



Automation for a Changing World

# **Delta AC Servo Drive & Motor ASDA-B3 Series**

# **Delta Standard Servo System ASDA-B3**

## **High Efficiency, User-Friendly, and Stable**

The high tolerance and stable operation of the Delta standard servo system ASDA-B3 series creates a highly efficient and user-friendly operation environment with precise motion control functions that optimize production efficiency and output value.

With the best motion control solutions, Delta boosts industry momentum and works with customers to create an innovative future.





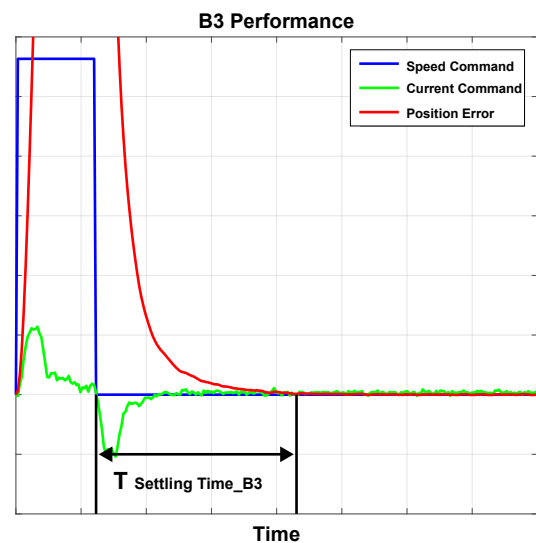
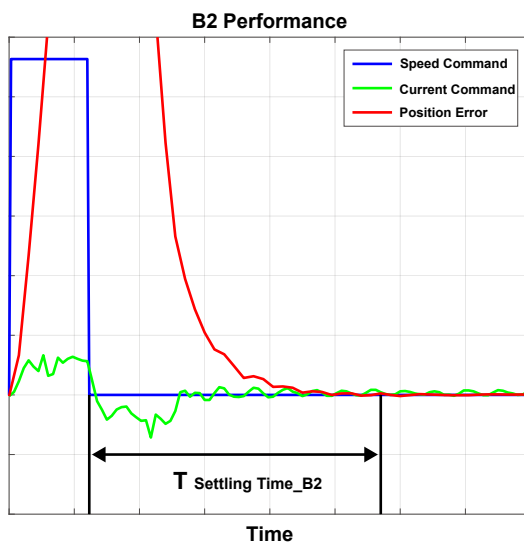
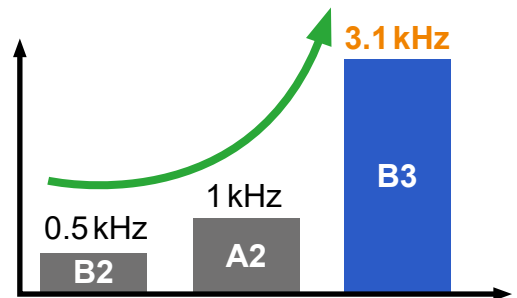
## Table of Contents

|                                                 |           |
|-------------------------------------------------|-----------|
| <b>Optimized Performance</b>                    | <b>1</b>  |
| <b>Various Motion Functions</b>                 | <b>3</b>  |
| <b>EtherCAT Communication Functions</b>         | <b>5</b>  |
| <b>Vibration Suppression Functions</b>          | <b>7</b>  |
| <b>Self-Diagnosis and Adaptation</b>            | <b>8</b>  |
| <b>Energy-Saving and Compact Size Design</b>    | <b>9</b>  |
| <b>Various Selections</b>                       | <b>10</b> |
| <b>User-Friendly Software</b>                   | <b>11</b> |
| <b>Applications</b>                             | <b>13</b> |
| <b>Servo Drive &amp; Accessories</b>            | <b>15</b> |
| <b>Accessories</b>                              | <b>16</b> |
| <b>Combination of Drive and Motor</b>           | <b>17</b> |
| <b>Servo Drive Model Name</b>                   | <b>19</b> |
| <b>Servo Drive Specifications</b>               | <b>20</b> |
| <b>Servo Motor Model Name</b>                   | <b>23</b> |
| <b>ECM-B3 Series Servo Motor Specifications</b> | <b>24</b> |
| <b>ECM-A3 Series Servo Motor Specifications</b> | <b>30</b> |
| <b>Control Mode Wiring</b>                      | <b>34</b> |
| <b>Ordering Information</b>                     | <b>41</b> |
| <b>Servo Drive Standards</b>                    | <b>50</b> |

# Optimized Performance

## High Response Bandwidth

- Higher responsiveness: from 0.5 kHz of the B2 series to 3.1 kHz of the B3 series
- Increased productivity: settling time decreased by 40%



## Higher Load Tolerance

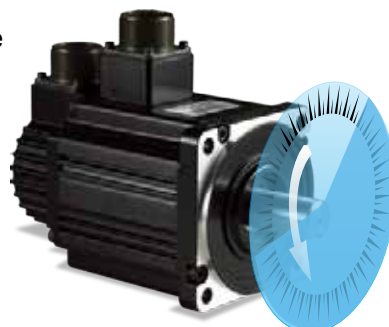
- Improves control resolution and optimizes system stability
- Higher response bandwidth with the same load conditions

|                                              | B2             | B3             | B2            | B3             | B2               | B3            |
|----------------------------------------------|----------------|----------------|---------------|----------------|------------------|---------------|
| <b>Actual Load Inertia Ratio</b>             | 30 times       |                | 50 times      |                | 70 times         |               |
| <b>Speed Loop Bandwidth in Position Mode</b> | Approx. 150 Hz | Approx. 250 Hz | Approx. 30 Hz | Approx. 150 Hz | Max. performance | Approx. 20 Hz |

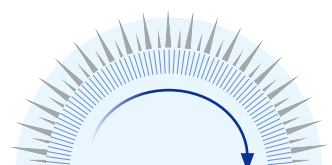
## 24-bit Absolute Encoder

- The positioning precision is enhanced by the encoder of 16,777,216 pulses per turn
- The stable low-speed output improves machine performance
- Absolute encoder retains the motor's position when the power is off

**16,777,216** pulses for one single turn

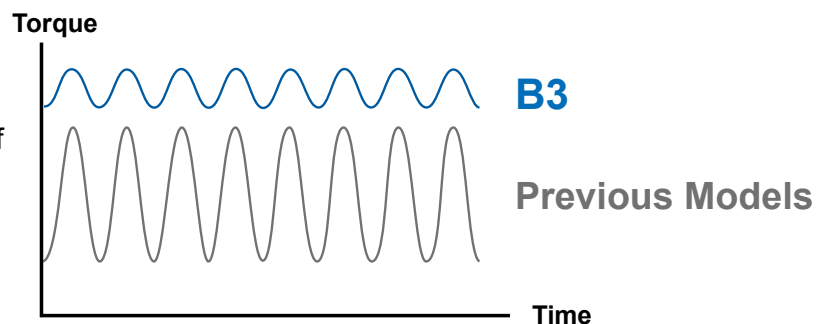


**46,603** pulses in one degree



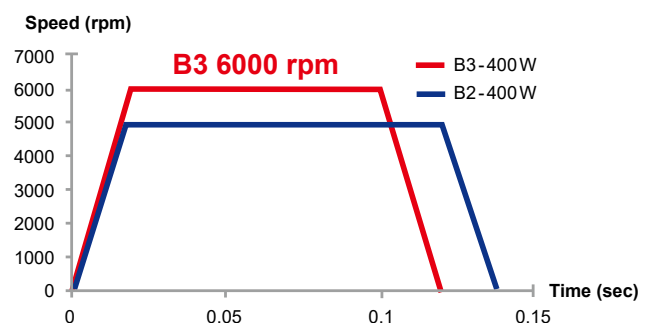
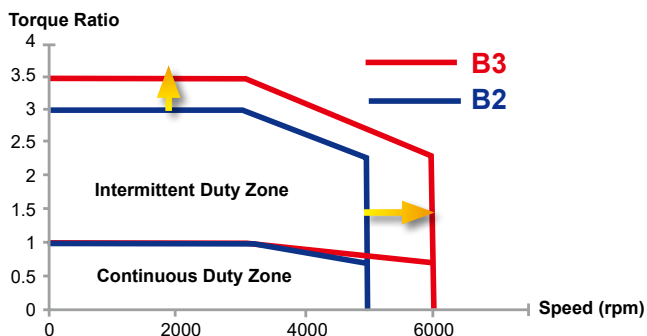
## Low Cogging Torque

The cogging torque is 50% of the previous models which increases the smoothness of constant speed operation and low speed machining



## Increased Speed and Torque

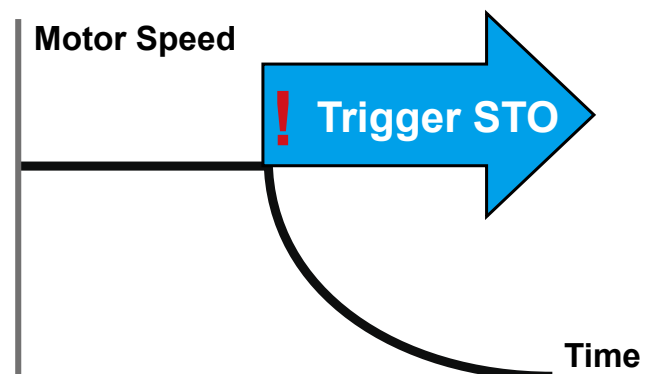
- Motor speed increased to 6,000 rpm
- Torque overload ratio increased to 3.5 times and the time required for acceleration and deceleration is shortened
- Significantly increases productivity and efficiency



## Safe Torque Off (STO) Function

- Built-in STO function ensures personnel safety
- Complies with IEC/EN 61800-5-2
- SIL2 Level

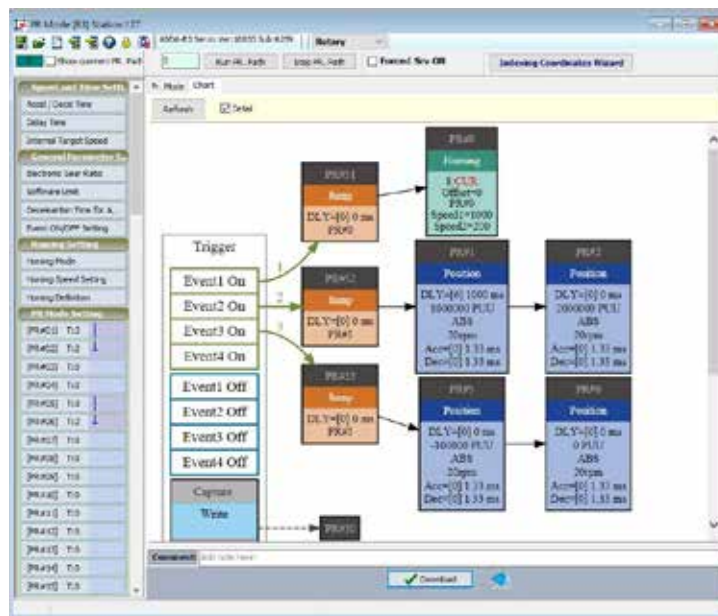
Note: STO certification in process



# Various Motion Functions

## PR Mode

- Supports up to 99 PR paths for flexible motion command planning
- Intuitive operation interface with graphics
- Homing modes, Position commands, and Speed commands
- Overlap command, Interrupt command, Jump command, and parameter settings



## High-Speed Capture Function

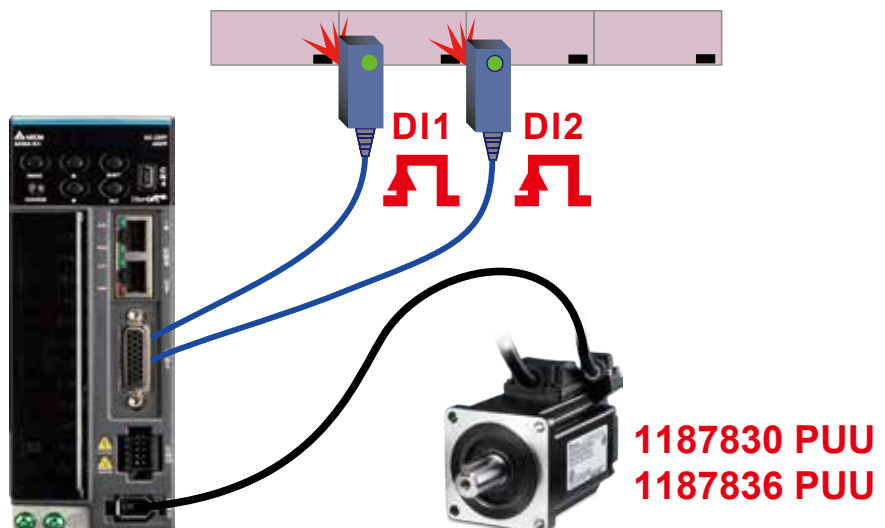
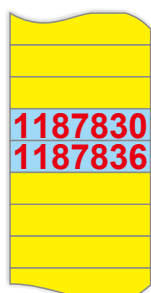
- Supports the Capture function for instantly capturing position coordinates with one set of DI
- Supports the touch probe function with two sets of DI's in the EtherCAT communication mode

Note:

Capture function: DI4 (B3-F, B3-M), DI7(B3-L)

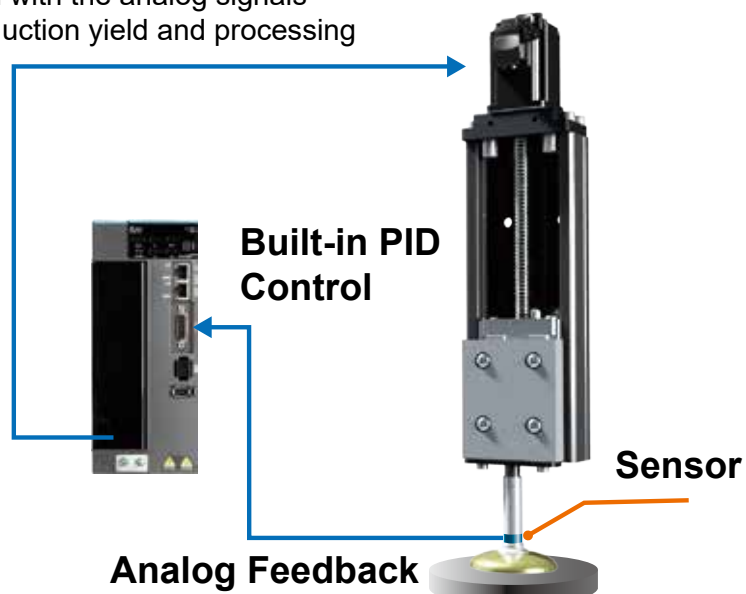
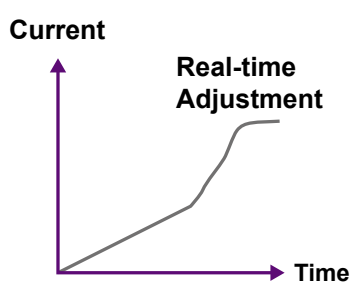
Touch Probe function: DI1, DI2 (B3-E)

### Data Array



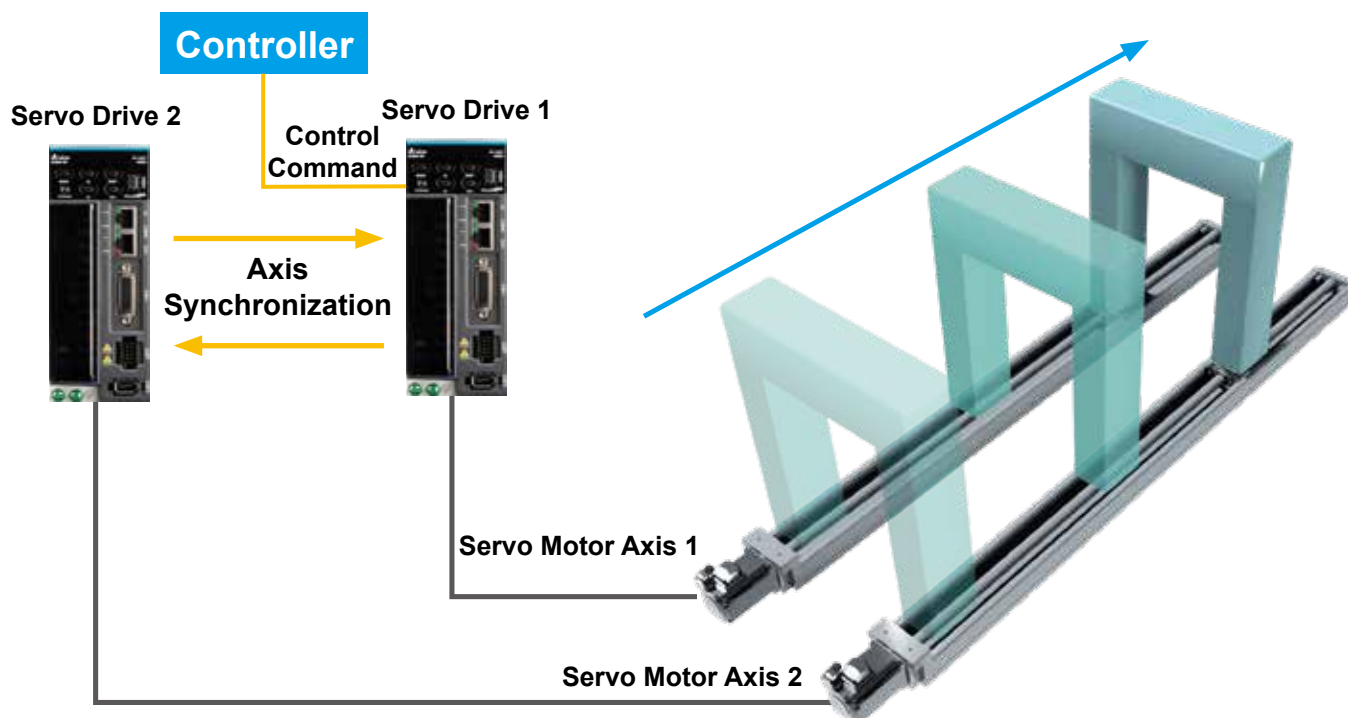
## Analog Feedback PID Control

- Supports analog signal input
- Achieves real-time and precise PID control with the analog signals from the external sensor for improved production yield and processing performance



## Axis Synchronization Function

- Easy gantry control with the EtherCAT high-speed inter-axis data exchange

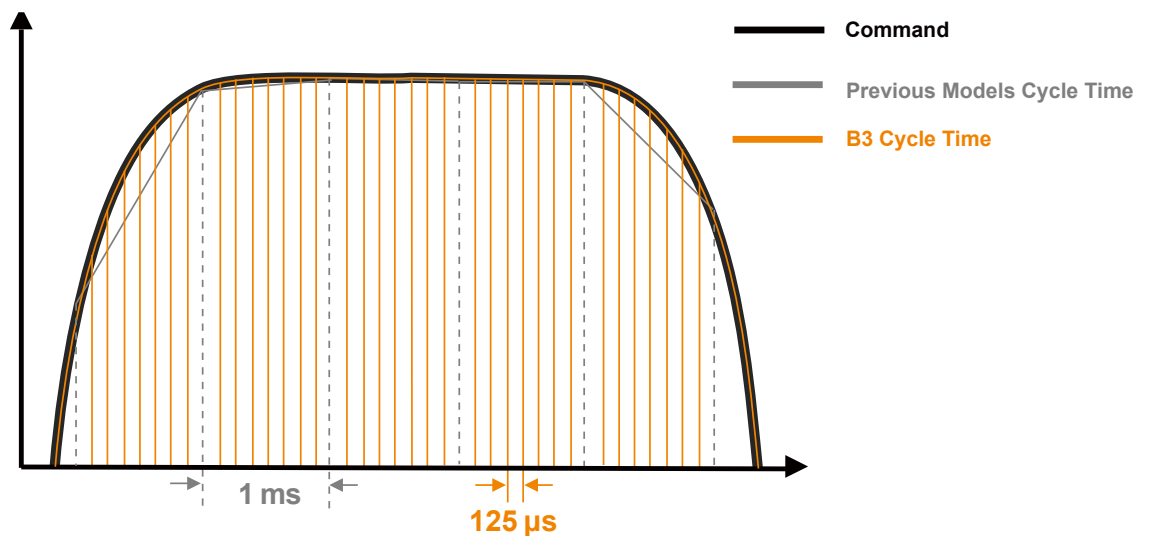


# EtherCAT Communication Functions

Complies with the IEC 61158 and IEC 61800-7 fieldbus standards

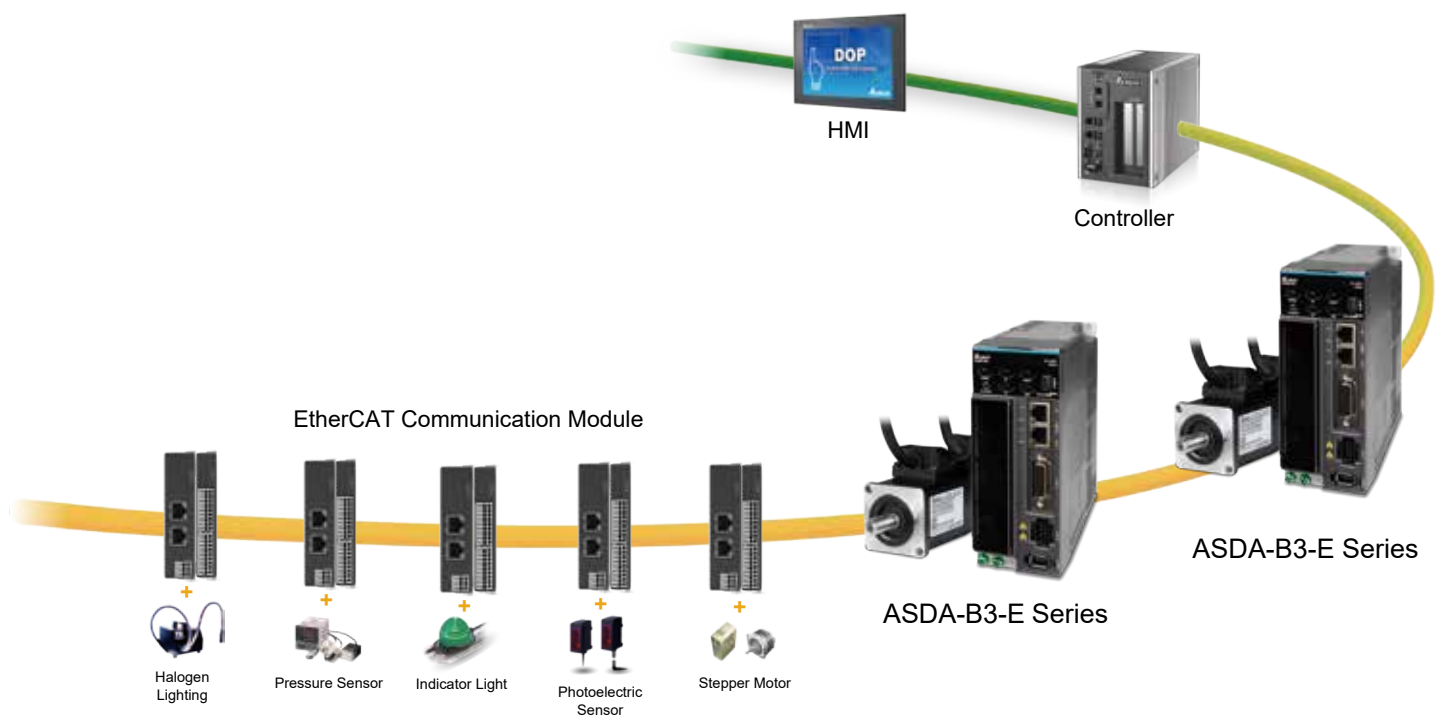
## Shorter Synchronization Cycle

- The synchronization cycle of the ASDA-B3 series is 125  $\mu$ s, which is 8 times faster than that of the ASDA-A2 series



## Simplified Wiring

In contrast to single-axis pulse wiring which is complicated and difficult to repair, the EtherCAT high-speed communication greatly reduces the wiring and inspection time. It is suitable for multi-axis control and can also connect remote I/O modules with a single wiring.



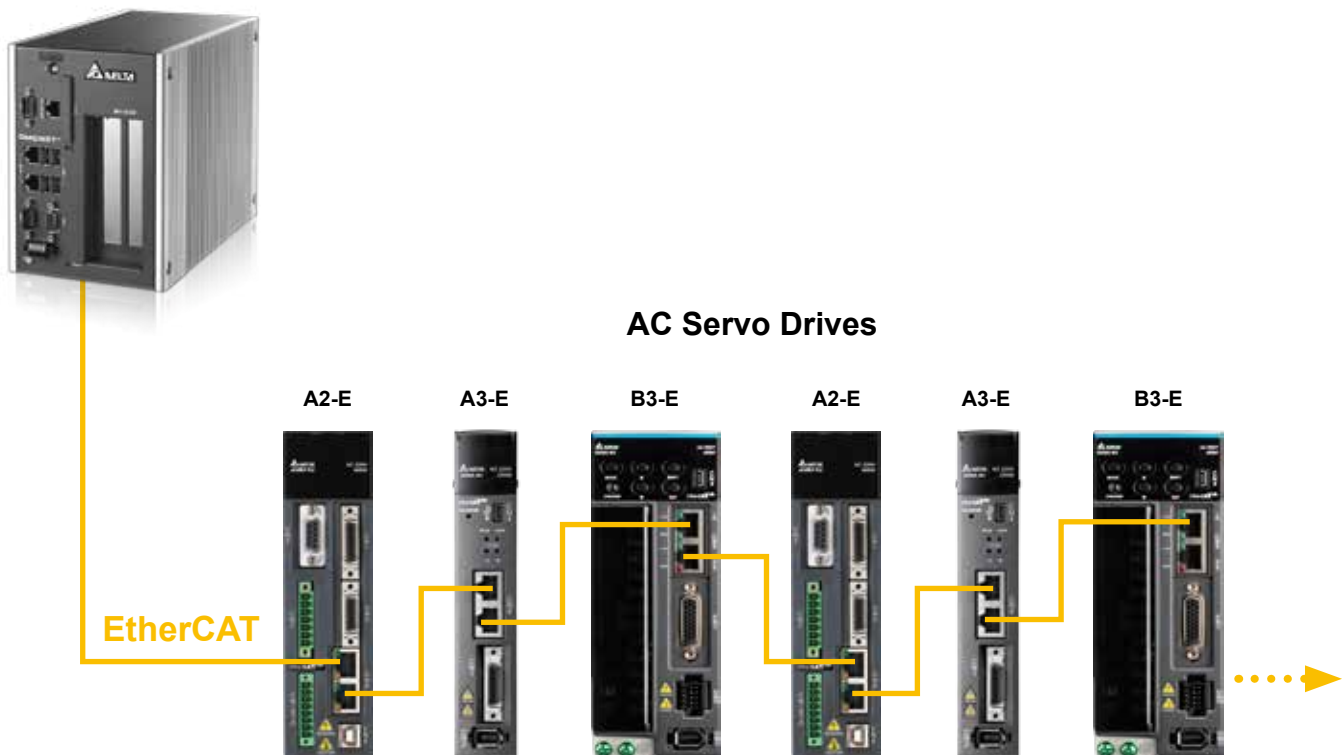
## Longer Connection Distance

The maximum distance between two stations is 100m and the servo can connect to a maximum of 65,536 axes.

## Compatible with Previous Models

The ASDA-B3 series models are compatible with the ASDA-A2 and ASDA-A3 series models.

Note: The communication cycle of the A2 series is 1 ms, so when previous and new models are used together, the set value cannot be lower than this specification

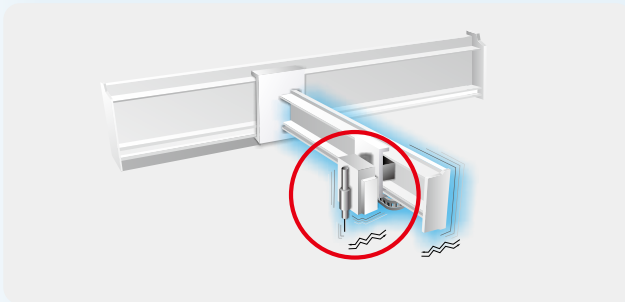


# Vibration Suppression Functions

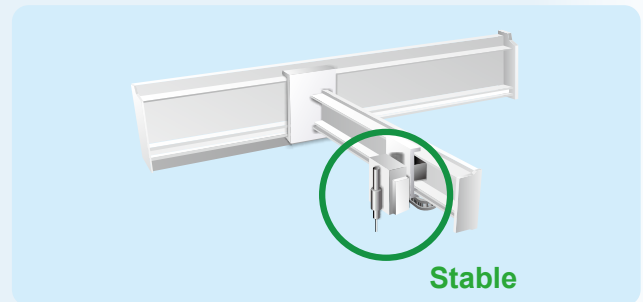
## Vibration Elimination

- Low frequency vibration suppression applies Delta's unique algorithm to adjust low rigidity machine structures
- Two sets of built-in vibration elimination settings reduce jitter at the machine endpoint while maintaining a good command response

**Without Vibration Elimination** - Machine endpoint vibrates when settling



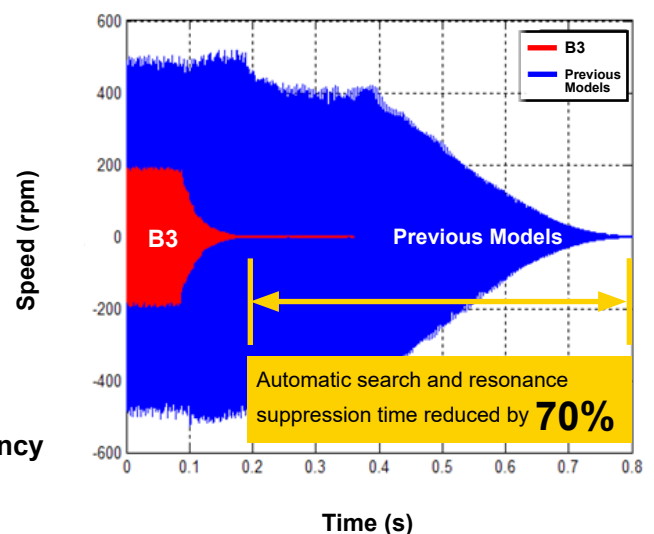
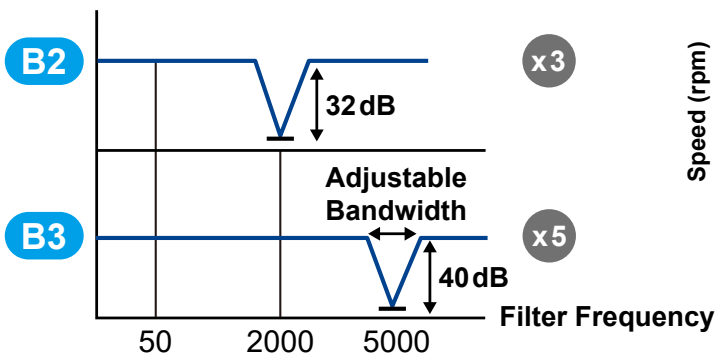
**With Vibration Elimination** - Machine endpoint is stable when settling



## Advanced Notch Filter

- High frequency resonance suppression increased from 3 sets to 5 sets compared with previous models
- Filter bandwidth increased to 5,000 Hz
- Automatically searches for the resonance frequency point and completes the resonance suppression; this reduces the time by 70% compared with previous models and is less likely to damage the machine

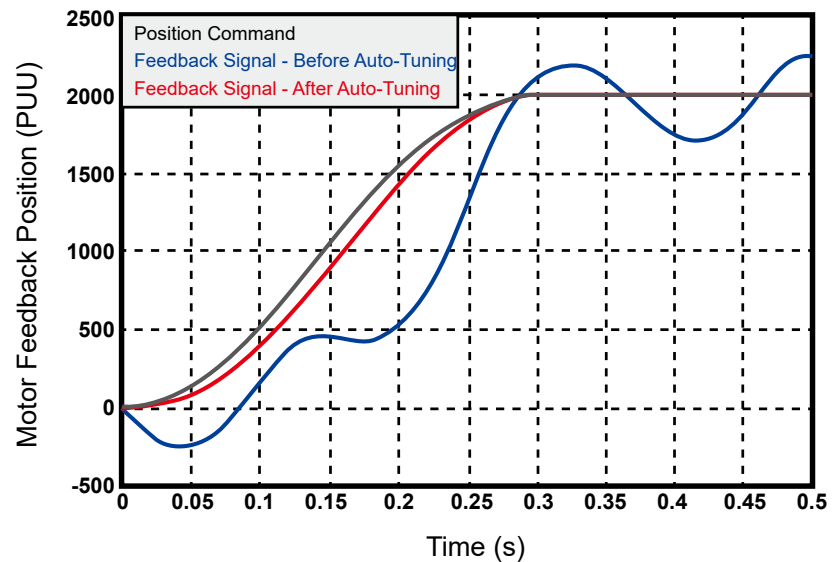
Attenuation Rate



# Self-Diagnosis and Adaptation

## Excellent Self-Adjusting Capability

- Completes tuning with the built-in algorithm and simple settings in the software which improve efficiency for equipment assembly and testing
- Suitable for applications with flexible machine structures and large variations in inertia



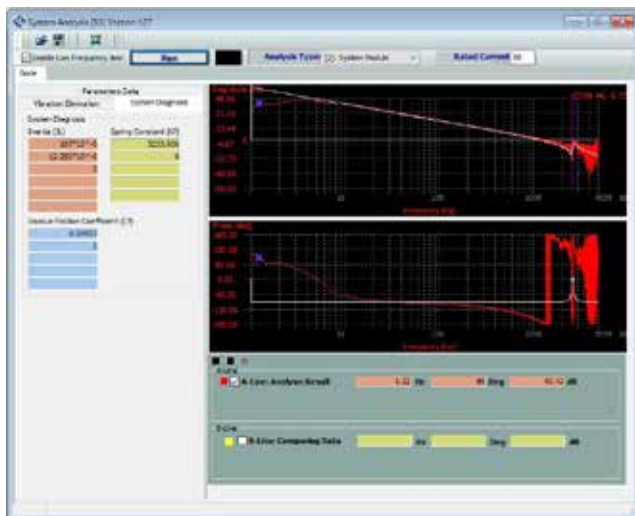
## System Analysis Tool

### Mechanical Stiffness Diagnosis

- Diagnoses the mechanism elasticity and damping coefficient, and converts the machine structure characteristics to data
- Ensures consistency of the mass production machines through data collection

### Frequency Domain Response Analysis

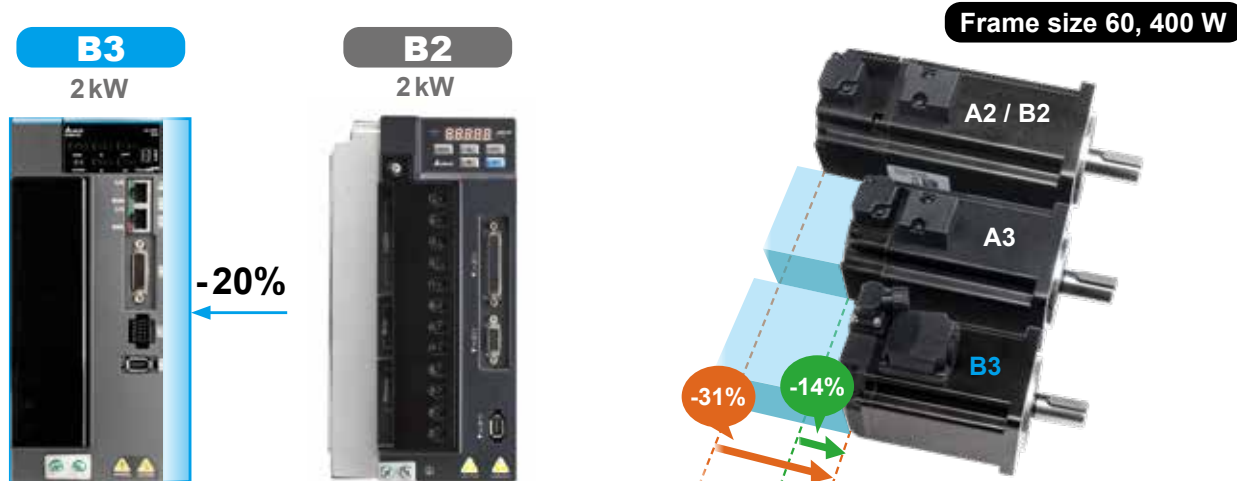
- Ensures system stability
- Compares the phases before and after gain adjustment to ensure the safety of the system



# Energy-Saving and Compact Size Design

## Compact Size

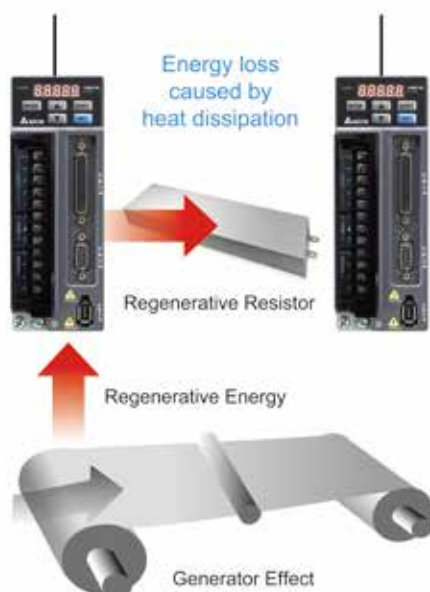
- The size of the servo drive is reduced up to 20%, so it requires less space in the distribution board which meets the need for smaller equipment
- The size of the servo motor is reduced up to 31% which takes up less space and lowers the cost



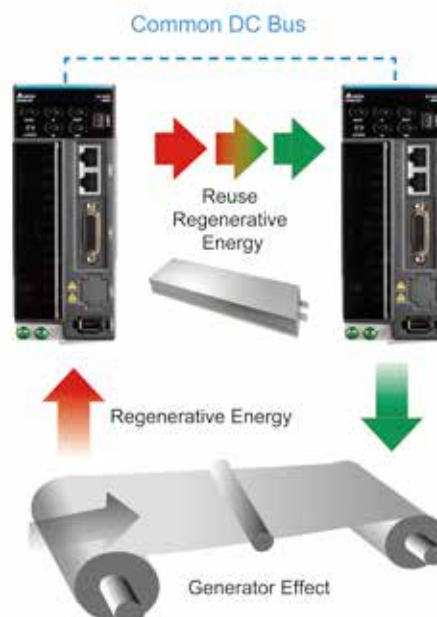
## Common DC Bus

- The servo drives can share the DC Bus to reuse regenerative energy for reducing energy consumption
- When multiple servo drives share the common DC Bus, fewer regenerative resistors are required which reduces the cost

### Servo Drives w/o DC Bus



### B3 DC Bus Structure

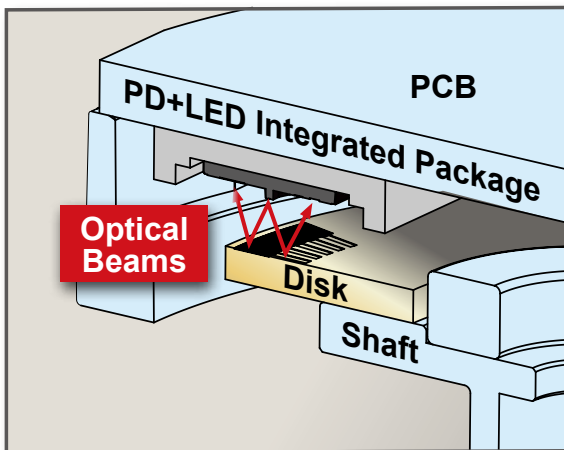


## Various Selections

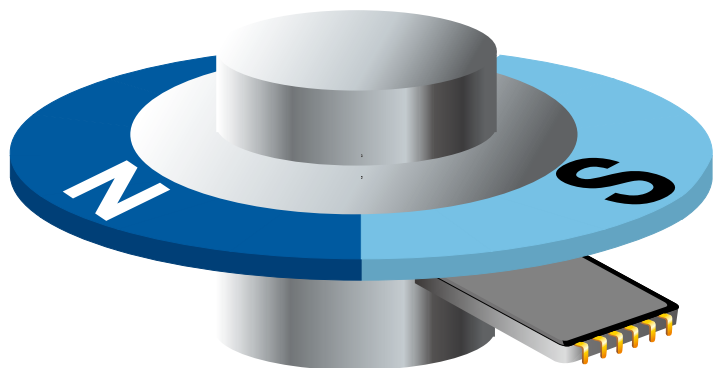
### High Resolution Encoder

- High resolution for more precise positioning
- The incremental encoder can retain the single-turn absolute position without the need to execute homing after cycling the power
- After the absolute encoder is powered off, the number of turns and position are retained
- 24-bit optical encoder: the encoder is lighter and thinner with the reflective sensor technology; the exclusive optical sensor compensation function improves product reliability
- 17-bit magnetic encoder: the magnetic induction technology improves the capability to prevent vibration and increases the oil resistant level

#### Optical Encoder



#### Magnetic Encoder



### High Compatibility

- Compatible with the A2 / B2 / A3 series motors for easier replacement
- Motors of high, medium, and low inertia are available for different applications

**High inertia motor:** Suitable for applications that require speed stability or resistance to external forces

**Medium inertia motor:** Suitable for applications with general mechanical equipment

**Low inertia motor:** Suitable for high-speed positioning and high response applications



ECM-B3 Motor



ECM-A3 Motor

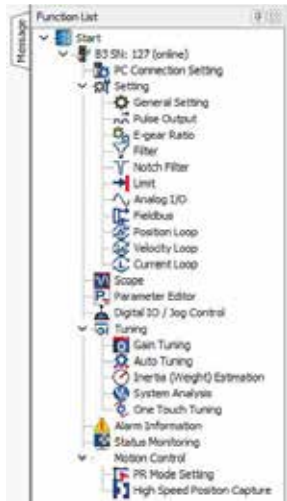


ECMA/ECMC Motor

# User-Friendly Software

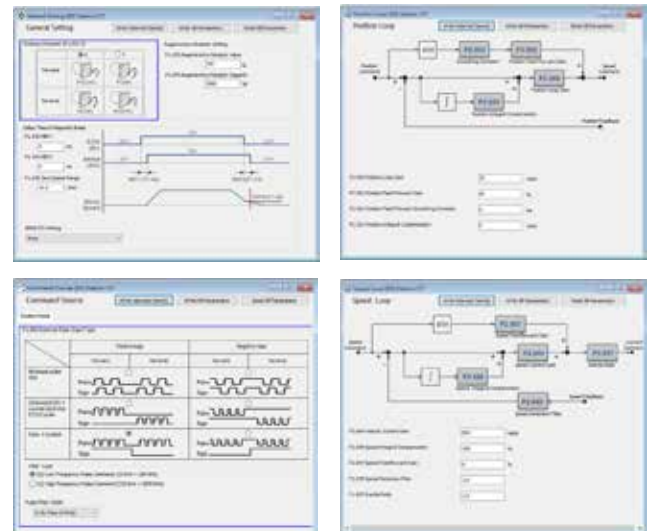
## Function List Tree View

- Well-organized function list for quick access
- Expandable and collapsible nodes for easier and more efficient operation



## Graphical Parameter Setting

- Intuitive graphic illustrations for gain adjustment and parameter settings



## Auto Tuning Function

- Step-by-step and conversational UI for servo gain adjustment



## Advanced Gain Adjustment Function

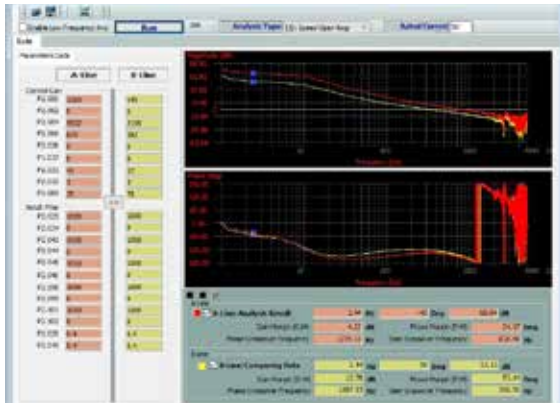
- Provides advanced gain adjustment modes for fine tuning according to different applications and operating characteristics
- Step-by-step software interface to guide users



## System Analysis Interface

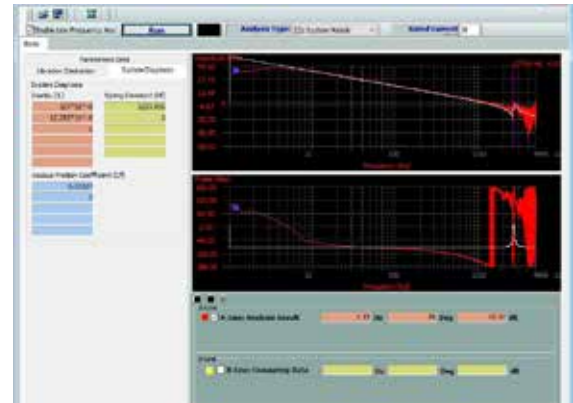
### • Speed Open-Loop Mode

Determines if the current system is the most optimized and thus improves the design



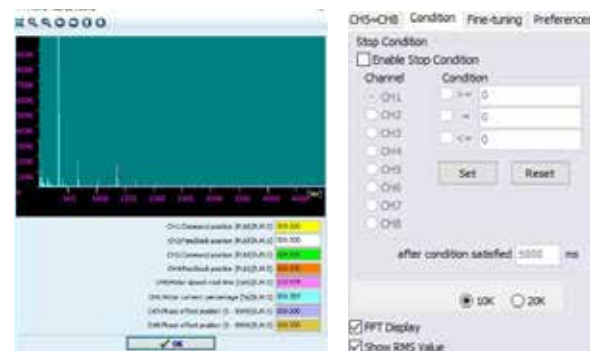
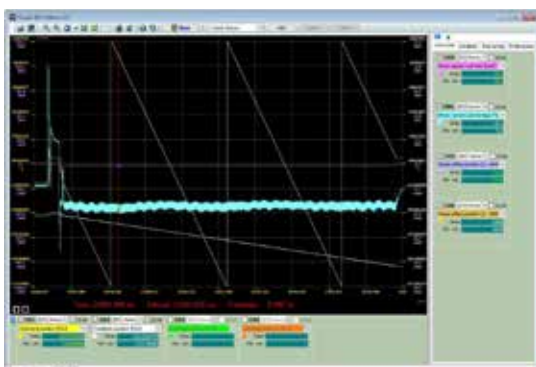
### • System Module Mode

Measures the mechanical stiffness of the mechanism in this mode



## Oscilloscope Function

- Maximum of 8 channels with 16-bit data size and update frequency of 10 kHz
- 4 high-resolution channels with 32-bit data size and update frequency of 10 kHz
- 4 channels of high sampling rate with 16-bit data size and update frequency of 20 kHz
- Drag the cursor to specify the area for instant FFT (Fast Fourier Transform) and RMS calculation
- Set the triggering conditions for collecting data



## Graphical PR Path Programming Interface

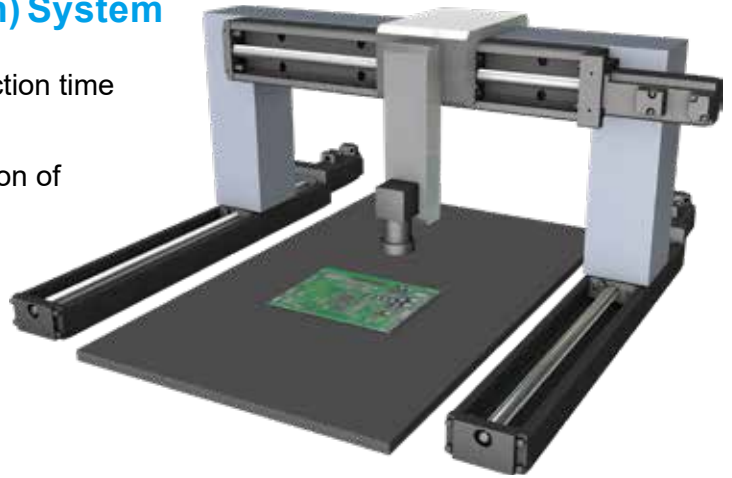
- Graphical PR procedures with detailed settings for better command programming and editing



# Applications

## AOI (Automatic Optical Inspection) System

- Shorter settling time of B3 shortens the detection time which also increases the production capacity
- Use with the inter-axis synchronization function of EtherCAT communication for quick gantry positioning



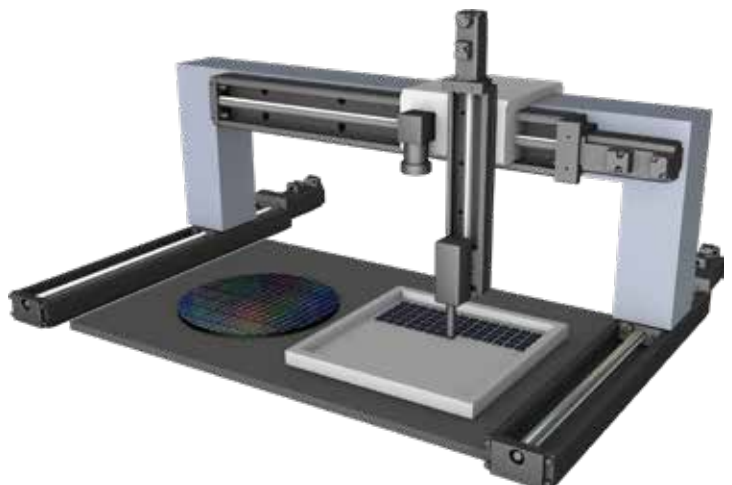
## Tool Magazine and Turret

- Shorter response time of B3 significantly reduces the tool changing time
- New communication trigger function for the tool magazine increases the number of tools without occupying DI points
- Common DC Bus function for reducing the use of regenerative resistor and improving the power consumption efficiency



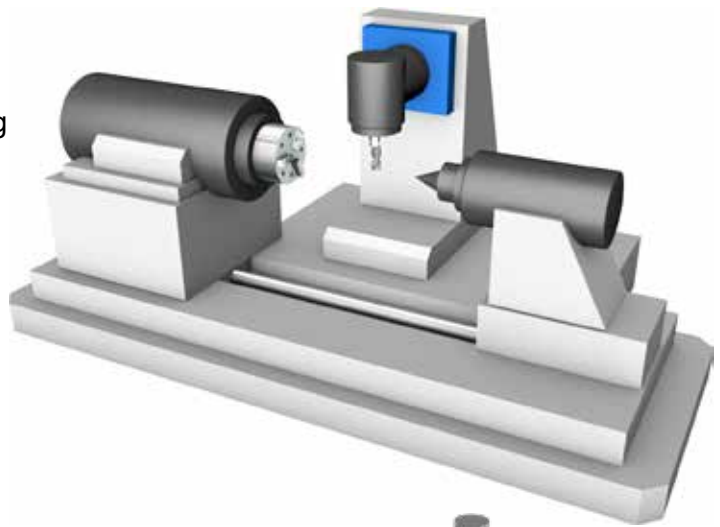
## Wafer Pick and Place Machine

- Analog feedback of the PID control with external sensors for precision control of the downward pressure
- Two-stage downward motion planning with high speed and soft landing improves the productivity and yield



## Machine Tool

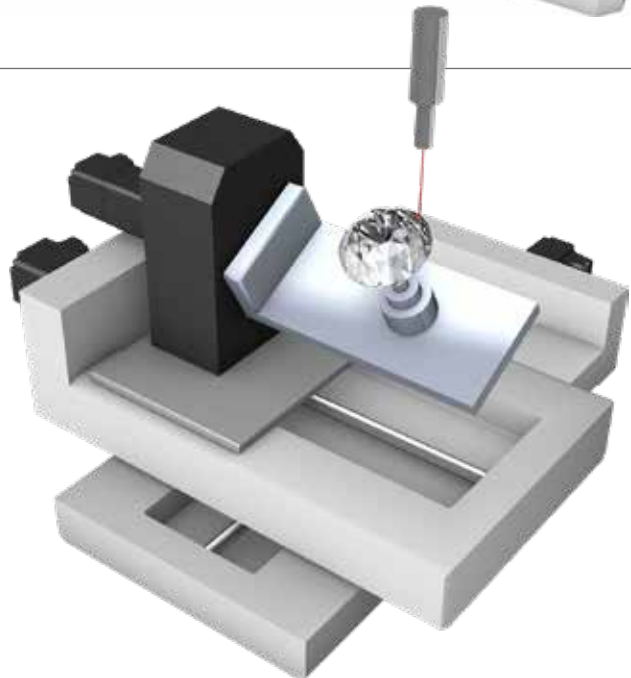
- Low cogging torque for more stable machining
- Advanced friction compensation function for better performance when changing directions
- Two-degrees-of-freedom control architecture for optimized trajectory tracking



---

## Diamond Cutting Machine

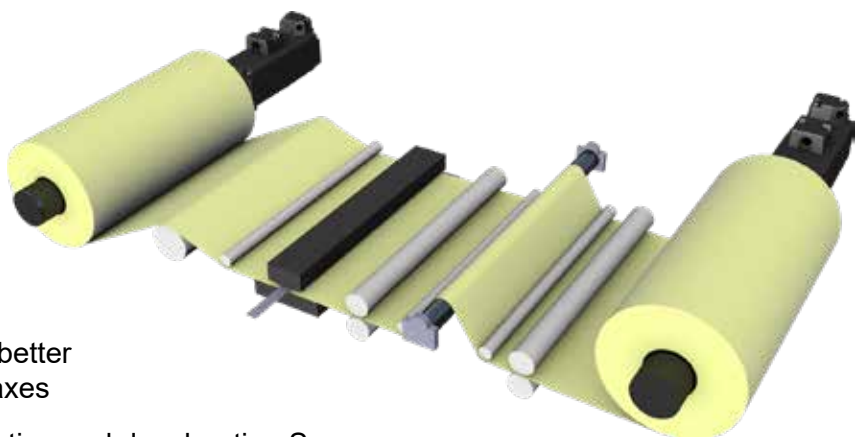
- High inertia motor facilitates the diamond polishing process with high precision and stability
- Low cogging torque feature for higher machining stability
- Two-degrees-of-freedom control architecture for optimized trajectory tracking



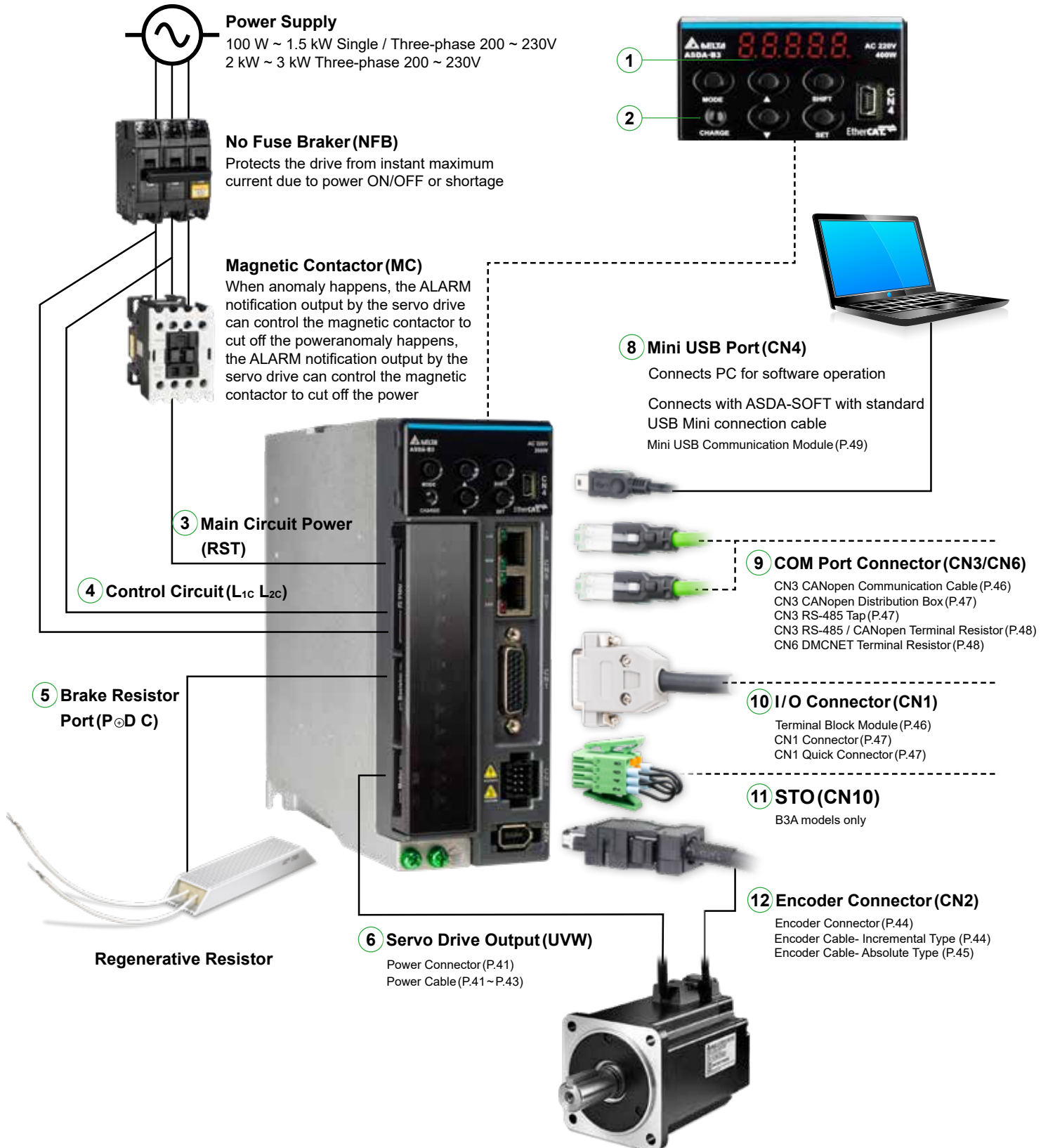
---

## Winding Machine

- Communication type servo drives support the analog input function, facilitating tension control with multi-axis and communication
- High-speed fieldbus with the communication cycle of 125  $\mu$ s for better synchronization between multiple axes
- Stable tension control with acceleration and deceleration S-curve



# Servo Drive & Accessories



## Servo Drive Interface

| No. | Name                  | Description                                                                                                                                                                 |
|-----|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ①   | -                     | 7-segment display                                                                                                                                                           |
| ②   | CHARGE                | Power indicator                                                                                                                                                             |
| ③   | RST                   | Main circuit terminal; connects to the power supply (200 - 230 V <sub>AC</sub> , 50/60 Hz)                                                                                  |
| ④   | L1C, L2C              | Control circuit terminal; connects to single-phase power supply (200 - 230 V <sub>AC</sub> , 50/60 Hz)                                                                      |
| ⑤   | Regenerative Resistor | Connects to an external regenerative resistor, external regenerative braking unit, or the built-in regenerative resistor                                                    |
| ⑥   | UVW                   | Servo drive current output; connects to the motor power connector U, V, W. Do not connect to the main circuit power. Incorrect wiring will cause damage to the servo drive. |
| ⑦   | Ground Terminal       | Connects to the ground wire for the power and servo motor                                                                                                                   |
| ⑧   | CN4                   | USB connector (Mini USB); connects to PC                                                                                                                                    |
| ⑨   | CN3                   | Modbus communication port (B3-L)                                                                                                                                            |
|     | CN3                   | CANopen high-speed communication port (B3-M)                                                                                                                                |
|     | CN6                   | DMCNET high-speed communication port (B3-F)                                                                                                                                 |
|     | CN6                   | EtherCAT high-speed communication port (B3-E)                                                                                                                               |
| ⑩   | CN1                   | I/O signal interface; connects to the PLC or controls I/O                                                                                                                   |
| ⑪   | CN10                  | STO connector; only available on B3A models                                                                                                                                 |
| ⑫   | CN2                   | Encoder connector; connects to the encoder of the servo motors                                                                                                              |

## Accessories

### Power Cables

- 3 m, 5 m, 10 m, and 20 m standard cables are available
- Standard power connector and IP67 waterproof connector are available
- With options of brake and without brake

### Encoder Cables

- 3 m, 5 m, 10 m, and 20 m standard cables are available
- Standard power connector and IP67 waterproof connector are available

### USB Cables

- Connects the PC and the servo drive for ASDA-Soft operation
- USB1.1 is equipped as standard interface

### Regenerative Resistor

- Refer to Section 2.7 in the ASDA-B3 user manual for selection

# Servo System Combination Table

| Motor           |                      |                              |                |                                                                                 |                              |                              | Drive                | Power Cable          |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|-----------------|----------------------|------------------------------|----------------|---------------------------------------------------------------------------------|------------------------------|------------------------------|----------------------|----------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|-----------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Type            | Power Supply         | Output (W)                   | Model Name     | Rotor Inertia (x10 <sup>-4</sup> kg.m <sup>2</sup> )<br>Standard/<br>With Brake | Rated /<br>Max. Speed (rpm)  | Rated /<br>Max. Torque (N-m) | Model Name           | Standard             | Torsion-resistant                |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
| Low Inertia     | ECM-A3L              | Single- /<br>Three-<br>phase | 50             | ECM-A3L-C ② 040F ③④⑤                                                            | 0.0229/0.0255                | 3000/6000                    | 0.159/0.557          | ASD-B3 ① -0121-②     | ACS3-CAPW31XX<br>W ACS3-CAPW3AXX | ACS3-CAPF31XX<br>W ACS3-CAPF3AXX | ACS3-CAPW31XX<br>W ACS3-CAPW3AXX |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              | 100            | ECM-A3L-C ② 0401 ③④⑤                                                            | 0.04/0.0426                  |                              | 0.32/1.12            |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              | 200            | ECM-A3L-C ② 0602 ③④⑤                                                            | 0.09/0.12                    |                              | 0.64/2.24            | ASD-B3 ① -0221-②     |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              | 400            | ECM-A3L-C ② 0604 ③④⑤                                                            | 0.15/0.18                    |                              | 1.27/4.45            | ASD-B3 ① -0421-②     |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              | 400            | ECM-A3L-C ② 0804 ③④⑤                                                            | 0.352/0.408                  |                              | 1.27/4.44            |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              | 750            | ECM-A3L-C ② 0807 ③④⑤                                                            | 0.559/0.614                  |                              | 2.39/8.36            | ASD-B3 ① -0721-②     |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              |                |                                                                                 |                              |                              | ASD-B3 ① -1021-②     |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              | ECM-B3L        | 100                                                                             | ECM-B3L-C ② 0401 ③④⑤         |                              | 0.0299/0.0315        | 0.32/1.12            |                                  |                                  |                                  | ASD-B3 ① -0121-②                 |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              |                | 200                                                                             | ECM-B3M-C ② 0602 ③④⑤         |                              | 0.141/0.151          | 0.64/2.24            |                                  |                                  |                                  | ASD-B3 ① -0221-②                 |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              | Medium Inertia | ECM-B3M                                                                         | Single- /<br>Three-<br>phase |                              | 400                  | ECM-B3M-C ② 0604 ③④⑤ |                                  |                                  |                                  | 0.254/0.264                      | 2000/3000 | 1.27/4.45                        | ASD-B3 ① -0421-②                 | ACS3-CAPW32XX<br>W ACS3-CAPW3AXX | ACS3-CAPF32XX<br>W ACS3-CAPF3AXX | ACS3-CAPW32XX<br>W ACS3-CAPW3AXX |
| 400             | ECM-B3M-C ② 0804 ③④⑤ | 0.648/0.695                  |                |                                                                                 |                              | 1.27/4.45                    |                      |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
| 750             | ECM-B3M-C ② 0807 ③④⑤ | 1.07/1.13                    |                |                                                                                 |                              | 2.4/8.4                      | ASD-B3 ① -0721-②     |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
| 1000            | ECM-B3M-E ② 1310 ③④⑤ | 7.79/7.94                    |                |                                                                                 |                              | 4.77/14.3                    | ASD-B3 ① -1021-②     |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
| 1500            | ECM-B3M-E ② 1315 ③④⑤ | 11.22/11.37                  |                |                                                                                 |                              | 7.16/21.48                   | ASD-B3 ① -1521-②     |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
| Three-<br>phase | 2000                 | ECM-B3M-E ② 1320 ③④⑤         |                |                                                                                 |                              | 14.65/14.8                   | 9.55/28.65           | ASD-B3 ① -2023-②     | ACS3-CAPW34XX<br>W ACS3-CAPW3AXX | ACS3-CAPF34XX<br>W ACS3-CAPF3AXX |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 | 2000                 | ECM-B3M-E ② 1820 ③④⑤         |                |                                                                                 |                              | 29.11/30.38                  | 9.55/28.65           |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 | 3000                 | ECM-B3M-F ② 1830 ③④⑤         |                |                                                                                 |                              | 53.63/54.9                   | 1500/3000            | 19.1/57.29           |                                  |                                  | ASD-B3 ① -3023-②                 |                                  |           |                                  |                                  |                                  |                                  |                                  |
| High Inertia    | ECM-A3H              | Single- /<br>Three-<br>phase |                |                                                                                 |                              | 50                           | ECM-A3H-C ② 040F ③④⑤ | 0.0455/0.0517        | 3000/6000                        | 0.159/0.557                      | ASD-B3 ① -0121-②                 | ACS3-CAPW31XX<br>W ACS3-CAPW3AXX |           | ACS3-CAPF31XX<br>W ACS3-CAPF3AXX | ACS3-CAPW31XX<br>W ACS3-CAPW3AXX |                                  |                                  |                                  |
|                 |                      |                              |                |                                                                                 |                              | 100                          | ECM-A3H-C ② 0401 ③④⑤ | 0.0754/0.0816        |                                  | 0.32/1.12                        |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              | 200            | ECM-A3H-C ② 0602 ③④⑤                                                            | 0.25/0.28                    | 0.64/2.24                    | ASD-B3 ① -0221-②     |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              | 400            | ECM-A3H-C ② 0604 ③④⑤                                                            | 0.45/0.48                    | 1.27/4.45                    | ASD-B3 ① -0421-②     |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              | 400            | ECM-A3H-C ② 0804 ③④⑤                                                            | 0.92/1.07                    | 1.27/4.44                    |                      |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |
|                 |                      |                              | 750            | ECM-A3H-C ② 0807 ③④⑤                                                            | 1.51/1.66                    | 2.39/8.36                    | ASD-B3 ① -0721-②     |                      |                                  |                                  |                                  |                                  |           |                                  |                                  |                                  |                                  |                                  |

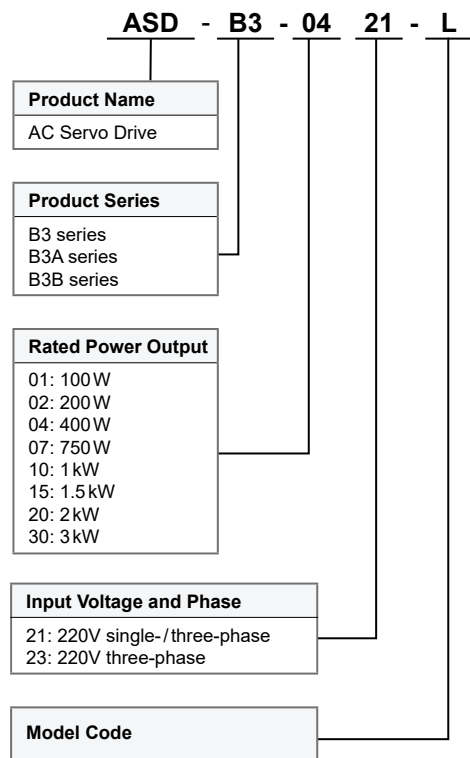
Note:

- Model name with W = IP67 water-proof connector; D = drive connector; M = motor connector; S = straight connector; R = angular connector; B = single brake connector, power connector required
- Cable model name: The "XX" stands for cable length. 03 = 3 m, 05 = 5 m, 10 = 10 m, 20 = 20 m.
- Servo motor model name: ② = encoder type, ③ = type of shaft and oil seal, ④ = shaft diameter and connector type, ⑤ = special code.
- Servo drive model name: ① = product series, ② = model code.

| Connector & Cable              |                                  |                                  |                                  |                                  |                                  | Cable Only (No Connector)                             |                                                                                   |                                                                |
|--------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------|----------------------------------------------------------------|
| Power Cable with Brake         |                                  | Encoder Cable (Incremental Type) |                                  | Encoder Cable (Absolute Type)    |                                  | Power Connector                                       | Power Connector<br>(with brake)/<br>Brake Connector                               | Encoder Connector                                              |
| Standard                       | Torsion-resistant                | Standard                         | Torsion-resistant                | Standard                         | Torsion-resistant                |                                                       |                                                                                   |                                                                |
| ACS3-CAPW41XX<br>ACS3-CAPW4AXX | ACS3-CAPF41XX<br>W ACS3-CAPF4AXX | ACS3-CAEN10XX<br>W ACS3-CAEN2AXX | ACS3-CAEF10XX<br>W ACS3-CAEF2AXX | ACS3-CAEA10XX<br>W ACS3-CAEA2AXX | ACS3-CAEB10XX<br>W ACS3-CAEB2AXX | ASDBCAPW0000<br>W ACS3-CNPW1A00                       | ASDBCAPW0100<br>W ACS3-CNPW2A00                                                   | D ACS3-CNENC200<br>+<br>M ACS3-CNEN1000<br>M W ACS3-CNEN2A00   |
| ACS3-CAPW42XX                  | ACS3-CAPF42XX                    | ACS3-CAEN27XX                    | ACS3-CAEF27XX                    | ACS3-CAEA27XX                    | ACS3-CAEB27XX                    | S ACS3-CNPW5200<br>R ACS3-CNPW5C00<br>R ACS3-CNPW5C00 | S ACS3-CNPW5200<br>R ACS3-CNPW5C00<br>+<br>B S ACS3-CNPW6300<br>B R ACS3-CNPW6D00 | D ACS3-CNENC200<br>+<br>M S ACS3-CNEN2700<br>M R ACS3-CNEN2C00 |
| ACS3-CAPW44XX                  | ACS3-CAPF44XX                    |                                  |                                  |                                  |                                  | S ACS3-CNPW5300<br>R ACS3-CNPW5D00<br>R ACS3-CNPW5D00 | S ACS3-CNPW5300<br>R ACS3-CNPW5D00<br>+<br>B S ACS3-CNPW6300<br>B R ACS3-CNPW6D00 |                                                                |
| ACS3-CAPW41XX<br>ACS3-CAPW4AXX | ACS3-CAPF41XX<br>W ACS3-CAPF4AXX | ACS3-CAEN10XX<br>W ACS3-CAEN2AXX | ACS3-CAEF10XX<br>W ACS3-CAEF2AXX | ACS3-CAEA10XX<br>W ACS3-CAEA2AXX | ACS3-CAEB10XX<br>W ACS3-CAEB2AXX | ASDBCAPW0000<br>W ACS3-CNPW1A00                       | ASDBCAPW0100<br>W ACS3-CNPW2A00                                                   | D ACS3-CNENC200<br>+<br>M ACS3-CNEN1000<br>M W ACS3-CNEN2A00   |

# Servo Drive Model Name

## ASD-B3 Series Servo Drive



### ASD-B3

| Code | PT Mode<br>Pulse<br>Input | PR Mode | RS-485 | Analog<br>Voltage<br>Control | CANopen | DMCNET | EtherCAT | STO |
|------|---------------------------|---------|--------|------------------------------|---------|--------|----------|-----|
| L    | ○                         | ○       | ○      | ○                            | X       | X      | X        | X   |
| M    | X                         | ○       | X      | ○                            | ○       | X      | X        | X   |
| F    | X                         | ○       | X      | ○                            | X       | ○      | X        | X   |
| E    | X                         | ○       | X      | ○                            | X       | X      | ○        | X   |

### ASD-B3A<sup>\*1</sup>

| Code | PT Mode<br>Pulse<br>Input | PR Mode | RS-485 | Analog<br>Voltage<br>Control | CANopen | DMCNET | EtherCAT | STO <sup>*2</sup> |
|------|---------------------------|---------|--------|------------------------------|---------|--------|----------|-------------------|
| L    | ○                         | ○       | ○      | ○                            | X       | X      | X        | ○                 |
| M    | ○                         | ○       | ○      | ○                            | ○       | X      | X        | ○                 |
| F    | ○                         | ○       | X      | ○                            | X       | ○      | X        | ○                 |
| E    | ○                         | ○       | X      | ○                            | X       | X      | ○        | ○                 |

### ASD-B3B<sup>\*3</sup>

| Code | PT Mode<br>Pulse<br>Input | PR Mode | RS-485 | Analog<br>Voltage<br>Control | CANopen | DMCNET | EtherCAT | STO |
|------|---------------------------|---------|--------|------------------------------|---------|--------|----------|-----|
| L    | ○                         | X       | ○      | ○                            | X       | X      | X        | X   |

\*1: This series has the dynamic brake function

\*2: STO certification pending

\*3: Coming soon



# Servo Drive Specifications

| ASD-B3                  |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 100W                                                                                                                                                                                                  | 200W | 400W     | 750W  | 1kW   | 1.5kW       | 2kW  | 3kW                                                |  |
|-------------------------|-----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|----------|-------|-------|-------------|------|----------------------------------------------------|--|
|                         |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 01                                                                                                                                                                                                    | 02   | 04       | 07    | 10    | 15          | 20   | 30                                                 |  |
| Power Supply            | Phase / Voltage                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Single-phase / Three-phase 220V <sub>AC</sub>                                                                                                                                                         |      |          |       |       |             |      | Three-phase 220V <sub>AC</sub>                     |  |
|                         | Permissible Voltage                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Single-phase / Three-phase 200 - 230V <sub>AC</sub> , -15% to 10%                                                                                                                                     |      |          |       |       |             |      | Three-phase 200 - 230V <sub>AC</sub> , -15% to 10% |  |
|                         | Input Current (3PH) (Unit: Arms)                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.81                                                                                                                                                                                                  | 1.61 | 4.32     | 8.76  | 9.21  | 9.72        | 14.7 | 16.68                                              |  |
|                         | Input Current (1PH) (Unit: Arms)                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.39                                                                                                                                                                                                  | 2.77 | 8.28     | 16.68 | 17.49 | 18.72       |      |                                                    |  |
|                         | Continuous Output Current (Unit: Arms)                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.9                                                                                                                                                                                                   | 1.55 | 2.65     | 5.1   | 7.3   | 8.3         | 13.4 | 19.4                                               |  |
|                         | Max. Instantaneous Output Current (Unit: Arms)            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3.88                                                                                                                                                                                                  | 7.07 | 10.6     | 16.4  | 21.21 | 27          | 38.3 | 58.9                                               |  |
| Cooling Method          |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Natural cooling                                                                                                                                                                                       |      |          |       |       | Fan cooling |      |                                                    |  |
| Drive Resolution        |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 24-bit (16,777,216 pls/rev)                                                                                                                                                                           |      |          |       |       |             |      |                                                    |  |
| Main Circuit Control    |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | SVPWM control                                                                                                                                                                                         |      |          |       |       |             |      |                                                    |  |
| Tuning Mode             |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Auto / Manual                                                                                                                                                                                         |      |          |       |       |             |      |                                                    |  |
| Regenerative Resistor   |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | N/A                                                                                                                                                                                                   |      | Built-in |       |       |             |      |                                                    |  |
| Position Control Mode   | Pulse Type (only for pulse control mode)                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Pulse + Direction; A phase + B phase; CCW pulse +CW pulse                                                                                                                                             |      |          |       |       |             |      |                                                    |  |
|                         | Max. Output Pulse Frequency (only for pulse control mode) |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Pulse + direction: 4 Mpps; CCW pulse + CW pulse: 4 Mpps; A phase + B phase: single-phase 4 Mpps; Open collector: 200 Kpps                                                                             |      |          |       |       |             |      |                                                    |  |
|                         | Command Source                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | External pulse (only for pulse control mode) / Internal register (PR mode)                                                                                                                            |      |          |       |       |             |      |                                                    |  |
|                         | Smoothing Method                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Low-pass, S-curve, and moving filters                                                                                                                                                                 |      |          |       |       |             |      |                                                    |  |
|                         | E-Gear Ratio                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | E-Gear ratio: N / M times, limited to (1 / 4 < N / M < 262144)<br>N: 1 - 536870911/M: 1 - 2147483647                                                                                                  |      |          |       |       |             |      |                                                    |  |
|                         | Torque Limit                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Parameter settings                                                                                                                                                                                    |      |          |       |       |             |      |                                                    |  |
|                         | Feed Forward Compensation                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Parameter settings                                                                                                                                                                                    |      |          |       |       |             |      |                                                    |  |
| Speed Control Mode      | Analog Command Input                                      | Voltage Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0 to ±10 V <sub>DC</sub>                                                                                                                                                                              |      |          |       |       |             |      |                                                    |  |
|                         |                                                           | Resolution                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 12-bit                                                                                                                                                                                                |      |          |       |       |             |      |                                                    |  |
|                         |                                                           | Input Impedance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1 MΩ                                                                                                                                                                                                  |      |          |       |       |             |      |                                                    |  |
|                         |                                                           | Time Constant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 25 μs                                                                                                                                                                                                 |      |          |       |       |             |      |                                                    |  |
|                         | Speed Control Range <sup>*1</sup>                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1 : 6000                                                                                                                                                                                              |      |          |       |       |             |      |                                                    |  |
|                         | Command Source                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | External analog command / Internal register                                                                                                                                                           |      |          |       |       |             |      |                                                    |  |
|                         | Smoothing Method                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Low-pass and S-curve filters                                                                                                                                                                          |      |          |       |       |             |      |                                                    |  |
|                         | Torque Limit                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Parameter settings or analog input                                                                                                                                                                    |      |          |       |       |             |      |                                                    |  |
|                         | Bandwidth                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Maximum 3.1 kHz                                                                                                                                                                                       |      |          |       |       |             |      |                                                    |  |
|                         | Speed Calibration Ratio <sup>*2</sup>                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | ±0.01% at 0% to 100% load fluctuation<br>±0.01% at ±10% power fluctuation<br>±0.01% at 0°C to 50°C ambient temperature fluctuation                                                                    |      |          |       |       |             |      |                                                    |  |
| Torque Control Mode     | Analog Command Input                                      | Voltage Range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0 to ±10 V <sub>DC</sub>                                                                                                                                                                              |      |          |       |       |             |      |                                                    |  |
|                         |                                                           | Input Impedance                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1 MΩ                                                                                                                                                                                                  |      |          |       |       |             |      |                                                    |  |
|                         |                                                           | Time Constant                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 25 μs                                                                                                                                                                                                 |      |          |       |       |             |      |                                                    |  |
|                         | Command Source                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | External analog command / Internal register                                                                                                                                                           |      |          |       |       |             |      |                                                    |  |
|                         | Smoothing Method                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Low-pass filter                                                                                                                                                                                       |      |          |       |       |             |      |                                                    |  |
| Speed Limit             |                                                           | Parameter settings or analog input                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                       |      |          |       |       |             |      |                                                    |  |
| Analog Monitor Output   |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Monitoring signal can be set with parameters (voltage output range: ±8V); resolution: 10-bit                                                                                                          |      |          |       |       |             |      |                                                    |  |
| Digital Input / Output  | Input                                                     | Servo on, Fault reset, Gain switch, Pulse clear, Zero speed clamping, Command input reverse control, Internal position command trigger, Torque limit, Speed limit, Internal position command selection, Motor stop, Speed command selection, Speed / Position mode switching, Speed / Torque command switching, Torque / Position mode switching, PT / PR command switching, Emergency stop, Forward / reverse limit, Original point, Forward / reverse operation torque limit, Homing activated, Forward / reverse JOG input, Event trigger, E-Gear N selection, Pulse input prohibition<br>*The DI mentioned above are only used in pulse control mode. When controlling through communication, it is suggested that you use communication for DI input. DI only supports emergency stop, forward / reverse limit, and homing. |                                                                                                                                                                                                       |      |          |       |       |             |      |                                                    |  |
|                         |                                                           | A, B, Z line driver output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                       |      |          |       |       |             |      |                                                    |  |
| Digital Input / Output  | Output                                                    | Servo ready, Servo on, Zero speed detection, Target speed reached, Target position reached, Torque limiting, Servo alarm, Magnetic brake control, Homing complete, Early warning for overload, Servo warning, Position command overflows, Software limit (reverse direction), Software limit (forward direction), Internal position command complete, Servo procedure complete, Capture procedure complete                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                       |      |          |       |       |             |      |                                                    |  |
|                         |                                                           | Overcurrent, Overvoltage, Undervoltage, Overheat, Regeneration error, Overload, Excessive speed deviation, Excessive position deviation, Encoder error, Adjustment error, Emergency stop, Forward / reverse limit error, Serial communication error, RST leak phase, Serial communication timeout, Short-circuit protection for terminals U, V, W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                       |      |          |       |       |             |      |                                                    |  |
| Communication Interface |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | USB/RS-485/CANopen/DMCNET/EtherCAT                                                                                                                                                                    |      |          |       |       |             |      |                                                    |  |
| Environment             | Installation Site                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Indoors (avoid direct sunlight), no corrosive vapor (avoid fumes, flammable gases, and dust)                                                                                                          |      |          |       |       |             |      |                                                    |  |
|                         | Altitude                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Altitude 2000 m or lower above sea level                                                                                                                                                              |      |          |       |       |             |      |                                                    |  |
|                         | Atmospheric Pressure                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 86 kPa - 106 kPa                                                                                                                                                                                      |      |          |       |       |             |      |                                                    |  |
|                         | Operating Temperature                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0°C to 55°C (If operating temperature is above 45°C, forced cooling is required)                                                                                                                      |      |          |       |       |             |      |                                                    |  |
|                         | Storage Temperature                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -20°C to 65°C                                                                                                                                                                                         |      |          |       |       |             |      |                                                    |  |
|                         | Humidity                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0 to 90% RH (non-condensing)                                                                                                                                                                          |      |          |       |       |             |      |                                                    |  |
|                         | Vibration                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 9.80665 m/s <sup>2</sup> (1 G) less than 20 Hz, 5.88 m/s <sup>2</sup> (0.6 G) 20 to 50 Hz                                                                                                             |      |          |       |       |             |      |                                                    |  |
|                         | IP Rating                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | IP20                                                                                                                                                                                                  |      |          |       |       |             |      |                                                    |  |
|                         | Power System                                              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | TN system <sup>*3,4</sup>                                                                                                                                                                             |      |          |       |       |             |      |                                                    |  |
| Certifications          |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | IEC/EN 61800-5-1, UL 508C   |      |          |       |       |             |      |                                                    |  |

Note:

\*1. Within the rated load, the speed ratio is: the minimum speed (smooth operation) / rated speed.

\*2. Within the rated speed, the speed calibration ratio is: (rotational speed with no load - rotational speed with full load) / rated speed.

\*3. TN system: the neutral point of the power system connects directly to the ground. The exposed metal components connect to the ground through the protective ground conductor.

\*4. Use a single-phase three-wire power system for the single-phase power model.

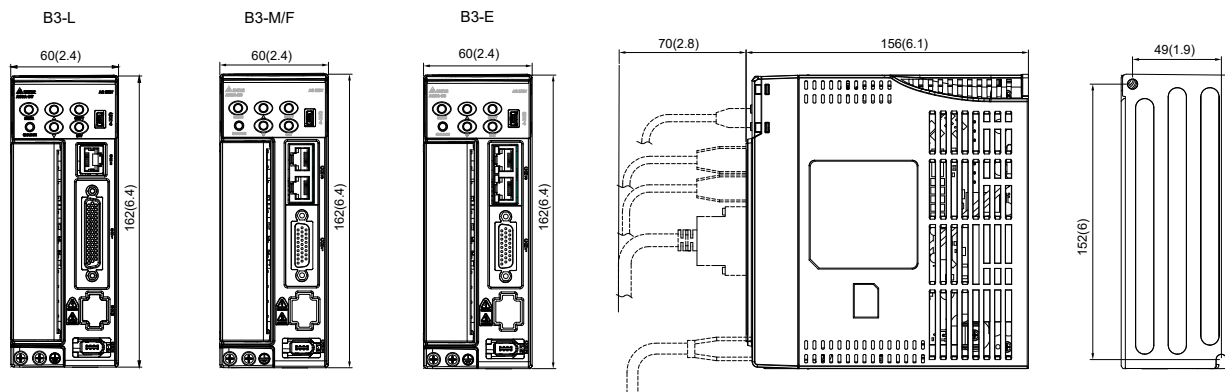
# Servo Drive Specifications

## Dimensions

### 100 W/200 W/400 W

| Weight |
|--------|
| 0.9 kg |

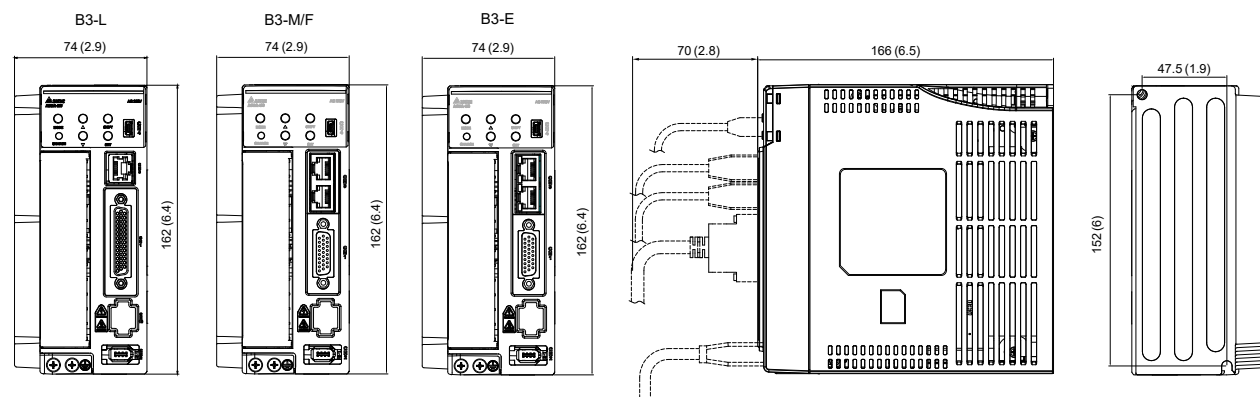
Unit: mm (inch)



### 750 W

| Weight |
|--------|
| 1.2 kg |

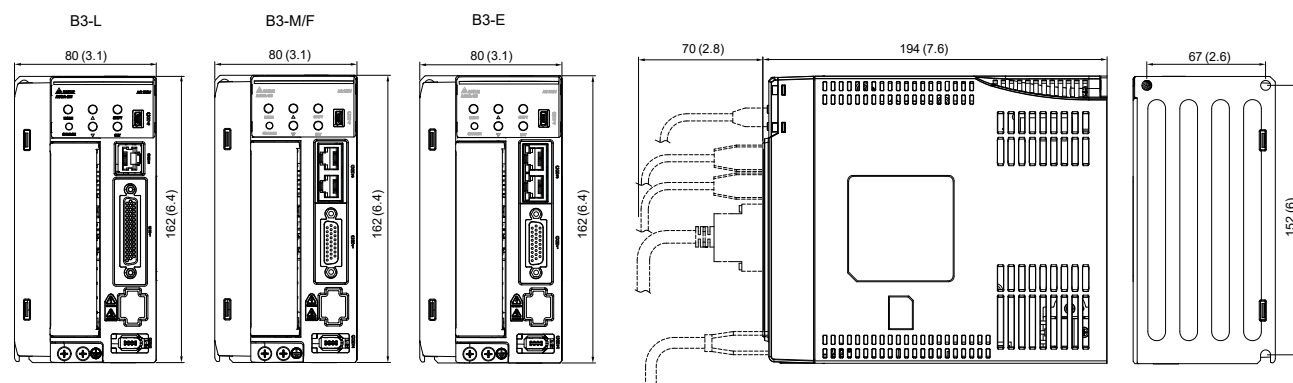
Unit: mm (inch)



### 1 kW/1.5 kW

| Weight |
|--------|
| 1.8 kg |

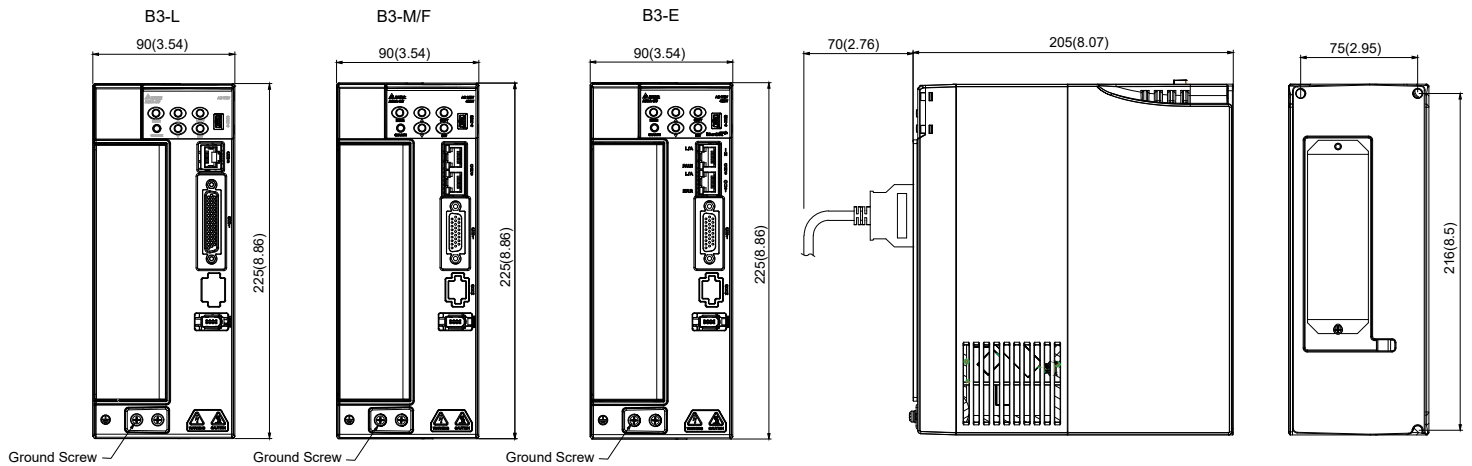
Unit: mm (inch)



## 2 kW/3 kW

| Weight |
|--------|
| 2.8 kg |

Unit: mm (inch)



## Regenerative Resistor Specifications

| Servo Drive<br>(kW) | Specifications of the Built-In<br>Regenerative Resistor |                 | Capacity of the Built-In<br>Regenerative Resistor<br>(Watt) | Minimum Allowable Resistance<br>Value (Ohm)<br>(reference for external resistors) |
|---------------------|---------------------------------------------------------|-----------------|-------------------------------------------------------------|-----------------------------------------------------------------------------------|
|                     | Resistance (Ohm)                                        | Capacity (Watt) |                                                             |                                                                                   |
| 0.1                 | -                                                       | -               | -                                                           | 60                                                                                |
| 0.2                 | -                                                       | -               | -                                                           | 60                                                                                |
| 0.4                 | 100                                                     | 40              | 20                                                          | 60                                                                                |
| 0.75                | 100                                                     | 40              | 20                                                          | 60                                                                                |
| 1.0                 | 100                                                     | 40              | 20                                                          | 30                                                                                |
| 1.5                 | 100                                                     | 40              | 20                                                          | 30                                                                                |
| 2.0                 | 20                                                      | 80              | 40                                                          | 15                                                                                |
| 3.0                 | 20                                                      | 80              | 40                                                          | 15                                                                                |

# Servo Motor Model Name

## ECM-B3 Series Servo Motor

| ECM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | -                         | B3                         | M                          | -                           | C | A | 06 | 04 | R | S | 1 |                            |                           |                            |                            |                             |                                            |   |   |    |    |                                       |    |    |   |   |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------|----------------------------|-----------------------------|---|---|----|----|---|---|---|----------------------------|---------------------------|----------------------------|----------------------------|-----------------------------|--------------------------------------------|---|---|----|----|---------------------------------------|----|----|---|---|
| <div><div>Product Name</div><div>ECM:<br/>Electronic<br/>Commutation Motor</div><div>Series</div><div>B3 series</div><div>Inertia</div><div>M: Medium inertia<br/>L: Low inertia</div><div>Rated Voltage and Speed</div><div>C: 220V/3000rpm<br/>E: 220V/2000rpm<br/>F: 220V/1500rpm</div><div>Encoder Type</div><div>A: 24-bit absolute magnetic optical encoder<br/>Resolution of single turn: 24-bit<br/>Resolution of multiple turns<sup>*1</sup>: 16-bit<br/>2: 24-bit incremental magnetic optical encoder<sup>*2</sup><br/>P: 17-bit absolute magnetic encoder<br/>Resolution of single turn: 17-bit<br/>Resolution of multiple turns<sup>*1</sup>: 16-bit<br/>M:17-bit incremental magnetic encoder<sup>*2</sup></div><div>*1. Number of turns.<br/>*2. Can be used as a single-turn absolute encoder.</div><div>Motor Frame Size</div><div>04: 40 mm      06: 60 mm<br/>08: 80 mm      13: 130 mm<br/>18: 180 mm</div><div>Rated Power Output</div><div>01: 100 W      02: 200 W<br/>04: 400 W      07: 750 W<br/>10: 1 kW      15: 1.5 kW<br/>20: 2 kW      30: 3 kW</div><table><tr><th>Type of Shaft and Oil Seal</th><th>w/o Brake<br/>w/o Oil Seal</th><th>with Brake<br/>w/o Oil Seal</th><th>w/o Brake<br/>with Oil Seal</th><th>with Brake<br/>with Oil Seal</th></tr><tr><td>Round Shaft<br/>(with fixed<br/>screw holes)</td><td>-</td><td>-</td><td>C*</td><td>D*</td></tr><tr><td>Keyway<br/>(with fixed<br/>screw holes)</td><td>P*</td><td>Q*</td><td>R</td><td>S</td></tr></table><div>Note: Models with an * are coming soon.</div><div>Shaft Diameter</div><div>S: Standard connector and standard shaft diameter<br/>7: Standard connector and special shaft diameter (14 mm)*<br/>J: IP67 waterproof connector and standard shaft diameter<br/>K: IP67 waterproof connector and special shaft diameter (14 mm)*</div><div>*Shafts of special diameter are used for 400 W motors with the frame size of 80 mm.</div><div>Special Code</div><div>1: Standard products</div></div> |                           |                            |                            |                             |   |   |    |    |   |   |   | Type of Shaft and Oil Seal | w/o Brake<br>w/o Oil Seal | with Brake<br>w/o Oil Seal | w/o Brake<br>with Oil Seal | with Brake<br>with Oil Seal | Round Shaft<br>(with fixed<br>screw holes) | - | - | C* | D* | Keyway<br>(with fixed<br>screw holes) | P* | Q* | R | S |
| Type of Shaft and Oil Seal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | w/o Brake<br>w/o Oil Seal | with Brake<br>w/o Oil Seal | w/o Brake<br>with Oil Seal | with Brake<br>with Oil Seal |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |    |    |                                       |    |    |   |   |
| Round Shaft<br>(with fixed<br>screw holes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | -                         | -                          | C*                         | D*                          |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |    |    |                                       |    |    |   |   |
| Keyway<br>(with fixed<br>screw holes)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | P*                        | Q*                         | R                          | S                           |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |    |    |                                       |    |    |   |   |

## ECM-A3 Series Servo Motor

| ECM                                                                                                                                                                                                                                                                                                                                                                                                                                            | -                         | A3                         | H                          | -                           | C | Y | 06 | 04 | R | S | 1 |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------------------------|----------------------------|-----------------------------|---|---|----|----|---|---|---|----------------------------|---------------------------|----------------------------|----------------------------|-----------------------------|--------------------------------------------|---|---|---|---|---------------------------------------|----|----|---|---|
| <div><div>Product Name</div><div>ECM:<br/>Electronic<br/>Commutation Motor</div></div>                                                                                                                                                                                                                                                                                                                                                         |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <div><div>Series</div><div>A3 series</div></div>                                                                                                                                                                                                                                                                                                                                                                                               |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <div><div>Inertia</div><div>H: High inertia<br/>L: Low inertia</div></div>                                                                                                                                                                                                                                                                                                                                                                     |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <div><div>Rated Voltage and Speed</div><div>C: 220V/3000 rpm</div></div>                                                                                                                                                                                                                                                                                                                                                                       |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <div><div>Encoder Type</div><div>Y: 24-bit absolute optical encoder<br/>Resolution of single turn: 24-bit<br/>Resolution of multiple turns<sup>*1</sup>: 16-bit<br/>1: 24-bit incremental optical encoder<sup>*2</sup><br/>A: 24-bit absolute magnetic optical encoder<br/>Resolution of single turn: 24-bit<br/>Resolution of multiple turns<sup>*1</sup>: 16-bit<br/>2: 24-bit incremental magnetic optical encoder<sup>*2</sup></div></div> |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <div><div>*1. Number of turns.</div><div>*2. Can be used as a single-turn absolute encoder.</div></div>                                                                                                                                                                                                                                                                                                                                        |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <div><div>Motor Frame Size</div><div>04: 40 mm      06: 60 mm<br/>08: 80 mm</div></div>                                                                                                                                                                                                                                                                                                                                                        |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <div><div>Rated Power Output</div><div>0F: 50 W      01: 100 W<br/>02: 200 W      04: 400 W<br/>07: 750 W</div></div>                                                                                                                                                                                                                                                                                                                          |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <table><tr><td>Type of Shaft and Oil Seal</td><td>w/o Brake<br/>w/o Oil Seal</td><td>with Brake<br/>w/o Oil Seal</td><td>w/o Brake<br/>with Oil Seal</td><td>with Brake<br/>with Oil Seal</td></tr><tr><td>Round Shaft<br/>(with fixed<br/>screw holes)</td><td>-</td><td>-</td><td>C</td><td>D</td></tr><tr><td>Keyway<br/>(with fixed<br/>screw holes)</td><td>P*</td><td>Q*</td><td>R</td><td>S</td></tr></table>                           |                           |                            |                            |                             |   |   |    |    |   |   |   | Type of Shaft and Oil Seal | w/o Brake<br>w/o Oil Seal | with Brake<br>w/o Oil Seal | w/o Brake<br>with Oil Seal | with Brake<br>with Oil Seal | Round Shaft<br>(with fixed<br>screw holes) | - | - | C | D | Keyway<br>(with fixed<br>screw holes) | P* | Q* | R | S |
| Type of Shaft and Oil Seal                                                                                                                                                                                                                                                                                                                                                                                                                     | w/o Brake<br>w/o Oil Seal | with Brake<br>w/o Oil Seal | w/o Brake<br>with Oil Seal | with Brake<br>with Oil Seal |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| Round Shaft<br>(with fixed<br>screw holes)                                                                                                                                                                                                                                                                                                                                                                                                     | -                         | -                          | C                          | D                           |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| Keyway<br>(with fixed<br>screw holes)                                                                                                                                                                                                                                                                                                                                                                                                          | P*                        | Q*                         | R                          | S                           |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <div><div>*Note: Models with an * are coming soon.</div></div>                                                                                                                                                                                                                                                                                                                                                                                 |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <div><div>Shaft Diameter</div><div>S: Standard connector and standard shaft diameter<br/>7: Standard connector and special shaft diameter (14 mm)*<br/>J: IP67 waterproof connector and standard shaft diameter<br/>K: IP67 waterproof connector and special shaft diameter (14 mm)*</div></div>                                                                                                                                               |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <div><div>*Shafts of special diameter are used for 400 W motors with the frame size of 80 mm.</div></div>                                                                                                                                                                                                                                                                                                                                      |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |
| <div><div>Special Code</div><div>1: Standard products<br/>Z: Refer to the note for dimensions on page 33</div></div>                                                                                                                                                                                                                                                                                                                           |                           |                            |                            |                             |   |   |    |    |   |   |   |                            |                           |                            |                            |                             |                                            |   |   |   |   |                                       |    |    |   |   |

# ECM-B3 Series Servo Motor Specifications

## Electrical Specifications

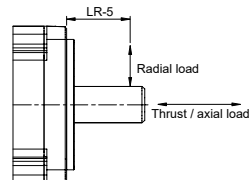
### Low Inertia Motor ECM-B3L Series / Medium Inertia Motor ECM-B3M Series

|                                                                    | ECM-B3L-C 2 0401 <sup>*1</sup>                                                                                        | ECM-B3M-C 2 0602 <sup>*1</sup> | ECM-B3M-C 2 0604 <sup>*1</sup> | ECM-B3M-C 2 0804 <sup>*1</sup> |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Rated Power (kW)                                                   | 0.1                                                                                                                   | 0.2                            | 0.4                            | 0.4                            |
| Rated Torque (N·m) <sup>*2</sup>                                   | 0.32                                                                                                                  | 0.64                           | 1.27                           | 1.27                           |
| Maximum Torque (N·m)                                               | 1.12                                                                                                                  | 2.24                           | 4.45                           | 4.45                           |
| Rated Speed (rpm)                                                  | 3000                                                                                                                  |                                |                                |                                |
| Maximum Speed (rpm)                                                | 6000                                                                                                                  |                                |                                |                                |
| Rated Current (Arms)                                               | 0.857                                                                                                                 | 1.42                           | 2.40                           | 2.53                           |
| Max. Instantaneous Current (Arms)                                  | 3.44                                                                                                                  | 6.62                           | 9.47                           | 9.42                           |
| Rated Power Rate (kW/s) <sup>*3</sup>                              | 34.25 (32.51)                                                                                                         | 29.05 (27.13)                  | 63.50 (61.09)                  | 24.89 (23.21)                  |
| Rotor Inertia ( $\times 10^{-4}$ kg·m <sup>2</sup> ) <sup>*3</sup> | 0.0299 (0.0315)                                                                                                       | 0.141 (0.151)                  | 0.254 (0.264)                  | 0.648 (0.695)                  |
| Mechanical Time Constant (ms) <sup>*3</sup>                        | 0.50 (0.53)                                                                                                           | 0.91 (0.97)                    | 0.52 (0.54)                    | 0.8 (0.86)                     |
| Torque Constant -KT (N·m/A)                                        | 0.374                                                                                                                 | 0.45                           | 0.53                           | 0.5                            |
| Voltage Constant -KE (mV/(rpm))                                    | 13.8                                                                                                                  | 16.96                          | 19.76                          | 18.97                          |
| Armature Resistance (Ohm)                                          | 8.22                                                                                                                  | 4.71                           | 2.04                           | 1.125                          |
| Armature Inductance (mH)                                           | 19.1                                                                                                                  | 12.18                          | 6.50                           | 5.14                           |
| Electrical Time Constant (ms)                                      | 2.32                                                                                                                  | 2.59                           | 3.19                           | 4.57                           |
| Brake Holding Torque [N·m (min)] <sup>*4</sup>                     | 0.3                                                                                                                   | 1.3                            | 1.3                            | 2.5                            |
| Brake Power Consumption (at 20°C)[W]                               | 6.1                                                                                                                   | 7.6                            | 7.6                            | 8                              |
| Brake Release Time [ms (Max.)]                                     | 20                                                                                                                    | 20                             | 20                             | 20                             |
| Brake Pull-In Time [ms (Max.)]                                     | 35                                                                                                                    | 50                             | 50                             | 60                             |
| Max. Radial Loading (N) <sup>*6</sup>                              | 78                                                                                                                    | 245                            | 245                            | 392                            |
| Max. Axial Loading (N) <sup>*6</sup>                               | 54                                                                                                                    | 74                             | 74                             | 147                            |
| Weight (kg) <sup>*3</sup>                                          | 0.5 (0.7)                                                                                                             | 0.9 (1.3)                      | 1.2 (1.6)                      | 1.7 (2.51)                     |
| Derating (%) (with oil seal)                                       | 10                                                                                                                    | 10                             | 5                              | 5                              |
| Torque Feature (T-N Curve)                                         |                                                                                                                       |                                |                                |                                |
| Insulation Class                                                   | Class A (UL), Class B (CE)                                                                                            |                                |                                |                                |
| Insulation Resistance                                              | > 100 MΩ, DC 500V                                                                                                     |                                |                                |                                |
| Insulation Strength                                                | 1.8 kVac, 1 sec                                                                                                       |                                |                                |                                |
| Vibration Level (μm)                                               | V15                                                                                                                   |                                |                                |                                |
| Operating Temperature                                              | -20°C ~ 60°C <sup>*5</sup>                                                                                            |                                |                                |                                |
| Storage Temperature                                                | -20°C ~ 80°C <sup>*5</sup>                                                                                            |                                |                                |                                |
| Storage & Operation Humidity                                       | 20 ~ 90%RH (non-condensing)                                                                                           |                                |                                |                                |
| Vibration Capacity                                                 | 2.5 G                                                                                                                 |                                |                                |                                |
| IP Rating                                                          | IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model)) |                                |                                |                                |
| Certifications                                                     |                                                                                                                       |                                |                                |                                |

Note:

1. In the servo motor model name, [1] represents the motor inertia and [2] represents the encoder type.
2. The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.  
F40, F60, F80: 250 mm x 250 mm x 6 mm  
Material: aluminum
3. ( ) = motor with brake
4. The built-in servo motor brake is only for keeping the object in a stopped state.  
Do not use it for deceleration or as a dynamic brake
5. If the operating temperature is over 40°C, refer to the power derating curves of B3 motors on page 27.

6. Please follow the max. tolerant loading of the motor shaft end listed below during operation



# ECM-B3 Series Servo Motor Specifications

## Electrical Specifications

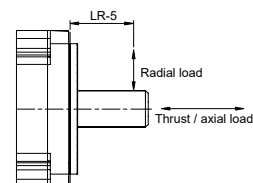
### Medium Inertia Motor ECM-B3M Series

|                                                                    | ECM-B3-C [2] 0807 <sup>*1</sup>                                                                                       | ECM-B3-E [2] 1310 <sup>*1</sup> | ECM-B3-E [2] 1315 <sup>*1</sup> | ECM-B3-E [2] 1320 <sup>*1</sup> |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------------------|---------------------------------|
| Rated Power (kW)                                                   | 0.75                                                                                                                  | 1                               | 1.5                             | 2                               |
| Rated Torque (N-m) <sup>*2</sup>                                   | 2.4                                                                                                                   | 4.77                            | 7.16                            | 9.55                            |
| Maximum Torque (N-m)                                               | 8.4                                                                                                                   | 14.3                            | 21.48                           | 28.65                           |
| Rated Speed (rpm)                                                  | 3000                                                                                                                  | 2000                            |                                 |                                 |
| Maximum Speed (rpm)                                                | 6000                                                                                                                  | 3000                            |                                 |                                 |
| Rated Current (Arms)                                               | 4.27                                                                                                                  | 5.96                            | 8.17                            | 10.59                           |
| Max. Instantaneous Current (Arms)                                  | 15.8                                                                                                                  | 19.9                            | 26.82                           | 34.20                           |
| Rated Power Rate (kW/s) <sup>*3</sup>                              | 53.83(50.97)                                                                                                          | 29.21 (28.66)                   | 45.69 (45.09)                   | 62.25 (61.62)                   |
| Rotor Inertia ( $\times 10^{-4}$ kg.m <sup>2</sup> ) <sup>*3</sup> | 1.07 (1.13)                                                                                                           | 7.79 (7.94)                     | 11.22 (11.37)                   | 14.65 (14.8)                    |
| Mechanical Time Constant (ms) <sup>*3</sup>                        | 0.54 (0.57)                                                                                                           | 1.46 (1.49)                     | 1.10 (1.12)                     | 1.03 (1.04)                     |
| Torque Constant -KT (N-m/A)                                        | 0.56                                                                                                                  | 0.80                            | 0.88                            | 0.90                            |
| Voltage Constant -KE (mV/(rpm))                                    | 20.17                                                                                                                 | 29.30                           | 31.69                           | 32.70                           |
| Armature Resistance (Ohm)                                          | 0.55                                                                                                                  | 0.419                           | 0.260                           | 0.198                           |
| Armature Inductance (mH)                                           | 2.81                                                                                                                  | 4                               | 2.81                            | 2.18                            |
| Electrical Time Constant (ms)                                      | 5.11                                                                                                                  | 9.55                            | 10.81                           | 11.01                           |
| Brake Holding Torque [Nt-m (min)] <sup>*4</sup>                    | 2.5                                                                                                                   | 10                              | 10                              | 10                              |
| Brake Power Consumption (at 20°C)[W]                               | 8                                                                                                                     | 21.5                            | 21.5                            | 21.5                            |
| Brake Release Time [ms (Max.)]                                     | 20                                                                                                                    | 50                              | 50                              | 50                              |
| Brake Pull-In Time [ms (Max.)]                                     | 60                                                                                                                    | 110                             | 110                             | 110                             |
| Max. Radial Loading (N) <sup>*6</sup>                              | 392                                                                                                                   | 490                             | 686                             | 980                             |
| Max. Axial Loading (N) <sup>*6</sup>                               | 147                                                                                                                   | 98                              | 343                             | 392                             |
| Weight (kg) <sup>*3</sup>                                          | 2.34 (3.15)                                                                                                           | 4.9 (6.3)                       | 6.0 (7.4)                       | 7 (8.5)                         |
| Derating (%) (with oil seal)                                       | 5                                                                                                                     | 5                               | 5                               | 5                               |
| Torque Feature (T-N Curve)                                         |                                                                                                                       |                                 |                                 |                                 |
| Insulation Class                                                   | Class A (UL), Class B (CE)                                                                                            |                                 |                                 |                                 |
| Insulation Resistance                                              | > 100 MΩ, DC 500V                                                                                                     |                                 |                                 |                                 |
| Insulation Strength                                                | 1.8 kVac, 1 sec                                                                                                       |                                 |                                 |                                 |
| Vibration Level (μm)                                               | V15                                                                                                                   |                                 |                                 |                                 |
| Operating Temperature                                              | -20°C ~ 60°C <sup>*5</sup>                                                                                            |                                 |                                 |                                 |
| Storage Temperature                                                | -20°C ~ 80°C <sup>*5</sup>                                                                                            |                                 |                                 |                                 |
| Storage & Operation Humidity                                       | 20 ~ 90%RH (non-condensing)                                                                                           |                                 |                                 |                                 |
| Vibration Capacity                                                 | 2.5 G                                                                                                                 |                                 |                                 |                                 |
| IP Rating                                                          | IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model)) |                                 |                                 |                                 |
| Certifications                                                     |                                                                                                                       |                                 |                                 |                                 |

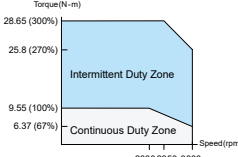
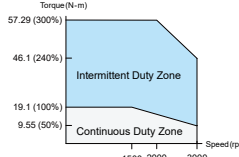
Note:

- In the servo motor model name, [ ] represents the motor inertia and [2] represents the encoder type.
- The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.  
F80: 250 mm x 250 mm x 6 mm  
F130: 400 mm x 400 mm x 20 mm  
Material: aluminum
- ( ) = motor with brake
- The built-in servo motor brake is only for keeping the object in a stopped state.  
Do not use it for deceleration or as a dynamic brake
- If the operating temperature is over 40°C, refer to the power derating curves of B3 motors on page 27.

- Please follow the max. tolerant loading of the motor shaft end listed below during operation



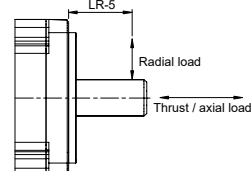
## Medium Inertia Motor ECM-B3M Series

| ECM-B3 <sup>1</sup>                                               | ECM-B3M-E <sup>2</sup> 1820 <sup>*1</sup>                                                                             | ECM-B3M-F <sup>2</sup> 1830 <sup>*1</sup>                                             |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| Rated Power (kW)                                                  | 2                                                                                                                     | 3                                                                                     |
| Rated Torque (N-m) <sup>2</sup>                                   | 9.55                                                                                                                  | 19.1                                                                                  |
| Maximum Torque (N-m)                                              | 28.65                                                                                                                 | 57.29                                                                                 |
| Rated Speed (rpm)                                                 | 2000                                                                                                                  | 1500                                                                                  |
| Maximum Speed (rpm)                                               | 3000                                                                                                                  | 3000                                                                                  |
| Rated Current (Arms)                                              | 11.43                                                                                                                 | 18.21                                                                                 |
| Max. Instantaneous Current (Arms)                                 | 36.21                                                                                                                 | 58.9                                                                                  |
| Rated Power Rate (kW/s) <sup>3</sup>                              | 31.33 (30.02)                                                                                                         | 68.02 (66.45)                                                                         |
| Rotor Inertia ( $\times 10^{-4}$ kg.m <sup>2</sup> ) <sup>3</sup> | 29.11 (30.38)                                                                                                         | 53.63 (54.9)                                                                          |
| Mechanical Time Constant (ms) <sup>3</sup>                        | 1.74 (1.81)                                                                                                           | 1.21 (1.24)                                                                           |
| Torque Constant -KT (N-m/A)                                       | 0.88                                                                                                                  | 1.05                                                                                  |
| Voltage Constant -KE (mV/(rpm))                                   | 31.6                                                                                                                  | 37.9                                                                                  |
| Armature Resistance (Ohm)                                         | 0.159                                                                                                                 | 0.086                                                                                 |
| Armature Inductance (mH)                                          | 2.34                                                                                                                  | 1.52                                                                                  |
| Electrical Time Constant (ms)                                     | 14.72                                                                                                                 | 17.67                                                                                 |
| Brake Holding Torque [Nt-m (min)] <sup>4</sup>                    | 25                                                                                                                    | 25                                                                                    |
| Brake Power Consumption (at 20°C)[W]                              | 31                                                                                                                    | 31                                                                                    |
| Brake Release Time [ms (Max.)]                                    | 30                                                                                                                    | 30                                                                                    |
| Brake Pull-In Time [ms (Max.)]                                    | 120                                                                                                                   | 120                                                                                   |
| Max. Radial Loading (N) <sup>6</sup>                              | 1470                                                                                                                  | 1470                                                                                  |
| Max. Axial Loading (N) <sup>6</sup>                               | 490                                                                                                                   | 490                                                                                   |
| Weight (kg) <sup>3</sup>                                          | 10 (13.7)                                                                                                             | 13.9 (17.6)                                                                           |
| Derating (%) (with oil seal)                                      | 5                                                                                                                     | 5                                                                                     |
| Torque Feature (T-N Curve)                                        |                                    |  |
| Insulation Class                                                  | Class A (UL), Class B (CE)                                                                                            |                                                                                       |
| Insulation Resistance                                             | > 100 MΩ, DC 500V                                                                                                     |                                                                                       |
| Insulation Strength                                               | 1.8 kVac, 1 sec                                                                                                       |                                                                                       |
| Vibration Level (μm)                                              | V15                                                                                                                   |                                                                                       |
| Operating Temperature                                             | -20°C ~ 60°C <sup>*5</sup>                                                                                            |                                                                                       |
| Storage Temperature                                               | -20°C ~ 80°C <sup>*5</sup>                                                                                            |                                                                                       |
| Storage & Operation Humidity                                      | 20 ~ 90%RH (non-condensing)                                                                                           |                                                                                       |
| Vibration Capacity                                                | 2.5 G                                                                                                                 |                                                                                       |
| IP Rating                                                         | IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model)) |                                                                                       |
| Certifications                                                    |                                   |                                                                                       |

Note:

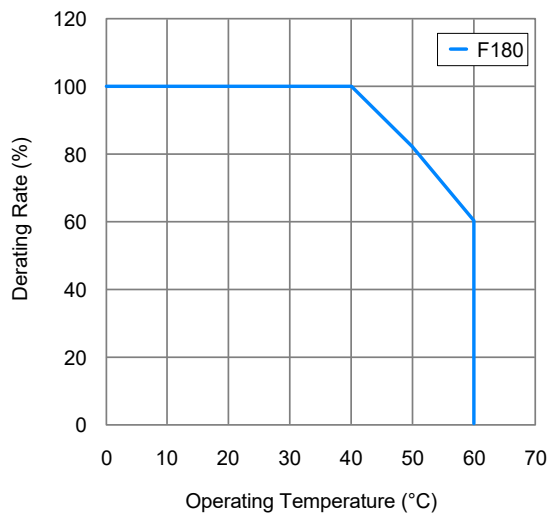
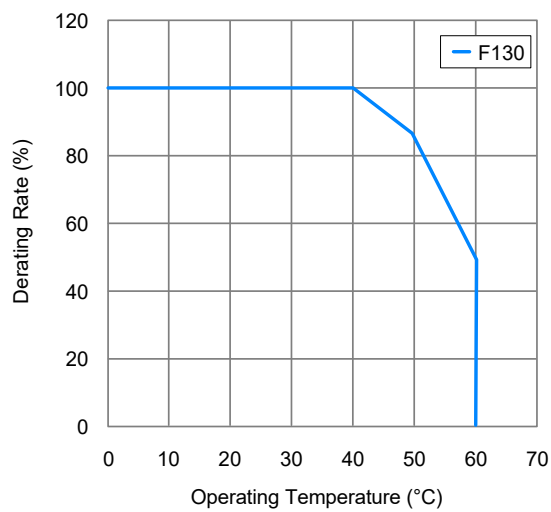
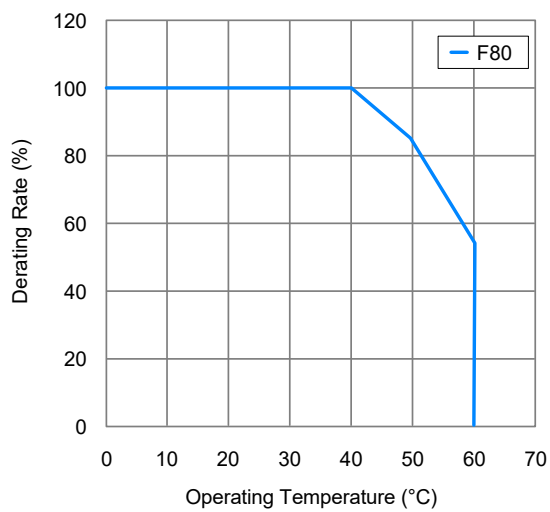
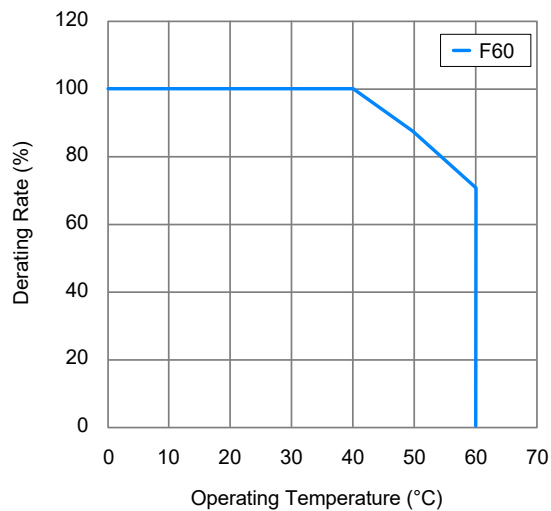
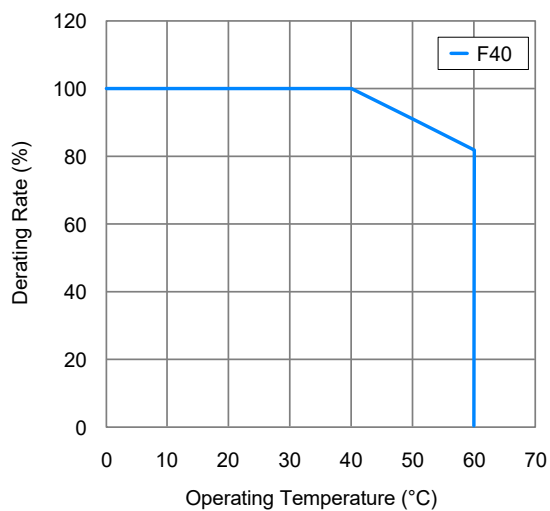
- In the servo motor model name, <sup>1</sup> represents the motor inertia and <sup>2</sup> represents the encoder type.
- The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.  
F180 : 550 mm x 550 mm x 30 mm  
Material: aluminum
- ( ) = motor with brake
- The built-in servo motor brake is only for keeping the object in a stopped state.  
Do not use it for deceleration or as a dynamic brake
- If the operating temperature is over 40°C, refer to the power derating curves of B3 motors on page 27.

- Please follow the max. tolerant loading of the motor shaft end listed below during operation

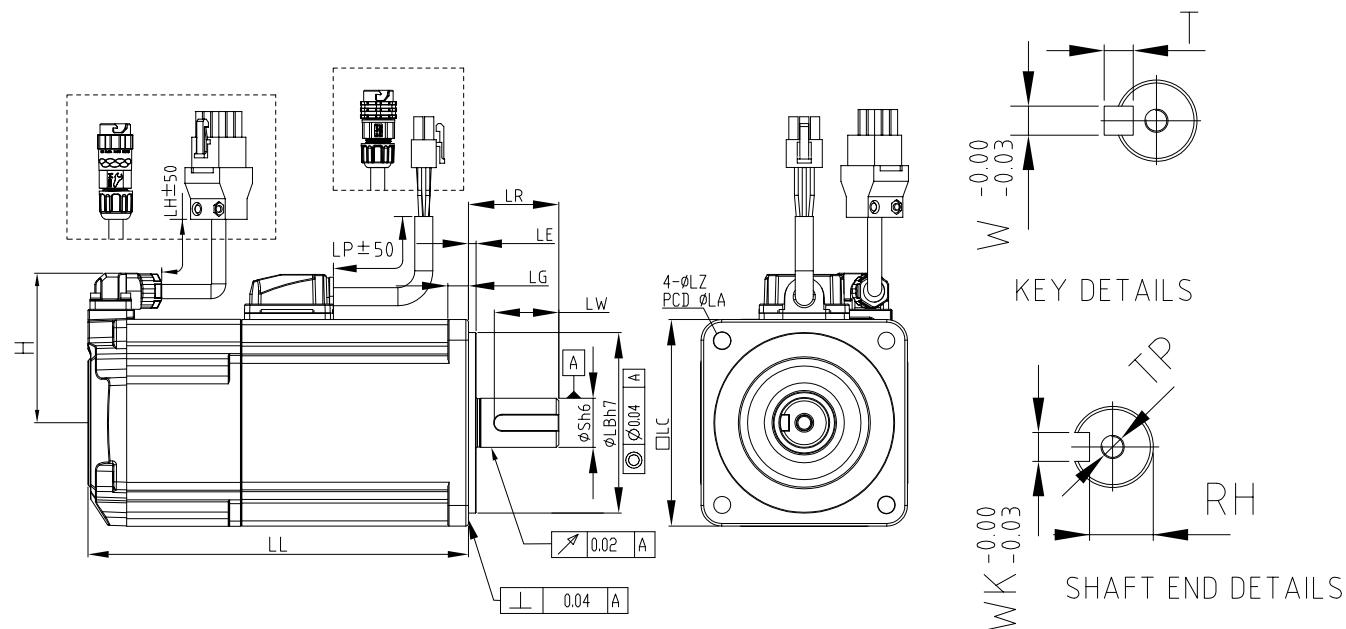


# ECM-B3 Series Servo Motor Specifications

## Power Derating Curves



## Dimensions of Motors with Frame Size of 80 mm or Below



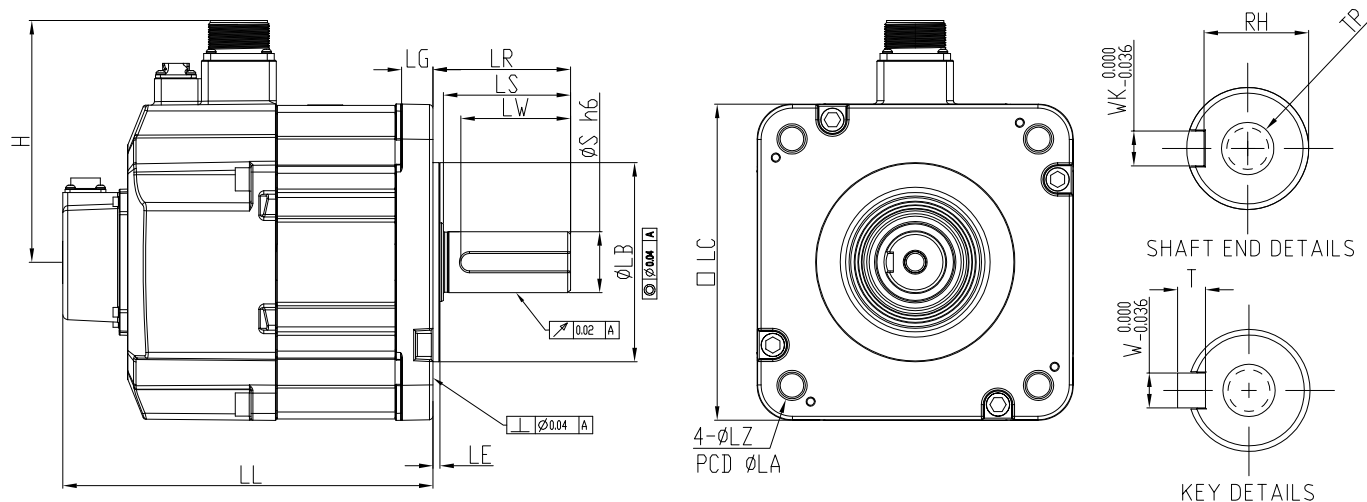
| Model           | C 2 0401 3 4 5         | C 2 0602 3 4 5         | C 2 0604 3 4 5         | C 2 0804 3 4 5         | C 2 0807 3 4 5         |
|-----------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| LC              | 40                     | 60                     | 60                     | 80                     | 80                     |
| LZ              | 4.5                    | 5.5                    | 5.5                    | 6.6                    | 6.6                    |
| LA              | 46                     | 70                     | 70                     | 90                     | 90                     |
| S               | 8( $^{+0}_{-0.009}$ )  | 14( $^{+0}_{-0.011}$ ) | 14( $^{+0}_{-0.011}$ ) | 14( $^{+0}_{-0.011}$ ) | 19( $^{+0}_{-0.013}$ ) |
| LB              | 30( $^{+0}_{-0.021}$ ) | 50( $^{+0}_{-0.025}$ ) | 50( $^{+0}_{-0.025}$ ) | 70( $^{+0}_{-0.030}$ ) | 70( $^{+0}_{-0.030}$ ) |
| LL (w/o brake)  | 77.6                   | 72.5                   | 91                     | 86.7                   | 105.2                  |
| LL (with brake) | 111.7                  | 109.4                  | 127.9                  | 126.3                  | 144.8                  |
| LH              | 300                    | 300                    | 300                    | 300                    | 300                    |
| LP              | 300                    | 300                    | 300                    | 300                    | 300                    |
| H               | 40                     | 48.5                   | 48.5                   | 58.5                   | 58.5                   |
| LR              | 25                     | 30                     | 30                     | 30                     | 35                     |
| LE              | 2.5                    | 3                      | 3                      | 3                      | 3                      |
| LG              | 5                      | 7.5                    | 7.5                    | 8                      | 8                      |
| LW              | 16                     | 20                     | 20                     | 20                     | 25                     |
| RH              | 6.2                    | 11                     | 11                     | 11                     | 15.5                   |
| WK              | 3                      | 5                      | 5                      | 5                      | 6                      |
| W               | 3                      | 5                      | 5                      | 5                      | 6                      |
| T               | 3                      | 5                      | 5                      | 5                      | 6                      |
| TP              | M3 Depth 8             | M4 Depth 15            | M4 Depth 15            | M4 Depth 15            | M6 Depth 20            |

Note:

- In the servo motor model name, [2] represents the encoder type, [2] represents the brake or keyway / oil seal type, [4] represents the shaft diameter and connector type, and [5] represents the special code.
- When [2] in the servo motor model name is J or K, the connector is an IP67 waterproof connector.

# ECM-B3 Series Servo Motor Specifications

## Dimensions of Motors with Frame Size of 130 to 180 mm



| Model          | E 2 1310 3 4 5          | E 2 1315 3 4 5          | E 2 1320 3 4 5          | E 2 1820 3 4 5            | F 2 1830 3 4 5            |
|----------------|-------------------------|-------------------------|-------------------------|---------------------------|---------------------------|
| LC             | 130                     | 130                     | 130                     | 180                       | 180                       |
| LZ             | 9                       | 9                       | 9                       | 13.5                      | 13.5                      |
| LA             | 145                     | 145                     | 145                     | 200                       | 200                       |
| S              | 22( $^{+0}_{-0.013}$ )  | 22( $^{+0}_{-0.013}$ )  | 22( $^{+0}_{-0.013}$ )  | 35( $^{+0}_{-0.016}$ )    | 35( $^{+0}_{-0.016}$ )    |
| LB             | 110( $^{+0}_{-0.035}$ ) | 110( $^{+0}_{-0.035}$ ) | 110( $^{+0}_{-0.035}$ ) | 114.3( $^{+0}_{-0.035}$ ) | 114.3( $^{+0}_{-0.035}$ ) |
| LL(w/o brake)  | 127.9                   | 139.9                   | 151.9                   | 137.5                     | 160.5                     |
| LL(with brake) | 168.5                   | 180.5                   | 192.5                   | 189.5                     | 212.5                     |
| H              | 115                     | 115                     | 115                     | 139                       | 139                       |
| LS             | 47                      | 47                      | 47                      | 73                        | 73                        |
| LR             | 55                      | 55                      | 55                      | 79                        | 79                        |
| LE             | 6                       | 6                       | 6                       | 4                         | 4                         |
| LG             | 12.5                    | 12.5                    | 12.5                    | 18                        | 18                        |
| LW             | 36                      | 36                      | 36                      | 63                        | 63                        |
| RH             | 18                      | 18                      | 18                      | 30                        | 30                        |
| WK             | 8                       | 8                       | 8                       | 10                        | 10                        |
| W              | 8                       | 8                       | 8                       | 10                        | 10                        |
| T              | 7                       | 7                       | 7                       | 8                         | 8                         |
| TP             | M6 Depth 12             | M6 Depth 12             | M6 Depth 12             | M12 Depth 25              | M12 Depth 25              |

Note:

In the servo motor model name, [2] represents the encoder type, [3] represents the brake or keyway / oil seal type, [4] represents the shaft diameter and connector type, and [5] represents the special code.

# ECM-A3 Series Servo Motor Specifications

## Electrical Specifications

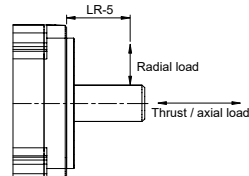
### ECM-A3L Low Inertia Series Servo Motor

|                                                                    | ECM-A3L-C 2 040F <sup>*1</sup>                                                                                        | ECM-A3L-C 2 0401 <sup>*1</sup> | ECM-A3L-C 2 0602 <sup>*1</sup> | ECM-A3L-C 2 0604 <sup>*1</sup> |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Rated Power (kW)                                                   | 0.05                                                                                                                  | 0.1                            | 0.2                            | 0.4                            |
| Rated Torque (N·m) <sup>*1</sup>                                   | 0.159                                                                                                                 | 0.32                           | 0.64                           | 1.27                           |
| Maximum Torque (N·m)                                               | 0.557                                                                                                                 | 1.12                           | 2.24                           | 4.45                           |
| Rated Speed (rpm)                                                  | 3000                                                                                                                  |                                |                                |                                |
| Maximum Speed (rpm)                                                | 6000                                                                                                                  |                                |                                |                                |
| Rated Current (Arms)                                               | 0.66                                                                                                                  | 0.9                            | 1.45                           | 2.65                           |
| Max. Instantaneous Current (Arms)                                  | 2.82                                                                                                                  | 3.88                           | 6.2                            | 10.1                           |
| Rated Power Rate (kW/s) <sup>*5</sup>                              | 11 (9.9)                                                                                                              | 25.6 (24)                      | 45.5 (34.1)                    | 107.5 (89.6)                   |
| Rotor Inertia ( $\times 10^{-4}$ kg·m <sup>2</sup> ) <sup>*5</sup> | 0.0229 (0.0255)                                                                                                       | 0.04 (0.0426)                  | 0.09 (0.12)                    | 0.15 (0.18)                    |
| Mechanical Time Constant (ms) <sup>*5</sup>                        | 1.28 (1.44)                                                                                                           | 0.838 (0.892)                  | 0.64 (0.85)                    | 0.41 (0.5)                     |
| Torque Constant -KT (N·m/A)                                        | 0.241                                                                                                                 | 0.356                          | 0.441                          | 0.479                          |
| Voltage Constant -KE (mV/(rpm))                                    | 9.28                                                                                                                  | 13.3                           | 16.4                           | 18                             |
| Armature Resistance (Ohm)                                          | 12.1                                                                                                                  | 9.47                           | 4.9                            | 2.27                           |
| Armature Inductance (mH)                                           | 18.6                                                                                                                  | 16.2                           | 18.52                          | 10.27                          |
| Electrical Time Constant (ms)                                      | 1.54                                                                                                                  | 1.71                           | 3.78                           | 4.52                           |
| Brake Holding Torque [N·m (min)] <sup>*2</sup>                     | 0.32                                                                                                                  | 0.32                           | 1.3                            | 1.3                            |
| Brake Power Consumption (at 20°C)[W]                               | 6.1                                                                                                                   | 6.1                            | 7.2                            | 7.2                            |
| Brake Release Time [ms (Max.)]                                     | 20                                                                                                                    | 20                             | 20                             | 20                             |
| Brake Pull-In Time [ms (Max.)]                                     | 35                                                                                                                    | 35                             | 50                             | 50                             |
| Max. Radial Loading (N)                                            | 78                                                                                                                    | 78                             | 245                            | 245                            |
| Max. Axial Loading (N)                                             | 54                                                                                                                    | 54                             | 74                             | 74                             |
| Weight (kg) <sup>*5</sup>                                          | 0.38 (0.68)                                                                                                           | 0.5 (0.8)                      | 1.1 (1.6)                      | 1.4 (1.9)                      |
| Derating (%) (with oil seal)                                       | 20                                                                                                                    | 10                             | 10                             | 5                              |
| Torque Feature (T-N Curve)                                         |                                                                                                                       |                                |                                |                                |
| Insulation Class                                                   | Class A (UL), Class B (CE)                                                                                            |                                |                                |                                |
| Insulation Resistance                                              | > 100 MΩ, DC 500V                                                                                                     |                                |                                |                                |
| Insulation Strength                                                | 1.8 kVac, 1 sec                                                                                                       |                                |                                |                                |
| Vibration Level (μm)                                               | V15                                                                                                                   |                                |                                |                                |
| Operating Temperature                                              | 0°C ~ 40°C <sup>*3</sup>                                                                                              |                                |                                |                                |
| Storage Temperature                                                | -10°C ~ 80°C <sup>*3</sup>                                                                                            |                                |                                |                                |
| Storage & Operation Humidity                                       | 20 ~ 90%RH (non-condensing)                                                                                           |                                |                                |                                |
| Vibration Capacity                                                 | 2.5 G                                                                                                                 |                                |                                |                                |
| IP Rating                                                          | IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model)) |                                |                                |                                |
| Certifications                                                     |                                                                                                                       |                                |                                |                                |

Note:

- In the servo motor model name, [1] represents the motor inertia and [2] represents the encoder type.
- The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.  
F40, F60, F80: 250 mm x 250 mm x 6 mm  
Material: aluminum
- ( ) = motor with brake
- The built-in servo motor brake is only for keeping the object in a stopped state.  
Do not use it for deceleration or as a dynamic brake

- Please follow the max. tolerant loading of the motor shaft end listed below during operation



# ECM-A3 Series Servo Motor Specifications

## Electrical Specifications

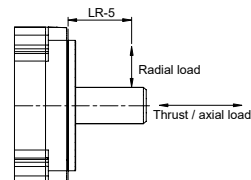
### ECM-A3L Low Inertia Series Servo Motor / ECM-A3H High Inertia Series Servo Motor

|                                                                    | ECM-A3L-C [2] 0804 <sup>*1</sup>                                                                                      | ECM-A3L-C [2] 0807 <sup>*1</sup> | ECM-A3H-C [2] 040F <sup>*1</sup> | ECM-A3H-C [2] 0401 <sup>*1</sup> |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Rated Power (kW)                                                   | 0.4                                                                                                                   | 0.75                             | 0.05                             | 0.1                              |
| Rated Torque (N·m) <sup>*1</sup>                                   | 1.27                                                                                                                  | 2.39                             | 0.159                            | 0.32                             |
| Maximum Torque (N·m)                                               | 4.44                                                                                                                  | 8.36                             | 0.557                            | 1.12                             |
| Rated Speed (rpm)                                                  | 3000                                                                                                                  |                                  |                                  |                                  |
| Maximum Speed (rpm)                                                | 6000                                                                                                                  |                                  |                                  |                                  |
| Rated Current (Arms)                                               | 2.6                                                                                                                   | 5.1                              | 0.64                             | 0.9                              |
| Max. Instantaneous Current (Arms)                                  | 10.6                                                                                                                  | 20.6                             | 2.59                             | 3.64                             |
| Rated Power Rate (kW/s) <sup>*5</sup>                              | 45.8 (39.5)                                                                                                           | 102.2 (93)                       | 5.56 (4.89)                      | 13.6 (12.5)                      |
| Rotor Inertia ( $\times 10^{-4}$ kg·m <sup>2</sup> ) <sup>*5</sup> | 0.352 (0.408)                                                                                                         | 0.559 (0.614)                    | 0.0455 (0.0517)                  | 0.0754 (0.0816)                  |
| Mechanical Time Constant (ms) <sup>*5</sup>                        | 0.68 (0.78)                                                                                                           | 0.44 (0.48)                      | 2.52 (2.86)                      | 1.43 (1.55)                      |
| Torque Constant -KT (N·m/A)                                        | 0.488                                                                                                                 | 0.469                            | 0.248                            | 0.356                            |
| Voltage Constant -KE (mV/(rpm))                                    | 17.9                                                                                                                  | 17                               | 9.54                             | 12.9                             |
| Armature Resistance (Ohm)                                          | 1.6                                                                                                                   | 0.6                              | 12.5                             | 8.34                             |
| Armature Inductance (mH)                                           | 10.6                                                                                                                  | 4.6                              | 13.34                            | 11                               |
| Electrical Time Constant (ms)                                      | 6.63                                                                                                                  | 7.67                             | 1.07                             | 1.32                             |
| Brake Holding Torque [N·m (min)] <sup>*4</sup>                     | 2.5                                                                                                                   | 2.5                              | 0.32                             | 0.32                             |
| Brake Power Consumption (at 20°C)[W]                               | 8                                                                                                                     | 8                                | 6.1                              | 6.1                              |
| Brake Release Time [ms (Max.)]                                     | 20                                                                                                                    | 20                               | 20                               | 20                               |
| Brake Pull-In Time [ms (Max.)]                                     | 60                                                                                                                    | 60                               | 35                               | 35                               |
| Max. Radial Loading (N)                                            | 392                                                                                                                   | 392                              | 78                               | 78                               |
| Max. Axial Loading (N)                                             | 147                                                                                                                   | 147                              | 54                               | 54                               |
| Weight (kg) <sup>*5</sup>                                          | 2.05 (2.85)                                                                                                           | 2.8 (3.6)                        | 0.38 (0.68)                      | 0.5 (0.8)                        |
| Derating (%) (with oil seal)                                       | 5                                                                                                                     | 5                                | 20                               | 10                               |
| Torque Feature (T-N Curve)                                         |                                                                                                                       |                                  |                                  |                                  |
| Insulation Class                                                   | Class A (UL), Class B (CE)                                                                                            |                                  |                                  |                                  |
| Insulation Resistance                                              | 100 MΩ · DC 500 V 以上                                                                                                  |                                  |                                  |                                  |
| Insulation Strength                                                | > 100 MΩ, DC 500V                                                                                                     |                                  |                                  |                                  |
| Vibration Level (μm)                                               | V15                                                                                                                   |                                  |                                  |                                  |
| Operating Temperature                                              | 0°C ~ 40°C <sup>*3</sup>                                                                                              |                                  |                                  |                                  |
| Storage Temperature                                                | -10°C ~ 80°C <sup>*3</sup>                                                                                            |                                  |                                  |                                  |
| Storage & Operation Humidity                                       | 20 ~ 90%RH (non-condensing)                                                                                           |                                  |                                  |                                  |
| Vibration Capacity                                                 | 2.5 G                                                                                                                 |                                  |                                  |                                  |
| IP Rating                                                          | IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model)) |                                  |                                  |                                  |
| Certifications                                                     |                                                                                                                       |                                  |                                  |                                  |

Note:

- In the servo motor model name, [ ] represents the motor inertia and [2] represents the encoder type.
- The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.  
F40, F60, F80: 250 mm x 250 mm x 6 mm  
Material: aluminum
- ( ) = motor with brake
- The built-in servo motor brake is only for keeping the object in a stopped state.  
Do not use it for deceleration or as a dynamic brake

- Please follow the max. tolerating loading of the motor shaft end listed below during operation



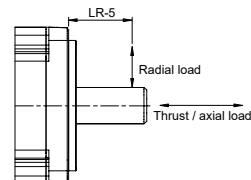
## ECM-A3H High Inertia Series Servo Motor

|                                                                    | ECM-A3H-C 2 0602 <sup>*1</sup>                                                                                        | ECM-A3H-C 2 0604 <sup>*1</sup> | ECM-A3H-C 2 0804 <sup>*1</sup> | ECM-A3H-C 2 0807 <sup>*1</sup> |
|--------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|--------------------------------|--------------------------------|--------------------------------|
| Rated Power (kW)                                                   | 0.2                                                                                                                   | 0.4                            | 0.4                            | 0.75                           |
| Rated Torque (N·m) <sup>*1</sup>                                   | 0.64                                                                                                                  | 1.27                           | 1.27                           | 2.39                           |
| Maximum Torque (N·m)                                               | 2.24                                                                                                                  | 4.45                           | 4.44                           | 8.36                           |
| Rated Speed (rpm)                                                  | 3000                                                                                                                  |                                |                                |                                |
| Maximum Speed (rpm)                                                | 6000                                                                                                                  |                                |                                |                                |
| Rated Current (Arms)                                               | 1.45                                                                                                                  | 2.65                           | 2.6                            | 4.61                           |
| Max. Instantaneous Current (Arms)                                  | 5.3                                                                                                                   | 9.8                            | 9.32                           | 16.4                           |
| Rated Power Rate (kW/s) <sup>*5</sup>                              | 16.4 (14.6)                                                                                                           | 35.8 (33.6)                    | 17.5 (15.07)                   | 37.8 (34.41)                   |
| Rotor Inertia ( $\times 10^{-4}$ kg·m <sup>2</sup> ) <sup>*5</sup> | 0.25 (0.28)                                                                                                           | 0.45 (0.48)                    | 0.92 (1.07)                    | 1.51 (1.66)                    |
| Mechanical Time Constant (ms) <sup>*5</sup>                        | 1.38 (1.54)                                                                                                           | 0.96 (1.02)                    | 1.32 (1.54)                    | 0.93 (1.02)                    |
| Torque Constant -KT (N·m/A)                                        | 0.441                                                                                                                 | 0.479                          | 0.49                           | 0.52                           |
| Voltage Constant -KE (mV/(rpm))                                    | 16.4                                                                                                                  | 17.2                           | 17.9                           | 18.7                           |
| Armature Resistance (Ohm)                                          | 3.8                                                                                                                   | 1.68                           | 1.19                           | 0.57                           |
| Armature Inductance (mH)                                           | 8.15                                                                                                                  | 4.03                           | 4.2                            | 2.2                            |
| Electrical Time Constant (ms)                                      | 2.14                                                                                                                  | 2.40                           | 3.53                           | 3.86                           |
| Brake Holding Torque [Nt·m (min)] <sup>*2</sup>                    | 1.3                                                                                                                   | 1.3                            | 2.5                            | 2.5                            |
| Brake Power Consumption (at 20°C)[W]                               | 7.2                                                                                                                   | 7.2                            | 8                              | 8                              |
| Brake Release Time [ms (Max.)]                                     | 20                                                                                                                    | 20                             | 20                             | 20                             |
| Brake Pull-In Time [ms (Max.)]                                     | 50                                                                                                                    | 50                             | 60                             | 60                             |
| Max. Radial Loading (N)                                            | 245                                                                                                                   | 245                            | 392                            | 392                            |
| Max. Axial Loading (N)                                             | 74                                                                                                                    | 74                             | 147                            | 147                            |
| Weight (kg) <sup>*5</sup>                                          | 1.1 (1.6)                                                                                                             | 1.4 (1.9)                      | 2.05 (2.85)                    | 2.8 (3.6)                      |
| Derating (%) (with oil seal)                                       | 10                                                                                                                    | 5                              | 5                              | 5                              |
| Torque Feature (T-N Curve)                                         |                                                                                                                       |                                |                                |                                |
| Insulation Class                                                   | Class A (UL), Class B (CE)                                                                                            |                                |                                |                                |
| Insulation Resistance                                              | 100 MΩ · DC 500 V 以上                                                                                                  |                                |                                |                                |
| Insulation Strength                                                | > 100 MΩ, DC 500V                                                                                                     |                                |                                |                                |
| Vibration Level (μm)                                               | V15                                                                                                                   |                                |                                |                                |
| Operating Temperature                                              | 0°C ~ 40°C <sup>*3</sup>                                                                                              |                                |                                |                                |
| Storage Temperature                                                | -10°C ~ 80°C <sup>*3</sup>                                                                                            |                                |                                |                                |
| Storage & Operation Humidity                                       | 20 ~ 90%RH (non-condensing)                                                                                           |                                |                                |                                |
| Vibration Capacity                                                 | 2.5 G                                                                                                                 |                                |                                |                                |
| IP Rating                                                          | IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model)) |                                |                                |                                |
| Certifications                                                     |                                                                                                                       |                                |                                |                                |

Note:

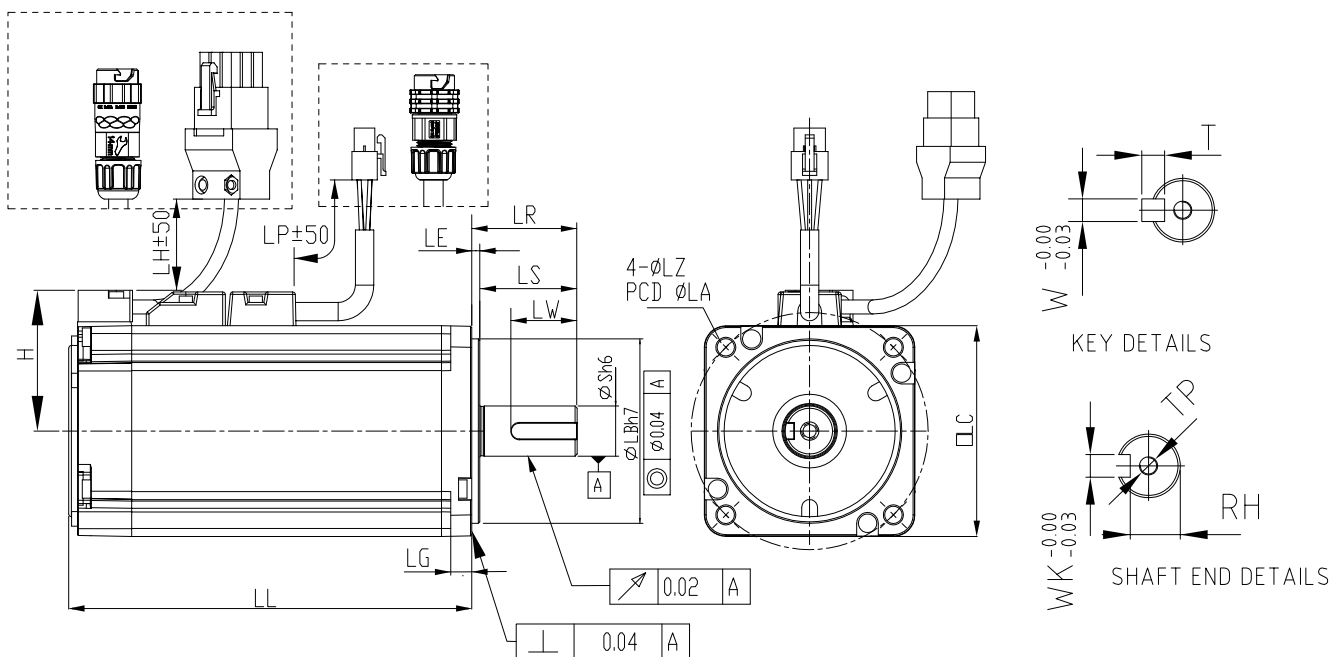
- In the servo motor model name, [1] represents the motor inertia and [2] represents the encoder type.
- The rated torque is the continuous permissible torque between 0 to 40°C operating temperature which is suitable for the servo motor mounted with the following heat sink dimensions.  
F40, F60, F80: 250 mm x 250 mm x 6 mm  
Material: aluminum
- ( ) = motor with brake
- The built-in servo motor brake is only for keeping the object in a stopped state.  
Do not use it for deceleration or as a dynamic brake

5. Please follow the max. tolerant loading of the motor shaft end listed below during operation



# ECM-A3 Series Servo Motor Specifications

## Dimensions of Motors with Frame Size of 80 mm and Below



| Model           | C 2 040F 3 4 5                                             | C 2 0401 3 4 5                                             | C 2 0602 3 4 5                                             | C 2 0604 3 4 5                                             | C 2 0804 3 4 5                                             | C 2 0807 3 4 5                                             |
|-----------------|------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|------------------------------------------------------------|
| LC              | 40                                                         | 40                                                         | 60                                                         | 60                                                         | 80                                                         | 80                                                         |
| LZ              | 4.5                                                        | 4.5                                                        | 5.5                                                        | 5.5                                                        | 6.6                                                        | 6.6                                                        |
| LA              | 46                                                         | 46                                                         | 70                                                         | 70                                                         | 90                                                         | 90                                                         |
| S               | 8( $\begin{smallmatrix} +0 \\ -0.009 \end{smallmatrix}$ )  | 8( $\begin{smallmatrix} +0 \\ -0.009 \end{smallmatrix}$ )  | 14( $\begin{smallmatrix} +0 \\ -0.011 \end{smallmatrix}$ ) | 14( $\begin{smallmatrix} +0 \\ -0.011 \end{smallmatrix}$ ) | 14( $\begin{smallmatrix} +0 \\ -0.011 \end{smallmatrix}$ ) | 19( $\begin{smallmatrix} +0 \\ -0.013 \end{smallmatrix}$ ) |
| LB              | 30( $\begin{smallmatrix} +0 \\ -0.021 \end{smallmatrix}$ ) | 30( $\begin{smallmatrix} +0 \\ -0.021 \end{smallmatrix}$ ) | 50( $\begin{smallmatrix} +0 \\ -0.025 \end{smallmatrix}$ ) | 50( $\begin{smallmatrix} +0 \\ -0.025 \end{smallmatrix}$ ) | 70( $\begin{smallmatrix} +0 \\ -0.030 \end{smallmatrix}$ ) | 70( $\begin{smallmatrix} +0 \\ -0.030 \end{smallmatrix}$ ) |
| LL (w/o brake)  | 70.6                                                       | 85.3                                                       | 84                                                         | 106                                                        | 93.7                                                       | 115.8                                                      |
| LL (with brake) | 105.4                                                      | 120.1                                                      | 117.6                                                      | 139.7                                                      | 131.2                                                      | 153.2                                                      |
| LH              | 300                                                        | 300                                                        | 300                                                        | 300                                                        | 300                                                        | 300                                                        |
| LP              | 300                                                        | 300                                                        | 300                                                        | 300                                                        | 300                                                        | 300                                                        |
| H               | 34                                                         | 34                                                         | 43.5                                                       | 43.5                                                       | 54.5                                                       | 54.5                                                       |
| LS              | 21.5                                                       | 21.5                                                       | 27                                                         | 27                                                         | 27                                                         | 37                                                         |
| LR              | 25                                                         | 25                                                         | 30                                                         | 30                                                         | 30                                                         | 40                                                         |
| LE              | 2.5                                                        | 2.5                                                        | 3                                                          | 3                                                          | 3                                                          | 3                                                          |
| LG              | 5                                                          | 5                                                          | 7.5                                                        | 7.5                                                        | 8                                                          | 8                                                          |
| LW              | 16                                                         | 16                                                         | 20                                                         | 20                                                         | 20                                                         | 25                                                         |
| RH              | 6.2                                                        | 6.2                                                        | 11                                                         | 11                                                         | 11                                                         | 15.5                                                       |
| WK              | 3                                                          | 3                                                          | 5                                                          | 5                                                          | 5                                                          | 6                                                          |
| W               | 3                                                          | 3                                                          | 5                                                          | 5                                                          | 5                                                          | 6                                                          |
| T               | 3                                                          | 3                                                          | 5                                                          | 5                                                          | 5                                                          | 6                                                          |
| TP              | M3 Depth 6                                                 | M3 Depth 6                                                 | M4 Depth 8                                                 | M4 Depth 8                                                 | M4 Depth 8                                                 | M6 Depth 10                                                |

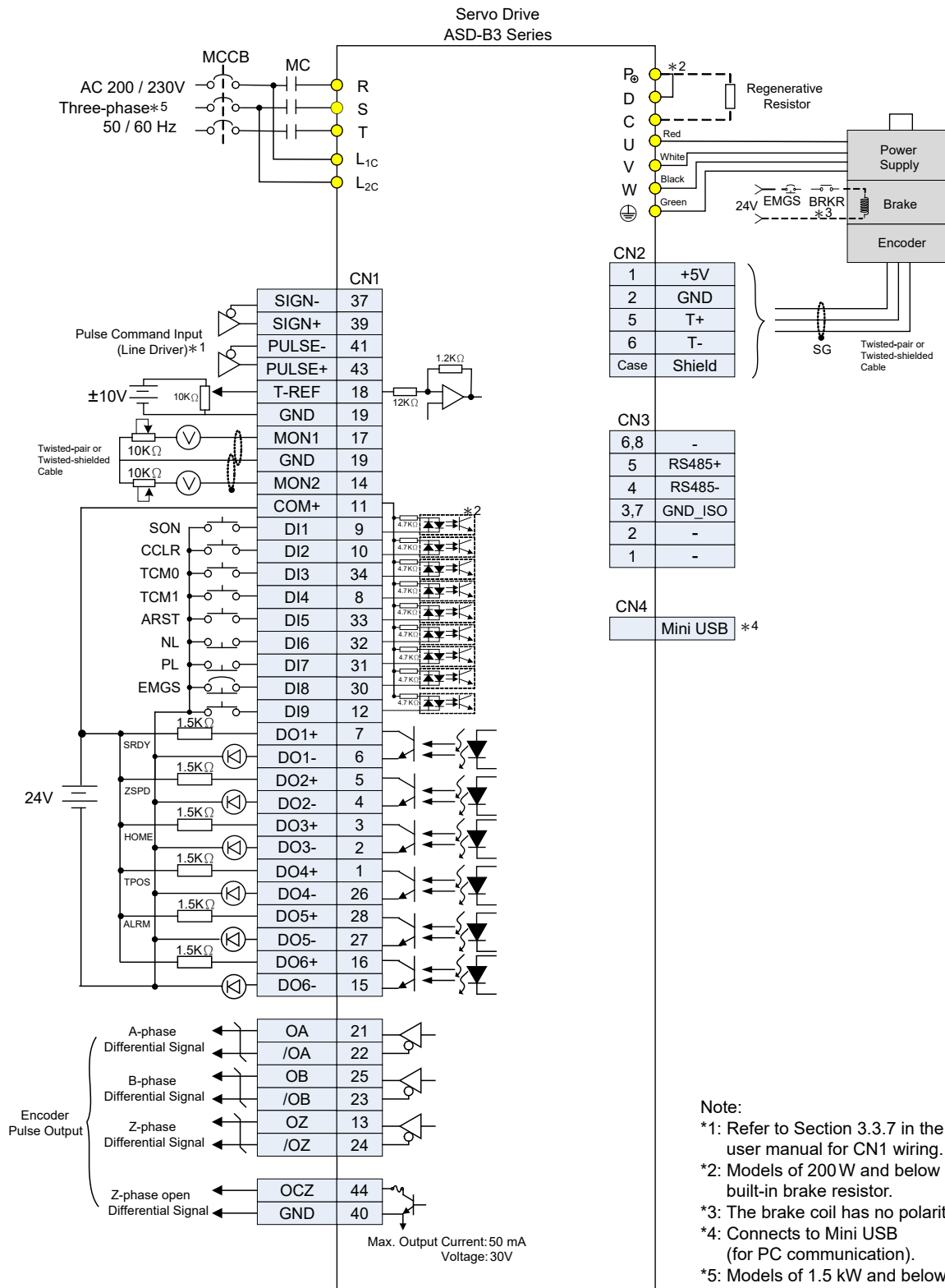
Note:

1. In the servo motor model name, [2] represents the encoder type, [3] represents the brake or keyway / oil seal type, [4] represents the shaft diameter and connector type, and [5] represents the special code.

2. When the special code of the C 2 0807 [3] [4] [5] model is Z, then its LS = 32 and LR = 35.

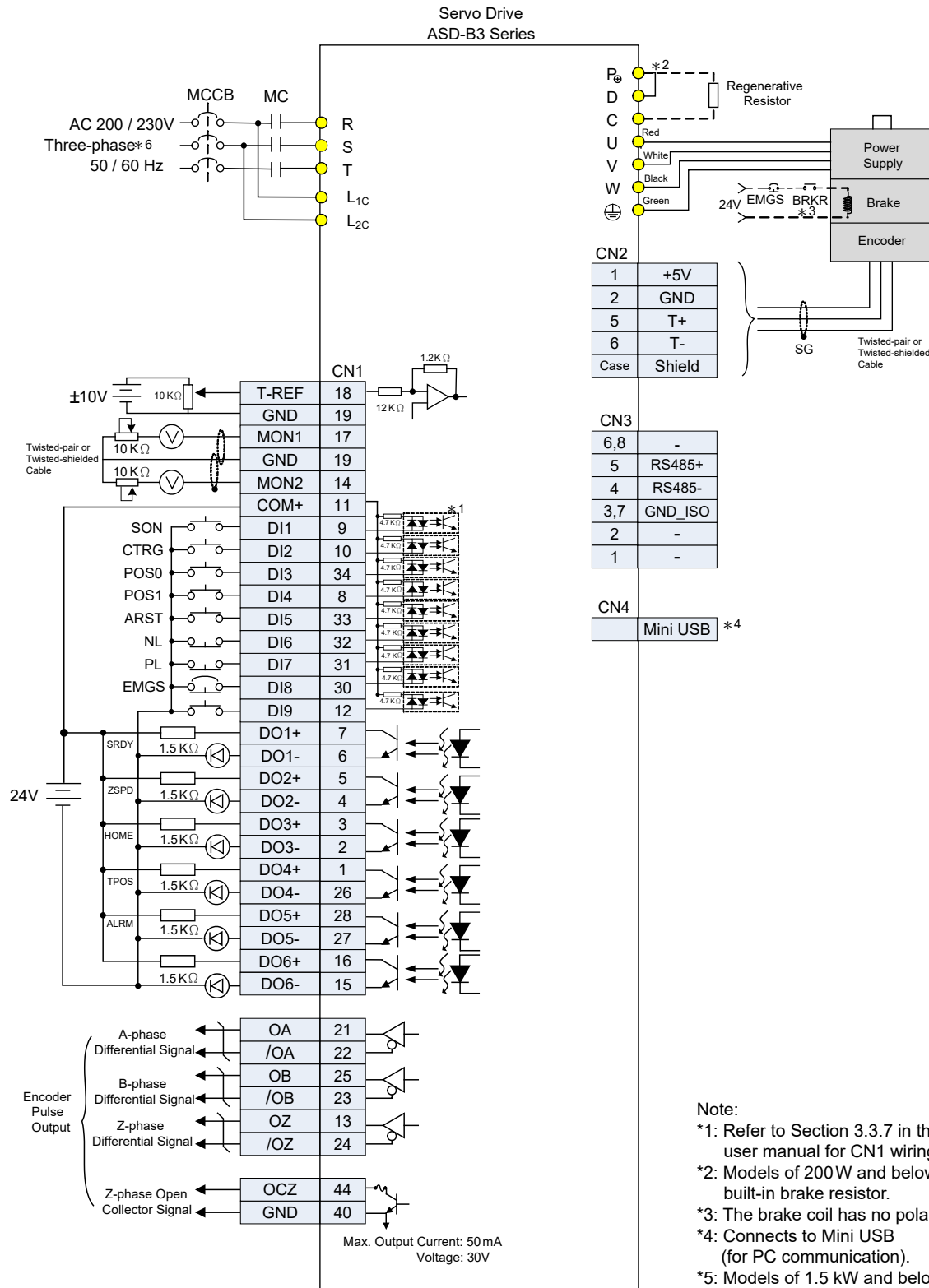
3. When the [4] in the motor model name is J or K, the connector is an IP67 waterproof connector.

## Position (PT) Mode Standard Wiring (for Pulse Command Input)

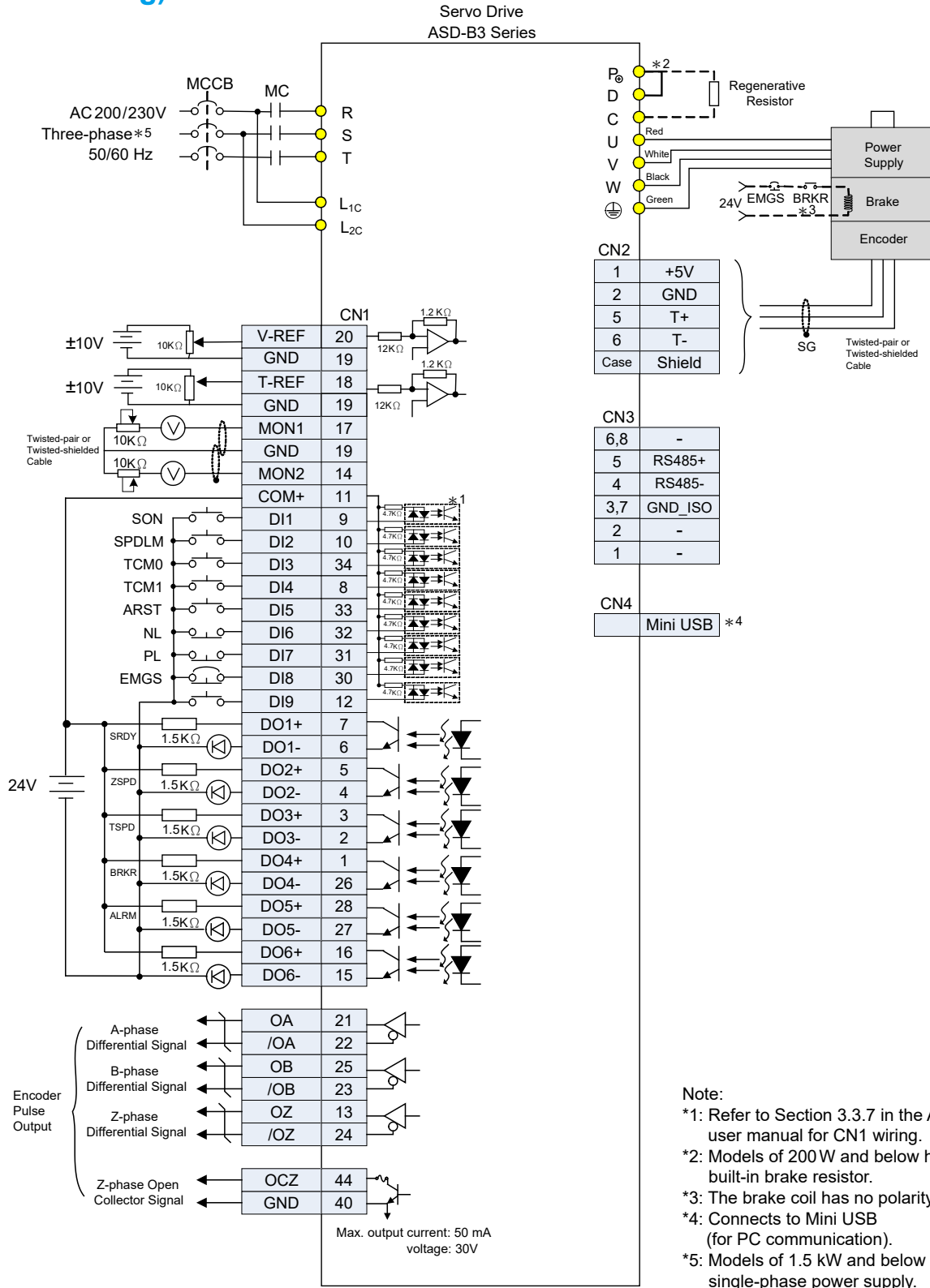


# Control Mode Wiring

## Position (PR) Mode Standard Wiring (for Internal Position Command)

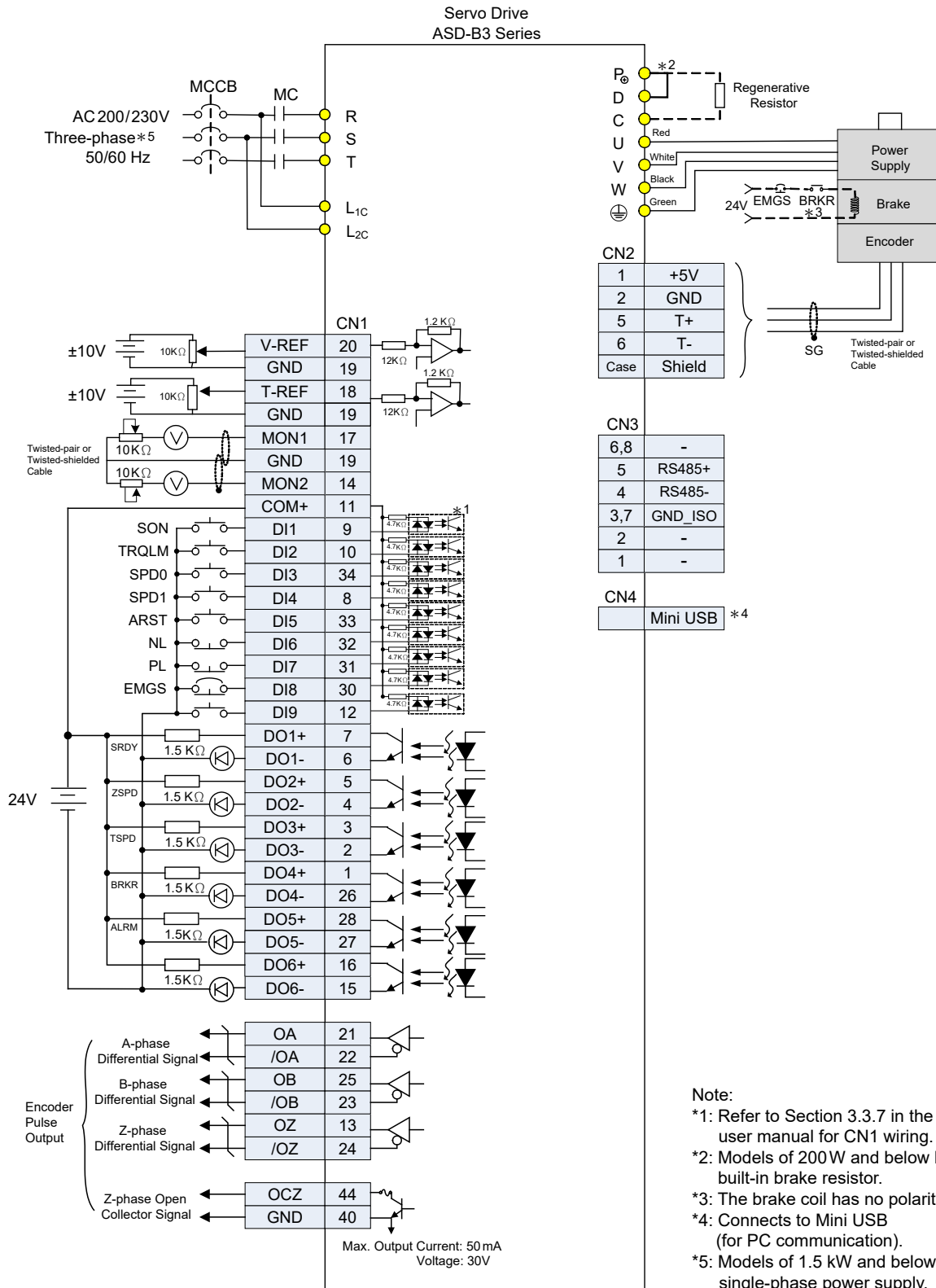


## Torque (T) Mode Standard Wiring (for Analog Voltage Input and Internal Register Setting)

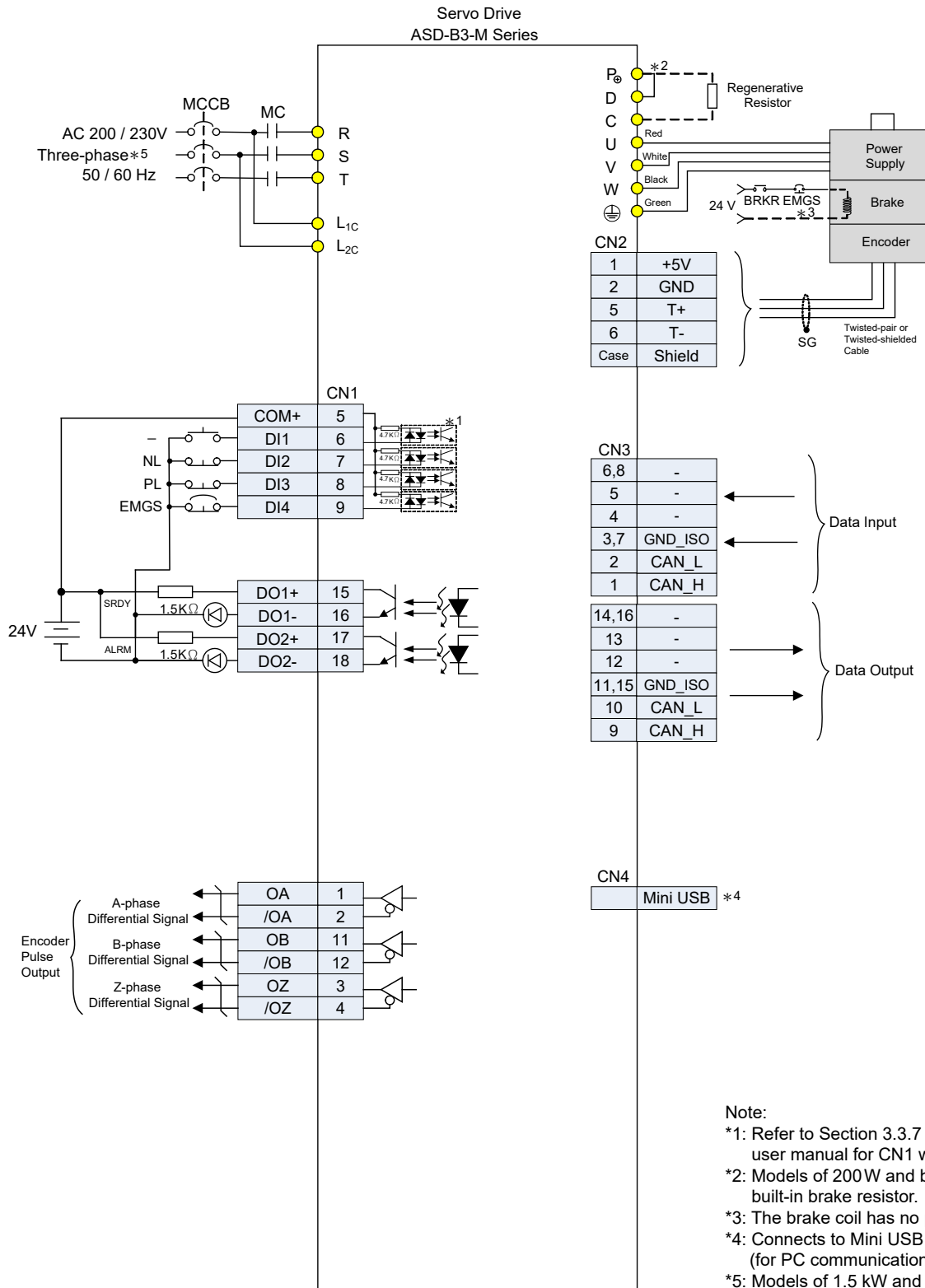


# Control Mode Wiring

## Speed (S) Mode Standard Wiring (for Analog Voltage Input and Internal Register Setting)



## CANopen Communication Mode Standard Wiring

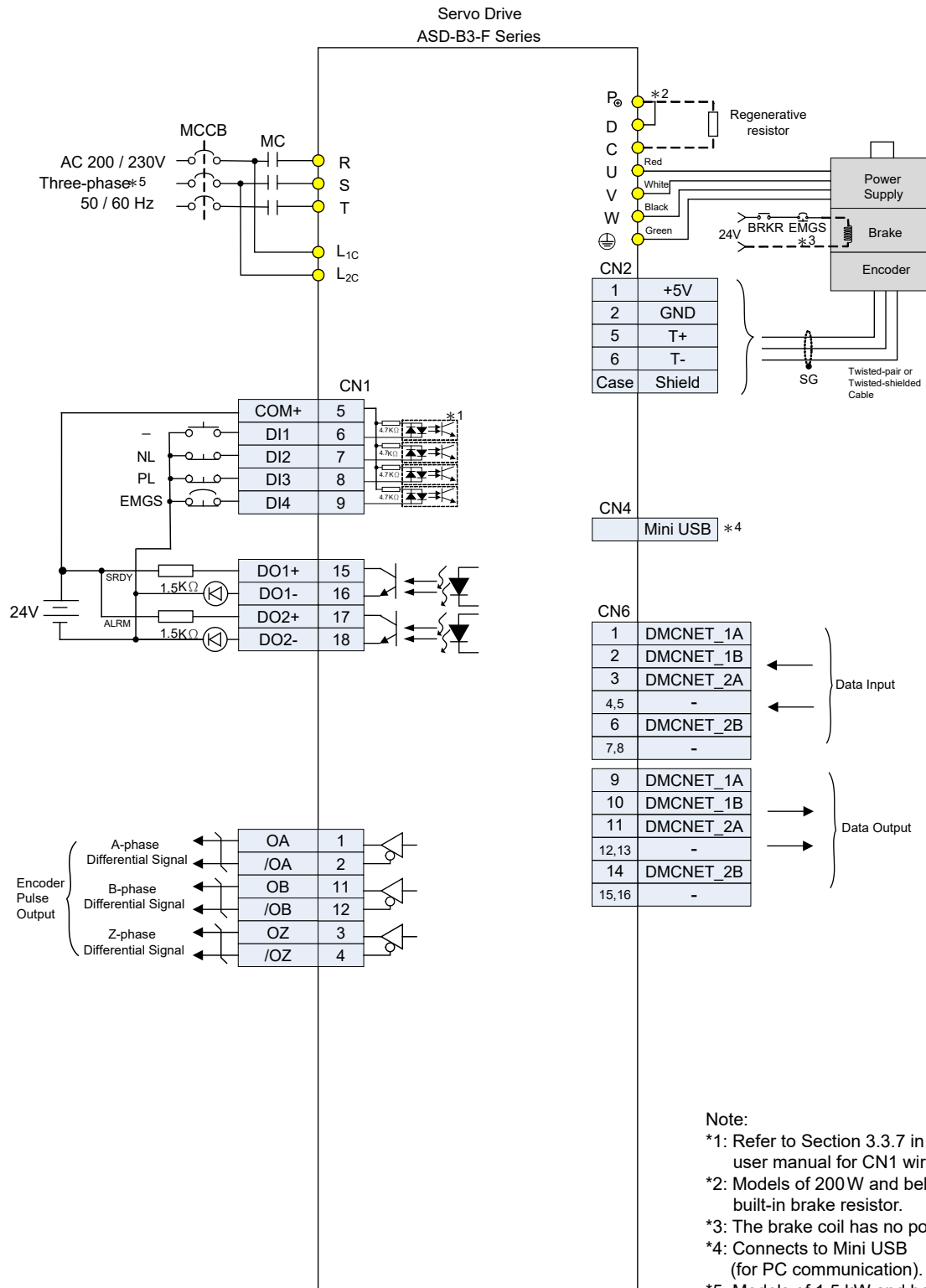


Note:

- \*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring.
- \*2: Models of 200W and below have no built-in brake resistor.
- \*3: The brake coil has no polarity.
- \*4: Connects to Mini USB (for PC communication).
- \*5: Models of 1.5 kW and below can use single-phase power supply.

# Control Mode Wiring

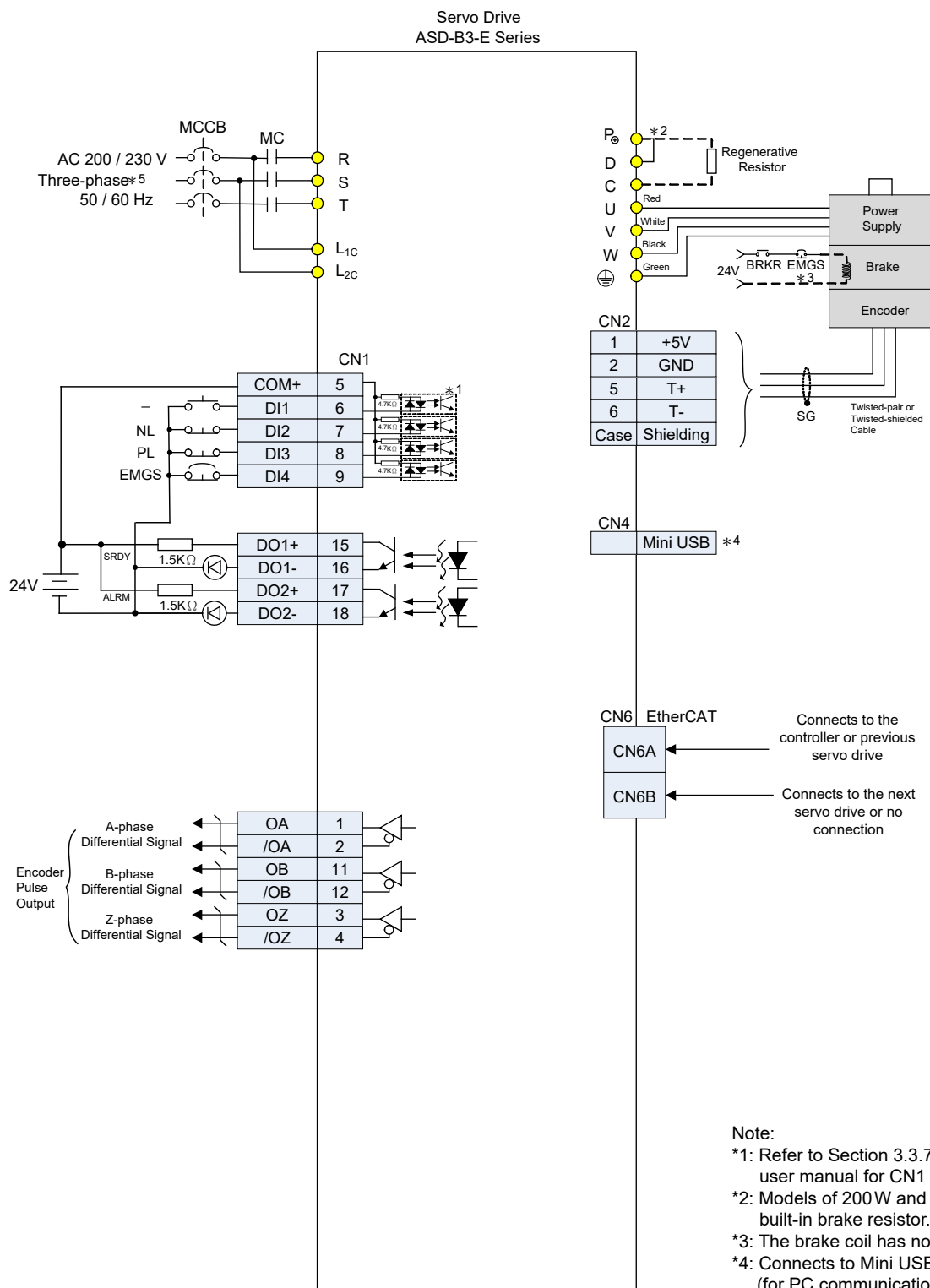
## DMCNET Communication Mode Standard Wiring



Note:

- \*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring.
- \*2: Models of 200W and below have no built-in brake resistor.
- \*3: The brake coil has no polarity.
- \*4: Connects to Mini USB (for PC communication).
- \*5: Models of 1.5 kW and below can use single-phase power supply.

## EtherCAT Communication Mode Standard Wiring



Note:

\*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring.

\*2: Models of 200W and below have no built-in brake resistor.

\*3: The brake coil has no polarity.

\*4: Connects to Mini USB (for PC communication).

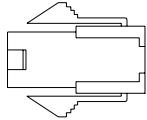
\*5: Models of 1.5 kW and below can use single-phase power supply.

# Ordering Information

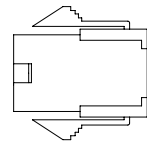
## Accessories

### Power Connectors

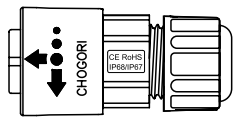
**ASDBCAPW0000**  
(for F80 and below)



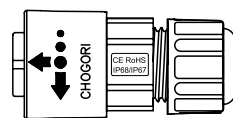
**ASDBCAPW0100**  
(for F80 and below with brake)



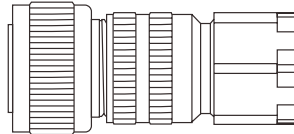
**ACS3-CNPW1A00**  
(for F80 and below)  
IP67 waterproof connector



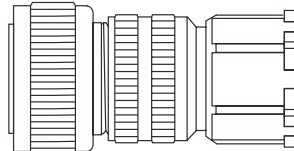
**ACS3-CNPW2A00**  
(for F80 and below with brake)  
IP67 waterproof connector



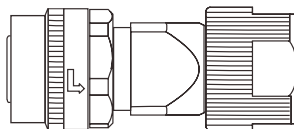
**ACS3-CNPW5200**  
(for F100 ~ F130)  
Mil-Spec: MIL 3106A18-10S



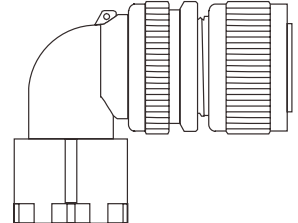
**ACS3-CNPW5300**  
(for F180)  
Mil-Spec: MIL 3106A22-22S



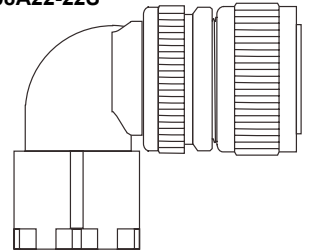
**ACS3-CNPW6300**  
(F100 ~ F180 with brake)  
Mil-Spec: CMV1-SP2S



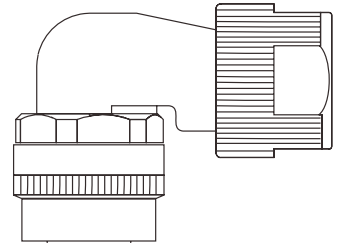
**ACS3-CNPW5C00**  
(for F100 ~ F130 models)  
Mil-Spec: MIL 3108A18-10S



**ACS3-CNPW5D00**  
(for F180)  
Mil-Spec: MIL 3108A22-22S

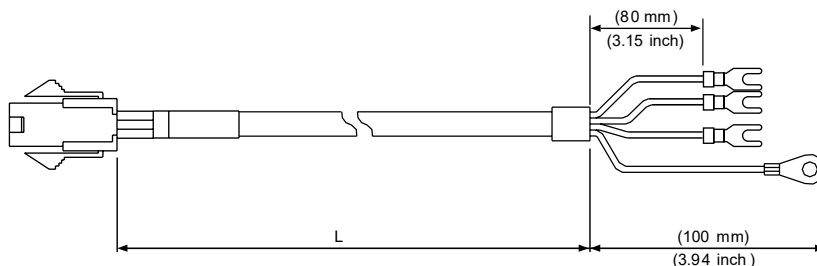


**ACS3-CNPW6D00**  
(F100 ~ F180 with brake)  
Mil-Spec: CMV1-AP2S



### Power Cables

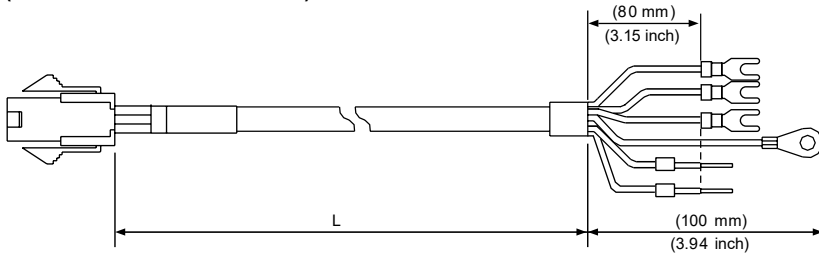
**ACS3-CAPW3103, ACS3-CAPW3105, ACS3-CAPW3110, ACS3-CAPW3120,**  
**ACS3-CAPF3103, ACS3-CAPF3105, ACS3-CAPF3110, ACS3-CAPF3120**  
(for F80 and below)



| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAPW3103 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPW3105 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPW3110 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPW3120 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAPF3103 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPF3105 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPF3110 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPF3120 | 20000 ± 100 | 788 ± 4 |

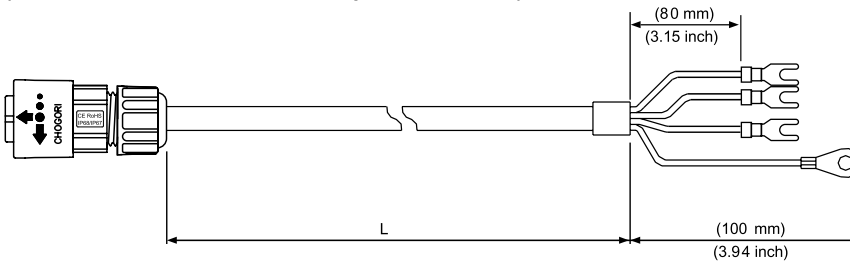
## Power Cables

**ACS3-CAPW4103, ACS3-CAPW4105, ACS3-CAPW4110, ACS3-CAPW4120,  
ACS3-CAPF4103, ACS3-CAPF4105, ACS3-CAPF4110, ACS3-CAPF4120**  
(for F80 and below with brake)



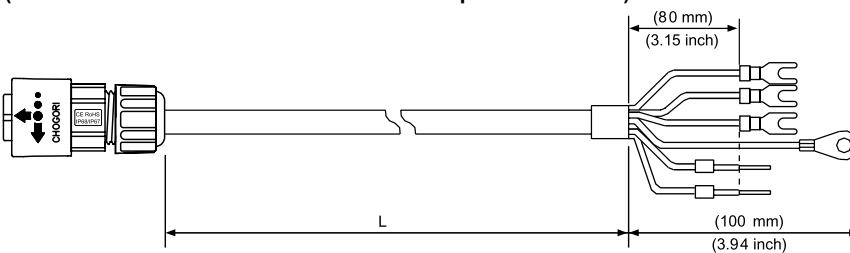
| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAPW4103 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPW4105 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPW4110 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPW4120 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAPF4103 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPF4105 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPF4110 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPF4120 | 20000 ± 100 | 788 ± 4 |

**ACS3-CAPW3A03, ACS3-CAPW3A05, ACS3-CAPW3A10, ACS3-CAPW3A20,  
ACS3-CAPF3A03, ACS3-CAPF3A05, ACS3-CAPF3A10, ACS3-CAPF3A20**  
(for F80 and below with IP67 waterproof connector)



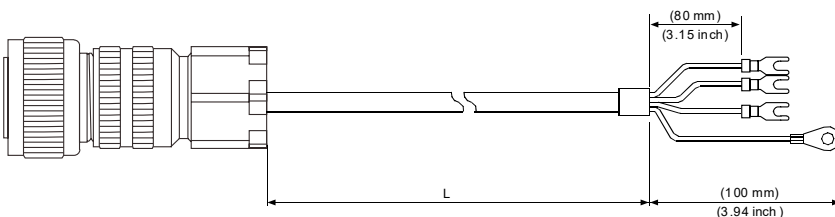
| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAPW3A03 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPW3A05 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPW3A10 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPW3A20 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAPF3A03 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPF3A05 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPF3A10 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPF3A20 | 20000 ± 100 | 788 ± 4 |

**ACS3-CAPW4A03, ACS3-CAPW4A05, ACS3-CAPW4A10, ACS3-CAPW4A20,  
ACS3-CAPF4A03, ACS3-CAPF4A05, ACS3-CAPF4A10, ACS3-CAPF4A20**  
(for F80 and below with brake and IP67 waterproof connector)



| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAPW4A03 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPW4A05 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPW4A10 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPW4A20 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAPF4A03 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPF4A05 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPF4A10 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPF4A20 | 20000 ± 100 | 788 ± 4 |

**ACS3-CAPW3203, ACS3-CAPW3205, ACS3-CAPW3210, ACS3-CAPW3220,  
ACS3-CAPF3203, ACS3-CAPF3205, ACS3-CAPF3210, ACS3-CAPF3220**  
(for F100 - F130)



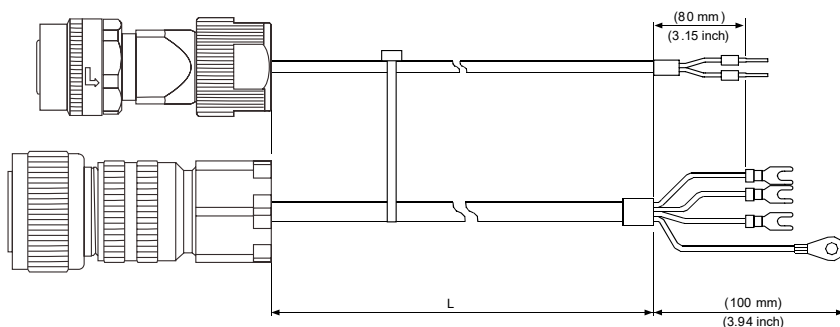
| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAPW3203 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPW3205 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPW3210 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPW3220 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAPF3203 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPF3205 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPF3210 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPF3220 | 20000 ± 100 | 788 ± 4 |

# Ordering Information

## Accessories

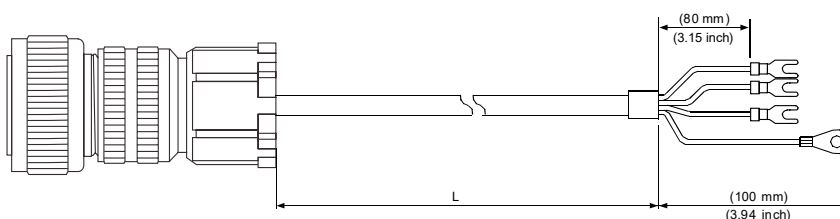
### Power Cables

**ACS3-CAPW4203, ACS3-CAPW4205, ACS3-CAPW4210, CS3-CAPW4220,  
ACS3-CAPF4203, ACS3-CAPF4205, ACS3-CAPF4210, ACS3-CAPF4220  
(for F100 - F130 with brake)**



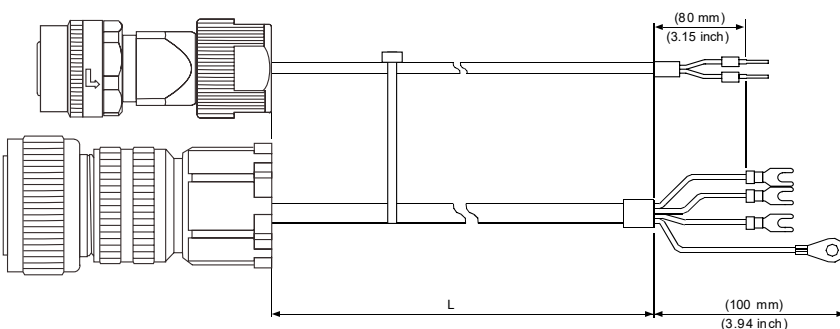
| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAPW4203 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPW4205 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPW4210 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPW4220 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAPF4203 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPF4205 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPF4210 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPF4220 | 20000 ± 100 | 788 ± 4 |

**ACS3-CAPW3403, ACS3-CAPW3405, ACS3-CAPW3410, ACS3-CAPW3420,  
ACS3-CAPF3403, ACS3-CAPF3405, ACS3-CAPF3410, ACS3-CAPF3420  
(for F180)**



| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAPW3403 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPW3405 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPW3410 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPW3420 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAPF3403 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPF3405 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPF3410 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPF3420 | 20000 ± 100 | 788 ± 4 |

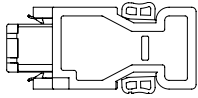
**ACS3-CAPW4403, ACS3-CAPW4405, ACS3-CAPW4410, ACS3-CAPW4420,  
ACS3-CAPF4403, ACS3-CAPF4405, ACS3-CAPF4410, ACS3-CAPF4420  
(for F180 with brake)**



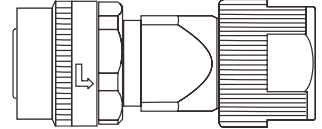
| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAPW4403 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPW4405 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPW4410 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPW4420 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAPF4403 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAPF4405 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAPF4410 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAPF4420 | 20000 ± 100 | 788 ± 4 |

## Encoder Connectors

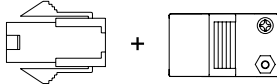
**ACS3-CNENC200**  
(connecting to drive)



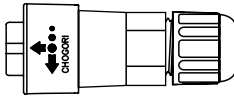
**ACS3-CNEN2700**  
(for F100 ~ F180)  
Mil-Spec: CMV1-SP10S



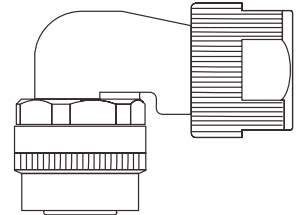
**ACS3-CNEN1000**  
(for F80 and below)



**ACS3-CNEN2A00**  
(for F80 and below)  
IP67 waterproof  
connector

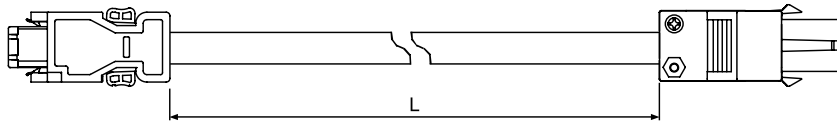


**ACS3-CNEN2C00**  
(for F100 ~ F180)  
Mil-Spec: CMV1-AP10S



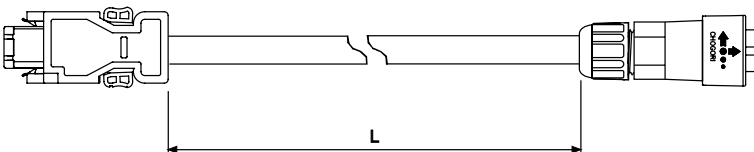
## Encoder Cables (Incremental Type)

**ACS3-CAEN1003, ACS3-CAEN1005, ACS3-CAEN1010, ACS3-CAEN1020,**  
**ACS3-CAEF1003, ACS3-CAEF1005, ACS3-CAEF1010, ACS3-CAEF1020**  
(for F80 and below)



| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAEN1003 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEN1005 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEN1010 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEN1020 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAEF1003 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEF1005 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEF1010 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEF1020 | 20000 ± 100 | 788 ± 4 |

**ACS3-CAEN2A03, ACS3-CAEN2A05, ACS3-CAEN2A10, ACS3-CAEN2A20,**  
**ACS3-CAEF2A03, ACS3-CAEF2A05, ACS3-CAEF2A10, ACS3-CAEF2A20**  
(for F80 and below with IP67 waterproof connector)



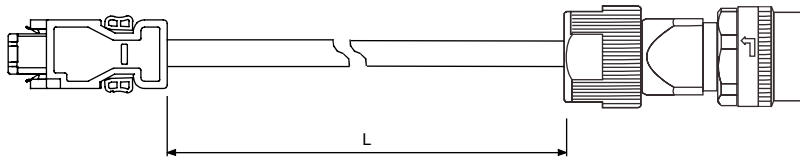
| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAEN2A03 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEN2A05 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEN2A10 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEN2A20 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAEF2A03 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEF2A05 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEF2A10 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEF2A20 | 20000 ± 100 | 788 ± 4 |

# Ordering Information

## Accessories

### Encoder Cables (Incremental Type)

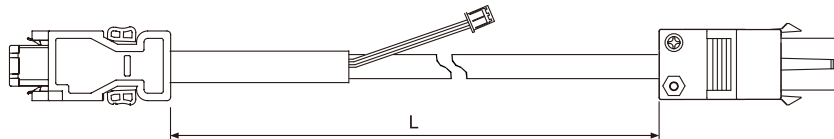
ACS3-CAEN2703, ACS3-CAEN2705, ACS3-CAEN2710, ACS3-CAEN2720,  
ACS3-CAEF2703, ACS3-CAEF2705, ACS3-CAEF2710, ACS3-CAEF2720  
(for F100 - F180)



| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAEN2703 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEN2705 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEN2710 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEN2720 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAEF2703 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEF2705 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEF2710 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEF2720 | 20000 ± 100 | 788 ± 4 |

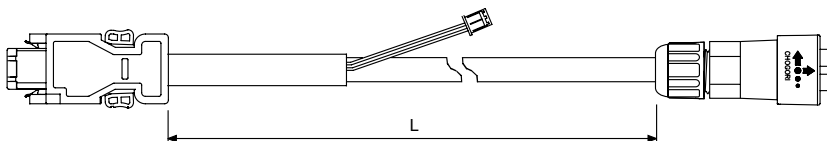
### Encoder Cables (Absolute Type)

ACS3-CAEA1003, ACS3-CAEA1005, ACS3-CAEA1010, ACS3-CAEA1020,  
ACS3-CAEB1003, ACS3-CAEB1005, ACS3-CAEB1010, ACS3-CAEB1020  
(for F80 and below)



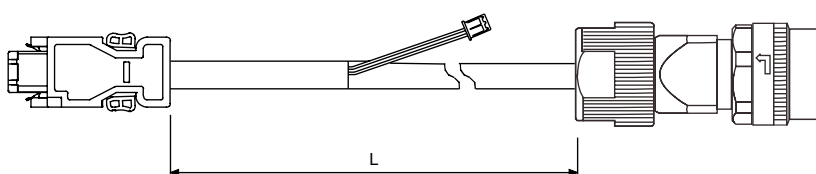
| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAEA1003 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEA1005 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEA1010 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEA1020 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAEB1003 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEB1005 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEB1010 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEB1020 | 20000 ± 100 | 788 ± 4 |

ACS3-CAEA2A03, ACS3-CAEA2A05, ACS3-CAEA2A10, ACS3-CAEA2A20,  
ACS3-CAEB2A03, ACS3-CAEB2A05, ACS3-CAEB2A10, ACS3-CAEB2A20  
(for F80 and below with IP67 waterproof connector)



| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAEA2A03 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEA2A05 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEA2A10 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEA2A20 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAEB2A03 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEB2A05 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEB2A10 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEB2A20 | 20000 ± 100 | 788 ± 4 |

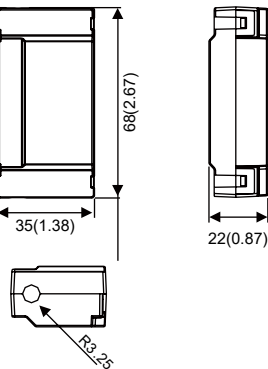
ACS3-CAEA2703, ACS3-CAEA2705, ACS3-CAEA2710, ACS3-CAEA2720,  
ACS3-CAEB2703, ACS3-CAEB2705, ACS3-CAEB2710, ACS3-CAEB2720  
(for F100 ~ F180)



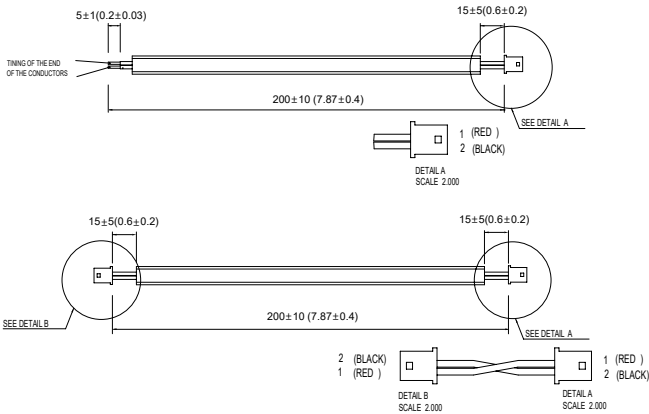
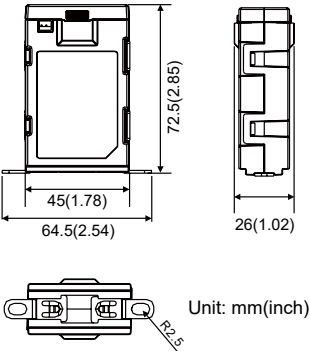
| Cable             | Part No.      | L           |         |
|-------------------|---------------|-------------|---------|
|                   |               | mm          | inch    |
| Standard          | ACS3-CAEA2703 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEA2705 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEA2710 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEA2720 | 20000 ± 100 | 788 ± 4 |
| Torsion-Resistant | ACS3-CAEB2703 | 3000 ± 50   | 118 ± 2 |
|                   | ACS3-CAEB2705 | 5000 ± 50   | 197 ± 2 |
|                   | ACS3-CAEB2710 | 10000 ± 100 | 394 ± 4 |
|                   | ACS3-CAEB2720 | 20000 ± 100 | 788 ± 4 |

Absolute Battery Box

Single Battery Box  
ASD-MDBT0100



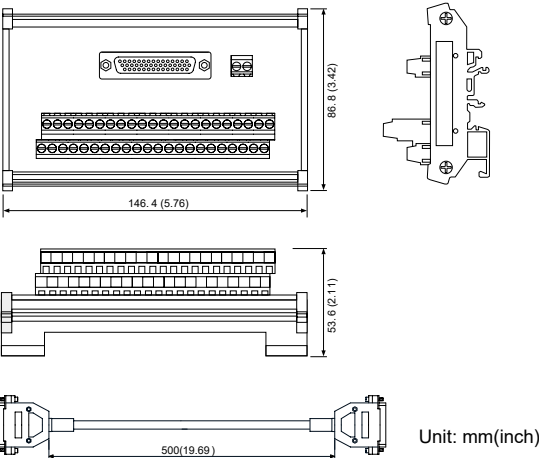
Double Battery Box  
ASD-MDBT0200



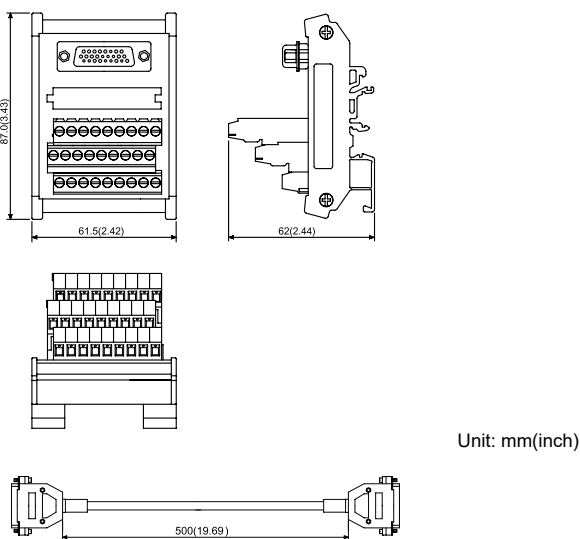
Note: Contact Delta Global Service team if ordering battery box cord only.

Terminal Block Module

ACS3-MDTB4400 (for B3-L)

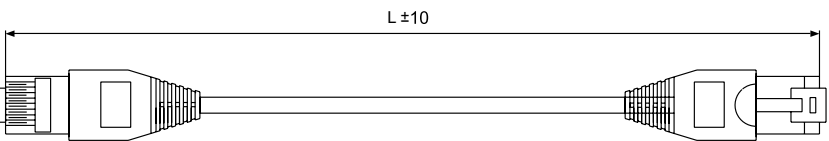


ACS3-MDTD2600 (for B3-M, F, and E)



CN3 CANopen Communication Cable

UC-CMC030-01A 、 UC-CMC050-01A



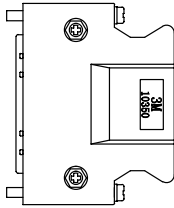
| Item | Part No.      | L         |          |
|------|---------------|-----------|----------|
|      |               | mm        | inch     |
| 1    | UC-CMC030-01A | 3000 ± 10 | 11 ± 0.4 |
| 2    | UC-CMC050-01A | 5000 ± 10 | 19 ± 0.4 |

# Ordering Information

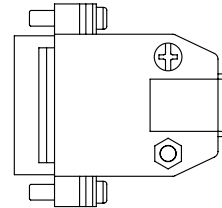
## Accessories

### CN1 Connectors

ACS3-CNTB0400 (for B3-L)

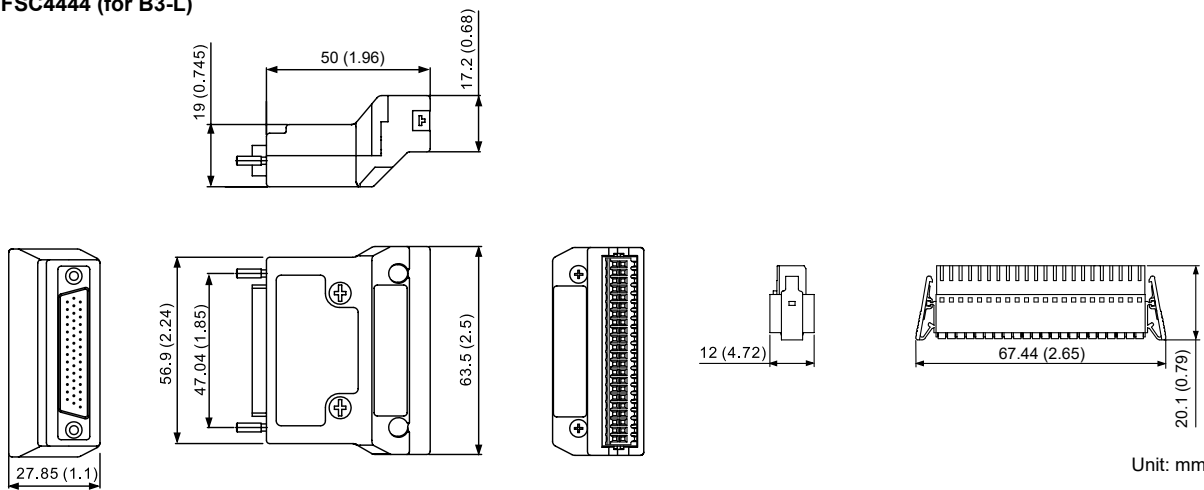


ACS3-CNTB0500 (for B3-M, F, and E)



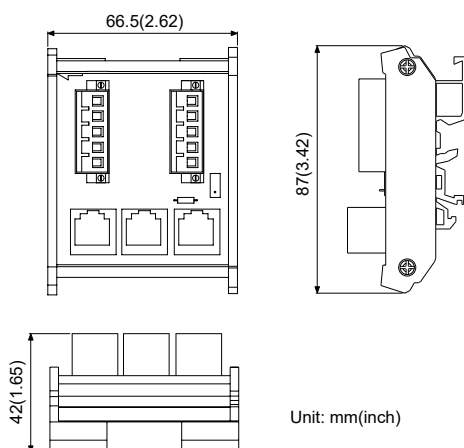
### CN1 Quick Connector

ACS3-IFSC4444 (for B3-L)



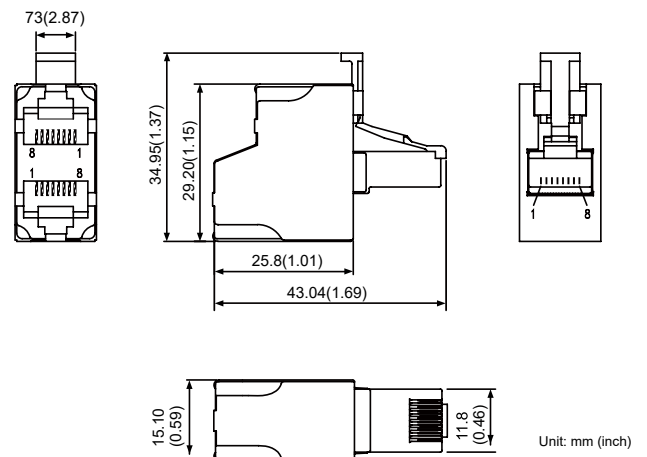
### CN3 CANopen Distribution Box

TAP-CN03



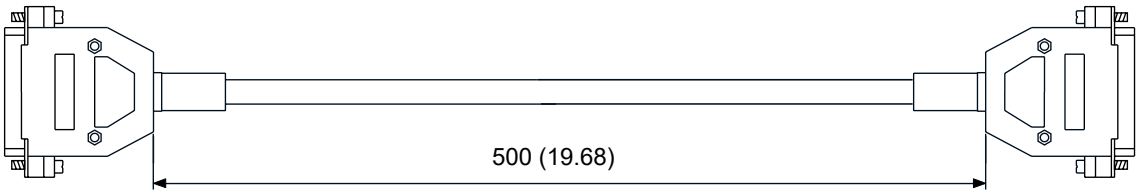
### CN3 RS-485 Tap

ACS3-CNADC3RC

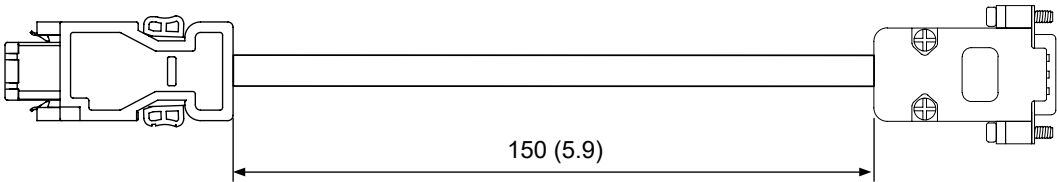


# B3/B2 Conversion Cables

B3/B2 CN1 conversion cable (for B3-L)  
ACS3-CABDC1



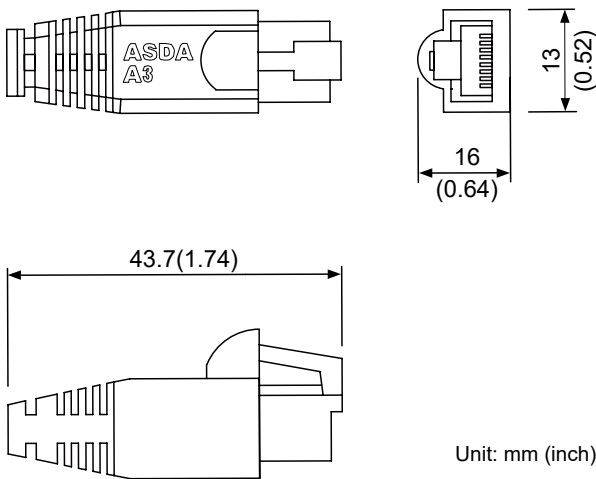
B3/B2 CN2 conversion cable  
ACS3-CABDC2



Unit: mm (inch)

## CN3 RS-485/CANopen Terminal Resistor

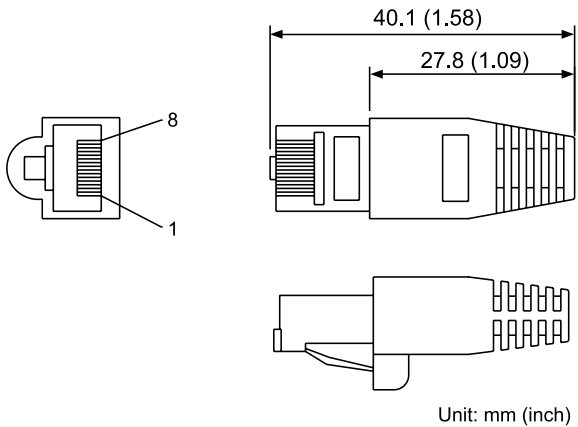
ACS3-CNADC3TR



Unit: mm (inch)

## CN6 DMCNET Terminal Resistor

ASD-TR-DM0008



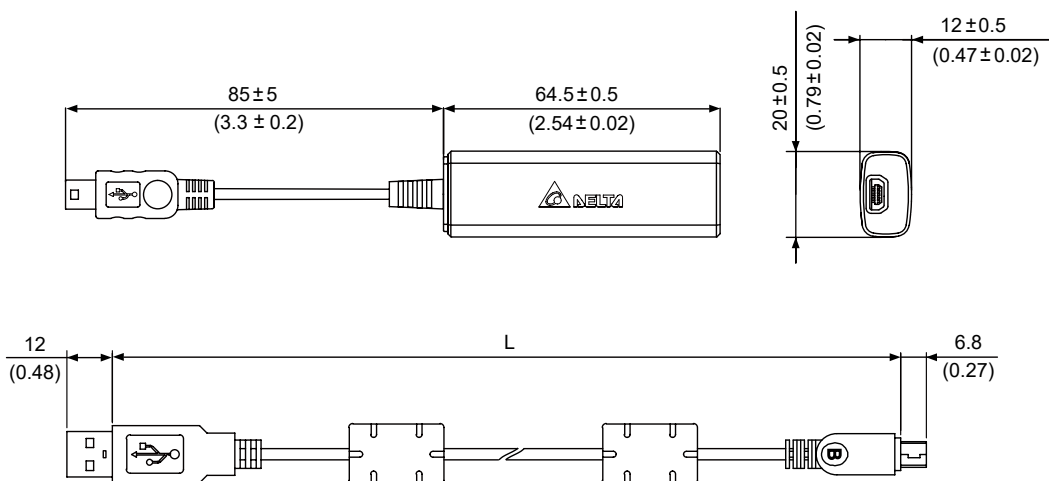
Unit: mm (inch)

# Ordering Information

## Accessories

### CN4 Mini USB Communication Module

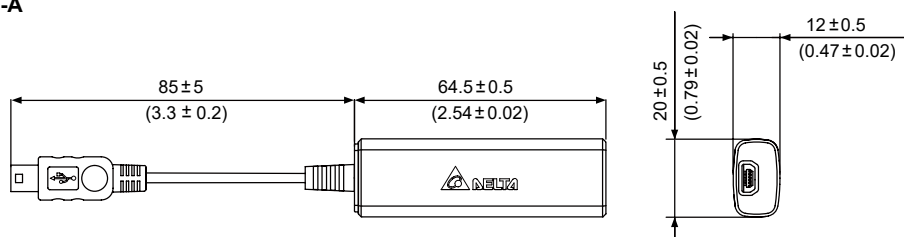
UC-PRG015-01B, UC-PRG030-01B



Unit: mm (inch)

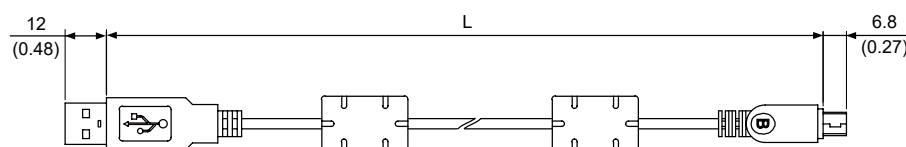
| Item | Part No.      | L         |         |
|------|---------------|-----------|---------|
|      |               | mm        | inch    |
| 1    | UC-PRG015-01B | 1500 ± 10 | 59 ± 4  |
| 2    | UC-PRG030-01B | 3000 ± 10 | 118 ± 4 |

UC-ADP01-A



Unit: mm (inch)

UC-PRG015-01A/ UC-PRG030-01A



Unit: mm (inch)

| Item | Part No.      | L         |         |
|------|---------------|-----------|---------|
|      |               | mm        | inch    |
| 1    | UC-PRG015-01A | 1500 ± 10 | 59 ± 4  |
| 2    | UC-PRG030-01A | 3000 ± 10 | 118 ± 4 |

## Servo Drive Standards

|                                                               |                                                                                                                                               |
|---------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Standard</b>                                               | ASD-B3 servo drive conforms to the highest standards and recommendations for electrical industrial control equipment (IEC, EN)                |
| <b>EMC Immunity</b>                                           | EN61000-4-6      Level 3                                                                                                                      |
|                                                               | EN61000-4-3      Level 3                                                                                                                      |
|                                                               | EN61000-4-2      Level 2 and 3                                                                                                                |
|                                                               | EN61000-4-4      Level 3                                                                                                                      |
|                                                               | EN61000-4-8      Level 4                                                                                                                      |
|                                                               | EN61000-4-5      Level 3                                                                                                                      |
| <b>Conducted and Radiated EMC Interference of Servo Drive</b> | EN61800-3 Level 3 · with external EMC filter                                                                                                  |
| <b>CE Marking</b>                                             | B3 series servo drives have the CE marking and conform to the European Union Low Voltage Directive(2014/35/EU) and EMC Directive (2014/30/EU) |
| <b>Product Certification</b>                                  | UL (USA); cUL (CA)                                                                                                                            |
| <b>Protection Level</b>                                       | IEC/EN50178, IP20                                                                                                                             |
| <b>Vibration Resistance Protection</b>                        | 20 Hz and below (1G), 20 - 50 Hz (0.6G), conforms to IEC/EN50178                                                                              |
| <b>Shock Resistance Protection</b>                            | 15 gn 11 ms; conforms to IEC/EN600028-2-27                                                                                                    |
| <b>Pollution Degree</b>                                       | Degree 2 conforms to IEC/EN61800-5-1                                                                                                          |

# Global Sites

## ASIA (Taiwan)



Taoyuan Technology Center (Green Building)



Taoyuan Plant 1



Tainan Plant (Diamond-rated Green Building)

## ASIA (China)



Wujiang Plant 3



Shanghai Office



## ASIA (Japan)



Tokyo Office



## ASIA (India)



Rudrapur Plant  
(Green Building)

## EUROPE



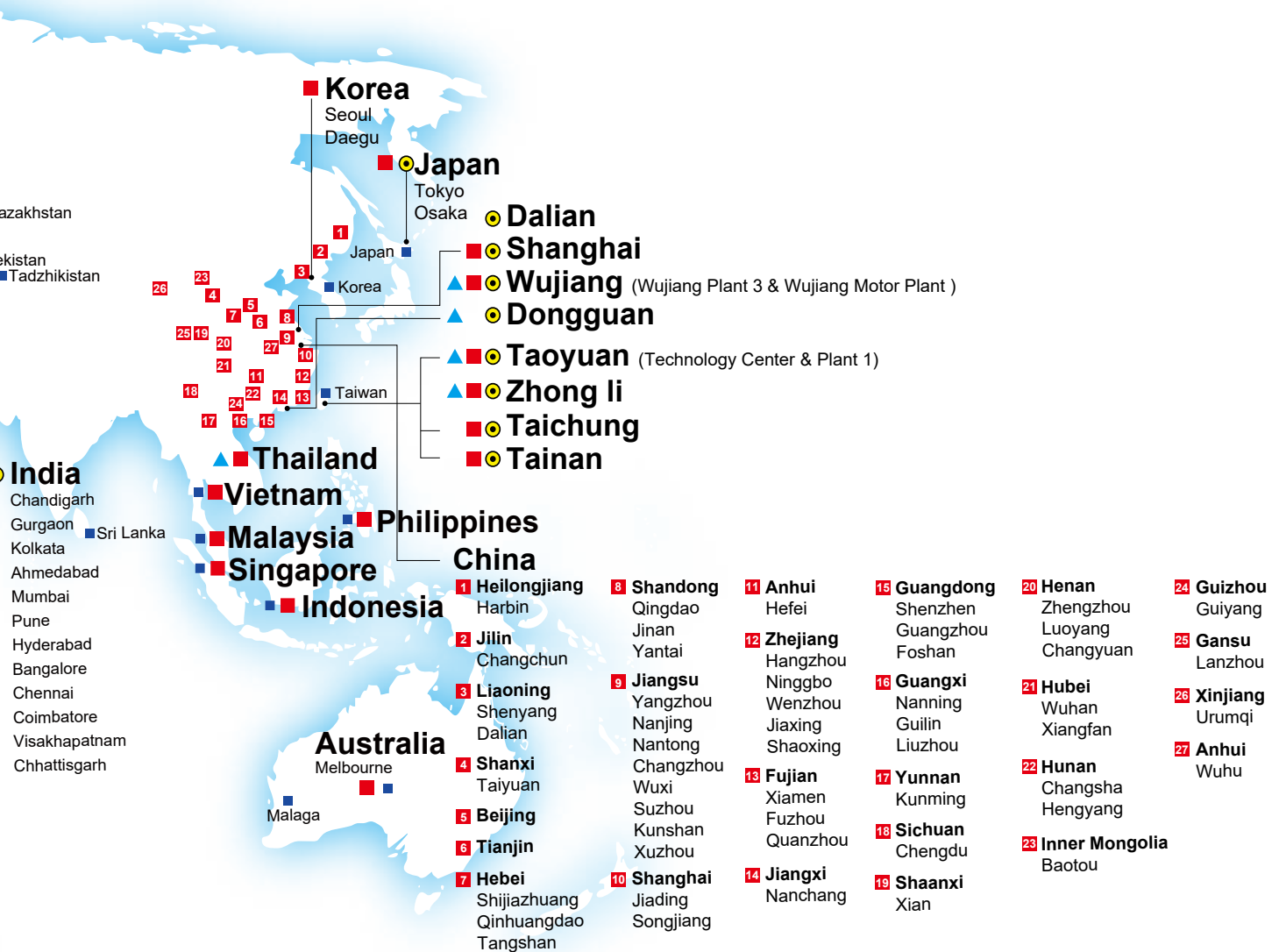
Amsterdam, the Netherlands

## AMERICA



Research Triangle Park, U.S.A.

▲ 6 Factories ■ 117 Branch Offices ● 13 R&D Centers ■ 915 Distributors





Smarter. Greener. Together.

## Industrial Automation Headquarters

### Delta Electronics, Inc.

Taoyuan Technology Center  
No.18, Xinglong Rd., Taoyuan District,  
Taoyuan City 33068, Taiwan  
TEL: 886-3-362-6301 / FAX: 886-3-371-6301

## Asia

### Delta Electronics (Shanghai) Co., Ltd.

No.182 Minyu Rd., Pudong Shanghai, P.R.C.  
Post code : 201209  
TEL: 86-21-6872-3988 / FAX: 86-21-6872-3996  
Customer Service: 400-820-9595

### Delta Electronics (Japan), Inc.

Tokyo Office  
Industrial Automation Sales Department  
2-1-14 Shibadaimon, Minato-ku  
Tokyo, Japan 105-0012  
TEL: 81-3-5733-1155 / FAX: 81-3-5733-1255

### Delta Electronics (Korea), Inc.

Seoul Office  
1511, 219, Gasan Digital 1-Ro., Geumcheon-gu,  
Seoul, 08501 South Korea  
TEL: 82-2-515-5305 / FAX: 82-2-515-5302

### Delta Energy Systems (Singapore) Pte Ltd.

4 Kaki Bukit Avenue 1, #05-04, Singapore 417939  
TEL: 65-6747-5155 / FAX: 65-6744-9228

### Delta Electronics (India) Pvt. Ltd.

Plot No.43, Sector 35, HSIIDC Gurgaon,  
PIN 122001, Haryana, India  
TEL: 91-124-4874900 / FAX : 91-124-4874945

### Delta Electronics (Thailand) PCL.

909 Soi 9, Moo 4, Bangpoo Industrial Estate (E.P.Z),  
Pattana 1 Rd., T.Phraksa, A.Muang,  
Samutprakarn 10280, Thailand  
TEL: 66-2709-2800 / FAX : 662-709-2827

### Delta Electronics (Australia) Pty Ltd.

Unit 20-21/45 Normanby Rd., Notting Hill Vic 3168, Australia  
TEL: 61-3-9543-3720

## Americas

### Delta Electronics (Americas) Ltd.

Raleigh Office  
P.O. Box 12173, 5101 Davis Drive,  
Research Triangle Park, NC 27709, U.S.A.  
TEL: 1-919-767-3813 / FAX: 1-919-767-3969

### Delta Greentech (Brasil) S/A

São Paulo Office  
Rua Itapeva, 26 – 3º Andar - Bela Vista  
CEP: 01332-000 – São Paulo – SP - Brasil  
TEL: 55-11-3530-8643 / 55-11-3530-8640

### Delta Electronics International Mexico S.A. de C.V.

Mexico Office  
Gustavo Baz No. 309 Edificio E PB 103  
Colonia La Loma, CP 54060  
Tlalnepantla, Estado de México  
TEL: 52-55-3603-9200

## EMEA

### Headquarters: Delta Electronics (Netherlands) B.V.

Sales: Sales.IA.EMEA@deltaww.com  
Marketing: Marketing.IA.EMEA@deltaww.com  
Technical Support: iatechnicalsupport@deltaww.com  
Customer Support: Customer-Support@deltaww.com  
Service: Service.IA.emea@deltaww.com  
TEL: +31(0)40 800 3900

### BENELUX: Delta Electronics (Netherlands) B.V.

De Witbogt 20, 5652 AG Eindhoven, The Netherlands  
Mail: Sales.IA.Benelux@deltaww.com  
TEL: +31(0)40 800 3900

### DACH: Delta Electronics (Netherlands) B.V.

Coesterweg 45, D-59494 Soest, Germany  
Mail: Sales.IA.DACH@deltaww.com  
TEL: +49(0)2921 987 0

### France: Delta Electronics (France) S.A.

ZI du bois Challand 2, 15 rue des Pyrénées,  
Lisses, 91090 Evry Cedex, France  
Mail: Sales.IA.FR@deltaww.com  
TEL: +33(0)1 69 77 82 60

### Iberia: Delta Electronics Solutions (Spain) S.L.U

Ctra. De Villaverde a Vallecas, 265 1º Dcha Ed.  
Hormigueras – P.I. de Vallecas 28031 Madrid  
TEL: +34(0)91 223 74 20

Carrer Llacuna 166, 08018 Barcelona, Spain

Mail: Sales.IA.Iberia@deltaww.com

### Italy: Delta Electronics (Italy) S.r.l.

Via Meda 2-22060 Novedrate(CO)  
Piazza Grazioli 18 00186 Roma Italy  
Mail: Sales.IA.Italy@deltaww.com  
TEL: +39 039 8900365

### Russia: Delta Energy System LLC

Vereyskaya Plaza II, office 112 Vereyskaya str.  
17 121357 Moscow Russia  
Mail: Sales.IA.RU@deltaww.com  
TEL: +7 495 644 3240

### Turkey: Delta Greentech Elektronik San. Ltd. Sti. (Turkey)

Şerifali Mah. Hendem Cad. Kule Sok. No:16-A  
34775 Ümraniye – İstanbul  
Mail: Sales.IA.Turkey@deltaww.com  
TEL: + 90 216 499 9910

### GCC: Delta Energy Systems AG (Dubai BR)

P.O. Box 185668, Gate 7, 3rd Floor, Hamarain Centre  
Dubai, United Arab Emirates  
Mail: Sales.IA.MEA@deltaww.com  
TEL: +971(0)4 2690148

### Egypt + North Africa: Delta Electronics

Unit 318, 3rd Floor, Trivium Business Complex, North 90 street,  
New Cairo, Cairo, Egypt  
Mail: Sales.IA.MEA@deltaww.com