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Home



## Summa ED3L Series Full Digital AC Servo System

# ESTUN

## ALL DIGITAL AC SERVO SYSTEMS

Estun Automation Co., Ltd. is acknowledged as a leading domestic product and service provider of core components of high-end intelligent equipment, industrial robots and intelligent manufacturing systems.

As one of the most influential enterprises in the field of motion control in China, Estun's core automation component product line has completed the strategic transformation from AC servo systems to motion control system solutions, and its business model is achieving a comprehensive range from single axis to single machine to unit.

Estun actively explores the "internationalization" development strategy. It has successively acquired Trio (a UK company), became a controlling shareholder of the M.A.I (a Germany company), and invested in companies such as Barrett (a US company), Euclid (an Italian company) and so on, and established a European R&D center in Milan. It has initially completed the international layout in terms of brand and technology, and laid a solid foundation for the implementation of its development strategies in motion control solutions, intelligent cooperative robots, rehabilitation robots and Industry 4.0. At present, Estun Group has 7 oversea branches with businesses in over 60 countries and regions.

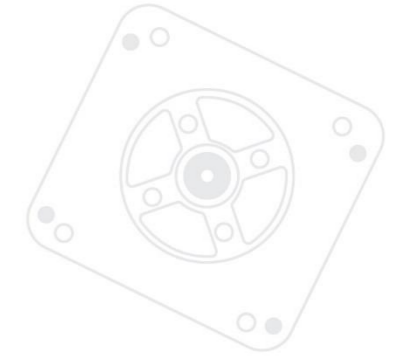
In the future, Estun will keep pace with the industrial development trend and take a development path with Estun features. Estun is aimed at supplying the most advanced Chinese motion control system and forming the best Chinese brand. Estun spares no pains to be an international enterprise accepted and respected by market.

A better world worthies our best effort!



EtherCAT

**ALL  
MADE  
BY ESTUN**



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# 01 Introduction



## Drives and Matched Motors

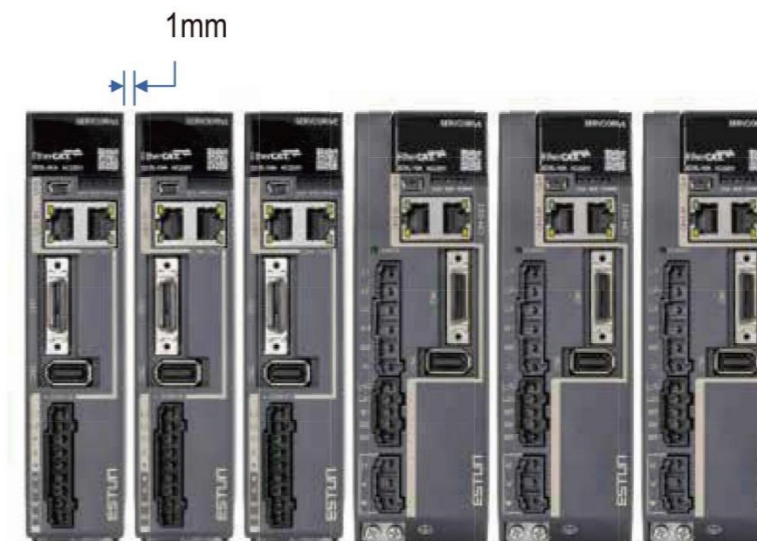
### Motors for ED3L Drives

Models	ED3L-A5A/01A/02A/04A	ED3L-08A/10A	ED3L-15A/20A	
Appearance				
Power	0.05kW-0.4kW	0.75kW-1.0kW	1.5KW - 2.0KW	
Dimensions (H×W×D)	172mm× 40mm× 180mm	172mm× 55mm× 180mm	172mm ×70mm×180mm	
Motor (IP65 supported)				
	<p>I P 6 5</p> <p>Grade of IP65 5: Prevent the intrusion of water from low-pressure jets at any angle</p> <p>Grade of dustproof 6: Completely prevent dust from intrusion</p>			

## Advantages

### Zero Stacking

Supports installation with a spacing of 1mm, saving the space of electrical cabinet



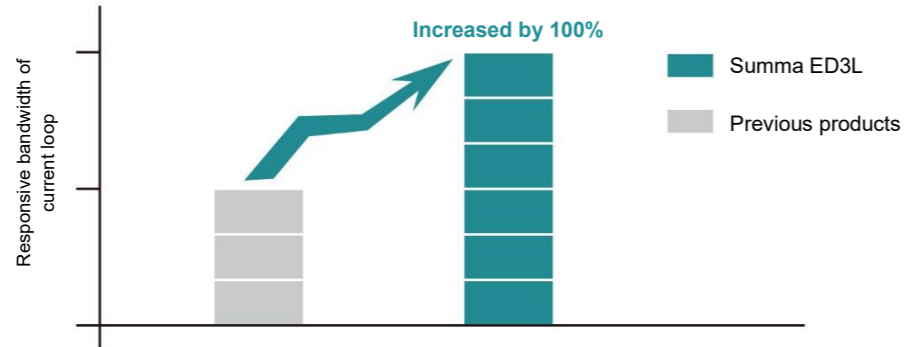
### Comprehensive Protection

Improve the reliability of product use and fully tap the system performance



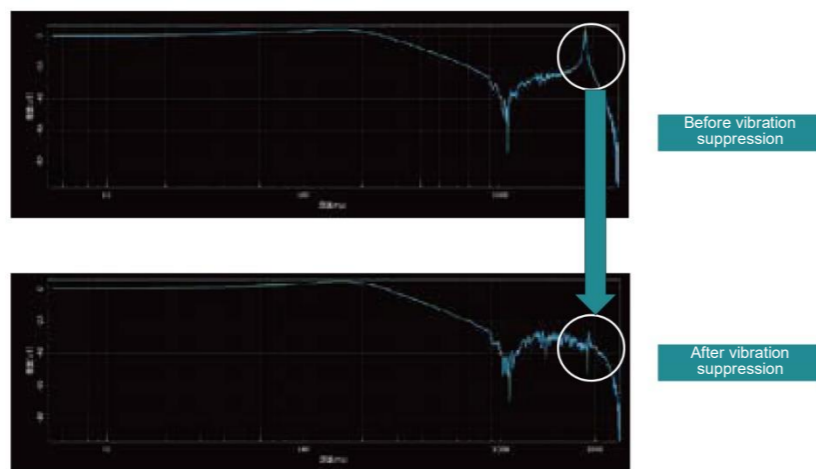
### High Response

A cycle of current loop lasts 62.5μs, and the minimum bus communication cycle of EtherCAT lasts 125μs



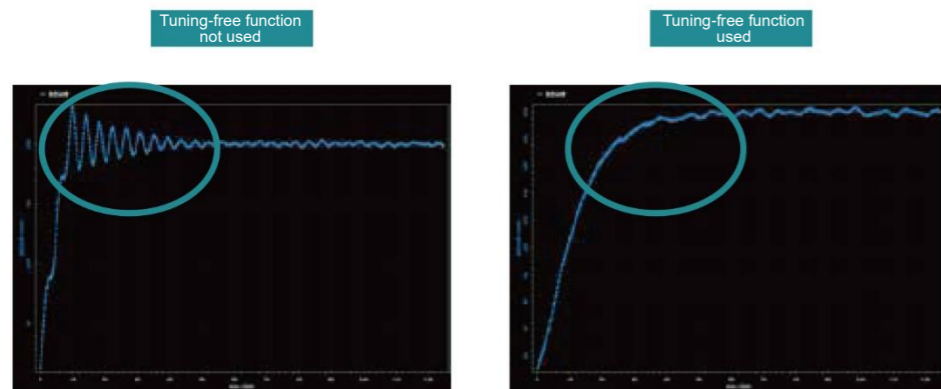
### Full-range frequency vibration suppression

Achieve vibration suppression in the full frequency bands from 1Hz to 5000Hz



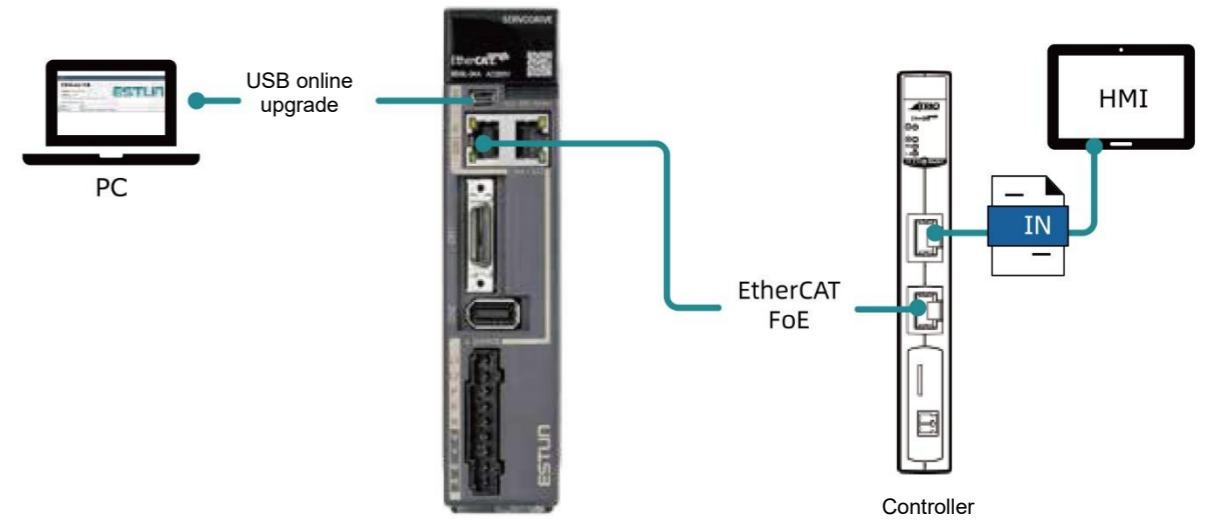
### Smart Tuning

Support tuning-free, and auto-tuning mode; automatic offline parameter tuning function, to give better usability



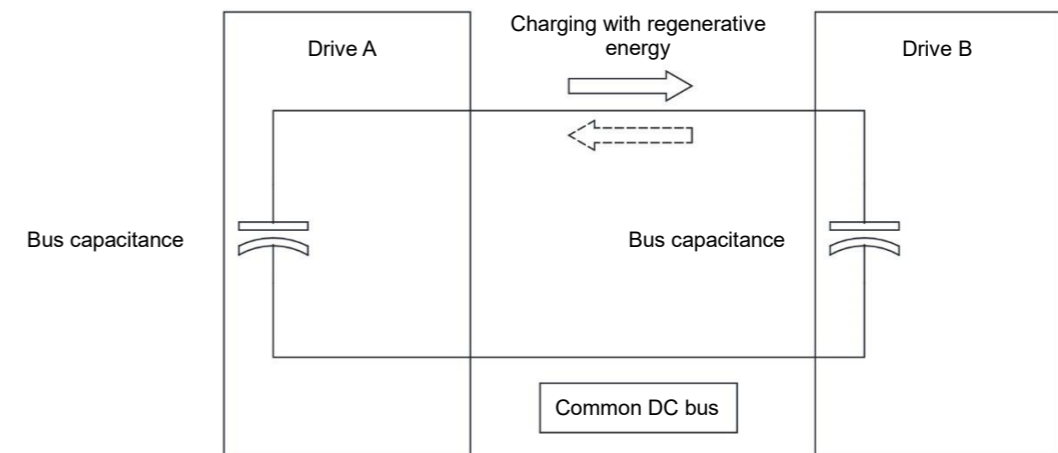
### Upgrading firmware through USB or FoE

Use of USB or FoE, allowing to upgrade the firmware of servo drive products without disassembling the machine



### DC-bus Sharing

The application of common DC bus can be achieved without special settings, which enhances the utilization efficiency of the bus and saves energy



# 02 ED3L Servo Drive



## Part Number

**ED3L** - **02** **A** **E** **A**  
 ED3L Servo Drive      Rated output      Voltage      Function      Design Sequence

Sign	Spec.	Sign	Spec.	Sign	Spec.
A5	0.05kW	A	200VAC	E	Support EtherCAT
01	0.1kW			M	Pulse, CAN open
02	0.2kW				
04	0.4kW				
08	0.75kW				
10	1.0kW				
15	1.5kW				
20	2.0kW				

## Ratings

Servo Drive Model: ED3L-	A5A	01A	02A	04A	08A	10A	15A	20A
Applicable servo motor model: EM3A-	A5A	01A	02A	04A	08A	10A	15A	20A
Applicable servo motor model: EMG-	-	-	-	-	-	10A	15A	20A
Applicable servo motor model: EM3G-	-	-	-	-	-	09A	13A	-
Applicable servo motor model: EM3J-	-	-	-	04A	08A	-	-	-
Continuous output current [Arms]	0.9	1.1	1.5	2.9	5.1	6.9	9.5	12.6
Max output current [Arms]	3.3	4.0	5.8	11.5	19.5	21.0	31.6	42.0
Input Power Capacity [kVA]	0.2	0.3	0.6	1.2	1.9	2.6	3.0	3.5

## Specification

### General specifications

Item	Specification	
Input Power	Single-phase AC 200V~240V, -15% ~+10%, 50Hz/60Hz Three-phase AC200V~240V, -15%~+10%, 50Hz/60Hz (only applicable to drives with rated power >750W)	
Control Method	SVPWM control	
Feedback	17bit incremental/absolute encoder 20bit incremental encoder 23bit absolute encoder	
Operating Conditions	Work Ambient Temperature	Single Device: -5°C~55°C Multiple Devices : -5°C~40°C
	Work Ambient Humidity	5%-95%RH (no condensation and freezing)
Operating Conditions	Storage Ambient Temperature	-20°C ~85°C
	Storage Ambient Humidity	5%-95%RH (no condensation and freezing)
Operating Conditions	Protection Structure	IP20
	Altitude	under 1000m
	Vibration Resistance	4.9m/s <sup>2</sup>
	Impact Resistance	19.6m/s <sup>2</sup>
	Power System	TN system
Installation	Base-mounted	
USB communication	Port	PC (connected to ESView)
	communications standard	Compliant with USB2.0 standard (12 Mbps)
Display	5-digit digital tube	
Panel Operator	4 keys	
Regenerative Braking	Products with a rated power of 50W~400W are provided with no built-in braking resistor, and an external resistor can be installed if necessary	
Protection Functions	Products with a rated power of 750W~2kW are provided with built-in braking resistor Overcurrent, overvoltage, low voltage, overload, regeneration error, overspeed, etc	
Auxiliary Function	Alarm record, JOG operation, load inertia detection, mechanical analyzer, auto tuning tool, etc	

### ED3L-□□AMA

Item	Specification		
Torque control	Input signal	Command voltage	DC±10V(DC±0V~±10V: variable setting range)
	Contact instruction	Torque set	4 torque contacts
Speed control	Input signal	Command voltage	DC±10V(DC±0V~±10V: variable setting range)
	Contact instruction	Speed selection	1st speed ~ 7th speed
Position control	Instruction pulse	Type	Choose one from sign + pulse train, CCW+CW pulse train, 2-phase pulse (90° phase difference) (A phase + B phase)
	PCP instruction	Position set	32 position contacts
	Encoder frequency division pulse output		Phase A, Phase B, Phase C: Line drive output Frequency division pulse number: arbitrary frequency division allowed
I/O Signals	Input signal		Operating voltage: 24 VDC ± 20% Input Channel Number: 10 (2 of which can be used for Touch Probe)
	Output signal		Operating voltage: 5 VDC~30 VDC Output Channel Number: 4 (one of which is for servo alarm only)

### ED3L-□□AEA

Item	Specification	
I/O Signals	Input signal	Range of operating voltage: 24 VDC ± 20% Number of input channels: 5 (2 of which can be used for Touch Probe)
	Output signal	Range of operating voltage: 5 VDC~30 VDC Number of output channels: 3 (one of which is for servo alarm only)
EtherCAT communication	Applicable communication standards	IEC 61158 Type12, IEC 61800-7 CiA402 Drive Profile 100BASE-TX (IEEE802.3)
	Physical layer	CN3-IN (RJ45): EtherCAT Signal IN
	Bus connection	CN4-OUT (RJ45): EtherCAT Signal OUT
	Cables	Cat.5 twisted pair (4 pairs of shielded twisted pair) Download new firmware using FoE protocol
	FoE (File Over EtherCAT)	

# 03

## Servo Motor



### Part number

<b>EM3A-</b>	<b>02</b>	<b>A</b>	<b>F</b>	<b>A</b>	<b>2</b>	<b>4</b>	<b>1</b>
EM3A Servo Motor	Rated output Power	Power voltage	Encoder	Design Sequence	Shaft End	Option Parts	Connector Types
	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Token Spec.
	A5 0.05kW 01 0.1kW 02 0.2kW 04 0.4kW 08 0.75kW 10 1.0kW 15 1.5kW 20 2.0kW	A 200V	F 20-bit incremental L 23-bit absolute K 17-bit incremental T 17-bit absolute	A Design sequence	2 Flat With key With thread	1 Without oil seal Without brake 2 With oil seal Without brake 3 Without oil seal With brake 4 With oil seal With brake	1 Standard plug 2 Standard IP65 plug

<b>EMG-</b>	<b>10</b>	<b>A</b>	<b>F</b>	<b>D</b>	<b>2</b>	<b>2</b>
EMG Servo Motor	Rated output power	Power voltage	Encoder	Design Sequence	Shaft End	Option Parts
	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.
	10 1.0kW 15 1.5kW 20 2.0kW	A 200V	F 20-bit incremental L 23-bit absolute K 17-bit incremental	B.D Design sequence	2 Flat With keys With threads	1 Without oil seal Without brake 2 With oil seal Without brake 3 Without oil seal With brake 4 With oil seal With brake

<b>EM3G-</b>	<b>09</b>	<b>A</b>	<b>L</b>	<b>A</b>	<b>2</b>	<b>4</b>	<b>4</b>
EM3G Servo Motor	Rated output power	Power voltage	Encoder	Design Sequence	Shaft end	Option Parts	Connector Types
	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.
	09 0.85kW 13 1.3kW	A 200V	L 23-bit absolute K 17-bit incremental	A Design sequence	2 Flat With keys With threads	1 Without oil seal Without brake 2 With oil seal Without brake 3 Without oil seal With brake 4 With oil seal With brake	4 Aviation plug

<b>EM3J-</b>	<b>08</b>	<b>A</b>	<b>L</b>	<b>A</b>	<b>2</b>	<b>4</b>	<b>1</b>
EM3J Servo Motor	Rated output power	Power voltage	Encoder	Design Sequence	Shaft End	Option Parts	Connector Types
	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.
	04 0.4kW 08 0.75kW	A 200V	F 20-bit incremental L 23-bit absolute K 17-bit incremental T 17-bit absolute	A Design sequence	2 Flat With keys With threads	1 Without oil seal Without brake 2 With oil seal Without brake 3 Without oil seal With brake 4 With oil seal With brake	1 Standard plug 2 Standard IP65 plug

### Specifications

#### 20-bit/23-bit Encoder

Voltage	200VAC							
	EM3A-							
Servo Motor model:	A5ALA□□□	01ALA□□□ 01AFA□□□	02ALA□□□ 02AFA□□□	04ALA□□□ 04AFA□□□	08ALA□□□ 08AFA□□□	10ALA□□□ 10AFA□□□	15ALB□□□	20ALB□□□
Rated Output [kW]	0.05	0.1	0.2	0.4	0.75	1.0	1.5	2
Rated torque [N•m]	0.159	0.318	0.637	1.27	2.39	3.18	4.78	6.37
Instantaneous Peak Torque [N•m]	0.557	1.11	2.23	4.45	8.37	9.54	14.3	19.1
Rated Current [Arms]	0.9	1.1	1.5	2.9	5.1	6.9	9.5	12.6
Instantaneous Max Current [Arms]	3.3	4.0	5.8	11.5	19.5	21	31.6	42
Rated Speed [rpm]	3000						3000	
Max. Speed [rpm]	6000						5000	
Rotor Moment of inertia [ $\times 10^{-4}$ kg•m <sup>2</sup> ]	0.023 (0.0268)	0.0428 (0.0465)	0.147 (0.179)	0.244 (0.276)	0.909 (1.07)	1.14 (1.30)	2.33 (3.10)	2.95 (3.72)
Weight [kg]	0.37 (0.59)	0.5 (0.7)	0.9 (1.3)	1.3 (1.7)	2.6 (3.2)	3.1 (3.8)	5.1 (6.4)	6.1 (7.5)
Brake Rated Voltage	DC 24V $\pm$ 10%							
Brake Rated Power [W]	4.0		7.4		9.6		17.6	
Brake Rated Torque [N•m]	0.32		1.5		3.2		8	
Encoder	•23-bit absolute encoder 8388608P/R		•20-bit incremental encoder 1048576P/R •23-bit absolute encoder 8388608P/R				•23-bit absolute encoder 8388608P/R	
Insulation Class	F							
Ambient Temperature	0~40°C (no freezing)							
Ambient Humidity	20%~85%RH (non-condensing)							
Vibration	•Vibration: less than 49m/s <sup>2</sup> (5G) when rotating; less than 24.5m/s <sup>2</sup> (2.5G) when being stopped •Impact: less than 98m/s <sup>2</sup> (10G)							
Protection	Self-cooled, IP65 (Except for shaft opening, when not equipped with oil seal; Except for connector, when not equipped with IP65 plug)							

Note: The data inside parenthesis represents the values with brake.

Voltage	200VAC						
Servo Motor model:	EMG-		EM3G-		EM3J-		
	10ALB□□ 10AFD□□	15ALB□□ 15AFD□□	20ALB□□ 20AFD□□	09ALA□□□ 13ALA□□□	04ALA□□□ 04AFA□□□	08ALA□□□ 08AFA□□□	
Rated Output [kW]	1.0	1.5	2.0	0.85	1.3	0.4	0.75
Rated Torque [N•m]	4.78	7.16	9.55	5.41	8.28	1.27	2.39
Instantaneous Peak Torque [N•m]	14.3	21.5	28.7	16.2	24.0	4.46	8.37
Rated Current [Arms]	5.8	8.2	11.3	6.8	9.7	2.8	5.1
Instantaneous Max current [Arms]	17.4	24.6	33.9	22.6	29.7	11.2	19.5
Rated Speed [rpm]	2000		1500		3000		
Max. Speed [rpm]	3000		3000		6000		
Rotor Moment of inertia [×10 <sup>-4</sup> kg•m <sup>2</sup> ]	13.2	18.4	23.5	11.9	17.3	0.64	1.64
	(14.3)	(19.5)	(24.6)	(12.5)	(17.9)	(0.68)	(1.69)
Weight [kg]	7.0	8.9	10.8	5.6	7.0	1.3	2.3
	(8.5)	(10.4)	(12.3)	(7.3)	(8.7)	(1.4)	(2.9)
Brake Rated Voltage	DC 24V±10%						
Brake Rated Power [W]	19.5		23		7.4		9.6
Brake Holding Torque [N•m]	12		20		1.5		3.2
Encoder	•20-bit incremental encoder 1048576P/R •23-bit absolute encoder 8388608P/R		•23-bit absolute encoder 8388608P/R		•20-bit incremental encoder 1048576P/R •23-bit absolute encoder 8388608P/R		
Insulation Class	F						
Ambient Temperature	0~40°C (No freezing)						
Ambient Humidity	20%~85%RH (No condensing)						
Resistance to shock	•Vibration: less than 49m/s <sup>2</sup> (5G) when rotating; less than 24.5m/s <sup>2</sup> (2.5G) when being stopped •Impact: less than 98m/s <sup>2</sup> (10G) Self-cooled, IP65						
Protection	(Except for shaft opening, when not equipped with oil seal; Except for connector, when not equipped with IP65 plug)						

Note: The data inside parenthesis represents the values with brake.

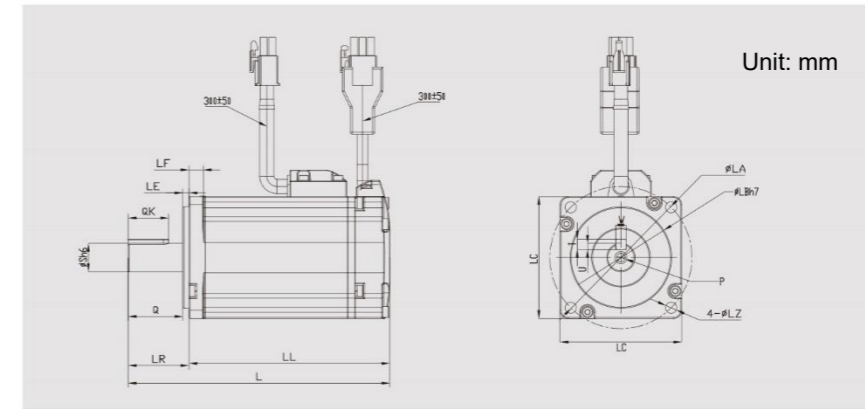
### 17-bit Encoder

Voltage	200VAC						
Servo Motor model:	EM3A-						
	01AKA□□□ 01ATA□□□	02AKA□□□ 02ATA□□□	04AKA□□□ 04ATA□□□	08AKA□□□ 08ATA□□□	10AKA□□□ 10ATA□□□	15AKB□□□	20AKB□□□
Rated Output [kW]	0.1	0.2	0.4	0.75	1.0	1.5	2
Rated torque [N•m]	0.318	0.637	1.27	2.39	3.18	4.78	6.37
Instantaneous Peak Torque [N•m]	0.954	1.91	3.81	7.17	9.54	14.3	19.1
Rated Current [Arms]	1.1	1.5	2.9	5.1	6.9	9.5	12.6
Instantaneous Max Current [Arms]	3.5	4.7	9.2	16.1	21	31.6	42
Rated Speed [rpm]	3000					3000	
Max. Speed [rpm]	6000					5000	
Rotor Moment of inertia [×10 <sup>-4</sup> kg•m <sup>2</sup> ]	0.0428	0.147	0.244	0.909	1.14	2.33	2.95
	(0.0465)	(0.179)	(0.276)	(1.07)	(1.30)	(3.10)	(3.72)
Weight [kg]	0.5	0.9	1.3	2.6	3.1	5.1	6.1
	(0.7)	(1.3)	(1.7)	(3.2)	(3.8)	(6.4)	(7.5)
Brake Rated Voltage	DC 24V±10%						
Brake Rated Power [W]	4.0	7.4		9.6		17.6	
Brake Holding Torque [N•m]	0.32	1.5		3.2		8	
Encoder	•17-bit incremental encoder 131072P/R •17-bit absolute encoder 131072P/R					•17-bit incremental encoder 131072P/R	
Insulation Class	F						
Ambient Temperature	0~40°C (no freezing)						
Ambient Humidity	20%~85%RH (non-condensing)						
Resistance to shock	•Vibration: less than 49m/s <sup>2</sup> (5G) when rotating; less than 24.5m/s <sup>2</sup> (2.5G) when being stopped •Impact: less than 98m/s <sup>2</sup> (10G)						
Protection	Self-cooled, IP65 (Except for shaft opening, when not equipped with oil seal; Except for connector, when not equipped with IP65 plug)						

Voltage	200VAC				
	EMG-	EM3G-		EM3J-	
Servo motor model:	10AKB□□	09AKA□□□	13AKA□□	04AKA□□□ 04ATA□□□	08AKA□□□ 08ATA□□□
Rated Output [kW]	1.0	0.85	1.3	0.4	0.75
Rated Torque [N•m]	4.78	5.41	8.28	1.27	2.39
Instantaneous Peak Torque [N•m]	14.3	16.2	24.0	3.81	7.17
Rated Current [Arms]	5.8	6.8	9.7	2.8	5.1
Instantaneous Mas Current [Arms]	17.4	22.6	29.7	8.8	16.1
Rated Speed [rpm]	2000	1500		3000	
Max. Speed [rpm]	3000	3000		6000	
Rotor Moment of Inertia [×10 <sup>-4</sup> kg•m <sup>2</sup> ]	13.2	11.9	17.3	0.64	1.64
	(14.3)	(12.5)	(17.9)	(0.68)	(16.9)
Weight [kg]	7.0	5.6	7.0	1.3	2.3
	(8.5)	(7.3)	(8.7)	(1.4)	(2.9)
Brake Rated Voltage	DC 24V±10%				
Brake Rated Power [W]	19.5	23		7.4	9.6
Brake Holding Torque [N•m]	12	20		1.5	3.2
Encoder	17-bit incremental encoder 131072P/R		17-bit incremental encoder 131072P/R 17-bit absolute encoder 131072P/R		
Insulation Class	F				
Ambient Temperature	0~40°C (no freezing)				
Ambient Humidity	20%~85%RH (non-condensing)				
Resistance to shock	•Vibration: less than 49m/s <sup>2</sup> (5G) when rotating; less than 24.5m/s <sup>2</sup> (2.5G) when being stopped •Impact: less than 98m/s <sup>2</sup> (10G)				
Protection	Self-cooled, IP65 (Except for shaft opening, when not equipped with oil seal; Except for connector, when not equipped with IP65 plug)				

Note: The data inside parenthesis represents the values with brake.

## Dimensions



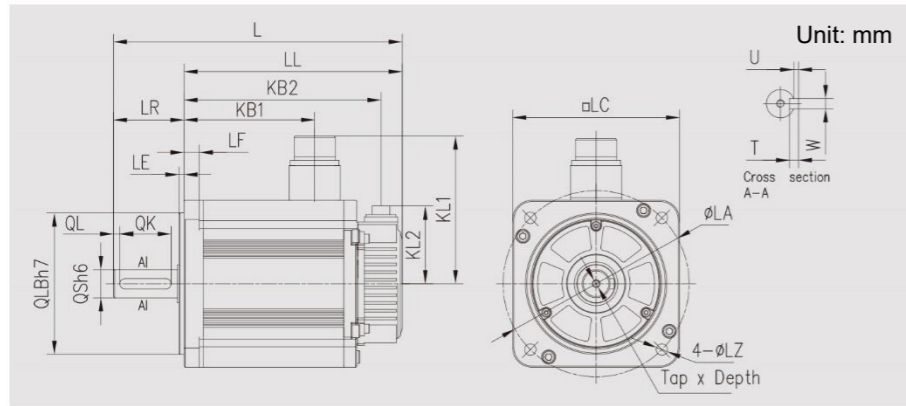
EM3A-	L	LL	Flange Side							S	Tap ×Depth	Key				
			LR	LE	LF	LC	LA	LB	LZ			QK	W	T	U	Q
A5ALA	87.5(121)	62.5(96)	25	2.5	5	40	46	30	4.3	8	M3×6	14	3	3	1.8	22.5
01ALA	103.5(137)	78.5(112)	25	2.5	5	40	46	30	4.3	8	M3×6	14	3	3	1.8	22.5
02ALA	108(137)	78(107)	30	3	7	60	70	50	5.5	14	M5×12	20	5	5	3	27
04ALA	129(158)	99(128)	30	3	7	60	70	50	5.5	14	M5×12	20	5	5	3	27
08ALA	151(184)	111(144)	40	3	8	80	90	70	6.6	19	M6×12	25	6	6	3.5	37
10ALA	165(198)	125(158)	40	3	8	80	90	70	6.6	19	M6×12	25	6	6	3.5	37
01AFA 01AKA 01ATA	113.5(147)	88.5(122)	25	2.5	5	40	46	30	4.3	8	M3×6	14	3	3	1.8	22.5
02AFA 02AKA 02ATA	126.5(155.5)	96.5(125.5)	30	3	7	60	70	50	5.5	14	M5×12	20	5	5	3	27
04AFA 04AKA 04ATA	147.5(176.5)	117.5(146.5)	30	3	7	60	70	50	5.5	14	M5×12	20	5	5	3	27
08AFA 08AKA 08ATA	167.5(184)	127.5(144)	40	3	8	80	90	70	6.6	19	M6×12	25	6	6	3.5	37
10AFA 10AKA 10ATA	182.5(214.5)	142.5(175.5)	40	3	8	80	90	70	6.6	19	M6×12	25	6	6	3.5	37

EM3J -	L	LL	Flange Side							S	Tap ×Depth	Key				
			LR	LE	LF	LC	LA	LB	LZ			QK	W	T	U	Q
04ALA	129(158)	99(128)	30	3	7	60	70	50	5.5	14	M5×12	20	5	5	3	27
08ALA	142(175)	102(135)	40	3	8	80	90	70	6.6	19	M6×12	25	6	6	3.5	37
04AFA 04AKA 04ATA	147.5(176.5)	117.5(146.5)	30	3	7	60	70	50	5.5	14	M5×12	20	5	5	3	27
08AFA 08AKA 08ATA	158.5(175)	118.5(135)	40	3	8	80	90	70	6.6	19	M6×12	25	6	6	3.5	37

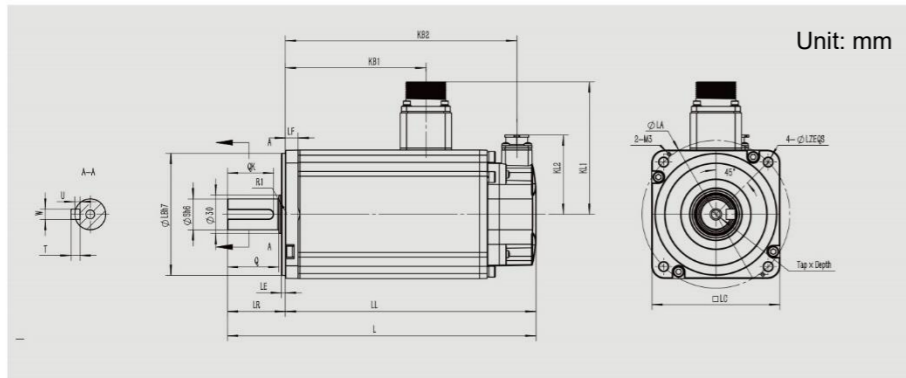
Note: Numbers inside parentheses represents the values with brake.



## Dimensions



EMG-	L	LL	KB1	KB2	KL1	KL2	Flange Side						S	Tap ×Depth	QK	Q	W	T	U	
							LR	LE	LF	LC	LA	LB								LZ
10□□B/D	203(245.5)	148(190.5)	80(103.2)	131.5(174)																
15□□B/D	170(212.5)	170(212.5)	102(125.2)	153.5(196)	117	60.5	55	4	12	130	145	110	9	22	M6×20	40	5	8	7	4
20□□B/D	192(234.5)	192(234.5)	124(147.2)	175.5(218)																



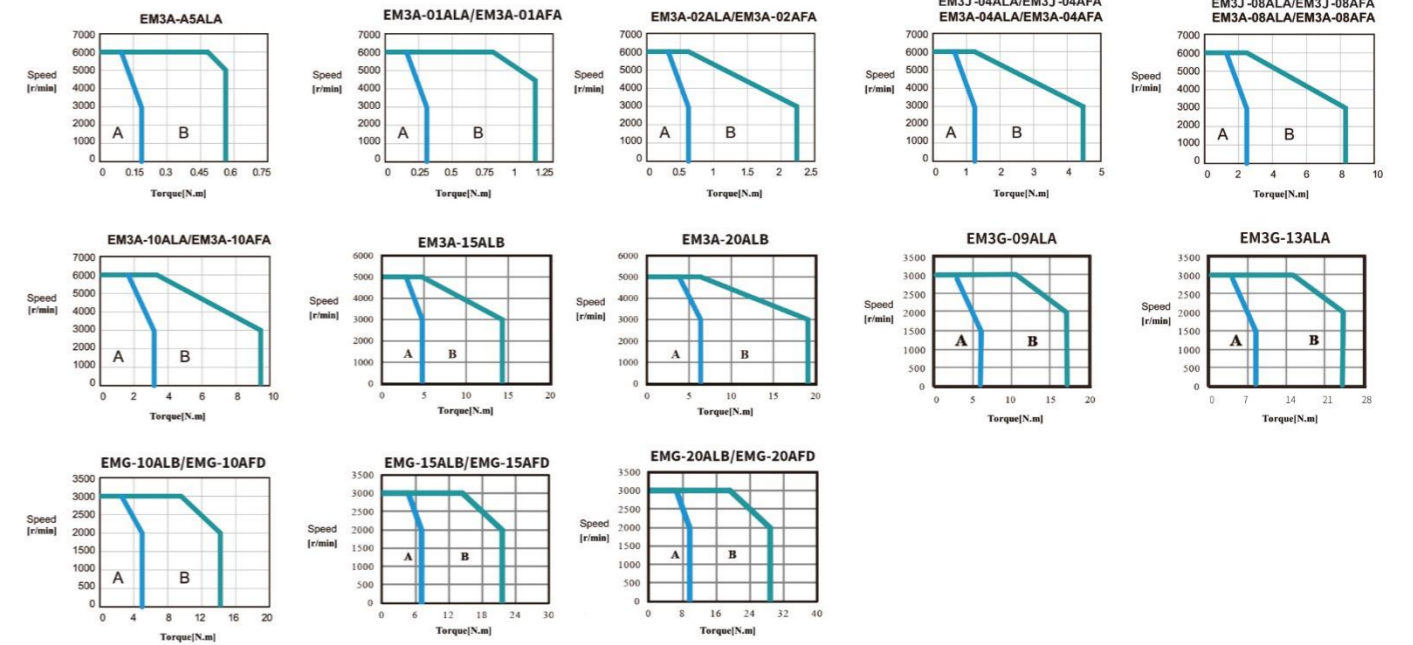
EM3A-	L	LL	KB1	KB2	KL1	KL2	Flange Side						S	Tap ×Depth	QK	Q	W	T	U	
							LR	LE	LF	LC	LA	LB								LZ
15A□B	210 (240)	165 (195)	97(109)	150(180)	102	60	45	3	10	100	115	95	7	24	M8x16	36	40	8	7	4
20A□B	230 (260)	185 (215)	117(129)	170(200)																

EM3G-	L	LL	KB1	KB2	KL1	KL2	Flange Side						S	Tap ×Depth	QK	Q	W	T	U	
							LR	LE	LF	LC	LA	LB								LZ
09A□A	185 (215)	131 (161)	94.5	116 (146)	112	58.5	54	6	12	130	145	110	9	22	M6x20	32	40	8	7	4
13A□A	200 (260)	146 (176)	109.5	131 (161)																

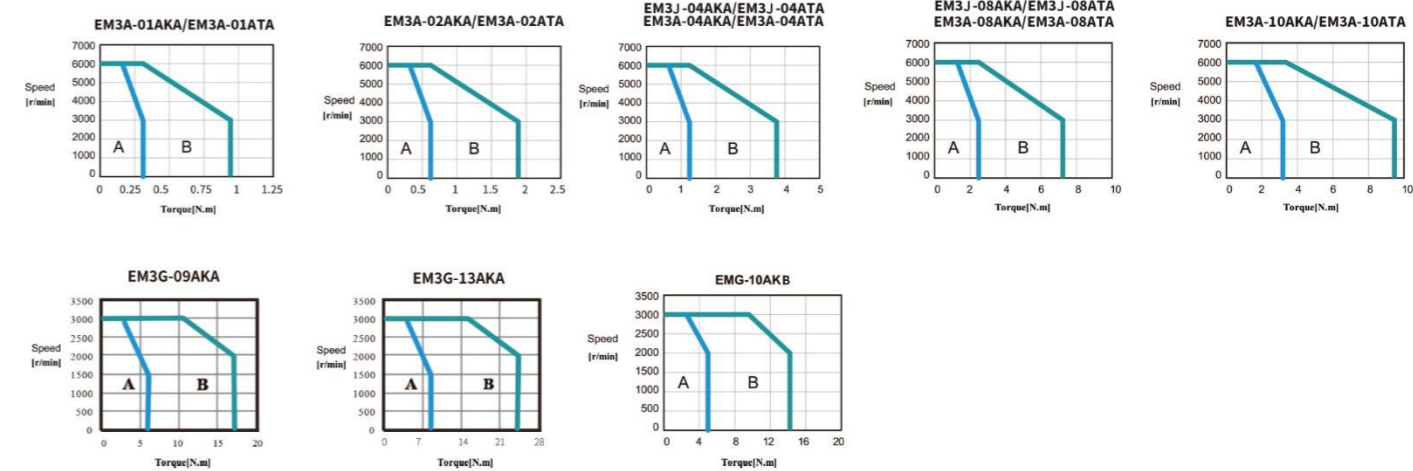
Note: The data inside parenthesis indicates the value of motor with brake.

## Features

### 20-bit/23-bit Encoder



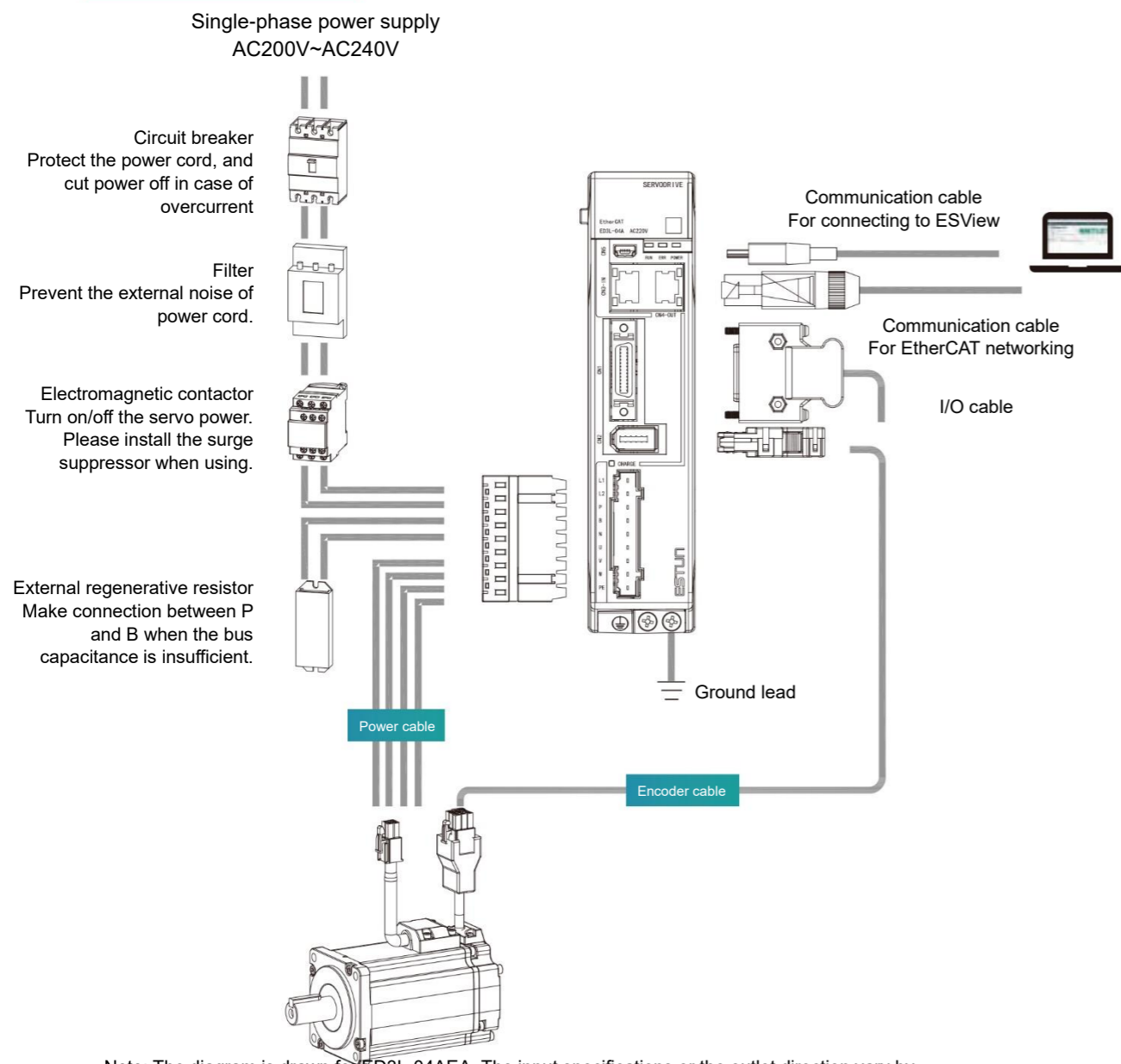
### 17-bit Encoder



A: Continuous Working Area B: Repeatedly Working Area

# 04 WIRING

## Wiring



Note: The diagram is drawn for ED3L-04AEA. The input specifications or the outlet direction vary by model, but the basic system components would be similar.

# 05 Part Numbers

Drive model	Voltage	Power (kW)	Motor model	Power cable	Encoder cable
ED3L-A5A□□	Single-phase 200VAC	0.1	EM3A-A5A□□□□		
ED3L-01A□□		0.1	EM3A-01A□□□□		
ED3L-02A□□		0.2	EM3A-02A□□□□		
ED3L-04A□□		0.4	EM3A-04A□□□□ EM3J-04A□□□□		
ED3L-08A□□	Single-phase or Three-phase 200VAC	0.8	EM3A-08A□□□□ EM3J-08A□□□□		
ED3L-10A□□			1.0		
		ED3L-15A□□	1.5		
EMG-15ALB□□ EMG-15AFD□□ EM3G-13A□□□□ EM3A-15A□□□□					
ED3L-20A□□	Three-phase 200VAC	2.0	EM3A-20A□□□□		EC3S-A1924-□□ (absolute) EC3S-I1924-□□ (incremental)
			EMG-20ALB□□ EMG-20A□□□□		

# 06 Accessories

## Cables

EC3S-A1124-□□

Model	Encoder	IP65																																								
EM3A-□□ALA□□1 EM3A-□□ATA□□1 (50w-1kw)	Absolute	No																																								
<table border="1"> <thead> <tr> <th>Pin No.</th> <th>Signal</th> <th>Pin No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr><td>1</td><td>S+</td><td>7</td><td>S+</td></tr> <tr><td>2</td><td>S-</td><td>8</td><td>S-</td></tr> <tr><td>3</td><td>BAT+</td><td>9</td><td>BAT+</td></tr> <tr><td>4</td><td></td><td>5</td><td></td></tr> <tr><td>5</td><td></td><td>6</td><td></td></tr> <tr><td>6</td><td>PGSV</td><td>1</td><td>PGSV</td></tr> <tr><td>7</td><td>PGOV</td><td>2</td><td>PGOV</td></tr> <tr><td>8</td><td>BAT-</td><td>10</td><td>BAT-</td></tr> <tr><td>9</td><td>FG</td><td>Shield</td><td>FG</td></tr> </tbody> </table>			Pin No.	Signal	Pin No.	Signal	1	S+	7	S+	2	S-	8	S-	3	BAT+	9	BAT+	4		5		5		6		6	PGSV	1	PGSV	7	PGOV	2	PGOV	8	BAT-	10	BAT-	9	FG	Shield	FG
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7	PGOV	2	PGOV																																							
8	BAT-	10	BAT-																																							
9	FG	Shield	FG																																							

EC3S-I1124-□□

Model	Encoder	IP65																																								
EM3A- AKA□□1 EM3A-□□AFA□□1 (100w-1kw)	Incremental	No																																								
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7	PGOV	2	PGOV																																							
8	BAT-	10	BAT-																																							
9	FG	Shield	FG																																							

EC3S-A1724-□□

Model	Encoder	IP65																																								
EM3A-□□ALA□□2 EM3A-□□ATA□□2 (50w-1kw)	Absolute	Yes																																								
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EC3S-I1724-□□

Model	Encoder	IP65																																								
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EC3S-A1324-□□

Model	Encoder	IP65																																								
EMG-□□ALB2□ (1kw-2kw)	Absolute	Yes																																								
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4	BAT-	10	BAT-																																							
10	FG	Shield	FG																																							

EC3S-I1324-□□

Model	Encoder	IP65																																								
EMG-10AKB2□ EMG-□□AFD2□ (1kw-2kw)	Incremental	Yes																																								
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EC3S-A1924-□□

Model	Encoder	IP65																																
EM3□-□□A□□2□4 (850w-2kw)	Absolute	Yes																																
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EC3S-I1924-□□

Model	Encoder	IP65																																
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8	MA-	1	PGSV																															
7	PGSV	2	PGOV																															
10	PGOV	Shield	PG																															

## Power Cables

EC3P-N9118-□□

Model	Brake	IP65																				
EM3A-□□A□□□□1 (50w-1kw)	No	No																				
<table border="1"> <thead> <tr> <th>Pin No.</th> <th>Signal</th> <th>Pin No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr><td>1</td><td>U</td><td></td><td>U</td></tr> <tr><td>2</td><td>V</td><td></td><td>V</td></tr> <tr><td>3</td><td>W</td><td></td><td>W</td></tr> <tr><td>4</td><td>FG</td><td>Clamp terminal</td><td>FG</td></tr> </tbody> </table>			Pin No.	Signal	Pin No.	Signal	1	U		U	2	V		V	3	W		W	4	FG	Clamp terminal	FG
Pin No.	Signal	Pin No.	Signal																			
1	U		U																			
2	V		V																			
3	W		W																			
4	FG	Clamp terminal	FG																			

EC3P-B9118-□□

Model	Brake	IP65																												
EM3A-□□A□□□□1 (50w-1kw)	Yes	No																												
<table border="1"> <thead> <tr> <th>Pin No.</th> <th>Signal</th> <th>Pin No.</th> <th>Signal</th> </tr> </thead> <tbody> <tr><td>1</td><td>U</td><td></td><td>U</td></tr> <tr><td>2</td><td>V</td><td></td><td>V</td></tr> <tr><td>3</td><td>W</td><td></td><td>W</td></tr> <tr><td>4</td><td>FG</td><td>Clamp terminal</td><td>FG</td></tr> <tr><td>5</td><td>B1</td><td></td><td>B1</td></tr> <tr><td>6</td><td>B2</td><td></td><td>B2</td></tr> </tbody> </table>			Pin No.	Signal	Pin No.	Signal	1	U		U	2	V		V	3	W		W	4	FG	Clamp terminal	FG	5	B1		B1	6	B2		B2
Pin No.	Signal	Pin No.	Signal																											
1	U		U																											
2	V		V																											
3	W		W																											
4	FG	Clamp terminal	FG																											
5	B1		B1																											
6	B2		B2																											

### EC3P-N9718- □□

Model	Brake	IP65	
EM3A-□□A□□□□1 (50w-1kw)	No	Yes	
Pin No.	Signal	Pin No.	Signal
1	U		U
2	V		V
3	W		W
4	FG	Crimp terminal	FG

### EC3P-B9718- □□

Model	Brake	IP65	
EM3A-□□A□□□□1 (50w-1kw)	Yes	Yes	
Pin No.	Signal	Pin No.	Signal
1	U		U
2	V		V
3	W		W
4	FG		FG
5	B1		B1
6	B2		B2

### EC3P-N9314- □□

Model	Brake	IP65	
EMG-□□A□□□□1 EMG-□□A□□□□2 (1kw-2kw)	No	Yes	
EM3□-□□A□□□□4 (850w-2kw)			
Pin No.	Signal	Pin No.	Signal
B	U		U
I	V		V
F	W		W
C	FG	Crimp terminal	FG
D	FG		FG

### EC3P-B9314- □□

Model	Brake	IP65	
EMG-□□A□□□□3 EMG-□□A□□□□4 (1kw-2kw)	Yes	Yes	
EM3□-□□A□□□□4 (850w-2kw)			
Pin No.	Signal	Pin No.	Signal
B	U		U
I	V		V
F	W		W
C	FG	Crimp terminal	FG
D	FG		FG
G	B1		B1
H	B2		B2

### Other Auxiliaries

Name	Figure	Model
I/O plug		All models
Main circuit terminal (9-pin)		ED3L-A5A ED3L-01A ED3L-02A ED3L-04A
Encoder plug (drive side)		All models
Main circuit input terminal (6-pin)		ED3L-08A ED3L-10A ED3L-15A ED3L-20A
Control circuit input terminal (6-pin)		
Motor power terminal (3-pin)		
Motor side power plug (non-IP65, without brake)		EM3A, EM3J, Non-IP65, without brake motor (leadwire type motor)

Name	Figure	Model
Motor-side power plug (non-IP65, with brake)		EM3A, EM3J, non-IP65, motor with brake (leadwire type motor)
Motor-side encoder plug (non-IP65)		EM3A, non-IP65 motor (leadwire type motor)
Motor-side power plug (IP65)		EMG, EM3G, EM3A IP65 motor (0.8kW and above)
Motor-side encoder plug (IP65)		EMG, IP65 motor
Motor-side power plug (IP65, without brake)		EM3A, IP65, brake-free motor (leadwire type motor)
Motor-side power plug (IP65, with brake)		EM3A, IP65, motor with brake (leadwire type motor)
Motor-side encoder plug (IP65)		EM3A, IP65 motor (leadwire type motor)
Motor-side encoder plug (IP65)		EM3A, EM3G IP65 motor (0.8kW and above)

### Optional Accessories

Servo Drive	Main Circuit Voltage	Built-in Regenerative Resistor Specifications	Min.Allowable Resistance	Min.Rated Current for Circuit Breaker
ED3L-A5A□□	200 ~ 240VAC	—	45Ω	4A
ED3L-01A□□	200 ~ 240VAC	—	45Ω	4A
ED3L-02A□□	200 ~ 240VAC	—	45Ω	4A
ED3L-04A□□	200 ~ 240VAC	—	45Ω	4A
ED3L-08A□□	200 ~ 240VAC	50Ω / 60W	25Ω	6A
ED3L-10A□□	200 ~ 240VAC	50Ω / 60W	25Ω	6A
ED3L-15A□□	200 ~ 240VAC	40Ω / 80W	25Ω	10A or 16A for single phase
ED3L-20A□□	200 ~ 240VAC	40Ω / 80W	25Ω	16A