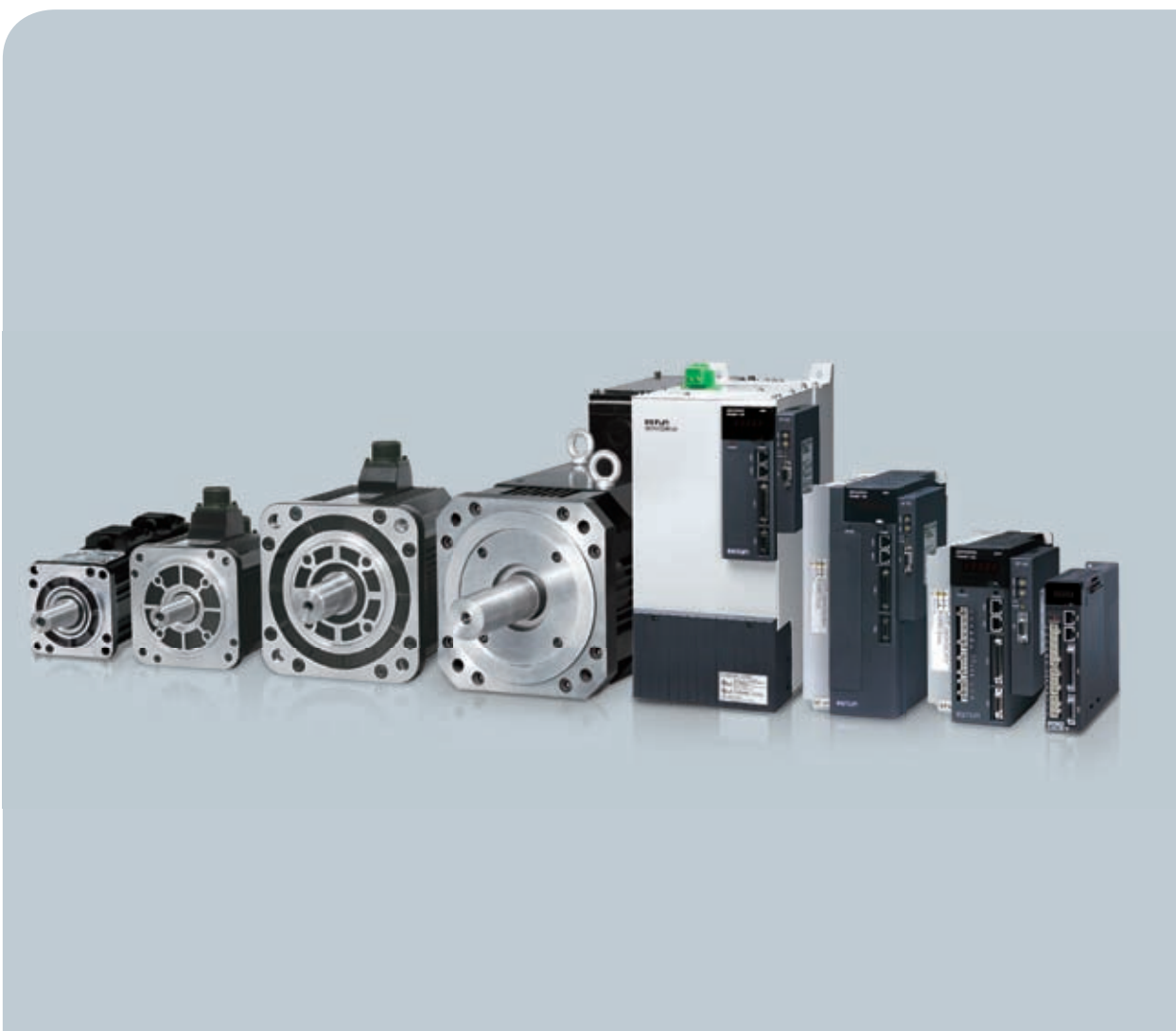


ESTUN



ProNet

All Digital AC Servo Systems





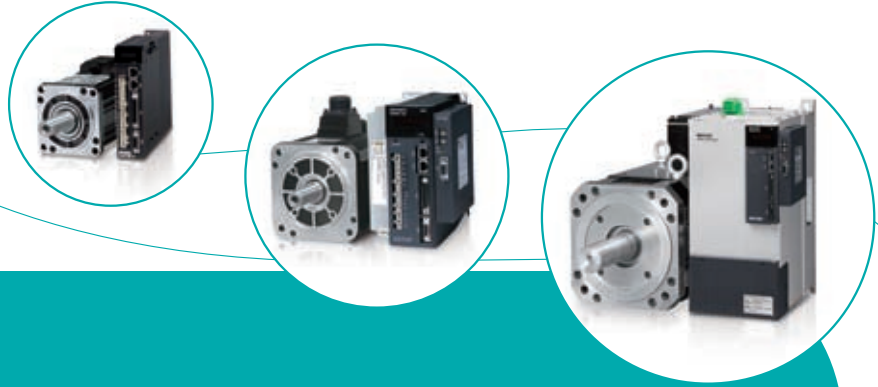
Corporate Information

As a national top AC servo system research, development and production base, Estun Automation is devoted to R&D, manufacturing and sales of high-end products in the realm of motion control. We are holding completely self-owned IPR technology of our AC servo systems which can be applied in CNC machine, textile machine, packing machine, printing machine, electronics manufacturing equipment, industrial robot, manipulator, wood-working machine, robotization production line, electro-hydraulic hybrid-driven and fully electrical injection moulding machine, etc. Now, Estun has established long-term strategic partnership with many prestigious machine manufacturers and becomes their first cooperation option for motion control products in both domestic and international market.

General Introduction

ProNet Series AC Servo System

Features



- Various models, wide power range : 50W~22kW
- Multiple feedback options : 17bits / 20bits serials encoder, 2500P/R wire-saving incremental encoder, resolver
- Power supply: single phase 100VAC, single phase/three phase 200VAC, three phase 400VAC
- Various communication options: Modbus, CANopen, EtherCAT, POWERLINK, PROFIBUS
- Frequency response 1.6kHz
- Current feed-forward and acceleration feed-forward function
- Online real time load inertia inspecting and auto-tuning function
- Common DC Bus
- Low frequency vibration suppression function
- High performance under low rigid environment
- Dynamic electronic gear ratio switching function
- Homing function available under position control mode
- UL certified and CE certified

Typical Application

- Machine tools (Metal forming, CNC router, Laser cutting, Water jet, Wood processing)
- Textile machine (Warping machine, Warp knitting machine, Rapier loom, Air jet, Water jet machine, Quilter machine, Dyeing machine)
- Packing machine (Vertical packing machine, Pillow packing machine, Sealing packing machine, Liquid packing machine)
- Printing machine (Photogravure press, Lithographic press, Relief printing machine)
- Electronics manufacturing equipment (Sorting machine, Chip mounter, Winding machine, Die-cutting machine, Lithium battery production line)
- Industrial robot, manipulator
- Hybrid, Die-casting machine, Injection molding machine, Plastic extruding machine



ProNet Series

- Various voltage input: 100V, 200V, 400V
- Power supply: 50W~22kW
- Serial encoder / Resolver
- Standard: CANopen
Option: EtherCAT(build-in) / POWERLINK / PROFIBUS
- Used in high precision automation, high speed bus communication

ProNet-E Series

- Various voltage input: 100V, 200V, 400V
- Power supply: 50W~5kW
- The same dimension with ProNet series
- Standard: CANopen
- 2500P/R Wire-saving incremental encoder
- High reliability and cost-effective

Model Comparison Table

Servo Motor				Servo Drive (ProNet)				Servo Drive (ProNet-E)				
Series	Power (kW)	Voltage (VAC)	Model	Single-phase 100VAC	Single-phase 200VAC	Three-phase 200VAC	Three-phase 400VAC	Single-phase 100VAC	Single-phase 200VAC	Three-phase 200VAC	Three-phase 400VAC	
EMJ 3000r/ min	0.05	200	EMJ-A5A		ProNet-A5A				ProNet-E-A5A			
	0.1	200	EMJ-01A		ProNet-01A				ProNet-E-01A			
	0.2	100	EMJ-02B	ProNet-02B	ProNet-02A			ProNet-E-02B				
	0.4	200	EMJ-02A					ProNet-E-02A				
	0.4	100	EMJ-04B		ProNet-04B				ProNet-E-04B			
		200	EMJ-04A		ProNet-04A				ProNet-E-04A			
	0.75	100	EMJ-08B		ProNet-08B				ProNet-E-08B			
		200	EMJ-08A			ProNet-08A					ProNet-E-08A	
	1.0	200	EMJ-10A			ProNet-10A				ProNet-E-10A		
	1.0	200	EMG-10A			ProNet-10A					ProNet-E-10A	
		400	EMG-10D				ProNet-10D					ProNet-E-10D
	1.5	200	EMG-15A			ProNet-15A					ProNet-E-15A	
400		EMG-15D				ProNet-15D					ProNet-E-15D	
2.0	200	EMG-20A			ProNet-20A					ProNet-E-20A		
	400	EMG-20D				ProNet-20D					ProNet-E-20D	
3.0	200	EMG-30A			ProNet-30A					ProNet-E-30A		
	400	EMG-30D				ProNet-30D					ProNet-E-30D	
5.0	200	EMG-50A			ProNet-50A					ProNet-E-50A		
	400	EMG-50D				ProNet-50D					ProNet-E-50D	
1.0	200	EML-10A			ProNet-10A					ProNet-E-10A		
	400	EML-10D				ProNet-10D					ProNet-E-10D	
2.0	200	EML-20A			ProNet-20A					ProNet-E-20A		
	400	EML-20D				ProNet-20D					ProNet-E-20D	
3.0	200	EML-30A			ProNet-30A					ProNet-E-30A		
	400	EML-30D				ProNet-30D					ProNet-E-30D	
4.0	200	EML-40A			ProNet-50A					ProNet-E-50A		
	400	EML-40D				ProNet-50D					ProNet-E-50D	
7.5	400	EMB-75D				ProNet-70D						
	11	400	EMB-1AD			ProNet-75D						
15	400	EMB-1ED				ProNet-1AD						
	22	400	EMB-2BD			ProNet-1ED						
10.8	400	EMB-1ZD				ProNet-2BD						
	13.2	400	EMB-1CD			ProNet-1AD						
16.7	400	EMB-1FD				ProNet-1ED						
	21.4	400	EMB-2AD			ProNet-1ED						
26.9	400	EMB-2FD				ProNet-2BD						
	33	400	EMB-3CD									

Servo Drive Specification

Specification Description

ProNet – 10

ProNet Servo Drive

A

Power Voltage

M

Control Style

A – D

Encoder Interface Extended Module

Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.
A5	0.05kW	A	200VAC	M	Speed Control, Torque Control, Position Control	A	17 Bits Serial Encoder	-D	DP100
01	0.1kW	D	400VAC					-P	PL100
02	0.2kW	B	100VAC	E	Speed Control, Torque Control, Position Control (Support Extended Module)	F	20 Bits Serial Encoder	-EC	integrated EC100
04	0.4kW					B	Resolver		
08	0.75kW								
10	1.0kW								
15	1.5kW								
20	2.0kW								
30	3.0kW								
50	5.0kW								
70	7.0kW								
75	7.5kW								
1A	11kW								
1E	15kW								
2B	22kW								

Notes: ① ProNet-□□□□E□ Support AE100 module
② ProNet-04/10/20AEA-EUL have completed UL508C. File NO. is E365853

ProNet-E – 10

ProNet-E Servo Drive

A

Rated Power Power Voltage

Sign	Spec.	Sign	Spec.
A5	0.05kW	A	200VAC
01	0.1kW	D	400VAC
02	0.2kW	B	100VAC
04	0.4kW		
08	0.75kW		
10	1.0kW		
15	1.5kW		
20	2.0kW		
30	3.0kW		
50	5.0kW		

Notes:
① ProNet-E is only equipped with wire-saving incremental encoder (2500P/R).
② ProNet-E does not support extended module.
③ ProNet-E-04/10/20AUL have completed UL508C. File NO. is E365853.



Ratings

Servo Drive Model	ProNet-	A5A	01A	02A	02B	04A	04B	08A	08B	10A	10D	15A	15D	20D	30D	50D	20A	30A	50A	70D	75D	1AD	1ED	2BD
	ProNet-E-	A5A	01A	02A	02B	04A	04B	08A	08B	10A	10D	15A	15D	20D	30D	50D	20A	30A	50A					
Applicable Servo Motors Model	EMJ-	A5	01	02	02B	04A	04B	08A	08B	10A	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	EMG-	-	-	-	-	-	-	-	-	10A	10D	15A	15D	20D	30D	50D	20A	30A	50A	-	-	-	-	-
	EML-	-	-	-	-	-	-	-	-	10A	10D	-	-	20D	30D	50D	20A	30A	50A	-	-	-	-	-
	EMB-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	75D	75D	1AD	1ED
Continuous Output Current(Arms)		1.0	1.1	1.4	2.7	2.8	5.8	4.0	8.2	6.0	3.2	9.0	5.0	6.4	9.0	15.0	12.0	18.0	28.0	18.0	18.0	28.0	38.0	55.0
Max. Output Current(Arms)		3.0	3.3	4.2	8.1	8.4	15.1	12.0	24.6	18.0	9.6	28.0	15.0	19.2	27.0	45.0	42.0	56.0	84.0	48.0	48.0	65.0	100.0	128.0
Main Input Power Supply Capacity(kVA)		0.2	0.3	0.5	0.5	0.9	0.9	1.3	1.3	1.8	1.8	2.5	2.8	3.5	5.0	8.2	3.5	4.5	7.5	12.0	12.0	18.0	22.0	32.0
DC24V Power Supply Capacity(W)		-	-	-	-	-	-	-	-	-	30.0	-	30.0	30.0	45.0	45.0	-	-	-	45.0	-	-	-	-

Specification

Items		Specifications	
Input Power Supply	Main Circuit	100V	Single-phase 100 to 120VAC 50/60Hz (0.2kW-0.75kW)
		200V	Single-phase 200 to 230VAC 50/60Hz (0.05kW-0.4kW)
			Three-phase 200 to 230VAC 50/60Hz (0.75kW-5.0kW)
		400V	Three-phase 380 to 440VAC 50/60Hz (1.0kW-22kW)
	Control Circuit	100V	Single-phase 100 to 120VAC 50/60Hz (0.2kW-0.75kW)
		200V	Single-phase 200 to 230VAC 50/60Hz (0.05kW-5.0kW)
		400V	24VDC (1.0kW-7.0kW)
			Single-phase 380 to 440VAC 50/60Hz (7.5kW-22kW)
Control Method		SVPWM Control	
Feedback		Serial Encoder: 131072P/R /1048576P/R Resolver Wire-saving Incremental Encoder: 2500P/R	
Operating Conditions	Ambient / Storage Temperature		Ambient Temperature: 0 to +55°C, Storage Temperature: -25 to +85°C
	Ambient / Storage Humidity		5%~95% (no condensation)
	Elevation		1000m or less
	Vibration / Impact Resistance		Vibration Resistance: 4.9m/s ² , Impact Resistance: 19.6m/s ²
Configuration		Base-mounted	
Performance	Speed Control Range		1:5000
	Speed Regulation	Load Regulation	0 to 100% load: ±0.01% max. (at rated speed)
		Voltage Regulation	Rated voltage, ±10%: 0% (at rated speed)
		Temperature Regulation	25±25°C: ±0.1% max. (at rated speed)
Torque Control	Analog Input	Reference Voltage	±10VDC at rated torque (variable setting range: ±0 to 10VDC) Max. input voltage: ±12V
		Input Impedance	About 10MΩ min.
		Circuit Time Constant	10μs

Items		Specifications	
Speed Control	Analog Input	Reference Voltage	±10VDC at rated torque (variable setting range: ±0 to 10VDC) Max. input voltage: ±12V
		Input Impedance	About 10MΩ min.
		Circuit Time Constant	10μs
	Set Speed Reference	Speed Selection	Speed 1 to 7 selection
	Function	Soft Start Setting	0 to 10s (can be set individually for acceleration and deceleration)
Position Control	Reference Pulse	Type	Sign+pulse train, CCW+CW pulse train, or 90° phase difference 2-phase pulse (phase A + phase B)
		Form	Non-insulated line driver (+5V level), open collector
		Frequency	x1 multiplier: 4Mpps x2 multiplier: 2Mpps x4 multiplier: 1Mpps Open collector: 200kpps Frequencies drop when the duties have errors
	Set Position Reference	Position Setting	Can set 16 position reference
I/O Signals	Encoder Output Pulses		Phase A, phaseB, phase C: line driver output The number of dividing pulse: Any setting ratio is available
	Sequence Input	Number of Channels	8 channels
		Function	Signal allocations and positive/negative logics can be modified: Servo ON (/S-ON), P control (/P-CON), alarm reset (/ALM-RST), clear error pulse (/CLR), forward run prohibited (P-OT), reverse run prohibited (N-OT), forward torque limit (/P-CL), reverse torque limit (/N-CL)
	Sequence Output	Number of Channels	4 channels
Function		Servo alarm (ALM) Signal allocations and positive/negative logics can be modified: Positioning completion (/COIN), speed agree detection (/V-CMP), motor rotation detection (/TGON), servo ready (/S-RDY), torque limit detection (/CLT), brake interlock (/BK), encoder C pulse (/PGC), over travel signal (/OT)	
	Regenerative Processing Functions		0.75kW to 7.5kW: built-in regenerative resistor; 11kW to 22kW: External regenerative resistor
	Protective Functions		Overcurrent, overvoltage, low voltage, overload, regeneration error, overspeed, etc.
	Utility Functions		Alarm trace back, JOG operation, Inertia detections, etc.
	Display Functions		CHARGE (red), POWER (green), 7-segment LEDx5 (Bulit-in digital operator function)
	Communications		RS-485 communication port, MODBUS protocol ; CAN communication port, CANopen protocol; EtherCAT communication module, CiA402 protocol; POWERLINK communication module, CiA402 protocol; PROFIBUS communication module, PROFIdrive protocol.

Communication

EtherCAT



- Integrated EtherCAT Module
- High communication speed
- Precise multiple axis synchronous control
- Revolution of traditional field bus control

Items	Specifications
Communication standard	IEC 61158 Type12, IEC 61800-7 CiA402 Drive Profile
Physical layer	100BASE-TX (IEEE802.3)
Bus connection	CN4 (RJ45): EtherCAT Signal IN CN5 (RJ45): EtherCAT Signal OUT
Cable	Class-5 twisted pair cable
Communication distance	Nod space: within 100 meters
SyncManager	SM0: output mailbox, SM1: input mailbox SM2: output proces data, SM3: input process data
FMMU	FMMU0: mapping to process data (RxPDO) Receiving area FMMU1: mapping to process data (TxPDO) Transmitting area FMMU2: mapping to mailbox status
EtherCAT Commands (Data Link Layer)	APRD, FPRD, BRD, LRD, APWR, FPWR, BWR, LWR, ARMW, FRMW Note: APRW, FPRW, BRW, LRW Commands are not supported
PDO data	Dynamic PDO mapping
Mailbox (CoE)	Emergency event, SDO request, response, SDO information Note: do not support TxPDO/RxPDO and remote TxPDO/RxPDO
Differential clock (DC)	Free-run, DC mode (set active in confi gur ation) Supported DC period : 250us - 8ms
SII	256 bytes (read - only)
LED Indicator	EtherCAT System indicator (SYS) x1 EtherCAT Run indicator (RUN) x1 EtherCAT Error indicator (ERR) x1
CiA402 Drive Profile	Homing mode, Profile position mode, Interpolated position mode Profile velocity mode, Cyclic synchronous position mode

CANopen



Standard CAN bus interfaces are available in ProNet series servo drives, which makes it easy to get integrated into a distributed control system.

Items	Specifications
Communication standard	CiA-DS301 CiA402 Drive Profile
Physical layer	ISO 11898-2 CiA 303-1
Bus connection	CN3 (RJ45): Signal IN CN4 (RJ45): Signal OUT
Cable	Twisted pair cable
Baud rate	50Kbps, 100Kbps, 125Kbps, 250Kbps, 500Kbps, 1Mbps
COB	SDO, PDO, SYNC, EMCY, NMT, Heartbeat
Communication mode	Homing mode, speed control mode, position control mode, position interpolation mode
PDO data	Dynamic PDO mapping, 2 sending PDO, 2 receiving PDO

Modbus



ProNet series servo drives provide the Modbus communication function with RS-485 interface, which can be used to easily set parameters or to perform monitoring operations and so on.

Items	Specifications
Communication standard	Modbus
Physical layer	RS-485 transmission
Bus connection	CN3 (RJ45): Signal IN CN4(RJ45): Signal OUT
Cable	Twisted pair cable
Baud rate	4800bps, 9600bps, 19200bps
Communication Mode	ASCII, RTU

Servo Motor Specification

EMJ Model

Features

- Medium inertia
- Peak torque up to 300% of rated torque
- Various models (0.05kW~1.0kW, with brake, etc.)
- Speed up to 4500r/min
- Mounted with 17/20bits incremental / absolute encoder, is optional wire-saving incremental encoder (2500P/R)

Application

- SMM (surface mounting machine)
- PCB punch machine
- Robot arm
- Handling machinery
- Textile machinery



Specification Description

EMJ - 08 A P B 1 1 -WR

EMJ Model Servo Motor Rated Output Power Power Voltage Encoder Designing Sequence Shaft End Option Parts Connector

Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.
A5	0.05kW	A	200VAC	D	Incremental Encoder: 131072P/R	A, B, H	Designing Sequence	1	Flat, Without Keys (Standard)	1	None		Standard Connector
01	0.1kW	B	100VAC	F	Incremental : Encoder 1048576P/R					2	With Oil Seal		
02	0.2kW			S	Absolute Encoder: 131072P/R			2	Flat, With Keys, With Screw Thread	3	With Brake (DC24V)		WR Water proof Connector Incremental (Wire-saving) Type: 2500P/R
04	0.4kW			P	Incremental Wire-saving Type: 2500P/R					4	With Oil Seal, With Brake (DC24V)		
08	0.75kW												
10	1.0kW												

Notes: ①EMJ-A5/01□□□□□ and EMJ-□□□□D/F/S□□ support water proof connector default.
 ②EMJ-04/08/10A□□□□-UL have completed UL1004-6. File NO. is E365853.

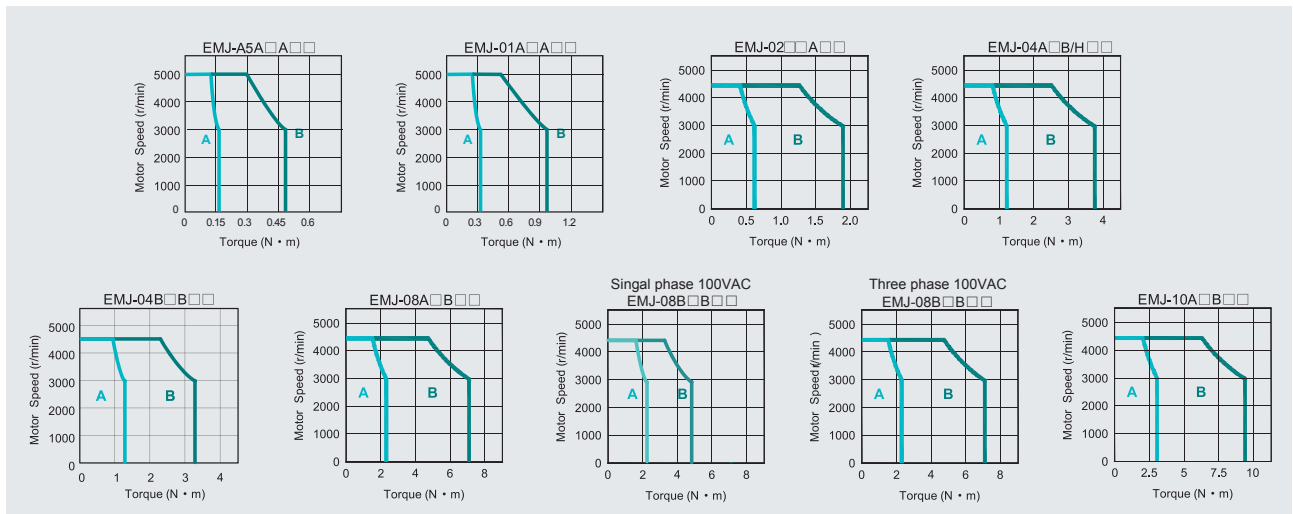
Rated Value and Specification

Voltage		100VAC/200VAC										
Servo Motor Model	EMJ-	A5A□□□□	01A□□□□	02A□A□□	02B□A□□	04A□B□□	04A□H□□	04B□B□□	08A□B□□	08B□B□□	10A□B□□	
Rated Output Power	kW	0.05	0.1	0.2		0.4			0.75		1.0	
Rated Torque	N·m	0.16	0.32	0.64		1.27			2.39		3.18	
Instantaneous Peak Torque	N·m	0.48	0.96	1.91		3.82	3.82	3.26	7.16	7.16	9.55	
Rated Current	Arms	0.95	1.05	1.4	2.7	2.8	2.8	5.8	4.0	8.2	5.3	
Instantaneous Max Current	Arms	3.0	3.2	4.2	8.1	8.4	8.4	15.1	12.0	24.6	15.9	
Rated Speed	r/min	3000										
Max. Speed	r/min	5000				4500						
Rotor Moment of Inertia	$\times 10^{-4} \text{kg}\cdot\text{m}^2$	0.051 (0.052)	0.073 (0.074)	0.19 (0.23)		0.31 (0.35)	0.7 (0.74)	0.31 (0.35)	1.35 (1.47)		1.74 (1.87)	
Brake Rated Voltage		DC24V \pm 10%										
Brake Rated Power	W	6.096				7.2			11.5			
Brake Holding Torque	N·m	0.3				1.3			3.2			
Encoder	Standard	Incremental Encoder: 131072P/R 1048576P/R										
	Options	Absolute Encoder: 131072P/R Wire-saving Incremental Encoder (2500P/R)										
Insulation Class		F										
Ambient Temperature		0 to +40°C (no freezing)										
Ambient Humidity		20% to 80% RH (non-condensing)										
Vibration		49m/s ²										
Enclosure		Totally Enclosed, Self-cooled, IP65 (Except for shaft opening, when not equipped with oil seal; Except for connectors, when not equipped with waterproof connectors.)										

Note : ① The values in parentheses are for servo motors with holding brakes.

② when power supply is single-phase, the instantaneous peak torque of EMJ-08B□B□□ is 4.78.

Torque-Speed Feature



A: Continuous Working Area B: Repeatedly Working Area

EMG Model

Features

- Be used to drive the feed shaft of various machinery
- Various models (1.0kW~5.0kW, with brake, etc.)
- Mounted with 17/20bits incremental / absolute encoder, Optional mounted resolver or wire-saving incremental encoder (2500P/R) is optional
- Standard configuration is IP65

Application

- Machine tools
- Handling machinery
- Food processing machinery
- Textile machinery



Specification Description

EMG-10

EMG Model
Servo Motor

A

Rated Output
Power

D

Encoder

A

Designing
Sequence

1

Shaft End

1

Option Parts

Sign		Spec.		Sign		Spec.		Sign		Spec.		Sign		Spec.	
10	1.0kW	A	200VAC	D	Incremental Encoder: 131072P/R	A,B Designing Sequence	1	Flat, Without Keys (Standard)	1	None					
15	1.5kW	D	400VAC	F	Incremental : Encoder 1048576P/R		2	Flat, With Keys With Screw Thread	2	With Oil Seal					
20	2.0kW			S	Absolute Encoder: 131072P/R				3	With Brake (DC24V)					
30	3.0kW			P	Incremental Wire-saving Type:2500P/R				4	With Oil Seal, With Brake (DC24V)					
50	5.0kW														

Notes: ①The EMG-30□□A□□, EMG-50□□A□□ servo motors don't provide the incremental encoder 131072P/R.
 ②There is no brake in EMG-□□□□□□□□ servo motor.
 ③EMG-10/15/20A□□□□-UL have completed UL1004-6. File NO. is E365853.

Rated Value and Specification

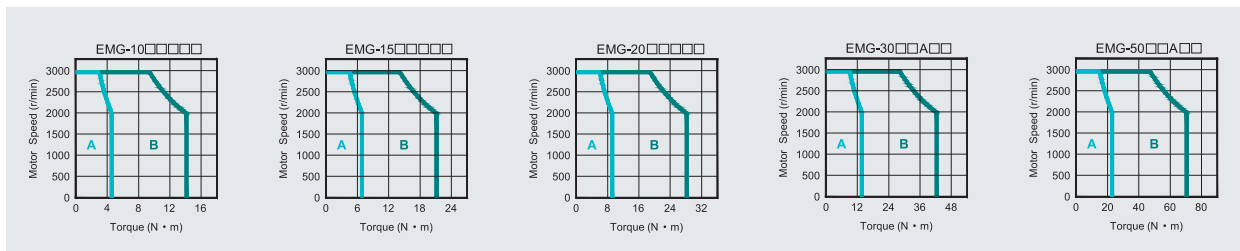
Voltage		200VAC / 400VAC									
Servo Motor Model	EMG-	10A□A□□	10D□A□□	15A□A□□	15D□A□□	20A□A□□	20D□A□□	30A□A□□	30D□A□□	50A□A□□	50D□A□□
Rated Output Power	kW	1.0	1.0	1.5	1.5	2.0	2.0	3.0	3.0	5.0	5.0
Rated Torque	N·m	4.78	4.78	7.16	7.16	9.55	9.55	14.3	14.3	23.9	23.9
Instantaneous Peak Torque	N·m	14.3	14.3	21.5	21.5	28.7	28.7	43.0	43.0	71.6	71.6
Rated Current	Arms	6.0	3.2	9.0	5.0	12.0	6.4	18.0	8.8	28.0	15.0
Instantaneous Max. Current	Arms	18.0	9.6	27.0	15.0	36.0	19.2	54.0	26.4	84.0	45.0
Rated Speed	r/min	2000									
Max. Speed	r/min	3000									
Rotor Moment of Inertia	$\times 10^{-4} \text{kg}\cdot\text{m}^2$	10.0 (10.6)		14.5 (15.1)		19.0 (19.6)		41.3 (44.5)		65.7 (68.9)	
Brake Rated Voltage		DC24V \pm 10%									
Brake Rated Power	W	19						35			
Brake Holding Torque	N·m	10						40			
Encoder	Standard	Incremental Encoder: 131072P/R 1048576P/R						Absolute Encoder: 131072P/R			
	Options	Absolute Encoder: 131072P/R Wire-saving Incremental Encoder (2500P/R)						Wire-saving Incremental Encoder (2500P/R)			
Insulation Class		F									
Ambient Temperature		0 to +40°C (No freezing)									
Ambient Humidity		20% to 80% RH (Non-condensing)									
Vibration		24.5m/s ²									
Enclosure		Totally Enclosed, Self-cooled, IP65 (Except for shaft opening, when not equipped with oil seal.)									

Note: The values in parentheses are for servo motors with holding brakes.

Voltage		200VAC / 400VAC					
Servo Motor Model	EMG-	10A□B□□	10D□B□□	15A□B□□	15D□B□□	20A□B□□	20D□B□□
Rated Output Power	kW	1.0		1.5		2.0	
Rated Torque	N·m	4.78		7.16		9.55	
Instantaneous Peak Torque	N·m	14.3		21.5		28.7	
Rated Current	Arms	5.8	3.0	8.2	4.3	11.3	5.7
Instantaneous Max. Current	Arms	17.4	9.0	24.6	12.9	33.9	17.1
Rated Speed	r/min	2000					
Max. Speed	r/min	3000					
Rotor Moment of Inertia	$\times 10^{-4} \text{kg}\cdot\text{m}^2$	13.2(14.3)		18.4(19.5)		23.5(24.6)	
Brake Rated Voltage		DC24V \pm 10%					
Brake Rated Power	W	19.5					
Brake Holding Torque	N·m	12					
Encoder	Standard	Incremental Encoder: 131072P/R 1048576P/R					
	Options	Absolute Encoder: 131072P/R Wire-saving Incremental Encoder (2500P/R)					
Insulation Class		F					
Ambient Temperature		0 to +40°C (No freezing)					
Ambient Humidity		20% to 80% RH (Non-condensing)					
Vibration		24.5m/s ²					
Enclosure		Totally Enclosed, Self-cooled, IP65 (Except for shaft opening, when not equipped with oil seal.)					

Note: The values in parentheses are for servo motors with holding brakes.

Torque-Speed Feature



A: Continuous Working Area B: Repeatedly Working Area

Features

- Be used to drive the feed shaft of various machinery
- Various models (1.0kW~4.0kW, with brake, etc.)
- Mounted with 17/20bits incremental / absolute encoder, wire-saving incremental encoder (2500P/R) is optional
- Standard configuration is IP65

Application

- Machine tools
- Handling machinery
- Food processing machinery
- Textile machinery



Specification Description

EML-10

EML Model Servo Motor

A

Rated Output Power

D

Power Voltage

A

Encoder

1

Designing Sequence

1

Shaft End

Option Parts

Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.
10	1.0kW	A	200VAC	D	Incremental Encoder: 131072P/R	A,B	Designing Sequence	1	Flat, Without Keys (Standard)
20	2.0kW	D	400VAC	F	Incremental : Encoder 1048576P/R			2	Flat, With Keys With Screw Thread
30	3.0kW			S	Absolute Encoder: 131072P/R			3	With Brake (DC24V)
40	4.0kW			P	Incremental Wire-saving Type: 2500P/R			4	With Oil Seal, With Brake (DC24V)

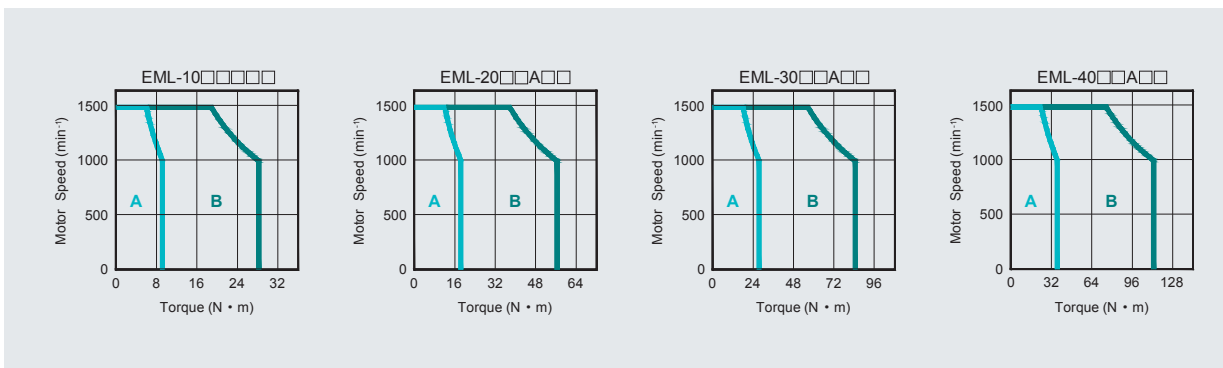
Notes: ① The EML-20□□A□□, EML-30□□A□□, EML-40□□A□□ servo motors are not mounted the incremental encoder 131072P/R.
 ② There is no brake in the EML-10□□D□□□ servo motor.

Rated Value and Specification

Voltage		200VAC / 400VAC									
Servo Motor Model	EML-	10A□A□□	10A□B□□	10D□A□□	10D□B□□	20A□A□□	20D□A□□	30A□A□□	30D□A□□	40A□A□□	40D□A□□
Rated Output Power	kW	1.0	1.0	1.0	1.0	2.0		3.0		4.0	
Rated Torque	N.m	9.55	9.55	9.55	9.55	19.1		28.7		38.2	
Instantaneous Peak Torque	N.m	28.7	28.7	28.7	28.7	57.3		86.0		114.6	
Rated Current	Arms	6.0	5.5	3.2	2.8	12.0	6.2	18.0	9.0	24.0	12.2
Instantaneous Max. Current	Arms	18.0	16.5	9.6	8.4	36.0	18.6	54.0	27.0	72.0	36.6
Rated Speed	r/min	1000									
Max. Speed	r/min	1500									
Rotor Moment of Inertia	$\times 10^{-4} \text{kg}\cdot\text{m}^2$	19.0 (19.6)	23.5(24.6)	19.0 (19.6)	23.5(24.6)	53.5 (56.7)		77.8 (81.0)		102.2 (105.4)	
Brake Rated Voltage		DC24V \pm 10%									
Brake Rated Power	W	19	19.5	19	19.5	35					
Brake Holding Torque	N.m	10	12	10	12	40					
Encoder	Standard	Incremental Encoder: 131072P/R 1048576P/R				Absolute Encoder: 131072P/R					
	Options	Absolute Encoder: 131072P/R Wire-saving Incremental Encoder (2500P/R)									
Insulation Class		F									
Ambient Temperature		0 to + 40°C (No freezing)									
Ambient Humidity		20 to 80% RH (Non-condensing)									
Vibration		24.5m/s ²									
Enclosure		Totally Enclosed, Self-cooled, IP65 (Except for shaft opening, when not equipped with oil seal.)									

Note: The values in parentheses are for servo motors with holding brakes.

Torque-Speed Feature



A: Continuous Working Area B: Repeatedly Working Area

EMB Model

Features

- Power supply voltage: 400V
- Driving of feed shafts for various machinery
- Various models (7.5kW~22kW, with brake, etc.)
- Mounted with 17 bits absolute encoder, resolver is optional
- Temperature sensor

Application

- Machine tools
- Handling machinery
- Food processing machinery
- Textile machinery



Specification Description

EMB-1E D S A 1 1

EMB Model Servo Motor Rated Output Power Power Voltage Encoder Designing Sequence Shaft End Option Parts

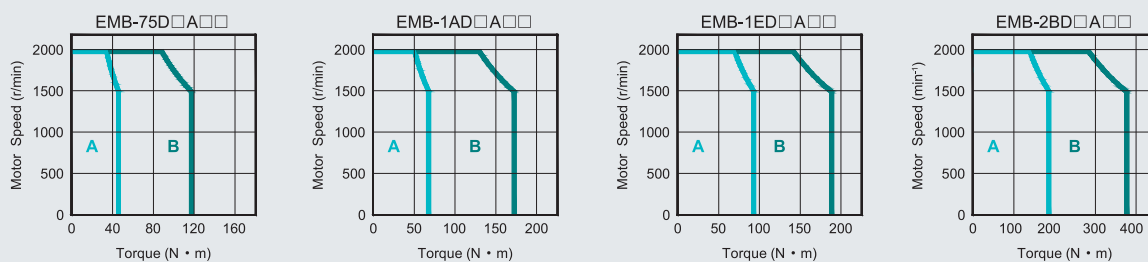
Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.
75	7.5kW	D	400VAC	S	Absolute Encoder: 131072P/R	A	Designing Sequence	1	Flat, Without Keys (Standard)
1A	11.0kW			R	Resolver			2	Flat, With Keys With Screw Thread
1E	15.0kW								
2B	22.0kW								
								1	None
								2	With Oil Seal
								3	With Brake (DC24V)
								4	With Oil Seal, With Brake (DC24V)

Rated Value and Specification

Voltage		400VAC			
Servo Motor Model	EMB-	75D□A□□	1AD□A□□	1ED□A□□	2BD□A□□
Rated Output Power	kW	7.5	11.0	15.0	22.0
Rated Torque	N·m	47.8	70.0	95.5	140.0
Instantaneous Peak Torque	N·m	143.4	175	191	350
Rated Current	Arms	18.0	28.0	38.0	52.0
Instantaneous Max. Current	Arms	56.0	70.0	84.0	130
Rated Speed	r/min	1500			
Max. Speed	r/min	2000			
Rotor Moment of Inertia	$\times 10^{-4} \text{kg} \cdot \text{m}^2$	186.2 (193.6)	271.6 (278.9)	338.8 (346.1)	576.62
Brake Rated Voltage		DC24V \pm 10%			
Brake Rated Power	W	90			
Brake Holding Torque	N·m	100			
Encoder	Standard	Absolute Encoder: 131072P/R			
	Options	Resolver			
Insulation Class		F			
Ambient Temperature		0 to +40°C (No freezing)			
Ambient Humidity		20% to 80% RH (Non-condensing)			
Vibration		24.5m/s ²			
Enclosure		Totally Enclosed, Forced-air Cooling, IP44 (Except for shaft opening, when not equipped with oil seal.) IP20 for cooling fan			

Note: The values in parentheses are for servo motors with holding brakes.

Torque-Speed Feature



A: Continuous Working Area B: Repeatedly Working Area

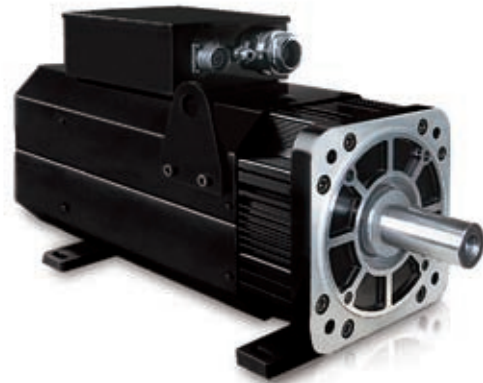
EMB for Low Inertia Model

Features

- Wider weak field speed governing range, better overload capability
- Made from high class permanent material, higher motor efficiency
- High performance of imported resolver
- Built-in high precision temperature sensor
- Customization is available

Application

- Injection molding machine



Specification Description

EMB – 1Z

EMB for Low Inertia Model Servo Motor

D

Rated Output Power

R

Encoder

A

Designing Sequence

2

Shaft End

1

Option Parts

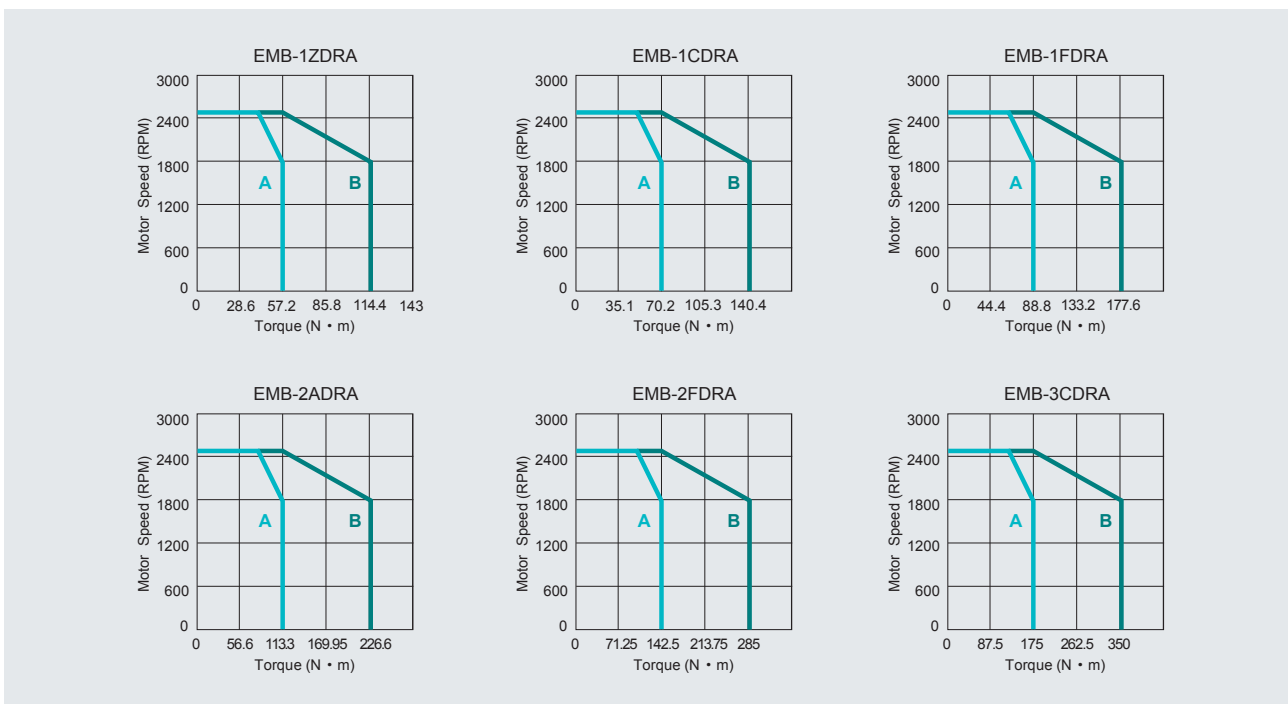
Custom-built

Sign		Spec.		Sign		Spec.		Sign		Spec.		Sign		Spec.		Sign		Spec.	
1Z	10.8kW	D	400VAC	R	Resolver	A	Designing Sequence	1	Flat, Without Keys (Standard)	1	None	00	With Baseplate (Omissible)						
1C	13.2kW									2	With Oil Seal								
1F	16.7kW											X X	Custom-built (Internal Code)						
2A	21.4kW							2	Flat, With Keys, With Screw Thread	3	With Brake(DC 24V)								
2F	26.9kW									4	With oil seal, with brake (DC24V)								
3C	33kW																		

Rated Value and Specification

Voltage		400VAC					
Servo Motor		EMB-1ZDRA	EMB-1CDRA	EMB-1FDRA	EMB-2ADRA	EMB-2FDRA	EMB-3CDRA
Motor Rated Power	kW	10.8	13.2	16.7	21.4	26.9	33
Rated Torque	N·m	57.2	70.2	88.8	113.3	142.5	175
Instantaneous Peak Tarque	N·m	114.5	140.4	177.5	226.5	285	350
Rated Current	Arms	22.5	27	34.5	47	60	72
Instantaneous Max. Current	Arms	45	54	69	94	120	144
Kt Value	N·m/A	2.54	2.6	2.57	2.41	2.38	2.43
Rated Speed	r/min	1800					
Max. Speed	r/min	2500					
Pole Number		8					
Rotor Moment of Inertia	$\times 10^{-4} \text{kg}\cdot\text{m}^2$	116	132	156	195	234	283
Encoder		Resolver					
Insulation Class		F					
Ambient Temperature		0 ~ +40°C (No freezing)					
Ambient Humidity		20% ~ 80% RH(Non-condensing)					
Vibration		24.5m/s ²					
Enclosure		Totally enclosed, forced-air cooling, IP44(Except for shaft opening, when not equipped with oil seal), IP20 for cooling fan					

Torque-Speed Feature



A: Continuous Working Area B: Repeatedly Working Area

Accessories

Selecting Cables

Name		Model	Specifications
Connector Kit	CN1	EC-CN1-50	
	CN2	EC-CN2-20	
Communication Cables	CN3	PSC-CC24-XX	
Serial Encoder Cables	EMJ	PSP-JE24-XX	
		PAP-JE24-XX	
		PSP-JO24-XX	
	EMG-□□□□A□□ EMB EML	PSP-GA24-XX	
		PAP-GA24-XX	
	EMG-□□□□B□□	PSP-GA24-XX-II	
PAP-GA24-XX-II			
Wire-saving Incremental Encoder Cables	EMJ	BMP-JE24-XX	
		BMP-JB24-XX	
		PMP-JO24-XX	
	EMG-□□□□A□□ EML	BMP-GA24-XX	
EMG-□□□□B□□		PMP-GA24-XX-II	
Resolver Cables	EMG EMB EML	PRP-BA24-XX	
	EMB for low inertia	PRP-BO24-XX	
Power Cables	EMJ-A5A EMJ-01A EMJ-02A EMJ-02B EMJ-04A EMJ-04B EMJ-08A EMJ-10A	PDM-JO20-XX	
		PDM-JE18-XX	
		PDM-JB18-XX	
		PDM-JB16-XX	
	EMJ-08B	PDM-JB16-XX	
	EMG-10A□A□□ EMG-15A□A□□ EMG-10D EMG-15D EMG-20D EML-10	PDM-GA16-XX	
	EMG-20A□A□□	PDM-GA14-XX(V100)	
	EML-20	PDM-GD14-XX(V100)	
	EMG-30A EMG-50A EMG-30D EMG-50D EML-30 EML-40	PDM-GD12-XX	
	EMG-10A□B□□ EMG-15A□B□□ EMG-20A□B□□	PDMB-GA14-XX-II	
EMG-10A□B□□ EMG-15A□B□□	PDM-GA16-XX-II		
EMG-20A□B□□	PDM-GA14-XX-II		

Notes: Please select cable PSP-JE24-XX for EMJ-□□□□F.

Selecting Peripheral Devices

Servo Drive (ProNet)	Servo Drive (ProNet-E)	Main Circuit Voltage	Specifications for Internal Regenerative Resistor	Min.Allowable Resistance	Min. Rated Input Current for Three-phase Filters	Min. Rated Current for Circuit Breaker
ProNet-A5A	ProNet-E-A5A	200-230VAC	50Ω/60W External connection	25Ω	—	5A
ProNet-01A	ProNet-E-01A	200-230VAC	50Ω/60W External connection	25Ω	—	5A
ProNet-02A	ProNet-E-02A	200-230VAC	50Ω/60W External connection	25Ω	—	10A
ProNet-02B	ProNet-E-02B	100-120VAC	50Ω/60W External connection	25Ω	—	10A
ProNet-04A	ProNet-E-04A	200-230VAC	50Ω/60W External connection	25Ω	—	10A
ProNet-04B	ProNet-E-04B	100-120VAC	50Ω/60W	25Ω	—	25A
ProNet-08A	ProNet-E-08A	200-230VAC	50Ω/60W	25Ω	—	25A
ProNet-08B	ProNet-E-08B	100-120VAC	40Ω/80W	25Ω	—	35A
ProNet-10A	ProNet-E-10A	200-230VAC	50Ω/60W	25Ω	—	25A
ProNet-15A	ProNet-E-15A	200-230VAC	40Ω/80W	25Ω	—	35A
ProNet-20A	ProNet-E-20A	200-230VAC	40Ω/80W	25Ω	—	55A
ProNet-30A	ProNet-E-30A	200-230VAC	10Ω/300W	10Ω	27A	70A
ProNet-50A	ProNet-E-50A	200-230VAC	10Ω/300W	10Ω	42A	100A
ProNet-10D	ProNet-E-10D	380-440VAC	200Ω/80W	50Ω	—	12A
ProNet-15D	ProNet-E-15D	380-440VAC	200Ω/80W	50Ω	—	20A
ProNet-20D	ProNet-E-20D	380-440VAC	200Ω/80W	40Ω	—	24A
ProNet-30D	ProNet-E-30D	380-440VAC	40Ω/300W	35Ω	14A	33A
ProNet-50D	ProNet-E-50D	380-440VAC	40Ω/300W	20Ω	23A	55A
ProNet-70D		380-440VAC	40Ω/300W	20Ω	27A	60A
ProNet-75D		380-440VAC	40Ω/300W	20Ω	27A	60A
ProNet-1AD		380-440VAC	20Ω/1.5KW External connection	17Ω	42A	80A
ProNet-1ED		380-440VAC	15Ω/1.5KW External connection	12Ω	57A	120A
ProNet-2BD		380-440VAC	10Ω/3KW = 2 × 20Ω/1.5KW External parallel connection	8Ω	82A	160A



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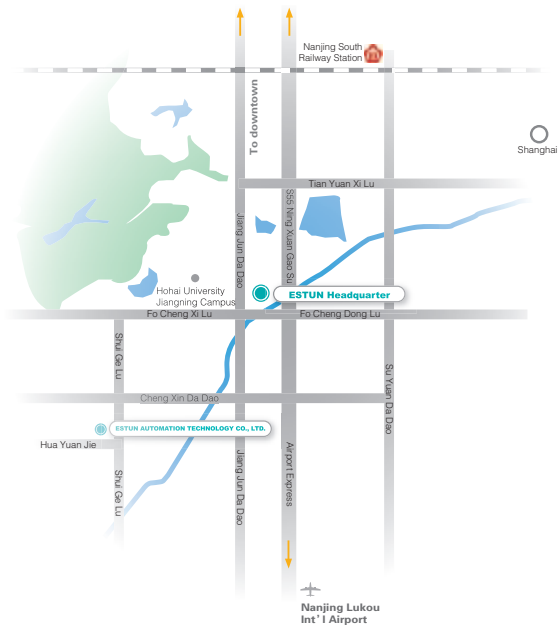
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