



Automation for a Changing World

Delta AC Servo Drive ASDA-A2 Series



www.deltaww.com

 **DELTA**
Smarter. Greener. Together.

More Rapid, More Stable, More Precise

Delta Electronics, Inc., a leading manufacturer of industrial automation products, is pleased to announce the launch of its new high-performance ASDA-A2 series servo motors and servo drives with motion control.

The current trend for motion control has the control command source close to the drive. In response, Delta has developed the new ASDA-A2 series that offers excellent motion control so that the external controller is almost eliminated. The ASDA-A2 series features a built-in electronic cam (E-Cam) function which provides an excellent solution for flying shear, rotary cut and synchronized motion applications. The all new position register control PR mode is a unique and significant function that provides a variety of control modes to enhance system performance.

The ASDA-A2 series also supports various industrial communications protocols, such as CANopen, DMCNET, and EtherCAT, which offers higher performance and high speed communications and enables the drive to integrate with other parts of the automation more efficiently and effectively. The full-closed loop control, auto notch filter, vibration suppression and gantry control functions help to perform complex motions that require high precision and smooth operation. The 20-bit superior resolution encoder which is essential for accurate positioning applications is equipped as standard. In addition, the outstanding Capture and Compare functions for high-speed pulses offer the best support for stepless positioning. Other additional functionality includes up to 1kHz frequency response, innovative editing software, high-speed PC monitoring (similar to a digital oscilloscope), and more, all of which significantly maximize the performance of the ASDA-A2 series.

Delta's new ASDA-A2 series is the ultimate servo system providing a total solution for a wide range of machine tools and industrial applications



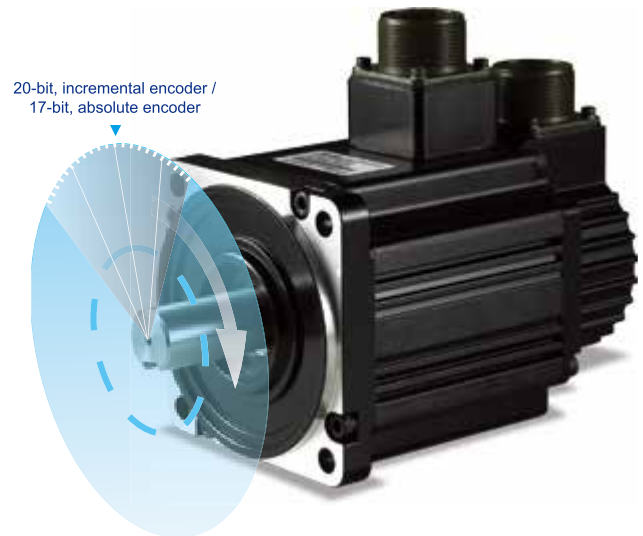
Table of Contents

3	ASDA-A2 Series Features
9	Product Line-up
13	Model Explanation
14	Servo Motor Features
15	Servo Motor Specifications
21	Servo Motor Dimensions
29	Part Names and Functions
31	Wiring
39	ASDA-Soft Configuration Software
41	Optional Accessories
43	Servo Drive Specifications
45	Servo Drive Dimensions
51	Optional Cables and Connectors
59	Servo Drive, Servo Motor and Accessories Combinations
73	Safety Information
74	Regenerative Resistor Specifications

ASDA-A2 Series Features

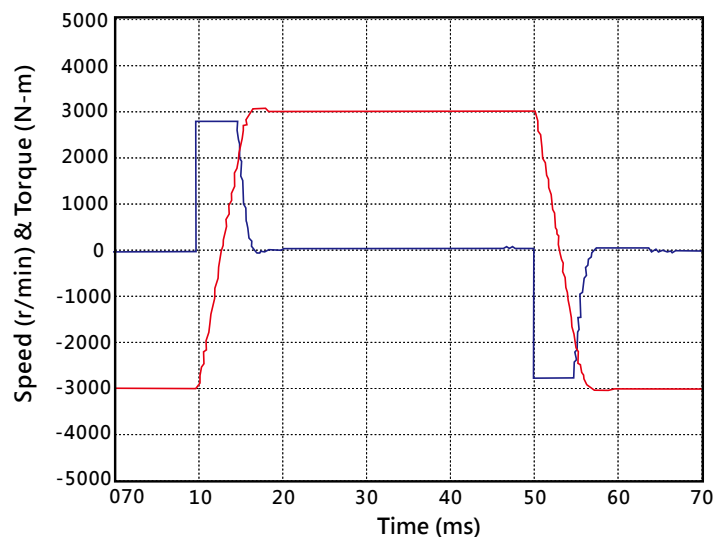
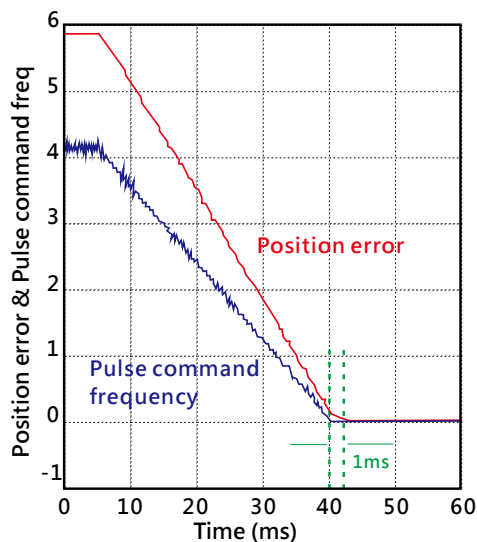
High Positioning Accuracy

- ▶ ECMA series servo motors feature incremental encoders with 20-bit resolution (1280000 p/rev) which can eliminate unstable commands at low speed, smooth motor operation and enhance the accuracy of positioning.
- ▶ Absolute encoder supported. 17-bit motor position will not get lost when power is cut off.



High Responsiveness

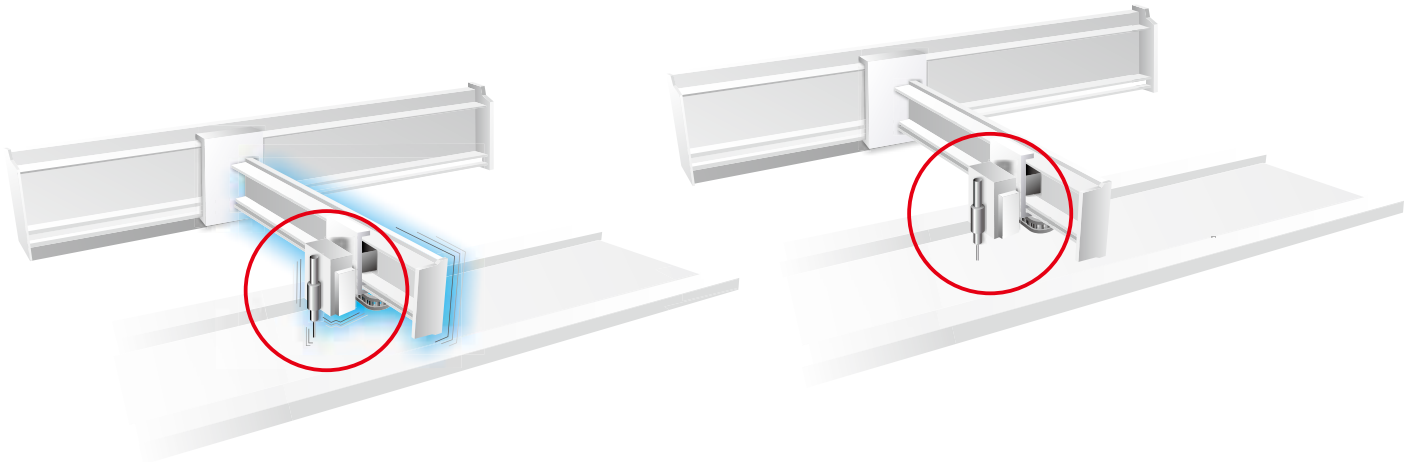
- ▶ Up to 1kHz frequency response.
 - ▶ Settling time below 1ms.
 - ▶ 7ms acceleration time for speeds from -3000r/min to 3000r/min with an empty load!
- (Note: The test record of a 400W motor with 60mm frame size)



Excellent Suppression Functions

► Vibration Suppression (Low Frequency)

Two vibration suppression filters are provided for a long arm system to minimize the vibration at the machine edges effectively.

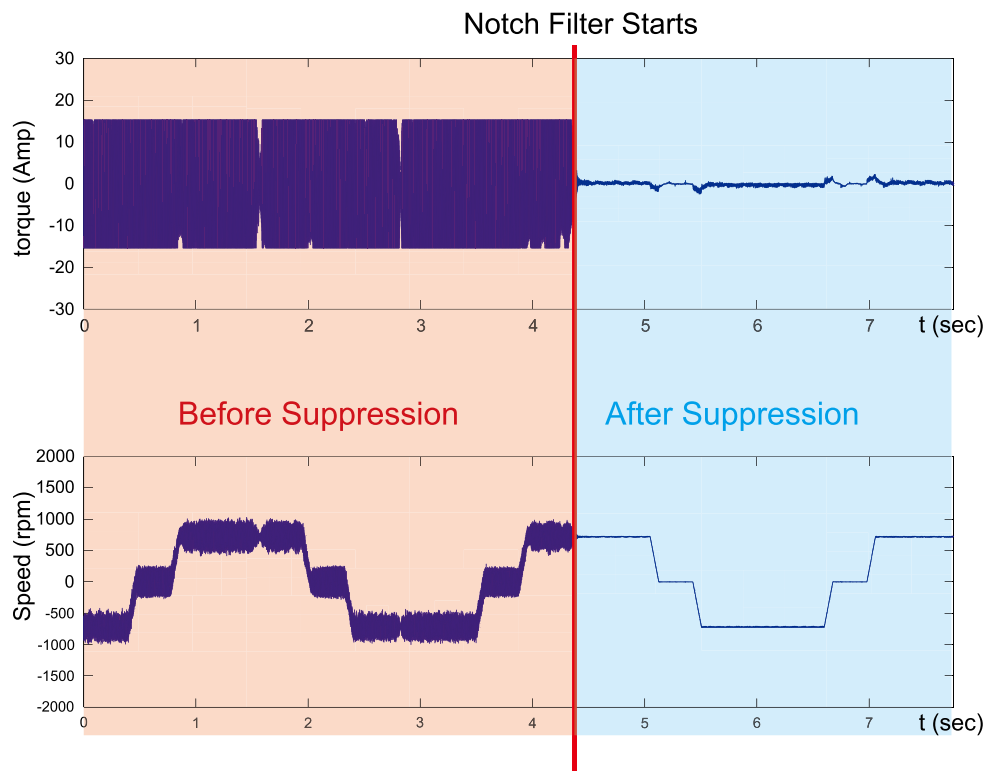


Without Suppression
Function When Settling

With Suppression
Function When Settling

► Resonance Suppression (High Frequency)

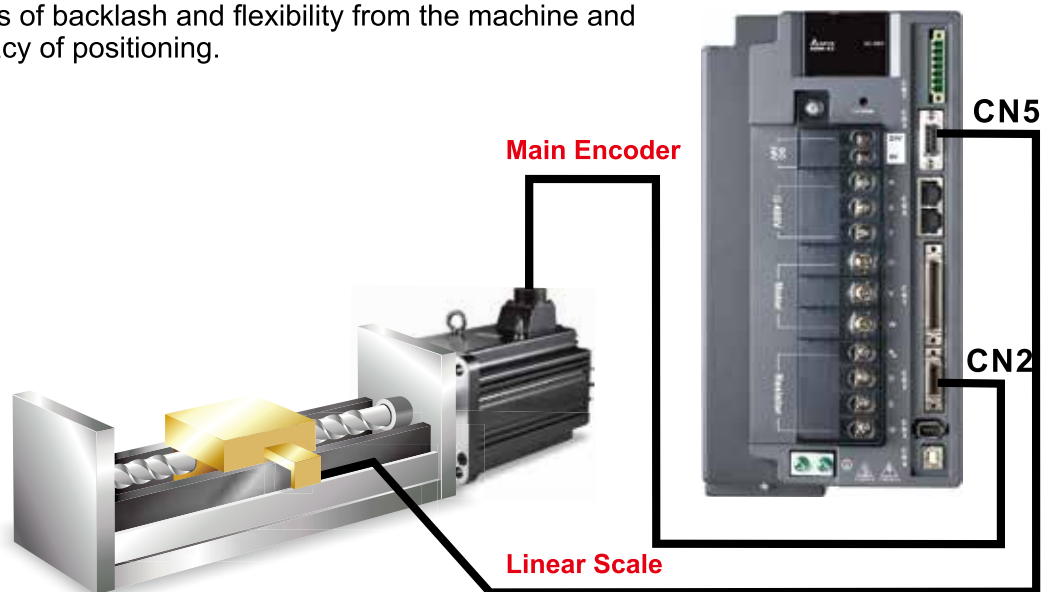
Two auto notch filters and one manual notch filter are provided to suppress mechanical resonance efficiently.



ASDA-A2 Series Features

Full-Closed Loop Control Function

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



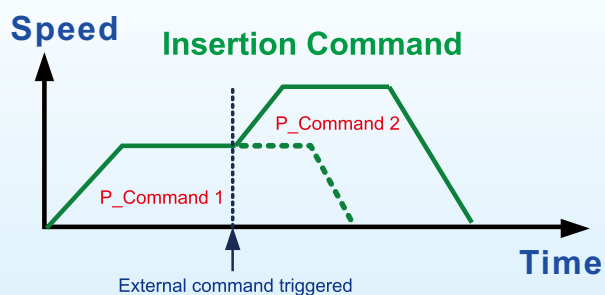
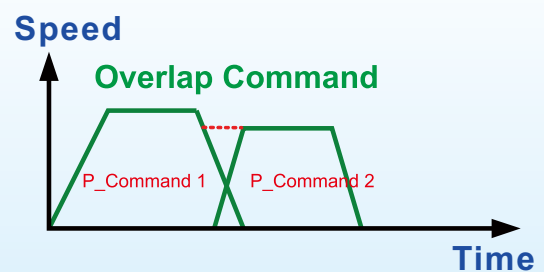
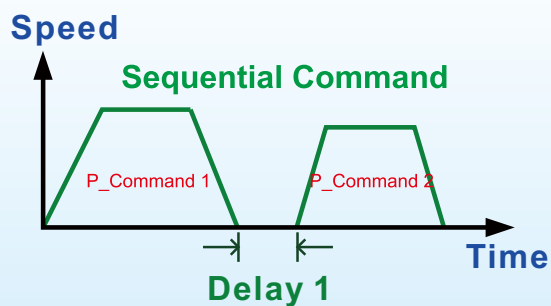
Electronic Cam (E-Cam) Function

- ▶ 720 points max. for E-Cam outline.
- ▶ Smooth interpolation between points can be completed automatically to yield a flexible programming.
- ▶ ASDA-Soft configuration software supported.
- ▶ Easy to use for flying shear, rotary cut, and other cam applications.



Versatile PR Mode

- ▶ ASDA-Soft configuration software supported.
- ▶ New sub-modes supported, not traditional point-to-point control.
- ▶ 64 procedures can be applied.
- ▶ Motion profile can be changed instantaneously.
- ▶ 35 Homing modes / Jump mode / Write parameter mode / Constant speed mode / Position control mode supported.



ASDA-A2 Series Features

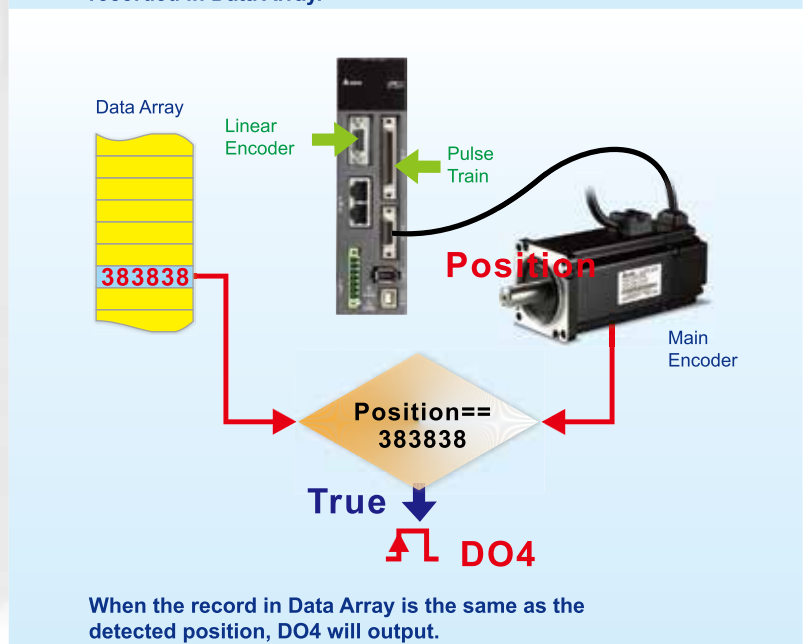
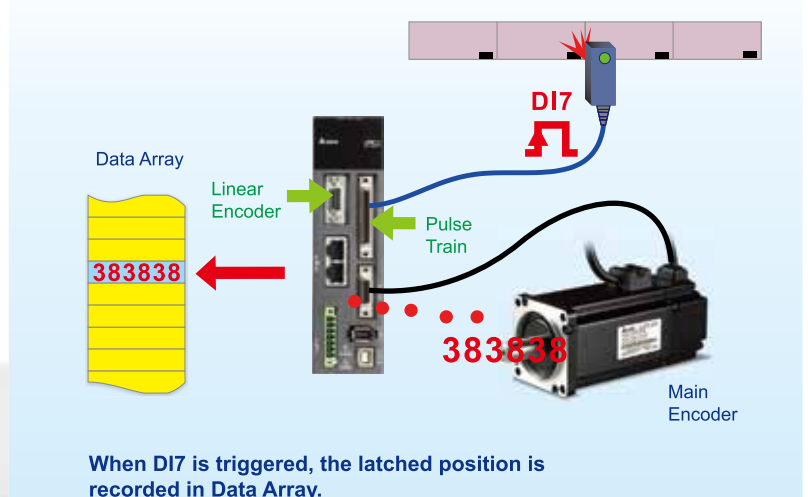
Capture and Compare Functions

Capture - Position Latch Function

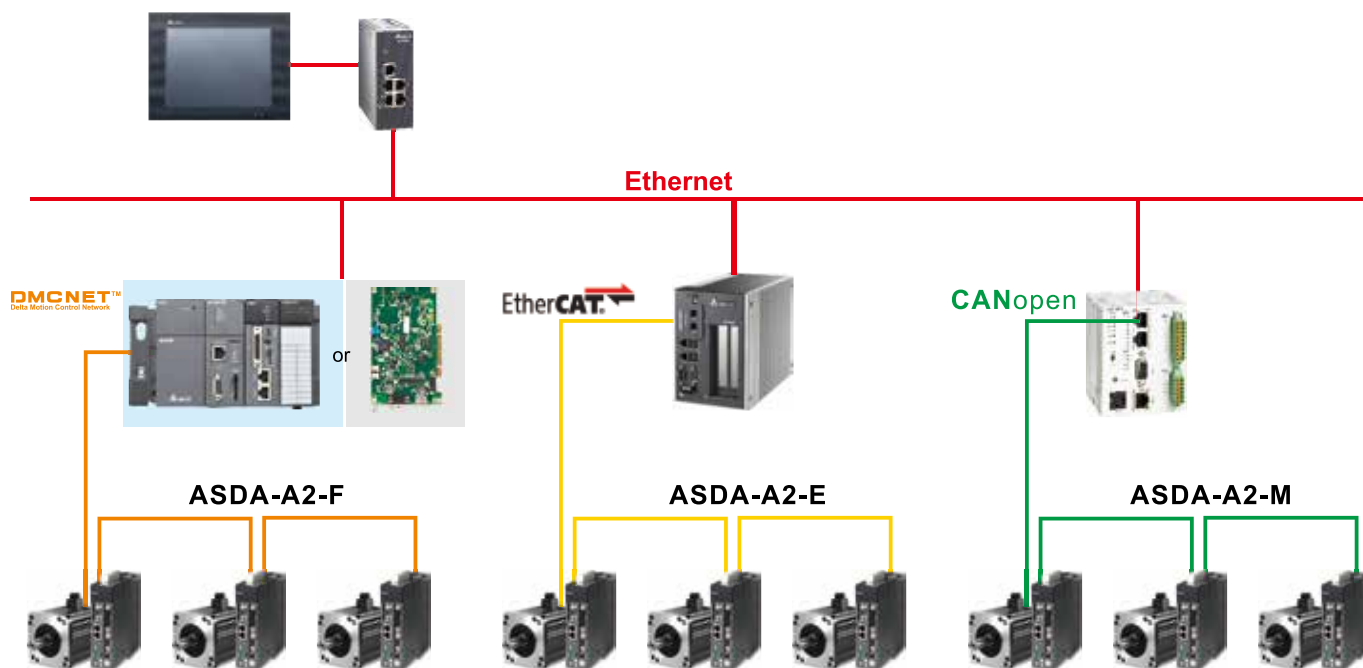
- ▶ Latches the coordinate value on the reference axis.
- ▶ Response time is less than 5us.
- ▶ It can be used to do mark tracing.
- ▶ Maximum 800 records

Compare - Position Detection Function

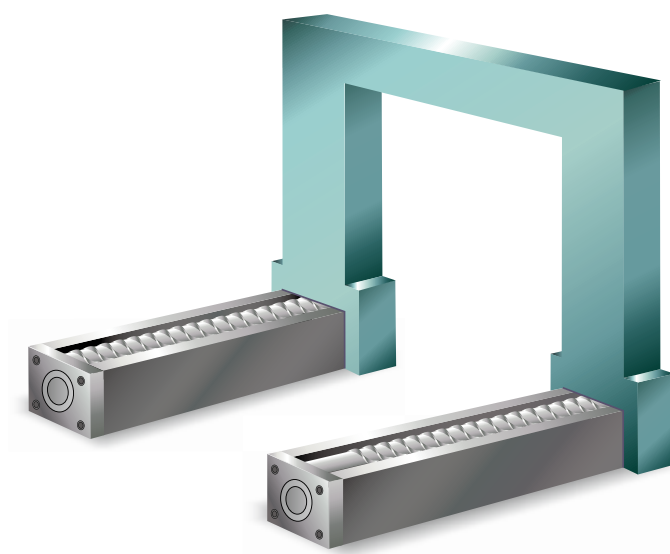
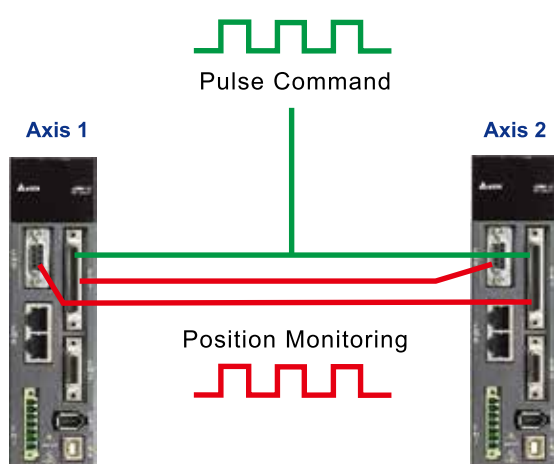
- ▶ Detects the location on the reference axis.
- ▶ Response time is less than 5us.
- ▶ It can be used for CCD camera applications.
- ▶ Maximum 800 records



Supports High-Speed DMCNET, EtherCAT, CANopen Protocols for Multi-Axis Synchronous Control



Integrated Gantry Control



Product Line-up

220V Series

Servo Motors				
Motor Series		Phase	Rated Output Power (W)	Model Name
Low Inertia	ECMA-C 3000 r/min	1-phase / 3-phase	50	ECMA-C1040F □ S
			100	ECMA-C △ 0401 □ S
			200	ECMA-C △ 0602 □ S
			400	ECMA-C △ 0604 □ S
			400	ECMA-C △ 0804 □ 7
			750	ECMA-C △ 0807 □ S
			750	ECMA-C △ 0907 □ S
			1000	ECMA-C △ 0910 □ S
			1000	ECMA-C △ 1010 □ S
			2000	ECMA-C △ 1020 □ S
			3000	ECMA-C △ 1330 □ 4
Medium Inertia	ECMA-E 2000 r/min	1-phase / 3-phase	500	ECMA-E △ 1305 □ S
			1000	ECMA-E △ 1310 □ S
			1500	ECMA-E △ 1315 □ S
			2000	ECMA-E △ 1320 □ S
			2000	ECMA-E △ 1820 □ S
			3000	ECMA-E △ 1830 □ S
			3500	ECMA-E △ 1835 □ S
Medium-High Inertia	ECMA-F 1500 r/min	1-phase / 3-phase	500	ECMA-F △ 1305 □ S
			850	ECMA-F △ 1308 □ S
			1300	ECMA-F △ 1313 □ S
			1800	ECMA-F △ 1318 □ S
			3000	ECMA-F △ 1830 □ S
			4500	ECMA-F △ 1845 □ S
			5500	ECMA-F △ 1855 □ 3
			7500	ECMA-F △ 1875 □ 3
			11000	ECMA-F1221B □ 3
			15000	ECMA-F1221F □ S
High Inertia	ECMA-C/G 3000 r/min	1-phase / 3-phase	400	ECMA-C △ 0604 □ H
			750	ECMA-C △ 0807 □ H
			300	ECMA-G △ 1303 □ S
			600	ECMA-G △ 1306 □ S
			900	ECMA-G △ 1309 □ S



- 1) The boxes (□) at the ends of the servo drive model names are for optional configurations. For the actual model name, please refer to the model explanation of the product.
- 2) The boxes (△) in the model names represent encoder type. (△ =1: Incremental encoder, 20-bit ; △ =2: Incremental encoder, 17-bit)
- 3) The boxes (□) in the model names represent shaft end/brake or the number of oil seals.

		Servo Drives		
Rated current (Arms)	Maximum current (A)	Model Name	Continuous Output Current (Arms)	Max. Instantaneous Current (A)
0.69	2.05	ASD-A2-0121-□	0.90	2.70
0.90	2.70			
1.55	4.65	ASD-A2-0221-□	1.55	4.65
2.60	7.80	ASD-A2-0421-□	2.60	7.80
2.60	7.80			
5.10	15.30	ASD-A2-0721-□	5.10	15.30
3.66	11.00			
4.25	12.37	ASD-A2-1021-□	7.30	21.90
7.30	21.90			
12.05	36.15	ASD-A2-2023-□	13.40	40.20
17.2	47.5	ASD-A2-3023-□	19.40	58.20
2.90	8.70	ASD-A2-0421-□	2.60	7.80
5.60	16.80	ASD-A2-1021-□	7.30	21.90
8.30	24.90	ASD-A2-1521-□	8.30	24.90
11.01	33.03	ASD-A2-2023-□	13.40	40.20
11.22	33.66			
16.10	48.30	ASD-A2-3023-□	19.40	58.20
19.20	57.60			
3.90	12.10	ASD-A2-0721-□	5.10	15.30
7.10	19.40	ASD-A2-1021-□	7.30	21.90
12.60	38.60	ASD-A2-2023-□	13.40	40.20
13.00	36.00			
19.40	58.20	ASD-A2-3023-□	19.40	58.20
32.50	81.30	ASD-A2-4523-□	32.50	70.7
40.00	100.00	ASD-A2-5523-□	40.00	106
47.50	118.80	ASD-A2-7523-□	47.50	141.1
51.80	129.50	ASD-A2-1B23-□	54.40	141.1
61.50	145.70	ASD-A2-1F23-□	70.00	212.2
2.60	7.80	ASD-A2-0421 □	2.60	7.80
5.10	15.30	ASD-A2-0721-□	5.10	15.30
2.50	7.50	ASD-A2-0421-□	2.60	7.80
4.80	14.40	ASD-A2-0721-□	5.10	15.30
7.50	22.50	ASD-A2-1021-□	7.30	21.90

the servo drive.

Product Line-up

400V Series

Servo Motors				
Motor Series		Phase	Rated Output Power (W)	Model Name
Low Inertia	ECMA-J 3000 r/min	3-phase	400	ECMA-J △ 0604 □ S
			750	ECMA-J △ 0807 □ S
			750	ECMA-J △ 0907 □ S
			1000	ECMA-J △ 0910 □ S
			1000	ECMA-J △ 1010 □ S
			2000	ECMA-J △ 1020 □ S
			3000	ECMA-J △ 1330 □ 4
Medium Inertia	ECMA-K 2000 r/min	3-phase	750	ECMA-K △ 1305 □ S
			1000	ECMA-K △ 1310 □ S
			1500	ECMA-K △ 1315 □ S
			2000	ECMA-K △ 1320 □ S
			2000	ECMA-K △ 1820 □ S
Medium-High Inertia	ECMA-L 1500 r/min	3-phase	750	ECMA-L △ 1305 □ S
			850	ECMA-L △ 1308 □ S
			1300	ECMA-L △ 1313 □ S
			3000	ECMA-L △ 1830 □ S
			4500	ECMA-L △ 1845 □ S
			5500	ECMA-L △ 1855 □ 3
			7500	ECMA-L △ 1875 □ 3
High Inertia	ECMA-G 3000 r/min	3-phase	900	ECMA-M △ 1309 □ S



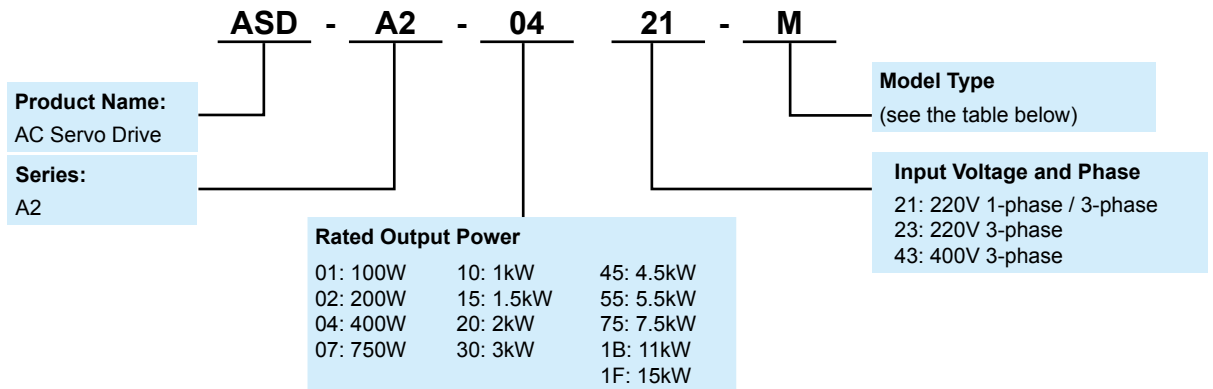
- 1) The boxes (□) at the ends of the servo drive model names are for optional configurations. For the actual model name, please refer to the model explanation of the product.
- 2) The boxes (△) in the model names represent encoder type. (△ =1: Incremental encoder, 20-bit ; △ =2: Incremental encoder, 17-bit)
- 3) The boxes (□) in the model names represent shaft end/brake or the number of oil seals.

		Servo Drives		
Rated current (Arms)	Maximum current (A)	Model Name	Continuous Output Current (Arms)	Max. Instantaneous Current (A)
1.62	4.85	ASD-A2-0743-□	3.07	9.21
3.07	9.5	ASD-A2-0743-□	3.07	9.21
2.16	6.37	ASD-A2-0743-□	3.07	9.21
2.4	7.17	ASD-A2-1043-□	3.52	9.86
4.15	12.46	ASD-A2-1543-□	5.02	10.04
7.09	21.28	ASD-A2-2043-□	6.66	18.65
9.8	29.99	ASD-A2-3043-□	11.9	33.32
1.7	5.2	ASD-A2-0743-□	3.07	9.21
3.52	10.56	ASD-A2-1043-□	3.52	9.86
5.02	15.06	ASD-A2-1543-□	5.02	10.04
6.66	19.98	ASD-A2-2043-□	6.66	18.65
6.6	19.88	ASD-A2-2043-□	6.66	18.65
2.1	6.1	ASD-A2-0743-□	3.07	9.21
3.4	8.85	ASD-A2-1043-□	3.52	9.86
5.02	15	ASD-A2-1543-□	5.02	10.04
11.53	34.6	ASD-A2-3043-□	11.9	33.32
20.8	52	ASD-A2-4543-□	20	44
22.37	56	ASD-A2-5543-□	22.04	48.49
27.3	68.3	ASD-A2-7543-□	28.39	62.46
4.4	13.1	ASD-A2-1543-□	5.02	10.04

the servo drive.

Model Explanation

ASDA-A2 Series Servo Drives



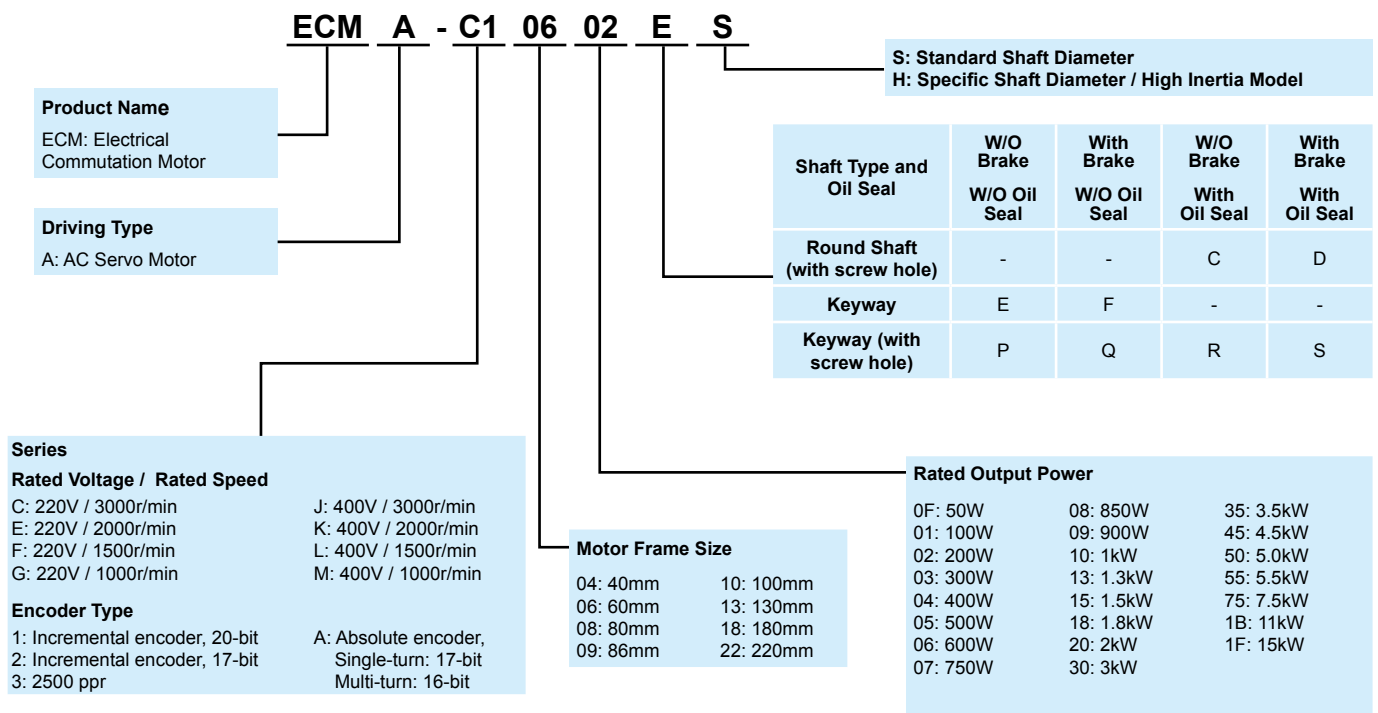
	Type	RS-485 (CN3)	Full-Closed Control (CN5)	Extension Port for Digital Input (CN7)	EtherCAT	CANpen	DMCNET	Analog Voltage Control	PT Mode	PR Mode	E-Cam
Standard Type	L	○	○	X	X	X	X	○	○	○	X
	U	○	○	○	X	X	X	○	○	○	○
Network Type	E	X	○	X	○	X	X	X	X	○	○
	F*	X	○	X	X	X	○	X	X	○	X
	M	X	○	X	X	○	X	X	○	○	○



NOTE

*-A2-F model type supports DMCNET only

ECMA Series Servo Motors



Servo Motor Features

ECMA series servo motors are permanent AC servo motors, capable of combining with 200 to 230V ASDA-A2 220V series AC servo drives from 100W to 15kW and 380V to 480V ASDA-A2 400V series AC servo drives from 750W to 7.5kW.

For the 220V series, there are 40mm, 60mm, 80mm, 86mm, 100mm, 130mm, 180mm, and 200mm eight kinds of frame sizes available. The motor speed is from 1000 r/min to 5000 r/min and the torque output is from 1.92 N-m to 224 N-m.

For the 400V series, there are 80mm, 130mm, 180mm and 200mm four kinds of frame sizes available. The motor speed is from 1500 r/min to 5000 r/min and the torque output is from 2.39 N-m to 119.36 N-m. In terms of optional configurations, the ECMA series provides a brake and oil seals to fully support our customers' needs. It also offers two different shaft selections, round shaft and keyway, for various applications.



Servo Motor Specifications

Low Inertia Series - 220V Series

ECMA Series	C104	C △ 04	C △ 06		C △ 08		C △ 09		C △ 10		C △ 13
	0F	01	02	04 □ S	04	07	07	10	10	20	30
Rated output power (kW)	0.05	0.1	0.2	0.4	0.4	0.75	0.75	1.0	1.0	2.0	3.0
Rated torque (N-m) ^{*1}	0.159	0.32	0.64	1.27	1.27	2.39	2.39	3.18	3.18	6.37	9.55
Maximum torque (N-m)	0.477	0.96	1.92	3.82	3.82	7.16	7.14	8.78	9.54	19.11	28.65
Rated speed (r/min)	3000						3000		3000		3000
Maximum speed (r/min)	5000						3000		5000		4500
Rated current (A)	0.69	0.90	1.55	2.6	2.6	5.1	3.66	4.25	7.3	12.05	17.2
Maximum current (A)	2.05	2.70	4.65	7.8	7.8	15.3	11	12.37	21.9	36.15	47.5
Power rating (kW/s)	12.27	27.7	22.4	57.6	24.0	50.4	29.6	38.6	38.1	90.6	71.8
Rotor moment of inertia (x10 ⁻⁴ kg-m ²)	0.0206	0.037	0.177	0.277	0.68	1.13	1.93	2.62	2.65	4.45	12.7
Mechanical time constant (ms)	1.2	0.75	0.80	0.53	0.74	0.63	1.72	1.20	0.74	0.61	1.11
Torque constant-KT (N-m/A)	0.23	0.36	0.41	0.49	0.49	0.47	0.65	0.75	0.44	0.53	0.557
Voltage constant-KE (mV/(r/min))	9.8	13.6	16	17.4	18.5	17.2	24.2	27.5	16.8	19.2	20.98
Armature resistance (Ohm)	12.7	9.30	2.79	1.55	0.93	0.42	1.34	0.897	0.20	0.13	0.0976
Armature inductance (mH)	26	24.0	12.07	6.71	7.39	3.53	7.55	5.7	1.81	1.50	1.21
Electrical time constant (ms)	2.05	2.58	4.3	4.3	7.96	8.36	5.66	6.35	9.3	11.4	12.4
Insulation class	Class A (UL), Class B (CE)										
Insulation resistance	100MΩ, DC 500V above										
Insulation strength	1.8k Vac, 1 sec										
Weight (kg)(without brake)	0.42	0.5	1.2	1.6	2.1	3.0	2.9	3.8	4.3	6.2	7.8
Weight (kg)(with brake)	--	0.8	1.5	2.0	2.9	3.8	3.69	5.5	4.7	7.2	9.2
Max. radial shaft load (N)	78.4	78.4	196	196	245	245	245	245	490	490	490
Max. thrust shaft load (N)	39.2	39.2	68	68	98	98	98	98	98	98	98
Power rating (kW/s)(with brake)	--	25.6	21.3	53.8	22.1	48.4	29.3	37.9	30.4	82	65.1
Rotor moment of inertia (x10 ⁻⁴ kg-m ²)(with brake)	--	0.04	0.19	0.30	0.73	1.18	1.95	2.67	3.33	4.95	14.0
Mechanical time constant (ms)(with brake)	--	0.81	0.85	0.57	0.78	0.65	1.74	1.22	0.93	0.66	1.22
Brake holding torque [Nt-m (min)] ^{*2}	--	0.3	1.3	1.3	2.5	2.5	2.5	2.5	8	8	10.0
Brake power consumption (at 20°C)[W]	--	7.3	6.5	6.5	8.2	8.2	8.2	8.2	18.7	18.7	19.0
Brake release time [ms (Max)]	--	5	10	10	10	10	10	10	10	10	10
Brake pull-in time [ms (Max)]	--	25	70	70	70	70	70	70	70	70	70
Vibration grade (μm)	15										
Operating temperature (°C)	0°C to 40°C (32° F to 104° F)										
Storage temperature (°C)	-10°C to 80°C (-14° F to 176° F)										
Operating humidity	20 to 90%RH (non-condensing)										
Storage humidity	20 to 90%RH (non-condensing)										
Vibration capacity	2.5G										
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))										
Approvals	   										

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

ECMA---04 / 06 / 08: 250 mm x 250 mm x 6 mm
 ECMA---10: 300 mm x 300 mm x 12 mm
 ECMA---13: 400 mm x 400 mm x 20 mm
 ECMA---18: 550 mm x 550 mm x 30 mm
 ECMA---22: 650 mm x 650 mm x 35 mm
 Material type : Aluminum - F40, F60, F80, F100, F130, F180, F220

*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Medium Inertia Series - 220V Series

ECMA Series	E Δ 13				E Δ 18		
	05	10	15	20	20	30	35
Rated output power (kW)	0.5	1.0	1.5	2.0	2.0	3.0	3.5
Rated torque (N-m) ^{*1}	2.39	4.77	7.16	9.55	9.55	14.32	16.71
Maximum torque (N-m)	7.16	14.3	21.48	28.65	28.65	42.97	50.13
Rated speed (r/min)	2000						
Maximum speed (r/min)	3000						
Rated current (A)	2.9	5.6	8.3	11.01	11.22	16.1	19.2
Maximum current (A)	8.7	16.8	24.9	33.03	33.66	48.3	57.6
Power rating (kW/s)	7.0	27.1	45.9	62.5	26.3	37.3	50.8
Rotor moment of inertia (x10 ⁻⁴ kg-m ²)(without brake)	8.17	8.41	11.18	14.59	34.68	54.95	54.95
Mechanical time constant (ms)	1.91	1.51	1.10	0.96	1.62	1.06	1.08
Torque constant-KT (N-m/A)	0.83	0.85	0.87	0.87	0.85	0.89	0.87
Voltage constant-KE (mV/(r/min))	30.9	31.9	31.8	31.8	31.4	32.0	32
Armature resistance (Ohm)	0.57	0.47	0.26	0.174	0.119	0.052	0.052
Armature inductance (mH)	7.39	5.99	4.01	2.76	2.84	1.38	1.38
Electrical time constant (ms)	12.96	12.88	15.31	15.86	23.87	26.39	26.39
Insulation class	Class A (UL), Class B (CE)						
Insulation resistance	100M Ω , DC 500V above						
Insulation strength	1.8k Vac, 1 sec						
Weight (kg)(without brake)	6.8	7.0	7.5	7.8	13.5	18.5	18.5
Weight (kg)(with brake)	8.2	8.4	8.9	9.2	17.5	22.5	22.5
Max. radial shaft load (N)	490	490	490	490	1176	1470	490
Max. thrust shaft load (N)	98	98	98	98	490	490	98
Power rating (kW/s)(with brake)	6.4	24.9	43.1	57.4	24.1	35.9	48.9
Rotor moment of inertia (x10 ⁻⁴ kg-m ²)(with brake)	8.94	9.14	11.90	15.88	37.86	57.06	57.06
Mechanical time constant (ms)(with brake)	2.07	1.64	1.19	1.05	1.77	1.10	1.12
Brake holding torque [Nt-m (min)] ^{*2}	10.0	10.0	10.0	10.0	25.0	25.0	25.0
Brake power consumption (at 20°C)[W]	19.0	19.0	19.0	19.0	20.4	20.4	20.4
Brake release time [ms (Max)]	10	10	10	10	10	10	10
Brake pull-in time [ms (Max)]	70	70	70	70	70	70	70
Vibration grade (μ m)	15						
Operating temperature (°C)	0°C to 40°C (32° F to 104° F)						
Storage temperature (°C)	-10°C to 80°C (-14° F to 176° F)						
Operating humidity	20 to 90%RH (non-condensing)						
Storage humidity	20 to 90%RH (non-condensing)						
Vibration capacity	2.5G						
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))						
Approvals	  						

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

ECMA-__ 04 / 06 / 08: 250 mm x 250 mm x 6 mm

ECMA-__ 10: 300 mm x 300 mm x 12 mm

ECMA-__ 13: 400 mm x 400 mm x 20 mm

ECMA-__ 18: 550 mm x 550 mm x 30 mm

ECMA-__ 22: 650 mm x 650 mm x 35 mm

Material type : Aluminum – F40, F60, F80, F100, F130, F180, F220

*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Servo Motor Specifications

Medium-High Inertia Series - 220V Series

ECMA Series	F Δ 13				F Δ 18				F Δ 22	
	05	08	13	18	30	45	55	75	1B	1F
Rated output power (kW)	0.5	0.85	1.3	1.8	3.0	4.5	5.5	7.5	11	15
Rated torque (N-m) ^{*1}	3.18	5.41	8.34	11.48	19.10	28.65	35.01	47.74	70	95.4
Maximum torque (N-m)	8.92	13.8	23.3	28.7	57.29	71.62	87.53	119.36	175	224.0
Rated speed (r/min)	1500									
Maximum speed (r/min)	3000								2000	
Rated current (A)	3.9	7.1	12.6	13	19.4	32.5	40.0	47.5	51.8	67
Maximum current (A)	12.1	19.4	38.6	36	58.2	81.3	100.0	118.8	129.5	162
Power rating (kW/s)	9.8	21.52	34.78	52.93	66.4	105.5	122.9	159.7	144.9	201.8
Rotor moment of inertia (x10 ⁻⁴ kg-m ²)(without brake)	10.3	13.6	20	24.9	54.95	77.75	99.78	142.7	338	451
Mechanical time constant (ms)	2.8	2.43	1.62	1.7	1.28	0.92	0.96	0.63	1.38	1.23
Torque constant-KT (N-m/A)	0.82	0.76	0.66	0.88	0.98	0.88	0.88	1.01	1.37	1.42
Voltage constant-KE (mV/(r/min))	29.5	29.2	24.2	32.2	35.0	32.0	31.0	35.5	49	50
Armature resistance (Ohm)	0.624	0.38	0.124	0.185	0.077	0.032	0.025	0.015	0.026	0.0184
Armature inductance (mH)	7	4.77	1.7	2.6	1.27	0.89	0.60	0.40	0.65	0.48
Electrical time constant (ms)	11.22	12.55	13.71	14.05	16.5	27.8	24.0	26.7	24.79	26.09
Insulation class	Class A (UL), Class B (CE)									
Insulation resistance	100M Ω , DC 500V above									
Insulation strength	1.8k Vac, 1 sec									
Weight (kg)(without brake)	6.3	8.6	9.4	10.5	18.5	23.5	30.5	40.5	56.4	75
Weight (kg)(with brake)	7.7	10.0	10.8	11.9	22.5	29	36	46	68.4	87
Max. radial shaft load (N)	490	490	490	490	1470	1470	1764	1764	3300	3300
Max. thrust shaft load (N)	98	98	98	98	490	490	588	588	1100	1100
Power rating (kW/s)(with brake)	8.8	19.78	32.66	50.3	63.9	101.8	119.4	156.6	141.4	197.1
Rotor moment of inertia (x10 ⁻⁴ kg-m ²)(with brake)	11.5	14.8	21.3	26.2	57.06	80.65	102.70	145.55	346.5	461.8
Mechanical time constant (ms)(with brake)	3.12	2.65	1.73	1.79	1.33	0.96	0.99	0.64	1.41	1.25
Brake holding torque[Nt-m(min)] ²	10	10.0	10.0	10.0	25.0	55.0	55.0	55.0	115	115
Brake power consumption (at 20°C)[W]	19	19.0	19.0	19.0	20.4	19.9	19.9	19.9	28.8	28.8
Brake release time [ms (Max)]	10	10	10	10	10	10	10	10	10	10
Brake pull-in time [ms (Max)]	70	70	70	70	70	70	70	70	70	70
Vibration grade (μ m)	15									
Operating temperature (°C)	0°C to 40°C (32° F to 104° F)									
Storage temperature (°C)	-10°C to 80°C (-14° F to 176° F)									
Operating humidity	20 to 90%RH (non-condensing)									
Storage humidity	20 to 90%RH (non-condensing)									
Vibration capacity	2.5G									
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))									
Approvals	   									

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

ECMA-__ 04 / 06 / 08: 250 mm x 250 mm x 6 mm

ECMA-__ 10: 300 mm x 300 mm x 12 mm

ECMA-__ 13: 400 mm x 400 mm x 20 mm

ECMA-__ 18: 550 mm x 550 mm x 30 mm

ECMA-__ 22: 650 mm x 650 mm x 35 mm

Material type : Aluminum – F40, F60, F80, F100, F130, F180, F220

*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

High Inertia Series - 220V Series

ECMA Series	C Δ 06	C Δ 08	G Δ 13		
	04 $\square$ H	07 $\square$ H	03	06	09
Rated output power (kW)	0.4	0.75	0.3	0.6	0.9
Rated torque (N-m) ^{*1}	1.27	2.39	2.86	5.73	8.59
Maximum torque (N-m)	3.82	7.16	8.59	17.19	21.48
Rated speed (r/min)	3000		1000		
Maximum speed (r/min)	5000		2000		
Rated current (A)	2.6	5.1	2.5	4.8	7.5
Maximum current (A)	7.8	15.3	7.5	14.4	22.5
Power rating (kW/s)	21.7	19.63	10.0	39.0	66.0
Rotor moment of inertia (x10 ⁻⁴ kg-m ²)(without brake)	0.743	2.91	8.17	8.41	11.18
Mechanical time constant (ms)	1.42	1.6	1.84	1.40	1.06
Torque constant-KT (N-m/A)	0.49	0.47	1.15	1.19	1.15
Voltage constant-KE (mV/(r/min))	17.4	17.2	42.5	43.8	41.6
Armature resistance (Ohm)	1.55	0.42	1.06	0.82	0.43
Armature inductance (mH)	6.71	3.53	14.29	11.12	6.97
Electrical time constant (ms)	4.3	8.36	13.5	13.50	16.06
Insulation class	Class A (UL), Class B (CE)				
Insulation resistance	100M Ω , DC 500V above				
Insulation strength	1.8k Vac, 1 sec				
Weight (kg)(without brake)	1.8	3.4	6.8	7.0	7.5
Weight (kg)(with brake)	2.2	3.9	8.2	8.4	8.9
Max. radial shaft load (N)	196	245	490	490	490
Max. thrust shaft load (N)	68	98	98	98	98
Power rating (kW/s)(with brake)	21.48	19.3	9.2	35.9	62.1
Rotor moment of inertia (x10 ⁻⁴ kg-m ²)(with brake)	0.751	2.96	8.94	9.14	11.9
Mechanical time constant (ms)(with brake)	1.43	1.62	2.0	1.51	1.13
Brake holding torque [Nt-m (min)] ^{*2}	1.3	2.5	10.0	10.0	10.0
Brake power consumption (at 20°C)[W]	6.5	8.2	19.0	19.0	19.0
Brake release time [ms (Max)]	10	10	10	10	10
Brake pull-in time [ms (Max)]	70	70	70	70	70
Vibration grade (μ m)	15				
Operating temperature (°C)	0°C to 40°C (32° F to 104° F)				
Storage temperature (°C)	-10°C to 80°C (-14° F to 176° F)				
Operating humidity	20 to 90%RH (non-condensing)				
Storage humidity	20 to 90%RH (non-condensing)				
Vibration capacity	2.5G				
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))				
Approvals	   				

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

ECMA-__ 04 / 06 / 08: 250 mm x 250 mm x 6 mm
 ECMA-__ 10: 300 mm x 300 mm x 12 mm
 ECMA-__ 13: 400 mm x 400 mm x 20 mm
 ECMA-__ 18: 550 mm x 550 mm x 30 mm
 ECMA-__ 22: 650 mm x 650 mm x 35 mm

Material type : Aluminum - F40, F60, F80, F100, F130, F180, F220

*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Servo Motor Specifications

Low / Medium Inertia Series - 400V Series

ECMA Series	J △ 06	J △ 08	J △ 09		J △ 10		J △ 13	K △ 13				K △ 18
	04	07	07	10	10	20	30	05	10	15	20	20
Rated output power (kW)	0.4	0.75	0.75	1	1.0	2.0	3.0	0.5	1.0	1.5	2.0	2.0
Rated torque (N-m) ^{*1}	1.27	2.39	2.39	3.18	3.18	6.37	9.55	2.39	4.77	7.16	9.55	9.55
Maximum torque (N-m)	3.82	7.16	7.14	8.78	9.54	19.1	28.65	7.16	14.32	21.48	28.65	28.65
Rated speed (r/min)	3000		3000		3000		3000	2000				
Maximum speed (r/min)	5000		3000		5000		4500	3000				
Rated current (A)	1.62	3.07	2.16	2.4	4.15	7.09	9.8	1.7	3.52	5.02	6.66	6.6
Maximum current (A)	4.85	9.5	6.37	7.17	12.46	21.28	29.99	5.2	10.56	15.06	19.98	19.88
Power rating (kW/s)	58.2	50.4	29.6	38.6	38.2	91.2	71.8	6.99	27.1	45.9	62.5	26.3
Rotor moment of inertia (x10 ⁻⁴ kg-m ²)(without brake)	0.277	1.13	1.93	2.62	2.65	4.45	12.7	8.17	8.41	11.18	14.59	34.68
Mechanical time constant (ms)	0.47	0.66	1.56	1.06	0.77	0.58	0.99	2.08	1.80	1.24	1.04	1.74
Torque constant-KT (N-m/A)	0.79	0.78	1.12	1.29	0.77	0.9	0.97	1.41	1.35	1.43	1.43	1.45
Voltage constant-KE (mV/(r/min))	30.6	28.24	42	50.9	29.0	34.4	37.3	51.5	53.2	55	55	54.0
Armature resistance (Ohm)	3.95	1.22	3.62	2.58	0.617	0.388	0.269	1.76	1.47	0.83	0.57	0.376
Armature inductance (mH)	21.3	10.68	21.2	15.28	6.03	4.62	3.55	22.4	17.79	11.67	8.29	7.87
Electrical time constant (ms)	5.39	8.75	5.85	5.93	9.77	11.9	13.2	12.73	12.04	14.04	14.39	20.9
Insulation class	Class A (UL), Class B (CE)											
Insulation resistance	100MΩ, DC 500V above											
Insulation strength	2.3k Vac, 1 sec											
Weight (kg)(without brake)	1.6	3.0	2.9	3.8	4.3	6.2	7.8	6.8	7.0	7.5	7.8	13.5
Weight (kg)(with brake)	2	3.8	-	-	4.7	7.2	9.2	8.2	8.4	8.9	9.2	17.5
Max. radial shaft load (N)	19.6	245	245	245	490	490	490	490	490	490	490	1176
Max. thrust shaft load (N)	68	98	98	98	98	98	98	98	98	98	98	490
Power rating (kW/s)(with brake)	53.8	48.4	29.3	37.9	30.4	82	65.1	6.39	24.9	43.1	59.7	24.1
Rotor moment of inertia (x10 ⁻⁴ kg-m ²)(with brake)	0.3	1.18	1.95	2.67	3.33	4.95	14.0	8.94	9.14	11.90	15.88	37.86
Mechanical time constant (ms)(with brake)	0.52	0.65	1.57	1.08	0.96	0.65	1.09	2.28	1.96	1.32	1.13	1.9
Brake holding torque [Nt-m (min)] ^{*2}	1.3	2.5	2.5	2.5	8.0	8.0	10.0	10.0	10.0	10.0	10.0	25.0
Brake power consumption (at 20°C)[W]	6.5	8.5	8.2	8.2	18.5	18.5	19.0	19.0	19.0	19.0	19.0	20.4
Brake release time [ms (Max)]	10	10	10	10	10	10	10	10	10	10	10	10
Brake pull-in time [ms (Max)]	70	70	70	70	70	70	70	70	70	70	70	70
Vibration grade (μm)	15											
Operating temperature (°C)	0°C to 40°C (32° F to 104° F)											
Storage temperature (°C)	-10°C to 80°C (-14° F to 176° F)											
Operating humidity	20 to 90%RH (non-condensing)											
Storage humidity	20 to 90%RH (non-condensing)											
Vibration capacity	2.5G											
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))											
Approvals	  											

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

ECMA-__ 08: 250 mm x 250 mm x 6 mm

ECMA-__ 13: 400 mm x 400 mm x 20 mm

ECMA-__ 18: 550 mm x 550 mm x 30 mm

Material type : Aluminum - F80, F130, F180, F220

*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Medium-High / High Inertia Series - 400V Series

ECMA Series	L △ 13			L △ 18				M △ 13
	05	08	13	30	45	55	75	09
Rated output power (kW)	0.5	0.85	1.3	3.0	4.5	5.5	7.5	0.9
Rated torque (N-m) ^{*1}	3.18	5.39	8.34	19.10	28.65	35.0	47.74	8.59
Maximum torque (N-m)	8.92	13.8	23.3	57.29	71.62	87.53	119.36	21.48
Rated speed (r/min)	1500							1000
Maximum speed (r/min)	3000							2000
Rated current (A)	2.1	3.4	5.02	11.53	20.8	22.37	27.3	4.4
Maximum current (A)	6.1	8.85	15	34.6	52	56	68.3	13.1
Power rating (kW/s)	7.72	17.0	29.47	66.4	105.5	122.9	159.7	66
Rotor moment of inertia (x10 ⁻⁴ kg·m ²)(without brake)	13.1	17.1	23.6	54.95	77.75	99.78	142.7	11.18
Mechanical time constant (ms)	2.3	1.76	1.44	1.11	0.94	0.88	0.77	1.21
Torque constant-KT (N·m/A)	1.5	1.59	1.66	1.66	1.38	1.56	1.75	1.95
Voltage constant-KE (mV/(r/min))	55.5	58.9	61.1	64.4	53	58.9	66.4	71.7
Armature resistance (Ohm)	1.41	0.92	0.59	0.21	0.09	0.07	0.06	1.45
Armature inductance (mH)	20	14.1	9.54	4.94	2.36	2.2	1.7	23.3
Electrical time constant (ms)	14.1	15.33	16.17	23.97	28.07	27.6	28.29	16.07
Insulation class	Class A (UL), Class B (CE)			-----				Class A (UL), Class B (CE)
Insulation resistance	100MΩ, DC 500V above							
Insulation strength	2.3k Vac,1 sec							
Weight (kg)(without brake)	6.8	8.6	10.7	18.5	23.5	30.5	40.5	7.5
Weight (kg)(with brake)	-	10	--	22.5	29	36	46	8.9
Max. radial shaft load (N)	490	490	490	1470	1470	1764	1764	490
Max. thrust shaft load (N)	98	98	98	490	490	588	588	98
Power rating (kW/s)(with brake)	7.02	14.82	27.82	63.9	101.8	119.4	156.6	--
Rotor moment of inertia (x10 ⁻⁴ kg·m ²)(with brake)	14.4	19.6	25	57.06	80.65	102.70	145.5	--
Mechanical time constant (ms)(with brake)	2.54	2.02	1.52	1.16	0.95	0.91	0.79	--
Brake holding torque [Nt·m (min)] ^{*2}	10.0	10.0	10.0	25.0	55.0	55.0	55.0	--
Brake power consumption (at 20°C)[W]	19.0	19.0	19.0	20.4	19.9	19.9	19.9	--
Brake release time [ms (Max)]	10	10	10	10	10	10	10	--
Brake pull-in time [ms (Max)]	70	70	70	70	70	70	70	--
Vibration grade (μm)	15							
Operating temperature (°C)	0°C to 40°C (32° F to 104° F)							
Storage temperature (°C)	-10°C to 80°C (-14° F to 176° F)							
Operating humidity	20 to 90%RH (non-condensing)							
Storage humidity	20 to 90%RH (non-condensing)							
Vibration capacity	2.5G							
IP Rating	IP65 (when waterproof connectors are used, or when an oil seal is used to be fitted to the rotating shaft (an oil seal model is used))							
Approvals	   							

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

ECMA-__ 08: 250 mm x 250 mm x 6 mm

ECMA-__ 13: 400 mm x 400 mm x 20 mm

ECMA-__ 18: 550 mm x 550 mm x 30 mm

ECMA-__ 22: 650 mm x 650 mm x 35 mm

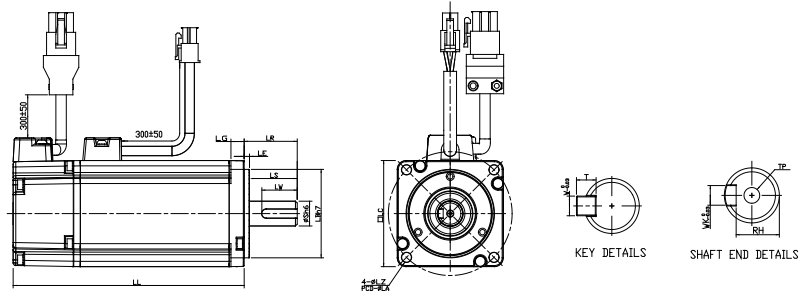
Material type : Aluminum - F80, F130, F180, F220

*2. The holding brake is used to hold the motor shaft, not for braking the rotation. Never use it for decelerating or stopping the machine.

Servo Motor Dimensions

220V Series

Frame Size 86mm and below



Units: mm

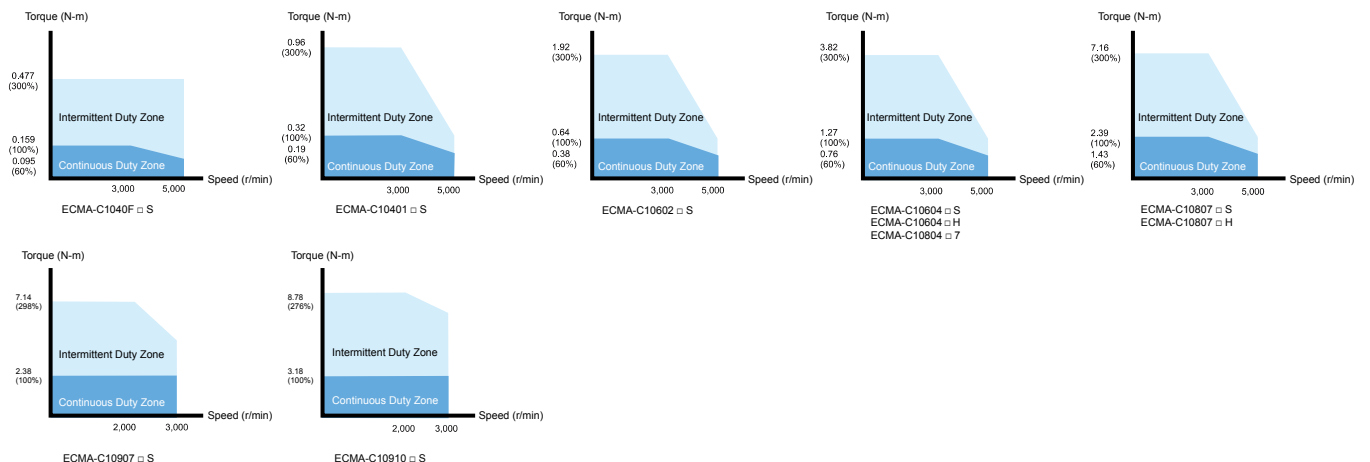
Model	C1040F □ S	C △ 0401 □ S	C △ 0602 □ S	C △ 0604 □ S	C △ 0604 □ H	C △ 0804 □ 7	C △ 0807 □ S	C △ 0807 □ H	C △ 0907 □ S	C △ 0910 □ S
LC	40	40	60	60	60	80	80	80	86	86
LZ	4.5	4.5	5.5	5.5	5.5	6.6	6.6	6.6	6.6	6.6
LA	46	46	70	70	70	90	90	90	100	100
S	8 (+0 -0.009)	8 (+0 -0.009)	14 (+0 -0.011)	14 (+0 -0.011)	14 (+0 -0.011)	14 (+0 -0.011)	19 (+0 -0.013)	19 (+0 -0.013)	16 (+0 -0.011)	16 (+0 -0.011)
LB	30 (+0 -0.021)	30 (+0 -0.021)	50 (+0 -0.025)	50 (+0 -0.025)	50 (+0 -0.025)	70 (+0 -0.030)	70 (+0 -0.030)	70 (+0 -0.030)	80 (+0 -0.030)	80 (+0 -0.030)
LL (without brake)	79.1	100.6	105.5	130.7	145.8	112.3	138.3	151.1	130.2	153.2
LL (with brake)	--	136.8	141.6	166.8	176.37	152.8	178	189	161.3	184.3
LS	20	20	27	27	27	27	32	32	30	30
LR	25	25	30	30	30	30	35	35	35	35
LE	2.5	2.5	3	3	3	3	3	3	3	3
LG	5	5	7.5	7.5	7.5	8	8	8	8	8
LW	16	16	20	20	20	20	25	25	20	20
RH	6.2	6.2	11	11	11	11	15.5	15.5	13	13
WK	3	3	5	5	5	5	6	6	5	5
W	3	3	5	5	5	5	6	6	5	5
T	3	3	5	5	5	5	6	6	5	5
TP	M3 Depth 8	M3 Depth 8	M4 Depth 15	M4 Depth 15	M4 Depth 15	M4 Depth 15	M6 Depth 20	M6 Depth 20	M5 Depth 15	M5 Depth 15



NOTE

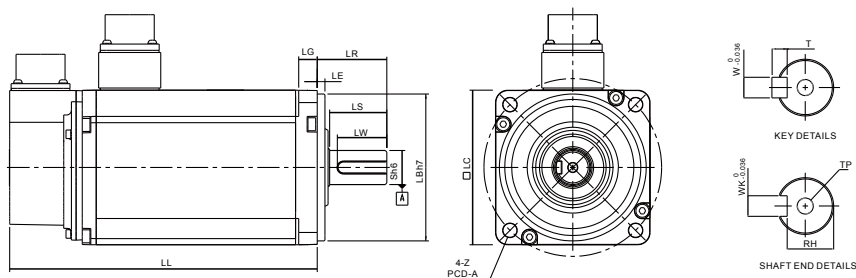
- 1) Dimensions are in millimeters.
- 2) Dimensions of the servo motors may be revised without prior notice.
- 3) The boxes (□) in the model names are for optional configurations (keyway, brake and oil seal).
- 4) The boxes (△) in the model names are for encoder resolution types (△ =1: Incremental encoder,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

Speed-Torque Curves (T-N Curves)



220V Series

Frame Size 100mm and 130mm



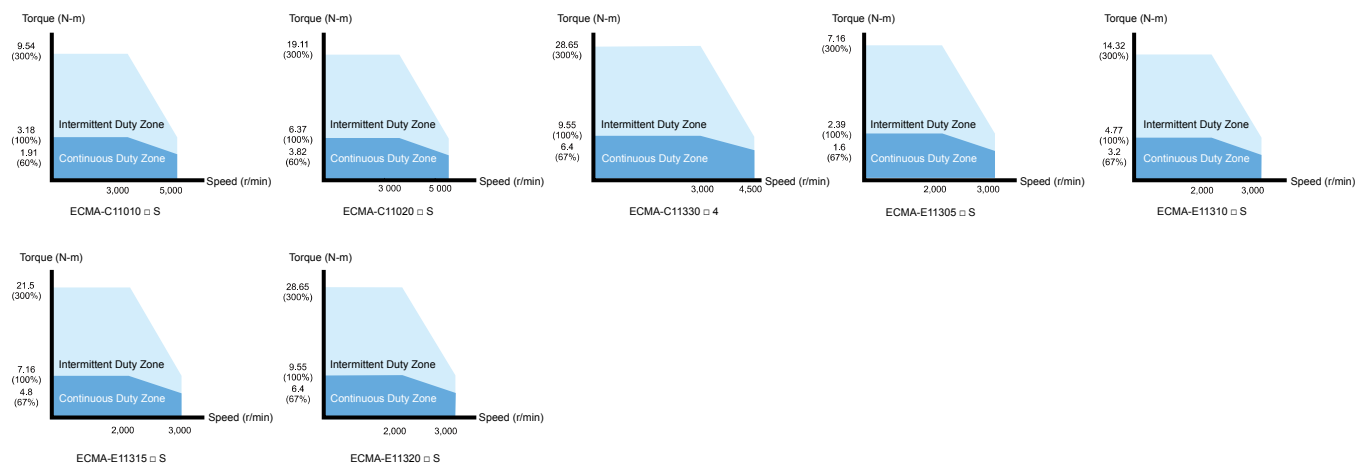
Units: mm

Model	C Δ 1010 $\square$ S	C Δ 1020 $\square$ S	C Δ 1330 $\square$ 4	E Δ 1305 $\square$ S	E Δ 1310 $\square$ S	E Δ 1315 $\square$ S	E Δ 1320 $\square$ S
LC	100	100	130	130	130	130	130
LZ	9	9	9	9	9	9	9
LA	115	115	145	145	145	145	145
S	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	24 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)
LB	95 ($^{+0}_{-0.035}$)	95 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)
LL (without brake)	153.3	199	187.5	147.5	147.5	167.5	187.5
LL (with brake)	192.5	226	216	183.5	183.5	202	216
LS	37	37	47	47	47	47	47
LR	45	45	55	55	55	55	55
LE	5	5	6	6	6	6	6
LG	12	12	11.5	11.5	11.5	11.5	11.5
LW	32	32	36	36	36	36	36
RH	18	18	20	18	18	18	18
WK	8	8	8	8	8	8	8
W	8	8	8	8	8	8	8
T	7	7	7	7	7	7	7
TP	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20



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

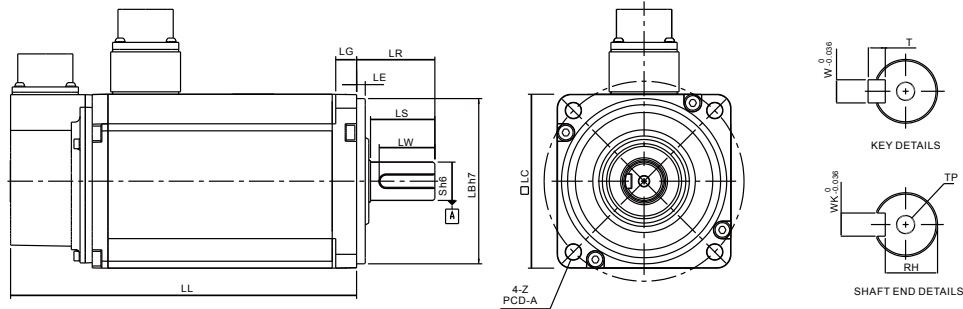
Speed-Torque Curves (T-N Curves)



Servo Motor Dimensions

220V Series

Frame Size 100mm and 130mm



Units: mm

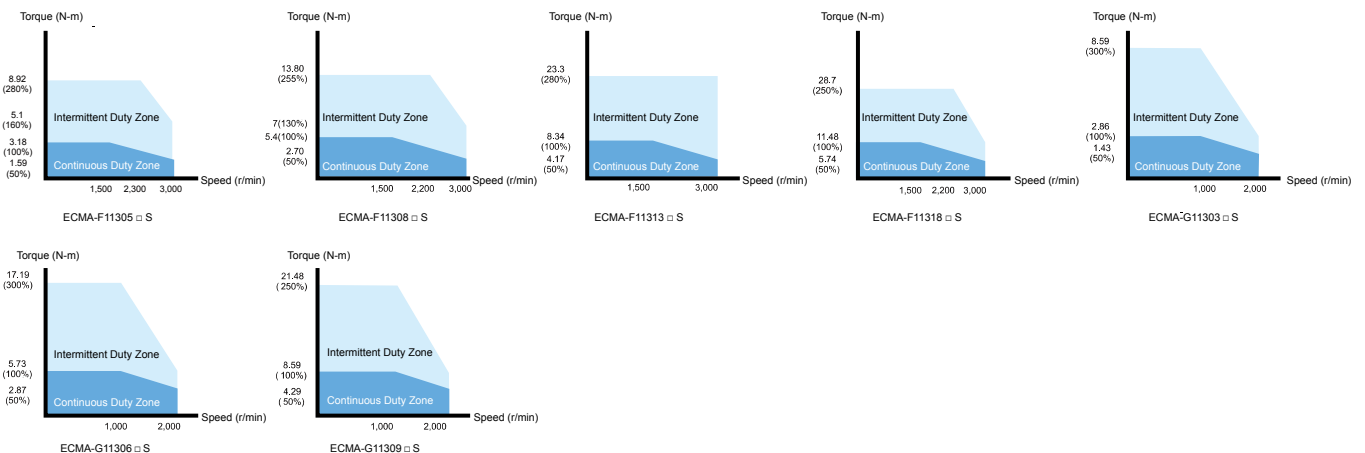
Model	F Δ 1305 $\square$ S	F Δ 1308 $\square$ S	F Δ 1313 $\square$ S	F Δ 1318 $\square$ S	G Δ 1303 $\square$ S	G Δ 1306 $\square$ S	G Δ 1309 $\square$ S
LC	130	130	130	130	130	130	130
LZ	9	9	9	9	9	9	9
LA	145	145	145	145	145	145	145
S	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)	22 ($^{+0}_{-0.013}$)
LB	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)
LL (without brake)	139.5	147.5	187.5	202	147.5	147.5	163.5
LL (with brake)	168	183.5	216	230.7	183.5	183.5	198
LS	47	47	47	47	47	47	47
LR	55	55	55	55	55	55	55
LE	6	6	6	6	6	6	6
LG	11.5	11.5	11.5	11.5	11.5	11.5	11.5
LW	36	36	36	36	36	36	36
RH	18	18	18	18	18	18	18
WK	8	8	8	8	8	8	8
W	8	8	8	8	8	8	8
T	7	7	7	7	7	7	7
TP	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20	M6 Depth 20



NOTE

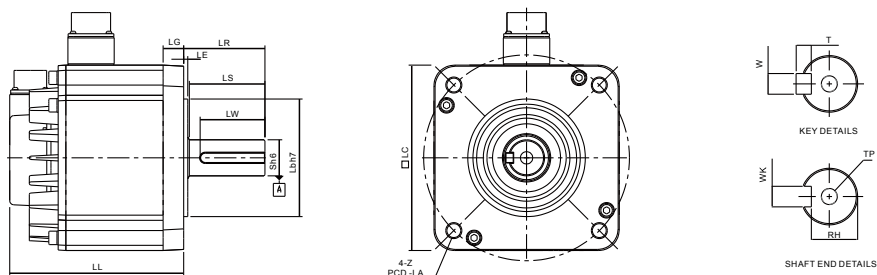
- 1) Dimensions are in millimeters.
- 2) Dimensions of the servo motors may be revised without prior notice.
- 3) The boxes ($\square$) in the model names are for optional configurations (keyway, brake and oil seal).
- 4) The boxes (Δ) in the model names are for encoder resolution types (Δ =1: Incremental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

Speed-Torque Curves (T-N Curves)



220V Series

Frame Size 180mm



Units: mm

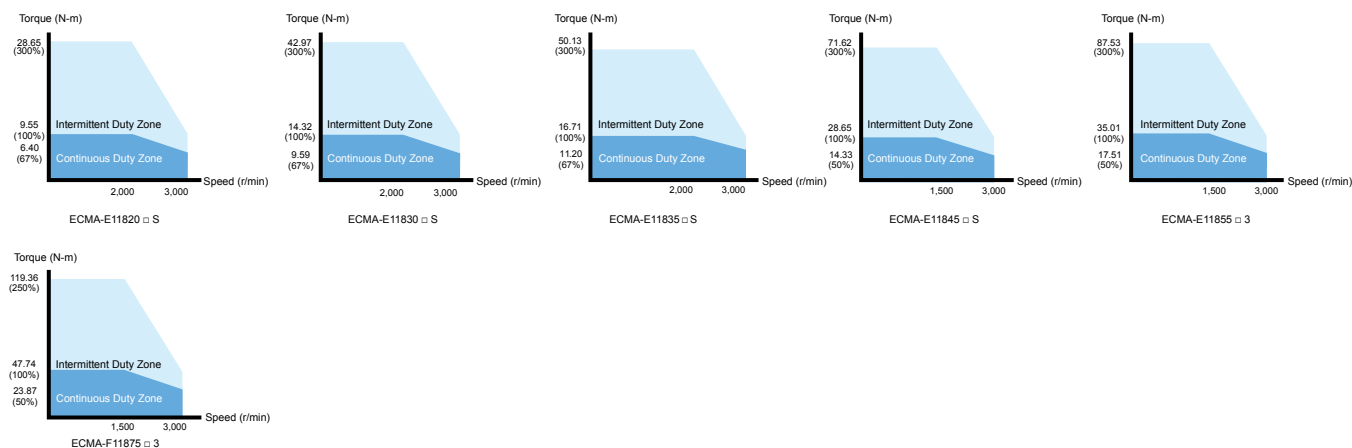
Model	E Δ 1820 $\square$ S	E Δ 1830 $\square$ S	E Δ 1835 $\square$ S	F Δ 1845 $\square$ S	F Δ 1855 $\square$ 3	F Δ 1875 $\square$ 3
LC	180	180	180	180	180	180
LZ	13.5	13.5	13.5	13.5	13.5	13.5
LA	200	200	200	200	200	200
S	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	42 ($^{+0}_{-0.016}$)	42 ($^{+0}_{-0.016}$)
LB	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)
LL (without brake)	169	202.1	202.1	235.3	279.7	342.0
LL (with brake)	203.1	235.3	235.3	279.3	311.7	376.1
LS	73	73	73	73	108.5	108.5
LR	79	79	79	79	113	113
LE	4	4	4	4	4	4
LG	20	20	20	20	20	20
LW	63	63	63	63	90	90
RH	30	30	30	30	37	37
WK	10	10	10	10	12	12
W	10	10	10	10	12	12
T	8	8	8	8	8	8
TP	M12 Depth 25	M12 Depth 25	M12 Depth 25	M12 Depth 25	M16 Depth 32	M12 Depth 32



NOTE

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

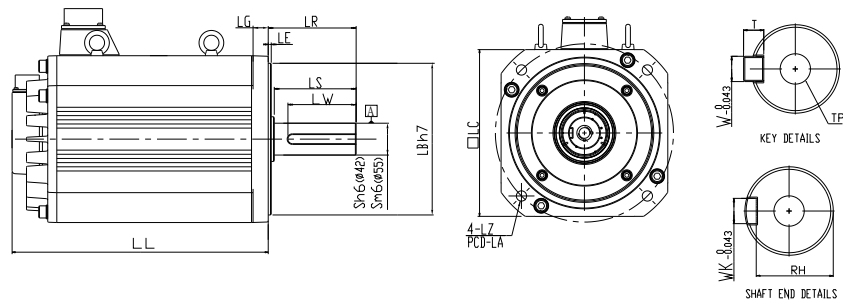
Speed-Torque Curves (T-N Curves)



Servo Motor Dimensions

220V Series

Frame Size 220mm and above



Units: mm

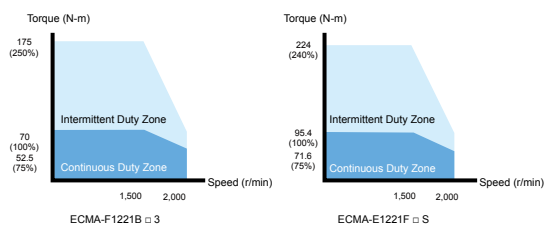
Model	F1221B □ 3	F1221F □ S
LC	220	220
LZ	13.5	13.5
LA	235	235
S	42 $\left(\begin{smallmatrix} +0 \\ -0.016 \end{smallmatrix} \right)$	55 $\left(\begin{smallmatrix} +0.03 \\ -0.011 \end{smallmatrix} \right)$
LB	200 $\left(\begin{smallmatrix} +0 \\ -0.046 \end{smallmatrix} \right)$	200 $\left(\begin{smallmatrix} +0 \\ -0.046 \end{smallmatrix} \right)$
LL (without brake)	371.4	453.4
LL (with brake)	434.4	513.4
LS	108	108
LR	116	116
LE	4	4
LG	20	20
LW	90	90
RH	37	49
WK	12	16
W	12	16
T	8	10
TP	M16 Depth 32	M20 Depth 40



NOTE

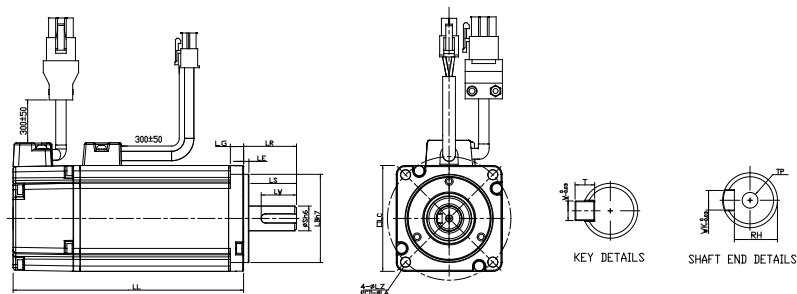
- 1) Dimensions are in millimeters.
- 2) Dimensions of the servo motors may be revised without prior notice.
- 3) The boxes (□) in the model names are for optional configurations (keyway, brake and oil seal).

Speed-Torque Curves (T-N Curves)



400V Series

Frame Size 80mm and below



Units: mm

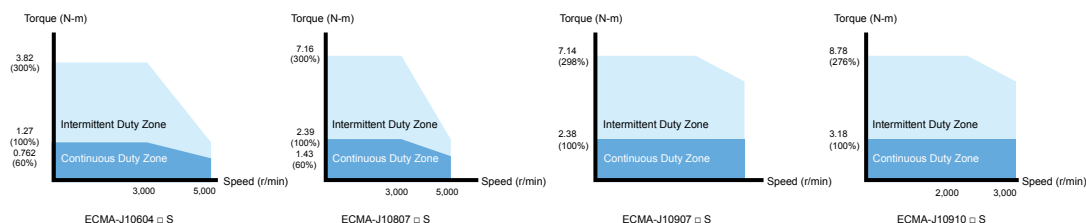
Model	J Δ 0604 $\square$ S	J Δ 0807 $\square$ S	J Δ 0907 $\square$ S	J Δ 0910 $\square$ S
LC	60	80	86	86
LZ	5.5	6.6	6.6	6.6
LA	70	90	100	100
S	14($^{+0}_{-0.011}$)	19($^{+0}_{-0.013}$)	16($^{+0}_{-0.011}$)	16($^{+0}_{-0.011}$)
LB	50($^{+0}_{-0.025}$)	70($^{+0}_{-0.030}$)	80($^{+0}_{-0.030}$)	80($^{+0}_{-0.030}$)
LL (without brake)	130.7	138.3	130.2	153.2
LL (with brake)	166.8	178	161.3	184.3
LS (without oil seal)	27	32	30	30
LS (with oil seal)	--	29.5	30	30
LR	30	35	35	35
LE	3	3	3	3
LG	7.5	8	8	8
LW	20	25	20	20
RH	11	15.5	13	13
WK	5	6	5	5
W	5	6	5	5
T	5	6	5	5
TP	M4 Depth 15	M6 Depth 20	M5 Depth 15	M5 Depth 15



NOTE

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

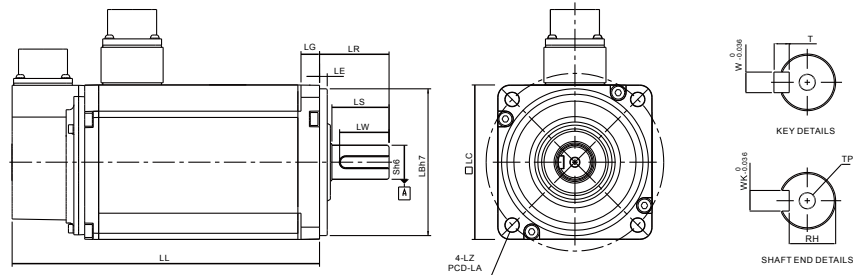
Speed-Torque Curves (T-N Curves)



Servo Motor Dimensions

400V Series

Frame Size 130mm



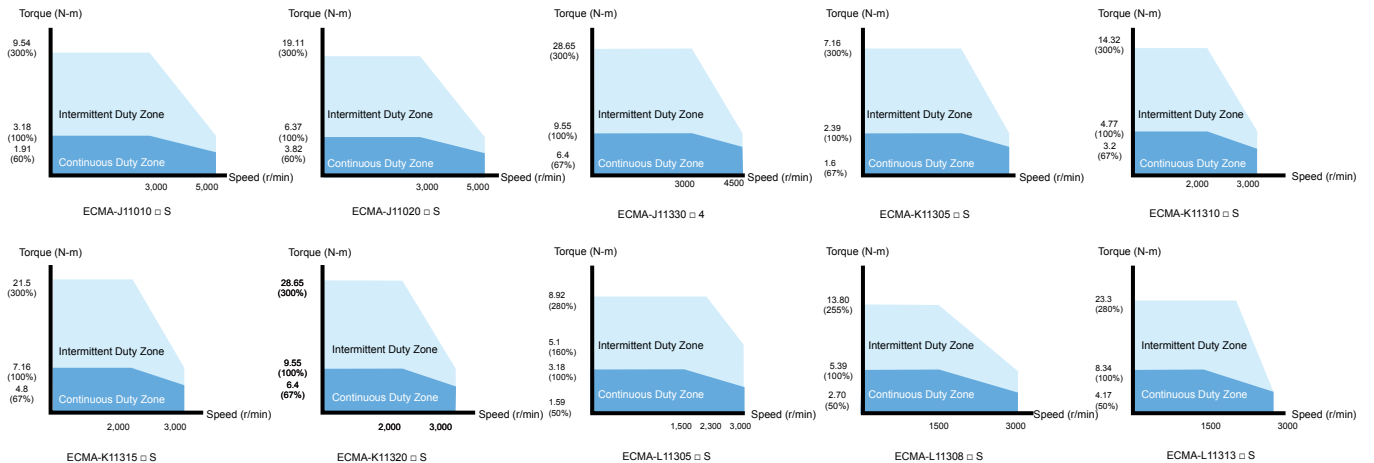
Units: mm

Model	J Δ 1010 $\square$ S	J Δ 1020 $\square$ S	J Δ 1330 $\square$ 4	K Δ 1305 $\square$ S	SK Δ 1310 $\square$ S	SK Δ 1315 $\square$ S	SK Δ 1320 $\square$ S	L Δ 1305 $\square$ S	L Δ 1308 $\square$ S	L Δ 1313 $\square$ S
LC	100	130	130	130	130	130	130	130	130	130
LZ	9	9	9	9	9	9	9	9	9	9
LA	115	115	145	145	145	145	145	145	145	145
S	22 $\left(\begin{smallmatrix} +0 \\ -0.013 \end{smallmatrix} \right)$	22 $\left(\begin{smallmatrix} +0 \\ -0.013 \end{smallmatrix} \right)$	24 $\left(\begin{smallmatrix} +0 \\ -0.013 \end{smallmatrix} \right)$	22 $\left(\begin{smallmatrix} +0 \\ -0.013 \end{smallmatrix} \right)$	22 $\left(\begin{smallmatrix} +0 \\ -0.013 \end{smallmatrix} \right)$	22 $\left(\begin{smallmatrix} +0 \\ -0.013 \end{smallmatrix} \right)$	22 $\left(\begin{smallmatrix} +0 \\ -0.013 \end{smallmatrix} \right)$	22 $\left(\begin{smallmatrix} +0 \\ -0.013 \end{smallmatrix} \right)$	22 $\left(\begin{smallmatrix} +0 \\ -0.013 \end{smallmatrix} \right)$	22 $\left(\begin{smallmatrix} +0 \\ -0.013 \end{smallmatrix} \right)$
LB	95 $\left(\begin{smallmatrix} +0 \\ -0.035 \end{smallmatrix} \right)$	95 $\left(\begin{smallmatrix} +0 \\ -0.035 \end{smallmatrix} \right)$	110 $\left(\begin{smallmatrix} +0 \\ -0.035 \end{smallmatrix} \right)$	110 $\left(\begin{smallmatrix} +0 \\ -0.035 \end{smallmatrix} \right)$	110 $\left(\begin{smallmatrix} +0 \\ -0.035 \end{smallmatrix} \right)$	110 $\left(\begin{smallmatrix} +0 \\ -0.035 \end{smallmatrix} \right)$	110 $\left(\begin{smallmatrix} +0 \\ -0.035 \end{smallmatrix} \right)$	110 $\left(\begin{smallmatrix} +0 \\ -0.035 \end{smallmatrix} \right)$	110 $\left(\begin{smallmatrix} +0 \\ -0.035 \end{smallmatrix} \right)$	110 $\left(\begin{smallmatrix} +0 \\ -0.035 \end{smallmatrix} \right)$
LL (without brake)	153.3	199	187.5	139.5	147.5	167.5	187.5	147.5	163.5	194.5
LL (with brake)	192.5	226	216.0	168	183.5	202	216	168.0	181	223
LS	37	37	47	47	47	47	47	47	47	47
LR	45	45	55	55	55	55	55	55	55	55
LE	5	5	6	6	6	6	6	6	6	6
LG	12	12	11.5	11.5	11.5	11.5	11.5	11.5	11.5	11.5
LW	32	32	36	36	36	36	36	36	36	36
RH	18	18	20	18	18	18	18	18	18	18
WK	8	8	8	8	8	8	8	8	8	8
W	8	8	8	8	8	8	8	8	8	8
T	7	7	7	7	7	7	7	7	7	7
TP	MP6 Depth 20	MP6 Depth 20	MP6 Depth 20	MP6 Depth 20	MP6 Depth 20	MP6 Depth 20	MP6 Depth 20	M8 Depth 25	MP6 Depth 20	MP6 Depth 20



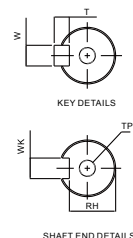
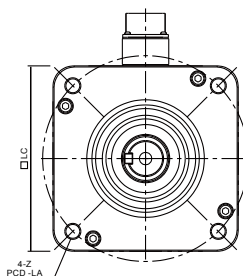
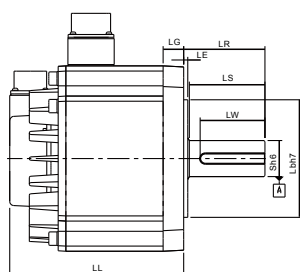
NOTE

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



400V Series

Frame Size 180mm and above

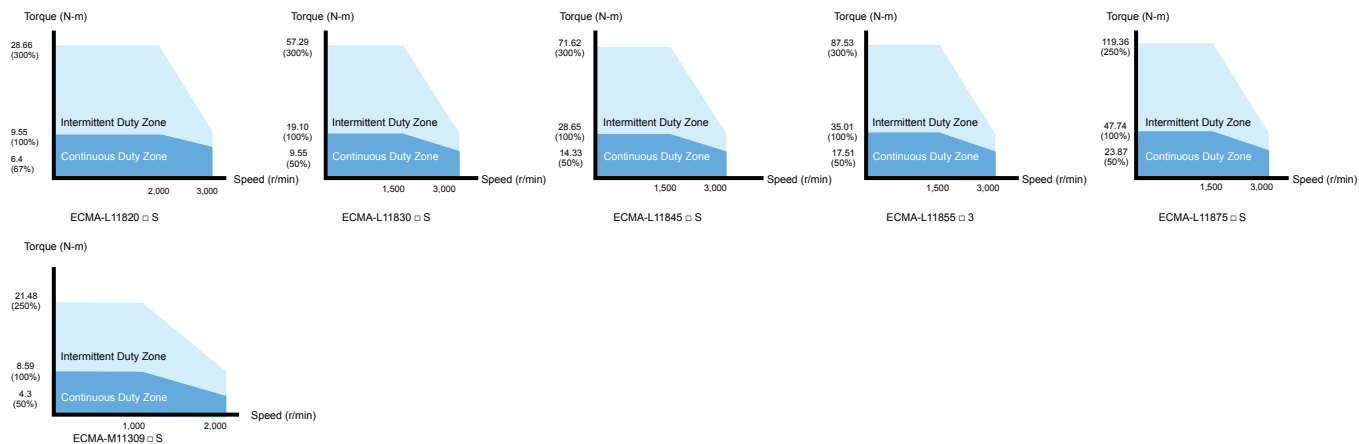


Units: mm

Model	K Δ 1820 $\square$ S	L Δ 1830 $\square$ S	L Δ 1845 $\square$ S	L Δ 1855 $\square$ 3	L Δ 1875 $\square$ S	M Δ 1309 $\square$ S
LC	180	180	180	180	180	130
LZ	13.5	13.5	13.5	13.5	13.5	9
LA	200	200	200	200	200	145
S	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	35 ($^{+0}_{-0.016}$)	42 ($^{+0}_{-0.016}$)	42 ($^{+0}_{-0.016}$)	22 ($^{+0}_{-0.013}$)
LB	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	114.3 ($^{+0}_{-0.035}$)	110 ($^{+0}_{-0.035}$)
LL (without brake)	169	202.1	235.3	279.7	342.0	163.5
LL (with brake)	203.1	235.3	279.3	311.7	376.1	198
LS	73	73	73	108.5	108.5	47
LR	79	79	79	113	113	55
LE	4	4	4	4	4	6
LG	20	20	20	20	20	11.5
LW	63	63	63	90	90	36
RH	30	30	30	37	37	18
WK	10	10	10	12	12	8
W	10	10	10	12	12	8
T	8	8	8	8	8	7
TP	M12 Depth 25	M12 Depth 25	M12 Depth 25	M16 Depth 32	M16 Depth 32	M6 Depth 20



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



Part Names and Functions

● LED Display / Operation Panel / Charge LED

• LED Display

The 5 digit, 7 segment LED displays the servo status or fault codes.

• Operation Panel

Function keys used to perform status display, monitor and diagnostic, function and parameter setting.

Function Keys:

MODE : Press this key to select/change mode

SHIFT : Press this key to shift cursor to the left

UP : Press this key to increase values on the display

DOWN : Press this key to decrease values on the display

SET : Press this key to store data

• Charge LED

A lit LED indicates that either power is connected to the servo drive or a residual charge is present in the drive's internal power components.

Operation Panel

LED Display

Charge LED

● Full-Closed Loop Control Interface

- Used to connect linear scale and encoder for controlling A, B, Z phase signals.

● I/O Interface

- Used to connect Delta's DVP series PLC or other external controllers for controlling I/O signals.

● High-speed Communication Port

- 1-in/1-out communication ports offer easy serial connection.

● Motor Encoder Interface

- Used to connect the encoder of the servo motor

● Extension Digital Input Connection Port

- Used to connect a removable digital input terminal block. Max. 6 digital inputs can be added.

● Serial Communication Port

- Used to connect PLC, HMI, and other controllers for RS-485 / RS-232 serial communication.

● USB Connection Port

- Used to connect personal computers or notebooks.
- Ver 1.1 USB is equipped as standard.
- Direct connectivity to personal computers or notebooks, capable of accessing data through ASDA-Soft configuration software.
- Remote monitoring speed via ASDA-Soft configuration software is up to 1 Mbps.



● Internal & External Regenerative Resistor Terminal / Control Circuit Terminal / Main Circuit Terminal

● Internal & External Regenerative Resistor Terminal

1. When using an external resistor, connect it to P ⊕ and C , and ensure an open circuit between P ⊕ and D.
2. When using an internal resistor, ensure the circuit is closed between P ⊕ and D, and the circuit is open between P ⊕ and C. (Note: Please refer to the table of regenerative resistor specifications for the models with a built-in regenerative resistor.)
3. When using an external braking unit, connect it to P ⊕ and, and ensure an open circuit between P ⊕ and D, and P ⊕ and C.

● Control Circuit Terminal (L1C, L2C or DC24V, DC0V)

- 220V Series: L1C, L2C are used to connect 200 ~ 230Vac, 50/60Hz single-phase or three-phase power supply.
- 400V Series: DC24V, DC0V are used to connect 24Vdc ±10% power supply.

● Main Circuit Terminal (R, S, T)

- 220V Series: Used to connect 200~230Vac, 50/60Hz commercial power supply.
- 400V Series: Used to connect 380~480Vac, 50/60Hz commercial power supply.

● When using an external braking unit, connect it to P ⊕ and ⊖

● Servo Motor Output (U, V, W)

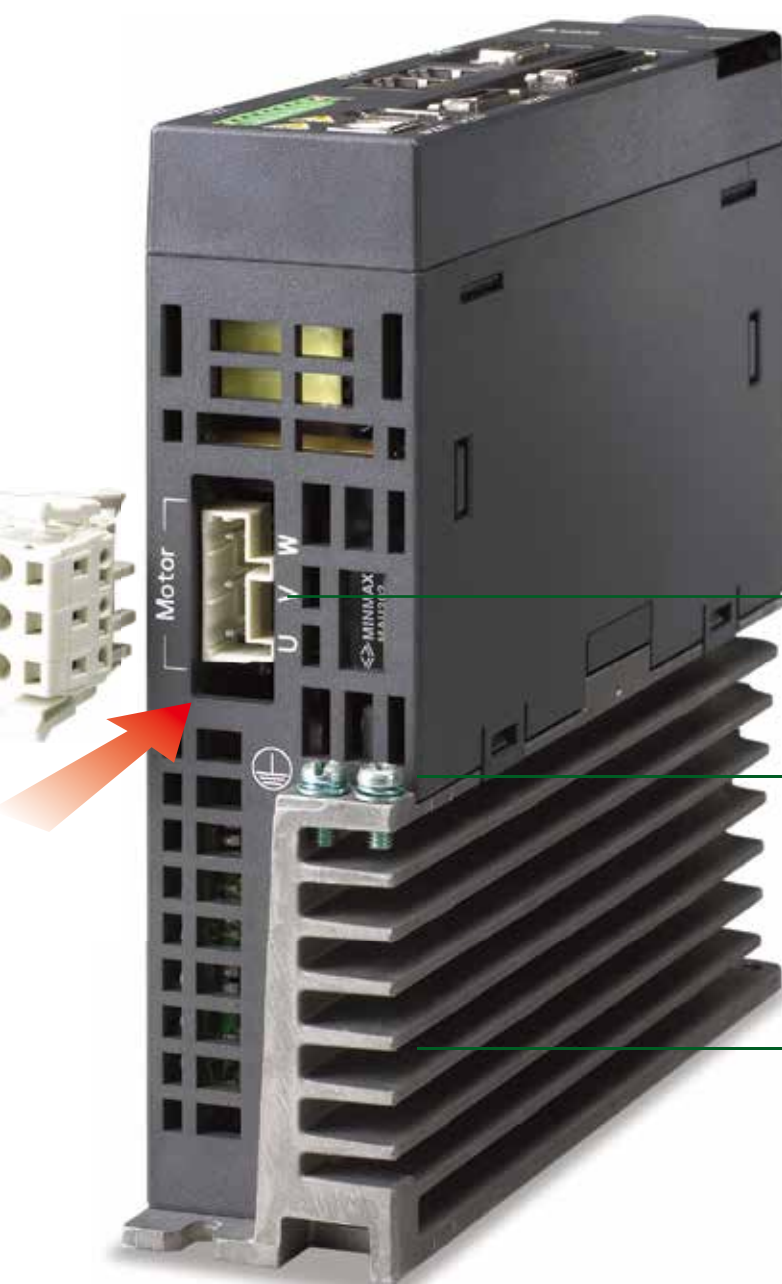
- Used to connect servo motor. Never connect the output terminal to main circuit power as the AC drive may be damaged beyond repair if incorrect cables are connected to the output terminals.

● Ground Terminal

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

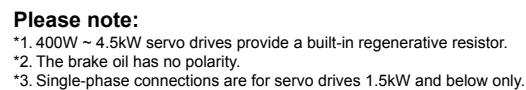
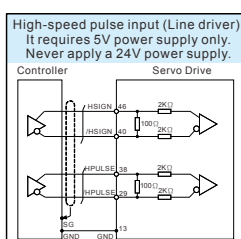
● Heatsink

- Used to secure servo drive and for heat dissipation.



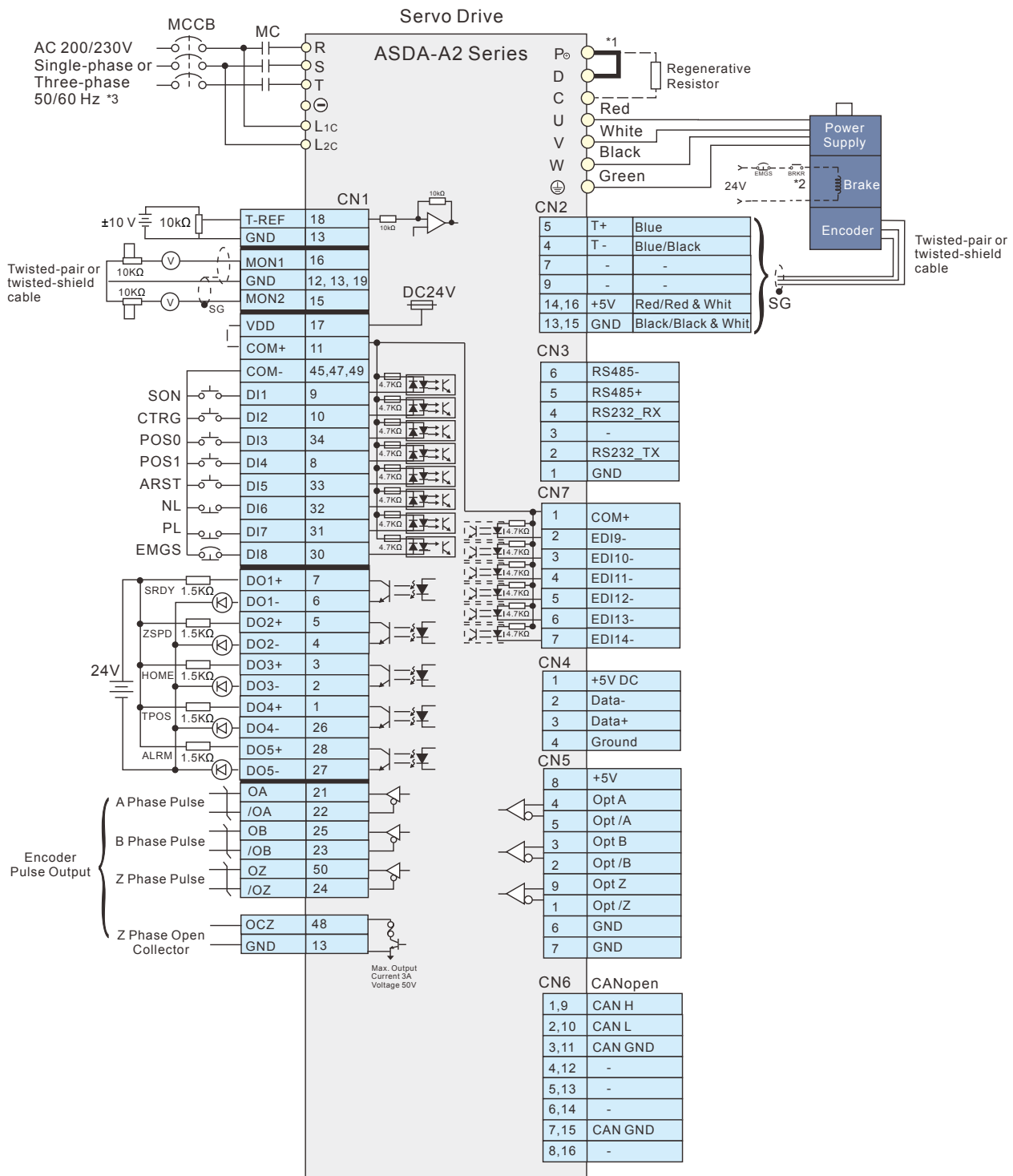
***Note: The figures are for illustration purposes only. Actual models may differ slightly in appearance to illustrations provided.**

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



200V Series

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



Please note:

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

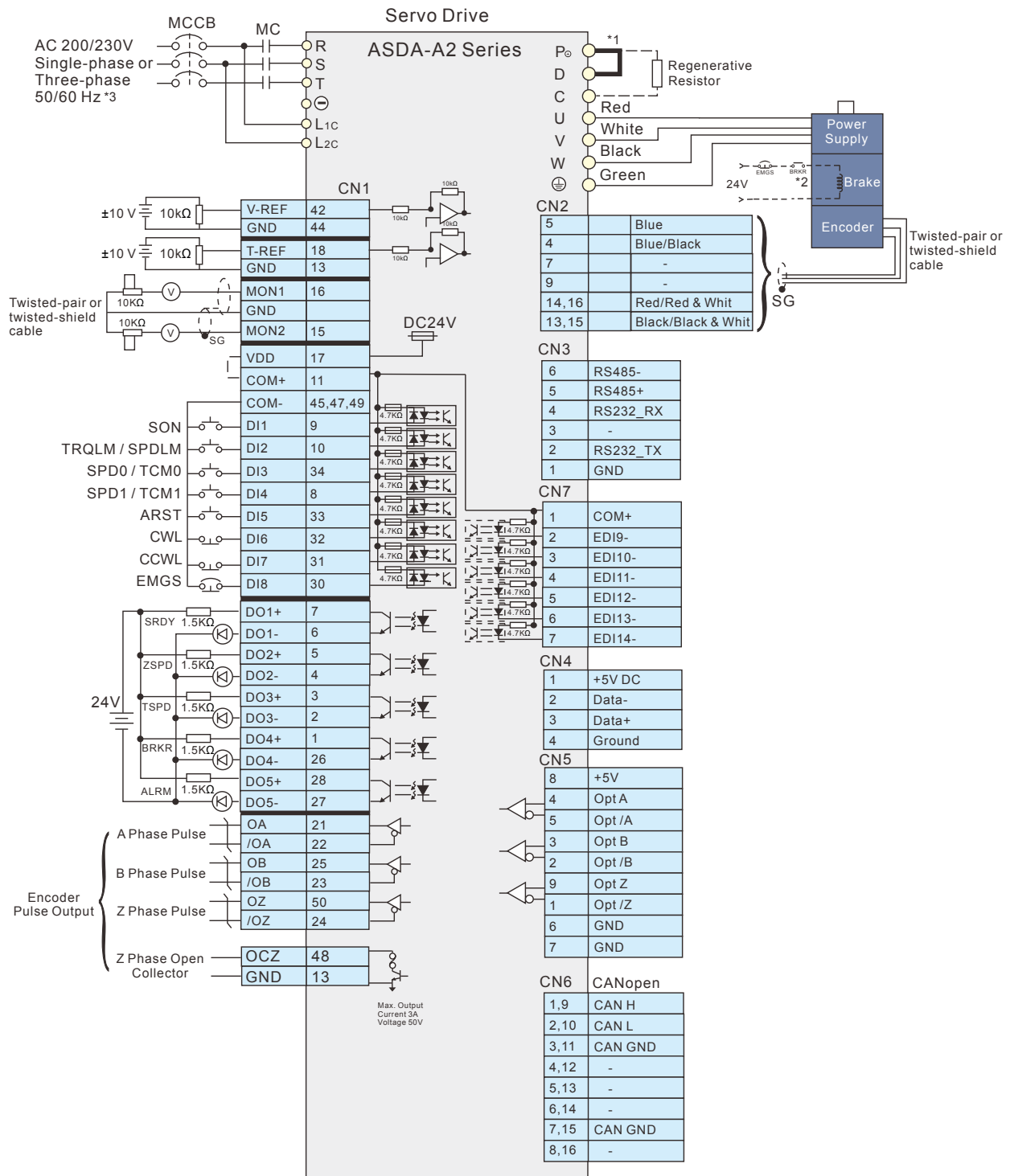
*2. The brake oil has no polarity.

*3. Single-phase connections are for servo drives 1.5kW and below only.

Wiring

200V Series

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



Please note:

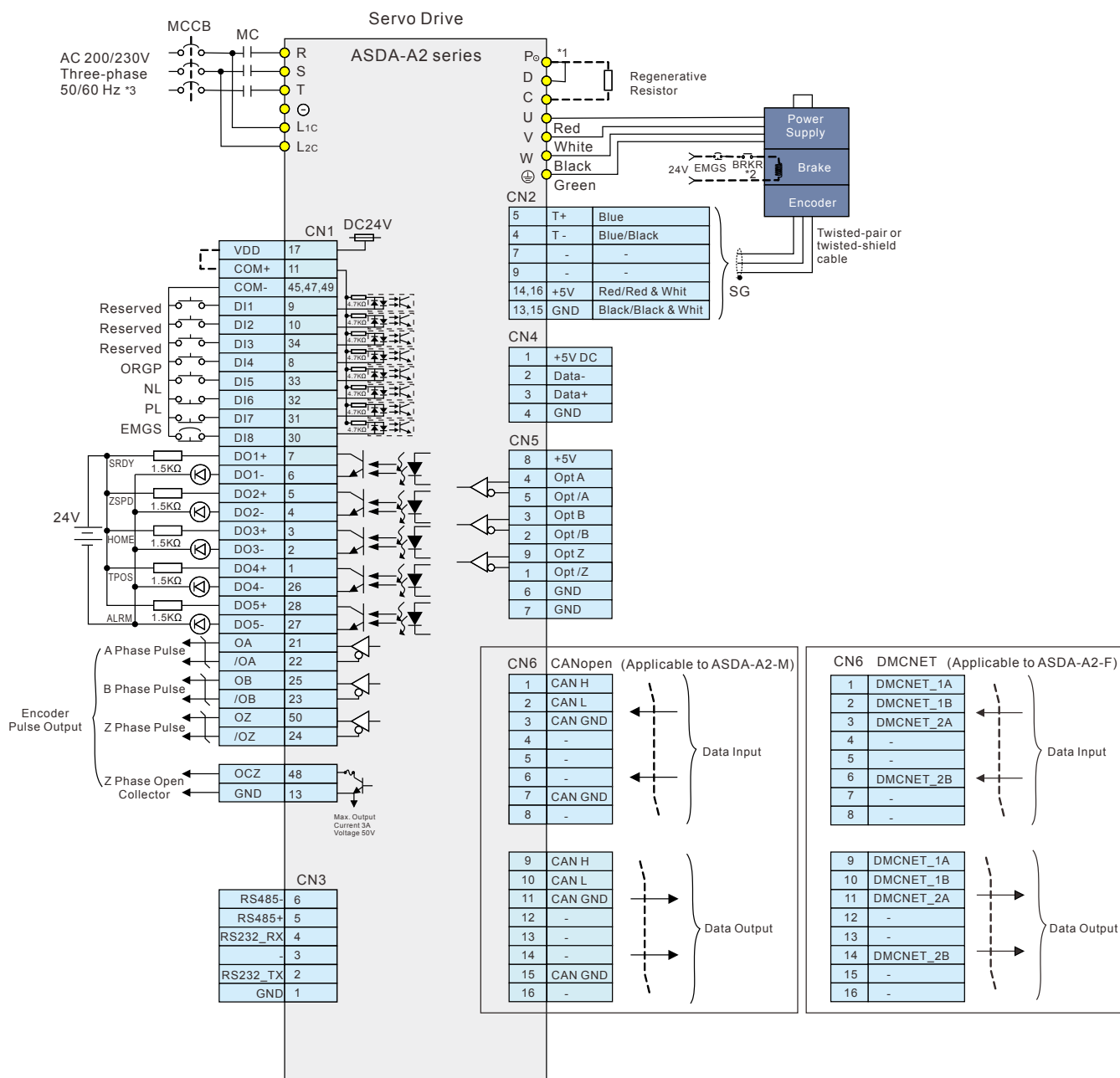
*1. 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.

*2. The brake oil has no polarity.

*3. Single-phase connections are for servo drives 1.5kW and below only.

200V Series

CANopen Communication Mode



Please note:

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

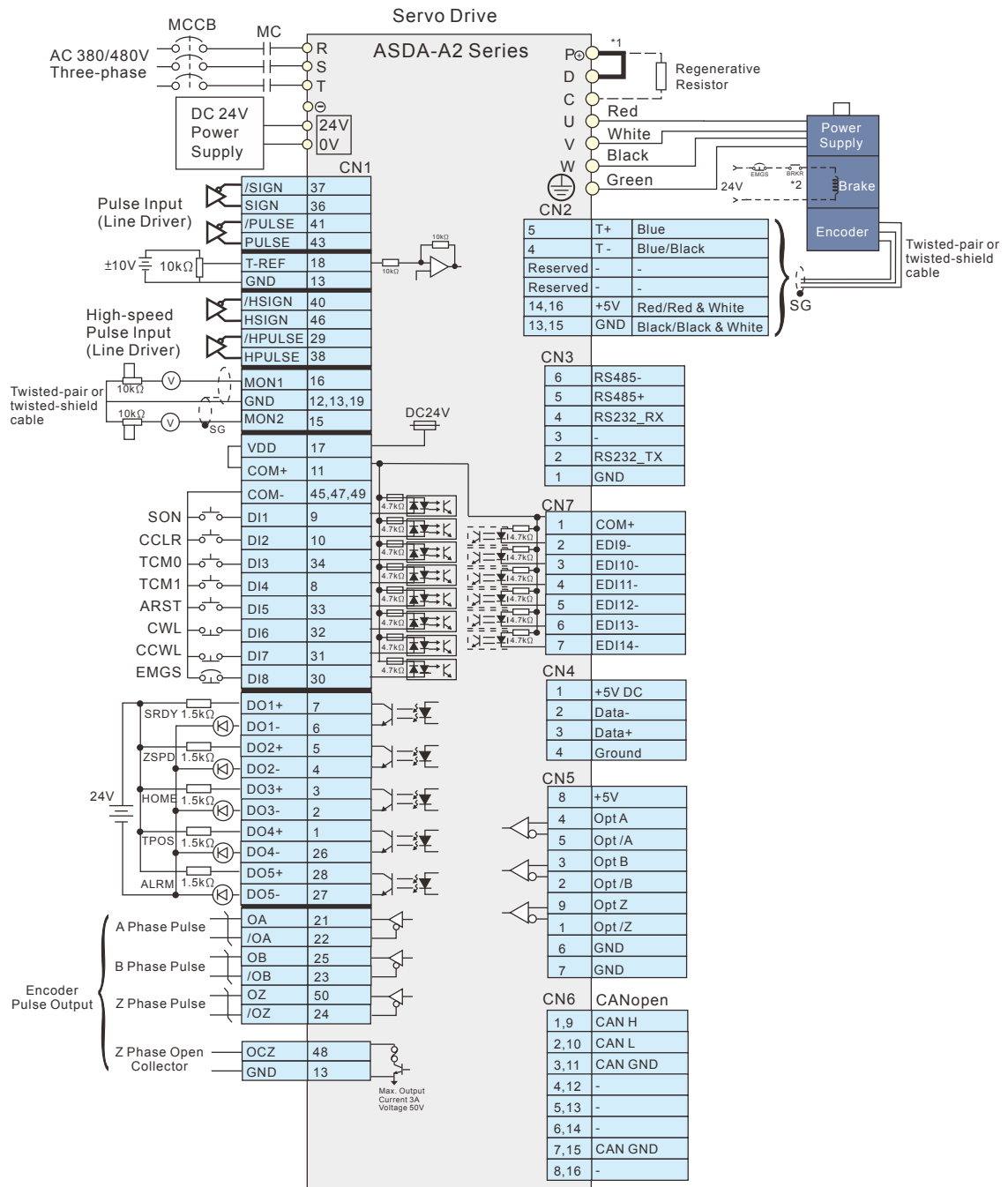
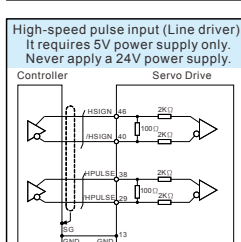
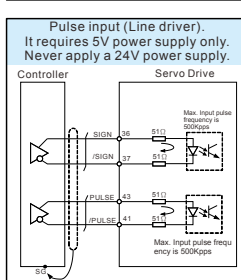
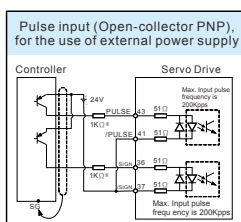
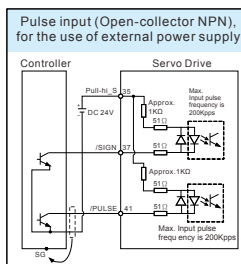
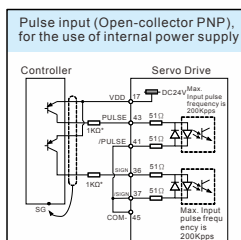
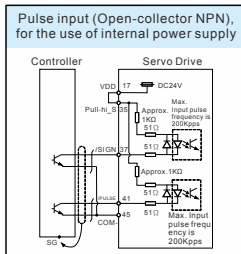
*2. The brake oil has no polarity.

*3. Single-phase connections are for servo drives 1.5kW and below only.

Wiring

400V Series

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



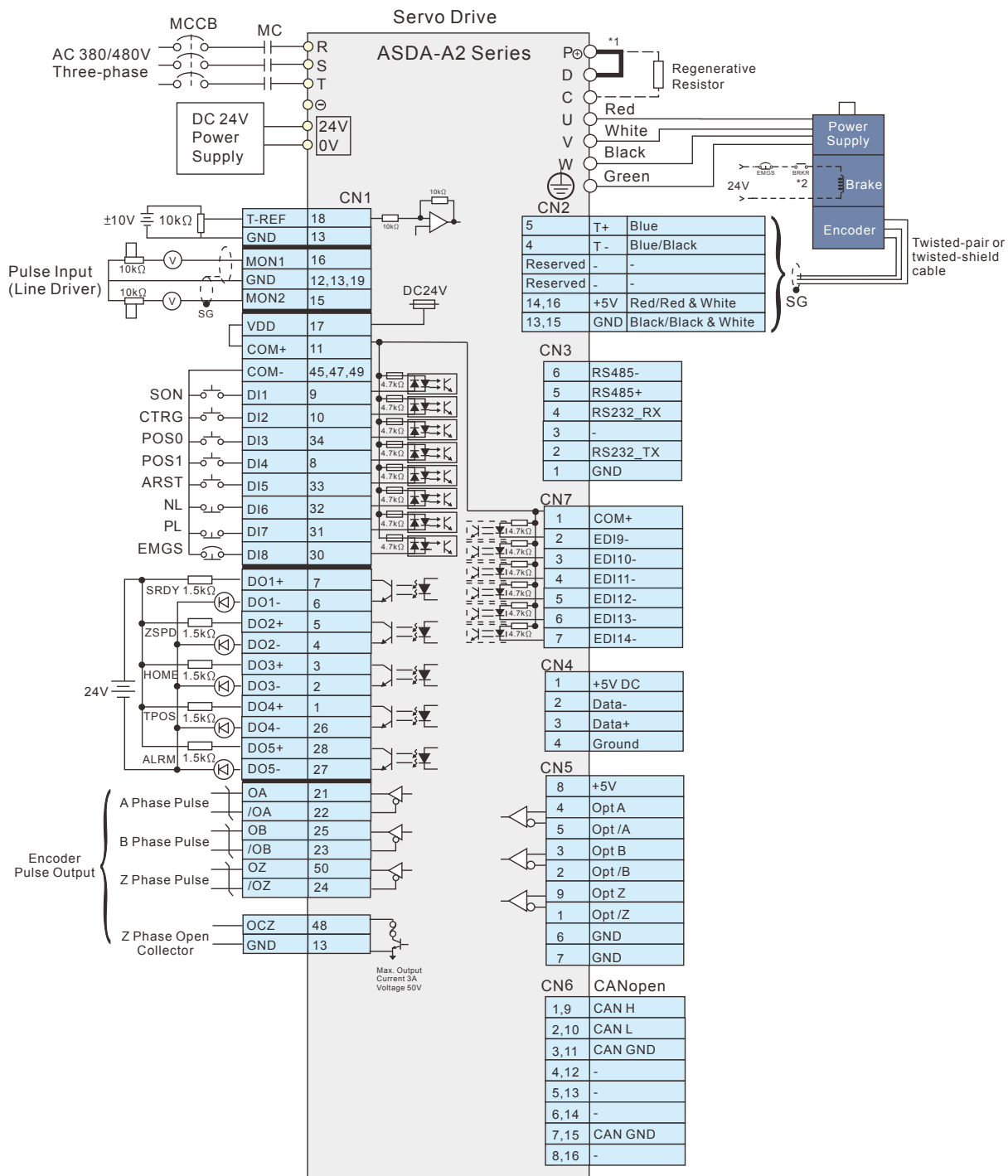
Please note:

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

*2 The brake oil has no polarity.

400V Series

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



Please note:

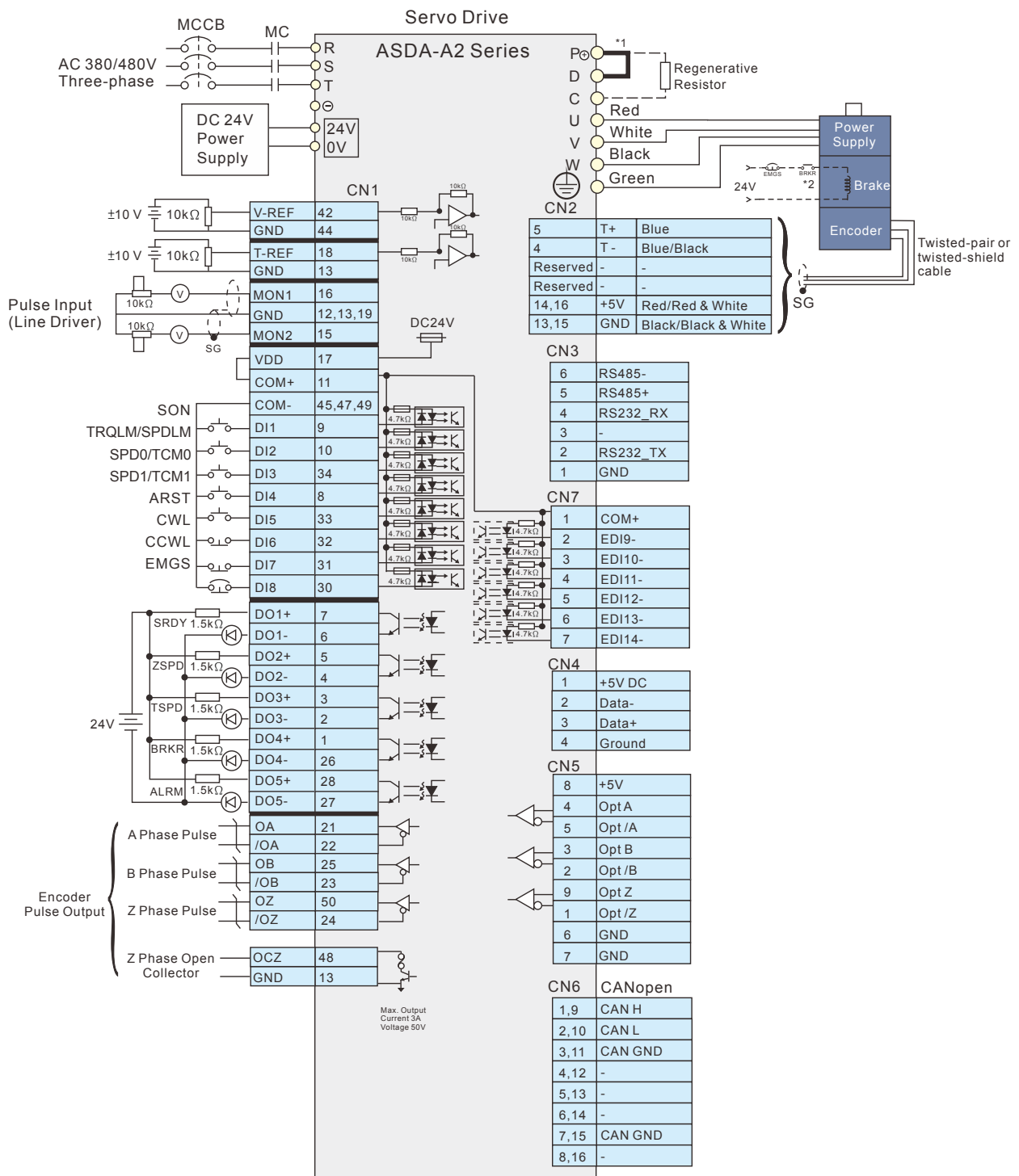
*1 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.

*2 The brake oil has no polarity.

Wiring

400V Series

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



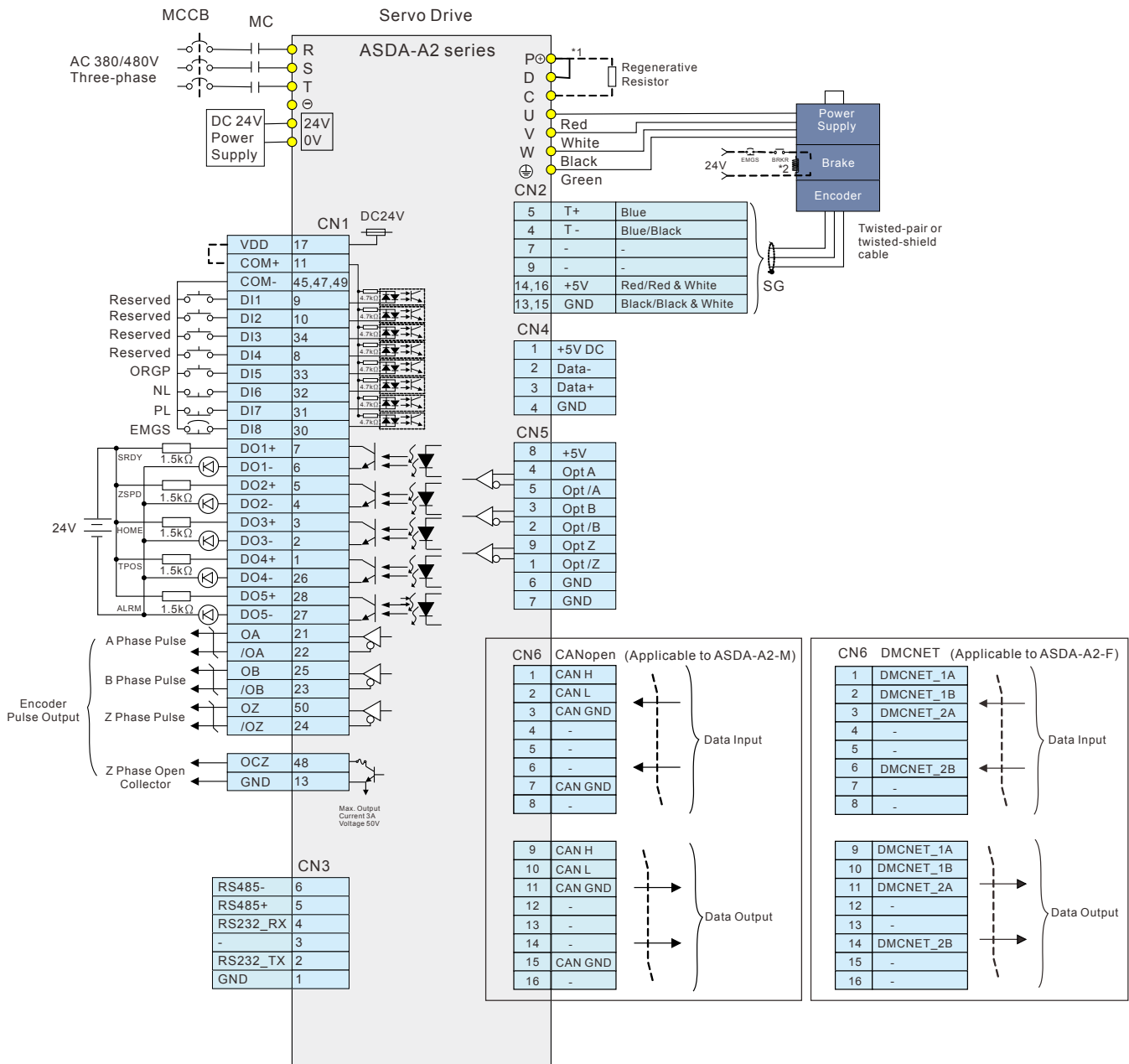
Please note:

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

*2 The brake oil has no polarity.

400V Series

CANopen Communication Mode (for ASDA-A2-M Series)

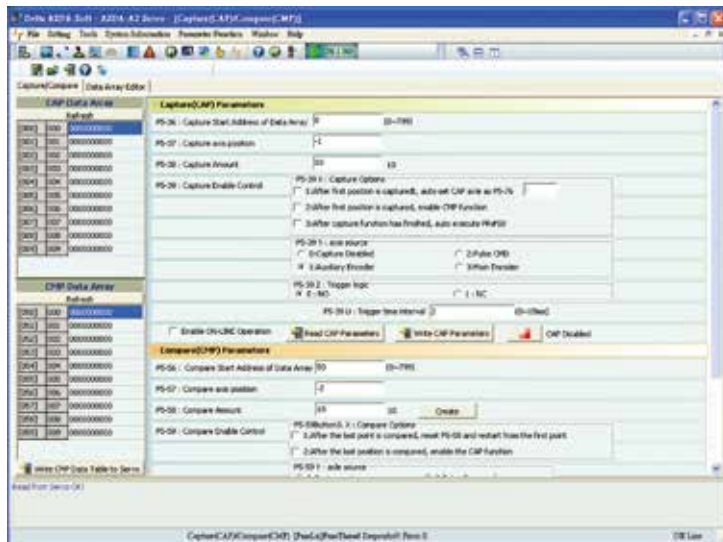


Please note:

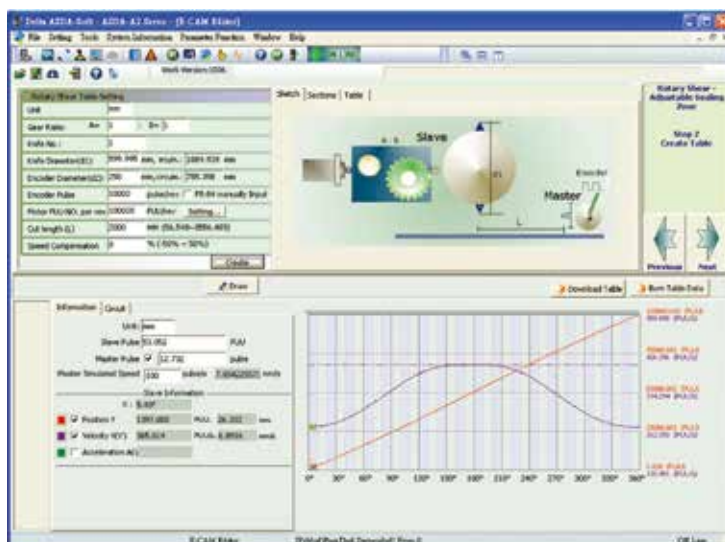
*1 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.

*2 The brake oil has no polarity.

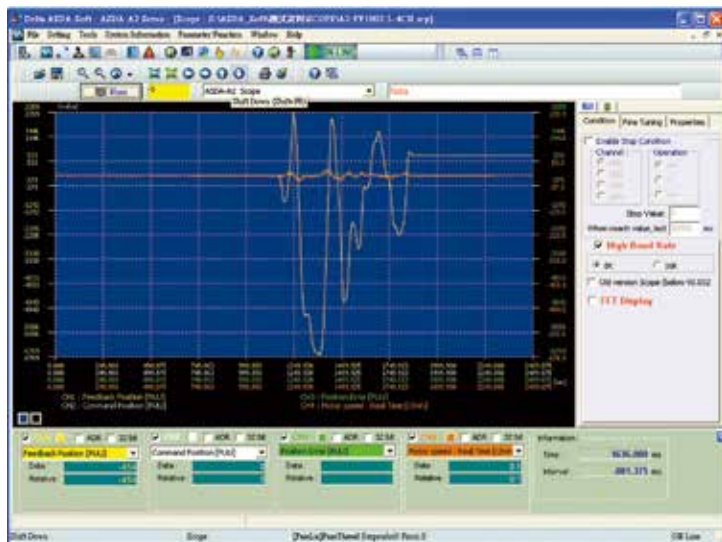
ASDA-Soft Configuration Software



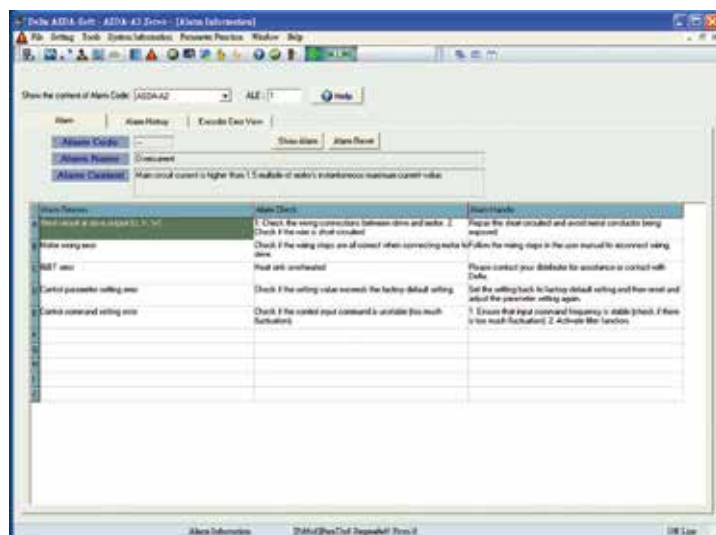
- **Strong CAPTURE and COMPARE functions for position latch and detection help you complete system configuration quickly.**



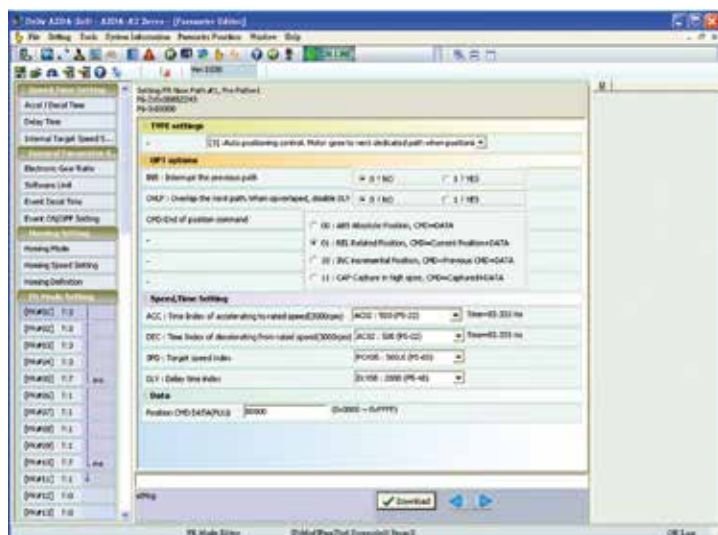
- **User-friendly E-Cam editing interface is provided for designing E-Cam outlines and curves freely. In addition, quick settings for flying shear and rotary cut applications are offered.**



- Versatile on-line monitoring function, similar to a digital oscilloscope is able to quickly record the status and data of each axis. Real-time monitoring is easy.



- Convenient alarm display function is capable of troubleshooting the system easily and recommending timely corrective actions.

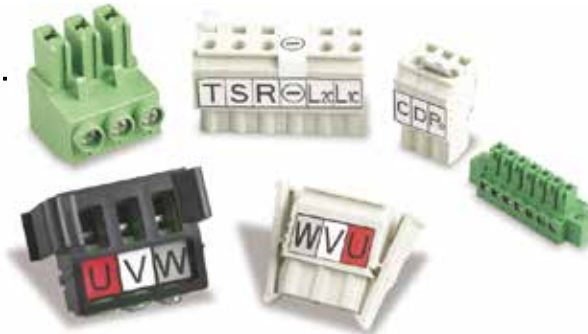


- Easy-to-use editing interface is designed for new and enhanced PR control mode. Homing, point-to-point and other motion control functions for multi-axis positioning control are easily achieved.

Optional Accessories

● Quick Connectors

- Used for 100W to 300W servo drives.
- One operating lever is provided for wire to terminal block insertion.



● Power Cables

- 3m and 5m standard cables are available.
- Customized service is offered to meet the needs of customers.
- Two types are selectable: with brake and without brake.



● Encoder Cables

- 3m and 5m standard cables are available.
- Customized service is offered to meet the needs of customers.



● RS-232 Communication Cables

- Connects ASDA-A2 to PLC, HMI and other controllers via RS-232 communication.
- Standard cable length is 3m



● CN1 I/O Connector

- Delta Part Number: ASD-IF-SC5020



● Terminal Block Modules

- Easy installation and wiring.
- 0.5m connection cable is provided. Easy to reduce the space required.
- Easy to expand system's I/O configuration.

● Regenerative Resistors

- For selecting a regenerative resistor, please refer to e table of regenerative resistor specifications on page 74.



● USB Communication Cables (for PC)

- USB Communication Cables (for PC)
- USB1.1 is equipped as standard.



● CANopen Accessories

- Delta's TAP-CN03 distribution box connects ASDA-A2 to Delta's PLC CAN Master
- CANopen communication cable is provided



● RS-485 Connectors

- Used to connect multiple ASDA-A2 series products by RS-485 interface through Modbus serial communication.



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

Servo Drive Specifications

220V Series

ASDA-A2 Series			100W	200W	400W	750W	1kW	1.5kW	2kW	3kW	4.5kW	5.5kW	7.5kW	11kW	15kW			
			01	02	04	07	10	15	20	30	45	55	75	1B	1F			
Power supply	Phase / Voltage		Three-phase / Single-phase 220VAC						3-phase 220VAC									
	Permissible Voltage Range		1-phase / 3-phase 200 ~ 230VAC, -15% ~ 10%						3-phase 200 ~ 230VAC, -15% ~ 10%									
	Input Current (3PH) (Units: Arms)		0.39	1.11	1.86	3.66	4.68	5.9	8.76	9.83	17.5	19.4	26.3	48	63			
	Input Current (1PH) (Units: Arms)		0.69	1.92	3.22	6.78	8.88	10.3	-	-	-	-	-	-	-			
	Continuous Output Current (Units: Arms)		0.9	1.55	2.6	5.1	7.3	8.3	13.4	19.4	32.5	40	47.5	54.4	70			
Cooling System			Natural Air Circulation				Fan Cooling											
Encoder Resolution / Feedback Resolution			Incremental encoder: 20-bit (1280000 p/rev) ; Absolute encoder: 17-bit															
Control of Main Circuit			SVPWM (Space Vector Pulse Width Modulation) Control															
Tuning Modes			Auto / Manual															
Regenerative Resistor			None		Built-in							External						
Position Control Mode	Max. Input Pulse Frequency (Only for Non-DMCNET mode)		Max. 500Kpps / 4Mpps (Line driver), Max. 200Kpps (Open collector)															
	Pulse Type (Only for Non-DMCNET mode)		Pulse + Direction, A phase + B phase, CCW pulse + CW pulse															
	Command Source		External pulse train (PT mode) (Only for Non-DMCNET mode) / Internal parameters (PR mode)															
	Smoothing Strategy		Low-pass and P-curve filter															
	Electronic Gear		Electronic gear N/M multiple N: 1~32767, M: 1:32767 (1/50<N/M<25600)															
	Torque Limit Operation		Set by parameters															
	Feed Forward Compensation		Set by parameters															
Speed Control Mode	Analog Input Command (Only for Non-DMCNET mode)	Voltage Range	0 ~ ±10 VDC															
		Input Resistance	10KΩ															
		Time Constant	2.2 μs															
	Speed Control Range ^{*1}		1: 5000									1: 3000		1: 2000				
	Command Source		External analog signal (Only for Non-DMCNET mode) / Internal parameters															
	Smoothing Strategy		Low-pass and S-curve filter															
	Torque Limit Operation		Set by parameters or via analog input (Only for Non-DMCNET mode)															
	Frequency Response Characteristic		Maximum 1kHz															
	Speed Accuracy ^{*2} (At rated rotation speed)		0.01% or less at 0 to 100% load fluctuation															
			0.01% or less at ±10% power fluctuation															
Torque Control Mode	Analog Input Command (Only for Non-DMCNET mode)	Voltage Range	0 ~ ±10 VDC															
		Input Resistance	10KΩ															
		Time Constant	2.2 μs															
	Command Source		External analog signal (Only for Non-DMCNET mode) / Internal parameters															
	Smoothing Strategy		Low-pass filter															
	Speed Limit Operation		Set by parameters or via analog input (Only for Non-DMCNET mode)															
Analog Monitor Output			Monitor signal can set by parameters (Output voltage range: ±8V)															
Digital Inputs / Outputs	Inputs	Servo on, Reset, Gain switching, Pulse clear, Zero speed CLAMP, Command input reverse control, Command triggered, Speed/ Torque limit enabled, Position command selection, Motor stop, Speed position selection, Position / Speed mode switching, Speed / Torque mode switching, Torque / Position mode switching, PT / PR command switching, Emergency stop, Forward / Reverse inhibit limit, Reference "Home" sensor, Forward / Reverse operation torque limit, Move to "Home", Electronic Cam (E-Cam), Forward / Reverse JOG input, Event trigger PR command, Electronic gear ratio (Numerator) selection and Pulse inhibit input ^{* Please note that the above digital signals and inputs are available only for Non-DMCNET mode. In DMCNET mode, it is recommended to write digital inputs into the servo drives through DMCNET communication, and the digital inputs should be used for Emergency Stop, Forward / Reverse Inhibit limit and Reference "Home" sensor only.}																
	Outputs	Encoder signal output (A, B, Z Line Driver and Z Open Collector) Servo ready, Servo on, At Zero speed, At Speed reached, At Positioning completed, At Torques limit, Servo alarm (Servo fault) activated, Electromagnetic brake control, Homing completed, Output overload warning, Servo warning activated, Position command overflow, Forward / Reverse software limit, Internal position command completed, Capture operation completed output., Motion control completed output., Master position of E-Cam (Electronic Cam)																
Protective Functions			Overcurrent, Overvoltage, Undervoltage, Motor overheated, Regeneration error, Overload, Overspeed, Abnormal pulse control command, Excessive deviation, Encoder error, Adjustment error, Emergency stop activated, Reverse/ Forward limit switch error, Position excessive deviation of full-close control loop, Serial communication error, Input power phase loss, Serial communication time out, short circuit protection of U, V, W, and CN1, CN2, CN3 terminals															
Communication Interface			RS-232 / RS-485 / CANopen / USB / DMCNET															
Environment	Installation Site		Indoor location (free from direct sunlight), no corrosive liquid and gas (far away from oil mist, flammable gas, dust)															
	Altitude		Altitude 1000m or lower above sea level															
	Atmospheric Pressure		86kPa ~ 106kPa															
	Operating Temperature		0°C ~ 55°C (If operating temperature is above 45°C, forced cooling will be required)															
	Storage Temperature		-20°C ~ 65°C															
	Humidity		0 ~ 90% RH (non-condensing)															
	Vibration		9.80665m/s ² (1G) less than 20Hz, 5.88m/s ² (0.6G) 20 to 50Hz															
	IP Rating		IP20															
	Power System		TN System ^{*3}															
Approvals			IEC/EN 61800-5-1, UL 508C, C-tick															

Footnote:

*1. Rated rotation speed: When full load, speed ratio is defined as the minimum speed (the motor will not pause).

*2. When command is rated rotation speed, the speed fluctuation rate is defined as: (Empty load rotation speed / Rated rotation speed)

*3. TN system: A power distribution system having one point directly earthed, the exposed conductive parts of the installation being connected to that points by protective earth conductor.

400V Series

ASDA-A2 Series			750W	1kW	1.5kW	2kW	3kW	4.5kW	5.5kW	7.5kW
			07	10	15	20	30	45	55	75
Control Power	Input Voltage		24VDC, ±10%							
	Input Current		0.89A			1.18A			1.66A	
	Input Power		21.4W			28.2W			39.85W	
Permissible Voltage Range			3-phase380 ~ 480VAC, ±10%							
Input Current (Units: Arms)			2.22	3.02	4.24	5.65	8.01	11.9	14.1	17.27
Continuous Output Current (Units: Arms)			3.07	3.52	5.02	6.66	11.9	20	22.37	30
Cooling System			Fan Cooling							
Encoder Resolution / Feedback Resolution			Incremental encoder: 20-bit (1280000 p/rev) ; Absolute encoder: 17-bit							
Control of Main Circuit			SVPWM (Space Vector Pulse Width Modulation) Control							
Tuning Modes			Auto / Manual							
Regenerative Resistor			Built-in			External				
Position Control Mode	Max. Input Pulse Frequency(Only for Non-DMCNET mode)		Max. 500Kpps / 4Mpps (Line driver), Max. 200Kpps (Open collector)							
	Pulse Type (Only for Non-DMCNET mode)		Pulse + Direction, A phase + B phase, CCW pulse + CW pulse							
	Command Source		External pulse train (Only for Non-DMCNET mode)/Internal parameters							
	Smoothing Strategy		Low-pass and P-curve filter							
	Electronic Gear		Electronic gear N/M multiple N: 1~32767, M: 1:32767 (1/50<N/M<25600)							
	Torque Limit Operation		Set by parameters							
	Feed Forward Compensation		Set by parameters							
Speed Control Mode	Analog Input Command (Only for Non-DMCNET mode)	Voltage Range	0 ~ ±10 VDC							
		Input Resistance	10KΩ							
		Time Constant	2.2 μs							
	Speed Control Range ¹		1: 5000				1: 3000			
	Command Source		External analog signal (Only for Non-DMCNET mode) / Internal parameters							
	Smoothing Strategy		Low-pass and S-curve filter							
	Torque Limit Operation		Set by parametersor via analog input (Only for Non-DMCNET mode)							
	Frequency Response Characteristic		Maximum 1kHz							
	Speed Accuracy ²		0.01% or less at 0 to 100% load fluctuation 0.01% or less at ±10% power fluctuation 0.01% or less at 0°C to 50°C ambient temperature fluctuation							
Torque Control Mode	Analog Input Command (Only for Non-DMCNET mode)	Voltage Range	0 ~ ±10 VDC							
		Input Resistance	10KΩ							
		Time Constant	2.2 μs							
	Command Source		External analog signal (Only for Non-DMCNET mode) / Internal parameters							
	Smoothing Strategy		Low-pass filter							
	Speed Limit Operation		Set by parametersor via analog input (Only for Non-DMCNET mode)							
Analog Monitor Output			Monitor signal can set by parameters (Output voltage range: ±8V)							
Digital Inputs / Outputs	Inputs		Servo on, Reset, Gain switching, Pulse clear, Zero speed CLAMP, Command input reverse control, Command triggered, Speed/ Torque limit enabled, Position command selection, Motor stop, Speed position selection, Position / Speed mode switching, Speed / Torque mode switching, Torque / Position mode switching, PT / PR command switching, Emergency stop, Forward / Reverse inhibit limit, Reference "Home" sensor, Forward / Reverse operation torque limit, Move to "Home", Electronic cam, Forward / Reverse JOG input, Event trigger PR command, Electronic gear ratio (Numerator) selection and Pulse inhibit input * Please note that the above digital signals and inputs are available only for Non-DMCNET mode. In DMCNET mode, it is recommended to write digital inputs into the servo drives through DMCNET communication, and the digital inputs should be used for Emergency Stop, Forward / Reverse Inhibit limit and Reference "Home" sensor only.							
	Outputs		Encoder signal output (A, B, Z Line Driver and Z Open Collector) Servo ready, Servo on, At Zero speed, At Speed reached, At Positioning completed, At Torques limit, Servo alarm (Servo fault) activated, Electromagnetic brake control, Homing completed, Output overload warning, Servo warning activated, Position command overflow, Forward / Reverse software limit, Internal position command completed, Capture operation completed output., Motion control completed output., Master position of E-Cam (Electronic Cam)							
Protective Functions			Overcurrent, Overvoltage, Undervoltage, Motor overheated, Regeneration error, Overload, Overspeed, Abnormal pulse control command, Excessive deviation, Encoder error, Adjustment error, Emergency stop activated, Reverse/ Forward limit switch error, Position excessive deviation of full-close control loop, Serial communication error, Input power phase loss, Serial communication time out, short circuit protection of U, V, W, and CN1, CN2, CN3 terminals							
Communication Interface			RS-232 / RS-485 / CANopen / USB / DMCNET							
Environment	Installation Site		Indoor location (free from direct sunlight), no corrosive liquid and gas (far away from oil mist, flammable gas, dust)							
	Altitude		Altitude 1000m or lower above sea level							
	Atmospheric Pressure		86kPa ~ 106kPa							
	Operating Temperature		0°C ~ 55°C(If operating temperature is above 45°C, forced cooling will be required)							
	Storage Temperature		-20°C ~ 65°C							
	Humidity		0 ~ 90% RH (non-condensing)							
	Vibration		9.80665m/s ² (1G) less than 20Hz, 5.88m/s ² (0.6G) 20 to 50Hz							
	IP Rating		IP20							
	Power System		TN System ³							
Approvals			IEC/EN 61800-5-1, UL 508C, C-tick				  US LISTED 			

Footnote:

¹1. Rated rotation speed: When full load, speed ratio is defined as the minimum speed (the motor will not pause).

²2. When command is rated rotation speed, the speed fluctuation rate is defined as: (Empty load rotation speed / Full load rotation speed) / Rated rotation speed

³3. TN system: A power distribution system having one point directly earthed, the exposed conductive parts of the installation being connected to that points by protective earth conductor.

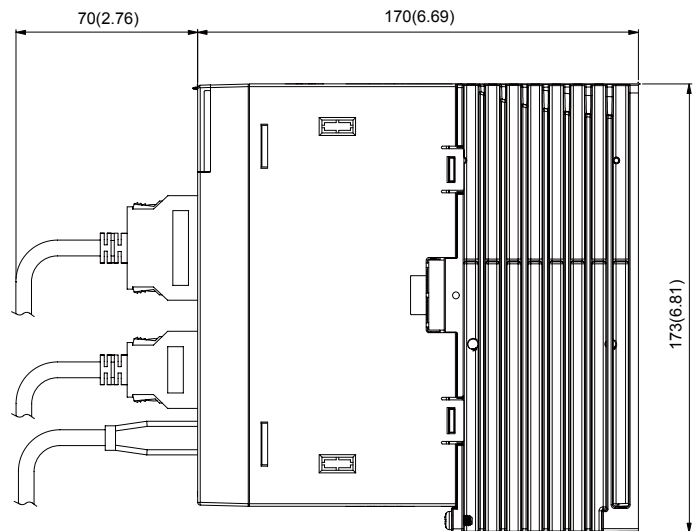
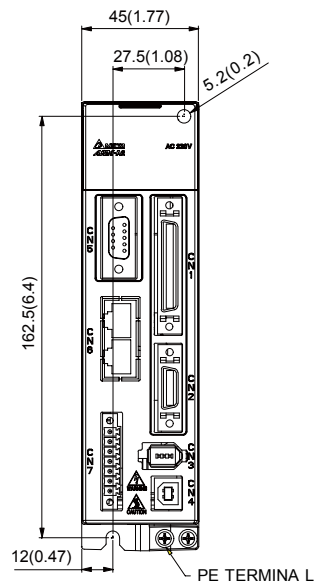
Servo Drive Dimensions Units: mm(inches)

220V Series

100W / 200W / 400W

Weight

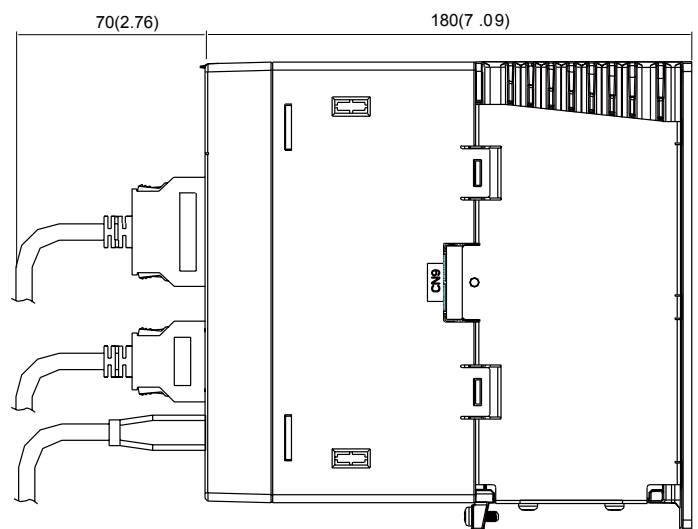
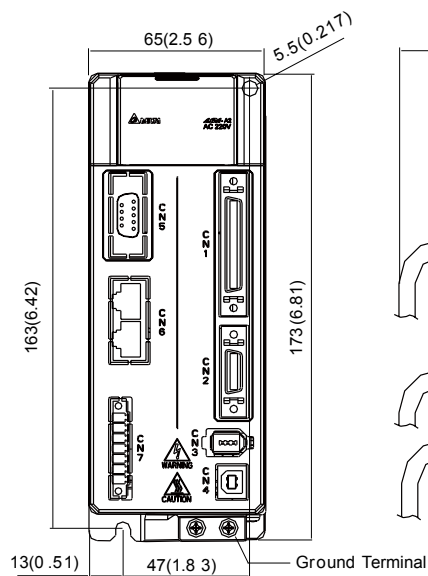
1.5 (3.3)



7500W / 1.0kW / 1.5kW

Weight

2.0 (4.4)



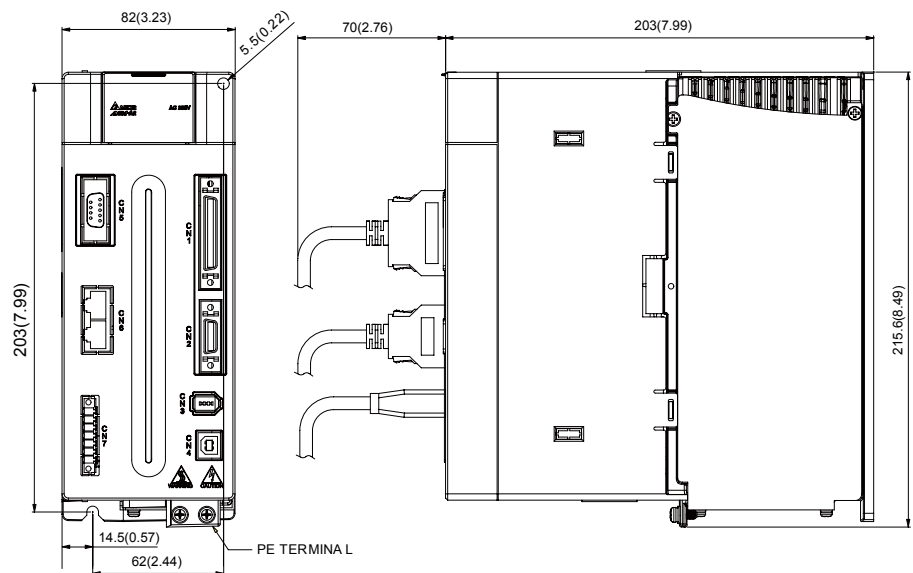
NOTE

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

2.0kW / 3.0kW

Weight

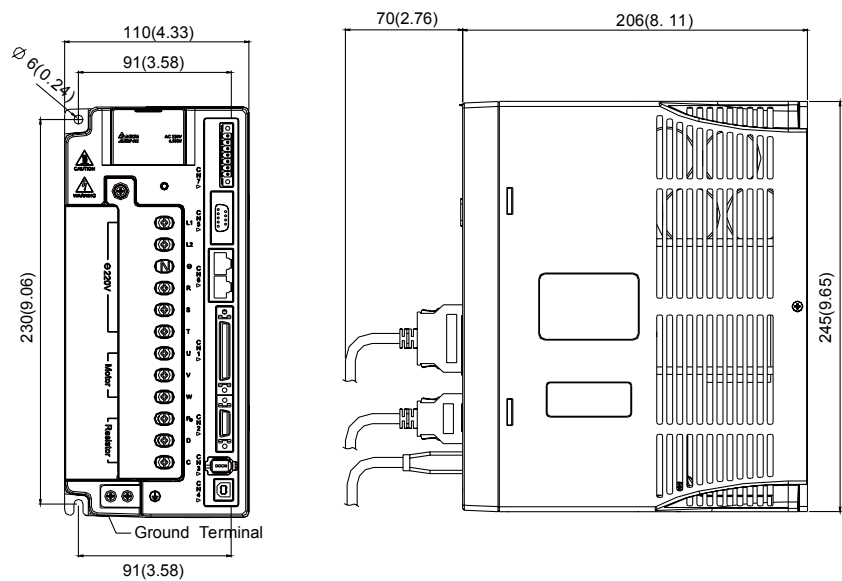
2.89 (6.36)



4.5kW

Weight

4.4 (10.0)



NOTE

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

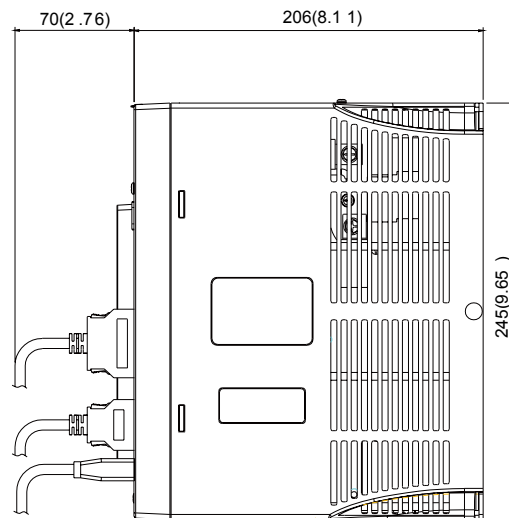
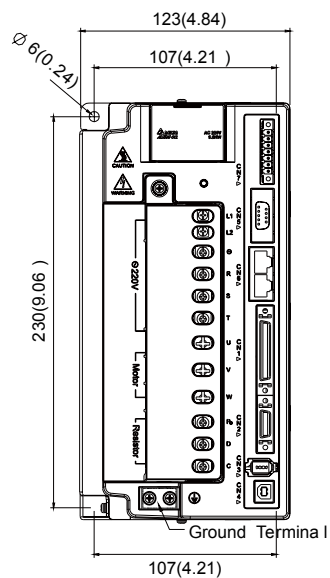
Servo Drive Dimensions Units: mm(inches)

220V Series

5.5kW

Weight

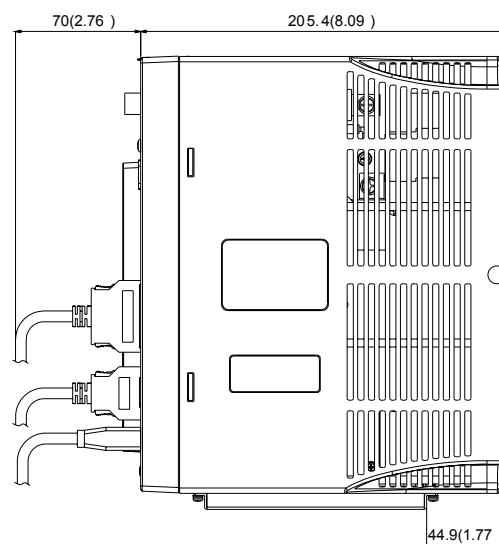
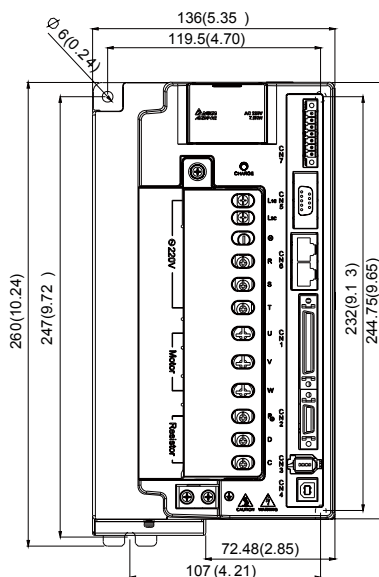
5.5 (12.1)



7.5kW

Weight

5.9 (13)



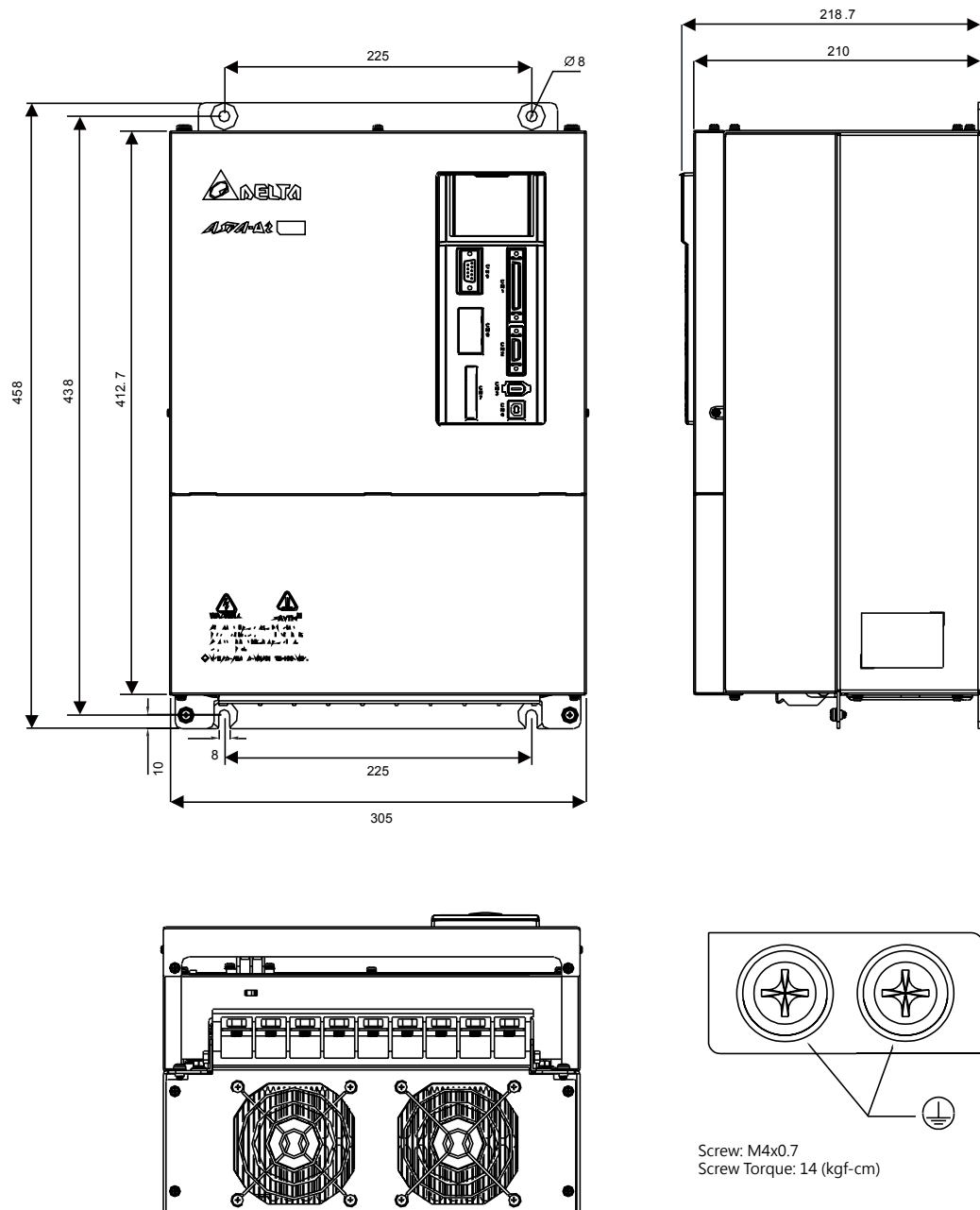
NOTE

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

11kW / 15kW

Weight

20 (44)



NOTE

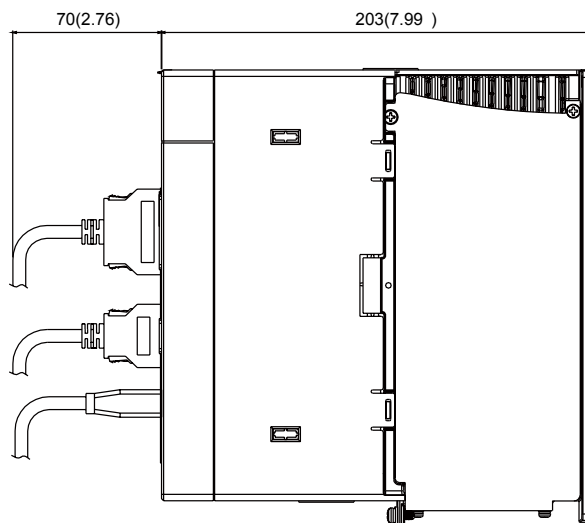
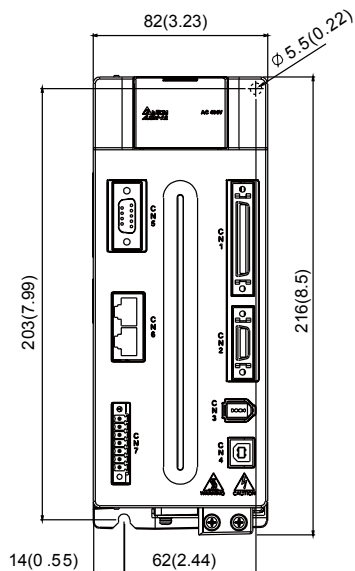
- 1) Dimensions are in millimeters (inches); Weights are in kilograms (kg) and (pounds (lbs)).
- 2) Dimensions and weights of the servo drive may be revised without prior notice.

Servo Drive Dimensions Units: mm(inches)

400V Series

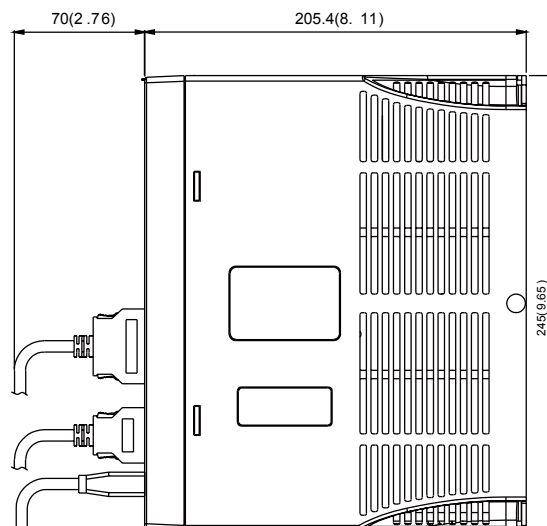
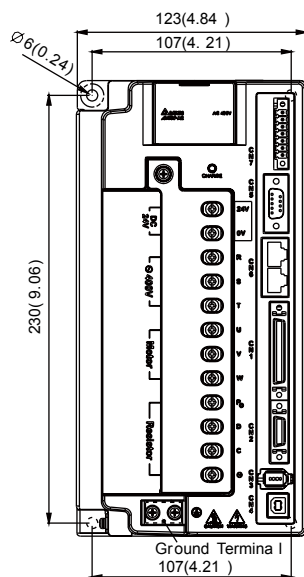
750W / 1.0kW / 1.5kW

Weight
2.89 (6.36)



2.0kW / 3.0kW / 4.5kW / 5.5kW

Weight
5.5 (12.1)

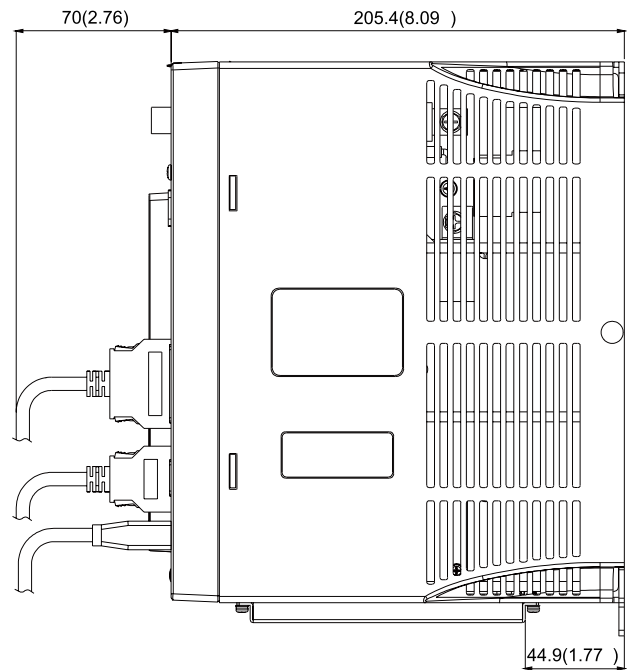
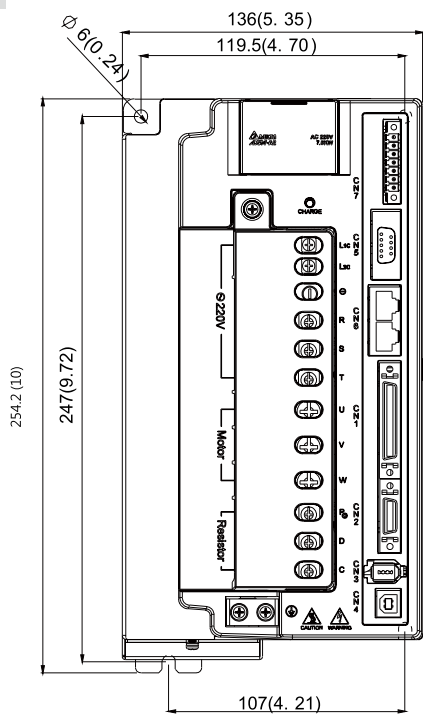


NOTE

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

7.5kW

Weight
5.5 (12.1)



NOTE

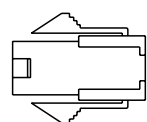
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- 2) Dimensions and weights of the servo drive may be revised without prior notice.



Optional Cables and Connectors

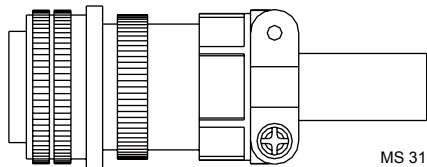
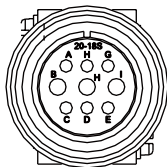
● Power Connectors

ASDBCAPW0000



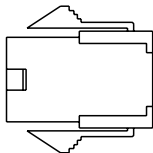
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Housing	C4201H00-2*2PA	JOWLE
Terminal	C4201TOP-2	JOWLE

ASD-CAPW1000



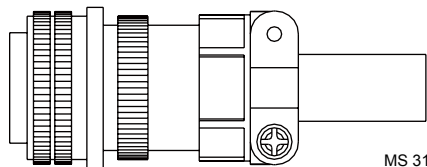
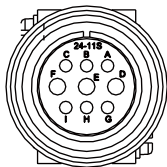
MS 3106A-20-18S

ASDBCAPW0100



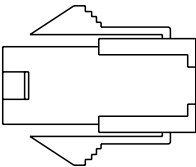
Title	Part No.	Manufacturer
Housing	C4201H00-2*3PA	JOWLE
Terminal	C4201TOP-2	JOWLE

ASD-CAPW2000



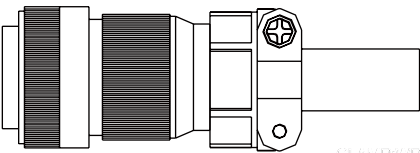
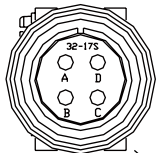
MS 3106A-24-11S

ASD-CAPW5400



Title	Part No.	Manufacturer
Housing	39-01-2041	MOLEX
Terminal	39-00-0040	MOLEX

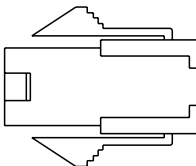
ASD-CAPW4000



Straight Plug WPS3106A-32-17S

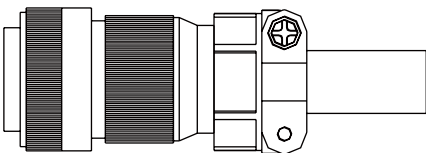
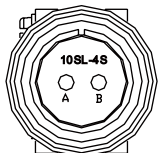
CLAMP: WPS3057-20A

ASD-CAPW5100



Title	Part No.	Manufacturer
Housing	39-01-2061	MOLEX
Terminal	39-00-0040	MOLEX

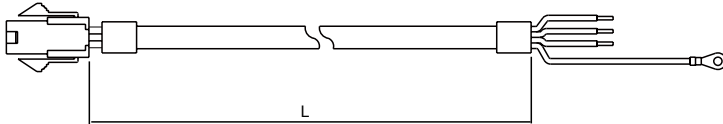
ASD-CNBR1000



CLAMP: WPS3106A 10SL-4S-R

● Power Cables

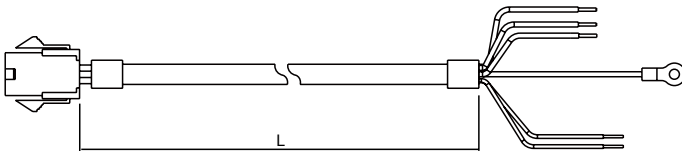
ASD-ABPW0003, ASD-ABPW0005



Title	Part No.	Manufacturer
Housing	C4201H00-2*2PA	JOWLE
Terminal	C4201TOP-2	JOWLE

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

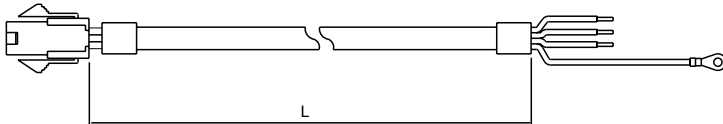
ASD-ABPW0103, ASD-ABPW0105



Title	Part No.	Manufacturer
Housing	C4201H00-2*3PA	MOLEX
Terminal	C4201TOP-2	MOLEX

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

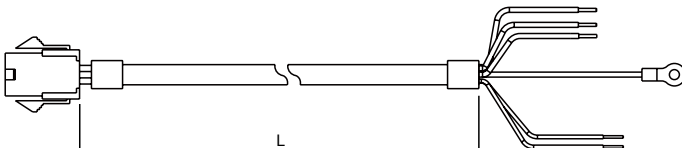
ASD-CAPW5403, ASD-CAPW5405



Title	Part No.	Manufacturer
Housing	39-01-2041	MOLEX
Terminal	39-00-0040	MOLEX

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

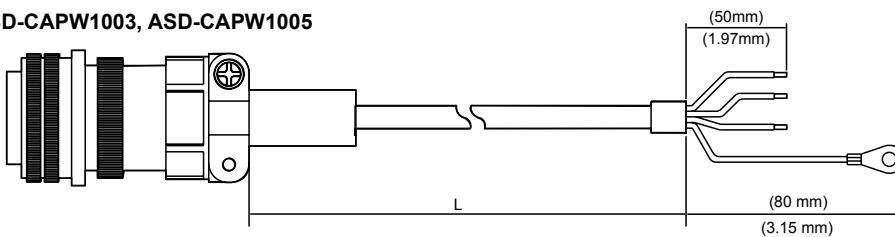
AASD-CAPW5103, ASD-CAPW5105



Title	Part No.	Manufacturer
Housing	39-01-2061	MOLEX
Terminal	39-00-0040	MOLEX

Item	Part No.	L	
		mm	inch
1	ASD-CAPW5103	3000 ± 100	118 ± 4
2	ASD-CAPW5105	5000 ± 100	197 ± 4

AASD-CAPW1003, ASD-CAPW1005

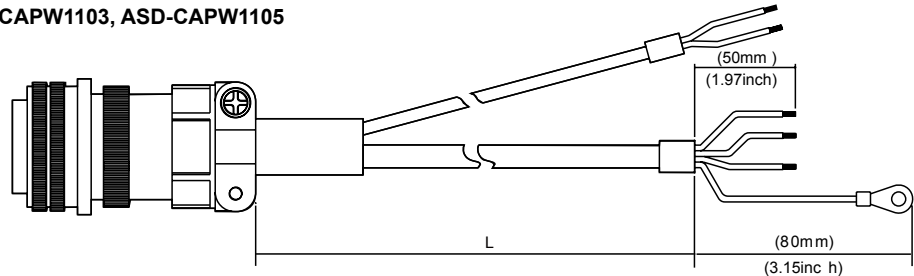


Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW1003	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-CAPW1005	3106A-20-18S	5000 ± 100	197 ± 4

Optional Cables and Connectors

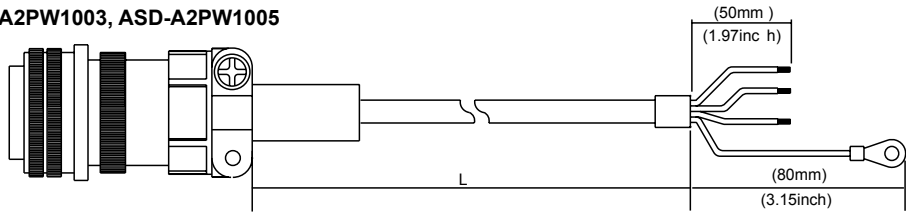
● Power Cables

ASD-CAPW1103, ASD-CAPW1105



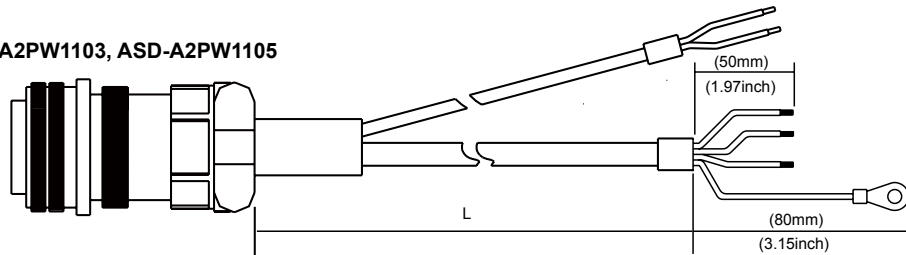
Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW1103	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-CAPW1105	3106A-20-18S	5000 ± 100	197 ± 4

ASD-A2PW1003, ASD-A2PW1005



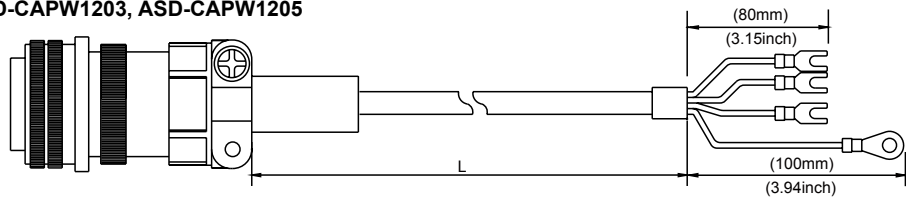
Item	Part No.	Straight	L	
			mm	inch
1	ASD-A2PW1003	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-A2PW1005	3106A-20-18S	5000 ± 100	197 ± 4

ASD-A2PW1103, ASD-A2PW1105



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

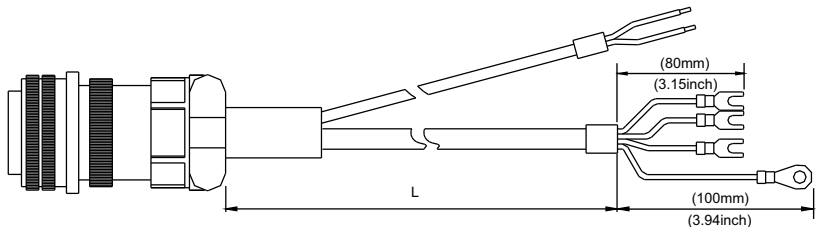
ASD-CAPW1203, ASD-CAPW1205



Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW1203	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-CAPW1205	3106A-20-18S	5000 ± 100	197 ± 4

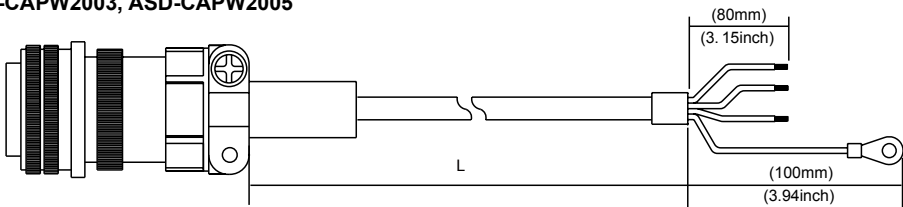
● Power Cables

ASD-CAPW1303, ASD-CAPW1305



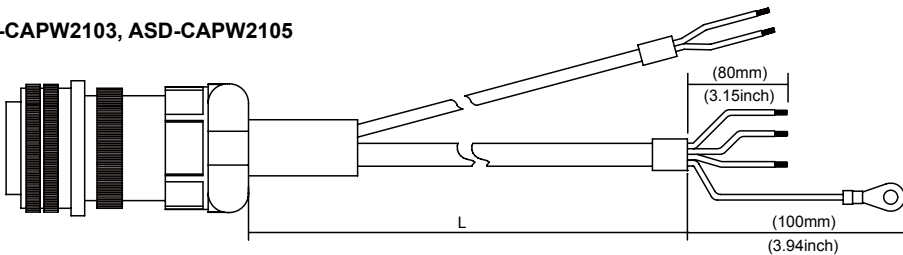
Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW1303	3106A-20-18S	3000 ± 100	118 ± 4
2	ASD-CAPW1305	3106A-20-18S	5000 ± 100	197 ± 4

ASD-CAPW2003, ASD-CAPW2005



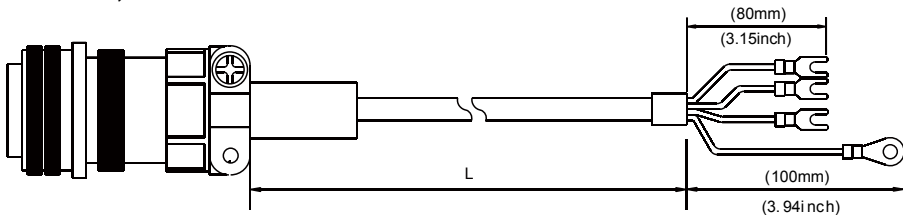
Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW2003	3106A-24-11S	3000 ± 100	118 ± 4
2	SD-CAPW2005	3106A-24-11S	5000 ± 100	197 ± 4

ASD-CAPW2103, ASD-CAPW2105



Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW2103	3106A-24-11S	3000 ± 100	118 ± 4
2	SD-CAPW2105	3106A-24-11S	5000 ± 100	197 ± 4

ASD-CAPW2203, ASD-CAPW2205

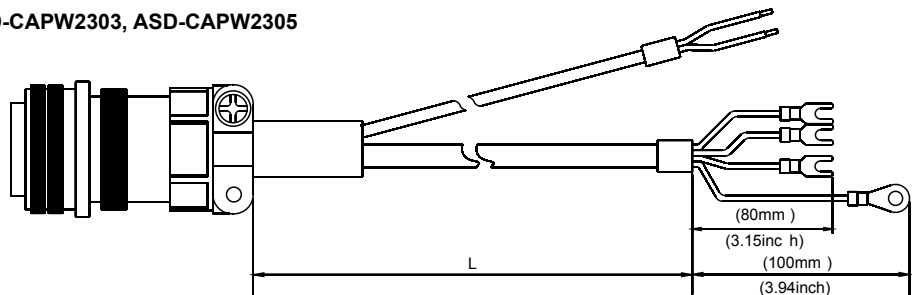


Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW2203	3106A-24-11S	3000 ± 100	118 ± 4
2	ASD-CAPW2205	3106A-24-11S	5000 ± 100	197 ± 4

Optional Cables and Connectors

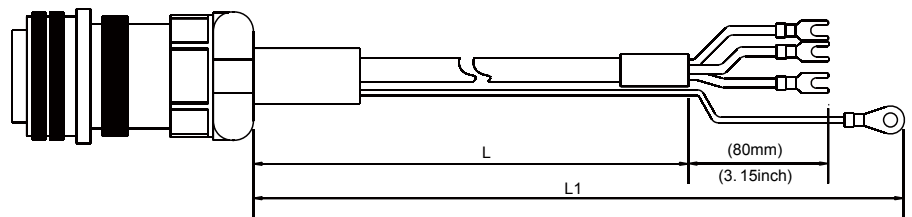
● Power Cables

ASD-CAPW2303, ASD-CAPW2305



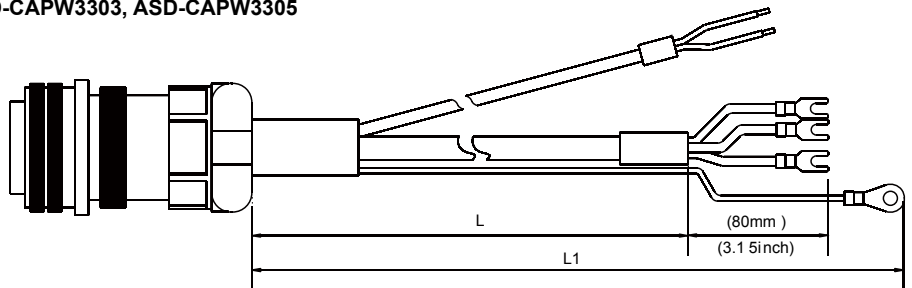
Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAPW2303	3106A-24-11S	3000 ± 100	118 ± 4
2	ASD-CAPW2305	3106A-24-11S	5000 ± 100	197 ± 4

ASD-CAPW3203, ASD-CAPW3205



Item	Part No.	Straight	L		L1	
			mm	inch	mm	inch
1	ASD-CAPW3203	MS 3106-24-11S	3000 ± 100	118 ± 4	3100 ± 100	122 ± 4
2	ASD-CAPW3205	MS 3106-24-11S	5000 ± 100	197 ± 4	5100 ± 100	201 ± 4

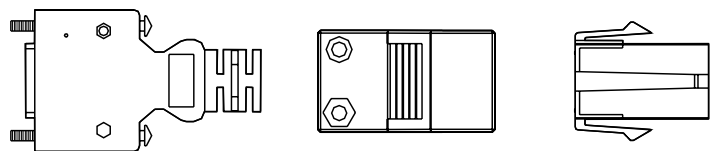
ASD-CAPW3303, ASD-CAPW3305



Item	Part No.	Straight	L		L1	
			mm	inch	mm	inch
1	ASD-CAPW3303	MS 3106-24-11S	3000 ± 100	118 ± 4	3100 ± 100	122 ± 4
2	ASD-CAPW3305	MS 3106-24-11S	5000 ± 100	197 ± 4	5100 ± 100	201 ± 4

● Encoder Connectors

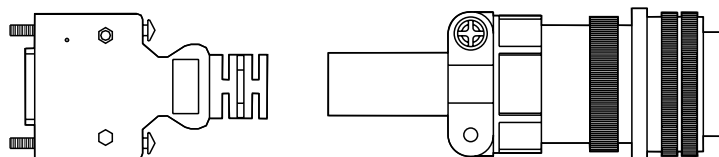
ASD-ABEN0000



Title		Part No.	Manufacturer
MOTOR SIDE	Housing	AMP (1-172161-9)	AMP
	Terminal	AMP (170359-3)	AMP
	CLAMP	DELTA (34703237XX)	DELTA
DRIVE SIDE	PLUG	3M 10120-3000PE	3M
	SHELL	3M 10320-52A0-008	3M

● Encoder Connectors

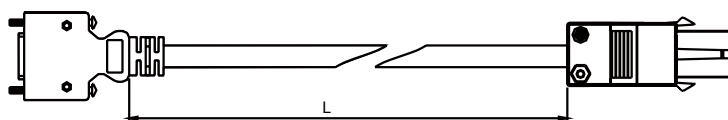
ASD-CAEN1000



Title		Part No.	Manufacturer
MOTOR SIDE		3106A-20-29S	-
DRIVE SIDE	PLUG	3M 10120-3000PE	3M
	SHELL	3M 10320-52A0-008	3M

● Incremental Encoder Cables

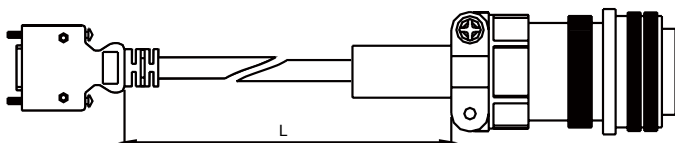
ASD-ABEN0003, ASD-ABEN0005



Title		Part No.	Manufacturer
MOTOR SIDE	Housing	AMP (1-172161-9)	AMP
	Terminal	AMP (170359-3)	AMP
	CLAMP	DELTA (34703237XX)	DELTA
DRIVE SIDE	PLUG	3M 10120-3000PE	3M
	SHELL	3M 10320-52A0-008	3M

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

ASD-CAEN1003, ASD-CAEN1005

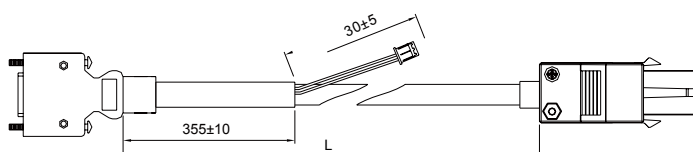


Title		Part No.	Manufacturer
MOTOR SIDE		3106A-20-29S	-
DRIVE SIDE	PLUG	3M 10120-3000PE	3M
	SHELL	3M 10320-52A0-008	3M

Item	Part No.	Straight	L	
			mm	inch
1	ASD-CAEN1003	3106A-20-29S	3000 ± 100	118 ± 4
2	ASD-CAEN1005	3106A-20-29S	5000 ± 100	197 ± 4

● Absolute Encoder Cables

ASD-A2EB0003, ASD-A2EB0005



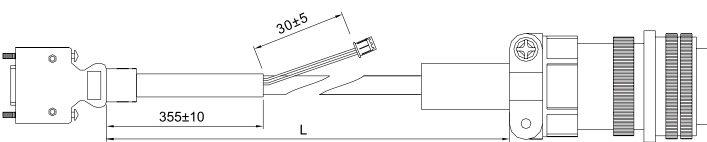
Title		Part No.	Manufacturer
MOTOR SIDE	Housing	AMP (1-172161-9)	AMP
	Terminal	AMP (170359-3)	AMP
	CLAMP	DELTA (34703237XX)	DELTA
DRIVE SIDE	PLUG	3M 10120-3000PE	3M
	SHELL	3M 10320-52A0-008	3M

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

Optional Cables and Connectors

Absolute Encoder Cables

ASD-A2EB1003, ASD-A2EB1005

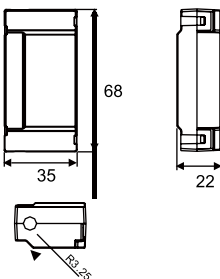


Title		Part No.	Manufacturer
MOTOR SIDE		3106A-20-29S	-
DRIVE SIDE	PLUG	3M 10120-3000PE	3M
	SHELL	3M 10320-52A0-008	3M

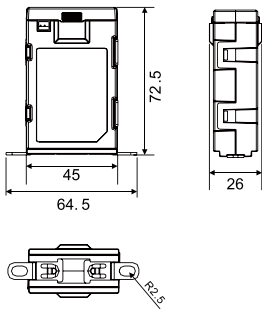
Item	Part No.	L	
		mm	inch
1	ASD-A2EB1003	3000 ± 100	118 ± 4
2	ASD-A2EB1005	5000 ± 100	197 ± 4

Battery Box For An Absolute Encoder Units: mm

Single Battery Box
ASD-MDBT0100



Dual Battery Box
ASD-MDBT0200

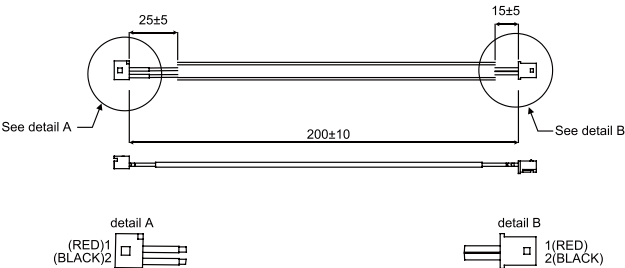


Battery
ASD-CLBT0100



Battery Box Cord AW Units: mm

3864573700



Delta A

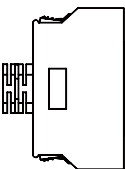
Title	Part No.	Manufacturer
Terminal	A2004WV0-2P	JWT

Delta B

Title	Part No.	Manufacturer
Housing	A2004H00-2P	JWT
Terminal	A2004TOP-2	JWT

I/O Signal Connector (CN1)

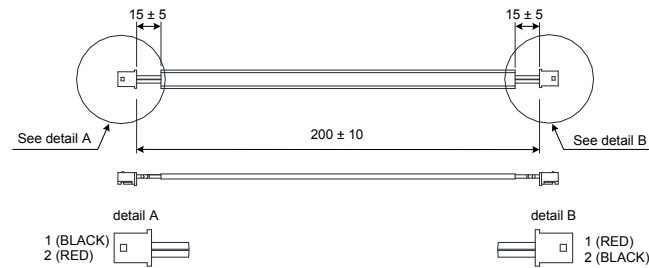
ASD-CN5C0050



Vendor Name	Vendor P/N
3M TAIWAN LTD	10150-3000PE
3M TAIWAN LTD	10350-52A0-008

Battery Box Cord IW Units: mm

3864811900

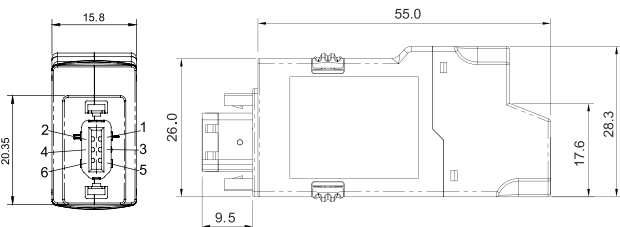


Detail A, B

Title	Part No.	Manufacturer
Housing	A2004H00-2P	JWT
Terminal	A2004TOP-2	JWT

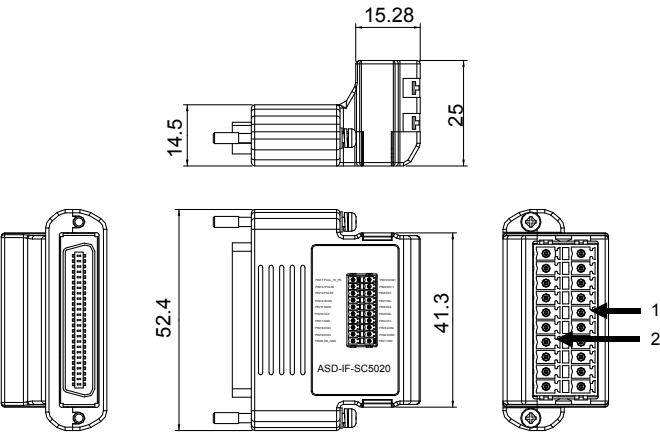
RS-485 Connector Units: mm

ASD-CNIE0B06

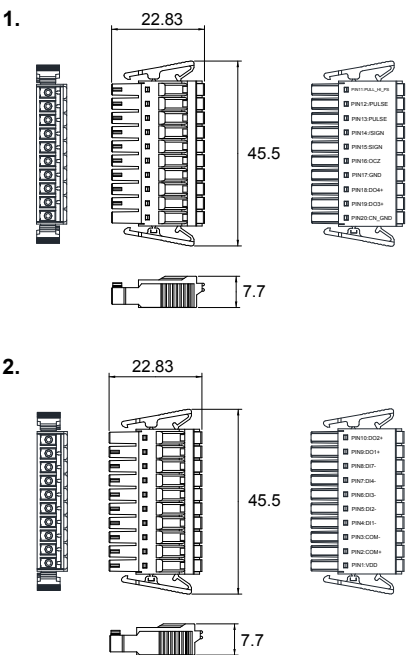


● **CN1 I/O Connector** Units: mm

ASD-IF-SC5020

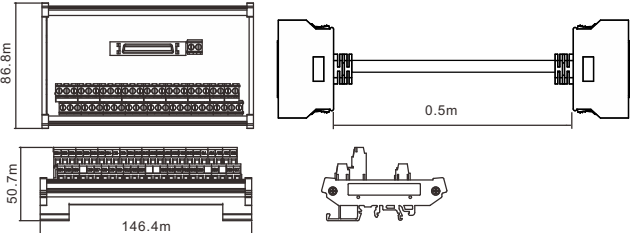


Item	Vendor Name	Vendor P/N
1	DINKLE	0221-24-5339-10
2	DINKLE	0221-24-5340-10



● **Terminal Block Module**

ASD-BM-50A



● **RS-232 Communication Cable**

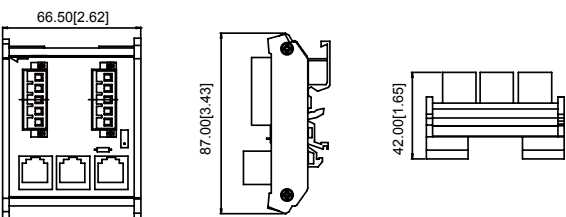
ASD-CARS0003



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

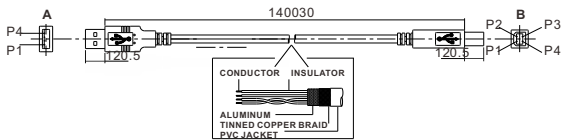
● **CANopen Distribution Box** Units: mm

TAP-CN03



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

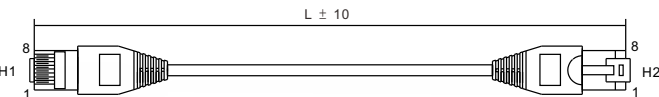
DOP-CAUSBAB



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

● **CANopen Communication Cable**

TAP-CB03, TAP-CB05



Item	Part No.	L	
		mm	inch
1	TAP-CB03	300 ± 10	11 ± 0.4
2	TAP-CB05	500 ± 10	19 ± 0.4



1) Other accessories for ASDA-A2 series will be increased gradually.
2) Accessories images shown here may differ from actual product appearance.
Please refer to the actual product appearance.

Servo Drive, Servo Motor and Accessories Combinations

220V Series

100W Servo Drive and 100W Low Inertia Servo Motor

Servo Drive	ASD-A2-0121-□
Low Inertia Servo Motor	ECMA-C10401F □ S
Power Cable (Without Brake)	ASD-ABPW000X
Power Connector (Without Brake)	ASDBCAPW0000
Power Cable (With Brake)	ASD-ABPW010X
Power Connectors (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connectors	ASD-ABEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

100W Servo Drive and 100W Low Inertia Servo Motor

Servo Drive	ASD-A2-0121-□
Low Inertia Servo Motor	ECMA-C△0401 □ S
Power Cable (Without Brake)	ASD-ABPW000X
Power Connector (Without Brake)	ASDBCAPW0000
Power Cable (With Brake)	ASD-ABPW010X
Power Connectors (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connectors	ASD-ABEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

200W Servo Drive and 200W Low Inertia Servo Motor

Servo Drive	ASD-A2-0221-□
Low Inertia Servo Motor	ECMA-C△0602 □ S
Power Cable (Without Brake)	ASD-ABPW000X
Power Connector (Without Brake)	ASDBCAPW0000
Power Cable (With Brake)	ASD-ABPW010X
Power Connector (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

400W Servo Drive and 400W Low Inertia Servo Motor

Servo Drive	ASD-A2-0421-□
Low Inertia Servo Motor	ECMA-C△0604 □ S ECMA-C△0604 □ H ECMA-C△0804 □ 7
Power Cable (Without Brake)	ASD-ABPW000X
Power Connector (Without Brake)	ASDBCAPW0000
Power Cable (With Brake)	ASD-ABPW010X
Power Connector (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

400W Servo Drive and 500W Medium Servo Motor

Servo Drive	ASD-A2-0421-□
Medium Servo Motor	ECMA-E△1305 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

400W Servo Drive and 300W High Inertia Servo Motor

Servo Drive	ASD-A2-0421-□
High Inertia Servo Motor	ECMA-G△1303 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

Servo Drive, Servo Motor and Accessories Combinations

220V Series

750W Servo Drive and 500W High Inertia Servo Motor

Servo Drive	ASD-A2-0721-□
High Inertia Servo Motor	ECMA-F△1305□S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector (With Brake)	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

750W Servo Drive and 750W Low Inertia Servo Motor

Servo Drive	ASD-A2-0721-□
Low Inertia Servo Motor	ECMA-C△0807□S ECMA-C△0807□H ECMA-C△0907□S
Power Cable (Without Brake)	ASD-ABPW000X
Power Connector (Without Brake)	ASDBCAPW0000
Power Cable (With Brake)	ASD-ABPW010X
Power Connector (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

750W Servo Drive and 600W High Inertia Servo Motor

Servo Drive	ASD-A2-0721-□
High Inertia Servo Motor	ECMA-G△1306□S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 1kW Low Inertia Servo Motor

Servo Drive	ASD-A2-1021-□
Low Inertia Servo Motor	ECMA-C△1010 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector (With Brake)	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 1kW Low Inertia Servo Motor

Servo Drive	ASD-A2-1021-□
Low Inertia Servo Motor	ECMA-C△0910 □ S
Power Cable (Without Brake)	ASD-ABPW000X
Power Cables (With Brake)	ASD-ABPW010X
Power Connector (Without Brake)	ASDBCAPW0000
Power Connector (With Brake)	ASDBCAPW0100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 1kW Medium Servo Motor

Servo Drive	ASD-A2-1021-□
Medium Servo Motor	ECMA-E△1310 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

Servo Drive, Servo Motor and Accessories Combinations

220V Series

1kW Servo Drive and 850W High Inertia Servo Motor

Servo Drive	ASD-A2-1021-□
High Inertia Servo Motor	ECMA-F△1308□S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 900W High Inertia Servo Motor

Servo Drive	ASD-A2-1021-□
High Inertia Servo Motor	ECMA-G△1309□S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1.5kW Servo Drive and 1.5kW Medium Servo Motor

Servo Drive	ASD-A2-1521-□
Medium Servo Motor	ECMA-E△1315□S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

2kW Servo Drive and 1.3kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-2023- □
Medium-High Inertia Servo Motor	ECMA-F△1313 □ S
Power Cable (Without Brake)	ASD-A2PW100X
Power Cable (With Brake)	ASD-A2PW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

2kW Servo Drive and 1.8kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-2023- □
Medium-High Inertia Servo Motor	ECMA-F△1318 □ S
Power Cable (Without Brake)	ASD-A2PW100X
Power Cable (With Brake)	ASD-A2PW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

2kW Servo Drive and 2kW Low Inertia Servo Motor

Servo Drive	ASD-A2-2023- □
Low Inertia Servo Motor	ECMA-C△1020 □ S
Power Cables (Without Brake)	ASD-A2PW100X
Power Cables (With Brake)	ASD-A2PW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

Servo Drive, Servo Motor and Accessories Combinations

220V Series

2kW Servo Drive and 2kW Medium Servo Motor

Servo Drive	ASD-A2-2023- □
Medium Servo Motor	ECMA-E△1320 □ S
Power Cable (Without Brake)	ASD-A2PW100X
Power Cable (With Brake)	ASD-A2PW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

2kW Servo Drive and 2kW Medium Servo Motor

Servo Drive	ASD-A2-2023- □
Medium Servo Motor	ECMA-E△1820 □ S
Power Cable (Without Brake)	ASD-CAPW200X
Power Cable (With Brake)	ASD-CAPW210X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

3kW Servo Drive and 3kW Low Inertia Servo Motor

Servo Drive	ASD-A2-3023- □
Low Inertia Servo Motor	ECMA-C△1330 □ 4
Power Cable (Without Brake)	ASD-A2PW100X
Power Cable (With Brake)	ASD-A2PW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

3kW Servo Drive and 3kW Medium Servo Motor

Servo Drive	ASD-A2-3023-□
Medium Servo Motor	ECMA-E△1830 □ S
Power Cable (Without Brake)	ASD-CAPW200X
Power Cable (With Brake)	ASD-CAPW210X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

3kW Servo Drive and 3.5kW Medium Servo Motor

Servo Drive	ASD-A2-3023-□
Medium-High Inertia Servo Motor	ECMA-E△1835 □ S
Power Cable (Without Brake)	ASD-CAPW200X
Power Cable (With Brake)	ASD-CAPW210X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

3kW Servo Drive and 3kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-3023-□
Medium-High Inertia Servo Motor	ECMA-F△1830 □ S
Power Cable (Without Brake)	ASD-CAPW200X
Power Cable (With Brake)	ASD-CAPW210X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

Servo Drive, Servo Motor and Accessories Combinations

220V Series

4.5kW Servo Drive and 4.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-4523-□
Medium-High Inertia Servo Motor	ECMA-F△1845□ S
Power Cable (Without Brake)	ASD-CAPW320X
Power Cable (With Brake)	ASD-CAPW330X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

5.5kW Servo Drive and 5.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-5523-□
Medium-High Inertia Servo Motor	ECMA-F△1855□ 3
Power Cable (Without Brake)	-
Power Cable (With Brake)	-
Power Connector	ASD-CAPW4000
Brake Cable	ASD-CNBR1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

7.5kW Servo Drive and 7.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-7523-□
Medium-High Inertia Servo Motor	ECMA-F△1875□ 3
Power Cable (Without Brake)	-
Power Cable (With Brake)	-
Power Connector	ASD-CAPW4000
Brake Cable	ASD-CNBR1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

11kW Servo Drive and 11kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-1B23-□
Medium-High Inertia Servo Motor	ECMA-F1221B□ 3
Power Cable (Without Brake)	-
Power Cable (With Brake)	-
Power Connector	ASD-CAPW4000
Brake Cable	ASD-CNBR1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

400V Series

15kW Servo Drive and 15kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-1F23-□
Medium-High Inertia Servo Motor	ECMA-F1221F□ S
Power Cable (Without Brake)	-
Power Cable (With Brake)	-
Power Connector	ASD-CAPW4000
Brake Cable	ASD-CNBR1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

750W Servo Drive and 400W Low Inertia Servo Motor

Servo Drive	ASD-A2-0743-□
Low Inertia Servo Motor	ECMA-J△0604□ S
Power Cable (Without Brake)	ASD-CAPW540X
Power Connector (Without Brake)	SD-CAPW5400
Power Cable (With Brake)	SD-CAPW510X
Power Connector (With Brake)	SD-CAPW5100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

400V Series

750W Servo Drive and 750W Low Inertia Servo Motor

Servo Drive	ASD-A2-0743-□
Low Inertia Servo Motor	ECMA-J△0807 □ S
Power Cable (Without Brake)	ASD-CAPW540X
Power Connector (Without Brake)	SD-CAPW5400
Power Cable (With Brake)	SD-CAPW510X
Power Connector (With Brake)	SD-CAPW5100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

750W Servo Drive and 750W Low Inertia Servo Motor

Servo Drive	ASD-A2-0743-□
Low Inertia Servo Motor	ECMA-J△0907 □ S
Power Cable (Without Brake)	ASD-CAPW540X
Power Connector (Without Brake)	ASD-CAPW5400
Power Cable (With Brake)	ASD-CAPW510X
Power Connectors (With Brake)	ASD-CAPW5100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

750W Servo Drive and 500W Medium Servo Motor

Servo Drive	ASD-A2-0743-□
Medium Servo Motor	ECMA-K△1305 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

750W Servo Drive and 500W Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-0743-□
Medium-High Inertia Servo Motor	ECMA-L△1305 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 850W High Inertia Servo Motor

Servo Drive	ASD-A2-1043-□
High Inertia Servo Motor	ECMA-L△1308 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 1kW Low Inertia Servo Motor

Servo Drive	ASD-A2-1043-□
Low Inertia Servo Motor	ECMA-J△0910 □ S
Power Cable (Without Brake)	ASD-CAPW540X
Power Connector (Without Brake)	ASD-CAPW5400
Power Cable (With Brake)	ASD-CAPW510X
Power Connector (With Brake)	ASD-CAPW5100
Incremental Encoder Cable	ASD-ABEN000X
Absolute Encoder Cable	ASD-A2EB000X
Encoder Connector	ASD-ABEN0000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

Servo Drive, Servo Motor and Accessories Combinations

400V Series

1.5kW Servo Drive and 900W High Inertia Servo Motor

Servo Drive	ASD-A2-1543-□
High Inertia Servo Motor	ECMA-M△1309□S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1kW Servo Drive and 1kW Medium Servo Motor

Servo Drive	ASD-A2-1043-□
Medium Servo Motor	ECMA-K△1310□S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1.5kW Servo Drive and 1kW Low Inertia Servo Motor

Servo Drive	ASD-A2-1543-□
Low Inertia Servo Motor	ECMA-J△1010□S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1.5kW Servo Drive and 1.3kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-1543-□
Medium-High Inertia Servo Motor	ECMA-L△1313 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

1.5kW Servo Drive and 1.5kW Medium Servo Motor

Servo Drive	ASD-A2-1543-□
Medium Servo Motor	ECMA-K△1315 □ S
Power Cable (Without Brake)	ASD-CAPW100X
Power Cable (With Brake)	ASD-CAPW110X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

2kW Servo Drive and 2kW Low Inertia Servo Motor

Servo Drive	ASD-A2-2043-□
Low Inertia Servo Motor	ECMA-J△1020 □ S
Power Cable (Without Brake)	ASD-CAPW120X
Power Cable (With Brake)	ASD-CAPW130X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

2kW Servo Drive and 2kW Medium Servo Motor

Servo Drive	ASD-A2-2043-□
Medium Servo Motor	ECMA-K△1320 □ S
Power Cable (Without Brake)	ASD-CAPW120X
Power Cable (With Brake)	ASD-CAPW130X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

Servo Drive, Servo Motor and Accessories Combinations

400V Series

2kW Servo Drive and 2kW Medium Servo Motor

Servo Drive	ASD-A2-2043- □
Medium Servo Motor	ECMA-K△1820 □ S
Power Cable (Without Brake)	ASD-CAPW220X
Power Cable (With Brake)	ASD-CAPW230X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

3kW Servo Drive and 3kW Low Inertia Servo Motor

Servo Drive	ASD-A2-3043- □
中 Low Inertia Servo Motor	ECMA-J△1330 □ 4
Power Cable (Without Brake)	ASD-CAPW120X
Power Cable (With Brake)	ASD-CAPW130X
Power Connector	ASD-CAPW1000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

3kW Servo Drive and 3kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-3043- □
Medium-High Inertia Servo Motor	ECMA-L△1830 □ S
Power Cable (Without Brake)	ASD-CAPW220X
Power Cable (With Brake)	ASD-CAPW230X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

4.5kW Servo Drive and 4.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-4543-□
Medium-High Inertia Servo Motor	ECMA-L△1845□S
Power Cable (Without Brake)	ASD-CAPW220X
Power Cable (With Brake)	ASD-CAPW230X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

5.5kW Servo Drive and 5.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-5543-□
Medium-High Inertia Servo Motor	ECMA-L△1855□3
Power Cable (Without Brake)	ASD-CAPW220X
Power Cable (With Brake)	ASD-CAPW230X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

(X=3 indicates that the cable length is 3m; X=5 indicates that the cable length is 5m)

7.5kW Servo Drive and 7.5kW Medium-High Inertia Servo Motor

Servo Drive	ASD-A2-7543-□
Medium-High Inertia Servo Motor	ECMA-L△1875□3
Power Cable (Without Brake)	ASD-CAPW320X
Power Cable (With Brake)	ASD-CAPW330X
Power Connector	ASD-CAPW2000
Incremental Encoder Cable	ASD-CAEN100X
Absolute Encoder Cable	ASD-A2EB100X
Encoder Connector	ASD-CAEN1000

11kW and 15kW models will be available soon

For the available models and related optional accessories, please visit our website at: www.deltaww.com, or please consult our local distributors.

Other Accessories

(for ASDA-A2 series all models)

Description	Delta Part Number
50-Pin I/O Connector (CN1)	ASD-CNSC0050
Terminal Block Module	ASD-BM-50A
RS-232 Communication Cable	ASD-CARS0003
Communication Cable between Drive and Computer (for PC)	DOP-CAUSBAB
CANopen Communication Cable	TAP-CB03 / TAP-CB05
CANopen Distribution Box	TAP-CN03
RS-485 Connector	ASD-CNIE0B06
Regenerative Resistor 400W 40Ω	BR400W040
Regenerative Resistor 1kW 20Ω	BR1K0W020
Regenerative Resistor 1.5kW 5Ω	BR1K5W005

Safety Information

Global Standards	ASDA-A2 series is designed to fully comply with demanding international standards, such as IEC, EN and others, for all fields of industrial automation technology.	
EMC Standard	EN61000-4-6	Level 3
	EN61000-4-3	Level 3
	EN61000-4-2	Level 2 and Level 3
	EN61000-4-4	Level 3
	EN61000-4-8	Level 4
	EN61000-4-5	Level 3
Conducted & Radiated Emissions	Complies with EN550011 Class A Group 1, with external EMC filter	
CE Marking	CE recognized. Complies with Directive 2006/95/EC of the European Parliament and EMC Directive 2004/108/EC.	
UL Approval	UL (U.S.), cUL (Canada) recognized.	
Test Standard	IEC/EN50178, IEC/EN60529 IP20	
Vibration	1G less than 20Hz, 0.6G 20 to 50Hz. Complies with IEC/EN50178	
Shock	15gn 11ms. Complies with IEC/EN600028-2-27	
Pollution Degree	Degree 2. Complies with IEC/EN61800-5-1	

Regenerative Resistor Specifications

220V Series

Servo Drive (kW)	Specifications of Built-in Regenerative Resistors		Min. Allowable Resistance (Ohm)
	Resistance (parameter P1-52) (Ohm)	Capacity (parameter P1-53) (Watt)	
0.1	-	-	30Ω
0.2	-	-	30Ω
0.4	40Ω	40Ω	30Ω
0.75	40Ω	60Ω	20Ω
1.0	40Ω	60Ω	20Ω
1.5	40Ω	60Ω	20Ω
2.0	20Ω	100Ω	10Ω
3.0	20Ω	100Ω	10Ω
4.5	20Ω	100Ω	10Ω
5.5	-	-	8Ω
7.5	-	-	5Ω
11	-	-	8Ω
15	-	-	5Ω

Notes

- 400W ~ 4.5kW servo drives provide a built-in regenerative resistor.
- When the fault, ALE05 (Regeneration Error) occurs, please increase the regenerative resistor capacity or decrease the regenerative resistor resistance (the regenerative resistor resistance should not be less than the minimum allowable resistance listed in the above table.)
- If the situation is not improved after increasing the regenerative resistor capacity or decreasing the regenerative resistor resistance, please purchase a regenerative resistor module.
- When combining multiple small-capacity regenerative resistors in parallel to increase the regenerative resistor capacity, make sure that the total resistance value of the regenerative resistors should not be less than the minimum allowable resistance listed in the above table.

400V Series

Servo Drive (kW)	Specifications of Built-in Regenerative Resistors		Min. Allowable Resistance (Ohm)
	Resistance (parameter P1-52) (Ohm)	Capacity (parameter P1-53) (Watt)	
0.4	80Ω	100W	60Ω
0.75	80Ω	100W	60Ω
1.0	80Ω	100W	60Ω
1.5	80Ω	100W	40Ω
2.0	-	-	40Ω
3.0	-	-	30Ω
4.5	-	-	20Ω
5.5	-	-	20Ω
7.5	-	-	15Ω

Notes

- 750W ~ 1.5kW servo drives provide a built-in regenerative resistor.
- When the fault, ALE05 (Regeneration Error) occurs, please increase the regenerative resistor capacity or decrease the regenerative resistor resistance (the regenerative resistor resistance should not be less than the minimum allowable resistance listed in the above table.)
- If the situation is not improved after increasing the regenerative resistor capacity or decreasing the regenerative resistor resistance, please purchase a regenerative resistor module.
- When combining multiple small-capacity regenerative resistors in parallel to increase the regenerative resistor capacity, make sure that the total resistance value of the regenerative resistors should not be less than the minimum allowable resistance listed in the above table.



Smarter. Greener. Together.

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