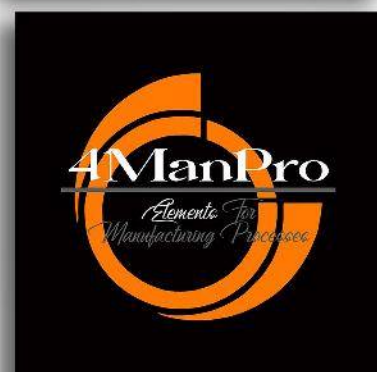




# **SERVO MOTORES Serie A2**

**MESA CRUZADA  
CON  
DESPLAZAMIENTO  
HIDRÁULICO  
REFORZADA**





# 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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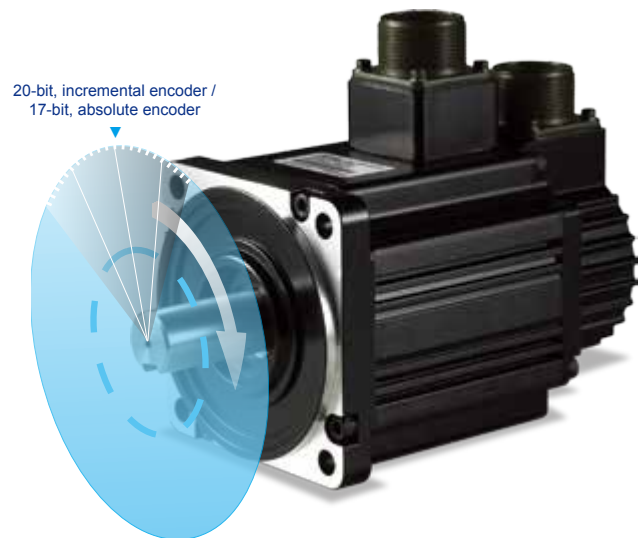
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# ASDA-A2 Series Features

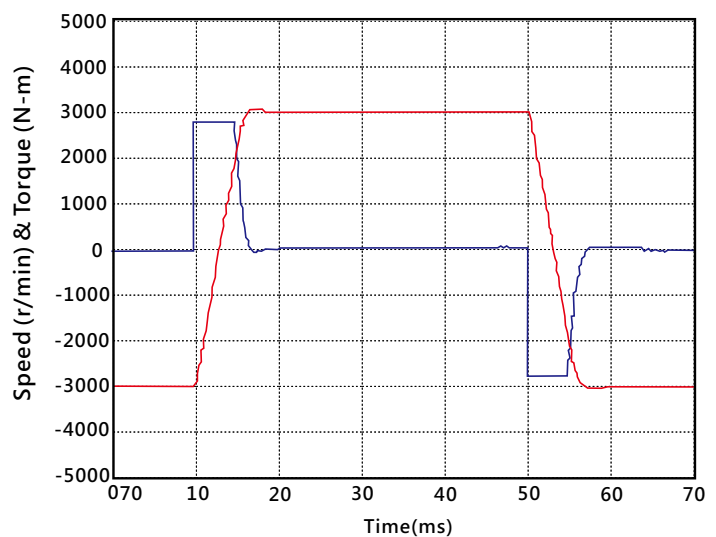
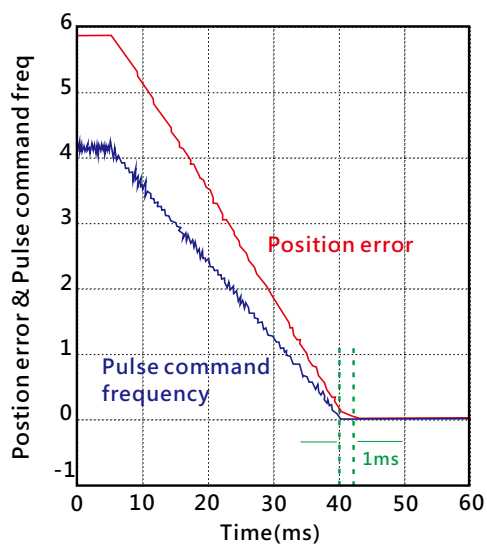
## High Positioning Accuracy

- ▶ 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

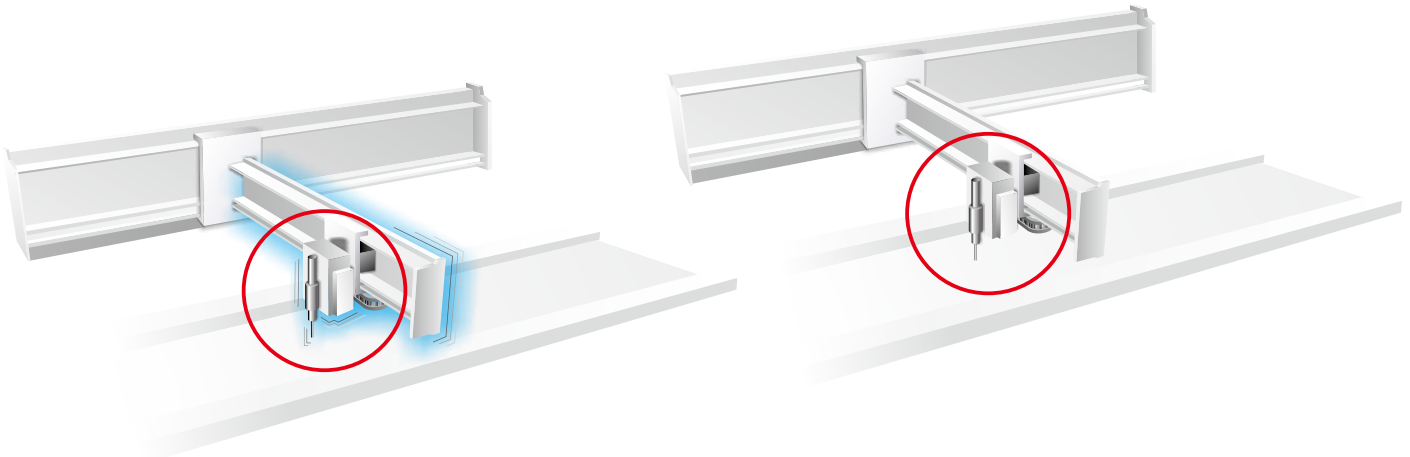
- ▶ Up to 1kHz frequency response.
  - ▶ Settling time below 1ms.
  - ▶ 7ms acceleration time for speeds from -3000 r/min to 3000 r/min with an empty load!
- (Note: The test record of a 400W motor with 60mm frame size)



## 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.

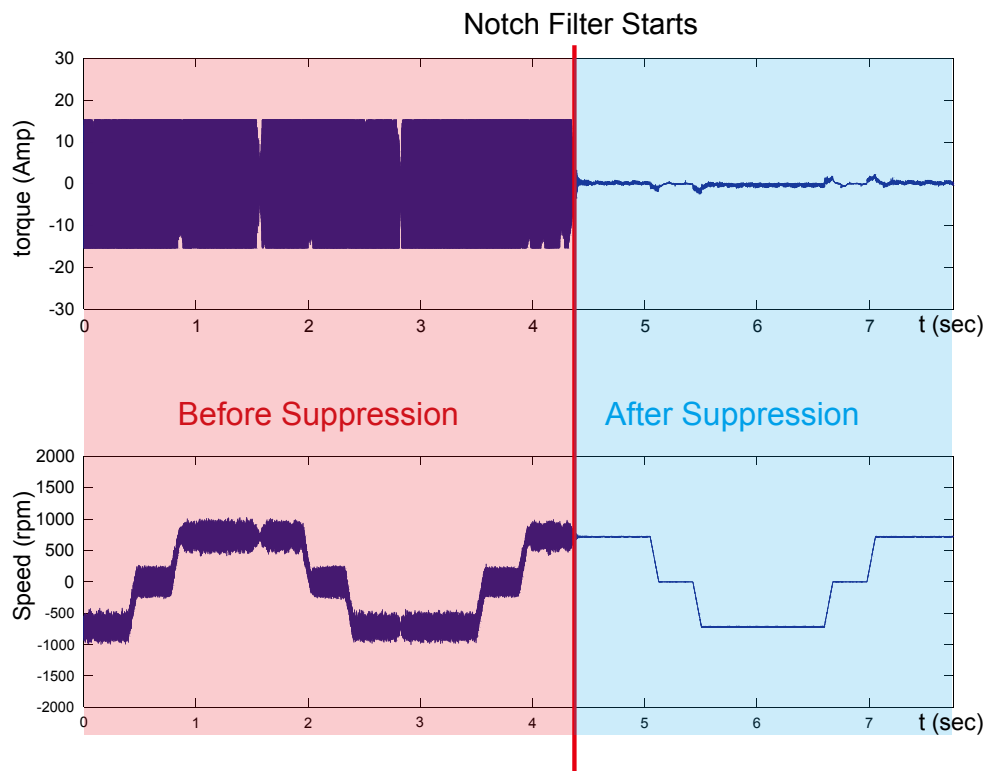


Without Suppression  
Function When Settling

With Suppression  
Function When Settling

### ► Resonance Suppression (High Frequency)

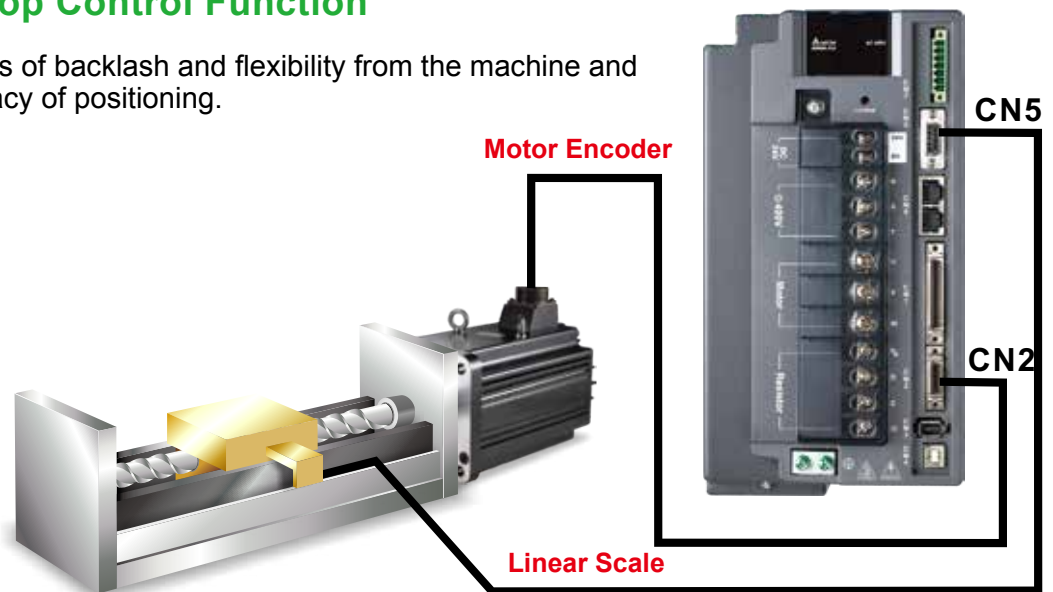
Two auto notch filters and one manual notch filter are provided to suppress mechanical resonance efficiently.



# ASDA-A2 Series Features

## Full-Closed Loop Control Function<sup>\*1</sup>

- ▶ Reduces the effects of backlash and flexibility from the machine and ensures the accuracy of positioning.



Note:

\*1. PT and DMCNET mode only.

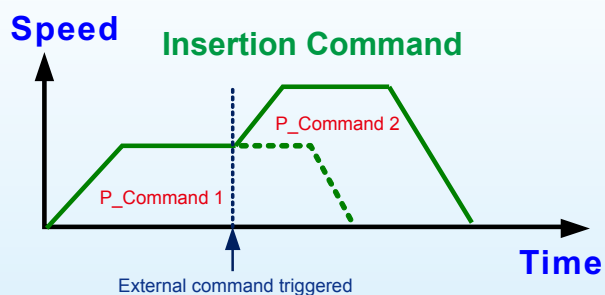
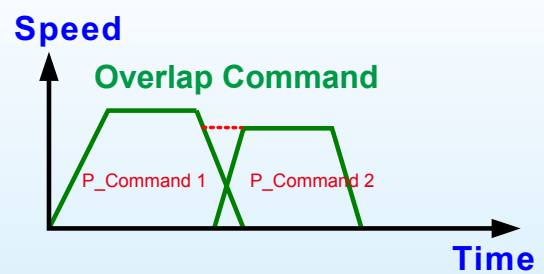
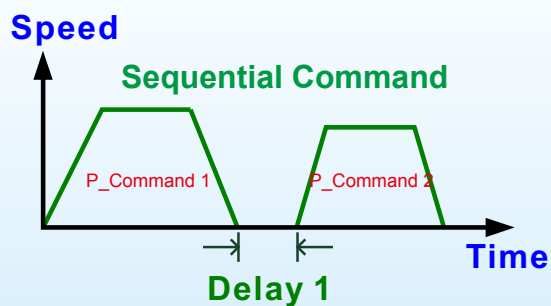
## Electronic CAM (E-CAM) Function

- ▶ 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.

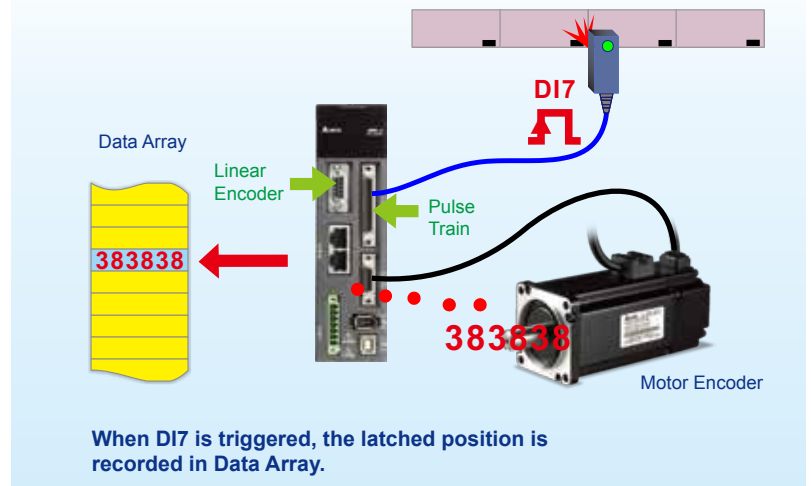


# ASDA-A2 Series Features

## Capture and Compare Functions

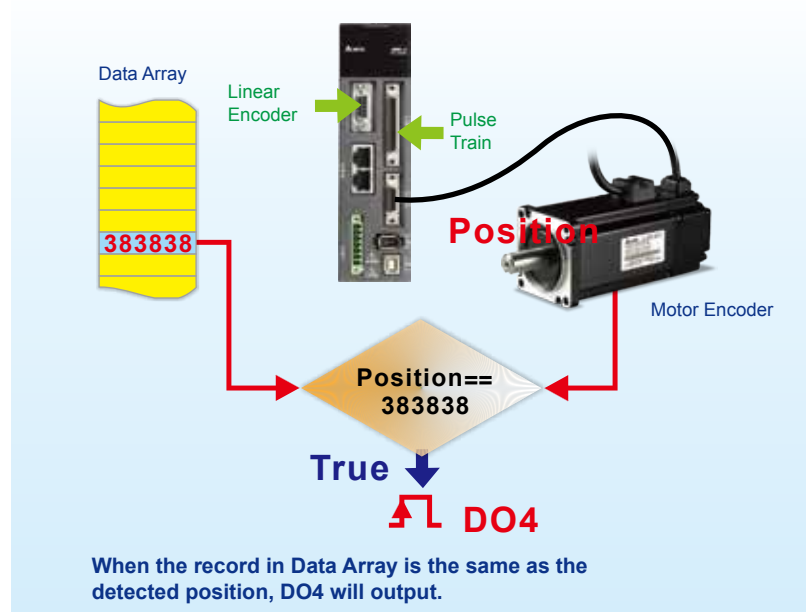
### Capture - Position Latch Function

- ▶ 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

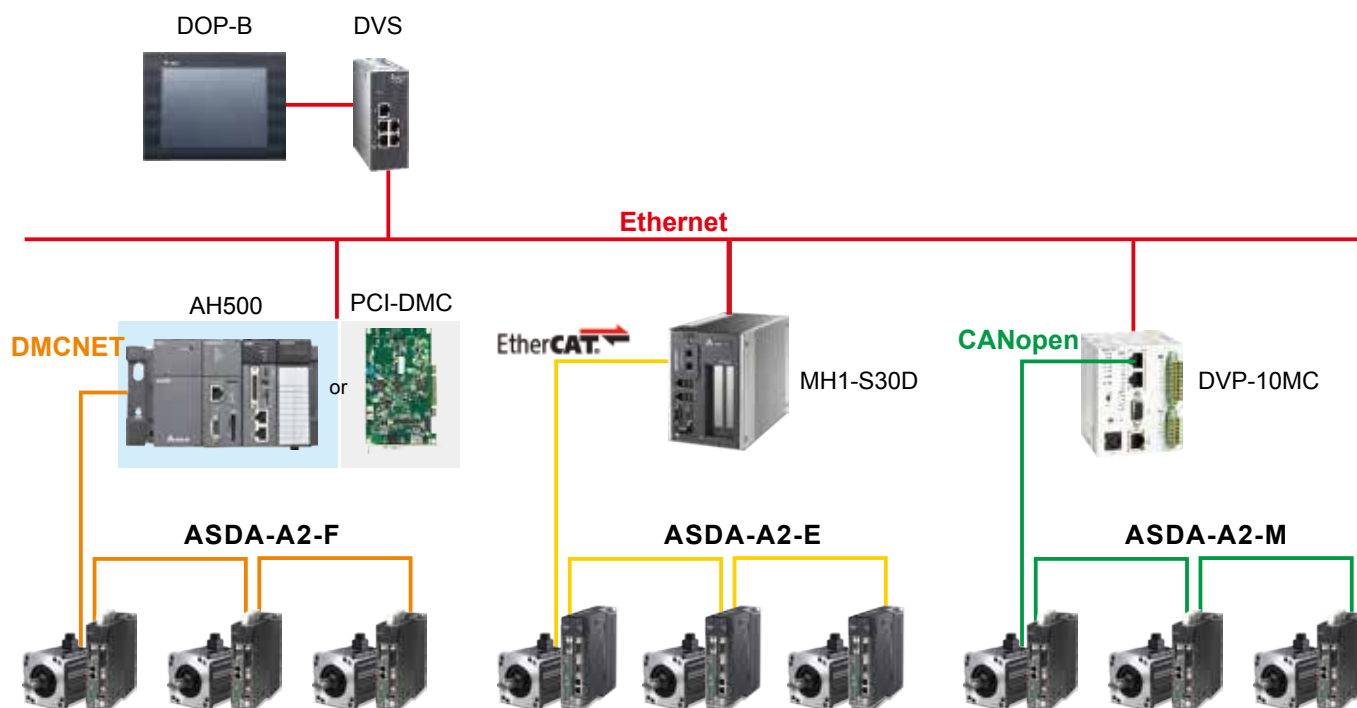


### Compare - Position Detection Function

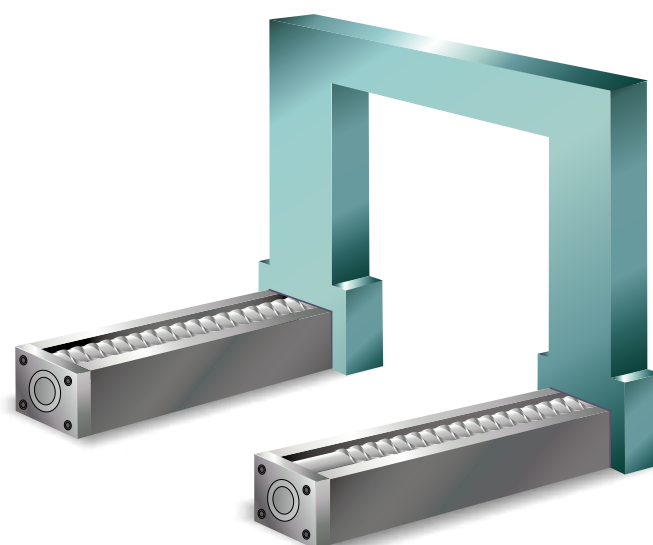
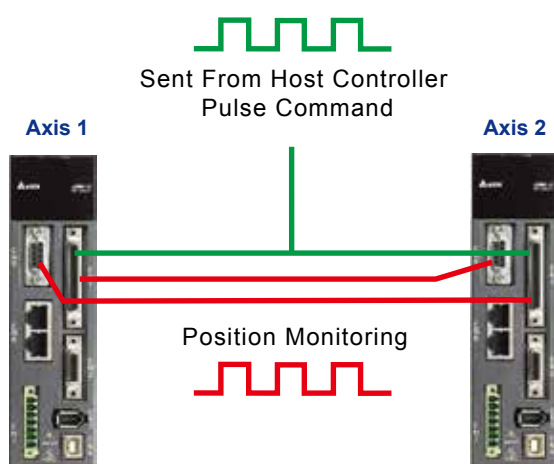
- ▶ Detects the location on the reference axis.
- ▶ Response time is less than 5us.
- ▶ It can be used for CCD camera applications.
- ▶ Maximum 800 records



## 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 |



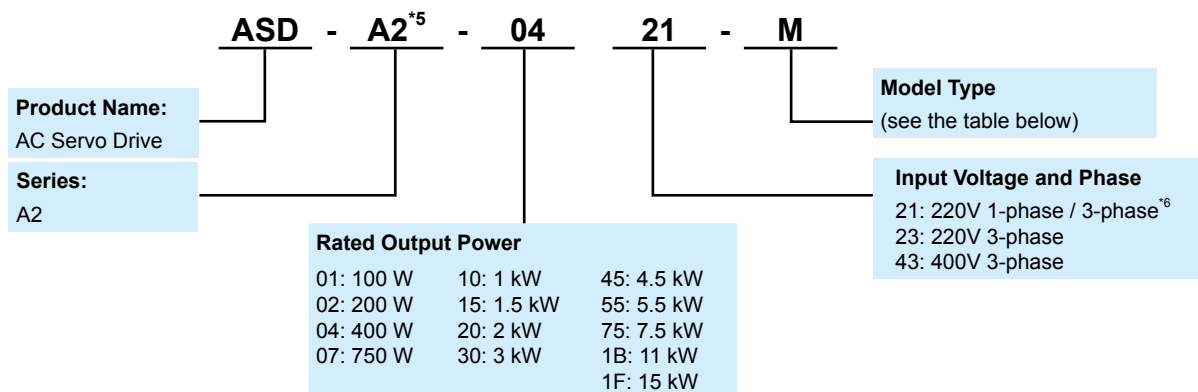
- 1) The boxes ( □ ) at the ends of the servo drive model names are for optional configurations. For the actual model name, please refer to the model explanation.
- 2) The boxes ( △ ) in the model names represent encoder type. △ =1: Incremental encoder, 20-bit ; △ =2: Incremental encoder, 17-bit; △ =A: 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



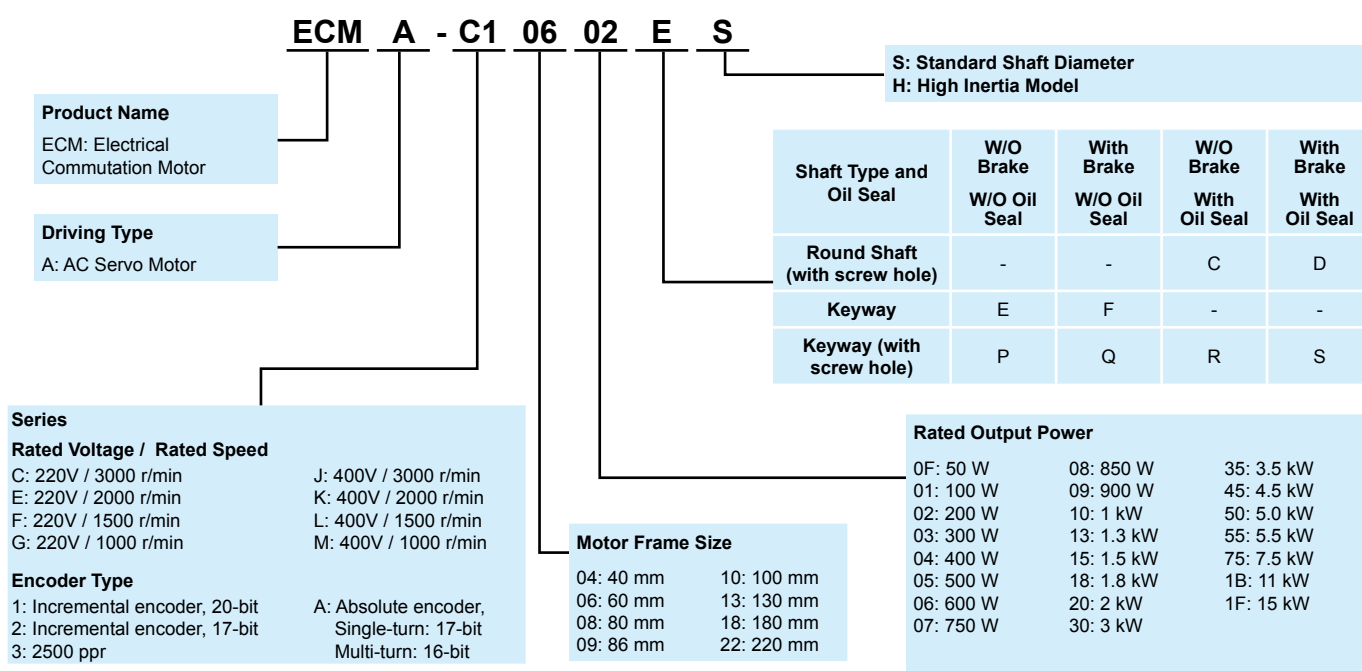
|                | Type | RS-485 (CN3) | Full-Closed Control (CN5) <sup>*1</sup> | Extension Port for Digital Input (CN7) | EtherCAT <sup>*4</sup> | CANpen | DMCNET | Analog Voltage Control | Pulse Input Port | PR Parameters   | E-CAM <sup>*3</sup> |
|----------------|------|--------------|-----------------------------------------|----------------------------------------|------------------------|--------|--------|------------------------|------------------|-----------------|---------------------|
| 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                | ○ <sup>*2</sup> | 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



## 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) <sup>*1</sup>                                           | 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 <sup>-4</sup> kg-m <sup>2</sup> )             | 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 <sup>-4</sup> kg-m <sup>2</sup> )(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)] <sup>*2</sup>                            | --                                                                                                                                     | 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                                                                                                                            |        |        |        |        |      |        |       |        |       |        |
| Storage temperature (°C)                                                   | -10°C to 80°C                                                                                                                          |        |        |        |        |      |        |       |        |       |        |
| 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                                                                  |                                                    |        |        |        |        |      |        |       |        |       |        |

\*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 $\Delta$ 13                                                                                                                                                                                                                                                                                                                                      |       |       |       | E $\Delta$ 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) <sup>*1</sup>                                              | 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 <sup>-4</sup> kg-m <sup>2</sup> )(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                                                         | 100M $\Omega$ , 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 <sup>-4</sup> kg-m <sup>2</sup> )(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)] <sup>*2</sup>                               | 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 ( $\mu$ m)                                                    | 15                                                                                                                                                                                                                                                                                                                                                 |       |       |       |               |       |       |
| Operating temperature (°C)                                                    | 0°C to 40°C                                                                                                                                                                                                                                                                                                                                        |       |       |       |               |       |       |
| Storage temperature (°C)                                                      | -10°C to 80°C                                                                                                                                                                                                                                                                                                                                      |       |       |       |               |       |       |
| 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                                                                     |     |       |       |       |               |       |       |

\*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) <sup>*1</sup>                                              | 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 <sup>-4</sup> kg-m <sup>2</sup> )(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 <sup>-4</sup> kg-m <sup>2</sup> )(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)] <sup>*2</sup>                                 | 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)                                                    | 0°C to 40°C                                                                                                                                                                                                                                                                                                                                        |       |       |       |        |       |        |        |       |        |
| Storage temperature (°C)                                                      | -10°C to 80°C                                                                                                                                                                                                                                                                                                                                      |       |       |       |        |       |        |        |       |        |
| 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                                                                     |     |       |       |       |        |       |        |        |       |        |

\*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 $\Delta$ 06                                                                                                                                                                                                                                                                                                                                    | C $\Delta$ 08  | G $\Delta$ 13 |       |       |
|-------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------|-------|-------|
|                                                                               | 04 $\square$ H                                                                                                                                                                                                                                                                                                                                   | 07 $\square$ H | 03            | 06    | 09    |
| Rated output power (kW)                                                       | 0.4                                                                                                                                                                                                                                                                                                                                              | 0.75           | 0.3           | 0.6   | 0.9   |
| Rated torque (N-m) <sup>*1</sup>                                              | 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 <sup>-4</sup> kg-m <sup>2</sup> )(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                                                         | 100M $\Omega$ , 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 <sup>-4</sup> kg-m <sup>2</sup> )(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)] <sup>*2</sup>                               | 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 ( $\mu$ m)                                                    | 15                                                                                                                                                                                                                                                                                                                                               |                |               |       |       |
| Operating temperature (°C)                                                    | 0°C to 40°C                                                                                                                                                                                                                                                                                                                                      |                |               |       |       |
| Storage temperature (°C)                                                      | -10°C to 80°C                                                                                                                                                                                                                                                                                                                                    |                |               |       |       |
| 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                                                                     |     |                |               |       |       |

\*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) <sup>*1</sup>                                              | 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 <sup>-4</sup> kg-m <sup>2</sup> )(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 <sup>-4</sup> kg-m <sup>2</sup> )(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)] <sup>*2</sup>                               | 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)                                                    | 0°C to 40°C                                                                                                                                                                                                                                                                                                                                        |        |        |       |        |       |        |        |       |       |       |        |
| Storage temperature (°C)                                                      | -10°C to 80°C                                                                                                                                                                                                                                                                                                                                      |        |        |       |        |       |        |        |       |       |       |        |
| 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                                                                     |     |        |        |       |        |       |        |        |       |       |       |        |

\*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 $\Delta$ 13                                                                                                                                                                                                                                                                                                                                      |       |       | L $\Delta$ 18 |       |        |        | L122   |        | M $\Delta$ 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) <sup>*1</sup>                                              | 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 <sup>-4</sup> kg-m <sup>2</sup> )(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                                                         | 100M $\Omega$ , 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 <sup>-4</sup> kg-m <sup>2</sup> )(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)] <sup>*2</sup>                               | 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 ( $\mu$ m)                                                    | 15                                                                                                                                                                                                                                                                                                                                                 |       |       |               |       |        |        |        |        |               |
| Operating temperature (°C)                                                    | 0°C to 40°C                                                                                                                                                                                                                                                                                                                                        |       |       |               |       |        |        |        |        |               |
| Storage temperature (°C)                                                      | -10°C to 80°C                                                                                                                                                                                                                                                                                                                                      |       |       |               |       |        |        |        |        |               |
| 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                                                                     |     |       |       |               |       |        |        |        |        |               |

\*1. Rate torque values are continuous permissible values at 0 ~ 40°C ambient temperature when attaching with the sizes of heatsinks listed below:

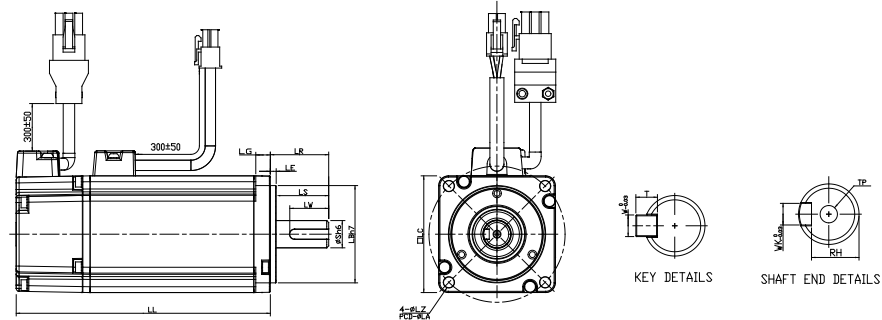
ECMA-\_\_ 08: 250 mm x 250 mm x 6 mm  
 ECMA-\_\_ 13: 400 mm x 400 mm x 20 mm  
 ECMA-\_\_ 18: 550 mm x 550 mm x 30 mm  
 ECMA-\_\_ 22: 650 mm x 650 mm x 35 mm  
 Material type : Aluminum – F80, F130, F180, F220

\*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

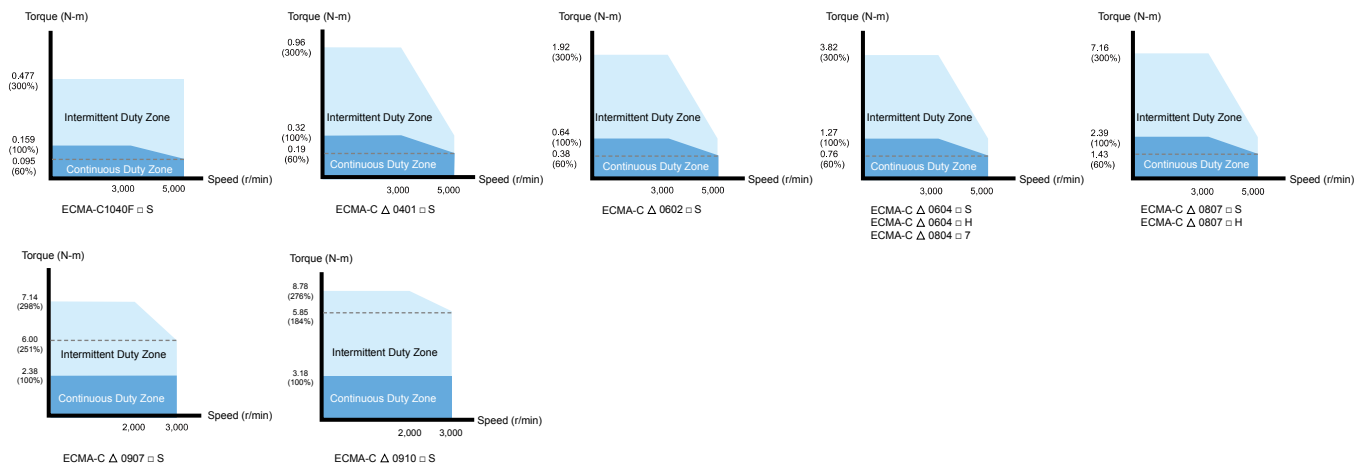
| Model                | C1040F □ S     | C △ 0401 □ S   | C △ 0602 □ S   | C △ 0604 □ S   | C △ 0604 □ H   | C △ 0804 □ 7   | C △ 0807 □ S   | C △ 0807 □ H   | C △ 0907 □ S   | C △ 0910 □ S   |
|----------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 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<br>Depth 8  | M3<br>Depth 8  | M4<br>Depth 15 | M4<br>Depth 15 | M4<br>Depth 15 | M4<br>Depth 15 | M6<br>Depth 20 | M6<br>Depth 20 | M5<br>Depth 15 | M5<br>Depth 15 |



#### NOTE

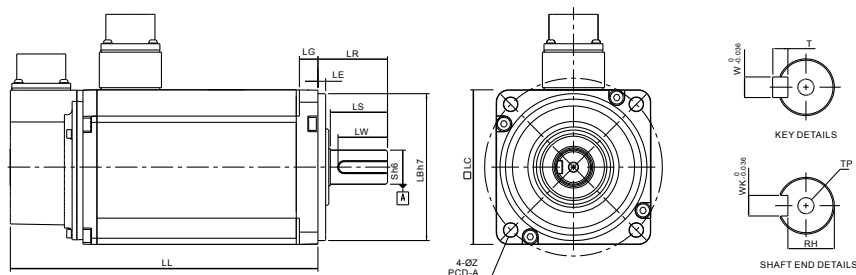
- 1) Dimensions are in millimeters.
- 2) Dimensions of the servo motors may be revised without prior notice.
- 3) The boxes ( □ ) in the model names are for optional configurations(keyway, brake and oil seal).
- 4) The boxes ( △ ) in the model names are for encoder resolution types. ( △ =1: Incremental encoder, 20-bit; △ =2: Incremental encoder, 17-bit; △ =A: Absolute type)

## Speed-Torque Curves (T-N Curves)



## 220V Series

### Frame Size 100mm and 130mm



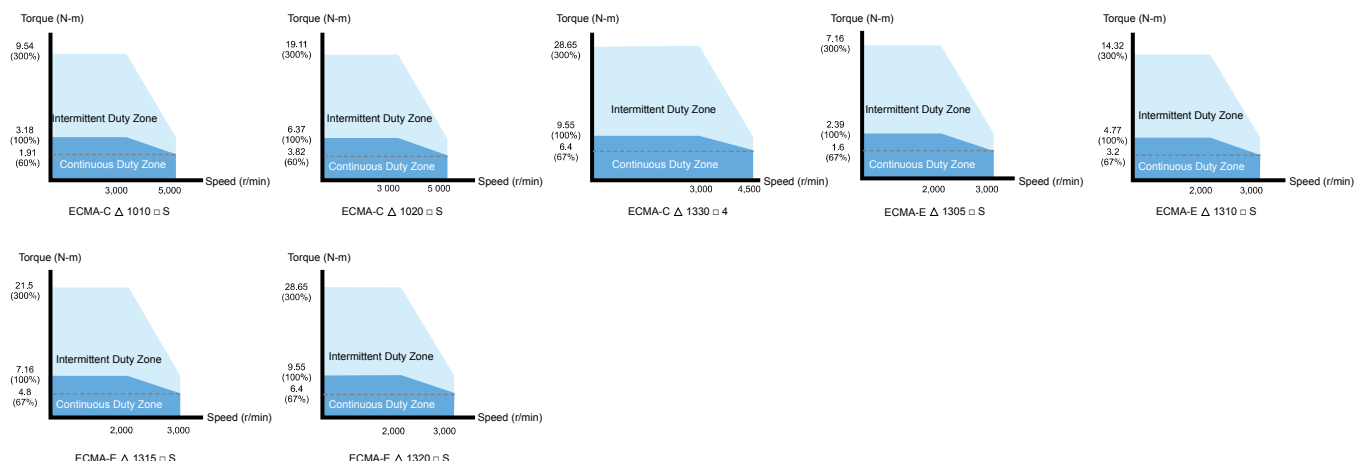
Units: mm

| Model                | C $\Delta$ 1010 $\square$ S | C $\Delta$ 1020 $\square$ S | C $\Delta$ 1330 $\square$ 4 | E $\Delta$ 1305 $\square$ S | E $\Delta$ 1310 $\square$ S | E $\Delta$ 1315 $\square$ S | E $\Delta$ 1320 $\square$ 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<br>Depth 20              | M6<br>Depth 20              | M6<br>Depth 20              | M6<br>Depth 20              | M6<br>Depth 20              | M6<br>Depth 20              | M6<br>Depth 20              |



- 1) Dimensions are in millimeters.
- 2) Dimensions of the servo motors may be revised without prior notice.
- 3) The boxes (  $\square$  ) in the model names are for optional configurations(keyway, brake and oil seal).
- 4) The boxes (  $\Delta$  ) in the model names are for encoder resolution types. (  $\Delta$  =1: Incremental encoder, 20-bit;  $\Delta$  =2: Incremental encoder, 17-bit;  $\Delta$  =A: Absolute type)

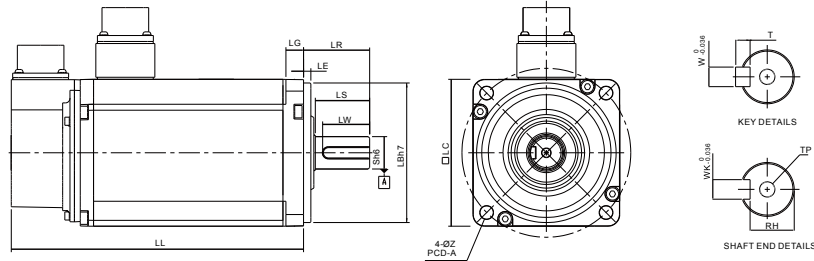
## Speed-Torque Curves (T-N Curves)



# Servo Motor Dimensions

## 220V Series

### Frame Size 100mm and 130mm

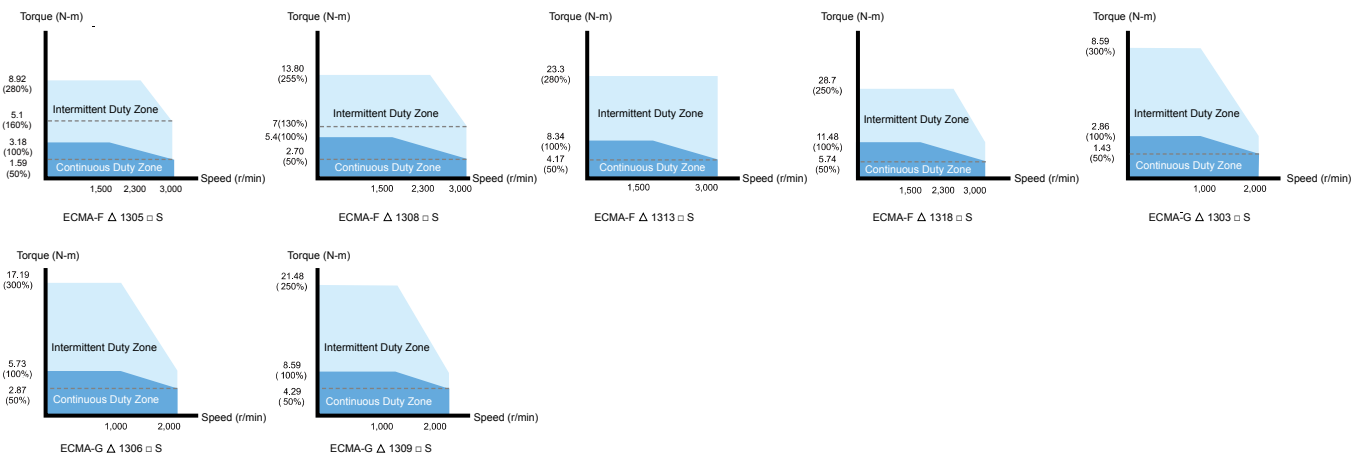


Units: mm

| Model                | F $\Delta$ 1305 $\square$ S | F $\Delta$ 1308 $\square$ S | F $\Delta$ 1313 $\square$ S | F $\Delta$ 1318 $\square$ S | G $\Delta$ 1303 $\square$ S | G $\Delta$ 1306 $\square$ S | G $\Delta$ 1309 $\square$ 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<br>Depth 20              | M6<br>Depth 20              | M6<br>Depth 20              | M6<br>Depth 20              | M6<br>Depth 20              | M6<br>Depth 20              | M6<br>Depth 20              |

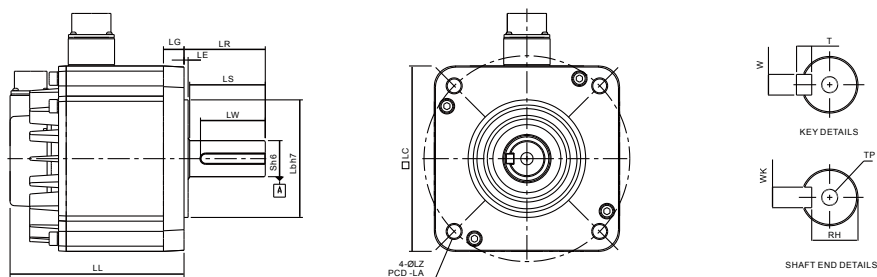
- NOTE**
- 1) Dimensions are in millimeters.
  - 2) Dimensions of the servo motors may be revised without prior notice.
  - 3) The boxes (  $\square$  ) in the model names are for optional configurations (keyway, brake and oil seal).
  - 4) The boxes (  $\Delta$  ) in the model names are for encoder resolution types. (  $\Delta$  =1: Incremental encoder, 20-bit;  $\Delta$  =2: Incremental encoder, 17-bit;  $\Delta$  =A: Absolute type)

## Speed-Torque Curves (T-N Curves)



## 220V Series

### Frame Size 180mm



Units: mm

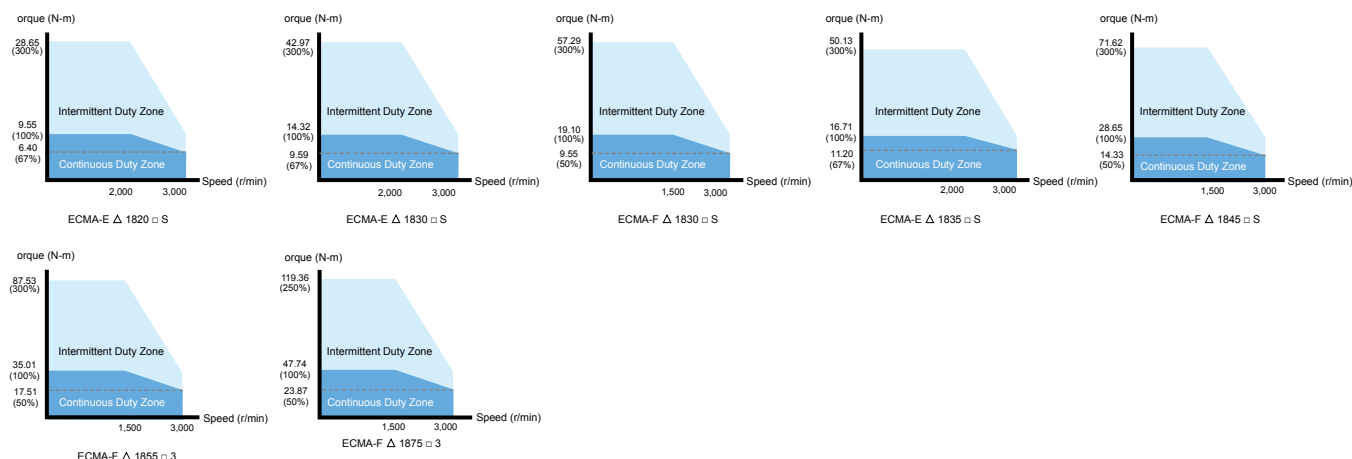
| Model                | E $\Delta$ 1820 $\square$ S | E $\Delta$ 1830 $\square$ S | E $\Delta$ 1835 $\square$ S | F $\Delta$ 1845 $\square$ S | F $\Delta$ 1855 $\square$ 3 | F $\Delta$ 1875 $\square$ 3 |
|----------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| 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<br>Depth 25             | M12<br>Depth 25             | M12<br>Depth 25             | M12<br>Depth 25             | M16<br>Depth 32             | M12<br>Depth 32             |



#### NOTE

- 1) Dimensions are in millimeters.
- 2) Dimensions of the servo motors may be revised without prior notice.
- 3) The boxes ( $\square$ ) in the model names are for optional configurations(keyway, brake and oil seal).
- 4) The boxes ( $\Delta$ ) in the model names are for encoder resolution types. ( $\Delta$  =1: Incremental encoder, 20-bit;  $\Delta$  =2: Incremental encoder, 17-bit;  $\Delta$  =A: Absolute type)

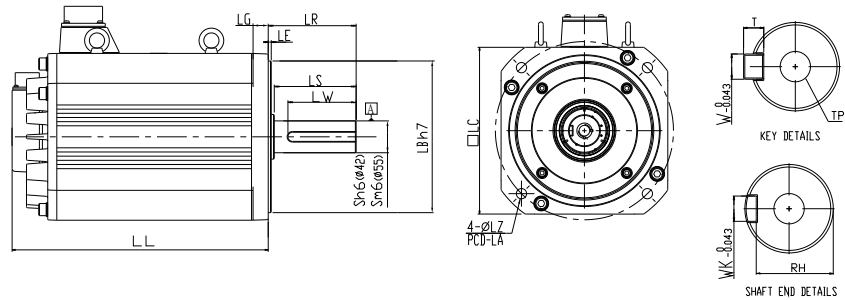
## Speed-Torque Curves (T-N Curves)



# Servo Motor Dimensions

## 220V / 400V Series

### Frame Size 220mm and above



Units: mm

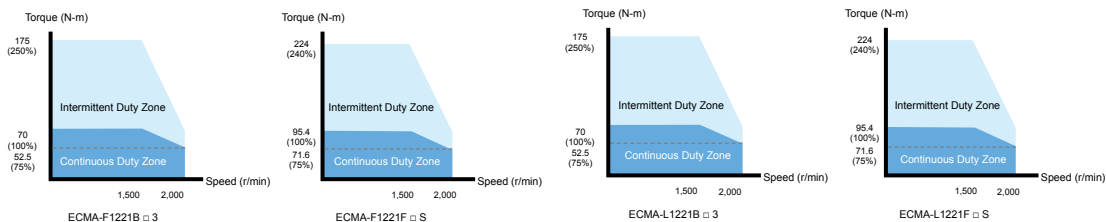
| Model                | F1221B □ 3               | F1221F □ S                 | L1221B □ 3               | L1221F □ S                 |
|----------------------|--------------------------|----------------------------|--------------------------|----------------------------|
| LC                   | 220                      | 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<br>Depth 32          | M20<br>Depth 40            | M16<br>Depth 32          | M20<br>Depth 40            |



#### NOTE

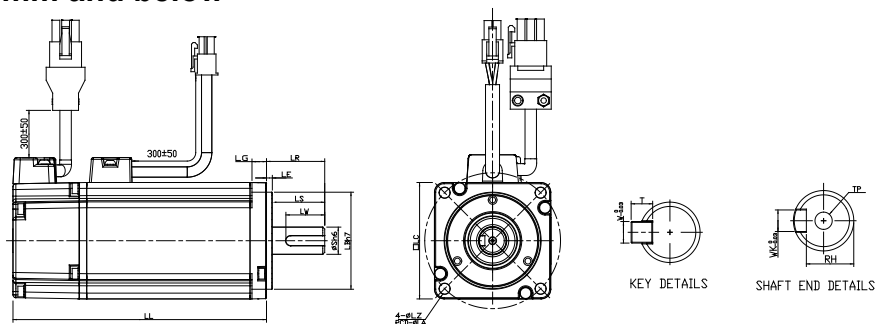
- 1) Dimensions are in millimeters.
- 2) Dimensions of the servo motors may be revised without prior notice.
- 3) The boxes ( □ ) in the model names are for optional configurations (keyway, brake and oil seal).

## Speed-Torque Curves (T-N Curves)



## 400V Series

### Frame Size 80mm and below



Units: mm

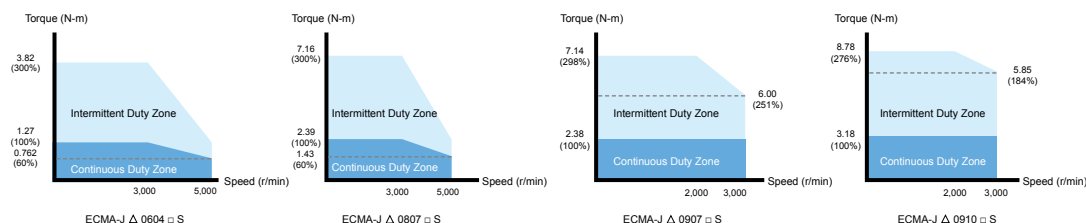
| Model                   | J $\Delta$ 0604 $\square$ S | J $\Delta$ 0807 $\square$ S | J $\Delta$ 0907 $\square$ S | J $\Delta$ 0910 $\square$ S |
|-------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| LC                      | 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<br>Depth 15              | M6<br>Depth 20              | M5<br>Depth 15              | M5<br>Depth 15              |



#### NOTE

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- 3) The boxes (  $\square$  ) in the model names are for optional configurations (keyway, brake and oil seal).
- 4) The boxes (  $\Delta$  ) in the model names are for encoder resolution types (  $\Delta$  =1: Incremental encoder, 20-bit;  $\Delta$  =2: Incremental encoder, 17-bit);  $\Delta$  =A: Absolute type

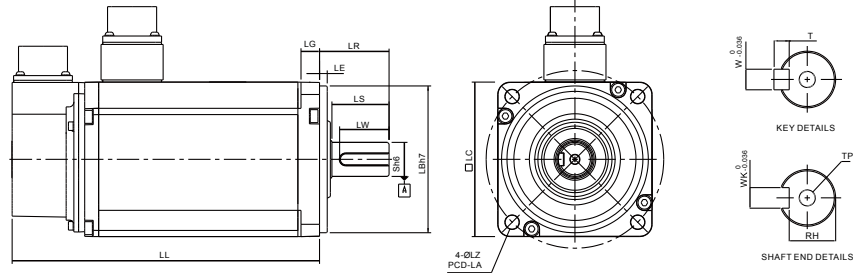
## Speed-Torque Curves (T-N Curves)



# Servo Motor Dimensions

## 400V Series

### Frame Size 100mm and 130mm



Units: mm

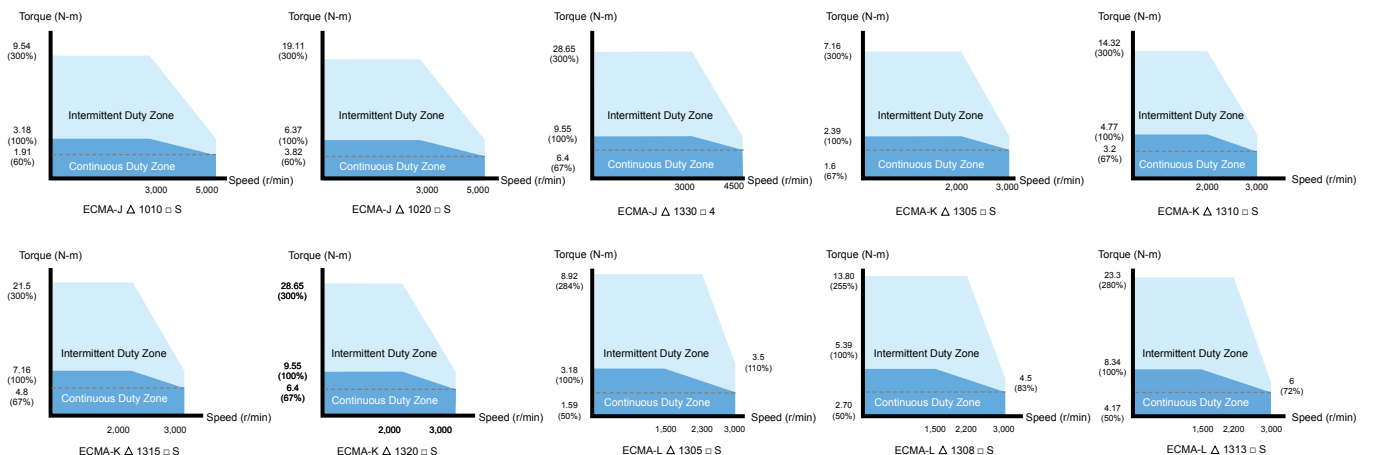
| Model                | J $\Delta$ 1010 $\square$ S | J $\Delta$ 1020 $\square$ S | J $\Delta$ 1330 $\square$ 4 | K $\Delta$ 1305 $\square$ S | K $\Delta$ 1310 $\square$ S | K $\Delta$ 1315 $\square$ S | K $\Delta$ 1320 $\square$ S | L $\Delta$ 1305 $\square$ S | L $\Delta$ 1308 $\square$ S | L $\Delta$ 1313 $\square$ 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<br>Depth 20             | MP6<br>Depth 20             | MP6<br>Depth 20             | MP6<br>Depth 20             | MP6<br>Depth 20             | MP6<br>Depth 20             | MP6<br>Depth 20             | M8<br>Depth 25              | MP6<br>Depth 20             | MP6<br>Depth 20             |



#### NOTE

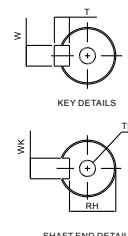
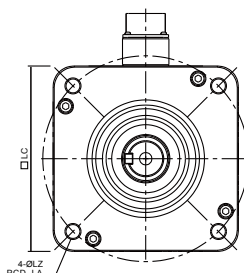
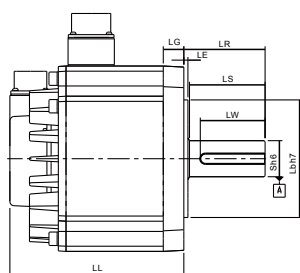
- 1) Dimensions are in millimeters.
- 2) Dimensions of the servo motors may be revised without prior notice.
- 3) The boxes (  $\square$  ) in the model names are for optional configurations (keyway, brake and oil seal).
- 4) The boxes (  $\Delta$  ) in the model names are for encoder resolution types (  $\Delta$  =1: Incremental encoder, 20-bit;  $\Delta$  =2: Incremental encoder, 17-bit;  $\Delta$  =A: Absolute type

## Speed-Torque Curves (T-N Curves)



## 400V Series

### Frame Size 180mm and above



Units: mm

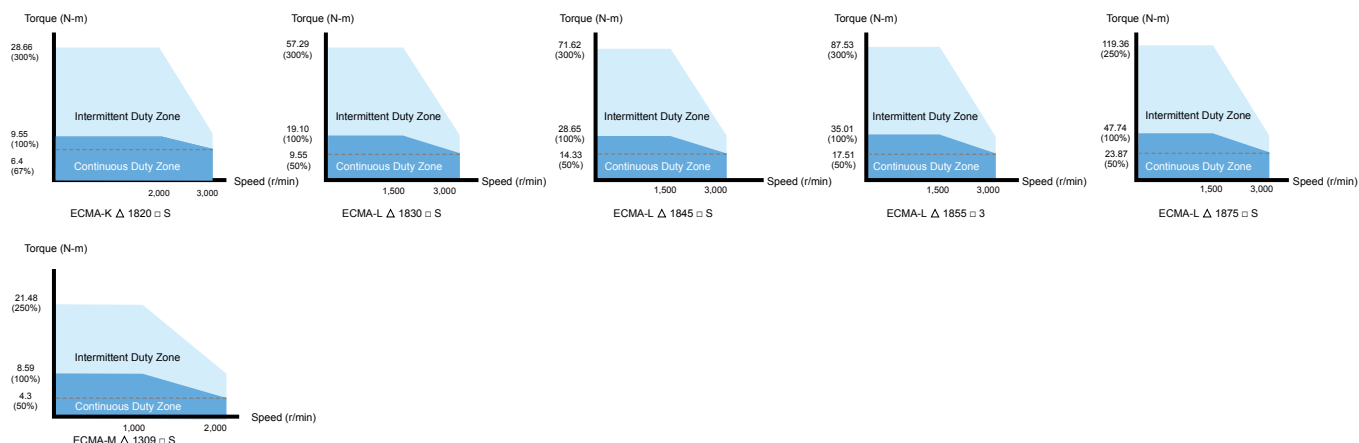
| Model                | K $\Delta$ 1820 $\square$ S | L $\Delta$ 1830 $\square$ S | L $\Delta$ 1845 $\square$ S | L $\Delta$ 1855 $\square$ 3 | L $\Delta$ 1875 $\square$ S | M $\Delta$ 1309 $\square$ S |
|----------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|-----------------------------|
| 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<br>Depth 25             | M12<br>Depth 25             | M12<br>Depth 25             | M16<br>Depth 32             | M16<br>Depth 32             | M6<br>Depth 20              |



#### NOTE

- 1) Dimensions are in millimeters.
- 2) Dimensions of the servo motors may be revised without prior notice.
- 3) The boxes ( $\square$ ) in the model names are for optional configurations (keyway, brake and oil seal).
- 4) The boxes ( $\Delta$ ) in the model names are for encoder resolution types ( $\Delta$  =1: Incremental encoder, 20-bit;  $\Delta$  =2: Incremental encoder, 17-bit);  $\Delta$  =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.

Operation Panel

LED Display

Charge LED

## ● 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)

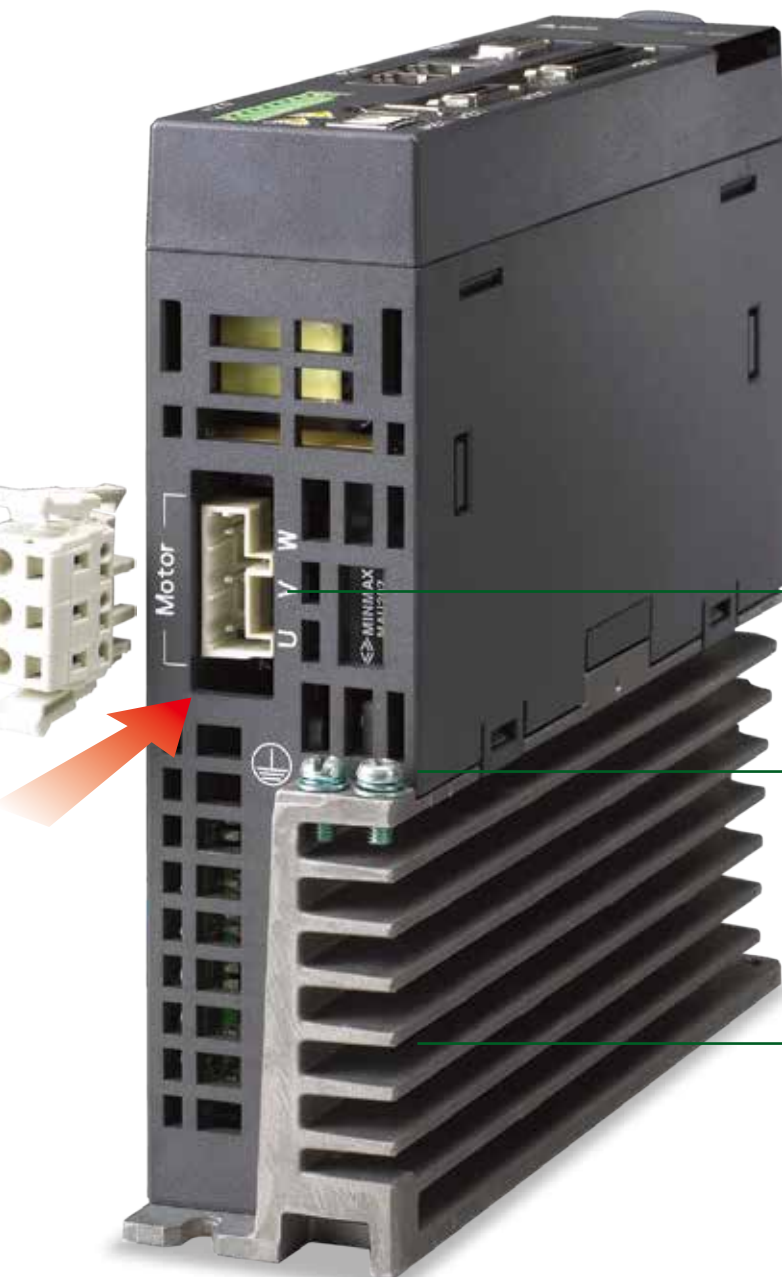
- Used to connect servo motor. Never connect the output terminal to main circuit power as the AC drive may be damaged beyond repair if incorrect cables are connected to the output terminals.

## ● Ground Terminal

- Used to connect grounding wire of power supply and servo motor.

## ● Heatsink

- Used to secure servo drive and for heat dissipation.

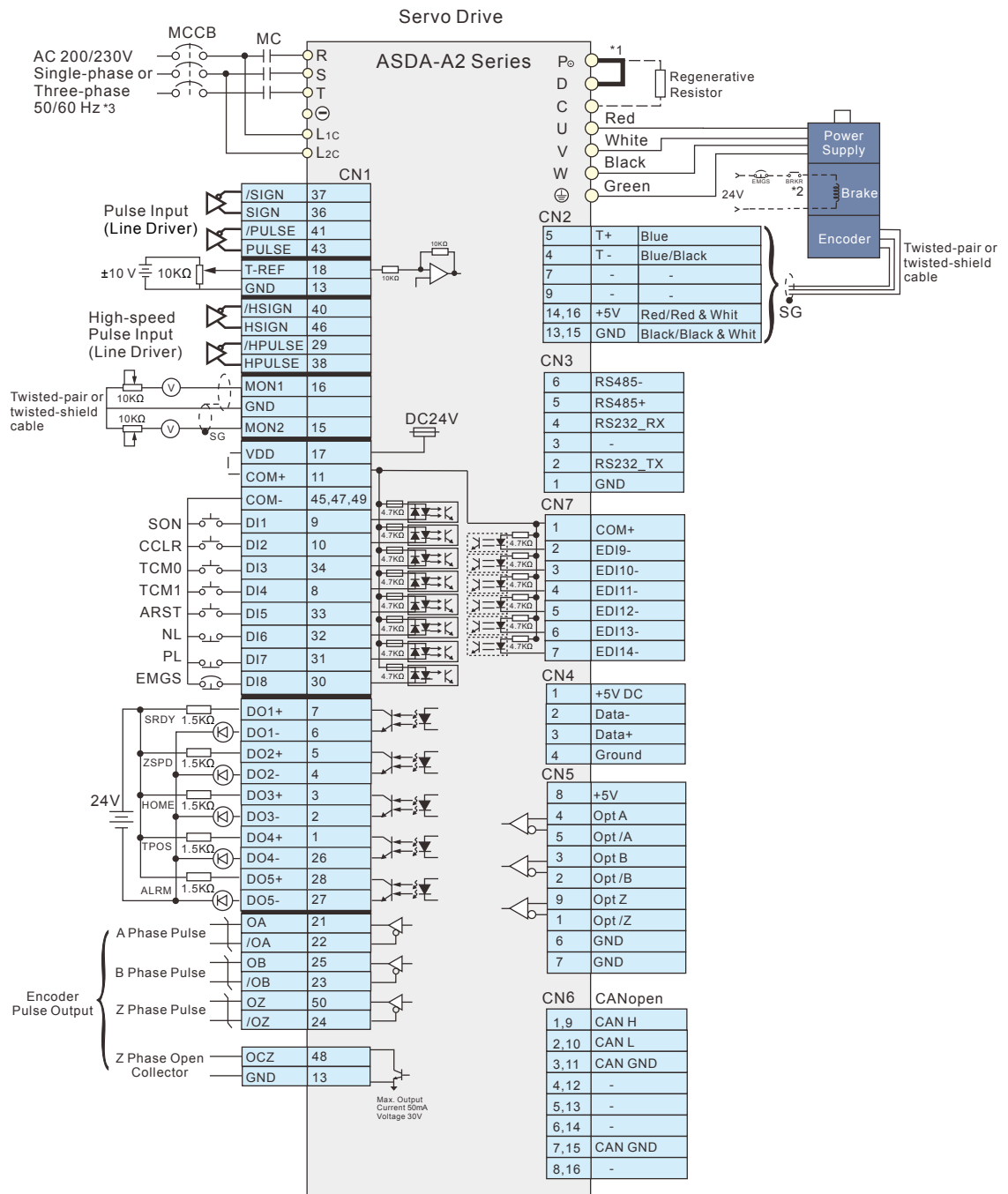
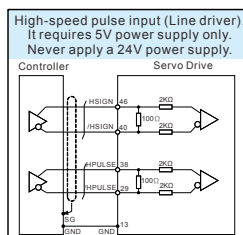
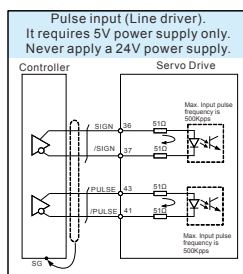
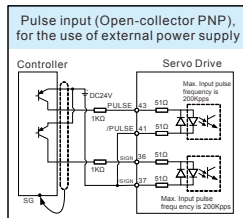
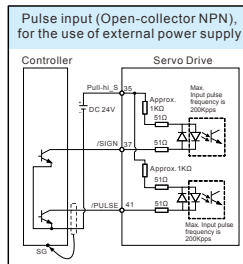
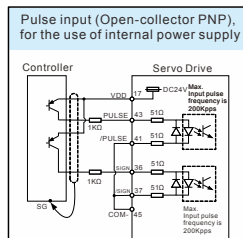
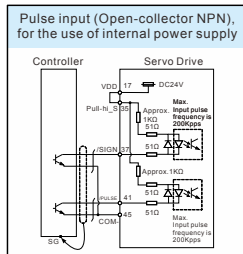


**\*Note: The figures are for illustration purposes only. Actual models may differ slightly in appearance to illustrations provided.**

# Wiring

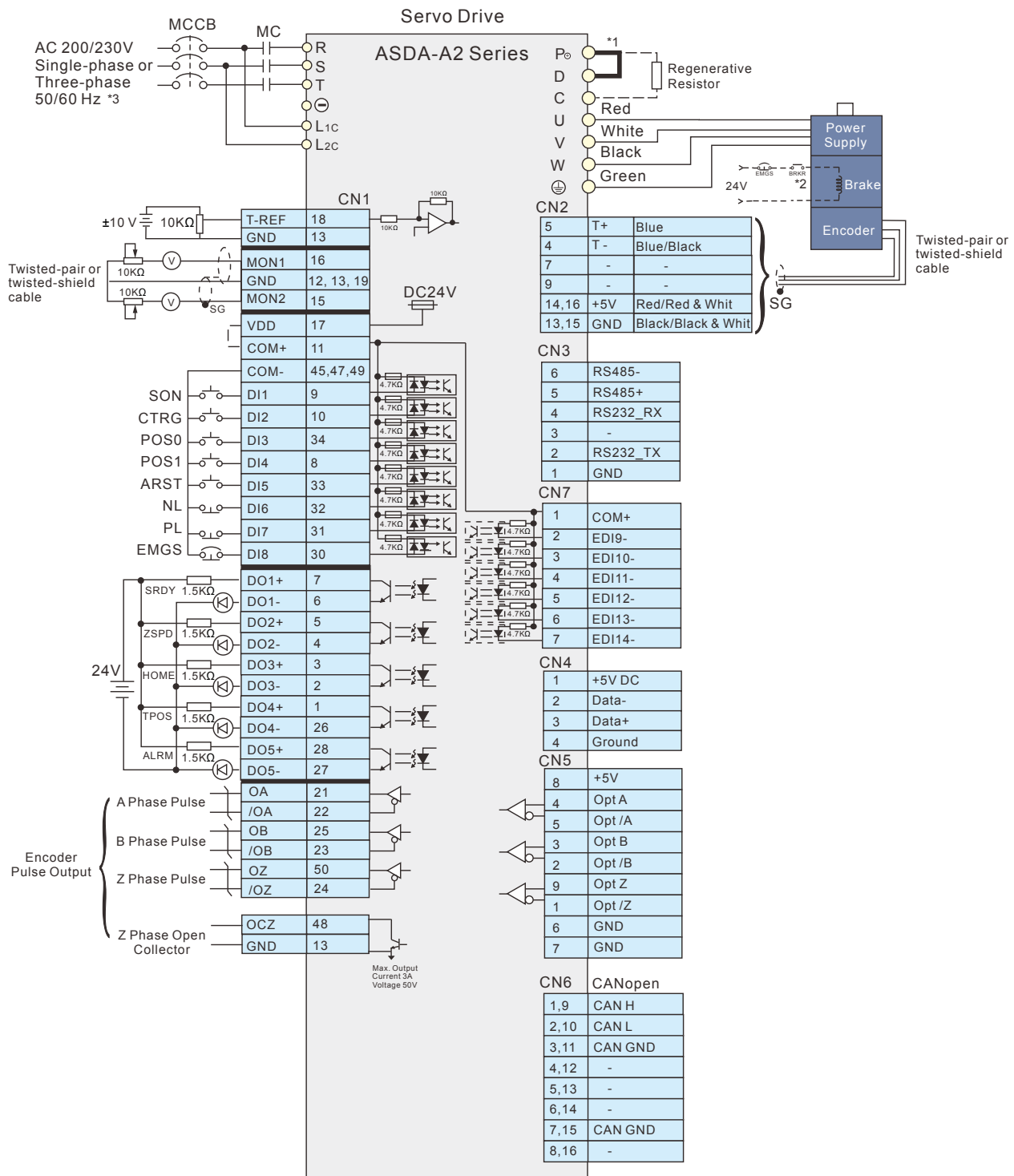
## 200V Series

### Position (PT) Control Mode (for Pulse Command Input)



## 200V Series

### Position (PR) Control Mode (for Internal Procedure Control)



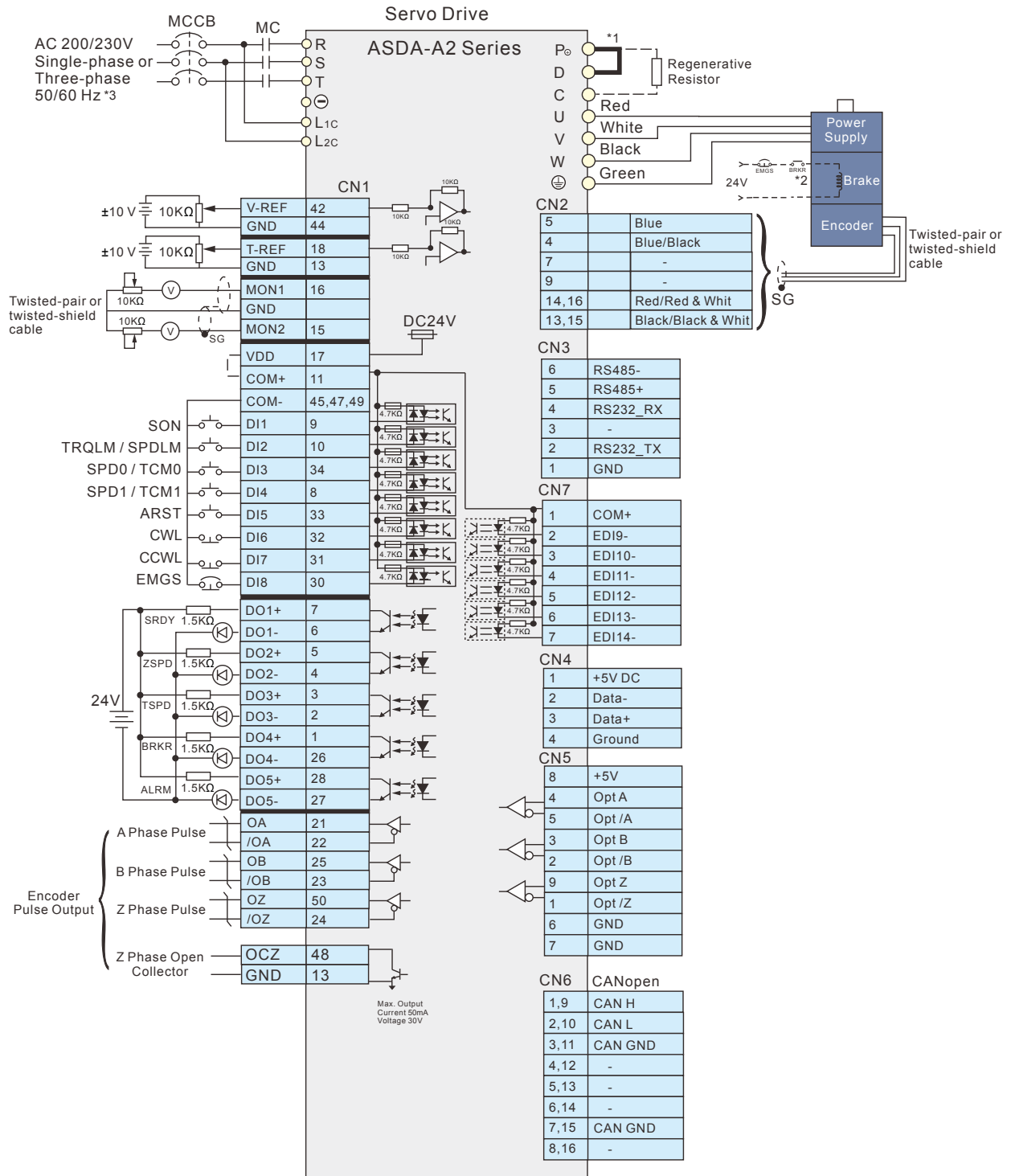
#### Please note:

- \*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)

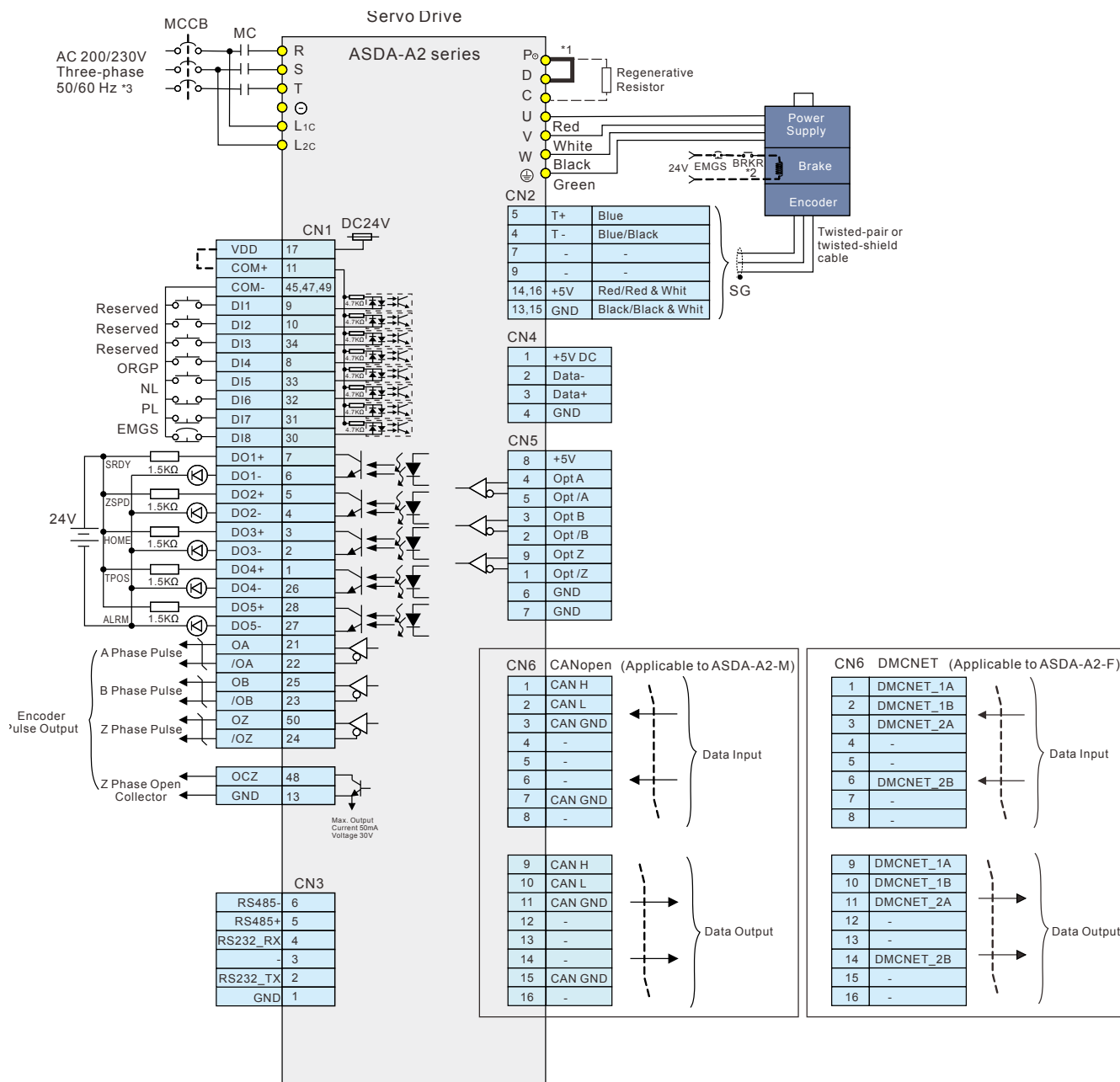


#### Please note:

- \*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

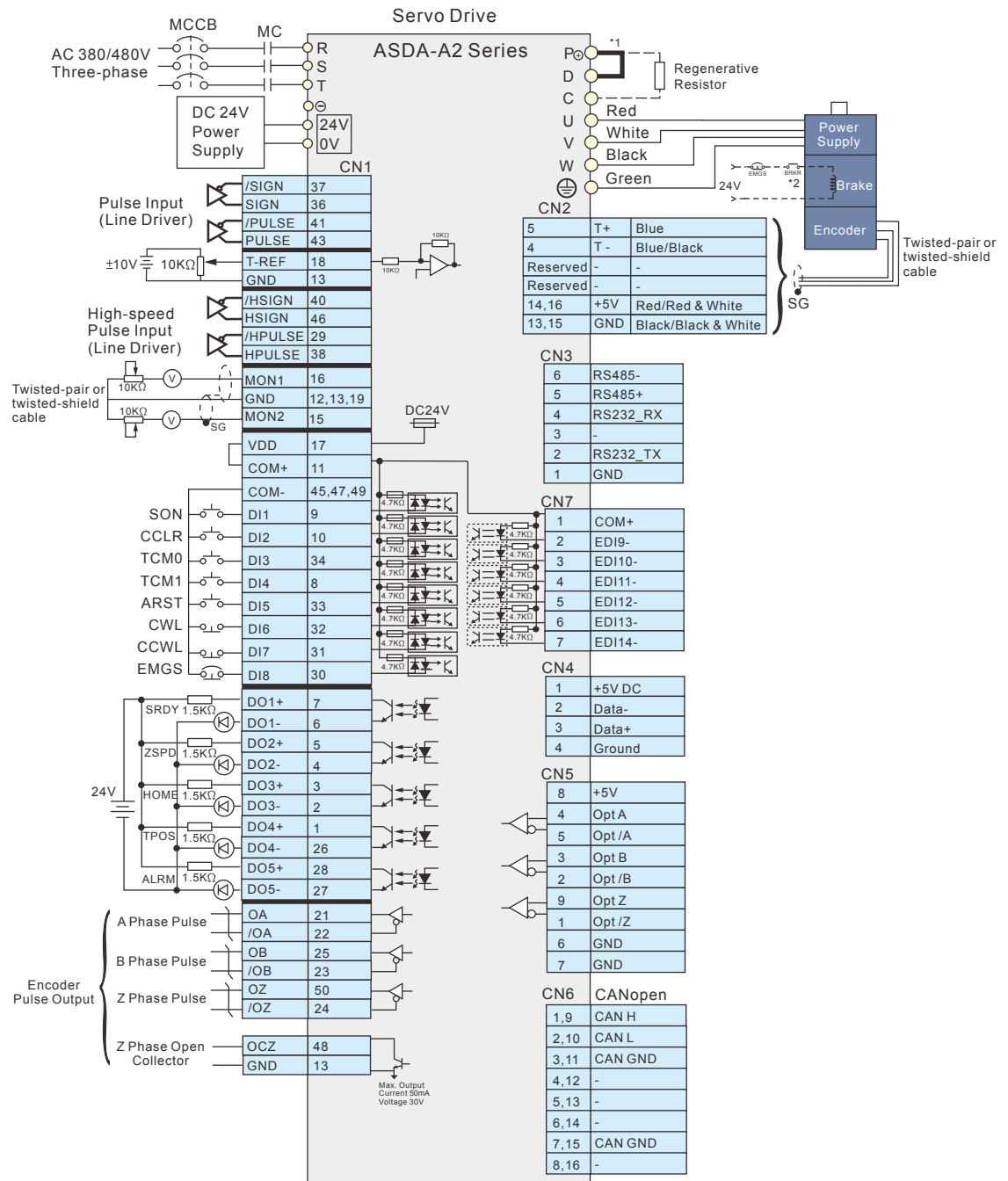
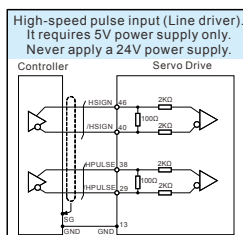
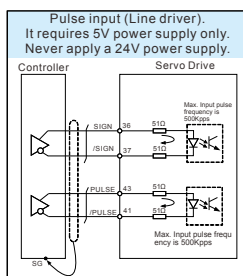
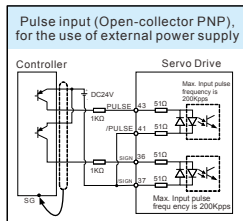
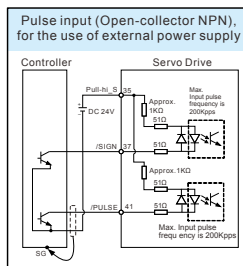
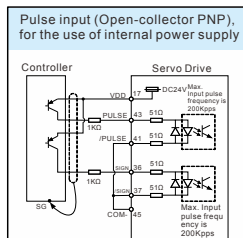
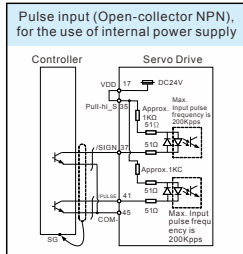
### CANopen Communication Mode



#### 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.

## Position (PT) Control Mode (for Pulse Command Input)



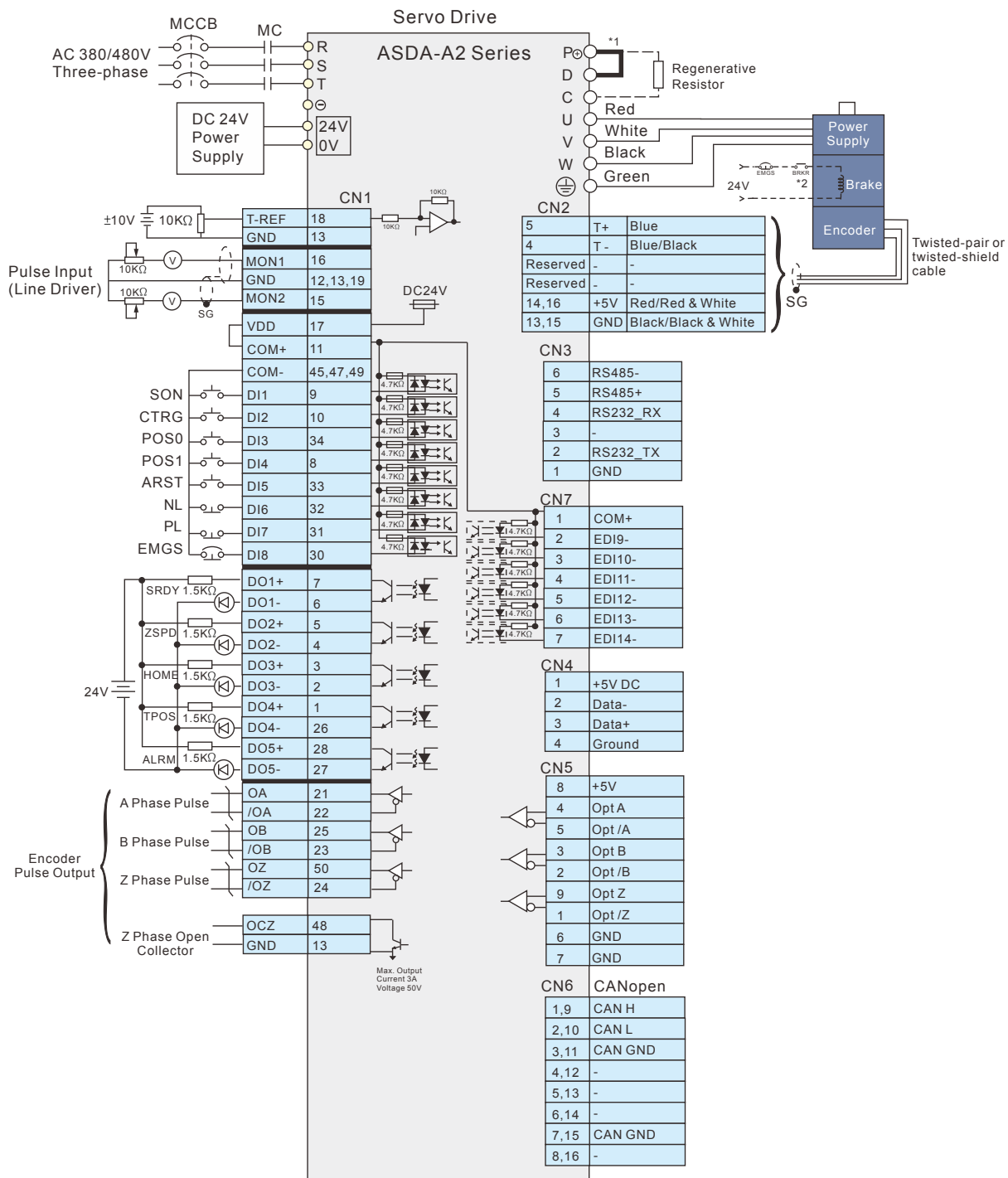
**Please note:**

\*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:**

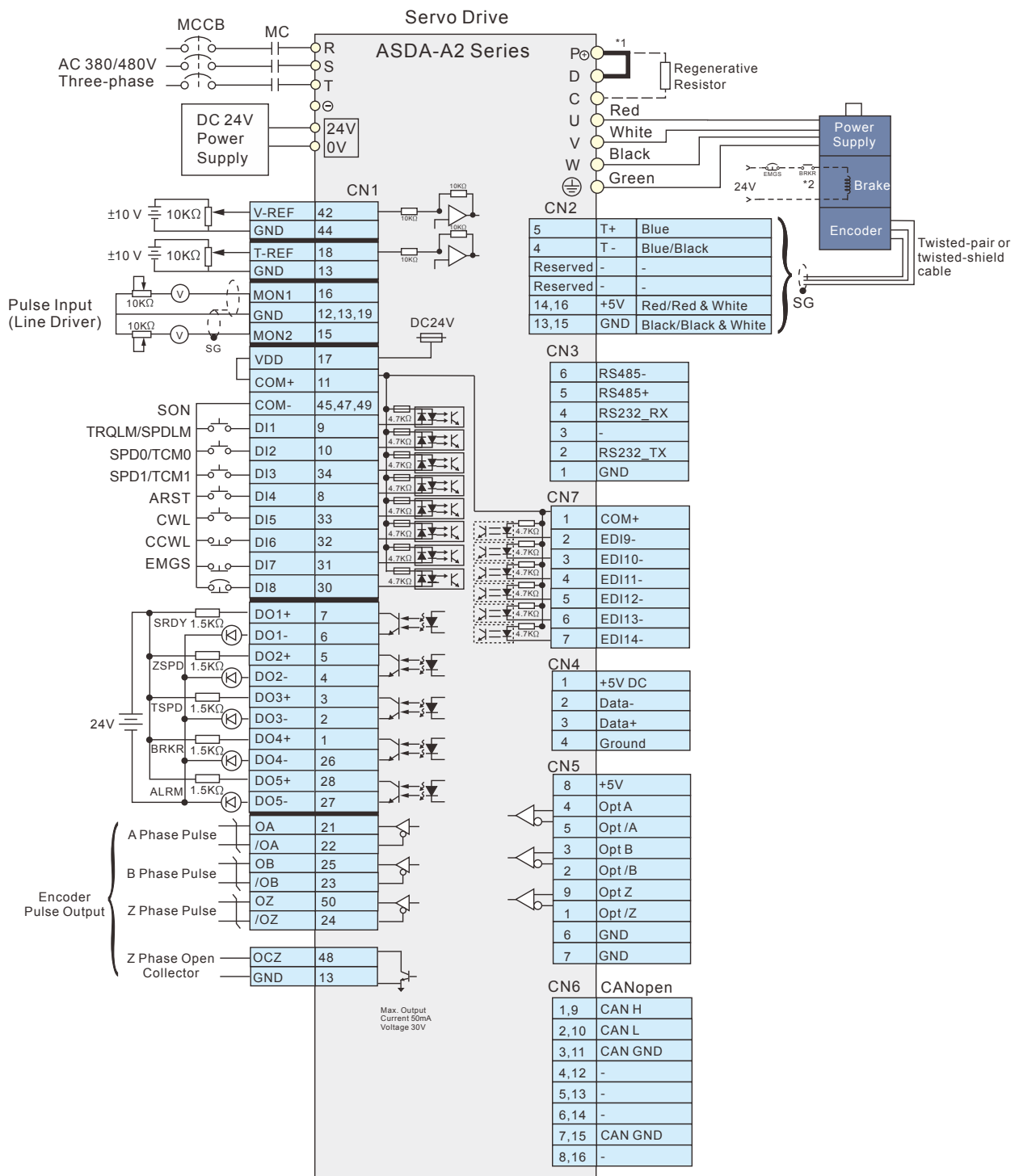
\*1 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.

\*2 The brake oil has no polarity.

# Wiring

## 400V Series

Speed (S), Torque (T) Control Mode (for Analog Voltage Input and Internal Parameter Setting)



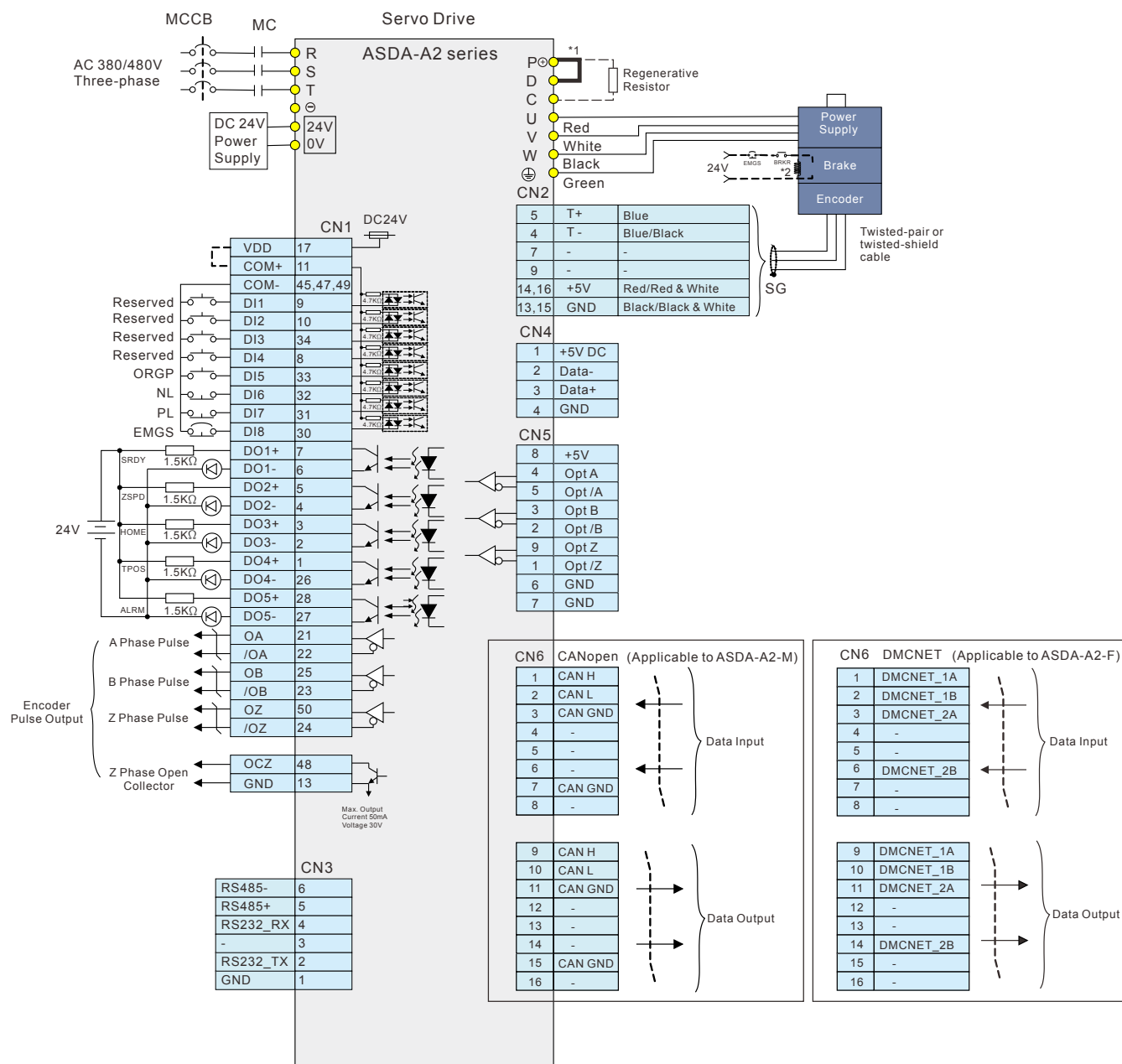
### Please note:

\*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 )

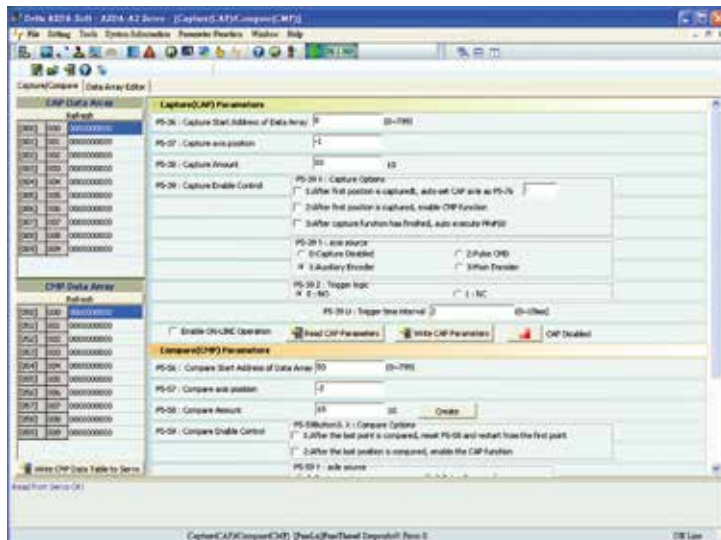


#### Please note:

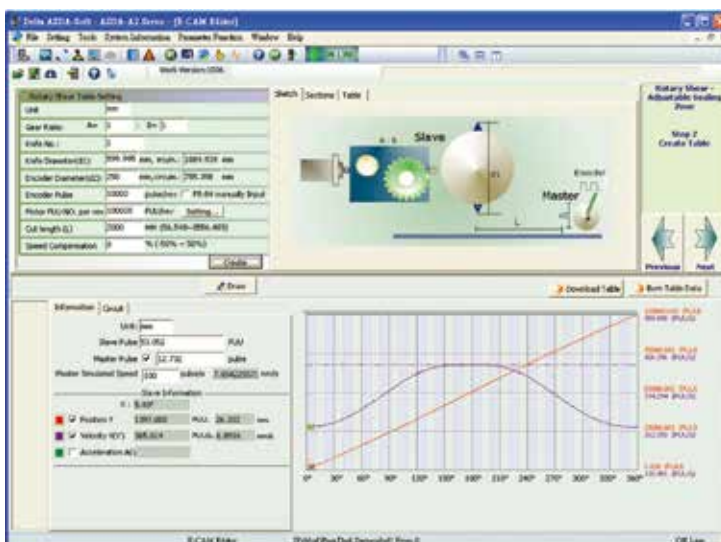
\*1 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.

\*2 The brake oil has no polarity.

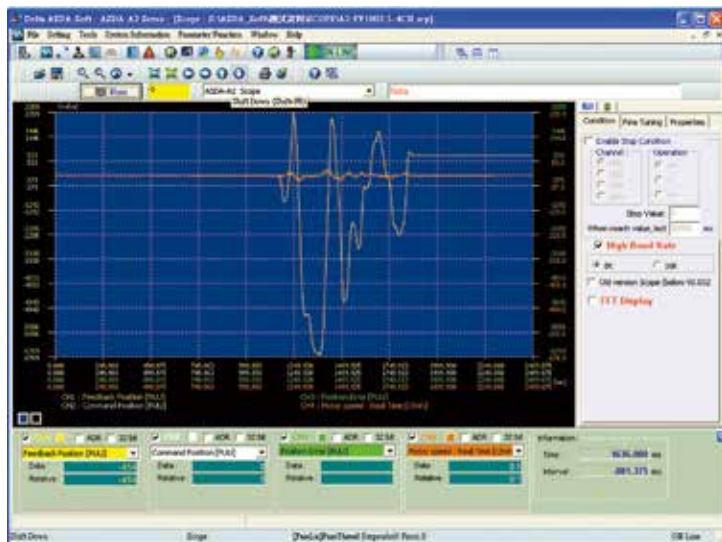
# ASDA-Soft Configuration Software



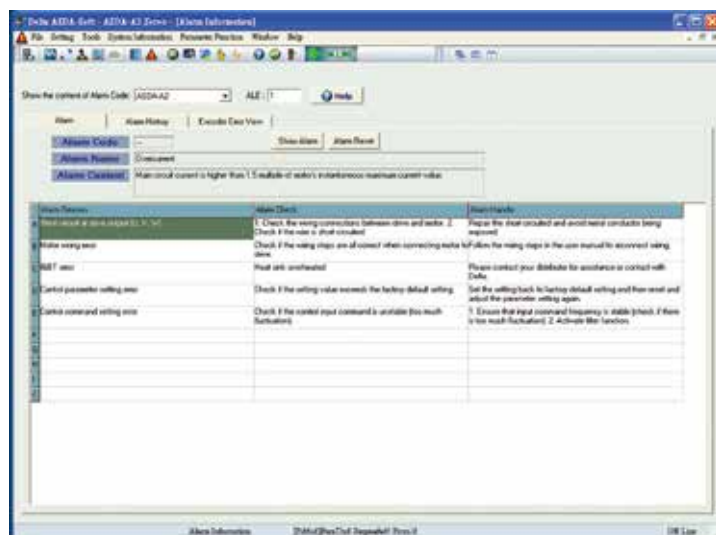
- Strong CAPTURE and COMPARE functions for position latch and detection help you complete system configuration quickly.



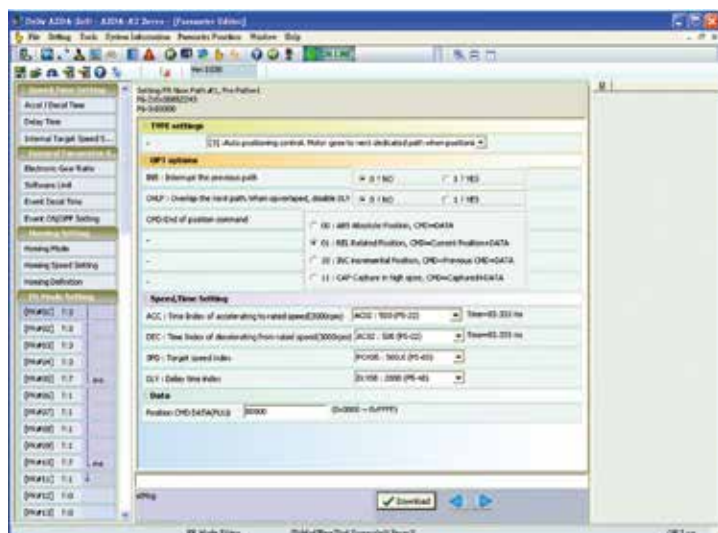
- User-friendly E-CAM editing interface is provided for designing E-CAM outlines and curves freely. In addition, quick settings for flying shear and rotary cut applications are offered.



- 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 <sub>AC</sub>                                                                                                                                                                                                                                                                                                                                                                                                                        |       |          |       |             |        | 3-phase 220V <sub>AC</sub>                    |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
|                                          | Permissible Voltage Range                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 1-phase / 3-phase 200 ~ 230V <sub>AC</sub> , -15% ~ 10%                                                                                                                                                                                                                                                                                                                                                                                                              |       |          |       |             |        | 3-phase 200 ~ 230V <sub>AC</sub> , -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<br>(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<br>(Only for Non-DMCNET mode)       | Voltage Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0 ~ ±10 V <sub>DC</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |          |       |             |        |                                               |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
|                                          |                                                          | Input Resistance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 10KΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |          |       |             |        |                                               |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
|                                          |                                                          | Time Constant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 2.2 μs                                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |          |       |             |        |                                               |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
|                                          | Speed Control Range <sup>1</sup>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 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 <sup>2</sup><br>(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 0°C to 50°C ambient temperature fluctuation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |       |          |       |             |        |                                               |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
| Torque Control Mode                      | Analog Input Command<br>(Only for Non-DMCNET mode)       | Voltage Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0 ~ ±10 V <sub>DC</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                              |       |          |       |             |        |                                               |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
|                                          |                                                          | 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 )<br>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                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0°C ~ 55°C (If operating temperature is above 45°C, forced cooling will be required)                                                                                                                                                                                                                                                                                                                                                                                 |       |          |       |             |        |                                               |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
|                                          | Storage Temperature                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | -20°C ~ 65°C                                                                                                                                                                                                                                                                                                                                                                                                                                                         |       |          |       |             |        |                                               |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
|                                          | Humidity                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0 ~ 90% RH (non-condensing)                                                                                                                                                                                                                                                                                                                                                                                                                                          |       |          |       |             |        |                                               |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
|                                          | Vibration                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 9.80665 m/s <sup>2</sup> (1G) less than 20Hz, 5.88 m/s <sup>2</sup> (0.6G) 20 to 50Hz                                                                                                                                                                                                                                                                                                                                                                                |       |          |       |             |        |                                               |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
|                                          | IP Rating                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | IP20                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |       |          |       |             |        |                                               |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
|                                          | Power System                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | TN System <sup>3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                               |       |          |       |             |        |                                               |                                                                                       |        |          |                                                                                       |         |                                                                                       |  |
| 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 / 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 <sub>DC</sub> , ±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 <sub>AC</sub> , ±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 ~ ±10 V <sub>DC</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |       |       |          |       |       |        |       |       |
|                                          |                                                      | Input Resistance | 10KΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |       |       |          |       |       |        |       |       |
|                                          |                                                      | Time Constant    | 2.2 μs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |       |       |          |       |       |        |       |       |
|                                          | Speed Control Range <sup>*1</sup>                    |                  | 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 <sup>*2</sup>                         |                  | 0.01% or less at 0 to 100% load fluctuation<br>0.01% or less at ±10% power fluctuation<br>0.01% or less at 0°C to 50°C ambient temperature fluctuation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |      |       |       |          |       |       |        |       |       |
| Torque Control Mode                      | Analog Input Command (Only for Non-DMCNET mode)      | Voltage Range    | 0 ~ ±10 V <sub>DC</sub>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |       |       |          |       |       |        |       |       |
|                                          |                                                      | 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<br><br><small>* 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.</small> |      |       |       |          |       |       |        |       |       |
|                                          | Outputs                                              |                  | Encoder signal output (A, B, Z Line Driver and Z Open Collector )<br>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                                |                  | 0°C ~ 55°C(If operating temperature is above 45°C, forced cooling will be required)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |      |       |       |          |       |       |        |       |       |
|                                          | Storage Temperature                                  |                  | -20°C ~ 65°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |      |       |       |          |       |       |        |       |       |
|                                          | Humidity                                             |                  | 0 ~ 90% RH (non-condensing)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |      |       |       |          |       |       |        |       |       |
|                                          | Vibration                                            |                  | 9.80665 m/s <sup>2</sup> (1G) less than 20Hz, 5.88 m/s <sup>2</sup> (0.6G) 20 to 50Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |      |       |       |          |       |       |        |       |       |
|                                          | IP Rating                                            |                  | IP20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |      |       |       |          |       |       |        |       |       |
|                                          | Power System                                         |                  | TN System <sup>*3</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |      |       |       |          |       |       |        |       |       |
| Approvals                                |                                                      |                  | IEC/EN 61800-5-1, UL 508C, C-tick   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.

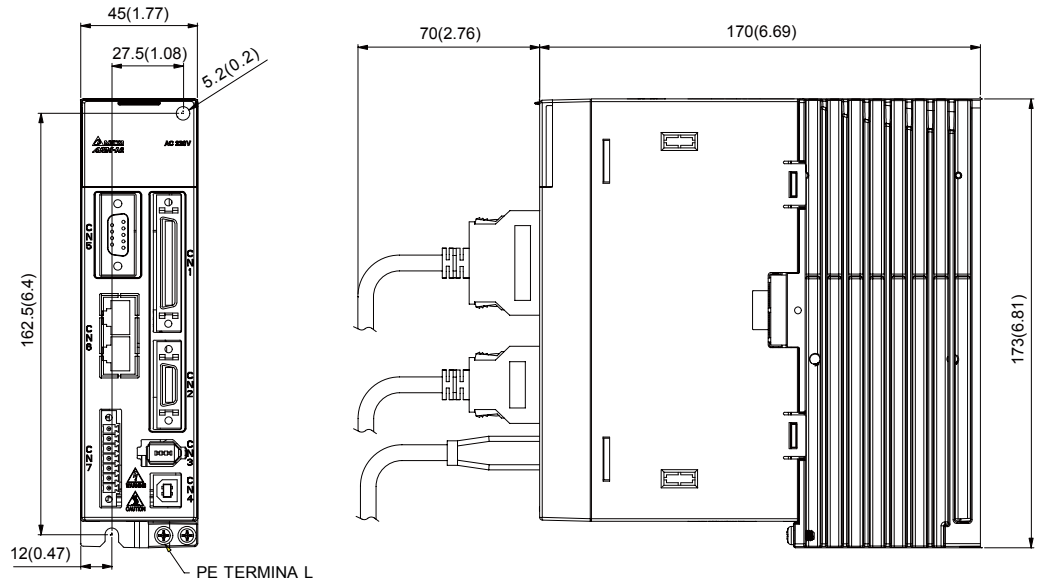
# Servo Drive Dimensions

Units: mm(inches)

## 220V Series

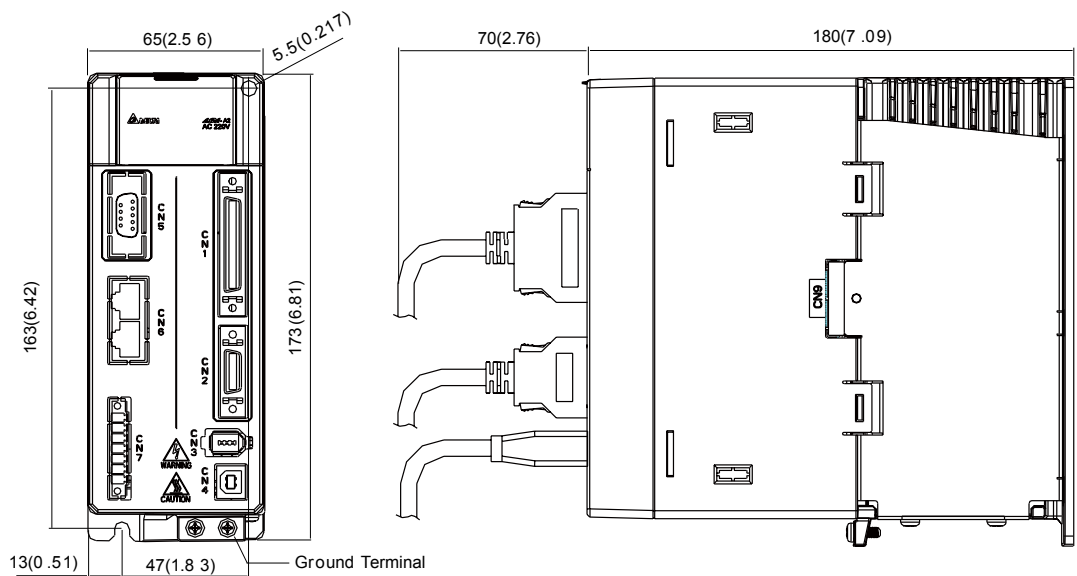
100W / 200W / 400W

| Weight    |
|-----------|
| 1.5 (3.3) |



750W / 1.0kW / 1.5kW

| Weight    |
|-----------|
| 2.0 (4.4) |



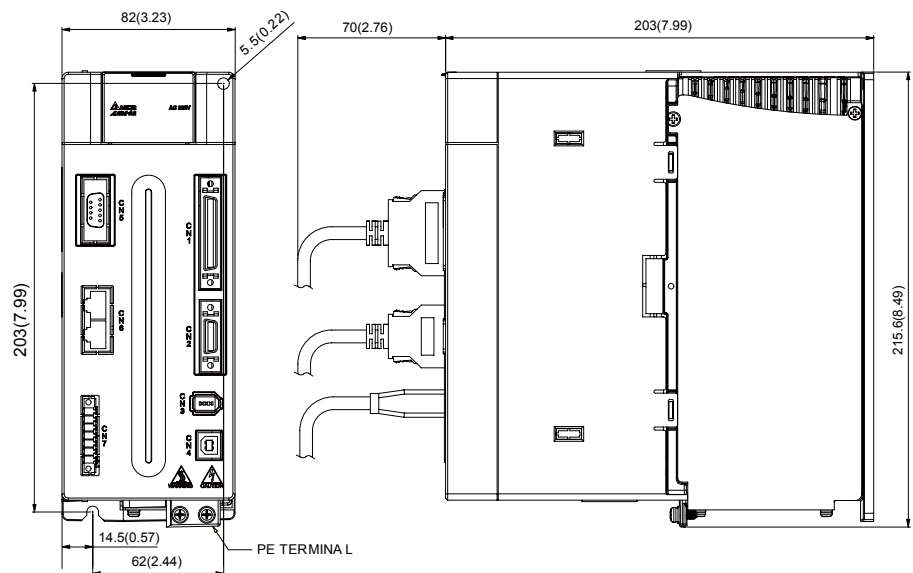
### NOTE

- 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

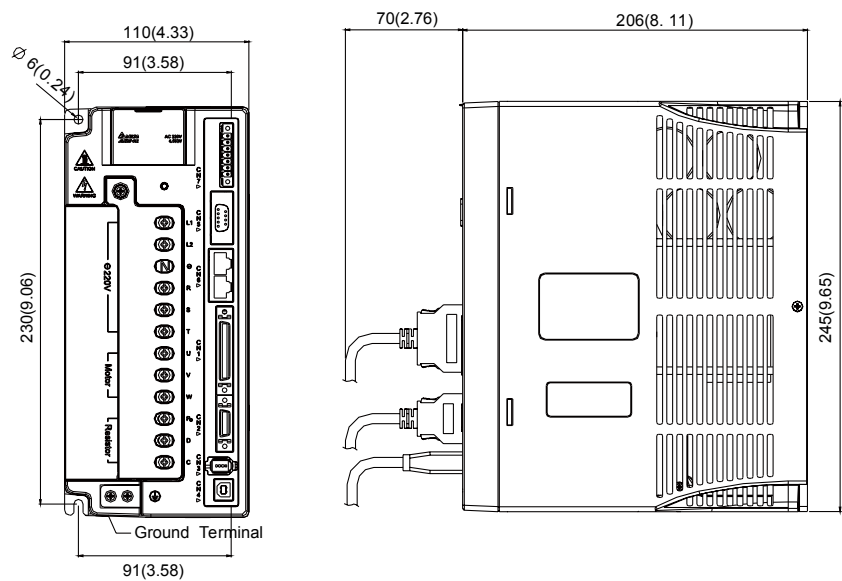
2.89 (6.36)



## 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.

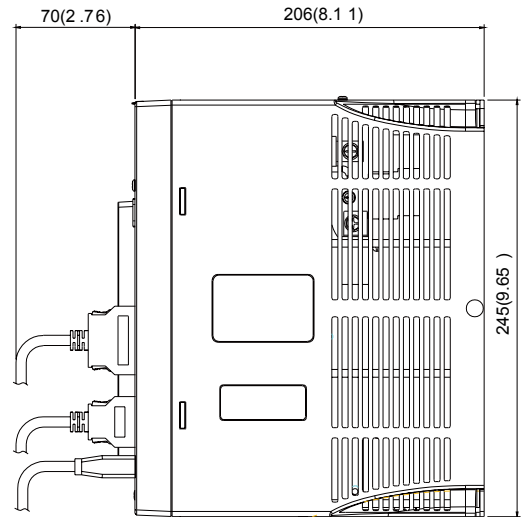
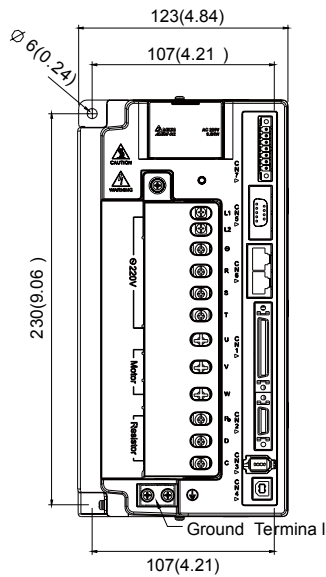
# Servo Drive Dimensions

Units: mm(inches)

## 220V Series

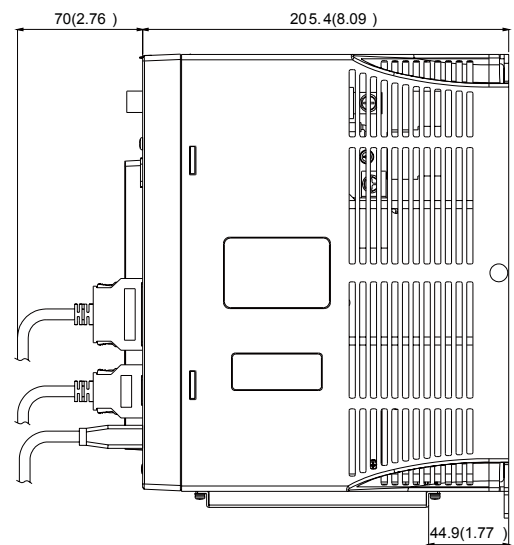
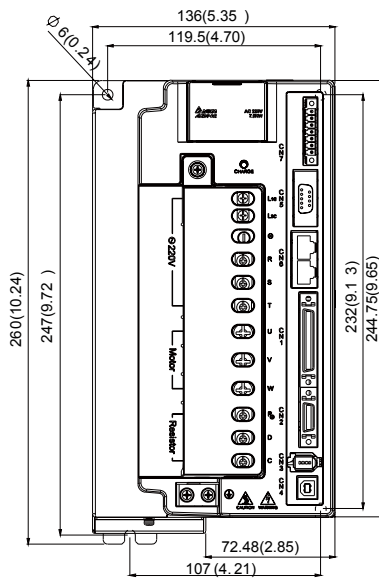
5.5kW

| Weight     |
|------------|
| 5.5 (12.1) |



7.5kW

| Weight   |
|----------|
| 5.9 (13) |



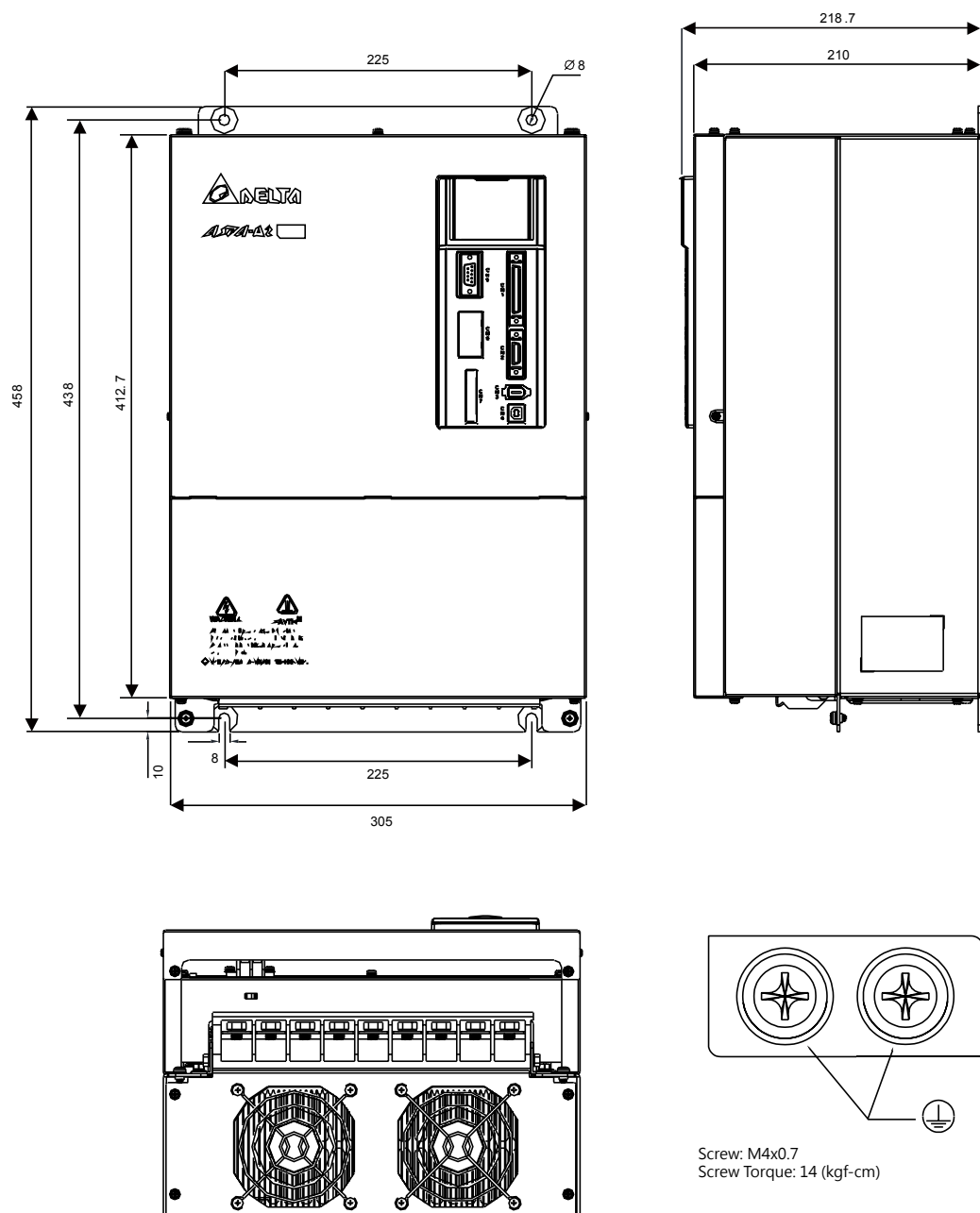
### NOTE

- 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)



**NOTE**

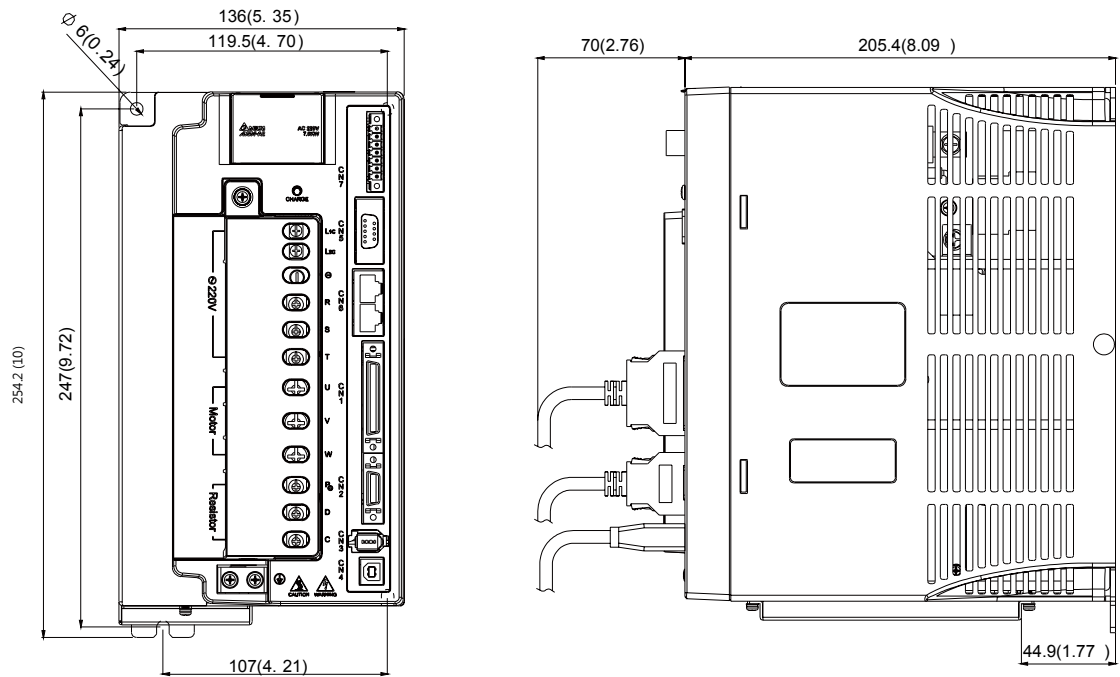
- 1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
- 2) Dimensions and weights of the servo drive may be revised without prior notice.



## 7.5kW

### Weight

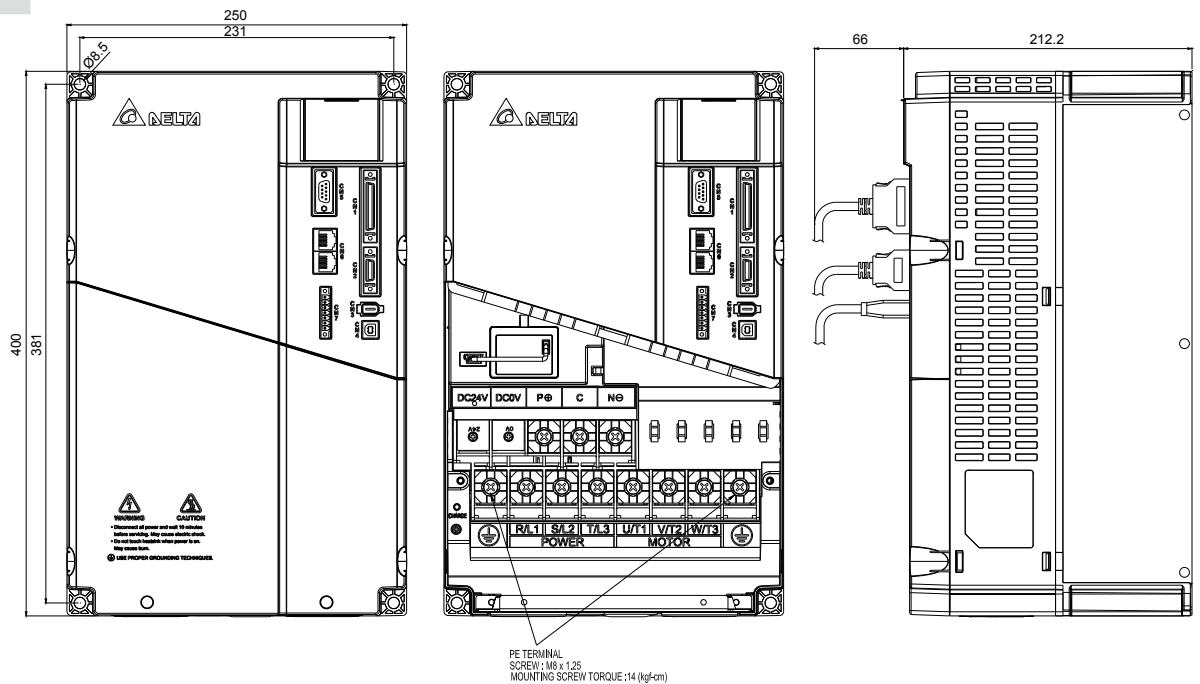
5.5 (12.1)



## 11kW / 15kW

### Weight

10.3(22.66)



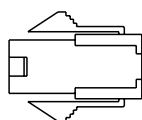
### NOTE

- 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.

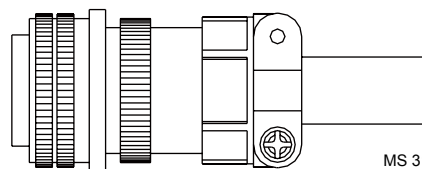
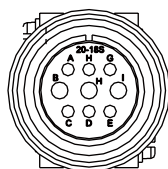
# Optional Cables and Connectors

## ● Power Connectors

ASDBCAPW0000 (for 200V drives)

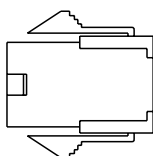


ASD-CAPW1000

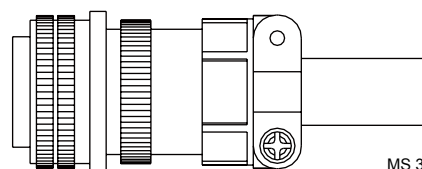
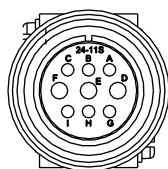


MS 3106A-20-18S

ASDBCAPW0100 (for 200V drives, with brake cable)

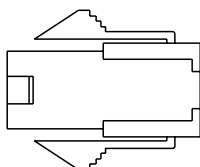


ASD-CAPW2000

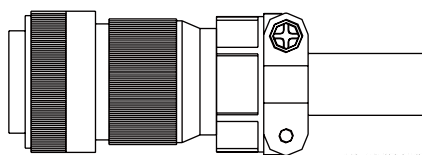
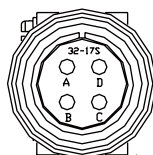


MS 3106A-24-11S

ASD-CAPW5400 (for 400V drives)



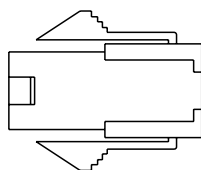
ASD-CAPW4000



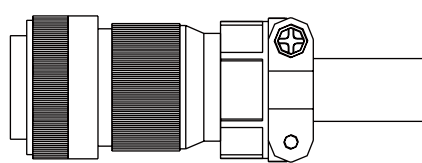
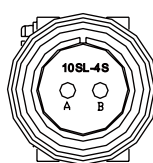
Straight Plug WPS3106A-32-17S

CLAMP: WPS3057-20A

ASD-CAPW5100 (for 400V drives, with brake cable)



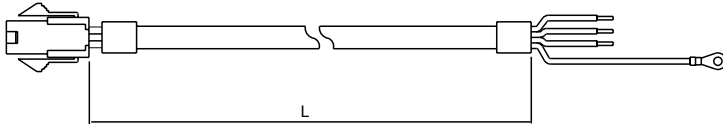
ASD-CNBR1000



CLAMP: WPS3106A 10SL-4S-R

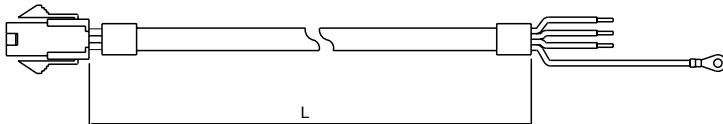
## ● Power Cables

### ASD-ABPW0003, ASD-ABPW0005 (for 200V drives)



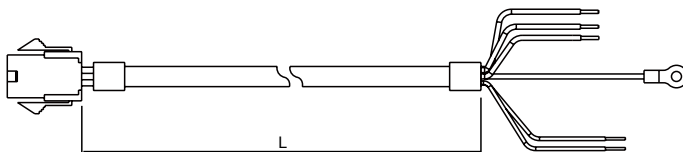
| Item | Part No.     | L          |         |
|------|--------------|------------|---------|
|      |              | mm         | inch    |
| 1    | ASD-ABPW0003 | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-ABPW0005 | 5000 ± 100 | 197 ± 4 |

### ASD-CAPW5403, ASD-CAPW5405 (for 400V drives)



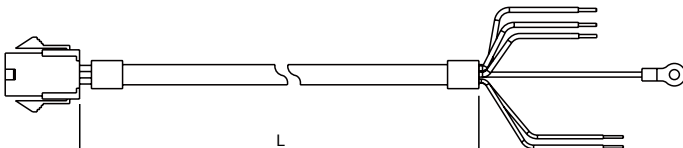
| Item | Part No.     | L          |         |
|------|--------------|------------|---------|
|      |              | mm         | inch    |
| 1    | ASD-CAPW5403 | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-CAPW5405 | 5000 ± 100 | 197 ± 4 |

### AASD-ABPW0103, ASD-ABPW0105 (for 200V drives, with brake cable)



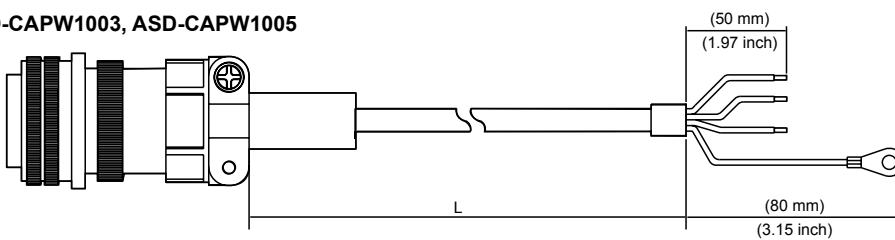
| Item | Part No.     | L          |         |
|------|--------------|------------|---------|
|      |              | mm         | inch    |
| 1    | ASD-ABPW0103 | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-ABPW0105 | 5000 ± 100 | 197 ± 4 |

### 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

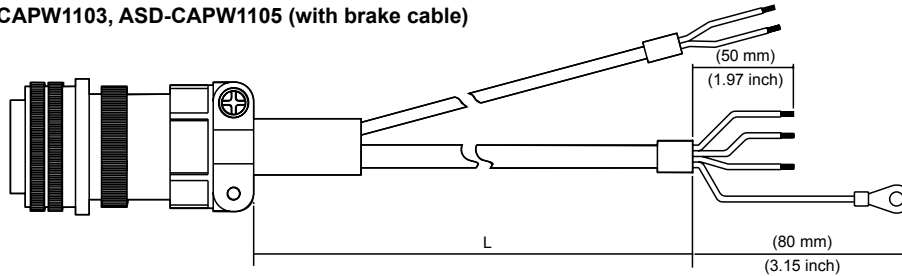


| Item | Part No.     | Straight     | L          |         |
|------|--------------|--------------|------------|---------|
|      |              |              | mm         | inch    |
| 1    | ASD-CAPW1003 | 3106A-20-18S | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-CAPW1005 | 3106A-20-18S | 5000 ± 100 | 197 ± 4 |

# Optional Cables and Connectors

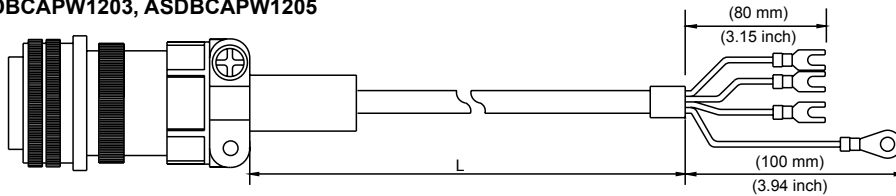
## ● Power Cables

ASD-CAPW1103, ASD-CAPW1105 (with brake cable)



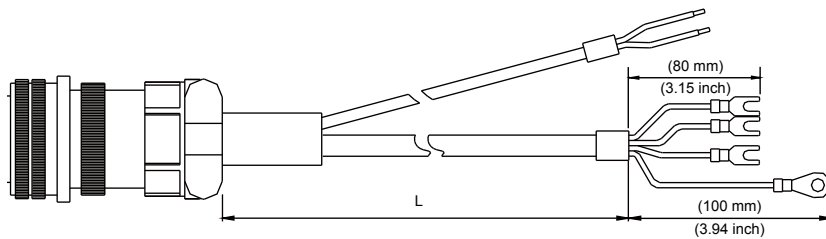
| Item | Part No.     | Straight     | L          |         |
|------|--------------|--------------|------------|---------|
|      |              |              | mm         | inch    |
| 1    | ASD-CAPW1103 | 3106A-20-18S | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-CAPW1105 | 3106A-20-18S | 5000 ± 100 | 197 ± 4 |

ASDBCAPW1203, ASDBCAPW1205



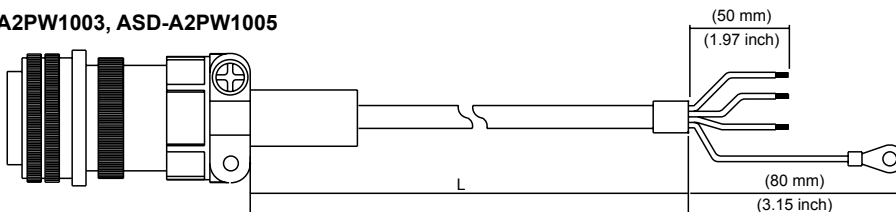
| Item | Part No.      | Straight     | L          |         |
|------|---------------|--------------|------------|---------|
|      |               |              | mm         | inch    |
| 1    | ASD-BCAPW1203 | 3106A-20-18S | 3000 ± 100 | 118 ± 4 |
| 2    | ASDB-CAPW1205 | 3106A-20-18S | 5000 ± 100 | 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 |

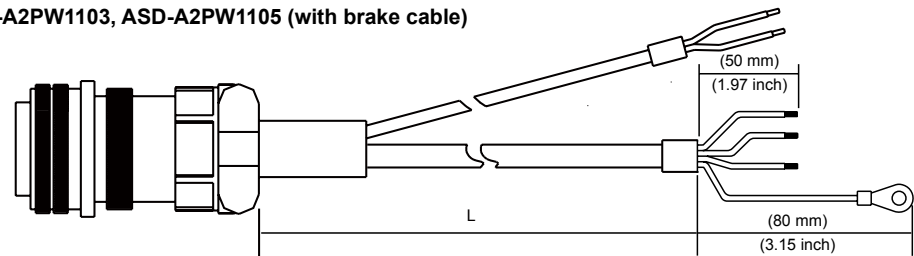
ASD-A2PW1003, ASD-A2PW1005



| 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 |

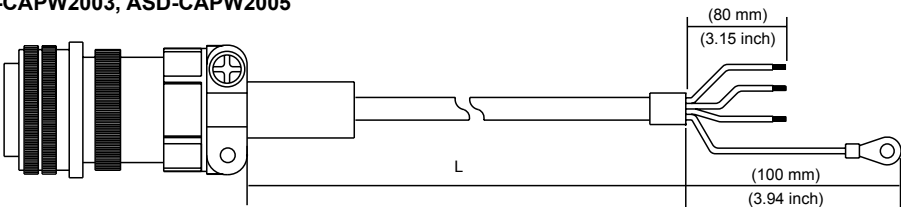
● Power Cables

ASD-A2PW1103, ASD-A2PW1105 (with brake cable)



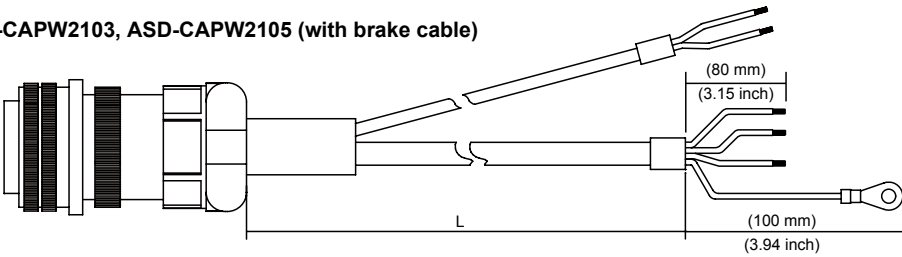
| Item | Part No.     | Straight     | L          |         |
|------|--------------|--------------|------------|---------|
|      |              |              | mm         | inch    |
| 1    | ASD-A2PW1103 | 3106A-20-18S | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-A2PW1105 | 3106A-20-18S | 5000 ± 100 | 197 ± 4 |

ASD-CAPW2003, ASD-CAPW2005



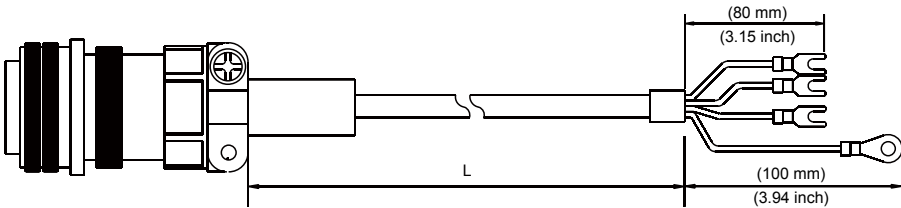
| Item | Part No.     | Straight     | L          |         |
|------|--------------|--------------|------------|---------|
|      |              |              | mm         | inch    |
| 1    | ASD-CAPW2003 | 3106A-24-11S | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-CAPW2005 | 3106A-24-11S | 5000 ± 100 | 197 ± 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

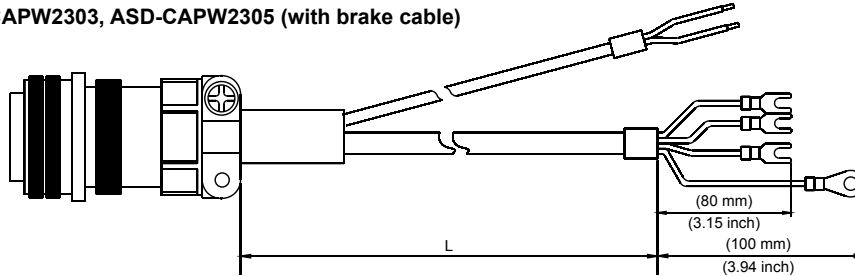


| Item | Part No.     | Straight     | L          |         |
|------|--------------|--------------|------------|---------|
|      |              |              | mm         | inch    |
| 1    | ASD-CAPW2203 | 3106A-24-11S | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-CAPW2205 | 3106A-24-11S | 5000 ± 100 | 197 ± 4 |

# Optional Cables and Connectors

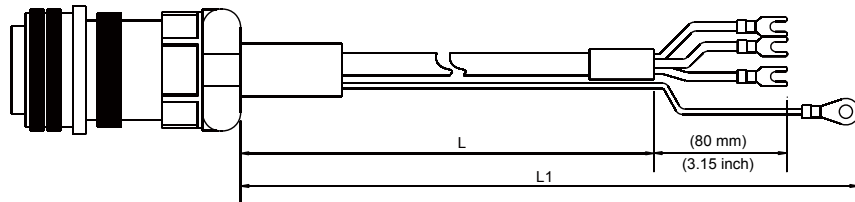
## ● Power Cables

ASD-CAPW2303, ASD-CAPW2305 (with brake cable)



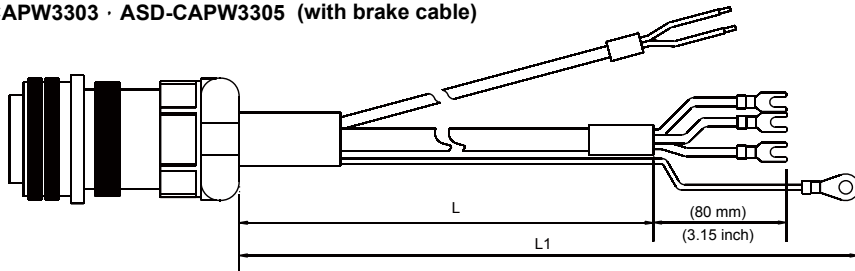
| Item | Part No.     | Straight     | L          |         |
|------|--------------|--------------|------------|---------|
|      |              |              | mm         | inch    |
| 1    | ASD-CAPW2303 | 3106A-24-11S | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-CAPW2305 | 3106A-24-11S | 5000 ± 100 | 197 ± 4 |

ASD-CAPW3203 · ASD-CAPW3205



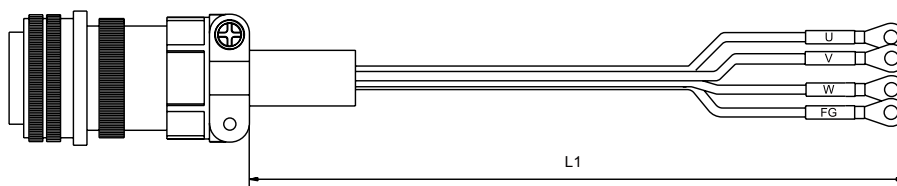
| Item | Part No.     | Straight     | L          |         | L1         |         |
|------|--------------|--------------|------------|---------|------------|---------|
|      |              |              | mm         | inch    | mm         | inch    |
| 1    | ASD-CAPW3203 | 3106A-24-11S | 3000 ± 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 |

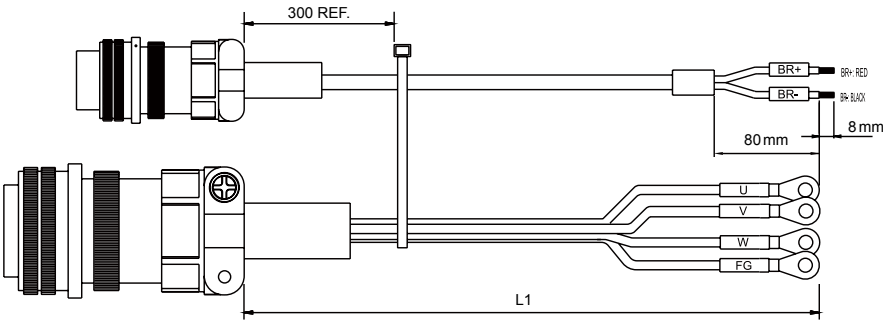
ASD-CAPW4503, ASD-CAPW4505



| 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 |

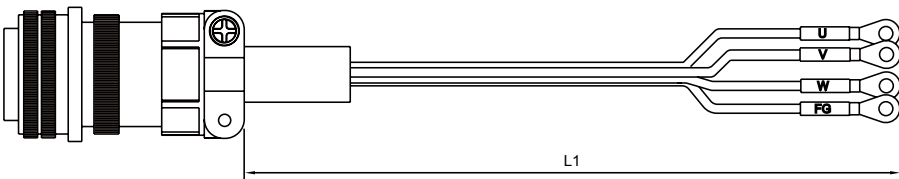
● Power Cables

ASD-CAPW4703, ASD-CAPW4705 (with brake cable)



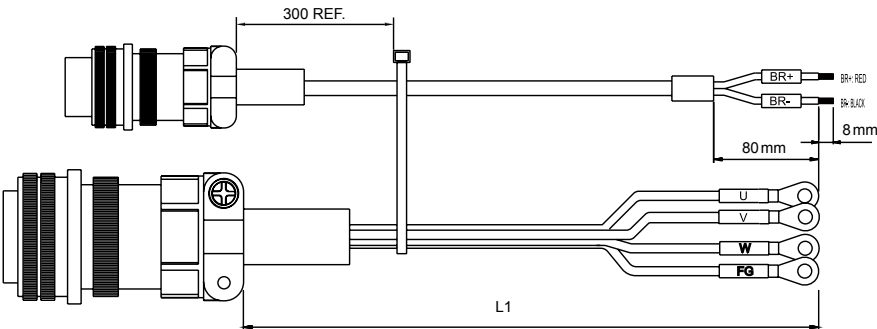
| Item | Part No.     | Straight      | L          |         |
|------|--------------|---------------|------------|---------|
|      |              |               | mm         | inch    |
| 1    | ASD-CAPW4703 | 3106A-32-17S  | 3100 ± 100 | 122 ± 4 |
|      |              | 3106A-10SL-4S | 3100 ± 100 | 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)

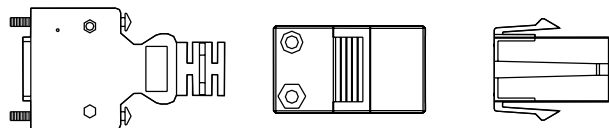


| Item | Part No.     | Straight      | L          |         |
|------|--------------|---------------|------------|---------|
|      |              |               | mm         | inch    |
| 1    | ASD-CAPW4803 | 3106A-32-17S  | 3100 ± 100 | 122 ± 4 |
|      |              | 3106A-10SL-4S | 3100 ± 100 | 122 ± 4 |
| 2    | ASD-CAPW4805 | 3106A-32-17S  | 5100 ± 100 | 201 ± 4 |
|      |              | 3106A-10SL-4S | 5100 ± 100 | 201 ± 4 |

# Optional Cables and Connectors

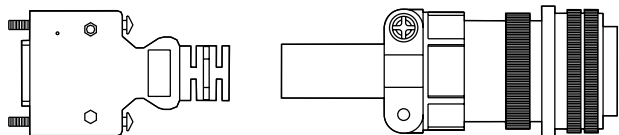
## Encoder Connectors

### ASD-ABEN0000



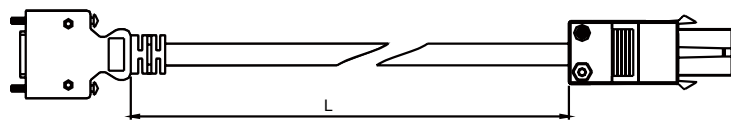
## Encoder Connectors

### ASD-CAEN1000



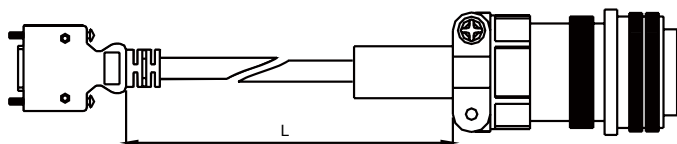
## Incremental Encoder Cables

### ASD-ABEN0003 · ASD-ABEN00005



| Item | Part No.     | L          |         |
|------|--------------|------------|---------|
|      |              | mm         | inch    |
| 1    | ASD-ABEN0003 | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-ABEN0005 | 5000 ± 100 | 197 ± 4 |

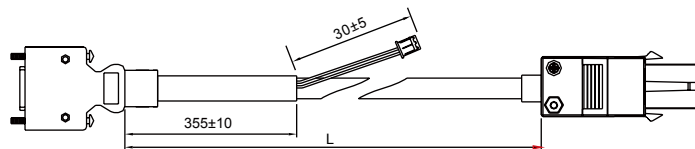
### ASD-CAEN1003 · ASD-CAEN1005



| 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 |

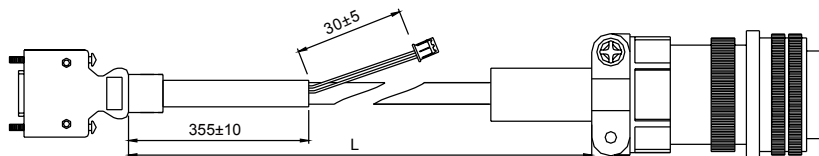
## Absolute Encoder Cables

### ASD-A2EB0003 · ASD-A2EB0005



| Item | Part No.     | L          |         |
|------|--------------|------------|---------|
|      |              | mm         | inch    |
| 1    | ASD-A2EB0003 | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-A2EB0005 | 5000 ± 100 | 197 ± 4 |

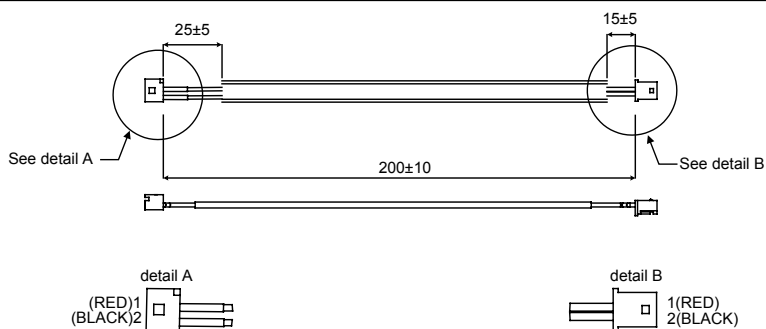
### ASD-A2EB1003 · ASD-A2EB1005



| Item | Part No.     | L          |         |
|------|--------------|------------|---------|
|      |              | mm         | inch    |
| 1    | ASD-A2EB1003 | 3000 ± 100 | 118 ± 4 |
| 2    | ASD-A2EB1005 | 5000 ± 100 | 197 ± 4 |

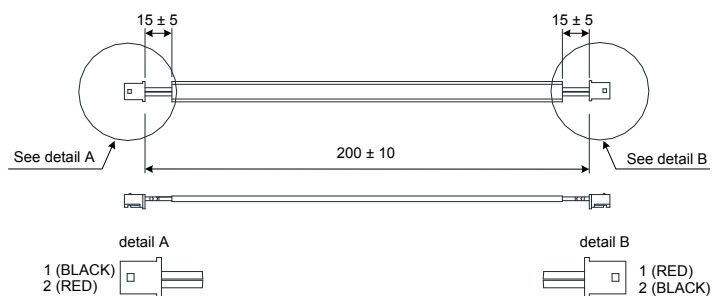
## ● Battery Box Cord AW (Connects to the battery side of the encoder cable) Units: mm

3864573700



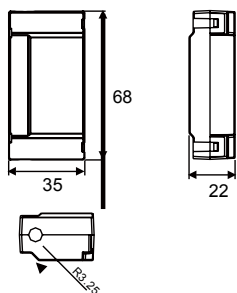
## ● Battery Box Cord IW (Connects to CN8) Units: mm

3864811900

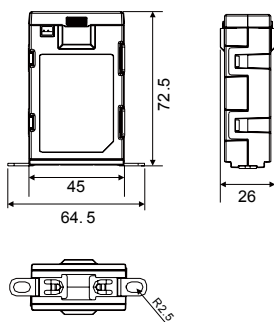


## ● Battery Boxes with batteries Units: mm

Single Battery Box  
ASD-MDBT0100

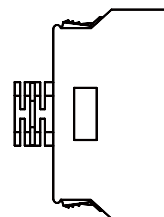


Dual Battery Box  
ASD-MDBT0200



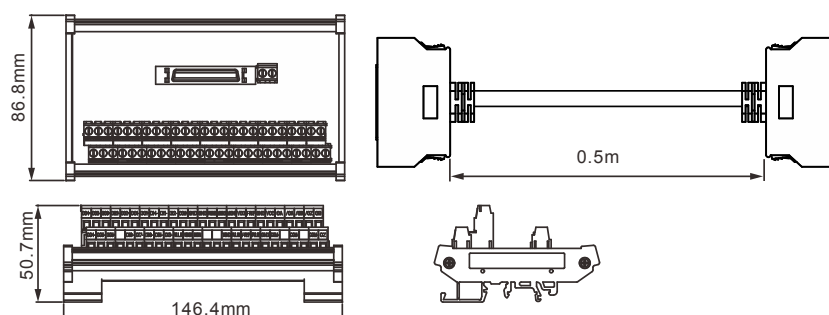
## ● I/O Signal Connector (CN1)

ASD-CN5C0050



## ● Terminal Block Module

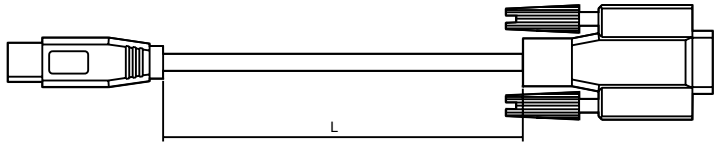
ASD-BM-50A



# Optional Cables and Connectors

## ● RS-232 Communication Cable

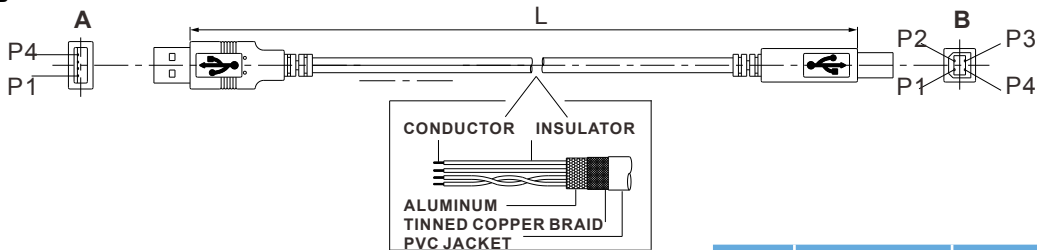
ASD-CARS0003



| Item | Part No.     | L          |         |
|------|--------------|------------|---------|
|      |              | mm         | inch    |
| 1    | ASD-CARS0003 | 3000 ± 100 | 118 ± 4 |

## ● Communication Cable between Drive and Computer (for PC)

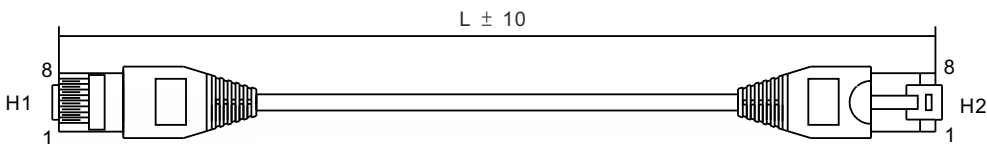
DOP-CAUSBAB



| Item | Part No.    | L         |          |
|------|-------------|-----------|----------|
|      |             | mm        | inch     |
| 1    | DOP-CAUSBAB | 1400 ± 30 | 55 ± 1.2 |

## ● CANopen Communication Cable

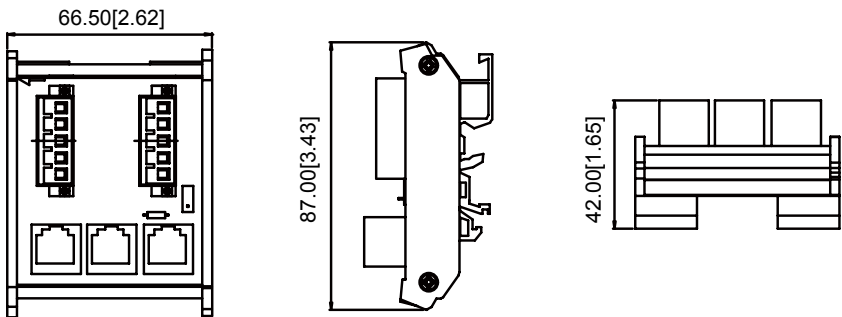
TAP-CB03 · TAP-CB05



| 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]

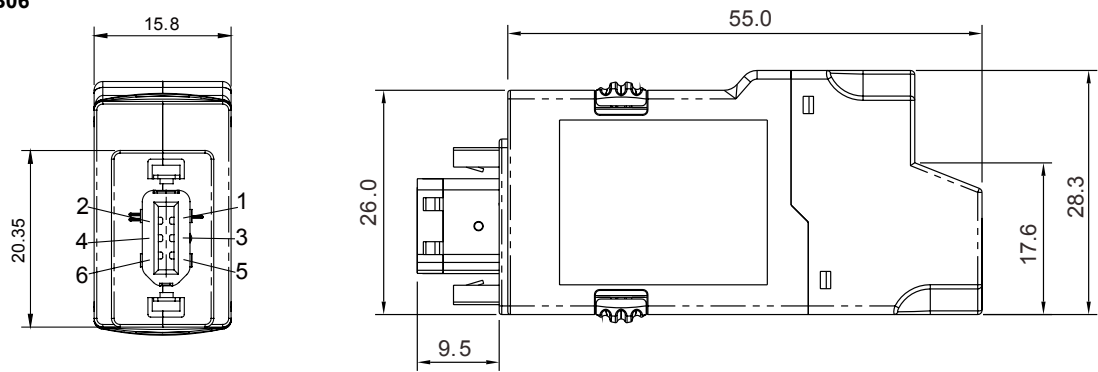
TAP-CN03



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.

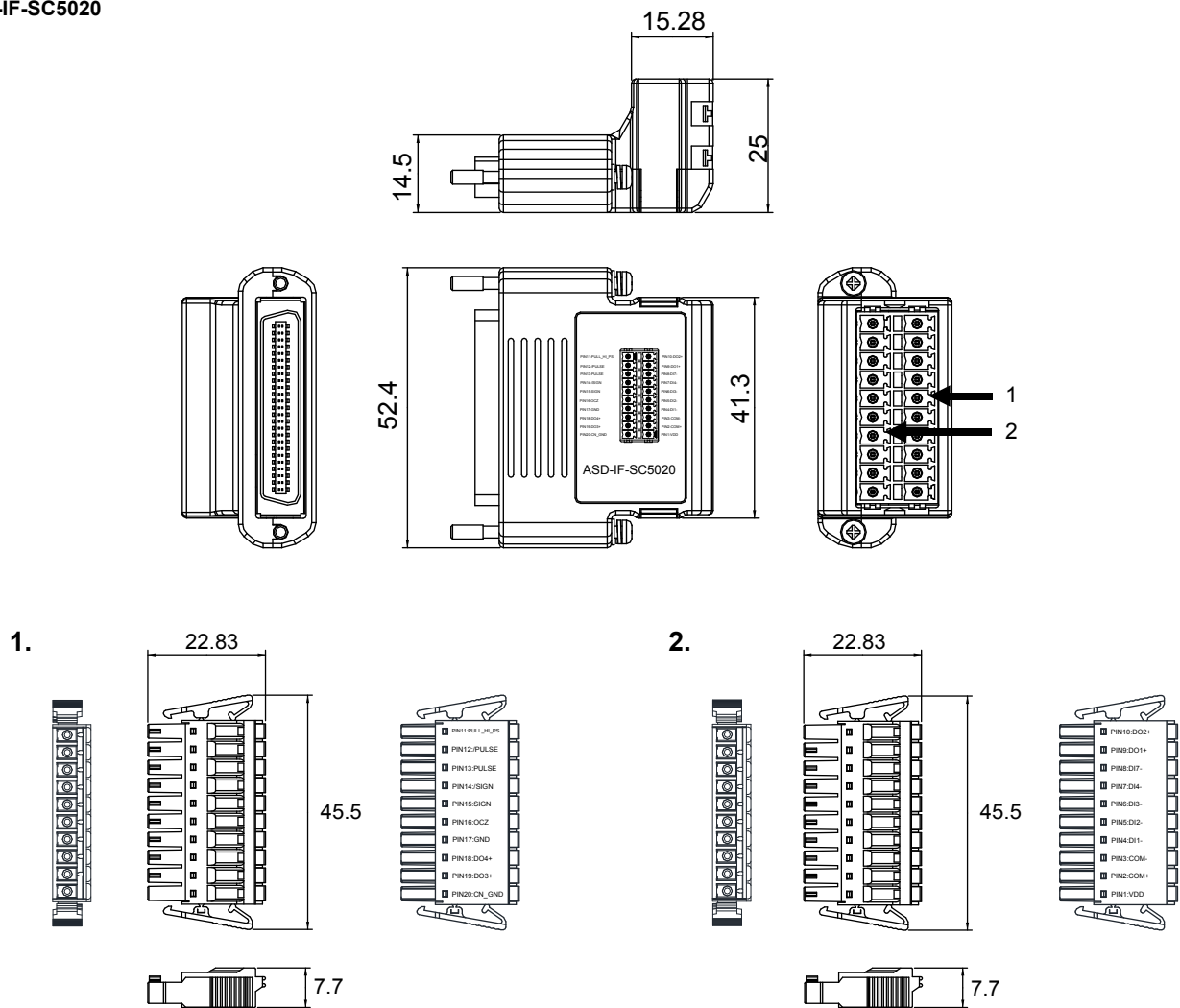
● **RS-485 Connector** Units: mm[inch]

ASD-CNIE0B06



● **CN1 I/O Connector** Units: mm[inch]

ASD-IF-SC5020



# 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<br>ECMA-C △ 0604 □ H<br>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<br>ECMA-C △ 0807 □ H<br>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)

### 11kW 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 our website at: [www.deltaww.com](http://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-L 1221B □ 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 our website at: [www.deltaww.com](http://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-L 1221F □ 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 EN55011 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<br>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<br>(parameter P1-52) (Ohm)             | Capacity<br>(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<br>(parameter P1-52) (Ohm)             | Capacity<br>(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.



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# DELTA