging of the spring.



The green arrow is the clamping force, and the red arrow is the pull-out force.

- The AS Series adopts the full-covered spring clamp design that enhances the clamping force. When the wire is pulled-out (red arrow) and the spring moves up (green arrow), a downward force is generated (blue arrow) to clamp the wire.



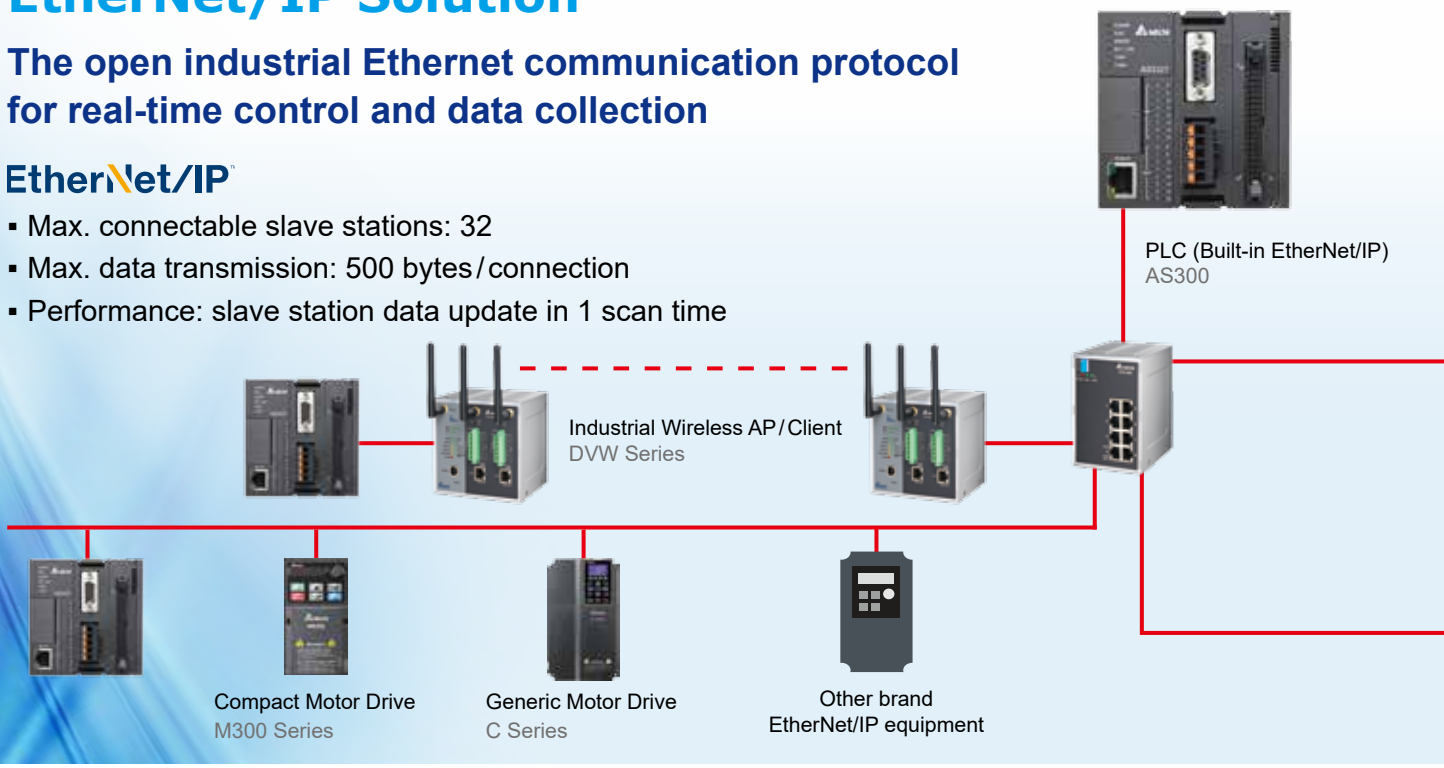
Industrial Network Solution

EtherNet/IP Solution

The open industrial Ethernet communication protocol for real-time control and data collection

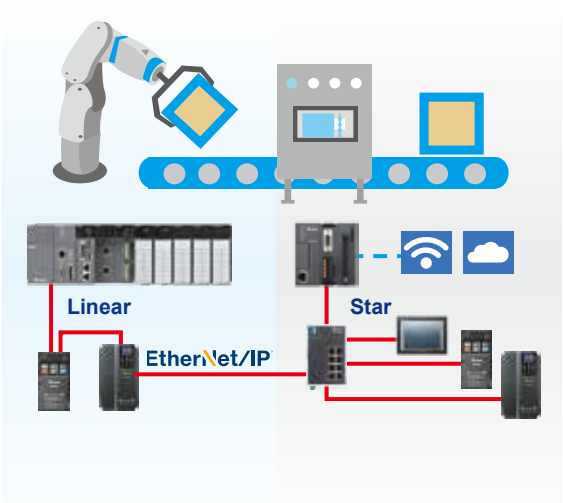
EtherNet/IP

- Max. connectable slave stations: 32
- Max. data transmission: 500 bytes/connection
- Performance: slave station data update in 1 scan time



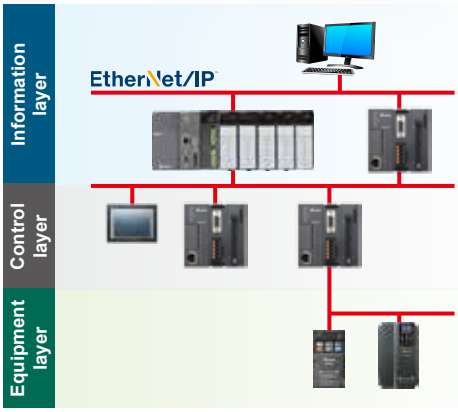
Flexible network system configuration

- Supports star, linear network topology for fast expansion and management on production lines
- Compatible with IT network. No independent network or IT technician required
- Combines with Delta IES solution to construct IoT for more automation applications and industrial 4.0 upgrades



One cable, one network

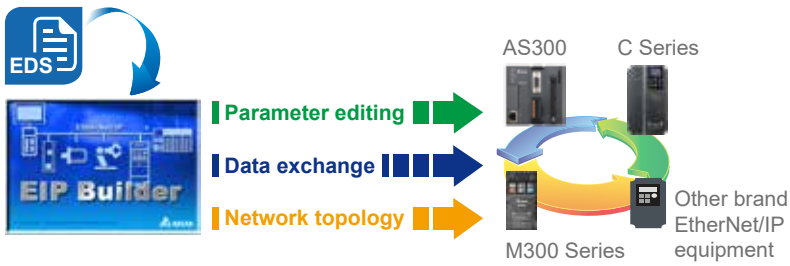
- Complete Delta EtherNet/IP solution connects different equipment via Ethernet cable and simplify cable preparation
- Replaces traditional 3-layer industrial network structure with seamless connection via 100 MB high-speed network
- Complete industrial network diagnosis for shortened debug time





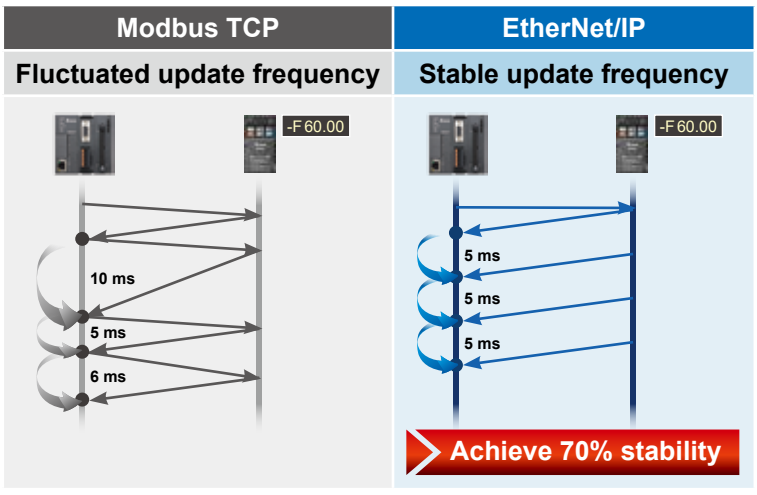
▪ Software integration

- Consistent data exchange interfaceshortens learning time with fast system configuration
- Provides Delta equipment parameterlist for quick parameter matching without looking into detailed manual
- EDS File provides quick connection with EtherNet/IP products of other brands

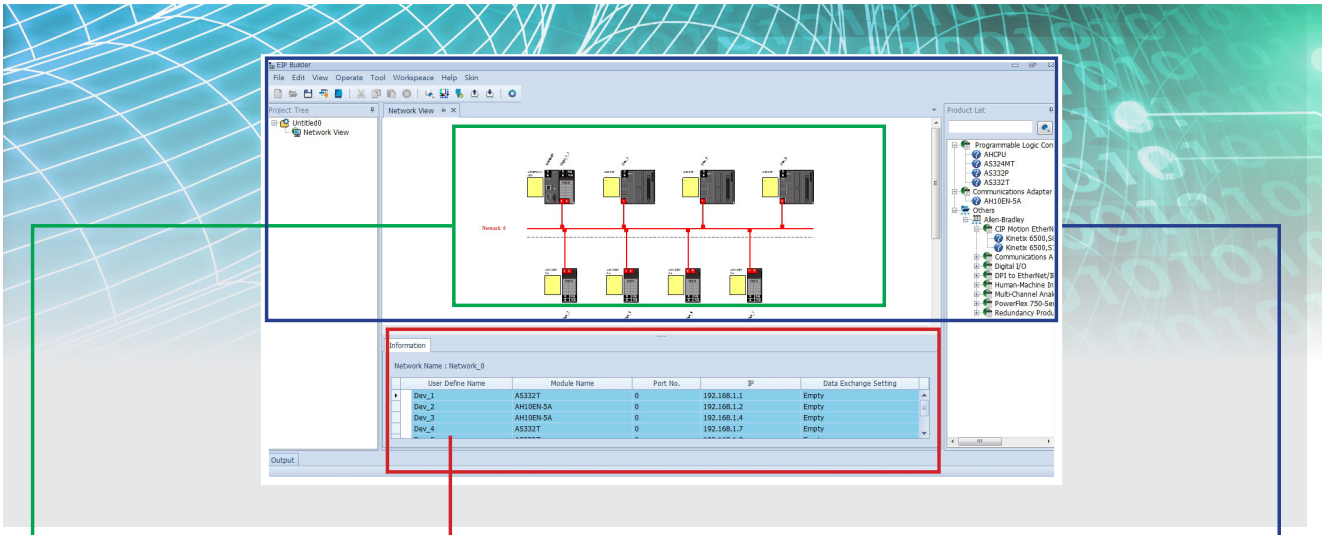


▪ Accurate data update

- Provides real-time cyclic and acyclic data transmission and define data priority between equipment
- Establishes multiple CIP links and define different register priority with one piece of equipment
- Executes data update based on user RPI. Updates all slave station data in one scan time
- 70% better stability compared with traditional Modbus TCP

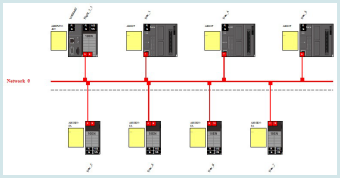


EtherNet/IP Software EIP Builder



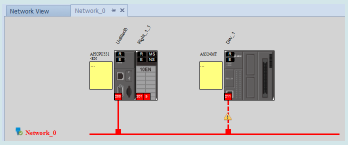
Visualized Network Mapping

- Direct network planning



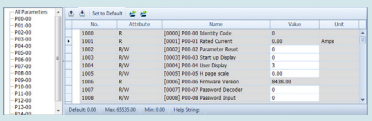
Network Mapping Diagnosis

- Real-time network status and device indicators display



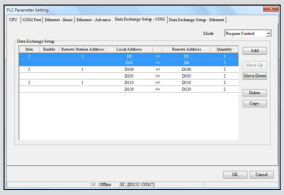
Parameter List

- Built-in parameter list of Delta's products



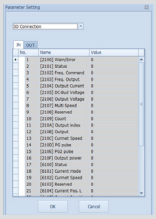
Data Exchange Table

- Data exchange via table blanks filling. PLC programing is not required



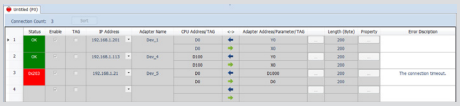
Data Input/Output Corresponding Table

- Preset data exchange on corresponding parameters
- Connecting equipment editing on corresponding parameters



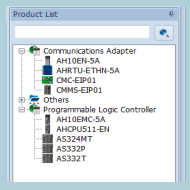
Data Exchange Diagnosis

- Data exchange status and error codes



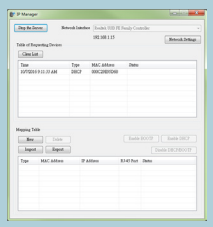
Visualized Product List

- Visualized equipment selection

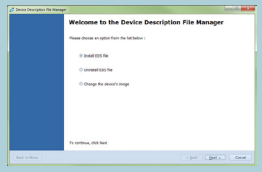


IP Management Function

- Configure all IP address of all EtherNet/IP products



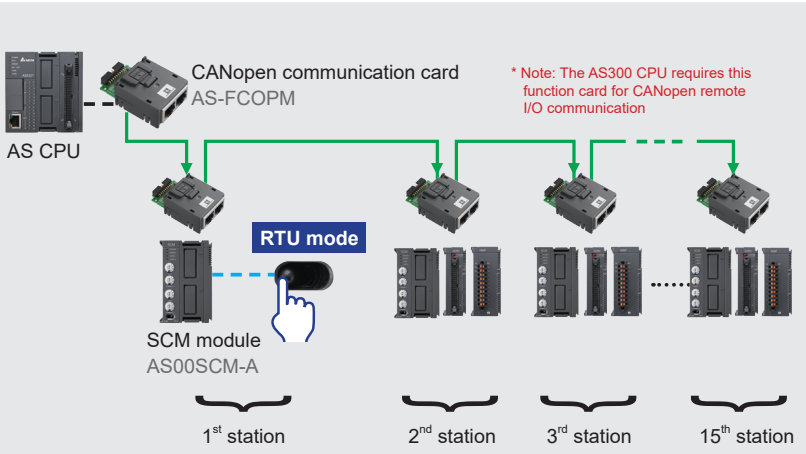
Equipment Description Management Function

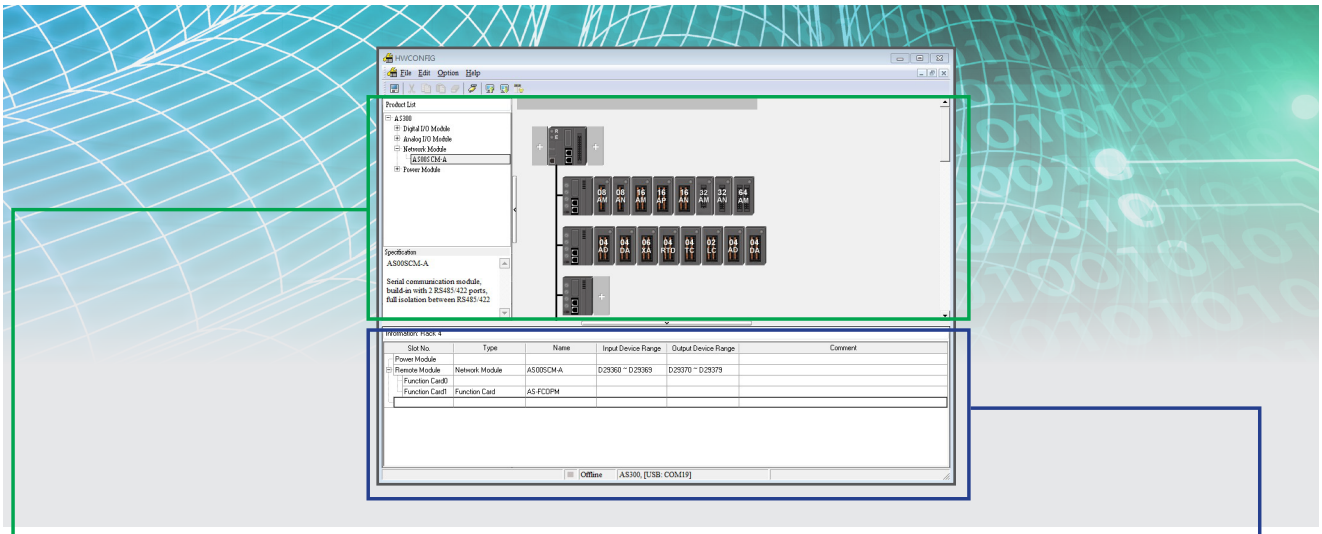


Remote I/O Solution

CANopen Remote I/O

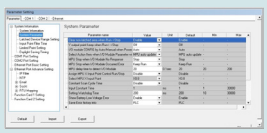
- Max quantity of RIO stations: 15 stations
- Max quantity of IO modules (CPU right side + RIO (SCM) right side): 32 modules
  - Max DIO points: 1,024 points
  - Max quantity of AIO modules: 16 modules
  - Max quantity of communication modules: 4 modules (Only installed on CPU right side)
  - Max quantity of IO modules installed on RIO (SCM) right side: 8 modules
- AS-FCOPM can only be installed in slot 2 of the CPU and SCM
  - When a CPU is installed as AS-FCOPM in slot 2, then slot 1 can be used to install another function card except AS-FCOPM
  - When SCM is working in RIO (RTU) mode, then slot 1 is disabled





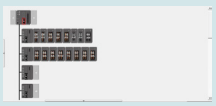
Hardware Configuration

- Hardware parameter complete planning



Visualized I/O Structure

- Direct I/O planning



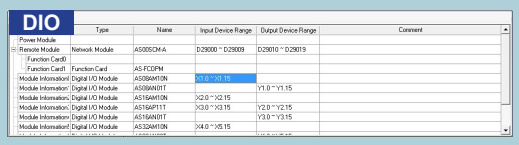
I/O Product List

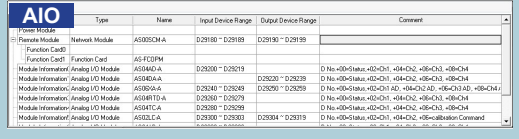
- Product description and specification



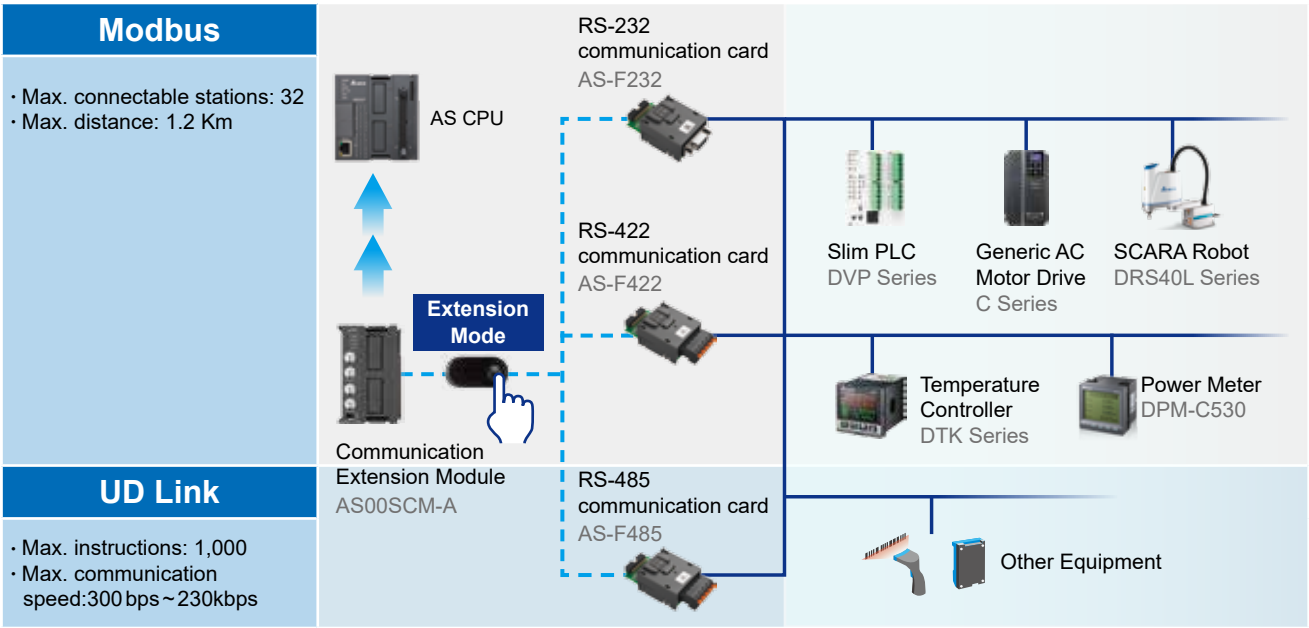
I/O Without Planning

- Auto-mapping with I/O addresses in CPU (X,Y, and D)





Serial Communication Solution



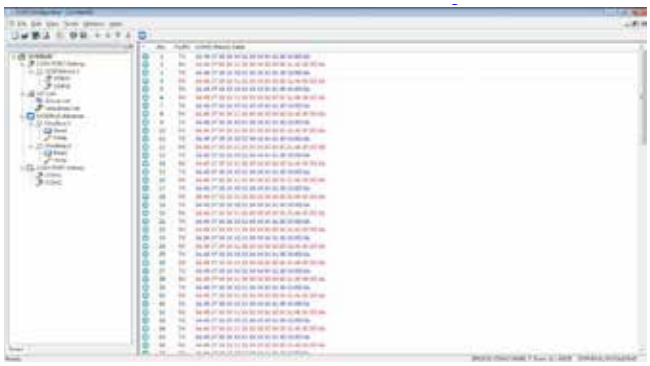
■ Modbus Mode

▪ Easy data exchange configuration



Real-time history log diagnosis

- AS00SCM stores 2k bytes history log. SCMSoft directly displays the log for real-time communication status monitoring with no additional monitoring software required

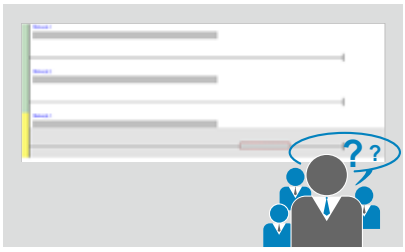


UD Link Mode (User-defined)

- Easy connection to end equipment of special communication protocols

Traditional programming structure

Instruction receiving, accessing, editing, transmitting, sequence control



Connection to end equipment of special communication protocols

- Editing the transmitting/receiving packets via SCMSoft. Format exchange and checksum calculation via AS00SCM
- Packet content auto-combination for logic control in PLC, reducing PLC program complexity
- Max. 1,000 transmitting/receiving packets

*	Packet No.	RX Packet Name
	1	RX Packet1
	2	RX Packet2
	3	RX Packet3

*	Packet No.	TX Packet Name
	1	TX Packet1
	2	TX Packet2
	3	TX Packet3

Packet Segment Edit

No.	Class	Format	Segment View
1	Message Constant	ASCII	"abcd"
2	Address Variable	Null	(R(D Register [4]), 4)
3	Message Constant	ASCII	"efgh"

Up / Down / Delete

Instruction execution sequence planning

User-defined communication format editing

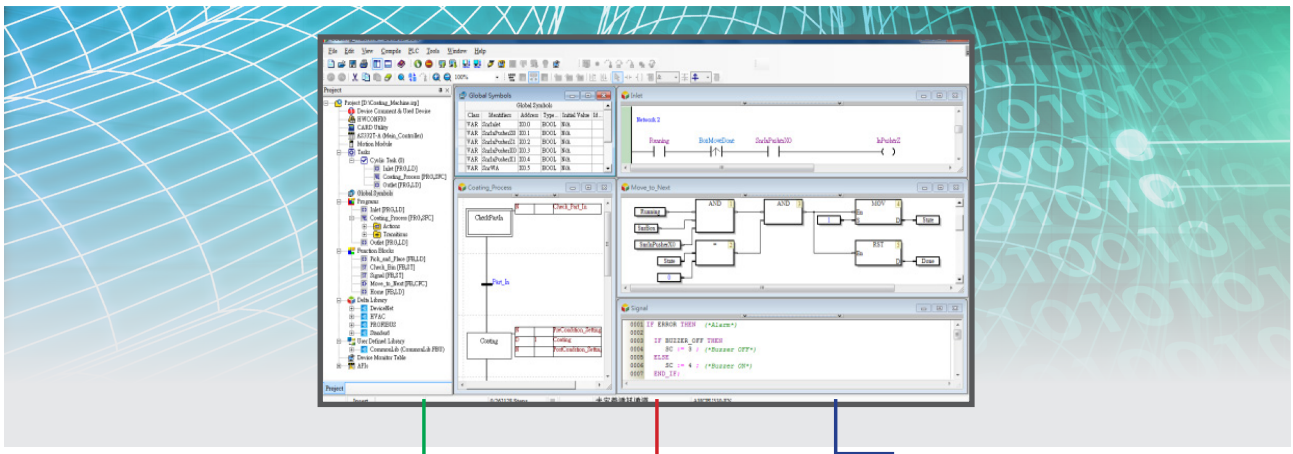
*	Command No.	Command Type	Send Packet	Recv Packet	Success	Fail	Retry	Repeat	Send Wait
	1	Send & Receive	TX Packet1	RX Packet1	Goto : 1	Goto : 1	0	2	0
	2	Send & Receive	TX Packet2	RX Packet2	Goto : 2	Goto : 1	0	3	0
	3	Send & Receive	TX Packet21	RX Packet3	Goto : 3	Goto : 1	0	4	0
	4	Send & Receive	TX Packet25	RX Packet4	Goto : 4	Goto : 1	0	5	0
	5	Send & Receive	TX Packet28	RX Packet5	Goto : 5	Goto : 1	0	6	0

Programming and Diagnosis Functions



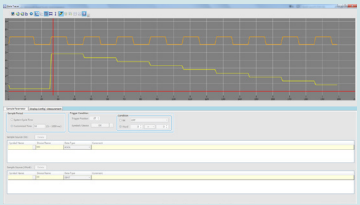
ISPSoft IEC Programming Software

Easy operation greatly enhances efficiency



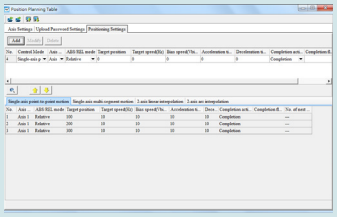
Data Tracer/Logger

- Data log and time-sequential analysis



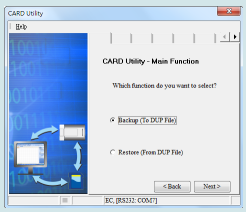
Positioning Planning Tool

- Table-structured position planning



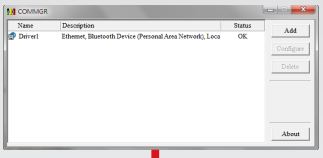
CARD Utility

- Data backup tool



COMMGR

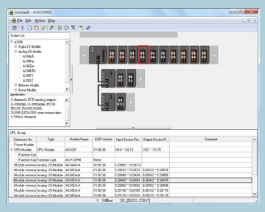
- Communication interface manager





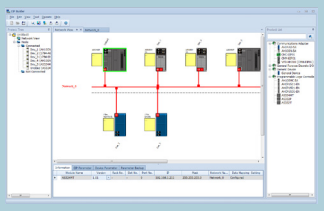
HWCONFIG

- Hardware configuration and parameter setting



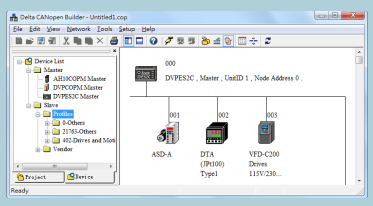
EIP Builder

- EtherNet/IP network configuration



CANopen Builder

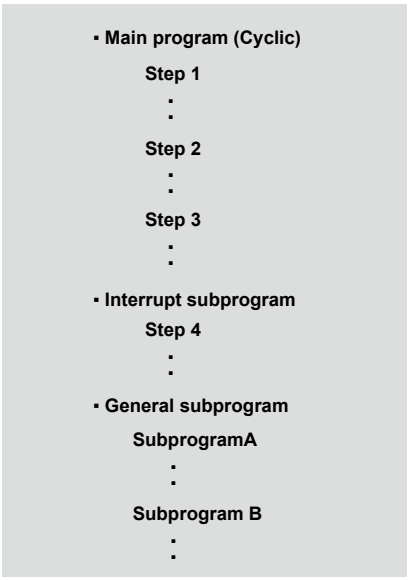
- CANopen network configuration



Modular Program Structure

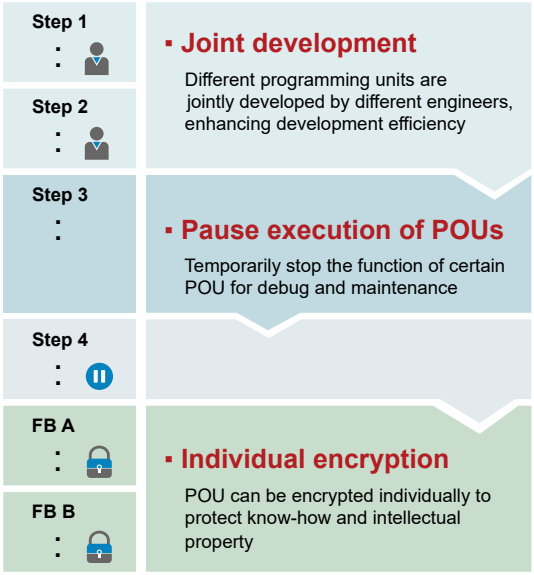
▪ Traditional program structure

Errors are often found in large-scale programs under a traditional structure. It's hard to debug with increased maintenance cost.

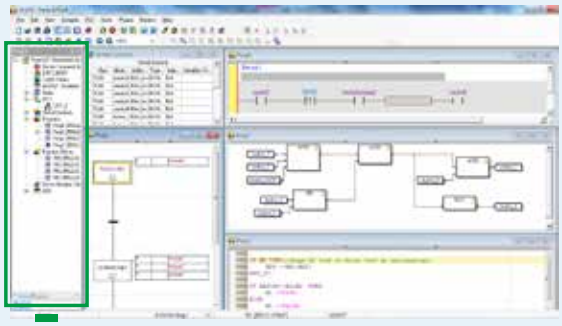


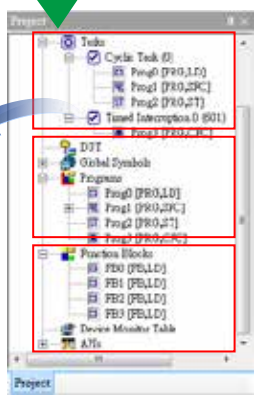
▪ Modular program structure

Programming organization unit (POU) enables easy management in large-scale programs with high development efficiency.



▪ Modular Program Structure





Display panel of task manager



▪ Task manager

Plan the execution sequence of POUs and define the nature of the tasks (cyclical or interruptive)

▪ POU management

Manage all POUs via project tree and support POU import/export for joint development or other uses

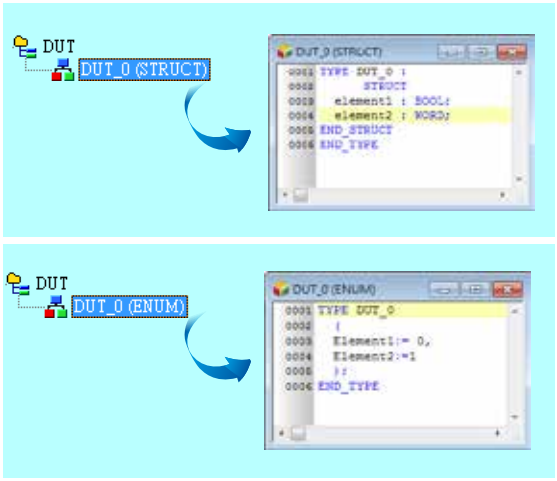
▪ User library

Built-in variety of Delta developed FBs. Users can add frequently used FBs to the library for future use.

Convenient Programming

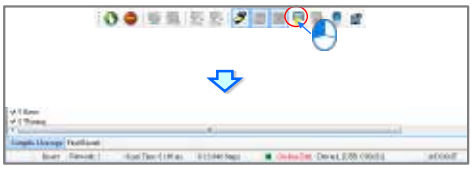
▪ User-defined data type

In addition to basic data types, users can define structures and enumerations for flexible programming



▪ On-line programming / update

Supports program editing in monitoring mode and program updates during equipment operation for convenient debugging and maintenance



▪ Debugging mode

Supports breakpoints, single step execution and other functions to enhance debugging efficiency



Various Programming Languages

▪ Support multiple programming languages in the same project

▪ Ladder Diagram (LD)

ISPSoft provides a programming interface with the widely used LD language for faster programming



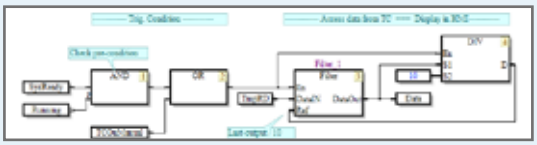
▪ Structured Text (ST)

Similar programming method to advanced programming language C or PASCAL. ST provides more convenient editing for complicated expression



▪ Continuous Function Chart (CFC)

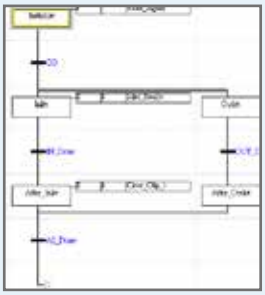
CFC provides more advanced applications than FBD. It supports data feedback, direct display of data stream and execution sequence for motion control and sequence-centered application



Note: ISPSoft V3.01 supports CFC language

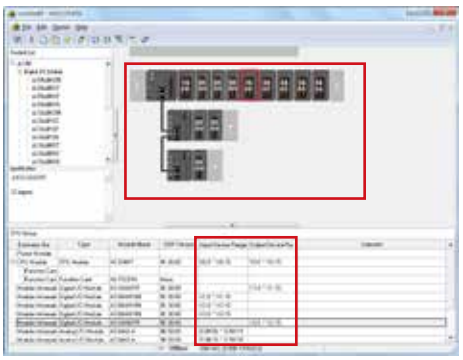
▪ Sequential Function Chart (SFC)

Direct and easy expression for the steps in flow charts for applications that require process control



Easy Hardware Configuration and Parameter Setting

HWCONFIG



- **Graphic panel for module configuration**

  Easy configuration based on connecting equipment scanning for quick setup

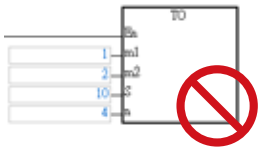
- **I/O listing**

  Direct display for corresponding device addresses after configuration



- **Parameter setting**

  Fast parameter setting on controller and modules without manual reference or programming



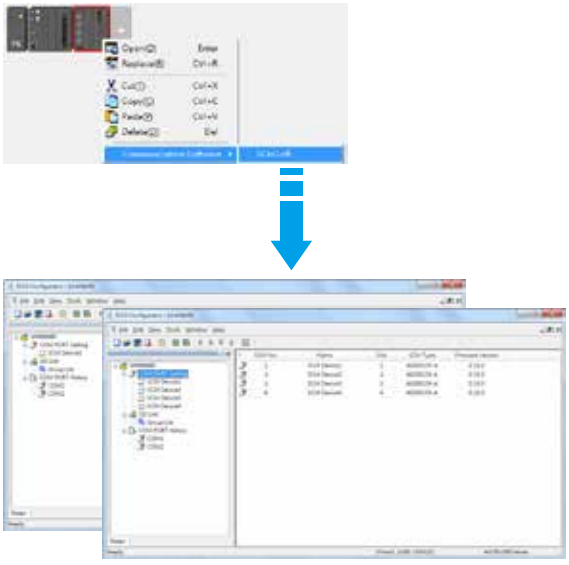
Note: Fill the table to configure module parameters quickly.
From/To instruction is not required for module initialization.

- **Module configuration method**



- **Smart module configuration**

  Supports an advanced planning tool for a variety of network modules



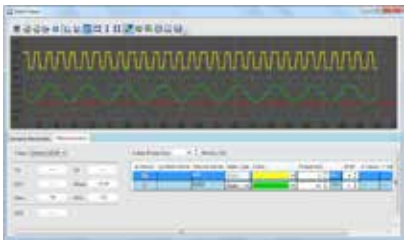
Complete Diagnosis Tools for Quick and Effective System Monitoring

Data Logger/Tracer

Real-time

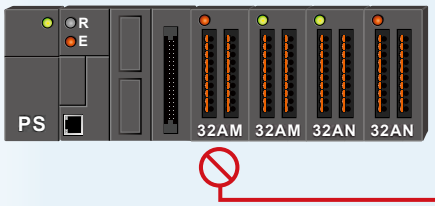
Stable

Precise



- **Real-time monitoring:**
  High-speed tracer for fast sampling within 1 scanning cycle
- **Stable logging:**
  Long-time data logger savings of up to 32,768 data records, which can be transferred to SD card
- **Precise data capture:**
  Supports a variety of sampling intervals and trigger modes
- **Convenient comparison:**
  Multiple data logs in various data formats can be recorded at the same time
- **Efficient data analysis:**
  Supports trend display, scaling, arrangement, merge and measurement

Real-time Module Monitoring



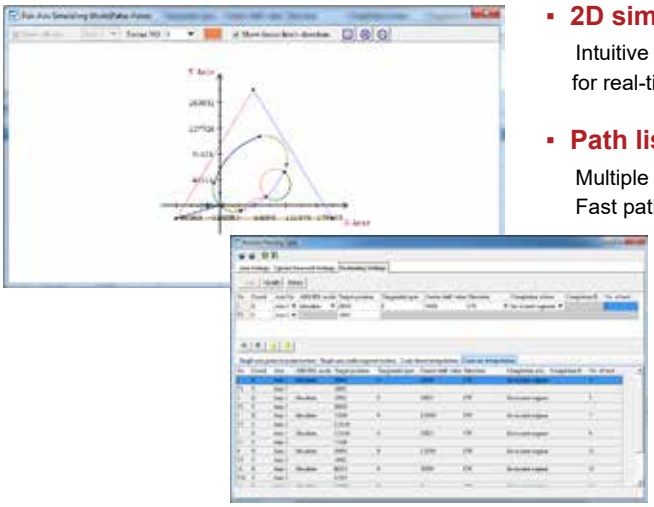
- **Visualized monitoring**
  Direct monitoring interface provides real-time status on modules via LED indicators
- **Module comparison**
  Real-time inspection of actual module settings to ensure consistency



- **Error logs**
  Immediate inquiry for error messages and logs of abnormal modules
- **Module information**
  Provides model name and version of current modules

Convenient Software Wizards for Effortless Planning

Position planning table



- **2D simulation**

  Intuitive 2D track simulation without complicated calculation for real-time path planning

- **Path list**

  Multiple combinations for positioning modes and tracks
  Fast path planning via table-structured planning

- **Axis parameter setting**

  Intuitive configuration interface for easy axis parameter setting without manual reference

■ High-speed counter setting tool

Counter index will display corresponding contact point, device and counter specification once the counting mode is chosen. Fast planning without manual reference for enhanced development efficiency.

One-time setting



■ Data backup tool - CARD Utility

Friendly guidance interface for easy data backup and restore on programs, parameters and devices



Various backup and restore methods for flexible management and operation

Data backup to PC

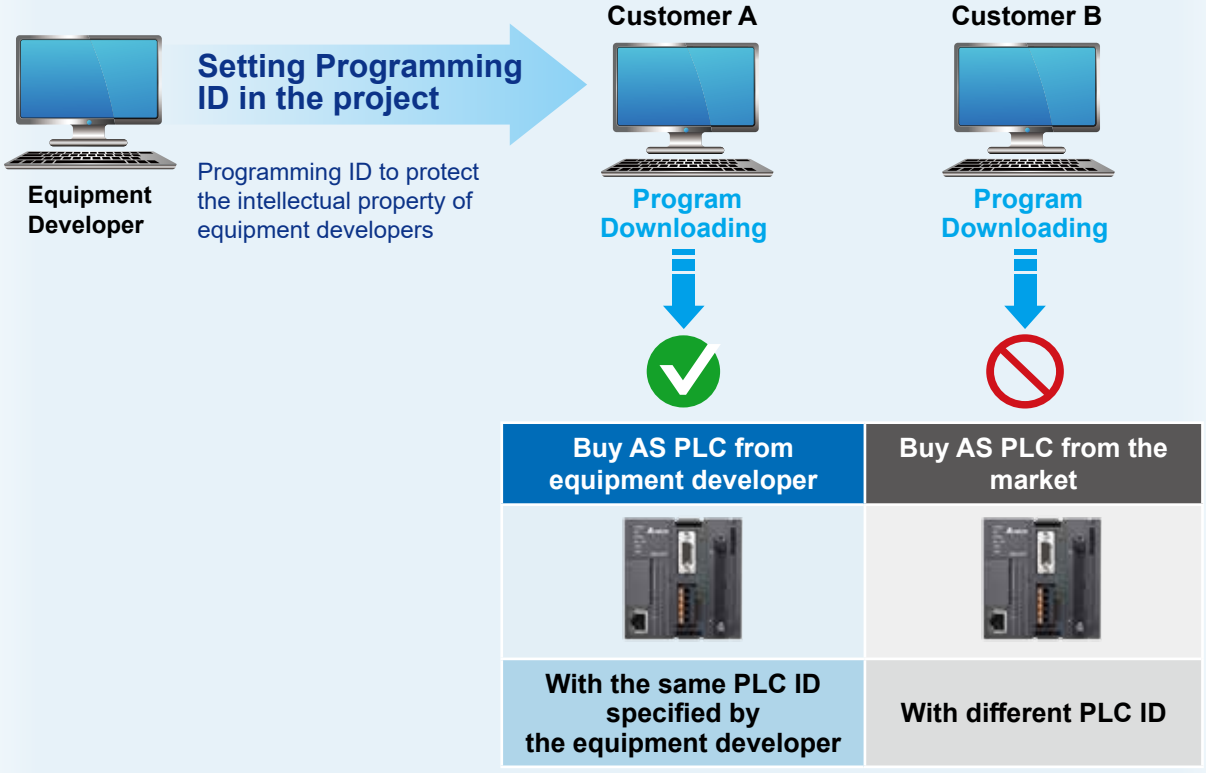
32GB

Data backup to SD card

Multiple Security Protection for Programs and Data

▪ Security: provides 6 types of program protection for data safety

- 16-digit password protection on main program
- 16-digit password protection on FBs
- Access denial mechanism on error login
- Data upload protection function
- Verification between Project (Programmimg ID) and CPU (PLC ID)



- Prevention of direct copy from IC



Model Name Explanation

CPU Module

AS332T-A

AS	3	32		T		-	A	
Series	Model	IO Pts.		Output type			Type	
	3: 300 2: 200	00: None 18: 18 Pts. 20: 20 Pts.	24: 24 Pts. 28: 28 Pts. 32: 32 Pts.	N: None T: NPN P: PNP	R: Relay MT: NPN+Diff.		【300 CPU】 A: HDC terminal B: EU terminal	【200 CPU】 A: Basic

Digital I/O Module

AS08AM10N-A

AS	08	AM	1	0	N	-	A
Series	IO Pts.	Classification	Function		Output type		Type
	08: 8 Pts. 16: 16 Pts. 32: 32 Pts. 64: 64 Pts.	AM: Digital input AN: Digital output AP: Digital input/output	0: No input 1: DC input (24 V)	0: No output 1: 0.5 A transistor/2 A relay output 2: 0.1 A transistor output	N: No output T: NPN P: PNP R: Relay		A: Basic

Analog I/O Module

AS04AD-A

AS	04	AD	-	A
Series	IO Channels	Classification		Type
	04: 4-channel 06: 6-channel 08: 8-channel	AD: Analog input DA: Analog output XA: Analog input/output		A: Voltage/Current B: Voltage C: Current

Motion Module

AS02PU-A

AS	02	PU	-	A
Series	IO Channels	Classification		Type
	02: 2-channel 04: 4-channel	PU: Pulse-train output		A: Basic

Temperature & Load Cell Module

AS04RTD-A

AS	04	RTD	-	A
Series	IO Channels	Classification		Type
	02: 2-channel 04: 4-channel 06: 6-channe 08: 8-channel	RTD: Platinum resistance thermometer TC: Thermocouple LC: Load cell		A: Basic

Communication Module

AS00SCM-A

AS	00	SCM	-	A
Series	Function	Classification		Function
	00: Basement 01: Basic	SCM: Serial DENT: DeviceNet		A: Basic

Function Card

AS-F232

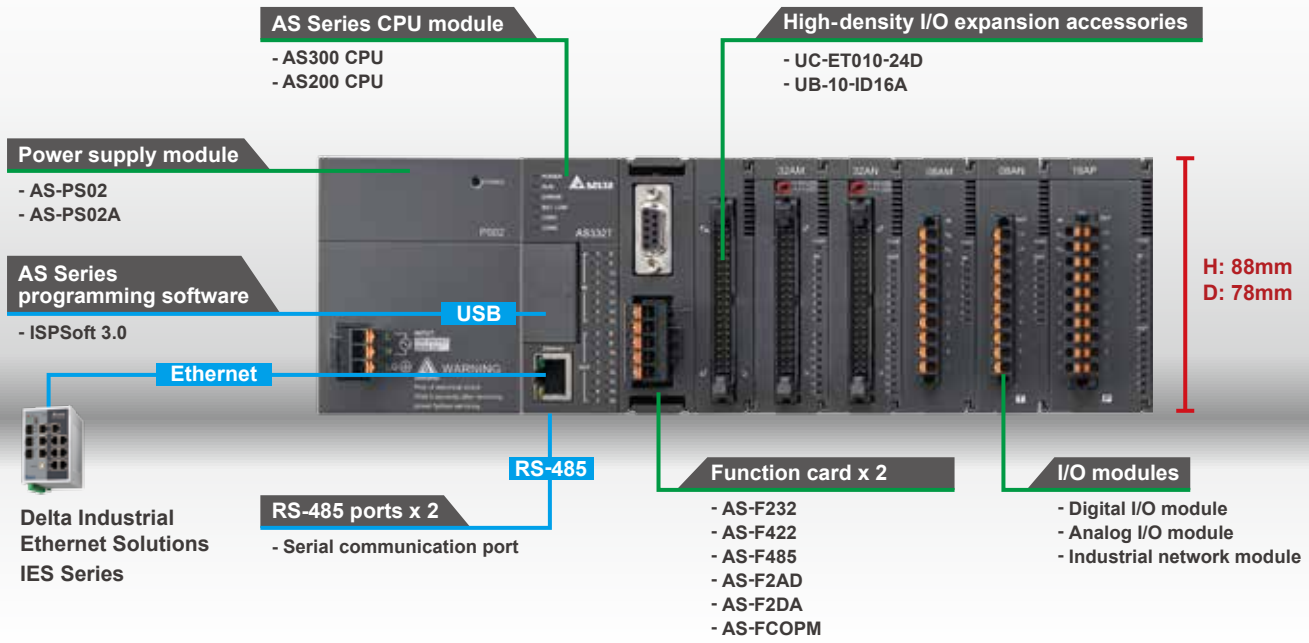
AS	-	F	232	
Series		Classification		Function
		F: Function card	232: RS-232 422: RS-422 485: RS-485 COPM: CANopen	2AD: 2-channel analog input 2DA: 2-channel analog output EN02: Ethernet PFN02: PROFINET

Power Supply Module

AS-PS02

AS	-	PS	02
Series		Classification	Function
		PS: Power supply	02: AC Input (100~240 V) 02A: AC Input (100~240 V) + DC Output (24 V, 0.5 A)

Product Models and Specifications



CPU Module

*1: Needs CANopen function card

AS300 CPU





AS300 Series CPU standard specification				
Program capacity 128k steps	Basic instruction 25 ns	I/O capability: 1,024 Expansion modules: 32		
USB / RS-485 x 2 / EtherNet	Micro SD Card	Function card x 2	EtherNet/IP Modbus CANopen remote I/O(*1)	CANopen DS301 Position Control(*1)

Model	Built-in I/O	High speed output	High speed input
AS332T-A AS332P-A	16DI / 16DO	6 axes 200 kHz pulse output	6 channels 200 kHz high-speed counters
AS324MT-A (Differential)	12DI / 12DO	2 axes + 4 axes 200 kHz pulse output	2 channels + 4 channels 200 kHz high-speed counters
AS320T-B AS320P-B	8DI / 12DO	6 axes 200 kHz pulse output	4 channels 200 kHz high-speed counters
AS300N-A	-	-	-

AS200 CPU



AS200 Series CPU standard specification			
Program capacity 64k steps	Basic instruction 25 ns	I/O capability: 1,024 Expansion modules: 32	
USB / RS-485 x 2 / EtherNet / CANopen	Micro SD Card	EtherNet/IP, Modbus CANopen remote I/O	CANopen DS301 Position Control

Model	Built-in I/O	High speed output	High speed input
AS228T-A AS228P-A AS228R-A	16DI / 12DO	6 axes 200 kHz pulse output	4 channels 200 kHz high-speed counters
AS218TX-A AS218PX-A AS218RX-A	8DI / 6DO 2AI / 2AO	3 axes 200 kHz pulse output	4 channels 200 kHz high-speed counters

Power Supply AS-PS02		Power Supply AS-PS02A	
	Input 100 VAC ~ 240 VAC		Input 100 VAC ~ 240 VAC
	24 VDC, 2A (for internal bus)		24 VDC, 1.5A (for internal bus) 24 VDC, 0.5A (for external I/O)

Product Specifications

Model		AS332T-A AS332P-A	AS324MT-A	AS320T-B AS320P-B	AS300N-A	AS228T-A AS228P-A AS228R-A	AS218TX-A AS218PX-A AS218RX-A
Programming Languages		Ladder Diagram (LD), Structured Text (ST), Continuous Function Chart (CFC), Sequential Function Chart (SFC)					
Instruction Processing Speed	**LD Instruction**	25 ns					
	MOV Instruction	0.15 µs					
	Elementary Arithmetic for Integer	0.92 µs ~ 1.02 µs					
	Elementary Arithmetic for Floating Point	1.69 ~ 1.85 µs					
Program Capacity		128k steps				64k steps	
Memory Capacity	**Data (D)**	64k words (including 30k user-defined, 30k software configuration and 4k special registers)					
	Extension (FR)	64k words (user parameter storage)					
Function Card		The CPUs support up to 2 function cards				-	
Max. Extension Modules		32 modules (max. 16 analog modules / 4 communication modules)					
Max. Number of Inputs / Outputs		1,024 points (input & output)					
CPU Built-in Inputs / Outputs		16DI / 16DO	12DI / 12DO	8DI / 12DO	-	16DI / 12DO	8DI / 6DO, 2AI / 2AO
CPU Built-in Differential Inputs / Outputs		-	4 Inputs + 4 Outputs	-			
Inputs / Outputs	**X**	1,024 inputs (X0.0 ~ X63.15)					
	Y	1,024 outputs (Y0.0 ~ Y63.15)					
Bit Devices	**M**	8,192 bits (M0 ~ M8191)					
	S	2,048 bits (S0 ~ S2047)					
Timer	**T**	512 (T0 ~ T511)					
16-bit Counter	**C**	512 (C0 ~ C511)					
32-bit Counter	**HC**	256 (HC0 ~ HC255)					
Pulse Output		**Open collector:** 6 axes, 200 kHz	**Open collector:** 4 axes, 200 kHz **Differential:** 2 axes, 4 MHz	**Open collector:** 6 axes, 200 kHz	-	**Open collector:** 6 axes, 200 kHz	**Open collector:** 3 axes, 200 kHz
High-Speed Counter		**General:** 6 CHs, 200 kHz	**General:** 4 CHs, 200 kHz **Differential:** 2 CHs, 4 MHz	**General:** 4 CHs, 200 kHz	-	**General:** 4 CHs, 200 kHz	**General:** 4 CHs, 200 kHz
DO Type		AS332T-A: NPN AS332P-A: PNP	Diff. / NPN	AS320T-B: NPN AS320P-B: PNP	-	AS228T-A: NPN AS228P-A: PNP AS228R-A: Relay	AS218TX-A: NPN AS218PX-A: PNP AS218RX-A: Relay
Built-in Communication Port		USB, Ethernet, RS-485 x2				USB, Ethernet, RS-485 x2, CANopen	
Communication Protocol		Modbus, Modbus TCP, EtherNet/IP, CANopen (requires a CANopen function card)				Modbus, Modbus TCP, EtherNet/IP, CANopen	
Ethernet Connection Resource		Modbus (Client / Server): 32 / 32 EtherNet/IP (CIP): 32				Modbus (Client / Server): 16 / 16 EtherNet/IP (CIP): 16	

Product Specifications

Model		AS332T-A AS332P-A	AS324MT-A	AS320T-B AS320P-B	AS300N-A	AS228T-A AS228P-A AS228R-A	AS218TX-A AS218PX-A AS218RX-A
Data Backup (Without Battery)	**Program**	Flash ROM, rewritable up to 100,000 times					
	Latched Area	MRAM, no rewriting limit					
CANopen DS301	**Connectable Salve Stations**	Max. 64 points					
	PDO Data Capacity (Host)	Max. 2,000 bytes (Read & Write)					
	PDO Data Capacity (Slave)	Max. 8 PDO (Read & Write); Max. 8 bytes for each PDO					
Real-time Clock (RTC)		General Lithium button battery (CR1620)					
Self-Diagnosis Function		diagnoses CPU errors, built-in memory errors, and more					
Rated Input Current	**AS-PS02/AS-PS02A**	110 V_{AC} ~ 240 V_{AC} (±10%)					
	CPU	24 V_{DC} (±10%)					
	Extension modules						

Electrical and Environmental Specifications

Item		Specifications
Internal Power Consumption	**CPU**	150 mA
	Extension Module	Digital relay output <150 mA, Other modules < 80 mA
Operating Temperature		-20 ~ 60 °C
Storage Temperature		-40 ~ 80 °C
Operating Humidity		5 ~ 95%, non-condensing
Storage Humidity		5 ~ 95%, non-condensing
Vibration		IEC 61131-2, IEC 60068-2-6 (TEST Fc); 5 Hz ≤ f ≤ 8.4 Hz, constant amplitude 3.5 mm; 8.4 Hz ≤ f ≤ 150 Hz, constant acceleration 1g
Shock		IEC 61131-2, IEC 60068-2-27 (TEST Ea); 15g peak, 11 ms duration, half-sine
Operating Environment		Non-corrosive gas
Installation		Inside of the control panel
Pollution Degree		2
Protection Rating		IP20

Ethernet Specifications

Item			AS300 Series	AS200 Series	Note
Protocol			Modbus TCP, EtherNet/IP, SMTP, HTTP		Supports all protocols at the same time
Modbus TCP	Connection (Server)		32	16	
	Connection (Client)		32	16	
	RTU-EN01 Connection		4	4	
Socket	TCP Connection		4	2	
	UDP Connection		4	2	
SMTP	E-mail Connection		4	2	
EtherNet/IP	Operation Mode		Scanner / Adapter		
	CIP_IO Connection	CIP Connection	32 (Client+Server)	16 (Client+Server)	Shared with IO Connection
		TCP Connection	16 (Client+Server)	8 (Client+Server)	Shared with IO Connection
		Requested Packet Interval (RPI)	5 ms ~ 1,000 ms		Default: 20 ms
		Max. Performance	3,000 pps		
		Max. Capacity per Connection	500 bytes		
	CIP_Explicit Message	Class 3 (Connected Type)	32 (Servers), shared with UCMM	16 (Servers), shared with UCMM	Shared with IO Connection
		UCMM (Non-Connected Type)	32 (Clients + Servers), shared with Class 3	16 (Clients + Servers), shared with Class 3	Shared with IO Connection
		Supported CIP Objects	Identity, Message Router, Assembly, Connection Manager, Port, TCP / IP interface, Ethernet link, Vendor specific		
	CIP_Produced TAG	Max. CIP Connections	32 (Servers)	16 (Servers)	Shared with IO Connection
		Max. Capacity	400 bytes		
		Requested Packet Interval (RPI)	5 ms ~ 1000ms		
	CIP_Consumed TAG	Max. CIP Connections	32 (Clients + Servers)	16 (Clients + Servers)	Shared with IO Connection
		Max. capacity	400 bytes		
		Requested Packet Interval (RPI)	5 ms ~ 1000ms		
	AS00SCM (RTU) + AS-FEN02 Connection Nodes		15	8	AS RTU Mode

Please visit Delta's official website for selection

AS Series I/O Modules

■ Digital I/O Modules (Input)



8 inputs
Faster wiring terminal block
AS08AM10N-A



16 inputs
Faster wiring terminal block
AS16AM10N-A



32 inputs
High-density MIL terminal block
AS32AM10N-A



64 inputs
High-density MIL terminal block
AS64AM10N-A

Rated input voltage
5 ~ 24 V_{DC}

Response time
1 ms

Filter function
1 ~ 20 ms

Screwless removable terminal block
8 / 16 inputs

■ Digital I/O Modules (Output)



8 outputs
Faster wiring terminal block Transistor output NPN (Sink)
AS08AN01T-A



8 outputs
Faster wiring terminal block Relay output
AS08AN01R-A



8 outputs
Faster wiring terminal block Transistor output PNP (Source)
AS08AN01P-A



32 outputs
High-density MIL terminal block Transistor output NPN (Sink)
AS32AN02T-A

NPN (Sink) or PNP (Source) module

Response time
1 ms (Transistor)
10 ms (Relay)

Screwless removable terminal block
8 / 16 outputs



16 outputs
Faster wiring terminal block Transistor output NPN (Sink)
AS16AN01T-A



16 outputs
Faster wiring terminal block Relay output
AS16AN01R-A



16 outputs
Faster wiring terminal block Transistor output PNP (Source)
AS16AN01P-A



64 outputs
High-density MIL terminal block Transistor output NPN (Sink)
AS64AN02T-A

Digital I/O Modules (Mixed)



16 inputs / outputs
Faster wiring terminal block 8 inputs / 8 transistor outputs NPN (Sink)
AS16AP11T-A



16 inputs / outputs
Faster wiring terminal block 8 inputs 8 relay outputs
AS16AP11R-A



16 inputs / outputs
Faster wiring terminal block 8 inputs / 8 transistor outputs PNP (Source)
AS16AP11P-A

NPN (Sink)
or PNP (Source) module

Rated input voltage 5 ~ 24 V_{DC}	Filter function 1 ~ 20 ms

Screwless removable terminal block

Response time
1 ms (Transistor)
10 ms (Relay)

Analog I/O Modules



4 channels
Analog input
AS04AD-A



8 channels
Analog input
AS08AD-B New



8 channels
Analog input
AS08AD-C New



4 channels
Analog output
AS04DA-A



6 channels
Analog input / output
AS06XA-A

Conversion time 2 ms / channel	50 / 60 Hz filter	A: Voltage and current B: Voltage C: Current	Resolution AI: 16-bit AO: 12-bit
Accuracy ±0.2%	4 / 6 / 8 CH	Module monitoring / configuration	Differential inputs

Load Cell Module



2 channels
AS02LC-A

Functions		
50 / 60 Hz filter	High-speed dynamic measurement	2 channels of independent sampling
Accuracy 0.4% full range	2 CH	Connectable to 4-wire / 6-wire load cell sensor

full range		
Filter function	Multiple-point calibration	Online monitoring / configuration

Pulse Unit Modules



2 channels
Differential
AS02PU-A New



4 channels
Open Collector
AS04PU-A New

Input: 200 kHz

Output: 200 kHz

Open Collector / Diff.

2 / 4 CH

Support Motion APIs

AS Series I/O Modules

■ Temperature Measurement Modules



4 channels	6 channels
PT, NI temperature sensor	PT, NI temperature sensor
AS04RTD-A	AS06RTD-A New



Conversion time 200 ms / channel		Resolution 0.1°C / 0.1°F	Wire breaking detection
Overall accuracy ±0.1%	50 / 60 Hz filter	Module monitoring / configuration	4 / 6 CH
Pt100 / Ni100 / Pt1000 / Ni1000 / JPt100 / LG-Ni1000 / Cu50 / Cu100, resistor 0 ~ 300 Ω, 0 ~ 3,000 Ω			



4 channels	8 channels
TC temperature sensor	TC temperature sensor
AS04TC-A	AS08TC-A New



Conversion time 200 ms / channel		Resolution 0.1°C / 0.1°F	Disconnection detection
Overall accuracy ±0.5%	50 / 60 Hz filter	Module monitoring / configuration	4 / 8 CH
J, K, R, S, T, E, N, B type thermocouple; ±100 mV			

■ Communication Modules



2 COM ports

AS00SCM-A

COM port	RS-232C	RS-422	RS-485	CANopen
Function	Selectable COM ports; supporting standard Modbus protocol and user-defined protocol			Delta communication protocol
Software	SCMSoft	Data exchange table for quick setup		Real-time monitoring on communication status



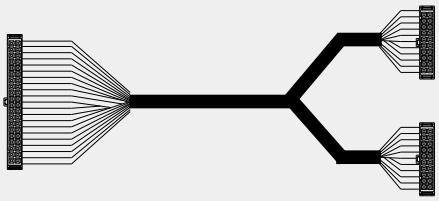
DeviceNet

AS01DNET-A New

COM port	DeviceNet
Function	DeviceNet protocol (master / slave) and support RTU mode
Software	DeviceNet Builder

Accessory Selection for High-density Modules

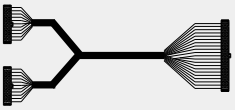
Model Name		
AS332T-A AS332P-A AS324MT-A	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	UB-10-ID16A UB-10-ID16A (NPN/PNP) UB-10-OR16A (NPN to Relay) UB-10-OR16B (PNP to Relay)





Model Name				
UB-10-ID16A	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	AS32AM10N-A	UC-ET010-24B (1M) UC-ET020-24B (2M) UC-ET030-24B (3M)	UB-10-ID32A

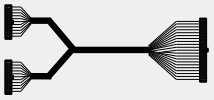





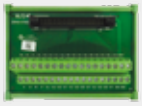


Model Name				
UB-10-ID16A or UB-10-OR16A (Relay)	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	AS32AN02T-A	UC-ET010-24B (1M) UC-ET020-24B (2M) UC-ET030-24B (3M)	UB-10-OT32A

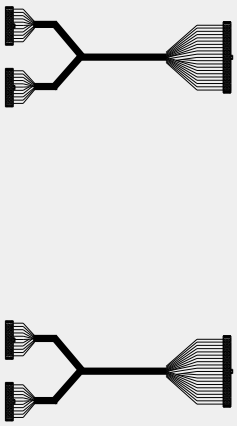
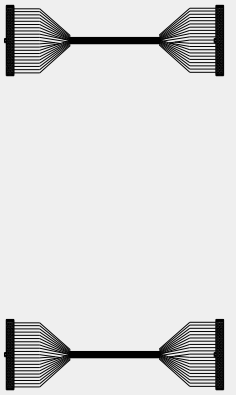
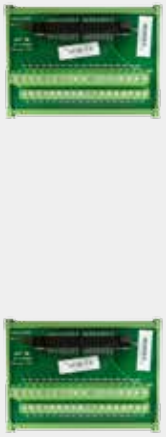


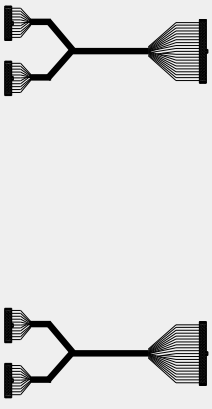
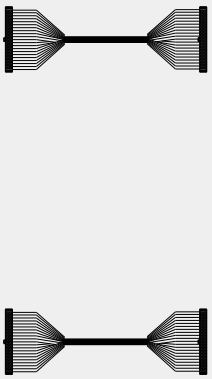
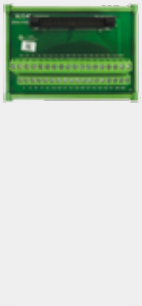






Accessory Selection for High-density Modules

Model Name				
UB-10-ID16A	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	AS64AM10N-A	UC-ET010-24B (1M) UC-ET020-24B (2M) UC-ET030-24B (3M)	UB-10-ID32A
				

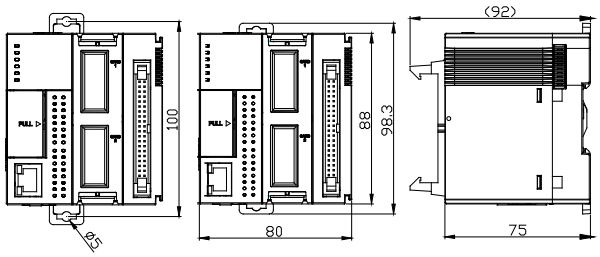
Model Name				
UB-10-ID16A or UB-10-OR16A (Relay)	UC-ET010-24D (1M) UC-ET020-24D (2M) UC-ET030-24D (3M)	AS64AN02T-A	UC-ET010-24B (1M) UC-ET020-24B (2M) UC-ET030-24B (3M)	UB-10-OT32A
				

Dimensions

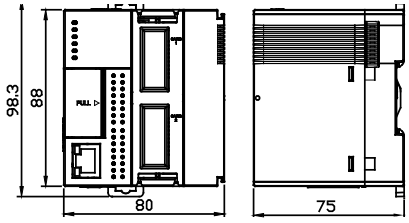
CPU Modules

Dimensions are in mm

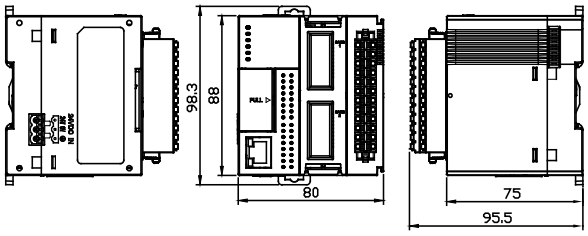
AS332T-A, AS332P-A, AS324MT-A



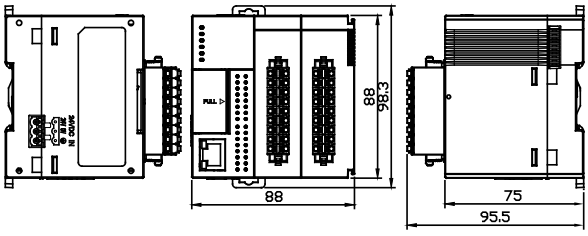
AS300N-A New



AS320T-B New, AS320P-B New



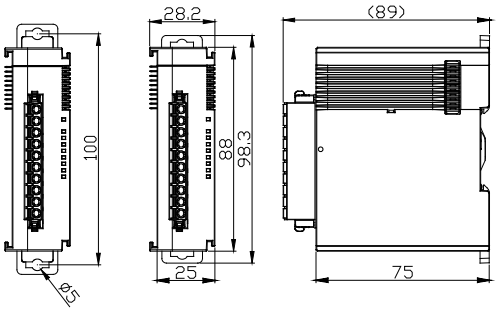
AS228T-A New, AS228P-A New, AS228R-A New
AS218TX-A New, AS218PX-A New, AS218RX-A New



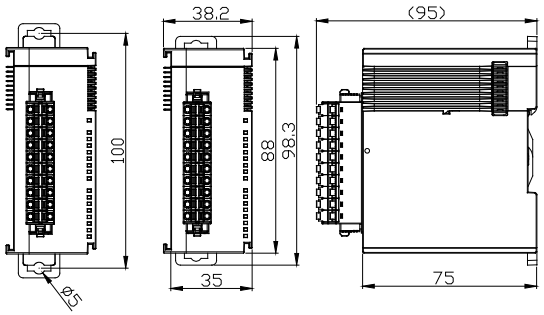
Digital I/O Modules

Dimensions are in mm

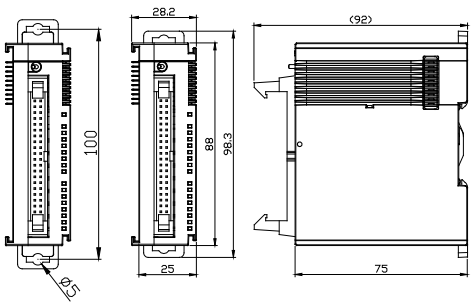
AS08AM10N-A, AS08AN01R-A, AS08AN01T-A, AS08AN01P-A



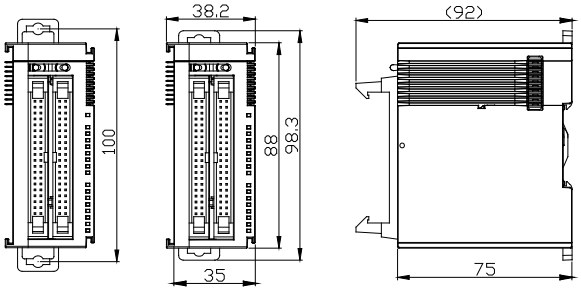
AS16AM10N-A, AS16AN01R-A, AS16AN01T-A, AS16AN01P-A, AS16AP11R-A, AS16AP11T-A, AS16AP11P-A



AS32AM10N-A, AS32AN02T-A



AS64AM10N-A, AS64AN02T-A

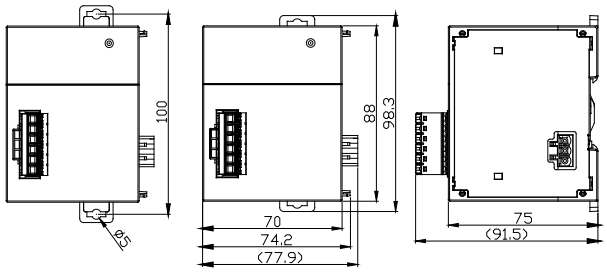


Dimensions

Power Supply Modules

Dimensions are in mm

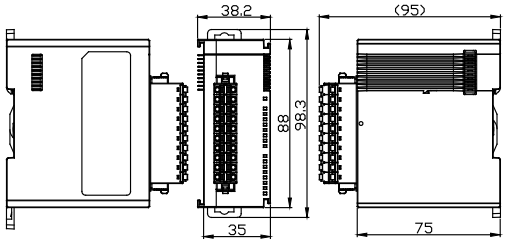
AS-PS02, AS-PS02A



Pulse Unit Module

Dimensions are in mm

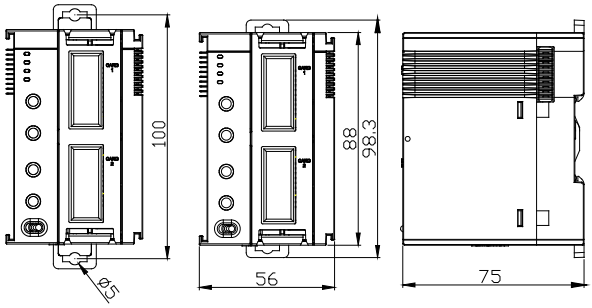
AS02PU-A New, **AS04PU-A** New



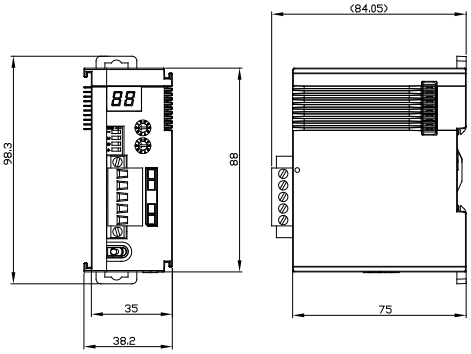
Communication Modules

Dimensions are in mm

AS00SCM-A



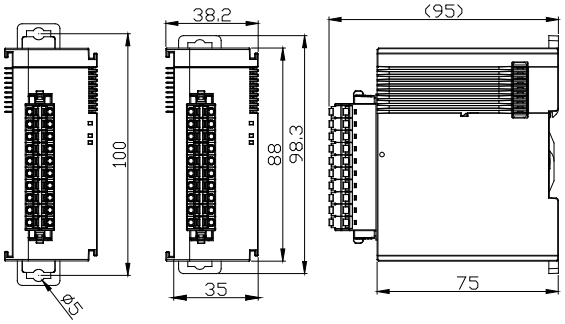
AS01DNET-A New



Analog Modules

Dimensions are in mm

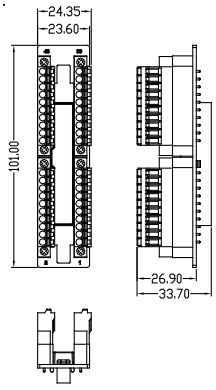
AS02LC-A, AS04AD-A, AS04DA-A, S04TC-A, AS04RTD-A, AS06XA-A, AS08AD-B New, **AS08AD-C** New, **AS06RTD-A** New, **AS08TC-A** New



Connector Converter

Dimensions are in mm

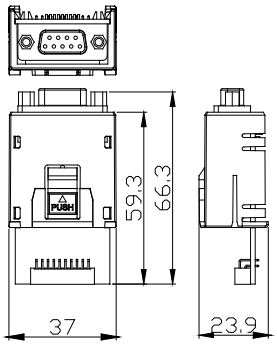
UB-10-IO32D New



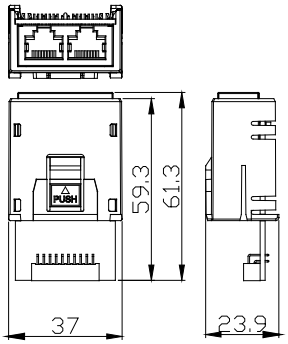
Function Cards

Dimensions are in mm

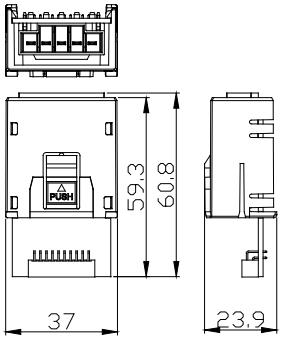
AS-F232



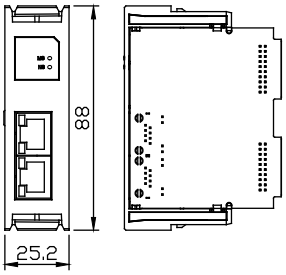
AS-FCOPM



AS-F2AD, AS-F2DA, AS-F422, AS-F485

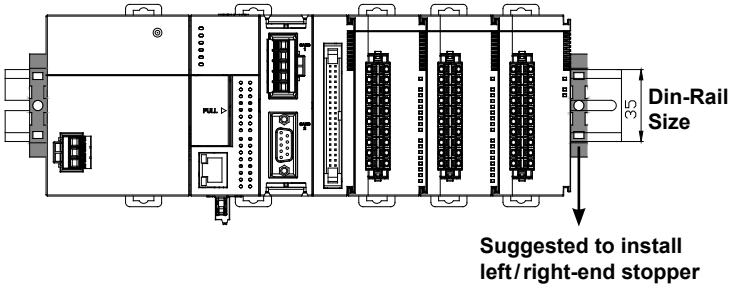


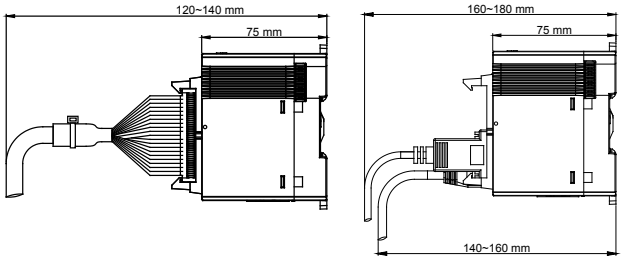
AS-FEN02 New
AS-FPFN02 New



Installation Notes

Dimensions are in mm

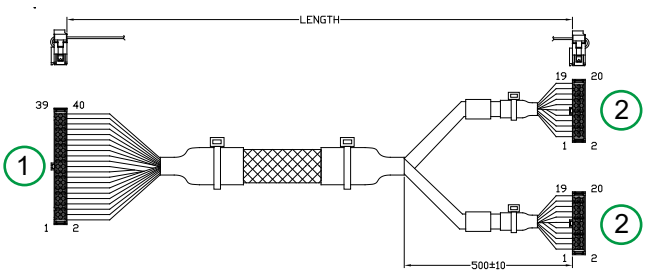




Cable (MIL)

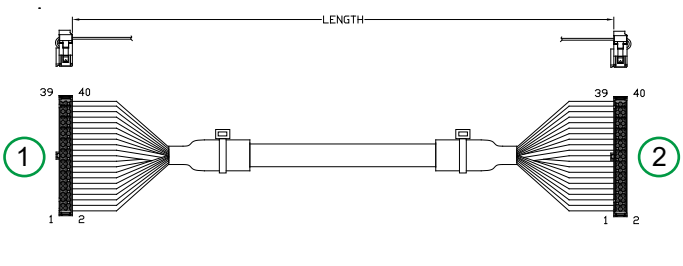
Dimensions are in mm

UC-ET010-24D (1 M), UC-ET020-24D (2 M), UC-ET030-24D (3 M)



Serial	Name	Description
1	40-pin terminal	Connect to modules
2	20-pin terminal	Connect to external terminal modules UB-10-ID16A or UB-10-OR16A or UB-10-OR16B

UC-ET010-24B (1 M), UC-ET020-24B (2 M), UC-ET030-24B (3 M)



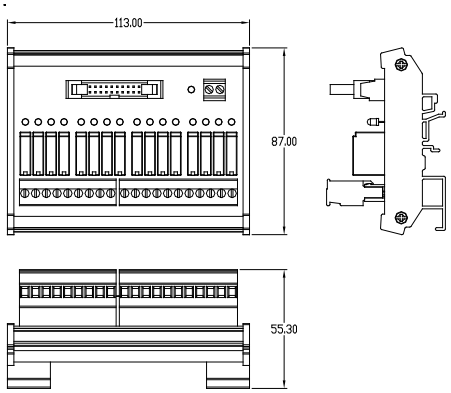
Serial	Name	Description
1	40-pin terminal	Connect to modules
2	40-pin terminal	Connect to external terminal modules UB-10-ID32A or UB-10-OT32A

Dimensions

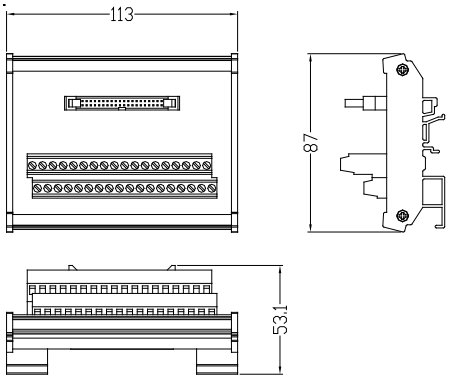
External Terminal Modules

Dimensions are in mm

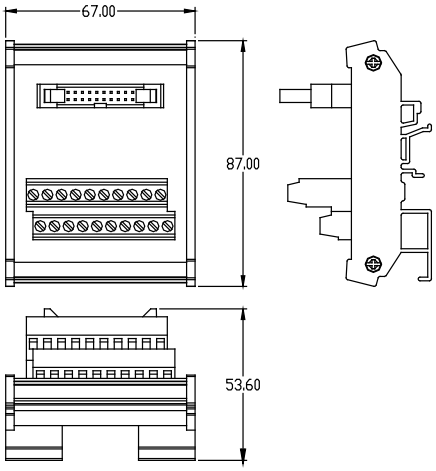
UB-10-OR16A, UB-10-OR16B



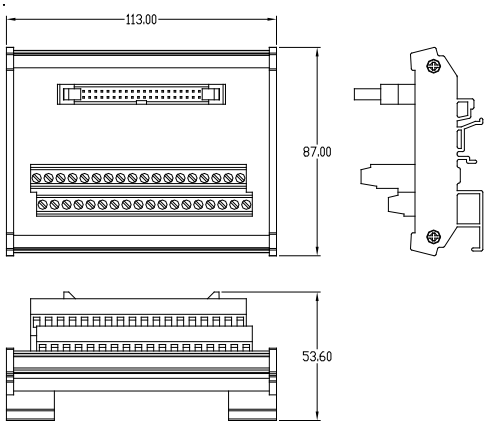
UB-10-OT32A



UB-10-ID16A



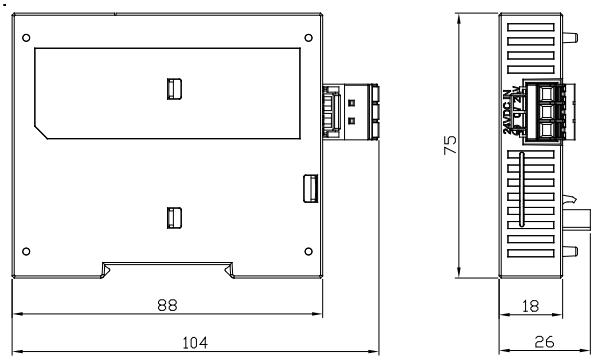
UB-10-ID32A



Auxiliary Connected Power Module

Dimensions are in mm

AS-ATXB



Ordering Information

▪ CPU Module

Name	Model	Instruction Speed / Performance	Memory / CPU Clock	Max. Inputs & Outputs / Extension Module (Max. Extension Racks)	Memory Card	Certification
CPU	All models	LD: 25 ns MOV: 0.15 µs 40k steps / 1ms (LD 40%, MOV 60%)	RAM: 2 MB ROM: 4 MB CPU clock: 400 MHz	1,024 inputs & outputs / 32 modules (Max. 15 extension racks)	Micro SD Max. 32GB	CE / UL

Name	Model	Program Capacity	Built-in I/O	DO Type	Terminal Block	High-Speed Counter	Pulse-train Output	Built-in Communication	Function Card Slot
CPU	AS332T-A	128k steps	16DI / 16DO	NPN	MIL	6 CHs, 200 kHz	6 Axes, 200 kHz (12 CHs, 200 kHz)	USB RS-485*2 Ethernet	2
	AS332P-A			PNP					
	AS324MT-A		12DI / 12DO	Diff. / NPN		2 CHs, 4 MHz (Diff.) 4 CHs, 200 kHz	2 Axes, 4 MHz (Diff.) 4 Axes, 200 kHz		
	AS320T-B New		8DI / 12DO	NPN	EU	4 CHs, 200 kHz	6 Axes, 200 kHz (12 CHs, 200 kHz)		
	AS320P-B New			PNP					
	AS300N-A New		-	-	-	-	-		
	AS228T-A New	64k steps	16DI / 12DO	NPN	EU	4 CHs, 200 kHz	6 Axes, 200 kHz (12 CHs, 200 kHz)	USB RS-485*2 Ethernet CANopen	-
	AS228P-A New			PNP					
	AS228R-A New			Relay			-		
	AS218TX-A New		8DI / 6DO 2AI / 2AO(*1)	NPN		4 CHs, 200 kHz	3 Axes, 200 kHz (6 CHs, 200 kHz)		
	AS218PX-A New			PNP					
	AS218RX-A New			Relay			-		

Note: The specifications of the built-in AIO are the same as AS-F2AD / AS-F2DA function cards.

▪ Software

Product Name	License	Descriptions	Supported Device
ISPSoft [V3]	Free	PLC programming software	AS Series, AH Series, DVP Series
COMMGR [V1]	Free	Communication management software	AS Series, AH Series, DVP Series
DCISoft [V1]	Free	Ethernet configuration software	AH series Ethernet / serial communication modules, AS series SCM module, DVP series built-in Ethernet PLCs, DVP series Ethernet / serial communication modules, IFD series Ethernet modules
	Free	SCM serial communication module planning software	AS Series, AH Series, DVP Series SCM communication modules
CANopen Builder [V5]	Free	CANopen configuration software / motion control programming software	AS Series, AH Series, DVP Series built-in CANopen communication modules
EIP Builder [V1]	Free	EtherNet/IP configuration software	AS Series, AH Series, DVP Series built-in Ethernet communication modules
Delta OPC [V2] (HASP-20-OPC01)	Hardware License (USB)	Delta OPC Server	AS Series, AH Series,

▪ Power Supply Module

Name	Model	Input	Output	Certification
Power Supply Module	AS-PS02	100 ~ 240 VAC	24 VDC, 2A (for modules on the rack)	CE / UL
	AS-PS02A		24 VDC, 1.5A (for modules on the rack) 24 VDC, 0.5A (for external I/O)	

Ordering Information

▪ Communication Module

Name	Model	Communication Card Installation	Power Consumption (Internal)	Specifications	Certification
Communication Extension Module	AS00SCM-A	2	0.6 W	• Serial communication: RS-232 / RS-422 / RS-485 • Provide CANopen communication interface for extension racks	CE / UL
DeviceNet Communication Module	New AS01DNET-A	-	0.8W	• DeviceNet protocol • Supports master / slave modes • Supports RTU function	

▪ Digital I/O Module

Name	Model	I/O	Signals	Terminal Block Type	Power Consumption (Internal)	Certification
Input Module	AS08AM10N-A	8	24 V_{DC} 5 mA	Removable terminal block	0.72 W	CE / UL
	AS16AM10N-A	16			0.72 W	
	AS32AM10N-A	32		MIL	0.48 W	
	AS64AM10N-A	64			0.72 W	

Name	Model	I/O	Signals	Terminal Block Type	Power Consumption (Internal)	Specifications	Certification
Output Module	AS08AN01R-A	8	240 V_{AC} 24 V_{DC}	Removable terminal block	1.7 W	Relay	CE / UL
	AS16AN01R-A	16			3.4 W	Relay	
	AS08AN01T-A	8	5 ~ 30 V_{DC} 0.5A		0.72 W	Transistor NPN (Sink)	
	AS08AN01P-A	8			1.4 W	Transistor PNP (Source)	
	AS16AN01T-A	16			1.4 W	Transistor NPN (Sink)	
	AS16AN01P-A	16			1.4 W	Transistor PNP (Source)	
	AS32AN02T-A	32	5 ~ 30 V_{DC} 0.1A	MIL	0.72 W	Transistor NPN (Sink)	
	AS64AN02T-A	64			1.44 W	Transistor NPN (Sink)	

Name	Model	I/O	Signals		Terminal Block Type	Power Consumption (Internal)	Specifications	Certification
			Input	Output				
Input / Output Module	AS16AP11R-A	16 (8 in / 8 out)	24 V_{DC} 5 mA	240 V_{AC} 24 V_{DC} 2A	Removable terminal block	1.9 W	Relay	CE / UL
	AS16AP11T-A	16 (8 in / 8 out)		5 ~ 30 V_{DC} 0.5A		0.7 W	Transistor NPN (Sink)	
	AS16AP11P-A	16 (8 in / 8 out)				0.7 W	Transistor PNP (Source)	

▪ Analog I/O Module

Name	Model	Channel	Mode	Terminal Block Type	Power Consumption (Internal)	Specifications	Certification
Analog Input Module	AS04AD-A	4	1~5V 0~5V -5~5V 0~10V -10~10V 4~20mA 0~20mA -20~20mA	Removable terminal block	1.2W/2.5W	• Hardware resolution: 16-bit • Single channel on/off setting to enhance overall conversion efficiency • Conversion time: 2ms/channel • Wire break detection at1~5V, 4~20mA modes	CE/UL
	New AS08AD-B	8	1~5V 0~5V -5~5V 0~10V -10~10V				
	New AS08AD-C		4~20mA 0~20mA -20~20mA				
Analog Output Module	AS04DA-A	4	0~10V -10~10V 4~20mA 0~20mA		1.2W/3W	• Hardware resolution: 12-bit • Single channel on/off setting • Conversion time: 250μs/channel	
Analog Input/ Output Module	AS06XA-A	Input: 4 Output: 2	• Input: 1~5V 0~5V -5~5V 0~10V -10~10V 4~20mA 0~20mA -20~20mA • Output: 0~10V -10~10V 4~20mA 0~20mA		1.2W/2.5W	• Input resolution: 16-bit • Output resolution: 12-bit • Single channel on/off setting to enhance overall conversion efficiency • Conversion time: 2ms/channel • Wire break detection at 1~5V, 4~20mA modes	

Ordering Information

▪ Temperature Measurement Module

Name	Model	Channel	Mode	Terminal Block Type	Power Consumption (Internal)	Specifications	Certification
RTD Temperature Measurement Module	AS04RTD-A	4	Pt100 Ni100 Pt1000 Ni1000 JPt100 LG-Ni1000 Cu50 Cu100 Input Impendence 0 ~ 300 Ω 0 ~ 3,000 Ω	Removable terminal block	2 W / 1 W	• Resolution 0.1°C / 0.1°F • Conversion time: 200 ms / channel • Overall accuracy RTD: ± 0.1% TC: ± 0.5% • Wire break detection • Module monitoring, setting	CE / UL
	New AS06RTD-A	6					
Thermocouple Temperature Measurement Module	AS04TC-A	4	J,K,R,S, T,E,N,B -100 ~ +100 mV				
	New AS08TC-A	8					

▪ Load Cell Module

Name	Model	Channel	Mode	Terminal Block Type	Power Consumption (Internal)	Specifications	Certification
Load Cell Module	AS02LC-A	2	0 ~ 1 0 ~ 2 0 ~ 4 0 ~ 6 0 ~ 20 0 ~ 40 0 ~ 80 mV / V	Removable terminal block	0.75 W / 3 W	• Resolution: 24-bit for hardware (ADC), 32-bit for data output • 4-wire / 6-wire load cell sensor • Selectable signal input ranges • LCSoft software configuration • High-speed dynamic measurement • 50 / 60 Hz active filtering	CE / UL

▪ Pulse Unit Module

Name	Model	Channel	Power Consumption (Internal)	Specifications	Certification
Pulse Unit Module	New AS02PU-A(*1)	2	1.5 W	• Differential • 200 kHz • Supports motion APIs	CE / UL
	New AS04PU-A(*1)	4	1.5 W	• Open collector • 200 kHz • Supports motion APIs	

Note 1: Please contact our distributors for release date

▪ Function Cards

Name	Model	Channel	Specifications	Certification
Communication Card	AS-F232	1	Serial COM, RS-232 interface, slave / host mode	CE
	AS-F422	1	Serial COM, RS-422 interface, slave / host mode	
	AS-F485	1	Serial COM, RS-485 interface, slave / host mode	
	AS-FCOPM	1	• CANopen port, support DS301, AS Series remote control or Delta servo motor control • Built-in switchable terminal resistor (120 Ω)	
	New AS-FEN02	1	Ethernet port, RJ45 x2 (Switch function), supports EtherNet/IP (Adapter mode) / Modbus TCP	
	New AS-FPFN02(*1)	1	PROFINET port, RJ45 x2 (Switch function), supports PROFINET (Slave mode)	
Analog I/O Card	AS-F2AD	2	2-channel analog input 0 ~ 10 V (12-bit resolution), 4 ~ 20 mA (11-bit resolution), conversion time: 3 ms / channel	
	AS-F2DA	2	2-channel analog Output 0 ~ 10 V, 4 ~ 20 mA (12-bit resolution), conversion time: 2 ms / channel	

Note 1: Please contact our distributors for release date

Ordering Information

▪ Accessories

Name	Model	Descriptions	Specifications		Applicable Module
			Length	Connector / Terminal Block Type	
I/O Cable	UC-ET010-24B	I/O cable for connecting I/O modules and external terminal modules	1 m	I/O extension cable (MIL connector IDC40 to IDC40) (Shielded)	AS32AM,AS64AM, AS32AN,AS64AN
	UC-ET010-24D		1 m	I/O extension cable (MIL connector IDC40 to IDC20 x 2) (Shielded)	AS332T,AS332P, AS324MT,AS32AM, AS64AM,AS32AN, AS64AN
	UC-ET020-24B		2 m	I/O extension cable (MIL connector IDC40 to IDC40) (Shielded)	AS32AM,AS64AM, AS32AN,AS64AN
	UC-ET020-24D		2 m	I/O extension cable (MIL connector IDC40 to IDC20 x 2) (Shielded)	AS332T,AS332P, AS324MT,AS32AM, AS64AM,AS32AN, AS64AN
	UC-ET030-24B		3 m	I/O extension cable (MIL connector IDC40 to IDC40) (Shielded)	AS32AM,AS64AM, AS32AN,AS64AN
	UC-ET030-24D		3 m	I/O extension cable (MIL connector IDC40 to IDC20 x 2) (Shielded)	AS332T,AS332P, AS324MT,AS32AM, AS64AM,AS32AN, AS64AN
Cables	UC-DN01Z-01A(*1)	CANopen / DeviceNet cables	305.0 m	Thick / Trunk Cable	AS200 CPU, AS01DNET-A TAP-CN01, TAP-CN02, TAP-CN03
	UC-DN01Z-02A(*1)		305.0 m	Thin / Drop Cable	
	UC-CMC003-01A	CANopen / DeviceNet / DMCNET cables	0.3 m	RJ45	AS-FCOPM TAP-CN03
	UC-CMC005-01A		0.5 m	RJ45	
	UC-CMC010-01A		1.0 m	RJ45	
	UC-CMC015-01A		1.5 m	RJ45	
	UC-CMC020-01A		2.0 m	RJ45	
	UC-CMC030-01A		3.0 m	RJ45	
	UC-CMC050-01A		5.0 m	RJ45	
	UC-CMC100-01A		10.0 m	RJ45	
	UC-CMC200-01A		20.0 m	RJ45	

Note:
- Ordering unit: meter
- Not available in Taiwan

■ Accessories

Name	Model	Descriptions	Specifications		Applicable Module
			Length	Connector / Terminal Block Type	
External terminal module	UB-10-ID16A	External terminal module of digital module	--	16 inputs or outputs (MIL connector, 20Pin)	AS332T, AS332P, AS324MT, AS32AM, 64AM,AS32AN, AS64AN
	UB-10-ID32A			32 inputs (MIL connector, 40Pin)	AS32AM, AS64AM
	UB-10-OT32A			32 transistor outputs (MIL connector, for NPN output)	AS32AN, AS64AN
	UB-10-OR16A			16 relay outputs (MIL connector, for NPN output)	AS332T, AS32AN02T, AS64AN02T
	UB-10-OR16B			16 relay outputs (MIL connector, for PNP output)	AS332P
	UB-10-IO32D			Connector converter (MIL→Spring)	AS332T, AS332P, AS324MT, AS32AM, AS32AN
Terminal resistors	TAP-TR01	CANopen / DeviceNet terminal resistors (RJ45)			
Distribution box	TAP-CP01	CANopen / DeviceNet distribution Box	--	Power distribution box	
	TAP-CN01		--	1 for 2	
	TAP-CN02		--	1 for 4	
	TAP-CN03		--	1 for 4 (RJ45)	
Auxiliary Connected Power Module	AS-ATXB	Move the CPU power connector from left side to bottom side			
PLC programming cable	UC-PRG015-01A	Communication cable for PLC to PC	1.5 m	PLC (mini USB)	All AS series CPU modules
	UC-PRG030-01A		3 m	PLC (mini USB)	
	UC-PRG030-20A	Communication cable for PLC / HMI (RJ45) to PC	3 m	PLC / HMI (RJ45)	

■ Starter Kit

Name	Model	Specifications
Delta PLC starter kit	UT-AS332-C	AS332T-A CPU, power module and other accessories

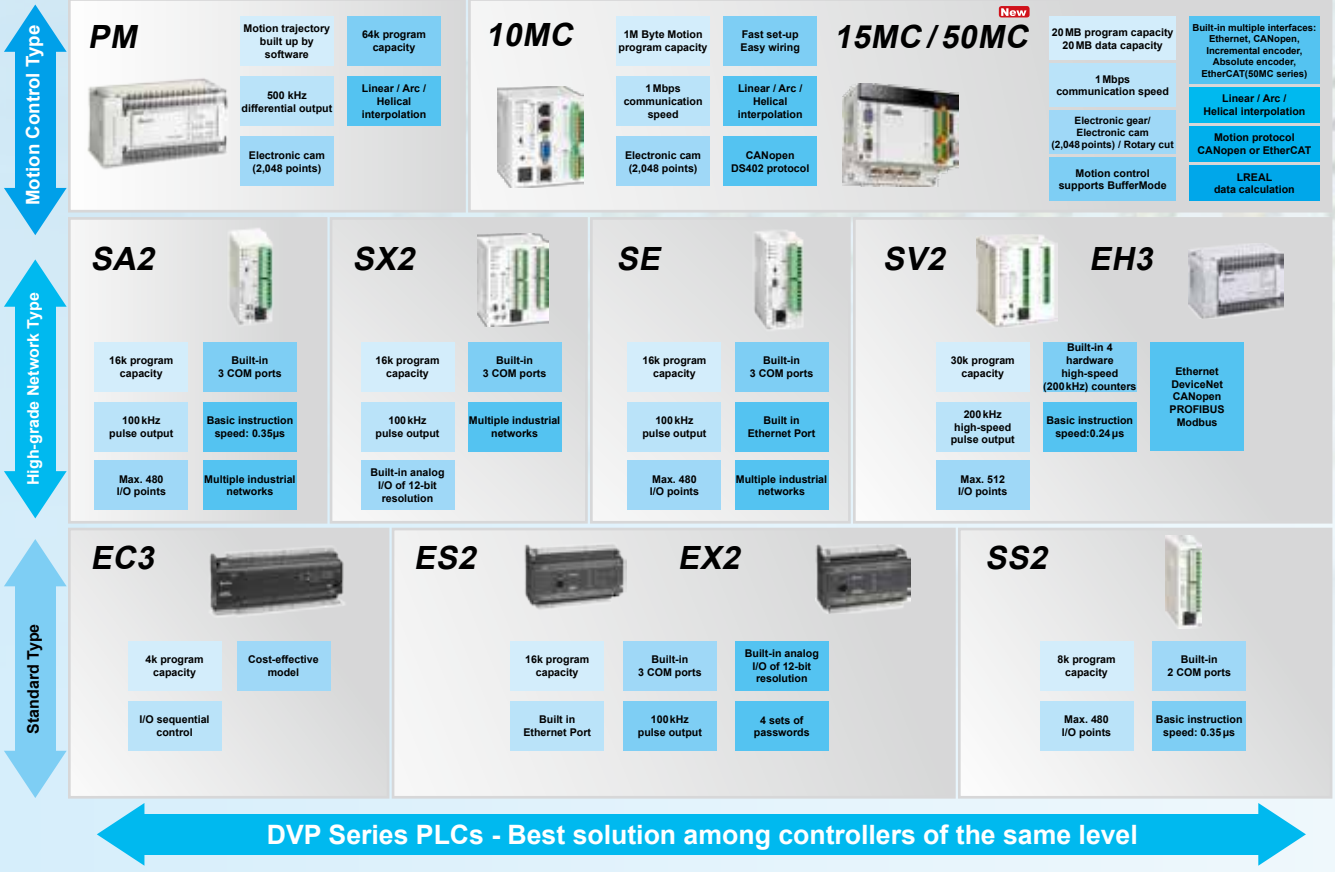
SERIE PLC DVP

The Perfect Small PLC Revolution!

After launching our first DVP series PLCs for industrial automation applications, Delta has been devoted to delivering more innovative products that satisfy customers' needs and meet the requirements of a wide variety of applications.

Delta PLCs offer a broad range of controllers and modules which all feature high performance, multiple functions and efficient program editing tools. In addition to the user-friendly programming software and faster execution speed, we also provide complete industry-focused solutions, motion control solutions, and industrial fieldbus solutions with Delta's new PLC series.
We integrate our PLCs with industrial automation products to deliver total solutions for various field applications.

As your most reliable partner, Delta is dedicated to creating value for our customers.





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NEW

Built-in Ethernet for Advanced Applications



Standard PLC
DVP-ES2-E

- Built-in 20 / 32 / 40 / 60 I/O points
- Built-in Ethernet port that supports Modbus TCP and EtherNet/IP (slave)

Increased Built-in I/O Points to Enhance Competitiveness for Solutions

PLCs
DVP-28SS2
DVP-28SA2
DVP-26SE

- 16DI + 12DO (DVP-28SS2, DVP-28SA2)
- 14DI + 12DO (DVP-26SE)
- Compatible with DVP-S Series extension modules (right-side)



Complete Interface Design and 24-axis Motion Control



CANopen Motion Controller
DVP-15MC

EtherCAT Motion Controller
DVP-50MC

- 1GHz CPU
- Program capacity + data capacity = 20MB + 20MB
- Up to 24 real axes control

Built-in Interface

16DI 8DO	RS-232	RS485	Ethernet 15MC: x2 50MC: x1	Memory card:SD
CANopen DS301	Motion 15MC: CANopen DS402 50MC: EtherCAT	Incremental encoder interface*2	SSI absolute encoder interface	

Motion Function

Multi-axis Gear / Cam	Linear / Arc / Helical interpolation	Jerk	G-Code	Buffer Mode



reddot design award
winner 2010

Basic PLC

DVP-EC3

Applicable for sequence control and simple RS-485 / Modbus communication

- Built-in I/O: 10 / 14 / 16 / 20 / 24 / 30 / 32 / 40 / 48 / 60
- Program capacity: 4 k steps
- COM port: Built-in RS-232 & RS-485 ports (10 / 14-point models do not support RS-485), compatible with Modbus ASCII / RTU protocol
- Supports 2 points (Y0, Y1) of independent high-speed (max. 10 kHz) pulse output

  (Hardware version V8.00 and above support this function)

Built-in High-Speed Counters					
1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
2 / 2	20 kHz / 10 kHz	1	20 kHz	1	4 kHz

Standard PLC / Analog I/O PLC

DVP-ES2 / EX2

Standard PLCs with integrated communication and highly efficient processing ability for your control systems

- 32-bit CPU for high-speed processing
- Standard PLC DVP-ES2 Series: 16 / 20 / 24 / 32 / 40 / 60 / 80 I/O points for a variety of applications
- Analog I/O PLC DVP-EX2:
  - Built-in 12-bit 4 analog inputs / 2 analog output; and 14-bit analog I/O extension module
  - Built-in PID auto tuning function for a complete analog control solution
- Built-in 1 RS-232 and 2 RS-485 ports
- Program capacity: 16 k steps
- Data register: 10 k words
- Max. execution speed of basic instructions: 0.35 µs
- RTC function and file register (5 k words) (hardware version 2.0 and above)
- Highly efficient processing ability: 1 k steps of programs can be completed within 1ms
- Max. 100 kHz pulse control; specific motion control instructions (mark/masking and instant frequency changing) available for multi-axis applications
- Up to 4 levels of password protection secures your source programs and intellectual property

Built-in High-Speed Counters					
1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
2 / 6	100 kHz / 10 kHz	2	100 kHz	1 / 3	15 kHz / 5 kHz



Standard PLC with built-in CANopen interface

DVP32ES200RC / TC

Boosts productivity with high execution speed and built-in CANopen interface, and specializes in noise-immunity and easy wiring

- Built-in 1Mbps CANopen interface; COM3 supports standard CANopen DS301 protocol
- Versatile communication types: PDO, SDO, synchronous (SYNC), Emergency, NMT and many more
- 1Mbps high-speed transmission for large data:
  - Max. PDO transmission: up to 390 bytes
  - Max. PDO receiving: up to 390 bytes
- Ability to connect with 16 slaves via CANopen
- Built-in 1 RS-232 and 1 RS-485 ports

Standard PLC with built-in Ethernet interface

DVP-ES2-E

Higher communication speed and easier external connection with built-in Ethernet

- Built-in I/O: 20 / 32 / 40 / 60
- Communication speed: 100M
- Supports Modbus and EtherNet/IP (slave)
- Built-in 1 RS-232 and 2 RS-485 ports

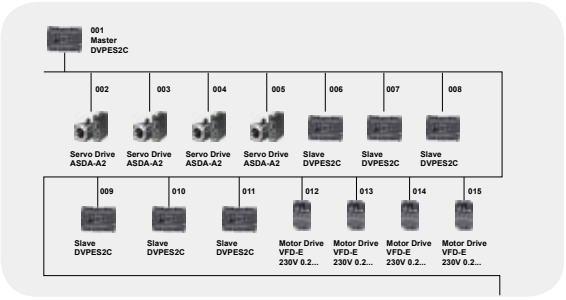
Temperature / Analog I/O PLC

DVP30EX200R / T

Integrated controller for temperature control and analog input

- Built-in 16-bit 3 analog inputs / 12-bit 1 analog output
- Built-in PID auto tuning function to offer a complete analog control solution
- 3 analog inputs for Pt / Ni temperature input, precision of 0.1 degree can be readily achieved





Built-in Ethernet			
Modbus		**EtherNet/IP**	
Number of Connections	Server: 16 Client: 8	**Number of Connections**	TCP: 4 CIP: 8
Max. Data Exchange (each connection)	100 words	**Max. Data Exchange** (each connection)	250 words
		RPI	5~1,000 ms
		PPS	1,000 PPI

Built-in Analog I/O in DVP-EX2 Model			
Analog Input		**Analog Output**	
Channels	3	**Channels**	1
Resolution	16-bit	**Resolution**	12-bit
Spec.	-20~20 mA or -10~10 V	**Spec.**	0~20 mA or -10~10 V

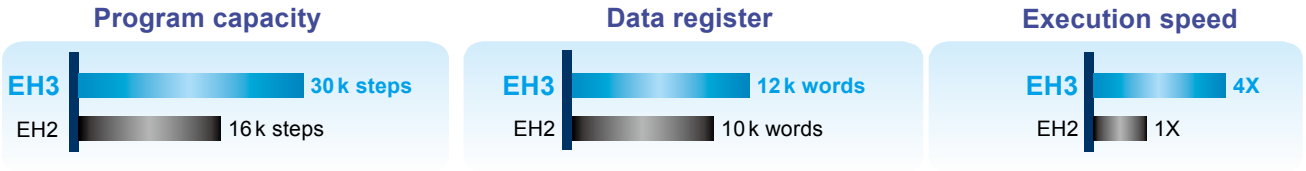
Built-in Temperature Control Function		
Sensor	Pt100 / Pt1000	Ni100 / Ni1000
Temperature Range	-200 °C ~ 800 °C	-100 °C ~ 180 °C
Value Range	-2,000 ~ 8,000	-1,000 ~ 1,800



High Performance PLC

DVP-EH3

High-end model of Delta's DVP-E Series PLC with large program capacity and data registers for demanding and complex applications



Excellent Motion Control

- High-speed pulse output: 4 axes of 200 kHz pulse output (DVP32 / 40 / 48 / 64 / 80EH00T3)
- Supports max. 4 hardware 200 kHz high-speed counters
- Various motion control instructions to achieve high-speed and high-precision positioning control for labeling machines, packaging machines, printing machines and more applications
- Linear / arc interpolation motion control function
- Provides up to 16 external interrupt pointers

Complete Program Protection

- Auto backup function prevents program and data loss even when the battery runs out
- Secondary backup function saves an extra copy of programs and data to enhance program safety
- Up to 4 levels of password protection protects your source programs and intellectual property

Outstanding Operation Performance

- 32-bit CPU + ASIC dual processors support floating point operations
- Max. execution speed of basic instructions: 0.24μs

Flexible Function Extension Modules & Cards

- Multiple selections of extension modules and function cards: analog I/O, temperature measurement, additional single-axis motion control, high-speed counting
- 3rd serial communication port and Ethernet communication card are available

PLC Link

- PLC Link allows users to link up a max. of 32 units to the network without extra communication extension modules

Built-in 4 Hardware High-Speed Counters							
Standard		Hardware high-speed counter					
1-phase 1 input		1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
8	10 kHz	4	200 kHz	4	200 kHz	4	200 kHz

The specifications of high-speed input and output on this page are applicable only for DVP40EH00R3 / DVP40EH00T3.

Refer to the I/O specifications table on page 20 for more information on other models.

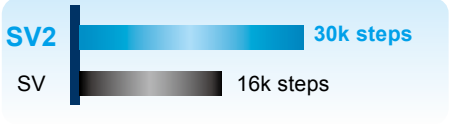


High Performance Slim PLC

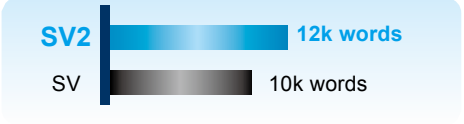
DVP-SV2

High-end model of the DVP-S Series with larger program capacities and data registers for more demanding and complex applications

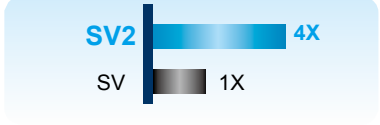
Program capacity



Data register



Execution speed



Excellent Motion Control

- High-speed pulse output: 4 axes of 200 kHz pulse output
- Supports 4 hardware 200 kHz high speed counters
- Various motion control instructions to achieve high-speed and high-precision positioning control for labeling machines, packaging machines, printing machines and more applications
- Linear / arc interpolation motion control function
- Provides up to 16 external interrupt pointers

Complete Program Protection

- Auto backup function prevents program and data loss even when the battery runs out
- Secondary backup function saves an extra copy of programs and data to enhance program safety
- Up to 4 levels of password protection protects your source programs and intellectual property

Supports DVP-S Series modules (left-side and right-side); additional new Ethernet communication command (ETHRW)

Outstanding Operation Performance

- 32-bit CPU + ASIC dual processors support floating point operations
- Max. execution speed of basic instructions: 0.24μs

The DVP-24SV2 model has a built-in 2AI (12-bit) with Y10 / Y12 of 10 kHz output.

Built-in 4 Hardware High-Speed Counters							
Standard		Hardware high-speed counter					
1-phase 1 input		1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
8	10 kHz	4	200 kHz	4	200 kHz4	4	200 kHz

The X11 / X15 have been upgraded to 200kHz since 2016 October



Standard Slim PLC

DVP-SS2

Economic and compact model

- 32-bit CPU for high-speed processing
- Max. I/O: 480 points
- Program capacity: 8 k steps
- Data register: 5 k words
- Max. execution speed of basic instructions: 0.35 μs
- Built-in RS-232 and RS-485 ports (Master / Slave)
- Supports standard Modbus ASCII / RTU protocol and PLC Link function

Motion Control Functions

- 4 points of 10 kHz pulse output
- 8 points of high-speed counters: 20 kHz / 4 points, 10 kHz / 4 points

Advanced Slim PLC

DVP-SA2

Advanced model supporting 2-axis interpolation

- 32-bit CPU for high-speed processing
- Program capacity: 16 k steps
- Data register: 10 k words
- Max. execution speed of basic instructions: 0.35 μs
- Built-in 1 RS-232 and 2 RS-485 ports (Master / Slave)
  ※ Note: RS-485 will be reduced to 1 port in DVP28SA2
- Supports standard Modbus ASCII / RTU protocol and PLC Link function
- No battery required; RTC function operates for 15 days after power off
- Supports DVP-S Series modules (left-side and right-side)
  ※ Note: DVP28SA2 only supports right-side modules

Motion Control Functions

- 4 points of high-speed pulse output: 100 kHz / 2 points, 10 kHz / 2 points
- 8 points of high-speed pulse input: 100 kHz / 2 points, 10 kHz / 6 points, 1 set of A / B phase 50 kHz
- Supports 2-axis linear and arc interpolation

Built-in High-Speed Counters					
1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
4 / 4	20 kHz / 10 kHz	2	20 kHz	2 / 2	10 kHz / 5 kHz

Built-in High-Speed Counters					
1-phase 1 input		1-phase 2 inputs		2-phase 2 inputs	
Counters	Bandwidth	Counters	Bandwidth	Counters	Bandwidth
2 / 6	100 kHz / 10 kHz	2	100 kHz	1 / 3	50 kHz / 5 kHz



Analog I/O Slim PLC
DVP-SX2

Analog model with highly efficient PID control function

- 32-bit CPU for high-speed processing
- Program capacity: 16 k steps
- Data register: 10 k words
- Max. execution speed of basic instructions: 0.35 μs
- Built-in 4 analog inputs / 2 analog outputs
- Built-in mini USB, RS-232 and RS-485 ports (Master / Slave)
- Supports standard Modbus ASCII / RTU protocol and PLC Link function
- PID Auto Tuning function for highly efficient PID control
- No battery required; RTC function operates for at least one week after power off (hardware version 2.0 and above)
- Supports DVP-S Series modules (left-side and right-side)

Motion Control Functions

- 4 points of high-speed pulse output: 100 kHz / 2 points, 10 kHz / 2 points
- 8 points of high-speed pulse input: 100 kHz / 2 points, 10 kHz / 6 points
- Supports 2-axis linear and arc interpolation

Built-in Analog I/O			
Analog Input		**Analog Output**	
Channels	4	**Channels**	2
Resolution	12-bit	**Resolution**	12-bit
Spec.	-20 ~ 20 mA or -10 ~ 10 V or 4 ~ 20 mA	**Spec.**	0 ~ 20 mA or -10 V ~ 10 V or 4 ~ 20 mA

Network Type Advanced Slim PLC
DVP-SE

Complete network communication functions for advanced industrial applications

- 32-bit CPU for high-speed processing
- Program capacity: 16 k steps
- Data register: 12 k words
- Max. execution speed of basic instructions: 0.64 μs
- Built-in Ethernet
  DVP12SE : Modbus & Ethernet/IP (Explicit message)
  DVP26SE : Modbus & Ethernet/IP (Adapter mode, explicit message)
- Built-in mini USB port, RS-485 port*2 and Ethernet port that supports Modbus TCP and EtherNet/IP Slave (adapter)
  ※ Note: RS-485 will be reduced to 1 port in DVP26SE
- IP Filter functions as firewall for first line protection against malware and network threats
- Supports DVP-S Series modules (left-side and right-side)
  ※ Note: DVP26SE only supports right-side modules
- No battery required; RTC function operates for 15 days after power off

Motion Control Functions

- 4 points of high-speed pulse output: 100 kHz / 2 points, 10 kHz / 2 points
- 8 points of high-speed pulse input: 100 kHz / 2 points, 10 kHz / 6 points, 1 set of A / B phase 50 kHz
- Supports 2-axis linear and arc interpolation

Built-in High-Speed Counters					
1-phase 1 input		**1-phase 2 inputs**		**2-phase 2 inputs**	
Counters	**Bandwidth**	**Counters**	**Bandwidth**	**Counters**	**Bandwidth**
2 / 6	100 kHz / 10 kHz	2	100 kHz	1 / 3	50 kHz / 5 kHz

General Motion Controller

DVP-PM



Standard Motion Controller

DVP10PM00M

Standard motion controller for general applications

- Built-in 24 I/O points. Max. 256 I/O points
- Program capacity: 64 k steps
- Data register: 10 k words
- Execution speed LD: 0.13 μs, MOV: 2.1 μs
- Built-in RS-232 and RS-485 ports
- 2 / 3 / 4 / 5 / 6 axes linear interpolation motion control
- Highly accurate PWM 200 kHz output, resolution 0.3%
- 8 groups of high-speed captures (mark correction, frequency measurement), comparative output, Mark / Mask function (for bag making)
- Supports standard Modbus ASCII / RTU protocol

Motion Control Functions

- High-speed pulse output: built-in 6 sets of A / B phase pulse outputs
- 2 sets of 200 kHz output, 4 sets of 1 MHz output
- 6 sets of high-speed counters and hardware digital filter for counting
- Supports MPG inputs
- Single-axis motion control function (supports MPG, single-speed and two-speed positioning)
- Electronic gear function

Advanced Motion Controller

DVP20PM00D / M / DT

Excellent as motion controllers or extension modules and supports advanced motion control functions

- Built-in 16 I/O points. Max. 512 I/O points
- Program capacity: 64 k steps
- Data register: 10 k words
- Compatible with G-code / M-Code
- 3-axis linear / arc / helical interpolation
- Supports electronic cam (2,048 points) function for flying shear and rotary cut applications
- All models can be applied as motion controllers or extension modules
- Built-in RS-232 and RS-485 ports, and supports standard Modbus ASCII/RTU protocol

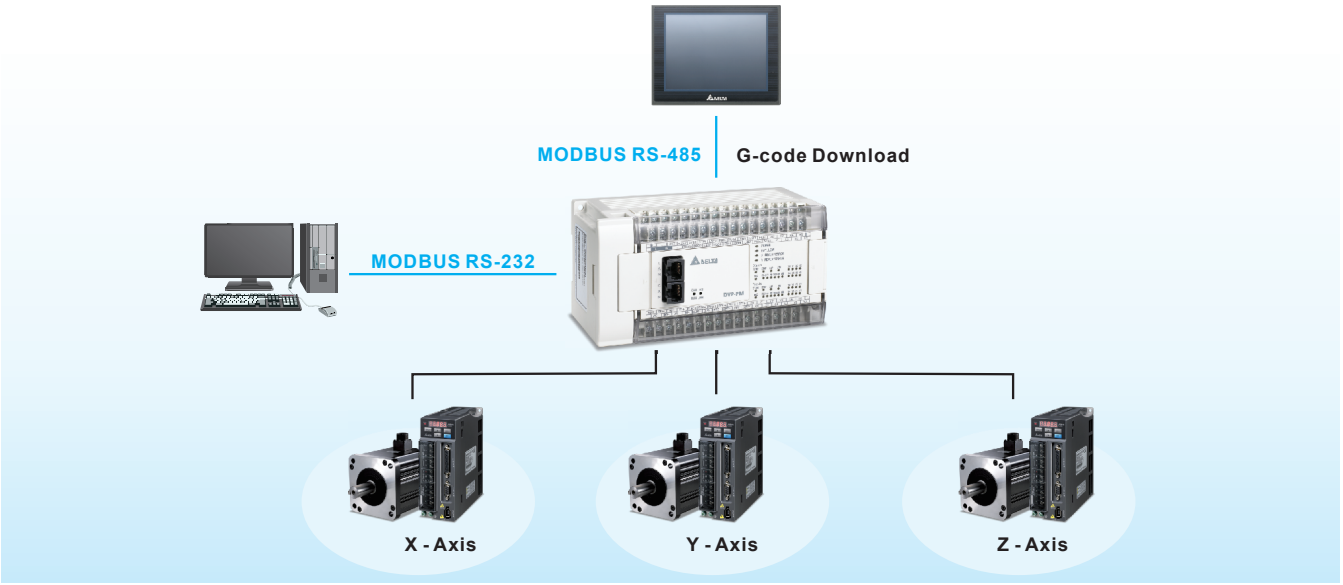
Motion Control Functions

- Built-in A / B phase differential signal outputs: 2 sets (DVP20PM00D) / 3 sets (DVP20PM00M) Max. differential output frequency: 500 kHz
- Supports MPG inputs
- Single-axis motion control function (supports MPG, single-speed and two-speed positioning)
- Electronic gear function

Function Cards for DVP-PM		
Model Name	**Specifications**	**Features**
DVP-FPMC	Ethernet / CANopen communication card	1. Complies with CANopen CiA301 V4.0.2 protocol. 2. Provides high-speed program upload/download via Ethernet.

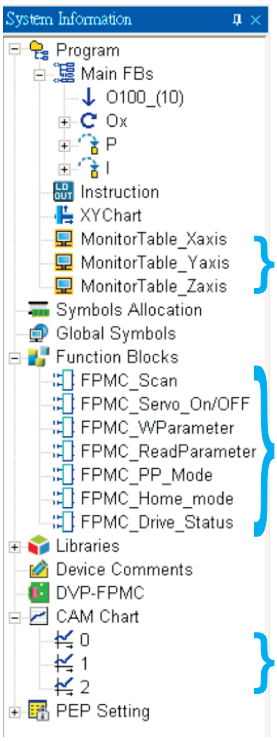
* DVP-PM also supports DVP-EH series function cards: DVP-F2AD, DVP-F2DA, DVP-F232S and DVP-F485S

General Motion Controller DVP-PM Series: Pulse-train communication



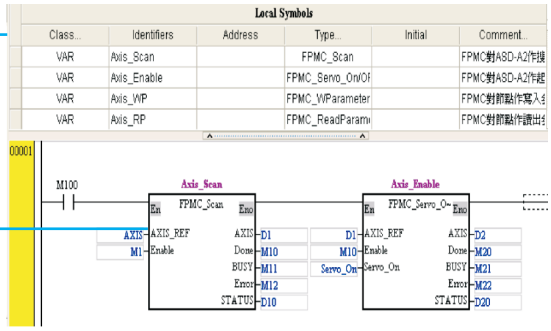
Programming Software for DVP-PM Series: PMSoft

The programming software for G-Code editing, motion path simulation, positioning route planning and electronic cam setup



Variable Declaration

Separate from the program. The corresponding physical I/O point of the variable is defined only after the program is compiled. Users do not need to modify the program.



Function Block

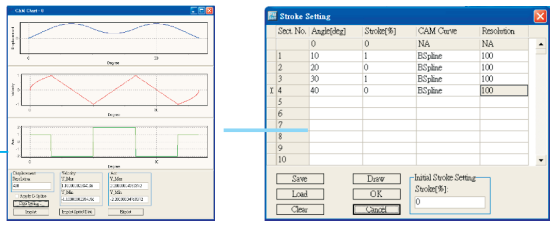
- A completed project can be divided into many function blocks.
- Every function block can be used repeatedly, and the import / export function makes the programming more convenient.

Comprehensive Monitoring

The "program monitoring" and "device monitoring" allow users to keep track of program operation.

Motion Network Function Block

PLCopen Function Block allows users to easily use motion control functions



Electronic Cam

Electronic cam editing

Multi-axis Motion Controller

DVP-MC

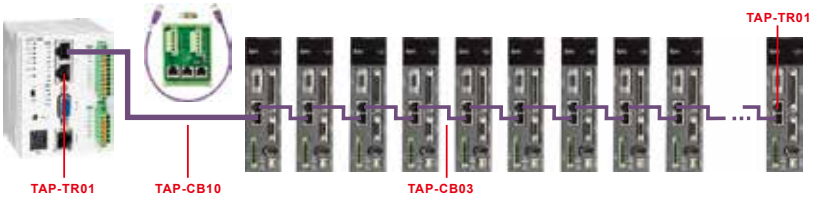
16-axis Motion Controller

DVP10MC11T

Perfect controller to offer highly stable multi-axis motion control solutions through CANopen communication

- Built-in 12 I/O points
  (8 sets of high-speed inputs,
  4 sets of high-speed outputs)
- Up to 16 axes synchronous control through CANopen communication
- Synchronization time: 4 axes in 2ms / 8 axes in 4ms
- Built-in motion control instructions of electronic cam, flying shear, rotary cut for easy operation
- High precision control with interpolation function





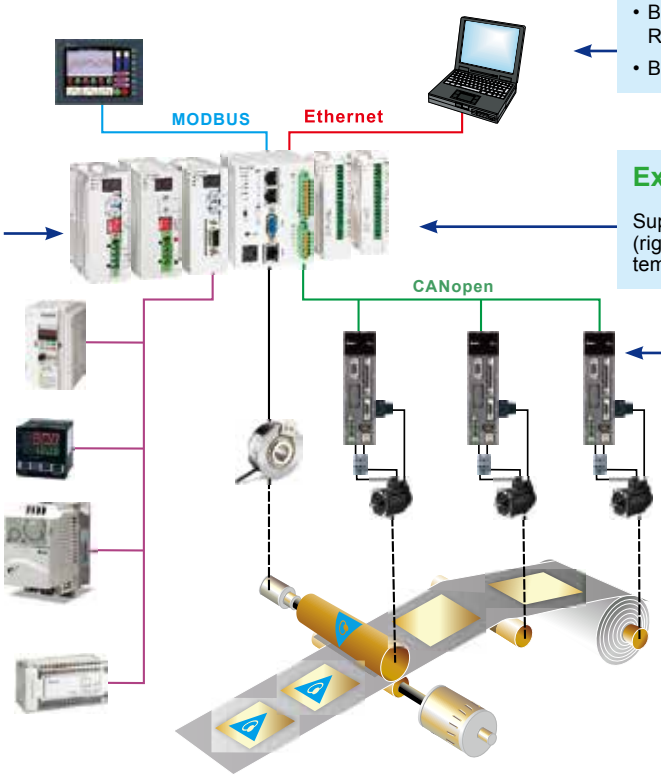
System Control Architecture

Extensions (left-side)

- Supports DVP-S Series modules (left-side):
  - —CANopen master
  - —DeviceNet master
  - —PROFIBUS slave
  - —load cell modules

Accessories

Standard CANopen communication cables, terminal resistor and distribution box



Built-in Functions

- Built-in Ethernet, RS-232 and RS-485 communication ports
- Built-in CANopen and encorder interface

Extensions (right-side)

Supports DVP-S Series modules (right-side): digital, analog and temperature modules

Motion Control

- Speed, position, torque control
- Supports Electronic gear, E-Cam (2,048 points), flying shear and rotary cut applications
- Compatible with G-code, 3 axes arc/helical interpolation, 8 axes linear interpolation
- High speed position capture and error compensation

CANopen Accessories		
Model Name	**Specifications**	**Features**
UC-CMCXXX-01A	CANopen sub-line	RJ45 connector for both ends
UC-DN01Z-01A/02A	CANopen main-line/sub-line	AWG18/AWG24 CANopen cables for long distance communication via CANopen
TAP-CN01/02/03	Distribution box	Built-in terminal resistor 120Ω
TAP-TR01	Terminal resistor	Terminal resistor 120Ω

6 and 24-axis Motion Controller

DVP15MC / DVP50MC series New

The DVP15MC / DVP50MC Series is a multi-axis motion controller designed for the CANopen / EtherCAT network architecture. It supports CANopen / EtherCAT with built-in motion control instructions (BufferMode and Jerk) for flexible configuration and fast project development. DVP15MC / DVP50MC controls up to 24 real axes via Motion port. It also supports single axis motion control instructions such as speed, position, torque, homing, position setup and multi-axis motion control instructions such as electronic gear, electronic cam (E-Cam), rotatory cut and G-code.

DVP15MC / DVP50MC features multiple built-in communication interfaces, and can be easily connected to other equipment without additional communication modules. It also provides high-speed and reliable motion control via CANopen / EtherCAT for printing, packaging, wire cutting, robots and other automation control industries.

Motion Control

- Up to 24 real axes control
  (virtual axis no.: 1 ~ 32, can't be repetitive with real axis no.)
- Built-in motion control instructions and easy to use
- Supports encoder axis and virtual axis
- Single axis motion control instructions: speed, torque, homing, and position setup
- Application instructions: electronic gear, E-Cam, and rotary cut
- G-code: 8 axes linear / arc / helical interpolation
- Coordinates motion control instructions

Performance

- 1 GHZ high-speed floating point operation
- High-precision computing: supports LREAL (Double-precision floating-point format)
- Synchronization time:
  - DVP15MC: 4 axes in 2ms, 8 axes in 4ms
  - DVP50MC: 32 axes in 1ms
- Program capacity: 20 MB
- Data capacity: 20 MB



External Interfaces

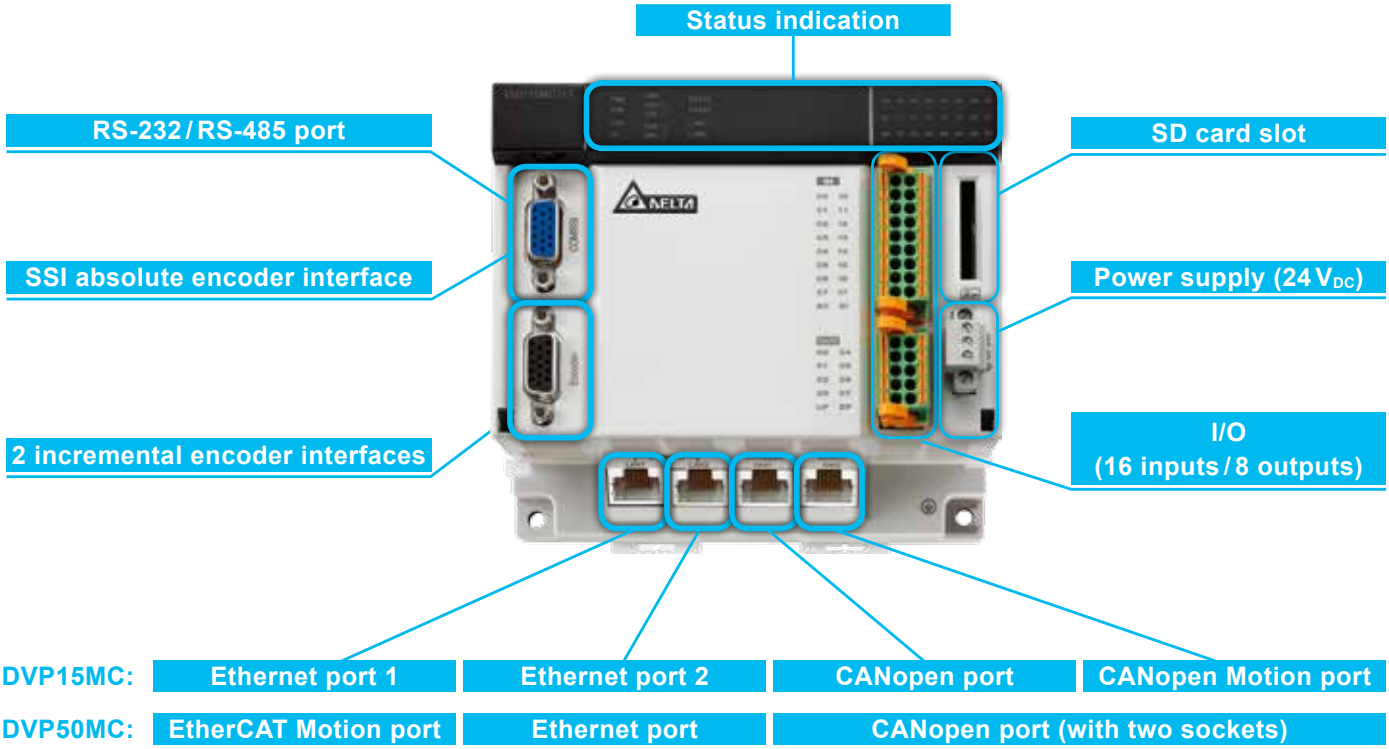
- 1 CANopen port as host or slave station
- 1 Motion port (DVP15MC: CANopen, DVP50MC: EtherCAT)
- 16 high-speed inputs / 8 high-speed outputs
- 2 incremental encoder interfaces
- 1 SSI absolute encoder interface
- Ethernet port: DVP15MC x2, DVP50MC x1
- 1 SD card slot
- 1 RS-232 port and 1 RS-485 port
- Extension:
  - Left-side: supports up to 8 DVP-S Series modules (master / slave / load cell modules)
  - Right-side: compatible with DVP-S Series modules (240 DI, 240 DO and 8 special modules)

Motion Network and Wiring

- DVP15MC
  - Motion network: CANopen
  - Communication speed: Max. 1Mbps
  - Distance: Max. 100m (at 500 kbps)
- DVP50MC
  - Motion network: EtherCAT
  - Communication speed: Max. 100Mbps
  - Distance: Max. 50m (Node-to-node)
- Simple wiring, plug-and-play

DVP15MC / DVP50MC Interface

Multiple built-in communication interfaces allow easy connection to other equipment without additional communication modules.



Left-side extension

Supports DVP-S Series left-side modules (master / slave / load cell modules)



Right-side extension

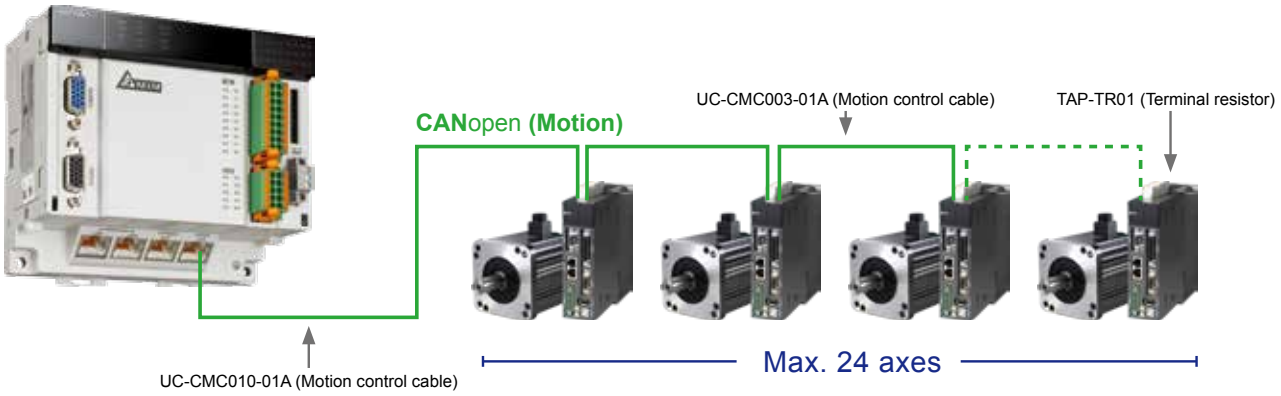
Supports DVP-S Series right-side modules (240 I/O, 8 special modules)

Simple Wiring, Plug-and-Play Motion Control Network

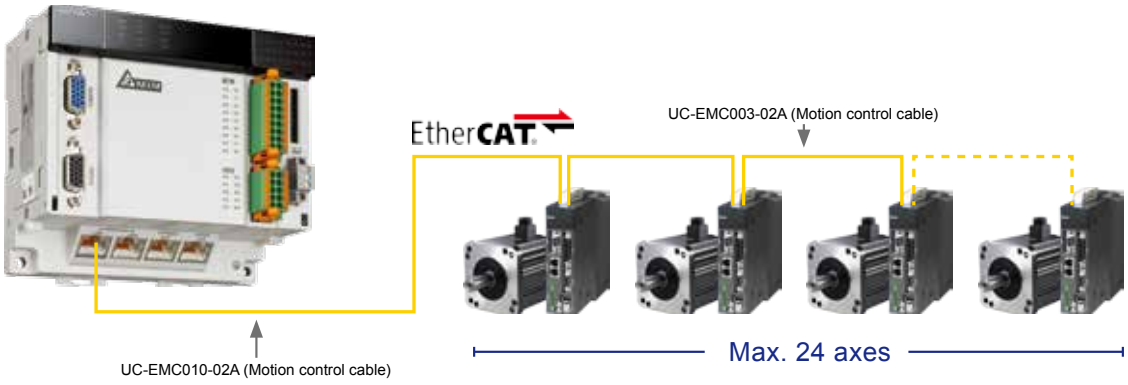
The DVP15MC / DVP50MC features stable CANopen / EtherCAT communication, simple wiring, plug-and-play functions, and communicates with servo drives (axes) via CANopen / EtherCAT network. Delta provides communication cable, terminal resistor and distribution box.

*Please refer to "Accessories" for detail information.

DVP15MC:



DVP50MC:



Compatible with Servo Drives via Motion Port

- Delta's AC Motor Drives ASDA-A2-XXXX*-M models support CANopen communication, and they are the only models that can be connected to a DVP15MC CANopen (Motion) port and DVP10MC11T for motion control networks.
- Delta's AC Motor Drives ASDA-A2-XXXX*-E models support EtherCAT communication, and they are the only models that can be connected to a DVP50MC EtherCAT (Motion) port for motion control networks.

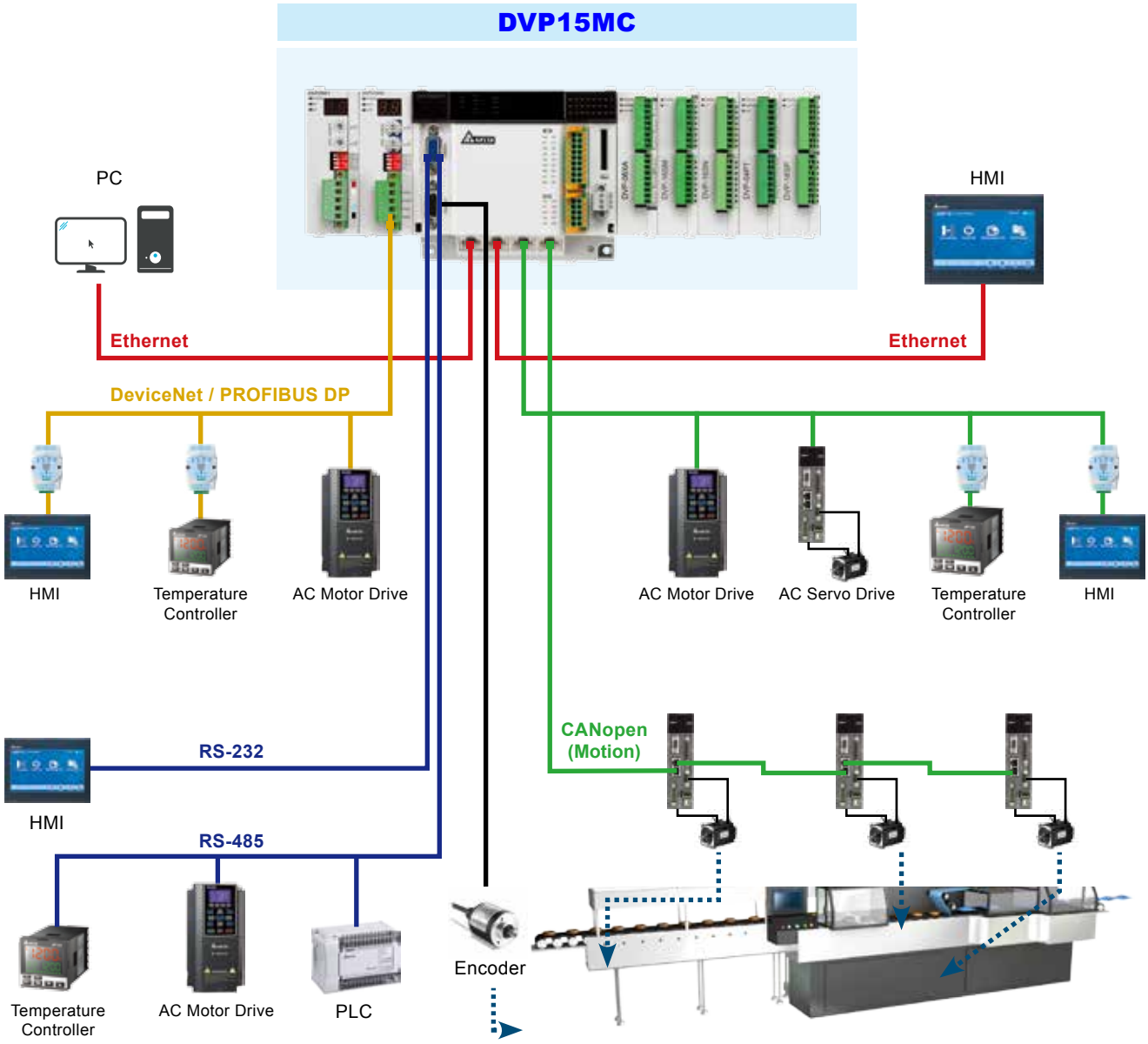
The standard CANopen port of DVP15MC / DVP50MC can be connected to all equipment that supports CANopen networks. The ASDA-A2 Series models provide high positioning accuracy and low-speed operation stability when matched with ECMA Series servo motors with high-precision encoder (20-bit resolution and 1,280,000 pulse/rev).

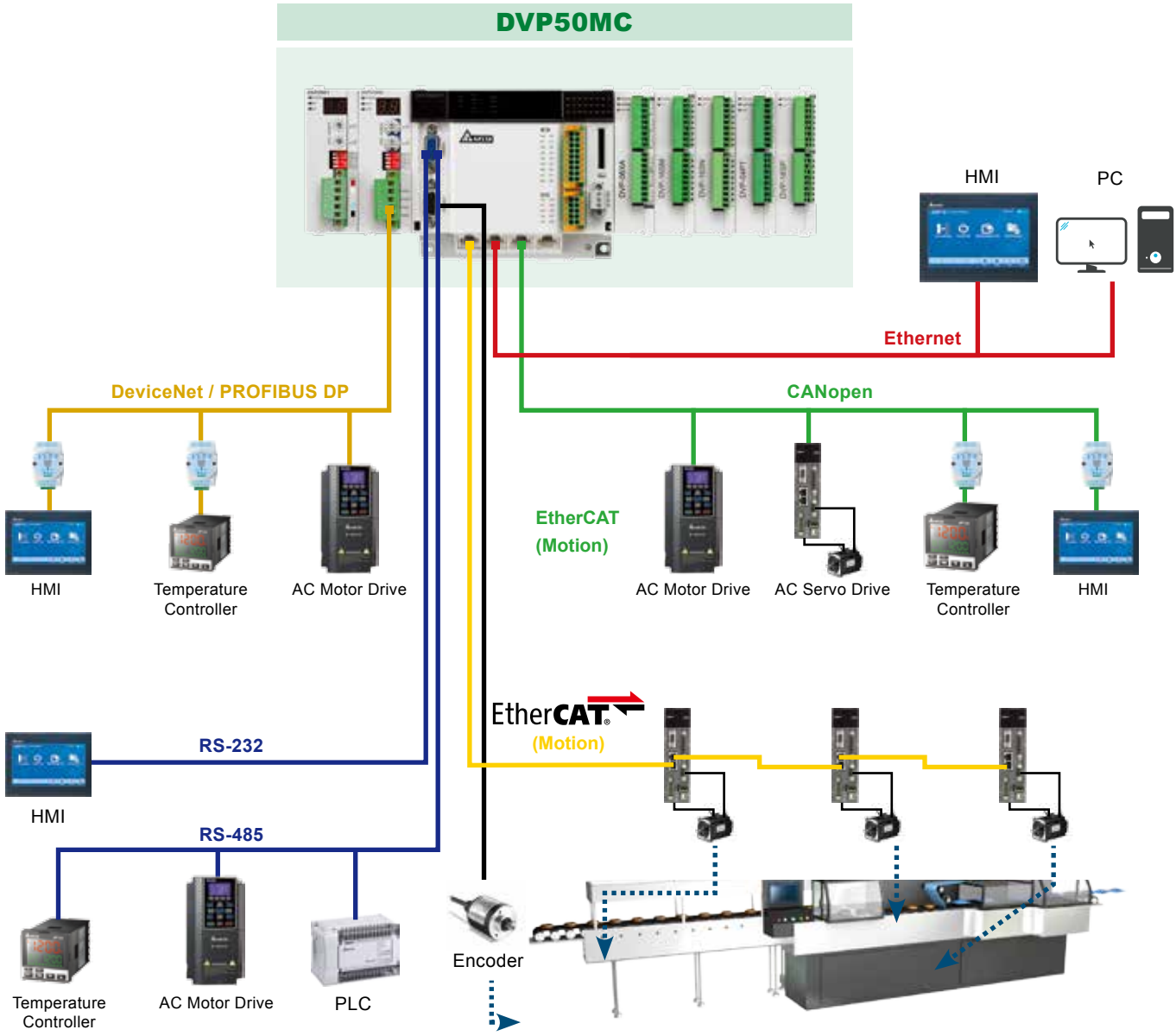
* XXXX represents output power and input voltage.



System Structure

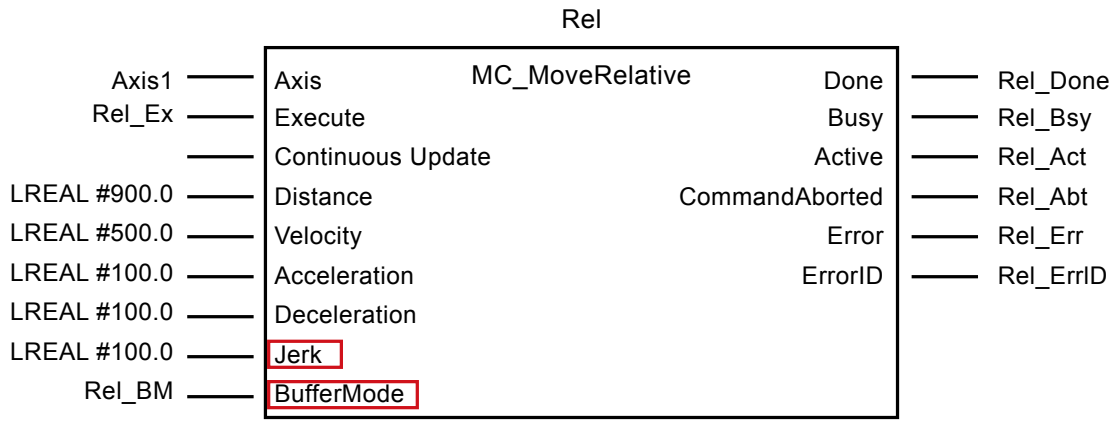
DVP15MC / DVP50MC provides multiple industrial networks. As in the structure shown below, DVP15MC / DVP50MC can be connected to a variety of industrial automation equipment via Ethernet (upper layer), EtherCAT, CANopen, DeviceNet, PROFIBUS DP (middle layer) and RS-485 (lower layer, support Modbus).



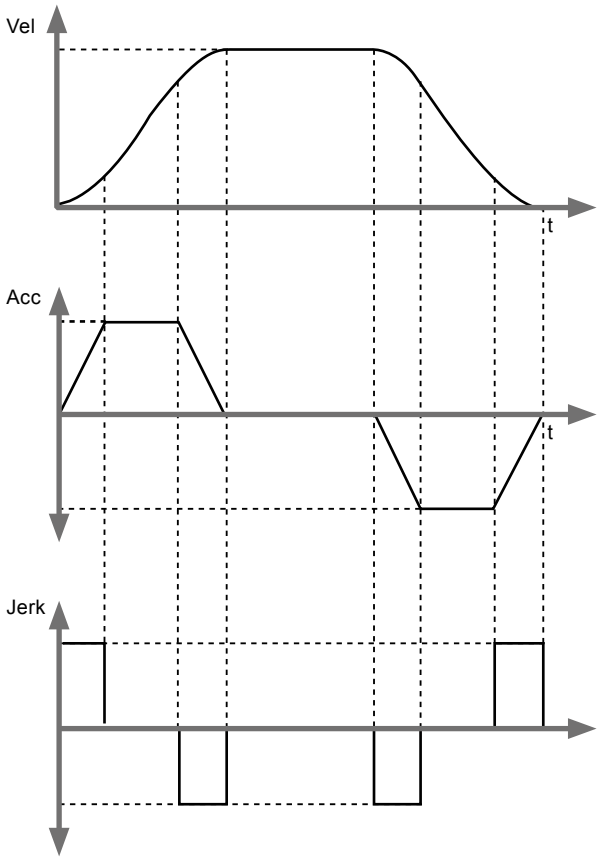

DVP50MC
HMI
PC
Ethernet
DeviceNet / PROFIBUS DP
CANopen
HMI
Temperature Controller
AC Motor Drive
EtherCAT (Motion)
AC Motor Drive
AC Servo Drive
Temperature Controller
HMI
EtherCAT
(Motion)
RS-232
HMI
RS-485
Temperature Controller
AC Motor Drive
PLC
Encoder

Motion Control

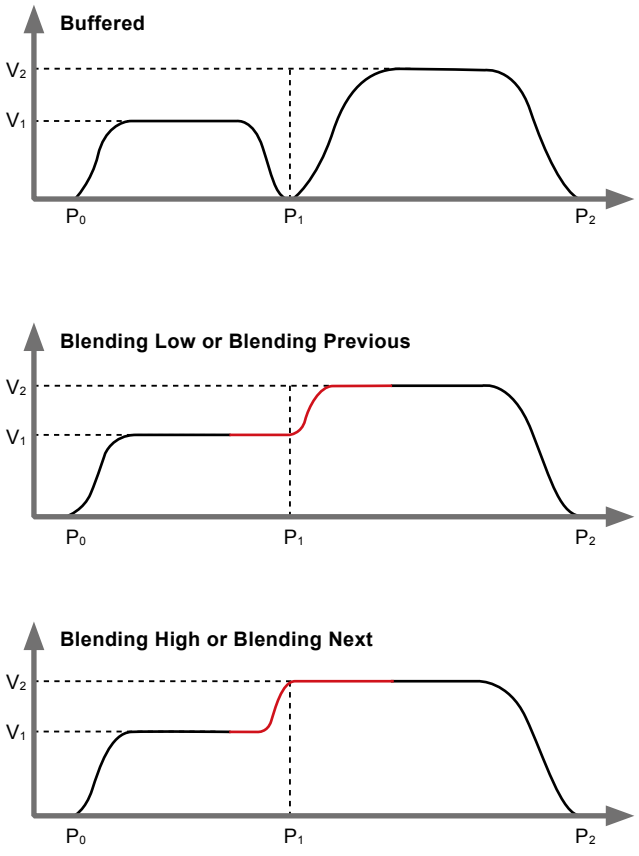
Supports BufferMode and Jerk motion instructions:



Supports Jerk motion instruction: modify the Jerk value to make the velocity curve smoother



Supports BufferMode motion instruction: enables smooth transition between 2 instructions



CANopen Configuration Software: CANopen Builder

- Features network arrangement, motion control programming, G-code editor / graph preview and E-Cam curve planning
- Supports international standard function blocks for motion control, enhancing program editing efficiency

Network Arrangement

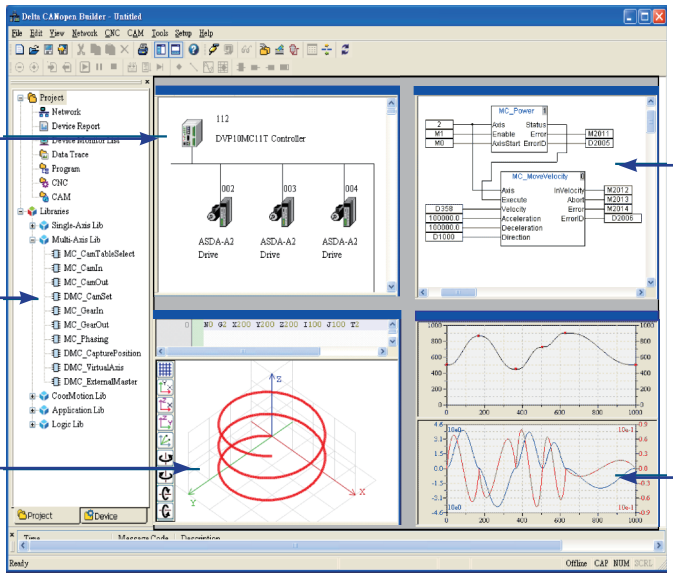
Network scanning for listing all the equipment

Motion Control

Supports international standard function blocks for motion control

G-code Editor and Preview

G-code editing and preview, direct DXF files import available



Program Editing

CFC, LD, ST, function blocks connection and syntax check

E-Cam Curve Planning

Allows users to plan E-Cam curves according to their needs for more complex control

Professional Motion Control Applications

Designed as the most outstanding and economical motion controller, the DVP-PM Series provides flying shear, rotary cut, electronic cam and many advanced functions to achieve highly precise motion control

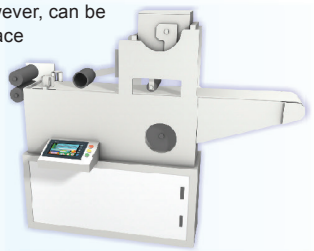
Robot Arm

Electronic Cam (E-Cam) function enables the robot arm to perform multi-axis control. After the required positions are memorized in the PLC, users can enable the electronic cam function to create the E-Cam profile and conduct trajectory tracking and multi-axes motion control required in robot arm applications.



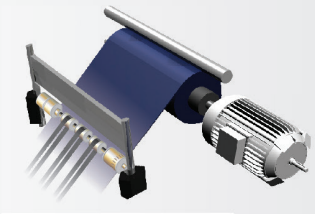
High-Speed Cutting Machine

Average PLC cutting motion is limited by operation speed, poor synchronization, large amounts of calculations and long CPU processing time, resulting in a disproportionate cutting result and affecting the quality of end products. The basic demands, however, can be fulfilled under low speed while rough surface and low quality appear under high speed. The electronic cam function offered by DVP-PM and DVP-MC is able to generate dynamic cam curves for rotary cutting to ensure precise cutting results.



Digital Board Cutting Machine

The DVP-PM Series' built-in flying shear function is able to complete synchronous conveyance and cutting speed, and ensures precise cutting results on conveyor belts.



CNC Lathe

The DVP-PM Series controls multi-axis motion. Two axes complete the motion by linear or arc interpolation, and the other two work independently, controlling the independent or synchronous ascending / descending of the vertical axis on two sides.



High Performance PLC DVP-EH Series and Extension Modules

Small PLC with Highest Operation Efficiency

DVP-EH3

- Max. 512 I/O points
- 200 kHz high-speed pulse output
- High-speed extension modules
- Linear / Arc interpolation
- L type, supports extension modules (left-side)



Function Cards

RS-232 / RS-422 / RS-485 Communication (COM3 Port, DVP-EH3 series PLC only)

DVP-F232



DVP-F422



DVP-F485



Ethernet Communication

DVP-FEN01 (DVP-EH3 only)



Analog I/O

DVP-F2AD
DVP-F2DA



Accessories

Data Backup Card

DVP-512FM (DVP-EH3 only)

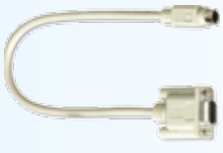


DVPPCC01
(for general applications)



Data Transmission Cable

UC-MS030-01A



Model Name	Specifications
DVP16EH00R3	2 counters of 200 kHz input
DVP16EH00T3	2 counters of 200 kHz input, 2 axes of 200 kHz output
DVP20EH00R3	2 counters of 200 kHz input, 1 counter of 20 kHz input
DVP20EH00T3	2 counters of 200 kHz input, 2 axes of 200 kHz output
DVP32EH00R3	4 counters of 200 kHz input
DVP32EH00T3*2	4 counters of 200 kHz input, 4 axes of 200 kHz output
DVP32EH00M3	4 counters of 200 kHz input (Differential: 2 sets), 2 axes of 200 kHz output (Differential: 2 axes)
DVP32EH00MT New	4 counters of 200 kHz input (Differential: 2 sets), 2 axes of 200 kHz output (Differential: 2 axes)
DVP32EH00R3-L*1	4 counters of 200 kHz input
DVP32EH00T3-L*1 *2	4 counters of 200 kHz input, 4 axes of 200 kHz output
DVP40EH00R3	4 counters of 200 kHz input
DVP40EH00T3	4 counters of 200 kHz input, 4 axes of 200 kHz output
DVP48EH00R3	4 counters of 200 kHz input
DVP48EH00T3	4 counters of 200 kHz input, 4 axes of 200 kHz output
DVP64EH00R3	4 counters of 200 kHz input
DVP64EH00T3	4 counters of 200 kHz input, 4 axes of 200 kHz output
DVP80EH00R3	4 counters of 200 kHz input
DVP80EH00T3	4 counters of 200 kHz input, 4 axes of 200 kHz output

AC power supply Inputs Outputs Relay output Transistor output Differential output

*1 Supports high-speed extension (left-side).
*2 DVP32EH Series produced after 2014 support 4 axes of 200 kHz output

Digital I/O Modules

- **Input Point Extension**
  DVP08HM11N
  DVP16HM11N
  DVP32HM11N



- **Output Point Extension**
  DVP08HN11R/T
  DVP32HN00R/T



- **Input/Output Point Extension**
  DVP08HP11R/T
  DVP16HP11R/T
  DVP32HP00R/T
  DVP48HP00R/T



Analog I/O Modules

Analog Function Extension

- **Analog Input**
  - DVP04AD-H2
    V: 14-bit
    I: 13-bit
  - DVP04AD-H3
    V: 16-bit
    I: 16-bit



- **Analog Output**
  - DVP04DA-H2
    V: 12-bit
    I: 12-bit
  - DVP04DA-H3
    V: 16-bit
    I: 16-bit



- **Analog Input/Output**
  - DVP06XA-H2
    Input 4CH/Output 2CH
    V: 12-bit/V : 12-bit
    I: 11-bit/I : 12-bit
  - DVP06XA-H3
    V: 16-bit
    I: 16-bit



Temperature Measurement

- **Sensor: Pt100**
  - DVP04PT-H2



- **Sensor:**
  - DVP04TC-H2
    J, K, R, S, E, N, T thermocouple
    0~150mV
  - DVP08TC-H2
    J, K, R, S, E, N, T thermocouple
    ±150mV



- **DVP32EH00R3-L & DVP32EH00T3-L: compatible with DVP-SV Series' high-speed extension modules (left-side)**

Motion Control

- **Single-Axis Positioning**
  - DVP01PU-H2



- **High-Speed Counter**
  - DVP01HC-H2



Standard PLC DVP-ES2 / EX2 Series and Extension Modules

The Most Profitable Solution for Sequential Control

reddot design award winner 2010

DVP-ES2 / EX2

- 100 kHz pulse output
- Analog input / output



Model Name	Specifications
DVP16ES200R	AC power supply, 8 Inputs, 8 Outputs, Relay output
DVP16ES200T	AC power supply, 8 Inputs, 8 Outputs, Transistor output
DVP20ES200RE New	AC power supply, 12 Inputs, 8 Outputs, Relay output, Ethernet
DVP20ES200TE New	AC power supply, 12 Inputs, 8 Outputs, Transistor output, Ethernet
DVP24ES200R	AC power supply, 16 Inputs, 8 Outputs, Relay output
DVP24ES200T	AC power supply, 16 Inputs, 8 Outputs, Transistor output
DVP32ES200R	AC power supply, 16 Inputs, 16 Outputs, Relay output
DVP32ES200T	AC power supply, 16 Inputs, 16 Outputs, Transistor output
DVP32ES211T	DC power supply, 16 Inputs, 16 Outputs, Transistor output
DVP32ES200RC	AC power supply, 16 Inputs, 16 Outputs, Relay output, CANopen
DVP32ES200TC	AC power supply, 16 Inputs, 16 Outputs, Transistor output, CANopen
DVP32ES200RE New	AC power supply, 16 Inputs, 16 Outputs, Relay output, Ethernet
DVP32ES200TE New	AC power supply, 16 Inputs, 16 Outputs, Transistor output, Ethernet
DVP40ES200R	AC power supply, 24 Inputs, 16 Outputs, Relay output
DVP40ES200T	AC power supply, 24 Inputs, 16 Outputs, Transistor output
DVP40ES200RE New	AC power supply, 24 Inputs, 16 Outputs, Relay output, Ethernet
DVP40ES200TE New	AC power supply, 24 Inputs, 16 Outputs, Transistor output, Ethernet
DVP60ES200R	AC power supply, 36 Inputs, 24 Outputs, Relay output
DVP60ES200T	AC power supply, 36 Inputs, 24 Outputs, Transistor output
DVP60ES200RE New	AC power supply, 36 Inputs, 24 Outputs, Relay output, Ethernet
DVP60ES200TE New	AC power supply, 36 Inputs, 24 Outputs, Transistor output, Ethernet
DVP80ES200R New	AC power supply, 40 Inputs, 40 Outputs, Relay output
DVP80ES200T New	AC power supply, 40 Inputs, 40 Outputs, Transistor output

AC power supply · DC power supply · Inputs · Outputs · Transistor output · Relay output · Ethernet · CANopen

DVP-EX2

Model Name	Specifications
DVP20EX200R	AC power supply, 8 Inputs, 6 Outputs, Relay output, 4AI/2AO
DVP20EX200T	AC power supply, 8 Inputs, 6 Outputs, Transistor output, 4AI/2AO
DVP30EX200R	AC power supply, 16 Inputs, 10 Outputs, Relay output, 3AI/1AO
DVP30EX200T	AC power supply, 16 Inputs, 10 Outputs, Transistor output, 3AI/1AO

AC power supply · DC power supply · Inputs · Outputs · Transistor output · Relay output

Digital I/O Modules

- **Input Point Extension**
  DVP08XM211N
  DVP16XM211N
- **Output Point Extension**
  DVP08XN211R/T
  DVP16XN211R/T
  DVP24XN200R/T
- **Input/Output Point Extension**
  DVP08XP211R/T
  DVP16XP211R/T
  DVP24XP200R/T
  DVP32XP200R/T





Analog I/O Modules

- **Input Point Extension**
  DVP04AD-E2
- **Output Point Extension**
  DVP04DA-E2
  DVP02DA-E2
- **Input/Output Point Extension**
  DVP06XA-E2





Temperature Measurement Modules

DVP04PT-E2
DVP04TC-E2




Resolver Modules

DVP10RC-E2*1



DVP-ES2 Series Extension Cable Modules

DVPAEXT01-E2




*1. Contact your sales representative for the official launch date of the DVP10RC-E2 module.

Slim PLC DVP-S Series

Compact, Flexible Extension

DVP-SS2

Standard Slim PLC



Model Name	Specifications
DVP28SS211R New	DC 16 12 R
DVP28SS211T New	DC 16 12 T
DVP14SS211R	DC 8 6 R
DVP14SS211T	DC 8 6 T
DVP12SS211S	DC 8 4 S

DC power supply · Inputs · Outputs
T Transistor output (NPN) · R Relay output
S Transistor output (PNP)

DVP-SA2

Advanced Slim PLC



Model Name	Specifications
DVP28SA211R*1 New	DC 16 12 R
DVP28SA211T*1 New	DC 16 12 T
DVP12SA211R	DC 8 4 R
DVP12SA211T	DC 8 4 T

*1 The DVP28SA2 models do not support left-side modules.

DC power supply · Inputs · Outputs
T Transistor output (NPN) · R Relay output

DVP-SE

Network Type Advanced Slim PLC



Model Name	Specifications
DVP26SE11R New	DC 14 12 R
DVP26SE11T New	DC 14 12 T
DVP12SE11R	DC 8 4 R
DVP12SE11T	DC 8 4 T

DC power supply · Inputs · Outputs
T Transistor output (NPN) · R Relay output

DVP-SX2

Analog I/O Slim PLC



Model Name	Specifications
DVP20SX211R	DC 8 6 R 4AI/2AO
DVP20SX211T	DC 8 6 T 4AI/2AO
DVP20SX211S	DC 8 6 S 4AI/2AO

DC power supply · Inputs · Outputs
T Transistor output (NPN) · R Relay output
S Transistor output (PNP)

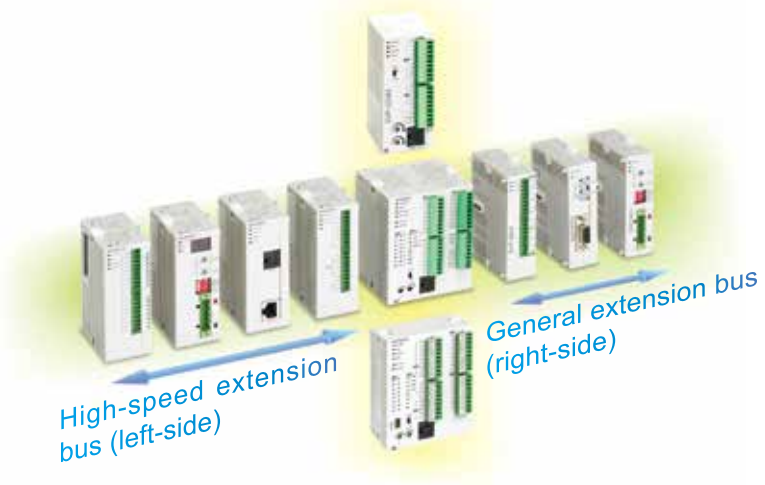
DVP-SV2

High Performance Slim PLC



Model Name	Specifications
DVP28SV11R2	DC 16 12 R
DVP28SV11T2	DC 16 12 T
DVP28SV11S2	DC 16 12 S
DVP24SV11T2	DC 10 12 T 2AI

DC power supply · Inputs · Outputs
T Transistor output (NPN) · R Relay output
S Transistor output (PNP)



Slim PLC DVP-S Series
Extension Modules

High-speed Extension Modules (left-side)[*1]

Network Modules

- **DeviceNet Master**
  DVPDNET-SL
- **CANopen Master**
  DVPCOPM-SL



- **Ethernet**
  DVPEN01-SL
- **PROFIBUS-DP Slave**
  DVPPF02-SL



- **RS-422 / RS-485 Serial Communication Module**
  DVPSCM12-SL
- **BACnet MS / TP Slave Serial Communication Module**



Analog Extension

- **Analog Input**
  DVP04AD-SL
- **Analog Output**
  DVP04DA-SL



Load Cell / Tension

- **Load Cell Module**
  DVP01LC-SL
  DVP02LC-SL
  DVP201LC-SL
  DVP211LC-SL
  DVP202LC-SL



General Extension Modules (right-side)[*2]

I/O Point Extension

- **Input Point Extension**
  DVP08SM11N
  DVP16SM11N



- **Output Point Extension**
  DVP06SN11R
  DVP08SN11R / T
  DVP08SN11TS
  DVP16SN11T
  DVP16SN11TS



- **Input / Output Point Extension**
  DVP08SP11R / T
  DVP08SP11TS
  DVP16SP11R / T
  DVP16SP11TS



- **Pin Header Input**
  DVP32SM11N



- **Pin Header Output**
  DVP32SN11TN



- **Digital Switch**
  DVP08ST11N



Analog Extension

- **Analog Input**
  DVP04AD-S
  DVP06AD-S
  DVP04AD-S2



- **Analog Output**
  DVP04DA-S
  DVP02DA-S
  DVP04DA-S2



- **Analog Input / Output**
  DVP06XA-S
  DVP06XA-S2



Temperature Measurement

- **Sensor: Pt100, Pt1000**
  DVP04PT-S
  DVP06PT-S



- **Sensor: J,K,R,S,T thermocouple**
  DVP04TC-S



- **Temperature Control:** New
  DVP02TUN-S
  DVP02TUR-S
  DVP02TUL-S



- **Remote Temperature Control Module:** New
  DVP02TKN-S
  DVP02TKR-S
  DVP02TKL-S



Communication Modules

- **PROFIBUS Slave**
  DVPPF01-S



- **DeviceNet Slave**
  DVPDT01-S



Power Supply Modules

DVPPS01
DVPPS02
DVPPS05



Axis Control Module

- **Single-Axis Positioning**
  DVP01PU-S



*1. DVP32EH00R3-L & DVP32EH00T3-L are also compatible with the left-side high-speed extension modules.

*2. Max. quantity of right-side extension module is 14, among which the quantity of –S and –S2 modules must be equal to or less than 8. If the total quantity of extension modules is over 14, applying high density extension modules is recommended.

Specifications

Electrical Specifications

	AC	DC
Power Supply Voltage	100 ~ 240 V_{AC} (-15% ~ 10%), 50 / 60Hz ±5%	24 V_{DC} (-15% ~ 20%)
Fuse Capacity	2A / 250 V_{AC}	ES: 2A / 250 V_{AC}; SV: 2.5A / 30 V_{DC}
Spike Voltage Durability	1500 V_{AC} (Primary-secondary); 1500 V_{AC} (Primary-PE); 500 V_{AC} (Secondary-PE)	
Insulation Impedance	>5 MΩ (all I/O point-to-ground: 500 V_{DC})	
Noise Immunity	ESD: 8 kV Air Discharge EFT: Power Line, 2 kV Digital I/O: 1 kV Analog & Communication I/O: 1 kV RS: 26 MHz ~ 1 GHz, 10 V/m	
Earth	The diameter of grounding wire shall not be shorter than that of the power supply cable. (When many PLCs are in use at the same time, please make sure every PLC is properly grounded.)	
Storage / Operation	Storage: -25 °C ~ 70 °C (temperature); 5% ~ 95% (humidity) Operation: 0 °C ~ 55 °C (temperature); 5% ~ 95% (humidity); pollution degree 2	

Input Specifications*1

Max. Input Frequency		10 kHz	20 kHz	100 kHz	200 kHz
Input Signal Type		NPN (Sink) / PNP (Source)			
Input Signal Voltage		24 V_{DC} ±10% (5 mA)			
Response time*2	**DVP-EH3 / SV2 / PM**	OFF→ON: 20 µs ON→OFF: 50 µs	ES / EX / SX / SS2 / SX2 OFF→ON: 3.5 µs ON→OFF: 20 µs	ES2 / EX2 / SA2 / SX2 OFF ON: 2.5 µs ON→OFF: 5 µs	EH3 / SV2 / PM OFF→ON: 0.15 µs ON→OFF: 3 µs
	DVP-ES2 / EX2				
	DVP-ES / EX				
	DVP-SX				
	DVP-SS2				
	DVP-SA2 / SX2 / SE				

*1. For more detailed specifications, see the "Specification" section in the instruction sheet of each model.

*2. When the input point on PLC conducts only general input functions, use D1020 or D1021 to adjust the response time (default: 10ms).

Output Specifications*1

		Relay-R	Transistor-T		
			General speed	High speed	
Max. Exchange (working) Frequency		1Hz*2	10 kHz	100 kHz	200 kHz
Current spec.	**DVP-EH3 / SV2 / PM**	2A / 1 Point	0.3A / point @40 °C	SA2 / SX2 / ES2 / EX2 / SE Resistive: 0.5A / point (4A / COM) Conductive: 12 W (24 V_{DC}) Light bulb: 2 W (24 V_{DC})	EH3 / SV2 / PM Resistive: 0.5A / point (4A / COM) Conductive: 12 W (24 V_{DC}) Light bulb: 2 W (24 V_{DC})
	DVP-ES2 / EX2				
	DVP-ES / EX				
	DVP-SX	1.5A / 1 Point			
	DVP-SS2 / SA2 / SX2 / SE				
Voltage Spec.		250 V_{AC} / 30 V_{DC}	30 V_{DC}		
Response Time		10 ms	OFF→ON: 20 µs ON→OFF: 30 µs	OFF→ON: 2 µs ON→OFF: 3 µs	OFF→ON: 0.5 µs ON→OFF: 2.5 µs

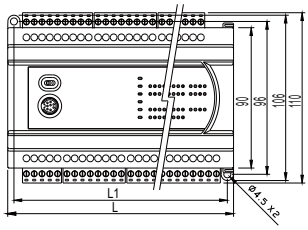
*1. For more detailed specifications, see the "Specification" section in the instruction sheet of each model.

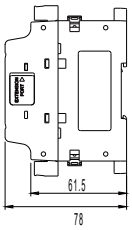
*2. Relay life: Resistive load more than 200,000 times; conductive load more than 80,000 times.

Dimensions (unit: mm)

DVP-ES2 / EX2 Series

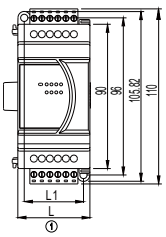
Model Name (mm)	L	L1
DVP16ES200R/T	105	97
DVP20ES200RE	125	117
DVP20ES200TE	125	117
DVP24ES200R/T	125	117
DVP32ES200R/T	145	137
DVP32ES200RC	145	137
DVP32ES200TC	145	137
DVP32ES200RE	165	157
DVP32ES200TE	165	157
DVP32ES211T	145	137
DVP40ES200R/T	165	157
DVP40ES200RE	194	186
DVP40ES200TE	194	186
DVP60ES200R/T	225	217
DVP60ES200RE	255	247
DVP60ES200TE	255	247
DVP80ES200R/T	302	294
DVP20EX200R/T	145	137
DVP30EX200R/T	165	157

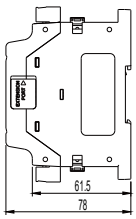


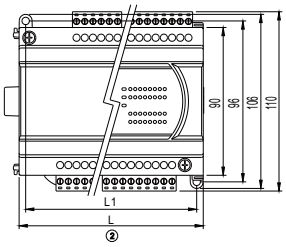


DVP-ES2 / EX2 Series

Model Name (mm)	L	L1	Type
DVP08XM211N	45	37	①
DVP08XP211R/T	45	37	①
DVP08XN211R/T	45	37	①
DVP16XM211N	70	62	②
DVP16XP211R/T	70	62	②
DVP16XN211R/T	70	62	②
DVP24XP200R/T	145	137	②
DVP24XN200R/T	145	137	②
DVP32XP200R/T	145	137	②
DVP04AD-E2	70	62	②
DVP02DA-E2	70	62	②
DVP04DA-E2	70	62	②
DVP06XA-E2	70	62	②
DVP04PT-E2	70	62	②
DVP04TC-E2	70	62	②
DVP10RC-E2	70	62	②

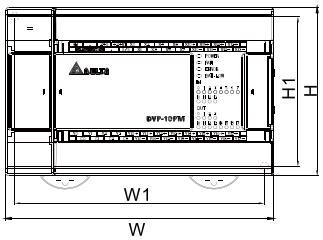


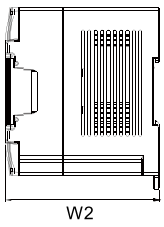




DVP-PM Series

Model Name (mm)	H	H1	W	W1	W2
DVP20PM00D	90	80	174	164	82
DVP20PM00M	90	80	174	164	82
DVP10PM00M	90	80	143. 5	133. 5	82

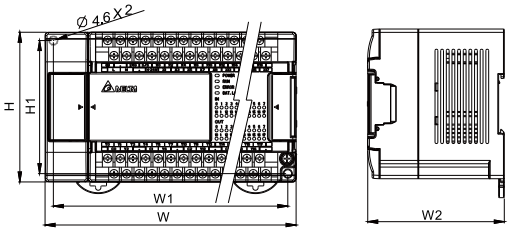




DVP-EH3 Series

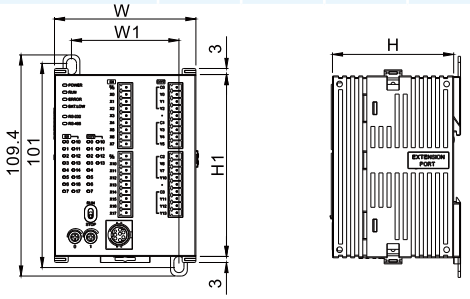
Model Name (mm)	H	H1	W	W1	W2
DVP16EH00R3 / T3	90	80	113	103	82
DVP20EH00R3/T3	90	80	113	103	82
DVP32EH00M3/MT	90	80	143.5	133.5	82
DVP32EH00R3/T3	90	80	143.5	133.5	82
DVP32EH00R3-L	90	80	143.5	133.5	82
DVP32EH00T3-L	90	80	143.5	133.5	82
DVP40EH00R3/T3	90	80	158.8	153.8	82
DVP48EH00R3/T3	90	80	174	164	82
DVP64EH00R3/T3	90	80	212	202	82
DVP80EH00R3/T3	90	80	276	266	82

*The dimensions of the DVP-EH3 and DVP-EH2 Series are the same.

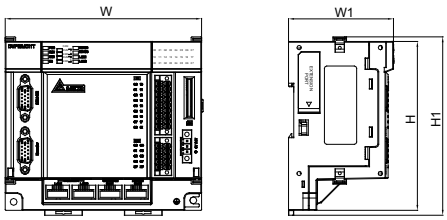


DVP-SV / SX2 / MC Series

Model Name (mm)	H	H1	W	W1
DVP28SV11R2/T2	60	90	70	53.2
DVP20SX211R/T/S	60	90	70	53.2
DVP10MC11T	60	90	70	53.2



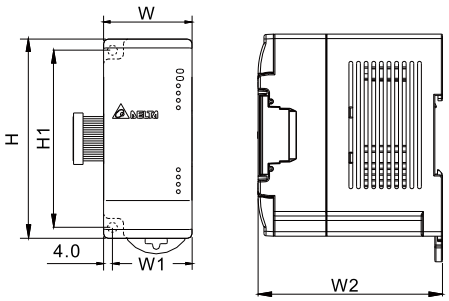
Model Name (mm)	H	H1	W	W1
DVP15MC11T	110	116.2	128	68.4
DVP15MC11T-06	110	116.2	128	68.4
DVP50MC11T	110	116.2	128	68.4
DVP50MC11T-06	110	116.2	128	68.4



DVP-EH3 Series
I/O & Extension Modules

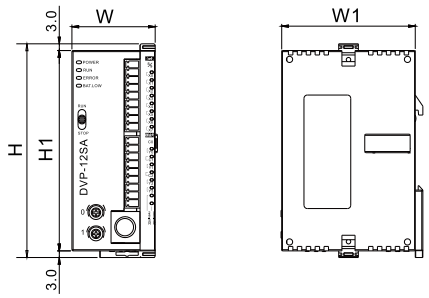
Model Name (mm)	H	H1	W	W1	W2
DVP08HM11N	90	80	40	36	82
DVP16HM11N	90	80	55	51	82
DVP32HM11N	90	80	143.5	133.5	82 .2
DVP08HN11R/T	90	80	40	36	82
DVP32HN00R/T	90	80	143.5	133.5	82 .2
DVP08HP11R/T	90	80	40	36	82
DVP16HP11R/T	90	80	55	51	82
DVP32HP00R/T	90	80	143.5	133.5	82 .2
DVP48HP00R/T	90	80	174	164	82 .2
Model Name (mm)	**H**	**H1**	**W**	**W1**	**W2**
DVP04AD-H2	90	80	60	56	82
DVP04DA-H2	90	80	60	56	82
DVP06XA-H2	90	80	60	56	82
DVP04PT-H2	90	80	60	56	82
DVP04TC-H2	90	80	60	56	82
DVP01PU-H2	90	80	60	56	82
DVPDT02-H2	90	80	40	46	82
DVPCP02-H2	90	80	40	46	82
DVPPF02-H2	90	80	40	46	82
DVP04AD-H3	90	80	60	56	82
DVP04DA-H3	90	80	60	56	82
DVP06XA-H3	90	80	60	56	82

*The dimensions of the DVP-EH3 and DVP-EH2 Series are the same.



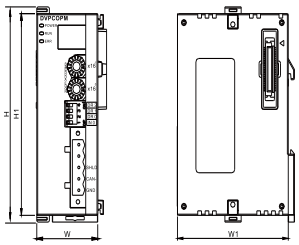
DVP-SE / SX / SS2 / SA2 Series

Model Name (mm)	H	H1	W	W1
DVP28SS211R/T	96	90	46	60
DVP28SA211R/T	96	90	46	60
DVP26SE11R/T	96	90	46	60
DVP14SS211R/T	96	90	25.2	60
DVP12SS211S	96	90	25.2	60
DVP12SA211R/T	96	90	37.4	60
DVP12SE11R/T	96	90	37.4	60
DVP10SX11R/T	96	90	37.4	60



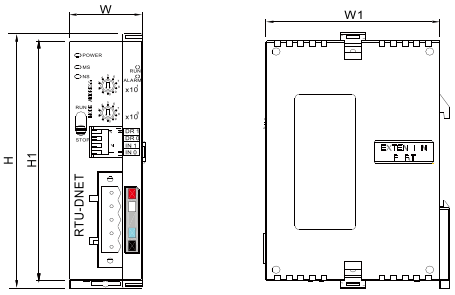
High-Speed Extension Modules (left-side)

Model Name (mm)	H	H1	W	W1
DVPEN01-SL	96	90	33.1	60
DVPCOPM-SL	96	90	33.1	60
DVPDNET-SL	96	90	33.1	60
DVPPF02-SL	96	90	33.1	60
DVPSCM12-SL	96	90	33.1	60
DVPSCM52-SL	96	90	33.1	60
DVP04AD-SL	96	90	33.1	60
DVP04DA-SL	96	90	33.1	60
DVP01LC-SL	96	90	33.1	60
DVP02LC-SL	96	90	33.1	60
DVP201LC-SL	96	90	33.1	60
DVP202LC-SL	96	90	33.1	60
DVP211LC-SL	96	90	33.1	60



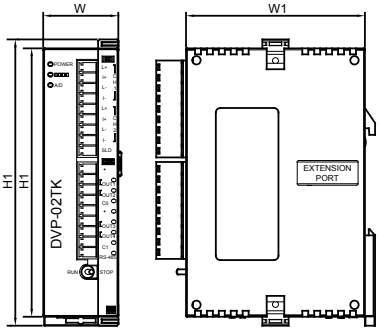
Remote I/O Modules

Model Name (mm)	H	H1	W	W1
RTU-DNET	96	90	25.2	60
RTU-485	96	90	25.2	60
RTU-EN01	96	90	25.2	60
RTU-PD01	96	90	25.2	60



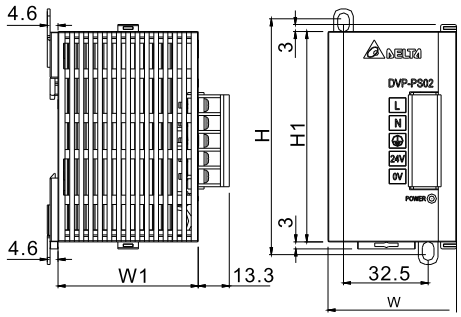
Remote Temperature Control Modules

Model Name (mm)	H	H1	W	W1
DVP02TKN-S	96	90	25.2	60
DVP02TKR-S	96	90	25.2	60
DVP02TKL-S	96	90	25.2	60



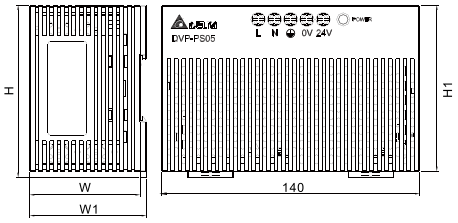
DVP-PS01/02 Power Supply Modules

Model Name (mm)	H	H1	W	W1
DVPPS01	100	90	36.5	60
DVPPS02	100	90	55	60

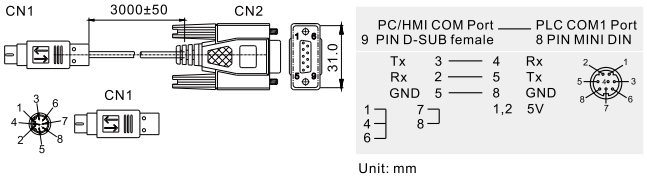


DVP-PS05 Power Supply Modules

Model Name (mm)	H	H1	W	W1
DVPPS05	93.3	90	60	63.4



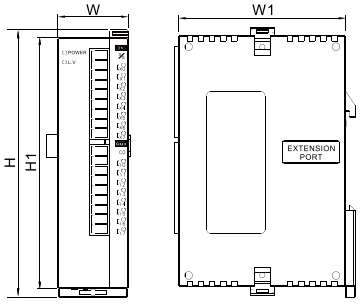
PIN Definition of UC-MS030-01A



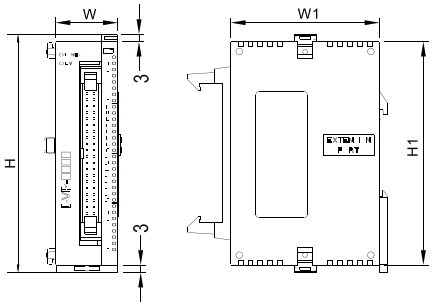
Unit: mm

DVP-S Series I/O and Extension Modules

Model Name (mm)	H	H1	W	W1
DVP08SM11N	96	90	25.2	60
DVP16SM11N	96	90	25.2	60
DVP06SN11R	96	90	25.2	60
DVP08SN11R/T/TS	96	90	25.2	60
DVP08SP11R/T/TS	96	90	25.2	60
DVP16SP11R/T/TS	96	90	25.2	60
DVP16SN11T	96	90	25.2	60
DVP16SN11TS	96	90	25.2	60
DVP04AD-S	96	90	25.2	60
DVP04AD-S2	96	90	25.2	60
DVP06AD-S	96	90	25.2	60
DVP02DA-S	96	90	25.2	60
DVP04DA-S	96	90	25.2	60
DVP04DA-S2	96	90	25.2	60
DVP06XA-S	96	90	25.2	60
DVP06XA-S2	96	90	25.2	60
DVP04PT-S	96	90	25.2	60
DVP06PT-S	96	90	25.2	60
DVP04TC-S	96	90	25.2	60
DVP01PU-S	96	90	25.2	60
DVPPF01-S	96	90	25.2	60
DVPDT01-S	96	90	25.2	60
DVP02TUN-S	96	90	25.2	60
DVP02TUR-S	96	90	25.2	60
DVP02TUL-S	96	90	25.2	60



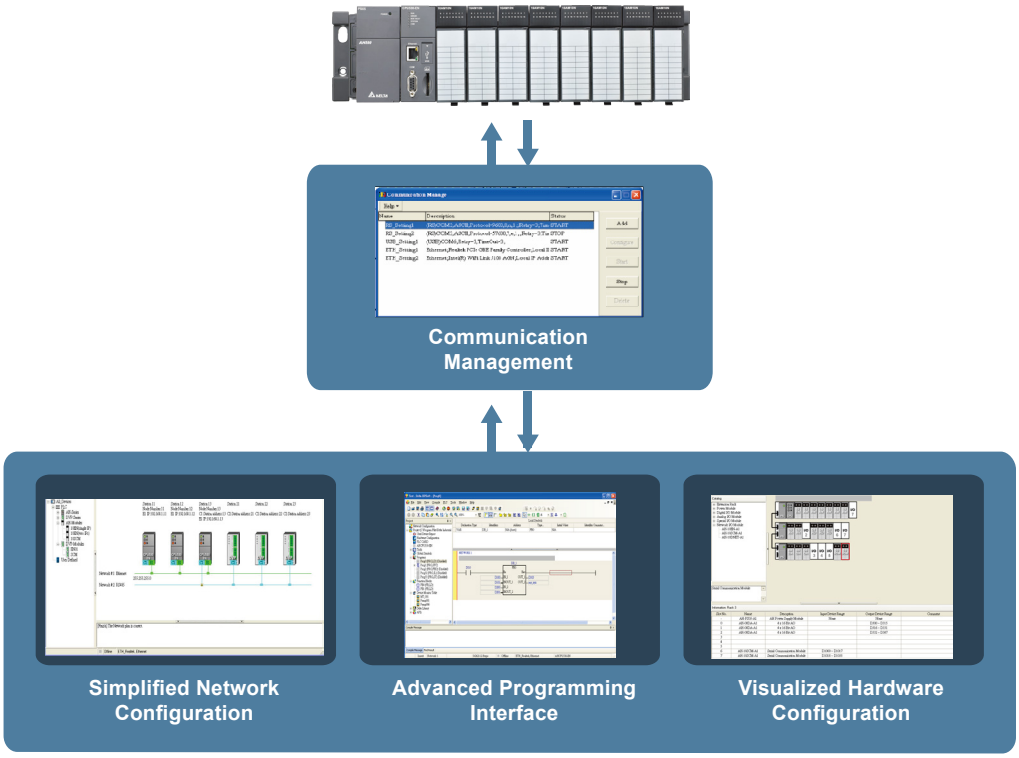
Model Name (mm)	H	H1	W	W1
DVP32SN11TN	96	90	25.2	60
DVP32SM11N	96	90	25.2	60



PLC Editing Software: ISPSoft V2.0

Highly Accessible Programming Software with Fully Integrated Interface

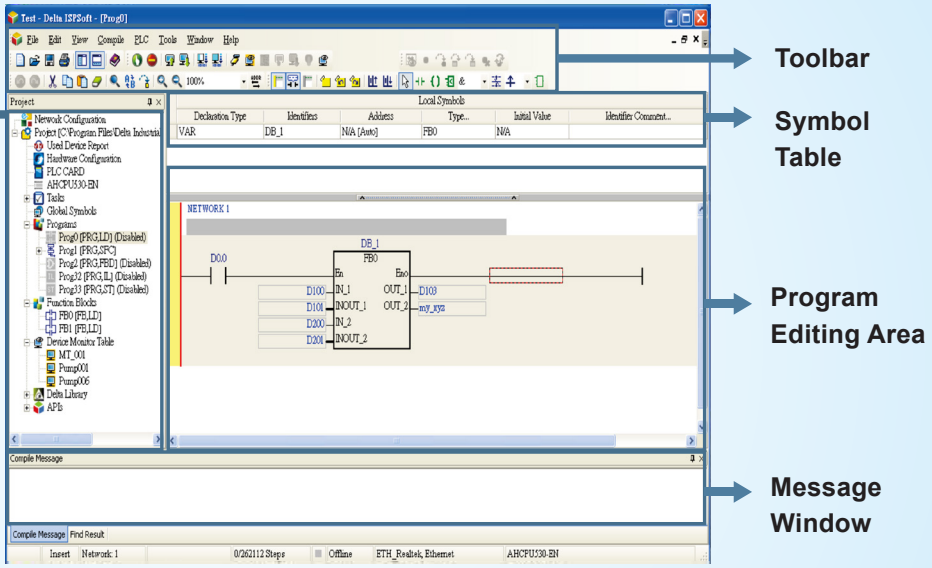
Advanced Programming Interface + Visualized Hardware Configuration + Simplified Network Configuration



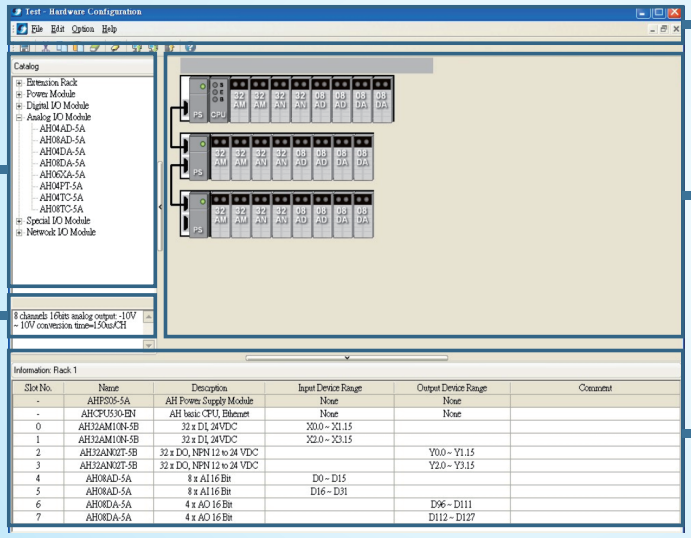
Advanced Programming Interface

Project Management Window

- **New functions:** Network configuration (NWCONFIG), hardware configuration (HWCONFIG) and PLC card utility
- 5 programming languages for programs and function blocks (FB): LD/FBD/SFC/IL/ST
- **Function Blocks:** Symbols can be introduced in call-by-value or call-by-reference types. Function blocks can be called in a function block for up to 32 levels
- **Monitor Table:** It can be stored and managed separately. Multiple monitor tables can be stored in a single project
- **User Library:** Users can design frequently used instructions for specific applications in different industries
- **Task:** Supports cyclic, I/O interrupt, timer interrupt, external interrupt, and more. Software will provide the usable tasks for different CPUs
- Built-in Delta Function Blocks provide a convenient programming environment for operators



Visualized Hardware Configuration



Module Selection

Module Description

Toolbar

- System hardware configuration can be monitored in On-Line mode
- Hardware configuration can be displayed by Scan function

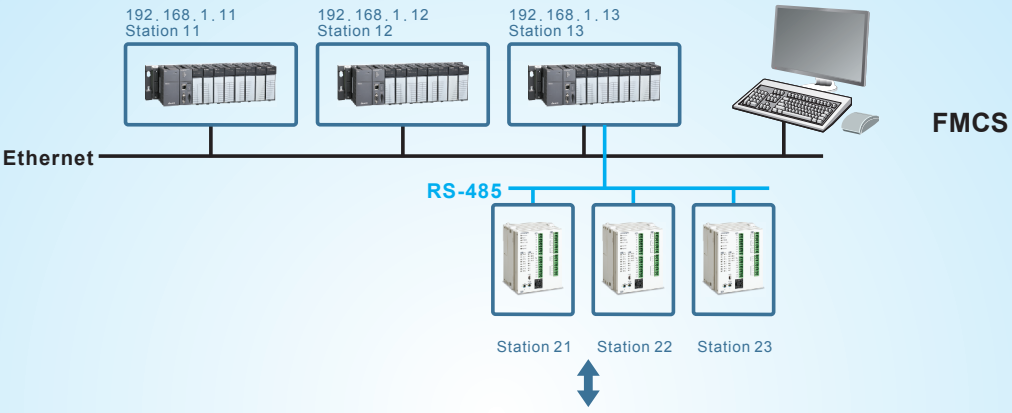
Hardware Configuration Area

- Operations of Cut / Copy / Paste / Delete are available for modules and racks
- Parameters of each module can be directly configured

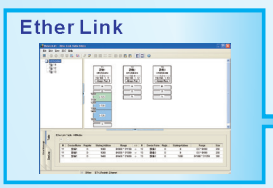
Rack Information

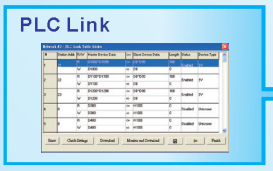
- I/O device range can be specified by the user

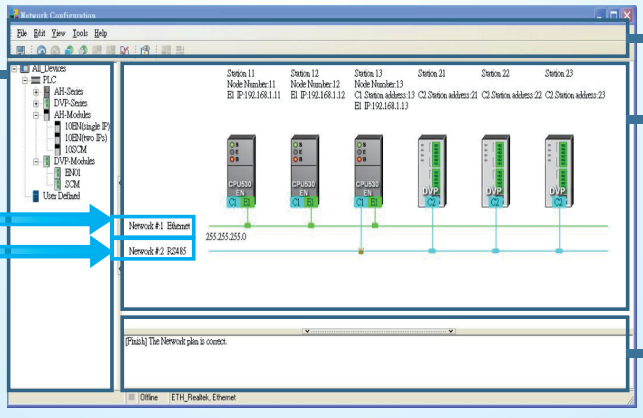
Simplified Network Configuration



Network Device Selection







Toolbar

Network Configuration Area

- Master device settings
- Ether Link editing function
- PLC Link editing function

Network Information

4-Line Text Panel HMI

TP04G-AL-C

TP04G-AL2

- ▶ 4.1" STN-LCD
- ▶ User-defined function keys available
- ▶ Supports RS-232/RS-422/RS-485 ports (TP04G-AL2)
- ▶ Password protection function available
- ▶ User-defined boot screen available
- ▶ Built-in real time clock (RTC)

Dimensions	4.1" (101.8 × 35.24 mm)
Resolution	192 × 64
Display Color	Monochrome
Flash Memory	256k bytes
Function Key	10 function keys
Password	Available
Recipe Function	Not available
RTC	Available
Serial COM Port	RS-232 & RS-422/485
Editing Software	TPEditor

4-Line Text Panel HMI

TP04G-BL-C

- ▶ 4.1" STN-LCD
- ▶ 0~9 numeric keys and user-defined function available
- ▶ Built-in RS-232 and RS-422/RS-485 ports
- ▶ Supports Modbus ASCII/RTU modes
- ▶ Password protection function available
- ▶ User-defined boot screen available
- ▶ Built-in real time clock (RTC)

Dimensions	4.1" (101.8 × 35.24 mm)
Resolution	192 × 64
Display Color	Monochrome
Flash Memory	256k bytes
Function Key	17 function keys
Password	Available
Recipe Function	Not available
RTC	Available
Serial COM Port	RS-232 & RS-422/485
Editing Software	TPEditor

8-Line Text Panel HMI

TP08G-BT2

- ▶ 3.8" STN-LCD
- ▶ Resolution: 240 x 128 dots
- ▶ Built-in 1,024KB flash memory
- ▶ 24 user-defined function keys
- ▶ Built-in RS-232 and RS-422/RS-485 ports
- ▶ Supports recipes and macro functions

Dimensions	3.8" (83 x 41 mm)
Resolution	240 × 128
Display Color	Monochrome
Flash Memory	1 M bytes
Function Key	24 function keys
Password	Available
Recipe Function	Available
RTC	Available
Serial COM Port	RS-232 & RS-422/485
Editing Software	TPEditor

Applications

Intelligent control systems for aquaculture, steel sleeve tapping machines, air compressors, plant factories

7-Inch Touch Panel HMI with Built-in PLC

TP70P-RM0

- ▶ Adopts the core of the DVP-SS2 Series PLC: program capacity: 2k steps / D device: 5k words
- ▶ 7" TFT-LCD
- ▶ Touch screen
- ▶ Built-in USB port for program upload / download
- ▶ Built-in RS-232 and RS-485 ports
- ▶ Supports Modbus ASCII / RTU modes
- ▶ Built-in real time clock (RTC)

Dimensions	7" (154 × 85 mm)
Resolution	800 × 480
Display Color	65,535 colors
Flash Memory	64 M bytes
Function Key	Not available
Password	Available
Recipe Function	Not available
RTC	Available
Serial COM Port	RS-232 & RS-485
Editing Software	TPEditor

7-Inch Touch Panel HMI with Built-in PLC

TP70P

- ▶ Adopts the core of the DVP-SS2 Series PLC: program capacity: 4 k steps / D device: 5k words
- ▶ Provides 2 sets of 10 kHz high-speed pulse input
- ▶ 7" TFT-LCD
- ▶ Touch screen
- ▶ Built-in USB port for program upload / download
- ▶ Built-in RS-485 port*2
- ▶ Supports Modbus ASCII / RTU modes
- ▶ Built-in real time clock (RTC)
- ▶ Digital and analog I/O terminals available

Dimensions	7" (154 × 85 mm)
Resolution	800 × 480
Display Color	65,535 colors
Flash Memory	64 M bytes
Function Key	Not available
Password	Available
Recipe Function	Not available
RTC	Available
Serial COM Port	2 sets of RS-485
Editing Software	TPEditor

4-Line Text Panel HMI with Built-in PLC

TP04P

- ▶ Adopts the core of the DVP-SS2 Series PLC: program capacity: 8 k steps / D device: 5k words
- ▶ Provides 2 sets of 10 kHz high-speed pulse input (Excludes TP04P-08TP1R)
- ▶ 4.1" STN-LCD
- ▶ Provides 0 ~ 9 numeric keys with user-defined function
- ▶ Built-in USB port for program upload/download
- ▶ Built-in RS-485 port*2
- ▶ Supports Modbus ASCII/RTU modes
- ▶ User-defined boot screen available
- ▶ Built-in real time clock (RTC)
- ▶ Digital and analog I/O terminals available

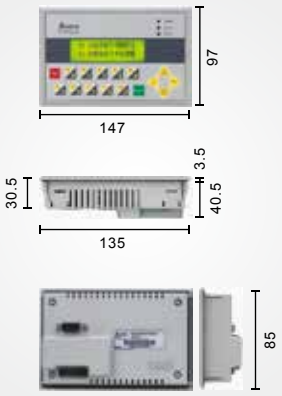
Dimensions	4.1" (101.8 × 35.24 mm)
Resolution	192 × 64
Display Color	Monochrome
Flash Memory	1 M bytes
Function Key	17 function keys
Password	Available
Recipe Function	Not available
RTC	Available
Serial COM Port	2 sets for RS-485
Editing Software	TPEditor

Model		Text Panel HMI						Text/Touch Panel HMI with Built-in PLC		
		TP02G-AS1	TP04G-AS2	TP08G-BT2	TP04G-AL-C	TP04G-AL2	TP04G-BL-C	TP04P-Series	TP04P-08TP1R	TP70P-Series
										
Display Specifications	Screen Type	STN-LCD								TFT-LCD
	Display Color	Monochrome								65,535
	Resolution	160 x 32	128 x 64	240 x 128	192 x 64					800 x 480
	Backlight	Life span of backlight is about 50,000 hours at 25°C								20,000 hours
	Display Range	72 x 22 mm	3" (67 x 32 mm)	3.8" (83 x 41 mm)	4.1" (101.8 x 35.24 mm)					7" (154 x 85 mm)
Flash Memory		256k bytes		1M bytes	256k bytes			1M bytes		64M bytes
Program Download Port		COM1 (RS-232)						COM1 (USB)		USB
Serial COM Port	COM1	RS-232	RS-232/422		RS-232	RS-232/422	RS-232	-		-
	COM2	RS-485			-	RS-422/485	RS-422/485	RS-485		**TP70 with I/O:** RS-485 **TP70R-RM0:** RS-232
	COM3	-			-	-	-	RS-485		
Extension Interface		The slot for program copy card								-
Real-time Clock		-	Built-in							
Auxiliary Keys	System Keys	6	7	12	5		7		5	-
	Function Keys	10	5	12	5		10		5	-
Operating Voltage		+24 V_{DC} (-10% ~ +20%)								-
Backup Battery		3V lithium battery CR2032 x 1/battery life: 5 years								
Buzzer		85 dB								
Cooling Method		Natural air circulation								
Operating Temperature		0 °C ~ 50 °C								
Storage Temperature		-20 °C ~ +60 °C								
Operating Humidity		10% ~ 90% RH (0 ~ 40°C)								
Vibration		IEC 61131-2, IEC 68-2-6 (TEST Fc); 5 Hz ≤ f < 8.4 Hz Continuous: 3.5 mm; 8.4 Hz ≦ f ≦ 150 Hz Continuous: 1.0 g								
Shock		IEC 61131-2, IEC 68-2-27 (TEST Ea); 15g peak, 11ms duration, half-sine, three shocks in each direction per axis, on 3 mutually perpendicular axes (total of 18 shocks)								
Radiated Emission		CISPR11, Class A Frequency: 30 ~ 230 MHz, Limits: 40 dB uV/m Frequency: 230 MHz ~ 1 GHz, Limits: 47 dB uV/m								
Radiated Electromagnetic Field		EN61000-4-3, Frequency: 80 ~ 2000 MHz, Limits: 10V/m								
Electrostatic Discharge		EN61000-4-2, Air Discharge: 8 KV, Contact Discharge: 4 KV								
Fast Transient Burst		EN61000-4-4, Power Line: 1 KV, Communication I/O: 500 V								
Dimensions Width (W) × Height (H) × Depth (D)		147 x 97 x 35.5		210 x 122 x 45	163.6 x 108.6 x 37		175.8 × 108.8 × 37	**TP04P Series:** 175.8 x 108.6 x 59.2 **TP04P-20EXL1T:** 175.8 x 108.6 x 82.4	175.8 x 108.6 x 37	**TP70P Series:** 205.6 x 142.6 x 49 **TP70P-RM0:** 205.6 x 142.6 x 37 **TP70P-211LC1T :** 205.6 x 142.6 x 87.7
Panel Cutout		136 x 85		196 x 108	151 x 96		163 × 96	163 × 96		191 × 128
Weight		240 g		430 g	268 g	270 g	292 g	**TP04PSeries:** 500 g **TP04P-20EXL1T:** 650 g	333 g	**TP70P Series:** 680 g **TP70P-RM0:** 620 g **TP70P-211LC1T:** 900 g
Safety Approvals (Waterproof Class of Front Panel)		IP66/NEMA4 & CE, UL Type 4 indoor			IP66/NEMA4 & CE, UL					
Editing Software		TPEditor V1								

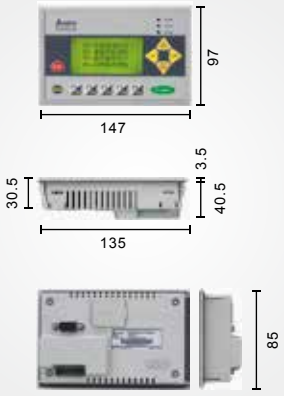
Product Outline and Dimensions

Unit: mm

TP02G-AS1



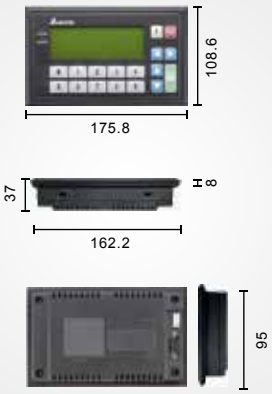
TP04G-AS2



TP04G-AL-C/TP04G-AL2

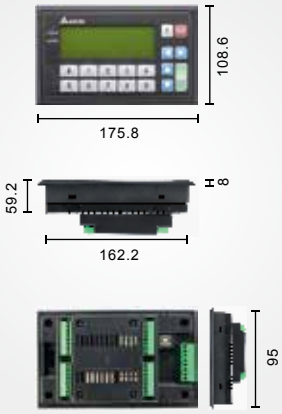


TP04G-BL-C



TP04P-Series

(Exclude TP04P-08TP1R, TP04P-20EXL1T)



TP08G-BT2



TP70P-Series

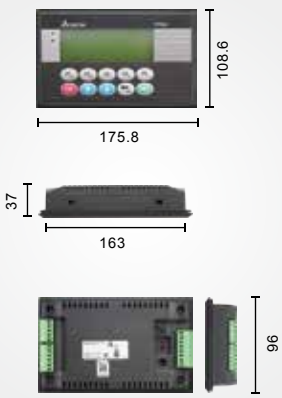
(Exclude TP70P-RM0, TP70P-211LC1T)



TP70P-RM0



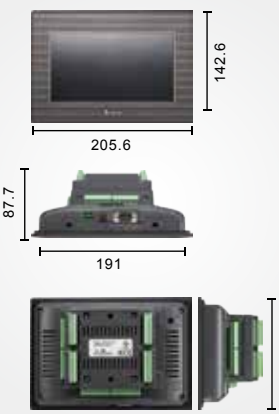
TP04P-08TP1R



TP04P-20EXL1T

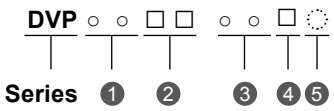


TP70P-211LC1T



DVP Series Model Name Instructions

• PLC



1. Total I/O

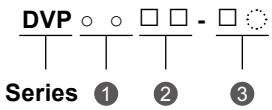
2. Model
ES/ES2: DVP-ES/ES2 series PLC
EX/EX2: DVP-EX/EX2 series PLC
SS/SS2: DVP-SS/SS2 series PLC
SA/SA2: DVP-SA/SA2 series PLC
SX/SX2: DVP-SX/SX2 series PLC
SC: DVP-SC series PLC
SV: DVP-SV series PLC
SE: DVP-SE series PLC
PM: DVP-PM series PLC
MC: DVP-MC series PLC
EH: DVP-EH series PLC
EC: DVP-EC series PLC

3. Power supply
00: AC power input
11: DC power input

4. Output type
R: Relay
T: Transistor (NPN)
M: Mixed with differential signal
S: Transistor (PNP)
RC: Relay + CANopen
TC: Transistor + CANopen
RE: Relay + Ethernet
TE: Transistor + Ethernet

5. Version

• PI/PO Module

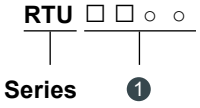


1. Total I/O

2. Module function
HC: High-speed counter
PU: Single-axis positioning module

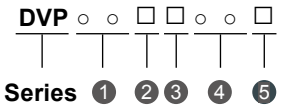
3. Compatible model
S: DVP-SS/SA/SX/SC/SV/SS2/SA2
SX2/SV2/SE/MC Series PLC
H2/H3: DVP-EH2/EH3/PM Series PLC
SL: left-side extension for
DVP-S Series PLC

• Remote I/O



1. **Type**
DNET: DeviceNet
485: RS-485
EN01: Modbus TCP

• DI/DO Module



1. Total I/O

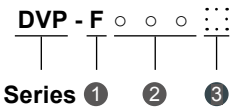
2. Model
X: DVP-ES/EX/ES2/EX2 series PLC
S: DVP-SS/SA/SX/SC/SV/SS2/
SA2/ SX2/SV2/SE/MC
series PLC
H: DVP-EH2/EH3/PM series PLC

3. I/O type
M: Input point
N: Output point
P: Input + output

4. Power supply
00: AC power input
11: DC power input

5. Output type
R: Relay
T: Transistor (NPN)
TS: Transistor (PNP
N: None output

• Function Card

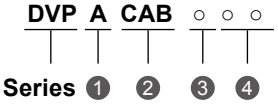


1. Function Card

2. Function
232: RS-232 card
422: RS-422 card
485: RS-485 card
2AD: 2ch analog input
2DA: 2ch analog output

3. Particular definition
S: Slave mode
(applicable to COM3 coding only)

• Accessory: Cable



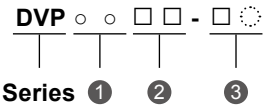
1. Accessory

2. Accessory definition
CAB: Cable

3. Type
1, 2, 3, 4, ...

4. Cable length
15: 1.5 m
30: 3.0 m

• AI/AO Module

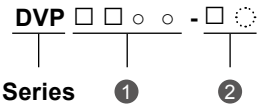


1. Total I/O

2. Module function
AD: Analog/digital conversion
DA: Digital/analog conversion
PT: PT type temperature module
TC: Thermocouple type temperature
Module
XA: AD+DA module
LC: Load cell module
RC: Resolver module

3. Compatible model
S or S2: DVP-SS/SA/SX/SC/SV/SS2
SA2/SX2/SV2/SE/MC
Series PLC
SL: left-side extension for
DVP-S Series PLC
E2: DVP-ES2/EX2 Series PLC

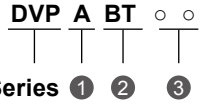
• Network Module



1. Module function
EN01: Modbus TCP
DNET: DeviceNet master
COPM: CANopen master
CP02: CANopen Slave
DT01/02: DeviceNet Slave
PF01/02: PROFIBUS DP Slave

2. Compatible model
S: DVP-SS/SA/SX/SC/SV/SS2/
SA2/SX2/SV2/SE/MC Series PLC
H2/H3: DVP-
EH2/EH3/PM Series PLC
SL: left-side extension for
DVP-S Series PLC

• Accessory: Other



1. Accessory

2. Accessory definition
Bt: Battery

3. Type: 01, 02 .....

*For the availability of the product models, please contact Delta sales representatives or ue.

DVP Series PLC Function Overview

Select your desired specifications and locate the most suitable PLC.

What do you need? → Select specifications → Check → Locate PLC

Item	Specifications	Check	Model							
			ES2	EX2	EH3	SS2	SA2	SX2	SV2	SE
Power Supply	AC	☐	◎	◎	○					
	DC	☐				○	○	○	○	○
I/O Points	< 256	☐	△	△						
	< 512	☐			△	△	△	△	△	△
Program Capacity	< 8 k	☐				○				
	<16 k	☐	○	○			○	○		○
	< 32 k	☐			○				○	
Output Type	Transistor (NPN)	☐	◎	◎	◎	◎	◎	◎	◎	◎
	Transistor (PNP)	☐				◎	△	◎	◎	△
	Relay	☐	◎	◎	◎	◎	◎	◎	◎	◎
	Differential signal	☐			◎					
Communication	3 COM ports (RS-232/485)	☐	○	○	△		○	△	△	△
	Ethernet	☐	◎		△		△	△	△	○
	USB	☐						○		○
	DeviceNet	☐			△*1		△*1	△*1	△*1	△*1
	CANopen	☐	◎		△*1		△*1	△*1	△*1	△*1
	PROFIBUS	☐			△*1		△*1	△*1	△*1	△*1
Positioning	2-axis output	☐	○	○	○	○	○	○		○
	4-axis output	☐			◎				○	
	> 4 axes	☐			△	△	△	△	△	△
	2-axis interpolation	☐	○	○	○		○	○	○	○
	100 kHz high speed	☐	○	○			○	○		○
	200 kHz high speed	☐			○	△	△	△	○	△
High-speed Counting	≤ 2 channels	☐	○	○		○	○	○		○
	≥ 3 channels	☐			○*3	△	△	△	○	△
	100 kHz high speed	☐	○	○			○	○		○
	200 kHz high speed	☐			○	△	△	△	○	△
Analog Function	< 4 channels (AD)	☐	△	○	△	△	△	○	△	△
	< 2 channels (DA)	☐	△	○*2	△	△	△	○*2	△	△

Note:

○ With such specification ◎ Varies upon model △ With such specification when connected to extension module / function card

*1: Series that support left-side modules can support both master and slave; other series support only slave

*2: DVP-EX / SX2 Series have 4 channels of analog input and 2 channels of analog output

*3: In addition to the built-in 4 channels of high-speed counters, the DVP-EH3 Series can connect high-speed counter modules

Ordering Information

DVP-EC3 Series PLC

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
DVP-EC3 Series Basic PLC	100~240 V_{AC}	Relay	6	4	DVP10EC00R3	CE cULus
	100~240 V_{AC}	Transistor	6	4	DVP10EC00T3	
	100~240 V_{AC}	Relay	8	6	DVP14EC00R3	
	100~240 V_{AC}	Transistor	8	6	DVP14EC00T3	
	100~240 V_{AC}	Relay	8	8	DVP16EC00R3	
	100~240 V_{AC}	Transistor	8	8	DVP16EC00T3	
	100~240 V_{AC}	Relay	12	8	DVP20EC00R3	
	100~240 V_{AC}	Transistor	12	8	DVP20EC00T3	
	100~240 V_{AC}	Relay	12	12	DVP24EC00R3	
	100~240 V_{AC}	Transistor	12	12	DVP24EC00T3	
	100~240 V_{AC}	Relay	18	12	DVP30EC00R3	
	100~240 V_{AC}	Transistor	18	12	DVP30EC00T3	

DVP-EC3 Series PLC

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
DVP-EC3 Series Basic PLC	100~240 V_{AC}	Relay	16	16	DVP32EC00R3	CE cULus
	100~240 V_{AC}	Transistor	16	16	DVP32EC00T3	
	100~240 V_{AC}	Relay	24	16	DVP40EC00R3	
	100~240 V_{AC}	Transistor	24	16	DVP40EC00T3	
	100~240 V_{AC}	Relay	28	20	DVP48EC00R3	
	100~240 V_{AC}	Transistor	28	20	DVP48EC00T3	
	100~240 V_{AC}	Relay	36	24	DVP60EC00R3	
	100~240 V_{AC}	Transistor	36	24	DVP60EC00T3	
Fastest execution time of basic instructions		3.8 μs	Execution time of MOV instruction		5.04 μs	

DVP-ES2 / EX2 Series PLC

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
DVP-ES2 Series Standard PLC	100 ~ 240 V_{AC}	Relay	8	8	DVP16ES200R	CE cULus
	100 ~ 240 V_{AC}	Transistor	8	8	DVP16ES200T	
	100 ~ 240 V_{AC}	Relay	16	8	DVP24ES200R	
	100 ~ 240 V_{AC}	Transistor	16	8	DVP24ES200T	
	100 ~ 240 V_{AC}	Relay	16	16	DVP32ES200R	
	100 ~ 240 V_{AC}	Transistor	16	16	DVP32ES200T	
	24 V_{DC}	Transistor	16	16	DVP32ES211T	
	100 ~ 240 V_{AC}	Relay	24	16	DVP40ES200R DVP40ES200RM*1	
	100 ~ 240 V_{AC}	Transistor	24	16	DVP40ES200T	
	100 ~ 240 V_{AC}	Relay	36	24	DVP60ES200R	
	100 ~ 240 V_{AC}	Transistor	36	24	DVP60ES200T	
	100 ~ 240 V_{AC}	Relay	40	40	DVP80ES200R	
	100 ~ 240 V_{AC}	Transistor	40	40	DVP80ES200T	
DVP-ES2 Series Standard PLC with Built-in CANopen	100 ~ 240 V_{AC}	Relay	16	16	DVP32ES200RC	
	100 ~ 240 V_{AC}	Transistor	16	16	DVP32ES200TC	
DVP-ES2 Series New Standard PLC with Ethernet Communication	100 ~ 240 V_{AC}	Relay	12	8	DVP20ES200RE	
	100 ~ 240 V_{AC}	Transistor	12	8	DVP20ES200TE	
	100 ~ 240 V_{AC}	Relay	16	16	DVP32ES200RE	
	100 ~ 240 V_{AC}	Transistor	16	16	DVP32ES200TE	
	100 ~ 240 V_{AC}	Relay	24	16	DVP40ES200RE	
	100 ~ 240 V_{AC}	Transistor	24	16	DVP40ES200TE	
	100 ~ 240 V_{AC}	Relay	36	24	DVP60ES200RE	
	100 ~ 240 V_{AC}	Transistor	36	24	DVP60ES200TE	
DVP-EX2 Series Analog PLC	100 ~ 240 V_{AC}	Relay	8	6	DVP20EX200R	
		Analog	4	2		
	100 ~ 240 V_{AC}	Transistor	8	6	DVP20EX200T	
		Analog	4	2		
DVP-EX2 Series Temperature / Analog PLC	100 ~ 240 V_{AC}	Relay	16	10	DVP30EX200R	
		Analog	3	1		
	100 ~ 240 V_{AC}	Transistor	16	10	DVP30EX200T	
		Analog	3	1		
Fastest execution time of basic instructions	0.35 µs		Execution time of MOV instruction		3.4 µs	

*1: Built-in SD card slot

DVP-ES2 / EX2 Series Digital I/O Module (AC power supply)

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
Digital Module	100 ~ 240 V_{AC}	Relay	-	24	DVP24XN200R	CE cULus
	100 ~ 240 V_{AC}	Transistor	-	24	DVP24XN200T	
	100 ~ 240 V_{AC}	Relay	16	8	DVP24XP200R	
	100 ~ 240 V_{AC}	Transistor	16	8	DVP24XP200T	
	100 ~ 240 V_{AC}	Relay	16	16	DVP32XP200R	
	100 ~ 240 V_{AC}	Transistor	16	16	DVP32XP200T	

Ordering Information

DVP-ES2 / EX2 Series Digital / Analog / Special Module ($24V_{DC}$)

Product Name	Output Method	Inputs	Outputs	Model Name	Certificates
Digital Module	-	8	-	DVP08XM211N	CE cULus
	Relay	-	8	DVP08XN211R	
	Transistor	-	8	DVP08XN211T	
	Relay	4	4	DVP08XP211R	
	Transistor	4	4	DVP08XP211T	
	-	16	-	DVP16XM211N	
	Relay	-	16	DVP16XN211R	
	Transistor	-	16	DVP16XN211T	
	Relay	8	8	DVP16XP211R	
	Transistor	8	8	DVP16XP211T	
Analog I/O Module	• 4 points of analog voltage (10 V, 5 V) / current (20 mA, 0 ~ 20 mA, 4 ~ 20 mA) input *1 • Resolution: 14-bit (-32,000 ~ +32,000)			DVP04AD-E2	
	• 4 points of analog voltage (-10 V ~ +10 V) / current (0 ~ 20 mA, 4 ~ 20 mA) output *1 • Resolution: 14-bit (-32,000 ~ +32,000) / (0 ~ +32,000)			DVP04DA-E2	
	• 2 points of analog voltage (-10 V ~ +10 V) / current (0 ~ 20 mA, 4 ~ 20 mA) output *1 • Resolution: 14-bit (-32,000 ~ +32,000) / (0 ~ +32,000)			DVP02DA-E2	
	• 4 points of analog voltage (10 V, 5 V) / current (20 mA, 0 ~ 20 mA, 4 ~ 20 mA) input *1 • Input resolution: 14-bit (-32,000 ~ +32,000) • 2 points of analog voltage (-10 V ~ +10 V) / current (0 ~ 20 mA, 4 ~ 20 mA) output • Output resolution: 14-bit (-32,000 ~ +32,000) / (0 ~ +32,000)			DVP06XA-E2	
Temperature Measurement Module	• 4 points of platinum RTD (Pt100, Pt1000, Ni100, Ni1000) sensor input / 0 ~ 300Ω resistance input *1 • Resolution: 16-bit • With PID temperature control			DVP04PT-E2	
	• 4 points of thermocouple (J, K, R, S, T, E, N Type) sensor input / -80mV ~ +80mV voltage input *1 • Resolution: 20-bit • With PID temperature control			DVP04TC-E2	
Absolute Resolver Module	• Converts 1 set of resolver input signal (angle / speed) into digital signals • Resolution: 12-bit • Supports disconnection detection for distance up to 50m			DVP10RC-E2	
Extension module	• Extends distance between the I/O modules of the DVP-ES2 Series within a given distance			DVPAEXT01-E2	

*1. Digital / analog photocoupler isolation. No isolation among channels.

DVP-EH3 Series PLC

Product name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
DVP-EH3 Series High Performance PLC	100 ~ 240V_{AC}	Relay	8	8	DVP16EH00R3	CE cULus
	100 ~ 240V_{AC}	Transistor	8	8	DVP16EH00T3	
	100 ~ 240V_{AC}	Relay	12	8	DVP20EH00R3	
	100 ~ 240V_{AC}	Transistor	12	8	DVP20EH00T3	
	100 ~ 240V_{AC}	Transistor	16	16	DVP32EH00T3	
	100 ~ 240V_{AC}	Relay	16	16	DVP32EH00R3	
	100 ~ 240V_{AC}	Differential + Relay	16	16	DVP32EH00M3	
	100 ~ 240V_{AC}	Differential + Transistor	16	16	DVP32EH00MT	
	100 ~ 240V_{AC}	Relay	16	16	DVP32EH00R3-L	
	100 ~ 240V_{AC}	Transistor	16	16	DVP32EH00T3-L	
	100 ~ 240V_{AC}	Transistor	24	16	DVP40EH00T3	
	100 ~ 240V_{AC}	Relay	24	16	DVP40EH00R3	
	100 ~ 240V_{AC}	Relay	24	24	DVP48EH00R3	
	100 ~ 240V_{AC}	Transistor	24	24	DVP48EH00T3	
	100 ~ 240V_{AC}	Relay	32	32	DVP64EH00R3	
	100 ~ 240V_{AC}	Transistor	32	32	DVP64EH00T3	
	100 ~ 240V_{AC}	Relay	40	40	DVP80EH00R3	
	100 ~ 240V_{AC}	Transistor	40	40	DVP80EH00T3	
Execution time of basic instructions			0.24 μs			

DVP-EH3 Series Digital / Analog Module

Product Name	Output Method	Inputs	Outputs	Model Name	Certificates
Digital Module	Relay	4	4	DVP08HP11R	
	Transistor	4	4	DVP08HP11T	
	Relay	-	8	DVP08HN11R	
	Transistor	-	8	DVP08HN11T	
	-	8	-	DVP08HM11N	
	Relay	8	8	DVP16HP11R	
	Transistor	8	8	DVP16HP11T	
	-	16	-	DVP16HM11N	
	-	32	-	DVP32HM11N	
	Relay	-	32	DVP32HN00R	
	Transistor	-	32	DVP32HN00T	
	Relay	16	16	DVP32HP00R	
	Transistor	16	16	DVP32HP00T	
	Relay	24	24	DVP48HP00R	
	Transistor	24	24	DVP48HP00T	
Analog Module	• 4 points of analog voltage (-10 V ~ +10 V) / current (-20 mA ~ +20 mA) *1 • Input resolution: 14-bit • Built-in RS-485 interface			DVP04AD-H2	
	• 4 points of analog voltage (0 V ~ +10 V) / current (0 mA ~ +20 mA) output *1 • Resolution: 12-bit • Built-in RS-485 interface			DVP04DA-H2	
	• 4 points of analog voltage (-10 V ~ +10 V) / current (-20 mA ~ +20 mA) input • 2 points of analog voltage (0 V ~ +10 V) / current (0 mA ~ +20 mA) output • Resolution: 12-bit • Built-in RS-485 interface			DVP06XA-H2	
	• 4 points of platinum RTD (Pt100, Pt1000, Ni100, Ni1000) sensor input *1 / 0 ~ 300Ω or 0 ~ 3000Ω resistance input • Resolution: 0.1°C • Built-in RS-485 interface			DVP04PT-H2	
	• 4 points of thermocouple (J, K, R, S, T, E, N Type) sensor input *1 / 0 ~ 150mV voltage input • Resolution: 0.1°C • Built-in RS-485 interface			DVP04TC-H2	
	• 8 points of thermocouple (J, K, R, S, T, E, N Type) sensor input *1 / 0 ~ 150mV or ±150mV voltage input • Resolution: 0.1°C • Built-in RS-485 interface			DVP08TC-H2	
	• 4 channels of differential voltage (-10 V ~ +10 V) / current (-20 mA ~ +20 mA) input • Resolution: 16-bit • Built-in RS-485 interface			DVP04AD-H3	
	• 4 channels of voltage (-10 V ~ +10 V) / current (0 ~ +20 mA) output • Resolution: 16-bit • Built-in RS-485 interface			DVP04DA-H3	
	• 4 channels of differential voltage (-10 V ~ +10 V) / current (-20 mA ~ +20 mA) input • 2 channels of voltage (-10 V ~ +10 V) / current (0 ~ +20 mA) output • Resolution: 16-bit • Built-in RS-485 interface			DVP06XA-H3	

*1. Digital / analog photocoupler isolation. No isolation among channels.

DVP-EH3 Series Extension Module / Function Card

Product Name	Description	Model Name	Certificates
Positioning Module	Servo position control module (single axis, 200 kHz)	DVP01PU-H2	
High-Speed Counter	High-speed counter module (1CH)	DVP01HC-H2	
Communication Module	PROFIBUS DP slave communication module	DVPPF02-H2	
	CANopen slave communication module	DVPCP02-H2	
	DeviceNet slave communication module	DVPDT02-H2	
Function Card	RS-232 port conversion (DVP-EH2: COM2; DVP-EH3: COM3)	DVP-F232	
	RS-422 port conversion (DVP-EH2: COM2; DVP-EH3: COM3)	DVP-F422	
	RS-485 port extension (COM3) (DVP-EH3 only)	DVP-F485	
	• 2 points of analog voltage (0 ~ 10 V) / current (0 ~ 20 mA) input • Resolution: 12-bit	DVP-F2AD	
	• 2 points of analog voltage (0 ~ 10 V) / current (0 ~ 20 mA) output • Resolution: 12-bit	DVP-F2DA	
	Ethernet communication card (compatible with controllers built-in with 32 I/O and above)	DVP-FEN01	

Ordering Information

DVP-S Series PLC

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
DVP-SV2 Series Functional Slim PLC	24 VDC	Relay	16	12	DVP28SV11R2	CE cULus
	24 VDC	Transistor	16	12	DVP28SV11T2	
	24 VDC	Transistor (PNP)	16	12	DVP28SV11S2	
	24 VDC	Transistor	10 (2AI)	12	DVP24SV11T2	
Execution time of basic instructions			0.24 µs			
DVP-SS2 Series Standard Slim PLC	24 VDC	Relay	16	12	DVP28SS211R New	CE cULus
	24 VDC	Transistor	16	12	DVP28SS211T New	
	24 VDC	Relay	8	6	DVP14SS211R	
	24 VDC	Transistor	8	6	DVP14SS211T	
	24 VDC	Transistor(PNP)	8	4	DVP12SS211S	
DVP-SA2 Series Advanced Slim PLC	24 VDC	Relay	16	12	DVP28SA211R New	
	24 VDC	Transistor	16	12	DVP28SA211T New	
	24 VDC	Relay	8	4	DVP12SA211R	
	24 VDC	Transistor	8	4	DVP12SA211T	
DVP-SX2 Series Analog Slim PLC	24 VDC	Relay	8 (4AI)	6 (2AO)	DVP20SX211R	
	24 VDC	Transistor	8 (4AI)	6 (2AO)	DVP20SX211T	
	24 VDC	Transistor (PNP)	8 (4AI)	6 (2AO)	DVP20SX211S	
Fastest execution time of basic instructions		0.35 µs	Execution time of MOV instruction		3.4 µs	
DVP-SE Series Network Type Slim PLC	24 VDC	Relay	14	12	DVP26SE11R New	CE cULus
	24 VDC	Transistor	14	12	DVP26SE11T New	
	24 VDC	Relay	8	4	DVP12SE11R	
	24 VDC	Transistor	8	4	DVP12SE11T	
Fastest execution time of basic instructions		0.64 µs	Execution time of MOV instruction		2 µs	
DVP-SX Series Analog Slim PLC	24 VDC	Relay	4 (2AI)	2 (2AO)	DVP10SX11R	CE cULus
	24 VDC	Transistor	4 (2AI)	2 (2AO)	DVP10SX11T	
Fastest execution time of basic instructions		3.8 µs	Execution time of MOV instruction		5.04 µs	

DVP-S Series Digital / Analog Module

Product name	Output Method	Inputs	Outputs	Model Name	Certificates
Digital Module	Relay	-	6	DVP06SN11R	CE cULus
	Relay	-	8	DVP08SN11R	
	Transistor	-	8	DVP08SN11T	
	Transistor	-	16	DVP16SN11T	
	Relay	4	4	DVP08SP11R	
	Transistor	4	4	DVP08SP11T	
	-	8	-	DVP08SM11N	
	-	8	-	DVP08SM10N	
	Transistor (PNP)	-	8	DVP08SN11TS	
	Digital switch	8	-	DVP08ST11N	
	Relay	8	8	DVP16SP11R	
	Transistor (PNP)	4	4	DVP08SP11TS	
	Transistor (NPN)	8	8	DVP16SP11T	
	Transistor (PNP)	8	8	DVP16SP11TS	
	Transistor (PNP)	-	16	DVP16SN11TS	
	-	16	-	DVP16SM11N	
	Transistor, MIL	-	32	DVP32SN11TN	
	MIL	32	-	DVP32SM11N	

Product Name	Description		Model Name	Certificates
Analog I/O Module	▪ 4 points of analog input voltage (-10 V ~ +10 V) / current (-20 mA ~ +20 mA) ▪ Input resolution: 14-bit	▪ Built-in RS-485 interface ▪ Differential input	DVP04AD-S2	CE cULus
	▪ 4 points of analog output voltage (0 V ~ +10 V) / current (0 mA ~ +20 mA)	▪ Output resolution: 12-bit ▪ Built-in RS-485 interface	DVP04DA-S2	
	▪ Analog input+output module (6 points) ▪ 4 points of analog input voltage (-10 V ~ +10 V) / current (-20 mA ~ +20 mA) ▪ 2 points of analog output voltage (0 V ~ +10 V) / current (0 mA ~ +20 mA)	▪ Input / output resolution: 12-bit ▪ Built-in RS-485 interface ▪ Differential input	DVP06XA-S2	

DVP-S Series Analog Module

Product Name	Description		Model Name	Certificates
Analog I/O Module	▪ 4 points of analog input voltage (-10 V ~ +10 V) / current (-20 mA ~ +20 mA) ▪ Input resolution: 14-bit	▪ Built-in RS-485 interface ▪ Single-ended input	DVP04AD-S	CE cULus
	▪ 4 points of analog output voltage (0 V ~ +10 V) / current (0 mA ~ +20 mA) ▪ Output resolution: 12-bit	▪ Built-in RS-485 interface	DVP04DA-S	
	▪ 2 points of analog output voltage (0 V ~ +10 V) / current (0 mA ~ +20 mA) ▪ Output resolution: 12-bit	▪ Built-in RS-485 interface	DVP02DA-S	
	▪ 6 points of analog input voltage (-10 V ~ +10 V) / current (-20 mA ~ +20 mA) ▪ Input resolution: 14-bit	▪ Built-in RS-485 interface	DVP06AD-S	
	▪ Analog input+output modules (6 points) ▪ 4 points of analog input voltage (-10 V ~ +10 V) / current (-20 mA ~ +20 mA) ▪ 2 points of analog output voltage (0 V ~ +10 V) / current (0 mA ~ +20 mA)	▪ Input / output resolution: 12-bit ▪ Built-in RS-485 interface ▪ Single-ended input	DVP06XA-S	

DVP-S Series Extension Module / High-Speed Module (Left-side)

Product Name	Description		Model Name	Certificates
High-Speed Analog I/O Module (Left-side)	▪ 4 groups of analog input *1 ▪ Signal range: 1 ~ 5 V, 0 ~ 5 V, -5 ~ 5 V, 0 ~ 10 V, -10 ~ 10 V, 4 ~ 20 mA, 0 ~ 20 mA, -20 ~ 20 mA ▪ Resolution: 16-bit ▪ Single channel On / Off setup enhances entire conversion efficiency ▪ Conversion time: 250 µs / point ▪ Off-line alarm (1 ~ 5 V, 4 ~ 20 mA)		DVP04AD-SL	CE cULus
	▪ 4 groups of analog output *1 ▪ Signal range: 0 ~ 10 V, -10 ~ 10 V, 4 ~ 20 mA, 0 ~ 20 mA ▪ Resolution: 16-bit ▪ Offers single channel On / Off setup ▪ Conversion time: 250 µs / point		DVP04DA-SL	
High-Speed Load Cell Module (Left-side)	▪ 1 set of load cell module*1 ▪ Resolution: 24-bit for hardware(ADC), 32-bit for data output	▪ Connectable to 4-wire / 6-wire load cell sensor ▪ Measurable range: 0 ~ 80 mV / V	DVP201LC-SL	
	▪ 1 set of load cell module*1 ▪ Resolution: 24-bit for hardware(ADC), 32-bit for data output ▪ Connectable to 4-wire / 6-wire load cell sensor	▪ Measurable range: 0 ~ 80 mV / V ▪ Built-in I/O control: 2DI / 4DO / 1AO	DVP211LC-SL	
	▪ 2 sets of load cell module*1 ▪ Resolution: 24-bit for hardware(ADC), 32-bit for data output	▪ Connectable to 4-wire / 6-wire load cell sensor ▪ Measurable range: 0 ~ 80 mV / V	DVP202LC-SL	
	▪ Supports 2 channels of load cell signal input*1 ▪ Resolution: 20-bit for hardware(ADC), 16-bit for data output ▪ Connectable to 4-wire / 6-wire load cell sensor ▪ Measurable range: 0 ~ 6 mV / V		DVP02LC-SL	
	▪ Supports 1 channel of load cell signal input*1 ▪ Resolution: 20-bit for hardware(ADC), 32-bit for data output ▪ Connectable to 4-wire / 6-wire load cell sensor ▪ Measurable range: 0 ~ 6 mV / V		DVP01LC-SL	
Temperature Measurement Module	▪ 6 points of platinum RTD (Pt100, Pt1000, Ni100, Ni1000) sensor input ▪ Resolution: 0.1 °C		DVP06PT-S	
	▪ 4 points of platinum RTD (Pt100, Pt1000, Ni100, Ni1000) sensor input*1 (Version 4.06 and above supports Pt1000, Ni100, Ni1000) ▪ Resolution: 0.1 °C ▪ Built-in RS-485 interface		DVP04PT-S	
	▪ 4 points of thermocouple (J, K, R, S, T type) sensor input*1 ▪ Resolution: 0.1 °C ▪ Built-in RS-485 interface		DVP04TC-S	
	▪ 2 points of universal analog input: 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA; Thermocouple: J, K, R, S, T, E, N, B, C, L, U, TXK, PLII; RTD: Pt100, JPt100, Pt1000, Cu50, Cu100, Ni100, Ni1000, LG-Ni1000 ▪ Resolution: analog 16-bit; Sensor: 0.1 °C ▪ 4 points of NPN transistor output: 24V_{DC} / 300mA ▪ Output point: built-in PID program control / manual control		DVP02TUN-S New	
	▪ 2 points of universal analog input: 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA; Thermocouple: J, K, R, S, T, E, N, B, C, L, U, TXK, PLII; RTD: Pt100, JPt100, Pt1000, Cu50, Cu100, Ni100, Ni1000, LG-Ni1000 ▪ Resolution: analog 16-bit; Sensor: 0.1 °C ▪ 4 points of relay output: 24V_{DC}/3A ▪ Output point: built-in PID program control / manual control		DVP02TUR-S New	
	▪ 2 points of universal analog input: 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA; Thermocouple: J, K, R, S, T, E, N, B, C, L, U, TXK, PLII; RTD: Pt100, JPt100, Pt1000, Cu50, Cu100, Ni100, Ni1000, LG-Ni1000 ▪ Resolution: analog 16-bit; Sensor: 0.1 °C ▪ 2 points of analog output: 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA ▪ Output point: built-in PID program control / manual control		DVP02TUL-S New	

*1. Digital / analog photocoupler isolation. No isolation among channels.

Ordering Information

DVP-S Series Extension Module / High-Speed Module (Left-side)

Product Name	Description	Model Name	Certificates
Positioning Module	Servo position control module (single axis, 200 kHz)	DVP01PU-S	
Communication Module	DeviceNet slave communication module	DVPDT01-S	
	PROFIBUS DP slave communication module	DVPPF01-S	
Left-Side High-Speed Communication Module	Ethernet communication module, 10 / 100 Mbps	DVPEN01-SL	
	DeviceNet master communication module, 500 Kbps	DVPDNET-SL	
	CANopen master communication module, 1 Mbps	DVPCOPM-SL	
	PROFIBUS DP slave communication module , 12 Mbps	DVPPF02-SL	
	RS-485 / RS-422, serial communication module, 460 Kbps	DVPSCM12-SL	
	BACnet MS / TP Slave communication module, 460 Kbps	DVPSCM52-SL	
Remote I/O Module	RS-485 remote I/O module, connectable to DVP-S series I/O modules	RTU-485	
	Ethernet remote I/O module, connectable to DVP-S series I/O modules	RTU-EN01	
	DeviceNet remote I/O module, connectable to DVP-S series I/O modules	RTU-DNET	
	PROFIBUS remote I/O module, connectable to DVP-S series I/O modules	RTU-PD01	
Remote Temperature Control Module	▪ 2 points of universal analog input: 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA; Thermocouple: J, K, R, S, T, E, N, B, C, L, U, TXK, PLII; RTD: Pt100, JPt100, Pt1000, Cu50, Cu100, Ni100, Ni1000, LG-Ni1000 ▪ Resolution: analog 16-bit; Sensor: 0.1 °C ▪ 4 points of NPN transistor output: 24V_{DC} / 300mA ▪ Output point: built-in PID program control / manual control	DVP02TKN-S New	
	▪ 2 points of universal analog input: 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA; Thermocouple: J, K, R, S, T, E, N, B, C, L, U, TXK, PLII; RTD: Pt100, JPt100, Pt1000, Cu50, Cu100, Ni100, Ni1000, LG-Ni1000 ▪ Resolution: analog 16-bit; Sensor: 0.1 °C ▪ 4 points of relay output: 24V_{AC}/3 A ▪ Output point: built-in PID program control / manual control	DVP02TKR-S New	
	▪ 2 points of universal analog input: 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA; Thermocouple: J, K, R, S, T, E, N, B, C, L, U, TXK, PLII; RTD: Pt100, JPt100, Pt1000, Cu50, Cu100, Ni100, Ni1000, LG-Ni1000 ▪ Resolution: analog 16-bit; Sensor: 0.1 °C ▪ 2 points of analog output: 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA ▪ Output point: built-in PID program control / manual control	DVP02TKL-S New	

Communication Converter

Product Name	Description	Model Name	Certificates
Converter	USB to RS-485 converter	IFD6500	
	USB to CAN converter	IFD6503	
	USB to RS-485 converter	IFD6530	
	Modbus TCP to RS-232 / 485 converter	IFD9506	
	EtherNet / IP to RS-232 / 485 converter	IFD9507	
	DeviceNet to RS-232 / 485 converter	IFD9502	
	CANopen to RS-232 / 485 converter	IFD9503	
	RS-232 to RS-422 / 485 isolated converter	IFD8500-A	
	RS-485 to RS-422 isolated repeater	IFD8510-A	
	RS-422 / 485 to RS-232 addressable isolated converter	IFD8520	

DVP-PM Series

Product Name	Power Supply	Output Method	Inputs	Outputs	Model Name	Certificates
Standard Motion Controller	100 ~ 240V_{AC}	Differential	16	16	DVP10PM00M	
		(Built-in 4-axis of independent 1MHz pulse output)				
Advanced Motion Controller	100 ~ 240V_{AC}	Differential	8	8	DVP20PM00DT	
		(Built-in 2-axis of independent 500 kHz pulse output)			DVP20PM00D	
		(Built-in 3-axis of independent 500 kHz pulse output)			DVP20PM00M	

Extension Module	Description	Model Name
DVP-PM communication card	Ethernet / CANopen communication card	DVP-FPMC

Execution time of basic instructions	0.13 µs	Execution time of MOV instruction	3.74 µs

DVP-MC Series

Product Name	Power Supply	Communication Protocol	Axes Controlled	Inputs	Outputs	Model Name	Certificates
Multi-axis Motion Controller	24 V_{DC}	CANopen DS402	16	8	4	DVP10MC11T	CE cUL us
			24	16	8	DVP15MC11T New	
			6	16	8	DVP15MC11T-06 New	
		EtherCAT	24	16	8	DVP50MC11T New	
			6	16	8	DVP50MC11T-06 New	

TP Series

Product Name	Description	Model	Certificates
TP02	Resolution: 160 x 32, Serial COM ports: RS-232 & RS-485	TP02G-AS1	CE cUL us
TP04	Resolution: 128 x 64, Serial COM ports: RS-232 & RS-422/RS-485	TP04G-AS2	
	Resolution: 192 x 64, Serial COM ports: RS-232 & RS-422/RS-485	TP04G-AL2	
	Resolution: 192 x 64, Serial COM ports: RS-232	TP04G-AL-C	CE
	Resolution: 192 x 64, Serial COM ports: RS-232 & RS-422/RS-485, 0 ~ 9 numeric keys available	TP04G-BL-C	

Product Name	Description	DI	DO	AI*2	AO*2	PT	AX*1	LC	Output Type	Model	Certificates
TP04P	Resolution: 192 x 64 Serial COM ports: USB & RS-485*2	4 (60 Hz)	4						Relay	TP04P-08TP1R	CE cUL us
		8	8						Relay	TP04P-16TP1R	
		16	16						Relay	TP04P-32TP1R	
		8	8	4 (V/I)	2 (V/I)				Relay	TP04P-22XA1R	
		8	8	2 (I)	1 (I)	2			Relay	TP04P-21EX1R	
		8	8						Transistor	TP04P-16TP1T	
		16	16						Transistor	TP04P-32TP1T	
		8	8	4 (V/I)	2 (V/I)				Transistor	TP04P-22XA1T	
		8	8	2 (I)	1 (I)	2			Transistor	TP04P-21EX1T	
		9	16	4 (V/I)	2 (V/I) 4 (I)		2	1	Transistor	TP04P-20EXL1T*3	
TP70P	Resolution: 800 x 400 Serial COM ports: USB & RS-485*2	8	8						Relay	TP70P-16TP1R	
		16	16						Relay	TP70P-32TP1R	
		8	8	4 (V/I)	2 (V/I)				Relay	TP70P-22XA1R	
		8	8	2 (I)	1 (I)	2			Relay	TP70P-21EX1R	
		8	8						Transistor	TP70P-16TP1T	
		16	16						Transistor	TP70P-32TP1T	
		8	8	4 (V/I)	2 (V/I)				Transistor	TP70P-22XA1T	
		8	8	2 (I)	1 (I)	2			Transistor	TP70P-21EX1T	
		17	24		4 (I)		2	1	Transistor	TP70P-211LC1T*3	
TP08	Resolution: 240 x 128 / Serial COM ports: RS-232, RS-422 & RS-485 / 0~9 numeric numeric keypad									TP08G-BT2	

*1: Universal analog input (mA, V, RTD)
*2: V (Voltage), I (Current)
*3: USB & RS-485 are design with isolation

Software

Product Name	Description	OS (Windows-based software)
ISPSoft	PLC editing software for AH, AS and DVP Series (supports 5 programming languages: LD, FBD, SFC, ST, IL)	Windows 2000, XP, Vista, Windows 7 (32-bit/64-bit)
WPLSoft	Programming software for DVP Series	Windows 98, Me, NT4.0, 2000, XP, Vista, Windows 7 (32-bit/64-bit)
TPEditor	Editing software for TP Series	Windows 98, Me, NT4.0, 2000, XP, Vista, Windows 7 (32-bit/64-bit)
PMSoft	Programming software for DVP-PM series	Windows 2000, XP, Vista, Windows 7 (32-bit/64-bit)
DCISoft	Delta communication integration software	Windows 2000, XP, Vista, Windows 7 (32-bit/64-bit)
DeviceNet Builder	DeviceNet configuration software	Windows 2000, XP, Vista, Windows 7 (32-bit/64-bit)
CANopen Builder	CANopen configuration software	Windows 2000, XP, Vista, Windows 7 (32-bit/64-bit)
NetView Builder	CAN bus message analysis software	Windows 2000, XP, Vista, Windows 7 (32-bit)

Ordering Information

Starter Kit

Product Name	Model Name	Contents
New Delta PLC Starter Kit	UT-14SS2-A	DVP14SS211R (PLC), DOP-107BV (HMI) and accessory
	UT-12SE-A1	DVP12SE11R (PLC), DOP-107EV (HMI) and accessory

Industrial Power Supply

Series	Power Supply	Inputs	Outputs	Power	Output Current	Model Name	Certificates
DVP	1-phase	85~264V_{AC}	24V_{DC}	24W	1A	DVPPS01	
				48W	2A	DVPPS02	
				120W	5A	DVPPS05	

*Note: For more ordering information, please refer to the catalogue for Delta Industrial Power Supply.

Accessories

Type	Model Name	Description	Specification		Applicable Modules
			Length	Connector / Terminal block	
PLC Programming and Serial Communication Cable	UC-PRG015-01A	Communication cable for PLC (mini USB) to PC	1.5 m	PC (USB←→mini USB) PLC	DVP-SE / DVP-SX2 / AH500
	UC-PRG015-02A	Communication cable for TP (USB B type) to PC	1.5 m	PC (USB←→USB B type) TP	TP70P / TP04P / DOP
	UC-PRG020-12A	Communication cable for PLC (DB9 female / 8-pin mini-DIN male) to PC	2 m	PC (DB9 female←→8-pin mini-DIN male) PLC	DVP / TP RS-232
	UC-PRG030-01A	Communication cable for PLC (mini USB) to PC	3 m	PC (USB←→mini USB) PLC	DVP-SE / SX2 AH500
	UC-PRG030-02A	Communication cable for TP (USB B type) to PC	3 m	PC (USB←→USB B type) TP	TP70P / TP04P / DOP
	UC-PRG030-10A	Communication cable for PLC / HMI / TP (DB9 female) to PC	3 m	PC (DB9 female←→DB9 female) PLC / HMI / TP	PLC / HMI / TP (DB9 female)
	UC-PRG030-20A	Communication cable for PLC / HMI (RJ45) to PC	3 m	PC (RJ45←→RJ45) PLC / HMI	DVP-SE DVPEN02-L AHCPU5□□-EN AH10EN-5A
	UC-MS010-02A	Communication cable for PLC (8-pin mini-DIN male) to PC	1 m	PC (DB9 female←→8-pin mini-DIN male) PLC	DVP PLC RS-232
	UC-MS020-01A	Communication cable for PLC (8-pin mini-DIN male) to PC	2 m	PC (DB9 female←→8-pin mini-DIN male) PLC	
	UC-MS020-06A	Communication cable for PLC (8-pin mini-DIN male) to HMI	2 m	HMI (DB9male←→8-pin mini-DIN male) PLC	
	UC-MS030-01A	Communication cable for PLC (8-pin mini-DIN male) to PC	3 m	PC (DB9 female←→8-pin mini-DIN male) PLC	
	UC-MS030-06A	Communication cable for PLC (8-pin mini-DIN male) to HMI	3 m	HMI (DB9male←→8-pin mini-DIN male) PLC	
I/O External Terminal Module	UC-ET010-24A	I/O extension cable for connecting external terminal modules	1 m	PC (MIL IDC40←→IDC40) external terminal modules	DVP32SM11N←→UB-10-ID32A DVP32SN11TN←→UB-10-OT32A
	UC-ET010-24B	I/O extension cable for connecting external terminal modules	1 m	PC (MIL IDC40←→IDC40) external terminal modules (shielded wire)	DVP32SM11N←→UB-10-ID32A DVP32SN11TN←→UB-10-OT32A
	UC-ET010-24C	I/O extension cable for connecting external terminal modules	1 m	PC (MIL IDC40←→IDC20x2) external terminal modules	DVP32SN11TN←→UB-10-OR16A
	UC-ET010-24D	I/O extension cable for connecting external terminal modules	1 m	PC (MIL IDC40←→IDC20x2) external terminal modules (shielded wire)	DVP32SN11TN←→UB-10-OR16A
	UC-ET020-24B	I/O extension cable for connecting external terminal modules	2 m	PC (MIL IDC40←→IDC40) external terminal modules (shielded wire)	DVP32SM11N←→UB-10-ID32A DVP32SN11TN←→UB-10-OT32A
	UC-ET020-24D	I/O extension cable for connecting external terminal modules	2 m	PC (MIL IDC40←→IDC20x2) external terminal modules (shielded wire)	DVP32SN11TN←→UB-10-OR16A
	UC-ET030-24B	I/O extension cable for connecting external terminal modules	3 m	PC (MIL IDC40 ←→ IDC40) external terminal modules (shielded wire)	DVP32SM11N←→UB-10-ID32A DVP32SN11TN←→UB-10-OT32A
	UC-ET030-24D	I/O extension cable for connecting external terminal modules	3 m	PC (MIL IDC40 to IDC20x2) external terminal modules (shielded wire)	DVP32SN11TN←→UB-10-OR16A

Accessories

Type	Model Name	Description	Specification		Applicable Modules
			Length	Connector / Terminal block	
Motion Control Cable / Industrial Communication Cable	UC-CMC003-01A	CANopen communication cable	0.3 m	RJ45	DVPCOPM-SL DVP10MC11T DVP15MC11T New DVP15MC11T-06 New DVPCP02-H2 TAP-CN03
	UC-CMC005-01A		0.5 m		
	UC-CMC010-01A		1 m		
	UC-CMC015-01A		1.5 m		
	UC-CMC020-01A		2 m		
	UC-CMC030-01A		3 m		
	UC-CMC050-01A		5 m		
	UC-CMC100-01A		10 m		
	UC-CMC200-01A		20 m		
	UC-EMC003-02A	EtherCAT communication cable (ETG approval)	0.3 m	RJ45	DVP50MC11T New DVP50MC11T-06 New
	UC-EMC005-02A		0.5 m		
	UC-EMC010-02A		1 m		
	UC-EMC020-02A		2 m		
	UC-EMC050-02A		5 m		
	UC-EMC100-02A		10 m		
	UC-EMC200-02A		20 m		
	UC-EMC003-02B	EtherCAT communication cable	0.3 m	RJ45	
	UC-EMC005-02B		0.5 m		
	UC-EMC010-02B		1 m		
	UC-EMC020-02B		2 m		
	UC-EMC030-02B		3 m		
	UC-EMC050-02B		5 m		
	UC-EMC100-02B		10 m		
Industrial Communication Cable	UC-DN01Z-01A*1	DeviceNet / CANopen communication cable (Trunk cable - thick)	On customer's demand (up to 305 m)	--	DeviceNet / CANopen related models
	UC-DN01Z-02A*1	DeviceNet / CANopen communication cable (Drop cable - thin)		--	
	UC-PF01Z-01A*1	PROFIBUS communication cable		--	PROFIBUS related models
External Terminal Module	UB-10-OR16A	external terminal module for DVP32SN output module	--	16-point relay output, 20-pin MIL	DVP32SN11TN
	UB-10-OT32A	external terminal module for DVP32SN output module	--	32-point transistor output, 40-pin MIL	DVP32SN11TN
	UB-10-ID32A	external terminal module for DVP32SM digital input module	--	32-point input, MIL	DVP32SM11TN
Connector	UN-03EN-04A	RJ45 connector	--	--	--
	UN-03PF-01A	PROFIBUS connector	--	--	PROFIBUS related models
	UN-03PF-02A	PROFIBUS connector	--	--	
	UN-03PF-03A	PROFIBUS connector	--	--	
Peripheral Accessory	Data backup memory card (DVP-EH3 only)				DVP-512FM
	Data backup memory card (DVP-ES2 only)				DVP-E64FM
	Data backup memory card (64k words)				DVPPCC01
	Data backup memory card (TP only)				TP-PCC01
	Communication cable for PC (9-pin & 25-pin D-Sub) and PLC, 1.5 m				DVPACAB215
	Communication cable for PC (9-pin & 25-pin D-Sub) and PLC, 3 m				DVPACAB230
	4 types of RS-485 connectors				ADP485-01
	Connection cable for ADP485-01 and ASDA-A series servo				ADPCAB03A
	Connection cable for ADP485-01 and ASDA-B series servo				ADPCAB03B
	I/O extension cable for DVP-ES / EX Series, 0.3 m				DVPACAB403
	Extension cable for DVP-EH series PLC and extension module, 0.7 m				DVPACAB4A07
	DeviceNet / CANopen power distribution box				TAP-CP01
	DeviceNet / CANopen distribution box, 1 for 2				TAP-CN01
	DeviceNet / CANopen distribution box, 2 for 3				TAP-CN02
	DeviceNet / CANopen distribution box, 2 for 3 RJ45				TAP-CN03
	3.6 V lithium battery (unchargeable) for DVP-EH / SX Series PLC				DVPABT01
	Terminal resistance for CANopen communication (RJ45)				TAP-TR01
	Programming cable for TP Series				UCPRG030-10A

Note 1: Not available in Taiwan

Globe Operations

ASIA (Taiwan)



Taoyuan
Technology Center
(Green Building)



Taoyuan Plant 1



Tainan Plant
(Diamond-rated Green Building)

ASIA (China)



Wujiang Plant 3



Delta Electronics



ASIA (Japan)



Tokyo Office

ASIA (India)



Rudrapur Plant
(Green Building)

EUROPE



Amsterdam, Netherlands

AMERICA



Research Triangle Park

▲ Factories 5 ■ Branch Offices 102 ◉ R&D Centers 6 ■ Distributors 824



SERIE PLC DVP-ES2

DVP-ES2

The Perfect Small PLC Revolution!



16ES2

8 points of digital input
8 points of digital output



20EX2

8 points of digital input, 4 points of analog input
6 points of digital output, 2 points of analog output



24ES2

16 points of digital input
8 points of digital output



32ES2

16 points of digital input
16 points of digital output



40ES2

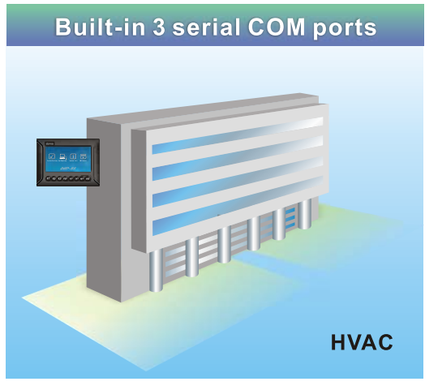
24 points of digital input
16 points of digital output



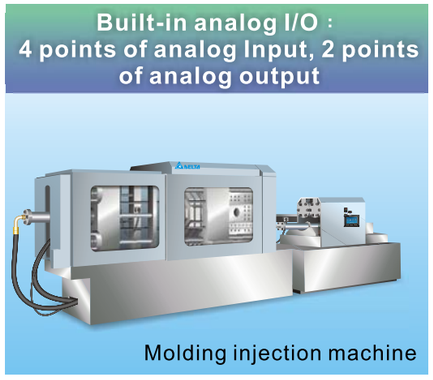
60ES2

36 points of digital input
24 points of digital output

Built-in 3 serial COM ports



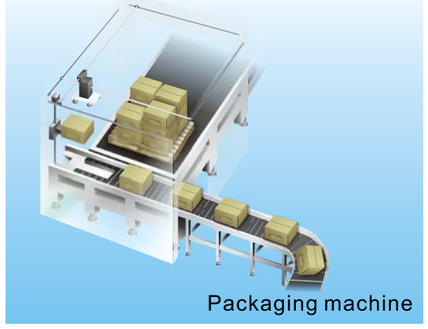
Built-in analog I/O : 4 points of analog Input, 2 points of analog output



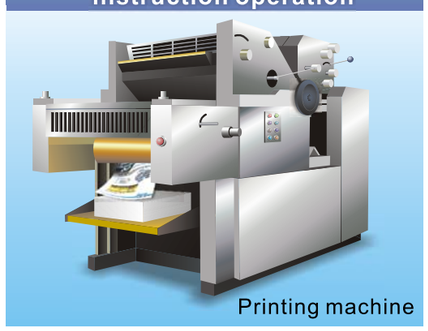
16k steps: Large program capacity



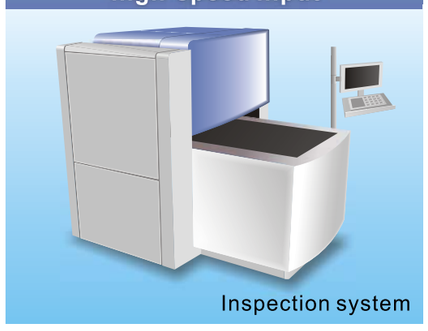
2-axis 100kHz pulse output



Highly efficient instruction operation



2 points of 100kHz high-speed input



I/O Modules



DVP-ES2 MPU



Digital Input Modules



Digital Output Modules



Temperature Measurement Modules



Digital I/O Modules



Analog I/O Modules



ES2/EX2 Series

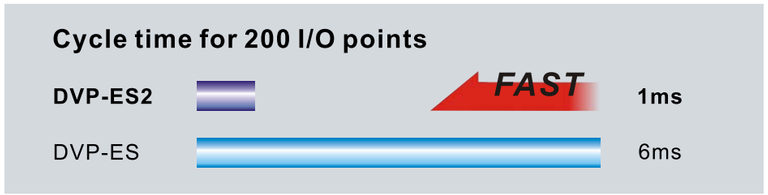
Specifications

Model name	20EX200T 20EX200R	16ES200T 16ES200R	24ES200T 24ES200R	32ES200T 32ES200R	40ES200T 40ES200R	60ES200T 60ES200R
High-speed input	2 points of 100kHz; 6 points of 10kHz; Max. 8 points for single-phase input; Max. 4 points for 2-phase 2-inputs					
Pulse output	2 points of 100kHz; 2 points of 10kHz					
High-speed comparison interruption	8 points					
External input interruption	8 points					
COM port	Built-in 1 RS-232 port, 2 RS-485 ports					
Built-in analog I/O	Yes	No				
AC motor drive/ Servo drive control commands	Yes					
Extension module connection	Connectable to 8 analog extension modules					
Motion control instructions	Yes, with S-curve acceleration/deceleration function					
Program execution speed	Execution speed of basic instructions: 0.35 ~ 1 μs					
Program capacity	16k steps					
Function block editing	Yes					
Password protection	Restriction on incorrect password entry, subroutine password and PLC ID					
Max. I/O points	256 input points + 16 output points, or 256 output points + 16 input points					



Enhanced Program Execution Speed

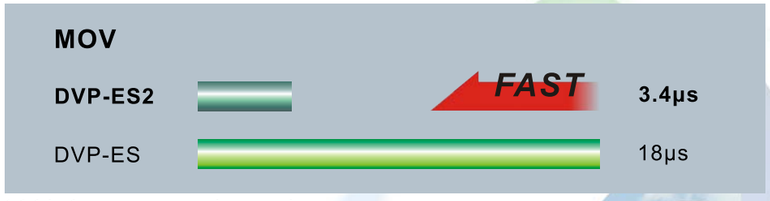
Enhanced Extension I/O Refresh Speed



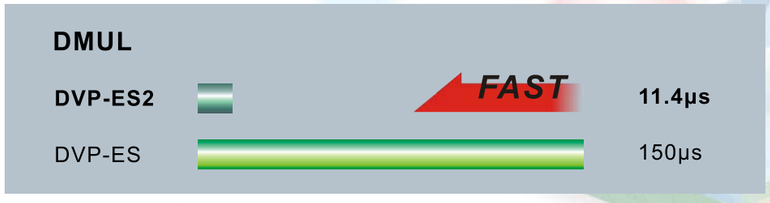
The refresh speed of extension I/O on DVP-ES2 has been greatly enhanced. Only 5μs is required to refresh one I/O point and 1ms for 200 I/O points, which improves the operation efficiency of the PLC.

Enhanced Program Execution Speed

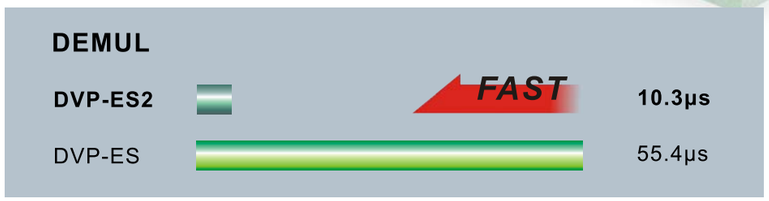
The execution speed of basic instruction LD has been enhanced to 0.54μs, which is a big improvement on the instruction operation efficiency.



16-bit data movement instruction



32-bit multiplication instruction



32-bit floating point multiplication instruction

The execution speed of application instructions has been greatly enhanced, allowing more complicated program operation.

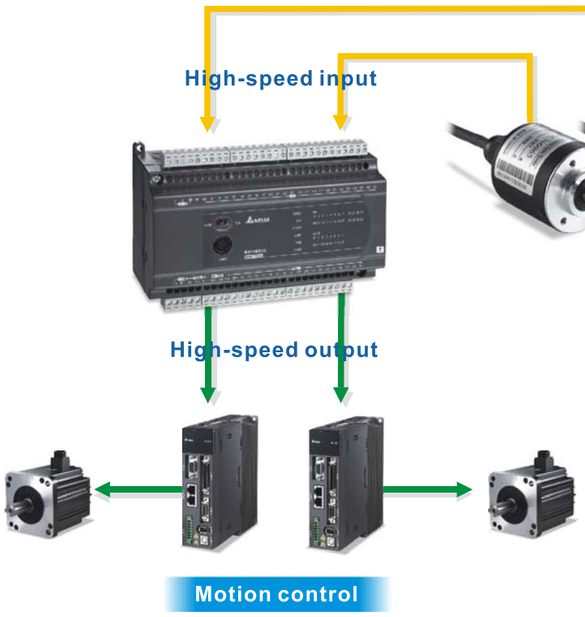
High-Speed Input

DVP-ES2 is built-in with 8 points of high-speed input（2 points of 100kHz, 6 points of 10kHz）and supports U/D, U/D Dir and A/B counting modes.

Counting mode	Counting pulse	
Type	Up (+1)	Down (-1)
1-phases 2 inputs (U/D, DIR)	U/D, DIR	
1-phase 2 inputs (U, D)	U, D	
2-phase 2 inputs (A, B)	A, B	

Set up A/B counting mode to double frequency or 4 times frequency in special register (D1022).

D1022	Counting diagram
Double frequency (k2)	A, B — Count up, Count down
4 times frequency (Default:k4)	A, B — Count up, Count down



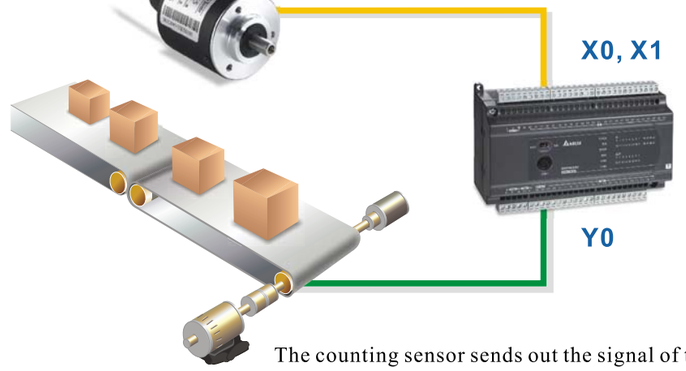
Pulse Output

DVP-ES2 is built-in with 4 axes of pulse output (2 points of 100kHz, 2 points of 10kHz) and supports Pulse, Pulse/Dir, A/B and CW/CCW modes.

Input	D1220					D1221				
	K0		K1	K2	K3	K0		K1	K2	K3
Y0	Pulse		Pulse	A	CW					
Y1		Pulse	Dir	B						
Y2						Pulse		Pulse	A	CCW
Y3							Pulse	Dir	B	

High-Speed Comparison Interruption

Use DHSCS or DHSCR high-speed comparison instructions to achieve real-time interruption once the high-speed counter reaches the counting target.



The counting sensor sends out the signal of the object currently passing through to the high-speed input points on DVP-ES2. The high-speed comparison interruption instructions are able to execute the next step once the counter reaches the assigned number.

Hardware High-Speed Counters

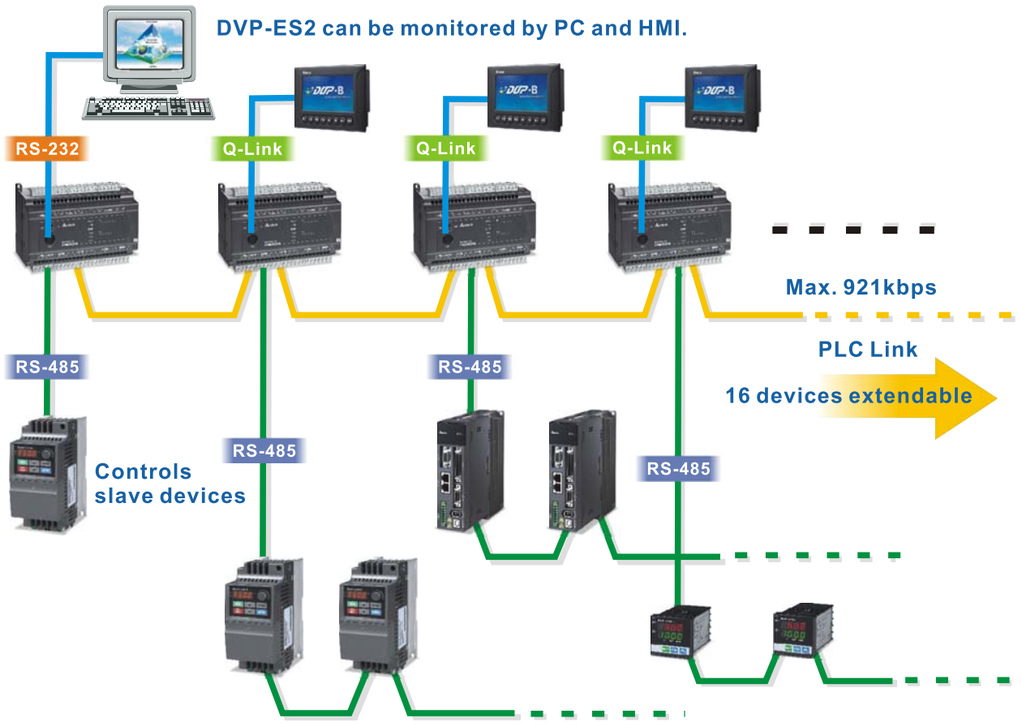
Input	1-phase 1 inputs		1-phase 2 inputs						2-phase 2 inputs			
	C243	C244	C245	C246	C247	C248	C249	C250	C251	C252	C253	C254
X0	U		U/D	U/D	U	U			A	A		
X1	R		Dir	Dir	D	D			B	B		
X2		U					U/D	U/D			A	A
X3		R					Dir	Dir			B	B
X4				R		R				R		
X5								R				R

DVP-ES2 is built-in with 2 sets of hardware counters and 4 hardware comparators for each set.

Hardware counters	A				B			
	A1	A2	A3	A4	B1	B2	B3	B4
Counter #	C243, C245-C248, C251, C252				C244, C249, C250, C253, C254			
High-speed comparison interruption	I010	I020	I030	I040	I050	I060	I070	I080
High-speed comparator	4 A comparators				4 B comparators			

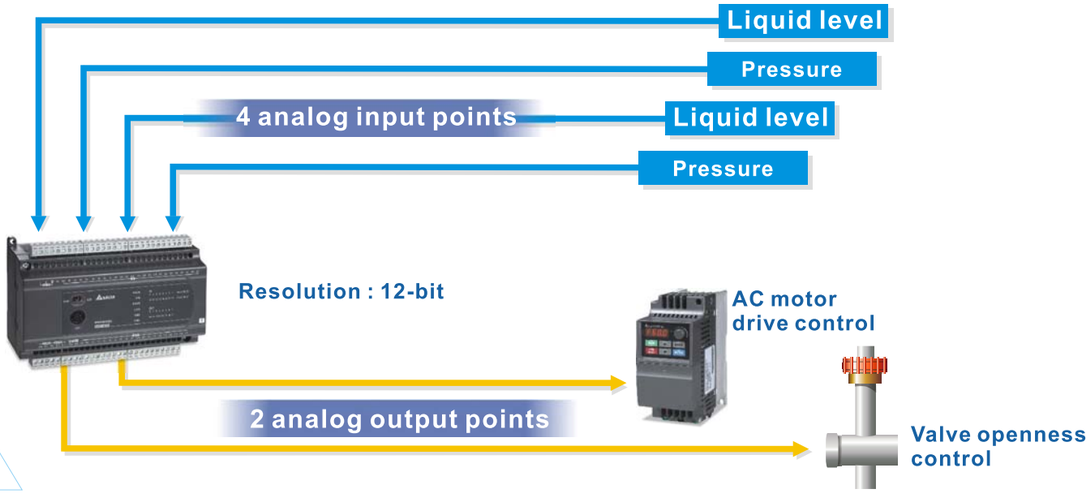
Built-in 3 Serial COM Ports

DVP-ES2 is built-in with 1 RS-232 port and 2 RS-485 ports. The ports can operate together. DVP-ES2 can be Master or Slave and supports Delta **Q-Link** protocol to enhance the speed of HMI screen display.



The 3 serial ports built in DVP-ES2 are able to construct a complex multi-layer network structure, increasing the system flexibility.

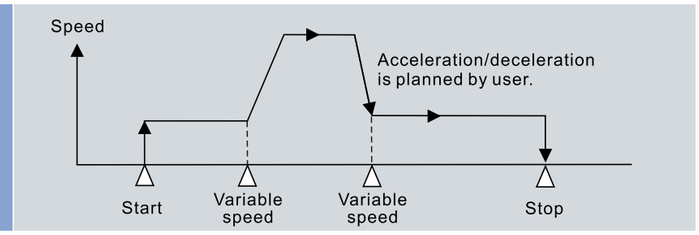
Built-in Analog I/O in 20EX2 Models



Motion Control Instructions

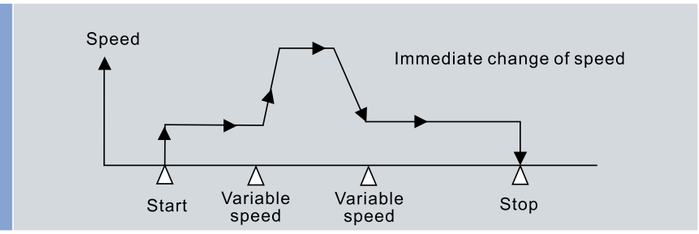
Variable High-Speed Pulse Output

DVSPO



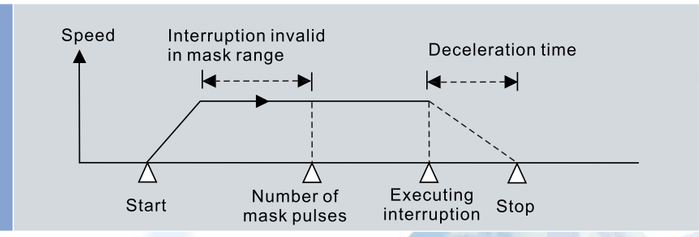
Immediate Frequency Change

DICF



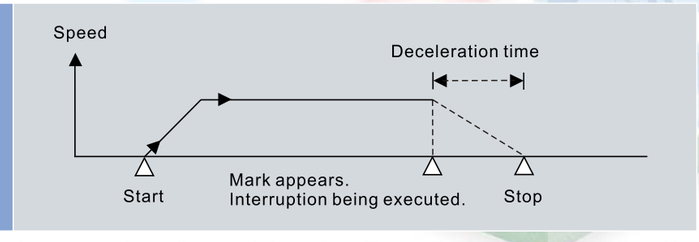
Mask Function

Mask



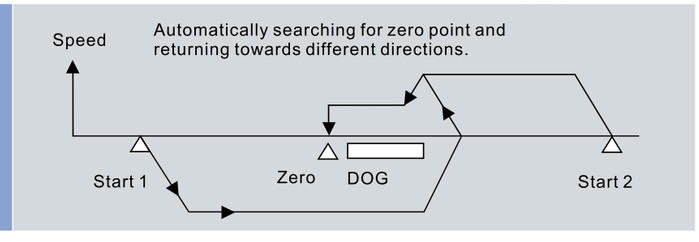
Alignment Mark

Alignment Mark



Zero Return Instruction Searching for Zero Point Automatically

ZRN



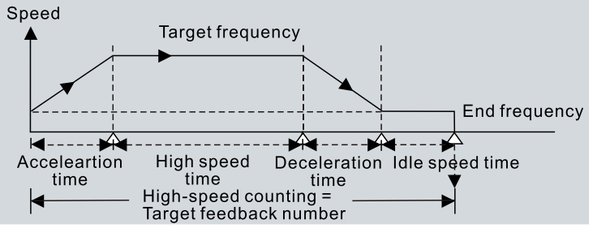
Close Loop Positioning



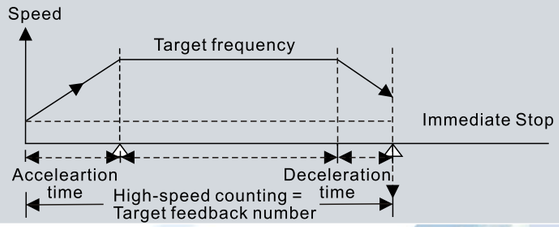
The encoder sends feedback signals to the high-speed input points on DVP-ES2.

The close loop positioning instruction compares the encoder feedback signal with the PLC pulse output instruction and decides whether to set up the same number of output pulses. Compensation will be made if difference occurs to ensure correct number of output pulses.

DCLLM

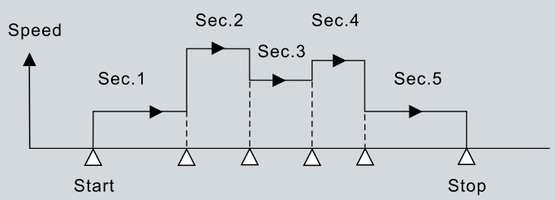


DCLLM



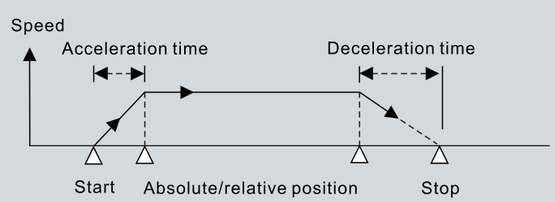
Tabulated Pulse Output

DPTPO

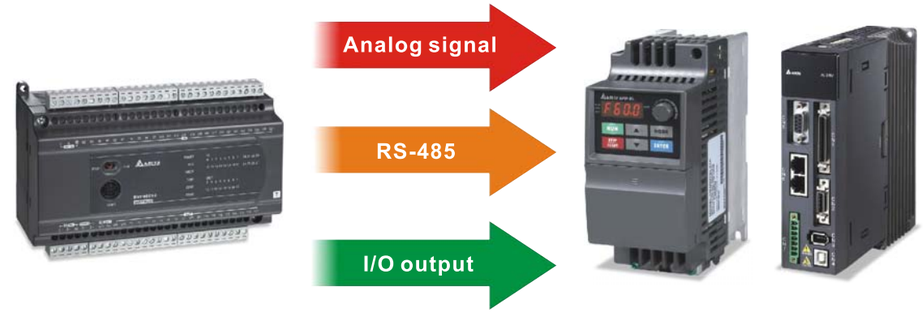


Absolute/Relative Positioning

DDRVA/DDRVI



Delta's AC Motor Drive / Servo Drive



Analog signal

DVP-ES2 is able to control AC motor drive or Servo drive through output current and analog voltage signals output from the analog module.

RS-485

DVP-ES2 has new instructions designed particularly for the communication with Delta's AC motor drives and Servo drives.

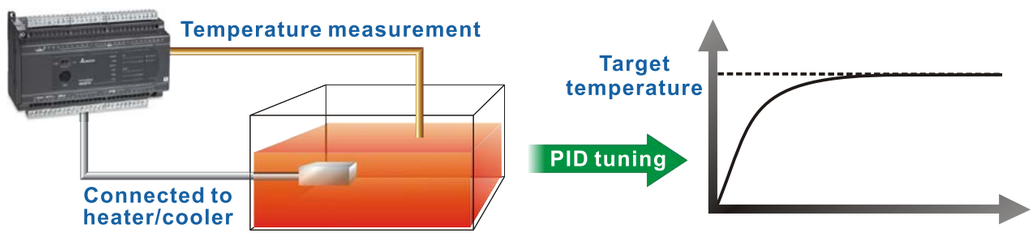
AC motor drive	FWD	REV	STOP	RSTEF	RDST
Function	Forward running	Reverse running	Stop	Reset	Read status
Servo drive	ASDRW				
Function	Read Status, read/write data, speed and position instruction				

I/O output

Use output points on DVP-ES2 to set up the multi-function input terminals on AC motor drive or Servo drive for conducting multi-section positioning.

Highly Functional Analog Module

- All analog modules are of 14-bit resolution.
- The temperature measurement modules support PID auto-tuning.



DVP04PT-E2 and DVP04TC-E2 temperature measurement modules are built in with PID function, allowing PID tuning to be directly conducted in the module to reduce the PLC load and achieve better overall efficiency.

Password Protection



Program designer

Restriction on the customer ID, subroutine password and main password entry times

Set up ID for User A



User B reads the program in DVP-ES2.

User A reads the program in DVP-ES2.





ID not acquired

Enter ID

Unable to acquire program

Program acquired

The "Customer ID" allows the user to set up their own PLC ID and program ID. This function allows only to upload/download program to their own PLC.

Subroutine Password & PLC ID

The subroutine password and ID can be 4 ~ 8 digits.









The number of allowed incorrect entries of main password can be set up.

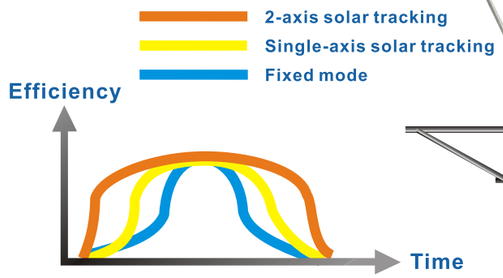


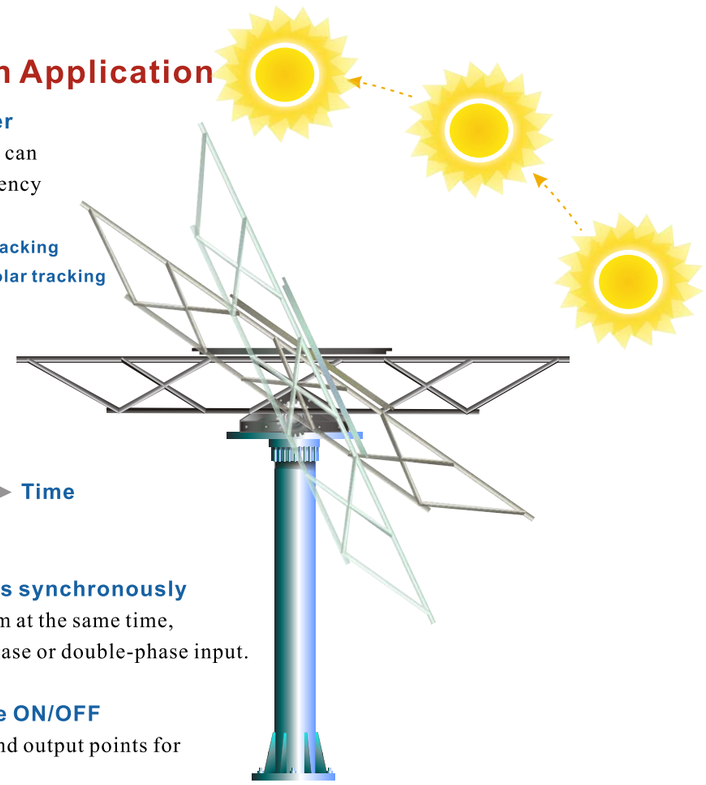


Enhanced Instruction Application

SPA & GPS support solar tracker

The 2 instructions working with GPS can effectively achieve the highest efficiency for the solar tracker.





SPD able to detect 4 input points synchronously

Use 4 SPD instructions in the program at the same time, and each instruction can be single-phase or double-phase input.

Input X & output Y support force ON/OFF

Use software to force control input and output points for trial run and debug.

Extension Module Connection

Flexible Mapping Mode

All the setting up and reading of the parameters in DVP-ES2 can be done easily in the software. Every analog/digital or digital/analog value in the analog module corresponds directly to a special D device in DVP-ES2. The user does not need to use FROM/TO instructions as before.

In the past, you needed to compile programs to read/write the value.

FROM K0 K10 D0 K1

.
.
.

Now, you only need to modify or read the corresponding register in DVP-ES2.



Corresponds to D9900 ~ D9909

Corresponds to D9910 ~ D9919

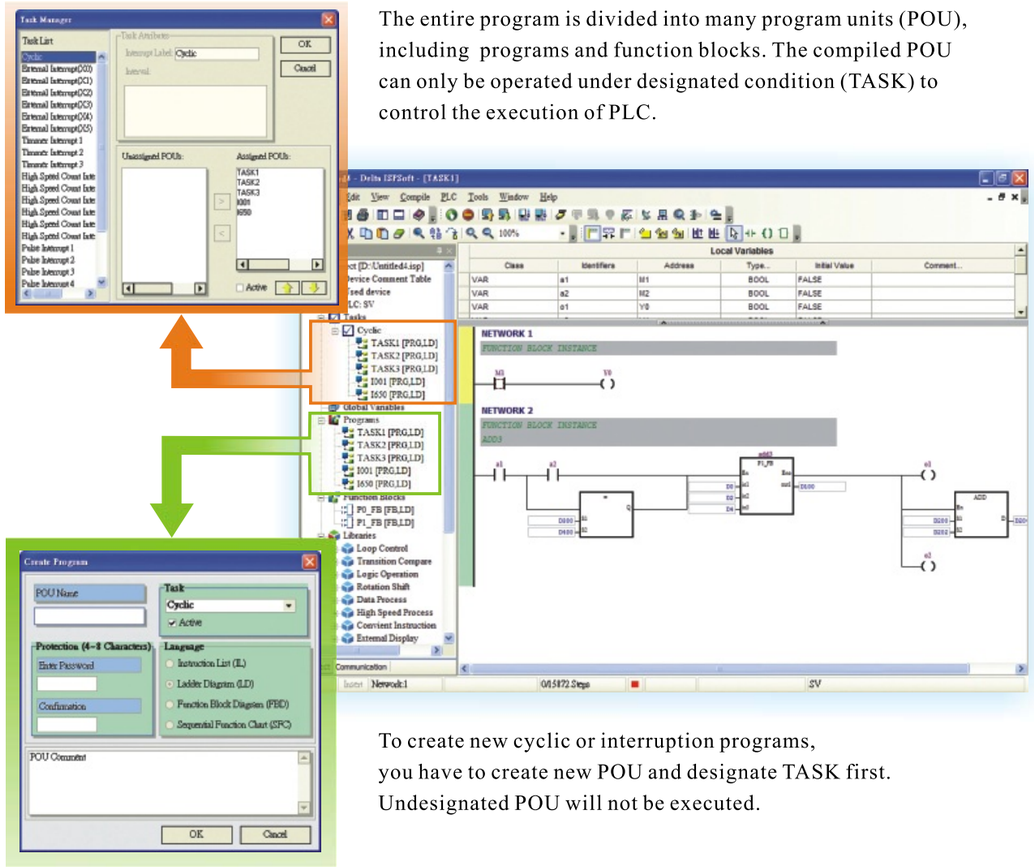
Corresponds to D9920 ~ D9929

Corresponds to D9930 ~ D9939

The New Programming Software: ISPSoft

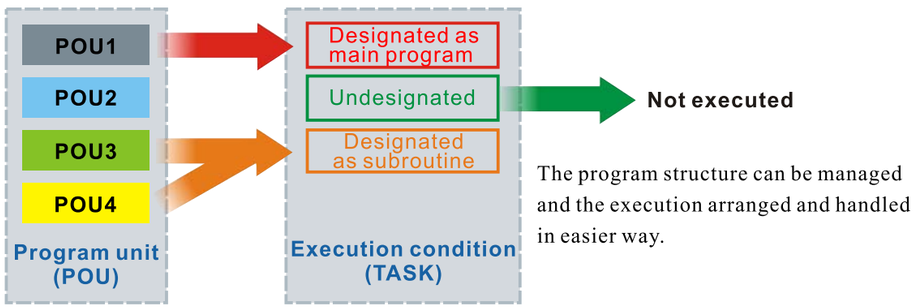
The New Programming Software: ISPSoft supports ladder diagram, function block and many other programming modes and is able to edit program in modular way. ISPSoft saves your time in developing large projects. Use the already made function block over and over again to increase your economical benefit. ISPSoft is compatible with all DVP series PLCs.

Task Designation



The entire program is divided into many program units (POU), including programs and function blocks. The compiled POU can only be operated under designated condition (TASK) to control the execution of PLC.

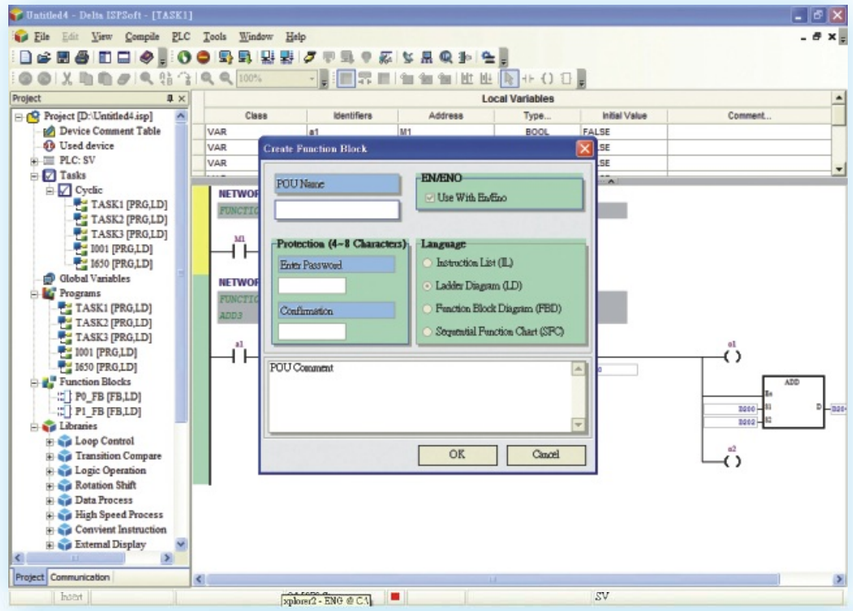
To create new cyclic or interruption programs, you have to create new POU and designate TASK first. Undesignated POU will not be executed.

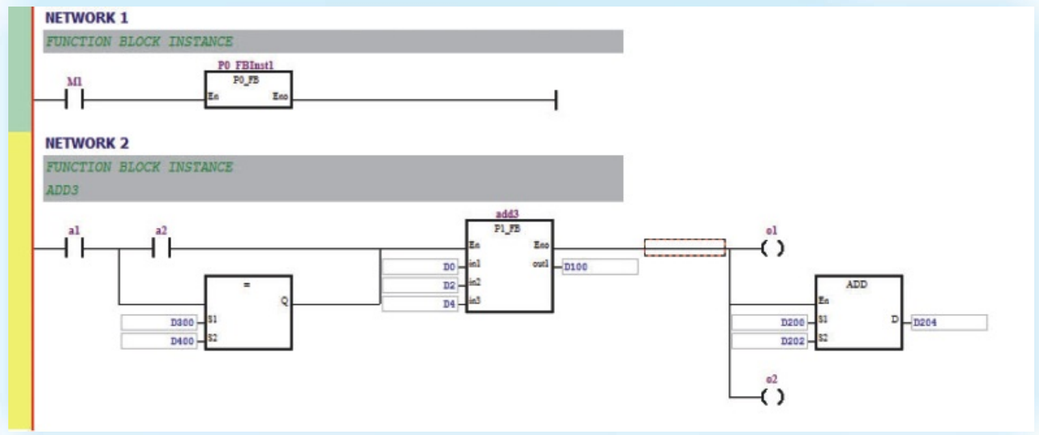


The program structure can be managed and the execution arranged and handled in easier way.

Function Block

The complicated project can be parted to many program units or function blocks. The function block can be used repeatedly.

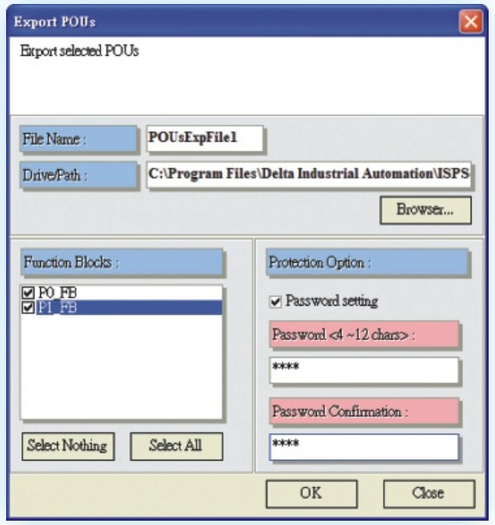




The function block can be made and used freely in the program. Use import/export function to apply the block in different programs. Particularly when many programs require the same function, the function block helps increase the efficiency of program editing.

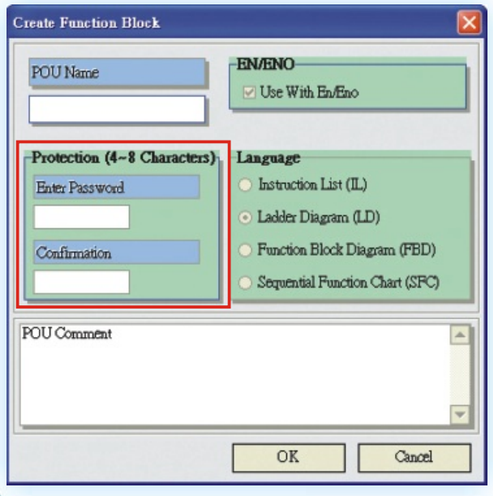
The New Programming Software: ISPSoft

Function Block Import/Export



Password Protection

The user can set up password for each function block. When the block is used in other programs, the password is required to open the editing window of the block.

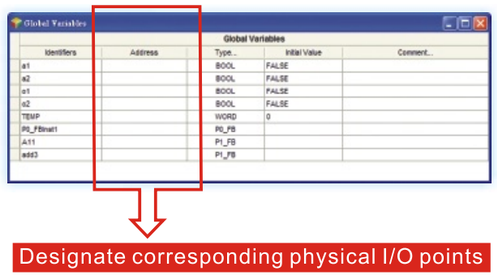


Variable Declaration

Global variable: Separate form the program. The corresponding physical I/O point of the variable is defined only after the program is compiled. The user does not need to modify the program when the definition of the physical I/O point is changed. Only the device correspoinding to the variable needs to be modified.

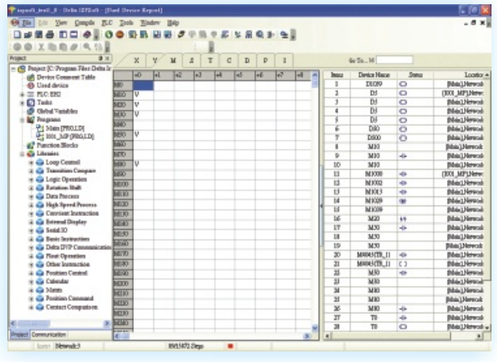
Local variable: Stored in POU. If the user does not give it a device, the system will automatically allocate a device to the variable when compiling.

When writing the function block, it is suggested that the variable be configured by the system itself to increase the independency of the block.



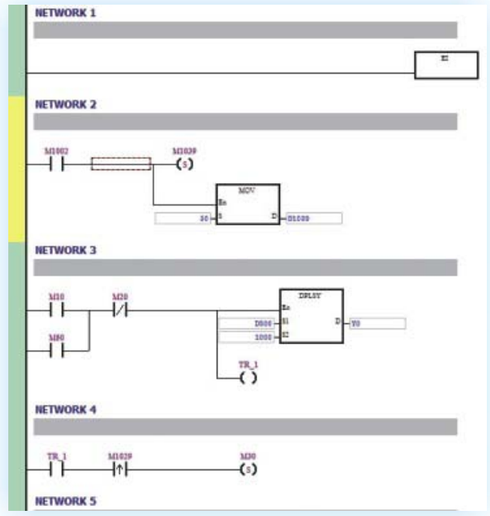
Device List

The device list helps the user to know clearly all the devices used in the program.



Structural Editing

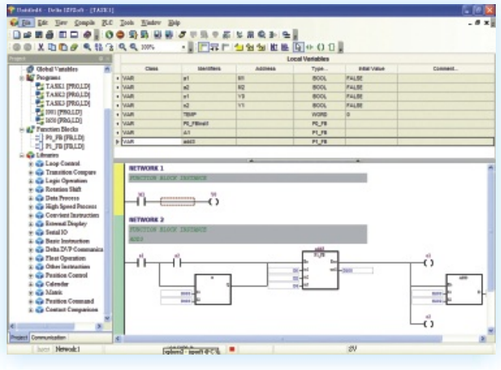
Every section of the program is composed of many networks. ISPSoft provides many kinds of comp onents for the user to drag for use.



The user can enable/disable every network to trial run or debug the program and clarify the program structure.

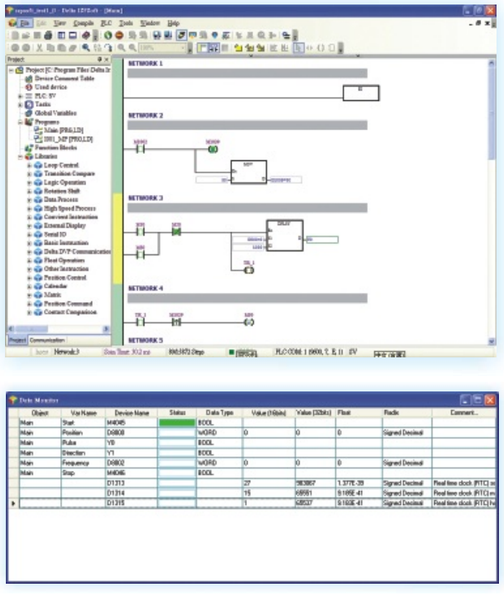
Flexible Use of Components

Drag the components in the function library to use for editing.



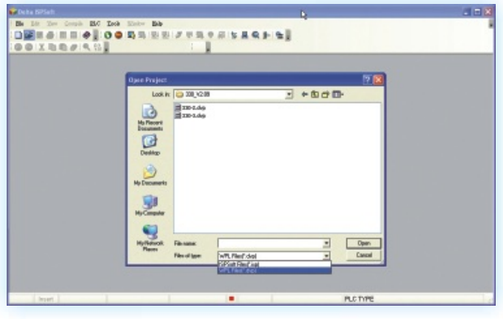
Complete Monitoring

The "Program monitoring" and "Device monitoring" allow the user to keep track of the operation of program.



Compatible with WPLSoft

The user can convert the file edited in WPLSoft to be compatible with ISPSoft.



Devices, Electrical Specifications

I/O Configuration for MPU

Model	DVP 16ES200□*1	DVP 20EX200□*1	DVP 24ES200□*1	DVP 32ES200□*1	DVP 40ES200□*1	DVP 60ES200□*1	Extension I/O
Input X	X0~X7 (8 points)	X0~X7 (8 points)	X0~X17 (16 points)	X0~X17 (16 points)	X0~X27 (24 points)	X0~X43 (36 points)	X20(X50) ~X337*2
Output Y	Y0~Y7 (8 points)	Y0~Y5 (6 points)	Y0~Y7 (8 points)	Y0~Y17 (16 points)	Y0~Y17 (16 points)	Y0~Y27 (24 points)	Y20(Y30) ~Y337*2
Analog input	-	4 channels (12-bit)	-	-	-	-	-
Analog output	-	2 channels (12-bit)	-	-	-	-	-

I/O Configuration for Digital Modules

Model	DVP08XM 211N	DVP08XN 211□*1	DVP08XP 211□*1	DVP16XM 211N	DVP16XN 211□*1	DVP16XP 211□*1	DVP24XN 200□*1	DVP24XP 200□*1	DVP32XP 200□*1
Input X	X20~X27 (8 points)	-	X20~X23 (4 points)*3	X20~X37 (16 points)	-	X20~X27 (8 points)	-	X20~X37 (16 points)	X20~X37 (16 points)
Output Y	-	Y20~Y27 (8 points)	Y20~Y23 (4 points)*3	-	Y20~Y37 (16 points)	Y20~Y27 (8 points)	Y20~Y47 (24 points)	Y20~Y27 (8 points)	Y20~Y37 (16 points)

*1: R refers to relay output; T refers to transistor output (channel N); S refers to transistor output (channel P). For exact launch dates of these models, consult Delta's sales representatives.
*2: DVP60ES2 starts input from X50 (output from Y30) and DVP40ES2 from X30 (output from Y20). All other models start input from X20 and output from Y20. The number of extension I/O increases by 8's multiple. Number less than 8 points are regarded as 8 points.
*3: I/O points less than 8 points are regarded as 8 points.

I/O Configuration for Analog Modules (Channels x Resolution)

Model	DVP 04AD-E2	DVP 04DA-E2	DVP 06XA-E2	DVP 02DA-E2	DVP 04TC-E2	DVP 04PT-E2
Input	AD1~4 (4CHx14-bit)	-	AD1~4 (4CHx14-bit)	-	CH1~4 (4CHx16-bit)	CH1~4 (4CHx16-bit)
Output	-	DA1~4 (4CHx14-bit)	DA1~2 (2CHx14-bit)	DA1~2 (2CHx14-bit)	-	-

Devices in MPU

Type	Device	Item		Range		Function
Relay (bit)	X	External input relay		X0~X377, octal coding, 256 points*4	Total 256 points	Corresponds to external input points
	Y	External output relay		Y0~Y377, octal coding, 256 points*4		Corresponds to external output points
	M	Auxiliary relay	General purpose	M0~M511, 512 points*1 M768~M999, 232 points*1 M2000~M2047, 48 points*1	Total 4,096 points	The contact can be switched between ON/OFF in the program.
			Latched	M512~M767, 256 points*2 M2048~M4095, 2,048 points*2		
			Special purpose	M1000~M1999, 1,000 point (partly latched)		
	T	Timer	100ms (M1028=ON, T64~T126 =10ms)	T0~T126, 127 points*1 T128~T183, 56 points*1 T184~T199 for subroutine, 16 points*1 "T250~T255" 6 accumulative points*1	Total 256 points	If the timer designated by TMR instruction reaches the target, the T contact of the same number will be ON.

Devices in MPU

Type	Device	Item		Range		Function
Relay (bit)	T	Timer	10ms (M1038=ON, T200~T245 =1ms)	T200~T239, 40 points*1 "240~T245" 6 accumulative points*1	Total 256 points	If the timer designated by TMR instruction reaches the target, the T contact of the same number will be ON.
			1ms	T127, 1 point*1 "246~T249", 4 accumulative points*1		
	C	Counter	16-bit counting up	C0~C111, 112 points*1 C112~C127, 16 points*2 C128~C199, 72 points*1	Total 255 points	If the counter designated by CNT (DCNT) instruction reaches the target, the C contact of the same number will be ON.
			32-bit counting up/ down	C200~C223, 24 points*1 C224~C231, 8 points*2		
			32-bit high-speed counter	C235~C244, 1-phase 1 input, 10 points*2 C245~C250, 1-phase 2 inputs, 6 points*2 C232~C234, C251~C254, 2-phase 2 inputs, 7 points*2		
	S	Step relay	Initial	S0~S9, 10 points*2	Total 1,024 points	Devices for step ladder diagram (SFC)
			For zero return	S10~S19, 10 points (used with IST instruction)*2		
			For latched	S20~S127, 108 points*2		
			General purpose	S128~S911, 784 points*2		
			For alarm	S912~S1023, 112 points*2		
Register (word)	T	Present value in timer		T0~T255, 16-bit timer, 256 points	The contact of the timer will be ON when the timing reaches the target.	
	C	Present value in counter		C0~C199, 16-bit counter, 200 points C200~C254, 32-bit counter, 55 points	The contact of the counter will be ON when the counting reaches the target.	
	D	Data register	General purpose	D0~D407, 408 points*1 D600~D999, 400 points*1 D3920~D9899, 5,980 points*1	Total 10,000 points	The memory area for data storage. E, F can be used for index registers.
			Latched	D408~D599, 192 points*2 D2000~D3919, 1,920 points*2		
			For special registers	D1000~D1999, 1,000 points (partly latched)		
			For special modules	D9900~D9999, 100 points*1 *5		
			For index registers	E0~E7, F0~F7, 16 points*1		
Index	N	For main control loop		N0~N7, 8 points		Points for main control loop
	P	For CJ, CALL instructions		P0~P255, 256 points		Position index for CJ and CALL
	I	Interruption	External interruption	I00□(X0), I10□(X1), I20□(X2), I30□(X3), I40□(X4), I50□(X5), I60□(X6), I70□(X7), 8 points (□=1, rising-edge trigger, □=0, falling-edge trigger)		Position index for interruption subroutine
			Timed interruption	I6□□ , I7□□ , (□□ =05~99ms), 2 points		
			Interruption when high-speed counter reaches target	I010、I020、I030、I040、I050、I060、I070、 I080，8 points		
			Interruption during communication	I140(COM1)、I150(COM2)、 I160(COM3) (*3)，3 points		
Constant	K	Decimal		K-32,768 ~ K32,767（16-bit operation） K-2,147,483,648 ~ K2,147,483,647（32-bit operation）		
	H	Hexadecimal		H0000 ~ HFFFF（16-bit operation） H00000000 ~ HFFFFFFFF（32-bit operation）		

*1: Non-latched area cannot be modified.
*2: Latched area cannot be modified.
*3: COM1 is the built-in RS-232 COM port; COM2 and COM3 ace the built-in RS-485 COM ports.
*4: When X input is digitally extended to 256 points, Y output can only be 16 points. When Y output is digitally extended to 256 points, X input can only be 16 points.
*5: Valid only when the MPU is connected to analog modules. Every analog module connected occupies 10 points.

Devices, Electrical Specifications

M Auxiliary Relay	Non-latched	Latched	Non-latched	Special auxiliary relay	Non-latched	Latched
	M0~M511	M512~M767	M768~M999	M1000~M1999	M2000~M2047	M2048~M4095

C Counter	16-bit counting up			32-bit counting up/down		32-bit high-speed counting up/down
	Non-latched	Latched	Non-latched		Latched	
	C0~C111	C112~C127	C128~C199	C200~C223	C224~C231	C232~C254

T Timer	General purpose			Subroutine	General purpose	Accumulative	
	Non-latched						
	100ms	1ms	100ms		10ms	1ms	100ms
	T0~T126	T127	T128~T183	T184 ~ T199	T200~T239	T240~T245	T246~ T249 / T250~ T255
	M1028=ON，T64~T126=10ms				M1038=ON，T200~T245=1ms		

S Step relay	Initial	Zero return	General purpose		Alarm step
	Latched			Non-latched	Latched
	S0~S9	S10~S19	S20~S127	S128~S911	S912~S1023

D Register	General purpose			Special register	General purpose		For modules
	Non-latched	Latched	Non-latched	Partly latched	Latched	Non-latched	Non-latched
	D0~D407	D408~D599	D600~D999	D1000~D1999	D2000~D3919	D3920~D9899	D9900~D9999

Latched Action

Memory type	Power OFF➡ON	STOP➡RUN	RUN➡STOP	M1031=ON	M1032=ON	Default value
Non-latched	Cleared	Unchanged	Cleared when M1033= OFF	Cleared	Unchanged	0
			Unchanged when M1033=ON			
Latched	Unchanged			Unchanged	Cleared	0
Special M, special D index register	Initial setting	Unchanged				Initial setting

DVP-ES2 MPU

Item \ Model	DVP16ES200□	DVP24ES200□	DVP32ES200□	DVP40ES200□	DVP60ES200□	DVP20EX200□
Power supply voltage	100 ~ 240V AC (-15% ~ 10%)，50/60 Hz 5%					
Operation	DVP-ES2 starts to run when the power supply rises to 95 ~ 100VAC and stops when the power supply drops to 70VAC. It continues to run for 10ms after the power supply is cut off.					
Power supply fuse	2A/250V AC					
Power consumption	30VA					
DC24V supply current	500mA					
Power supply protection	DC24V output short circuit protection					
Voltage withstand	1,500V AC (Primary-secondary)、1,500V AC (Primary-PE)、500V AC (Secondary-PE)					
Insulation resistance	> 5MW at 500VDC (between all I/O points and ground)					
Grounding	The diameter of grounding wire shall not be less than that of L, N terminal of the power supply. (When many PLCs are in use at the same time, please make sure every PLC is properly grounded.)					

Item \ Model	DVP16ES200□	DVP24ES200□	DVP32ES200□	DVP40ES200□	DVP60ES200□	DVP20EX200□
Noise immunity	ESD：8 kV Air Discharge EFT：Power Line: 2kV, Digital I/O：1kV, Analog & Communication I/O：1kV RS：26MHz ~ 1GHz, 10V/m					
Environment	Operation: 0°C~55°C (temperature), 50~95% (humidity), pollution degree 2 Storage: -25°C~70°C (temperature), 5~95% (humidity)					
Vibration/ shock resistance	International standards: IEC61131-2, IEC 68-2-6 (TEST Fc)/ IEC61131-2 & IEC 68-2-27 (TEST Ea)					
Weight (g)	R：377g T：351g	R：414g T：387g	R：489g T：432g	R：554g T：498g	R：696g T：614g	R：462g T：442g

Input Points on DVP-ES2 MPU

Input point type	Digital input			
Input type	DC (SINK or SOURCE)			
Input current	24VDC, 5mA			
Action level	Input No.	X0,X2	X1,X3~X7	X10~X17,X20
	Off→On	> 15VDC		
	On→ Off	< 5VDC		
Response time	Off→On	2.5μs	20μs	10ms
	On→Off	5μs	50μs	10ms
Max. input frequency	100kHz	10kHz	50Hz	
Filter time X0 ~ X7	Adjustable within 0 ~ 20ms in D1020 (Default: 10ms)			
Input impedance	4.7KΩ			

Output Points on DVP-ES2 MPU

Output point type	Relay-R	Transistor-T		
Output point No.	All	Y0 Y2	Y1 Y3	Y4~Y17, Y20 ~
Current spec.	2A/1point (5A/COM)	0.5A/1point (4A/COM)		
Voltage spec.	<250VAC, 30VDC	5 ~ 30VDC		
Max. Load	75VA (inductive)	12W/1 point (24VDC)		
	90W (resistive)			
Response time	Off→On	Approx .10ms	2μs	20μs 100μs
	On→Off		3μs	30μs 100μs
Max. output frequency	50Hz	100 kHz	10 kHz	1kHz

Analog I/O of DVP-ES2

Items	Analog Input (A/D)		Analog Output (D/A)	
	Voltage input	Current input	Voltage output	Current output
Analog I/O range	±10V	±20mA	±10V	0~20mA
Digital conversion range	-2,000 ~ +2,000	-2,000 ~ +2,000	-2,000 ~ +2,000	0 ~ +4,000
Resolution	12-bit (5.0mV=20V/4,000)	12-bit (10.0μA=40mA/4,000)	12-bit (5.0mV=20V/4,000)	12-bit (5.0μA=20mA/4,000)
Input impedance	>1MΩ	250Ω	-	
Output impedance	-		0.5Ω or lower	
Tolerance carried impedance	-		>0.5Ω	<500Ω
Overall accuracy	Non-linear accuracy: 1% of full scale within the range of PLC operation temperature Max. deviation: 1% of full scale at 20mA and +10V			
Response time	2ms (set up in D1118)#1		2ms#2	
Absolute input range	±15V	±32mA	-	
Digital data format	2's complementary of 16-bit, 12 significant bits			
Average function	Yes (set up in D1062)#3		No	
Isolation method	No Isolation between digital and analog circuit			
Protection	Voltage output has short circuit protection, but a long period of short circuit may cause internal wire damage. The current output can be open circuit.			

#1: When the scan period is longer than the set value in D1118, the setting will follow the scan period.
#2: When the scan period is longer than 2ms, the setting will follow the scan period.
#3: When the average time is "1", the present value will be read.

Power Consumption

Model name	Max. power consumption	24VDC supply current (power)
DVP16ES200R/T	30VA	500mA (12W)
DVP24ES200R/T		
DVP32ES200R/T		
DVP40ES200R/T		
DVP60ES200R/T		
DVP20EX200R/T		
DVP24XN200R/T	20VA	100mA (2.4W)
DVP24XP200R/T		
DVP32XP200R/T	R:25VA T: 20VA	
DVP08XM211N	1.2W	無
DVP08XP211R/T	R: 1.2W T: 0.5W	
DVP16XM211N	2.4W	
DVP16XP211R/T	R: 2.4W T: 1.6W	
DVP16XN211R/T	R: 2.4W T: 1 W	
DVP04AD-E2	1W	
DVP02DA-E2	1.5W	
DVP04DA-E2	3W	
DVP06XA-E2	2.5W	
DVP04PT-E2	1.5W	
DVP04TC-E2	1.2W	

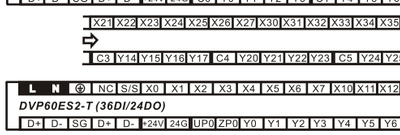
Example:

When the system is composed of 32ES200R + 08XP211R + 16XP211R + 16XN211R, the ES2 MPU can only supply 12 (1.2+2.4+2.4) = 6W.

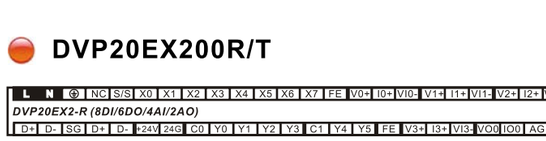
Dimensions

MPU I/O Terminal Layout

DVP16ES200R/T



DVP24ES200R/T



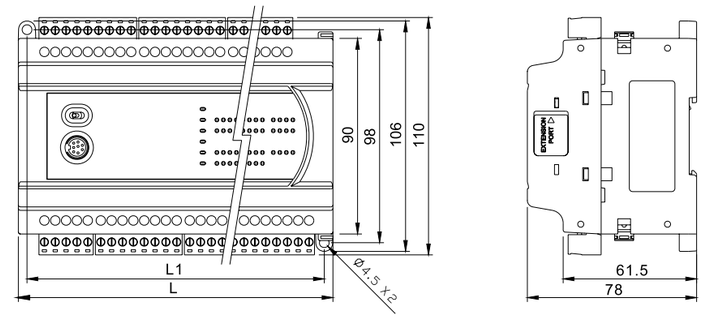
DVP32ES200R/T

DVP40ES200R/T

DVP60ES200R/T

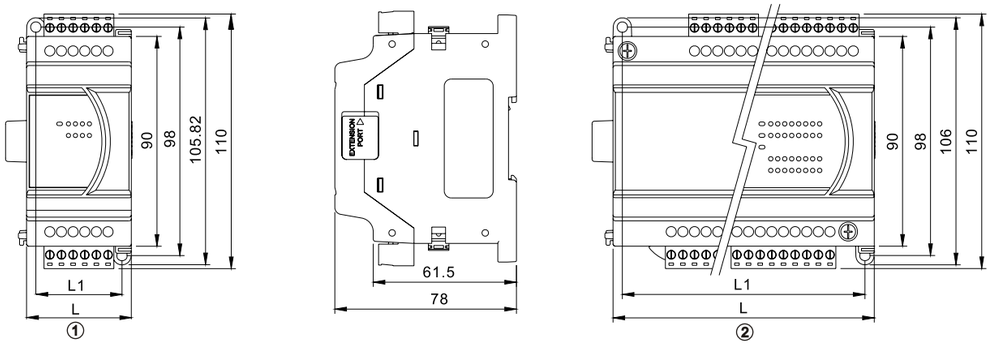
DVP20EX200R/T

DVP-ES2/EX2 Series MPU



Model name	16ES200R/T	24ES200R/T	32ES200R/T	40ES200R/T	60ES200R/T	20EX200R/T
L	105	125	145	165	225	145
L1	97	117	137	157	217	137

DVP-ES2/EX2 Series Extension Modules



Model name	08XM2 11N	08XP2 11R/T	08XN2 11R/T	16XM2 11N	16XP2 11R/T	16XN2 11R/T	24XP2 00R/T	24XN2 00R/T	32XP2 00R/T
L	45			70			145		
L1	37			62			137		
Type	①			②			②		

Model name	04AD-E2	02DA-E2 04DA-E2	06XA-E2	04PT-E2	04TC-E2
L	70				
L1	62				
Type	②				

Ordering Information

MPU

Product name	Model name	Specification	Output method	Input points	Output points	Certificates
DVP-ES2 series Standard MPU	DVP16ES200R	Power range: 100~240VAC Max. I/O points: 272 Program capacity: 16k steps Data register: 10k words High-speed input: 2 points of 100kHz; 6 points of 10kHz Pulse output: 2 points of 100kHz; 2 points of 10kHz (Transistor output models) COM port: Built-in 1 RS-232 port and 2 RS-485 ports; compatible with Modbus ASCII/RTU protocol; can be Master or Slave	Relay	8	8	
	DVP16ES200T		Transistor	8	8	
	DVP24ES200R		Relay	16	8	
	DVP24ES200T		Transistor	16	8	
	DVP32ES200R		Relay	16	16	
	DVP32ES200T		Transistor	16	16	
	DVP40ES200R		Relay	24	16	
	DVP40ES200T		Transistor	24	16	
	DVP60ES200R		Relay	36	24	
	DVP60ES200T		Transistor	36	24	
DVP-EX2 series Analog MPU	DVP20EX200R	Power range: 100~240VAC Max. I/O points: 272 Program capacity: 16k steps Data register: 10k words High-speed input: 2 points of 100kHz; 6 points of 10kHz Pulse output: 2 points of 100kHz; 2 points of 10kHz (Transistor output models) COM port: Built-in 1 RS-232 port and 2 RS-485 ports; compatible with Modbus ASCII/RTU protocol; can be Master or Slave Analog I/O: Built-in 12-bit 4AD/2DA	Relay	8	6	
			Analog	4	2	
	DVP20EX200T		Transistor	8	6	
			Analog	4	2	

Basic instruction execution time: 0.35 ~ 1μs
MOV (data movement) instruction execution time: 3.4μs
DMUL (32-bit multiplication) instruction execution time: 11.4μs
DEMUL (32-bit floating point multiplication) instruction execution time: 10.3μs

Digital I/O Modules (AC Power Supply)

Product name	Model name	Specification	Output method	Input points	Output points	Certificates
DVP-ES2/EX2 series Digital I/O Modules	DVP24XN200R	Power range: 100~240VAC	Relay	-	24	
	DVP24XN200T		Transistor	-	24	
	DVP24XP200R		Relay	16	8	
	DVP24XP200T		Transistor	16	8	
	DVP32XP200R		Relay	16	16	
	DVP32XP200T		Transistor	16	16	

Extension Modules (24VDC Power Supply)

Product name	Model name	Output method	Input points	Output points	Certificates
DVP-ES2/EX2 series Digital I/O Modules	DVP08XM211N	-	8	-	
	DVP08XN211R	Relay	-	8	
	DVP08XN211T	Transistor	-	8	
	DVP08XP211R	Relay	4	4	
	DVP08XP211T	Transistor	4	4	
	DVP16XM211N	-	16	-	
	DVP16XN211R	Relay	-	16	
	DVP16XN211T	Transistor	-	16	
	DVP16XP211R	Relay	8	8	
	DVP16XP211T	Transistor	8	8	
DVP-ES2/EX2 series Analog I/O Modules	DVP04AD-E2	■ 4 points of analog voltage (±10V, ±5V)/current (±20mA, 0~20mA, 4~20mA) input ■ Resolution: 14-bit (-32,000~+32,000) ■ Digital/analog photocoupler isolation; no isolation between channels.			
	DVP04DA-E2	■ 4 points of analog voltage (-10V~+10V)/current (0~20mA, 4~20mA) output ■ Resolution: 14-bit (-32,000~+32,000)/(0~+32,000) ■ Digital/analog photocoupler isolation; no isolation between channels.			
	DVP02DA-E2	■ 2 points of analog voltage (-10V~+10V)/current (0~+20mA, 4~20mA) output ■ Resolution: 14-bit (-32,000~+32,000)/(0~+32,000) ■ Digital/analog photocoupler isolation; no isolation between channels.			
	DVP06XA-E2	■ 4 points of analog voltage (±10V, ±5V)/current (±20mA, 0~20mA, 4~20mA) input ■ Input resolution: 14-bit (-32,000~+32,000) ■ 2 points of analog voltage (-10V~+10V)/current (0~20mA, 4~20mA) output ■ Output resolution: 14-bit (-32,000~+32,000)/(0~+32,000) ■ Digital/analog photocoupler isolation; no isolation between channels.			
DVP-ES2/EX2 series Temperature Measurement Modules	DVP04PT-E2	■ 4 points of platinum RTD resistance (Pt100, Pt1000, Ni100, Ni1000) temperature sensor input/0~300Ω resistance input ■ Resolution: 16-bit ■ Digital/analog photocoupler isolation; no isolation between channels. ■ Built-in PID temperature control			
	DVP04TC-E2	■ 4 points of thermocouple (J, K, R, S, T, E, N Type) temperature sensor input/-80mV~+80mV voltage input ■ Resolution: 16-bit ■ Digital/analog photocoupler isolation; isolations between channels. ■ Built-in PID temperature control			

4ManPro

Elements For Manufacturing Processes



MANUFACTURA INTELIGENTE

About Delta



Bruce Cheng
Founder and Honorary Chairman



Yancey Hai
Chairman

Corporate Mission

To provide innovative, clean, and energy-efficient solutions for a better tomorrow

Delta was founded in 1971. Delta offers energy efficient power products, switching power supplies with efficiency over 90%, telecom power with up to 98%, and PV inverters with up to 98.8% efficiency. We have also developed the world's first server power supply certified as 80 Plus Titanium. We regularly invest 6% to 7% of our annual sales revenues in R&D and have worldwide R&D facilities in China, Europe, India, Japan, Singapore, and the U.S.

Delta is a frequent recipient of international awards and related recognition for innovation, design, energy management and corporate social responsibility. Since 2011, Delta has been selected each year for the prestigious Dow Jones Sustainability™ World Index (DJSI World Index). In 2018, we were also included in the DJSI Emerging Markets Index for the 6th consecutive year. In 2016-2017, Delta was ranked by CDP (formerly the Climate Disclosure Project) at the Climate Change Leadership Level.

About Delta Industrial Automation (IABG)

Since the debut of our AC motor drive in 1995, Delta continues to develop our industrial automation business, providing superior quality, reliability and precision. Our range of complete smart manufacturing solutions covers equipment automation, automated production line design and integration, equipment IIoT and data collection, as well as manufacturing management and monitoring to maximize productivity and stabilize production. Delta applies AI and big data analysis to optimize production processes and implement digitalization for equipment, production lines and energy usage. With automation products, software, and system solutions integrated into an all-in-one digitalized smart manufacturing model of factory, processes, and equipment, Delta provides numerous production models, including customized, small volume and wide variety, and mass production for customers on a global scale.

With robust R&D capability and abundant industry experience, Delta offers industrial automation products and solutions that find application in a broad range of industries, including electronics, components, photoelectric panels and food & beverages. We are dedicated to providing innovative and reliable smart, green manufacturing solutions for global customers, keeping our promise of “Automation for a Changing World”.

Delta IABG Milestones

1995

AC Motor Drive
(A Series)



1999

Small PLC
(DVP-ES Series)



2003

AC Servo Drive and Motor
(ASDA-A Series)



Temperature Controller
(DTA Series)



Optical Incremental Encoder
(ES/EH Series)



2010

Motion Control Card
(PCI Series)



2011

CNC Controller
(NC300 Series)



Hybrid Energy Saving System
(HES)



Integrated Elevator Drive
(IED Series)



Unmanaged Industrial Ethernet Switch
(DVS Series)



2015

Photoelectric Sensor
(PS-F/PS-R Series)



Inductive Proximity Sensor
(M12/M18 Series)



Linear Shaft Motor
(ECML-S Series)



Linear Stage
(LU/LA-S Series)



Robot Controller with Servo Drive Integrated
(ASDA-MS Series)



2016

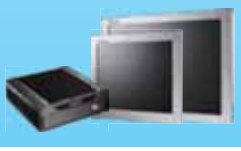
IIoT Cloud-based Platform
(DIACloud)



IIoT Industrial Cloud Routers
(DX-2100/2300 Series)



Industrial PCs
(DIAV Series)



Planetary Gearboxes
(PS Series)



Flow Switch
(DFM Series)



IABG Profile

- Mission: To elevate the living environment through advanced automation technology with value-added innovation
- Headquarters in Taoyuan, Taiwan
- Founded in 1995
- Manufacturing and R&D technology centers in Taiwan (Taoyuan, Chungli, Taichung, Tainan), China (Shanghai, Wujiang), and India (Hosur)
- Number of employees: 7,240 (R&D 1,065)



2004

Human Machine Interface
(DOP-A Series)



2006

Time / Counter / Tachometer
(CTA Series)



2008

Industrial Power Supply
(PMC / CliQ Series)



2009

Pressure Sensor
(DPA Series)



2010

Active Front End Unit
(AFE2000 Series)



2012

High Performance Mid-range PLC
(AH500 Series)



Controller with Human Machine Interface
(HMC Series)



Machine Vision System
(DMV Series)

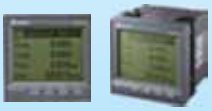


2014

Programmable Automation Controller
(MH1 Series)



Power Meter
(DPM Series)



2016

SCARA Robot
(DRS40L Series)



Industrial Energy Management System
(DIAEnergie)



SCADA System
(DIAView)



Articulated Robots
(DRV70L / DRV90L Series)



Compact Modular Mid-range PLC
(AS Series)



2017

Laser Displacement
(LD Series)



Barcode Scanner
(DAH Series)



Area Sensor
(AS Series)



2018~2019

Motion Controller Based on CODESYS
(MH2 Series)



Electric Servo Press
(AM-ESP Series)



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High Performance / Standard Compact Drive New

MH300/MS300

Compact-designed Powerful Multifunction Drives

Optimized Space Utilization

- Compact design with up to 40% size reduction compared to existing models

Outstanding Drive Performance

- Support both induction and permanent magnet motors
- MS300 series: supports open-loop control
- MH300 series: supports open-loop / closed-loop control



Strong System Support

- High speed models: support up to 1500 Hz (MS300) / 2000 Hz (MH300) output frequency under open-loop control
- Built-in PLC with 2k steps (MS300); 5k steps (MH300) program capacity
- Built-in braking choppers for the entire series
- Various communications: EtherCAT, PROFIBUS DP, DeviceNet, Modbus TCP, EtherNet/IP, CANopen

High Safety, Stability and Reliability

- Built-in STO (SIL2/PLd) safety function and safety measures for sudden power outages
- Enhanced 100% PCBs conformal coating; compliant with IEC 60721-3-3 class 3C2
- Extended key components lifetime

Easy to Install, Easy to Use

- A user-friendly and removable 5-digital LED keypad for the MS300 series; LCD keypad equipped with quick setting wheel dial for the MH300 series
- Macro function, quick parameter setting and duplication
- Built-in USB port for monitoring

Power Range	0.2 kW 0.25 HP	0.4 kW 0.5 HP	0.75 kW 1 HP	1.5 kW 2 HP	2.2 kW 3 HP	3.7 kW 5 HP	5.5 kW 7.5 HP	7.5 kW 10 HP	11 kW 15 HP	15 kW 20 HP	18.5 kW 25 HP	22 kW 30 HP
Standard Moldel MH300 & MS300 0~599 Hz	150V/1-phase											
	230V/1-phase											
	230V/3-phase											
		460V/3-phase										
High Speed Model MH300: 0~2000 Hz MS300: 0~1500 Hz				230V/1-phase								
				230V/3-phase								
				460V/3-phase								

Applications

MH300: Machine tools, textile machines, woodworking machines, rubber & plastic machines and cranes

MS300: Machine tools, textile machines, woodworking machines, packaging machines, electronics, fans, pumps and air compressors

Sensorless Vector Control Compact Drive

VFD-E/EL

Small Size with Multifunctions



- Optional extension modules for more flexible applications (High speed fieldbus, braking modules, I/O cards and PG cards for VFD-E Series)
- Modular fan design for easy maintenance and replacement
- Built-in EMC filter for 230 V single-phase and 460 V three-phase models to effectively minimize the electromagnetic interference
- Built-in RFI Switch for noise suppression (all models)
- Built-in PLC with 500 steps program capacity (VFD-E Series)
- Support common DC BUS. The regenerative braking power is shared by parallel connected AC motor drives to enhance the stability of the DC BUS voltage
- Support side-by-side installation and DIN-rail mounting
- Built-in PID feedback control, special functions for constant pressure pump
- Built-in RS-485, compatible with MODBUS communication (baud rate up to 38,400 bps)
- VFD-E Series provides two models for selection: CANopen drive with CANopen communication protocol, and the plate drive with no fan and colling fins installed

Power Range	0.2 kW 0.25 HP	0.4 kW 0.5 HP	0.75 kW 1 HP	1.5 kW 2 HP	2.2 kW 3 HP	3.7 kW 5 HP	5.5 kW 7.5 HP	7.5 kW 10 HP	11 kW 15 HP	15 kW 20 HP	18.5 kW 25 HP	22 kW 30 HP
VFD-E	115V/1-phase											
	230V/1-phase											
	230V/3-phase											
		460V/3-phase										
VFD-EL	115V/1-phase											
	230V/1-phase											
	230V/3-phase											
		460V/3-phase										

Applications

Food packaging machines, textile machines, presses, conveyors

Economy Vector Control Drive

C200

High Speed Frequency Output

- Support both induction and permanent magnet motors
- Built-in PLC with 5k steps program capacity
- High-speed frequency output (V/F control mode) up to 2,000 Hz
- Flange mount design for Frame A and removable panel to facilitate installation process
- Built-in pulse input terminal with encoder for closed-loop control
- Built-in CANopen and RS-485 (Modbus) communication



Power Range	0.4 kW 0.5 HP	0.75 kW 1 HP	1.5 kW 2 HP	2.2 kW 3 HP	3.7 kW 5 HP	4 kW 5 HP	5.5 kW 7.5 HP	7.5 kW 10 HP
C200	230 V / 1-phase							
	230 V / 3-phase							
		460V / 3-phase						

Applications

Food packaging machines, conveyor equipment, textile machines, woodworking machines, fans and water pumps







Vector Control Drive New

C2000 Plus

For General Drive Controls

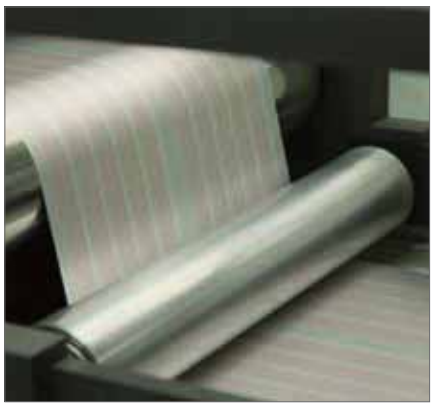


- Heavy Duty overload capability: 150 % / 60 sec. and 180 % / 3 sec., suitable for constant torque applications
- Support both induction and permanent magnet motors
- Field-oriented vector control
- Support P2P control
- Wide power range (up to 560 kW for 460 V model)
- User-friendly Start Wizard
- Display in 9 languages: English, Spanish, Portuguese, French, Russian, Turkish, German, Italian, Traditional / Simplified Chinese
- Built-in PLC with 10 k steps program capacity
- Enhanced protections and adaptation with PCB coating, compliant with 3C3 standard
- Modular design for easy maintenance and extension
- Built-in Modbus and optional communication cards: EtherCAT (New)、PROFINET (New)、EtherNet/IP、PROFIBUS DP、DeviceNet、Modbus TCP、CANopen

Power Range	0.75 ~ 3.7 kW 1 ~ 5 HP	5.5 ~ 18.5 kW 7.5 ~ 25 HP	22 ~ 37 kW 30 ~ 50 HP	45 ~ 90 kW 60 ~ 125 HP	110 ~ 185 kW 150 ~ 250 HP	220 ~ 560 kW 300 ~ 750 HP	630 kW 850 HP
C2000 Plus	230 V / 3-phase						
	460 V / 3-phase						
	575 V / 3-phase						
			690 V / 3-phase				

Applications

Machine tools, extruders, calender machines, paper machines, compressors, wire drawing machines, packaging machines







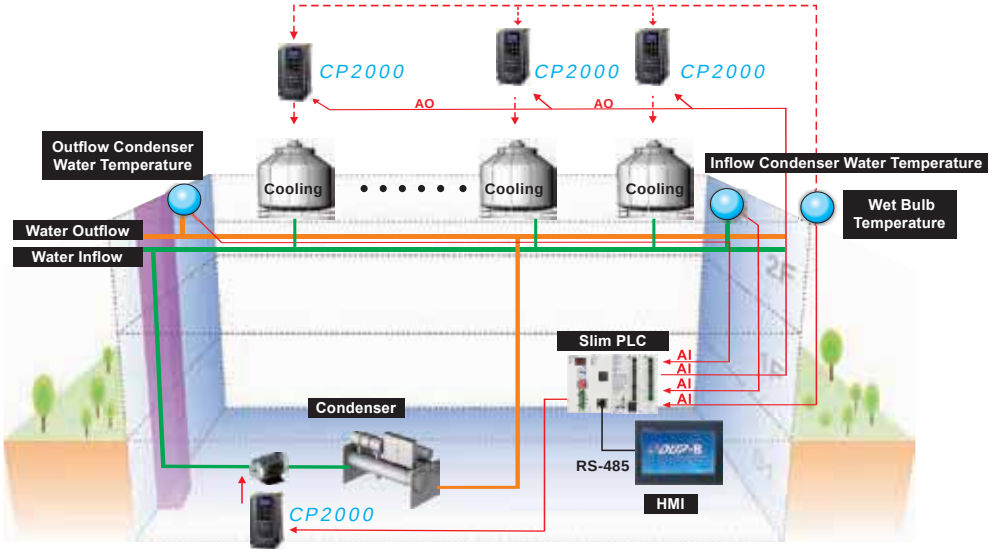
Fan / Pump Vector Control Drive

CP2000

Excellent for Large Power Fans and Pumps Applications



- Built-in BACnet and RS-485 (Modbus) communication protocols
- Enhanced conformal coating on PCBs for superior durability in critical environments
- Fire mode and Bypass mode: continuous pressure output to extract smoke when a fire accident or other emergencies occur
- Quick setting functions to support self-defined parameter groups and parameter duplication for fast and easy installation
- Various modes for fans / pumps applications, including PID control, sleep/wake up functions, flying start and frequency-hopping functions
- Built-in LCD keypad is easy-to-use, and the TPEditor software allows users to customize the main page screen
- Multi-pumps synchronous control of up to 8 motors at one time, fixed amount and fixed time circulation control; optional relay expansion card
- Built-in PLC with 10k steps program capacity and real-time clock (RTC)
- Optional communication cards: PROFIBUS DP, DeviceNet, Modbus TCP, EtherNet/IP and CANopen



Power Range	0.75 ~ 3.7 kW 1 ~ 5 HP	5.5 ~ 18.5 kW 7.5 ~ 25 HP	22 ~ 37 kW 30 ~ 50 HP	45 ~ 90 kW 60 ~ 125 HP	110 ~ 185 kW 150 ~ 250 HP	220 ~ 450 kW 300 ~ 600 HP	560 ~ 630 kW 715 ~ 850 HP
CP2000	230 V / 3-phase						
	460 V / 3-phase						
	575 V / 3-phase						
			690 V / 3-phase				

Applications

Factory automation, HVAC, fans and pumps

IP55 Fan / Pump Drive New

CFP2000

For HVAC, Fans and Pumps Applications



- IP55 and IP41 enclosure protections
- Built-in main switch for the IP55 models (optional)
- Built-in Safe Torque Off (STO) SIL2
- Built-in EMC filter; IEC61800-3 C2, C1 standard
- Built-in DC reactor effectively reduces the harmonic distortion; IEC61000-3-12 standard
- Enhanced PCB (Printed Circuit Board) conformal coating improves drive durability; Class 3C3 standard
- 2 sets of PID controllers
- Built-in PLC with 10k steps program capacity and real-time clock (RTC)
- Built-in Modbus and BACnet MS/TP communication
- Optional communication cards: PROFIBUS DP, DeviceNet, Modbus TCP, EtherNet/IP, CANopen
- Built-in Quick Start function and application groups to simplify installation and setup

Power Range	0.75 ~ 5.5 kW 1 ~ 7.5 HP	11 ~ 22 kW 15 ~ 30 HP	30 ~ 37 kW 40 ~ 50 HP	45 ~ 55 kW 60 ~ 75 HP	75 ~ 90 kW 100 ~ 125 HP
CFP2000	380 to 480V / 3-phase				

Applications



Fans



Chiller



Water Supply & Water Treatment

Heavy Duty Vector Control Drive

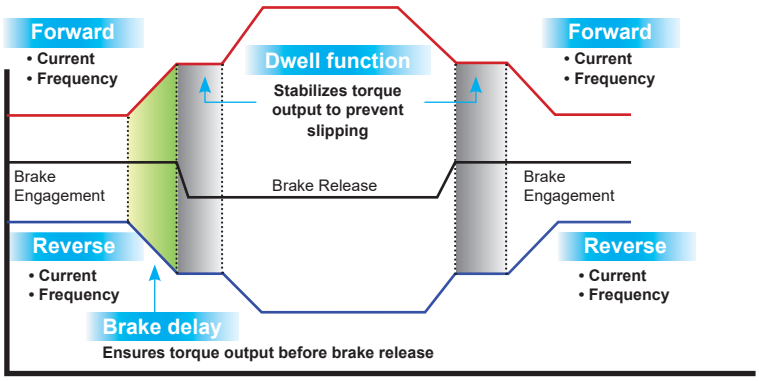
CH2000

Large Overload Capability Excellent for Impact Loading Applications

- Fast response to impact loads
- Super Heavy Duty (SHD) setting for high overload capability: 150% of rated current for 60 secs and 200% of rated current for 3 secs
- Large starting torque: above 200% at 0.5Hz, and 200% at 0Hz in FOC+PG mode
- Support both induction and permanent magnet motors
- Various crane functions for high operation performance
- Modular design: easy installation and maintenance
- Built-in PLC with 10k steps program capacity
- Built-in Modbus communication
- Optional communication cards: PROFIBUS DP, DeviceNet, Modbus TCP, EtherNet/IP, EtherCAT and CANopen



Advanced Crane Functions

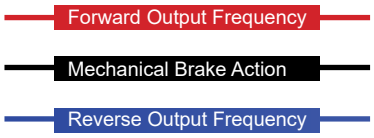


▲ Mechanical Brake Control

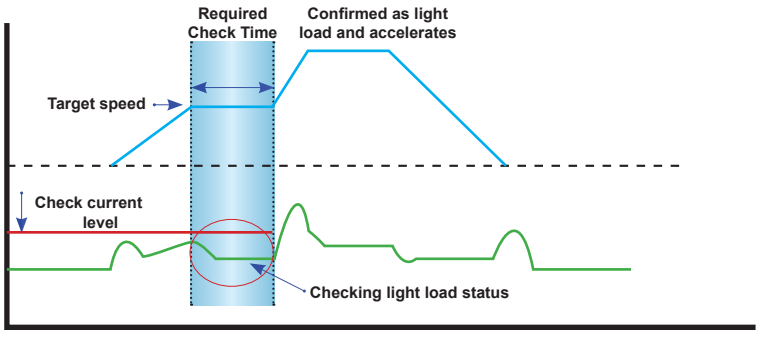
8 independent brake control settings for different criteria; high flexibility to meet complex application needs and to ensure operation safety

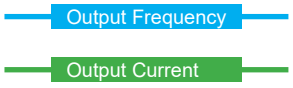
▲ Advanced Crane Time Sequence

Brake delay and dwell function for smooth operation



Light Load Acceleration





Applications

Machine tools, punching machines, cranes and hoists

Power Range	0.75 ~ 3.7 kW 1 ~ 5 HP	5.5 ~ 18.5 kW 7.5 ~ 25 HP	22 ~ 37 kW 30 ~ 50 HP	45 ~ 75 kW 60 ~ 100 HP	90 ~ 185 kW 125 ~ 250 HP	220 ~ 280 kW 300 ~ 375 HP
CH2000	230 V / 3-phase					
	460 V / 3-phase					

Textile Vector Control Drive

CT2000

Highly Flexible Flange Mount and Wall Mount Methods

- Fanless design with highly effective heat sink to prevent fiber and dust from clogging or entering the drive, solving overheating problems(*1)
- Flange-mount installation to enhance system safety and stability, providing excellent heat dissipation performance(*1)
- Support external fan connection (optional)(*1)
- Wall-mount installation model with an enlarged fan (*2)
- Deceleration Energy Backup (DEB) function for smooth motor deceleration control
- Support induction and permanent magnet motors
- Common DC BUS design
- Built-in PLC with 10k steps program capacity RS-485, support Modbus communication
- Optional communication cards available upon request

*1: For model names ending with code A or B
*2: For model names ending with code C



Flange Mount



Wall Mount

Power Range	11 kW	15 kW	18.5 kW	22 kW	30 kW	37 kW	45 kW	55 kW	75 kW	90 kW
CT2000	460 V / 3-phase									

Applications

Textile machines and all textile applications that require flange-mount or wall-mount installation
*** Flange-mount: Please refer to the CT2000 user manual for airway design requirements before installation**



Elevator Drive

VFD-ED

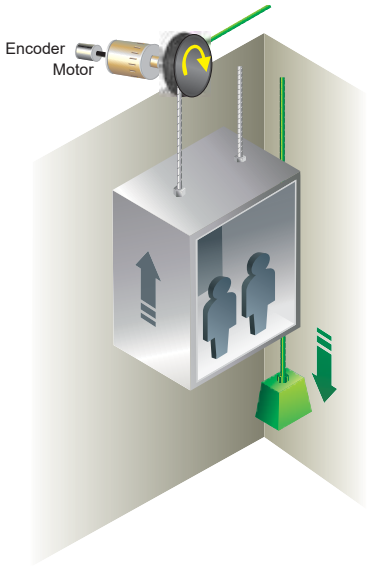
Excellent Time Sequence Control for Smooth Rides

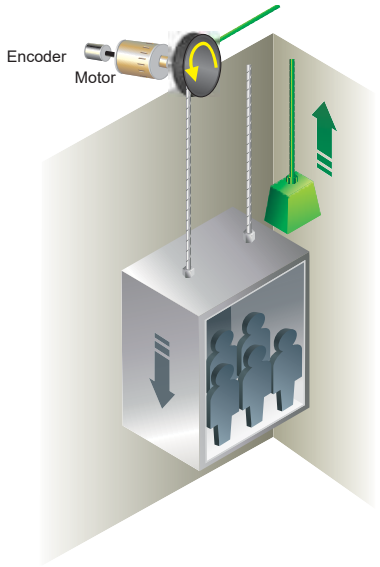


- Support induction and permanent magnet motors
- Precise control of S curve performs smooth start and stop for a comfortable ride
- Optional PG feedback cards (for ABZ & Heidenhain encoder)
- Highly precise field-oriented vector control
- Automatic torque compensation function to prevent elevator from slipping or vibrating
- Emergency operation enabled with UPS or battery when power outage occurs
- Wall-mount or embedded installation
- Built-in LED digital keypad
- 4 relay output and 2 multi-function digital signal output terminals (MO)
- 2 analog signal input (AI) and 2 analog signal output (AO)
- 1 CANopen and 2 RS-485 (Modbus)

Emergency Operation

- Support single phase 230VAC Uninterrupted Power System (UPS)
- Automatically determine the light load operation direction when a power outage occurs





(UL: does not include VFD22ED21S and VFD037ED21S models)

Power Range	2.2 kW 3 HP	3.7 kW 5 HP	4 kW * 5 HP	5.5 kW 7.5 HP	7.5 kW 10 HP	11 kW 15 HP	15 kW 20 HP	18.5 kW 25 HP	22 kW 30 HP	30 kW 40 HP	37 kW 50 HP	45 kW 60 HP	55 kW 75 HP	75 kW 100 HP
ED	230V / 1-phase													
			230V / 3-phase											
			460V / 3-phase											

*Min. power range of the 460V model: 4kW

Compact Elevator Drive New

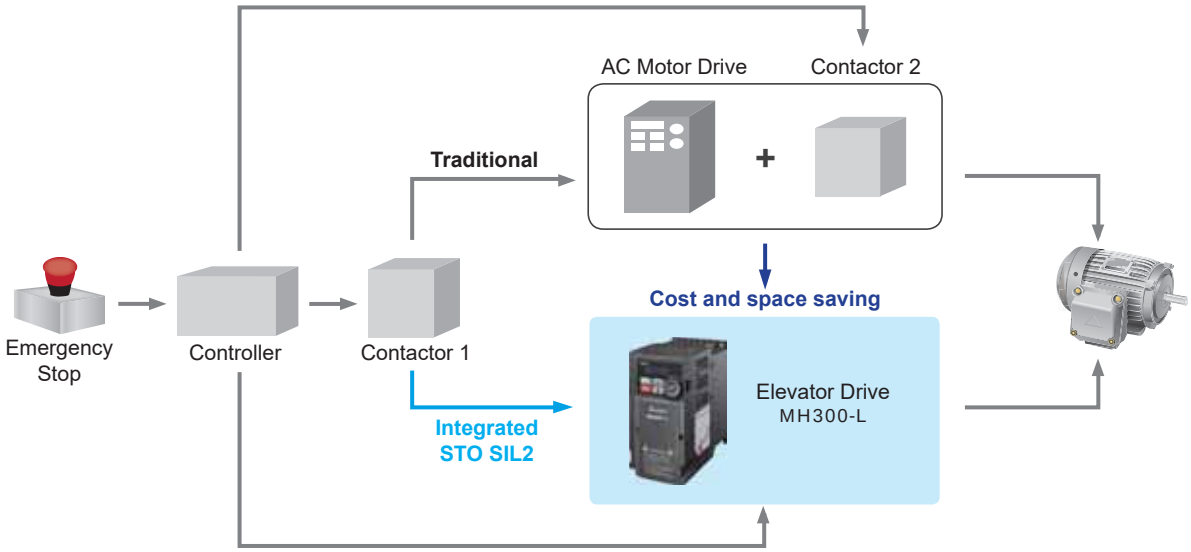
MH300-L

New Compact Design with Open Loop Control





- Support asynchronous motors with open loop control
- Precise control of S curve performs smooth start and stop for a comfortable ride
- Compact design and user-friendly operation
- EPS/ARD and sequence control functions for elevator applications
- Built-in 5-digit 16-segment LCD digital keypad
- Built-in USB connection port
- Built-in EMC filter
- Built-in brake chopper
- 7 digital inputs (extension up to 10) and 1 relay output (extension up to 3)
- Integrated Safe Torque Off (STO) SIL2



Power Range	2.2 kW 3 HP	3.7 kW 5 HP	5.5 kW 7.5 HP	7.5 kW 10 HP	11 kW 15 HP	15 kW 20 HP
MH300-L	230V/3-phase					
		460V/3-phase				

Door Control Drive

VFD-DD

Door Control Solution

- Compact Design
- Distance Control Mode
- Speed Control Mode
- Multi-step Speed Control Mode



- Simplified elevator door control system
- Support induction and permanent magnet motors
- Easy to install with I/O input/output design
- Various protection functions ensure passenger safety
- Auto-tuning of door width
- Auto-positioning when power is applied
- Smooth door re-open / re-close curve
- Demo mode
- Support elevator door obstruction detection

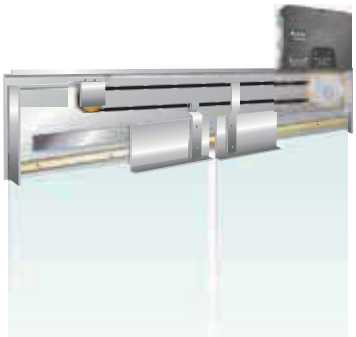
Optional Motors

ECMD-B91207MS
ECMD-B91608MS
ECMD-B81610MS



Applications

Elevator doors



Power Range	0.2 kW 0.25 HP	0.4 kW 0.5 HP
VFD-DD	230 V / 1-phase	

Integrated Elevator Drive

IED

Integrated Drive and Control to Save Installation Space



Control

- Highly efficient group control function, capable of controlling multiple elevators without additional control cards
- Various operation modes: demo mode, attendant service mode and time-based mode
- Single / Double-door elevator applications
- Max. 48 floors

Design

- Compact design, suitable for limited installation spaces
- Modular design of fans and capacitors for easy replacement and maintenance
- A small-size LED keypad allows users to check and set the drive control

Drive

- Support induction and permanent magnet motors
- Emergency Power Supply (EPS) function
- Dual safety protection functions: torque output check before releasing mechanical brake

Tune

- Auto-learning hoistway and auto floor height detection
- Auto-tuning motor parameters without load disconnection
- PC software monitors motor operation status

Energy Saving

- Power regeneration function available when installed with Delta's Active Front End (AFE2000 Series) or Power Regenerative Unit (REG2000 Series)
- Lighting and air circulation scheduling for elevator cars
- Standby mode to save energy

Efficiency

- Direct stop: multi-speed control to provide a comfortable ride with higher efficiency
- Peak hour operation: improves peak hour operation efficiency
- Full-load bypass operation: arrives at designated floor without stopping

CE EAC

Power Range	2.2 kW 3 HP	3.7 kW 5 HP	4 kW 5 HP	5.5 kW 7.5 HP	7.5 kW 10 HP	11 kW 15 HP	15 kW 20 HP	18.5 kW 25 HP	22 kW 30 HP	30 kW 40 HP	37 kW 50 HP	45 kW 60 HP	55 kW 75 HP	75 kW 100 HP
IED	230 V / 1-phase													
			230 V / 3-phase											
			460 V / 3-phase											

IED



One drive for
all control needs



Floor Display Board

- Vertical matrix display board - Standard Type



- Vertical/Horizontal matrix display board - Standard Type



Integrated Cartop and Button Board

- Integrated cartop and button board



- Button extension board



Optional

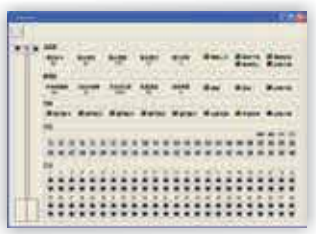
External Digital Keypad

- Controller setting
- Drive setting
- Parameter copy



PC Software

USB port facilitates program upload/download and tuning process





Hybrid Energy Saving System

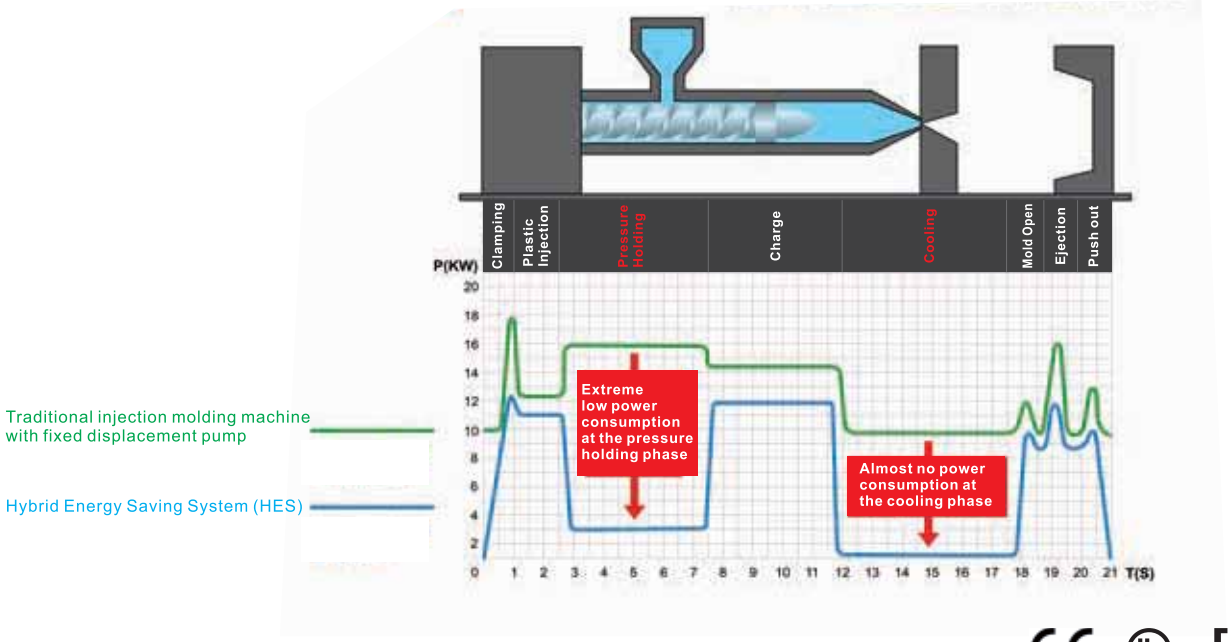
HES

Energy Saving for Injection Molding Machine



- Superior Energy-Saving Outcomes: 40% less energy consumption than variable pump hydraulic systems; 60% less energy consumption than traditional quantitative pump hydraulic systems
- Low Oil Temperature: oil temperature decreased by 5ºC to 10ºC, saving costs on oil cooler
- Reduce Oil Usage: 50% to 60% oil usage savings and a 50% smaller oil tank
- High Duplication Accuracy: Precise flow and pressure control featuring duplication of products with less than 0.09% difference
- Long Holding Pressure: Keep mold halves securely closed for a longer period for thick plastic products formation
- Fast Frequency Response: High speed frequency response up to 50 ms with permanent magnet servo motor (PMSM)
- Suitable for Harsh Environments: Resolver is resistant to earthquakes, oil and dust
- Easy to Refurbish Old Machines: Analog command 0 ~ 10 V and linear correction (3 points), no need to replace the computer
- Flow Convergence: Saves cost on tubes; enlarged flow capacity enhances energy-saving performance

Power Consumption Curve of the Injection Molding Process



Power Range	50 L / min	63 L / min	80 L / min	100 L / min	125 L / min	160 L / min	200 L / min	250 L / min	320 L / min
HES	230 V / 3-phase								
	460 V / 3-phase								

Applications

Injection molding machines, bottle blowing machines, pipe bending machines, bending machines and other hydraulic equipment

Power Regenerative Unit

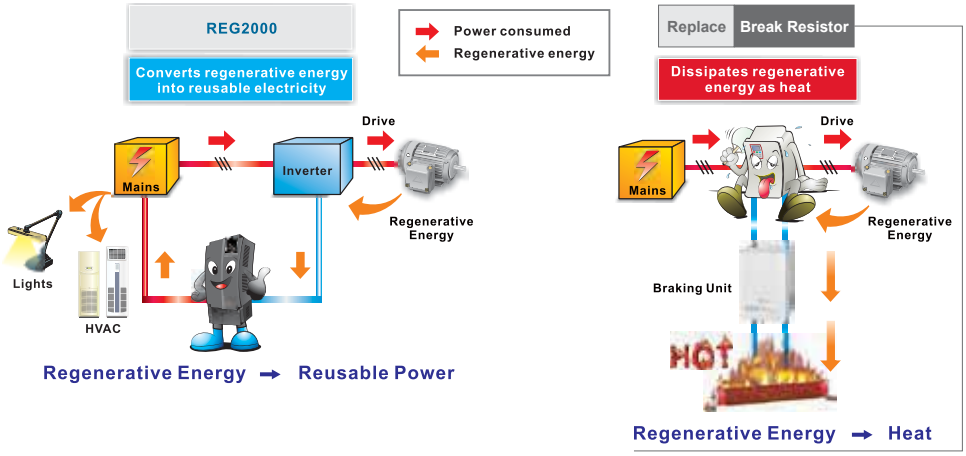
REG2000

Replaces Traditional Brake Resistor and Features Power Regeneration



- Compact design with reactor included, easy to install
- Outstanding energy-saving performance with more than 95% power regeneration efficiency
- Replace traditional brake resistors to reduce the generation of heat
- Compatible with the drives and servo drives that have DC terminals
- Support parallel connections for large power applications
- Improve motor braking capability from 125% to 150%
- Built-in RS-485 (Modbus) communication and real-time monitoring of energy-saving performance and cost
- Optional communication cards: (*) Modbus TCP, EtherNet/IP, CANopen, PROFIBUS DP and DeviceNet

  * Please contact Delta Industrial Automation



SEMI F47

Power Range	7.5 kW	11 kW	15 kW	18.5 kW	22 kW	30 kW	37 kW	45 kW	55 kW
REG2000	230 V/3-phase								
	460 V/3-phase								

Applications

Large-inertia load applications: centrifuge equipment, industrial laundries, roving machines and more

4-quadrant load applications: elevators, cranes, pumpjacks and more

Quick braking applications: machine tools, bag making machines, auto storage and retrieval systems, presses and more

Long-term energy feedback applications: printing machines, escalators and more

Escalator | Elevator | Tension Control | Crane | Centrifuge Equipment | Press | Industrial Laundry | Machine Tool

Active Front End

AFE2000

The Best Energy Saving Device with AC Motor Drives



- More than 95% power regeneration efficiency
- Improve power factor to more than 99% with input current THD ≤5%
- Realize 4-quadrant operation with variable frequencies and speed control when applied with AC motor drives
- Maintain constant DC BUS voltage and current when the voltage provided by the mains is unstable
- Support all kinds of fieldbus for real-time power status monitoring and control*

PROFIBUS CANopen DeviceNet MODBUS TCP EtherNet/IP

*Available from Delta upon request

EAC

Power Range	7.5 kW 10 HP	15 kW 20 HP	22 kW 30 HP	37 kW 50 HP	45 kW 60 HP	75 kW 100 HP
AFE2000	230 V 3-phase					
	460 V 3-phase					

Applications

Large-inertia loads applications: centrifuge equipment, dewatering machines and roving machines

4-quadrant loads applications: elevators, cranes and pumpjacks (oil extraction machines)

Quick braking applications: machine tools, bag making machines, auto storage and retrieval systems, and lathes

Long energy feedback time applications: wind power, water power, steel printing and paper making machinery (winding equipment)

Power quality improvement: semiconductor and panel industries

Static Var Generator

SVG2000

Comprehensive Reactive Power Compensation to Improve Power Efficiency



- Compensate both leading and lagging reactive current; improve power factor to 0.99
- Adopt special Delta power supply modules to provide a wide range application from 220 V ~ 480 V and 525 V ~ 690 V
- Modular design of fan, power, drive, control and reactor modules
- 7" touch screen TFT LCE expression in 65,536 colors

Capacity	300 k VAR	500 k VAR
SVG2000	220 V ~ 480 V / 3-phase	
	525 V ~ 690 V / 3-phase	

Applications

A new solution to replace traditional phase-leading capacitors, applicable to the power distribution systems of industry, infrastructure, commercial buildings and homes

Active Power Filter

APF2000

For Power Quality Improvement

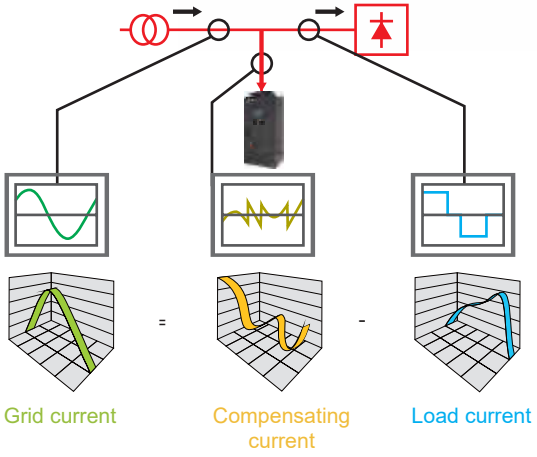


- Filter the 2nd to 50th order harmonics with efficiency of more than 90%, compliant with IEEE519 standard
- Full response speed faster than 20 ms
- Selection to compensate either harmonic wave or reactive power, or both at the same time
- Modular design of fan, power, drive control and reactor modules
- 7" touch screen TFT LCD expression in 65,536 colors
- Compact design: the 300 A model only measured 600W x 800D x 2200H (mm)
- Parallel connection of multiple units to expand total capacity
- Built-in RS-485 communication and provides various communication and fieldbus card options

PROFIBUS CANopen **(DS301)**

Concept

An active power filter is a large power electrical device that monitors the three-phase current in real time and provides an equally opposite phase to relevant devices to filter out the harmonics. It is parallel connected to the grid and uses a current transformer to inspect the 3-phase current waveform and obtain the required compensation data of harmonic current and reactive power. The active power filter will then inject an equally opposite current input to the power system for harmonic filtering results. In addition, the active power filter can also create phase that complements the leading and lagging reactive current. It effectively improves the power factor of the grid and provides compensation to the reactive power.



Capacity	50 A	100 A	200 A	300 A
APF2000	200 V ~ 480 V / 3-phase			

Applications



Metallurgy and petrochemicals industries:
Rectifier, converter, rolling mill, electric arc furnace, medium frequency furnace and inverter

Chemical and electrolysis industries:
Rectifier, calcium carbide furnace, electric soldering and inverter

Mechanical industries:
Rectifier, rolling mill, inverter, electric arc equipment

Metal, paper, plastic processing and textile industries:
Rectifier, rolling mill, inverter, electric arc furnace and electric furnace

Transportation industries:
The rectifier and the inverter of electric vehicles, electric motorcycles and metro systems

Automobile manufacturing industries:
Soldering equipment, car painting equipment, battery charger and inverter

Telecommunication, medical and construction industries:
Server station, EPS, UPE, converter, charger and inverter

AC Servo Drive & Motor New

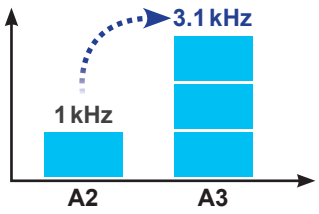
ASDA-A3

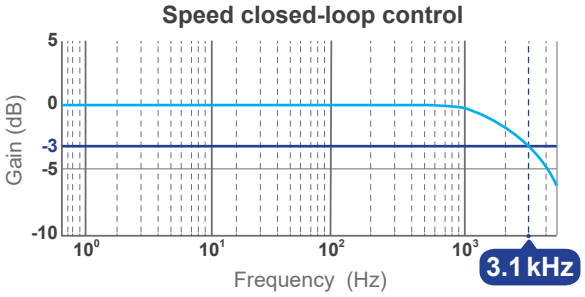
24-bit Absolute Type Encoder
3.1 kHz Bandwidth
Advanced Motion Control Functions Inside



3.1 kHz Bandwidth

- Response bandwidth increased by 3.1 times (compared to the ASDA-A2 Series), providing higher speed for commands
- Higher responsiveness and shorter settling time increases productivity

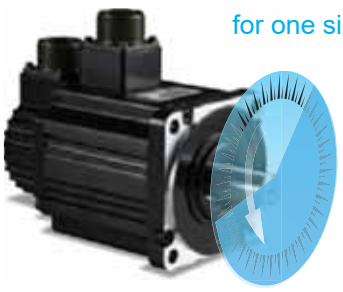




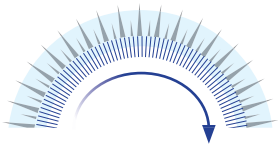
24-bit Absolute Type Encoder

- Positioning precision enhanced by the 16,777,216 pulses/turn encoder
- Reduced speed variance at low speed to ensure smooth process and enhance machine efficiency
- Absolute type encoder helps to keep the motor's position when the power is off

16,777,216 pulses
for one single turn

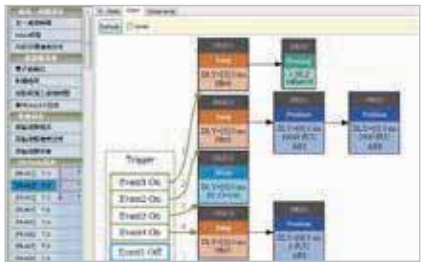


46,603 pulses for one degree



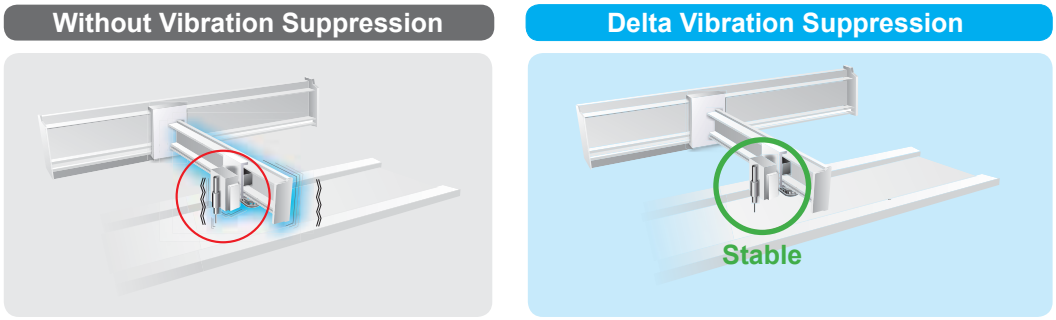
Advanced Motion Control Functions

- 99 sophisticated motion commands and segments allowed
- Graphical user interface offers simple setup and programming
- Arithmetic operation and condition jump commands are added
- General motion functions: homing, position, speed, superimposition, blending, on-the-fly change motion commands and E-CAM functions are available



Low Frequency Vibration Suppression Function

- Keep the machining process stable when mechanisms with higher elasticity such as a belt or a swing arm are applied



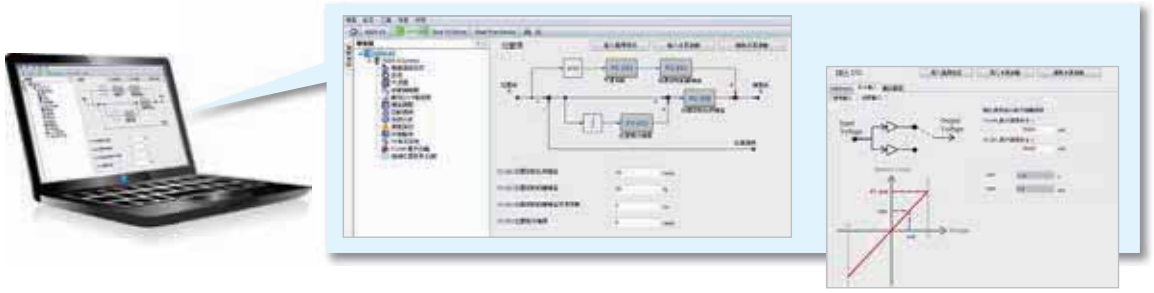
Auto-Tuning Function

- Optimize machine performance with less tuning effort and simple setup procedures via panel keypad or software



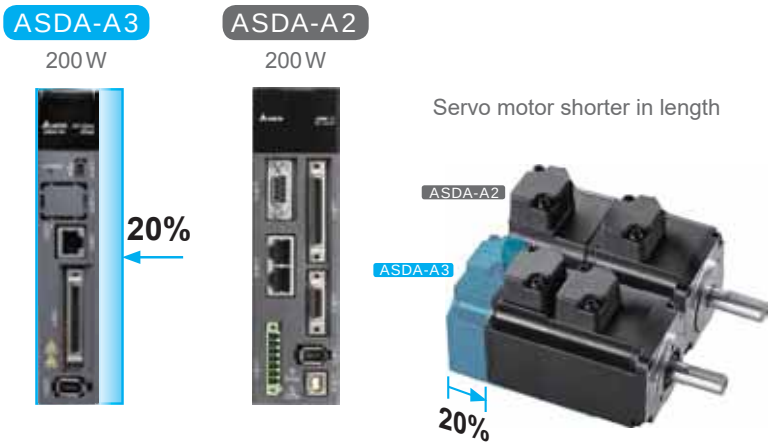
Smart and Intuitive Software Interface

- Tree-view index window with organized list and collapsible menu helps to access functions easily
- Intuitive user interface provides set up functions and parameters with efficiency and accuracy



Compact Size Design

- ASDA-A3 is 20% smaller than the ASDA-A2 in dimensions, requiring less installation space



Applications

Machine tools, electronic assembly or detection equipment, industrial robots, packaging machines, labeling machines, semiconductor processing equipment and textile equipment

AC Servo Drive & Motor

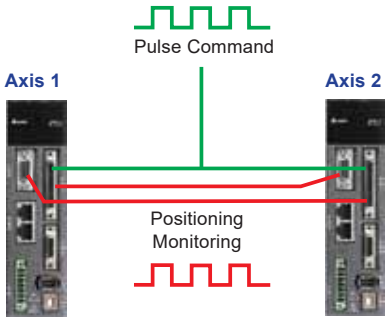
ASDA-A2

Implements 20-bit (1,280,000 p/rev) superior resolution encoder as a standard



Built-in Motion Control Functions

- Electronic Cam (E-CAM) function for mark tracing, positioning, synchronous control applications; max. 720 points for E-CAM ooutline
- High-speed Capture and Compare function for position latch and detection; max. 800 records stored in the memory
- Built-in gantry control algorithm

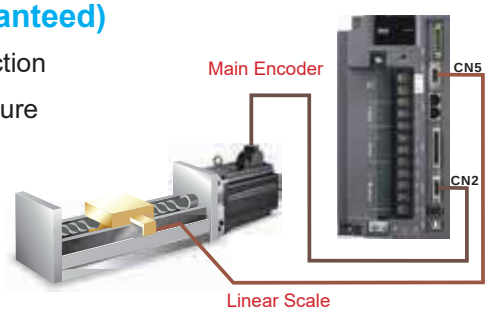


High Precision, High Performance Servo Motors

- Support incremental type and absolute type encoders
- Incremental type encoder provides up to 1,280,000 p/rev resolution for high-precision positioning

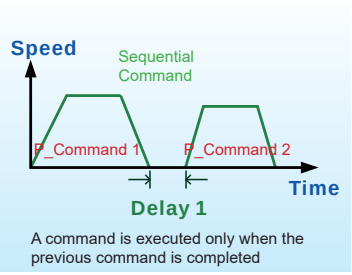
Full-Closed Loop Control (Accuracy of Positioning Guaranteed)

- Direct signal transmission through CN5 port to perform full-closed function
- Reduce the effect of backlash and flexibility from the machine and ensure the accuracy of positioning

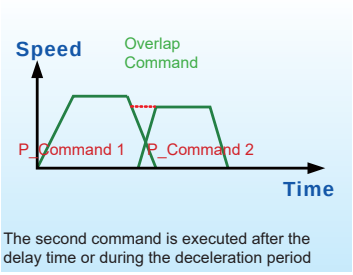


Versatile PR mode

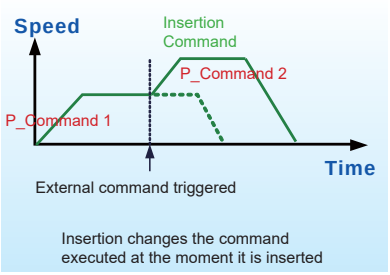
- 64 procedures can be applied for various and multiple points continuous motion movements
- 35 homing modes / jump mode / parameter editing mode / speed mode / position mode



A command is executed only when the previous command is completed



The second command is executed after the delay time or during the deceleration period



Insertion changes the command executed at the moment it is inserted

Basic Features

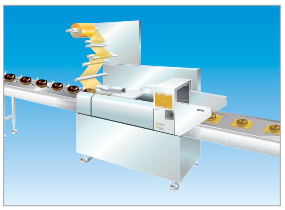
- Input voltage: 200 V_{AC} ~ 230 V_{AC}, 0.1 kW ~ 15 kW, 1-phase / 3-phase, or 3-phase
- Input voltage: 400 V_{AC}, 0.4 kW ~ 15 kW, 3-phase
- Up to 1 kHz bandwidth for high speed and high precision applications
- CANopen, DMCNET, EtherCAT communication protocols
- ASDA-A2-E model is equipped with Safe Torque Off function (STO), compliant with IEC31800-5-2

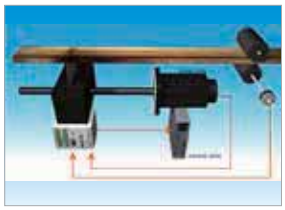
	Type	RS-485 (CN3)	Full Closed-loop Control (CN5)*1	Extension Port for Digital Input (CN7)	PR Parameters*2	E-CAM*3	EtherCAT*4	CANpen	DMCNET	Analog Voltage Control	Pulse Input Port
Standard Model	L	O	O	X	O	X	X	X	X	O	O
	U	O	O	O	O	O	X	X	X	O	O
Network Model	E	X	X	O	O	X	O	X	X	X	X
	F	O	O	X	O	X	X	X	O	X	X
	M	O	O	X	O	O	X	O	X	O	O

*1. In PR mode, only ASDA-A2-F supports full-closed control function.
*2. PR parameters can be read and written through communication by DMCNET only.
*3. E-CAM function can only be used in PR mode.
*4. For information about ASDA-A2-E EtherCAT interface servo drive, please refer to the ASDA A2-E brochure.

Applications

Food packaging machines, filling and bottling equipment, labeling machines, feeding machines, TFT LCD cutting machines, IC packaging machines, injection processing equipment, lathes, electric discharge machines (EDM), woodworking machines, wire cutting machines, printing machines, textile equipment


Food Packaging Machine


Wire Cutting Machine


Feeding Machine


High-speed Labeling Machine

AC Servo Drive EtherCAT

ASDA-A2-E

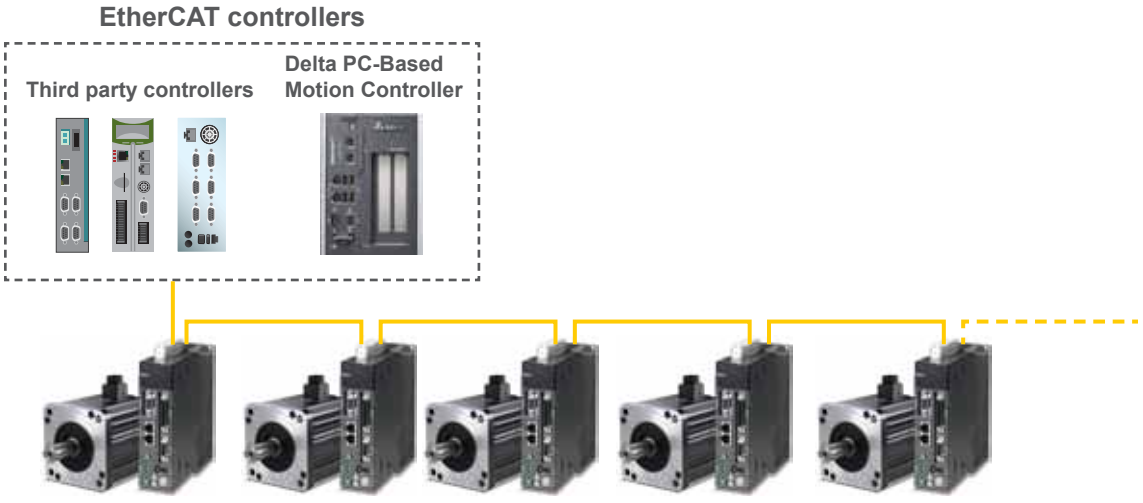
Supports EtherCAT High-speed Communication



Delta's ASDA-A2-E Series, advanced AC servo drives with EtherCAT communication interface, complies with IEC61158 and IEC61800-7 to enable faster, real-time, and accurate performance in high-end applications. The series also support a CoE device profile based on CiA402, and all command types of EtherCAT.

In addition to the EtherCAT communication function, the ASDA-A2-E Series feature:

- Wide power range: 400 V 400 W ~ 7.5 kW, 220 V 100 W ~ 3 kW
- Integrated Safe Torque Off (STO), compliant with IEC61508, SIL2; IEC62061, SILCL2; ISO13849-1, Cat. 3 PL=d
- Short cycle time, ideal for high-speed synchronous multi-axis control
- Touch probe function can be enabled with two dedicated Digital Inputs (DI) on CN7 or an external encoder
- Support absolute type and incremental type ECMA Series motors



Applications



Metal Working Machine



Woodworking Machine



Food Processing

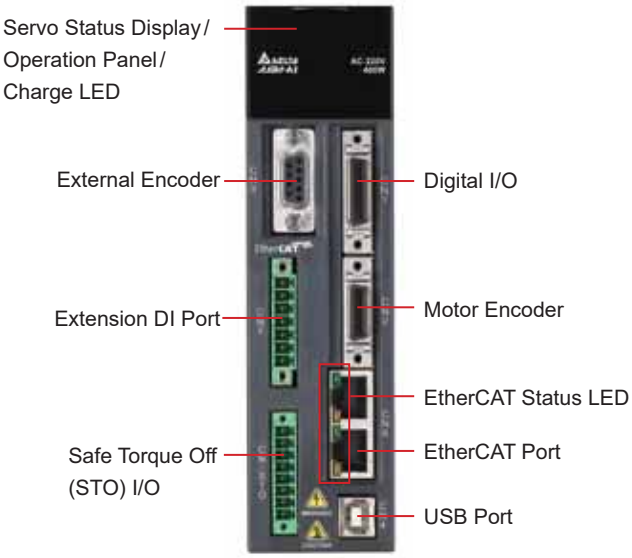


Printing Machine

Communication Specifications

Physical Layer	IEEE802.3u (100 BASE-TX)
EtherCAT Commands (Data Link Layer)	APRD, FPRD, BRD, LRD, APWR, FPWR, BWR, LWR, ARMW, FRMW, APRW, FPRW, BRW, LRW
Device Profile (CiA402)	Homing Mode, Profile Position Mode, Profile Velocity Mode, Profile Torque Mode, Interpolated Position Mode, Cyclic Syn. Position Mode, Cyclic Syn. Velocity Mode, Cyclic Syn. Torque Mode, Touch Probe Function, Torque Limit Function
Process Data Size	Tx: 8 Object (max. 32 bytes) Rx: 8 Object (max. 32 bytes), supports Dynamic Mapping
Bus Clock	DC cycle with min. 250 μs
LED Indicator	EtherCAT Link/Activity Indicator (L/A) x 2 EtherCAT RUN Indicator (RUN) x 1 EtherCAT ERROR Indicator (ERR) x 1

Part Names and Functions



Accessories for ASDA A2-E

Part Number	ASD-CNSC0026
Description	CN1 connector



Part Number	ASD-CNFS0808
Description	Pack of connectors used for STO Wiring connectors (8 pcs/pack)





AC Servo Drive & Motor

ASDA-B2

Implements 17-bit (160,000 p/rev) high resolution encoder as a standard



Power Range: 0.1 kW ~ 3 kW

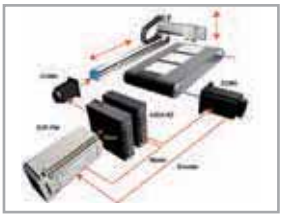


- Input voltage: 200 V_{AC} ~ 230 V_{AC}, 1-phase / 3-phase, or 3-phase
- Meets high precision positioning control requirements of general-purpose machine tools:
  - Built-in Position, Speed and Torque modes
    (Speed and Torque modes can be controlled via internal parameters or external voltage)
  - Provides pulse input (up to 4 Mpps) and analog voltage commands
  - Three notch filters are provided to optimize the operation of the mechanical system automatically
  - Friction compensation and motor protection functions are available to reinforce the system
  - Separated power supply for main circuit and control circuit, easy to maintain
  - Built-in regenerative resistor featured as standard (400 W and above models), saving wiring and cost

Applications



Bar Feeder



Transporting and Conveying Equipment



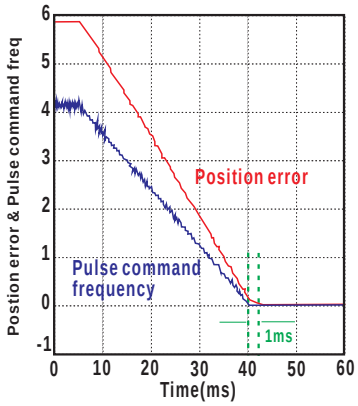
Electric Discharge Machines (EDM)

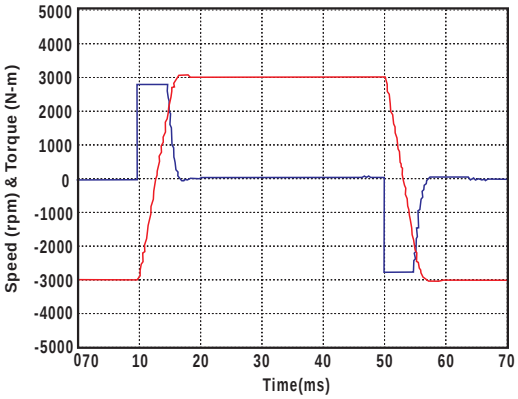


Cutting Machine

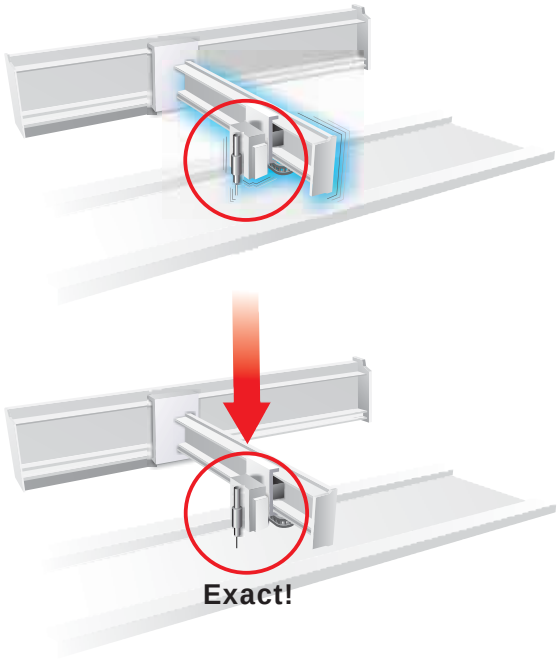
High Accuracy for Positioning

- ASDA-B2 Series feature an incremental encoder with 17-bit resolution (160,000 p/rev) which can eliminate unstable commands at low speed, smooth the motor operation and enhance the accuracy of positioning



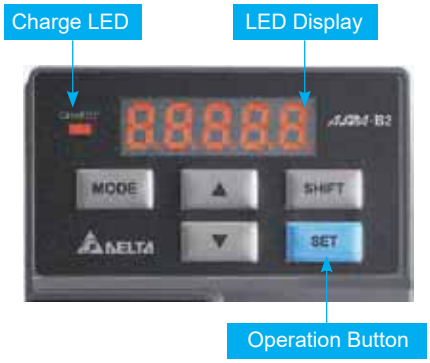


- Three auto notch filters to suppress mechanical resonance efficiently

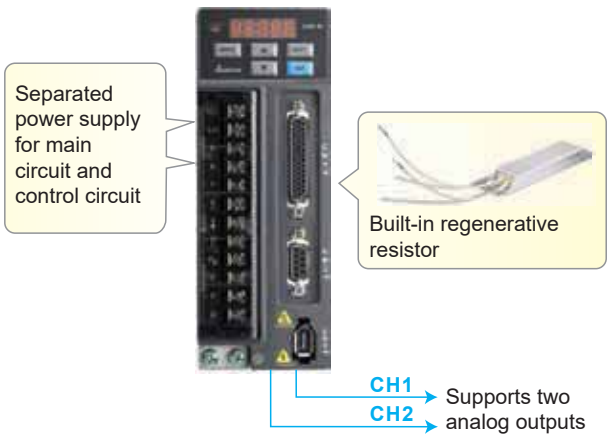


Easy-to-Use and Cost-Saving

- Same power and encoder cables as the ASDA-B Series
- User-friendly digital keypad, ideal for parameter settings and monitoring



- Built-in regenerative resistor (400 W and above models), simplifying wiring and minimizing space



AC Servo Drive & Motor

ASDA-M

Three-in-one Intelligent Servo System Harmonizing Motion Controller and Servo Drive



Impeccable Motion Control

- 3-axis synchronous servo module with higher performance
- Built-in motion control and PLC functions
- Multi-axis synchronous interpolation and built-in motion control commands, ideal for applications that require high synchronous control accuracy
- Versatile PR mode for various continuous motion movements

New PC Software Functions

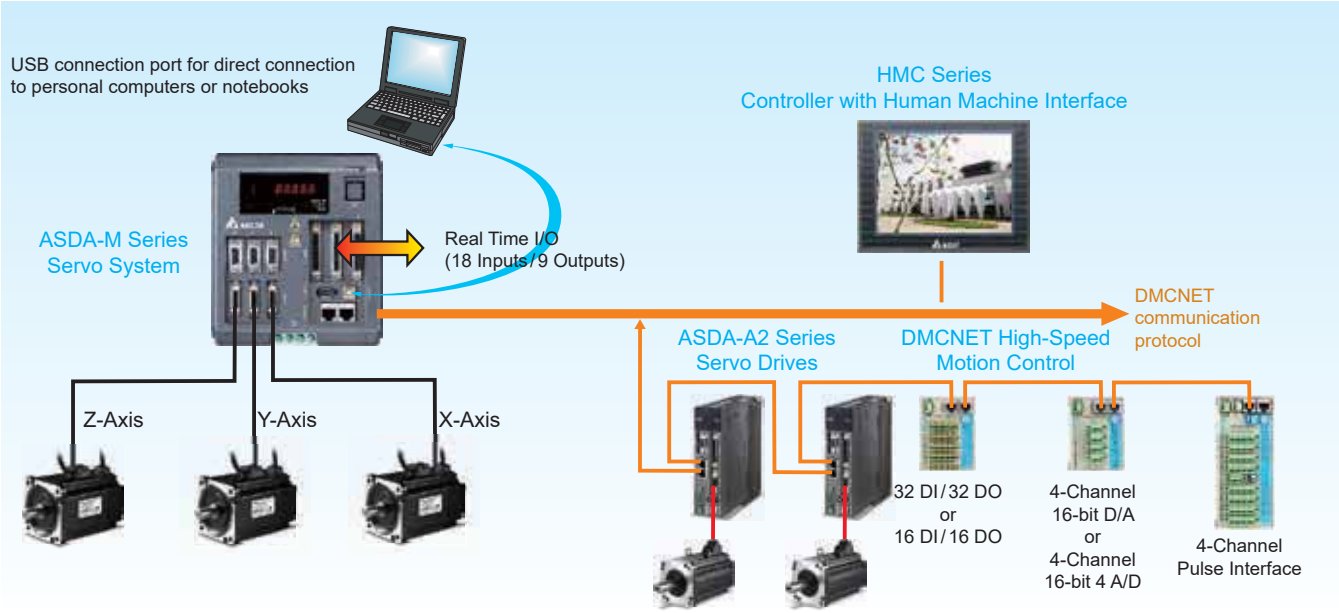
- ASDA-Soft provides built-in contour analysis function
- EzASD provides PLC programming and motion commands editing environment

High Precision, High Performance Servo Motors

- Support incremental type and absolute type encoders
- Incremental type encoder provides up to 1,280,000 p/rev resolution for high-precision positioning

Product Line-up



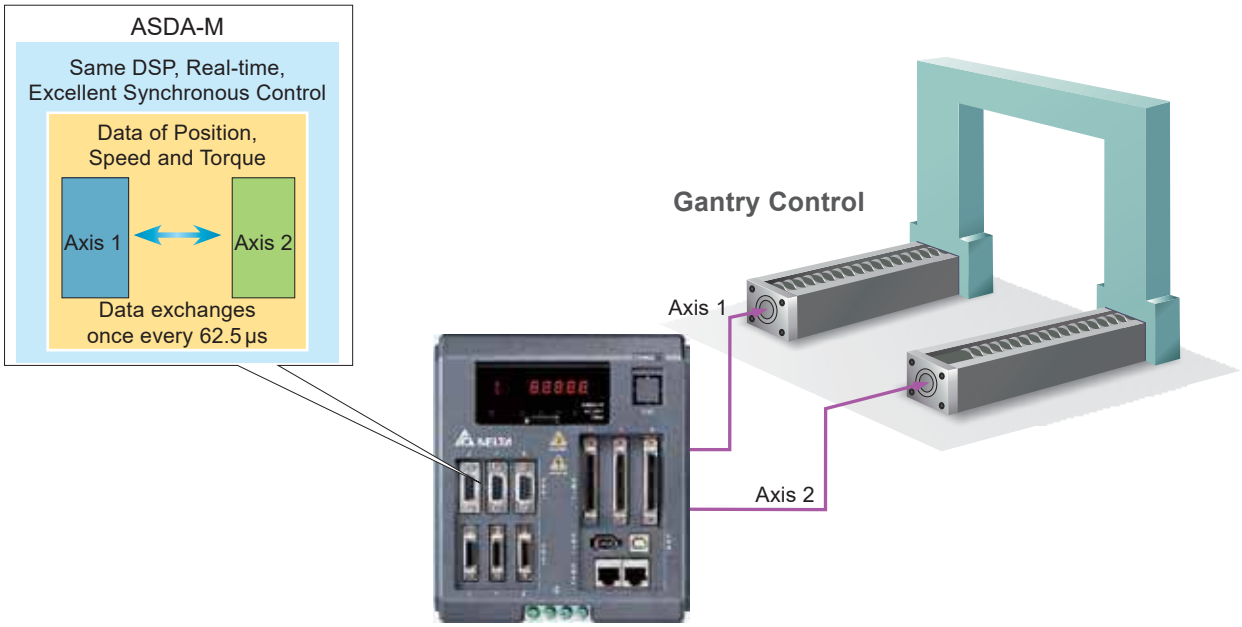


Real Time, Reliable and High-Speed Motion Control Network

- Support DMCNET and CANopen communication protocols
- Builds an integrated system configuration by DMCNET with the aid of Delta's Controller with Human Machine Interface (HMC)
- Support DMCNET extension digital input and output modules

Advanced Gantry Control

- Real-time data exchange among 3 axes greatly increases the efficiency and performance of gantry control
- Simultaneously performs precise motion control and drive for each axis in rigid or general mechanical systems whether the loading on multiple axes is equal or not



Spindle Motor Drive

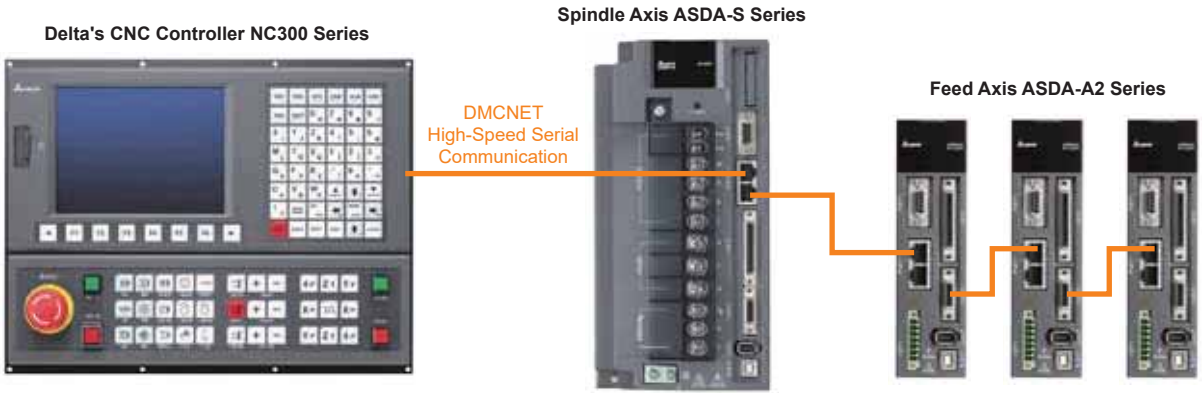
ASDA-S

Ensuring Premium Surface Finish Quality for the CNC Industry



Power range: 3 kW ~ 15 kW

- Support Delta permanent magnet spindle motors and other induction motors
- Provide high performance servo vector control as in the ASDA-A2 Series
- Support pulse encoder signals (ABZ phase) via CN5 port, no external converter card required
- Built-in induction motor parameter measuring and estimating function
- Offers V/F control for induction motors without encoders
- Equipped with analog speed and resolution switching function
- Accept analog voltage, position pulse and DMCNET communication commands
- 200 V models and 400 V models are available for selection
- Capable of connecting to CNC controllers via DMCNET high-speed serial communiction



IPM Spindle Motor

ECMS

Power range: 3.7 kW / 6.7 kW

- Encoder Type: Incremental 20-bit
- Max. torque: 14.72 N-m / 26.65 N-m
- Speed range: 6000 r/min ~ 12000 r/min
- Options: Coolant through spindle
- IP degree: IP54



Linear Motion Drive

ASDA-A2R

Delivering a Superior Linear Motor

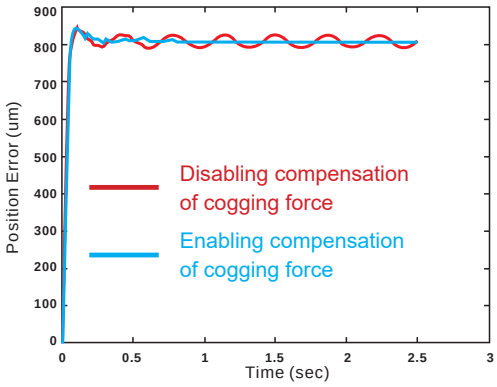
The new ASDA-A2R Series linear drive system provides high accuracy, high rigidity and high response. It not only expands the applications of the servo system, but also increases the work efficiency of the motion contol system and satisfies high-precision requirements.

The ASDA-A2R follows in the footsteps of Delta's successful servo system and provides the same functions such as high-speed and high response performance, excellent vibration and resonance suppression, versatile PR mode, DMCNET and CANopen communication interfaces, built-in E-Cam and gantry control functions.



Power range: 100 W ~ 3 kW

- Intelligent motor parameter measuring, easy and fast auto tuning
- Accurate positioning and initiation without a Hall sensor unit
- High flexibility in connecting various kinds of linear motors and servo motors
- Optional signal converter box (Delta) available for high speed and high precision requirements
  - Support AB phase square waves of digital signals
  - Sine waves of analog signals
  - Signals can be divided up into a multiple of 2,048 to increase positioning resolution for precise position control
- Detection and compensation of cogging force

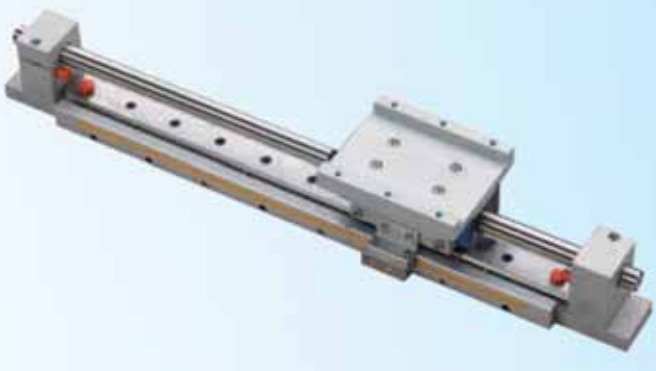


Ironless Linear Motor

ECML

Power range: 100 W ~ 750 W

- Rated thrust: 21 ~ 1380 N
- Direct driving mechanism, high speed and high precision control
- No cogging forces and low thrust ripple



Linear Shaft Motor

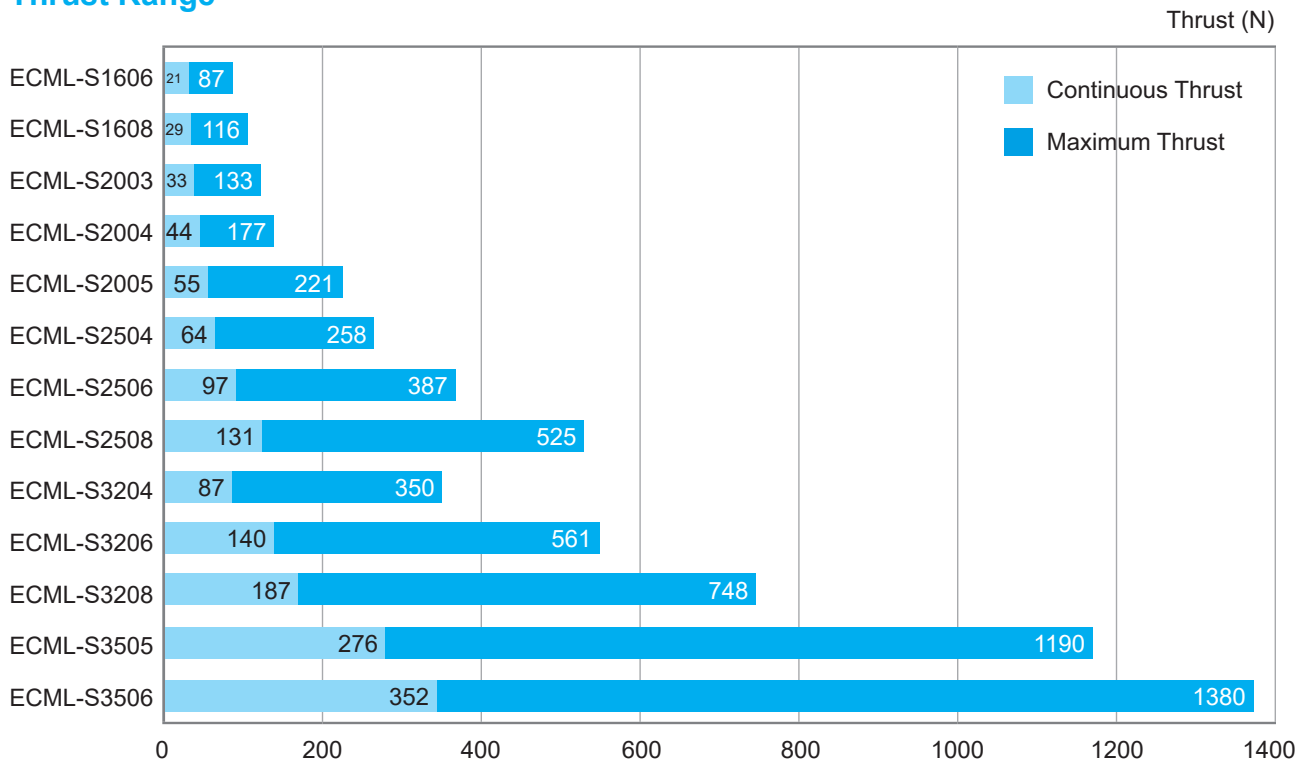
ECML-S

High-speed, High-precision Linear Motor
Position Repeatability within ±1um



- Simple mechanism structure for quick installation
- Direct driving mechanism, easy to replace ballscrew mechanism
- No cogging forces, low thrust ripple
- Excellent dynamic response
- No backlash
- Built-in temperature sensor and hall sensor units
- Large air gap for easy installation
- Installation holes on both sides in the coil assembly for easy mounting

Thrust Range



Length of Magnetic Way (Unit: mm)

Shaft Diameter	Minimum Length	Maximum Length	Increments
ECML - SM16	250	1,240	30
ECML - SM20	250	1,270	60
ECML - SM25	330	1,650	60
ECML - SM32	450	2,790	60
ECML - SM35	810	2,790	60

Linear Stage

LU

High Precision Steel Ballscrew Driven Stage
Position Repeatability of ±3um



- Non-coupling mechanism design
- Compact size for space saving
- High rigidity and high accuracy
- Fast response
- Low inertia ratio

Characteristic Analysis

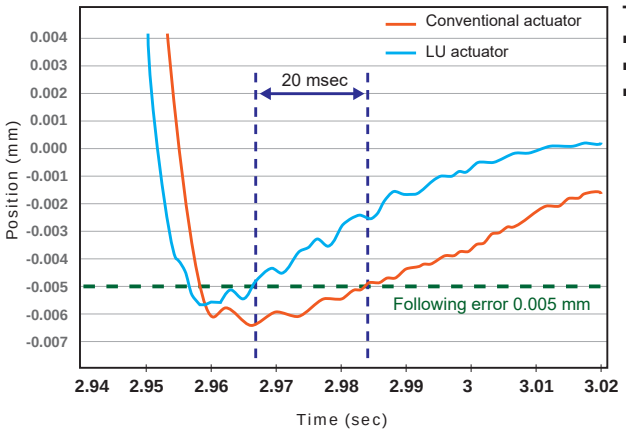


Delta LU Series
(without coupling)



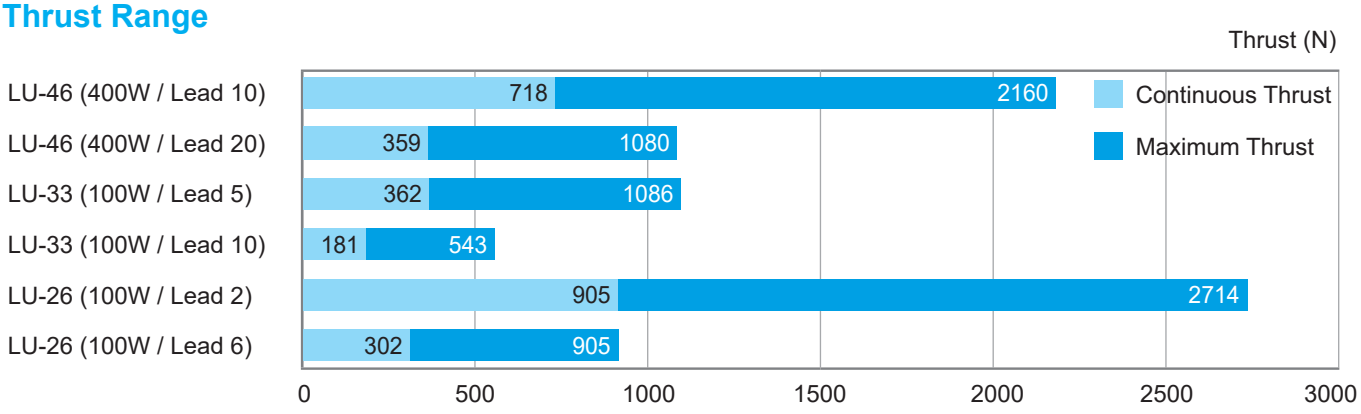
Conventional Linear Stage
(with coupling)

Measured Data by Laser Interferometer



Test condition
- Without load
- Motor speed: 3,000 rpm
- Acceleration time: 50 ms

Thrust Range



Linear Stage

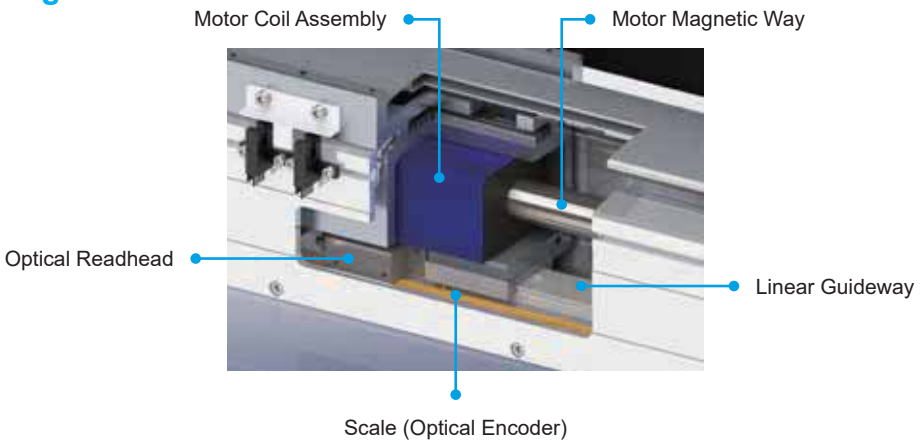
LA-S

High Speed, High Precision Linear Motor Driven Stage
Position Repeatability of ±1um

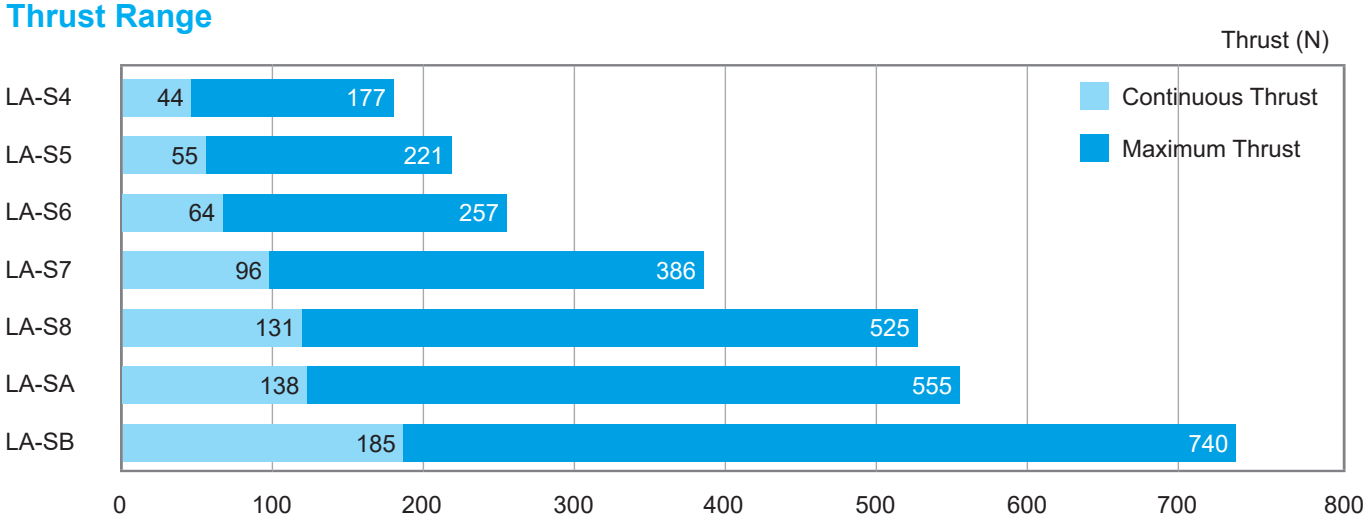


- **Direct drive with zero backlash**
  Directly driven by Delta's linear motor without backlash and alignment issues
- **High speed and high precision**
  - Provide high-precision and high-stability motion operation: high speed capability of up to 4m/s
  - Integrate with linear motor and optical linear encoder for direct drive and preventing backlash and accumulated offsets caused by changing machines
- **Cog-free design with low thrust ripple**
  Use an ironless forcer for zero cogging and low thrust ripple to perform smooth motion, even at low speed
- **Long travel distance with multiple sliders**
  - Good performance on long travel distances (up to 1.5 m) for various positioning applications
  - Single-axis platform supports more than 2 linear motors, creating multiple sliders within one stage unit for efficient space savings and independent operation

Mechanism Design



Thrust Range



High Precision Planetary Gearbox

PS



- **Support all series of Delta servo motors**
- **Provide concentric and right-angle models**
- **High precision**
  - Backlash for concentric 1-stage gearbox is under 3 arcmin
  - Backlash for right angle 1-stage gearbox is under 4 arcmin
- **High input speed**
  Input speed allows for 5,000 RPM
- **High torque**
  Helical gear design offers higher output torque in comparison with spur gearbox
- **High efficiency**
  - Efficiency for 1-stage model exceeds 97%
  - Efficiency for 2-stage model exceeds 94%
- **Low noise**
  Under 65dB
- **Lifetime lubrication**
  Protective class IP65 sealed design avoids leakage problems and requires no maintenance during the product's lifetime

Precision Planetary Gearbox

PA



- **Support all series of Delta servo motors**
- **Provide concentric models**
- **High rigidity and high torque**
  - Employ uncaged needle roller bearings with a set design
  - including ring teeth, gearbox and helical gears for high rigidity and output torque
- **High precision**
  - Backlash for 1-stage gearbox is under 8 arcmin
  - Backlash for 2-stage gearbox is under 12 arcmin
- **High efficiency**
  - Efficiency for 1-stage model exceeds 95%
  - Efficiency for 2-stage model exceeds 92%
- **Low noise**
  - Use helical gears capable of meshing to ensure smooth and quiet operation
- **Lifetime lubrication**
  - Protective class IP65 sealed design avoids leakage problems and requires no maintenance during the product's lifetime

PC-Based Motion Controller (PAC)

MH1 / MH2 New / MP1

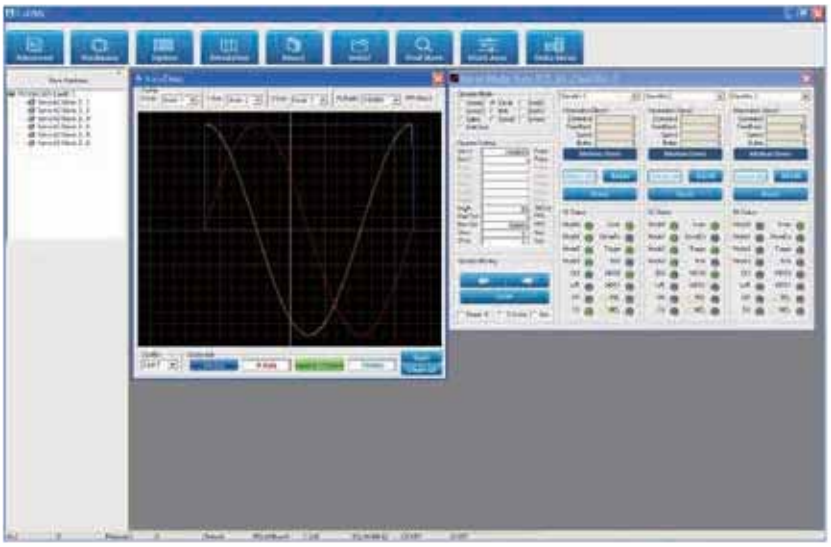
Support DMCNET / EtherCAT fieldbus for various motion control applications



Host PAC MH1 | Host PAC MH2 | Panel PAC MP1

- **Energy Efficiency and Robust Hardware**
  - The MH1 / MH2 Series: cable less, fan-less and low-power consumption design supports stable operation; built-in CFast card, SD card and SSD slots provide fast and stable data transmission
  - The MP1 Series: equipped with a 10.1-inch touchscreen for more flexible operation
- **Multiple Peripheral Interfaces for Communication**
  Equipped with USB ports, serial COM ports, Gbps Ehternet ports and PCI / PCIe extension slots
- **Support Master and Slave Modules**
  Built-in DMCNET and EtherCAT protocols, able to connect and control DMCNET modules and servo axes (max.12 units / 12 axes), and EtherCAT modules and servo axes (max.100 units / 64 axes); DMCNET / EtherCAT extension cards are also available to extend axes and units
- **High Security**
  Customizable IC device for programming security and confidential protection
- **OS and Software Support**
  The MH1 / MH2 Series support real-tme OS (RTE, VxWorks) and general Windows 7 / 10*. Users can choose to program with the built-in Dynamic-link library (DLL), and development tools SoftHMI and SoftPLC

*Please contact customer service if changing to this environment



Motion Control Functions

- Point-to-point position control
- Multi-axis linear interpolation
- Single-axis two-speed motion
- Circular interpolation
- Helical interpolation
- Backlash compensation
- Helix deviation compensation
- Compare
- Table motion
- JOG
- PT / PVT
- Gantry control (EtherCAT)
- E-CAM (EtherCAT)

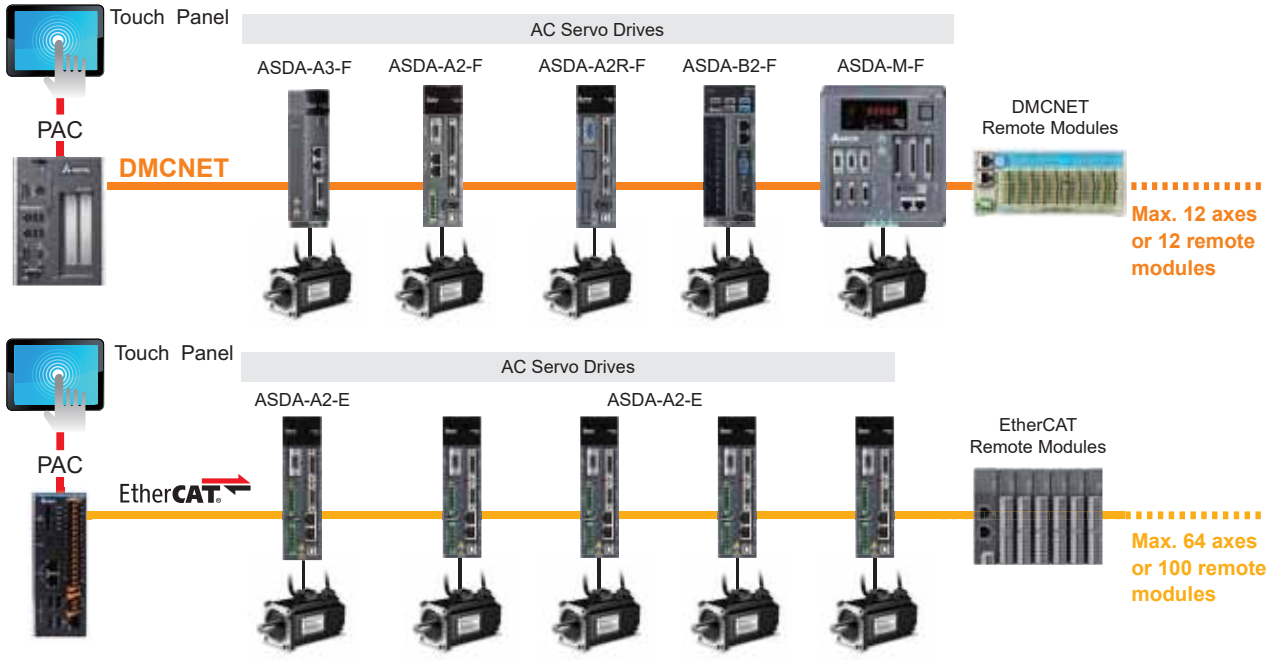
- **Speed Curve Tracing**
  Speed curve tracing function to trace current motion speed and adjust commands
- **Simulation Scope**
  Captures figures of motion commands or real motion tracks with X / Y-axis monitor to simulate motion commands or monitor motion tracks
- **DMCNET / EtherCAT Automation Software**
  The EzDMC / EcNavi development software includes a DMCNET / EtherCAT master controller and slave devices for data communication, functional identification, programming and debugging, providing a fast and easy way for first-timers to understand the solution
- **Motion Control Platform Based on CODESYS New**
  The PC-Based Motion Controller AX864E Series based on CODESYS Series saves development time and cost (available in 2019 Q3)

Applications

Electronics Production: **PCB machines, Automated Optical Inspection (AOI) machines, semi-conductor machines, LED machines, TFT inspection machines, glue-dispensing machines, SMT pick-and-place machines, winding machines, optical lens processing machines, glass grinding machines**

Woodworking: **CNC drilling machines, woodwork cutting machines, board slitting machines, mortise & tenon machine, solid wood door machine**

Other: **Pipe-bending machine**



Centralized Slave Modules

- **Gateway Type E-BUS Remote Power Couplers**
  R1-EC5500D0 / R1-EC5512D0
  Connect to digital I/O, analog I/O and pulse I/O extension modules



With E-BUS power module

- **16 Digital Input Remote Modules**
  R1-EC6002D0 / R1-EC6022D0
  Provides digital IN signals remote control for EtherCAT master



- **1-Channel Pulse Remote Module**
  R1-EC5621D0
  Connects to digital I/O, analog I/O, pulse I/O and MPG signal extension modules with EtherCAT master



- **4-Channel Analog Input Remote Module**
  R1-EC8124D0
  Provides analog IN signals remote control for EtherCAT master



- **16 Digital Output Remote Modules**
  R1-EC7062D0 / R1-EC70A2D0 / R1-EC70E2D0 / R1-EC70F2D0
  Provides digital OUT signals remote control for EtherCAT master



- **MPG Module**
  R1-EC5614D0
  Receives Manual Pulse Generator (MPG) signals remotely for EtherCAT master



- **4-Channel Analog Output Remote Module**
  R1-EC9144D0
  Provides analog OUT signals remote control for EtherCAT master



Delta High-Speed Motion Control System

DMCNET



Delta's Motion Control NETwork (DMCNET) is a high speed, real-time communication system.

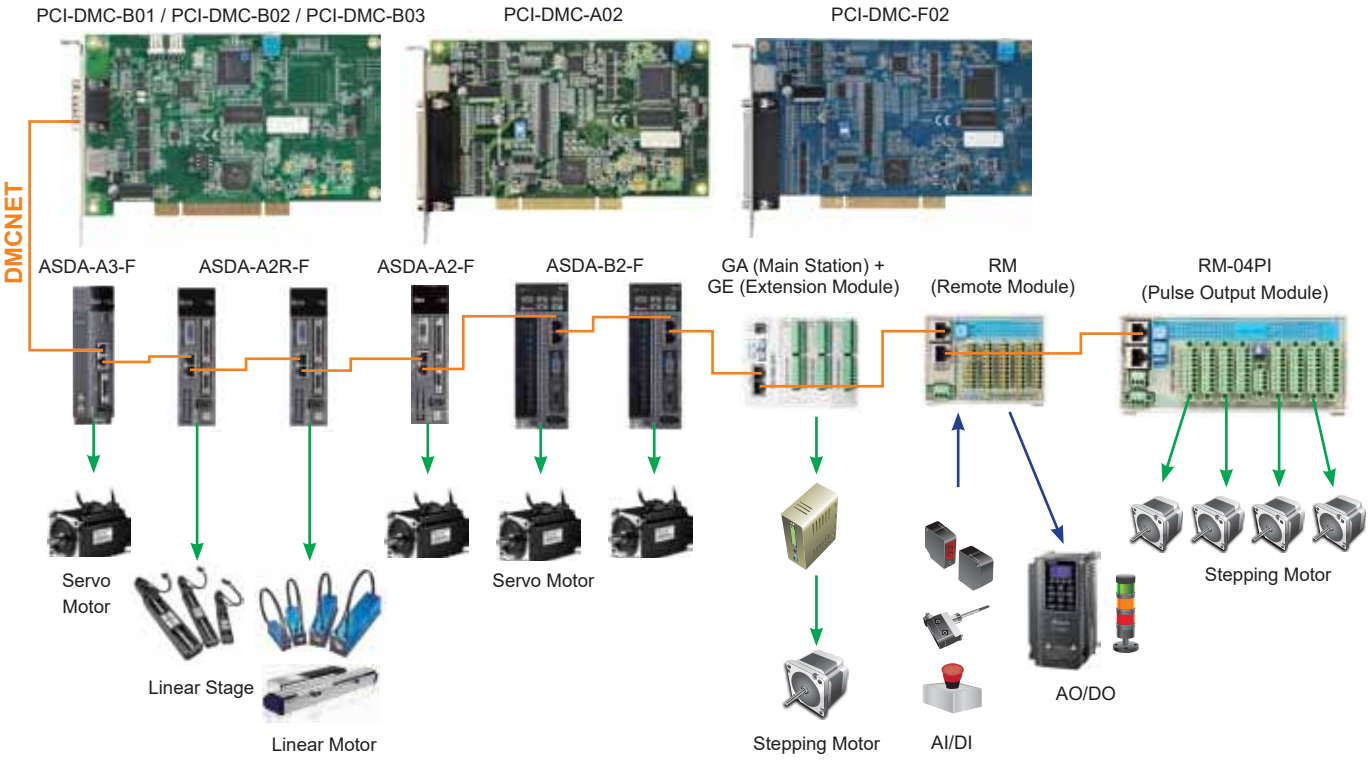
- Up to 12 axes servo control with-in 1ms simultaneously; with 3-axis helical and linear interpolation divided into 4 groups, or 2-axis linear and arc interpolation divided into 6 groups
- Support 64-bit dual-precision floating point, allowing high-precision system calculations and flexible operation
- Support absolute commands, incremental commands and T-curve / S-curve velocity profiles
- Built-in 35 homing modes
- Built-in position, speed and torque control modes; able to receive real-time servo information / parameters or change control modes via communication command, offering fast communication and motion control for various applications

The DMCNET is equipped with the high-speed and reliable one-wire DMCNET communication protocol for diverse motion control applications. Adapted for customer's needs, Delta's PCI motion control cards are available in three series:

- 12-axis PCI-DMC-A02
- 6-axis PCI-DMC-F02 with digital I/O interfaces
- PCI-DMC-B01/PCI-DMC-B02/PIC-DMC-B03 with pulse compare & capture functions

All series are able to connect to multiple servo systems, such as the advanced ASDA-A3-F Series, high performance ASDA-A2-F Series, and standard ASDA-B2-F Series, as well as ASDA-A2R Series with linear motors. The DMCNET establishes a total motion control solution enabling lower system cost and superior performance to increase end-product value and competitiveness.

DMCNET System Configuration



Applications

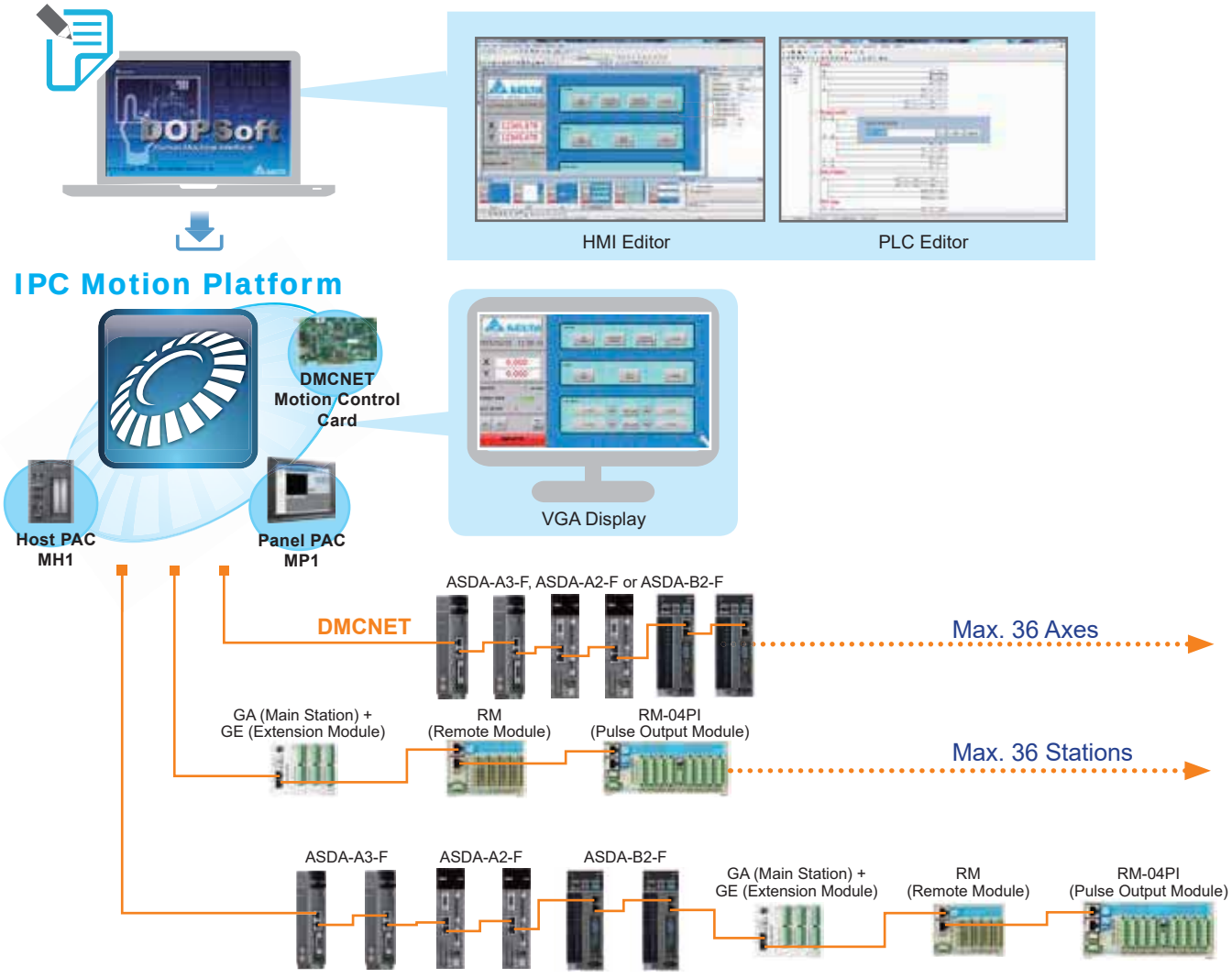
Integrated electronics applications, glue dispensing machines, woodworking machines, pipe bending machines

IPC Motion Platform (IMP1.5)

A Simple and Fast Setup Development Platform for Realizing Unsurpassed Motion Control

High-speed, flexible and scalable development platform which combines powerful motion control functions and integrates Delta's HMI editing and PLC logic programming software tools to achieve complex and precise motion control based on customers' requirements

- **Power Motion Control Core:** Upgrades Delta's PAC or PC with a motion control card to become a high-speed communication motion controller with HMI and PLC functions
- **Simple Secondary Development Platform:** Combines with Delta's standard HMI editor DOPSoft and PLC editor WPLSoft in one platform to simplify programming and IMP project development
- **Scalable Communication for Expandable Network:** Through PCI extension slots, three DMCNET communication networks with up to 36 stations can be established; it is able to control 36 axes of servo motors simultaneously without connecting to any remote modules
- **Industry-Oriented Controller:** Provides Soft Numeric Control (SNC) and Motion Program Macro (MPM) to adjust and modify self-defined motion paths and commands according to application requirement changes
- **Standard Communication Interfaces:** Built-in Modbus and Modbus TCP gateways enable convenient data transmission between machines



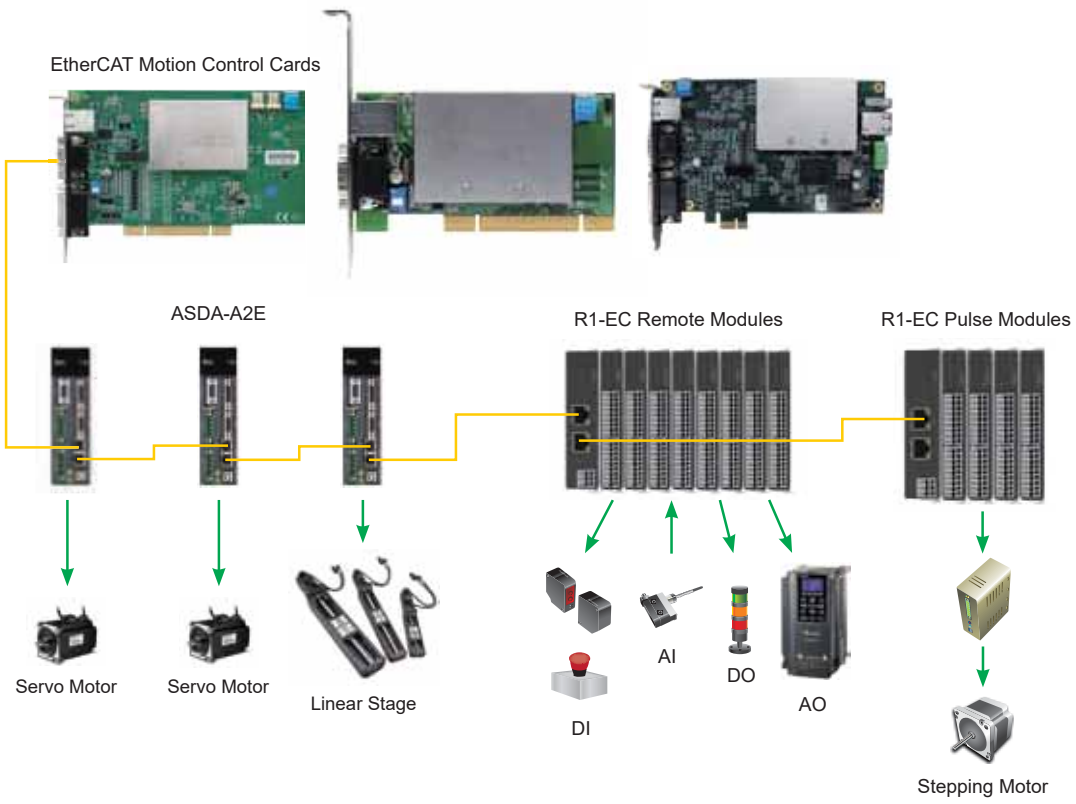
EtherCAT High-Speed Motion Control System



EtherCAT Motion Control Products (Ethernet Control Automation Technology) is an open Ethernet-based fieldbus system that provides high-efficiency and high-performance synchronization quality for automation control.Delta's EtherCAT motion control cards feature:

- PCI-L221-XXD0 and PCIE-L221-B1D0 motion control cards provide complete functions for EtherCAT masters and support device descriptions in XML format (EtherCAT Slave Information-ESI), allowing quick identification of ESI files and offering the capability of real-time connection via EtherCAT for high level integration
- High-speed motion control of up to 64 slave stations, including 32 servo axes within 1ms cycle time
- Communication cycle time between stations: within 1 ms to 0.5 ms based on customer needs
- Motion control functions: 35 homing modes, point-to-point position control, 2-axis/3-axis interpolation, multi-axis synchronization, continuous motion control, gantry control, speed control, torque control and more

EtherCAT System Configuration



Applications

Integrated electronics applications, glue dispensing machines, woodworking machines, pipe bending machines

IPC Motion Platform (IMP1.5)

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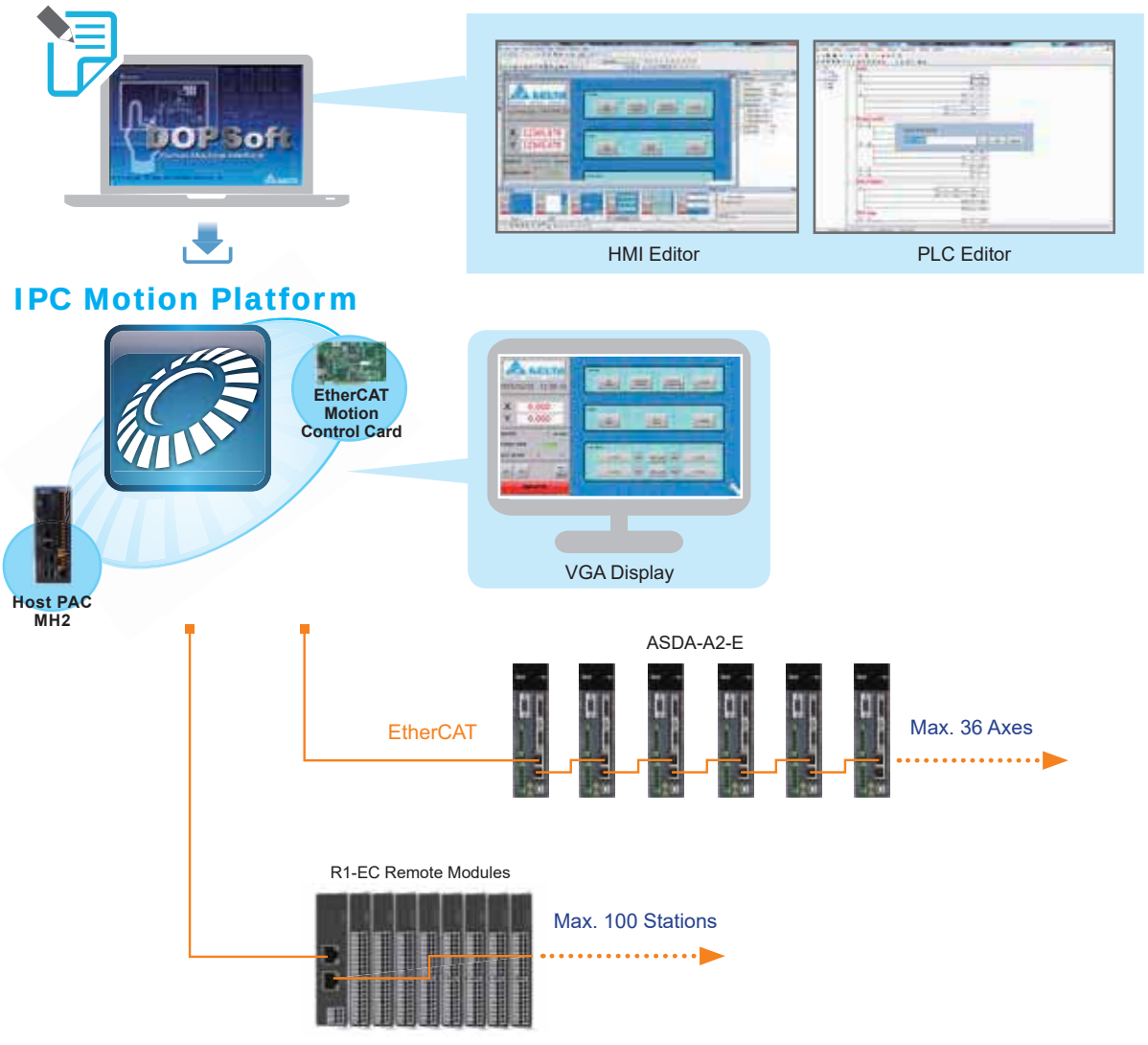
- **Simple Secondary Development Platform:** Combines with Delta's standard HMI editor DOPSoft and PLC editor WPLSoft in one platform to simplify programming and IMP project development
- **Scalable Communication for Expandable Network:** The EtherCAT fieldbus system with IMP is able to connect max. 100 stations and control max. 64 axes of servo motors
- **Industry-Oriented Controller:** Provides Soft Numeric Control (SNC) and Motion Program Macro (MPM) to adjust and modify self-defined motion paths and commands according to application requirement changes
- **Standard Communication Interfaces:** Built-in Modbus and Modbus TCP gateways enable convenient data transmission between machines

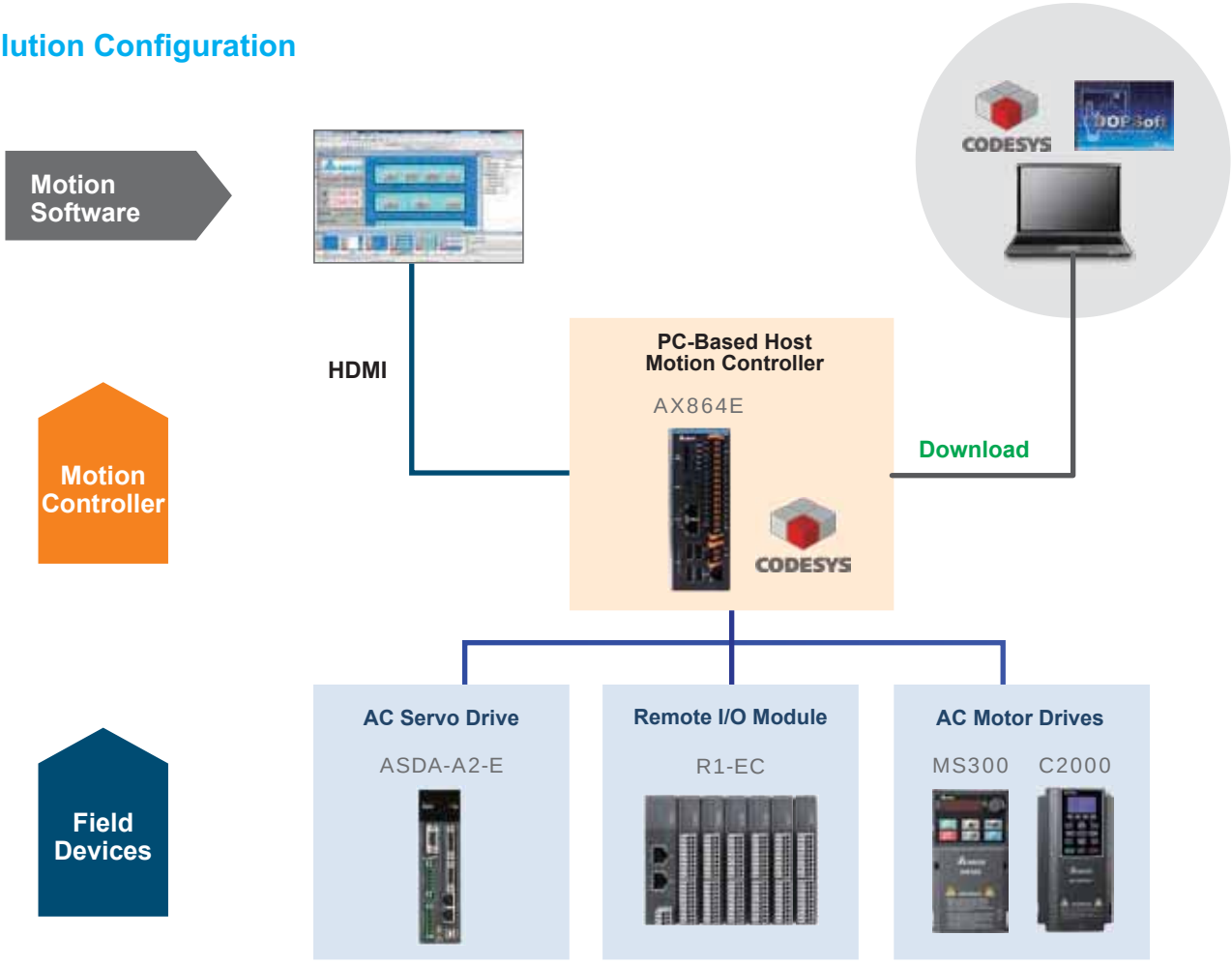


CODESYS SoftPLC Platform

CODESYS is an IEC 61131-3 compliant SoftPLC development system, supporting SoftHMI and PLC programming software to develop. Delta's PC-Based motion controller based on CODESYS offers complete functionalities of a development tool, including:

- **Programming based on CODESYS:** Equipped in the PC-Based Motion Controller AX864E Series for real-time motion commands via RTE real-time OS and EtherCAT communications
- **PLCopen Standard Motion Control:** Single and multi-axis motion control with standard PLCopen Motion POUs
- **E-CAM:** Synchronized E-CAM function and graphic CAM curve editing surface; each cam supports 65,535 points
- **Standard IEC 61131-3 Programming Languages:** Supports IL, ST, LD, FBD, SFC standard programming languages
- **Debugging Mode:** Displays application data in simulation mode on SoftPLC, reading/writing/forced setting of variable values directly in the respective editor, monitoring specific selected values in watchlists and single step code execution
- **Servo Axes Control:** Up to 64 axes servo control within 1ms communication cycle

Solution Configuration



Open CNC Solution

NC E

Open-structured CNC Control System for Customization and Flexibility



Solution 1: Standard

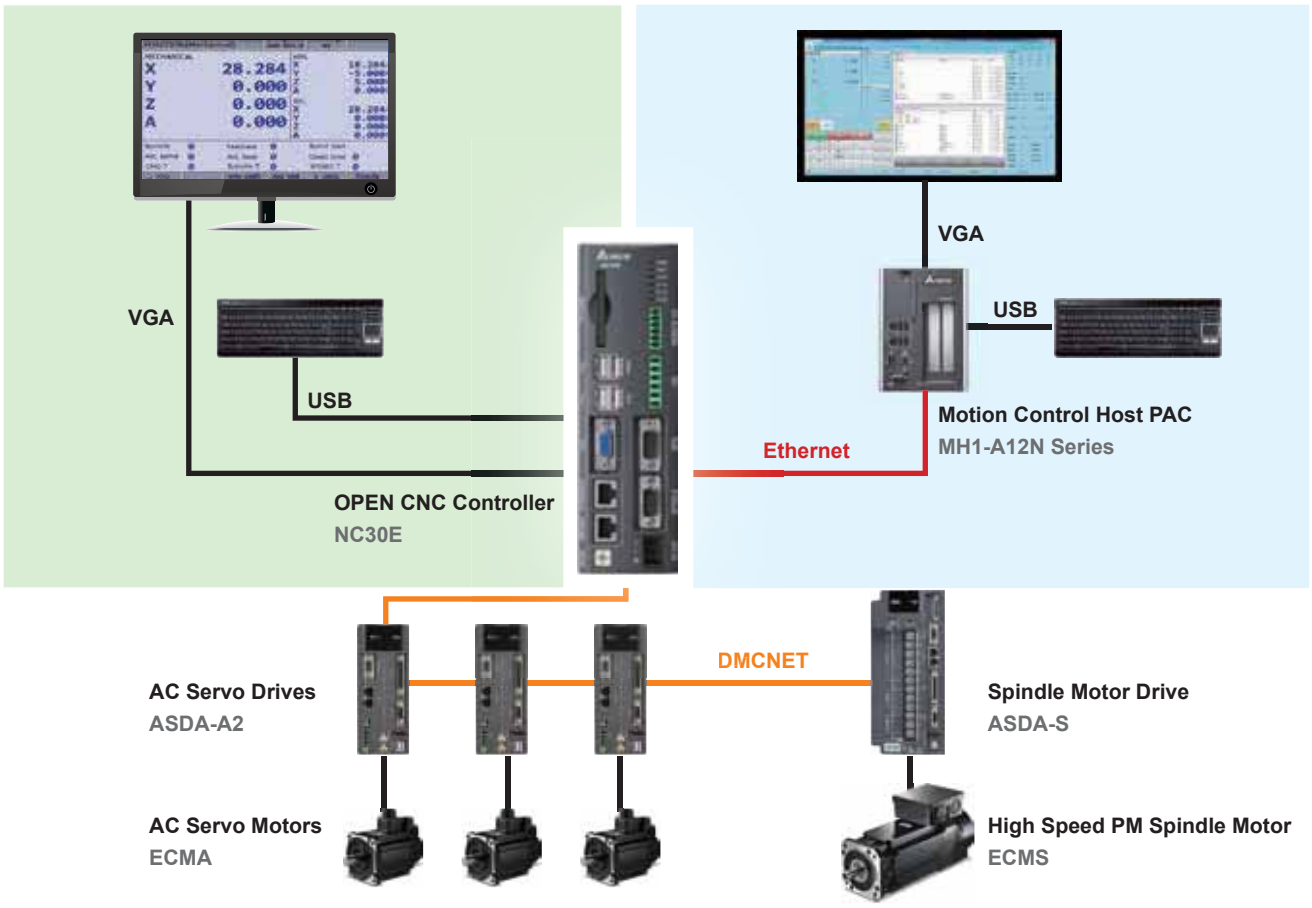
VGA output for external display with Delta's standard interface

- Two-language CNC operation interface (Chinese, English)
- Embedded control system provides high efficiency
- Allow easy customization with accessories including a monitor and a keyboard
- Support DMCNET communication for easy wiring and excellent synchronous multi-axis control

Solution 2: Function-Oriented

Match with panels or other products based on applications

- API platform and template are provided for users to self-define the HMI functions
- Easy integration with third party software via IPC
- Reduce additional hardware cost for customers to focus more on software upgrades and better integration for higher operation performance



Applications

Customized CNC systems, woodworking machines, lathes, grinding machings, glass cutting machines, soldering machines, rim engraving, milling machines, industrial robots

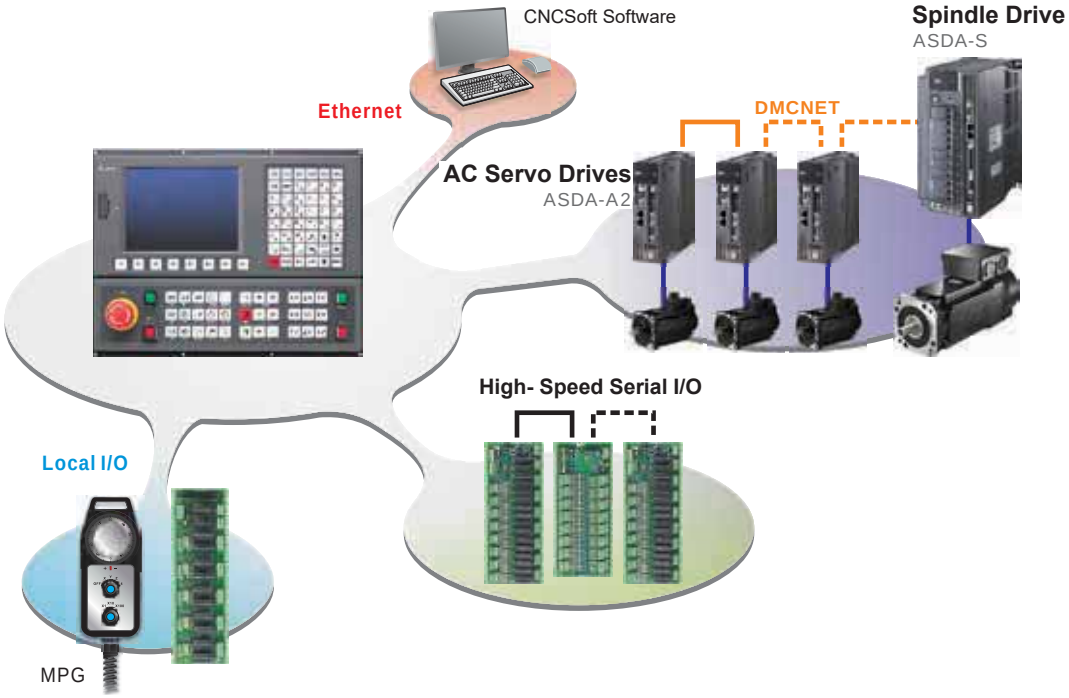
CNC Solution

Integrated Total Solution for the CNC Machine Tools Industry



- Built-in 32-bit high speed and high processing dual CPU to construct a real-time and multi-functional control center
- High-quality digital data transmission when matched with Delta's high-speed servo and spindle systems
- Auto-gain tuning allows automatic servo system parameter settings to achieve easy and real-time optimum control
- CNCSoft software offers user-friendly setup and user-defined operation to build customized interface
- Capable of connecting serial digital I/O modules to greatly improve the extension capacity

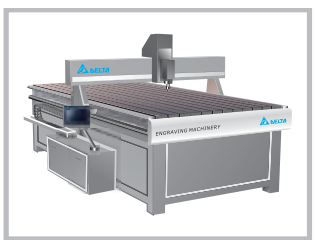
System Configuration



Applications



CNC Machining Center/
High-speed Tapping Machine



Engraving Machine



CNC Gantry Control Machine



CNC Woodworking Machine

Robot Controller with Servo Drive Integrated

ASDA-MS

An Innovative and Comprehensive Development Platform for Robot Control



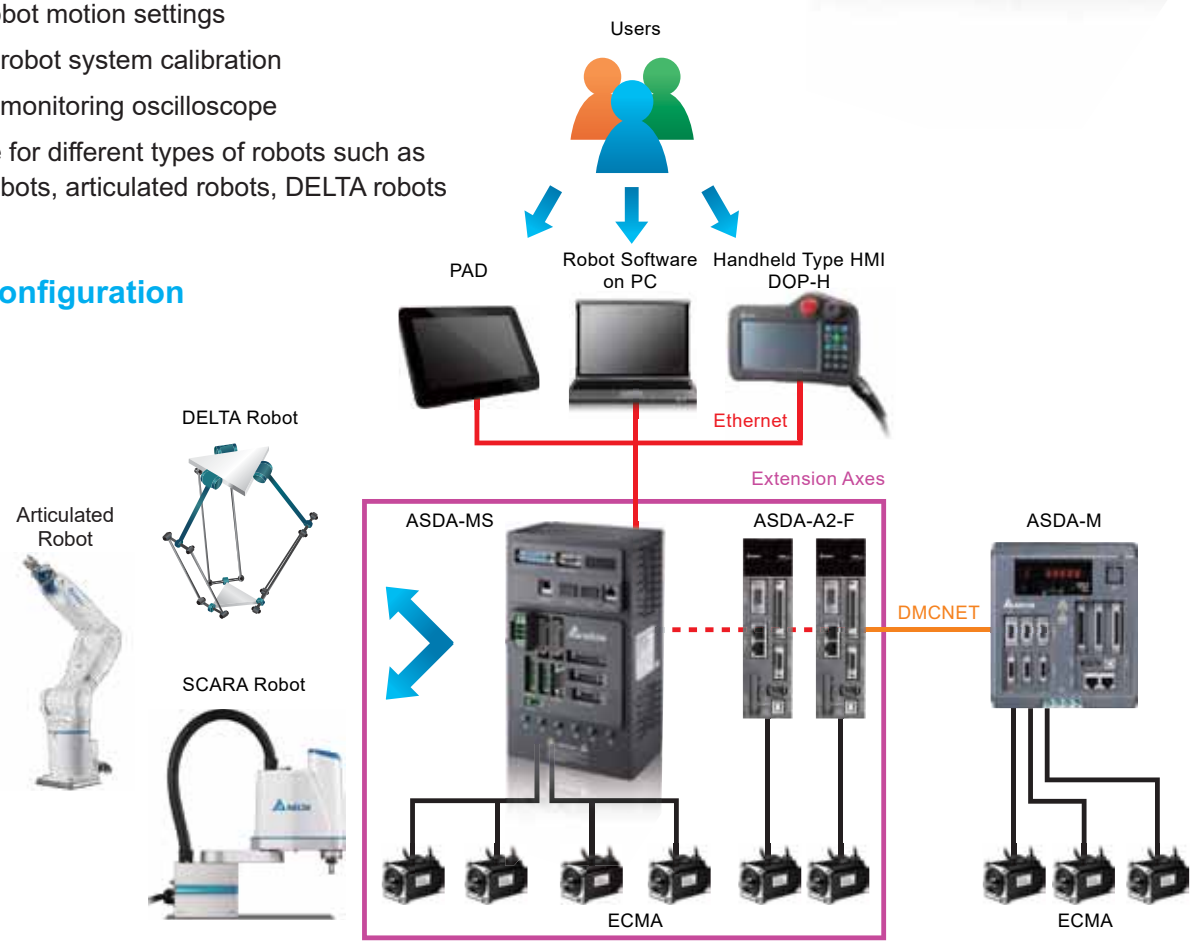
Complete Robot Solution

- Integrated servo drive and controller in one single unit for real-time motion control with high flexibility and reliability
- Various communication protocols
- Built-in with diverse robot control modules
- Up to 10 axes motion control: 4-axis robot + 6 external axes
- Support 5 kinds of programming languages with IEC 61131-3 standard and the PLCopen motion function block
- Offer DRL Languages for robot application programming
- Support G-code programming

User-Friendly Robot Software

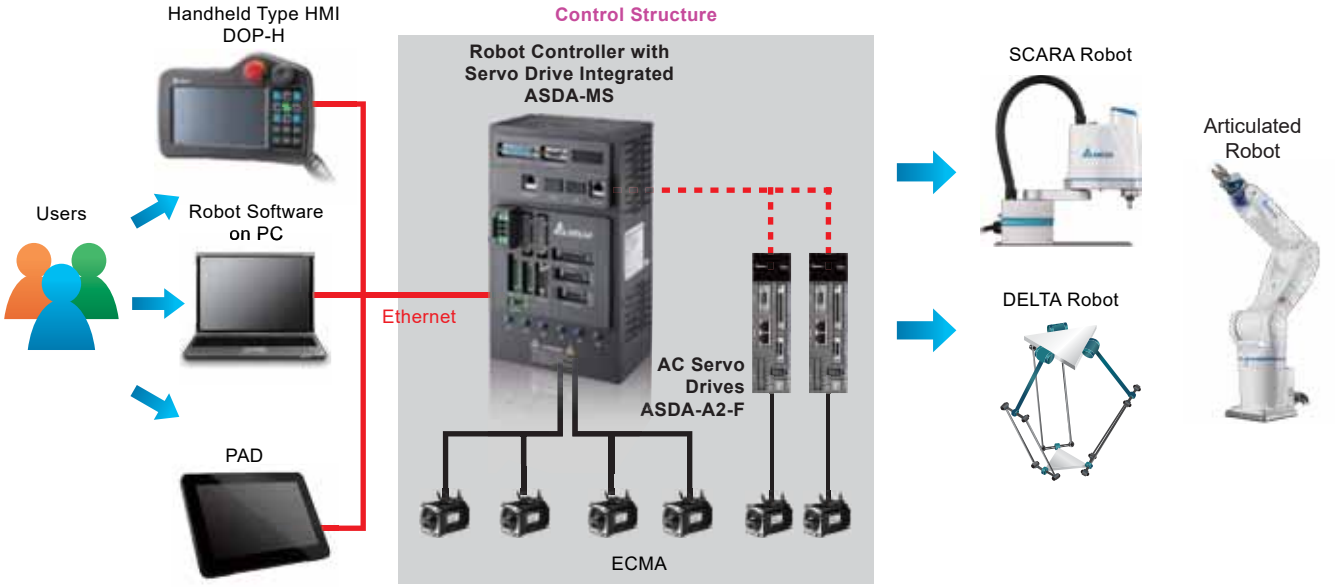
- IEC61131-3 PLC programming
- DRL programming
- Multiple robot motion settings
- Intelligent robot system calibration
- Real-time monitoring oscilloscope
- Applicable for different types of robots such as SCARA robots, articulated robots, DELTA robots and more

System Configuration



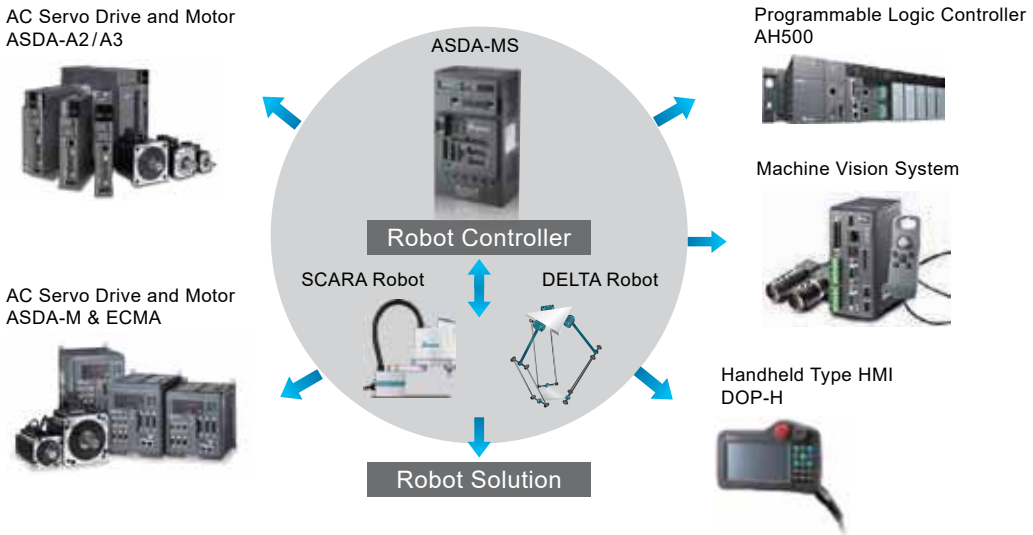
All-in-One Robot Controller

- Integrates motion controller, robot controller and 4 servo drives into one single unit to speed up data transmission, enhance system control performance and dynamically compensate non-linear terms that affect robot motion during robot moving processes, meeting the requirements of high speed and high precision for robot or motion control applications
- Provides a variety of tools for implementing required functions and supports different types of robots such as the 4-axis SCARA robot, the Linear DELTA, DELTA robot, and the 2 axes extension via DMCNET for 6-axis articulated robot to meet diverse requirements with flexibility and reliability



Comprehensive Development Platform

- Provides a comprehensive development platform for customers to design their specific applications, enhancing value-added secondary development and efficiency of various manufacturing techniques
- Integrates with Delta's industrial automation products and related robot peripheral devices to create a complete robotic automation solution, meeting the requirements for both single robot and robot workstation applications



Applications

Industries: Consumer electronics, electrical/electronics, rubber and plastics, packaging, metal fabrication

Processing: Insertion, screw driving, assembly, glue dispensing, soldering, loading/unloading, stacking, inspection

Controller with Human Machine Interface

HMC

Optimum Combination of Controller and Display

7-inch Controller with Widescreen Handheld HMI

HMC07-N411H5C5(A)

- 7" 16:9 widescreen 65,536 colors TFT
- Display Resolution: 800 x 480 pixels
- Built-in PLC functions
- Built-in emergency stop switch
- Built-in enable switch (rear side)
- Optional MPG (Manual Pulse Generator)
- Supports SDHC card
- Supports DMCNET
- Compact and lightweight 750g design



7-inch Controller with Handheld HMI

HMC08-N500S52

- 7" 65,536 colors TFT
- Display Resolution: 800 x 600 pixels
- Built-in PLC functions
- RS-422 high-speed remote I/O connection
- Supports Ethernet
- Supports DMCNET
- Supports SDHC card
- Supports audio output: MP3, Wav files
- USB Host for direct connection to USB disk, printer, mouse and keypad



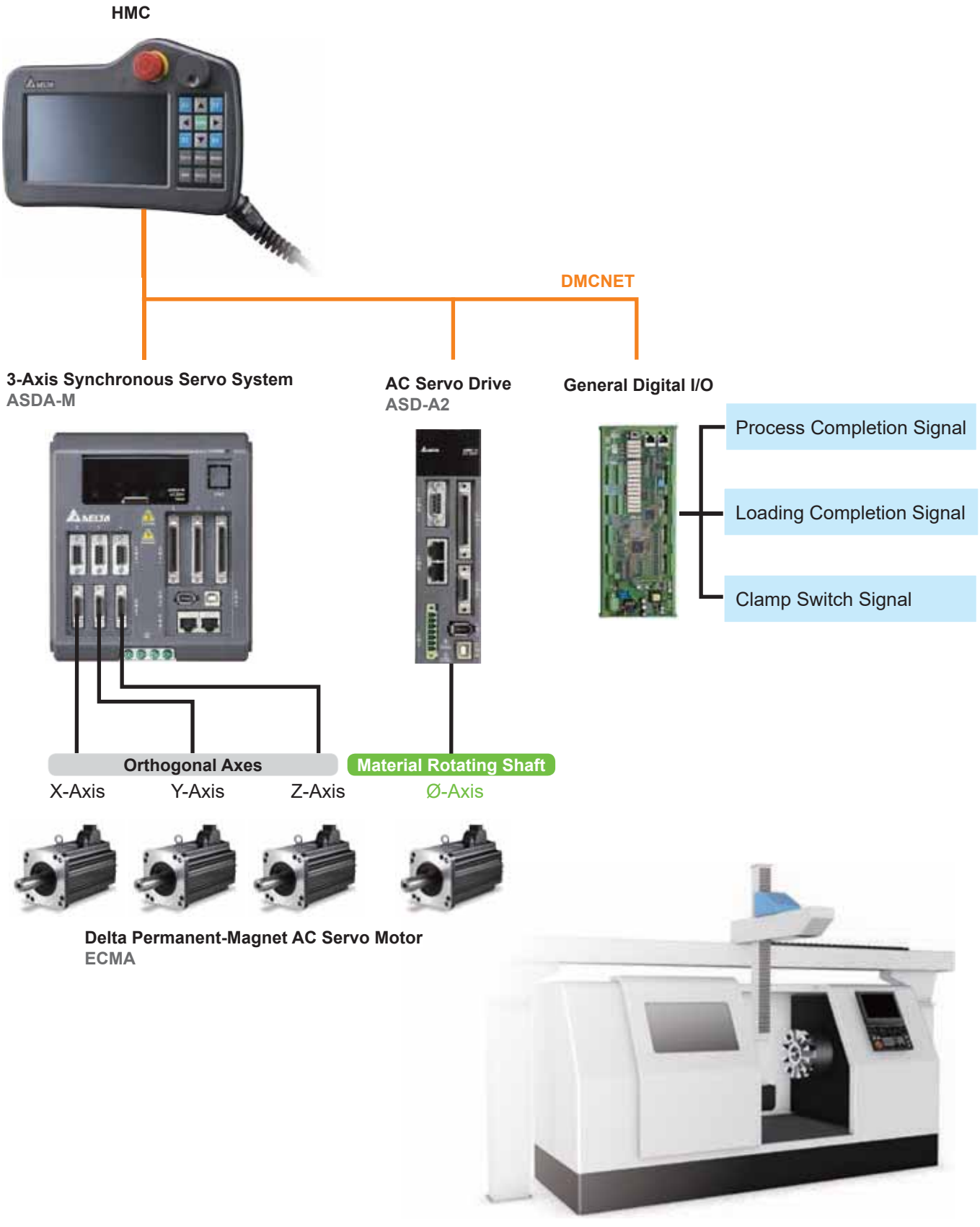
8-inch Controller with HMI

HMC08-N500S52

- 8" 65,536 colors TFT
- Display Resolution: 800 x 600 pixels
- Built-in PLC functions
- RS-422 high-speed remote I/O connection
- Supports MPG (Manual Pulse Generator) Input
- Supports Ethernet
- Supports DMCNET
- Supports SDHC card
- Supports audio output: MP3, Wav files



Robotic Loading / Unloading Control for Machine Tools



Hot Swappable Mid-range PLC

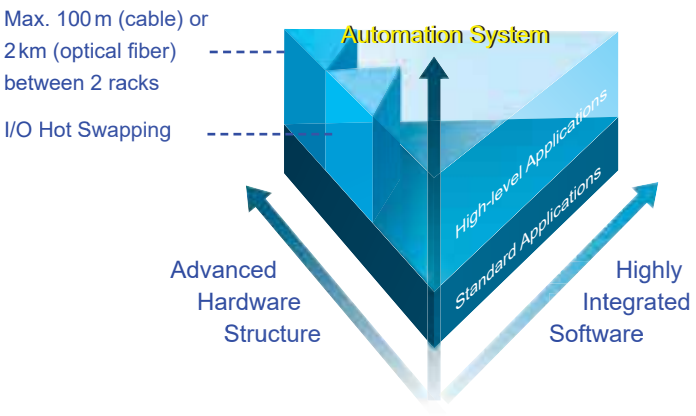
AH

The Smart Solution for High-end Machinery and System Integration



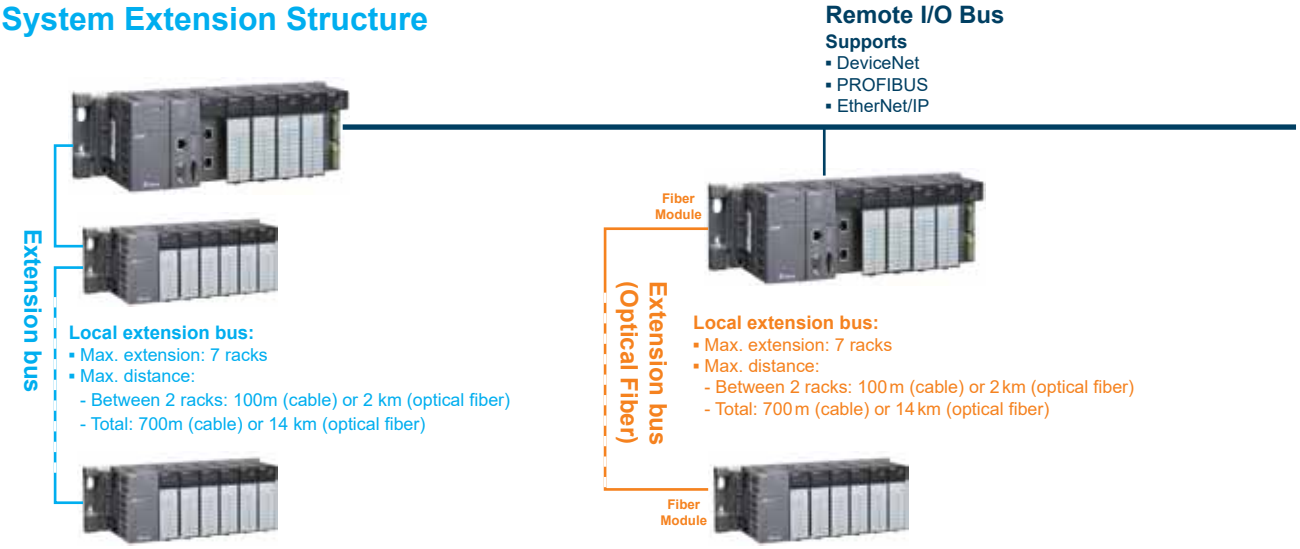
- 32-bit dual-core multitasking processor
- Excellent program execution speed: LD: 20ns
- Max. I/O:
  - DIO: Max. 4,352 points
  - AIO: Max. 544 channels
  - RIO: Max. 125,440 digital points / 3,920 analog channels
- Program capacity: Max. 1M steps (4 MB)
- Data register (D+L): 512k words
- CPU with built-in fully isolated RS-232 / 422 / 485 ports, Mini USB port, Ethernet port and SDHC card slot (compatible with the memory cards on the market)
- Abundant selection of AIO modules, DIO modules, temperature modules, network modules, pulse-train and DMCNET motion control modules

Modularized Hardware Structure and Highly Integrated Software



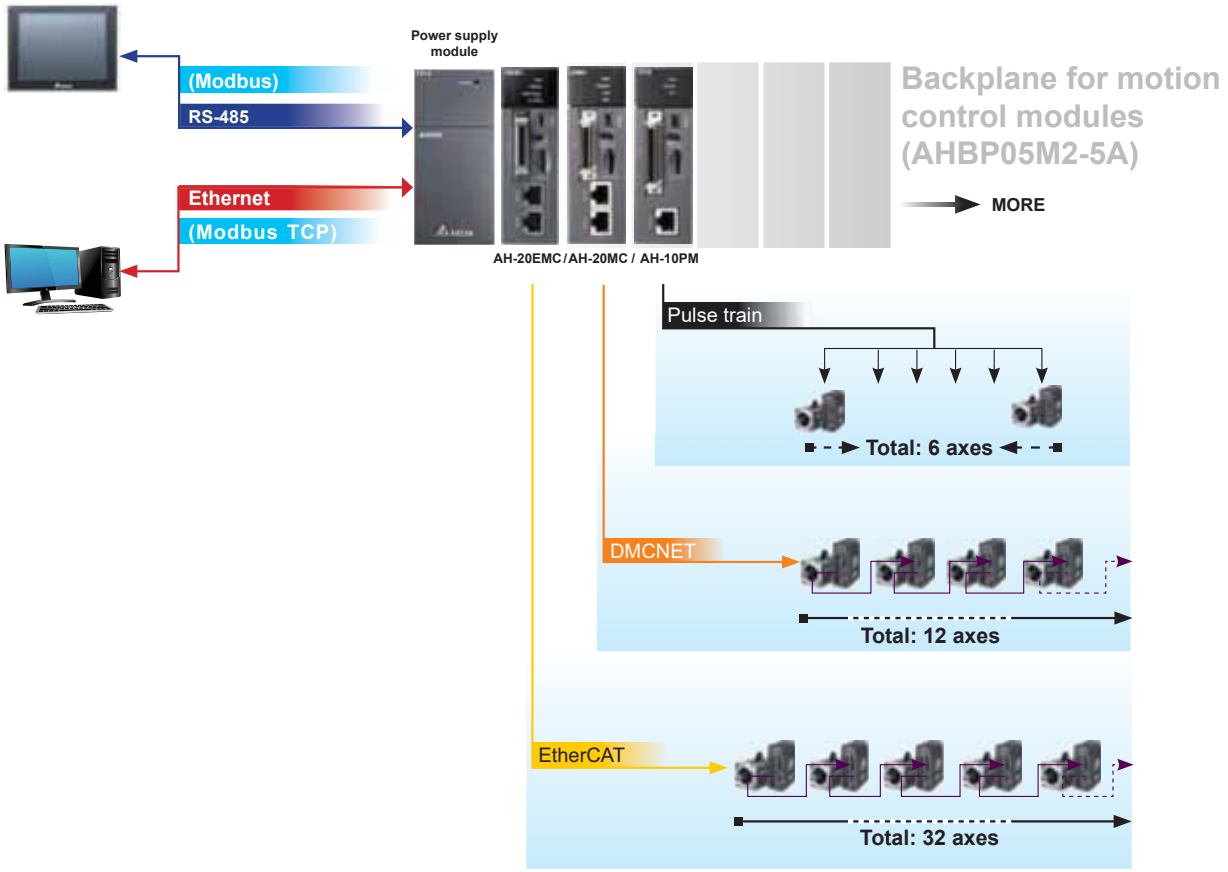
- Highly integrated programming software ISPSoft: Graphical interface with 5 programming languages
- Enhanced flexibility: Max. 100 m (cable) or 2 km (optical fiber) between 2 local extension racks
- Redundant system and hot-swapping function ensure non-stop system operation for improved maintainability

System Extension Structure



Motion Control Structure

Example: AH20EMC



Applications

High-end industrial equipment: textile machines, packaging machines, injection and molding machines, electronics equipment, printing machines, paper making machines, warehousing management systems, and logistics management systems

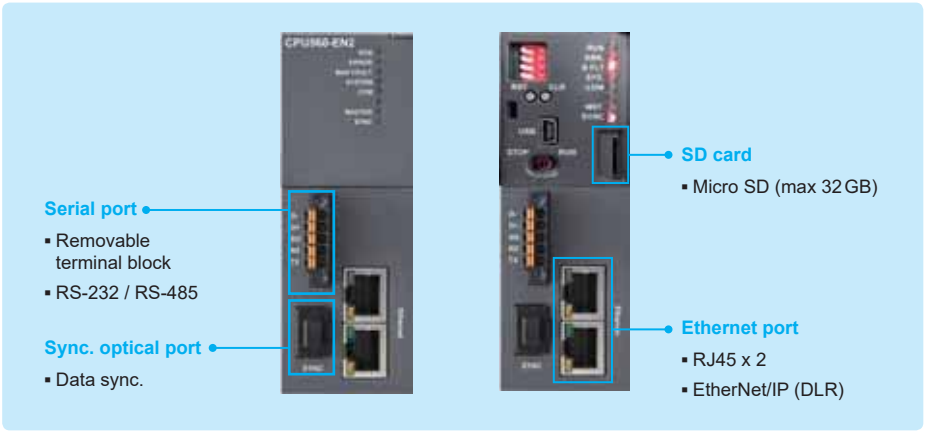
System integration applications: water treatment, HVAC system, traffic monitoring system

Redundant CPU

The redundant CPU of the AH Series adopts a reliable redundancy structure, and integrates synchronous modules, Ethernet ports and serial communication interfaces for a more competitive control solution.

AHCPU560-EN2





Redundant Backplane

The redundant backplane of the AH Series provides redundant power supply and communciation interfaces for a complete control solution.

Redundant main backplane: AHBP04MR1-5A (4-slot)



Redundant expansion backplane: AHBP06ER1-5A (6-slot), AHBP08ER1-5A (8-slot)



Redundant System

Full Redundancy Structure

Redundant CPU	Redundant main backplane	Redundant power	Redundant ext. ports	Ring topology

Modules

Main backplane	Expansion backplane	RTU rack
▪ Ethernet module - AH10EN-5A (V3) ▪ Serial module - AH10SCM-5A (V3)	▪ DIO ▪ AIO (includes temperature modules) ▪ Serial modules - AH10SCM-5A, AH15SCM-5A	▪ DIO ▪ AIO (include temperature modules)

Tasks

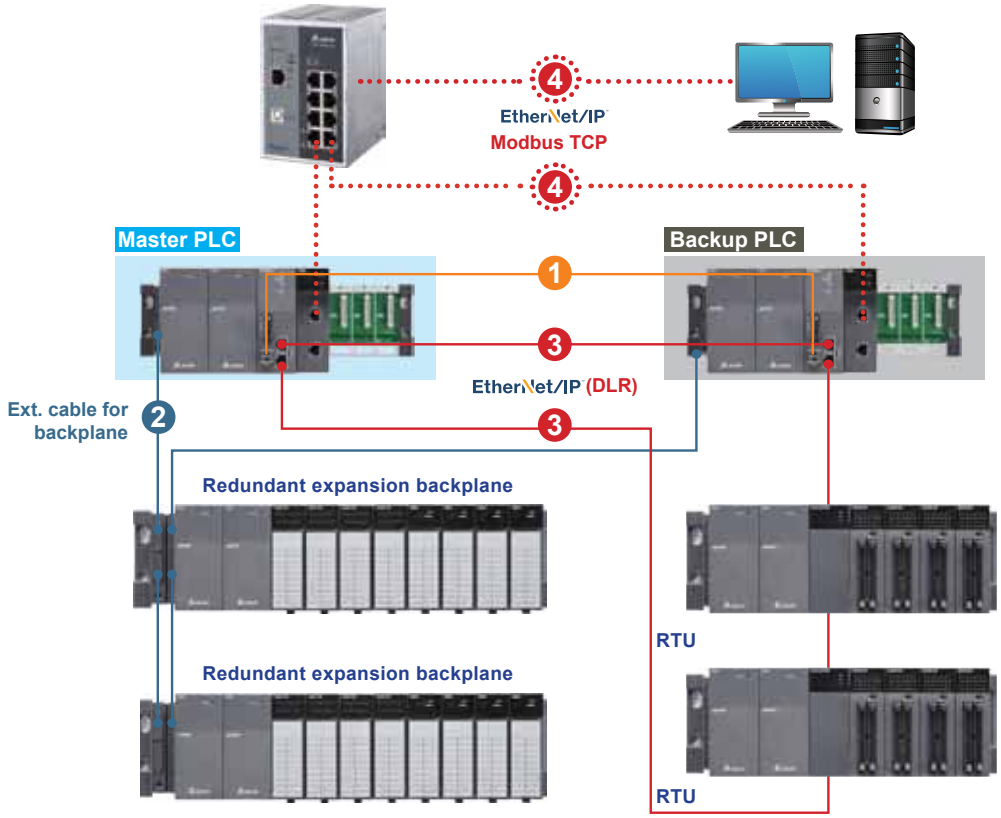
Cyclic	Timer interrupt

CPU built-in sync. module

CPU switch-over time: 20 ms

RTU nodes to support expansion backplanes

Standard backplanes available (under some conditions)



1 Sync. optical fiber 2 Ext. cable for backplane 3 EtherNet/IP ring topology (DLR) 4 Star topology EtherNet/IP, Modbus TCP

Compact Modular Mid-range PLC

AS

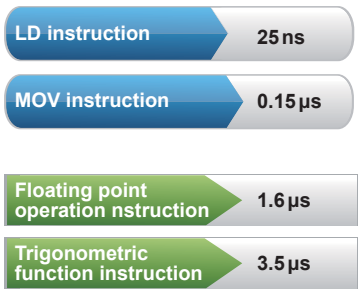
Flexible, Smart, Friendly - The Best Choice for Automated Equipment Control



- Max. I/O: 1,024 points
- Program capacity: 128 k steps
- Data register: 60k words
- Max. extension ability: 32 modules
- 32-bit SoC (System on Chip) CPU for high-performance and high-speed computing
- CPU with built-in RS-485 port*2, mini USB port, Ethernet port, and Micro SD card slot
- Max. 8 axes control via CANopen motion network / max. 6 axes control via pulse control (200 kHz)
- Robust rackless design and patented DIN rail clips for direct plug-in / plug-out module installation and replacement
- Various modules for selection: digital I/O modules, analog I/O modules, load cell modules, temperature measurement modules, serial communication modules, industrial bus modules
- PLC programming software (ISPSoft) for program editing, hardware and network configuration, system diagnosis and axes positioning control

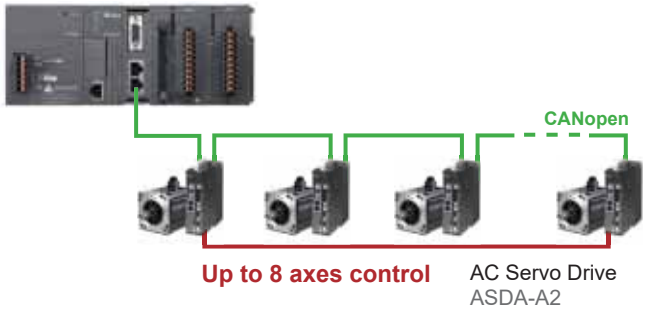
Advanced CPU Performance

High speed execution: up to 40k steps / ms (Condition: 40% LD instruction / 60% MOV instruction)



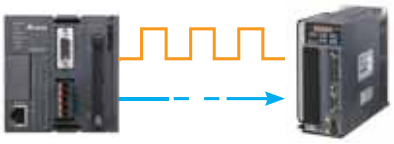
Positioning Control - Delta's CANopen Control

- Up to 8-axis CANopen positioning control with AS-FCOPM communication card
- Fast positioning configuration in one initialization instruction without building CANopen data exchange table
- Batch download of programmable servo drive parameters to avoid data loss
- Axis control by instructions to enhance the legibility and maintainability of PLC programs



Positioning Control - High-speed Pulse

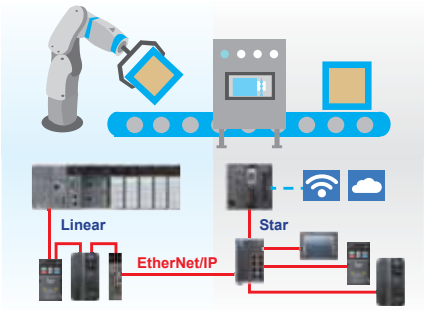
- AS332T-A / AS332P-A transistor CPU: 6 axes (or 12 channels) 200 kHz
- AS324MT-A differential CPU: 2 axes 4 MHz + 4 axes 200 kHz
- Positioning planning table for fast positioning planning and path simulation
- Choose any given 2 axes for linear and arc interpolation



AC Servo Drive
ASDA-B2

Flexible Network System Configuration

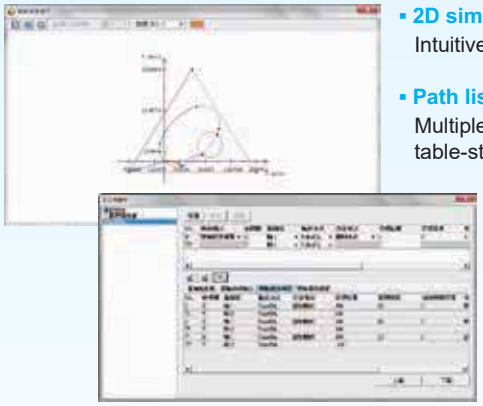
- Supports star, linear network topology for fast expansion and management on production lines
- Compatible with IT network; no independent network or IT technician required
- Combines with Delta's industrial Ethernet solutions to construct IoT for more automation application and industrial upgrades



New Programming Software

Various, Convenient Software Wizards for Effortless Planning

Positioning Planning Table



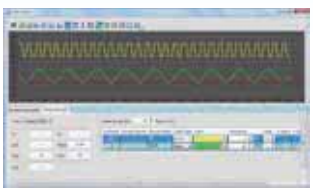
- **2D simulation**
  Intuitive 2D track simulation without complicated calculation for real-time path planning
- **Path list**
  Multiple combination for positioning modes and tracks; and fast path planning via table-structured planning
- **Axis parameter setting**
  Intuitive configuration interface for easy axis parameter setting without manual reference

Complete Diagnosis Tools for Quick and Effective System Monitoring

Data Logger / Tracer

- **Real-time monitoring:**
  High-speed tracer for fast sampling within 1 scanning cycle
- **Stable logging:**
  Long-time data logger saves up to 32,768 data records, able to be transferred to SD cards
- **Precise data capture:**
  Supports a variety of sampling intervals, trigger modes, software settings, and hardware execution
- **Convenient comparison:**
  Multiple data logs in various data formats can be recorded at the same time
- **Efficient data analysis:**
  Supports trend display, scaling, arrangement, merge and measurement

Real-time
Stable
Precise



Applications

High-end equipment for electronics manufacturing, machinery processing, food packaging and other industries

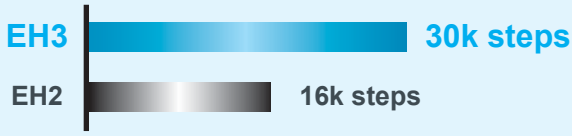
High Performance PLC

DVP-EH3

Excellent for OEM Monitoring Solutions

High-end model of Delta's DVP-E Series PLC with large program capacity and data registers for demanding and complex applications

Program capacity



Data register



Excellent Motion Control



- High-speed pulse output: max. 4 axes of 200 kHz pulse output (DVP40/48/64/80EH00T3)
- Supports max. 4 hardware 200 kHz high-speed counters
- Various motion control instructions to achieve high-speed and high-precision positioning control for labeling machines, packaging machines, printing machines and more applications
- Linear / arc interpolation motion control function
- Up to 16 external interrupt pointers

Complete Program Protection

- Auto backup function prevents program and data loss even when the battery runs out
- Secondary backup function saves an extra copy of programs and data to enhance program safety
- Up to 4-level password protection protects your source programs and intellectual property

Function Cards

- **For RS-232/RS-422 Communication (COM3 Port, DVP-EH3 Series PLC only)**

DVP-F232 

DVP-F422 

DVP-F485 

- **For Ethernet Communication**

DVP-FEN01 

- **Analog Input/Output**

DVP-F2AD
DVP-F2DA 

Standard PLC / Analog I/O PLC

DVP-ES2/EX2

Comprehensive Functions for General Applications

Standard PLCs with integrated communication and highly efficient processing ability for your control systems

- Standard PLC DVP-ES2 Series:
  - 16/20/24/32/40/60/80 I/O points for a variety of applications
  - No battery required; RTC function operates for at least one week after power off (hardware version 2.0 or above)
  - DVP32ES2-C model with built-in CANopen (Baud: 1 Mbps)
- Analog I/O PLC DVP-EX2 Series:
  DVP-20EX2 model:
  - Built-in 12-bit 4 analog inputs / 2 analog outputs; and 14-bit analog I/O extension module
  - Built-in PID auto tunning function for complete analog control solution
    DVP30EX2 model as temperature and analog I/O PLC
- Program capacity: 16k steps
- Data register: 10k words
- Max. execution speed of basic instructions: 0.35 μs
- Highly efficient processing abillity: 1 k steps of programs can be completed within 1ms
- Max. 100 kHz pulse control; specific motion control instructions
  (mark/masking and instant frequency changing) available for multi-axis applications
- Up to 4-level password protection protects your source programs and intellectual property



Golden Pin Design Mark

reddot design award winner 2010

Network Type Advanced Slim PLC

DVP-SE

Complete network communication functions for advanced industrial applications

- Program capacity: 16k steps
- Data register: 12k words
- Max. execution speed of basic instructions: 0.64 μs
- Built-in Ethernet
  DVP12SE: Modbus & Ethernet/IP (explicit message)
  DVP26SE: Modbus & Ethernet/IP (adapter mode, explicit message)
- IP Filter function as firewall for first line protection against malware and network threats
- No battery required; RTC function operates for 15 days after power off
- Support DVP-S Series modules (left-side and right-side) (DVP26SE only supports right-side modules)



High Performance Slim PLC

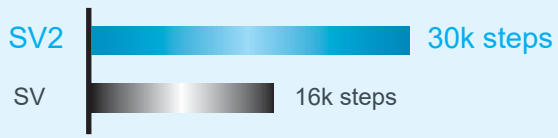
DVP-SV2

Best Choice for Slim Type PLC



High-end model of DVP-S Series with larger program capacities and data registers for more demanding and complex applications

Program capacity



Data register



Excellent Motion Control

- High-speed pulse output: 4 axes of 200 kHz pulse output
- Support max. 4 hardware 200 kHz and 2 hardware 20 kHz high speed counters
- Various motion control instructions to achieve high-speed and high-precision positioning control for labeling machines, packaging machines, printing machines and more applications
- Linear / arc interpolation motion control function
- Provide up to 16 external interrupt pointers

Complete Program Protection

- Auto backup function to prevent program and data loss even when the battery runs out
- Secondary backup function saves an extra copy of programs and data to enhance program safety
- Up to 4-level password protection protects your source programs and intellectual property

Support DVP-S Series modules (left-side and right-side); additional new Ethernet communication command (ETHRW)

High-speed Modules (Left-side)

Network Modules

- **DeviceNet Master**
  DVPDNET-SL



- **CANopen Master**
  DVPCOPM-SL



- **Ethernet**
  DVPEN01-SL



- **PROFIBUS DP Slave**
  DVPPF02-SL



- **RS-422 / RS-485 Serial Communication Module**
  DVPSCM12-SL



- **BACnet MS / TP Slave Serial Communication Module**
  DVPSCM52-SL



Analog Input / Output Modules

- **Analog Input**
  DVP04AD-SL
- **Analog Output**
  DVP04DA-SL



Load Cell Modules

DVP01LC-SL
DVP02LC-SL
DVP201LC-SL
DVP211LC-SL
DVP202LC-SL



Standard Slim PLC

DVP-SS2

Economic and compact model

- Max. I/O: 480 points
- Program capacity: 8k steps
- Data register: 5k words
- Max. execution speed of basic instructions: 0.35 μs
- Built-in RS-232 and RS-485 ports (Master/Slave)
- Support standard MODBUS ASCII/RTU protocol and PLC Link function
- Motion control functions:
  - 4 points of 10kHz pulse output
  - 8 points of high-speed counters: 20kHz/4 points, 10kHz/4 points



Advanced Slim PLC

DVP-SA2

Advanced model supporting high-speed modules (left-side)

- Program capacity: 16k steps
- Data register: 10k words
- Max. execution speed of basic instructions: 0.35 μs
- Built-in 1 RS-232 and 2 RS-485 ports (Master/Slave)
- Support standard Modbus ASCII/RTU protocol and PLC Link function
- No battery required; RTC function operates for 15 days after power off
- Support DVP-S Series modules (including left-side high-speed modules)
- Motion control functions:
  - 4 points of high-speed pulse output: 100kHz/2 points, 10kHz/2 points
  - 8 points of high-speed pulse input: 100kHz/2 points, 10kHz/6 points, 1 set of A/B phase 50kHz
  - Support 2-axis linear and arc interpolation



Analog I/O Slim PLC

DVP-SX2

Analog model with highly efficient PID control function

- Program capacity: 16k steps
- Data register: 10k words
- Max. execution speed of basic instructions: 0.35 μs
- Built-in 4 analog inputs/2 analog outputs
- Support standard Modbus ASCII/RTU protocol and PLC Link function
- No battery required; RTC function operates for at least one week after power off (hardware version 2.0 or above)
- Support DVP-S Series modules (including left-side high-speed modules)
- Motion control functions:
  - 4 points of high-speed pulse output: 100kHz/2 points, 10kHz/2 points
  - 8 points of high-speed pulse input: 100kHz/2 points, 10kHz/6 points
  - Support 2-axis linear and arc interpolation



Multi-axis Motion Controller

DVP-10MC/15MC/50MC New

High Speed, High Precision, and High Performance Motion Control

6-axis Motion Controller
DVP15MC11T-06 (CANopen)
DVP50MC11T-06 (EtherCAT)

16-axis Motion Controller
DVP10MC11T (CANopen)

24-axis Motion Controller
DVP15MC11T (CANopen)
DVP50MC11T (EtherCAT)

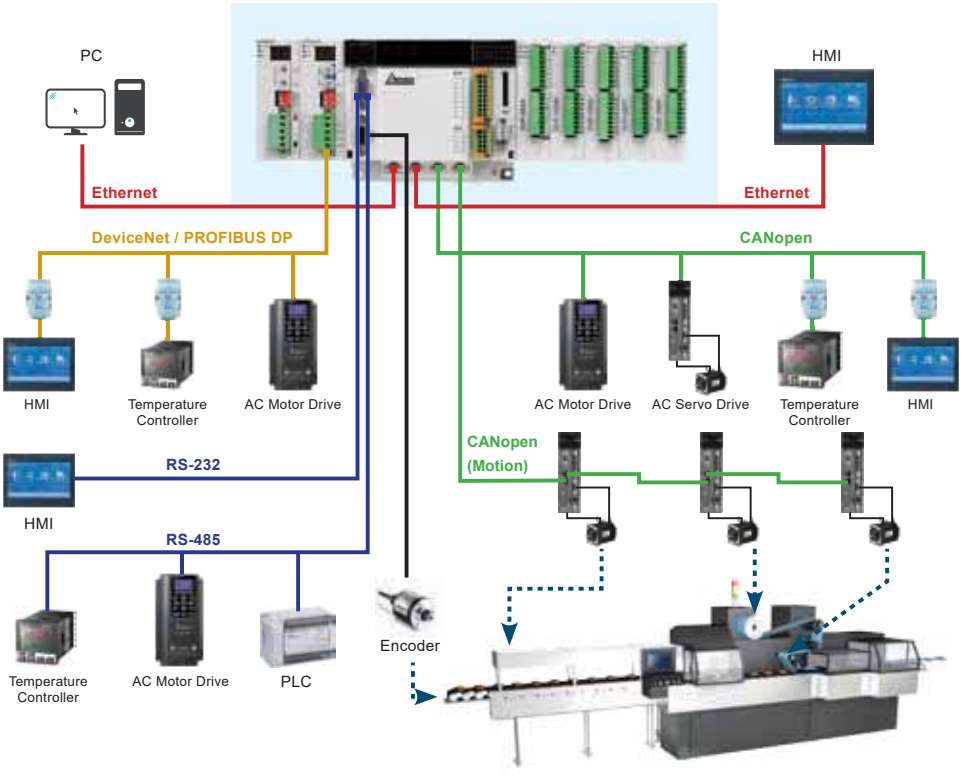


DVP-10MC DVP-15MC DVP-50MC

Perfect Controllers for EtherCAT / CANopen Motion Solutions

- Built-in 16/24 I/O points; max. 480 I/O points
- Program capacity:
  - DVP10MC: Ladder 16k steps / Motion 1Mbytes
  - DVP15MC/50MC: 20M bytes
- Built-in Ethernet, RS-232 and RS-485 ports, and support standard Modbus ASCII/RTU protocol
- e-CAM function (2.048 points) for rotary / flying shears
- Support DVS-S Series modules (both left and right side) for multiple options
- Flexible industrial networking applications (DeviceNet Master/Slave, CANopen Master/Slave and PROFIBUS DP Slave modules)
- Provide standard communication cables, terminal resistors, distribution boxes and more accessories for easy wiring and connection

System Configuration (CANopen Motion)



General Motion Controller

DVP-PM

Standard Motion Controller
DVP10PM00M



- Built-in 24 I/O points. Max. 256 I/O points
- Program capacity: 64 k steps
- Data register: 10k words
- Execution speed LD: 0.1375 μs, MOV: 2.1 μs
- Built-in RS-232 and RS-485 ports
- 2 / 3 / 4 / 5 / 6 axes linear interpolation motion control
- Highly accurate PWM 200 kHz output, resolution 0.3%
- 8 groups of high-speed captures (mark correction, frequency measurement), comparative output, Mark / Mask function (for bag making)
- Support standard Modbus ASCII / RTU protocol
- Motion control functions:
  - High-speed pulse output: built-in 6 sets of A / B phase pulse outputs
  - 6 sets of high-speed counters and hardware digital filter for counting
  - Single-axis motion control function (supports MPG, single-speed and two-speed positioning)
  - Electronic gear function

Advanced Motion Controller
DVP20PM00M / D / DT



- Built-in 16 I/O points. Max. 512 I/O points
- Program capacity: 64 k steps
- Data register: 10 k words
- Built-in RS-232 and RS-485 ports
- Compatible with G-code / M-Code
- 3-axis linear/arc/helical interpolation
- Support electronic cam (2,048 points) function for flying shear and rotary cut applications
- All models can be applied as motion controllers or extension modules
- Support standard Modbus ASCII/RTU protocol
- Motion control functions:
  - Built-in A/B phase differential signal outputs: 2 sets (DVP20PM00D) / 3 sets (DVP20PM00M) with differential output frequency of max. 500 kHz
  - Support MPG inputs
  - Single-axis motion control function (supports MPG, single-speed and two-speed positioning)
  - Electronic gear function

Human Machine Interface

DOP-100

Connect Your Work, Step into the Cloud

Advanced Type HMI

12-inch Advanced Multimedia HMI

DOP-112MX

- 12" 24 bits colors TFT / Display resolution: 1,024 x 768 pixels
- Dual core 1GHz CPU / 1 GB RAM / 8 GB ROM
- 2 built-in Ethernet ports / Support SD card
- 2 sets of COM ports / 2 extension COM ports, support up to 4 RS-485
- Support Analog / IP camera functions & multilingual input
- Mini USB client / USB host
- Support FTP / Email / VNC / Web monitor



15-inch Advanced Multimedia HMI

DOP-115MX

- 15" 24 bits colors TFT / Display resolution: 1,024 x 768 pixels
- Dual core 1GHz CPU / 1 GB RAM / 8 GB ROM
- 2 built-in Ethernet ports / Support SD card
- 2 sets of COM ports / 2 extension COM ports, support up to 4 RS-485
- Support Analog / IP camera functions & multilingual input
- Mini USB client / USB host
- Support FTP / Email / VNC / Web monitor



4.3-inch Advanced HMI

DOP-103WQ

- 4.3" 65,536 colors TFT / Display resolution: 480 x 272
- Cortex-A8 800MHz CPU / 512 MB RAM / 256 MB ROM
- Built-in Ethernet
- 1 COM port / 1 extension COM port
- Multilingual input
- USB host
- Support FTP / Email / VNC / Web monitor



7-inch Advanced HMI

DOP-107WV

- 7" 65,536 colors TFT / Display resolution: 800 x 480
- Cortex-A8 800MHz CPU / 512 MB RAM / 256 MB ROM
- Built-in Ethernet
- 2 sets of COM ports / 1 extension COM port
- Multilingual input
- USB host
- Support FTP / Email / VNC / Web monitor



10-inch Advanced HMI

DOP-110WS

- 10.1" 65,536 colors TFT / Display resolution: 1,024 x 600
- Cortex-A8 800MHz CPU / 512 MB RAM / 256 MB ROM
- Built-in Ethernet / Support SD card
- 2 sets of COM ports / 1 extension COM port
- USB host
- Support FTP / Email / VNC / Web monitor



12-inch Advanced HMI

DOP-112WX

- 12" 24 bits colors TFT / Display resolution: 1,024 x 768 pixels
- Dual core 1GHz CPU / 1 GB RAM / 8 GB ROM
- 2 built-in Ethernet ports / Support SD card
- 2 sets of COM ports / 2 extension COM ports, support up to 4 RS-485
- Multilingual input
- Mini USB client / USB host
- Support FTP / Email / VNC / Web monitor



Advanced Type HMI

15-inch Advanced HMI

DOP-115WX

- 15" 24 bits colors TFT / Display resolution: 1,024 x 768 pixels
- Dual core 1GHz CPU / 1 GB RAM / 8 GB ROM
- 2 built-in Ethernet ports / Support SD card
- 2 sets of COM ports / 2 extension COM ports, support up to 4 RS-485
- Multilingual input
- Mini USB client / USB host
- Support FTP / Email / VNC / Web monitor



Standard Type HMI

7-inch Standard Ethernet HMI

DOP-107EV

- 7" 65,536 colors TFT / Display resolution: 800 x 480
- Cortex-A8 800MHz CPU / 256 MB RAM / 256 MB ROM
- Built-in Ethernet
- 2 sets of COM ports / 1 extension COM port
- USB host
- Support FTP / Email / VNC / Web monitor



7-inch Standard Ethernet HMI

DOP-107EG

- 7" 65,536 colors TFT / Display resolution: 800 x 600
- Cortex-A8 800MHz CPU / 256 MB RAM / 256 MB ROM
- Built-in Ethernet / Support SD card
- 2 sets of COM ports / 1 extension COM port
- USB host
- Support FTP / Email / VNC / Web monitor



7-inch Standard HMI

DOP-107CV

- 7" 65,536 colors TFT / Display resolution: 800 x 480
- Cortex-A8 800MHz CPU / 256 MB RAM / 256 MB ROM
- 2 sets of COM ports / 1 extension COM port
- USB host



10-inch Standard HMI

DOP-110CS

- 10.1" 65,536 colors TFT / Display resolution: 1,024 x 600
- Cortex-A8 800MHz CPU / 256 MB RAM / 256 MB ROM
- 2 sets of COM ports / 1 extension COM port
- USB host



Basic Type HMI

4.3-inch Basic HMI

DOP-103BQ

- 4.3" 65,536 colors TFT / Display resolution: 480 x 272
- Cortex-A8 800MHz CPU / 256 MB RAM / 256 MB ROM
- 1 COM port / 1 extension COM port
- USB host



7-inch Basic HMI

DOP-107BV

- 7" 65,536 colors TFT / Display resolution: 800 x 480
- Cortex-A8 800MHz CPU / 256 MB RAM / 256 MB ROM
- 1 COM port / 1 extension COM port
- USB host



WinCE Human Machine Interface

DOP-W

High Color, High Resolution Human Machine Interfaces

10-inch WinCE HMI

DOP-W105B

- 10.4" 65,536 colors TFT LCD
- Display resolution: 800 x 600 pixels
- 1GHz high speed processor
- Support audio output (MP3, Wav files)
- USB host for direct connection to USB disk, printer, mouse and keypad
- 2 Ethernet ports
- Support SDHC card
- Support video format: MPEG1, MPEG2, WMV
- Support audio output: MP3, Wav files (built-in front speaker)



12-inch WinCE HMI

DOP-W127B

- 12" 65,536 colors TFT LCD
- Display resolution: 1,024 x 768 pixels
- 1GHz high speed processor
- Aluminum enclosure with dark gray mold texturing
- 2 sets of COM ports, support RS-232 / RS-422 / RS-485
- USB host for direct connection to USB disk, printer, mouse and keypad
- 2 Ethernet ports
- Support SDHC card
- Support video format: MPEG1, MPEG2, WMV
- Support audio output: MP3, Wav files (built-in frontspeaker)



15-inch WinCE HMI

DOP-W157B

- 15" 65,536 colors TFT LCD
- Display resolution: 1,024 x 768 pixels
- 1GHz high speed processor
- Aluminum enclosure with dark gray mold texturing
- 2 sets of COM ports, support RS-232 / RS-422 / RS-485
- USB host for direct connection to USB disk, printer, mouse and keypad
- 2 Ethernet ports
- Support SDHC card
- Support video format: MPEG1, MPEG2, WMV
- Support audio output: MP3, Wav files (built-in front speaker)



Handheld Human Machine Interface
DOP-H

7-inch Widescreen Handheld HMI
DOP-H07

- 7" 16:9 widescreen, 65,536 colors TFT
- Display Resolution: 800 x 480 pixels
- Support SDHC card
- Built-in emergency stop switch
- Built-in enable switch (rear side)
- Serial communication models support RS-485 / RS-422
- Ethernet communication models support one Ethernet port
- Optional MPG (Manual Pulse Generator)
- Compact and lightweight 750g design
- Integrated style cables available (5 m / 10 m)





Touch / Text Panel Human Machine Interface

TP

4-Line Text Panel HMI

TP04G-AL-C / TP04G-AL2

- 4.1" STN-LCD
- User-defined function keys available
- Support RS-232/RS-422/RS-485 ports (TP04G-AL2)
- Password protection function available
- User-defined boot screen available
- Built-in real time clock (RTC)

Dimensions	4.1" (101.8 × 35.24 mm)
Resolution	192 × 64
Display Color	Monochrome
Flash Memory	256k bytes
Function Key	10 function keys
Password	Available
Recipe Function	N/A
RTC	Available
Serial COM Port	RS-232 & RS-422/485
Editing Software	TPEditor

4-Line Text Panel HMI

TP04G-BL-C

- 4.1" STN-LCD
- 0~9 numeric keys and user-defined function available
- Built-in RS-232 and RS-422/RS-485 ports
- Support Modbus ASCII/RTU modes
- Password protection function available
- User-defined boot screen available
- Built-in real-time clock (RTC)

Dimensions	4.1" (101.8 × 35.24 mm)
Resolution	192 × 64
Display Color	Monochrome
Flash Memory	256k bytes
Function Key	17 function keys
Password	Available
Recipe Function	N/A
RTC	Available
Serial COM Port	RS-232 & RS-422/485
Editing Software	TPEditor

8-Line Text Panel HMI

TP08G-BT2

- 3.8" STN-LCD
- Resolution: 240 x 128 dots
- Built-in 1,024k bytes flash memory
- 24 user-defined function keys
- Built-in RS-232 and RS-422/RS-485 ports
- Support recipes and macro functions

Dimensions	3.8" (83 x 41 mm)
Resolution	240 × 128
Display Color	Monochrome
Flash Memory	1 M bytes
Function Key	24 function keys
Password	Available
Recipe Function	Available
RTC	Available
Serial COM Port	RS-232 & RS-422/485
Editing Software	TPEditor

Applications

High-end equipment for the electronics manufacturing, machining, food packaging and other industries

7-Inch Touch Panel HMI with Built-in PLC

TP70P-RM0

- Adopt the core of DVP-SS2 Series PLC: program capacity: 2k steps / D device: 5k words
- 7" TFT-LCD
- Touch screen
- Built-in USB port for program upload / download
- Built-in RS-232 and RS-485 ports
- Support Modbus ASCII / RTU modes
- Built-in real-time clock (RTC)

Dimensions	7" (154 × 85 mm)
Resolution	800 × 480
Display Color	65,535 colors
Flash Memory	64 M bytes
Function Key	N/A
Password	Available
Recipe Function	N/A
RTC	Available
Serial COM Port	RS-232 & RS-485
Editing Software	TPEditor

7-Inch Touch Panel HMI with Built-in PLC

TP70P

- Adopt the core of DVP-SS2 Series PLC: program capacity: 4 k steps / D device: 5k words
- Provide 2 sets of 10 kHz high-speed pulse input
- 7" TFT-LCD
- Touch screen
- Built-in USB port for program upload / download
- Built-in RS-485 port*2
- Support Modbus ASCII / RTU modes
- Built-in real-time clock (RTC)
- Digital and analog I/O terminals available

Dimensions	7" (154 × 85 mm)
Resolution	800 × 480
Display Color	65,535 colors
Flash Memory	64 M bytes
Function Key	N/A
Password	Available
Recipe Function	N/A
RTC	Available
Serial COM Port	2 sets of RS-485
Editing Software	TPEditor

4-Line Text Panel HMI with Built-in PLC

TP04P

- Adopt the core of DVP-SS2 Series PLC: program capacity: 8 k steps / D device: 5k words
- Provide 2 sets of 10 kHz high-speed pulse input
- 4.1" STN-LCD
- Provide 0 ~ 9 numeric keys with user-defined function
- Built-in USB port for program upload/download
- Built-in RS-485 port*2
- Support Modbus ASCII/RTU modes
- User-defined boot screen available
- Built-in real-time clock (RTC)
- Digital and analog I/O terminals available

Dimensions	4.1" (101.8 × 35.24 mm)
Resolution	192 × 64
Display Color	Monochrome
Flash Memory	1 M bytes
Function Key	17 function keys
Password	Available
Recipe Function	N/A
RTC	Available
Serial COM Port	2 sets for RS-485
Editing Software	TPEditor



Photoelectric Sensor

PS-R

- Different sensing range adjustment (Trimmer or TEACH)
- M3 mounting hole, easy to install
- Electrical circuit protection
- IP67 and CE certification



PS-F / PS-L

- Slim and small, easy to install
- Electrical circuit protection
- IP67 and CE certification



PS-M

- Standard size (M18) for mounting
- Sensing range adjustment (TEACH)
- M3 mounting hole, easy to install
- Electrical circuit protection
- IP67 and CE certification



Inductive Proximity Sensor

IS

- Nickel-coated brass
- Standard sensors for detecting ferrous metals
- Electrical circuit protection
- IP67 and CE certification





Laser Displacement New

LD



- Aluminum case, strong structure
- Slim and small, easy to install
- High precision, sampling time setting available
- IP67 and CE certification

Area Sensor New

AS-B Standard



- Aluminum case, strong structure
- No dead zone
- Effective aperture angle: less than 2.5 degrees
- IP67 and CE certification

* Note: TX cable (grey) and CX cable (black)

AS-B Communication



- Aluminum case, strong structure
- Fixed / floating mask
- Interlock / restart functions
- Measurement function
- Auto-upload

* Note: TX cable (grey) and CX cable (blue)

AS-E



- Aluminum case, strong structure
- Compact design: 17 x 15 mm
- Sensing distance: 5 m

Applications

Electronics, warehousing / logistics, wood and steel processing, textile, food and beverage, machine making, protection and more

Rotary Encoder

ES / EH / HS / HH

Incremental

- Configurable resolution (magnetic)
- Wide input voltage: 5~30 V_{DC}
- Resolution: 100~4,096 PPR
- Output form: open collector, line driver, push pull
- HS/ES outer diameter of solid shaft : 37 mm, 50 mm
- EH outer diameter of hollow shaft: 37 mm, 50 mm



Solid Mandrel

ES5 / ES3 (Optical)
HS5 / HS3 (Magnetic)

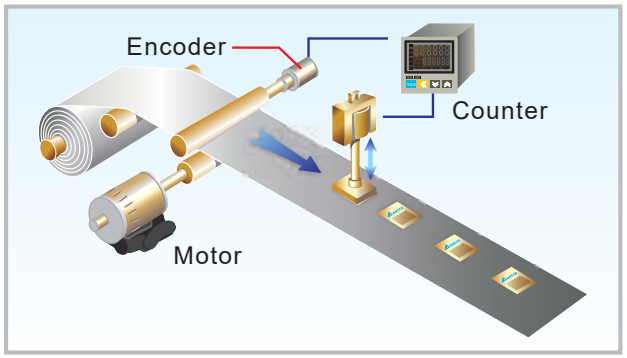


Hollow Mandrel

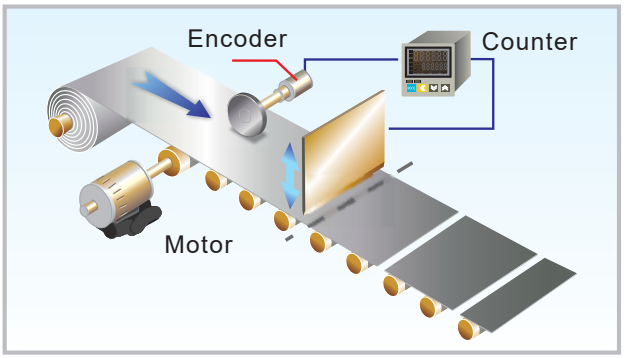
EH5 / EH3 (Optical)
HH5 / HH3 (Magnetic)coming soon

Applications

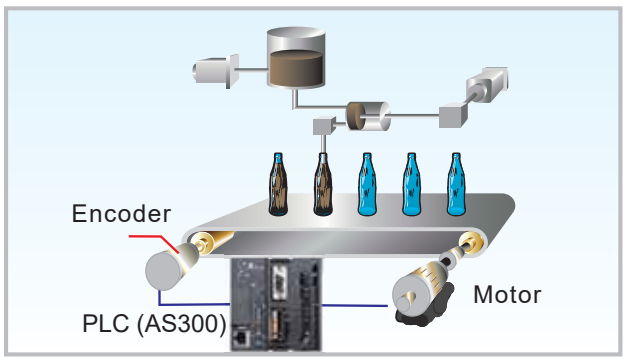
Label printing machines, detecting machines, elevators, bottling machines, cutting machines, elevator doors, testing/inspection machines



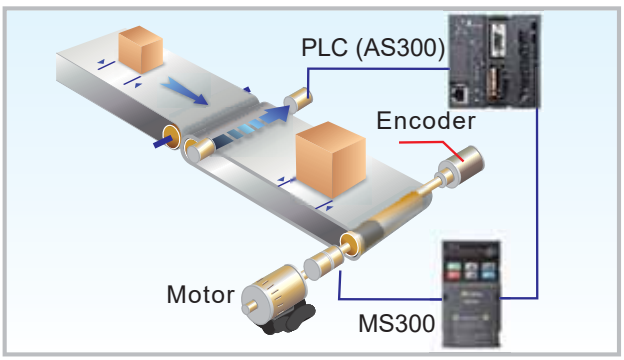
Label Printing Machine



Cutting Machine



Bottling Machine



Testing/Inspection Machine

Handheld Barcode Scanner New

DAH1000S/DAH2000

Wide Target Range, Fast and Reliable Capture

The DAH Series adopts high-end decoding algorithm to read barcodes quickly, and can easily and stably identify 1D and 2D barcodes within 5 to 25 cm size range and caters to various industrial barcode scanning application requirements.

- Fast code capture speed without aiming precisely
- Easy to read barcodes under low contrast, optical noise, uneven exposure or damaged conditions
- Easy commands for users to set up:
  - Manually adjust illumination based on various environment
  - Support single and multiple trigger modes
  - Manually select barcode types based on user's demands
  - Users can self-define the exported data of scanned codes for flexible usage
- Robust design: drop impact resistance at 1m high
- No detachable components save maintenance cost



Applications

Food and beverage packaging, electrical machines, printing machines, pharmaceutical machinery, automated product line

Advanced Decode Algorithm for Excellent Reading Performance

1D low contrast



1D optical noise



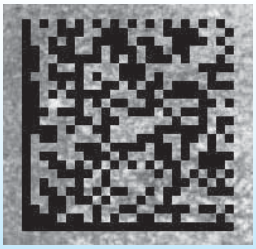
1D glare



1D damaged code



2D optical noise



2D ill-printed codes



2D uneven exposed code



2D ill-illuminated codes



Fixed-mount Barcode Scanner New

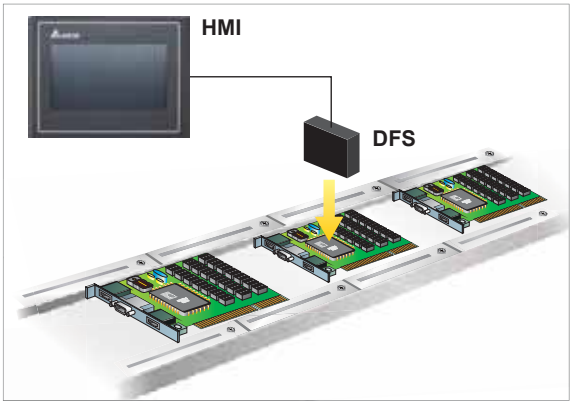
DFS131

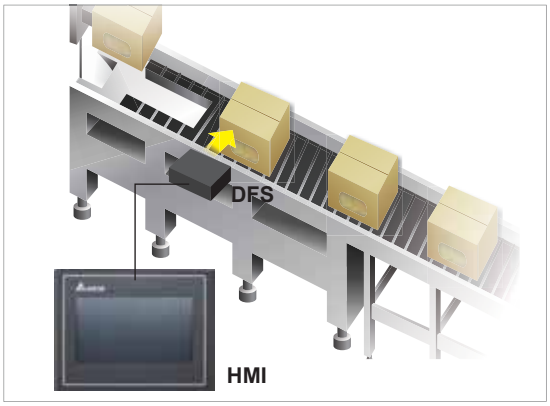
The DFS Series adopts built-in LED indicators and a CMOS sensor to ensure effective barcode detection under any lighting conditions when objects passing through a scanning area without manual adjustment. It is applicable to industrial conveyors and can easily complete scanning through the operating route during manual handling for fully automatic barcode scanning. In addition, the DFS131 Series supports various installations for independent and embedded applications as a flexible and highly efficient barcode scanner.

- Flexible design, suitable for independent, embedded applications and various installations
- Built-in LED indicators and CMOS sensor to ensure valid reading under any lighting conditions
- Barcodes attached to products or components can be effectively detected when passing through ascanning area without manual operation
- Manual-free image trigger function is matched with structures and conveyors to achieve fully automatic barcode reading capabilities



System Structure





Applications

Retail, logistics, manufacturing, medical services



Retail



Logistics



Manufacturing



Medical Service

Vision Sensor New

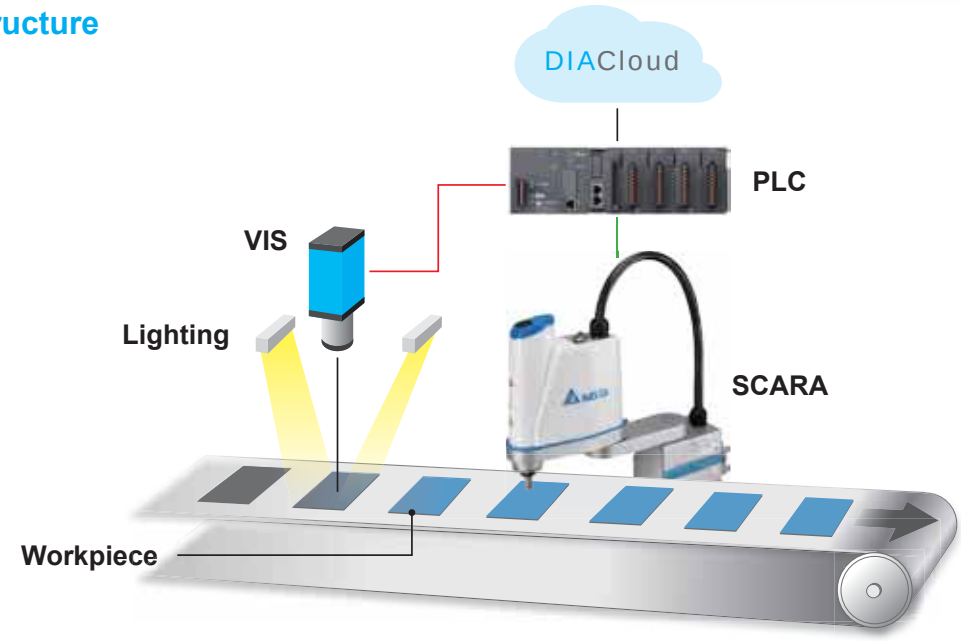
VIS

The VIS Series adopts built-in LED lighting and CMOS sensor. With assisted LED lighting, it is able to sense under poor illumination. Users can set up programs easily in the full-window interface for object presence/absence inspection and multi-barcode reading applications. The VIS Series can be implemented in the production line for fully automated inspection to enhance production efficiency.

- Advanced embedded system for high-speed inspection capabilities
- Compact in size for flexible installation
- User-friendly interface for easy setup
- Support program setup via browsers for simple and rapid device adjustment
- Built-in LED lighting, no need to purchase additional lighting device



System Structure



Applications

Automated quality inspection for packaging, electronics manufacturing and product assembly



Barcode Reading



Quality Assurance



Object Presence/Absence Inspection

Advanced Intelligent Temperature Controller

DT3

High Speed, High Precision, High Performance Multifunction Temperature Controller

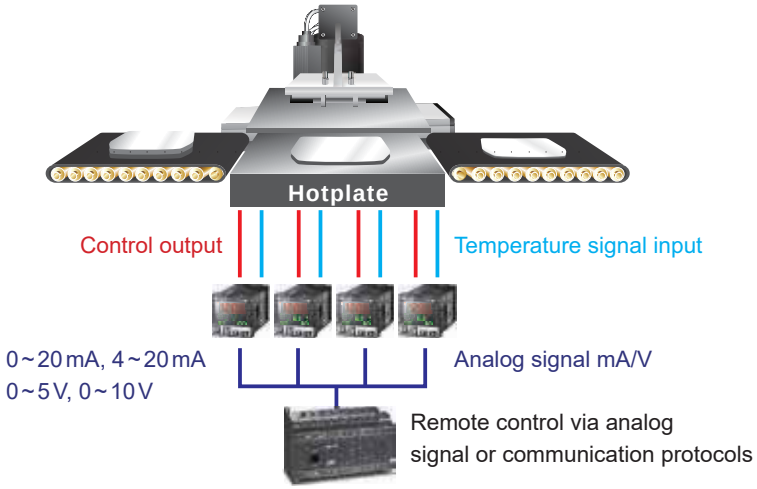


Applications

Solar panel manufacturing, food and beverage packaging, pharmaceuticals, semiconductors, rubber and plastics, high-tech electronics industries, air-conditioning and heating system

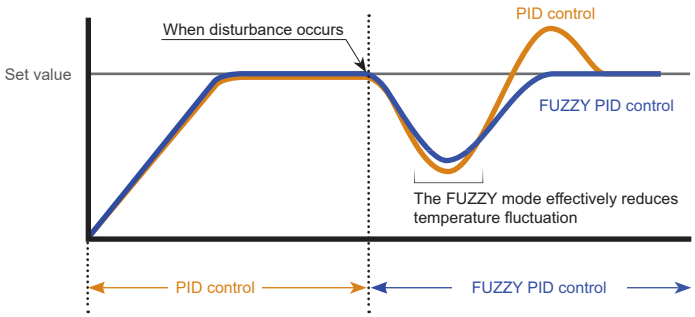
Remote Control

Sets DT3 temperature via analog output of host controller



Various Control Modes

- Auto tuning
- FUZZY
- Manual
- ON/OFF
- PID process control
- Self tuning



User-defined Function Keys

- Control modes selection
- Alarm clearing
- Controller ON/OFF
- Start PID
- Save menu
- Process control ON/OFF



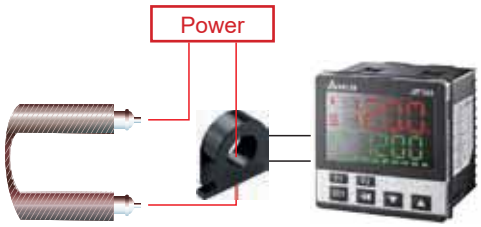
Large Tri-color LCD Display

The 1st tri-color LCD temperature controller in Taiwan



Heater Disconnection Detection

Measurable up to 100A

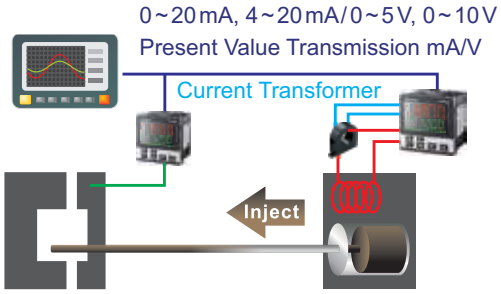


Point-to-Point Control (Proportional Output mA/V)

Sets the Present Value by point-to-point control

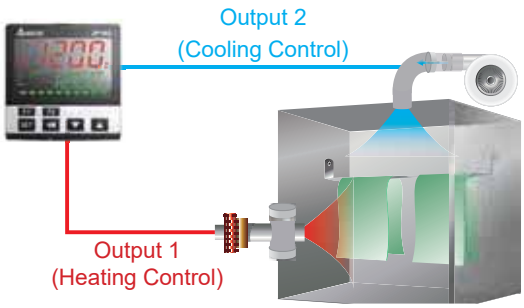


Retransmission Output



Dual-output Control

- Preset temperature is rapidly attained using two sets of outputs for heating and cooling control
- AT function is used to automatically calculate two sets of PID parameters, one for heating and one for cooling



Temperature Sensor Input

- Thermocouple:
  K, J, T, E, N, R, S, B, L, U, TXK
- Platinum Resistance Thermometer:
  Pt100, JPt100, Cu50, Ni120
- Analog Input:
  0~5V, 0~10V, 0~20mA, 4~20mA, 0~50mA

Power Output

Relay, current 4~20mA, pulse voltage, analog voltage 0~10V

Power Input

AC 100~240V, 50/60Hz, AC/DC 24V±10%

Intelligent Temperature Controller

DTK



- Power input: AC 100~240 V, 50/60 Hz
- Thermocouple: K, J, T, E, N, R, S, B, L, U, TXK (support max. 8 sets of input)
- Platinum resistance: Pt100, JPt100 (support max. 6 sets of input)
- RTD: Cu50, Ni120
- Output: Relay, current 4~20 mA, pulse voltage
- Control mode: ON-OFF, PID, manual
- Modbus communication (optional)
- 1 set of alarm output (2 sets of alarm outputs are optional), 9 alarm modes
- Certification: CE, UL

Standard Temperature Controller

DTA



- Power input: AC 100~240 V, 50/60 Hz
- Thermocouple: K, J, T, E, N, R, S, B, L, U, TXK
- Platinum resistance: Pt100, JPt100
- RTD: Cu50
- Analog input: N/A
- Output: Relay, current, pulse voltage
- Control mode: ON-OFF, PID, manual
- Modbus communication (optional)
- 2 sets of alarm outputs, 12 alarm modes
- Dimensions: 48x48, 48x96, 72x72, 96x48, 96x96 (mm)
- IP66 protection
- Certifications: CE, UL

Advanced Temperature Controller

DTB



- Power input: AC 100~240 V, 50/60 Hz, DC 24 V±10%
- Thermocouple: K, J, T, E, N, R, S, B, L, U, TXK
- Platinum resistance: Pt100, JPt100
- Analog input: 0~5 V, 0~10 V, 0~20 mA, 4~20 mA, 0~50 mA
- Output: Relay, current 4~20 mA, pulse voltage, analog voltage 0~10 V
- Control mode: ON-OFF, PID, manual, PID process control
- Built-in Modbus communication
- 2 sets of alarm outputs, 18 alarm modes
- Dimensions: 48x24, 48x48, 48x96, 96x96 (mm)
- IP66 protection
- Certifications: CE, UL

Modular Temperature Controller

DTC



- Power input: DC 24 V ± 10%
- Thermocouple: K, J, T, E, N, R, S, B, L, U, TXK
- Platinum resistance: Pt100, JPt100
- Analog input: 0 ~ 5 V, 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 50 mA
- Output: Relay, current 4 ~ 20 mA, pulse voltage, analog voltage 0 ~ 10 V
- Control mode: ON-OFF, PID, manual, PID process control
- Built-in Modbus communication
- 2 sets of alarm outputs, 18 alarm modes
- Certifications: CE, UL

Valve Controller

DTV



- Power input: AC 100 ~ 240 V, 50 / 60 Hz, DC 24 V ± 10%
- Thermocouple: K, J, T, E, N, R, S, B, L, U, TXK
- Platinum resistance: Pt100, JPt100
- Analog input: 0 ~ 5 V, 0 ~ 10 V, 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 50 mA
- Output: Relay, current 4 ~ 20 mA, pulse voltage, analog voltage 0 ~ 10
- Control mode: ON-OFF, PID, manual, PID process control
- Built-in Modbus commuincation
- 2 sets of alarm outputs, 17 alarm modes
- Dimensions: 48 x 96, 96 x 96 (mm)
- IP66 protection
- Certifications: CE, UL

Multi-Channel Modular Temperature Controller

DTE



- Power input: DC 24 V ± 10%
- Thermocouple: K, J, T, E, N, R, S, B, L, U, TXK (Supports max. 8 sets of input)
- Platinum resistance: Pt100, JPt100 (Supports max. 6 sets of input)
- RTD: Cu50, Ni120
- Analog input: N/A
- Output: Relay, current 4 ~ 20 mA, pulse voltage, analog voltage 0 ~ 10 V
- Control mode: ON-OFF, PID, manual, PID process control
- Built-in Modbus communication
- 2 sets of alarm outputs, 18 alarm modes
- Certifications: CE, UL

Standard Multifunction Pressure Sensor

DPA

High-Precision Pressure Sensor with Comprehensive Functions



- Measurement range:
  - DPA01: -100 kPa ~ 100 kPa
  - DPA10: -100 kPa ~ 1,000 kPa
- 3 sets of color display
- Easy code display
- Various unit conversions
- Various output modes
- Support RS-485 communication and analog output
- 10 sets of output response time setup
- Safety control function
- Energy-saving mode

Basic Multifunction Pressure Sensor

DPB

Miniature Pressure Sensor for Easy Integration and Cost-saving



- Measurement range:
  - DPB01: -100 kPa ~ 100 kPa
  - DPB10: -100 kPa ~ 1,000 kPa
- Various unit conversions
- 10 sets of output response time setup
- Various output modes
- 3 sets of color display
- Fast zero reset
- Safety control function
- Easy code display

Applications

Machine making, solar energy, food packaging, semiconductor, electronics, assembly automation



Flow Switch New

DFM

High-precision and Multiple Air Flow Range

- Flow range: 2 ~ 200 L/min
- Bidirectional flow amount measurement, unaffected by fluid direction
- Embedded Laminar Flow Element (LFE), no extra straight pipes needed for stabilizing air flow
- Easy installation and maintenance
- High quality LCD display
- Support analog output



Applications

Food and beverage packaging, electronic manufacturing, rubber and plastic welding, Laser Beam Machining (LBM), factory air compressor (for energy saving), nitrogen generator, air compressor flow record and detection

Timer / Counter / Tachometer

CTA

All-in-One

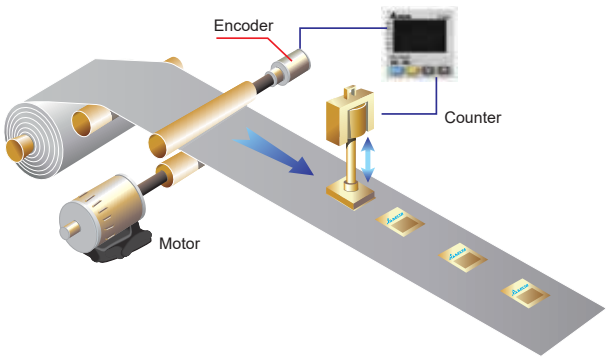
- Power input: AC 100 ~ 240 V, 50 / 60 Hz, DC 24 V ± 10%
- Simultaneous counting and timing in the mixed mode
- 6-digit LCD display
- Max. counting speed: 10 Kpps
- NPN or PNP input signals
- Pre-scale function
- Counting modes: 1-stage, 2-stage, batch, total, dual
- Modbus communication (optional)



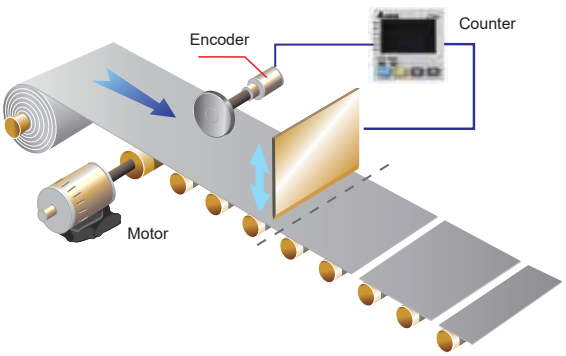
Applications

Food packaging machines, label printing machines, fixed length cutting machines, logistics, electronics

Label Printing Machine



Fixed Length Cutting Machine



Power Meter

DPM

High Accuracy Solution for Reliable Power Monitoring

Precisely measures various electrical energy and power quality parameters (power factors, harmonics, and current/voltage unbalance) with functions such as off-limit alarms, history logs, communication quality and monitoring; suitable for power-critical applications

Product Introduction

Advanced Models		Standard Model	Wireless Model
DPM-C530	**DPM-C530E** New	**DPM-C520**	**DPM-C520W**
			
- Front panel: 96mm x 96mm - History log (62 days) - Demand calculation - Period energy accumulation - BACNet MS/TP	- Front panel: 96mm x 96mm - History log (62 days) - Demand calculation - Period energy accumulation - BACNet MS/TP - RJ-45 x 2 - Modbus, EIP	- Front panel: 96mm x 96mm	- Front panel: 96mm x 96mm - Modbus TCP - (Wifi, IEEE801.11 b/g/n)

Compact Model	DIN-rail Model	Basic DI/DO Relay Model	Water Treatment Model
DPM-C310 New	**DPM-D520I**	**DPM-C501L**	**DPM-C502** New
			
- Front panel: 72mm x 72mm	- Current measurement: 63A - Period energy accumulation	- Front panel: 96mm x 96mm - 4DI/2DO	- Front panel: 96mm x 96mm - 4DI/2DO - History log (14 days) - Demand calculation

Features

- Precise measurement of bidirectional electrical energy and power parameters, meeting IEC62053 and CNS14607 standards
- Two mounting clips hold the meter in place, no other tools required
- Built-in RS-485 communication port supports Modbus protocol, and all measurement values can be transmitted to the PLCs via communication
- Parameter grouping function allows faster data transmission and reading by PLCs to improve efficiency and performance
- Total Harmonic Distortion (THD) measurement function for power quality analysis
- Built-in alarm function for power anomaly display in real-time

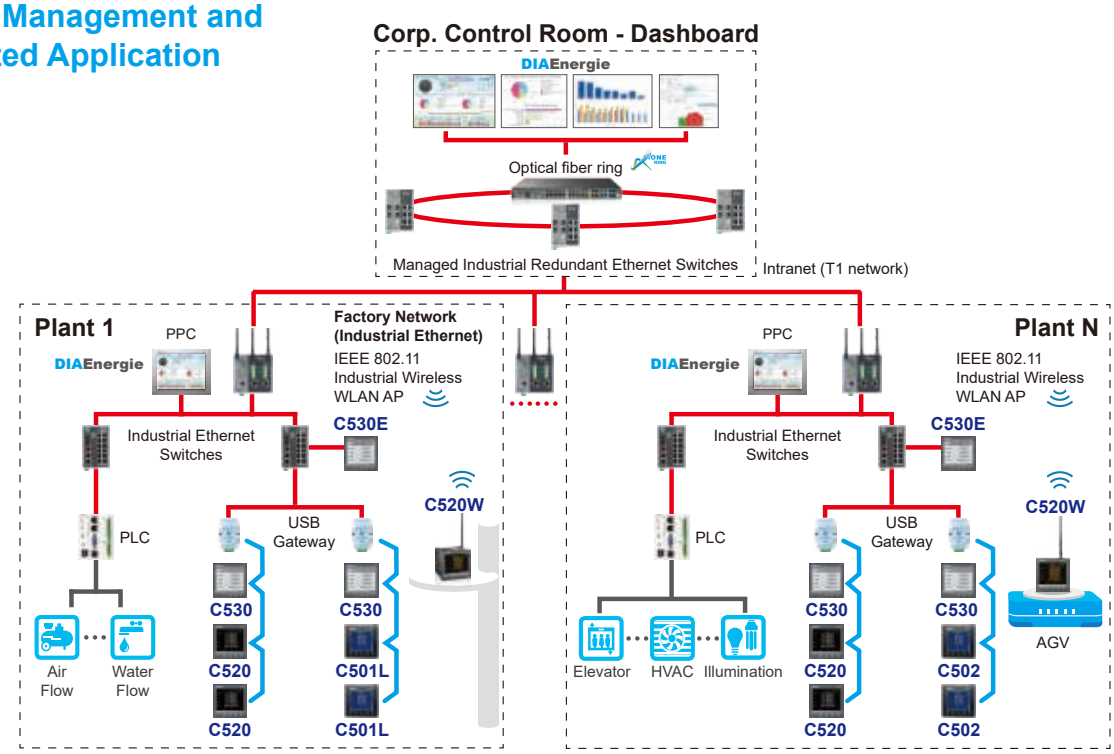
Applications

The DPM series are suitable for: energy management, medium or low voltage distribution system, energy management system, factory automation system, energy storage system, electric grid measurement, and energy quality analysis

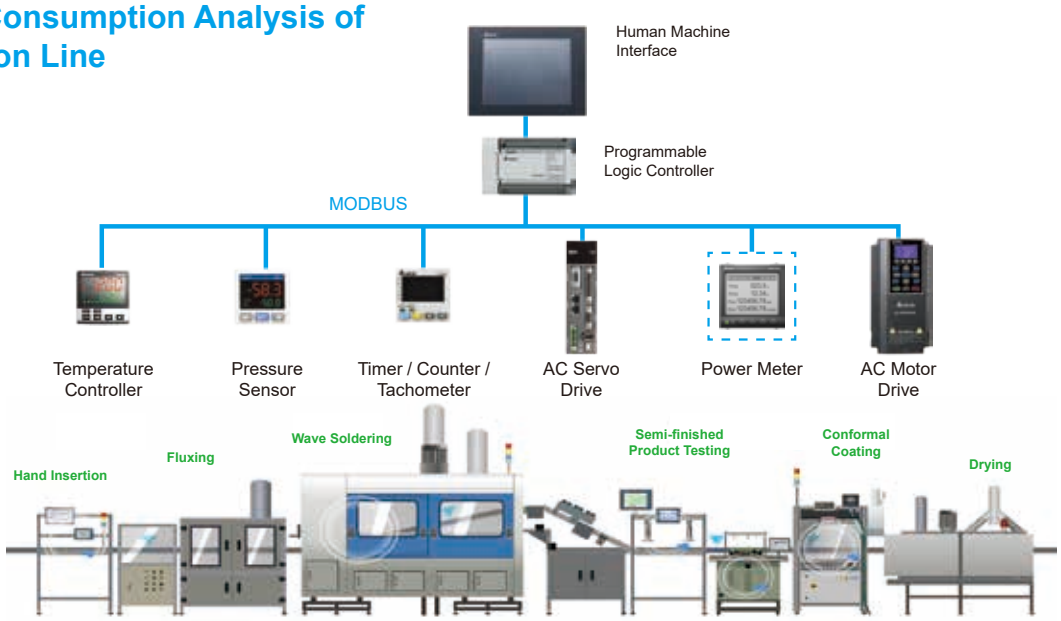
The DPM-C520W is suitable for: elevators, semiconductor plants, high-ceiling plants, and equipment with mobility

The DPM-D520I is suitable for: industrial machines, communication base station, IIoT equipment, and areas where CT is difficult to install

Multi-factories Energy Management and Integrated Application



Factory Automation - Energy Consumption Analysis of Production Line



Machine Vision System

DMV2000

Speed, Precision and Humanization - Smart Visual Inspection



- Multiple cameras work synchronously in parallel processes to enhance efficiency and save development costs
- Image auto correction and lens distortion correction function
- User-friendly operation interface
- Smart operation process and interface for faster programming
- Built-in multi-functional developing tools
- Provides industrial networking module, digital I/O and flash control module for various applications
- Superior hardware specifications compared to same grade products, achieving high-speed processing
- High-speed cameras with CameraLink interface
- Ethernet, RS-232, RS-485 interfaces for data output
- Compliant with high industrial standards; higher stability than PC-based system
- Built-in communication system connected by PLC, no need for extra programming
- Self-defined display and operation interfaces in operation mode

Product Types

Two types for different applications

- Standard model: 2 or 4 cameras connectable; high performance and big storage
- Basic model: Max. 2 cameras connectable; supports GigE camera

*** Basic model will be released in Q4, 2018**

Applications

Food and beverage packaging, electrical / electronics, printing machines, pharmaceuticals, Vision Guided Robotic System (VGRS), robot / automated production lines

Advanced Functions

Functions				
2D platform positioning	√	Edge position tracing		√
Pattern matching	√	Edge width tracing		√
Shape matching	√	Stain inspection		√
Edge angle	√	OCV		√
Edge counting	√	Subtle inspection		√
Edge pitch	√	Color inspection		√
Edge position	√	Barcode identification		√
Edge width	√	QR code identification		√
Area	√	PC applications	Off-line simulation	√
Blob	√		Program upload/ download	√
Image intensity	√		Software update	√

High-speed Cameras with CameraLink Interface

Support high-speed CameraLink Full configuration with maximum frame rate up to 690 M bytes/sec.
Support maximum 12 M pixels in gray scale using standard CameraLink cameras

Resolution (Mega Pixels)		0.3 M	2 M	4 M	5 M	12 M
Level	Mono	√	√	√	√	√
	Color	√	√	√	√	√
Frame Rate		480 fps	295 fps	159 fps	35 fps	50 fps
Pixel Dimensions (Horizontal x Vertical)		642 × 484	2,048 × 1,088	2,048 × 2,048	2,448 × 2,048	4,096 × 3,072
Sensor Size		1/3"	2/3"	1"	2/3"	1.76"
Pixel Size (Horizontal x Vertical)		7.4 × 7.4 µm	5.5 × 5.5 µm	5.5 × 5.5 µm	3.45 × 3.45 µm	5.5 × 5.5 µm
Lens Mount		C Mount	C Mount	C Mount	C Mount	M42



Machine Vision System

DMV1000

Intelligent Human Visual Inspection System for a Variety of Applications



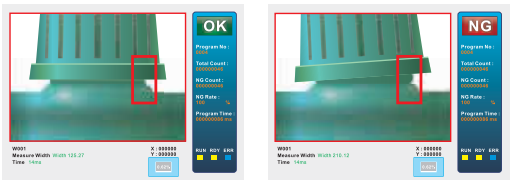
- User-friendly operation interface for a quick system setup
- Flowchart programming interface saves development time
- Built-in multi-functional developing tools save users from complex programming
- Offers versatile digital I/O terminals
- Compact and light, saves wiring and space
- Hardware specification meets high-speed processing requirements and offers exceptional performance better than competing products
- Standard FireWire 1,394 Series CCD
- Complete product line-up including lighting and lenses
- Compatible with Ethernet and RS-232/485 communication interfaces for a quick link up with external devices
- Supports SD card
- Compliant with high industrial standards; higher stability than PC-based systems

Applications

Food and beverage packaging, electrical / electronics, printing machines, pharmaceuticals, Vision Guided Robotic System (VGRS), robot / automated production lines

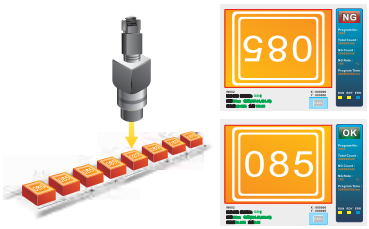
• Bottle Cap Position Identification

Identifies the bottle capping position



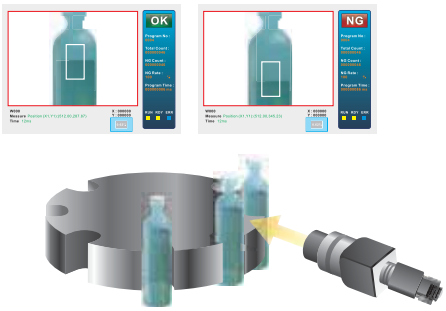
• Direction Identification

Inspects the direction of workpieces conveyed on a production line



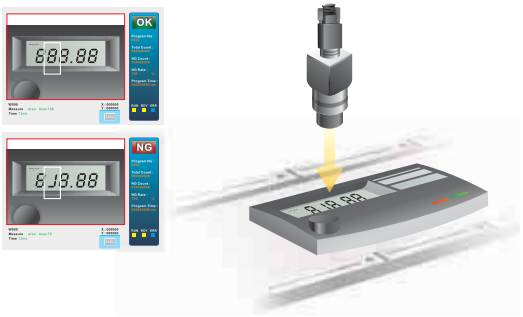
• Beverage Packing Inspection

Inspects the liquid level of each bottle



• Character Inspection

Inspects the characters on electronic devices



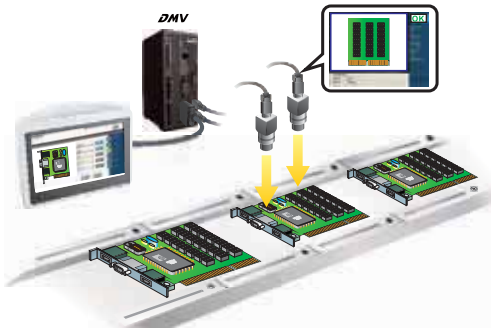
• Luminance Inspection

Inspects LED luminance automatically



• Position Identification

Inspects the position of IC components on PCBs



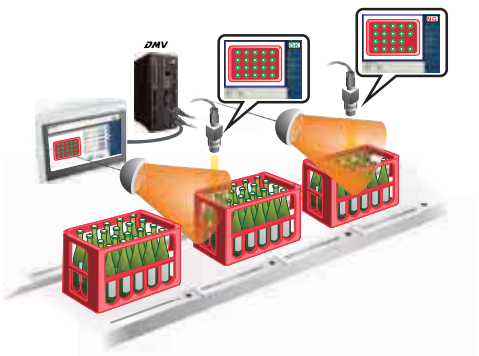
• Module Inspection

Inspects mobile phone modules such as touch screens and buttons



• Object Counting

Counts the quantity of objects in a basket or carton



Industrial Power Supply

The World's Number One in Industrial Power Solutions

DIN Rail Models

CliQ, CliQ II, CliQ III, CliQ M, Lyte, Chrome, Sync, DVP

CliQ	Model Name	Output Voltage	Output Power
	DRP012V015W1AZ	12V	15W
	DRP012V030W1AZ		30W
	DRP012V060W1AA		60W
	DRP012V100W1AA		100W
	DRP-24V48W1AZ	24V	48W
	DRP024V060W1AZ		60W
	DRP024V060W1AA		60W
	DRP024V120W1AA		120W
	DRP024V240W1AA		240W
	DRP024V480W1AA		480W

CliQ II	Model Name	Output Voltage	Output Power
	DRP024V060W1BN	24V 1-Phase	60W
	DRP024V060W1NZ		60W
	DRP-24V100W1NN		91.2W
	DRP024V120W1BN		120W
	DRP024V240W1BN		240W
	DRP024V480W1BN		480W
	DRP-24V120W2BN	24V 2-Phase	120W
	DRP-24V240W2BN		240W
	DRP024V060W3BN	24V 3-Phase	60W
	DRP024V120W3BN		120W
	DRP024V240W3BN		240W
	DRP024V480W3BN		480W
	DRP024V960W3BN		960W
	DRP048V060W1BN	48V	60W
	DRP048V120W1BN		120W
	DRP048V240W1BN		240W
	DRP048V480W1BN		480W

Modules	Model Name	Output Voltage	Output Power
Redundancy Module	DRR-20N	24V	20A
	DRR-40N		40A
DC-UPS Module	DRU-24V40ABN		40A
	DRU-24V10ACZ		10A
Buffer Module	DRB-24V020ABN		20A
	DRB-24V040ABN		40A

DVP	Model Name	Output Voltage	Output Power
	DVP-PS01	24V	24W
	DVP-PS02		48W
	DVP-PS03		120W

CliQ III	Model Name	Output Voltage	Output Power
	DRP-24V120W1CAN	24V	120W
	DRP-24V240W1CAN		240W
	DRP-24V480W1CAN		480W

CliQ M	Model Name	Output Voltage	Output Power
	DRM-24V80W1PN	24V	81.6W
	DRM-24V120W1PN		120W
	DRM-24V240W1PN		240W
	DRM-24V480W1PN		480W
	DRM-24V960W1PN		960W

Lyte	Model Name	Output Voltage	Output Power
	DRL-24V120W1AA	24V	120W
	DRL-24V240W1AA		240W
	DRL-24V480W1AA		480W
	DRL-48V120W1AA	48V	120W

Chrome	Model Name	Output Voltage	Output Power
	DRC-5V10W1AZ	5V	7.5W
	DRC-12V10W1AZ	12V	10W
	DRC-12V30W1AZ		25.2W
	DRC-12V60W1AZ		54W
	DRC-12V100W1AZ		72W
	DRC-24V10W1AZ	24V	10W
	DRC-24V10W1HZ		10W
	DRC-24V30W1AZ		30W
	DRC-24V60W1AZ		60W
	DRC-24V100W1AZ		91.2W

Sync	Model Name	Output Voltage	Output Power
	DRS-5V30W1NZ	5V	15W
	DRS-5V50W1AZ		30W
	DRS-5V50W1NZ		25W
	DRS-12V50W1NZ	12V	48W
	DRS-24V30W1AZ	24V	30W
	DRS-24V30W1NZ		30W
	DRS-24V50W1NZ		50W
	DRS-24V100W1AZ		96W
	DRS-24V100W1NZ		91.2W

Panel Mount Models

PMC, PMF, PMH, PMR, PMT, PMU

PMC	Model Name	Output Voltage	Output Power
	PMC-05V015W1AA	5V	15W
	PMC-05V035W1AA		35W
	PMC-05V050W1AA		50W
	PMC-12V035W1AA	12V	35W
	PMC-12V050W1AA		50W
	PMC-12V060W1NA		60W
	PMC-12V100W1AA		100W
	PMC-12V150W1BA		150W
	PMC-24V035W1AA	24V	35W
	PMC-24V050W1AA		50W
	PMC-24V075W1AA		75W
	PMC-24V100W1AA		100W
	PMC-24V150W1AA		150W
	PMC-24V150W2AA		150W
	PMC-24V150W1BA		150W
	PMC-24V300W1BA		300W
	PMC-24V600W1BA		600W
	PMC-DSPV100W1A	24V/5V	100W
	PMC-48V150W1BA	48V	150W

PMF	Model Name	Output Voltage	Output Power
	PMF-4V320WCGB	4.2V	231W
	PMF-5V320WCGB	5V	275W
	PMF-24V200WCGB	24V	201.6W
	PMF-24V240WCGB		240W
	PMF-24V320WCGB		320W

PMH	Model Name	Output Voltage	Output Power
	PMH-12V100WCLS	12V	100W
	PMH-24V50WCAA	24V	50W
	PMH-24V100WCAA		100W
	PMH-24V100WCCA		100W
	PMH-24V100WCLS		100W
	PMH-24V100WCMS		91.2W
	PMH-24V100WCNS		91.2W
	PMH-24V150WCBA		150W
	PMH-24V150WCDA		150W
	PMH-24V150WCLS		150W
	PMH-24V200WCBA		200W

PMR	Model Name	Output Voltage	Output Power
	PMR-4V320WCAA	4.2V	252W
	PMR-4V320WDAA		252W
	PMR-4V320WDGA		252W
	PMR-4V320WDBA		252W
	PMR-4V320WDCA		252W
	PMR-5V320WCAA	5V	300W
	PMR-5V320WDAA		300W
	PMR-5V320WDGA		300W
	PMR-5V320WDBA		300W
	PMR-5V320WDCA		300W

PMT	Model Name	Output Voltage	Output Power
	PMT-4V350W1AM	4.2V	252W
	PMT-5V35W1AA	5V	35W
	PMT-5V50W1AA		50W
	PMT-5V350W1AM		300W
	PMT-12V35W1AA	12V	35W
	PMT-12V50W1AA		50W
	PMT-12V100W1AA		102W
	PMT-12V150W1AA		150W
	PMT-12V350W1AAR		348W
	PMT-15V50W1AA	15V	51W
	PMT-24V35W1AA	24V	35W
	PMT-24V50W1AA		50W
	PMT-24V100W1AA		108W
	PMT-24V150W1AA		156W
	PMT-24V200W1AM		211.2W
	PMT-24V350W1AG		350.4W
	PMT-36V350W1AR	36V	349.2W
	PMT-48V150W1AA	48V	158.4W
	PMT-48V350W1AR		350W
	PMT-D1V100W1AA	12V/5V	84W/15W
	PMT-D2V100W1AA	24V/5V	84W/15W

PMU	Model Name	Output Voltage	Output Power
	PMU-13V155WCBA	13.8V	151W
	PMU-13V155WCCA		151W
	PMU-27V155WCBA	27.6V	151W
	PMU-27V155WCCA		151W

Open Frame Models

PJ, PJB, PJH, PJT, PJU

PJ	Model Name	Output Voltage	Output Power
	PJ-5V15WBNA	5V	15W
	PJ-12V15WBNA	12V	15.6W
	PJ-12V30WBNA		30W
	PJ-12V50WBNA		51.6W
	PJ-12V100WBNA		102W
	PJ-12V150WBNA		150W
	PJ-24V30WBNA	24V	31.2W
	PJ-24V50WBNA		50.4W
	PJ-24V100WBNA		103.2W
	PJ-24V150WBNA		150W
	PJ-48V50WBNA	48V	52.8W

PJB	Model Name	Output Voltage	Output Power
	PJB-24V100WBNA	24V	103.2W
	PJB-24V150WBNA		151.2W
	PJB-24V240WBNA		240W

PJH	Model Name	Output Voltage	Output Power
	PJH-24V300WBBA	24V	300W
	PJH-24V300WBCA		300W
	PJH-36V300WBBA	36V	300W
	PJH-36V300WBCA		300W

PJT	Model Name	Output Voltage	Output Power
	PJT-12V40WBAA	12V	40W
	PJT-12V65WBAA		60W
	PJT-12V100WBAA		100W
	PJT-12V100WBBA		80W [A] 100W [B]
	PJT-15V40WBAA	15V	40W
	PJT-15V65WBAA		63W
	PJT-15V100WBAA		100W
	PJT-15V100WBBA		80W [A] 100W [B]
	PJT-18V40WBAA	18V	40W
	PJT-18V65WBAA		65W
	PJT-18V100WBAA		100W
	PJT-18V100WBBA		80W [A] 100W [B]
	PJT-24V40WBAA	24V	40W
	PJT-24V65WBAA		65W
	PJT-24V100WBAA		100W
	PJT-24V100WBBA		80W [A] 100W [B]
	PJT-27V150WBNA	V_1: 27V V_{SB}: 12V	150W

A) Convection
B) Forced Cooling

PJU	Model Name	Output Voltage	Output Power
	PJU-13V60WCBA	13V	60W
	PJU-27V60WCBA	27V	60W

Industrial Ethernet Switch

DVS

State-of-the-art Industrial Network Communication for Smart Industry

Layer 3 Managed Switch

DVS-G928W01 New



- 28-Port full GbE (10GbE optional), modular design for flexible configuration
- Layer 3 routing function allows multiple subnets in a large network to exchange data and information across a network address
- Complete L2 network management functions : Q-in-Q VLAN, QoS, LACP, IGMP, SNMP v1/v2c/v3
- IPv6 address suitable for larger network and neighbor discovery
- Support EtherNet/IP and Modbus TCP protocols that facilitates the remote management by SCADA and other industrial devices
- Proprietary redundancy RING and redundancy CHAIN high-end redundancy technology adopts easy-to-build multiple ring topology, with self-healing recovery time <30 ms to ensure reliable network transmission
- Enhanced network security with IEEE 802.1X, TACACS+, SSH, HTTPS and SNMP v3
- IEEE 1588v2 PTP (Precision Time Protocol) for precise time synchronization of network
- Loopback-detection to avoid broadcast storms by automatically shutting down the ports over a switching loop
- Cable diagnostic to auto-detect and report potential cabling issues
- Auto warning by emails, relay, Syslog & SNMP trap
- Compatible with various industrial protocols, including EtherNet/IP, Profinet, CC-LINK IE and DNP 3.0
- 100 ~ 240 VAC and 125 ~ 370 VDC wide range redundant power input
- IP30 metal case: -40ºC ~ 85ºC operating temperature
- Electrical substation: IEC 61850-3, IEEE 1613
- Rail traffic: EN 50121-4
- Certifications: UL 61010, IEC 60950-1, CE, FCC, CCC and RCM

Modules

DVS-G900-8GE
8 10/100/1000Base-T RJ45



DVS-G900-8GF
8 100/1000Base-SFP



DVS-G900-6GM12
6 10/100/1000Base-T M12



DVS-G900-4GF
4 100/1000Base-SFP



Managed Switch

DVS-328 New



- 24-Port FE + 4-Port GbE Combo SFP, designed for backbone network transmission at control centers
- Complete L2 network management functions: Q-in-Q VLAN, QoS, LACP, IGMP & SNMP v1/v2c/v3
- IPv6 address suitable for larger network and neighbor discovery
- Support Modbus TCP and EtherNet/IP protocols that facilitate remote management by SCADA and other industrial devices
- Proprietary ONE RING and ONE CHAIN high-end redundancy technology adopts easy-to-build multiple ring topology, with self-healing recovery time <20 ms to ensure reliable network transmission
- Enhanced network security with IEEE 802.1X, TACACS+, SSH, HTTPS and SNMP v3
- Loopback-detection to avoid broadcast storms by automatically shutting down the ports over a switching loop
- Cable diagnostic to automatically detect twisted-pair cable quality and periodically report issues
- Auto warning by emails, DI, relay, syslog & SNMP trap
- Compatible with various industrial protocols, including EtherNet/IP, Profinet, CC-LINK IE and DNP 3.0
- 85 ~ 264 V_{AC} and 88 ~ 370 V_{DC} wide range redundant power input
- IP40 metal case: -40ºC ~ 70ºC operating temperature
- Certifications: UL 60950-1, IEC 60950-1, CCC, CE, FCC and RCM

DVS-110



- 7-Port FE + 3-Port GbE Combo SFP, designed for backbone networks
- Complete L2 network management functions: VLAN, QoS, LACP, IGMP & SNMP v1/v2c/v3
- IPv6 address suitable for larger network and neighbor discovery
- Support Modbus TCP and EtherNet/IP protocols that facilitate remote management by SCADA and other industrial devices
- Proprietary ONE RING and ONE CHAIN high-end redundancy technology adopts easy-to-build multiple ring topology, with self-healing recovery time <20 ms to ensure reliable network transmission
- Loopback-detection to avoid broadcast storms by automatically shutting down the ports over a switching loop
- DDM diagnosis function by SFP fiber module
- Auto warning by emails, DI, relay, syslog & SNMP trap
- IP40 metal case: -40ºC ~ 75ºC operating temperature
- Certifications: UL 508, IEC 61131-2, CE, FCC and RCM

Managed Switch

DVS-109



- 8-Port FE + 1-Port GbE, Gigabit uplink port elevating transmission bandwidth
- Complete L2 network management functions: VLAN, QoS, LACP, IGMP & SNMP v1/v2c/v3
- IPv6 address suitable for larger network and neighbor discovery
- Support Modbus TCP and EtherNet/IP protocols that facilitate remote management by SCADA and other industrial devices
- Proprietary ONE RING and ONE CHAIN high-end redundancy technology adopts easy-to-build multiple ring topology, with self-healing recovery time <20 ms to ensure reliable network transmission
- Loopback-detection to avoid broadcast storms by automatically shutting down the ports over a switching loop
- Auto warning by emails, DI, relay, syslog & SNMP trap
- IP40 metal case: -40ºC ~ 75ºC operating temperature
- Certifications: UL 508, IEC 61131-2, CE, FCC and RCM



DVS-108



- 6-Port FE + 2-Port GbE Combo SFP, designed for backbone network
- Complete L2 network management functions: VLAN, QoS, LACP, IGMP & SNMP v1/v2c/v3
- IPv6 address suitable for larger network and neighbor discovery
- Support Modbus TCP and EtherNet/IP protocols that facilitate remote management by SCADA and other industrial devices
- Proprietary ONE RING and ONE CHAIN high-end redundancy technology adopts easy-to-build multiple ring topology, with self-healing recovery time <20 ms to ensure reliable network transmission
- Loopback-detection to avoid broadcast storms by automatically shutting down the ports over a switching loop
- DDM diagnosis function by SFP fiber module
- Auto warning by emails, DI, relay, syslog & SNMP trap
- IP40 metal case: -40ºC ~ 75ºC operating temperature
- Certifications: UL 508, IEC 61131-2, CE, FCC and RCM



PoE+ Managed Switch

DVS-G512

- 8-Port GbE + 4-Port 100/1000Base-SFP, full Gigabit
- 8 10/100/1000Base-T PoE (PSE) ports, each provides 30 W power supply to meet IEEE 802.3at and IEEE 802.3af standards
- Complete L2 network management functions: VLAN, QoS, LACP, IGMP & SNMP v1/v2c/v3
- IPv6 address suitable for larger network and neighbor discovery
- Advanced PoE management and intelligent powered device(PD) class detection
- IEC 62439-2 MRP media redundancy protocol; IEEE 1588v2 PTP precision time protocol
- DDM diagnosis function by SFP fiber module
- Auto warning by emails, relay, syslog & SNMP trap
- IP30 metal case: -40ºC ~ 70ºC operating temperature
- Certifications: CE, FCC and RCM



Unmanaged Switch

DVS-G005I00A



- 5-Port GbE
- Support IEEE 802.1p based QoS for packet forwarding precedence
- Built-in Broadcast Storm Protection
- Transparent transmission of VLAN tagged packets
- Jumbo packet transmission: up to 9,216 Bytes
- EEE Green Ethernet for power savings
- IP40 metal case: -10ºC ~ 60ºC operating temperature
- Certifications: UL 508, IEC 61131-2, CE, FCC and RCM

DVS-005/008/016



- 5/8/16-Port FE; supports long distance transmission via fiber optics
- Support IEEE 802.1p based QoS for packet forwarding precedence
- Built-in Broadcast Storm Protection
- Transparent transmission of VLAN tagged packets
- Auto warning by relay output for link-down and power failure
- 12 ~ 48 V_{DC} redundant terminal block power input
- IP40 metal case: -40ºC ~ 75ºC operating temperature
- Certifications: UL 508, IEC 61131-2, CE, FCC and RCM

DVS-G005I00C



- 5-Port GbE
- Jumbo frame size up to 10K Bytes
- 12 ~ 48 VDC redundant terminal block power input
- IP40 PC case: -20ºC ~ 70ºC operating temperature
- Certifications : UL 61010, IEC 62368-1, CE, FCC and RCM

PoE+ Unmanaged Switch

DVS-G408W01



- 8-Port GbE, full Gigabit
- 8 10/100/1000Base-T PoE (PSE) ports, each provides 30 W power supply to meet IEEE 802.3at and IEEE 802.3af standards
- Jumbo packet transmission: up to 9,216 bytes
- Auto warning by relay output for power failure
- IP30 metal case: -40 ºC ~ 70 ºC operating temperature
- Certifications: CE, FCC and RCM

DVS-G406W01-2GF



- 4-Port GbE + 2-Port 100/1000Base-SFP, full Gigabit
- 4 10/100/1000Base-T PoE (PSE) ports, each provides 30 W power supply to meet IEEE 802.3at and IEEE 802.3af standards
- Jumbo packet transmission: up to 9,216 Bytes
- Auto warning by relay output for power failure
- IP30 metal case: -40ºC ~ 70ºC operating temperature
- Certifications: CE, FCC and RCM

Ethernet-to-Fiber Media Converter

DVS-G002I00-TF



- 1-Port 100/1000Base-T to 100/1000Base-SFP
- Jumbo frame size up to 10K bytes
- Supports Link fault Pass-Through(LFP)
- 12 ~ 48 VDC redundant terminal block power input
- IP40 PC case: -20ºC ~ 70ºC operating temperature
- Certifications : UL 61010, IEC 62368-1, CE, FCC and RCM

SFP Fiber Transceiver

LCP-GbE



- 1-Port GbE, compliant with IEEE 802.3z
- Full duplex operation
- DDM diagnosis function to monitor transmission quality
- Hot-plugging duplex LC connectors for maximum flexibility
- Metal case: -40ºC ~ 85ºC operating temperature

LCP-1FE



- 1-Port FE, compliant with IEEE 802.3u
- Full duplex operation
- DDM diagnosis function to monitor transmission quality
- Hot-plugging duplex LC connectors for maximum flexibility
- Metal case: -40ºC ~ 85ºC operating temperature

PoE+ Splitter

DVS-G401

- 1-Port GbE for PoE+ data / power input and 1-Port GbE for data output
- Provide 30 W power supply / per port to meet IEEE 802.3at and IEEE 802.3af standards
- Intelligent PoE input overvoltage protection
- Power output up to 27 W
- IP30 metal case: -20ºC ~ 70ºC operating temperature
- Certifications: CE, FCC and RCM



PoE+ Injector

DVS-G402

- 2-Port GbE for PoE+ data / power output and 2-Port GbE for data input
- Provide 30 W power supply / per port to meet IEEE 802.3at and IEEE 802.3af standards
- Intelligent PoE output overvoltage protection
- Built-in 12 V_{DC} power booster for flexible PoE deployment
- IP30 metal case: -20ºC ~ 70ºC operating temperature
- Certifications: CE, FCC and RCM



IEEE 802.11 WLAN

DVW-W02W2-E2

- Complete transmission interface: 2-Port GbE + 2-Port RS-232/422/485
- Compliant with IEEE 802.11n wireless technology for up to 450 Mbps data transmission rate
- IEEE 802.11r fast roaming with seamless switch (< 50ms) among APs
- Multiple wireless modes: AP, Client CPE, WDS P-T-P, WDS P-T-MP and repeater
- Support serial device servers and MODBUS gateways
- Wireless QoS (IEEE 802.11e, WMM) for video packet transmission precedence
- Enhanced wireless security: 64/128-bit WEP, WPA/WPA2, WPA-PSK/WPA2-PSK (TKIP/AES) and 802.1X Authentication
- Support Modbus TCP protocol that facilitates the remote management by SCADA and other industrial devices
- Auto warning by emails, DI, relay, Syslog and SNMP trap
- IP40 metal case: -40ºC ~ 75ºC operating temperature
- Certifications: UL 508, IEC 61131-2, CE, FCC, RCM, BSMI, SRRC and NCC



High-gain Antenna

DVW-ANT

- Support IEEE 802.11 b/g/n or IEEE 802.11 a/b/g/n
- 2.4 & 5 GHz dual-band omni-directional 5.5 & 8dBi, or 2.4 GHz omni-directional 7dBi
- Powerful magnetic base with 3-meter extension cord and RP-SMA (male) connector
- IP65 waterproof and UV resistant design, suitable for applications under all kinds of weather conditions
- -30ºC ~ 60ºC operating temperature



Industrial 3G Cloud Router

DX-2100RW

- 1-Port FE + 1-Port RS-232 + 1-Port RS-485
- UMTS / HSPA+: 800 / 850, 900, AWS1700, 1900, 2100 MHz
- GSM / GPRS / EDGE: 850, 900, 1800, 1900 MHz
- Support DIACloud Cloud Management Platform, no ISP public IP address required
- Support Modbus TCP and MODBUS ASCII/RTU protocols
- Firewalls: Stateful Packet Inspection (SPI), Denial of Service (DoS) attacks, NAT, Port triggering, Port mapping, IP address filtering, MAC address filtering, URL filtering
- IP30 metal case: -20ºC ~ 70ºC operating temperature
- Certifications: CE, FCC and UL



Industrial Ethernet Cloud Router

DX-2300LN

- 4-Port FE LAN + 1-Port FE WAN + 1-Port RS-232 + 1-Port RS-485
- Support DIACloud Cloud Management Platform, no ISP public IP address required
- Support Modbus TCP and MODBUS ASCII/RTU protocols
- Firewalls: Stateful Packet Inspection (SPI), Denial of Service (DoS) attacks, NAT, Port triggering, Port mapping, IP address filtering, MAC address filtering, URL filtering
- IP30 metal case: -20ºC ~ 70ºC operating temperature
- Certifications: CE, FCC and UL



Industrial 3G/WAN Cloud Router

DX-3001H9 New



- 4-Port FE LAN + 1-Port FE WAN + 1-Port RS-232 + 1-Port RS-485
- UMTS/HSPA+: 800 / 850, 900, AWS1700, 1900, 2100 MHz
- GSM/GPRS/EDGE: 850, 900, 1800, 1900 MHz
- Support DIACloud Cloud Management Platform, no ISP public IP address required
- Support Modbus TCP, Modbus ASCII/RTU protocols
- Dual SIM redundancy design: seamless switch among ISP systems for continuous network connection
- IP30 metal case: -20ºC ~ 70ºC operating temperature
- Certifications: CE, FCC and UL

Industrial 3G/WAN VPN Router

DX-3001H9-V



- 4-Port FE LAN + 1-Port FE WAN + 1-Port RS-232 + 1-Port RS-485
- UMTS/HSPA+: 800/850, 900, AWS1700, 1900, 2100 MHz
- Support GSM/GPRS/EDGE: 850, 900, 1800, 1900 MHz
- Support IPSec, OpenVPN, PPTP, L2TP and GRE VPN protocols; IPSec with CA certificate supports L2TP over IPSec
- Dual SIM redundancy design: seamless switch among ISP systems for continuous network connection
- Built-in RTC
- Flexible connection method over WAN port, e.g. static IP, DHCP client and more
- Firewalls: Stateful Packet Inspection (SPI), Denial of Service (DoS) attacks, NAT, port triggering, port mapping, IP address filtering, MAC address filtering, URL filtering
- IP30 metal case: -20ºC ~ 70ºC operating temperature
- Certifications: CE, FCC and UL



Communication Module

High Speed and Stable Industrial Network Solutions

BACnet MS/TP Slave Module

DVPSCM52-SL

- BACnet MS/TP slave, standard Modbus and user-defined RS-422/485 communication protocols
- Compatible with software and DDC of major brands on the market; remote I/O and converter function available when connected with a PLC with I/O point extension
- Isolated power and communication provide strong noise immunity. Built-in 120 ohm terminal resistor switch and feed-through terminals with spring plugs
- Data transmission settings via software, no complex programming required



RS-422 / 485 Master Module

DVPSCM12-SL

- Standard Modbus communication and user-defined RS-422/485 communication protocols
- Two sets of independent RS-422/485 communication interfaces
- Isolated power and communication provide strong noise immunity; built-in 120 ohm terminal resistor switch and feed-through terminals with spring plugs
- Data transmission settings via software, no complex programming required
- Applied as PLC communication ports for program uploading/downloading and monitoring



Ethernet Master Module

DVPEN01-SL

- Modbus TCP protocol
- Modbus TCP connections:
  Client: 32
  Server: 16
- Smart data exchange
- RTU mapping
- Simple firewall
- Email alarm



CANopen Master Module

DVPCOPM-SL

- CANopen protocol
- Able to connect max. 110 slaves
- Various PDO and high-speed SDO transmission
- Supports NMT slave, Heartbeat, Emergency and more protocols



PROFIBUS DP Slave Module

DVPPF02-SL

- PROFIBUS DP slave protocol
- Supports GSD files identification and cyclic data transmission
- Data transmission: up to 100 words IN/OUT data mapping



DeviceNet Master Module

DVPDNET-SL

- DeviceNet protocol
- Able to connect max. 63 slaves
- Supports EDS files identification and cyclic data transmission
- Max. network connection distance: 500 m
- RTU mapping



Ethernet Remote I/O Communication Module

RTU-EN01

- Modbus TCP slave protocol
- Able to connect 8 DVP-S Series analog I/O modules
- Able to connect digital I/O (256 points) modules
- RS-485 port supports max. 32 MODBUS slaves
- Smart PLC if-then function
- Smart monitor function
- Supports webpage setup and on-line monitoring
- Serial virtual COM available



PROFIBUS DP Remote I/O Communication Module

RTU-PD01

- PROFIBUS DP slave protocol
- Auto-detects baudrate, max. baudrate: 12 Mbps
- Supports GSD files for identification and cyclic data transmission
- Able to connect 8 DVP-S Series analog I/O modules
- Able to connect digital I/O (256 points)
- RS-485 port supports max. 16 Modbus slaves



DeviceNet Remote I/O Communication Module

RTU-DNET

- DeviceNet protocol
- Supports EDS files for identification and cyclic data transmission
- Able to connect 8 DVP-S Series analog I/O modules
- Able to connect digital I/O (256 points)
- RS-485 port supports max. 8 Modbus slaves



RS-485 Remote I/O Communication Module

RTU-485

- Modbus protocol
- Able to connect 8 DVP-S Series analog I/O modules
- Able to connect digital I/O (256 points) modules
- Max. baud rate: 115.2 Kbps



DVP Series Slave Module (Right-side)

DVPCP02-H2	DVPPF01-S	DVPPF02-H2	DVPDT01-S	DVPDT02-H2
				
CANopen slave module Supports DVP-EH2/3 Series	PROFIBUS slave module Supports DVP-S Series	PROFIBUS slave module Supports DVP-EH2/3 Series	DeviceNet slave module Supports DVP-S Series	DeviceNet slave module Supports DVP-EH2/3 Series

Converter

Impedance to Noise with a Range of Fieldbus Converters



Applications

Intelligent transportation systems, water treatment, building automation, factory automation, monitoring and control systems

USB Converter



UC-PRG020-12A **USB » RS-232**	• Delta programming cables • RS-232 port provides mini-DIN and DB9 connectors • A portable hot-plugging USB device, no power supply required
IFD6500 **USB » RS-485**	• Lightweight design for easy portability • Auto-detection of data flow direction • A portable USB device • Supports Win XP, Win7 32/64-bit
IFD6503 **USB » CAN**	• Extracts CAN messages (incl. standard and extended frames), decodes and displays following DeviceNet and CANopen protocols • Filters by set conditions • Sends CAN messages (1 message by manual mode, 8 messages by auto mode) • Max. 1 Mbps • A portable USB device
IFD6530 **USB » RS-485**	• Lightweight design for easy portability • Auto-detection of data flow direction • Supports KPC-CC01keypad in conducting parameters and page editing • Supports Win XP, Win7 32/64-bit • A portable USB device

Modbus Serial Converter



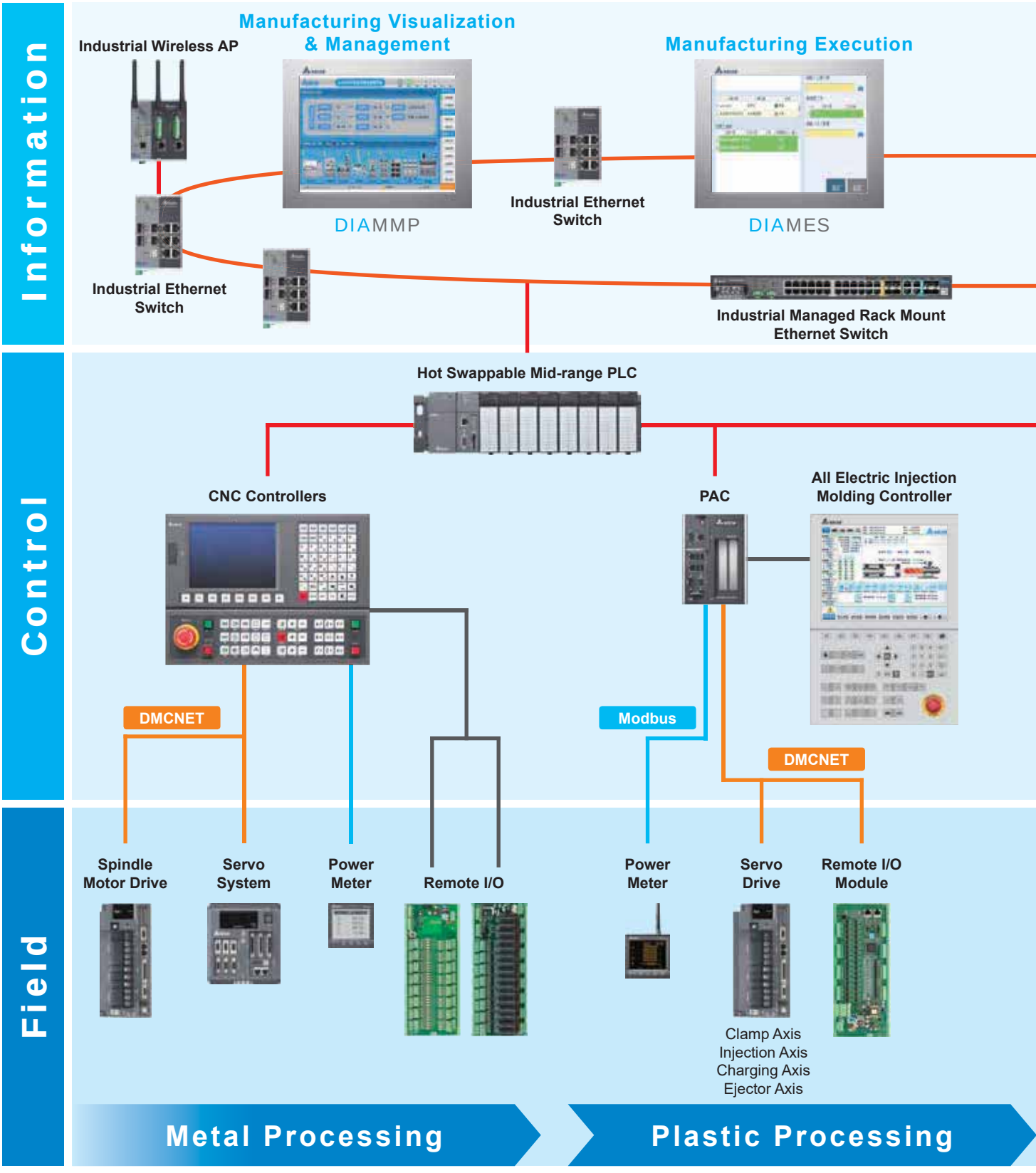
IFD8500A **RS-232 « » RS-485**	• RS-232 to RS-422 / 485 isolated converter • Auto transmission speed adjustment
IFD8510A **RS-422/485**	• RS-422 / 485 isolated regenerator • RS-422 / 485 transmission distance extended to 1.2 km • Able to connect to 32 RS-485 devices • Auto transmission speed adjustment and data flow direction control
IFD8520 **RS-232 « » RS-485**	• RS-232 to RS-422/485 addressable isolated converter • Connects RS-232 to RS-422/485 by setting up Modbus address

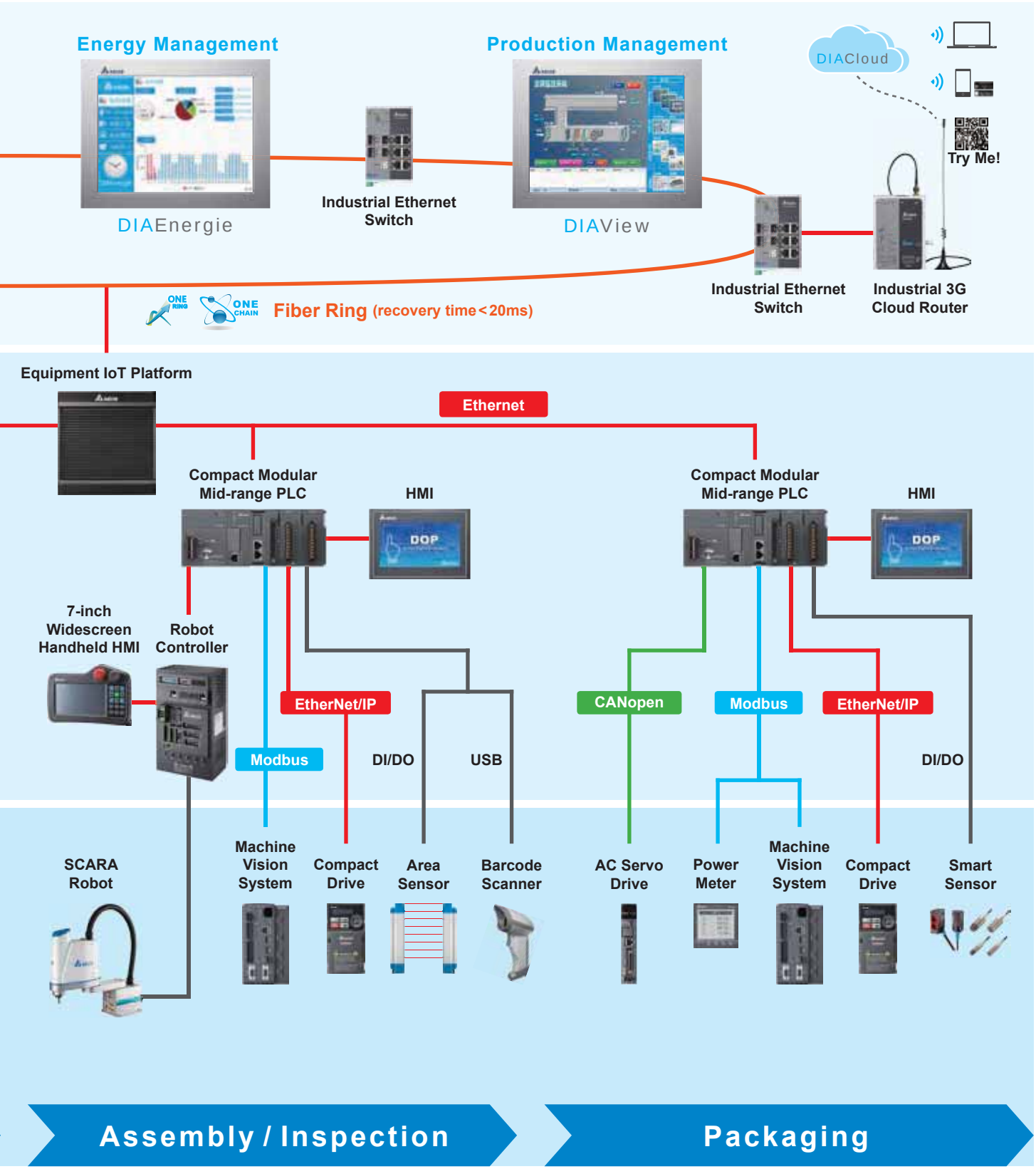
Industrial Network Converter



IFD9502 **DeviceNet » MODBUS**	• DeviceNet protocol • Able to connect Delta industrial automation products • Isolation in RS-485 channel (incl. power supply) • Full compatibility test passed
IFD9503 **CANopen » MODBUS**	• CANopen protocol • Able to connect all Delta industrial automation products • Isolation in RS-485 channel (incl. power supply) • Full compatibility test passed
IFD9506 **MODBUS TCP « » MODBUS**	• Isolation in RS-485 channel (incl. power supply) • Modbus TCP protocol • Smart monitor function • Supports webpage setup and on-line monitoring • Serial virtual COM available • Alarm notification through email
IFD9507 **EtherNet/IP « » MODBUS**	• Isolation in RS-485 channel (incl. power supply) • EtherNet/IP and Modbus TCP protocols • Smart monitor function • Supports webpage setup and on-line monitoring • Serial virtual COM available • Alarm notification through email

Industrial Automation Solutions




Energy Management
Production Management
DIACloud
Try Me!
DIAEnergie
Industrial Ethernet Switch
DIAView
Industrial Ethernet Switch
Industrial 3G Cloud Router
ONE RING
ONE CHAIN
Fiber Ring (recovery time < 20ms)
Equipment IoT Platform
Ethernet
Compact Modular Mid-range PLC
HMI
Compact Modular Mid-range PLC
HMI
7-inch Widescreen Handheld HMI
Robot Controller
EtherNet/IP
Modbus
DI/DO
USB
CANopen
Modbus
EtherNet/IP
DI/DO
SCARA Robot
Machine Vision System
Compact Drive
Area Sensor
Barcode Scanner
AC Servo Drive
Power Meter
Machine Vision System
Compact Drive
Smart Sensor
Assembly / Inspection
Packaging

Industrial PC

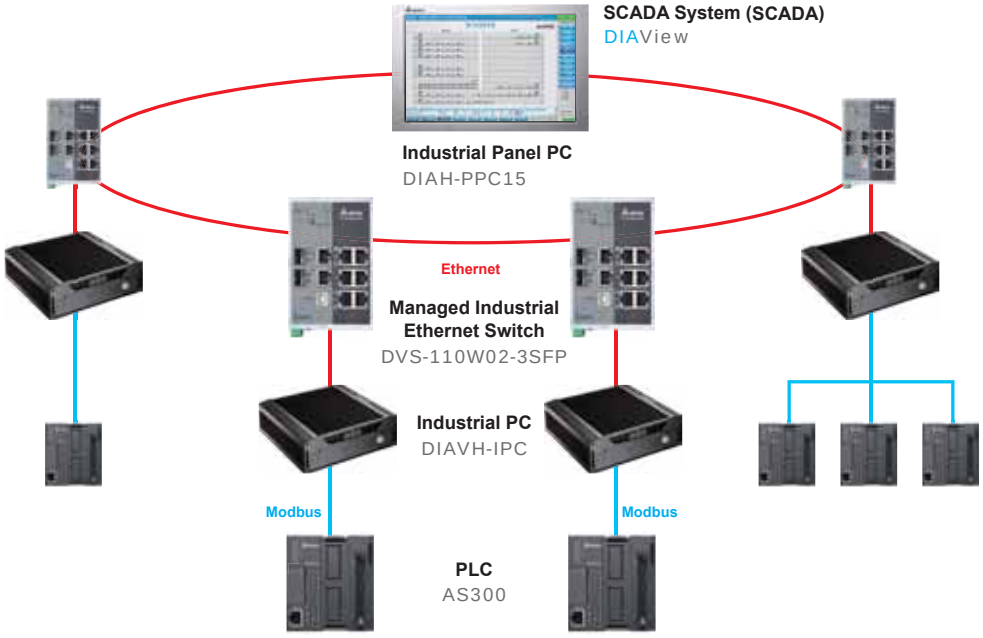
DIAV

Stable and High-performance Integration Platform

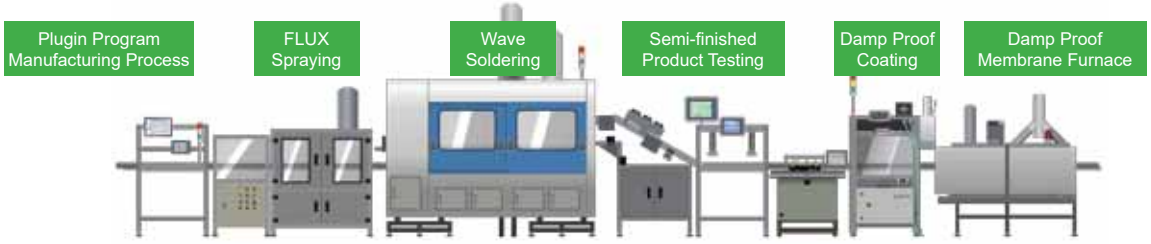


DIAVH-IPC DIAVH-PPC15 DIAVH-PPC19

- IPC with 10"/12"/15"/17"/19" TFT LCD touch screen
- Wide operating temperature range, suitable for applications in harsh industrial environments
- Fanless and low power Intel Core i3/i5 and Celeron J1900 processor with high efficiency and excellent performance
- One-click start up click (power-on)
- Embedded Windows 7 operating system with 128G/256G/512G SSD
- Full compatibility with SCADA and IEMS software platform



Facility Management Control System | Equipment Management System | Production Process Control System | Production Quality Management System



Applications

Equipment for electronics manufacturing, machinery equipment, HVAC, water treatment, facility management and monitoring control

Factory Digitalization

- Factory data acquisition, process control and management
- Distributed system calculation for data and information storage and analytics



Factory Digitalization



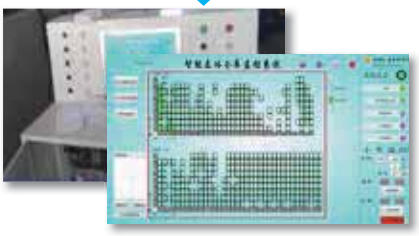
Factory Equipment Monitoring

Logistic Application: Transportation and Stereoscopic Warehouse

- The database saves the location of materials; barcode scanning enhances load/unload and sorting efficiency to save space and labor costs



Warehousing System



Warehouse Monitoring

Inspection & Monitoring of Electronic Equipment

- DIAView interacts with the programming processes of PLCs and inspection equipment, realizing powerful group control
- With DIAView, the system can record daily production, identify qualified and unqualified products, and provide inquiry functions



Electronic Inspection Equipment



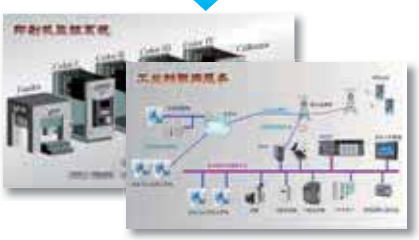
Inspection and Monitoring of Electronic Equipment

Equipment Monitoring System

- Achieves real-time remote monitoring of machine operating status
- Allows device suppliers to remotely lock/unlock devices for flexible management



Total Configuration of Equipment Monitoring



Equipment Remote Monitoring

Equipment IoT Platform

DIALink

DIAEnergie
Industrial Energy Management System

Power Monitoring
Rate Analytics
Demand Control

DIAView
SCADA System

Real-time Monitoring
Data Acquisition
Alarm Management

DIAMES
Manufacturing Execution System

Production Process Management
Equipment Management and Maintenance
Overall Equipment Effectiveness (OEE) Management



- Equipment Data Acquisition
- Easy Programming Software
- Software and Hardware Integrating Platform
- Seamless Software / Data Transmission

Equipment Monitoring and Data Acquisition

Features

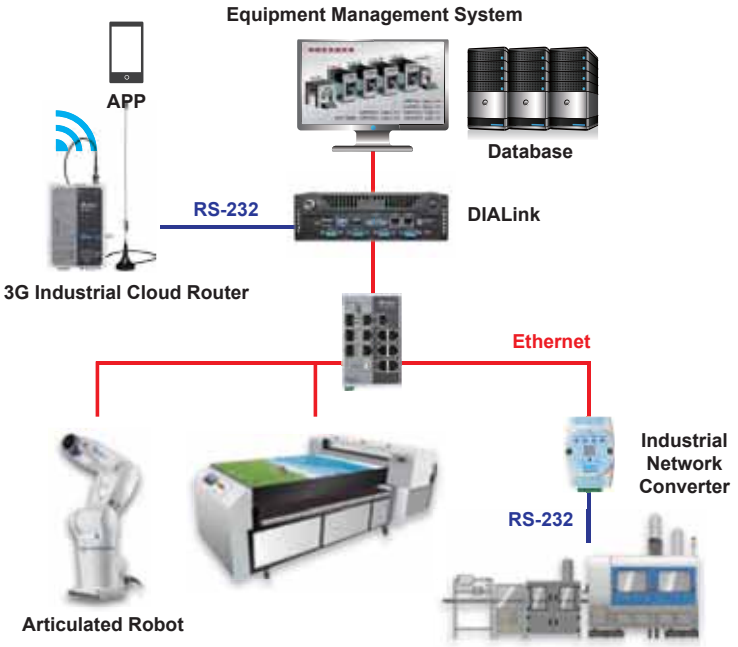
- Supports all major CNC and PLC drivers
- Equipment monitoring and data acquisition
- Data temporary storage function

Benefits

- Equipment data digitalization and management
- Customized (user-defined) real-time information visualization
- Machine abnormality and idle time monitoring
- Enhanced efficiency by improving control of Overall Equipment Effectiveness (OEE)

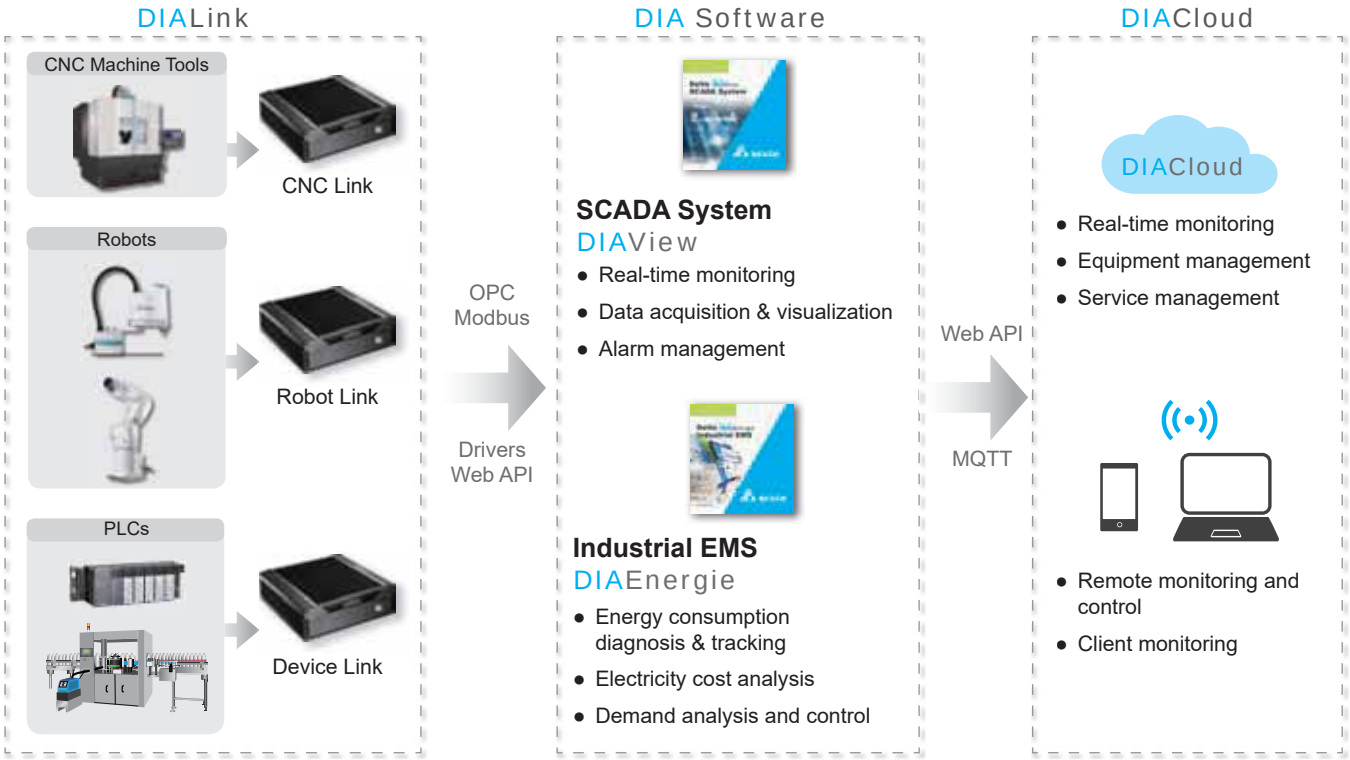
Applications

- Real-time equipment data collection
- Equipment analysis and management
- Remote monitoring and control

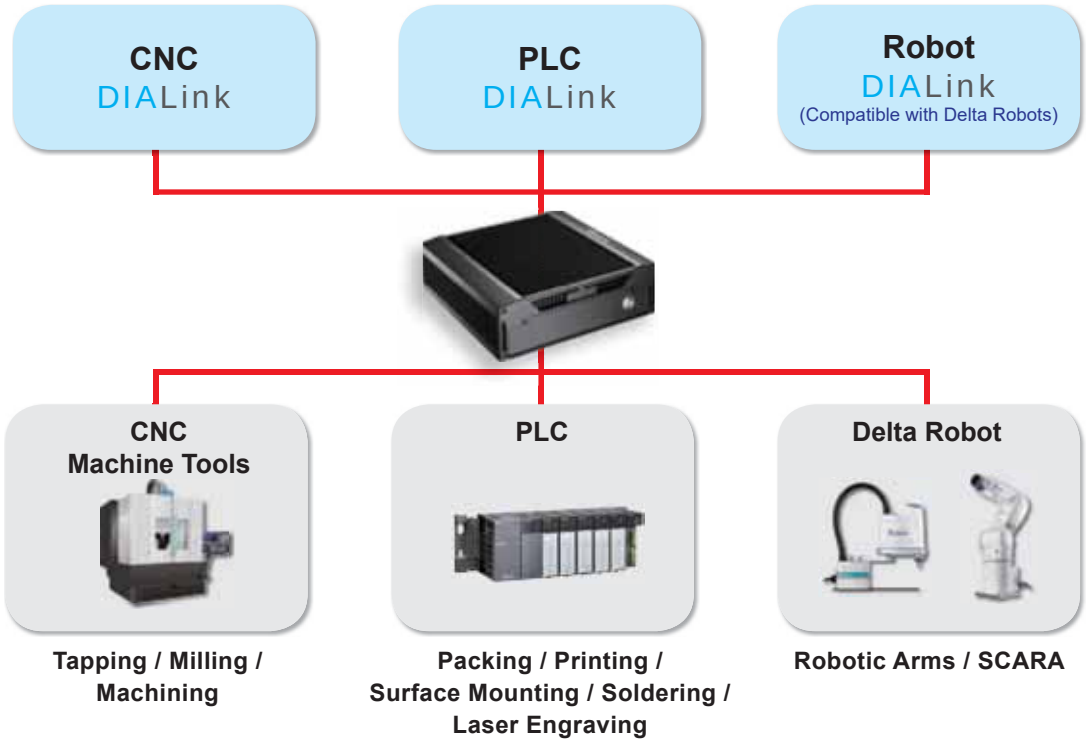


Rapid, Seamless and Secure Data Transfer

- Supports OPC Server
- Supports Modbus slaves, XML, JSON data formats
- Open Web API



DIALink Models - PLC/CNC/Robot



SCADA System

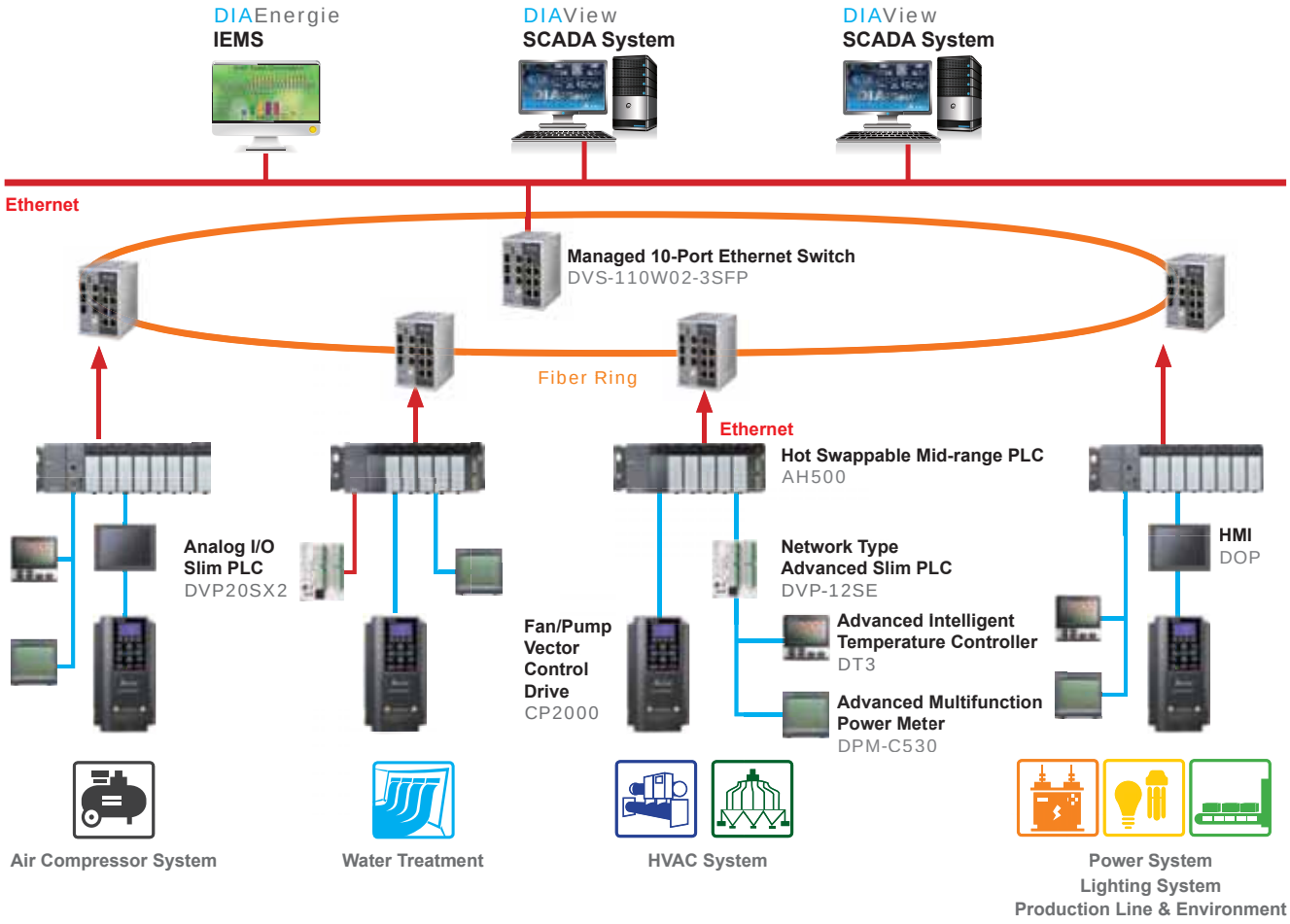
DIAView

Evolution of Factory Visualization and Analysis Management



- Seamless integration with Delta's PLC products and I/O modules, supporting various industrial communication protocols and equipment drivers
- WPF technology for intuitive and vivid displays, and easy-to-navigate interfaces
- Flexible variables dictionary and batch editing parameters
- A variety of data visualization tools: reports, alarms, charts and trend graphs
- Diversified real-time and historical data analysis tools
- Strong and efficient alarm management
- Easy-to-learn VBScript language
- Reliable user authority management for different user levels

System Structure and Applications



Applications

HVAC, water treatment, central heating, electronics manufacturing

Industrial Energy Management System

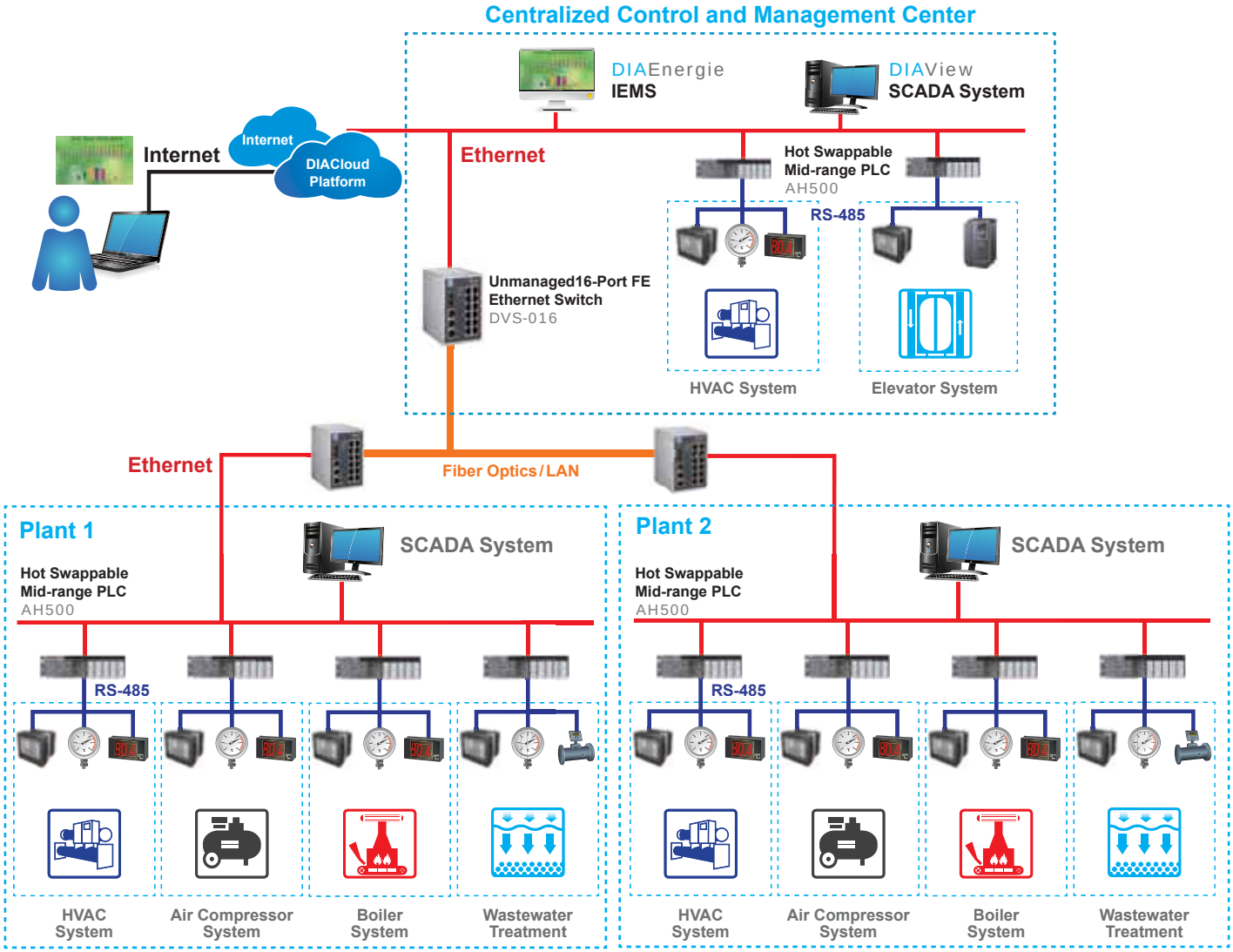
DIAEnergie

Innovative Solution for Smart Energy Saving



- Visualization and remote monitoring of critical power consumption
- Data analysis by areas and user levels
- Monitoring and analysis to meet energy performance strategy
- Instant record and alarm delivery for abnormal machine actions
- Power consumption measurement and analysis to achieve more efficient electricity usage and electricity cost savings
- Demand management and forecast to avoid over-limit demand penalties
- Customized user-defined reporting tools for displaying a variety of data analysis

System Structure and Applications



Delta Articulated Robot

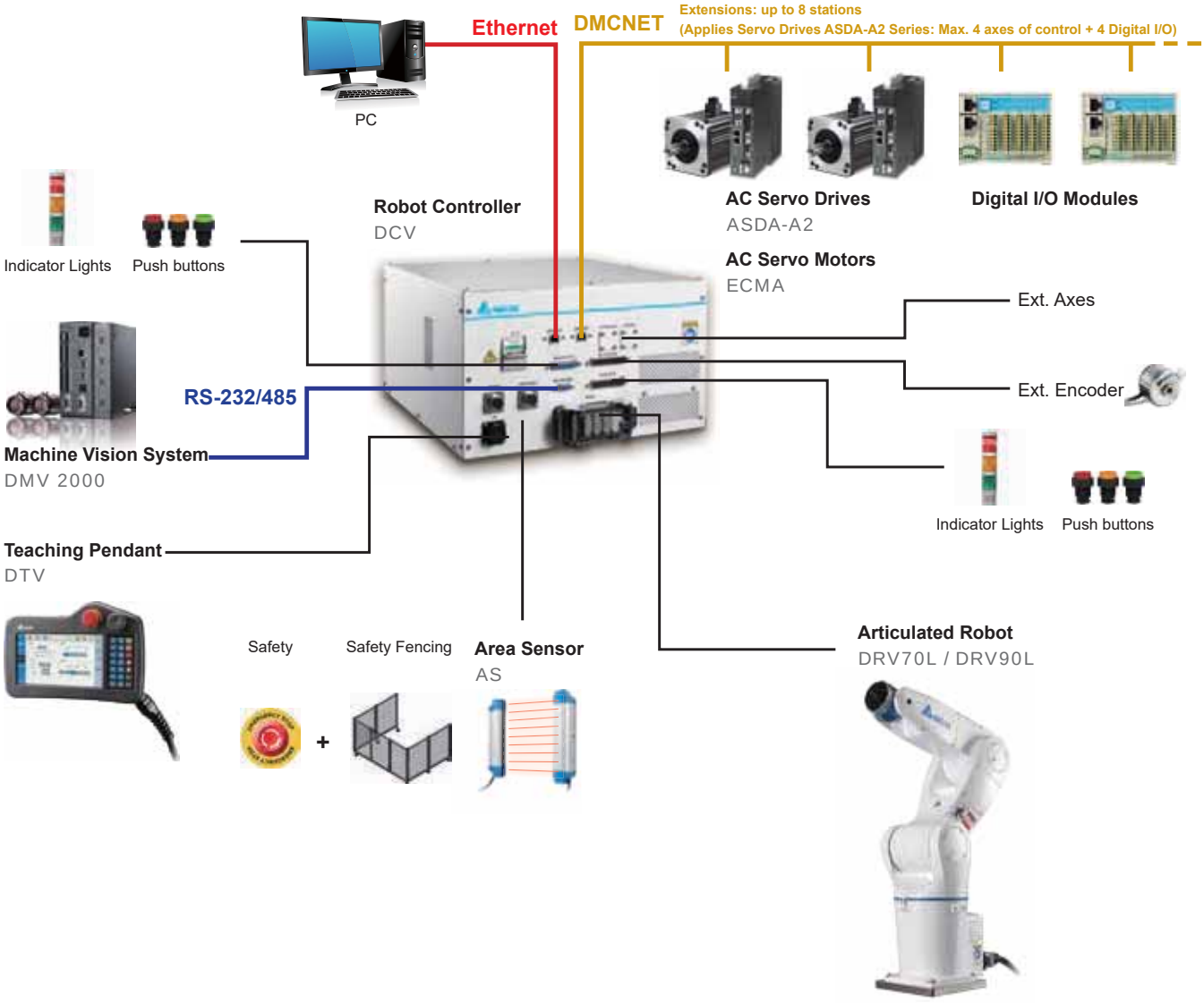
DRV70L/DRV90L

New Intelligent Industrial Automation Trend

- High precision, high speed
- Built-in 3 solenoid valves for quick integration and application
- Hollow design of the robot wrist (the 6th axis) for wiring and tool placement
- Slim and compact body design
  - Overall width: Max. 235 mm
  - Footprint: 190 x 190 mm
- High integration and efficiency
  - Match with key devices for production automation
  - Quick integration with peripheral components for workstation applications



DRV70L DRV90L



Product Specifications			
Model		DRV70L	DRV90L
Number of Axes		6	
Max. Working Range		710 mm	900 mm
Max. Payload		7kg	
Motion Range (Max. Speed)	J1	±170° (450° sec)	±170° (370° sec)
	J2	+133° / -105° (340° sec)	+135° / -105° (260° sec)
	J3	+65° / -205° (510° sec)	+65° / -205° (410° sec)
	J4	±190° (550° sec)	
	J5	±120° (550° sec)	
	J6	±360° (820° sec)	
Repeatability		±0.02 mm	±0.03 mm
Standard Cycle Time*1		0.32 sec	0.35 sec
Installation		Desk-mount / Wall-mount / Ceiling-mount	
Built-in Wires		One 12Pos. connector for sensor connections and two ø6 pneumatic tubings (one is for three built-in solenoids, the other is for extension purpose)	
IP rating*2		IP40 (Standard) / IP65 (Optional)	
Environment	Temperature	0°C ~ 40°C	
	Humidity	20 ~ 85%RH	
	Vibration	0.5G	
Weight		37kg	39kg
Controller Series		Robot Controller DCV Series	

*1. When carrying a payload of 1kg and reciprocating 25mm in vertical and 300mm in horizontal directions under an operating temperature of 25°C and within a humidity of 45% ~ 65% RH (non-condensing)
*2. Please contact regional sales when environment situations are not within the above specifications

• High Flexibility / Multiple Installations

- Max. working range: 710mm - 900mm enhances manufacturing flexibility
- Desk-mount / wall-mount / ceiling-mount installation fulfills various application needs



• Hollow-wrist Design

No Hollow Design
Tangled wire / cords lead to equipment interference



Hollow Design
Enhance reliability of extension wire / cords



• Simple and User-Friendly Operation Interface



DRAStudio Robotic Automation Studio software system



Intuitive user interface

- Real-time equipment data
- Dynamic-link library
- Self-defined user IO
- Optimized parameters
- Complete tuning function
- Easy backup with one click



Simple and graphic programming

Applications



Load / Unload



Machine Tending



Assembly



Insertion



Inspection



Screw-driving

SCARA Robot

DRS40L/DRS50L/DRS60L/DRS60H New /DRS70L

High Repeatability, High Precision, Excellent Linearity and Verticality



DRS40L



DRS60L



Teaching Pendant

DTS



Robot Controller

DCS

Product Specifications									
Model		DRS30L3	DRS40L3	DRS50L6	DRS60L6	DRS70L6	DRS60L3 (5-Axis)	DRS60L3	DRS60H6
Installation		Desk-mount	Desk-mount	Desk-mount	Desk-mount	Desk-mount	Desk-mount	Desk-mount	Desk-mount
Arm Length (X+Y)		300 mm	400 mm	500mm	600 mm	700mm	600 mm	600 mm	600 mm
Max. Payload		3 Kg	3 Kg	6 Kg	6 Kg	6 Kg	3 Kg	3 Kg	6 Kg
Motion Range	J1	±130°	±130°	±133°	±133°	±133°	±133°	±114°	±130°
	J2	±146.6°	±146.6°	±153°	±153°	±153°	±153°	±148°	±150°
	J3	150 mm	150 mm	200 mm	200 mm	200 mm	200 mm	150 mm	200 mm
	J4	±360°	±360°	±360°	±360°	±360°	±360°	±360°	±360°
	J5	N.A.	N.A.	N.A.	N.A.	N.A.	±360°	N.A.	N.A.
Standard Cycle Time*		-	0.42 sec	0.39 sec	0.39 sec	0.40 sec	0.45 sec	0.72 sec	0.39 sec
Repeatability	J1+J2	±0.01 mm	±0.01 mm	±0.015 mm	±0.015 mm	±0.015 mm	±0.015 mm	±0.015 mm	±0.015 mm
	J3	±0.01 mm	±0.01 mm	±0.01 mm	±0.01 mm	±0.01 mm	±0.01 mm	±0.01 mm	±0.01 mm
	J4	±0.01°	±0.01°	±0.01°	±0.01°	±0.01°	±0.01°	±0.01°	±0.01°
	J5			N.A.	N.A.	N.A.	±0.01°	N.A.	N.A.

* When carrying a payload of 1 kg and reciprocating 25mm in vertical and 300mm in horizontal directions under an operating temperature of 25ºC and within a humidity of 45% ~ 65% RH (non-condensing)

Applications

Industries: Electrical/electronics, consumer electronics, rubber and plastic, metal fabrication, food and beverages

Processes: Loading/unloading, pick-and-place, assembly, packaging, insertion, dispensing, soldering, labelling, inspection and screw driving

SCARA Robot Applications



Loading/Unloading



Insertion



Glue Dispensing



Product Inspection



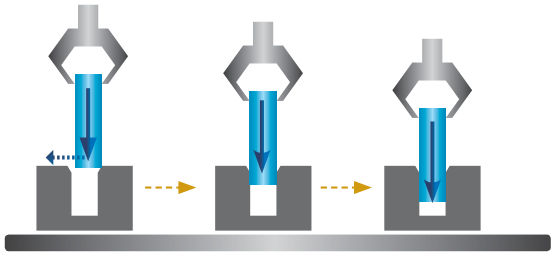
Screw Driving



Soldering

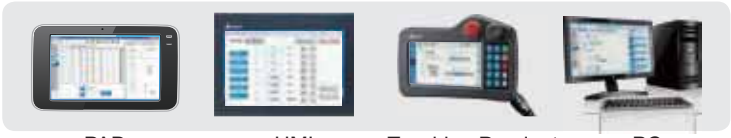
• Sensor-less Compliance Control Function

- Compensates for the deviation between workpieces and insertion holes
- Fast and precise smooth insertion
- Improves assembly and production performance



- Insertion performance may differ depending on workpiece hardness

• Intuitive Teaching Methods with Versatile Control Approaches



PAD HMI Teaching Pendant PC



Positions are directly taught and controlled by hand, and recorded by SCARA.



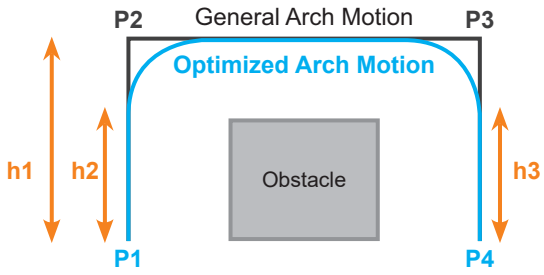
• Off-line Simulation Function

- Robotic integration software with simulation modules
- Fast programming
- Shortens development time
- Pre-evaluation, saves cost
- Simple and easy-to-operate



• Arch Motion Control

- Route optimization
- Saves motion time
- Quick and easy setting
- Optimizes arch route setting, fast operational speed
- Prevents crash when near the top or edge of robot route planning



• Real-time Information Monitoring and Gathering

- Robot machine data monitoring and analysis
- Oversees real-time machine operation data
- On-site production information acquisition



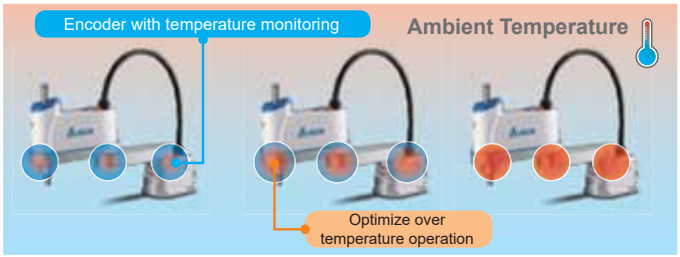
Equipment Data Acquisition Platform
DIALink



Overall Equipment Effectiveness Platform
DIAOEE

• Optimizes Operational Efficiency

- Safe operation, improves operational stability
- Excellent dynamic display for operational efficiency and intelligent control
- Smart temperature control, real-time control of working environment



Normal Mode **Adjustment Mode** **Overload Mode**

4ManPro

Elements For Manufacturing Processes

MÓDULOS DE POTENCIA

MÓDULOS DE PODER AC/DC

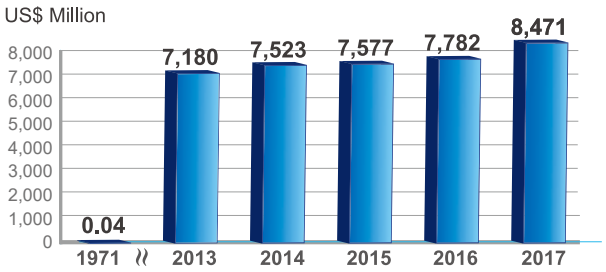
Brand Promise



Worldwide Revenues

Delta continues to deliver strong and stable financial performance, achieving a compound annual growth rate of 30.5% since 1971. Delta's consolidated worldwide sales revenues in 2017 were US$ 8.471 billion.

CAGR: 30.5%



Milestones

1971
- Delta Electronics, Inc. established

1983
- Mass production of switching power supplies

1988
- Listed on the Taiwan Stock Exchange (code: 2308)
- Mass production of DC brushless fans

1992
- Inauguration of the first plant (Dongguan) in China

2003
- Acquired ASCOM Energy Systems, an organization with expertise in power supplies and a history of over 100 years

2006
- Inaugurated Delta's Tainan Plant, the first green building in Taiwan certified for all nine indices of Taiwan's EEWH rating system (EEWH Diamond)

2007
- Honored with Forbes Asia's Fabulous 50 Award
- Developed the world's first company-wide Green Map with recognition from Green Map System

2008
- Listed as a Global Top 100 Low-Carbon Pioneer by CNBC European Business Magazine

2011
- Inaugurated Shanghai R&D and Operations Center Building in China (LEED Gold)
- Inaugurated Delta Taoyuan Technology Center, Taiwan (LEED/ EEWH Gold)

2012
- Received Taiwan's Industry Innovation Award

2015
- Selected for the Chinese Academy of Social Sciences "Top100 China Corporate Social Responsibility" for 3th consecutive year
- Acquired Eltek, a leading provider in telecom power, industrial and datacenter power solutions
- Inaugurated Delta Americas Headquarters
- Inaugurated Delta Taoyuan Plant 5, Taiwan (EEWH/LEED Gold)

2016
- Acquired Delta Controls and LOYTEC, two leading companies in building automation

2017
- Selected for the Dow Jones Sustainability™ World Index (DJSI World) for the 7th consecutive year
- Named as Climate Change Leadership Level of the 2017 CDP
- Named as a Taiwan Top 20 Global Brand for the 7th consecutive year

Solutions and Applications

Telecom / Networking / Datacenter

Delta is the worldwide leader in power systems technology and manufacturing for DC-DC converters for the telecom, networking and datacenter marketplace. With creative design topology and patented technologies, Delta is committed to design high-density and high-efficiency converters with advanced performance, flexibility and reliability that worldwide telecom, networking and datacenter market requires.



Industrial

Delta's expansive product portfolio provides solution capability to meet the specific requirements of industrial application. Products use Delta's creative design topology and patented technologies to achieve extremely high efficiency, low power dissipation and greater reliability. These modules housed in industry standard footprint and pinout are easy to use and available in a fully encapsulated package for harsh environment applications.



Transportation





Delta provides isolated DC-DC power converters in the transportation industry for all industrial electric-powered vehicles and various railway applications such as drive controls, power controls, safety monitors and communications systems under the European Standard EN 50155. Delta designed these products with ultra wide input range for optimal performance in extensive transportation market. With creative design technology and optimization of component placement, these converters possess outstanding electrical and thermal performance as well as high reliability under extremely harsh operating conditions.

Healthcare



Both AC-DC and DC-DC power supplies are designed to meet specific power requirements for healthcare applications. Such models meet UL60601-1 safety specs.



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Filter & ATCA Input Module.....84

PRODUCT SELECTION GUIDE

DC-DC **Isolated** **Single Output** **Vin nominal: 3.3~12V**

Vin Nominal	Vin Range	Series	Max Power	Vo													Page
				1V	1.2V	1.5V	1.8V	2.5V	3.3V	5V	9V	12V	15V	24V	28V	48V	54V	
3.3V	2.97~3.63V	PA01S	1W						▲	▲								46
5V	4.5~5.5V	DA01S	1W							▲	▲	▲	▲					46
		PA01S	1W						▲	▲	▲	▲	▲					46
		PB01S	1W						▲	▲	▲	▲	▲					46
		PD01S	1W						▲	▲	▲	▲	▲					46
		PE01S	1W							▲	▲	▲	▲					46
		PF01S	1W							▲	▲	▲	▲					46
		PI01S	1W							▲		▲	▲					46
		SA01S	1W						▲	▲	▲	▲	▲					46
		SB01S	1W							▲		▲	▲					47
		SH01S	1W						▲	▲	▲	▲	▲					47
		DC02S	2W							▲		▲	▲					47
		DK02S	2W							▲		▲	▲					47
		PC02S	2W						▲	▲		▲	▲					47
		SC02S	2W							▲		▲						47
		SG02S	2W							▲		▲	▲					47
	4.5~9V	PL01S	1W							▲		▲	▲					46
		SK01S	1W							▲		▲	▲					47
		DB02S	2W						▲	▲		▲	▲					47
		PG02S	2W						▲	▲		▲						47
		SD02S	2W						▲	▲		▲	▲					47
		DN03S	2-3W						▲	▲		▲	▲	▲				48
		DM03S	3W							▲		▲		▲				48
12V	9~18V	PL01S	1W							▲		▲	▲					46
		SK01S	1W							▲		▲	▲					47
		DB02S	2W						▲	▲		▲	▲					47
		PG02S	2W						▲	▲		▲						47
		SD02S	2W						▲	▲		▲	▲					47
		DN03S	2-3W						▲	▲		▲	▲	▲				48
		DD03S	3W							▲		▲	▲					48
		DM03S	3W							▲		▲		▲				48
		SE03S	3W						▲	▲		▲	▲					48
		SF05S	5W						▲	▲		▲	▲					48

DC-DC **Isolated** **Single Output** **Vin nominal: 12~24V**

Vin Nominal	Vin Range	Series	Max Power	Vo														Page
				1V	1.2V	1.5V	1.8V	2.5V	3.3V	5V	9V	12V	15V	24V	28V	48V	54V	
12V	9~18V	DH06S	6W						▲	▲		▲	▲	▲				48
		DU06S	6W							▲		▲						48
		DT10S	10W							▲		▲						48
	10.8~13.2V	SE03S	3W						▲	▲		▲	▲					48
		SF05S	5W						▲	▲		▲	▲					48
		DH06S	6W						▲	▲		▲	▲	▲				48
		DU06S	6W							▲		▲						48
		DT10S	10W							▲		▲						48
		DA01S	1W							▲	▲	▲	▲					46
		PA01S	1W							▲	▲	▲	▲					46
		PB01S	1W						▲	▲	▲	▲	▲					46
		PD01S	1W						▲	▲	▲	▲	▲					46
		PE01S	1W							▲	▲	▲	▲					46
		PF01S	1W							▲	▲	▲	▲					46
		PI01S	1W							▲		▲	▲					46
		SA01S	1W						▲	▲	▲	▲	▲					46
		SB01S	1W							▲		▲	▲					47
		SH01S	1W						▲	▲	▲	▲	▲					47
		DC02S	2W							▲		▲	▲					47
		DK02S	2W							▲		▲	▲					47
		PC02S	2W						▲	▲		▲	▲					47
		SC02S	2W							▲		▲						47
		SG02S	2W							▲		▲	▲					47
	4.5~18V	PJ03S	3W						▲	▲		▲	▲					48
15V	13.5~16.5V	PB01S	1W							▲		▲	▲					46
		SH01S	1W									▲	▲					47
24V	18~36V	PL01S	1W							▲		▲	▲					46
		SK01S	1W							▲		▲	▲					47
		DB02S	2W						▲	▲		▲	▲					47
		PG02S	2W						▲	▲		▲						47
		SD02S	2W						▲	▲		▲	▲					47
		DD03S	3W							▲		▲	▲					48
		DN03S	2-3W						▲	▲		▲	▲	▲				48
		DM03S	3W							▲		▲		▲				48

DC-DC **Isolated** **Single Output** **Vin nominal: 24~48V**

Vin Nominal	Vin Range	Series	Max Power	Vo														Page
				1V	1.2V	1.5V	1.8V	2.5V	3.3V	5V	9V	12V	15V	24V	28V	48V	54V	
24V	18~36V	SE03S	3W						▲	▲		▲	▲					48
		SF05S	5W						▲	▲		▲	▲					48
		DH06S	6W						▲	▲		▲	▲	▲				48
		DU06S	6W							▲		▲						48
		DT10S	10W							▲		▲						48
		E24SR	73W						▲	6.5V		▲						21
	21.6~26.4V	DA01S	1W							▲	▲	▲	▲					46
		PA01S	1W							▲	▲	▲	▲					46
		PB01S	1W						▲	▲	▲							46
		PD01S	1W						▲	▲	▲	▲	▲					46
		PE01S	1W							▲	▲	▲	▲					46
		PF01S	1W							▲	▲	▲	▲					46
		SA01S	1W						▲	▲	▲	▲	▲					46
		SB01S	1W							▲		▲	▲					47
		SH01S	1W						▲	▲	▲	▲	▲					47
		DC02S	2W							▲		▲	▲					47
		DK02S	2W							▲		▲	▲					47
		PC02S	2W						▲	▲		▲	▲					47
		SC02S	2W							▲		▲						47
		SG02S	2W							▲		▲	▲					47
	9~36V	PH02S	2W						▲	▲		▲	▲					47
		DL03S	3W						▲	▲		▲	▲					48
		PJ03S	3W						▲	▲		▲	▲					48
		DF04S	4W						▲	▲		▲	▲					48
		DJ06S	6W						▲	▲		▲	▲	▲				48
		S24SE	30W						▲	▲		▲	▲					50
		S24SP	60W							▲		▲	▲	▲				52
		DR24S*	60W							▲		▲	▲	▲				67
		PM24S*	60W							▲		▲	▲	▲				67
		E24SE*	150W							▲		▲		▲		▲		54
		Q24SE*	240W							▲		▲		▲		▲		61
12/24/36/48V	9~53V	T31SN*	100W									▲		▲				76
24/48V	9~60V	E35SE*	120W							▲		▲		▲		▲		55
		H60SB*	3kW														60V	72

* New Product

Vin Nominal	Vin Range	Series	Max Power	Vo													Page
				1V	1.2V	1.5V	1.8V	2.5V	3.3V	5V	9V	12V	15V	24V	28V	48V	54V	
24/36/48V	18~60V	B40SR	300W									12.4V	13.7V					64
	18~75V	PH02S	2W						▲	▲		▲	▲					47
		DL03S	3W						▲	▲		▲	▲					48
		PJ03S	3W						▲	▲		▲	▲					48
		DF04S	4W						▲	▲		▲	▲					48
		DJ06S	6W						▲	▲		▲	▲	▲				48
		S36SE	24W						▲	▲		▲						53
		V36SE	60W						▲	▲		▲						17
		E36SR	75W						▲	▲		▲						23
		E36SC	125W						▲	▲		▲						22
		H36SA	150W														▲	39
		Q36SR	240W									▲						31
48V	36~72V	E48SC	300W												32V	50V		26
	36~75V	PL01S	1W							▲		▲	▲					46
		SK01S	1W							▲		▲	▲					47
		DB02S	2W						▲	▲		▲	▲					47
		PG02S	2W						▲	▲		▲						47
		SD02S	2W						▲	▲		▲	▲					47
		DN03S	2-3W						▲	▲		▲	▲	▲				48
		DD03S	3W							▲		▲	▲					48
		DM03S	3W							▲		▲		▲				48
		SE03S	3W						▲	▲		▲	▲					48
		SF05S	5W						▲	▲		▲	▲					48
		DH06S	6W						▲	▲		▲	▲	▲				48
		DU06S	6W							▲		▲						48
		DT10S	10W							▲		▲						48
		T48SR	25W						▲	▲								16
		S48SP	36W						▲	▲		▲						44
		V48SH	50W	▲	▲		▲		▲	▲								19
		V48SR	66W		▲	▲	▲	▲					▲					20
		Q48SA	81W														▲	32

DC-DC **Isolated** **Single Output** **Vin nominal: 48~600V**

Vin Nominal	Vin Range	Series	Max Power	Vo													Page
				1V	1.2V	1.5V	1.8V	2.5V	3.3V	5V	9V	12V	15V	24V	28V	48V	54V	
48V	36~75V	E48SC	120W						▲	▲		▲						24
		E48SC	360W									▲						25
		V48SC	100W						▲	▲		▲						18
		E48SH	120W	▲	▲	▲	▲	▲	▲	▲		▲						27
		E48SP	240W						▲	▲		▲						28
		Q48SC	300W									▲			32V			33
		Q48SQ	400W									▲						34
		Q48SC	600W									▲						33
		H48SC	700W						▲						▲			41
	38~60V	H48SA	550W									▲			▲	▲	▲	40
54V	40~60V	E54SJ*	480W						▲	▲		▲						30
		Q54SH*	1000W									▲						36
		Q54SJ*	1300W								10.8V	▲						38
		H51SA*	1650W														50V	42
	42~60V	E54SD	300W									▲						29
		Q54SG	600W									▲						35
	48~60V	Q55SH*	1100W									▲						37
24/48/72/96/110	14.4~160V	Q80SV*	150W							▲		▲		▲			▲	56
24/48/72/80V	18~106V	B62SR	360W									12.4V	13.7V	▲				64
24/48/72/96/110	17~138V	H80SV*	200W									▲	▲	▲		▲	▲	58
24/48/72/96/110	17~138V	PM80S*	204W									▲	▲	▲		▲	▲	69
36/48/72/80	32~96V	B70SP*	500W									12.4V	13.7V	24.5V				66
48/72/80V	36~106V	B70SR	300W									12.4V	13.7V	▲				64
110V	53~154V	HA1SV	120W									▲	▲	▲				57
300V	200~400V	FB7SR*	1200W										14V		▲		▲	59
380V	360~400V	QC8SC*	750W									▲						60
600V	400~800V	FG5SR*	1200W										14V		▲		▲	59

* New Product

DC-DC **Isolated** **Dual Outputs** **Vin nominal: 5~15V**

Vin Nominal	Vin Range	Series	Max Power	Vo				Page
				±5V	±9V	±12V	±15V	
5V	4.5~5.5V	PB01D	1W	•	•	•	•	46
		PD01D	1W	•	•	•	•	46
		PE01D	1W	•	•	•	•	46
		PI01D	1W	•		•	•	46
		SA01D	1W	•	•	•	•	46
		SB01D	1W	•		•	•	47
		SH01D	1W	•		•	•	47
		DC02D	2W	•		•	•	47
		DK02D	2W			•	•	47
		PC02D	2W	•		•	•	47
		SC02D	2W	•		•	•	47
		SG02D	2W			•	•	47
	4.5~9V	PL01D	1W			•	•	46
		SK01D	1W			•	•	47
		DB02D	2W	•		•	•	47
		SD02D	2W	•		•	•	47
		DN03D	2-3W	•		•	•	48
		DD03D	3W			•	•	48
		DM03D	3W			•	•	48
12V	10.8~13.2V	PB01D	1W	•	•	•	•	46
		PD01D	1W	•	•	•	•	46
		PE01D	1W	•	•	•	•	46
		PI01D	1W	•		•	•	46
		SA01D	1W	•	•	•	•	46
		SB01D	1W	•		•	•	47
		SH01D	1W	•		•	•	47
		DC02D	2W	•		•	•	47
		DK02D	2W			•	•	47
		PC02D	2W	•		•	•	47
		SC02D	2W			•	•	47
		SG02D	2W			•	•	47
	4.5~18V	PJ03D	3W	•		•	•	48
	9~18V	PL01D	1W			•	•	46
		SK01D	1W			•	•	47
		DB02D	2W	•		•	•	47
		SD02D	2W	•		•	•	47
		DN03D	2-3W	•		•	•	48
		DD03D	3W			•	•	48
		DM03D	3W			•	•	48
		SE03D	3W	•		•	•	48
		SF05D	5W	•		•	•	48
		DH06D	6W	•		•	•	48
		DU06D	6W			•	•	48
		DT10D	10W			•	•	48
15V	13.5~16.5V	PB01D	1W	•		•	•	46

DC-DC **Isolated** **Dual Outputs** **Vin nominal: 24~48V**

Vin Nominal	Vin Range	Series	Max Power	Vo				Page
				±5V	±9V	±12V	±15V	
24V	18~36V	PL01D	1W			•	•	46
		SK01D	1W			•	•	47
		DB02D	2W	•		•	•	47
		SD02D	2W	•		•	•	47
		DN03D	2-3W	•		•	•	48
		DD03D	3W			•	•	48
		DM03D	3W			•	•	48
		SE03D	3W	•		•	•	48
		SF05D	5W	•		•	•	48
		DH06D	6W	•		•	•	48
		DU06D	6W			•	•	48
		DT10D	10W			•	•	48
	21.6~26.4V	PD01D	1W	•	•	•	•	46
		PE01D	1W	•	•	•	•	46
		SA01D	1W	•	•	•	•	46
		SB01D	1W	•		•	•	47
		SH01D	1W	•		•	•	47
		DC02D	2W	•		•	•	47
		DK02D	2W			•	•	47
		PC02D	2W	•		•	•	47
		SC02D	2W			•	•	47
		SG02D	2W			•	•	47
	9~36V	PH02D	2W	•		•	•	47
		DL03D	3W			•	•	48
		PJ03D	3W	•		•	•	48
		DF04D	4W	•		•	•	48
		DJ06D	6W	•		•	•	48
		S24DE	30W			•	•	51
		DR24D*	30W			•	•	67
		PM24D*	30W			•	•	67
48V	18~75V	PH02D	2W	•		•	•	47
		DL03D	3W			•	•	48
		PJ03D	3W	•		•	•	48
		DF04D	4W	•		•	•	48
		DJ06D	6W	•		•	•	48
	36~75V	PL01D	1W			•	•	46
		SK01D	1W			•	•	47
		DB02D	2W	•		•	•	47
		SD02D	2W	•		•	•	47
		DN03D	2-3W	•		•	•	48
		DD03D	3W			•	•	48
		DM03D	3W			•	•	48
		SE03D	3W	•		•	•	48
		SF05D	5W	•		•	•	48
		DH06D	6W	•		•	•	48
		DU06D	6W			•	•	48
		DT10D	10W			•	•	48

* New Product

DC-DC **Non-Isolated** **Output Current: 0.5~80A**

Part Number	Output Current	Vin	Vo	Page
PM05S015A	0.5A	4.75~32V	1.5V	77
PM05S018A		4.75~32V	1.8V	77
PM05S025A		4.75~32V	2.5V	77
PM05S033A		4.75~32V	3.3V	77
PM05S050A		6.5~32V	5V	77
PM05S065A		8~32V	6.5V	77
PM05S090A		11~32V	9V	77
PM05S120A		15~32V	12V	77
PM05S150A		18~32V	15V	77
DNT04S0A	3A	2.4~5.5V	0.75~3.63V	74
NE12S0A		3~13.8V	0.59~5V	79
DNT12S0A		8.3~14V	0.75~5V	74
T31SN240*	4.5A	9~53V	5~30V	76
DNT04S0A	5A	2.4~5.5V	0.75~3.63V	74
DNT12S0A		8.3~14V	0.75~5V	74
DNS04S0A	6A	2.8~5.5V	0.75~3.63V	74
NE12S0A		3~13.8V	0.59~5.1V	79
DNS10S0A		8.3~14V	0.75~5V	74
NC12S0A0		10.2~13.8V	0.9~5V	78
T31SN120*	8A	9~53V	3.3~16.5V	76
DNM04S0A	10A	2.8~5.5V	0.75~3.63V	74
DUS1250E		2.97~13.2V	0.59~5V	79
NE12S0A		3~13.8V	0.59~5.1V	79
DNM10S0A		8.3~14V	0.75~5V	74
DCM04S0A	12A	2.4~5.5V	0.6~3.3V	75
NC12S0A	15A	10.2~13.8V	0.9~5V	78
DNL04S0A	16A	2.8~5.5V	0.75~3.63V	74
DNL10S0A		8.3~14V	0.75~5V	74
D12S05020-1	20A	4.5~13.2V	0.59~5V	79
NE12S0A		4.5~13.8V	0.59~5.1V	79
DCL12S0A		4.5~14V	0.69~5V	75
NC12S0A		10.2~13.8V	0.9~5V	78
DNL10S0A		2.8~5.5V	0.75~3.63V	74
DNK05S0A	30A	4.5~5.5V	0.8~3.63V	74
DCK12S0A		6~14V	0.8~3.3V	75
DNK12S0A		6~14V	0.8~5.5V	74
D12S1R830D		7~13.2V	0.8~1.8V	73
NC12S0A		10.2~13.8V	0.9~5V	78
D12F200	40A	4.5~13.8V	0.6~5V	79
D12S72C		7~13.2V	0.8~1.8V	73
ND12S0A		8~13.8V	0.9~5V	79
NC12S0A		10.2~13.8V	0.9~5V	78
D12S2R550	50A	4.5~13.8V	0.6~5V	79
H60SB0A050		9~60V	0~60V	72
D12S300-1	60A	4.5~13.8V	0.6~5V	79
NC12S0A		11.04~12.6V	0.9~5V	78
D12S400	80A	10.8~13.2V	0.8375~5V	79
D12S1R880D		7~13.2V	0.6~3.3V	73

* New Product

AC-DC Power Moudle Selection Guide

AC-DC Single Output

Series	Max Power	Vin	Vo										Page
			3.3V	5V	8V	9V	12V	14V	15V	24V	28V	36V	48V	
AA04S	4W	85~265VAC	◆	◆		◆	◆		◆	◆				81
AA07S	7W		◆	◆			◆		◆	◆				81
AA10S	10W		◆	◆			◆		◆	◆				81
AA15S	15W			◆			◆		◆	◆			◆	81
AA30S	30W			◆			◆		◆	◆			◆	81
AA60S	60W			◆			◆		◆	◆		◆	◆	81
AB24S	24W			◆		◆	◆		◆	◆				81
AB40S	40W			◆			◆		◆	◆				81
AB60S	60W			◆			◆		◆	◆			◆	81
AC02S	2W				◆			◆		◆				81
PACSR*	500W						◆			◆	◆		◆	82
FACSR*	800W						◆				◆		◆	83

* New Product

AC-DC Dual Outputs

Series	Max Power	Vin	Vo								Page
			3.3/5V	5/12V	12/-12V	15/-15V	8/3.3V	8/5V	14/3.3V	14/5V	
AA04D	4W	85~264VAC	◆	◆	◆	◆					81
AA15D	15W			◆	◆	◆					81
AA30D	30W			◆	◆	◆					81
AB24D	24W				◆	◆					81
AB40D	40W				◆	◆					81
AC02D	2W						◆	◆	◆	◆	81

AC-DC Triple Outputs

Series	Max Power	Vin	Vo			Page
			3.3/5/12V	5/12/-12V	5/15/-15V	
AA15T	15W	85~264VAC		◆	◆	81
AA30T	30W		◆	◆	◆	81

Filter & ATCA Input Module Selection Guide

Filter

Part Number	Input Voltage	Output Current	Common-mode Insertion Loss	Differential-mode Insertion Loss	Page
FL75L05 A	0~75V	5A	43dB	45dB	85
FL75L07 A/B	0~75V	7A	40dB	70dB	85
FL75L10 A	0~75V	10A	30dB	25dB	85
FL75L20 A/B	0~75V	20A	28dB	46dB	85

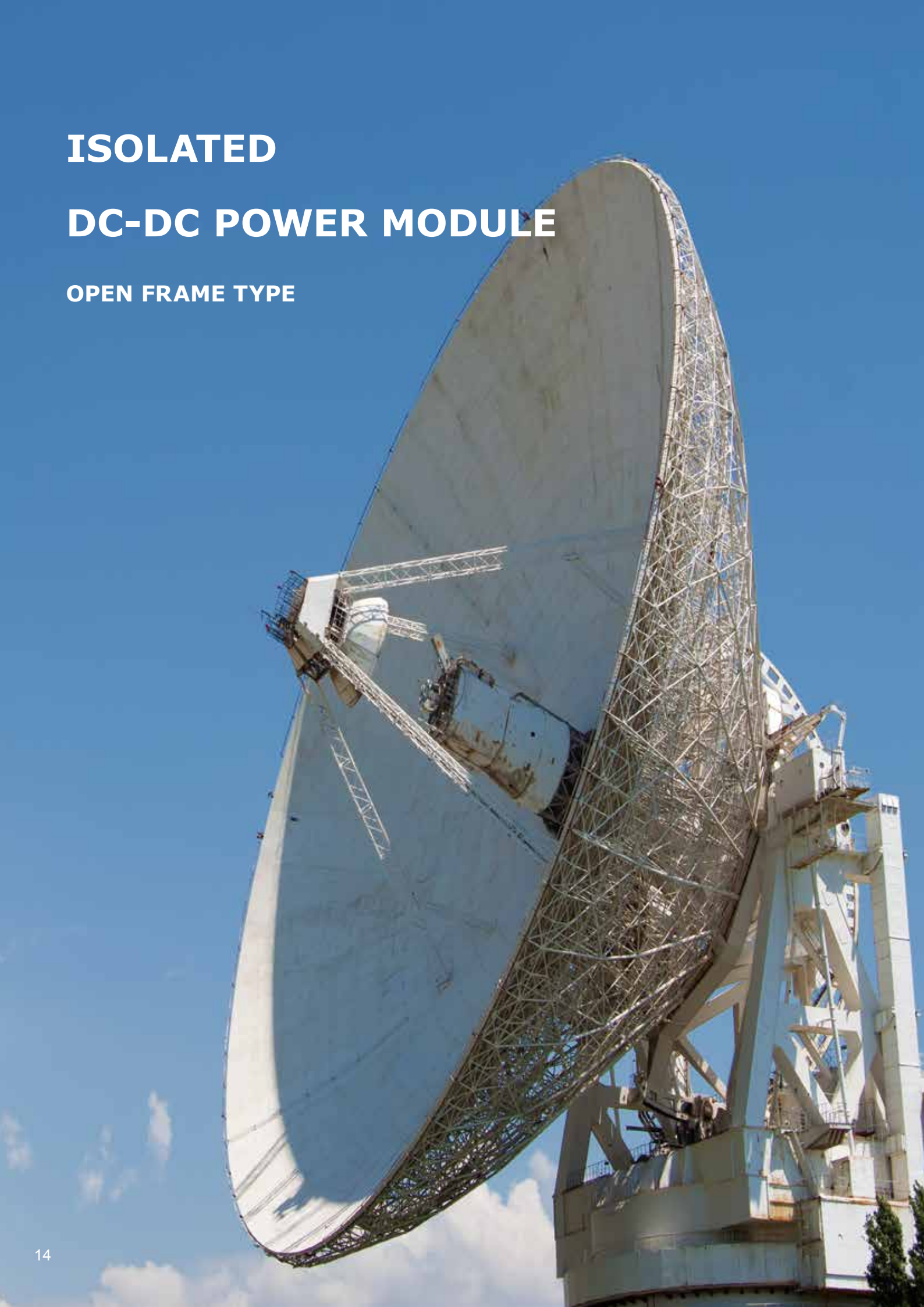
ATCA Input Module

Part Number	Input Voltage	Auxiliary Output 1	Auxiliary Output 2	Output Power	Efficiency	Page
DIM3R3300SFA	-36 ~ -75V	3.3V / 2.4A	-	300W	98%	86
DIM3R3300SFB	-36 ~ -75V	3.3V / 2.4A	5V / 100mA	300W	98%	86
DIM3R3400SFA	-36 ~ -75V	3.3V / 3.6A	5V / 150mA	400W	98.2%	86
DIM3R3500SFA	-36 ~ -75V	3.3V / 3.6A	5V / 150mA	500W	98.30%	86

ISOLATED

DC-DC POWER MODULE

OPEN FRAME TYPE



Product Overview

The isolated open-frame type DC-DC power module is one of the important product portfolios. The power modules range all DOSA-compatible brick converter from 1/32 brick to 1/2 brick with industrial standard footprint and pinout. With 18~75V input voltage range, products output power up to 1300W. Delta provides these high-density and high-efficiency converters with advanced performance, flexibility and reliability, which are widely applied to the telecom, networking and datacenter marketplace. In addition, S36SE and S48SP are two small-size series with low output power for industrial application.

Series	Form Factor	Input Voltage	Output Voltage	Output Power	Digital Control	Page
T48SR	1/32 BRICK	36~75V	3.3V, 5V	25W		16
V36SE	1/16 BRICK	18~75V	3.3V, 5V, 12V	50W		17
V48SC	1/16 BRICK	36~75V	3.3V, 5V, 12V	50~100W		18
V48SH	1/16 BRICK	36~75V	1V, 1.2V, 1.8V, 3.3V	17~50W		19
V48SR	1/16 BRICK	36~75V	1.2V, 1.5V, 1.8V, 2.5V, 15V	30~66W		20
E24SR	1/8 BRICK	18~36V	3.3V, 6.5V, 12V	52~73W		21
E36SC	1/8 BRICK	18~75V	3.3V, 5V, 12V	116~125W		22
E36SR	1/8 BRICK	18~75V	3.3V, 5V	66~75W		23
E48SC	1/8 BRICK	36~75V	3.3V, 5V, 12V	50~120W		24
E48SC	1/8 BRICK	36~75V	12V	240~360W	YES	25
E48SC	1/8 BRICK	36~72V	32V, 50V	160~300W	YES	26
E48SH	1/8 BRICK	36~75V	1V, 1.2V, 1.5V, 1.8V, 2.5V, 3.3V, 5V, 12V	50~120W		27
E48SP	1/8 BRICK	36~75V	3.3V, 5V, 5.8V, 12V	132~240W		28
E54SD	1/8 BRICK	42~60V	12V	300W	YES	29
E54SJ*	1/8 BRICK	40~60V	3.3V, 5V, 12V	165~480W	YES	30
Q36SR	1/4 BRICK	18~75V	12V	204~240W		31
Q48SA	1/4 BRICK	36~75V	54V	81W		32
Q48SC	1/4 BRICK	36~75V	12V, 32V	300~600W	YES	33
Q48SQ	1/4 BRICK	36~75V	12V	216~400W		34
Q54SG	1/4 BRICK	40~60V	12V	400~600W	YES	35
Q54SH*	1/4 BRICK	40~60V	12V	600~1000W	YES	36
Q55SH*	1/4 BRICK	48~60V	11.9V	1100W	YES	37
Q54SJ*	1/4 BRICK	40~60V	10.8V, 12.2V	700~1300W	YES	38
H36SA	1/2 BRICK	18~75V	54V	162W		39
H48SA	1/2 BRICK	36~75V	12V, 28V, 48V, 54V	150~550W		40
H48SC	1/2 BRICK	36~75V	3.3V, 28V	83~450W	YES	41
H51SA*	1/2 BRICK	40~60V	50V	1100W		42
S36SE	1" x 1"	18~75V	3.3V, 5V, 12V	15~24W		43
S48SP	1" x 1"	36~75V	3.3V, 5V, 12V	33~36W		44

* New Product



T48SR Series

FEATURES

Electrical

- High efficiency
- 2:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1

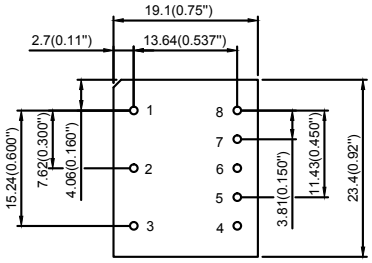


1/32 brick | 2:1 input | cULus

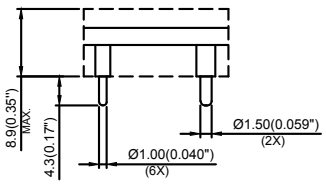
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
T48SR3R307	36~75V	3.3V	2.64~3.63V	7.5A	25W	86%	1500V	19.1 x 23.4 x 8.9 mm
T48SR05005	36~75V	5V	4~5.5V	5A	25W	86%	1500V	19.1 x 23.4 x 8.9 mm

MECHANICAL DRAWING



TOP VIEW



SIDE VIEW

Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

T	48	S	R	050	05	N	N	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
T - 1/32 Brick	48- 36~75V	S - Single	R - Family Name	3R3 - 3.3V 050 - 5V	05 - 5A 07 - 7.5A	N - Negative P - Positive	N - 0.146” R - 0.170”	F - RoHS 6/6 (Lead Free) Space - RoHS5/6	A - Standard Functions

V36SE Series

FEATURES

Electrical

- High efficiency
- Wide 4:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1
- EN 60950-1

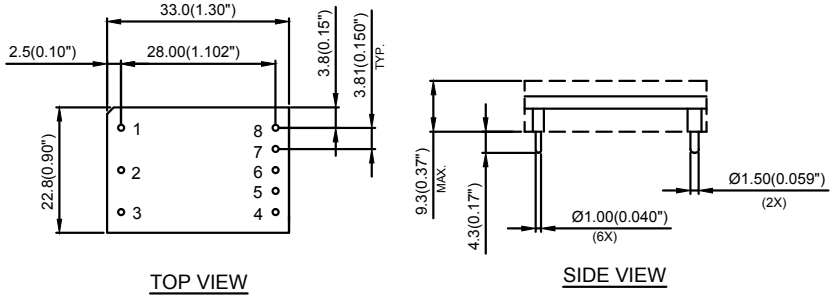


1/16 brick | 4:1 input | cULus

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
V36SE3R315	18~75V	3.3V	2.64~3.63V	15A	50W	90.5%	2250V	33 x 22.8 x 9.3 mm
V36SE05010	18~75V	5V	4~5.5V	10A	50W	91.0%	2250V	33 x 22.8 x 9.3 mm
V36SE12004	18~75V	12V	9.6~13.2V	4.2A	50W	88.0%	2250V	33 x 22.8 x 8.7 mm
V36SE12005	18~75V	12V	9.6~13.2V	5A	60W	88.0%	2250V	33 x 22.8 x 8.7 mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

V	36	S	E	050	10	N	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
V - 1/16 Brick	36 - 18~75V	S - Single	E - Family Name	3R3 - 3.3V 050 - 5V 120 - 12V	04 - 4.2A 05 - 5A 10 - 10A 15 - 15A	N - Negative P - Positive	K - 0.110'' N - 0.145" R - 0.170" M - SMD	F - RoHS 6/6 (Lead Free) Space - RoHS 5/6	A - Standard Functions

V48SC Series

FEATURES

Electrical

- High efficiency
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1

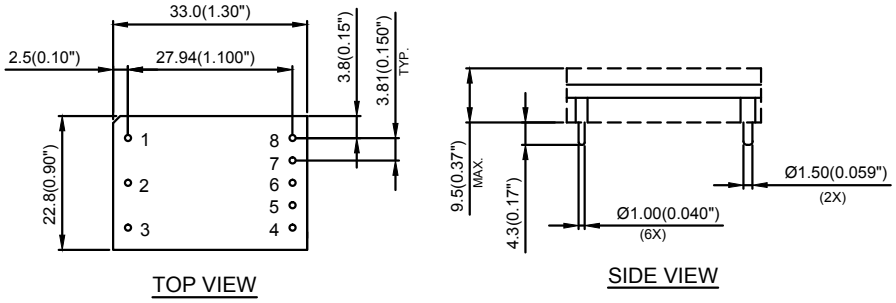


1/16 brick | 2:1 input | cULus

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
V48SC3R315	36~75V	3.3V	2.64~3.63V	15A	49.5W	91.5%	1500V	33 x 22.8 x 9.5 mm
V48SC3R320	36~75V	3.3V	2.64~3.63V	20A	66W	91.0%	1500V	33 x 22.8 x 9.5 mm
V48SC3R325	36~75V	3.3V	2.64~3.63V	25A	82.5W	91.0%	1500V	33 x 22.8 x 9.5 mm
V48SC05013	36~75V	5V	4~5.5V	13A	65W	91.5%	1500V	33 x 22.8 x 9.5 mm
V48SC05017	36~75V	5V	4~5.5V	17A	85W	91.5%	1500V	33 x 22.8 x 9.5 mm
V48SC05020	36~75V	5V	4~5.5V	20A	100W	91.0%	1500V	33 x 22.8 x 9.5 mm
V48SC12007	36~75V	12V	9.6~13.2V	7.5A	90W	92.0%	1500V	33 x 22.8 x 9.5 mm
V48SC12008	36~75V	12V	9.6~13.2V	8.3A	100W	92.0%	1500V	33 x 22.8 x 9.5 mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

V	48	S	C	050	13	N	N	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
V - 1/16 Brick	48 - 36~75V	S - Single	C - Family Name	3R3 - 3.3V 050 - 5.0V 120 - 12V	07 - 7.5A 08 - 8.3A 10 - 10A 13 - 13A 15 - 15A 17 - 17A 20 - 20A 25 - 25A	N - Negative	K - 0.110” N - 0.145” R - 0.170” M - SMD	F - RoHS 6/6 (Lead Free) Space - RoHS5/6	A - Standard Functions H - With Heatspreader B - no sense and trim pin

V48SH Series

FEATURES

Electrical

- High efficiency
- Fixed frequency operation
- 2:1 input range
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1

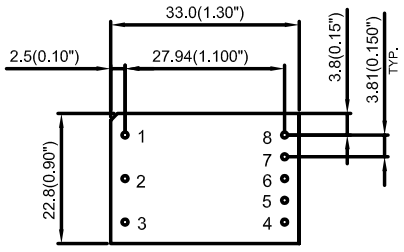


1/16 brick | 2:1 input | cULus

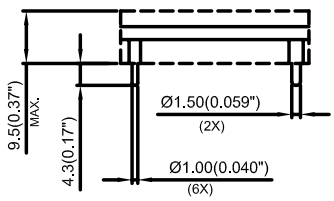
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
V48SH1R035	36~75V	1V	0.8~1.1V	35A	35W	85.0%	1500V	33 x 22.8 x 9.5 mm
V48SH1R050	36~75V	1V	0.8~1.1V	50A	50W	84.0%	1500V	33 x 22.8 x 9.5 mm
V48SH1R235	36~75V	1.2V	0.96~1.32V	35A	42W	87.0%	1500V	33 x 22.8 x 9.5 mm
V48SH1R830	36~75V	1.8V	1.44~1.98V	30A	54W	89.0%	1500V	33 x 22.8 x 9.5 mm
V48SH1R840	36~75V	1.8V	1.44~1.98V	40A	72W	88.5%	1500V	33 x 22.8 x 9.5 mm
V48SH3R325	36~75V	3.3V	2.64~3.63V	25A	82.5W	91.0%	1500V	33 x 22.8 x 9.5 mm
V48SH3R330	36~75V	3.3V	2.64~3.63V	30A	99W	91.0%	1500V	33 x 22.8 x 9.5 mm
V48SH05017	36~75V	5V	4~5.5V	17A	85W	91.5%	1500V	33 x 22.8 x 9.5 mm
V48SH05020	36~75V	5V	4~5.5V	20A	100W	91.5%	1500V	33 x 22.8 x 9.5 mm

MECHANICAL DRAWING



TOP VIEW



SIDE VIEW

(without heat spreader)

Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

V	48	S	H	1R0	50	N	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
V - 1/16 Brick	48 - 36~75V	S - Single	H - Family Name	1R0 - 1.0V 1R2 - 1.2V 1R8 - 1.8V 3R3 - 3.3V 050 - 5.0V	17 - 17A 25 - 25A 30 - 30A 35 - 35A 40 - 40A 50 - 50A	N - Negative P - Positive	K - 0.110" N - 0.145" R - 0.170" M - SMD	F - RoHS 6/6 (Lead Free) Space - RoHS5/6	A - Standard Functions H - With heat spreader

V48SR Series

FEATURES

Electrical

- High efficiency
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1
- EN 60950-1

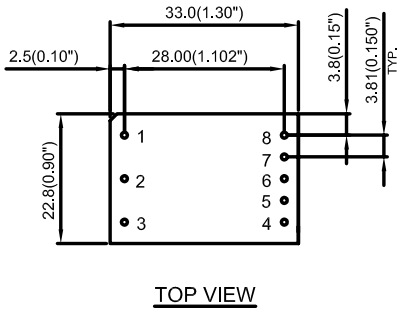


1/16 brick | 2:1 input | cULus

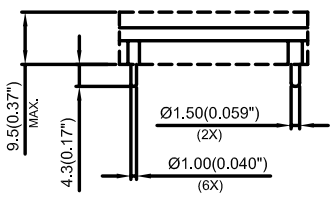
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
V48SR1R225	36~75V	1.2V	0.96~1.32V	25A	30W	84.0%	2250V	33 x 22.8 x 9.5 mm
V48SR1R525	36~75V	1.5V	1.2~1.65V	25A	38W	85.0%	2250V	33 x 22.8 x 9.5 mm
V48SR1R825	36~75V	1.8V	1.44~1.98V	25A	45W	87.0%	2250V	33 x 22.8 x 9.5 mm
V48SR2R520	36~75V	2.5V	2~2.75V	20A	50W	89.0%	2250V	33 x 22.8 x 9.5 mm
V48SR15004	36~75V	15V	12.75~16.5V	4.4A	66W	90.5%	2250V	33 x 22.8 x 9.5 mm

MECHANICAL DRAWING



TOP VIEW



SIDE VIEW

Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

V	48	S	R	1R2	25	N	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
V - 1/16 brick	48 - 36~75V	S - Single	R - Family Name	1R2 - 1.2V 1R5 - 1.5V 1R8 - 1.8V 2R5 - 2.5V 150 - 15V	04 - 4.4A 20 - 20A 25 - 25A	N - Negative P- Positive	K - 0.110'' N - 0.145" R - 0.170" M - SMD	F - RoHS 6/6 (Lead Free)	A - Standard Functions

E24SR Series

FEATURES

Electrical

- High efficiency
- 2:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1

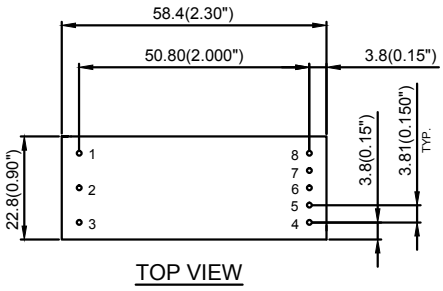


1/8 brick | 2:1 input | cULus

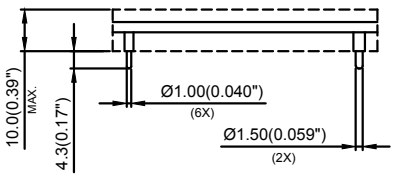
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
E24SR3R320	18~36V	3.3V	2.97~3.63V	20A	72.6W	90.0%	2250V	58.4 x 22.8 x 10 mm
E24SR06508	18~36V	6.5V	5~6.6V	8A	52W	90.5%	2250V	58.4 x 22.8 x 10 mm
E24SR12005	18~36V	12V	10.8~13.2V	5A	60W	90.5%	2250V	58.4 x 22.8 x 10 mm

MECHANICAL DRAWING



TOP VIEW



SIDE VIEW

Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

E	24	S	R	065	08	N	R	F	A
From Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
E - 1/8 Brick	24V - 18~36V	S - Single	R - Family Name	3R3 - 3.3V 065 - 6.5V 120 - 12V	05 - 5A 08 - 8A 20 - 20A	N - Negative P - Positive	K - 0.110'' N - 0.145" R - 0.170" M - SMD	F- RoHS 6/6 (Lead Free)	A - Standard Functions

E36SC Series

FEATURES

Electrical

- High efficiency
- 4:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1
- EN 60950-1

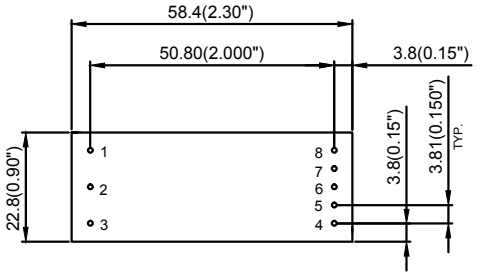


1/8 brick | 4:1 input | c UL us

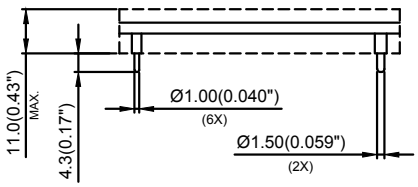
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
E36SC3R335	18~75V	3.3V	2.97~3.63V	35A	116W	91%	1500V	58.4 x 22.8 x 11 mm
E36SC05025	18~75V	5V	4~5.5V	25A	125W	91%	1500V	58.4 x 22.8 x 11 mm
E36SC12009	18~75V	12V	10.8~13.2V	9A	108W	92%	1500V	58.4 x 22.8 x 11 mm
E36SC12010	18~75V	12V	10.8~13.2V	10A	120W	92%	1500V	58.4 x 22.8 x 11 mm

MECHANICAL DRAWING



TOP VIEW



SIDE VIEW

(without heat spreader)

Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

E	36	S	C	050	25	N	K	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
E - 1/8 Brick	36- 18~75V	S – Single	C- Family Name	3R3 - 3.3V 050 - 5.0V 120 - 12V	09 - 9A 10 - 10A 25 - 25A 35 - 35A	N- Negative	K - 0.110'' N - 0.145" R - 0.170" M - SMD	F - RoHS 6/6 (Lead Free) Space - RoHS5/6	A - Standard Functions H - With heat spreader

E36SR Series

FEATURES

Electrical

- High efficiency
- Wide 4:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1
- EN 60950-1

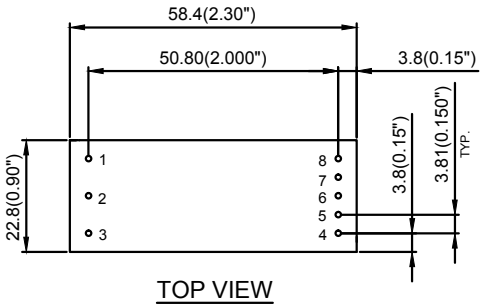


1/8 brick | 4:1 input | cULus

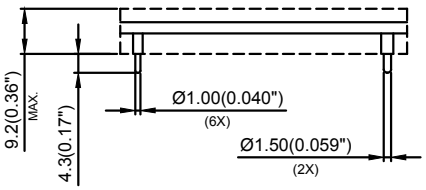
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
E36SR3R320	18~75V	3.3V	2.97~3.63V	20A	66W	88%	2250V	58.4 x 22.8 x 9.2 mm
E36SR05015	18~75V	5V	4.5~5.5V	15A	75W	89%	2250V	58.4 x 22.8 x 9.2 mm

MECHANICAL DRAWING



TOP VIEW



SIDE VIEW

(without heat spreader)

Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

E	36	S	R	3R3	20	N	K	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
E - 1/8 Brick	36 - 18~75V	S - Single	R - Family Name	3R3 - 3.3V 050 - 5.0V	15 - 15A 20 - 20A	N - Negative	K - 0.110'' N - 0.145" R - 0.170" M - SMD	F - RoHS 6/6 (Lead Free) Space - RoHS5/6	A - Standard Functions H - With heat spreader

E48SC Series

FEATURES

Electrical

- High efficiency
- 2:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1

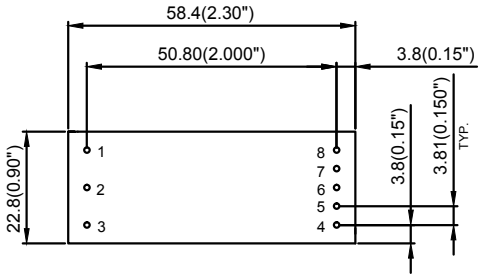


1/8 brick | 2:1 input | c UL us

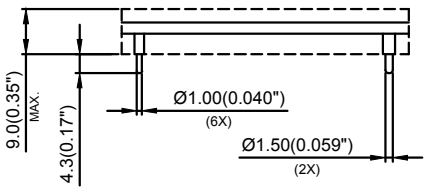
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
E48SC3R315	36~75V	3.3V	2.97~3.63V	15A	50W	91.0%	2250V	58.4 x 22.8 x 9 mm
E48SC3R320	36~75V	3.3V	2.64~3.63V	20A	66W	91.0%	2250V	58.4 x 22.8 x 9 mm
E48SC3R325	36~75V	3.3V	2.97~3.63V	25A	82.5W	91.0%	1500V	58.4 x 22.8 x 9 mm
E48SC05012	36~75V	5V	4.5~5.5V	12A	60W	91.5%	1500V	58.4 x 22.8 x 9 mm
E48SC05015	36~75V	5V	4.5~5.5V	15A	75W	91.0%	1500V	58.4 x 22.8 x 9 mm
E48SC12005	36~75V	12V	9.6~13.2V	5A	60W	92.0%	2250V	58.4 x 22.8 x 8.4 mm
E48SC12008	36~75V	12V	10.8~13.2V	8A	96W	92.0%	2250V	58.4 x 22.8 x 8.4 mm
E48SC12010	36~75V	12V	10.8~13.2V	10A	120W	91.7%	2250V	58.4 x 22.8 x 8.4 mm

MECHANICAL DRAWING



TOP VIEW



SIDE VIEW

(without heat spreader)

Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

E	48	S	C	120	08	N	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
E - 1/8 Brick	48 - 36~75V	S - Single	C - Family Name	3R3 - 3.3V 050 - 5.0V 120 - 12V	05 - 5A 08 - 8A 10 - 10A 12 - 12A 15 - 15A 20 - 20A 25 - 25A	N - Negative P - Positive	K - 0.110” N - 0.145” R - 0.170” M - SMD	F - RoHS 6/6 (Lead Free) Space - RoHS 5/6	A - Standard Functions H* - with Heat spreader

* only available for E48SC12005, E48SC12008, E48SC12010

E48SC Series - Digital Control

FEATURES

Electrical

- High efficiency
- 2:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- PMBUS function (optional)

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1

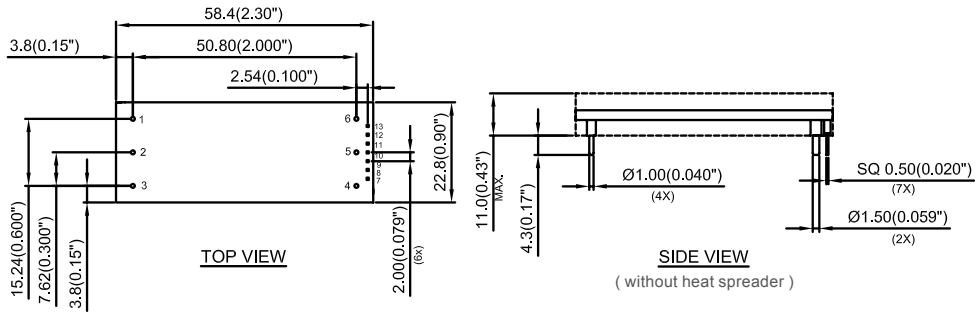


1/8 brick | 2:1 input | digital control

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
E48SC12020	36~75V	12V	8~13.2V	20A	240W	95.2%	1500V	58.4 x 22.8 x 11 mm
E48SC12025	36~75V	12V	8~13.2V	25A	300W	95.0%	1500V	58.4 x 22.8 x 11 mm
E48SC12030	36~75V	12V	8~13.2V	30A	360W	94.5%	1500V	58.4 x 22.8 x 11 mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	TRIM/C1	Ø1.00
6	VOUT(+)	Ø1.50
7	C2	SQ0.5
8	SIG_GND	SQ0.5
9	DATA	SQ0.5
10	SMBALERT	SQ0.5
11	CLK	SQ0.5
12	ADDR1	SQ0.5
13	ADDR0	SQ0.5

PART NUMBERING SYSTEM

E	48	S	C	120	20	N	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
E- 1/8 Brick	48 - 36~75V	S - Single	C - Family Name	120 - 12V	20 - 20A 25 - 25A 30 - 30A	N - Negative P - Positive	K - 0.110” N - 0.145” R - 0.170” T - 0.220”	F - RoHS 6/6 (Lead Free)	

	PMBUS Pin (7~13pin)	Trim Pin	Heat Spreader
A	Yes	Yes	No
B	No	Yes	No
C	No	Yes	Yes
D	No	No	No
E	No	No	Yes
H	Yes	Yes	Yes
I	Yes	No	Yes

E48SC Series - Digital Control

FEATURES

Electrical

- High efficiency
- 2:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- PMBUS function (optional)
- Wide Vout trim range -50% ~ +10% (32Vout , 50Vout)
- 2250Vdc isolation (32Vout , 50Vout)

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1

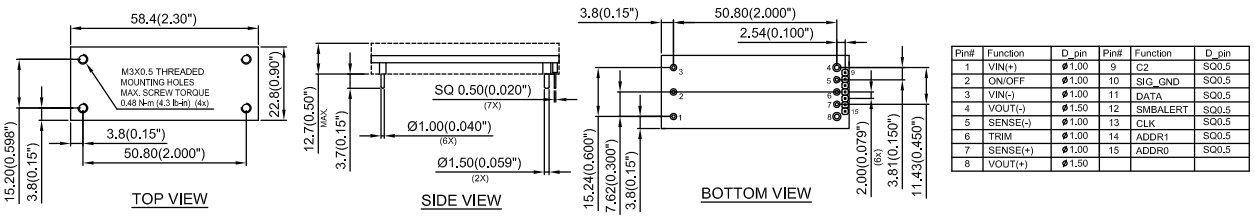


1/8 brick | 2:1 input | digital control

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
E48SC32005	36~72V	32V	16~35V	5A	160W	94.5%	2250V	58.4 x 22.8 x 12.7 mm
E48SC32009	36~72V	32V	16~35V	9A	300W	94.8%	2250V	58.4 x 22.8 x 12.7 mm
E48SC50006	36~72V	50V	25~55V	6A	300W	94.2%	2250V	58.4 x 22.8 x 12.7 mm

MECHANICAL DRAWING



Pin#	Function	D_pin	Pin#	Function	D_pin
1	VIN(+)	Ø1.00	9	C2	SQ0.5
2	ON/OFF	Ø1.00	10	SIG_GND	SQ0.5
3	VIN(-)	Ø1.00	11	DATA	SQ0.5
4	VOUT(-)	Ø1.50	12	SMBALERT	SQ0.5
5	SENSE(-)	Ø1.00	13	CLK	SQ0.5
6	TRIM	Ø1.00	14	ADDR1	SQ0.5
7	SENSE(+)	Ø1.00	15	ADDR0	SQ0.5
8	VOUT(+)	Ø1.50			

PART NUMBERING SYSTEM

E	48	S	C	320	05	N	R	A	H
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	Pin Assignment	Option Code
E - 1/8 Brick	48 - 36~72V	S - Single	C - Family Name	320 - 32V 500 - 50V	05 - 5A 06 - 6A 09 - 9A	N - Negative P - Positive	C - 0.180” R - 0.170” N - 0.145” K - 0.110”	A - Analog pins D - Digital pins	A - Standard Functions H - with Heat spreader

Note for mechanical pins option:

1. A - Analog pins: without digital pins
2. D - Digital pins: with digital pins(9pin~15pin) and PMBus commutation.

E48SH Series

FEATURES

Electrical

- High efficiency
- 2:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense
- Secondary side control, very fast transient response



1/8 brick | 2:1 input | cULus

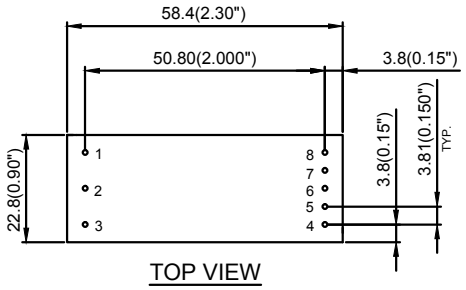
Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1
- EN 60950-1

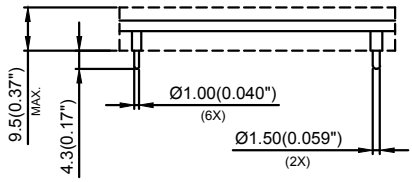
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
E48SH1R050	36~75V	1V	0.8~1.1V	50A	50W	84.5%	2250V	58.4 x 22.8 x 9.5 mm
E48SH1R250	36~75V	1.2V	0.96~1.32V	50A	60W	86.5%	2250V	58.4 x 22.8 x 9.5 mm
E48SH1R540	36~75V	1.5V	1.2~1.65V	40A	60W	89.0%	2250V	58.4 x 22.8 x 9.5 mm
E48SH1R840	36~75V	1.8V	1.44~1.98V	40A	72W	90.0%	2250V	58.4 x 22.8 x 9.5 mm
E48SH2R535	36~75V	2.5V	2~2.75V	35A	88W	89.5%	2250V	58.4 x 22.8 x 9.5 mm
E48SH3R330	36~75V	3.3V	2.64~3.63V	30A	99W	92.0%	2250V	58.4 x 22.8 x 9.5 mm
E48SH05020	36~75V	5V	4~5.5V	20A	100W	90.0%	2250V	58.4 x 22.8 x 9.5 mm
E48SH12010	36~75V	12V	9.6~13.2V	10A	120W	93.0%	2250V	58.4 x 22.8 x 9.5 mm

MECHANICAL DRAWING



TOP VIEW



SIDE VIEW

(without heat spreader)

Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

E	48	S	H	050	20	N	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
E - 1/8 Brick	48 - 36~75V	S - Single	H - Family Name	1R0 - 1.0V 1R2 - 1.2V 1R5 - 1.5V 1R8 - 1.8V 2R5 - 2.5V 3R3 - 3.3V 050 - 5.0V 120 - 12V	10 - 10A 20 - 20A 30 - 30A 35 - 35A 40 - 40A 50 - 50A	N - Negative P - Positive	K - 0.110” N - 0.145” R - 0.170” M - SMD	F - RoHS 6/6 (Lead Free)	A - Standard functions with output OCL H - With heat spreader with output OCL B* - Standard Functions with output OCP

* only available for 1.2V, 1.8V, 2.5V output

E48SP Series

FEATURES

Electrical

- High efficiency
- 2:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Heat dissipation enhancement pinout (E48SP3R360)

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1
- EN 60950-1

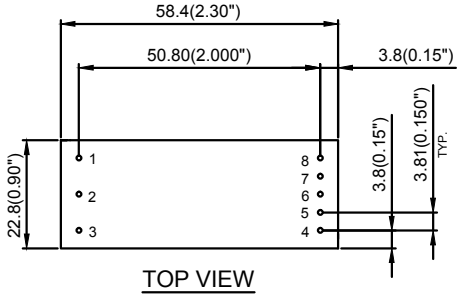


1/8 brick | 2:1 input | c UL us

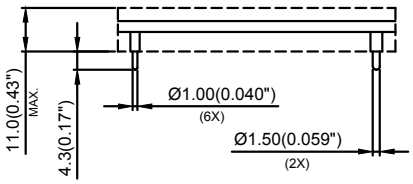
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
E48SP3R340	36~75V	3.3V	2.64~3.63V	40A	132W	93.1%	2250V	58.4 x 22.8 x 11 mm
E48SP3R360	36~75V	3.3V	2.64~3.63V	60A	198W	92.3%	2250V	58.4 x 22.8 x 11 mm
E48SP05040	36~75V	5V	4~5.5V	40A	200W	93.5%	1500V	58.4 x 22.8 x 11 mm
E48SP05825	36~75V	5.8V	4.64~5.8V	25A	145W	93.5%	2250V	58.4 x 22.8 x 11 mm
E48SP12020	36~75V	12V	-	20A	240W	94.5%	2250V	58.4 x 22.8 x 11 mm

MECHANICAL DRAWING



TOP VIEW



SIDE VIEW

(without heat spreader)

Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

(E48SP12020 is without sense pin and trim pin)

E	48	S	P	120	20	N	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
E - 1/8 Brick	48 - 36~75V	S - Single	P - Family Name	3R3 - 3.3V 050 - 5.0V 058 - 5.8V 120 - 12V	20 - 20A 25 - 25A 40 - 40A 60 - 60A	N - Negative P - Positive	K - 0.110'' N - 0.145" R - 0.170" M - SMD	F - RoHS 6/6 (Lead Free)	A - Standard Functions H - With heat spreader B * - 36~60V Vin

* only for E48SP12020

E54SD Series

FEATURES

Electrical

- High efficiency
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense
- PMBUS function (optional)

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1
- EN 60950-1

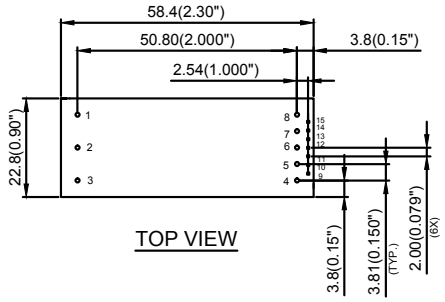


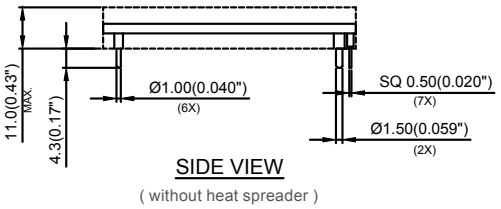
1/8 brick | digital control | cULus

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
E54SD12025	42~60V	12V	8~13.2V	25A	300W	95.2%	1500V	58.4 x 22.8 x 11 mm

MECHANICAL DRAWING





Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50
9	C2	SQ0.5
10	SIG_GND	SQ0.5
11	DATA	SQ0.5
12	SMBALERT	SQ0.5
13	CLK	SQ0.5
14	ADDR1	SQ0.5
15	ADDR0	SQ0.5

PART NUMBERING SYSTEM

E	54	S	D	120	25	N	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
E - 1/8 Brick	54 - 42~60V	S - Single	D - Family Name	120 - 12V	25 - 25A	N - Negative P - Positive	K - 0.110” N - 0.145” R - 0.170”	F - RoHS 6/6 (Lead Free)	

Option Code	PMBUS Pin (9~15pin)	Heat Spreader
A	Yes	No
B	No	No
C	No	Yes
H	Yes	Yes

E54SJ Series

New

FEATURES

Electrical

- Peak Efficiency up to 97.0%
- Input range: 40~60Vdc
- Over current protection
- Input UVP/OVP,
- Over Temperature Protection
- Remote ON/OFF
- Pre-bias startup
- No minimum load required
- Active Droop Performance
- Parallel Operation with Direct Output Connection
- PMbus Communication
- 707Vdc isolation



1/8 brick | digital control | cULus

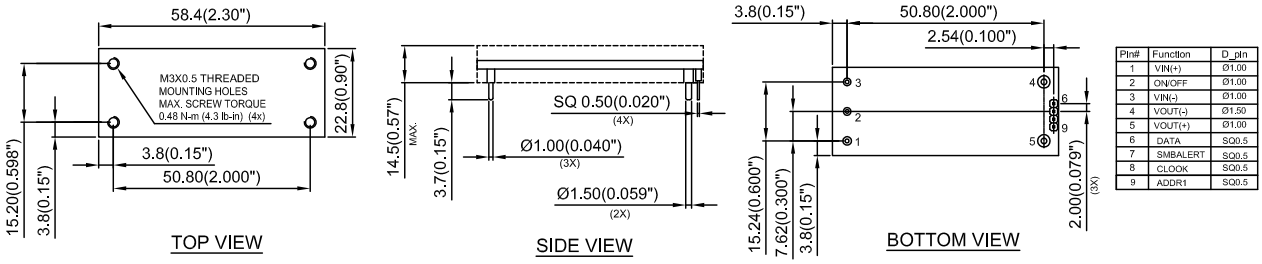
Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
E54SJ3R350	40~60V	3.3V	2.64~3.63	50A	165W	96.7%	707V	58.4x22.8x14.5 mm
E54SJ05040	40~60V	5V	-	40A	200W	96.0%	707V	58.4x22.8x12.2 mm
E54SJ05060	40~60V	5V	-	60A	300W	95.9%	707V	58.4x22.8x14.5 mm
E54SJ12026	40~60V	12V	-	26A	300W	96.8%	707V	58.4x22.8x14.5 mm
E54SJ12033	40~60V	12V	-	33.9A	400W	97.0%	707V	58.4x22.8x14.5 mm
E54SJ12040	40~60V	12V	-	40.7A	480W	96.7%	707V	58.4x22.8x14.5 mm

MECHANICAL DRAWING



PART NUMBERING SYSTEM

(For E54SJ05060NNDH only, please refer to datasheet for the other models)

E	54	S	J	050	40	N	N	D	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	Pin Assignment	Option Code
E - 1/8 Brick	54 - 40~60V	S - Single	J - Family Name	3R3 - 3.3V 050- 5V 120 - 12V	26 - 26A 33 - 33A 40 - 40A 50 - 50A 60 - 60A	N - Negative P - Positive	C - 0.180" K - 0.110'' N - 0.145" R - 0.170"	A - Analog Pins D - Digital Pins & No PIH P - Digital Pins & PIH F - ROHS 6/6 (Lead Free)	A - Standard Functions H - With heat spreader

Q36SR Series

FEATURES

Electrical

- High efficiency
- Wide 4:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1
- EN 60950-1

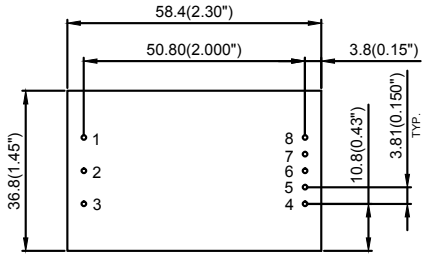


1/4 brick | 4:1 input | cULus

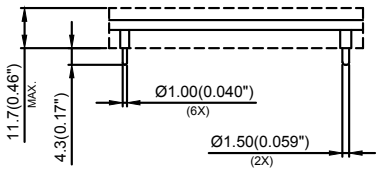
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
Q36SR12017	18~75V	12V	10.8~13.2V	17A	204W	93%	1500V	58.4 x 36.8 x 11.7 mm
Q36SR12019	18~75V	12V	10.8~13.2V	19A	228W	93%	1500V	58.4 x 36.8 x 11.7 mm
Q36SR12020	18~75V	12V	10.8~13.2V	20A	240W	93%	1500V	58.4 x 36.8 x 11.7 mm

MECHANICAL DRAWING



TOP VIEW



SIDE VIEW

(without heat spreader)

Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

Q	36	S	R	120	17	N	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
Q - 1/4 Brick	36 - 18~75V	S - Single	R - Family Name	120 - 12V	17 - 17A 19 - 19A 20 - 20A	N - Negative P - Positive	K - 0.110” N - 0.145” R - 0.170”	F - RoHS 6/6 (Lead Free) Space - RoHS 5/6	A - Standard Functions H - With heat spreader

Q48SA Series

FEATURES

Electrical

- High efficiency
- Fixed frequency operation
- 2:1 input range
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1
- EN 60950-1

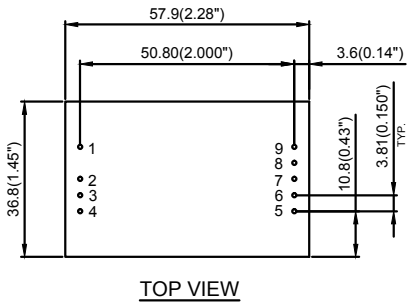


1/4 brick | 2:1 input | cULus

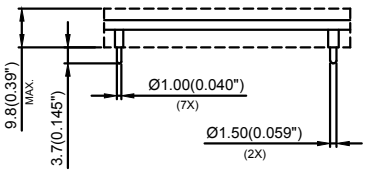
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
Q48SA54001	36~75V	54V	45.9~54V	1.5A	81W	92.0%	1500V	57.9 x 36.8 x 9.8 mm

MECHANICAL DRAWING



TOP VIEW



SIDE VIEW

(without heat spreader)

Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	CASE(OPTIONAL)	Ø1.00
4	VIN(-)	Ø1.00
5	VOUT(-)	Ø1.50
6	SENSE(-)	Ø1.00
7	TRIM	Ø1.00
8	SENSE(+)	Ø1.00
9	VOUT(+)	Ø1.50

PART NUMBERING SYSTEM

Q	48	S	A	540	01	N	N	F	H
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
Q - 1/4 Brick	48 - 36~75V	S - Single	A - Family Name	540 - 54V	01- 1.5A	N - Negative P - Positive	N - 0.145” R - 0.170”	F- RoHS 6/6 (Lead Free) Space- RoHs 5/6	H - With heat spreader

Q48SC Series

FEATURES

Electrical

- High efficiency
- Fixed frequency operation
- 2:1 input range
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07

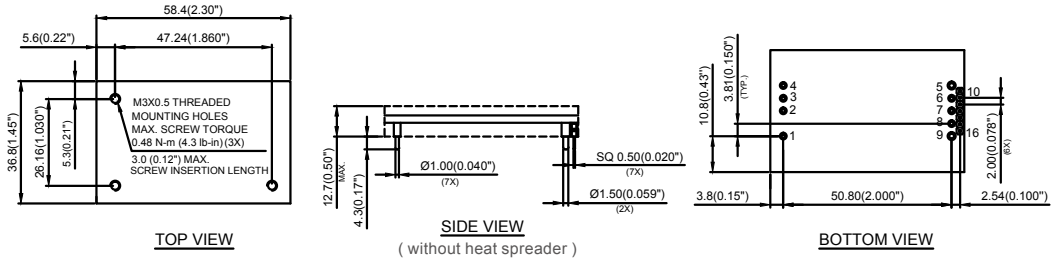


1/4 brick | 2:1 input | digital control | cULus

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
Q48SC12025	36~75V	12V	8~13.2V	25A	300W	95.1%	1500V	57.9 x 36.8 x 11.2 mm
Q48SC12033	36~75V	12V	8~13.2V	33A	400W	95.0%	1500V	57.9 x 36.8 x 11.2 mm
Q48SC12042	36~75V	12V	8~13.2V	42A	500W	95.0%	1500V	57.9 x 36.8 x 12.7 mm
Q48SC12050	36~75V	12V	8~13.2V	50A	600W	94.2%	1500V	58.4 x 36.8 x 12.7 mm
Q48SC32009	36~75V	32V	25.6~32V	9.4A	300W	95.0%	2250V	57.9 x 36.8 x 12.7 mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	CASE	Ø1.00
4	VIN(-)	Ø1.00
5	VOUT(-)	Ø1.50
6	SENSE(-)	Ø1.00
7	TRIM	Ø1.00
8	SENSE(+)	Ø1.00
9	VOUT(+)	Ø1.50
10	C2	SQ0.50
11	DGND	SQ0.50
12	PMBData	SQ0.50
13	Digital option SMBAlert	SQ0.50
14	PMBCLK	SQ0.50
15	Addr1	SQ0.50
16	Addr0	SQ0.50

PART NUMBERING SYSTEM

Q	48	S	C	120	50	N	R	D	H
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	Pin Assigment	Option Code
Q - 1/4 Brick	48 - 36~75V	S - Single	C - Family Name	120 - 12V 320 - 32V	09 - 9.4A 25 - 25A 33 - 33A 42 - 42A 50 - 50A	P - Positive N - Negative	K - 0.110” N - 0.145” R - 0.170”	D - Digital pins A - Analog pins I - IBC pins T - Trim pins	

	Trim Pin	Current Sharing	Heat Spreader	Case Pin
H	Yes	No	Yes	No
I	No	Droop	Yes	No
J	No	No	Yes	No
R	Yes	No	Yes	Yes
S	No	Droop	Yes	Yes
T	No	No	Yes	Yes

Note for mechaninal pins option:

1. D - Digital pins: with digital pins & sense pins
2. A - Analog pins: with sense pins, without digital pins
3. I - IBC pins: without digital pins & sense pins
4. T - Trim pins: with digital pins, without sense pins

Q48SQ Series

FEATURES

Electrical

- High efficiency
- Fixed frequency operation
- 2:1 input range
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1

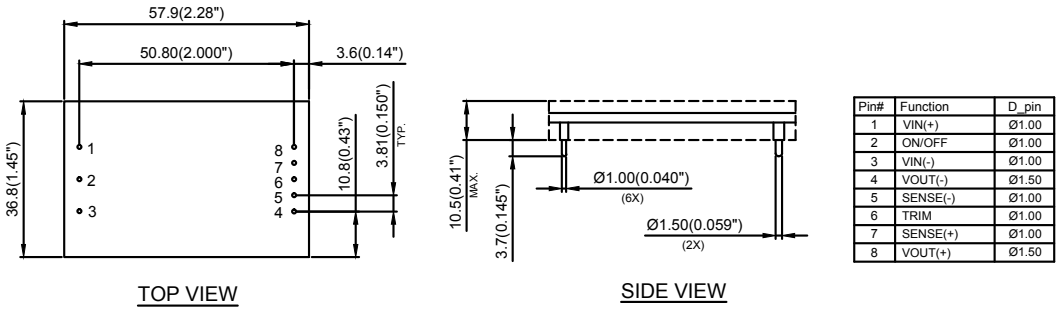


1/4 brick | 2:1 input | cULus

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
Q48SQ12018	36~75V	12V	9.6~13.2V	18A	216W	95.0%	1500V	57.9 x 36.8 x 10.5 mm
Q48SQ12025	36~75V	12V	9.6~13.2V	25A	300W	95.5%	1500V	57.9 x 36.8 x 11.2 mm
Q48SQ12033	36~75V	12V	9.6~13.2V	33A	400W	95.5%	1500V	57.9 x 36.8 x 13.2 mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	SENSE(-)	Ø1.00
6	TRIM	Ø1.00
7	SENSE(+)	Ø1.00
8	VOUT(+)	Ø1.50

(Q48SQ12018 without heat spreader)

PART NUMBERING SYSTEM

Q	48	S	Q	120	18	N	R	F	H
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
Q - 1/4 Brick	48 - 36~75V	S - Single	Q- Family Name	120 - 12V	18 - 18A 25 - 25A 33 - 33A	N - Negative P - Positive	K - 0.110” N - 0.145” R - 0.170”	F - RoHS 6/6 (Lead Free) Space - RoHS5/6	A - with trim/sense pin no heat spreader B - no trim/sense pin no heat spreader H - with trim/sense pin with heat spreader N - no trim/sense pin with heat spreader

Q54SG Series

FEATURES

Electrical

- High efficiency
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- PMBUS function (optional)

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07

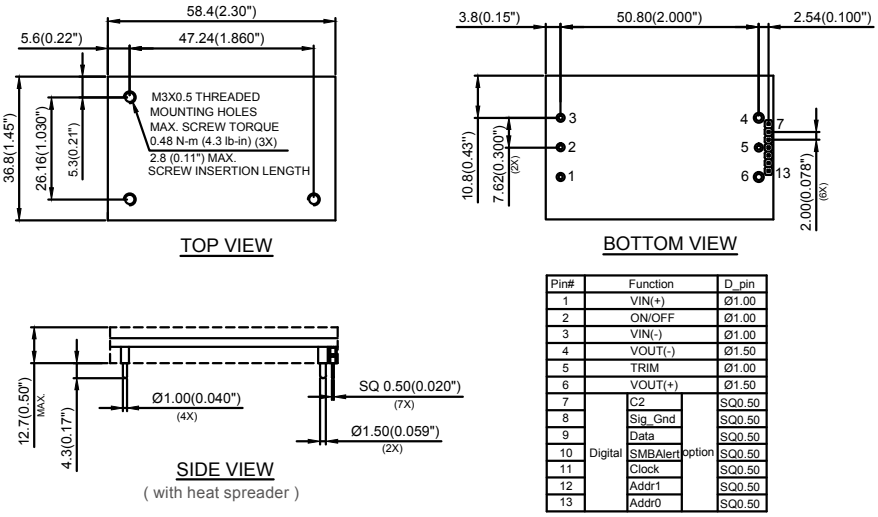


1/4 brick | digital control | cULus

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) with heat spreader
Q54SG12033	40~60V	12V	9.6~13.2V	33A	400W	96.3%	2250V	58.4 x 22.8 x 12.7 mm
Q54SG12050	40~60V	12V	9.6~13.2V	50A	600W	96.7%	2250V	58.4 x 36.8 x 13.2 mm

MECHANICAL DRAWING



Pin#	Function		D_pin
1	VIN(+)		Ø1.00
2	ON/OFF		Ø1.00
3	VIN(-)		Ø1.00
4	VOUT(-)		Ø1.50
5	TRIM		Ø1.00
6	VOUT(+)		Ø1.50
7	Digital option	C2	SQ0.50
8		Sig_Gnd	SQ0.50
9		Data	SQ0.50
10		SMBAlert	SQ0.50
11		Clock	SQ0.50
12		Addr1	SQ0.50
13		Addr0	SQ0.50

PART NUMBERING SYSTEM

Q	54	S	G	120	50	N	R	F	G
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
Q- 1/4 Brick	54 - 40~60V	S- Single	G - Family Name	120 - 12V	33 - 33A 50 - 50A	N - Negative P - Positive	K - 0.110” N - 0.145” R - 0.170” Y - 0.200”	F- RoHS 6/6 (Lead Free)	

	Droop Current Sharing	Trim Pin	PMBus Pin	Heat Spreader
C	No	Yes	No	Yes
G	No	Yes	Yes	Yes

Q54SH Series

coming soon

FEATURES

Electrical

- High efficiency
- Over current protection
- Input UVP/OVP
- Over Temperature Protection
- Remote ON/OFF
- Pre-bias startup
- No minimum load required
- Parallel Operation with Direct Output Connection
- PMbus Communication

Safety & Reliability

- UL 60950-1 pending

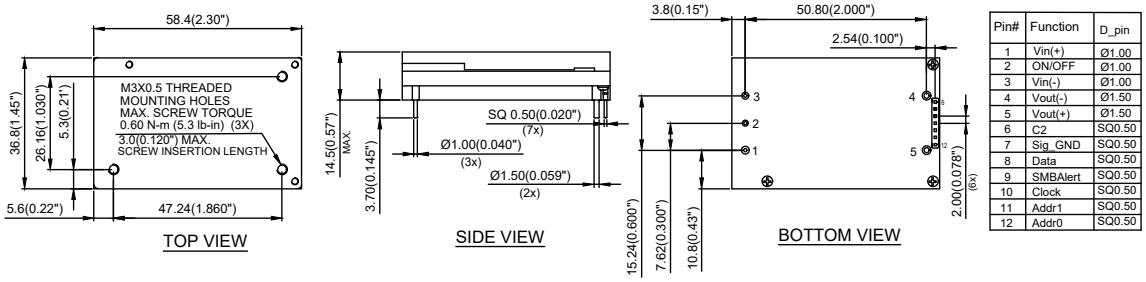


1/4 brick **digital control**

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
Q54SH12050	40~60V	12V	-	51A	600W	97.8%	707V	58.4x36.8x16.5 mm
Q54SH12068	40~60V	12V	-	68A	800W	97.5%	707V	58.4x36.8x14.5 mm
Q54SH12084	40~60V	12V	-	84.8A	1000W	97.6%	707V	58.4x36.8x15.0 mm
Q54SH120A1	40~60V	12V	-	110A	1300W	97.2%	707V	58.4x36.8x15.0 mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	Vin(+)	Ø1.00
2	ON/OFF	Ø1.00
3	Vin(-)	Ø1.00
4	Vout(-)	Ø1.50
5	Vout(+)	Ø1.50
6	C2	SQ0.50
7	Sig_GND	SQ0.50
8	Data	SQ0.50
9	SMBAlert	SQ0.50
10	Clock	SQ0.50
11	Addr1	SQ0.50
12	Addr0	SQ0.50

(For Q54SH12068NNDH only, please refer to datasheet for the other models)

PART NUMBERING SYSTEM

Q	54	S	H	120	50	N	N	D	H
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	Pin Assignment	Option Code
Q - 1/4 Brick	54 - 40~60V	S - Single	H- Family Name	120 - 12V	50 - 51A 68 - 68A 84 - 84.8A A1 - 110A	N - Negative P - Positive	C - 0.180” K - 0.110” N - 0.145” R - 0.170”	D - Digital pins P - PIH process	F - Heatspreader and Heatsink Version H - With heat spreader

New Product is coming soon. Please contact Delta for more specification information.

Q55SH Series

coming soon

FEATURES

Electrical

- High efficiency
- Over current protection
- Input UVP/OVP,
- Over Temperature Protection
- Remote ON/OFF
- Pre-bias startup
- No minimum load required
- Parallel Operation with Direct Output Connection
- PMbus Communication

Safety & Reliability

- UL 60950-1 pending

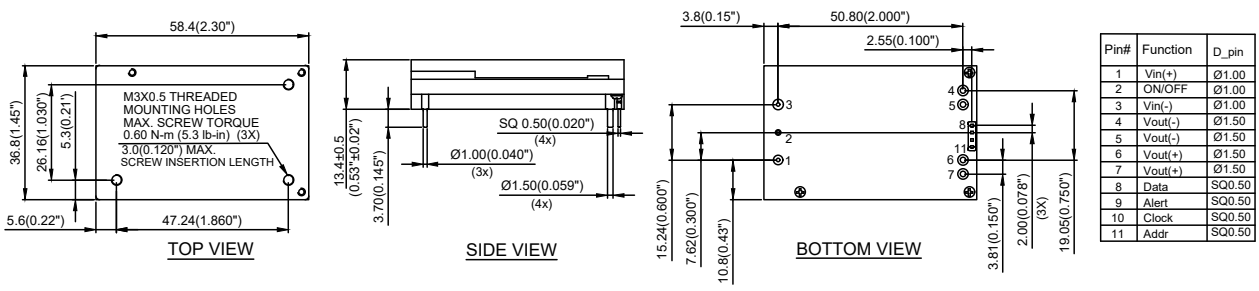


1/4 brick **digital control**

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
Q55SH12092	48~60V	12V	-	93A	1100W	97.5%	707V	58.4x36.8x16.5 mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	Vin(+)	Ø1.00
2	ON/OFF	Ø1.00
3	Vin(-)	Ø1.00
4	Vout(-)	Ø1.50
5	Vout(-)	Ø1.50
6	Vout(+)	Ø1.50
7	Vout(+)	Ø1.50
8	Data	SQ0.50
9	Alert	SQ0.50
10	Clock	SQ0.50
11	Addr	SQ0.50

PART NUMBERING SYSTEM

Q	55	S	H	120	92	N	N	D	H
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	Pin Assignment	Option Code
Q - 1/4 Brick	55 - 48~60V	S - Single	H - Family Name	120 - 11.9V	92 - 93A	N - Negative P - Positive	C - 0.180” K - 0.110" N - 0.145” R - 0.170”	A - Analog pins D - Digital pins	H - With heat spreader

New Product is coming soon. Please contact Delta for more specification information.

Q54SJ Series

New

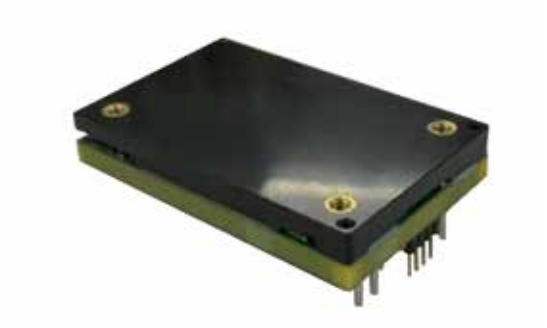
FEATURES

Electrical

- Peak Efficiency up to 97.6%
- Over current protection
- Input UVP/OVP,
- Over Temperature Protection
- Remote ON/OFF
- Pre-bias startup
- No minimum load required
- Parallel Operation with Direct Output Connection
- PMbus Communication
- Black Box for fault logging
- Online upgrade firmware by the system processor without being turned off
- 707Vdc isolation

Safety & Reliability

- UL 60950-1

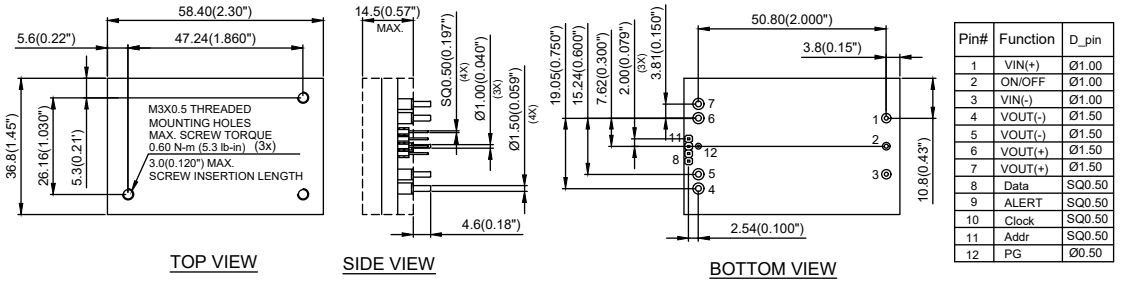


1/4 brick | digital control | cULus

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) with heat spreader
Q54SJ108A2	40~58V	10.7V	-	121A	1300W	97.3%	707V	58.4x36.8x14.5 mm
Q54SJ10892	40~60V	10.8V	-	92A	1000W	97.3%	707V	58.4x36.8x14.5 mm
Q54SJ12058	40~60V	12.2V	-	57.4A	700W	96.4%	800V	57.9x36.8x13.4 mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	VIN(-)	Ø1.00
4	VOUT(-)	Ø1.50
5	VOUT(-)	Ø1.50
6	VOUT(+)	Ø1.50
7	VOUT(+)	Ø1.50
8	Data	SQ0.50
9	ALERT	SQ0.50
10	Clock	SQ0.50
11	Addr	SQ0.50
12	PG	Ø0.50

(For Q54SJ108A2NCDH only, please refer to datasheet for the other models)

PART NUMBERING SYSTEM

Q	54	S	J	108	92	N	C	D	H
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	Pin Assignment	Option Code
Q - 1/4 Brick	54 - 40~60V	S - Single	J - Family Name	108 - 10.8V 120 - 12.2V	58 - 58A 92 - 92A A2 - 121A	N - Negative P - Positive	C - 0.180” K - 0.110” N - 0.145" R - 0.170”	D - With PMbus Pins A - Without PMbus Pins P - With PMbus Pins & for PIH process	A - Standard Functions H - With heat spreader

H36SA Series

FEATURES

Electrical

- High efficiency
- Fixed frequency operation
- Wide 4:1 input range
- Input UVLO
- Hiccup output over current protection (OCP)
- Hiccup output over voltage protection (OVP)
- Auto recovery OTP
- Monotonic startup into normal and pre-biased loads
- 2828V isolation and basic insulation
- No minimum load required

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07

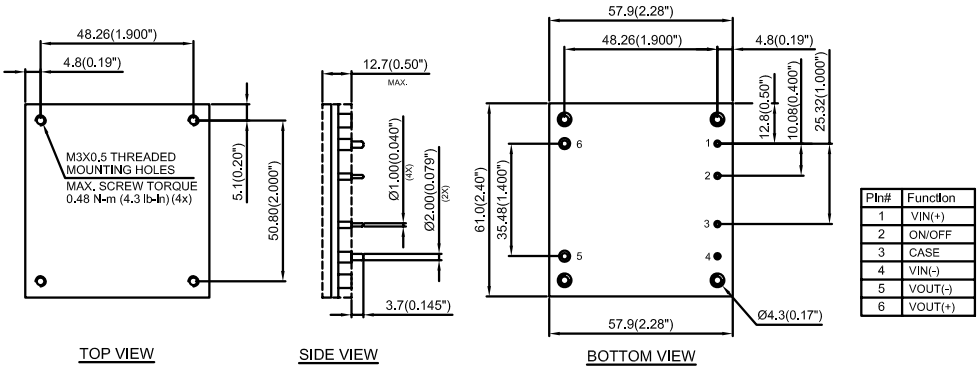


1/2 brick | 4:1 input | cULus

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) with heat spreader
H36SA54003	18~75V	54V	48.6~59.4V	3A	162W	93.5%	2828V	61.0 x 57.9x 13.2 mm

MECHANICAL DRAWING



(with heat spreader)

PART NUMBERING SYSTEM

H	36	S	A	540	03	N	N	F	H
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
H- Half Brick	36 - 18~75V	S - Single	A - Family Name	540 - 54V	03 - 3A	N - Negative P - Positive	N - 0.145”	F - RoHS 6/6 (Lead Free) Space - RoHS 5/6	H - With heat spreader

H48SA Series

FEATURES

Electrical

- High efficiency
- 2:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense (excluding H48SA53010)

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1 / EN 60950-1



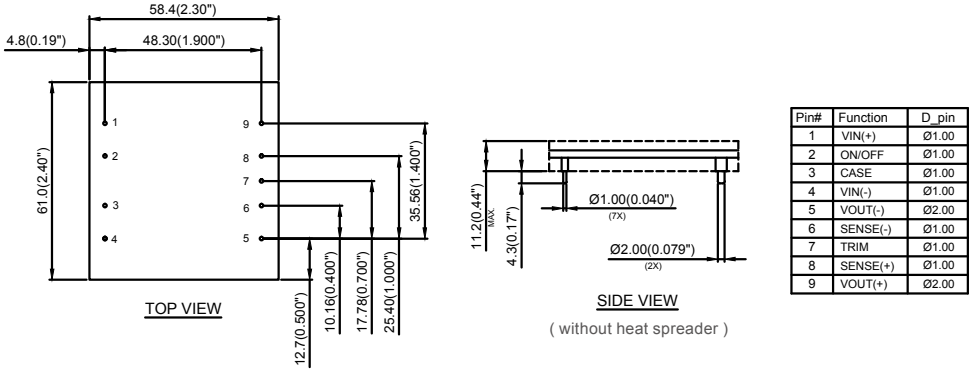
1/2 brick | 2:1 input

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
H48SA12025	36~75V	12V	9.6~13.2V	25A	300W	93.2%	2250V	61 x 58.4 x 11.2 mm
H48SA28016	36~75V	28V	14~33V	16A	450W	92.7%	1500V	61 x 57.9 x 12.7 mm
H48SA48003	36~75V	48V	38.4~52.8V	3.2A	150W	92.0%	2250V	61 x 57.9 x 9.8 mm
H48SA53010	38~60V	54V	51.3~56.7V	10.2A	550W	94.2%	2250V	61 x 58.4 x 11.2 mm

MECHANICAL DRAWING

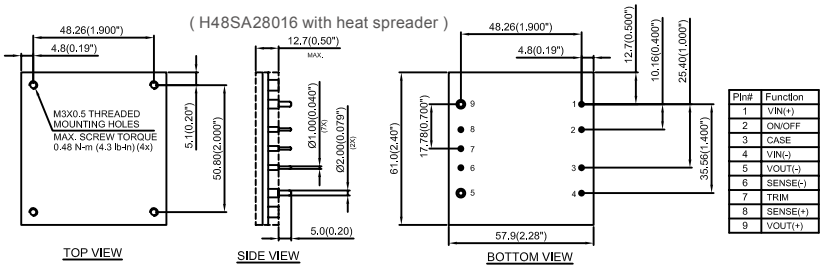
H48SA12025
H48SA53010



Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	CASE	Ø1.00
4	VIN(-)	Ø1.00
5	VOUT(-)	Ø2.00
6	SENSE(-)	Ø1.00
7	TRIM	Ø1.00
8	SENSE(+)	Ø1.00
9	VOUT(+)	Ø2.00

H48SA28016
H48SA48003

(H48SA28016 with heat spreader)



Pin#	Function
1	VIN(+)
2	ON/OFF
3	CASE
4	VIN(-)
5	VOUT(-)
6	SENSE(-)
7	TRIM
8	SENSE(+)
9	VOUT(+)

PART NUMBERING SYSTEM

H	48	S	A	120	25	N	N	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
H - Half Brick	48 - 36~75V or 38~60V	S - Single	A - Family Name	120 - 12V 280 - 28V 480 - 48V 530 - 54V	03 - 3.2A 10 - 10.2A 16 - 16A 25 - 25A	N - Negative P - Positive	K - 0.110” N - 0.145” R - 0.170”	F - RoHS 6/6 (Lead Free)	A - Standard Functions H - With heat spreader

H48SC Series

FEATURES

Electrical

- High efficiency
- 2:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Parallel and droop current sharing
- PMBUS function (optional for H48SC28016)

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1 / EN 60950-1



1/2 brick | 2:1 input | cULus

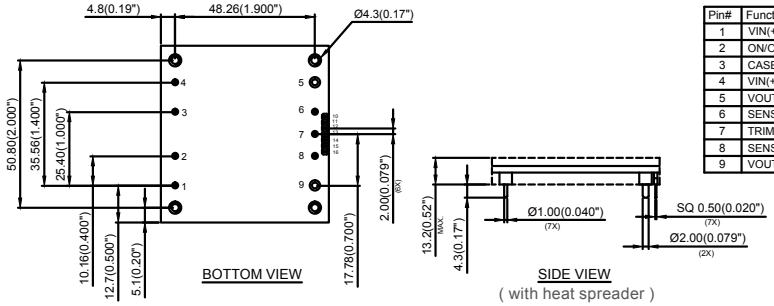
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
H48SC28016	36~75V	28V	23~33V	16A	450W	95%	1500V	61 x 57.9 x 13.2 mm
H48SC28025	36~75V	28V	23~34V	25A	700W	95%	1500V	61 x 57.9 x 12.7 mm
H48SC3R325	36~75V	3.3V	2.64~3.63V	25A	82.5W	93%	2250V	61 x 57.9 x 10.0 mm

MECHANICAL DRAWING

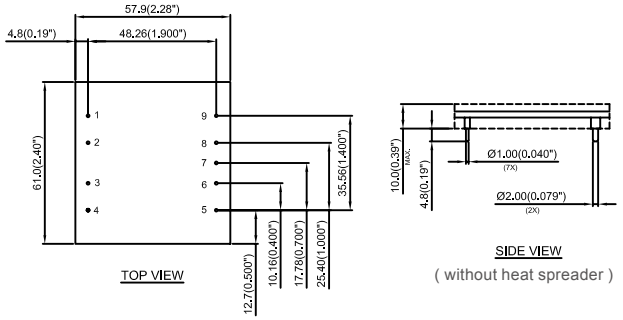
H48SC28016

H48SC28025



Pin#	Function	D_pin	Pin#	Function	D_pin
1	VIN(+)	Ø1.00	10	C2	SQ0.5
2	ON/OFF	Ø1.00	11	DGND	SQ0.5
3	CASE	Ø1.00	12	PMBData	SQ0.5
4	VIN(+)	Ø1.00	13	SMBAlert	SQ0.5
5	VOUT(-)	Ø2.00	14	PMBCLK	SQ0.5
6	SENSE(-)	Ø1.00	15	Addr1	SQ0.5
7	TRIM	Ø1.00	16	Addr0	SQ0.5
8	SENSE(+)	Ø1.00			
9	VOUT(+)	Ø2.00			

H48SC3R325



Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	ON/OFF	Ø1.00
3	CASE	Ø1.00
4	VIN(-)	Ø1.00
5	VOUT(-)	Ø2.00
6	SENSE(-)	Ø1.00
7	TRIM	Ø1.00
8	SENSE(+)	Ø1.00
9	VOUT(+)	Ø2.00

PART NUMBERING SYSTEM

H	48	S	C	280	16	N	R	F	H
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
H - Half Brick	48 - 36~75V	S - Single	C- Famliy Name	280 - 28V 3R3 - 3.3V	16 - 16A 25 - 25A	N - Negative P- Positive	K – 0.110” N – 0.145” R – 0.170”	F - RoHS 6/6 (Lead Free)	

	PMBUS pin (10~16pin)	Heat Spreader
A	No	No
B	Yes	No
C	Yes	Yes
H	No	Yes

H51SA Series

New

FEATURES

Electrical

- High efficiency: 97.0% @ 50V/22A output
- Pre-bias startup
- No minimum load required
- Fixed frequency operation
- Input UVP
- Hiccup output over current protection (OCP)
- Auto recovery OTP
- Output Over Voltage protection(OVP)
- 2250V isolation
- Remote on/off

Safety & Reliability

- UL/cUL 60950-1 (US & Canada)

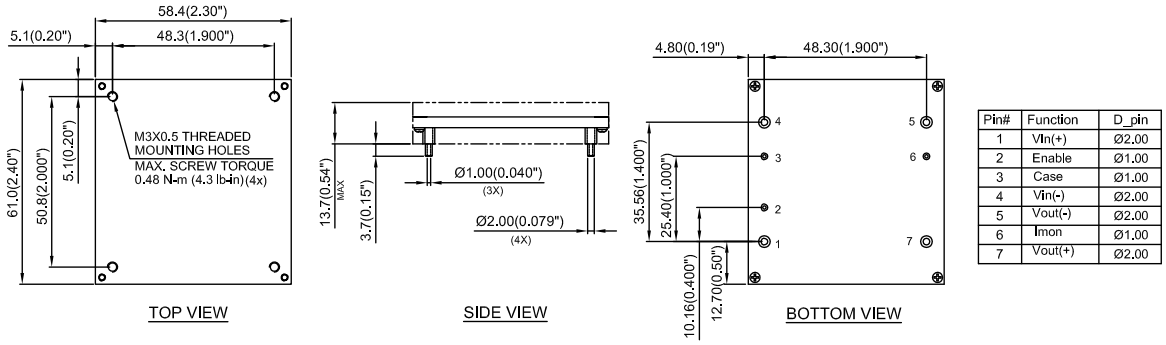


1/2 Brick

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
H51SA50022	40~60V	50V	-	22A	1100W	97%	2250V	58.4x 61 x 13.7 mm
H51SA50033	45~60V	50V	-	33A	1650W	97%	2250V	58.4x 61 x 13.7 mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	Vin(+)	Ø2.00
2	Enable	Ø1.00
3	Case	Ø1.00
4	Vin(-)	Ø2.00
5	Vout(-)	Ø2.00
6	Imon	Ø1.00
7	Vout(+)	Ø2.00

PART NUMBERING SYSTEM

H	51	S	A	500	22	N	N	F	H
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
H - Half Bick	51 - 40~60V	S - Single	A - Family Name	500 - 50V	22 - 22A 33 - 33A	N - Negative P - Positive	K - 0.110" N - 0.145" R - 0.170"	F- RoHS 6/6 (Lead Free)	H - With heat spreader

S36SE Series

FEATURES

Electrical

- High efficiency
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1

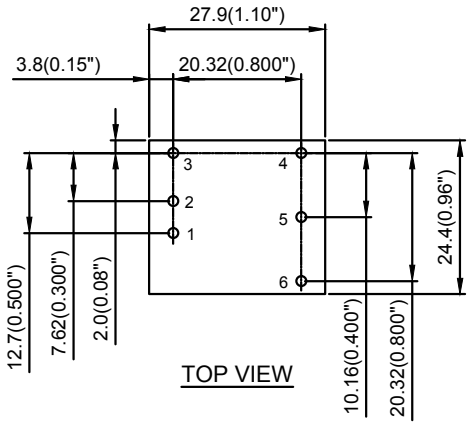


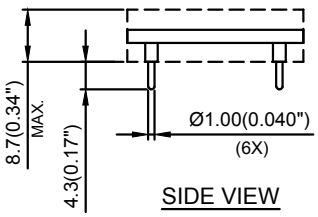
1" x 1"

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
S36SE3R305	18~75V	3.3V	2.97~3.63V	5A	16.5W	86.5%	2250V	27.9 x 24.4 x 8.7 mm
S36SE05003	18~75V	5V	4.5~5.5V	3A	15W	83.5%	2250V	27.9 x 24.4 x 8.7 mm
S36SE12001	18~75V	12V	10.8~13.2V	1.3A	15.5W	87.0%	2250V	27.9 x 24.4 x 8.7 mm
S36SE12002	36~75V	12V	10.8~13.2V	2A	24W	87.0%	2250V	27.9 x 24.4 x 8.7 mm

MECHANICAL DRAWING





Pin#	Function
1	VIN(+)
2	VIN(-)
3	ON/OFF
4	VOUT(-)
5	TRIM
6	VOUT(+)

PART NUMBERING SYSTEM

S	36	S	E	050	03	N	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
S - Small Power	36 - 18~75V or 36~75V	S - Single	E - Family Name	3R3 - 3.3V 050 - 5.0V 120 - 12V	01 - 1.3A 02 - 2A 03 - 3A 05 - 5A	N - Negative P - Positive	K - 0.110" N - 0.145" R - 0.170" M - SMD	F- RoHS 6/6 (Lead Free)	A - No trim pin B - With trim pin (Default)

S48SP Series

FEATURES

Electrical

- High efficiency
- 2:1 input range
- Fixed frequency operation
- OTP, Input UVLO, Output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1



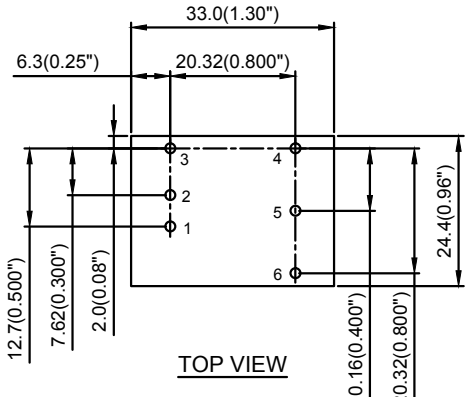
1" x 1"

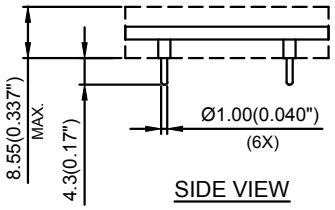
2:1 input

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
S48SP3R310	36~75V	3.3V	2.97~3.63V	10A	33W	90.0%	2250V	33.0 x 24.4 x 8.55 mm
S48SP05007	36~75V	5V	4.5~5.5V	7A	35W	90.0%	2250V	33.0 x 24.4 x 8.55 mm
S48SP12003	36~75V	12V	10.8~13.2V	3A	36W	90.0%	2250V	33.0 x 24.4 x 8.55 mm

MECHANICAL DRAWING





Pin#	Function
1	VIN(+)
2	VIN(-)
3	ON/OFF
4	VOUT(-)
5	TRIM
6	VOUT(+)

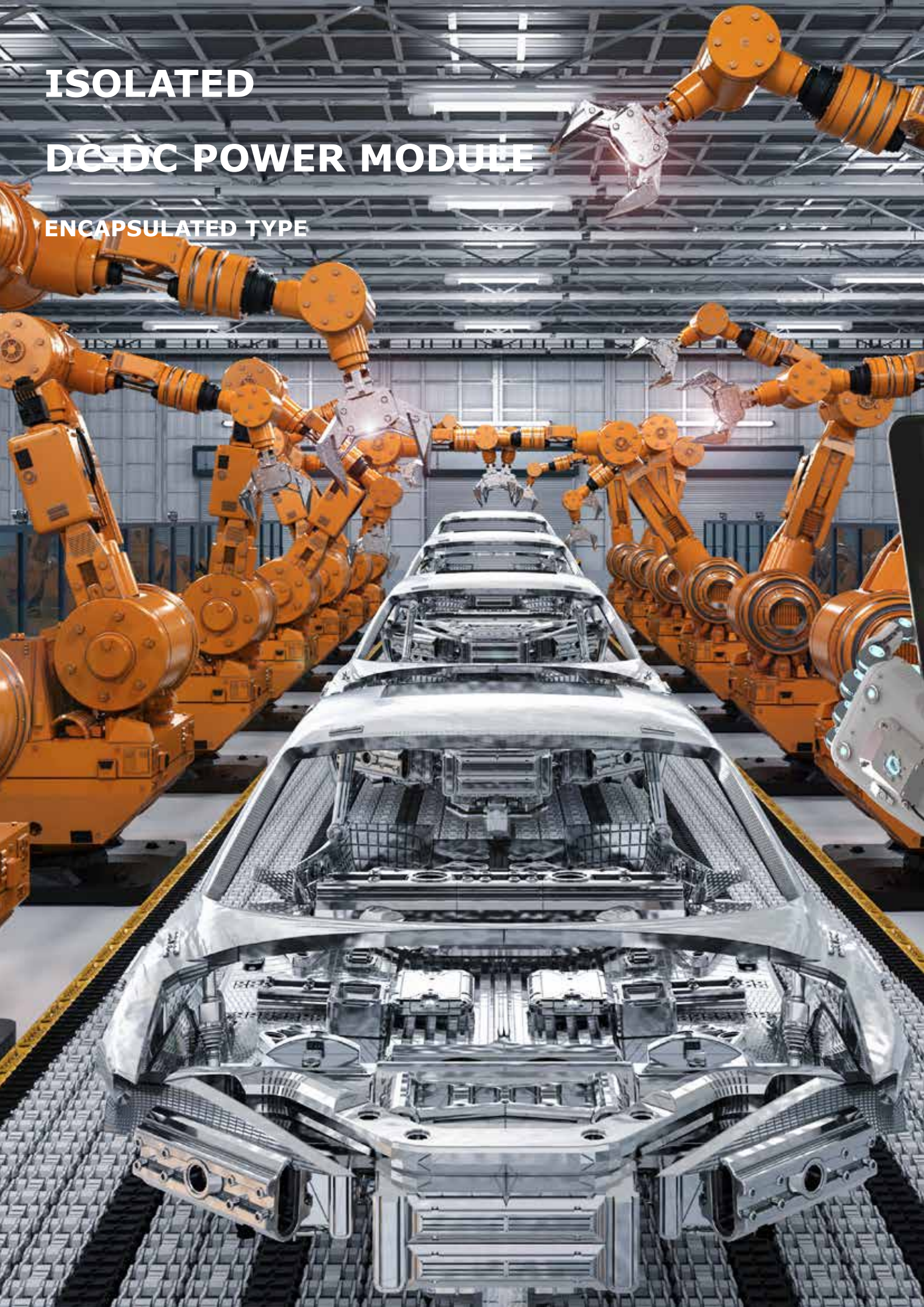
PART NUMBERING SYSTEM

S	48	S	P	050	07	N	R	F	B
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
S - Small Power	48 - 36V~75V	S - Single	P - Family Name	3R3 - 3.3V 050 - 5V 120 - 12V	03 - 3A 07 - 7A 10 - 10A	N - Negative P - Positive E - No remote on/off control pin	K - 0.110" N - 0.145" R - 0.170" M - SMD	F - RoHS 6/6 (Lead Free)	A - No trim pin B - With trim pin (Default)

ISOLATED

DC-DC POWER MODULE

ENCAPSULATED TYPE



Product Overview

Low Power (1~10W)

Delta's expansive product portfolio provides solution capability to meet the specific requirements of industrial application. Products use Delta's creative design topology and patented technologies to achieve extremely high efficiency, low power dissipation and greater reliability. These modules housed in industry standard footprint and pinout are easy to use and available in a fully encapsulated package for harsh environment applications.

Series	Output Power	Input Voltage(V)	Output Voltage (V)	Safety Mark	Max Eff.	Isolation Voltage	Package
 DA01S	1W	5,12,24 (±10%)	5, 9, 12, 15	N/A	79%	3000VDC	DIP
 PA01S	1W	3.3, 5,12,24 (±10%)	5, 9, 12, 15	N/A	80%	1000VDC	SIP
 PB01S PB01D	1W	5,12,15,24 (±10%)	3.3, 5, 9, 12, 15 ±5, ±9, ±12, ±15	N/A	81%	1000VDC	SIP
 PD01S PD01D	1W	5,12,24 (±10%)	3.3, 5, 9, 12, 15 ±5, ±9, ±12, ±15	N/A	81%	3000VDC	SIP
 PE01S PE01D	1W	5,12,24 (±10%)	5, 9, 12, 15 ±5, ±9, ±12, ±15		88.5%	1000VDC	SIP
 PF01S	1W	5,12,24 (±10%)	5, 9, 12, 15		88%	3000VDC	SIP
 PI01S PI01D	1W	5,12 (±10%)	5, 12, 15 ±5, ±12, ±15		75%	3000VAC	SIP
 PL01S PL01D	1W	4.5-9,9-18, 18-36,36-75	5, 12, 15 ±12, ±15		80%	1500VDC	SIP
 SA01S	1W	5,12,24 (±10%)	3.3, 5, 9, 12, 15	N/A	82%	1000VDC	SMD
 SA01D	1W	5,12,24 (±10%)	±5, ±9, ±12, ±15	N/A	80%	1000VAC	SMD

Series		Output Power	Input Voltage(V)	Output Voltage (V)	Safety Mark	Max Eff.	Isolation Voltage	Package
	SB01S SB01D	1W	5,12,24 (±10%)	5, 12, 15 ±5, ±12, ±15	N/A	81%	3000VDC	SMD
	SH01S SH01D	1W	5,12,15,24 (±10%)	3.3, 5, 9, 12, 15 ±5, ±12, ±15	N/A	80%	1500VDC	SMD
	SK01S SK01D	1W	5,12,24,48 (±10%)	5, 12, 15 ±12, ±15		82%	1500VDC	SMD
	DB02S DB02D	2W	4.5-9,9-18, 18-36,36-75	3.3, 5, 12, 15 ±5, ±12, ±15		80%	1500VDC	DIP
	DC02S DC02D	2W	5,12,24 (±10%)	5, 12, 15 ±5, ±12, ±15	N/A	64%	6000VDC	DIP
	DK02S DK02D	2W	5,12,24 (±10%)	5, 12, 15 ±12, ±15		75%	4000VAC	DIP
	PC02S PC02D	2W	5,12,24 (±10%)	3.3, 5, 12, 15 ±5, ±12, ±15	N/A	83%	1000VDC	SIP
	PG02S	2W	4.5-9,9-18, 18-36,36-75	3.3, 5, 12	N/A	81%	1000VDC	SIP
	PH02S PH02D	2W	9-36,18-75	3.3, 5, 12, 15 ±5, ±12, ±15	N/A	80%	1500VDC	SIP
	SC02S SC02D	2W	5,12,24 (±10%)	5, 12 ±5, ±12, ±15	N/A	82%	1000VDC	SMD
	SD02S SD02D	2W	4.5-9,9-18, 18-36,36-75	3.3, 5, 12, 15 ±5, ±12, ±15		81%	1500VDC	SMD
	SG02S SG02D	2W	5,12,24 (±10%)	5, 12, 15 ±12, ±15		75%	4000VAC	SMD

Series	Output Power	Input Voltage(V)	Output Voltage (V)	Safety Mark	Max Eff.	Isolation Voltage	Package
 DD03S DD03D	3W	4.5-9,9-18, 18-36,36-75	5, 12, 15 ±12, ±15		81%	1500VDC	DIP
 DL03S DL03D	3W	9-36,18-75	3.3, 5, 12, 15 ±12, ±15		84%	1500VDC	DIP
 DM03S DM03D	3W	4.5-9,9-18, 18-36,36-75	5, 12, 24 ±12, ±15		84%	4000VDC	DIP
 DN03S DN03D	2-3W	4.5 ~ 9, 9 ~ 18	3.3, 5, 12, 15, 24 ±5, ±12, ±15		85%	1500VDC 3000VDC	DIP
 PJ03S PJ03D	3W	4.5-18,9-36,18-75	3.3, 5, 12, 15 ±5, ±12, ±15		81%	1600VDC	SIP
 SE03S SE03D	3W	9-18,18-36,36-75	3.3, 5, 12, 15 ±5, ±12, ±15		83%	1500VDC	SMD
 DF04S DF04D	4W	9-36,18-75	3.3, 5, 12, 15 ±5, ±12, ±15		85%	1500VDC	DIP
 SF05S SF05D	5W	9-18,18-36,36-75	3.3, 5, 12, 15 ±5, ±12, ±15		85%	1500VDC	SMD
 DH06S DH06D	6W	9-18,18-36,36-75	3.3, 5, 12, 15, 24 ±5, ±12, ±15		84%	1500VDC 3000VDC	DIP
 DJ06S DJ06D	6W	9-36,18-75	3.3, 5, 12, 15, 24 ±5, ±12, ±15		84%	1500VDC 3000VDC	DIP
 DU06S DU06D	6W	9-18,18-36,36-75	5, 12 ±12, ±15		80%	4000VDC	DIP
 DT10S DT10D	10W	9-18,18-36,36-75	5, 12 ±12, ±15		82%	4200VAC	DIP

Product Overview

10 ~ 240W

These are encapsulated board-mounted DC/DC power modules in a compact footprint with industry standard pinout. Designed for harsh environments such as process control and automation, data communication and telecom equipment, test equipment, or industrial, railway and healthcare markets, all modules are packaged in metal case and potted with thermal potting material, which ensures good thermal performance and high reliability in harsh environment applications.

Series	Output Power	Input Voltage	Output Voltage (V)										Max Efficiency	Isolation Voltage	Package	Page
			3.3	5	12	15	24	28	48	54	±12	±15				
S24SE	10~30W	9~36V	•	•	•	•							89.0%	1600VDC	1"x1"	50
S24DE	10~30W	9~36V									•	•	88.0%	1600VDC	1"x1"	51
S24SP	40~60W	9~36V		•	•	•	•						93.0%	1500VDC	2"x1"	52
S36SE	15~16.5W	18~75V	•	•	•								93.0%	2250VDC	1"x1"	53
E24SE*	150W	9~36V		•	•		•		•				93.5%	4000VDC	1/2 brick	54
E35SE*	120W	9~60V		•	•		•		•				-	4000VDC	1/2 brick	55
Q24SE*	240W	9~36V		•	•		•		•				92.5%	2250VDC	1/4 brick	61

50 ~ 200W

These are isolated DC-DC power converters designed for various railway applications such as drive controls, power controls, safety monitors and communications systems under the European Standard EN 50155. Delta designed these products with ultra wide input range for optimal performance in extensive transportation market. With creative design technology and optimization of component placement, these converters possess outstanding electrical and thermal performance as well as high reliability under extremely harsh operating conditions.

Series	Output Power	Input Voltage	Output Voltage (V)										Max Efficiency	Isolation Voltage	Package	Page
			3.3	5	12	15	24	28	48	54	±12	±15				
Q80SV*	150W	14.4~160V		•	•		•			•			89.0%	3000VDC	1/4 brick	56
HA1SV	50~120W	53~154V			•	•	•						89.0%	3000VDC	1/2 brick	57
H80SV*	100~200W	16.8~137.5V			•	•	•		•	•			91.0%	4242VDC	1/2 brick	58

720 ~ 1200W

These are new modules upto 1200W.

Series	Output Power	Input Voltage	Output Voltage (V)										Max Efficiency	Isolation Voltage	Package	Page
			3.3	5	12	14	24	28	48	54	±12	±15				
FB7SR*	720~1200W	200~400V				•		•		•			95.0%	4242VDC	full brick	59
FG5SR*	720~1200W	400~800V				•		•	50V	•			95.0%	4242VDC	full brick	59
QC8SC*	750W	360~400V			•								96.6%	4242VDC	1/4 brick	60

* New Product

S24SE Series

FEATURES

Electrical

- High efficiency
- Industry standard footprint and pinout
- Wide 4:1 input range
- Fixed frequency operation
- OTP, input UVLO, output OCP, OVP
- Positive or negative remote ON/OFF
- Without tantalum capacitor inside module

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC/EN 60950-1
- EN 50155

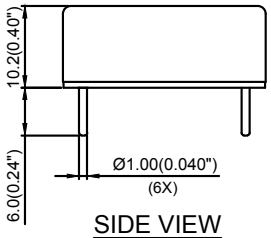


1" x 1" | 4:1 input | c UL us | single output

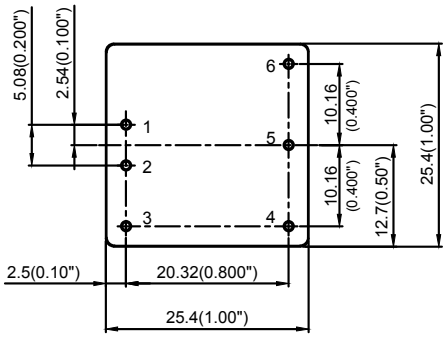
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
S24SE3R303	9~36V	3.3V	3A	10W	87.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE3R305	9~36V	3.3V	4.5A	15W	87.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE3R306	9~36V	3.3V	6A	20W	87.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE3R307	9~36V	3.3V	7.5A	30W	88.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE05002	9~36V	5V	2A	10W	87.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE05003	9~36V	5V	3A	15W	89.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE05004	9~36V	5V	4A	20W	88.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE05006	9~36V	5V	6A	30W	89.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE12001	9~36V	12V	1.25A	15W	87.5%	1600V	25.4 x 25.4 x 10.2 mm
S24SE12002	9~36V	12V	1.67A	20W	88.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE12003	9~36V	12V	2.5A	30W	88.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE120R8	9~36V	12V	0.83A	10W	86.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE15001	9~36V	15V	1.33A	20W	88.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE15002	9~36V	15V	2A	30W	88.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE150R6	9~36V	15V	0.67A	10W	87.0%	1600V	25.4 x 25.4 x 10.2 mm
S24SE150R9	9~36V	15V	1A	15W	87.5%	1600V	25.4 x 25.4 x 10.2 mm

MECHANICAL DRAWING



SIDE VIEW



BOTTOM VIEW

PIN	Single	Dual
1	Vin(+)	Vin(+)
2	Vin(-)	Vin(-)
3	ON/OFF	ON/OFF
4	Vout(-)	Vout(-)
5	Trim	Comm
6	Vout(+)	Vout(+)

S24DE Series

FEATURES

Electrical

- High efficiency
- Industry standard footprint and pinout
- Wide 4:1 input range
- Fixed frequency operation
- OTP, input UVLO, output OCP, OVP
- Positive or negative remote ON/OFF
- Without tantalum capacitor inside module

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC/EN 60950-1
- EN 50155

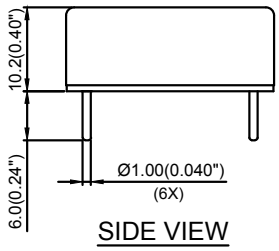


1" x 1" | 4:1 input | dual outputs

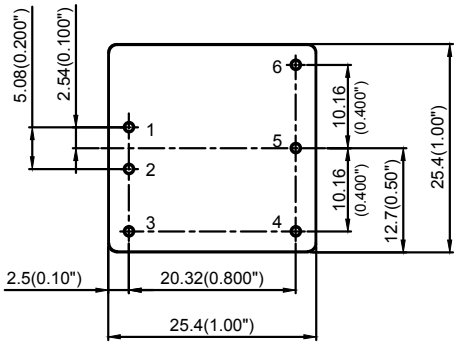
SPECIFICATIONS

Part Number	Input Voltage	Outputs		Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
S24DE120R4	9~36V	12V/0.42A	-12V/0.42A	10W	87.0%	1600V	25.4 x 25.4 x 10.2 mm
S24DE120R6	9~36V	12V/0.625A	-12V/0.625A	15W	87.5%	1600V	25.4 x 25.4 x 10.2 mm
S24DE120R8	9~36V	12V/0.83A	-12V/0.83A	20W	88.0%	1600V	25.4 x 25.4 x 10.2 mm
S24DE12001	9~36V	12V/1.25A	-12V/1.25A	30W	88.0%	1600V	25.4 x 25.4 x 10.2 mm
S24DE150R3	9~36V	15V/0.33A	-15V/0.33A	10W	87.0%	1600V	25.4 x 25.4 x 10.2 mm
S24DE150R5	9~36V	15V/0.5A	-15V/0.5A	15W	87.5%	1600V	25.4 x 25.4 x 10.2 mm
S24DE150R6	9~36V	15V/0.67A	-15V/0.67A	20W	88.0%	1600V	25.4 x 25.4 x 10.2 mm
S24DE15001	9~36V	15V/1.33A	-15V/1.33A	30W	88.0%	1600V	25.4 x 25.4 x 10.2 mm

MECHANICAL DRAWING



SIDE VIEW



BOTTOM VIEW

PIN	Single	Dual
1	Vin(+)	Vin(+)
2	Vin(-)	Vin(-)
3	ON/OFF	ON/OFF
4	Vout(-)	Vout(-)
5	Trim	Comm
6	Vout(+)	Vout(+)

PART NUMBERING SYSTEM

S	24	S	E	050	02	P	D	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
S - Small Power	24 - 9~36V	S - Single D - Dual	E - Family Name	3R3 - 3.3V 050 - 5.0V 120 - 12V or ±12V 150 - 15V or ±15V	02 - 2A 03 - 3A 04 - 4A 06 - 6A etc.	N - Negative P - Positive	R - 0.17" T - 0.22" D - 0.24"	F - RoHS 6/6 (Lead Free)	A - Standard (with metal case) H - With metal case and heat sink

S24SP Series

FEATURES

Electrical

- High efficiency
- Industry standard footprint and pinout
- Wide 4:1 input range
- Fixed frequency operation
- OTP, input UVLO, output OCP, OVP
- Positive or negative remote ON/OFF
- Without tantalum capacitor inside module

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- EN 50155

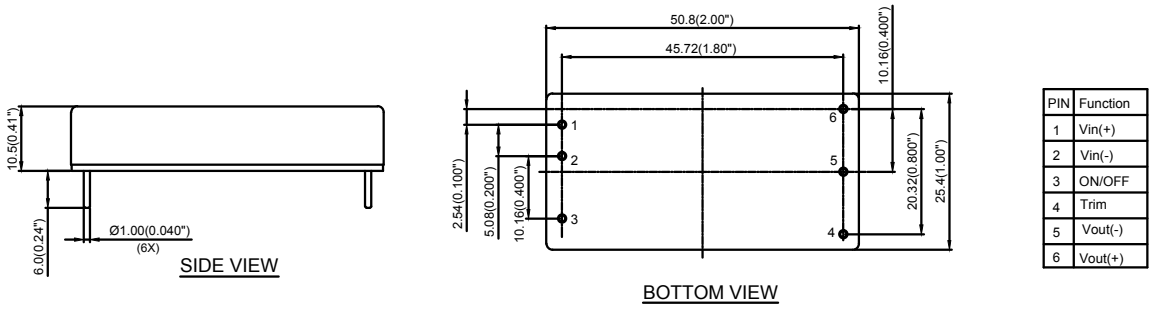


2" x 1" **4:1 input**

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
S24SP05008	9~36V	5V	4.5~5.5V	8A	40W	92.80%	1500V	50.8 x 25.4 x 10.5 mm
S24SP05012	9~36V	5V	4.5~5.5V	12A	60W	92.40%	1500V	50.8 x 25.4 x 10.5 mm
S24SP12004	9~36V	12V	10.8~13.2V	3.5A	40W	92.80%	1500V	50.8 x 25.4 x 10.5 mm
S24SP12005	9~36V	12V	10.8~13.2V	5A	60W	92.80%	1500V	50.8 x 25.4 x 10.5 mm
S24SP15003	9~36V	15V	13.5~16.5V	2.7A	40W	93.70%	1500V	50.8 x 25.4 x 10.5 mm
S24SP15004	9~36V	15V	13.5~16.5V	4A	60W	93.30%	1500V	50.8 x 25.4 x 10.5 mm
S24SP24002	9~36V	24V	21.6~26.4V	1.7A	40W	92.50%	1500V	50.8 x 25.4 x 10.5 mm
S24SP24003	9~36V	24V	21.6~26.4V	2.5A	60W	93.30%	1500V	50.8 x 25.4 x 10.5 mm

MECHANICAL DRAWING



PIN	Function
1	Vin(+)
2	Vin(-)
3	ON/OFF
4	Trim
5	Vout(-)
6	Vout(+)

PART NUMBERING SYSTEM

S	24	S	P	050	12	P	D	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
S - Small Power	24 - 9~36V	S - Single	P - Family Name	050 - 5V	08 - 8A 12 - 12A	N - Negative P - Positive	R - 0.17" T - 0.22" D - 0.24"	F - RoHS 6/6 (Lead Free)	A - Standard (with metal case) H - With metal case and heat sink
				120 - 12V	04 – 3.5A 05 - 5A				
				150 - 15V	03 – 2.7A 04 - 4A				
				240 - 24V	02 – 1.7A 03 – 2.5A				

S36SE Series

FEATURES

Electrical

- High efficiency
- 4:1 input range
- Fixed frequency operation
- OTP, input UVLO, output OCP, OVP
- Isolation and basic insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC 60950-1



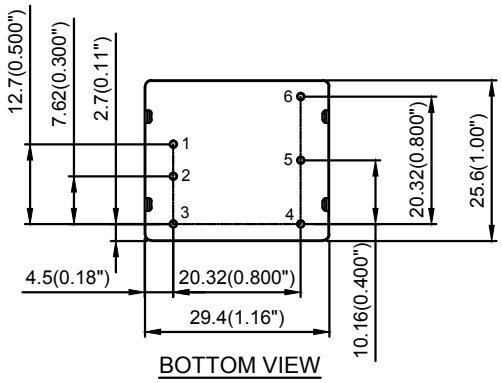
1" x 1"

4:1 input

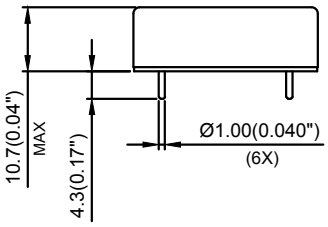
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
S36SE3R305	18~75V	3.3V	2.7~3.63V	5A	16.5W	86.5%	2250V	29.4 x 25.6 x 10.7 mm
S36SE05003	18~75V	5V	4.4~5.5V	3A	15W	83.5%	2250V	29.4 x 25.6 x 10.7 mm
S36SE12001	18~75V	12V	10.8~13.2V	1.3A	15.5W	87.0%	2250V	29.4 x 25.6 x 10.7 mm

MECHANICAL DRAWING



BOTTOM VIEW



SIDE VIEW

Pin#	Function
1	VIN(+)
2	VIN(-)
3	ON/OFF
4	VOUT(-)
5	TRIM
6	VOUT(+)

PART NUMBERING SYSTEM

S	36	S	E	050	03	N	R	F	G
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
S - Small Power	36- 18~75V	S - Single	E - Family Name	3R3 - 3.3V 050 - 5.0V 120 - 12V	01 - 1.3A 03 - 3A 05 - 5A	N - Negative P - Positive E - No remote on/off control pin	K - 0.110” N - 0.145” R - 0.170”	F- RoHS 6/6 (Lead Free)	G - Encapsulated

E24SE Series

coming soon

FEATURES

Electrical

- Efficiency up to 93.5%
- OTP, Input UVLO, Output OVP, OCP
- Wide output voltage trim range
- Monotonic startup and pre-biased loads
- 4000V isolation
- Working altitude up to 5500 m
- Input surge 50V/100mS

Safety & Reliability

- UL62368-1 pending
- EN50155 and EN45545-2 pending



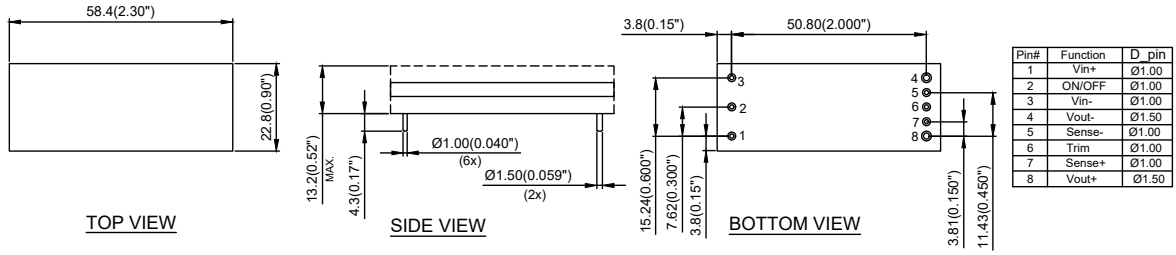
1/8 Brick

4:1 input

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
E24SE05030	9~36V	5V	4~6V	30A	150W	93.5%	4000V	58.4x22.8x13.2mm
E24SE12013	9~36V	12V	9.6~14.4V	13A	150W	93.5%	4000V	58.4x22.8x13.2mm
E24SE24006	9~36V	24V	19.2~28.8V	6A	150W	93.5%	4000V	58.4x22.8x13.2mm
E24SE48003	9~36V	48V	38.4~57.6V	3A	150W	93.5%	4000V	58.4x22.8x13.2mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	Vin+	Ø1.00
2	ON/OFF	Ø1.00
3	Vin-	Ø1.00
4	Vout-	Ø1.50
5	Sense-	Ø1.00
6	Trim	Ø1.00
7	Sense+	Ø1.00
8	Vout+	Ø1.50

(with potting and regular case only, please refer to datasheet for the other options)

PART NUMBERING SYSTEM

E	24	S	E	050	30	P	D	P	G
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	Operating Ambient Temperature	Option Code
E - 1/8 Brick	24 - 9~36V	S - Single	E - Family Name	050 - 5V 120 - 12V 240 - 24V 480 - 48V	03 - 3A 06 - 6A 13 - 13A 30 - 30A	N - Negative P - Positive	D - 0.24'' T - 0.22" R - 0.17"	P - -40~85°C M - -45~85°C R - -55~85°C *Note1	A - Open frame H - With baseplate G - With potting and regular case F - With potting and flanged baseplate

*Note1: 'M' and 'R' available only for last code = 'G' or 'F'

New Product is coming soon. Please contact Delta for more specification information.

E35SE Series

coming soon

FEATURES

Electrical

- Eficiency up to 91.5%
- OTP, Input UVLO, Output OVP, OCP
- Wide output voltage trim range
- Monotonic startup and pre-biased loads
- 4kVdc isolation
- Working altitude up to 5500 m

Safety & Reliability

- UL62368-1 pending
- EN50155 and EN45545-2 pending

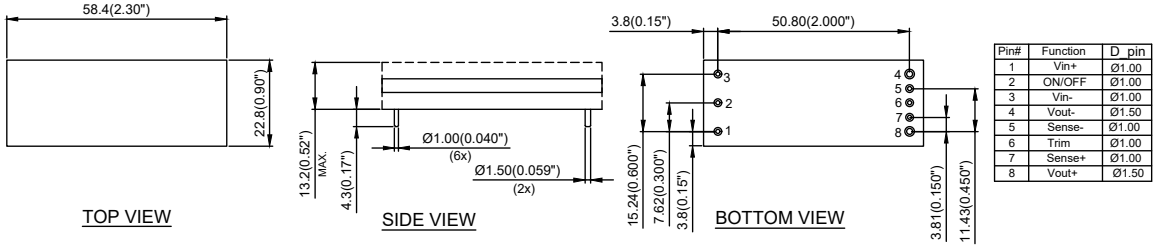


1/8 Brick | wide input | high isolation

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
E35SE05024	9~60V	5V	4~6V	24A	120W	-	4000V	58.4x22.8x13.2mm
E35SE12010	9~60V	12V	9.6~14.4V	10A	120W	-	4000V	58.4x22.8x13.2mm
E35SE24005	9~60V	24V	19.2~28.8V	5A	120W	-	4000V	58.4x22.8x13.2mm
E35SE48003	9~60V	48V	38.4~57.6V	2.5A	120W	-	4000V	58.4x22.8x13.2mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	Vin+	Ø1.00
2	ON/OFF	Ø1.00
3	Vin-	Ø1.00
4	Vout-	Ø1.50
5	Sense-	Ø1.00
6	Trim	Ø1.00
7	Sense+	Ø1.00
8	Vout+	Ø1.50

(with potting and regular case only, please refer to datasheet for the other options)

PART NUMBERING SYSTEM

E	35	S	E	050	24	P	D	P	G
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	Operating Ambient Temperature	Option Code
E - 1/8 Brick	35 - 9~60V	S - Single	E - Family Name	050 - 5V 120 - 12V 240 - 24V 480 - 48V	03 - 2.5A 05 - 5A 10 - 10A 24 - 24A	N - Negative P - Positive	D - 0.24'' T - 0.22" R - 0.17"	P - -40~85°C M - -45~100°C R - -55~100°C *Note1	A - Open frame H - With baseplate G - With potting and regular case F - With potting and flanged baseplate

*Note1: 'M' and 'H' available only for last code = 'G' or 'F'

New Product is coming soon. Please contact Delta for more specification information.

Q80SV Series

coming soon

FEATURES

Electrical

- Efficiency up to 89% @110Vin
- Ultra wide input range, 14.4V-160V
- 12V/1S, 200V/1S transient voltage
- Over voltage protection, Over current protection, hiccup mode
- Positive or Negative Remote ON/OFF
- Without tantalum capacitor inside module
- Operating Base plate Temperature range - 40°C to +100°C
- 3000VDC input to output reinforced isolation
- Hold up time PIN option: connect AL capacitor from this PIN to input ground for 10ms hold up time
- RoHs Compliant

Safety & Reliability

- UL62368-1 pending
- EN50155 pending

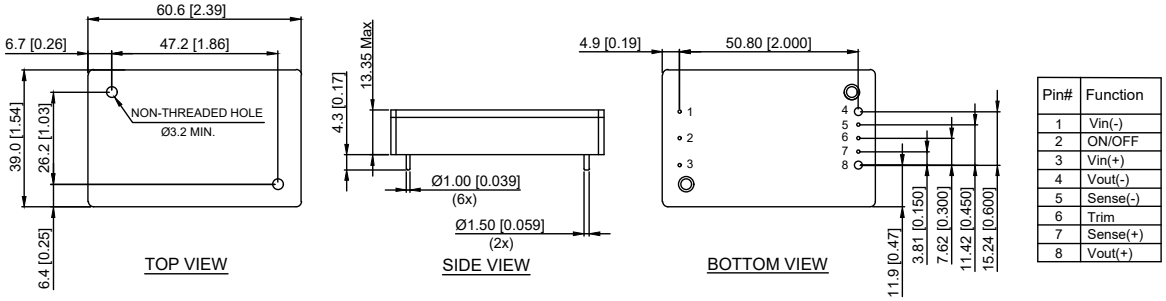


1/4 Brick | wide input | railway

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
Q80SV05030	14.4~160V	5V	3.3~5.5V	30A	150W	86%	3000VDC	60.6x 39 x 12.7 mm
Q80SV12013	14.4~160V	12V	9.6~15V	13A	150W	89%	3000VDC	60.6x 39 x 12.7 mm
Q80SV24006	14.4~160V	24V	19.2~28V	6.3A	150W	87%	3000VDC	60.6x 39 x 12.7 mm
Q80SV54003	14.4~160V	54V	43.2~59.4V	2.8A	150W	87%	3000VDC	60.6x 39 x 12.7 mm

MECHANICAL DRAWING



Pin#	Function
1	Vin(-)
2	ON/OFF
3	Vin(+)
4	Vout(-)
5	Sense(-)
6	Trim
7	Sense(+)
8	Vout(+)

PART NUMBERING SYSTEM

Q	80	S	V	120	13	P	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
Q - 1/4 Brick	80 - 14.4-160V continuously / 12-200V transient 1s	S - Single	V - Family Name	050 - 5V 120 - 12V 240 - 24V 540 - 54V	30 - 30A 13 - 12.5A 06 - 6.3A 03 - 2.8A	N - Negative P - Positive	N - 0.145” R - 0.170”	F - RoHS 6/6 (Lead Free)	A - STD & through hole S - STD & threaded screw hole

New Product is coming soon. Please contact Delta for more specification information.

HA1SV Series

FEATURES

Electrical

- High efficiency
- Industry standard footprint and pinout
- Wide input range
- Fixed frequency operation
- OTP, Input UVLO, OVP, Output OCP, OVP
- Isolation and reinforce insulation
- Pre-biased startup
- No minimum load required
- Positive or negative remote ON/OFF
- Remote sense

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC/EN 60950-1
- EN 50155

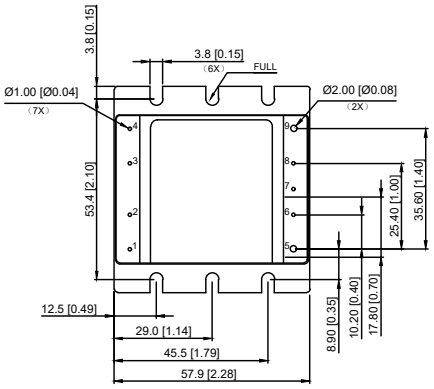


1/2 brick | wide input | high isolation

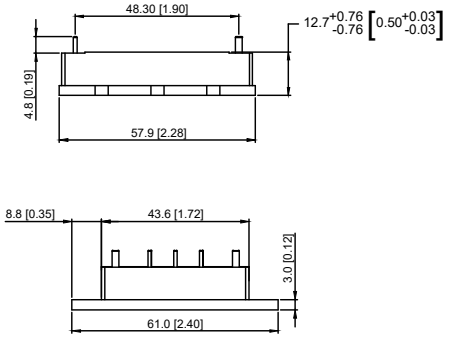
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
HA1SV12004	53~154V	12V	10.8~13.2V	4.2A	50W	86.0%	3000V	61 x 57.9 x 12.7 mm
HA1SV12008	53~154V	12V	10.8~13.2V	8.3A	100W	86.0%	3000V	61 x 57.9 x 12.7 mm
HA1SV15007	53~154V	15V	13.5~16.5V	6.7A	100W	88.5%	3000V	61 x 57.9 x 12.7 mm
HA1SV24002	53~154V	24V	21.6~26.4V	2.1A	50W	87.0%	3000V	61 x 57.9 x 12.7 mm
HA1SV24005	53~154V	24V	21.6~26.4V	5A	120W	89.0%	3000V	61 x 57.9 x 12.7 mm
HA1SV15003	53~154V	15V	13.5~16.5V	3.3A	50W	86.5%	3000V	61 x 57.9 x 12.7 mm

MECHANICAL DRAWING



BOTTOM VIEW



SIDE VIEW

PIN #	Function
1	+In
2	Gate In
3	Gate out
4	-In
5	+Out
6	+Sense
7	Trim
8	-Sense
9	-Out

PART NUMBERING SYSTEM

H	A1	S	V	120	04	P	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
H - 1/2 Brick	A1 - 53V~154V	S - Single	V - Family Name	120 - 12V 150 - 15V 240 - 24V	02 - 2.1A 03 - 3.3A 04 - 4.2A 05 - 5.0A 07 - 6.7A 08 - 8.3A	N - Negative P - Positive	N - 0.145” R - 0.170”	F - RoHS 6/6 (Lead Free) Space - RoHS5/6	A - With baseplate H - Without mounting hole

H80SV Series

New

FEATURES

Electrical

- High efficiency
- Ultra wide input range, 16.8~137.5V
  Continuous operating voltage up to 160V
- 14.4V/1S, 200V/1S transient voltage
- Operating base plate temperature - 40°C to +100°C
- Input Brown-out OTP, Input UVLO, Output OCP, OVP
- Reinforce insulation 4242Vdc
- No minimum load required
- Positive or negative remote ON/OFF
- Pin option for hold up time

Safety & Reliability

- IEC/UL/EN 60950-1 & CSA C22.2 No. 60950-1-07
- EN50155

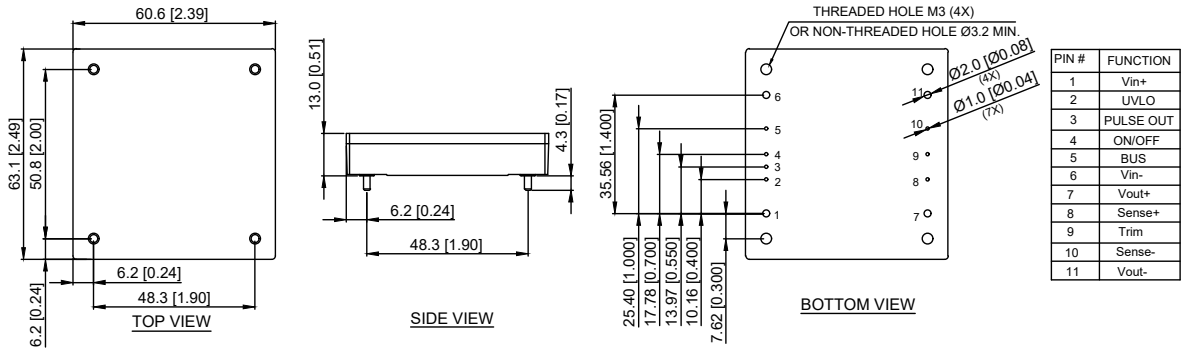


1/2 brick | wide input | railway | cULus

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
H80SV12008	16.8~137.5V (160V*Note1)	12V	9.6~13.2V	8A	100W	90.0%	4242V	60.6x63.1x13 mm
H80SV12017	16.8~137.5V (160V*Note1)	12V	9.6~13.2V	17A	200W	90.0%	4242V	60.6x63.1x13 mm
H80SV15007	16.8~137.5V (160V*Note1)	15V	12~16.5V	7A	100W	90.0%	4242V	60.6x63.1x13mm
H80SV15013	16.8~137.5V (160V*Note1)	15V	12~16.5V	13A	200W	91.5%	4242V	60.6x63.1x13mm
H80SV24004	16.8~137.5V (160V*Note1)	24V	19.2~26.4V	4A	100W	88.0%	4242V	60.6x63.1x13mm
H80SV24008	16.8~137.5V (160V*Note1)	24V	19.2~26.4V	8A	200W	88.0%	4242V	60.6x63.1x13mm
H80SV48002	16.8~137.5V (160V*Note1)	48V	38.4~52.8V	2A	100W	90.0%	4242V	60.6x63.1x13mm
H80SV48004	16.8~137.5V (160V*Note1)	48V	38.4~52.8V	4A	200W	90.0%	4242V	60.6x63.1x13mm
H80SV54004	16.8~137.5V (160V*Note1)	54V	43.2~59.4V	4A	200W	90.6%	4242V	60.6x63.1x13mm

MECHANICAL DRAWING



PIN #	FUNCTION
1	Vin+
2	UVLO
3	PULSE OUT
4	ON/OFF
5	BUS
6	Vin-
7	Vout+
8	Sense+
9	Trim
10	Sense-
11	Vout-

PART NUMBERING SYSTEM

H	80	S	V	120	08	P	R	F	S
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
H - 1/2 Brick	80 - 16.8~137.5V (160V*Note1)	S - Single	V - Family Name	120 - 12V 150 - 15V 240 - 24V 480 - 48V 540 - 54V	02 - 2A 04 - 4A 07 - 7A 08 - 8A 13 - 13A 17 - 17A	N - Negative P - Positive	R - 0.170"	F - RoHS 6/6 (Lead Free) Space - RoHS5/6	A - Through Hole S - Screw Hole (M3*0.5)

*Note1: rated voltage 16.8~137.5V, continuously operating voltage 16.8~160V

FB7SR/FG5SR Series

coming soon

FEATURES

Electrical

- High efficiency : ≥95% @full load
- Industry standard pin out and footprint
- Fixed frequency operation
- Input UVLO
- Hiccup output over current protection (OCP)
- Latch output over voltage protection (OVP)
- Output current limited protection(OCL)
- Auto recovery OTP
- Negative enable (Positive enable optional)
- =Active current sharing
- Remote sense
- Sync Start and fast sync off
- Monotonic startup into normal
- 4242V isolation and reinforce insulation
- No minimum load required



full brick | wide input | high isolation

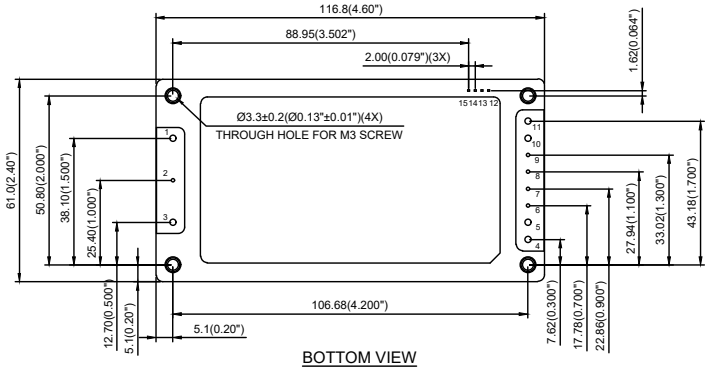
Safety & Reliability

- IEC/UL/EN 60950-1 pending

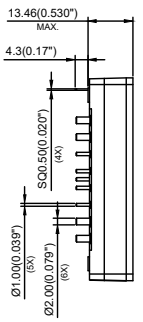
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
FB7SR14086	200~400V	14V	11.2~15.4V	86A	1204W	94.6%	4242V	116.8x61x12.7mm
FB7SR28043	200~400V	28V	22.4~30.8V	43A	1204W	95.0%	4242V	116.8x61x12.7mm
FB7SR54022	240~400V	54V	46.0~57.5V	22A	1188W	96.5%	4242V	116.8x61x12.7mm
FG5SR14086	400~800V	14V	11.2~15.4V	86A	1204W	94.8%	4242V	116.8x61x12.7mm
FG5SR28043	400~800V	28V	22.4~30.8V	43A	1204W	95.0%	4242V	116.8x61x12.7mm
FG5SR54022	480~800V	54V	46.0~57.5V	22A	1188W	96.4%	4242V	116.8x61x12.7mm
FG5SR50024	560~900V	50V	40.0~55.0V	24A	1200W	95.5%	4242V	116.8x61x12.7mm

MECHANICAL DRAWING



BOTTOM VIEW



SIDE VIEW

PIN#	FUNCTION
1	Vin-
2	ON/OFF
3	Vin+
4	Vout+
5	
6	Sense+
7	Trim
8	CS/SS
9	Sense-
10	Vout-
11	
12	GND
13	DATA
14	CLK
15	ADD

PART NUMBERING SYSTEM

F	B7	S	R	140	86	N	R	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
F - Full Brick	B7 - 270V G5 - 750V	S - Single	R - Family Name	140 - 14V 280 - 28V 500 - 50V 540 - 54V	22 - 22A 24 - 24A 43 - 43A 86 - 86A	N - Negative P - Positive	R - 0.170"	F - RoHS 6/6 (Lead Free) Space - RoHS5/6	A - With baseplate

New Product is coming soon. Please contact Delta for more specification information.

QC8SC Series

coming soon

FEATURES

Electrical

- Peak Efficiency up to 97.0%
- Over current protection
- Input UVP/OVP,
- Over Temperature Protection
- Remote ON/OFF
- Pre-bias startup
- No minimum load required
- PMbus Communication
- Reinforced insulation
- 4242Vdc Isolation Voltage

Safety & Reliability

- UL 60950-1 pending

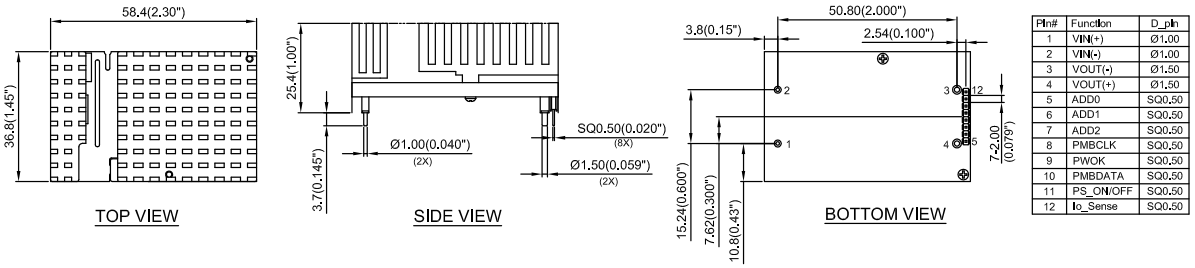


1/4 brick | digital control

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
QC8SC12063	360~400V	12V	-	63A	750W	96.6%	4242V	58.4 x 36.8 x 25.4 mm

MECHANICAL DRAWING



Pin#	Function	D_pin
1	VIN(+)	Ø1.00
2	VIN(-)	Ø1.00
3	VOUT(-)	Ø1.50
4	VOUT(+)	Ø1.50
5	ADD0	SQ0.50
6	ADD1	SQ0.50
7	ADD2	SQ0.50
8	PMBCLK	SQ0.50
9	PWOK	SQ0.50
10	PMBDATA	SQ0.50
11	PS_ON/OFF	SQ0.50
12	Io_Sense	SQ0.50

PART NUMBERING SYSTEM

Q	C8	S	C	120	63	N	N	D	H
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
Q - 1/4 Brick	C8 - 360~400V	S - Single	C - Family Name	120 - 12V	63 - 63A	N - Negative P - Positive	N - 0.145" R - 0.170"	D - Digital pins A - Analog pins	H - Heat sink Version

New Product is coming soon. Please contact Delta for more specification information.

Q24SE Series

coming soon

FEATURES

Electrical

- Efficiency up to 92.5%
- OTP, Input UVLO, Output OVP, OCP
- Wide output voltage trim range
- Monotonic startup and pre-biased startup
- PMBus Rev 1.2 compliance
- 2250V isolation
- Working altitude up to 5500 m
- Input surge 50V/100mS

Safety & Reliability

- UL62368-1 pending

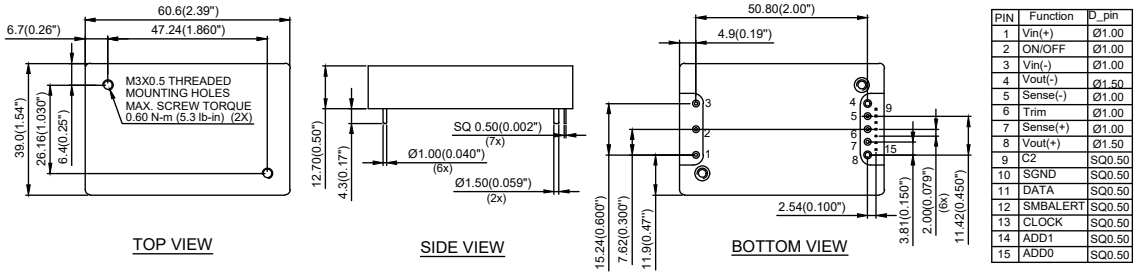


1/4 brick **4:1 input** **digital control**

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
Q24SE05048	9~36V	5V	4~5.5V	48A	240W	92.5%	2250V	60.6x39x12.7 mm
Q24SE12020	9~36V	12V	6~13.2V	20A	240W	92.5%	2250V	60.6x39x12.7 mm
Q24SE24010	9~36V	24V	12~28.8V	10A	240W	92.5%	2250V	60.6x39x12.7 mm
Q24SE48005	9~36V	48V	24~55.2V	5A	240W	92.0%	2250V	60.6x39x12.7 mm

MECHANICAL DRAWING



PIN	Function	D_pin
1	Vin(+)	Ø1.00
2	ON/OFF	Ø1.00
3	Vin(-)	Ø1.00
4	Vout(-)	Ø1.50
5	Sense(-)	Ø1.00
6	Trim	Ø1.00
7	Sense(+)	Ø1.00
8	Vout(+)	Ø1.50
9	C2	SQ0.50
10	SGND	SQ0.50
11	DATA	SQ0.50
12	SMBALERT	SQ0.50
13	CLOCK	SQ0.50
14	ADD1	SQ0.50
15	ADD0	SQ0.50

(with potting, regular case and unthreaded mounting hole only, please refer to datasheet for the other options)

PART NUMBERING SYSTEM

Q	24	S	E	050	48	P	D	P	G
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length Pin Type	RoHS	Option Code
Q – 1/4 Brick	24 - 9V~36V	S - Single	E - Family Name	050 - 5V 120 - 12V 240 - 24V 480 - 48V	05 - 5A 10 - 10A 20 - 20A 48 - 48A	N - Negative P - Positive	D - 0.24” T - 0.22” R - 0.17”	P - -40~85°C M - -45~100°C H - -55~100°C *Note1	A - Open Fame H - With baseplate G - With potting, regular case and unthreaded mounting hole S - with potting, regular case and threaded mounting hole

*Note1: ‘M‘ and ‘H’ available only for last code = ‘G’ or ‘S’

New Product is coming soon. Please contact Delta for more specification information.

ISOLATED

DC-DC POWER MODULE

PANEL MOUNT & DIN-RAIL



Product Overview

Panel-mounted DCDC converter, a wide input voltage range of 18~106V, can provide 500W, regulated DC output voltage with high efficiency. The power module offers input UVLO, output over current limit, short circuit, output over voltage, over temperature, and input reverse polarity protections. It has an option for integrated fuse holder and enable on/off function. It also has parallel function; and allows a wide operating temperature range of -40°C to +75°C. With creative design technology and optimization of component placement, this converter possess outstanding electrical and thermal performance, as well as high reliability under extremely harsh operating conditions. All products meet IP67 protection.

Series	Output Power	Input Voltage	Output Voltage (V)						Max Efficiency	Isolation Voltage	Package	Page
			5	12.4	13.7	24	±12	±15				
B40SR	200~300W	18~60V		•	•				98.5%	2250VDC	Panel Mount	64
B62SR	200~360W	18~106V		•	•	•			91.0%	2250VDC	Panel Mount	64
B70SR	300W	36~106V		•	•	•			92.5%	2250VDC	Panel Mount	64
B70SP*	500W	32~96V		•	•	•			91.5%	2250VDC	Panel Mount	66

These are designed particularly for industrial applications where no PCB mounting is possible the module has to be mounted on panel or din-rail. The series come with a host of industry-standard features, such as over current protection, over voltage protection, over temperature protection and remote on/off. An optional heatsink is available for more extreme thermal requirements. All models have wide input voltage range. With operating temperature of -40°C to +85°C, it is suitable for customers' critical applications, such as process control and automation, transportation, data communication and telecom equipment, test equipment, medical device and everywhere where space on the PCB is critical.

Series	Output Power	Input Voltage	Output Voltage (V)						Max Efficiency	Isolation Voltage	Package	Page
			5	12	15	24	±12	±15				
PM24S*	60W	9~36V	•	•	•	•			93.7%	1600VDC	Panel Mount	67
PM24D*	30W	9~36V					•	•	88.0%	1600VDC	Panel Mount	67
DR24S*	60W	9~36V	•	•	•	•			93.7%	1600VDC	Din Rail	67
DR24D*	30W	9~36V					•	•	88.0%	1600VDC	Din Rail	67
PM80S	200W	16.8~137.5V		•	•	•	48V	54V	89.0%	4242VDC	Panel Mount	69

* New Product

B40SR/B62SR/B70SR Series

FEATURES

Electrical

- Ultra wide input voltage range 18~106V
- Intergrated fuse holder (optional)
- Parallel connection of multiple units
- Operating temperature range -40°C to +75°C
- Minimized inrush current
- Input reverse polarity protection
- OTP, input UVLO, output OCL, SCP, OVP
- Enable on/off (optional)
- Isolation voltage 2250VDC

Mechanical

- Box type package with metal base plate
- Package dimension: 190x76x44mm
- IP67 protection

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07
- IEC/EN 60950-1



Box | ultra wide input voltage | IP67 | CE | cULus | RoHS

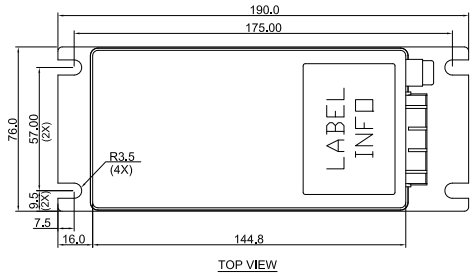
SPECIFICATIONS

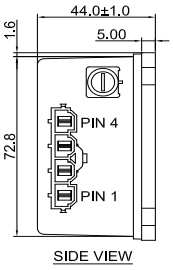
Part Number	Input Voltage	Output Voltage	Output Current	Output Power	Efficiency
B40SR12424DP	18~60V	12.4V	24A	300W	88.3%
B40SR12424A/B/C/D	18~60V	12.4V	24A	200W @18~27Vin	88.3%
B40SR13722A/B/C/D	18~60V	13.7V	22A	300W @27~60Vin	88.5%
B62SR12424A/B/C/D	18~106V	12.4V	24A	200W @18~27Vin	88.0%
B62SR13722A/B/C/D	18~106V	13.7V	22A	300W @27~106Vin	88.5%
B62SR24125A/B/C/D	18~106V	24V	12.5A		91.0%
B62SR24015A/B/C/D	18~106V	24V	15A	360W	90.5%
B70SR12424A/B/C/D	36~106V	12.4V	24A		89.5%
B70SR13722A/B/C/D	36~106V	13.7V	22A	300W	90.2%
B70SR24125A/B/C/D	36~106V	24V	12.5A		92.5%

MECHANICAL DRAWING

BXXSRXXXXXA

- With built-in fuse holder
- No enable pin

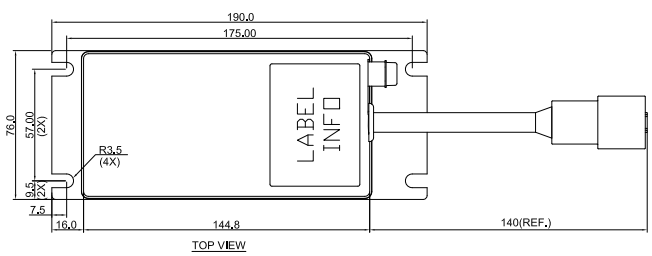


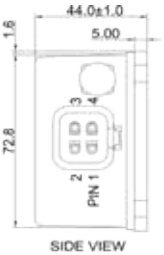


Pin	Function
1	Output-
2	Output+
3	Input-
4	Input+

BXXSRXXXXXB

- With built-in fuse holder
- No enable pin
- With sealed connector & fuse holder

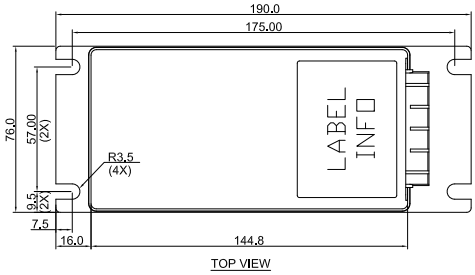


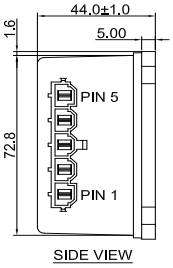


Pin	Function
1	Output-
2	Output+
3	Input-
4	Input+

BXXSRXXXXXC

- No built-in fuse holder
- With enable pin

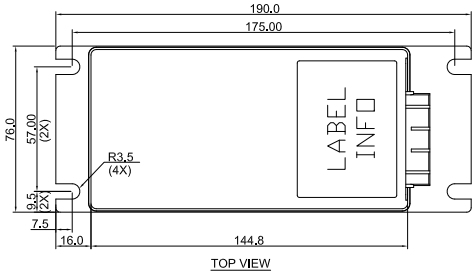


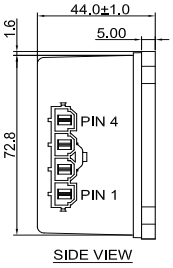


Pin	Function
1	Output-
2	Output+
3	Input-
4	Input+
5	Enable

BXXSRXXXXXD

- No built-in fuse holder
- No enable pin





Pin	Function
1	Output-
2	Output+
3	Input-
4	Input+

B70SP Series

coming soon

FEATURES

Electrical

- Wide input voltage range, 32~96V
- 500W Output
- Full Load Efficiency up to 91.5% @48Vin and 72Vin
- Parallel Connection of multiple units
- Box type package with metal base plate
- Package Dimension:
  198.0x113.0x45.0mm (7.80”x4.45”x1.77”)
- Operating Temperature Range - 40°C to +75°C
- Input Reverse Polarity Protection
- Input UVLO, Output OCL, Short circuit protection, OVP, OTP
- Enable on/off
- 2250VDC Isolation
- IP67 protection(With fully assembled mating connector)
- RoHs Compliant

Safety & Reliability

- UL60950, UL62368, CE Mark pending
- EMC compatible: EN12895-2015, CISPR11 Class A pending

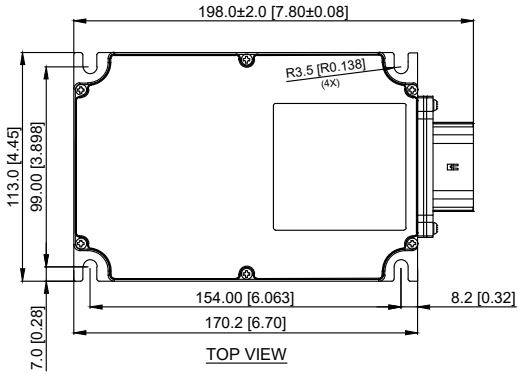


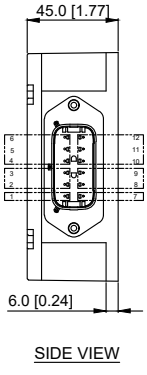
Box | IP67 | RoHs | cULus

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Output Current	Output Power	Efficiency
B70SP12440A/B	32~96V	12.4V	40A	500W	88.0%
B70SP13736A/B	32~96V	13.7V	36.5A	500W	89.5%
B70SP24020A/B	32~96V	24.5V	21A	500W	91.5%

MECHANICAL DRAWING





PIN CONNECTIONS:

PIN #	FUNCTION
1	ENABLE
2	INPUT+
3	
4	OUTPUT-
5	
6	
7	NA
8	INPUT-
9	
10	OUTPUT+
11	
12	

PART NUMBERING SYSTEM

B	70	S	P	124	40	AC	
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	Option Code	
B - Box	70 - 32~96V	S - Single	P - High Power	124 - 12.4V	40 - 40A		Connector Kit
						A	Without parallel function	with mating connector
						B	with parallel function	with mating connector

New Product is coming soon. Please contact Delta for more specification information.

PM & DR Series

New

FEATURES

Electrical

- Output LED Indicator
- EN55022 Class B EMC Filter built-in
- Internal Fuse
- Reverse Polarity Protected
- Minimized Inrush Current
- Output Trim Potentiometer (only for single output)
- -40°C to 85°C Operating Ambient Temperature
- OTP, Input UVLO and Output OVP, OCP
- Isolation Voltage
- No Min Load Required



Mechanical

- Metal Case
- Screw terminal
- Panel mount or Din-rail mount
- Size Panel mount : 100x56x19 mm
  Din-rail : 118.6x67.1x23.5 mm



Safety & Reliability

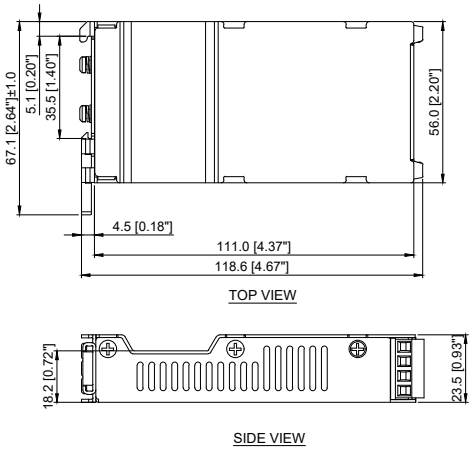
- UL 60950-1 & CSA C22.2 No.60950-1-07 pending
- CE Mark pending

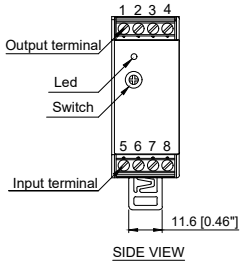
4:1 input

RoHs

MECHANICAL DRAWING

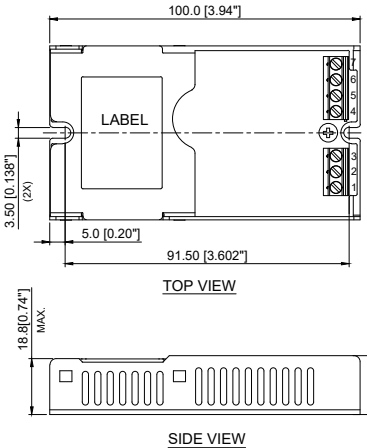
DR24S/D Series

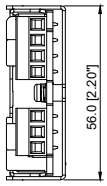




Pin#	Single Output	DUAL Output
1	Vout-	NC
2	Vout-	Vout-
3	Vout+	COM
4	Vout+	Vout+
5	On/off	On/off
6	Vin-	Vin-
7	Vin-	Vin-
8	Vin+	Vin+

PM24S/D Series





Pin#	Single Output	DUAL Output
1	Vin+	Vin+
2	Vin-	Vin-
3	On/off	On/off
4	Vout-	Vout-
5	Vout-	Common
6	Vout+	Vout+
7	Vout+	NC

PM & DR Series

New

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
DR24S05006	9~36V	5V	4.5~5.5V	6A	30W	88.0%	1600V	118.6x67.1x23.5mm
DR24S05008	9~36V	5V	4.5~5.5V	8A	40W	92.0%	1500V	118.6x67.1x23.5mm
DR24S05012	9~36V	5V	4.5~5.5V	12A	60W	92.0%	1500V	118.6x67.1x23.5mm
DR24S12001	9~36V	12V	-	1.25A	15W	87.5%	1600V	118.6x67.1x23.5mm
DR24S12003	9~36V	12V	10.8~13.2V	3.4A	40W	88.0%	1600V	118.6x67.1x23.5mm
DR24S12004	9~36V	12V	10.8~13.2V	3.4A	40W	92.0%	1500V	118.6x67.1x23.5mm
DR24S12005	9~36V	12V	10.8~13.2V	5A	60W	92.3%	1500V	118.6x67.1x23.5mm
DR24S150R9	9~36V	15V	13.5~16.5V	1A	15W	87.5%	1600V	118.6x67.1x23.5mm
DR24S15002	9~36V	15V	13.5~16.5V	2A	30W	88.0%	1600V	118.6x67.1x23.5mm
DR24S15003	9~36V	15V	13.5~16.5V	2.7A	40W	93.0%	1500V	118.6x67.1x23.5mm
DR24S15004	9~36V	15V	13.5~16.5V	4A	60W	92.8%	1500V	118.6x67.1x23.5mm
DR24S24002	9~36V	24V	-	1.7A	40W	93.0%	1500V	118.6x67.1x23.5mm
DR24S24003	9~36V	24V	-	2.5A	60W	92.5%	1500V	118.6x67.1x23.5mm
DR24D120R6	9~36V	±12V	-	2x0.625A	15W	87.5%	1600V	118.6x67.1x23.5mm
DR24D12001	9~36V	±12V	-	2x1.25A	30W	88.0%	1600V	118.6x67.1x23.5mm
DR24D150R5	9~36V	±15V	-	2x0.5A	15W	87.5%	1600V	118.6x67.1x23.5mm
DR24D15001	9~36V	±15V	-	2x1A	30W	88.0%	1600V	118.6x67.1x23.5mm
PM24S05003	9~36V	5V	4.5~5.5V	3A	15W	89.0%	1600V	100x56x19mm
PM24S05006	9~36V	5V	4.5~5.5V	6A	30W	88.0%	1600V	100x56x19mm
PM24S05008	9~36V	5V	4.5~5.5V	8A	40W	92.0%	1500V	100x56x19mm
PM24S05012	9~36V	5V	4.5~5.5V	12A	60W	92.0%	1500V	100x56x19mm
PM24S12001	9~36V	12V	10.8~13.2V	1.25A	15W	87.5%	1600V	100x56x19mm
PM24S12003	9~36V	12V	10.8~13.2V	2.5A	30W	88.0%	1600V	100x56x19mm
PM24S12004	9~36V	12V	10.8~13.2V	3.4A	40W	92.0%	1500V	100x56x19mm
PM24S12005	9~36V	12V	10.8~13.2V	5A	60W	92.3%	1500V	100x56x19mm
PM24S150R9	9~36V	15V	13.5~16.5V	1A	15W	87.5%	1600V	100x56x19mm
PM24S15002	9~36V	15V	13.5~16.5V	2A	30W	88.0%	1600V	100x56x19mm
PM24S15003	9~36V	15V	13.5~16.5V	2.7	40W	93.0%	1500V	100x56x19mm
PM24S15004	9~36V	15V	13.5~16.5V	4A	60W	92.8%	1500V	100x56x19mm
PM24S24002	9~36V	24V	21.6~26.4V	1.7A	40W	93.0%	1500V	100x56x19mm
PM24S24003	9~36V	24V	21.6~26.4V	2.5A	60W	92.5%	1500V	100x56x19mm
PM24D120R6	9~36V	±12V	-	2x0.625A	15W	87.5%	1600V	100x56x19mm
PM24D12001	9~36V	±12V	-	2x1.25A	30W	88.0%	1600V	100x56x19mm
PM24D150R5	9~36V	±15V	-	2x0.5A	15W	87.5%	1600V	100x56x19mm
PM24D15001	9~36V	±15V	-	2x1A	30W	88.0%	1600V	100x56x19mm

PART NUMBERING SYSTEM

PM	24	S	050	03	P	A	F	A
Form Factor	Input Voltage	Number of Outputs	Output Voltage	Output Current	ON/OFF Logic	Terminal Type	RoHS	Option Code
PM - Panel Mount DR - Din-rail Mount	24 - 9~36V	S - Single D - Dual	5V, 12V, 15V 24V, +/-12V +/-15V	1A, 1.25A, 1.7A 2A, 2.5A, 2.7A 3A, 3.5A, 4A 4.2A, 5A, 6A 8A, 10A, 12A	P - Positive	A - Screw terminal	F - RoHS 6/6 (Lead Free)	A - Built-in EMI filter

PM80S Series

coming soon

FEATURES

Electrical

- Efficiency up to 89% @110V
- Ultra wide input range, 16.8~137.5V
  Continuous operating voltage up to 160V
- Input transient voltage 14.4V/1S, 200V/1S
- OTP, Input UVLO, Output OVP & OCP
- 4242Vdc input to output reinforced isolation
- Operating Baseplate Temperature - 40°C to +85°C
- Monotonic startup and pre-biased startup
- No minimum load requirement
- Working altitude up to 5000 m

Safety & Reliability

- UL60950-1 pending
- EN50155 pending



panel mount

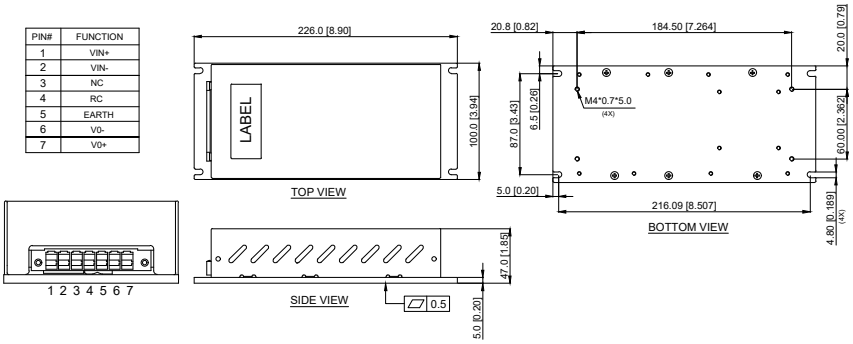
EN50155

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
PM80S12017	16.8~137.5V (160V*Note1)	12V	17A	200W	89%	4242V	226x100x47 mm
PM80S15013	16.8~137.5V (160V*Note1)	15V	13A	200W	89%	4242V	226x100x47 mm
PM80S24008	16.8~137.5V (160V*Note1)	24V	8.3A	200W	88%	4242V	226x100x47 mm
PM80S48004	16.8~137.5V (160V*Note1)	48V	4.2A	200W	88%	4242V	226x100x47 mm
PM80S54004	16.8~137.5V (160V*Note1)	54V	3.8A	200W	88%	4242V	226x100x47 mm

-

MECHANICAL DRAWING



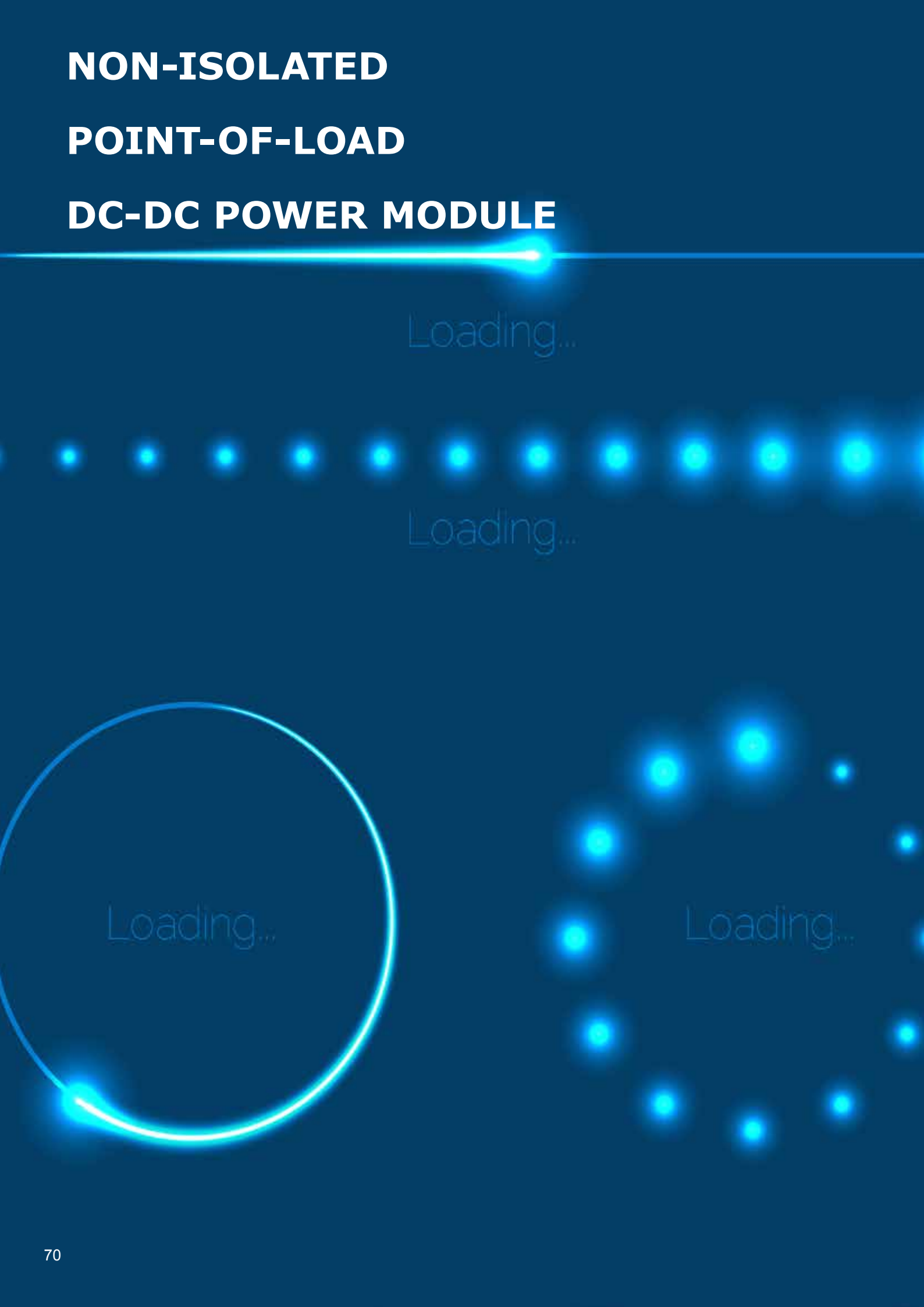
PART NUMBERING SYSTEM

PM	80	S	120	17	P	A	F	A
Form Factor	Input Voltage	Number of Outputs	Output Voltage	Output Current	ON/OFF Logic	Connector Type	RoHS	Option Code
PM - panel Mount	80 - 16.8~137.5V (160V*Note1)	S - Single	120 - 12V 150 - 15V 240 - 24V 480 - 48V 540 - 54V	04 - 4A 08 - 8A 13 - 13A 17 - 17A	N - Negative P - Positive	A - default Others- customized	F - RoHS 6/6 (Lead Free)	A - Parallel Function B - Non parallel

*Note1: rated voltage 16.8~137.5V, continuously operating voltage 16.8~160V

New Product is coming soon. Please contact Delta for more specification information.

NON-ISOLATED POINT-OF-LOAD DC-DC POWER MODULE



Product Overview

Non-Iso Brick

This group offers non-isolated, wide input and output range solution for converting variable voltages to a regulated output voltage. Can be used to provide a regulated output voltage from a battery or other variable voltage source. The output voltage can be programmed by connecting one external resistor.

Page 72



Power Block

Power block DC-DC power modules are developed to address the ever-growing demands of increased current and power densities in networking applications while providing maximum flexibility for system configuration. Power block modules, containing all necessary power components with high power density, work with either digital or analog controllers. Multiple modules can be applied to power system, in parallel.



Page 73

Integrated POL

Integrated Point-of-Load power modules are designed in an industry standard, compact, IC-like, molded package. They are highly integrated and do not require external components to provide the point-of-load function. A copper pad on the back of the module, in close contact with the internal heat dissipation components, provides excellent thermal performance. All integrated POL power modules are manufactured by fully automatic assembly.



Page 76-77

DOSA Standard POL

DOSA POL power modules are designed in an industry standard footprint and pinout. Each provides programmable output voltage by using an external resistor. Some series have flexible and programmable tracking and sequencing features to enable a variety of startup voltage as well as sequencing and tracking between power modules. DOSA I POL power modules are available in SIP and SMD package. DOSA II POL power modules are packaged by SMD.



Page 74-75

Datacom POL

Compared with NC series products, the second generation of datacom POL power modules provide wide input range for more bus voltage point-of-load applications. Datacom POL power converters can cover output current from 3A to 80A to meet various demands.



Page 78-79

New

H60SB Series

FEATURES

Electrical

- Peak Efficiency up to 98%
- PMBUS compatibility
- Wide input range
- Over current protection
- Input UVP
- Over Temperature Protection
- Remote ON/OFF, negative logic
- Pre-bias startup
- No minimum load required
- Parallel Operation with Active Current Sharing

Safety & Reliability

- UL 62368-1 & UL60950-1

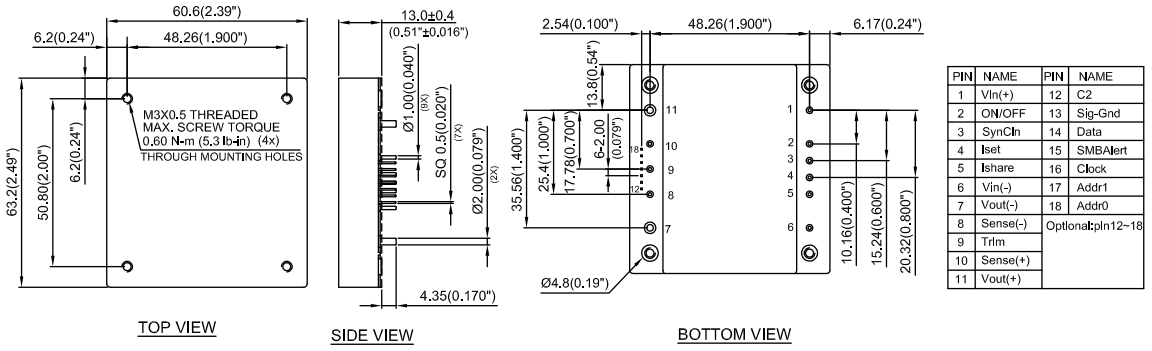


1/2 brick | non-isolated | digital control | cULus

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
H60SB0A050NRDC	9~60V	0~60V	50A	max 3kW	96.0%	Non-isolated	63.2x60.6x13mm
H60SB0A050NRAC	9~60V	0~60V	50A	max 3kW	96.0%	Non-isolated	63.2x60.6x13mm

MECHANICAL DRAWING



PIN	NAME	PIN	NAME
1	Vin(+)	12	C2
2	ON/OFF	13	Sig-Gnd
3	SynCin	14	Data
4	Iset	15	SMBAlert
5	Ishare	16	Clock
6	Vin(-)	17	Addr1
7	Vout(-)	18	Addr0
8	Sense(-)	Optional:pin12~18	
9	Trim		
10	Sense(+)		
11	Vout(+)		

(H60SB0A050NRDC : pin 1~18
H60SB0A050NRAC : pin 1~11)

PART NUMBERING SYSTEM

H	60	S	B	0A0	50	N	R	D	C
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	Pin Assigment	Option Code
H - 1/2 Brick	60 - 9~60V	S - Single	B - Series number	0A0 - Adjustable	50 - 50A	N - Negative	R - 0.170"	D - Digital pins A - Analog pins	B - baseplate C - base plate & encased F - flanged baseplate& encased

Power Block

FEATURES



Electrical

- High efficiency
- Small size with SMD package
- Parallelable units
- OTP, Input UVLO, Output OCP, OVP, SCP (determined by controller)

Safety & Reliability

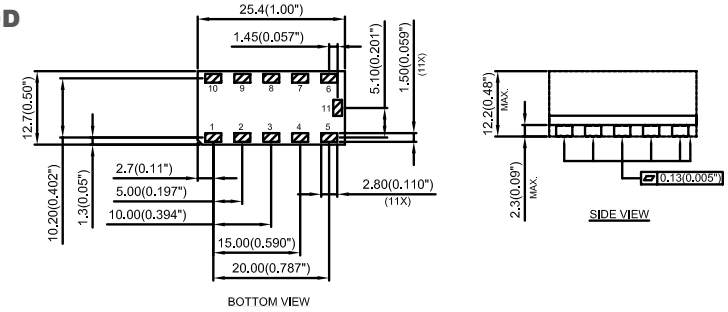
- UL 60950-1 & CSA C22.2 No.60950-1-07

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Output Current	Output Power	Efficiency	Package	Size (LxWxH)
D12S1R830D	7~13.2V	0.8~1.8V	30A	54W	91.5%	SMD	25.4x12.7x12.2 mm
D12S72C	7~13.2V	0.8~1.8V	40A	72W	91.5%	SMD	25.4x15.7x12.7 mm
D12S1R880D	7~13.2V	0.6~3.3V	80A	264W	95.2%	SMD	25.4x12.7x12.2 mm

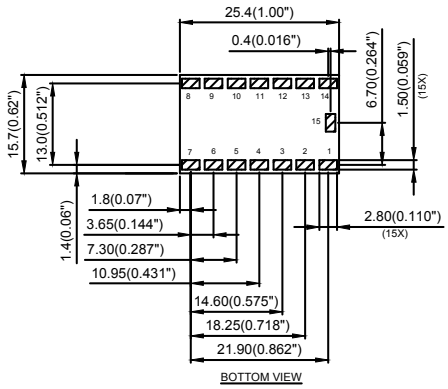
MECHANICAL DRAWING

D12S1R830D



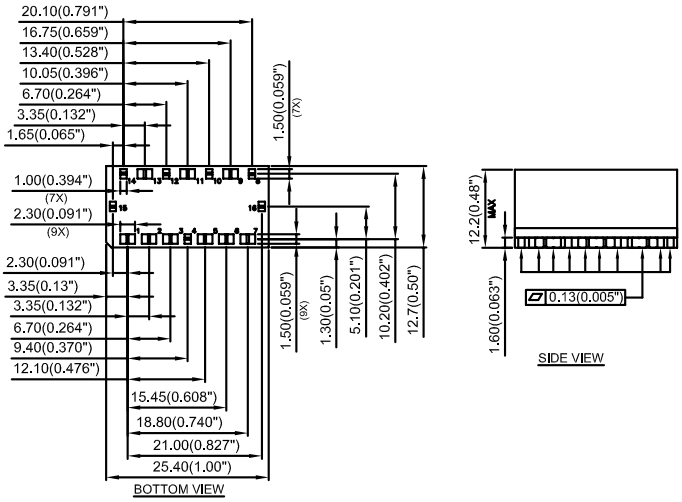
PIN#	Function
1	Vout
2	GND
3	PWM
4	Temperature
5	+7V
6	Vin
7	-Cs
8	+Cs
9	GND
10	Vout
11	GND

D12S72C



PIN#	Function	PIN#	Function
1	Vin	9	GND
2	GND	10	Cs-
3	+7Vin	11	Vout
4	PWML	12	Vout
5	PWMH	13	GND
6	GND	14	Temp-
7	Vin	15	Temp+
8	Cs+		

D12S1R880D



PIN#	Function
1	GND
2	Vout1
3	Vout1
4	+7Vin
5	Vout2
6	Vout2
7	GND
8	+CS2
9	Vin
10	PWM2
11	GND
12	PWM1
13	Vin
14	+CS1
15	-CS1
16	-CS2

DOSA I

FEATURES



Electrical

- High efficiency
- Pre-bias startup
- No minimun load required
- Output voltage programmable via external resistor
- Fixed frequency operation
- Output voltage tracking (optional)
- Current sharing (optional)
- Input UVLO, Output OCP
- Output OTP (optional)
- Remote ON/OFF
- Remote sense (optional)

Mechanical

- Standard footprint with SIP or SMD package

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Output Current	Output Power	Efficiency	Package	Size (LxWxH)
DNT04S0A0R03NFA DNT04S0A0S03NFA	2.4~5.5V	0.75~3.63V	3A	11W	93.5%	SIP SMD	22.86x10.16x6.35 mm 20.32x11.43x6.86 mm
DNT12S0A0R03NFA DNT12S0A0S03NFA	8.3~14V	0.75~5V	3A	15W	92.5%	SIP SMD	22.86x10.16x6.35 mm 20.32x11.43x6.86 mm
DNT04S0A0R05NFA DNT04S0A0S05NFA	2.4~5.5V	0.75~3.63V	5A	18W	93.5%	SIP SMD	22.86x10.16x6.35 mm 20.32x11.43x6.86 mm
DNT12S0A0R05NFA DNT12S0A0S05NFA	8.3~14V	0.75~5V	5A	25W	92.5%	SIP SMD	22.86x10.16x6.35 mm 20.32x11.43x6.86 mm
DNS04S0A0R06PFD DNS04S0A0S06PFD	2.8~5.5V	0.75~3.63V	6A	22W	94.0%	SIP SMD	25.4x12.7x6.7 mm 27.9x11.4x7.1 mm
DNS10S0A0R06PFD DNS10S0A0S06PFD	8.3~14V	0.75~5V	6A	30W	89.5%	SIP SMD	25.4x12.7x6.7 mm 27.9x11.4x7.1 mm
DNM04S0A0R10PFD DNM04S0A0S10PFD	2.8~5.5V	0.75~3.63V	10A	36W	96.0%	SIP SMD	50.8x13.4x8.5 mm 33.0x13.5x8.8 mm
DNM10S0A0R10PFD DNM10S0A0S10PFD	8.3~14V	0.75~5V	10A	50W	93.0%	SIP SMD	50.8x12.7x9.5 mm 33.0x13.5x8.8 mm
DNL04S0A0R16PFD DNL04S0A0S16PFD	2.8~5.5V	0.75~3.63V	16A	58W	95.0%	SIP SMD	50.8x13.4x8.5 mm 33.0x13.5x8.8 mm
DNL10S0A0R16PFD DNL10S0A0S16PFD	8.3~14V	0.75~5V	16A	80W	92.0%	SIP SMD	50.8x12.7x9.5 mm 33.0x13.5x9.7 mm
DNK05S0A0R30NFA	4.5~5.5V	0.8~3.63V	30A	109W	95.0%	SIP	50.8x12.7x14.0 mm
DNK12S0A0R30NFA	6~14V	0.8~5V	30A	150W	95.0%	SIP	50.8x12.7x14.0 mm
DNL10S0A0R20PFD	2.8 ~ 5.5 V	0.75 ~ 3.63 V	20A	100W	93.5%	SIP	50.8x12.7x9.5 mm

DOSA II

FEATURES

Electrical

- High efficiency
- Pre-bias startup
- No minimun load required
- Output voltage programmable via external resistor
- Fixed frequency operation
- Output voltage tracking (optional)
- Current sharing (optional)
- Input UVLO, Output OCP
- Output OTP (optional)
- Remote ON/OFF
- Remote sense (optional)

Mechanical

- Standard footprint with SIP or SMD package

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07



DCM12S0A0S12NFA



DCL12S0A0S20NFA

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Output Current	Output Power	Efficiency	Package	Size (LxWxH)
DCM04S0A0S12PFA	2.4~5.5V	0.6~3.3V	12A	40W	95.0%	SMD	20.3x11.4x8.50 mm
DCM12S0A0S12NFA	4.5~14V	0.69~5.5V	12A	66W	95.4%	SMD	20.3x11.4x8.50 mm
DCK12S0A0S30NFA	6~14V	0.8~3.3V	30A	99W	92.8%	SMD	33.0x13.5x10.0 mm
DCL12S0A0S20NFA	4.5~14V	0.69~5V	20A	100W	93.0%	SMD	33.0x13.5x8.50 mm

coming soon

T31SN Series

FEATURES

Electrical

- High efficiency: 96.5% @ 24Vin/12Vo/6A
- Industry standard 1/32nd brick form factor
- Fixed frequency operation
- Thermal limit, Input UVLO
- Output OCP Hiccup mode
- Output voltage trim range: 3.3V~30V
- Output Remote sense
- Monotonic startup into normal and pre-biased loads
- No minimum load requirement
- Working altitude to 5000m

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07 pending
- IPC9592B pending



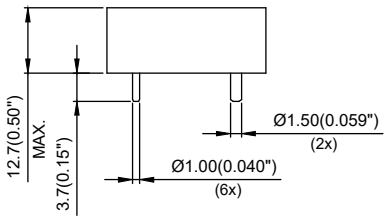
1/32 brick

non-isolated

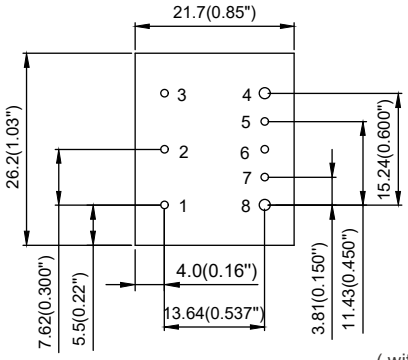
SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Output Range	Output Current	Output Power	Efficiency	Size (LxWxH)
T31SN12008	9~53V	3.3~16.5V	3.3~16.5V	8A/6A	Max 100W	96.5%	19.1x23.4x9.6 mm
T31SN24005	9~53V	5~30V	5~30V	4.5	Max 100W	96.5%	19.1x23.4x9.6 mm

MECHANICAL DRAWING



SIDE VIEW



BOTTOM VIEW

Pin#	Function	D_pin
1	Vin+	Ø1.00
2	ON/OFF	Ø1.00
3	Vin-	Ø1.00
4	Vout-	Ø1.50
5	PG(OPTIONAL)	Ø1.00
6	Trim	Ø1.00
7	Sense+	Ø1.00
8	Vout+	Ø1.50

(with through hole & potting & Standard case only, please refer to datasheet for the other options)

PART NUMBERING SYSTEM

T	31	S	N	120	08	N	N	F	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	ON/OFF Logic	Pin Length	RoHS	Option Code
T - 1/32 Brick	31 - 9V~53V	S - Single	N - Family Name	120 - 3.3~16.5 240 - 5~30V	08 - 8A 05 - 4.5A	N - Negative P - Positive	K - 0.110'' N - 0.145" R - 0.170" M - SMD	F - RoHS 6/6 (Lead Free)	

	Power Good	Standard Case (Potting)	Flanged Case (Potting)
A	No	No	No
B	Yes	No	No
C	Yes	Yes	No
D	No	Yes	No
E	Yes	No	Yes
F	No	No	Yes

New Product is coming soon. Please contact Delta for more specification information.

PM05S Series

FEATURES

Electrical

- Efficiency up to 97%
- Wide input range
- Excellent line/loads regulation
- Operating temperature range -40°C to +80°C
- Low ripple and noise
- Low stand-by current
- Short circuit protection, thermal shutdown

Mechanical

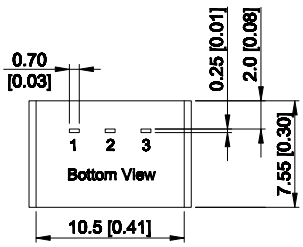
- SIP Package 11.5x7.5x10.2 mm

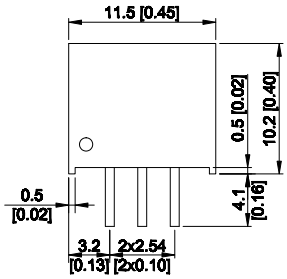


SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Output Current	Output Power	Efficiency	Package	Size (LxWxH)
PM05S015A	4.75~32V	1.5V	0.5A	0.75W	73%	SIP	11.5x7.5x10.2 mm
PM05S018A	4.75~32V	1.8V	0.5A	0.9W	82%	SIP	11.5x7.5x10.2 mm
PM05S025A	4.75~32V	2.5V	0.5A	1.25W	87%	SIP	11.5x7.5x10.2 mm
PM05S033A	4.75~32V	3.3V	0.5A	1.65W	91%	SIP	11.5x7.5x10.2 mm
PM05S050A	6.5~32V	5.0V	0.5A	2.5W	94%	SIP	11.5x7.5x10.2 mm
PM05S065A	8~32V	6.5V	0.5A	3.25W	95%	SIP	11.5x7.5x10.2 mm
PM05S090A	11~32V	9.0V	0.5A	4.5W	96%	SIP	11.5x7.5x10.2 mm
PM05S120A	15~32V	12V	0.5A	6W	97%	SIP	11.5x7.5x10.2 mm
PM05S150A	18~32V	15V	0.5A	7.5W	97%	SIP	11.5x7.5x10.2 mm

MECHANICAL DRAWING





Pin	Function
1	+Vin
2	GND
3	+Vout

Generation I

FEATURES

Electrical

- High efficiency
- No minimun load required
- Output voltage programmable via external resistor
- Fixed frequency operation
- Input UVLO, Output OCP, OVP, SCP
- Remote ON/OFF
- Remote sense

Mechanical

- Small size with vertically or horizontally mounted through-hole package

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07



NC12S0A0V06PNFA

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Output Current	Output Power	Efficiency	Package	Size (LxWxH)
NC12S0A0H06PNFA NC12S0A0V06PNFA	10.2~13.8V	0.9~5V	6A	30W	91%	DIP SIP	30.5x15.5x12.3 mm 30.5x15.5x11.7 mm
NC12S0A0H15PNFA NC12S0A0V15PNFA	10.2~13.8V	0.9~5V	15A	75W	91%	DIP SIP	30.5x27.9x12.9 mm 30.5x27.9x11.4 mm
NC12S0A0H20PNFA NC12S0A0V20PNFA	10.2~13.8V	0.9~5V	20A	100W	91%	DIP SIP	30.5x27.9x12.9 mm 30.5x27.9x11.4 mm
NC12S0A0H30PNFA NC12S0A0V30PNFA	10.2~13.8V	0.9~5V	30A	150W	94%	DIP SIP	61.0x31.8x12.32 mm 61.0x31.8x12.32 mm
NC12S0A0H40PNFA NC12S0A0V40PNFA	10.2~13.8V	0.9~5V	40A	200W	92%	DIP SIP	61.0x31.8x12.32 mm 61.0x31.8x12.32 mm
NC12S0A0H60PNFA NC12S0A0V60PNFA	11.04~12.6V	0.9~5V	60A	300W	95%	DIP SIP	81.3x32.0x13.5 mm 81.3x32.0x13.5 mm



NC12S0A0H15PNFA NC12S0A0V15PNFA



NC12S0A0V60PNFA

Datacom POL

Generation II

FEATURES

Electrical

- High efficiency
- No minimun load required
- Output voltage programmable via external resistor
- Fixed frequency operation
- Wide input range
- Input UVLO, Output OCP, OVP, SCP
- Remote ON/OFF
- Remote sense
- Power good function

Mechanical

- Small size with vertically or horizontally mounted through-hole package

Safety & Reliability

- UL 60950-1 & CSA C22.2 No.60950-1-07



D12S05020-1



NE12S0A0V03PNFA



DUS1250E

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Output Current	Output Power	Efficiency	Package	Size (LxWxH)
NE12S0A0H03PNFA NE12S0A0V03PNFA	3~13.8V	0.59~5V	3A	15W	92.5%	DIP SIP	9.4x15.5x7.9 mm 9.4x15.5x6.6 mm
NE12S0A0H06PNFA NE12S0A0V06PNFA	3~13.8V	0.59~5.1V	6A	30.6W	94.5%	DIP SIP	10.4x16.5x11.5 mm 10.4x16.5x11.0 mm
NE12S0A0H10PNFA NE12S0A0V10PNFA	3~13.8V	0.59~5.1V	10A	51W	94.0%	DIP SIP	10.4x16.5x11.5 mm 10.4x16.5x11.0 mm
DUS1250E	2.97~13.2V	0.59~5V	10A	50W	92.0%	SIP	17.15x13.97x8.07 mm
NE12S0A0V20PNFA	4.5~13.8V	0.59~5.1V	20A	102W	94.0%	SIP	30.5x15.5x12.0 mm
D12S05020-1	4.5~13.2V	0.59~5V	20A	100W	93.4%	SIP	30.5x15.5x12.0 mm
D12F200	4.5~13.8V	0.6~5V	40A	200W	94.0%	SIP	30.5x27.9x11.1 mm
ND12S0A0H40PKFA ND12S0A0V40PKFA	8~13.8V	0.9~5V	40A	200W	94.0%	DIP SIP	36.8x32.2x14.8 mm 36.8x32.2x13.0 mm
D12S2R550	4.5~13.8V	0.6~5V	50A	250W	93.6%	SIP	33.0x28.0x20.2 mm
D12S300-1	4.5~13.8V	0.6~5V	60A	300W	94.0%	SIP	65.53x31.75x11 mm
D12S400	10.8~13.2V	0.8375~5V	80A	400W	94.0%	SIP	61.0x31.8x12.3 mm



D12F200



D12S2R550



D12S300-1

AC-DC
POWER MODULE



AA AB AC Series

Low Power (2~60W)

Delta's expansive product portfolio provides solution capability to meet the specific requirements of industrial application. Products use Delta's creative design topology and patented technologies to achieve extremely high efficiency, low power dissipation and greater reliability. These modules housed in industry standard footprint and pinout are easy to use and available in a fully encapsulated package for harsh environment applications.

	Series	Output Power	Input Voltage(V)	Output Voltage (V)	Safety Mark	Max Eff.	Isolation Voltage	Package
	AA04S AA04D	4W	85-264 VAC	3.3, 5, 9, 12, 15, 24 ±12, ±15, +5/+3.3, +12/+5		77%	3000VDC	PCB Mounting
	AA07S	7W	85-264 VAC	3.3, 5, 12, 15, 24		78%	3000VDC	PCB Mounting
	AA10S	10W	85-264 VAC	3.3, 5, 12, 15, 24		76%	3000VDC	PCB Mounting
	AA15S AA15D AA15T	15W	85-264 VAC	5, 12, 15, 24, 48 ±12, ±15, 5/12, 5/ ±12, 5/±15		79%	3000VDC	PCB/ Chassis Mounting
	AA30S AA30D AA30T	30W	85-264 VAC	5, 12, 15, 24, 48 ±12, ±15, 5/12, 5/ ±12, 5/±15, 5/3.3/ 12, 3.3/5/12		80%	3000VDC	PCB/ Chassis/ Din-Rail Mount
	AA60S	60W	85-264 VAC	5.1, 12, 15, 24, 36		84%	3000VDC	PCB/ Chassis/ Din-Rail Mount
	AB24S AB24D	24W	85-264 VAC	5, 9, 12, 15, 24 ±12, ±15		85%	4000VAC	PCB/ Chassis/ Din-Rail Mount
	AB40S AB40D	40W	85-264 VAC	5, 12, 15, 24 ±12, ±15		85%	4000VDC	PCB/ Chassis/ Din-Rail Mount
	AB60S	60W	85-264 VAC	5.1, 12, 15, 24, 48		88%	4000VDC	PCB/ Chassis/ Din-Rail Mount
	AC02S AC02D	2W	85-264 VAC	8, 14, 24, 8/3.3 8/5, 14/3.3, 14/5		76%	3000VDC	PCB Mounting

PACSR Series

New

FEATURES

Electrical

- High efficiency 94% @220VAC
- Universal input voltage range
- Operating base plate temperature - 40°C to +100°C
- Input Brown-out OTP, Input UVLO, Output OCP, OVP
- Ultra small size 110x50.8x12.7mm
- Minimized inrush control
- Reinforce insulation 3000Vac
- No minimum load required

Safety & Reliability

- IEC/UL/EN 60950-1

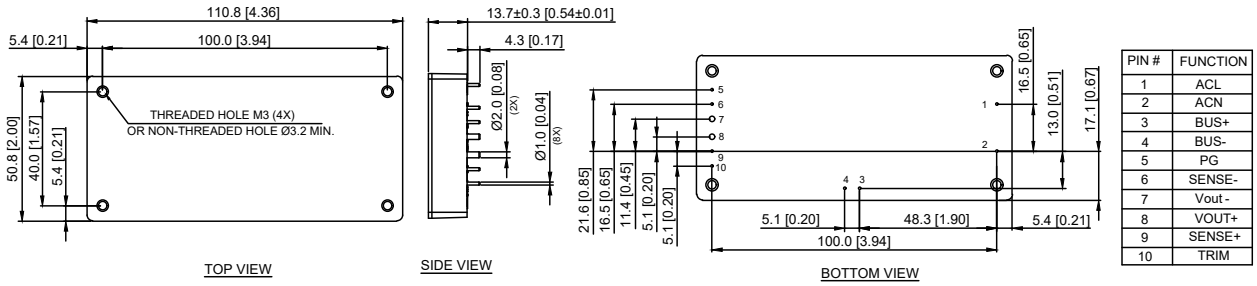


high isolation

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH) without heat spreader
PACSR12025	85~265V	12V	12~12.6V	25A	300W	91.5%	3000Vac	110.8 x 50.8 x13.7 mm
PACSR12042	85~265V	12V	12~12.6V	42A	500W	91.0%	3000Vac	110.8 x 50.8 x13.7 mm
PACSR24012	85~265V	24V	22.8~26.4V	12.5A	300W	92.5%	3000Vac	110.8 x 50.8 x13.7 mm
PACSR24021	85~265V	24V	22.8~26.4V	21A	500W	93.0%	3000Vac	110.8 x 50.8 x13.7 mm
PACSR28010	85~265V	28V	26.6~30.8V	10.5A	300W	93.0%	3000Vac	110.8 x 50.8 x13.7 mm
PACSR28018	85~265V	28V	27.16~30.8V	18A	500W	93.0%	3000Vac	110.8 x 50.8 x13.7 mm
PACSR48006	85~265V	48V	47~52.8V	6.3A	300W	93.5%	3000Vac	110.8 x 50.8 x13.7 mm
PACSR48010	85~265V	48V	47~52.8V	10.5A	500W	94.0%	3000Vac	110.8 x 50.8 x13.7 mm

MECHANICAL DRAWING



PIN #	FUNCTION
1	ACL
2	ACN
3	BUS+
4	BUS-
5	PG
6	SENSE-
7	Vout -
8	VOUT+
9	SENSE+
10	TRIM

PART NUMBERING SYSTEM

P	AC	S	R	120	25	S
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	Option Code
P - Form factor code	AC - 85~265V	S - Single	R - Regular	120 - 12V 240 - 24V 280 - 28V 480 - 48V	06 - 6.3A 10 - 10.5A 12 - 12.5A 18 - 18A 21 - 21A 25 - 25A 42 - 42A	A - Through hole S - Screw hole(M3*0.5)

FACSR Series

coming soon

FEATURES

Electrical

- Full Load Efficiency up to 93% @220VAC
- Metal Case Box Type Package
- Package Dimension: 116.8x61.0x12.7mm
- Operating Temperature Range - 40°C to +90°C
- Input Brown-Out, Output OCL, OTP, OVP, SHORT protection
- ACOK,DCOK signal
- 12V STBY power
- Parallel operation
- 3000VAC Isolation
- RoHs Compliant
- PMBus



full brick | high isolation | cULus

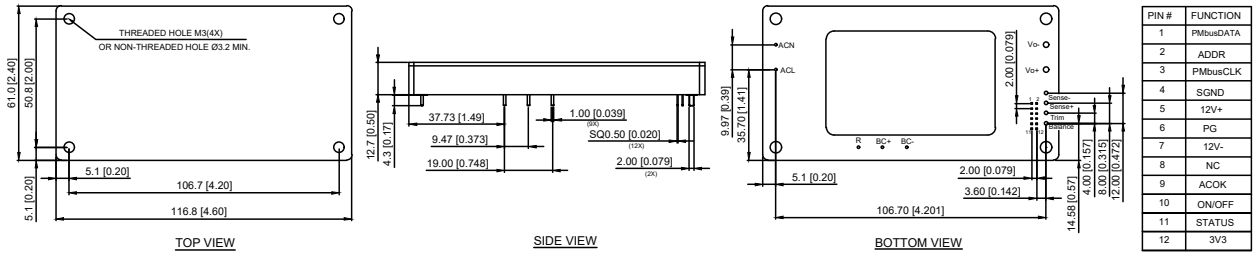
Safety & Reliability

- CE Mark
- EMC compatible: CISPR11 ClassB (with EMC Board)
- UL62368-1 pending

SPECIFICATIONS

Part Number	Input Voltage	Output Voltage	Vo trim range	Output Current	Output Power	Efficiency	Isolation Voltage	Size (LxWxH)
FACSR12067	85~265V	12V	6~14.4V	67A	800W	90%	3000Vac	116.8x61x12.7mm
FACSR28028	85~265V	28V	14~33.6V	28A	800W	92%	3000Vac	116.8x61x12.7mm
FACSR48017	85~265V	48V	24~57.6V	17A	800W	93%	3000Vac	116.8x61x12.7mm

MECHANICAL DRAWING



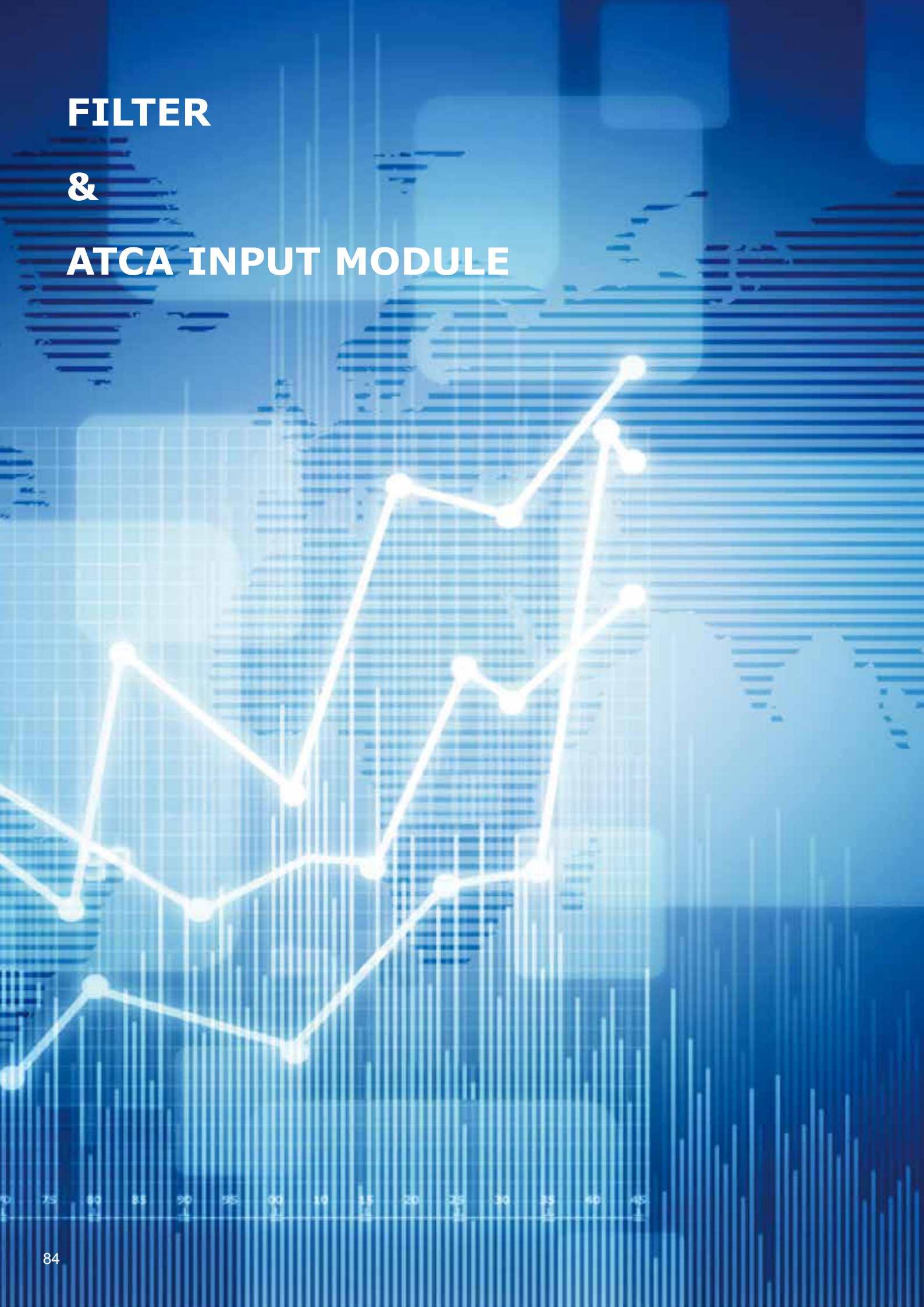
PIN #	FUNCTION
1	PMbusDATA
2	ADDR
3	PMbusCLK
4	SGND
5	12V+
6	PG
7	12V-
8	NC
9	ACOK
10	ON/OFF
11	STATUS
12	3V3

PART NUMBERING SYSTEM

F	AC	S	R	120	67	S	P	A
Form Factor	Input Voltage	Number of Outputs	Product Series	Output Voltage	Output Current	Option	Option Code	Option
F - Full brick	AC - 85~265V	S - Single	R - Regulator	120 - 12V 280 - 28V 480 - 48V	67 - 67A 28 - 28A 17 - 17A	A - Unthreaded mounting hole S - Threaded mounting hole	P - With pin1~10 N - Without pin1~10	A - Standard Functions

New Product is coming soon. Please contact Delta for more specification information.

FILTER
&
ATCA INPUT MODULE



Filter

The filter modules are designed to reduce the conducted common-mode and differential-mode noise on input or output lines of high-frequency switching power supplies, with the industry standard footprint and pin-out. With creative design technology and optimization of component placement, Delphi FL75L05 filter modules possess outstanding electrical and thermal performance, as well as extremely high reliability under highly stressful operating conditions.

FEATURES

- ROHS Compliant
- Industry standard footprint and pin-out
- Optimized for use with high frequency board mounted DC/DC converters
- ISO 9001, TL 9000, ISO 14001, QS 9000, OHSAS 18001 certified manufacturing facility
- UL/cUL 60950 (US & Canada) recognized, VDE 0805 (IEC60950) licensed


FL75L05 A


FL75L07 A


FL75L10 A


FL75L20 A

Part Number	Input Voltage	Output Current	Common-mode Insertion Loss	Differential-mode Insertion Loss	Package	Size (LxWxH)
FL75L05 A	0~75V	5A	43dB	45dB	Through hole	25.4 x 25.4 x 10.2 mm
FL75L07 A FL75L07 B	0~75V	7A	40dB	70dB	SMD Through hole	25.4 x 25.4 x 12.5 mm 25.4 x 25.4 x 12.7 mm
FL75L10 A	0~75V	10A	30dB	25dB	Through hole	50.8 x 27.9 x 11.7 mm
FL75L20 A FL75L20 B	0~75V	20A	28dB	46dB	Through hole (A: Pin length=5.0mm) (B: Pin length=3.1mm)	50.8 x 40.6 x 12.7 mm

ATCA Input Module

DIM series, dual redundant input power processing isolated DC/DC converter, provide up to 400 watts of power in an industry standard footprint and pinout. The DIM series are designed to simplify the task and reduce the board space of implementing dual redundant, hot swappable 48Vdc power distribution with EMI filtering and inrush current limiting for an ATCA (Advanced Telecommunications Computing Architecture) or other telecom boards. In addition to processing the dual redundant 48V bus, the DIM module also provides isolated auxiliary 3.3V, and/or 5V BLUE_LED power for other housekeeping functions. All models are fully protected from abnormal input/output voltage, current, and temperature conditions.

FEATURES

- Input UVLO, Main Output OCP, OTP, Management power: OCP,OTP and OVP
- Input OR'ing for the A/B dual input power feeds as well as A/B Enable signals
- Inrush protection and hot swap capability
- Integral EMI filter designed for the ATCA board to meet CISPR Class B
- Adjustable Hold Up Voltage
- For charging the external holdup capacitors resulting in significant board real estate savings and bleed resistor power dissipation
- I^2C interface for data monitoring and reporting
- Hardware alarms via opto-isolators for loss of A or B Feeds/Fuse
- UL/cUL 60950-1
- ISO 9001, TL 9000, ISO 14001, QS9000, OHSAS18001 certified manufacturing facility



Part Number	Input Voltage	Auxiliary Output 1	Auxiliary Output 2	Output Power	Efficiency	Features	Package	Size (LxWxH)
DIM3R3300SFA	-36 ~ -75V	3.3V/2.4A	-	300W	98.0%		Through hole	70.6 x 36.8 x 12.7 mm
DIM3R3300SFB	-36 ~ -75V	3.3V/2.4A	5V/100mA	300W	98.0%		Through hole	70.6 x 36.8 x 12.7 mm
DIM3R3400SFA	-36 ~ -75V	3.3V/3.6A	5V/150mA	400W	98.2%	digital control	Through hole	58.4 x 36.8 x14.2 mm
DIM3R3500SFA	-36 ~ -75V	3.3V/3.6A	5V/150mA	500W	98.3%	digital control	Through hole	58.4 x 36.8 x14.2 mm

UNIDADES DE PODER INDUSTRIALES



About Delta

Delta, founded in 1971, is a global leader in switching power supplies and thermal management products with a thriving portfolio of smart energy-saving systems and solutions in the fields of industrial automation, building automation, telecom power, data center infrastructure, EV charging, renewable energy, energy storage and display, to nurture the development of smart manufacturing and sustainable cities. As a world-class corporate citizen guided by its mission statement, "To provide innovative, clean and energy-efficient solutions for a better tomorrow," Delta leverages its core competence in high-efficiency power electronics and its ESG-embedded business model to address key environmental issues, such as climate change. Delta serves customers through its sales offices, R&D centers and manufacturing facilities spread over close to 200 locations across 5 continents.

Throughout its history, Delta has received various global awards and recognition for its business achievements, innovative technologies and dedication to ESG. Since 2011, Delta has been listed on the DJSI World Index of Dow Jones Sustainability ™ Indices for 11 consecutive years. In 2021, Delta was also recognized by CDP with leadership level ratings for its substantial contribution to climate change and water security issues and named Supplier Engagement Leader for its continuous development of a sustainable value chain.

For detailed information about Delta, please visit: www.deltaww.com

Business Categories

Power Electronics

- Components
- Power and System
- Fan & Thermal Management
- Automotive Electronics

Innergie

Automation

- Industrial Automation
- Building Automation

Infrastructure

- ICT Infrastructure
- Energy Infrastructure & Industrial Solutions

vivitek

About Power and System Business Group (PSBG)

- World's leading provider of power products and solutions
- First power product launched in 1983

Power Conversion

Smart Drive & Control

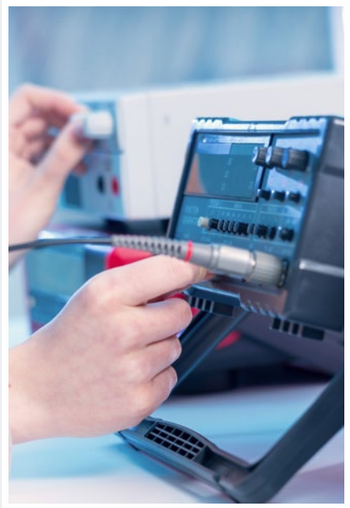
Battery Charger

Green Energy

Power to a Smart Future with High Energy Efficiency

PSBG offers cutting-edge power products and system to innovate cloud computing, network connectivity, client devices, industrial and medical industry, lighting, and appliances and e-mobility with global customers.







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Delta Industrial Power Supplies

Delta standard industrial power supplies comprise of DIN rail, panel mount and open frame types. With over 40 years of experience in power technologies, Delta delivers an extensive range of industrial power supplies that meet IEC 60950-1, IEC 62368-1, IEC 61347-2-13, UL 8750, IEC 60335-1, IEC 61558-1, IEC 61558-2-16 and many other more standards.



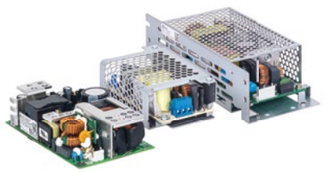
DIN Rail

A wide range of DIN rail power supplies offering start-up at -40°C, Advanced Power Boost (CliQ M & CliQ VA), smart monitoring function (CliQ VA), ultra slim design (Force-GT and LYTE II) for demanding applications.



Panel Mount

The latest PMT2 series low profile design at competitive prices for general industrial applications. MEB series offer a wide range of high power models with industrial and medical certifications.



Open Frame

PJ series open frame power supplies offer wide range of output voltages with versatile configuration options. The latest PJL series comes with lighting approvals such as UL 8750 and IEC 61347-2-13.



Modules

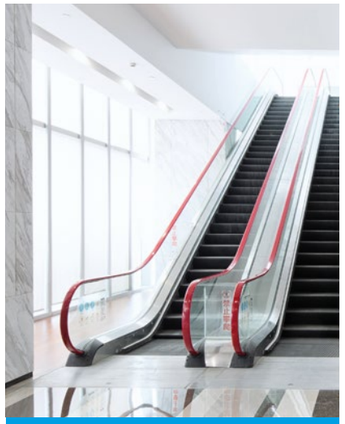
The DIN rail modules are useful accessories as part of the complete power management solution. They include DC-UPS, buffer and redundancy modules which are designed to work seamlessly with Delta DIN rail power supplies.



Adapter

The ADT adapter series offers efficiency up to 89% with extreme low no-load consumption below 0.15 W. These adapters are also meet DoE Level VI and CoC Tier 2 efficiency standards.

Applications



Building Automation



Machine Automation



Renewable Energy



Process Automation



Test & Measurement



Medical Equipment



Factory Automation



LED Signage



Household Appliance

Product Selection Guide

New products are frequently introduced. Please visit www.DeltaPSU.com for latest product updates.

Product Type	Series	Model Name	Phase 1	Phase 2	Phase 3	PFC	Output Voltage	Output Current	Output Power	Input Voltage Range*	Page
DIN Rail Power Supplies	CliQ II • IP20 connector • Power Boost up to 5 s	DRP024V060W1B□	●				24 V	2.5 A	60 W	85-264 V_{AC} (DC input range 120-375 V_{DC})	15
		DRP024V120W1B□	●					5.0 A	120 W		
		DRP024V240W1B□	●			●		10.0 A	240 W		
		DRP024V480W1B□	●			●		20.0 A	480 W		
		DRP024V060W1N□	●					2.5 A	60 W	85-264 V_{AC} (DC input range 120-375 V_{DC})	16
		DRP-24V100W1NN	●			●		3.8 A	91.2 W		
		DRP-24V120W2BN	●	●				5.0 A	120 W	2 × 180-550 V_{AC} or 180-305 V_{AC} (Single Phase) (DC input range 254-780 V_{DC})	17
		DRP-24V240W2BN	●	●		●		10.0 A	240 W		
		DRP024V060W3B□		●	●			2.5 A	60 W	3 × 320-600 V_{AC} or 2 × 360-600 V_{AC} (DC input range 450-800 V_{DC}) For 960 W: 3 × 320-600 V_{AC} or 2 × 380-600 V_{AC} (DC input range 450-800 V_{DC})	18
		DRP024V120W3B□		●	●			5.0 A	120 W		
		DRP024V240W3B□		●	●			10.0 A	240 W		
		DRP024V480W3B□		●	●	●		20.0 A	480 W		
		DRP024V960W3BN		●	●	●		40.0 A	960 W		
		DRP048V060W1B□	●				48 V	1.25 A	60 W	85-264 V_{AC} (DC input range 120-375 V_{DC})	19
		DRP048V120W1B□	●			●		2.5 A	120 W		
		DRP048V240W1B□	●			●		5.0 A	240 W		
		DRP048V480W1B□	●			●		10.0 A	480 W		
	CliQ III • Slim design with high power density • Power Boost up to 5 s	DRP-24V120W1CAN	●			●	24 V	5.0 A	120 W	88-264 V_{AC}	20
		DRP-24V120W1CBN	●			●		5.0 A	120 W	88-264 V_{AC} (DC input range 88-375 V_{DC})	
		DRP-24V240W1CAN	●			●		10.0 A	240 W	88-264 V_{AC}	
		DRP-24V240W1CBN	●			●		10.0 A	240 W	88-264 V_{AC} (DC input range 88-375 V_{DC})	
		DRP-24V480W1CAN	●			●		20.0 A	480 W	88-264 V_{AC}	
		DRP-24V480W1CBN	●			●		20.0 A	480 W	88-264 V_{AC} (DC input range 88-375 V_{DC})	
	CliQ M • Slim design with high power density • Advanced Power Boost • Maritime approvals	DRM-24V80W1PN	●			●	24 V	3.4 A	81.6 W	85-276 V_{AC} (DC input range 88-375 V_{DC})	21
		DRM-24V120W1PN	●			●		5.0 A	120 W	85-264 V_{AC} (DC input range 88-375 V_{DC})	
		DRM-24V240W1PN	●			●		10.0 A	240 W	85-276 V_{AC} (DC input range 88-375 V_{DC})	
		DRM-24V480W1PN	●			●		20.0 A	480 W	85-264 V_{AC}	
		DRM-24V960W1PN	●			●		40.0 A	960 W		
		DRM-24V480W3PN		●	●	●		20.0 A	480 W	3 × 320-600 V_{AC} or 2 × 380-600 V_{AC}	22
		DRM-24V960W3PN		●	●	●		40.0 A	960 W		
		DRM-24V480W1SN	●			●		20.0 A	480 W	85-276 V_{AC} (DC input range 88-375 V_{DC})	23

* DC input is certified for selected models

Model Numbering

DR	P	XXXV	XXXW	□	□	□
DIN Rail	Product Type P - Power Supply	Output Voltage	Output Power	Phase Input 1 - Single Phase 2 - Two Phase 3 - Three Phase	B - CliQ II Series N - NEC Class 2	A - Metal case, with Class I, Div 2 and ATEX approvals N - Metal case, without Class I, Div 2 and ATEX approvals Y - Plastic case, with Class I, Div 2 and ATEX approvals Z - Plastic case, without Class I, Div 2 and ATEX approvals

DR	P –	XXV	XXXW	1	C	□	N
DIN Rail	Product Type P - Power Supply	Output Voltage	Output Power	Phase Input 1 - Single Phase	C - CliQ III Series	Input Voltage A - AC Input B - AC & DC Input	N - Metal case, without Class I, Div 2 and ATEX approvals

DR	M –	XXV	XXXW	□	□	N
DIN Rail	Product Series M - CliQ M Series	Output Voltage	Output Power	Phase Input 1 - Single Phase 3 - Three Phase	P - Advanced Power Boost (APB) S - Advanced Power Boost (APB) with SIL3 approval	N - Metal case, without Class I, Div 2 and ATEX approvals

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Product Type	Series	Model Name	Phase 1	Phase 2	Phase 3	PFC	Output Voltage	Output Current	Output Power	Input Voltage Range*	Page
DIN Rail Power Supplies	CliQ VA • Smart monitoring function • Advanced Power Boost	DRV-24V120W1PN	●			●	24 V	5.0 A	120 W	85-264 V_{AC} (DC input range 88-375 V_{DC})	24
		DRV-24V240W1PN	●			●		10.0 A	240 W	85-276 V_{AC} (DC input range 88-375 V_{DC})	
		DRV-24V480W1PN	●			●		20.0 A	480 W		
	Force-GT • Built-in constant current circuit for charging applications • Ultra slim design	NEW DRF-12V120W1GBA	●			●	12 V	10.0 A	120 W	90-264 V_{AC}	25
		NEW DRF-12V240W1GBA	●			●		20.0 A	240 W		
		NEW DRF-24V120W1GBA	●			●	24 V	5.0 A	120 W		
		NEW DRF-24V240W1GBA	●			●		10.0 A	240 W	90-264 V_{AC}	26
		NEW DRF-24V480W1GBA	●			●		20.0 A	480 W		
		NEW DRF-48V120W1GBA	●			●	48 V	2.5 A	120 W		
		NEW DRF-48V240W1GBA	●			●		5.0 A	240 W		
		NEW DRF-48V480W1GBA	●			●		10.0 A	480 W		
		NEW DRF-24V120W3GBA		●	●		24 V	5.0 A	120 W	3 x 320-575 V_{AC} (3-Phase) or 2 x 340-575 V_{AC} (2-Phase) (DC input range 450-800 V_{DC})	27
		NEW DRF-24V240W3GBA		●	●			10.0 A	240 W		
		NEW DRF-24V480W3GBA		●	●	●		20.0 A	480 W		
		NEW DRF-24V960W3GBA		●	●	●		40.0 A	960 W		
	LYTE • Competitively priced • Built-in constant current circuit	DRL-12V75W1AZ□	●				12 V	6.25 A	75 W	85-264 V_{AC}	28
		DRL-24V75W1AZ□	●				24 V	3.125 A	75 W		
		DRL-48V75W1AZ□	●				48 V	1.57 A	75.36 W		
	LYTE II • Extreme slim width • Reduced no-load power consumption • Wide operating temperature	DRL-12V120W1EN□	●				12 V	10.0 A	120 W	90-264 V_{AC}	29
		DRL-12V240W1EN□	●			●		20.0 A	240 W		
		DRL-24V120W1EN□	●				24 V	5.0 A	120 W		
		DRL-24V240W1EN□	●			●		10.0 A	240 W		
		NEW DRL-24V480W1EN□	●			●		20.0 A	480 W	90-264 V_{AC}	30
		DRL-48V120W1EN□	●				48 V	2.5 A	120 W		
		DRL-48V240W1EN□	●			●		5.0 A	240 W		
		NEW DRL-48V480W1EN□	●			●		10.0 A	480 W		

* DC input is certified for selected models

Model Numbering

DR	V –	XXV	XXXW	1	P	N
DIN Rail	Product Series V - CliQ VA Series	Output Voltage	Output Power	Phase Input 1 - Single Phase	P - Advanced Power Boost (APB)	N - Metal case, without Class I, Div 2 and ATEX approvals

DR	F –	XXV	XXXW	□	G	B	A
DIN Rail	Product Series F - Force Series	Output Voltage	Output Power	Phase Input 1 - Single Phase 3 - Three Phase	G - General Type	B - Screw Terminal	A - Delta Standard

DR	L –	XXV	XXXW	1	A	Z	□
DIN Rail	Product Type L - LYTE Family	Output Voltage	Output Power	Phase Input 1 - Single Phase	A - LYTE Series with Standard Bracket	Z - Plastic case without DC OK Relay Contact	Blank - No coating R - With coating

DR	L –	XXV	XXXW	1	E	N	□
DIN Rail	Product Type L - LYTE Family	Output Voltage	Output Power	Phase Input 1 - Single Phase	E - LYTE II Series with Slim Design	N - No DC OK Relay Contact	Blank - No coating A - With coating

Product Selection Guide

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Product Type	Series	Model Name	Phase 1	PFC	Output Voltage	Output Current	Output Power	Input Voltage Range*	Page
DIN Rail Power Supplies	**CHROME** • Compact • Class II double isolation • NEC Class 2	DRC-5V10W1A☐	●		5 V	1.5 A	7.5 W	90-264 V_{AC}	31
		DRC-12V10W1A☐	●		12 V	0.83 A	10 W		
		DRC-12V30W1A☐	●			2.1 A	25.2 W		
		DRC-12V60W1A☐	●			4.5 A	54 W		
		DRC-12V60W1CZ	●			4.5 A	54 W	90-264 V_{AC} (DC input range 125-375 V_{DC})	
		DRC-12V100W1AZ	●			6.0 A	72 W	90-264 V_{AC}	
		DRC-24V10W1A☐	●		24 V	0.42 A	10 W	90-264 V_{AC}	32
		DRC-24V10W1HZ	●			0.42 A	10 W		
		DRC-24V30W1A☐	●			1.25 A	30 W		
		DRC-24V60W1A☐	●			2.5 A	60 W		
		DRC-24V100W1A☐	●			3.8 A	91.2 W	90-264 V_{AC} (DC input range 125-375 V_{DC})	
	SYNC • Compact • NEC Class 2 • Competitively priced	DRS-5V30W1NZ	●		5 V	3.0 A	15 W	85-264 V_{AC} (DC input range 120-375 V_{DC})	33
		DRS-5V50W1A☐	●			6.0 A	30 W		
		DRS-5V50W1N☐	●			5.0 A	25 W		
		DRS-12V50W1N☐	●		12 V	4.0 A	48 W	85-264 V_{AC}	
		DRS-24V30W1AZ	●		24 V	1.25 A	30 W	85-264 V_{AC} (DC input range 120-375 V_{DC})	34
		DRS-24V30W1NZ	●			1.25 A	30 W		
		DRS-24V50W1N☐	●			2.1 A	50 W		
		DRS-24V100W1A☐	●	●		4.0 A	96 W		
		DRS-24V100W1N☐	●	●		3.8 A	91.2 W		

* DC input is certified for selected models

Model Numbering

DR	C –	XXV	XXXW	1	☐	☐
DIN Rail	**Product Type** C - Isolation Class II Power Supply	**Output Voltage**	**Output Power**	**Phase Input** 1 - Single Phase	A - No PFC C - AC & DC Input, no PFC H - Household approval	Z - Grey plastic case C - Black plastic case, with conformal coating [1]

1) Options for DRC-12V60W1A☐, DRC-24V60W1A☐ and DRC-24V100W1A☐ only

DR	S –	XXV	XXXW	1	☐	☐
DIN Rail	**Product Series** S - SYNC Series	**Output Voltage**	**Output Power**	**Phase Input** 1 - Single Phase	A - Non NEC Class 2 N - NEC Class 2	Z - Without DC OK Relay Contact R - With DC OK Relay Contact

Product Type	Series	Model Name	Phase 1	PFC	Output Voltage	Output Current	Output Power	Input Voltage Range	Page
Panel Mount Power Supplies	**PMT2** • IEC 60335, IEC 61558 approvals • Low profile 30 mm height	PMT-12V35W2BA☐	●		12 V	3.0 A	36 W	90-264 V_{AC}	37
		PMT-12V50W2BA☐	●			4.2 A	50.4 W		
		PMT-12V75W2BA☐	●			6.0 A	72 W		
		PMT-12V100W2BA☐	●			8.5 A	102 W		
		PMT-12V150W2BA☐	●			12.5 A	150 W	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	38
		PMT-12V150W2CA☐	●			12.5 A	150 W	90-264 V_{AC}	
		PMT-12V200W2BM☐	●			17.0 A	204 W	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	
		PMT-12V200W2BR☐	●			17.0 A	204 W		
		PMT-12V350W2BM☐	●			29.0 A	348 W		
		PMT-12V350W2BR☐	●			29.0 A	348 W		
		PMT-15V35W2BA	●		15 V	2.4 A	36 W	90-264 V_{AC}	39
		PMT-15V50W2BA	●			3.4 A	51 W		
		PMT-15V75W2BA	●			5.0 A	75 W		
		PMT-15V100W2BA	●			7.0 A	105 W	90-264 V_{AC}	40
		PMT-15V150W2BA	●			10.0 A	150 W	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	
		PMT-15V150W2CA	●			10.0 A	150 W	90-264 V_{AC}	

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Product Type	Series	Model Name	Phase 1	PFC	Output Voltage	Output Current	Output Power	Input Voltage Range	Page
Panel Mount Power Supplies	**PMT2** • IEC 60335, IEC 61558 approvals • Low profile 30 mm height	PMT-24V35W2BA☐	●		24 V	1.5 A	36 W	90-264 V_{AC}	41
		PMT-24V50W2BA☐	●			2.2 A	52.8 W		
		PMT-24V75W2BA☐	●			3.2 A	76.8 W		
		PMT-24V100W2BA☐	●			4.5 A	108 W		
		PMT-24V150W2BA☐	●			6.25 A	150 W	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	42
		PMT-24V150W2CA☐	●			6.25 A	150 W	90-264 V_{AC}	
		PMT-24V200W2BM☐	●			8.8 A	211.2 W	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	
		PMT-24V200W2BR☐	●			8.8 A	211.2 W		
		PMT-24V350W2BM☐	●			14.6 A	350.4 W		
		PMT-24V350W2BR☐	●			14.6 A	350.4 W		
		PMT-30V35W2BA	●		30 V	1.2 A	36 W	90-264 V_{AC}	43
		PMT-30V50W2BA	●			1.7 A	51 W		
		PMT-30V75W2BA	●			2.5 A	75 W		
		PMT-30V100W2BA	●			3.6 A	108 W	90-264 V_{AC}	44
		PMT-30V150W2BA	●			5.0 A	150 W	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	
		PMT-30V150W2CA	●			5.0 A	150 W	90-264 V_{AC}	
		PMT-36V35W2BA	●		36 V	1.0 A	36 W	90-264 V_{AC}	45
		PMT-36V50W2BA	●			1.45 A	52.2 W		
		PMT-36V75W2BA	●			2.1 A	75.6 W		
		PMT-36V100W2BA	●			3.0 A	108 W		
		PMT-36V150W2BA	●			4.3 A	154.8 W	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	46
		PMT-36V150W2CA	●			4.3 A	154.8 W	90-264 V_{AC}	
		PMT-36V200W2BM	●			5.9 A	212.4 W	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	
		PMT-36V200W2BR	●			5.9 A	212.4 W		
		PMT-36V350W2BM	●			9.7 A	349.2 W		
		PMT-36V350W2BR	●			9.7 A	349.2 W		
		PMT-48V35W2BA	●		48 V	0.8 A	38.4 W	90-264 V_{AC}	47
		PMT-48V50W2BA	●			1.1 A	52.8 W		
		PMT-48V75W2BA	●			1.6 A	76.8 A		
		PMT-48V100W2BA	●			2.3 A	110.4 W		
		PMT-48V150W2BA	●			3.3 A	158.4 W	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	48
		PMT-48V150W2CA	●			3.3 A	158.4 W	90-264 V_{AC}	
		PMT-48V200W2BM	●			4.4 A	211.2 W	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	
		PMT-48V200W2BR	●			4.4 A	211.2 W		
		PMT-48V350W2BM	●			7.3 A	350.4 W		
		PMT-48V350W2BR	●			7.3 A	350.4 W		
		PMT-D1V75W2☐A	●		5 V/12 V	5.0A/4.0A	73 W	90-264 V_{AC}	49
		PMT-D2V75W2☐A	●		5 V/24 V	5.0A/2.1A	75.4 W		

Model Numbering

							CC Code
PM	T –	XXV	XXXW	2	☐	☐	☐
Panel Mount	**Product Type** T - Enclosed	**Output Voltage**	**Output Power**	Single Phase with Low Profile	**Family Code** For 35-100 W B - No PFC, universal input voltage range For 150-350 W B - No PFC, input voltage selectable by switch C - No PFC, universal input voltage range	**Connector Type** Terminal Block A - With TUV, UL, CE, CCC, KC, EAC M - With UL, EAC R - With TUV, UL, CE, EAC	Blank - Without connector cover B - With conformal coating [1]

PM	T –	XXV	XXXW	2	☐	A
Panel Mount	**Product Type** T - Enclosed	**Output Voltage** Dual Output D1 - 5 V / 12 V D2 - 5 V / 24 V	**Output Power**	Single Phase with Low Profile	**Family Code** B - No PFC, Non-Isolated C - No PFC, Isolated	**Connector Type** A - Terminal Block

1) Options for 12 V and 24 V models only

Product Selection Guide

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Product Type	Series	Model Name	Phase 1	PFC	Output Voltage	Output Current	Output Power	Input Voltage Range*	Page
Panel Mount Power Supplies	**PMC** • Universal AC input voltage	PMC-05V015W1AA	●		5 V	3.0 A	15 W	85-264 V_{AC} (DC input range 125-375 V_{DC})	50
		PMC-12V150W1B□	●	●	12 V	12.5 A	150 W	85-264 V_{AC} (DC input range 125-375 V_{DC})	
		PMC-12V600W1BA	●	●		50.0 A	600 W	85-264 V_{AC} (DC input range 120-370 V_{DC})	
		PMC-24V150W1B□	●	●	24 V	6.25 A	150 W	85-264 V_{AC} (DC input range 125-375 V_{DC})	51
		PMC-24V300W1BA	●	●		V1: 12.5 A $V2_{SB}$: 0.5 A	300 W		
		PMC-24V600W1BA	●	●		25.0 A	600 W	85-264 V_{AC} (DC input range 120-370 V_{DC})	
		PMC-24V600W1RW	●	●		25.0 A	600 W	85-264 V_{AC}	
		PMC-48V150W1BA	●	●	48 V	3.125 A	150 W	85-264 V_{AC} (DC input range 125-375 V_{DC})	52
		PMC-48V600W1BA	●	●		12.5 A	600 W	85-264 V_{AC} (DC input range 120-370 V_{DC})	
		PMC-DSPV100W1A	●		24 V/5 V	2.7 A/7.0 A	100 W	85-264 V_{AC} (DC input range 125-375 V_{DC})	
	PMR • Thickness < 1U • Built-in PFC	PMR-4V320WC□A	●	●	4.2 V	60.0 A	252 W	88-264 V_{AC}	53
		PMR-4V320WDAA□	●	●		60.0 A	252 W		
		PMR-4V320WDGA	●	●		60.0 A	252 W		
		PMR-4V320WDBA	●	●		60.0 A	252 W		
		PMR-4V320WDCA	●	●		60.0 A	252 W		
		PMR-5V320WC□A	●	●	5 V	60.0 A	300 W	88-264 V_{AC}	54
		PMR-5V320WDAA	●	●		60.0 A	300 W		
		PMR-5V320WDGA	●	●		60.0 A	300 W		
		PMR-5V320WDBA	●	●		60.0 A	300 W		
		PMR-5V320WDCA	●	●		60.0 A	300 W		
		NEW PMR-12V320W1AT	●	●	12 V	26.7 A	320.4 W	90-264 V_{AC}	55
		NEW PMR-24V320W1AT	●	●	24 V	13.4 A	321.6 W		
		NEW PMR-36V320W1AT	●	●	36 V	8.9 A	320.4 W	90-264 V_{AC}	56
		NEW PMR-48V320W1AT	●	●	48 V	6.7 A	321.6 W		

* DC input is certified for selected models

Model Numbering

PM	C –	XXV	XXXW	1	□	□
Panel Mount	**Product Type** C - Enclosed	**Output Voltage**	**Output Power**	**Phase Input** 1 - Single Phase, Wide Range Input Voltage	A - No PFC B - With PFC R - With PFC, Remote ON/OFF, Remote Sense	**Connector Type** A - Terminal Block [1] J - IP20 Connector [2] L - Front Face [2] W - Front Face with conformal coating

PM	C –	D	SPV	100W	1	A
Panel Mount	**Product Type** C - Enclosed	**Dual Output**	**Output Voltage** S - 24V P - 5V	**Output Power**	**Phase Input** 1 - Single Phase	A - Delta Standard

1) For PMC-05V015W1AA and PMC-□V600W1BA, the connector type is a Front Face connector.
For PMC-24V300W1BA, the connector type is an IP20 connector.
2) Options

PM	R –	XXV	XXXW	□	□	A
Panel Mount	**Product Series** R - Standard Rack Type Series (1U)	**Output Voltage**	**Output Power**	**Package Type** C - Enclosed with Fan D - Enclosed without Fan	**Connector Type** A - Terminal Block B - Terminal Block (Parallel Operation) [1] G - Front Face [2] C - Front Face (Parallel Operation) [1]	**Variable** A - With conformal coating

1) Options for Enclosed without Fan (PMR-□V320WDBA and PMR-□V320WDCA)
2) Options

PM	R –	XXV	XXXW	1	A	T
Panel Mount	**Product Series** R - Standard Rack Type Series (1U)	**Output Voltage**	**Output Power**	**Phase Input** 1 - Single Phase	**Family Code** A - Family A	**Connector Type** T - Terminal Block

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Product Type	Series	Model Name	Phase 1	PFC	Output Voltage	Output Current	Output Power	Input Voltage Range	Page
Panel Mount Power Supplies	**PMF** • Remote ON/OFF • Built-in PFC	PMF-4V320WC□□	●	●	4.2 V	55.0 A	231 W	88-264 V_{AC}	57
		PMF-5V320WC□□	●	●	5 V	55.0 A	275 W		
		PMF-24V240WC□□	●	●	24 V	10.0 A	240 W		
		PMF-24V320WC□□	●	●		13.3 A	320 W		
	PMU • Power supply with integrated DC-UPS	PMU-13V155W□BA	●		13.8 V	V1: 9.5 A B+: 1.5 A	151 W	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	58
		PMU-13V155W□CA	●				151 W		
		PMU-27V155W□BA	●		27.6 V	Enclosed V1: 4.0 A, B+: 1.5 A	151 W		
		PMU-27V155W□CA	●			L Frame V1: 4.3 A, B+: 1.2 A	151 W		
	MEB • Intelligent Fan Speed Control	NEW MEB-750A12B AAA	●	●	12 V	58.4 A	750 W	85-264 V_{AC}	59
		NEW MEB-750A12T AAA	●	●		58.4 A	750 W		
		MEB-500A24F AA	●	●	24 V	21.0 A	500 W	90-264 V_{AC}	
		MEB-750A24B AAA	●	●		31.25 A	750 W	85-264 V_{AC}	
		MEB-750A24T AAA	●	●		31.25 A	750 W		
		MEB-750A48B AAA	●	●	48 V	15.63 A	750 W		
		MEB-750A48T AAA	●	●		15.63 A	750 W		
		MEB-1K2A24T ABA	●	●	24 V	50.0 A	1,200 W	85-264 V_{AC}	60
		MEB-1K2A42T ABA	●	●	42 V	28.5 A	1,200 W		
		MEB-1K2A48T ABA	●	●	48 V	25.0 A	1,200 W		

Model Numbering

PM	F –	XXV	XXXW	C	□	□
Panel Mount	**Product Series** F - PFC Series	**Output Voltage**	**Output Power**	**Package Type** C - Enclosed	**Connector Type** G - Front Face A - Terminal Block [1]	**Variable** B - No Remote ON/OFF R - With Remote ON/OFF [1]

1) Options

PM	U –	XXV	XXXW	□	□	A
Panel Mount	**Product Series** U - With DC-UPS Function	**Output Voltage**	**Output Power**	**Package Type** C - Enclosed L - L Frame [1]	**Signal** B - Without Signal C - With Signal	**Connector Type** A - Terminal Block

1) Options

ME	B –	XXX	A	□	□	□□□
Delta Medical Power Supply	B - Enclosed	**Max power wattage in the product series. May be lower at some conditions.**	**Family Code**	**Output Voltage**	**Input Connector Type**	**CC Code**
		500 - 500 W	A - Family A	24 - 24 V	F - Front Face	AA - With Remote ON/OFF, with conformal coating
		750 - 750 W		12 - 12 V 24 - 24 V 48 - 48 V	B - C14 T - US Terminal	AAA - With Remote ON/OFF, with conformal coating
		1K2 - 1,200 W		24 - 24 V 42 - 42 V 48 - 48 V	T - US Terminal	ABA - With Remote ON/OFF, with conformal coating

Product Selection Guide

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Product Type	Series	Model Name	Phase	PFC	Output Voltage	Convection		Forced Air		Input Voltage Range	Page
			1			Output Current	Output Power	Output Current	Output Power		
Open Frame Power Supplies	**PJT** • High efficiency • Small footprint	PJT-12V40WBA□	●		12 V	3.33 A	40 W			90-264 V_{AC}	63
		PJT-12V65WBA□	●			5.0 A	60 W				
		PJT-12V100WBA□	●	●		8.33 A	100 W				
		PJT-12V100WBB□	●			6.67 A	80 W	8.33 A	100 W		
		PJT-15V40WBA□	●		15 V	2.67 A	40 W			90-264 V_{AC}	64
		PJT-15V65WBA□	●			4.2 A	63 W				
		PJT-15V100WBA□	●	●		6.67 A	100 W				
		PJT-15V100WBB□	●			5.33 A	80 W	6.67 A	100 W		
		PJT-18V40WBA□	●		18 V	2.22 A	40 W			90-264 V_{AC}	65
		PJT-18V65WBA□	●			3.61 A	65 W				
		PJT-18V100WBA□	●	●		5.55 A	100 W				
		PJT-18V100WBB□	●			4.44 A	80 W	5.55 A	100 W		
		PJT-24V40WBA□	●		24 V	1.66 A	40 W			90-264 V_{AC}	66
		PJT-24V65WBA□	●			2.71 A	65 W				
		PJT-24V100WBA□	●	●		4.17 A	100 W				
		PJT-24V100WBB□	●			3.33 A	80 W	4.17 A	100 W		
		PJT-27V150WBNA	●	●	V1: 27 V V_{SB}: 12 V	V1: 5.55 A V_{SB}: 0.5 A	150 W			85-264 V_{AC}	
	PJ • Built-in PFC • Versatile configurations • Conformal coating	PJ-5V15W□NA	●		5 V	3.0 A	15 W			85-264 V_{AC}	67
		PJ-12V15W□NA	●		12 V	1.3 A	15.6 W				
		PJ-12V30W□NA	●			2.5 A	30 W				
		PJ-12V50W□NA	●	●		4.3 A	51.6 W			85-264 V_{AC}	68
		PJ-12V100W□□A	●	●		8.5 A	102 W				
		PJ-12V150W□□A	●	●		12.5 A	150 W				
		PJ-24V30W□NA	●		24 V	1.25 A	31.2 W			85-264 V_{AC}	69
		PJ-24V50W□NA	●	●		2.1 A	50.4 W				
		PJ-24V100W□□A	●	●		4.3 A	103.2 W			85-264 V_{AC}	70
		PJ-24V150W□□A	●	●		6.3 A	150 W				
		PJ-48V50W□NA	●	●	48 V	1.1 A	52.8 W				
	PJB • Power Boost up to 10 s • Conformal coating	PJB-24V100W□□A	●	●	24 V	4.3 A	103.2 W			85-264 V_{AC}	71
		PJB-24V150W□□A	●	●		6.3 A	151.2 W				
		PJB-24V240W□□□	●	●		10.0 A	240 W				
		PJB-24V300W□□□	●	●		12.5 A	300 W				

Model Numbering

PJ	T –	XXV	XXXW	B	□	□
Open Frame	**Product Series** T - ITE Application Series	**Output Voltage**	**Output Power**	**Package Type** B - Open Frame	A - Family Code B - Family Code N - No Remote ON/OFF	**Connector Type** A - JST connector B - Molex connector [1] C - JWT connector [1]

1) Options

PJ –	XXV	XXXW	□	□	A
Open Frame	**Output Voltage**	**Output Power**	**Package Type** B - Open Frame L - L Frame C - Enclosed	**Remote ON/OFF Function** N - No Remote ON/OFF R - With Remote ON/OFF [1]	A - Delta Standard

1) Options for 100 W and above

PJ	B –	XXV	XXXW	□	□	□
Open Frame	**Product Series** B - Power Boost Series	**Output Voltage**	**Output Power**	**Package Type** B - Open Frame L - L Frame C - Enclosed Green Mode [1] J - Open Frame H - L Frame G - Enclosed	**Remote ON/OFF Function** N - No Remote ON/OFF R - With Remote ON/OFF	**Connector Type** A - Harness J - IP20 [2]

1) Green Mode is available for 150 W only
2) For 240 W and 300 W only

New products are frequently introduced. Please visit www.DeltaPSU.com for latest product updates.

Product Type	Series	Model Name	Phase	PFC	Output Voltage	Output Current	Convection	Forced Air	Input Voltage Range	Page
			1				Output Power			
Open Frame Power Supplies	**PJH** • Household and ITE safety approvals	PJH-24V300WBBA	●	●	V1: 24 V V_{SB}: 5 V	V1: 12.5 A V_{SB}: 1.2 A	240 W	300 W	90-264 V_{AC}	72
		PJH-24V300WBCA	●	●	V1: 24 V V_{SB}: 12 V	V1: 12.5 A V_{SB}: 0.5 A	240 W	300 W		
		PJH-36V300WBBA	●	●	V1: 36 V V_{SB}: 5 V	V1: 8.3 A V_{SB}: 1.2 A	240 W	300 W		
		PJH-36V300WBCA	●	●	V1: 36 V V_{SB}: 12 V	V1: 8.3 A V_{SB}: 0.5 A	240 W	300 W		
	PJU • Power supply with integrated DC-UPS • Compact size	PJU-13V60W□A□	●		V1: 13.8 V B+: 13.6 V	V1: 3.9 A B+: 0.4 A	60 W		90-264 V_{AC}	73
		PJU-13V60W□B□	●			V1: 3.9 A B+: 0.4 A	60 W			
		PJU-27V60W□A□	●		V1: 27.6 V B+: 12.4 V	V1: 1.75 A B+: 0.4 A	60 W			
		PJU-27V60W□B□	●			V1: 1.75 A B+: 0.4 A	60 W			
	PJL • UL 8750, IEC/UL 60950-1, IEC/UL 62368-1 approvals • Low inrush current • LED lighting power solution	PJL-48V200WBAA	●	●	48 V	4.17 A	150 W	200 W	85-305 V_{AC}	74
		PJL-48V400WBAA	●	●		8.33 A	200 W	400 W		
		PJL-48V600WLAA	●	●		12.5 A	300 W	600 W		

Model Numbering

PJ	H –	XXV	XXXW	B	□	A
Open Frame	**Product Series** H - Household Series	**Output Voltage**	**Output Power**	**Package Type** B - Open Frame	**Voltage Standby** B - 5 V [1] C - 12 V	**Connector Type** A - JST connector

1) Options

PJ	U –	XXV	XXXW	□	□	□
Open Frame	**Product Series** U - With DC-UPS Function	**Output Voltage**	**Output Power**	**Package Type** C - Enclosed L - L Frame [1] B - Open Frame [1]	**Signal** A - Without Signal [1] B - With Signal	**Connector Type** A - Terminal Block B - JST connector [1] C - Molex connector [1]

1) Options

PJ	L –	XXV	XXXW	□	A	A
Open Frame	**Product Series** L - Lighting Application Series	**Output Voltage**	**Output Power**	**Package Type** B - Open Frame L - L Frame	A - Active PFC	A - TE connector

Product Selection Guide

New products are frequently introduced. Please visit www.DeltaPSU.com for latest product updates.

Product Type	Series	Model Name	Output Voltage	Output Current	Input Current	Input Voltage Range	Page
Redundancy Module	**CliQ II**	DRR-20A	22-60 V	20.0 A	(1+1 Redundancy) = Nominal 2 × 12.5 A (N+1 Redundancy) = Nominal 2 × 10 A	22-60 V_{DC}	77
		DRR-20N		20.0 A			
		DRR-40A		40.0 A	(1+1 Redundancy) = Nominal 2 × 25 A (N+1 Redundancy) = Nominal 2 × 20 A		
		DRR-40N		40.0 A			
Buffer Module	**CliQ II**	DRB-24V020AB□	24 V	20.0 A	Charging Mode: < 0.6 A	22.8-28.8 V_{DC}	78
		DRB-24V040ABN		40.0 A	Charging Mode: < 0.6 A		
DC-UPS Module	**CliQ II**	DRU-24V40ABN	24 V	40.0 A	Charging Mode: 2.0 A ± 1.0 A	24-28 V_{DC}	79
	CHROME	DRU-24V10ACZ		10.0 A	Charging Mode: 0.5 A ± 0.1 A	24-28 V_{DC}	80
	CliQ M NEW	DRU-24V10AMN		10.0 A	0.5 A, 1 A, 1.5 A, 2 A (typ.) (constant current)	18-30 V_{DC}	81
	NEW	DRU-24V20AMN		20.0 A	0.75 A, 1.5 A, 2.25 A, 3 A (typ.) (constant current)	18-30 V_{DC}	
	NEW	DRU-24V40AMN		40.0 A	1 A, 2 A, 3 A, 4 A (typ.) (constant current)	18-30 V_{DC}	

Product Type	Series	Model Name	Nominal Voltage	Charging Current	Discharging Current	Page
Battery Module	**CliQ M** NEW	DRN-24V7AAEN	24 V	2.1 A Max	40.0 A Max	82

Model Numbering

DR	R –	XX	□
DIN Rail	**Product Type** R - Redundancy Module	**Output Current** 20 - 20 A 40 - 40 A	A - Metal Case, with Class I, Div 2 N - Metal Case, without Class I, Div 2

DR	□ –	24V	XXXA	□	□
DIN Rail	**Product Type** B - Buffer Module U - DC-UPS Module	**Output Voltage**	**Output Current**	B - CliQ II Series C - CHROME Series M - CliQ M Series	A - Metal Case, with Class I, Div 2 N - Metal Case, without Class I, Div 2 Z - Plastic Case, without Class I, Div 2

DR	N –	24V	XA	A	E	N
DIN Rail	**Product Type** N - Battery Module (without Battery)	**Input / Output Voltage**	**Capacity** 7A - 7.2 AH	A - Metal Frame	E- Lead Acid Battery	N - Without Class I, Div 2

New products are frequently introduced. Please visit www.DeltaPSU.com for latest product updates.

Product Type	Series	Model Name	CC Code	Output Voltage	Output Current	Output Power	Page
Adapter	**ADT** • Compact size • DoE Level VI and CoC Tier 2	ADT-060A12AA	B-A	12 V	5.0 A	60 W	84
		ADT-060A12AB	B-A		5.0 A	60 W	
		ADT-150B12AA	J-A		12.5 A	150 W	
		ADT-060A15AA	B-A	15 V	4.0 A	60 W	
		ADT-060A15AB	B-A		4.0 A	60 W	
		ADT-060A19AA	B-A	19 V	3.2 A	60.8 W	85
		ADT-060A19AB	B-A		3.2 A	60.8 W	
		ADT-120A19AA	M-A		6.15 A	120 W	
		ADT-150A19AA	G-A		7.7 A	150 W	
		ADT-060A24AA	B-A	24 V	2.5 A	60 W	86
		ADT-060A24AB	B-A		2.5 A	60 W	
		ADT-090A24AA	F-A		3.75 A	90 W	
		ADT-120A24AA	F-A		5.0 A	120 W	
		ADT-150A24AA	H-A		6.25 A	150 W	
		ADT-150C24AC	K-A		6.25 A	150 W	

Model Numbering

						CC Code	
ADT –	XXX	□	□	A	□	□-	A
Delta AC-DC Adapter	**Output Power** 060 - 60 W 090 - 90 W 120 - 120 W 150 - 150 W	**Family Code** A B C	**Output Voltage (Single Output)** 12 - 12 V 15 - 15 V 19 - 19 V 24 - 24 V	**Package Type** A - Desktop Adapter	**Input Connector Type** A - C6 B - C8 C - C14	**Output Connector** B - Tuning fork, 5.5 × 2.1 × 10 mm, 180° F - Tuning fork, 5.5 × 2.5 × 11 mm, 90° G - Barrel, 6 × 3.5 × 11.5 mm, 90° H - Tuning fork, 5.5 × 2.5 × 11 mm, 90° J - Barrel, 7.4 × 5.1 × 11 mm, 90° K - 4 pin DIN, 180° Lockable M - Tuning fork, 5.5 × 1.7 × 11 mm, 90°	A - Delta Standard

DIN Rail Power Supplies



CliQ II / CliQ III

CliQ II: Approvals for hazardous locations
CliQ III: Built-in constant current circuit for charging applications

Power Range: 60-960 W



CliQ M / CliQ VA

CliQ M: Approvals for maritime applications
CliQ VA: Integrated LCD display for outputs monitoring

Power Range: 80-960 W



Force-GT

Full load operating temperature up to 60°C

Power Range: 120-960 W



LYTE / LYTE II

Ultra slim form factor

Power Range: 75-480 W



CHROME / SYNC

CHROME: Class II Double Isolation
SYNC: Compact size

Power Range: 7.5-91.2 W

Applications

Building Automation
Process Automation
Factory Automation
Machine Automation
Renewable Energy
Test & Measurement



CliQ II (24 V)

- Power will not de-rate for the entire input voltage range
- High Efficiency > 90.0% @ 230 V_{AC}
- Power Boost of 150% up to 5 s (480 W: 200% for 2 s)
- Full corrosion resistant aluminium casing
- Extreme low temperature cold start at -40°C
- Conformal coating on PCBAs to protect against common dust and pollutants
- Hazardous Locations approval to ATEX and Class I, Div 2

Applications

Process Automation · Factory Automation · Machine Automation · Renewable Energy

Output		DRP024V060W1B□	DRP024V120W1B□	DRP024V240W1B□	DRP024V480W1B□
Output Voltage		24 V	24 V	24 V	24 V
Output Voltage Range		24-28 V	24-28 V	24-28 V	24-28 V
Output Current		0-2.5 A	0-5.0 A	0-10.0 A	0-20.0 A
Output Power		60 W	120 W	240 W	480 W
PARD (20 MHz)		< 150 mVpp			
Hold-up Time	115 V_{AC}	> 20 ms		> 20 ms	
	230 V_{AC}	> 125 ms	> 115 ms		
Input					
Phase Input		Single Phase			
Input Voltage Range		85-264 V_{AC} (DC input range 120-375 V_{DC}) [1]			
Input Frequency		47-63 Hz			
Input Current	115 V_{AC}	< 1.4 A	< 2.2 A	< 2.5 A	< 5.0 A
	230 V_{AC}	< 0.8 A	< 1.1 A	< 1.3 A	< 3.0 A
Efficiency [2] at 100% Load	115 V_{AC}	> 90.0%	> 89.0%	> 90.0%	> 91.0%
	230 V_{AC}		> 90.0%	> 92.0%	
Max Inrush Current (Cold Start)	115 V_{AC}	< 20 A	< 35 A		
	230 V_{AC}	< 35 A			
Power Factor	115 V_{AC}	Conform to EN 61000-3-2		> 0.96	> 0.96
	230 V_{AC}			> 0.90	> 0.95
Leakage Current	240 V_{AC}	< 1 mA			< 3 mA
Mechanical					
Case Cover / Chassis		Aluminium			
Dimensions (H × W × D)	mm	121 × 32 × 125	121 × 50 × 123.1	121 × 85 × 124.1	121 × 144 × 118.6
	inch	4.76 × 1.26 × 4.92	4.76 × 1.97 × 4.85	4.76 × 3.35 × 4.89	4.76 × 5.67 × 4.67
Unit Weight	kg	0.37	0.72	1.10	1.37
	lb	0.82	1.59	2.43	3.02
Cooling System		Convection			
MTBF [3]		> 800,000 hrs		> 500,000 hrs	
Environment					
Operating Temperature [4]		-25°C to +80°C			-25°C to +75°C
Storage Temperature		-40°C to +85°C			
Operating Humidity		5 to 95% RH (Non-Condensing)			
Operating Altitude		0 to 2,500 m (0 to 8,200 ft)			

Dimensions Reference



Notes
1) All models fulfill the test conditions for this range. DC input safety approval can be obtained upon request. While DRP024V060W1B□ is also certified for DC input.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 115 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.



CliQ II (24 V)

- Power will not de-rate for the entire input voltage range
- UL 1310 safety approval
- NEC Class 2 and Limited Power Source (LPS) approvals
- Conformal coating on PCBAs to protect against common dust and chemical pollutants
- Hazardous Locations approval to ATEX and Class I, Div 2 (DRP024V060W1NY)

Applications

Process Automation · Factory Automation · Machine Automation · Renewable Energy

Output		DRP024V060W1N□	DRP-24V100W1NN
Output Voltage		24 V	24 V
Output Voltage Range		22-28 V	22-24 V
Output Current		0-2.5 A	0-3.8 A
Output Power		60 W	91.2 W
PARD (20 MHz)		< 240 mVpp	< 150 mVpp
Hold-up Time	115 V_{AC}	> 20 ms	> 20 ms
	230 V_{AC}	> 125 ms	> 30 ms
Input			
Phase Input		Single Phase	
Input Voltage Range		85-264 V_{AC} (DC input range 120-375 V_{DC}) [1]	
Input Frequency		47-63 Hz	
Input Current	115 V_{AC}	< 1.50 A	< 1.00 A
	230 V_{AC}	< 0.80 A	< 0.53 A
Efficiency [2] at 100% Load	115 V_{AC}	> 89.0%	> 88.0%
	230 V_{AC}		> 89.0%
Max Inrush Current (Cold Start)	115 V_{AC}	< 40 A	< 30 A
	230 V_{AC}	< 80 A	< 60 A
Power Factor	115 V_{AC}	Conform to EN 61000-3-2	> 0.99
	230 V_{AC}		> 0.94
Leakage Current	240 V_{AC}	< 0.5 mA	
Mechanical			
Case Cover / Chassis		Plastic	Aluminium
Dimensions (H × W × D)	mm	120.6 × 32 × 119.3	124 × 40 × 124
	inch	4.75 × 1.26 × 4.70	4.88 × 1.57 × 4.88
Unit Weight	kg	0.33	0.60
	lb	0.73	1.32
Cooling System		Convection	
MTBF [3]		> 800,000 hrs	
Environment			
Operating Temperature [4]		-25°C to +80°C	
Storage Temperature		-40°C to +85°C	
Operating Humidity		5 to 95% RH (Non-Condensing)	
Operating Altitude		0 to 2,500 m (0 to 8,200 ft)	

Dimensions Reference



Notes
1) All models fulfill the test conditions for this range. DC input safety approval can be obtained upon request.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 115 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CliQ II (24 V)



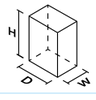
- Designed for single phase input 180-305 V_{AC} (L-N) or 2 of 3-Phase system 2 x 180-550 V_{AC} (L-L) or 254-780 V_{DC}
- Compact and corrosion resistant aluminium casing
- High Efficiency > 90.0%
- Wide operating temperature range from -30°C to +70°C
- Built-in DC OK contact
- Conformal coating on PCBAs to protect against common dust and pollutants

Applications

Process Automation · Factory Automation · Machine Automation · Renewable Energy

Output		DRP-24V120W2BN	DRP-24V240W2BN
Output Voltage		24 V	24 V
Output Voltage Range		24-28 V	24-28 V
Output Current		0-5.0 A	0-10.0 A
Output Power		120 W	240 W
PARD (20 MHz)		< 150 mVpp	< 150 mVpp @ -10°C and above < 200 mVpp @ below -10°C
Hold-up Time	2 × 230 V_{AC}	> 10 ms	> 18 ms
	2 × 400 V_{AC}	> 50 ms	> 30 ms
Input			
Phase Input		Single Phase or Two Phase	
Input Voltage Range		2 × 180-550 V_{AC} or 180-305 V_{AC} (Single Phase) (DC input range 254-780 V_{DC}) [1]	
Input Frequency		47-63 Hz	
Input Current	2 × 230 V_{AC}	< 1.20 A	< 2.00 A
	2 × 400 V_{AC}	< 0.80 A	< 1.00 A
Efficiency [2] at 100% Load	2 × 400 V_{AC}	> 90.0%	
Max Inrush Current (Cold Start)	2 × 200 V_{AC}	< 50 A	
	2 × 500 V_{AC}		
Power Factor	2 × 230 V_{AC}	Conform to EN 61000-3-2	
	2 × 400 V_{AC}		
Leakage Current	500 V_{AC}	< 1 mA	< 3.5 mA
Mechanical			
Case Cover / Chassis		Aluminium	
Dimensions (H × W × D)	mm	124 × 40 × 117	124 × 60 × 117
	inch	4.88 × 1.57 × 4.61	4.88 × 2.36 × 4.61
Unit Weight	kg	0.62	0.81
	lb	1.37	1.79
Cooling System		Convection	
MTBF [3]		> 800,000 hrs	> 500,000 hrs
Environment			
Operating Temperature [4]		-30°C to +70°C	
Storage Temperature		-40°C to +85°C	
Operating Humidity		5 to 95% RH (Non-Condensing)	
Operating Altitude		Industrial Application: 0 to 2,000 m (0 to 6,560 ft); ITE Application: 0 to 2,500 m (0 to 8,200 ft)	

Dimensions Reference



Notes
1) All models are certified for DC input.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 2 × 200 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CliQ II (24 V)



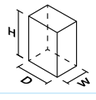
- Power will not de-rate for the entire input voltage range
- Power Boost of 150% up to 5 s (480 W: 200% for 2 s)
- Full corrosion resistant aluminium casing
- Extreme low temperature cold start at -40°C
- Conformal coating on PCBAs to protect against common dust and pollutants
- Hazardous Locations approval to ATEX and Class I, Div 2 (except DRP024V960W3BN)

Applications

Process Automation · Factory Automation · Machine Automation · Renewable Energy

Output		DRP024V060W3B☐	DRP024V120W3B☐	DRP024V240W3B☐	DRP024V480W3B☐	DRP024V960W3BN
Output Voltage		24 V	24 V	24 V	24 V	24 V
Output Voltage Range		24-28 V	24-28 V	24-28 V	24-28 V	24-28 V
Output Current		0-2.5 A	0-5.0 A	0-10.0 A	0-20.0 A	0-40.0 A
Output Power		60 W	120 W	240 W	480 W	960 W
PARD (20 MHz)		< 150 mVpp				< 240 mVpp
Hold-up Time	3 × 400 V_{AC}	> 20 ms			> 20 ms	
	3 × 500 V_{AC}	> 40 ms				
Input						
Phase Input		Two Phase or Three Phase				
Input Voltage Range (Does not exceed 600 V_{AC})		3 × 320-600 V_{AC} or 2 × 360-600 V_{AC} (DC input range 450-800 V_{DC}) [1]				2 × 380-600 V_{AC} (DC input range 450-800 V_{DC}) [1]
Input Frequency		47-63 Hz				
Input Current	3 × 400 V_{AC}	< 0.30 A	< 0.50 A	< 0.75 A	< 1.00 A	< 1.70 A
	3 × 500 V_{AC}	< 0.25 A	< 0.40 A	< 0.65 A	< 0.75 A	< 1.40 A
Efficiency [2] at 100% Load	3 × 400 V_{AC}	> 86.0%	> 88.0%	> 91.0%		> 92.0%
	3 × 500 V_{AC}					
Max Inrush Current (Cold Start) [3]	3 × 400 V_{AC}	< 30 A		< 40 A	< 50 A	< 60 A
	3 × 500 V_{AC}					
Power Factor	3 × 400 V_{AC}	Conform to EN 61000-3-2			> 0.95	> 0.95
	3 × 500 V_{AC}				> 0.94	> 0.94
Leakage Current	3 × 500 V_{AC}	< 3.5 mA				
Mechanical						
Case Cover / Chassis		Aluminium				
Dimensions (H × W × D)	mm	121 × 50 × 117.3	121 × 50 × 117.3	121 × 70 × 117.3	121 × 140 × 117.3	121 × 255 × 117.3
	inch	4.76 × 1.97 × 4.62	4.76 × 1.97 × 4.62	4.76 × 2.76 × 4.62	4.76 × 5.51 × 4.62	4.76 × 10.0 × 4.62
Unit Weight	kg	0.66	0.66	0.89	1.35	2.60
	lb	1.46	1.46	1.96	2.98	5.73
Cooling System		Convection				
MTBF [4]		> 800,000 hrs		> 500,000 hrs		> 300,000 hrs
Environment						
Operating Temperature [5]		-25°C to +80°C				-25°C to +65°C
Storage Temperature		-40°C to +85°C				
Operating Humidity		5 to 95% RH (Non-Condensing)				
Operating Altitude		Industrial Application: 0 to 2,000 m (0 to 6,560 ft); ITE Application: 0 to 2,500 m (0 to 8,200 ft)				

Dimensions Reference



Notes
1) All models fulfill the test conditions for this range. DC input safety approval can be obtained upon request. While DRP024V480W3B☐ and DRP024V960W3B☐ are also certified for DC input.
2) At 25°C ambient temperature by vertical mounting orientation.
3) AC Source capability up to 3 kVA.
4) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 3 × 400 V_{AC}, O/P: 100% load) for vertical mounting orientation.
5) Refer power de-rating in the product datasheet.
6) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CliQ II (48 V)



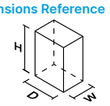
- Power will not de-rate for the entire input voltage range
- High Efficiency > 91.0% @ 230 V_{AC}
- Power Boost of 150% up to 5 s
- Full corrosion resistant aluminium casing
- Extreme low temperature cold start at -40°C
- Conformal coating on PCBAs to protect against common dust and pollutants
- Hazardous Locations approval to ATEX and Class I, Div 2

Applications

Process Automation · Factory Automation · Machine Automation · Renewable Energy

Output		DRP048V060W1B□	DRP048V120W1B□	DRP048V240W1B□	DRP048V480W1B□
Output Voltage		48 V	48 V	48 V	48 V
Output Voltage Range		48-56 V	48-56 V	48-56 V	48-56 V
Output Current		0-1.25 A	0-2.5 A	0-5.0 A	0-10.0 A
Output Power		60 W	120 W	240 W	480 W
PARD (20 MHz)		< 200 mVpp			
Hold-up Time	115 V_{AC}	> 20 ms		> 20 ms	
	230 V_{AC}	> 125 ms	> 50 ms		
Input					
Phase Input		Single Phase			
Input Voltage Range		85-264 V_{AC} (DC input range 120-375 V_{DC}) [1]			
Input Frequency		47-63 Hz			
Input Current	115 V_{AC}	< 1.4 A	< 2.2 A	< 2.5 A	< 5.0 A
	230 V_{AC}	< 0.8 A	< 1.1 A	< 1.3 A	< 3.0A
Efficiency [2] at 100% Load	115 V_{AC}	> 91.0%	> 90.0%		> 91.0%
	230 V_{AC}	> 92.0%	> 91.0%	> 92.0%	> 93.0%
Max Inrush Current (Cold Start)	115 V_{AC}	< 20 A	< 35 A		
	230 V_{AC}	< 35 A			
Power Factor	115 V_{AC}	Conform to EN 61000-3-2	> 0.99	> 0.96	
	230 V_{AC}		> 0.93	> 0.90	
Leakage Current	240 V_{AC}	< 1 mA			< 3 mA
Mechanical					
Case Cover / Chassis		Aluminium			
Dimensions (H × W × D)	mm	121 × 32 × 125	121 × 50 × 123.1	121 × 85 × 124.1	121 × 144 × 118.6
	inch	4.76 × 1.26 × 4.92	4.76 × 1.97 × 4.85	4.76 × 3.35 × 4.86	4.76 × 5.67 × 4.67
Unit Weight	kg	0.38	0.72	0.96	1.37
	lb	0.84	1.59	2.12	3.02
Cooling System		Convection			
MTBF [3]		> 800,000 hrs		> 500,000 hrs	
Environment					
Operating Temperature [4]		-25°C to +80°C			-25°C to +75°C
Storage Temperature		-40°C to +85°C			
Operating Humidity		5 to 95% RH (Non-Condensing)			
Operating Altitude		0 to 2,500 m (0 to 8,200 ft)			

Dimensions Reference



Notes
1) All models fulfill the test conditions for DC input. DC input safety approval can be obtained upon request.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 115 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CliQ III (24 V)



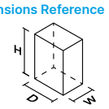
- Built-in constant current circuit for charging applications
- High efficiency of up to 94% at 230 V_{AC}
- Power Boost of 150% up to 5 s
- SEMI F47 compliance at 120 V_{AC}
- Extreme low temperature cold start at -40°C
- Built-in DC OK Contact and LED indicator for DC OK
- Conformal coating on PCBA to protect against common dust and pollutants

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation · Renewable Energy

Output		DRP-24V120W1C□N	DRP-24V240W1C□N	DRP-24V480W1C□N
Output Voltage		24 V	24 V	24 V
Output Voltage Range		24-28 V	24-28 V	24-28 V
Output Current		0-5.0 A	0-10.0 A	0-20.0 A
Output Power		120 W	240 W	480 W
PARD (20 MHz)		< 100 mVpp		
Hold-up Time	115 V_{AC}	> 20 ms		> 15 ms
	230 V_{AC}			
Input				
Phase Input		Single Phase		
Input Voltage Range		DRP-24V□W1CAN: 88-264 V_{AC} DRP-24V□W1CBN: 88-264 V_{AC} (DC input range 88-375 V_{DC}) [1]		
Input Frequency		47-63 Hz		
Input Current	115 V_{AC}	< 1.4 A	< 2.6 A	< 5.0 A
	230 V_{AC}	< 0.7 A	< 1.3 A	< 2.5 A
Efficiency [2] at 100% Load	115 V_{AC}	> 89.5%	> 91.0%	> 92.0%
	230 V_{AC}	> 91.0%	> 93.0%	
Max Inrush Current (Cold Start)	115 V_{AC}	< 35 A	< 33 A	< 40 A
	230 V_{AC}	< 70 A	< 65 A	< 80 A
Power Factor	115 V_{AC}	> 0.96	> 0.99	
	230 V_{AC}	> 0.93	> 0.93	> 0.95
Leakage Current (264 V_{AC}, 50 Hz)	TT/TN	< 0.47 mA	< 0.74 mA	< 1.12 mA
	IT	< 1.20 mA	< 2.00 mA	< 2.55 mA
Mechanical				
Case Cover / Chassis		Aluminium		
Dimensions (H × W × D)	mm	124 × 40 × 117	124 × 60 × 117	124 × 82 × 127
	inch	4.88 × 1.57 × 4.61	4.88 × 2.36 × 4.61	4.88 × 3.23 × 5.00
Unit Weight	kg	0.58	0.84	1.20
	lb	1.28	1.85	2.65
Cooling System		Convection		
MTBF [3]		> 1,411,300 hrs	> 1,366,200 hrs	> 1,041,600 hrs
Environment				
Operating Temperature [4]		-25°C to +70°C		
Storage Temperature		-40°C to +85°C		
Operating Humidity		5 to 95% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)		

Dimensions Reference



Notes
1) All models are certified for DC input.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 115 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CliQ M (24 V)



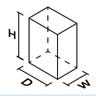
- High power density in corrosion resistant aluminium casing
- Power Boost of 150% up to 7 s
- Advanced Power Boost (APB)
- DNV GL and ABS approvals for maritime applications
- Extreme low temperature cold start at -40°C
- Built-in DC OK contact and LED indicator for DC OK/ Overload
- Conformal coating on PCBAs to protect against common dust and chemical pollutants

Applications

Process Automation · Factory Automation · Machine Automation · Renewable Energy

Output		DRM-24V80W1PN	DRM-24V120W1PN	DRM-24V240W1PN	DRM-24V480W1PN	DRM-24V960W1PN
Output Voltage		24 V	24 V	24 V	24 V	24 V
Output Voltage Range		24-28 V	24-28 V	24-28 V	24-28 V	24-28 V
Output Current		3.4-3.0 A	5.0-4.5 A	10.0-9.0 A	20.0-17.0 A	40.0-34.3 A
Output Power		81.6 W	120 W	240 W	480 W	960 W
PARD (20 MHz)		< 50 mVpp			< 100 mVpp	
Hold-up Time	120 V_{AC}	> 35 ms	> 34 ms	> 28 ms	> 30 ms	> 23 ms
	230 V_{AC}	> 70 ms	> 65 ms			
Input						
Phase Input		Single Phase				
Input Voltage Range		85-276 V_{AC} (DC input range 88-375 V_{DC}) [1]	85-264 V_{AC} (DC input range 88-375 V_{DC}) [1]	85-276 V_{AC} (DC input range 88-375 V_{DC}) [1]		85-264 V_{AC}
Input Frequency		47-63 Hz				
Input Current	120 V_{AC}	< 0.90 A	< 1.12 A	< 2.26 A	< 4.60 A	< 10.10 A
	230 V_{AC}	< 0.60 A	< 0.62 A	< 1.25 A	< 2.50 A	< 6.00 A
Efficiency [2] at 100% Load	120 V_{AC}	> 90.1%	> 91.6%	> 92.6%	> 92.2%	> 93.6%
	230 V_{AC}	> 90.0%	> 92.7%	> 93.5%	> 93.4%	> 94.6%
Max Inrush Current (Cold Start)	120 V_{AC}	< 7 A	< 15 A	< 10 A	< 13 A	< 13 A
	230 V_{AC}	< 13 A				< 20 A
Power Factor	120 V_{AC}	> 0.95	> 0.99	> 0.98	> 0.92	> 0.97
	230 V_{AC}	> 0.80	> 0.91	> 0.92	> 0.87	> 0.95
Leakage Current (264 V_{AC}, 50 Hz)	TT/TN	< 0.36 mA	< 0.45 mA	< 0.74 mA	< 0.80 mA	< 1.18 mA
	IT	< 0.95 mA	< 1.08 mA	< 1.29 mA	< 2.00 mA	< 2.82 mA
Mechanical						
Case Cover / Chassis		Aluminium				
Dimensions (H × W × D)	mm	124 × 32 × 102	124 × 40 × 117	124 × 60 × 117	124 × 82 × 127	124 × 125 × 133.6
	inch	4.88 × 1.26 × 4.02	4.88 × 1.57 × 4.61	4.88 × 2.36 × 4.61	4.88 × 3.23 × 5.00	4.88 × 4.92 × 5.26
Unit Weight	kg	0.50	0.63	0.94	1.40	2.87
	lb	1.10	1.39	2.07	3.09	6.33
Cooling System		Convection				
MTBF [3]		> 2,000,000 hrs	> 1,800,000 hrs	> 1,400,000 hrs	> 778,800 hrs	> 513,800 hrs
Environment						
Operating Temperature [4]		-25°C to +70°C				
Storage Temperature		-40°C to +85°C				
Operating Humidity		5 to 95% RH (Non-Condensing)				
Operating Altitude		0 to 5,000 m (0 to 16,400 ft); IEC/EN 61558: 0 to 2,500 m (0 to 8,200 ft)				

Dimensions Reference



Notes
1) All models are certified for DC input. DC input is not applicable for DRM-24V960W1PN.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 100 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CliQ M (24 V)



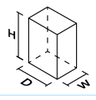
- Built-in constant current circuit for charging applications
- Full power from -25°C to +60°C @ 5,000 m (16,400 ft)
- Power Boost of 150% up to 7 s
- Advanced Power Boost (APB)
- DNV GL and ABS approvals for maritime applications
- Built-in DC OK Contact and LED indicator for DC OK/ Overload
- Conformal coating on PCBAs to protect against common dust and chemical pollutants

Applications

Process Automation · Factory Automation · Machine Automation · Renewable Energy

Output		DRM-24V480W3PN	DRM-24V960W3PN
Output Voltage		24 V	24 V
Output Voltage Range		24-28 V	24-28 V
Output Current		20.0-17.1 A	40.0-34.3 A
Output Power		480 W	960 W
PARD (20 MHz)		< 100 mVpp	< 100 mVpp
Hold-up Time	3 × 400 V_{AC}	> 18 ms	> 20 ms
	3 × 500 V_{AC}		
Input			
Phase Input		Two or Three Phase	
Input Voltage Range		3 × 320-575 V_{AC} or 2 × 380-575 V_{AC} (DC input range 450-800 V_{DC}) [1]	
Input Frequency		47-63 Hz	
Input Current	3 × 400 V_{AC}	< 0.79 A	< 1.65 A
	3 × 500 V_{AC}	< 0.68 A	< 1.35 A
Efficiency [2] at 100% Load	3 × 400 V_{AC}	> 95.0%	> 95.3%
	3 × 500 V_{AC}	> 94.8%	> 95.2%
Max Inrush Current (Cold Start)	3 × 400 V_{AC}	< 10 A	< 14.2 A
	3 × 500 V_{AC}		< 17.7 A
Power Factor	3 × 400 V_{AC}	> 0.93	> 0.90
	3 × 500 V_{AC}	> 0.88	
Leakage Current (3 × 528 V_{AC}, 60 Hz)	TT/TN	< 1.30 mA	< 0.95 mA
	IT		< 1.20 mA
Mechanical			
Case Cover / Chassis		Aluminium	
Dimensions (H × W × D)	mm	124 × 65 × 127.1	124 × 110 × 128.6
	inch	4.88 × 2.56 × 5.00	4.88 × 4.33 × 5.06
Unit Weight	kg	1.18	2.30
	lb	2.60	5.07
Cooling System		Convection	
MTBF [3]		> 750,000 hrs	> 568,300 hrs
Environment			
Operating Temperature [4]		-25°C to +70°C	
Storage Temperature		-40°C to +85°C	
Operating Humidity		5 to 95% RH (Non-Condensing)	
Operating Altitude [5]		0 to 5,000 m (0 to 16,400 ft)	

Dimensions Reference



Notes
1) All models fulfill the test conditions for this range. DC input safety approval can be obtained upon request.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 3 x 400 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) According to IEC/EN 62368-1, IEC/EN 61010.
6) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CliQ M (24 V)



- SIL3 approval for SIS Functional Safety
- Droop method current sharing
- Active Redundant circuit O-Ring MOSFET
- Power Boost of 150% up to 5 s
- Advanced Power Boost (APB)
- Built-in DC OK contact and LED indicator for DC OK/ Overload
- Conformal coating on PCBAs to protect against common dust and chemical pollutants

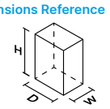
Applications

Process Automation · Factory Automation · Machine Automation · Renewable Energy

COMING SOON

Output		DRM-24V480W1SN
Output Voltage		24 V
Output Voltage Range		24-28 V
Output Current		20.0-17.0 A
Output Power		480 W
PARD (20 MHz)		< 120 mVpp
Hold-up Time	120 V_{AC}	> 32 ms
	230 V_{AC}	
Input		
Phase Input		Single Phase
Input Voltage Range		85-276 V_{AC} (DC input range 88-375 V_{DC}) [1]
Input Frequency		47-63 Hz
Input Current	120 V_{AC}	< 4.56 A
	230 V_{AC}	< 2.48 A
Efficiency [2] at 100% Load	120 V_{AC}	> 92.4%
	230 V_{AC}	> 93.4%
Max Inrush Current (Cold Start)	120 V_{AC}	< 13 A
	230 V_{AC}	
Power Factor	120 V_{AC}	> 0.95
	230 V_{AC}	> 0.90
Leakage Current (264 V_{AC}, 50 Hz)	TT/TN	< 1.10 mA
	IT	< 1.20 mA
Mechanical		
Case Cover / Chassis		Aluminium
Dimensions (H × W × D)	mm	124 × 82 × 127
	inch	4.88 × 3.23 × 5.00
Unit Weight	kg	1.40
	lb	3.09
Cooling System		Convection
MTBF [3]		> 864,600 hrs
Environment		
Operating Temperature [4]		-25°C to +70°C
Storage Temperature		-40°C to +85°C
Operating Humidity		5 to 95% RH (Non-Condensing)
Operating Altitude [5]		0 to 5,000 m (0 to 16,400 ft)

Dimensions Reference



Notes
1) All models are certified for DC input.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 100 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) According to IEC/EN 62368-1, IEC/EN 61010.
6) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CliQ VA (24 V)



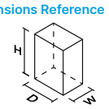
- LCD display monitoring the output current / voltage / peak current and temperature
- Life time expectancy alarm signal and monitoring
- Built-in active PFC with up to 94% efficiency
- Power Boost of 150% up to 7 s
- Advanced Power Boost (APB)
- DC OK Contact and LED indicator for DC OK/ Overload
- Conformal coating on PCBAs to protect against common dust and chemical pollutants

Applications

Process Automation · Factory Automation · Machine Automation · Renewable Energy

Output		DRV-24V120W1PN	DRV-24V240W1PN	DRV-24V480W1PN
Output Voltage		24 V	24 V	24 V
Output Voltage Range		24-28 V	24-28 V	24-28 V
Output Current		5.0-4.28 A	10.0-8.57 A	20.0-17.0 A
Output Power		120 W	240 W	480 W
PARD (20 MHz)		< 50 mVpp	< 50 mVpp	< 100 mVpp
Hold-up Time	120 V_{AC}	> 34 ms	> 28 ms	> 30 ms
	230 V_{AC}	> 65 ms		
Input				
Phase Input		Single Phase		
Input Voltage Range		85-264 V_{AC} (DC input range 88-375 V_{DC}) [1]	85-276 V_{AC} (DC input range 88-375 V_{DC}) [1]	
Input Frequency		47-63 Hz		
Input Current	120 V_{AC}	< 1.13 A	< 2.22 A	< 4.60 A
	230 V_{AC}	< 0.63 A	< 1.21 A	< 2.50 A
Efficiency [2] at 100% Load	120 V_{AC}	> 90.3%	> 92.6%	> 92.2%
	230 V_{AC}	> 91.2%	> 93.5%	> 93.4%
Max Inrush Current (Cold Start)	120 V_{AC}	< 15 A	< 10 A	< 13 A
	230 V_{AC}			
Power Factor	120 V_{AC}	> 0.99	> 0.98	> 0.92
	230 V_{AC}	> 0.91	> 0.92	> 0.87
Leakage Current (264 V_{AC}, 50 Hz)	TT/TN	< 0.45 mA	< 0.74 mA	< 0.80 mA
	IT	< 1.08 mA	< 2.10 mA	< 2.00 mA
Mechanical				
Case Cover / Chassis		Aluminium & Plastic / Aluminium		
Dimensions (H × W × D)	mm	124 × 60 × 139	124 × 60 × 139	124 × 82 × 149
	inch	4.88 × 2.36 × 5.47	4.88 × 2.36 × 5.47	4.88 × 3.23 × 5.87
Unit Weight	kg	0.75	1.02	1.45
	lb	1.65	2.25	3.20
Cooling System		Convection		
MTBF [3]		> 1,444,000 hrs	> 1,268,000 hrs	> 751,100 hrs
Environment				
Operating Temperature [4]		-25°C to +70°C		
Storage Temperature		-40°C to +85°C		
Operating Humidity		5 to 95% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)		

Dimensions Reference



Notes
1) All models are certified for DC input.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 100 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

FORCE-GT (12V, 24V, 48V)



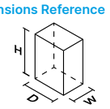
- Built-in constant current circuit for charging applications
- Full load operating temperature up to 60°C
- Cold start at -40°C
- Ultra-Slim design
- Long life electrolytic capacitor
- Built-in DC OK relay and LED indicator
- Conformal coating on PCBAs to protect against common dust and pollutants

Applications

Process Automation | Factory Automation | Machine Automation | Renewable Energy

		NEW	NEW	NEW	NEW	NEW	NEW	NEW	NEW
Output		**DRF-12V120W1GBA**	**DRF-12V240W1GBA**	**DRF-24V120W1GBA**	**DRF-24V240W1GBA**	**DRF-24V480W1GBA**	**DRF-48V120W1GBA**	**DRF-48V240W1GBA**	**DRF-48V480W1GBA**
Output Voltage		12 V	12 V	24 V	24 V	24 V	48 V	48 V	48 V
Output Voltage Range		12-14 V	12-14 V	24-28 V	24-28 V	24-28 V	48-55 V	48-55 V	48-55 V
Output Current		0-10.0 A	0-20.0 A	0-5.0 A	0-10.0 A	0-20.0 A	0-2.5 A	0-5.0 A	0-10.0 A
Output Power		120 W	240 W	120 W	240 W	480 W	120 W	240 W	480 W
PARD (20 MHz)		< 100 mVpp @ 0°C~70°C			< 100 mVpp @ 0°C~70°C		< 120 mVpp @ 0°C~70°C	< 150 mVpp @ 0°C~70°C	150 mVpp typ. @ 0°C~70°C
		< 300 mVpp @ -30°C~0°C			< 300 mVpp @ -30°C~0°C		< 360 mVpp @ -30°C~0°C		450 mVpp typ. @ -30°C~0°C
Hold-up Time	115 V_{AC}	35 ms typ.	30 ms typ.	35 ms typ.	30 ms typ.	25 ms typ.	35 ms typ.	30 ms typ.	25 ms typ.
	230 V_{AC}								
Input									
Phase Input		Single Phase					Single Phase		
Input Voltage Range		90-264 V_{AC}					90-264 V_{AC}		
Input Frequency		47-63 Hz					47-63 Hz		
Input Current	115 V_{AC}	1.2 A typ.	2.5 A typ.	1.2 A typ.	2.5 A typ.	4.7 A typ.	1.2 A typ.	2.5 A typ.	4.7 A typ.
	230 V_{AC}	0.6 A typ.	1.3 A typ.	0.6 A typ.	1.3 A typ.	2.4 A typ.	0.6 A typ.	1.3 A typ.	2.4 A typ.
Efficiency [2] at 100% Load	230 V_{AC}	93.0% typ.	93.5% typ.		94.5% typ.	95.0% typ.	93.0% typ.	94.0% typ.	95.0% typ.
Max Inrush Current (Cold Start)	230 V_{AC}	40 A typ.					40 A typ.		
Power Factor	115 V_{AC}	> 0.95	> 0.96	> 0.95	> 0.96		> 0.95	> 0.96	
	230 V_{AC}	> 0.92	> 0.93	> 0.92	> 0.93		> 0.92	> 0.93	
Leakage Current	240 V_{AC}	< 0.5 mA			< 0.5 mA	< 1.5 mA	< 0.5 mA		< 1.5 mA
Mechanical									
Case Cover / Chassis		Metal					Metal		
Dimensions (H × W × D)	mm	123.6 × 30 × 116.8	123.6 × 40 × 116.8	123.6 × 30 × 116.8	123.6 × 40 × 116.8	123.6 × 56 × 116.8	123.6 × 30 × 116.8	123.6 × 40 × 116.8	123.6 × 56 × 116.8
	inch	4.87 × 1.18 × 4.60	4.87 × 1.57 × 4.60	4.87 × 1.18 × 4.60	4.87 × 1.57 × 4.60	4.87 × 2.20 × 4.60	4.87 × 1.18 × 4.60	4.87 × 1.57 × 4.60	4.87 × 2.20 × 4.60
Unit Weight	kg	0.50	0.64	0.50	0.64	0.88	0.50	0.64	0.88
	lb	1.10	1.41	1.10	1.41	1.94	1.10	1.41	1.94
Cooling System		Convection					Convection		
MTBF [3]		> 700,000 hrs					> 700,000 hrs		
Environment									
Operating Temperature [4]		-30°C to +70°C					-30°C to +70°C		
Storage Temperature		-40°C to +85°C					-40°C to +85°C		
Operating Humidity		5 to 90% RH (Non-Condensing)					5 to 90% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)					0 to 5,000 m (0 to 16,400 ft)		

Dimensions Reference



Notes
1) At 25°C ambient temperature by vertical mounting orientation.
2) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 115 V_{AC} & 230 V_{AC}, O/P: 100% load) for vertical mounting orientation.
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

FORCE-GT (24 V)



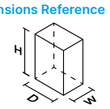
- Built-in constant current circuit for charging applications
- Full load operating temperature up to 55°C
- Cold start at -40°C
- Ultra-Slim design
- Reduced no-load power consumption
- Built-in DC OK relay and LED indicator
- Conformal coating on PCBAs to protect against common dust and pollutants

Applications

Process Automation · Factory Automation · Machine Automation · Renewable Energy

		NEW	NEW	NEW	NEW
Output		**DRF-24V120W3GBA**	**DRF-24V240W3GBA**	**DRF-24V480W3GBA**	**DRF-24V960W3GBA**
Output Voltage		24 V	24 V	24 V	24 V
Output Voltage Range		24-28 V	24-28 V	24-28 V	24-28 V
Output Current		0-5.0 A	0-10.0 A	0-20.0 A	0-40.0 A
Output Power		120 W	240 W	480 W	960 W
PARD (20 MHz)		< 100 mVpp		< 150 mVpp	< 200 mVpp
Hold-up Time	3 × 400 V_{AC}	20 ms typ.		20 ms typ.	
	3 × 500 V_{AC}	40 ms typ.			
Input					
Phase Input		Two or Three Phase			
Input Voltage Range		3 x 320-575 V_{AC} (3-Phase) or 2 x 340-575 V_{AC} (2-Phase) [1]			
Input Frequency		47-63 Hz			
Input Current	3 × 400 V_{AC}	< 0.50 A	< 0.75 A	< 0.85 A	< 1.65 A
	3 × 500 V_{AC}	< 0.40 A	< 0.65 A	< 0.73 A	< 1.35 A
Efficiency [2] at 100% Load	3 × 400 V_{AC}	87.5% typ.	89.5% typ.	94.0% typ.	94.5% typ.
	3 × 500 V_{AC}				
Max Inrush Current (Cold Start)	3 × 400 V_{AC}	20 A typ.		35 A typ.	
	3 × 500 V_{AC}	25 A typ.			
Power Factor	3 × 400 V_{AC}	> 0.45	> 0.50	> 0.90	> 0.90
	3 × 500 V_{AC}	> 0.40		> 0.88	
Leakage Current	3 × 500 V_{AC}	< 3.5 mA			
Mechanical					
Case Cover / Chassis		Aluminium			
Dimensions (H × W × D)	mm	124 × 38 × 125.3	124 × 50 × 125.3	124 × 65 × 127.3	124 × 110 × 128.7
	inch	4.88 × 1.50 × 4.93	4.88 × 1.97 × 4.93	4.88 × 2.56 × 5.01	4.88 × 4.33× 5.07
Unit Weight	kg	0.54	0.84	1.20	2.26
	lb	1.19	1.85	2.65	4.98
Cooling System		Convection			
MTBF [3]		> 700,000 hrs		> 600,000 hrs	> 500,000 hrs
Environment					
Operating Temperature [4]		3-Phase: -25°C to +70°C / 2-Phase: -25°C to +60°C			
Storage Temperature		-40°C to +85°C			
Operating Humidity		5 to 95% RH (Non-Condensing)			
Operating Altitude [5]		0 to 5,000 m (0 to 16,400 ft)			

Dimensions Reference



Notes
1) Power supply can operate at DC input.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 3 × 400 V_{AC} & 3 × 500 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) According to IEC/EN 62368-1, IEC/EN 61010.
6) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

LYTE (12 V, 24 V, 48 V)



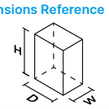
- Built-in constant current circuit for reactive loads
- Full power from -10°C to +50°C @ 230 V_{AC} with -30°C cold start
- Compliance to SEMI F47 @ 200 V_{AC}
- NEC Class 2 / Limited Power Source (LPS) certified (DRL-24V75W1AZ☐ & DRL-48V75W1AZ☐)

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation

		DRL-12V75W1AZ☐	DRL-24V75W1AZ☐	DRL-48V75W1AZ☐
Output				
Output Voltage		12 V	24 V	48 V
Output Voltage Range		10.8-13.2 V	21.6-26 V	43.2-52.8 V
Output Current		6.25 A	3.125 A	1.57 A
Output Power		75 W	75 W	75.36 W
PARD (20 MHz)		< 120 mVpp @ > -10°C to +70°C < 360 mVpp @ ≤ -10°C to -30°C		< 240 mVpp @ > -10°C to +70°C < 480 mVpp @ ≤ -10°C to -30°C
Hold-up Time	115 V_{AC}	16 ms typ.		
	230 V_{AC}	60 ms typ.		
Input				
Phase Input		Single Phase		
Input Voltage Range		85-264 V_{AC} (DC input range 120-375 V_{DC}) [1]		
Input Frequency		47-63Hz		
Input Current	115 V_{AC}	1.4 A typ.	1.4 A typ.	1.4 A typ.
	230 V_{AC}	0.9 A typ.	0.9 A typ.	0.9 A typ.
Efficiency [2] at 100% Load	230 V_{AC}	87.5% typ.	89.0% typ.	90.0% typ.
Max Inrush Current (Cold Start)	230 V_{AC}	50 A typ.		
Power Factor	115 V_{AC}	NA		
	230 V_{AC}			
Leakage Current	240 V_{AC}	< 1 mA		
Mechanical				
Case Cover / Chassis		Plastic		
Dimensions (H × W × D)	mm	123.6 × 27 × 102	123.6 × 27 × 102	123.6 × 27 × 102
	inch	4.87 × 1.06 × 4.02	4.87 × 1.06 × 4.02	4.87 × 1.06 × 4.02
Unit Weight	kg	0.22	0.22	0.22
	lb	0.49	0.49	0.49
Cooling System		Convection		
MTBF [3]		> 700,000 hrs		
Environment				
Operating Temperature [4]		-20°C to +70°C		
Storage Temperature		-40°C to +85°C		
Operating Humidity		5 to 95% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)		

Dimensions Reference



Notes
1) All models fulfill the test conditions for this range. DC input safety approval can be obtained upon request.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 100 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

LYTE II (12 V, 24 V, 48 V)



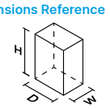
- Slim type design
- Built-in constant current circuit for reactive loads
- Operating from -30°C to +70°C with -40°C cold start
- Compliance with DOE VI energy standard (except 480 W)
- Reduced no-load power consumption
- Compliance to SEMI F47 @ 200 V_{AC}

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation

Output		DRL-12V120W1EN◻	DRL-12V240W1EN◻	DRL-24V120W1EN◻	DRL-24V240W1EN◻	NEW DRL-24V480W1EN◻	DRL-48V120W1EN◻	DRL-48V240W1EN◻	NEW DRL-48V480W1EN◻
Output Voltage		12 V	12 V	24V	24 V	24 V	48 V	48 V	48 V
Output Voltage Range		10.8-13.2 V	10.8-13.2 V	21.6-26.4 V	21.6-26.4 V	24-28 V	43.2-52.8 V	43.2-52.8 V	48-55 V
Output Current		10.0 A	20.0 A	5.0 A	10.0 A	0-20.0 A	2.5 A	5.0 A	0-10.0 A
Output Power		120 W	240 W	120 W	240 W	480 W	120 W	240 W	480 W
PARD (20 MHz)		< 120 mVpp @ 0°C to +70°C < 360 mVpp @ -30°C to 0°C		< 150 mVpp @ 0°C to +70°C < 450 mVpp @ -30°C to 0°C		< 150 mVpp @ 0°C to +70°C < 450 mVpp @ -30°C to 0°C	< 200 mVpp @ 0°C to +70°C < 600 mVpp @ -30°C to 0°C		
Hold-up Time	115 V_{AC}	10 ms typ.	20 ms typ.	10 ms typ.	20 ms typ.	25 ms typ.	10 ms typ.	20 ms typ.	25 ms typ.
	230 V_{AC}	16 ms typ.		16 ms typ.			16 ms typ.		
Input									
Phase Input		Single Phase					Single Phase		
Input Voltage Range		90-264 V_{AC}					90-264 V_{AC}		
Input Frequency		47-63 Hz					47-63 Hz		
Input Current	115 V_{AC}	2.1 A typ.	2.5 A typ.	2.1 A typ.	2.5 A typ.	4.7 A typ.	2.1 A typ.	2.5 A typ.	4.7 A typ.
	230 V_{AC}	1.3 A typ.	1.3 A typ.	1.3 A typ.	1.3 A typ.	2.4 A typ.	1.3 A typ.	1.3 A typ.	2.4 A typ.
Efficiency [1] at 100% Load	230 V_{AC}	86.0% typ.	86.5% typ.	88.5% typ.	86.5% typ.	93.0% typ.	89.5% typ.	90.5% typ.	93.5% typ.
Max Inrush Current (Cold Start)	230 V_{AC}	35 A typ.	40 A typ.	35 A typ.	40 A typ.	40 A typ.	35 A typ.	40 A typ.	40 A typ.
Power Factor	115 V_{AC}	NA	> 0.95	NA	> 0.95	> 0.96	NA	> 0.95	> 0.96
	230 V_{AC}					> 0.93			> 0.93
Leakage Current	240 V_{AC}	< 0.5 mA	< 0.75 mA	< 0.5 mA	< 0.75 mA	< 1.5 mA	< 0.5 mA	< 0.75 mA	< 1.5 mA
Mechanical									
Case Cover / Chassis		SGCC / Aluminium					SGCC / Aluminium		
Dimensions (H × W × D)	mm	123.6 × 30 × 116.8	123.6 × 40 × 116.8	123.6 × 30 × 116.8	123.6 × 40 × 116.8	123.6 × 56 × 116.8	123.6 × 30 × 116.8	123.6 × 40 × 116.8	123.6 × 56 × 116.8
	inch	4.87 × 1.18 × 4.60	4.87 × 1.57 × 4.60	4.87 × 1.18 × 4.60	4.87 × 1.57 × 4.60	4.87 × 2.20 × 4.60	4.87 × 1.18 × 4.60	4.87 × 1.57 × 4.60	4.87 × 2.20 × 4.60
Unit Weight	kg	0.45	0.62	0.45	0.62	0.87	0.45	0.62	0.87
	lb	0.99	1.37	0.99	1.37	1.91	0.99	1.37	1.91
Cooling System		Convection					Convection		
MTBF [2]		> 700,000 hrs					> 700,000 hrs		
Environment									
Operating Temperature [3]		-30°C to +70°C					-30°C to +70°C		
Storage Temperature		-40°C to +85°C					-40°C to +85°C		
Operating Humidity		20 to 90% RH (Non-Condensing)					20 to 90% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)					0 to 5,000 m (0 to 16,400 ft)		

Dimensions Reference



Notes
1) At 25°C ambient temperature by vertical mounting orientation.
2) MTBF as per Telcordia SR-332 (I/P: 115 V_{AC} & 230 V_{AC}, O/P: 100% load) for vertical mounting orientation.
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CHROME (5 V, 12 V, 24 V)



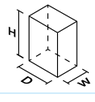
- Class II, Double Isolation
  (No earth connection is required)
- Full power up to 55°C
- Power will not de-rate for the entire input voltage range
- Can be installed in compact cabinets
- NEC Class 2 and Limited Power Source (LPS) approvals
  (except DRC-12V100W1AZ)
- Household appliance approvals IEC/EN 60335-1
  (DRC-24V10W1HZ)

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation · Test & Measurement

Output		DRC-5V10W1A□	DRC-12V10W1A□	DRC-12V30W1A□	DRC-12V60W1□□	DRC-12V100W1AZ	DRC-24V10W1A□	DRC-24V10W1HZ	DRC-24V30W1A□	DRC-24V60W1A□	DRC-24V100W1A□
Output Voltage		5 V	12 V	12 V	12 V	12 V	24 V	24 V	24 V	24 V	24 V
Output Voltage Range		5 V (No potentiometer)	12 V (No potentiometer)	11.5-14.5 V	11.5-14.0 V	12-14 V	24 V (No potentiometer)	24 V (No potentiometer)	23.52-24.48 V	24-28 V	22-24 V
Output Current		0-1.5 A	0-0.83 A	0-2.1 A	0-4.5 A	0-6.0 A	0-0.42 A	0-0.42 A	0-1.25 A	0-2.5 A	0-3.8 A
Output Power		7.5 W	9.96 W	25 W	54 W	72 W	10 W	10 W	30 W	60 W	91.2 W
PARD (20 MHz)		< 100 mVpp							< 100 mVpp		
Hold-up Time	115 V_{AC}	> 10 ms		> 25 ms	> 16 ms	> 20 ms	> 10 ms		> 25 ms	> 16 ms	> 10 ms
	230 V_{AC}	> 60 ms				> 100 ms			> 60 ms		
Input											
Phase Input		Single Phase							Single Phase		
Input Voltage Range		90-264 V_{AC}			90-264 V_{AC} (DC input range 125-375 V_{DC}) [1]	90-264 V_{AC}			90-264 V_{AC}		90-264 V_{AC} (DC input range 125-375 V_{DC}) [1]
Input Frequency		47-63Hz							47-63Hz		
Input Current	115 V_{AC}	< 0.3 A	< 0.3 A	< 0.8 A	< 1.5 A	< 1.5 A	< 0.3 A		< 0.8 A	< 1.5 A	< 2.2 A
	230 V_{AC}	< 0.2 A	< 0.2 A	< 0.6 A	< 1.0 A	< 0.9 A	< 0.2 A		< 0.6 A	< 1.0 A	
Efficiency [2] at 100% Load	115 V_{AC}	> 77.0%	> 82.0%	> 85.0%	> 86.0%		> 80.0%		> 87.0%	> 88.0%	> 87.0%
	230 V_{AC}	> 76.0%	> 80.5%								> 89.0%
Max Inrush Current (Cold Start)	115 V_{AC}	< 15 A		< 25 A	< 30 A		< 15 A		< 25 A	< 30 A	
	230 V_{AC}	< 30 A		< 50 A	< 60 A	< 65 A	< 30 A		< 50 A	< 60 A	
Power Factor		Conform to EN 61000-3-2							Conform to EN 61000-3-2		
Leakage Current	240 V_{AC}	< 0.25 mA				-			< 0.25 mA		
	264 V_{AC}	-				< 0.25 mA			-		
Mechanical											
Case Cover / Chassis		Plastic							Plastic		
Dimensions (H × W × D)	mm	91 × 18 × 55.6	91 × 18 × 55.6	91 × 53 × 55.6	91 × 71 × 55.6	91 × 89.9 × 55.6	91 × 18 × 55.6	91 × 18 × 55.6	91 × 53 × 55.6	91 × 71 × 55.6	91 × 89.9 × 55.6
	inch	3.58 × 0.71 × 2.19	3.58 × 0.71 × 2.19	3.58 × 2.09 × 2.19	3.58 × 2.80 × 2.19	3.58 × 3.54 × 2.19	3.58 × 0.71 × 2.19	3.58 × 0.71 × 2.19	3.58 × 2.09 × 2.19	3.58 × 2.80 × 2.19	3.58 × 3.54 × 2.19
Unit Weight	kg	0.06	0.06	0.14	0.22	0.36	0.065	0.065	0.14	0.22	0.35
	lb	0.13	0.13	0.31	0.49	0.79	0.14	0.14	0.31	0.49	0.77
Cooling System		Convection							Convection		
MTBF [3]		> 500,000 hrs							> 500,000 hrs		
Environment											
Operating Temperature [4]		-25°C to +71°C							-25°C to +71°C		
Storage Temperature		-25°C to +85°C				-40°C to +85°C			-25°C to +85°C		
Operating Humidity		5 to 95% RH (Non-Condensing)							5 to 95% RH (Non-Condensing)		
Operating Altitude		0 to 2,000 m (0 to 6,560 ft)							0 to 2,000 m (0 to 6,560 ft)		

Dimensions Reference



Notes
1) DRC-12V60W1CZ and DRC-24V100W1A□ are certified for DC input.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 100 V_{AC}, O/P: 100% load, Ta: 35°C) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.



sync (5 V, 12 V, 24 V)

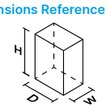
- Ultra-compact size and galvanic isolation up to 3.0 kV_{AC} between input to output and input to ground
- Full power from -10°C to +55°C operation
- Up to 90.0% efficiency
- Low earth leakage current < 0.5 mA @ 264 V_{AC}
- Built-in DC OK relay contact option available
- Extreme low temperature cold start at -40°C
- NEC Class 2 / Limited Power Source (LPS) certified

Applications

Building Automation | Process Automation | Factory Automation | Machine Automation | Test & Measurement

Output		DRS-5V30W1NZ	DRS-5V50W1A□	DRS-5V50W1N□	DRS-12V50W1N□	DRS-24V30W1AZ	DRS-24V30W1NZ	DRS-24V50W1N□	DRS-24V100W1A□	DRS-24V100W1N□
Output Voltage		5 V	5 V	5 V	12 V	24 V	24 V	24 V	24 V	24 V
Output Voltage Range		5-5.5 V	5-5.5 V	5-5.5 V	12-15 V	21.6-26.4 V	24-28 V	24-28 V	24-28 V	22-24 V
Output Current		0-3.0 A	0-6.0 A	0-5.0 A	0-4.0 A	0-1.25 A	0-1.25 A	0-2.1 A	0-4.0 A	0-3.8 A
Output Power		15 W	30 W	25 W	48 W	30 W	30 W	50 W	96 W	91.2 W
PARD (20 MHz)		< 75 mVpp @ > 0°C to 70°C < 150 mVpp @ 0°C to -20°C	< 50 mVpp @ > 0°C to 70°C < 100 mVpp @ 0°C to -20°C			< 150 mVpp @ > 0°C to 70°C < 500 mVpp @ 0°C to -20°C	< 75 mVpp @ > 0°C to 70°C < 150 mVpp @ 0°C to -20°C	< 70 mVpp @ > 0°C to 70°C < 100 mVpp @ 0°C to -20°C	< 50 mVpp @ > 0°C to 70°C, < 100 mVpp @ 0°C to -20°C	
Hold-up Time	115 V_{AC}	> 20 ms				-	> 20 ms		> 50 ms	
	230 V_{AC}	> 100 ms				> 20 ms	> 100 ms			
Input										
Phase Input		Single Phase				Single Phase				
Input Voltage Range		85-264 V_{AC} (DC input range 120-375 V_{DC}) [1]				85-264 V_{AC}	85-264 V_{AC} (DC input range 120-375 V_{DC}) [1]			
Input Frequency		47-63 Hz					47-63 Hz			
Input Current	115 V_{AC}	< 0.40 A	< 0.60 A	< 0.60 A	< 0.90 A	< 0.80 A	< 0.55 A	< 0.95 A	< 1.20 A	< 1.20 A
	230 V_{AC}	< 0.20 A	< 0.40 A	< 0.40 A	< 0.55 A	< 0.40 A	< 0.35 A	< 0.55 A	< 0.60 A	< 0.60 A
Efficiency [2] at 100% Load	115 V_{AC}	> 79.0%	> 82.0%		> 88.0%	-	> 87.5%	> 89.0%	> 89.0%	
	230 V_{AC}				> 89.0%	88.0% typ.		> 90.0%		
Max Inrush Current (Cold Start)	115 V_{AC}	< 20 A	< 30 A		< 25 A	< 30 A	< 20 A	< 30 A	< 25 A	
	230 V_{AC}	< 40 A	< 60 A		< 50 A	< 60 A	< 40 A	< 50 A	< 40 A	
Power Factor	115 V_{AC}	Conform to EN 61000-3-2					Conform to EN 61000-3-2		> 0.97	
	230 V_{AC}								> 0.90	
Leakage Current	240 V_{AC}	-				< 0.5 mA	-			
	264 V_{AC}	< 0.5 mA	< 0.75 mA		< 0.5 mA	-	< 0.5 mA			
Mechanical										
Case Cover / Chassis		Plastic					Plastic			
Dimensions (H × W × D)	mm	75 × 21 × 89.5	75 × 30 × 89.5	75 × 30 × 89.5	75 × 30 × 89.5	75 × 21 × 89.5	75 × 21 × 89.5	75 × 30 × 89.5	75 × 45 × 100	75 × 45 × 100
	inch	2.95 × 0.83 × 3.52	2.95 × 1.18 × 3.52	2.95 × 1.18 × 3.52	2.95 × 1.18 × 3.52	2.95 × 0.83 × 3.52	2.95 × 0.83 × 3.52	2.95 × 1.18 × 3.52	2.95 × 1.77 × 3.94	2.95 × 1.77 × 3.94
Unit Weight	kg	0.11	0.16	0.16	0.18	0.10	0.11	0.18	0.325	0.325
	lb	0.24	0.35	0.35	0.40	0.22	0.24	0.40	0.72	0.72
Cooling System		Convection					Convection			
MTBF [3]		> 700,000 hrs					> 700,000 hrs			
Environment										
Operating Temperature [4]		-20°C to +70°C					-20°C to +70°C			
Storage Temperature		-40°C to +85°C					-40°C to +85°C			
Operating Humidity		5 to 95% RH (Non-Condensing)					5 to 95% RH (Non-Condensing)			
Operating Altitude		0 to 2,000 m (0 to 6,560 ft)					0 to 2,000 m (0 to 6,560 ft)			

Dimensions Reference



Notes
1) All models fulfill the test conditions for DC input. DC input safety approval can be obtained upon request.
2) At 25°C ambient temperature by vertical mounting orientation.
3) DRS-24V30W1AZ, MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 100 V_{AC}, O/P: 100% load) for vertical mounting orientation.
   Other models, MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 115 V_{AC} & 230 V_{AC}, O/P: 100% load) for vertical mounting orientation.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

Panel Mount Power Supplies



PMT2

Low profile design with 30 mm height

Power Range: 36-350 W



PMC

Full corrosion resistant aluminium casing

Power Range: 15-600 W



PMR

Built-in active PFC with 1U low profile

Power Range: 252-321.6 W



PMF

Built-in active PFC

Power Range: 231-320 W



PMU

Power supply with DC-UPS function

Power Range: 151 W



MEB

High power output with built-in fan cooling

Power Range: 500-1,200 W

Applications

Building Automation

Process Automation

Factory Automation

Machine Automation

Test & Measurement

LED Lighting

Renewable Energy

Medical Equipment

Household Appliance



PMT2 (12 V)

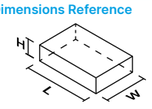
- Household appliance approvals to IEC/EN 60335-1, IEC/EN 61558-1 and IEC/EN 61558-2-16 (except 350 W)
- No load power consumption
- Low profile design: 30 mm height
- Over Voltage Category III, Pollution Degree 3 (except 350 W)
- Cold start at -40°C

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation · Test & Measurement · Household Appliance

Output		PMT-12V35W2BA□	PMT-12V50W2BA□	PMT-12V75W2BA□	PMT-12V100W2BA□	PMT-12V150W2BA□	PMT-12V150W2CA□	PMT-12V200W2B□□	PMT-12V350W2B□□
Output Voltage		12 V	12 V	12 V	12 V	12 V	12 V	12 V	12 V
Output Voltage Range		10.8-13.2 V	10.8-13.2 V	10.8-13.2 V	10.8-13.2 V	10.8-13.2 V	10.8-13.2 V	10.8-13.2 V	10.8-13.2 V
Output Current		3.0 A	4.2 A	6.0 A	8.5 A	12.5 A	12.5 A	17.0 A	29.0 A (43.5 A for 1s) [2]
Output Power		36 W	50.4 W	72 W	102 W	150 W	150 W	204 W	348 W (522 W for 1s) [2]
PARD (20 MHz)		< 120 mVpp @ 0°C to 70°C, 360 mVpp typ. @ -30°C to 0°C					< 150 mVpp @ 0°C to 70°C, 450 mVpp typ. @ -30°C to 0°C		
Hold-up Time	115 V_{AC}	16 ms typ.	12 ms typ.	11 ms typ.	9 ms typ.	30 ms typ.	12 ms typ.	30 ms typ.	20 ms typ.
	230 V_{AC}	70 ms typ.	60 ms typ.	52 ms typ.	42 ms typ.		55 ms typ.		
Input									
Phase Input		Single Phase					Single Phase		
Input Voltage Range		90-264 V_{AC}				90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	90-264 V_{AC}	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	
Input Frequency		47-63 Hz					47-63 Hz		
Input Current	115 V_{AC}	0.7 A typ.	0.95 A typ.	1.4 A typ.	1.9 A typ.	3.0 A typ.	3.0 A typ.	4.0 A typ.	6.0 A typ.
	230 V_{AC}	0.42 A typ.	0.6 A typ.	0.85 A typ.	1.2 A typ.	1.7 A typ.	1.7 A typ.	2.2 A typ.	3.4 A typ.
Efficiency [1] at 100% Load	230 V_{AC}	86.0% typ.	85.0% typ.	87.0% typ.	87.5% typ.	87.5% typ.	88.0% typ.	88.5% typ.	84.5% typ.
Max Inrush Current (Cold Start)	230 V_{AC}	45 A typ.		55 A typ.			60 A typ.		
Power Factor		NA					NA		
Leakage Current (50 Hz)	240 V_{AC}	< 0.5 mA					< 0.5 mA		< 0.75 mA
Mechanical									
Case Cover / Chassis		SGCC / Aluminium					SGCC / Aluminium		SGCC / SGCC
Dimensions (L × W × H)	mm	99 × 82 × 29	99 × 82 × 29	99 × 97 × 30	129 × 97 × 30	159 × 97 × 30	159 × 97 × 30	159 × 97 × 30	215 × 115 × 30
	inch	3.90 × 3.23 × 1.14	3.90 × 3.23 × 1.14	3.90 × 3.82 × 1.18	5.08 × 3.82 × 1.18	6.26 × 3.82 × 1.18	6.26 × 3.82 × 1.18	6.26 × 3.82 × 1.18	8.46 × 4.53 × 1.18
Unit Weight	kg	0.17	0.18	0.22	0.29	0.35	0.39	0.42	0.83
	lb	0.36	0.39	0.48	0.63	0.78	0.86	0.93	1.84
Cooling System		Convection					Convection		Forced Air (Built-in Fan)
MTBF [3]		> 700,000 hrs					> 700,000 hrs		
Environment									
Operating Temperature [4]		-30°C to +70°C					-30°C to +70°C		
Storage Temperature		-40°C to +85°C					-40°C to +85°C		
Operating Humidity		20 to 90% RH (Non-Condensing)					20 to 90% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)					0 to 5,000 m (0 to 16,400 ft)		

Dimensions Reference



Notes
1) At 25°C ambient temperature by horizontal mounting orientation.
2) PMT-12V350W2BR□ models only.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 230 V_{AC}, O/P: 100% load).
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PMT2 (15 V)



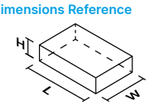
- Household appliance approvals to IEC/EN 60335-1, IEC/EN 61558-1 and IEC/EN 61558-2-16
- No load power consumption
- Low profile design: 30 mm height
- Over Voltage Category III, Pollution Degree 3
- Cold start at -40°C

Applications

Building Automation | Process Automation | Factory Automation | Machine Automation | Test & Measurement | Household Appliance

Output		PMT-15V35W2BA	PMT-15V50W2BA	PMT-15V75W2BA	PMT-15V100W2BA	PMT-15V150W2BA	PMT-15V150W2CA
Output Voltage		15 V	15 V	15 V	15 V	15 V	15 V
Output Voltage Range		13.5-16.5 V	13.5-16.5 V	13.5-16.5 V	13.5-16.5 V	13.5-16.5 V	13.5-16.5 V
Output Current		2.4 A	3.4 A	5.0 A	7.0 A	10.0 A	10.0 A
Output Power		36 W	51 W	75 W	105 W	150 W	150 W
PARD (20 MHz)		< 120 mVpp @ 0°C to 70°C, 360 mVpp typ. @ -30°C to 0°C			< 120 mVpp @ 0°C to 70°C, 360 mVpp typ. @ -30°C to 0°C	< 150 mVpp @ 0°C to 70°C, 450 mVpp typ. @ -30°C to 0°C	
Hold-up Time	115 V_{AC}	16 ms typ.	12 ms typ.	11 ms typ.	9 ms typ.	30 ms typ.	12 ms typ.
	230 V_{AC}	70 ms typ.	60 ms typ.	52 ms typ.	42 ms typ.		55 ms typ.
Input							
Phase Input		Single Phase				Single Phase	
Input Voltage Range		90-264 V_{AC}			90-264 V_{AC}	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	90-264 V_{AC}
Input Frequency		47-63 Hz				47-63 Hz	
Input Current	115 V_{AC}	0.7 A typ.	0.95 A typ.	1.4 A typ.	1.9 A typ.	3.0 A typ.	3.0 A typ.
	230 V_{AC}	0.42 A typ.	0.6 A typ.	0.85 A typ.	1.2 A typ.	1.7 A typ.	1.7 A typ.
Efficiency [1] at 100% Load	230 V_{AC}	87.0% typ.		88.0% typ.	88.0% typ.		89% typ.
Max Inrush Current (Cold Start)	230 V_{AC}	45 A typ.		55 A typ.	55 A typ.	60 A typ.	
Power Factor		NA				NA	
Leakage Current (50 Hz)	240 V_{AC}	< 0.5 mA				< 0.5 mA	
Mechanical							
Case Cover / Chassis		SGCC / Aluminium				SGCC / Aluminium	
Dimensions (L × W × H)	mm	99 × 82 × 29	99 × 82 × 29	99 × 97 × 30	129 × 97 × 30	159 × 97 × 30	159 × 97 × 30
	inch	3.90 × 3.23 × 1.14	3.90 × 3.23 × 1.14	3.90 × 3.82 × 1.18	5.08 × 3.82 × 1.18	6.26 × 3.82 × 1.18	6.26 × 3.82 × 1.18
Unit Weight	kg	0.17	0.18	0.22	0.29	0.35	0.39
	lb	0.36	0.39	0.48	0.63	0.78	0.86
Cooling System		Convection				Convection	
MTBF [2]		> 700,000 hrs				> 700,000 hrs	
Environment							
Operating Temperature [3]		-30°C to +70°C				-30°C to +70°C	
Storage Temperature		-40°C to +85°C				-40°C to +85°C	
Operating Humidity		20 to 90% RH (Non-Condensing)				20 to 90% RH (Non-Condensing)	
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)				0 to 5,000 m (0 to 16,400 ft)	

Dimensions Reference



Notes
1) At 25°C ambient temperature by horizontal mounting orientation.
2) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 230 V_{AC}, O/P: 100% load).
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.



PMT2 (24 V)

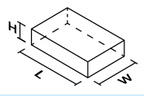
- Household appliance approvals to IEC/EN 60335-1, IEC/EN 61558-1 and IEC/EN 61558-2-16 (except 350 W)
- No load power consumption
- Low profile design: 30 mm height
- Over Voltage Category III, Pollution Degree 3 (except 350 W)
- Cold start at -40°C

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation · Test & Measurement · Household Appliance

Output		PMT-24V35W2BA	PMT-24V50W2BA	PMT-24V75W2BA□	PMT-24V100W2BA□	PMT-24V150W2BA□	PMT-24V150W2CA□	PMT-24V200W2B□□	PMT-24V350W2B□□
Output Voltage		24 V	24 V	24 V	24 V	24 V	24 V	24 V	24 V
Output Voltage Range		21.6-26.4 V	21.6-26.4 V	21.6-26.4 V	21.6-26.4 V	21.6-26.4 V	21.6-26.4 V	21.6-26.4 V	21.6-26.4 V
Output Current		1.5 A	2.2 A	3.2 A	4.5 A	6.25 A	6.5 A	8.8 A	14.6 A (21.9 A for 1s) [2]
Output Power		36 W	52.8 W	76.8 W	108 W	150 W	156 W	211.2 W	350.4 W (525.6 W for 1s) [2]
PARD (20 MHz)		< 150 mVpp @ 0°C to 70°C, 450 mVpp typ. @ -30°C to 0°C				< 200 mVpp @ 0°C to 70°C, 600 mVpp typ. @ -30°C to 0°C		< 150 mVpp @ 0°C to 70°C, 450 mVpp typ. @ -30°C to 0°C	< 200 mVpp @ 0°C to 70°C, 600 mVpp typ. @ -30°C to 0°C
Hold-up Time	115 V_{AC}	16 ms typ.	12 ms typ.	11 ms typ.	9 ms typ.	30 ms typ.	12 ms typ.	30 ms typ.	20 ms typ.
	230 V_{AC}	70 ms typ.	60 ms typ.	52 ms typ.	42 ms typ.		55 ms typ.		
Input									
Phase Input		Single Phase					Single Phase		
Input Voltage Range		90-264 V_{AC}				90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	90-264 V_{AC}	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	
Input Frequency		47-63 Hz					47-63 Hz		
Input Current	115 V_{AC}	0.7 A typ.	0.95 A typ.	1.4 A typ.	1.9 A typ.	3.0 A typ.	3.0 A typ.	4.0 A typ.	6.0 A typ.
	230 V_{AC}	0.42 A typ.	0.6 A typ.	0.85 A typ.	1.2 A typ.	1.7 A typ.	1.7 A typ.	2.2 A typ.	3.4 A typ.
Efficiency [1] at 100% Load	230 V_{AC}	88.5% typ.	88.0% typ.	89.5% typ.	90.0% typ.	89.0% typ.	90% typ.		87.0% typ.
Max Inrush Current (Cold Start)	230 V_{AC}	45 A typ.		55 A typ.			60 A typ.		
Power Factor		NA					NA		
Leakage Current (50 Hz)	240 V_{AC}	< 0.5 mA					< 0.5 mA		< 0.75 mA
Mechanical									
Case Cover / Chassis		SGCC / Aluminium					SGCC / Aluminium		SGCC / SGCC
Dimensions (L × W × H)	mm	99 × 82 × 29	99 × 82 × 29	99 × 97 × 30	129 × 97 × 30	159 × 97 × 30	159 × 97 × 30	159 × 97 × 30	215 × 115 × 30
	inch	3.90 × 3.23 × 1.14	3.90 × 3.23 × 1.14	3.90 × 3.82 × 1.18	5.08 × 3.82 × 1.18	6.26 × 3.82 × 1.18	6.26 × 3.82 × 1.18	6.26 × 3.82 × 1.18	8.46 × 4.53 × 1.18
Unit Weight	kg	0.17	0.18	0.22	0.29	0.35	0.39	0.42	0.83
	lb	0.36	0.39	0.48	0.63	0.78	0.86	0.93	1.84
Cooling System		Convection					Convection		Forced Air (Built-in Fan)
MTBF [3]		> 700,000 hrs					> 700,000 hrs		
Environment									
Operating Temperature [4]		-30°C to +70°C					-30°C to +70°C		
Storage Temperature		-40°C to +85°C					-40°C to +85°C		
Operating Humidity		20 to 90% RH (Non-Condensing)					20 to 90% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)					0 to 5,000 m (0 to 16,400 ft)		

Dimensions Reference



Notes
1) At 25°C ambient temperature by horizontal mounting orientation.
2) PMT-24V350W2BR□ models only.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 230 V_{AC}, O/P: 100% load).
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PMT2 (30 V)



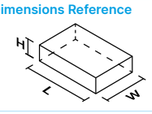
- Household appliance approvals to IEC/EN 60335-1, IEC/EN 61558-1 and IEC/EN 61558-2-16
- No load power consumption
- Low profile design: 30 mm height
- Over Voltage Category III, Pollution Degree 3
- Cold start at -40°C

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation · Test & Measurement · Household Appliance

Output		PMT-30V35W2BA	PMT-30V50W2BA	PMT-30V75W2BA	PMT-30V100W2BA	PMT-30V150W2BA	PMT-30V150W2CA
Output Voltage		30 V	30 V	30 V	30 V	30 V	30 V
Output Voltage Range		27-33 V	27-33 V	27-33 V	27-33 V	27-33 V	27.0-33.0 V
Output Current		1.2 A	1.7 A	2.5 A	3.6 A	5.0 A	5.0 A
Output Power		36 W	51 W	75 W	108 W	150 W	150 W
PARD (20 MHz)		< 150 mVpp @ 0°C to 70°C, 450 mVpp typ. @ -30°C to 0°C			< 150 mVpp @ 0°C to 70°C, 450 mVpp typ. @ -30°C to 0°C	< 200 mVpp @ 0°C to 70°C, 600 mVpp typ. @ -30°C to 0°C	
Hold-up Time	115 V_{AC}	16 ms typ.	12 ms typ.	11 ms typ.	9 ms typ.	30 ms typ.	12 ms typ.
	230 V_{AC}	70 ms typ.	60 ms typ.	52 ms typ.	42 ms typ.		55 ms typ.
Input							
Phase Input		Single Phase				Single Phase	
Input Voltage Range		90-264 V_{AC}			90-264 V_{AC}	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	90-264 V_{AC}
Input Frequency		47-63 Hz				47-63 Hz	
Input Current	115 V_{AC}	0.70 A typ.	0.95 A typ.	1.4 A typ.	1.9 A typ.	3.0 A typ.	3.0 A typ.
	230 V_{AC}	0.42 A typ.	0.60 A typ.	0.85 A typ.	1.2 A typ.	1.7 A typ.	1.7 A typ.
Efficiency [1] at 100% Load	230 V_{AC}	87.5% typ.	88.0% typ.	89.5% typ.	90.0% typ.	89.0% typ.	90% typ.
Max Inrush Current (Cold Start)	230 V_{AC}	45 A typ.		55 A typ.	55 A typ.	60 A typ.	
Power Factor		NA				NA	
Leakage Current (50 Hz)	240 V_{AC}	< 0.5 mA				< 0.5 mA	
Mechanical							
Case Cover / Chassis		SGCC / Aluminium				SGCC / Aluminium	
Dimensions (L × W × H)	mm	99 × 82 × 29	99 × 82 × 29	99 × 97 × 30	129 × 97 × 30	159 × 97 × 30	159 × 97 × 30
	inch	3.90 × 3.23 × 1.14	3.90 × 3.23 × 1.14	3.90 × 3.82 × 1.18	5.08 × 3.82 × 1.18	6.26 × 3.82 × 1.18	6.26 × 3.82 × 1.18
Unit Weight	kg	0.17	0.18	0.22	0.29	0.35	0.39
	lb	0.36	0.39	0.48	0.63	0.78	0.86
Cooling System		Convection				Convection	
MTBF [2]		> 700,000 hrs				> 700,000 hrs	
Environment							
Operating Temperature [3]		-30°C to +70°C				-30°C to +70°C	
Storage Temperature		-40°C to +85°C				-40°C to +85°C	
Operating Humidity		20 to 90% RH (Non-Condensing)				20 to 90% RH (Non-Condensing)	
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)				0 to 5,000 m (0 to 16,400 ft)	

Dimensions Reference



Notes
1) At 25°C ambient temperature by horizontal mounting orientation.
2) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 230 V_{AC}, O/P: 100% load).
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PMT2 (36 V)



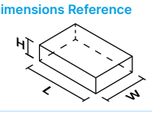
- Household appliance approvals to IEC/EN 60335-1, IEC/EN 61558-1 and IEC/EN 61558-2-16 (except 350 W)
- No load power consumption
- Low profile design: 30 mm height
- Over Voltage Category III, Pollution Degree 3 (except 350 W)
- Cold start at -40°C

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation · Test & Measurement · Household Appliance

Output		PMT-36V35W2BA	PMT-36V50W2BA	PMT-36V75W2BA	PMT-36V100W2BA	PMT-36V150W2BA	PMT-36V150W2CA	PMT-36V200W2B□	PMT-36V350W2B□
Output Voltage		36 V	36 V	36 V	36 V	36 V	36 V	36 V	36 V
Output Voltage Range		32.4-39.6 V	32.4-39.6 V	32.4-39.6 V	32.4-39.6 V	32.4-39.6 V	32.4-39.6 V	32.4-39.6 V	32.4-39.6 V
Output Current		1 A	1.45 A	2.1 A	3 A	4.3 A	4.3 A	5.9 A	9.7 A (14.55 A for 1 s) [2]
Output Power		36 W	52.2 W	75.6 W	108 W	154.8 W	154.8 W	212.4 W	349.2 W (523.8 W for 1 s) [2]
PARD (20 MHz)		< 200 mVpp @ 0°C to 70°C, 600 mVpp typ. @ -30°C to 0°C					< 200 mVpp @ 0°C to 70°C, 600 mVpp typ. @ -30°C to 0°C		
Hold-up Time	115 V_{AC}	16 ms typ.	12 ms typ.	11 ms typ.	9 ms typ.	30 ms typ.	12 ms typ.	30 ms typ.	20 ms typ.
	230 V_{AC}	70 ms typ.	60 ms typ.	52 ms typ.	42 ms typ.		55 ms typ.		
Input									
Phase Input		Single Phase					Single Phase		
Input Voltage Range		90-264 V_{AC}				90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	90-264 V_{AC}	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	
Input Frequency		47-63 Hz					47-63 Hz		
Input Current	115 V_{AC}	0.7 A typ.	0.95 A typ.	1.4 A typ.	1.9 A typ.	3.0 A typ.	3.0 A typ.	4.0 A typ.	6.0 A typ.
	230 V_{AC}	0.42 A typ.	0.6 A typ.	0.85 A typ.	1.2 A typ.	1.7 A typ.	1.7 A typ.	2.2 A typ.	3.4 A typ.
Efficiency [1] at 100% Load	230 V_{AC}	89.0% typ.		90.5% typ.	91.0% typ.	89.5% typ.	90% typ.		88.0% typ.
Max Inrush Current (Cold Start)	230 V_{AC}	45 A typ.		55 A typ.			60 A typ.		
Power Factor		NA					NA		
Leakage Current (50 Hz)	240 V_{AC}	< 0.5 mA					< 0.5 mA		< 0.75 mA
Mechanical									
Case Cover / Chassis		SGCC / Aluminium					SGCC / Aluminium		SGCC / SGCC
Dimensions (L × W × H)	mm	99 × 82 × 29	99 × 82 × 29	99 × 97 × 30	129 × 97 × 30	159 × 97 × 30	159 × 97 × 30	159 × 97 × 30	215 × 115 × 30
	inch	3.90 × 3.23 × 1.14	3.90 × 3.23 × 1.14	3.90 × 3.82 × 1.18	5.08 × 3.82 × 1.18	6.26 × 3.82 × 1.18	6.26 × 3.82 × 1.18	6.26 × 3.82 × 1.18	8.46 × 4.53 × 1.18
Unit Weight	kg	0.17	0.18	0.22	0.29	0.35	0.39	0.42	0.83
	lb	0.36	0.39	0.48	0.63	0.78	0.86	0.93	1.84
Cooling System		Convection					Convection		Forced Air (Built-in Fan)
MTBF [3]		> 700,000 hrs					> 700,000 hrs		
Environment									
Operating Temperature [4]		-30°C to +70°C					-30°C to +70°C		
Storage Temperature		-40°C to +85°C					-40°C to +85°C		
Operating Humidity		20 to 90% RH (Non-Condensing)					20 to 90% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)					0 to 5,000 m (0 to 16,400 ft)		

Dimensions Reference



Notes
1) At 25°C ambient temperature by horizontal mounting orientation.
2) PMT-36V350W2BR model only.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 230 V_{AC}, O/P: 100% load).
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.



PMT2 (48 V)

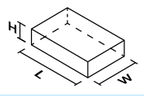
- Household appliance approvals to IEC/EN 60335-1, IEC/EN 61558-1 and IEC/EN 61558-2-16 (except 350 W)
- No load power consumption
- Low profile design: 30 mm height
- Over Voltage Category III, Pollution Degree 3 (except 350 W)
- Cold start at -40°C

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation · Test & Measurement · Household Appliance

Output		PMT-48V35W2BA	PMT-48V50W2BA	PMT-48V75W2BA	PMT-48V100W2BA	PMT-48V150W2BA	PMT-48V150W2CA	PMT-48V200W2B□	PMT-48V350W2B□
Output Voltage		48 V	48 V	48 V	48 V	48 V	48 V	48 V	48 V
Output Voltage Range		43.2-52.8 V	43.2-52.8 V	43.2-52.8 V	43.2-52.8 V	43.2-52.8 V	43.2-52.8 V	43.2-52.8 V	43.2-52.8 V
Output Current		0.8 A	1.1 A	1.6 A	2.3 A	3.3 A	3.3 A	4.4 A	7.3 A (10.95 A for 1s) [2]
Output Power		38.4 W	52.8 W	76.8 W	110.4 W	158.4 W	158.4 W	211.2 W	350.4 W (525.6 W for 1s) [2]
PARD (20 MHz)		< 200 mVpp @ 0°C to 70°C, 600 mVpp typ. @ -30°C to 0°C					< 200 mVpp @ 0°C to 70°C, 600 mVpp typ. @ -30°C to 0°C		
Hold-up Time	115 V_{AC}	16 ms typ.	12 ms typ.	11 ms typ.	9 ms typ.	30 ms typ.	12 ms typ.	30 ms typ.	20 ms typ.
	230 V_{AC}	70 ms typ.	60 ms typ.	52 ms typ.	42 ms typ.		55 ms typ.		
Input									
Phase Input		Single Phase					Single Phase		
Input Voltage Range		90-264 V_{AC}				90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	90-264 V_{AC}	90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)	
Input Frequency		47-63 Hz					47-63 Hz		
Input Current	115 V_{AC}	0.7 A typ.	0.95 A typ.	1.4 A typ.	1.9 A typ.	3.0 A typ.	3.0 A typ.	4.0 A typ.	6.0 A typ.
	230 V_{AC}	0.42 A typ.	0.6 A typ.	0.85 A typ.	1.2 A typ.	1.7 A typ.	1.7 A typ.	2.2 A typ.	3.4 A typ.
Efficiency [1] at 100% Load	230 V_{AC}	89.5% typ.	88.5% typ.	90.0% typ.	91.5% typ.		91.0% typ.		88.0% typ.
Max Inrush Current (Cold Start)	230 V_{AC}	45 A typ.		55 A typ.			60 A typ.		
Power Factor		NA					NA		
Leakage Current (50 Hz)	240 V_{AC}	< 0.5 mA					< 0.5 mA		< 0.75 mA
Mechanical									
Case Cover / Chassis		SGCC / Aluminium					SGCC / Aluminium		SGCC / SGCC
Dimensions (L × W × H)	mm	99 × 82 × 29	99 × 82 × 29	99 × 97 × 30	129 × 97 × 30	159 × 97 × 30	159 × 97 × 30	159 × 97 × 30	215 × 115 × 30
	inch	3.90 × 3.23 × 1.14	3.90 × 3.23 × 1.14	3.90 × 3.82 × 1.18	5.08 × 3.82 × 1.18	6.26 × 3.82 × 1.18	6.26 × 3.82 × 1.18	6.26 × 3.82 × 1.18	8.46 × 4.53 × 1.18
Unit Weight	kg	0.17	0.18	0.22	0.29	0.35	0.39	0.42	0.83
	lb	0.36	0.39	0.48	0.63	0.78	0.86	0.93	1.84
Cooling System		Convection					Convection		Forced Air (Built-in Fan)
MTBF [3]		> 700,000 hrs					> 700,000 hrs		
Environment									
Operating Temperature [4]		-30°C to +70°C					-30°C to +70°C		
Storage Temperature		-40°C to +85°C					-40°C to +85°C		
Operating Humidity		20 to 90% RH (Non-Condensing)					20 to 90% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)					0 to 5,000 m (0 to 16,400 ft)		

Dimensions Reference



Notes
1) At 25°C ambient temperature by horizontal mounting orientation.
2) PMT-48V350W2BR model only.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 230 V_{AC}, O/P: 100% load).
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PMT2 (Dual)



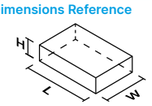
- Isolated & non-isolated Output & Ground for CH1 & CH2
- Household appliance approvals to IEC/EN 60335-1, IEC/EN 61558-1 and IEC/EN 61558-2-16
- No load power consumption
- Low profile design: 30 mm height
- Over Voltage Category III, Pollution Degree 3
- Cold start at -40°C

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation · Test & Measurement · Household Appliance

Output		PMT-D1V75W2□A	PMT-D2V75W2□A
Output Voltage		V1: 5 V, V2: 12 V	V1: 5 V, V2: 24 V
Output Voltage Range		V1: Fixed, V2: 10.8-13.2 V	V1: Fixed, V2: 21.6-26.4 V
Output Current		V1: 0-5.0 A, V2: 0.3-4.0 A	V1: 0-5.0 A, V2: 0.2-2.1 A
Output Power		73 W	75.4 W
PARD (20 MHz)		V1: < 100 mVpp, V2: < 120 mVpp @ 0°C to 70°C V1: 300 mVpp, V2: 360 mVpp typ. @ -30°C to 0°C	V1: < 100 mVpp, V2: < 150 mVpp @ 0°C to 70°C V1: 300 mVpp, V2: 450 mVpp typ @ -30°C to 0°C
Hold-up Time	115 V_{AC}	10 ms typ.	
	230 V_{AC}	50 ms typ.	
Input			
Phase Input		Single Phase	
Input Voltage Range		90-264 V_{AC}	
Input Frequency		47-63 Hz	
Input Current	115 V_{AC}	1.4 A typ.	1.4 A typ.
	230 V_{AC}	0.85 A typ.	0.85 A typ.
Efficiency [1] at 100% Load	230 V_{AC}	83.0% typ.	85.0% typ.
Max Inrush Current (Cold Start)	230 V_{AC}	55 A typ.	
Power Factor		NA	
Leakage Current (50 Hz)	240 V_{AC}	< 0.5 mA	
Mechanical			
Case Cover / Chassis		SGCC / Aluminium	
Dimensions (L × W × H)	mm	129 × 97 × 30	129 × 97 × 30
	inch	5.08 × 3.82 × 1.18	5.08 × 3.82 × 1.18
Unit Weight	kg	0.28	0.28
	lb	0.61	0.61
Cooling System		Convection	
MTBF [2]		> 700,000 hrs	
Environment			
Operating Temperature [3]		-30°C to +70°C	
Storage Temperature		-40°C to +85°C	
Operating Humidity		20 to 90% RH (Non-Condensing)	
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)	

Dimensions Reference



Notes
1) At 25°C ambient temperature by horizontal mounting orientation.
2) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 230 V_{AC}, O/P: 100% load).
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PMC (5 V, 12 V)



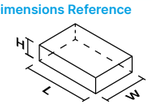
- Power will not de-rate for the entire input voltage range (except 600 W)
- Full corrosion resistant aluminium casing (PMC-12V150W1B□)
- High MTBF > 700,000 hrs per Telcordia SR-332
- Overvoltage / Overcurrent / Over Temperature / Short Circuit Protections

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation · Test & Measurement · LED Lighting · Renewable Energy

Output		PMC-05V015W1AA	PMC-12V150W1B□	PMC-12V600W1BA
Output Voltage		5 V	12 V	12 V
Output Voltage Range		4.75-5.50 V	11-14 V	10.8-13.2 V
Output Current		0-3.0 A	0-12.5 A	0-50 A
Output Power		15 W	150 W	600 W
PARD (20 MHz)		< 70 mVpp	< 100 mVpp	< 240 mVpp
Hold-up Time	115 V_{AC}	> 15 ms	> 30 ms	> 20 ms
	230 V_{AC}	> 80 ms		
Input				
Phase Input		Single Phase		
Input Voltage Range		85-264 V_{AC} (DC input range 125-375 V_{DC}) [1]		85-264 V_{AC} (DC input range 120-375 V_{DC}) [1]
Input Frequency		47-63 Hz		
Input Current	115 V_{AC}	< 0.40 A	< 1.70 A	< 6.5 A
	230 V_{AC}	< 0.22 A	< 1.00 A	< 3.2 A
Efficiency [2] at 100% Load	115 V_{AC}	> 80.0%	> 87.0%	> 85.5%
	230 V_{AC}		> 88.0%	> 89.0%
Max Inrush Current (Cold Start)	115 V_{AC}	< 30 A	< 60 A	< 10 A
	230 V_{AC}	< 65 A	< 120 A	< 20 A
Power Factor	115 V_{AC}	Conform to EN 61000-3-2	> 0.99	> 0.98
	230 V_{AC}		> 0.90	> 0.95
Leakage Current	240 V_{AC}	< 1mA		-
	264 V_{AC}	-		< 1.5 mA
Mechanical				
Case Cover / Chassis		SECC Steel	Aluminium	SECC Steel
Dimensions (L × W × H)	mm	77 × 51 × 28	178 × 97 × 38	215 × 120 × 61
	inch	3.03 × 2.01 × 1.10	7.01 × 3.82 × 1.50	8.46 × 4.72 × 2.40
Unit Weight	kg	0.16	0.54	1.51
	lb	0.35	1.19	3.33
Cooling System		Convection		Forced Air (Built-in Fan)
MTBF [3]		> 700,000 hrs		
Environment				
Operating Temperature [4]		-10°C to +70°C		-20°C to +70°C
Storage Temperature		-25°C to +85°C		-40°C to +75°C
Operating Humidity		5 to 95% RH (Non-Condensing)		
Operating Altitude		0 to 3,000 m (0 to 9,840 ft)		

Dimensions Reference



Notes
1) All models fulfill the test conditions for this range. DC input safety approval can be obtained upon request.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 115 V_{AC}, O/P: 100% load) for vertical mounting orientation. For PMC-12V600W1BA, MTBF calculations do not include fan life time.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PMC (24 V, 48 V)



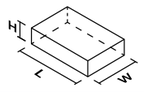
- Power will not de-rate for the entire input voltage range (except 600 W)
- Full corrosion resistant aluminium casing (except 600 W)
- Active PFC with high PF value (except dual output)
- Built-in fan speed control and fan lock protection (only 600 W)
- High MTBF > 700,000 hrs per Telcordia SR-332 (except PMC-24V600W1BA)
- Overvoltage / Overcurrent / Over Temperature / Short Circuit Protections

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation · Test & Measurement · LED Lighting · Renewable Energy

Output		PMC-24V150W1B□	PMC-24V300W1BA	PMC-24V600W1BA	PMC-24V600W1RW	PMC-48V150W1BA	PMC-48V600W1BA	PMC-DSPV100W1A
Output Voltage		24 V	V1: 24 V, V2 SB: 12 V	24 V	24 V	48 V	48 V	V1: 24 V, V2: 5 V
Output Voltage Range		22-28 V	V1: 22-28 V	21.6-26.4 V	21.6-27.6 V	44-53 V	43.2-52.8 V	V1: 22.8-26.4 V
Output Current		0-6.25 A	V1: 12.5 A (0-12.5 A) V2 SB: 0.5 A (0-0.5 A)	0-25.0 A (50.0 A for 5 s)	25.0 A	0-3.125 A	0-12.5 A	V1: 2.7 A (0.3-4.0 A) V2: 7.0 A (0.8-7.0 A)
Output Power		150 W	300 W	600 W (1,200 W for 5 s)	600 W	150 W	600 W	100 W
PARD (20 MHz)		< 100 mVpp	V1: < 100 mVpp V2: < 200 mVpp	< 180 mVpp @ 0°C to 50°C, < 240 mVpp @ -20°C to 0°C	< 150 mVpp @ 0°C to 70°C, 180 mVpp typ. @ -20°C to 0°C	< 200 mVpp	< 300 mVpp	V1: < 200 mVpp, V2: < 80 mVpp
Hold-up Time	115 V_{AC}	> 30 ms	> 15 ms @ nominal input, 100% load	> 20 ms	20 ms typ.	> 30 ms	> 20 ms	> 15 ms
	230 V_{AC}							> 80 ms
Input								
Phase Input		Single Phase				Single Phase		
Input Voltage Range		85-264 V_{AC} (DC input range 125-375 V_{DC}) [1]		85-264 V_{AC} (DC input range 120-370 V_{DC}) [1]	85-264 V_{AC}	85-264 V_{AC} (DC input range 125-375 V_{DC}) [1]	85-264 V_{AC} (DC input range 120-370 V_{DC}) [1]	85-264 V_{AC} (DC input range 125-375 V_{DC}) [1]
Input Frequency		47-63 Hz					47-63 Hz	
Input Current	115 V_{AC}	< 1.7 A	< 4.0 A	< 6.5 A	6 A typ.	< 1.7 A	< 6.5 A	< 2.0 A
	230 V_{AC}	< 1.0 A	< 2.0 A	< 3.2 A	3 A typ.	< 1.0 A	< 3.2 A	< 1.1 A
Efficiency [2] at 100% Load	115 V_{AC}	> 89.0%	> 86.0%	> 86.0%	90.0% typ.	> 89.0%	> 87.0%	> 84.0%
	230 V_{AC}	> 91.0%	> 88.0%	> 89.0%	92.0% typ.	> 91.0%	> 90.0%	> 86.0%
Max Inrush Current (Cold Start)	115 V_{AC}	< 60 A	< 35 A	< 20 A	-	< 20 A	< 20 A	< 50 A
	230 V_{AC}	< 120 A	< 70 A	< 40 A	40 A typ.	< 40 A	< 40 A	< 100 A
Power Factor	115 V_{AC}	> 0.99			0.99 typ.	> 0.99	> 0.98	Conform to EN 61000-3-2
	230 V_{AC}	> 0.90	> 0.97	> 0.94	0.97 typ.	> 0.92	> 0.96	
Leakage Current	240 V_{AC}	< 1 mA		< 1.5 mA	< 0.75 mA	< 1.5 mA	-	< 1 mA
	264 V_{AC}	-				-	TT/TN: < 3 mA, IT: < 4 mA	-
Mechanical								
Case Cover / Chassis		Aluminium		SECC Steel	SGCC	Aluminium	SECC Steel	Aluminium
Dimensions (L × W × H)	mm	178 × 97 × 38	199 × 105 × 41	215 × 120 × 61	190 × 120 × 61	178 × 97 × 38	215 × 120 × 61	178 × 97 × 38
	inch	7.01 × 3.82 × 1.50	7.83 × 4.13 × 1.61	8.46 × 4.72 × 2.40	7.48 × 4.72 × 2.40	7.01 × 3.82 × 1.50	8.46 × 4.72 × 2.40	7.01 × 3.82 × 1.50
Unit Weight	kg	0.54	0.82	1.60	1.40	0.53	1.54	0.52
	lb	1.19	1.81	3.53	3.10	1.17	3.40	1.15
Cooling System		Convection	Forced Air (Built-in Fan)			Convection	Forced Air (Built-in Fan)	Convection
MTBF [3]		> 700,000 hrs		> 300,000 hrs	> 700,000 hrs		> 700,000 hrs	
Environment								
Operating Temperature [4]		-10°C to +70°C		-20°C to +70°C		-10°C to +70°C	-20°C to +70°C	-10°C to +70°C
Storage Temperature		-25°C to +85°C		-20°C to +75°C	-30°C to +75°C	-25°C to +85°C	-40°C to +85°C	-25°C to +85°C
Operating Humidity		5 to 95% RH (Non-Condensing)			20 to 95% RH (Non-Condensing)		5 to 95% RH (Non-Condensing)	
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)	0 to 3,000 m (0 to 9,840 ft)		0 to 5,000 m (0 to 16,400 ft)	0 to 5,000 m (0 to 16,400 ft)	0 to 3,000 m (0 to 9,840 ft)	

Dimensions Reference



Notes
1) All models fulfill the test conditions for this range. DC input safety approval can be obtained upon request.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 115 V_{AC}, O/P: 100% load) for vertical mounting orientation. For PMC-24V300W1BA, PMC-24V600W1BA and PMC-48V600W1BA, MTBF calculations do not include fan life time.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PMR (4.2 V, 5 V)



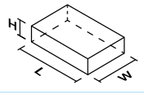
- Full corrosion resistant aluminium casing
- Built-in active PFC and conforms to harmonic current IEC/EN 61000-3-2, Class A and Class D
- Low profile design for 1U installation
- Built-in DC OK relay contact and redundancy operation (PMR-☐V320WDBA and PMR-☐V320WDCA)

Applications

Building Automation | Process Automation | Factory Automation | Machine Automation | Test & Measurement | Household Appliance

Output		PMR-4V320WC☐A	PMR-4V320WDAA	PMR-4V320WDGA	PMR-4V320WDBA	PMR-4V320WDCA	PMR-5V320WC☐A	PMR-5V320WDAA	PMR-5V320WDGA	PMR-5V320WDBA	PMR-5V320WDCA
Output Voltage		4.2 V	4.2 V	4.2 V	4.2 V	4.2 V	5 V	5 V	5 V	5 V	5 V
Output Voltage Range		3.78-4.62 V	3.78-4.62 V	3.78-4.62 V	3.99-4.51 V (No potentiometer)	3.99-4.51 V (No potentiometer)	4.50-5.50 V	4.50-5.50 V	4.50-5.50 V	4.75-5.25 V (No potentiometer)	4.75-5.25 V (No potentiometer)
Output Current		60.0 A	60.0 A	60.0 A	60.0 A	60.0 A	60.0 A	60.0 A	60.0 A	60.0 A	60.0 A
Output Power		252 W	252 W	252 W	252 W	252 W	300 W	300 W	300 W	300 W	300 W
PARD (20 MHz)		< 150 mVpp					< 150 mVpp				
Hold-up Time	115 V_{AC}	8 ms typ.					8 ms typ.				
	230 V_{AC}										
Input											
Phase Input		Single Phase					Single Phase				
Input Voltage Range		88-264 V_{AC}					88-264 V_{AC}				
Input Frequency		47-63 Hz					47-63 Hz				
Input Current	115 V_{AC}	3.0 A typ.	4.5 A typ.	4.5 A typ.	4.5 A typ.	4.5 A typ.	4.5 A typ.	5.0 A typ.	5.0 A typ.	5.0A typ.	5.0 A typ.
	230 V_{AC}	1.5 A typ.	2.5 A typ.	2.5 A typ.	2.5 A typ.	2.5 A typ.	2.5 A typ.	2.5 A typ.	2.5 A typ.	2.5 A typ.	2.5 A typ.
Efficiency [1] at 100% Load	115 V_{AC}	80.5% typ.	84.5% typ.		84.0% typ.		81.0% typ.	86.0% typ.		85.0% typ.	
	230 V_{AC}	83.5% typ.	86.5% typ.		86.0% typ.		84.0% typ.	88.0% typ.		87.0% typ.	
Max Inrush Current (Cold Start)	115 V_{AC}	20 A typ.					20 A typ.				
	230 V_{AC}	40 A typ.					40 A typ.				
Power Factor	115 V_{AC}	0.98 typ.					0.98 typ.				
	230 V_{AC}	0.95 typ.					0.95 typ.				
Leakage Current	240 V_{AC}	< 0.5 mA	< 1 mA				< 0.5 mA	< 1 mA			
Mechanical											
Case Cover / Chassis		Aluminium					Aluminium				
Dimensions (L × W × H)	mm	215 × 115 × 30	215 × 115 × 30	215 × 115 × 30	215 × 115 × 30	215 × 115 × 30	215 × 115 × 30	215 × 115 × 30	215 × 115 × 30	215 × 115 × 30	215 × 115 × 30
	inch	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18
Unit Weight	kg	0.76	0.86	0.86	0.86	0.86	0.76	0.86	0.86	0.86	0.86
	lb	1.68	1.90	1.90	1.90	1.90	1.68	1.90	1.90	1.90	1.90
Cooling System		Forced Air (Built-in Fan)	Convection				Forced Air (Built-in Fan)	Convection			
MTBF [2]		> 700,000 hrs					> 700,000 hrs				
Environment											
Operating Temperature [3]		-10°C to +70°C	-20°C to +70°C				-10°C to +70°C	-20°C to +70°C			
Storage Temperature		-40°C to +85°C					-40°C to +85°C				
Operating Humidity		5 to 95% RH (Non-Condensing)					5 to 95% RH (Non-Condensing)				
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)					0 to 5,000 m (0 to 16,400 ft)				

Dimensions Reference



Notes
1) At 25°C ambient temperature by vertical mounting orientation.
2) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 100 V_{AC}, O/P: 100% load, Ta: 35°C). For PMR-4V320WC☐A and PMR-5V320WC☐A, MTBF calculation does not include fan life time.
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PMR (12 V, 24 V, 36 V, 48 V)



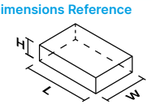
- Built-in active PFC circuit
- No load power consumption < 0.5 W
- 30 mm height low profile design
- IEC/EN 60335-1, IEC/EN 61558-1, and IEC/EN 61558-2-16 household appliance standards
- Wide operating temperature -30°C ~70°C (-40°C cold start)

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation · Test & Measurement · Household Appliance

		NEW	NEW	NEW	NEW
Output		**PMR-12V320W1AT**	**PMR-24V320W1AT**	**PMR-36V320W1AT**	**PMR-48V320W1AT**
Output Voltage		12 V	24 V	36 V	48 V
Output Voltage Range		10.8-13.2 V	21.6-26.4 V	32.4-39.6 V	43.2-52.8 V
Output Current		26.7 A	13.4 A	8.9 A	6.7 A
Output Power		320.4 W	321.6 W	320.4 W	321.6 W
PARD (20 MHz)		< 150 mVpp @ 0°C to 70°C 450 mVpp typ. @ -30°C to 0°C		< 200 mVpp @ 0°C to 70°C 600 mVpp typ. @ -30°C to 0°C	
Hold-up Time	115 V_{AC}	16 ms typ.		16 ms typ.	
	230 V_{AC}				
Input					
Phase Input		Single Phase		Single Phase	
Input Voltage Range		90-264 V_{AC}		90-264 V_{AC}	
Input Frequency		47-63 Hz		47-63 Hz	
Input Current	115 V_{AC}	3.8 A typ.	3.8 A typ.	3.8 A typ.	3.8 A typ.
	230 V_{AC}	1.8 A typ.	1.8 A typ.	1.8 A typ.	1.8 A typ.
Efficiency [1] at 100% Load	230 V_{AC}	90.5% typ.	91.0% typ.	91.5% typ.	92.0% typ.
Max Inrush Current (Cold Start)	230 V_{AC}	50 A typ.		50 A typ.	
Power Factor	115 V_{AC}	> 0.96		> 0.96	
	230 V_{AC}	> 0.93		> 0.93	
Leakage Current	240 V_{AC}	< 0.75 mA		< 0.75 mA	
Mechanical					
Case Cover / Chassis		SGCC / Aluminium		SGCC / Aluminium	
Dimensions (L × W × H)	mm	215 × 115 × 30	215 × 115 × 30	215 × 115 × 30	215 × 115 × 30
	inch	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18	8.46 × 4.53 × 1.18
Unit Weight	kg	0.64	0.64	0.64	0.64
	lb	1.42	1.42	1.42	1.42
Cooling System		Forced Air (Built-in Fan)		Forced Air (Built-in Fan)	
MTBF [2]		> 700,000 hrs		> 700,000 hrs	
Environment					
Operating Temperature [3]		-30°C to +70°C		-30°C to +70°C	
Storage Temperature		-40°C to +85°C		-40°C to +85°C	
Operating Humidity		20 to 90% (Non-Condensing)		20 to 90% (Non-Condensing)	
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)		0 to 5,000 m (0 to 16,400 ft)	

Dimensions Reference



Notes
1) At 25°C ambient temperature by vertical mounting orientation.
2) MTBF as per Telcordia SR-332 (I/P: 230 V_{AC}, O/P: 100% load, Ta: 25°C). MTBF calculation does not include fan life time.
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PMF (4.2 V, 5 V, 24 V)



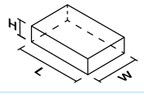
- Built-in active PFC and automatic fan speed control
- Full corrosion resistant aluminium casing
- Remote ON/OFF is available as an option
- Overvoltage / Overcurrent / Over Temperature / Short Circuit Protections

Applications

Process Automation · Factory Automation · Machine Automation · LED Lighting

Output		PMF-4V320WC□□	PMF-5V320WC□□	PMF-24V240WC□□	PMF-24V320WC□□
Output Voltage		4.2 V	5 V	24 V	24 V
Output Voltage Range		3.78-4.62 V	4.50-5.50 V	21.6-26.4 V	21.6-26.4 V
Output Current		55.0 A	55.0 A	10.0 A	13.3 A
Output Power		231 W	275 W	240 W	320 W
PARD (20 MHz)		< 150 mVpp			
Hold-up Time	115 V_{AC}	16 ms typ.		20 ms typ.	
	230 V_{AC}				
Input					
Phase Input		Single Phase			
Input Voltage Range		85-264 V_{AC}			
Input Frequency		47-63 Hz			
Input Current	115 V_{AC}	5.0 A typ.	5.0 A typ.	3.6 A typ.	5.0 A typ.
	230 V_{AC}	2.5 A typ.	2.5 A typ.	1.8 A typ.	2.5 A typ.
Efficiency [1] at 100% Load	230 V_{AC}	76.5% typ.	78.5% typ.	87.0% typ.	
Max Inrush Current (Cold Start)	115 V_{AC}	20 A typ.	30 A typ.	35 A typ.	20 A typ.
	230 V_{AC}	40 A typ.	50 A typ.	60 A typ.	40 A typ.
Power Factor	115 V_{AC}	0.97 typ.	0.98 typ.	0.99 typ.	0.98 typ.
	230 V_{AC}	0.94 typ.	0.95 typ.	0.95 typ.	0.95 typ.
Leakage Current	240 V_{AC}	< 1 mA		< 0.6 mA	< 1 mA
Mechanical					
Case Cover / Chassis		Aluminium			
Dimensions (L × W × H)	mm	215 × 115 × 50	215 × 115 × 50	190 × 93 × 50	215 × 115 × 50
	inch	8.46 × 4.53 × 1.97	8.46 × 4.53 × 1.97	7.48 × 3.66 × 1.97	8.46 × 4.53 × 1.97
Unit Weight	kg	0.86	0.86	0.66	0.84
	lb	1.90	1.90	1.46	1.85
Cooling System		Forced Air (Built-in Fan)			
MTBF [2]		> 700,000 hrs			
Environment					
Operating Temperature [3]		-10°C to +70°C			
Storage Temperature		-20°C to +85°C			
Operating Humidity		5 to 95% RH (Non-Condensing)			
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)			

Dimensions Reference



Notes
1) At 25°C ambient temperature by vertical mounting orientation.
2) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 100 V_{AC}, O/P: 100% load, Ta: 35°C). MTBF calculations do not include fan life time.
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PMU (13.8 V, 27.6 V)



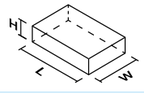
- AC input voltage range selectable by switch
- LED indicators for DC OK (Green) and Battery Reverse Polarity Connection (Red)
- Zero switch over time from loss of AC to battery operation
- Monitoring signals for AC OK, DC OK and Battery Low indication
- Overvoltage / Overcurrent / Over Temperature / Short Circuit Protections

Applications

Building Automation · Process Automation · Factory Automation · Machine Automation

Output		PMU-13V155W□BA	PMU-13V155W□CA	PMU-27V155W□BA	PMU-27V155W□CA
Output Voltage		V1: 13.8 V, B+: 13.3 V	V1: 13.8 V, B+: 13.3 V	V1: 27.6 V, B+: 27.1 V	V1: 27.6 V, B+: 27.1 V
Output Voltage Range		12-14 V	12-14 V	24-28 V	24-28 V
Output Current		V1: 9.5 A (0-11.0 A) B+: 1.5 A (0.5-1.5 A)	V1: 9.5 A (0-11.0 A) B+: 1.5 A (0.5-1.5 A)	PMU-27V155WCBA V1: 4.0 A (0-5.5 A) B+: 1.5 A (0.5-1.5 A) PMU-27V155WLBA V1: 4.3 A (0-5.5 A) B+: 1.2 A (0.50-1.2 A)	PMU-27V155WCCA V1: 4.0 A (0-5.5 A) B+: 1.5 A (0.5-1.5 A) PMU-27V155WLCA V1: 4.3 A (0-5.5 A) B+: 1.2 A (0.50-1.2 A)
Output Power		151 W	151 W	151 W	151 W
PARD (20 MHz)		< 150 mVpp @ 0°C to -20°C, < 100 mVpp @ > 0°C to 70°C			
Hold-up Time		20 ms without Battery at B+			
Input					
Phase Input		Single Phase			
Input Voltage Range		90-132 V_{AC}, 180-264 V_{AC} (Selectable by Switch)			
Input Frequency		47-63Hz			
Input Current	115 V_{AC}	< 2.5 A	< 2.5 A	< 2.5 A	< 2.5 A
	230 V_{AC}	< 1.5 A	< 1.5 A	< 1.5 A	< 1.5 A
Efficiency [1] at 100% Load	115 V_{AC}	> 85.0%		> 88.0%	
	230 V_{AC}	> 86.0%		> 89.0%	
Max Inrush Current (Cold Start)	115 V_{AC}	< 25 A			
	230 V_{AC}				
Power Factor		Conform to EN 61000-3-2			
Leakage Current	264 V_{AC}	< 0.5 mA			
Mechanical					
Case Cover / Chassis		SGCC / Aluminium			
Dimensions (L × W × H)	mm	178 × 97 × 38	178 × 97 × 38	178 × 97 × 38	178 × 97 × 38
	inch	7.01 × 3.82 × 1.50	7.01 × 3.82 × 1.50	7.01 × 3.82 × 1.50	7.01 × 3.82 × 1.50
Unit Weight	kg	0.59	0.60	0.59	0.60
	lb	1.30	1.32	1.30	1.32
Cooling System		Convection			
MTBF [2]		> 700,000 hrs			
Environment					
Operating Temperature [3]		-20°C to +70°C			
Storage Temperature		-40°C to +85°C			
Operating Humidity		5 to 95% RH (Non-Condensing)			
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)			

Dimensions Reference



Notes
1) At 25°C ambient temperature by vertical mounting orientation.
2) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 115 V_{AC}, O/P: 100% load) for vertical mounting orientation.
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

MEB (12 V, 24 V, 48 V)



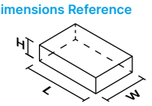
- High Power Density
- 2 × MOPP Isolation
- Safety Approvals to IEC 60601-1 Ed. 2 & 3.1
- Suitable for Type BF Medical Products
- Full Power up to 50°C Ambient
- Class B Conducted and Radiated EMI

Applications

Factory Automation | Machine Automation | Test & Measurement | Medical Equipment | Household Appliance

		NEW			
Output		**MEB-750A12□ AAA**	**MEB-500A24F AA**	**MEB-750A24□ AAA**	**MEB-750A48□ AAA**
Output Voltage		12 V	24 V	24 V	48 V
Output Current (Max)		58.4 A	21.0 A	31.25 A	15.63 A
Output Power		700 W	504 W	750 W	750 W
Load Regulation		< 2%	< 150mV	< 2%	
Ripple & Noise		1% pk-pk Vrated @ rated load	< 300mVpp @ 0°C to +50°C	1% pk-pk Vrated @ rated load	
Input					
Input Voltage Range		85-264 V_{AC}	90-264 V_{AC}	85-264 V_{AC}	
Input Frequency		47-63 Hz			
Efficiency	230 V_{AC} (50 Hz)	90.5% typ.	92.0% typ.	94.0% typ.	
Leakage Current [1]	264 V_{AC}	Input-PE: 0.3 mA typ. @ NC, 1 mA typ. @ SFC Output-PE: 0.1 mA typ. @ NC, 0.5 mA typ. @ SFC	Input-PE: < 0.1 mA @ NC, < 0.3 mA @ SFC Output-PE: < 0.1 mA @ NC, < 0.5 mA @ SFC	Input-PE: 0.3 mA typ. @ NC, 1 mA typ. @ SFC Output-PE: 0.1 mA typ. @ NC, 0.5 mA typ. @ SFC	
Mechanical					
Dimensions (L × W × H)	mm	177.8 × 101.6 × 40	165.3 × 85.2 × 41	177.8 × 101.6 × 40	177.8 × 101.6 × 40
	inch	7.00 × 4.00 × 1.57	6.50 × 3.35 × 1.61	7.00 × 4.00 × 1.57	7.00 × 4.00 × 1.57
Unit Weight	kg	1.10	0.66	1.10	1.10
	lb	2.43	1.46	2.43	2.43
MTBF [2]		> 500,000 hrs	> 700,000 hrs	> 500,000 hrs	
EMC & Emissions		EN 55011, EN 55032, FCC Title 47: Class B	EN 55011 & Compliant with EN 55032, FCC Title 47: Class B	EN 55011, EN 55032, FCC Title 47: Class B	
Environment					
Operating Temperature [3]		-20°C to +70°C			
Storage Temperature		-40°C to +85°C	-30°C to +80°C	-40°C to +85°C	
Operating Humidity		5 to 95% RH (Non-Condensing)	20 to 90% RH (Non-Condensing)	5 to 95% RH (Non-Condensing)	
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)	IEC 60601-1: 0 to 3,000 m (0 to 9,840 ft) IEC 60950-1 & IEC 62368-1: 0 to 5,000 m (0 to 16,400 ft)	0 to 5,000 m (0 to 16,400 ft)	
Medical Rating					
Float Rating		BF			
MOPP		2 × MOPP			

Dimensions Reference



Notes
1) NC: normal condition, SFC: single fault condition.
2) MEB-500A24F, MTBF as per Telcordia SR-332 (: I/P: 115 V_{AC}, O/P: 100% load, Ta: 25°C). MEB-750A12□, MEB-750A24□ and MEB-750A48□, MTBF as per Telcordia SR-332 (I/P: 115 V_{AC}, O/P: 100% load, Ta: 35°C).
3) Refer power de-rating in the product datasheet.

MEB (24 V, 42 V, 48 V)



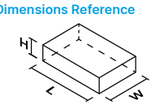
- Up to 1200 W in 5" × 8.03" × 1.59" package
- Full power from 90 V_{AC} to 264 V_{AC}, up to 50°C ambient
- 2 × MOPP isolation, Suitable for type BF medical products
- Current sharing and 5 V / 2 A standby output
- Class B Conducted and Radiated EMI
- PMBus Ver 1.3 supported
- Intelligent fan speed control

Applications

Factory Automation | Machine Automation | Test & Measurement | Medical Equipment | Household Appliance

Output		**MEB-1K2A24T ABA**	**MEB-1K2A42T ABA**	**MEB-1K2A48T ABA**
Output Voltage		24 V	42 V	48 V
Output Current (Max)		50.0 A	28.5 A	25.0 A
Output Power		1200 W	1200 W	1200 W
Load Regulation		2%		
Ripple & Noise		1% typ. pk-pk Vrated @ rated load		
Input				
Input Voltage Range		85-264 V_{AC}		
Input Frequency		47-63 Hz		
Efficiency	115 V_{AC} (60 Hz)	90.0% typ.	90.9% typ.	91.5% typ.
	230 V_{AC} (50 Hz)	93.0% typ.	93.2% typ.	94.0% typ.
Leakage Current [1]	264 V_{AC}	Input-PE: < 0.3 mA @ NC, < 1 mA @ SFC Output-PE: < 0.1 mA @ NC, < 0.5 mA @ SFC		
Mechanical				
Dimensions (L × W × H)	mm	204 × 127 × 40.5	204 × 127 × 40.5	204 × 127 × 40.5
	inch	8.03 × 5.0 × 1.59	8.03 × 5.0 × 1.59	8.03 × 5.0 × 1.59
Unit Weight	kg	1.50	1.50	1.50
	lb	3.30	3.30	3.30
MTBF [2]		> 500,000 hrs		
EMC & Emissions		EN 55011/EN 55032, FCC Title 47: Class B		
Environment				
Operating Temperature [3]		-20°C to +70°C		
Storage Temperature		-40°C to +85°C		
Operating Humidity		5 to 95% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)		
Medical Rating				
Float Rating		BF		
MOPP		2 × MOPP		

Dimensions Reference



Notes
1) NC: normal condition, SFC: single fault condition.
2) MTBF as per Telcordia SR-332 (I/P: 115 V_{AC}, O/P: 100% load, Ta: 35°C).
3) Refer power de-rating in the product datasheet.

Open Frame Power Supplies



PJT

Standard industrial footprint

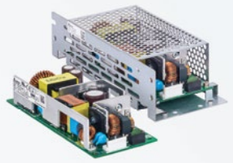
Power Range: 40-150 W



PJ

Low inrush current / low leakage current

Power Range: 15-150 W



PJB

Power Boost of 200% for 10 seconds

Power Range: 103.2-300 W



PJH

Power supply with household approvals

Power Range: 300 W



PJU

Power supply with DC-UPS function

Power Range: 60 W



PJL

Power supply with lighting approvals

Power Range: 200-600 W

Applications

Building Automation

Factory Automation

Machine Automation

Test & Measurement

LED Lighting

Household Appliance

PJT (12 V, 15 V)



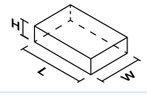
- Small standard footprint
- Low Leakage Current < 0.1 mA
- High MTBF > 700,000 hrs as per Telcordia SR-332
- Overvoltage / Overcurrent / Over Temperature / Short Circuit Protections

Applications

Building Automation · Factory Automation · Machine Automation · Test & Measurement

Output		PJT-12V40WBA□	PJT-12V65WBA□	PJT-12V100WBA□	PJT-12V100WBB□	PJT-15V40WBA□	PJT-15V65WBA□	PJT-15V100WBA□	PJT-15V100WBB□
Output Voltage		12 V	12 V	12 V	12 V	15 V	15 V	15 V	15 V
Output Current		3.33 A	5.0 A	8.33 A	6.67 A (Convection) 8.33 A (Forced Air)	2.67 A	4.2 A	6.67 A	5.33 A (Convection) 6.67 A (Forced Air)
Output Power		40 W	60 W	100 W	80 W (Convection) 100 W (Forced Air)	40 W	63 W	100 W	80 W (Convection) 100 W (Forced Air)
PARD (20 MHz)		< 120 mVpp				< 150 mVpp			
Hold-up Time	115 V_{AC}	18 ms typ.	16 ms typ.	20 ms typ.	10 ms typ.	18 ms typ.	16 ms typ.	20 ms typ.	10 ms typ.
	230 V_{AC}	90 ms typ.	80 ms typ.			90 ms typ.	80 ms typ.		
Input									
Phase Input		Single Phase				Single Phase			
Input Voltage Range		90-264 V_{AC}				90-264 V_{AC}			
Input Frequency		47-63 Hz				47-63 Hz			
Input Current	115 V_{AC}	0.85 A typ.	1.50 A typ.	1.50 A typ.	2.50 A typ.	0.85 A typ.	1.50 A typ.	1.50 A typ.	2.50 A typ.
Efficiency [1] at 100% Load	115 V_{AC}	85.0% typ.	86.0% typ.	86.5% typ.	86.0% typ.	86.0% typ.	87.0% typ.	87.5% typ.	87.0% typ.
	230 V_{AC}	86.0% typ.	86.5% typ.		88.0% typ.	87.0% typ.	88.5% typ.		89.0% typ.
Max Inrush Current (Cold Start)	115 V_{AC}	30 A typ.				30 A typ.			
	230 V_{AC}	60 A typ.				60 A typ.			
Power Factor		Conform to EN 61000-3-2				Conform to EN 61000-3-2			
Leakage Current	240 V_{AC}	< 0.1 mA				< 0.1 mA			
Mechanical									
Case Cover / Chassis		-				-			
Dimensions (L × W × H)	mm	76.2 × 50.8 × 22.9	101.6 × 50.8 × 30	127 × 76.2 × 31	101.6 × 50.8 × 31.8	76.2 × 50.8 × 22.9	101.6 × 50.8 × 30	127 × 76.2 × 31	101.6 × 50.8 × 31.8
	inch	3.00 × 2.00 × 0.90	4.00 × 2.00 × 1.18	5.00 × 3.00 × 1.22	4.00 × 2.00 × 1.25	3.00 × 2.00 × 0.90	4.00 × 2.00 × 1.18	5.00 × 3.00 × 1.22	4.00 × 2.00 × 1.25
Unit Weight	kg	0.08	0.13	0.21	0.15	0.08	0.13	0.21	0.15
	lb	0.18	0.29	0.46	0.33	0.18	0.29	0.46	0.33
Cooling System		Convection			Convection / Forced Air	Convection			Convection / Forced Air
MTBF [2]		> 700,000 hrs				> 700,000 hrs			
Environment									
Operating Temperature [3]		-10°C to +70°C				-10°C to +70°C			
Storage Temperature		-40°C to +85°C				-40°C to +85°C			
Operating Humidity		10 to 95% RH (Non-Condensing)				10 to 95% RH (Non-Condensing)			
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)				0 to 5,000 m (0 to 16,400 ft)			

Dimensions Reference



Notes
1) At 25°C ambient temperature.
2) MTBF as per Telcordia SR-332 (I/P: 115 V_{AC}, O/P: 100% load).
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PJT (18 V, 24 V, 27 V)



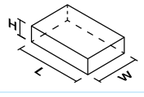
- Small standard footprint
- Low Leakage Current
- High MTBF > 700,000 hrs as per Telcordia SR-332
- Overvoltage / Overcurrent / Over Temperature / Short Circuit Protections

Applications

Building Automation | Factory Automation | Machine Automation | Test & Measurement

Output		PJT-18V40WBA□	PJT-18V65WBA□	PJT-18V100WBA□	PJT-18V100WBB□	PJT-24V40WBA□	PJT-24V65WBA□	PJT-24V100WBA□	PJT-24V100WBB□	PJT-27V150WBNA
Output Voltage		18 V	18 V	18 V	18 V	24 V	24 V	24 V	24 V	V1: 27 V, V_{SB}: 12 V
Output Current		2.22 A	3.61 A	5.55 A	4.44 A (Convection) 5.55 A (Forced Air)	1.66 A	2.71 A	4.17 A	3.33 A (Convection) 4.17 A (Forced Air)	V1: 5.55 A V_{SB}: 0.5 A
Output Power		40 W	65 W	100 W	80 W (Convection) 100 W (Forced Air)	40 W	65 W	100 W	80 W (Convection) 100 W (Forced Air)	V1: 150 W V_{SB}: 6 W
PARD (20 MHz)		< 180 mVpp				< 240 mVpp				V1: < 150 mVpp, V_{SB}: < 75 mVpp
Hold-up Time	115 V_{AC}	18 ms typ.	16 ms typ.	20 ms typ.	10 ms typ.	18 ms typ.	16 ms typ.	20 ms typ.	10 ms typ.	> 40 ms
	230 V_{AC}	90 ms typ.	80 ms typ.			90 ms typ.	80 ms typ.			
Input										
Phase Input		Single Phase				Single Phase				
Input Voltage Range		90-264 V_{AC}				90-264 V_{AC}				85-264 V_{AC}
Input Frequency		47-63 Hz				47-63 Hz				
Input Current	115 V_{AC}	0.85 A typ.	1.50 A typ.	1.50 A typ.	2.50 A typ.	0.85 A typ.	1.50 A typ.	1.50 A typ.	2.50 A typ.	< 1.80 A
	230 V_{AC}	-				-				< 0.90 A
Efficiency [1] at 100% Load	115 V_{AC}	86.0% typ.	87.0% typ.	87.5% typ.	87.0% typ.	86.0% typ.	87.0% typ.	88.0% typ.	88.0% typ.	> 88.5%
	230 V_{AC}		88.0% typ.		89.0% typ.	87.0% typ.			89.0% typ.	> 89.5%
Max Inrush Current (Cold Start)	115 V_{AC}	30 A typ.	30 A typ.	30 A typ.	30 A typ.	30 A typ.				< 50 A
	230 V_{AC}	60 A typ.	60 A typ.	60 A typ.	60 A typ.	60 A typ.				< 100 A
Power Factor	115 V_{AC}	Conform to EN 61000-3-2				Conform to EN 61000-3-2				> 0.99
	230 V_{AC}									> 0.93
Leakage Current	240 V_{AC}	< 0.1 mA				< 0.1 mA				-
	264 V_{AC}	-				-				< 0.25 mA
Mechanical										
Case Cover / Chassis		-				-				
Dimensions (L × W × H)	mm	76.2 × 50.8 × 22.9	101.6 × 50.8 × 30	127 × 76.2 × 31	101.6 × 50.8 × 31.8	76.2 × 50.8 × 22.9	101.6 × 50.8 × 30	127 × 76.2 × 31	101.6 × 50.8 × 31.8	127 × 76.2 × 36.5
	inch	3.00 × 2.00 × 0.90	4.00 × 2.00 × 1.18	5.00 × 3.00 × 1.22	4.00 × 2.00 × 1.25	3.00 × 2.00 × 0.90	4.00 × 2.00 × 1.18	5.00 × 3.00 × 1.22	4.00 × 2.00 × 1.25	5.00 × 3.00 × 1.44
Unit Weight	kg	0.08	0.13	0.21	0.15	0.08	0.13	0.21	0.15	0.37
	lb	0.18	0.29	0.46	0.33	0.18	0.29	0.46	0.33	0.82
Cooling System		Convection			Convection / Forced Air	Convection			Convection / Forced Air	Convection
MTBF [2]		> 700,000 hrs				> 700,000 hrs				
Environment										
Operating Temperature [3]		-10°C to +70°C				-10°C to +70°C				
Storage Temperature		-40°C to +85°C				-40°C to +85°C				
Operating Humidity		10 to 95% RH (Non-Condensing)				10 to 95% RH (Non-Condensing)				5 to 95% RH (Non-Condensing)
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)				0 to 5,000 m (0 to 16,400 ft)				

Dimensions Reference



Notes
1) At 25°C ambient temperature.
2) MTBF as per Telcordia SR-332 (I/P: 115 V_{AC}, O/P: 100% load).
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.



PJ (5 V, 12 V)

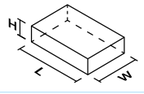
- High PF > 0.97 (for 50 W and above)
- Low Inrush Current / Low Leakage Current
- Conforms to harmonic current IEC/EN 61000-3-2, Class A; Class A and Class D for 50 W and above
- Conformal coating on PCBAs to protect against common dust and chemical pollutants
- Versatile configuration options: Open Frame, L Frame, Enclosed
- Remote ON/OFF option for selected models
- Long life capacitors

Applications

Building Automation | Factory Automation | Machine Automation | Test & Measurement

Output		PJ-5V15W□NA	PJ-12V15W□NA	PJ-12V30W□NA	PJ-12V50W□NA	PJ-12V100W□□A	PJ-12V150W□□A
Output Voltage		5 V	12 V	12 V	12 V	12 V	12 V
Output Voltage Range		4.50-5.50 V	10.8-13.2 V	10.8-13.2 V	10.8-13.2 V	10.8-13.2 V	10.8-13.2 V
Output Current		3.0 A	1.3 A	2.5 A	4.3 A	8.5 A	12.5 A
Output Power		15 W	15.6 W	30 W	51.6 W	102 W	150 W
PARD (20 MHz)		< 120 mVpp	< 150 mVpp			< 150 mVpp	
Hold-up Time	100 V_{AC}	20 ms typ.				20 ms typ.	
Input							
Phase Input		Single Phase				Single Phase	
Input Voltage Range		85-264 V_{AC}				85-264 V_{AC}	
Input Frequency		47-63 Hz				47-63 Hz	
Input Current	100 V_{AC}	0.35 A typ.	0.35 A typ.	0.65 A typ.	0.65 A typ.	1.30 A typ.	1.90 A typ.
	200 V_{AC}	0.20 A typ.	0.20 A typ.	0.35 A typ.	0.35 A typ.	0.65 A typ.	0.95 A typ.
Efficiency [1] at 100% Load	100 V_{AC}	78.0% typ.	81.0% typ.	83.0% typ.	83.0% typ.	85.0% typ.	88.0% typ.
	200 V_{AC}	79.5% typ.	82.5% typ.	85.0% typ.	85.0% typ.	87.5% typ.	91.0% typ.
Max Inrush Current (Cold Start)	100 V_{AC}	15 A typ.				15 A typ.	
	200 V_{AC}	30 A typ.				30 A typ.	
Power Factor	100 V_{AC}	Conform to EN 61000-3-2			0.98 typ.	0.99 typ.	
	200 V_{AC}				0.97 typ.	0.98 typ.	0.97 typ.
Leakage Current	100 V_{AC}	< 0.1 mA			< 0.1 mA	< 0.2 mA	
	240 V_{AC}	< 0.2 mA			< 0.2 mA	< 0.4 mA	
Mechanical							
Case Cover / Chassis		SGCC				SGCC	
Dimensions [2] (L × W × H)	mm	87.5 × 50 × 22	87.5 × 50 × 22	105 × 50 × 25.6	132 × 50 × 26.6	155 × 62 × 33.5	160 × 75 × 37
	inch	3.44 × 1.97 × 0.87	3.44 × 1.97 × 0.87	4.13 × 1.97 × 1.01	5.20 × 1.97 × 1.05	6.10 × 2.44 × 1.32	6.30 × 2.95 × 1.46
Unit Weight [2]	kg	0.06	0.06	0.11	0.16	0.26	0.30
	lb	0.13	0.13	0.24	0.35	0.57	0.66
Cooling System		Convection				Convection	
MTBF [3]		> 200,000 hrs				> 200,000 hrs	
Environment							
Operating Temperature [4]		-10°C to +70°C				-10°C to +70°C	
Storage Temperature		-25°C to +75°C				-25°C to +75°C	
Operating Humidity		5 to 95% RH (Non-Condensing)				5 to 95% RH (Non-Condensing)	
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)				0 to 5,000 m (0 to 16,400 ft)	

Dimensions Reference



Notes
1) At 25°C ambient temperature.
2) Open Frame (without chassis and cover).
3) MTBF as per JEITA RCR-9102B.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.



PJ (24 V, 48 V)

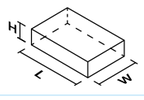
- High PF > 0.97 (for 50 W and above)
- Low Inrush Current / Low Leakage Current
- Conforms to harmonic current IEC/EN 61000-3-2, Class A; Class A and Class D for 50 W and above
- Conformal coating on PCBAs to protect against common dust and chemical pollutants
- Versatile configuration options: Open Frame, L Frame, Enclosed
- Remote ON/OFF option for selected models
- Long life capacitors

Applications

Building Automation | Factory Automation | Machine Automation | Test & Measurement

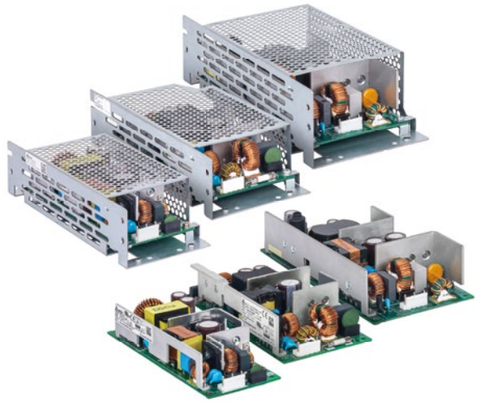
Output		PJ-24V30W□NA	PJ-24V50W□NA	PJ-24V100W□□A	PJ-24V150W□□A	PJ-48V50W□NA
Output Voltage		24 V	24 V	24 V	24 V	48 V
Output Voltage Range		21.6-26.4 V	21.6-26.4 V	21.6-26.4 V	21.6-26.4 V	43.2-52.8 V
Output Current		1.3 A	2.1 A	4.3 A	6.3 A	1.1 A
Output Power		31.2 W	50.4 W	103.2 W	150 W	52.8 W
PARD (20 MHz)		< 150 mVpp		< 150 mVpp		< 250 mVpp
Hold-up Time	100 V_{AC}	20 ms typ.		20 ms typ.		
Input						
Phase Input		Single Phase		Single Phase		
Input Voltage Range		85-264 V_{AC}		85-264 V_{AC}		
Input Frequency		47-63 Hz		47-63 Hz		
Input Current	100 V_{AC}	0.65 A typ.	0.65 A typ.	1.30 A typ.	1.90 A typ.	0.65 A typ.
	200 V_{AC}	0.35 A typ.	0.35 A typ.	0.65 A typ.	0.95 A typ.	0.35 A typ.
Efficiency [1] at 100% Load	100 V_{AC}	85.0% typ.	84.5% typ.	86.0% typ.	88.0% typ.	83.0% typ.
	200 V_{AC}	86.0% typ.	87.0% typ.	89.0% typ.	91.0% typ.	85.0% typ.
Max Inrush Current (Cold Start)	100 V_{AC}	15 A typ.			15 A typ.	
	200 V_{AC}	30 A typ.			30 A typ.	
Power Factor	100 V_{AC}	Conform to EN 61000-3-2	0.98 typ.	0.99 typ.		0.98 typ.
	200 V_{AC}		0.97 typ.	0.98 typ.	0.97 typ.	
Leakage Current	100 V_{AC}	< 0.1 mA		< 0.2 mA		< 0.1 mA
	240 V_{AC}	< 0.2 mA		< 0.4 mA		< 0.2 mA
Mechanical						
Case Cover / Chassis		SGCC		SGCC		
Dimensions [2] (L × W × H)	mm	105 × 50 × 25.6	132 × 50 × 26.6	155 × 62 × 33.5	160 × 75 × 37	132 × 50 × 26.6
	inch	4.13 × 1.97 × 1.01	5.20 × 1.97 × 1.05	6.10 × 2.44 × 1.32	6.30 × 2.95 × 1.46	5.20 × 1.97 × 1.05
Unit Weight [2]	kg	0.11	0.16	0.26	0.29	0.16
	lb	0.24	0.35	0.57	0.64	0.35
Cooling System		Convection		Convection		
MTBF [3]		> 200,000 hrs		> 200,000 hrs		
Environment						
Operating Temperature [4]		-10°C to +70°C		-10°C to +70°C		
Storage Temperature		-25°C to +75°C		-25°C to +75°C		
Operating Humidity		5 to 95% RH (Non-Condensing)		5 to 95% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)		0 to 5,000 m (0 to 16,400 ft)		

Dimensions Reference



Notes
1) At 25°C ambient temperature.
2) Open Frame (without chassis and cover).
3) MTBF as per JEITA RCR-9102B.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PJB (24 V)



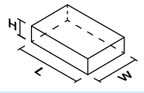
- Power Boost of 200% for 10 seconds
- High PF > 0.97
- Low Inrush Current / Low Leakage Current
- Conformal coating on PCBAs to protect against common dust and chemical pollutants
- Versatile configuration options: Open Frame, L Frame, Enclosed
- Remote ON/OFF option for selected models
- Design compliant with Japan PSE (DENAN) for 150 W - 300 W

Applications

Factory Automation | Machine Automation | Test & Measurement

Output		PJB-24V100W□□A	PJB-24V150W□□A	PJB-24V240W□□□	PJB-24V300W□□□
Output Voltage		24 V	24 V	24 V	24 V
Output Voltage Range		21.6-26.4 V	21.6-26.4 V	21.6-26.4 V	21.6-26.4 V
Output Current		4.3 A (8.6 A for 10 s)	6.3 A (12.6 A for 10 s)	10.0 A (20.0 A for 10 s)	12.5 A (22.5 A for 10 s)
Output Power		103.2 W (206.4 W for 10 s)	151.2 W (302.4 W for 10 s)	240 W (480 W for 10 s)	300 W (600 W for 10 s)
PARD (20 MHz)		< 150 mVpp			
Hold-up Time	100 V_{AC}	20 ms typ.			
Input					
Phase Input		Single Phase			
Input Voltage Range		85-264 V_{AC}			
Input Frequency		47-63 Hz			
Input Current	100 V_{AC}	1.30 A typ.	1.90 A typ.	2.80 A typ.	4.10 A typ.
	200 V_{AC}	0.65 A typ.	0.95 A typ.	1.50 A typ.	2.00 A typ.
Efficiency [1] at 100% Load	100 V_{AC}	86.5% typ.	88.0% typ.	91.0% typ.	
	200 V_{AC}	89.0% typ.	90.5% typ.	92.5% typ.	93.5% typ.
Max Inrush Current (Cold Start)	100 V_{AC}	15 A typ.			
	200 V_{AC}	30 A typ.			
Power Factor	100 V_{AC}	0.98 typ.			0.99 typ.
	200 V_{AC}	0.97 typ.	0.95 typ.	0.97 typ.	0.95 typ.
Leakage Current	100 V_{AC}	< 0.2 mA			
	240 V_{AC}	< 0.4 mA			
Mechanical					
Case Cover / Chassis		SGCC			
Dimensions [2] (L × W × H)	mm	155 × 62 × 33.5	160 × 75 × 37	180 × 84 × 42	222 × 95 × 53.6
	inch	6.10 × 2.44 × 1.32	6.30 × 2.95 × 1.46	7.09 × 3.31 × 1.65	8.74 × 3.74 × 2.11
Unit Weight [2]	kg	0.26	0.31	0.44	0.64
	lb	0.57	0.68	0.97	1.41
Cooling System		Convection			
MTBF [3]		> 200,000 hrs			
Environment					
Operating Temperature [4]		-10°C to +70°C			
Storage Temperature		-25°C to +75°C		-25°C to +80°C	
Operating Humidity		5 to 90% RH (Non-Condensing)			
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)		ITE Application: 0 to 5,000 m (0 to 16,400 ft)	0 to 5,000 m (0 to 16,400 ft)

Dimensions Reference



Notes
1) At 25°C ambient temperature.
2) Open Frame (without chassis and cover).
3) MTBF as per JEITA RCR-9102B.
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PJH (24 V, 36 V)



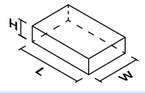
- Household approval to IEC/EN 60335-1
- Available for Class I or Class II (double isolation) configuration
- 300 W with fan cooled and up to 240 W convection cooled
- Standard industrial footprint of 3" × 5"
- Built-in active PFC, remote ON/OFF, remote sense, power good signal
- No load input power consumption < 0.5 W and low earth leakage current < 0.75 mA

Applications

Household Appliance

Output		PJH-24V300WBBA	PJH-24V300WBCA	PJH-36V300WBBA	PJH-36V300WBCA
Output Voltage		V1: 24 V, V_{SB}: 5 V	V1: 24 V, V_{SB}: 12 V	V1: 36 V, V_{SB}: 5 V	V1: 36V, V_{SB}: 12 V
Output Voltage Range		V1: 22.8-25.2 V, V_{SB}: Fixed	V1: 22.8-25.2 V, V_{SB}: Fixed	V1: 34.2-37.8 V, V_{SB}: Fixed	V1: 34.2-37.8 V, V_{SB}: Fixed
Output Current		V1: 0-12.5 A V_{SB}: 0-1.2 A	V1: 0-12.5 A V_{SB}: 0-0.5 A	V1: 0-8.3 A V_{SB}: 0-1.2 A	V1: 0-8.3 A V_{SB}: 0-0.5 A
Output Power		240 W (Convection) 300 W (with 10 CFM Forced Air)	240 W (Convection) 300 W (with 10 CFM Forced Air)	240 W (Convection) 300 W (with 10 CFM Forced Air)	240 W (Convection) 300 W (with 10 CFM Forced Air)
PARD (20 MHz)		V1: < 240 mVpp, V_{SB}: < 120 mVpp		V1: < 360 mVpp, V_{SB}: < 120 mVpp	
Hold-up Time	115 V_{AC}	> 12 ms (240 W)			
	230 V_{AC}	> 10 ms (300 W)			
Input					
Phase Input		Single Phase			
Input Voltage Range		90-264 V_{AC}			
Input Frequency		47-63 Hz			
Input Current	115 V_{AC}	< 4.0 A	< 4.0 A	< 4.0 A	< 4.0 A
	230 V_{AC}	< 2.0 A	< 2.0 A	< 2.0 A	< 2.0 A
Efficiency [1] at 100% Load	115 V_{AC}	> 93.0%			
	230 V_{AC}	> 94.0%			
Max Inrush Current (Cold Start)	115 V_{AC}	< 20 A			
	230 V_{AC}	< 40 A			
Power Factor	115 V_{AC}	> 0.95			
	230 V_{AC}				
Leakage Current	240 V_{AC}	< 0.75 mA			
Mechanical					
Case Cover / Chassis		–			
Dimensions (L × W × H)	mm	127 × 76.2 × 35.8	127 × 76.2 × 35.8	127 × 76.2 × 35.8	127 × 76.2 × 35.8
	inch	5.00 × 3.00 × 1.41	5.00 × 3.00 × 1.41	5.00 × 3.00 × 1.41	5.00 × 3.00 × 1.41
Unit Weight	kg	0.45	0.45	0.45	0.45
	lb	0.99	0.99	0.99	0.99
Cooling System		Convection / Forced Air			
MTBF [2]		> 700,000 hrs			
Environment					
Operating Temperature [3]		-25°C to +70°C			
Storage Temperature		-40°C to +85°C			
Operating Humidity		5 to 95% RH (Non-Condensing)			
Operating Altitude		PD3: 0 to 5,000 m (0 to 16,400 ft) PD2: 0 to 3,000 m (0 to 9,840 ft)			

Dimensions Reference



Notes
1) At 25°C ambient temperature.
2) MTBF as per Telcordia SR-332 (I/P: 115 Vac, O/P: 100% load).
3) Refer power de-rating in the product datasheet.
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PJU (13.8 V, 27.6 V)



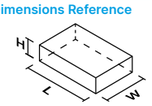
- Zero switch over time from loss of AC to battery operation
- Protection against reverse polarity battery connection
- Built-in diagnostic monitoring for AC OK and Battery Low status
- Overvoltage / Overcurrent / Over Temperature / Short Circuit Protections
- Built-in over current and short circuit protection in Buffering (battery discharging) mode operation

Applications

Building Automation

Output		PJU-13V60W□A□	PJU-13V60W□B□	PJU-27V60W□A□	PJU-27V60W□B□
Output Voltage		V1: 13.8 V, B+: 13.6 V	V1: 13.8 V, B+: 13.6 V	V1: 27.6 V, B+: 27.4 V	V1: 27.6 V, B+: 27.4 V
Output Voltage Range		V1: 13.52-14.00 V	V1: 13.52-14.00 V	V1: 27.04-28.00 V	V1: 27.04-28.00 V
Output Current		V1: 3.9 A, B+: 0.4 A	V1: 3.9 A, B+: 0.4 A	V1: 1.75 A, B+: 0.4 A	V1: 1.75 A, B+: 0.4 A
Output Power		60 W	60 W	60 W	60 W
PARD (20 MHz)		< 100 mVpp			
Hold-up Time (100% Load)	115 V_{AC}	> 10 ms	> 10 ms	> 10 ms	> 10 ms
Input					
Phase Input		Single Phase			
Input Voltage Range		90-264 V_{AC}			
Input Frequency		47-63 Hz			
Input Current	115 V_{AC}	< 1.2 A	< 1.2 A	< 1.2 A	< 1.2 A
	230 V_{AC}	< 0.8 A	< 0.8 A	< 0.8 A	< 0.8 A
Efficiency [1] at 100% Load	115 V_{AC}	> 85.0%		> 88.0%	
	230 V_{AC}	> 86.0%		> 89.0%	
Max Inrush Current (Cold Start)	115 V_{AC}	< 60 A			
	230 V_{AC}				
Power Factor		Conform to EN 61000-3-2			
Leakage Current (264 V_{AC})	TT/TN	< 0.5 mA			
	IT	< 1.0 mA			
Mechanical					
Case Cover / Chassis		SECC Steel			
Dimensions [2] (L × W × H)	mm	101.6 × 50.8 × 30.6	101.6 × 50.8 × 30.6	101.6 × 50.8 × 30.6	101.6 × 50.8 × 30.6
	inch	4.00 × 2.00 × 1.20	4.00 × 2.00 × 1.20	4.00 × 2.00 × 1.20	4.00 × 2.00 × 1.20
Unit Weight [2]	kg	0.12	0.12	0.12	0.12
	lb	0.26	0.26	0.26	0.26
Cooling System		Convection			
MTBF [3]		> 350,000 hrs			
Environment					
Operating Temperature [4]		-20°C to +70°C			
Storage Temperature		-40°C to +85°C			
Operating Humidity		5 to 95% RH (Non-Condensing)			
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)			

Dimensions Reference



Notes
1) At 25°C ambient temperature.
2) Open frame (without chassis and cover).
3) MTBF as per Telcordia SR-332 (I/P: 115 V_{AC} & 230 V_{AC}, O/P: 100% load).
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

PJL (48 V)



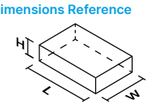
- Lighting approvals to UL 8750, IEC 61347-2-13
- Low inrush current < 20 A
- Up to 90.0% efficiency
- Low earth leakage current < 500 µA
- Extreme low temperature operation at -40°C

Applications

LED Lighting

Output		PJL-48V200WBAA	PJL-48V400WBAA	PJL-48V600WLAA
Output Voltage		48 V	48 V	48 V
Output Voltage Range		48-50 Vdc	48-50 Vdc	48-50 Vdc
Output Current		0-4.17 A	0-8.33 A	0-12.5 A
Output Power		150 W (Convection) 200 W (with 400 LFM Forced Air)	200 W (Convection) 400 W (with 400 LFM Forced Air)	300 W (Convection) 600 W (with 600 LFM Forced Air)
PARD (20 MHz) [1]		< 480 mVpp	< 680 mVpp	< 880 mVpp
Hold-up Time (100% Load)	115 V_{AC}	> 5 ms		> 16 ms
	230 V_{AC}			
Input				
Phase Input		Single Phase		
Input Voltage Range		85-305 V_{AC}		
Input Frequency		47-63 Hz		
Input Current	115 V_{AC}	< 2.20 A	< 4.74 A	< 6.5 A
Efficiency at 100% Load [2]	230 V_{AC}	> 85.0%		> 87.5%
	230 V_{AC}	> 90.0%		
Max Inrush Current (Cold Start)	230 V_{AC}	< 20 A		< 12 A
Power Factor	115 V_{AC}	> 0.95		
	230 V_{AC}			
Leakage Current		< 500 µA		
Mechanical				
Case Cover / Chassis		-		
Dimensions (L x W x H)	mm	127.6 × 76.2 × 34.8	127 × 76.6 × 40.8	177.8 × 101.6 × 41.0
	inch	5.02 × 3.00 × 1.38	5.00 × 3.02 × 1.61	7.00 × 4.00 × 1.61
Unit Weight	kg	0.42	0.44	0.82
	lb	0.93	0.97	1.80
Cooling System		Convection / Forced Air		
MTBF [3]		> 500,000 hrs		
Environment				
Operating Temperature [4]		-40°C to +70°C	-40°C to +80°C	
Storage Temperature		-40°C to +85°C		
Operating Humidity		5 to 95% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)		

Dimensions Reference



Notes
1) PARD is measured with an AC coupling mode, 5 cm wires, and in parallel with 0.1µF ceramic capacitor & 47µF electrolytic capacitor.
2) At 25°C ambient temperature by vertical mounting orientation.
3) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 115 V_{AC}, O/P: 100% load).
4) Refer power de-rating in the product datasheet.
5) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

DIN Rail Modules



Redundancy Module

N+1 redundancy allows a system to continue operating when one power supply unit fails unexpectedly

Current Range: 20-40 A



Buffer Module

Allows a system to continue operating during power disruptions lasting from milliseconds to seconds

Current Range: 20-40 A



DC-UPS Module

Allows a system to continue operating during power failures lasting from minutes to hours

Current Range: 10-40 A



Battery Module

Designed to support 2 x 12 V 7.2 AH lead-acid battery in series for 24 V system

Applications

Building Automation

Process Automation

Factory Automation

Machine Automation

Renewable Energy

Redundancy Module



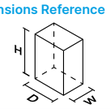
- Wide input and output range of 22-60 V_{DC}
- Very wide operating temperature from -40°C to +80°C
- Built-in 2 channel DC OK signal and alarm relay contact
- Support N+1 Redundancy connection
- Conformal coating on PCBAs to protect against common dust and chemical pollutants
- Hazardous Locations approval to ATEX and Class I, Div 2
- IP20 Certified

Applications

Process Automation | Machine Automation | Renewable Energy

Output		DRR-20□	DRR-40□
Output Current		Normal mode = 0-20 Amps; Short Circuit or Overload = 25 Amps max	Normal mode = 0-40 Amps; Short Circuit or Overload = 50 Amps max
Voltage Drop (V_{in} - V_{out})		Typical 0.65 V	
Input			
Input Voltage Range		22-60 V_{DC}	
Input Current		(1+1 Redundancy) = Nom. 2 x 12.5 Amps (N+1 Redundancy) = Nom. 2 x 10 Amps (Single use) = Nom. 20 Amps	(1+1 Redundancy) = Nom. 2 x 25 Amps (N+1 Redundancy) = Nom. 2 x 20 Amps (Single use) = Nom. 40 Amps
Mechanical			
Case Cover / Chassis		Aluminium	
Dimensions (H × W × D)	mm	121 × 50 × 122.1	121 × 50 × 122.1
	inch	4.76 × 1.97 × 4.81	4.76 × 1.97 × 4.81
Unit Weight	kg	0.38	0.52
	lb	0.84	1.15
Cooling System		Convection	
LED Indicators		Green LED DC OK: $V_{in}1$ and $V_{in}2$	
MTBF [1]		> 800,000 hrs	> 800,000 hrs
Environment			
Operating Temperature [2]		-40°C to +80°C	
Storage Temperature		-40°C to +85°C	
Operating Humidity		5 to 95% RH (Non-Condensing)	
Operating Altitude		0 to 2,500 m (0 to 8,200 ft)	

Dimensions Reference



Notes
1) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 24 V_{DC}, O/P: 100% load) for vertical mounting orientation.
2) Refer power de-rating in the product datasheet.
3) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

Buffer Module



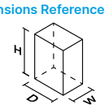
- Minimum buffering time of:
  - 250 ms @ 24 V / 20 A for DRB-24V020AB□
  - 200 ms @ 24 V / 40 A for DRB-24V040ABN
- Flexible operating buffering voltage modes:
  Fixed mode at 22 V_{DC}; Dynamic mode for Vin-1 V
- Support parallel connection to extend buffering time
- Conformal coating on PCBAs to protect against common dust and chemical pollutants
- Hazardous Locations approval to ATEX and Class I, Div 2 (DRB-24V020ABA)

Applications

Process Automation | Machine Automation | Renewable Energy

Output		DRB-24V020AB□	DRB-24V040ABN
Output Voltage		24 V_{DC} typ. (Depends on V_{in})	24 V_{DC} typ. (Depends on V_{in})
Output Voltage Range		22-28 V (Switch = "Fix 22 V" buffering starts if terminal voltage falls below 22 V) (Switch = "V_{in} - 1V" buffering starts if terminal voltage is decreased by more than 1 V)	
Output Current		20.0 A Max	40.0 A Max
PARD (20 MHz)		< 200 mVpp, Buffering Mode	< 350 mVpp, Buffering Mode
Buffer Time		250 ms Min @ 24 V / 20 A load, 5 s Min @ 24 V / 1 A load	200 ms Min @ 24 V / 40 A load, 8 s Min @ 24 V / 1 A load
Input			
Input Voltage Range		22.8-28.8 V_{DC}	
Input Current		Charging Mode: < 0.6 A	Charging Mode: < 0.6 A
Input Power		2.5 W average (Standby Mode)	
Charging Time		< 30 s	< 40 s
Polarity Protection		Yes	Yes
Mechanical			
Case Cover / Chassis		Aluminium	
Dimensions (H × W × D)	mm	121 × 70 × 120.1	121 × 70 × 120.1
	inch	4.76 × 2.76 × 4.73	4.76 × 2.76 × 4.73
Unit Weight	kg	0.76	0.90
	lb	1.68	1.98
Cooling System		Convection	
LED Indicators		Green LED	
MTBF [1]		> 800,000 hrs	> 800,000 hrs
Environment			
Operating Temperature [2]		-25°C to +75°C	
Storage Temperature		-25°C to +85°C	
Operating Humidity		5 to 95% RH (Non-Condensing)	
Operating Altitude		0 to 2,500 m (0 to 8,200 ft)	

Dimensions Reference



Notes
1) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 24 V_{DC}, O/P: 100% load) for vertical mounting orientation.
2) Refer power de-rating in the product datasheet.
3) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

DC-UPS Module



- Full corrosion resistant aluminium casing
- Suitable for 24 V system up to 40 A
- Built-in diagnostic monitoring for DC OK, Discharge and Battery Fail by relay contacts
- LED indicator for DC OK, Battery Charging, Battery Discharging, Battery Fail and Battery Reverse Polarity
- High MTBF > 500,000 hrs per Telcordia SR-332
- Conformal coating option on PCBAs to protect against common dust and chemical pollutants

Applications

Building Automation | Process Automation | Machine Automation | Renewable Energy

Output		DRU-24V40ABN
Output Voltage Range		23-28 V_{DC}
Output Current		40.0 A Max
Output Power		960 W Max
Input		
Input Voltage Range		24-28 V_{DC}
Input Current		Charging Mode: 2.0 A ± 1.0 A
Charging Time		< 3 hr ± 1 hr (for battery 24 V / 15 AH)
Efficiency		Charging Mode: > 70.0% Buffering Mode: > 99.0%
Mechanical		
Case Cover / Chassis		Aluminium
Dimensions (H × W × D)	mm	121 × 50 × 117.3
	inch	4.76 × 1.97 × 4.62
Unit Weight	kg	0.60
	lb	1.32
Cooling System		Convection
LED Indicators		Green LED Orange LED Red LED
MTBF [1]		> 500,000 hrs
Environment		
Operating Temperature [2]		-20°C to +60°C
Storage Temperature		-40°C to +85°C
Operating Humidity		5 to 95% RH (Non-Condensing)
Operating Altitude		0 to 3,000 m (0 to 9,840 ft)

Dimensions Reference



Notes
1) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 24 V_{DC}, O/P: 100% load) for vertical mounting orientation.
2) Refer power de-rating in the product datasheet.
3) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CHROME DC-UPS Module



- Suitable for 24 V system up to 10 A
- Zero switch over time from loss of DC input to battery operation
- Built-in diagnostic monitoring for DC OK, Discharge and Battery Fail by relay contacts
- Full power for the entire temperature range from -20°C to +60°C
- LED indicator for DC OK, Battery Charging, Battery Discharging, Battery Fail and Battery Reverse Polarity
- High MTBF > 500,000 hrs as per Telcordia SR-332

Applications

Building Automation | Process Automation | Machine Automation | Renewable Energy

Output		DRU-24V10ACZ
Output Voltage Range		23-28 V_{DC}
Output Current		10.0 A Max
Output Power		240 W Max
Input		
Input Voltage Range		24-28 V_{DC}
Input Current		Charging Mode: 0.5 A ± 0.1 A
Charging Time		< 30 hr ± 5 hr (for battery 24 V / 12 AH)
Efficiency		Charging Mode: > 80.0% Buffering Mode: > 99.0%
Mechanical		
Case Cover / Chassis		Plastic
Dimensions (H × W × D)	mm	91 × 71 × 55.6
	inch	3.58 × 2.80 × 2.19
Unit Weight	kg	0.14
	lb	0.31
Cooling System		Convection
LED Indicators		Green LED Orange LED Red LED
MTBF [1]		> 500,000 hrs
Environment		
Operating Temperature [2]		-20°C to +60°C
Storage Temperature		-40°C to +85°C
Operating Humidity		5 to 95% RH (Non-Condensing)
Operating Altitude		0 to 3,000 m (0 to 9,840 ft)

Dimensions Reference



Notes
1) MTBF as per Telcordia SR-332 (Confidence level: 90%, I/P: 24 V_{DC}, O/P: 100% load) for vertical mounting orientation.
2) Refer power de-rating in the product datasheet.
3) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CliQ M DC-UPS Module



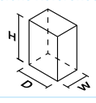
- Full corrosion resistant aluminium casing
- Selectable Charging Current
- Selectable Buffering Time to prevent battery over discharge
- Battery temperature protection to extend battery life
- Conformal coating on PCBAs to protect against common dust and chemical pollutants

Applications

Building Automation | Process Automation | Machine Automation | Renewable Energy

		NEW	NEW	NEW
Output		**DRU-24V10AMN**	**DRU-24V20AMN**	**DRU-24V40AMN**
Output Voltage Range		17.5-29.5 V_{DC}	17.5-29.5 V_{DC}	17.5-29.5 V_{DC}
Output Current		10.0 A Max	20.0 A Max	40.0 A Max
Output Power		240 W Max	480 W Max	960 W Max
Input				
Input Voltage Range		18-30 V_{DC}		
Input Current		0.5 A, 1 A, 1.5 A, 2 A (typ.) (constant current)	0.75 A, 1.5 A, 2.25 A, 3 A (typ.) (constant current)	1 A, 2 A, 3 A, 4 A (typ.) (constant current)
Charging Time		< 9 hr ± 1 hr (2 A charging current for 24 V / 12 AH battery)	< 6 hr ± 1 hr (3 A charging current for 24 V / 12 AH battery)	< 4.5 hr ± 1 hr (4 A charging current for 24 V / 12 AH battery)
Efficiency		Normal Operation: 98% typ.		
Mechanical				
Case Cover / Chassis		Aluminium		
Dimensions (H × W × D)	mm	124 × 38 × 117	124 × 38 × 117	124 × 50 × 117
	inch	4.88 × 1.50 × 4.61	4.88 × 1.50 × 4.61	4.88 × 1.97 × 4.61
Unit Weight	kg	0.52	0.53	0.66
	lb	1.15	1.17	1.46
Cooling System		Convection		
LED Indicators [1]		Green LED Red LED Orange LED		
MTBF [2]		> 500,000 hrs		
Environment				
Operating Temperature [1]		-30°C to +70°C		
Storage Temperature		-40°C to +85°C		
Operating Humidity		5 to 95% RH (Non-Condensing)		
Operating Altitude [3]		0 to 6,000 m (0 to 19,680 ft)		

Dimensions Reference



Notes
1) Refer LED indicator status and power de-rating in the product datasheet.
2) MTBF as per Telcordia SR-332.
3) Approvals apply only up to 5,000 m (16,400 ft).
4) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

CliQ M Battery Module



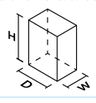
- Anti-corrosion powder coated chassis
- Suitable for 7.2 AH Lead-Acid battery
- Built-in battery voltage LED indicator
- Built-in battery over temperature protection (need to be used with the CliQ M DC-UPS modules)

Applications

Building Automation | Process Automation | Machine Automation | Renewable Energy

		NEW
Battery		**DRN-24V7AAEN**
Nominal Battery Voltage		24 V_{DC}, SLA Sealed lead acid battery 2 x 12 V_{DC}, SLA Sealed lead acid battery
Battery Capability		7.2 AH lead-acid battery
Recommended Charging Voltage		27.6 V_{DC}
Battery Current		
Charging Current [1]		2.1 A Max
Discharging Current		40 A Max
Battery Fuse		2 pcs in parallel
Mechanical		
Case Chassis		Metal
Dimensions (H × W × D)	mm	211.5 × 148 × 109.2
	inch	8.33 × 5.83 × 4.30
Unit Weight	kg	1.40
	lb	3.09
Cooling System		Convection
LED Indicators		Green LED
Environment		
Operating Temperature	Charging	0°C to +40°C
	Discharging	-10°C to +50°C
Storage Temperature		-15°C to +40°C
Operating Humidity		5 to 95% RH (Non-Condensing)
Operating Altitude		0 to 6,000 m (0 to 19,680 ft)

Dimensions Reference



Notes
1) Cannot exceed max charging current limitation of battery specification.
2) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

Adapter



ADT

Meet efficiency DoE Level VI & CoC Tier 2

Power Range: 60-150 W

Applications

Test & Measurement

ADT (12 V, 15 V)



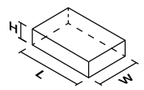
- Meet efficiency DoE Level VI
- Meet CoC Tier 2 (150 W model)
- No load power consumption < 0.15 W
- Fully enclosed plastic case
- Protection: short circuit / over voltage / overload / over temperature

Applications

Test & Measurement

Output		ADT-060A12A□	ADT-150B12AA	ADT-060A15A□
Output Voltage		12 V	12 V	15 V
Output Current (Max)		5.0 A	12.5 A	4.0 A
Output Power		60 W	150 W	60 W
PARD (20 MHz)		< 240 mVpp @ 0°C to +40°C, < 480 mVpp @ -10°C to 0°C	< 240 mVpp @ 0°C to +40°C, < 480 mVpp @ -10°C to 0°C	< 300 mVpp @ 0°C to +40°C, < 600 mVpp @ -10°C to 0°C
Hold-up Time	115 V_{AC}	12 ms typ.	40 ms typ.	12 ms typ.
	230 V_{AC}	60 ms typ.	-	60 ms typ.
Input				
Input Voltage Range		85-264 V_{AC}	90-264 V_{AC}	85-264 V_{AC}
Input Frequency		47-63 Hz		
Input Current	115 V_{AC}	< 1.4 A	< 2.0 A	< 1.4 A
	230 V_{AC}	< 1.0 A	< 1.0 A	< 1.0 A
Efficiency at 100% Load	115 V_{AC}	87.6% typ.	89.0% typ.	87.9% typ.
	230 V_{AC}	90.2% typ.	90.0% typ.	
Max Inrush Current (Cold Start)		No damage		
Power Factor	230 V_{AC}	-	> 0.90	-
Leakage Current	240 V_{AC}	< 0.1 mA		
Mechanical				
Dimensions (L × W × H)	mm	108 × 46 × 29.5	155 × 76 × 30	108 × 46 × 29.5
	inch	4.25 × 1.81 × 1.16	6.10 × 3.00 × 1.20	4.25 × 1.81 × 1.16
Unit Weight	kg	0.18	0.54	0.18
	lb	0.40	1.19	0.40
Connector Type		ADT-060A□AA: Input: C6; Output: Tuning fork ADT-060A□AB: Input: C8; Output: Tuning fork ADT-150B12AA: Input: C6; Output: Barrel type		
Cooling System		Convection		
MTBF [1]		> 700,000 hrs	> 300,000 hrs	> 700,000 hrs
Environment				
Operating Temperature [2]		-10°C to +60°C		
Storage Temperature		-40°C to +85°C		
Operating Humidity		5 to 95% RH (Non-Condensing)		
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)		
Protection Against Shock		Class II	Class I	Class II

Dimensions Reference



Notes
1) ADT-060A12A and ADT-060A15A, MTBF as per Telcordia SR-332 (I/P: 115 V_{AC}, O/P: 100% load).
   ADT-150B12AA, MTBF as per Telcordia SR-332 (I/P: 100 V_{AC}, O/P: 100% load).
2) Refer power de-rating in the product datasheet.
3) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

ADT (19 V, 24 V)



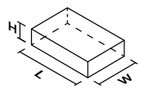
- Meet efficiency DoE Level VI
- Meet CoC Tier 2 (150 W models)
- No load power consumption < 0.15 W
- Fully enclosed plastic case
- Protection: short circuit / over voltage / overload / over temperature

Applications

Test & Measurement

Output		ADT-060A19A□	ADT-120A19AA	ADT-150A19AA	ADT-060A24A□	ADT-090A24AA	ADT-120A24AA	ADT-150A24AA	ADT-150C24AC
Output Voltage		19 V	19.5 V	19.5 V	24 V	24 V	24 V	24 V	24 V
Output Current (Max)		3.2 A	6.15 A	7.7 A	2.5 A	3.75 A	5.0 A	6.25 A	6.25 A
Output Power		60.8 W	120 W	150 W	60 W	90 W	120 W	150 W	150 W
PARD (20 MHz)		< 380 mVpp @ 0°C to +40°C, < 760 mVpp @ -10°C to 0°C			< 480 mVpp @ 0°C to +40°C, < 960 mVpp @ -10°C to 0°C	< 240 mVpp @ 0°C to +40°C, < 480 mVpp @ -10°C to 0°C			
Hold-up Time	115 V_{AC}	12 ms typ.	> 20 ms	> 16 ms	12 ms typ.	40 ms typ.		30 ms typ.	16 ms typ.
	230 V_{AC}	60 ms typ.			60 ms typ.	-			
Input									
Input Voltage Range		85-264 V_{AC}	90-264 V_{AC}		85-264 V_{AC}	90-264 V_{AC}			
Input Frequency		47-63 Hz				47-63 Hz			
Input Current	115 V_{AC}	< 1.4 A	< 1.4 A	< 1.8 A	< 1.4 A	< 1.3 A	< 1.85 A	< 1.85 A	< 1.85 A
	230 V_{AC}	< 1.0 A	< 0.7 A	< 0.9 A	< 1.0 A	< 0.6 A	< 1.0 A	< 1.0 A	< 1.0 A
Efficiency at 100% Load	115 V_{AC}	88.1% typ.	90.0% typ.		88.8% typ.	90.0% typ.	91.0% typ.		90.0% typ.
	230 V_{AC}	90.3% typ.	91.5% typ.		90.1% typ.	91.5% typ.	92.0% typ.		91.0% typ.
Max Inrush Current (Cold Start)		No damage				No damage			
Power Factor	230 V_{AC}	-	> 0.9		-	> 0.9			
Leakage Current	240 V_{AC}	< 0.1 mA	< 0.25 mA		< 0.1 mA	< 250 µA			
Mechanical									
Dimensions (L × W × H)	mm	108 × 46 × 29.5	138 × 68.5 × 24.5	160 × 76.2 × 25.8	108 × 46 × 29.5	126 × 51 × 30	138 × 68.5 × 24.5	160 × 76.2 × 25.8	165.1 × 76.1 × 31.5
	inch	4.25 × 1.81 × 1.16	5.43 × 2.70 × 0.96	6.30 × 3.00 × 1.02	4.25 × 1.81 × 1.16	4.96 × 2.00 × 1.18	5.43 × 2.70 × 0.96	6.30 × 3.00 × 1.02	6.50 × 3.00 × 1.24
Unit Weight	kg	0.18	0.34	0.41	0.18	0.18	0.34	0.41	0.47
	lb	0.40	0.75	0.90	0.40	0.40	0.75	0.90	1.04
Connector Type		ADT-060A19AA, ADT-120A19AA: Input: C6; Output: Tuning fork ADT-060A19AB: Input: C8; Output: Tuning fork ADT-150A19AA: Input: C6; Output: Barrel type				ADT-060A24AA, ADT-120A24AA: Input: C6; Output: Tuning fork ADT-090A24AA: Input: C6; Output: Barrel type ADT-060A24AB: Input: C8; Output: Tuning fork ADT-150A24AA: Input: C6, Output: Tuning fork ADT-150C24AC: Input: C14, Output: 4-pin DIN			
Cooling System		Convection				Convection			
MTBF [1]		> 700,000 hrs	> 300,000 hrs		> 700,000 hrs	> 300,000 hrs			
Environment									
Operating Temperature [2]		-10°C to +60°C				-10°C to +60°C			
Storage Temperature		-40°C to +85°C				-40°C to +85°C			
Operating Humidity		5 to 95% RH (Non-Condensing)				5 to 95% RH (Non-Condensing)			
Operating Altitude		0 to 5,000 m (0 to 16,400 ft)				0 to 5,000 m (0 to 16,400 ft)			
Protection Against Shock		Class II	Class I		Class II	Class I			

Dimensions Reference

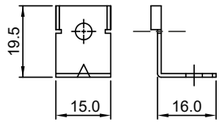


Notes
1) MTBF as per Telcordia SR-332 (I/P: 115 Vac, O/P: 100% load).
2) Refer power de-rating in the product datasheet.
3) All parameters are specified at 25°C ambient temperature unless otherwise indicated.

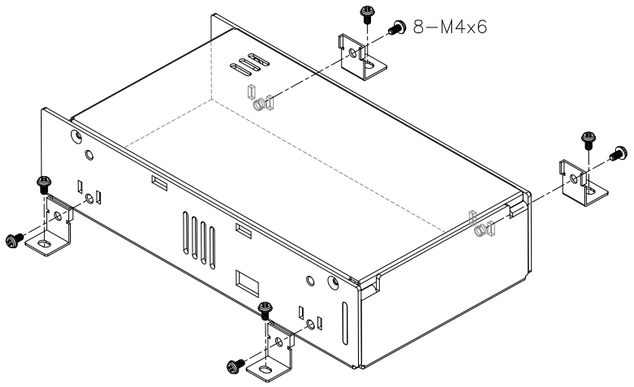
Accessories

Panel Mount Accessories

- **LM-01**



Accessories Assembly



Model Information

Item	Model Number	Compatible Models
	LM-01	PMT-12V350W2B□□ PMT-24V350W2B□□ PMT-36V350W2B□ PMT-48V350W2B□ PMF-4V320WC□□ PMF-5V320WC□□ PMF-24V240WC□□, PMF-24V320WC□□ PMR-4V320WC□A, PMR-4V320WD□A PMR-5V320WC□A, PMR-5V320WD□A

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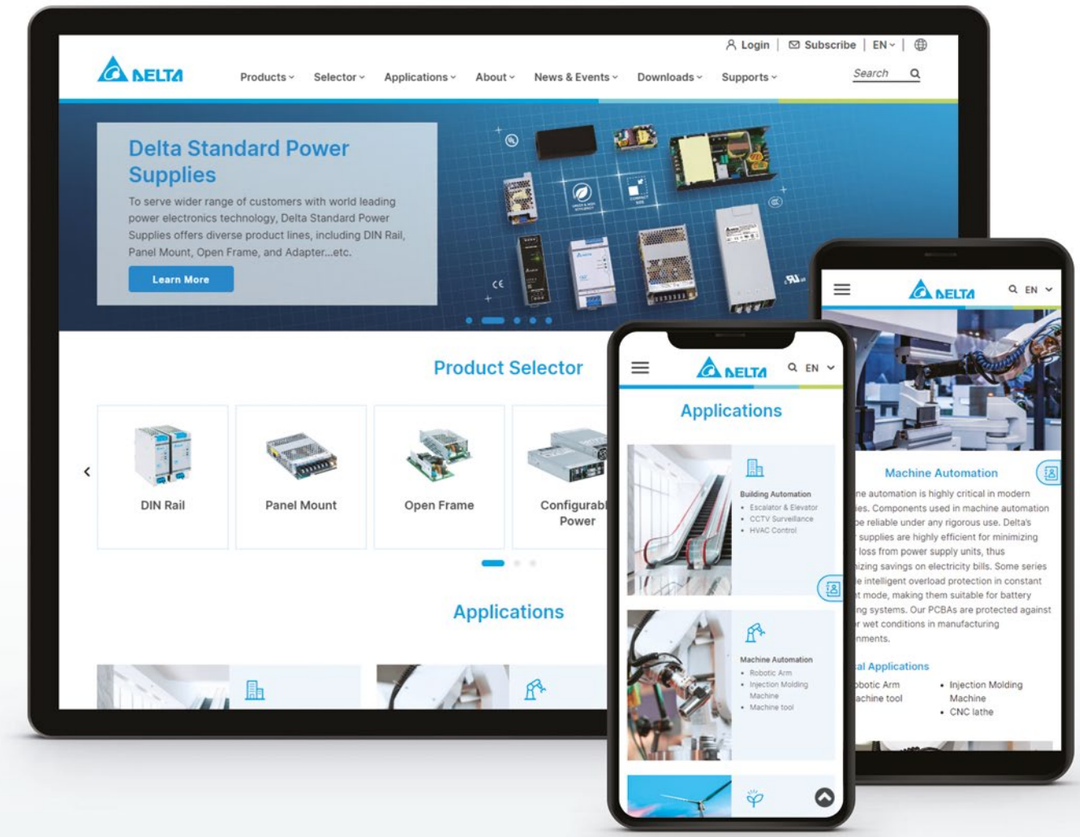

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FAQs

What is Power Boost?

It is the reserve power available constantly that allows reliable startup of loads with high outrush current.

Why is Power Boost beneficial?

Such feature is especially useful for applications where loads are active; the high surge current can cause the power supply unit (PSU) output to dip down if the PSU does not have the capability to withstand this surge current. Consequently, this could reset the system and result in system downtime.

What is Advanced Power Boost (APB)?

Within a multiple loads connection, Advanced Power Boost (APB) can detect a faulty current path and provide a large outrush current to trip the circuit breaker connected to the faulty path. This prevents the system from shutting down while the other connected current paths continue to operate without interruption.

What should I consider when selecting a power supply unit (PSU)?

- Input Type (Single Phase or 3 Phase)
- Output Power
- Efficiency and Reliability

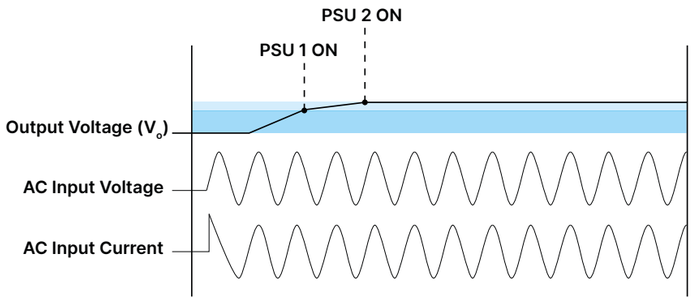
Efficiency and Reliability are the two most important factors to consider in selecting a PSU.

The best way to ensure the reliability of the PSU is to choose one that provides a maximum of 30% more output than your actual total requirement. For example, if your system has a 90 W power requirement, you should choose a PSU with at least 120 W power output rating. By doing so, you are boosting the reliability of the PSU as well as prolonging the entire system life.

An efficient PSU will thus ensure that power loss is minimized and will greatly help to lower your operating costs in the long run. By choosing a cheaper, but less efficient PSU will just mean that you are paying for it through your monthly electric bills. Delta's Force-GT DIN rail power supply easily give our users a substantial efficiency of up to 95%. Other factors to consider include the operating conditions, types of safety certifications, PSU protection and application functions. Please contact your nearest Delta sales representative for a recommendation based on your requirements.

What critical parameters do I have to watch out for when connecting the power supplies in series?

The turn ON would be non-monotonic as the power supply with the fastest startup time and rise time will turn on first. As a result, the startup waveform with 2 power supplies connected in series would see a step.



Notes

Warranty

Delta warrants that the products (“Products”) sold in this catalog will be free of defects in material and workmanship within the warranty period. The warranty does not apply to Products which have been subjected to abuse, misuse, accident, neglect, unauthorized and/or improper installation, operation, use, maintenance, repair or alteration, or accident of unusual deterioration or degradation of the Products or parts thereof due to physical environment beyond the requirements of the Product specifications.

Attention

Delta provides all information in the catalog and datasheets on an “AS IS” basis and does not offer any kind of warranty through the information for using the product. In the event of any discrepancy between the information in the catalog and datasheets, the datasheets shall prevail (please refer to **www.DeltaPSU.com** for the latest datasheets information). Delta shall have no liability of indemnification for any claim or action arising from any error for the provided information in the catalog and datasheets. Customer shall take its responsibility for evaluation of using the product before placing an order with Delta.

Delta reserves the right to make changes to the information described in the catalog and datasheets without notice.

EMC Directives

At Delta, all of our products are designed to meet the highest quality standards. All national and international safety certifications including EMC directives are conducted by qualified and independent laboratories. For EMC directives’ compliance, the power supplies are tested to ensure compliance as a stand-alone product. Power supplies like the panel mount and open frame types are typically considered component power supply. Therefore, Delta cannot guarantee the system which is installed with Delta’s component power supply can meet the related EMC directives. Customers are advised to contact the system manufacturer for confirmation.

Availability

Products with “New” tab are slated for official release with immediate effect, while products with “Coming Soon” tab will be available within the next two months from this catalog’s publication month (refer to back cover page). Kindly contact your local Delta distributor for availability, ordering and delivery details. You may also get in touch with us via the Feedback Form on **www.DeltaPSU.com/feedback**.

4ManPro

Elements For Manufacturing Processes

PANTALLAS DE TACTO HMI

SERIE
MONITORES HMC

High Quality Display, Precise Control: The Optimum Combination of Display and Controller

Standard Type HMC08



- Manual Pulse Generator (MPG)
- 64K Colors TFT
- DMCNET
- Digital I/O
- USB Disk
- DMCNET
- Ethernet
- SD Card
- Audio Output

Handheld Type HMC07 N412

New



- Manual Pulse Generator (MPG)
- 64K Colors TFT
- DMCNET
- Digital I/O
- Nameplate Protection
- Emergency Stop
- Compact Design
- DMCNET
- SD Card
- Safety Limit Switch



- 64K Colors TFT
- DMCNET
- Digital I/O
- Nameplate Protection
- Emergency Stop
- Compact Design
- DMCNET
- SD Card



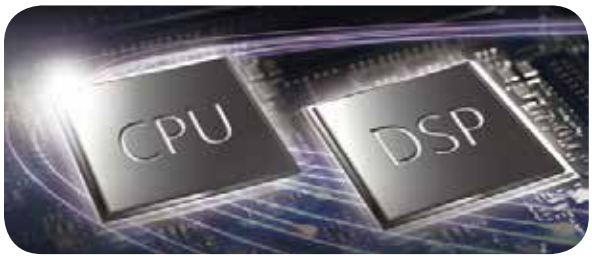
DOPSoft for HMI Screen Editing and PLC Programming





Powerful Dual Processors

Equipped with two high-speed CPUs: one for HMI operation, and the other as a Digital Signal Processor (DSP). The DSP serves as a motion processor for sequence control, which guarantees execution efficiency and system performance. The DSP supports up to four major PLC programs simultaneously.



Direct Remote I/O Connection

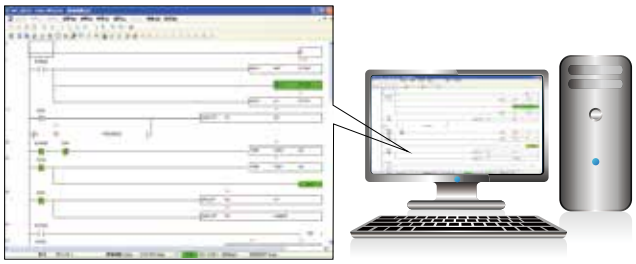


I/O points placed in the rear of the panel, result in complicated wiring and connection



Direct remote I/O connection provides simple and effortless wiring. Only one communication cable is needed to complete the I/O connection.

Quick PLC Ladder Monitoring



PLC ladder programs and registers can be monitored and changed in real time on a PC to greatly reduce the verification and debug time via Ethernet.

Ethernet





Built-in PLC ladder monitor devices allow users to display programs in real time and confirm machine operations without using a PC.

Full nameplate protection enhances tolerance to various conditions

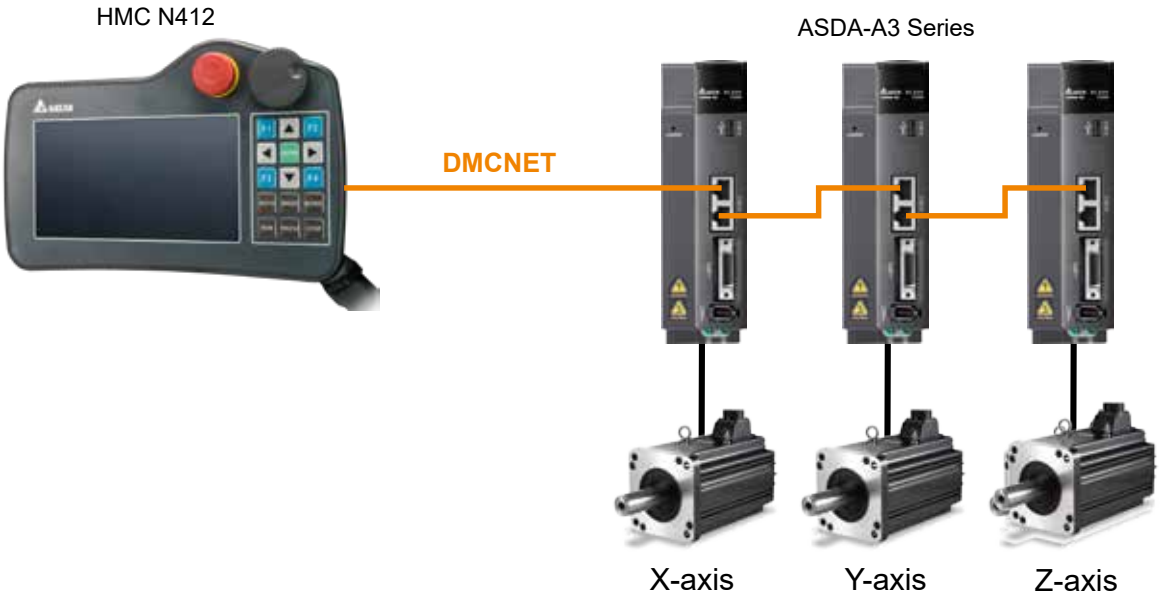
The new handheld models are equipped with full nameplate protection to prevent oil damage of the PCB and extend product life cycle.

Built-in Motion Commands

Direct servo parameter setup and quick motion command editing, no additional communication commands are required.

Solution Structure

HMC N412 + ASDA-A3 Series

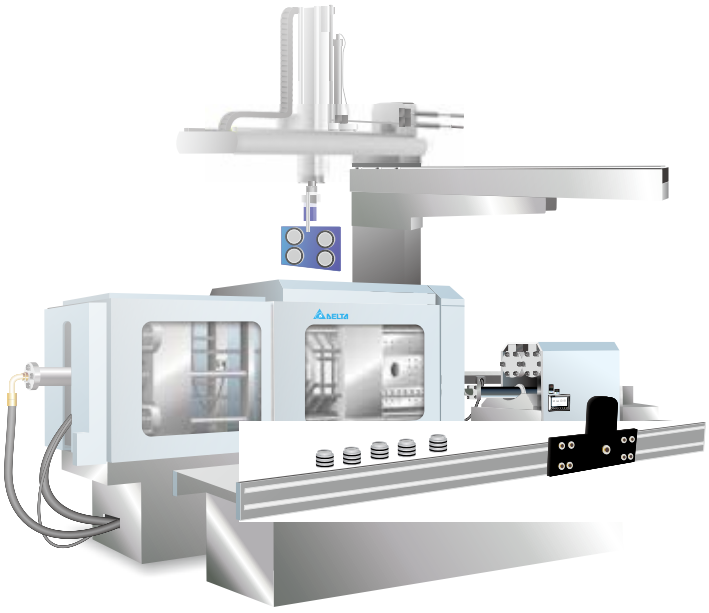


Application

Control of a Pick-an-Place Robot for an Injection Molding Machine

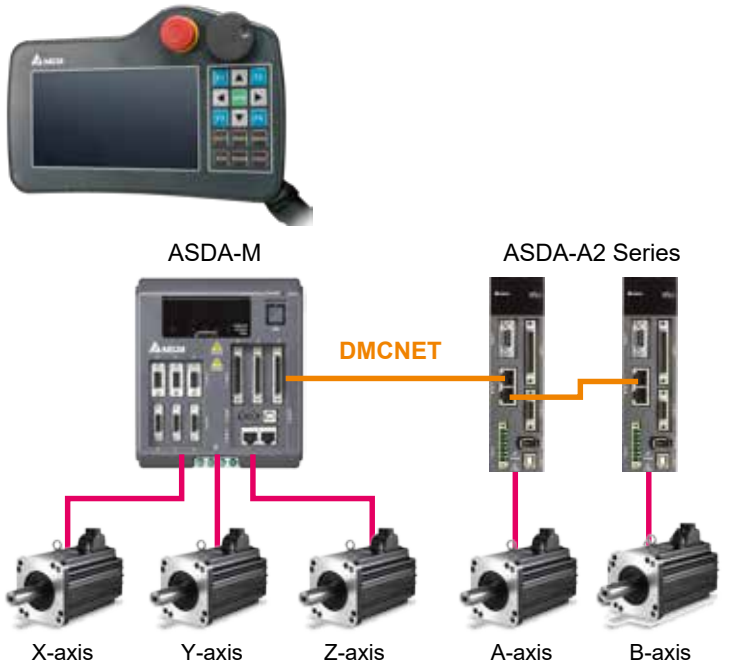
Features

1. The HMC integrates display and remote control functions with built-in PLC
2. High speed motion control bus for Delta Industrial PC-Based Motion Control Solution DMCNET
3. High speed remote I/O modules
4. Built-in ASD-specific motion control device

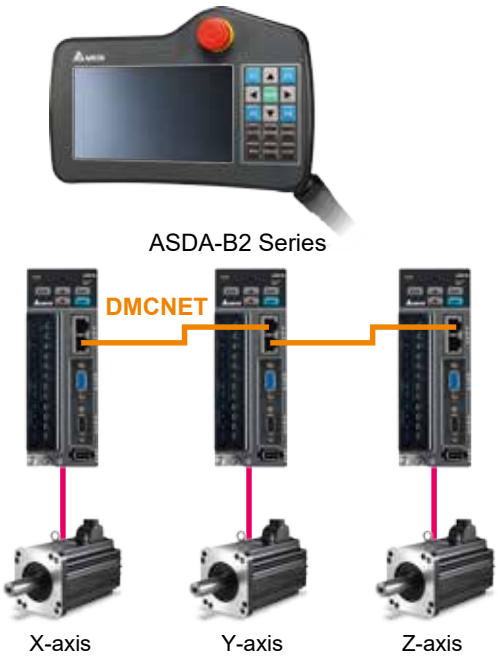


Solution Structure

HMC + AC Servo Drive & Motor ASDA-M + AC Servo Drive & Motor ASDA-A2



HMC + AC Servo Drive ASDA-B2 + E2M Motors

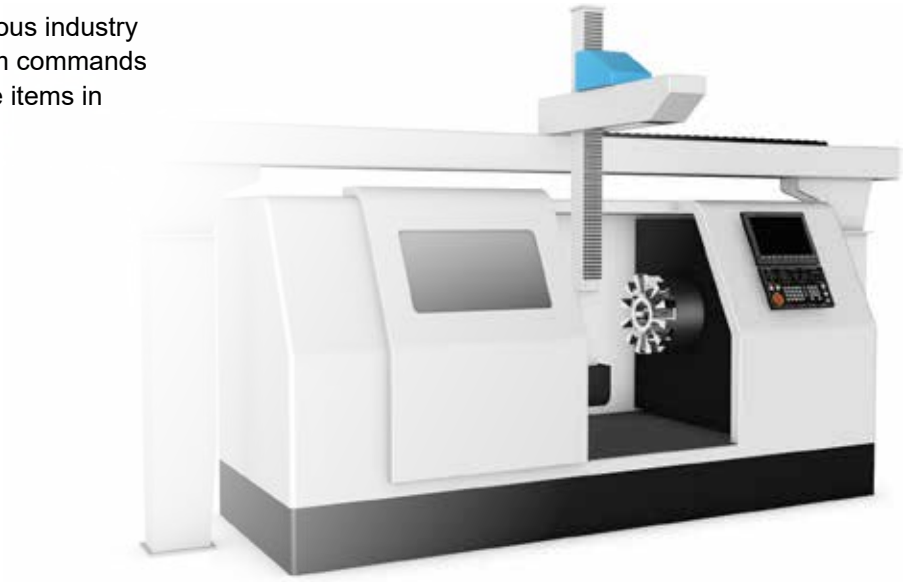


Application

Robotic Loading/Unloading for Machine Tools

Features

Distributed system bus supports various industry applications, large volume of program commands (1000 programs available, 400 edible items in each program) and dual system



New

Application Cases for Quick Implementation

- System parameter settings: including gear ratio, acceleration/deceleration time and speed





- Intuitive teaching interface



- Positioning setting



- Operation program management



- Operation information



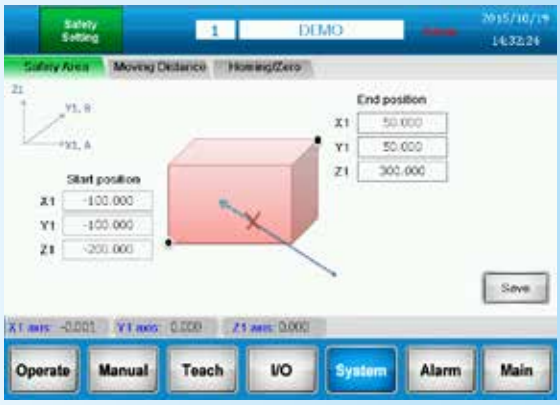
Abundant operating instructions



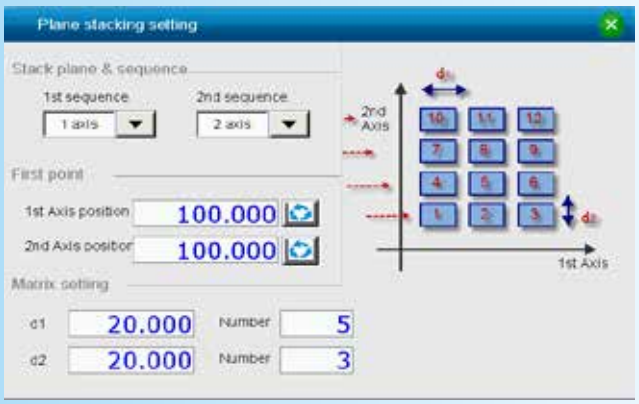
Jog function

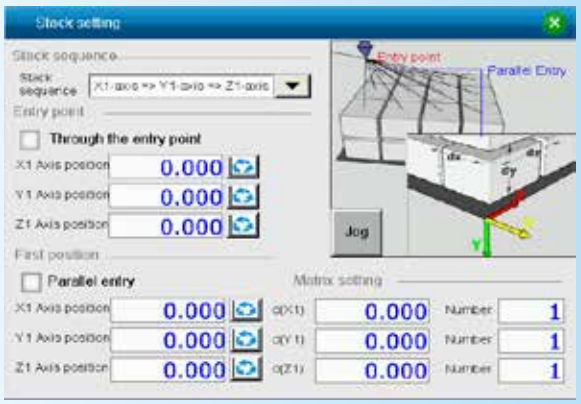


Security zone setting

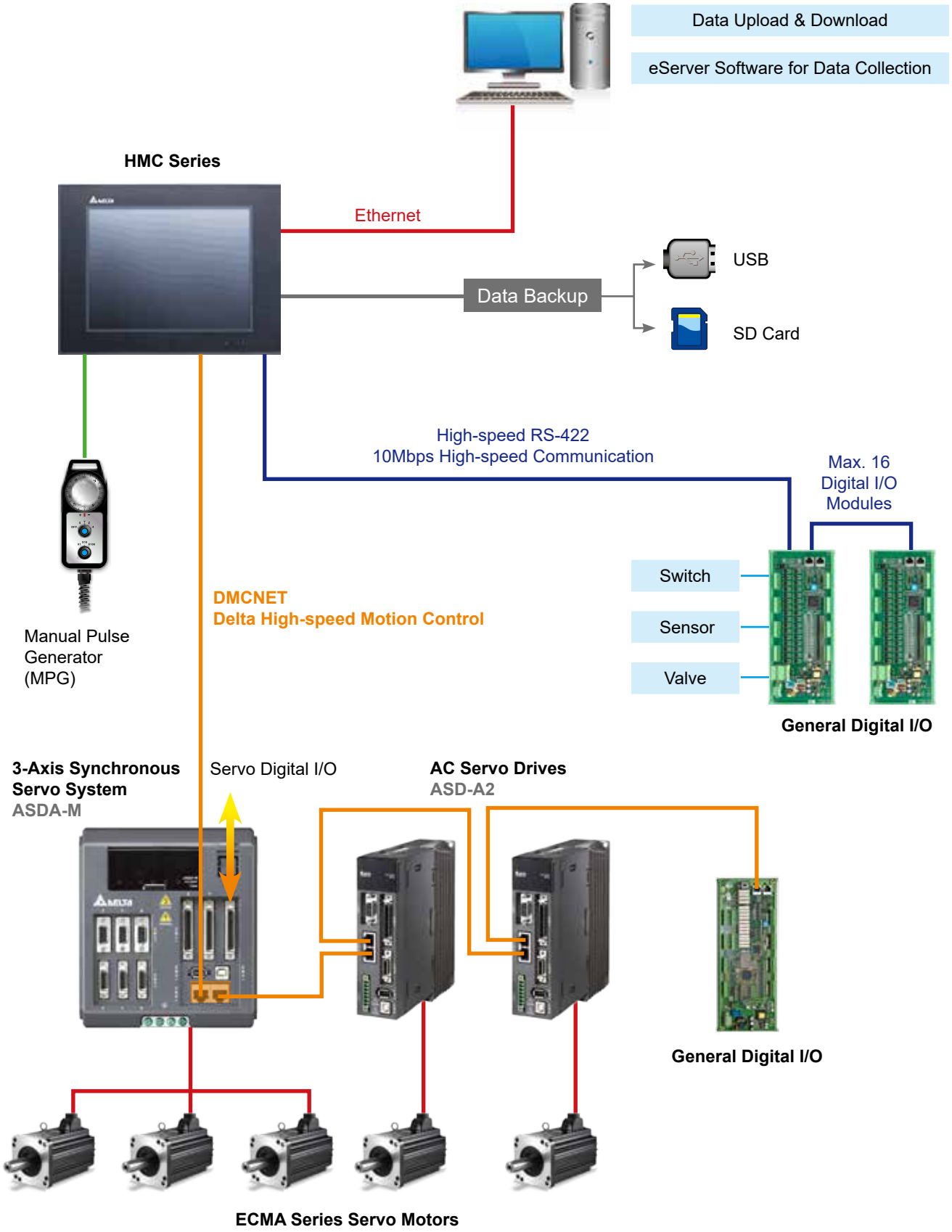


Various stacking instructions





Complete Total Solution

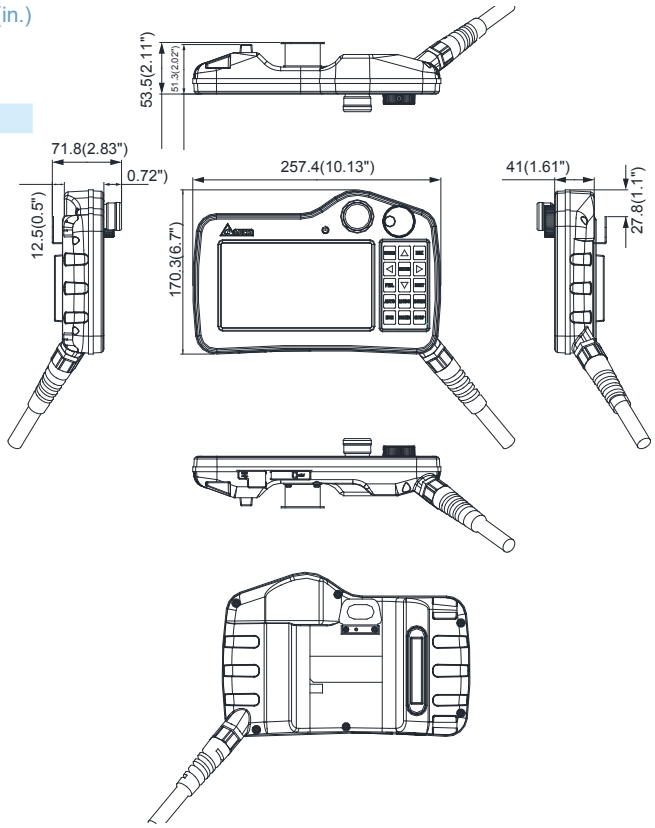


Dimensions

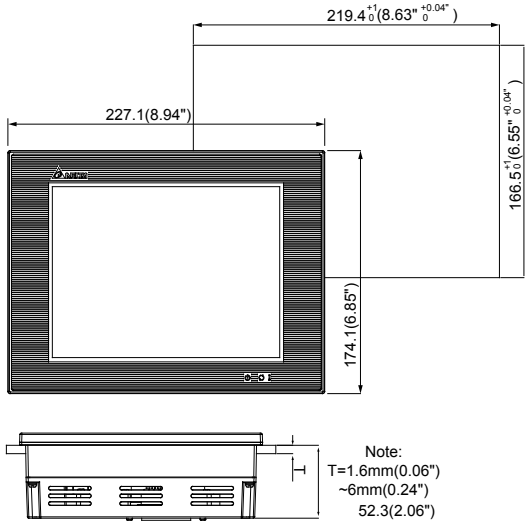
Dimensions are in mm (in.)

NEW

Model Name HMC07-N4xx Series

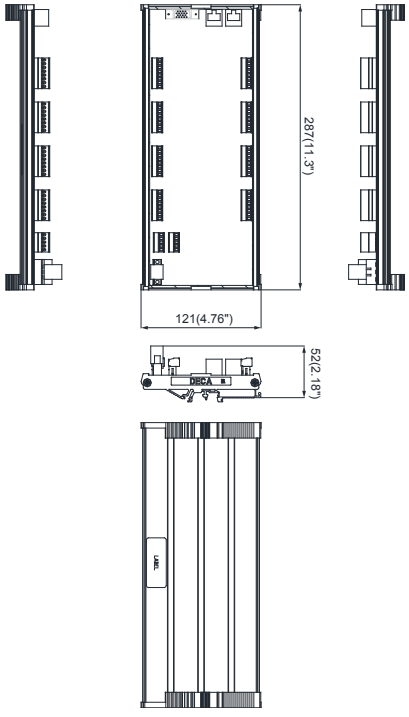


Model Name HMC08-N5xx Series



Note:
T=1.6mm(0.06")
~6mm(0.24")
52.3(2.06")

Model Name Remote I/O Module



Specifications

Model		HMC07-N412H5CX	HMC07-N412H55X	HMC08-N500S52
LCD Module	Display Type	7" TFT LCD		8" TFT LCD
	Colors	65535		
	Resolution (pixels)	800 x 480		800 x 600
	Backlight	LED back light (Half-life > 20 k hours in 25 ℃ environment)[*1]		
	Display Size (mm)	154.08 x 85.92		162 x 121.5
Axes of Control		Max. 12 axes		
Operating System		Delta Real Time OS		
CPU	HMI	32-bit RISC Micro-controller		
	Controller	32-bit DSP		
Flash ROM (Bytes)		Flash ROM 128 MB (OS System: 30 MB / Backup: 16 MB / User Application: 82 MB)		
Backup Memory (Bytes)		16 MB ROM, 128 KB SRAM		
Buzzer		Multi-Tone Frequency (2 K ~ 4 K Hz) / 85 dB		
Communi-cation Networks	Ethernet	N/A		1
	Social COM Port	RS-485 (Built-in power isolation[*2])		RS-232 / RS-422 / RS-485[*2]
	Motion Control BUS	DMCNET		
	USB	1 USB Slave Ver 2.0		1 USB Host Ver 1.1 / 1 USB Slave Ver 2.0
SD		SD / SDHC		
Emergency Stop Switch		Push-lock switch Output: 2 contacts B-contact (normally closed) x 2 Rated voltage: DC 30 V Max. rated current: 500 mA Min. load allowed: 5 VDC / 1 mA		N/A
3-Position Operation Switch		Only for internal register, no output signal	N/A	N/A
Manual Pulse Generator (MPG)		Only for internal register, no output signal	N/A	N/A
Funcion Key		15		N/A
Cable Length		The X in HMC model name indicates cable length[*3]		N/A
Perpetual Calendar		Built-in		
Cooling Method		Natural cooling		
Safety Certification		CE		CE / UL
Protection Rating		IP54		IP65
Voltage		DC + 24 V_{DC} (± 15%)[*4] (Supplied by SELV circuits isolated from MAINS by double insulation)		
Voltage Endurance		Between DC24 terminal and FG terminal: AC500V, 1 min		
Power Consumption		6 W[*5]		11 W
Backup Battery		3 V lithium CR2450 × 1		3 V lithium CR2032 × 1
Backup Batter Life		5 years or more at 25 ℃, may vary due to temperature and usage condition		
Operation Temperature		0 ℃ ~ 40 ℃		0 ℃ ~ 50 ℃
Storage Temperature		-10 ℃ ~ 60 ℃		
Operation Environment		10% ~ 90% RH【0 ~ 40 ℃】, 10 % ~ 55 % RH【41 ~ 50 ℃】, Pollution Degree 2		
Vibration		IEC61131-2 compliant 5 Hz ~ 8.3 Hz 3.5 mm, 8.3 Hz ~ 150 Hz 1G		
Shock		IEC60068-2-27 compliant 11 ms, 15G Peak, X, Y, Z direction for 6 times		
Dimensions (W) x (H) x (D) mm		257.4 x 170.3 x 71.8 (Emergency stop button and hook included)		219.4 x 174.1 x 52.3
Weight		750 g (Wire excluded)		about 1314 g

Note:

1) The half-life of the backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to the HMI
2) The isolated power circuit can withstand a 1500 V for 1 minute.
3) X = 5 : 5 m, X = A : 10 m, X = F : 15 m, X = K : 20 m
4) Isolated power supply recommended
5) The value of the power consumption indicates the electrical power consumed by HMI with no peripheral devices connected. To ensure normal operation, it is recommended using a power supply with a capacity 1.5 ~ 2 times the value of the power consumption

Model List

Model Name	Descriptions
HMC07-N412H555	HMC 7" NORMAL WSVGA HANDLE DMC WB 5M
HMC07-N412H55A	HMC 7" NORMAL WSVGA HANDLE DMC WB 10M
HMC07-N412H55F	HMC 7" NORMAL WSVGA HANDLE DMC WB 15M
HMC07-N412H55K	HMC 7" NORMAL WSVGA HANDLE DMC WB 20M
HMC07-N412H5C5	HMC 7" NORMAL WSVGA HANDLE DMC WB 5M
HMC07-N412H5CA	HMC 7" NORMAL WSVGA HANDLE DMC WB 10M
HMC07-N412H5CF	HMC 7" NORMAL WSVGA HANDLE DMC WB 15M
HMC07-N412H5CK	HMC 7" NORMAL WSVGA HANDLE DMC WB 20M
HMC07-R412H555	HMC 7" NORMAL WSVGA HANDLE DMC WB 5M
HMC07-R412H55A	HMC 7" NORMAL WSVGA HANDLE DMC WB 10M
HMC07-R412H5C5	HMC 7" NORMAL WSVGA HANDLE DMC WB 15M
HMC07-R412H5CA	HMC 7" NORMAL WSVGA HANDLE DMC WB 20M
HMC08-N500S52	HMC 8" NORMAL SVGA STD DMC RS422 WB
HMC08-N511M52	HMC 8" NORMAL SVGA MODULE DMC WB

Electrical Specifications of Remote I/O Modules

Items/Model Name	Power Supply	Input Unit		Output Unit		
		Points	Type	Points		Type
HM-RIO3232T12	24 V_{DC}	32	NPN (Sink)	32		Transistor
Input Point Electrical Specifications				**Output Point Electrical Specifications**		
Input Impedance		4.7 KΩ		Max. Switching Frequency		500 kHz
Max. Switching Frequency		100 kHz		Maximum Loading	500 kHz	2A/1 Point
Active Level	Off → On	> 16.5 V_{DC}		Response Time (Relay)	On → Off	Approx. 3 µs
	On → Off	< 5 V_{DC}			On → Off	
Response Time	Off → On	< 3 µs		-		
	On → Off	< 40 µs		-		

Items/Model Name	Power Supply	Input Unit		Output Unit		
		Points	Type	Points		Type
HMC-RIO3232RT5	24 V_{DC}	32	NPN (Sink)/ PNP (Source)	16 Relay/16 TR		Relay/Transistor
Input Point Electrical Specifications				**Output Point Electrical Specifications**		
Input Impedance		4.7 KΩ		Max. Switching Frequency		1Hz (Relay) 8 kHz (TR)
Max. Switching Frequency		10 kHz		Maximum Loading	Resistive Load	300 mA/1 Point (TR) 2A/1 Point (Relay)
Active Level	Off → On	> 16.5 V_{DC}		Response Time (Relay)	Off → On	10 ms
	On → Off	< 5 V_{DC}			On → Off	
-				Response Time (TR)	Off → On	12 µs
					On → Off	115 µs

Model Introduction

HMC Series

HMC 07 - N4 12 H 5 C 5

Product Series
HMC: HMC Series

Display Type
07: 7-inch
08: 8-inch

Resolution
4: WVGA
5: SVGA

Model
00/11: No nameplate protection
12: With nameplate protection

Product type
S: Standard Type
H: Handheld Type

Motion BUS
5: DMCNET

Peripheral Interface
2: SD + USB
C: MPG + SD + 3-position switch
5: SD

Cable Length
None: No Cable
5: 5m
A: 10m
F: 15m
K: 20m

Servo Motors ECMA Series



ECM - A - C1 06 02 E S

Product Name
ECM: Electrical Commutation Motor

Driving Type
A: AC Servo Motor

Series Rated Voltage / Rated Speed

C: 220V / 3000r/min	E : 220V / 2000r/min
F: 220V / 1500r/min	G : 220V / 1000r/min
J: 400V / 3000r/min	K : 400V / 2000r/min
L: 400V / 1500r/min	

Encoder Type
1: Incremental encoder, 20-bit
2: Incremental encoder, 17-bit

A: Absolute encoder,
Single-turn:17-bit Multi-turn:16-bit

Motor Frame Size

04: 40mm	10: 100mm
06: 60mm	13: 130mm
08: 80mm	18: 180mm
09: 86mm	22: 220mm

Rated Output Power

01: 100W	05: 500W	10: 1kW	45: 4.5kW
02: 200W	06: 600W	15: 1.5kW	55: 5.5kW
03: 300W	07: 750W	20: 2kW	75: 7.5kW
04: 400W	09: 900W	30: 3kW	1B: 11kW
			1F: 15kW

Standard Shaft Dimension
S
Specified Shaft Dimension
7=14mm
3=42mm

Shaft Type and Oil Seal	W/O Brake W/O Oil Seal	With Brake W/O Oil Seal	W/O Brake With Oil Seal	With Brake With Oil Seal
Round Shaft (with fixed screw holes)	A	B	C	D
Keyway	E	F	G	H
Keyway (with fixed screw holes)	P	Q	R	S

Servo Drives ASDA-M Series



ASD - M - 07 21 - F

Product Name: AC Servo Drive

Series: M

Rated Output Power
07: 750 W
15: 1.5 kW

Input Voltage and Phase
21: 220 V 1-phase
23: 220 V 3-phase

F: DMCNET

Servo Drives ASDA-A2 Series



ASD - A2 - 04 21 - F

Product Name: AC Servo Drive

Series: A2

Rated Output Power

01: 100 W	20: 2.0 kW
02: 200 W	30: 3.0 kW
04: 400 W	45: 4.5 kW
07: 750 W	55: 5.5 kW
10: 1.0 kW	75: 7.5 kW
15: 1.5 kW	1B: 11 kW
	1F: 15 kW

Input Voltage and Phase
21: 220V 1-phase/3-phase
23: 220V 3-phase
43: 400V 3-phase

F: DMCNET

Optional Accessories

Model Name	Descriptions
HMC-CA3205C0	Handheld types HMC07-N5xx Series connection cable (5 m, 32-pin)
HMC-CA3210C0	Handheld types HMC07-N5xx Series connection cable (10 m, 32-pin)
HMC-CA1205C0	Handheld types HMC07-N5xx Series connection cable (5 m, 12-pin)
HMC-CA1210C0	Handheld types HMC07-N5xx Series connection cable (10 m, 32-pin)
NC-CAB-DMC003	DMCNET/Remote I/O connection cable (0.3 m)
NC-CAB-DMC015	DMCNET/Remote I/O connection cable (1.5 m)
NC-CAB-DMC050	DMCNET/Remote I/O connection cable (5 m)
NC-CAB-DMC100	DMCNET/Remote I/O connection cable (10 m)

HMI SERIE DOP

Advanced Human Machine Interface for

The DOP-100 Series Human Machine Interfaces include a Basic HMI, Standard HMI and Advanced HMI for different applications. The HMIs adopt the latest Cortex-A8 / Dual Core high-speed processor and 65,536 color LCD screen with high brightness and contrast. In addition, they are equipped with the HMI programming software DOPSoft 4.0 and built-in Lua editor for easy programming as well as alarm / history log / user authority functions for highly efficient management.

With advanced communication capabilities and enhanced functions, the DOP-100 Series elevates machine efficiency to bring more value to our customers, and to achieve "Automation for a Changing World"!



Standard HMI

Features General and Ethernet Types for various applications

Future Industry

Advanced HMI

Features narrow frame design,
supports various network communications,
multilingual input and multimedia functions



Basic HMI

Simple operating structure for harsh environments

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Easy Model Selection

The DOP-100 Series offers complete models for different applications. Users can easily select a suitable HMI based on size or function easily

B Type	1 COM port
D Type	1 COM port + 1 Ethernet port
C Type	2 COM ports
E Type	2 COM ports + 1 Ethernet port
I Type	3 COM ports + 1 Ethernet port
W Type	More than 1 COM port + 1 Ethernet port + Narrow frame design + Multi-language
M Type	2 COM ports + 2 Ethernet ports + Narrow frame design + Multi-language + Multi-media

Type Definition

DOP-107 W V




Advanced HMI
At least 1 COM Ports &
1 Ethernet prot included
W Type
Advanced Narrow Frame
M Type
Advanced Multimedia
Standard HMI
At least 2 COM Ports
included
C Type
Standard General
E Type
Standard Ethernet
(2COM)
I Type
Standard Ethernet
(3COM)
Basic HMI
1 COM Ports included
B Type
Basic
D Type
Basic Ethernet

Advanced HMI

The Advanced HMI adopts a wide screen and narrow frame design. It supports Ethernet communication & multilingual inputs. The Multimedia Type DOP-112 / 115 offers multimedia functions to meet different applications.



M Type W Type

Features



Narrow Frame
Enlarged visual display for better user experience



LUA Language
Simple and easy structural programming language to meet various demands



Pressing times >10,000,000
Effective pressing times increased through strict endurance tests



IP65 Rating
The front case protects the HMI from snow, rain, and dust



Multilingual Input
16 different languages input for easy operation



Diagnostics Function
Collects and solves issues remotely



Power Isolation
Protects the HMI from accidental surge interference



VNC Remote Monitoring
Remote control with mobile devices



QRcode Scanning
Generates QRcodes with self-defined content for mobile device identification



Supports GIF Graphic Elements
Easy setting to play vivid GIF elements



Embedded Linux System
Open system for flexible and stable program development



DOPSoft 4.0
New software DOPSoft 4.0 offers more complete functions and a better interface



Operating Temperature 0ºC ~ 50ºC
Compliant with industrial operating environments



CE / UL Certified
Compliant with CE and UL standards



Multimedia Functions
Captures image with an external camera or replays important recordings

M Type Only



Ethernet Communication
Connects to a master device or PLC with high-speed Ethernet communication



Communication Isolation
COM and Ethernet ports with built-in isolation circuits enhance communication stability



FTP/eMail Supported
Simple data transmission and real-time status report



Supports PDF and TXT Reader
PDF and TXT files supported



User-Friendly
Intuitive operation interfaces for users

Camera & Video Play
Multi-Media Functions



Analog Camera

Supports external camera via analog, suitable for capturing fast and short-distanced images

Applications: Textiles | Pharmaceutical | Rubber & Plastics

IP Camera

Supports IP Camera via Ethernet, suitable for capturing remote and wide-range images

Applications: Packaging | Logistics | Mining | Power Generation | Oil & Gas

VGA Input

Displays images from external devices such as machine vision systems, PCs or notebooks

Video Play

Views mpeg4 files captured by analog or IP camera from internal storage or USB disk / SD card

Event Trigger

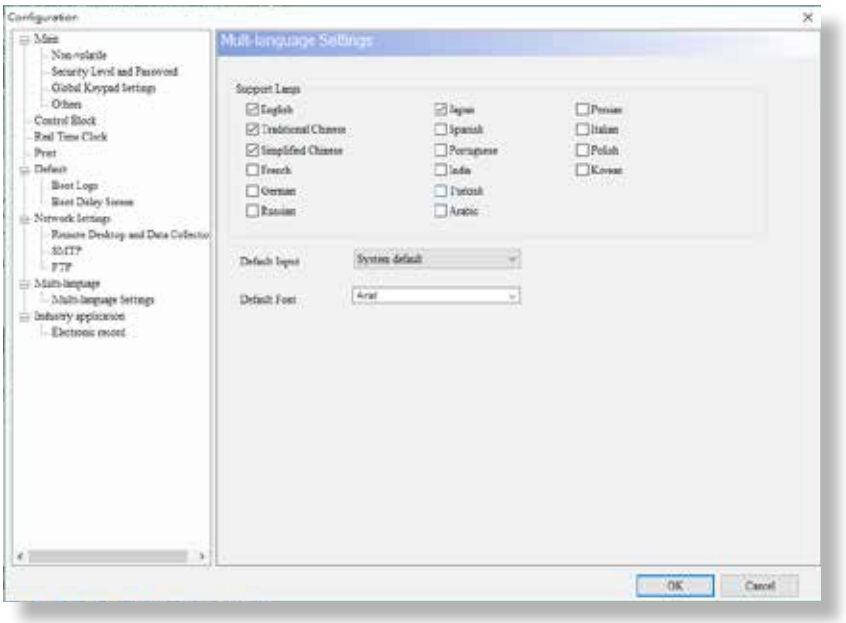
HMI performs specific actions when an event condition occurs
Sets up event trigger conditions to capture images and archive as mpeg4 files



Multi-Language Input for Localization

- The Advanced HMI supports multilingual inputs for:
  - Recipe Name (ENRCPG)
  - Recipe Group Name (ENRCPNO)
  - Recipe Content (Char)
  - User Name

- Supports 16 languages: English, Traditional Chinese, Simplified Chinese, French, German, Russian, Japanese, Korean, Spanish, Portuguese, Hindi, Turkish, Arabic, Persian, Italian and Polish



Standard HMI

The Standard HMI is equipped with 2 COM ports to meet most applications. It also offers Ethernet Types for fast and easy connection with other equipment.



C Type E Type I Type

Features

Embedded Linux System
Open system for flexible and stable program development

LUA Language
Simple and easy structural programming language to meet various demands

DOPSoft 4.0
New software DOPSoft 4.0 offers more complete functions and a better interface

Pressing times >10,000,000
Effective pressing times increased through strict endurance tests

Operating Temperature 0ºC ~ 50ºC
Compliant with industrial operation environments

IP65 Rating
The front case protects the HMI from snow, rain, and dust

CE / UL Certified
Compliant with CE and UL standards

Diagnostics Function
Collects and solves issues remotely

Ethernet Communication
Connects to master device or PLC with high-speed Ethernet communication
E Type I Type

Power Isolation
Protects the HMI from accidental surge interference

Communication Isolation
COM and Ethernet ports with built-in isolation circuits enhance communication stability
E Type I Type

VNC Remote Monitoring
Remote control with mobile devices
E Type I Type

FTP/eMail Supported
Simple data transmission and real-time status report
E Type I Type

Supports PDF and TXT Reader
PDF and TXT files supported

Supports GIF Graphic Elements
Easy setting to play vivid GIF elements

User-Friendly
Intuitive operation interfaces for users

Basic HMI

The Basic HMI features basic functions and easy installation for industrial applications. With an IP65 water-proof rating, it is suitable for harsh environments.



B Type

D Type

Features

Embedded Linux System
Open system for flexible and stable program development

LUA Language
Simple and easy structural programming language to meet various demands

DOPSoft 4.0
New software DOPSoft 4.0 offers more complete functions and a better interface

Pressing times >1,000,000
Effective pressing times increased through strict endurance tests

Operating Temperature 0ºC ~ 50ºC
Compliant with industrial operating environments

IP65 Rating
The front case protects the HMI from snow, rain, and dust

CE / UL Certified
Compliant with CE and UL standards

Diagnostics Function
Collects and solves issues remotely

Ethernet Communication
Connects to master device or PLC with high-speed Ethernet communication
D Type Only

FTP/eMail Supported
Simple data transmission and real-time status report
D Type Only

Communication Isolation
COM and Ethernet ports with built-in isolation circuits enhance communication stability
D Type Only

VNC Remote Monitoring
Remote control with mobile devices
D Type Only

Supports PDF and TXT Reader
PDF and TXT files supported

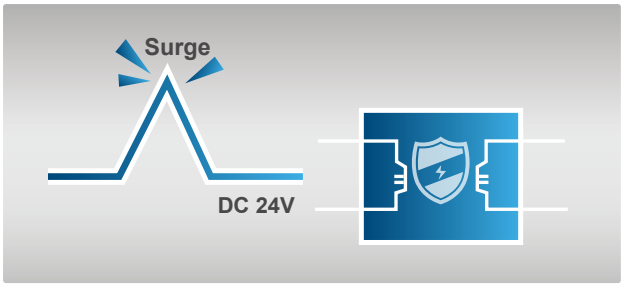
Diagnostics Function
Collects and solves issues remotely

User-Friendly
Intuitive operation interfaces for users

Robust Hardware

Power Isolation

- Complete series with built-in power isolation circuits provides the most complete protection against accidental external spikes



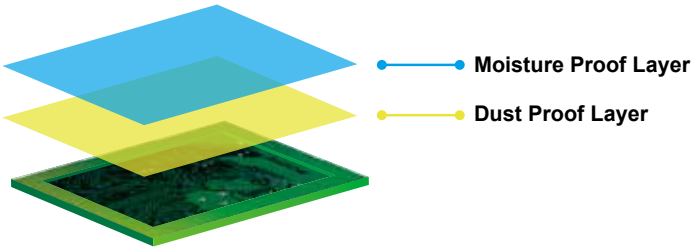
Fully Isolated Communication Interface

- Complete series has built-in COM and Ethernet isolation circuits to protect against noise that can occur from the grounding of various devices such as PLCs, servo drives, inverters and others



PCB Coating

- Complete series has PCB coating for enhanced durability and to protect against humidity and dust for applications in a range of environments

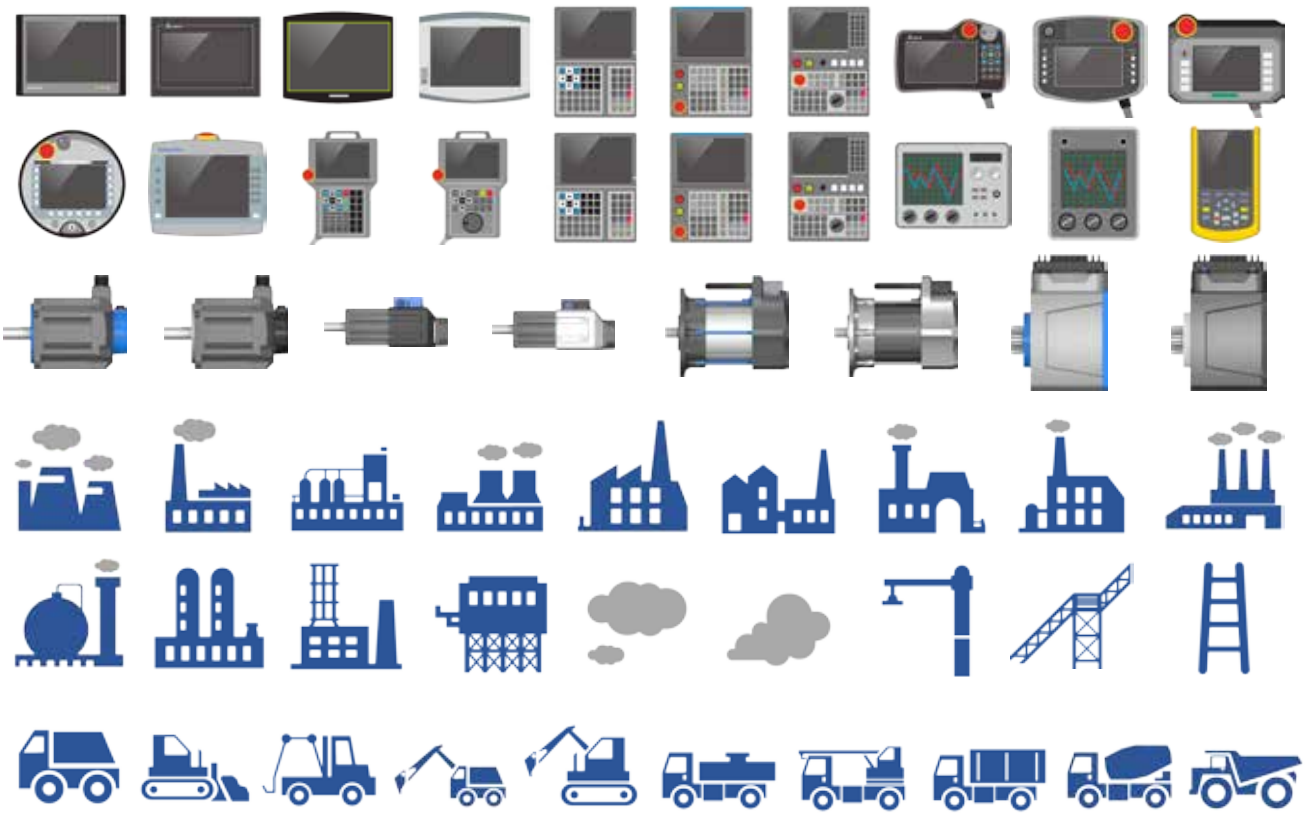


Model	Power Isolation	Communication Isolation
Advanced HMI (Multimedia Type)		
DOP-112/115 MX	Yes	Yes
Advanced HMI		
DOP-103WQ/107WV/110WS	Yes	Yes
DOP-112/115 WX	Yes	Yes
Standard HMI (Ethernet Type)		
DOP-107IV	Yes	Yes
DOP-108IG/110IG	Yes	Yes
DOP-110IS	Yes	Yes
DOP-107EV	Yes	Yes
DOP-107EG	Yes	Yes
Standard HMI		
DOP-105CQ	Yes	No
DOP-107CV	Yes	No
DOP-110CS	Yes	No
DOP-110CG	Yes	No
Standard HMI (General Type)		
DOP-107DV	No	No
Basic HMI		
DOP-103BQ	No	No
DOP-107BV	No	No

Programming Software – DOPSoft 4.0

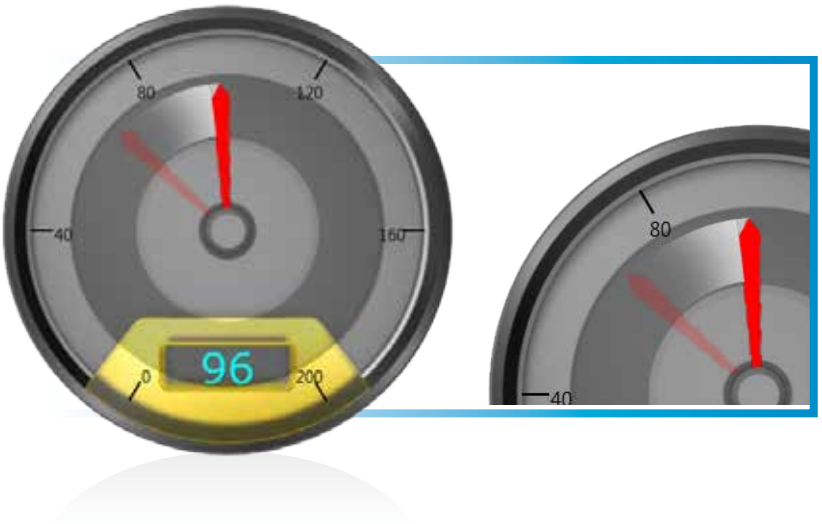
Abundant Elements

- Abundant built-in element graphics for vivid interface display for a variety of industrial applications



Smooth Animation

- New smooth animation technology for realistic dashboard display



Programming Software - DOPSoft 4.0

User-friendly Programming Interface

Bookmark Management

Bookmark menu allows users to switch pages easily

Project Management Batch

Quickly switch items via the project branch feature

Editing Area

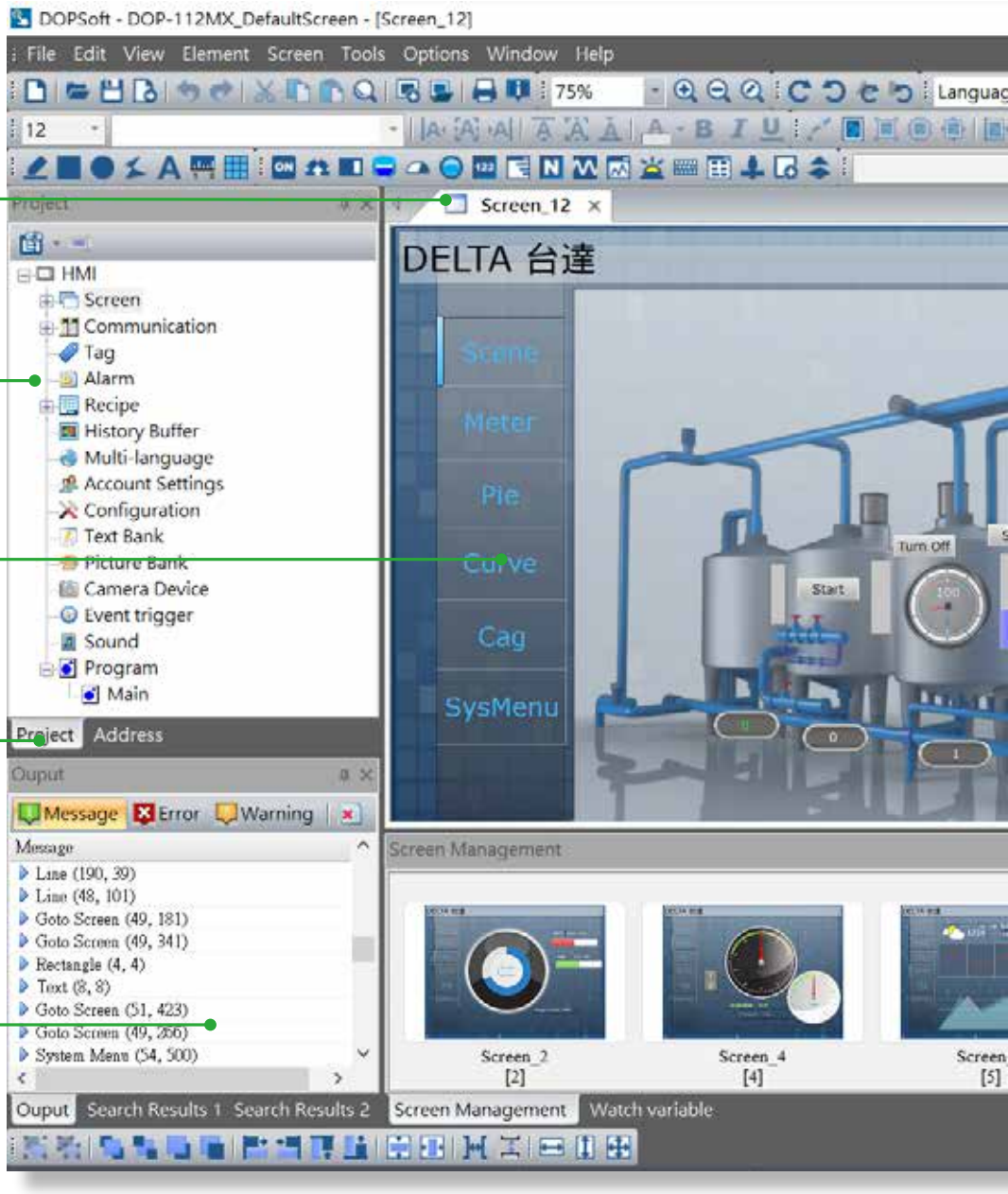
Provides real-time display of your edit

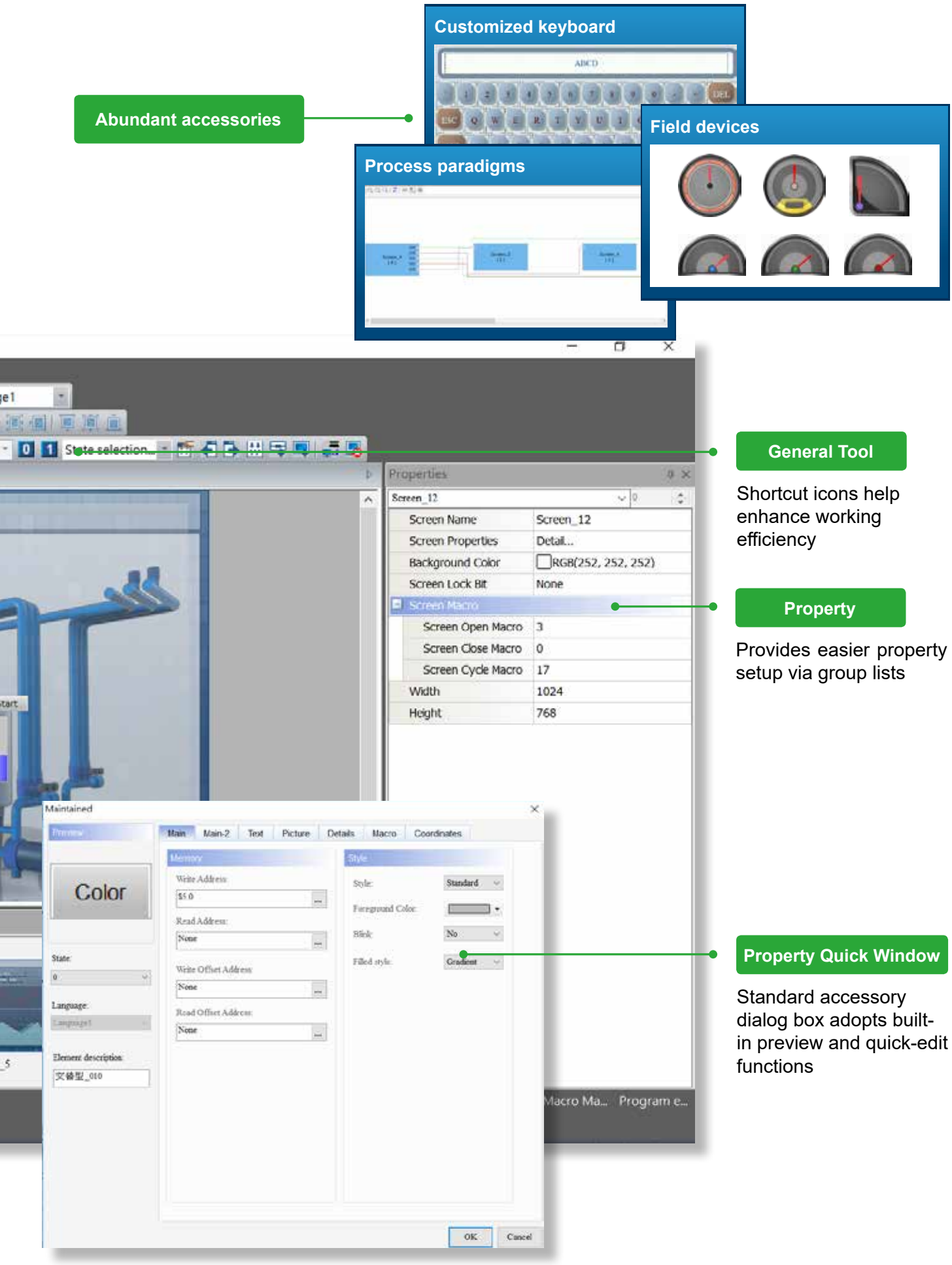
Output List

Automatically displays edit results of each screen. Users can review and resolve errors by clicking screens

Edit Preview

Quickly browses the overall project via edit preview





General Tool

Shortcut icons help enhance working efficiency

Property

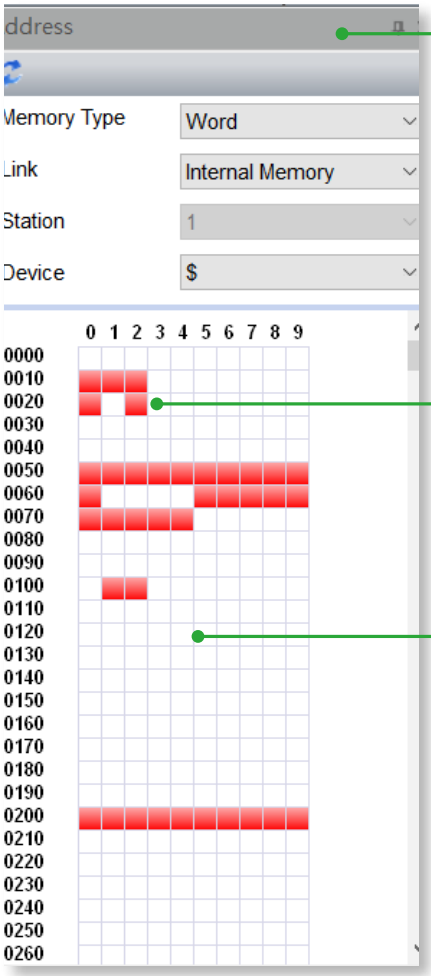
Provides easier property setup via group lists

Property Quick Window

Standard accessory dialog box adopts built-in preview and quick-edit functions

Programming Software - DOPSoft 4.0

Editing Windows



Register View Window

The color blocks of red and white allow users to view the memory register status

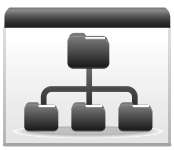
Red blocks indicate the used registers

White blocks indicate empty registers



Macro Management Window

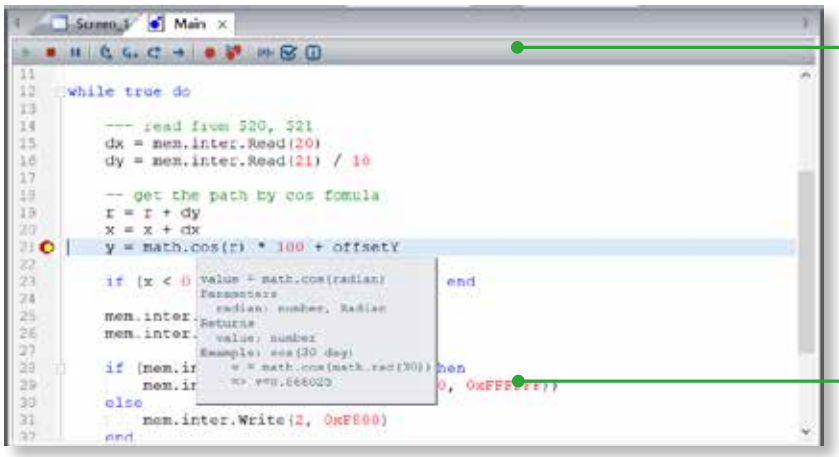
Users can view all types of macros in the project



Selected a macro via the list



Directly edit the macro after clicking

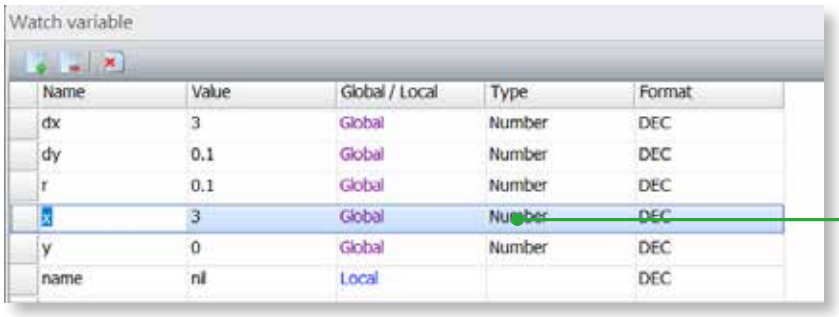


Lua Tool Bar

Program Debugging

Stops program debug

Program break point

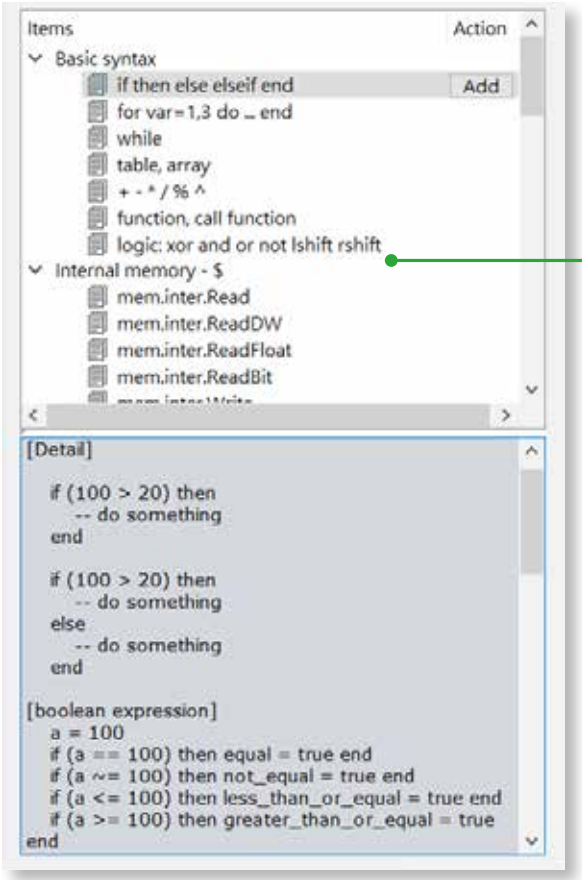


Online Coding Tips

Lua editor displays tip windows of the codes when users move the mouse to selected codes

Parameter Monitoring Window

Allows users to monitor parameter variation during program development



Programming Assistance Window

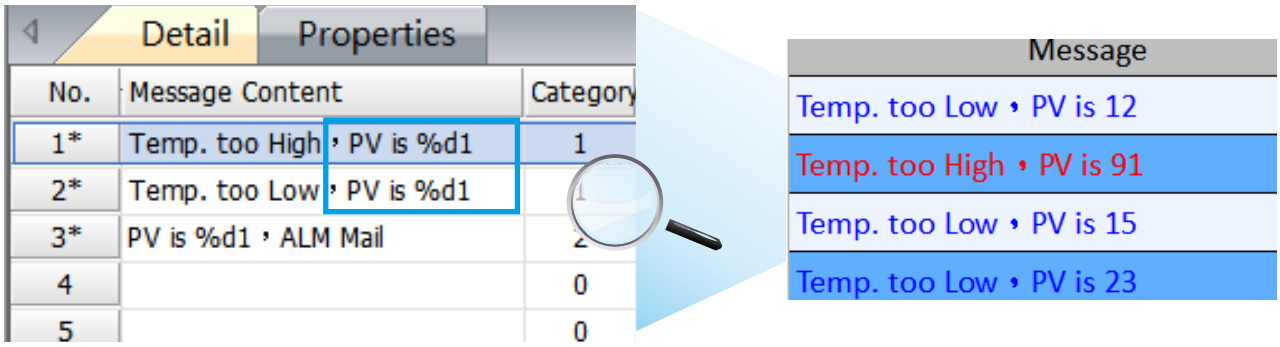
Provides online assistance as follows:

- Lua code templates
- Program usage and properties
- Program samples

Advanced Alarm

Strengthened alarm functions allow users to easily manage machine operations and quickly eliminate problems

- Alarm messages contain current register data for issue analysis

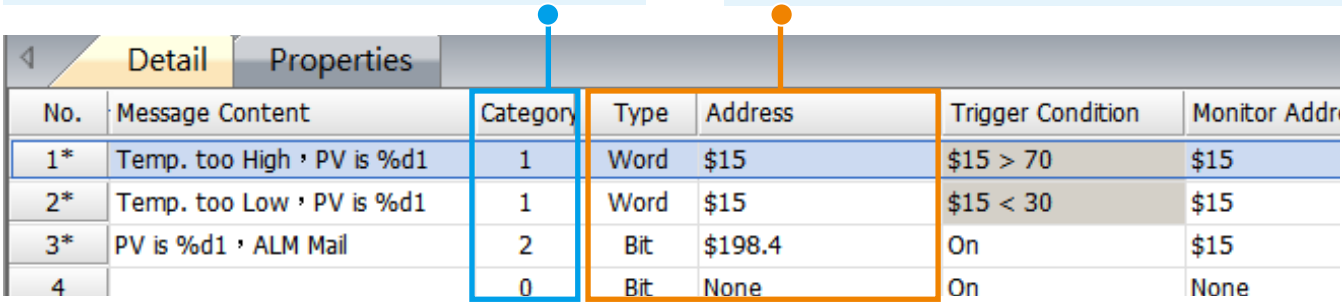


Alarm Sorting

Alarm sorting via a "Sorting" function based on alarm attributes for quick information inquiries

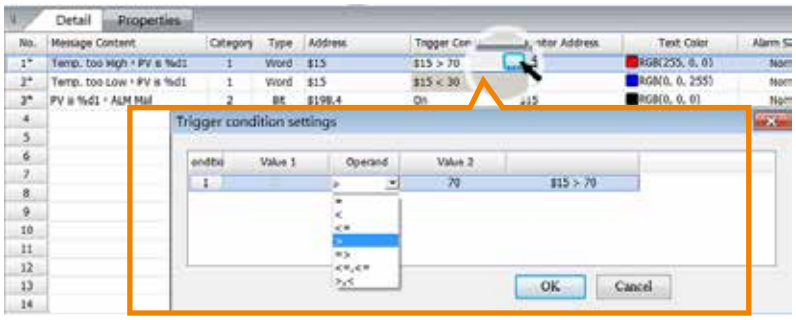
Supports Compound Address Monitoring

Able to monitor Word and Bit documents at the same time



Versatile Alarm Triggering Conditions

Triggering conditions can be setup via a built-in function, no external editing programs required



Alarm Notification

Automatically sends out alarm notification emails to logged-in recipients when alarms occur and supports the Secure Sockets Layer (SSL) protocol to ensure safe data transmission



- Indicates the alarm trigger and recovery time, and provides alarm acknowledge time / date (Ack) to confirm and monitor troubleshooting progress

Message	Trigger	Ack	Recovery
Temp. too Low • PV is 12	15:07:12 02/03/2017		15:07:15 02/03/2017
Temp. too High • PV is 91	15:07:15 02/03/2017	15:07:56 02/03/2017	15:07:22 02/03/2017
Temp. too Low • PV is 15	15:07:22 02/03/2017		15:07:25 02/03/2017
Temp. too Low • PV is 23	15:07:28 02/03/2017	15:07:58 02/03/2017	15:07:34 02/03/2017

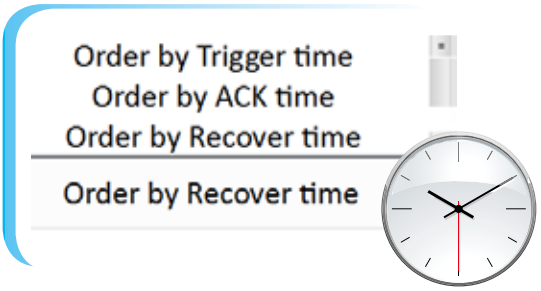
Alarm Filtering

Advanced address control filtering allows users to find specified alarm messages according to user needs

Action	
Address control filtering allows users to find specified alarms	
No.	Action
0	Preset state, shows all triggered alarms
1	Hide alarms with "Restore Time" and "Confirm Time"
2	Hide alarms with "Restore Time"
3	Hide alarms with "Restore Time" or "Confirm Time"
4	Hide alarms with "Confirm Time"

Alarm Ordering

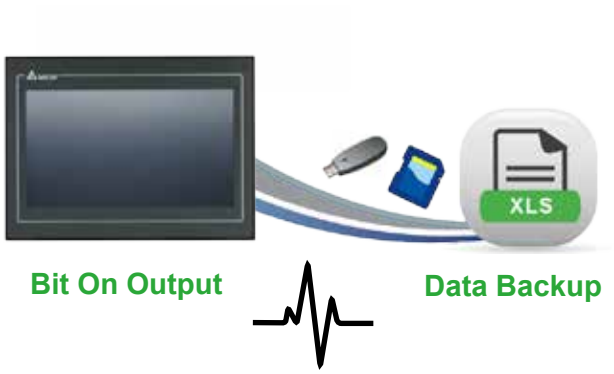
Able to display alarms in the order of Trigger Time / Confirm Time / Restore Time

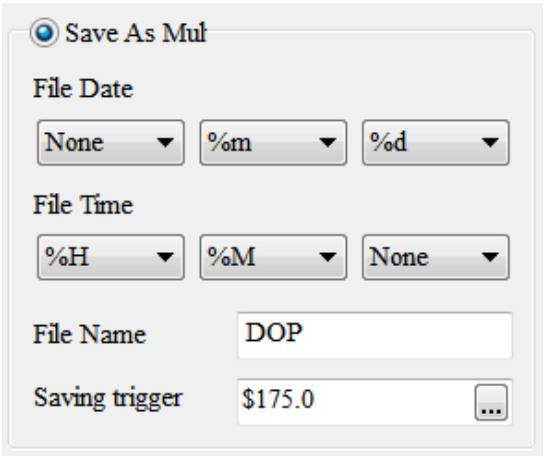


Data Management

Historical Data

- Able to generate historical reports with user-defined file names and timestamps through Bit Control





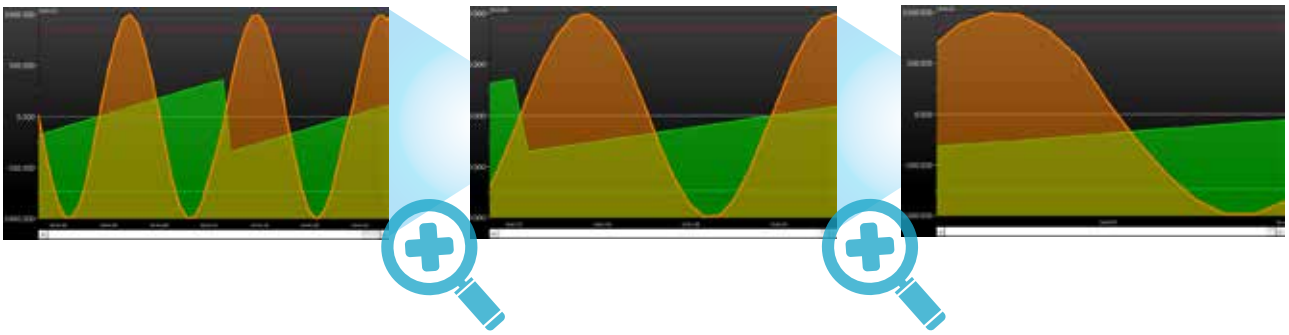
Historical Data Review

- Allows historical data review on backup in USB disk or SD cards



Zoom In / Out Display

- Zoom in / out function for convenient data viewing



Recipes

- Supports 2D and 3D recipe grouping, more flexible in building recipe database
- Various recipe formats, including text format (Unicode) which can also be used as formula notes

	D100	D101	D102	D103	D104	D105	D106	
	D100	D101	D102	D103	D104	D105	D106	50.7
Cake Recipe 1	Strawberry	300	0	0	221.56	533.1	150.7	63.9
Cake Recipe 2	Chocolate	0	300	0	387.98	490.8	163.9	79.8
Cake Recipe 3	Vanilla	0	0	300	120.14	505.3	279.8	
		Strawberry	Chocolate	Vanilla	Sugar	Flour	Milk	
	Char	Unsigned DEC			Floating			

Recipe Group 2

Recipe Group 1

- Recipes can be saved in CSV files for convenient editing on PCs
- Allows recipe update or backup through USB disks, SD cards or FTP



PDF for Data Review

- Saves manuals or instruction PDF files in USB disks or SD cards for reference anytime



User Authority Management

Account and Authorization Management

- Supports 8 levels of authority and allows 8 accounts (account name/password) for each level
- Different function and operation access for each authority level to enhance operation safety



Operation Log

- Operation log for different user accounts to trace/analyze possible causes of malfunctions
- Provides comprehensive information for managers to analyze the operating habits of different users and improve efficiency

Time	Date	User	Level	Screen	Action	Address	Pre Value	Change Value	Description
19:22:18	2016.12.02	MANAGER	7	Screen_6	Goto Scrn		6	1	換畫面_006
19:22:20	2016.12.02	MANAGER	7	Screen_1	Goto Scrn		1	10	換畫面_001
19:22:24	2016.12.02	MANAGER	7	Screen_10	Set Val	$51.1	1	0	交替型_003
19:22:27	2016.12.02	MANAGER	7	Screen_10	Goto Scrn		10	1	換畫面_006
19:22:30	2016.12.02	MANAGER	7	Screen_1	Goto Scrn		1	7	換畫面_001
19:22:57	2016.12.02	MANAGER	7	Screen_7	Set Val	$20	-730	-698	數值輸入_0
19:23:02	2016.12.02	MANAGER	7	Screen_7	Goto Scrn		7	1	換畫面_006
19:23:05	2016.12.02	MANAGER	7	Screen_1	Goto Scrn		1	6	換畫面_001
19:23:47	2016.12.02	MANAGER	7	Screen_6	Level Switch		7	4	密碼輸入_0
19:23:52	2016.12.02	OPERATOR	4	Screen_6	Goto Scrn		6	1	換畫面_006
19:23:55	2016.12.02	OPERATOR	4	Screen_1	Goto Scrn		1	3	換畫面_001
19:24:03	2016.12.02	OPERATOR	4	Screen_3	Set Val	ENRCP10	12ED	65AE	數值輸入_0
19:24:09	2016.12.02	OPERATOR	4	Screen_3	Set Val	ENRCP11	456.32	125.93	數值輸入_0
19:24:14	2016.12.02	OPERATOR	4	Screen_3	Set Val	ENRCP17	400	452	數值輸入_0
19:24:15	2016.12.02	OPERATOR	4	Screen_3	Goto Scrn		3	1	換畫面_006
19:24:17	2016.12.02	OPERATOR	4	Screen_1	Goto Scrn		1	6	換畫面_001

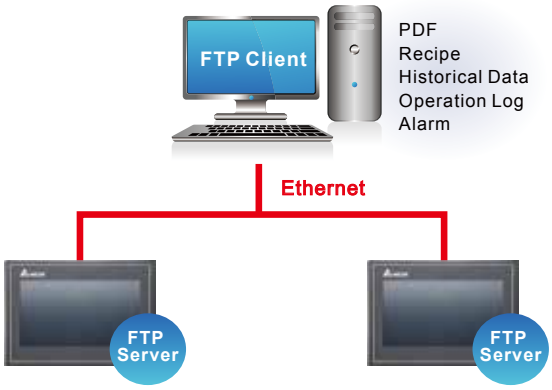
Cloud Integration

M Type W Type I Type E Type D Type

Only With Ethemet

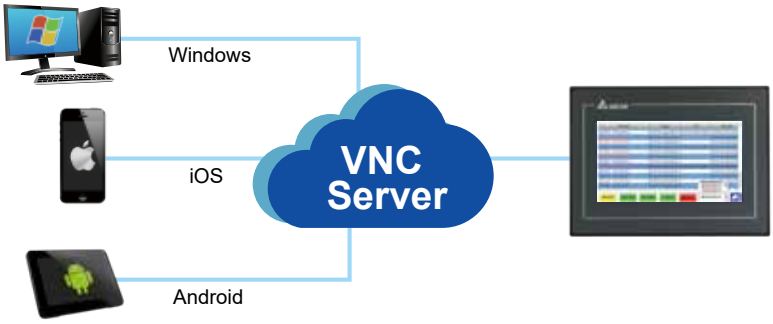
FTP Server

- Built-in FTP server to update recipes or PDF files, and backup historical data, operation log and alarms



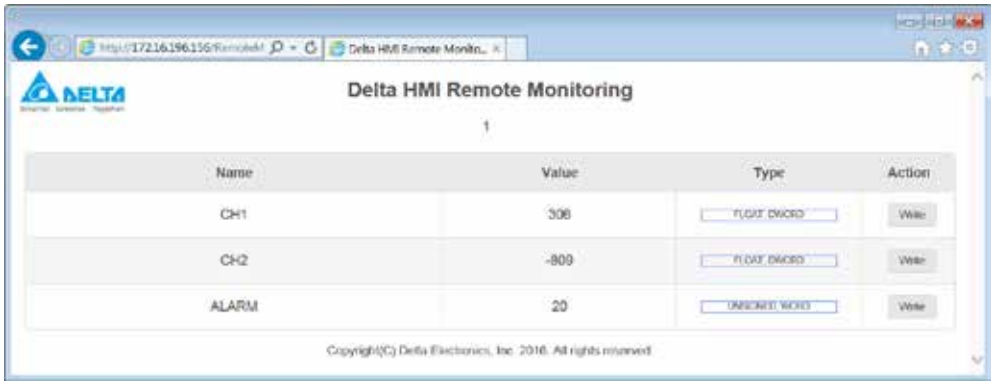
VNC Server

- Built-in VNC server allows remote monitoring and operating of the DOP-100 Series via VNC Client APP (Windows, iOS, Android)
- Lock function: block remote operation during on-site operation to avoid unsynchronized commands. VNC server allows remote monitoring but not remote operation when the lock function is on



Web Monitoring

- Allows direct monitoring of register data via web page, and requires no additional software installation



Hardware Specifications

Advanced HMI

Model		Advanced Narrow Frame Type		
		DOP-103WQ	DOP-107WV	DOP-110WS
LCD Module	Display	4.3" TFT LCD	7" TFT LCD	10.1" TFT LCD
	Color	65,536		
	Resolution (Pixels)	480 x 272	800 x 480	1024 x 600
	Back Light	LED Back Light		
	Back Light Brightness (cd/m^2)	400	450	450
	Back Light Life (Hour) *1	10,000	20,000	30,000
	Display Area	95.04 x 53.856 mm	154.08 x 85.92 mm	225.52 x 128.10 mm
MCU		ARM Cortex-A8 (800MHz)		
Flash ROM (Bytes)		256 MB		
RAM (Bytes)		512 MB		
Touch Panel		Four-wire resistor, over 10,000,000 pressing times		
Buzzer		Multi-Tone Frequency (2K ~ 4K Hz) / 80dB		
Ethernet Interface		1 Port *2, 10/100 Mbps auto-sensing		
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0		
SD		N/A		
Serial COM Port	COM1	RS-232 (supports hardware flow control) / RS-485 *2	RS-232 (supports hardware flow control)	
	COM2	RS-422 / RS-485 *2	RS-232 (supports hardware flow control) / RS-485 *2	
	COM3	N/A	RS-422 / RS-485 *2	
RTC		Built-in		
Cooling		Natural air circulation		
Certification		CE / UL		
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)		
Operation Voltage *3		DC +24V (-15% ~ 15%) *2		
Voltage Endurance		A599V for 1 minute (between charging DC24 terminal and FG terminals)		
Power Consumption *5		Max. 5.8 W *3	Max. 8.4 W *3	Max. 11 W *3
Backup Battery		3V lithium battery CR2032 × 1		
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C		
Operating Temperature		0°C ~ 50°C		
Storage Temperature		-20 °C ~ 60 °C		
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2		
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g		
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times		
Dimensions (W) x (H) x (D) mm		137 x 103 x 37.1	196 x 136 x 39	270 x 180.9 x 47.75
Mounting dimension (W) x (H) mm		118.8 x 92.8	186.8 x 126.8	255 x 170.5
Weight		280 g	560g	1,100g

1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.
2) Built-in power isolation
3) An isolated power supply is recommended.
4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.
5) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.
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Advanced HMI

Model		Advanced Narrow Frame Type		Advanced Multimedia Type	
		DOP-112WX	DOP-115WX	DOP-112MX	DOP-115MX
LCD Module	Display	12" TFT LCD	15" TFT LCD	12" TFT LCD	15" TFT LCD
	Color	24bit			
	Resolution (Pixels)	1024 x 768			
	Back Light	LED Back Light			
	Back Light Brightness (cd/m^2)	500	450	500	450
	Back Light Life (Hour) *1	50,000			
	Display Area	245.76 x 184.32 mm	304.1 x 228.1 mm	245.76 x 184.32 mm	304.1 x 228.1 mm
MCU		Dual Core 1GHz			
Flash ROM (Bytes)		8GB			
RAM (Bytes)		DDR3 1000MHz 1GB			
Touch Panel		Four-wire resistor, over 10,000,000 pressing times			
Buzzer		Multi-Tone Frequency (2K ~ 4K Hz) / 85dB			
Ethernet Interface		2 Port, 100M bps x 2			
USB		1 Mini USB Slave Ver 2.0 / 1 USB Host Ver 2.0			
SD		SD x 1			
Serial COM Port	COM1	RS-232 (supporting flow control) / RS485 *2			
	COM2	RS-422 / RS485 *2			
	COM3	RS-232 (supporting flow control) / RS-485 *2			
	COM4	RS-422 / RS485			
RTC		Built-in			
Cooling		Natural air circulation			
Certification		CE / UL			
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage *3		DC +24V (-15% ~ 15%) *2			
Voltage Endurance		A599V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption *5		Max. 16.08W	Max. 21.12W	Max. 16.08W	Max. 21.12W
Backup Battery		3V lithium battery CR2032 × 1			
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C			
Operation Temperature		0°C ~ 50°C			
Storage Temperature		-20°C ~ 60°C			
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2			
Viberation		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g			
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm		317.4 x 246.4 x 52.7	387.7 x 295.7 x 63.5	317.4 x 246.4 x 52.7	387.7 x 295.7 x 63.5
Mounting dimension (W) x (H) mm		302.7 x 228.7	372.4 x 283.7	302.7 x 228.7	372.4 x 283.7
Weight		2110g	3200g	2110g	3200g

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4) Built-in power isolation
5) An isolated power supply is recommended.
4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.
7) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.
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Hardware Specifications

Standard HMI

Model		Standard General Type			
		DOP-105CQ	DOP-107CV	DOP-110CS	DOP-110CG
LCD Module	Display	5.6" TFT LCD	7" TFT LCD	10" TFT LCD	10.4" TFT LCD
	Color	65,536			
	Resolution (Pixels)	320 x 234	800 x 480	1024 x 600	800 x 600
	Back Light	LED Back Light			
	Back Light Brightness (cd/m^2)	200	400	300	300
	Back Light Life (Hour) *1	20000			
	Display Area	113.28 x 84.70 mm	154.08 X 85.92 mm	226 X 128.7 mm	211.2 x 158.4 mm
MCU		ARM Cortex-A8 (800MHz)			
Flash ROM (Bytes)		256 Mbytes			
RAM (Bytes)		256 Mbytes			
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times			Four-wire resistor, over > 1,000,000 pressing times
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB			
	AUX	N/A			
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0			
SD		N/A			
Serial COM Port	COM1	RS-232 (supports hardware flow control)*2			
	COM2	RS-232 (supports hardware flow control) / RS-485 *2			
	COM3	RS-422 / RS-485*2			
RTC		Built-in			
Cooling		Nature air circulation			
Certification		CE / UL (please equip shielding cables and linefilters with capacity of 300ohm/100MHz)			
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage *3		DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)			
Voltage Endurance		A500V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption *5		Max. 6.86 W *3	Max. 8.5 W *3	Max. 10.4 W *3	Max. 8W*3
Backup Battery		3V lithium battery CR2032 × 1			
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C			
Operation Temperature		0°C ~ 50°C			
Storage Temperature		-20 °C ~ 60 °C			
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2			
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g			
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm		184 x 144 x 50	215 x 161 x 61.2	272 x 200 x 61	229 x 224 x 46.8
Mounting dimension (W) x (H) mm		172.4 x 132.4	196.9 x 142.9	261.3 x 189.3	285.2 x 210.2
Weight		670 g	970 g	1330g	1735 g

1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.6
2) Built-in power isolation
3) An isolated power supply is recommended.
4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.
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Standard HMI

Model		Standard Ethernet Type (2 COM)	
		DOP-107EG	DOP-107EV
LCD Module	Display	7" TFT LCD	7" TFT LCD
	Color	65,536	
	Resolution (Pixels)	800 x 600	800 x 480
	Back Light	LED Back Light	
	Back Light Brightness (cd/m^2)	450	400
	Back Light Life (Hour) *1	20000	20000
	Display Area	141 X 105.75 mm	154.08 X 85.92 mm
MCU		ARM Cortex-A8 (800MHz)	
Flash ROM (Bytes)		256 Mbytes	
RAM (Bytes)		256 Mbytes	
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times	
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB	
	AUX	Stereo output	N/A
Ethernet Interface		1 Port *2, 10/100 Mbps auto-sensing	
USB		1 USB Slave Ver 2.0; 1 USB Host Ver 2.0	
SD		SD x 1	N/A
Serial COM Port	COM1	RS-232 (supports hardware flow control)*2	
	COM2	RS-232 (supports hardware flow control) / RS-485 *2	
	COM3	RS-422 / RS-485*2	
RTC		Built-in	
Cooling		Natural air circulation	
Certification		CE / UL (please equip Shielding cables and linefilters with capacity of 300ohm/100MHz)	
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)	
Operation Voltage *3		DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)	
Voltage Endurance		A500V for 1 minute (between charging DC24 terminal and FG terminals)	
Power Consumption *5		Max. 8.4 W *3	Max. 8.76 W *3
Backup Battery		3V lithium battery CR2032 × 1	
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C	
Operating Temperature		0°C ~ 50°C	
Storage Temperature		-20 °C ~ 60 °C	
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2	
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g	
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times	
Dimensions (W) x (H) x (D) mm		184 x 144 x 51.5	215 x 161 x 61.2
Mounting dimension (W) x (H) mm		172.4 x 132.4	196.9 x 142.9
Weight		800 g	970g

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5) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.
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Hardware Specifications

Standard HMI

Model		Standard Ethernet Type (3 COM)			
		DOP-107IV	DOP-108IG	DOP-110IS	DOP-110IS
LCD Module	Display	7" TFT LCD	8" TFT LCD	10.1" TFT LCD	10.4" TFT LCD
	Color	65,536			
	Resolution (Pixels)	800 x 480	800 x 600	1024 x 600	800 x 600
	Back Light	LED Back Light			
	Back Light Brightness (cd/m^2)	400	250	300	300
	Back Light Life (Hour) *1	20000			
	Display Area	152.4 x 91.44 mm	162 x 121.5 mm	226 x 128.7 mm	211.2 x 158.4 mm
MCU		ARM Cortex-A8 (800MHz)			
Flash ROM (Bytes)		256 Mbytes			
RAM (Bytes)		256 Mbytes			
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times			
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB			
	AUX	N/A	Stereo output		
Ethernet Interface		1 Port*2, 10/100 Mbps auto-sensing			
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0			
SD		SD x 1			
Serial COM Port	COM1	RS-232 (supports hardware flow control)*2			
	COM2	RS-232 (supports hardware flow control) / RS-485 *2			
	COM3	RS-232 (supports hardware flow control) / RS-422 / RS-485*2			
RTC		Built-in			
Cooling		Nature air circulation			
Certification		CE / UL (please equip shielding cables and linefilters with capacity of 300ohm/100MHz)			
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage *3		DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)			
Voltage Endurance		A500V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption *5		Max. 12W *3	Max. 9.88W *3	Max. 9.6W *3	Max. 9.6W*3
Backup Battery		3V lithium battery CR2032 × 1			
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C			
Operation Temperature		0°C ~ 50°C			
Storage Temperature		-20°C ~ 60°C			
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2			
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g			
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm		215 x 161 x 61.2	227.1 x 174.1 x 61	272.6 x 200.6 x 54	299 x 224 x 46.8
Mounting dimension (W) x (H) mm		196.9 x 142.9	219.4 x 166.5	261.3 x 189.3	285.2 x 210.2
Weight		970g	1226g	1130g	1600g

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2) Built-in power isolation
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Basic HMI

Model		Basic Type		Basic Ethernet Type
		DOP-103BQ	DOP-107BV	DOP-107DV
LCD Module	Display	4.3" TFT LCD	7" TFT LCD	7" TFT LCD
	Color	65,536		
	Resolution (Pixels)	480 x 272	800 x 480	800 x 400
	Back Light	LED Back Light		
	Back Light Brightness (cd/m^2)	400		
	Back Light Life (Hour) *1	20000		
	Display Area	95.04 x 53.856 mm	154.08 x 85.92 mm	154.08 x 85.92 mm
MCU		ARM Cortex-A8 (800MHz)		
Flash ROM (Bytes)		256 Mbytes		
RAM (Bytes)		256 Mbytes		
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times		
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB		
	AUX	N/A		
Ethernet Interface		N/A	N/A	1 Port, 10/100 Mbps auto-sensing*2
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0		
SD		N/A		
Serial COM Port	COM1	RS-232/RS-485 (supports hardware flow control)*2		
	COM2	RS-422 / RS-485*2		
	COM3	N/A		
RTC		Built-in		
Cooling		Nature air circulation		
Certification		CE / UL (please equip shielding cables and linefilters with capacity of 300ohm/100MHz)		
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)		
Operation Voltage *3		DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)		
Voltage Endurance		A500V for 1 minute (between charging DC24 terminal and FG terminals)		
Power Consumption *5		Max. 5.67W *3	Max. 8.6W *3	Max. 8.8W *3
Backup Battery		3V lithium battery CR2032 × 1		
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C		
Operation Temperature		0°C ~ 50°C		
Storage Temperature		-20 °C ~ 60 °C		
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2		
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g		
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times		
Dimensions (W) x (H) x (D) mm		137 x 103 x 37.1	215 x 161 x 35.5	215 x 161 x 35.5
Mounting dimension (W) x (H) mm		118.8 x 92.8	196 x 142.9	196 x 142.9
Weight		280 g	700 g	700 g

1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.6
2) Built-in power isolation
3) An isolated power supply is recommended.
4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.
5) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.
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Model Description

DOP - 1 07 W V

Product Name
DOP : Delta Operation Panel

Series
1 : 100 Series HMI

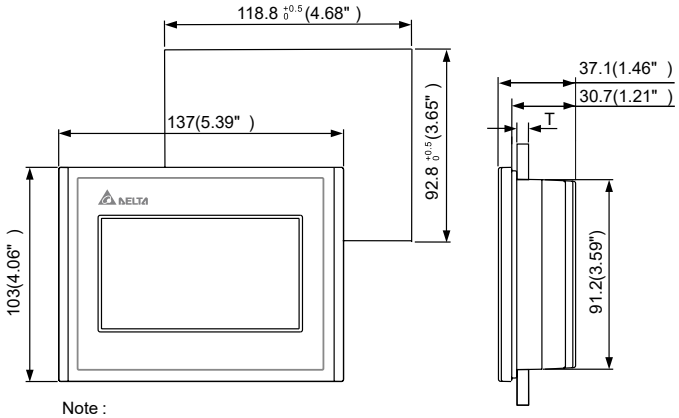
Display Size				
00 : Zero	03 : 4.3"	05 : 5.6"	7 : 7"	8 : 8"
10 : 10.1" / 10.4"	12 : 12"	15 : 15"		

Resolution	
G : SVGA TFT (800x)	Q : WQVGA TFT (480x)
S : WSVGA TFT (1024x)	V : WVGA TFT (800x)
X : XGA TFT (1024x)	Z : No Display (Zero)

Type
B : Basic Type
D : Basic Ethernet Type
C : Standard General Type
E : Standard Ethernet Type (2 COM)
I : Standard Ethernet Type (3 COM)
W : Advanced Narrow Frame Type
M : Advanced Multimedia Type

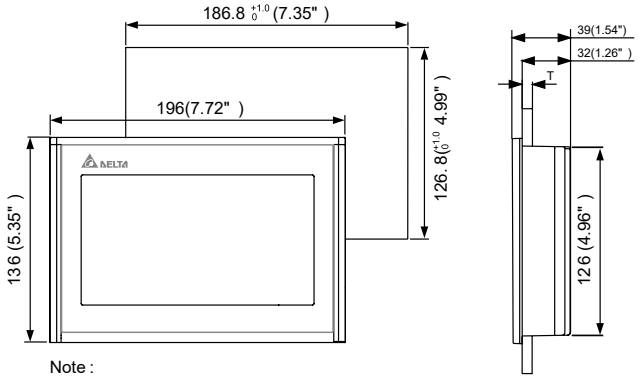
Dimensions Unit: mm (inches)

• DOP-103WQ



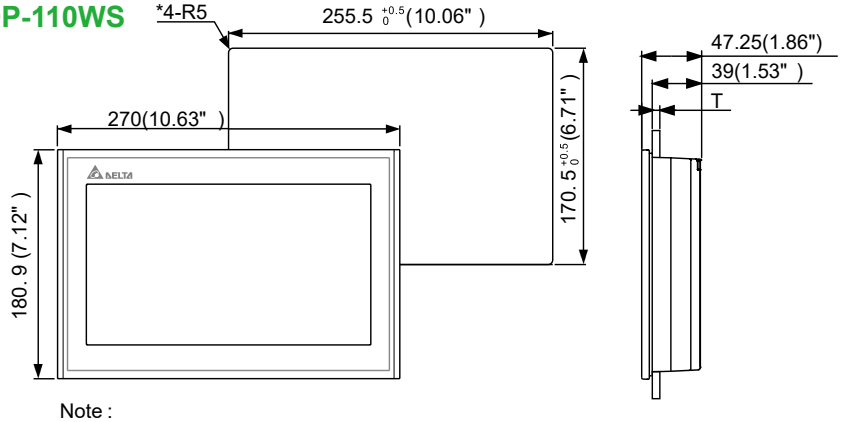
Note :
T=1.6mm~3mm(0.063"~0.12")

• DOP-107WV



Note :
T=1.6mm~6mm(0.063"~0.24")

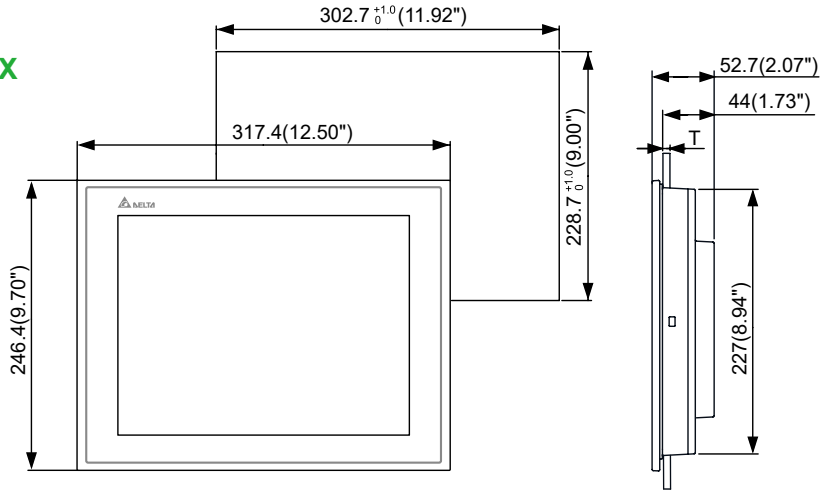
• DOP-110WS



Note :
T=1.6mm~6mm(0.063"~0.24")

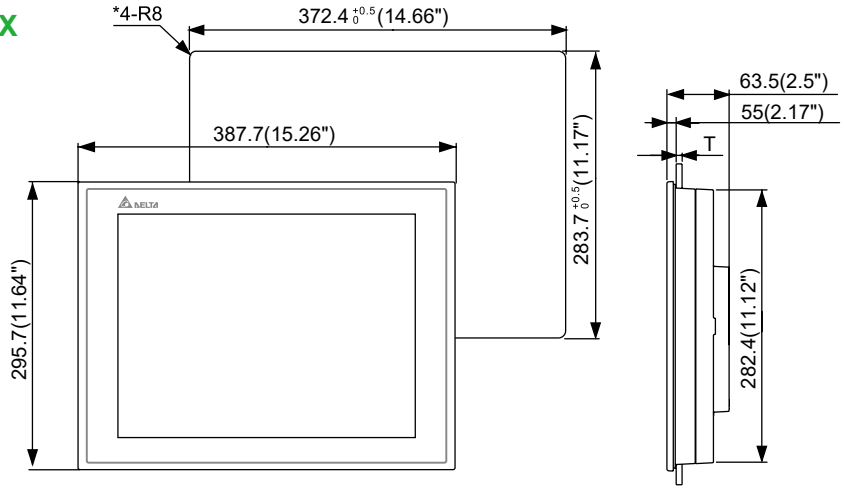
Dimensions Unit: mm (inches)

• DOP-112MX / DOP-112WX



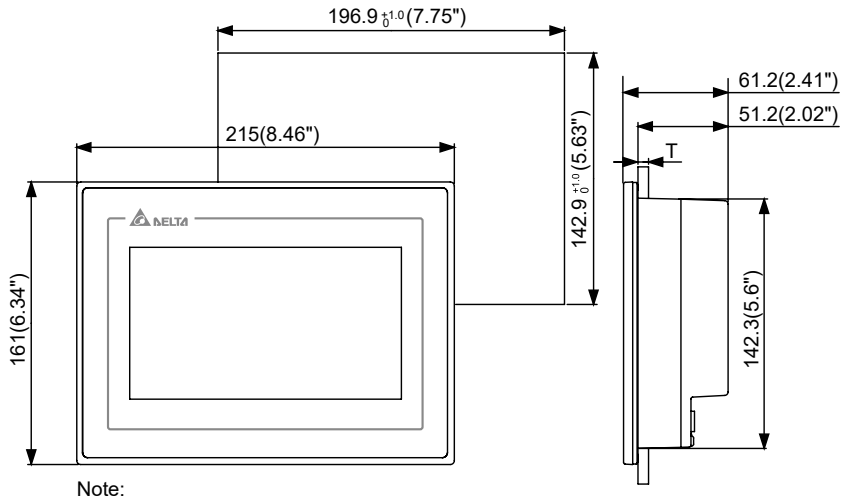
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

• DOP-115MX / DOP-115WX



Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

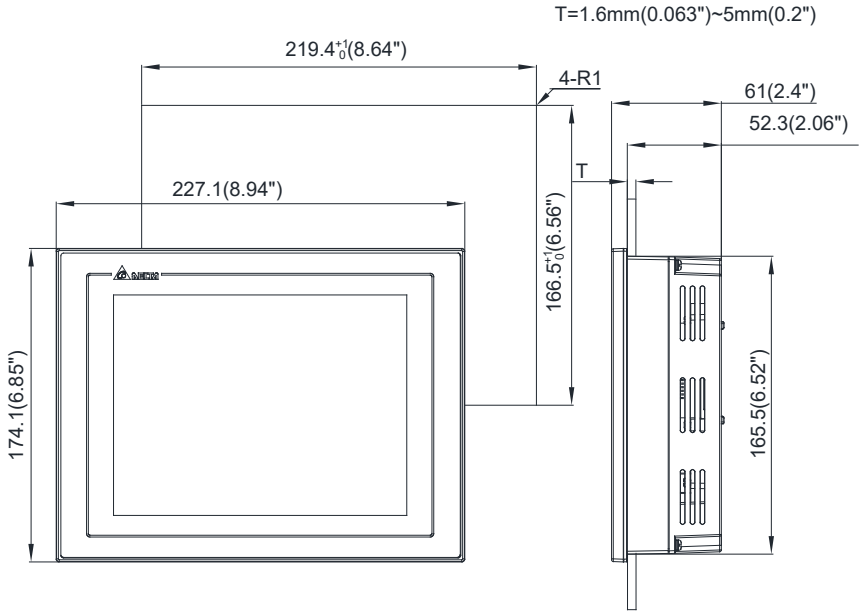
• DOP-107IV



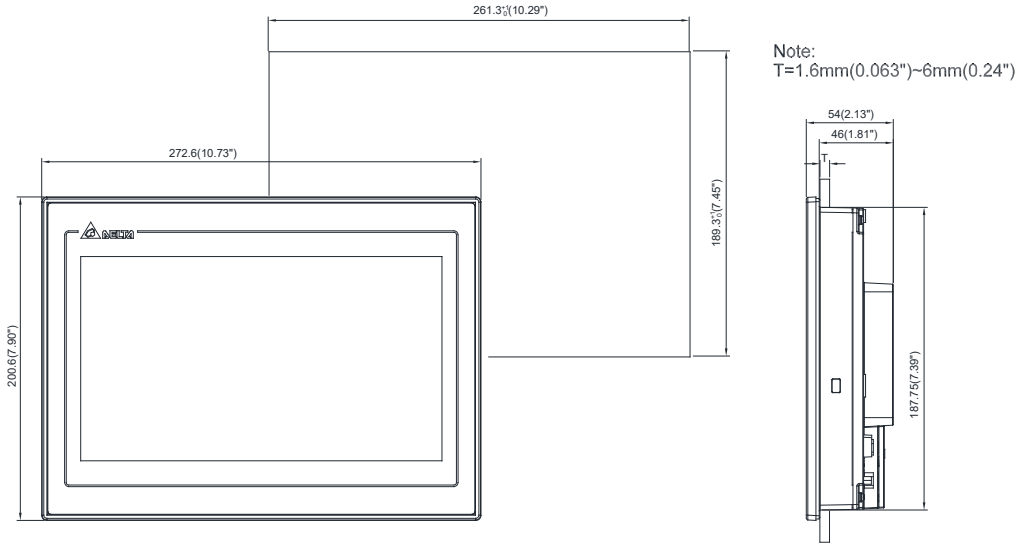
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

Dimensions Unit: mm (inches)

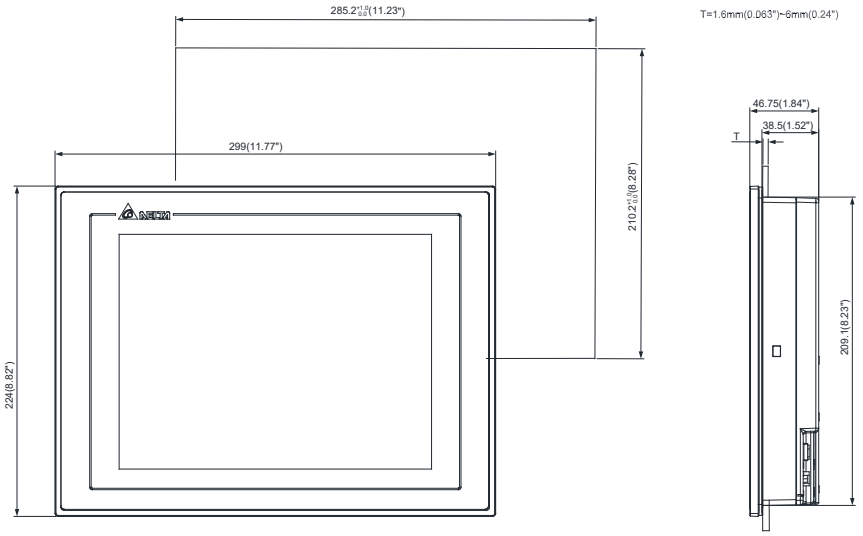
• DOP-108IG



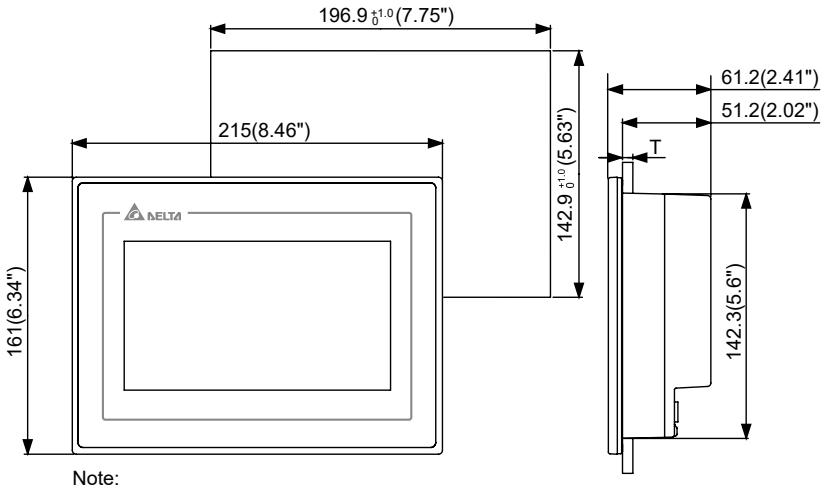
• DOP-110IS



• DOP-110IG

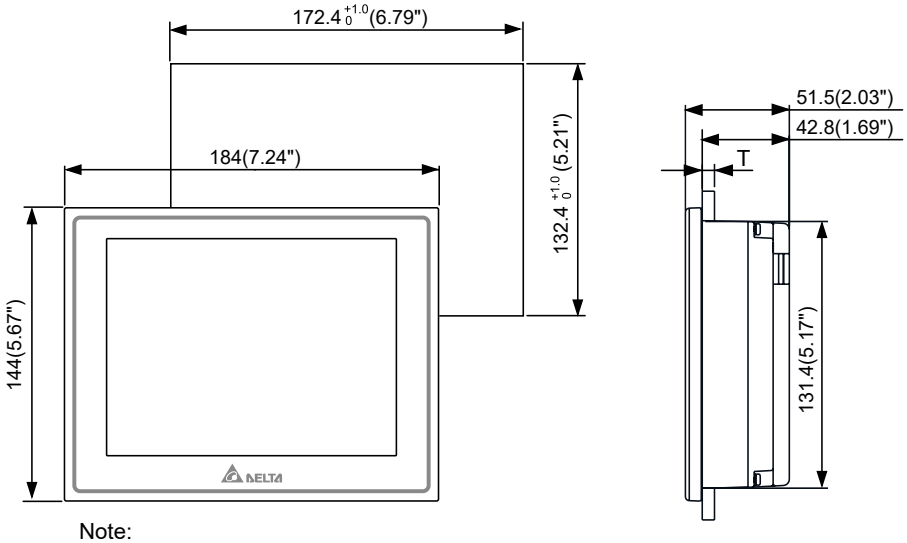


• DOP-107EV



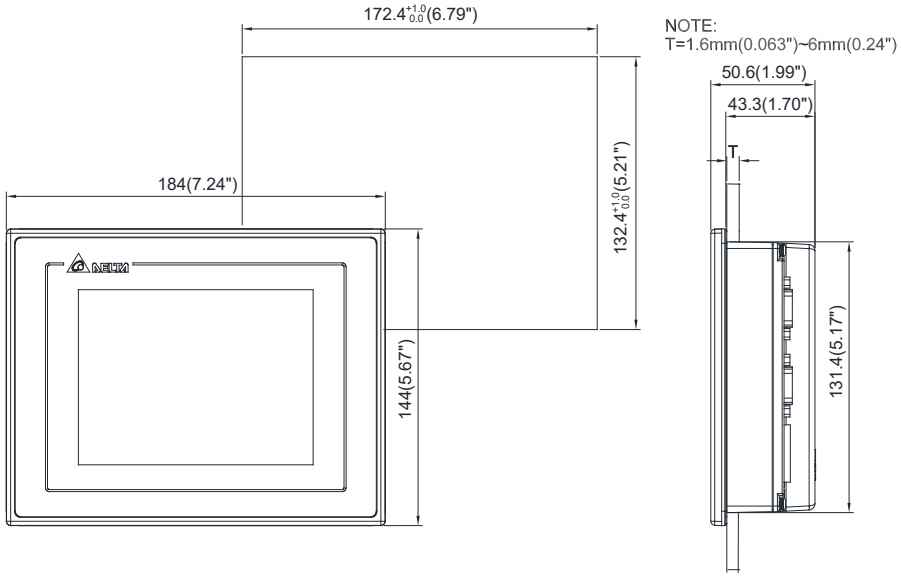
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

• DOP-107EG



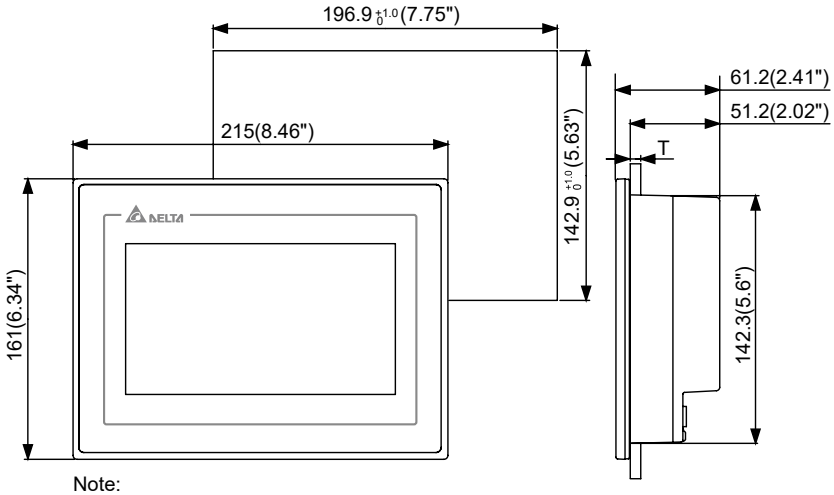
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

• DOP-105CQ



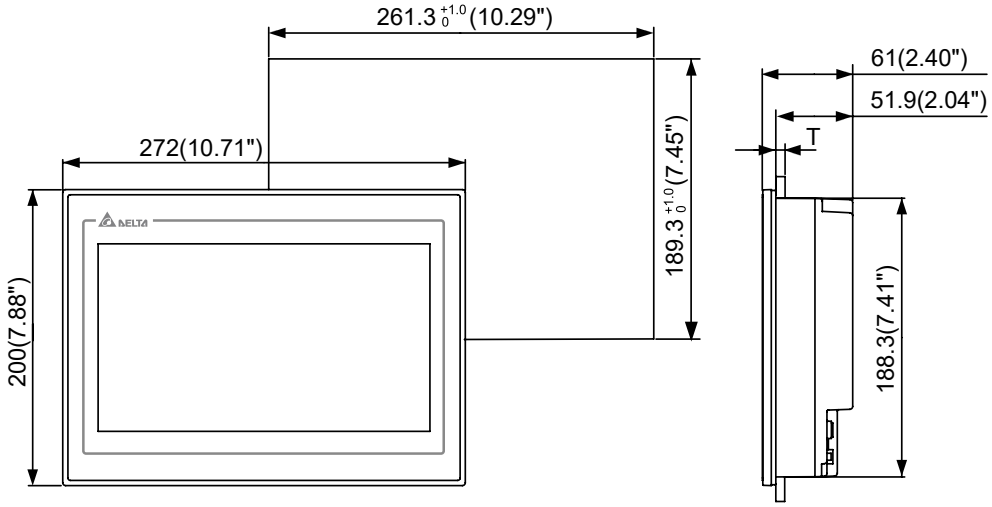
Dimensions Unit: mm (inches)

• DOP-107CV



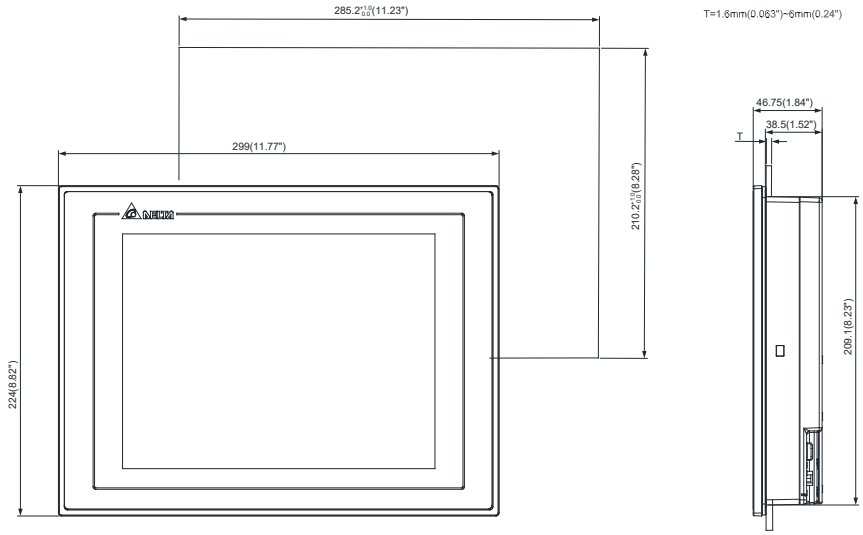
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

• DOP-110CS

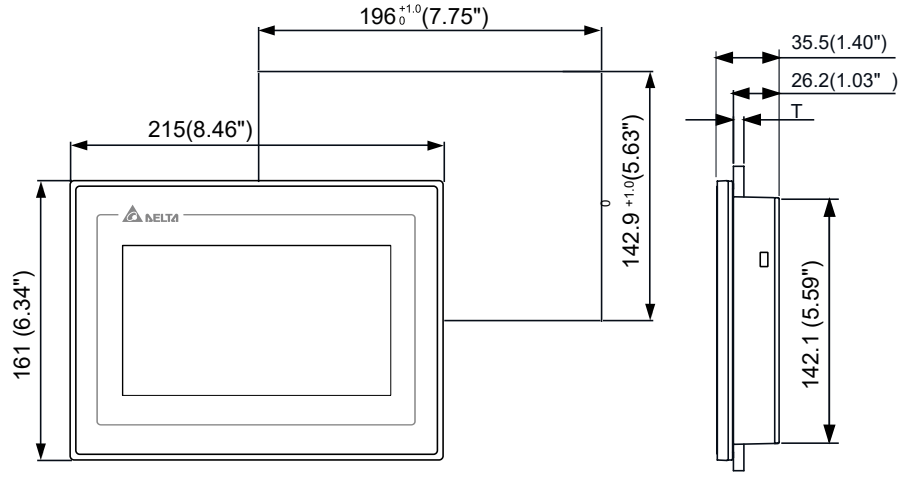


Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

• DOP-110CG

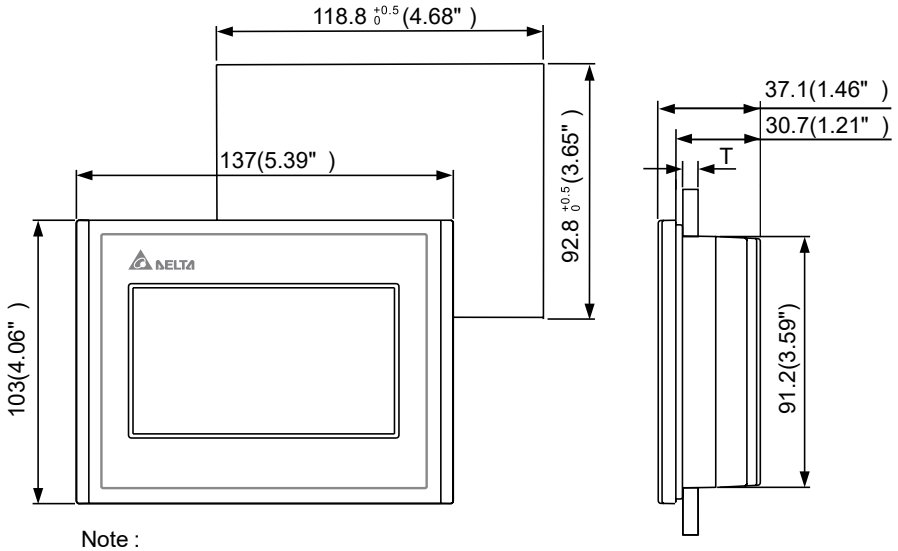


• DOP-107DV



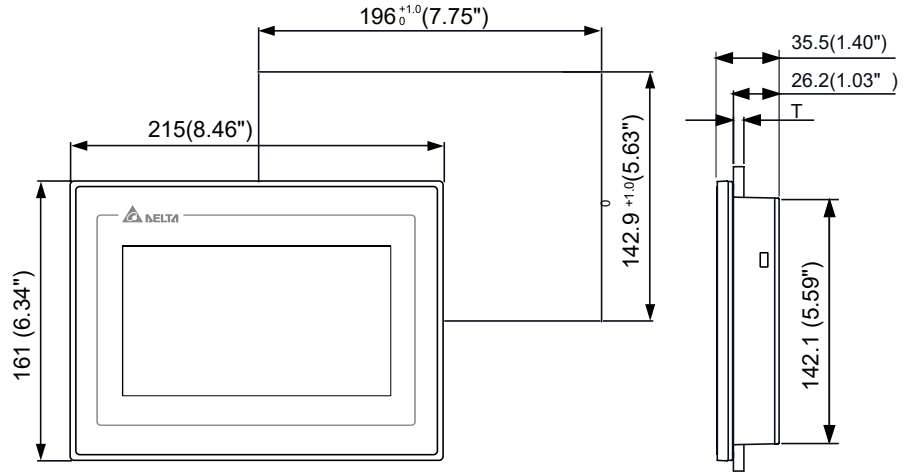
Note:
T=1.6 mm~6 mm(0.06"~0.24")

• DOP-103BQ



Note :
T=1.6mm~3mm(0.063"~0.12")

• DOP-107BV



Note:
T=1.6 mm~6 mm(0.06"~0.24")

SERIE DOP

One Touch Gives You Limitless Possib

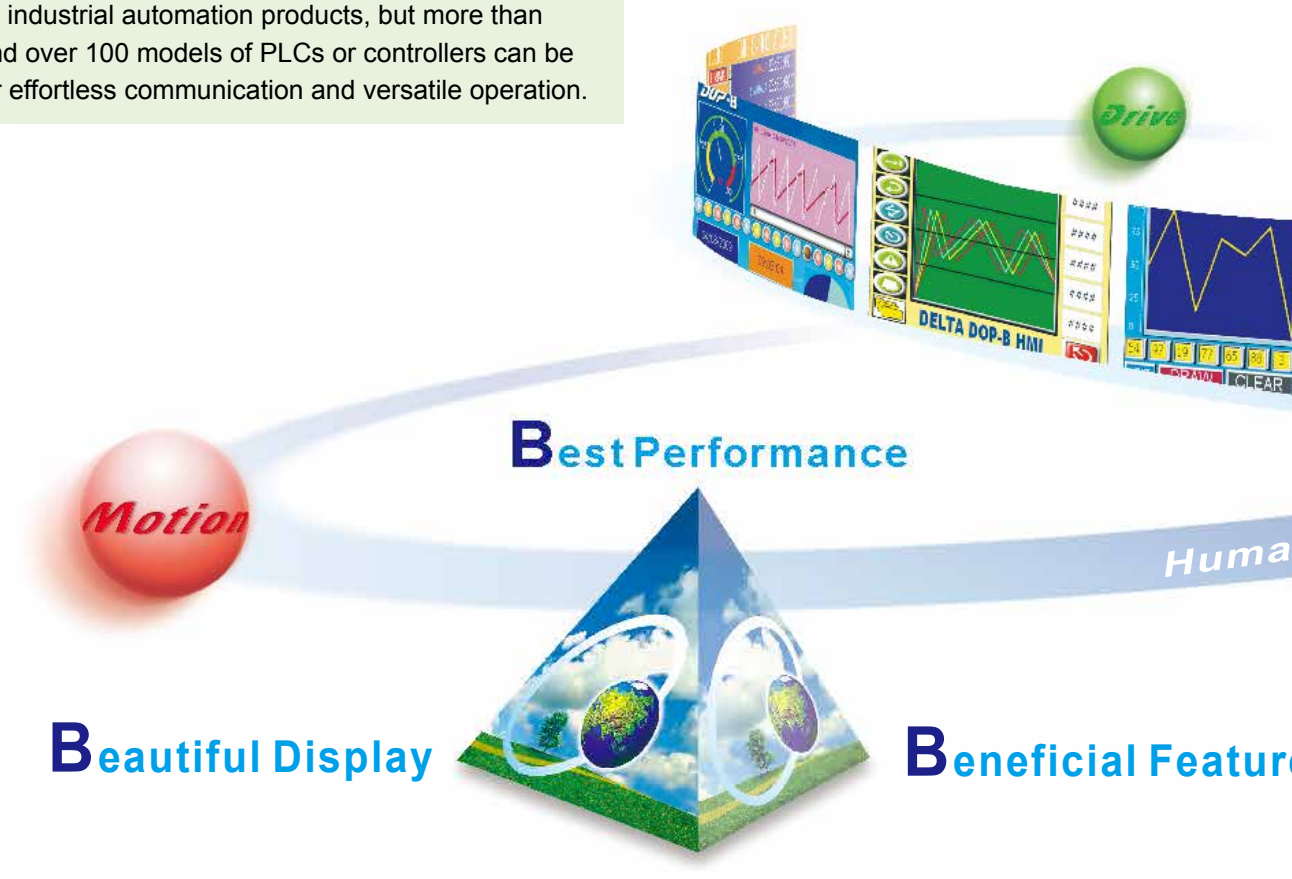
Meets Customer Needs. Satisfies a Variety of Applications. Provides Multiple Functions. Creates

A Wide Range of Options

Three serial communication interfaces (RS-232/RS-422/RS-485), USB disk, Ethernet, audio output, SD card and more are supported for various applications.

Powerful Controller Drivers Support

Not just Delta industrial automation products, but more than 30 brands, and over 100 models of PLCs or controllers can be connected for effortless communication and versatile operation.



bilities with HMI

s the Ultimate FA Equipment.

High Quality and Full-Color Display

A full 65,536-color display is available on all models. With a whole new 2D drawing technique, the screen resolution is enhanced for more realistic images and for more colorful and vivid displays.

Energy Saving and Environmental Automation

All models are equipped with LED backlights which provide energy-efficient lighting that is made without mercury, reduces energy use and CO2 emissions, and protects the environment.



es

Product Line-up

DOP-B series

The DOP-B series provides various types and different sizes of touch panel HMIs with multiple dimensions and colors, and also offers fast and convenient control functions to meet the diverse application requirements demanded of industrial automation machines.

<table>
<tr><th colspan="6">DOP-B</th></tr>
<tr><td>4.3
inches
Wide</td><td>  </td><td>B03S211
B03E211</td><td>7
inches</td><td>  </td><td>B07S515
B07E515
B07PS515</td></tr>
<tr><td>5.6
inches</td><td>  </td><td>B05S111</td><td>8
inches</td><td>  </td><td>B08S515
B08E515</td></tr>
<tr><td rowspan="3">7
inches
Wide</td><td>  </td><td>B07S401K</td><td>10.1
inches</td><td>  </td><td>B10S411
B10S615
B10E615</td></tr>
<tr><td>  </td><td>B07S411K</td><td>10.4
inches</td><td>  </td><td>B10S511
B10VS511
B10PE515</td></tr>
<tr><td colspan="4">  </td><td>B07S410
B07S411
B07E411
B07S415
B07E415
B07PS415</td></tr>
</table>

DOP-H Series

The DOP-H series provides handheld type HMIs and customized teaching pendants for controlling and programming the motion of robot arms and other motion control systems.

DOP-H			
7 inches Wide		H07S425 H07S42A H07S465 H07S46A	H07E425 H07E42A H07E465 H07E46A

DOP-W Series

The DOP-W series offers large-size HMIs that come with high resolution and high brightness touch screens, and should be your first choice to meet customer needs for a wide range of high-end industrial automation applications.

DOP-W		
10.4 inches		W105B
12 inches		W127B
15 inches		W157B

High Quality Display



65,536-color high quality TFT display offers more realistic and vivid images to capture and visualize system and manufacturing processes more quickly.

Audio Output Interface



In case of errors, an alarm alerts users via an audio message in real time.

Supports built-in amplified speaker using 3.5 mm stereo mini jack

- As the broadcast of alarms is triggered by the corresponding bit, the alarm messages can be played and output in different sound files by setting values of word registers.



D100	Sound Files	Audio Messages
1	A.wav	Overcurrent
2	B.wav	Overvoltage
3	C.wav	Overload

Supports Various Peripherals via USB Hub

Slave (USB-type B)

Compatible with Windows Vista / Windows 7

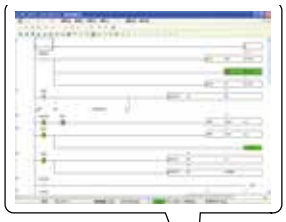


Screen data can be transferred rapidly via USB connection.

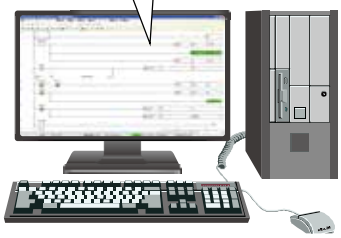




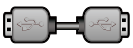
Up to 480Mbps high-speed data transfer via USB v2.0



PLC Programming Software: WPLSoft

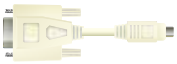


USB





RS-223



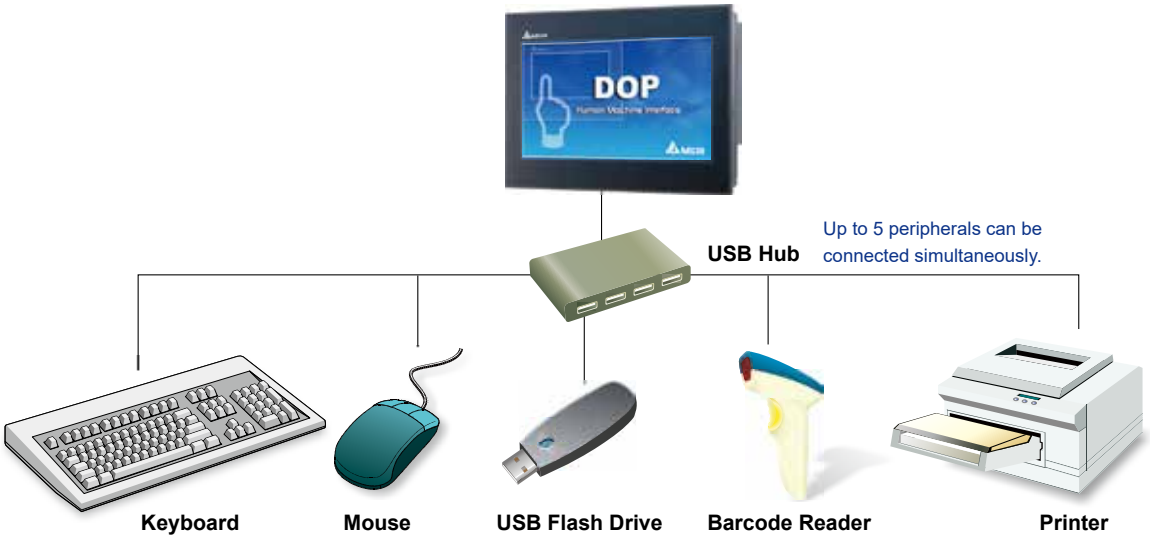


*Supports Delta DVP series PLC only.

Using the bypass function, enable monitoring functions and modify PLC programs directly via the USB connection.

Master (USB-type A)

Various peripherals can be connected via a USB Hub.



SD Card / USB Disk Versatile Storage Interface

- Exploiting the convenience of an SD card or USB disk, screen data transfer and collection can be quickly performed and the storage capacities of the HMI can be easily increased. No need to worry about data capacity of excessive history and recipe data
- SD card and USB disk are in FAT32 format, fully compatible with Microsoft Windows and allow filenames that exceed eight characters in length

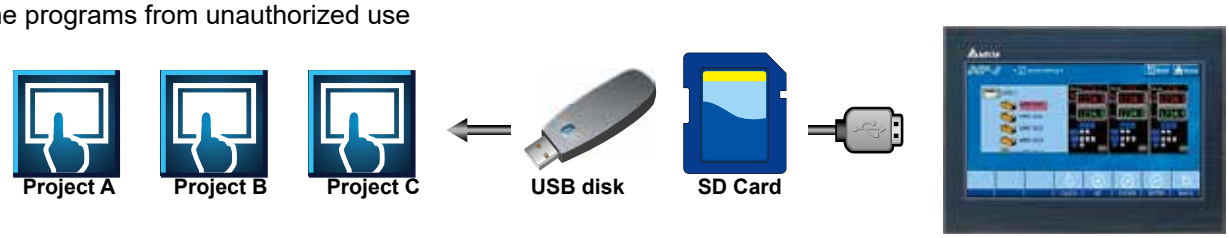


The recipe data can be saved in CSV format and easily edited on an external PC in Excel to effectively save PLC memory.



History and alarm information can also be saved in CSV format and stored to the SD card / USB disk.

- Multiple project screen data can be saved in SD card / USB disk simultaneously and transferred to HMI. No need to connect to a PC
- The data saved in an SD card / USB disk can be encrypted and the number of copies can be limited to protect the programs from unauthorized use



- PLC ladder diagrams can be transferred and backed up via SD card / USB disk even in a location where an external PC is not available
- SD card / USB disk are capable of storing several PLC ladder diagrams

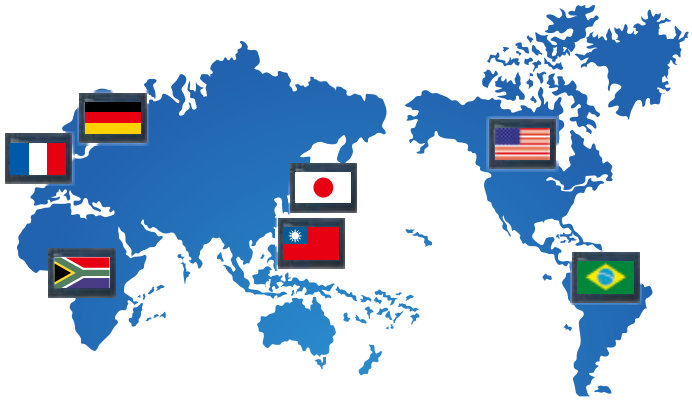


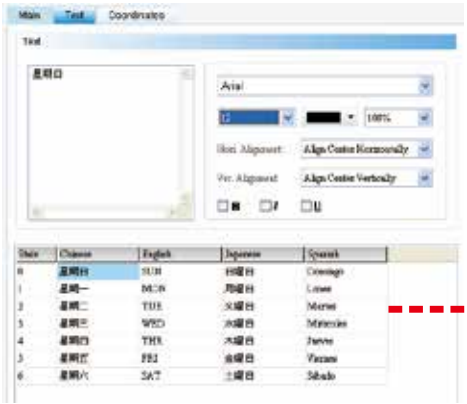
Support Delta DVP series PLC only.



Multilingual Display

Up to 32 languages are available. No need to redesign the screen data! A benefit for marketing the equipment to manufacturers and end users around the world.



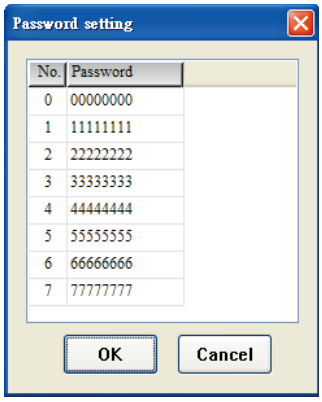


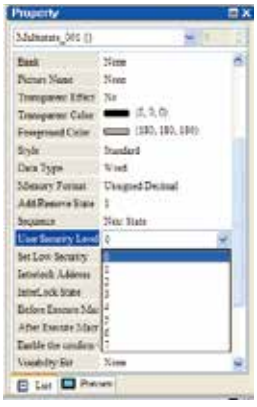
Multilingual editing on a PC in Excel



Password Settings

Provides 8 levels of passwords to set user security and prevent improper use. Only the security level that is equal to or higher than the current setting can use the element.





Element Invisible Function

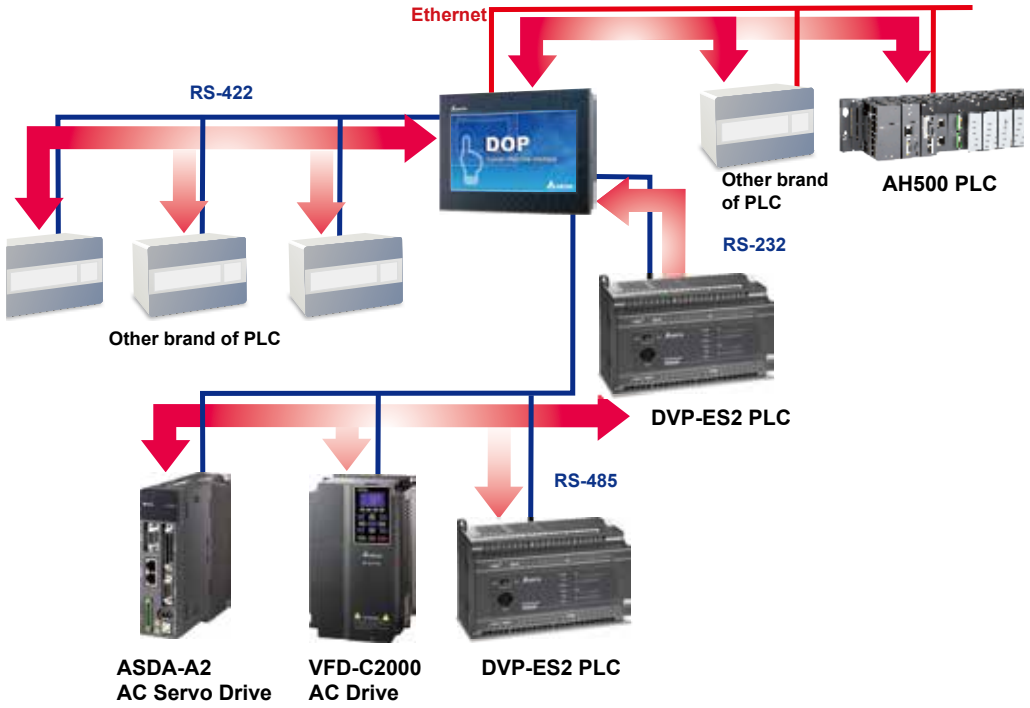
The element on the screen can be hidden by triggering the corresponding bit.



Provides Diverse Communication Interfaces

Easy to communicate with more than 30 brands of PLCs/Controllers

All DOP series models support RS-232/485/422 communication interfaces and over 20 different PLC/Controller drivers. With the aid of an Ethernet interface, it is possible to use four communication interfaces at the same time, easily connecting to various industrial automation devices for a complete communication network link managed by Delta's new DOP series.



VGA Model

DOP-B10VS511 supports VGA video input which integrates live video and HMI display into one unit. Incorporated with Delta's DMV series machine vision system, Delta offers an integrated solution that delivers precise and reliable control to meet the needs of industry upgrades and bring benefits to our customers around the world.

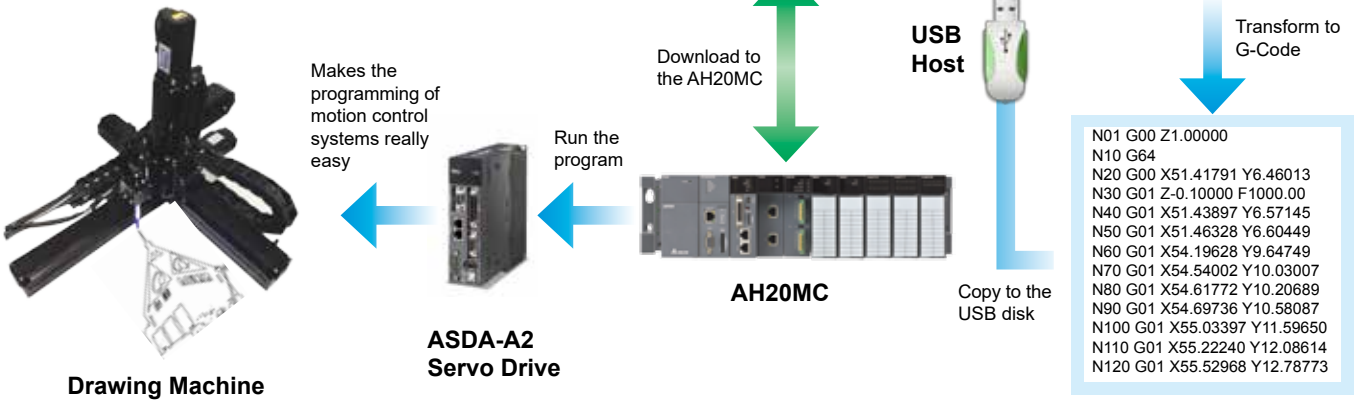


Specifications	
Input Interface	VGA Input
Resolution	800 x 600 pixels
Scanning Frequency	56 Hz / 60 Hz

Integrates Delta Professional Functions (PS Models Only):

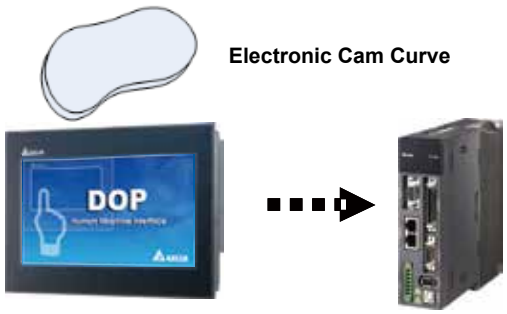
G-Code

- Supports Delta's motion controllers: DVP-10MC / DVP-20PM / AH20MC
- Capable of viewing and changing the G-code files with the HMI
- Supports serial and Ethernet communications



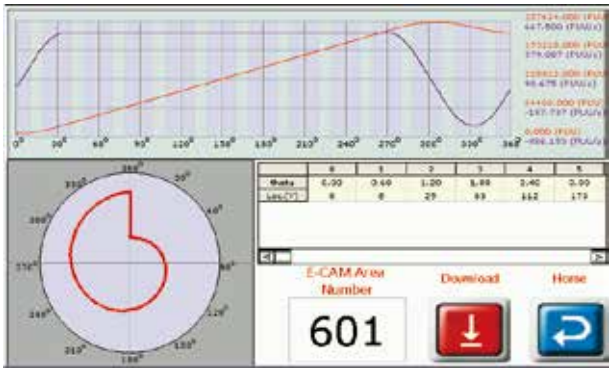
Electronic Cam (E-Cam) Curve Table

- Supports ASDA-A2 series servo drives
- A personal computer is not required. Electronic cam curves can be generated on HMI and downloaded to the ASDA-A2 series servo drive directly

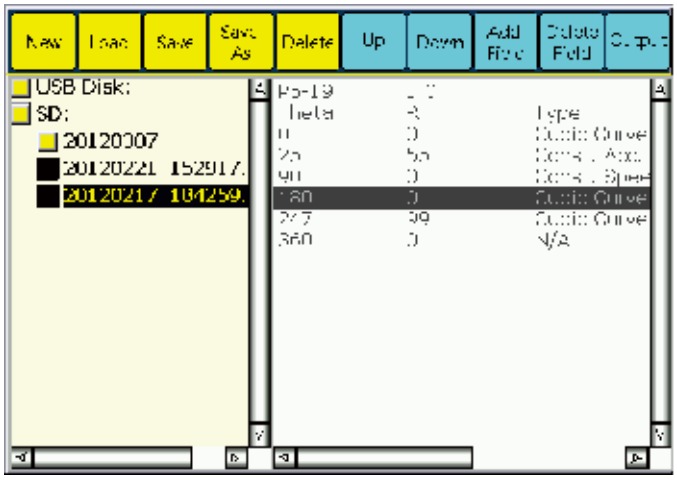


Supports E-Cam table macro for making E-Cam curve on HMI

- Auto rotary shear with sealing zone
- Indirect printing
- Auto rotary shear – cos compensation



Supports cubic curve manual creation



DOP-W Features



The Ultimate in Industrial Versatility

- 1GHz high speed processor for higher computing performance
- Aluminum enclosure: greater vibration resistance and higher tolerance for ambient environments compared with plastic enclosure.
- The enclosure with dark gray mold texturing is easily cleaned and ideal for the medical and food sectors.
- 1024 x 768 pixels high resolution and high brightness display (W127B: 500 cd/m², W157B: 450 cd/m²)
- 256MB Flash ROM
- Highly reliable touch panel with min. 10,000,000 touches

Front Speaker

- The built-in stereo amplifying speaker provides efficient alarm notifications. No additional speaker is required.
- Apart from replacing general alarm with buzzers, functions for playing recorded voice and reminders are available for multiple applications.
- Mechanism design breakthrough. The front panel including the front speaker has acquired the IP65 waterproof certificate.





Multiple Peripheral Interfaces

- Supports 2 COM Ports
- Supports 2 Ethernet Ports
- Supports 3 USB Host 2.0 Ports
- Supports SD card
- Apart from traditional mounting, DOP-W also supports the VESA standard mounting interface making wall mounts easier.

*VESA mounting interface is only available on devices above 12 inches.

Multi-User Authority Management

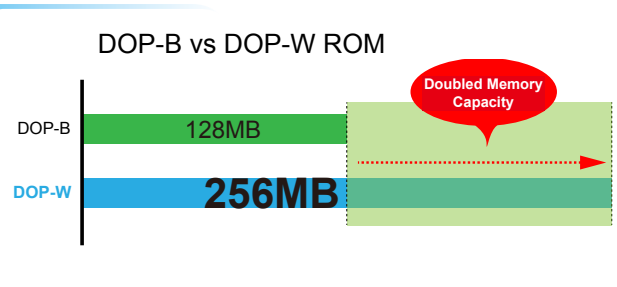
This function allows users to assign authority levels and register passwords to set permissions for different user groups for security control. No need for third-party configuration and set-up costs.

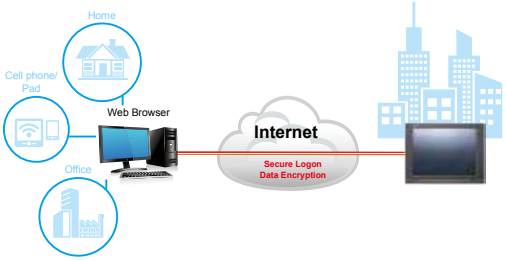
- 8 levels of user authority Level: 0 ~ 7
- 8 sets of user accounts with passwords for each user authority



High-Capacity Memory

- Increased memory capacity stores more nonvolatile data, such as alarm messages and historical records than ever before for power-loss protection.





More Powerful Remote Monitoring Function

- Compatible with eRemote
- Supports VNC Server
- Monitoring by eRemote software or web browser on PC
- Apps for eRemote or VNC Client support Apps on Android devices
- VNC Client supported Apps on iOS devices

*** JAVA is required in web browsers.**

Two Individual Ethernet Ports

- Two individual Ethernet ports are equipped as standard, one is for HMI communication and the other is for external I/O for quick and easy integration.





Multilingual Display

- In addition to English and numbers, 16 languages are supported for a more localized interface

*** Supports English, Traditional Chinese, and Simplified Chinese only during the launching period.**
*** Other languages such as Arabic, French, German, Hebrew, Hindi, Portuguese, Spanish, Japanese, Korean, Thai, Turkish, Russian, and Persian are continually added.**

Video Player

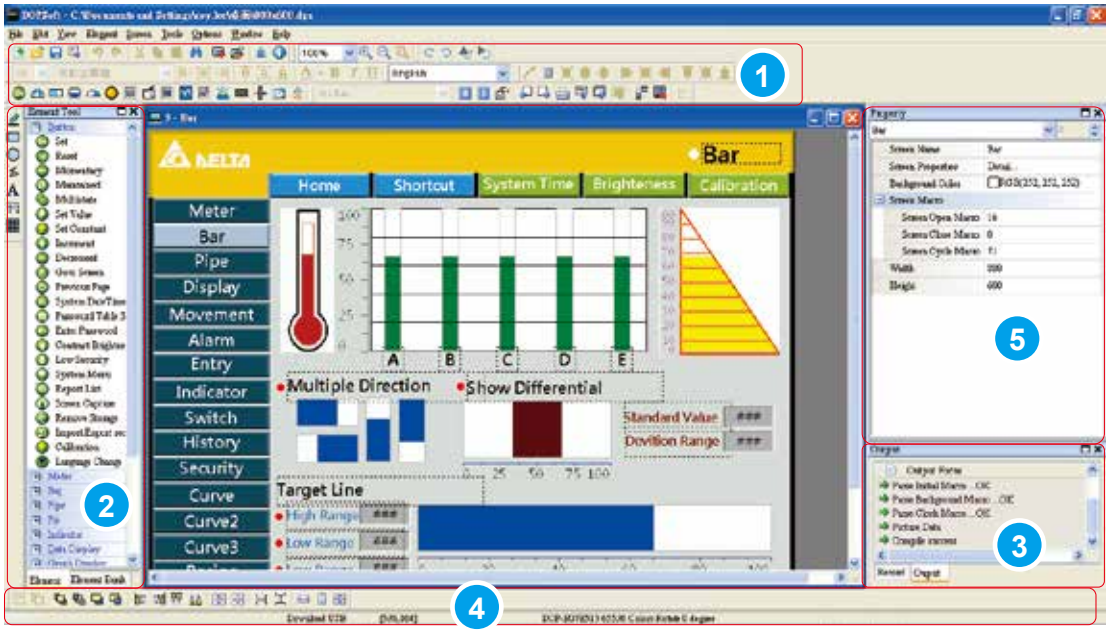
- A new video player with self-defined playlist allows users to manage the list based on different applications.

*** Supported Format: WMV**



DOPSoft

The all new and upgraded configuration software provides complete functions and a user-friendly operator interface. Make editing easier than ever with a whole new level of design.



1 Toolbar

Actions such as edit, save, upload and compile can be executed easily just by clicking the attractive and easy-to-see icons on the toolbar.

2 Element Tool Window

The Element Tool Window provides a wide variety of element icons for selection. Use the mouse to select the desired element icon and drag it onto the work place to create a new element.

3 Output Window

The Output Window displays all the editing actions and output messages when the compile function is enabled. Once an error occurs, the error messages are displayed in Output Window as well.

4 Layout Toolbar

The Layout Toolbar offers Bring to Front, Send to Bottom, Align, Across / Down Space Evenly, Make Same Size and other functions for the benefit of creating intricate and beautiful elements.

5 Property Table

The Property Table displays the element property settings for each element.

Picture Bank

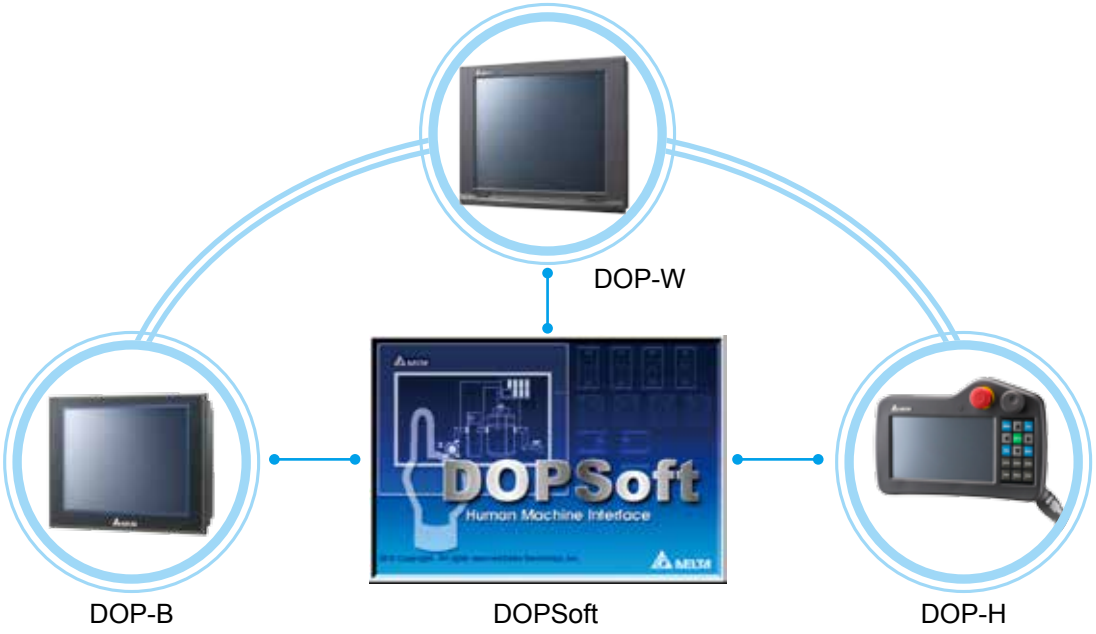
Newly designed picture bank offers more colorful and attractive elements.





Convenient Screen Data Conversion

Compatible with all DOP series, project files can be easily upgraded and converted to DOPSoft format.



The screen data can be converted to different models even if the display size is not the same. The same project can be applied on different models.



***After the screen data is converted, it still needs to confirm the element position, text size and other settings.**

Minimum System Requirements of DOPSoft

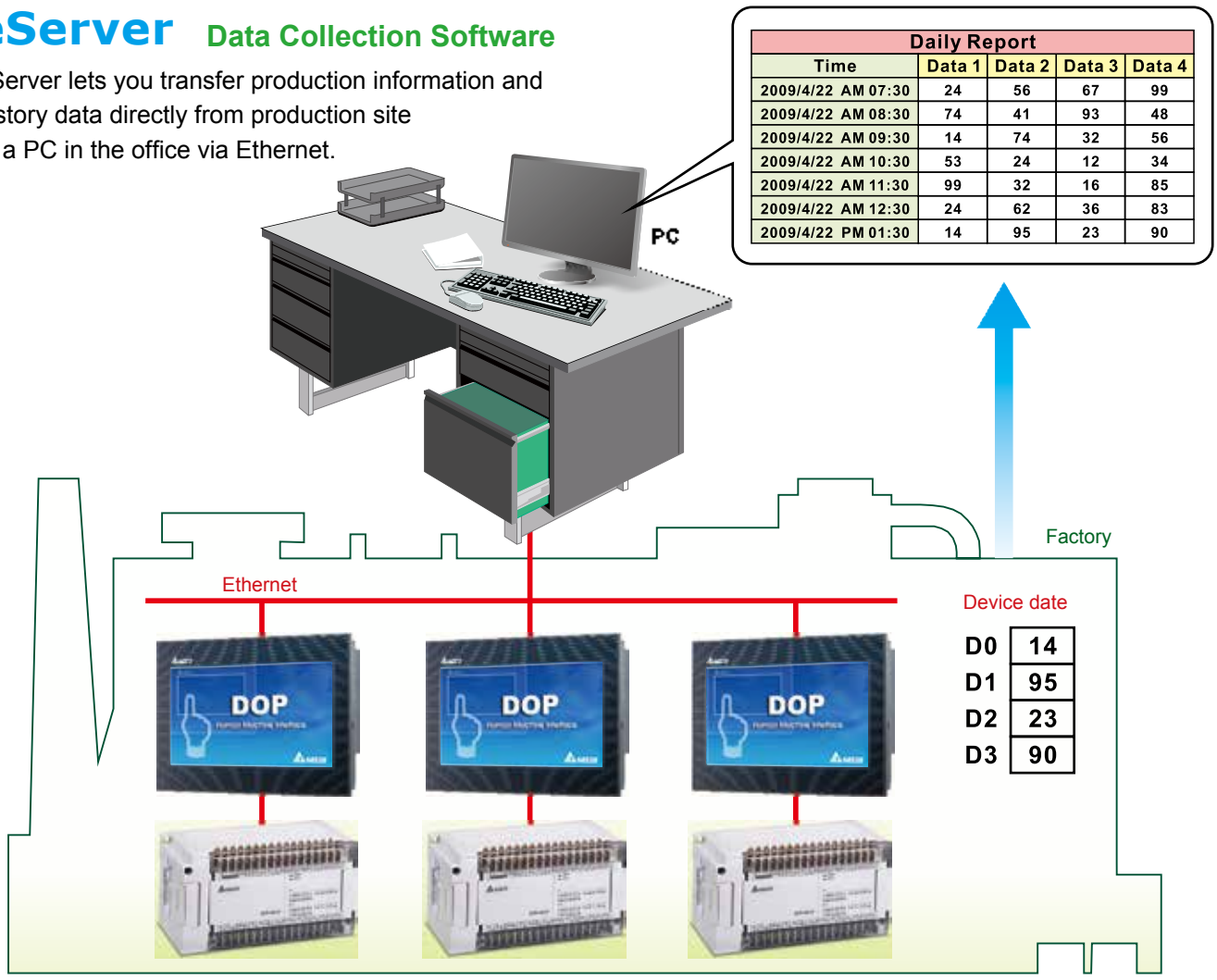
Hardware / Software	System Requirements
CPU	Pentium4 1.6GHz or greater is recommended
Memory	2G MB and above is recommended
Hard Disk	Capacity: 400MB and above
Monitor	Supports resolution: 800 x 600 or higher full-color display
Printer	Printer compatible with Windows 2000 Windows XP / Windows Vista / Windows 7
Operating System	Windows 2000 / Windows XP Windows Vista / Windows 7

***Users can download the DOPSoft configuration software and the user manual at Delta's website via the following link: http://www.deltaww.com**

Solution for Constructing a Network between Office and Production Site via Ethernet

eServer Data Collection Software

eServer lets you transfer production information and history data directly from production site to a PC in the office via Ethernet.



1 Excel Sampling Data

- Collected data can be saved in user-defined Excel files according to purpose and to easily create production reports
- If the formulas in the Excel file are set in advance, the production data, i.e. defective rate, average working hours and capacity utilization rate, and more can be calculated in real time while production data is recorded
- Production data can be saved in daily reports, weekly reports, monthly reports, and others automatically under different settings.

2 Database Sampling Data

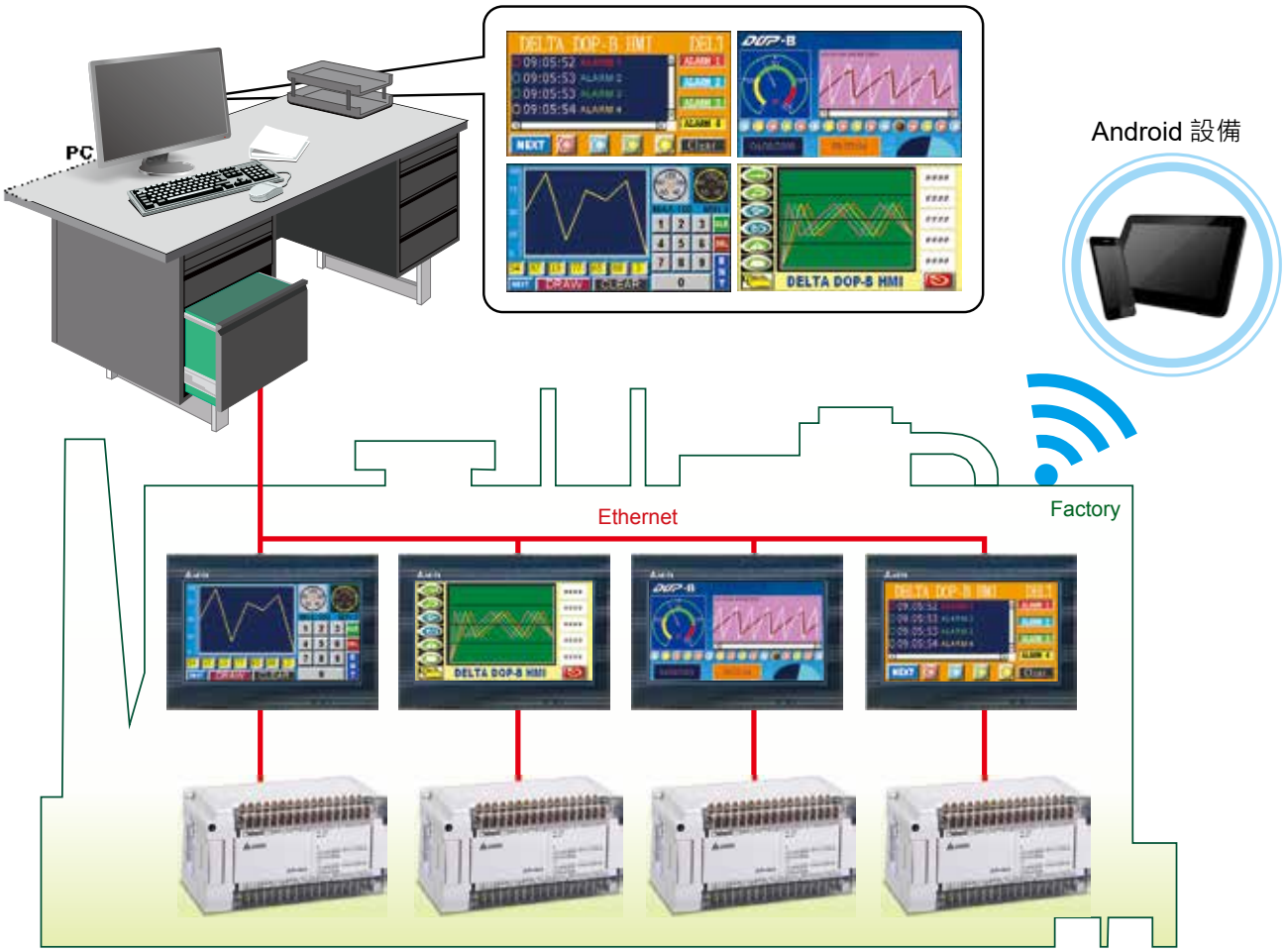
- Users can access any database via ODBC (Open Database Connectivity) interface

3 Recipe Data Transfer

- Users can transfer and backup the recipe data via eServer easily

eRemote Remote Control Software

eRemote lets you view and monitor the same screen shown on the HMI at the production site, and control the manufacturing process via Ethernet. No matter where you are, remote control is easily accomplished.



Minimum System Requirements for eServer / eRemote

Hardware / Software	System Requirements
CPU	Pentium 4,1.6GHz or greater is recommended
Memory	2G MB and above is recommended
Hard Disk	Capacity: 100MB and above
Monitor	Supports resolution: 1024 x 768 or higher full-color display.
Printer	Printer compatible with Windows 2000 / Windows XP / Windows Vista / Windows 7
Operating System	Windows 2000 / Windows XP / Windows Vista / Windows 7

***Users can download the eServer / eRemote software and the user manual at Delta's website via the following link: http://www.deltaww.com**

System Requirements of eRemote App	
Operating System	Android 4.1.2 and later versions
Storage Capacity	860 KB and above

Specifications

DOP-B Series

MODEL		DOP-B03S211	DOP-B03E211	DOP-B05S111	DOP-B07S410	DOP-B07S411	DOP-B07E411	DOP-B07S401K DOP-B07S411K	DOP-B07S415	DOP-B07PS415	DOP-B07E415
LCD MODULE	Display Size and Type	4.3" TFT LCD		5.6" TFT LCD	7" Widescreen TFT LCD						
	Display Colors	65536 colors									
	Resolution (pixels)	480 x 272		320 x 234	800 x 480						
	Backlight	LED Back Light									
	Luminance (cd/m^2)	280	400	200	250	250	250	250	350	350	350
	Backlight Life (hours) (Note 1)	20,000	10,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
MCU		400 MHz									
Flash ROM (Bytes)		128 MB		128 MB	4MB	128 MB					
RAM (Bytes)		64MB			64MB						
Backup Memory (Bytes)		16MB			32k	16MB					
Buzzer		Multi-Tone Frequency (2K ~ 4K Hz) / 85dB									
AUX		N/A		N/A	N/A						Stereo output
Ethernet		N/A	1 Port (Note 2)	N/A	N/A		1 Port (Note 2)	N/A			1 Port (Note 2)
Memory Card		N/A		N/A	N/A				SD card (supports SDHC)		
USB		1 USB Host Ver 1.1 / 1 USB Client Ver 2.0			1 USB Client Ver 2.0	1 USB Host Ver 1.1 / 1 USB Client Ver 2.0					
Serial COM Port	COM1	RS-232 (Supports hardware flow control) / RS-485		RS-232 (Supports hardware flow control)(Note 2)	RS-232 (Supports hardware flow control)/ RS-485 / RS-422	RS-232 (Supports hardware flow control)			RS-232 (Supports hardware flow control)(Note 2)		
	COM2	RS-422 / RS-S485	RS-422 / RS-485 (Note 2)	RS-232 / RS-485 (Note 2)	N/A	RS-232 / RS-485			RS-232 / RS-422 / RS-485(Note 2)		
	COM3	N/A		RS-422 / RS-485 (Note 2)	N/A	RS-422 / RS-485			RS-232 / RS-422 / RS-485(Note 2)		
VGA Input		N/A		N/A	N/A						
Delta Professional Integration Function		N/A		N/A	N/A					YES	N/A
Function Key		N/A		N/A	N/A			8	N/A		
Perpetual Calendar (RTC)		Built-in									
Cooling Method		Natural air circulation									
Safety Approval		CE / UL									
Waterproof Degree		IP65 / UL type 4x									
Operation Voltage (Note 3)		DC +24V (-10% ~ +15%) (Note2)									
Voltage Endurance		AC500V for 1 minute (between charging DC24 terminal and FG terminals)									
Power Consumption (Note 5)		2.64 W	2.64 W	3.0 W	3.5 W	4 W	4 W	4 W	5 W	5 W	7.5 W
Backup Battery		3V lithium battery CR2032 x 1									
Backup Battery Life		It depends on the temperature used and the conditions of usage, about 3 years or more at 25 °C									
Operation Temp.		0 °C ~ 50 °C									
Storage Temp.		-20 °C ~ +60 °C									
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50 °C), Pollution Degree 2									
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g									
Shock		IEC 60068-2-27 compliant 15g peak for 11 ms duration, X, Y, Z directions for 6 times									
Dimensions (W) x (H) x (D) mm		129 × 103 × 39	129 x103 × 39	184 × 144 × 50	215 × 161 × 35.3	215 × 161 × 50	215 x 161 x 50	215 × 161 × 50	215 × 161 × 50	215 × 161 × 50	215 × 161 × 50
Panel Cutout (W) x (H) mm		118.8 × 92.8	118.8 × 92.8	172.4 × 132.4	196.9 × 142.9	196.9 × 142.9	196.9 x 142.9	196.9 × 142.9	196.9 × 142.9	196.9 × 142.9	196.9 × 142.9
Weight		Approx. 230 g	Approx. 264 g	Approx. 670 g	Approx. 700 g	Approx. 820 g	Approx. 820 g	Approx. 820 g	Approx. 970 g	Approx. 970 g	Approx. 970 g

1) The half-life of backlight is defined as original luminance being reduced by 50% when the maximum driving current is supplied to HMI.
2) With built-in isolated power circuit.
3) Please use isolated power supply.
4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.
5) The value of the power consumption indicates the electrical power consumed by HMI with no peripheral devices connected.
   To ensure normal operation, it is recommended using a power supply with a capacity 1.5 ~2 times the value of the power consumption.
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DOP-B07S515	DOP-B07PS515	DOP-B07E515	DOP-B08S515	DOP-B08E515	DOP-B10S511	DOP-B10VS511	DOP-B10E515	DOP-B10PE515	DOP-B10S411	DOP-B10S615	DOP-B10E615
7" TFT LCD			8" TFT LCD		10.4" TFT LCD				10.1" Widescreen TFT LCD		
65536 colors											
800 x 600			800 x 600		800 x 600				800 x 480	1024 x 600	
LED Back Light											
450	450	450	500	500	300	300	300	300	300	200	200
20,000	20,000	20,000	25,000	25,000	10,000	10,000	10,000	10,000	20,000	15,000	15,000
400 MHz											
128 MB			128 MB		128 MB				128 MB		
64MB			64MB		64MB				64MB		
16MB			16MB		16MB				16MB		
Multi-Tone Frequency (2K ~ 4K Hz) / 85dB											
N/A		Stereo output	N/A	Stereo output	N/A		Stereo output		N/A		Stereo output
N/A		1 Port (Note 2)	N/A	1 Port (Note 2)	N/A		1 Port (Note 2)		N/A		1 Port (Note 2)
SD card (supports SDHC)		SD card (supports SDHC)	SD card (supports SDHC)		N/A		SD card (supports SDHC)		N/A	SD card (supports SDHC)	
1 USB Host Ver 1.1 / 1 USB Client Ver 2.0											
RS-232 (Supports hardware flow control)(Note 2)			RS-232 (Supports hardware flow control)(Note 2)		RS-232 (Supports hardware flow control)	RS-232 (Supports hardware flow control)(Note 2)			RS-232 (Supports hardware flow control)	RS-232 (Supports hardware flow control)(Note 2)	
RS-232 / RS-485(Note 2)			RS-232 / RS-422 / RS-485(Note 2)		RS-232 / RS-485	RS-232 / RS-485(Note2)	RS-232 / RS-422 / RS-485(Note 2)		RS-232 / RS-485	RS-232 / RS-422 / RS-485(Note 2)	
RS-422 / RS-485(Note 2)			RS-232 / RS-422 / RS-485(Note 2)		RS-232 / RS-422 / RS-485	RS-232 / RS-422 / RS-485(Note2)	RS-232 / RS-422 / RS-485(Note 2)		RS-232 / RS-422 / RS-485	RS-232 / RS-422 / RS-485(Note 2)	
N/A			N/A		N/A	Resolution 800x600 pixels Scanning Frequency 56 Hz / 60 Hz	N/A		N/A		
N/A	YES	N/A	N/A		N/A			YES	N/A		
N/A			N/A		N/A				N/A		
Built-in											
Natural air circulation											
CE / UL											
IP65 / UL type 4x											
DC +24V (-10% ~ +15%) (Note2)											
AC500V for 1 minute (between charging DC24 terminal and FG terminals)											
7.68 W	7.68 W	7.68 W	5.2 W	7.8 W	6.1 W	6.1 W	9.6 W	9.6 W	6.6 W	12 W	12 W
3V lithium battery CR2032 x 1											
It depends on the temperature used and the conditions of usage, about 3 years or more at 25 °C											
0 °C ~ 50 °C											
-20 °C ~ +60 °C											
10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50 °C), Pollution Degree 2											
IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g											
IEC 60068-2-27 compliant 15g peak for 11 ms duration, X, Y, Z directions for 6 times											
184 × 144 × 50	184 × 144 × 50	184 × 144 × 50	227.1 × 174.1 × 61	227.1 × 174.1 × 61	299 × 224 × 51.1	299 × 224 × 51.1	299 × 224 × 51.1	299 × 224 × 51.1	272 × 200 × 61	272 × 200 × 61	272 × 200 × 61
172.4 × 132.4	172.4 × 132.4	172.4 × 132.4	219.4 × 166.5	219.4 × 166.5	285.2 × 210.2	285.2 × 210.2	285.2 × 210.2	285.2 × 210.2	261.3 × 189.3	261.3 × 189.3	261.3 × 189.3
Approx. 800 g	Approx. 800 g	Approx. 800 g	Approx. 1226 g	Approx. 1228 g	Approx. 1700 g	Approx. 1700 g	Approx. 1700 g	Approx. 1700 g	Approx. 1520 g	Approx. 1520 g	Approx. 1520 g

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2) With built-in isolated power circuit.
3) Please use isolated power supply.
4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.
5) The value of the power consumption indicates the electrical power consumed by HMI with no peripheral devices connected.
To ensure normal operation, it is recommended using a power supply with a capacity 1.5 ~2 times the value of the power consumption.
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Specifications

DOP-H Series

Model		DOP-H07S425 DOP-H07S42A	DOP-H07S465 DOP-H07S46A	DOP-H07E425 DOP-H07E42A	DOP-H07E465 DOP-H07E46A
LCD MODULE	Display Size and Type	7" Widescreen TFT LCD			
	Display Colors	65536 colors			
	Resolution (pixels)	800 x 480			
	Backlight	LED Back Light			
	Luminance (cd/m^2)	450			
	Backlight Life (hours)(Note 1)	20,000			
MCU		400 MHz			
Flash ROM (Bytes)		128 MB			
RAM (Bytes)		64 MB			
Backup Memory (Bytes)		16 MB			
Buzzer		Multi-Tone Frequency (2K ~ 4K Hz) / 80dB			
Audio Output		N/A			
USB		1 USB Client Ver 2.0			
SD		SD card (supports SDHC)			
Serial COM Port		RS-422 / RS-485(Note 2)		N/A	
Ethernet		N/A		1 Ports(Note2)	
Function Key		15			
Cable Length & Type		End of Model Name: 5 - 5 m End of Model Name: A - 10 m			
Emergency Stop		B-contact: 2 Rated voltage: DC 30V Maximum rated current: 1A Minimum allowable load: DC 5V/1 mA Complies with IEC60947-5-1, EN60947-5-1, IEC60947-5-5, EN60947-5-5, UL 508, and CSA C22.2 No.14, GB 14085.5			
3-Position Operation Switch		A-contact: 1 Rated voltage: DC 30V Maximum rated current: 700 mA Minimum allowable load：DC 3 V/5mA Complies with EN/IEC60947-5-8, IEC60947-5-1, EN60947-5-1, JIS C8201-5-1, UL508, and CSA C22.2 NO. 14 Applicable standards for use with ISO12100-1, -2/EN12100-1, -2, IEC60204-1/EN60204-1, ISO11161/prEN11161, ISO10218/EN775, ANSI/RIA R15.06, ANSI B11.19			
Handwheel		N/A	Rated Voltage: <DC 24V in Resolution: 50(P/R) Output Pulse: Square Output Phase: A, B Phase difference of A and B: 90° ± 45° Max. Frequency response: 200 Hz	N/A	Rated Voltage: <DC 24V in Resolution: 50(P/R) Output Pulse: Square Output Phase: A, B Phase difference of A and B: 90° ± 45° Max. Frequency response: 200 Hz
Perpetual Calendar		Built-in			
Cooling Method		Natural cooling			
Safety Approval		CE			
Waterproof Level of Panel Display		IP55			
Operation Voltage (Note3)		DC +24V (±15%) (with built-in isolated power circuit)(Note2)			
Voltage Endurance		AC500V for 1 minute (between charging (DC24V terminal) and FG terminals)			
Power Consumption (Note 5)		5.6W			
Backup Battery		3V lithium battery CR2450 × 1			
Backup Battery Life		About 5 years or more at 25oC but subjects to the temperature and the conditions during usage.			
Operation Temperature		0°C ~ 40°C			
Storage Temperature		-20 °C ~ +60 °C, 10% ~ 90% RH			
Operating Environment		10% ~ 90% RH【0 ~ 40 °C】; 10% ~ 55% RH【41 ~ 50 °C】; Pollution Degree 2			
Vibration		Conforms to IEC61131-2; Continuous: 5Hz ~ 8.3Hz 3.5 mm, 8.3Hz ~ 150Hz 1G			
Shock		Conforms to IEC60068-2-27; 11ms, 15G Peak , X, Y, Z direction for 6 times			
Dimensions (W) × (H) × (D) mm		257.4 × 170.3 × 71.8 (Emergency stop switch and hook are included.)			
Weight		750 g (cable excluded)			

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5) The value of the power consumption indicates the electrical power consumed by HMI with no peripheral devices connected.
   To ensure normal operation, it is recommended using a power supply with a capacity 1.5 ~2 times the value of the power consumption.
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DOP-W Series

MODEL		DOP-W105B	DOP-W127B	DOP-W157B
LCD MODULE	Display Size and Type	10.4″ TFT LCD	12.1″ TFT LCD	15″ TFT LCD
	Display Colors	65536 colors		
	Resolution (pixels)	800 x 600	1024 x 768	
	Backlight	LED Back Light		
	Luminance (cd/m^2)	300	500	450
	Backlight Life (hours)(Note 1)	10,000	30,000	100,000
MCU		1 GHz		
Flash ROM (Bytes)		256 MB		
RAM (Bytes)		256 MB		
Backup Memory		800000 numbers of data (alarm data + historical data)		
Buzzer		Multi-Tone Frequency (2K ~ 4K Hz) / 80dB		
Audio Output		Stereo output	Stereo output / Built in 1.5W Speaker	
USB		1 USB Host Ver 2.0	3 USB Host Ver 2.0	
SD		SD card (supports SDHC)		
Serial COM Port	COM1	N/A		
	COM2	RS-232 / RS-422 / RS-485(Note 2)		
	COM3	RS-232 / RS-422 / RS-485(Note 2)		
Ethernet		2 Ports(Note2)		
Perpetual Calendar (RTC)		Built-in(Note5)		
Cooling Method		Natural air circulation		
Safety Approval		CE / UL		
Waterproof Degree		IP65 / UL type 4x	IP65 / UL type 1	
Operation Voltage (Note3)		DC +24V (-10% ~ +15%)		
Voltage Endurance		AC500V for 1 minute (between charging (DC24V terminal) and FG terminals)		
Power Consumption (Note 6)		13.5W	18.5W	21.6W
Backup Battery		Uses a gold-capacitor instead of a battery, no need to replace batteries		
Backup Battery Life		It can keep the RTC working at least seven days in a working environment where the conditions do not exceed the specifications for DOP-W series.		
Operation Temperature		0°C ~ 50°C		
Storage Temperature		-20°C ~ +60°C, 10% ~ 90% RH		
Ambient Humidity		10% ~ 90% RH [0 ~ 40°C], 10% ~ 55% RH [41 ~ 50°C] Pollution Degree 2		
Vibration		IEC61131-2 compliant 5Hz ≦ f < 8.3Hz = Continuous: 3.5mm, 8.3Hz ≦ f ≦ 150Hz = Continuous: 1.0g		
Shock		IEC 60068-2-27 compliant 15g peak for 11 ms duration, X, Y, Z directions for 6 times		
Dimensions (W) x (H) x (D) mm		299 × 224 × 46.8	313 × 239.5 × 67.5	384.4 × 295.8 × 67.8
Panel Cutout (W) x (H) mm		285.2 × 210.2	302.7 × 228.7	372.4 × 283.7
Weight		Approx. 1750 g	Approx. 2830 g	Approx. 3880 g

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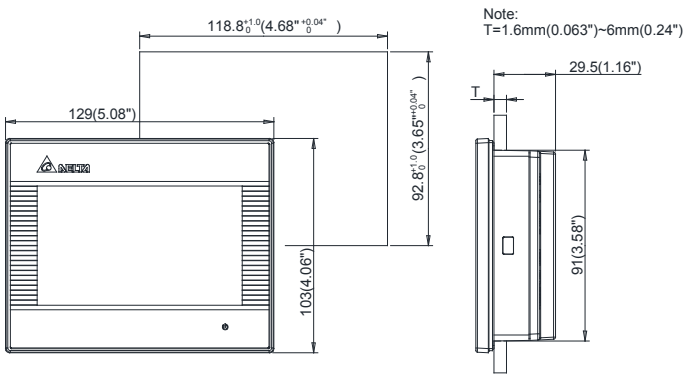
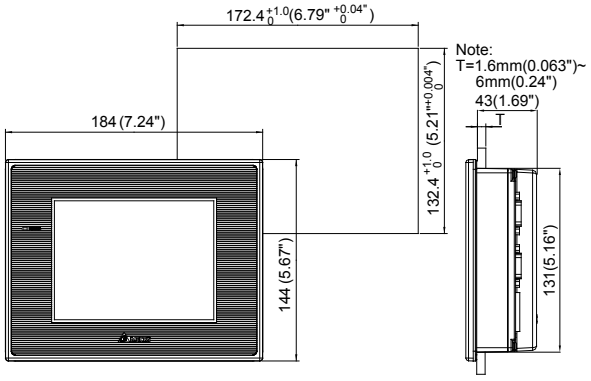
Dimensions Unit: mm (inches)

DOP-B Series

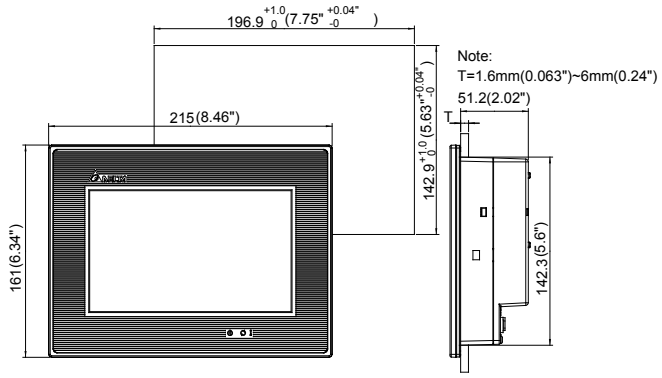
• DOP-B03S(E)211



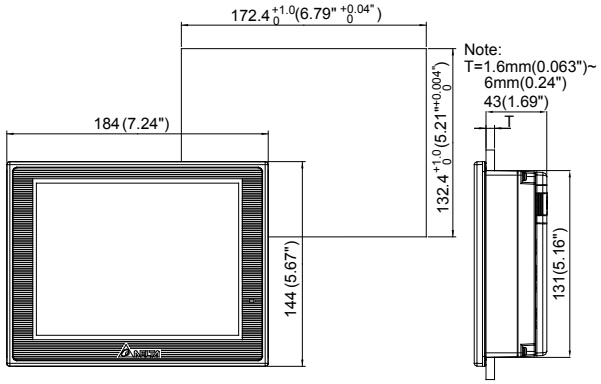
• DOP-B05S111



• DOP-B07S(E)415 / DOP-B07PS415

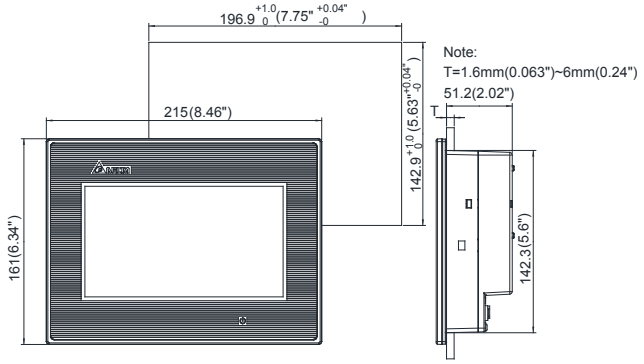


• DOP-B07S(E)515 / DOP-B07PS515

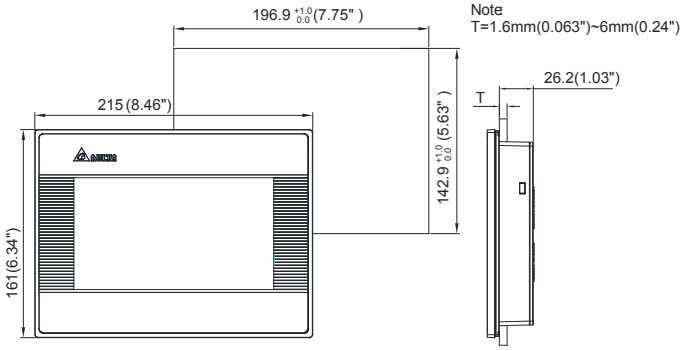


DOP-B Series

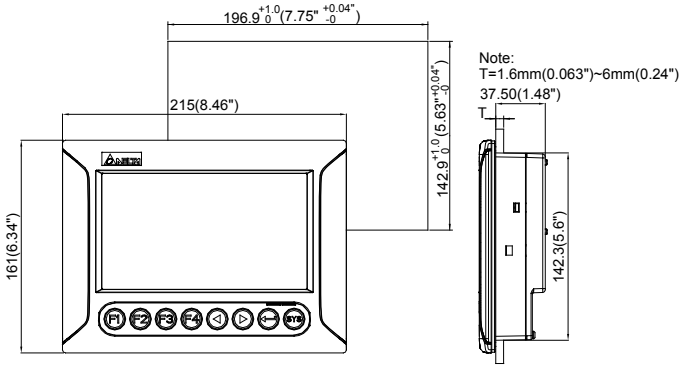
• DOP-B07S411 / B07E411



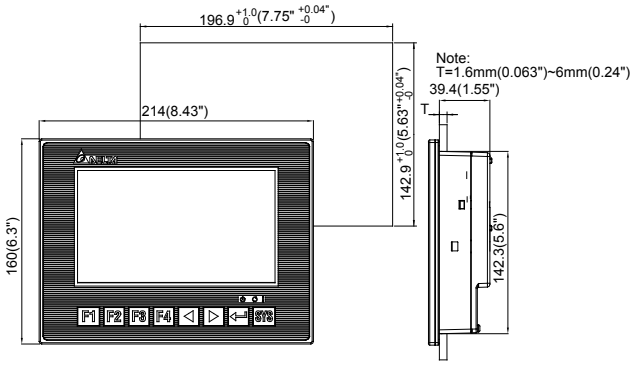
• DOP-B07S410



• DOP-B07S401K



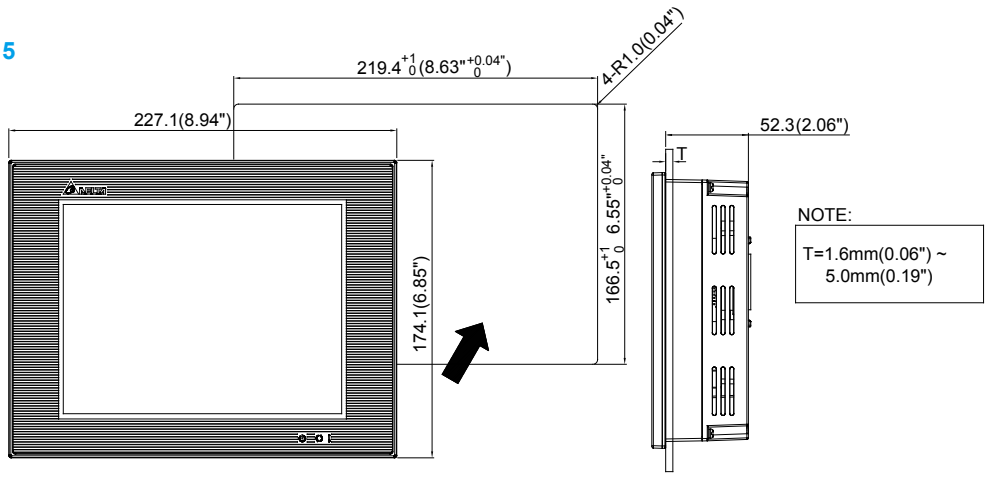
• DOP-B07S411K



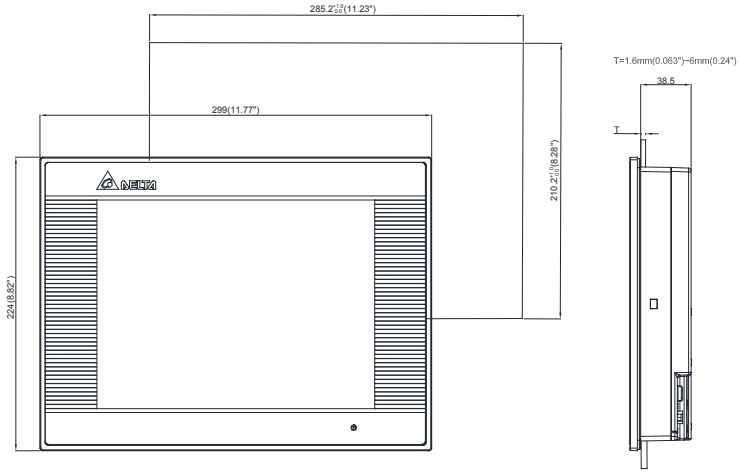
Dimensions Unit: mm (inches)

DOP-B Series

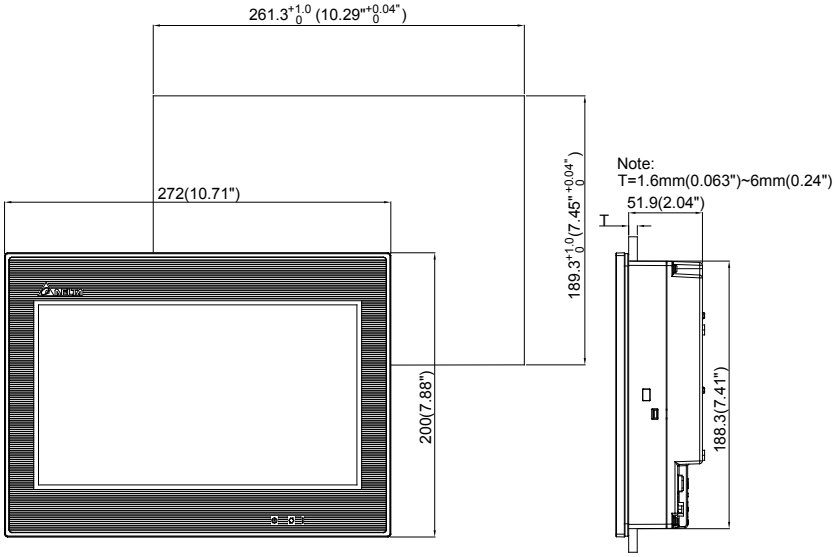
• DOP-B08S(E)515



• DOP-B10S(E)51x / DOP-B10PE515 / DOP-B10VS511



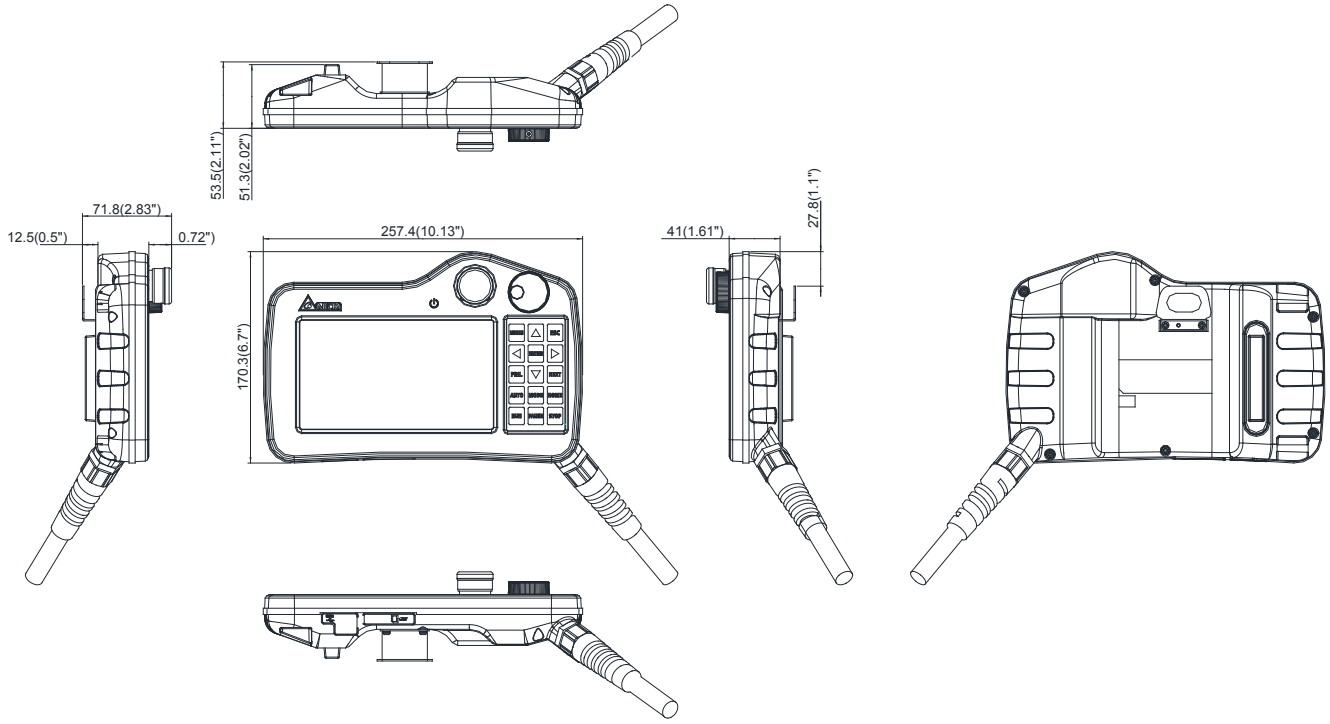
• DOP-B10S(E)615



Dimensions Unit: mm (inches)

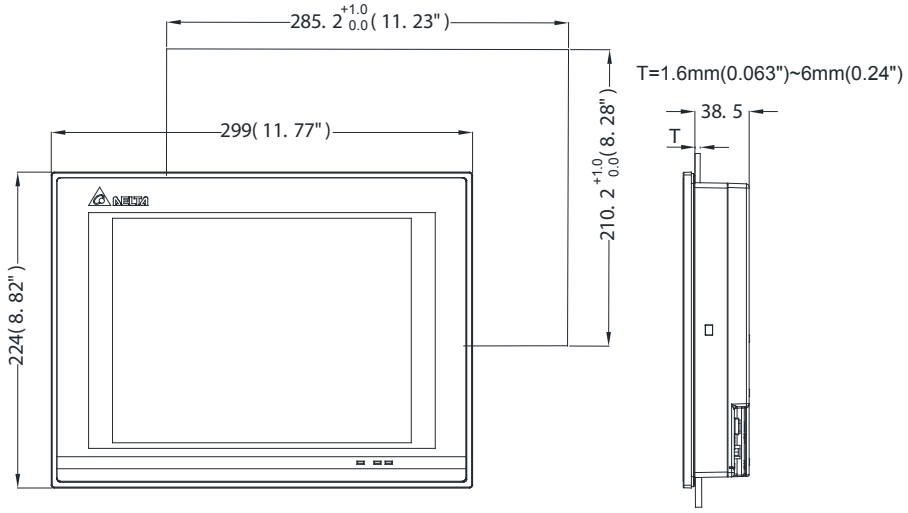
DOP-H Series

• DOP-H07X4XX



DOP-W Series

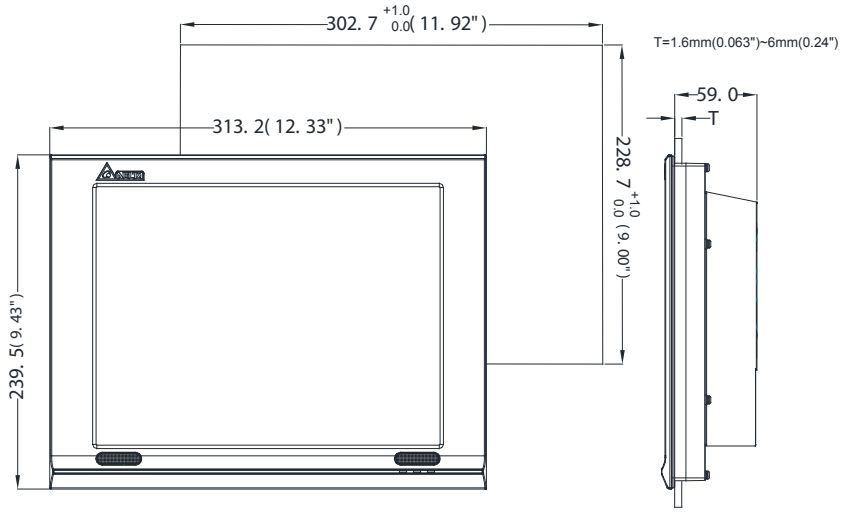
• DOP-W105B



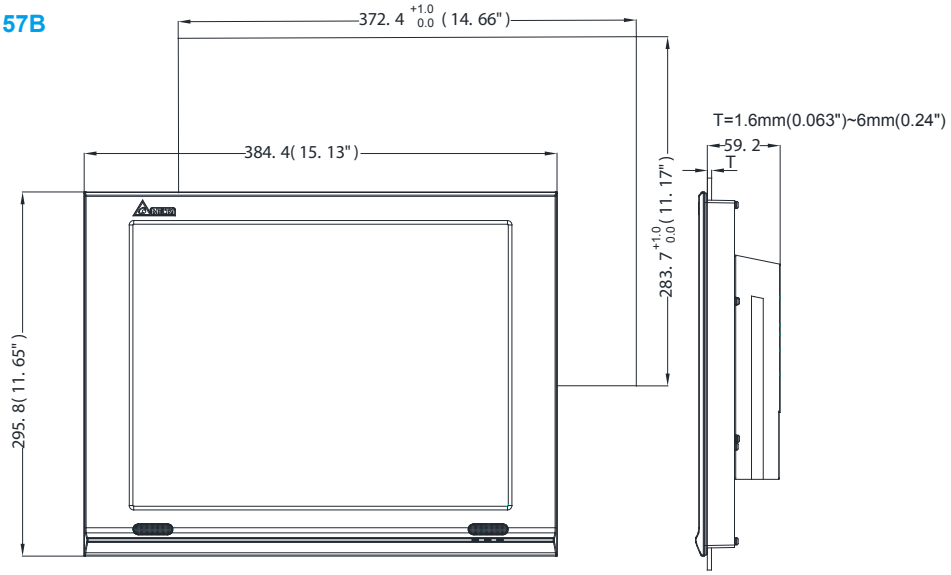
Dimensions Unit: mm (inches)

DOP-W Series

• **DOP-W127B**



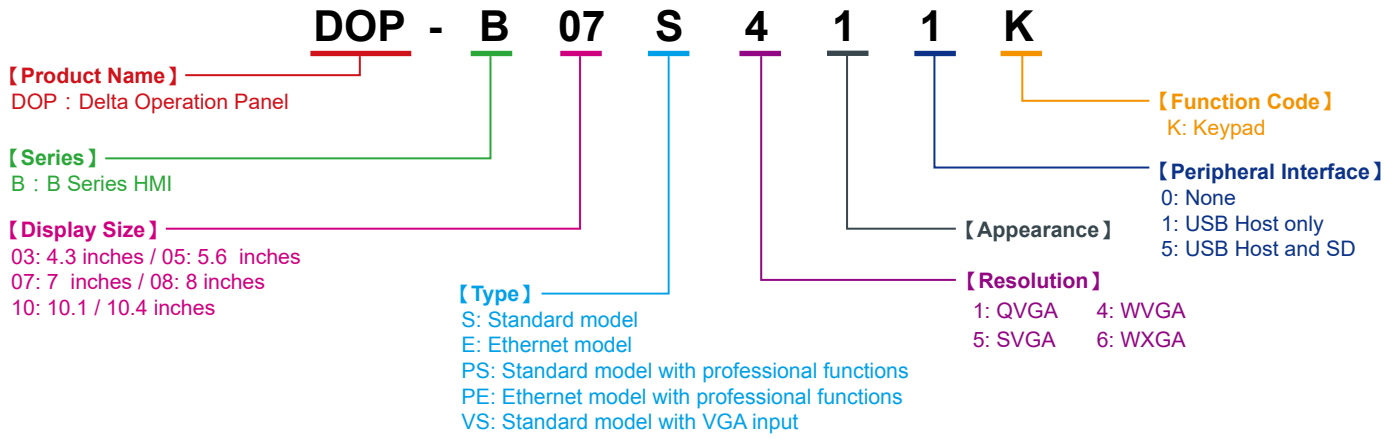
• **DOP-W157B**

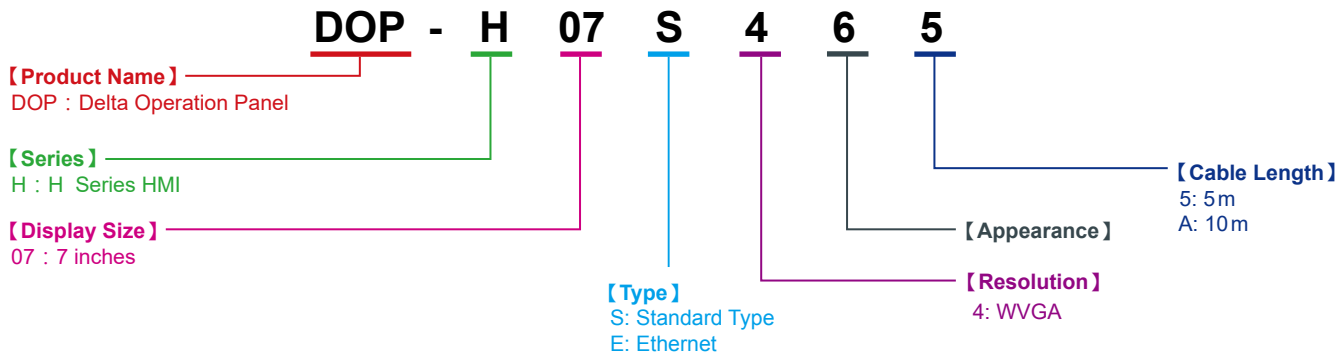


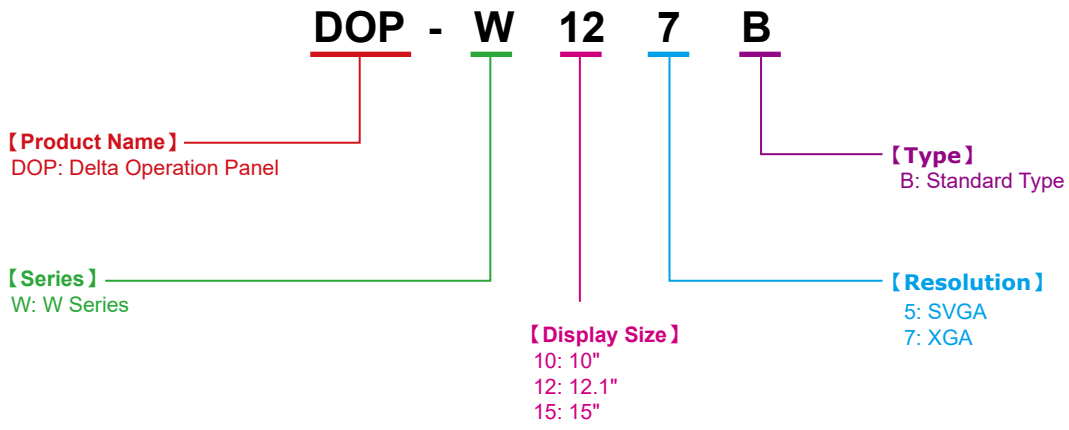
Optional Accessories

Model Name	Description
DOP-CA232DP	DOP-CA232DP: RS-232 Communication Cable for DVP Series PLC (Female Socket)
DVPACAB2A30	DVPACAB2A30: RS-232 Communication Cable for DVP Series PLC (Male Socket)
DOP-CAUSBAB	DOP-CAUSBAB: USB Communication Cable

Ordering Information







SERIE DOP-100

Advanced Human Machine Interface for

The DOP-100 Series Human Machine Interfaces include a Basic HMI, Standard HMI and Advanced HMI for different applications. The HMIs adopt the latest Cortex-A8 / Dual Core high-speed processor and 65,536 color LCD screen with high brightness and contrast. In addition, they are equipped with the HMI programming software DOPSoft 4.0 and built-in Lua editor for easy programming as well as alarm / history log / user authority functions for highly efficient management.

With advanced communication capabilities and enhanced functions, the DOP-100 Series elevates machine efficiency to bring more value to our customers, and to achieve "Automation for a Changing World"!



Standard HMI

Features General and Ethernet Types for various applications

Future Industry

Advanced HMI

Features narrow frame design,
supports various network communications,
multilingual input and multimedia functions



Basic HMI

Simple operating structure for harsh environments

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Easy Model Selection

The DOP-100 Series offers complete models for different applications. Users can easily select a suitable HMI based on size or function easily

B Type	1 COM port
D Type	1 COM port + 1 Ethernet port
C Type	2 COM ports
E Type	2 COM ports + 1 Ethernet port
I Type	3 COM ports + 1 Ethernet port
W Type	More than 1 COM port + 1 Ethernet port + Narrow frame design + Multi-language
M Type	2 COM ports + 2 Ethernet ports + Narrow frame design + Multi-language + Multi-media

Type Definition

DOP-107 W V




Advanced HMI
At least 1 COM Ports &
1 Ethernet prot included
W Type
Advanced Narrow Frame
M Type
Advanced Multimedia
Standard HMI
At least 2 COM Ports
included
C Type
Standard General
E Type
Standard Ethernet
(2COM)
I Type
Standard Ethernet
(3COM)
Basic HMI
1 COM Ports included
B Type
Basic
D Type
Basic Ethernet

Advanced HMI

The Advanced HMI adopts a wide screen and narrow frame design. It supports Ethernet communication & multilingual inputs. The Multimedia Type DOP-112 / 115 offers multimedia functions to meet different applications.



M Type W Type

Features



Narrow Frame
Enlarged visual display for better user experience



LUA Language
Simple and easy structural programming language to meet various demands



Pressing times >10,000,000
Effective pressing times increased through strict endurance tests



IP65 Rating
The front case protects the HMI from snow, rain, and dust



Multilingual Input
16 different languages input for easy operation



Diagnostics Function
Collects and solves issues remotely



Power Isolation
Protects the HMI from accidental surge interference



VNC Remote Monitoring
Remote control with mobile devices



QRcode Scanning
Generates QRcodes with self-defined content for mobile device identification



Supports GIF Graphic Elements
Easy setting to play vivid GIF elements



Embedded Linux System
Open system for flexible and stable program development



DOPSoft 4.0
New software DOPSoft 4.0 offers more complete functions and a better interface



Operating Temperature 0ºC ~ 50ºC
Compliant with industrial operating environments



CE / UL Certified
Compliant with CE and UL standards



Multimedia Functions
Captures image with an external camera or replays important recordings

M Type Only



Ethernet Communication
Connects to a master device or PLC with high-speed Ethernet communication



Communication Isolation
COM and Ethernet ports with built-in isolation circuits enhance communication stability



FTP/eMail Supported
Simple data transmission and real-time status report



Supports PDF and TXT Reader
PDF and TXT files supported



User-Friendly
Intuitive operation interfaces for users

Camera & Video Play
Multi-Media Functions



Analog Camera

Supports external camera via analog, suitable for capturing fast and short-distanced images

Applications: Textiles | Pharmaceutical | Rubber & Plastics

IP Camera

Supports IP Camera via Ethernet, suitable for capturing remote and wide-range images

Applications: Packaging | Logistics | Mining | Power Generation | Oil & Gas

VGA Input

Displays images from external devices such as machine vision systems, PCs or notebooks

Video Play

Views mpeg4 files captured by analog or IP camera from internal storage or USB disk / SD card

Event Trigger

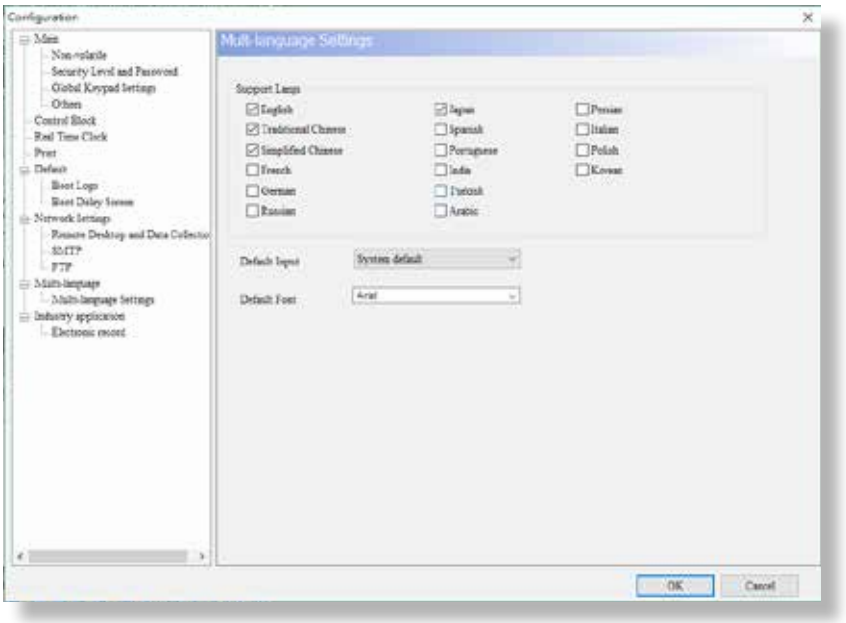
HMI performs specific actions when an event condition occurs
Sets up event trigger conditions to capture images and archive as mpeg4 files



Multi-Language Input for Localization

- The Advanced HMI supports multilingual inputs for:
  - Recipe Name (ENRCPG)
  - Recipe Group Name (ENRCPNO)
  - Recipe Content (Char)
  - User Name

- Supports 16 languages: English, Traditional Chinese, Simplified Chinese, French, German, Russian, Japanese, Korean, Spanish, Portuguese, Hindi, Turkish, Arabic, Persian, Italian and Polish



Standard HMI

The Standard HMI is equipped with 2 COM ports to meet most applications. It also offers Ethernet Types for fast and easy connection with other equipment.



C Type E Type I Type

Features

Embedded Linux System
Open system for flexible and stable program development

LUA Language
Simple and easy structural programming language to meet various demands

DOPSoft 4.0
New software DOPSoft 4.0 offers more complete functions and a better interface

Pressing times >10,000,000
Effective pressing times increased through strict endurance tests

Operating Temperature 0ºC ~ 50ºC
Compliant with industrial operation environments

IP65 Rating
The front case protects the HMI from snow, rain, and dust

CE / UL Certified
Compliant with CE and UL standards

Diagnostics Function
Collects and solves issues remotely

Ethernet Communication
Connects to master device or PLC with high-speed Ethernet communication
E Type I Type

Power Isolation
Protects the HMI from accidental surge interference

Communication Isolation
COM and Ethernet ports with built-in isolation circuits enhance communication stability
E Type I Type

VNC Remote Monitoring
Remote control with mobile devices
E Type I Type

FTP/eMail Supported
Simple data transmission and real-time status report
E Type I Type

Supports PDF and TXT Reader
PDF and TXT files supported

Supports GIF Graphic Elements
Easy setting to play vivid GIF elements

User-Friendly
Intuitive operation interfaces for users

Basic HMI

The Basic HMI features basic functions and easy installation for industrial applications. With an IP65 water-proof rating, it is suitable for harsh environments.



B Type

D Type

Features

Embedded Linux System
Open system for flexible and stable program development

LUA Language
Simple and easy structural programming language to meet various demands

DOPSoft 4.0
New software DOPSoft 4.0 offers more complete functions and a better interface

Pressing times >1,000,000
Effective pressing times increased through strict endurance tests

Operating Temperature 0ºC ~ 50ºC
Compliant with industrial operating environments

IP65 Rating
The front case protects the HMI from snow, rain, and dust

CE / UL Certified
Compliant with CE and UL standards

Diagnostics Function
Collects and solves issues remotely

Ethernet Communication
Connects to master device or PLC with high-speed Ethernet communication
D Type Only

FTP/eMail Supported
Simple data transmission and real-time status report
D Type Only

Communication Isolation
COM and Ethernet ports with built-in isolation circuits enhance communication stability
D Type Only

VNC Remote Monitoring
Remote control with mobile devices
D Type Only

Supports PDF and TXT Reader
PDF and TXT files supported

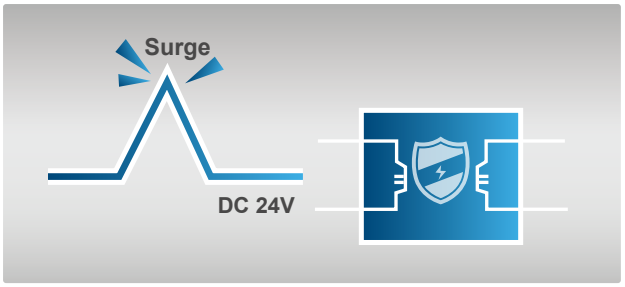
Diagnostics Function
Collects and solves issues remotely

User-Friendly
Intuitive operation interfaces for users

Robust Hardware

Power Isolation

- Complete series with built-in power isolation circuits provides the most complete protection against accidental external spikes



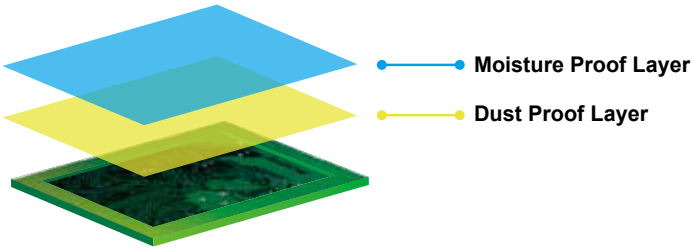
Fully Isolated Communication Interface

- Complete series has built-in COM and Ethernet isolation circuits to protect against noise that can occur from the grounding of various devices such as PLCs, servo drives, inverters and others



PCB Coating

- Complete series has PCB coating for enhanced durability and to protect against humidity and dust for applications in a range of environments

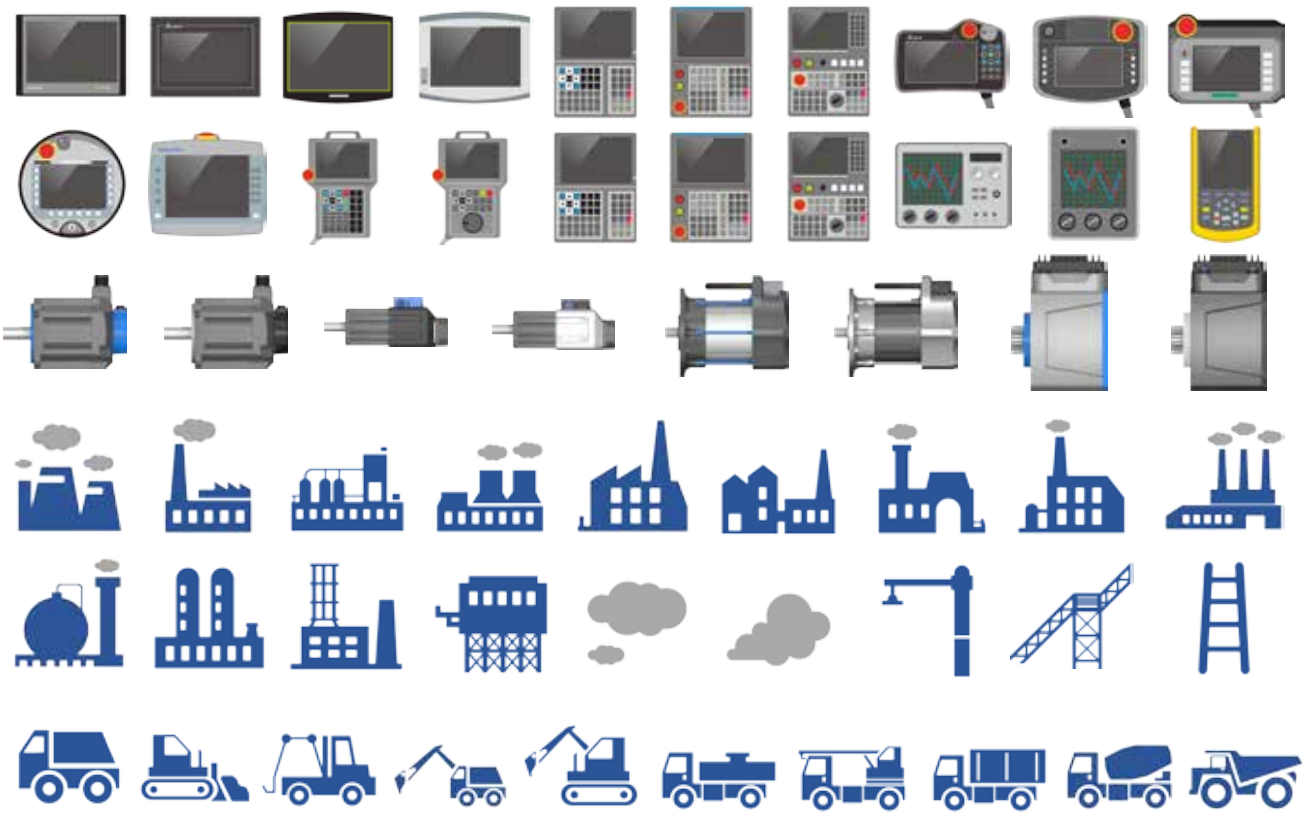


Model	Power Isolation	Communication Isolation
Advanced HMI (Multimedia Type)		
DOP-112/115 MX	Yes	Yes
Advanced HMI		
DOP-103WQ/107WV/110WS	Yes	Yes
DOP-112/115 WX	Yes	Yes
Standard HMI (Ethernet Type)		
DOP-107IV	Yes	Yes
DOP-108IG/110IG	Yes	Yes
DOP-110IS	Yes	Yes
DOP-107EV	Yes	Yes
DOP-107EG	Yes	Yes
Standard HMI		
DOP-105CQ	Yes	No
DOP-107CV	Yes	No
DOP-110CS	Yes	No
DOP-110CG	Yes	No
Standard HMI (General Type)		
DOP-107DV	No	No
Basic HMI		
DOP-103BQ	No	No
DOP-107BV	No	No

Programming Software – DOPSoft 4.0

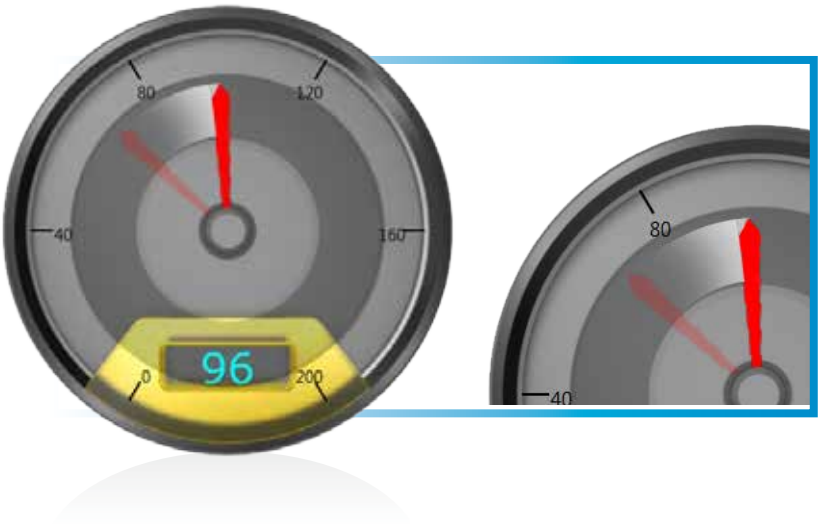
Abundant Elements

- Abundant built-in element graphics for vivid interface display for a variety of industrial applications



Smooth Animation

- New smooth animation technology for realistic dashboard display



Programming Software - DOPSoft 4.0

User-friendly Programming Interface

Bookmark Management

Bookmark menu allows users to switch pages easily

Project Management Batch

Quickly switch items via the project branch feature

Editing Area

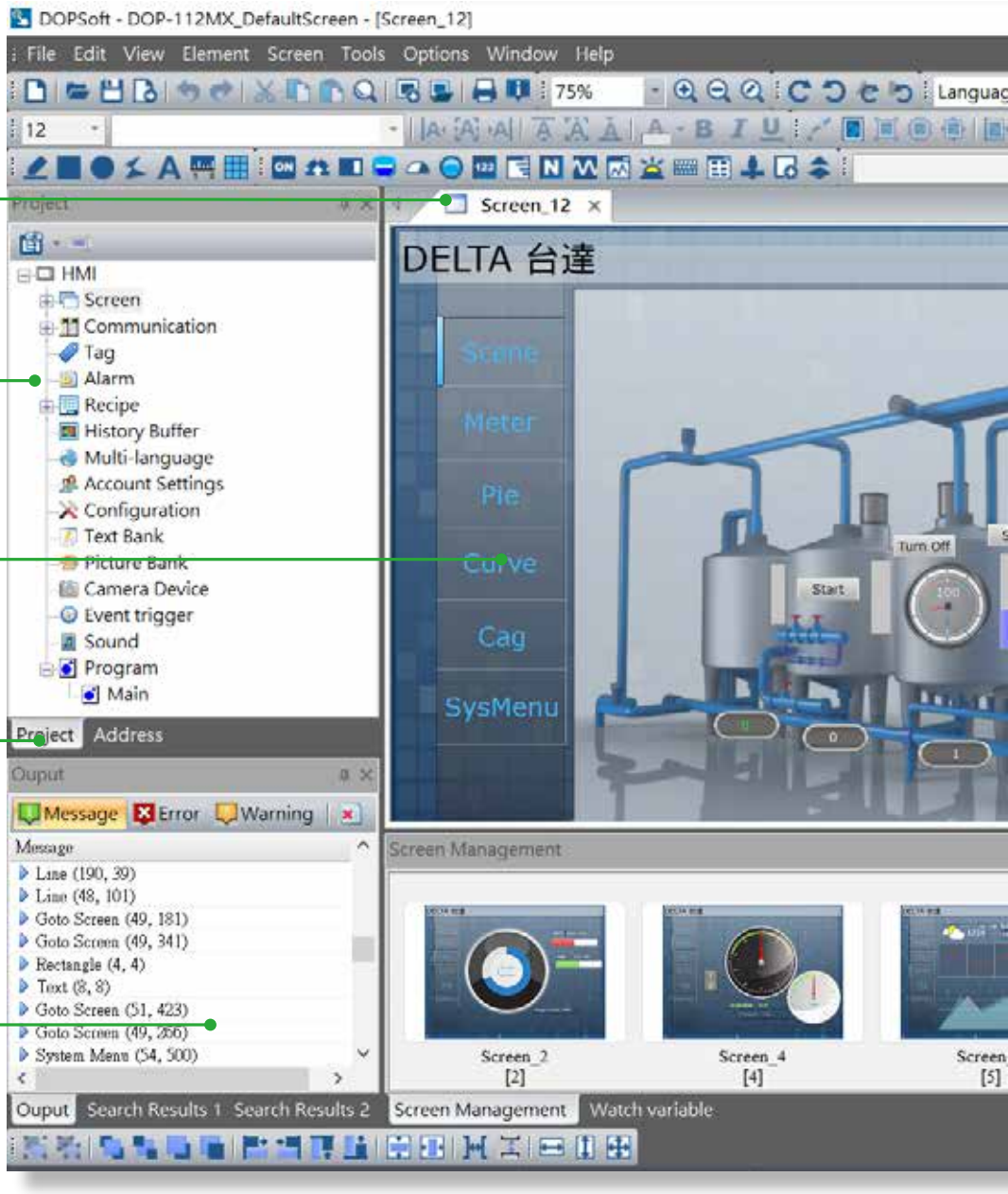
Provides real-time display of your edit

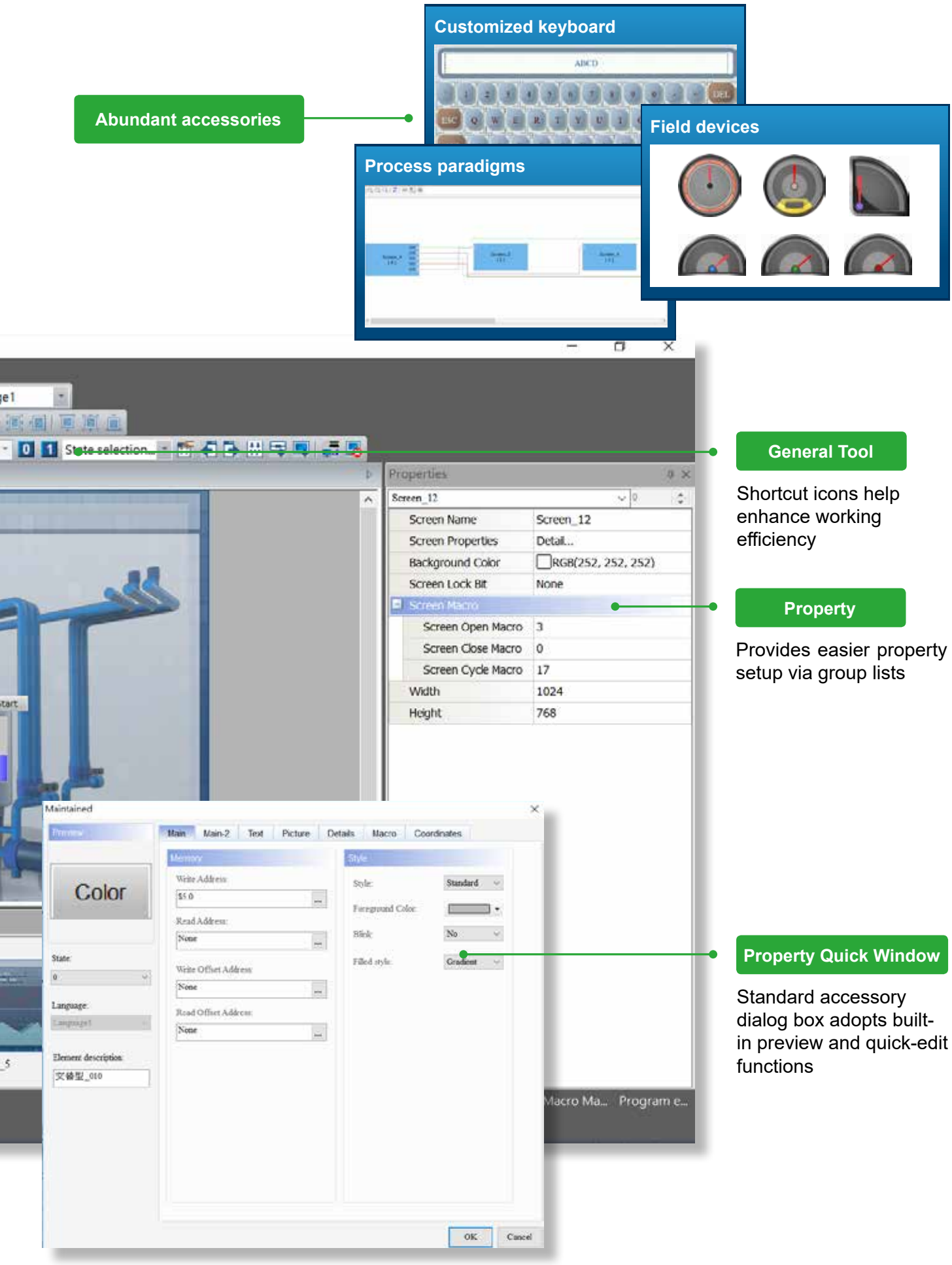
Output List

Automatically displays edit results of each screen. Users can review and resolve errors by clicking screens

Edit Preview

Quickly browses the overall project via edit preview





General Tool

Shortcut icons help enhance working efficiency

Property

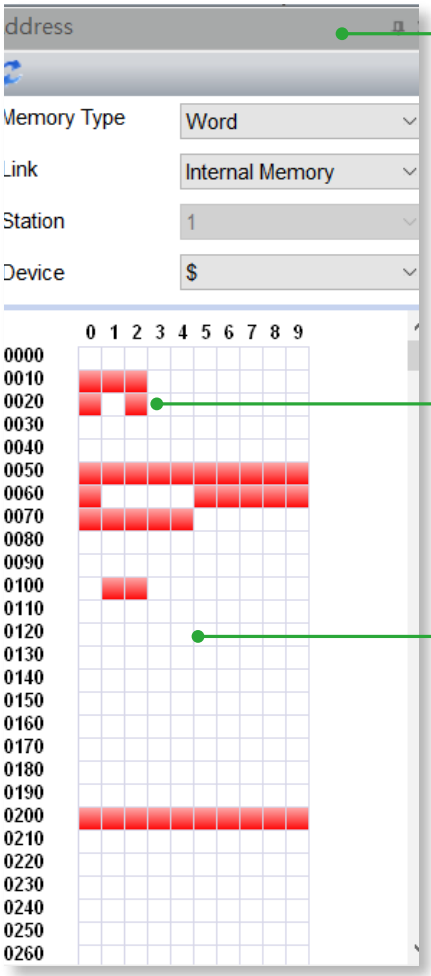
Provides easier property setup via group lists

Property Quick Window

Standard accessory dialog box adopts built-in preview and quick-edit functions

Programming Software - DOPSoft 4.0

Editing Windows



Register View Window

The color blocks of red and white allow users to view the memory register status

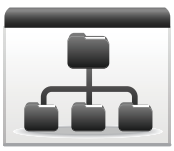
Red blocks indicate the used registers

White blocks indicate empty registers



Macro Management Window

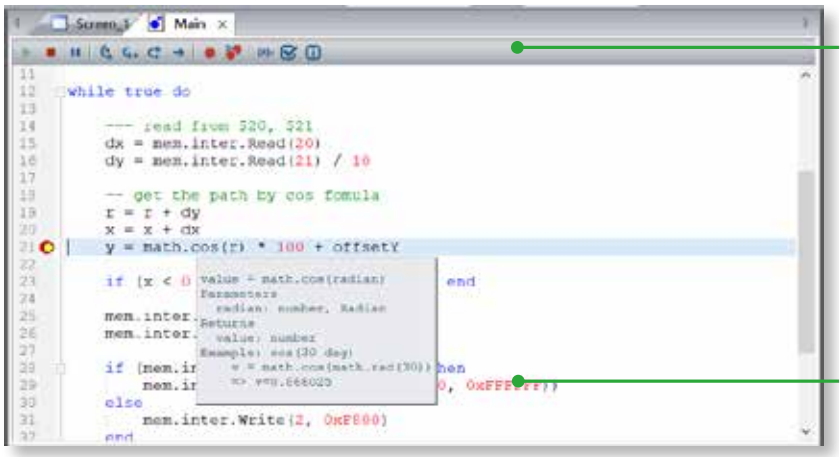
Users can view all types of macros in the project



Selected a macro via the list



Directly edit the macro after clicking

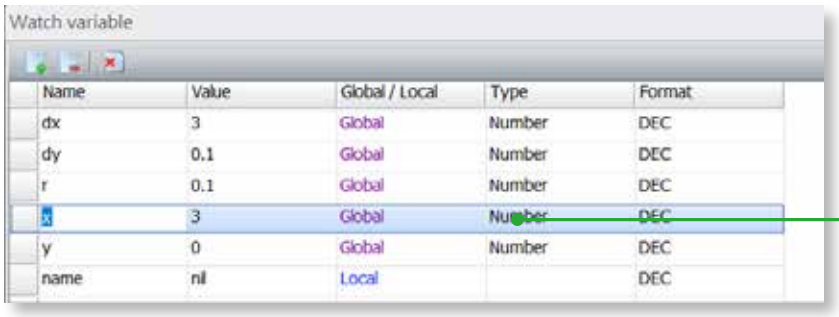


Lua Tool Bar

Program Debugging

Stops program debug

Program break point

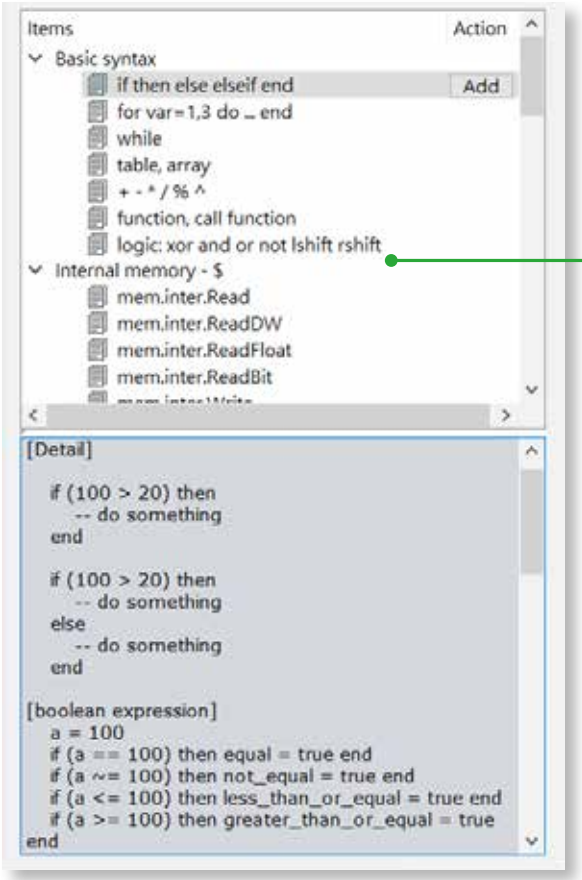


Online Coding Tips

Lua editor displays tip windows of the codes when users move the mouse to selected codes

Parameter Monitoring Window

Allows users to monitor parameter variation during program development



Programming Assistance Window

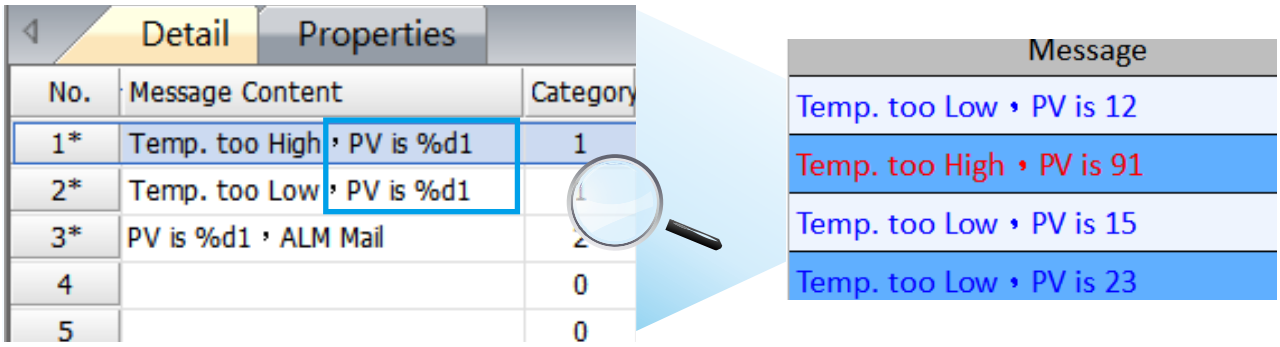
Provides online assistance as follows:

- Lua code templates
- Program usage and properties
- Program samples

Advanced Alarm

Strengthened alarm functions allow users to easily manage machine operations and quickly eliminate problems

- Alarm messages contain current register data for issue analysis

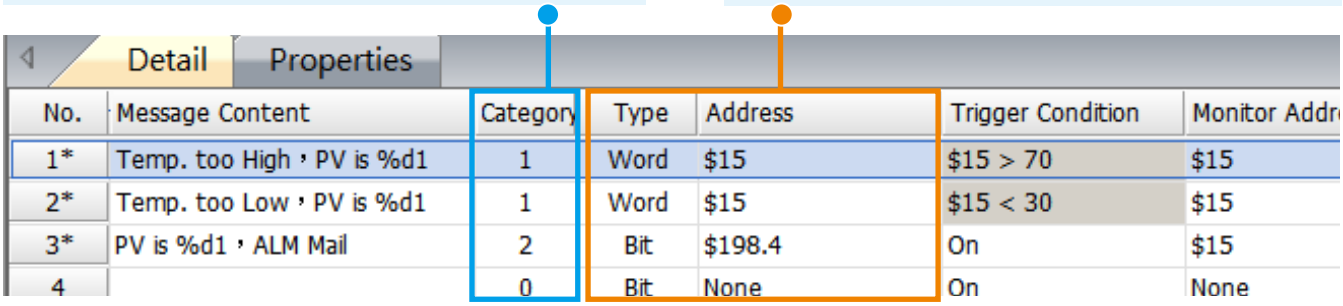


Alarm Sorting

Alarm sorting via a "Sorting" function based on alarm attributes for quick information inquiries

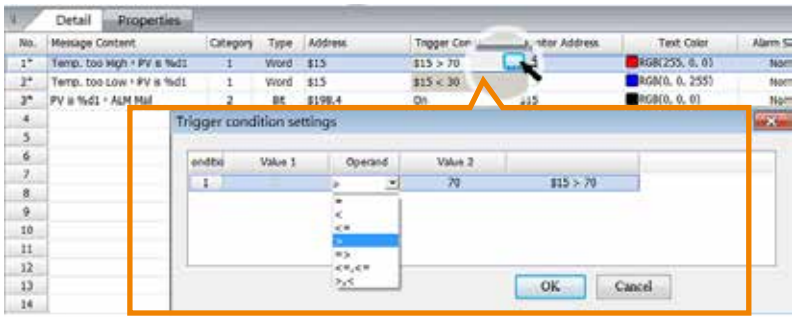
Supports Compound Address Monitoring

Able to monitor Word and Bit documents at the same time



Versatile Alarm Triggering Conditions

Triggering conditions can be setup via a built-in function, no external editing programs required



Alarm Notification

Automatically sends out alarm notification emails to logged-in recipients when alarms occur and supports the Secure Sockets Layer (SSL) protocol to ensure safe data transmission



- Indicates the alarm trigger and recovery time, and provides alarm acknowledge time / date (Ack) to confirm and monitor troubleshooting progress

Message	Trigger	Ack	Recovery
Temp. too Low • PV is 12	15:07:12 02/03/2017		15:07:15 02/03/2017
Temp. too High • PV is 91	15:07:15 02/03/2017	15:07:56 02/03/2017	15:07:22 02/03/2017
Temp. too Low • PV is 15	15:07:22 02/03/2017		15:07:25 02/03/2017
Temp. too Low • PV is 23	15:07:28 02/03/2017	15:07:58 02/03/2017	15:07:34 02/03/2017

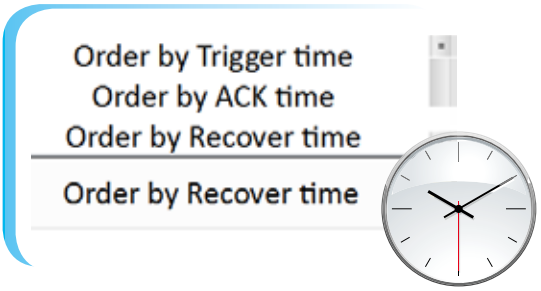
Alarm Filtering

Advanced address control filtering allows users to find specified alarm messages according to user needs

Action	
Address control filtering allows users to find specified alarms	
No.	Action
0	Preset state, shows all triggered alarms
1	Hide alarms with "Restore Time" and "Confirm Time"
2	Hide alarms with "Restore Time"
3	Hide alarms with "Restore Time" or "Confirm Time"
4	Hide alarms with "Confirm Time"

Alarm Ordering

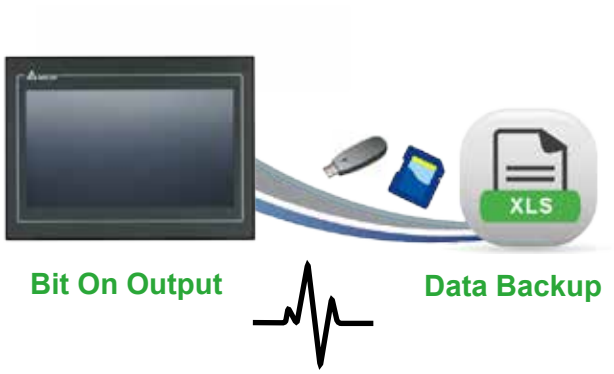
Able to display alarms in the order of Trigger Time / Confirm Time / Restore Time

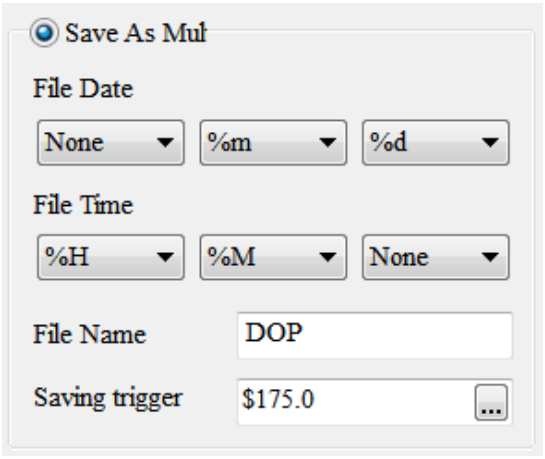


Data Management

Historical Data

- Able to generate historical reports with user-defined file names and timestamps through Bit Control





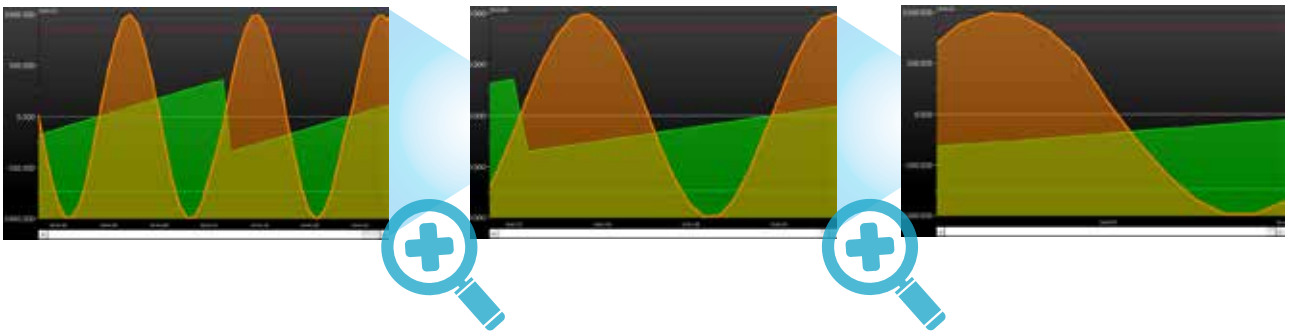
Historical Data Review

- Allows historical data review on backup in USB disk or SD cards



Zoom In / Out Display

- Zoom in / out function for convenient data viewing



Recipes

- Supports 2D and 3D recipe grouping, more flexible in building recipe database
- Various recipe formats, including text format (Unicode) which can also be used as formula notes

	D100	D101	D102	D103	D104	D105	D106	
	D100	D101	D102	D103	D104	D105	D106	50.7
Cake Recipe 1	Strawberry	300	0	0	221.56	533.1	150.7	63.9
Cake Recipe 2	Chocolate	0	300	0	387.98	490.8	163.9	79.8
Cake Recipe 3	Vanilla	0	0	300	120.14	505.3	279.8	
		Strawberry	Chocolate	Vanilla	Sugar	Flour	Milk	
	Char	Unsigned DEC			Floating			

Recipe Group 2

Recipe Group 1

- Recipes can be saved in CSV files for convenient editing on PCs
- Allows recipe update or backup through USB disks, SD cards or FTP



PDF for Data Review

- Saves manuals or instruction PDF files in USB disks or SD cards for reference anytime



User Authority Management

Account and Authorization Management

- Supports 8 levels of authority and allows 8 accounts (account name/password) for each level
- Different function and operation access for each authority level to enhance operation safety



Operation Log

- Operation log for different user accounts to trace/analyze possible causes of malfunctions
- Provides comprehensive information for managers to analyze the operating habits of different users and improve efficiency

Time	Date	User	Level	Screen	Action	Address	Pre Value	Change Value	Description
19:22:18	2016.12.02	MANAGER	7	Screen_6	Goto Scrn		6	1	換畫面_006
19:22:20	2016.12.02	MANAGER	7	Screen_1	Goto Scrn		1	10	換畫面_001
19:22:24	2016.12.02	MANAGER	7	Screen_10	Set Val	$51.1	1	0	交替型_003
19:22:27	2016.12.02	MANAGER	7	Screen_10	Goto Scrn		10	1	換畫面_006
19:22:30	2016.12.02	MANAGER	7	Screen_1	Goto Scrn		1	7	換畫面_001
19:22:57	2016.12.02	MANAGER	7	Screen_7	Set Val	$20	-730	-698	數值輸入_0
19:23:02	2016.12.02	MANAGER	7	Screen_7	Goto Scrn		7	1	換畫面_006
19:23:05	2016.12.02	MANAGER	7	Screen_1	Goto Scrn		1	6	換畫面_001
19:23:47	2016.12.02	MANAGER	7	Screen_6	Level Switch		7	4	密碼輸入_0
19:23:52	2016.12.02	OPERATOR	4	Screen_6	Goto Scrn		6	1	換畫面_006
19:23:55	2016.12.02	OPERATOR	4	Screen_1	Goto Scrn		1	3	換畫面_001
19:24:03	2016.12.02	OPERATOR	4	Screen_3	Set Val	ENRCP10	12ED	65AE	數值輸入_0
19:24:09	2016.12.02	OPERATOR	4	Screen_3	Set Val	ENRCP11	456.32	125.93	數值輸入_0
19:24:14	2016.12.02	OPERATOR	4	Screen_3	Set Val	ENRCP17	400	452	數值輸入_0
19:24:15	2016.12.02	OPERATOR	4	Screen_3	Goto Scrn		3	1	換畫面_006
19:24:17	2016.12.02	OPERATOR	4	Screen_1	Goto Scrn		1	6	換畫面_001

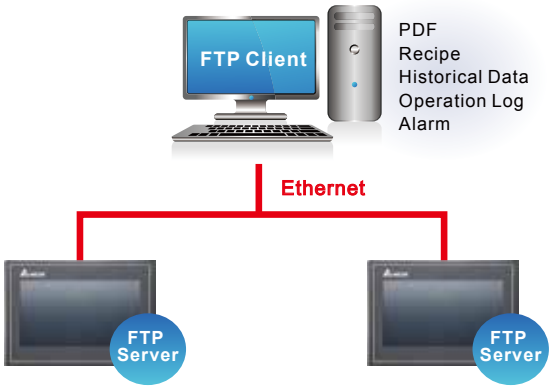
Cloud Integration

M Type W Type I Type E Type D Type

Only With Ethemet

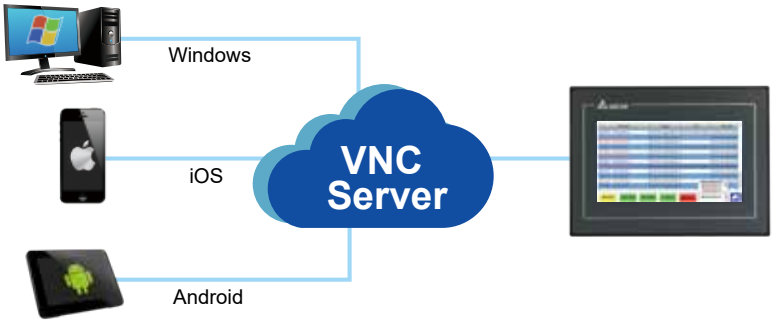
FTP Server

- Built-in FTP server to update recipes or PDF files, and backup historical data, operation log and alarms



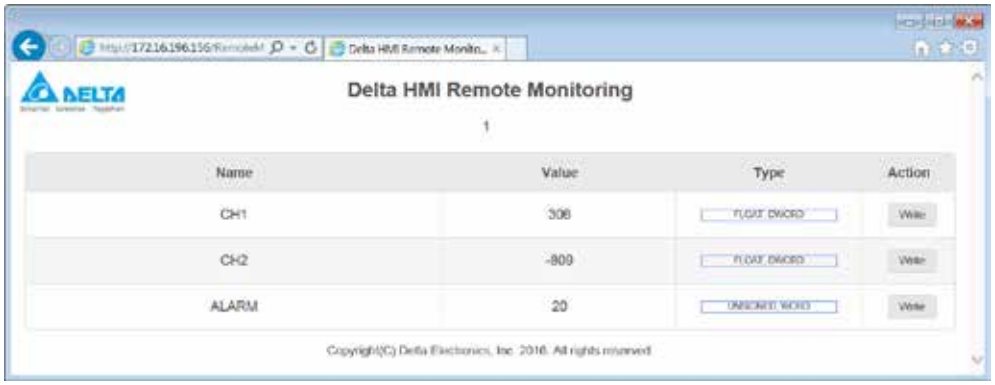
VNC Server

- Built-in VNC server allows remote monitoring and operating of the DOP-100 Series via VNC Client APP (Windows, iOS, Android)
- Lock function: block remote operation during on-site operation to avoid unsynchronized commands. VNC server allows remote monitoring but not remote operation when the lock function is on



Web Monitoring

- Allows direct monitoring of register data via web page, and requires no additional software installation



Hardware Specifications

Advanced HMI

Model		Advanced Narrow Frame Type		
		DOP-103WQ	DOP-107WV	DOP-110WS
LCD Module	Display	4.3" TFT LCD	7" TFT LCD	10.1" TFT LCD
	Color	65,536		
	Resolution (Pixels)	480 x 272	800 x 480	1024 x 600
	Back Light	LED Back Light		
	Back Light Brightness (cd/m^2)	400	450	450
	Back Light Life (Hour) *1	10,000	20,000	30,000
	Display Area	95.04 x 53.856 mm	154.08 x 85.92 mm	225.52 x 128.10 mm
MCU		ARM Cortex-A8 (800MHz)		
Flash ROM (Bytes)		256 MB		
RAM (Bytes)		512 MB		
Touch Panel		Four-wire resistor, over 10,000,000 pressing times		
Buzzer		Multi-Tone Frequency (2K ~ 4K Hz) / 80dB		
Ethernet Interface		1 Port *2, 10/100 Mbps auto-sensing		
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0		
SD		N/A		
Serial COM Port	COM1	RS-232 (supports hardware flow control) / RS-485 *2	RS-232 (supports hardware flow control)	
	COM2	RS-422 / RS-485 *2	RS-232 (supports hardware flow control) / RS-485 *2	
	COM3	N/A	RS-422 / RS-485 *2	
RTC		Built-in		
Cooling		Natural air circulation		
Certification		CE / UL		
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)		
Operation Voltage *3		DC +24V (-15% ~ 15%) *2		
Voltage Endurance		A599V for 1 minute (between charging DC24 terminal and FG terminals)		
Power Consumption *5		Max. 5.8 W *3	Max. 8.4 W *3	Max. 11 W *3
Backup Battery		3V lithium battery CR2032 × 1		
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C		
Operating Temperature		0°C ~ 50°C		
Storage Temperature		-20 °C ~ 60 °C		
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2		
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g		
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times		
Dimensions (W) x (H) x (D) mm		137 x 103 x 37.1	196 x 136 x 39	270 x 180.9 x 47.75
Mounting dimension (W) x (H) mm		118.8 x 92.8	186.8 x 126.8	255 x 170.5
Weight		280 g	560g	1,100g

1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.
2) Built-in power isolation
3) An isolated power supply is recommended.
4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.
5) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.
6) The content of this catalogue may be revised without prior notice. Please consult our distributors or download the most updated version at http://www.deltaww.com

Advanced HMI

Model		Advanced Narrow Frame Type		Advanced Multimedia Type	
		DOP-112WX	DOP-115WX	DOP-112MX	DOP-115MX
LCD Module	Display	12" TFT LCD	15" TFT LCD	12" TFT LCD	15" TFT LCD
	Color	24bit			
	Resolution (Pixels)	1024 x 768			
	Back Light	LED Back Light			
	Back Light Brightness (cd/m^2)	500	450	500	450
	Back Light Life (Hour) *1	50,000			
	Display Area	245.76 x 184.32 mm	304.1 x 228.1 mm	245.76 x 184.32 mm	304.1 x 228.1 mm
MCU		Dual Core 1GHz			
Flash ROM (Bytes)		8GB			
RAM (Bytes)		DDR3 1000MHz 1GB			
Touch Panel		Four-wire resistor, over 10,000,000 pressing times			
Buzzer		Multi-Tone Frequency (2K ~ 4K Hz) / 85dB			
Ethernet Interface		2 Port, 100M bps x 2			
USB		1 Mini USB Slave Ver 2.0 / 1 USB Host Ver 2.0			
SD		SD x 1			
Serial COM Port	COM1	RS-232 (supporting flow control) / RS485 *2			
	COM2	RS-422 / RS485 *2			
	COM3	RS-232 (supporting flow control) / RS-485 *2			
	COM4	RS-422 / RS485			
RTC		Built-in			
Cooling		Natural air circulation			
Certification		CE / UL			
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage *3		DC +24V (-15% ~ 15%) *2			
Voltage Endurance		A599V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption *5		Max. 16.08W	Max. 21.12W	Max. 16.08W	Max. 21.12W
Backup Battery		3V lithium battery CR2032 × 1			
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C			
Operation Temperature		0°C ~ 50°C			
Storage Temperature		-20°C ~ 60°C			
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2			
Viberation		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g			
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm		317.4 x 246.4 x 52.7	387.7 x 295.7 x 63.5	317.4 x 246.4 x 52.7	387.7 x 295.7 x 63.5
Mounting dimension (W) x (H) mm		302.7 x 228.7	372.4 x 283.7	302.7 x 228.7	372.4 x 283.7
Weight		2110g	3200g	2110g	3200g

1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.
4) Built-in power isolation
5) An isolated power supply is recommended.
4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.
7) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.
8) The content of this catalogue may be revised without prior notice. Please consult our distributors or download the most updated version at http://www.deltaww.com

Hardware Specifications

Standard HMI

Model		Standard General Type			
		DOP-105CQ	DOP-107CV	DOP-110CS	DOP-110CG
LCD Module	Display	5.6" TFT LCD	7" TFT LCD	10" TFT LCD	10.4" TFT LCD
	Color	65,536			
	Resolution (Pixels)	320 x 234	800 x 480	1024 x 600	800 x 600
	Back Light	LED Back Light			
	Back Light Brightness (cd/m^2)	200	400	300	300
	Back Light Life (Hour) *1	20000			
	Display Area	113.28 x 84.70 mm	154.08 X 85.92 mm	226 X 128.7 mm	211.2 x 158.4 mm
MCU		ARM Cortex-A8 (800MHz)			
Flash ROM (Bytes)		256 Mbytes			
RAM (Bytes)		256 Mbytes			
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times			Four-wire resistor, over > 1,000,000 pressing times
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB			
	AUX	N/A			
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0			
SD		N/A			
Serial COM Port	COM1	RS-232 (supports hardware flow control)*2			
	COM2	RS-232 (supports hardware flow control) / RS-485 *2			
	COM3	RS-422 / RS-485*2			
RTC		Built-in			
Cooling		Nature air circulation			
Certification		CE / UL (please equip shielding cables and linefilters with capacity of 300ohm/100MHz)			
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage *3		DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)			
Voltage Endurance		A500V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption *5		Max. 6.86 W *3	Max. 8.5 W *3	Max. 10.4 W *3	Max. 8W*3
Backup Battery		3V lithium battery CR2032 × 1			
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C			
Operation Temperature		0°C ~ 50°C			
Storage Temperature		-20 °C ~ 60 °C			
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2			
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g			
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm		184 x 144 x 50	215 x 161 x 61.2	272 x 200 x 61	229 x 224 x 46.8
Mounting dimension (W) x (H) mm		172.4 x 132.4	196.9 x 142.9	261.3 x 189.3	285.2 x 210.2
Weight		670 g	970 g	1330g	1735 g

1) The half-life of a backlight is defined as the original luminance being reduced by 50% when the maximum driving current is supplied to an HMI.6
2) Built-in power isolation
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4) Some models are in the process of application for UL and KCC certification. For more information, please consult our distributors.
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Standard HMI

Model		Standard Ethernet Type (2 COM)	
		DOP-107EG	DOP-107EV
LCD Module	Display	7" TFT LCD	7" TFT LCD
	Color	65,536	
	Resolution (Pixels)	800 x 600	800 x 480
	Back Light	LED Back Light	
	Back Light Brightness (cd/m^2)	450	400
	Back Light Life (Hour) *1	20000	20000
	Display Area	141 X 105.75 mm	154.08 X 85.92 mm
MCU		ARM Cortex-A8 (800MHz)	
Flash ROM (Bytes)		256 Mbytes	
RAM (Bytes)		256 Mbytes	
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times	
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB	
	AUX	Stereo output	N/A
Ethernet Interface		1 Port *2, 10/100 Mbps auto-sensing	
USB		1 USB Slave Ver 2.0; 1 USB Host Ver 2.0	
SD		SD x 1	N/A
Serial COM Port	COM1	RS-232 (supports hardware flow control)*2	
	COM2	RS-232 (supports hardware flow control) / RS-485 *2	
	COM3	RS-422 / RS-485*2	
RTC		Built-in	
Cooling		Natural air circulation	
Certification		CE / UL (please equip Shielding cables and linefilters with capacity of 300ohm/100MHz)	
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)	
Operation Voltage *3		DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)	
Voltage Endurance		A500V for 1 minute (between charging DC24 terminal and FG terminals)	
Power Consumption *5		Max. 8.4 W *3	Max. 8.76 W *3
Backup Battery		3V lithium battery CR2032 × 1	
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C	
Operating Temperature		0°C ~ 50°C	
Storage Temperature		-20 °C ~ 60 °C	
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2	
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g	
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times	
Dimensions (W) x (H) x (D) mm		184 x 144 x 51.5	215 x 161 x 61.2
Mounting dimension (W) x (H) mm		172.4 x 132.4	196.9 x 142.9
Weight		800 g	970g

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5) The value of the power consumption indicates the electrical power consumed by the HMI with no peripheral devices connected.
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Hardware Specifications

Standard HMI

Model		Standard Ethernet Type (3 COM)			
		DOP-107IV	DOP-108IG	DOP-110IS	DOP-110IS
LCD Module	Display	7" TFT LCD	8" TFT LCD	10.1" TFT LCD	10.4" TFT LCD
	Color	65,536			
	Resolution (Pixels)	800 x 480	800 x 600	1024 x 600	800 x 600
	Back Light	LED Back Light			
	Back Light Brightness (cd/m^2)	400	250	300	300
	Back Light Life (Hour) *1	20000			
	Display Area	152.4 x 91.44 mm	162 x 121.5 mm	226 x 128.7 mm	211.2 x 158.4 mm
MCU		ARM Cortex-A8 (800MHz)			
Flash ROM (Bytes)		256 Mbytes			
RAM (Bytes)		256 Mbytes			
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times			
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB			
	AUX	N/A	Stereo output		
Ethernet Interface		1 Port*2, 10/100 Mbps auto-sensing			
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0			
SD		SD x 1			
Serial COM Port	COM1	RS-232 (supports hardware flow control)*2			
	COM2	RS-232 (supports hardware flow control) / RS-485 *2			
	COM3	RS-232 (supports hardware flow control) / RS-422 / RS-485*2			
RTC		Built-in			
Cooling		Nature air circulation			
Certification		CE / UL (please equip shielding cables and linefilters with capacity of 300ohm/100MHz)			
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)			
Operation Voltage *3		DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)			
Voltage Endurance		A500V for 1 minute (between charging DC24 terminal and FG terminals)			
Power Consumption *5		Max. 12W *3	Max. 9.88W *3	Max. 9.6W *3	Max. 9.6W*3
Backup Battery		3V lithium battery CR2032 × 1			
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C			
Operation Temperature		0°C ~ 50°C			
Storage Temperature		-20°C ~ 60°C			
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2			
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g			
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times			
Dimensions (W) x (H) x (D) mm		215 x 161 x 61.2	227.1 x 174.1 x 61	272.6 x 200.6 x 54	299 x 224 x 46.8
Mounting dimension (W) x (H) mm		196.9 x 142.9	219.4 x 166.5	261.3 x 189.3	285.2 x 210.2
Weight		970g	1226g	1130g	1600g

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Basic HMI

Model		Basic Type		Basic Ethernet Type
		DOP-103BQ	DOP-107BV	DOP-107DV
LCD Module	Display	4.3" TFT LCD	7" TFT LCD	7" TFT LCD
	Color	65,536		
	Resolution (Pixels)	480 x 272	800 x 480	800 x 400
	Back Light	LED Back Light		
	Back Light Brightness (cd/m^2)	400		
	Back Light Life (Hour) *1	20000		
	Display Area	95.04 x 53.856 mm	154.08 x 85.92 mm	154.08 x 85.92 mm
MCU		ARM Cortex-A8 (800MHz)		
Flash ROM (Bytes)		256 Mbytes		
RAM (Bytes)		256 Mbytes		
Touch Panel		Four-wire resistor, over > 10,000,000 pressing times		
Audio Output	Buzzer	Multi-Tone Frequency (2K ~ 4K Hz) / 80dB		
	AUX	N/A		
Ethernet Interface		N/A	N/A	1 Port, 10/100 Mbps auto-sensing*2
USB		1 USB Slave Ver 2.0 / 1 USB Host Ver 2.0		
SD		N/A		
Serial COM Port	COM1	RS-232/RS-485 (supports hardware flow control)*2		
	COM2	RS-422 / RS-485*2		
	COM3	N/A		
RTC		Built-in		
Cooling		Nature air circulation		
Certification		CE / UL (please equip shielding cables and linefilters with capacity of 300ohm/100MHz)		
Waterproof		IP65 / NEMA4 / UL Type 4X (indoor use only)		
Operation Voltage *3		DC +24V (-15% ~ +15%)(please equip isolated-type power supplies) Supplied by Class 2 or SELV circuit (isolated from MAINS by double insulation)		
Voltage Endurance		A500V for 1 minute (between charging DC24 terminal and FG terminals)		
Power Consumption *5		Max. 5.67W *3	Max. 8.6W *3	Max. 8.8W *3
Backup Battery		3V lithium battery CR2032 × 1		
Backup Battery Life		Depends on the temperature used and the conditions of usage, usually about 3 years or more at 25° C		
Operation Temperature		0°C ~ 50°C		
Storage Temperature		-20 °C ~ 60 °C		
Ambient Humidity		10% ~ 90% RH (0 ~ 40° C), 10% ~ 55% RH (41 ~ 50° C), Pollution Degree 2		
Vibration		IEC 61131-2 compliant 5Hz ~ 8.3Hz = Continuous: 3.5mm, 8.3Hz ~ 150Hz = Continuous: 1.0g		
Shock		IEC 60068-2-27 compliant 15g peak for 11ms duration, X, Y, Z, directions for 6 times		
Dimensions (W) x (H) x (D) mm		137 x 103 x 37.1	215 x 161 x 35.5	215 x 161 x 35.5
Mounting dimension (W) x (H) mm		118.8 x 92.8	196 x 142.9	196 x 142.9
Weight		280 g	700 g	700 g

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Model Description

DOP - 1 07 W V

Product Name
DOP : Delta Operation Panel

Series
1 : 100 Series HMI

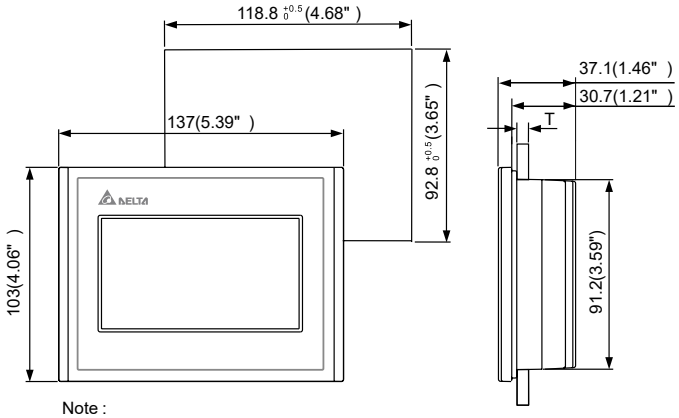
Display Size				
00 : Zero	03 : 4.3"	05 : 5.6"	7 : 7"	8 : 8"
10 : 10.1" / 10.4"	12 : 12"	15 : 15"		

Resolution	
G : SVGA TFT (800x)	Q : WQVGA TFT (480x)
S : WSVGA TFT (1024x)	V : WVGA TFT (800x)
X : XGA TFT (1024x)	Z : No Display (Zero)

Type
B : Basic Type
D : Basic Ethernet Type
C : Standard General Type
E : Standard Ethernet Type (2 COM)
I : Standard Ethernet Type (3 COM)
W : Advanced Narrow Frame Type
M : Advanced Multimedia Type

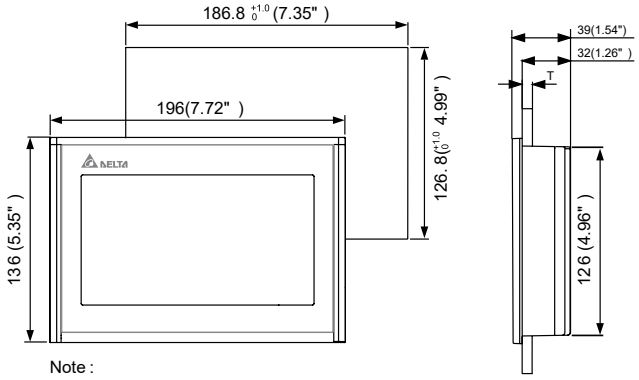
Dimensions Unit: mm (inches)

• DOP-103WQ



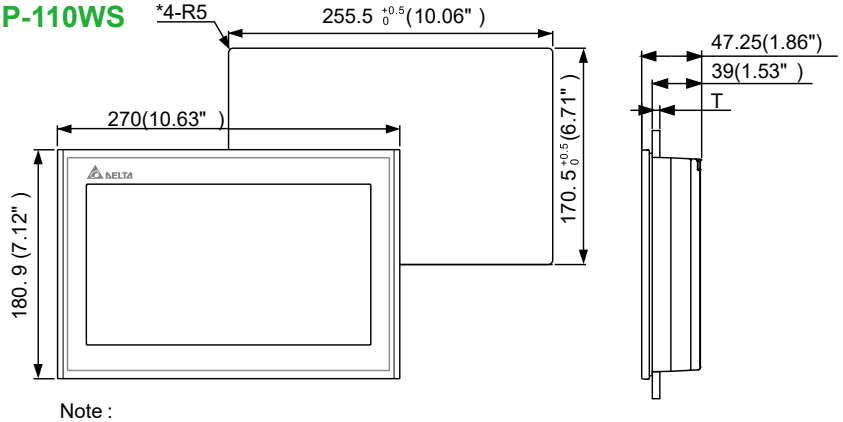
Note :
T=1.6mm~3mm(0.063"~0.12")

• DOP-107WV



Note :
T=1.6mm~6mm(0.063"~0.24")

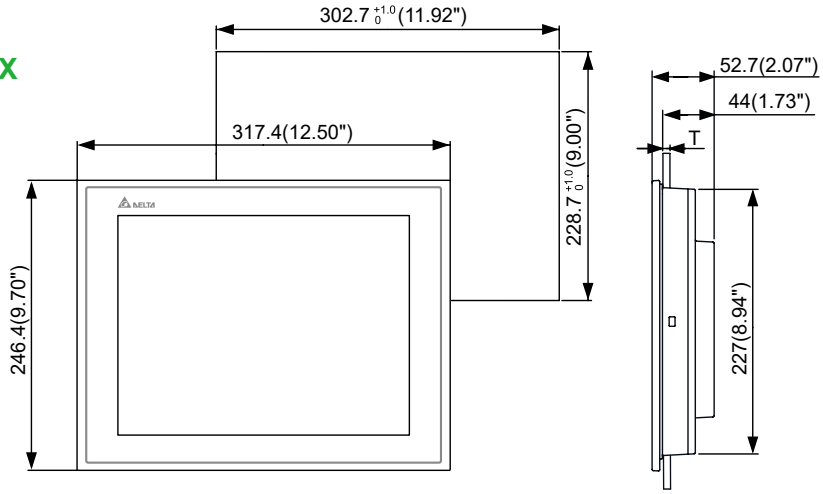
• DOP-110WS



Note :
T=1.6mm~6mm(0.063"~0.24")

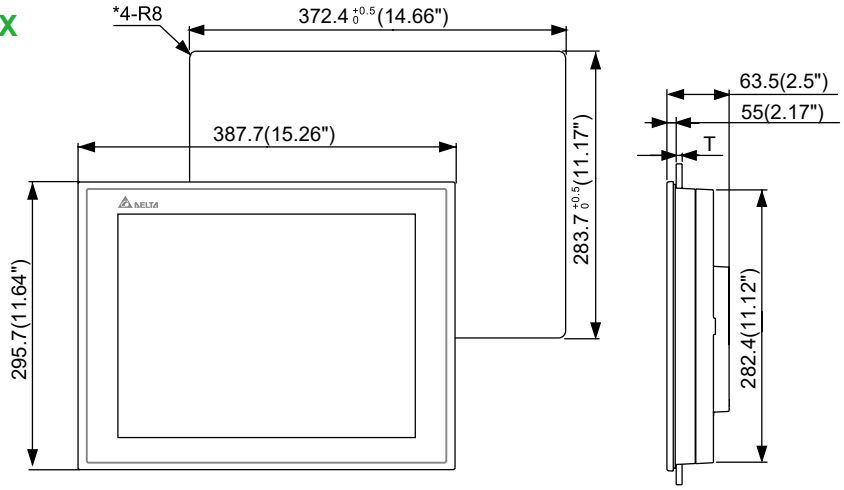
Dimensions Unit: mm (inches)

• DOP-112MX / DOP-112WX



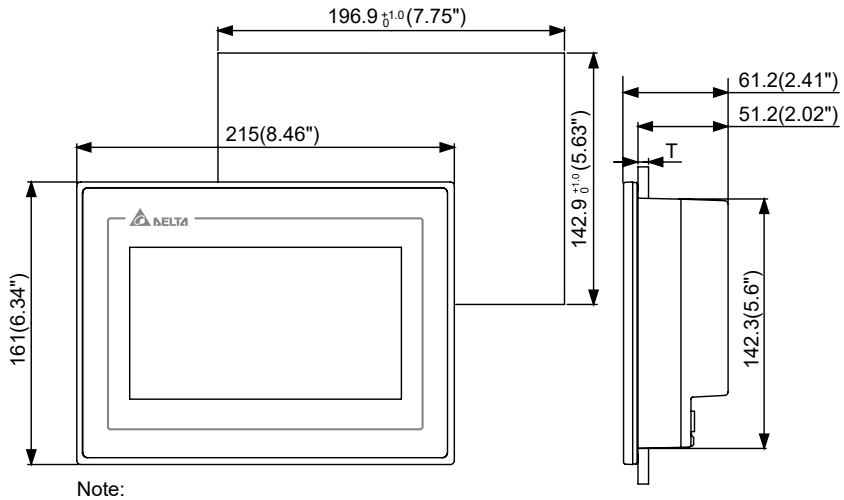
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

• DOP-115MX / DOP-115WX



Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

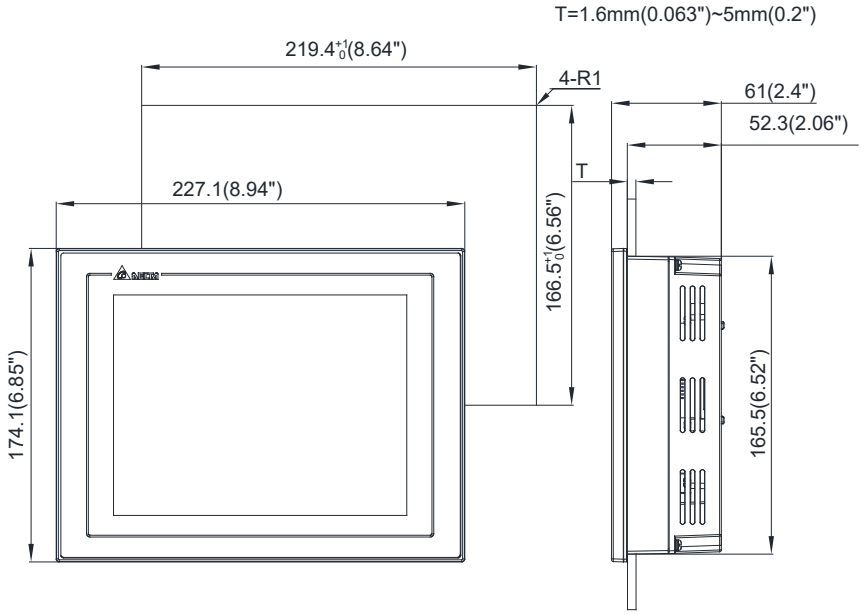
• DOP-107IV



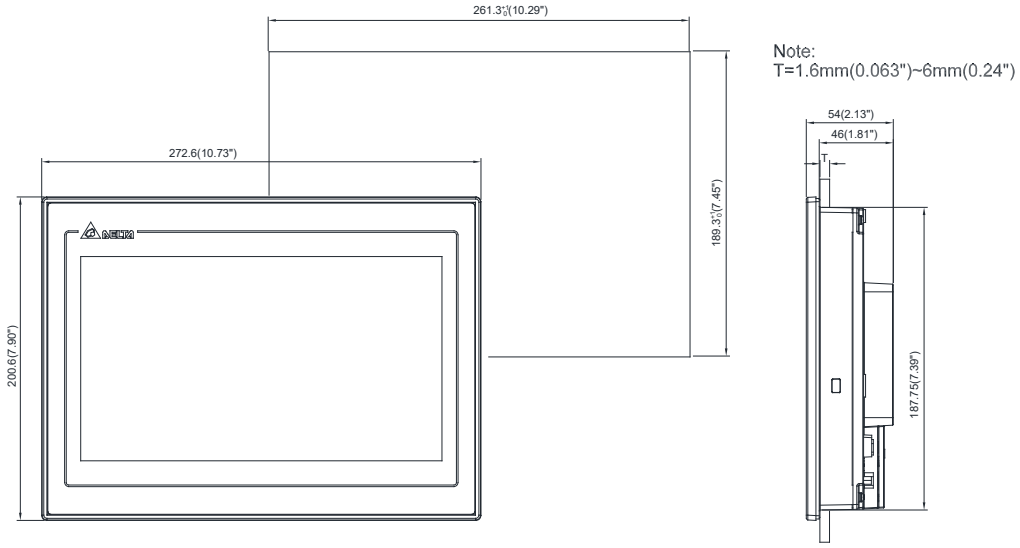
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

Dimensions Unit: mm (inches)

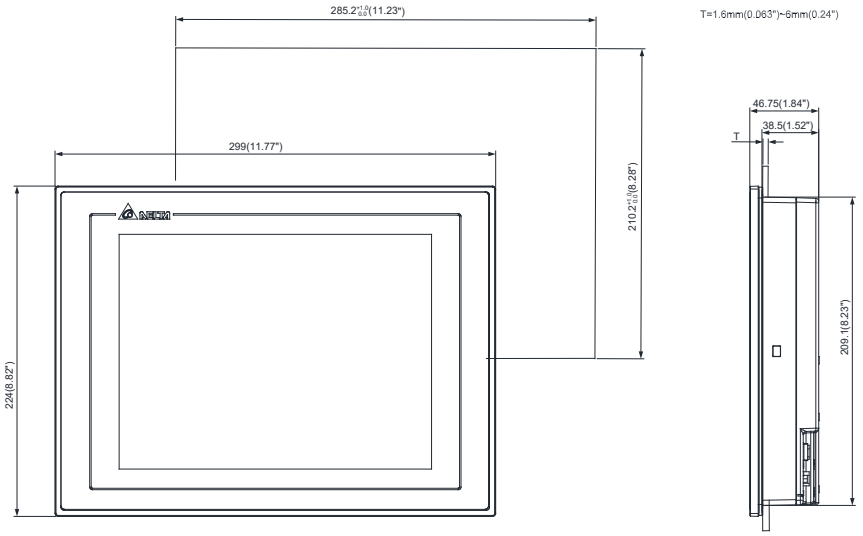
• DOP-108IG



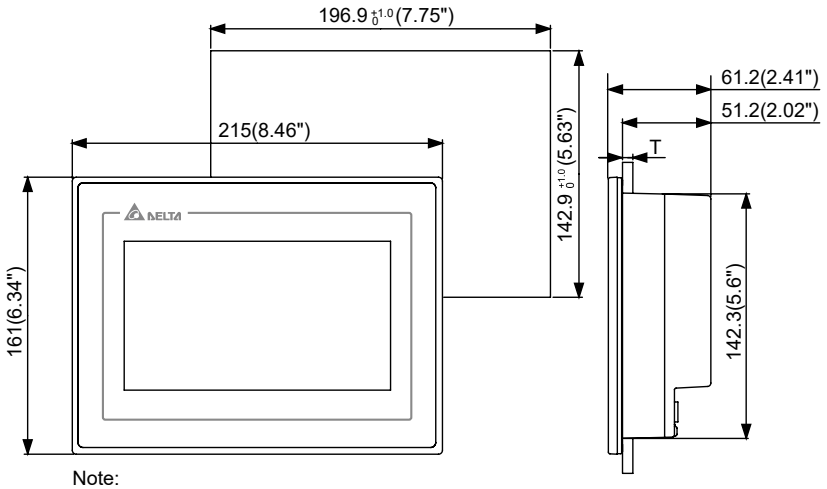
• DOP-110IS



• DOP-110IG

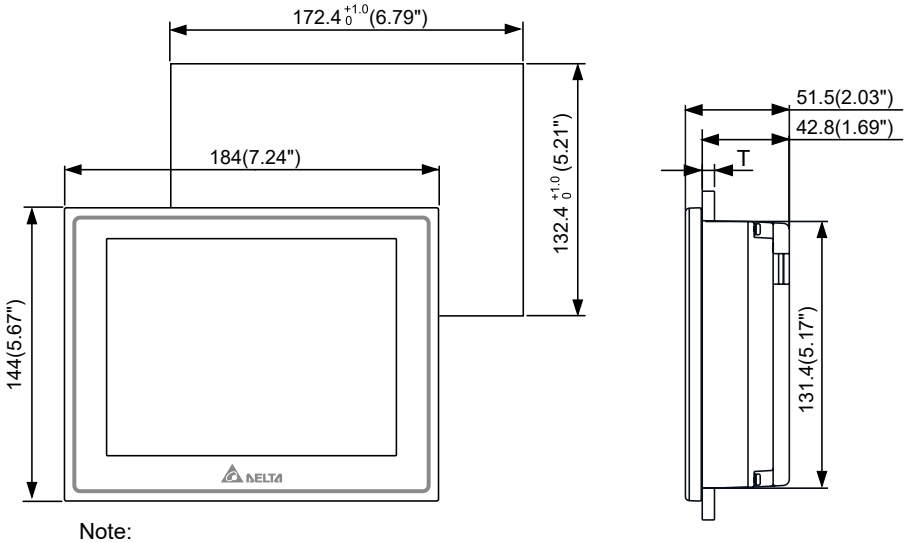


• DOP-107EV



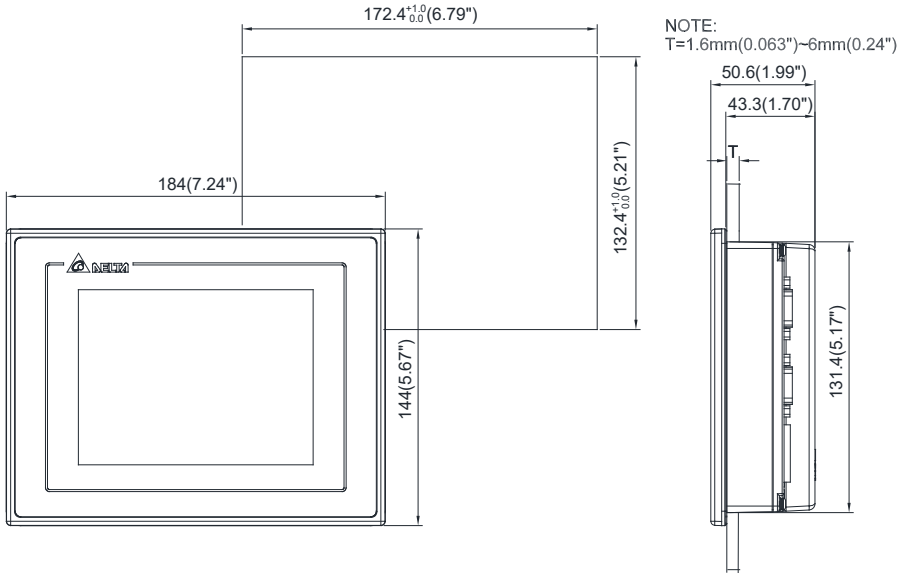
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

• DOP-107EG



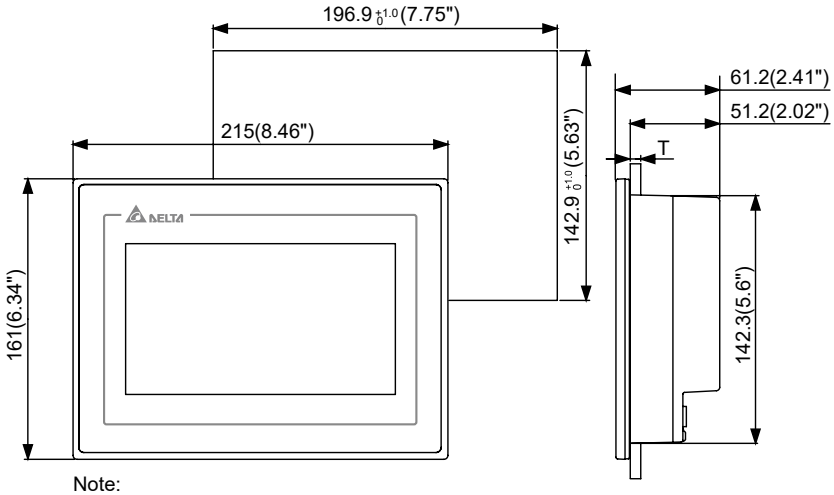
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

• DOP-105CQ



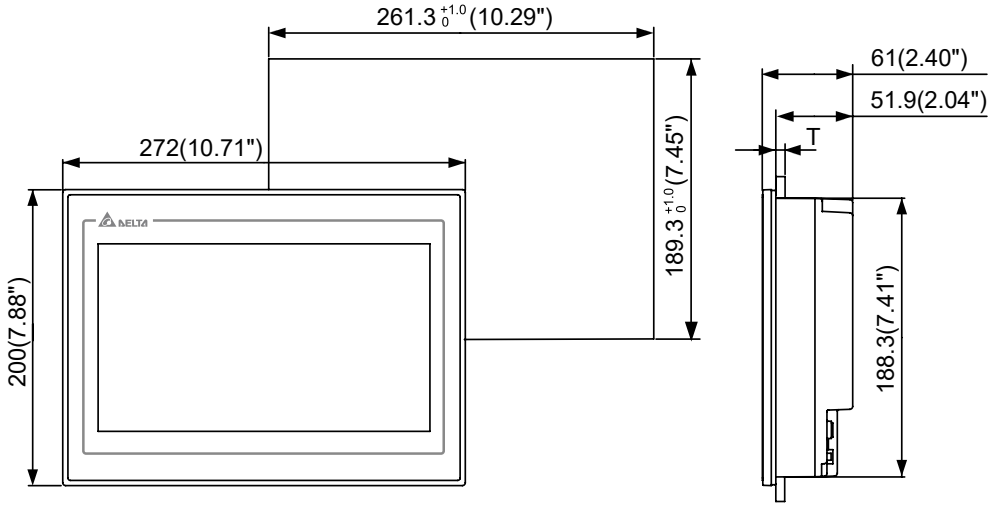
Dimensions Unit: mm (inches)

• DOP-107CV



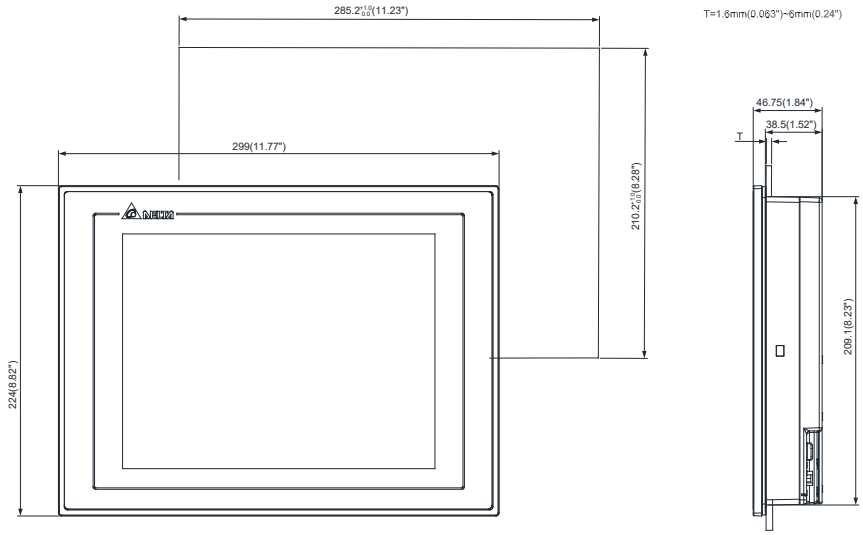
Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

• DOP-110CS

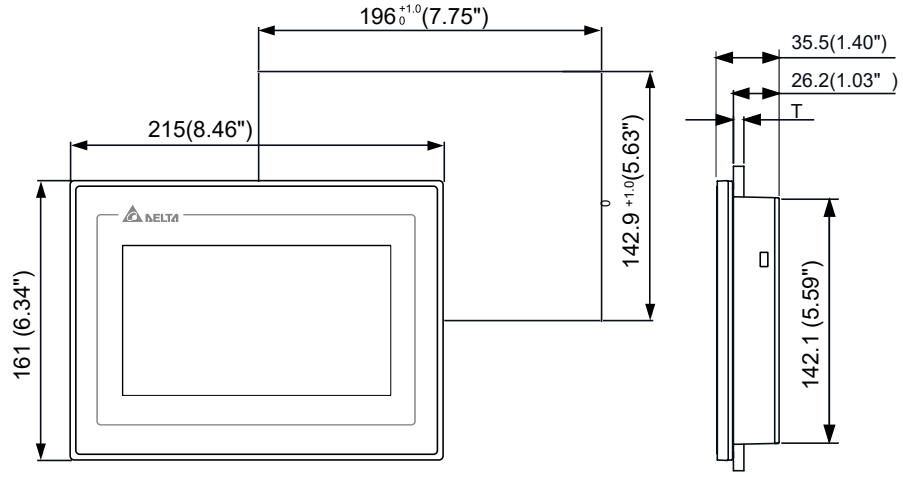


Note:
T=1.6 mm ~ 6 mm(0.063" ~ 0.24")

• DOP-110CG

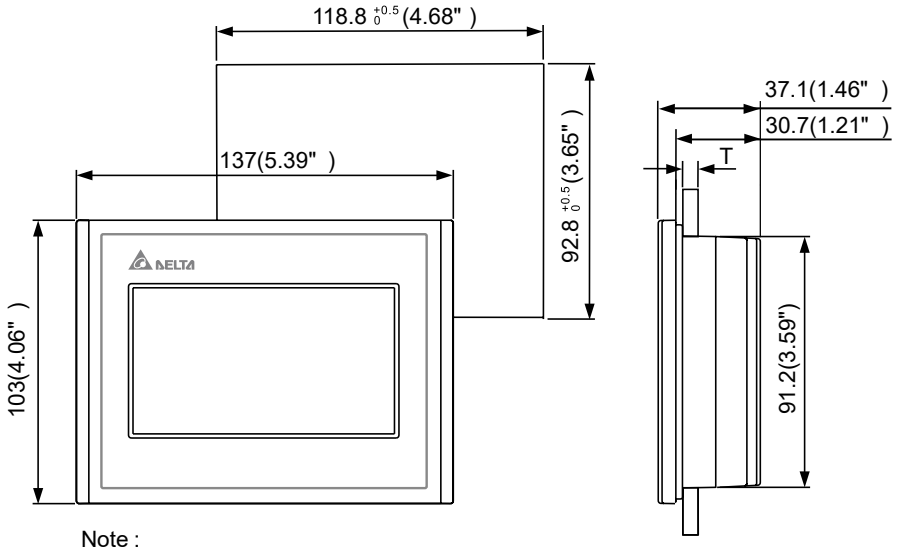


• DOP-107DV



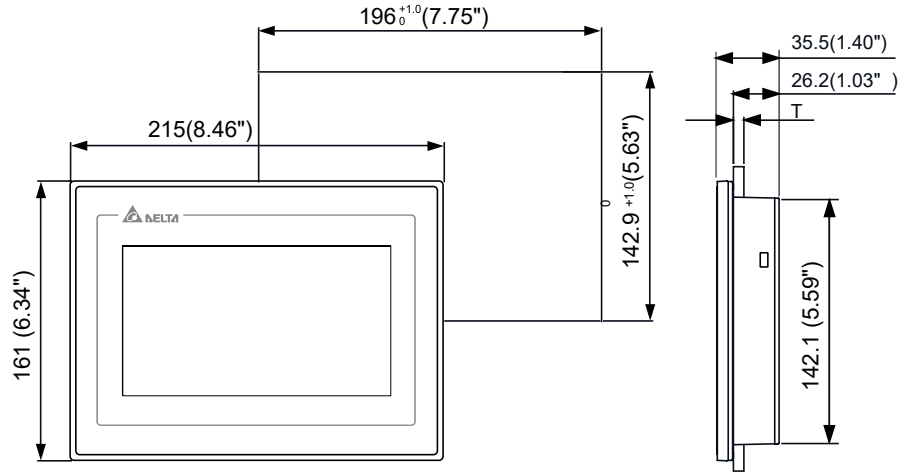
Note:
T=1.6 mm~6 mm(0.06"~0.24")

• DOP-103BQ



Note :
T=1.6mm~3mm(0.063"~0.12")

• DOP-107BV



Note:
T=1.6 mm~6 mm(0.06"~0.24")

4ManPro

Elements For Manufacturing Processes



PERIFÉRICOS

CABLES PARA PLC & HMI

Delta PLC / HMI Cable Selection Guide

Revision History

Version	Revision	Date
1st	The first version is published.	2015/11/13
2nd	1. Chapter 1: UC-PRG050-02A information is deleted. 2. Section 2.5: AS64AN02T-A pin definition is updated. 3. Section 3.3 &3.4: UC-EMCXXX-02B information is added; Section 3.5: CANopen and DMCNET pin definition is updated and UC-EMCXXX-02B is added. 4. Appendix A: UC-PRG050-02A is deleted and UC-EMCXXX-02B is added.	2019/08/15

Delta PLC / HMI Cable Selection Guide

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Chapter 1 Cables for PLC Programming and Serial Communication 1-1
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Preface

Delta PLC/HMI Cable Selection Guide helps users rapidly get the information about the cables suitable to be applied among the communication interfaces of numerous PLCs/HMIs. Cables are classified into four types in this manual. They are cables for PLC programming and serial communication, extension cables for I/O modules, motion control cables, and networking cables. These four types of cables are introduced in Chapter 1~Chapter 4 in detail. The cable models introduced and related descriptions are listed in Appendix A for reference.

MEMO

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Chapter 1 Cables for PLC Programming and Serial Communication

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1.1 DVP-ES2 / EX2 Series

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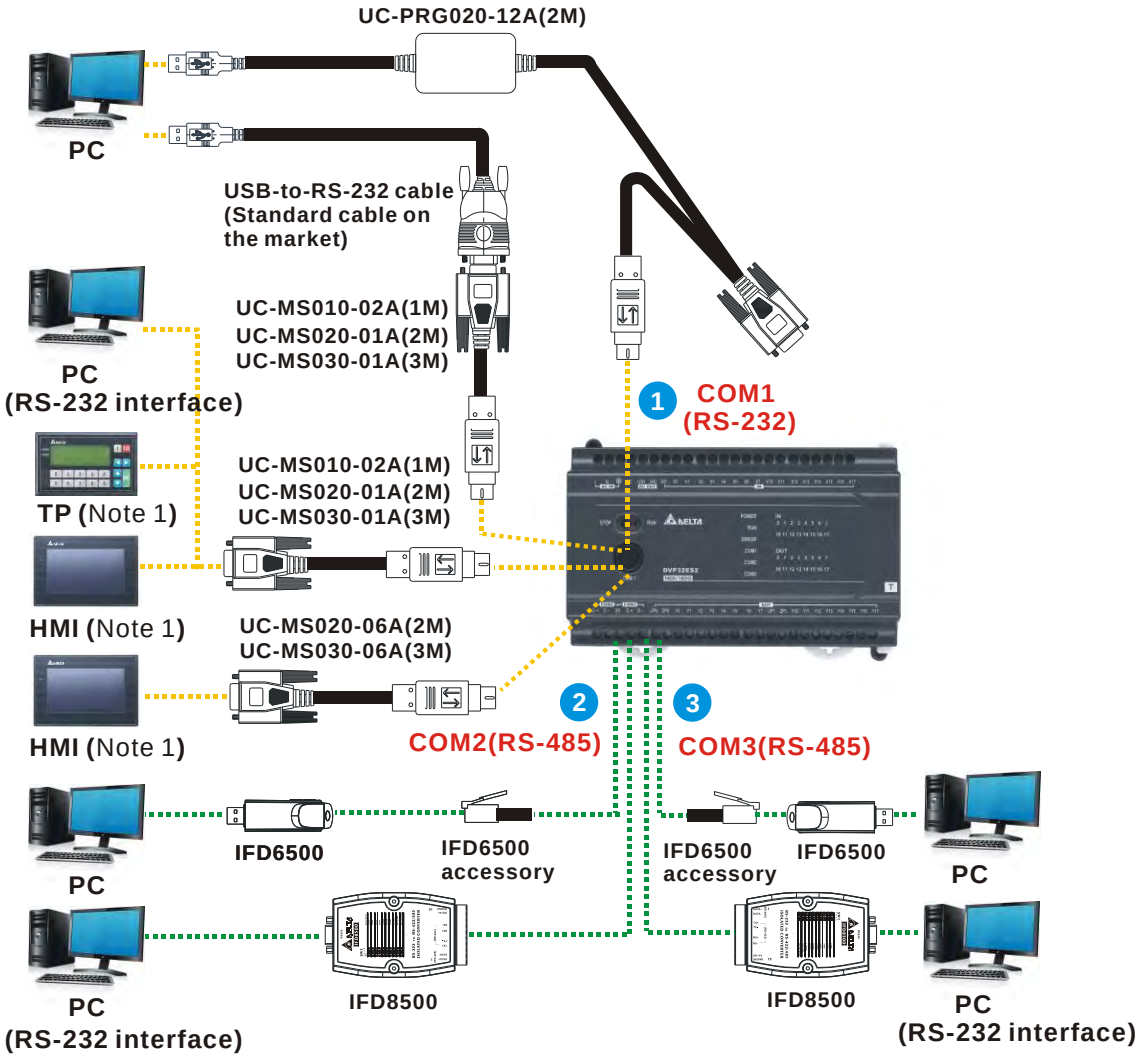
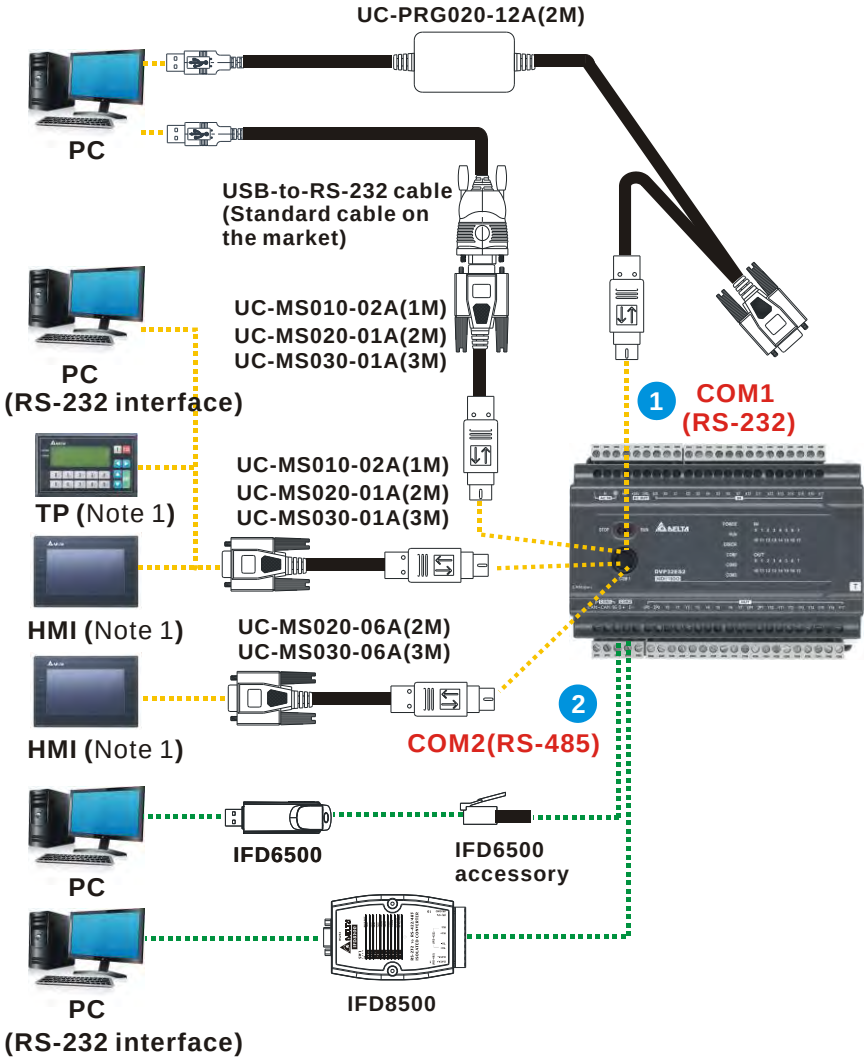


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DVP-ES2 series (DVP32ES200RC, DVP32ES200TC)

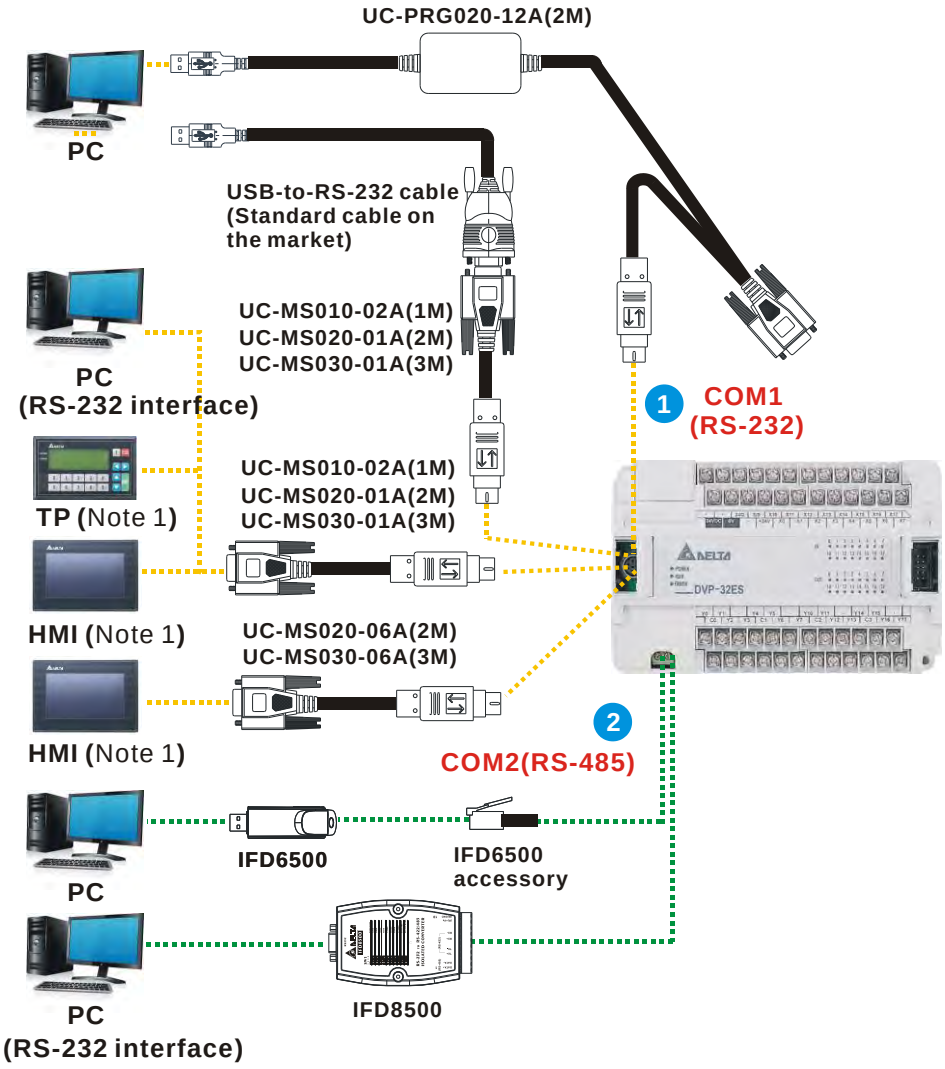


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.2 DVP-ES/EX Series

DVP-ES/EX series (DVP14ES00R2, DVP14ES00T2, DVP20EX00R2, DVP20EX00T2, DVP24ES00R2, DVP24ES00T2, DVP30ES00R2, DVP30ES00T2, DVP32ES00R2, DVP32ES00T2, DVP40ES00R2, DVP40ES00T2, DVP60ES00R2, DVP60ES00T2)

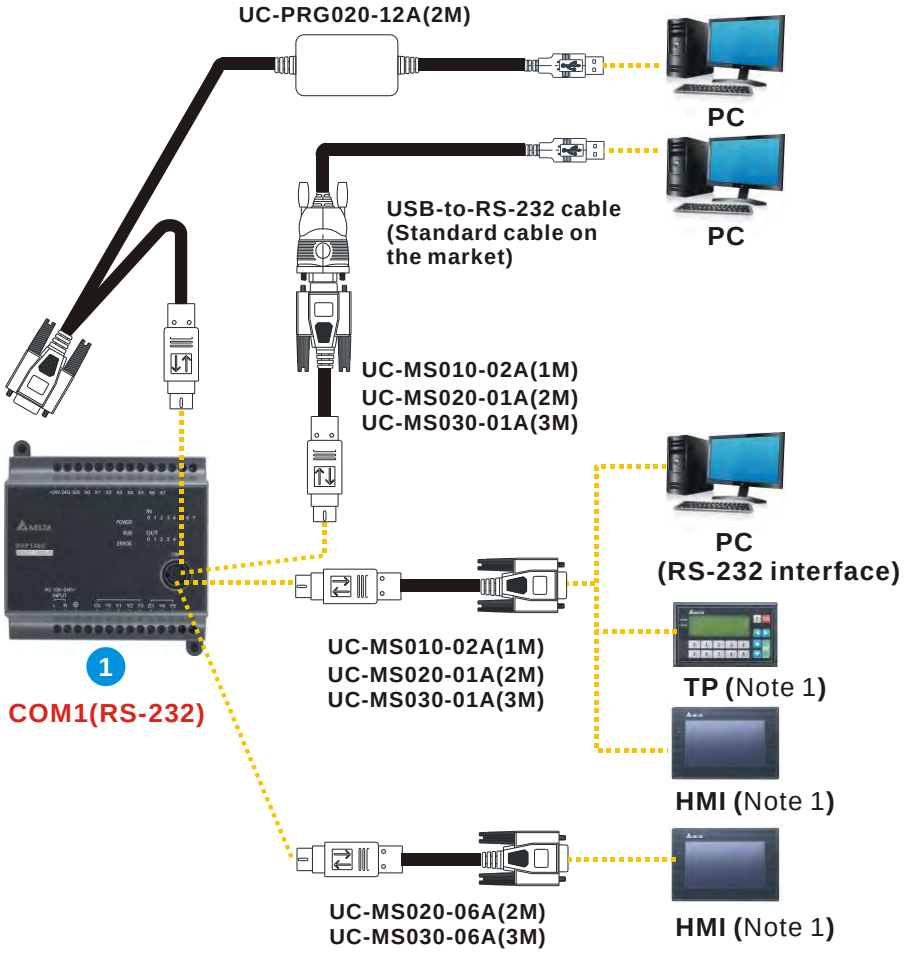


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.3 DVP-EC3 Series

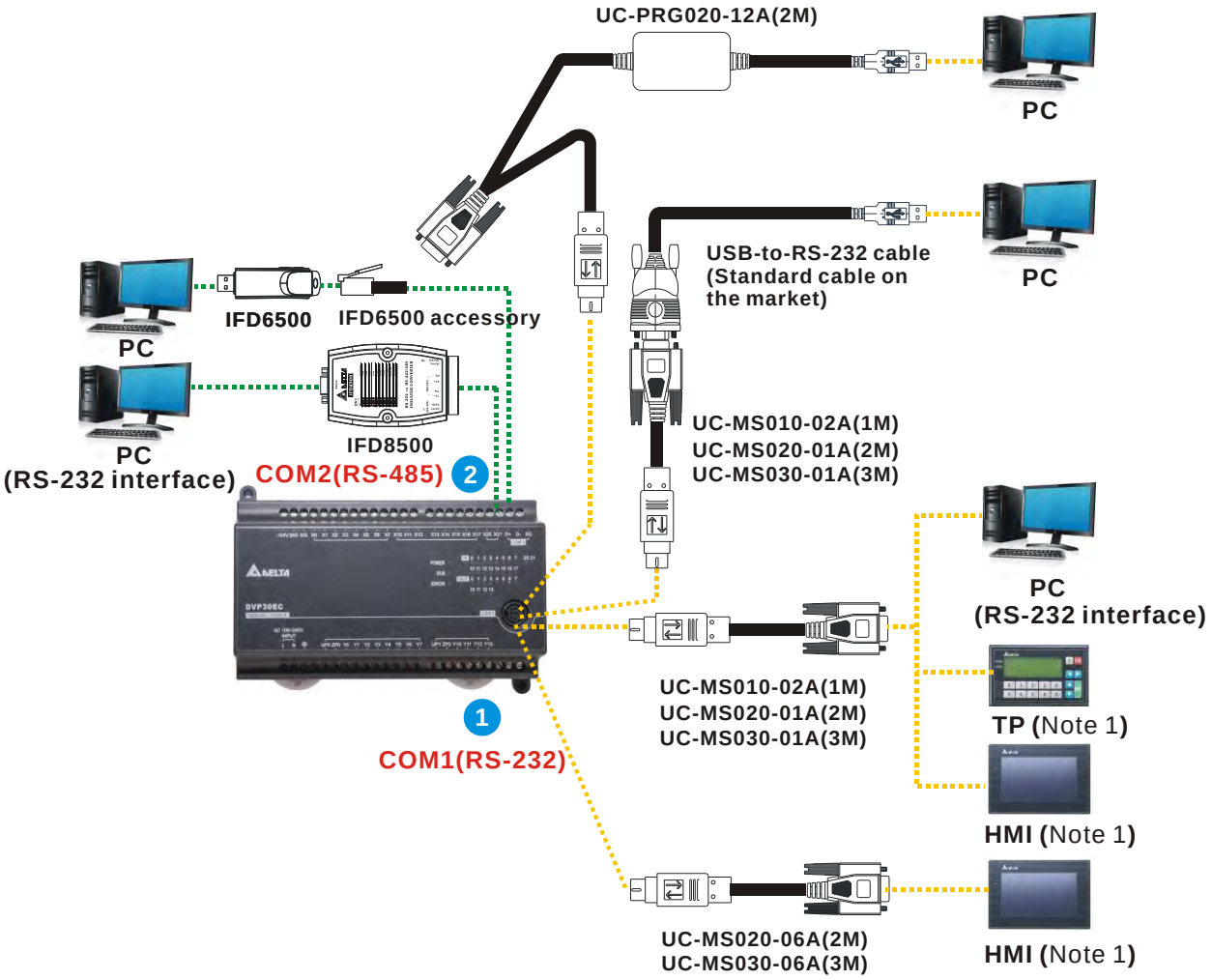
DVP-EC3 series (DVP10EC00R3, DVP10EC00T3, DVP14EC00R3, DVP14EC00T3)



Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

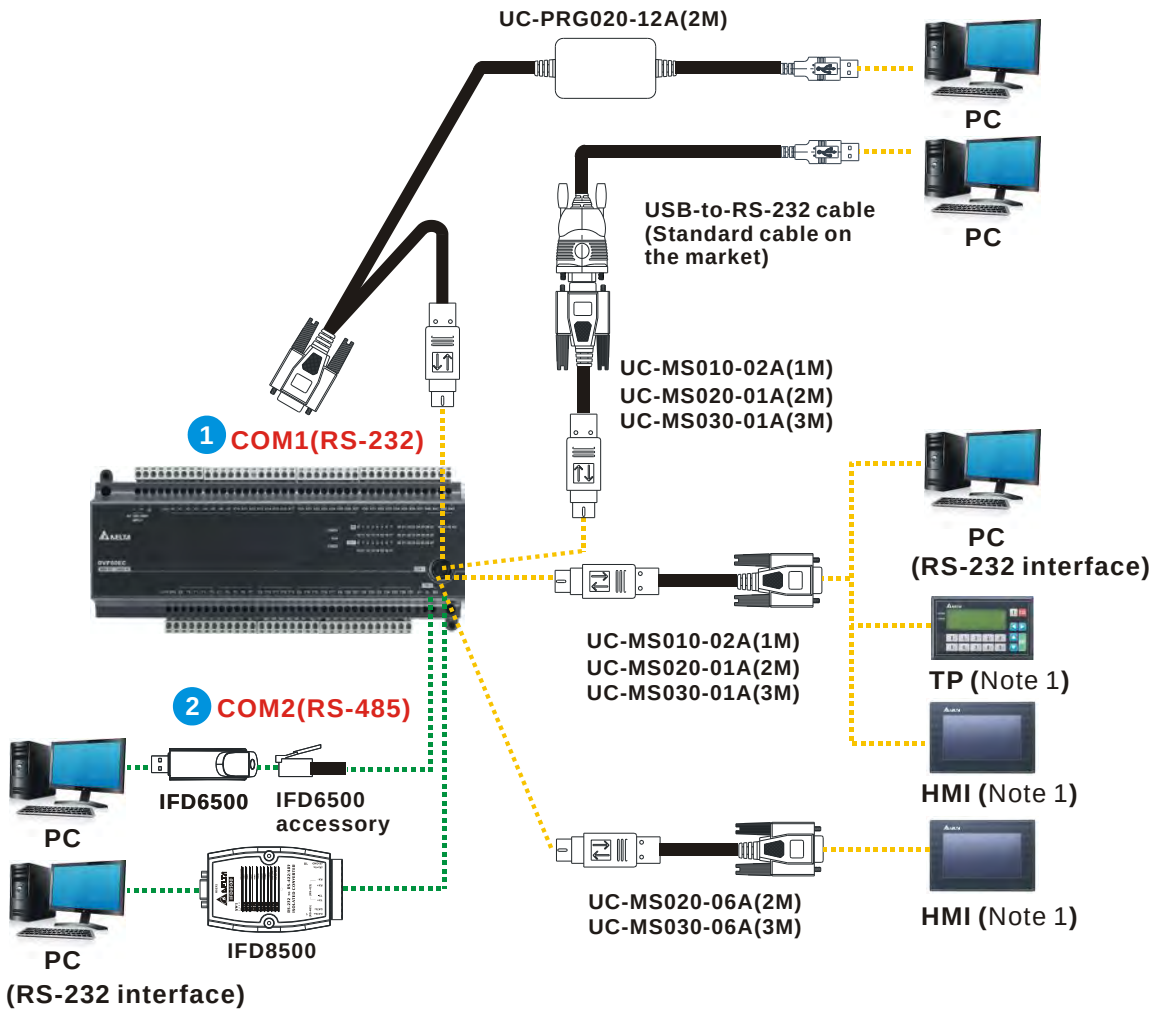
DVP-EC3 series (DVP16EC00R3, DVP16EC00T3, DVP20EC00R3, DVP20EC00T3, DVP24EC00R3, DVP24EC00T3, DVP30EC00R3, DVP30EC00T3, DVP32EC00R3, DVP32EC00T3)



Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DVP-EC3 series (DVP40EC00R3, DVP40EC00T3, DVP48EC00R3, DVP48EC00T3, DVP60EC00R3, DVP60EC00T3)

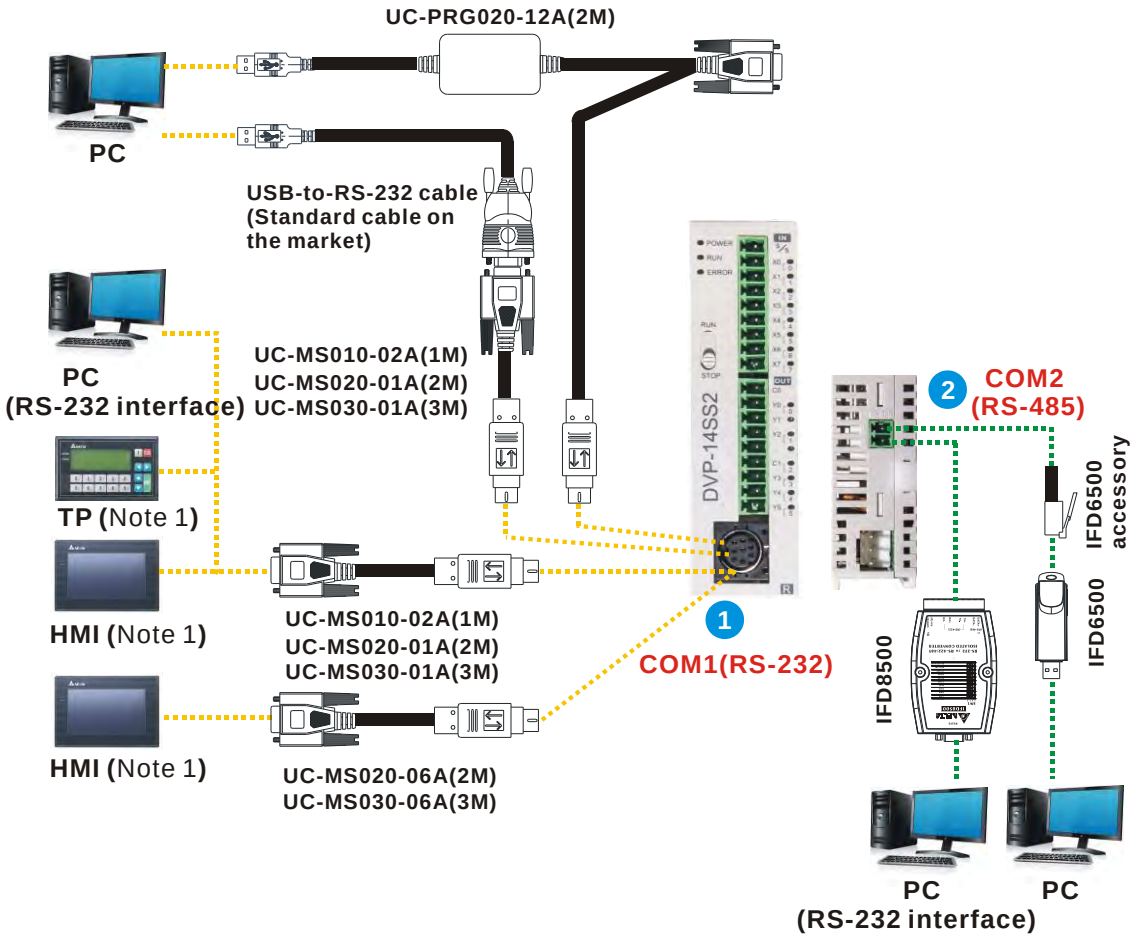


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.4 DVP-SS2 Series

DVP-SS2 series (DVP14SS211R, DVP14SS211T, DVP12SS211S)

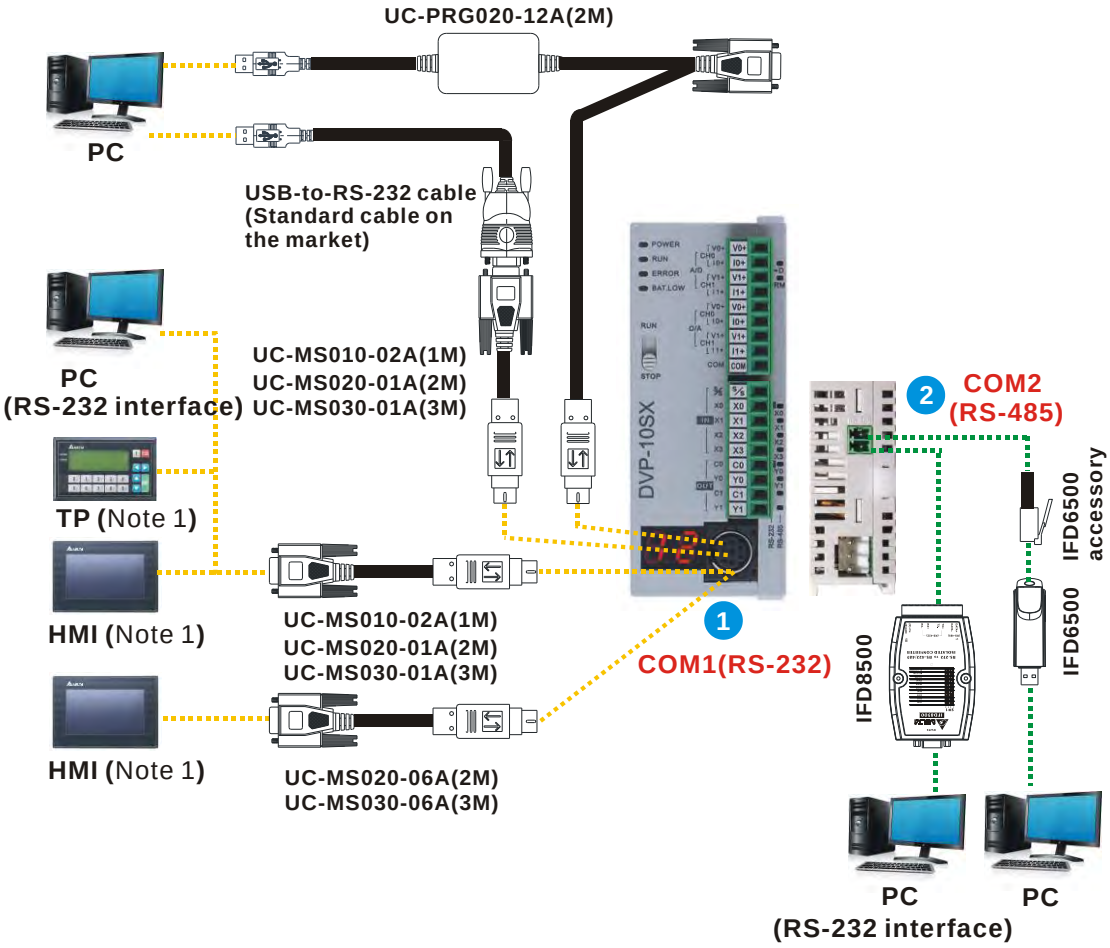


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.5 DVP-SX Series

DVP-SX series (DVP10SX11R, DVP10SX11T)



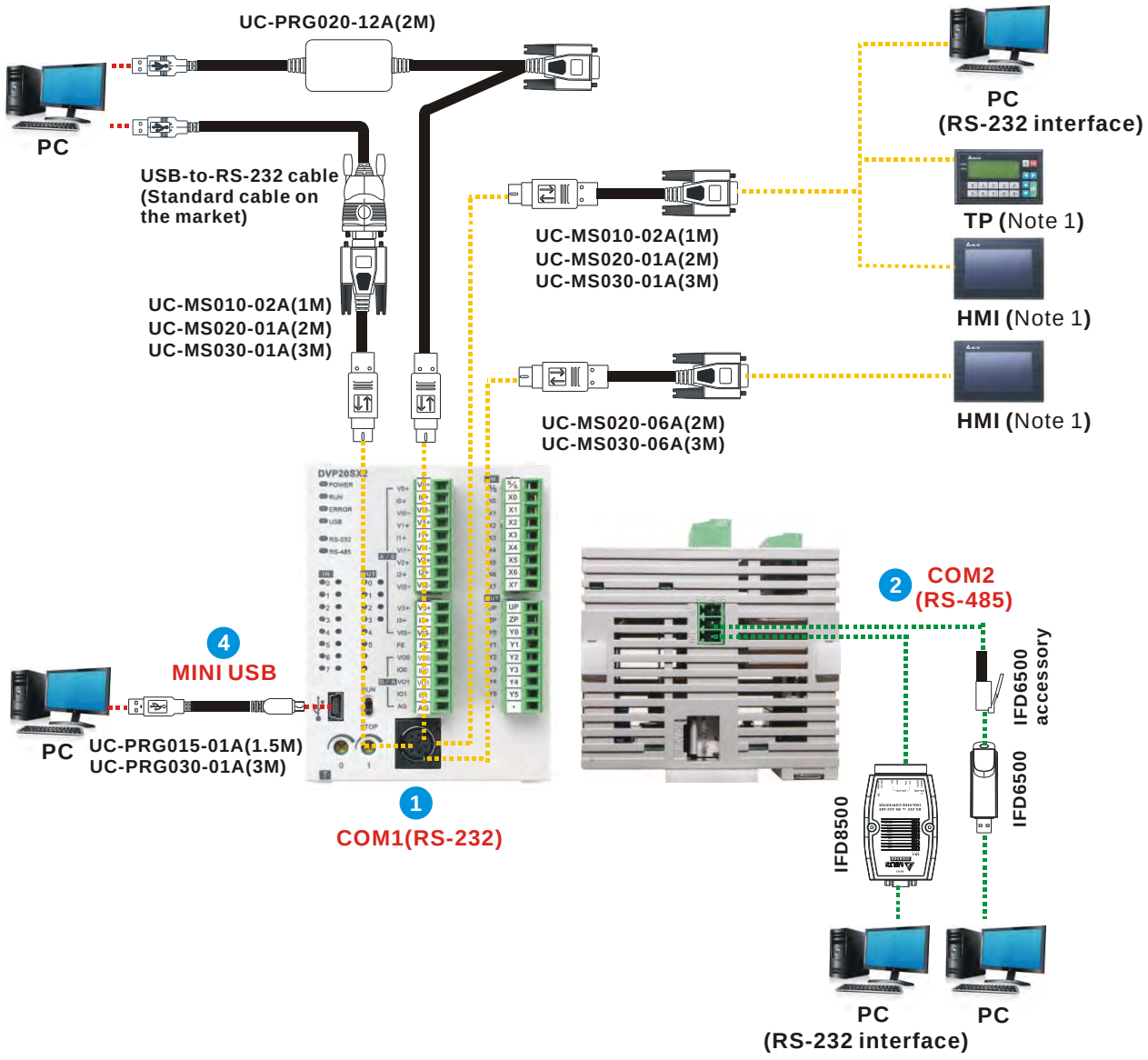
Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.6 DVP-SX2 Series

1.6.1 DVP-SX2 Series PLCs

Applicable model: DVP20SX211R, DVP20SX211T, DVP20SX211S

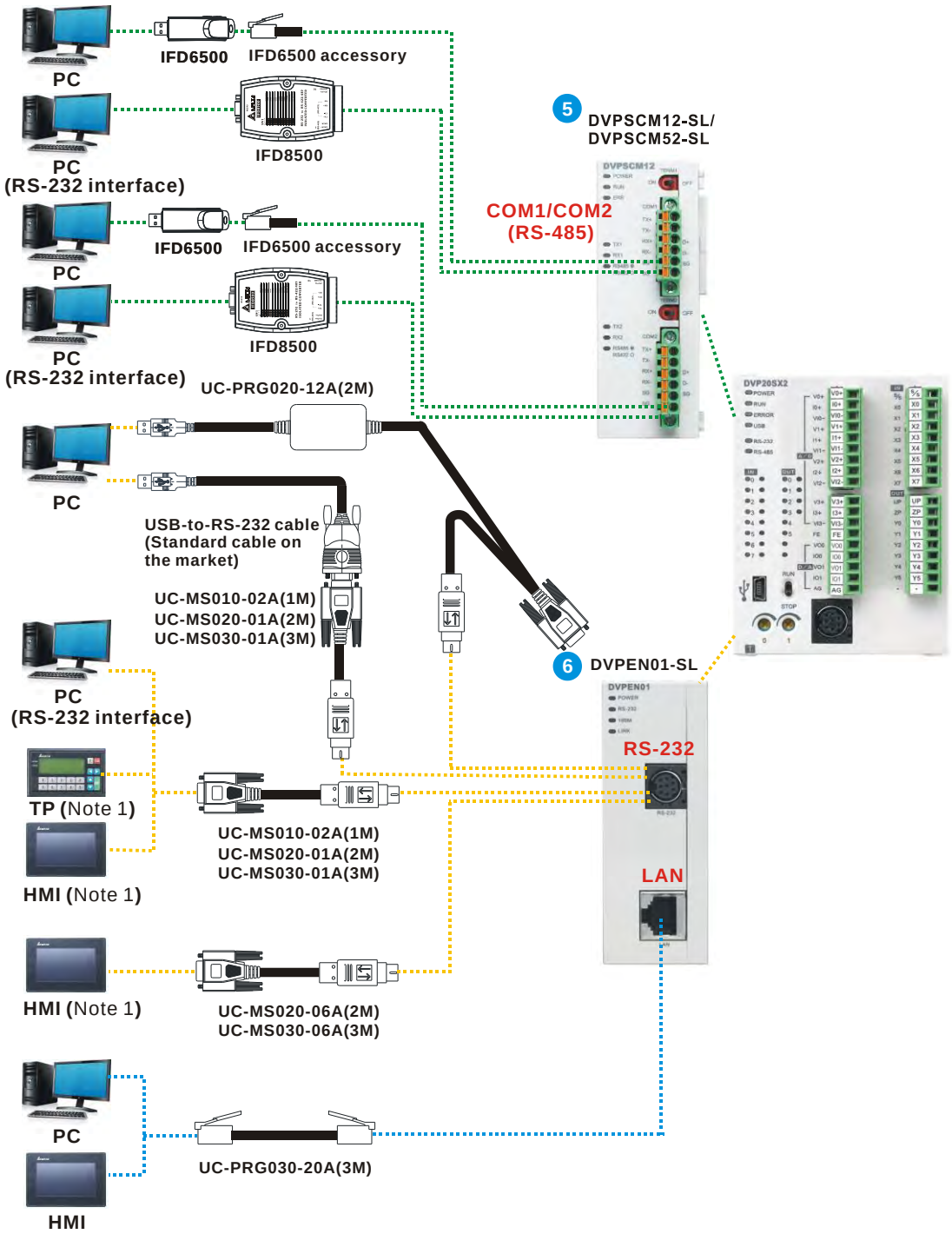


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.6.2 DVP-SX2 Series PLCs and Communication Modules

Applicable model: DVP20SX211R, DVP20SX211T, DVP20SX211S



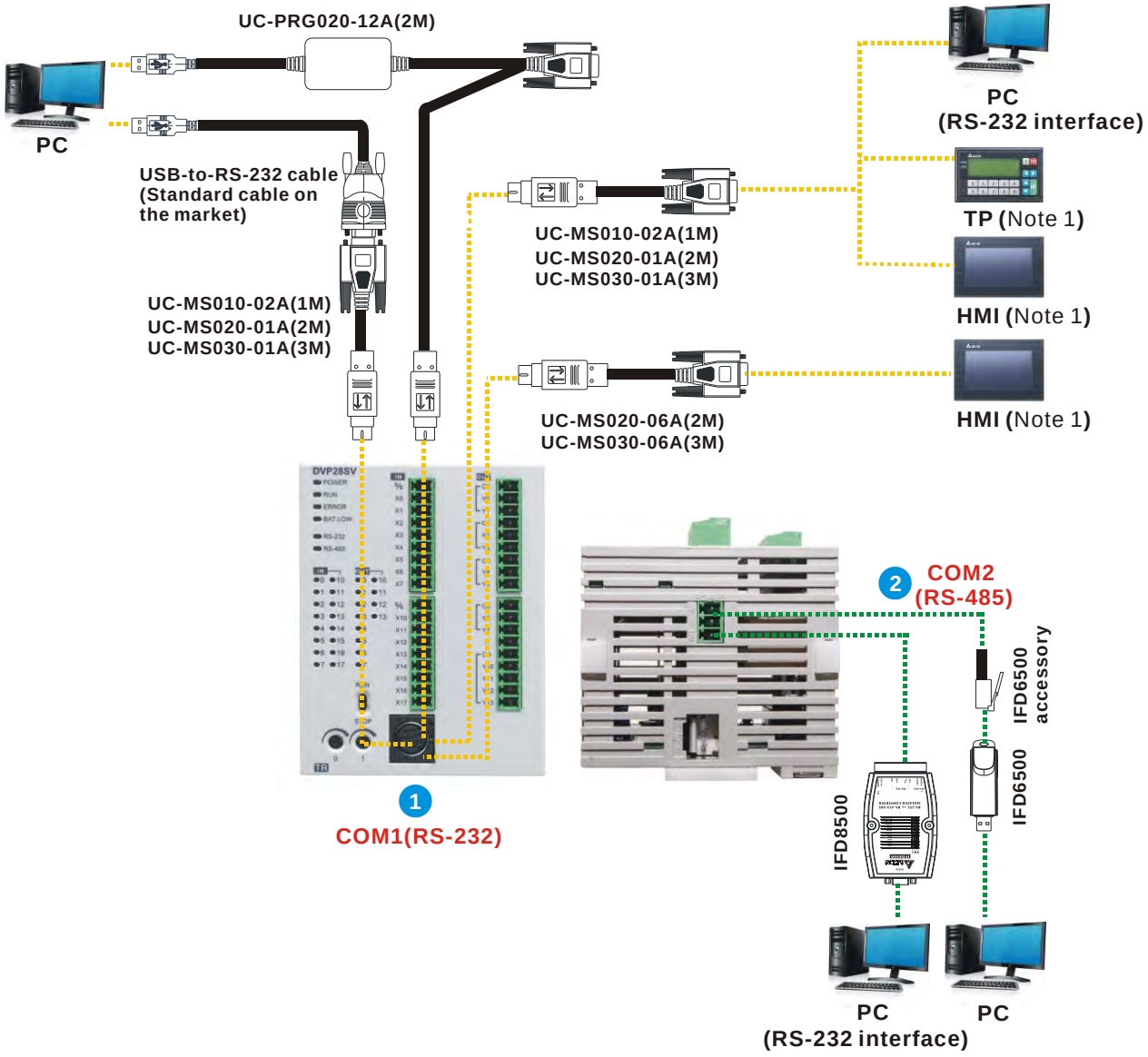
Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.7 DVP-SV2 Series

1.7.1 DVP-SV2 Series PLCs

Applicable model: DVP28SV11R2, DVP24SV11T2, DVP28SV11T2, DVP28SV11S2

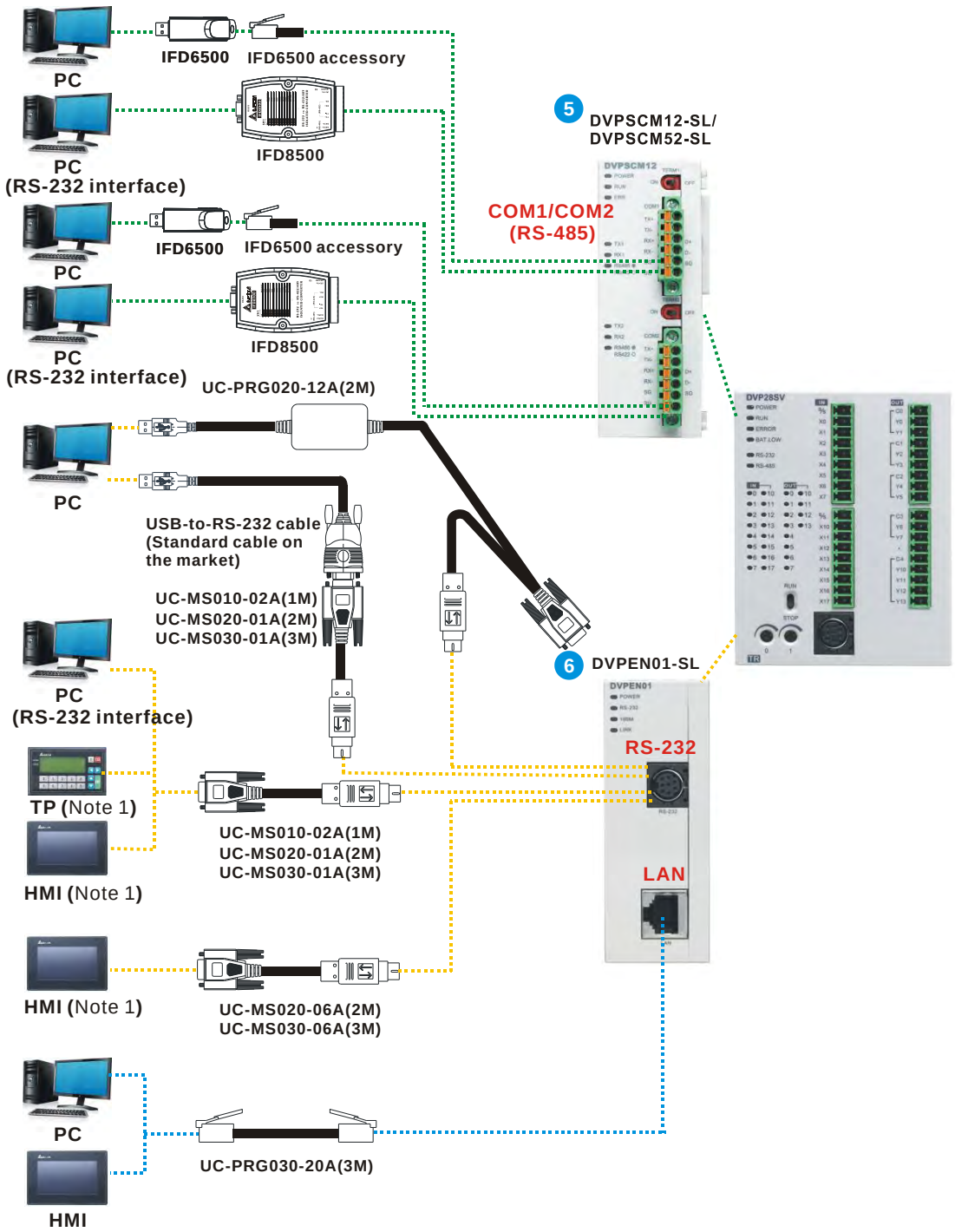


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.7.2 DVP-SV2 Series PLCs and Communication Modules

Applicable model: DVP28SV11R2, DVP24SV11T2, DVP28SV11T2, DVP28SV11S2



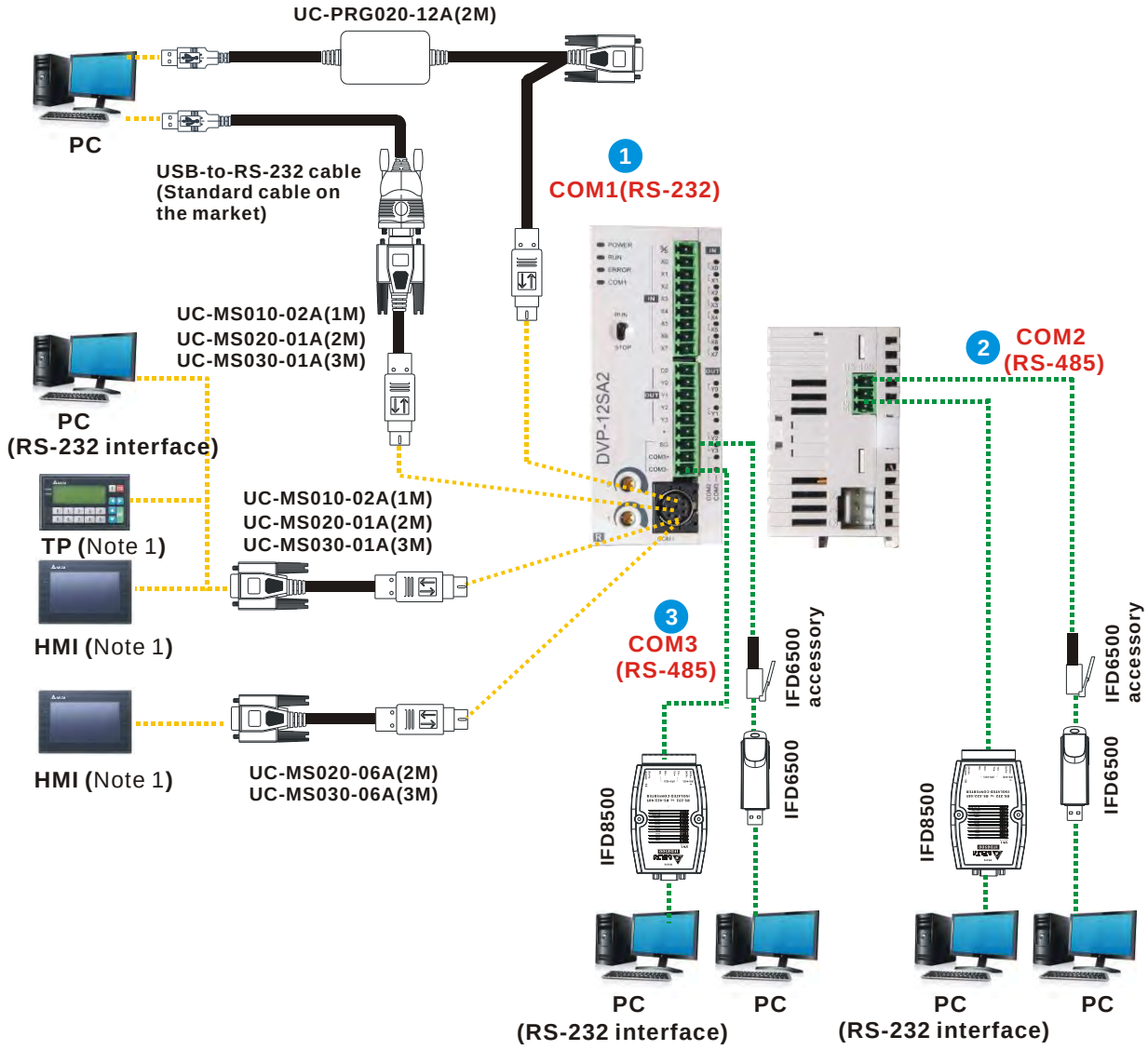
Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.8 DVP-SA2 Series

1.8.1 DVP-SA2 Series PLCs

Applicable model: DVP12SA211R, DVP12SA211T

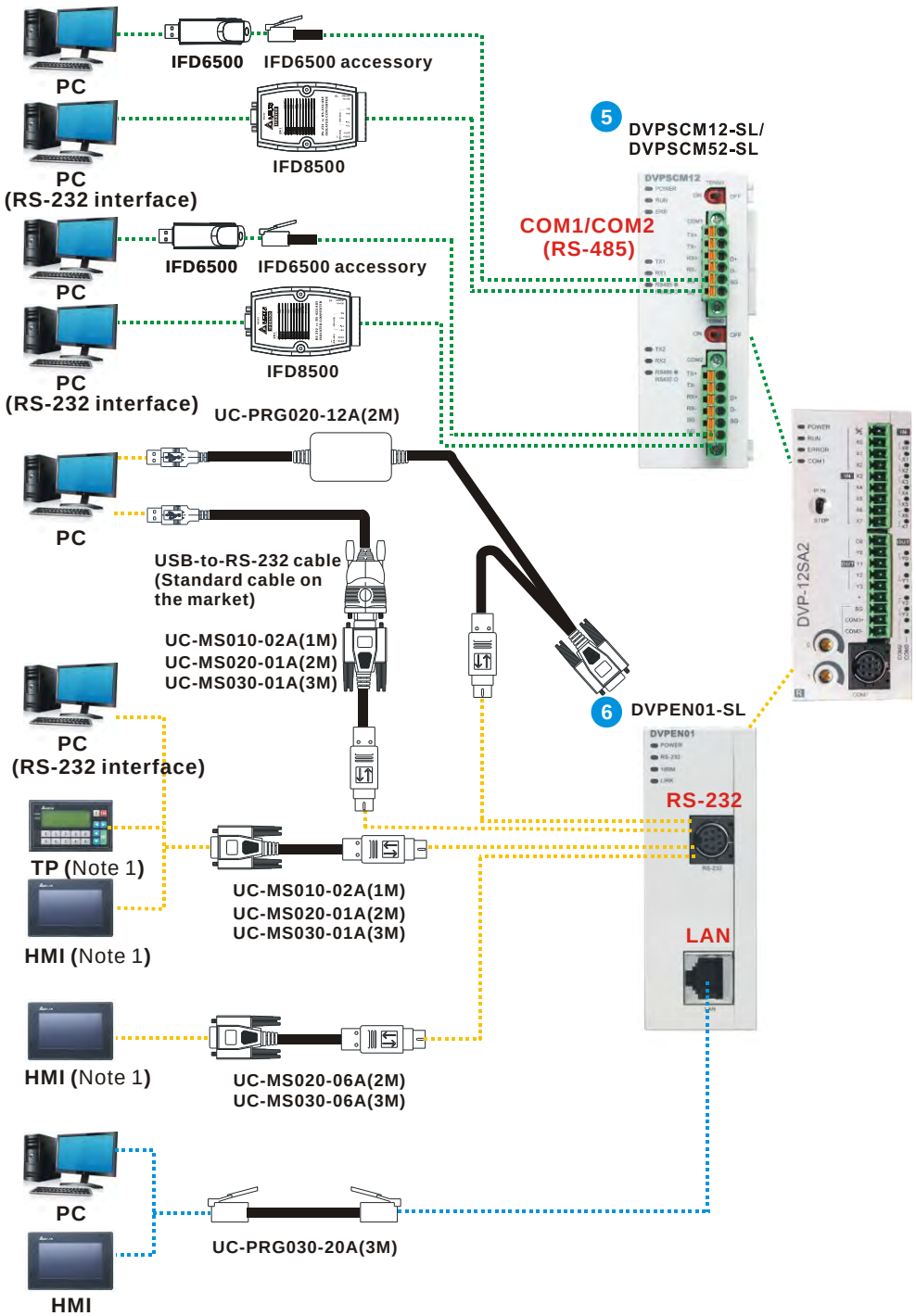


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.8.2 DVP-SA2 Series PLCs and Communication Modules

Applicable model: DVP12SA211R, DVP12SA211T



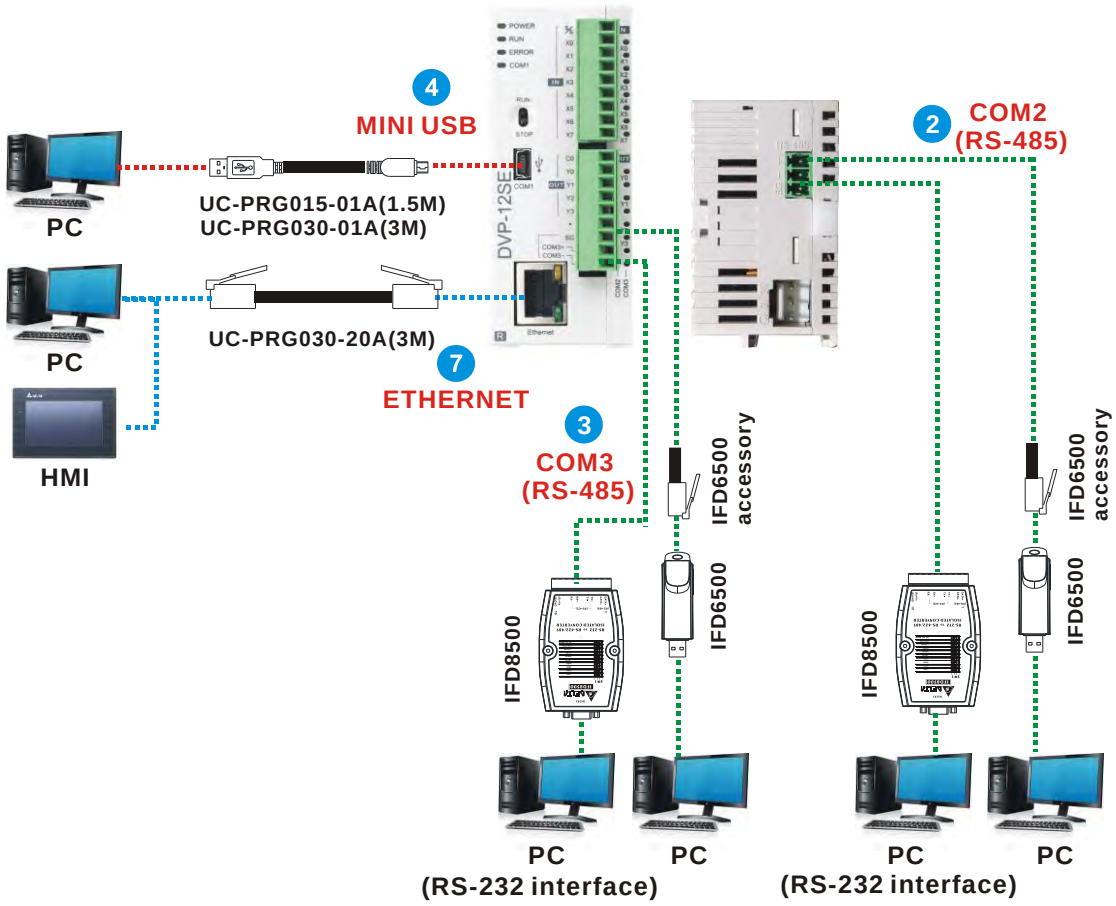
Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.9 DVP-SE Series

1.9.1 DVP-SE Series PLCs

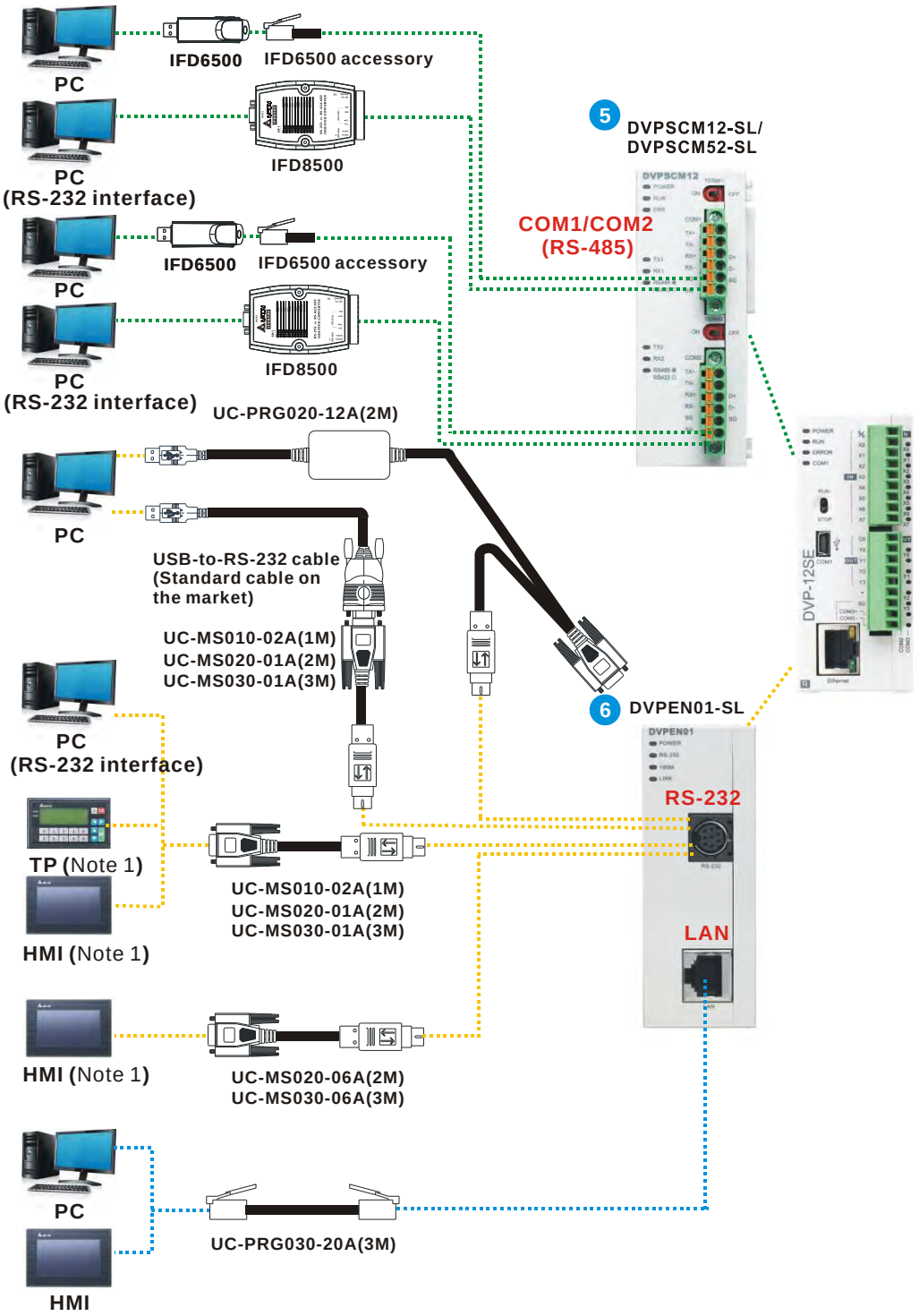
Applicable model: DVP12SE11R, DVP12SE11T



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.9.2 DVP-SE Series PLCs and Communication Modules

Applicable model: DVP12SE11R, DVP12SE11T



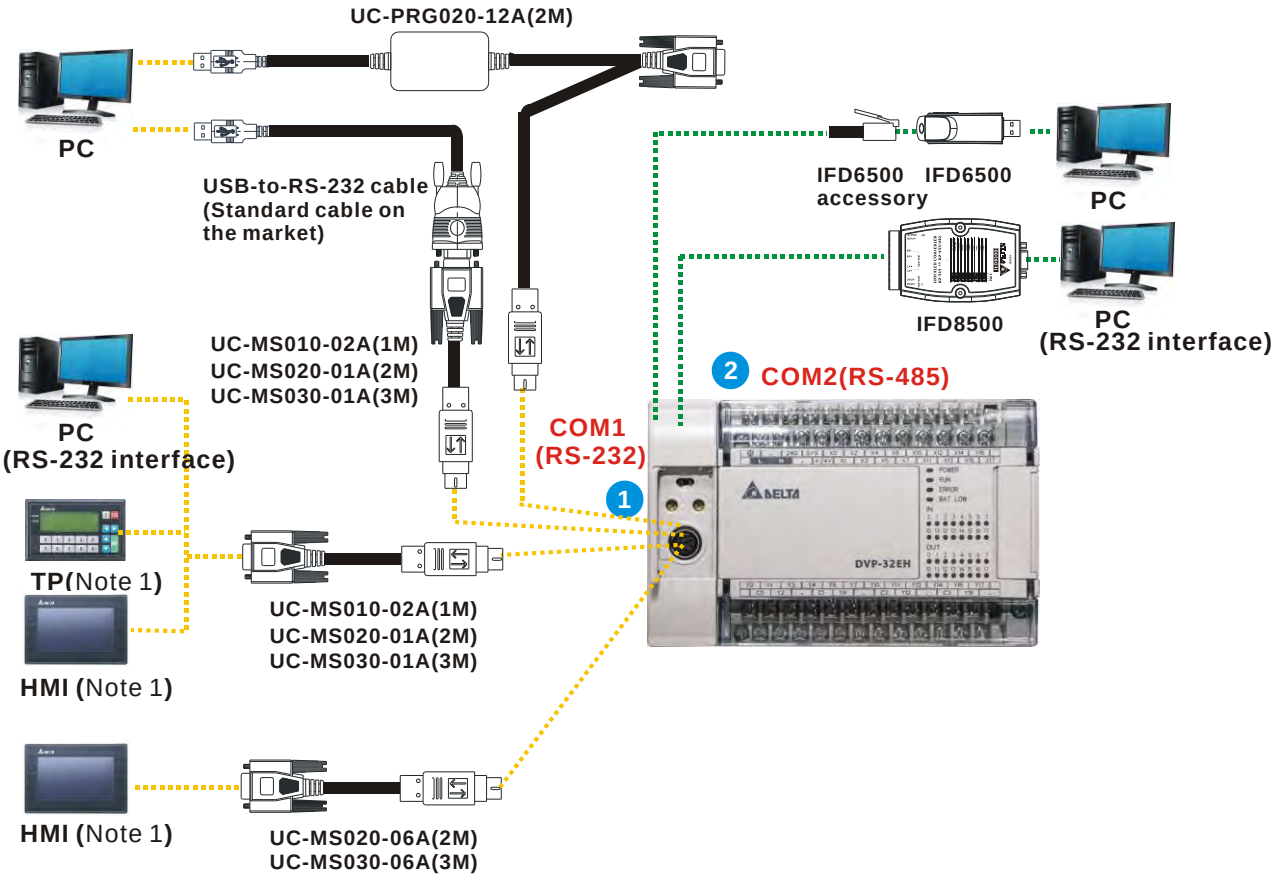
Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.10 DVP-EH3 Series

1.10.1 DVP-EH3 Series PLCs

Applicable model: DVP16EH00R3, DVP16EH00T3, DVP20EH00R3, DVP20EH00T3, DVP32EH00M3, DVP32EH00R3, DVP32EH00R3-L, DVP32EH00T3, DVP32EH00T3-L, DVP40EH00R3, DVP40EH00T3, DVP48EH00R3, DVP48EH00T3, DVP64EH00R3, DVP64EH00T3, DVP80EH00R3, DVP80EH00T3

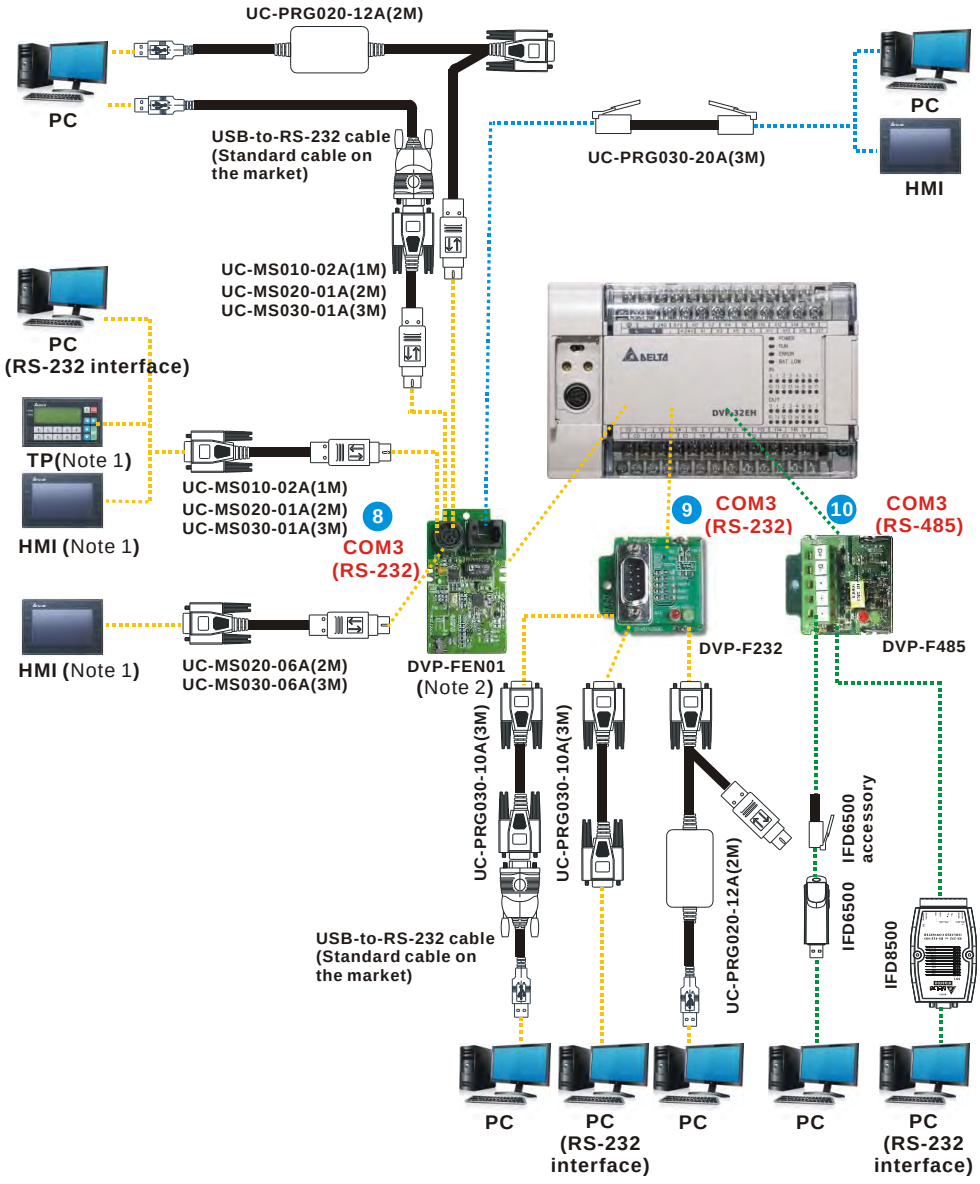


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.10.2 DVP-EH3 Series PLCs and Function Cards

Applicable model: DVP16EH00R3, DVP16EH00T3, DVP20EH00R3, DVP20EH00T3, DVP32EH00M3, DVP32EH00R3, DVP32EH00R3-L, DVP32EH00T3, DVP32EH00T3-L, DVP40EH00R3, DVP40EH00T3, DVP48EH00R3, DVP48EH00T3, DVP64EH00R3, DVP64EH00T3, DVP80EH00R3, DVP80EH00T3



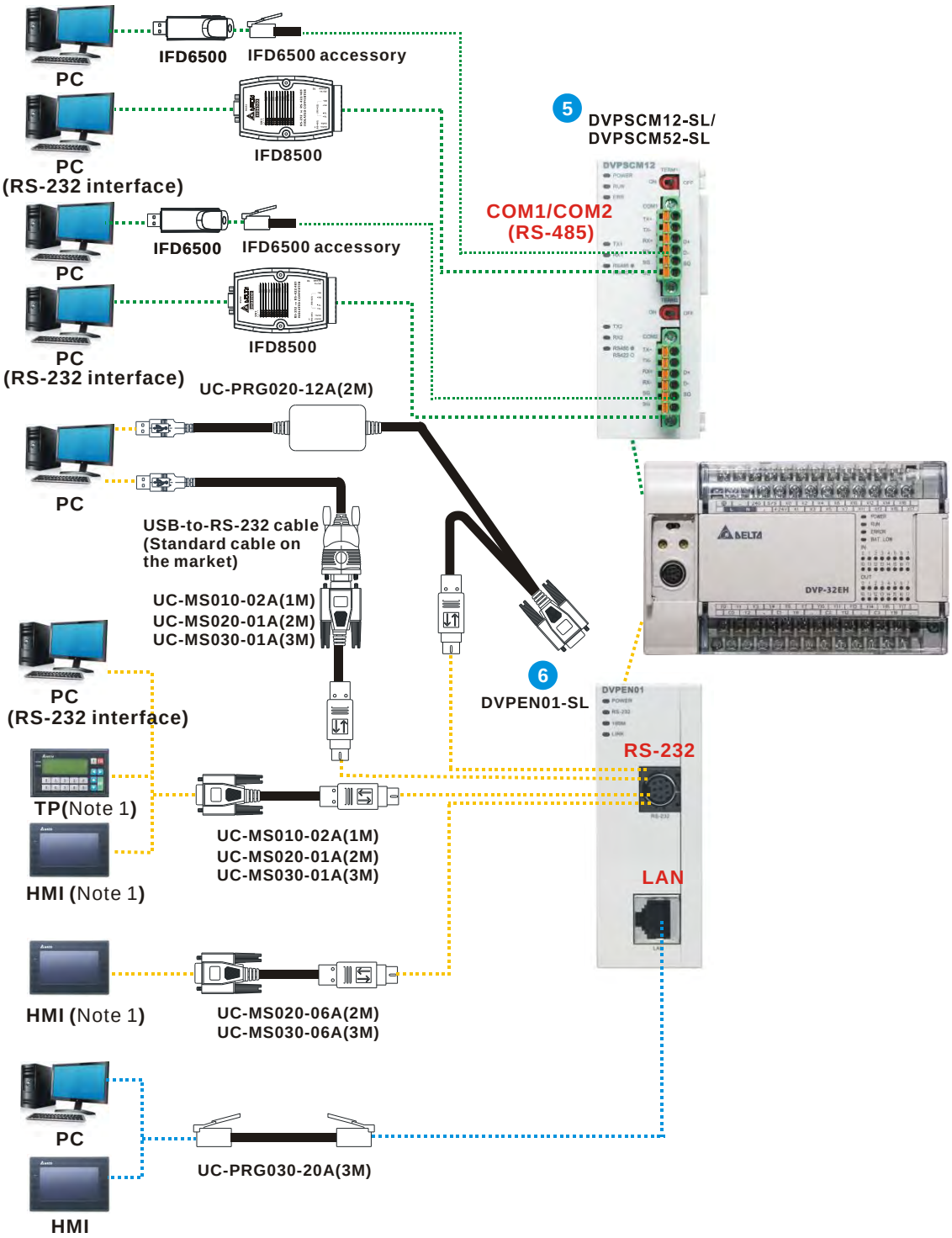
Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: DVP-FEN01 is applicable to DVP32EH00M3, DVP32EH00R3, DVP32EH00R3-L, DVP32EH00T3, DVP32EH00T3-L, DVP40EH00R3, DVP40EH00T3, DVP48EH00R3, DVP48EH00T3, DVP64EH00R3, DVP64EH00T3, DVP80EH00R3, and DVP80EH00T3.

Note 3: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.10.3 DVP-EH3 Series PLCs and Communication Modules

Applicable model: DVP32EH00R3-L, DVP32EH00T3-L



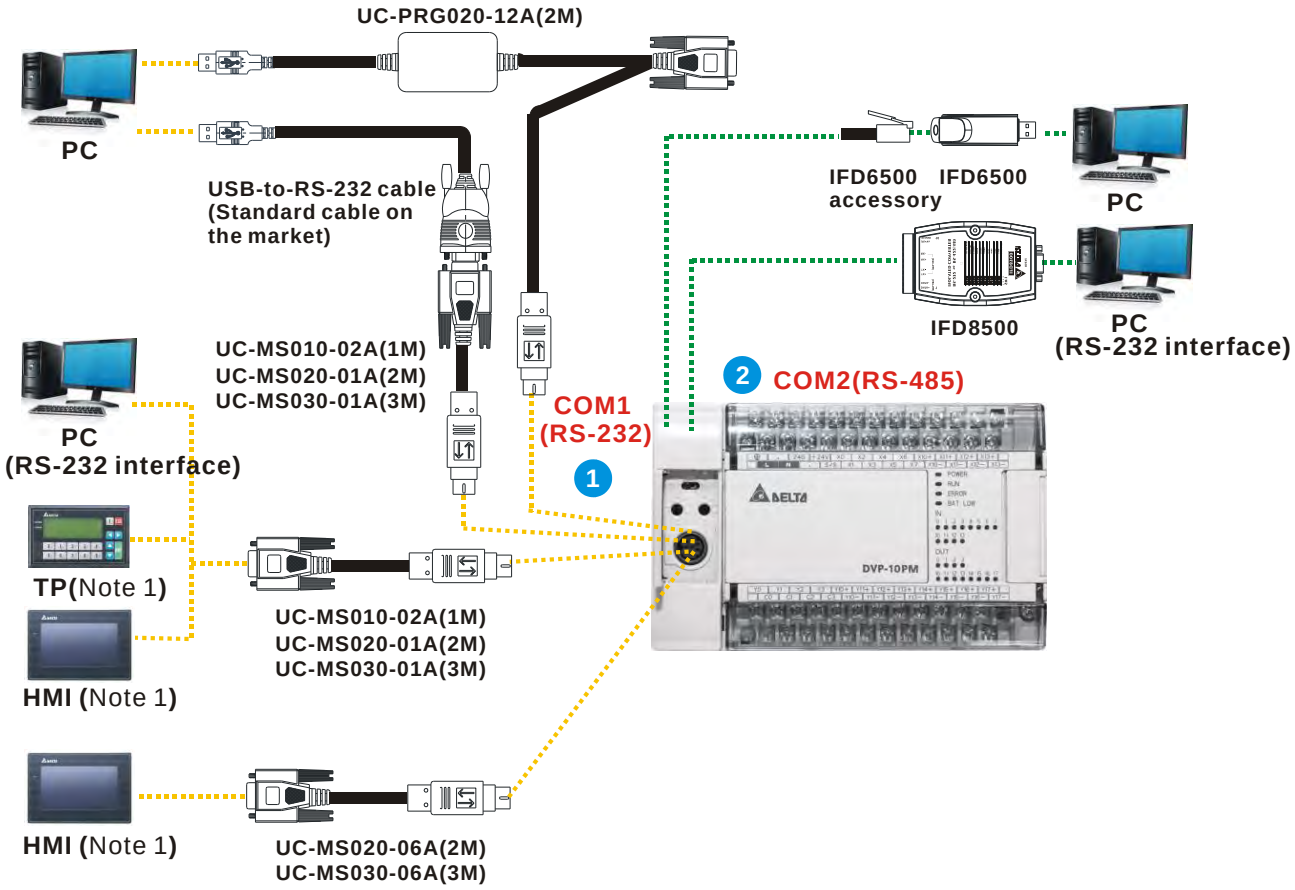
Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.11 DVP-PM Series

1.11.1 DVP-PM Series PLCs

Applicable model: DVP10PM00M, DVP20PM00D, DVP20PM00M

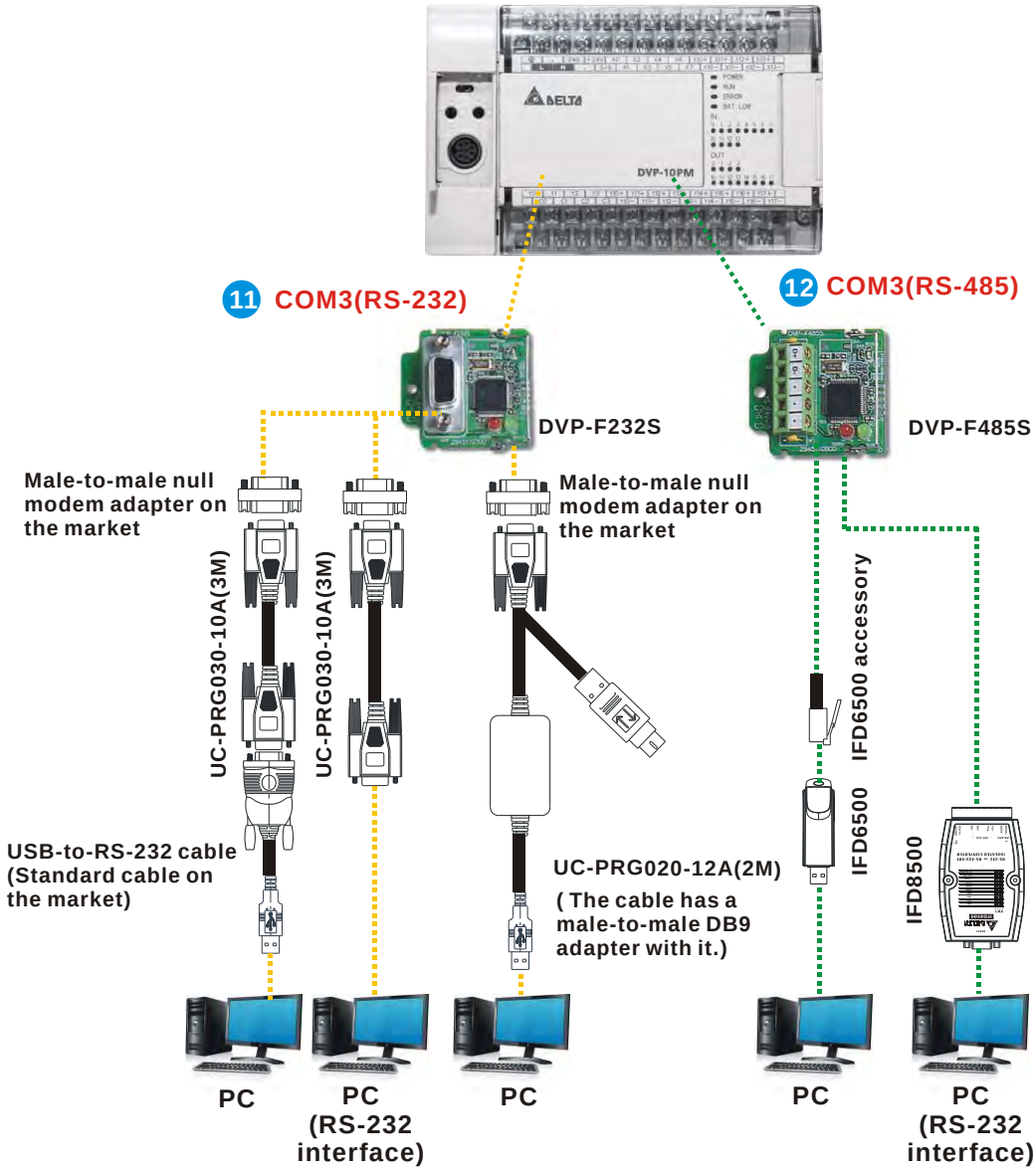


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.11.2 DVP-PM Series PLCs and Function Cards

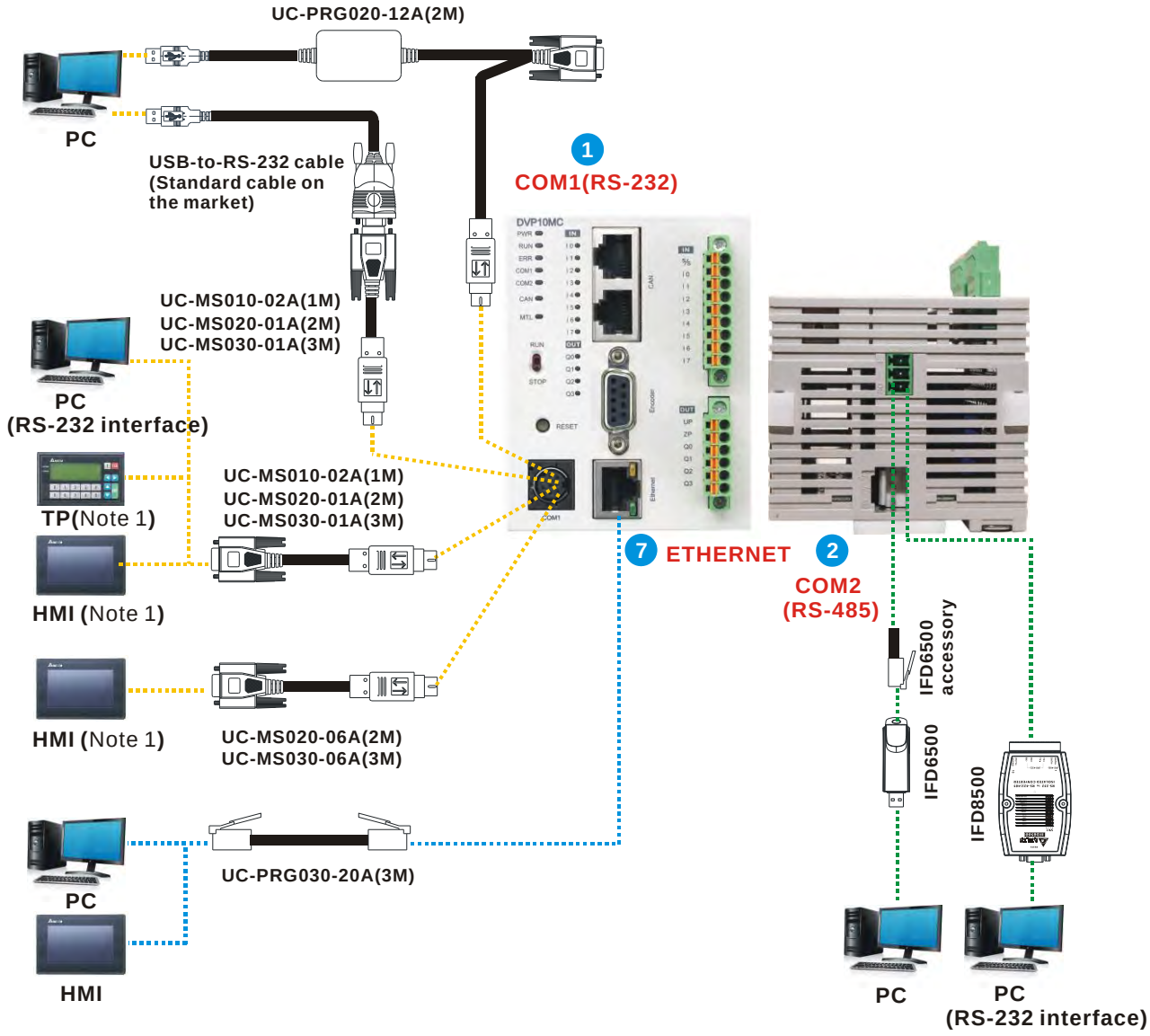
Applicable model: DVP10PM00M, DVP20PM00D, DVP20PM00M



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.12 DVP-MC Series

DVP-MC series (DVP10MC11T)



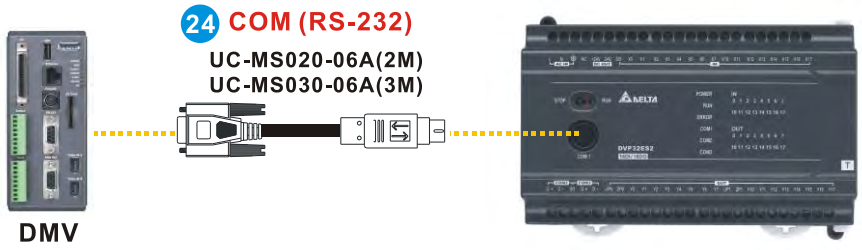
Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.13 DVP Series PLCs and the Delta Machine Vision System

Applicable DVP series:

- **DVP-ES2/EX2 series** (DVP16ES200R, DVP16ES200T, DVP20EX200R, DVP20EX200T, DVP24ES200R, DVP24ES200T, DVP30EX200R, DVP30EX200T, DVP32ES200R, DVP32ES200T, DVP32ES211T, DVP40ES200R, DVP40ES200RM, DVP40ES200T, DVP58ES200R, DVP58ES200T, DVP60ES200R, DVP60ES200T, DVP32ES200RC, DVP32ES200TC)
- **DVP-SS2 series** (DVP14SS211R, DVP14SS211T, DVP12SS211S)
- **DVP-SX2 series** (DVP20SX211R, DVP20SX211T, DVP20SX211S)
- **DVP-SV2 series** (DVP28SV11R2, DVP24SV11T2, DVP28SV11T2, DVP28SV11S2)
- **DVP-SA2 series** (DVP12SA211R, DVP12SA211T)
- **DVP-EH3 series** (DVP16EH00R3, DVP16EH00T3, DVP20EH00R3, DVP20EH00T3, DVP32EH00M3, DVP32EH00R3, DVP32EH00R3-L, DVP32EH00T3, DVP32EH00T3-L, DVP40EH00R3, DVP40EH00T3, DVP48EH00R3, DVP48EH00T3, DVP64EH00R3, DVP64EH00T3, DVP80EH00R3, DVP80EH00T3)

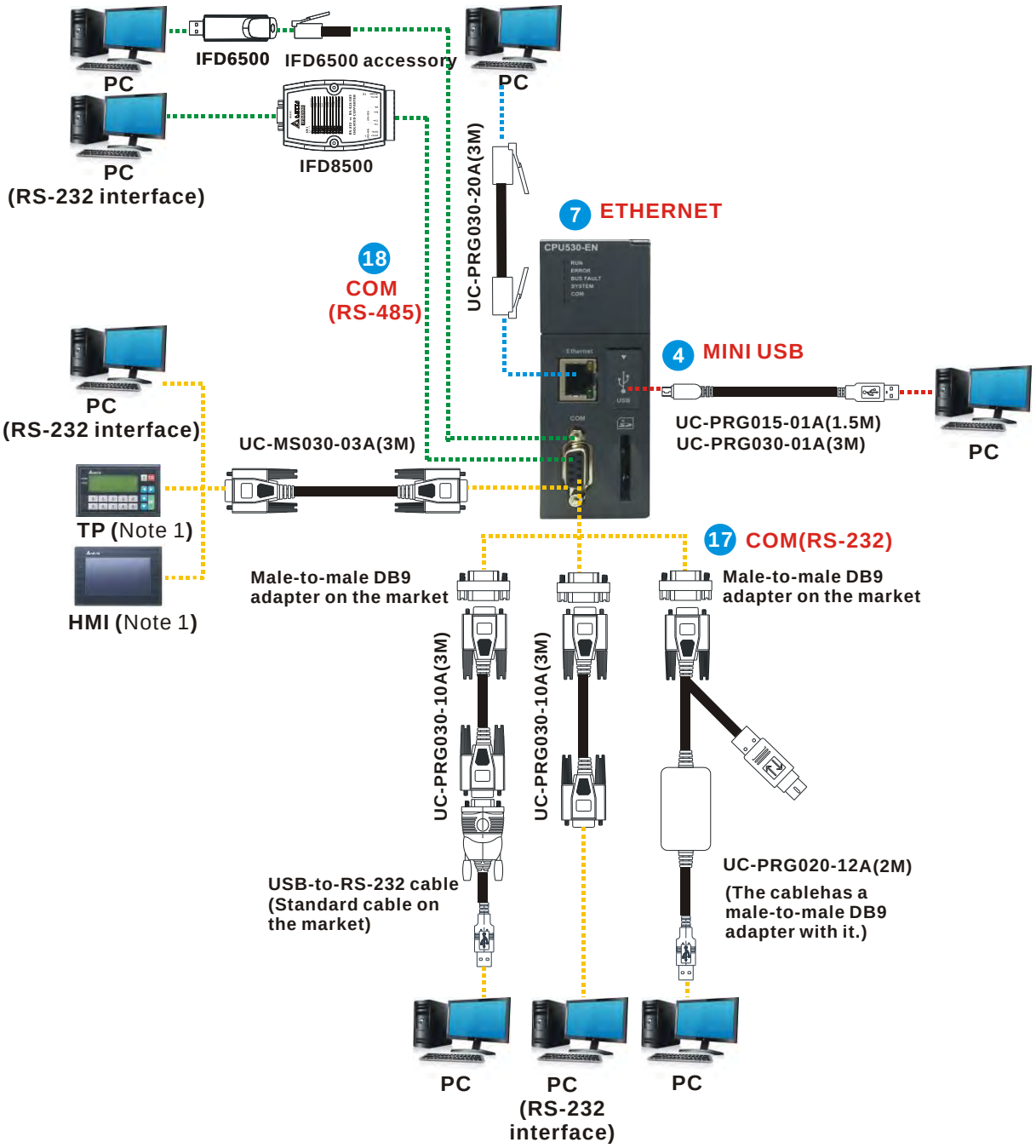


Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.14 AH500 Series

1.14.1 CPUs (AHCPU5XX-EN)

Applicable model: AHCPU500-EN, AHCPU510-EN, AHCPU511-EN, AHCPU520-EN, AHCPU521-EN, AHCPU530-EN, AHCPU531-EN

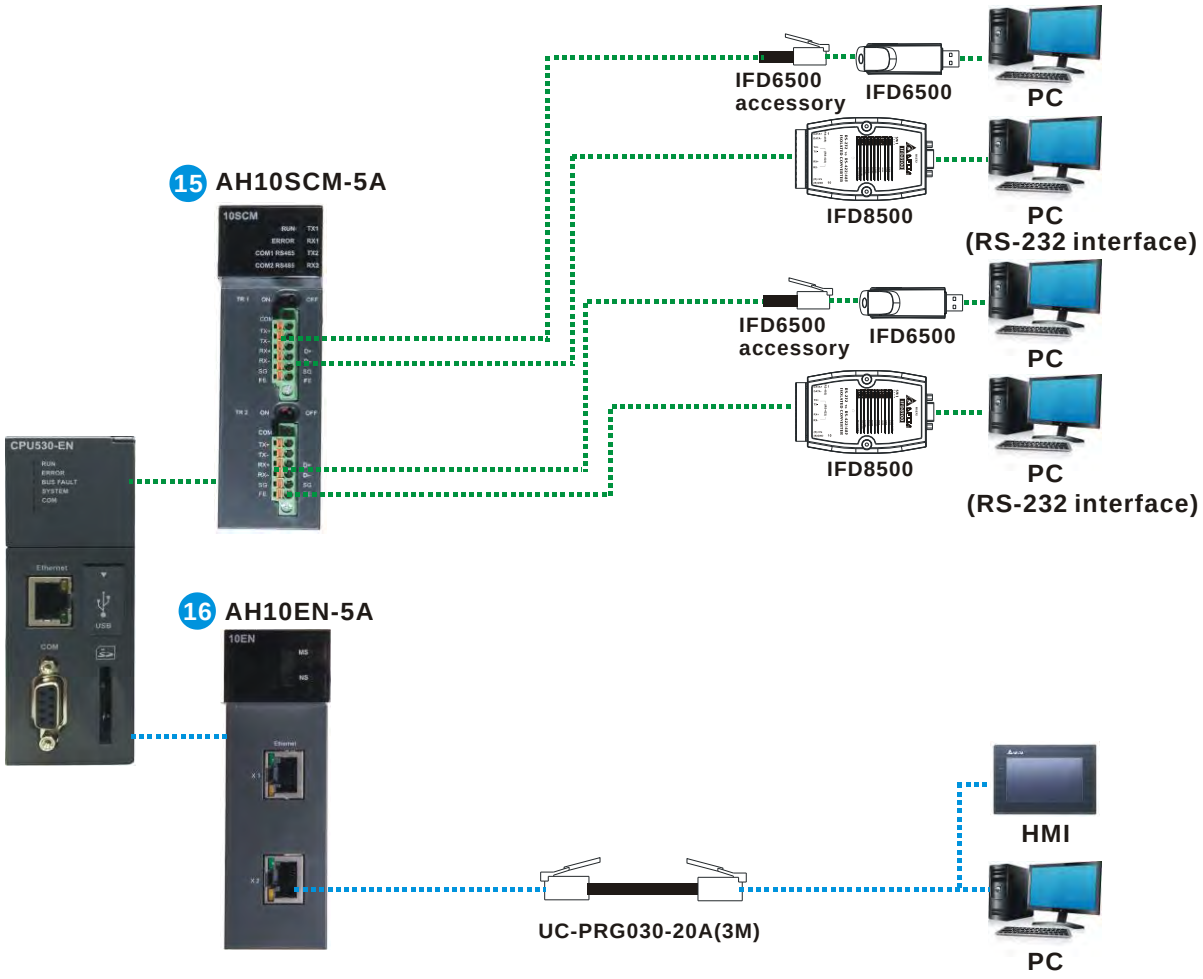


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.14.2 AHCPU5XX-EN and Communication Modules

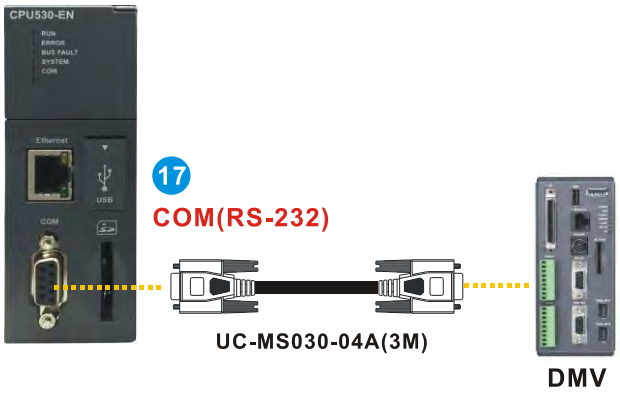
Applicable model: AHCPU500-EN, AHCPU510-EN, AHCPU511-EN, AHCPU520-EN, AHCPU521-EN, AHCPU530-EN, AHCPU531-EN



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.14.3 AHCPU5XX-EN and the Delta Machine Vision System

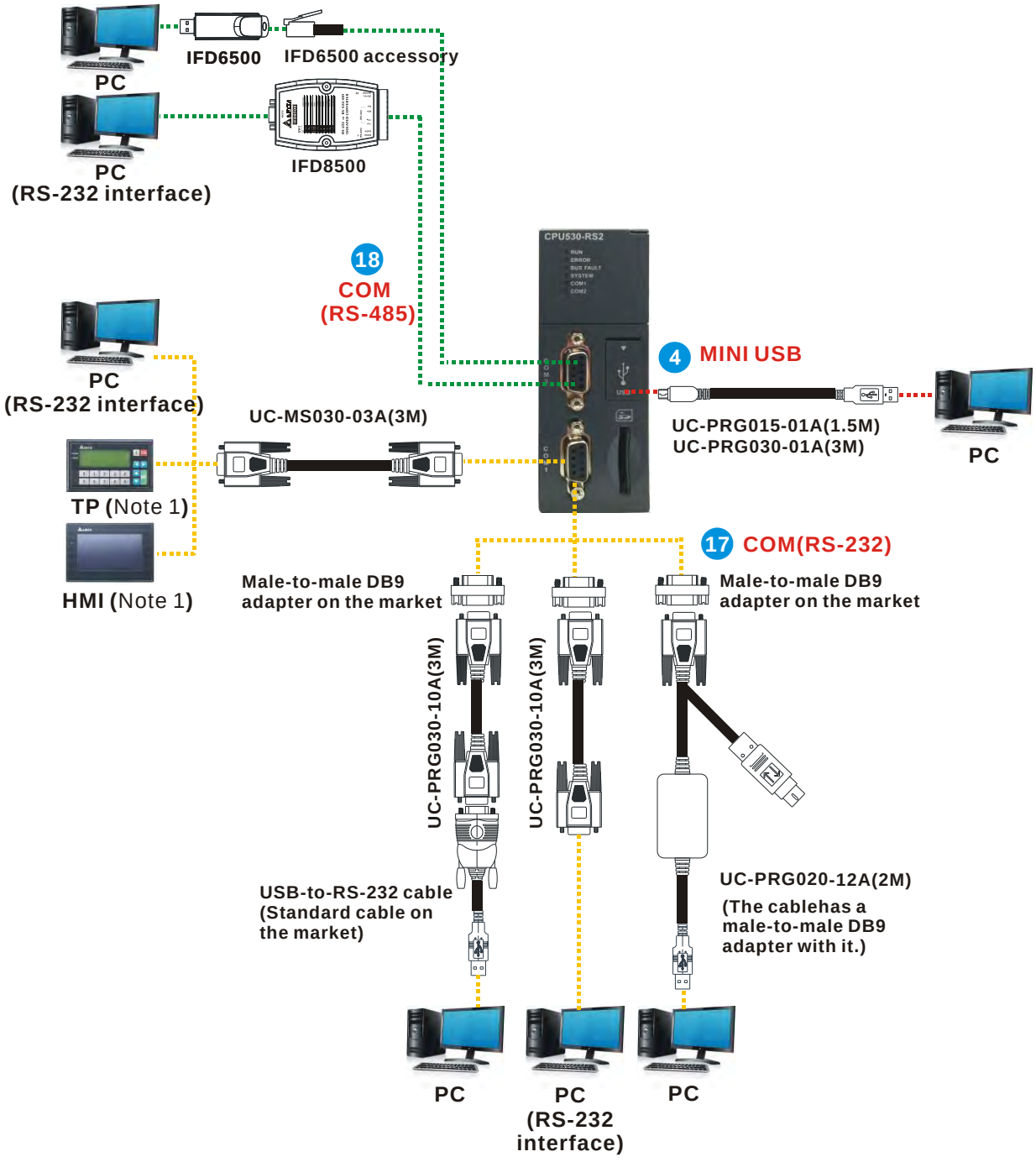
Applicable model: AHCPU500-EN, AHCPU510-EN, AHCPU511-EN, AHCPU520-EN, AHCPU521-EN, AHCPU530-EN, AHCPU531-EN



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.14.4 CPUs (AHCPU5XX-RS2)

Applicable model: AHCPU500-RS2, AHCPU510-RS2, AHCPU511-RS2, AHCPU520-RS2, AHCPU530-RS2

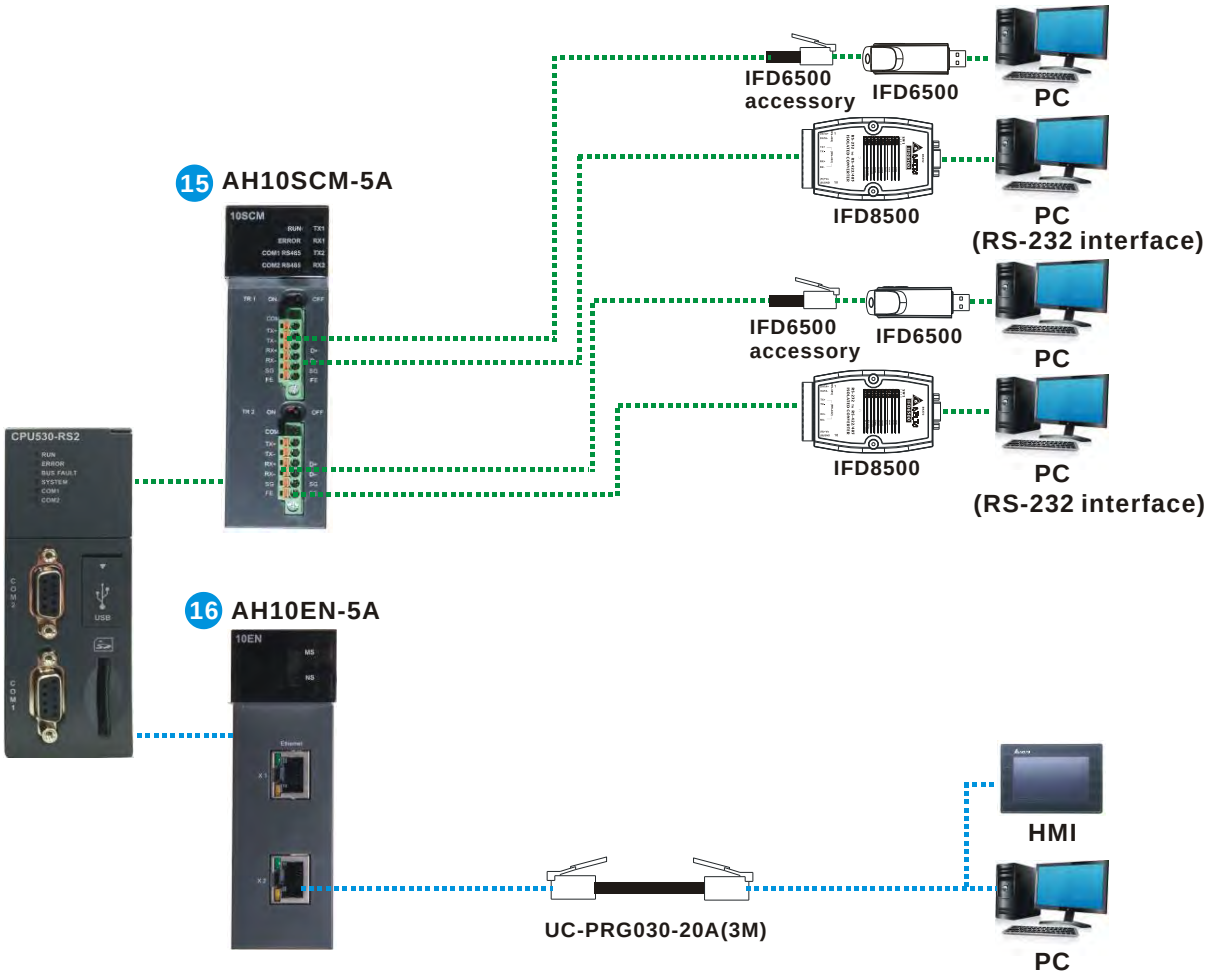


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.14.5 AHCPU5XX-RS2 and Communication Modules

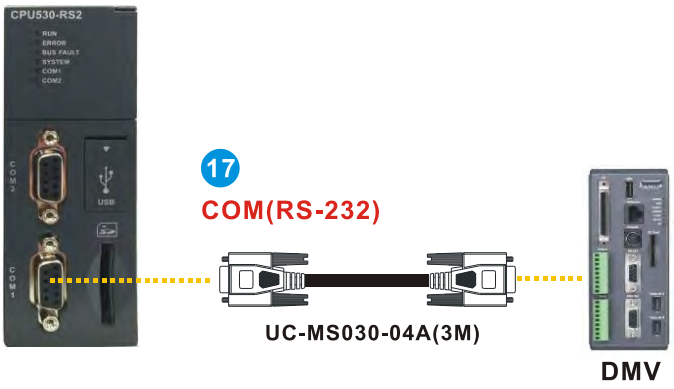
Applicable model: AHCPU500-RS2, AHCPU510-RS2, AHCPU511-RS2, AHCPU520-RS2, AHCPU530-RS2



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.14.6 AHCPU5XX-RS2 and the Delta Machine Vision System

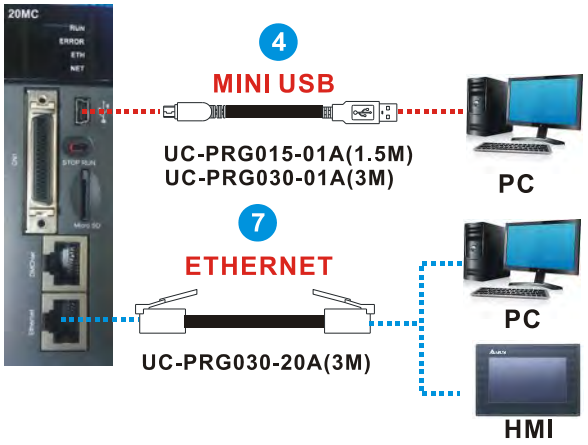
Applicable model: AHCPU500-RS2, AHCPU510-RS2, AHCPU511-RS2, AHCPU520-RS2, AHCPU530-RS2



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

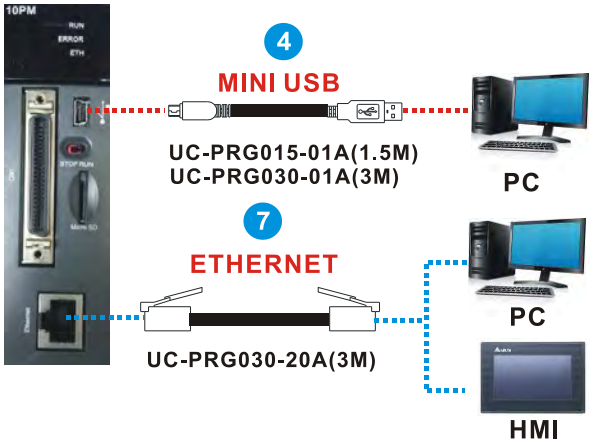
1.14.7 Motion Control Modules

- Network type (AH20MC-5A/AH10EMC-5A)



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

- Pulse type (AH10PM-5A/AH15PM-5A)

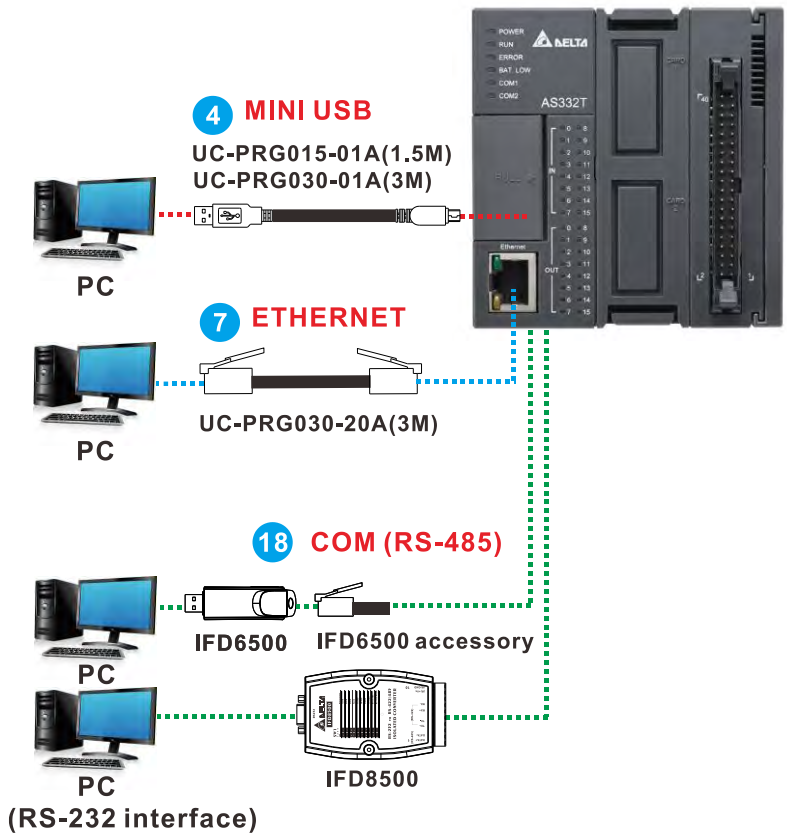


Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.15 AS300 Series

1.15.1 AS300 Series PLCs

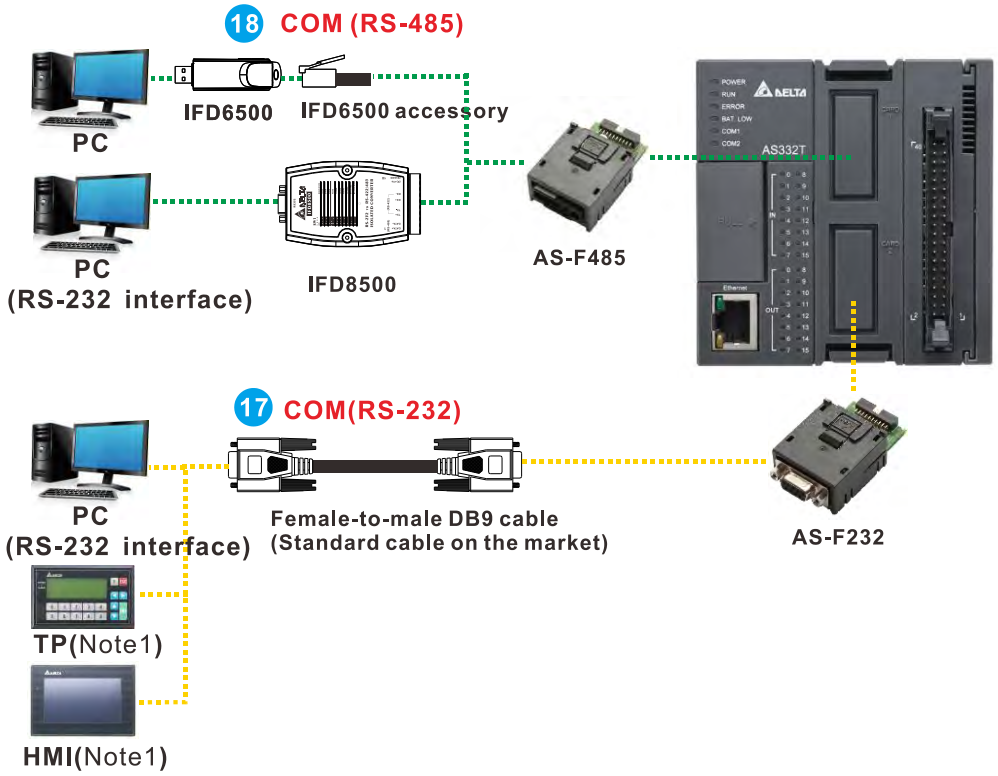
Applicable model: AS332T-A、AS332P-A、AS324MT-A



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.15.2 AS300 Series PLCs and Function Cards

Applicable model: AS332T-A、AS332P-A、AS324MT-A

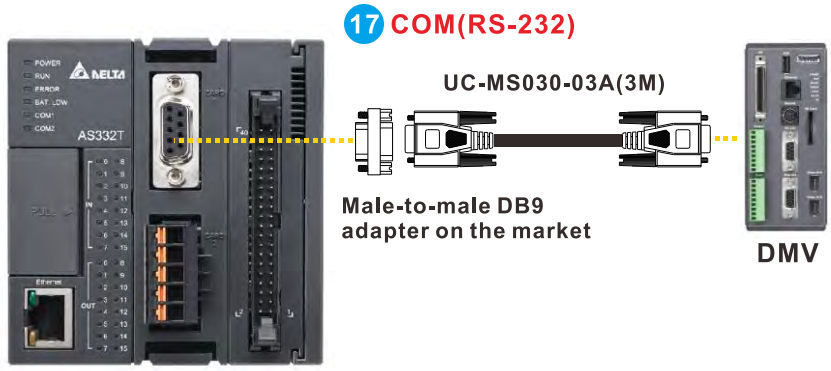


Note 1: Please refer to section 1.16, section 1.17, and section 1.18 for more information about TP/HMI models.

Note 2: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.15.3 AS300 Series PLCs and the Delta Machine Vision System

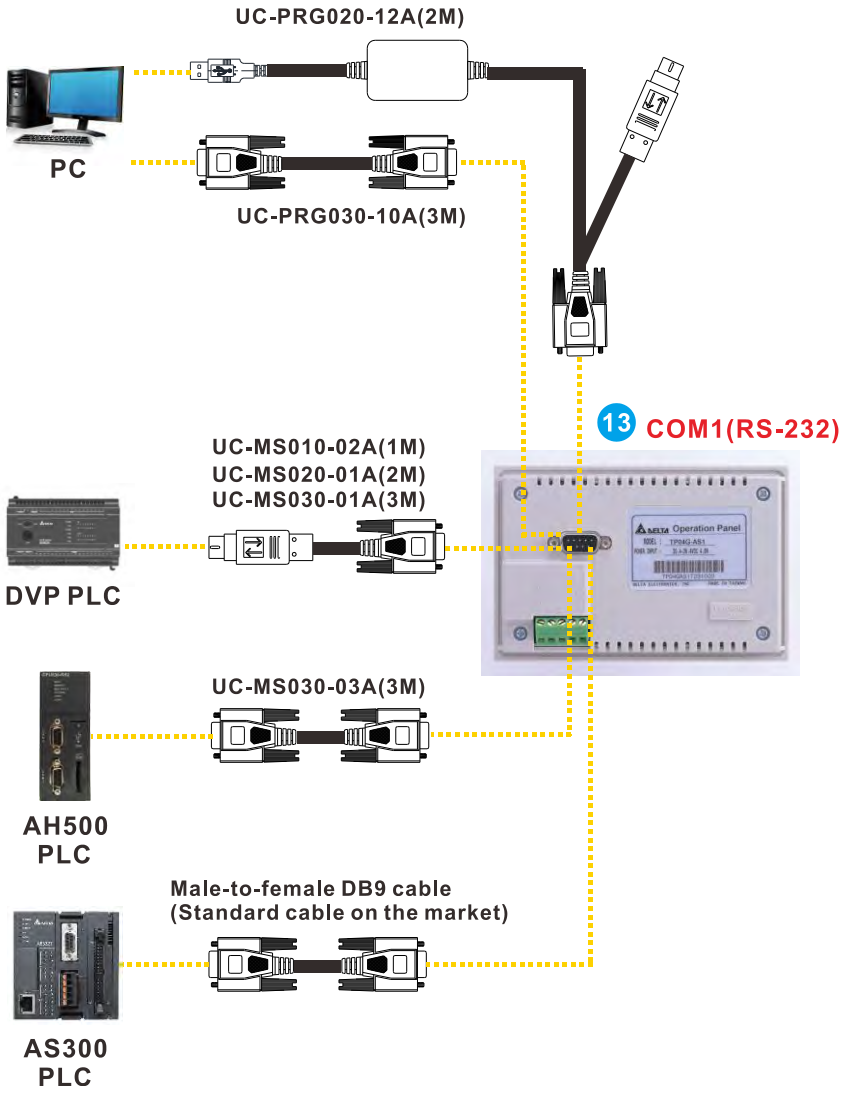
Applicable model: AS332T-A、AS332P-A、AS324MT-A



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

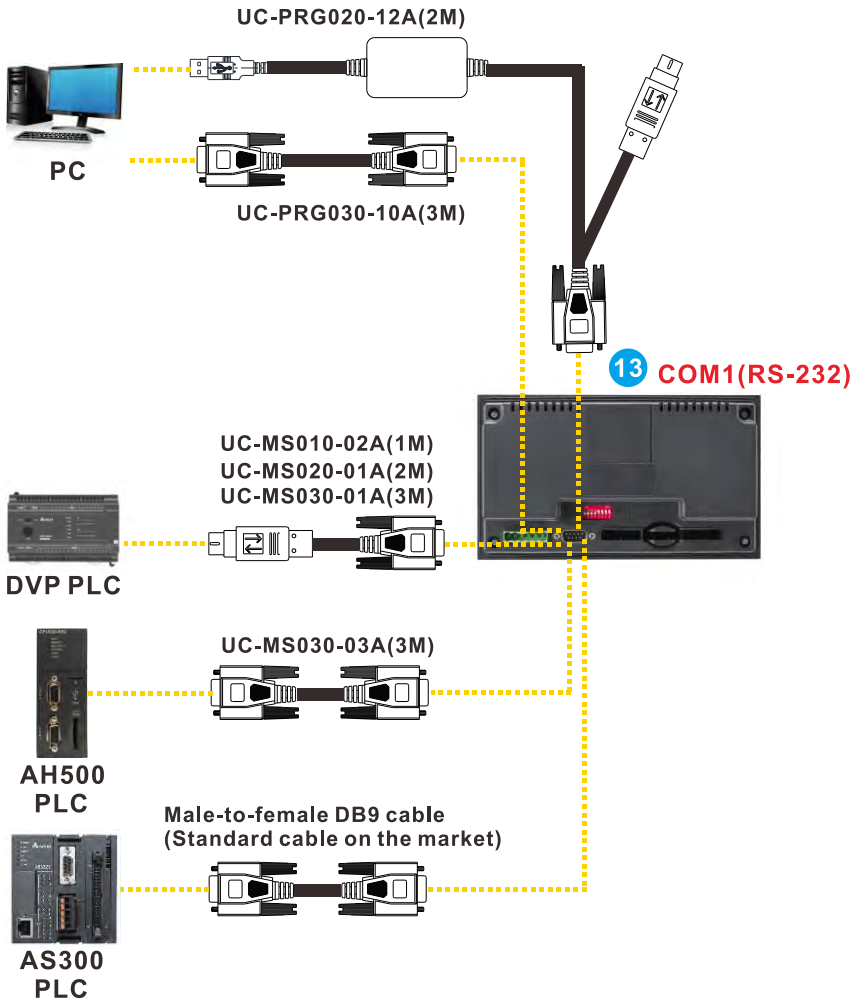
1.16 TP Series

TP series (TP02G-AS1, TP04G-AS2)



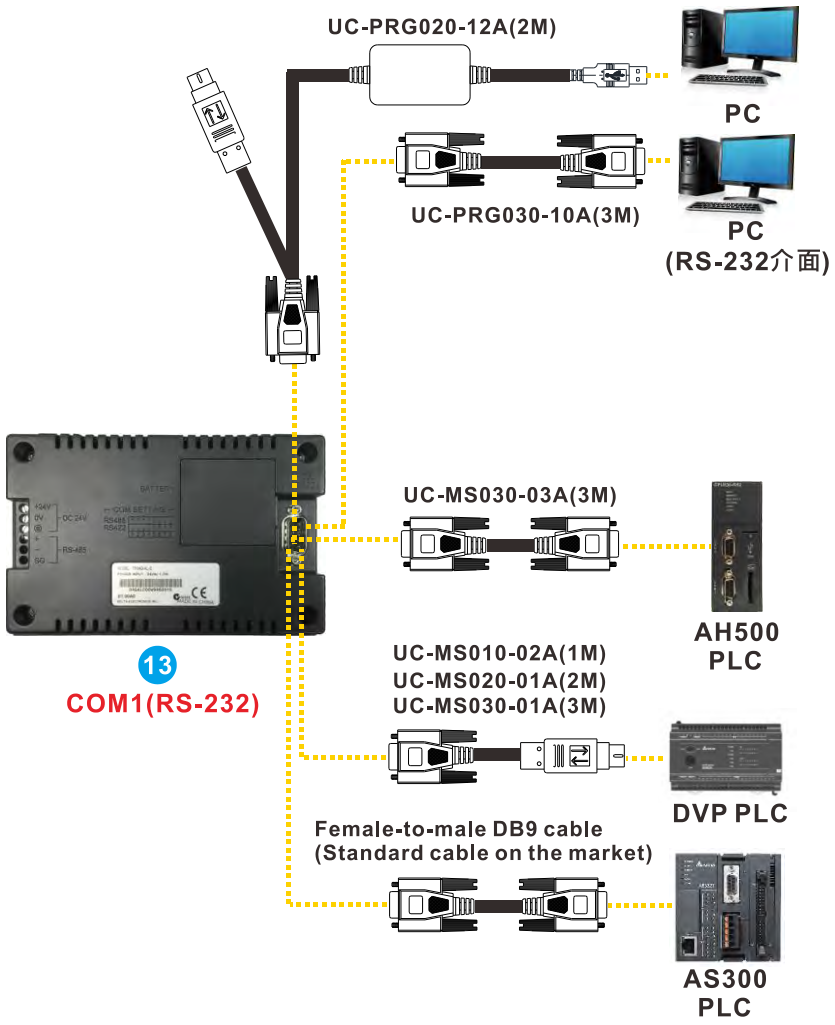
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

TP series (TP08G-BT2)



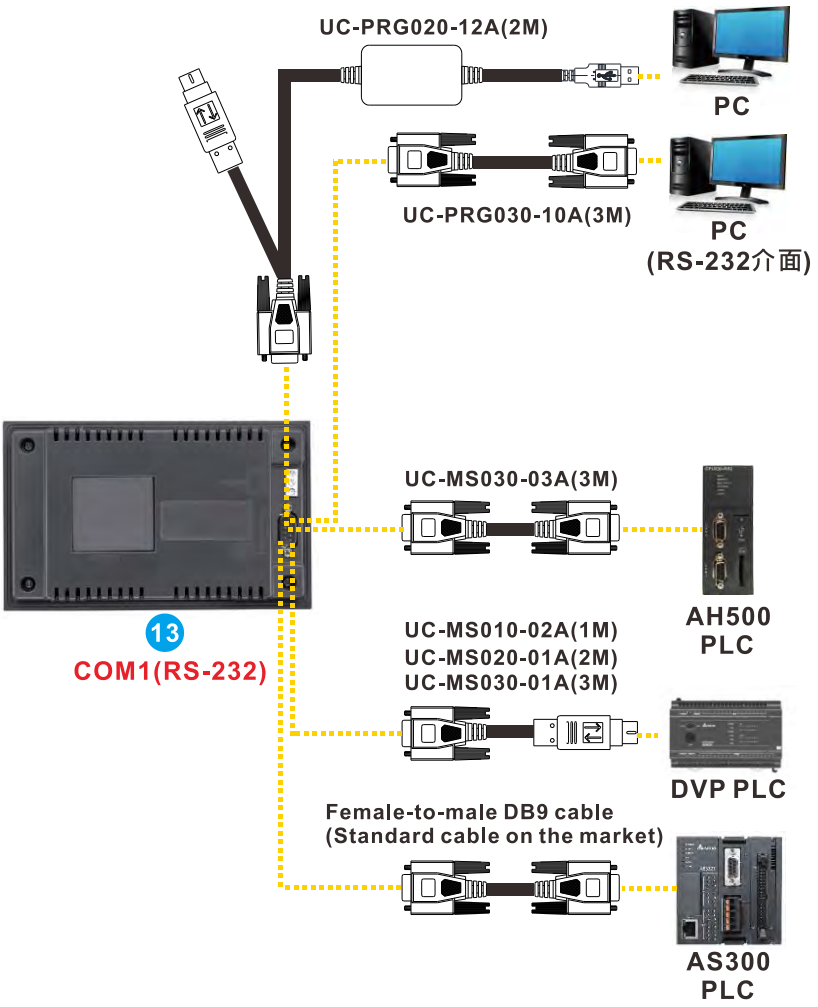
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

TP series (TP04G-AL-C, TP04G-AL2)



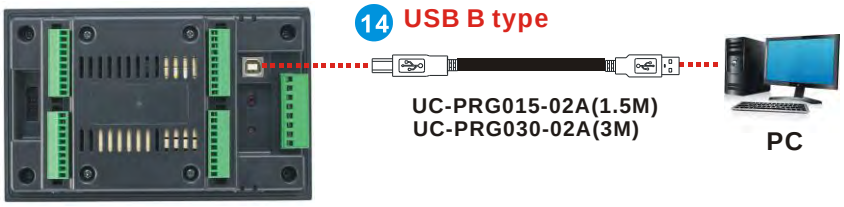
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

TP series (TP04G-BL-C)



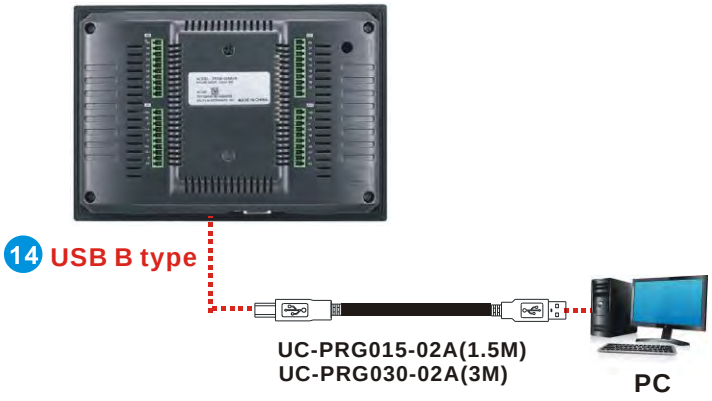
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

TP04P series (TP04P-16TP1R, TP04P-21EX1R, TP04P-32TP1R, TP04P-22XA1R)



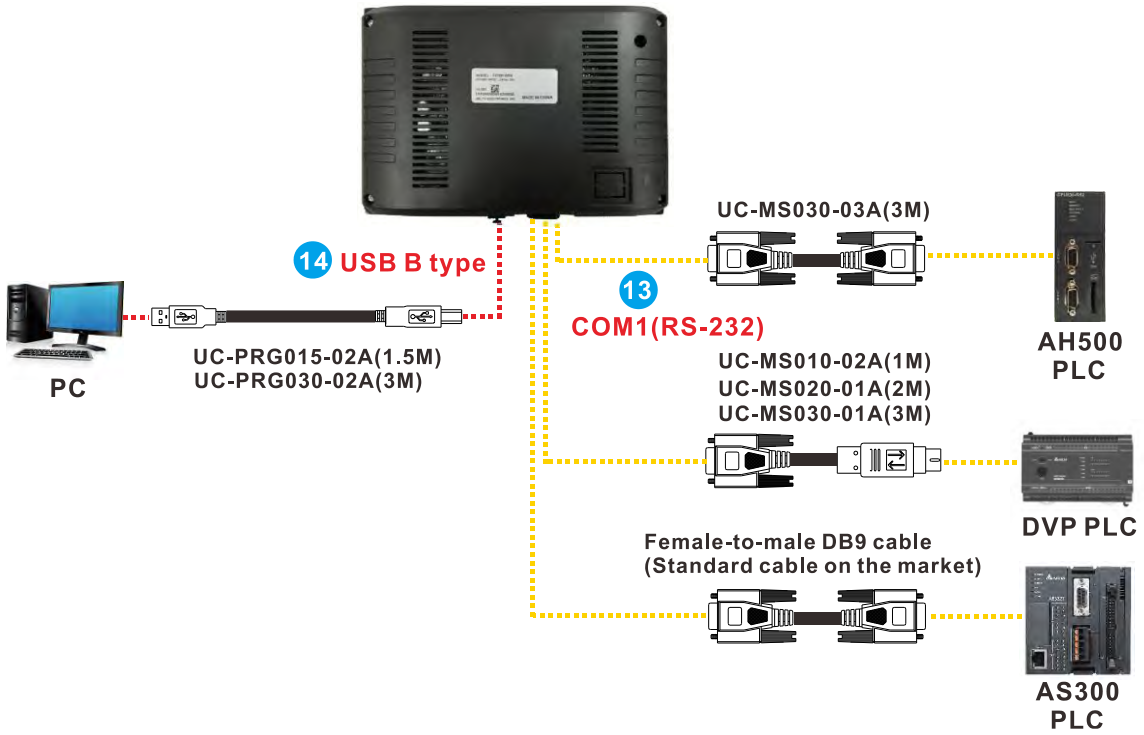
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

TP70P series (TP70P-16TP1R, TP70P-21EX1R, TP70P-22XA1R, TP70P-32TP1R)



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

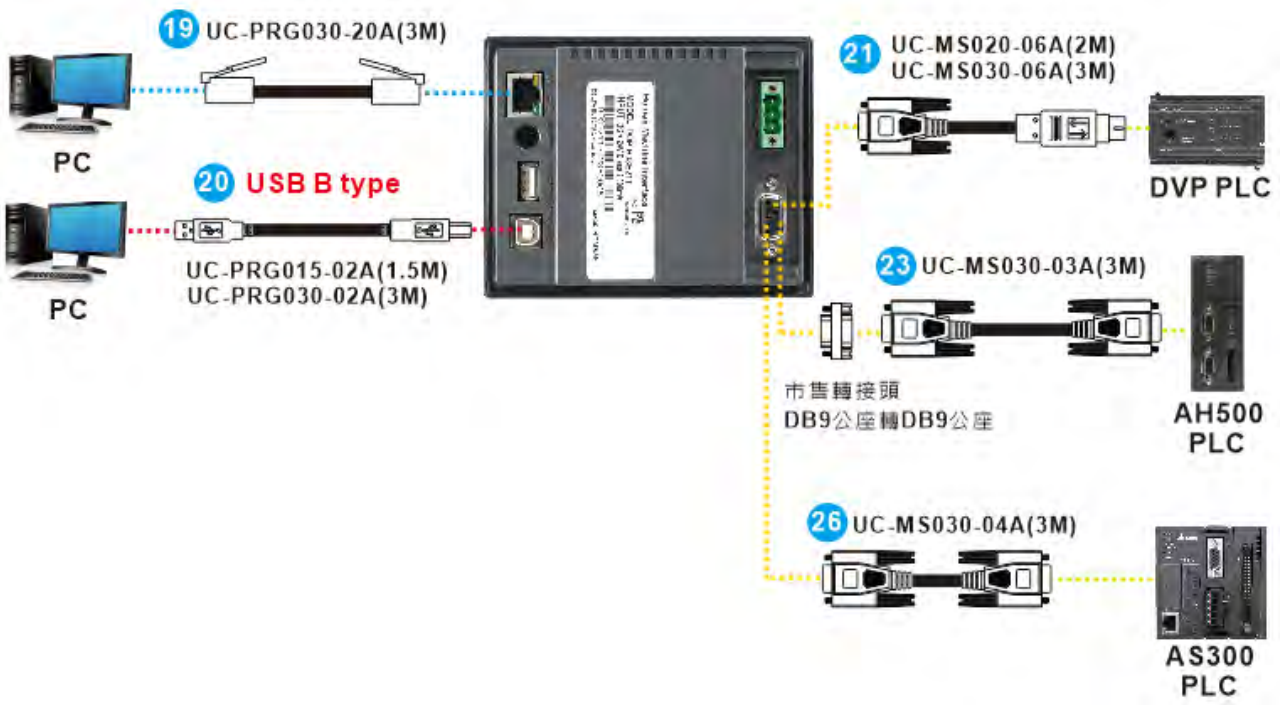
TP70P series (TP70P-RM0, TP70P-RM1, TP70P-RM2)



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

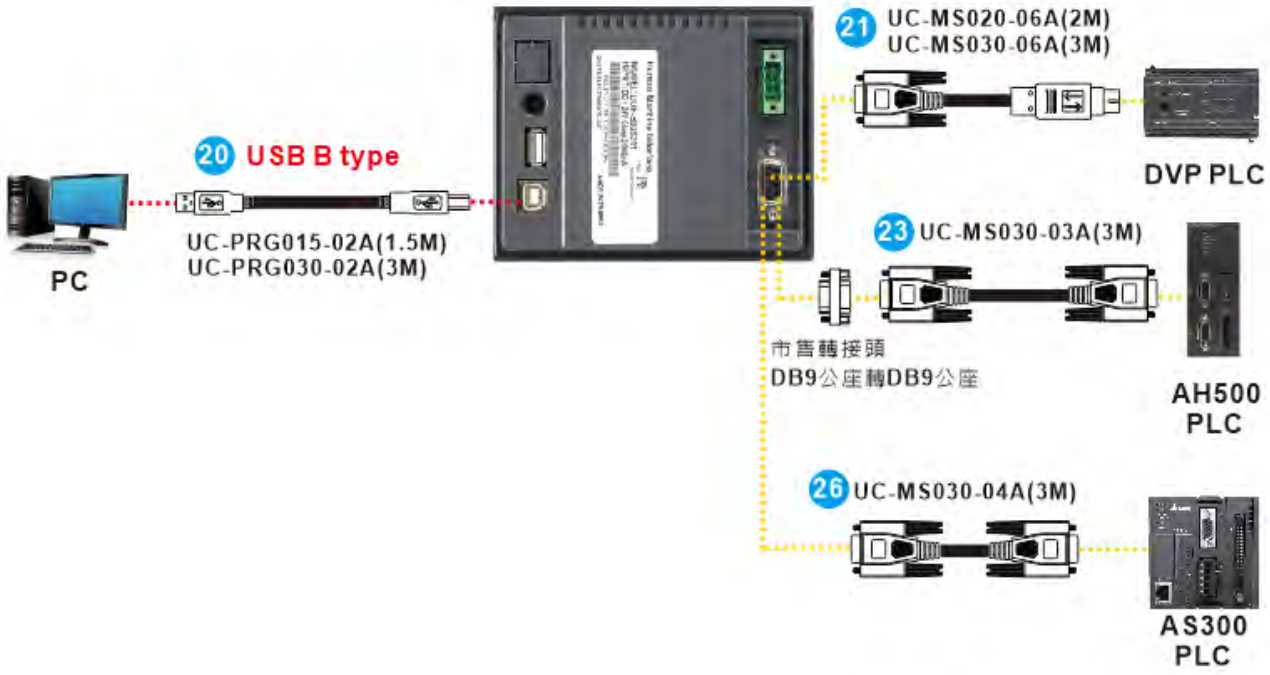
1.17 DOP-B Series

DOP-B series (DOP-B03E211)



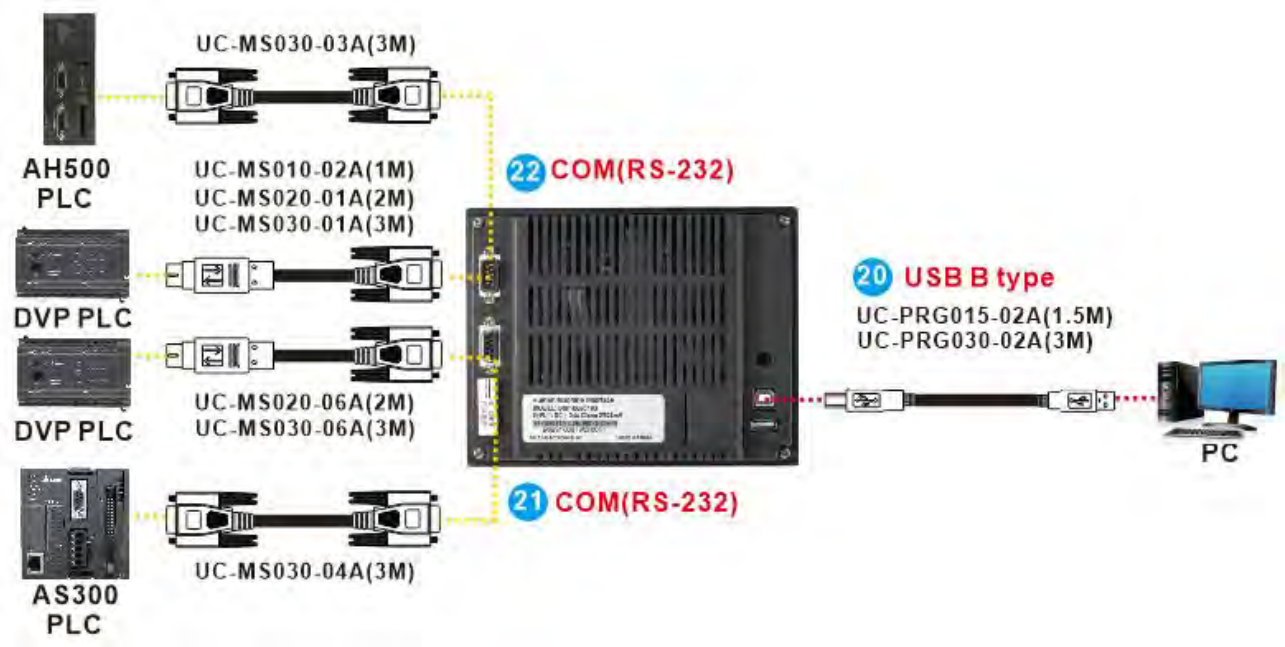
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B03S210, DOP-B03S211)



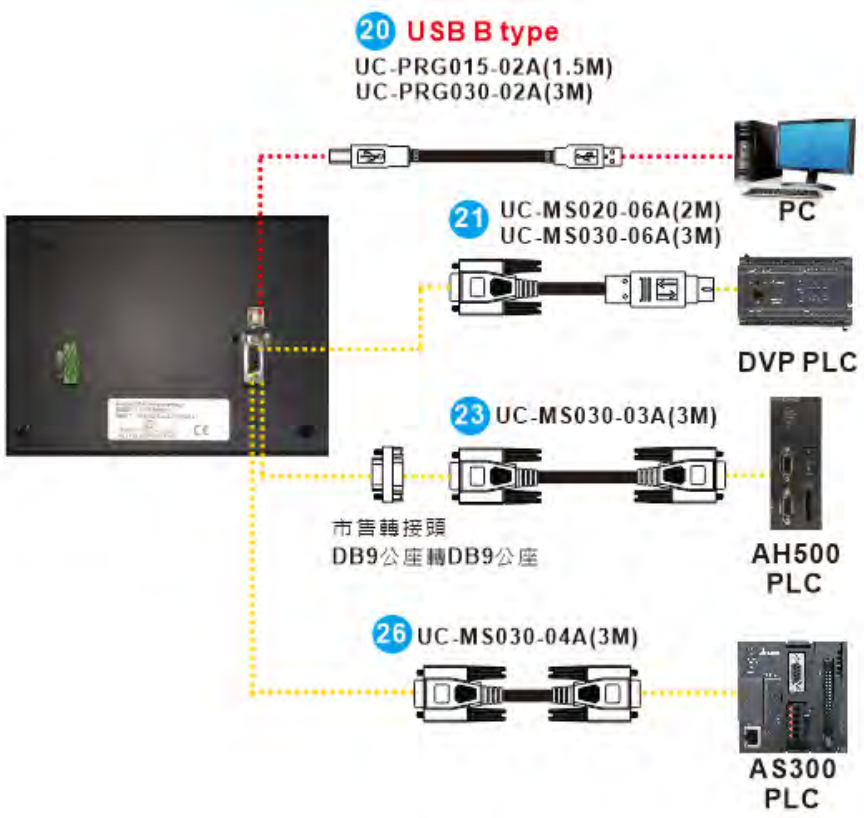
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B05S111)



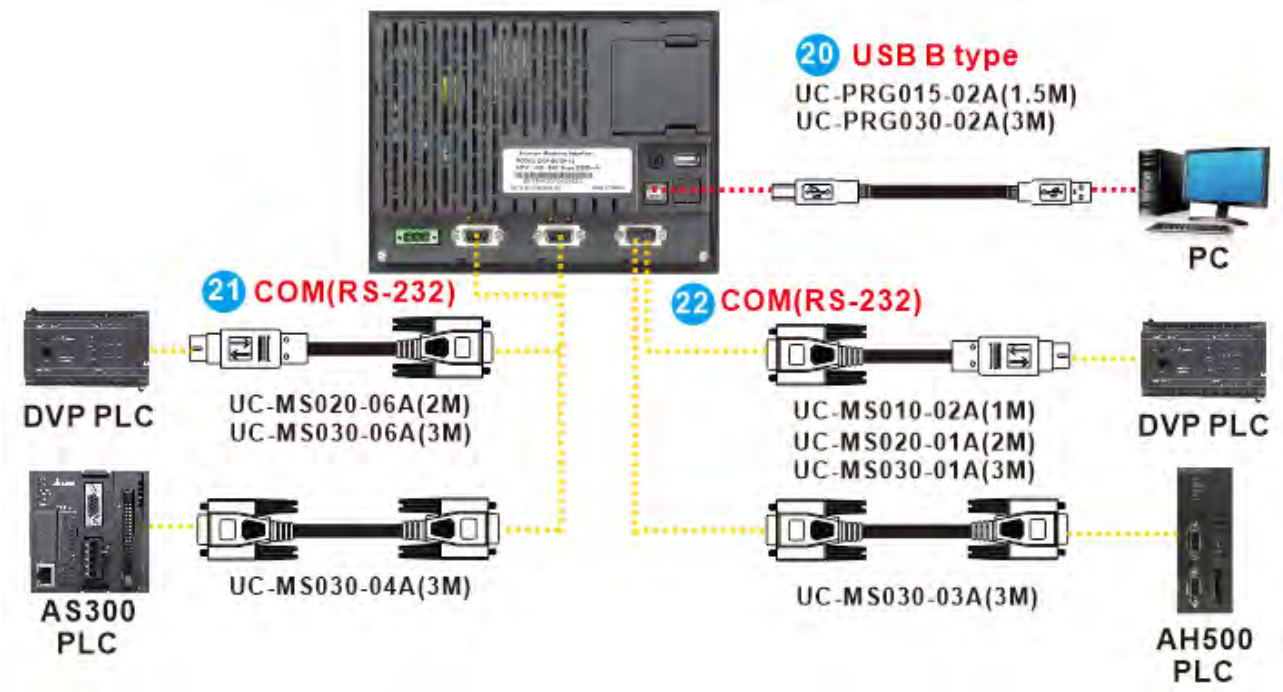
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B07S410)



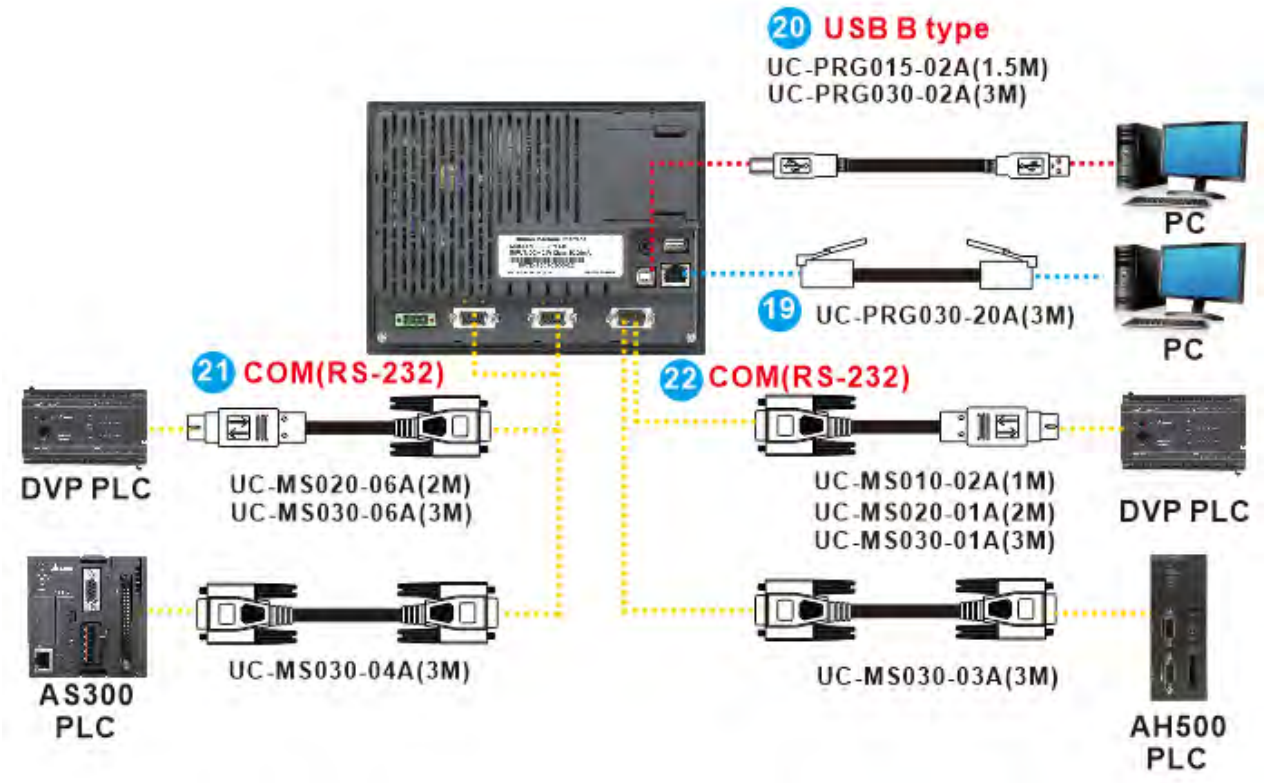
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B07S411, DOP-B07S401K, DOP-B07S411K, DOP-B07S415, DOP-B07PS415)



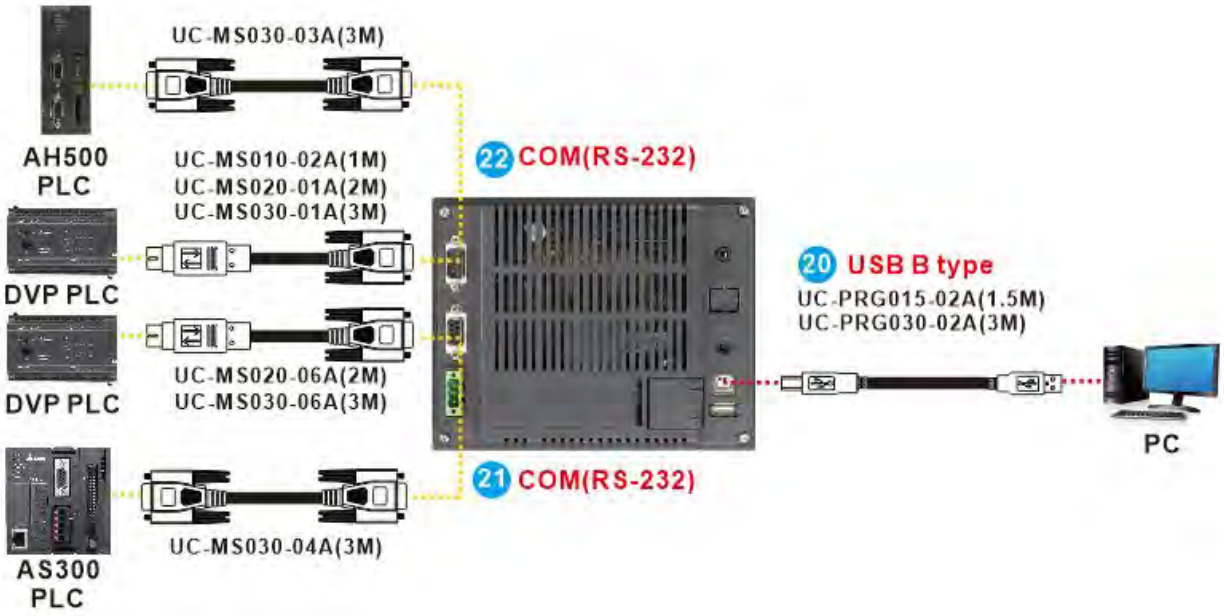
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B07E415)



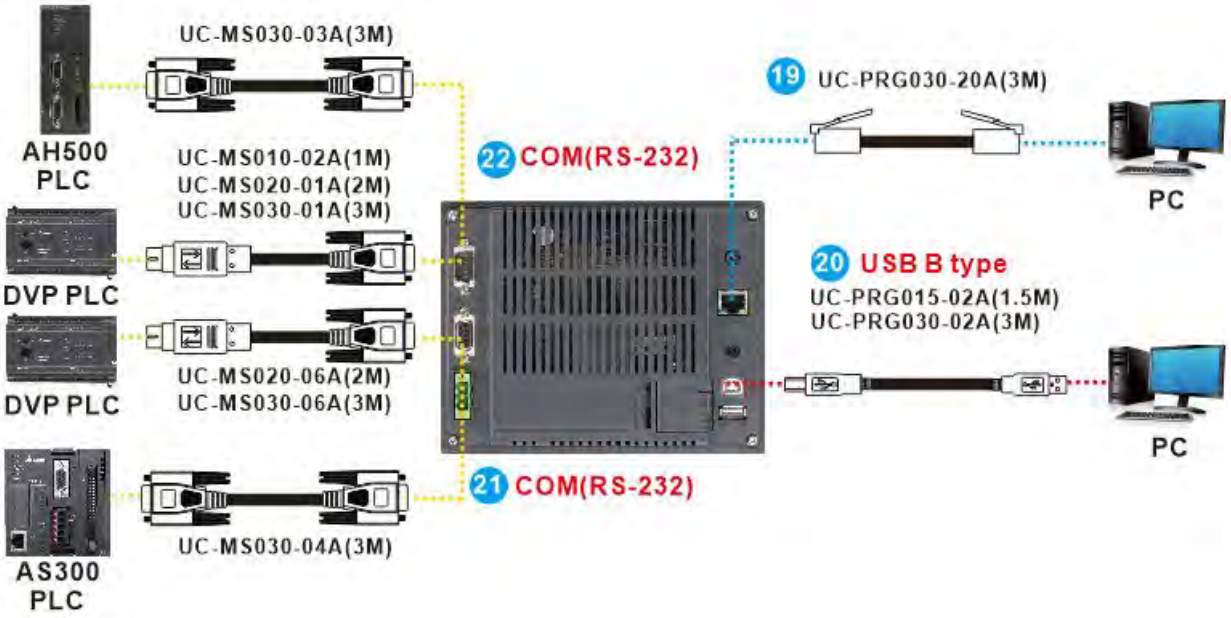
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B07S515, DOP-B07PS515)



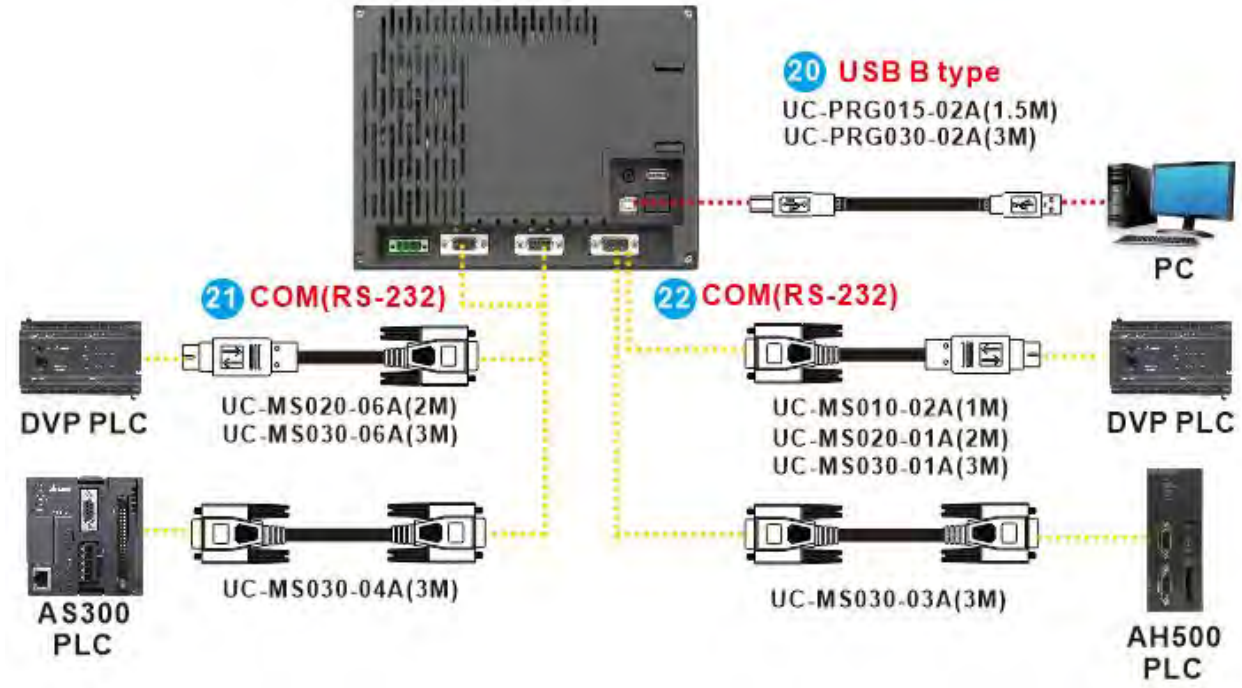
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B07E515)



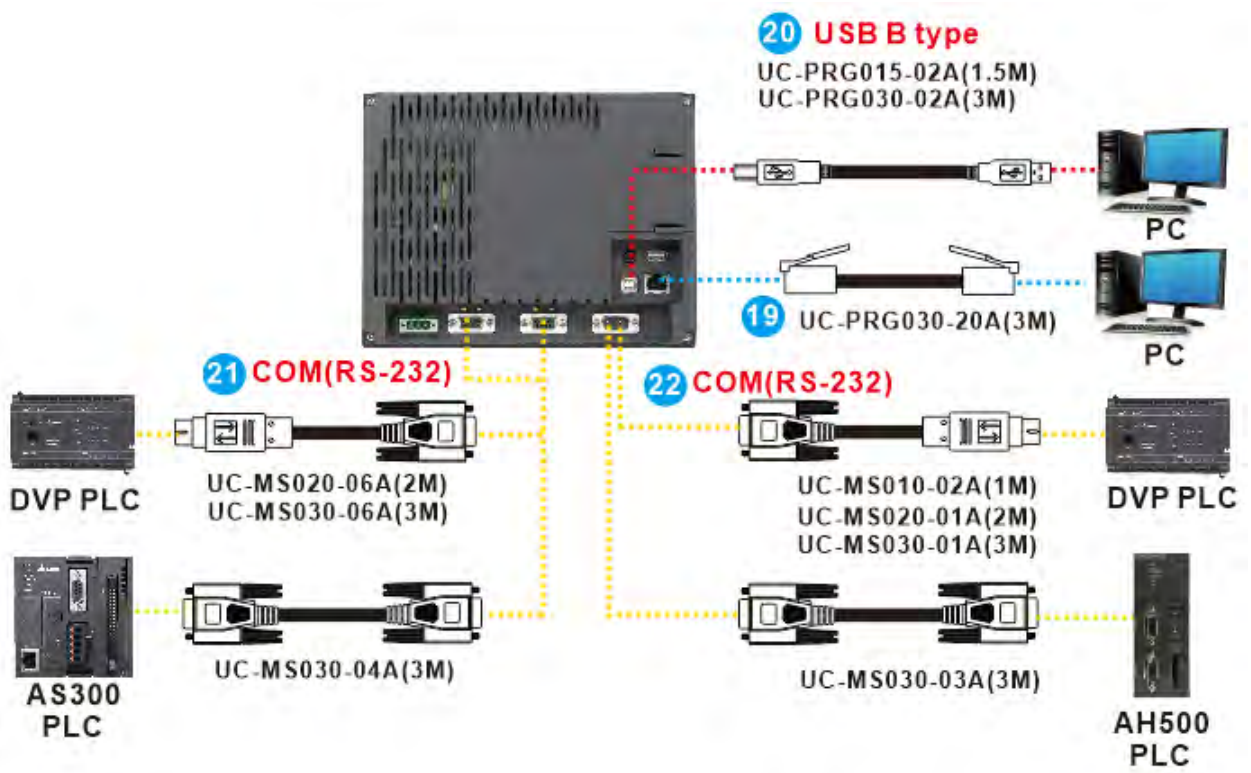
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B08S515)



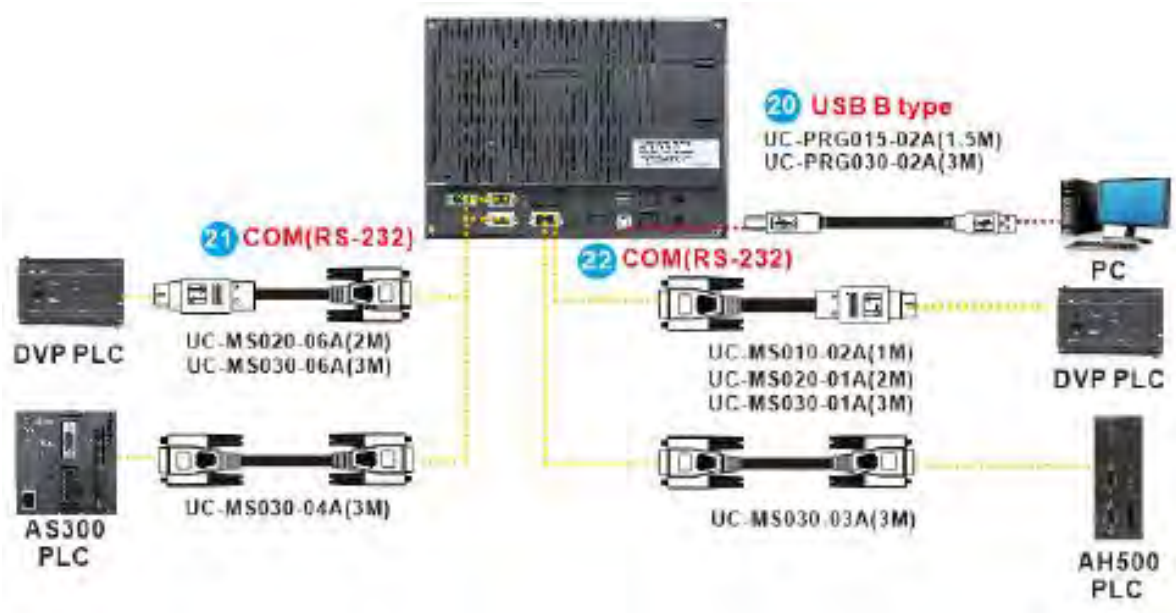
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B08E515)



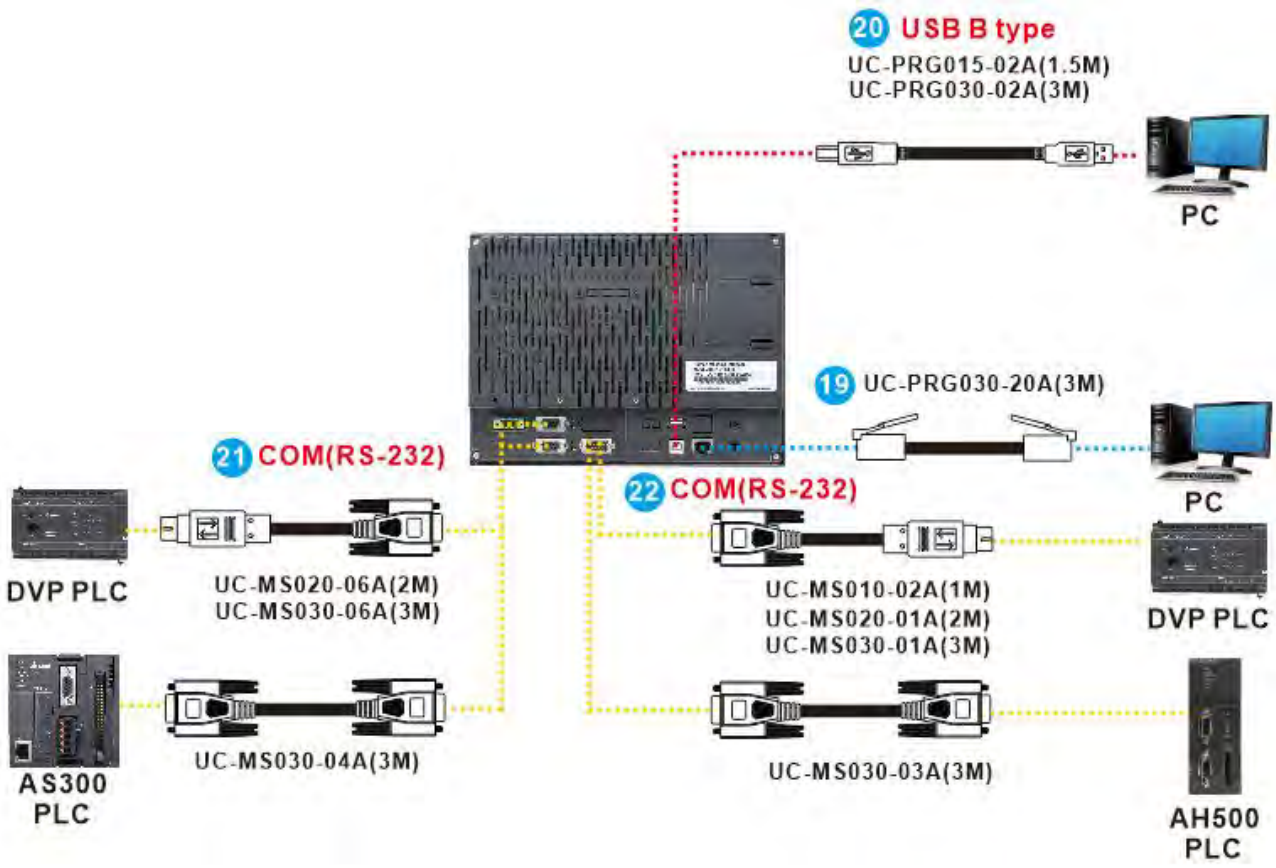
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B10S411, DOP-B10S615)



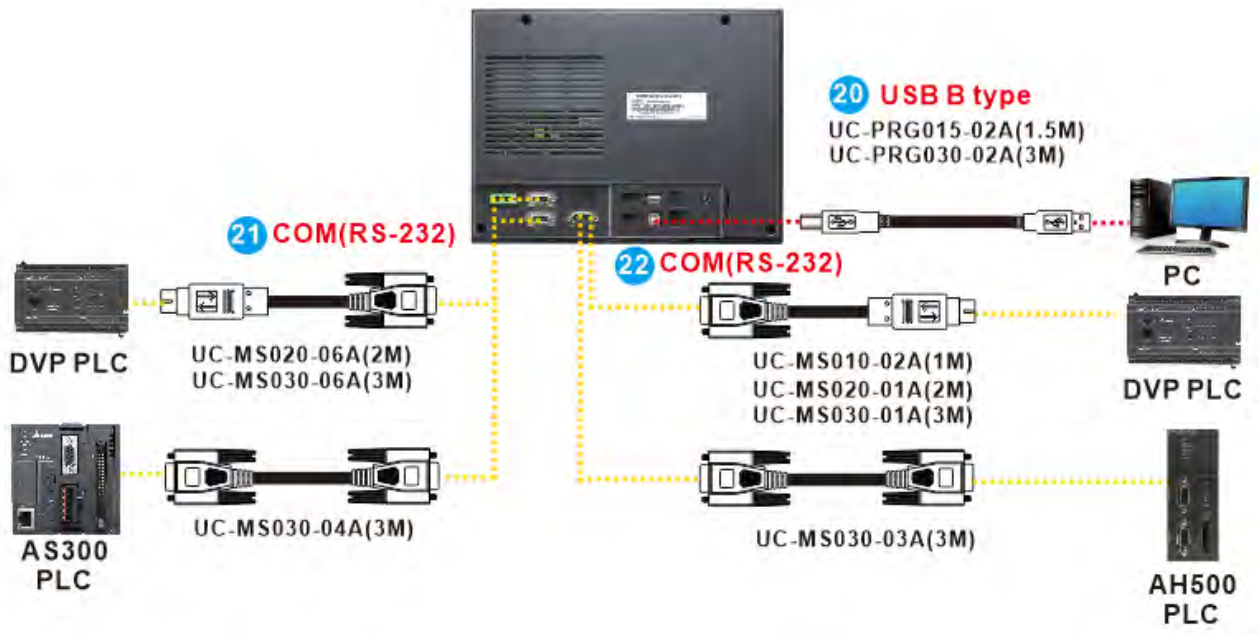
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B10E615)



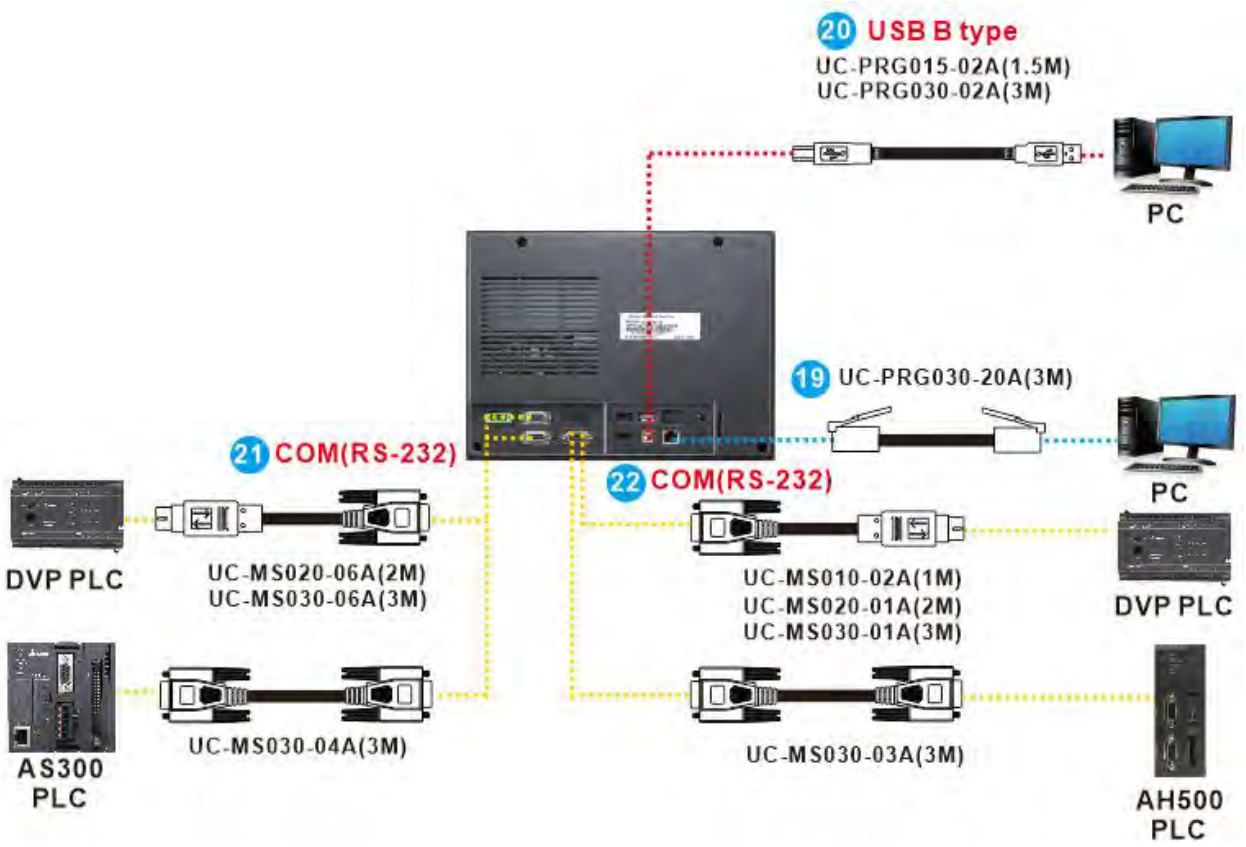
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-B series (DOP-B10S511, DOP-B10VS511)



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

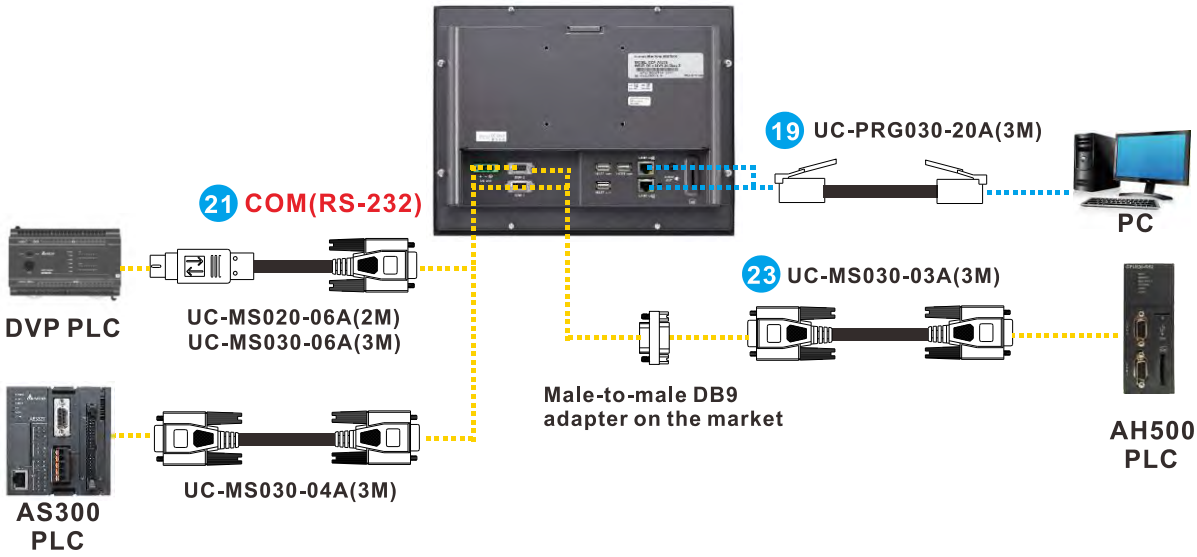
DOP-B series (DOP-B10E515)



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

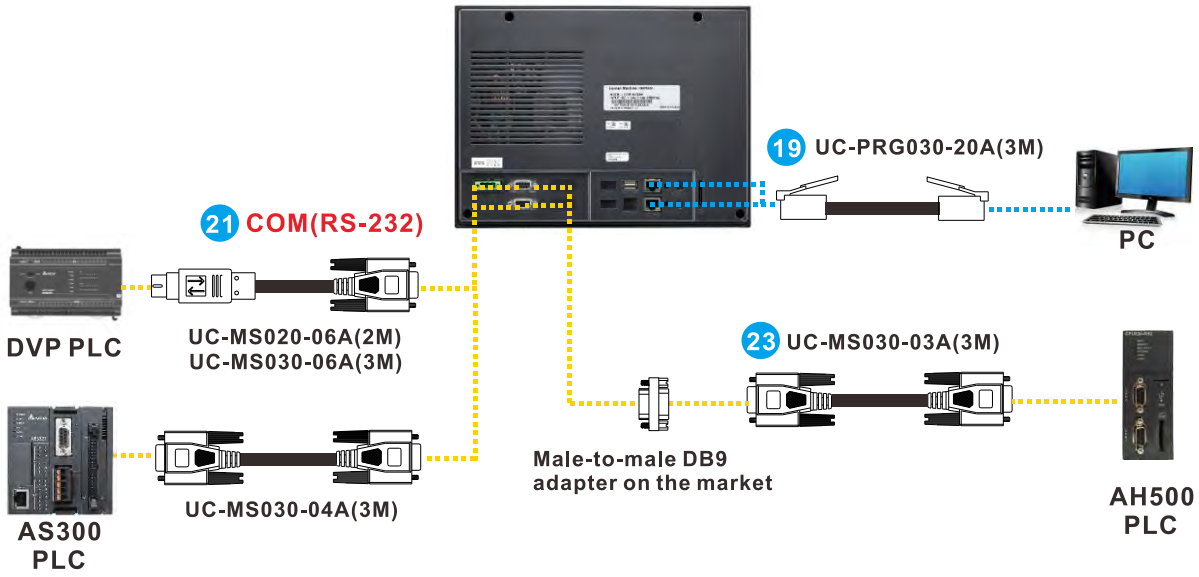
1.18 DOP-W Series

DOP-W series (DOP-W105B, DOP-W127B)



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

DOP-W series (DOP-W157B)



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.19 DOP Series HMIs and the Delta Machine Vision System (RS-232)

Applicable DOP series:

- **DOP-B series** (DOP-B03E211, DOP-B03S210, DOP-B03S211, DOP-B05S111, DOP-B07E415, DOP-B07E515, DOP-B07PS415, DOP-B07PS515, DOP-B07S401K, DOP-B07S410, DOP-B07S411, DOP-B07S411K, DOP-B07S415, DOP-B07S515, DOP-B08E515, DOP-B08S515, DOP-B10E515, DOP-B10E615, DOP-B10S411, DOP-B10S511, DOP-B10S615, DOP-B10VS511)
- **DOP-W series** (DOP-W105B, DOP-W127B, DOP-W157B)



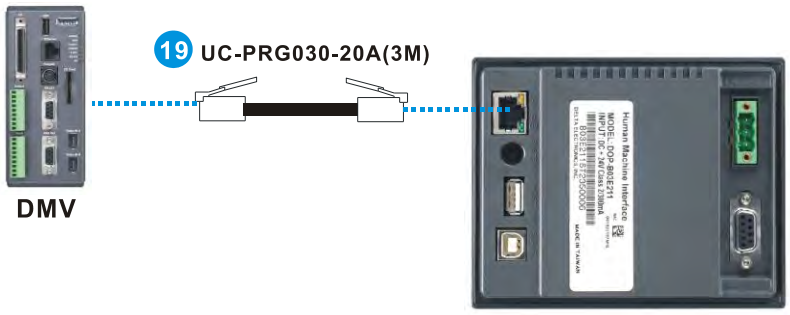
Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1

1.20 DOP Series HMIs and the Delta Machine Vision System (Ethernet)

Applicable DOP series:

- **DOP-B series** (DOP-B03E211, DOP-B07E415, DOP-B07E515, DOP-B08E515, DOP-B10E515, DOP-B10E615)
- **DOP-W series**(DOP-W105B, DOP-W127B, DOP-W157B)



Note: Please refer to section 1.21 for more information about 1, 2, 3, etc.

1.21 Cable Models

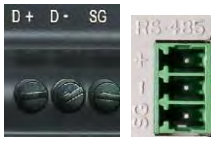
1 COM1 (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	--	8-pin male min-DIN connector ↔ Female DB9 connector	PC/HMI/TP
			UC-MS010-02A (1 m) (Figure 1)	
			UC-MS020-01A (2 m) (Figure 2)	
			UC-MS030-01A (3 m) (Figure 2)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	--	8-pin male mini-DIN connector ↔ USB connector	PC
			UC-PRG020-12A (2M) (Figure 3A)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	--	8-pin male mini-DIN connector ↔ Male DB9 connector	HMI
			UC-MS020-06A (2 m) (Figure 4)	
			UC-MS030-06A (3 m) (Figure 4)	

2 COM2 (RS-485)

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	--	RS-485 ↔ USB	PC
			IFD6500 (Figure 5)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	--	RS-485 ↔ RS-232	PC
			IFD8500 (Figure 6)	

3 COM3 (RS-485)

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	--	RS-485 ↔ USB	PC
			IFD6500 (Figure 5)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	--	RS-485 ↔ RS-232	PC
 			IFD8500 (Figure 6)	

4 Mini USB

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	--	Mini USB ↔ USB	PC
			UC-PRG015-01A (1.5 m) (Figure 10)	
			UC-PRG030-01A (3 m) (Figure 10)	

5 COM1/COM2 (RS-485)

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVPSCM12-SL (Figure 9) DVPSCM52-SL (Figure 9)	RS-485 ↔ USB	PC
			IFD6500 (Figure 5)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	--	RS-485 ↔ RS-232	PC
			IFD8500 (Figure 6)	

6 RS-232

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVPEN01-SL (Figure 8)	8-pin male mini-DIN connector ↔ Female DB9 connector	PC/HMI/TP
			UC-MS010-02A (1 m) (Figure 1)	
			UC-MS020-01A (2 m) (Figure 2)	
			UC-MS030-01A (3 m) (Figure 2)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVPEN01-SL (Figure 8)	8-pin male mini-DIN connector ↔ Male DB9 connector	HMI
			UC-MS020-06A (2 m) (Figure 4)	
			UC-MS030-06A (3 m) (Figure 4)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVPEN01-SL (Figure 8)	8-pin male mini-DIN connector ↔ USB connector	PC
			UC-PRG020-12A (2M) (Figure 3A)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVPEN01-SL (Figure 8)	RJ45 ↔ RJ45	PC/HMI
			UC-PRG030-20A (3M) (Figure 7)	

7 Ethernet

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	--	RJ45 ↔ RJ45	PC/HMI
			UC-PRG030-20A (3M) (Figure 7)	

8 COM3 (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVP-FEN01 (Figure 14)	8-pin male mini-DIN connector ↔ Female DB9 connector	PC/HMI/TP
			UC-MS010-02A (1 m) (Figure 1)	
			UC-MS020-01A (2 m) (Figure 2)	
			UC-MS030-01A (3 m) (Figure 2)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVP-FEN01 (Figure 14)	8-pin male mini-DIN connector ↔ Male DB9 connector	HMI
			UC-MS020-06A (2 m) (Figure 4)	
			UC-MS030-06A (3 m) (Figure 4)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVP-FEN01 (Figure 14)	8-pin male mini-DIN connector ↔ USB connector	PC
			UC-PRG020-12A (2M) (Figure 3A)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVP-FEN01 (Figure 14)	RJ45 ↔ RJ45	PC/HMI
			UC-PRG030-20A (3M) (Figure 7)	

9 COM3 (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVP-F232 (Figure 15)	Female DB9 connector ↔ USB connector	PC
			UC-PRG020-12A (2M) (Figure 3B)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVP-F232 (Figure 15)	Female DB9 connector ↔ Female DB9 connector	PC
			UC-PRG030-10A (3M) (Figure 12)	

10 COM3 (RS-485)

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVP-F485 (Figure 16)	RS-485 ↔ USB	PC
			IFD6500 (Figure 5)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	DVP-F485 (Figure 16)	RS-485 ↔ RS-232	PC
			IFD8500 (Figure 6)	

11 COM3 (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	Male-to-male null modem adapter	F232S (Figure 11)	Female DB9 connector ↔ USB connector	PC
			UC-PRG020-12A (2M) (Figure 3B)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	Male-to-male null modem adapter	F232S (Figure 11)	Female DB9 connector ↔ Female DB9 connector	PC
			UC-PRG030-10A (3M) (Figure 12)	

12 COM3 (RS-485)

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	F485S (Figure 13)	RS-485 ↔ USB	PC
			IFD6500 (Figure 5)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	F485S (Figure 13)	RS-485 ↔ RS-232	PC
			IFD8500 (Figure 6)	

13 COM1 (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
TP	--	--	Female DB9 connector ↔ USB connector	PC
			UC-PRG020-12A (2M) (Figure 3B)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
TP	--	--	Female DB9 connector ↔ Female DB9 connector	PC
			UC-PRG030-10A (3M) (Figure 12)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
TP	--	--	Female DB9 connector ↔ 8-pin male mini-DIN connector	DVP PLC
			UC-MS010-02A (1 m) (Figure 1)	
			UC-MS020-01A (2 m) (Figure 2)	
			UC-MS030-01A (3 m) (Figure 2)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
TP	--	--	Female DB9 connector ↔ Male DB9 connector	AH500
			UC-MS030-03A (3M) (Figure 18)	

14 USB Type-B

CPU	Adapter	Module/Interface card	Cable	Machine connected
TP	--	--	USB Type-B ↔ USB Type-A	PC
			UC-PRG015-02A (1.5 m) (Figure 19)	
			UC-PRG030-02A (3 m) (Figure 19)	

15 COM (RS-485)

CPU	Adapter	Module/Interface card	Cable	Machine connected
AH500	--	AH10SCM-5A (Figure 21)	RS-485 ↔ USB	PC
			IFD6500 (Figure 5)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
AH500	--	AH10SCM-5A (Figure 21)	RS-485 ↔ RS-232	PC
			IFD8500 (Figure 6)	

16 COM (RS-485)

CPU	Adapter	Module/Interface card	Cable	Machine connected
AH500	--	AH10EN-5A (Figure 20)	RJ45 ↔ RJ45	PC/HMI
			UC-PRG030-20A (3M) (Figure 7)	

17 COM (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
AH500	Male-to-male DB9 adapter (cable accessory)	--	Female DB9 connector ↔ USB connector	PC
			UC-PRG020-12A (2M) (Figure 3B)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
AH500	Male-to-male DB9 adapter	--	Female DB9 connector ↔ Female DB9 connector	PC
			UC-PRG030-10A (3M) (Figure 12)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
AH500	Male-to-male DB9 adapter	--	Female DB9 connector ↔ Male DB9 connector	PC/TP/HMI
			UC-MS030-03A (3M) (Figure 18)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
AH500	--	--	Male DB9 connector ↔ Male DB9 connector	DMV
			UC-MS030-04A (3M) (Figure 17)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
AS300	--	AS-F232 (Figure 22)	Male DB9 connector ↔ Female DB9 connector	PC/TP/HMI
			Standard cable on the marker	

CPU	Adapter	Module/Interface card	Cable	Machine connected
AS300	Male-to-male DB9 adapter	--	Female DB9 connector ↔ Male DB9 connector	DMV
			UC-MS030-03A (3M) (Figure 18)	

18 COM (RS-485)

CPU	Adapter	Module/Interface card	Cable	Machine connected
AH500	--	--	RS-485 ↔ USB	PC
			IFD6500 (Figure 5)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
AH500	--	--	RS-485 ↔ RS-232	PC
			IFD8500 (Figure 6)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
AS300	--	AS-F485 (Figure 22)	RS-485 ↔ USB	PC
			IFD6500 (Figure 5)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
AS300	--	AS-F485 (Figure 23)	RS-485 ↔ RS-232	PC
			IFD8500 (Figure 6)	

19 Ethernet

CPU	Adapter	Module/Interface card	Cable	Machine connected
DOP	--	--	RJ45 ↔ RJ45	PC
			UC-PRG030-20A (3M) (Figure 7)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
DOP	--	--	RJ45 ↔ RJ45	DMV
			UC-PRG030-20A (3M) (Figure 7)	

20 USB Type-B

CPU	Adapter	Module/Interface card	Cable	Machine connected
DOP	--	--	USB Type-B ↔ USB Type-A	PC
			UC-PRG015-02A (1.5 m) (Figure 19)	
			UC-PRG030-02A (3 m) (Figure 19)	

21 COM (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
DOP	--	--	Male DB9 connector ↔ 8-pin male mini-DIN connector	PLC
			UC-MS020-06A (2 m) (Figure 4)	
			UC-MS030-06A (3 m) (Figure 4)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
DOP	--	--	Male DB9 connector ↔ Male DB9 connector	AS300
			UC-MS030-04A (3M) (Figure 17)	

22 COM (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
DOP	--	--	Female DB9 connector ↔ 8-pin male mini-DIN connector	PLC
			UC-MS010-02A (1 m) (Figure 1)	
			UC-MS020-01A (2 m) (Figure 2)	
			UC-MS030-01A (3 m) (Figure 2)	

CPU	Adapter	Module/Interface card	Cable	Machine connected
DOP	--	--	Female DB9 connector ↔ Male DB9 connector	AH500
			UC-MS030-03A (3 m) (Figure 18)	

23 COM (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
DOP	Male-to-male DB9 adapter	--	Female DB9 connector ↔ Male DB9 connector	AH500
			UC-MS030-03A (3 m) (Figure 18)	

24 COM (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
PLC	--	--	8-pin male mini-DIN connector ↔ Male DB9 connector	DMV
			UC-MS020-06A (2 m) (Figure 4)	
			UC-MS030-06A (3 m) (Figure 4)	

25 COM (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
DOP	--	--	Male DB9 connector ↔ Male DB9 connector	DMV
			UC-MS030-04A (3 m) (Figure 17)	

26 COM (RS-232)

CPU	Adapter	Module/Interface card	Cable	Machine connected
DOP	--	--	Male DB9 connector ↔ Male DB9 connector	AS300
			UC-MS030-04A (3 m) (Figure 17)	

1.22 Descriptions of Cable Models

Figure 1	UC-MS010-02A (1 m)	8-pin male mini-DIN connector (90 degrees) ↔ Female DB9 connector

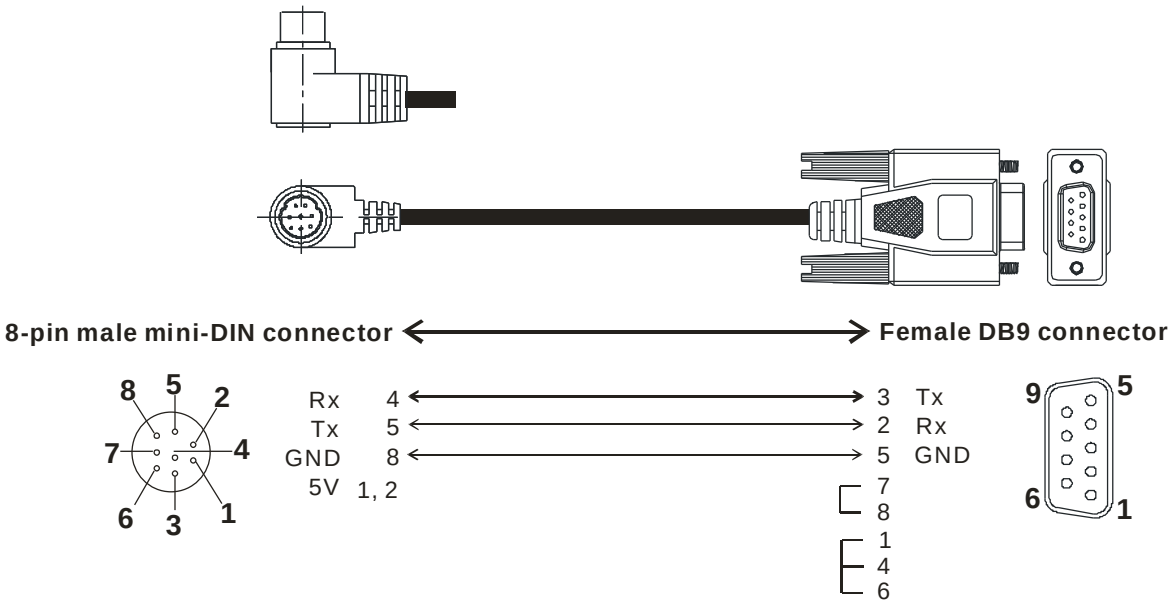


Figure 2	UC-MS020-01A (2 m) UC-MS030-01A (3 m)	8-pin male mini-DIN connector ↔ Female DB9 connector

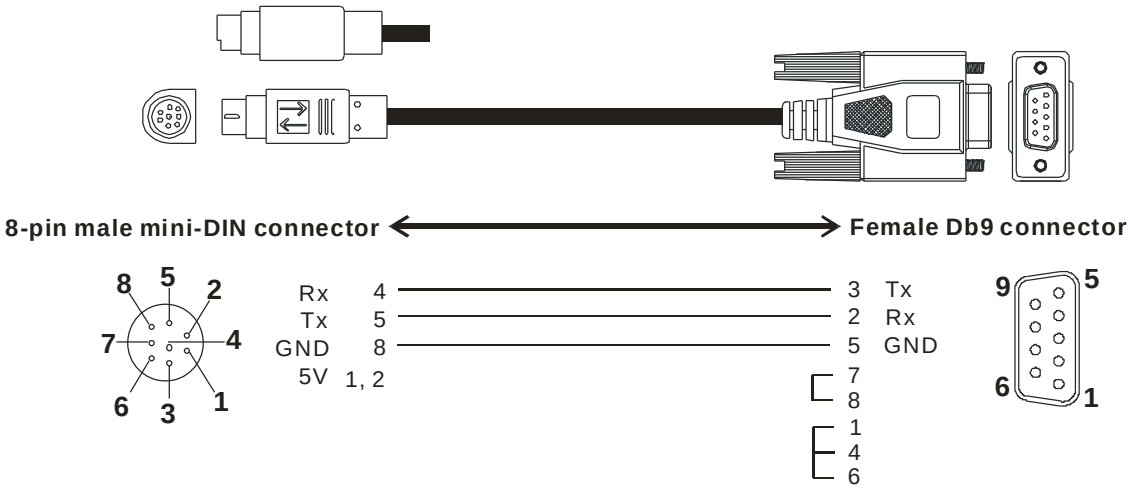
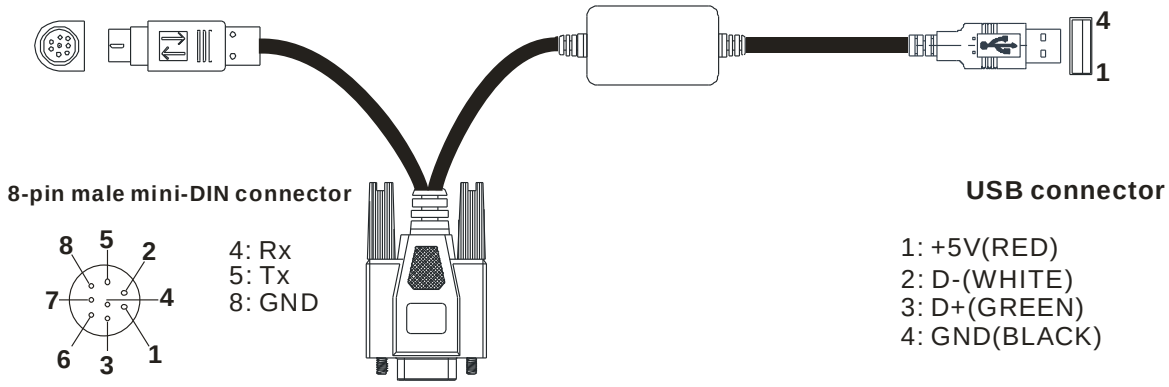
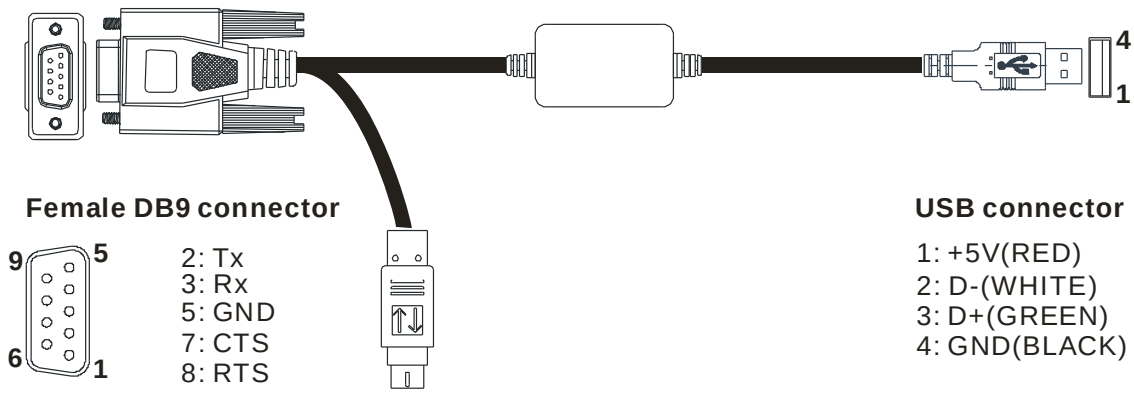


Figure 3A	UC-PRG020-12A (2 m)	8-pin male mini-DIN connector ↔ USB connector
	(Accessory: Male-to-male DB9 adapter)	



◆ **Note: Please refer to Appendix B for more information about installing a USB driver.**

Figure 3B	UC-PRG020-12A (2 m)	Female DB9 connector ↔ USB connector
	(Accessory: Male-to-male DB9 adapter)	



◆ **Note: Please refer to Appendix B for more information about installing a USB driver.**

Figure 4	UC-MS020-06A (2 m) UC-MS030-06A (3 m)	8-pin male mini-DIN connector ↔ Male DB9 connector

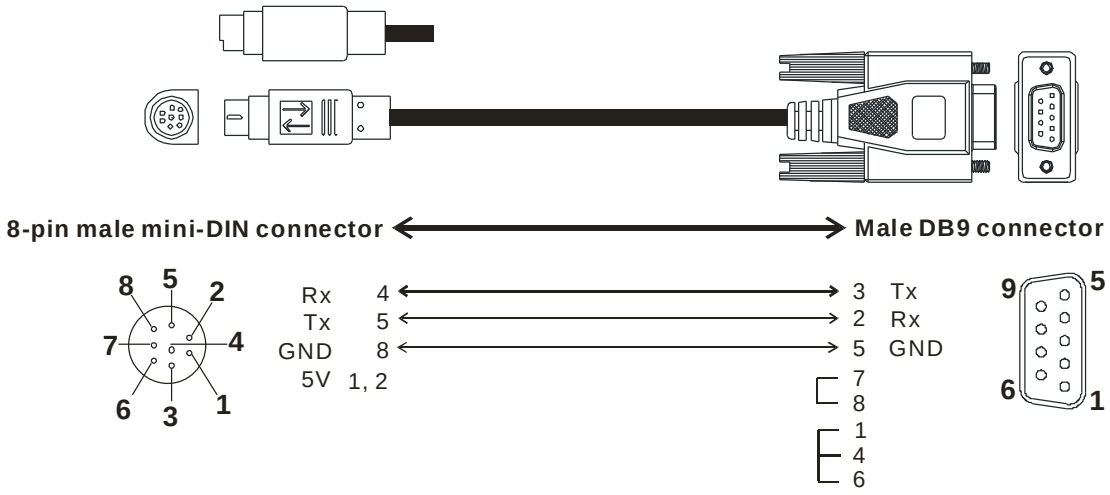
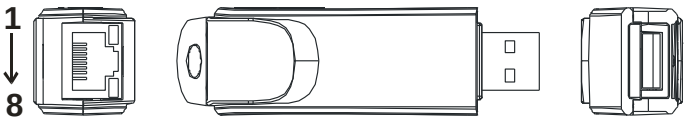


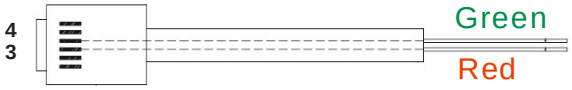
Figure 5	IFD6500	RS-485 ↔ USB



RS-485
4: SG-
5: SG+

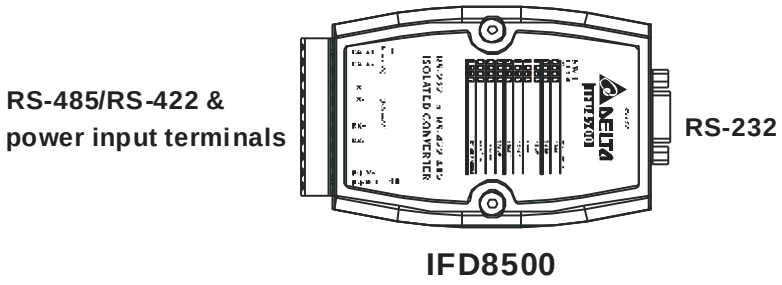
◆ **Note: Please refer to Appendix B for more information about installing a USB driver.**

Figure 5	IFD6500 accessory	RJ11 ↔ RS-485



RJ11
3: SG+ (Red)
4: SG- (Green)

Figure 6	IFD8500	RS-485 ↔ RS-232



RS-485/RS-422 & power input terminals		RS-232
1: RS-485 DATA+ 2: RS-485 DATA- 3: -- 4: RS-422 TX+ 5: RS-422 TX-	6: RS-422 RX+ 7: RS-422 RX- 8: -- 9: +Vs (positive power input) 10: GND (Negative power input)	2: Rx 3: Tx 5: GND

◆ **Note: If the RS-485 interface is connected to a PLC, the station address set in software needs to be the same as the station address of the PLC.**

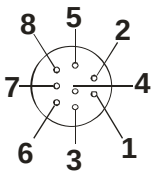
Figure 7	UC-PRG030-20A (3 m)	RJ45 ↔ RJ45



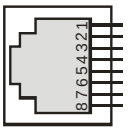
RJ45	RJ45
1: Tx+	1: Tx+
2: Tx-	2: Tx-
3: Rx+	3: Rx+
6: Rx-	6: Rx-

Figure 8	DVPEN01-SL



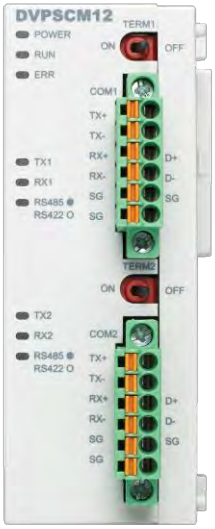


4: Rx
5: Tx
8: GND

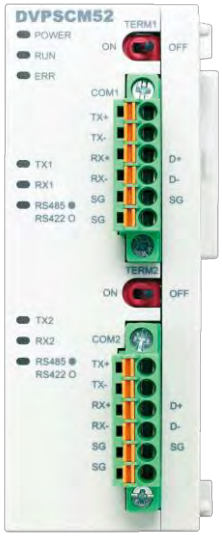


1: Tx+
2: Tx-
3: Rx+
6: Rx-

Figure 9	DVPSCM12-SL/DVPSCM52-SL



DVPSCM12-SL



DVPSCM52-SL

1	•
2	•
3	D+
4	D-
5	SG
6	SG

Figure 10	UC-PRG015-01A (1.5 m) UC-PRG030-01A (3 m)	Mini USB ↔ USB

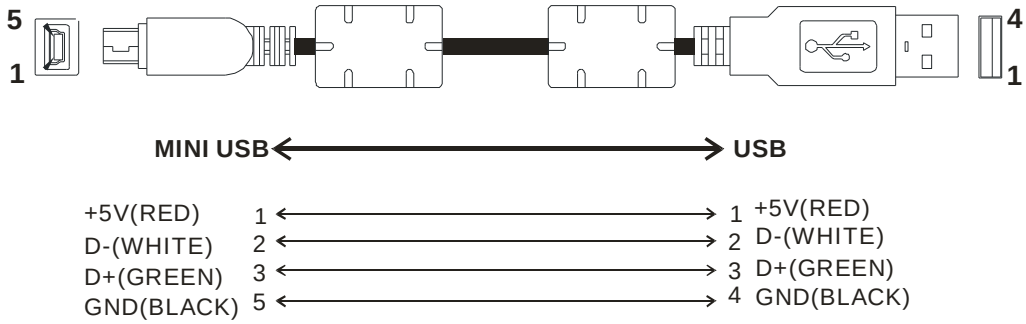


Figure 11	F232S



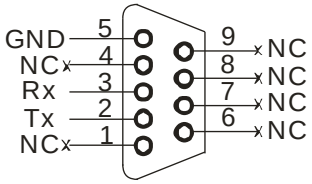


Figure 12	UC-PRG030-10A (3 m)	Female DB9 connector ↔ Female DB9 connector

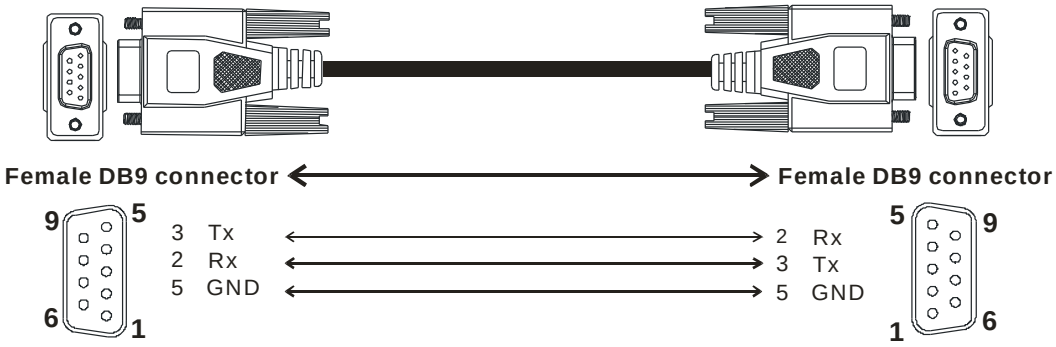


Figure 12	UC-PRG030-10A (3 m)	Female DB9 connector ↔ Female DB9 connector + Null modem adapter

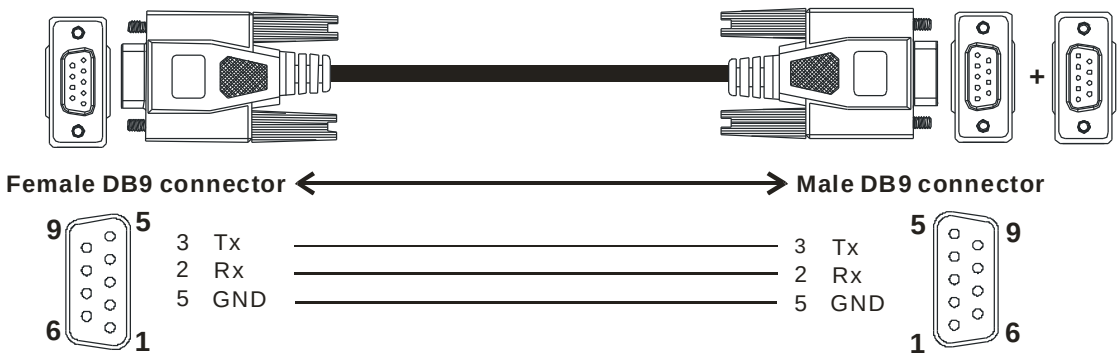
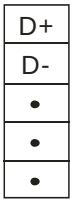


Figure 13	F485S





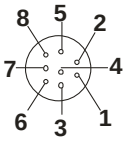
D+: Signal (+ pole)

D-: Signal (- pole)

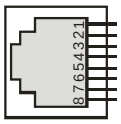
Figure 14	DVP-FEN01



8-pin male mini-DIN connector



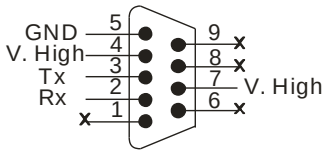
4: Rx
5: Tx
8: GND



1: Tx+
2: Tx-
3: Rx+
6: Rx-

Figure 15	F232

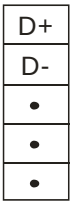




V. High: High electrical potential, i.e. logical value 1

Figure 16	F485





D+: Signal (+ pole)

D-: Signal (- pole)

Figure 17	UC-MS030-04A (3 m)	Male DB9 connector ↔ Male DB9 connector

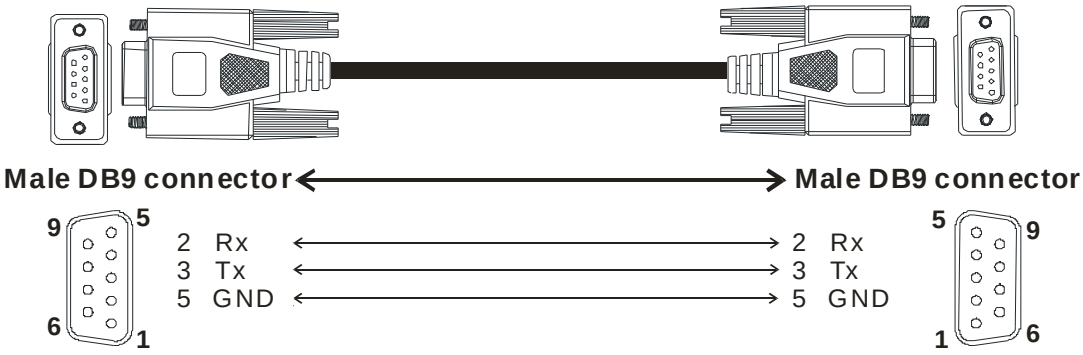


Figure 18	UC-MS030-03A (3 m)	Female DB9 connector ↔ Male DB9 connector

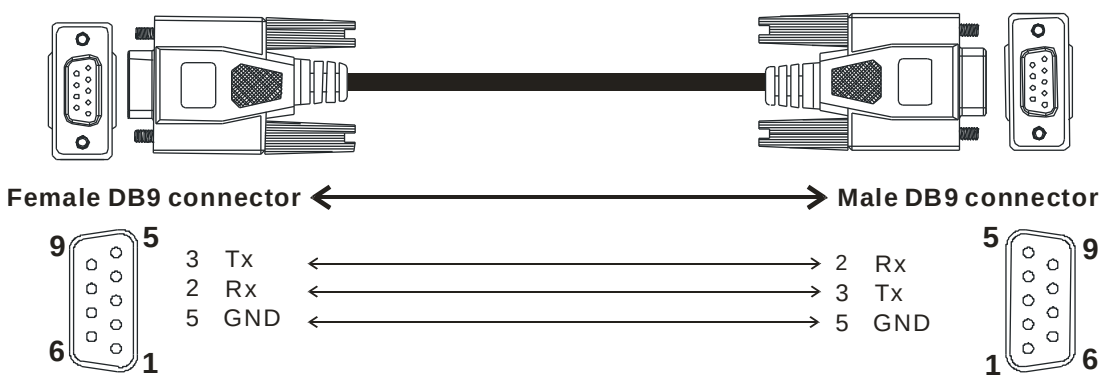


Figure 19	UC-PRG015-02A (1.5 m) UC-PRG030-02A (3 m)	USB Type-B ↔ USB Type-A

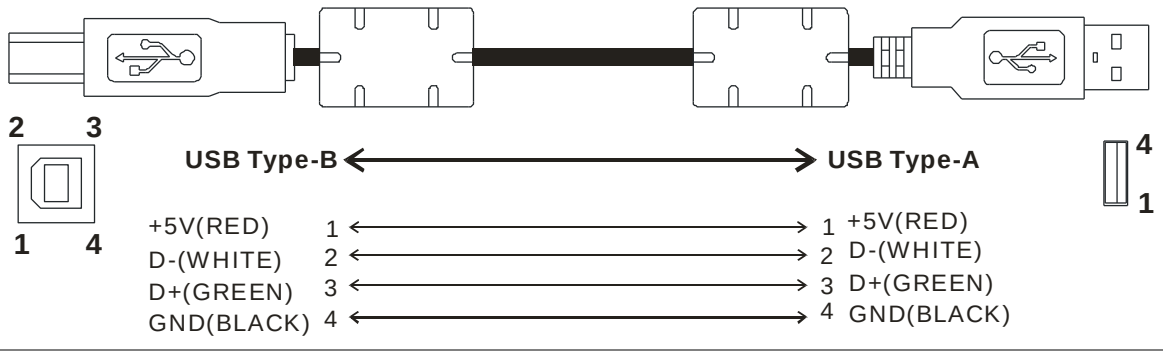


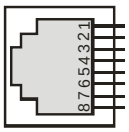
Figure 20	AH10EN-5A
	 1: Tx+ 2: Tx- 3: Rx+ 6: Rx-

Figure 21	AH10SCM-5A
	1 • 2 • 3 D+ 4 D- 5 GND 6 FG

Figure 22	AS-F232
	2: Rx 3: Tx 5: GND

Figure 23	AS-F485
	3: D+ 4: D- 5: SG

2

Chapter 2 Extension Cables for I/O Modules

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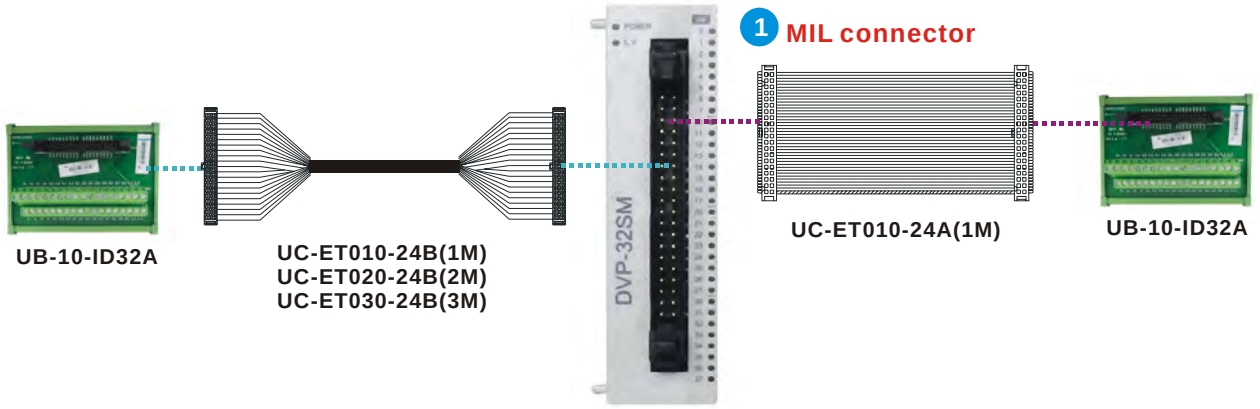
2.1 DVP Series Slim PLCs

2.1.1 DVP32SM11N

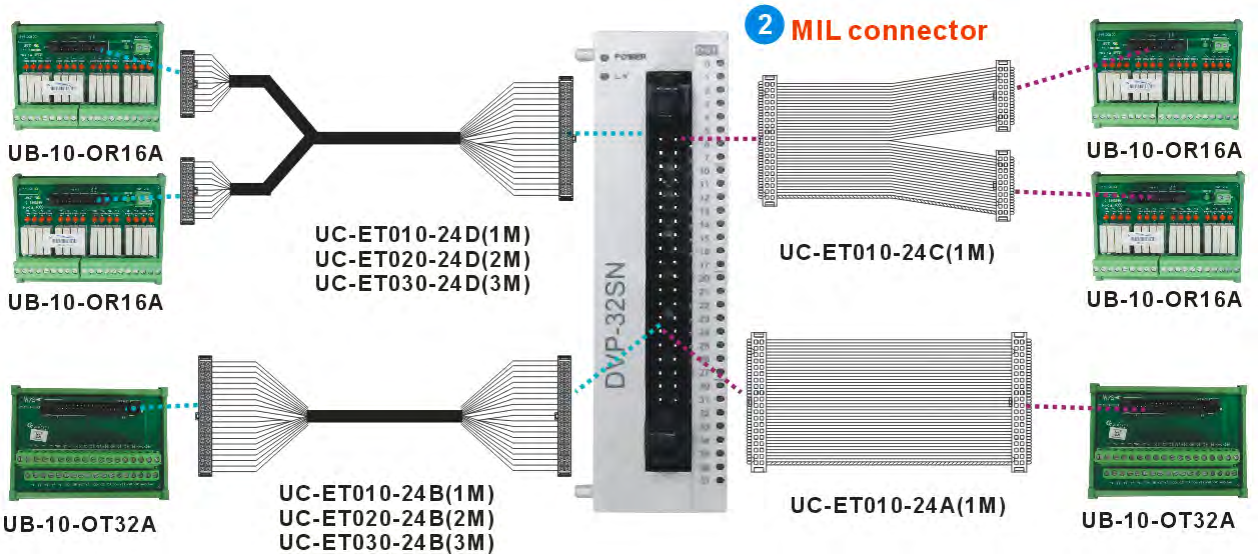
Input form	Direct current (sink or source)
Input current	24 V DC, 5 mA



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.1.2 DVP32SN11TN

Output point type	Transistor – T (sink)
Voltage specification	12~24 V DC, 0.1 A

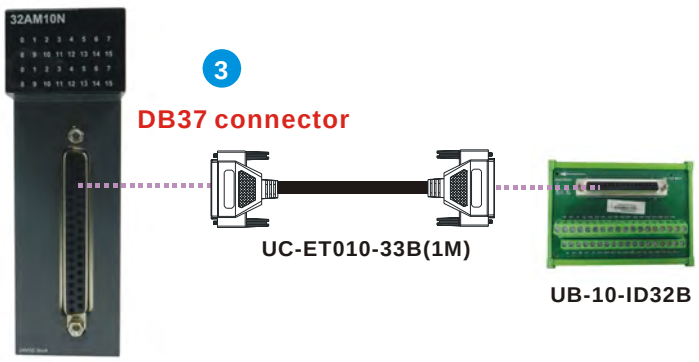


Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2 AH500 Series

2.2.1 AH32AM10N-5B

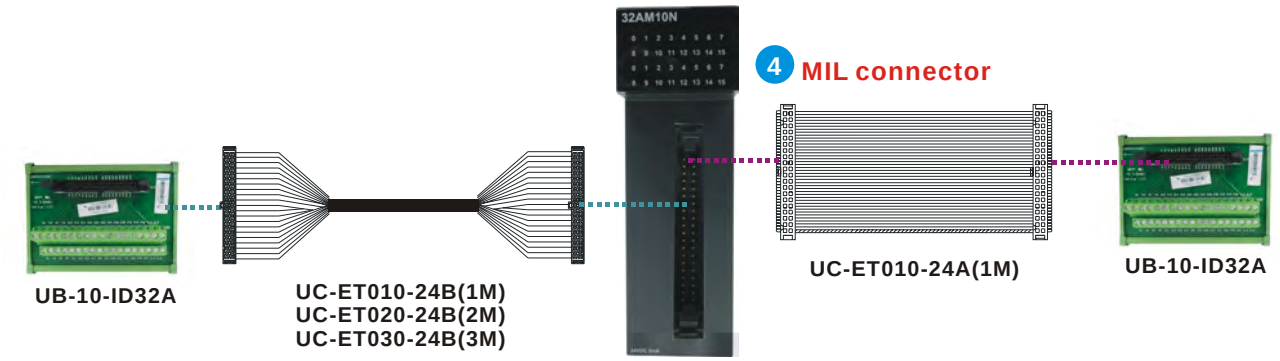
Input form	Direct current (sink or source)
Input current	24 V DC, 5 mA



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.2 AH32AM10N-5C

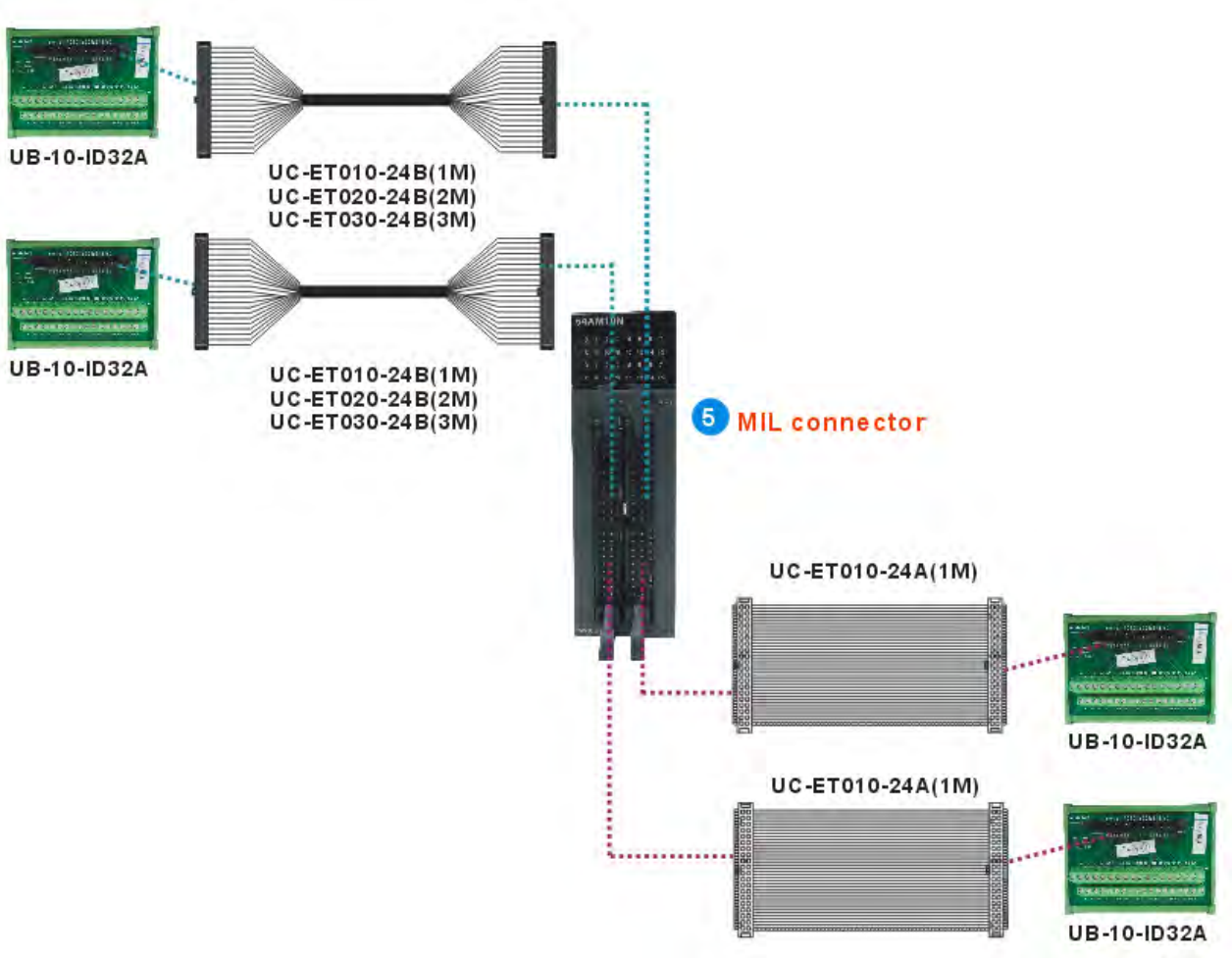
Input form	Direct current (sink or source)
Input current	24 V DC, 5 mA



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.3 AH64AM10N-5C

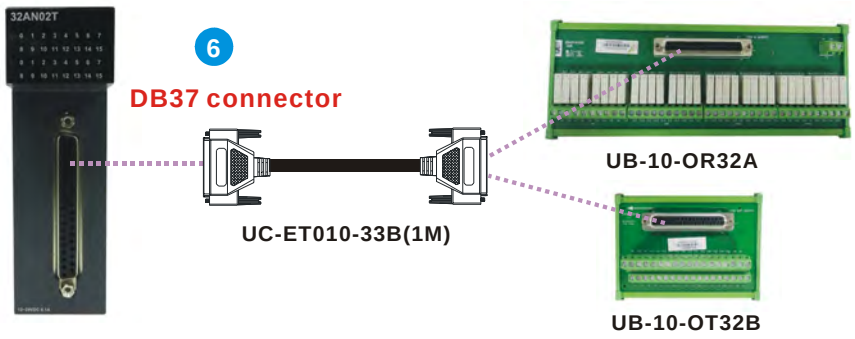
Input form	Direct current (sink or source)
Input current	24 V DC, 5 mA



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.4 AH32AN02T-5B

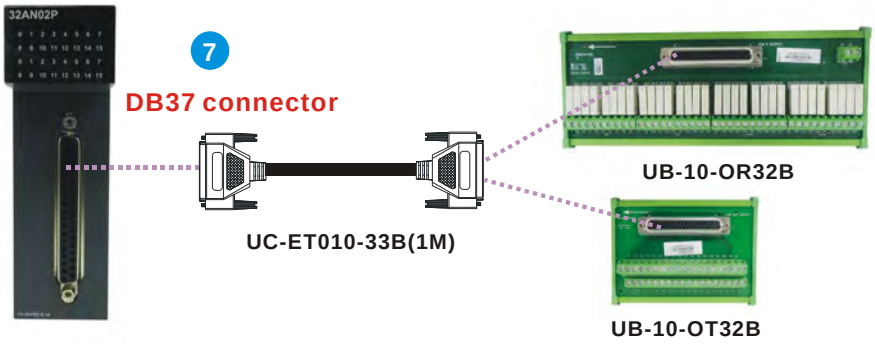
Output point type	Transistor – T (sink)
Voltage specification	12~24 V DC, 0.1 A



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.5 AH32AN02P-5B

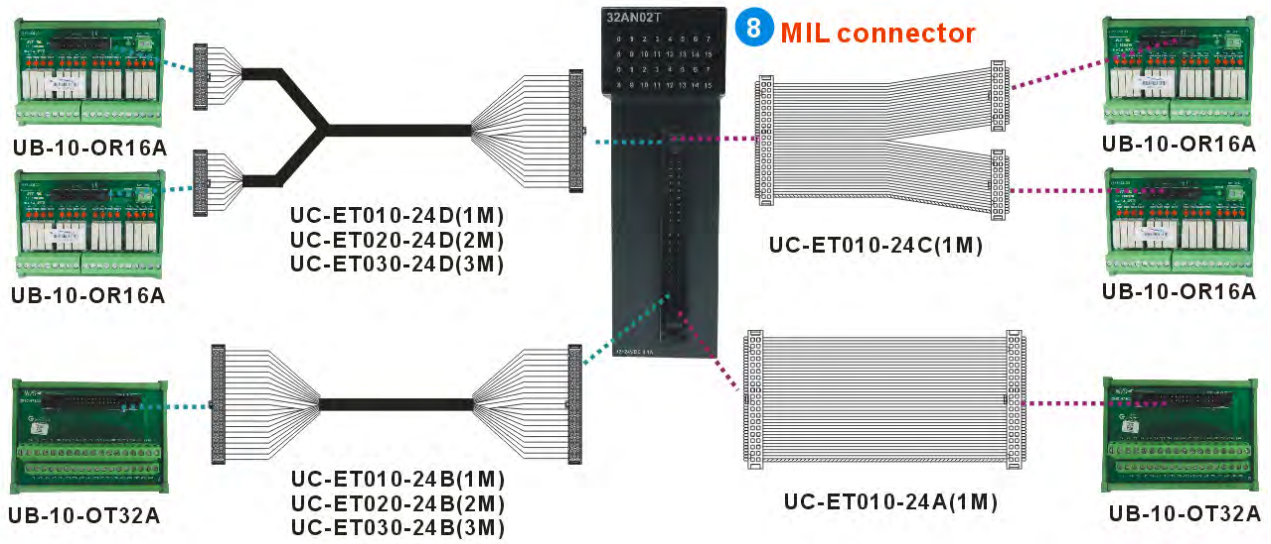
Output point type	Transistor – P (source)
Voltage specification	12~24 V DC, 0.1 A



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.6 AH32AN02T-5C

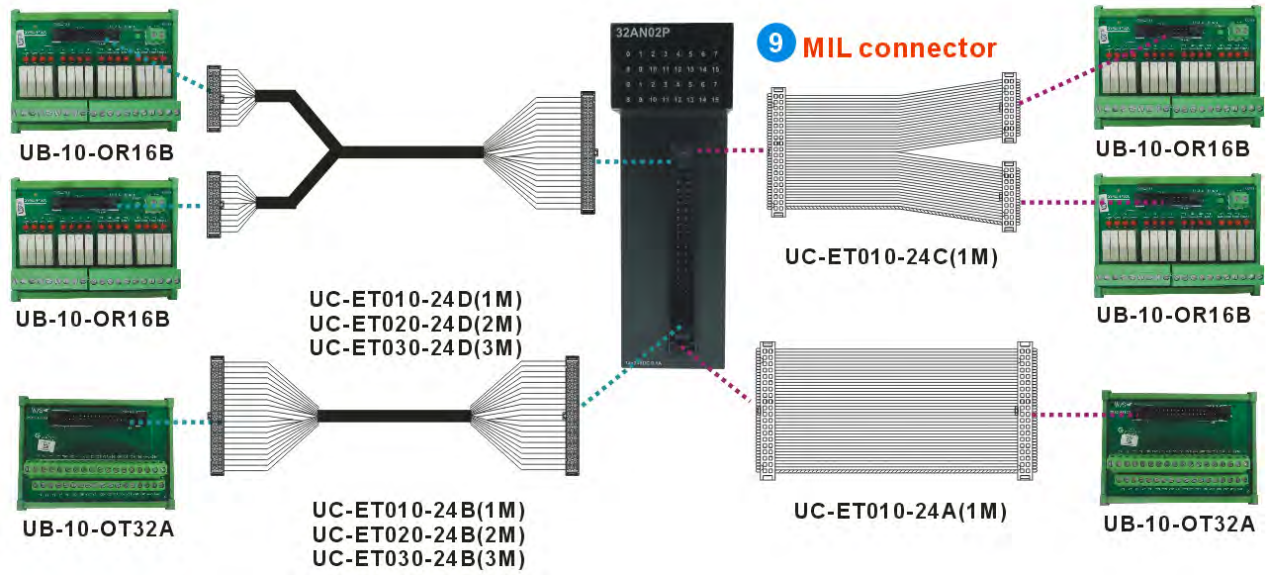
Output point type	Transistor – T (sink)
Voltage specification	12~24 V DC, 0.1 A



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.7 AH32AN02P-5C

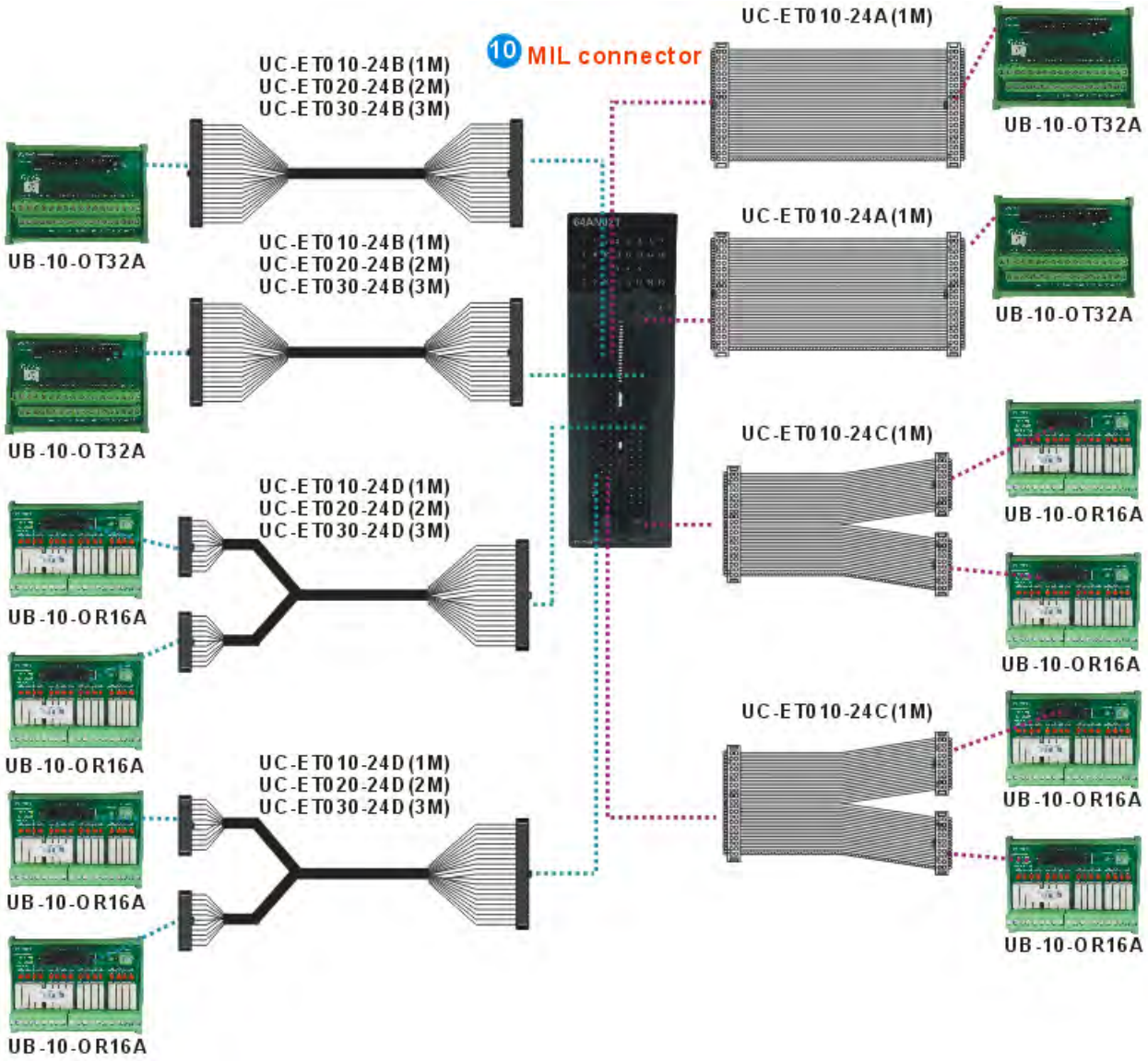
Output point type	Transistor – P (source)
Voltage specification	12~24 V DC, 0.1 A



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.8 AH64AN02T-5C

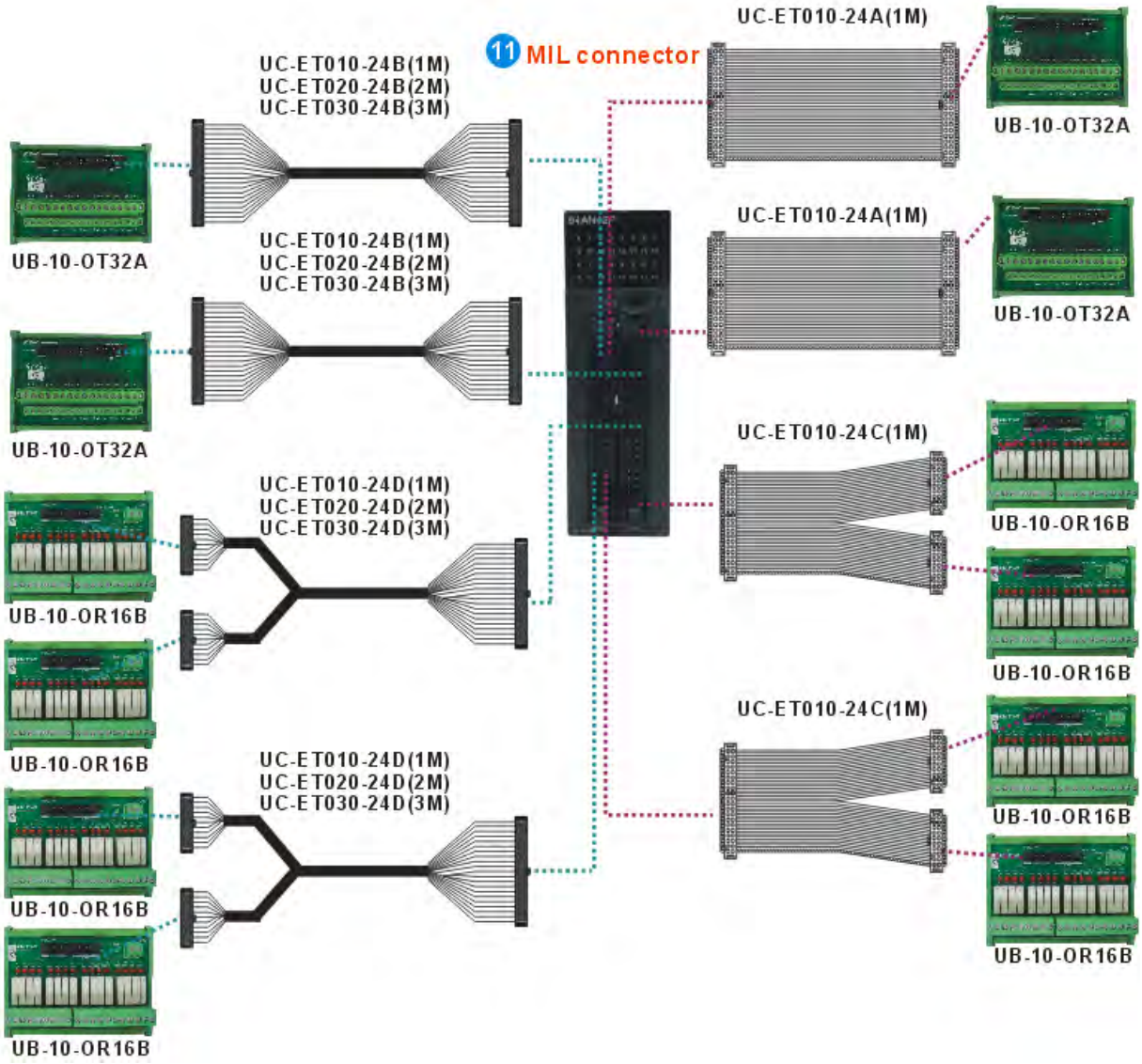
Output point type	Transistor – T (sink)
Voltage specification	12~24 V DC, 0.1 A



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.9 AH64AN02P-5C

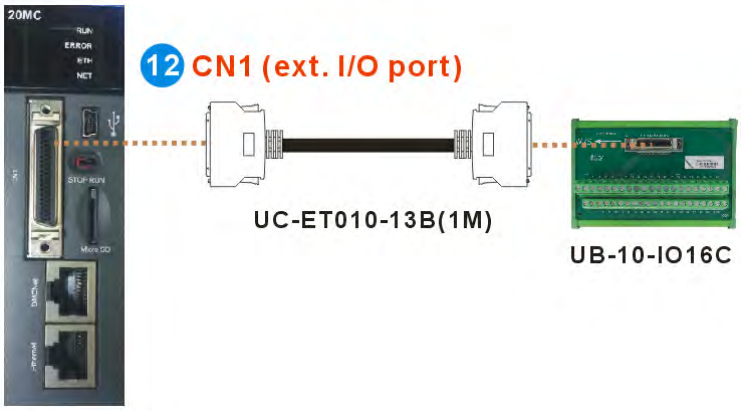
Output point type	Transistor – P (source)
Voltage specification	12~24 V DC, 0.1 A



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.10 AH20MC-5A

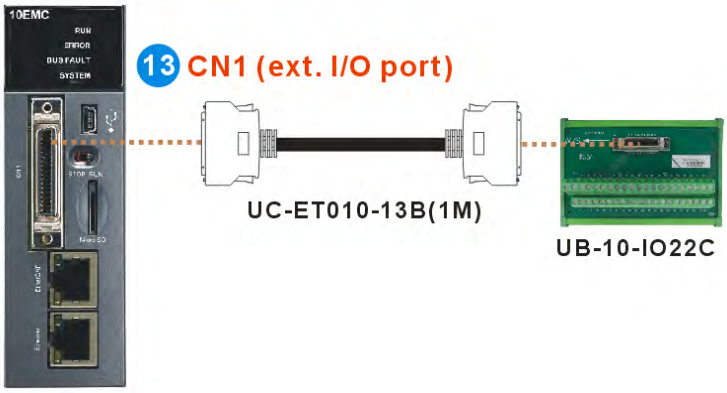
Input point type/Voltage specification/Frequency	Differential input/5~24 V DC, 15 mA/200 kHz
Output point type/Voltage specification/Frequency	Transistor output/5~30 V DC, 40 mA/200 kHz



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.11 AH10EMC-5A / AH10DMC-5A / AH10CMC-5A / AH10PMC-5A

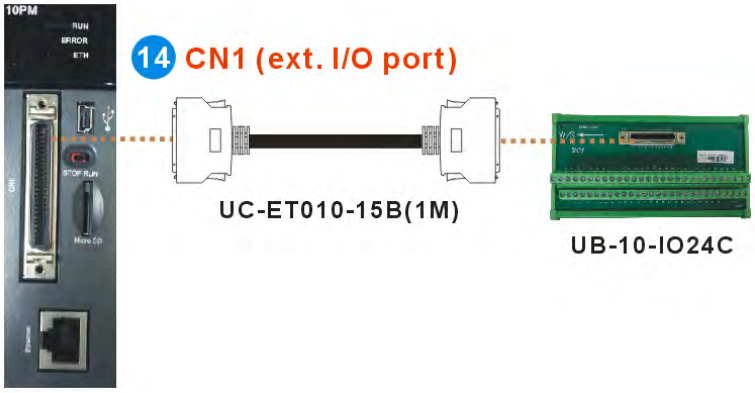
Input point type/Voltage specification/Frequency	Differential input/5 V DC, 1.5 mA/1 MHz Open collector/24 V DC, 15 mA/100 kHz
Output point type/Voltage specification/Frequency	Transistor output/5~30 V DC, 40 mA/200 kHz



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.12 AH10PM-5A

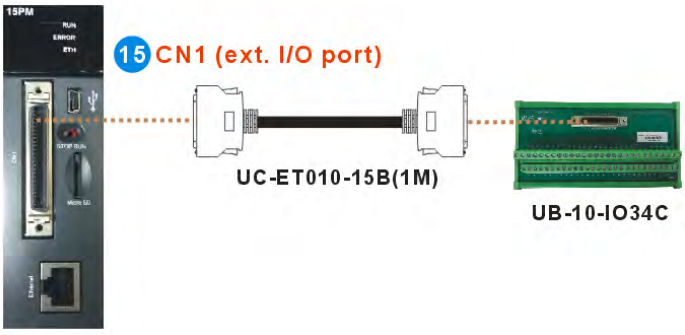
Input point type/Voltage specification/Frequency	Differential input/5~24 V DC, 15 mA/200 kHz Open collector/24 V DC, 15 mA/100 kHz
Output point type/Voltage specification/Frequency	Differential output/5 V DC, 40 mA/1 MHz Transistor output/5~30 V DC, 40 mA/200 kHz



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.13 AH15PM-5A

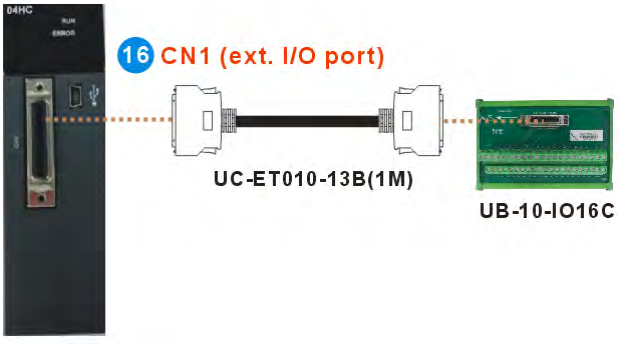
Input point type/Voltage specification/Frequency	Differential input/5~24 V DC, 15 mA/200 kHz Open collector/24 V DC, 15 mA/100 kHz
Output point type/Voltage specification/Frequency	Differential output/5 V DC, 40 mA/1 MHz Transistor output/5~30 V DC, 40 mA/200 kHz



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.14 AH04HC-5A

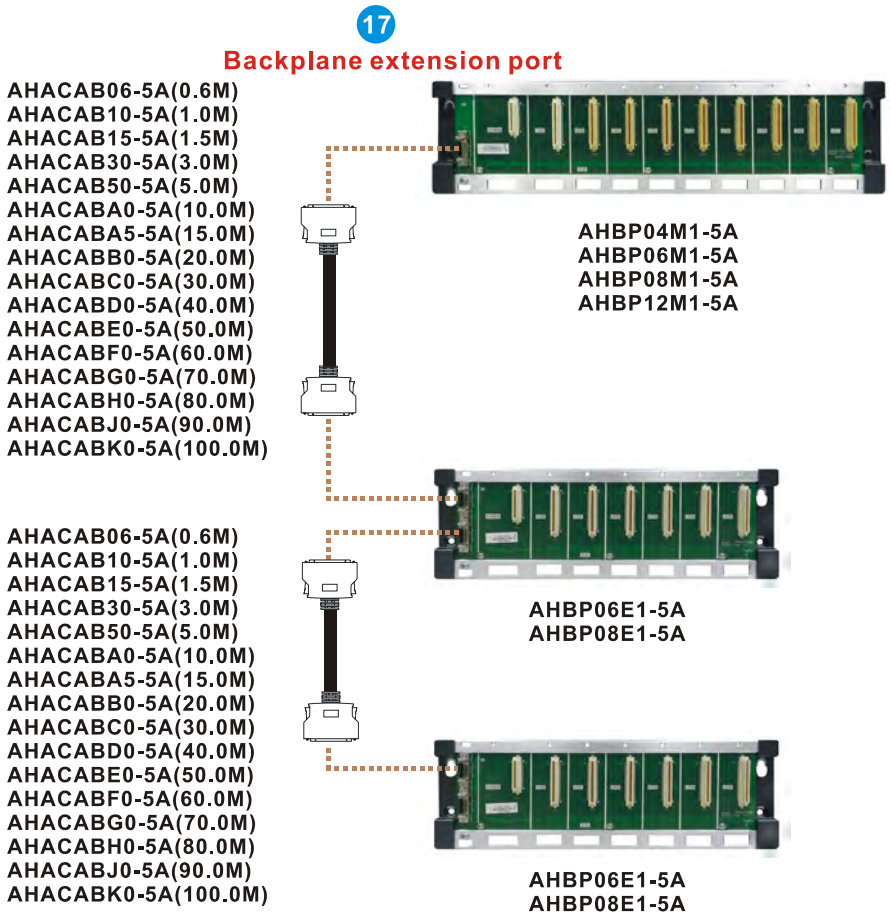
Input point type/Voltage specification/Frequency	Differential input/5~24 V DC, 15 mA/200 kHz
Output point type/Voltage specification/Frequency	Transistor output/5~30 V DC, 40 mA/200 kHz



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.2.15 AH500 Series Main Backplanes

AH500 series main backplanes (AHBP04M1-5A, AHBP08M1-5A, AHBP12M1-5A)

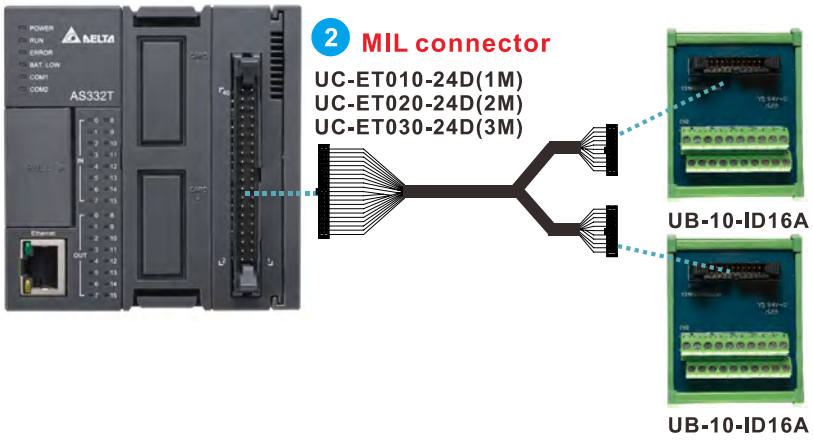


Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.3 AS300 Series

2.3.1 AS332T-A / AS332P-A / AS324MT-A

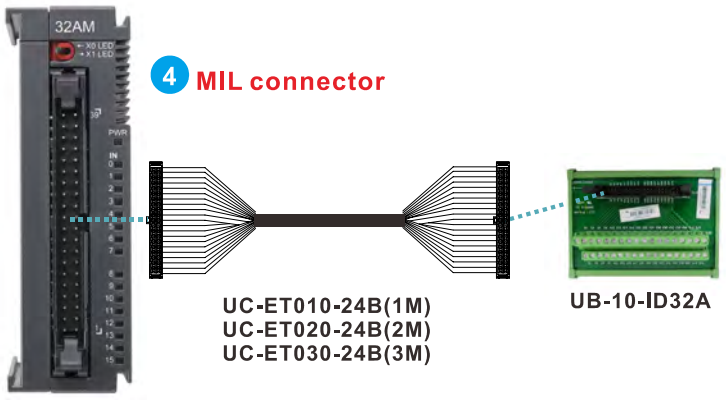
Input form	Direct current (sink or source)
Input current	24 V DC, 5 mA



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.3.2 AS32AM10N-A

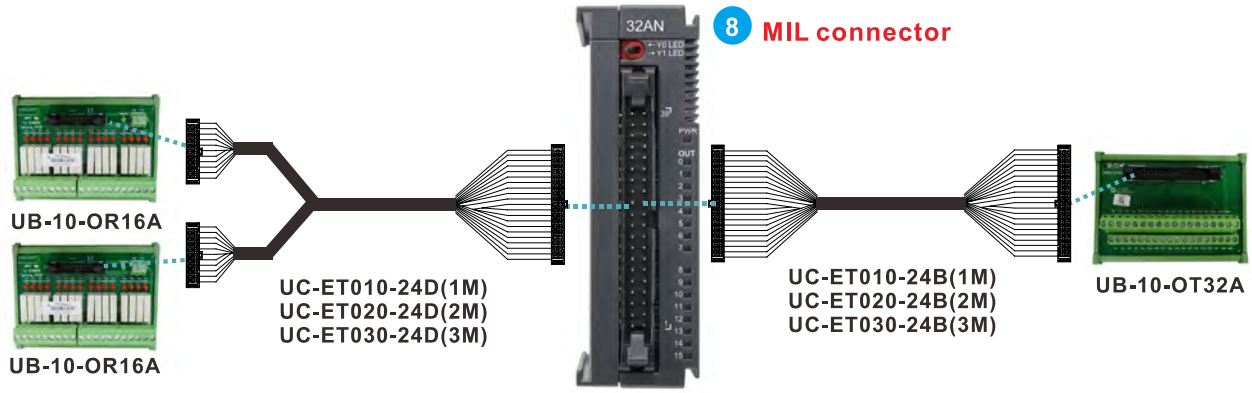
Input form	Direct current (sink or source)
Input current	24 V DC, 5 mA



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.3.3 AS32AN02T-A

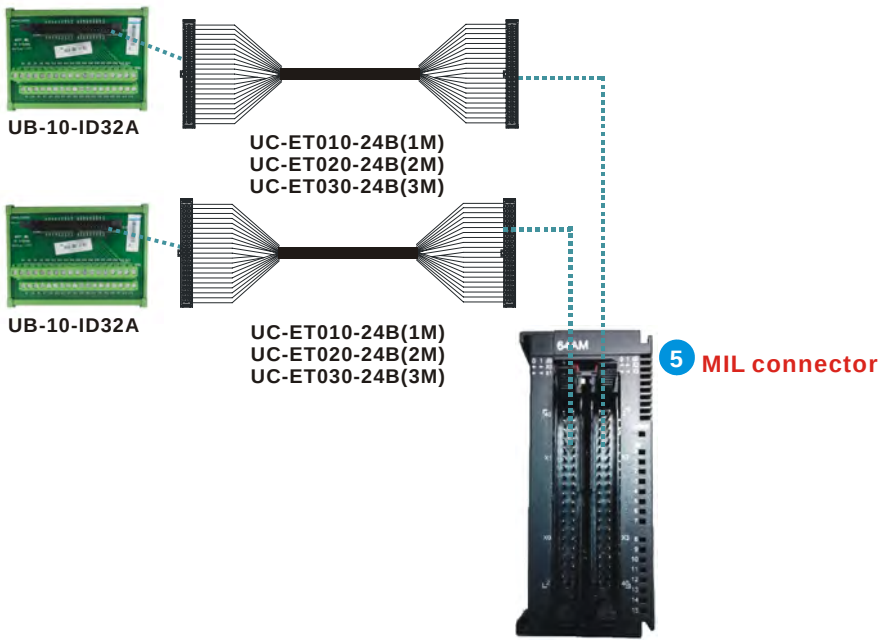
Output point type	Transistor – T (sink)
Voltage specification	12~24 V DC, 0.1 A



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.3.4 AS64AM10N-A

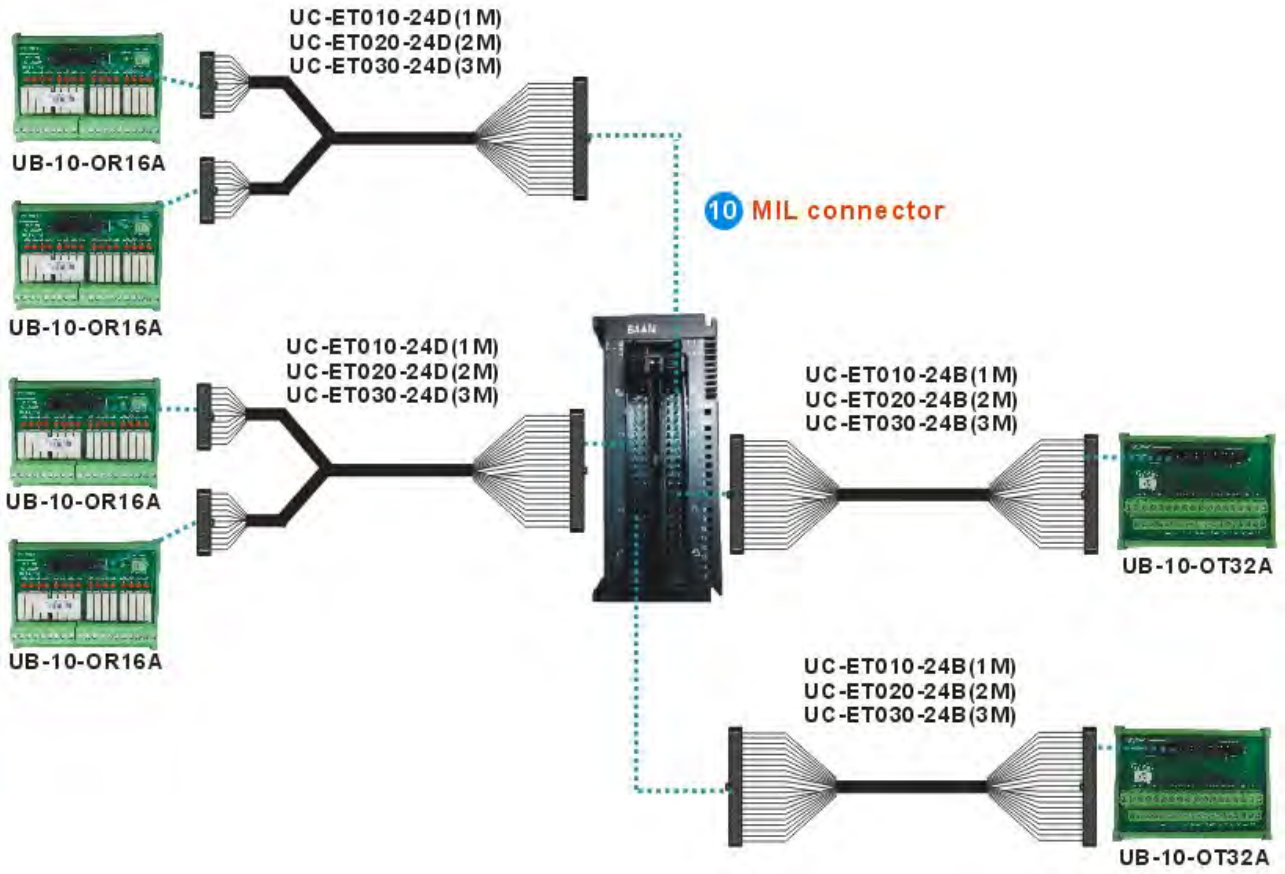
Input form	Direct current (sink or source)
Input current	24 V DC, 5 mA



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.3.5 AS64AN02T-A

Output point type	Transistor – T (sink)
Voltage specification	12~24 V DC, 0.1 A



Note: Please refer to section 2.4 for more information about 1, 2, 3, etc.

2.4 Cable Models

1 MIL connector

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	DVP32SM11N	IDC 40↔ IDC 40	UB-10-ID32A (Figure 2)
			UC-ET010-24A (1 m) (Figure 1A) UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

2 MIL connector

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	DVP32SN11TN	IDC 40↔ IDC 40	UB-10-OT32A (Figure 3)
			UC-ET010-24A (1 m) (Figure 1A) UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	DVP32SN11TN	IDC 40↔ IDC 20x2	UB-10-OR16A (Figure 5)
			UC-ET010-24C (1 m) (Figure 4A) UC-ET010-24D (1 m) (Figure 4B) UC-ET020-24D (2 m) (Figure 4B) UC-ET030-24D (3 m) (Figure 4B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
AS300	--	--	IDC 40↔ IDC 20x2	UB-10-ID16A (Figure 19)
			UC-ET010-24D (1 m) (Figure 4B) UC-ET020-24D (2 m) (Figure 4B) UC-ET030-24D (3 m) (Figure 4B)	

3 DB37 connector

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH32AM10N-5B	Male DB37 connector ↔ Male DB37 connector	UB-10-ID32B (Figure 7)
			UC-ET010-33B (1 m) (Figure 6)	

4 MIL connector

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH32AM10N-5C	IDC 40↔ IDC 40	UB-10-ID32A (Figure 2)
			UC-ET010-24A (1 m) (Figure 1A) UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AS32AM10N-A	IDC 40↔ IDC 40	UB-10-ID32A (Figure 2)
			UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

5 MIL connector

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH64AM10N-5C	IDC 40↔ IDC 40	UB-10-ID32A (Figure 2)
			UC-ET010-24A (1 m) (Figure 1A) UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AS64AM10N-A	IDC 40↔ IDC 40	UB-10-ID32A (Figure 2)
			UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

6 DB37 connector

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH32AN02T-5B	Male DB37 connector ↔ Male DB37 connector	UB-10-OR32A (Figure 8) UB-10-OT32B (Figure 9)
			UC-ET010-33B (1 m) (Figure 6)	

7 DB37 connector

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH32AN02P-5B	Male DB37 connector ↔ Male DB37 connector	UB-10-OR32B (Figure 10) UB-10-OT32B (Figure 9)
			UC-ET010-33B (1 m) (Figure 6)	

8 MIL connector

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH32AN02T-5C	IDC 40 ↔ IDC 40	UB-10-OT32A (Figure 3)
			UC-ET010-24A (1 m) (Figure 1A) UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH32AN02T-5C	IDC 40 ↔ IDC 20x2	UB-10-OR16A (Figure 5)
			UC-ET010-24C (1 m) (Figure 4A) UC-ET010-24D (1 m) (Figure 4B) UC-ET020-24D (2 m) (Figure 4B) UC-ET030-24D (3 m) (Figure 4B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AS32AN02T-A	IDC 40 ↔ IDC 40	UB-10-OT32A (Figure 3)
			UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AS32AN02T-A	IDC 40 ↔ IDC 20x2	UB-10-OR16A (Figure 5)
			UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

9 MIL connector

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH32AN02P-5C	IDC 40 ↔ IDC 40	UB-10-OT32A (Figure 3)
			UC-ET010-24A (1 m) (Figure 1A) UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH32AN02P-5C	IDC 40 ↔ IDC 20x2	UB-10-OR16B (Figure 11)
			UC-ET010-24C (1 m) (Figure 4A) UC-ET010-24D (1 m) (Figure 4B) UC-ET020-24D (2 m) (Figure 4B) UC-ET030-24D (3 m) (Figure 4B)	

10 MIL connector

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH64AN02T-5C	IDC 40 ↔ IDC 40	UB-10-OT32A (Figure 3)
			UC-ET010-24A (1 m) (Figure 1A) UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH64AN02T-5C	IDC 40 ↔ IDC 20x2	UB-10-OR16A (Figure 5)
			UC-ET010-24C (1 m) (Figure 4A) UC-ET010-24D (1 m) (Figure 4B) UC-ET020-24D (2 m) (Figure 4B) UC-ET030-24D (3 m) (Figure 4B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AS64AN02T-A	IDC 40 ↔ IDC 40	UB-10-OT32A (Figure 3)
			UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AS64AN02T-A	IDC 40 ↔ IDC 20x2	UB-10-OR16A (Figure 5)
			UC-ET010-24D (1 m) (Figure 4B) UC-ET020-24D (2 m) (Figure 4B) UC-ET030-24D (3 m) (Figure 4B)	

11 MIL connector

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH64AN02P-5C	IDC 40 ↔ IDC 40	UB-10-OT32A (Figure 3)
			UC-ET010-24A (1 m) (Figure 1A) UC-ET010-24B (1 m) (Figure 1B) UC-ET020-24B (2 m) (Figure 1B) UC-ET030-24B (3 m) (Figure 1B)	

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH64AN02P-5C	IDC 40 ↔ IDC 20x2	UB-10-OR16B (Figure 11)
			UC-ET010-24C (1 m) (Figure 4A) UC-ET010-24D (1 m) (Figure 4B) UC-ET020-24D (2 m) (Figure 4B) UC-ET030-24D (3 m) (Figure 4B)	

12 CN1 (ext. I/O port)

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH20MC-5A	Female MDR36 connector ↔ Female MDR36 connector	UB-10-IO16C (Figure 13)
			UC-ET010-13B (1 m) (Figure 12)	

13 CN1 (ext. I/O port)

CPU	Adapter	Module/Interface card	Cable	External terminal module
AH10EMC-5A	--	--	Female MDR36 connector ↔ Female MDR36 connector	UB-10-IO22C (Figure 14)
			UC-ET010-13B (1 m) (Figure 12)	

14 CN1 (ext. I/O port)

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH10PM-5A	Female MDR50 connector ↔ Female MDR50 connector	UB-10-IO24C (Figure 16)
			UC-ET010-15B (1 m) (Figure 15)	

15 CN1 (ext. I/O port)

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH15PM-5A	Female MDR50 connector ↔ Female MDR50 connector	UB-10-IO34C (Figure 17)
			UC-ET010-15B (1 m) (Figure 15)	

16 CN1 (ext. I/O port)

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AH04HC-5A	Female MDR36 connector ↔ Female MDR36 connector	UB-10-IO16C (Figure 13)
			UC-ET010-13B (1 m) (Figure 12)	

17 Backplane extension port

CPU	Adapter	Module/Interface card	Cable	External terminal module
--	--	AHBP04M1-5A AHBP06M1-5A AHBP08M1-5A AHBP12M1-5A	Male MDR20 connector ↔ Male MDR20 connector	AHBP06E1-5A AHBP08E1-5A
			AHACAB06-5A (0.6 m) (Figure 18) AHACAB10-5A (1 m) (Figure 18) AHACAB15-5A (1.5 m) (Figure 18) AHACAB30-5A (3 m) (Figure 18) AHACAB50-5A (5 m) (Figure 18) AHACABA0-5A (10 m) (Figure 18) AHACABA5-5A (15 m) (Figure 18) AHACABB0-5A (20 m) (Figure 18) AHACABC0-5A (30 m) (Figure 18) AHACABD0-5A (40 m) (Figure 18) AHACABE0-5A (50 m) (Figure 18) AHACABF0-5A (60 m) (Figure 18) AHACABG0-5A (70 m) (Figure 18) AHACABH0-5A (80 m) (Figure 18) AHACABJ0-5A (90 m) (Figure 18) AHACABK0-5A (100 m) (Figure 18)	

2.5 Descriptions of Cable Models

Figure 1A	UC-ET010-24A (1 m)	IDC 40 ↔ IDC 40



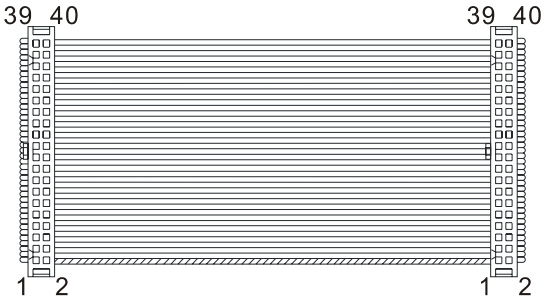
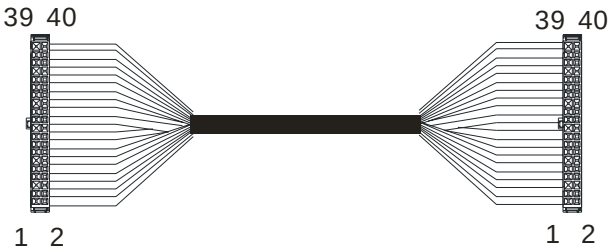


Figure 1B	UC-ET010-24B (1 m) UC-ET020-24B (2 m) UC-ET030-24B (3 m)	IDC 40 ↔ IDC 40 (shield)





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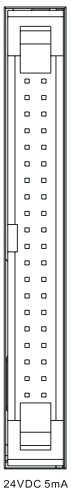
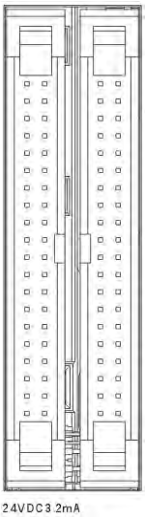


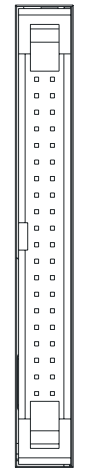
X0.0	X0.1
X0.2	X0.3
X0.4	X0.5
X0.6	X0.7
X0.8	X0.9
X0.10	X0.11
X0.12	X0.13
X0.14	X0.15
S/S	S/S
X1.0	X1.1
X1.2	X1.3
X1.4	X1.5
X1.6	X1.7
X1.8	X1.9
X1.10	X1.11
X1.12	X1.13
X1.14	X1.15
S/S	S/S

AH64AM10N-5C



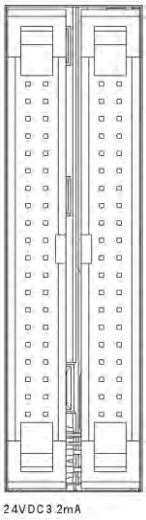
		X2.0	X2.1
S/S	S/S	X2.2	X2.3
X1.15	X1.14	X2.4	X2.5
X1.13	X1.12	X2.6	X2.7
X1.11	X1.10	X2.8	X2.9
X1.9	X1.8	X2.10	X2.11
X1.7	X1.6	X2.12	X2.13
X1.5	X1.4	X2.14	X2.15
X1.3	X1.2	S/S	S/S
X1.1	X1.0		
		X3.0	X3.1
S/S	S/S	X3.2	X3.3
X0.15	X0.14	X3.4	X3.5
X0.13	X0.12	X3.6	X3.7
X0.11	X0.10	X3.8	X3.9
X0.9	X0.8	X3.10	X3.11
X0.7	X0.6	X3.12	X3.13
X0.5	X0.4	X3.14	X3.15
X0.3	X0.2	S/S	S/S
X0.1	X0.0		

AH32AN02T-5C/AH32AN02P-5C



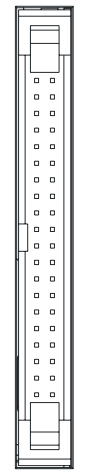
Y0.0	Y0.1
Y0.2	Y0.3
Y0.4	Y0.5
Y0.6	Y0.7
Y0.8	Y0.9
Y0.10	Y0.11
Y0.12	Y0.13
Y0.14	Y0.15
ZP	ZP
UP	UP
Y1.0	Y1.1
Y1.2	Y1.3
Y1.4	Y1.5
Y1.6	Y1.7
Y1.8	Y1.9
Y1.10	Y1.11
Y1.12	Y1.13
Y1.14	Y1.15
ZP	ZP
UP	UP

AH64AN02T-5C/AH64AN02P-5C



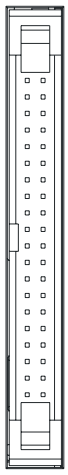
UP	UP	Y2.0	Y2.1
ZP	ZP	Y2.2	Y2.3
Y1.15	Y1.14	Y2.4	Y2.5
Y1.13	Y1.12	Y2.6	Y2.7
Y1.11	Y1.10	Y2.8	Y2.9
Y1.9	Y1.8	Y2.10	Y2.11
Y1.7	Y1.6	Y2.12	Y2.13
Y1.5	Y1.4	Y2.14	Y2.15
Y1.3	Y1.2	ZP	ZP
Y1.1	Y1.0	UP	UP
UP	UP	Y3.0	Y3.1
ZP	ZP	Y3.2	Y3.3
Y0.15	Y0.14	Y3.4	Y3.5
Y0.13	Y0.12	Y3.6	Y3.7
Y0.11	Y0.10	Y3.8	Y3.9
Y0.9	Y0.8	Y3.10	Y3.11
Y0.7	Y0.6	Y3.12	Y3.13
Y0.5	Y0.4	Y3.14	Y3.15
Y0.3	Y0.2	ZP	ZP
Y0.1	Y0.0	UP	UP

DVP32SM11N



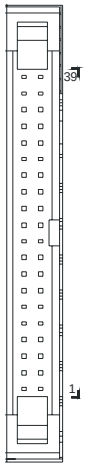
X0	X1
X2	X3
X4	X5
X6	X7
X10	X11
X12	X13
X14	X15
X16	X17
S/S	S/S
X20	X21
X22	X23
X24	X25
X26	X27
X30	X31
X32	X33
X34	X35
X36	X37
S/S	S/S

DVP32SN11TN



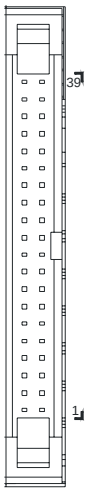
Y0	Y1
Y2	Y3
Y4	Y5
Y6	Y7
Y10	Y11
Y12	Y13
Y14	Y15
Y16	Y17
S/S	S/S
Y20	Y21
Y22	Y23
Y24	Y25
Y26	Y27
Y30	Y31
Y32	Y33
Y34	Y35
Y36	Y37
S/S	S/S

AS32AM10N-A



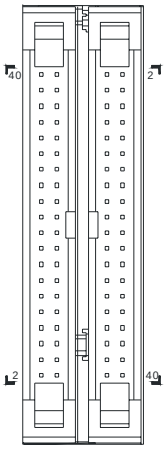
S/S	S/S
X1.15	X1.14
X1.13	X1.12
X1.11	X1.10
X1.9	X1.8
X1.7	X1.6
X1.5	X1.4
X1.3	X1.2
X1.1	X1.0
S/S	S/S
X0.15	X0.14
X0.13	X0.12
X0.11	X0.10
X0.9	X0.8
X0.7	X0.6
X0.5	X0.4
X0.3	X0.2
X0.1	X0.0

AS32AN02T-A



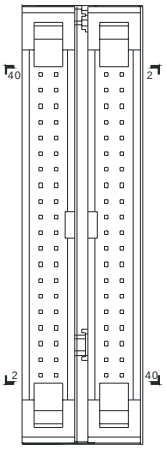
C0	C0
Y1.15	Y1.14
Y1.13	Y1.12
Y1.11	Y1.10
Y1.9	Y1.8
Y1.7	Y1.6
Y1.5	Y1.4
Y1.3	Y1.2
Y1.1	Y1.0
C0	C0
Y0.15	Y0.14
Y0.13	Y0.12
Y0.11	Y0.10
Y0.9	Y0.8
Y0.7	Y0.6
Y0.5	Y0.4
Y0.3	Y0.2
Y0.1	Y0.0

AS64AM10N-A



-	-	X2.0	X2.1
S/S	S/S	X2.2	X2.3
X1.15	X1.14	X2.4	X2.5
X1.13	X1.12	X2.6	X2.7
X1.11	X1.10	X2.8	X2.9
X1.9	X1.8	X2.10	X2.11
X1.7	X1.6	X2.12	X2.13
X1.5	X1.4	X2.14	X2.15
X1.3	X1.2	S/S	S/S
X1.1	X1.0	-	-
-	-	X3.0	X3.1
S/S	S/S	X3.2	X3.3
X0.15	X0.14	X3.4	X3.5
X0.13	X0.12	X3.6	X3.7
X0.11	X0.10	X3.8	X3.9
X0.9	X0.8	X3.10	X3.11
X0.7	X0.6	X3.12	X3.13
X0.5	X0.4	X3.14	X3.15
X0.3	X0.2	S/S	S/S
X0.1	X0.0	-	-

AS64AN02T-A



-	-	Y2.0	Y2.1
C0	C0	Y2.2	Y2.3
Y1.15	Y1.14	Y2.4	Y2.5
Y1.13	Y1.12	Y2.6	Y2.7
Y1.11	Y1.10	Y2.8	Y2.9
Y1.9	Y1.8	Y2.10	Y2.11
Y1.7	Y1.6	Y2.12	Y2.13
Y1.5	Y1.4	Y2.14	Y2.15
Y1.3	Y1.2	C1	C1
Y1.1	Y1.0	-	-
-	-	Y3.0	Y3.1
C0	C0	Y3.2	Y3.3
Y0.15	Y0.14	Y3.4	Y3.5
Y0.13	Y0.12	Y3.6	Y3.7
Y0.11	Y0.10	Y3.8	Y3.9
Y0.9	Y0.8	Y3.10	Y3.11
Y0.7	Y0.6	Y3.12	Y3.13
Y0.5	Y0.4	Y3.14	Y3.15
Y0.3	Y0.2	C1	C1
Y0.1	Y0.0	-	-

Figure 2	UB-10-ID32A



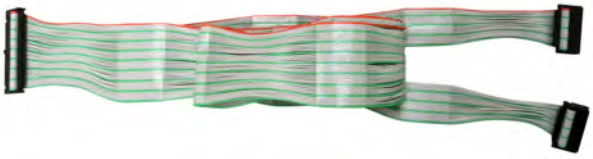
↑	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	S/S	S/S
↓	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37	S/S	S/S

Figure 3	UB-10-OT32A



↑	Y0	Y2	Y4	Y6	Y10	Y12	Y14	Y16	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	+24V	+24V
↓	Y1	Y3	Y5	Y7	Y11	Y13	Y15	Y17	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37	GND	GND

Figure 4A	UC-ET010-24C (1 m)	IDC 40 ↔ IDC 20x2



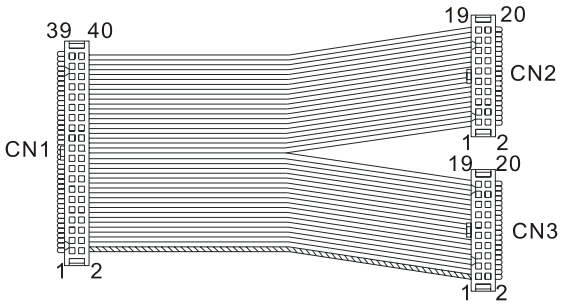
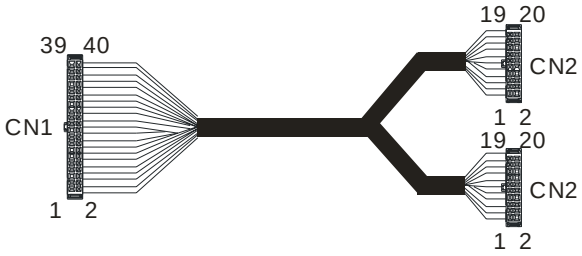
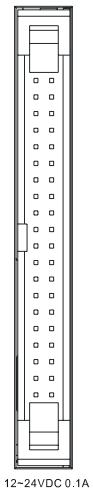


Figure 4B	UC-ET010-24D (1 m) UC-ET020-24D (2 m) UC-ET030-24D (3 m)	IDC 40 ↔ IDC 20x2 (shield)



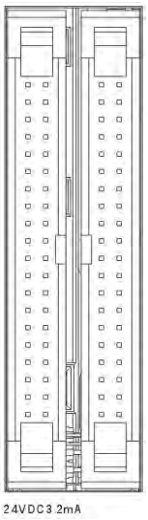


AH32AN02T-5C/AH32AN02P-5C



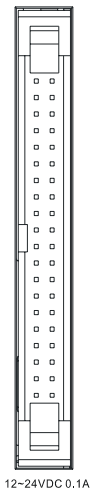
Y0.0	Y0.1
Y0.2	Y0.3
Y0.4	Y0.5
Y0.6	Y0.7
Y0.8	Y0.9
Y0.10	Y0.11
Y0.12	Y0.13
Y0.14	Y0.15
ZP	ZP
UP	UP
Y1.0	Y1.1
Y1.2	Y1.3
Y1.4	Y1.5
Y1.6	Y1.7
Y1.8	Y1.9
Y1.10	Y1.11
Y1.12	Y1.13
Y1.14	Y1.15
ZP	ZP
UP	UP

AH64AN02T-5C/AH64AN02P-5C



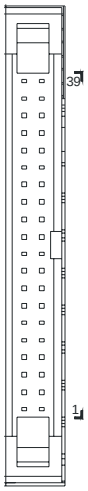
UP	UP	Y2.0	Y2.1
ZP	ZP	Y2.2	Y2.3
Y1.15	Y1.14	Y2.4	Y2.5
Y1.13	Y1.12	Y2.6	Y2.7
Y1.11	Y1.10	Y2.8	Y2.9
Y1.9	Y1.8	Y2.10	Y2.11
Y1.7	Y1.6	Y2.12	Y2.13
Y1.5	Y1.4	Y2.14	Y2.15
Y1.3	Y1.2	ZP	ZP
Y1.1	Y1.0	UP	UP
UP	UP	Y3.0	Y3.1
ZP	ZP	Y3.2	Y3.3
Y0.15	Y0.14	Y3.4	Y3.5
Y0.13	Y0.12	Y3.6	Y3.7
Y0.11	Y0.10	Y3.8	Y3.9
Y0.9	Y0.8	Y3.10	Y3.11
Y0.7	Y0.6	Y3.12	Y3.13
Y0.5	Y0.4	Y3.14	Y3.15
Y0.3	Y0.2	ZP	ZP
Y0.1	Y0.0	UP	UP

DVP32SN11TN



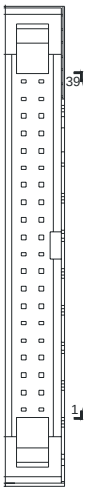
Y0	Y1
Y2	Y3
Y4	Y5
Y6	Y7
Y10	Y11
Y12	Y13
Y14	Y15
Y16	Y17
S/S	S/S
Y20	Y21
Y22	Y23
Y24	Y25
Y26	Y27
Y30	Y31
Y32	Y33
Y34	Y35
Y36	Y37
S/S	S/S

AS32AN02T-A



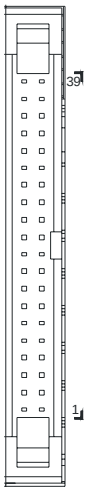
C0	C0
Y1.15	Y1.14
Y1.13	Y1.12
Y1.11	Y1.10
Y1.9	Y1.8
Y1.7	Y1.6
Y1.5	Y1.4
Y1.3	Y1.2
Y1.1	Y1.0
C0	C0
Y0.15	Y0.14
Y0.13	Y0.12
Y0.11	Y0.10
Y0.9	Y0.8
Y0.7	Y0.6
Y0.5	Y0.4
Y0.3	Y0.2
Y0.1	Y0.0

AS332T-A



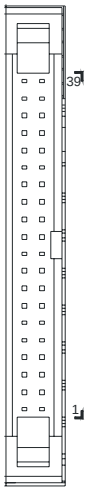
-	-
S/S	S/S
X0.15	X0.14
X0.13	X0.12
X0.11	X0.10
X0.9	X0.8
X0.7	X0.6
X0.5	X0.4
X0.3	X0.2
X0.1	X0.0
-	-
C0	C0
Y0.15	Y0.14
Y0.13	Y0.12
Y0.11	Y0.10
Y0.9	Y0.8
Y0.7	Y0.6
Y0.5	Y0.4
Y0.3	Y0.2
Y0.1	Y0.0

AS332P-A



-	-
S/S	S/S
X0.15	X0.14
X0.13	X0.12
X0.11	X0.10
X0.9	X0.8
X0.7	X0.6
X0.5	X0.4
X0.3	X0.2
X0.1	X0.0
C0	C0
-	-
Y0.15	Y0.14
Y0.13	Y0.12
Y0.11	Y0.10
Y0.9	Y0.8
Y0.7	Y0.6
Y0.5	Y0.4
Y0.3	Y0.2
Y0.1	Y0.0

AS324MT-A



S/S	S/S
X0.11	X0.10
X0.9	X0.8
X0.7	X0.6
X0.5	X0.4
SG0	SG0
X0.3-	X0.3+
X0.2-	X0.2+
X0.1-	X0.1+
X0.0-	X0.0+
C0	C0
Y0.11	Y0.10
Y0.9	Y0.8
Y0.7	Y0.6
Y0.5	Y0.4
SG1	SG1
Y0.3-	Y0.3+
Y0.2-	Y0.2+
Y0.1-	Y0.1+
Y0.0-	Y0.0+

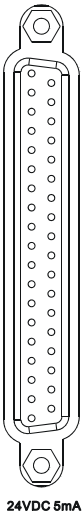
Figure 5 UB-10-OR16A



																		GND	+24V
C0	Y0	Y1	Y2	Y3	C1	Y4	Y5	Y6	Y7	C2	Y10	Y11	Y12	Y13	C3	Y14	Y15	Y16	Y17

Figure 6	UC-ET010-33B (1 m)	Male DB37 connector ↔ Male DB37 connector





AH32AM10N-5B		AH32AN02T-5B/AH32AN02P-5B	
X0.0	X0.1	X0.0	X0.1
X0.2	X0.3	X0.2	X0.3
X0.4	X0.5	X0.4	X0.5
X0.6	X0.7	X0.6	X0.7
X0.8	X0.9	X0.8	X0.9
X0.10	X0.11	X0.10	X0.11
X0.12	X0.13	X0.12	X0.13
X0.14	X0.15	X0.14	X0.15
S/S	S/S	ZP	ZP
	X1.0	UP	X1.0
X1.1	X1.2	X1.1	X1.2
X1.3	X1.4	X1.3	X1.4
X1.5	X1.6	X1.5	X1.6
X1.7	X1.8	X1.7	X1.8
X1.9	X1.10	X1.9	X1.10
X1.11	X1.12	X1.11	X1.12
X1.13	X1.14	X1.13	X1.14
X1.15	S/S	X1.15	ZP
S/S		UP	

Figure 7	UB-10-ID32B



↑	X0	X2	X4	X6	X10	X12	X14	X16	X20	X22	X24	X26	X30	X32	X34	X36	S/S	S/S
↓	X1	X3	X5	X7	X11	X13	X15	X17	X21	X23	X25	X27	X31	X33	X35	X37	S/S	S/S

Figure 8	UB-10-OR32A



Pin 1	C0	Y0	Y1	Y2	Y3	C1	Y4	Y5	Y6	Y7	C2	Y10	Y11	Y12	Y13	C3	Y14	Y15	Y16	Y17
Pin 21	C4	Y20	Y21	Y22	Y23	C5	Y24	Y25	Y26	Y27	C6	Y30	Y31	Y32	Y33	C7	Y34	Y35	Y36	Y37

Figure 9	UB-10-OT32B



↑	Y0	Y2	Y4	Y6	Y10	Y12	Y14	Y16	Y20	Y22	Y24	Y26	Y30	Y32	Y34	Y36	UP	UP
↓	Y1	Y3	Y5	Y7	Y11	Y13	Y15	Y17	Y21	Y23	Y25	Y27	Y31	Y33	Y35	Y37	ZP	ZP

Figure 10	UB-10-OR32B



Pin 1	C0	Y0	Y1	Y2	Y3	C1	Y4	Y5	Y6	Y7	C2	Y10	Y11	Y12	Y13	C3	Y14	Y15	Y16	Y17
Pin 21	C4	Y20	Y21	Y22	Y23	C5	Y24	Y25	Y26	Y27	C6	Y30	Y31	Y32	Y33	C7	Y34	Y35	Y36	Y37

Figure 11	UB-10-OR16B

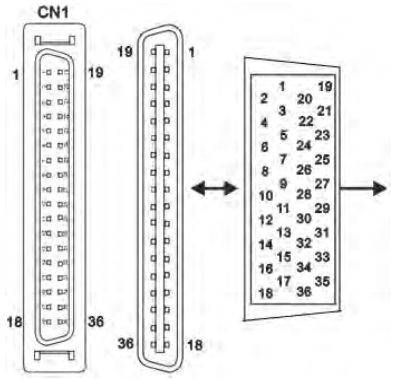


																		GND	+24V
C0	Y0	Y1	Y2	Y3	C1	Y4	Y5	Y6	Y7	C2	Y10	Y11	Y12	Y13	C3	Y14	Y15	Y16	Y17

Figure 12	UC-ET010-13B (1M)	Female MDR36 connector ↔ Female MDR36 connector

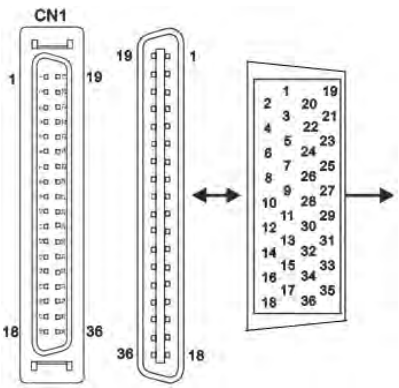


AH20MC-5A



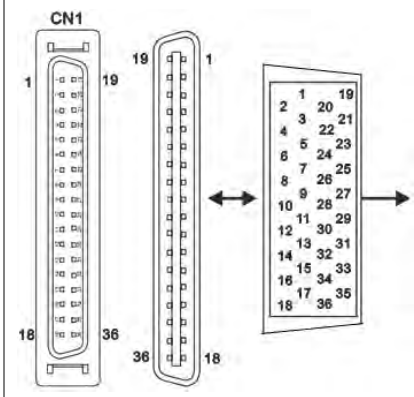
2	C2	1	C3	20	Y0.10	19	Y0.11
4	C0	3	C1	22	Y0.8	21	Y0.9
6	N/C	5	N/C	24	N/C	23	N/C
8	X0.15-	7	X0.3-	26	X0.15+	25	X0.3+
10	X0.2-	9	X0.14-	28	X0.2+	27	X0.14+
12	X0.12-	11	X0.13-	30	X0.12+	29	X0.13+
14	X0.11-	13	X0.1-	32	X0.11+	31	X0.1+
16	X0.0-	15	X0.10-	34	X0.0+	33	X0.10+
18	X0.8-	17	X0.9-	36	X0.8+	35	X0.9+

AH10EMC-5A



2	COM	1	COM	20	Y0.10	19	Y0.11
4	COM	3	COM	22	Y0.8	21	Y0.9
6	X1.5	5	S/S	24	X1.2	23	X1.3
8	X1.4	7	S/S	26	X1.0	25	X1.1
10	X0.3	9	S/S	28	X0.14	27	X0.15
12	X0.2	11	S/S	30	X0.12	29	X0.13
14	X0.11-	13	X0.1-	32	X0.11+	31	X0.1+
16	X0.0-	15	X0.10-	34	X0.0+	33	X0.10+
18	X0.8-	17	X0.9-	36	X0.8+	35	X0.9+

AH04HC-5A



2	C2	1	C3	20	Y0.10	19	Y0.11
4	C0	3	C1	22	Y0.8	21	Y0.9
6	N/C	5	N/C	24	N/C	23	N/C
8	X0.15-	7	X0.3-	26	X0.15+	25	X0.3+
10	X0.2-	9	X0.14-	28	X0.2+	27	X0.14+
12	X0.12-	11	X0.13-	30	X0.12+	29	X0.13+
14	X0.11-	13	X0.1-	32	X0.11+	31	X0.1+
16	X0.0-	15	X0.10-	34	X0.0+	33	X0.10+
18	X0.8-	17	X0.9-	36	X0.8+	35	X0.9+

Figure 13 UB-10-IO16C



↑	C3	C2	C1	C0	N/C	N/C	X0.3-	X0.15-	X0.14-	X0.2-	X0.13-	X0.12-	X0.1-	X0.11-	X0.10-	X0.0-	X0.9-	X0.8-	24G	24G	FE
↓	Y0.11	Y0.10	Y0.9	Y0.8	N/C	N/C	X0.3+	X0.15+	X0.14+	X0.2+	X0.13+	X0.12+	X0.1+	X0.11+	X0.10+	X0.0+	X0.9+	X0.8+	N/C	24V	24V

Figure 14 UB-10-IO22C

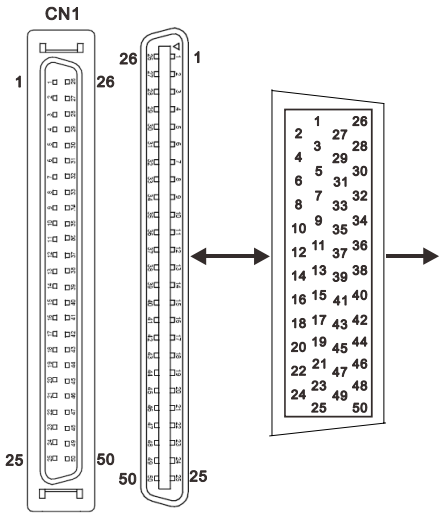


↑	COM	COM	COM	COM	S/S	X1.5	S/S	X1.4	S/S	X0.3	S/S	X0.2	X0.1-	X0.11-	X0.10-	X0.0-	X0.9-	X0.8-	24G	24G	FE
↓	Y0.11	Y0.10	Y0.9	Y0.8	X1.3	X1.2	X1.1	X1.0	X0.15	X0.14	X0.13	X0.12	X0.1+	X0.11+	X0.10+	X0.0+	X0.9+	X0.8+	N/C	24V	24V

Figure 15	UC-ET010-15B (1 m)	Female MDR50 connector ↔ Female MDR50 connector

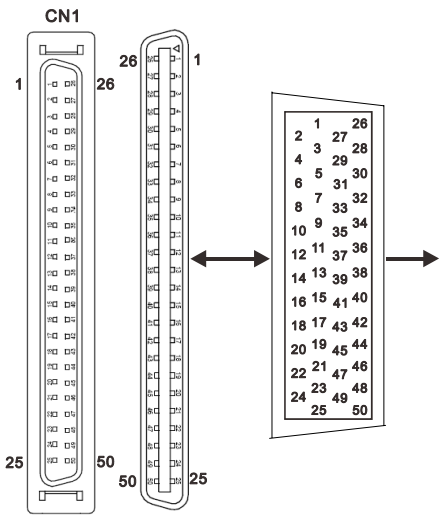


AH10PM-5A



2	C2	1	C3	27	Y0.10	26	Y0.11
4	C0	3	C1	29	Y0.8	28	Y0.9
6	Y0.7-	5	N/A	31	Y0.7+	30	N/A
8	Y0.5-	7	Y0.6-	33	Y0.5+	32	Y0.6+
10	Y0.3-	9	Y0.4-	35	Y0.3+	34	Y0.4+
12	Y0.1-	11	Y0.2-	37	Y0.1+	36	Y0.2+
14	N/A	13	Y0.0-	39	N/A	38	Y0.0+
16	X0.15	15	N/A	41	X0.14	40	S/S
18	X0.11	17	X0.13	43	X0.10	42	X0.12
20	N/A	19	X0.9	45	N/A	44	X0.8
22	X0.3-	21	N/A	47	X0.3+	46	N/A
24	X0.1-	23	X0.2-	49	X0.1+	48	X0.2+
		25	X0.0-			50	X0.0+

AH15PM-5A



2	Y0.9	1	Y0.11	27	Y0.8	26	Y0.10
4	Y0.7-	3	COM	29	Y0.6+	28	Y0.7+
6	Y0.5-	5	Y0.6-	31	Y0.4+	30	Y0.5+
8	Y0.3-	7	Y0.4-	33	Y0.2+	32	Y0.3+
10	Y0.1-	9	Y0.2-	35	Y0.0+	34	Y0.1+
12	X1.5	11	Y0.0-	37	X1.4	36	S/S
14	X1.1	13	X1.3	39	X1.0	38	X1.2
16	X0.13	15	X0.15	41	X0.12	40	X0.14
18	X0.9-	17	X0.11	43	X0.9+	42	X0.10
20	X0.7	19	X0.8-	45	X0.6	44	X0.8+
22	X0.3-	21	X0.5	47	X0.3+	46	X0.4
24	X0.1-	23	X0.2-	49	X0.1+	48	X0.2+
		25	X0.0-			50	X0.0+

Figure 16	UB-10-IO24C



↑	C3	C2	C1	C0	N/C	Y0.7-	Y0.6-	Y0.5-	Y0.4-	Y0.3-	Y0.2-	Y0.1-	Y0.0-	N/C										
							N/C	X0.15	X0.13	X0.11	X0.9	N/C	N/C	X0.3-	X0.2-	X0.1-	X0.0-	24G	24G	FE				
↓	Y0.11	Y0.10	Y0.9	Y0.8	N/C	Y0.7+	Y0.6+	Y0.5+	Y0.4+	Y0.3+	Y0.2+	Y0.1+	Y0.0+	N/C										
							S/S	X0.14	X0.12	X0.10	X0.8	N/C	N/C	X0.3+	X0.2+	X0.1+	X0.0+	N/C	24V	24V				

Figure 17	UB-10-IO34C



↑	Y0.11	Y0.9	COM	Y0.7-	Y0.6-	Y0.5-	Y0.4-	Y0.3-	Y0.2-	Y0.1-	Y0.0-	X1.5	X1.3	X1.1										
							X0.15	X0.13	X0.11	X0.9-	X0.8-	X0.7	X0.5	X0.3-	X0.2-	X0.1-	X0.0-	24G	24G	FE				
↓	Y0.10	Y0.8	Y0.7+	Y0.6+	Y0.5+	Y0.4+	Y0.3+	Y0.2+	Y0.1+	Y0.0+	S/S	X1.4	X1.2	X1.0										
							X0.14	X0.12	X0.10	X0.9+	X0.8+	X0.6	X0.4	X0.3+	X0.2+	X0.1+	X0.0+	N/C	24V	24V				

Figure 18	AHACAB06-5A (0.6 m) AHACAB10-5A (1 m) AHACAB15-5A (1.5 m) AHACAB30-5A (3 m) AHACAB50-5A (5 m) AHACABA0-5A (10 m) AHACABA5-5A (15 m) AHACABB0-5A (20 m) AHACABC0-5A (30 m) AHACABD0-5A (40 m) AHACABE0-5A (50 m) AHACABF0-5A (60 m) AHACABG0-5A (70 m) AHACABH0-5A (80 m) AHACABJ0-5A (90 m) AHACABK0-5A (100 m)	Male MDR20 connector ↔ Male MDR20 connector



Figure 19	UB-10-ID16A



AS332T-A										
↑	X0.0	X0.2	X0.4	X0.6	X0.8	X0.10	X0.12	X0.14	S/S	-
	Y0.0	Y0.2	Y0.4	Y0.6	Y0.8	Y0.10	Y0.12	Y0.14	C0	-
↓	X0.1	X0.3	X0.5	X0.7	X0.9	X0.11	X0.13	X0.15	S/S	-
	Y0.1	Y0.3	Y0.5	Y0.7	Y0.9	Y0.11	Y0.13	Y0.15	C0	-

AS332P-A										
↑	X0.0	X0.2	X0.4	X0.6	X0.8	X0.10	X0.12	X0.14	S/S	-
	Y0.0	Y0.2	Y0.4	Y0.6	Y0.8	Y0.10	Y0.12	Y0.14	-	C0
↓	X0.1	X0.3	X0.5	X0.7	X0.9	X0.11	X0.13	X0.15	S/S	-
	Y0.1	Y0.3	Y0.5	Y0.7	Y0.9	Y0.11	Y0.13	Y0.15	-	C0

AS324MT-A										
↑	X0.0+	X0.1+	X0.2+	X0.3+	SG0	X0.4	X0.6	X0.8	X0.10	S/S
	Y0.0+	Y0.1+	Y0.2+	Y0.3+	SG1	Y0.4	Y0.6	Y0.8	Y0.10	C0
↓	X0.0-	X0.1-	X0.2-	X0.3-	SG0	X0.5	X0.7	X0.9	X0.11	S/S
	Y0.0-	Y0.1-	Y0.2-	Y0.3-	SG1	Y0.5	Y0.7	Y0.9	Y0.11	C0

3

Chapter 3 Motion Control Cables

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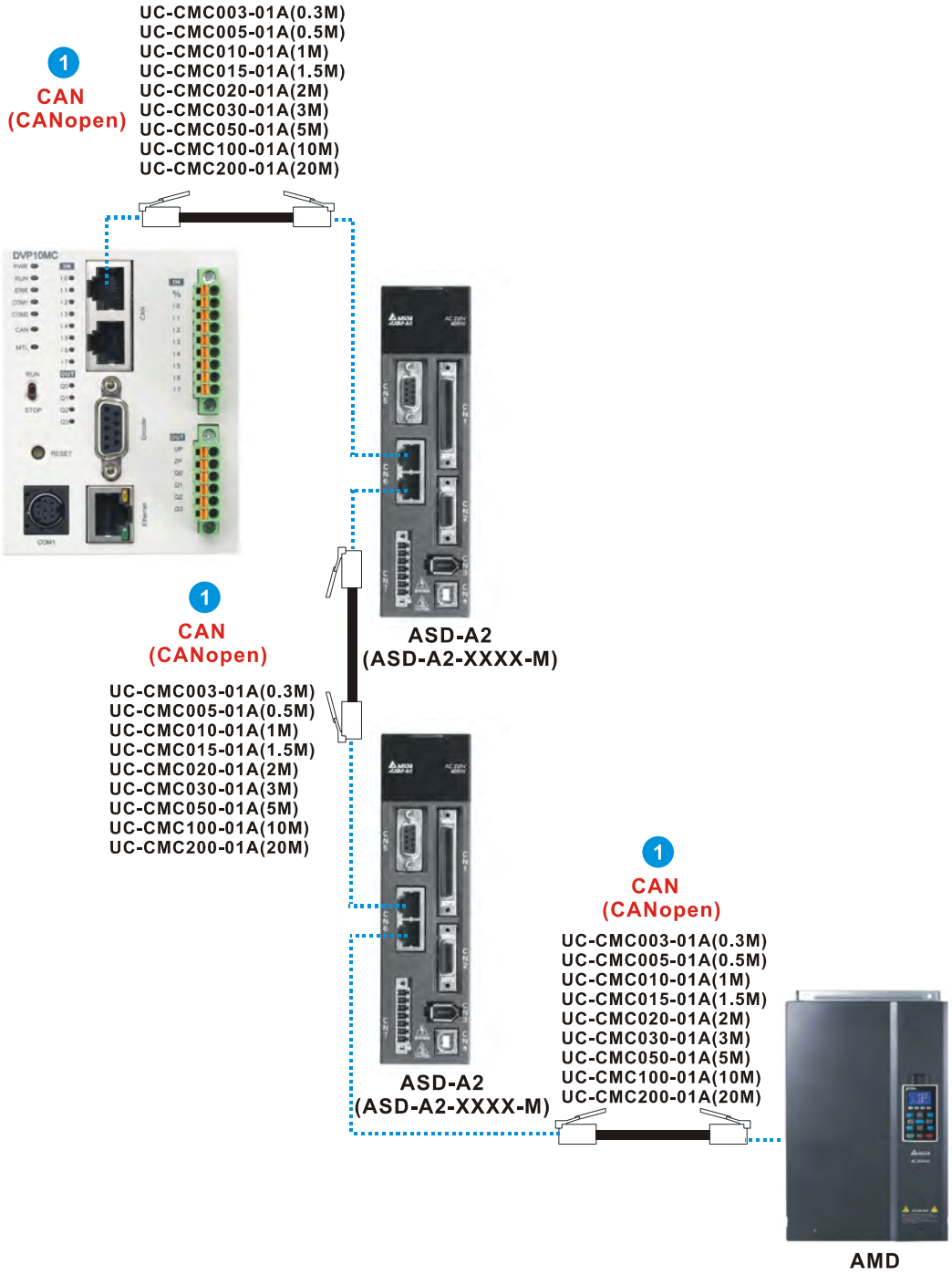
3.1 CANopen Motion Control Cables

3.1.1 DVP-MC Series (DVP10MC11T)

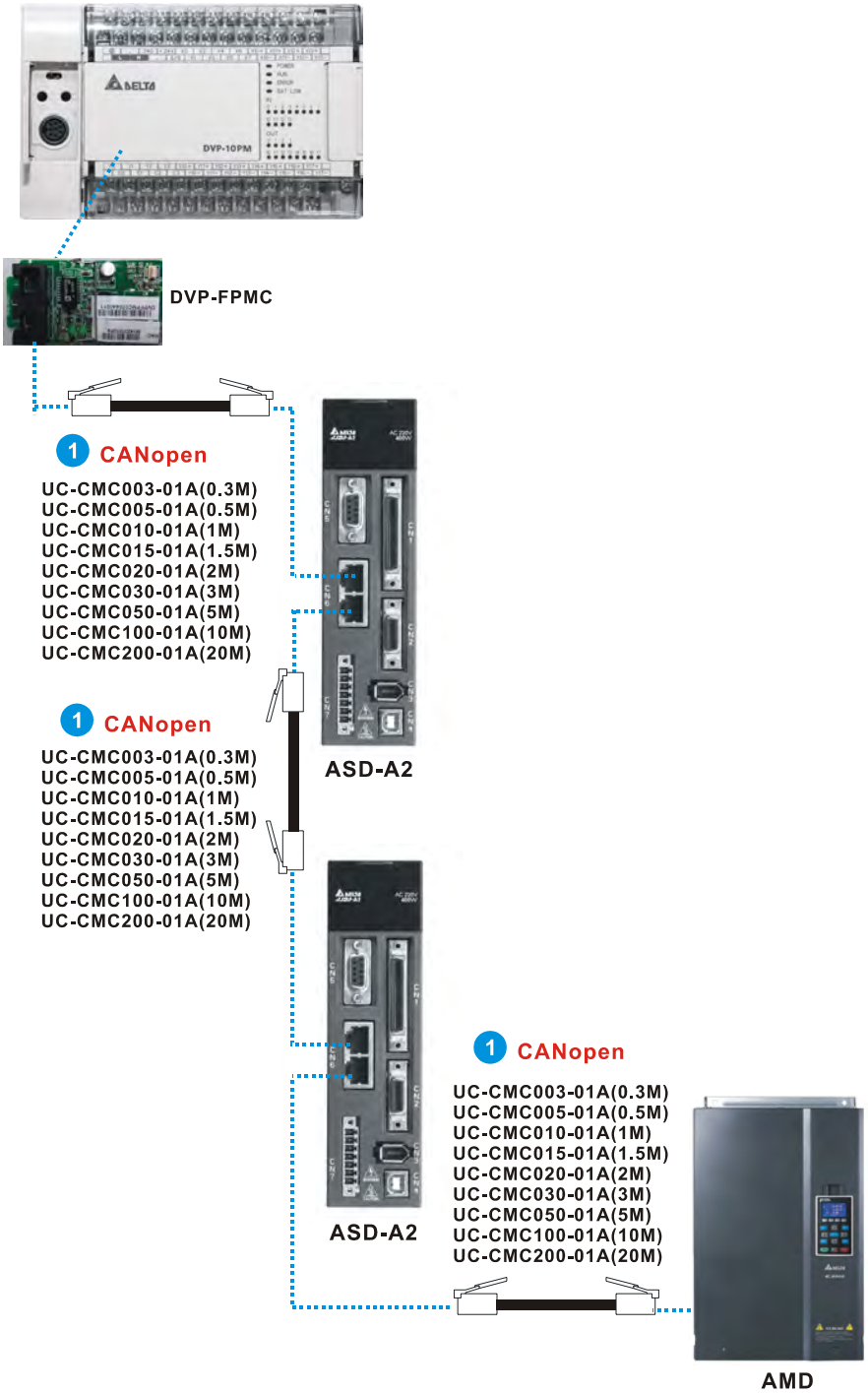


Note 1: Please refer to section 3.4 for more information about 1, 2, 3, etc.

Note 2: It is suggested that users connect the terminator TAP-TR01 to each end of a CANopen cable. The resistance of TAP-TR01 is 121 Ω. Please refer to Chapter 4 for more information.

3.1.2 DVP-PM Series

DVP-PM Series (DVP10PM00M, DVP20PM00D, DVP20PM00M)

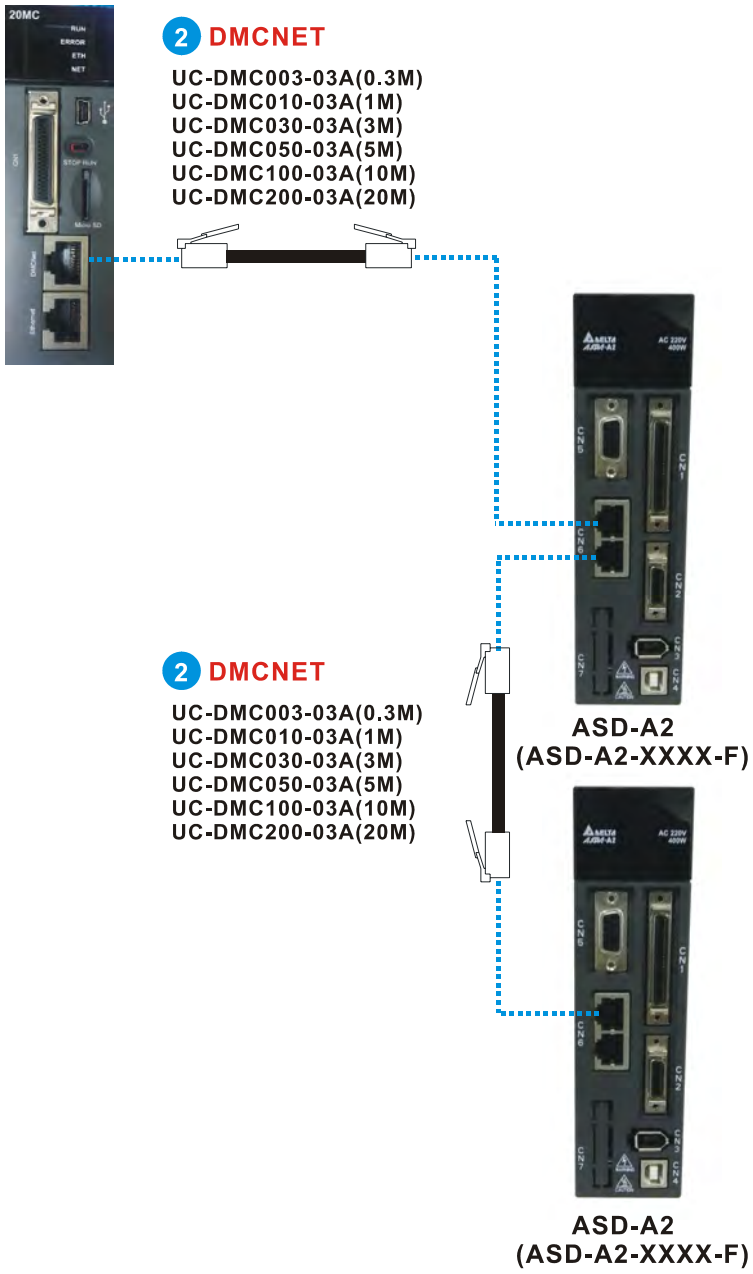


Note 1: Please refer to section 3.4 for more information about 1, 2, 3, etc.

Note 2: It is suggested that users connect the terminator TAP-TR01 to each end of a CANopen cable. The resistance of TAP-TR01 is 121 Ω. Please refer to Chapter 4 for more information.

3.2 DMCNET Motion Control Cables

3.2.1 AH20MC-5A



Note 1: Please refer to section 3.4 for more information about 1, 2, 3, etc.

Note 2:

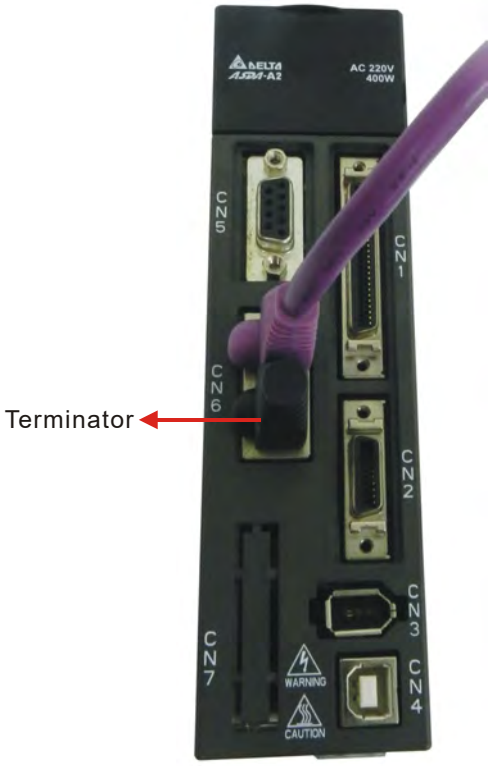
1. If a DMCNET cable is long (longer than five meters in general), it is suggested that users connect a terminator to each end of the cable to prevent unstable signals from causing a servo drive to operate abnormally. An RJ45 adapter with one male connector and two female connectors is used to connect a terminator to the starting end of a DMCNET cable.

2. If a DMCNET cable is shorter than five meters, only the terminal end of the cable needs to be connected to a terminator.

3. The resistance of the terminator TAP-TR02 is 150 Ω. The RJ45 adapter UN-03EN-04A is shown below.

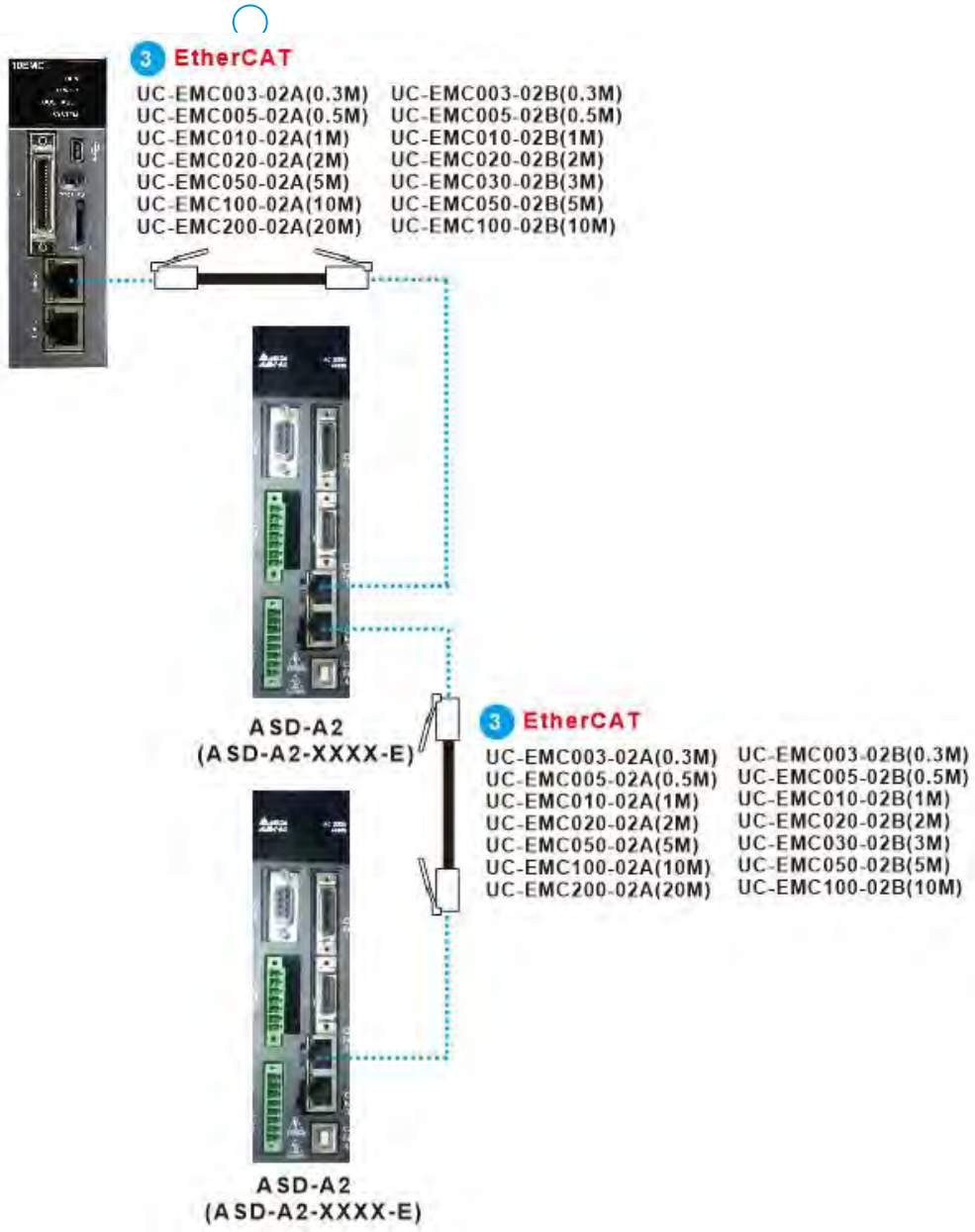
Terminator (TAP-TR02)	RJ45 adapter (UN-03EN-04A, UN-03EN-05A)
	

4. Please refer to the figures below for more information about connecting terminators to the starting end the terminal end of a cable.

Connecting a terminator to the starting end of a cable	Connecting a terminator to the terminal end of a cable
	

3.3 EtherCAT Motion Control Cables

3.3.1 AH10EMC-5A



Note: Please refer to section 3.4 for more information about 1, 2, 3, etc.

3.4 Cable Models

1 CANopen

CPU	Adapter	Module/Interface card	Cable	Machine connected
DVP10MC11T	--	--	RJ45 ↔ RJ45	AMD/ASD
			UC-CMC003-01A (0.3 m) (Figure 1) UC-CMC005-01A (0.5 m) (Figure 1) UC-CMC010-01A (1 m) (Figure 1) UC-CMC015-01A (1.5 m) (Figure 1) UC-CMC020-01A (2 m) (Figure 1) UC-CMC030-01A (3 m) (Figure 1) UC-CMC050-01A (5 m) (Figure 1) UC-CMC100-01A (10 m) (Figure 1) UC-CMC200-01A (20 m) (Figure 1)	

2 DMCNET

CPU	Adapter	Module/Interface card	Cable	Machine connected
--	--	AH20MC-5A	RJ45 ↔ RJ45	ASD
			UC-CMC003-01A (0.3 m) (Figure 1) UC-CMC005-01A (0.5 m) (Figure 1) UC-CMC010-01A (1 m) (Figure 1) UC-CMC015-01A (1.5 m) (Figure 1) UC-CMC020-01A (2 m) (Figure 1) UC-CMC030-01A (3 m) (Figure 1) UC-CMC050-01A (5 m) (Figure 1) UC-CMC100-01A (10 m) (Figure 1) UC-CMC200-01A (20 m) (Figure 1)	

3 EtherCAT

CPU	Adapter	Module/Interface card	Cable	Machine connected
AH10EMC-5A	--	--	RJ45 ↔ RJ45	ASD
			UC-EMC003-02A (0.3 m) (Figure 2) UC-EMC005-02A (0.5 m) (Figure 2) UC-EMC010-02A (1 m) (Figure 2) UC-EMC020-02A (2 m) (Figure 2) UC-EMC050-02A (5 m) (Figure 2) UC-EMC100-02A (10 m) (Figure 2) UC-EMC200-02A (20 m) (Figure2) UC-EMC003-02B (0.3M) (Figure 2) UC-EMC005-02B (0.5M) (Figure 2) UC-EMC010-02B (1M) (Figure 2) UC-EMC020-02B (2M) (Figure 2) UC-EMC030-02B (3M) (Figure 2) UC-EMC050-02B (5M) (Figure 2) UC-EMC100-02B (10M) (Figure 2)	

3.5 Descriptions of Cable Models

Figure 1	UC-CMC003-01A (0.3 m) UC-CMC005-01A (0.5 m) UC-CMC010-01A (1 m) UC-CMC015-01A (1.5 m) UC-CMC020-01A (2 m) UC-CMC030-01A (3 m) UC-CMC050-01A (5 m) UC-CMC100-01A (10 m) UC-CMC200-01A (20 m)	RJ45 ↔ RJ45



CANopen	
1 (Black): CAN+	5 (Blue): --
2 (Orange): CAN-	6 (White): CAN_SHLD
3 (Brown): CAN_GND	7 (Yellow): CAN_GND
4 (Gray): --	8 (Green): --

DMCNET	
1 (Black): DMCNET_D1+	5 (Blue): --
2 (Orange): DMCNET_D1-	6 (White): DMCNET_D2-
3 (Brown): DMCNET_D2+	7 (Yellow): DMCNET_GND
4 (Gray): --	8 (Green): DMCNET_GND

Figure 2	UC-EMC003-02A (0.3 m) UC-EMC005-02A (0.5 m) UC-EMC010-02A (1 m) UC-EMC020-02A (2 m) UC-EMC050-02A (5 m) UC-EMC100-02A (10 m) UC-EMC200-02A (20 m) UC-EMC003-02B (0.3M) UC-EMC005-02B (0.5M) UC-EMC010-02B (1M) UC-EMC020-02B (2M) UC-EMC030-02B (3M) UC-EMC050-02B (5M) UC-EMC100-02B (10M)	RJ45 ↔ RJ45



EtherCAT
1: EtherCAT_TX+ (Orange/White) 2: EtherCAT_TX- (Orange) 3: EtherCAT_RX+ (Green/White) 6: EtherCAT_RX- (Green)

Note: Delta launches UC-EMCxxx-02B series equipped with EtherCAT communication that is cost-effective and has the competitive advantage as an EtherCAT solution.

Item	UC-EMCxxx-02A	UC-EMCxxx-02B
Certification	ETG	UL
Connector	 	 
Cable color	Green	Green
Length (M)	0.3/0.5/1/2/5/10/20	0.3/0.5/1/2/3/5/10
Rated voltage (V)	600	300

MEMO

4

Chapter 4 Networking Cables

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4.3 DeviceNet Communication 4-11

4.3.1 Applicable DeviceNet Models 4-11

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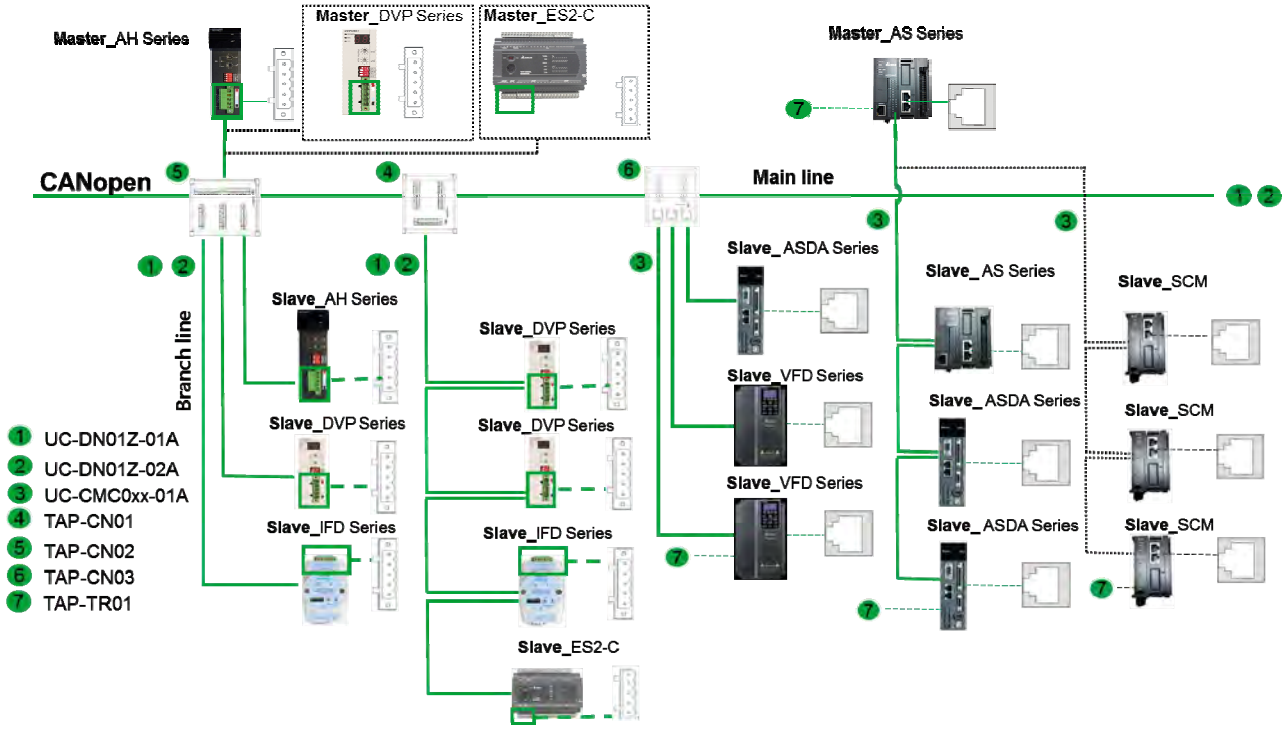
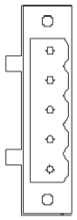
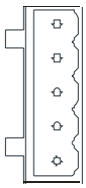
4.1 CANopen Communication



Note: CANopen suggests that users connect a terminator to each end of a CANopen cable to main the stability of signals. Please refer to section 4.1.3 for more information about a terminator.

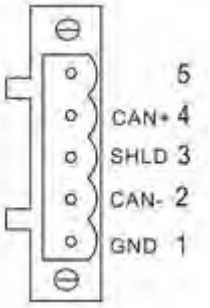
4.1.1 Applicable CANopen Models

Communication port	Classification	Model	Connector	Cable	Distribution box
	Master_AH series	AH10COPM-5A	--	1	4 5
	Master_DVP series	DVPCOPM-SL	--	1	4 5
	Slave_ AH series	AH10COPM-5A	--	2	5
	Slave_ DVP series	DVPCP02-H2	--	2	4 5
	Slave_IFD series	IFD9503	--	2	4 5
	Master_ES2-C	DVP32ES200RC, DVP32ES200TC	--	1	4 5
	Slave _ES2-C	DVP32ES200RC, DVP32ES200TC	--	2	4 5

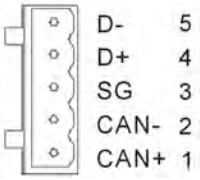
Communication port	Classification	Model	Connector	Cable	Distribution box
	Slave_VFD series	VFD-C2000 series, VFD-CP2000 series, VFD-CH200 series, VFD-C200 series, VFD-E series	--	3	6
	Slave_ASDA series	ASDA-A2 series	--	3	6
	Master_AS series	AS332T-A, AS332P-A, AS324MT-A	--	3	--
	Slave_SCM	AS00SCM-A	--	3	--

4.1.2 Specifications Related to CANopen Communication

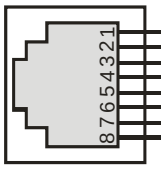
- 5-pin connector (CANopen)

Pinout			
Pin	**Signal**	**Description**	
1	GND	0 V DC	
2	CAN-	Signal -	
3	SHLD	Shielded cable	
4	CAN+	Signal +	
5	Reserved	Reserved	

- 5-pin connector (ES2-C)

Pinout			
Pin	**Signal**	**Description**	
1	CAN+	Signal +	
2	CAN-	Signal -	
3	SG	0 V DC	
4	D+	RS-485 +	
5	D-	RS-485 -	

- RJ45 connector

Pinout			
Pin	**Signal**	**Description**	
1	CAN+	Signal +	
2	CAN-	Signal -	
3	CAN_GND	0 V DC	
4	RESE_1	Reserved	
5	RESE_2	Reserved	
6	CAN_SHLD	Shielded cable	
7	CAN_GND	0 V DC	
8	RESE_3	Reserved	

- Cable

		Model	Length	AWG
1		UC-DN01Z-01A	305 m	2#15, 2#18 SHLD PVC (Thick)
2		UC-DN01Z-02A	305 m	2#22, 2#24 SHLD PVC (Thin)
3		UC-CMC003-01A	0.3 m	4#26, 1#24 PVC (Thin)
3		UC-CMC005-01A	0.5 m	4#26, 1#24 PVC (Thin)
3		UC-CMC010-01A	1.0 m	4#26, 1#24 PVC (Thin)
3		UC-CMC015-01A	1.5 m	4#26, 1#24 PVC (Thin)
3		UC-CMC020-01A	2.0 m	4#26, 1#24 PVC (Thin)
3		UC-CMC030-01A	3.0 m	4#26, 1#24 PVC (Thin)
3		UC-CMC050-01A	5.0 m	4#26, 1#24 PVC (Thin)
3		UC-CMC100-01A	10.0 m	4#26, 1#24 PVC (Thin)
3		UC-CMC200-01A	20.0 m	4#26, 1#24 PVC (Thin)

Note 1: The cable is sold by the meter. Max. ordering quantity: 305 meters(1 roll). Min. ordering quantity: 1 meter.

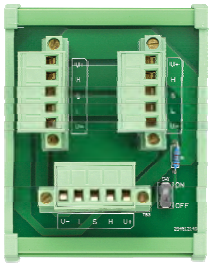
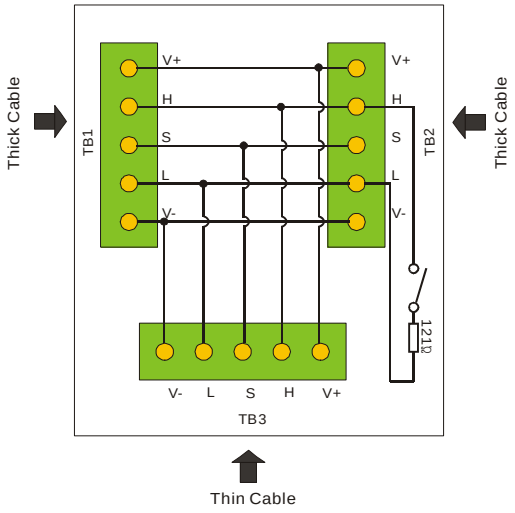
Note 2: ① UC-DN01Z-01A and ②UC-DN01Z-02A can be used as main cables or branch cables. The maximum communication distances that the two cables support are different. The maximum communication lengths that the two cables support under different CANopen transmission rates are shown below.

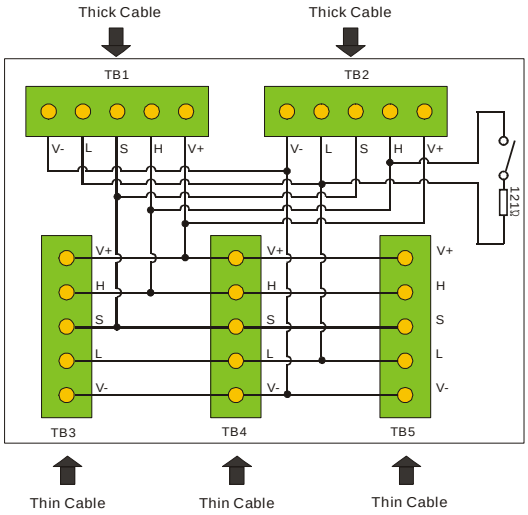
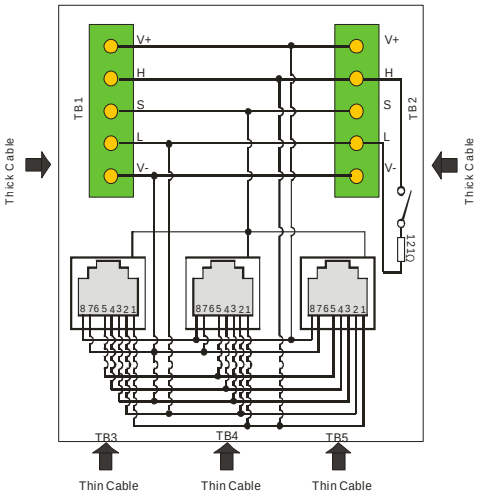
CANopen transmission rate (bit/s)	125 K	250 K	500 K	1 M
Maximum communication distance of UC-DN01Z-01A (m)	500	250	100	40
Maximum communication distance of UC-DN01Z-02A (m)	100	100	100	40

Note 3: CANopen stipulates the maximum communication distances of transmission rates. The relation between transmission rates and maximum communication distances is shown below.

Transmission rate (bit/s)	10 K	20 K	50 K	125 K	250 K	500 K	800 K	1 M
Maximum communication distance (m)	5000	2500	1000	500	250	100	50	40

- Distribution box

Model		**Circuitry**
④ **TAP-CN01**		

Model		Circuitry
5 TAP-CN02		
6 TAP-CN03		
Connector	Removable terminal block (5.08 mm)	
Terminator	121 Ω	

4.1.3 Terminator

CANopen suggests that users connect a terminator to each end of a CANopen cable. A terminator functions as the impedance matching of communication signals. It can minimize the phenomenon that signal reflection interferes with normal signal transmission. The resistance of a terminator is 121 Ω (1/4 watts).

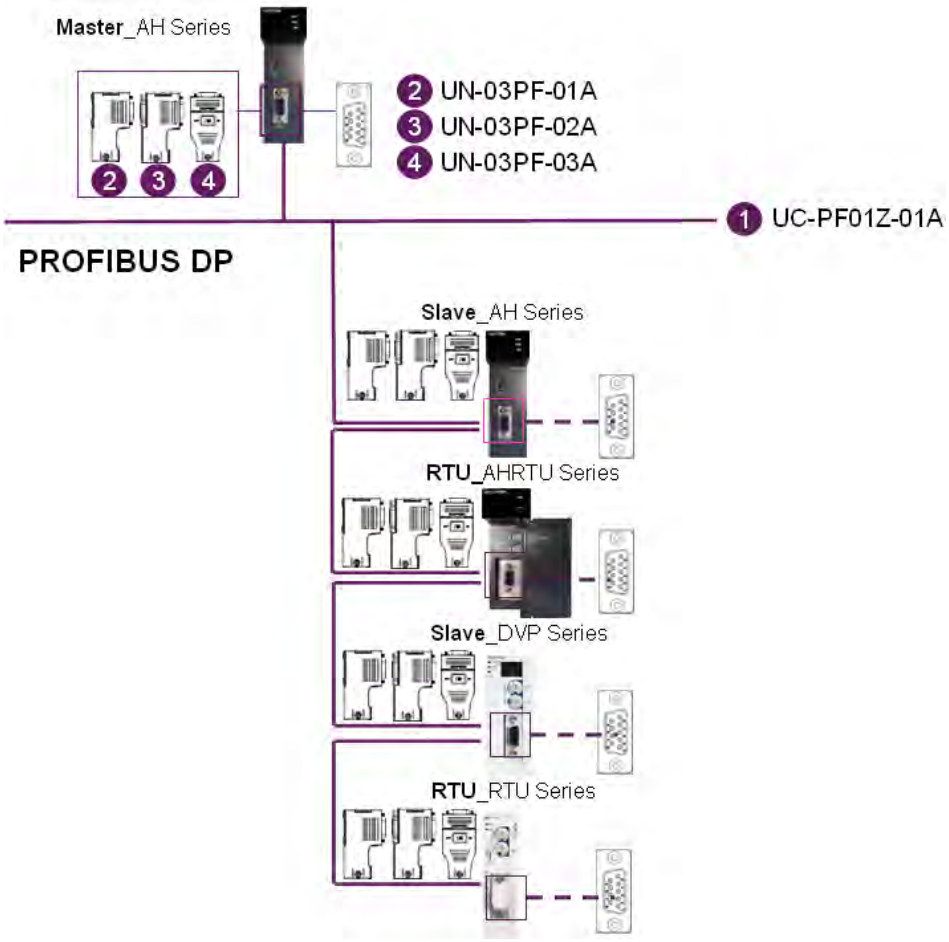
1. Terminator connected to the starting end of a cable: The terminator in a distribution box can be used, that is, the terminator switch on a distribution box can be set to ON.

2. Terminator connected to the terminal end of a cable: The terminator TAP-TR01 needs to be connected.

- The resistance of the terminator TAP-TR01 is 121 Ω. TAP-TR01 is shown below.

7 TAP-TR01

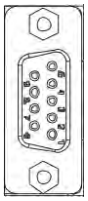

4.2 PROFIBUS DP Communication



Note: If there are more than 32 pieces of hardware equipment in a network, or the communication length to which a communication rate corresponds is longer than the length specified (in the table below), the RS-485 repeater IFD5710 can be used to make the connection between cables longer.

Communication rate (bps)	9.6 K	19.2 K	93.75 K	187.5 K	500 K	1.5 M	3 M	6 M	12 M
Length (m)	1200			1000	400	200	100		

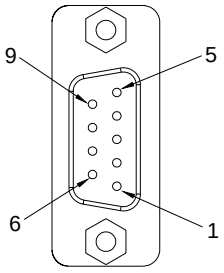
4.2.1 Applicable PROFIBUS DP Models

Communication port	Classification	Model	Connector	Cable	Distribution box
	Master_AH series	AH10PFBM-5A	2 3 4	1	--
	Master_DVP series	--	--	--	--
	Slave_AH series	AH10PFBS-5A	2 3 4	1	--
	Slave_DVP series	DVPPF01-S, DVPPF02-SL, DVPPF02-H2	2 3 4	1	--
	RTU_AHRTU series	AHRTU-PFBS-5A	2 3 4	1	--
	RTU_RTU series	RTU-PD01	2 3 4	1	--

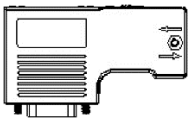
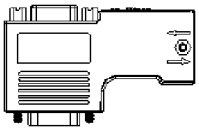
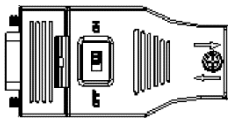
4.2.2 Specifications Related to PROFIBUS DP Communication

- Pinout

Pin	Signal	Description	
1	N/C	--	
2	N/C	--	
3	Rxd/Txd-P	Receiving/Transmitting data (Positive pole)	
4	N/C	--	
5	DGND	Data reference potential	
6	VP	Providing positive voltage	
7	N/C	--	
8	Rxd/Txd-N	Receiving/Transmitting data (negative pole)	
9	N/C	--	



- Connector

	2	3	4
Model	 UN-03PF-01A	 UN-03PF-02A	 UN-03PF-03A
Connector	Male DB9 connector	Male DB9 connector	Male DB9 connector
Programming connector	--	Female DB9 connector	--
Terminator[*1]	120 Ω	120 Ω	120 Ω

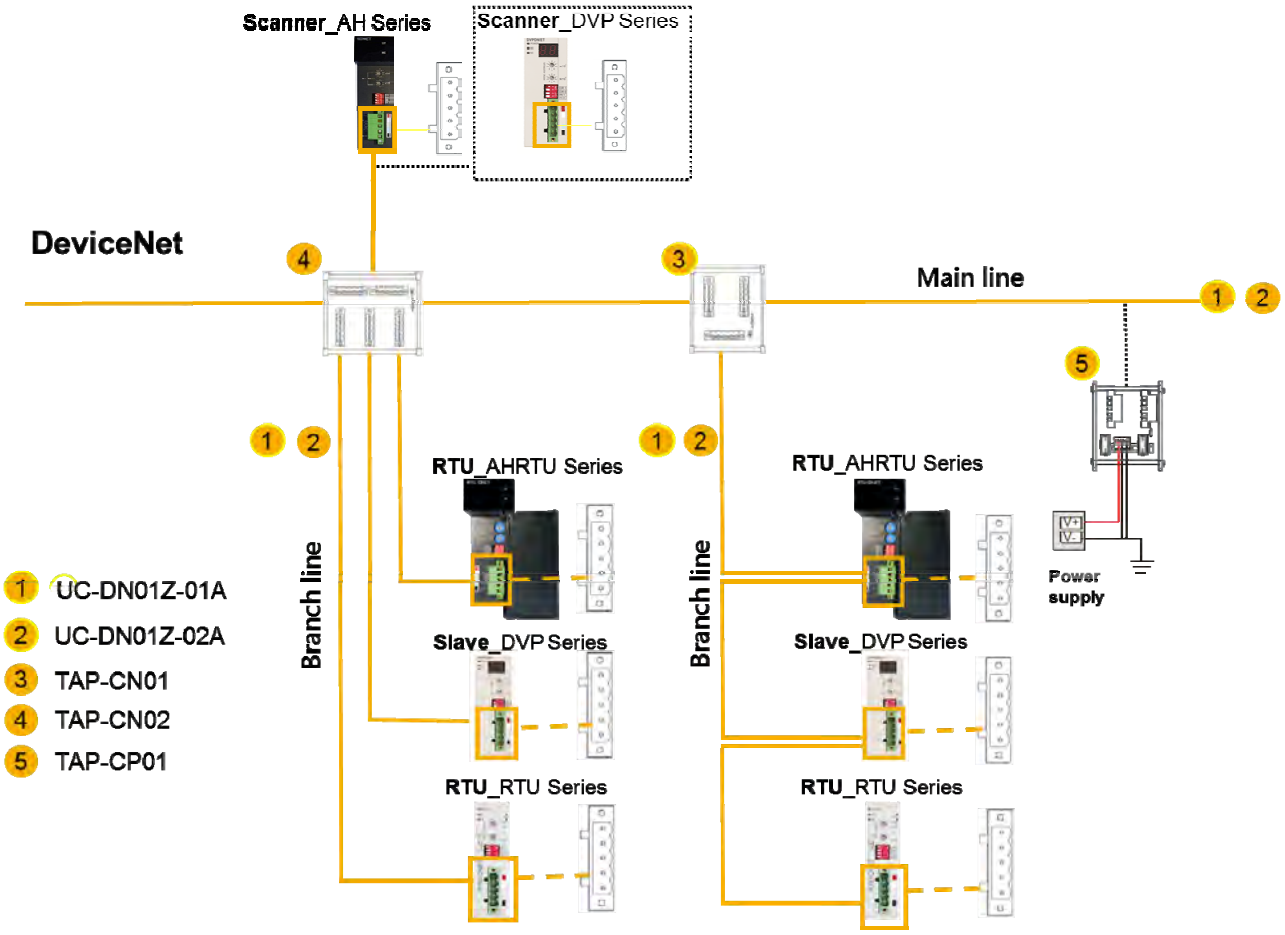
[*1] If connectors are connected to both ends of a PROFIBUS network, please set the connector switches to ON. If connectors are not connected to both ends of a PROFIBUS network, please set the connector switches to OFF.

- Cable

		Model	Length	Diameter
1		UC-PF01Z-01A	200 m	1PR #22 AWG FRFPE FRPE

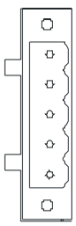
Note: The cable is sold by the meter. Max. ordering quantity: 305 meters(1 roll). Min. ordering quantity: 1 meter.

4.3 DeviceNet Communication



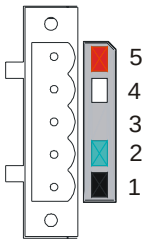
Note: DeviceNet requires that users connect a terminator to each end of a DeviceNet cable. The resistance of the terminators connected is 121 Ω (1/4 watts). Please refer to section 4.3.3 for more information about a terminator.

4.3.1 Applicable DeviceNet Models

Communication port	Classification	Model	Cable	Distribution box
	Scanner_AH series	AH10DNET-5A	1 2	3 4 5
	Scanner_DVP series	DVPDNET-SL	1 2	3 4 5
	Slave_AH series	--	--	--
	Slave_DVP series	DVPDT01-S, DVPDT02-H2, RTU-DNET	1 2	3 4 5
	RTU_AHRTU series	AHRTU-DNET-5A, AH10EMC-5A	1 2	3 4 5
	RTU_RTU series	RTU-DNET	1 2	3 4 5

4.3.2 Specifications Related to DeviceNet

- Pinout

Pin	Signal	Color	Description	
1	V-	Black	0 V DC	
2	CAN_L	Blue	Signal	
3	SHIELD	-	Shielded cable	
4	CAN_H	White	Signal +	
5	V+	Red	24 V DC	

- Cable

		Model	Length	AWG
1		UC-DN01Z-01A	305 m	2#15, 2#18 SHLD PVC (Thick)
2		UC-DN01Z-02A	305 m	2#22, 2#24 SHLD PVC (Thin)

Note 1: The cable is sold by the meter. Max. ordering quantity: 305 meters(1 roll). Min. ordering quantity: 1 meter.

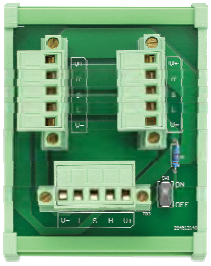
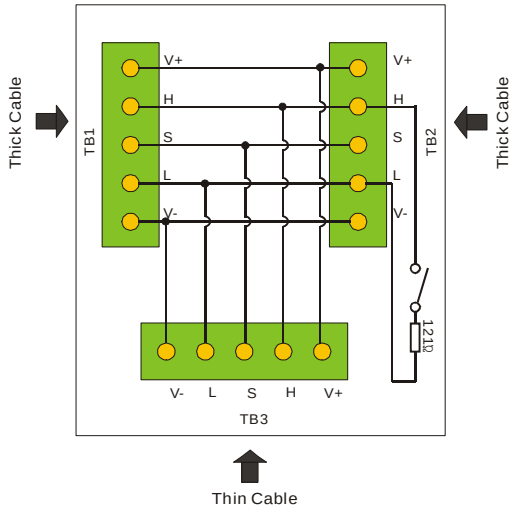
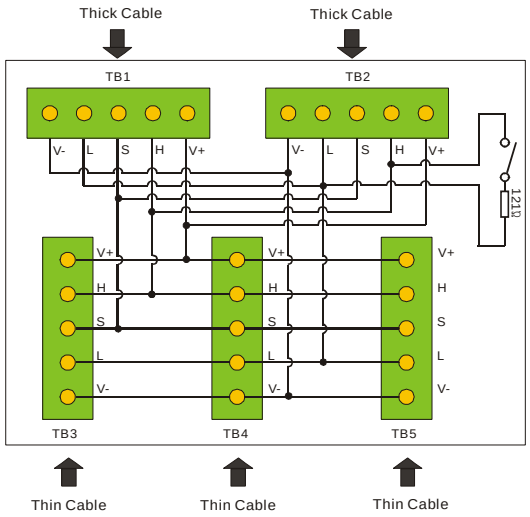
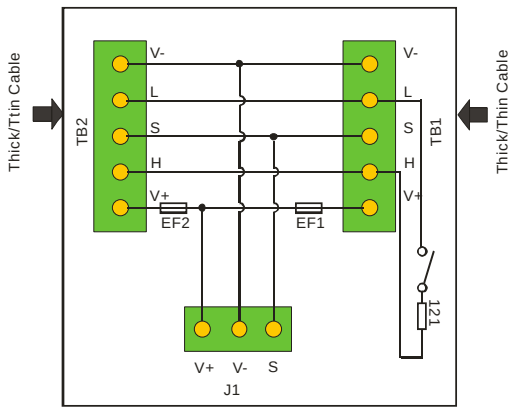
Note 2: 1 UC-DN01Z-01A and 2 UC-DN01Z-02A can be used as main cables or branch cables. The maximum communication distances that the two cables support are different. The maximum communication lengths that the two cables support under different DeviceNet transmission rates are shown below.

DeviceNet transmission rate (bit/s)	125 K	250 K	500 K
Maximum communication distance of UC-DN01Z-01A (m)	500	250	100
Maximum communication distance of UC-DN01Z-02A (m)	100	100	100

Note 2: DeviceNet stipulates the maximum communication distances of transmission rates. The relation between transmission rates and maximum communication distances is shown below.

Transmission rate (bit/s)	10 K	20 K	50 K	125 K	250 K	500 K
Maximum communication distance (m)	5000	2500	1000	500	250	100

- Distribution box

Model		Circuitry
3 TAP-CN01		
4 TAP-CN02		
5 TAP-CP01 (Power supply distribution box)		
Connector	Removable terminal block (5.08 mm)	
Terminator	121Ω	

4.3.3 Terminator

DeviceNet requires that users connect a terminator to each end of a DeviceNet cable. The resistance of the terminators connected is 121 Ω (1/4 watts).

1. Terminator connected to the starting end of a cable: The terminator in a distribution box can be used, that is, the terminator switch on a distribution box can be set to ON.

2. Terminator connected to the terminal end of a cable: A terminator needs to be connected. The resistance of the terminator is 121 Ω (1/4 watts).

A

Appendix A Cable Table

Table of Contents

A.1 Cable Table A-2

A.1 Cable Table

Type	Model	Purpose
Cables for PLC programming & serial communication	UC-PRG015-01A	Programming cable for PLC (mini USB) to PC, 1.5 m
	UC-PRG015-02A	Programming cable for TP(USB B type) to PC, 1.5 m
	UC-PRG020-12A	Programming cable for PLC (DB9 female/8-pin mini-DIN male) to PC, 2 m
	UC-PRG030-01A	Programming cable for PLC (mini USB) to PC, 3 m
	UC-PRG030-02A	Programming cable for TP (USB Type-B) to PC, 3 m
	UC-PRG030-10A	Programming cable for PLC/HMI/TP (DB9 female) to PC, 3 m
	UC-PRG030-20A	Programming cable for PLC/HMI (RJ45) to PC, 3 m
	UC-MS010-02A	Communication cable for PLC (8-pin mini-DIN male) to PC, 1 m
	UC-MS020-01A	Communication cable for PLC (8-pin mini-DIN male) to PC, 2 m
	UC-MS020-06A	Communication cable for PLC (8-pin mini-DIN male) to HMI, 2 m
	UC-MS030-01A	Communication cable for PLC (8-pin mini-DIN male) to PC, 3 m
	UC-MS030-06A	Communication cable for PLC (8-pin mini-DIN male) to HMI, 3 m
	UC-MS030-03A	Communication cable for TP (DB9 female) to AH500 PLC, 3 m
	UC-MS030-04A	Communication cable for AH500 PLC (DB9 male) to DMV, 3 m
Extension cables for I/O modules	UC-ET010-13B	I/O extension cable for external terminal module (HDC), 1 m
	UC-ET010-15B	I/O extension cable for external terminal module (HDC), 1 m
	UC-ET010-24A	I/O extension cable for external terminal module (MIL connector IDC40 to IDC40), 1 m
	UC-ET010-24B	I/O extension cable for external terminal module (MIL connector IDC40 to IDC40), 1 m (shield)
	UC-ET010-24C	I/O extension cable for external terminal module (MIL connector IDC40 to IDC20x2), 1 m
	UC-ET010-24D	I/O extension cable for external terminal module (MIL connector IDC40 to IDC20x2), 1 m (shield)
	UC-ET010-33B	I/O extension cable for external terminal module (DB37), 1 m
	UC-ET020-24B	I/O extension cable for external terminal module (MIL connector IDC40 to IDC40), 2 m (shield)
	UC-ET020-24D	I/O extension cable for external terminal module (MIL connector IDC40 to IDC20x2), 2 m (shield)
	UC-ET030-24B	I/O extension cable for external terminal module (MIL connector IDC40 to IDC40), 3 m (shield)
	UC-ET030-24D	I/O extension cable for external terminal module (MIL connector IDC40 to IDC20x2), 3 m (shield)

Type	Model	Purpose
	AHACAB06-5A	I/O extension cable for extension backplane, 0.6 m
	AHACAB10-5A	I/O extension cable for extension backplane, 1 m
	AHACAB15-5A	I/O extension cable for extension backplane, 1.5 m
	AHACAB30-5A	I/O extension cable for extension backplane, 3 m
	AHACAB50-5A	I/O extension cable for extension backplane, 5 m
	AHACABA0-5A	I/O extension cable for extension backplane, 10 m
	AHACABA5-5A	I/O extension cable for extension backplane, 15 m
	AHACABB0-5A	I/O extension cable for extension backplane, 20 m
	AHACABC0-5A	I/O extension cable for extension backplane, 30 m
	AHACABD0-5A	I/O extension cable for extension backplane, 40 m
	AHACABE0-5A	I/O extension cable for extension backplane, 50 m
	AHACABF0-5A	I/O extension cable for extension backplane, 60 m
	AHACABG0-5A	I/O extension cable for extension backplane, 70 m
	AHACABH0-5A	I/O extension cable for extension backplane, 80 m
	AHACABJ0-5A	I/O extension cable for extension backplane, 90 m
	AHACABK0-5A	I/O extension cable for extension backplane, 100 m
Motion control cables	UC-CMC003-01A	CANopen communication cable, 0.3 m
	UC-CMC005-01A	CANopen communication cable, 0.5 m
	UC-CMC010-01A	CANopen communication cable, 1 m
	UC-CMC015-01A	CANopen communication cable, 1.5 m
	UC-CMC020-01A	CANopen communication cable, 2 m
	UC-CMC030-01A	CANopen communication cable, 3 m
	UC-CMC050-01A	CANopen communication cable, 5 m
	UC-CMC100-01A	CANopen communication cable, 10 m
	UC-CMC200-01A	CANopen communication cable, 20 m
	UC-EMC003-02A	EtherCAT communication cable, 0.3 m
	UC-EMC005-02A	EtherCAT communication cable, 0.5 m
	UC-EMC010-02A	EtherCAT communication cable, 1 m
	UC-EMC020-02A	EtherCAT communication cable, 2 m

Type	Model	Purpose
	UC-EMC050-02A	EtherCAT communication cable, 5 m
	UC-EMC100-02A	EtherCAT communication cable, 10 m
	UC-EMC200-02A	EtherCAT communication cable, 20 m
	UC-EMC003-02B	EtherCAT communication cable, 0.3M
	UC-EMC005-02B	EtherCAT communication cable,0.5M
	UC-EMC010-02B	EtherCAT communication cable,1M
	UC-EMC020-02B	EtherCAT communication cable, 2M
	UC-EMC030-02B	EtherCAT communication cable, 3M
	UC-EMC050-02B	EtherCAT communication cable, 5M
	UC-EMC100-02B	EtherCAT communication cable,10M
Networking cables	UC-CMC003-01A	CANopen communication cable, 0.3 m
	UC-CMC005-01A	CANopen communication cable, 0.5 m
	UC-CMC010-01A	CANopen communication cable, 1 m
	UC-CMC015-01A	CANopen communication cable, 1.5 m
	UC-CMC020-01A	CANopen communication cable, 2 m
	UC-CMC030-01A	CANopen communication cable, 3 m
	UC-CMC050-01A	CANopen communication cable, 5 m
	UC-CMC100-01A	CANopen communication cable, 10 m
	UC-CMC200-01A	CANopen communication cable, 20 m
	UC-DN01Z-01A	DeviceNet communication cable, 305 m
	UC-DN01Z-02A	DeviceNet communication cable, 305 m
	UC-PF01Z-01A	PROFIBUS communication cable, 305 m
External terminal modules	UB-10-ID16A	External terminal module for digital input module(MIL connector)
	UB-10-ID32A	External terminal module for digital input module(MIL connector)
	UB-10-ID32B	External terminal module for digital input modules (DB37 connector)
	UB-10-OR16A	External terminal module for digital output modules (16-point relay output, MIL connector)
	UB-10-OR16B	External terminal module for digital output modules (16-point relay output, MIL connector)
	UB-10-OR32A	External terminal module for digital output modules (32-point relay output, DB37 connector)

Type	Model	Purpose
	UB-10-OR32B	External terminal module for digital output modules (32-point relay output, DB37 connector)
	UB-10-OT32A	External terminal module for digital output modules (transistor output, MIL connector)
	UB-10-OT32B	External terminal module for digital output modules (transistor output, DB37 connector)
	UB-10-IO16C	External terminal module for motion control modules (HDC)
	UB-10-IO22C	External terminal module for motion control modules (HDC)
	UB-10-IO24C	External terminal module for motion control modules (HDC)
	UB-10-IO34C	External terminal module for motion control modules (HDC)
Adapters/ connectors	TAP-CN01	DeviceNet/CANopen distribution Box, 1 to 2
	TAP-CN02	DeviceNet/CANopen distribution Box, 1 to 4
	TAP-CN03	DeviceNet/CANopen distribution Box, 1 to 4, RJ45 adapter
	TAP-CP01	Power supply distribution box
	UN-03EN-04A	RJ45 adapter
	UN-03PF-01A	PROFIBUS connector
	UN-03PF-02A	PROFIBUS connector
	UN-03PF-03A	PROFIBUS connector
Terminators	TAP-TR01	Terminator, 121 Ω
	TAP-TR02	Terminator, 150 Ω

MEMO

B

Appendix B USB Driver

Table of Contents

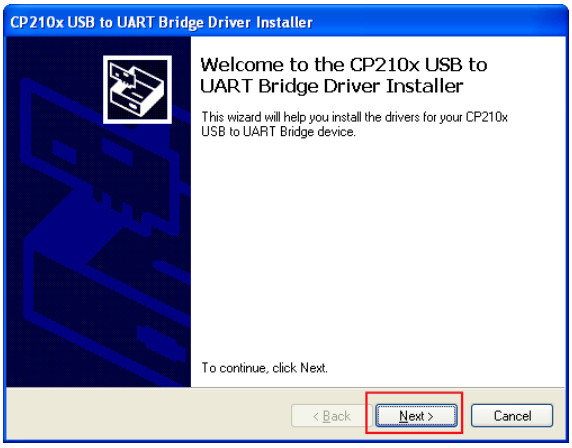
B.1 Installing the UC-PRG020-12A / IFD6500 Driver B-2

B.1 Installing the UC-PRG020-12A/IFD6500 Driver

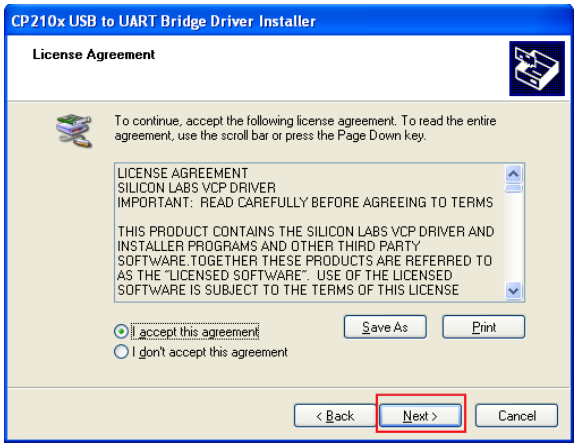
Double-click the executable file CP210xVCPInstaller_x86.exe or CP210xVCPInstaller_x64.exe, and then follow the steps below. (If a 32-bit Windows operating system is used, CP210xVCPInstaller_x86.exe should be double-clicked. If a 64-bit Windows operating system is used, CP210xVCPInstaller_x64.exe should be double-clicked.)

Please download the UC-PRG020-12A/IFD6500 driver from the official website of Delta (http://www.deltaww.com/).

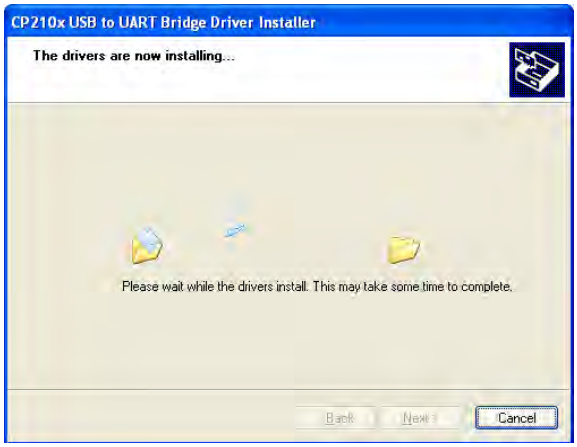
Step 1



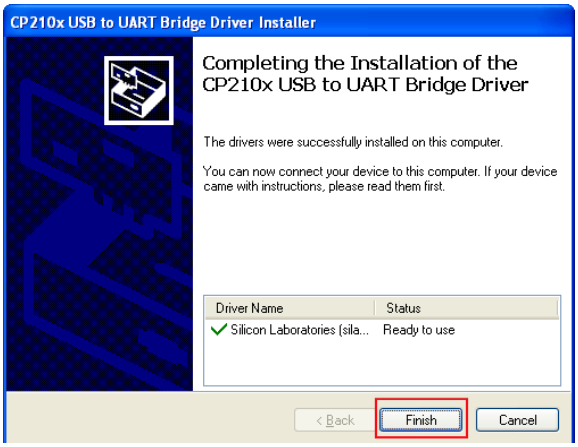
Step 2



Step 3



Step 4



Step 5

After UC-PRG020-12A/IFD6500 is connected to the computer, **Silicon Labs CP210x USB to UART Bridge (COMx)** will appear in the **Device Manager** window. **COMx** represents the communication port connected to UC-PRG020-12A/IFD6500.

4ManPro

Elements For Manufacturing Processes

SERVOMOTORES

SERIE A2

More Rapid, More Stable, More Precise

Delta Electronics, Inc., a leading manufacturer of industrial automation products, is pleased to announce the launch of its new high-performance ASDA-A2 series servo motors and servo drives with motion control.

The current trend for motion control has the control command source close to the drive. In response, Delta has developed the new ASDA-A2 series that offers excellent motion control so that the external controller is almost eliminated. ASDA-A2 series features a built-in electronic cam (E-CAM) function which provides an excellent solution for flying shear, rotary cut and synchronized motion applications. The all new position register control PR mode is a unique and significant function that provides a variety of control modes to enhance system performance.

The ASDA-A2 series also supports various industrial communications protocols, such as CANopen, DMCNET, EtherCAT which offers higher performance and high speed communications and enable the drive to integrate with other part of the automation more efficiently and effectively. The full-closed loop control, auto notch filter, vibration suppression and gantry control functions help to perform complex motions that require high precision and smooth operation. The 20-bit superior resolution encoder which is essential for accurate positioning applications is equipped as standard. In addition, the outstanding Capture and Compare functions for high-speed pulses offer the best support for stepless positioning. Other additional functionality, such as up to 1kHz frequency response, innovative editing software, high-speed PC monitoring (similar to a digital oscilloscope), and more, all drastically maximize the performance of the ASDA-A2 series.

Delta's new ASDA-A2 series is the ultimate servo system providing a total solution for a wide range of machine tools and industrial applications





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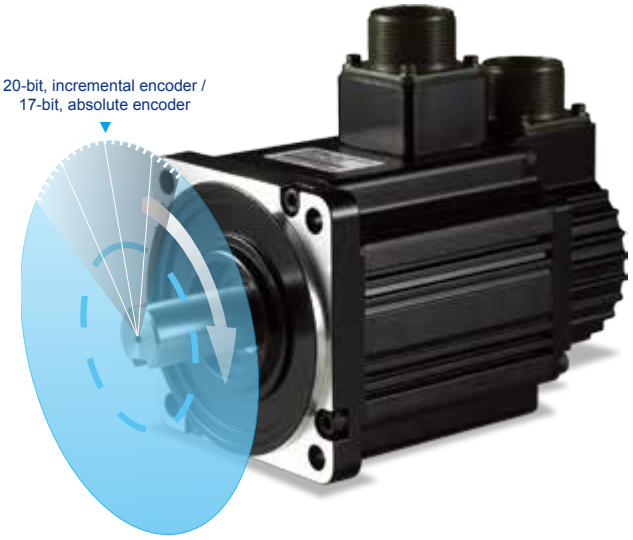
ASDA-A2 Series Features

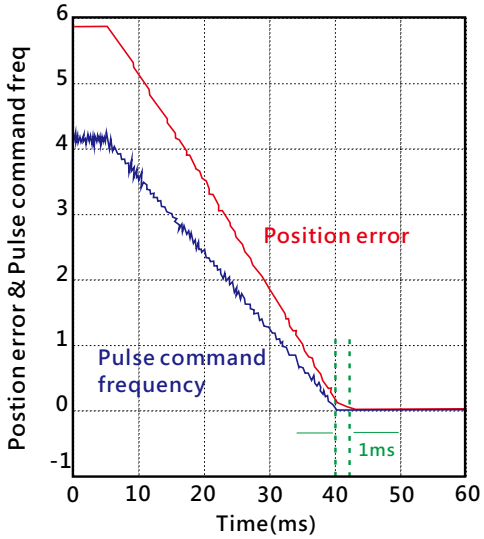
High Positioning Accuracy

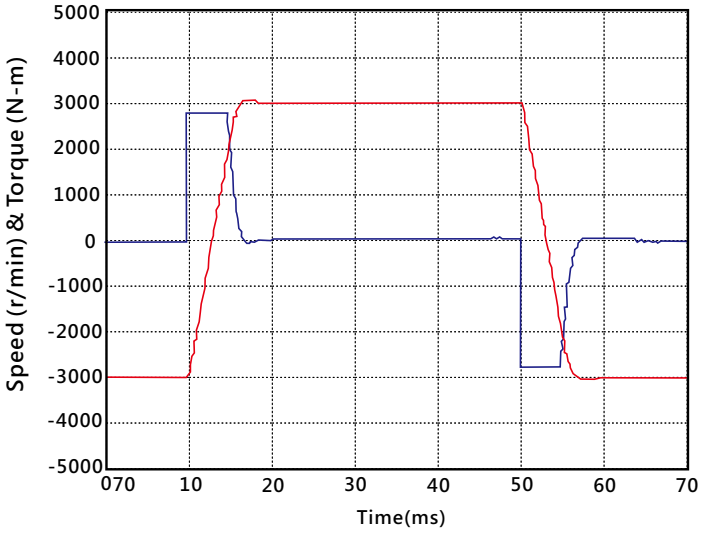
- ECMA series servo motors feature incremental encoders with 20-bit resolution which can eliminate unstable commands at low speed, smooth motor operation and enhance the accuracy of positioning.
- Absolute encoder supported. 17-bit motor position will not get lost when power is cut off.



High Responsiveness

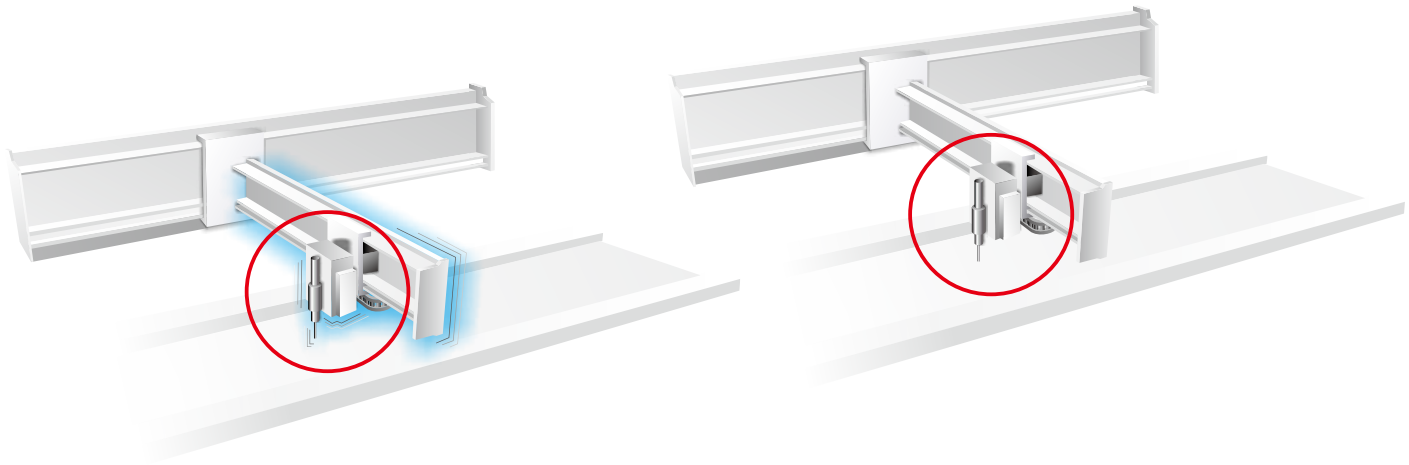
- Up to 1kHz frequency response.
- Settling time below 1ms.
- 7ms acceleration time for speeds from -3000 r/min to 3000 r/min with an empty load!
  (Note: The test record of a 400W motor with 60mm frame size)





Excellent Suppression Functions

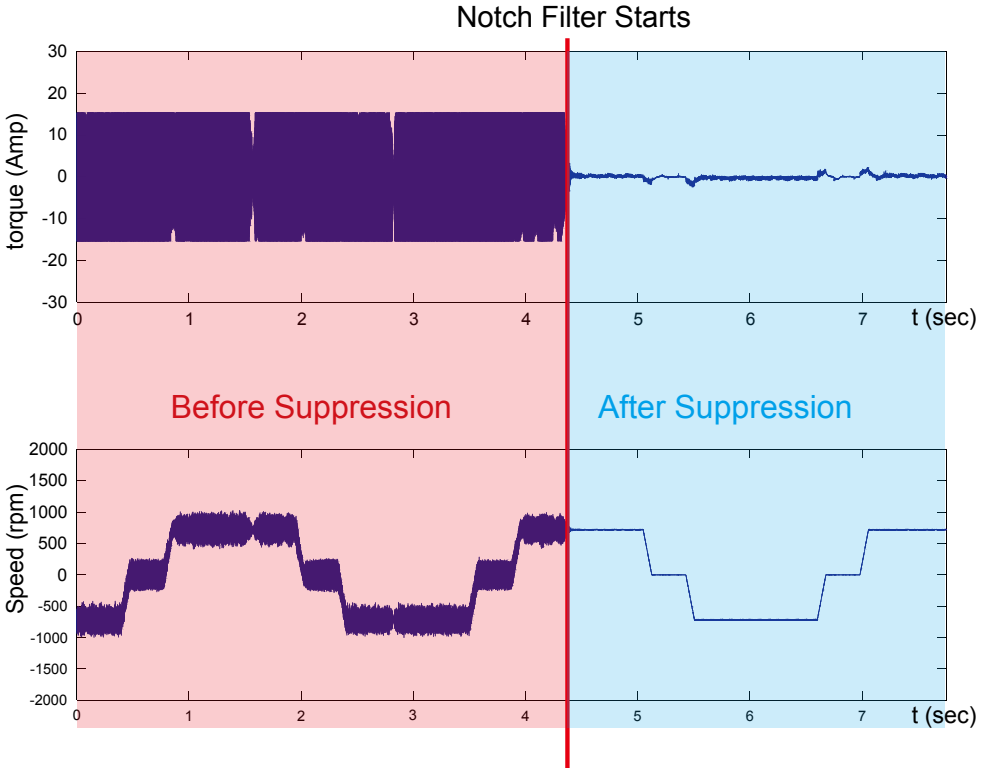
- Vibration Suppression (Low Frequency)
  Two vibration suppression filters are provided for long arm system to minimize the vibration at machine edges effectively.



Without Suppression Function When Settling

With Suppression Function When Settling

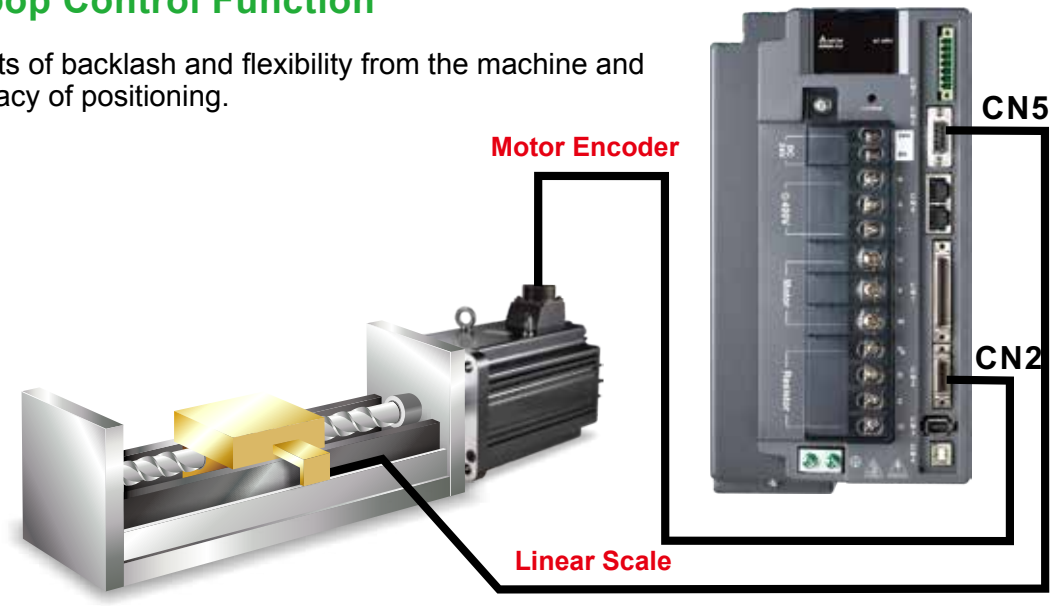
- Resonance Suppression (High Frequency)
  Two auto notch filters and one manual notch filter are provided to suppress mechanical resonance efficiently.



ASDA-A2 Series Features

Full-Closed Loop Control Function[*1]

- Reduces the effects of backlash and flexibility from the machine and ensures the accuracy of positioning.



Note:
*1. PT and DMCNET mode only.

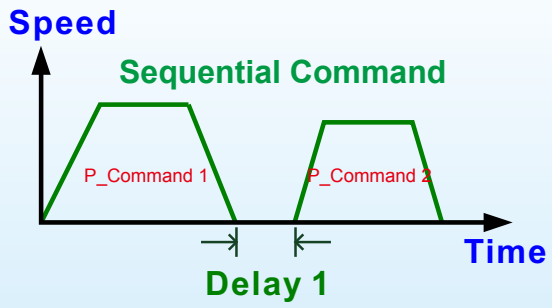
Electronic CAM (E-CAM) Function

- 720 points max. for E-CAM outline.
- Smooth interpolation between points can be completed automatically to yield a flexible programming.
- ASDA-Soft configuration software supported.
- Easy to use for flying shear, rotary cut, and other cam applications.

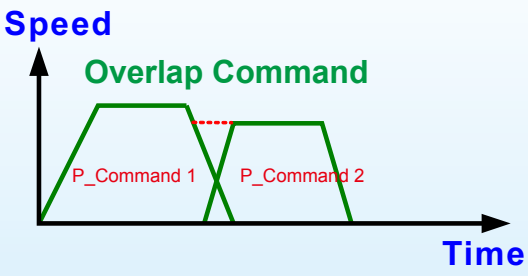


Versatile PR Mode

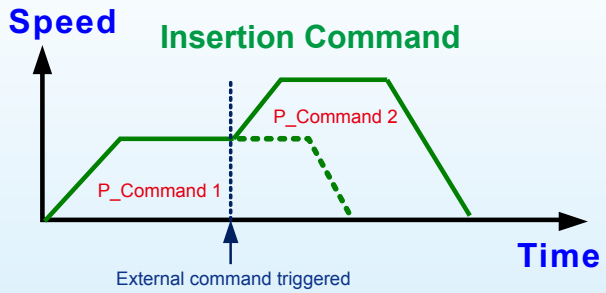
- ASDA-Soft configuration software supported.
- New sub-modes supported, not traditional point-to-point control.
- 64 procedures can be applied.
- Motion profile can be changed instantaneously.
- 35 Homing modes / Jump mode / Write parameter mode / Constant speed mode / Position control mode supported.



A command is executed only when the previous command is completed.



The second command is executed after the delay time or during the deceleration period.



Insertion changes the command executed at the moment it is inserted.

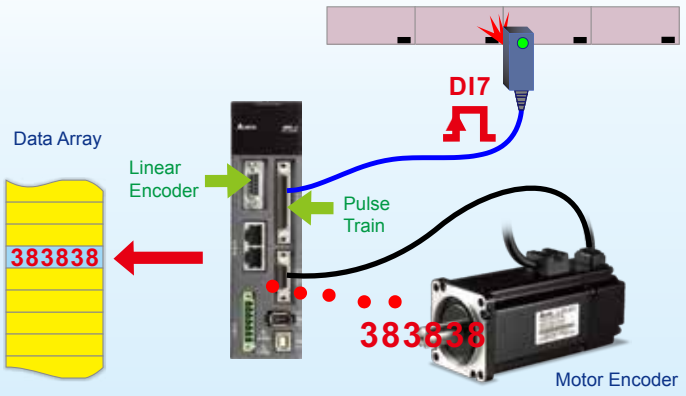


ASDA-A2 Series Features

Capture and Compare Functions

Capture - Position Latch Function

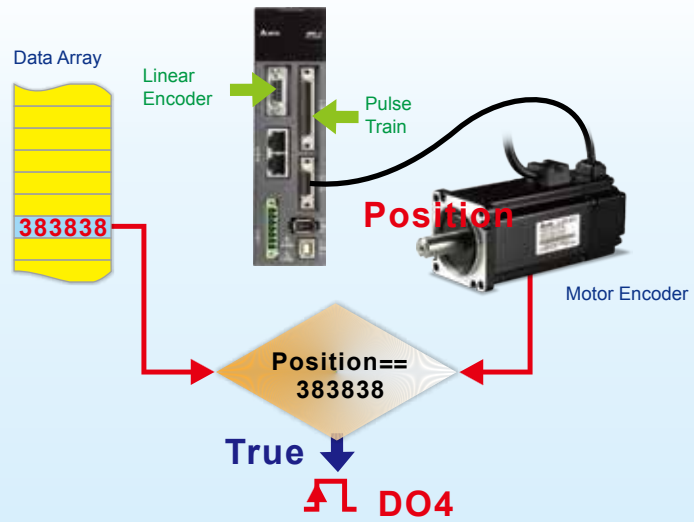
- Latches the coordinate value on the reference axis.
- Response time is less than 5us.
- It can be used to do mark tracing.
- Maximum 800 records



When DI7 is triggered, the latched position is recorded in Data Array.

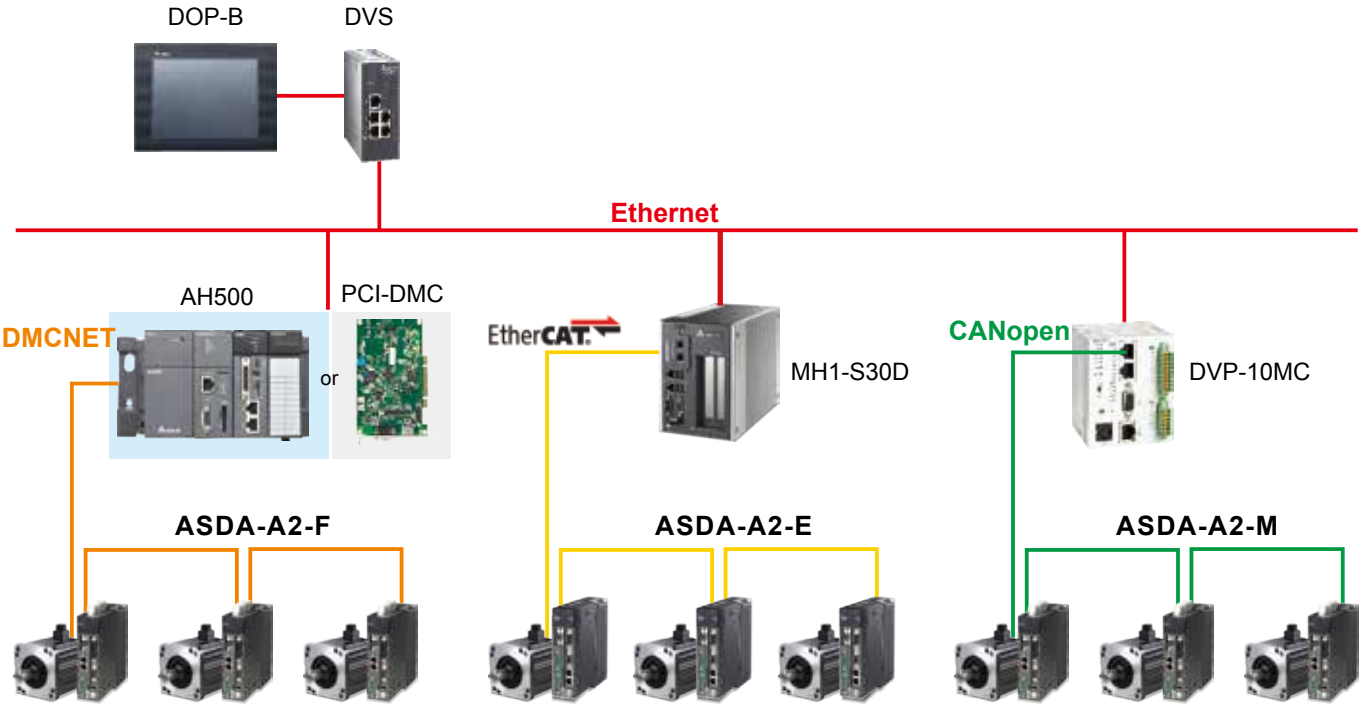
Compare - Position Detection Function

- Detects the location on the reference axis.
- Response time is less than 5us.
- It can be used for CCD camera applications.
- Maximum 800 records

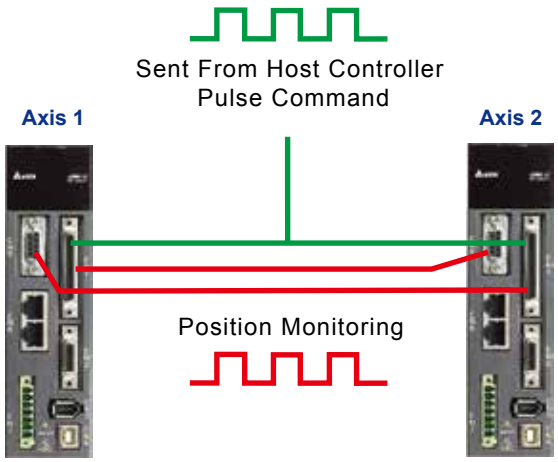


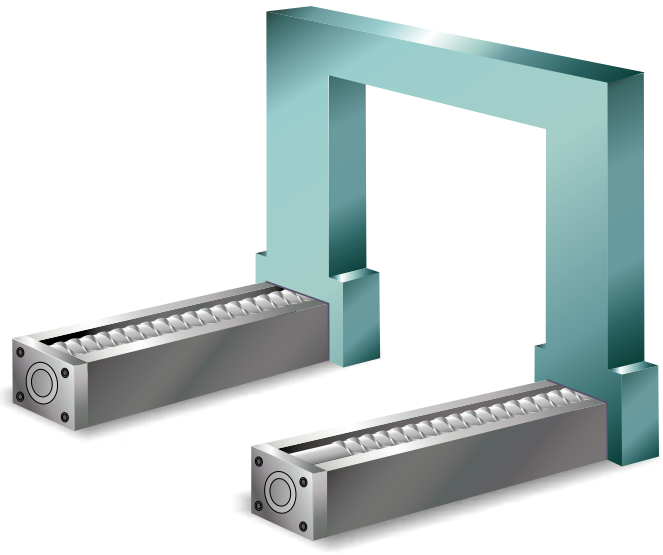
When the record in Data Array is the same as the detected position, DO4 will output.

Supports High-Speed DMCNET, EtherCAT, CANopen Protocols for Multi-Axis Synchronous Control



Integrated Gantry Control





Product Line-up

220V Series

Servo Motors				
Motor Series		Phase	Rated Output Power (W)	Model Name
Low Inertia	ECMA-C 3000 r/min	1-phase / 3-phase	50	ECMA-C1040F □ S
			100	ECMA-C △ 0401 □ S
			200	ECMA-C △ 0602 □ S
			400	ECMA-C △ 0604 □ S
			400	ECMA-C △ 0804 □ 7
			750	ECMA-C △ 0807 □ S
			750	ECMA-C △ 0907 □ S
			1000	ECMA-C △ 0910 □ S
			1000	ECMA-C △ 1010 □ S
			2000	ECMA-C △ 1020 □ S
			3000	ECMA-C △ 1330 □ 4
Medium Inertia	ECMA-E 2000 r/min	1-phase / 3-phase	500	ECMA-E △ 1305 □ S
			1000	ECMA-E △ 1310 □ S
			1500	ECMA-E △ 1315 □ S
			2000	ECMA-E △ 1320 □ S
			2000	ECMA-E △ 1820 □ S
			3000	ECMA-E △ 1830 □ S
			3500	ECMA-E △ 1835 □ S
Medium-High Inertia	ECMA-F 1500 r/min	1-phase / 3-phase	500	ECMA-F △ 1305 □ S
			850	ECMA-F △ 1308 □ S
			1300	ECMA-F △ 1313 □ S
			1800	ECMA-F △ 1318 □ S
			3000	ECMA-F △ 1830 □ S
			4500	ECMA-F △ 1845 □ S
			5500	ECMA-F △ 1855 □ 3
			7500	ECMA-F △ 1875 □ 3
			11000	ECMA-F1221B □ 3
			15000	ECMA-F1221F □ S
High Inertia	ECMA-C/G 3000 r/min	1-phase / 3-phase	400	ECMA-C △ 0604 □ H
			750	ECMA-C △ 0807 □ H
			300	ECMA-G △ 1303 □ S
			600	ECMA-G △ 1306 □ S
			900	ECMA-G △ 1309 □ S



1) The boxes (□) at the ends of the servo drive model names are for optional configurations. For the actual model name, please refer to the model explanation of
2) The boxes (△) in the model names represent encoder type. △ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit; △ =A: Absolute type
3) The boxes (□) in the model names represent shaft end/brake or the number of oil seal.

		Servo Drives		
Rated current (Arms)	Maximum current (A)	Model Name	Continuous Output Current (Arms)	Max. Instantaneous Current (A)
0.69	2.05	ASD-A2-0121-□	0.90	2.70
0.90	2.70			
1.55	4.65	ASD-A2-0221-□	1.55	4.65
2.60	7.80	ASD-A2-0421-□	2.60	7.80
2.60	7.80			
5.10	15.30	ASD-A2-0721-□	5.10	15.30
3.66	11.00			
4.25	12.37	ASD-A2-1021-□	7.30	21.90
7.30	21.90			
12.05	36.15	ASD-A2-2023-□	13.40	40.20
17.2	47.5	ASD-A2-3023-□	19.40	58.20
2.90	8.70	ASD-A2-0421-□	2.60	7.80
		ASD-A2-0721-□	5.10	15.30
5.60	16.80	ASD-A2-1021-□	7.30	21.90
8.30	24.90	ASD-A2-1521-□	8.30	24.90
11.01	33.03	ASD-A2-2023-□	13.40	40.20
11.22	33.66			
16.10	48.30	ASD-A2-3023-□	19.40	58.20
19.20	57.60			
3.90	12.10	ASD-A2-0721-□	5.10	15.30
7.10	19.40	ASD-A2-1021-□	7.30	21.90
12.60	38.60	ASD-A2-2023-□	13.40	40.20
13.00	36.00			
19.40	58.20	ASD-A2-3023-□	19.40	58.20
32.50	81.30	ASD-A2-4523-□	32.50	70.7
		ASD-A2-5523-□	40.00	106
40.00	100.00	ASD-A2-5523-□	40.00	106
47.50	118.80	ASD-A2-7523-□	47.50	141.1
51.80	129.50	ASD-A2-1B23-□	54.40	141.1
67	162	ASD-A2-1F23-□	70.00	212.2
2.60	7.80	ASD-A2-0421□	2.60	7.80
5.10	15.30	ASD-A2-0721-□	5.10	15.30
2.50	7.50	ASD-A2-0421-□	2.60	7.80
4.80	14.40	ASD-A2-0721-□	5.10	15.30
7.50	22.50	ASD-A2-1021-□	7.30	21.90

the servo drive.

Product Line-up

400V Series

Servo Motors				
Motor Series		Phase	Rated Output Power (W)	Model Name
Low Inertia	ECMA-J 3000 r/min	3-phase	400	ECMA-J △ 0604 □ S
			750	ECMA-J △ 0807 □ S
			750	ECMA-J △ 0907 □ S
			1000	ECMA-J △ 0910 □ S
			1000	ECMA-J △ 1010 □ S
			2000	ECMA-J △ 1020 □ S
			3000	ECMA-J △ 1330 □ 4
Medium Inertia	ECMA-K 2000 r/min	3-phase	750	ECMA-K △ 1305 □ S
			1000	ECMA-K △ 1310 □ S
			1500	ECMA-K △ 1315 □ S
			2000	ECMA-K △ 1320 □ S
			2000	ECMA-K △ 1820 □ S
Medium-High Inertia	ECMA-L 1500 r/min	3-phase	750	ECMA-L △ 1305 □ S
			850	ECMA-L △ 1308 □ S
			1300	ECMA-L △ 1313 □ S
			3000	ECMA-L △ 1830 □ S
			4500	ECMA-L △ 1845 □ S
			5500	ECMA-L △ 1855 □ 3
			7500	ECMA-L △ 1875 □ 3
			11000	ECMA-L1221B □ 3
			15000	ECMA-L1221F □ 3
High Inertia	ECMA-M 3000 r/min	3-phase	900	ECMA-M △ 1309 □ S

NOTE

1) The boxes (□) at the ends of the servo drive model names are for optional configurations. For the actual model name, please refer to the model explanatio
2) The boxes (△) in the model names represent encoder type. △ =1: Incremental encoder, 20-bit ; △ =2: Incremental encoder, 17-bit; △ =A: Absolute type
3) The boxes (□) in the model names represent shaft end/brake or the number of oil seal.

		Servo Drives		
Rated current (Arms)	Maximum current (A)	Model Name	Continuous Output Current (Arms)	Max. Instantaneous Current (A)
1.62	4.85	ASD-A2-0743-□	3.07	9.21
3.07	9.5	ASD-A2-0743-□	3.07	9.21
		ASD-A2-1043-□	3.52	9.86
2.16	6.37	ASD-A2-0743-□	3.07	9.21
2.4	7.17	ASD-A2-1043-□	3.52	9.86
4.15	12.46	ASD-A2-1543-□	5.02	10.04
		ASD-A2-2043-□	6.66	18.65
7.09	21.28	ASD-A2-2043-□	6.66	18.65
		ASD-A2-3043-□	11.9	33.2
9.8	29.99	ASD-A2-3043-□	11.9	33.32
1.7	5.2	ASD-A2-0743-□	3.07	9.21
3.52	10.56	ASD-A2-1043-□	3.52	9.86
		ASD-A2-1543-□	5.02	10.04
		ASD-A2-2043-□	6.66	18.65
5.02	15.06	ASD-A2-1543-□	5.02	10.04
		ASD-A2-2043-□	6.66	18.65
6.66	19.98	ASD-A2-2043-□	6.66	18.65
		ASD-A2-3043-□	11.9	33.32
6.6	19.88	ASD-A2-2043-□	6.66	18.65
		ASD-A2-3043-□	11.9	33.32
2.1	6.1	ASD-A2-0743-□	3.07	9.21
3.4	8.85	ASD-A2-1043-□	3.52	9.86
5.02	15	ASD-A2-1543-□	5.02	10.04
		ASD-A2-2043-□	6.66	18.65
11.53	34.6	ASD-A2-3043-□	11.9	33.32
		ASD-A2-4543-□	20	44
20.8	52	ASD-A2-4543-□	20	44
		ASD-A2-5543-□	22.04	48.49
		ASD-A2-7543-□	28.39	62.46
22.37	56	ASD-A2-5543-□	22.04	48.49
		ASD-A2-7543-□	28.39	62.46
27.3	68.3	ASD-A2-7543-□	28.39	62.46
		ASD-A2-1B43-□	28.1	61.82
		ASD-A2-1F43-□	38.65	85.03
27.2	68	ASD-A2-1B43-□	28.1	61.82
		ASD-A2-1F43-□	38.65	85.03
41.6	100	ASD-A2-1F43-□	38.65	85.03
4.4	13.1	ASD-A2-1543-□	5.02	10.04

n of the servo drive.

Model Explanation

ASDA-A2 Series Servo Drives

ASD - A2[*5] - 04 21 - M

Product Name:
AC Servo Drive

Series:
A2

Rated Output Power

01: 100 W	10: 1 kW	45: 4.5 kW
02: 200 W	15: 1.5 kW	55: 5.5 kW
04: 400 W	20: 2 kW	75: 7.5 kW
07: 750 W	30: 3 kW	1B: 11 kW
		1F: 15 kW

Input Voltage and Phase
21: 220V 1-phase / 3-phase[*6]
23: 220V 3-phase
43: 400V 3-phase

Model Type
(see the table below)

	Type	RS-485 (CN3)	Full-Closed Control (CN5) [*1]	Extension Port for Digital Input (CN7)	EtherCAT [*4]	CANpen	DMCNET	Analog Voltage Control	Pulse Input Port	PR Parameters	E-CAM [*3]
Standard Model	L	○	○	X	X	X	X	○	○	○	X
	U	○	○	○	X	X	X	○	○	○	○
Network Model	E	X	○	○	○	X	X	X	X	○	○
	F	○	○	X	X	X	○	X	X	○ [*2]	X
	M	○	○	X	X	○	X	X	○	○	○

NOTE

1. In PR mode, only A2-F supports full-closed control function.
2. When applying communication mode (A2-E, -F, -M models), PR parameters can be read and written through DMCNET only.
3. E-CAM function can only be used in PR mode.
4. For information about ASDA A2-E EtherCAT interface servo drive, please refer to the ASDA A2-E brochure.
5. For communication mode -F/-M models with 400V/11kW, 15kW is categorized as ASDA-A2R.
6. Rated power of 100W to 1.5kW are marked number 21 with 220V, single-phase and three-phase connections

ECMA Series Servo Motors

ECM A - C1 06 02 E S

Product Name
ECM: Electrical Commutation Motor

Driving Type
A: AC Servo Motor

S: Standard Shaft Diameter
H: High Inertia Model

Shaft Type and Oil Seal	W/O Brake W/O Oil Seal	With Brake W/O Oil Seal	W/O Brake With Oil Seal	With Brake With Oil Seal
Round Shaft (with screw hole)	-	-	C	D
Keyway	E	F	-	-
Keyway (with screw hole)	P	Q	R	S

Series
Rated Voltage / Rated Speed

C: 220V / 3000 r/min	J: 400V / 3000 r/min
E: 220V / 2000 r/min	K: 400V / 2000 r/min
F: 220V / 1500 r/min	L: 400V / 1500 r/min
G: 220V / 1000 r/min	M: 400V / 1000 r/min

Encoder Type

1: Incremental encoder, 20-bit	A: Absolute encoder,
2: Incremental encoder, 17-bit	Single-turn: 17-bit
3: 2500 ppr	Multi-turn: 16-bit

Motor Frame Size

04: 40 mm	10: 100 mm
06: 60 mm	13: 130 mm
08: 80 mm	18: 180 mm
09: 86 mm	22: 220 mm

Rated Output Power

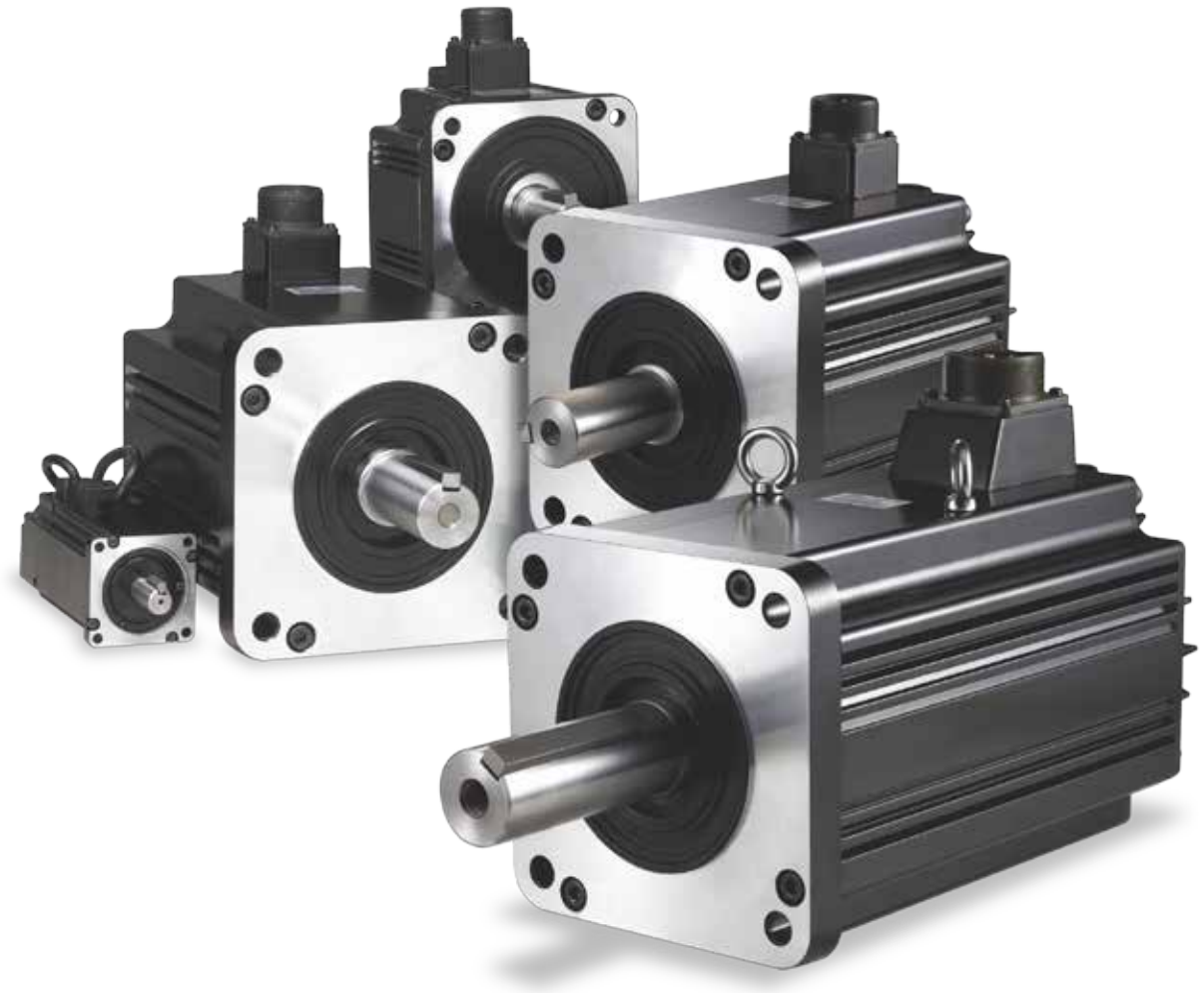
0F: 50 W	08: 850 W	35: 3.5 kW
01: 100 W	09: 900 W	45: 4.5 kW
02: 200 W	10: 1 kW	50: 5.0 kW
03: 300 W	13: 1.3 kW	55: 5.5 kW
04: 400 W	15: 1.5 kW	75: 7.5 kW
05: 500 W	18: 1.8 kW	1B: 11 kW
06: 600 W	20: 2 kW	1F: 15 kW
07: 750 W	30: 3 kW	

Servo Motor Features

ECMA series servo motors are permanent AC servo motors, capable of combining with 200 to 230V ASDA-A2 220V series AC servo drives from 50 W to 15 kW and 380V to 480V ASDA-A2 400V series AC servo drives from 750 W to 7.5 kW.

For the 220V series, there are 40 mm, 60 mm, 80 mm, 86 mm, 100 mm, 130 mm, 180 mm, and 200 mm eight kinds of frame sizes available. The motor speed is from 1000 r/min to 5000 r/min and the torque output is from 0.477 N-m to 224 N-m.

For the 400V series, there are 60 mm, 80 mm, 86 mm, 100 mm, 130 mm, 180 mm, six kinds of frame sizes available. The motor speed is from 1500 r/min to 5000 r/min and the torque output is from 3.82 N-m to 119.36 N-m In terms of optional configurations, ECMA series provides brake and oil seal to fully support our customers' needs. It also offers two different shaft selections, round shaft and keyway, for various applications.



Servo Motor Specifications

Low Inertia Series- 220V Series

ECMA Series	C104	C △ 04	C △ 06		C △ 08		C △ 09		C △ 10		C △ 13
	0F	01	02	04 □ S	04	07	07	10	10	20	30
Rated output power (kW)	0.05	0.1	0.2	0.4	0.4	0.75	0.75	1.0	1.0	2.0	3.0
Rated torque (N-m)*1	0.159	0.32	0.64	1.27	1.27	2.39	2.39	3.18	3.18	6.37	9.55
Maximum torque (N-m)	0.477	0.96	1.92	3.82	3.82	7.16	7.14	8.78	9.54	19.11	28.65
Rated speed (r/min)	3000						3000		3000		3000
Maximum speed (r/min)	5000						3000		5000		4500
Rated current (A)	0.69	0.90	1.55	2.6	2.6	5.1	3.66	4.25	7.3	12.05	17.2
Maximum current (A)	2.05	2.70	4.65	7.8	7.8	15.3	11	12.37	21.9	36.15	47.5
Power rating (kW/s)	12.27	27.7	22.4	57.6	24.0	50.4	29.6	38.6	38.1	90.6	71.8
Rotor moment of inertia ($x10^{-4}$kg-m^2)	0.0206	0.037	0.177	0.277	0.68	1.13	1.93	2.62	2.65	4.45	12.7
Mechanical time constant (ms)	1.2	0.75	0.80	0.53	0.74	0.63	1.72	1.20	0.74	0.61	1.11
Torque constant-KT (N-m/A)	0.23	0.36	0.41	0.49	0.49	0.47	0.65	0.75	0.44	0.53	0.557
Voltage constant-KE (mV/(r/min)	9.8	13.6	16	17.4	18.5	17.2	24.2	27.5	16.8	19.2	20.98
Armature resistance (Ohm)	12.7	9.30	2.79	1.55	0.93	0.42	1.34	0.897	0.20	0.13	0.0976
Armature inductance (mH)	26	24.0	12.07	6.71	7.39	3.53	7.55	5.7	1.81	1.50	1.21
Electrical time constant (ms)	2.05	2.58	4.3	4.3	7.96	8.36	5.66	6.35	9.3	11.4	12.4
Insulation class	Class A (UL), Class B (CE)										
Insulation resistance	100MΩ , DC 500V above										
Insulation strength	1.8k Vac,1 sec										
Weight (kg)(without brake)	0.42	0.5	1.2	1.6	2.1	3.0	2.9	3.8	4.3	6.2	7.8
Weight (kg)(with brake)	--	0.8	1.5	2.0	2.9	3.8	3.69	5.5	4.7	7.2	9.2
Max. radial shaft load (N)	78.4	78.4	196	196	245	245	245	245	490	490	490
Max. thrust shaft load (N)	39.2	39.2	68	68	98	98	98	98	98	98	98
Power rating (kW/s)(with brake)	--	25.6	21.3	53.8	22.1	48.4	29.3	37.9	30.4	82	65.1
Rotor moment of inertia ($x10^{-4}$kg-m^2)(with brake)	--	0.04	0.19	0.30	0.73	1.18	1.95	2.67	3.33	4.95	14.0
Mechanical time constant (ms)(with brake)	--	0.81	0.85	0.57	0.78	0.65	1.74	1.22	0.93	0.66	1.22
Brake holding torque [Nt-m (min)]*2	--	0.3	1.3	1.3	2.5	2.5	2.5	2.5	8	8	10.0
Brake power consumption (at 20˚C)[W]	--	7.3	6.5	6.5	8.2	8.2	8.2	8.2	18.7	18.7	19.0
Brake release time [ms (Max)]	--	5	10	10	10	10	10	10	10	10	10
Brake pull-in time [ms (Max)]	--	25	70	70	70	70	70	70	70	70	70
Vibration grade (μm)	15										
Operating temperature (˚C)	0ºC to 40ºC										
Storage temperature (˚C)	-10ºC to 80ºC										
Operating humidity	20 to 90%RH (non-condensing)										
Storage humidity	20 to 90%RH (non-condensing)										
Vibration capacity	2.5G										
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))										
Approvals	CE c UL us										

*1. Rate torque values are continuous permissible values at 0 ~ 40˚C ambient temperature when attaching with the sizes of heatsinks listed below:
ECMA-_ _ 04 / 06 / 08: 250 mm x 250 mm x 6 mm
ECMA-_ _ 10: 300 mm x 300 mm x 12 mm
ECMA-_ _ 13: 400 mm x 400 mm x 20 mm
ECMA-_ _ 18: 550 mm x 550 mm x 30 mm
ECMA-_ _ 22: 650 mm x 650 mm x 35 mm
Material type : Aluminum – F40, F60, F80, F100, F130, F180, F220

*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Medium Series- 220V Series

ECMA Series	E △ 13				E △ 18		
	05	10	15	20	20	30	35
Rated output power (kW)	0.5	1.0	1.5	2.0	2.0	3.0	3.5
Rated torque (N-m)*1	2.39	4.77	7.16	9.55	9.55	14.32	16.71
Maximum torque (N-m)	7.16	14.3	21.48	28.65	28.65	42.97	50.13
Rated speed (r/min)	2000						
Maximum speed (r/min)	3000						
Rated current (A)	2.9	5.6	8.3	11.01	11.22	16.1	19.2
Maximum current (A)	8.7	16.8	24.9	33.03	33.66	48.3	57.6
Power rating (kW/s)	7.0	27.1	45.9	62.5	26.3	37.3	50.8
Rotor moment of inertia ($x10^{-4}$kg-m^2)(without brake)	8.17	8.41	11.18	14.59	34.68	54.95	54.95
Mechanical time constant (ms)	1.91	1.51	1.10	0.96	1.62	1.06	1.08
Torque constant-KT (N-m/A)	0.83	0.85	0.87	0.87	0.85	0.89	0.87
Voltage constant-KE (mV/(r/min)	30.9	31.9	31.8	31.8	31.4	32.0	32
Armature resistance (Ohm)	0.57	0.47	0.26	0.174	0.119	0.052	0.052
Armature inductance (mH)	7.39	5.99	4.01	2.76	2.84	1.38	1.38
Electrical time constant (ms)	12.96	12.88	15.31	15.86	23.87	26.39	26.39
Insulation class	Class A (UL), Class B (CE)						
Insulation resistance	100MΩ , DC 500V above						
Insulation strength	1.8k Vac,1 sec						
Weight (kg)(without brake)	6.8	7.0	7.5	7.8	13.5	18.5	18.5
Weight (kg)(with brake)	8.2	8.4	8.9	9.2	17.5	22.5	22.5
Max. radial shaft load (N)	490	490	490	490	1176	1470	1470
Max. thrust shaft load (N)	98	98	98	98	490	490	490
Power rating (kW/s)(with brake)	6.4	24.9	43.1	57.4	24.1	35.9	48.9
Rotor moment of inertia ($x10^{-4}$kg-m^2)(with brake)	8.94	9.14	11.90	15.88	37.86	57.06	57.06
Mechanical time constant (ms)(with brake)	2.07	1.64	1.19	1.05	1.77	1.10	1.12
Brake holding torque [Nt-m (min)]*2	10.0	10.0	10.0	10.0	25.0	25.0	25.0
Brake power consumption (at 20˚C)[W]	19.0	19.0	19.0	19.0	20.4	20.4	20.4
Brake release time [ms (Max)]	10	10	10	10	10	10	10
Brake pull-in time [ms (Max)]	70	70	70	70	70	70	70
Vibration grade (μm)	15						
Operating temperature (˚C)	0ºC to 40ºC						
Storage temperature (˚C)	-10ºC to 80ºC						
Operating humidity	20 to 90%RH (non-condensing)						
Storage humidity	20 to 90%RH (non-condensing)						
Vibration capacity	2.5G						
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))						
Approvals	CE c UL us						

*1. Rate torque values are continuous permissible values at 0 ~ 40˚C ambient temperature when attaching with the sizes of heatsinks listed below:
ECMA-_ _ 04 / 06 / 08: 250 mm x 250 mm x 6 mm
ECMA-_ _ 10: 300 mm x 300 mm x 12 mm
ECMA-_ _ 13: 400 mm x 400 mm x 20 mm
ECMA-_ _ 18: 550 mm x 550 mm x 30 mm
ECMA-_ _ 22: 650 mm x 650 mm x 35 mm
Material type : Aluminum – F40, F60, F80, F100, F130, F180, F220

*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Servo Motor Specifications

Medium-High Inertia Series- 220V Series

ECMA Series	F △ 13				F △ 18				F122	
	05	08	13	18	30	45	55	75	1B	1F
Rated output power (kW)	0.5	0.85	1.3	1.8	3.0	4.5	5.5	7.5	11	15
Rated torque (N-m)*1	3.18	5.41	8.34	11.48	19.10	28.65	35.01	47.74	70	95.4
Maximum torque (N-m)	8.92	13.8	23.3	28.7	57.29	71.62	87.53	119.36	175	224.0
Rated speed (r/min)	1500									
Maximum speed (r/min)	3000								2000	
Rated current (A)	3.9	7.1	12.6	13	19.4	32.5	40.0	47.5	51.8	67
Maximum current (A)	12.1	19.4	38.6	36	58.2	81.3	100.0	118.8	129.5	162
Power rating (kW/s)	9.8	21.52	34.78	52.93	66.4	105.5	122.9	159.7	144.9	201.8
Rotor moment of inertia ($x10^{-4}$kg-m^2)(without brake)	10.3	13.6	20	24.9	54.95	77.75	99.78	142.7	338	451
Mechanical time constant (ms)	2.8	2.43	1.62	1.7	1.28	0.92	0.96	0.63	1.38	1.23
Torque constant-KT (N-m/A)	0.82	0.76	0.66	0.88	0.98	0.88	0.88	1.01	1.37	1.42
Voltage constant-KE (mV/(r/min)	29.5	29.2	24.2	32.2	35.0	32.0	31.0	35.5	49	50
Armature resistance (Ohm)	0.624	0.38	0.124	0.185	0.077	0.032	0.025	0.015	0.026	0.0184
Armature inductance (mH)	7	4.77	1.7	2.6	1.27	0.89	0.60	0.40	0.65	0.48
Electrical time constant (ms)	11.22	12.55	13.71	14.05	16.5	27.8	24.0	26.7	24.79	26.09
Insulation class	Class A (UL), Class B (CE)									
Insulation resistance	100MΩ , DC 500V above									
Insulation strength	1.8k Vac,1 sec									
Weight (kg)(without brake)	6.3	8.6	9.4	10.5	18.5	23.5	30.5	40.5	56.4	75
Weight (kg)(with brake)	7.7	10.0	10.8	11.9	22.5	29	36	46	68.4	87
Max. radial shaft load (N)	490	490	490	490	1470	1470	1764	1764	3300	3300
Max. thrust shaft load (N)	98	98	98	98	490	490	588	588	1100	1100
Power rating (kW/s)(with brake)	8.8	19.78	32.66	50.3	63.9	101.8	119.4	156.6	141.4	197.1
Rotor moment of inertia ($x10^{-4}$kg-m^2)(with brake)	11.5	14.8	21.3	26.2	57.06	80.65	102.70	145.55	346.5	461.8
Mechanical time constant (ms)(with brake)	3.12	2.65	1.73	1.79	1.33	0.96	0.99	0.64	1.41	1.25
Brake holding torque[Nt-m(min)]*2	10	10.0	10.0	10.0	25.0	55.0	55.0	55.0	115	115
Brake power consumption (at 20˚C)[W]	19	19.0	19.0	19.0	20.4	19.9	19.9	19.9	28.8	28.8
Brake release time [ms (Max)]	10	10	10	10	10	10	10	10	10	10
Brake pull-in time [ms (Max)]	70	70	70	70	70	70	70	70	70	70
Vibration grade (μm)	15									
Operating temperature (˚C)	0ºC to 40ºC									
Storage temperature (˚C)	-10ºC to 80ºC									
Operating humidity	20 to 90%RH (non-condensing)									
Storage humidity	20 to 90%RH (non-condensing)									
Vibration capacity	2.5G									
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))									
Approvals	CE c UL us									

*1. Rate torque values are continuous permissible values at 0 ~ 40˚C ambient temperature when attaching with the sizes of heatsinks listed below:
ECMA-_ _ 04 / 06 / 08: 250 mm x 250 mm x 6 mm
ECMA-_ _ 10: 300 mm x 300 mm x 12 mm
ECMA-_ _ 13: 400 mm x 400 mm x 20 mm
ECMA-_ _ 18: 550 mm x 550 mm x 30 mm
ECMA-_ _ 22: 650 mm x 650 mm x 35 mm
Material type : Aluminum – F40, F60, F80, F100, F130, F180, F220

*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

High Inertia Series- 220V Series

ECMA Series	C △ 06	C △ 08	G △ 13		
	04□H	07□H	03	06	09
Rated output power (kW)	0.4	0.75	0.3	0.6	0.9
Rated torque (N-m)*1	1.27	2.39	2.86	5.73	8.59
Maximum torque (N-m)	3.82	7.16	8.59	17.19	21.48
Rated speed (r/min)	3000		1000		
Maximum speed (r/min)	5000		2000		
Rated current (A)	2.6	5.1	2.5	4.8	7.5
Maximum current (A)	7.8	15.3	7.5	14.4	22.5
Power rating (kW/s)	21.7	19.63	10.0	39.0	66.0
Rotor moment of inertia ($x10^{-4}$kg-m^2)(without brake)	0.743	2.91	8.17	8.41	11.18
Mechanical time constant (ms)	1.42	1.6	1.84	1.40	1.06
Torque constant-KT (N-m/A)	0.49	0.47	1.15	1.19	1.15
Voltage constant-KE (mV/(r/min)	17.4	17.2	42.5	43.8	41.6
Armature resistance (Ohm)	1.55	0.42	1.06	0.82	0.43
Armature inductance (mH)	6.71	3.53	14.29	11.12	6.97
Electrical time constant (ms)	4.3	8.36	13.5	13.50	16.06
Insulation class	Class A (UL), Class B (CE)				
Insulation resistance	100MΩ , DC 500V above				
Insulation strength	1.8k Vac,1 sec				
Weight (kg)(without brake)	1.8	3.4	6.8	7.0	7.5
Weight (kg)(with brake)	2.2	3.9	8.2	8.4	8.9
Max. radial shaft load (N)	196	245	490	490	490
Max. thrust shaft load (N)	68	98	98	98	98
Power rating (kW/s)(with brake)	21.48	19.3	9.2	35.9	62.1
Rotor moment of inertia ($x10^{-4}$kg-m^2)(with brake)	0.751	2.96	8.94	9.14	11.9
Mechanical time constant (ms)(with brake)	1.43	1.62	2.0	1.51	1.13
Brake holding torque [Nt-m (min)]*2	1.3	2.5	10.0	10.0	10.0
Brake power consumption (at 20˚C)[W]	6.5	8.2	19.0	19.0	19.0
Brake release time [ms (Max)]	10	10	10	10	10
Brake pull-in time [ms (Max)]	70	70	70	70	70
Vibration grade (μm)	15				
Operating temperature (˚C)	0ºC to 40ºC				
Storage temperature (˚C)	-10ºC to 80ºC				
Operating humidity	20 to 90%RH (non-condensing)				
Storage humidity	20 to 90%RH (non-condensing)				
Vibration capacity	2.5G				
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))				
Approvals	CE c UL us				

*1. Rate torque values are continuous permissible values at 0 ~ 40˚C ambient temperature when attaching with the sizes of heatsinks listed below:
ECMA-_ _ 04 / 06 / 08: 250 mm x 250 mm x 6 mm
ECMA-_ _ 10: 300 mm x 300 mm x 12 mm
ECMA-_ _ 13: 400 mm x 400 mm x 20 mm
ECMA-_ _ 18: 550 mm x 550 mm x 30 mm
ECMA-_ _ 22: 650 mm x 650 mm x 35 mm
Material type : Aluminum – F40, F60, F80, F100, F130, F180, F220

*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Servo Motor Specifications

Low / Medium Series- 400V Series

ECMA Series	J △ 06	J △ 08	J △ 09		J △ 10		J △ 13	K △ 13				K △ 18
	04	07	07	10	10	20	30	05	10	15	20	20
Rated output power (kW)	0.4	0.75	0.75	1	1.0	2.0	3.0	0.5	1.0	1.5	2.0	2.0
Rated torque (N-m)*1	1.27	2.39	2.39	3.18	3.18	6.37	9.55	2.39	4.77	7.16	9.55	9.55
Maximum torque (N-m)	3.82	7.16	7.14	8.78	9.54	19.1	28.65	7.16	14.32	21.48	28.65	28.65
Rated speed (r/min)	3000		3000		3000		3000	2000				
Maximum speed (r/min)	5000		3000		5000		4500	3000				
Rated current (A)	1.62	3.07	2.16	2.4	4.15	7.09	9.8	1.7	3.52	5.02	6.66	6.6
Maximum current (A)	4.85	9.5	6.37	7.17	12.46	21.28	29.99	5.2	10.56	15.06	19.98	19.88
Power rating (kW/s)	58.2	50.4	29.6	38.6	38.2	91.2	71.8	6.99	27.1	45.9	62.5	26.3
Rotor moment of inertia ($x10^{-4}$kg-m^2)(without brake)	0.277	1.13	1.93	2.62	2.65	4.45	12.7	8.17	8.41	11.18	14.59	34.68
Mechanical time constant (ms)	0.47	0.66	1.56	1.06	0.77	0.58	0.99	2.08	1.80	1.24	1.04	1.74
Torque constant-KT (N-m/A)	0.79	0.78	1.12	1.29	0.77	0.9	0.97	1.41	1.35	1.43	1.43	1.45
Voltage constant-KE (mV/(r/min)	30.6	28.24	42	50.9	29.0	34.4	37.3	51.5	53.2	55	55	54.0
Armature resistance (Ohm)	3.95	1.22	3.62	2.58	0.617	0.388	0.269	1.76	1.47	0.83	0.57	0.376
Armature inductance (mH)	21.3	10.68	21.2	15.28	6.03	4.62	3.55	22.4	17.79	11.67	8.29	7.87
Electrical time constant (ms)	5.39	8.75	5.85	5.93	9.77	11.9	13.2	12.73	12.04	14.04	14.39	20.9
Insulation class	Class A (UL), Class B (CE)											
Insulation resistance	100MΩ, DC 500V above											
Insulation strength	2.3k Vac, 1 sec											
Weight (kg)(without brake)	1.6	3.0	2.9	3.8	4.3	6.2	7.8	6.8	7.0	7.5	7.8	13.5
Weight (kg)(with brake)	2	3.8	-	-	4.7	7.2	9.2	8.2	8.4	8.9	9.2	17.5
Max. radial shaft load (N)	19.6	245	245	245	490	490	490	490	490	490	490	1176
Max. thrust shaft load (N)	68	98	98	98	98	98	98	98	98	98	98	490
Power rating (kW/s)(with brake)	53.8	48.4	29.3	37.9	30.4	82	65.1	6.39	24.9	43.1	59.7	24.1
Rotor moment of inertia ($x10^{-4}$kg-m^2)(with brake)	0.3	1.18	1.95	2.67	3.33	4.95	14.0	8.94	9.14	11.90	15.88	37.86
Mechanical time constant (ms)(with brake)	0.52	0.65	1.57	1.08	0.96	0.65	1.09	2.28	1.96	1.32	1.13	1.9
Brake holding torque [Nt-m (min)]*2	1.3	2.5	2.5	2.5	8.0	8.0	10.0	10.0	10.0	10.0	10.0	25.0
Brake power consumption (at 20˚C)[W]	6.5	8.5	8.2	8.2	18.5	18.5	19.0	19.0	19.0	19.0	19.0	20.4
Brake release time [ms (Max)]	10	10	10	10	10	10	10	10	10	10	10	10
Brake pull-in time [ms (Max)]	70	70	70	70	70	70	70	70	70	70	70	70
Vibration grade (μm)	15											
Operating temperature (˚C)	0ºC to 40ºC											
Storage temperature (˚C)	-10ºC to 80ºC											
Operating humidity	20 to 90%RH (non-condensing)											
Storage humidity	20 to 90%RH (non-condensing)											
Vibration capacity	2.5G											
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))											
Approvals	CE c UL us											

*1. Rate torque values are continuous permissible values at 0 ~ 40˚C ambient temperature when attaching with the sizes of heatsinks listed below:
ECMA-_ _ 08: 250 mm x 250 mm x 6 mm
ECMA-_ _ 13: 400 mm x 400 mm x 20 mm
ECMA-_ _ 18: 550 mm x 550 mm x 30 mm
Material type : Aluminum – F80, F130, F180, F220

*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Medium-High / High Inertia Series- 400V Series

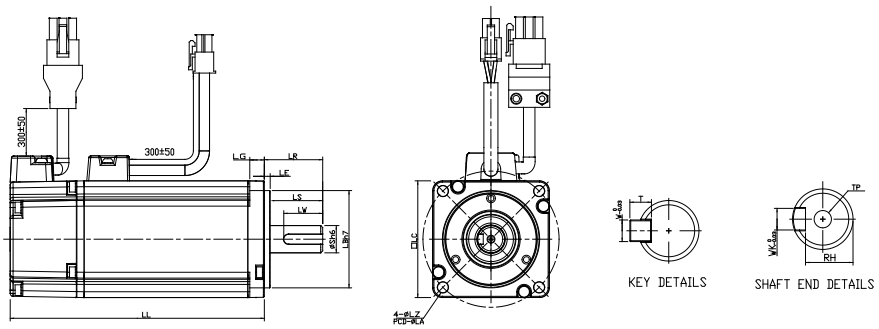
ECMA Series	L △ 13			L △ 18				L122		M △ 13
	05	08	13	30	45	55	75	1B	1F	09
Rated output power (kW)	0.5	0.85	1.3	3.0	4.5	5.5	7.5	11	15	0.9
Rated torque (N-m)*1	3.18	5.39	8.34	19.10	28.65	35.0	47.74	70	95.4	8.59
Maximum torque (N-m)	8.92	13.8	23.3	57.29	71.62	87.53	119.36	175	224	21.48
Rated speed (r/min)				1500				1500		1000
Maximum speed (r/min)				3000				2000		2000
Rated current (A)	2.1	3.4	5.02	11.53	20.8	22.37	27.3	27.2	41.6	4.4
Maximum current (A)	6.1	8.85	15	34.6	52	56	68.3	68	100	13.1
Power rating (kW/s)	7.72	17.0	29.47	66.4	105.5	122.9	159.7	145	201.8	66
Rotor moment of inertia ($x10^{-4}$kg-m^2)(without brake)	13.1	17.1	23.6	54.95	77.75	99.78	142.7	338	451	11.18
Mechanical time constant (ms)	2.3	1.76	1.44	1.11	0.94	0.88	0.77	1.42	1.34	1.21
Torque constant-KT (N-m/A)	1.5	1.59	1.66	1.66	1.38	1.56	1.75	2.57	2.29	1.95
Voltage constant-KE (mV/(r/min)	55.5	58.9	61.1	64.4	53	58.9	66.4	96	83.9	71.7
Armature resistance (Ohm)	1.41	0.92	0.59	0.21	0.09	0.07	0.06	0.0994	0.0545	1.45
Armature inductance (mH)	20	14.1	9.54	4.94	2.36	2.2	1.7	2.51	1.43	23.3
Electrical time constant (ms)	14.1	15.33	16.17	23.97	28.07	27.6	28.29	25.25	26.26	16.07
Insulation class	Class A (UL), Class B (CE)									
Insulation resistance	100MΩ, DC 500V above									
Insulation strength	2.3k Vac,1 sec									
Weight (kg)(without brake)	6.8	8.6	10.7	18.5	23.5	30.5	40.5	56.4	75	7.5
Weight (kg)(with brake)	-	10	--	22.5	29	36	46	68.4	87	8.9
Max. radial shaft load (N)	490	490	490	1470	1470	1764	1764	3300	3300	490
Max. thrust shaft load (N)	98	98	98	490	490	588	588	1100	1100	98
Power rating (kW/s)(with brake)	7.02	14.82	27.82	63.9	101.8	119.4	156.6	141.4	197.1	62
Rotor moment of inertia ($x10^{-4}$kg-m^2)(with brake)	14.4	19.6	25	57.06	80.65	102.70	145.5	346.5	461.8	11.9
Mechanical time constant (ms)(with brake)	2.54	2.02	1.52	1.16	0.95	0.91	0.79	1.46	1.37	1.29
Brake holding torque [Nt-m (min)]*2	10.0	10.0	10.0	25.0	55.0	55.0	55.0	115	115	10.0
Brake power consumption (at 20˚C)[W]	19.0	19.0	19.0	20.4	19.9	19.9	19.9	28.8	28.8	19.0
Brake release time [ms (Max)]	10	10	10	10	10	10	10	10	10	10
Brake pull-in time [ms (Max)]	70	70	70	70	70	70	70	70	70	70
Vibration grade (μm)	15									
Operating temperature (˚C)	0ºC to 40ºC									
Storage temperature (˚C)	-10ºC to 80ºC									
Operating humidity	20 to 90%RH (non-condensing)									
Storage humidity	20 to 90%RH (non-condensing)									
Vibration capacity	2.5G									
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))									
Approvals	CE c UL us									

*1. Rate torque values are continuous permissible values at 0 ~ 40˚C ambient temperature when attaching with the sizes of heatsinks listed below:
ECMA-_ _ 08: 250 mm x 250 mm x 6 mm
ECMA-_ _ 13: 400 mm x 400 mm x 20 mm
ECMA-_ _ 18: 550 mm x 550 mm x 30 mm
ECMA-_ _ 22: 650 mm x 650 mm x 35 mm
Material type : Aluminum – F80, F130, F180, F220
*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Servo Motor Dimensions

220V Series

Frame Size 86mm and below



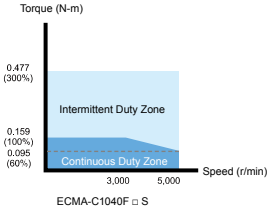
Units: mm

Model	C1040F □ S	C △ 0401 □ S	C △ 0602 □ S	C △ 0604 □ S	C △ 0604 □ H	C △ 0804 □ 7	C △ 0807 □ S	C △ 0807 □ H	C △ 0907 □ S	C △ 0910 □ S
LC	40	40	60	60	60	80	80	80	86	86
LZ	4.5	4.5	5.5	5.5	5.5	6.6	6.6	6.6	6.6	6.6
LA	46	46	70	70	70	90	90	90	100	100
S	8 ($^{+0}_{-0.009}$)	8 ($^{+0}_{-0.009}$)	14 ($^{+0}_{-0.011}$)	14 ($^{+0}_{-0.011}$)	14 ($^{+0}_{-0.011}$)	14 ($^{+0}_{-0.011}$)	19 ($^{+0}_{-0.013}$)	19 ($^{+0}_{-0.013}$)	16 ($^{+0}_{-0.011}$)	16 ($^{+0}_{-0.011}$)
LB	30 ($^{+0}_{-0.021}$)	30 ($^{+0}_{-0.021}$)	50 ($^{+0}_{-0.025}$)	50 ($^{+0}_{-0.025}$)	50 ($^{+0}_{-0.025}$)	70 ($^{+0}_{-0.030}$)	70 ($^{+0}_{-0.030}$)	70 ($^{+0}_{-0.030}$)	80 ($^{+0}_{-0.030}$)	80 ($^{+0}_{-0.030}$)
LL (without brake)	79.1	100.6	105.5	130.7	145.8	112.3	138.3	154.8	130.2	153.2
LL (with brake)	--	136.8	141.6	166.8	176.37	152.8	178	187.8	161.3	184.3
LS	20	20	27	27	27	27	32	32	30	30
LR	25	25	30	30	30	30	35	35	35	35
LE	2.5	2.5	3	3	3	3	3	3	3	3
LG	5	5	7.5	7.5	7.5	8	8	8	8	8
LW	16	16	20	20	20	20	25	25	20	20
RH	6.2	6.2	11	11	11	11	15.5	15.5	13	13
WK	3	3	5	5	5	5	6	6	5	5
W	3	3	5	5	5	5	6	6	5	5
T	3	3	5	5	5	5	6	6	5	5
TP	M3 Depth 8	M3 Depth 8	M4 Depth 15	M4 Depth 15	M4 Depth 15	M4 Depth 15	M6 Depth 20	M6 Depth 20	M5 Depth 15	M5 Depth 15

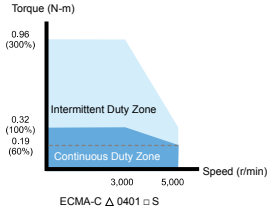
NOTE

1) Dimensions are in millimeters.
2) Dimensions of the servo motors may be revised without prior notice.
3) The boxes (□) in the model names are for optional configurations(keyway, brake and oil seal).
4) The boxes (△) in the model names are for encoder resolution types. (△ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit; △ =A: Absolute type)

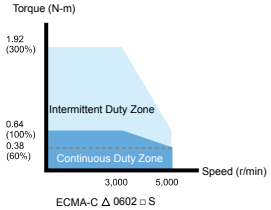
Speed-Torque Curves (T-N Curves)



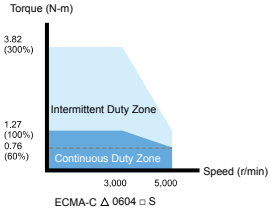
ECMA-C1040F □ S



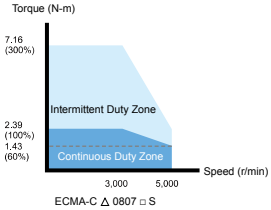
ECMA-C △ 0401 □ S



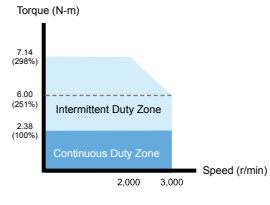
ECMA-C △ 0602 □ S



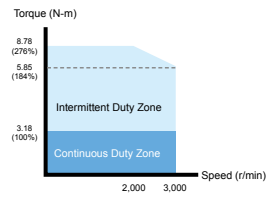
ECMA-C △ 0604 □ S
ECMA-C △ 0604 □ H
ECMA-C △ 0804 □ 7



ECMA-C △ 0807 □ S
ECMA-C △ 0807 □ H



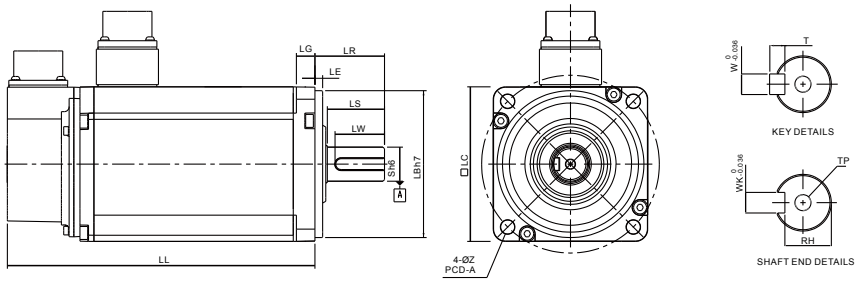
ECMA-C △ 0907 □ S



ECMA-C △ 0910 □ S

220V Series

Frame Size 100mm and 130mm



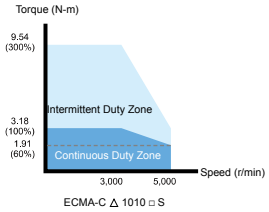
Units: mm

Model	C △ 1010 □ S	C △ 1020 □ S	C △ 1330 □ 4	E △ 1305 □ S	E △ 1310 □ S	E △ 1315 □ S	E △ 1320 □ S
LC	100	100	130	130	130	130	130
LZ	9	9	9	9	9	9	9
LA	115	115	145	145	145	145	145
S	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	24 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)
LB	95 ($^{+0}_{-0.035}$)	95 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)
LL (without brake)	153.3	199	187.5	147.5	147.5	167.5	187.5
LL (with brake)	192.5	226	216	183.5	183.5	202	216
LS	37	37	47	47	47	47	47
LR	45	45	55	55	55	55	55
LE	5	5	6	6	6	6	6
LG	12	12	11.5	11.5	11.5	11.5	11.5
LW	32	32	36	36	36	36	36
RH	18	18	20	18	18	18	18
WK	8	8	8	8	8	8	8
W	8	8	8	8	8	8	8
T	7	7	7	7	7	7	7
TP	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20

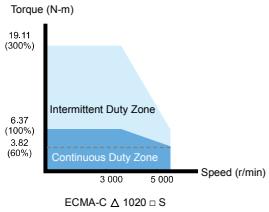
NOTE

1) Dimensions are in millimeters.
2) Dimensions of the servo motors may be revised without prior notice.
3) The boxes (□) in the model names are for optional configurations(keyway, brake and oil seal).
4) The boxes (△) in the model names are for encoder resolution types. (△ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit; △ =A: Absolute type)

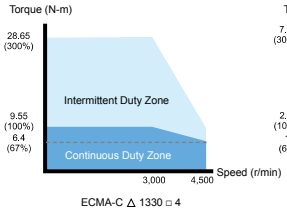
Speed-Torque Curves (T-N Curves)



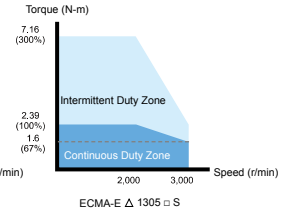
ECMA-C △ 1010 □ S



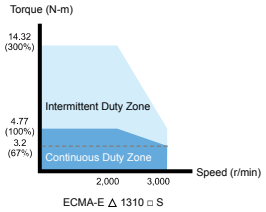
ECMA-C △ 1020 □ S



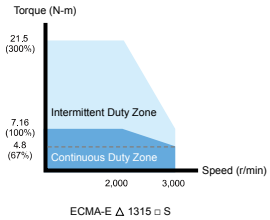
ECMA-C △ 1330 □ 4



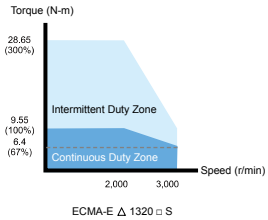
ECMA-E △ 1305 □ S



ECMA-E △ 1310 □ S



ECMA-E △ 1315 □ S

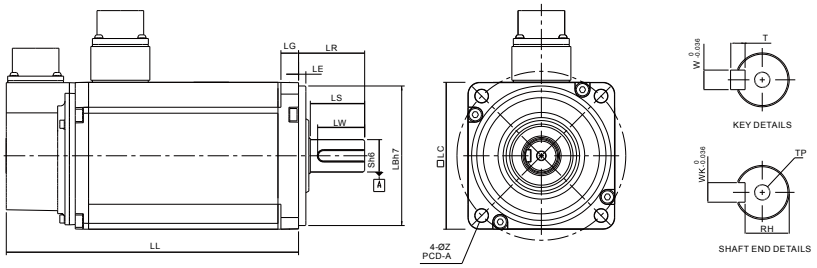


ECMA-E △ 1320 □ S

Servo Motor Dimensions

220V Series

Frame Size 100mm and 130mm



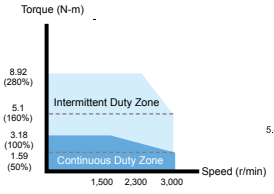
Units: mm

Model	F △ 1305 □ S	F △ 1308 □ S	F △ 1313 □ S	F △ 1318 □ S	G △ 1303 □ S	G △ 1306 □ S	G △ 1309 □ S
LC	130	130	130	130	130	130	130
LZ	9	9	9	9	9	9	9
LA	145	145	145	145	145	145	145
S	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)
LB	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)
LL (without brake)	139.5	147.5	187.5	202	147.5	147.5	163.5
LL (with brake)	168	183.5	216	230.7	183.5	183.5	198
LS	47	47	47	47	47	47	47
LR	55	55	55	55	55	55	55
LE	6	6	6	6	6	6	6
LG	11.5	11.5	11.5	11.5	11.5	11.5	11.5
LW	36	36	36	36	36	36	36
RH	18	18	18	18	18	18	18
WK	8	8	8	8	8	8	8
W	8	8	8	8	8	8	8
T	7	7	7	7	7	7	7
TP	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20

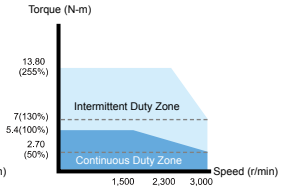
NOTE

1) Dimensions are in millimeters.
2) Dimensions of the servo motors may be revised without prior notice.
3) The boxes (□) in the model names are for optional configurations (keyway, brake and oil seal).
4) The boxes (△) in the model names are for encoder resolution types. (△ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit; △ =A: Absolute type)

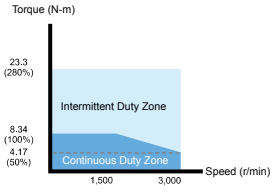
Speed-Torque Curves (T-N Curves)



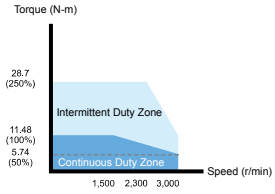
ECMA-F △ 1305 □ S



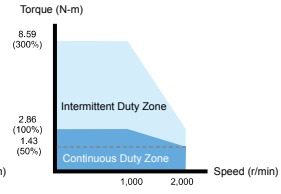
ECMA-F △ 1308 □ S



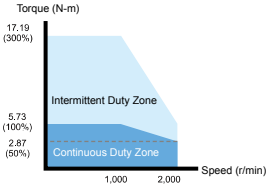
ECMA-F △ 1313 □ S



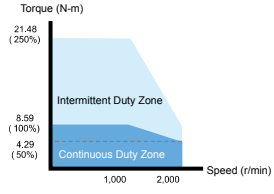
ECMA-F △ 1318 □ S



ECMA-G △ 1303 □ S



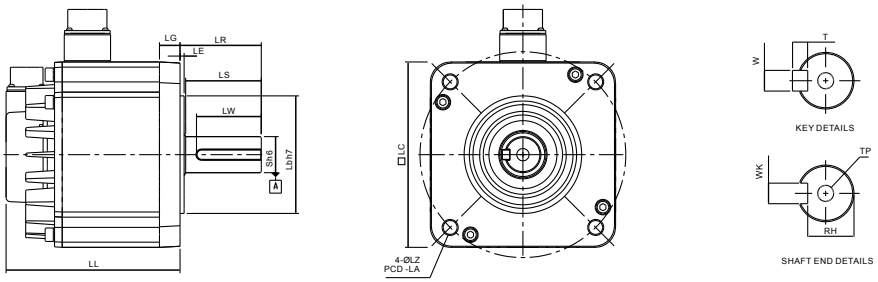
ECMA-G △ 1306 □ S



ECMA-G △ 1309 □ S

220V Series

Frame Size 180mm



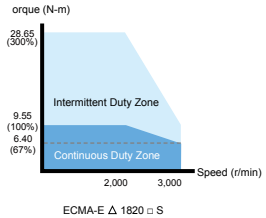
Units: mm

Model	E △ 1820 □ S	E △ 1830 □ S	E △ 1835 □ S	F △ 1845 □ S	F △ 1855 □ 3	F △ 1875 □ 3
LC	180	180	180	180	180	180
LZ	13.5	13.5	13.5	13.5	13.5	13.5
LA	200	200	200	200	200	200
S	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	42 ($^{+0}_{-0.016}$)	42 ($^{+0}_{-0.016}$)
LB	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)
LL (without brake)	169	202.1	202.1	235.3	279.7	342.0
LL (with brake)	203.1	235.3	235.3	279.3	311.7	376.1
LS	73	73	73	73	108.5	108.5
LR	79	79	79	79	113	113
LE	4	4	4	4	4	4
LG	20	20	20	20	20	20
LW	63	63	63	63	90	90
RH	30	30	30	30	37	37
WK	10	10	10	10	12	12
W	10	10	10	10	12	12
T	8	8	8	8	8	8
TP	M12 Depth 25	M12 Depth 25	M12 Depth 25	M12 Depth 25	M16 Depth 32	M12 Depth 32

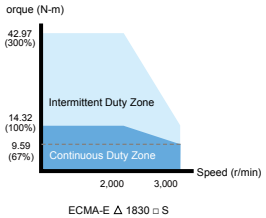
NOTE

1) Dimensions are in millimeters.
2) Dimensions of the servo motors may be revised without prior notice.
3) The boxes (□) in the model names are for optional configurations(keyway, brake and oil seal).
4) The boxes (△) in the model names are for encoder resolution types. (△ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit; △ =A: Absolute type)

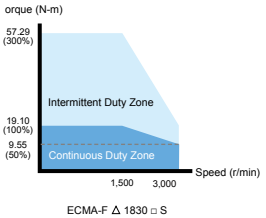
Speed-Torque Curves (T-N Curves)



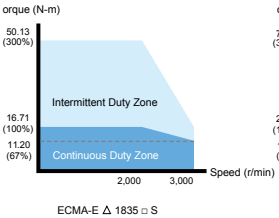
ECMA-E △ 1820 □ S



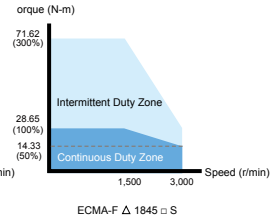
ECMA-E △ 1830 □ S



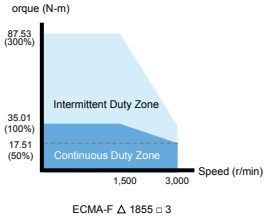
ECMA-F △ 1830 □ S



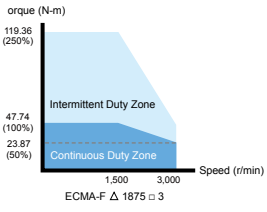
ECMA-E △ 1835 □ S



ECMA-F △ 1845 □ S



ECMA-F △ 1855 □ 3

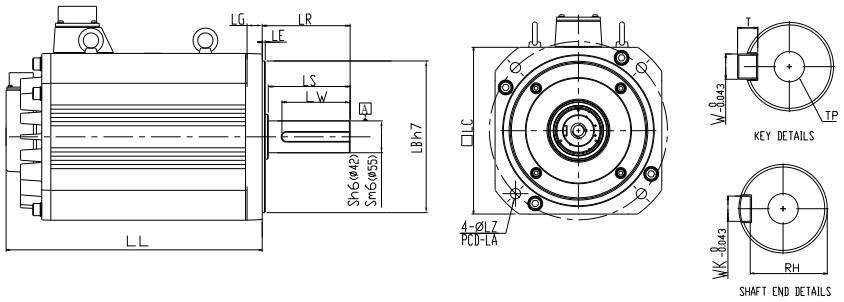


ECMA-F △ 1875 □ 3

Servo Motor Dimensions

220V / 400V Series

Frame Size 220mm and above



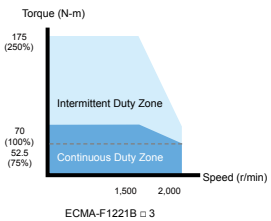
Units: mm

Model	F1221B □ 3	F1221F □ S	L1221B □ 3	L1221F □ S
LC	220	220	220	220
LZ	13.5	13.5	13.5	13.5
LA	235	235	235	235
S	42 ($^{+0}_{-0.016}$)	55 ($^{+0.03}_{-0.011}$)	42 ($^{+0}_{-0.016}$)	55 ($^{+0.03}_{-0.011}$)
LB	200 ($^{+0}_{-0.046}$)	200 ($^{+0}_{-0.046}$)	200 ($^{+0}_{-0.046}$)	200 ($^{+0}_{-0.046}$)
LL (without brake)	371.4	453.4	371.4	450.4
LL (with brake)	434.4	513.4	434.4	513.4
LS	108	108	110	110
LR	116	116	116	116
LE	4	4	4	4
LG	20	20	20	20
LW	90	90	90	90
RH	37	49	37	49
WK	12	16	12	16
W	12	16	12	16
T	8	10	8	10
TP	M16 Depth 32	M20 Depth 40	M16 Depth 32	M20 Depth 40

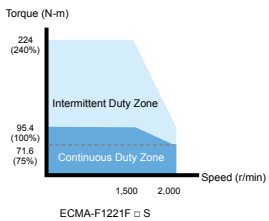
NOTE

1) Dimensions are in millimeters.
2) Dimensions of the servo motors may be revised without prior notice.
3) The boxes (□) in the model names are for optional configurations (keyway, brake and oil seal).

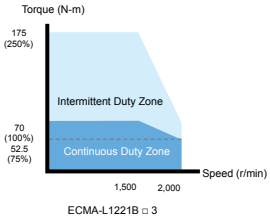
Speed-Torque Curves (T-N Curves)



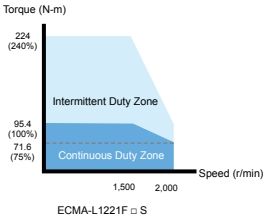
ECMA-F1221B □ 3



ECMA-F1221F □ S



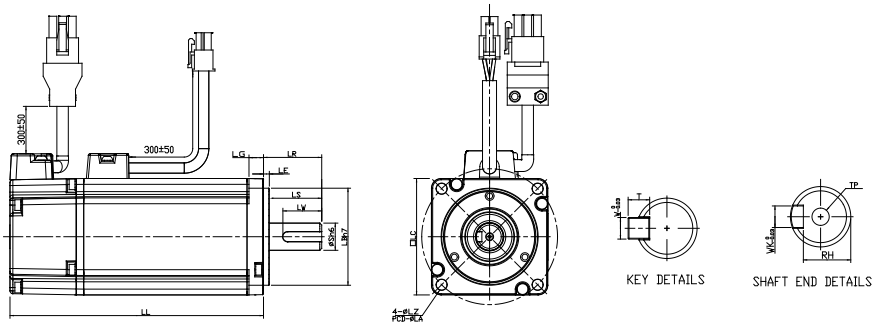
ECMA-L1221B □ 3



ECMA-L1221F □ S

400V Series

Frame Size 80mm and below



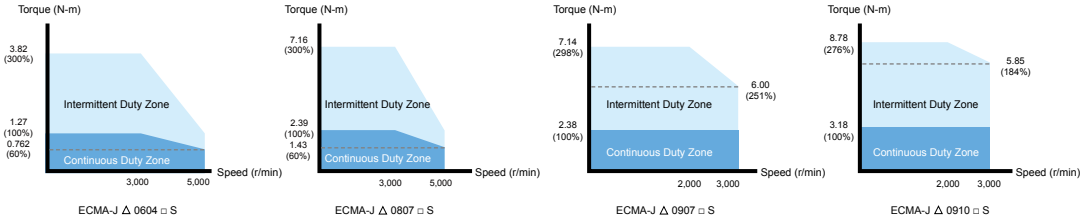
Units: mm

Model	J △ 0604 □ S	J △ 0807 □ S	J △ 0907 □ S	J △ 0910 □ S
LC	60	80	86	86
LZ	5.5	6.6	6.6	6.6
LA	70	90	100	100
S	14($^{+0}_{-0.011}$)	19($^{+0}_{-0.013}$)	16($^{+0}_{-0.011}$)	16($^{+0}_{-0.011}$)
LB	50($^{+0}_{-0.025}$)	70($^{+0}_{-0.030}$)	80($^{+0}_{-0.030}$)	80($^{+0}_{-0.030}$)
LL (without brake)	130.7	138.3	130.2	153.2
LL (with brake)	166.8	178	161.3	184.3
LS (without oil seal)	27	32	30	30
LS (with oil seal)	--	29.5	30	30
LR	30	35	35	35
LE	3	3	3	3
LG	7.5	8	8	8
LW	20	25	20	20
RH	11	15.5	13	13
WK	5	6	5	5
W	5	6	5	5
T	5	6	5	5
TP	M4 Depth 15	M6 Depth 20	M5 Depth 15	M5 Depth 15

NOTE

1) Dimensions are in millimeters.
2) Dimensions of the servo motors may be revised without prior notice.
3) The boxes (□) in the model names are for optional configurations (keyway, brake and oil seal).
4) The boxes (△) in the model names are for encoder resolution types (△ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit); △ =A: Absolute type

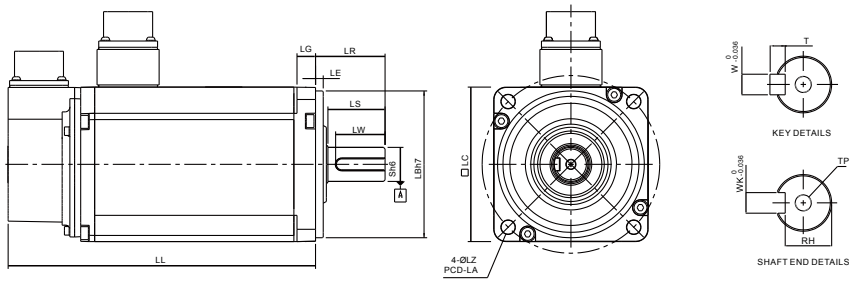
Speed-Torque Curves (T-N Curves)



Servo Motor Dimensions

400V Series

Frame Size 100mm and 130mm



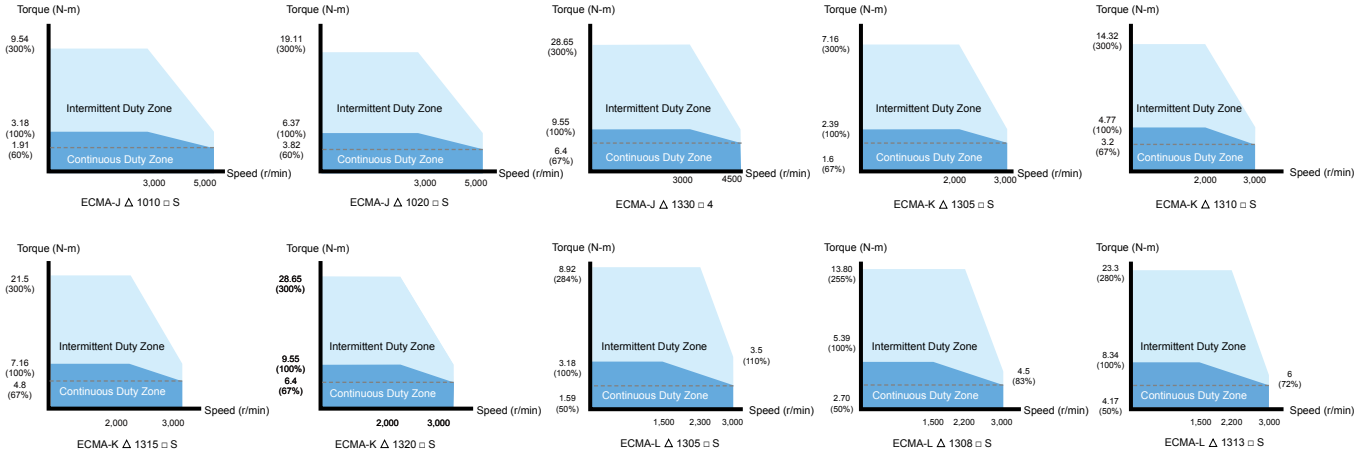
Units: mm

Model	J △ 1010 □ S	J △ 1020 □ S	J △ 1330 □ 4	K △ 1305 □ S	K △ 1310 □ S	K △ 1315 □ S	K △ 1320 □ S	L △ 1305 □ S	L △ 1308 □ S	L △ 1313 □ S
LC	100	100	130	130	130	130	130	130	130	130
LZ	9	9	9	9	9	9	9	9	9	9
LA	115	115	145	145	145	145	145	145	145	145
S	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	24 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)
LB	95 ($^{+0}_{-0.035}$)	95 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)
LL (without brake)	153.3	199	187.5	139.5	147.5	167.5	187.5	147.5	163.5	194.5
LL (with brake)	192.5	226	216.0	168	183.5	202	216	168.0	181	223
LS	37	37	47	47	47	47	47	47	47	47
LR	45	45	55	55	55	55	55	55	55	55
LE	5	5	6	6	6	6	6	6	6	6
LG	12	12	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
LW	32	32	36	36	36	36	36	36	36	36
RH	18	18	20	18	18	18	18	18	18	18
WK	8	8	8	8	8	8	8	8	8	8
W	8	8	8	8	8	8	8	8	8	8
T	7	7	7	7	7	7	7	7	7	7
TP	MP6 Depth 20	MP6 Depth 20	MP6 Depth 20	MP6 Depth 20	MP6 Depth 20	MP6 Depth 20	MP6 Depth 20	M8 Depth 25	MP6 Depth 20	MP6 Depth 20

NOTE

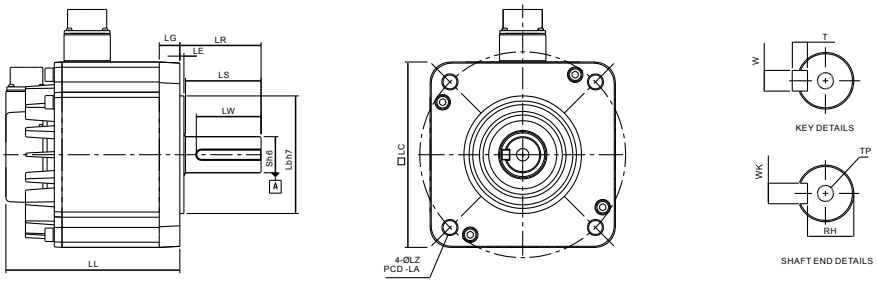
1) Dimensions are in millimeters.
2) Dimensions of the servo motors may be revised without prior notice.
3) The boxes (□) in the model names are for optional configurations (keyway, brake and oil seal).
4) The boxes (△) in the model names are for encoder resolution types (△ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit); △ =A: Absolute type

Speed-Torque Curves (T-N Curves)



400V Series

Frame Size 180mm and above



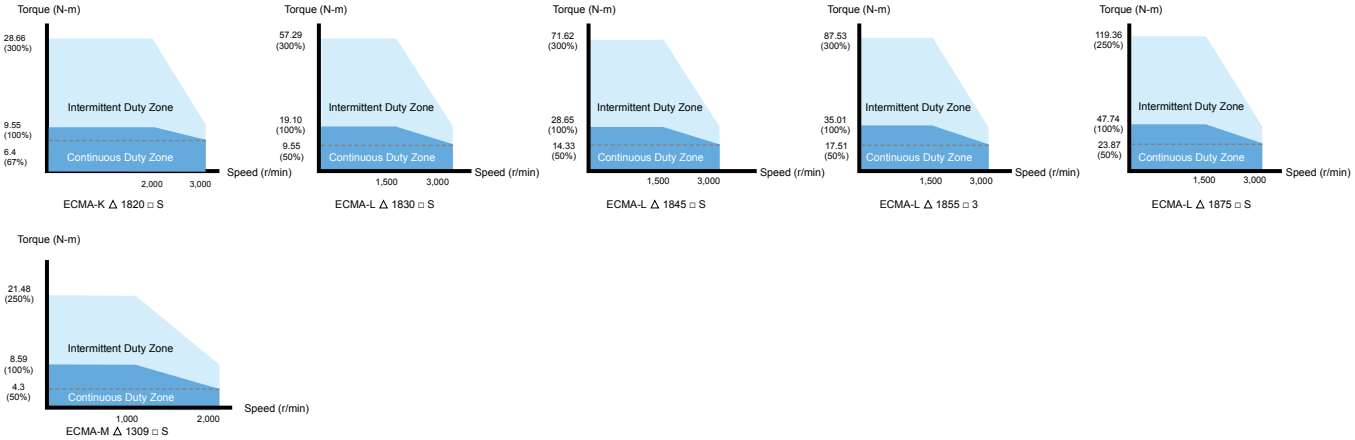
Units: mm

Model	K △ 1820 □ S	L △ 1830 □ S	L △ 1845 □ S	L △ 1855 □ 3	L △ 1875 □ S	M △ 1309 □ S
LC	180	180	180	180	180	130
LZ	13.5	13.5	13.5	13.5	13.5	9
LA	200	200	200	200	200	145
S	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	42 ($^{+0}_{-0.016}$)	42 ($^{+0}_{-0.016}$)	22 ($^{+0}_{-0.013}$)
LB	114.3($^{+0}_{-0.035}$)	114.3($^{+0}_{-0.035}$)	114.3($^{+0}_{-0.035}$)	114.3($^{+0}_{-0.035}$)	114.3($^{+0}_{-0.035}$)	110($^{+0}_{-0.035}$)
LL (without brake)	169	202.1	235.3	279.7	342.0	163.5
LL (with brake)	203.1	235.3	279.3	311.7	376.1	198
LS	73	73	73	108.5	108.5	47
LR	79	79	79	113	113	55
LE	4	4	4	4	4	6
LG	20	20	20	20	20	11.5
LW	63	63	63	90	90	36
RH	30	30	30	37	37	18
WK	10	10	10	12	12	8
W	10	10	10	12	12	8
T	8	8	8	8	8	7
TP	M12 Depth 25	M12 Depth 25	M12 Depth 25	M16 Depth 32	M16 Depth 32	M6 Depth 20

NOTE

1) Dimensions are in millimeters.
2) Dimensions of the servo motors may be revised without prior notice.
3) The boxes (□) in the model names are for optional configurations (keyway, brake and oil seal).
4) The boxes (△) in the model names are for encoder resolution types (△ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit); △ =A: Absolute type

Speed-Torque Curves (T-N Curves)



Part Names and Functions

LED Display / Operation Panel / Charge LED

- **LED Display**

  The 5 digit, 7 segment LED displays the servo status or fault codes.

- **Operation Panel**

  Function keys used to perform status display, monitor and diagnostic, function and parameter setting.

  Function Keys:
  MODE : Press this key to select/change mode
  SHIFT : Press this key to shift cursor to the left
  UP : Press this key to increase values on the display
  DOWN : Press this key to decrease values on the display
  SET : Press this key to store data

- **Charge LED**

  A lit LED indicates that either power is connected to the servo drive or a residual charge is present in the drive's internal power components.

Full-Closed Loop Control Interface

- **Used to connect linear scale and encoder for controlling A, B, Z phase signals.**

I/O Interface

- **Used to connect Delta's DVP series PLC or other external controllers for controlling I/O signals.**

High-speed Communication Port

- **1-in/1-out communication ports offer easy serial connection.**

Motor Encoder Interface

- **Used to connect the encoder of the servo motor**

Extension Digital Input Connection Port

- **Used to connect a removable digital input terminal block. Max. 6 digital inputs can be added.**

Serial Communication Port

- **Used to connect PLC, HMI, and other controllers for RS-485 / RS-232 serial communication.**

USB Connection Port

- **Used to connect personal computers or notebooks.**
- **Ver 1.1 USB is equipped as standard.**
- **Direct connectivity to personal computers or notebooks, capable of accessing data through ASDA-Soft configuration software.**
- **Monitor speed upon software is up to 1Mbps.**

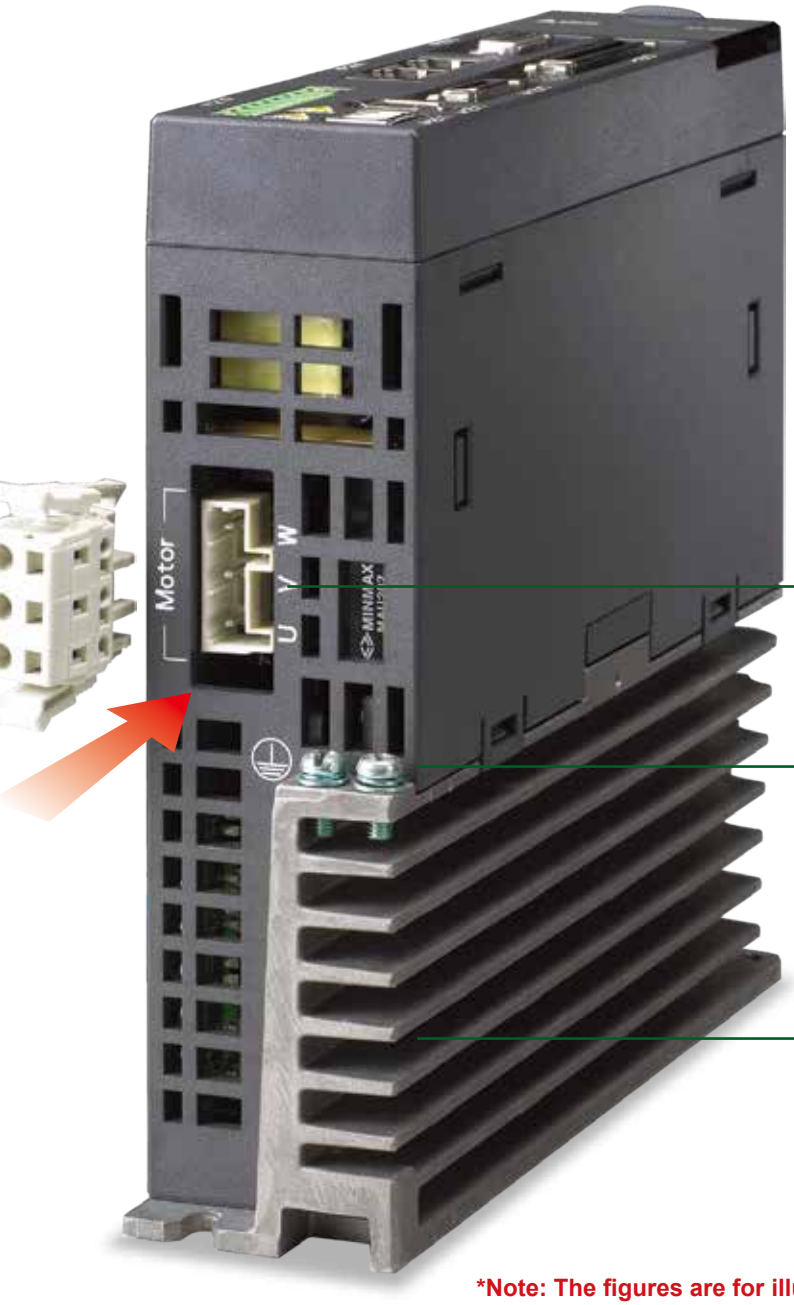


Internal & External Regenerative Resistor Terminal / Control Circuit Terminal / Main Circuit Terminal

- **Internal & External Regenerative Resistor Terminal**

1. When using an external resistor, connect it to P ⊕ and C , and ensure an open circuit between P ⊕ and D.
2. When using an internal resistor, ensure the circuit is closed between P ⊕ and D, and the circuit is open between P ⊕ and C. (Note: Please refer to the table of regenerative resistor specifications for the models with a built-in regenerative resistor.)
3. When using an external braking unit, connect it to P ⊕ and, and ensure an open circuit between P ⊕ and D, and P ⊕ and C.

- **When using an external braking unit, connect it to P ⊕ and ⊖**



- **Control Circuit Terminal (L1C, L2C or DC24V, DC0V)**
  - 220V Series: L1C, L2C are used to connect 200 ~ 230Vac, 50/60Hz single-phase or three-phase power supply.
  - 400V Series: DC24V, DC0V are used to connect 24Vdc ±10% power supply.
- **Main Circuit Terminal (R, S, T)**
  - 220V Series: Used to connect 200~230Vac, 50/60Hz commercial power supply.
  - 400V Series: Used to connect 380~480Vac, 50/60Hz commercial power supply.

Servo Motor Output (U, V, W)

- **Used to connect servo motor. Never connect the output terminal to main circuit power as the AC drive may be damaged beyond repair if incorrect cables are connected to the output terminals.**

Ground Terminal

- **Used to connect grounding wire of power supply and servo motor.**

Heatsink

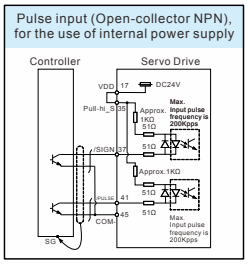
- **Used to secure servo drive and for heat dissipation.**

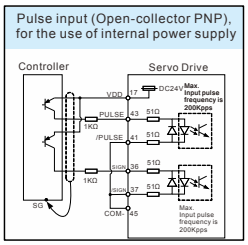
***Note: The figures are for illustration purposes only. Actual models may differ slightly in appearance to illustrations provided.**

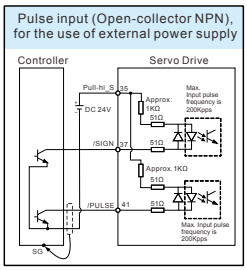
Wiring

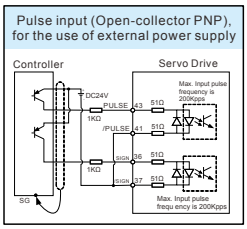
200V Series

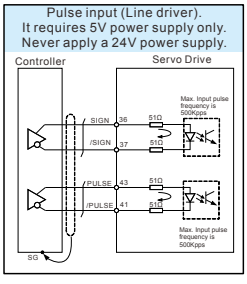
Position (PT) Control Mode (for Pulse Command Input)

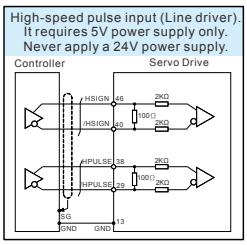


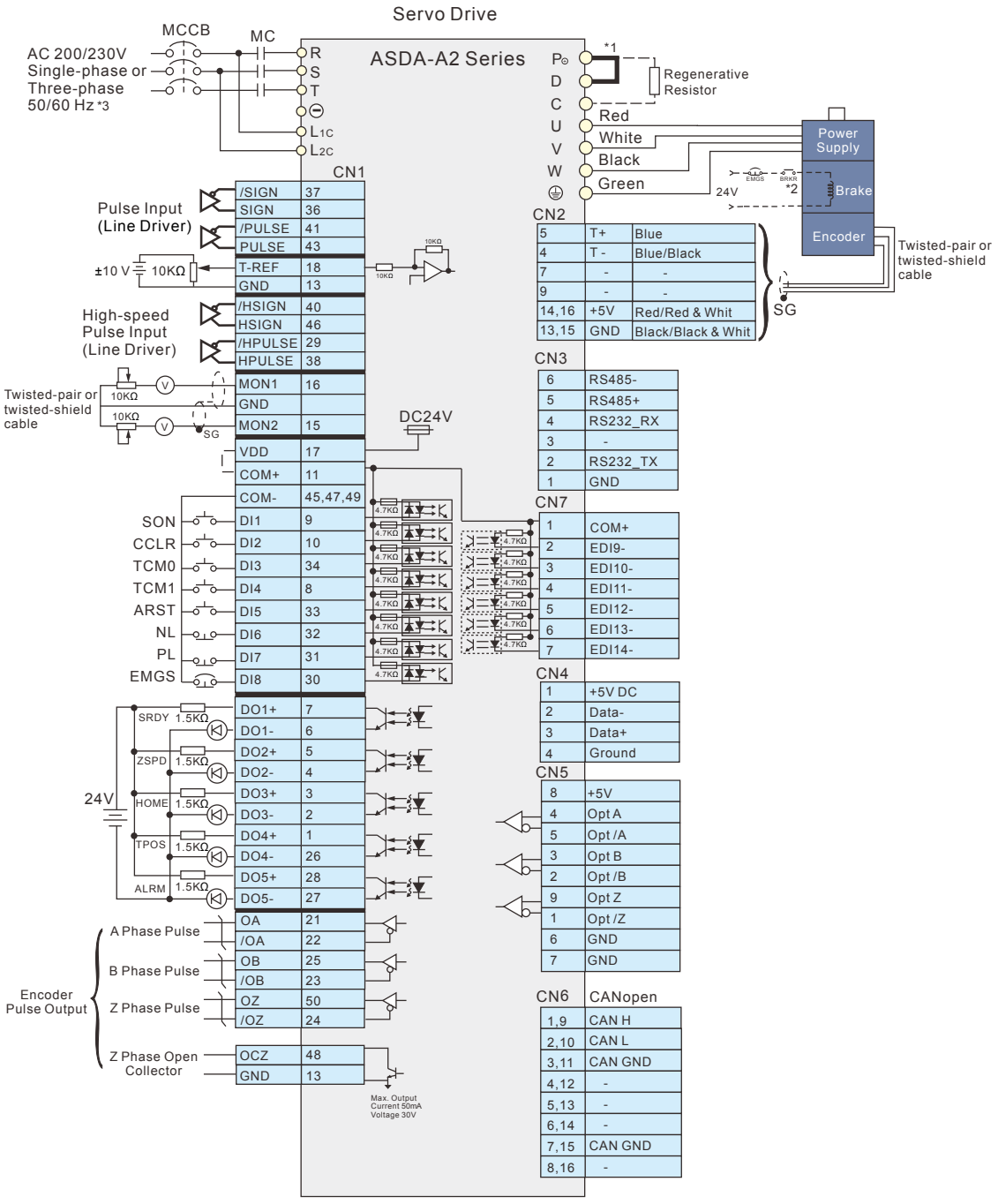










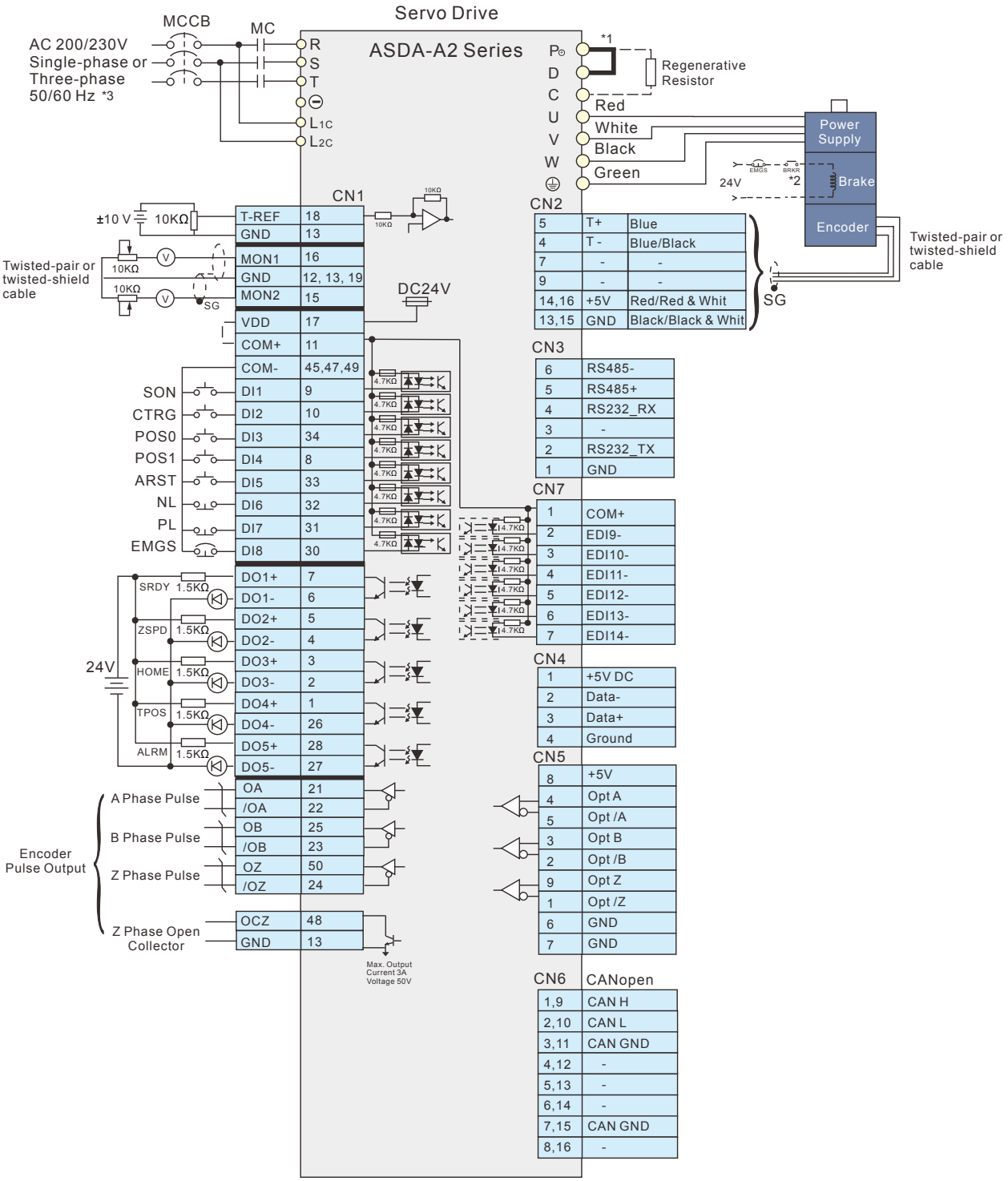


Please note:

*1. 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.
*2. The brake oil has no polarity.
*3. Single-phase connections are for servo drives 1.5kW and below only.

200V Series

Position (PR) Control Mode (for Internal Procedure Control)



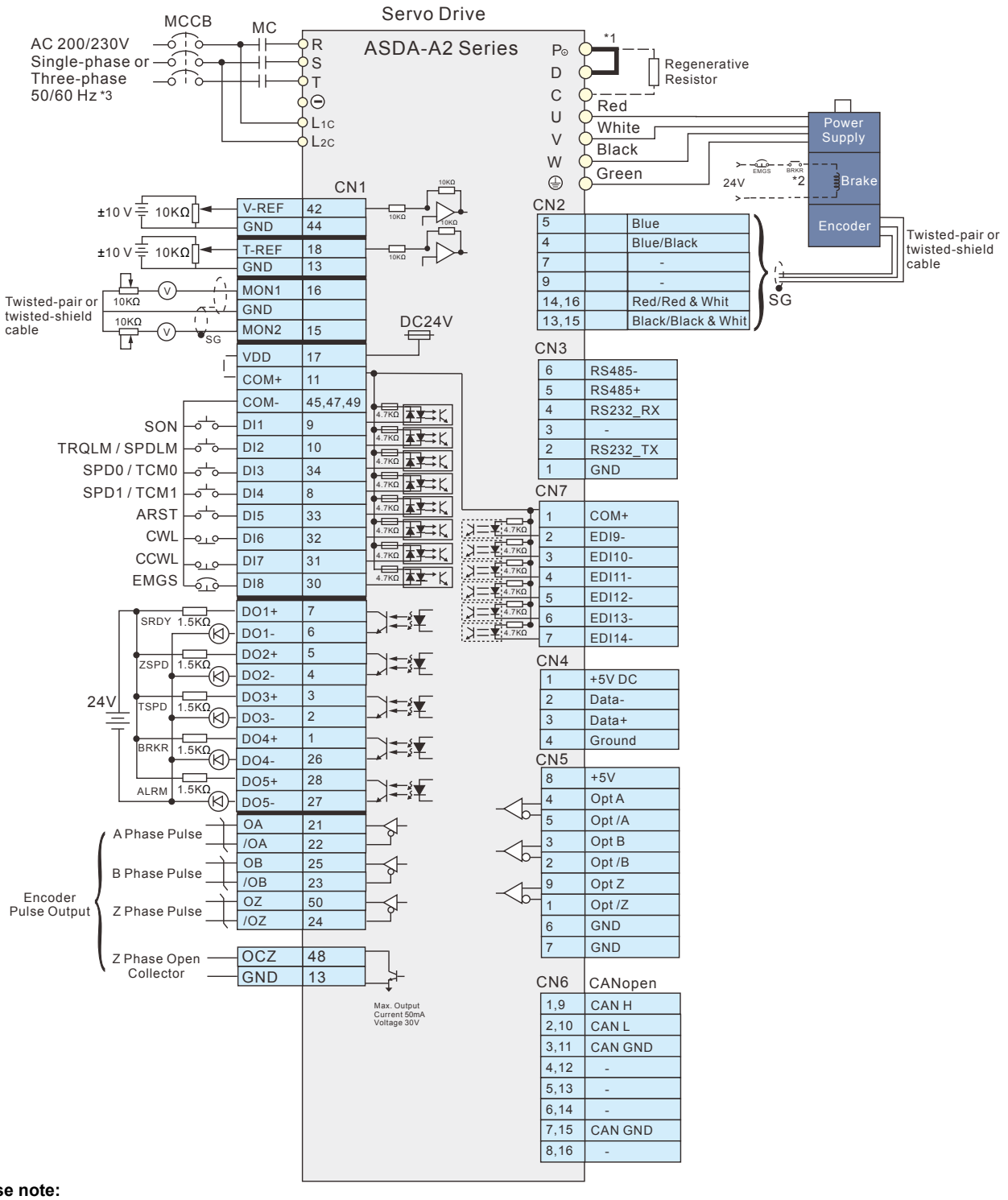
Please note:

*1. 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.
*2. The brake oil has no polarity.
*3. Single-phase connections are for servo drives 1.5kW and below only.

Wiring

200V Series

Speed (S), Torque (T) Control Mode (for Analog Voltage Input and Internal Parameter Setting)

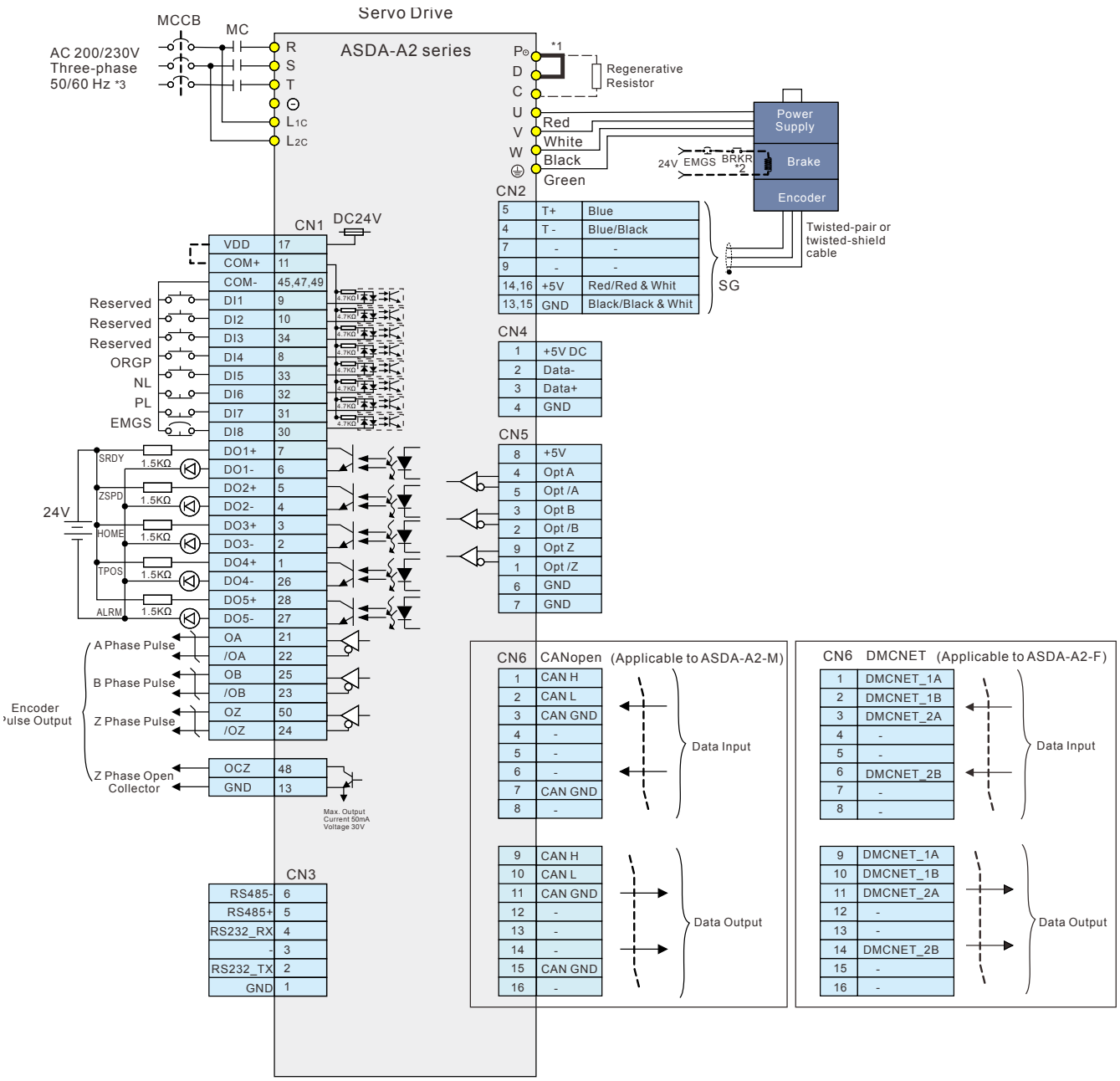


Please note:

*1. 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.
*2. The brake oil has no polarity.
*3. Single-phase connections are for servo drives 1.5kW and below only.

200V Series

CANopen Communication Mode



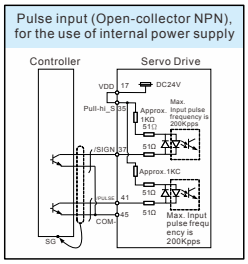
Please note:

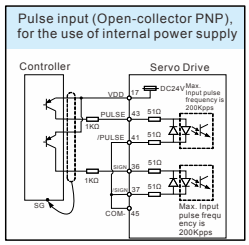
*1. 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.
*2. The brake oil has no polarity.
*3. Single-phase connections are for servo drives 1.5kW and below only.

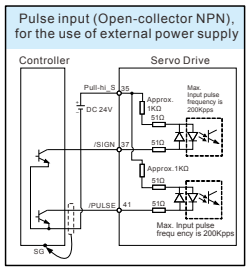
Wiring

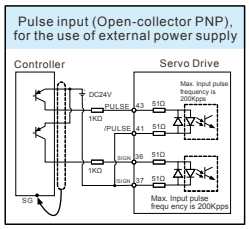
400V Series

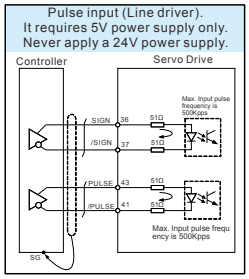
Position (PT) Control Mode (for Pulse Command Input)

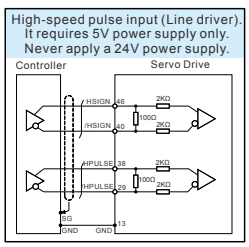


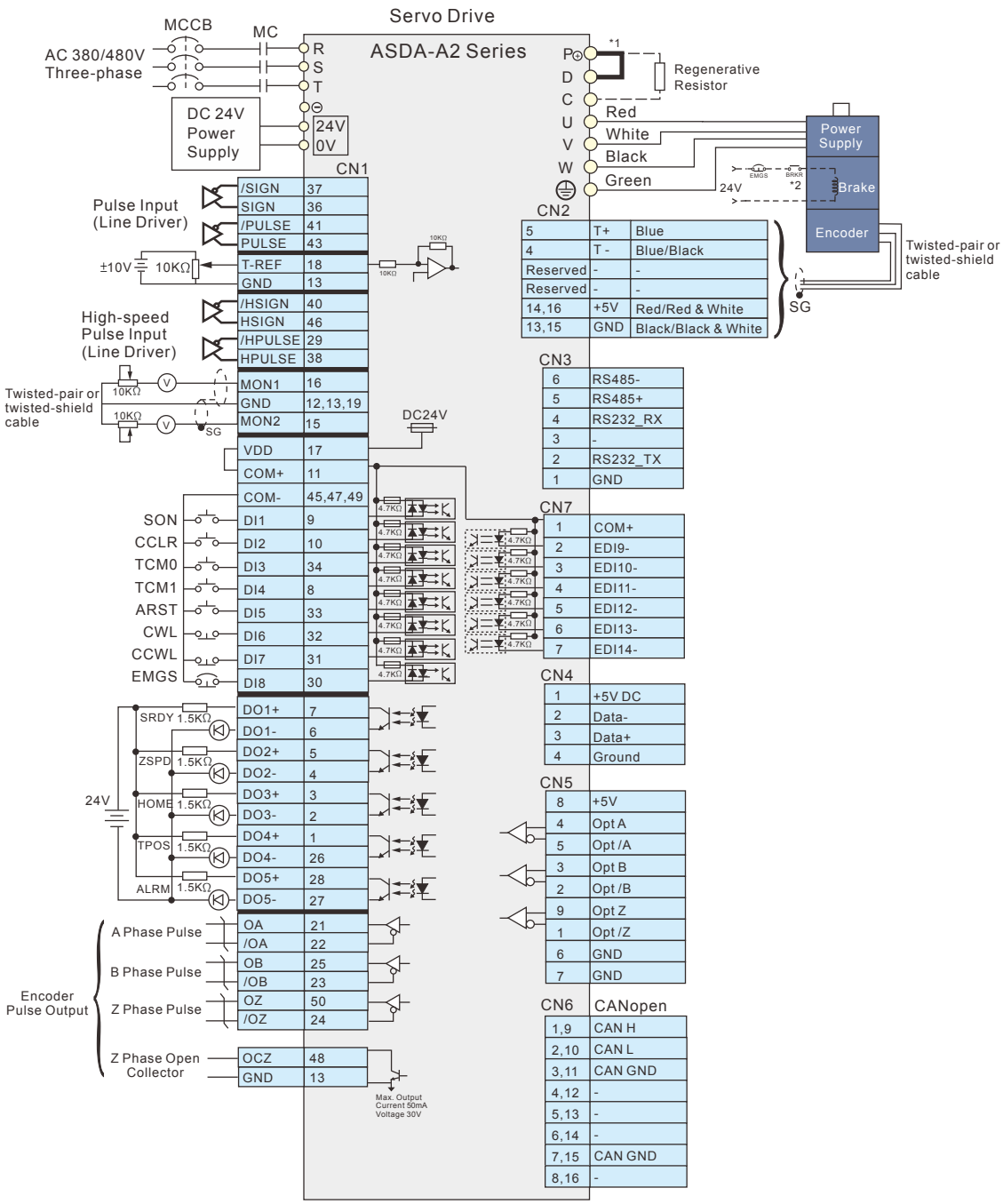












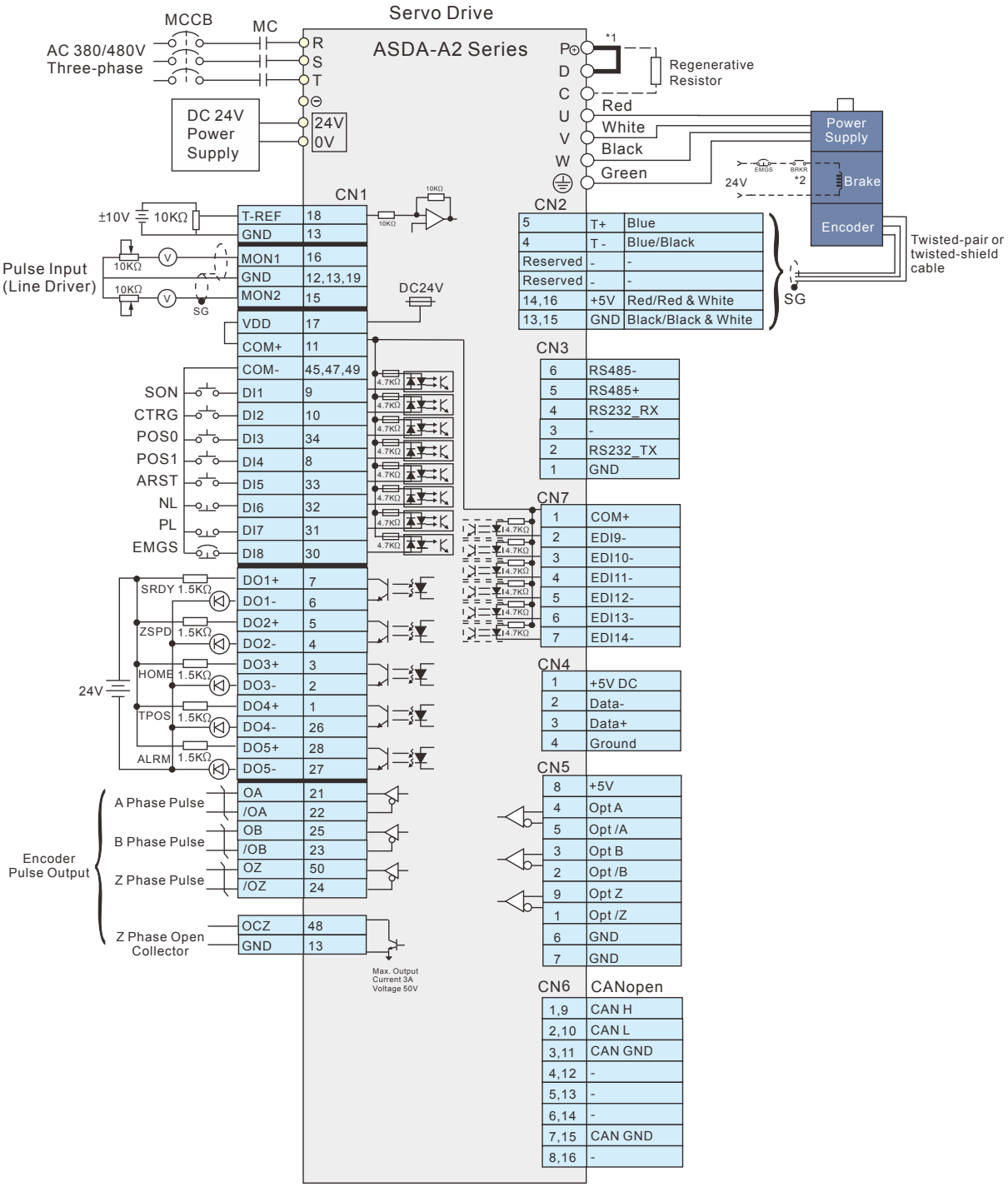
Please note:

*1 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.

*2 The brake oil has no polarity.

400V Series

Position (PR) Control Mode (for Internal Procedure Control)



Please note:

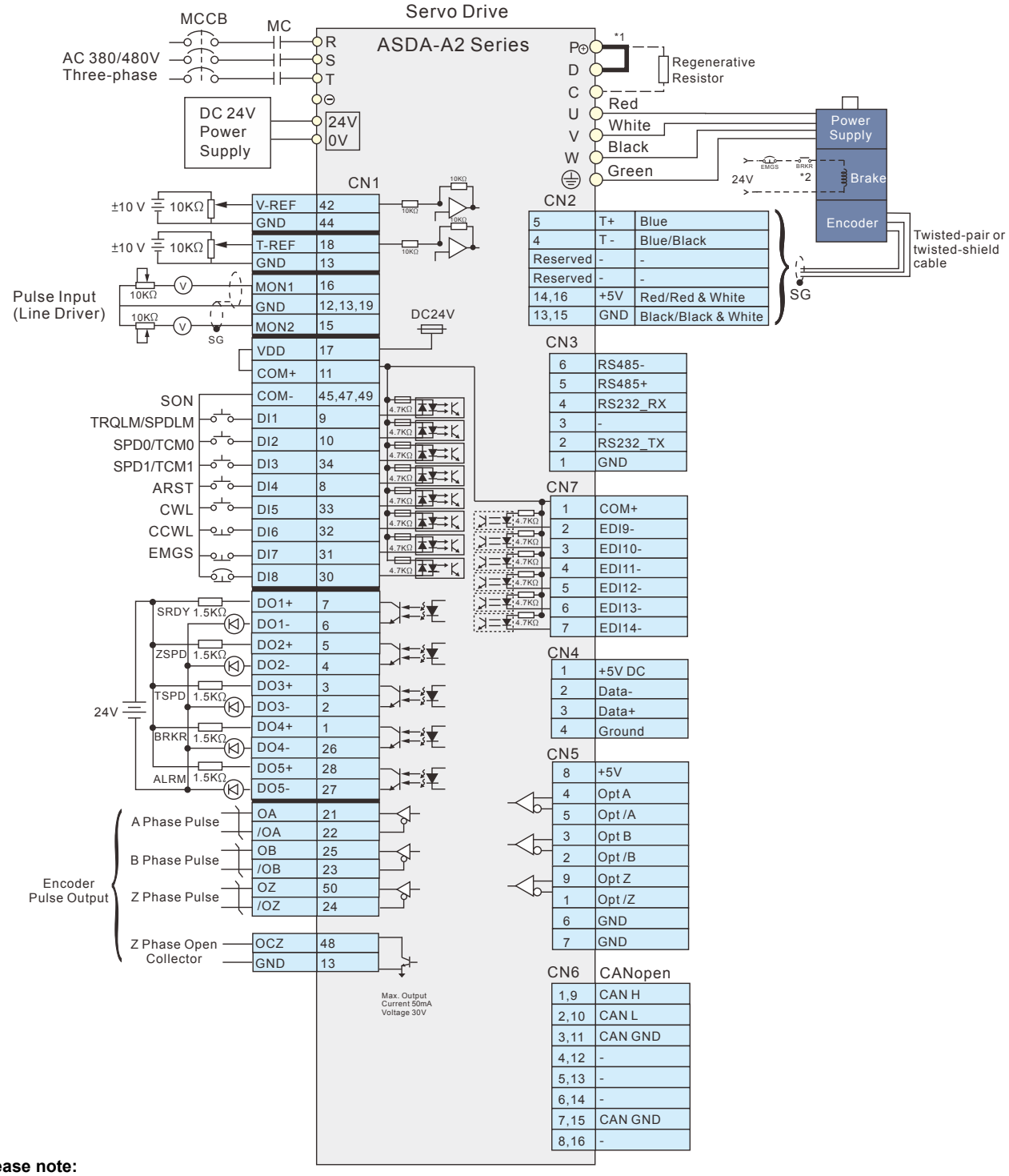
*1 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.

*2 The brake oil has no polarity.

Wiring

400V Series

Speed (S), Torque (T) Control Mode (for Analog Voltage Input and Internal Parameter Setting)



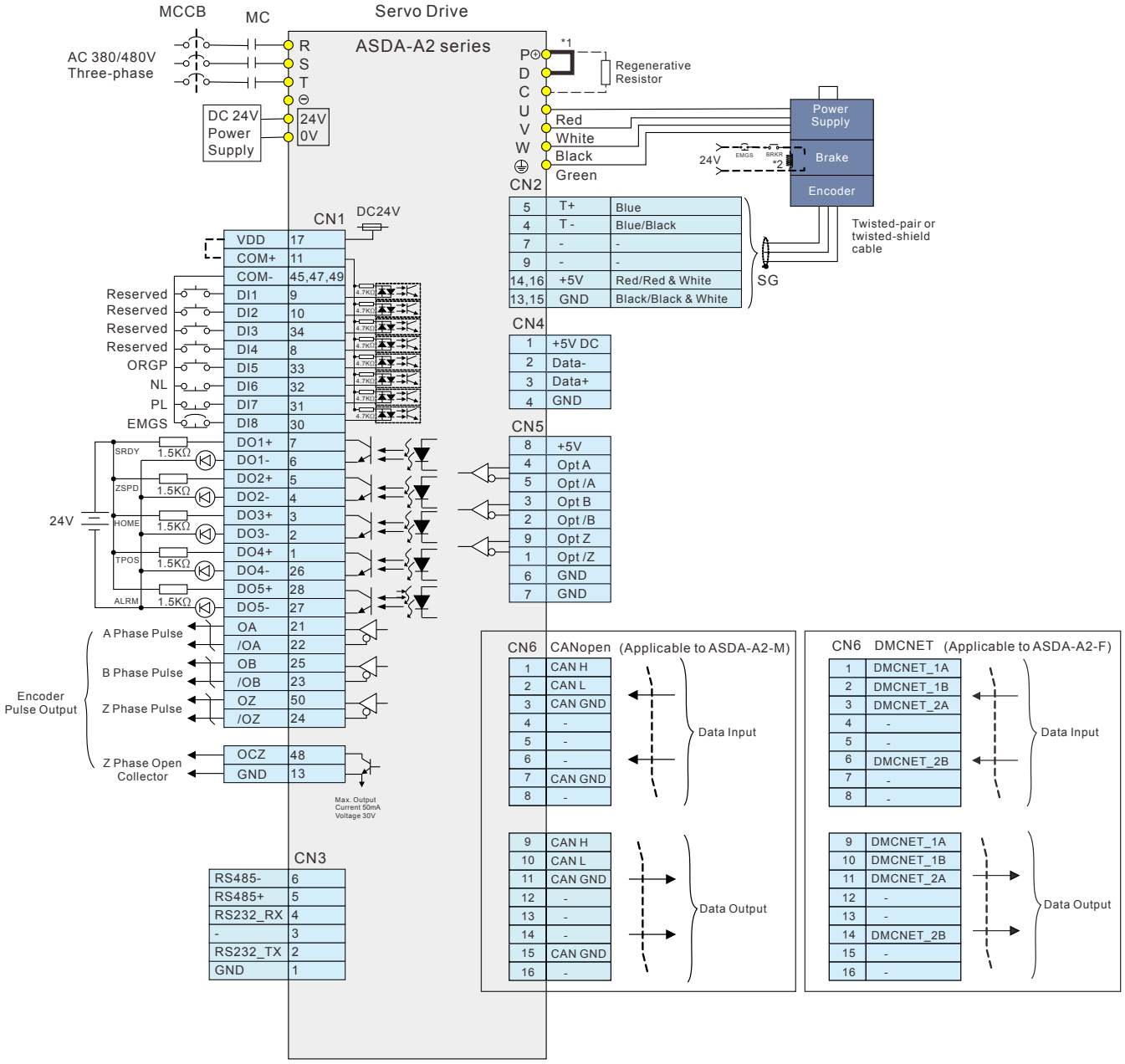
Please note:

*1 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.

*2 The brake oil has no polarity.

400V Series

CANopen Communication Mode （for ASDA-A2-M Series）

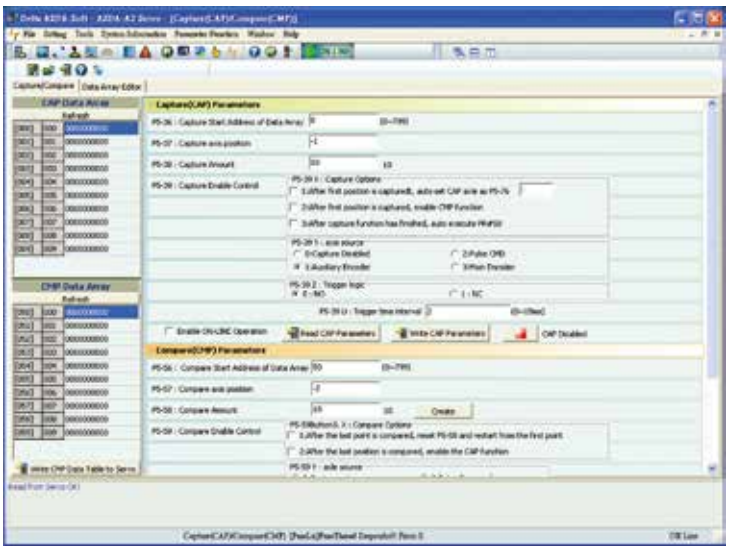


Please note:

*1 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.

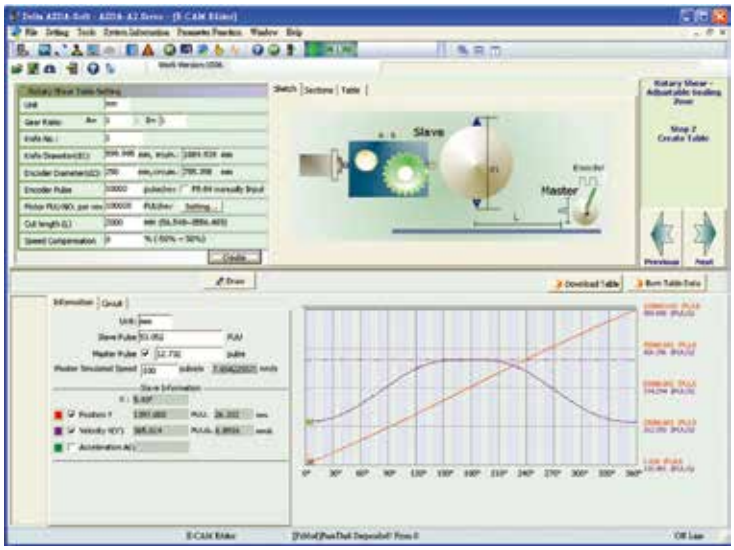
*2 The brake oil has no polarity.

ASDA-Soft Configuration Software

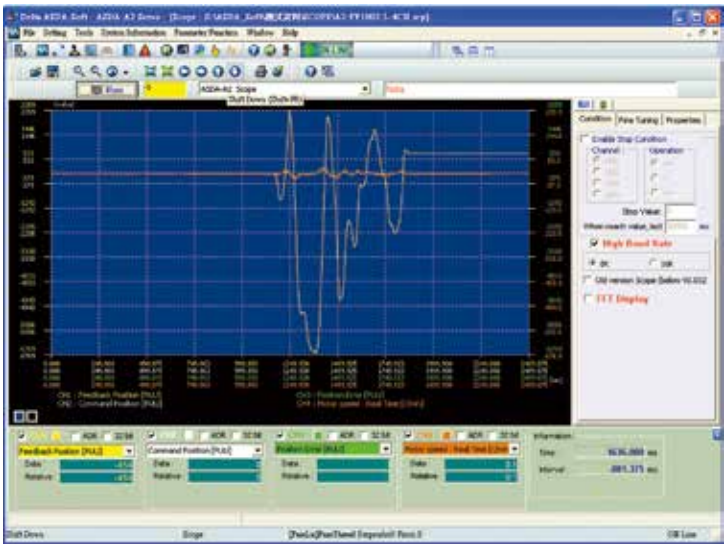


- **Strong CAPTURE and COMPARE functions for position latch and detection help you complete system configuration quickly.**



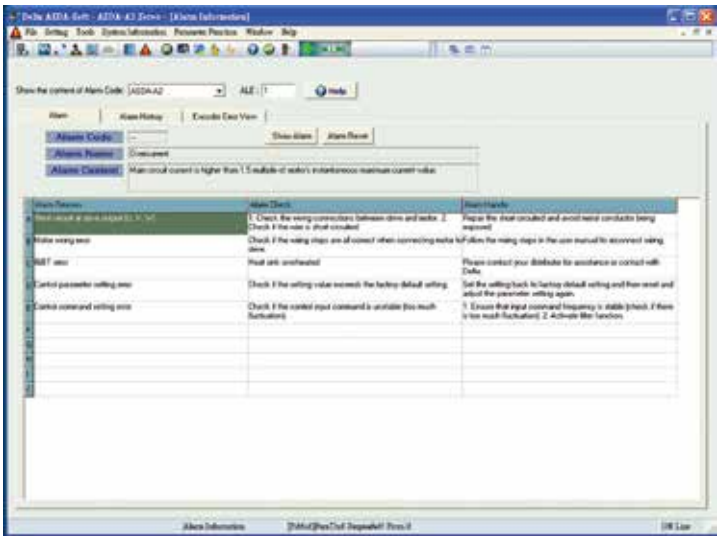


- **User-friendly E-CAM editing interface is provided for designing E-CAM outlines and curves freely. In addition, quick settings for flying shear and rotary cut applications are offered.**

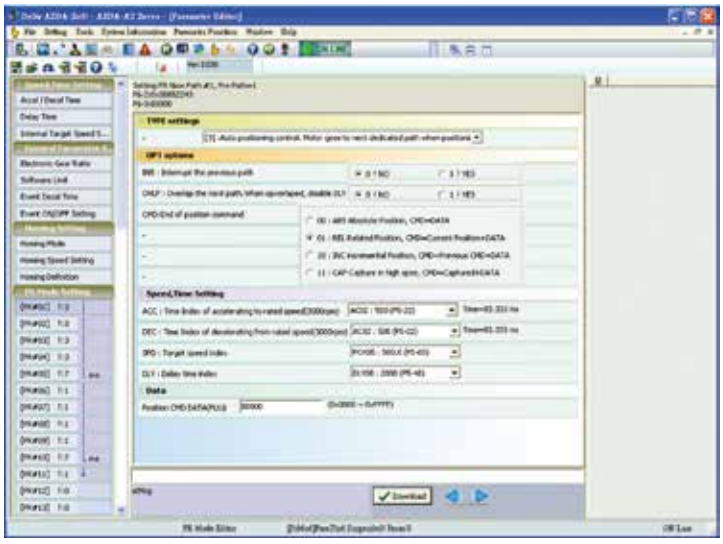


- Versatile on-line monitoring function, similar to a digital oscilloscope is able to quickly record the status and data of each axis. Real-time monitoring is easy.





- Convenient alarm display function is capable of troubleshooting the system easily and recommending timely corrective actions.



- Easy-to-use editing interface is designed for new and enhanced PR control mode. Homing, point-to-point and other motion control functions for multi-axis positioning control are easily achieved.

Optional Accessories



Quick Connectors

- Used for 100W to 300W servo drives.
- One operating lever is provided for wire to terminal block insertion.



Power Cables

- 3m and 5m standard cables are available.
- Customized service is offered to meet the needs of customers.
- Two types are selectable: with brake and without brake.



Encoder Cables

- 3m and 5m standard cables are available.
- Customized service is offered to meet the needs of customers.



RS-232 Communication Cables

- Connects ASDA-A2 to PLC, HMI and other controllers via RS-232 communication.
- Standard cable length is 3m



CN1 I/O connector

- Delta Part Number: ASD-IF-SC5020





Terminal Block Modules

- Easy installation and wiring.
- 0.5m connection cable is provided. Easy to reduce the space required.
- Easy to expand system's I/O configuration.





Regenerative Resistors

- For selecting a regenerative resistor, please refer to e table of regenerative resistor specifications on page 74.



USB Communication Cables (for PC)

- USB Communication Cables (for PC)
- USB1.1 is equipped as standard.



CANopen Accessories

- Delta's TAP-CN03 distribution box connects ASDA-A2 to Delta's PLC CAN Master
- CANopen communication cable is provided



RS-485 Connectors

- Used to connect multiple ASDA-A2 series products by RS-485 interface through Modbus serial communication.

Note: The figures are for illustration purposes only. Actual models may differ slightly in appearance to illustrations provided.

Servo Drive Specifications

220V Series

ASDA-A2 Series			100 W	200 W	400 W	750 W	1 kW	1.5 kW	2 kW	3 kW	4.5 kW	5.5 kW	7.5 kW	11 kW	15kW
			01	02	04	07	10	15	20	30	45	55	75	1B	1F
Power supply	Phase / Voltage		Three-phase / Single-phase 220V_{AC}						3-phase 220V_{AC}						
	Permissible Voltage Range		1-phase / 3-phase 200 ~ 230V_{AC}, -15% ~ 10%						3-phase 200 ~ 230V_{AC}, -15% ~ 10%						
	Input Current(3PH) (Units: Arms)		0.39	1.11	1.86	3.66	4.68	5.9	8.76	9.83	17.5	19.4	26.3	48	63
	Input Current(1PH) (Units: Arms)		0.69	1.92	3.22	6.78	8.88	10.3	-	-	-	-	-	-	-
	Continuous Output Current (Units: Arms)		0.9	1.55	2.6	5.1	7.3	8.3	13.4	19.4	32.5	40	47.5	54.4	70
Cooling System			Natural Air Circulation			Fan Cooling									
Encoder Resolution / Feedback Resolution			Incremental encoder: 20-bit ; Absolute encoder: 17-bit												
Control of Main Circuit			SVPWM(Space Vector Pulse Width Modulation) Control												
Tuning Modes			Auto / Manual												
Regenerative Resistor			None		Built-in							External			
Position Control Mode	Max. Input Pulse Frequency (Only for Non-DMCNET mode)		Max. 500Kpps / 4Mpps (Line driver), Max. 200Kpps (Open collector)												
	Pulse Type (Only for Non-DMCNET mode)		Pulse + Direction, A phase + B phase, CCW pulse + CW pulse												
	Command Source		External pulse train (PT mode) (Only for Non-DMCNET mode) / Internal parameters (PR mode)												
	Smoothing Strategy		Low-pass and P-curve filter												
	Electronic Gear		Electronic gear N/M multiple N: 1~32767, M: 1:32767 (1/50<N/M<25600)												
	Torque Limit Operation		Set by parameters												
	Feed Forward Compensation		Set by parameters												
Speed Control Mode	Analog Input Command (Only for Non-DMCNET mode)	Voltage Range	0 ~ ±10 V_{DC}												
		Input Resistance	10KΩ												
		Time Constant	2.2 μs												
	Speed Control Range *1		1: 5000									1: 3000		1: 2000	
	Command Source		External analog signal (Only for Non-DMCNET mode) / Internal parameters												
	Smoothing Strategy		Low-pass and S-curve filter												
	Torque Limit Operation		Set by parametersor via analog input (Only for Non-DMCNET mode)												
	Frequency Response Characteristic		Maximum 1kHz												
	Speed Accuracy *2 (At rated rotation speed)		0.01% or less at 0 to 100% load fluctuation												
			0.01% or less at ±10% power fluctuation												
			0.01% or less at 0ºC to 50ºC ambient temperature fluctuation												
Torque Control Mode	Analog Input Command (Only for Non-DMCNET mode)	Voltage Range	0 ~ ±10 V_{DC}												
		Input Resistance	10KΩ												
		Time Constant	2.2 μs												
	Command Source		External analog signal (Only for Non-DMCNET mode) / Internal parameters												
	Smoothing Strategy		Low-pass filter												
	Speed Limit Operation		Set by parametersor via analog input (Only for Non-DMCNET mode)												
Analog Monitor Output			Monitor signal can set by parameters (Output voltage range: ±8V)												
Digital Inputs / Outputs	Inputs		Servo on, Reset, Gain switching, Pulse clear, Zero speed CLAMP, Command input reverse control, Command triggered, Speed/ Torque limit enabled, Position command selection, Motor stop, Speed position selection, Position / Speed mode switching, Speed / Torque mode switching, Torque / Position mode switching, PT / PR command switching, Emergency stop, Forward / Reverse inhibit limit, Reference "Home" sensor, Forward / Reverse operation torque limit, Move to "Home", Electronic Cam (E-CAM), Forward / Reverse JOG input, Event trigger PR command, Electronic gear ratio (Numerator) selection and Pulse inhibit input * Please note that the above digital signals and inputs are available only for Non-DMCNET mode. In DMCNET mode, it is recommended to write digital inputs into the servo drives through DMCNET communication, and the digital inputs should be used for Emergency Stop, Forward / Reverse Inhibit limit and Reference "Home" sensor only.												
	Outputs		Encoder signal output (A, B, Z Line Driver and Z Open Collector) Servo ready, Servo on, At Zero speed, At Speed reached, At Positioning completed, At Torques limit, Servo alarm (Servo fault) activated, Electromagnetic brake control, Homing completed, Output overload warning, Servo warning activated, Position command overflow, Forward / Reverse software limit, Internal position command completed, Capture operation completed output., Motion control completed output., Master position of E-CAM (Electronic CAM)												
Protective Functions			Overcurrent, Overvoltage, Undervoltage, Motor overheated, Regeneration error, Overload, Overspeed, Abnormal pulse control command, Excessive deviation, Encoder error, Adjustment error, Emergency stop activated, Reverse/ Forward limit switch error, Position excessive deviation of full-close control loop, Serial communication error, Input power phase loss, Serial communication time out, short circuit protection of U, V, W, and CN1, CN2, CN3 terminals												
Communication Interface			RS-232 / RS-485 / CANopen / USB / DMCNET												
Environment	Installation Site		Indoor location (free from direct sunlight), no corrosive liquid and gas (far away from oil mist, flammable gas, dust)												
	Altitude		Altitude 1000m or lower above sea level												
	Atmospheric Pressure		86kPa ~ 106kPa												
	Operating Temperature		0ºC ~ 55ºC (If operating temperature is above 45ºC, forced cooling will be required)												
	Storage Temperature		-20ºC ~ 65ºC												
	Humidity		0 ~ 90% RH (non-condensing)												
	Vibration		9.80665 m/s^2 (1G) less than 20Hz, 5.88 m/s^2 (0.6G) 20 to 50Hz												
	IP Rating		IP20												
	Power System		TN System *3												
	Approvals		IEC/EN 61800-5-1, UL 508C, C-tick												

Footnote:

*1. Rated rotation speed: When full load, speed ratio is defined as the minimum speed (the motor will not pause).
*2. When command is rated rotation speed, the speed fluctuation rate is defined as: (Empty load rotation speed Full load rotation speed) / Rated rotation speed
*3. TN system: A power distribution system having one point directly earthed, the exposed conductive parts of the installation being connected to that points by protective earth conductor.

400V Series

ASDA-A2 Series			750 W	1kW	1.5kW	2kW	3kW	4.5kW	5.5kW	7.5kW	11 kW	15 kW
			07	10	15	20	30	45	55	75	1B	1F
Control Power	Input Voltage		$24V_{DC}$, ±10%									
	Input Current			0.89A			1.18A			1.66A	2A	
	Input Power			21.4W			28.2W			39.85W	48W	
Main Power	Permissible Voltage Range		3-phase380 ~ 480V_{AC}, ±10%									
	Input Current (Units: Arms)		2.22	3.02	4.24	5.65	8.01	11.9	14.1	17.27	28.95	39.47
	Continuous Output Current (Units: Arms)		3.07	3.52	5.02	6.66	11.9	20	22.37	30	28.1	38.65
Cooling System			Fan Cooling									
Encoder Resolution / Feedback Resolution			Incremental encoder: 20-bit ; Absolute encoder: 17-bit									
Control of Main Circuit			SVPWM(Space Vector Pulse Width Modulation) Control									
Tuning Modes			Auto / Manual									
Regenerative Resistor				Built-in			External					
Position Control Mode	Max. Input Pulse Frequency(Only for Non-DMCNET mode)		Max. 500Kpps / 4Mpps (Line driver), Max. 200Kpps (Open collector)									
	Pulse Type (Only for Non-DMCNET mode)		Pulse + Direction, A phase + B phase, CCW pulse + CW pulse									
	Command Source		External pulse train (Only for Non-DMCNET mode)/Internal parameters									
	Smoothing Strategy		Low-pass and P-curve filter									
	Electronic Gear		Electronic gear N/M multiple N: 1~32767, M: 1:32767 (1/50<N/M<25600)									
	Torque Limit Operation		Set by parameters									
	Feed Forward Compensation		Set by parameters									
Speed Control Mode	Analog Input Command (Only for Non-DMCNET mode)	Voltage Range	$0 \sim \pm 10\ V_{DC}$									
		Input Resistance	10KΩ									
		Time Constant	2.2 μs									
	Speed Control Range *1		1: 5000					1: 3000				
	Command Source		External analog signal (Only for Non-DMCNET mode) / Internal parameters									
	Smoothing Strategy		Low-pass and S-curve filter									
	Torque Limit Operation		Set by parametersor via analog input (Only for Non-DMCNET mode)									
	Frequency Response Characteristic		Maximum 1kHz									
	Speed Accuracy *2		0.01% or less at 0 to 100% load fluctuation									
			0.01% or less at ±10% power fluctuation									
			0.01% or less at 0ºC to 50ºC ambient temperature fluctuation									
Torque Control Mode	Analog Input Command (Only for Non-DMCNET mode)	Voltage Range	$0 \sim \pm 10\ V_{DC}$									
		Input Resistance	10KΩ									
		Time Constant	2.2 μs									
	Command Source		External analog signal (Only for Non-DMCNET mode) / Internal parameters									
	Smoothing Strategy		Low-pass filter									
	Speed Limit Operation		Set by parametersor via analog input (Only for Non-DMCNET mode)									
Analog Monitor Output			Monitor signal can set by parameters (Output voltage range: ±8V)									
Digital Inputs / Outputs	Inputs		Servo on, Reset, Gain switching, Pulse clear, Zero speed CLAMP, Command input reverse control, Command triggered, Speed/ Torque limit enabled, Position command selection, Motor stop, Speed position selection, Position / Speed mode switching, Speed / Torque mode switching, Torque / Position mode switching, PT / PR command switching, Emergency stop, Forward / Reverse inhibit limit, Reference "Home" sensor, Forward / Reverse operation torque limit, Move to "Home", Electronic cam, Forward / Reverse JOG input, Event trigger PR command, Electronic gear ratio (Numerator) selection and Pulse inhibit input * Please note that the above digital signals and inputs are available only for Non-DMCNET mode. In DMCNET mode, it is recommended to write digital inputs into the servo drives through DMCNET communication, and the digital inputs should be used for Emergency Stop, Forward / Reverse Inhibit limit and Reference "Home" sensor only.									
	Outputs		Encoder signal output (A, B, Z Line Driver and Z Open Collector) Servo ready, Servo on, At Zero speed, At Speed reached, At Positioning completed, At Torques limit, Servo alarm (Servo fault) activated, Electromagnetic brake control, Homing completed, Output overload warning, Servo warning activated, Position command overflow, Forward / Reverse software limit, Internal position command completed, Capture operation completed output., Motion control completed output., Master position of E-CAM (Electronic CAM)									
Protective Functions			Overcurrent, Overvoltage, Undervoltage, Motor overheated, Regeneration error, Overload, Overspeed, Abnormal pulse control command, Excessive deviation, Encoder error, Adjustment error, Emergency stop activated, Reverse/ Forward limit switch error, Position excessive deviation of full-close control loop, Serial communication error, Input power phase loss, Serial communication time out, short circuit protection of U, V, W, and CN1, CN2, CN3 terminals									
Communication Interface			RS-232 / RS-485 / CANopen / USB / DMCNET									
Environment	Installation Site		Indoor location (free from direct sunlight), no corrosive liquid and gas (far away from oil mist, flammable gas, dust)									
	Altitude		Altitude 1000m or lower above sea level									
	Atmospheric Pressure		86kPa ~ 106kPa									
	Operating Temperature		0ºC ~ 55ºC(If operating temperature is above 45ºC, forced cooling will be required)									
	Storage Temperature		-20ºC ~ 65ºC									
	Humidity		0 ~ 90% RH (non-condensing)									
	Vibration		9.80665 m/s^2 (1G) less than 20Hz, 5.88 m/s^2 (0.6G) 20 to 50Hz									
	IP Rating		IP20									
	Power System		TN System*3									
	Approvals		IEC/EN 61800-5-1, UL 508C, C-tick CE c UL us LISTED									

Footnote:

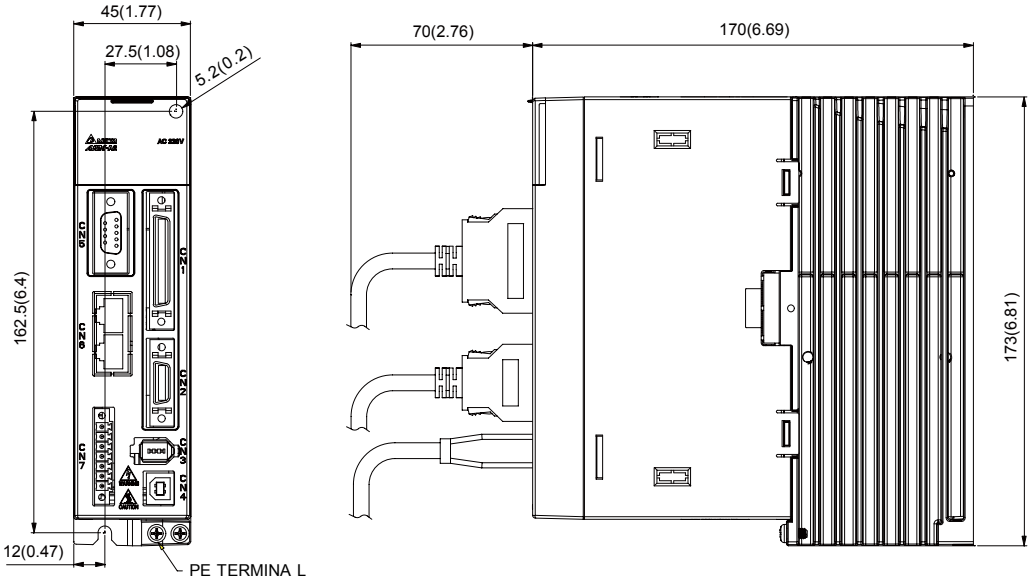
*1. Rated rotation speed: When full load, speed ratio is defined as the minimum speed (the motor will not pause).
*2. When command is rated rotation speed, the speed fluctuation rate is defined as: (Empty load rotation speed Full load rotation speed) / Rated rotation speed
*3. TN system: A power distribution system having one point directly earthed, the exposed conductive parts of the installation being connected to that points by protective earth conductor.

Servo Drive Dimensions Units: mm(inches)

220V Series

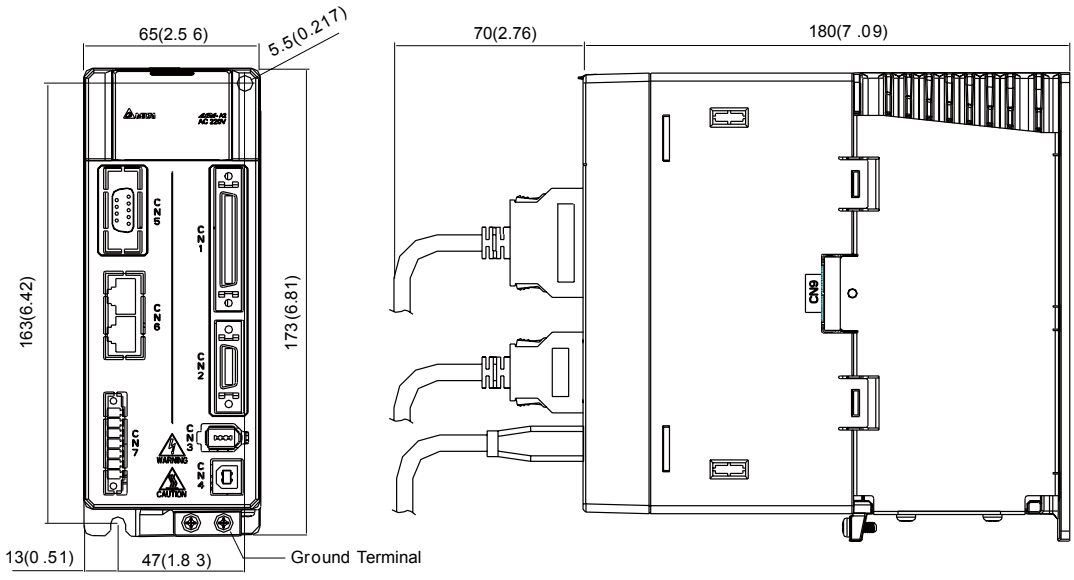
100W / 200W / 400W

Weight
1.5 (3.3)



750W / 1.0kW / 1.5kW

Weight
2.0 (4.4)

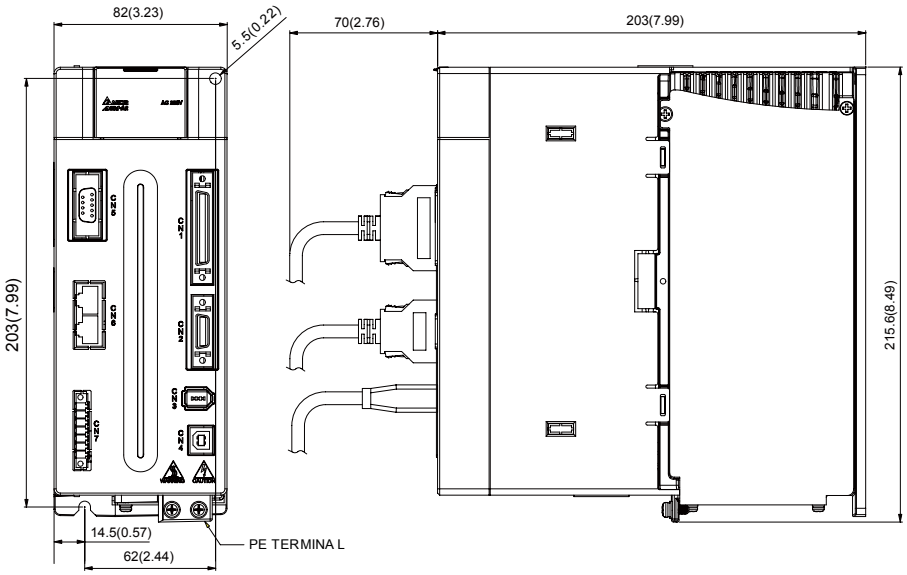


NOTE

1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
2) Dimensions and weights of the servo drive may be revised without prior notice.

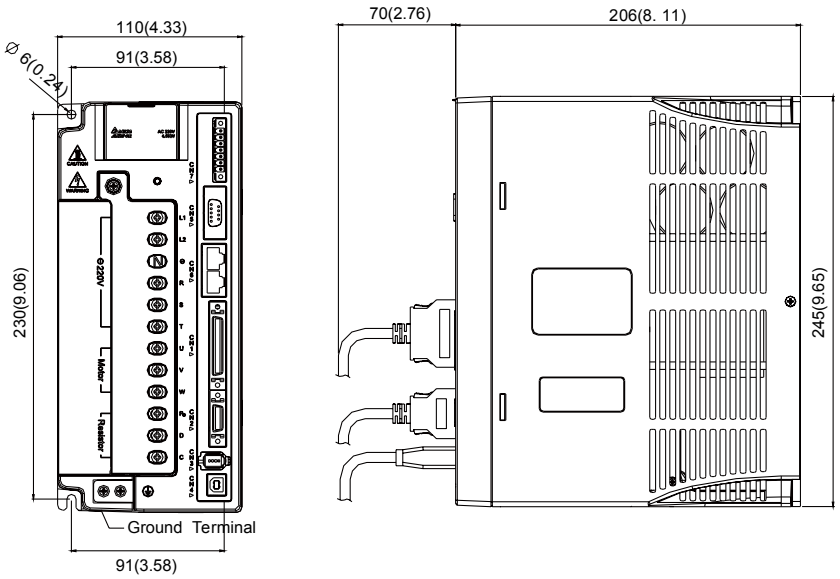
2.0kW / 3.0kW

Weight
2.89 (6.36)



4.5kW

Weight
4.4 (10.0)



NOTE

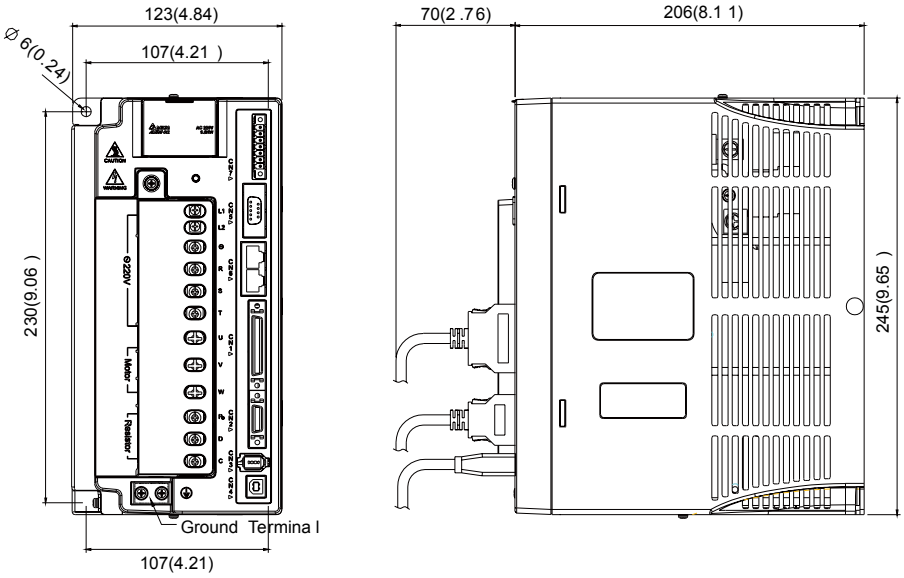
1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
2) Dimensions and weights of the servo drive may be revised without prior notice.

Servo Drive Dimensions Units: mm(inches)

220V Series

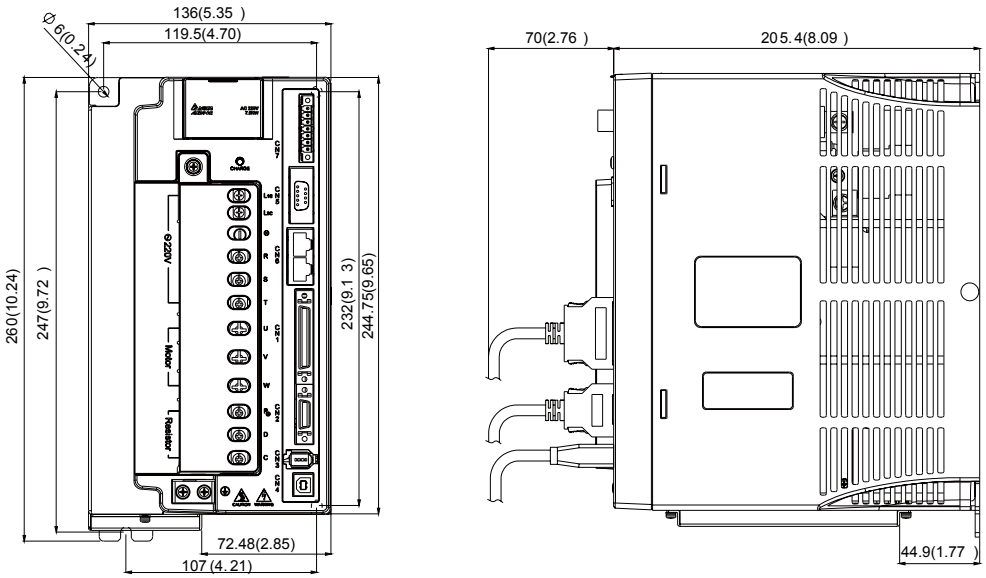
5.5kW

Weight
5.5 (12.1)



7.5kW

Weight
5.9 (13)

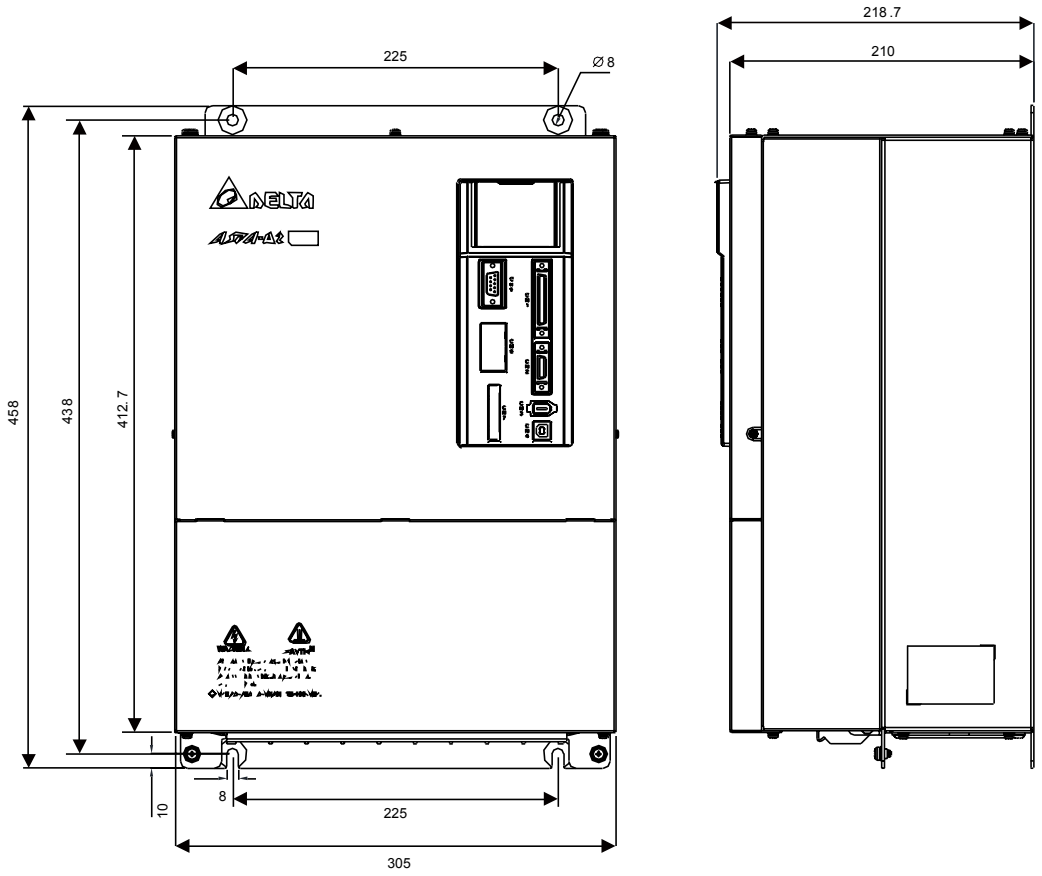


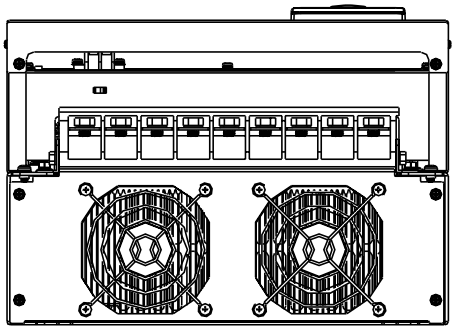
NOTE

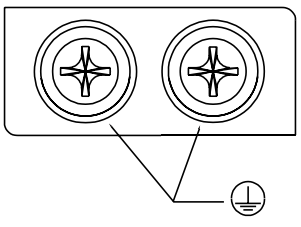
1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
2) Dimensions and weights of the servo drive may be revised without prior notice.

11kW / 15kW

Weight
20 (44)







Screw: M4x0.7
Screw Torque: 14 (kgf-cm)

NOTE

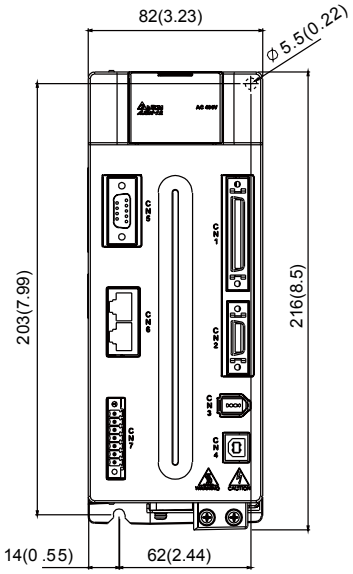
1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
2) Dimensions and weights of the servo drive may be revised without prior notice.

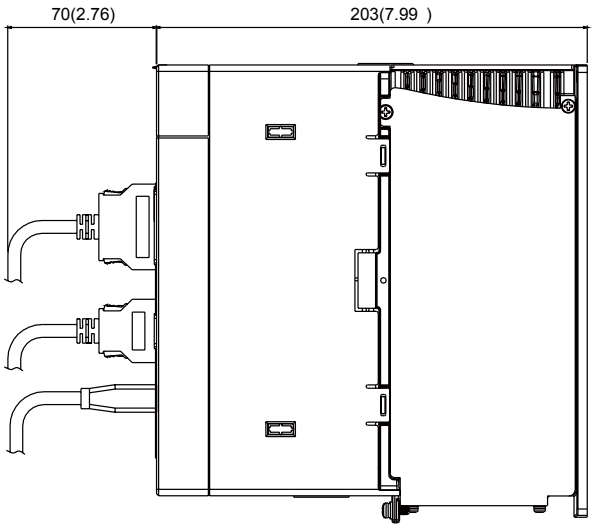
Servo Drive Dimensions Units: mm(inches)

400V Series

750W / 1.0kW / 1.5kW

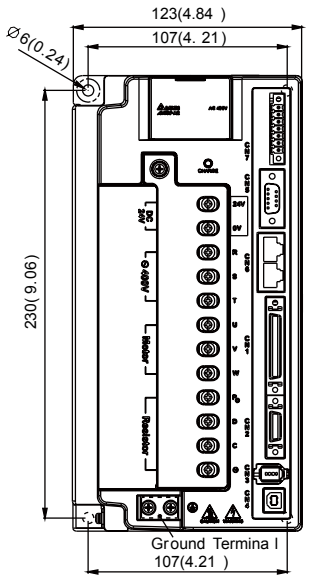
Weight
2.89 (6.36)

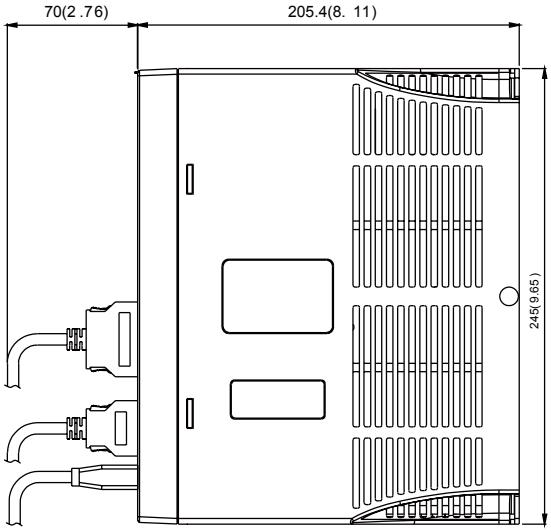




2.0kW / 3.0kW / 4.5kW / 5.5kW

Weight
5.5 (12.1)



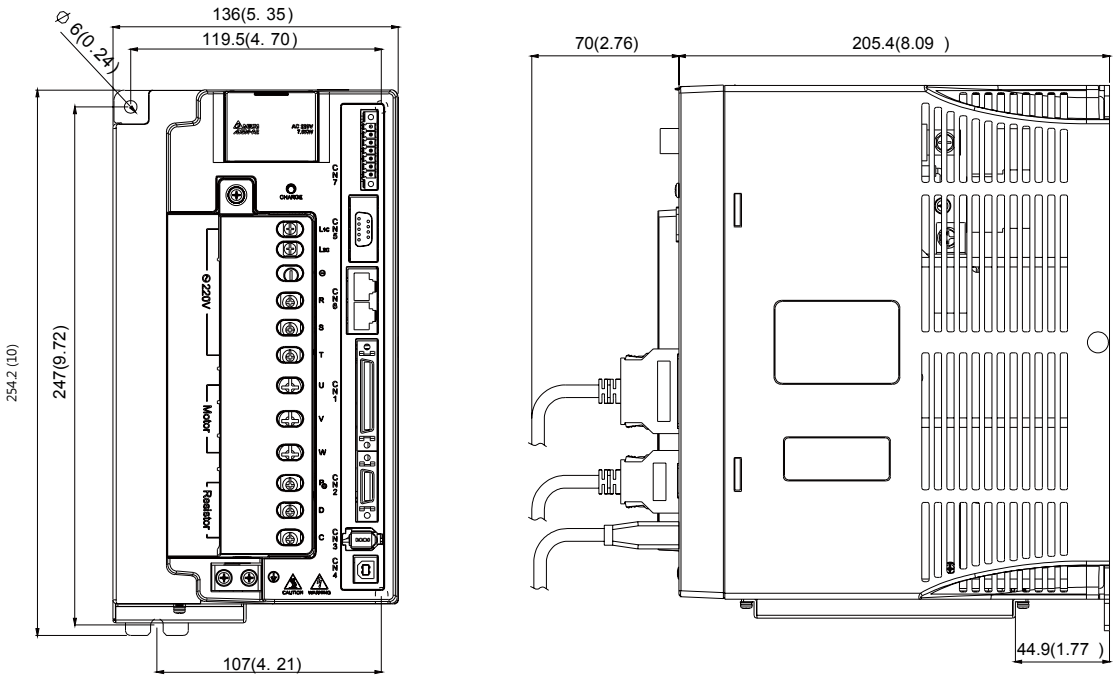


NOTE

1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
2) Dimensions and weights of the servo drive may be revised without prior notice.

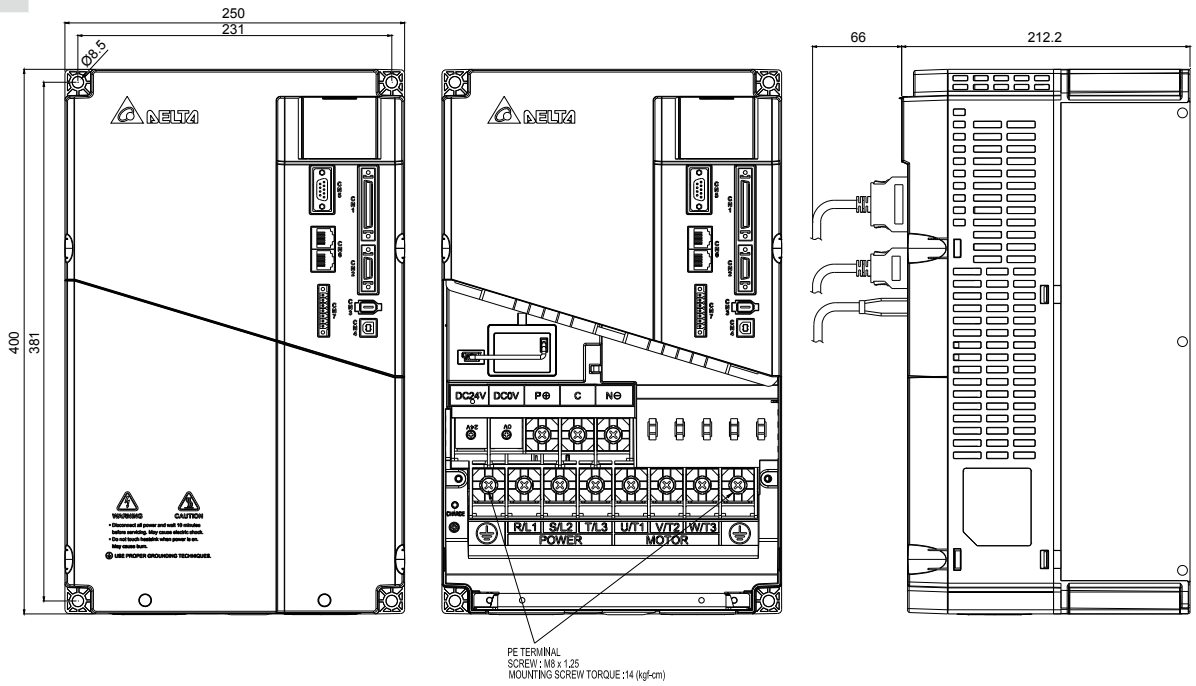
7.5kW

Weight
5.5 (12.1)



11kW / 15kW

Weight
10.3(22.66)



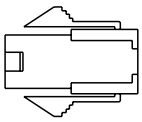
NOTE

1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
2) Dimensions and weights of the servo drive may be revised without prior notice.

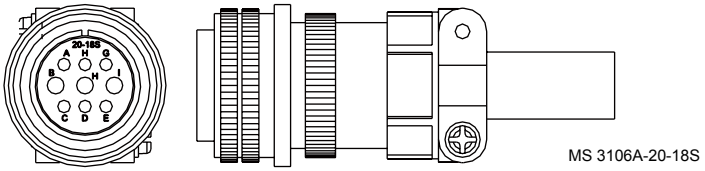
Optional Cables and Connectors

● Power Connectors

ASDBCAPW0000 (for 200V drives)

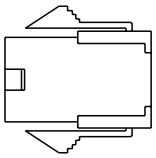


ASD-CAPW1000

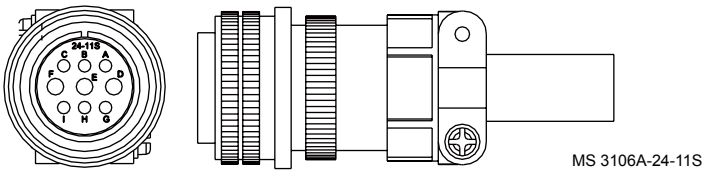


MS 3106A-20-18S

ASDBCAPW0100 (for 200V drives, with brake cable)

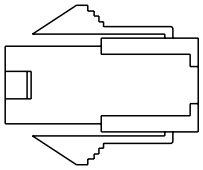


ASD-CAPW2000

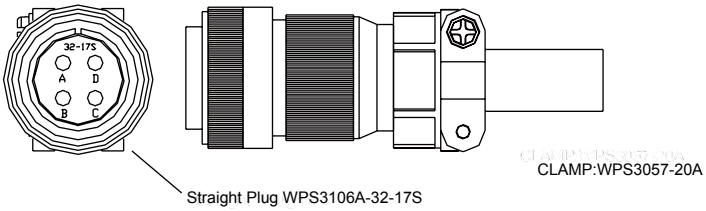


MS 3106A-24-11S

ASD-CAPW5400 (for 400V drives)



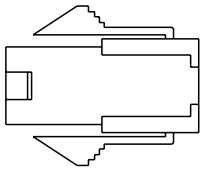
ASD-CAPW4000



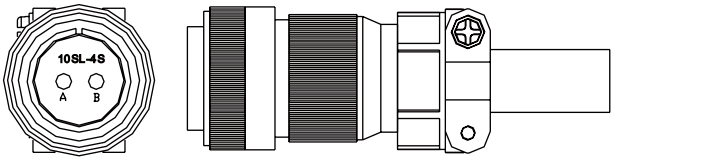
CLAMP:WPS3057-20A

Straight Plug WPS3106A-32-17S

ASD-CAPW5100 (for 400V drives, with brake cable)



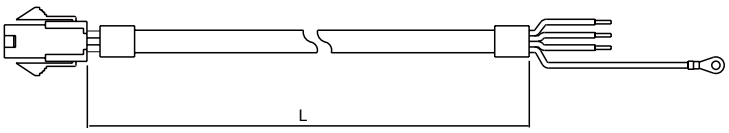
ASD-CNBR1000



CLAMP: WPS3106A 10SL-4S-R

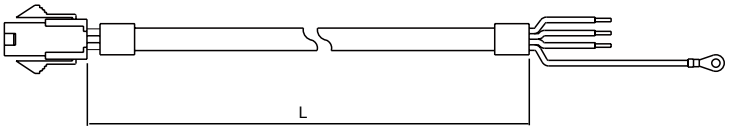
● Power Cables

ASD-ABPW0003, ASD-ABPW0005 (for 200V drives)



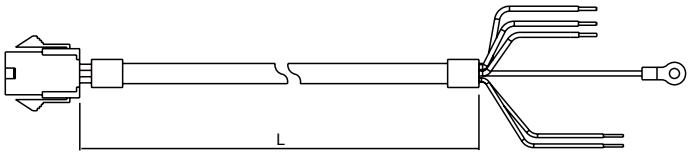
Item	Part No.	L	
		mm	inch
1	ASD-ABPW0003	3000 ± 100	118 ± 4
2	ASD-ABPW0005	5000 ± 100	197 ± 4

ASD-CAPW5403, ASD-CAPW5405 (for 400V drives)



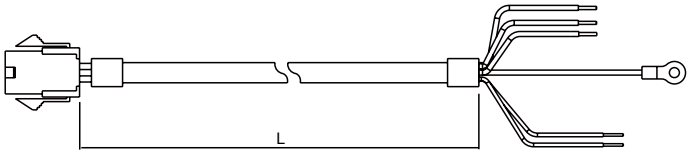
Item	Part No.	L	
		mm	inch
1	ASD-CAPW5403	3000 ± 100	118 ± 4
2	ASD-CAPW5405	5000 ± 100	197 ± 4

AASD-ABPW0103, ASD-ABPW0105 (for 200V drives, with brake cable)



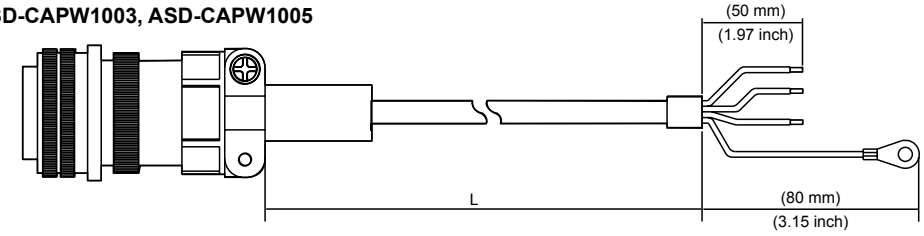
Item	Part No.	L	
		mm	inch
1	ASD-ABPW0103	3000 ± 100	118 ± 4
2	ASD-ABPW0105	5000 ± 100	197 ± 4

ASD-CAPW5103, ASD-CAPW5105 (for 400V drives, with brake cable)



Item	Part No.	L	
		mm	inch
1	ASD-CAPW5103	3000 ± 100	118 ± 4
2	ASD-CAPW5105	5000 ± 100	197 ± 4

ASD-CAPW1003, ASD-CAPW1005

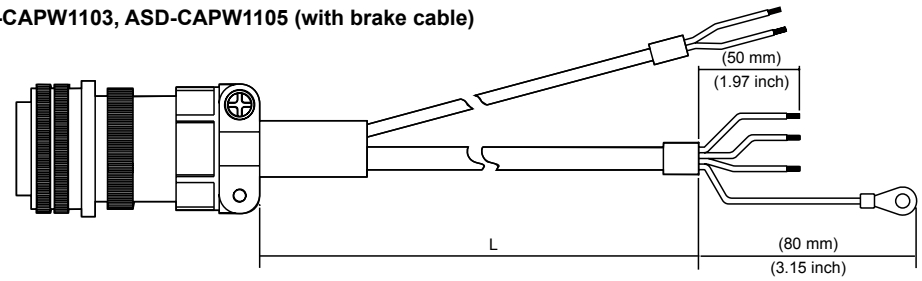


Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW1003	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-CAPW1005	3106A-20-18S	5000 ± 100	197 ± 4

Optional Cables and Connectors

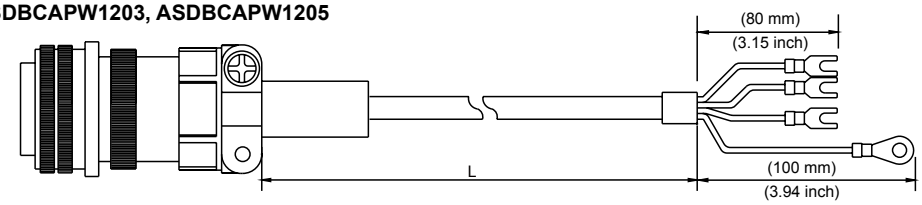
● Power Cables

ASD-CAPW1103, ASD-CAPW1105 (with brake cable)



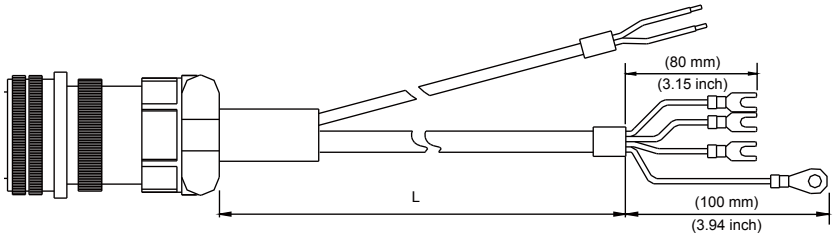
Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW1103	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-CAPW1105	3106A-20-18S	5000 ± 100	197 ± 4

ASDBCAPW1203, ASDBCAPW1205



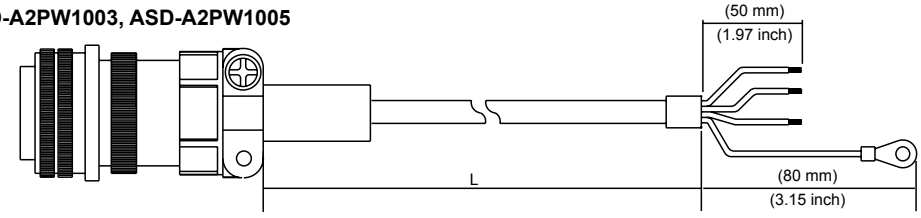
Item	Part No.	Straight	L	
			mm	inch
1	ASD-BCAPW1203	3106A-20-18S	3000 ± 100	118 ± 4
2	ASDB-CAPW1205	3106A-20-18S	5000 ± 100	197 ± 4

ASD-CAPW1303, ASD-CAPW1305 (with brake cable)



Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW1303	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-CAPW1305	3106A-20-18S	5000 ± 100	197 ± 4

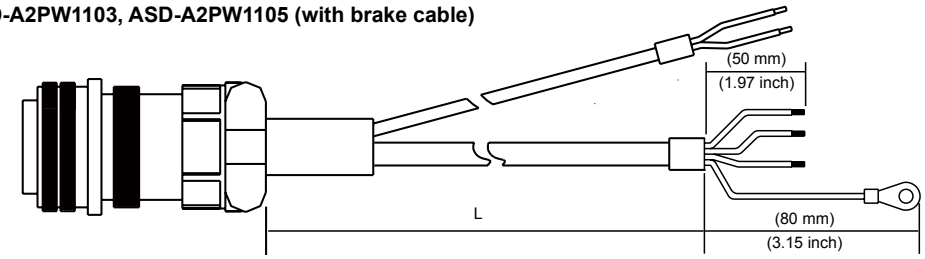
ASD-A2PW1003, ASD-A2PW1005



Item	Part No.	Straight	L	
			mm	inch
1	ASD-A2PW1003	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-A2PW1005	3106A-20-18S	5000 ± 100	197 ± 4

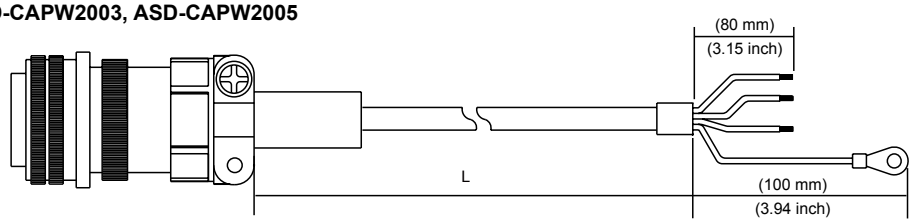
● Power Cables

ASD-A2PW1103, ASD-A2PW1105 (with brake cable)



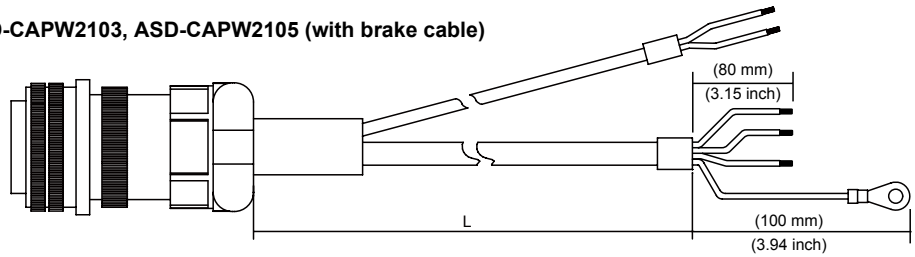
Item	Part No.	Straight	L	
			mm	inch
1	ASD-A2PW1103	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-A2PW1105	3106A-20-18S	5000 ± 100	197 ± 4

ASD-CAPW2003, ASD-CAPW2005



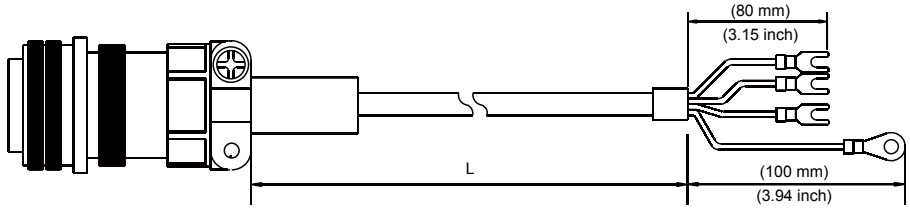
Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW2003	3106A-24-11S	3000 ± 100	118 ± 4
2	ASD-CAPW2005	3106A-24-11S	5000 ± 100	197 ± 4

ASD-CAPW2103, ASD-CAPW2105 (with brake cable)



Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW2103	3106A-24-11S	3000 ± 100	118 ± 4
2	ASD-CAPW2105	3106A-24-11S	5000 ± 100	197 ± 4

ASD-CAPW2203, ASD-CAPW2205

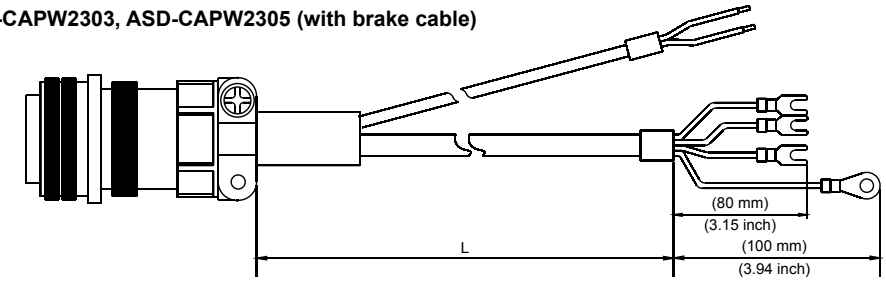


Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW2203	3106A-24-11S	3000 ± 100	118 ± 4
2	ASD-CAPW2205	3106A-24-11S	5000 ± 100	197 ± 4

Optional Cables and Connectors

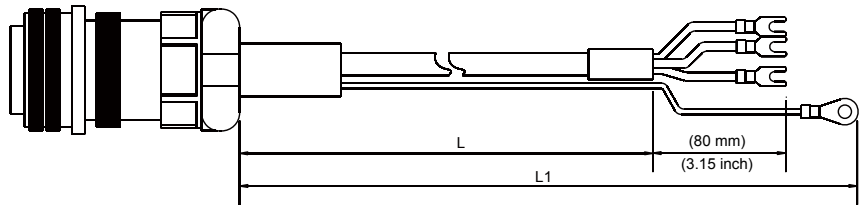
● Power Cables

ASD-CAPW2303, ASD-CAPW2305 (with brake cable)



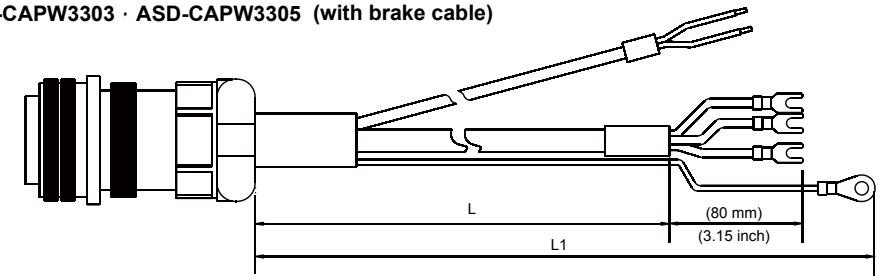
Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW2303	3106A-24-11S	3000 ± 100	118 ± 4
2	ASD-CAPW2305	3106A-24-11S	5000 ± 100	197 ± 4

ASD-CAPW3203 · ASD-CAPW3205



Item	Part No.	Straight	L		L1	
			mm	inch	mm	inch
1	ASD-CAPW3203	3106A-24-11S	3000 ± 100	118 ± 4	3100 ± 100	122 ± 4
2	ASD-CAPW3205	3106A-24-11S	5000 ± 100	197 ± 4	5100 ± 100	201 ± 4

ASD-CAPW3303 · ASD-CAPW3305 (with brake cable)



Item	Part No.	Straight	L		L1	
			mm	inch	mm	inch
1	ASD-CAPW3303	3106A-24-11S	3000 ± 100	118 ± 4	3100 ± 100	122 ± 4
2	ASD-CAPW3305	3106A-24-11S	5000 ± 100	197 ± 4	5100 ± 100	201 ± 4

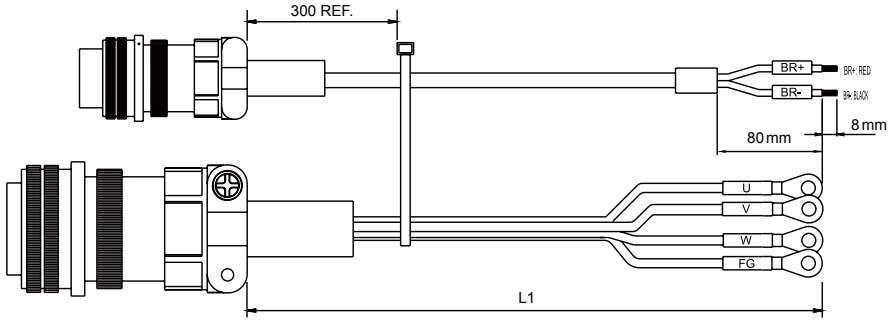
ASD-CAPW4503, ASD-CAPW4505



Item	Part No.	Straight	L1	
			mm	inch
1	ASD-CAPW4503	3106A-32-17S	3100 ± 100	122 ± 4
2	ASD-CAPW4505	3106A-32-17S	5100 ± 100	201 ± 4

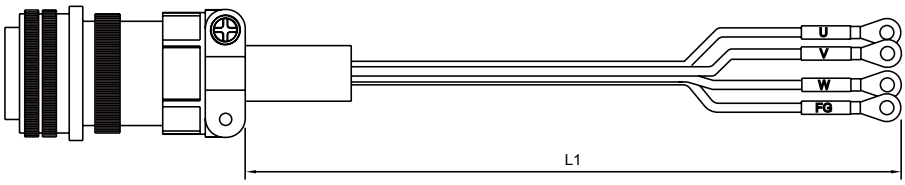
● Power Cables

ASD-CAPW4703, ASD-CAPW4705 (with brake cable)



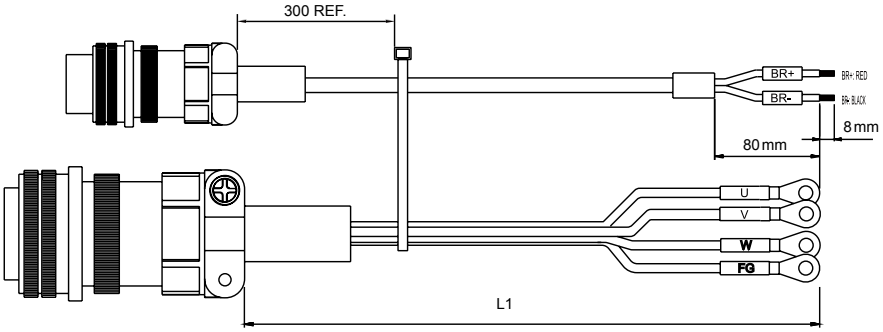
Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW4703	3106A-32-17S	3100 ± 100	122 ± 4
		3106A-10SL-4S	3100 ± 100	122 ± 4
2	ASD-CAPW4705	3106A-32-17S	5100 ± 100	201 ± 4
		3106A-10SL-4S	5100 ± 100	201 ± 4

ASD-CAPW4603, ASD-CAPW4605



Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW4603	3106A-32-17S	3100 ± 100	122 ± 4
2	ASD-CAPW4605	3106A-32-17S	5100 ± 100	201 ± 4

ASD-CAPW4803, ASD-CAPW4805 (with brake cable)

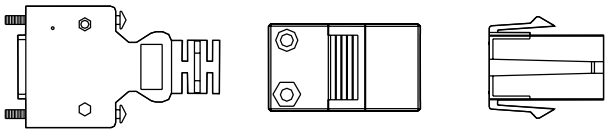


Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW4803	3106A-32-17S	3100 ± 100	122 ± 4
		3106A-10SL-4S	3100 ± 100	122 ± 4
2	ASD-CAPW4805	3106A-32-17S	5100 ± 100	201 ± 4
		3106A-10SL-4S	5100 ± 100	201 ± 4

Optional Cables and Connectors

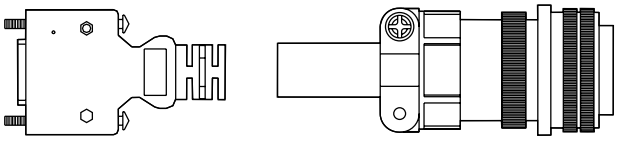
● Encoder Connectors

ASD-ABEN0000



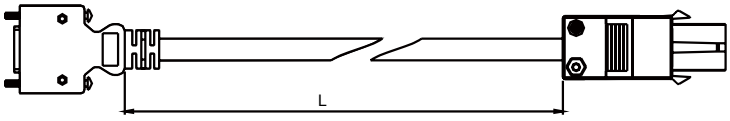
● Encoder Connectors

ASD-CAEN1000



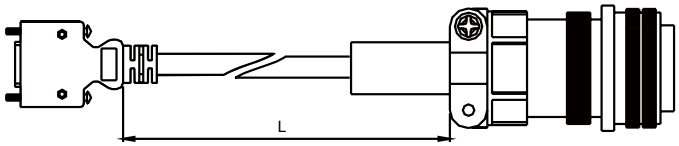
● Incremental Encoder Cables

ASD-ABEN0003 · ASD-ABEN00005



Item	Part No.	L	
		mm	inch
1	ASD-ABEN0003	3000 ± 100	118 ± 4
2	ASD-ABEN0005	5000 ± 100	197 ± 4

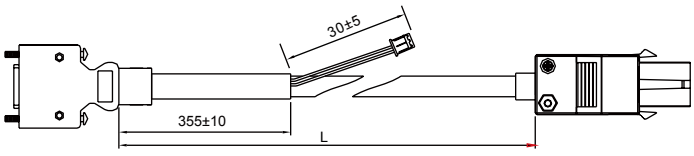
ASD-CAEN1003 · ASD-CAEN1005



Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAEN1003	3106A-20-29S	3000 ± 100	118 ± 4
2	ASD-CAEN1005	3106A-20-29S	5000 ± 100	197 ± 4

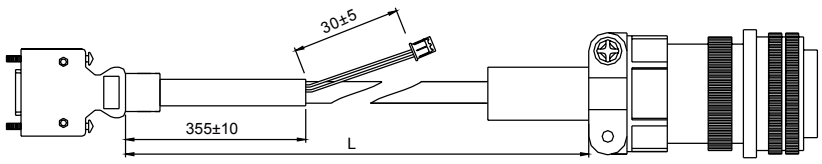
● Absolute Encoder Cables

ASD-A2EB0003 · ASD-A2EB0005



Item	Part No.	L	
		mm	inch
1	ASD-A2EB0003	3000 ± 100	118 ± 4
2	ASD-A2EB0005	5000 ± 100	197 ± 4

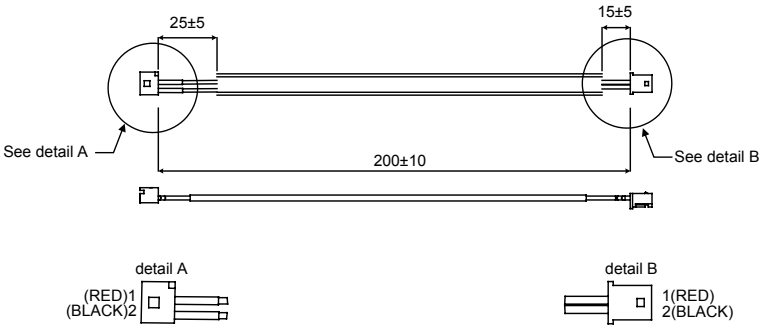
ASD-A2EB1003 · ASD-A2EB1005



Item	Part No.	L	
		mm	inch
1	ASD-A2EB1003	3000 ± 100	118 ± 4
2	ASD-A2EB1005	5000 ± 100	197 ± 4

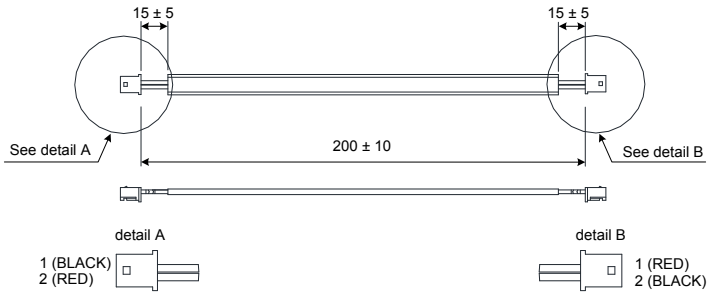
● Battery Box Cord AW (Connects to the battery side of the encoder cable) Units: mm

3864573700



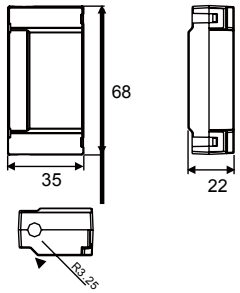
● Battery Box Cord IW (Connects to CN8) Units: mm

3864811900

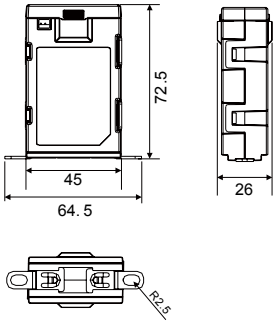


● Battery Boxes with batteries Units: mm

Single Battery Box
ASD-MDBT0100

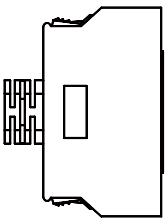


Dual Battery Box
ASD-MDBT0200



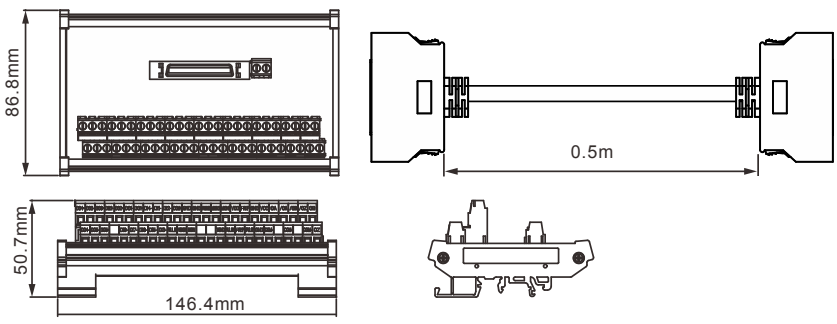
● I/O Signal Connector (CN1)

ASD-CNSC0050



● Terminal Block Module

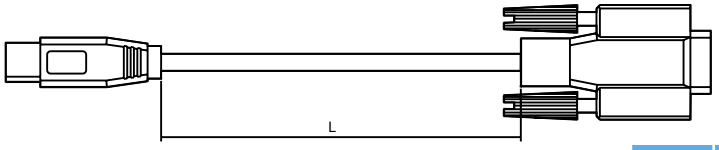
ASD-BM-50A



Optional Cables and Connectors

● RS-232 Communication Cable

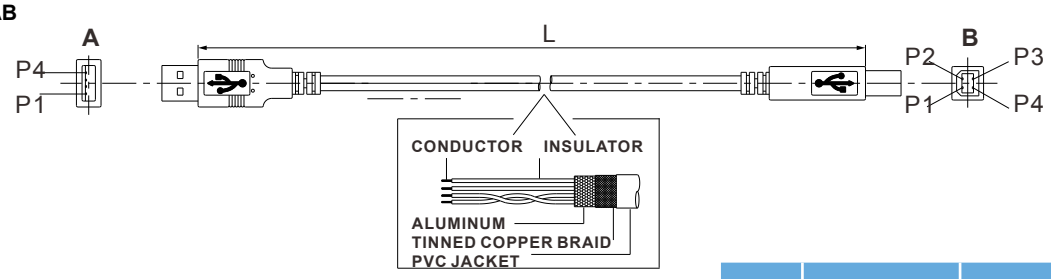
ASD-CARS0003



Item	Part No.	L	
		mm	inch
1	ASD-CARS0003	3000 ± 100	118 ± 4

● Communication Cable between Drive and Computer (for PC)

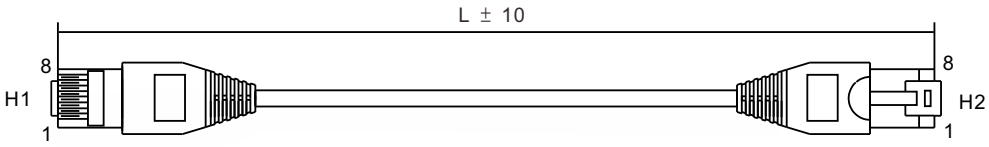
DOP-CAUSBAB



Item	Part No.	L	
		mm	inch
1	DOP-CAUSBAB	1400 ± 30	55 ± 1.2

● CANopen Communication Cable

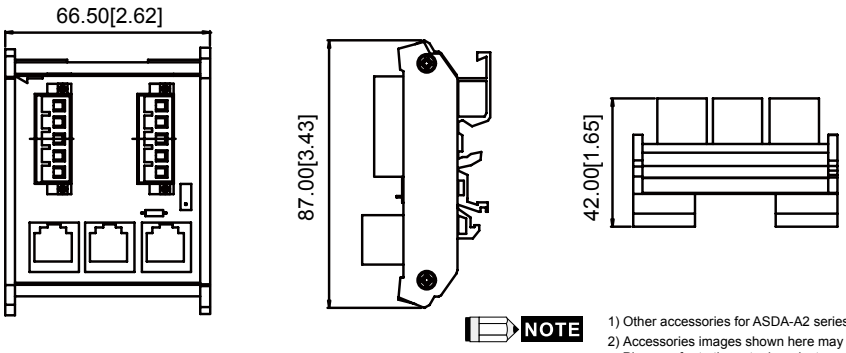
TAP-CB03 · TAP-CB05



Item	Part No.	L	
		mm	inch
1	TAP-CB03	300±10	11±0.4
2	TAP-CB05	500±10	19±0.4

● CANopen Distribution Box Units: mm[inch]

TAP-CN03

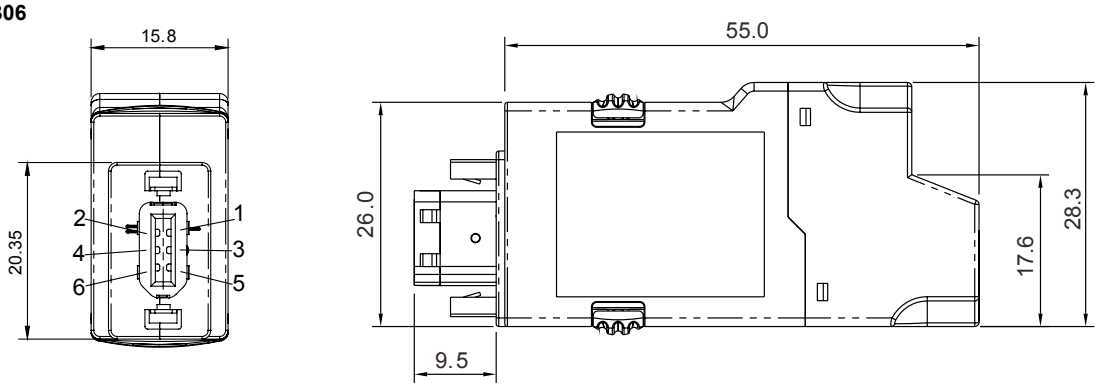


NOTE

1) Other accessories for ASDA-A2 series will be increased gradually.
2) Accessories images shown here may differ from actual product appearance. Please refer to the actual product appearance.

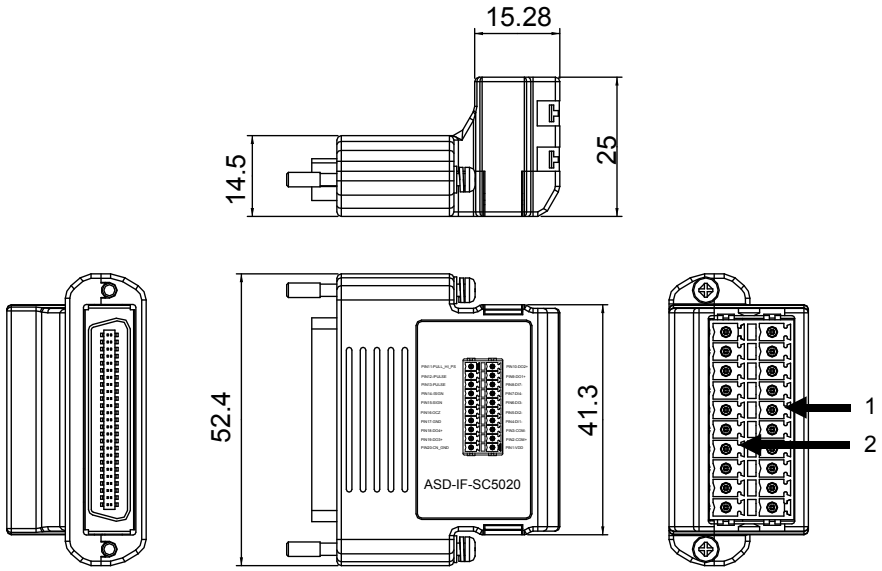
● RS-485 Connector Units: mm[inch]

ASD-CNIE0B06

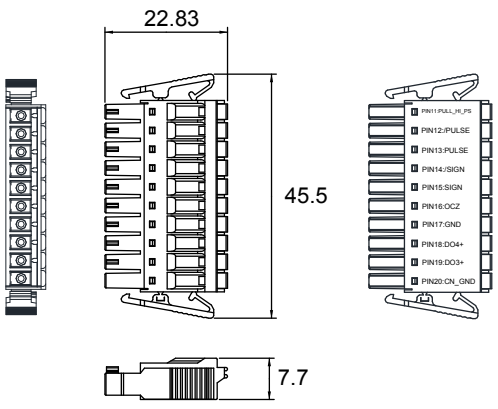


● CN1 I/O Connector Units: mm[inch]

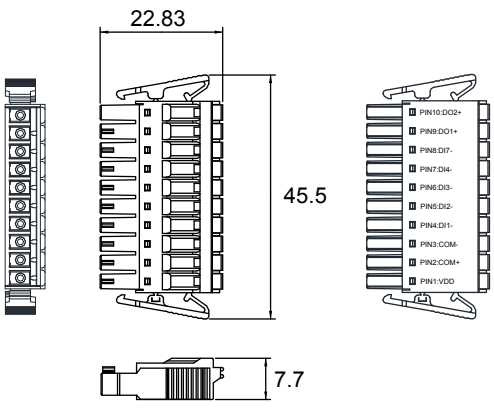
ASD-IF-SC5020



1.



2.



Servo Drive, Servo Motor and Accessories Combinations

220V Series

100W Servo Drive and 50W Low Inertia Servo Motor

Servo Drive	ASD-A2-0121-□
Low Inertia Servo Motor	ECMA-C1040F□S
Power Cable (Without Brake)	ASD-ABPW000X
Power Connector (Without Brake)	ASDBCAPW0000
Power Cable (With Brake)	ASD-ABPW010X
Power Connectors (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connectors	ASD-ABEN0000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

100W Servo Drive and 100W Low Inertia Servo Motor

Servo Drive	ASD-A2-0121-□
Low Inertia Servo Motor	ECMA-C△0401□S
Power Cable (Without Brake)	ASD-ABPW000X
Power Connector (Without Brake)	ASDBCAPW0000
Power Cable (With Brake)	ASD-ABPW010X
Power Connectors (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connectors	ASD-ABEN0000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

200W Servo Drive and 200W Low Inertia Servo Motor

Servo Drive	ASD-A2-0221-□
Low Inertia Servo Motor	ECMA-C△0602□S
Power Cable (Without Brake)	ASD-ABPW000X
Power Connector (Without Brake)	ASDBCAPW0000
Power Cable (With Brake)	ASD-ABPW010X
Power Connector (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

400W Servo Drive and 400W Low Inertia Servo Motor

Servo Drive	ASD-A2-0421-□
Low Inertia Servo Motor	ECMA-C△0604□S ECMA-C△0604□H ECMA-C△0804□7
Power Cable (Without Brake)	ASD-ABPW000X
Power Connector (Without Brake)	ASDBCAPW0000
Power Cable (With Brake)	ASD-ABPW010X
Power Connector (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

400W Servo Drive and 500W Medium Servo Motor

Servo Drive	ASD-A2-0421-□
Medium Servo Motor	ECMA-E△1305□S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

400W Servo Drive and 300W High Inertia Servo Motor

Servo Drive	ASD-A2-0421-□
High Inertia Servo Motor	ECMA-G△1303□S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

750W Servo Drive and 750W Low Inertia Servo Motor

Servo Drive	ASD-A2-0721-□
Low Inertia Servo Motor	ECMA-C △ 0807 □ S ECMA-C △ 0807 □ H ECMA-C △ 0907 □ S
Power Cable (Without Brake)	ASD-ABPW000X
Power Connector (Without Brake)	ASDBCAPW0000
Power Cable (With Brake)	ASD-ABPW010X
Power Connector (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 為長度 3m; X=5 為長度 5m)

750W Servo Drive and 500W High Inertia Servo Motor

Servo Drive	ASD-A2-0721-□
High Inertia Servo Motor	ECMA-F △ 1305 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector (With Brake)	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 為長度 3m; X=5 為長度 5m)

750W Servo Drive and 600W High Inertia Servo Motor

Servo Drive	ASD-A2-0721-□
High Inertia Servo Motor	ECMA-G △ 1306 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

1kW Servo Drive and 1kW Low Inertia Servo Motor

Servo Drive	ASD-A2-1021-□
Low Inertia Servo Motor	ECMA-C △ 1010 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector (With Brake)	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

1kW Servo Drive and 1kW Low Inertia Servo Motor

Servo Drive	ASD-A2-1021-□
Low Inertia Servo Motor	ECMA-C △ 0910 □ S
Power Cable (Without Brake)	ASD-ABPW000X
Power Cables (With Brake)	ASD-ABPW010X
Power Connector (Without Brake)	ASDBCAPW0000
Power Connector (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

1kW Servo Drive and 1kW Medium Servo Motor

Servo Drive	ASD-A2-1021-□
Medium Servo Motor	ECMA-E △ 1310 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

Servo Drive, Servo Motor and Accessories Combinations

220V Series

1kW Servo Drive and 850W High Inertia Servo Motor

Servo Drive	ASD-A2-1021-□
High Inertia Servo Motor	ECMA-F △ 1308 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

1kW Servo Drive and 900W High Inertia Servo Motor

Servo Drive	ASD-A2-1021-□
High Inertia Servo Motor	ECMA-G △ 1309 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

1.5kW Servo Drive and 1.5kW Medium Servo Motor

Servo Drive	ASD-A2-1521-□
Medium Servo Motor	ECMA-E △ 1315 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

2kW Servo Drive and 2kW Low Inertia Servo Motor

Servo Drive	ASD-A2-2023-□
Low Inertia Servo Motor	ECMA-C △ 1020 □ S
Power Cables (Without Brake)	ASD-A2PW100X
Power Cables (With Brake)	ASD-A2PW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

2kW Servo Drive and 2kW Medium Servo Motor

Servo Drive	ASD-A2-2023-□
Medium Servo Motor	ECMA-E △ 1320 □ S
Power Cable (Without Brake)	ASD-A2PW100X
Power Cable (With Brake)	ASD-A2PW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

2kW Servo Drive and 2kW Medium Servo Motor

Servo Drive	ASD-A2-2023-□
Medium Servo Motor	ECMA-E △ 1820 □ S
Power Cable (Without Brake)	ASD-CAPW200X
Power Cable (With Brake)	ASD-CAPW210X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

2kW Servo Drive and 1.3kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-2023-□
Medium-High Inertia Servo Motor	ECMA-F△1313□S
Power Cable (Without Brake)	ASD-A2PW100X
Power Cable (With Brake)	ASD-A2PW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

2kW Servo Drive and 1.8kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-2023-□
Medium-High Inertia Servo Motor	ECMA-F△1318□S
Power Cable (Without Brake)	ASD-A2PW100X
Power Cable (With Brake)	ASD-A2PW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

3kW Servo Drive and 3kW Low Inertia Servo Motor

Servo Drive	ASD-A2-3023-□
Low Inertia Servo Motor	ECMA-C △ 1330□4
Power Cable (Without Brake)	ASD-A2PW100X
Power Cable (With Brake)	ASD-A2PW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

3kW Servo Drive and 3kW Medium Servo Motor

Servo Drive	ASD-A2-3023-□
Medium Servo Motor	ECMA-E △ 1830□S
Power Cable (Without Brake)	ASD-CAPW200X
Power Cable (With Brake)	ASD-CAPW210X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

3kW Servo Drive and 3.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-3023-□
Medium-High Inertia Servo Motor	ECMA-E △ 1835□S
Power Cable (Without Brake)	ASD-CAPW200X
Power Cable (With Brake)	ASD-CAPW210X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

3kW Servo Drive and 3kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-3023-□
Medium-High Inertia Servo Motor	ECMA-F △ 1830□S
Power Cable (Without Brake)	ASD-CAPW200X
Power Cable (With Brake)	ASD-CAPW210X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

Servo Drive, Servo Motor and Accessories Combinations

220V Series

4.5kW Servo Drive and 4.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-4523-□
Medium-High Inertia Servo Motor	ECMA-F △ 1845 □ S
Power Cable (Without Brake)	ASD-CAPW320X
Power Cable (With Brake)	ASD-CAPW330X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

5.5kW Servo Drive and 5.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-5523-□
Medium-High Inertia Servo Motor	ECMA-F △ 1855 □ 3
Power Cable (Without Brake)	ASD-CAPW450X
Power Cable (With Brake)	ASD-CAPW470X
Power Connector	ASD-CAPW4000
Brake Cable	ASD-CNBR1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

7.5kW Servo Drive and 7.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-7523-□
Medium-High Inertia Servo Motor	ECMA-F △ 1875 □ 3
Power Cable (Without Brake)	ASD-CAPW450X
Power Cable (With Brake)	ASD-CAPW470X
Power Connector	ASD-CAPW4000
Brake Cable	ASD-CNBR1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

111kW Servo Drive and 11kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-1B23-□
Medium-High Inertia Servo Motor	ECMA-F1221B □ 3
Power Cable (Without Brake)	ASD-CAPW450X
Power Cable (With Brake)	ASD-CAPW470X
Power Connector	ASD-CAPW4000
Brake Cable	ASD-CNBR1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

15kW Servo Drive and 15kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-1F23-□
Medium-High Inertia Servo Motor	ECMA-F1 221F □ S
Power Cable (Without Brake)	ASD-CAPW450X
Power Cable (With Brake)	ASD-CAPW470X
Power Connector	ASD-CAPW4000
Brake Cable	ASD-CNBR1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

400V Series

750W Servo Drive and 400W Low Inertia Servo Motor

Servo Drive	ASD-A2-0743-□
Low Inertia Servo Motor	ECMA-J △ 0604 □ S
Power Cable (Without Brake)	ASD-CAPW540X
Power Connector (Without Brake)	ASD-CAPW5400
Power Cable (With Brake)	ASD-CAPW510X
Power Connector (With Brake)	ASD-CAPW5100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

750W Servo Drive and 750W Low Inertia Servo Motor

Servo Drive	ASD-A2-0743-□
Low Inertia Servo Motor	ECMA-J △ 0807 □ S
Power Cable (Without Brake)	ASD-CAPW540X
Power Connector (Without Brake)	ASD-CAPW5400
Power Cable (With Brake)	ASD-CAPW510X
Power Connector (With Brake)	ASD-CAPW5100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

750W Servo Drive and 750W Low Inertia Servo Motor

Servo Drive	ASD-A2-0743-□
Low Inertia Servo Motor	ECMA-J △ 0907 □ S
Power Cable (Without Brake)	ASD-CAPW540X
Power Connector (Without Brake)	ASD-CAPW5400
Power Cable (With Brake)	ASD-CAPW510X
Power Connectors (With Brake)	ASD-CAPW5100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

750W Servo Drive and 500W Medium Servo Motor

Servo Drive	ASD-A2-0743-□
Medium Servo Motor	ECMA-K △ 1305 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

750W Servo Drive and 500W Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-0743-□
Medium-High Inertia Servo Motor	ECMA-L △ 1305 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

1kW Servo Drive and 850W High Inertia Servo Motor

Servo Drive	ASD-A2-1043-□
High Inertia Servo Motor	ECMA-L △ 1308 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

Servo Drive, Servo Motor and Accessories Combinations

400V Series

1kW Servo Drive and 1kW Low Inertia Servo Motor

Servo Drive	ASD-A2-1043-□
Low Inertia Servo Motor	ECMA-J △ 0910 □ S
Power Cable (Without Brake)	ASD-CAPW540X
Power Connector (Without Brake)	ASD-CAPW5400
Power Cable (With Brake)	ASD-CAPW510X
Power Connector (With Brake)	ASD-CAPW5100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

1.5kW Servo Drive and 900W High Inertia Servo Motor

Servo Drive	ASD-A2-1543-□
High Inertia Servo Motor	ECMA-M △ 1309 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

1kW Servo Drive and 1kW Medium Servo Motor

Servo Drive	ASD-A2-1043-□
Medium Servo Motor	ECMA-K △ 1310 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

1.5kW Servo Drive and 1kW Low Inertia Servo Motor

Servo Drive	ASD-A2-1543-□
Low Inertia Servo Motor	ECMA-J △ 1010 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

1.5kW Servo Drive and 1.3kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-1543-□
Medium-High Inertia Servo Motor	ECMA-L △ 1313 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

1.5kW Servo Drive and 1.5kW Medium Servo Motor

Servo Drive	ASD-A2-1543-□
Medium Servo Motor	ECMA-K △ 1315 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

2kW Servo Drive and 2kW Low Inertia Servo Motor

Servo Drive	ASD-A2-2043-□
Low Inertia Servo Motor	ECMA-J △ 1020 □ S
Power Cable (Without Brake)	ASD-CAPW120X
Power Cable (With Brake)	ASD-CAPW130X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

2kW Servo Drive and 2kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-2043-□
Medium Servo Motor	ECMA-K △ 1320 □ S
Power Cable (Without Brake)	ASD-CAPW120X
Power Cable (With Brake)	ASD-CAPW130X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

2kW Servo Drive and 2kW Medium Servo Motor

Servo Drive	ASD-A2-2043-□
Medium Servo Motor	ECMA-K △ 1820 □ S
Power Cable (Without Brake)	ASD-CAPW220X
Power Cable (With Brake)	ASD-CAPW230X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

3kW Servo Drive and 3kW Low Inertia Servo Motor

Servo Drive	ASD-A2-3043-□
Low Inertia Servo Motor	ECMA-J △ 1330 □ 4
Power Cable (Without Brake)	ASD-CAPW120X
Power Cable (With Brake)	ASD-CAPW130X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

3kW Servo Drive and 3kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-3043-□
Medium-High Inertia Servo Motor	ECMA-L △ 1830 □ S
Power Cable (Without Brake)	ASD-CAPW220X
Power Cable (With Brake)	ASD-CAPW230X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

4.5kW Servo Drive and 4.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-4543-□
Medium-High Inertia Servo Motor	ECMA-L △ 1845 □ S
Power Cable (Without Brake)	ASD-CAPW220X
Power Cable (With Brake)	ASD-CAPW230X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

Servo Drive, Servo Motor and Accessories Combinations

400V Series

7.5kW Servo Drive and 7.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-7543-□
Medium-High Inertia Servo Motor	ECMA-L △ 1875 □ 3
Power Cable (Without Brake)	ASD-CAPW320X
Power Cable (With Brake)	ASD-CAPW330X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

((X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

11kW and 15kW models will be available soon
For the available models and related optional accessories, please visit out website at: www.deltaww.com, or please consult our local distributors.

5.5kW Servo Drive and 5.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-5543-□
Medium-High Inertia Servo Motor	ECMA-L △ 1855 □ 3
Power Cable (Without Brake)	ASD-CAPW220X
Power Cable (With Brake)	ASD-CAPW230X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

11kW Servo Drive and 11kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-1B43-□
Medium-High Inertia Servo Motor	ECMA-L1221B □ 3
Power Cable (Without Brake	ASD-CAPW450X
Power Cable (With Brake)	ASD-CAPW470X
Power Connector (Without Brake)	ASD-CAPW4000
Power Connector (With Brake)	ASD-CNBR1000
Incremental Encoder Cable	ASD-CAE100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

11kW and 15kW models will be available soon
For the available models and related optional accessories, please visit out website at: www.deltaww.com, or please consult our local distributors.

15kW Servo Drive and 15kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-1F43-□
Medium-High Inertia Servo Motor	ECMA-L1221F □ 3
Power Cable (Without Brake	ASD-CAPW460X
Power Cable (With Brake)	ASD-CAPW480X
Power Connector (Without Brake)	ASD-CAPW4000
Power Connector (With Brake)	ASD-CNBR1000
Incremental Encoder Cable	ASD-CAE100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates cable length is 3m; X=5 indicates cable length is 5m)

Safety Information

Global Standards	ASDA-A2 series is designed to fully comply with demanding international standards, such as IEC, EN and others, for all fields of industrial automation technology.	
EMC standard	EN61000-4-6	Level 3
	EN61000-4-3	Level 3
	EN61000-4-2	Level 2 and Level 3
	EN61000-4-4	Level 3
	EN61000-4-8	Level 4
	EN61000-4-5	Level 3
Conducted & Radiated Emissions	Complies with EN550011 Class A Group 1, with external EMC filter	
CE Marking	CE recognized. Complies with Directive 2006/95/EC of the European Parliament and EMC Directive 2004/108/EC.	
UL Approval	UL (U.S.), cUL (Canada) recognized.	
Test Standard	IEC/EN50178, IEC/EN60529 IP20	
Vibration	1G less than 20Hz, 0.6G 20 to 50Hz. Complies with IEC/EN50178	
Shock	15gn 11ms. Complies with IEC/EN600028-2-27	
Pollution Degree	Degree 2. Complies with IEC/EN61800-5-1	

Other Accessories

(for ASDA-A2 series all models)

Description	Delta Part Number
50-Pin I/O Connector (CN1)	ASD-CNSC0050
Terminal Block Module	ASD-BM-50A
RS-232 Communication Cable	ASD-CARS0003
Communication Cable between Drive and Computer (for PC)	DOP-CAUSBAB
CANopen Communication Cable	TAP-CB03 / TAP-CB05
CANopen Distribution Box	TAP-CN03
RS-485 Connector	ASD-CNIE0B06
Regenerative Resistor 400W 40Ω	BR400W040
Regenerative Resistor 1kW 20Ω	BR1K0W020
Regenerative Resistor 1.5kW 5Ω	BR1K5W005

Regenerative Resistor Specifications

220V Series

Servo Drive (kW)	Specifications of Built-in Regenerative Resistors		Min. Allowable Resistance (Ohm)
	Resistance (parameter P1-52) (Ohm)	Capacity (parameter P1-53) (Watt)	
0.1	-	-	30Ω
0.2	-	-	30Ω
0.4	40Ω	40Ω	30Ω
0.75	40Ω	60Ω	20Ω
1.0	40Ω	60Ω	20Ω
1.5	40Ω	60Ω	20Ω
2.0	20Ω	100Ω	10Ω
3.0	20Ω	100Ω	10Ω
4.5	20Ω	100Ω	10Ω
5.5	-	-	8Ω
7.5	-	-	5Ω
11	-	-	8Ω
15	-	-	5Ω

Footnote:

- 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.
- When the fault, ALE05 (Regeneration Error) occurs, please increase the regenerative resistor capacity or decrease the regenerative resistor resistance (the regenerative resistor resistance should not be less than the minimum allowable resistance listed in the above table.)
- If the situation is not improved after increasing the regenerative resistor capacity or decreasing the regenerative resistor resistance, please purchase regenerative resistor module.
- When combining multiple small-capacity regenerative resistors in parallel to increase the regenerative resistor capacity, make sure that the total resistance value of the regenerative resistors should not be less than the minimum allowable resistance listed in the above table.

400V Series

Servo Drive (kW)	Specifications of Built-in Regenerative Resistors		Min. Allowable Resistance (Ohm)
	Resistance (parameter P1-52) (Ohm)	Capacity (parameter P1-53) (Watt)	
0.4	80Ω	100W	60Ω
0.75	80Ω	100W	60Ω
1.0	80Ω	100W	60Ω
1.5	80Ω	100W	40Ω
2.0	-	-	40Ω
3.0	-	-	30Ω
4.5	-	-	20Ω
5.5	-	-	20Ω
7.5	-	-	15Ω
11	-	-	15Ω
15	-	-	10Ω

Footnote:

- 750W ~ 1.5kW servo drives provide a built-in regenerative resistor.
- When the fault, ALE05 (Regeneration Error) occurs, please increase the regenerative resistor capacity or decrease the regenerative resistor resistance (the regenerative resistor resistance should not be less than the minimum allowable resistance listed in the above table.)
- If the situation is not improved after increasing the regenerative resistor capacity or decreasing the regenerative resistor resistance, please purchase regenerative resistor module.
- When combining multiple small-capacity regenerative resistors in parallel to increase the regenerative resistor capacity, make sure that the total resistance value of the regenerative resistors should not be less than the minimum allowable resistance listed in the above table.

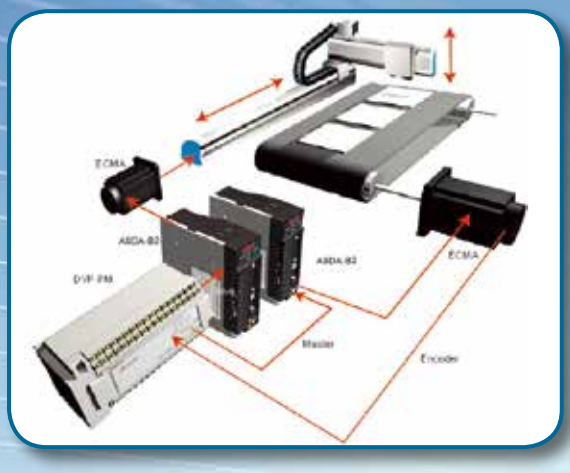
SERIE B2

High Precision. High Response. Cost Effective.

The high-performance, cost-effective ASDA-B2 Series servo motors and drives meet the requirements for general-purpose machine control applications in the industrial automation market and enhance the competitive advantage of servo systems.

The power rating of the ASDA-B2 Series ranges from 0.1kW to 3kW. The superior features of this series emphasize built-in motion control functions for general purpose applications and saving the cost of mechatronics integration. Delta's ASDA-B2 makes setting assembly, wiring, and operation convenient. In switching from other brands to Delta's ASDA-B2, the outstanding quality and features, and complete product lineup makes replacement simple and scalable. Customers that choose this value-based product gain noticeable competitive advantages in their market space. All of Delta's ASDA-B2 Series meet UL, cUL, CE, and RoHS standards.

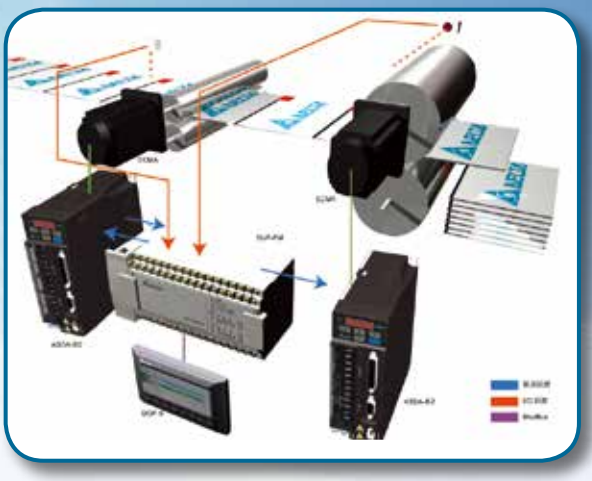
Transporting and Conveying Equipment

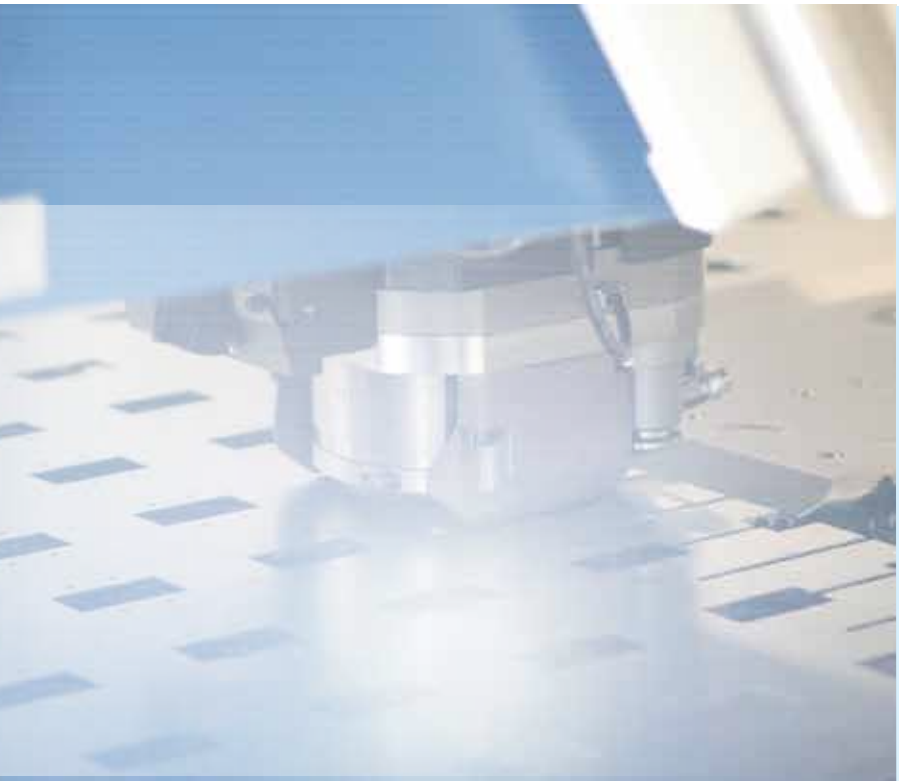


Electric Discharge Machines (EDM)



Cutting Machines





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Sawing Machines



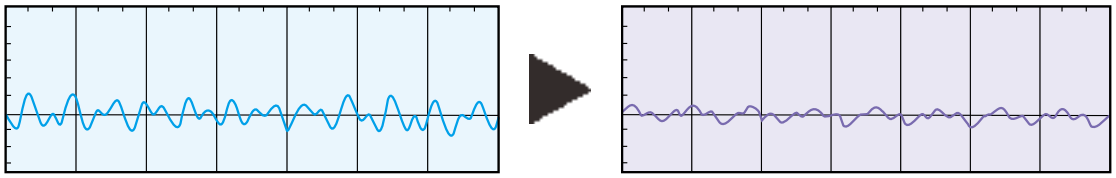


Product Features

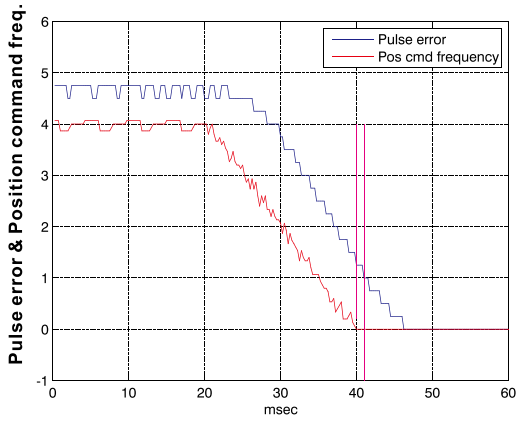
Implements High Precision Positioning Control

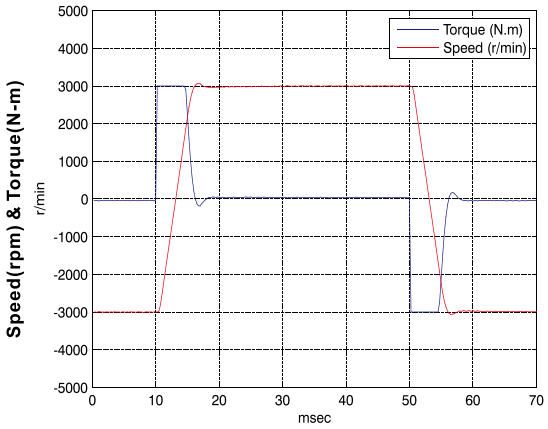
- ASDA-B2 Series servo drive supports 20-bit and 17-bit encoders. It satisfies the demand for high-precision positioning control and stable operation with lower speed.
- Applying the encoder with a higher resolution can reduce the cogging torque and improve the motor's precision.

2500ppr of Torque Ripple **17-bit of Torque Ripple**



- Outstanding performance with higher speed: Up to 550Hz frequency response and settling time is below 1ms.
- 10ms acceleration time from -3000r/min to 3000r/min when running without a load.

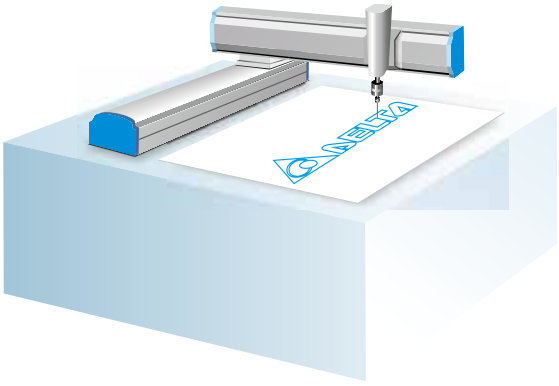




Example: Frame size 60mm and 400W servo motor.

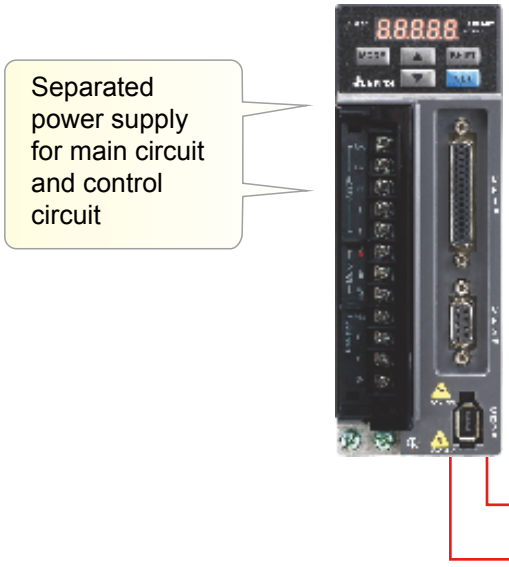
Satisfies a Variety of Industry Requirements

- Three control modes available: Built-in position, Speed, and Torque. (Speed and Torque mode can be controlled by internal parameters or analog voltage.)
- High-speed differential command (up to 4Mpps) for high precision positioning control.
- Three notch filters are provided to suppress the mechanical resonance efficiently and make the system operate more smoothly.
- Lead friction compensation parameter is specified for the application of circular interpolation, Z-axis motion and ball screw, and others to reduce the loading of the controller.



- For bar feeders and other equipment requiring high torque output, motor protection parameters are offered to protect the mechanical system.

Offers Easy-To-Install Solution For Simple Start-Up

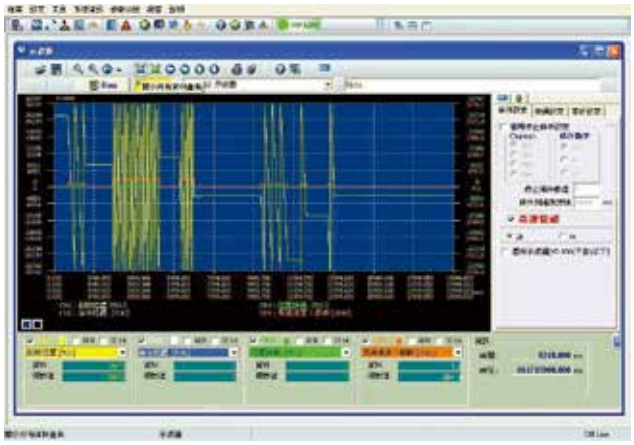


- ASDA-B Series share the same power cables and encoder cables for easy installation and setup without extra accessories.
- Servo motor provides brake, oil seal, and other optional configurations for different applications.
- Separated power supply for main circuit and control circuit makes it easier to maintain the mechanism.
- 400W or above servo drives have built-in regenerative resistors, which simplify wiring and reduce the installation cost.
- Individual connectors (2 sets) for analog signal output, also simplifies the wiring.

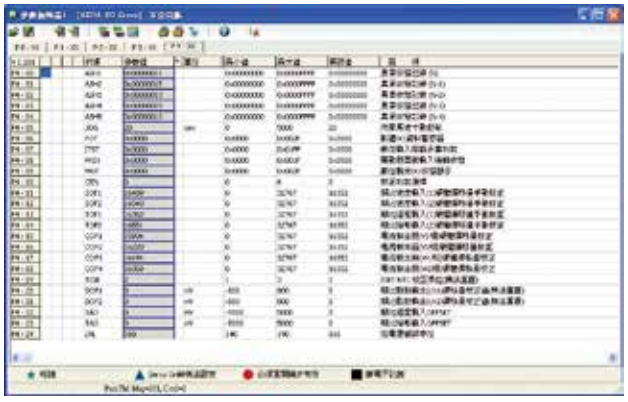
Fulfills Easy-To-Use Requirements For Versatile Operation

- User-friendly motor sizing software allows users to select the motor.
- ASDA-Soft configuration software (tuning software) is provided to meet performance requirements quickly.
- Easy-to-use digital keypad is ideal for setting parameters and enables users to directly monitor the servo drive and servo motor.
- Specific software communication cable ASD-CNUS0A08 (Optional) can improve communication quality and convenience of operation. (please refer to optional accessories on page 28)





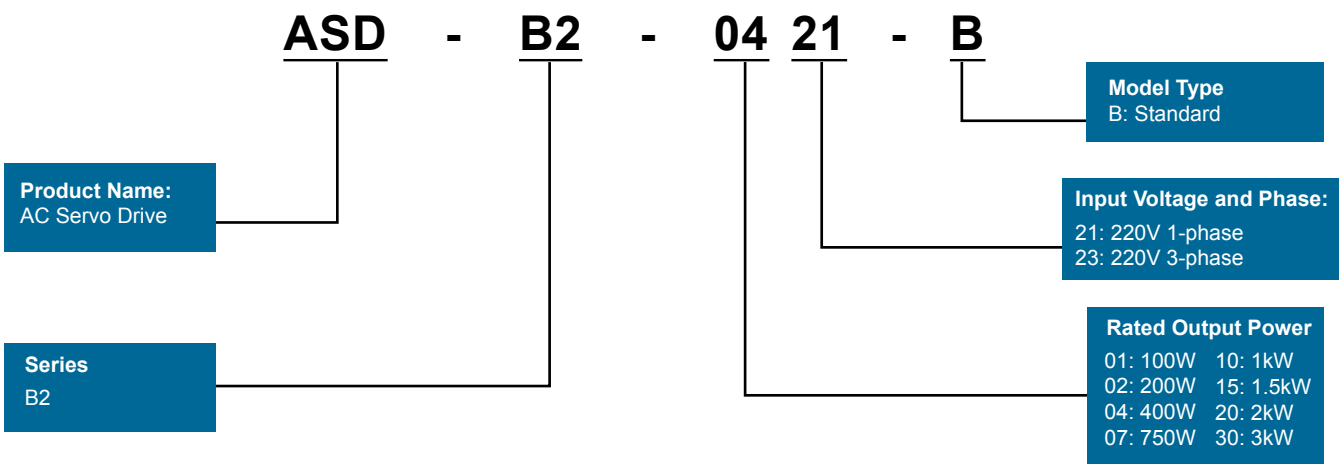
- On-line monitoring function for 4 channels (similar to a digital oscilloscope) is available. The monitoring data can be 16-bit (4 channels) and 32-bit (2 channels).



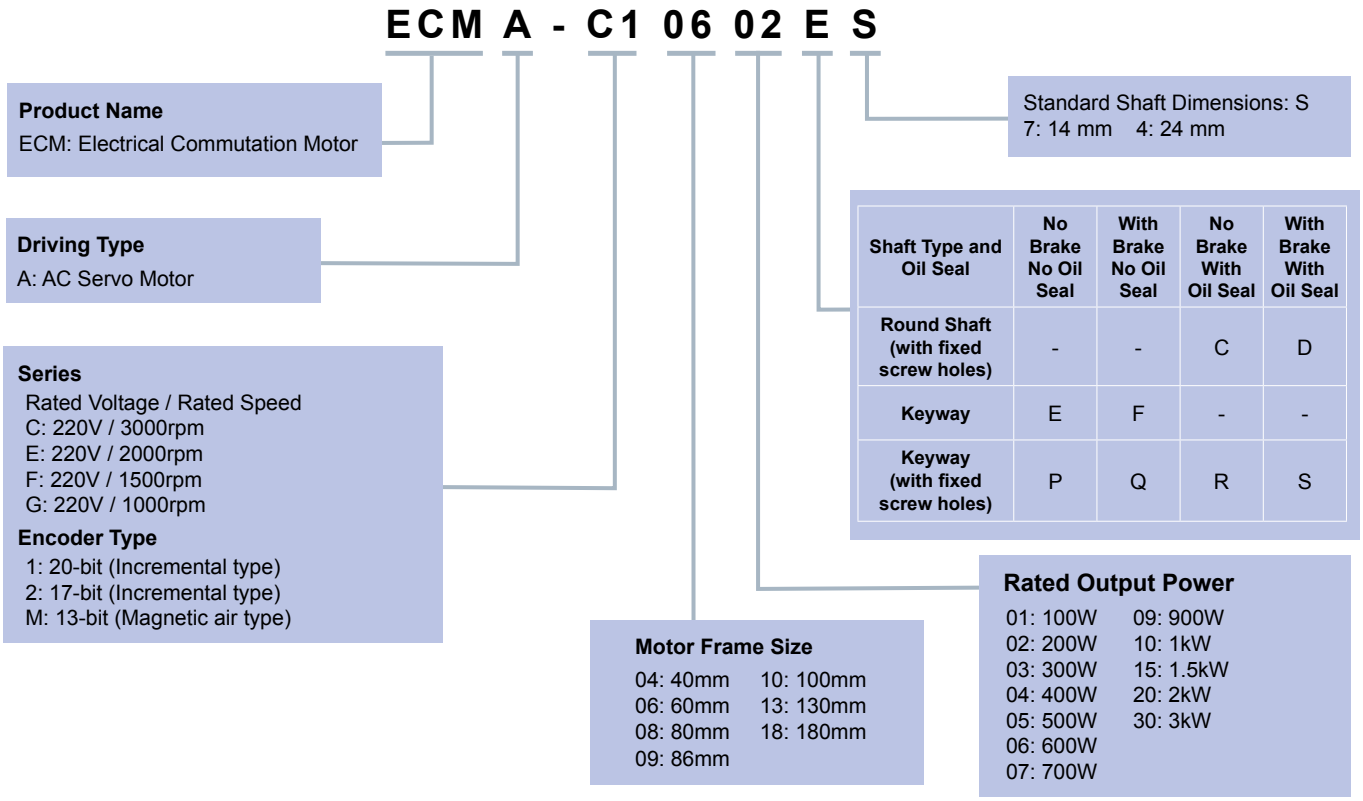
- Multi-functional parameter editor enables users to edit, modify, upload/download and print desired parameters in real time.

Model Name Explanation

ASDA-B2 Series Servo Drives



ECMA Series Servo Motors



Shaft Type and Oil Seal	No Brake No Oil Seal	With Brake No Oil Seal	No Brake With Oil Seal	With Brake With Oil Seal
Round Shaft (with fixed screw holes)	-	-	C	D
Keyway	E	F	-	-
Keyway (with fixed screw holes)	P	Q	R	S

Product Line-up

Servo Drive								
	0.1kW	200W	400W	750W	1.0kW	1.5kW	2kW	3kW
	ASD-B2-0121- B	ASD-B2-0221- B	ASD-B2-0421- B	ASD-B2-0721-B	ASD-B2-1021-B	ASD-B2-1521-B	ASD-B2-2023-B	ASD-B2-3023- B

Servo Motor								
	ECMA-C△0401☐S	ECMA-C△0602☐S	ECMA-C△0604☐S ECMA-C△0604☐H ECMA-C△0804☐7 ECMA-E△1305☐S ECMA-G△1303☐S	ECMA-C△0807☐S ECMA-C△0807☐H ECMA-G△1306☐S ECMA-GM1306PS ECMA-C△0907☐S	ECMA-C△1010☐S ECMA-E△1310☐S ECMA-G△1309☐S ECMA-GM1309PS ECMA-C△0910☐S ECMA-F△1308☐S	ECMA-E△1315☐S	ECMA-C △1020☐S ECMA-F △ 1313☐S ECMA-E △1320☐S ECMA-E △ 1820☐S ECMA-F △1318☐S	ECMA-E △1830☐S ECMA-F △1830☐S ECMA-E △1835☐S ECMA-C △1330☐4

Note:
1. (□) in the model names represent shaft end / brake or the number of oil seals.
2. (△) in the model names represent encoder types (△ =1: Incremental encoder, 20-bit; △ =2:Incremental encoder, 17-bit).

Part Names and Functions

LED Display

- The 5-digit, 7-segment LED displays the servo status or fault codes.

Charge LED

- A lit LED indicates that either power is connected to the servo drive or a residual charge is present in the drive's internal power components.

Operation Panel

- Function keys used to perform status display, monitor and diagnostic, function and parameter setting.
  Function Keys:
  MODE: Mode selection
  SHIFT: For shifting the cursor to the left
  ▲ : For increasing values
  ▼ : For decreasing values
  SET: For storing data

Control Circuit Terminal (L1c, L2c)

- Used to connect 200~230 V_{AC}, 50/60Hz single-phase or three-phase V_{AC} supply.

Main Circuit Terminal (R, S, T)

- Used to connect 200~230 V_{AC}, 50/60Hz commercial power supply.

Servo Motor Output (U, V, W)

- Used to connect the servo motor. Never connect the output terminal to the main circuit power as the AC servo drive may be damaged beyond repair if incorrect cables are connected to the output terminals.

Regenerative Resistor

1. When using an external resistor, connect it to P ⊕ and C, and ensure an open circuit between P ⊕ and D.
2. When using an internal resistor, ensure the circuit is closed between P ⊕ and D, and the circuit is open between P ⊕ and C
3. When using external braking unit, connect braking unit to P ⊕ and ⊖, and ensure an open circuit between P ⊕ and D, and P ⊕ and C.

Ground Terminal





I/O Interface

- Used to connect Delta's DVP Series PLC or other external controllers for controlling I/O signals.

Motor Encoder Interface

- Used to connect the encoder.

Serial Communication Port

- Used to connect PLC, HMI, and other controllers for RS-485/ RS-232 serial communication.

Reserved

Analog Voltage Output Terminal

- Used to provide two analog monitor outputs, MON1 and MON2.

Heatsink

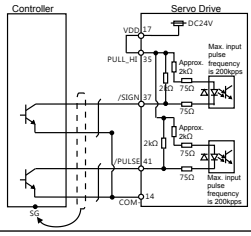
- Used to secure servo drive and for heat dissipation.

NOTE Please note that this only introduces a servo drive's basic functions. Specific models may have different functions.

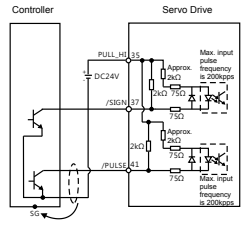
Wiring

Position (Pt) Control Mode (for Pulse Command Input)

Pulse input, for the use of internal power supply (Open-collector input)

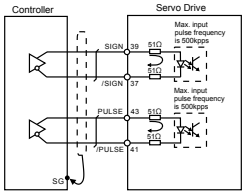


Pulse input, for the use of external power supply (Open-collector input)



Pulse input (Line driver)

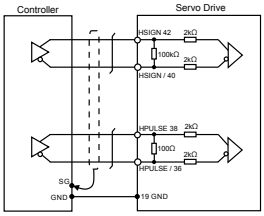
This is a 5V system,do not connect to 24V of power supply.



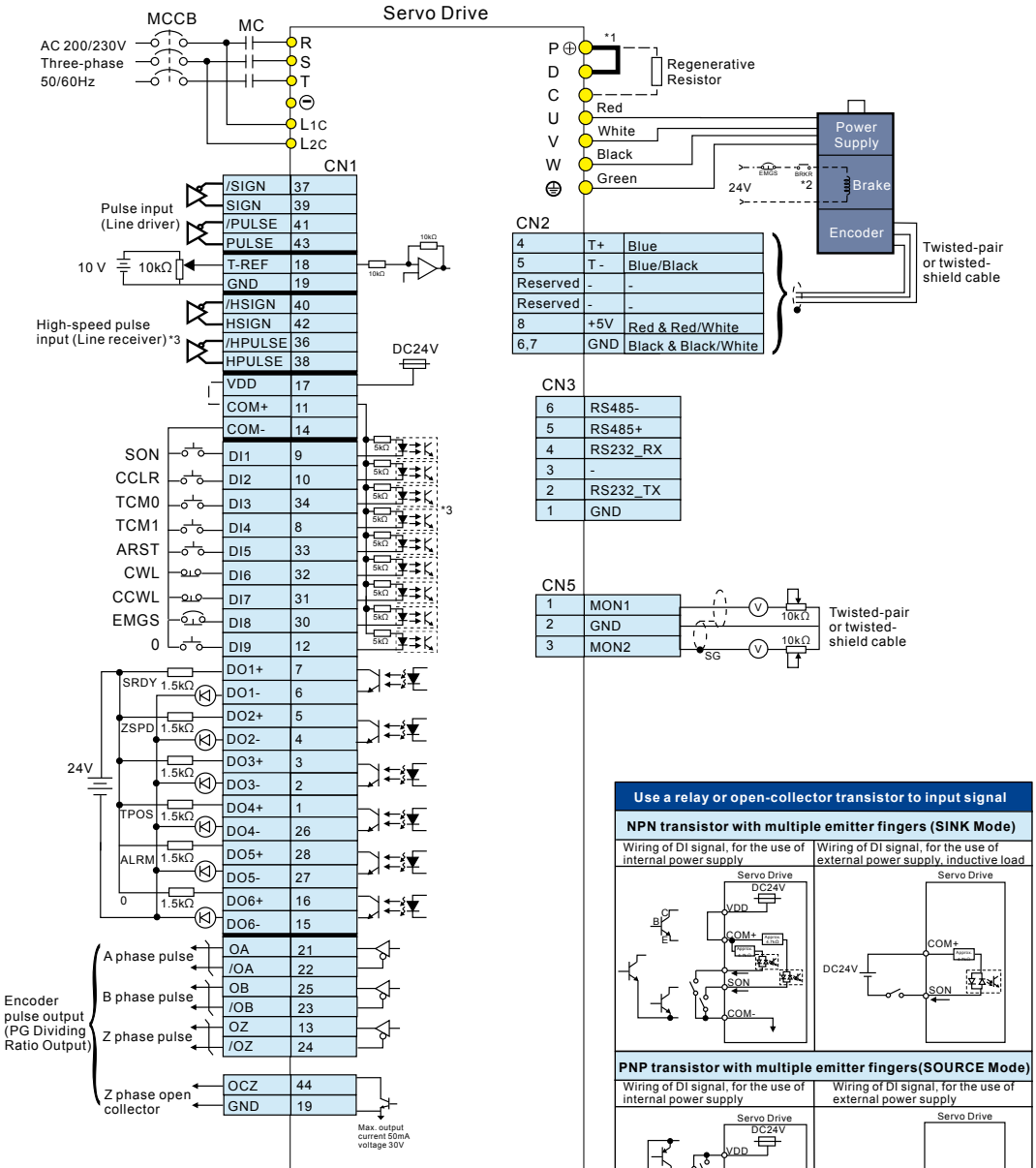
Caution: Because this photocoupler is a unidirectional optocoupler, please pay close attention on the current direction of input pulse command.

High-speed pulse input (Line receiver)

This is a 5V system,do not connect to 24V of power supply.



Caution: Ensure that the ground terminal of the controller and the servo drive are connected to each other.



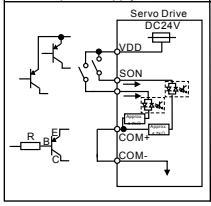
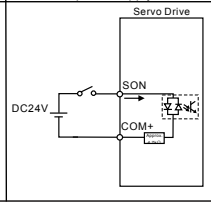
NOTE:
**1. 200W and below drives do not provide built-in regenerative resistor.*
**2. The brake coil has no polarity.*
**3. Please refer to SINK / SOURCE modes*

Use a relay or open-collector transistor to input signal

NPN transistor with multiple emitter fingers (SINK Mode)

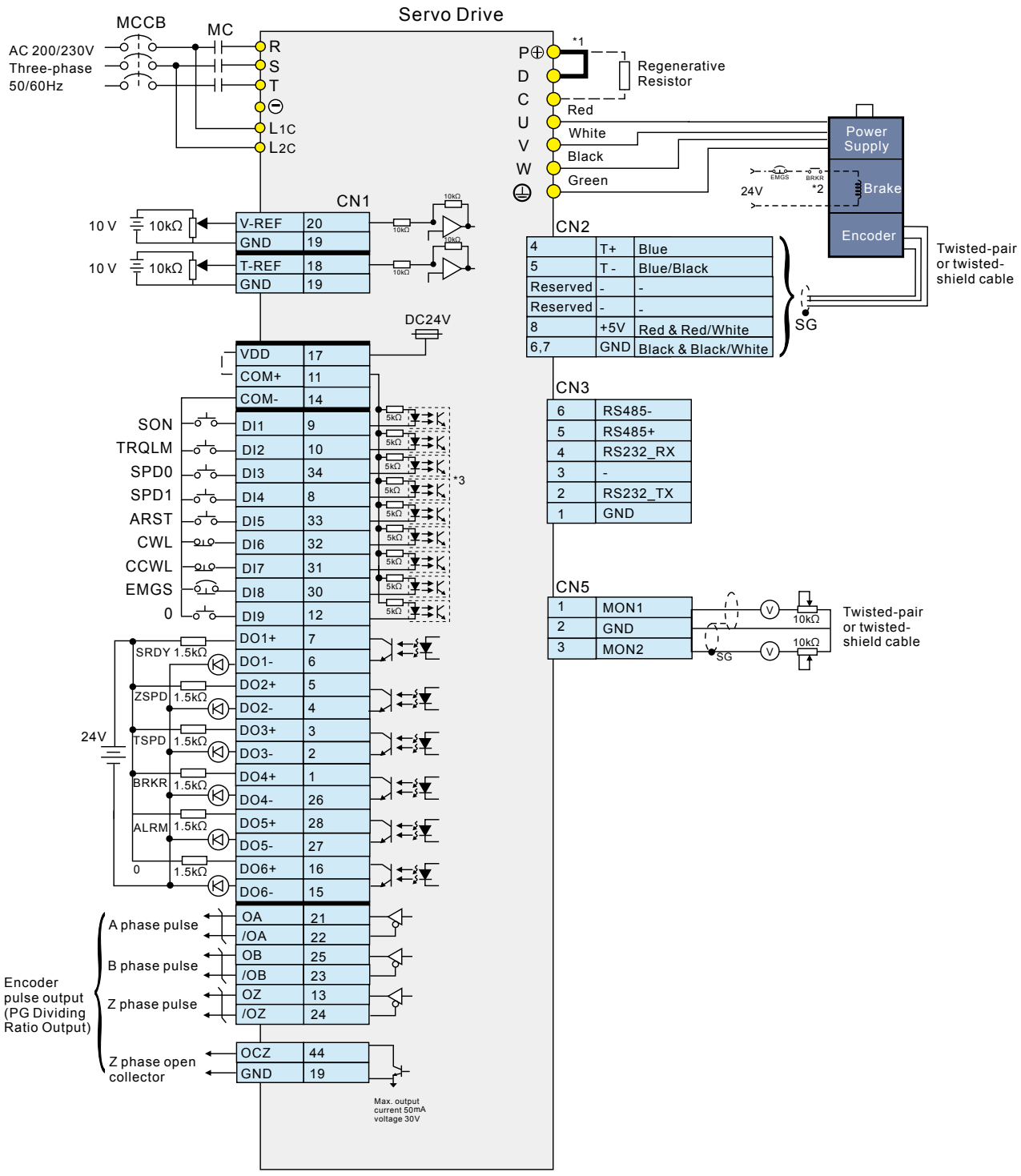
Wiring of DI signal, for the use of internal power supply	Wiring of DI signal, for the use of external power supply, inductive load

PNP transistor with multiple emitter fingers(SOURCE Mode)

Wiring of DI signal, for the use of internal power supply	Wiring of DI signal, for the use of external power supply
	

WARNING Caution: Do not use dual power supply. Failure to observe this caution may damage the servo drive.

Speed (S) Control Mode



NOTE:

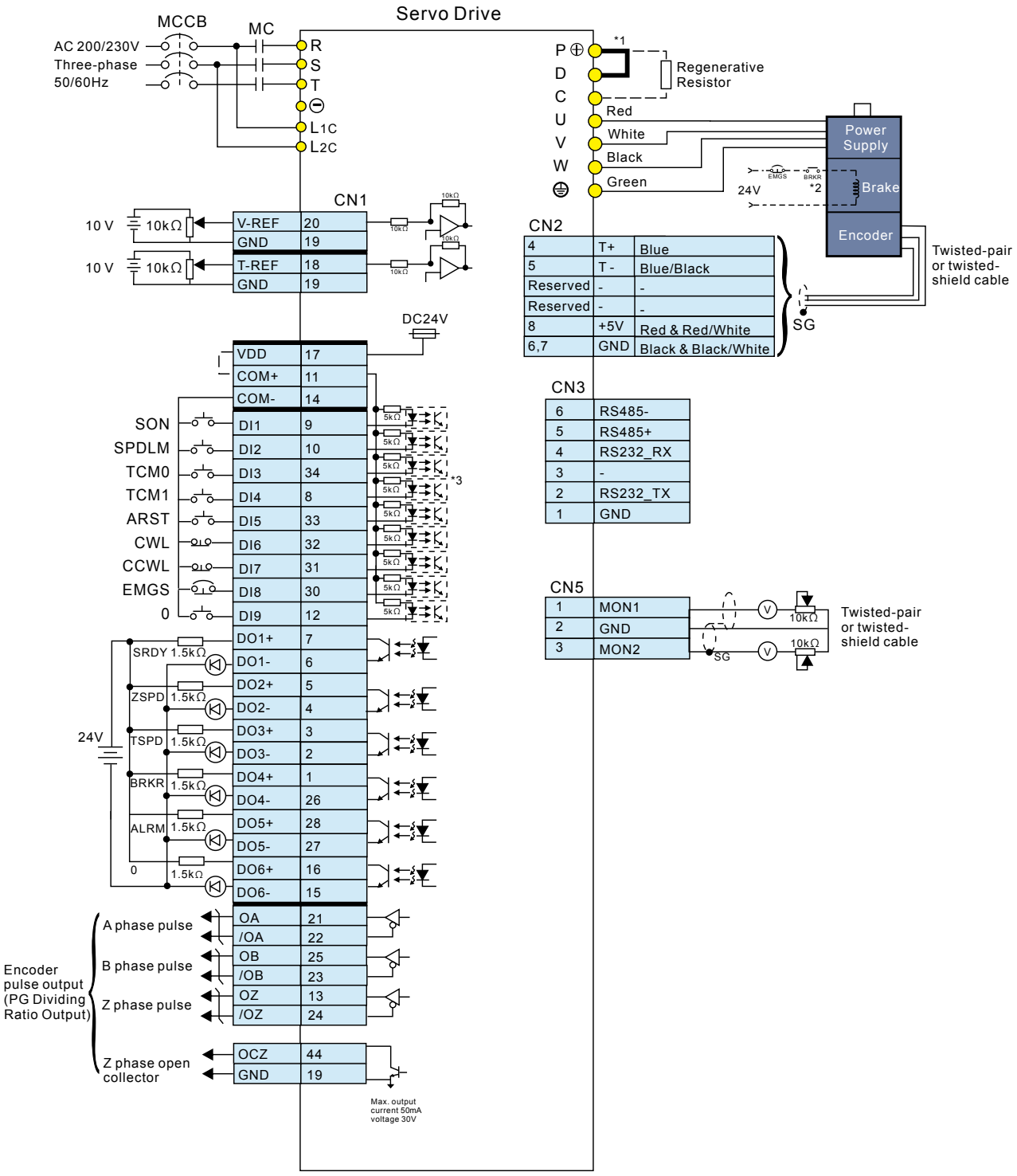
**1. 200W and below drives do not provide built-in regenerative resistor.*

**2. The brake coil has no polarity.*

**3. Please refer to SINK / SOURCE modes*

Wiring

Torque (T) Control Mode



NOTE:
*1. 200W and below drives do not provide built-in regenerative resistor.
*2. The brake coil has no polarity.
*3. Please refer to SINK / SOURCE modes

Selection of Regenerative Resistor

Servo Drive (kW)	Recommended Specifications for Built-in Regenerative Resistor		The capacity of built-in regenerative resistor (Watt)	Min. Allowable Resistance (Ohm)
	Resistance (Ohm) (parameter P1-52)	Capacity (Watt) (parameter P1-53)		
0.1	--	--	--	60Ω
0.2	--	--	--	60Ω
0.4	100Ω	60W	30W	60Ω
0.75	100Ω	60W	30W	60Ω
1.0	40Ω	60W	30W	30Ω
1.5	40Ω	60W	30W	30Ω
2.0	20Ω	100W	50W	15Ω
3.0	20Ω	100W	50W	15Ω

Note:
1) 100W ~ 200W of B2 servo drives have no built-in regenerative resistor.
2) When the fault, ALE05 (Regeneration Error) occurs, please increase the regenerative resistor capacity or decrease the regenerative resistor resistance (the regenerative resistor resistance should not be less than the minimum allowable resistance listed in the above table.)
3) If the issue persists, please purchase a regenerative resistor module.
4) When connecting to a regenerative resistor in parallel, make sure that the total resistance value of the regenerative resistors is not less than the minimum allowable resistance listed in the above table.

Safety Information

Global Standards	ASDA-B2 Series is designed to fully comply with demanding international standards, such as IEC and EN for all fields of industrial automation technology.
EMC Standard	EN61000-4-6 Level 3
	EN61000-4-3 Level 3
	EN61000-4-2 Level 2 and Level 3
	EN61000-4-4 Level 3
	EN61000-4-8 Level 4
	EN61000-4-5 Level 3
Conducted & Radiated Emissions	Complies with EN550011 Group 1, Class A, with external EMC filter
CE Marking	CE recognized. Complies with Directive 2006/95/EC of the European Parliament and EMC Directive 2004/108/EC.
Protection Degree	IEC/EN50178, IEC/EN60529 IP20
Vibration	1 G less than 20 Hz, 0.6 G 20 to 50 Hz. Complies with IEC/EN50178
Shock	15gn 11 ms. Complies with IEC/EN600028-2-27
Pollution Degree	Degree 2. Complies with IEC/EN61800-5-1
Ambient Temperature	Operating: 0 °C ~ 55 °C (If operating temperature exceeds the specifications, forced cooling will be required.) Storage: -20 °C ~ 65 °C
Cooling Type	ASD-B2-0121-B, ASD-B2-0221-B, ASD-B2-0421-B, ASD-B2-0721-B Natural Air Circulation
	ASD-B2-1021-B, ASD-B2-1521-B, ASD-B2-2023-B, ASD-B2-3023-B Fan Cooling
Altitude	Altitude 1000m or lower above sea level

IEC: International Electrotechnical Commission
EN: Europaischen Normen
EMC: Electromagnetic Compatibility
IP: Ingress Protection Ratings

Specifications

ASDA-B2 Series			100 W	200 W	400 W	750 W	1 kW	1.5 kW	2 kW	3 kW
			01	02	04	07	10	15	20	30
Power Supply	Phase / Voltage		Three-phase 170 ~ 255 V_{AC} , 50/60 Hz ±5%						Three - phase 170 ~ 255 V_{AC}, 50/60 Hz ±5%	
			Single-phase 200 ~ 255 V_{AC} , 50/60 Hz ±5%							
	Input Current (3PH) (Units: Arms)		0.7	1.11	1.86	3.66	4.68	5.9	8.76	9.83
	Input Current (1PH) (Units: Arms)		0.9	1.92	3.22	6.78	8.88	10.3	-	-
	Continuous Output Current (Units: Arms)		0.9	1.55	2.6	5.1	7.3	8.3	13.4	19.4
Cooling System			Natural Air Circulation				Fan Cooling			
Encoder Resolution			17-bit (160,000 p/rev)							
Main Circuit Control			SVPWM (Space Vector Pulse Width Modulation) Control							
Control Mode			Auto / Manual							
Regenerative Resistor			None	Built-in						
Position Control Mode	Max. Input Pulse Frequency		Transmitted by differential: 500 K (low speed) / 4 Mpps (high-speed) Transmitted by open-collector: 200 Kpps							
	Pulse Type		Pulse + Direction, A phase + B phase, CCW pulse + CW pulse							
	Command Source		External pulse							
	Smoothing Strategy		Low-pass filter							
	E-gear Ratio		Electronic gear N/M multiple N: 1 ~ (2^{26} -1) / M: 1 ~ (2^{31} -1) (1/50 < N/M < 25600)							
	Torque Limit Operation		Set by parameters							
	Feed Forward Compensation		Set by parameters							
Speed Control Mode	Analog Input Command	Voltage Range	0 ~ ±10 V_{DC}							
		Input Resistance	10 KΩ							
		Time Constant	2.2 μs							
	Speed Control Range*1		1:5000							
	Command Source		External analog signal / Internal parameters							
	Smoothing Strategy		Low-pass and S-curve filter							
	Torque Limit		Set by parameters or via analog input							
	Bandwidth		Maximum 550 Hz							
	Speed Accuracy*2		±0.01% at 0 to 100% load fluctuation							
			±0.01% at ±10% power fluctuation							
			±0.01% at 0 °C to 50 °C ambient temperature fluctuation							

Specifications

ASDA-B2 Series			100W	200W	400W	750W	1kW	1.5kW	2kW	3kW
			01	02	04	07	10	15	20	30
Torque Control Mode	Analog Input Command	Voltage Range	0 ~ ±10 V_{DC}							
		Input Resistance	10KΩ							
		Time Constant	2.2μs							
	Command Source		External analog signal / Internal parameters							
	Smoothing Strategy		Low-pass filter							
	Speed Limit		Set by parameters or via analog input							
Analog Monitor Output			Monitor signal can set by parameters (Output voltage range: ±8V)							
Digital Input / Output		Input	Servo on, Fault reset, Gain switch, Pulse clear, Zero clamp, Command input reverse control, Torque limit, Speed limit, Speed command selection, Speed/position mode switching, Speed/torque mode switching, Torque/position mode switching, Emergency stop, Positive/negative limit, Forward/reverse operation torque limit, Forward/reverse JOG input, E-gear N selection, Pulse input prohibition							
		Output	Encoder signal output (A, B, Z Line Driver / Z Open collector)							
			Servo on, Servo ready, Zero speed, Target speed reached, Target position reached, Torque limiting, Servo alarm, Brake control, Early warning for overload, Servo warning							
Protective Functions			Over current, Overvoltage, Under voltage, Overheat, Excessive speed deviation, Excessive position deviation, Encoder error, Emergency stop, Communication error, Short-circuit protection of terminal U, V, W and CN1, CN2, CN3							
Communication Interface			RS-232 / RS-485							
Environment	Installation Site		Indoor location (avoid direct sunlight), no corrosive liquid and gas (avoid oil mist, flammable gas, dust)							
	Altitude		Altitude 1000m or lower above sea level							
	Atmospheric Pressure		86kPa ~ 106kPa							
	Operating Temperature		0°C ~ 55°C (If operating temperature is above 45°C, forced cooling will be required)							
	Storage Temperature		-20°C ~ 65°C (-4°F to 149°F)							
	Humidity		0 to 90% (non-condensing)							
	Vibration		Under 20Hz, 9.80665m/s^2 (1G), 20 ~ 50Hz 5.88m/s^2 (0.6G)							
	IP Rating		IP20							
	Power System		TN System*3							
	Certifications		IEC/EN 61800-5-1 CE c UL US LISTED							

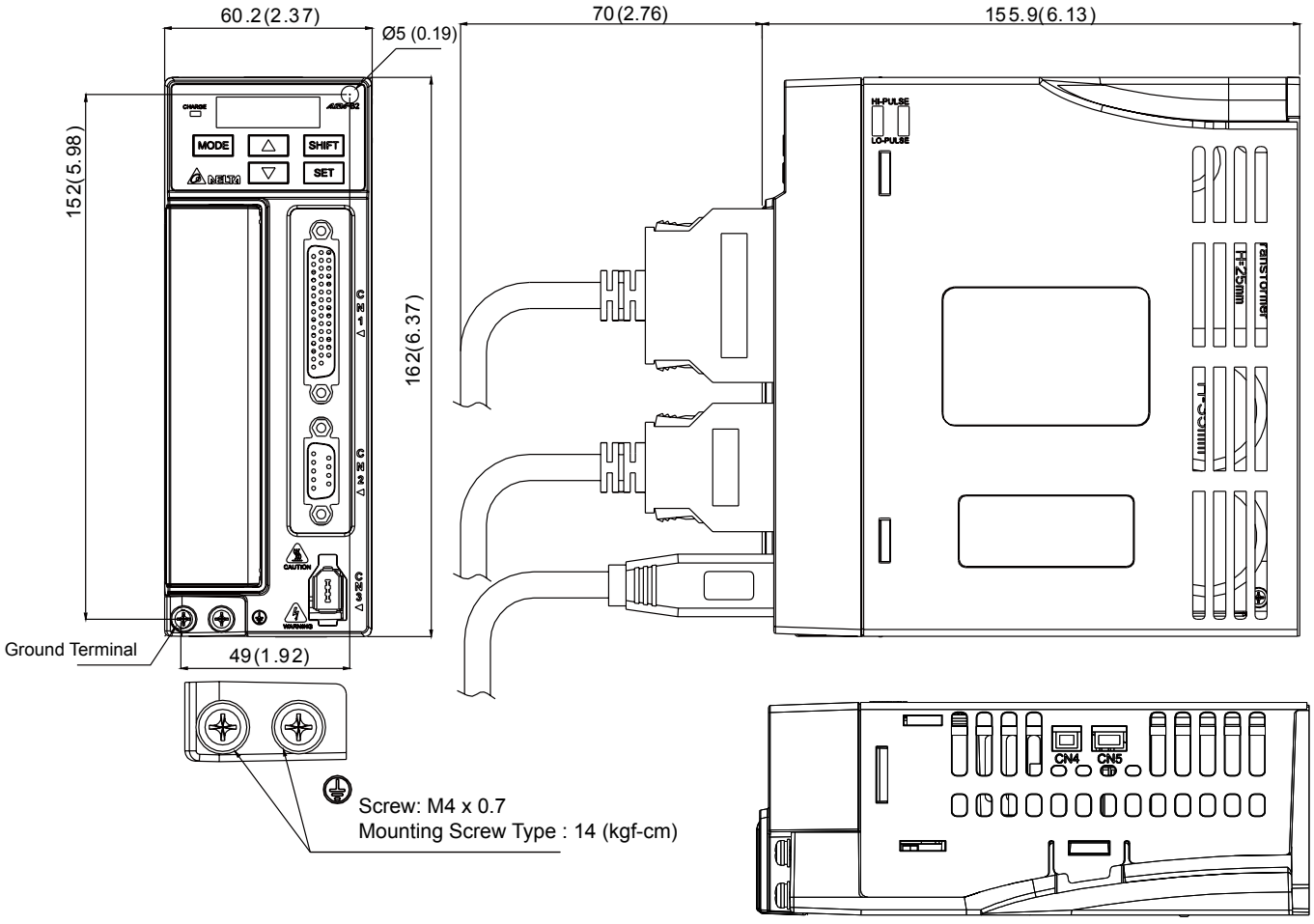
Footnote:
*1. When it is in rated load, the speed ratio is: the minimum speed (smooth operation) / rated speed.
*2. When the command is the rated speed, the velocity correction ratio is: (rotational speed with no load - rotational speed with full load) / rated speed.
*3. TN system: The neutral point of the power system connects to the ground directly. The exposed metal components connect to the ground via the protective earth conductor.



Dimensions

ASD-B2-0121
ASD-B2-0221
ASD-B2-0421
(100W / 200W / 400W)

Weight
1.07 (2.36)

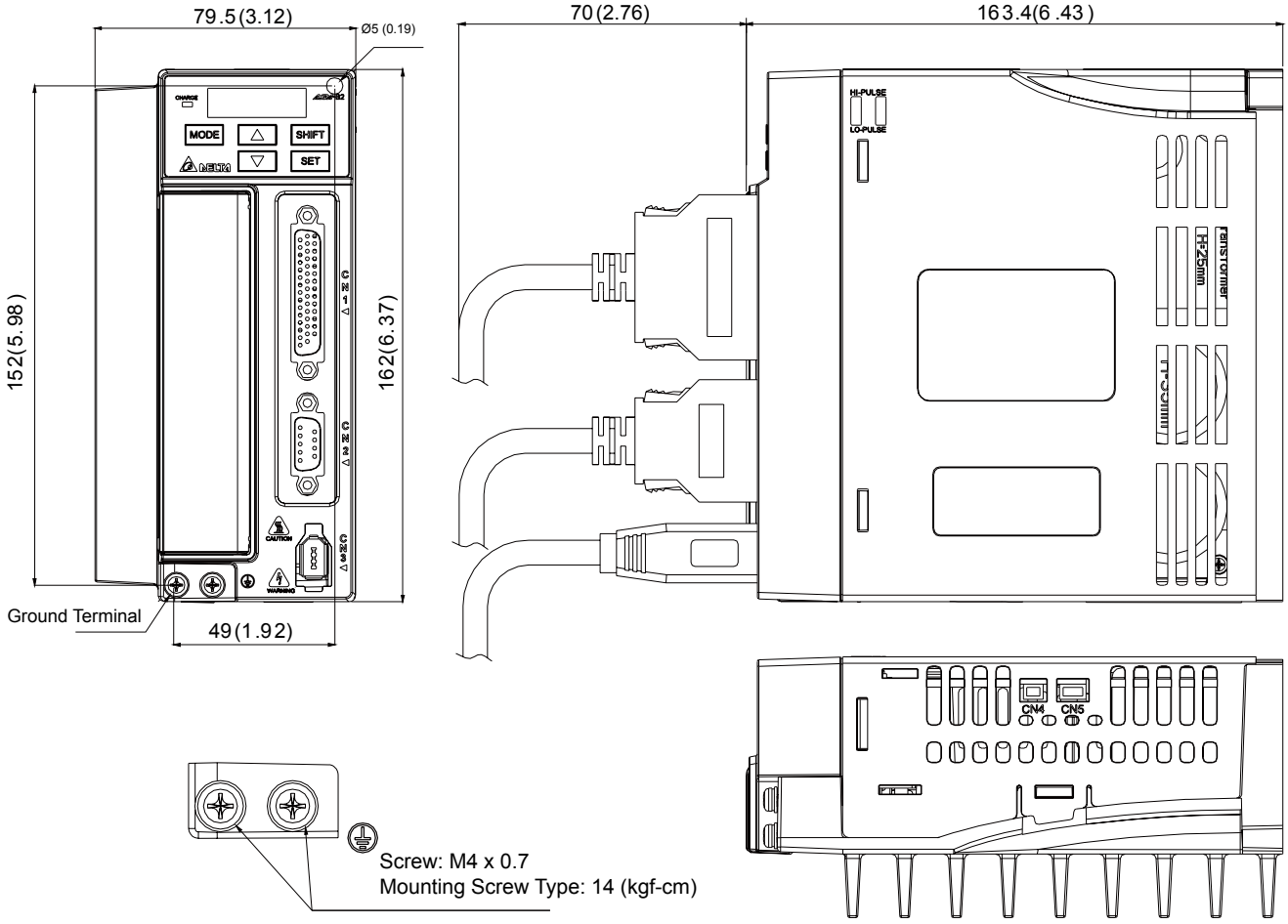


NOTE

1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and pounds (lbs).
2) Dimensions and weights of the servo drive may be updated without prior notice.

ASD-B2-0721
(750W)

Weight
1.54 (3.40)



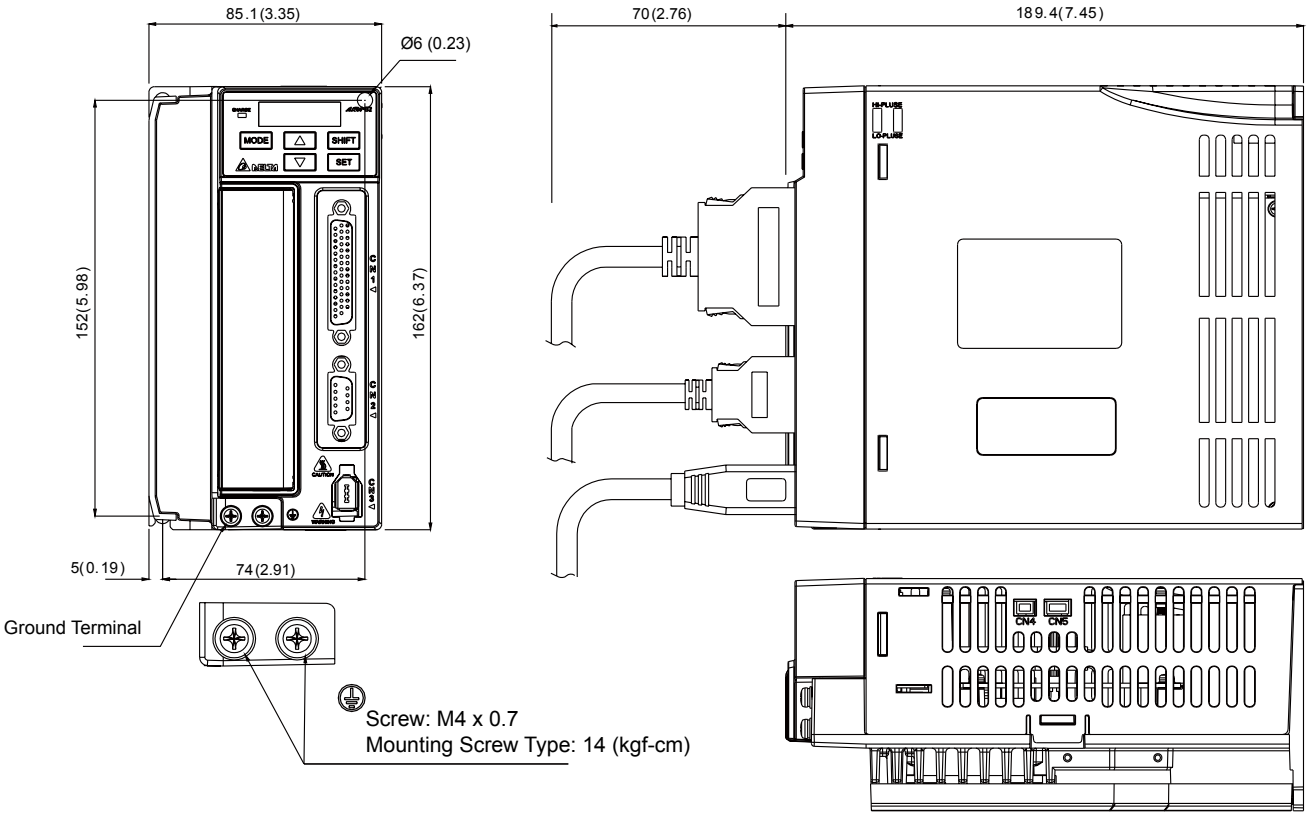
NOTE

1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and pounds (lbs).
2) Dimensions and weights of the servo drive may be updated without prior notice.

Dimensions

ASD-B2-1021
ASD-B2-1521
(1kW / 1.5kW)

Weight
1.72 (3.79)

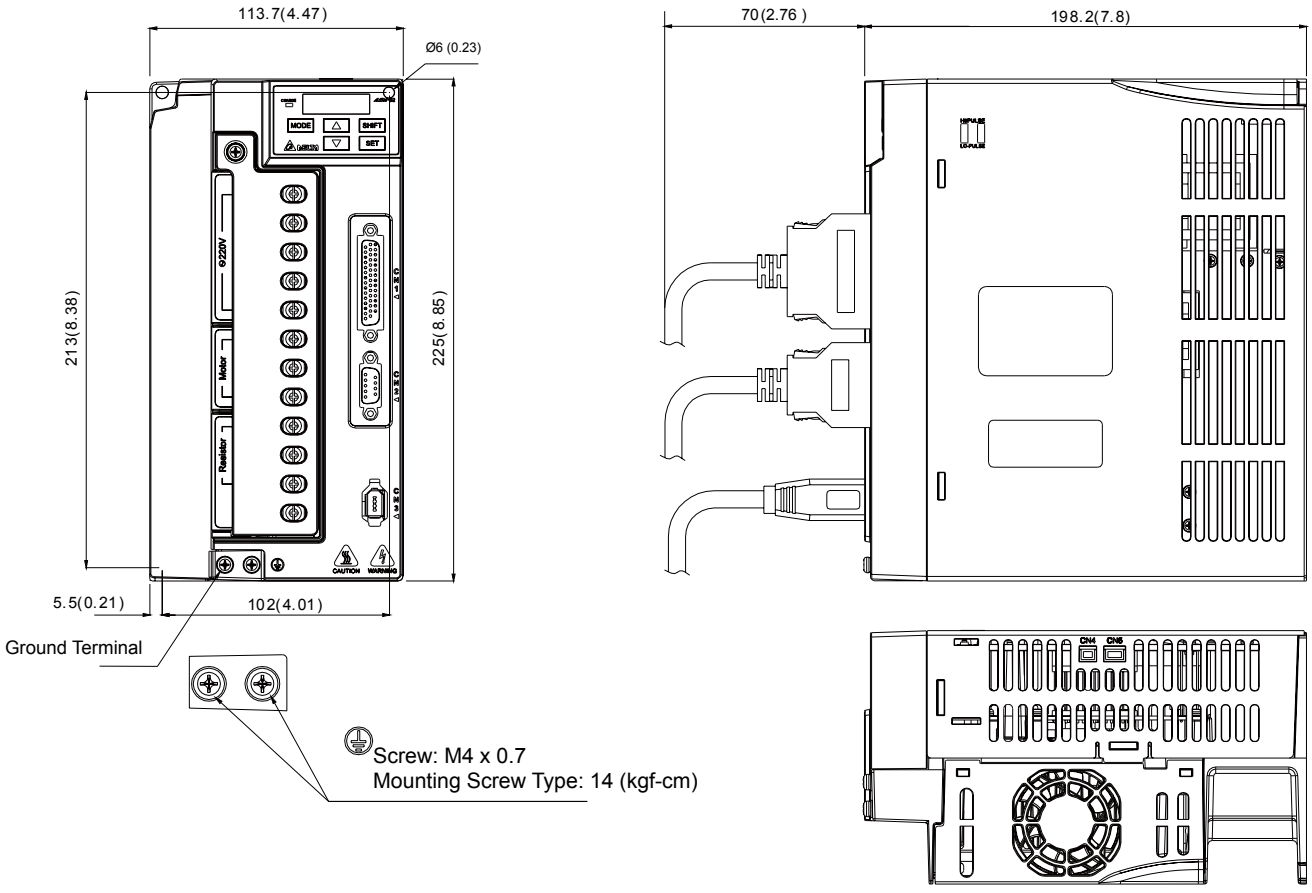


NOTE

1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and pounds (lbs).
2) Dimensions and weights of the servo drive may be updated without prior notice.

ASD-B2-2023
ASD-B2-3023
(2kW / 3kW)

Weight
2.67 (5.88)



NOTE

1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and pounds (lbs).
2) Dimensions and weights of the servo drive may be updated without prior notice.

Servo Motor Specifications

Low Inertia Series

Model: ECMA Series	C△04	C△06		C△08		C△09		C△10		C△13
	01	02	04□S	04	07	07	10	10	20	30
Rated power (kW)	0.1	0.2	0.4	0.4	0.75	0.75	1.0	1.0	2.0	3.0
Rated torque (N-m)*1	0.32	0.64	1.27	1.27	2.39	2.39	3.18	3.18	6.37	9.55
Maximum torque (N-m)	0.96	1.92	3.82	3.82	7.16	7.14	8.78	9.54	19.11	28.65
Rated speed (r/min)	3000					3000		3000		3000
Maximum speed (r/min)	5000					3000		5000		4500
Rated current (A)	0.90	1.55	2.6	2.6	5.1	3.66	4.25	7.3	12.05	17.2
Maximum current (A)	2.70	4.65	7.8	7.8	15.3	11	12.37	21.9	36.15	47.5
Power rating (kW/s)	27.7	22.4	57.6	24.0	50.4	29.6	38.6	38.1	90.6	71.8
Rotor inertia (x10-4kg-m^2)(without brake)	0.037	0.177	0.277	0.68	1.13	1.93	2.62	2.65	4.45	12.7
Mechanical constant (ms)	0.75	0.80	0.53	0.74	0.63	1.72	1.20	0.74	0.61	1.11
Torque constant-KT (N-m/A)	0.36	0.41	0.49	0.49	0.47	0.65	0.75	0.44	0.53	0.557
Voltage constant-KE(mV/(r/min)	13.6	16	17.4	18.5	17.2	24.2	27.5	16.8	19.2	20.98
Armature resistance (Ohm)	9.30	2.79	1.55	0.93	0.42	1.34	0.897	0.20	0.13	0.0976
Armature inductance (mH)	24.0	12.07	6.71	7.39	3.53	7.55	5.7	1.81	1.50	1.21
Electric constant (ms)	2.58	4.3	4.3	7.96	8.36	5.66	6.35	9.3	11.4	12.4
Insulation class	Class A (UL), Class B (CE)									
Insulation resistance	>100 MΩ, 500 V_{DC}									
Insulation strength	1.8k V_{AC}, 1 sec									
Weight (kg) (without brake)	0.5	1.2	1.6	2.1	3.0	2.9	3.8	4.3	6.2	7.8
Weight (kg) (with brake)	0.8	1.5	2.0	2.9	3.8	3.69	5.5	4.7	7.2	9.2
Max. radial shaft load (N)	78.4	196	196	245	245	245	245	490	490	490
Max. thrust shaft load (N)	39.2	68	68	98	98	98	98	98	98	98
Power rating (kW/s) (with brake)	25.6	21.3	53.8	22.1	48.4	29.3	37.9	30.4	82	65.1
Rotor inertia (x10-4kg-m^2) (with brake)	0.04	0.192	0.30	0.73	1.18	1.95	2.67	3.33	4.95	14.0
Mechanical constant (ms) (with brake)	0.81	0.85	0.57	0.78	0.65	1.74	1.22	0.93	0.66	1.22
Brake holding torque [Nt-m (min)]*2	0.3	1.3	1.3	2.5	2.5	2.5	2.5	8	8	10.0
Brake power consumption (at 20°C) [W]	7.3	6.5	6.5	8.2	8.2	8.2	8.2	18.7	18.7	19.0
Brake release time [ms (Max)]	5	10	10	10	10	10	10	10	10	10
Brake pull-in time [ms (Max)]	25	70	70	70	70	70	70	70	70	70
Vibration grade (μm)	15									
Operating temperature (°C)	0°C to 40°C (32°F to 104°F)									
Storage temperature (°C)	-10°C to 80°C (-14°F to 176°F)									
Operating humidity	20 to 90% RH (non-condensing)									
Storage humidity	20 to 90% RH (non-condensing)									
Vibration capacity	2.5G									
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))									
Certifications	CE cULus									

Footnote:
* 1 Rate torque values are continuous permissible values at 0~40°C ambient temperature when attaching with the sizes of heatsinks listed below:
ECMA-__04 / 06 / 08 : 250mm × 250mm × 6mm
ECMA-__10 : 300mm × 300mm × 12mm
ECMA-__13 : 400mm × 400mm × 20mm
ECMA-__18 : 550mm × 550mm × 30mm
ECMA-__22 : 650mm × 650mm × 30mm
Material type : Aluminum F40, F60, F80, F100, F130, F180, F220
*2 The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Servo Motor Specifications

Medium / High Inertia Series

Model: ECMA Series	E△13				E△18			G△13		
	05	10	15	20	20	30	35	03	06	09
Rated power (kW)	0.5	1.0	1.5	2.0	2.0	3.0	3.5	0.3	0.6	0.9
Rated torque (N-m)*1	2.39	4.77	7.16	9.55	9.55	14.32	16.71	2.86	5.73	8.59
Maximum torque (N-m)	7.16	14.3	21.48	28.65	28.65	42.97	50.13	8.59	17.19	21.48
Rated speed (r/min)	2000							1000		
Maximum speed (r/min)	3000							2000		
Rated current (A)	2.9	5.6	8.3	11.01	11.22	16.1	19.2	2.5	4.8	7.5
Maximum current (A)	8.7	16.8	24.9	33.03	33.66	48.3	57.6	7.5	14.4	22.5
Power rating (kW/s)	7.0	27.1	45.9	62.5	26.3	37.3	50.8	10.0	39.0	66.0
Rotor inertia (x10-4kg-m^2)(without brake)	8.17	8.41	11.18	14.59	34.68	54.95	54.95	8.17	8.41	11.18
Mechanical constant (ms)	1.91	1.51	1.10	0.96	1.62	1.06	1.08	1.84	1.40	1.06
Torque constant-KT (N-m/A)	0.83	0.85	0.87	0.87	0.85	0.89	0.87	1.15	1.19	1.15
Voltage constant-KE(mV/(r/min)	30.9	31.9	31.8	31.8	31.4	32.0	32	42.5	43.8	41.6
Armature resistance (Ohm)	0.57	0.47	0.26	0.174	0.119	0.052	0.052	1.06	0.82	0.43
Armature inductance (mH)	7.39	5.99	4.01	2.76	2.84	1.38	1.38	14.29	11.12	6.97
Electric constant (ms)	12.96	12.88	15.31	15.86	23.87	26.39	26.39	13.55	13.50	16.06
Insulation class	Class A (UL), Class B (CE)									
Insulation resistance	>100 MΩ, 500 V_{DC}									
Insulation strength	1.8k V_{AC}, 1 sec									
Weight (kg) (without brake)	6.8	7.0	7.5	7.8	13.5	18.5	18.5	6.8	7.0	7.5
Weight (kg) (with brake)	8.2	8.4	8.9	9.2	17.5	22.5	22.5	8.2	8.4	8.9
Max. radial shaft load (N)	490	490	490	490	1176	1470	490	490	490	490
Max. thrust shaft load (N)	98	98	98	98	490	490	98	98	98	98
Power rating (kW/s) (with brake)	6.4	24.9	43.1	57.4	24.1	35.9	48.9	9.2	35.9	62.1
Rotor inertia (x10-4kg-m^2) (with brake)	8.94	9.14	11.90	15.88	37.86	57.06	57.06	8.94	9.14	11.9
Mechanical constant (ms) (with brake)	2.07	1.64	1.19	1.05	1.77	1.10	1.12	2.0	1.51	1.13
Brake holding torque [Nt-m (min)]*2	10.0	10.0	10.0	10.0	25.0	25.0	25.0	10.0	10.0	10.0
Brake power consumption (at 20°C) [W]	19.0	19.0	19.0	19.0	20.4	20.4	20.4	19.0	19.0	19.0
Brake release time [ms (Max)]	10	10	10	10	10	10	10	10	10	10
Brake pull-in time [ms (Max)]	70	70	70	70	70	70	70	70	70	70
Vibration grade (μm)	15									
Operating temperature (°C)	0°C to 40°C (32°F to 104°F)									
Storage temperature (°C)	-10°C to 80°C (-14°F to 176°F)									
Operating humidity	20 to 90% RH (non-condensing)									
Storage humidity	20 to 90% RH (non-condensing)									
Vibration capacity	2.5G									
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))									
Certifications	CE cULus									

Footnote:
* 1 Rate torque values are continuous permissible values at 0~40°C ambient temperature when attaching with the sizes of heatsinks listed below:
ECMA-__04 / 06 / 08 : 250 mm × 250 mm × 6 mm
ECMA-__10 : 300 mm × 300 mm × 12 mm
ECMA-__13 : 400 mm × 400 mm × 20 mm
ECMA-__18 : 550 mm × 550 mm × 30 mm
ECMA-__22 : 650 mm × 650 mm × 30 mm
Material type : Aluminum F40, F60, F80, F100, F130, F180, F220
*2 The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Servo Motor Specifications

Medium high / High Inertia Series

Model: ECMA Series	FΔ13			FΔ18
	08	13	18	30
Rated power (kW)	0.85	1.3	1.8	3.0
Rated torque (N-m)*1	5.41	8.34	11.48	19.10
Maximum torque (N-m)	13.8	23.3	28.7	57.29
Rated speed (r/min)	1500			
Maximum speed (r/min)	3000			
Rated current (A)	7.1	12.6	13	19.4
Maximum current (A)	19.4	38.6	36	58.2
Power rating (kW/s)	21.52	34.78	52.93	66.4
Rotor inertia (x10-4kg-m^2)(without brake)	13.6	20	24.9	54.95
Mechanical constant (ms)	2.43	1.62	1.7	1.28
Torque constant-KT (N-m/A)	0.76	0.66	0.88	0.98
Voltage constant-KE(mV/(r/min)	29.2	24.2	32.2	35.0
Armature resistance (Ohm)	0.38	0.124	0.185	0.077
Armature inductance (mH)	4.77	1.7	2.6	1.27
Electric constant (ms)	12.55	13.71	14.05	16.5
Insulation class	Class A (UL), Class B (CE)			
Insulation resistance	>100 MΩ, 500 V_{DC}			
Insulation strength	1.8k V_{AC}, 1 sec			
Weight (kg) (without brake)	8.6	9.4	10.5	18.5
Weight (kg) (with brake)	10.0	10.8	11.9	22.5
Max. radial shaft load (N)	490	490	490	1470
Max. thrust shaft load (N)	98	98	98	490
Power rating (kW/s) (with brake)	19.78	32.66	50.3	63.9
Rotor inertia (x10-4kg-m^2) (with brake)	14.8	21.3	26.2	57.06
Mechanical constant (ms) (with brake)	2.65	1.73	1.79	1.33
Brake holding torque [Nt-m (min)]*2	10.0	10.0	10.0	25.0
Brake power consumption (at 20°C) [W]	19.0	19.0	19.0	20.4
Brake release time [ms (Max)]	10	10	10	10
Brake pull-in time [ms (Max)]	70	70	70	70
Vibration grade (μm)	15			
Operating temperature (°C)	0°C~ 40°C			
Storage temperature (°C)	-10°C to 80°C (-14°F to 176°F)			
Operating humidity	20 to 90% RH (non-condensing)			
Storage humidity	20 to 90% RH (non-condensing)			
Vibration capacity	2.5G			
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))			
Certifications	CE cULus			

Footnote:
*1 Rate torque values are continuous permissible values at 0 ~ 40° C ambient temperature when attaching with the sizes of heatsinks listed below:
ECMA-__04 / 06 / 08 : 250mm x 250mm x 6mm
ECMA-__10 : 300mm x 300mm x 12mm
ECMA-__13 : 400mm x 400mm x 20mm
ECMA-__18 : 550mm x 550mm x 30mm
ECMA-__22 : 650mm x 650mm x 35mm
Material type : Aluminum – F40, F60, F80, F100, F130, F180
*2 The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Servo Motor Specifications

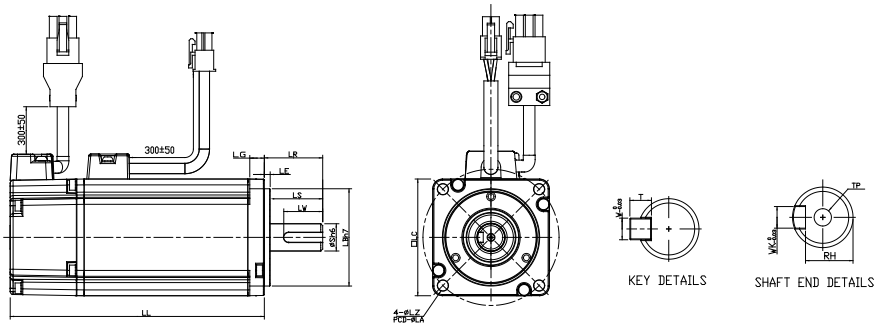
High Inertia Series

Model: ECMA Series	CΔ06	CΔ08
	04 □ H	07 □ H
Rated power (kW)	0.4	0.75
Rated torque (N-m)*1	1.27	2.39
Maximum torque (N-m)	3.82	7.16
Rated speed (r/min)	3000	
Maximum speed (r/min)	5000	
Rated current (A)	2.6	5.1
Maximum current (A)	7.8	15.3
Power rating (kW/s)	21.7	19.63
Rotor inertia (x10-4kg-m^2)(without brake)	0.743	2.91
Mechanical constant (ms)	1.42	1.6
Torque constant-KT (N-m/A)	0.49	0.47
Voltage constant-KE(mV/(r/min)	17.4	17.2
Armature resistance (Ohm)	1.55	0.42
Armature inductance (mH)	6.71	3.53
Electric constant (ms)	4.3	8.36
Insulation class	Class A (UL), Class B (CE)	
Insulation resistance	>100 MΩ, 500 V_{DC}	
Insulation strength	1.8k V_{AC}, 1 sec	
Weight (kg) (without brake)	1.8	3.4
Weight (kg) (with brake)	2.2	3.9
Max. radial shaft load (N)	196	245
Max. thrust shaft load (N)	68	98
Power rating (kW/s) (with brake)	21.48	19.3
Rotor inertia (x10-4kg-m^2) (with brake)	0.751	2.96
Mechanical constant (ms) (with brake)	1.43	1.62
Brake holding torque [Nt-m (min)]*2	1.3	2.5
Brake power consumption (at 20°C) [W]	6.5	8.2
Brake release time [ms (Max)]	10	10
Brake pull-in time [ms (Max)]	70	70
Vibration grade (μm)	15	
Operating temperature (°C)	0°C~ 40°C	
Storage temperature (°C)	-10°C to 80°C (-14°F to 176°F)	
Operating humidity	20 to 90% RH (non-condensing)	
Storage humidity	20 to 90% RH (non-condensing)	
Vibration capacity	2.5G	
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))	
Certifications	CE cULus	

Footnote:
*1 Rate torque values are continuous permissible values at 0 ~ 40° C ambient temperature when attaching with the sizes of heatsinks listed below:
ECMA-__04 / 06 / 08 : 250mm x 250mm x 6mm
ECMA-__10 : 300mm x 300mm x 12mm
ECMA-__13 : 400mm x 400mm x 20mm
ECMA-__18 : 550mm x 550mm x 30mm
ECMA-__22 : 650mm x 650mm x 35mm
Material type : Aluminum – F40, F60, F80, F100, F130, F180
*2 The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Servo Motor Dimensions

Motors - Frame Size 86mm and below



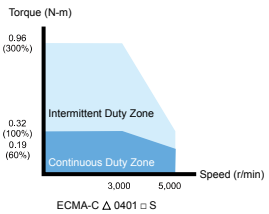
Units: mm

Model	C △ 0401 □ S	C △ 0602 □ S	C △ 0604 □ S	C △ 0604 □ H	C △ 0804 □ 7	C △ 0807 □ S	C △ 0807 □ H	C △ 0907 □ S	C △ 0910 □ S
LC	40	60	60	60	80	80	80	86	86
LZ	4.5	5.5	5.5	5.5	6.6	6.6	6.6	6.6	6.6
LA	46	70	70	70	90	90	90	100	100
S	8 ($^{+0}_{-0.009}$)	14 ($^{+0}_{-0.011}$)	14 ($^{+0}_{-0.011}$)	14 ($^{+0}_{-0.011}$)	14 ($^{+0}_{-0.011}$)	19 ($^{+0}_{-0.013}$)	19 ($^{+0}_{-0.013}$)	16 ($^{+0}_{-0.011}$)	16 ($^{+0}_{-0.011}$)
LB	30 ($^{+0}_{-0.021}$)	50 ($^{+0}_{-0.025}$)	50 ($^{+0}_{-0.025}$)	50 ($^{+0}_{-0.025}$)	70 ($^{+0}_{-0.030}$)	70 ($^{+0}_{-0.030}$)	70 ($^{+0}_{-0.030}$)	80 ($^{+0}_{-0.030}$)	80 ($^{+0}_{-0.030}$)
LL (without brake)	100.6	105.5	130.7	145.8	112.3	138.3	154.8	130.2	153.2
LL (with brake)	136.8	141.6	166.8	176.37	152.8	178	187.8	161.3	184.3
LS	20	27	27	27	27	32	32	30	30
LR	25	30	30	30	30	35	35	35	35
LE	2.5	3	3	3	3	3	3	3	3
LG	5	7.5	7.5	7.5	8	8	8	8	8
LW	16	20	20	20	20	25	25	20	20
RH	6.2	11	11	11	11	15.5	15.5	13	13
WK	3	5	5	5	5	6	6	5	5
W	3	5	5	5	5	6	6	5	5
T	3	5	5	5	5	6	6	5	5
TP	M3 Depth 8	M4 Depth 15	M4 Depth 15	M4 Depth 15	M4 Depth 15	M6 Depth 20	M6 Depth 20	M5 Depth 15	M5 Depth 15

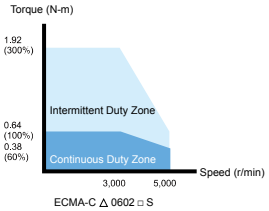
NOTE

1) Dimensions are in millimeters. Actual measured values are in metric units.
2) Dimensions of the servo motor may be updated without prior notice.
3) The boxes (□) in the model names represent shaft end / brake or the number of oil seal.
4) The boxes (△) in the model names represent encoder types (△ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit).

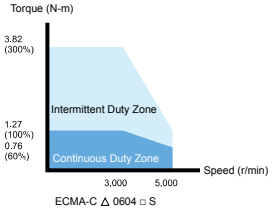
Speed-Torque Curves (T-N Curves)



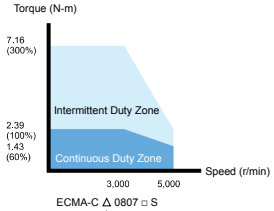
ECMA-C △ 0401 □ S



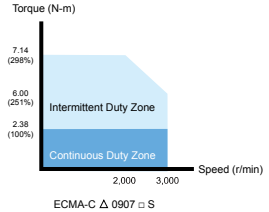
ECMA-C △ 0602 □ S



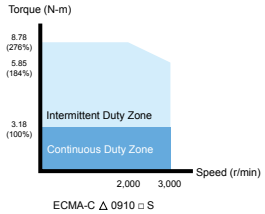
ECMA-C △ 0604 □ S
ECMA-C △ 0604 □ H
ECMA-C △ 0804 □ 7



ECMA-C △ 0807 □ S
ECMA-C △ 0807 □ H

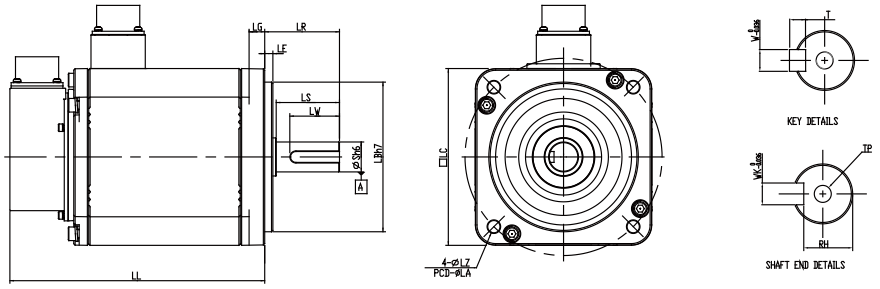


ECMA-C △ 0907 □ S



ECMA-C △ 0910 □ S

Motors - Frame Size 100mm ~ 130mm



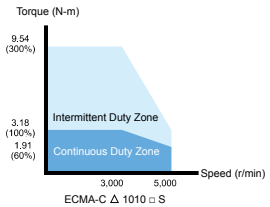
Units: mm

Model	C △ 1010 □ S	C △ 1020 □ S	C △ 1330 □ 4	E △ 1305 □ S	E △ 1310 □ S	E △ 1315 □ S
LC	100	100	130	130	130	130
LZ	9	9	9	9	9	9
LA	115	115	145	145	145	145
S	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	24 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)
LB	95 ($^{+0}_{-0.035}$)	95 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)
LL (不帶煞車)	153.3	199	187.5	147.5	147.5	167.5
LL (帶煞車)	192.5	226	216	183.5	183.5	202
LS	37	37	47	47	47	47
LR	45	45	55	55	55	55
LE	5	5	6	6	6	6
LG	12	12	11.5	11.5	11.5	11.5
LW	32	32	36	36	36	36
RH	18	18	20	18	18	18
WK	8	8	8	8	8	8
W	8	8	8	8	8	8
T	7	7	7	7	7	7
TP	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20

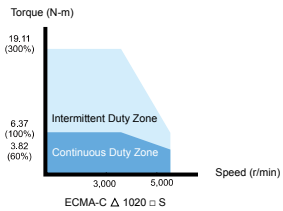
NOTE

1) Dimensions are in millimeters. Actual measured values are in metric units.
2) Dimensions of the servo motor may be updated without prior notice.
3) The boxes (□) in the model names represent shaft end / brake or the number of oil seal.
4) The boxes (△) in the model names represent encoder types (△ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit).

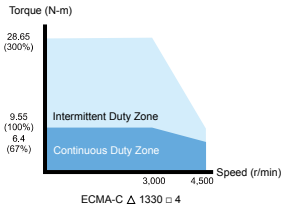
Speed-Torque Curves (T-N Curves)



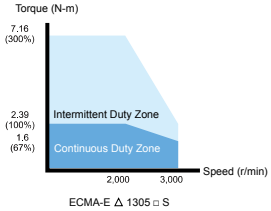
ECMA-C △ 1010 □ S



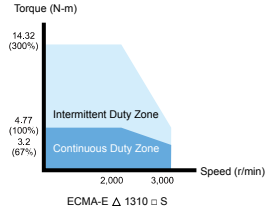
ECMA-C △ 1020 □ S



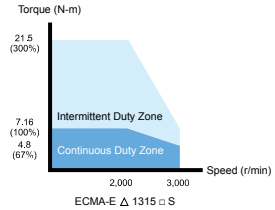
ECMA-C △ 1330 □ 4



ECMA-E △ 1305 □ S



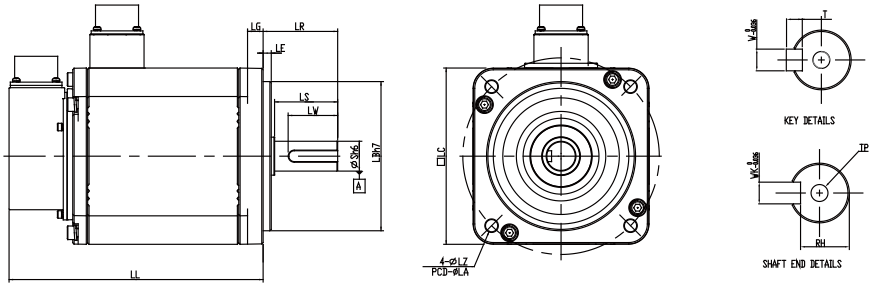
ECMA-E △ 1310 □ S



ECMA-E △ 1315 □ S

Servo Motor Dimensions

Motors - Frame Size 100mm ~ 130mm



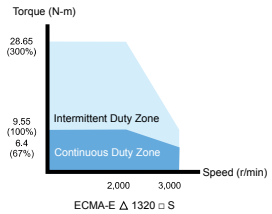
Units: mm

Model	E △ 1320 □ S	F △ 1308 □ S	F △ 1313 □ S	F △ 1318 □ S	G △ 1303 □ S	G △ 1306 □ S	G △ 1309 □ S
LC	130	130	130	130	130	130	130
LZ	9	9	9	9	9	9	9
LA	145	145	145	145	145	145	145
S	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)
LB	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)
LL (without brake)	187.5	152.5	187.5	202	147.5	147.5	163.5
LL (with brake)	216	181	216	230.7	183.5	183.5	198
LS	47	47	47	47	47	47	47
LR	55	55	55	55	55	55	55
LE	6	6	6	6	6	6	6
LG	11.5	11.5	11.5	11.5	11.5	11.5	11.5
LW	36	36	36	36	36	36	36
RH	18	18	18	18	18	18	18
WK	8	8	8	8	8	8	8
W	8	8	8	8	8	8	8
T	7	7	7	7	7	7	7
TP	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20

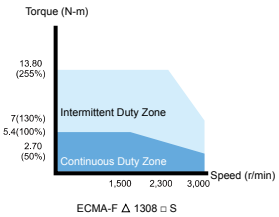
NOTE

1) Dimensions are in millimeters. Actual measured values are in metric units.
2) Dimensions of the servo motor may be updated without prior notice.
3) The boxes (□) in the model names represent shaft end / brake or the number of oil seal.
4) The boxes (△) in the model names represent encoder types (△ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit).

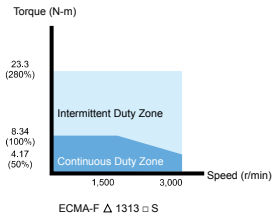
Speed-Torque Curves (T-N Curves)



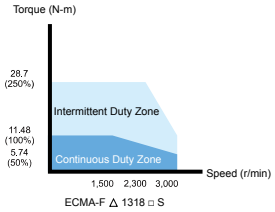
ECMA-E △ 1320 □ S



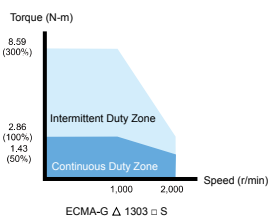
ECMA-F △ 1308 □ S



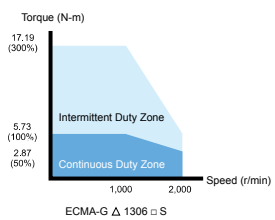
ECMA-F △ 1313 □ S



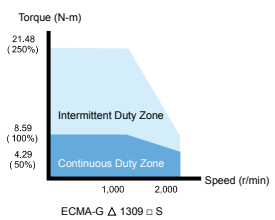
ECMA-F △ 1318 □ S



ECMA-G △ 1303 □ S

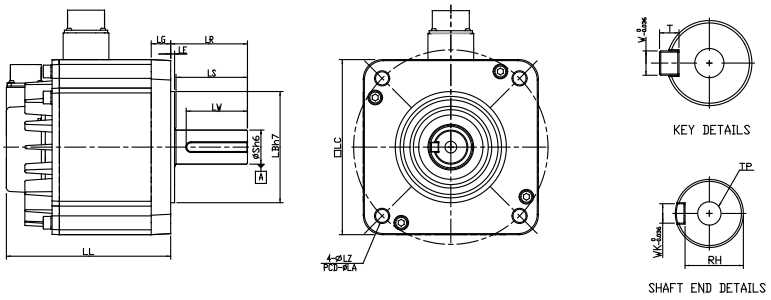


ECMA-G △ 1306 □ S



ECMA-G △ 1309 □ S

Motors - Frame Size 180mm



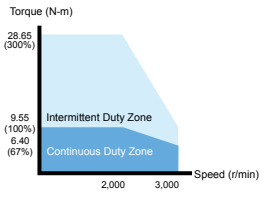
Units: mm

Model	E △ 1820 □ S	E △ 1830 □ S	F △ 1830 □ S	E △ 1835 □ S
LC	180	180	180	180
LZ	13.5	13.5	13.5	13.5
LA	200	200	200	200
S	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)
LB	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)
LL (without brake)	169	202.1	202.1	202.1
LL (with brake)	203.1	235.3	235.3	235.3
LS	73	73	73	73
LR	79	79	79	79
LE	4	4	4	4
LG	20	20	20	20
LW	63	63	63	63
RH	30	30	30	30
WK	10	10	10	10
W	10	10	10	10
T	8	8	8	8
TP	M12 Depth 25	M12 Depth 25	M12 Depth 25	M12 Depth 25

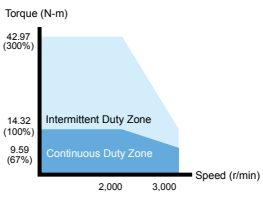
NOTE

1) Dimensions are in millimeters. Actual measured values are in metric units.
2) Dimensions of the servo motor may be updated without prior notice.
3) The boxes (□) in the model names represent shaft end / brake or the number of oil seal.
4) The boxes (△) in the model names represent encoder types (△ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit).

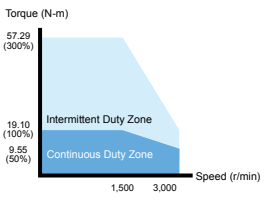
Speed-Torque Curves (T-N Curves)



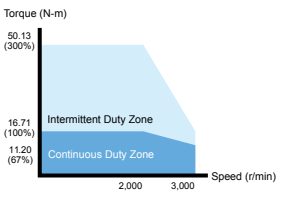
ECMA-E △ 1820 □ S



ECMA-E △ 1830 □ S



ECMA-F △ 1830 □ S



ECMA-E △ 1835 □ S

Optional Accessories

Power Cables

- 3m and 5m standard cables are available.
- Individual connectors are also provided for different demands.
- Two types are selectable: with brake and without brake.





CN1 I/O Connectors

- Used to connect to external (host) controller
- Delta Part Number: ASDBCNDS0044



CN1 Convenient Connector

- Delta Part Number: ASD-IF-DS4444



Encoder Cables

- 3m and 5m standard cables are available.
- Individual connectors are also provided for different demands.





Regenerative Resistors

- Two kinds of regenerative resistors are available, 400W / 40Ω and 1kW / 20Ω.



Terminal Block Modules

- 0.5m connection cable is provided for saving on installation space.
- Delta Part Number: ASD-MDDS4444



RS-485 Connectors

- Used to connect multiple ASDA Series products by RS-485 interface through Modbus serial communication.
- Delta Part Number: ASD-CNIE0B06



ASD-Soft Software
Communication Cables (for PC)

- Delta Part Number: ASD-CNUS0A08



NOTE The figures are for illustration purposes only. Actual models may differ slightly in appearance from illustrations provided.

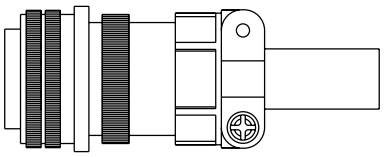
Optional Accessories

Power Connectors

ASDBCAPW0000

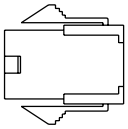


ASD-CAPW1000

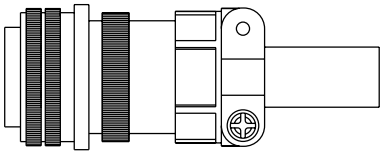


3106A-20-18S

ASDBCAPW0100



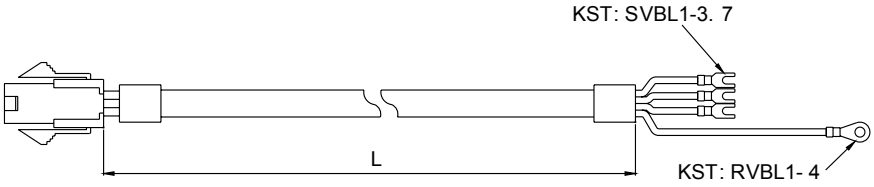
ASD-CAPW2000



3106A-24-11S

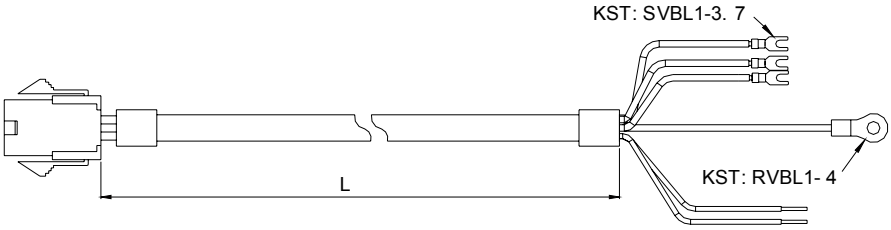
Power Cables

ASDBCAPW0203/0205



Item	Part No.	L	
		mm	inch
1	ASDBCAPW0203	3000 ± 50	118 ± 2
2	ASDBCAPW0205	5000 ± 50	197 ± 2

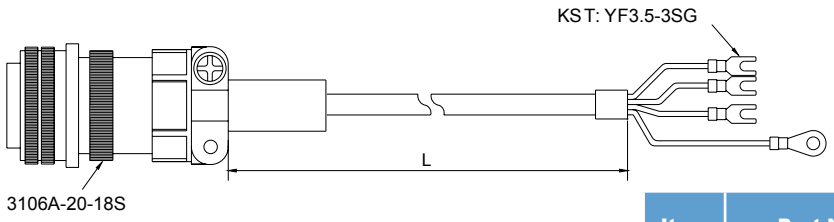
ASDBCAPW0303/0305



Item	Part No.	L	
		mm	inch
1	ASDBCAPW0303	3000 ± 50	118 ± 2
2	ASDBCAPW0305	5000 ± 50	197 ± 2

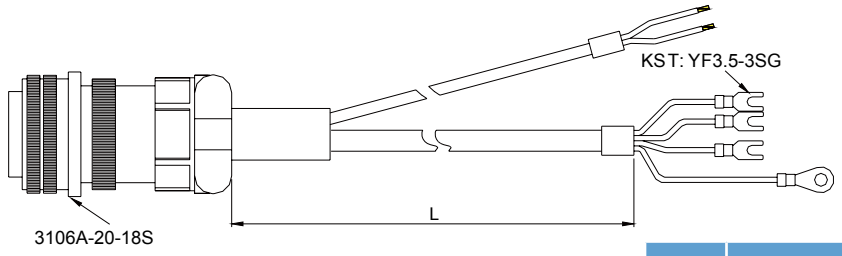
Power Cables

ASDBCAPW1203/1205



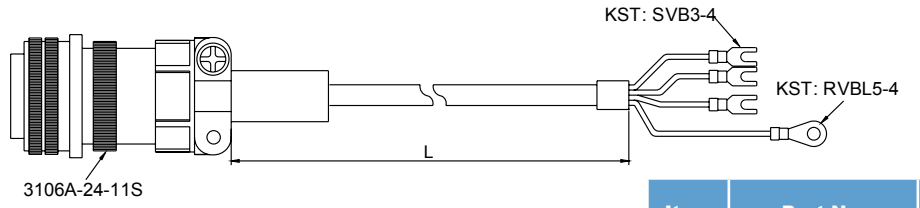
Item	Part No.	Straight	L	
			mm	inch
1	ASDBCAPW1203	3106A-20-18S	3000 ± 50	118 ± 2
2	ASDBCAPW1205	3106A-20-18S	5000 ± 50	197 ± 2

ASDBCAPW1303/1305



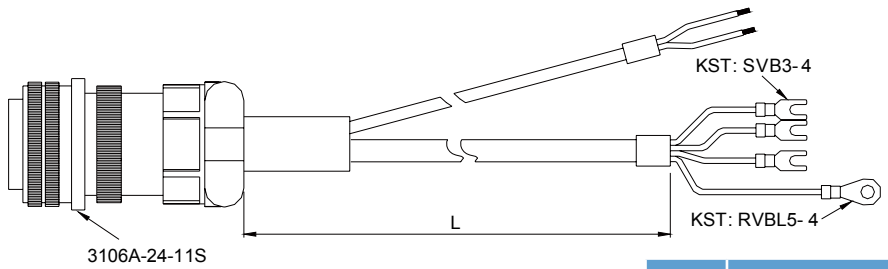
Item	Part No.	Straight	L	
			mm	inch
1	ASDBCAPW1303	3106A-20-18S	3000 ± 50	118 ± 2
2	ASDBCAPW1305	3106A-20-18S	5000 ± 50	197 ± 2

ASD-CAPW2203/2205



Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW2203	3106A-24-11S	3000 ± 50	118 ± 2
2	ASD-CAPW2205	3106A-24-11S	5000 ± 50	197 ± 2

ASD-CAPW2303/2305



Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW2303	3106A-24-11S	3000 ± 50	118 ± 2
2	ASD-CAPW2305	3106A-24-11S	5000 ± 50	197 ± 2

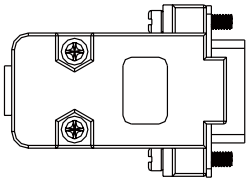
Optional Accessories

Encoder Connectors

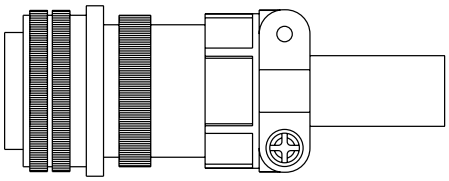
ASDBCAEN0000



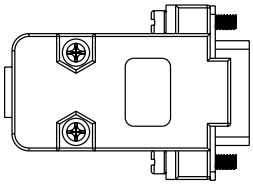
D-SUB Connector 9P



ASDBCAEN1000



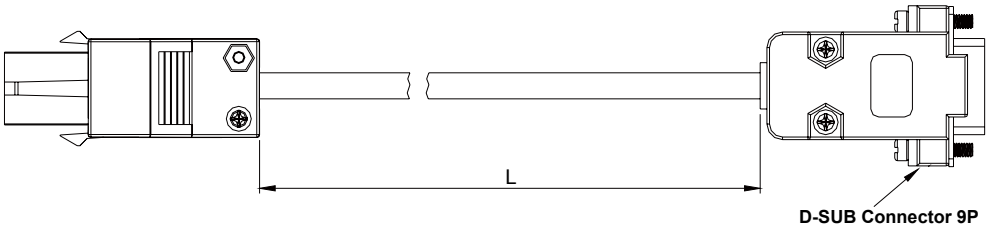
3106A-20-29S



D-SUB Connector 9P

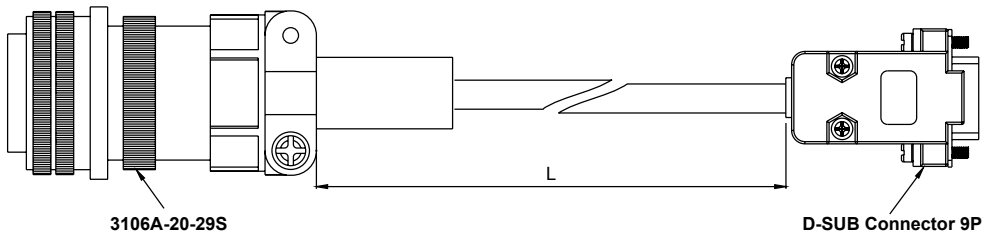
Encoder Cables

ASDBCAEN0003/0005



Item	Part No.	L	
		mm	inch
1	ASDBCAEN0003	3000 ± 50	118 ± 2
2	ASDBCAEN0005	5000 ± 50	197 ± 2

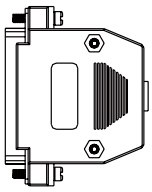
ASDBCAEN1003/1005



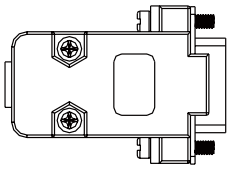
Item	Part No.	Straight	L	
			mm	inch
1	ASDBCAEN1003	3106A-20-29S	3000 ± 50	118 ± 2
2	ASDBCAEN1005	3106A-20-29S	5000 ± 50	197 ± 2

I/O Signal Connector

ASD-BCNDS0044
D-SUB 44 PIN PLUG



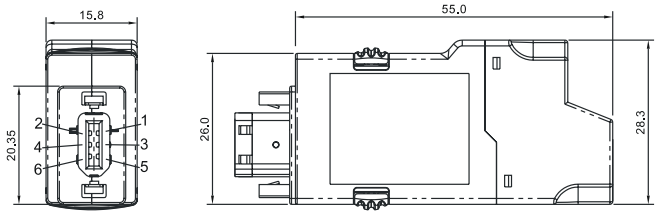
ASDBCAEN1000
D-SUB 15 PIN PLUG



RS-485 Connector

Dimensions are in mm

ASD-CNIE0B06

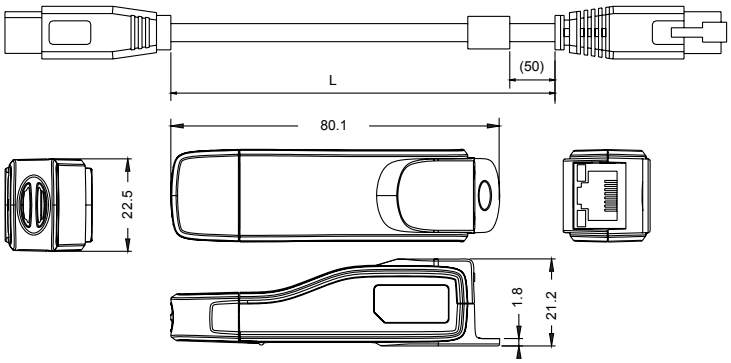


NOTE
1) More accessories for ASDA-B2 will be on the list.
2) Accessories images shown here may differ from the actual product.

Communication Cable between Drive and Computer (for PC)

Dimensions are in mm

ASD-CNUS0A08

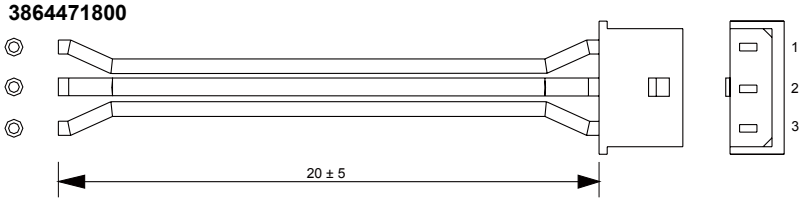


Title	Part No.Part No. : ASD-CNUS0A08	
Cable	L	3000 ± 100 mm
		118 ± 4 inch
Connector	RJ connector	RJ-45
	USB connector	A-type (USB V2.0)

Voltage Output Cable (Analog Signal)

Dimensions are in mm

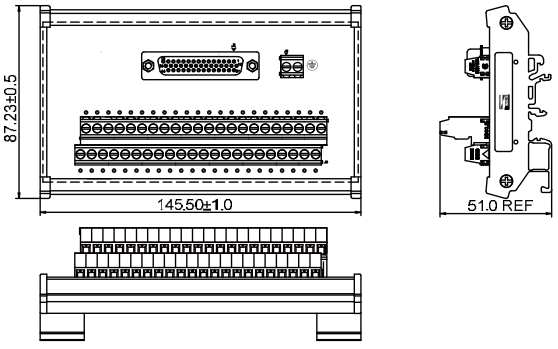
3864471800



Terminal Block Module

Dimensions are in mm

ASD-MDDS4444



Accessories Combinations

100W Servo Drive and 100W Low Inertia Servo Motor

Servo Drive	ASD-B2-0121-B
Low Inertia Servo Motor	**ECMA-C △ 0401 □ S**
Power Cables (Without Brake)	ASDBCAPW020X
Power Connectors (Without Brake)	ASDBCAPW0000
Power Cables (With Brake)	ASDBCAPW030X
Power Connectors (With Brake)	ASDBCAPW0100
Encoder Cables	ASDBCAEN000X
Encoder Connectors	ASDBCAEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

200W Servo Drive and 200W Low Inertia Servo Motor

Servo Drive	ASD-B2-0221-B
Low Inertia Servo Motor	**ECMA-C △ 0602 □ S**
Power Cables (Without Brake)	ASDBCAPW020X
Power Connectors (Without Brake)	ASDBCAPW0000
Power Cables (With Brake)	ASDBCAPW030X
Power Connectors (With Brake)	ASDBCAPW0100
Encoder Cables	ASDBCAEN000X
Encoder Connectors	ASDBCAEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

400W Servo Drive and 400W Low Inertia Servo Motor

Servo Drive	ASD-B2-0421-B
Low Inertia Servo Motor	**ECMA-C △ 0604 □ S** **ECMA-C △ 0804 □ 7** **ECMA-CM0604PS**
Power Cables (Without Brake)	ASDBCAPW020X
Power Connectors (Without Brake)	ASDBCAPW0000
Power Cables (With Brake)	ASDBCAPW030X
Power Connectors (With Brake)	ASDBCAPW0100
Encoder Cables	ASDBCAEN000X
Encoder Connectors	ASDBCAEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

400W Servo Drive and 400W High Inertia Servo Motor

Servo Drive	ASD-B2-0421-B
High Inertia Servo Motor	**ECMA-C △ 0604 □ H**
Power Cables (Without Brake)	ASDBCAPW020X
Power Connectors (Without Brake)	ASDBCAPW0000
Power Cables (With Brake)	ASDBCAPW030X
Power Connectors (With Brake)	ASDBCAPW0100
Encoder Cables	ASDBCAEN000X
Encoder Connectors	ASDBCAEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

400W Servo Drive and 500W Medium Inertia Servo Motor

Servo Drive	ASD-B2-0421-B
Medium Inertia Servo Motor	ECMA-E △ 1305 □ S
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Incremental Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

400W Servo Drive and 300W High Inertia Servo Motor

Servo Drive	ASD-B2-0421-B
High Inertia Servo Motor	ECMA-G △ 1303 □ S
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

750W Servo Drive and 600W High Inertia Servo Motor

Servo Drive	ASD-B2-0721-B
High Inertia Servo Motor	ECMA-G △ 1306 □ S ECMA-GM1306PS
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

750W Servo Drive and 750W Low Inertia Servo Motor

Servo Drive	ASD-B2-0721-B
Low Inertia Servo Motor	ECMA-C △ 0807 □ S ECMA-C △ 0907 □ 7 ECMA-CM0807PS
Power Cables (Without Brake)	ASDBCAPW020X
Power Connectors (Without Brake)	ASDBCAPW0000
Power Cables (With Brake)	ASDBCAPW030X
Power Connectors (With Brake)	ASDBCAPW0100
Encoder Cables	ASDBCAEN000X
Encoder Connectors	ASDBCAEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

Accessories Combinations

750W Servo Drive and 750W High Inertia Servo Motor

Servo Drive	ASD-B2-0721-B
High Inertia Servo Motor	ECMA-C △ 0807 □ H
Power Cables (Without Brake)	ASDBCAPW020X
Power Connectors (Without Brake)	ASDBCAPW0000
Power Cables (With Brake)	ASDBCAPW030X
Power Connectors (With Brake)	ASDBCAPW0100
Encoder Cables	ASDBCAEN000X
Encoder Connectors	ASDBCAEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 850W Low Inertia Servo Motor

Servo Drive	ASD-B2-1021-B
Low Inertia Servo Motor	ECMA-F △ 1308 □ S
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 1kW Low Inertia Servo Motor

Servo Drive	ASD-B2-1021-B
Low Inertia Servo Motor	ECMA-C △ 1010 □ S
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 1kW Low Inertia Servo Motor

Servo Drive	ASD-B2-1021-B
Low Inertia Servo Motor	ECMA-C △ 0910 □ S
Power Cables (Without Brake)	ASDBCAPW020X
Power Connectors (Without Brake)	ASDBCAPW0000
Power Cables (With Brake)	ASDBCAPW030X
Power Connectors (With Brake)	ASDBCAPW0100
Incremental Encoder Cables	ASDBCAEN000X
Encoder Connectors	ASDBCAEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 1kW Medium Inertia Servo Motor

Servo Drive	ASD-B2-1021-B
Medium Inertia Servo Motor	ECMA-E △ 1310 □ S
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 900W High Inertia Servo Motor

Servo Drive	ASD-B2-1021-B
High Inertia Servo Motor	ECMA-G △ 1309 □ S ECMA-GM1309PS
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1.5kW Servo Drive and 1.5kW Medium Inertia Servo Motor

Servo Drive	ASD-B2-1521-B
Medium Inertia Servo Motor	ECMA-E △ 1315 □ S
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

2kW Servo Drive and 2kW Low Inertia Servo Motor

Servo Drive	ASD-B2-2023-B
Low Inertia Servo Motor	ECMA-C △ 1020 □ S
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASDBCAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

Accessories Combinations

2kW Servo Drive and 2kW Medium Inertia Servo Motor

Servo Drive	ASD-B2-2023-B
Medium Inertia Servo Motor	ECMA-E △ 1320 □ S
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

2kW Servo Drive and 2kW Medium Inertia Servo Motor

Servo Drive	ASD-B2-2023-B
Medium Inertia Servo Motor	ECMA-E △ 1820 □ S
Power Cables (Without Brake)	ASD-CAPW220X
Power Cables (With Brake)	ASD-CAPW230X
Power Connectors	ASD-CAPW2000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

2kW Servo Drive and 1.3kW Medium High Inertia Servo Motor

Servo Drive	ASD-B2-2023-B
Medium High Inertia Servo Motor	ECMA-F11313 □ S
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

2kW Servo Drive and 1.8kW Medium High Inertia Servo Motor

Servo Drive	ASD-B2-2023-B
Medium High Inertia Servo Motor	ECMA-F11318 □ S
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

3kW Servo Drive and 3kW Low Inertia Servo Motor

Servo Drive	ASD-B2-3023-B
Low Inertia Servo Motor	ECMA-C △ 1330 □ 4
Power Cables (Without Brake)	ASDBCAPW120X
Power Cables (With Brake)	ASDBCAPW130X
Power Connectors	ASD-CAPW1000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

3kW Servo Drive and 3kW Medium Inertia Servo Motor

Servo Drive	ASD-B2-3023-B
Medium Inertia Servo Motor	ECMA-E △ 1830 □ S
Power Cables (Without Brake)	ASD-CAPW220X
Power Cables (With Brake)	ASD-CAPW230X
Power Connectors	ASD-CAPW2000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

3kW Servo Drive and 3.5kW Medium Inertia Servo Motor

Servo Drive	ASD-B2-3023-B
Medium Inertia Servo Motor	ECMA-E △ 1835 □ S
Power Cables (Without Brake)	ASD-CAPW220X
Power Cables (With Brake)	ASD-CAPW230X
Power Connectors	ASD-CAPW2000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

3kW Servo Drive and 3kW Medium High Inertia Servo Motor

Servo Drive	ASD-B2-3023-B
Medium High Inertia Servo Motor	ECMA-F △ 1830 □ S
Power Cables (Without Brake)	ASD-CAPW220X
Power Cables (With Brake)	ASD-CAPW230X
Power Connectors	ASD-CAPW2000
Encoder Cables	ASDBCAEN100X
Encoder Connectors	ASDBCAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

Other Accessories (for ASDA-B2 Series all models)

Description	Delta Part Number
Communication Cable between Servo Drive and Computer	ASD-CARS0003
Regenerative Resistor 400W 100Ω	BR400W040
Regenerative Resistor 1kW 1000Ω	BR1K0W020

SERIE B3

Delta Standard Servo System ASDA-B3

High Efficiency, User-Friendly, and Stable

The high tolerance and stable operation of the Delta standard servo system ASDA-B3 series creates a highly efficient and user-friendly operation environment with precise motion control functions that optimize production efficiency and output value.

With the best motion control solutions, Delta boosts industry momentum and works with customers to create an innovative future.





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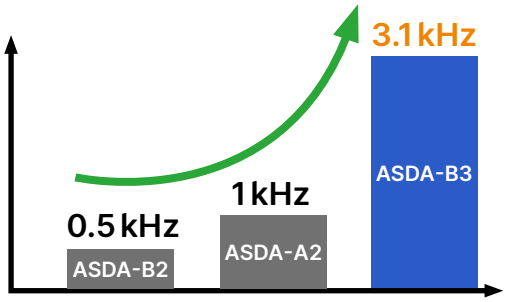
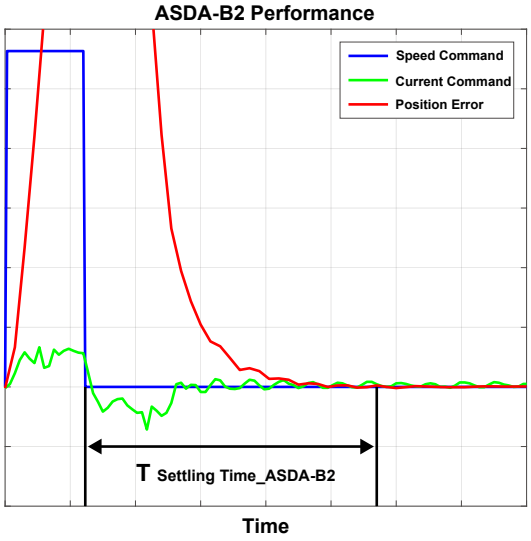
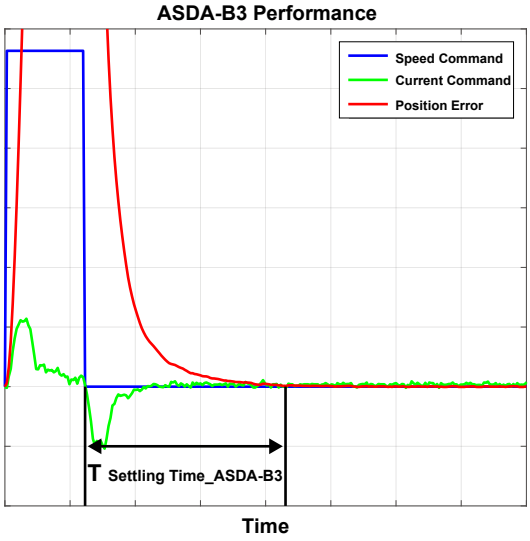
Optimized Performance

High Response Bandwidth

- Higher responsiveness: From 0.5 kHz of the ASDA-B2 series to 3.1 kHz of the ASDA-B3 series
- Increased productivity: Settling time reduced by 40%







Higher Load Tolerance

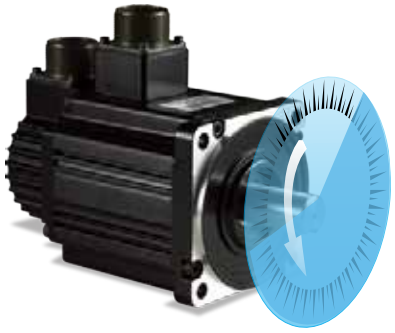
- Enhances positioning precision and optimizes the system
- Higher response bandwidth with the same load conditions

	ASDA-B2	ASD-B3	ASDA-B2	ASD-B3	ASDA-B2	ASD-B3
Actual Load Inertia Ratio	30 times		50 times		70 times	
Speed Loop Bandwidth in Position Mode	Approx. 150 Hz	Approx. 250 Hz	Approx. 30 Hz	Approx. 150 Hz	Max. performance	Approx. 20 Hz

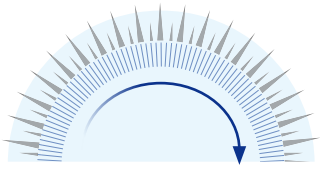
24-bit Absolute Encoder

- Enhances positioning precision with a resolution of 16,777,216 pulses per revolution
- Stable operation at low speeds improves machine performance
- Absolute encoder retains the motor's position when the power is off

16,777,216 pulses for one single turn

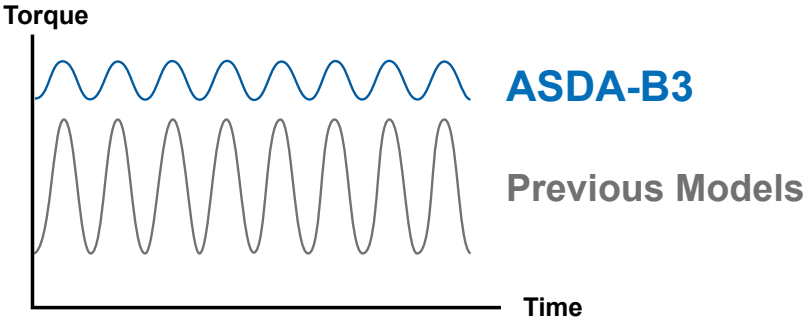


46,603 pulses in one degree



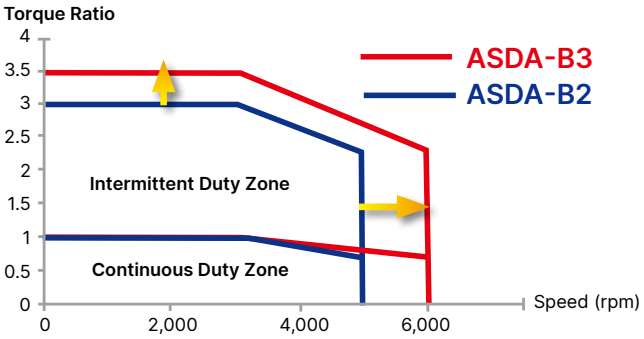
Low Cogging Torque

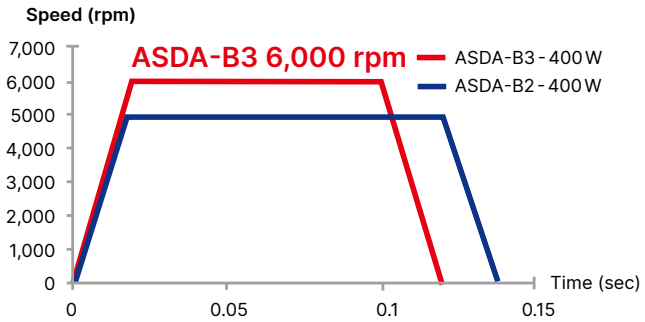
The cogging torque is 50% of previous models which increases the smoothness of constant speed operation and low speed machining



Increased Speed and Torque

- Motor speed increased to 6,000 rpm
- Torque overload ratio increased to 3.5 times and the time required for acceleration and deceleration is shortened
- Significantly increases productivity and efficiency

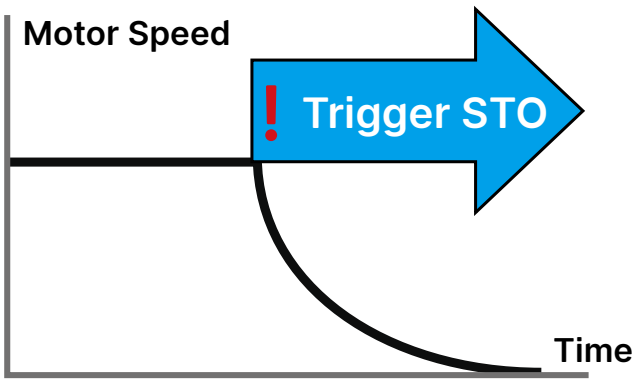




Safe Torque Off (STO) Function

- Built-in STO function ensures personnel safety
- Complies with IEC/EN 61800-5-2
- SIL2 Level

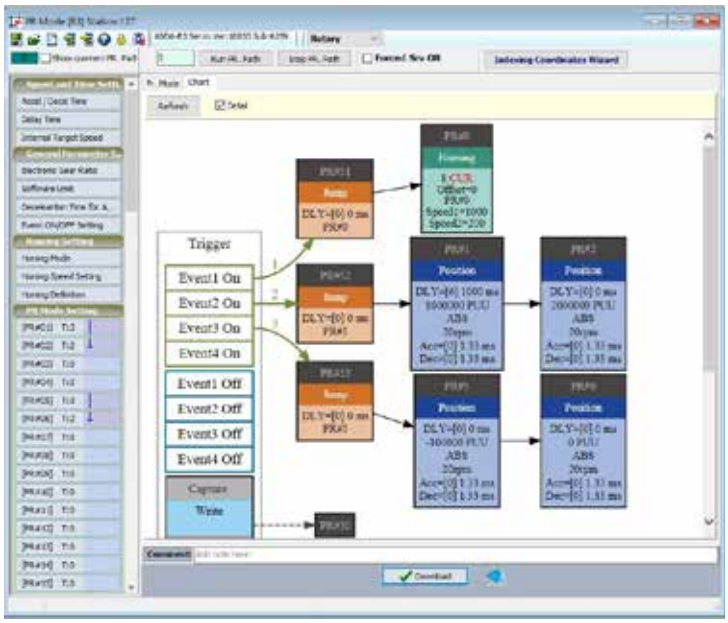
Note: ASDA-B3A 400V certification in process



Various Motion Functions

PR Mode

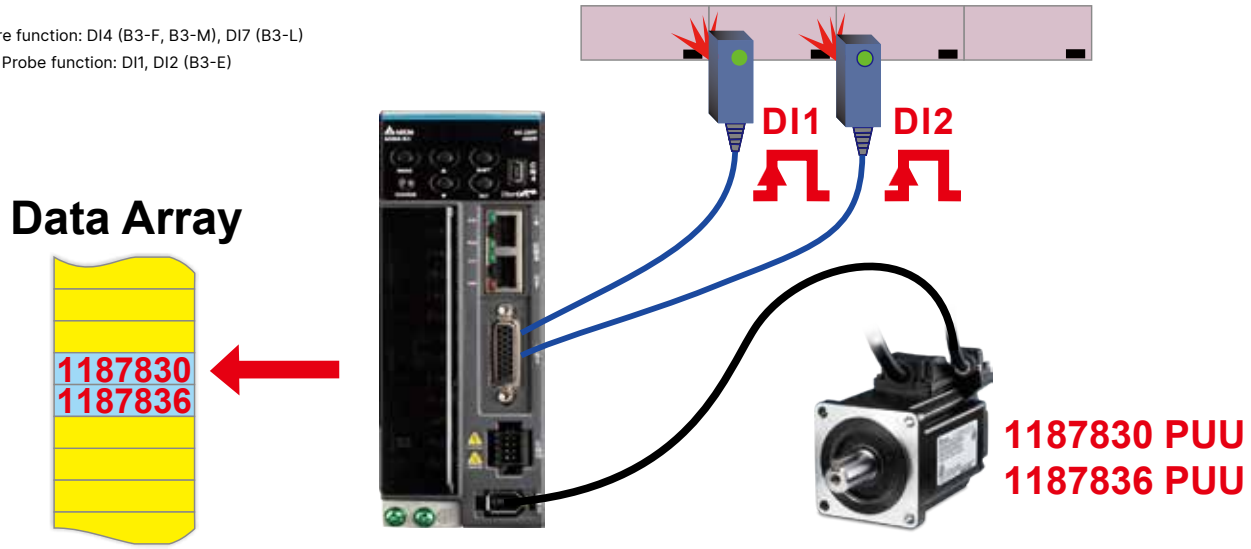
- Supports up to 99 PR paths for flexible motion command planning
- Intuitive operation interface with graphics
- Homing modes, position commands, and speed commands
- Overlap command, interrupt command, jump command, and parameter settings



High-Speed Capture Function

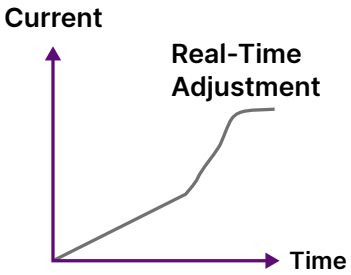
- Supports the Capture function for instantly capturing position coordinates with one set of DI
- Supports the Touch Probe function with two sets of DIs in the EtherCAT communication mode

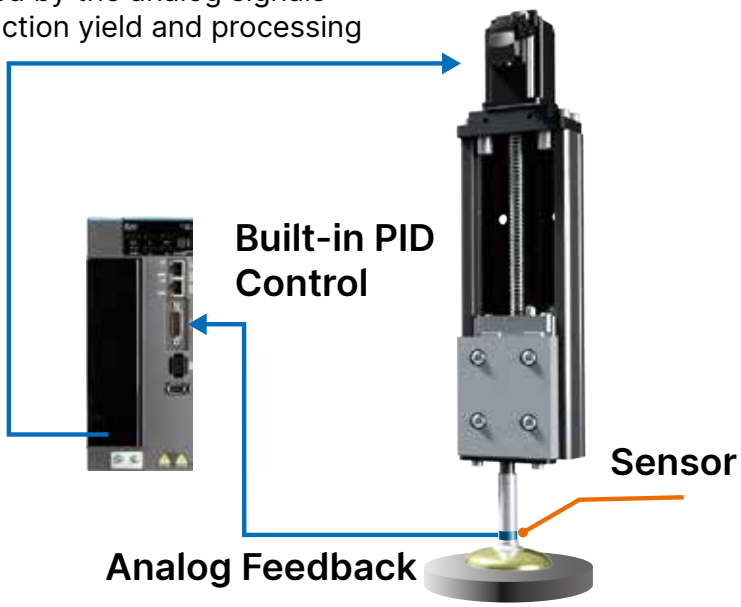
Note:
Capture function: DI4 (B3-F, B3-M), DI7 (B3-L)
Touch Probe function: DI1, DI2 (B3-E)



Analog Feedback PID Control

- Supports analog signal input
- Real-time and precise PID control enabled by the analog signals from the external sensor improves production yield and processing performance





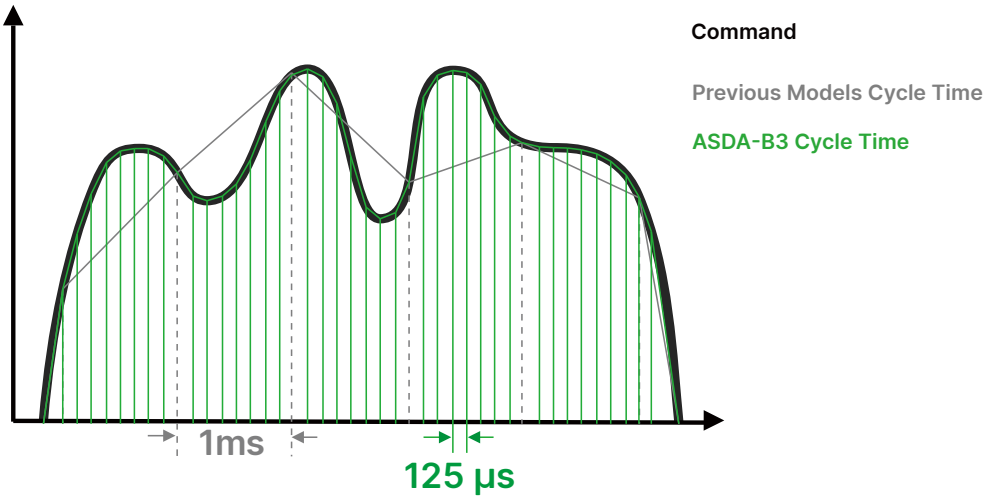
EtherCAT Communication Functions

Complies with the IEC 61158 and IEC 61800-7 fieldbus standards

Shorter Synchronization Cycle

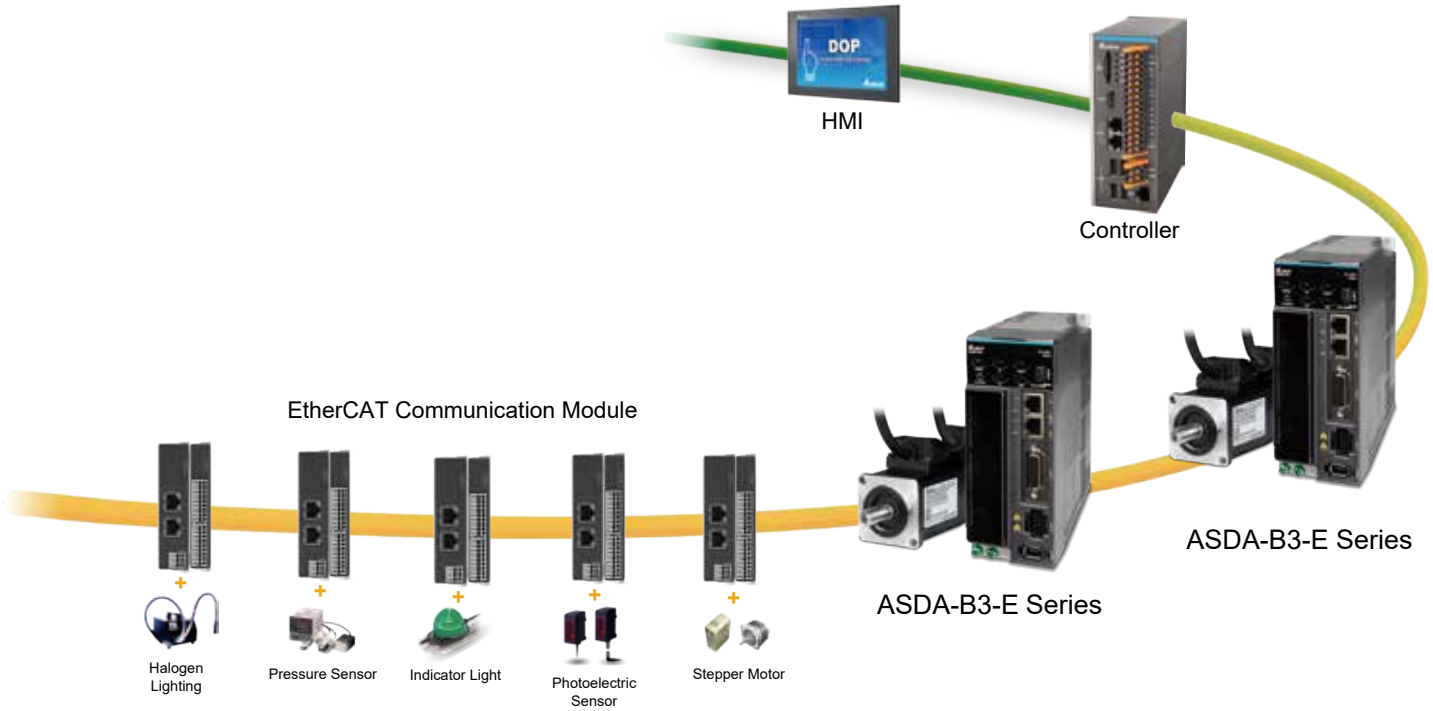
- The synchronization cycle of the ASDA-B3 series is 125 µs, which is 8 times faster than that of the ASDA-A2 series

Synchronization Cycle



Simplified Wiring

In contrast to single-axis pulse wiring which is complicated and difficult to repair, the EtherCAT high-speed communication greatly reduces the wiring and inspection time. It is suitable for multi-axis control and can also connect remote I/O modules with a single wiring.



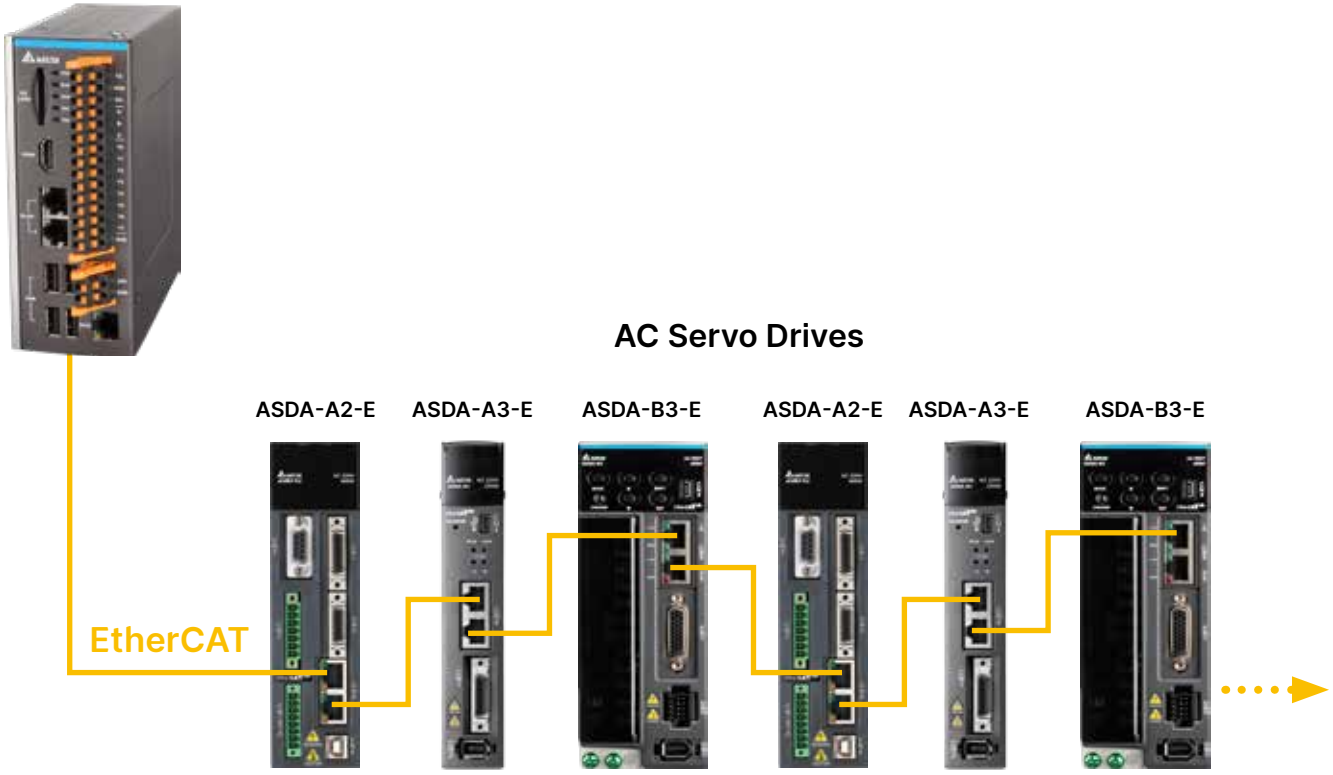
Longer Connection Distance

The maximum distance between two servo stations is 50 m and a maximum of 65,536 axes can be connected

Compatible with Previous Models

The ASDA-B3 series models are compatible with the ASDA-A2 and ASDA-A3 series

Note: The communication cycle of the ASDA-A2 series is 1 ms, so when previous and new models are used together, the set value cannot be lower than this specification

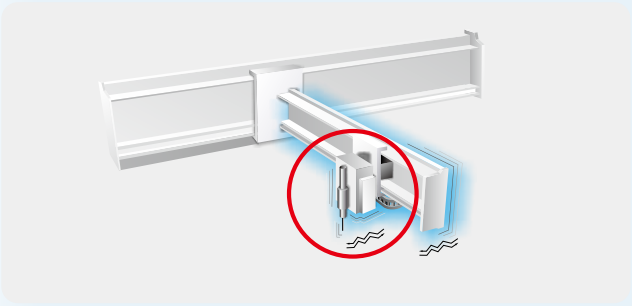


Vibration Suppression Functions

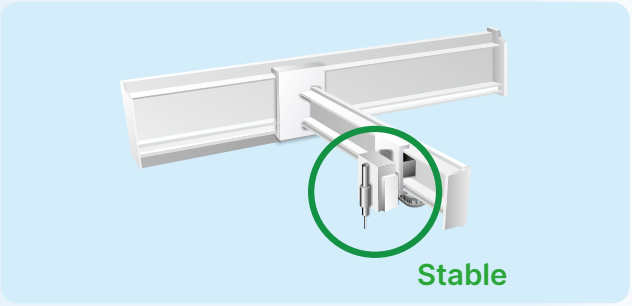
Vibration Elimination

- Low frequency vibration suppression applies Delta's unique algorithm to adjust low rigidity machine structures
- Two sets of built-in vibration elimination settings reduce jitter at the machine endpoint while maintaining a good command response

Without Vibration Elimination - Machine endpoint vibrates when settling

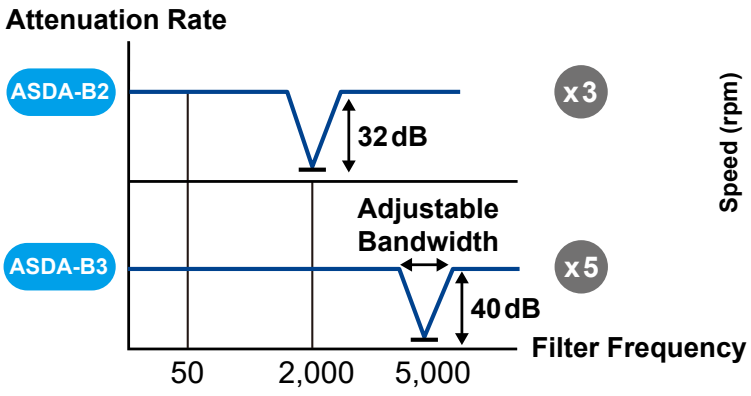


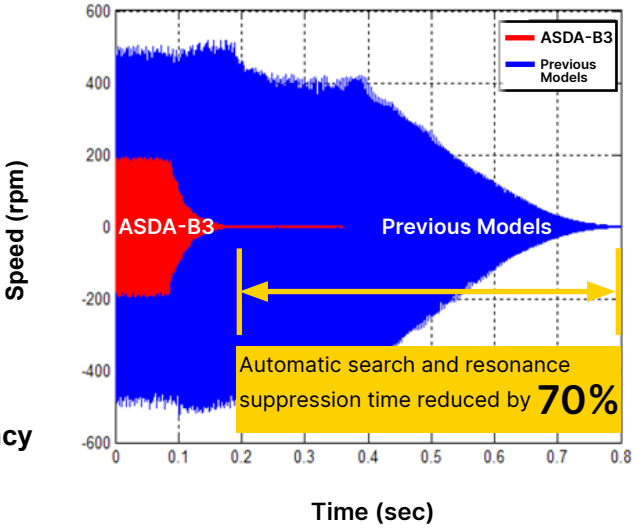
With Vibration Elimination - Machine endpoint is stable when settling



Advanced Notch Filter

- High frequency resonance suppression increased from 3 sets to 5 sets compared with previous models
- Filter bandwidth increased to 5,000 Hz
- Automatically searches for the resonance frequency point and completes the resonance suppression; this reduces the time by 70% compared with previous models and is less likely to damage the machine

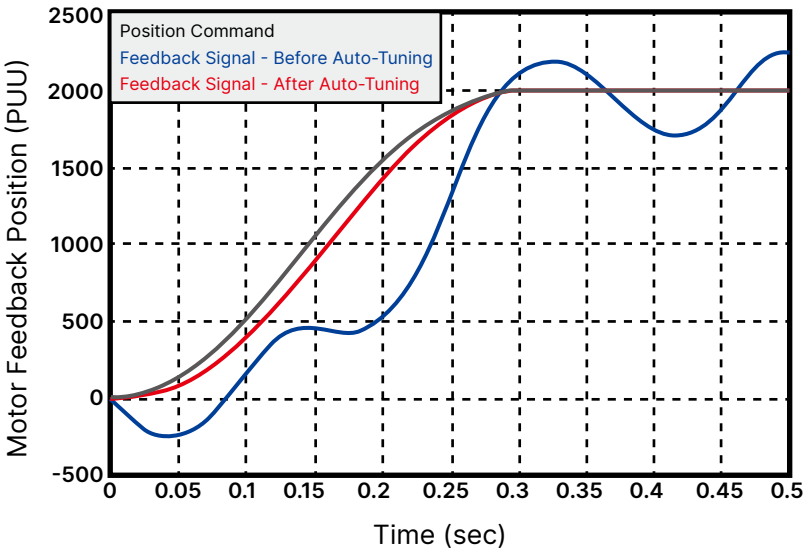




Self-Diagnosis and Adaptation

Excellent Self-Adjusting Capability

- Dedicated algorithm allows easy tuning with simple settings, which improves the efficiency of equipment assembly and testing
- Suitable for applications with flexible machine structures and large variations in inertia



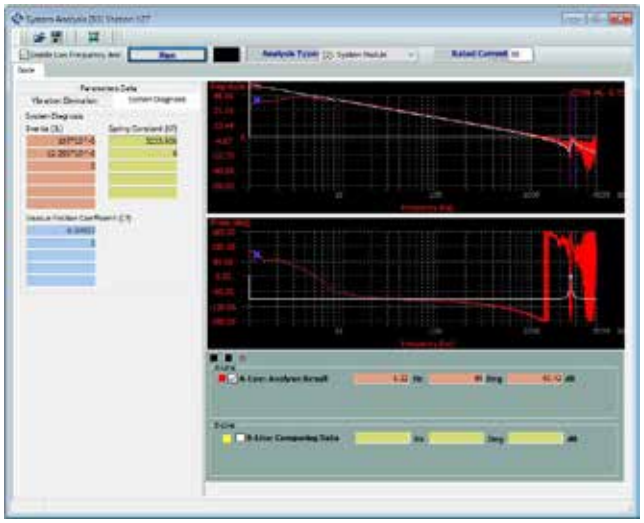
System Analysis Tool

Mechanical Stiffness Diagnosis

- Diagnoses the mechanism elasticity and damping coefficient, and converts the machine structure characteristics into data
- Ensures consistency of mass production machines through data collection

Frequency Domain Response Analysis

- Ensures system stability
- Compares the phases before and after gain adjustment to ensure the safety margin of the system

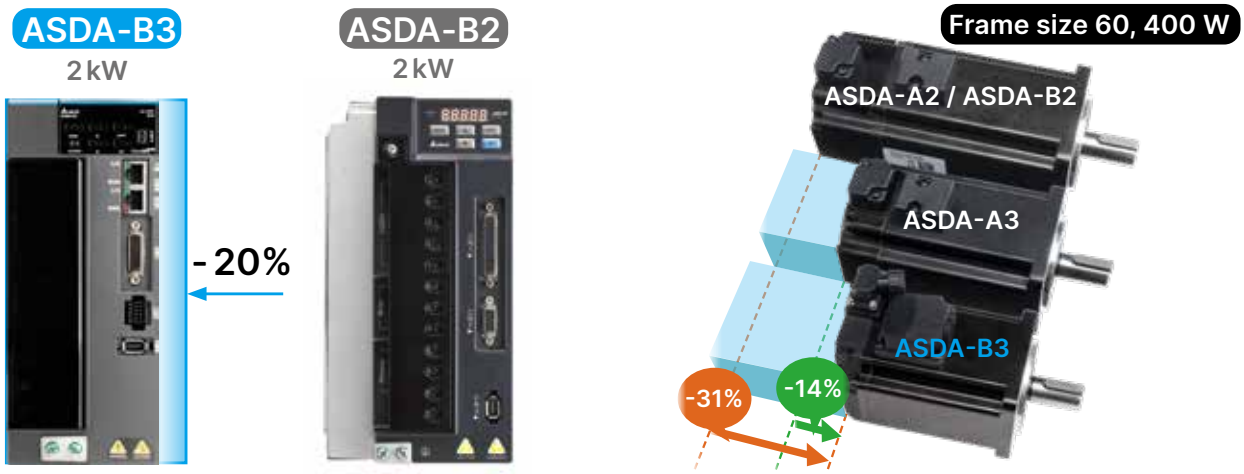




Energy-Saving and Compact Size

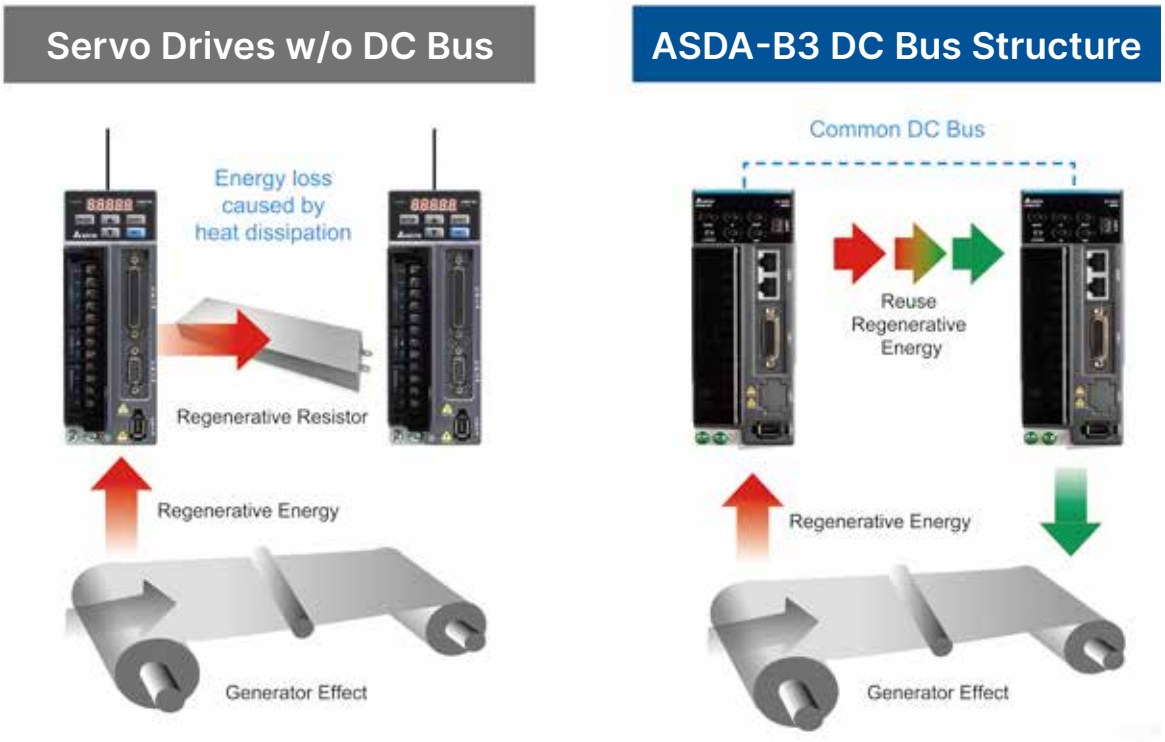
Compact Size

- The size of the servo drive is reduced up to 20%, so it requires less space in the distribution board which meets the need for more compact equipment
- The size of the servo motor is reduced up to 31% for less space and cost efficiency



Common DC Bus

- The servo drives can share the DC Bus to reuse regenerative energy for reducing energy consumption
- When multiple servo drives share the common DC Bus, fewer regenerative resistors are required for cost efficiency

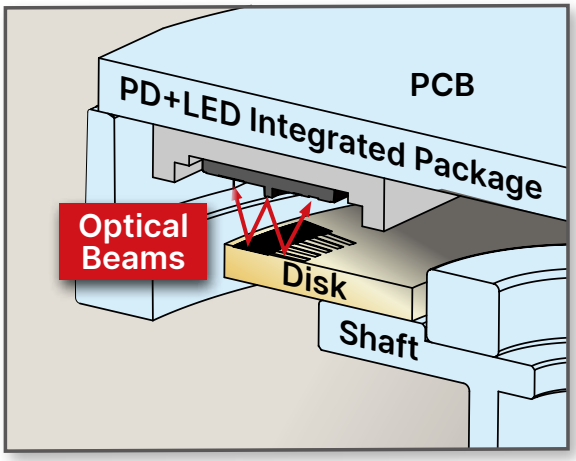


Multiple Selections

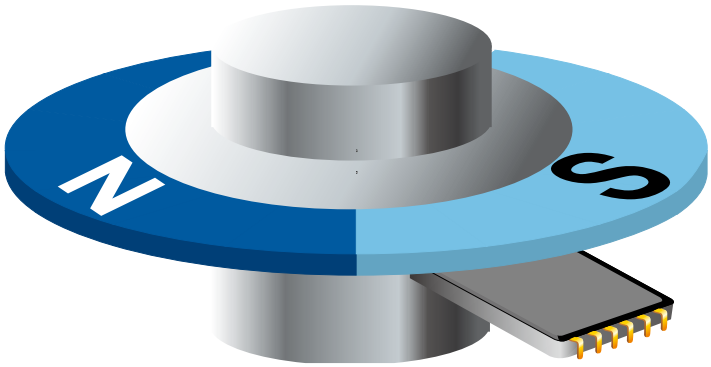
High Resolution Encoder

- High resolution for more precise positioning
- The incremental encoder can retain the single-turn absolute position without the need to execute homing after cycling the power
- After the absolute encoder is powered off, the number of turns and position are retained
- 24-bit optical encoder: The encoder is lighter and thinner with the reflective sensor technology; the exclusive optical sensor compensation function improves product reliability
- 17-bit magnetic encoder: The magnetic induction technology improves the capability to prevent vibration and increases the oil resistance level

Optical Encoder



Magnetic Encoder



High Compatibility

- Compatible with the ASDA-A2 / ASDA-B2 / ASDA-A3 series motors for easier replacement
- Motors of high, medium, and low inertia are available for different applications

High inertia motor: Suitable for applications that require speed stability or resistance to external forces
Medium inertia motor: Suitable for applications with general mechanical equipment
Low inertia motor: Suitable for high-speed positioning and high response applications



ECM-B3 Motor



ECM-A3 Motor

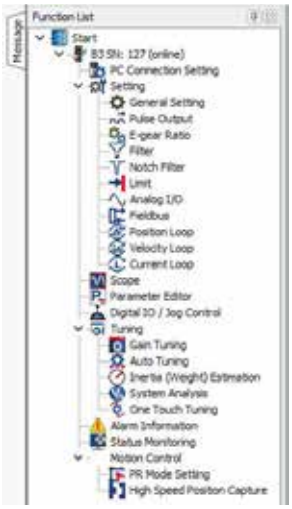


ECMA / ECMC Motor

User-Friendly Software Interface

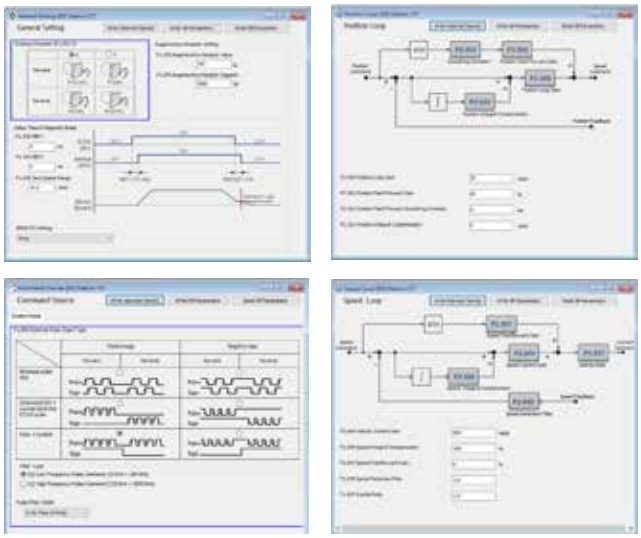
Function List Tree View

- Well-organized function list for quick access
- Expandable and collapsible nodes for easier and more efficient operation



Graphical Parameter Setting

- Intuitive graphic illustrations for gain adjustment and parameter settings



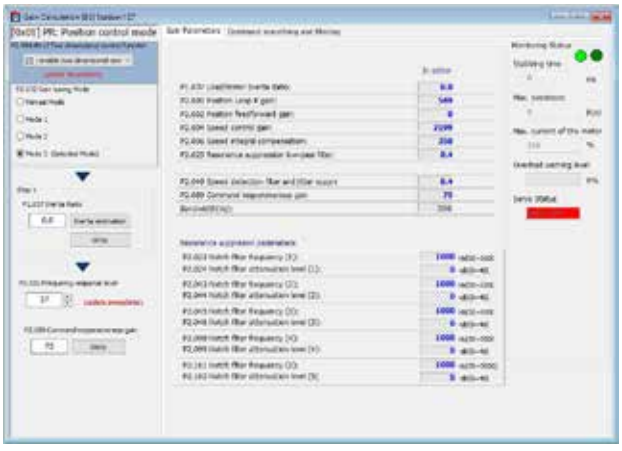
Auto-Tuning Function

- Step-by-step and conversational UI for servo gain adjustment



Advanced Gain Adjustment Function

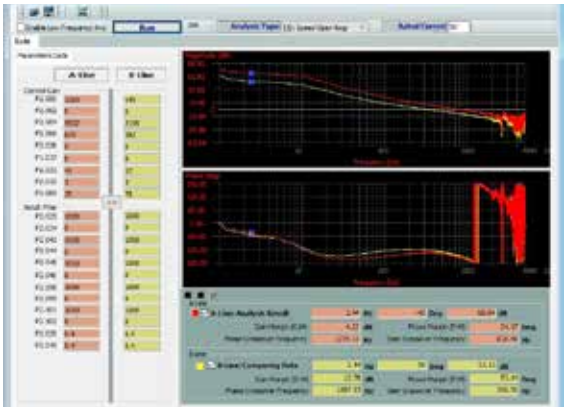
- Provides advanced gain adjustment modes for fine tuning according to different applications and operating characteristics
- Step-by-step software interface to guide users



System Analysis Interface

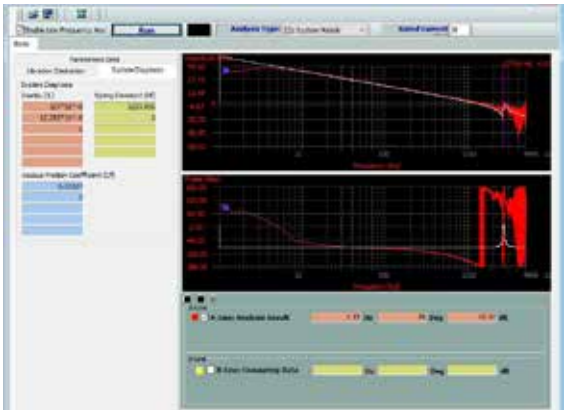
- **Speed Open-Loop Mode**

  Determines if the current system is the most optimized and thus improves the design



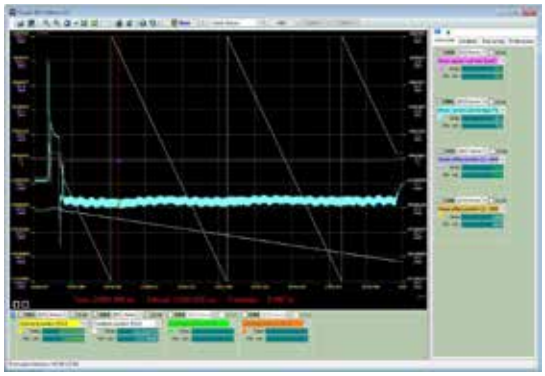
- **System Module Mode**

  Measures the mechanical stiffness of the mechanism in this mode

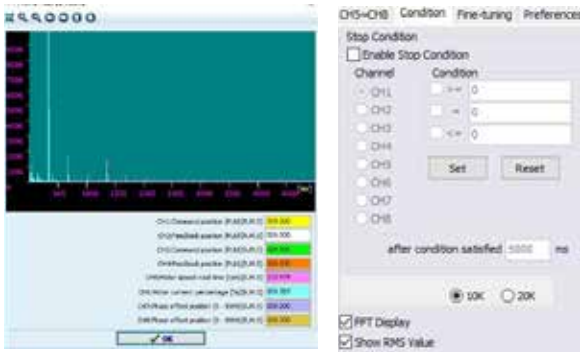


Oscilloscope Function

- Maximum of 8 channels with 16-bit data size and update frequency of 8 kHz
- 4 high-resolution channels with 32-bit data size and update frequency of 8 kHz
- 4 channels of high sampling rate with 16-bit data size and update frequency of 16 kHz



- Drag the cursor to specify the area for instant FFT (Fast Fourier Transform) and RMS calculation
- Set the triggering conditions for collecting data





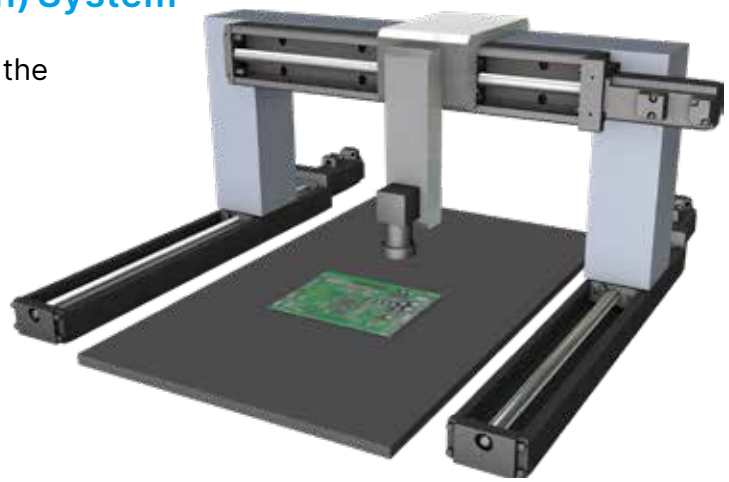
Graphical PR Path Programming Interface

- Graphical PR procedures with detailed settings for better command programming and editing

Applications

AOI (Automatic Optical Inspection) System

- Shorter setting time of ASDA-B3 shortens the detection time which also increases the production capacity



Tool Magazine and Turret

- Shorter response time of ASDA-B3 significantly reduces the tool changing time
- New communication trigger function for the tool magazine increases the number of tools without occupying DI points
- Common DC Bus function reduces the use of regenerative resistors and improves the power consumption efficiency



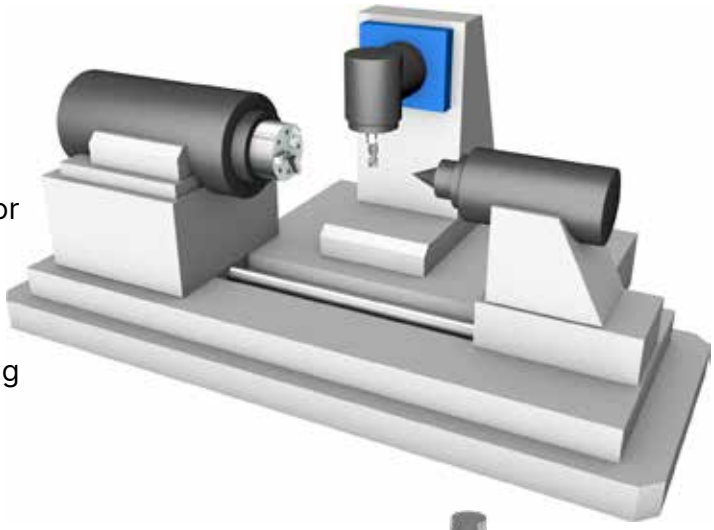
Wafer Pick and Place Machine

- Analog feedback of the PID control with external sensors provides precision control of downward pressure
- Two-stage downward motion planning with high speed and soft landing improves productivity and yield



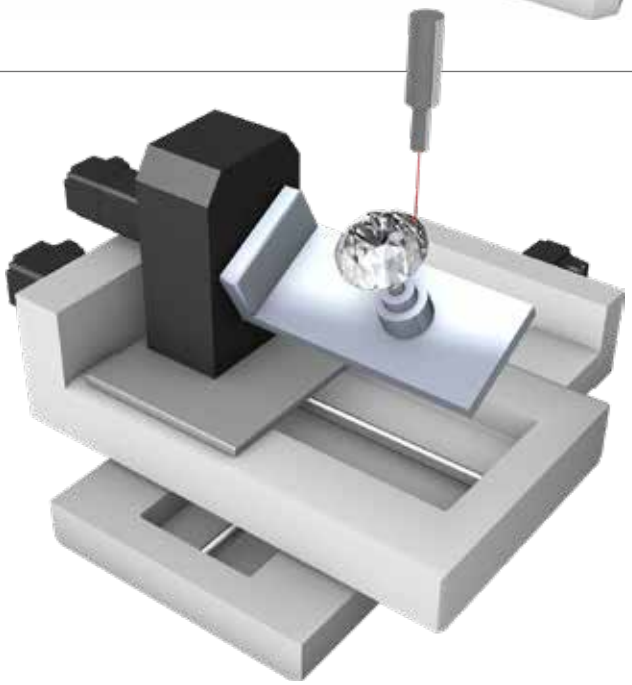
Machine Tool

- Low cogging torque for more stable machining
- Advanced friction compensation function for better performance when changing directions
- Two-degrees-of-freedom control architecture for optimized trajectory tracking



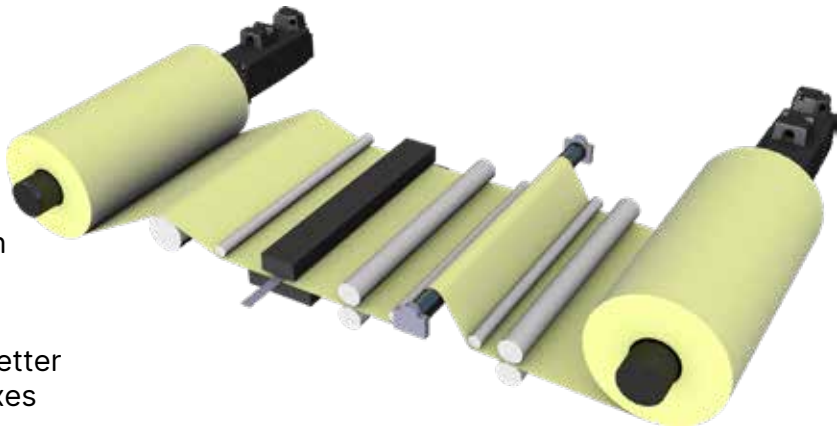
Diamond Cutting Machine

- High inertia motor facilitates the diamond polishing process with high precision and stability
- Low cogging torque for higher machining stability
- Two-degrees-of-freedom control architecture for optimized trajectory tracking



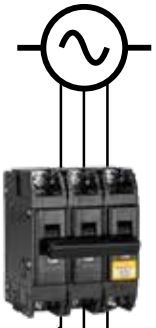
Winding Machine

- Communication type servo drives support the analog input function, facilitating multi-axis communication for tension control
- High-speed fieldbus with the communication cycle of 125 µs for better synchronization between multiple axes



- Stable tension control with acceleration and deceleration S-curve

Servo Drive & Accessories



Power Supply

220 V

100 W - 1.5 kW Single / Three-phase 200 - 230V

2 kW - 3 kW Three-phase 200 - 230V

400V

1 - 7.5kW Three-phase 380 - 440V

No Fuse Braker (NFB)

Protects the drive from instant maximum current due to power ON/OFF or electrical shorts



Magnetic Contactor (MC)

When an anomaly occurs, the ALARM notification output by the servo drive can control the magnetic contactor to cut off the power.



1

2

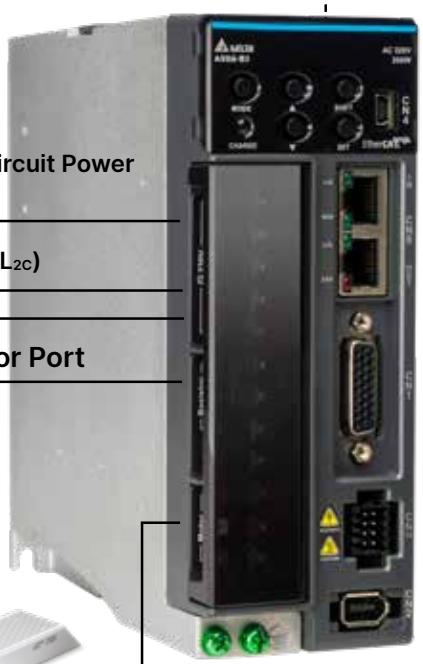


8 Mini USB Port (CN4)

Connects PC for software operation

Connects with ASDA-SOFT with standard USB Mini connection cable

Mini USB Communication Module (P.67)



3 Main Circuit Power (RST)

4 Control Circuit (L_{1C} L_{2C})

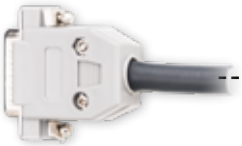
5 Regenerative Resistor Port (P⊙DC)





9 COM Port Connector (CN3/CN6)

CN3 CANopen Communication Cable (P.64)
CN3 CANopen Distribution Box (P.65)
CN3 RS-485 Tap (P.65)
CN3 RS-485 / CANopen Terminal Resistor (P.66)
CN6 DMCNET Terminal Resistor (P.66)



10 I/O Connector (CN1)

Terminal Block Module (P.64)
CN1 Connector (P.65)
CN1 Quick Connector (P.65)



11 STO (CN10)

B3A models only





Regenerative Resistor

6 Servo Drive Output (UVW)

Power Connector (P.58)
Power Cable (P.59 – P.62)



12 Encoder Connector (CN2)

Encoder Connector (P.62)
Encoder Cable- Incremental Type (P.62)
Encoder Cable- Absolute Type (P.63)

Note: Under high-interference environment, installing a USB isolator is recommended (Delta's product model: UC-ADP01-A)

Servo Drive Interface

No.	Name	Description
①	-	7-segment display
②	CHARGE	Power indicator
③	RST	Main circuit terminal; connects to the power supply (200 - 230 V_{AC}, 50/60 Hz)
④	L_{1C}, L_{2C}	Control circuit terminal; connects to single-phase power supply (200 - 230 V_{AC}, 50/60 Hz)
⑤	Regenerative Resistor	Connects to an external regenerative resistor, external regenerative braking unit, or the built-in regenerative resistor
⑥	UVW	Servo drive current output; connects to the motor power connector U, V, W. Do not connect to the main circuit power. Incorrect wiring will cause damage to the servo drive.
⑦	Ground Terminal	Connects to the ground wire for the power and servo motor
⑧	CN4	USB connector (Mini USB); connects to PC
⑨	CN3	Modbus communication port (B3-L / B3A-L)
	CN3	CANopen high-speed communication port (B3-M / B3A-M)
	CN6	DMCNET high-speed communication port (B3-F / B3A-F)
	CN6	EtherCAT high-speed communication port (B3-E / B3A-E)
⑩	CN1	I/O signal interface; connects to the PLC or controls I/O
⑪	CN10	STO connector; only available on B3A models
⑫	CN2	Encoder connector; connects to the encoder of the servo motors

Accessories

Power Cables

- 3 m, 5 m, 10 m, and 20 m standard cables are available
- Standard power connectors and IP67 waterproof connectors are available
- With options of brake and without brake

Encoder Cables

- 3 m, 5 m, 10 m, and 20 m standard cables are available
- Standard encoder connectors and IP67 waterproof connectors are available

USB Cables

- Connects the PC and the servo drive for ASDA-Soft operation
- Mini USB Type B communication port, compatible with USB 2.0

Regenerative Resistor

- Refer to Section 2.8 in the ASDA-B3 user manual for selection

Note: Under high-interference environment, installing a USB isolator is recommended
(Delta's product model: UC-ADP01-A)

Servo System Combination Table

220V

Motor								Drive	Power Cable	
Type		Power Supply	Output (W)	Model Name	Rotational Inertia ($x10^{-4}kg.m^2$) Standard / With Brake	Rated / Max. Speed (rpm)	Rated / Max. Torque (N-m)	Model Name	Standard	Torsion-resistant
Low Inertia	ECM-A3L	Single- / Three-phase	100	ECM-A3L-C[2]0401[3][4][5]	0.04 / 0.0426	3000 / 6000	0.32 / 1.12	ASD-B3①-0121-②	ACS3-CAPW11xx ACS3-CAPW51xxW	ACS3-CAPF11xx ACS3-CAPF51xxW
			200	ECM-A3L-C[2]0602[3][4][5]	0.09 / 0.12		0.64 / 2.24	ASD-B3①-0221-②		
			400	ECM-A3L-C[2]0604[3][4][5]	0.15 / 0.18		1.27 / 4.45	ASD-B3①-0421-②		
			400	ECM-A3L-C[2]0804[3][4][5]	0.352 / 0.408		1.27 / 4.44	ASD-B3①-0421-②		
			750	ECM-A3L-C[2]0807[3][4][5]	0.559 / 0.614		2.39 / 8.36	ASD-B3 ① -0721- ② ASD-B3 ① -1021- ②		
High Inertia	ECM-A3H		100	ECM-A3H-C[2]0401[3][4][5]	0.0754 / 0.0816		0.32 / 1.12	ASD-B3①-0121-②		
			200	ECM-A3H-C[2]0602[3][4][5]	0.25 / 0.28		0.64 / 2.24	ASD-B3①-0221-②		
			400	ECM-A3H-C[2]0604[3][4][5]	0.45 / 0.48		1.27 / 4.45	ASD-B3①-0421-②		
			400	ECM-A3H-C[2]0804[3][4][5]	0.92 / 1.07		1.27 / 4.44	ASD-B3①-0421-②		
			750	ECM-A3H-C[2]0807[3][4][5]	1.51 / 1.66		2.39 / 8.36	ASD-B3 ① -0721- ② ASD-B3 ① -1021- ②		
Low Inertia	ECM-B3L		100	ECM-B3L-C[2]0401[3][4][5]	0.0299 / 0.0315		0.32 / 1.12	ASD-B3①-0121-②		
Medium Inertia	ECM-B3M		200	ECM-B3M-C[2]0602[3][4][5]	0.141 / 0.151		0.64 / 2.24	ASD-B3①-0221-②		
			400	ECM-B3M-C[2]0604[3][4][5]	0.254 / 0.264		1.27 / 4.45	ASD-B3①-0421-②		
			400	ECM-B3M-C[2]0804[3][4][5]	0.648 / 0.695		1.27 / 4.45	ASD-B3①-0421-②		
			750	ECM-B3M-C[2]0807[3][4][5]	1.07 / 1.13		2.4 / 8.4	ASD-B3①-0721-②		
			1000	ECM-B3M-C[2]0810[3][4][5]	1.37 / 1.4		3.18 / 11.13	ASD-B3 ① -0721- ② ASD-B3 ① -1021- ②		
			1000	ECM-B3M-C[2]1010[3][4][5]	2.78 / 3.06		3.18 / 9.54	ASD-B3①-1021-②		
			1000	ECM-B3M-E[2]1310[3][4][5]	7.79 / 7.94	2000 / 3000	4.77 / 14.3	ASD-B3①-1021-②	ACS3-CAPWA2xxSW ACS3-CRPWA2xxRW	ACS3-CAPFA2xxSW ACS3-CRPFA2xxRW
			1500	ECM-B3M-C[2]1015[3][4][5]	3.69 / 3.97	3000 / 6000	4.77 / 14.3	ASD-B3①-1521-②		
			1500	ECM-B3M-E[2]1315[3][4][5]	11.22 / 11.37	2000 / 3000	7.16 / 21.48	ASD-B3 ① -1521- ② ASD-B3 ① -2023- ②		
High Inertia	ECM-B3H		850	ECM-B3H-F[2]1308[3][4][5]	12.44 / 12.62	1500/4000	5.39 / 16.17	ASD-B3①-1021-②		
			1300	ECM-B3H-F[2]1313[3][4][5]	18 / 18.14		8.34 / 25.02	ASD-B3①-1521-②		
Medium Inertia	ECM-B3M	Three-phase	1800	ECM-B3H-F[2]1318[3][4][5]	22.6 / 22.8	1500 / 4000	11.5 / 34.5	ASD-B3①-2023-②		
			2000	ECM-B3M-C[2]1020[3][4][5]	4.68 / 4.95	3000 / 6000	6.37 / 19.1	ASD-B3①-2023-②	ACS3-CAPWA3xxSW ACS3-CRPWA3xxRW	ACS3-CAPFA3xxSW ACS3-CRPFA3xxRW
			2000	ECM-B3M-E[2]1320[3][4][5]	14.65 / 14.8	2000 / 3000	9.55 / 28.65	ASD-B3①-2023-②		
			2000	ECM-B3M-E[2]1820[3][4][5]	29.11 / 30.38	2000 / 3000	9.55 / 28.65	ASD-B3①-2023-②	ACS3-CAPWC4xxSW ACS3-CRPWC4xxRW	ACS3-CAPFC4xxS ACS3-CRPFC4xxR
			3000	ECM-B3M-F[2]1830[3][4][5]	53.63 / 54.9	1500 / 3000	19.1 / 57.29	ASD-B3①-3023-②	ACS3-CAPWC5xxSW ACS3-CRPWC5xxRW	ACS3-CAPFC5xxSW ACS3-CRPFC5xxRW

Note:

1. Model name with W = IP67 water-proof connector; D = drive connector; M = motor connector; S = straight connector; R = angular connector; B = single brake connector, power connector required
2. Cable model name: The "XX" stands for cable length. 03 = 3 m, 05 = 5 m, 10 = 10 m, 20 = 20 m.
3. Servo motor model name: [2] = encoder type, [3] = type of shaft and oil seal, [4] = shaft diameter and connector type, [5] = special code.
4. Servo drive model name: ① = product series, ② = model code.

Connector & Cable						Connector Only (No Cable)		
Power Cable with Brake		Encoder Cable (Incremental Type)		Encoder Cable (Absolute Type)		Power Connector	Power Connector (with brake)/ Brake Connector	Encoder Connector
Standard	Torsion-resistant	Standard	Torsion-resistant	Standard	Torsion-resistant			
CS3-CAPW21xx S3-CAPW61xx(S)(W)	ACS3-CAPF21xx ACS3-CAPF61xx(S)(W)	ACS3-CAEN01xx ACS3-CAEN11xx(S)(W)	ACS3-CAEF01xx ACS3-CAEF11xx(S)(W)	ACS3-CAEA01xx ACS3-CAEA11xx(S)(W)	ACS3-CAEB01xx ACS3-CAEB11xx(S)(W)	ASDBCAPW0000 ACS3-CNPW1A00(S)(W)	ASDBCAPW0100 ACS3-CNPW2A00(S)(W)	ACS3-CNENC200(D) + ACS3-CAEN0000(M) ACS3-CNEN2A00(S)(W)
3-CABRA1xx(S)(W) 3-CRBRA1xx(R)(W)	ACS3-CABFA1xx(S)(W) ACS3-CRBFA1xx(R)(W)	ACS3-CAENA1xx(S)(W) ACS3-CRENA1xx(R)(W)	ACS3-CAEFA1xx(S)(W) ACS3-CREFA1xx(R)(W)	ACS3-CAEAA1xx(S)(W) ACS3-CREAA1xx(R)(W)	ACS3-CAEBA1xx(S)(W) ACS3-CREBA1xx(R)(W)	ACS3-CAPWA000(S)(W) ACS3-CRPWA000(R)(W) ACS3-CAPWC000(S)(W) ACS3-CRPWC000(R)(W)	ACS3-CABRA000(S)(W) ACS3-CRBRA000(R)(W)	ACS3-CNENC200(D) + ACS3-CAENA000(S)(M)(W) ACS3-CRENA000(M)(R)(W)

Servo System Combination Table

400V

Motor							Drive	Power Cable		
Type		Power Supply	Output (W)	Model Name	Rotational Inertia ($x10^{-4}kg.m^2$) Standard / With Brake	Rated / Max. Speed (rpm)	Rated / Max. Torque (N-m)	Model Name	Standard	Torsion-resistant
Medium Inertia	ECM-B3M	Three-phase	400	ECM-B3M-J 2 0604 3 4 5	0.254 / 0.264	3000 / 6000	1.27 / 4.45	ASD-B3 ① -1043- ②	ACS3-CAPW31xx	ACS3-CAPF31xx
			750	ECM-B3M-J 2 0807 3 4 5	1.07 / 1.13		2.4 / 8.4	ASD-B3 ① -1043- ②		
								ASD-B3 ① -1543- ②		
			1000	ECM-B3M-J 2 1010 3 4 5	2.78 / 3.06		3.18 / 9.54	ASD-B3 ① -1043- ②	ACS3-CAPWA2xx (S)(W) ACS3-CRPWA2xx (R)(W)	ACS3-CAPFA2xx (S)(W) ACS3-CRPFA2xx (R)(W)
								ASD-B3 ① -1543- ②		
			1500	ECM-B3M-J 2 1015 3 4 5	3.69 / 3.97		4.77 / 14.3	ASD-B3 ① -1543- ②		
								ASD-B3 ① -2043- ②		
			2000	ECM-B3M-J 2 1020 3 4 5	4.68 / 4.95		6.37 / 19.1	ASD-B3 ① -2043- ②		
			1000	ECM-B3M-K 2 1310 3 4 5	7.79 / 7.94	2000 / 3000	4.77 / 14.3	ASD-B3 ① -1043- ②		
								ASD-B3 ① -1543- ②		
			1500	ECM-B3M-K 2 1315 3 4 5	11.22 / 11.37		7.16 / 21.48	ASD-B3 ① -1543- ②		
								ASD-B3 ① -2043- ②		
			2000	ECM-B3M-K 2 1320 3 4 5	14.65 / 14.8		9.55 / 28.65	ASD-B3 ① -2043- ②		
High Inertia	ECM-B3H		850	ECM-B3H-L 2 1308 3 4 5	12.44 / 12.62	1500 / 4000	5.39 / 16.17	ASD-B3 ① -1043- ②		
								ASD-B3 ① -1543- ②		
			1300	ECM-B3H-L 2 1313 3 4 5	18 / 18.14		8.34 / 25.02	ASD-B3 ① -1543- ②		
								ASD-B3 ① -2043- ②		
			1800	ECM-B3H-L 2 1318 3 4 5	22.6 / 22.8		11.5 / 34.5	ASD-B3 ① -2043- ②		
Medium Inertia	ECM-B3M		2000	ECM-B3M-K 2 1820 3 4 5	29.11 / 30.38	2000 / 3000	9.55 / 28.65	ASD-B3 ① -2043- ②		
			3000	ECM-B3M-L 2 1830 3 4 5	53.63 / 54.9	1500 / 3000	19.1 / 57.29	ASD-B3 ① -3043- ②	ACS3-CAPWC3xx (S)(W) ACS3-CRPWC3xx (R)(W)	ACS3-CAPFC3xx (S)(W) ACS3-CRPFC3xx (R)(W)
								ASD-B3 ① -4543- ②		
			4500	ECM-B3M-L 2 1845 3 4 5	67.73 / 69.15	1500 / 4000	28.65 / 71.6	ASD-B3 ① -4543- ②	ACS3-CAPWC4xx (S)(W) ACS3-CRPWC4xx (R)(W)	ACS3-CAPFC4xx (S)(W) ACS3-CRPFC4xx (R)(W)
			5500	ECM-B3M-L 2 1855 3 4 5	98.88 / 100.1		35.01 / 105	ASD-B3 ① -5543- ②	ACS3-CAPWE6xx (S)(W) ACS3-CRPWE6xx (R)(W)	ACS3-CAPFE6xx (S)(W) ACS3-CRPFE6xx (R)(W)
			7500	ECM-B3M-L 2 1875 3 4 5	134.95 / 136.24		47.75 / 119	ASD-B3 ① -7543- ②		

Note:

1. Model name with (W) = IP67 water-proof connector; (D) = drive connector; (M) = motor connector; (S) = straight connector; (R) = angular connector; (B) = single brake connector, power connector required
2. Cable model name: The "XX" stands for cable length. 03 = 3 m, 05 = 5 m, 10 = 10 m, 20 = 20 m.
3. Servo motor model name: 2 = encoder type, 3 = type of shaft and oil seal, 4 = shaft diameter and connector type, 5 = special code.
4. Servo drive model name: ① = product series, ② = model code.

Connector & Cable						Connector Only (No Cable)		
Power Cable with Brake		Encoder Cable (Incremental Type)		Encoder Cable (Absolute Type)				
Standard	Torsion-resistant	Standard	Torsion-resistant	Standard	Torsion-resistant	Power Connector	Power Connector (with brake)/ Brake Connector	Encoder Connector
CS3-CAPW21xx	ACS3-CAPF21xx	ACS3-CAEN01xx	ACS3-CAEF01xx	ACS3-CAEA01xx	ACS3-CAEB01xx	ASDBCAPW0000	ASDBCAPW0100	ACS3-CNENC200 D + ACS3-CAEN0000 M
3-CABRA1xx SW 3-CRBRA1xx RW	ACS3-CABFA1xx SW ACS3-CRBFA1xx RW	ACS3-CAENA1xx SW ACS3-CRENA1xx RW	ACS3-CAEFA1xx SW ACS3-CREFA1xx RW	ACS3-CAEAA1xx SW ACS3-CREAA1xx RW	ACS3-CAEBA1xx SW ACS3-CREBA1xx RW	ACS3-CAPWA000 SW ACS3-CRPWA000 RW ACS3-CAPWC000 SW ACS3-CRPWC000 RW ACS3-CAPWE000 SW ACS3-CRPWE000 RW	ACS3-CABRA000 SW ACS3-CRBRA000 RW	ACS3-CNENC200 D + ACS3-CAENA000 SMW ACS3-CRENA000 MRW

Servo Drive Model Information

ASD-B3 Series Servo Drive

ASD - B3 - 04 21 - L

Product Name
AC Servo Drive

Product Series
B3 series
B3A series

Rated Power Output
01: 100W
02: 200W
04: 400W
07: 750W
10: 1kW
15: 1.5kW
20: 2kW
30: 3kW
45: 4.5kW
55: 5.5kW
75: 7.5kW

Input Voltage and Phase
21: 220V single-/three-phase
23: 220V three-phase
43: 400V three-phase

Model Code

ASD-B3

Code	PT Mode Pulse Input	PR Mode	RS-485	Analog Voltage Control	CANopen	DMCNET	EtherCAT	STO
L	√	√	√	√	-	-	-	-
M	-	√	-	√	√	-	-	-
F	-	√	-	√	-	√	-	-
E	-	√	-	√	-	-	√	-

ASD-B3A*1

Code	PT Mode Pulse Input	PR Mode	RS-485	Analog Voltage Control	CANopen	DMCNET	EtherCAT	STO*2
L	√	√	√	√	-	-	-	√
M	√	√	√	√	√	-	-	√
F	√	√	-	√	-	√	-	√
E	√	√	-	√	-	-	√	√

*1. B3A supports dynamic brake function
*2. B3A 200V supports STO (SIL2); B3A 400V STO (SIL3) certification in process

Note: The model information is for reference only. Not all kinds of permutations are available. Please contact the distributor near your region or Delta for the details.



Servo Drive Specifications

ASD-B3			100W 01	200W 02	400W 04	750W 07	1kW 10	1.5kW 15	2kW 20	3kW 30
Power Supply	Phase / Voltage		Single-phase / Three-phase 220VAC						Three-phase 220VAC	
	Permissible Voltage		Single-phase / Three-phase 200 - 230VAC, -15% to 10%						Three-phase 200 - 230VAC, -15% to 10%	
	Input Current (3PH) (Unit: Arms)		0.88	1.29	2.04	3.52	5.72	6.33	7.6	10.3
	Input Current (1PH) (Unit: Arms)		1.47	2.35	3.74	6.47	10.4	11.7	-	-
	Continuous Output Current (Unit: Arms)		0.9	1.55	2.65	5.1	7.3	8.3	13.4	19.4
	Max. Instantaneous Output Current (Unit: Arms)		3.88	7.07	10.6	14.14	21.21	24.3	38.3	53.03
Regenerative Resistor	Built0in Regenerative Resistor	Resistance (Ohm)	-	-	100	100	100	100	20	20
		Capacity (Watt)	-	-	40	40	40	40	80	80
	External Minimum Allowable Resistance Value(Ohm)		60	60	60	60	30	30	15	15
Cooling Method			Natural cooling				Fan cooling			
Drive Resolution			24-bit (16,777,216 pls/rev)							
Main Circuit Control			SVPWM control							
Tuning Mode			Auto / Manual							
Regenerative Resistor			N/A	Built-in						
Position Control Mode	Pulse Type (only for pulse control mode)		Pulse + Direction; A phase + B phase; CCW pulse +CW pulse							
	Max. Output Pulse Frequency (only for pulse control mode)		Pulse + direction: 4 Mpps; CCW pulse + CW pulse: 4 Mpps; A phase + B phase: single-phase 2 Mpps; Open collector: 200 Kpps							
	Command Source		External pulse (only for pulse control mode) / Internal register (PR mode)							
	Smoothing Method		Low-pass, S-curve, and moving filters							
	E-Gear Ratio		E-Gear ratio: N / M times, limited to (1 / 4 < N / M < 262144) N: 1 - 536870911/M: 1 - 2147483647							
	Torque Limit		Parameter settings							
	Feed Forward Compensation		Parameter settings							
Speed Control Mode	Analog Command Input	Voltage Range	0 to ±10 VDC							
		Resolution	12-bit							
		Input Impedance	1MΩ							
		Time Constant	25μs							
	Speed Control Range*1		1 : 6000							
	Command Source		External analog command / Internal register							
	Smoothing Method		Low-pass and S-curve filters							
	Torque Limit		Parameter settings or analog input							
	Bandwidth		Maximum 3.1kHz							
	Speed Calibration Ratio*2		±0.01% at 0% to 100% load fluctuation							
			±0.01% at ±10% power fluctuation							
			±0.01% at 0°C to 50°C ambient temperature fluctuation							
Torque Control Mode	Analog Command Input	Voltage Range	0 to ±10 VDC							
		Input Impedance	1MΩ							
		Time Constant	25μs							
	Command Source		External analog command / Internal register							
	Smoothing Method		Low-pass filter							
	Speed Limit		Parameter settings or analog input							
Analog Monitor Output			Monitoring signal can be set with parameters (voltage output range: ±8V); resolution: 10-bit							
Digital Input / Output	Input		Servo on, Fault reset, Gain switch, Pulse clear, Zero speed clamping, Command input reverse control, Internal position command trigger, Torque limit, Speed limit, Internal position command selection, Motor stop, Speed command selection, Speed / Position mode switching, Speed / Torque command switching, Torque / Position mode switching, PT / PR command switching, Emergency stop, Forward / reverse limit, Original point, Forward / reverse operation torque limit, Homing activated, Forward / reverse JOG input, Event trigger, E-Gear N selection, Pulse input prohibition *The DI mentioned above are only used in pulse control mode. When controlling through communication, it is suggested that you use communication for DI input. DI only supports emergency stop, forward / reverse limit, and homing.							
	Output		A, B, Z line driver output							
			Servo ready, Servo on, Zero speed detection, Target speed reached, Target position reached, Torque limiting, Servo alarm, Magnetic brake control, Homing complete, Early warning for overload, Servo warning, Position command overflows, Software limit (reverse direction), Software limit (forward direction), Internal position command complete, Servo procedure complete, Capture procedure complete							
Protection Function			Overcurrent, Overvoltage, Undervoltage, Overheat, Regeneration error, Overload, Excessive speed deviation, Excessive position deviation, Encoder error, Adjustment error, Emergency stop, Forward / reverse limit error, Serial communication error, RST leak phase, Serial communication timeout, Short-circuit protection for terminals U, V, W							
Communication Interface			USB/RS-485/CANopen/DMCNET/EtherCAT							
Environment	Installation Site		Indoors (avoid direct sunlight), no corrosive vapor (avoid fumes, flammable gases, and dust)							
	Altitude		Altitude 2000 m or lower above sea level							
	Atmospheric Pressure		86kPa-106kPa							
	Operating Temperature		0°C to 55°C (If operating temperature is above 45°C, forced cooling is required)							
	Storage Temperature		-20°C to 65°C							
	Humidity		0 to 90% RH (non-condensing)							
	Vibration		10 Hz ~ 57 Hz：0.075 mm amplitude，58 Hz ~ 150 Hz：1G							
	IP Rating		IP20							
	Power System		TN system *3*4							
	Certifications		IEC/EN/UL 61800-5-1							

Notes:
*1. Within the rated load, the speed ratio is: the minimum speed (smooth operation) / rated speed.
*2. Within the rated speed, the speed calibration ratio is: (rotational speed with no load - rotational speed with full load) / rated speed.
*3. TN system: the neutral point of the power system connects directly to the ground. The exposed metal components connect to the ground through the protective ground conductor.
*4. Use a single-phase three-wire power system for the single-phase power model.
*5. ASDA-B3A complies with the TUV Functional Safety certification.

Servo Drive Specifications

400 V

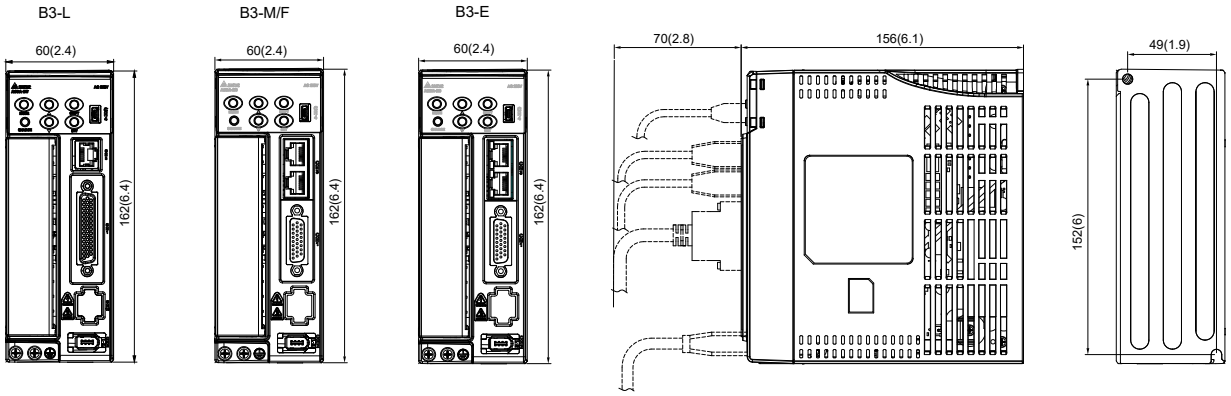
ASD-B3			1kW	1.5kW	2kW	3kW	4.5kW	5.5kW	7.5kW
			10	15	20	30	45	55	75
Main Circuit Power Supply	Phase / Voltage		Three-phase 400 V_{AC}						
	Permissible Voltage		Three-phase 380 - 440 V_{AC}, -10% - +10%						
	Input Current (3PH) (Unit: Arms)		2.91	3.52	5.06	6.14	12	14.5	20
	Inrush Current (Unit: Arms)		5.66	5.66	5.66	5.66	37.72	37.72	37.72
Control Power Supply	Phase / Voltage		Single-phase 400 V_{AC}						
	Permissible Voltage		Single-phase 380 - 400 V_{AC}, -10% - +10%						
	Input Current (3PH) (Unit: Arms)		0.1	0.1	0.1	0.1	0.13	0.13	0.13
	Input Current (1PH) (Unit: Arms)		37.72	37.72	37.72	37.72	37.72	37.72	37.72
Continuous Output Current (Unit: Arms)			3.37	4.09	5.96	9.11	13.3	15.34	22.11
Max. Instantaneous Output Current (Unit: Arms)			7.07	10.6	18.98	27.33	35.35	49.29	53.03
Regenerative Resistor	Built-in Regenerative Resistor	Resistance (Ohm)	100	100	50	50	35	35	35
		Capacity (Watt)	80	80	80	80	100	100	100
	External Minimum Allowable Resistance Value (Ohm)		80	60	45	40	35	25	25
Cooling Method			Fan cooling						
Drive Resolution			24-bit (16777216 p/rev)						
Main Circuit Control			SVPW Mcontrol						
Tuning Mode			Auto / Manual						
Position Control Mode	Pulse Type (only for pulse control mode)		Pulse + Direction; A phase + B phase; CCW pulse + CW pulse						
	Max. Output Pulse Frequency (only for pulse control mode)		Pulse + direction: 4 Mpps; CCW pulse + CW pulse: 4 Mpps; A phase + B phase: single-phase 2 Mpps; Open collector: 200 Kpps						
	Command Source		External pulse (only for pulse control mode) / Internal register (PR mode)						
	Smoothing Method		Low-pass, S-curve, and moving filters						
	E-Gear Ratio		E-Gear ratio: N / M times, limited to (1/4 < N/M < 262144) N: 1 - 536870911 / M: 1 - 2147483647						
	Torque Limit		Parameter settings						
	Feed Forward Compensation		Parameter settings						
Speed Control Mode	Analog Command Input	Voltage Range	0 - ± 10 V_{DC}						
		Resolution	12-bit						
		Input Impedance	1 MΩ						
		Time Constant	25 μs						
	Speed Control Range[*1]		1:6000						
	Command Source		External analog command / Internal register						
	Smoothing Method		Low-pass and S-curve filters						
	Torque Limit		Parameter settings or analog input						
	Bandwidth		Maximum 3.1 kHz						
	Speed Calibration Ratio[*2]		± 0.01% at 0% to 100% load fluctuation						
			± 0.01% at ± 10% power fluctuation						
			± 0.01% at 0°C to 50°C ambient temperature fluctuation						
Torque Control Mode	Analog Command Input	Voltage Range	0 - ± 10 V_{DC}						
		Input Impedance	1 MΩ						
		Time Constant	25 μs						
	Command Source		External analog command / Internal register						
	Smoothing Method		Low-pass filter						
	Speed Limit		Parameter settings or analog input						
Analog Monitor Output			Monitoring signal can be set with parameters (voltage output range: ± 8V); resolution: 10-bit						
Digital Input			L: 9 Inputs; M, F, E: 4 Inputs						
Digital Output			L: 6 Outputs; M, F, E: 2 Outputs						
Protection Function			Overcurrent, Overvoltage, Undervoltage, Overheat, Regeneration error, Overload, Excessive speed deviation, Excessive position deviation, Encoder error, Adjustment error, Emergency stop, Forward / reverse limit error, Serial communication error, RST leak phase, Serial communication timeout, Short-circuit protection for terminals U, V, W						
Communication Interface			RS-485 / USB / CANopen / DMCNET / EtherCAT						
Environment	Installation Site		Indoors (avoid direct sunlight), no corrosive vapor (avoid fumes, flammable gases, and dust)						
	Altitude		Altitude 2000 m or lower above sea level						
	Atmospheric Pressure		86kPa - 106kPa						
	Operating Temperature		0°C - 55°C (If operating temperature is above 45°C, forced cooling is required)						
	Storage Temperature		-20°C - 65°C						
	Humidity		0 - 90% RH (non-condensing)						
	Vibration		0Hz - 57Hz: 0.075 mm amplitude, 58Hz - 150Hz: 1G						
	IP Rating		IP20						
	Power System		TN system[*3*4]						
	Certifications		IEC/EN 61800-5-1						

Notes:
*1. Within the rated load, the speed ratio is: the minimum speed (smooth operation) / rated speed
*2. Within the rated speed, the speed calibration ratio is: (rotational speed with no load - rotational speed with full load) / rated speed
*3. TN system: the neutral point of the power system connects directly to the ground. The exposed metal components connect to the ground through the protective ground conductor
*4. Use a single-phase three-wire power system for the single-phase power model
*5. B3A TUV Functional Safety certification in process

Dimensions - 220 V

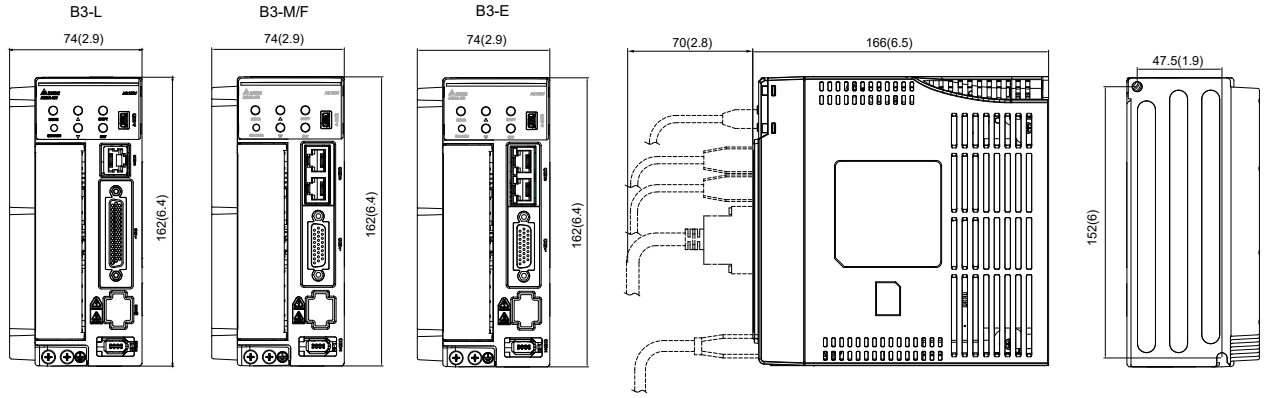
100 W / 200 W / 400 W

Weight	Unit
0.9kg	mm (inch)



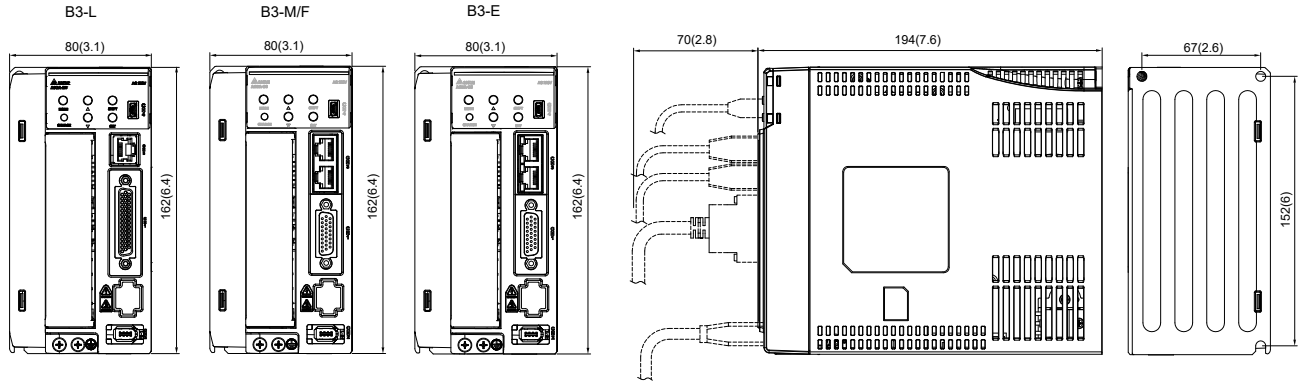
750 W

Weight	Unit
1.2kg	mm (inch)



1 kW / 1.5 kW

Weight	Unit
1.8kg	mm (inch)

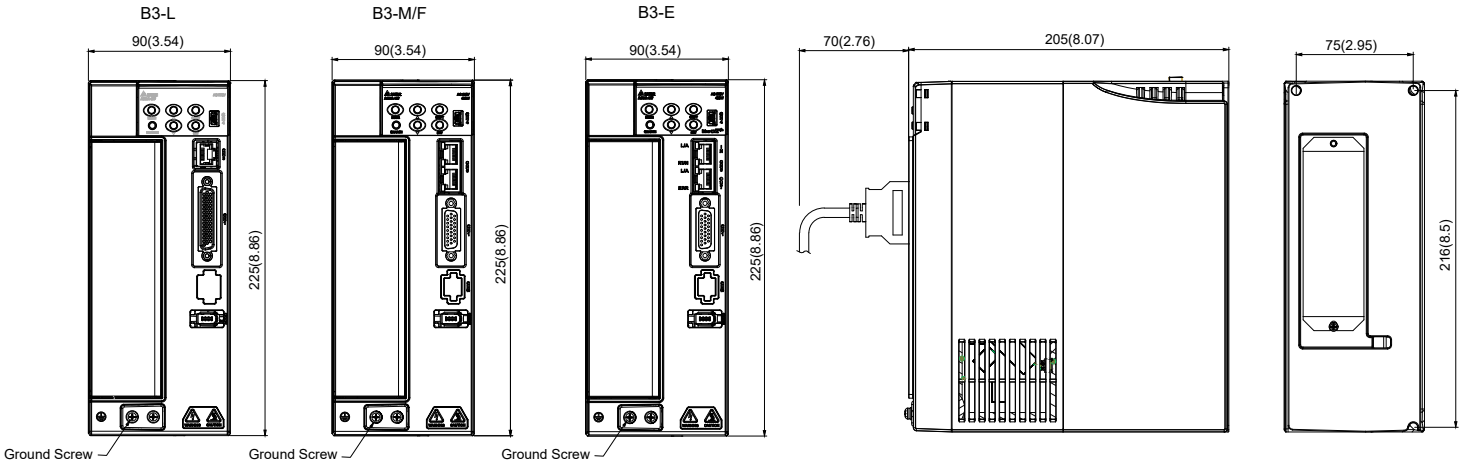


Servo Drive Specifications

Dimensions - 220 V

2kW / 3kW

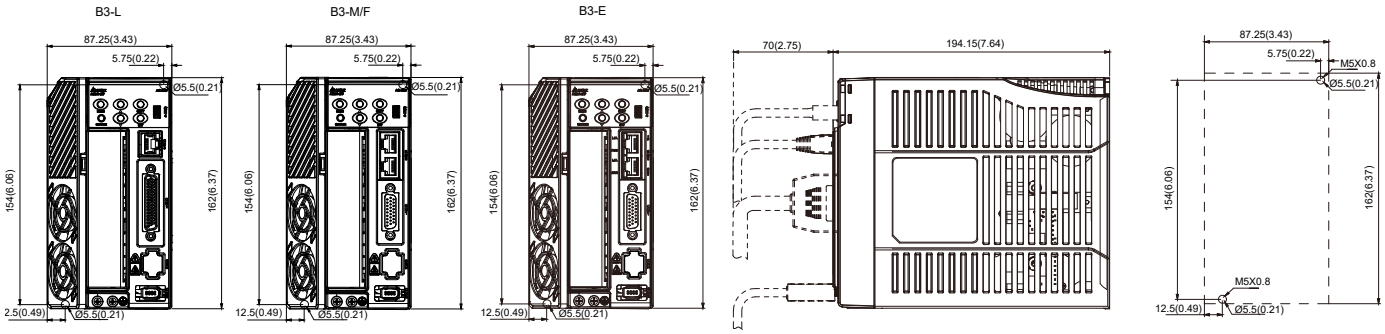
Weight	Unit
2.8 kg	mm (inch)



Dimensions - 400 V

2kW / 3kW

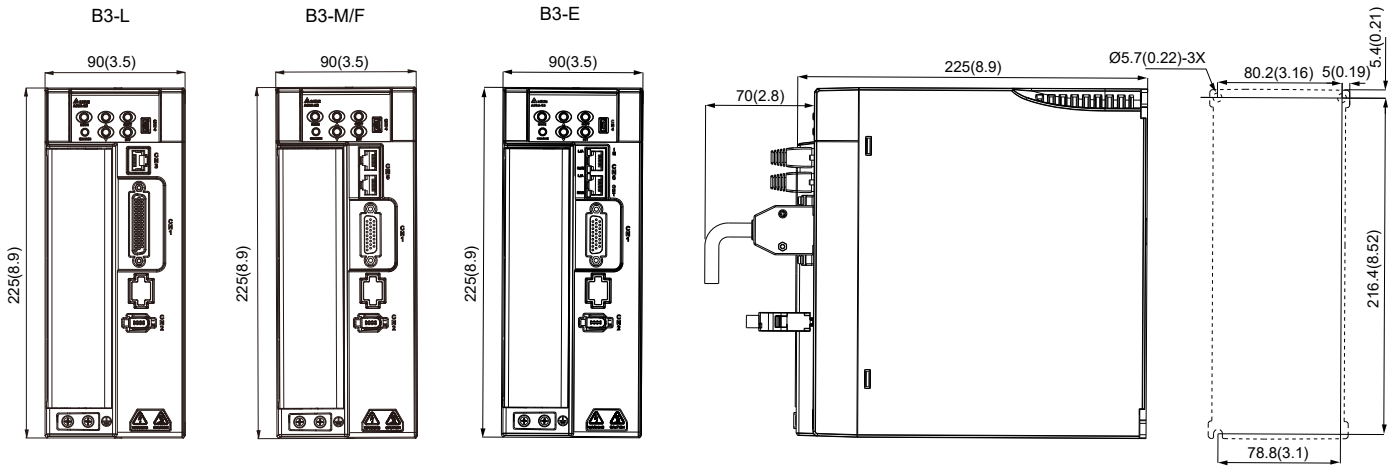
	Weight	Unit
1 kW / 1.5 kW	1.6 kg	mm (inch)
2 kW / 3 kW	1.7 kg	mm (inch)



Dimensions - 400 V

4.5 kW / 5.5 kW / 7.5 kW

Weight	Unit
2.9 kg	mm (inch)



Servo Motor Model Information

ECM-B3 Series Servo Motor

ECM - B3 M - C A 06 04 R S 1

Product Name
ECM:
Electronic Commutation Motor

Series
B3 series

Inertia
H: High inertia
M: Medium inertia
L: Low inertia

Rated Voltage and Speed
C: 220V / 3000 rpm
E: 220V / 2000 rpm
F: 220V / 1500 rpm
J: 400V / 3000 rpm
K: 400V / 2000 rpm
L: 400V / 1500 rpm

Encoder Type
A : 24-bit absolute optical encoder
Resolution of single turn: 24-bit
Resolution of multiple turns: 16-bit
2 : 24-bit incremental optical encoder
P : 17-bit absolute magnetic optical encoder
Resolution of single turn: 17-bit
Resolution of multiple turns: 16-bit
M: 17-bit incremental magnetic optical encoder

Motor Frame Size

04 : 40 mm	06 : 60 mm
08 : 80 mm	10 : 100 mm
13 : 130 mm	18 : 180 mm

Rated Power Output

01 : 100 W	02 : 200 W
04 : 400 W	07 : 750 W
08 : 850 W	10 : 1 kW
13 : 1.3 kW	15 : 1.5 kW
18 : 1.8 kW	20 : 2 kW
30 : 3 kW	45 : 4.5 kW
55 : 5.5 kW	75 : 7.5 kW

Type of Shaft and Oil Seal	w/o Brake w/o Oil Seal	with Brake w/o Oil Seal	w/o Brake with Oil Seal	with Brake with Oil Seal
Round Shaft (with fixedscrew holes)	-	-	C*	D*
Keyway (with fixed screw holes)	P*	Q*	R	S

Note: Models with an * are coming soon.

Shaft Diameter
S: Standard connector and standard shaft diameter
7: Standard connector and special shaft diameter (14 mm)*
J: IP67 waterproof connector and standard shaft diameter
K: IP67 waterproof connector and special shaft diameter (14 mm)*

*Shafts of special diameter are used for 400 W motors with the frame size of 80 mm

Special Code
1: Standard products

Note: The model information is for reference only. Not all kinds of model permutations are available.
Please contact the distributor near your region or Delta for the details.

ECM-A3 Series Servo Motor

ECM - A3 H - C Y 06 04 R S 1

Product Name
ECM :
Electronic Commutation Motor

Series
A3 series

Inertia
H : High inertia
L: Low inertia

Rated Voltage and Speed
C : 220V / 3000rpm

Encoder Type
Y: 24-bit absolute optical encoder
Resolution of single turn: 24-bit
Resolution of multiple turns*1:
1: 24-bit incremental optical encoder*2
A: 24-bit absolute magnetic optical encoder
Resolution of single turn: 24-bit
Resolution of multiple turns*1: 16-bit
2: 24-bit incremental magnetic optical encoder*2

*1. Number of turns
*2. Can be used as a single-turn absolute encoder

Motor Frame Size
04 : 40mm 06 : 60mm
08 : 80mm

Rated Power Output

0F : 50W	01 : 100W
02 : 200W	04 : 400W
07 : 750W	

Type of Shaft and Oil Seal	w/o Brake w/o Oil Seal	with Brake w/o Oil Seal	w/o Brake with Oil Seal	with Brake with Oil Seal
Round Shaft (with fixed screw)	-	-	C	D
Keyway (with fixed screw holes)	P*	Q*	R	S

*Not standing models

Shaft Diameter
S: Standard connector and standard shaft diameter
7: Standard connector and special shaft diameter (14 mm)*
J: IP67 waterproof connector and standard shaft diameter
K: IP67 waterproof connector and special shaft diameter (14 mm)*

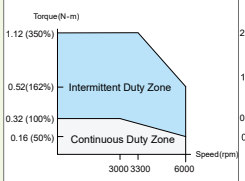
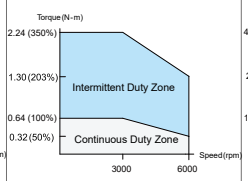
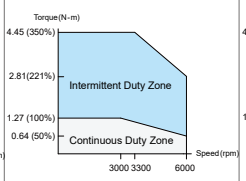
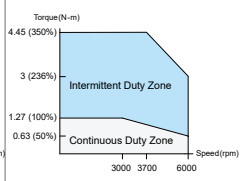
*Shafts of special diameter are used for 400 W motors with the frame size of 80 mm

Special Code
1: Standard products
Z: Refer to the note for dimensions on page 49

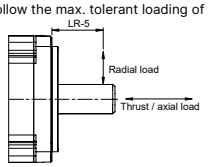
ECM-B3 Series Servo Motor Specifications

Electrical Specifications - 220 V

Motor with Frame Size of 80 mm or below Low Inertia Motor ECM-B3L Series / Medium Inertia Motor ECM-B3M Series

	ECM-B3L-C2**0401**[*1]	ECM-B3M-C2**0602**[*1]	ECM-B3M-C2**0604**[*1]	ECM-B3M-C2**0804**[*1]
Rated Power (kW)	0.1	0.2	0.4	0.4
Rated Torque (N-m)[*2]	0.32	0.64	1.27	1.27
Maximum Torque (N-m)	1.12	2.24	4.45	4.45
Rated Speed (rpm)	3000			
Maximum Speed (rpm)	6000			
Rated Current (Arms)	0.857	1.42	2.40	2.53
Max. Instantaneous Current (Arms)	3.44	6.62	9.47	9.42
Rated Power Rate (kW/s)	34.25	29.05	63.50	24.89
Rated Power Rate (kW/s) with brake	32.51	27.13	61.09	23.21
Rotor Inertia ($\times 10^{-4}$ kg.m^2)	0.0299	0.141	0.254	0.648
Rotor Inertia ($\times 10^{-4}$ kg.m^2) with brake	0.0315	0.151	0.264	0.695
Mechanical Time Constant (ms)	0.50	0.91	0.52	0.8
Mechanical Time Constant (ms) with brake	0.53	0.97	0.54	0.86
Torque Constant -KT (N-m/A)	0.374	0.45	0.53	0.5
Voltage Constant -KE (mV/(rpm))	13.8	16.96	19.76	18.97
Armature Resistance (Ohm)	8.22	4.71	2.04	1.125
Armature Inductance (mH)	19.1	12.18	6.50	5.14
Electrical Time Constant (ms)	2.32	2.59	3.19	4.57
Weight – without brake (kg)	0.5	0.9	1.2	1.7
Weight – with brake (kg)	0.7	1.3	1.6	2.51
Max. Radial Loadin (N)[*5]	78	245	245	392
Max. Axial Loading (N)[*5]	54	74	74	147
Brake working voltage	24 V_{DC} ± 10%			
Brake Power Consumption (at 20°C)[W]	6.1	7.6	7.6	8
Brake Holding Torqu [Nt-m (min)] [*3]	0.3	1.3	1.3	2.5
Brake Release Time [ms (Max)]	20	20	20	20
Brake Pull-In Time [ms (Max)]	35	50	50	60
Derating (%) (with oil seal)	10	10	5	5
Torque Feature (T-N Curve)				
Insulation Class	Class A (UL), Class B (CE)			
Insulation Resistance	> 100 MΩ, DC 500V			
Insulation Strength	1.8 kVac, 1 sec			
Vibration Level (μm)	V15			
Operating Temperature	-20°C - 60°C*[4]			
Storage Temperature	-20°C - 80°C*[4]			
Storage & Operation Humidity	20 - 90%RH (non-condensing)			
Vibration Capacity	2.5 G			
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model))			
Certifications	CE cULus			

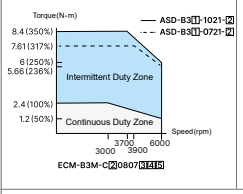
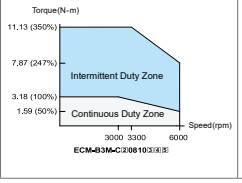
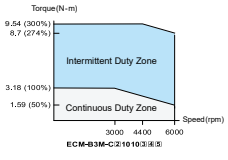
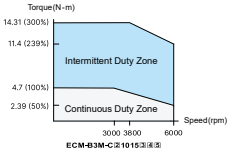
Notes:
1. In the servo motor model name, 1 represents the motor inertia and 2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F40, F60, F80: 250 mm x 250 mm x 6 mm
   Material: aluminum
3. The built-in servo motor brake is only for keeping the object in a stopped state. Do not use it for deceleration or as a dynamic brake
4. If the operating temperature is over 40°C, refer to the power derating curves of B3 motors on page 37.
5. Please follow the max. tolerant loading of the motor shaft end listed below during operation



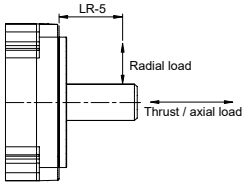
ECM-B3 Series Servo Motor Specifications

Electrical Specifications - 200 V

Motor with Frame Size of 80 / 100 Medium Inertia Motor ECM-B3M Series

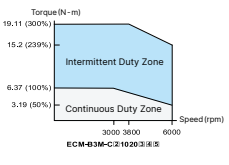
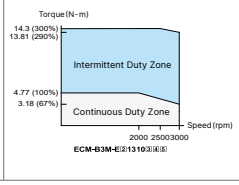
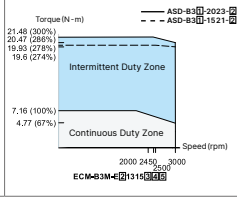
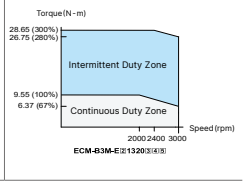
	ECM-B3M-C 2 0807	ECM-B3M-C 2 0810	ECM-B3M-C 2 1010	ECM-B3M-C 2 1015
Rated Power (kW)	0.75	1	1	1.5
Rated Torque (N-m)*2	2.4	3.18	3.18	4.77
Maximum Torque (N-m)	8.4	11.13	9.54	14.3
Rated Speed (rpm)	3000			
Maximum Speed (rpm)	6000			
Rated Current (Arms)	4.27	5	6.05	7.48
Max. Instantaneous Current (Arms)	15.8	18.2	18.4	22.8
Rated Power Rate (kW/s)	53.83	73.8	36.4	61.7
Rated Power Rate (kW/s) with brake	50.97	72.2	33	57.3
Rotor Inertia ($\times10^{-4}$kg.m^2)	1.07	1.37	2.78	3.69
Rotor Inertia ($\times10^{-4}$kg.m^2) with brake	1.13	1.4	3.06	3.97
Mechanical Time Constant (ms)	0.54	0.48	0.741	0.552
Mechanical Time Constant (ms) with brake	0.57	0.49	0.815	0.594
Torque Constant -KT (N-m/A)	0.56	0.64	0.526	0.638
Voltage Constant -KE (mV/(rpm))	20.17	23.15	19.8	23.8
Armature Resistance (Ohm)	0.55	0.495	0.265	0.217
Armature Inductance (mH)	2.81	2.63	1.86	1.71
Electrical Time Constant (ms)	5.11	5.31	7.02	7.88
Weight – without brake (kg)	2.34	2.82	3.56	4.37
Weight – with brake (kg)	3.15	3.6	4.88	5.68
Max. Radial Loadin (N)*5	392	392	490	490
Max. Axial Loading (N)*5	147	147	196	196
Brake working voltage	24 V_{DC} ± 10%	24 V_{DC} ± 10%	24 V_{DC} ± 10%	
Brake Power Consumption (at 20°C)[W]	8	10	17.6	17.6
Brake Holding Torqu [Nt-m (min)] *3	2.5	3.8	9.5	9.5
Brake Release Time [ms (Max)]	20	40	50	50
Brake Pull-In Time [ms (Max)]	60	80	110	110
Derating (%) (with oil seal)	5	40	5	5
Torque Feature (T-N Curve)				
Insulation Class	Class A (UL), Class B (CE)			
Insulation Resistance	> 100 MΩ, DC 500V			
Insulation Strength	1.8 kVac, 1 sec			
Vibration Level (μm)	V15			
Operating Temperature	-20°C - 60°C*4			
Storage Temperature	-20°C - 80°C*4			
Storage & Operation Humidity	20 - 90%RH (non-condensing)			
Vibration Capacity	2.5 G			
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model))			
Certifications				

Notes:
In the servo motor model name, 2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F80: 250 mm x 250 mm x 6 mm
   F100: 300 mm x 300 mm x 12 mm
   Material: aluminum
3. The built-in servo motor brake is only for keeping the object in a stopped state.
4. If the operating temperature is over 40°C, refer to the power derating curves of B3 motors on page 37.
5. Please follow the max. tolerant loading of the motor shaft end listed below during operation

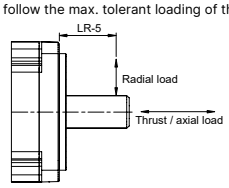


Electrical Specifications - 200 V

Motor with Frame Size of 100 / 130 Medium Inertia Motor ECM-B3M Series

	ECM-B3M-C ☐2 1020	ECM-B3M-E ☐2 1310	ECM-B3M-E ☐2 1315	ECM-B3M-E ☐2 1320
Rated Power (kW)	2	1	1.5	2
Rated Torque (N-m)*2	6.37	4.77	7.16	9.55
Maximum Torque (N-m)	19.1	14.3	21.48	28.65
Rated Speed (rpm)	3000	2000		
Maximum Speed (rpm)	6000	3000		
Rated Current (Arms)	9.96	5.96	8.17	10.59
Max. Instantaneous Current (Arms)	30.7	19.9	26.82	34.2
Rated Power Rate (kW/s)	86.7	29.21	45.69	62.25
Rated Power Rate (kW/s) with brake	82	28.66	45.09	61.62
Rotor Inertia ($\times10^{-4}$kg.m^2)	4.68	7.79	11.22	14.65
Rotor Inertia ($\times10^{-4}$kg.m^2) with brake	4.95	7.94	11.37	14.8
Mechanical Time Constant (ms)	0.523	1.46	1.1	1.03
Mechanical Time Constant (ms) with brake	0.554	1.49	1.12	1.04
Torque Constant -KT (N-m/A)	0.64	0.8	0.88	0.9
Voltage Constant -KE (mV/(rpm))	23.7	29.3	31.69	32.7
Armature Resistance (Ohm)	0.162	0.419	0.26	0.198
Armature Inductance (mH)	1.23	4	2.81	2.18
Electrical Time Constant (ms)	7.59	9.55	10.81	11.01
Weight – without brake (kg)	5.09	4.9	6	7
Weight – with brake (kg)	6.51	6.3	7.4	8.5
Max. Radial Loadin (N)*5	490	490	686	980
Max. Axial Loading (N)*5	196	98	343	392
Brake working voltage	24 V_{DC} ± 10%			
Brake Power Consumption (at 20°C)[W]	17.6	21.5	21.5	21.5
Brake Holding Torqu [Nt-m (min)] *3	9.5	10	10	10
Brake Release Time [ms (Max)]	50	50	50	50
Brake Pull-In Time [ms (Max)]	110	110	110	110
Derating (%) (with oil seal)	5	5	5	5
Torque Feature (T-N Curve)				
Insulation Class	Class A (UL), Class B (CE)			
Insulation Resistance	> 100 MΩ, DC 500V			
Insulation Strength	1.8 kVac, 1 sec			
Vibration Level (μm)	V15			
Operating Temperature	-20°C - 60°C*4			
Storage Temperature	-20°C - 80°C*4			
Storage & Operation Humidity	20 - 90%RH (non-condensing)			
Vibration Capacity	2.5 G			
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model))			
Certifications				

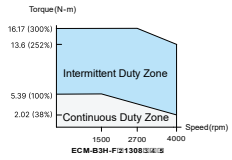
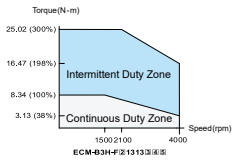
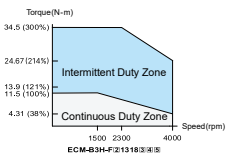
Notes:
1. In the servo motor model name, ☐1 represents the motor inertia and ☐2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F100: 300 mm x 300 mm x 12 mm
   F130: 400 mm x 400 mm x 20 mm
   Material: aluminum
3. The built-in servo motor brake is only for keeping the object in a stopped state. Do not use it for deceleration or as a dynamic brake
4. If the operating temperature is over 40°C, refer to the power derating curves of B3 motors on page 37.
5. Please follow the max. tolerant loading of the motor shaft end listed below during operation



ECM-B3 Series Servo Motor Specifications

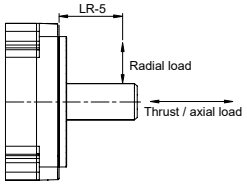
Electrical Specifications - 200 V

Motor with Frame Size of 130 High Inertia Motor ECM-B3H Series

	ECM-B3H-F ☐ 1308	ECM-B3H-F ☐ 1313	ECM-B3H-F ☐ 1318
Rated Power (kW)	0.85	1.3	1.8
Rated Torque (N-m)*2	5.39	8.34	11.5
Maximum Torque (N-m)	16.17	25.02	34.5
Rated Speed (rpm)	1500		
Maximum Speed (rpm)	4000		
Rated Current (Arms)	6.65	7.7	11.5
Max. Instantaneous Current (Arms)	20	23.9	36.1
Rated Power Rate (kW/s)	23.4	38.6	58.5
Rated Power Rate (kW/s) with brake	23	38.3	58
Rotor Inertia ($\times10^{-4}$kg.m^2)	12.44	18	22.6
Rotor Inertia ($\times10^{-4}$kg.m^2) with brake	12.62	18.14	22.8
Mechanical Time Constant (ms)	2.48	1.98	1.7
Mechanical Time Constant (ms) with brake	2.52	1.99	1.71
Torque Constant -KT (N-m/A)	0.811	1.08	1
Voltage Constant -KE (mV/(rpm))	29.8	38.8	35.3
Armature Resistance (Ohm)	0.46	0.44	0.253
Armature Inductance (mH)	2.5	2.76	1.7
Electrical Time Constant (ms)	5.43	6.27	6.72
Weight – without brake (kg)	6	7	8
Weight – with brake (kg)	7.5	8.5	9.5
Max. Radial Loadin (N)*5	490	686	980
Max. Axial Loading (N)*5	98	343	392
Brake working voltage	24 V_{DC} ± 10%		
Brake Power Consumption (at 20˚C)[W]	17.6	17.6	17.6
Brake Holding Torqu [Nt-m (min)] *3	9.5	9.5	9.5
Brake Release Time [ms (Max)]	60	60	60
Brake Pull-In Time [ms (Max)]	120	120	120
Derating (%) (with oil seal)	5	5	5
Torque Feature (T-N Curve)			
Insulation Class	Class F (UL), Class F (CE)		
Insulation Resistance	> 100 MΩ, DC 500 V		
Insulation Strength	1.8k Vac, 1 sec		
Vibration Level (μm)	V15		
Operating Temperature	-20˚C - 60˚C*4		
Storage Temperature	-20˚C - 80˚C		
Storage & Operation Humidity	20 - 90% RH (non-condensing)		
Vibration Capacity	2.5 G		
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model))		
Certifications			

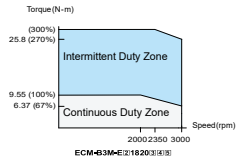
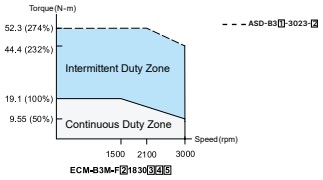
Notes:
1. In the servo motor model name, 2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40ºC operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F130: 400 mm x 400 mm x 20 mm
   Material: aluminum
3. The built-in servo motor brake is only for keeping the object in a stopped state.
4. If the operating temperature is over 40ºC, refer to the power derating curves of B3 motors on page 37.

5. Please follow the max. tolerant loading of the motor shaft end listed below during operation

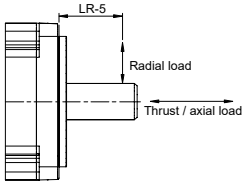


Electrical Specifications - 200 V

Motor with Frame Size of 180 Medium Inertia Motor ECM-B3M Series

	ECM-B3M-E ② 1820	ECM-B3M-F ② 1830
Rated Power (kW)	2	3
Rated Torque (N-m)*2	9.55	19.1
Maximum Torque (N-m)	28.65	57.29
Rated Speed (rpm)	2000	1500
Maximum Speed (rpm)	3000	3000
Rated Current (Arms)	11.43	18.21
Max. Instantaneous Current (Arms)	36.21	58.9
Rated Power Rate (kW/s)	31.33	68.02
Rated Power Rate (kW/s) with brake	30.02	66.45
Rotor Inertia ($\times10^{-4}$kg.m^2)	29.11	53.63
Rotor Inertia ($\times10^{-4}$kg.m^2) with brake	30.38	54.9
Mechanical Time Constant (ms)	1.83	1.21
Mechanical Time Constant (ms) with brake	1.91	1.24
Torque Constant -KT (N-m/A)	0.836	1.05
Voltage Constant -KE (mV/(rpm))	31.6	37.9
Armature Resistance (Ohm)	0.159	0.086
Armature Inductance (mH)	2.34	1.52
Electrical Time Constant (ms)	14.72	17.67
Weight – without brake (kg)	10	13.9
Weight – with brake (kg)	13.7	17.6
Max. Radial Loadin (N)*5	1470	1470
Max. Axial Loading (N)*5	490	490
Brake working voltage	24 V_{DC} ± 10%	
Brake Power Consumption (at 20°C)[W]	25	25
Brake Holding Torqu [Nt-m (min)] *3	31	31
Brake Release Time [ms (Max)]	30	30
Brake Pull-In Time [ms (Max)]	120	120
Derating (%) (with oil seal)	5	5
Torque Feature (T-N Curve)		
Insulation Class	Insulation Class: Class A(UL) , Class B(CE)	
Insulation Resistance	> 100 MΩ, DC 500 V	
Insulation Strength	1.8 k Vac, 1 sec	
Vibration Level (μm)	V15	
Operating Temperature	-20°C - 60°C*4	
Storage Temperature	-20°C - 80°C	
Storage & Operation Humidity	20 - 90% RH (non-condensing)	
Vibration Capacity	2.5 G	
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model))	
Certifications		

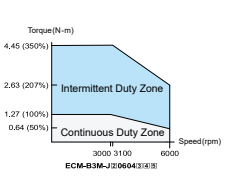
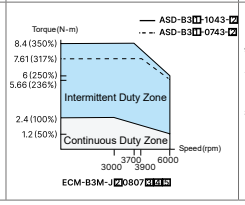
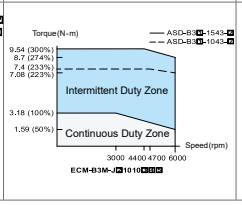
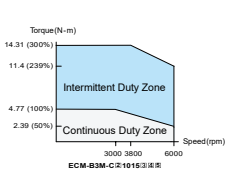
Notes:
1. In the servo motor model name, 2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F180: 550 mm x 550 mm x 30 mm
   Material: aluminum
3. The built-in servo motor brake is only for keeping the object in a stopped state.
4. If the operating temperature is over 40°C, refer to the power derating curves of B3 motors on page 37.
5. Please follow the max. tolerant loading of the motor shaft end listed below during operation



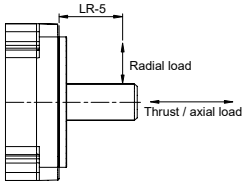
ECM-B3 Series Servo Motor Specifications

Electrical Specifications - 400 V

Motor with Frame Size of 80 mm or below / Frame Size of 100 Medium Inertia Motor ECM-B3M Series

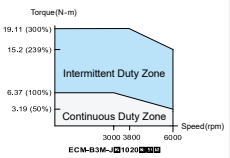
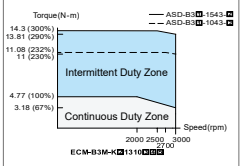
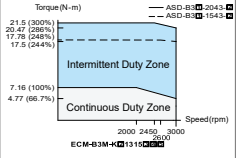
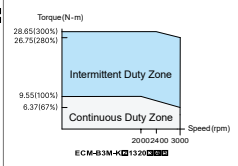
	ECM-B3M-J ☐2 0604	ECM-B3M-J ☐2 0807	ECM-B3M-J ☐2 1010	ECM-B3M-J ☐2 1015
Rated Power (kW)	0.4	0.75	1	1.5
Rated Torque (N-m)*2	1.27	2.4	3.18	4.77
Maximum Torque (N-m)	4.45	8.4	9.54	14.3
Rated Speed (rpm)	3000			
Maximum Speed (rpm)	6000			
Rated Current (Arms)	1.35	2.15	3.03	3.73
Max. Instantaneous Current (Arms)	5.2	7.9	9.21	11.4
Rated Power Rate (kW/s)	63.5	53.83	36.4	61.7
Rated Power Rate (kW/s) with brake	61.09	50.97	33	57.3
Rotor Inertia ($\times10^{-4}$kg.m^2)	0.254	1.07	2.78	3.69
Rotor Inertia ($\times10^{-4}$kg.m^2) with brake	0.264	1.13	3.06	3.97
Mechanical Time Constant (ms)	0.53	0.55	0.737	0.546
Mechanical Time Constant (ms) with brake	0.55	0.58	0.811	0.587
Torque Constant -KT (N-m/A)	0.94	1.12	1.05	1.28
Voltage Constant -KE (mV/(rpm))	34.66	40.34	39.5	47.8
Armature Resistance (Ohm)	6.47	2.2	1.05	0.864
Armature Inductance (mH)	20.6	11.2	7.5	6.63
Electrical Time Constant (ms)	3.18	5.09	7.14	7.67
Weight – without brake (kg)	1.2	2.34	3.56	4.37
Weight – with brake (kg)	1.6	3.15	4.88	5.68
Max. Radial Loadin (N)*5	245	392	490	490
Max. Axial Loading (N)*5	74	147	196	196
Brake working voltage	24 V_{DC} ± 10%			
Brake Power Consumption (at 20°C)[W]	7.6	8	17.6	17.6
Brake Holding Torqu [Nt-m (min)] *3	1.3	2.5	9.5	9.5
Brake Release Time [ms (Max)]	20	20	50	50
Brake Pull-In Time [ms (Max)]	50	60	110	110
Derating (%) (with oil seal)	5	5	5	5
Torque Feature (T-N Curve)				
Insulation Class	Class A (UL), Class B (CE)			
Insulation Resistance	> 100 MΩ, DC 500 V			
Insulation Strength	2.3 k Vac, 1 sec			
Vibration Level (μm)	V15			
Operating Temperature	-20°C - 60°C*4			
Storage Temperature	-20°C - 80°C			
Storage & Operation Humidity	20 - 90% RH (non-condensing)			
Vibration Capacity	2.5 G			
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model))			
Certifications				

Notes:
1. In the servo motor model name, 2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F60, F80: 250 mm x 250 mm x 6 mm
   F100: 300 mm x 300 mm x 12 mm
   Material: aluminum
3. The built-in servo motor brake is only for keeping the object in a stopped state.
4. If the operating temperature is over 40°C, refer to the power derating curves of B3 motors on page 37.
5. Please follow the max. tolerant loading of the motor shaft end listed below during operation

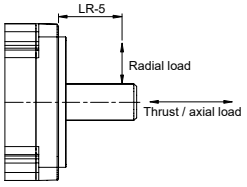


Electrical Specifications - 400 V

Motor with Frame Size of 100 / 130 Medium Inertia Motor ECM-B3M Series

	ECM-B3M-J ☐2 1020	ECM-B3M-K ☐2 1310	ECM-B3M-K ☐2 1315	ECM-B3M-K ☐2 1320
Rated Power (kW)	2	1	1.5	2
Rated Torque (N-m)*2	6.37	4.77	7.16	9.55
Maximum Torque (N-m)	19.1	14.3	21.48	28.65
Rated Speed (rpm)	3000	2000		
Maximum Speed (rpm)	6000	3000		
Rated Current (Arms)	5	3	4.09	5.3
Max. Instantaneous Current (Arms)	15.3	9.95	13.37	17.1
Rated Power Rate (kW/s)	86.7	29.21	45.69	62.25
Rated Power Rate (kW/s) with brake	82	28.66	45.09	61.62
Rotor Inertia ($\times10^{-4}$kg.m^2)	4.68	7.79	11.22	14.65
Rotor Inertia ($\times10^{-4}$kg.m^2) with brake	4.95	7.94	11.37	14.8
Mechanical Time Constant (ms)	0.528	1.47	1.1	1.03
Mechanical Time Constant (ms) with brake	0.559	1.5	1.12	1.04
Torque Constant -KT (N-m/A)	1.27	1.59	1.75	1.8
Voltage Constant -KE (mV/(rpm))	47.2	58.6	63.38	65.4
Armature Resistance (Ohm)	0.646	1.68	1.04	0.792
Armature Inductance (mH)	4.89	16	11.2	8.72
Electrical Time Constant (ms)	7.57	9.52	10.8	11
Weight – without brake (kg)	5.09	4.9	6	7
Weight – with brake (kg)	6.505	6.3	7.4	8.5
Max. Radial Loadin (N)*5	490	490	686	980
Max. Axial Loading (N)*5	196	98	343	392
Brake working voltage	24 V_{DC} ± 10%			
Brake Power Consumption (at 20°C)[W]	17.6	21.5	21.5	21.5
Brake Holding Torqu [Nt-m (min)] *3	9.5	10	10	10
Brake Release Time [ms (Max)]	50	50	50	50
Brake Pull-In Time [ms (Max)]	110	110	110	110
Derating (%) (with oil seal)	5	5	5	5
Torque Feature (T-N Curve)				
Insulation Class	Class A (UL), Class B (CE)			
Insulation Resistance	> 100 MΩ, DC 500 V			
Insulation Strength	2.3 k Vac, 1 sec			
Vibration Level (μm)	V15			
Operating Temperature	-20°C - 60°C*4			
Storage Temperature	-20°C - 80°C			
Storage & Operation Humidity	20 - 90% RH (non-condensing)			
Vibration Capacity	2.5 G			
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model))			
Certifications				

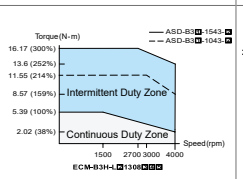
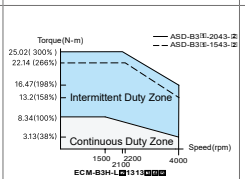
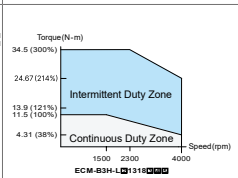
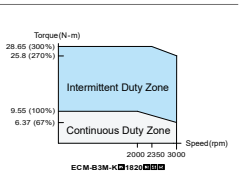
Notes:
1. In the servo motor model name, 2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40ºC operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F100: 300 mm x 300 mm x 12 mm
   F130: 400 mm x 400 mm x 20 mm
   Material: aluminum
3. The built-in servo motor brake is only for keeping the object in a stopped state.
4. If the operating temperature is over 40ºC, refer to the power derating curves of B3 motors on page 37.
5. Please follow the max. tolerant loading of the motor shaft end listed below during operation



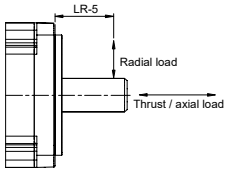
ECM-B3 Series Servo Motor Specifications

Electrical Specifications - 400 V

Motor with Frame Size of 180 Medium Inertia Motor ECM-B3M Series / Frame Size of 130 High Inertia Motor ECM-B3H Series

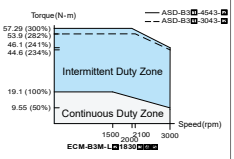
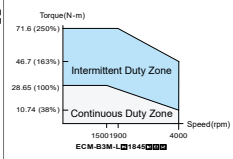
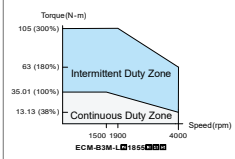
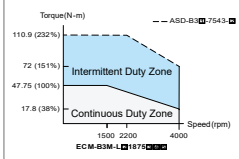
	ECM-B3H-L ② 1308	ECM-B3H-L ② 1313	ECM-B3H-L ② 1318	ECM-B3M-K ② 1820
Rated Power (kW)	0.85	1.3	1.8	2
Rated Torque (N-m)*2	5.39	8.34	11.5	9.55
Maximum Torque (N-m)	16.17	25.02	34.5	28.65
Rated Speed (rpm)	1500			2000
Maximum Speed (rpm)	4000			3000
Rated Current (Arms)	3.35	3.85	5.75	5.7
Max. Instantaneous Current (Arms)	10	12	18.1	18.1
Rated Power Rate (kW/s)	23.4	38.6	58.5	31.33
Rated Power Rate (kW/s) with brake	23	38.3	58	30.02
Rotor Inertia ($\times 10^{-4}$kg.m^2)	12.44	18	22.6	29.11
Rotor Inertia ($\times 10^{-4}$kg.m^2) with brake	12.62	18.14	22.8	30.38
Mechanical Time Constant (ms)	2.5	1.97	1.69	1.83
Mechanical Time Constant (ms) with brake	2.54	1.99	1.71	1.91
Torque Constant -KT (N-m/A)	1.61	2.17	2	1.68
Voltage Constant -KE (mV/(rpm))	59.5	77.6	70.7	63.2
Armature Resistance (Ohm)	1.84	1.76	1.01	0.636
Armature Inductance (mH)	10	11	6.8	9.36
Electrical Time Constant (ms)	5.43	6.25	6.73	14.72
Weight – without brake (kg)	6	7	8	10
Weight – with brake (kg)	7.5	8.5	9.5	13.7
Max. Radial Loadin (N)*5	490	686	980	1470
Max. Axial Loading (N)*5	98	343	392	490
Brake working voltage	24 V_{DC} ± 10%			
Brake Power Consumption (at 20°C)[W]	24	24	24	31
Brake Holding Torqu [Nt-m (min)] *3	16	16	16	25
Brake Release Time [ms (Max)]	60	60	60	30
Brake Pull-In Time [ms (Max)]	120	120	120	120
Derating (%) (with oil seal)	5	5	5	5
Torque Feature (T-N Curve)				
Insulation Class	Class F (UL), Class F (CE)			Class A (UL), Class B (CE)
Insulation Resistance	> 100 M Ω , DC 500 V			
Insulation Strength	1.8 k Vac, 1 sec			
Vibration Level (μm)	V15			
Operating Temperature	-20°C - 60°C*4			
Storage Temperature	-20°C - 80°C			
Storage & Operation Humidity	20 - 90% RH (non-condensing)			
Vibration Capacity	2.5 G			
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model))			
Certifications				

Notes:
1. In the servo motor model name, 2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40ºC operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F130: 400 mm x 400 mm x 20 mm
   F180: 550 mm x 550 mm x 30 mm
   Material: aluminum
3. The built-in servo motor brake is only for keeping the object in a stopped state.
4. If the operating temperature is over 40ºC, refer to the power derating curves of B3 motors on page 37.
5. Please follow the max. tolerant loading of the motor shaft end listed below during operation

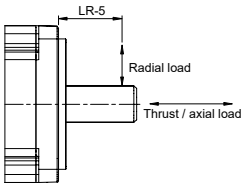


Electrical Specifications - 400 V

Motor with Frame Size of 180 Medium Inertia Motor ECM-B3M Series

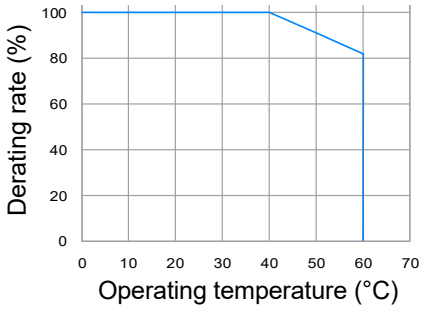
	ECM-B3M-L ☐2 1830	ECM-B3M-L ☐2 1845	ECM-B3M-L ☐2 1855	ECM-B3M-L ☐2 1875
Rated Power (kW)	3	4.5	5.5	7.5
Rated Torque (N-m)*2	19.1	28.65	35.01	47.75
Maximum Torque (N-m)	57.29	71.6	105	119
Rated Speed (rpm)	1500		1500	
Maximum Speed (rpm)	3000		4000	
Rated Current (Arms)	9.1	13.3	15.3	22.1
Max. Instantaneous Current (Arms)	29.45	35.35	49.29	56.68
Rated Power Rate (kW/s)	68.02	121	124	169
Rated Power Rate (kW/s) with brake	66.45	119	122	167
Rotor Inertia ($\times 10^{-4}$kg.m^2)	53.63	67.73	98.88	134.95
Rotor Inertia ($\times 10^{-4}$kg.m^2) with brake	54.9	69.15	100.1	136.24
Mechanical Time Constant (ms)	1.21	1.07	1.01	1.01
Mechanical Time Constant (ms) with brake	1.24	1.09	1.02	1.02
Torque Constant -KT (N-m/A)	2.1	2.15	2.29	2.16
Voltage Constant -KE (mV/(rpm))	75.8	78.8	81.8	77.4
Armature Resistance (Ohm)	0.344	0.255	0.182	0.12
Armature Inductance (mH)	6.08	4.68	3.48	2.27
Electrical Time Constant (ms)	17.67	18.4	19.1	18.9
Weight – without brake (kg)	13.9	16.5	21.2	27.2
Weight – with brake (kg)	17.6	20.2	24.9	30.9
Max. Radial Loadin (N)*5	1470	1470	1764	1764
Max. Axial Loading (N)*5	490	490	588	588
Brake working voltage	24 V_{DC} ± 10%			
Brake Power Consumption (at 20˚C)[W]	31	31	31	31
Brake Holding Torqu [Nt-m (min)] *3	25	55	55	55
Brake Release Time [ms (Max)]	30	50	50	50
Brake Pull-In Time [ms (Max)]	120	150	150	150
Derating (%) (with oil seal)	5	0	0	0
Torque Feature (T-N Curve)				
Insulation Class	Class A (UL), Class B (CE)	Class F (UL), Class F (CE)		
Insulation Resistance	> 100 M Ω , DC 500 V			
Insulation Strength	2.3k Vac, 1 sec			
Vibration Level (μm)	V15			
Operating Temperature	-20˚C - 60˚C*4			
Storage Temperature	-20˚C - 80˚C			
Storage & Operation Humidity	20 - 90% RH (non-condensing)			
Vibration Capacity	2.5 G			
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model))			
Certifications	cULus CE			

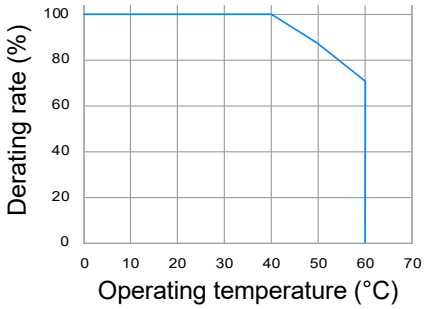
Notes:
1. In the servo motor model name, 2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40ºC operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F180: 550 mm x 550 mm x 30 mm
   Material: aluminum
3. The built-in servo motor brake is only for keeping the object in a stopped state.
4. If the operating temperature is over 40ºC, refer to the power derating curves of B3 motors on page 37.
5. Please follow the max. tolerant loading of the motor shaft end listed below during operation

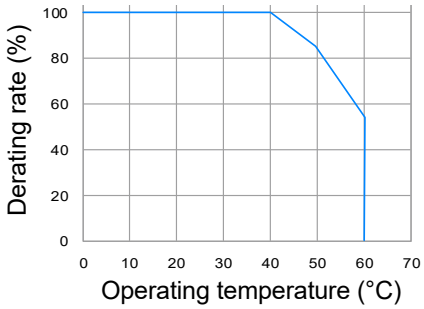


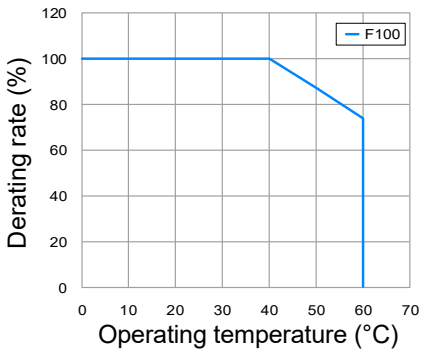
ECM-B3 Series Servo Motor Specifications

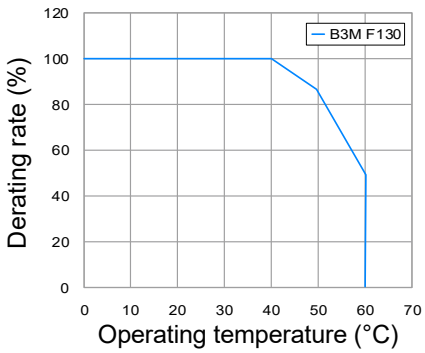
Power Derating Curves

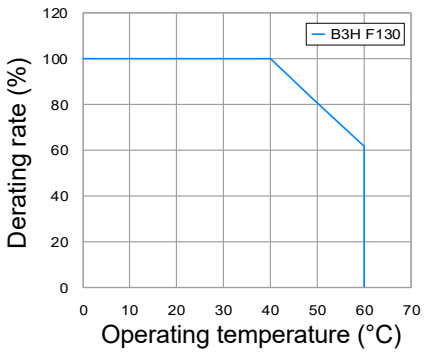


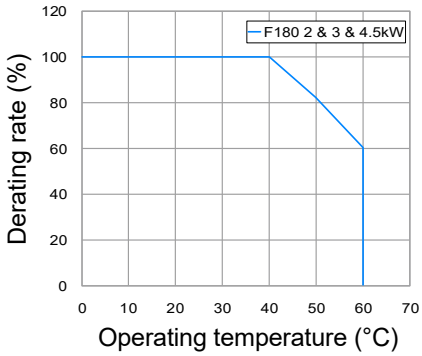


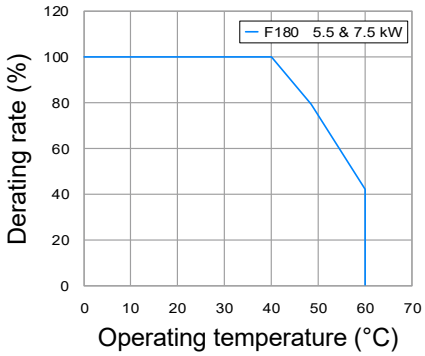






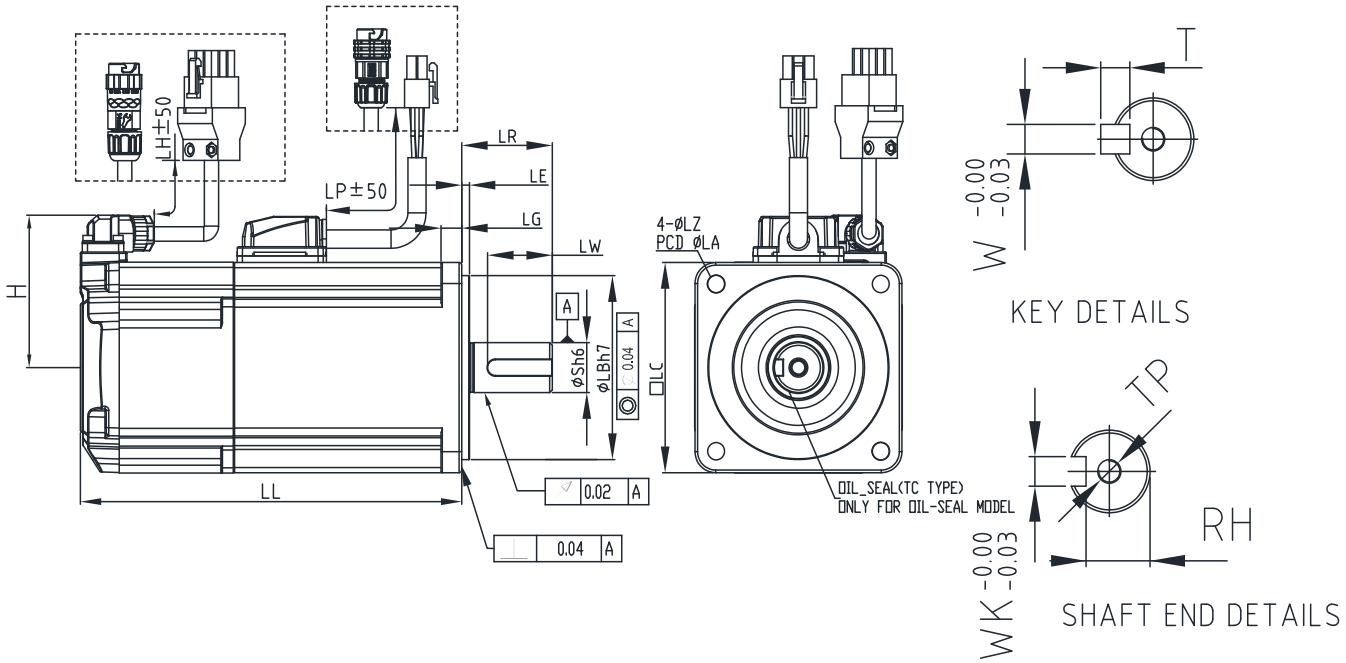






Note: Applicable for 220V and 400V models

220V Dimensions of Motors with Frame Size of 80 mm or Below

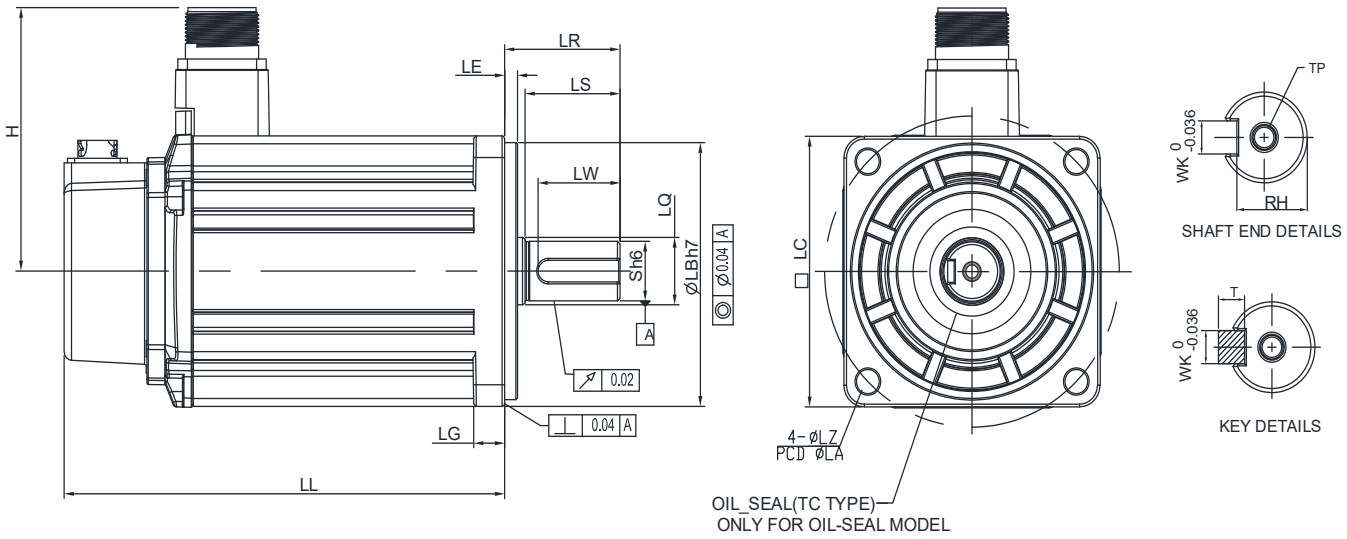


Model	B3L-C ② 0401	B3M-C ② 0602	B3M-C ② 0604	B3M-C ② 0804	B3M-C ② 0807	B3M-C ② 0810
LC	40	60	60	80	80	80
LZ	4.5	5.5	5.5	6.6	6.6	6.6
LA	46	70	70	90	90	90
S	8($^{+0}_{-0.009}$)	14($^{+0}_{-0.011}$)	14($^{+0}_{-0.011}$)	14($^{+0}_{-0.011}$)	19($^{+0}_{-0.013}$)	19($^{+0}_{-0.013}$)
LB	30($^{+0}_{-0.021}$)	50($^{+0}_{-0.025}$)	50($^{+0}_{-0.025}$)	70($^{+0}_{-0.030}$)	70($^{+0}_{-0.030}$)	70($^{+0}_{-0.030}$)
LL (w/o brake)	77.6	72.5	91	86.7	105.2	118.7
LL (with brake)	111.7	109.4	127.9	126.3	144.8	158.3
LH	300	300	300	300	300	300
LP	300	300	300	300	300	300
H	40	48.5	48.5	58.5	58.5	58.5
LR	25	30	30	30	35	35
LE	2.5	3	3	3	3	3
LG	5	7.5	7.5	8	8	8
LW	16	20	20	20	25	25
RH	6.2	11	11	11	15.5	15.5
WK	3	5	5	5	6	6
W	3	5	5	5	6	6
T	3	5	5	5	6	6
TP	M3 Depth 8	M4 Depth 15	M4 Depth 15	M4 Depth 15	M6 Depth 20	M6 Depth20

Notes:
1. In the servo motor model name, ② represents the encoder type

ECM-B3 Series Servo Motor Specifications

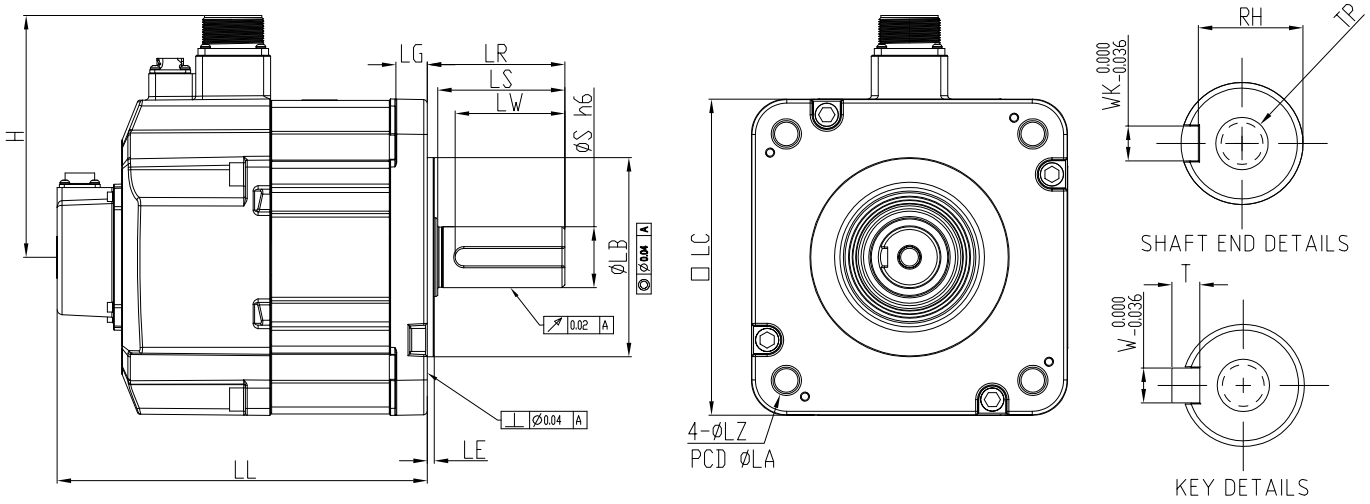
220V Dimensions of Motors with Frame Size of 100 mm



Model	B3M-C ② 1010	B3M-C ② 1015	B3M-C ② 1020
LC	100	100	100
LZ	9	9	9
LA	115	115	115
S	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)
LB	95($^{+0}_{-0.03}$)	95($^{+0}_{-0.03}$)	95($^{+0}_{-0.03}$)
LL (w/o brake)	141.8	156.8	171.8
LL (with brake)	179.9	194.9	209.9
H	97.4	97.4	97.4
LS	37	37	37
LR	45	45	45
LQ	25	25	25
LE	5	5	5
LG	12	12	12
LW	32	32	32
RH	18	18	18
WK	8	8	8
W	8	8	8
T	7	7	7
TP	M6 Depth12	M6 Depth12	M6 Depth12

Notes:
1. In the servo motor model name, ② represents the encoder type

220V Dimensions of Motors with Frame Size of 130 mm

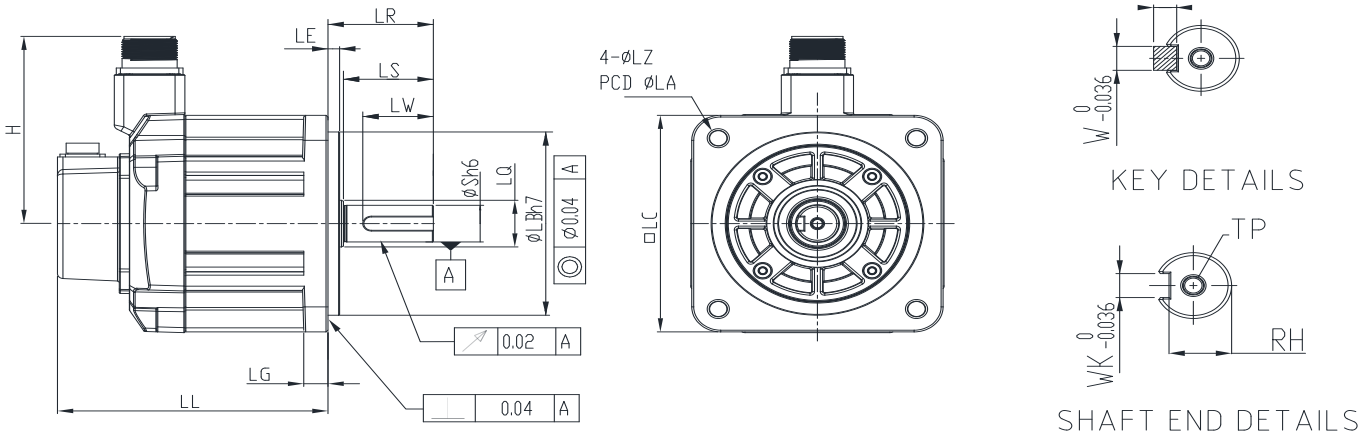


Model	B3M-E ② 1310	B3M-E ② 1315	B3M-E ② 1320	B3H-F ② 1308	B3H-F ② 1313	B3H-F ② 1318
LC	130	130	130	130	130	130
LZ	9	9	9	9	9	9
LA	145	145	145	145	145	145
S	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)
LB	110($^{+0}_{-0.035}$)	110($^{+0}_{-0.035}$)	110($^{+0}_{-0.035}$)	110($^{+0}_{-0.035}$)	110($^{+0}_{-0.035}$)	110($^{+0}_{-0.035}$)
LL (w/o brake)	127.9	139.9	151.9	127.9	139.9	151.9
LL (with brake)	168.5	180.5	192.5	168.5	180.5	192.5
H	115	115	115	115	115	115
LS	47	47	47	47	47	47
LR	55	55	55	55	55	55
LQ	28	28	28	28	28	28
LE	6	6	6	6	6	6
LG	12.5	12.5	12.5	12.5	12.5	12.5
LW	36	36	36	36	36	36
RH	18	18	18	18	18	18
WK	8	8	8	8	8	8
W	8	8	8	8	8	8
T	7	7	7	7	7	7
TP	M6 Depth12	M6 Depth12	M6 Depth12	M6 Depth12	M6 Depth12	M6 Depth12

Notes:
1. In the servo motor model name, ② represents the encoder type

ECM-B3 Series Servo Motor Specifications

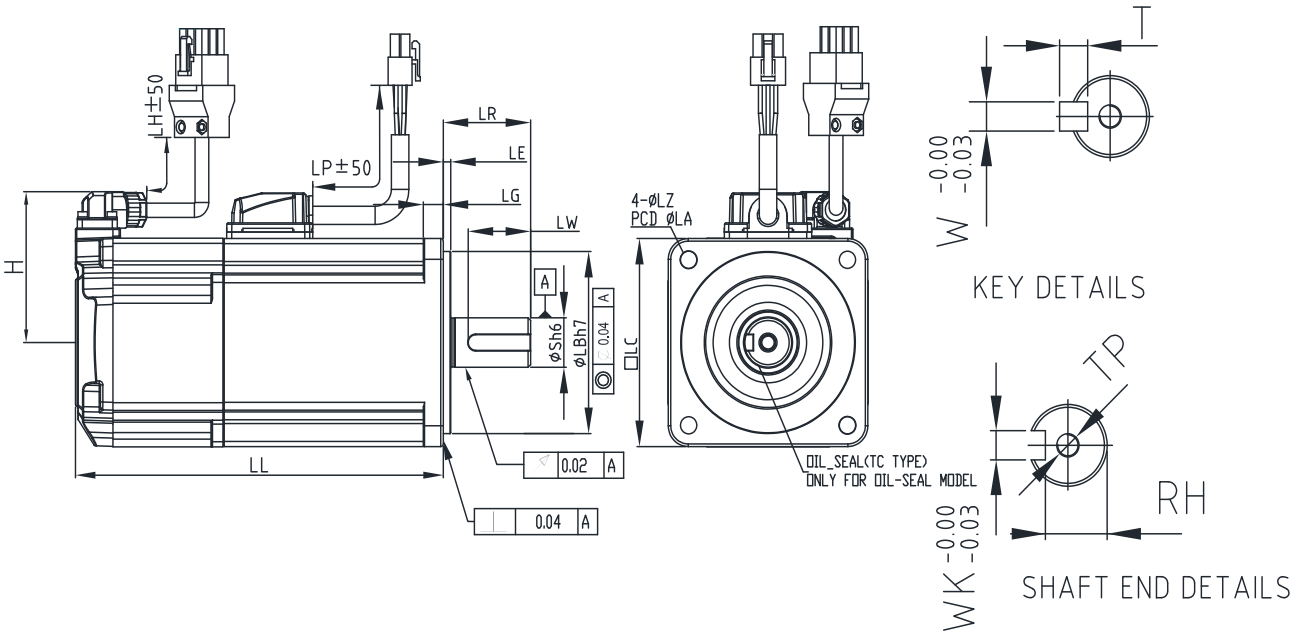
220V Dimensions of Motors with Frame Size of 180 mm



Model	B3M-E ② 1820	B3M-F ② 1830
LC	180	180
LZ	13.5	13.5
LA	200	200
S	35($^{+0}_{-0.016}$)	35($^{+0}_{-0.016}$)
LB	114.3($^{+0}_{-0.035}$)	114.3($^{+0}_{-0.035}$)
LL (w/o brake)	137.5	160.5
LL (with brake)	189.5	212.5
H	139	139
LS	73	73
LR	79	79
LQ	45	45
LE	4	4
LG	18	18
LW	63	63
RH	30	30
WK	10	10
W	10	10
T	8	8
TP	M12 Depth25	M12 Depth25

Notes:
1. In the servo motor model name, ② represents the encoder type

400V Dimensions of Motors with Frame Size of 80 mm or Below

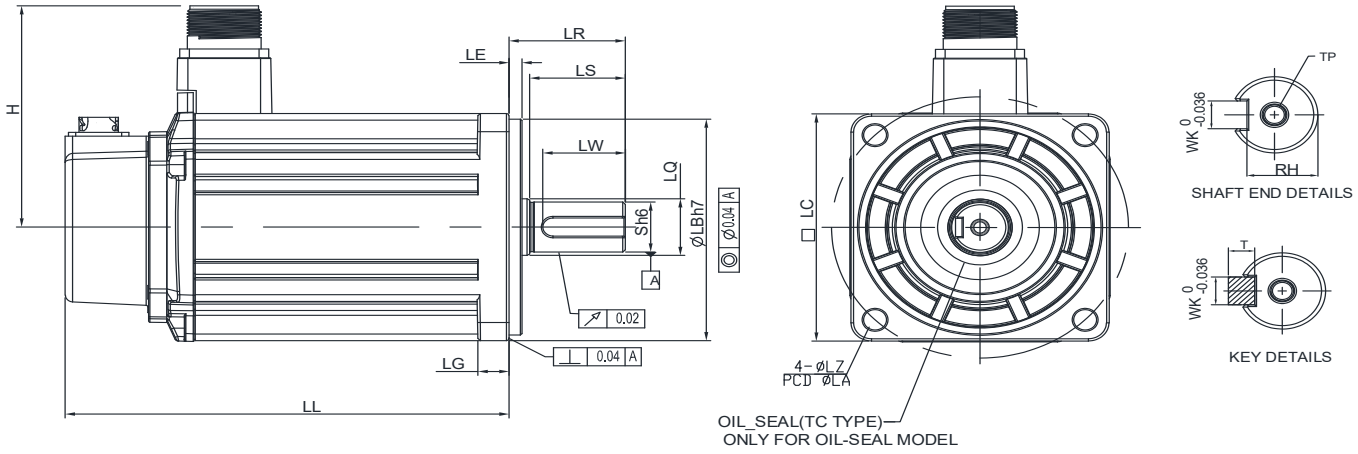


Model	B3M-J ② 0604	B3M-J ② 0807
LC	60	80
LZ	5.5	6.6
LA	70	90
S	14($^{+0}_{-0.011}$)	19($^{+0}_{-0.013}$)
LB	50($^{+0.000}_{-0.055}$)	70($^{+0.000}_{-0.030}$)
LL (w/o brake)	91	105.2
LL (with brake)	127.9	144.8
LH	300	300
LP	300	300
H	48.5	58.5
LR	30	35
LE	3	3
LG	7.5	8
LW	20	25
RH	11	15.5
WK	5	6
W	5	6
T	5	6
TP	M4 Depth15	M6 Depth20

Notes:
1. In the servo motor model name, ② represents the encoder type

ECM-B3 Series Servo Motor Specifications

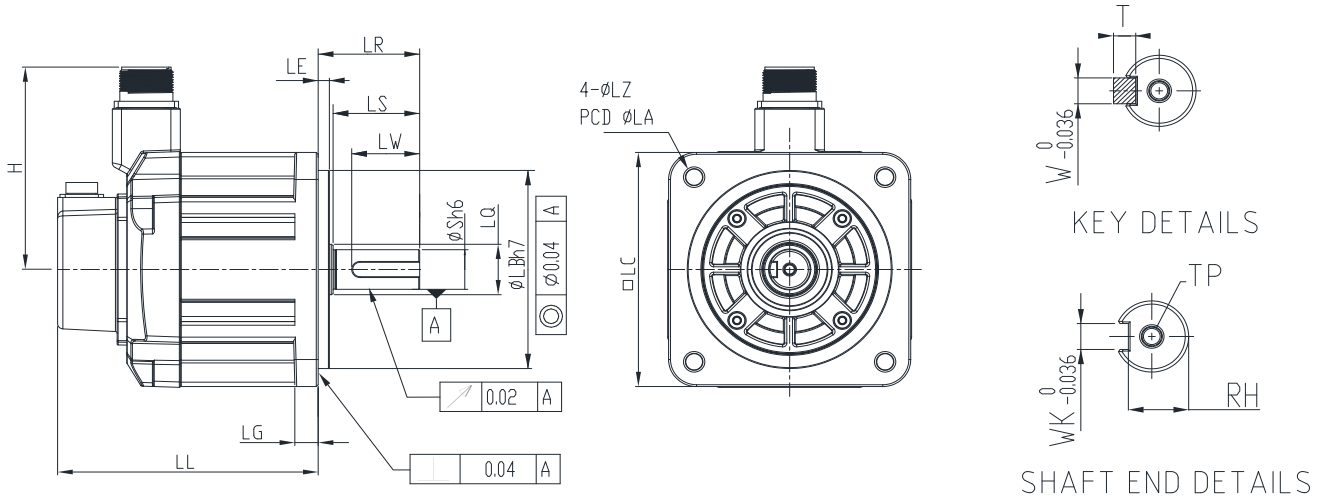
400V Dimensions of Motors with Frame Size of 100 mm



Model	B3M-J ② 1010	B3M-J ② 1015	B3M-J ② 1020
LC	100	100	100
LZ	9	9	9
LA	115	115	115
S	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)
LB	95($^{+0}_{-0.03}$)	95($^{+0}_{-0.03}$)	95($^{+0}_{-0.03}$)
LL (w/o brake)	141.8	156.8	171.8
LL (with brake)	179.9	194.9	209.9
H	97.4	97.4	97.4
LS	37	37	37
LR	45	45	45
LQ	25	25	25
LE	5	5	5
LG	12	12	12
LW	32	32	32
RH	18	18	18
WK	8	8	8
W	8	8	8
T	7	7	7
TP	M6 Depth12	M6 Depth12	M6 Depth12

Notes:
1. In the servo motor model name, ② represents the encoder type

400V Dimensions of Motors with Frame Size of 130 mm

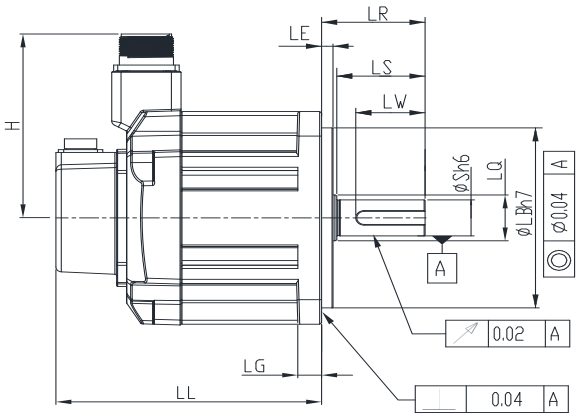


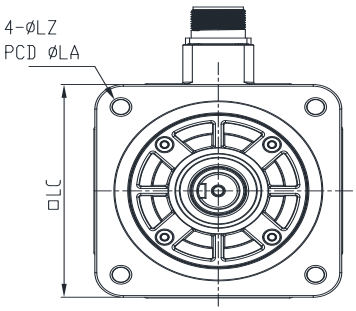
Model	B3M-K ② 1310	B3M-K ② 1315	B3M-K ② 1320	B3H-L ② 1308	B3H-L ② 1313	B3H-L ② 1318
LC	130	130	130	130	130	130
LZ	9	9	9	9	9	9
LA	145	145	145	145	145	145
S	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)	22($^{+0}_{-0.013}$)
LB	110($^{+0}_{-0.035}$)	110($^{+0}_{-0.035}$)	110($^{+0}_{-0.035}$)	110($^{+0}_{-0.035}$)	110($^{+0}_{-0.035}$)	110($^{+0}_{-0.035}$)
LL (w/o brake)	127.9	139.9	151.9	127.9	139.9	151.9
LL (with brake)	168.5	180.5	192.5	168.5	180.5	192.5
H	115	115	115	115	115	115
LS	47	47	47	47	47	47
LR	55	55	55	55	55	55
LQ	28	28	28	28	28	28
LE	6	6	6	6	6	6
LG	12.5	12.5	12.5	12.5	12.5	12.5
LW	36	36	36	36	36	36
RH	18	18	18	18	18	18
WK	8	8	8	8	8	8
W	8	8	8	8	8	8
T	7	7	7	7	7	7
TP	M6 Depth12	M6 Depth12	M6 Depth12	M6 Depth12	M6 Depth12	M6 Depth12

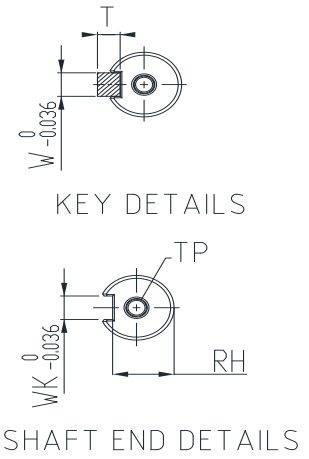
Notes:
1. In the servo motor model name, ② represents the encoder type

ECM-B3 Series Servo Motor Specifications

400V Dimensions of Motors with Frame Size of 180 mm







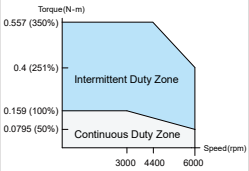
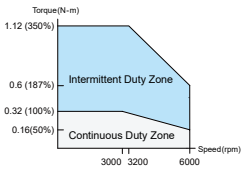
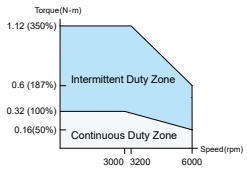
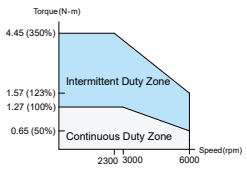
Model	B3M-K ② 1820	B3M-L ② 1830	B3M-L ② 1845	B3M-L ② 1855	B3M-L ② 1875
LC	180	180	180	180	180
LZ	13.5	13.5	13.5	13.5	13.5
LA	200	200	200	200	200
S	35($^{+0}_{-0.016}$)	35($^{+0}_{-0.016}$)	35($^{+0}_{-0.016}$)	42($^{+0}_{-0.016}$)	42($^{+0}_{-0.016}$)
LB	114.3($^{+0}_{-0.035}$)	114.3($^{+0}_{-0.035}$)	114.3($^{+0}_{-0.035}$)	114.3($^{+0}_{-0.035}$)	114.3($^{+0}_{-0.035}$)
LL (w/o brake)	137.5	160.5	174	218	260.1
LL (with brake)	189.5	212.5	226	265	307.1
H	139	139	139	144.5	144.5
LS	73	73	73	108.5	108.5
LR	79	79	79	113	113
LQ	45	45	45	45	45
LE	4	4	4	4	4
LG	18	18	18	18	18
LW	63	63	63	90	90
RH	30	30	30	37	37
WK	10	10	10	12	12
W	10	10	10	12	12
T	8	8	8	8	8
TP	M12 Depth25	M12 Depth25	M12 Depth25	M16 Depth32	M16 Depth32

Notes:
1. In the servo motor model name, ② represents the encoder type

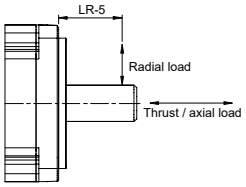
ECM-A3 Series Servo Motor Specifications

Electrical Specifications

Low Inertia Motor ECM-A3L Series

	ECM-A3L-C2040F*1	ECM-A3L-C20401*1	ECM-A3L-C20602*1	ECM-A3L-C20604*1
Rated Power (kW)	0.05	0.1	0.2	0.4
Rated Torque (N-m)*2	0.159	0.32	0.64	1.27
Maximum Torque (N-m)	0.557	1.12	2.24	4.45
Rated Speed (rpm)	3000			
Maximum Speed (rpm)	6000			
Rated Current (Arms)	0.66	0.9	1.45	2.65
Max. Instantaneous Current (Arms)	2.82	3.88	6.2	10.1
Rated Power Rate (kW/s)*3	11 (9.9)	25.6 (24)	45.5 (34.1)	107.5 (89.6)
Rotor Inertia ($\times10^{-4}$kg.m^2)*3	0.0229 (0.0255)	0.04 (0.0426)	0.09 (0.12)	0.15 (0.18)
Mechanical Time Constant (ms)*3	1.28 (1.44)	0.838 (0.892)	0.64 (0.85)	0.41 (0.5)
Torque Constant -KT (N-m/A)	0.241	0.356	0.441	0.479
Voltage Constant -KE (mV/(rpm))	9.28	13.3	16.4	18
Armature Resistance (Ohm)	12.1	9.47	4.9	2.27
Armature Inductance (mH)	18.6	16.2	18.52	10.27
Electrical Time Constant (ms)	1.54	1.71	3.78	4.52
Brake Holding Torque [Nt-m (min)] *4	0.32	0.32	1.3	1.3
Brake Power Consumption (at 20°C) [W]	6.1	6.1	7.2	7.2
Brake Release Time [ms (Max.)]	20	20	20	20
Brake Pull-In Time [ms (Max.)]	35	35	50	50
Max. Radial Loading (N)*5	78	78	245	245
Max. Axial Loading (N)*5	54	54	74	74
Weight (kg)*3	0.38 (0.68)	0.5 (0.8)	1.1 (1.6)	1.4 (1.9)
Derating (%) (with oil seal)	20	10	10	5
Torque Feature (T-N Curve)				
Insulation Class	Class A (UL), Class B (CE)			
Insulation Resistance	> 100 MΩ, DC 500V			
Insulation Strength	1.8 kVac, 1 sec			
Vibration Level (μm)	V15			
Operating Temperature	0°C - 40°C*3			
Storage Temperature	-10°C - 80°C*3			
Storage & Operation Humidity	20 - 90%RH (non-condensing)			
Vibration Capacity	2.5 G			
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model)			
Certifications	CE cULus			

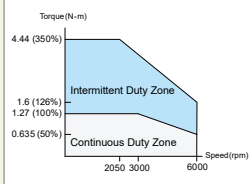
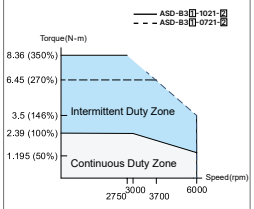
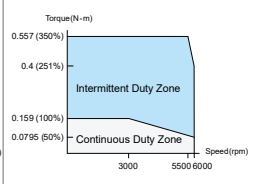
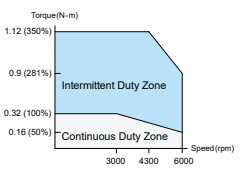
Notes:
1. In the servo motor model name, 1 represents the motor inertia and 2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F40, F60, F80: 250 mm x 250 mm x 6 mm
   Material: aluminum
3. ( ) = motor with brake
4. The built-in servo motor brake is only for keeping the object in a stopped state.
   Do not use it for deceleration or as a dynamic brake
5. Please follow the max. tolerant loading of the motor shaft end listed below during operation



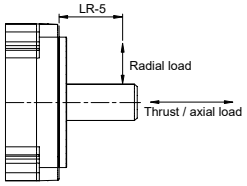
ECM-A3 Series Servo Motor Specifications

Electrical Specifications

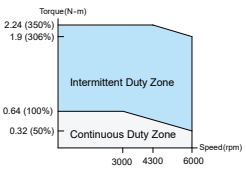
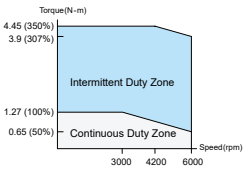
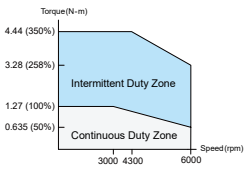
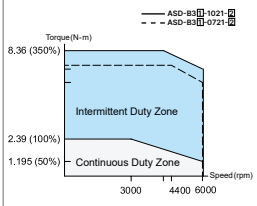
Low Inertia Motor ECM-A3L Series / High Inertia Motor ECM-A3H Series

	ECM-A3L-C2**0804**[*1]	ECM-A3L-C2**0807**[*1]	ECM-A3H-C2**040F**[*1]	ECM-A3H-C2**0401**[*1]
Rated Power (kW)	0.4	0.75	0.05	0.1
Rated Torque (N-m)[*2]	1.27	2.39	0.159	0.32
Maximum Torque (N-m)	4.44	8.36	0.557	1.12
Rated Speed (rpm)	3000			
Maximum Speed (rpm)	6000			
Rated Current (Arms)	2.6	5.1	0.64	0.9
Max. Instantaneous Current (Arms)	10.6	20.6	2.59	3.64
Rated Power Rate (kW/s)[*3]	45.8 (39.5)	102.2 (93)	5.56 (4.89)	13.6 (12.5)
Rotor Inertia ($\times 10^{-4}$kg.m^2)[*3]	0.352 (0.408)	0.559 (0.614)	0.0455 (0.0517)	0.0754 (0.0816)
Mechanical Time Constant (ms)[*3]	0.68 (0.78)	0.44 (0.48)	2.52 (2.86)	1.43 (1.55)
Torque Constant -KT (N-m/A)	0.488	0.469	0.248	0.356
Voltage Constant -KE (mV/(rpm))	17.9	17	9.54	12.9
Armature Resistance (Ohm)	1.6	0.6	12.5	8.34
Armature Inductance (mH)	10.6	4.6	13.34	11
Electrical Time Constant (ms)	6.63	7.67	1.07	1.32
Brake Holding Torque [Nt-m (min)] [*4]	2.5	2.5	0.32	0.32
Brake Power Consumption (at 20°C)[W]	8	8	6.1	6.1
Brake Release Time [ms (Max.)]	20	20	20	20
Brake Pull-In Time [ms (Max.)]	60	60	35	35
Max. Radial Loading (N)[*5]	392	392	78	78
Max. Axial Loading (N)[*5]	147	147	54	54
Weight (kg)[*3]	2.05 (2.85)	2.8 (3.6)	0.38 (0.68)	0.5 (0.8)
Derating (%) (with oil seal)	5	5	20	10
Torque Feature (T-N Curve)				
Insulation Class	Class A (UL), Class B (CE)			
Insulation Resistance	100 MΩ, DC 500V and above			
Insulation Strength	1.8k Vac, 1 sec			
Vibration Level (μm)	V15			
Operating Temperature	0°C - 40°C*[3]			
Storage Temperature	-10°C - 80°C*[3]			
Storage & Operation Humidity	20 - 90%RH (non-condensing)			
Vibration Capacity	2.5 G			
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model)			
Certifications				

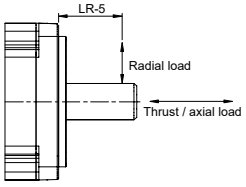
Notes:
1. In the servo motor model name, 1 represents the motor inertia and 2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F40, F60, F80: 250 mm x 250 mm x 6 mm
   Material: aluminum
3. ( ) = motor with brake
4. The built-in servo motor brake is only for keeping the object in a stopped state. Do not use it for deceleration or as a dynamic brake.
5. Please follow the max. tolerant loading of the motor shaft end listed below during operation



ECM-A3H High Inertia Series Servo Motor

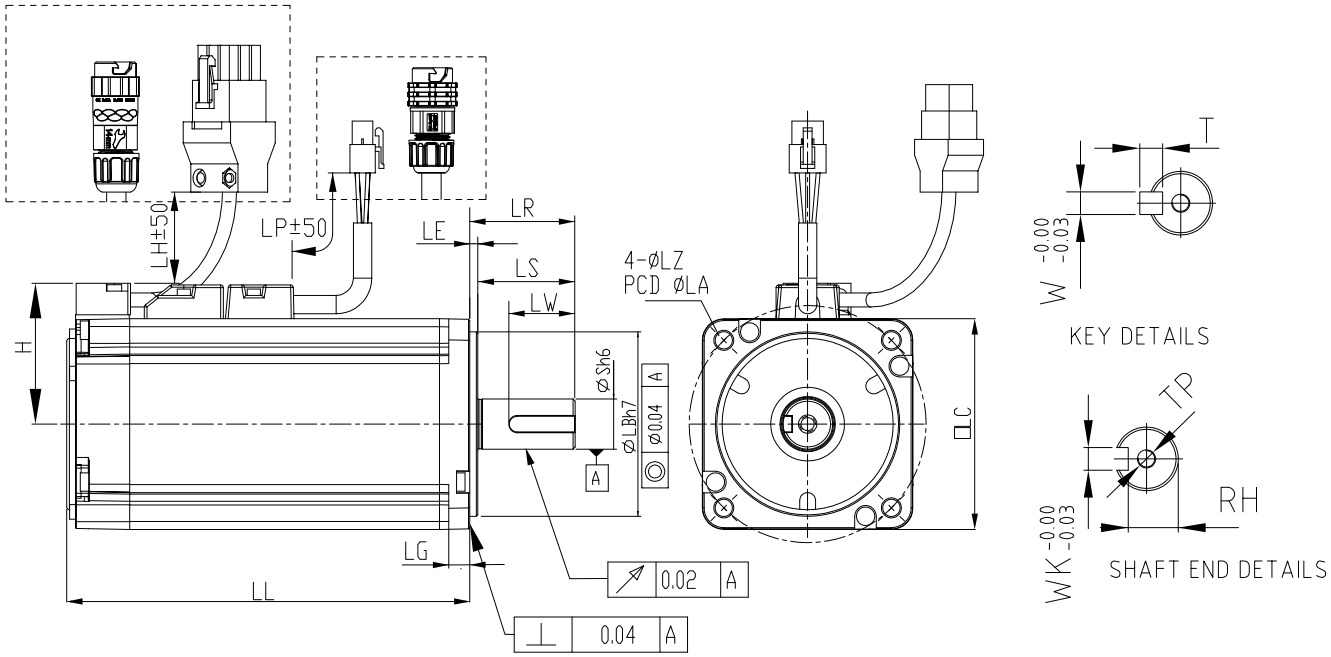
	ECM-A3H-C2**0602**[*1]	ECM-A3H-C2**0604**[*1]	ECM-A3H-C2**0804**[*1]	ECM-A3H-C2**0807**[*1]
Rated Power (kW)	0.2	0.4	0.4	0.75
Rated Torque (N-m)[*2]	0.64	1.27	1.27	2.39
Maximum Torque (N-m)	2.24	4.45	4.44	8.36
Rated Speed (rpm)	3000			
Maximum Speed (rpm)	6000			
Rated Current (Arms)	1.45	2.65	2.6	4.61
Max. Instantaneous Current (Arms)	5.3	9.8	9.32	16.4
Rated Power Rate (kW/s)[*3]	16.4 (14.6)	35.8 (33.6)	17.5 (15.07)	37.8 (34.41)
Rotor Inertia ($\times10^{-4}$kg.m^2)[*3]	0.25 (0.28)	0.45 (0.48)	0.92 (1.07)	1.51 (1.66)
Mechanical Time Constant (ms)[*3]	1.38 (1.54)	0.96 (1.02)	1.32 (1.54)	0.93 (1.02)
Torque Constant -KT (N-m/A)	0.441	0.479	0.49	0.52
Voltage Constant -KE (mV/(rpm))	16.4	17.2	17.9	18.7
Armature Resistance (Ohm)	3.8	1.68	1.19	0.57
Armature Inductance (mH)	8.15	4.03	4.2	2.2
Electrical Time Constant (ms)	2.14	2.40	3.53	3.86
Brake Holding Torque [Nt-m (min)] [*4]	1.3	1.3	2.5	2.5
Brake Power Consumption (at 20°C)[W]	7.2	7.2	8	8
Brake Release Time [ms (Max.)]	20	20	20	20
Brake Pull-In Time [ms (Max.)]	50	50	60	60
Max. Radial Loading (N)[*5]	245	245	392	392
Max. Axial Loading (N)[*5]	74	74	147	147
Weight (kg)[*3]	1.1 (1.6)	1.4 (1.9)	2.05 (2.85)	2.8 (3.6)
Derating (%) (with oil seal)	10	5	5	5
Torque Feature (T-N Curve)				
Insulation Class	Class A (UL), Class B (CE)			
Insulation Resistance	100 MΩ, DC 500V and above			
Insulation Strength	1.8k Vac, 1 sec			
Vibration Level (μm)	V15			
Operating Temperature	0°C - 40°C*[3]			
Storage Temperature	-10°C - 80°C*[3]			
Storage & Operation Humidity	20 - 90%RH (non-condensing)			
Vibration Capacity	2.5 G			
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model)			
Certifications	CE cULus			

Notes:
1. In the servo motor model name, 1 represents the motor inertia and 2 represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40ºC operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.
   F40, F60, F80: 250 mm x 250 mm x 6 mm
   Material: aluminum
3. ( ) = motor with brake
4. The built-in servo motor brake is only for keeping the object in a stopped state.
   Do not use it for deceleration or as a dynamic brake
5. Please follow the max. tolerant loading of the motor shaft end listed below during operation



ECM-A3 Series Servo Motor Specifications

Dimensions of Motors with Frame Size of 80 mm or Below

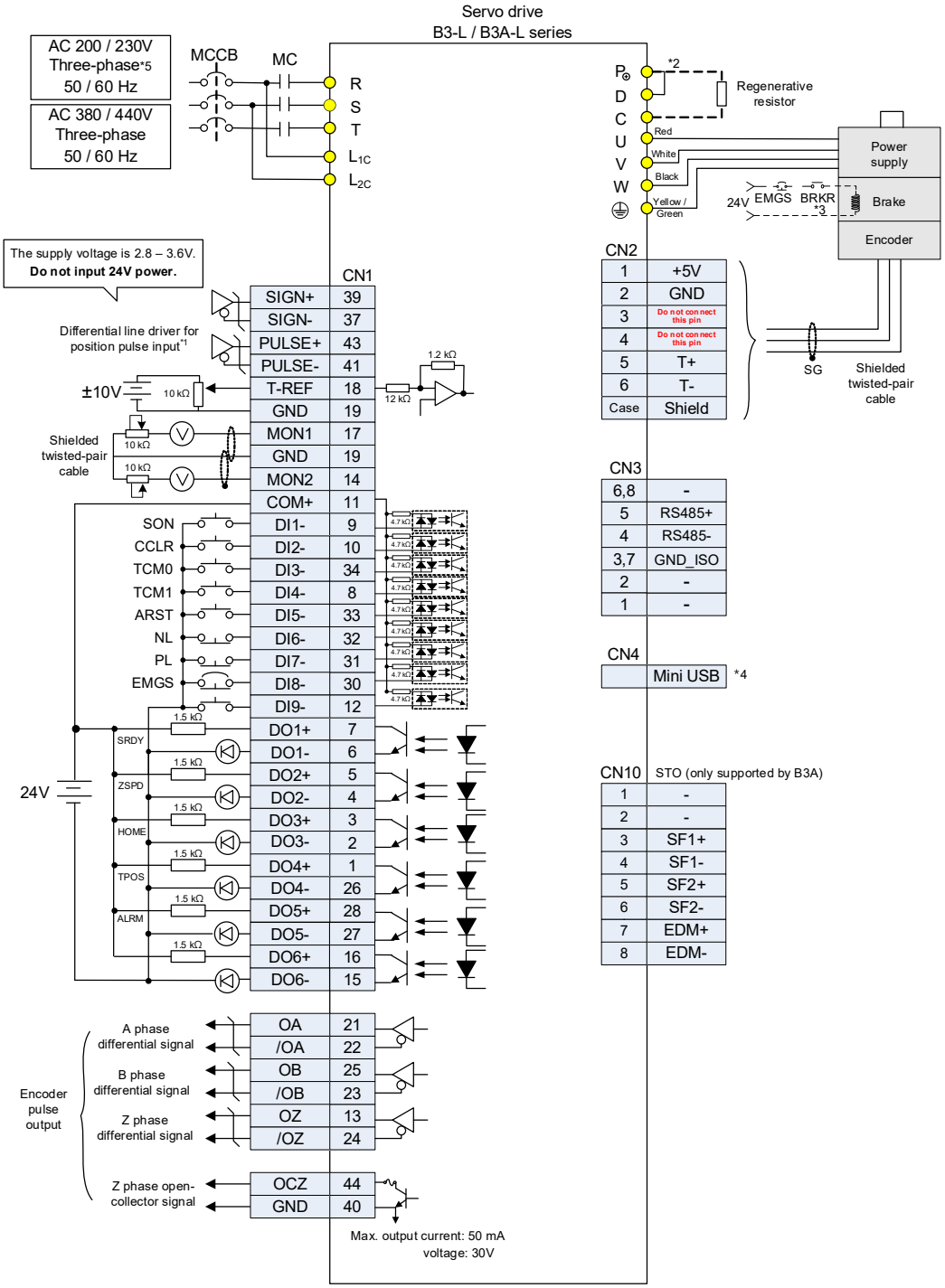


Model	C 2 040F 3 4 5	C 2 0401 3 4 5	C 2 0602 3 4 5	C 2 0604 3 4 5	C 2 0804 3 4 5	C 2 0807 3 4 5
LC	40	40	60	60	80	80
LZ	4.5	4.5	5.5	5.5	6.6	6.6
LA	46	46	70	70	90	90
S	8($^{+0}_{-0.009}$)	8($^{+0}_{0.009}$)	14($^{+0}_{-0.011}$)	14($^{+0}_{-0.011}$)	14($^{+0}_{-0.011}$)	19($^{+0}_{-0.013}$)
LB	30($^{+0}_{-0.021}$)	30($^{+0}_{-0.021}$)	50($^{+0}_{-0.025}$)	50($^{+0}_{-0.025}$)	70($^{+0}_{-0.030}$)	70($^{+0}_{-0.030}$)
LL (w/o brake)	70.6	85.3	84	106	93.7	115.8
LL (with brake)	105.4	120.1	117.6	139.7	131.2	153.2
LH	300	300	300	300	300	300
LP	300	300	300	300	300	300
H	34	34	43.5	43.5	54.5	54.5
LS	21.5	21.5	27	27	27	37
LR	25	25	30	30	30	40
LE	2.5	2.5	3	3	3	3
LG	5	5	7.5	7.5	8	8
LW	16	16	20	20	20	25
RH	6.2	6.2	11	11	11	15.5
WK	3	3	5	5	5	6
W	3	3	5	5	5	6
T	3	3	5	5	5	6
TP	M3 Depth 6	M3 Depth 6	M4 Depth 8	M4 Depth 8	M4 Depth 8	M6 Depth 10

Notes:
1. In the servo motor model name, 2 represents the encoder type, 3 represents the brake or keyway / oil seal type, 4 represents the shaft diameter and connector type, and 5 represents the special code.
2. When the special code of the C2 0807 3 4 5 model is Z, then its LS = 32 and LR = 35.
4. When the 4 in the motor model name is J or K, the connector is an IP67 waterproof connector

Control Mode Wiring

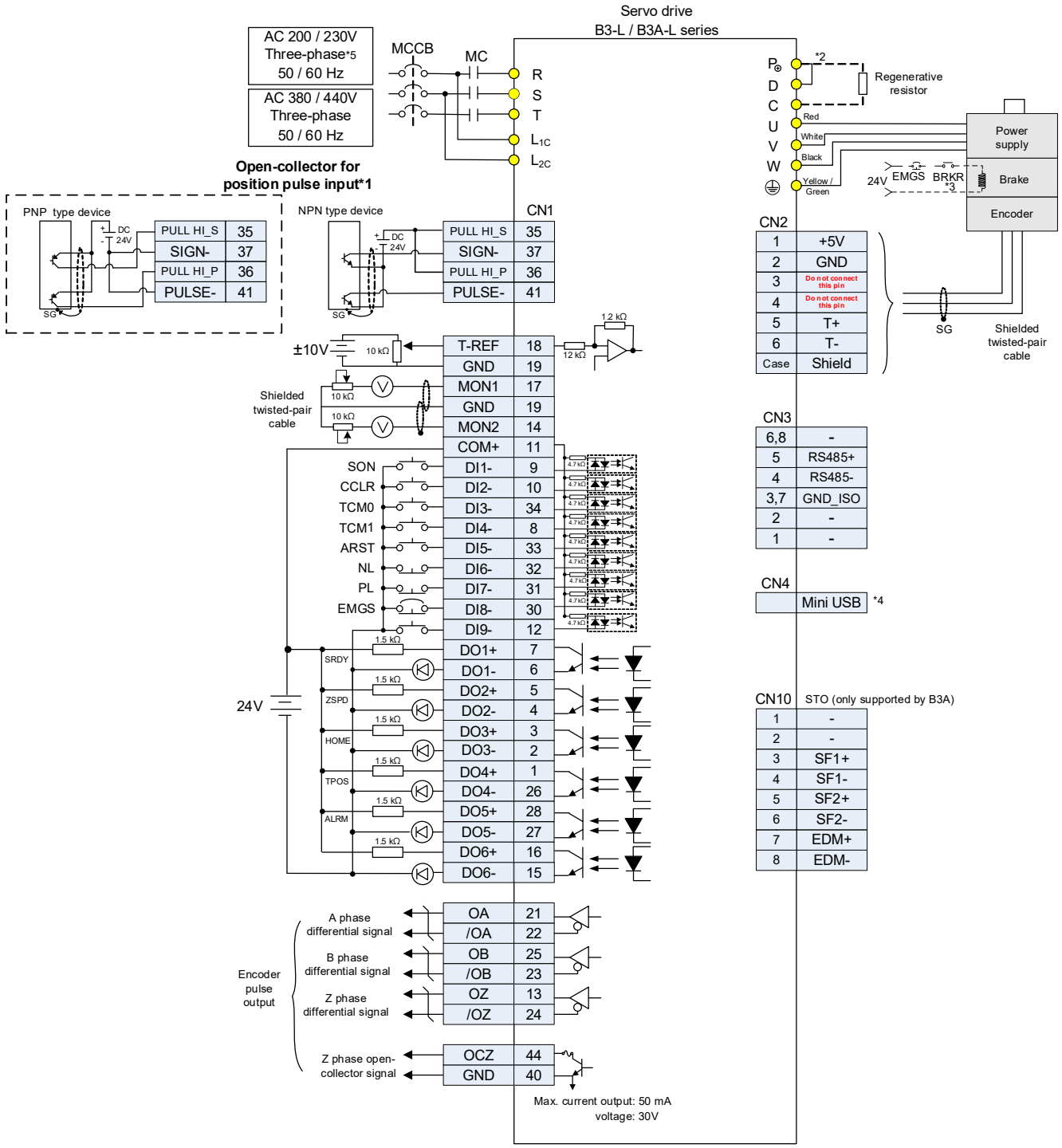
Position (PT) Mode Standard Wiring (Differential Pulse Signals)



Notes:
*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring
*2: Models of 200 W and below have no built0in brake resistor
*3: The brake coil has no polarity
*4: Connects to Mini USB (for PC communication)
*5: Models of 1.5 kW and below can use single-phase power supply

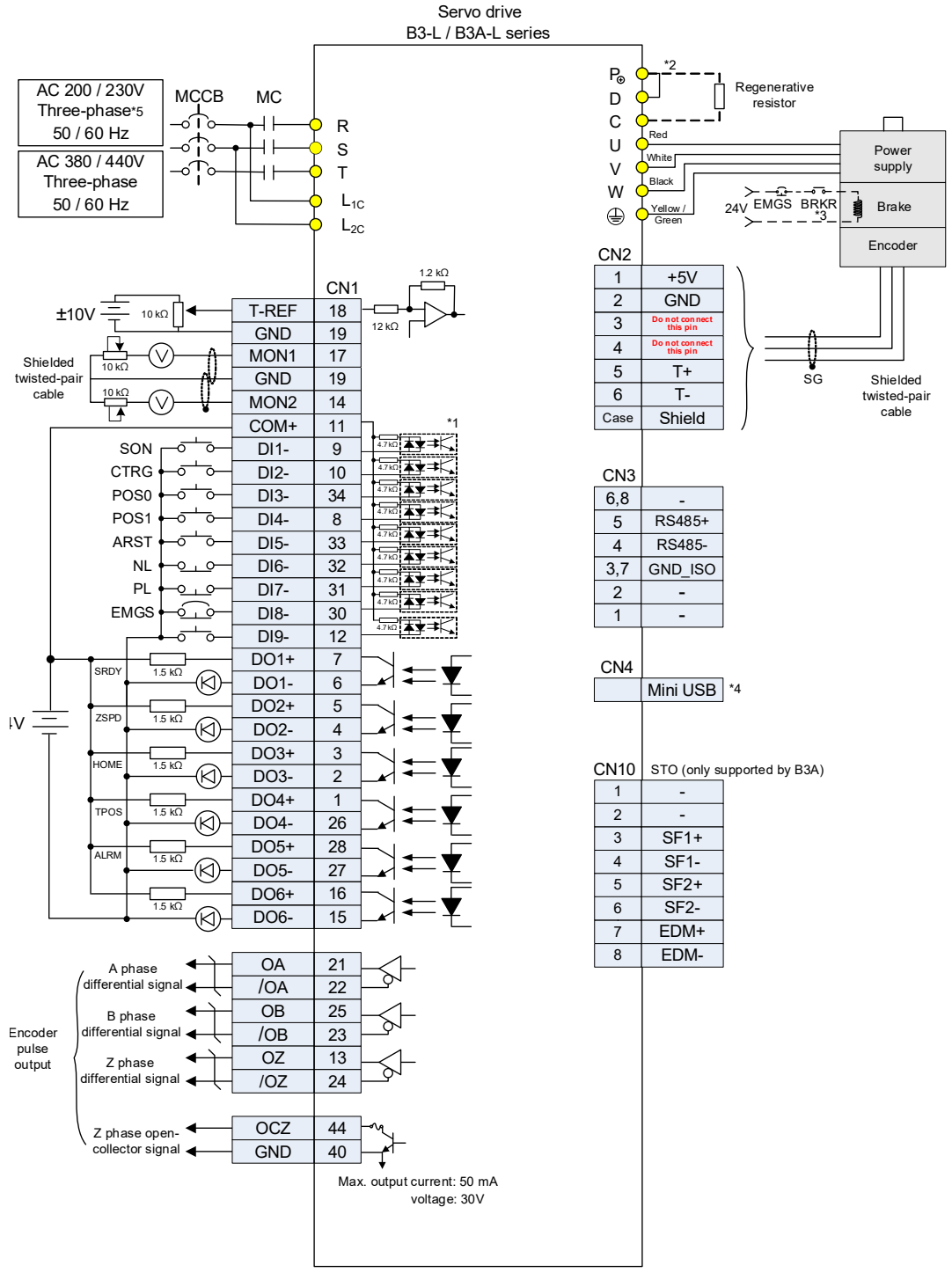
Control Mode Wiring

Position (PT) Control Mode (Open-Collector Pulse Signals)



Notes:
*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring
*2: Models of 200 W and below have no built0in brake resistor
*3: The brake coil has no polarity
*4: Connects to Mini USB (for PC communication)
*5: Models of 1.5 kW and below can use single-phase power supply

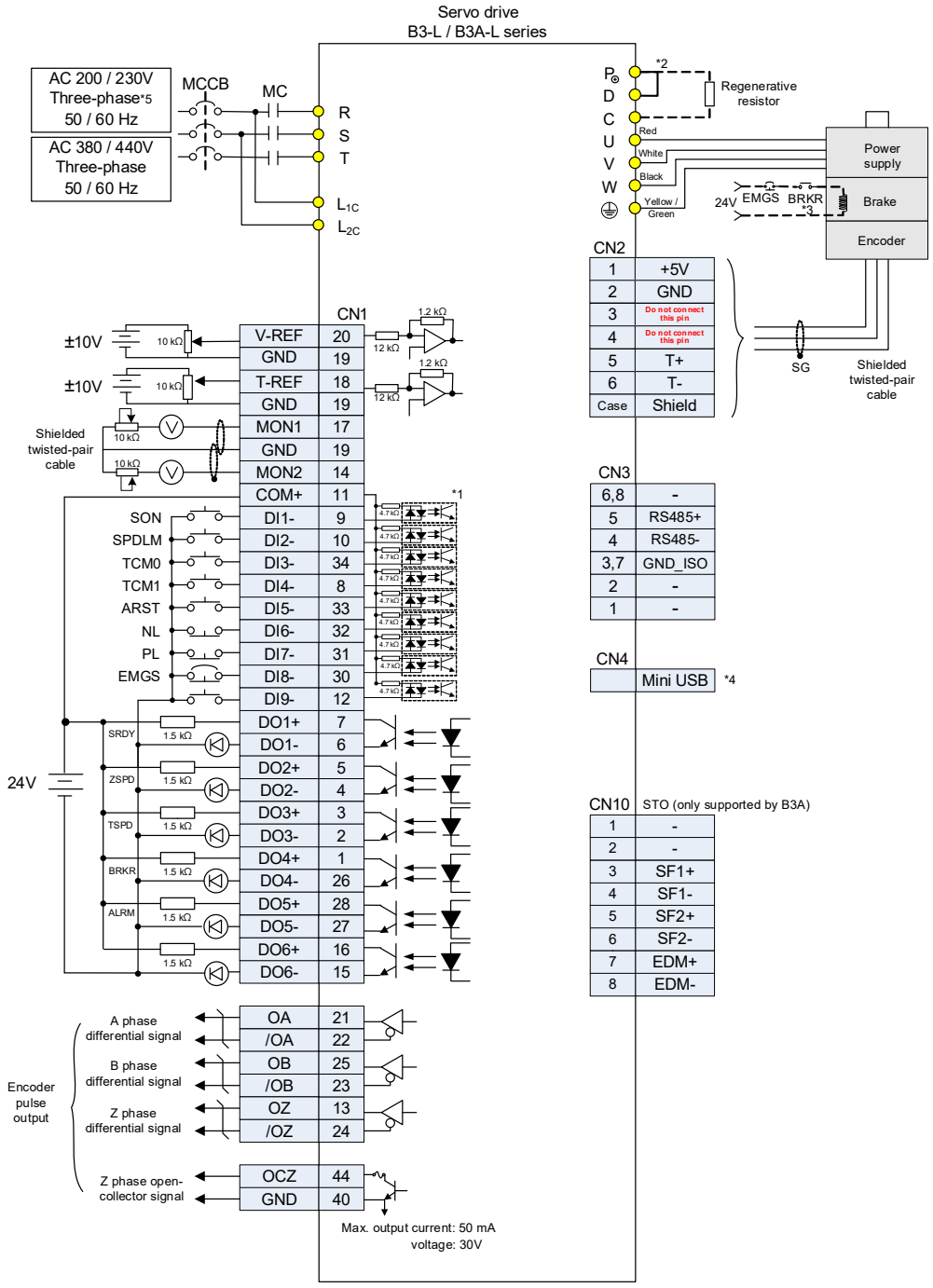
Position (PR) Mode Standard Wiring (Internal Position Commands)



Notes:
*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring
*2: Models of 200 W and below have no built0in brake resistor
*3: The brake coil has no polarity
*4: Connects to Mini USB (for PC communication)
*5: Models of 1.5 kW and below can use single-phase power supply

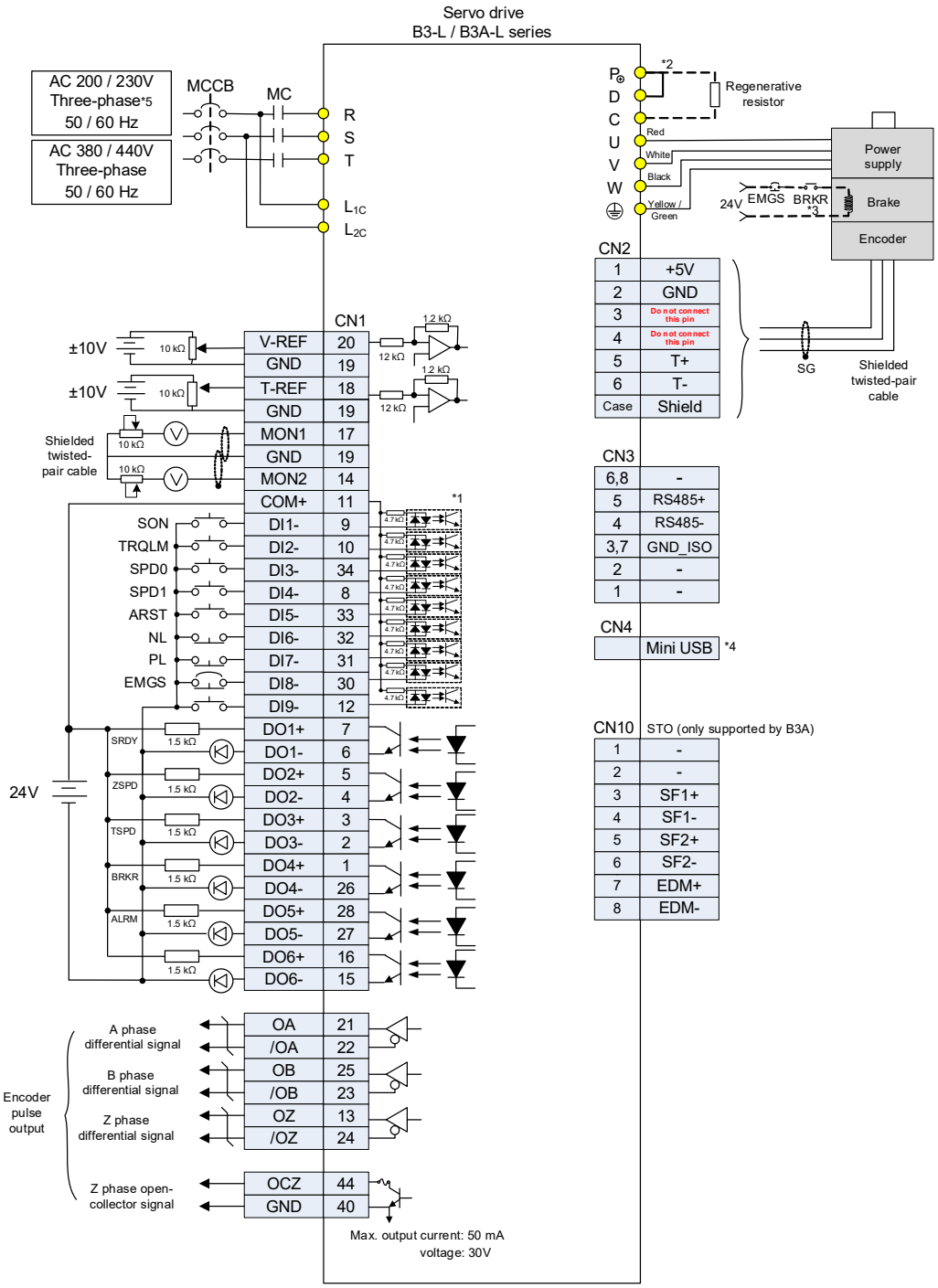
Control Mode Wiring

Torque (T) Mode Standard Wiring



Notes:
*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring
*2: Models of 200 W and below have no built0in brake resistor
*3: The brake coil has no polarity
*4: Connects to Mini USB (for PC communication)
*5: Models of 1.5 kW and below can use single-phase power supply

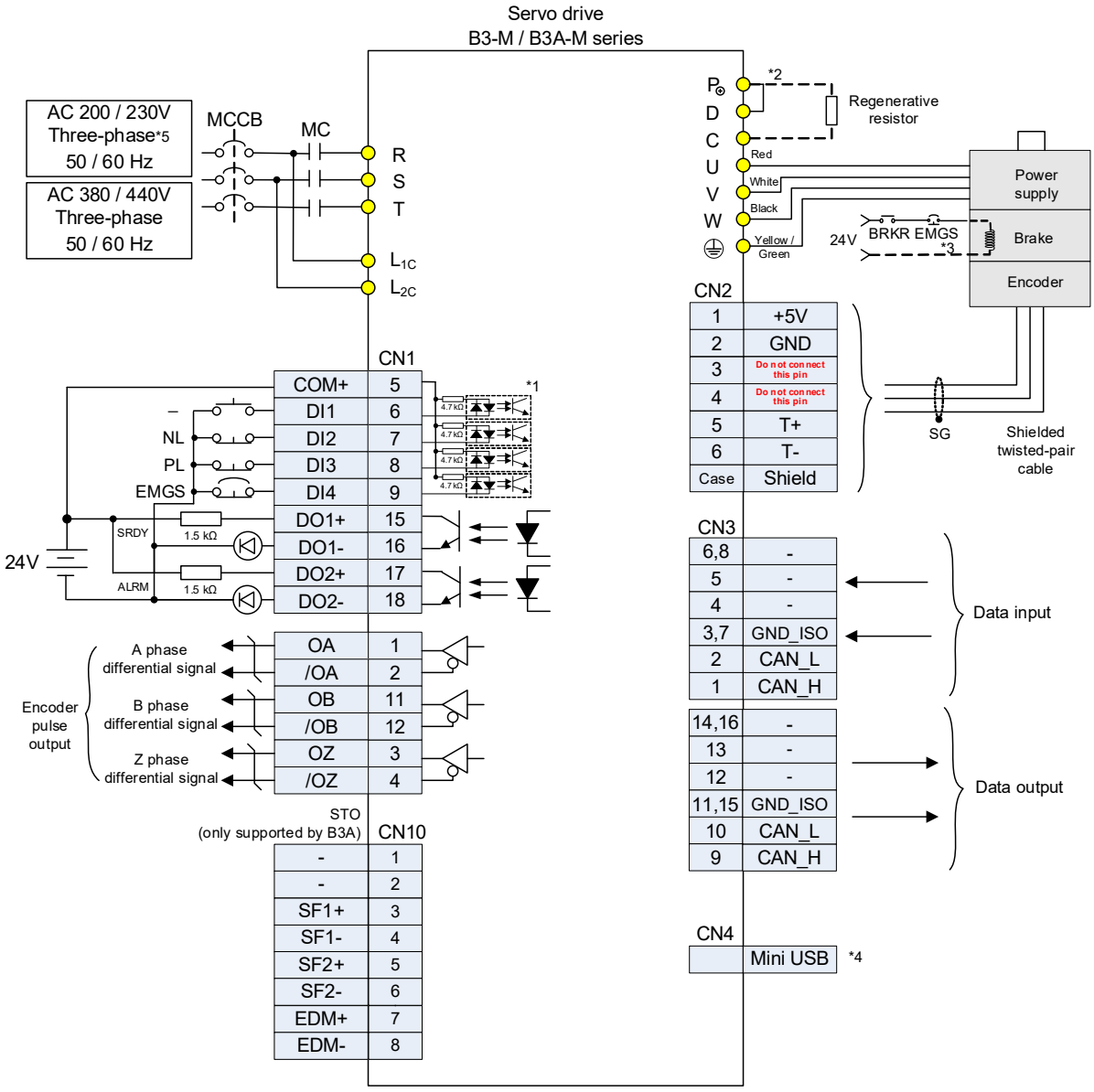
Speed (S) Mode Standard Wiring



Notes:
*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring
*2: Models of 200 W and below have no built0in brake resistor
*3: The brake coil has no polarity
*4: Connects to Mini USB (for PC communication)
*5: Models of 1.5 kW and below can use single-phase power supply

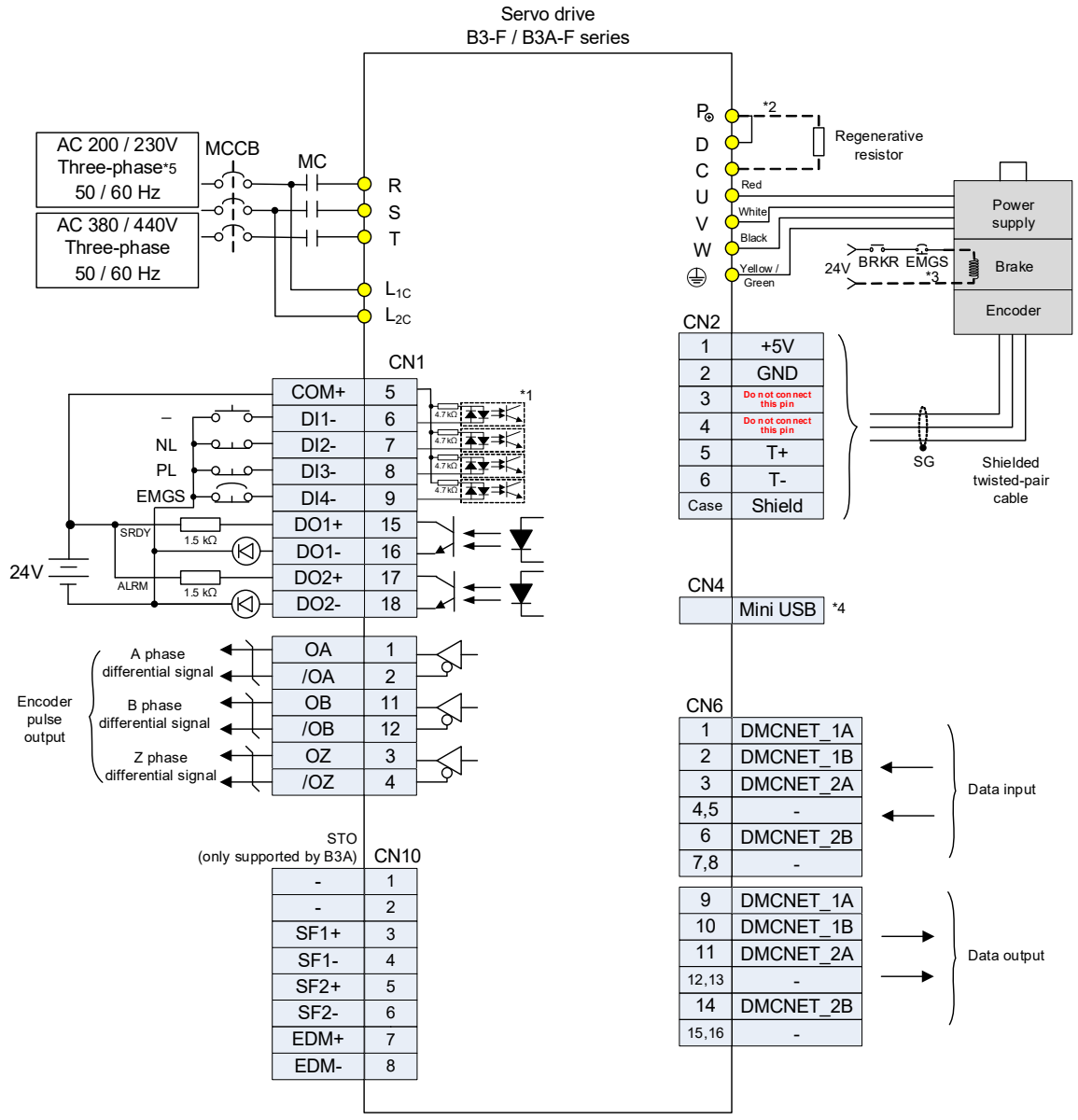
Control Mode Wiring

CANopen Communication Mode Standard Wiring



Notes:
*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring
*2: Models of 200 W and below have no built0in brake resistor
*3: The brake coil has no polarity
*4: Connects to Mini USB (for PC communication)
*5: Models of 1.5 kW and below can use single-phase power supply

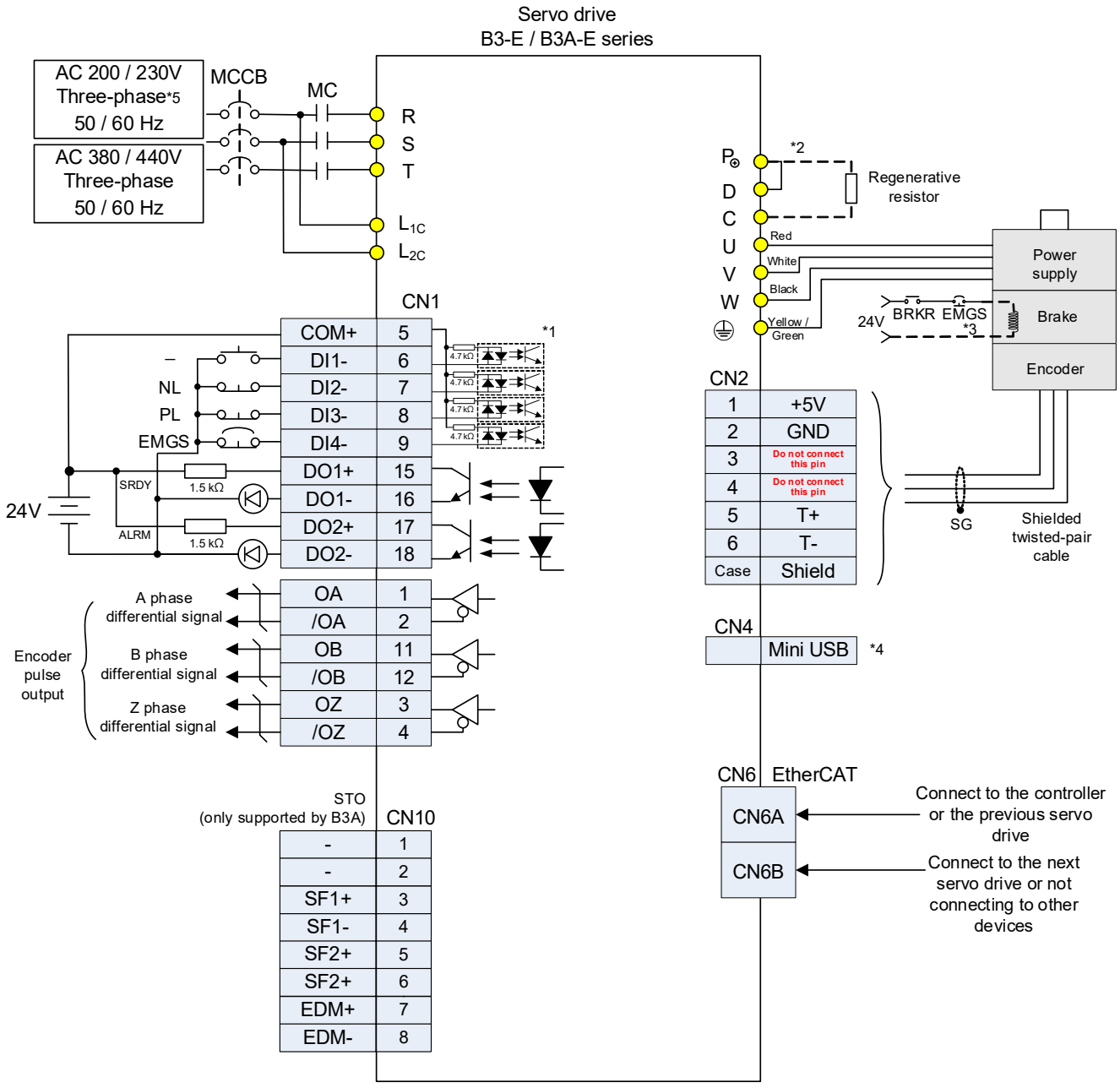
DMCNET Communication Mode Standard Wiring



Notes:
*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring
*2: Models of 200 W and below have no built0in brake resistor
*3: The brake coil has no polarity
*4: Connects to Mini USB (for PC communication)
*5: Models of 1.5 kW and below can use single-phase power supply

Control Mode Wiring

EtherCAT Communication Mode Standard Wiring



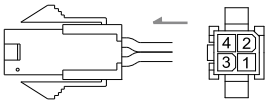
Notes:
*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring
*2: Models of 200 W and below have no built0in brake resistor
*3: The brake coil has no polarity
*4: Connects to Mini USB (for PC communication)
*5: Models of 1.5 kW and below can use single-phase power supply

Ordering Information

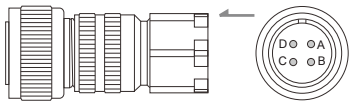
Accessories

Power Connectors

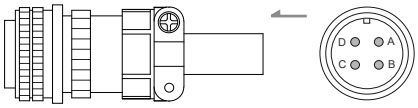
ASDBCAPW0000 (Motor 220V & 400V)
(for F80 and below)



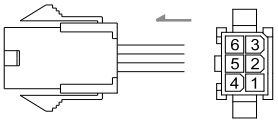
ACS3-CAPWA000
(for F100 - F130)
Mil-Spec: MIL 3106A18-10S



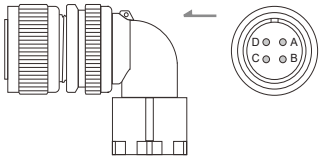
ACS3-CAPWE000
(for F180 5.5/7.5 kW & F200)
Mil-Spec: MIL 3106A32-17S



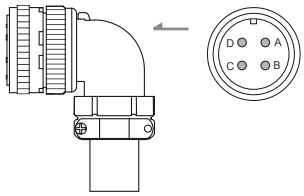
ASDBCAPW0100 (Motor 220V & 400V)
(for F80 and below with brake)



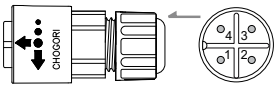
ACS3-CRPWA000
(for F100 - F130)
Mil-Spec: MIL 3108A18-10S



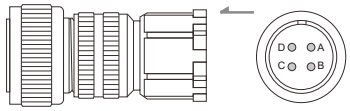
ACS3-CRPWE000
(for F180 5.5/7.5 kW & F200)
Mil-Spec: MIL 3108A32-17S



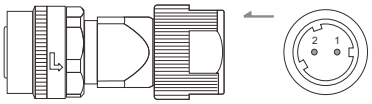
ACS3-CNPW1A00
(for F80 and below)
IP67 waterproof connector, for 220V



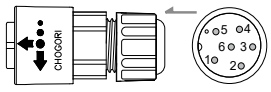
ACS3-CAPWC000
(for F180 2/3/4.5 kW)
Mil-Spec: MIL 3106A22-22S



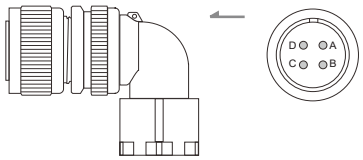
ACS3-CABRA000
(for F100 - F220 with brake)
Mil-Spec: CMV1-SP2S



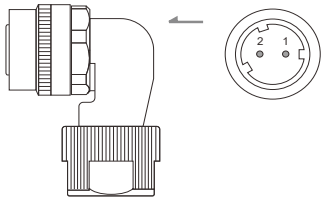
ACS3-CNPW2A00
(for F80 and below)
IP67 waterproof connector, for 220V



ACS3-CRPWC000
(for F180 2/3/4.5 kW)
Mil-Spec: MIL 3108A22-22S



ACS3-CRBRA000
(for F100 - F220 with brake)
Mil-Spec: CMV1-AP2S



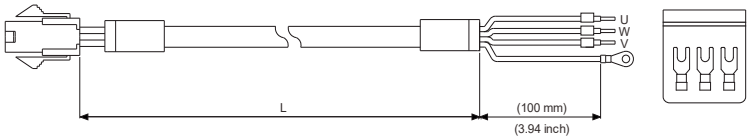
Ordering Information

Accessories

Power Cable

F40 - F80

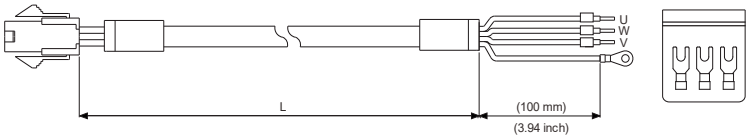
A3 / B3 motor, w/o brake, 220V



Cable	Model Name	UVW AWG (mm^2)	L mm	L inch
Standard	ACS3-CAPW1103	18 (0.82)	3000 ± 50	118 ± 2
	ACS3-CAPW1105	18 (0.82)	5000 ± 50	197 ± 2
	ACS3-CAPW1110	18 (0.82)	10000 ± 50	394 ± 4
	ACS3-CAPW1120	18 (0.82)	20000 ± 50	787 ± 4
Torsion-Resistant	ACS3-CAPF1103	18 (0.82)	3000 ± 50	118 ± 2
	ACS3-CAPF1105	18 (0.82)	5000 ± 50	197 ± 2
	ACS3-CAPF1110	18 (0.82)	10000 ± 50	394 ± 4
	ACS3-CAPF1120	18 (0.82)	20000 ± 50	787 ± 4

F40 - F80

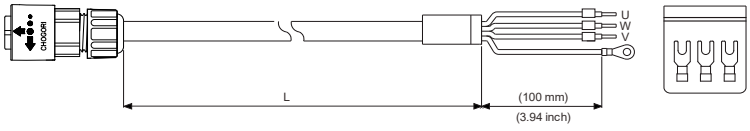
A3 / B3 motor, w/o brake, 400V



Cable	Model Name	UVW AWG (mm^2)	L mm	L inch
Standard	ACS3-CAPW3103	18 (0.82)	3000 ± 50	118 ± 2
	ACS3-CAPW3105	18 (0.82)	5000 ± 50	197 ± 2
	ACS3-CAPW3110	18 (0.82)	10000 ± 50	394 ± 4
	ACS3-CAPW3120	18 (0.82)	20000 ± 50	787 ± 4
Torsion-Resistant	ACS3-CAPF3103	18 (0.82)	3000 ± 50	118 ± 2
	ACS3-CAPF3105	18 (0.82)	5000 ± 50	197 ± 2
	ACS3-CAPF3110	18 (0.82)	10000 ± 50	394 ± 4
	ACS3-CAPF3120	18 (0.82)	20000 ± 50	787 ± 4

F40 - F80

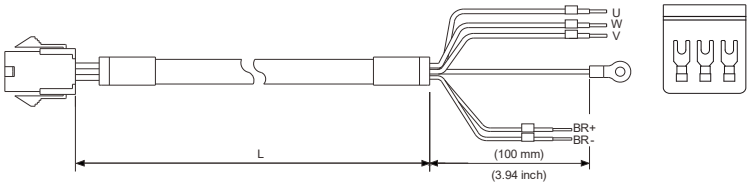
A3 / B3 motor, w/o brake, IP67 waterproof connector, 220V



Cable	Model Name	UVW AWG (mm^2)	L mm	L inch
Standard	ACS3-CAPW5103	18 (0.82)	3000 ± 50	118 ± 2
	ACS3-CAPW5105	18 (0.82)	5000 ± 50	197 ± 2
	ACS3-CAPW5110	18 (0.82)	10000 ± 100	394 ± 4
	ACS3-CAPW5120	18 (0.82)	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAPF5103	18 (0.82)	3000 ± 50	118 ± 2
	ACS3-CAPF5105	18 (0.82)	5000 ± 50	197 ± 2
	ACS3-CAPF5110	18 (0.82)	10000 ± 100	394 ± 4
	ACS3-CAPF5120	18 (0.82)	20000 ± 100	787 ± 4

F40 - F80

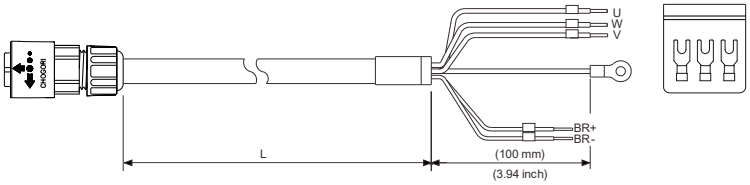
A3 / B3 motor, with brake (220V & 400V)



Cable	Model Name	UVW AWG (mm^2)	L mm	L inch
Standard	ACS3-CAPW2103	18 (0.82)	3000 ± 50	118 ± 2
	ACS3-CAPW2105	18 (0.82)	5000 ± 50	197 ± 2
	ACS3-CAPW2110	18 (0.82)	10000 ± 100	394 ± 4
	ACS3-CAPW2120	18 (0.82)	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAPF2103	18 (0.82)	3000 ± 50	118 ± 2
	ACS3-CAPF2105	18 (0.82)	5000 ± 50	197 ± 2
	ACS3-CAPF2110	18 (0.82)	10000 ± 100	394 ± 4
	ACS3-CAPF2120	18 (0.82)	20000 ± 100	787 ± 4

F40 - F80

A3 / B3 motor, with brake, IP67 waterproof connector, 220V

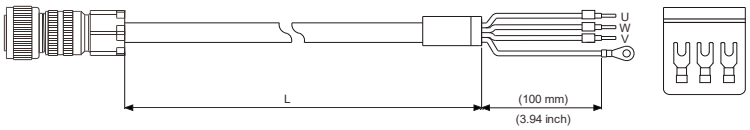


Cable	Model Name	UVW AWG (mm^2)	L mm	L inch
Standard	ACS3-CAPW6103	18 (0.82)	3000 ± 50	118 ± 2
	ACS3-CAPW6105	18 (0.82)	5000 ± 50	197 ± 2
	ACS3-CAPW6110	18 (0.82)	10000 ± 100	394 ± 4
	ACS3-CAPW6120	18 (0.82)	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAPF6103	18 (0.82)	3000 ± 50	118 ± 2
	ACS3-CAPF6105	18 (0.82)	5000 ± 50	197 ± 2
	ACS3-CAPF6110	18 (0.82)	10000 ± 100	394 ± 4
	ACS3-CAPF6120	18 (0.82)	20000 ± 100	787 ± 4

Power Cable

F100 - F130

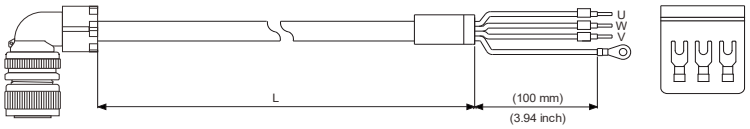
B3 motor, w/o brake, straight connector



Cable	Model Name	UVW AWG (mm²)	L mm	L inch
Standard	ACS3-CAPWA203	16 (1.3)	3000 ± 50	118 ± 2
	ACS3-CAPWA205	16 (1.3)	5000 ± 50	197 ± 2
	ACS3-CAPWA210	16 (1.3)	10000 ± 100	394 ± 4
	ACS3-CAPWA220	16 (1.3)	20000 ± 100	787 ± 4
	ACS3-CAPWA303	14 (2.1)	3000 ± 50	118 ± 2
	ACS3-CAPWA305	14 (2.1)	5000 ± 50	197 ± 2
	ACS3-CAPWA310	14 (2.1)	10000 ± 100	394 ± 4
	ACS3-CAPWA320	14 (2.1)	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAPFA203	16 (1.3)	3000 ± 50	118 ± 2
	ACS3-CAPFA205	16 (1.3)	5000 ± 50	197 ± 2
	ACS3-CAPFA210	16 (1.3)	10000 ± 100	394 ± 4
	ACS3-CAPFA220	16 (1.3)	20000 ± 100	787 ± 4
	ACS3-CAPFA303	14 (2.1)	3000 ± 50	118 ± 2
	ACS3-CAPFA305	14 (2.1)	5000 ± 50	197 ± 2
	ACS3-CAPFA310	14 (2.1)	10000 ± 100	394 ± 4
	ACS3-CAPFA320	14 (2.1)	20000 ± 100	787 ± 4

F100 - F130

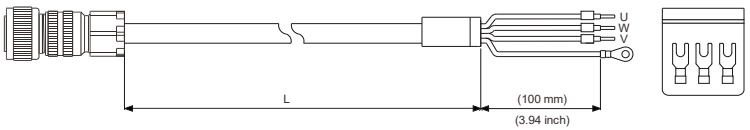
B3 motor, w/o brake, angular connector



Cable	Model Name	UVW AWG (mm²)	L mm	L inch
Standard	ACS3-CRPWA203	16 (1.3)	3000 ± 50	118 ± 2
	ACS3-CRPWA205	16 (1.3)	5000 ± 50	197 ± 2
	ACS3-CRPWA210	16 (1.3)	10000 ± 100	394 ± 4
	ACS3-CRPWA220	16 (1.3)	20000 ± 100	787 ± 4
	ACS3-CRPWA303	14 (2.1)	3000 ± 50	118 ± 2
	ACS3-CRPWA305	14 (2.1)	5000 ± 50	197 ± 2
	ACS3-CRPWA310	14 (2.1)	10000 ± 100	394 ± 4
	ACS3-CRPWA320	14 (2.1)	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CRPFA203	16 (1.3)	3000 ± 50	118 ± 2
	ACS3-CRPFA205	16 (1.3)	5000 ± 50	197 ± 2
	ACS3-CRPFA210	16 (1.3)	10000 ± 100	394 ± 4
	ACS3-CRPFA220	16 (1.3)	20000 ± 100	787 ± 4
	ACS3-CRPFA303	14 (2.1)	3000 ± 50	118 ± 2
	ACS3-CRPFA305	14 (2.1)	5000 ± 50	197 ± 2
	ACS3-CRPFA310	14 (2.1)	10000 ± 100	394 ± 4
	ACS3-CRPFA320	14 (2.1)	20000 ± 100	787 ± 4

F180, 2/3/4.5kW

B3 motor, w/o brake, straight connector



Cable	Model Name	UVW AWG (mm²)	L mm	L inch
Standard	ACS3-CAPWC403	12 (3.3)	3000 ± 50	118 ± 2
	ACS3-CAPWC405	12 (3.3)	5000 ± 50	197 ± 2
	ACS3-CAPWC410	12 (3.3)	10000 ± 100	394 ± 4
	ACS3-CAPWC420	12 (3.3)	20000 ± 100	787 ± 4
	ACS3-CAPWC503	10 (5.3)	3000 ± 50	118 ± 2
	ACS3-CAPWC505	10 (5.3)	5000 ± 50	197 ± 2
	ACS3-CAPWC510	10 (5.3)	10000 ± 100	394 ± 4
	ACS3-CAPWC520	10 (5.3)	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAPFC403	12 (3.3)	3000 ± 50	118 ± 2
	ACS3-CAPFC405	12 (3.3)	5000 ± 50	197 ± 2
	ACS3-CAPFC410	12 (3.3)	10000 ± 100	394 ± 4
	ACS3-CAPFC420	12 (3.3)	20000 ± 100	787 ± 4
	ACS3-CAPFC503	10 (5.3)	3000 ± 50	118 ± 2
	ACS3-CAPFC505	10 (5.3)	5000 ± 50	197 ± 2
	ACS3-CAPFC510	10 (5.3)	10000 ± 100	394 ± 4
	ACS3-CAPFC520	10 (5.3)	20000 ± 100	787 ± 4

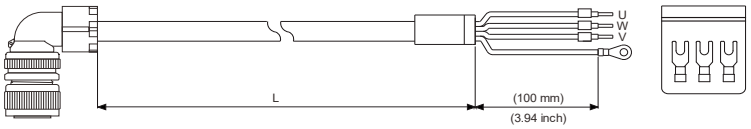
Ordering Information

Accessories

Power Cable

F180, 2 / 3 / 4.5 kW

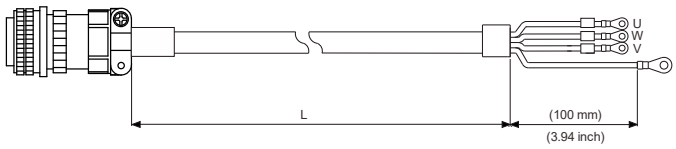
B3 motor, w/o brake, angular connector



Cable	Model Name	UVW AWG (mm²)	L mm	L inch
Standard	ACS3-CRPWC403	12 (3.3)	3000 ± 50	118 ± 2
	ACS3-CRPWC405	12 (3.3)	5000 ± 50	197 ± 2
	ACS3-CRPWC410	12 (3.3)	10000 ± 100	394 ± 4
	ACS3-CRPWC420	12 (3.3)	20000 ± 100	787 ± 4
	ACS3-CRPWC503	10 (5.3)	3000 ± 50	118 ± 2
	ACS3-CRPWC505	10 (5.3)	5000 ± 50	197 ± 2
	ACS3-CRPWC510	10 (5.3)	10000 ± 100	394 ± 4
	ACS3-CRPWC520	10 (5.3)	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CRPFC403	12 (3.3)	3000 ± 50	118 ± 2
	ACS3-CRPFC405	12 (3.3)	5000 ± 50	197 ± 2
	ACS3-CRPFC410	12 (3.3)	10000 ± 100	394 ± 4
	ACS3-CRPFC420	12 (3.3)	20000 ± 100	787 ± 4
	ACS3-CRPFC503	10 (5.3)	3000 ± 50	118 ± 2
	ACS3-CRPFC505	10 (5.3)	5000 ± 50	197 ± 2
	ACS3-CRPFC510	10 (5.3)	10000 ± 100	394 ± 4
	ACS3-CRPFC520	10 (5.3)	20000 ± 100	787 ± 4

F180, 5.5 / 7.5 kW

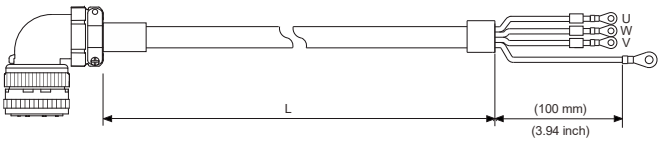
B3 motor, w/o brake, straight connector



Cable	Model Name	UVW AWG (mm²)	L mm	L inch
Standard	ACS3-CAPWE603	8 (8.4)	3000 ± 50	118 ± 2
	ACS3-CAPWE605	8 (8.4)	5000 ± 50	197 ± 2
	ACS3-CAPWE610	8 (8.4)	10000 ± 100	394 ± 4
	ACS3-CAPWE620	8 (8.4)	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAPFE603	8 (8.4)	3000 ± 50	118 ± 2
	ACS3-CAPFE605	8 (8.4)	5000 ± 50	197 ± 2
	ACS3-CAPFE610	8 (8.4)	10000 ± 100	394 ± 4
	ACS3-CAPFE620	8 (8.4)	20000 ± 100	787 ± 4

F180, 5.5 / 7.5 kW

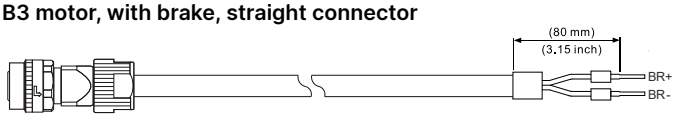
B3 motor, w/o brake, angular connector



Cable	Model Name	UVW AWG (mm²)	L mm	L inch
Standard	ACS3-CRPWE603	8 (8.4)	3000 ± 50	118 ± 2
	ACS3-CRPWE605	8 (8.4)	5000 ± 50	197 ± 2
	ACS3-CRPWE610	8 (8.4)	10000 ± 100	394 ± 4
	ACS3-CRPWE620	8 (8.4)	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CRPFE603	8 (8.4)	3000 ± 50	118 ± 2
	ACS3-CRPFE605	8 (8.4)	5000 ± 50	197 ± 2
	ACS3-CRPFE610	8 (8.4)	10000 ± 100	394 ± 4
	ACS3-CRPFE620	8 (8.4)	20000 ± 100	787 ± 4

F100 - F220 Brake Cable

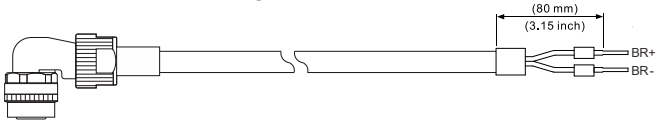
B3 motor, with brake, straight connector



Cable	Model Name	UVW AWG (mm²)	L mm	L inch
Standard	ACS3-CABRA103	20 (0.5)	3000 ± 50	118 ± 2
	ACS3-CABRA105	20 (0.5)	5000 ± 50	197 ± 2
	ACS3-CABRA110	20 (0.5)	10000 ± 100	394 ± 4
	ACS3-CABRA120	20 (0.5)	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CABFA103	20 (0.5)	3000 ± 50	118 ± 2
	ACS3-CABFA105	20 (0.5)	5000 ± 50	197 ± 2
	ACS3-CABFA110	20 (0.5)	10000 ± 100	394 ± 4
	ACS3-CABFA120	20 (0.5)	20000 ± 100	787 ± 4

F100 - F220 Brake Cable

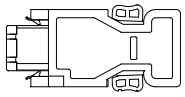
B3 motor, with brake, angular connector



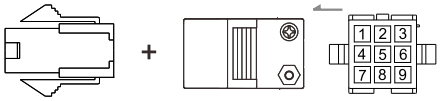
Cable	Model Name	UVW AWG (mm²)	L mm	L inch
Standard	ACS3-CRBRA103	20 (0.5)	3000 ± 50	118 ± 2
	ACS3-CRBRA105	20 (0.5)	5000 ± 50	197 ± 2
	ACS3-CRBRA110	20 (0.5)	10000 ± 100	394 ± 4
	ACS3-CRBRA120	20 (0.5)	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CRBFA103	20 (0.5)	3000 ± 50	118 ± 2
	ACS3-CRBFA105	20 (0.5)	5000 ± 50	197 ± 2
	ACS3-CRBFA110	20 (0.5)	10000 ± 100	394 ± 4
	ACS3-CRBFA120	20 (0.5)	20000 ± 100	787 ± 4

Encoder Connectors

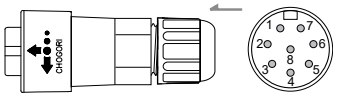
ACS3-CNENC200
(connecting to drive)



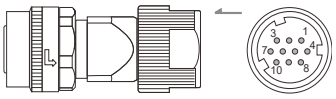
ACS3-CNEN1000
(for F80 and below)



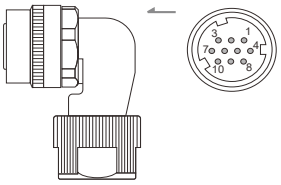
ACS3-CNEN2A00
(for F80 and below)
IP67 waterproof connector



ACS3-CNEN2700
(for F100 - F180)
Mil-Spec: CMV1-SP10S



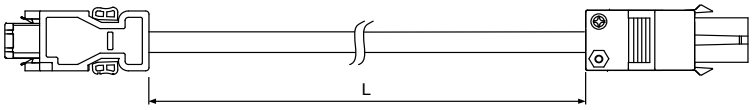
ACS3-CNEN2C00
(for F100 - F180)
Mil-Spec: CMV1-AP10S



Encoder Cable (Incremental Type)

F40 - F80

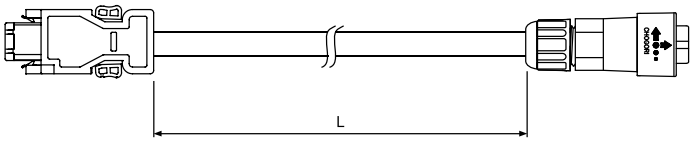
B3 motor, w/o brake, straight connector



Cable	Model Name	L	
		mm	inch
Standard	ACS3-CAEN0103	3000 ± 50	118 ± 2
	ACS3-CAEN0105	5000 ± 50	197 ± 2
	ACS3-CAEN0110	10000 ± 100	394 ± 4
	ACS3-CAEN0120	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAEF0103	3000 ± 50	118 ± 2
	ACS3-CAEF0105	5000 ± 50	197 ± 2
	ACS3-CAEF0110	10000 ± 100	394 ± 4
	ACS3-CAEF0120	20000 ± 100	787 ± 4

F40 - F80

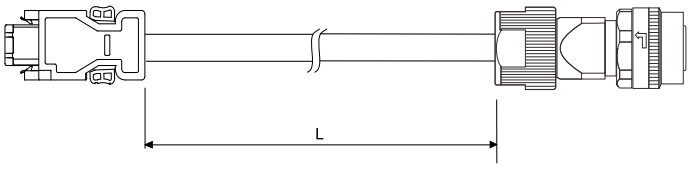
A3 / B3 motor, IP67 waterproof connector



Cable	Model Name	L	
		mm	inch
Standard	ACS3-CAEN1103	3000 ± 50	118 ± 2
	ACS3-CAEN1105	5000 ± 50	197 ± 2
	ACS3-CAEN1110	10000 ± 100	394 ± 4
	ACS3-CAEN1120	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAEF1103	3000 ± 50	118 ± 2
	ACS3-CAEF1105	5000 ± 50	197 ± 2
	ACS3-CAEF1110	10000 ± 100	394 ± 4
	ACS3-CAEF1120	20000 ± 100	787 ± 4

F100 - F180

B3 motor, straight connector



Cable	Model Name	L	
		mm	inch
Standard	ACS3-CAENA103	3000 ± 50	118 ± 2
	ACS3-CAENA105	5000 ± 50	197 ± 2
	ACS3-CAENA110	10000 ± 100	394 ± 4
	ACS3-CAENA120	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAEFA103	3000 ± 50	118 ± 2
	ACS3-CAEFA105	5000 ± 50	197 ± 2
	ACS3-CAEFA110	10000 ± 100	394 ± 4
	ACS3-CAEFA120	20000 ± 100	787 ± 4

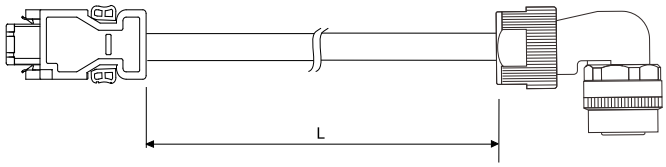
Ordering Information

Accessories

Encoder Cable (Incremental Type)

F100 - F180

A3 / B3 motor, angular connector

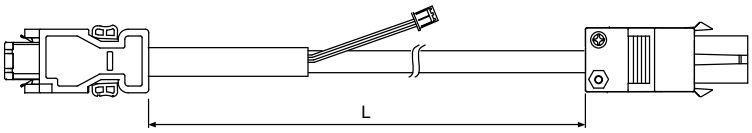


Cable	Model Name	L	
		mm	inch
Standard	ACS3-CREN0103	3000 ± 50	118 ± 2
	ACS3-CREN0105	5000 ± 50	197 ± 2
	ACS3-CREN0110	10000 ± 100	394 ± 4
	ACS3-CREN0120	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CREF0103	3000 ± 50	118 ± 2
	ACS3-CREF0105	5000 ± 50	197 ± 2
	ACS3-CREF0110	10000 ± 100	394 ± 4
	ACS3-CREF0120	20000 ± 100	787 ± 4

Encoder Cable (Absolute Type)

F40 - F80

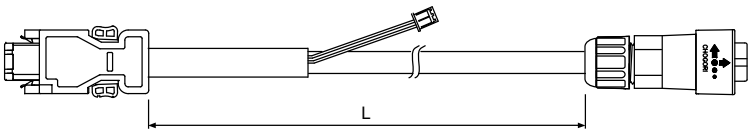
A3 / B3 motor



Cable	Model Name	L	
		mm	inch
Standard	ACS3-CAEA0103	3000 ± 50	118 ± 2
	ACS3-CAEA0105	5000 ± 50	197 ± 2
	ACS3-CAEA0110	10000 ± 100	394 ± 4
	ACS3-CAEA0120	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAEB0103	3000 ± 50	118 ± 2
	ACS3-CAEB0105	5000 ± 50	197 ± 2
	ACS3-CAEB0110	10000 ± 100	394 ± 4
	ACS3-CAEB0120	20000 ± 100	787 ± 4

F40 - F80

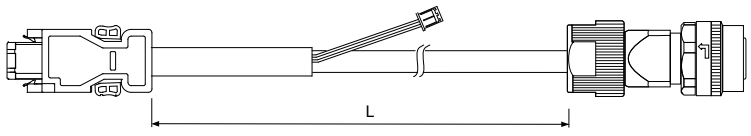
A3 / B3 motor, IP67 waterproof connector



Cable	Model Name	L	
		mm	inch
Standard	ACS3-CAEA1103	3000 ± 50	118 ± 2
	ACS3-CAEA1105	5000 ± 50	197 ± 2
	ACS3-CAEA1110	10000 ± 100	394 ± 4
	ACS3-CAEA1120	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAEB1103	3000 ± 50	118 ± 2
	ACS3-CAEB1105	5000 ± 50	197 ± 2
	ACS3-CAEB1110	10000 ± 100	394 ± 4
	ACS3-CAEB1120	20000 ± 100	787 ± 4

F100 - F180

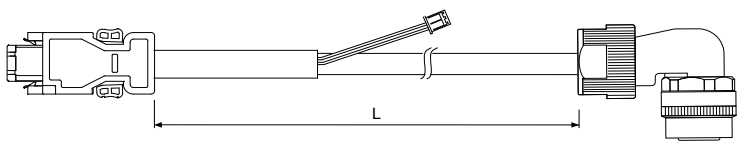
A3 / B3 motor, straight connector



Cable	Model Name	L	
		mm	inch
Standard	ACS3-CAEAA103	3000 ± 50	118 ± 2
	ACS3-CAEAA105	5000 ± 50	197 ± 2
	ACS3-CAEAA110	10000 ± 100	394 ± 4
	ACS3-CAEAA120	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CAEBA103	3000 ± 50	118 ± 2
	ACS3-CAEBA105	5000 ± 50	197 ± 2
	ACS3-CAEBA110	10000 ± 100	394 ± 4
	ACS3-CAEBA120	20000 ± 100	787 ± 4

F100 - F180

A3 / B3 motor, angular connector

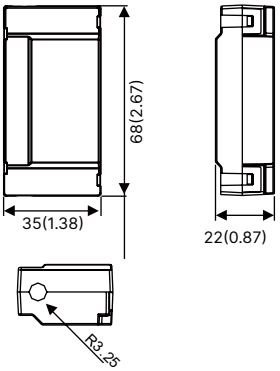


Cable	Model Name	L	
		mm	inch
Standard	ACS3-CREAA103	3000 ± 50	118 ± 2
	ACS3-CREAA105	5000 ± 50	197 ± 2
	ACS3-CREAA110	10000 ± 100	394 ± 4
	ACS3-CREAA120	20000 ± 100	787 ± 4
Torsion-Resistant	ACS3-CREBA103	3000 ± 50	118 ± 2
	ACS3-CREBA105	5000 ± 50	197 ± 2
	ACS3-CREBA110	10000 ± 100	394 ± 4
	ACS3-CREBA120	20000 ± 100	787 ± 4

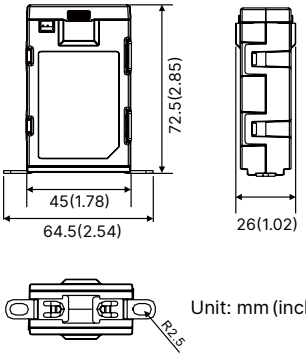
Unit: mm(inch)

Absolute Battery Box

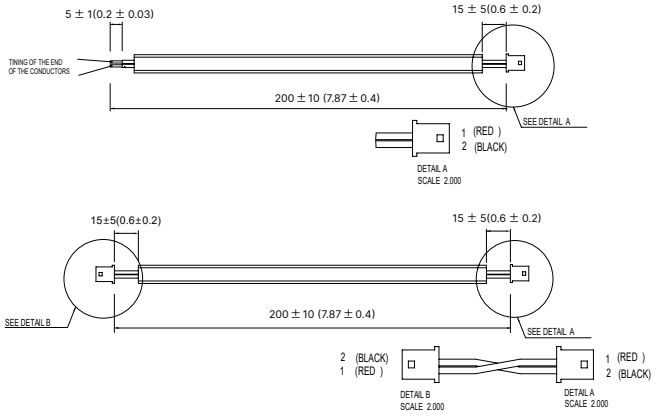
Single Battery Box
ASD-MDBT0100



Double Battery Box
ASD-MDBT0200



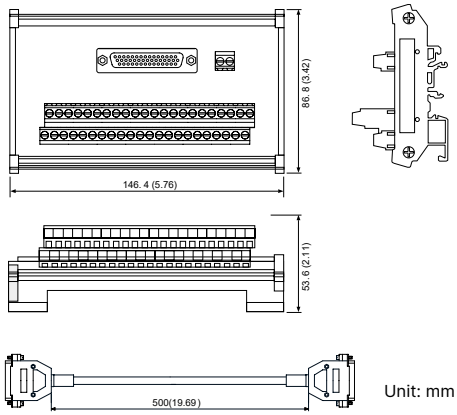
Unit: mm (inch)



Note: Contact Delta Global Service team if ordering battery box cord only

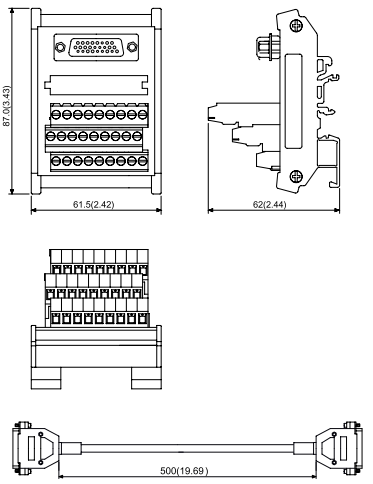
CN1 Terminal Block Module

ACS3-MDTB4400 (for B3-L)



Unit: mm (inch)

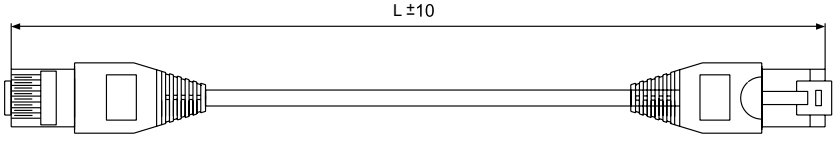
ACS3-MDTD2600 (for B3-M, F, and E)



Unit: mm (inch)

CN3 CANopen Communication Cable

UC-CMC030-01A, UC-CMC050-01A



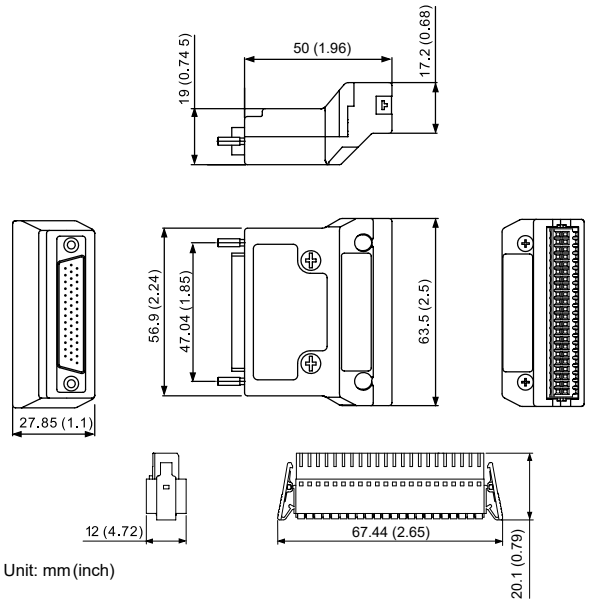
Item	Part No.	L	
		mm	inch
1	UC-CMC030-01A	3000 ± 10	11 ± 0.4
2	UC-CMC050-01A	5000 ± 10	19 ± 0.4

Ordering Information

Accessories

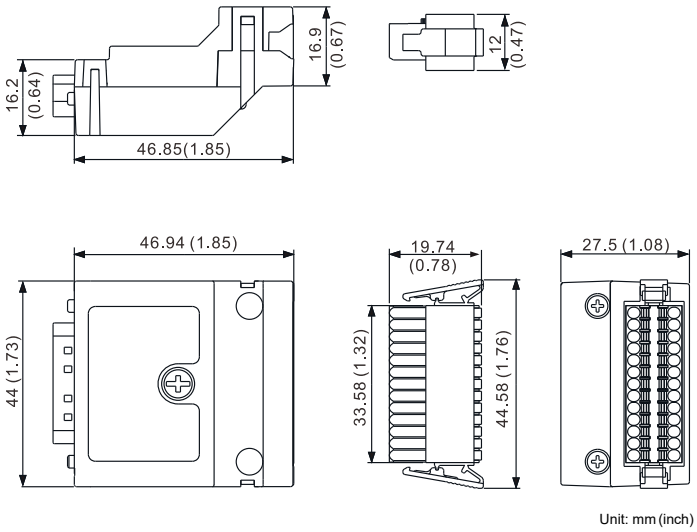
CN1 Connectors

ACS3-IFSC4444 (for B3-L)



Unit: mm (inch)

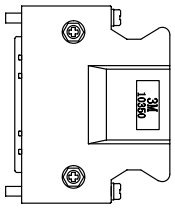
ACS3-IFSC2626 (for B3-M, F, and E)



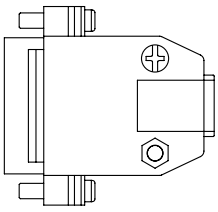
Unit: mm (inch)

CN1 Connectors

ACS3-CNTB0400 (for B3-L)

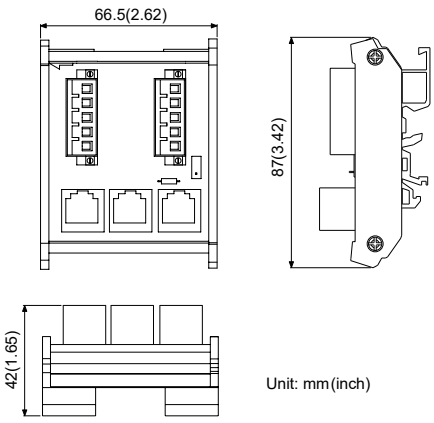


ACS3-CNTB0500 (for B3-M, F, and E)



CN3 CANopen Distribution Box

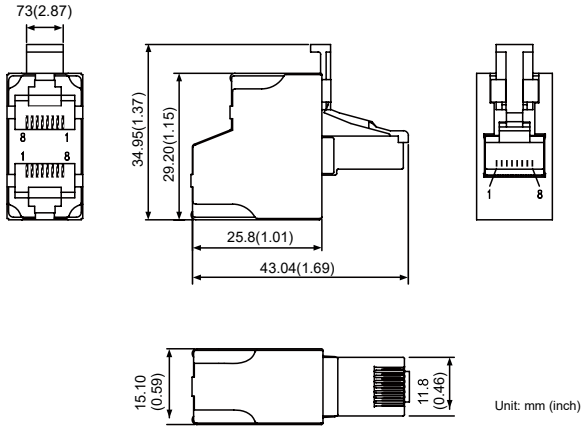
TAP-CN03



Unit: mm (inch)

CN3 RS-485 Tap

ACS3-CNADC3RC



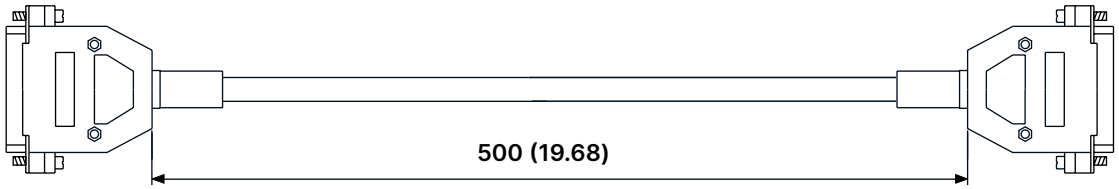
Unit: mm (inch)

Ordering Information

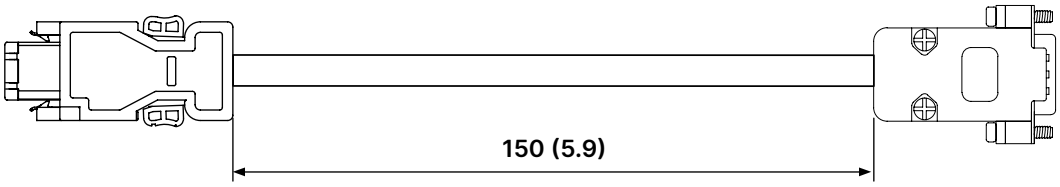
Accessories

B3 / B2 Conversion Cables

B3 / B2 CN1 conversion cable (for B3-L)
ACS3-CABDC1



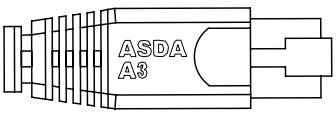
B3 / B2 CN2 conversion cable
ACS3-CABDC2

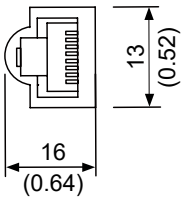


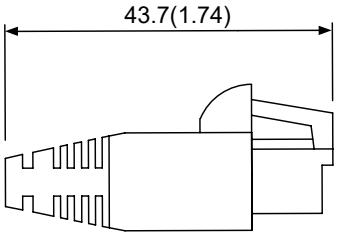
Unit: mm (inch)

CN3 RS-485 / CANOpen Terminal Resistor

ACS3-CNADC3TR



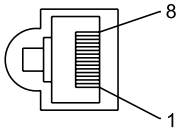


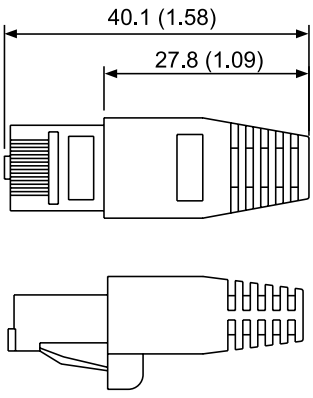


Unit: mm (inch)

CN6 DMCNET Terminal Resistor

ASD-TR-DM0008





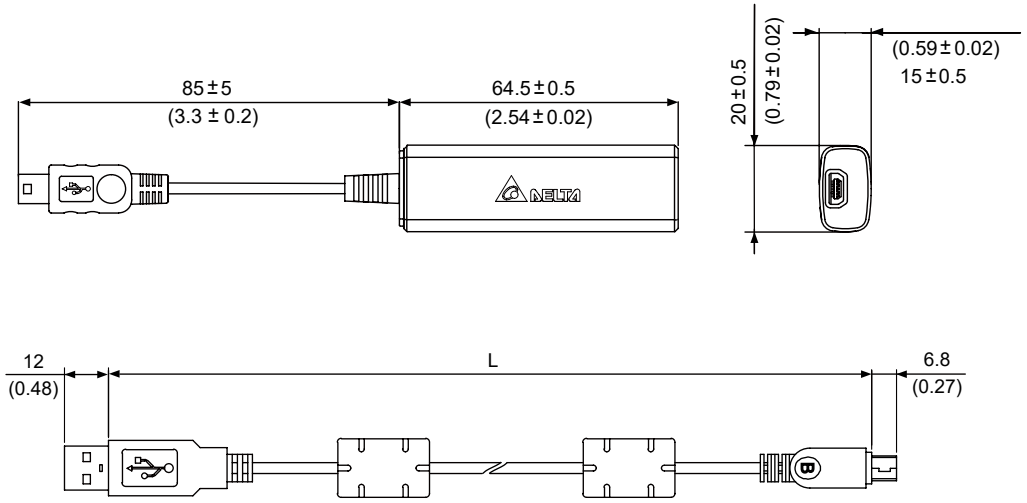
Unit: mm (inch)

Ordering Information

Accessories

CN4 Mini USB Communication Module

UC-PRG015-01B、UC-PRG030-01B

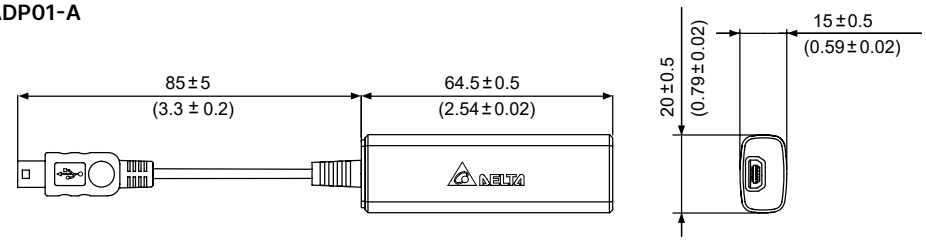


Unit: mm (inch)

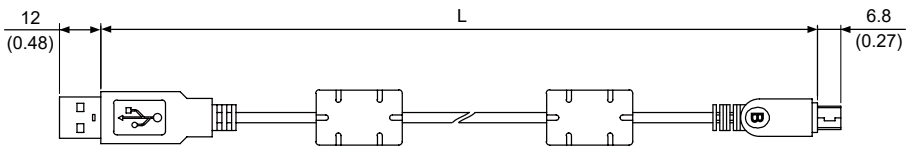
Item	Part No.	L	
		mm	inch
1	UC-PRG015-01B	1500 ± 10	59 ± 4
2	UC-PRG030-01B	3000 ± 10	118 ± 4

CN4 Mini USB Communication Module

UC-ADP01-A



UC-PRG015-01A, UC-PRG030-01A



Unit: mm (inch)

Item	Part No.	L	
		mm	inch
1	UC-PRG015-01A	1500 ± 10	59 ± 4
2	UC-PRG030-01A	3000 ± 10	118 ± 4

Servo Drive Standards

Standard	ASD-B3 servo drive conforms to the highest standards and recommendations for electrical industrial control equipment (IEC, EN)
EMC Immunity	EN61000-4-6 Level 3
	EN61000-4-3 Level 3
	EN61000-4-2 Level 2 and 3
	EN61000-4-4 Level 3
	EN61000-4-8 Level 4
	EN61000-4-5 Level 3
Conducted and Radiated EMC Interference of Servo Drive	EN61800-3 Level 3, with external EMC filter
CE Marking	B3 series servo drives have the CE marking and conform to the European Union Low Voltage Directive (2014/35/EU) and EMC Directive (2014/30/EU)
Product Certification	UL (USA); cUL (CA) Note: B3 400V (with no UL)
STO	EN 61800-5-2:2007
	EN 61800-5-2:2017
	EN 61800-5-1:2007 + A1:2017, 4.3, 5.2.3.8, 5.2.6
	EN IEC 61800-3:2018
	EN 62061:2005 + AC:2010 + A1:2013 + A2:2015
	EN ISO 13849-1:2015
	EN 61508 Parts 1-7:2010
Protection Level	IEC/EN50178, IP20
Vibration Resistance Protection	20Hz and below (1G), 20 - 50Hz (0.6G), conforms to IEC/EN50178
Shock Resistance Protection	15gn 11ms; conforms to IEC/EN600028-2-27
Pollution Degree	Degree 2 conforms to IEC/EN61800-5-1

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