

**ESTUN**



**ETS**

All Digital AC Servo Systems





## Corporate Information

As a national support prior 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 with 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 strategy cooperation with many prestigious machine manufacturers and become their first cooperation option for motion control products home and abroad.



## Service Network

### Hotline

400-025-3336



### First-class service guarantee

- Headquarter in Nanjing, rich experience in product design and strict manufacturing process control, possessing a first-class modern production base
- Offices in Guangdong, Fujian, Zhejiang, Jiangsu, Shandong, Hubei, Chongqing, Anhui, Shanxi, Tianjin and Liaoning
- 20 nationwide warranty stations
- More than 80 authorized domestic and international agencies and system integrators

Professional sales and service teams offer a quick response to customers' needs.

### Family of brands

- Estun Automation Co., Ltd. (Control system)
- Estun Automation Technology Co., Ltd. (Motion control)
- Estun Robotics Co., Ltd. (Industrial robots)
- Alpha Electro-hydraulic Technology Co., Ltd. (Electro-hydraulic servo drive and control )

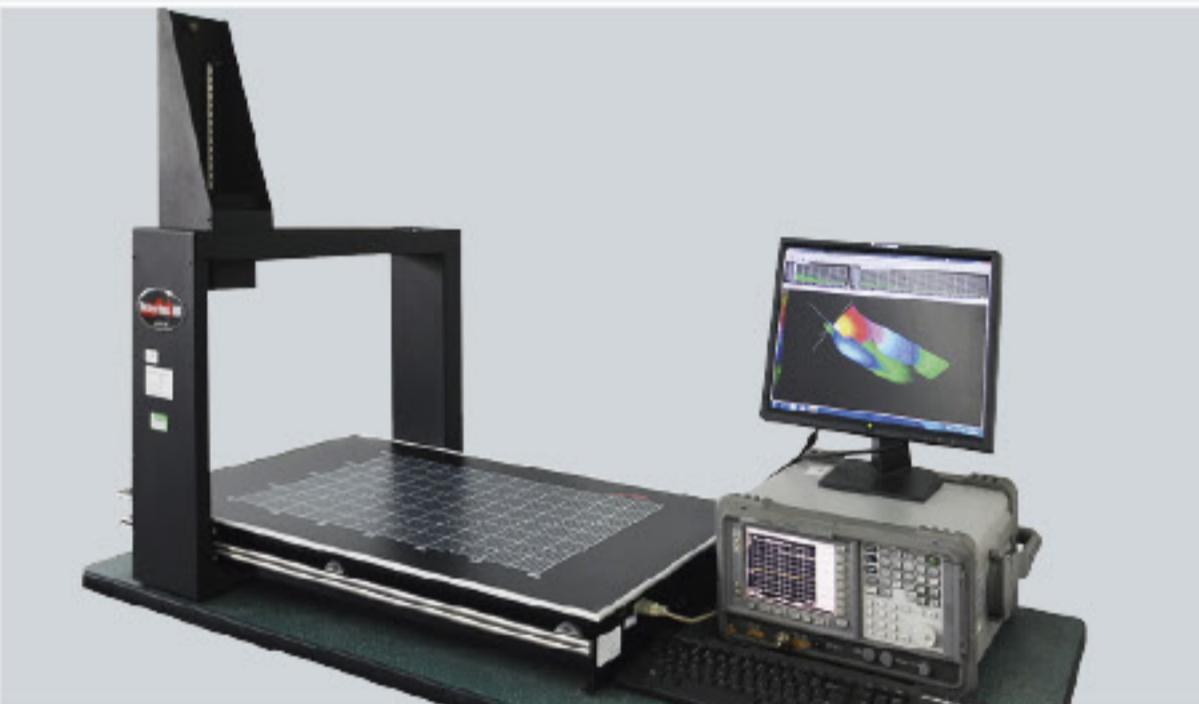
## Platform Strength

Estun Automation Technology Co., Ltd. owns advanced R&D platform and testing equipment as a manufacturer of AC servo systems and motion control systems. The equipment has laid firm foundation for further technological research and development in AC servo products and motion control systems and it created a good environment to build a higher level R&D team. As one of the few domestic manufactures with above R&D capabilities and testing equipments, the establishment of the platform will help us to be the most competitive company in the field of domestic AC servo system and motion control total solutions.

### Technological R&D



Rotating machine analytical design software RMxprt  
Finite element analysis software Maxwell 2D/3D,  
(ANSYS company, USA)



Whole set EMI scanner (Detectus AB company, Sweden)  
& Anti-interference developing system (Agilent company,  
USA)



The world's most advanced servo drive and motor testing system and analysis software (MAGTROL company, Switzerland)



The latest multi function and high precision electric power analyser for AC servo system (Newtons4th Ltd, UK; YOKOGAWA, Japan)

### Production Equipment



SMT Chip Mounter Machine Production Line



Servo Drive Assembling Line



Servo Motor Production Line



Servo Motor Testing System



Automatic Laser Welding



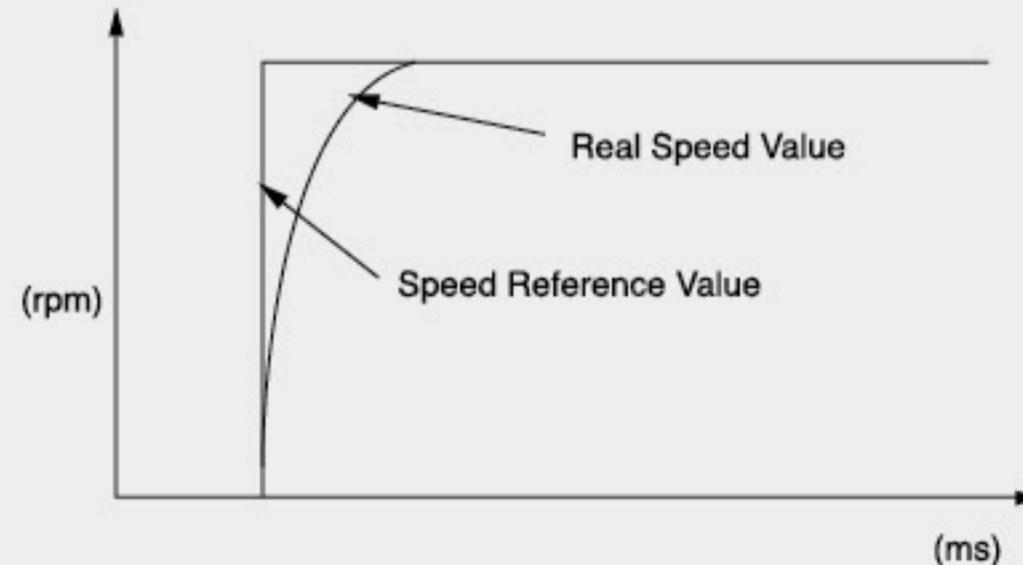
Automatic Wiring

# ETS Series Servo Drives

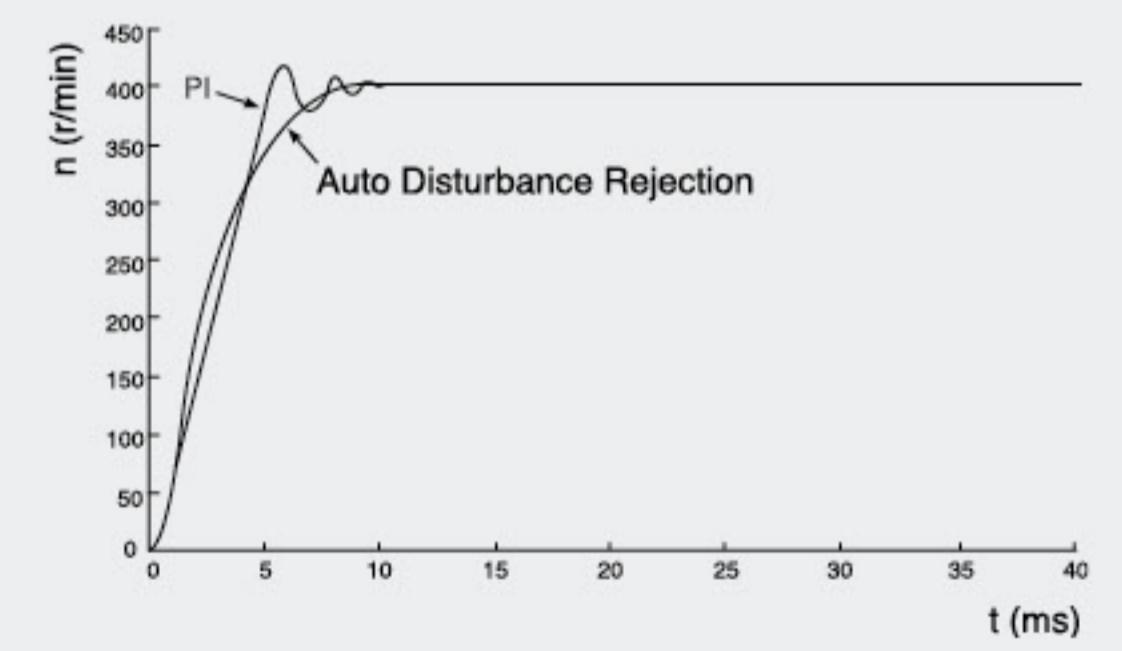
## Multi-axis Control

Using a drive driving multi-axis motor at the same time, ETS servo drives make full use of the processing chip resources, and greatly reduce the installation space. Compared with several sets of single axis servo drive unit, it is highly cost-effective. Particularly in the requirements of multi-axis synchronization, ETS servo drives can achieve better performance than several sets of single axis servo drive unit.

## High Performance



Using the industrial grade intelligent power modules and the most updated high speed DSP, ETS servo drives assure 3 times overload capacity and the control requirements of the high speed, high precision. Using current and acceleration feedforward control, instruction smoothing and inertia identification technique, ETS servo drives assure high precision complex algorithm. And monitor real-time overload inertia to adjust gain anytime for better control.



## Flexibility

It's available to select the number of axes for ETS servo drive. And each axis equips 200W~1.0kW servo motor. The interfaces are more user-friendly and easy to use.

## Communication Interface

Standard CAN bus interfaces are available in ETS servo drives, which make it easy to get integrated into a distributed control system. Based on Modbus protocols of RS232/RS485 interfaces, the host can be connected up to 32 servo drives for network control. Besides, the host can also communicate with PLC, DCS, intelligent instruments, touch screens, etc., and the centralized monitoring is implemented.



## Single Axis Positioning Function

The 16-node single axis positioning function is built inside ETS servo drives, and a touch screen can be connected directly to the RS-232/RS-485 interface on the servo drives, thus the costs go down since an intermediate PLC unit is eliminated. With the touch screen, user may program easily every node's position, speed, acceleration and deceleration time, latency time, start point and stop point, moreover, the above info can be transmitted to the servo drive via RS-232/RS-485 interface. User may select to program absolute values or incremental values and select cycle run or not. User may also use reference point search function and program the go and back speed for reference point search and in addition, it's also available to use external signals for step changes. Actually users may develop own application programs to meet different demands on different occasions.

## ESView Communication Software

With special PC softwares available, following functions are achieved:

- Parameter management

Fast and convenient operations to parameters of both axes are available, such as editing, transmission, comparison and initialization.

- Monitoring

Real time monitoring I/O signals of both axes, current and history alarm records, system status.

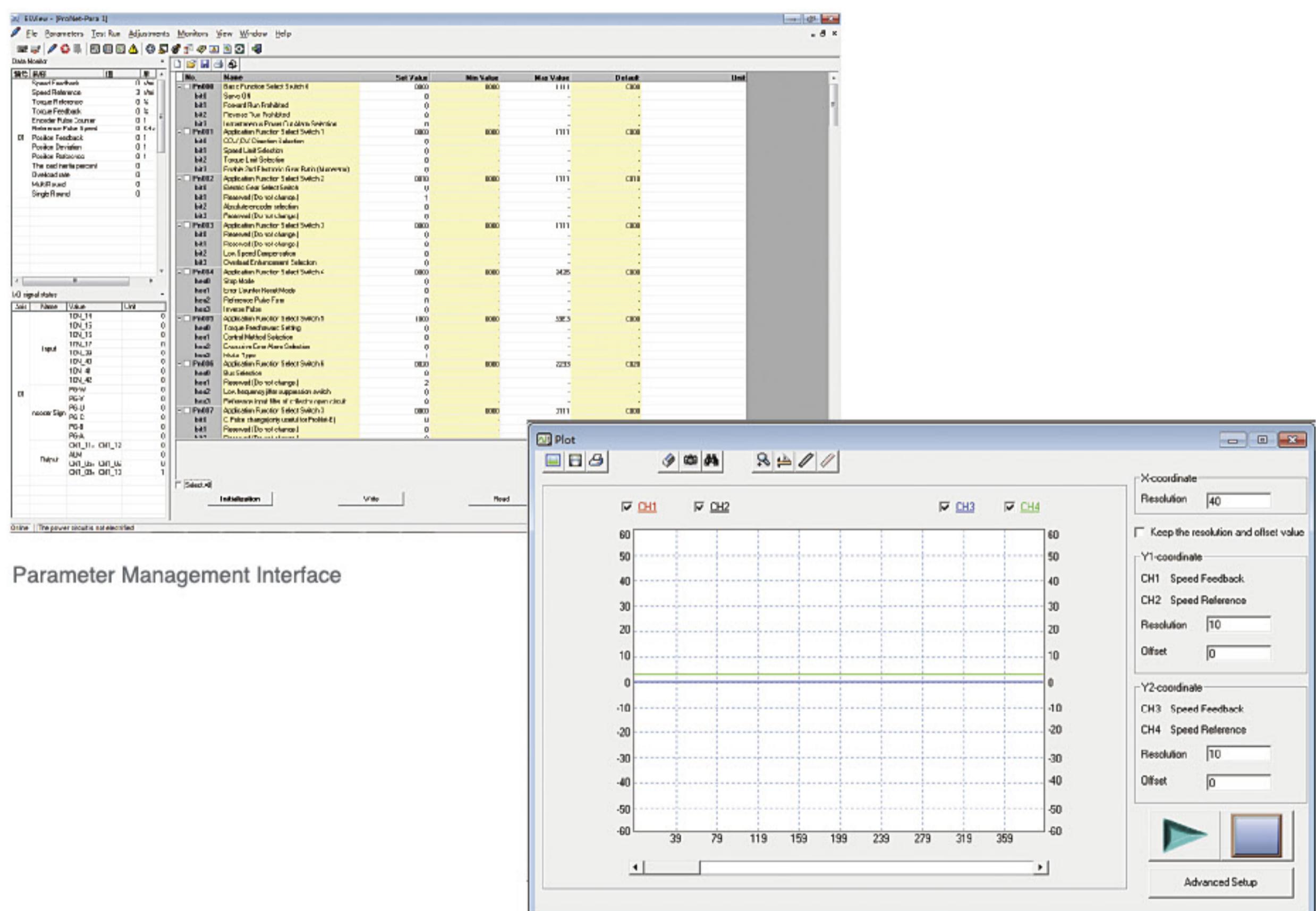
- Real time sampling

Real time sampling the curves of position, speed and current facilitates the adjustment and analysis.

- Adjusting

Fast adjustment of gains is available.

Simple test is available when there's no position or speed reference input.



Parameter Management Interface

Sampling Diagram

## Specification Description

# ETS-10 10 A P C - CAN

ETS Model Servo Drive    Rated Output Power    Rated Output Power    Power Voltage    Control Style    Encoder Interface    Communication

Sign	Specification	Sign	Specification	Sign	Specification	Sign	Specification
A	200VAC	P	Position Control	C	Wire-saving Encoder (2500P/R)	CAN	CAN model

Notes: Each axis of ETS servo drive equips 200W, 400W, 750W, 1.0kW servo motor, and assures three times overload capacity.

# ETS-10 10 10 A P C - CAN

ETS Model Servo Drive    Rated Output Power    Rated Output Power    Power Voltage    Control Style    Encoder Interface    Communication

Sign	Specification	Sign	Specification	Sign	Specification	Sign	Specification
A	200VAC	P	Position Control	C	Wire-saving Encoder (2500P/R)	CAN	CAN model

None Pulse model

Notes: Each axis of ETS servo drive equips 200W, 400W, 750W, 1.0kW servo motor, and assures three times overload capacity.

## Technical Specification and Model of Servo Drives

Servo Drive Model		ETS-1010APC-CAN / ETS-101010APC / ETS-101010APC-CAN				
		C axis	B axis	A axis		
Power Supply	Main Circuit	Three Phase AC200V~230V +10% -15% (50/60Hz)				
	Control Circuit	Single Phase AC200V~230V +10% -15% (50/60Hz)				
Control Method		SVPWM				
Feedback		Incremental encoder (2500P/R)				
Operating Conditions	Ambient / Storage Temperature	0~55°C / -20~85°C				
	Ambient / Storage Humidity	Below 90%RH (Non-condensing)				
	Vibration / Impact Resistance	4.9m/s <sup>2</sup> / 19.6m/s <sup>2</sup>				
Configuration		Base Mounted				
Speed Control	Set Speed Reference	Rotation Direction Selection				
	Speed Selection	Switch the direction by /P-CON				
Position Control	Reference Pulse	Function	Speed 1 to 7 selection			
		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 dutues have errors				
		Set Position Reference	Position Setting			
I/O Signals	Encoder Output Pulses	Encoder Output Pulses	Phase A, phaseB, phase C: line driver output The number of dividing pulse: Any setting ratio is available			
		Channels NO.	8 channels			
	Sequence Input	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)			
		Channels NO.	4 channels			
	Sequence Output	Function	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), Overtravel Return-to-Zero Complete(HOME), Servo Enabled motor Excitation()			
Built-in Function	Dynamic Brake Functions(DB)	Operate during main power OFF, servo alarm, servo OFF or overtravel				
	Protective Functions	Overcurrent, overvoltage, low voltage, overload, regeneration error, overspeed, etc.				
	Utility Functions	Alarm trace back, JOG operation, Inertia detections, etc.				
	Communications	RS-485 communication port, MODBUS protocol ; CAN communication port, CANopen protocol;				
	Display Functions	Charge×1, Power×1, 7-segment LED×5, Pushbuttons×5				
		Axis LED×3				

## Model Comparison Table &amp; Cable Models Table

Servo Drive	Servo Motor	Power Cable Model	Encoder Cable Model	Communication Cable Model	
ETS-1010APC ETS-101010APC A axis/B axis/C axis	EMJ-02APA□□	PDM-JB18	BMP-JB24	PSC-CC24	
	EMJ-04APB□□				
	EMJ-08APB□□				
	EMJ-10APB□□				
	EMG-10APA□□	PDM-GA16	BMP-GA24		
	EML-10APA□□				

## EMJ Model Servo Motor

## Features

- Medium inertia
- Peak torque up to 300% of rated torque
- Various models (200W~1.0kW, with brake, etc.)
- Run at speed of up to 4500r/min
- Equipped with wire-saving encoder (2500P/R)

## Application

- SMM (surface mounting machine)
- PCB puncher machine
- Robot arm
- Handling machinery
- Foodstuff processing machinery
- Textile machinery



## Specification Description

EMJ - 08 A P B 1 1 - WR

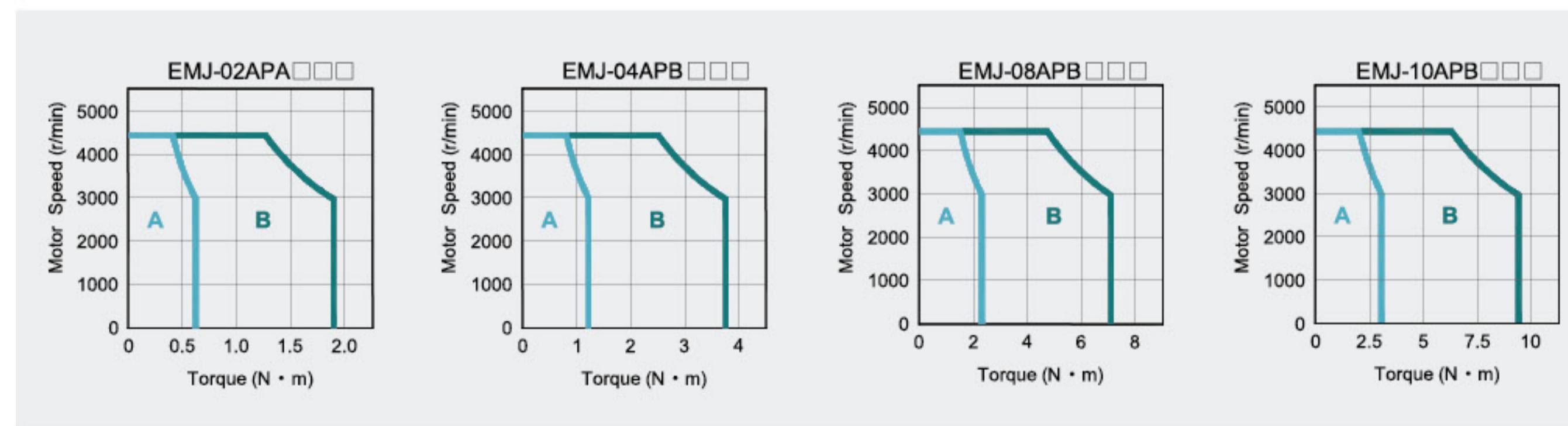
EMJ Model Servo Motor	Rated Output Power	Power Voltage	Encoder	Designing Sequence	Shaft End	Option Parts	Connector
Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.	Sign Spec.
02 0.2kW	A 200VAC	P Incremental Wire-saving Type: 2500P/R	A, B Designing Sequence	1 Flat, Without Keys	1 None	1 Standard Connector	WR Water proof Connector (Incremental Wire-saving Type: 2500P/R)
04 0.4kW				2 Flat, With Keys, With Screw Thread (Standard)	2 With Oil Seal	2 With Brake (DC24V)	
08 0.75kW					3 With Oil Seal, With Brake (DC24V)	3 With Brake (DC24V)	
10 1.0kW					4 With Oil Seal, With Brake (DC24V)	4 With Oil Seal, With Brake (DC24V)	

## Rated Value and Specification

Voltage		200VAC			
	EMJ-	02APA□□□	04APB□□□	08APB□□□	10APB□□□
Rated Output Power	kW	0.2	0.4	0.75	1.0
Rated Torque	N.m	0.64	1.27	2.39	3.18
Instantaneous Peak Torque	N.m	1.91	3.82	7.16	9.55
Rated Current	Arms	1.4	2.8	4.0	5.3
Instantaneous Max Current	Arms	4.2	8.4	12.0	15.9
Rated Speed	r/min	3000			
Max. Speed	r/min	4500			
Rotor Moment of Inertia	X10 <sup>-4</sup> kg·m <sup>2</sup>	0.19 (0.23)	0.31 (0.35)	1.35 (1.47)	1.74 (1.87)
Brake Rated Voltage		DC24V±10%			
Brake Rated Power	W	7.2		11.5	
Brake Holding Torque	N.m	1.3		3.2	
Encoder		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 <sup>2</sup>			
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. )			

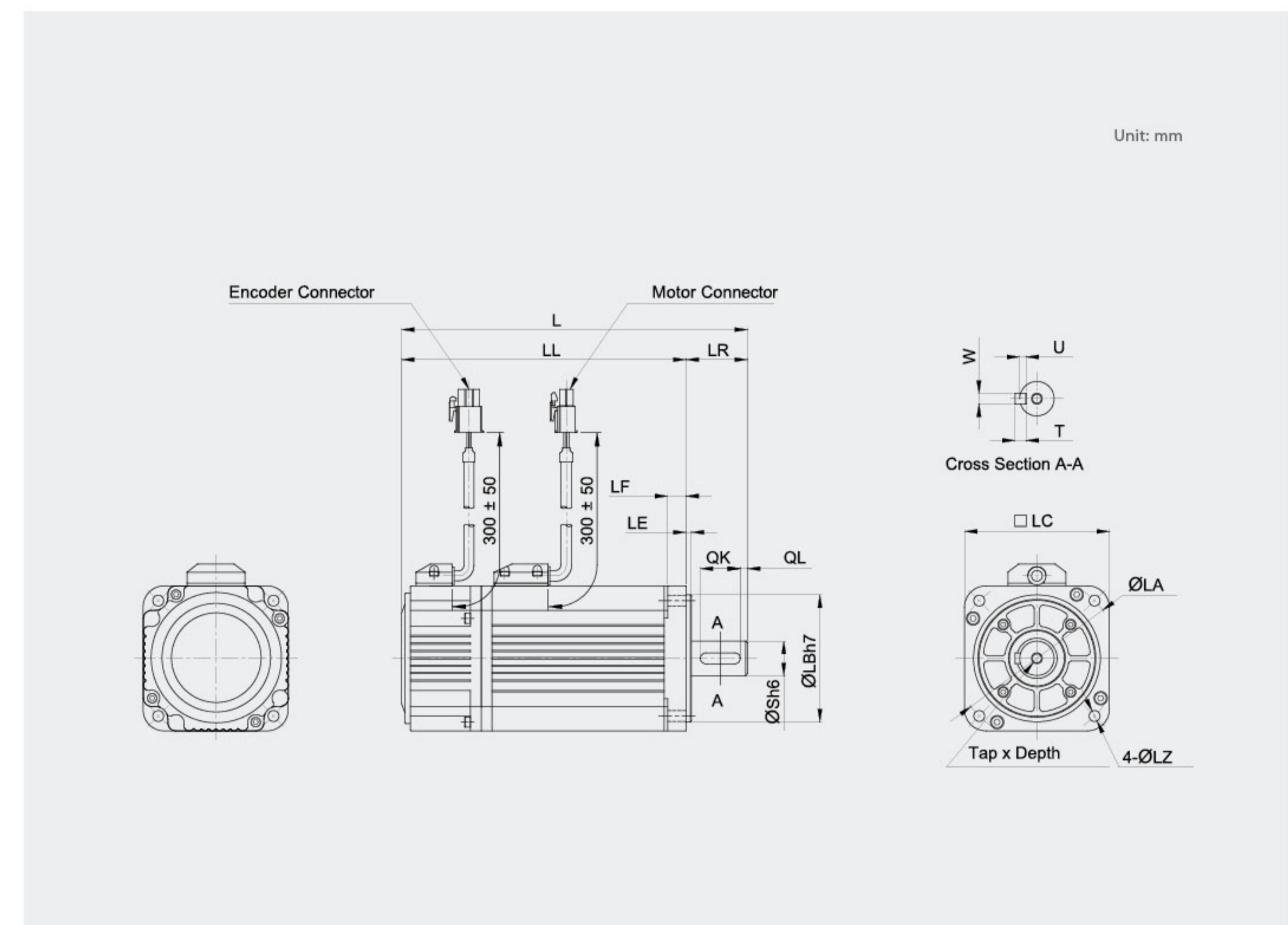
Note: The values in parentheses are for servo motors with holding brakes.

## Torque-Speed Feature



A: Continuous Working Area    B: Repeatedly Working Area

## Dimension

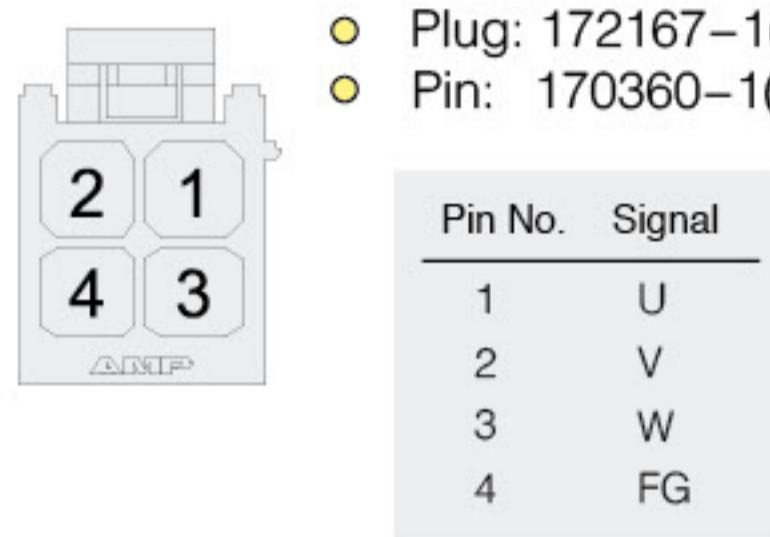


Model EMJ-	L	LL	Flange Side						S	TapxDepth	Key					
			LR	LE	LF	LC	LA	LB			QK	QL	W	T	U	
02□P	141(181)	111(151)	30	3	6	60	70	50	5.5	14	M5×10L	16	4	5	5	3
04□P	161(201)	131(171)	30	3	6	60	70	50	5.5	14	M5×10L	16	4	5	5	3
08□P	173(216)	138(181)	35	3	9	80	90	70	6	19	M6×15L	22	4	6	6	3.5
10□P	191(234)	156(199)	35	3	9	80	90	70	6	19	M6×15L	22	4	6	6	3.5

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

# EMG Model Servo Motor

Motor Connector Specification for EMJ-02/04/08/10□P

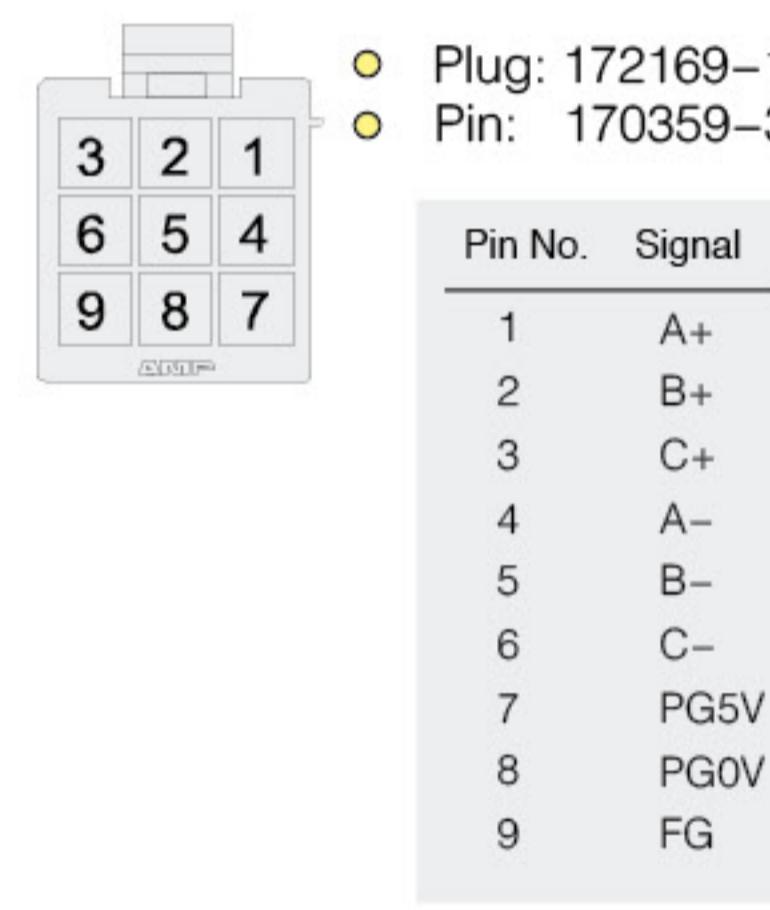


Brake Connector Specification for EMJ-02/04/08/10□P

- Plug: 172167-1(AMP)
- Pin: 170360-1(AMP)

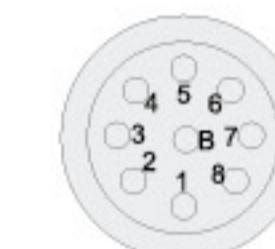


Encoder Connector Specification for EMJ-02/04/08/10□P



Encoder Connector Specification for EMJ-02/04/08/10□P-Waterproof(option)

Incremental Encoder(Wire-saving)



- Plug: 172169-1(AMP)
- Pin: 170359-3(AMP)

## Features

- Be used to drive the feed shaft of various machinery
- Various products (with brake, etc.)
- Equipped with wire-saving encoder (2500P/R)
- Standard configuration is IP65

## Application

- Machine tools
- Handling machinery
- Foodstuff processing machinery
- Textile machinery



## Specification Description

**EMG -10 A P A 1 1**

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

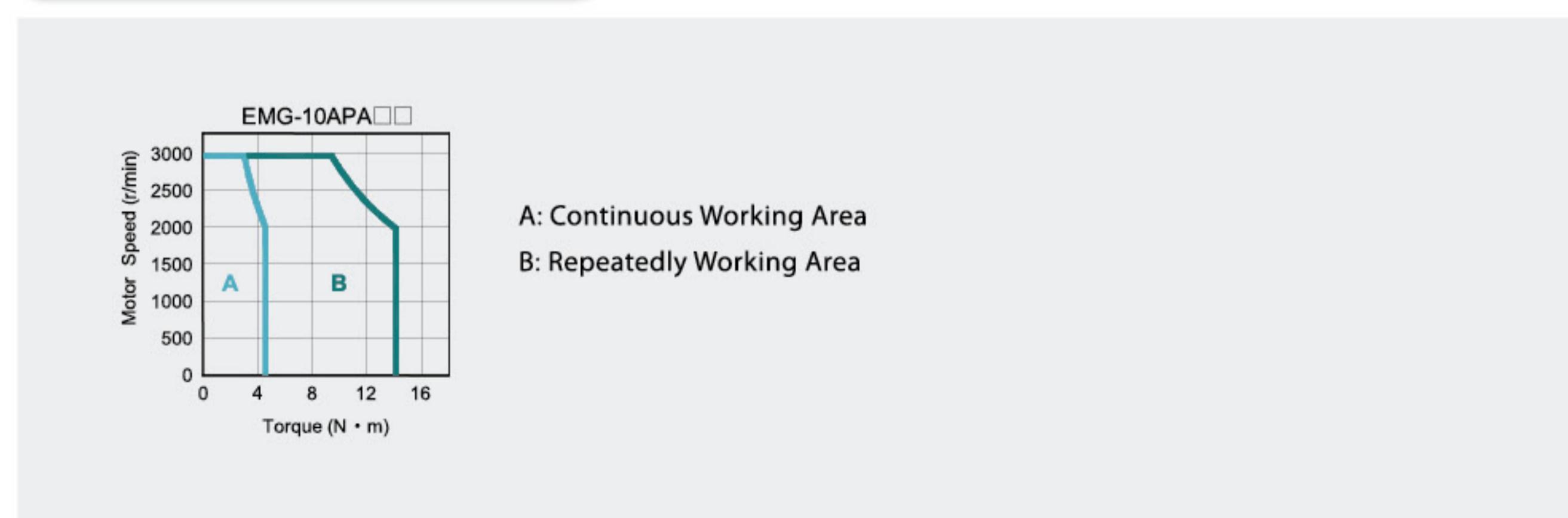
Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.	Sign	Spec.
10	1.0kW	A	200VAC	P	Incremental Wire-saving Type:2500P/R	A	Designing Sequence	1	Flat, Without Keys
								2	Flat, With Keys With Screw Thread (Standard)
								3	With Brake (DC24V)
								4	With Oil Seal, With Brake (DC24V)

## Rated Value and Specification

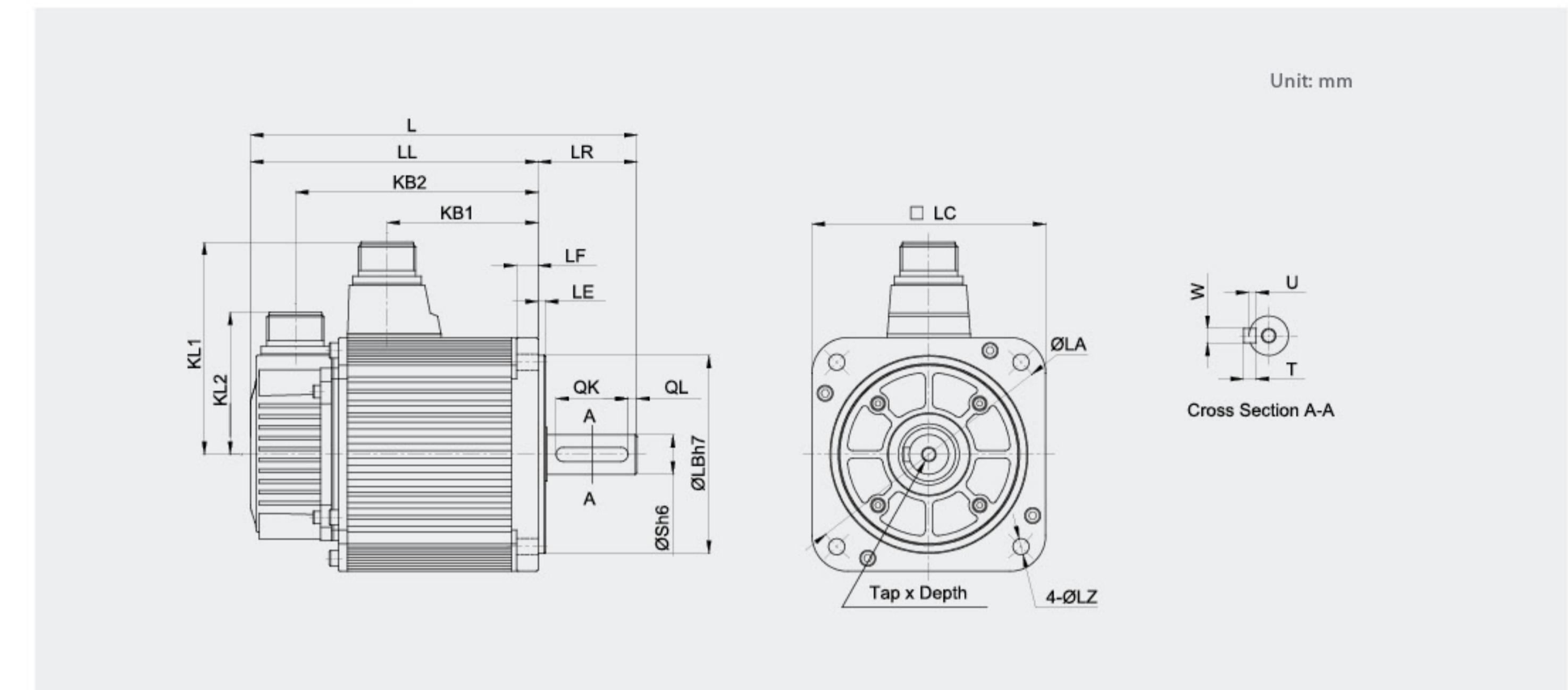
Voltage		200VAC	
Servo Motor Model	EMG-	10APA□□	
Rated Output Power	kW	1.0	
Rated Torque	N.m	4.78	
Instantaneous Peak Torque	N.m	14.3	
Rated Current	Arms	6.0	
Instantaneous Max. Current	Arms	18.0	
Rated Speed	r/min	2000	
Max. Speed	r/min	3000	
Rotor Moment of Inertia	X10 <sup>4</sup> kg·m <sup>2</sup>	10.0 (10.6)	
Brake Rated Voltage		DC24V±10%	
Brake Rated Power	W	19	
Brake Holding Torque	N.m	10	
Encoder		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 <sup>2</sup>	
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



## EMG Dimension



Model	EMG-	Dimension												S	TapxDepth	Key					
		L	LL	KB1	KB2	KL1	KL2	LR	LE	LF	LC	LA	LB	LZ		QK	QL	W	T	U	
10APA□□		215(269.5)	160(214.5)	84	135(189.5)	118	79	55	4	12	130	145	110	9	22	M6×20L	40	5	8	7	4

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

### Motor Connector Specification

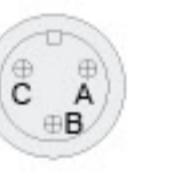
- Receptacle:  
MS3102A20-4P (LC=130)  
MS3102A22-22P (LC=180)
- Plug:  
MS3108B20-4S (LC=130)  
MS3108B22-22S (LC=180)
- Cable Clamp:  
MS3057-12A



Pin No.	Signal
A	U
B	V
C	W
D	FG

### Brake Connector Specification

- Receptacle:  
MS3102A10SL-3P
- Plug:  
MS3106A10SL-3S
- Cable Clamp:  
MS3057-4A



Pin No.	Signal
A	B1
B	B2
C	-

### Encoder Connector Specification

Incremental Encoder 2500P/R

- Receptacle: MS3102A20-29P
- Plug: MS3108B20-29S
- Cable Clamp: MS3057-12A



Pin No.	Signal
A	A+
B	A-
C	B+
D	B-
E	C+
F	C-
G	PG0V
H	FG5V
J	FG

# EML Model Servo Motor

## Features

- Be used to drive the feed shaft of various machinery
- Various products (with brake, etc.)
- Equipped with wire-saving encoder (2500P/R)
- Standard configuration is IP65

## Application

- Machine tools
- Handling machinery
- Foodstuff processing machinery
- Textile machinery



## Specification Description

**EML-10APA11**

EML 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.	Sign	Spec.
10	1.0kW	A	200VAC	P	Incremental Wire-saving Type: 2500P/R	A	Designing Sequence	1	Flat, Without Keys	1	None

2 Flat, With Keys With Screw Thread (Standard)

2 With Oil Seal

3 With Brake (DC24V)

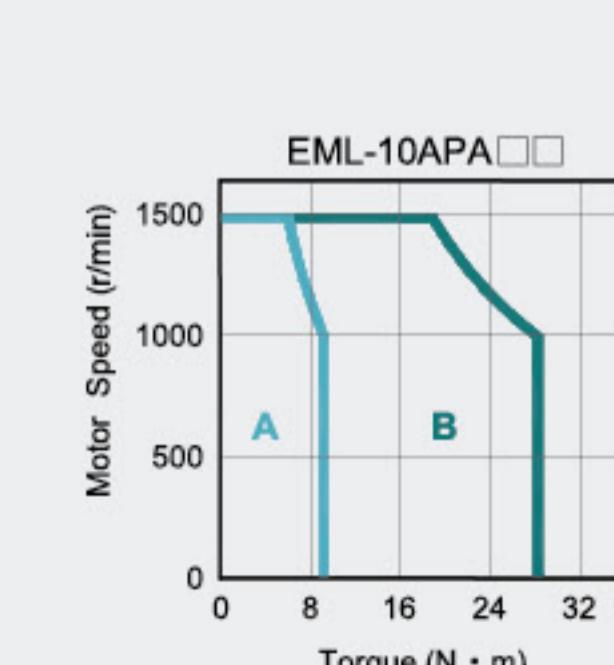
4 With Oil Seal, With Brake (DC24V)

## Rated Value and Specification

Voltage		200VAC
Servo Motor Model	EML-	10APA□□
Rated Output Power	kW	1.0
Rated Torque	N.m	9.55
Instantaneous Peak Torque	N.m	28.7
Rated Current	Arms	6.0
Instantaneous Max. Current	Arms	18.0
Rated Speed	r/min	1000
Max. Speed	r/min	1500
Rotor Moment of Inertia	X10 <sup>4</sup> kg·m <sup>2</sup>	19.0 (19.6)
Brake Rated Voltage		DC24V±10%
Brake Rated Power	W	19
Brake Holding Torque	N.m	10
Encoder		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 <sup>2</sup>
Enclosure		Totally Enclosed, Self-cooled, IP65 ( Except for shaft opening, when not equipped with oil seal. )

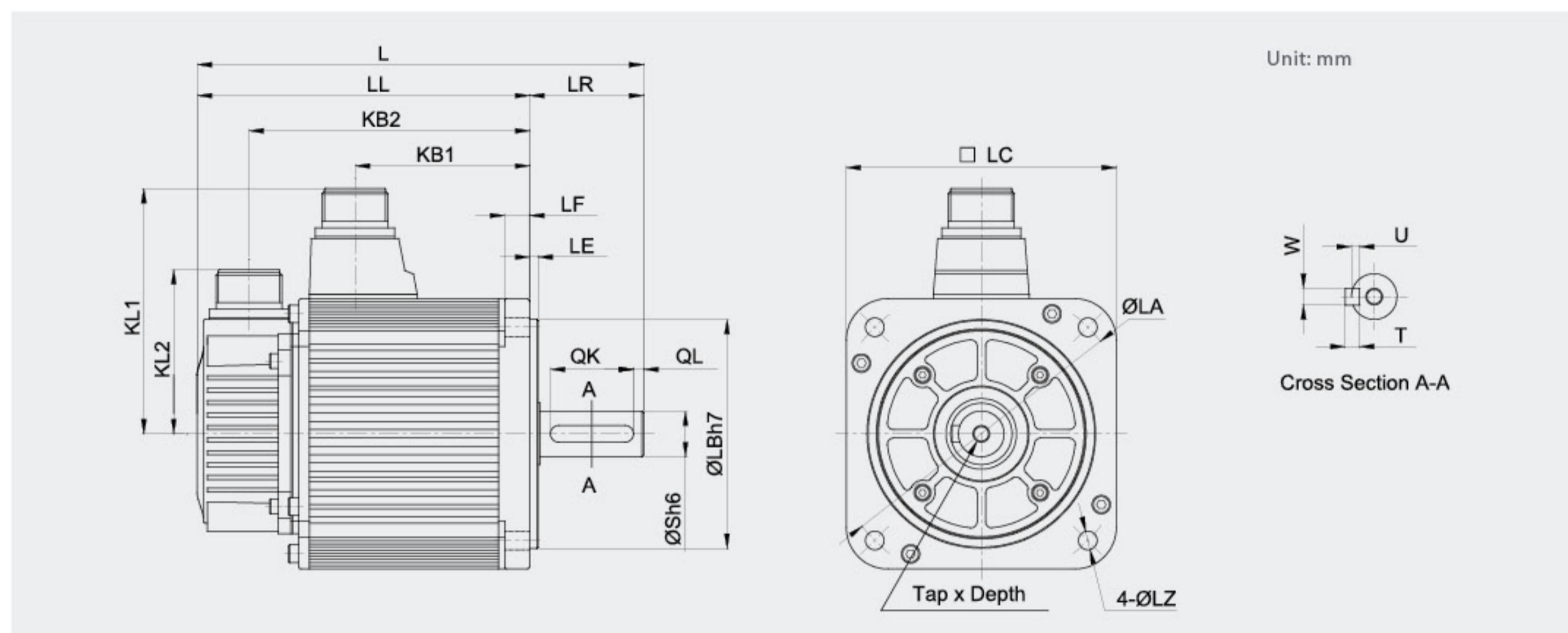
Note: The values in parentheses are for servo motors with holding brakes.

## Torque-Speed Feature



A: Continuous Working Area  
B: Repeatedly Working Area

## EML Dimension

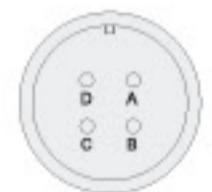


Model EML-	L	LL	KB1	KB2	KL1	KL2	Dimension							S	TapxDepth	Key				
							LR	LE	LF	LC	LA	LB	LZ			QK	QL	W	T	U
10□P	265(319.5)	210(264.5)	134	185(239.5)	118	79	55	4	12	130	145	110	9	22	M6x20L	40	5	8	7	4

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

## Motor Connector Specification

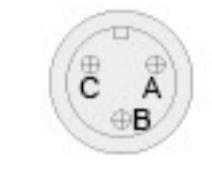
- Receptacle:  
MS3102A20-4P (LC=130)  
MS3102A22-22P (LC=180)
- Plug:  
MS3108B20-4S (LC=130)  
MS3108B22-22S (LC=180)
- Cable Clamp:  
MS3057-12A



Pin No.	Signal
A	U
B	V
C	W
D	FG

## Brake Connector Specification

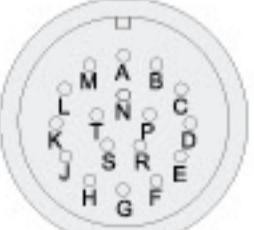
- Receptacle:  
MS3102A10SL-3P
- Plug:  
MS3106A10SL-3S
- Cable Clamp:  
MS3057-4A



Pin No.	Signal
A	B1
B	B2
C	-

## Encoder Connector Specification

- Receptacle: MS3102A20-29P
- Plug: MS3108B20-29S
- Cable Clamp: MS3057-12A

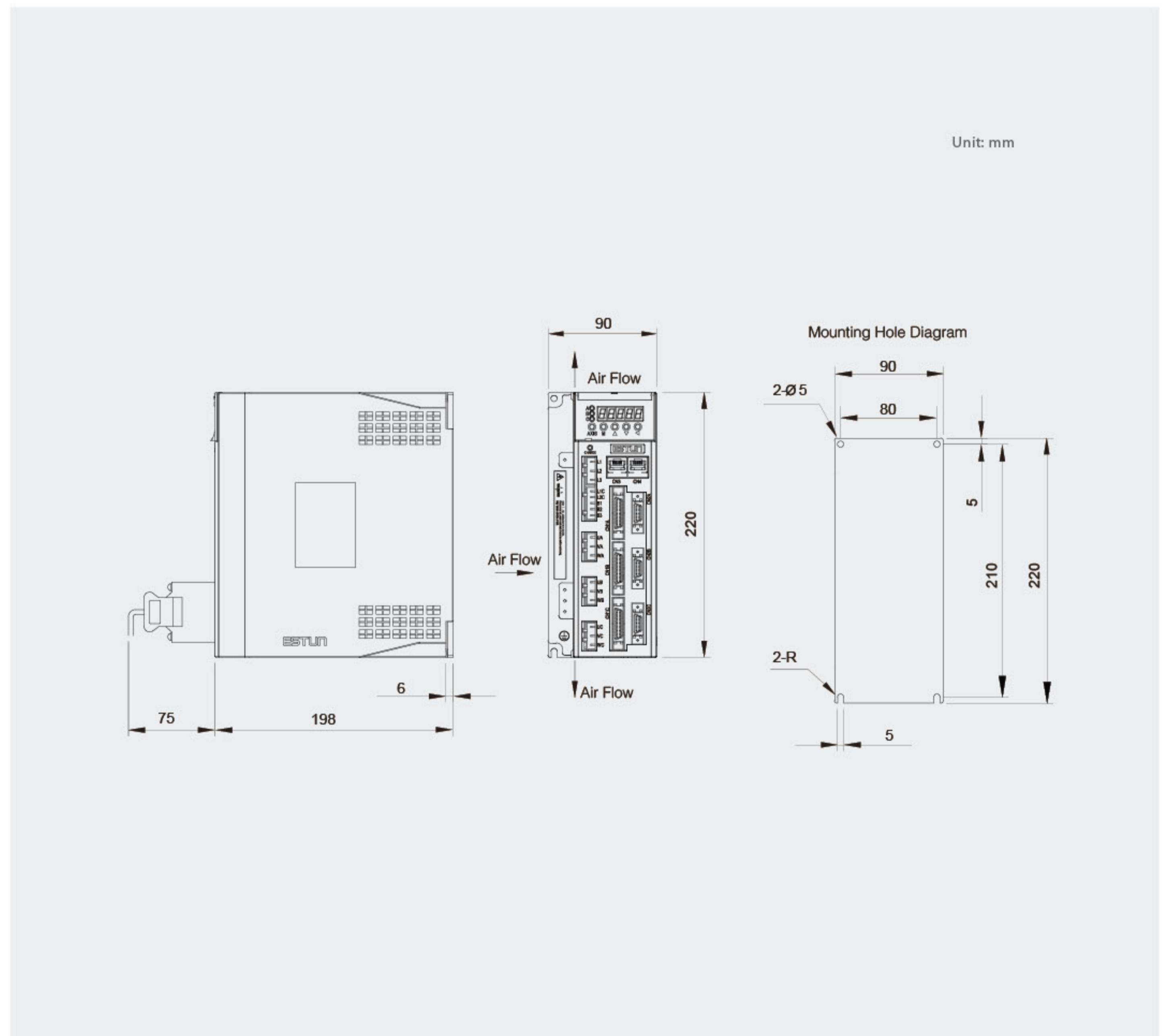


## Incremental Encoder 2500P/R

Pin No.	Signal
A	A+
B	A-
C	B+
D	B-
E	C+
F	C-
G	PG0V
H	PG5V
J	FG

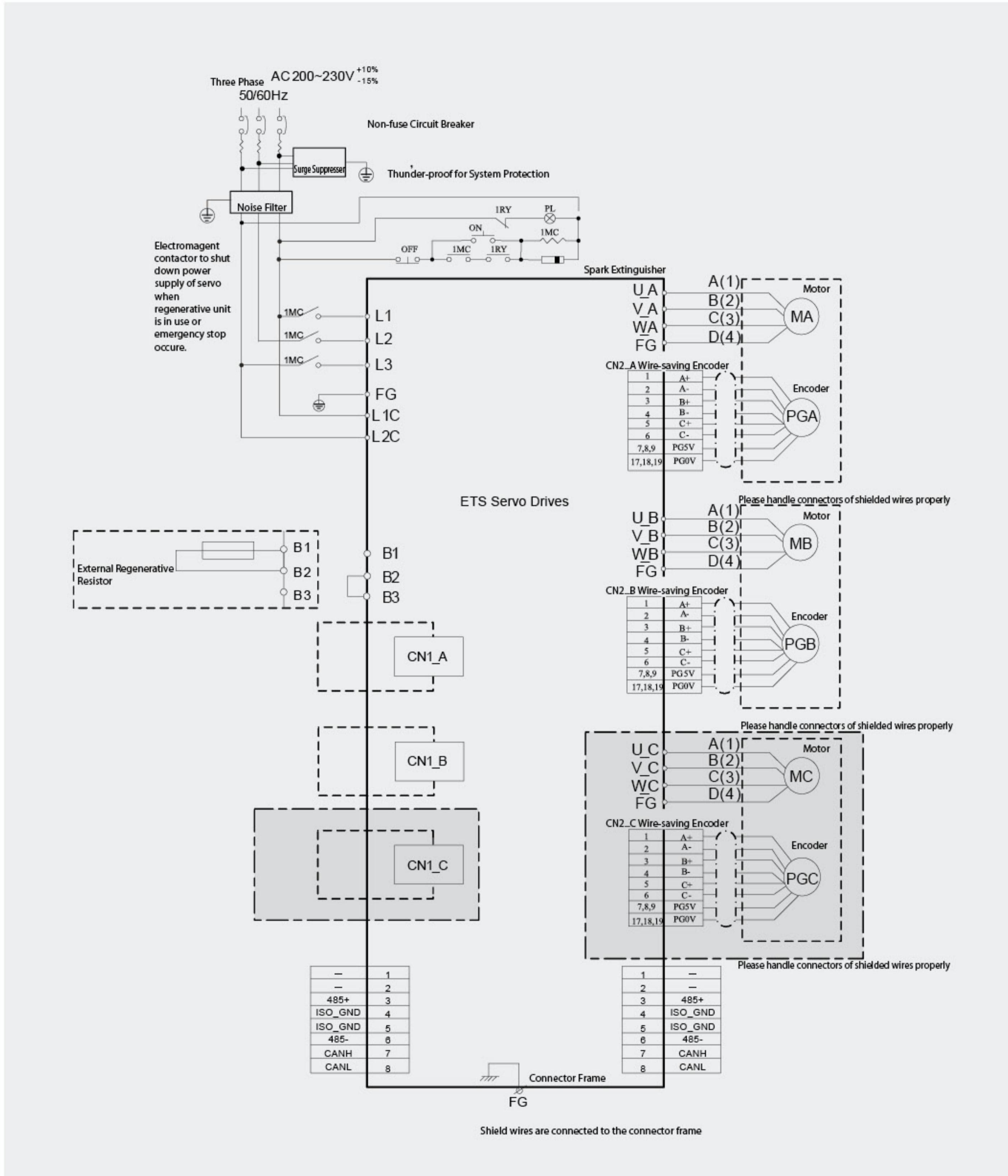
## ETS Series Servo Drive Dimension

## ETS Dimension



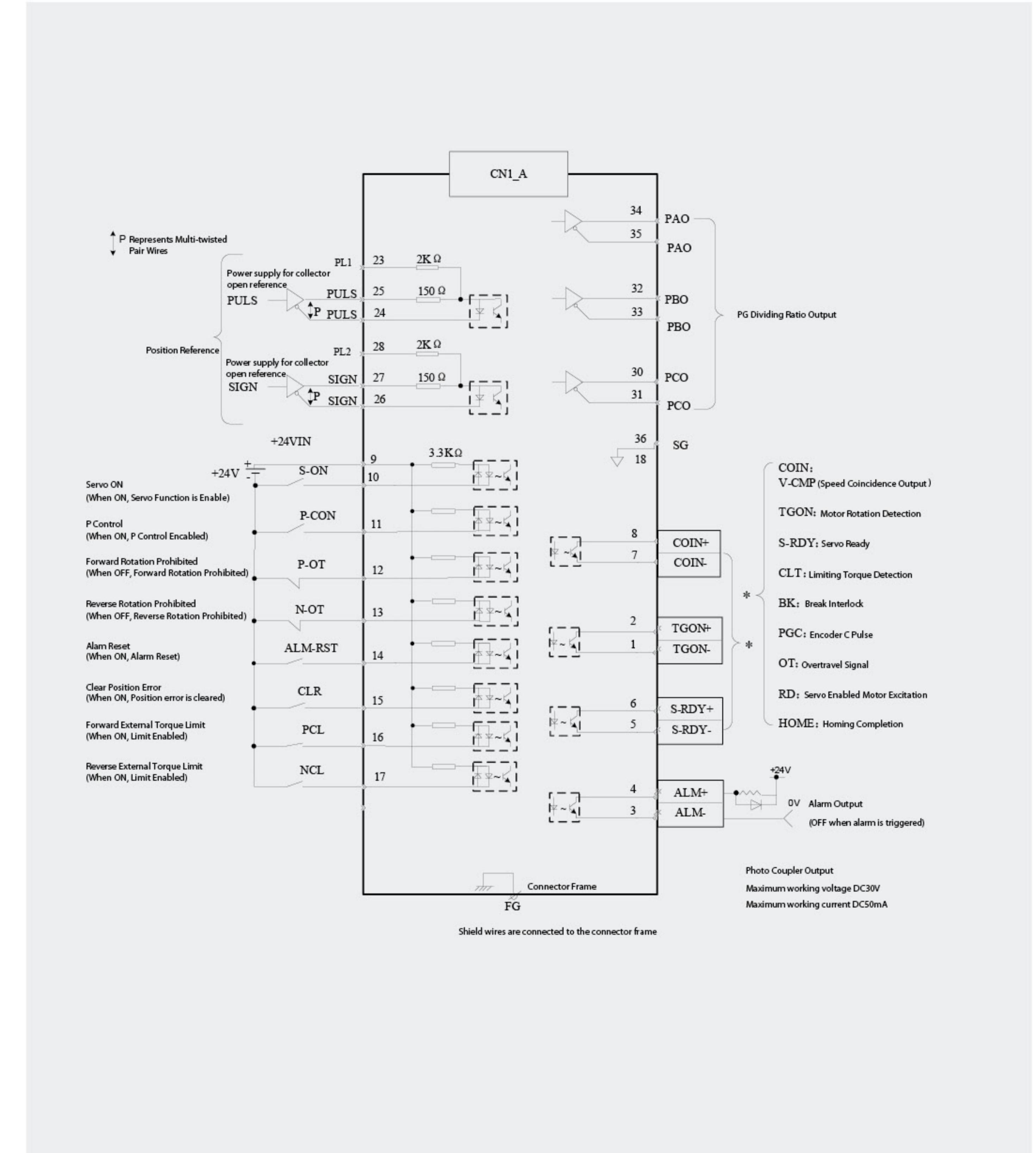
# ETS Series Servo Drive Typical Connection Example

## ETS Connection Example



Note: ETS two-axis servo drive is not include the gray part.

## ETS Connection Example



Note: The wirings of CN1\_A, CN1\_B, CN1\_C are the same.



Drive Your Success!

Mission — We are offering Accuracy & Efficiency!

Vision — Enjoy your life from Automation!

Values — Focus, Integrity, Growing together!

## ESTUN AUTOMATION TECHNOLOGY CO., LTD

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请提供英文二维码



Version: ETS-1505A

Specifications subject to change without notice.