



ESTUN INDUSTRIAL TECHNOLOGY EUROPE S.r.L.



Via Alessandro Volta, 39
Cardano al Campo (VA) 21010
Italy



+39-0331-716000



+39-0331-716099



www.estuneurope.eu



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Website

CT-ED3M-18032019

ProNet Series

ED3M All Digital AC Servo Systems



ALL DIGITAL AC SERVO SYSTEMS

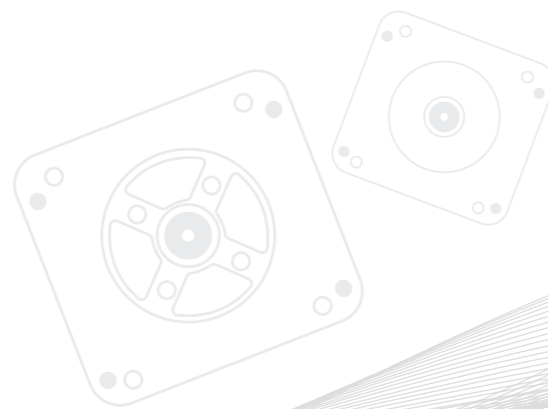
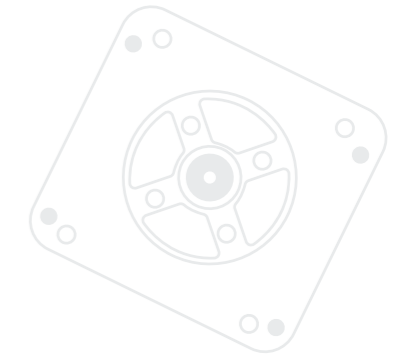
ESTUN is acknowledged as a leading Chinese supplier and service provider of high-tech automation core components, industrial robots and smart manufacturing systems.

As one of the most influential Chinese enterprise in motion control field, ESTUN has made great progress. For instance, automatic core components product lines supply motion control system solution, replacing the older generation-AC servo system. Accordingly, the business model is viewing axis-machine-unit evolution.

Today, ESTUN is growing to a powerful international group. Branches include: Trio Motion Technology Ltd. (wholly-owned subsidiary, UK), M.A.I GMBH & CO. KG (holding subsidiary, Germany), Barrett Technology, Llc (shareholding subsidiary, US), Euclid Systems Corporation (shareholding subsidiary, Italy) and an R&D center in Europe, etc. Globally, ESTUN group has 7 oversea branches with businesses in over 60 countries and regions. To follow the trend, ESTUN is committed to motion control solution, intelligent cooperative robots, rehabilitation robots and Industry4.0.

In the future, ESTUN will keep pace with the world. 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!



Product Introduction 03

Part Numbers and Options 05

Multi-axis Servo Drive 06

Servo Motors 08

External Wiring 15

Accessories 16

CONTENTS



01

PRODUCT INTRODUCTION



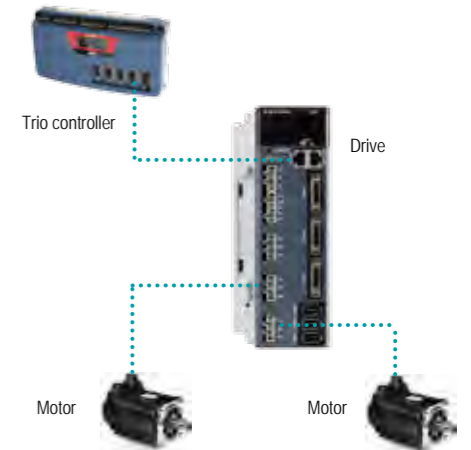
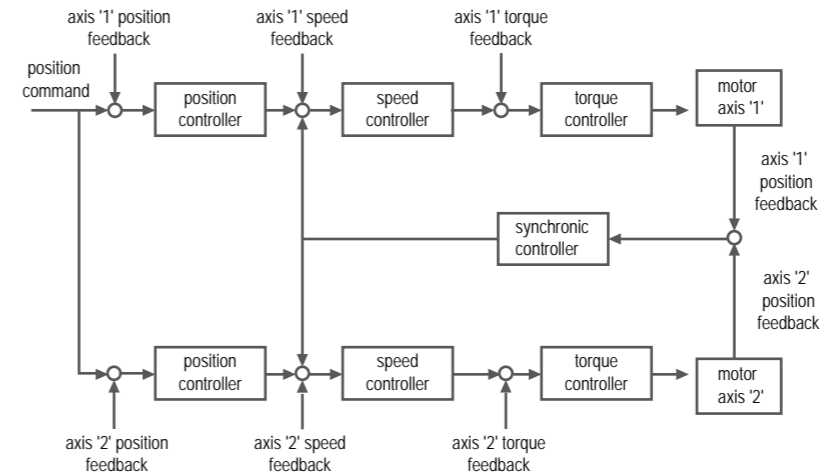
ProNet ED3M Drive and Motor Options

- 20-bit high resolution encoders
- high speed EtherCAT bus communication
- simpler wiring
- smaller dimension

Name	Model	200V Single-phase/Three-phase				
		ED3M-0404AEA	ED3M-1010AMA ED3M-101010AMA			
Drive						
Dimension / (W×H×D / mm)		70×200×175	90×220×198			
Power / kw		0.2-0.4	0.2-1	0.05-0.1,0.4	1	1
Motor		EM3A	EM3A	EMJ	EMG	EML

Support for Integrating Gantry Control

- Position control are accomplished by one processor, with outstanding real-time performance, better synchronism, Higher responsiveness and accuracy.
- Two axes are controlled by One pulse instruction input, no additional wiring.
- Position error overtake the threshold value, alarm will be executed, motor stop running.

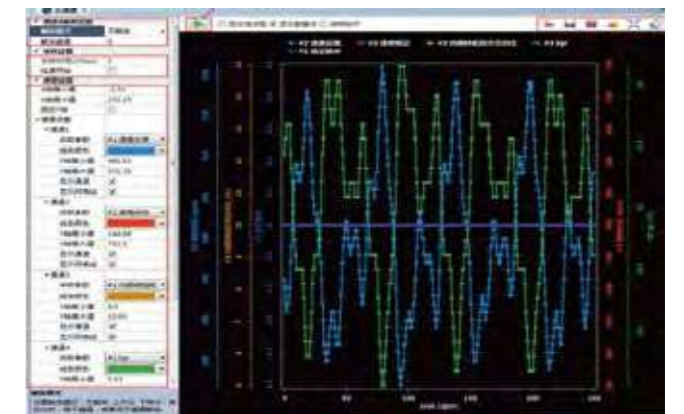


Note: ED3M-101010AMA and ED3M-1010AMA servo drive available only.

Personalizing Software

Tracing function

- up to 8 channels with 16-bit data size sampling
- high precise 2-channels, 64-bit data sampling
- offers 'FAST_STARTUP', shortening response time
- allowing to adjust coordinate axis and measurement unit



02

PART NUMBERS AND OPTIONS

Servo Motor	Voltage	Power	Model	Encoder Cables	Power Cables
ED3M-101010AMA ED3M-1010AMA	Single-phase/ Three-phase 200VAC	0.05	EMJ-A5ASA2□	EC3S-A1124-XX(Absolute) EC3S-I1124-XX(Incremental)	PDM-JB18-XX(Without brake) PDMB-JB18-XX(With brake)
		0.1	EMJ-01ASA2□		
		0.2	EM3A-02AFA2□1 EM3A-02ALA2□1	EC3S-I1724-XX(Incremental,waterproof)④ EC3S-A1724-XX(Absolute,waterproof)	PDM-JB18-XX(Without brake) PDMB-JB18-XX(With brake)
			EM3A-02AFA2□2 EM3A-02ALA2□2		EC3P-N0718-XX(Waterproof, without brake) EC3P-B0718-XX(Waterproof, with brake)
		0.4	EM3A-04AFA2□1 EM3A-04ALA2□1	EC3S-I1124-XX(Incremental) EC3S-A1124-XX(Absolute)	PDM-JB18-XX(Without brake) PDMB-JB18-XX(With brake)
			EM3A-04AFA2□2 EM3A-04ALA2□2		EC3P-N0718-XX(Waterproof, without brake) EC3P-B0718-XX(Waterproof, with brake)
		0.75	EM3A-08AFA2□1 EM3A-08ALA2□1	EC3S-I1724-XX(Incremental,waterproof)④ EC3S-A1724-XX(Absolute,waterproof)	PDM-JB18-XX(Without brake) PDMB-JB18-XX(With brake)
			EM3A-08AFA2□2 EM3A-08ALA2□2		EC3P-N0718-XX(Waterproof, without brake) EC3P-B0718-XX(Waterproof, with brake)
		1	EM3A-10AFA2□1 EM3A-10ALA2□1	EC3S-I1124-XX(Incremental) EC3S-A1124-XX(Absolute)	PDM-JB18-XX(Without brake) PDMB-JB18-XX(With brake)
			EM3A-10AFA2□2 EM3A-10ALA2□2		EC3P-N0718-XX(Waterproof, without brake) EC3P-B0718-XX(Waterproof, with brake)
		1	EMG-10ALB2□ EMG-10ASB2□ EMG-10AFD2□	EC3S-I1324-XX(Incremental) EC3S-A1324-XX(Absolute)	PDM-GA14-XX-II(Without brake) PDMB-GA14-XX-II(With brake)
		1	EML-10ALB2□ EML-10ASB2□ EML-10AFD2□		
ED3M-0404AEA		0.2	EM3A-02AFA2□1	PDM-JB18-XX(Without brake) PDMB-JB18-XX(With brake)	
			EM3A-02AFA2□2 EM3A-02ALA2□1 EM3A-02ALA2□2	EC3P-N0718-XX(Waterproof, without brake) EC3P-B0718-XX(Waterproof, with brake)	
		0.4	EM3A-04AFA2□1	PDM-JB18-XX(Without brake) PDMB-JB18-XX(With brake)	
			EM3A-04AFA2□2 EM3A-04ALA2□1 EM3A-04ALA2□2	EC3P-N0718-XX(Waterproof, without brake) EC3P-B0718-XX(Waterproof, with brake)	

Note:
 ①. □:brake and oil seal options.Motor cable Plug type options: 1 Leadwire without waterproof; 2 Leadwire with waterproof.
 ②. XX:Cable length(1M5,03,05,08,10,12,15,20), the unit is meter. and providing A flexible cable, marked suffix with "-RX". EC3S-I cable is for incremental encoder, EC3S-A cable is for Absolute Encoder.
 ③. Motor "EMJ-04" don't have brake cable, providing brake cable plug for clients to make brake cable themselves.
 ④. EM3A waterproof motor connect with waterproof cable only, EM3A series motor without waterproof connect with normal cable.
 ⑤. EC-bus communication cable: DK-HSB-RJ45-XX.

03

MULTI-AXIS SERVO DRIVE



Model Designation Description

ED3M	-	10	10	10	A	M	A
		output power of axis 'A'	output power of axis 'B'	output power of axis 'C'	power voltage	control style	Designing Sequence
		04:0.4kW 10:1.0kW	04:0.4kW 10:1.0kW	10:1.0kW	A:200VAC	M: pulse,CANopen E:EtherCAT	

Specification

Items		Specification	
		ED3M	0404AEA
Input Power Supply	Main Circuit	Single-Phase200~230VAC +10%~-15% (50/60Hz) Three-phase200~230VAC +10%~-15% (50/60Hz)	
	Control Circuit	Single-Phase200~230VAC +10%~-15% (50/60Hz)	
Control Method		SVPWM Control	
Feedback		17bit Absolute encoder, 20bit incremental encoder, 23bit Absolute encoder	
Operating Conditions	Ambient/Storage Temperature	0~55°C/-20~85°C	
	Ambient/Storage Humidity	below 90%(no condensation)	
Vibration/Shock Resistance		4.9m/s²/19.6m/s²	
Configuration		Base-mounted	

Items		Specification	
ED3M		0404AEA	1010AMA/101010AMA
Speed Control	Speed Selection	Rotation Direction Selection	For Speed Control Model Only
	Function	Speed Selection	With /P-CON Signal
Position Control	Pulse Reference	Type	Sign + Pulse Train; ccw + Cw Pulse Train; 90° phase Difference 2-phase (Phase A + Phase B)
		Form	Non-insulated Linde Driver (About + 5v), Open Collector
	Position Reference	Frequency	×1 Multiplier: 4mpps ×2 Multiplier: 2mpps ×4 Multiplier: 1mpps Open Collector: 200kpps Frequencies Drop When The Duty Ratio Error Occurs
		Position Reference	16 Postion Nodes Can Be Set
I/O Signals	Sequence Input	Number of channels	5 Channels
	Sequence Output	Function	Signal allocations and positive/negative logic modifications: Servo ON (/S-ON), alarm reset (/ALM-RST), position error clear (/CLR), forward run prohibited (P-OT), reverse run prohibited (N-OT), forward current limit (/P-CL), reverse current limit (/N-CL) and so on.
		Number of channels	Axis A: 3 Channel Axis B: 3 Channel
	Function	Signal allocations and positive/negative logic modifications: Positioning completion(/COIN), speed coincidence(/V-CMP), servomotor rotation detection(/TGON), servo ready(/S-RDY), torque limit output(/CLT), brake interlock output (/BK), Homing completed, enable servo, motor energization (/RD) encoder C pulse(/PGC) and Over travel signal(/OT).	
Inside Function	Dynamic Braking	Main Power Disconnected, Servo Alarm	
	Protection Functions	Overcurrent, overvoltage, low voltage, overload, regeneration error, overspeed, etc	
	Utility Function	Alarm trace back, JOG operation, load inertia detection, etc	
	Communication Function	Ethercat Communication Module, Adopt Cia402 Protocol	Can Port Adopt Canopen Protocol
Display Function	1 charge indicator light, 1 power indicator light, 5 7-Seg LED Nixietube 5 buttons		2 or 3 Axes Indicator Light
	2 Axes Indicator Light		

04 SERVO MOTORS



Specification Description

EM3A - 02	A	F	A	2	1	1
Rated Output Power	Voltage	Encoder	Design Sequence	Shaft End	Option Parts	Connector Types
A5: 0.05kW 01: 0.1kW 02: 0.2kW 04: 0.4kW 08: 0.75kW 10: 1.0kW	A: 200V	F: 20-bit Incremental encoder L: 23-bit Absolute encoder	A: Design Sequence	1: Straight Without Key 2: Straight With Key, screw Thread (Standard)	1: None 2: With Oil Seal (DC24V) 3: With Brake (DC24V) 4: With Oil Seal, With Brake (DC24V)	1: Lead Wire Without Waterproof 2: Lead Wire With Waterproof

EMG - 10	A	F	D	2	1	
Servo Motor Model	Rated Output Power	Voltage	Encoder	Design Sequence	Shaft End	Option Parts
J: EMJ Model Servo Motor L: EML Model Servo Motor G: EMG Model Servo Motor	A5: 0.05kW 01: 0.1kW 04: 0.4kW 10: 1.0kW	A: 200V	F: 20-bit Incremental encoder S: 17-bit Absolute encoder L: 23-bit Absolute encoder	A, B, D, M, H Design Sequence	1: Straight Without key 2: Straight With key, screw thread (Standard)	1: None 2: With Oil Seal 3: With Brake (DC24V) 4: With Oil Seal, with brake (DC24V)

EM3A Servo Motor Rated Value and Specification

Servo Motor Model	EM3A-	02AFA2□□ 02ALA2□□	04AFA2□□ 04ALA2□□	08AFA2□□ 08ALA2□□	10AFA2□□ 10ALA2□□
Voltage	V	200VAC			
Rated Output Power	kW	0.2	0.4	0.75	1.0
Rated Torque	N-m	0.63	1.27	2.39	3.18
Instantaneous Peak Torque	N-m	1.91	3.82	7.16	7.5
Rated Current	Arms	1.5	2.9	5.1	6.9
Instantaneous Max current	Arms	4.7	9.2	16.1	16.7
Rated Speed	r/min	3000			
Max. Speed	r/min	6000			
Rotor Moment of Inertia①	×10-4kg·m²	0.147 (0.179)	0.244 (0.276)	0.909 (1.07)	1.14 (1.30)
Brake Rated Voltage		DC24V±10%			
Brake Rated Power	W	7.4		9.6	
Brake Rated Torque	N-m	1.5		3.2	
Encoder		20-bit Incremental Encoder; 23-bit Absolute Encoder			
Insulation Class		F			
Ambient Temperature		0 ~ +40°C(No freezing)			
Ambient Humidity		20%-80% RH(Non-condensing)			
Vibration		Vibration: Dynamic ≤49m/s² (5G) ; Static ≤24.5m/s²; Shock: ≤98m/s²(10G)			
Enclosure		Totally Enclosed, Self-cooled, IP65(Except for shaft opening, when not equipped with oil seal; Except for connector, when not equipped with waterproof plug)			

Note:①The Data Inside Parenthesis Represent The Data With Brake.

EMJ Servo Motor Rated Value and Specification

Servo Motor Model	EMJ-	A5ASA2□	01ASA2□	04AFM2□
Voltage	V	200VAC		
Rated Output Power	kW	0.05	0.1	0.4
Rated Torque	N-m	0.16	0.318	1.27
Instantaneous Peak Torque	N-m	0.48	0.95	3.82
Rated Current	Arms	0.6	1.1	2.8
Instantaneous Max current	Arms	1.7	3.0	8.4
Rated Speed	r/min	3000		
Max. Speed	r/min	5000		4500
Rotor Moment of Inertia	×10-4kg·m²	0.019 (0.05)	0.043 (0.052)	0.31 (0.35)
Brake Rated Voltage		DC24V±10%		

Servo Motor Model	EMJ-	A5ASA2□	01ASB2□	04AFM2□
Brake Rated Power	W	4		7.2
Brake Rated Torque	N-m	0.318		1.3
Encoder		17-bit Absolute encoder		20-bit Incremental Encoder
Insulation Class		F		
Ambient Temperature		0 ~ +40°C(No freezing)		
Ambient Humidity		20%-80% RH(Non-condensing)		
Vibration		Vibration: Dynamic ≤49m/s² (5G) ; Static ≤24.5m/s²; Shock: ≤98m/s²(10G)		
Enclosure		Totally Enclosed, Self-cooled, IP65(Except for shaft opening, when not equipped with oil seal; Except for connector, when not equipped with waterproof plug)		

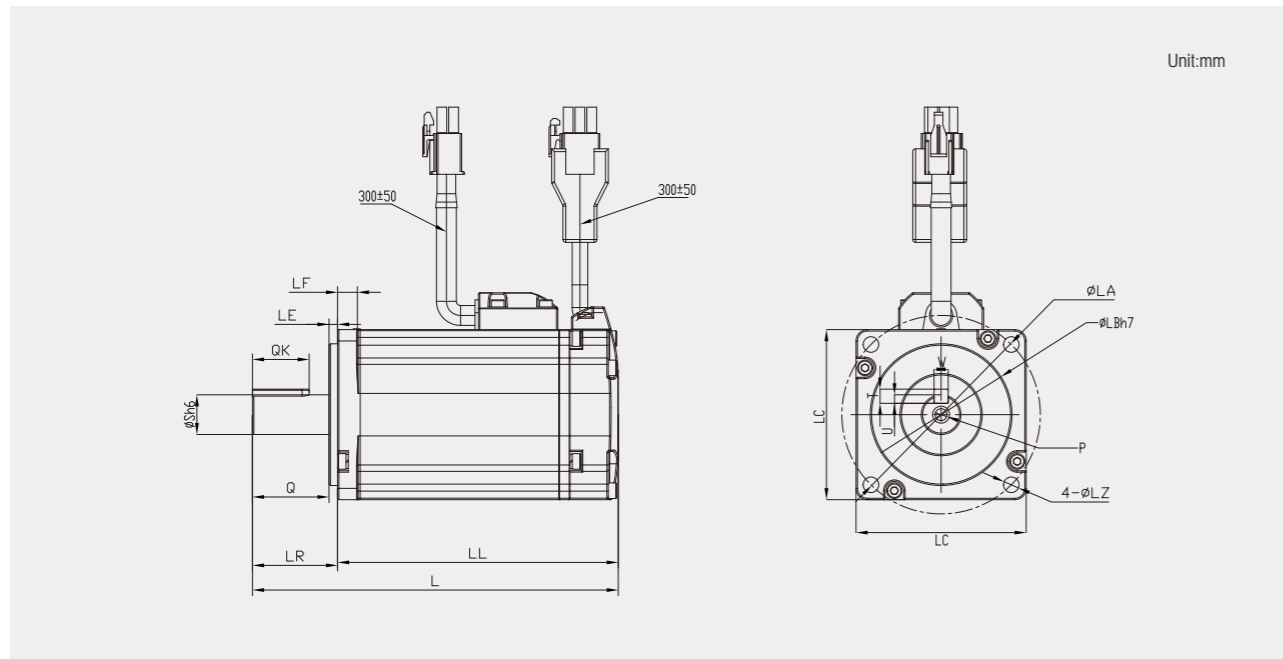
Note: The Data Inside Parenthesis Represent The Data With Brake.

EML/EMG Servo Motor Rated Value and Specification

Servo Motor Model		EML-	EMG-
		10A□□2□	10A□□2□
Voltage	V	Single-phase 200VAC	
Rated Output Power	kW	1	1
Rated Torque	N-m	9.55	4.78
Instantaneous Peak Torque	N-m	28.7	14.3
Rated Current	Arms	5.5	5.8
Instantaneous Max current	Arms	16.5	17.4
Rated Speed	r/min	1000	2000
Max. Speed	r/min	1500	3000
Rotor Moment of Inertia	×10-4kg·m²	23.5(24.6)	13.2(14.3)
Brake Rated Voltage		DC24V±10%	
Brake Rated Power	W	19.5	19.5
Brake Rated Torque	N-m	12	12
Encoder		17-bit Absolute encoder 20-bit Incremental Encoder; 23-bit Absolute Encoder	
Insulation Class		F	
Ambient Temperature		0 ~ +40°C(No freezing)	
Ambient Humidity		20%-80% RH(Non-condensing)	
Vibration		24.5m/s²	
Enclosure		Completely Closed, Wind-cooling, Self-cooling, IP65(The Model With Oil Seal, excluding Connecting Joint With Cable)	

Note: The Data Inside Parenthesis Represent The Data With Brake.

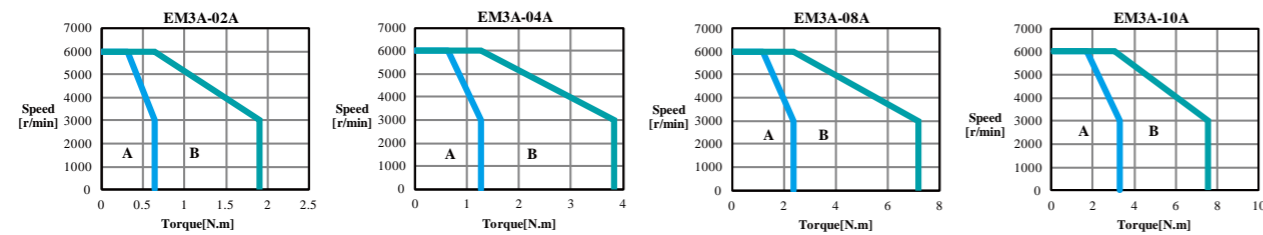
EM3A Dimension



EM3A-	L①	LL②	Flange Side							S	Tap×Depth	Key				
			LR	LE	LF	LC	LA	LB	LZ			QK	W	T	U	Q
02ALA	116 (141.5)	86 (111.5)	30	3	7	60	70	50	5.5	14	M5X10	20	5	5	3	27
04ALA	137 (162.5)	107 (132.5)	30	3	7	60	70	50	5.5	14	M5X10	20	5	5	3	27
08ALA	145.5(189.5)	116.5(149.5)	40	3	8	80	90	70	6.6	19	M6X12	25	6	6	3.5	37
10ALA	159.5(202.5)	129.5(162.5)	40	3	8	80	90	70	6.6	19	M6X12	25	6	6	3.5	37
02AFA	126.5(145.5)	96.5(125.5)	30	3	7	60	70	50	5.5	14	M5X10	20	5	5	3	27
04AFA	147.5(176.5)	117.5 (146.5)	30	3	7	60	70	50	5.5	14	M5X10	20	5	5	3	27
08AFA	159.5(202.5)	129.5(162.5)	40	3	8	80	90	70	6.6	19	M6X12	25	6	6	3.5	37
10AFA	173.5(216.5)	143.5(176.5)	40	3	8	80	90	70	6.6	19	M6X12	25	6	6	3.5	37

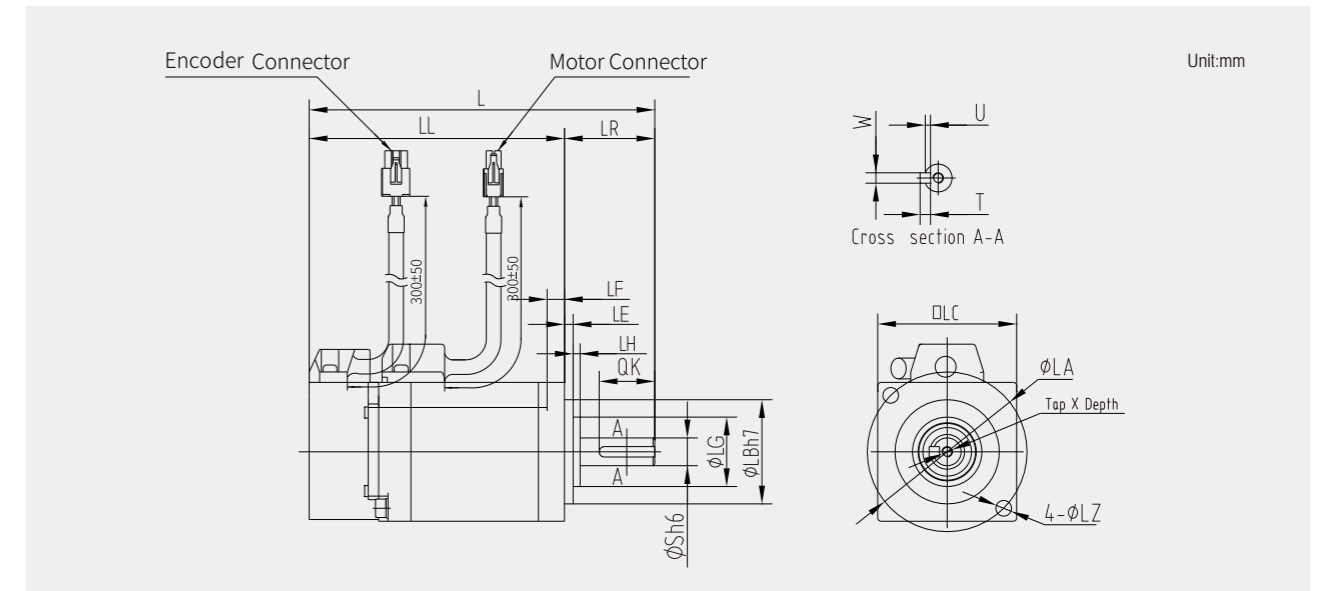
Note: The Values In Parentheses Are For Servo Motors With Holding Brakes.

EM3A Torque-Speed Feature



A: Continuous Working Area B: Repeatedly Working Area

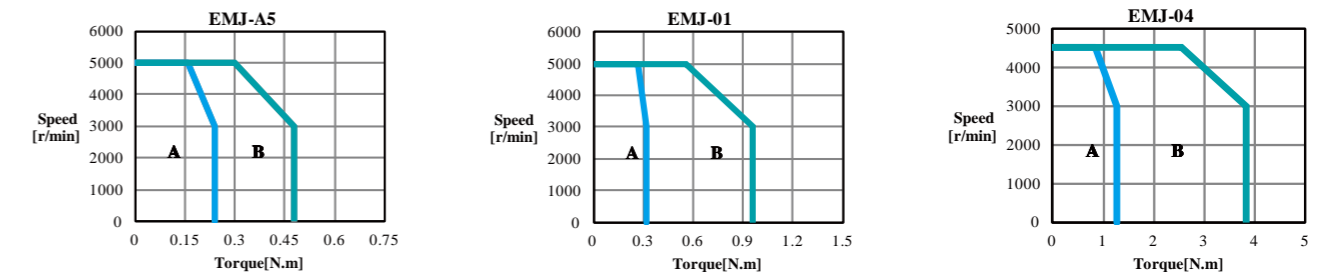
EMJ Dimension



EMJ-	L①	LL②	Flange Side							S	Tap×Depth	Key			
			LR	LE	LF	LC	LA	LB	LZ			QK	W	T	U
A5ASA	84.5(120.1)	59.5(95.1)	25	2.5	5	40	46	30	4.5	8	M3×10L	16	3	3	1.8
01ASA	98.5(134.1)	73.5(109.1)	25	2.5	5	40	46	30	4.5	8	M3×10L	16	3	3	1.8
04AFM ③	161(201)	131(171)	30	3	6	60	70	50	5.5	14	M5X10L	16	5	5	3

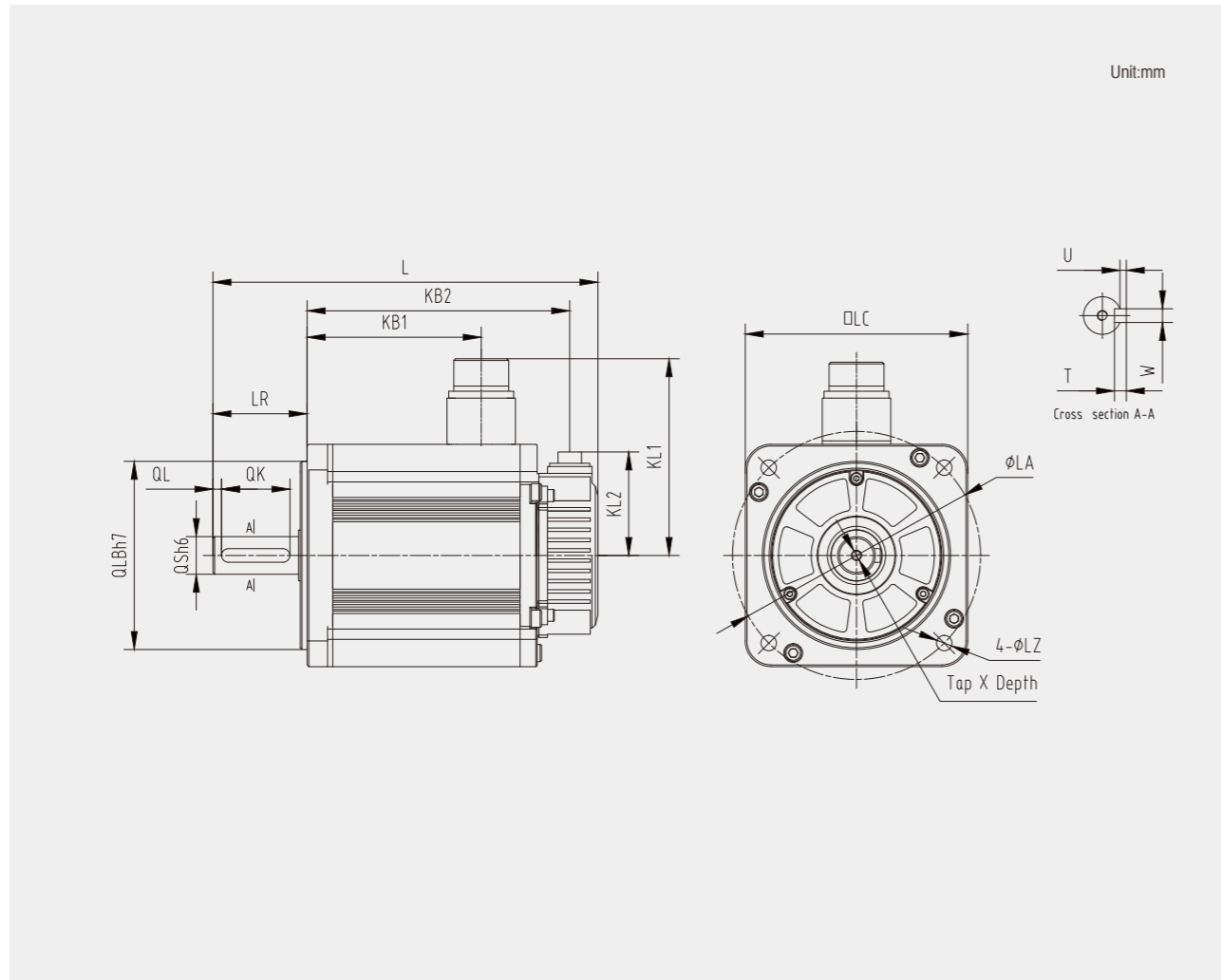
Note: ①② The Data Inside Parenthesis Represent The Data With Brake.
③ EMJ-04AFM Motor Equipped With A-type Key, 4mm Distance From Keyway To Shaft End.

EMJ Torque-Speed Feature



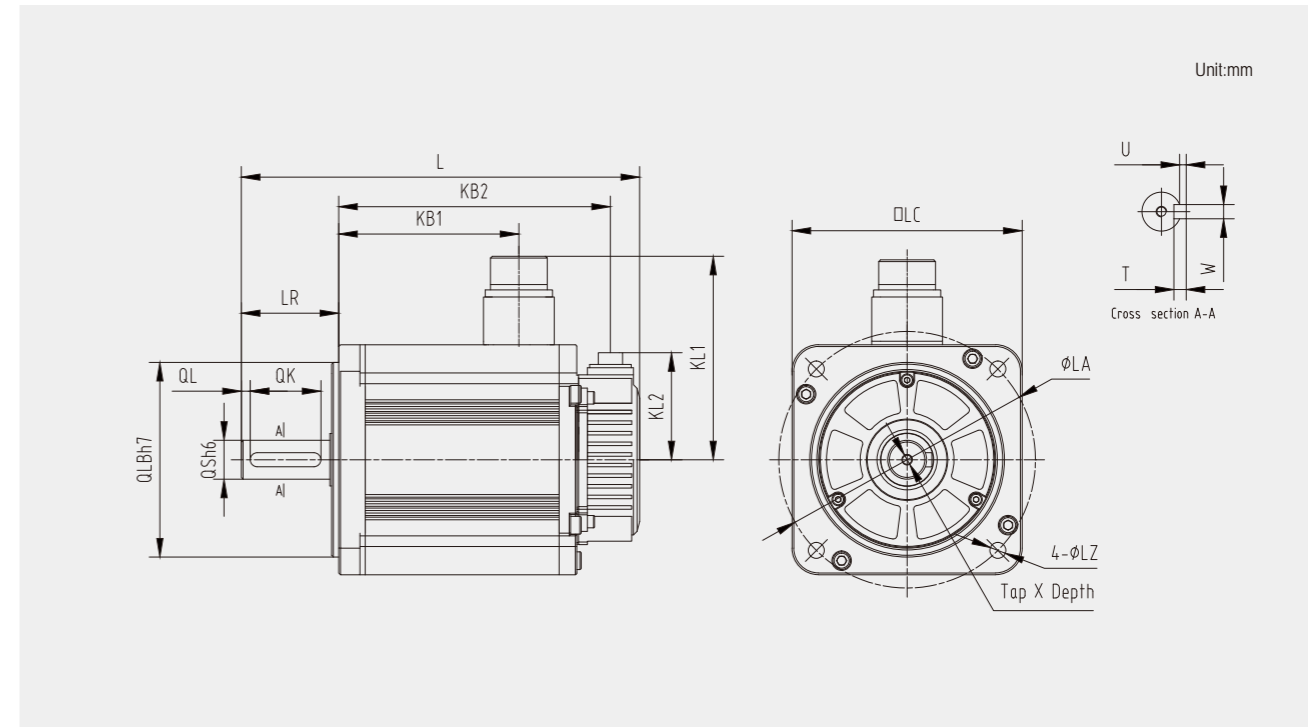
A: Continuous Working Area B: Repeatedly Working Area

EML Dimension



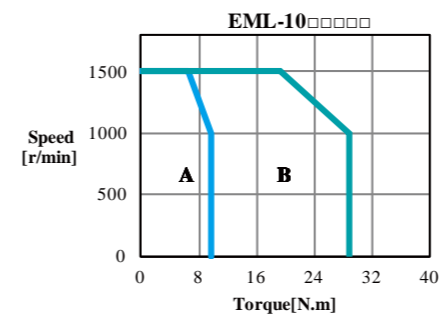
EML	L	LL	KB1	KB2	KL1	KL2	Flange Side							S	Tap× Depth	Key				
							LR	LE	LF	LC	LA	LB	LZ			OK	OL	W	T	U
10□□B/D	247 (289.5)	192 (234.5)	124 (147.2)	175.5 (218)	117	60.5	55	4	12	130	145	110	9	22	M6X20	40	5	8	7	4

EMG Dimension



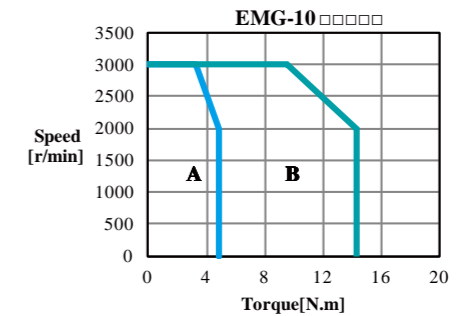
EMG	L	LL	KB1	KB2	KL1	KL2	Flange Side							S	Tap× Depth	Key				
							LR	LE	LF	LC	LA	LB	LZ			OK	OL	W	T	U
10□□B/D	203 (245.5)	148 (190.5)	80 (103.2)	131.5 (174)	117	60.5	55	4	12	130	145	110	9	22	M6X20	40	5	8	7	4

EML Torque-Speed Feature



A:Continuous Working Area B:Repeatedly Working Area

EMG Torque-Speed Feature

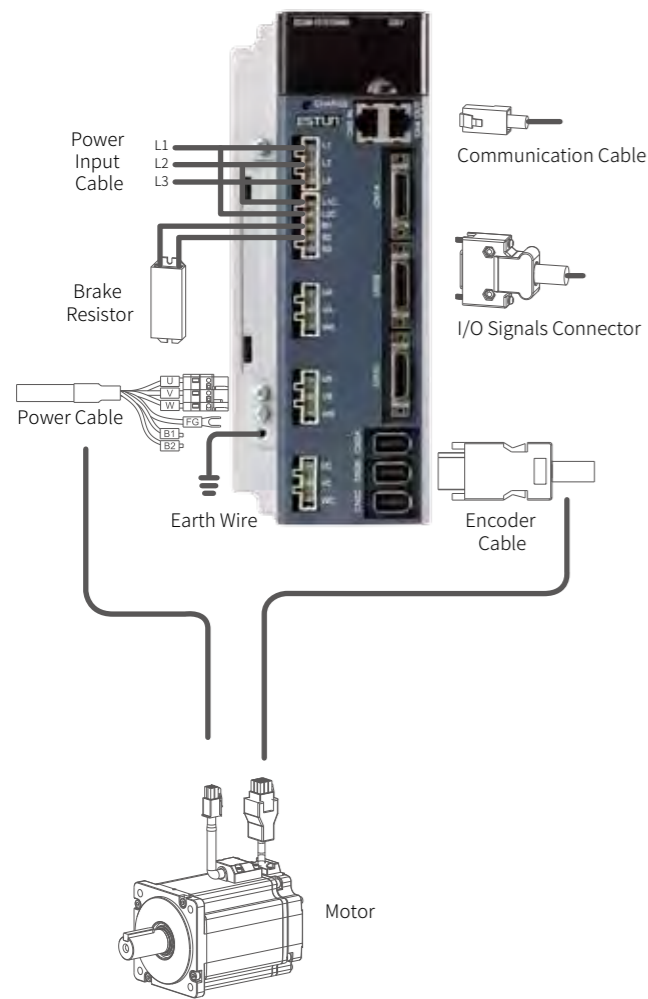


A:Continuous Working Area B:Repeatedly Working Area

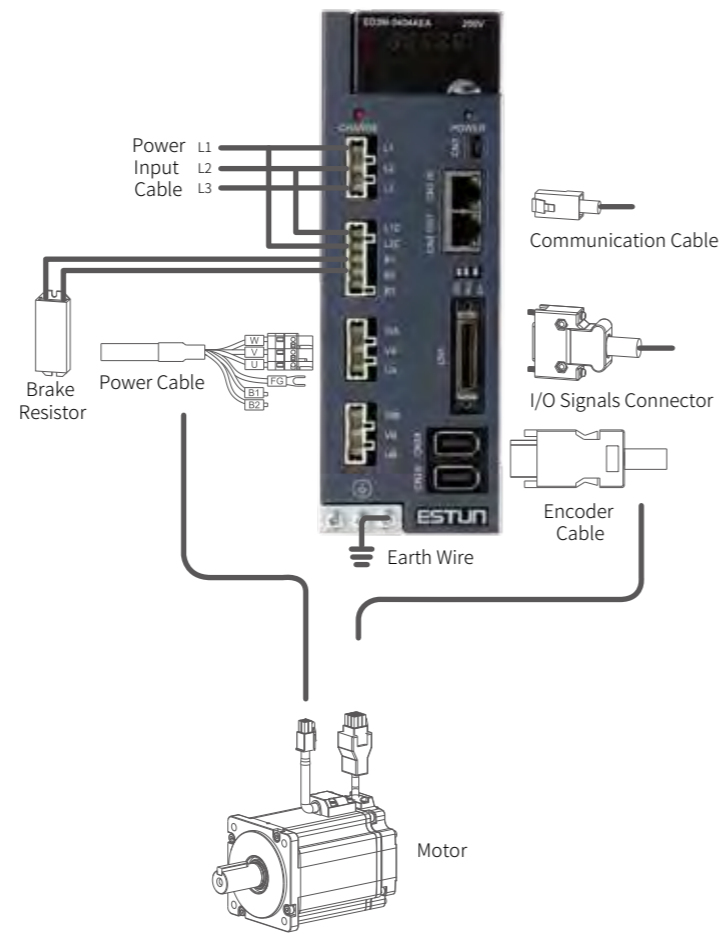
05

EXTERNAL WIRING

External Wiring Diagram of ED3M-101010AMA



External Wiring Diagram of ED3M-0404AEA



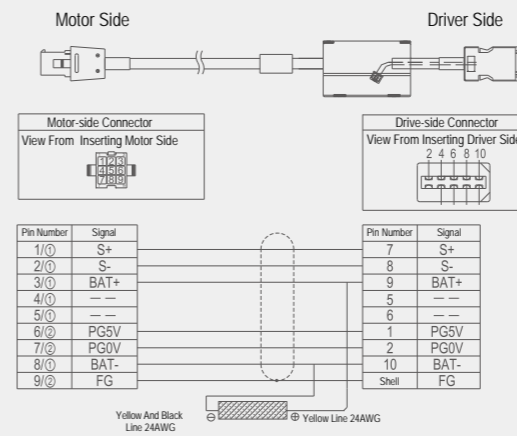
06

ACCESSORIES

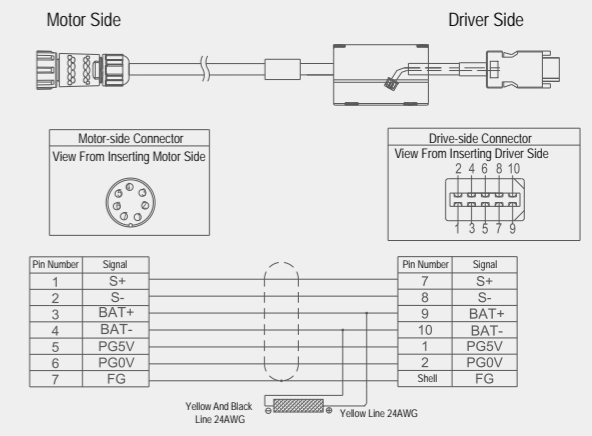
Cables

Encoder Cables

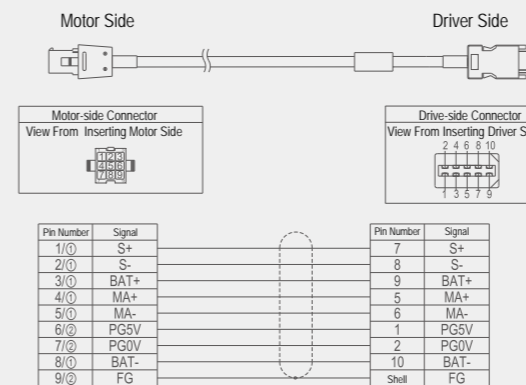
EC3S-A1124-X



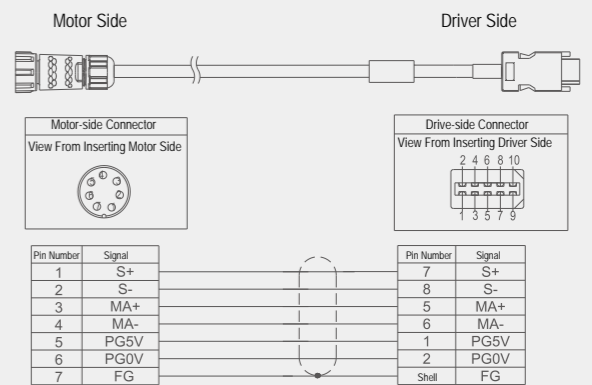
EC3S-A1224-XX



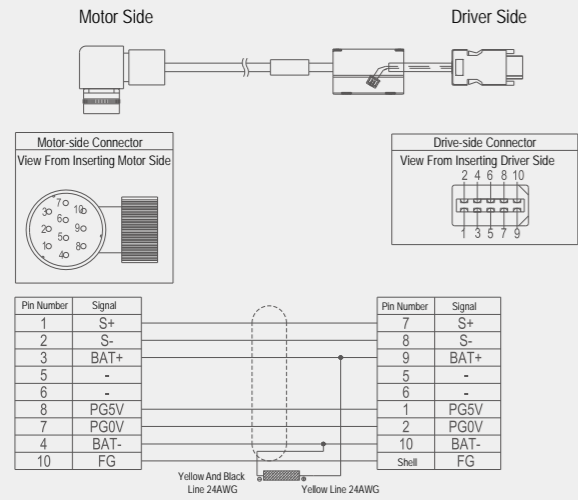
EC3S-I1124-XX



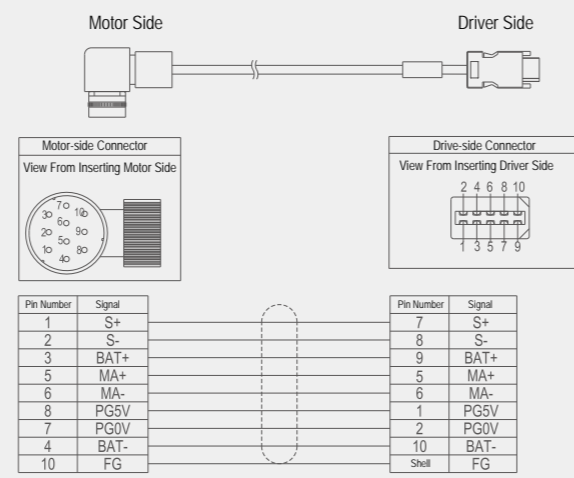
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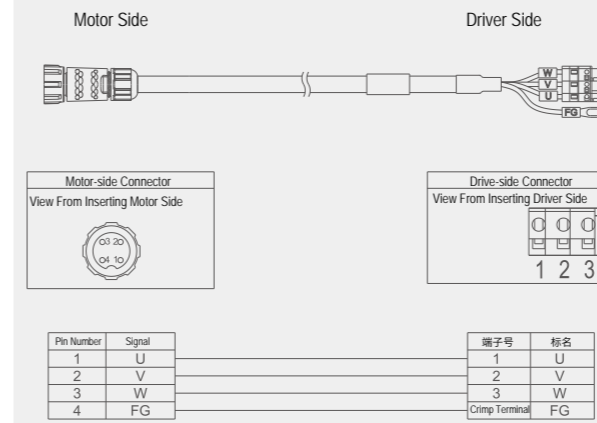
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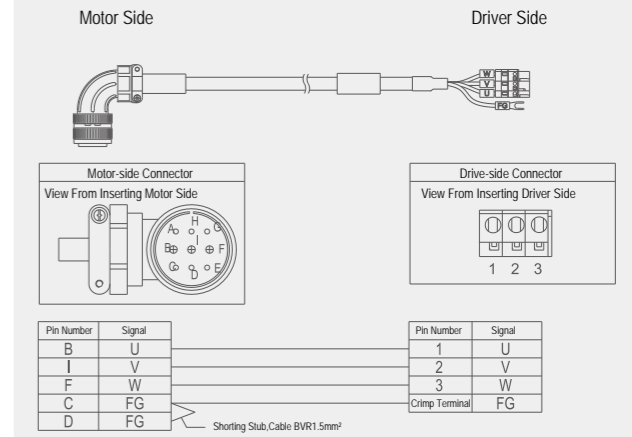
EC3S-I1324-XX



PDM-JE18-XX

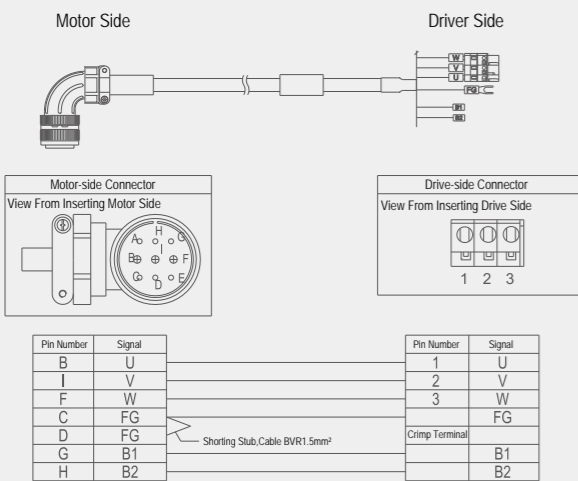


PDM-GA14-II-XX

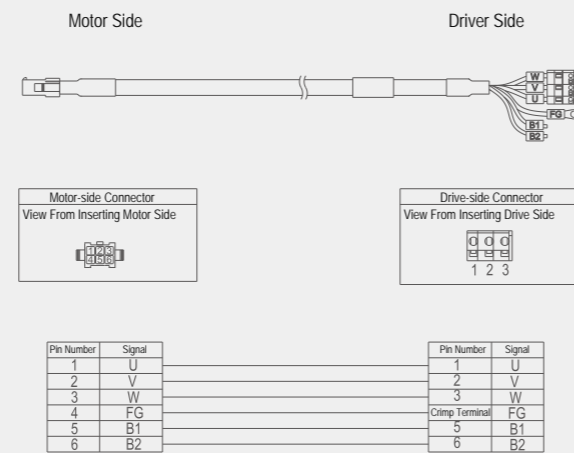


Power Cables

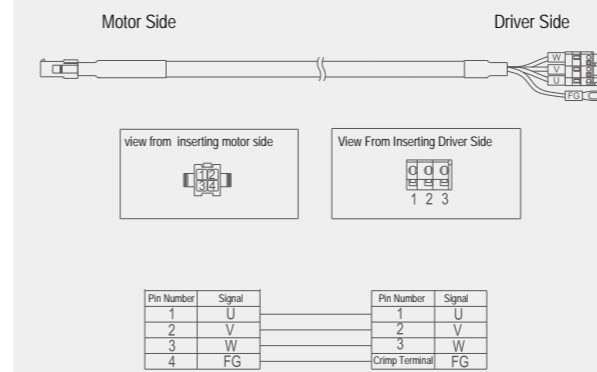
PDMB-GA14-II-XX



PDMB-JB18-XX



PDM-JB18-XX



Peripheral Devices

Servo Drive	Main Circuit Voltage	Specifications of built-in regenerative resistor	Min. Allowable Resistance	Min. Rated Current for Circuit Breaker
ED3M-101010AMA	200VAC	30Ω/80W	25Ω	75A
ED3M-1010AMA	200VAC	30Ω/80W	25Ω	50A
ED3M-0404AEA	200VAC	50Ω/60W	25Ω	20A