



Automation for a Changing World

# Delta AC Servo Drive & Motor ASDA-B3 Series

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 **DELTA**  
Smarter. Greener. Together.

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

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

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

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





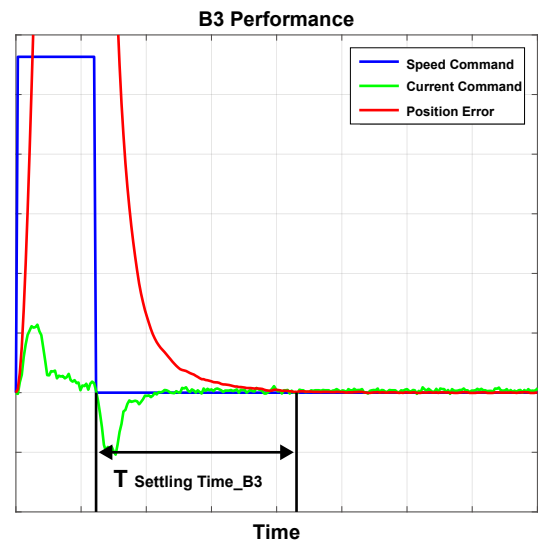
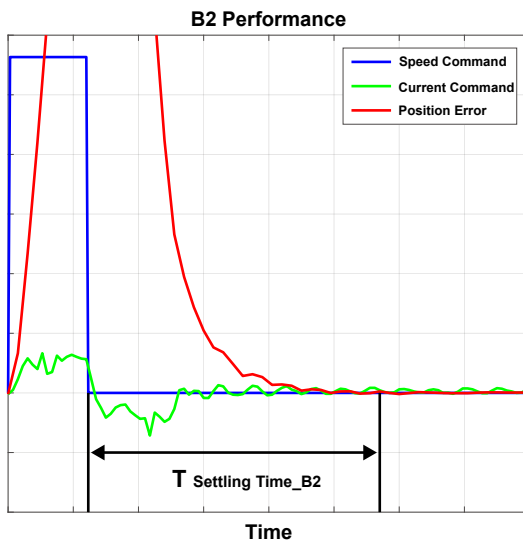
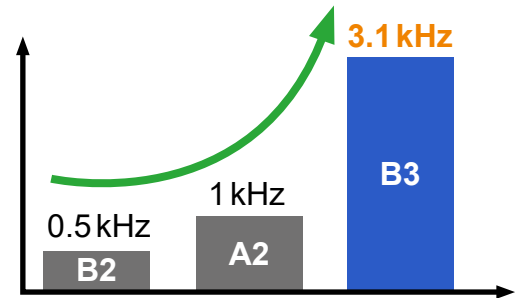
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# Optimized Performance

## High Response Bandwidth

- Higher responsiveness: From 0.5 kHz of the B2 series to 3.1 kHz of the B3 series
- Increased productivity: Settling time reduced by 40%



## Higher Load Tolerance

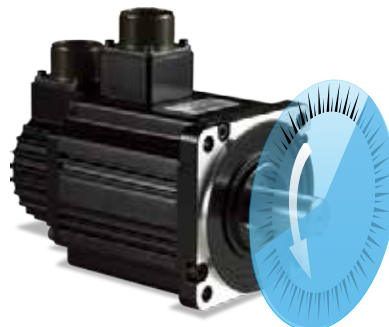
- Enhances positioning precision with a resolution of 16,777,216 pulses per revolution
- Higher response bandwidth with the same load conditions

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

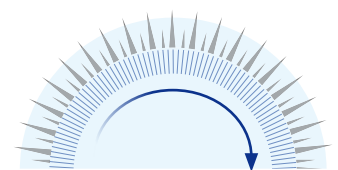
## 24-bit Absolute Encoder

- Enhances positioning precision with a resolution of 16,777,216 pulses per revolution
- Stable operation at low speeds improves machine performance
- Absolute encoder retains the motor's position when the power is off

16,777,216 pulses for one single turn

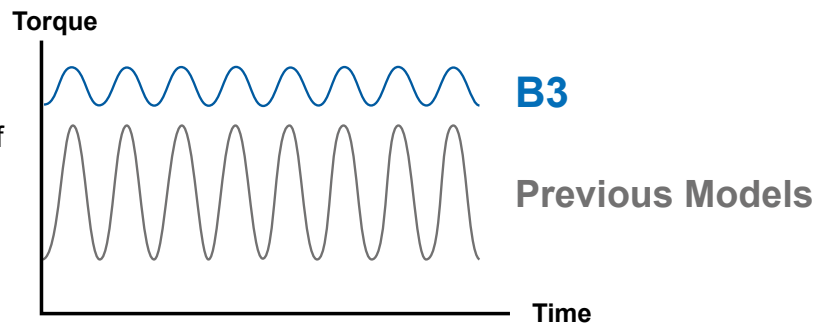


46,603 pulses in one degree



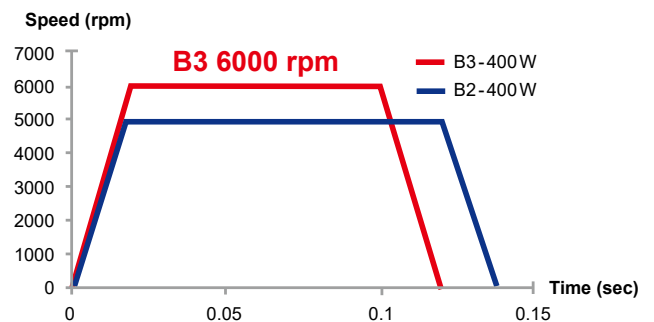
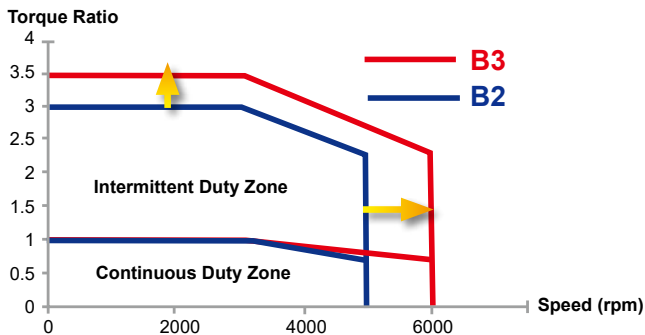
## Low Cogging Torque

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



## Increased Speed and Torque

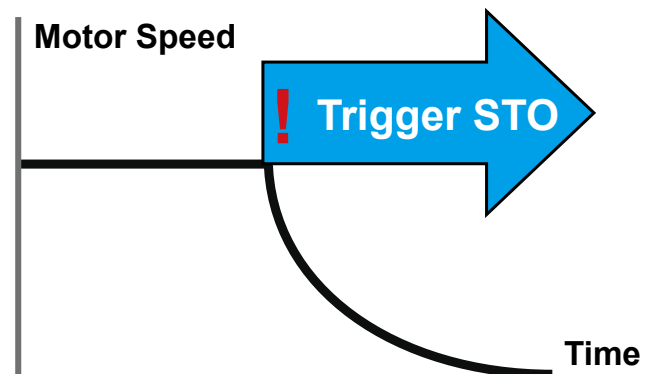
- Motor speed increased to 6,000 rpm
- Torque overload ratio increased to 3.5 times and the time required for acceleration and deceleration is shortened
- Significantly increases productivity and efficiency



## Safe Torque Off (STO) Function

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

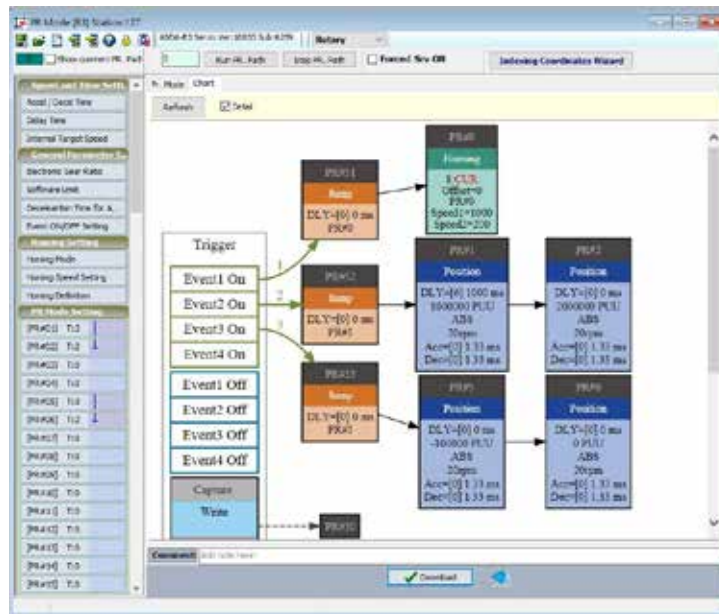
Note: STO certification in process



# 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

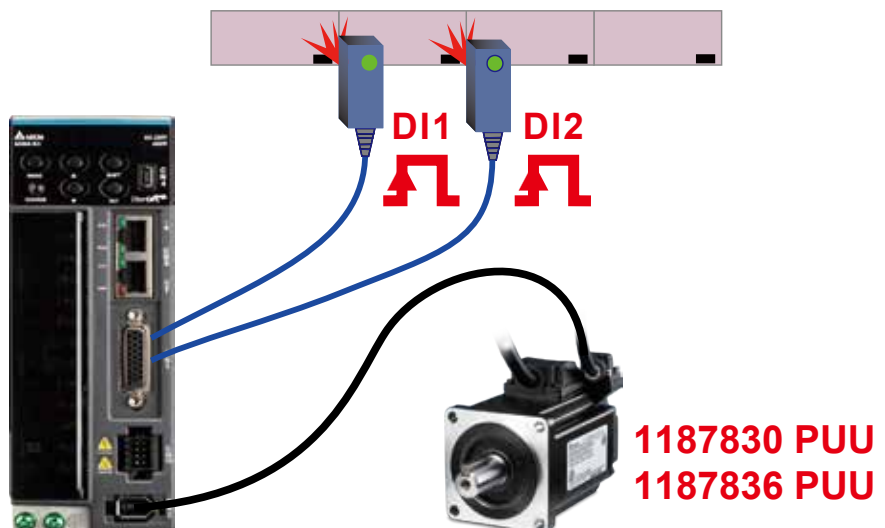
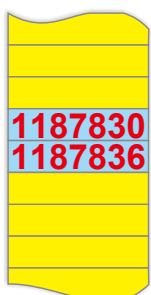
- Supports the Capture function for instantly capturing position coordinates with one set of DI
- Supports the Touch Probe function with two sets of DIs in the EtherCAT communication mode

Note:

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

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

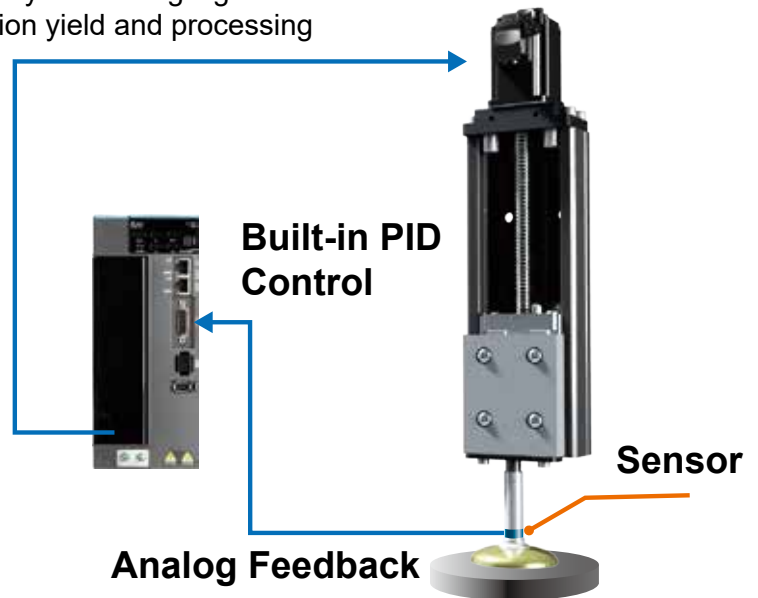
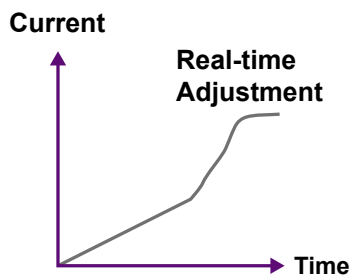
Data Array





## Analog Feedback PID Control

- Supports analog signal input
- Real-time and precise PID control enabled by the analog signals from the external sensor improves production yield and processing performance.

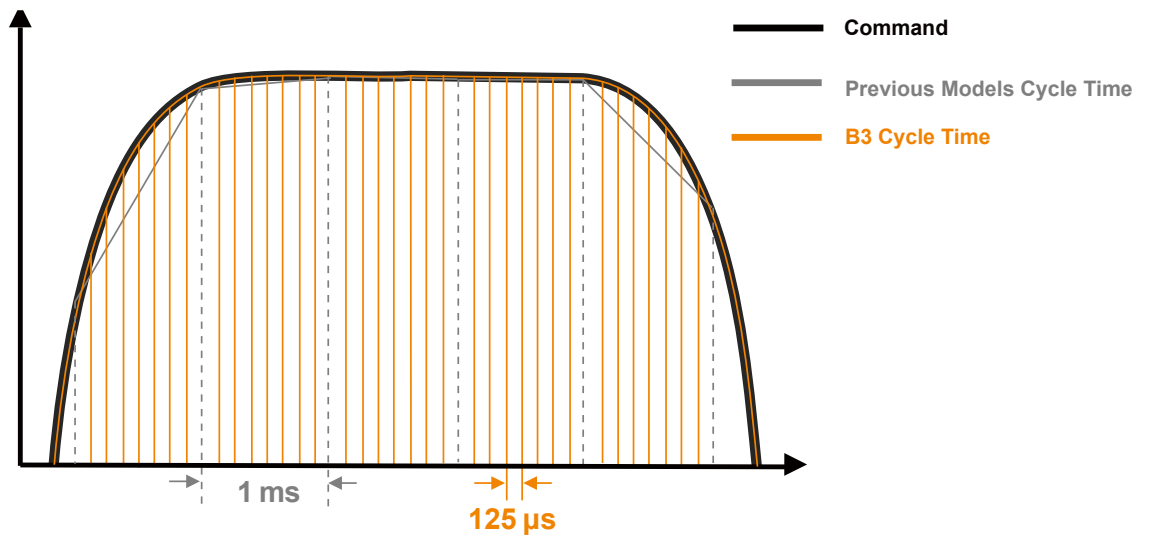


# EtherCAT Communication Functions

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

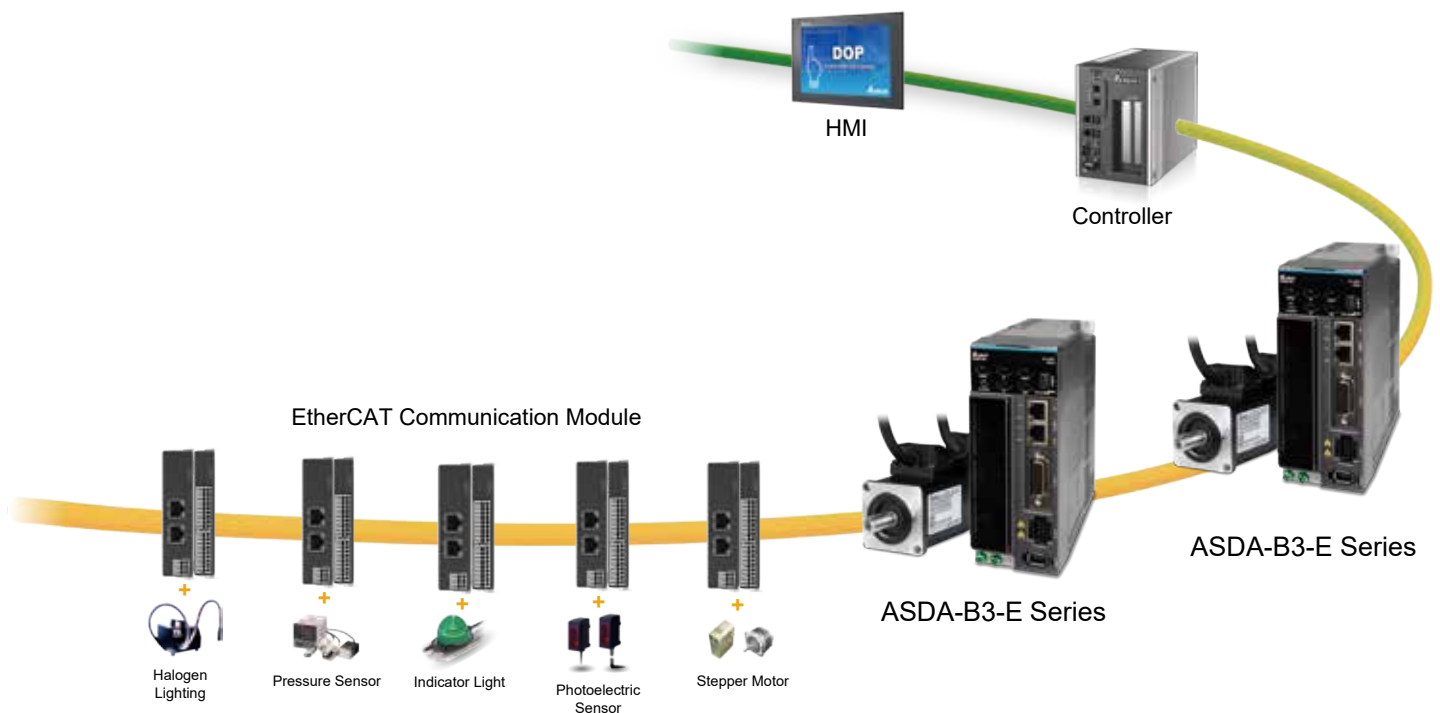
## Shorter Synchronization Cycle

- The synchronization cycle of the ASDA-B3 series is 125  $\mu$ 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.





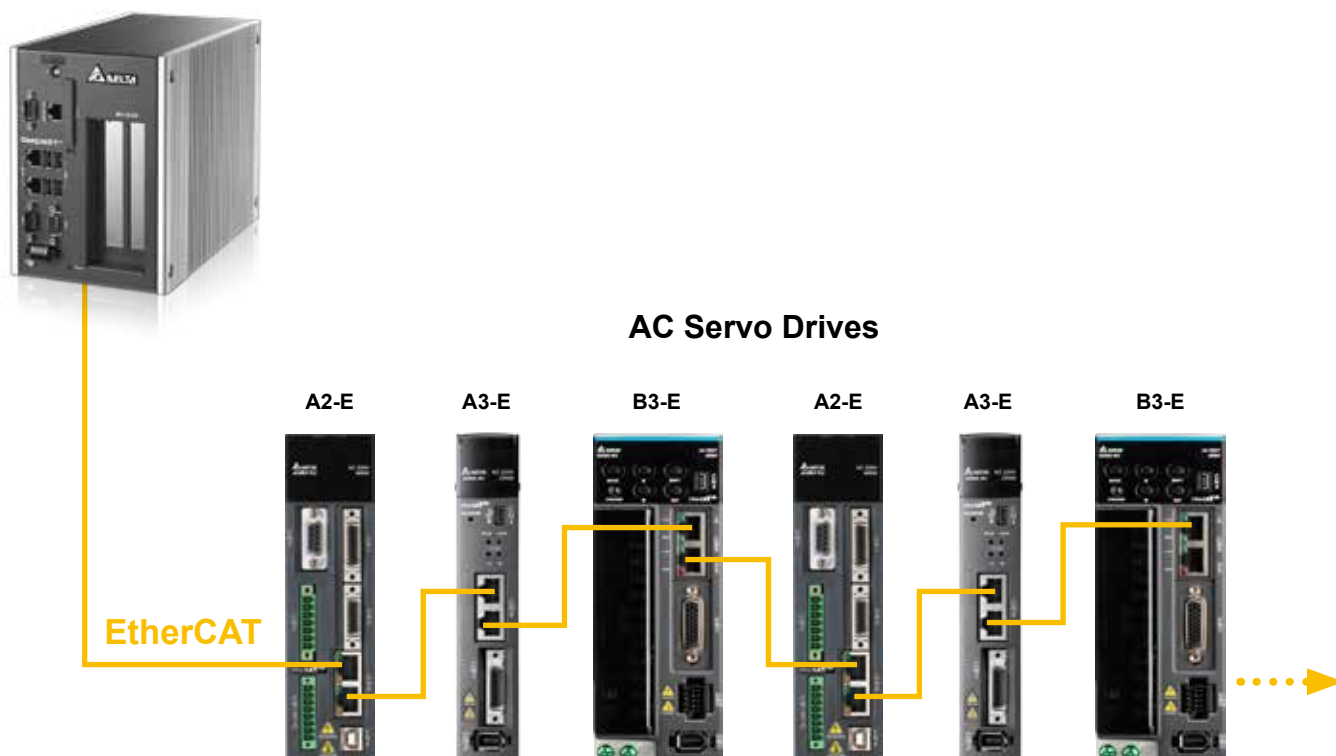
## Longer Connection Distance

The maximum distance between two servo stations is 100 m and a maximum of 65,536 axes can be connected.

## Compatible with Previous Models

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

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

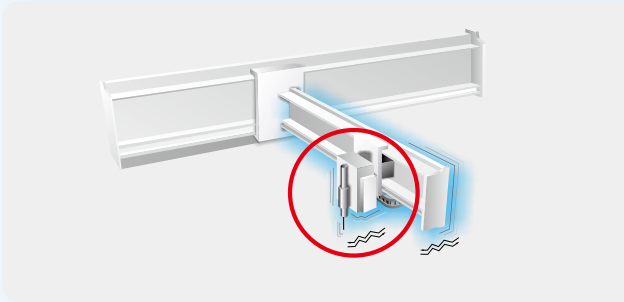


# Vibration Suppression Functions

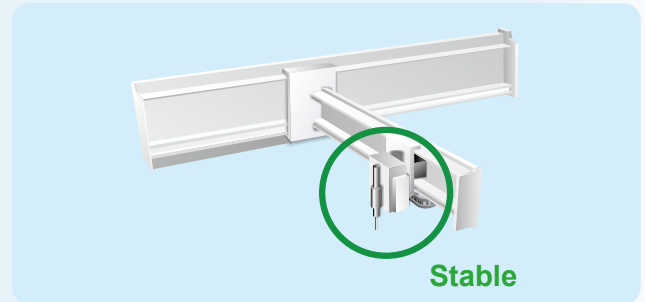
## Vibration Elimination

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

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

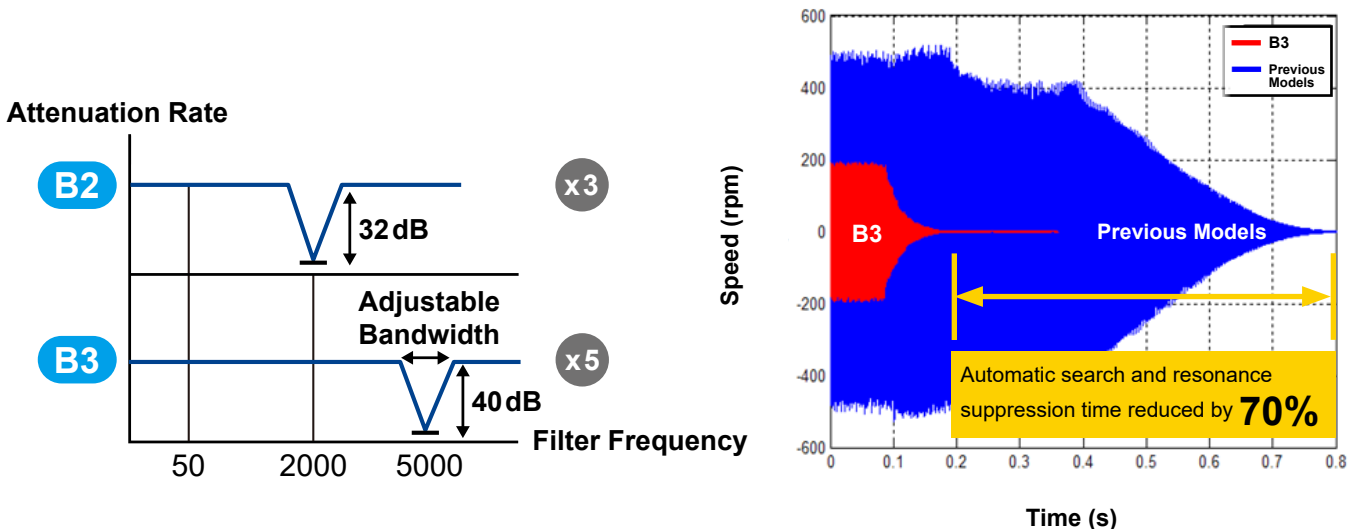


**With Vibration Elimination** - Machine endpoint is stable when settling



## Advanced Notch Filter

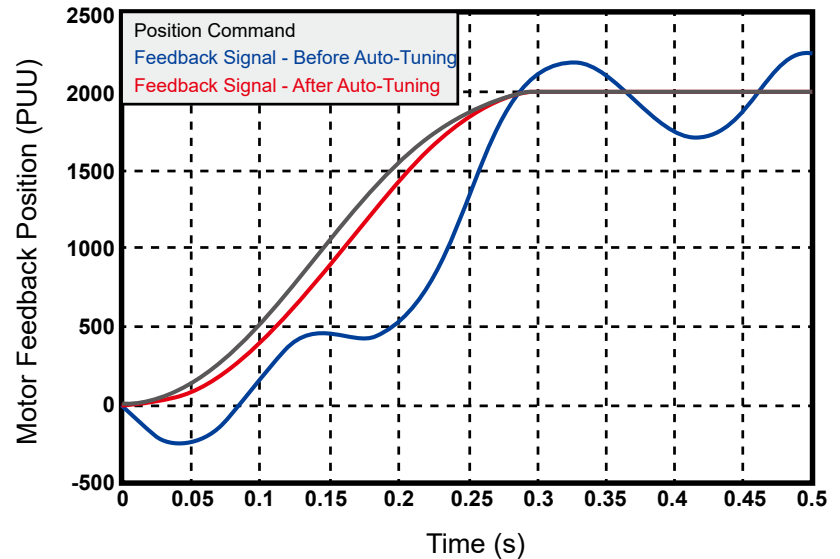
- High frequency resonance suppression increased from 3 sets to 5 sets compared with previous models
- Filter bandwidth increased to 5,000 Hz
- Automatically searches for the resonance frequency point and completes the resonance suppression; this reduces the time by 70% compared with previous models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



# Self-Diagnosis and Adaptation

## Excellent Self-Adjusting Capability

- Dedicated algorithm allows easy tuning with simple settings, which improves the efficiency of equipment assembly and testing.
- Suitable for applications with flexible machine structures and large variations in inertia



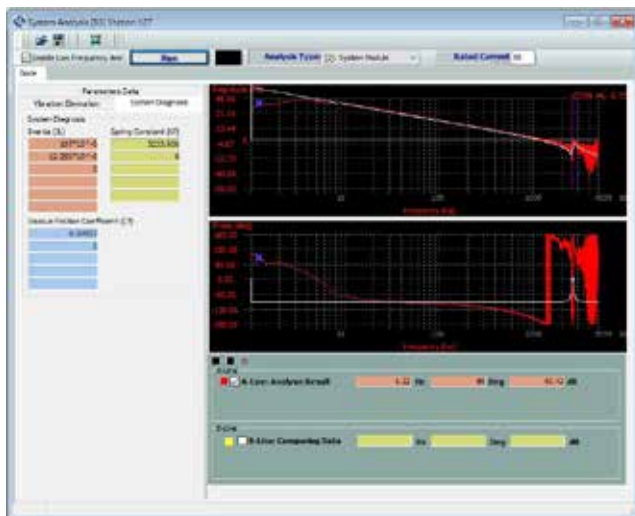
## System Analysis Tool

### Mechanical Stiffness Diagnosis

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

### Frequency Domain Response Analysis

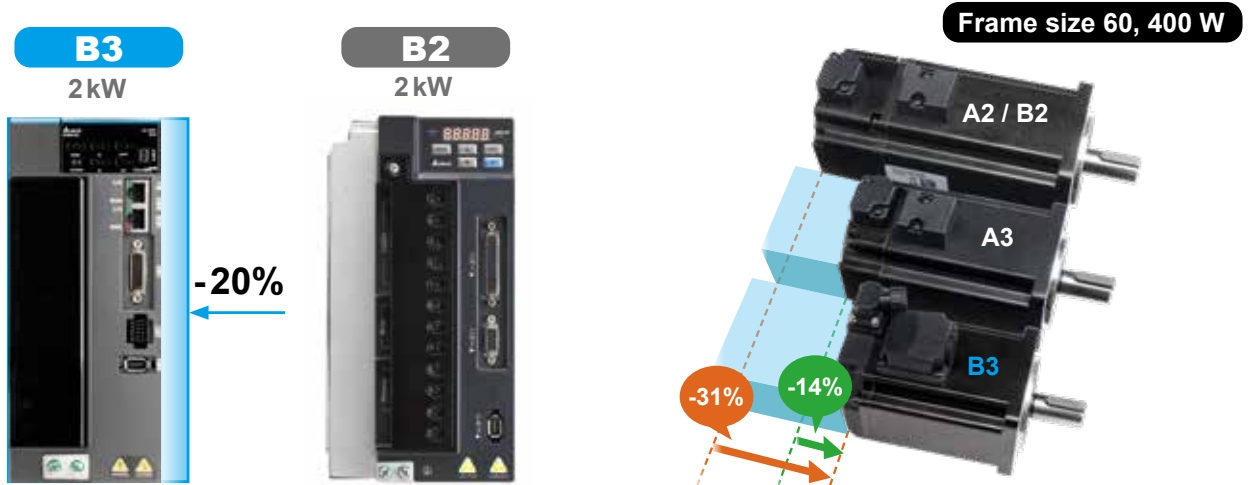
- Ensures system stability
- Compares the phases before and after gain adjustment to ensure the safety margin of the system



# Energy-Saving and Compact Size

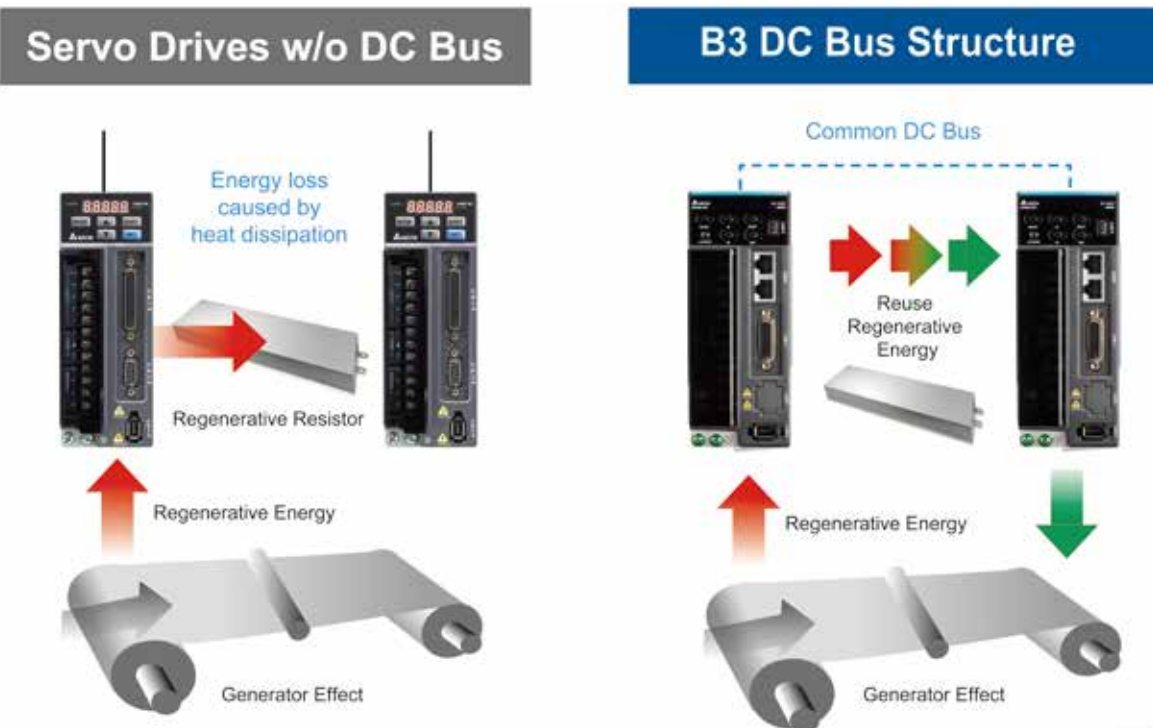
## Compact Size

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

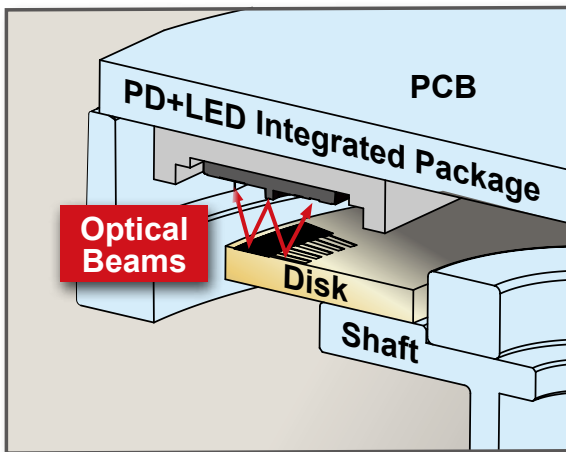


# Multiple Selections

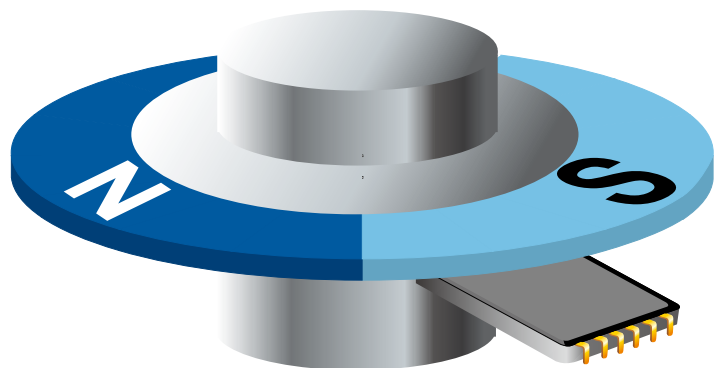
## High Resolution Encoder

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

### Optical Encoder



### Magnetic Encoder



## High Compatibility

- Compatible with the 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

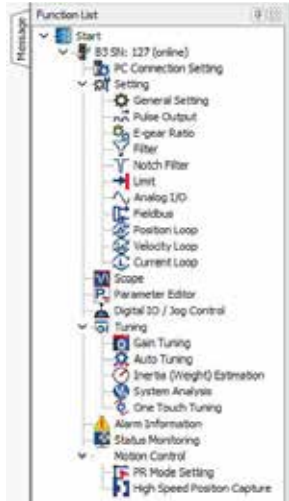


ECMA/ECMC Motor

# User-Friendly Software Interface

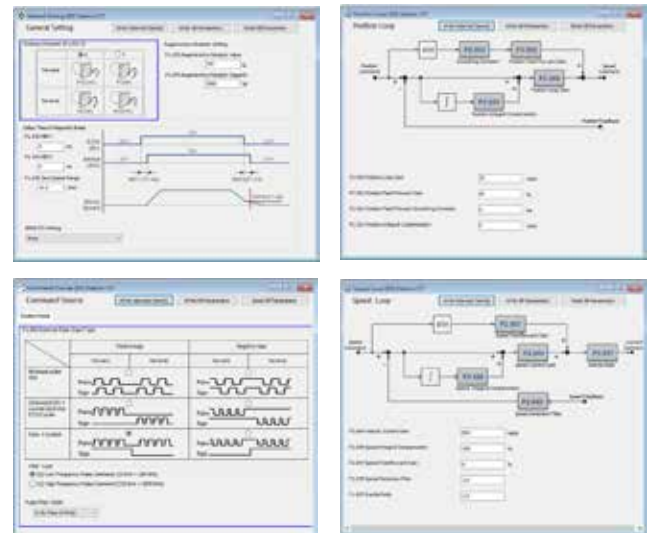
## Function List Tree View

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



## Graphical Parameter Setting

- Intuitive graphic illustrations for gain adjustment and parameter settings



## Auto Tuning Function

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



## Advanced Gain Adjustment Function

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

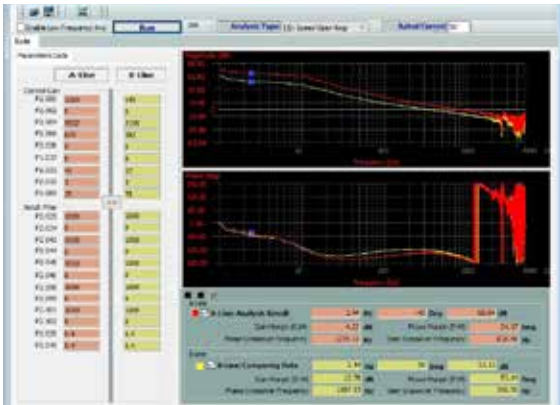




## System Analysis Interface

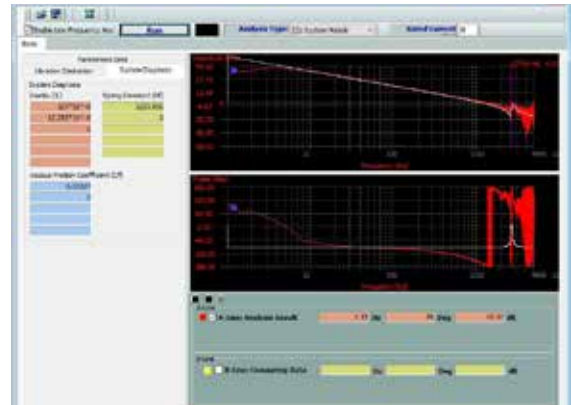
- **Speed Open-Loop Mode**

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



- **System Module Mode**

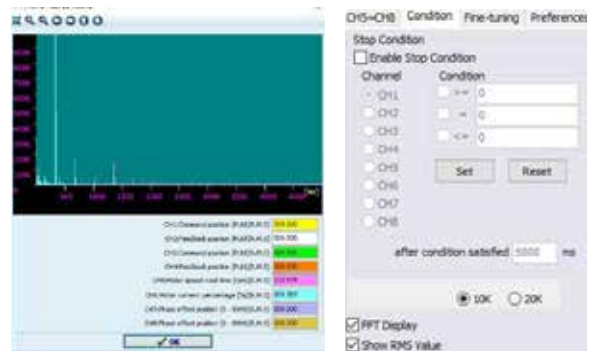
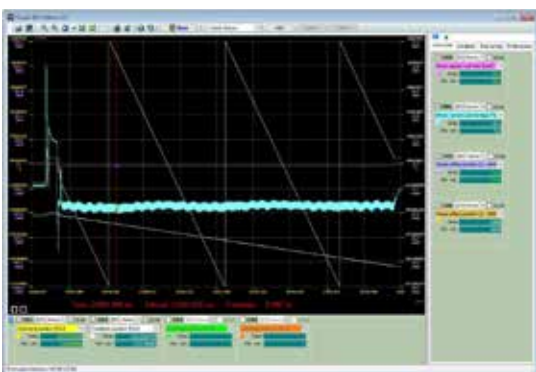
Measures the mechanical stiffness of the mechanism in this mode



## Oscilloscope Function

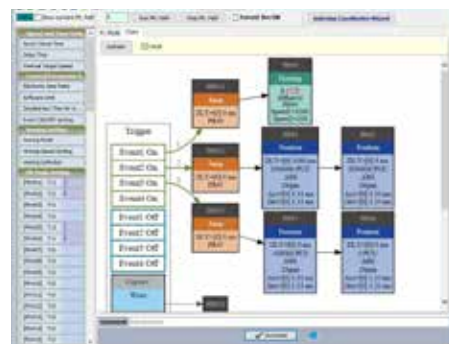
- Maximum of 8 channels with 16-bit data size and update frequency of 10 kHz
- 4 high-resolution channels with 32-bit data size and update frequency of 10 kHz
- 4 channels of high sampling rate with 16-bit data size and update frequency of 20 kHz

- 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

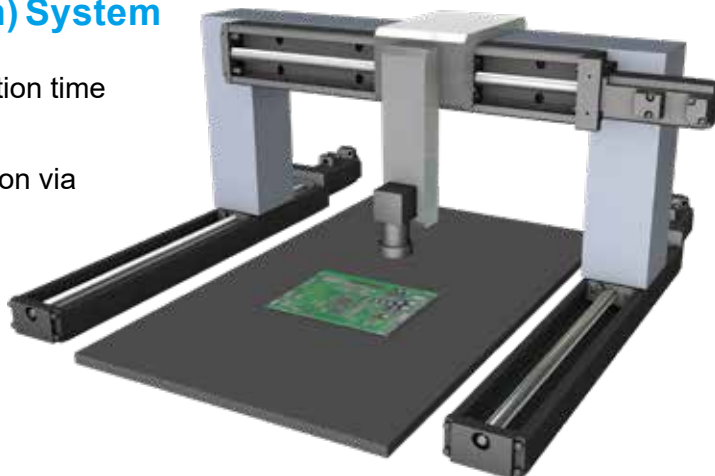
- Graphical PR procedures with detailed settings for better command programming and editing



# Applications

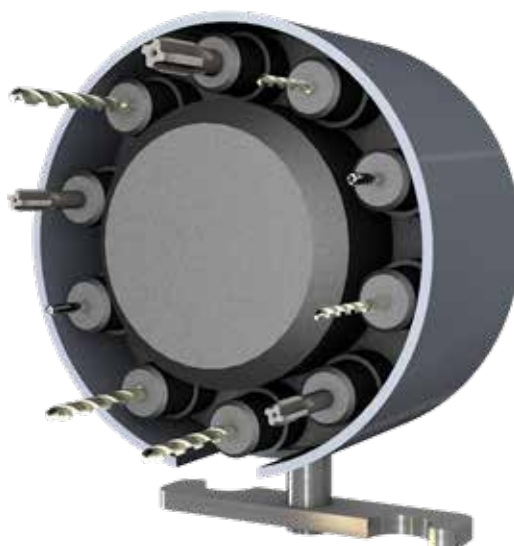
## AOI(Automatic Optical Inspection) System

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



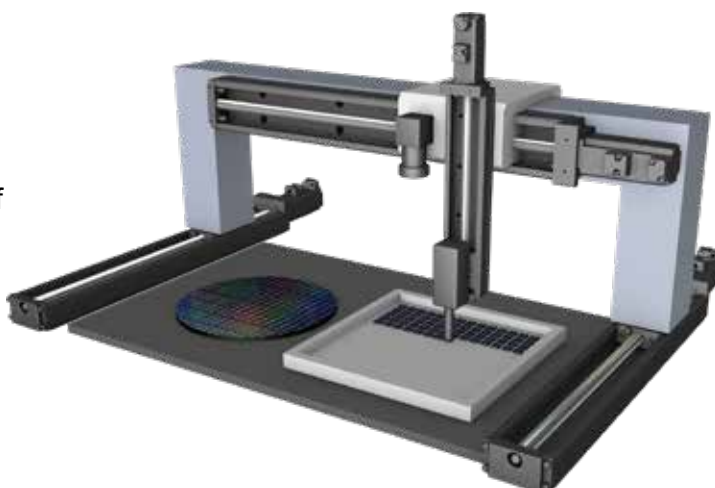
## Tool Magazine and Turret

- 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 reduces the use of regenerative resistors and improves the power consumption efficiency



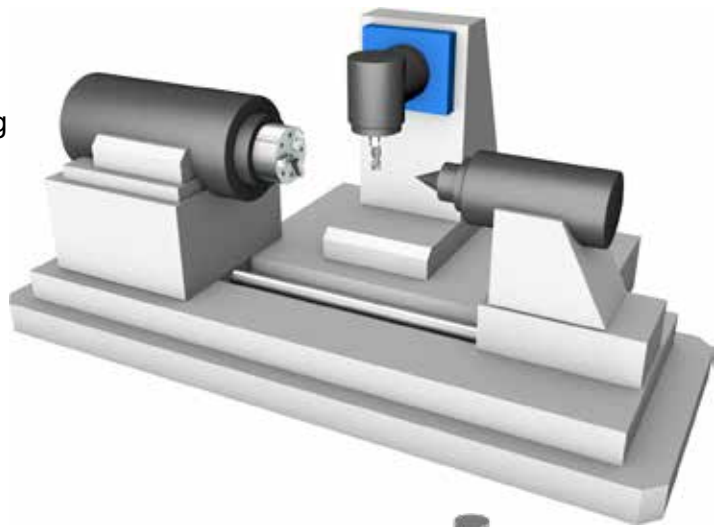
## Wafer Pick and Place Machine

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



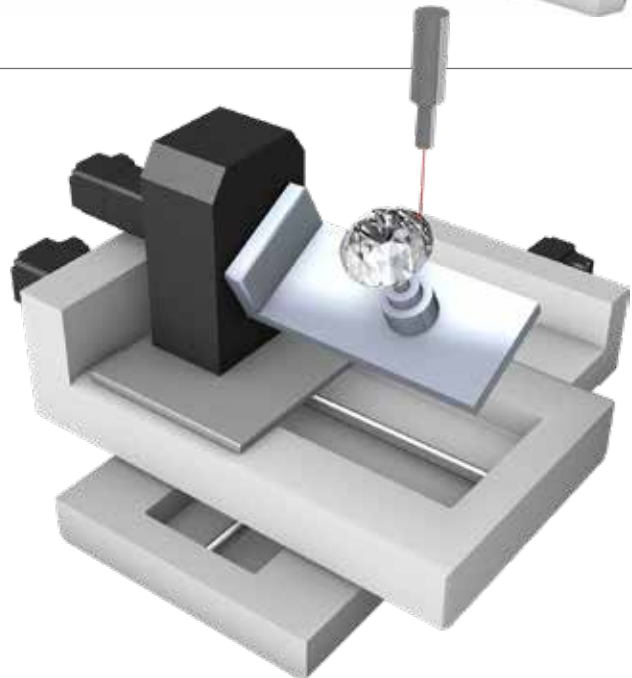
## Machine Tool

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



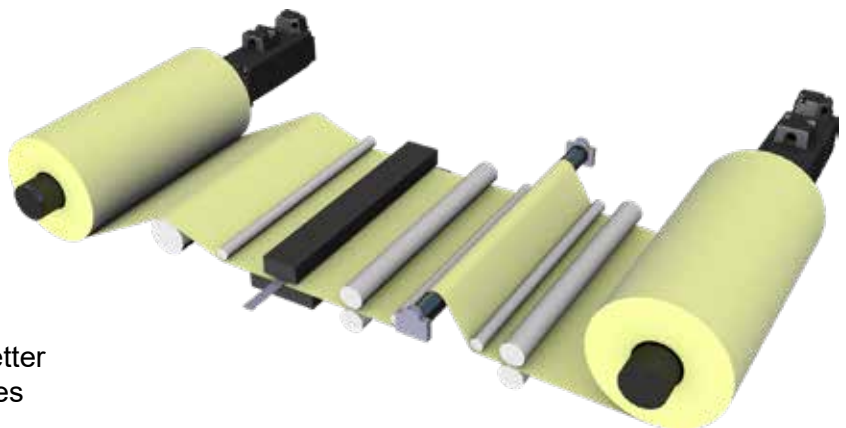
## Diamond Cutting Machine

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

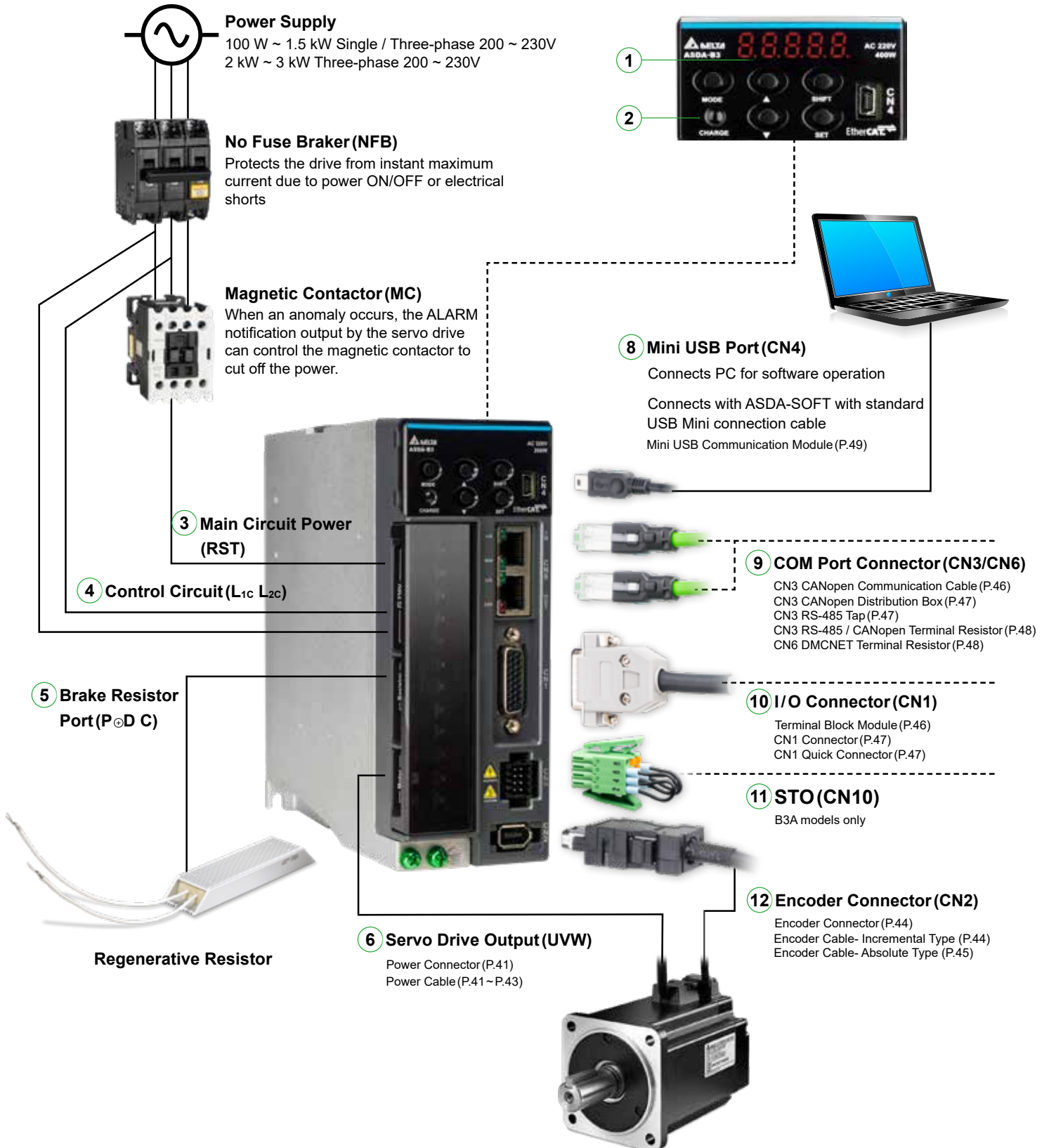


## Winding Machine

- Communication type servo drives support the analog input function, facilitating multi-axis communication for tension control.
- High-speed fieldbus with the communication cycle of 125  $\mu$ 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

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

### Encoder Cables

- 3m, 5m, 10m, and 20m standard cables are available
- Standard encoder connectors and IP67 waterproof connectors are available

### USB Cables

- Connects the PC and the servo drive for ASDA-Soft operation
- 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	Rotational Inertia (x10 <sup>-4</sup> kg.m <sup>2</sup> )	Rated / Max. Speed (rpm)	Rated / Max. Torque (N-m)	Model Name	Standard	Torsion-resistant		
				Standard / With Brake							
Low Inertia	ECM-A3L	50	ECM-A3L-C [2] 040F [3][4][5]	0.0229/0.0255	3000/6000	0.159/0.557	ASD-B3 ① -0121-②	ACS3-CAPW31XX W ACS3-CAPW3A3XX	ACS3-CAPF31XX W ACS3-CAPF3A3XX		
		100	ECM-A3L-C [2] 0401 [3][4][5]	0.04/0.0426		0.32/1.12					
		200	ECM-A3L-C [2] 0602 [3][4][5]	0.09/0.12		0.64/2.24	ASD-B3 ① -0221-②				
		400	ECM-A3L-C [2] 0604 [3][4][5]	0.15/0.18		1.27/4.45					
		400	ECM-A3L-C [2] 0804 [3][4][5]	0.352/0.408		1.27/4.44					
	ECM-B3L	Single- / Three-phase	750	ECM-A3L-C [2] 0807 [3][4][5]	0.559/0.614	ASD-B3 ① -0721-②	2.39/8.36				
			100	ECM-B3L-C [2] 0401 [3][4][5]	0.0299/0.0315					ASD-B3 ① -1021-②	
			ECM-B3M	Three-phase	200	ECM-B3M-C [2] 0602 [3][4][5]	0.141/0.151			ASD-B3 ① -0221-②	0.64/2.24
					400	ECM-B3M-C [2] 0604 [3][4][5]	0.254/0.264				
					400	ECM-B3M-C [2] 0804 [3][4][5]	0.648/0.695			ASD-B3 ① -0421-②	1.27/4.45
750	ECM-B3M-C [2] 0807 [3][4][5]	1.07/1.13									
Medium Inertia	ECM-B3M	1000	ECM-B3M-E [2] 1310 [3][4][5]	7.79/7.94	ASD-B3 ① -1021-②	4.77/14.3	ACS3-CAPW32XX ACS3-CAPW34XX	ACS3-CAPF32XX ACS3-CAPF34XX			
		1500	ECM-B3M-E [2] 1315 [3][4][5]	11.22/11.37					ASD-B3 ① -1521-②		
		2000	ECM-B3M-E [2] 1320 [3][4][5]	14.65/14.8	ASD-B3 ① -2023-②	9.55/28.65					
		2000	ECM-B3M-E [2] 1820 [3][4][5]	29.11/30.38							
		3000	ECM-B3M-F [2] 1830 [3][4][5]	53.63/54.9	ASD-B3 ① -3023-②	19.1/57.29					
		High Inertia	ECM-A3H	50	ECM-A3H-C [2] 040F [3][4][5]	0.0455/0.0517			ASD-B3 ① -0121-②	0.159/0.557	
100	ECM-A3H-C [2] 0401 [3][4][5]			0.0754/0.0816	0.32/1.12						
200	ECM-A3H-C [2] 0602 [3][4][5]			0.25/0.28	ASD-B3 ① -0221-②	0.64/2.24					
400	ECM-A3H-C [2] 0604 [3][4][5]			0.45/0.48							
400	ECM-A3H-C [2] 0804 [3][4][5]			0.92/1.07	ASD-B3 ① -0421-②	1.27/4.45					
750	ECM-A3H-C [2] 0807 [3][4][5]			1.51/1.66							
750	ECM-A3H-C [2] 0807 [3][4][5]			1.51/1.66	ASD-B3 ① -0721-②	2.39/8.36					

Note:

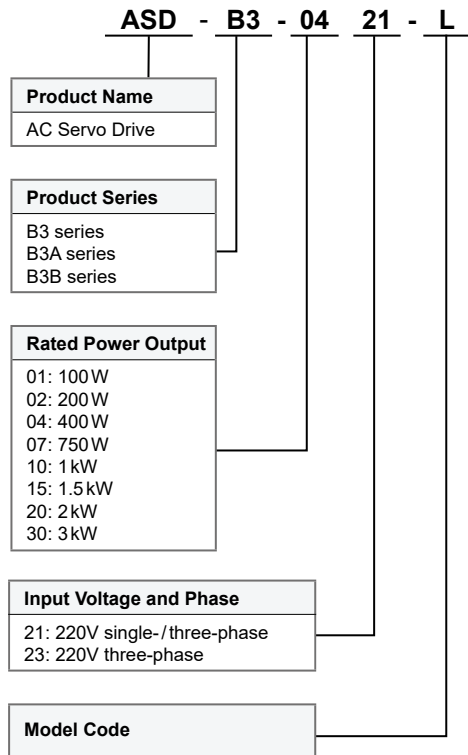
- Model name with W = IP67 water-proof connector; D = drive connector; M = motor connector; S = straight connector; R = angular connector; B = single brake connector, power connector required
- Cable model name: The "XX" stands for cable length. 03 = 3 m, 05 = 5 m, 10 = 10 m, 20 = 20 m.
- Servo motor 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						Connector Only (No Cable)		
Power Cable with Brake		Encoder Cable (Incremental Type)		Encoder Cable (Absolute Type)		Power Connector	Power Connector (with brake)/ Brake Connector	Encoder Connector
Standard	Torsion-resistant	Standard	Torsion-resistant	Standard	Torsion-resistant			
ACS3-CAPW41XX ACS3-CAPW4AXX	ACS3-CAPF41XX W ACS3-CAPF4AXX	ACS3-CAEN10XX W ACS3-CAEN2AXX	ACS3-CAEF10XX W ACS3-CAEF2AXX	ACS3-CAEA10XX W ACS3-CAEA2AXX	ACS3-CAEB10XX W ACS3-CAEB2AXX	ASDBCAPW0000 W ACS3-CNPW1A00	ASDBCAPW0100 W ACS3-CNPW2A00	D ACS3-CNENC200 + M ACS3-CNEN1000 M W ACS3-CNEN2A00
ACS3-CAPW42XX	ACS3-CAPF42XX	ACS3-CAEN27XX	ACS3-CAEF27XX	ACS3-CAEA27XX	ACS3-CAEB27XX	S ACS3-CNPW5200 R ACS3-CNPW5C00 R ACS3-CNPW5C00	S ACS3-CNPW5200 R ACS3-CNPW5C00 + E S ACS3-CNPW6300 B R ACS3-CNPW6D00	D ACS3-CNENC200 + M S ACS3-CNEN2700 M R ACS3-CNEN2C00
ACS3-CAPW44XX	ACS3-CAPF44XX							
ACS3-CAPW41XX ACS3-CAPW4AXX	ACS3-CAPF41XX W ACS3-CAPF4AXX	ACS3-CAEN10XX W ACS3-CAEN2AXX	ACS3-CAEF10XX W ACS3-CAEF2AXX	ACS3-CAEA10XX W ACS3-CAEA2AXX	ACS3-CAEB10XX W ACS3-CAEB2AXX	ASDBCAPW0000 W ACS3-CNPW1A00	ASDBCAPW0100 W ACS3-CNPW2A00	D ACS3-CNENC200 + M ACS3-CNEN1000 M W ACS3-CNEN2A00

# Servo Drive Model Information

## ASD-B3 Series Servo Drive



### ASD-B3

Code	PT Mode Pulse Input	PR Mode	RS-485	Analog Voltage Control	CANopen	DMCNET	EtherCAT	STO
L	√	√	√	√	-	-	-	-
M	-	√	-	√	√	-	-	-
F	-	√	-	√	-	√	-	-
E	-	√	-	√	-	-	√	-



### ASD-B3A \*1

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

Note: The model information is for reference only. Not all kinds of permutations are available. Please contact the distributor near your region or Delta for the details.



# Servo Drive Specifications

ASD-B3		100 W 01	200 W 02	400 W 04	750 W 07	1 kW 10	1.5 kW 15	2 kW 20	3 kW 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)	0.88	1.29	2.04	3.52	5.72	6.33	7.6	10.3	
	Input Current (1PH) (Unit: Arms)	1.47	2.35	3.74	6.47	10.4	11.7			
	Continuous Output Current (Unit: Arms)	0.9	1.55	2.65	5.1	7.3	8.3	13.4	19.4	
	Max. Instantaneous Output Current (Unit: Arms)	3.88	7.07	10.6	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 2 Mpps; Open collector: 200 Kpps								
	Command Source	External pulse (only for pulse control mode) / Internal register (PR mode)								
	Smoothing Method	Low-pass, S-curve, and moving filters								
	E-Gear Ratio	E-Gear ratio: N / M times, limited to (1 / 4 < N / M < 262144) N: 1 - 536870911 / M: 1 - 2147483647								
Torque Limit		Parameter settings								
Feed Forward Compensation		Parameter settings								
Speed Control Mode	Analog Command Input	Voltage Range	0 to ±10 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								
		±0.01% at ±10% power fluctuation								
		±0.01% at 0°C to 50°C ambient temperature fluctuation								
Torque Control Mode	Analog Command Input	Voltage Range	0 to ±10 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 *The DI mentioned above are only used in pulse control mode. When controlling through communication, it is suggested that you use communication for DI input. DI only supports emergency stop, forward / reverse limit, and homing.								
	Output	A, B, Z line driver output Servo ready, Servo on, Zero speed detection, Target speed reached, Target position reached, Torque limiting, Servo alarm, Magnetic brake control, Homing complete, Early warning for overload, Servo warning, Position command overflows, Software limit (reverse direction), Software limit (forward direction), Internal position command complete, Servo procedure complete, Capture procedure complete 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								
Protection Function		Overcurrent, Overvoltage, Undervoltage, Overheat, Regeneration error, Overload, Excessive speed deviation, Excessive position deviation, Encoder error, Adjustment error, Emergency stop, Forward / reverse limit error, Serial communication error, RST leak phase, Serial communication timeout, Short-circuit protection for terminals U, V, W								
Communication Interface		USB / RS-485 / CANopen / DMCNET / EtherCAT								
Environment	Installation Site		Indoors (avoid direct sunlight), no corrosive vapor (avoid fumes, flammable gases, and dust)							
	Altitude		Altitude 2000 m or lower above sea level							
	Atmospheric Pressure		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/UL 61800-5-1  								

Notes:

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

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

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

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

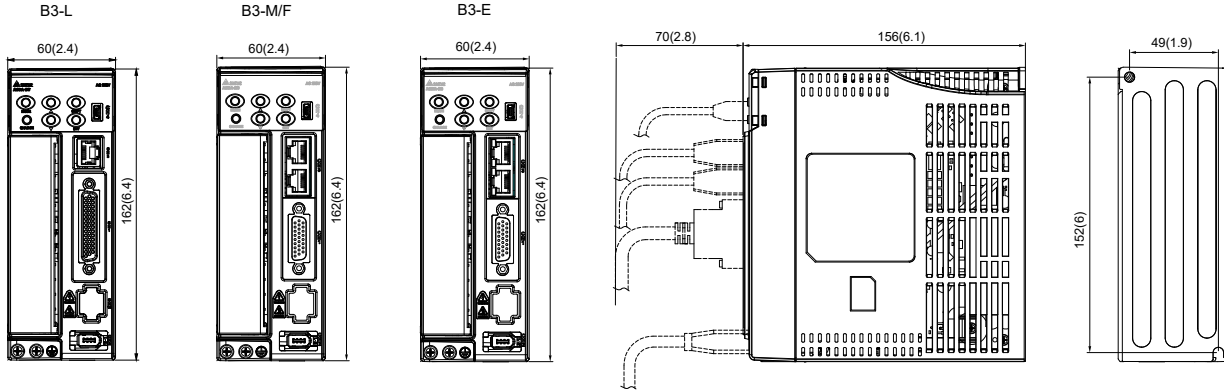
# Servo Drive Specifications

## Dimensions

### 100 W / 200 W / 400 W

<b>Weight</b>
0.9 kg

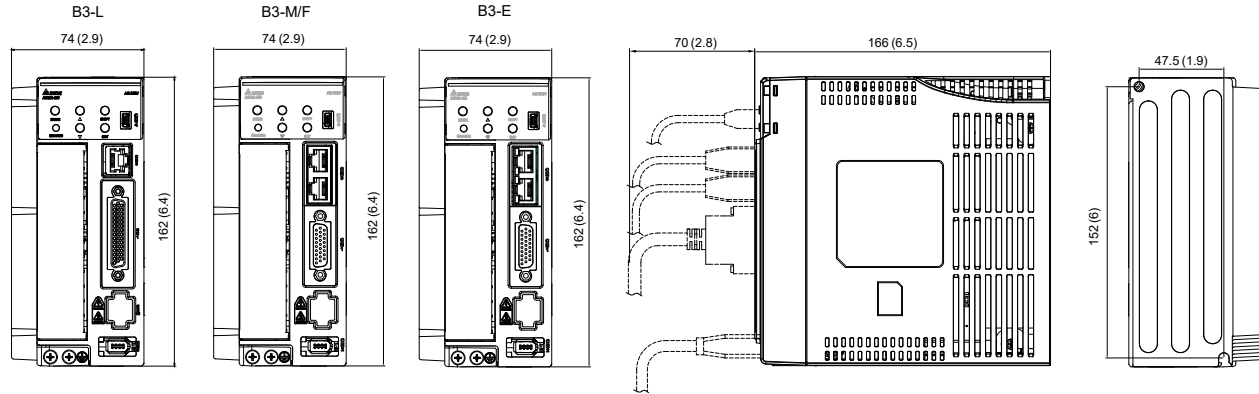
Unit: mm (inch)



### 750 W

<b>Weight</b>
1.2 kg

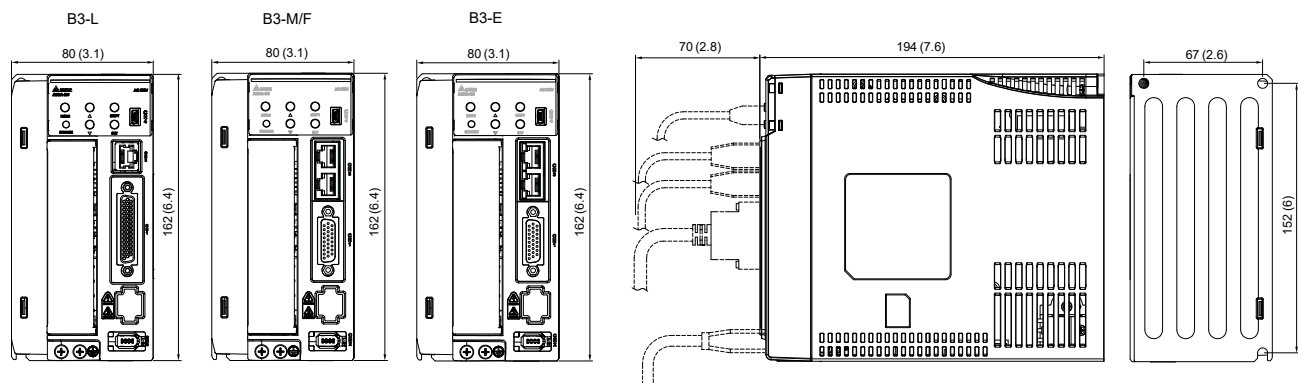
Unit: mm (inch)



### 1 kW / 1.5 kW

<b>Weight</b>
1.8 kg

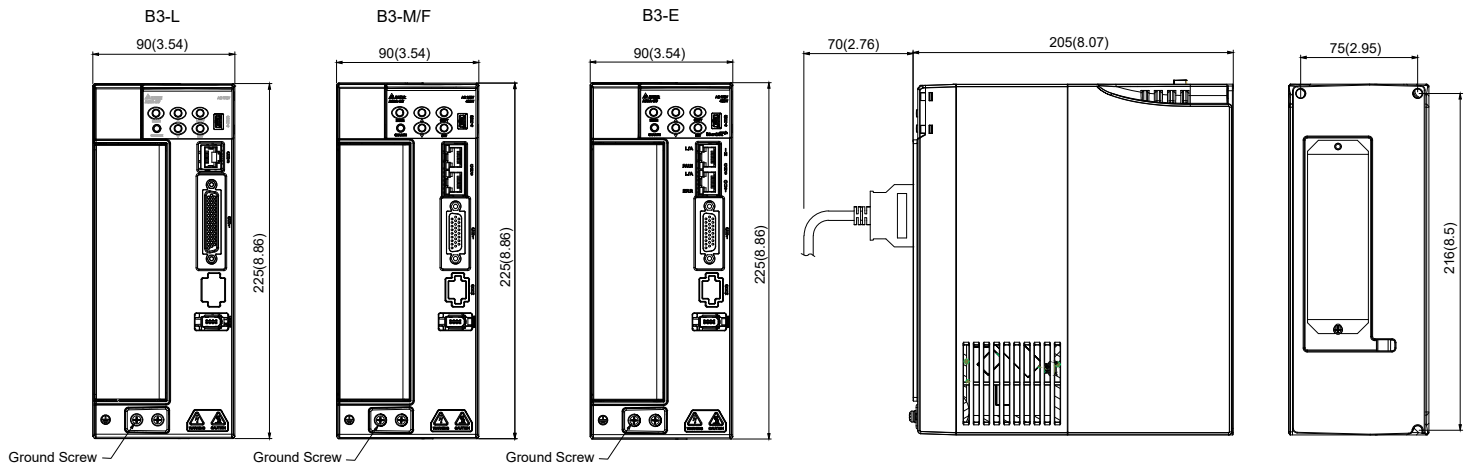
Unit: mm (inch)



## 2 kW/3 kW

<b>Weight</b>
2.8 kg

Unit: mm (inch)



## Regenerative Resistor Specifications

Servo Drive (kW)	Specifications of the Built-In Regenerative Resistor		Capacity of the Built-In Regenerative Resistor (Watt)	Minimum Allowable Resistance Value (Ohm) (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 Information

## ECM-B3 Series Servo Motor

**ECM - B3 M - C A 06 04 R S 1**

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

\*1. Number of turns.  
\*2. Can be used as a single-turn absolute encoder.

Note: Models with an \* are coming soon.

\*Shafts of special diameter are used for 400 W motors with the frame size of 80 mm.

## ECM-A3 Series Servo Motor

**ECM - A3 H - C Y 06 04 R S 1**

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

\*1. Number of turns.  
\*2. Can be used as a single-turn absolute encoder.

\*Note: Models with an \* are coming soon.

\*Shafts of special diameter are used for 400 W motors with the frame size of 80 mm.

Note: The model information is for reference only. Not all kinds of permutations are available. Please contact the distributor near your region or Delta for the details.



# ECM-B3 Series Servo Motor Specifications

## Electrical Specifications

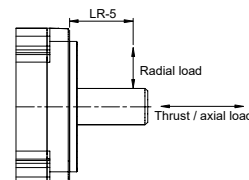
### Low Inertia Motor ECM-B3L Series / Medium Inertia Motor ECM-B3M Series

	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 [Nt-m (min)] <sup>14</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>13</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				

#### Notes:

- 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
- If the operating temperature is over 40°C, refer to the power derating curves of B3 motors on page 27.

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

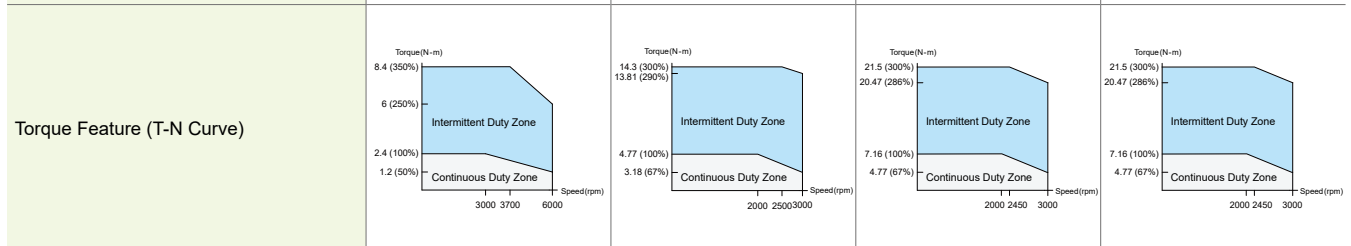


# ECM-B3 Series Servo Motor Specifications

## 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 [N-t (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

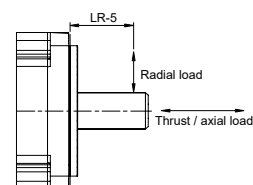


Insulation Class	Class A (UL), Class B (CE)
Insulation Resistance	> 100 MΩ, DC 500V
Insulation Strength	1.8 kVac, 1 sec
Vibration Level (μm)	V15
Operating Temperature	-20°C ~ 60°C <sup>*5</sup>
Storage Temperature	-20°C ~ 80°C <sup>*5</sup>
Storage & Operation Humidity	20 ~ 90%RH (non-condensing)
Vibration 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	

#### Notes:

- 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.

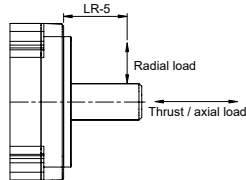
- Please follow the max. tolerant loading of the motor shaft end listed below during operation



### Medium Inertia Motor ECM-B3M Series

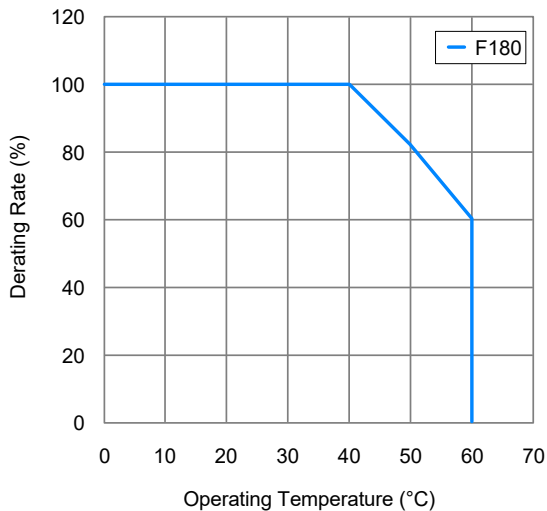
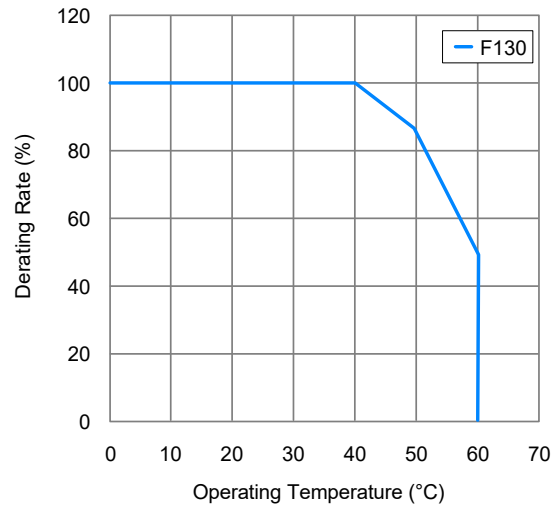
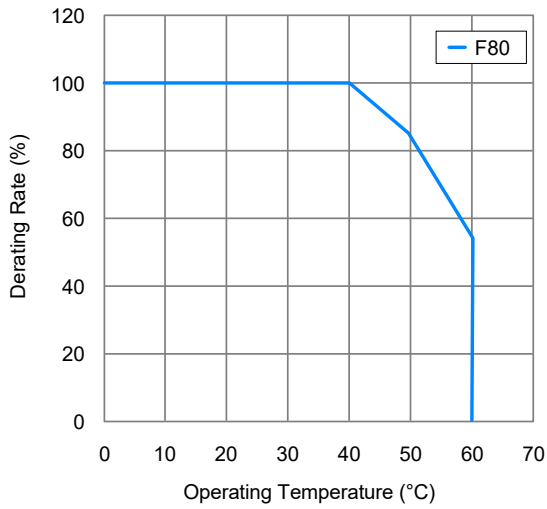
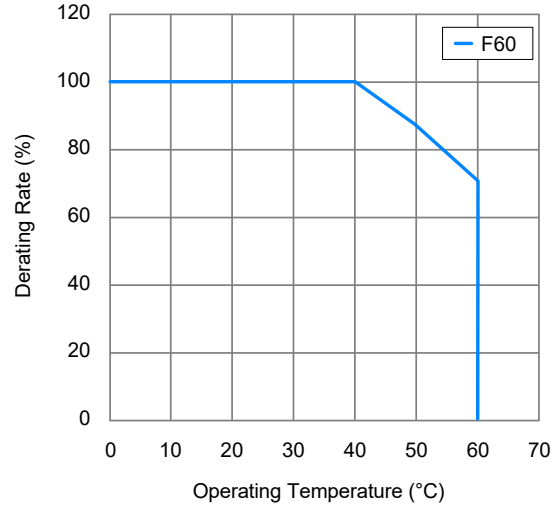
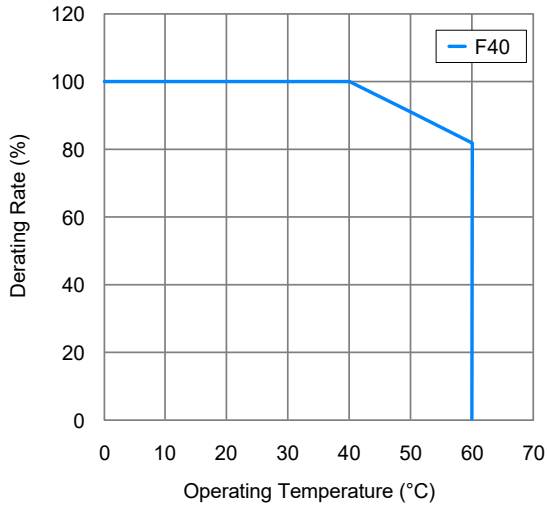
ECM-B3 [1]	ECM-B3M-E [2] 1820*1	ECM-B3M-F [2] 1830*1
Rated Power (kW)	2	3
Rated Torque (N-m) <sup>2</sup>	9.55	19.1
Maximum Torque (N-m)	28.65	57.29
Rated Speed (rpm)	2000	1500
Maximum Speed (rpm)	3000	3000
Rated Current (Arms)	11.43	18.21
Max. Instantaneous Current (Arms)	36.21	58.9
Rated Power Rate (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*5	
Storage Temperature	-20°C ~ 80°C*5	
Storage & Operation Humidity	20 ~ 90%RH (non-condensing)	
Vibration Capacity	2.5 G	
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model))	
Certifications		

- Notes:
- In the servo motor model name, [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.  
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

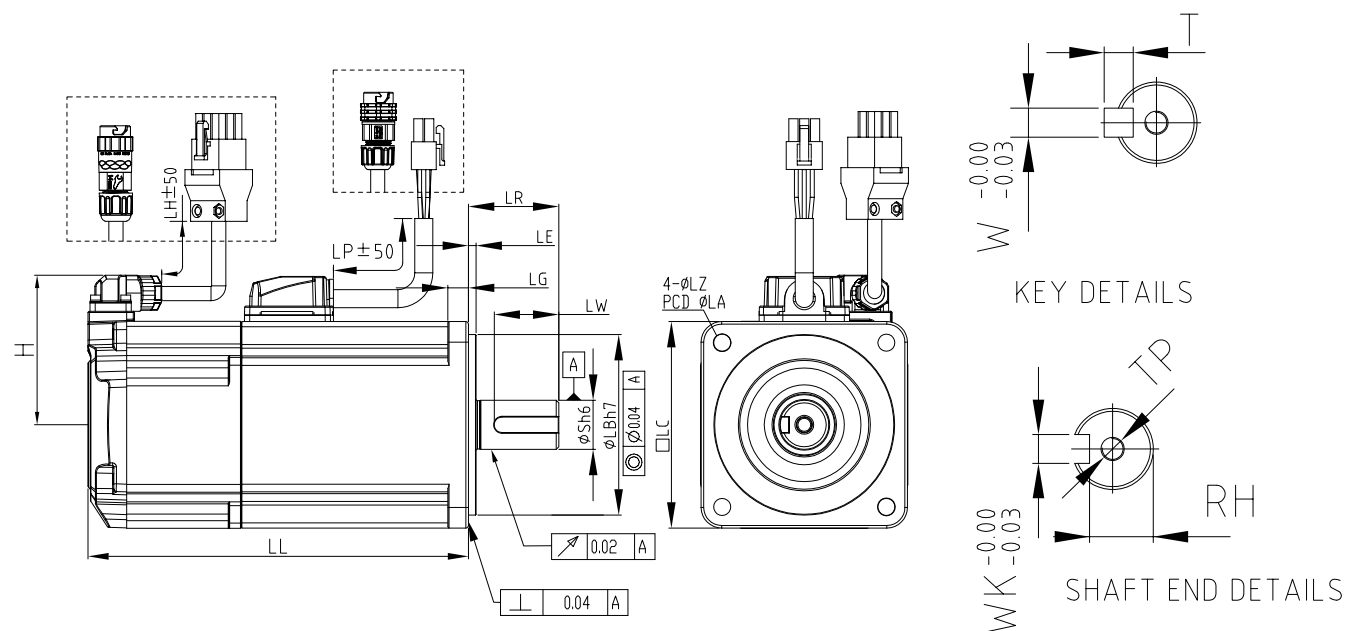


# ECM-B3 Series Servo Motor Specifications

## Power Derating Curves



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



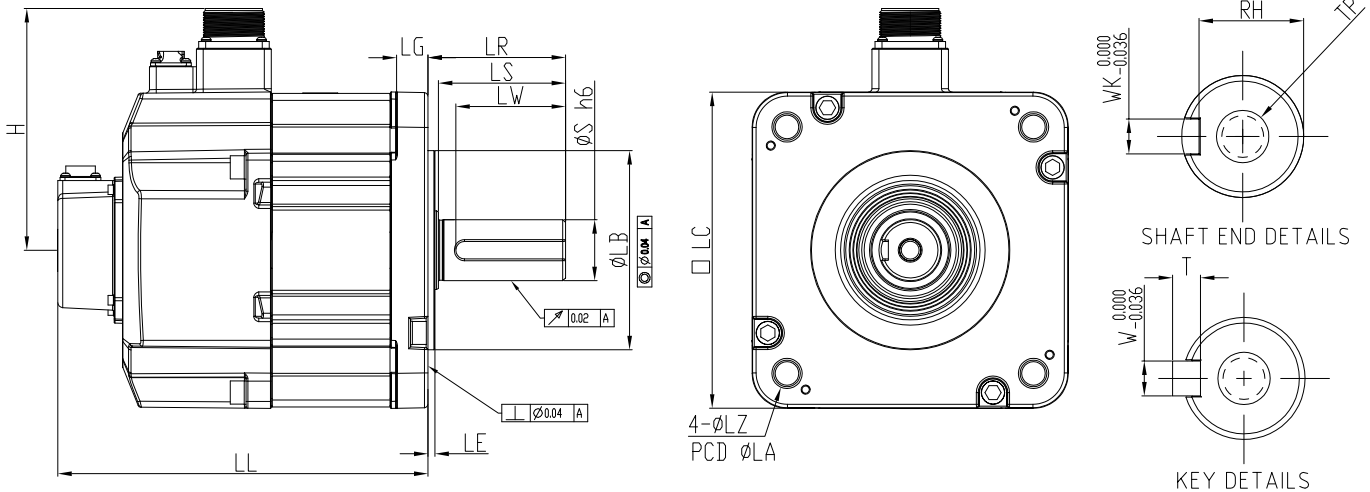
Model	C 2 0401 3 4 5	C 2 0602 3 4 5	C 2 0604 3 4 5	C 2 0804 3 4 5	C 2 0807 3 4 5
LC	40	60	60	80	80
LZ	4.5	5.5	5.5	6.6	6.6
LA	46	70	70	90	90
S	8( $^{+0}_{-0.009}$ )	14( $^{+0}_{-0.011}$ )	14( $^{+0}_{-0.011}$ )	14( $^{+0}_{-0.011}$ )	19( $^{+0}_{-0.013}$ )
LB	30( $^{+0}_{-0.021}$ )	50( $^{+0}_{-0.025}$ )	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

Notes:

- 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.
- When [4] 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( <sup>+0</sup> / <sub>-0.013</sub> )	22( <sup>+0</sup> / <sub>-0.013</sub> )	22( <sup>+0</sup> / <sub>-0.013</sub> )	35( <sup>+0</sup> / <sub>-0.016</sub> )	35( <sup>+0</sup> / <sub>-0.016</sub> )
LB	110( <sup>+0</sup> / <sub>-0.035</sub> )	110( <sup>+0</sup> / <sub>-0.035</sub> )	110( <sup>+0</sup> / <sub>-0.035</sub> )	114.3( <sup>+0</sup> / <sub>-0.035</sub> )	114.3( <sup>+0</sup> / <sub>-0.035</sub> )
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

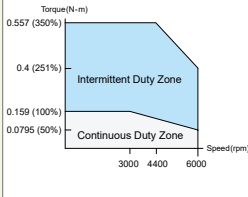
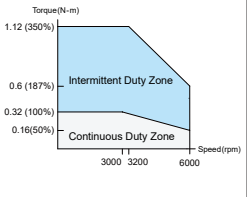
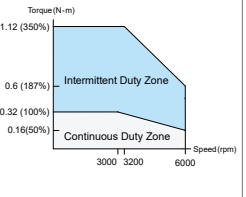
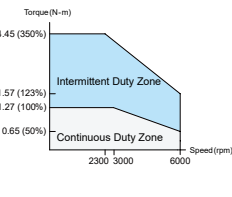

Notes:  
In the servo motor model name, [2] represents the encoder type, [3] represents the brake or keyway / oil seal type, [4] represents the shaft diameter and connector type, and [5] represents the special code.



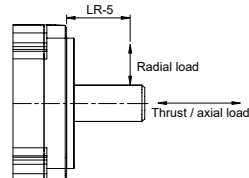
# ECM-A3 Series Servo Motor Specifications

## Electrical Specifications

### ECM-A3L Low Inertia Series Servo Motor

	ECM-A3L-C [2] 040F <sup>*1</sup>	ECM-A3L-C [2] 040I <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 [Nt-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*3			
Storage Temperature	-10°C ~ 80°C*3			
Storage & Operation Humidity	20 ~ 90%RH (non-condensing)			
Vibration Capacity	2.5 G			
IP Rating	IP67 (when using waterproof connections and when an oil seal is fitted to the rotating shaft (for an oil seal model))			
Certifications				

- Notes:
- 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

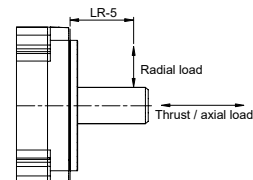
### ECM-A3L Low Inertia Series Servo Motor / ECM-A3H High Inertia Series Servo Motor

	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-t-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 500V and above			
Insulation Strength	1.8k Vac, 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				

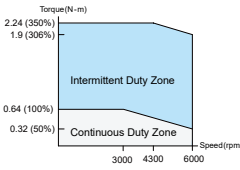
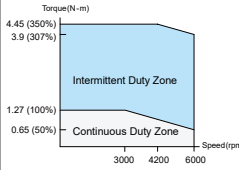
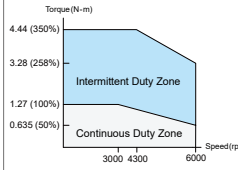
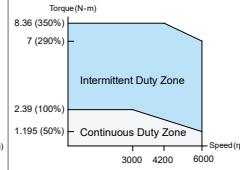

**Notes:**

- 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

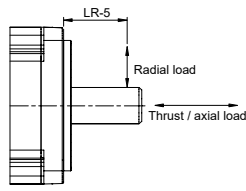
- Please follow the max. tolerating loading of the motor shaft end listed below during operation



## ECM-A3H High Inertia Series Servo Motor

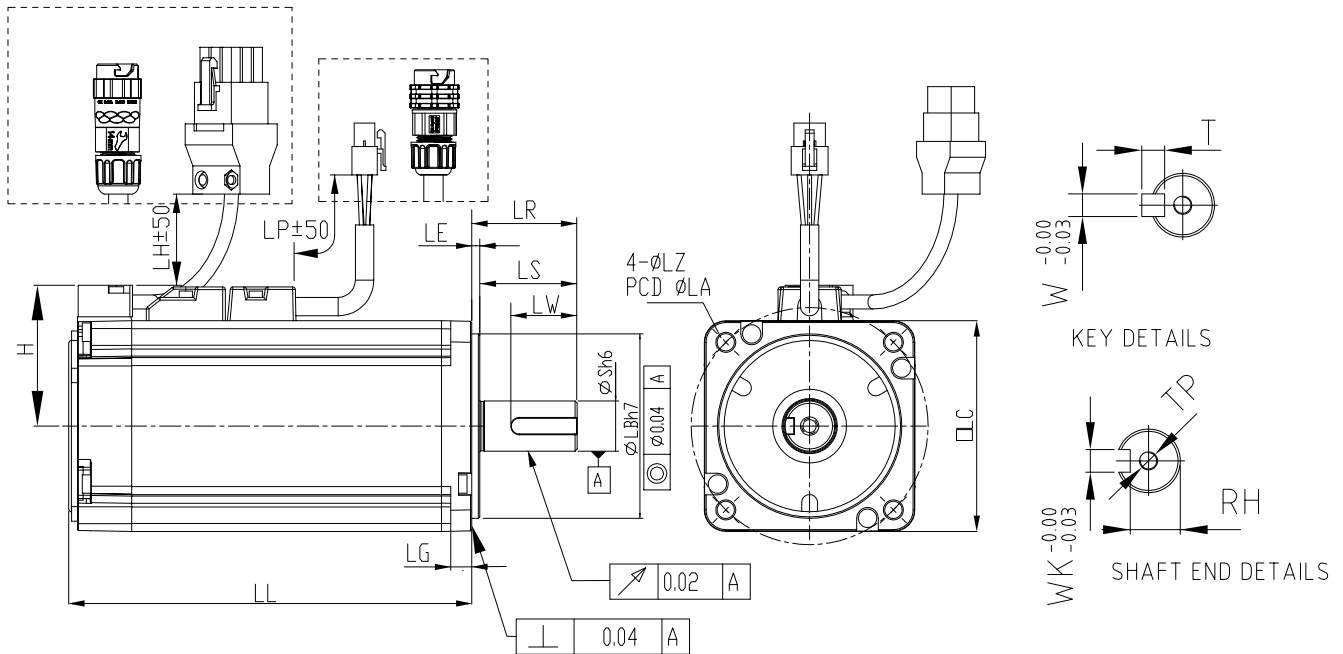
	ECM-A3H-C [2] 0602 <sup>†1</sup>	ECM-A3H-C [2] 0604 <sup>†1</sup>	ECM-A3H-C [2] 0804 <sup>†1</sup>	ECM-A3H-C [2] 0807 <sup>†1</sup>
Rated Power (kW)	0.2	0.4	0.4	0.75
Rated Torque (N-m) <sup>†1</sup>	0.64	1.27	1.27	2.39
Maximum Torque (N-m)	2.24	4.45	4.44	8.36
Rated Speed (rpm)	3000			
Maximum Speed (rpm)	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 500V and above			
Insulation Strength	1.8k Vac, 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				

- Notes:
- 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

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



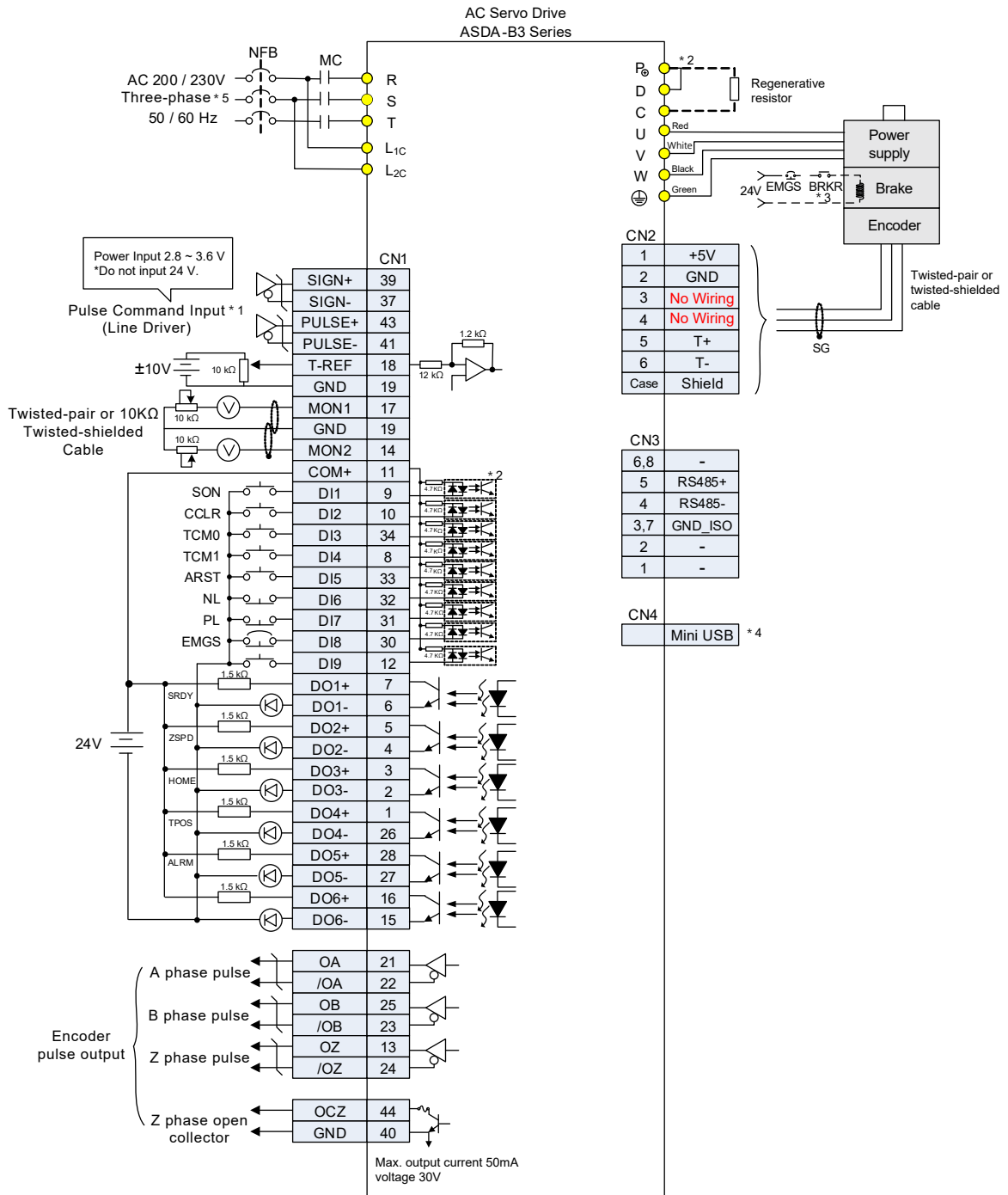
Model	C 2 040F 3 4 5	C 2 0401 3 4 5	C 2 0602 3 4 5	C 2 0604 3 4 5	C 2 0804 3 4 5	C 2 0807 3 4 5
LC	40	40	60	60	80	80
LZ	4.5	4.5	5.5	5.5	6.6	6.6
LA	46	46	70	70	90	90
S	8 <sup>(+0/-0.009)</sup>	8 <sup>(+0/0.009)</sup>	14 <sup>(+0/-0.011)</sup>	14 <sup>(+0/-0.011)</sup>	14 <sup>(+0/-0.011)</sup>	19 <sup>(+0/-0.013)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

Notes:

- 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.
- When the special code of the C[2]0807[3][4][5] model is Z, then its LS = 32 and LR = 35.
- When the [4] in the motor model name is J or K, the connector is an IP67 waterproof connector.

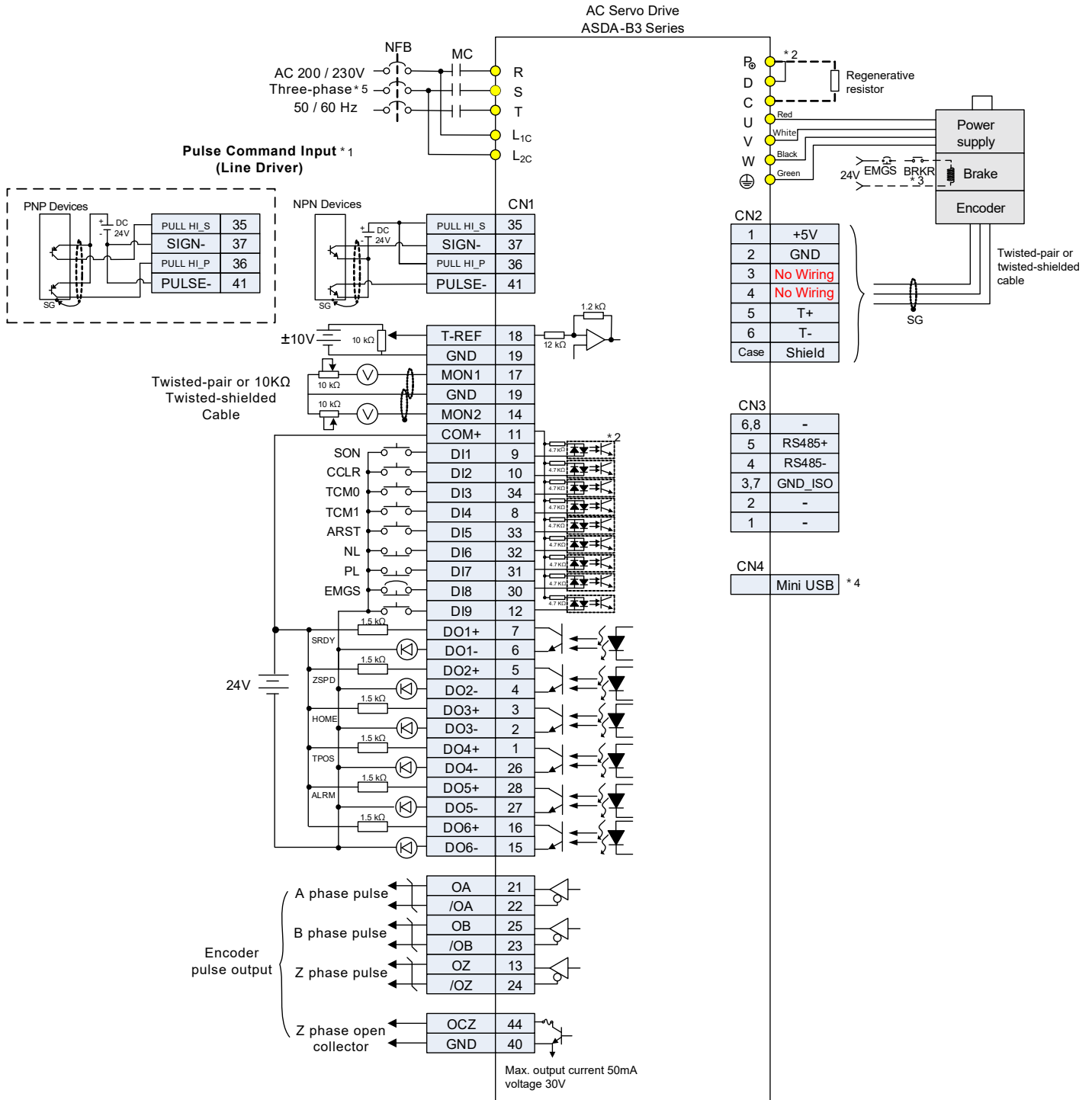
# Control Mode Wiring

## Position (PT) Mode Standard Wiring (differential pulse signals)



# Control Mode Wiring

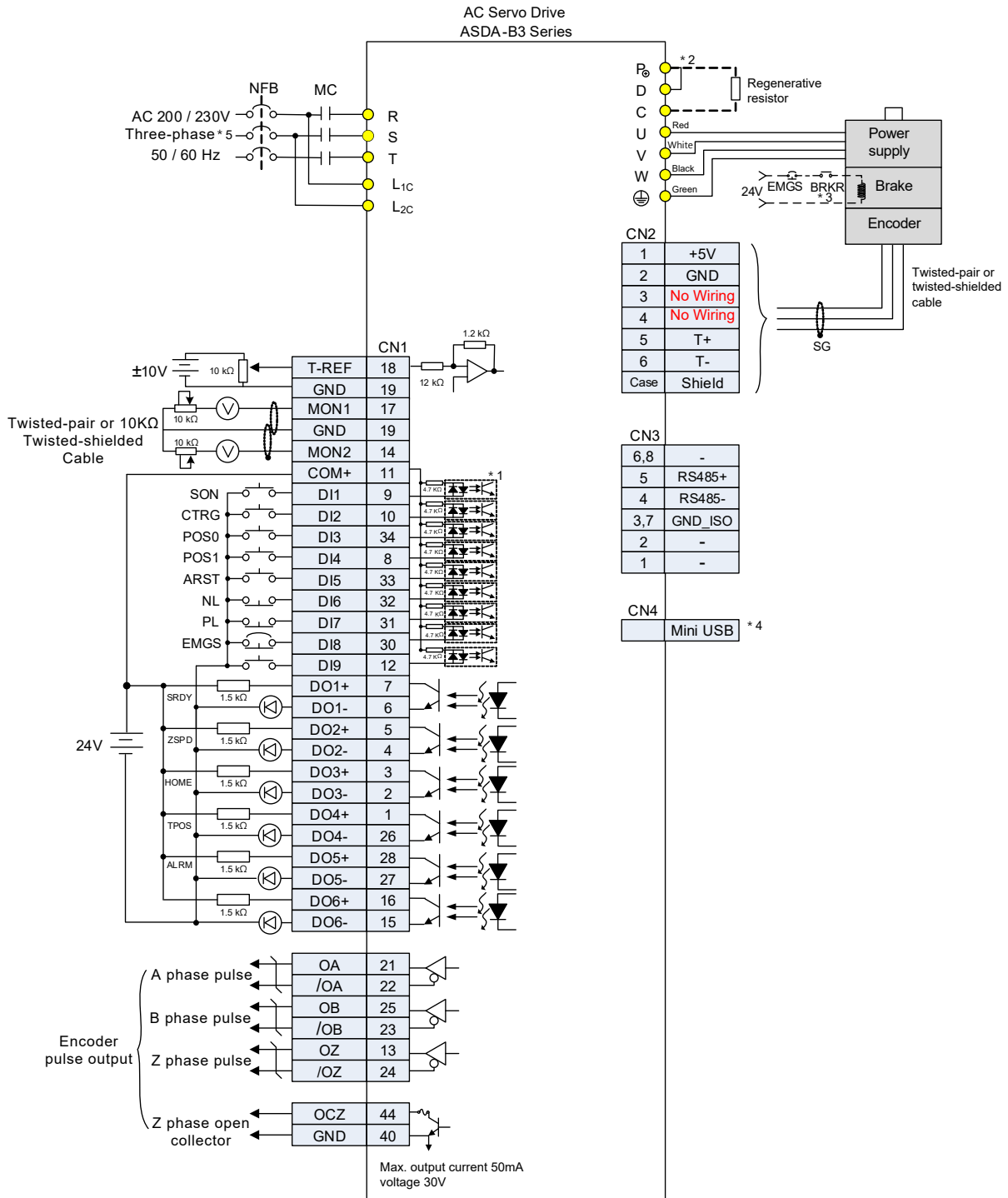
## Position (PT) Control Mode (open-collector pulse signals)



**Notes:**

- \*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring.
- \*2: Models of 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.

## Position (PR) Mode Standard Wiring (internal position commands)



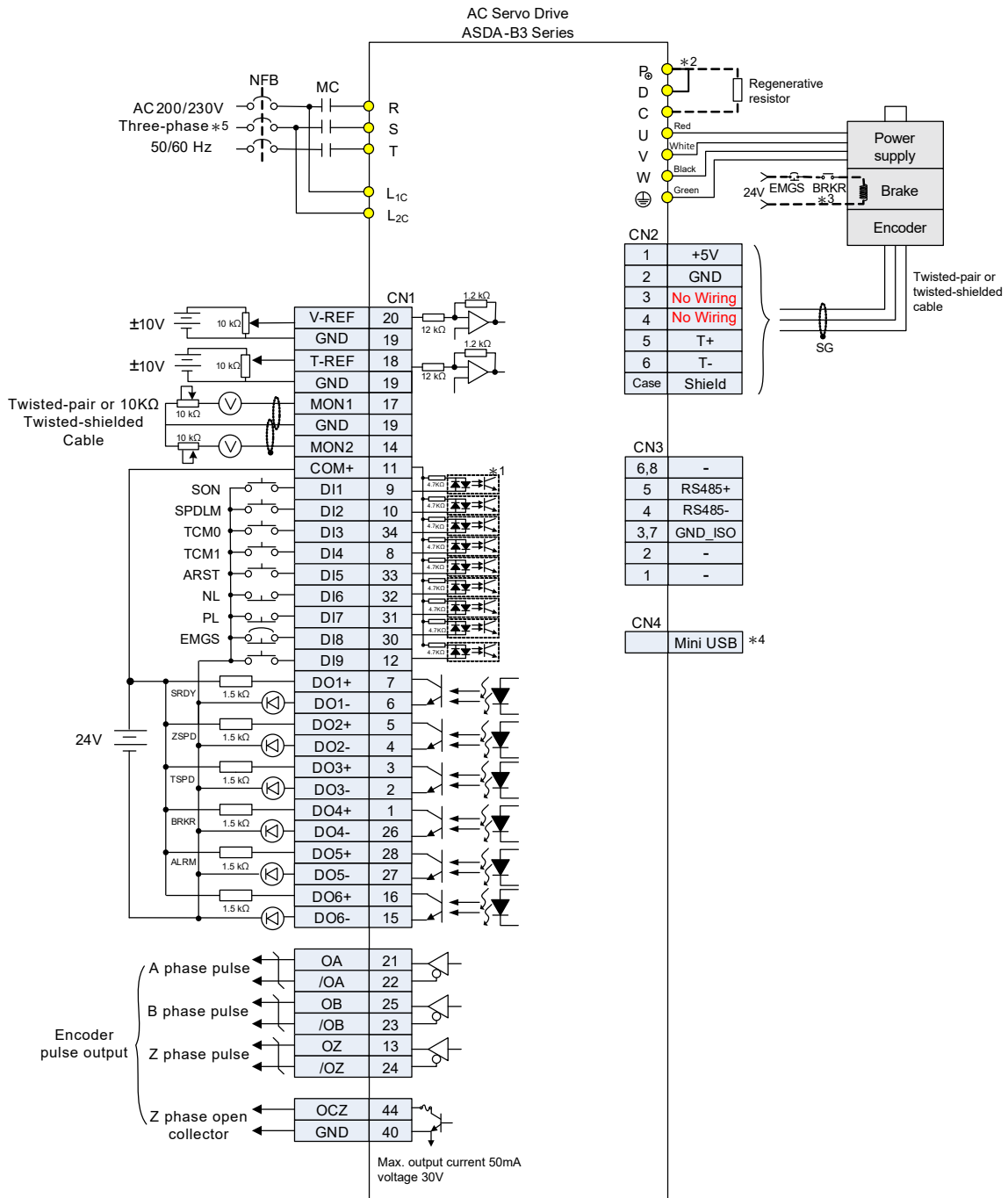
**Notes:**

- \*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring.
- \*2: Models of 200W and below have nobuilt-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

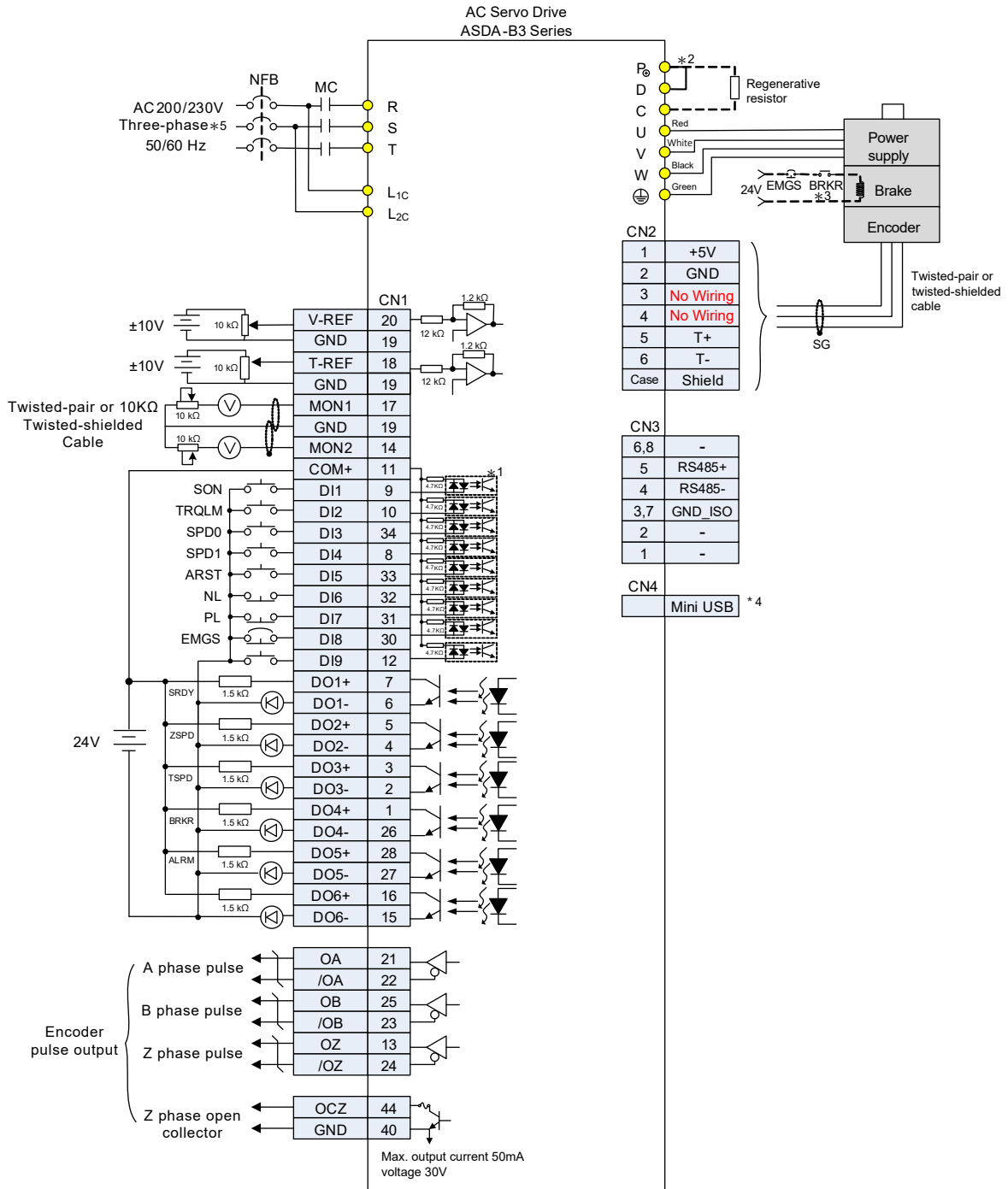
## Torque (T) Mode Standard Wiring



**Notes:**

- \*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring.
- \*2: Models of 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.

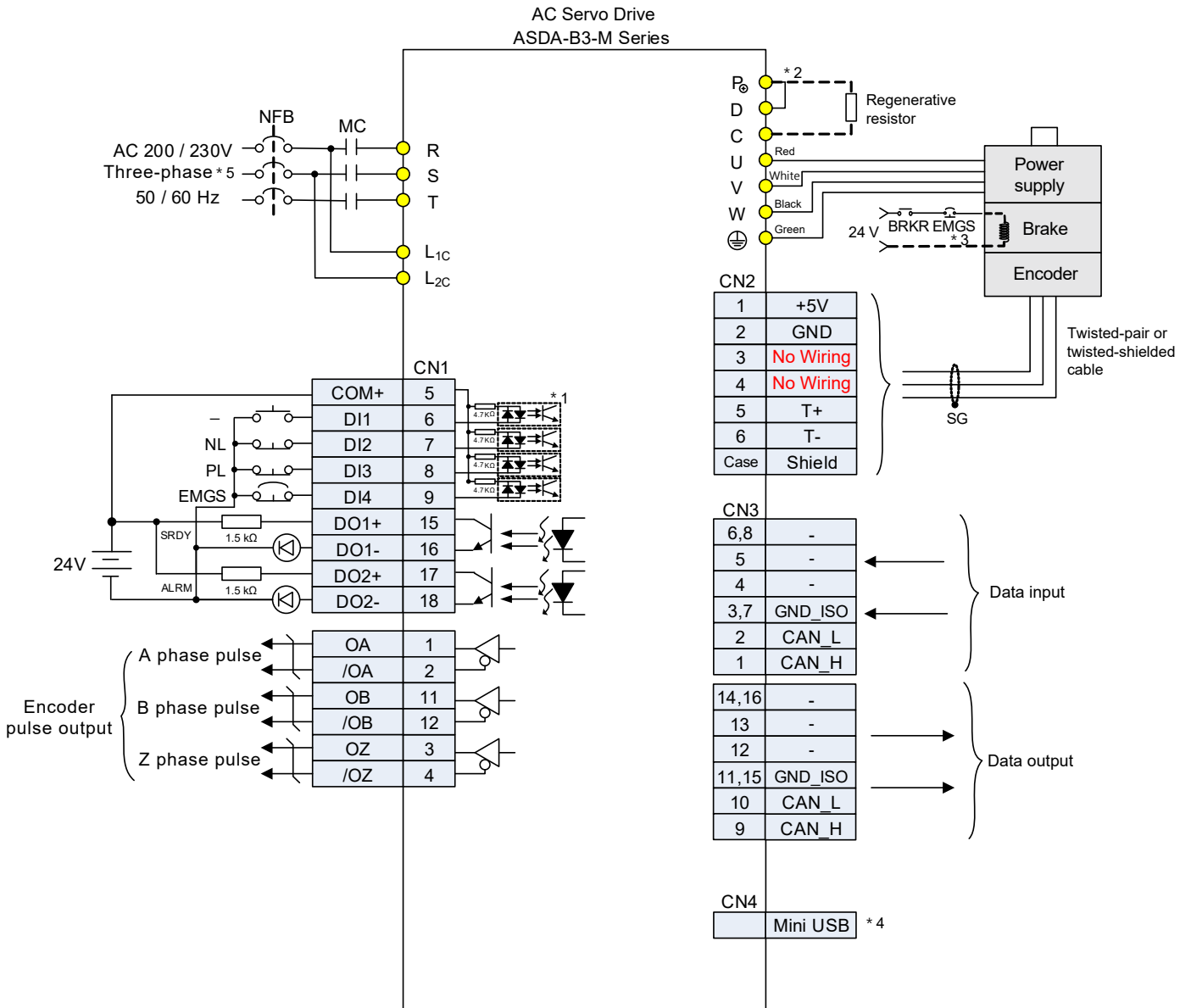
# Speed (S) Mode Standard Wiring



- Notes:
- \*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring.
  - \*2: Models of 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

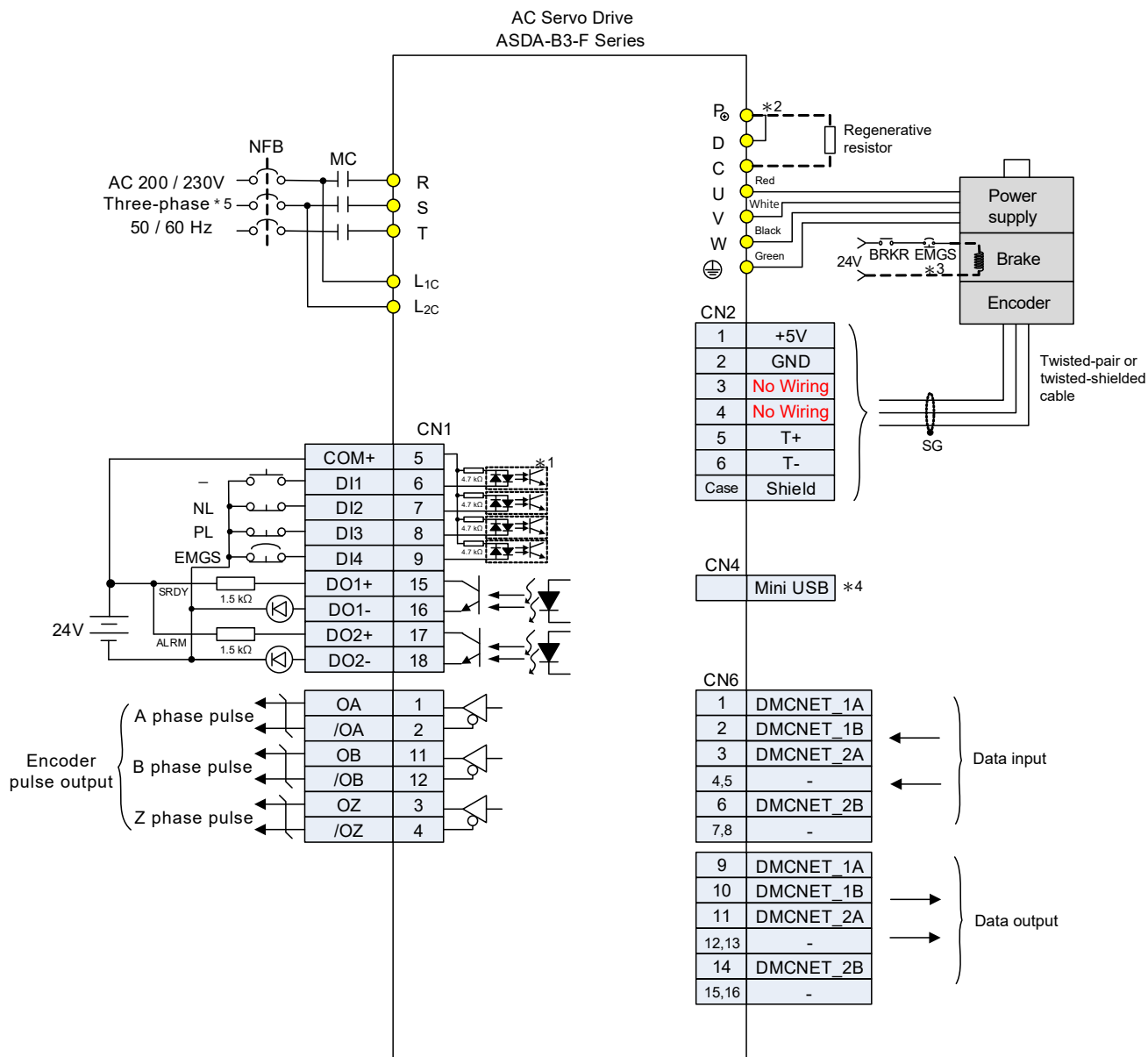
## CANopen Communication Mode Standard Wiring



**Notes:**

- \*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring.
- \*2: Models of 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.

## DMCNET Communication Mode Standard Wiring

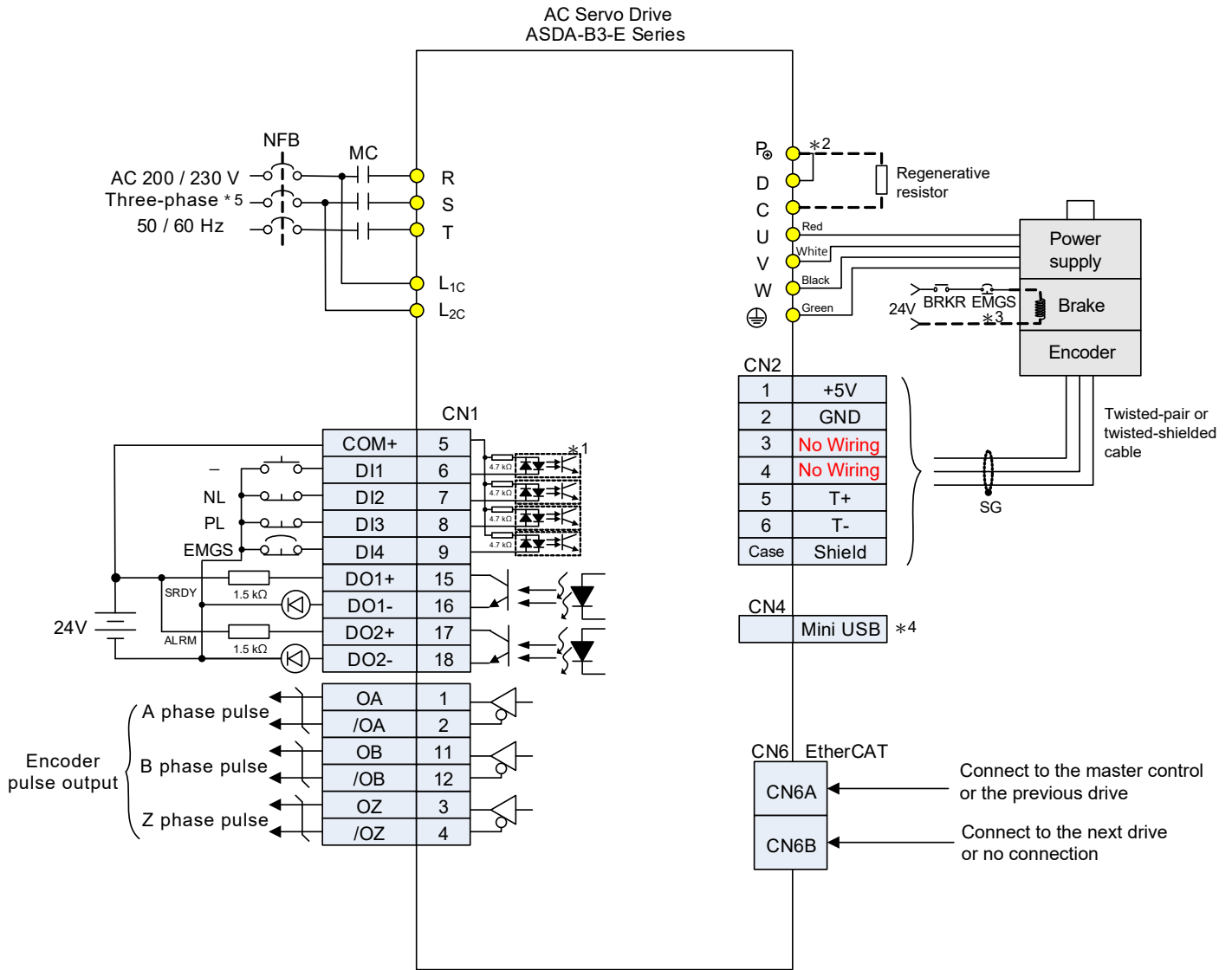


### Notes:

- \*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring.
- \*2: Models of 200 W and below have no 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

## EtherCAT Communication Mode Standard Wiring



**Notes:**

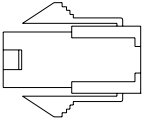
- \*1: Refer to Section 3.3.7 in the ASDA-B3 user manual for CN1 wiring.
- \*2: Models of 200W and below have no built-in brake resistor.
- \*3: The brake coil has no polarity.
- \*4: Connects to Mini USB (for PC communication).
- \*5: Models of 1.5 kW and below can use single-phase power supply.

# Ordering Information

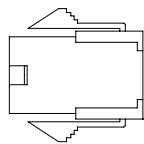
## Accessories

### Power Connectors

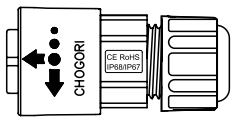
**ASDBCAPW0000**  
(for F80 and below)



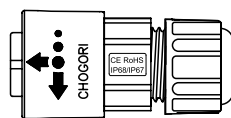
**ASDBCAPW0100**  
(for F80 and below with brake)



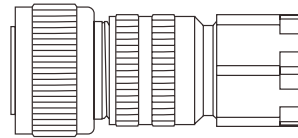
**ACS3-CNPW1A00**  
(for F80 and below)  
IP67 waterproof connector



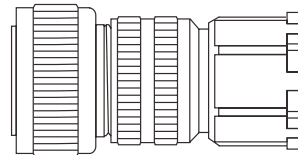
**ACS3-CNPW2A00**  
(for F80 and below with brake)  
IP67 waterproof connector



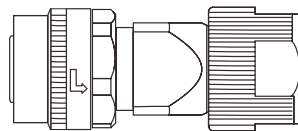
**ACS3-CNPW5200**  
(for F100 ~ F130)  
Mil-Spec: MIL 3106A18-10S



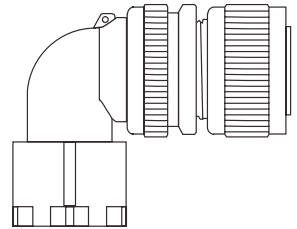
**ACS3-CNPW5300**  
(for F180)  
Mil-Spec: MIL 3106A22-22S



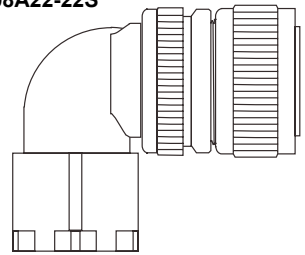
**ACS3-CNPW6300**  
(F100 ~ F180 with brake)  
Mil-Spec: CMV1-SP2S



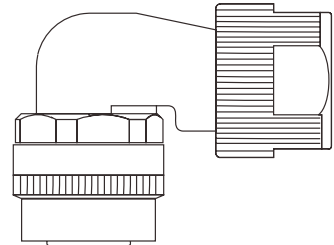
**ACS3-CNPW5C00**  
(for F100 ~ F130 models)  
Mil-Spec: MIL 3108A18-10S



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

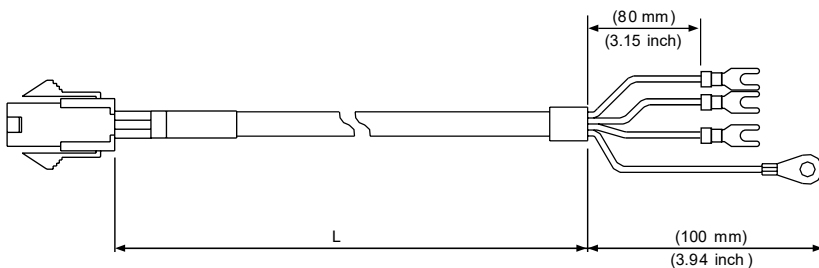


**ACS3-CNPW6D00**  
(F100 ~ F180 with brake)  
Mil-Spec: CMV1-AP2S



### Power Cables

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



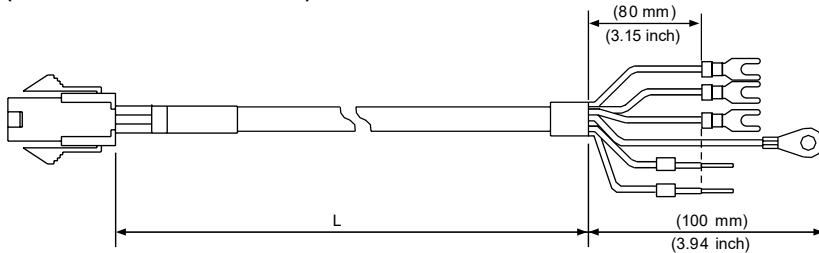
Cable	Part No.	L	
		mm	inch
Standard	ACS3-CAPW3103	3000 ± 50	118 ± 2
	ACS3-CAPW3105	5000 ± 50	197 ± 2
	ACS3-CAPW3110	10000 ± 100	394 ± 4
	ACS3-CAPW3120	20000 ± 100	788 ± 4
Torsion-Resistant	ACS3-CAPF3103	3000 ± 50	118 ± 2
	ACS3-CAPF3105	5000 ± 50	197 ± 2
	ACS3-CAPF3110	10000 ± 100	394 ± 4
	ACS3-CAPF3120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

# Ordering Information

## Accessories

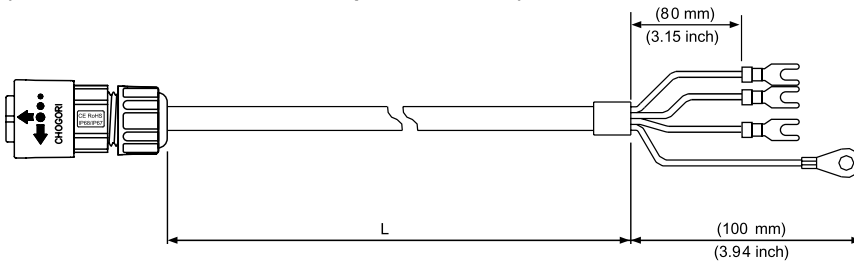
### Power Cables

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



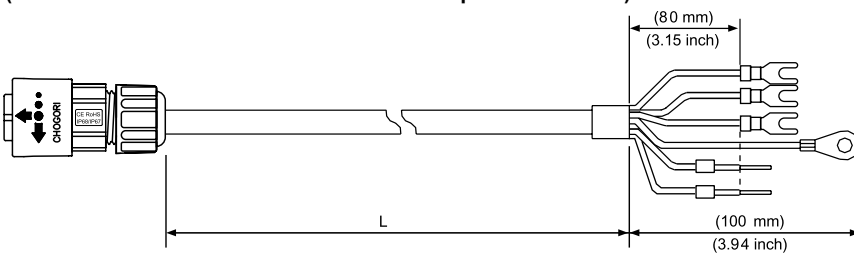
Cable	Part No.	L	
		mm	inch
Standard	ACS3-CAPW4103	3000 ± 50	118 ± 2
	ACS3-CAPW4105	5000 ± 50	197 ± 2
	ACS3-CAPW4110	10000 ± 100	394 ± 4
	ACS3-CAPW4120	20000 ± 100	788 ± 4
Torsion-Resistant	ACS3-CAPF4103	3000 ± 50	118 ± 2
	ACS3-CAPF4105	5000 ± 50	197 ± 2
	ACS3-CAPF4110	10000 ± 100	394 ± 4
	ACS3-CAPF4120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



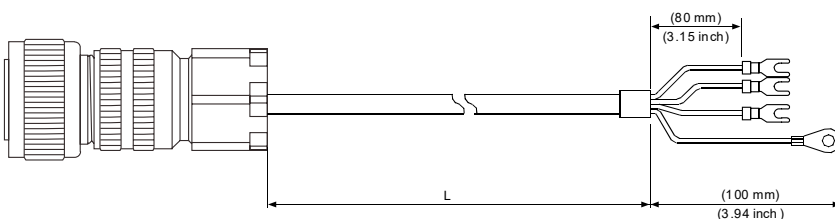
Cable	Part No.	L	
		mm	inch
Standard	ACS3-CAPW3A03	3000 ± 50	118 ± 2
	ACS3-CAPW3A05	5000 ± 50	197 ± 2
	ACS3-CAPW3A10	10000 ± 100	394 ± 4
	ACS3-CAPW3A20	20000 ± 100	788 ± 4
Torsion-Resistant	ACS3-CAPF3A03	3000 ± 50	118 ± 2
	ACS3-CAPF3A05	5000 ± 50	197 ± 2
	ACS3-CAPF3A10	10000 ± 100	394 ± 4
	ACS3-CAPF3A20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

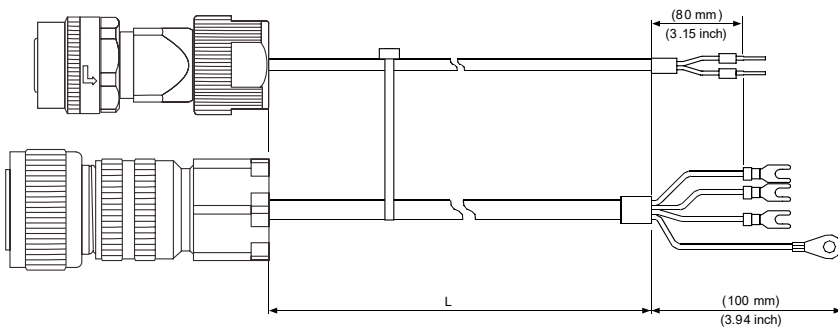
ACS3-CAPW3203, ACS3-CAPW3205, ACS3-CAPW3210, ACS3-CAPW3220,  
ACS3-CAPF3203, ACS3-CAPF3205, ACS3-CAPF3210, ACS3-CAPF3220  
(for F100 - F130)



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

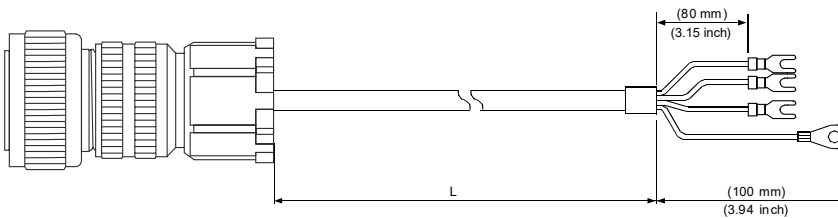
## Power Cables

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



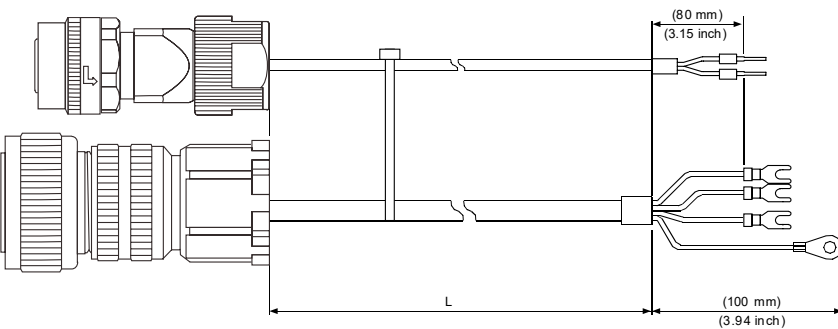
Cable	Part No.	L	
		mm	inch
Standard	ACS3-CAPW4203	3000 ± 50	118 ± 2
	ACS3-CAPW4205	5000 ± 50	197 ± 2
	ACS3-CAPW4210	10000 ± 100	394 ± 4
	ACS3-CAPW4220	20000 ± 100	788 ± 4
Torsion-Resistant	ACS3-CAPF4203	3000 ± 50	118 ± 2
	ACS3-CAPF4205	5000 ± 50	197 ± 2
	ACS3-CAPF4210	10000 ± 100	394 ± 4
	ACS3-CAPF4220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

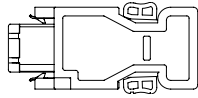


# Ordering Information

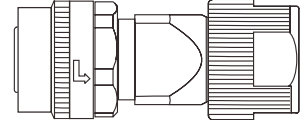
## Accessories

### Encoder Connectors

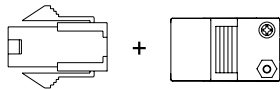
ACS3-CNENC200  
(connecting to drive)



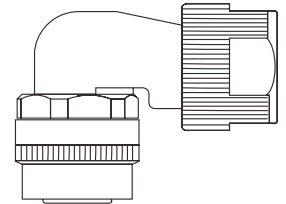
ACS3-CNEN2700  
(for F100 ~ F180)  
Mil-Spec: CMV1-SP10S



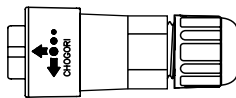
ACS3-CNEN1000  
(for F80 and below)



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

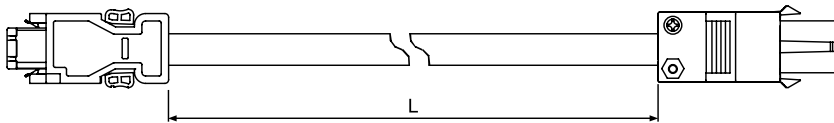


ACS3-CNEN2A00  
(for F80 and below)  
IP67 waterproof  
connector



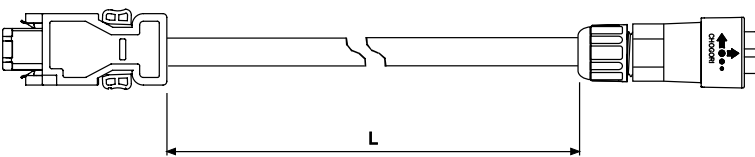
### Encoder Cables (Incremental Type)

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



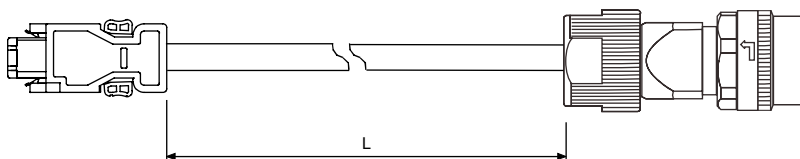
Cable	Part No.	L	
		mm	inch
Standard	ACS3-CAEN1003	3000 ± 50	118 ± 2
	ACS3-CAEN1005	5000 ± 50	197 ± 2
	ACS3-CAEN1010	10000 ± 100	394 ± 4
	ACS3-CAEN1020	20000 ± 100	788 ± 4
Torsion-Resistant	ACS3-CAEF1003	3000 ± 50	118 ± 2
	ACS3-CAEF1005	5000 ± 50	197 ± 2
	ACS3-CAEF1010	10000 ± 100	394 ± 4
	ACS3-CAEF1020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

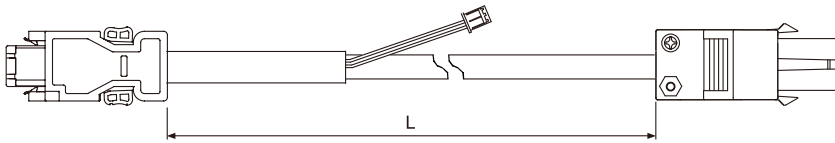
ACS3-CAEN2703, ACS3-CAEN2705, ACS3-CAEN2710, ACS3-CAEN2720,  
ACS3-CAEF2703, ACS3-CAEF2705, ACS3-CAEF2710, ACS3-CAEF2720  
(for F100 - F180)



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

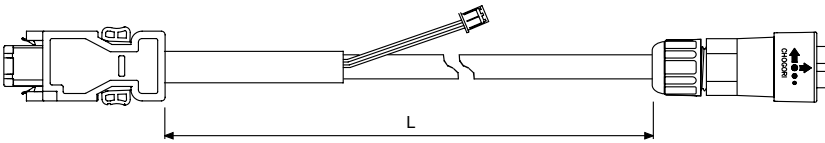
## Encoder Cables (Absolute Type)

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



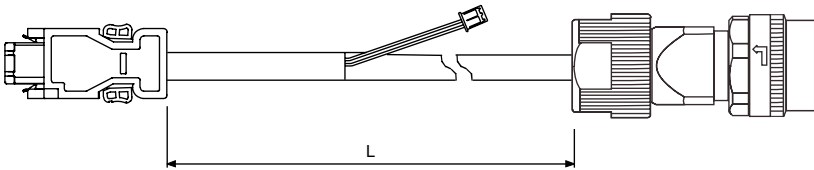
Cable	Part No.	L	
		mm	inch
Standard	ACS3-CAEA1003	3000 ± 50	118 ± 2
	ACS3-CAEA1005	5000 ± 50	197 ± 2
	ACS3-CAEA1010	10000 ± 100	394 ± 4
	ACS3-CAEA1020	20000 ± 100	788 ± 4
Torsion-Resistant	ACS3-CAEB1003	3000 ± 50	118 ± 2
	ACS3-CAEB1005	5000 ± 50	197 ± 2
	ACS3-CAEB1010	10000 ± 100	394 ± 4
	ACS3-CAEB1020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

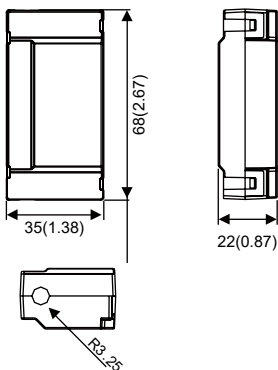
ACS3-CAEA2703, ACS3-CAEA2705, ACS3-CAEA2710, ACS3-CAEA2720,  
ACS3-CAEB2703, ACS3-CAEB2705, ACS3-CAEB2710, ACS3-CAEB2720  
(for F100 ~ F180)



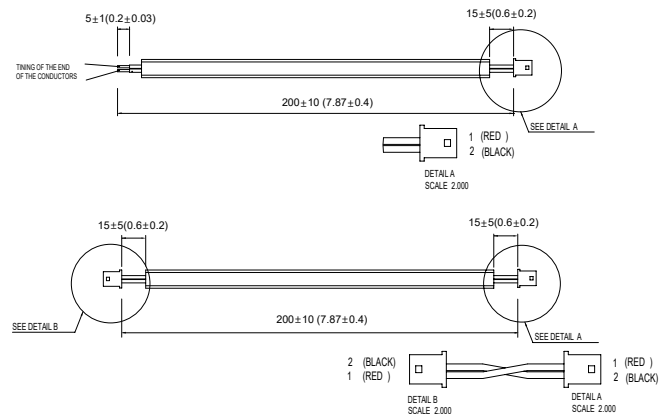
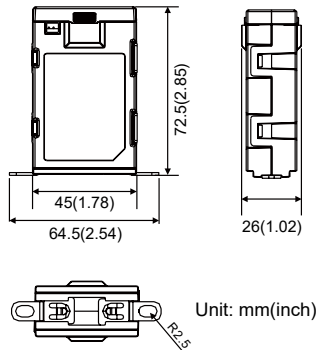
Cable	Part No.	L	
		mm	inch
Standard	ACS3-CAEA2703	3000 ± 50	118 ± 2
	ACS3-CAEA2705	5000 ± 50	197 ± 2
	ACS3-CAEA2710	10000 ± 100	394 ± 4
	ACS3-CAEA2720	20000 ± 100	788 ± 4
Torsion-Resistant	ACS3-CAEB2703	3000 ± 50	118 ± 2
	ACS3-CAEB2705	5000 ± 50	197 ± 2
	ACS3-CAEB2710	10000 ± 100	394 ± 4
	ACS3-CAEB2720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

## Absolute Battery Box

Single Battery Box  
ASD-MDBT0100



Double Battery Box  
ASD-MDBT0200



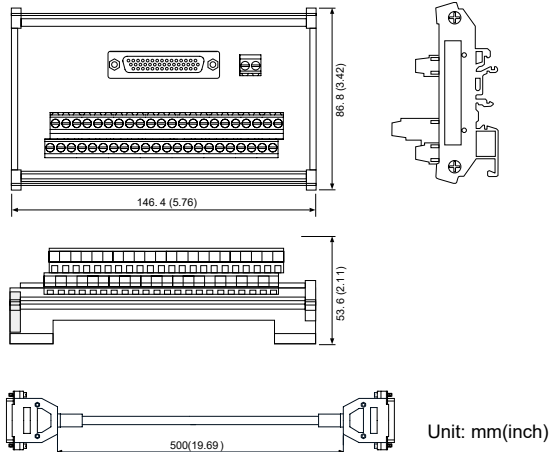
Note: Contact Delta Global Service team if ordering battery box cord only. **ASD-MDBT0200**

# Ordering Information

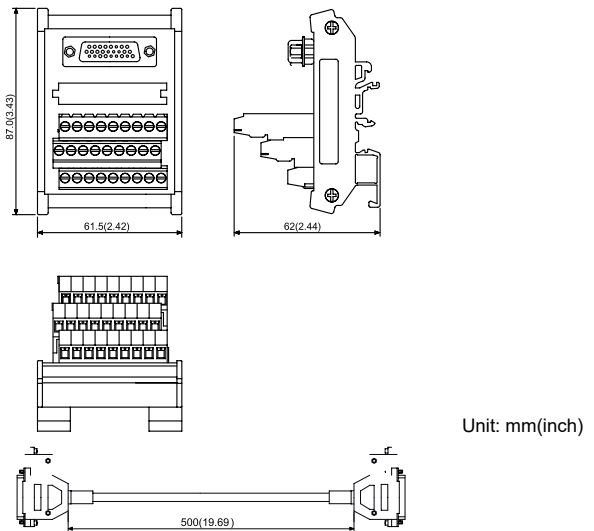
## Accessories

### Terminal Block Module

ACS3-MDTB4400 (for B3-L)

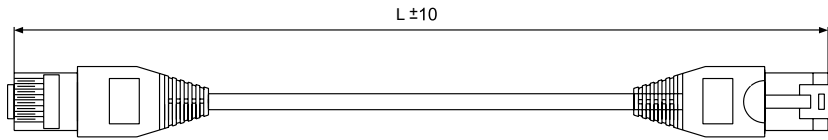


ACS3-MDTD2600 (for B3-M, F, and E)



### CN3 CANopen Communication Cable

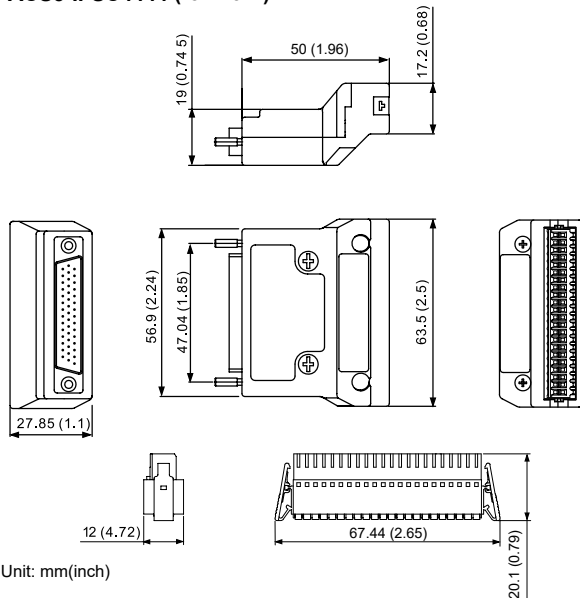
UC-CMC030-01A 、 UC-CMC050-01A



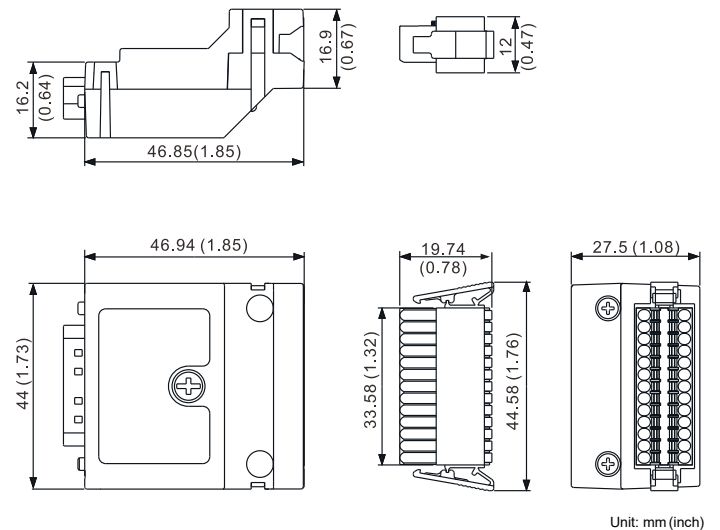
Item	Part No.	L	
		mm	inch
1	UC-CMC030-01A	3000 ± 10	11 ± 0.4
2	UC-CMC050-01A	5000 ± 10	19 ± 0.4

### CN1 Connectors

ACS3-IFSC4444 (for B3-L)

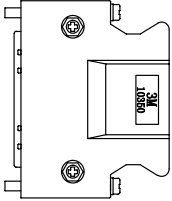


ACS3-IFSC2626 (for B3-M 、 F 、 E)

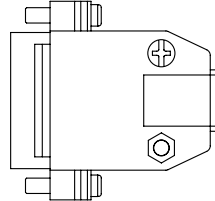


## CN1 Connectors

ACS3-CNTB0400 (for B3-L)

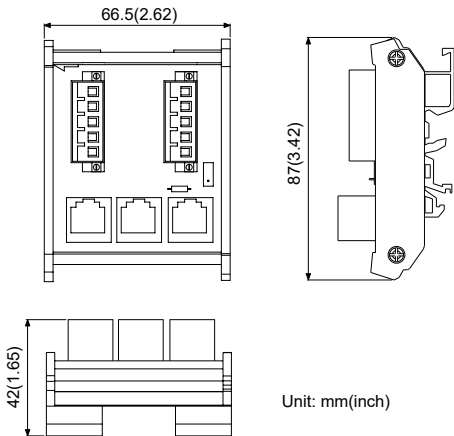


ACS3-CNTB0500 (for B3-M, F, and E)



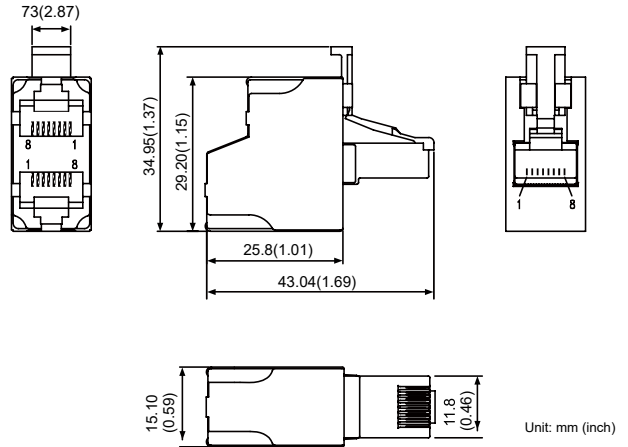
## CN3 CANopen Distribution Box

TAP-CN03



## CN3 RS-485 Tap

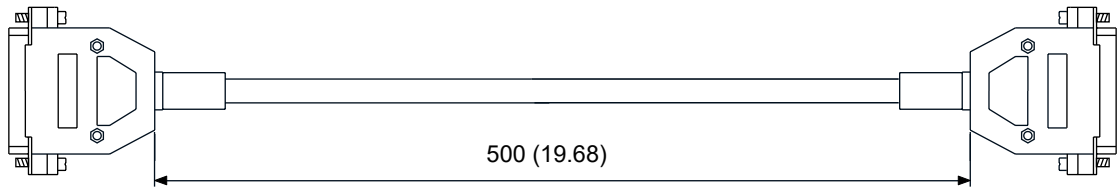
ACS3-CNADC3RC



## B3/B2 Conversion Cables

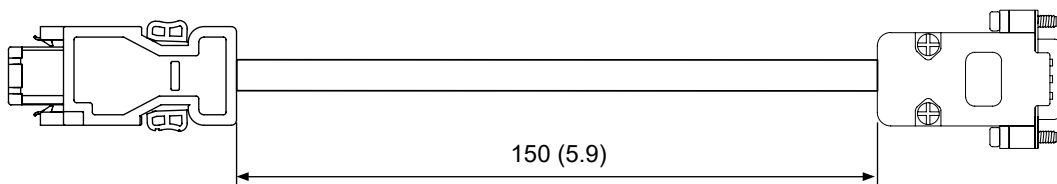
B3/B2 CN1 conversion cable (for B3-L)

ACS3-CABDC1



B3/B2 CN2 conversion cable

ACS3-CABDC2



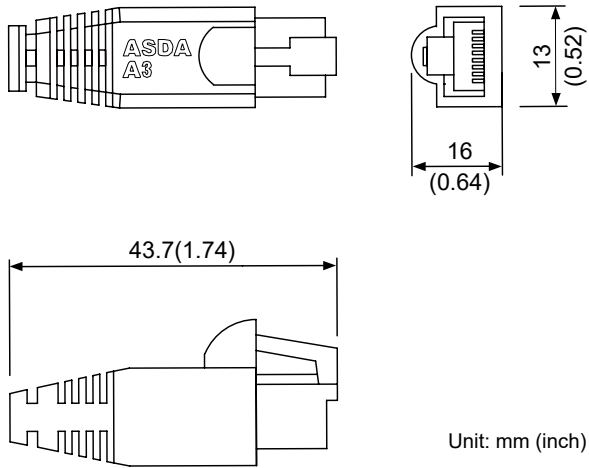
Unit: mm (inch)

# Ordering Information

## Accessories

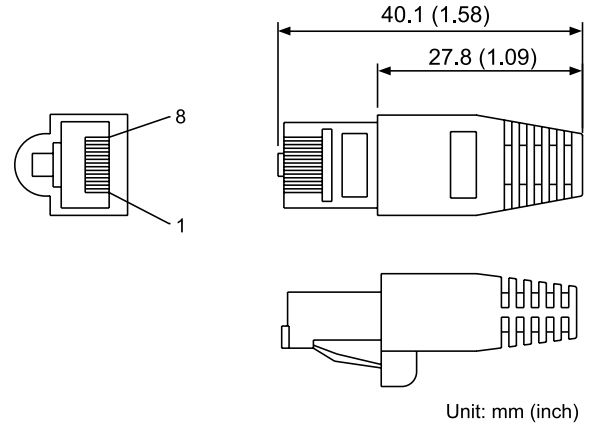
### CN3 RS-485/CANopen Terminal Resistor

ACS3-CNADC3TR



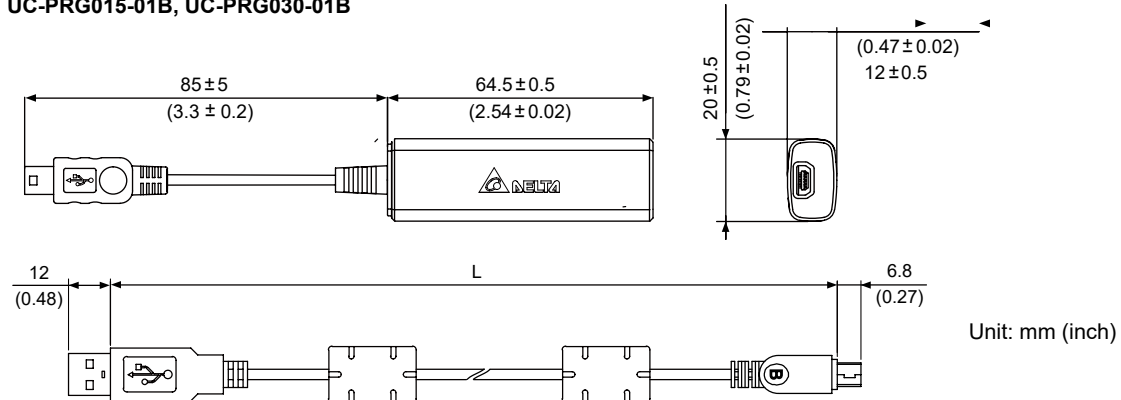
### CN6 DMCNET Terminal Resistor

ASD-TR-DM0008



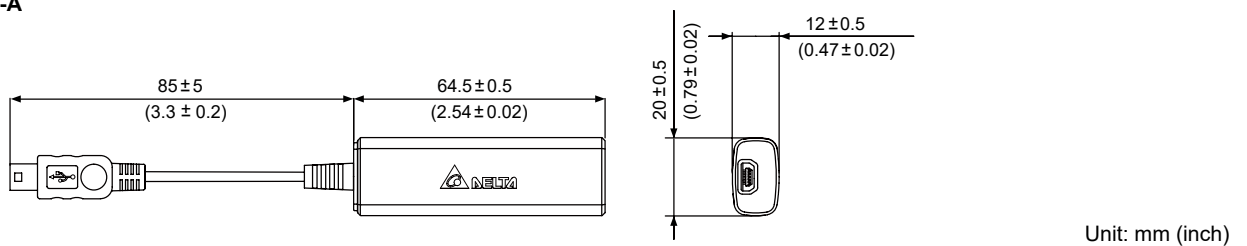
### CN4 Mini USB Communication Module

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



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

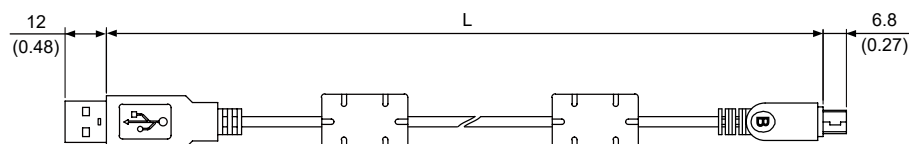


# Ordering Information

## Accessories

### CN4 Mini USB Communication Module

UC-PRG015-01S, 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**



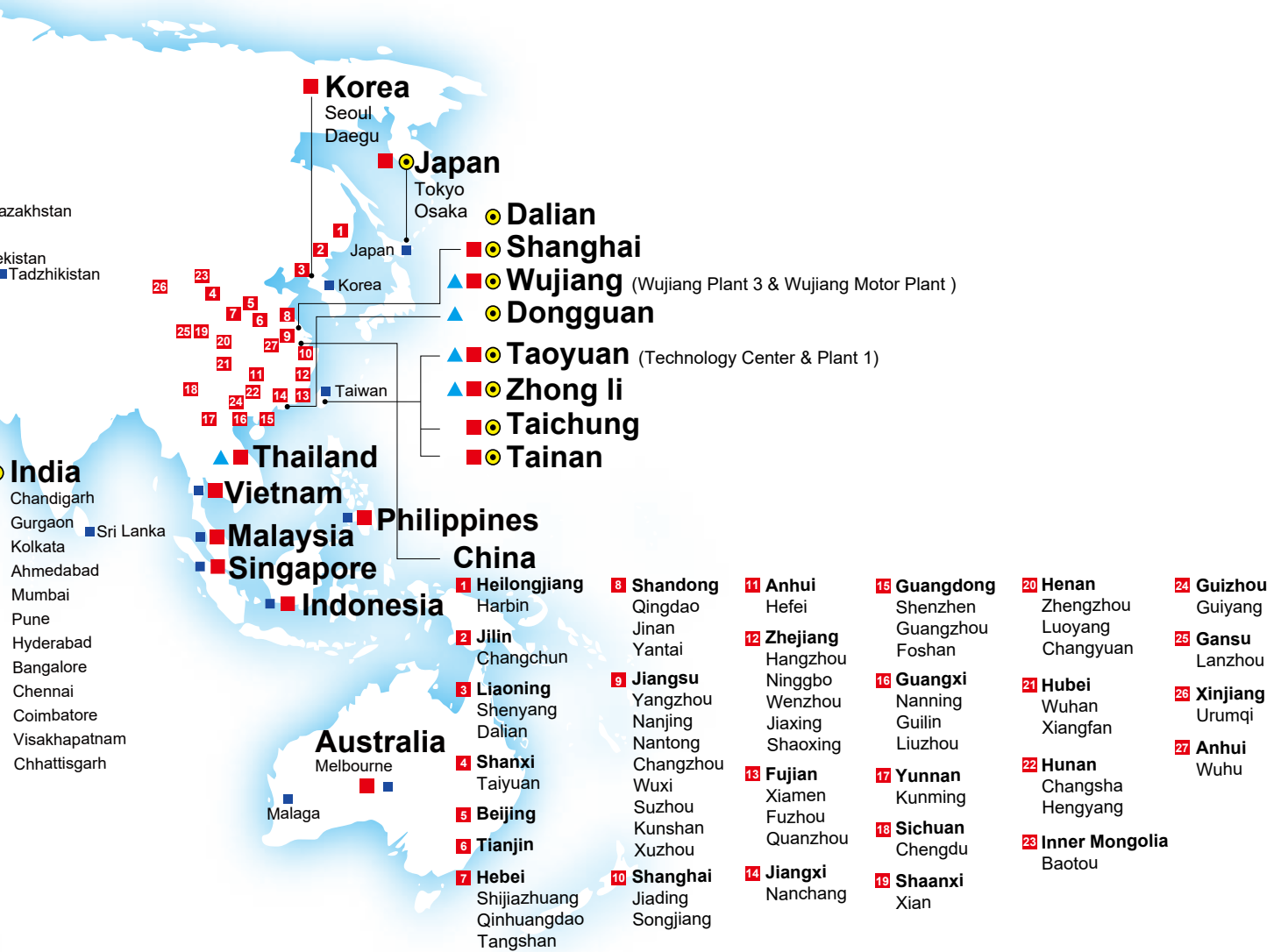
Amsterdam, the Netherlands

**AMERICA**



Research Triangle Park, U.S.A.

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





Smarter. Greener. Together.

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

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