ESTUN

ETS Plus

All Digital AC Servo Systems

ISO9001

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

- Headquartered in Nanjing with rich experience in product design and manufacturing process control, possessing a first-class modern production base
- Offices in Guangdong, Guangxi, Fujian, Jiangxi, Hu'nan, Hubei, Chongqing, Gansu, Shanxi, He'nan, Anhui, Zhejiang, Jiangsu, Shandong, Tianjing and Liaoning
- 38 nationwide warranty stations and 2 international repair centers in Poland and USA
- More than 130 authorized domestic and international agencies and system integrators

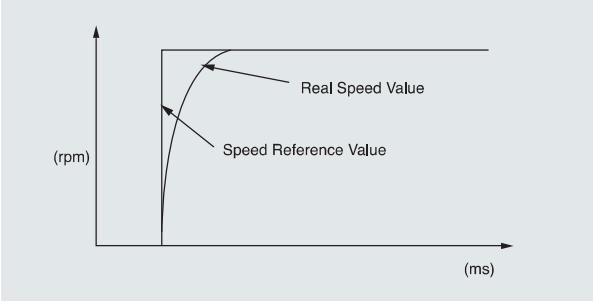
Professional sales and service teams offer a quick response to customers' needs.

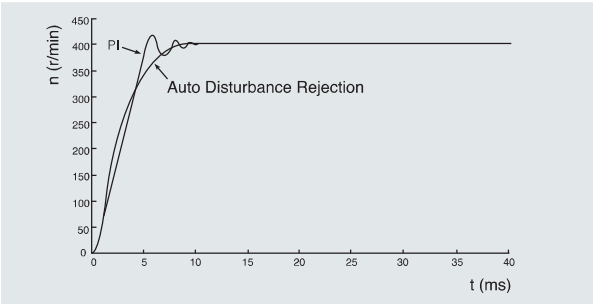
ETS Series Servo Drives

Multi-axis Control

Using a drive driving multi-axis motor at the same time, ETS servo drive makes 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 drive 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 drive assures 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 drive assures 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 50W~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 drive, which makes 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 drive, 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.

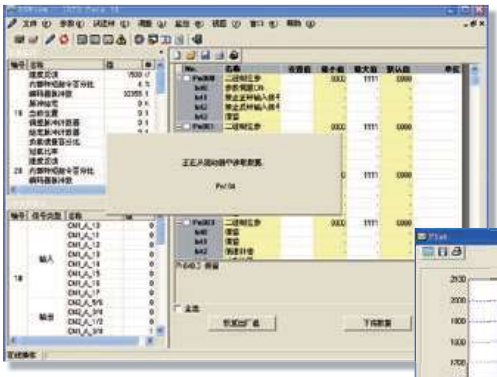
- Real time sampling

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

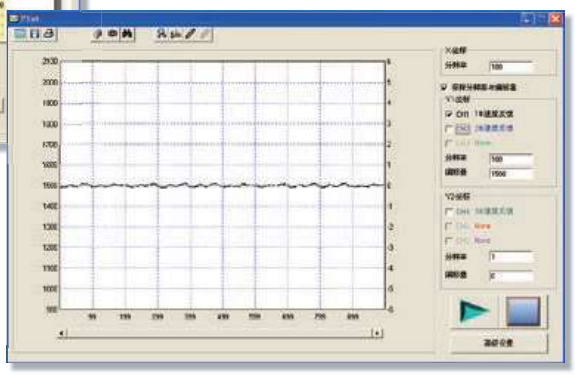
- Adjusting

  Fast adjustment of gains is available.

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



参数管理界面



实时采样图

Specification Description

ETS – 10 10 A P G - CAN

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

Sign	Specification
A	200VAC

Sign	Specification
P	Position Control

Sign	Specification
G	17/20 Bit Serial Encoder (Automatic Identification)

Sign	Specification
CAN	CANOpen

Notes: Each axis of ETS servo drive equips 50W, 200W, 400W, 750W, 1.0kW servo motor, and assures three times overload capacity.

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Technical Specification and Model of Servo Drives

Servo Drive Model			ETS
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			20 bit incremental encoder; 17 bit absolute encoder
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^2 / 19.6m/s^2
Configration			Base Mounted
Speed Control	Set Speed Reference	Rotation Direction Selection	Switch the direction by /P-CON
		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 dutues 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: 1-16384; Default value: 16384
	Sequence Input	Channels NO.	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	Channels NO.	4 channels
		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), Over-travel 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 x 1, Power x 1, 7-segment LED x 5, Pushbuttons x 5
			Axis LED x 3

Model Comparison Table & Cable Models Table

Servo Drive	Power (kW)	Servo Motor	Encoder Cable	Power Cable	Brake Cable	Communication Cable
ETS-1010APG-CAN ETS-101010APG-CAN	0.05	EMJ-A5ASA2□	PSP-JB24-XX (Incremental) PDP-JB24-XX (Absolute)	PDM-JB18-XX (Without brake) PDMB-JB18-XX (With brake)	(Built in power cable)	USB-RS485 (RJ45)
	0.1	EMJ-01ASA2□				
	0.2	EMJ-02ASA2□	PDP-JE24-XX	PDM-JE18-XX	PBK-JE18-XX	
		EMJ-02AFA2□	PBP-JE24-XX			
	0.4	EMJ-04ASA2□	PDP-JE24-XX			
		EMJ-04ASH2□	PDP-JE24-XX			
		EMJ-04AFB2□	PBP-JE24-XX			
		EMJ-04AFH2□	PBP-JE24-XX			
	0.75	EMJ-08ASB2□	PDP-JE24-XX			
		EMJ-08AFB2□	PBP-JE24-XX			
	1	EMJ-10ASB2□	PDP-JE24-XX			
		EMJ-10AFB2□	PBP-JE24-XX			
	1	EMG-10ASB2□	PDP-GA24-XX-II	PDM-GA14-XX-II (Without brake) PDMB-GA14-XX-II (With brake)	(Built in power cable)	
		EML-10ASB2□				
		EMG-10AFB2□	PSP-GA24-XX-II			
		EML-10AFB2□				

Selecting Peripheral Devices

Servo Drive	Specifications for Internal Regenerative Resistor	Min. Allowable Resistance	Min. Rated Current for Circuit Breaker
ETS-1010APG-CAN ETS-101010APG-CAN	50Ω/60W	25Ω	25A

Servo Motor Specification

EMJ Model

Specification Description

EMJ - 08 A F B 2 4

EMJ	-	08	A	F	B	2	4
EMJ Model Servo Motor		Rated Output Power	Power Voltage	Encoder	Designing Sequence	Shaft End	Option Parts

Sign	Spec.
A5	0.05kW
01	0.1kW
02	0.2kW
04	0.4kW
08	0.75kW
10	1.0kW

Sign	Spec.
A	200VAC

Sign	Spec.
F	20 Bit Incremental : Encoder 1048576P/R
S	17 Bit Absolute Encoder: 131072P/R

Sign	Spec.
A, B, H	Designing Sequence

Sign	Spec.
2	Flat, With Keys, With Screw Thread

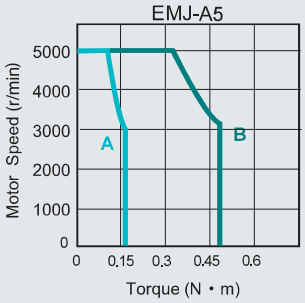
Sign	Spec.
2	With Oil Seal
4	With Oil Seal, With Brake (DC24V)

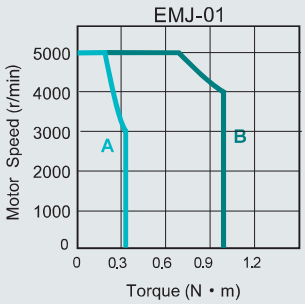
Rated Value and Specification

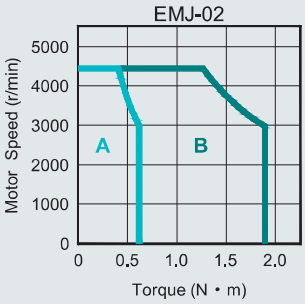
Voltage		200VAC						
Servo Motor Model	EMJ–	A5ASA□□	01ASA□□	02ASA□□ 02AFA□□	04ASA□□ 04AFB□□	04ASH□□ 04AFH□□	08ASB□□ 08AFB□□	10ASB 10AFB□□
Rated Output Power	kW	0.05	0.1	0.2	0.4		0.75	1.0
Rated Torque	N·m	0.16	0.32	0.64	1.27		2.39	3.18
Instantaneous Peak Torque	N·m	0.48	0.96	1.91	3.82		7.16	9.55
Rated Current	Arms	0.6	1.1	1.4	2.8		4.0	5.3
Instantaneous Max Current	Arms	1.7	3.0	4.2	8.4		12.0	15.9
Rated Speed	r/min	3000						
Max. Speed	r/min	5000		4500				
Rotor Moment of Inertia	$\times 10^{-4}$kg·m^2	0.019 (0.05)	0.035 (0.052)	0.19 (0.23)	0.31 (0.35)	0.7 (0.74)	1.35 (1.47)	1.74 (1.87)
Brake Rated Voltage		DC24V±10%						
Brake Rated Power	W	4		7.2			11.5	
Brake Holding Torque	N·m	0.318		1.3			3.2	
Encoder		17 bit Absolute Encoder 131072 P/R		20 bit Incremental Encoder 1048576P/R 17 bit Absolute Encoder 131072 P/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.)						

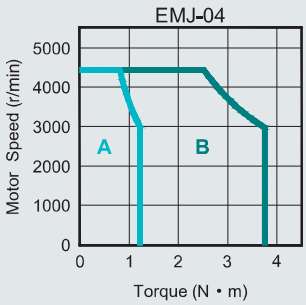
Note: The values in parentheses are for servo motors with holding brakes.

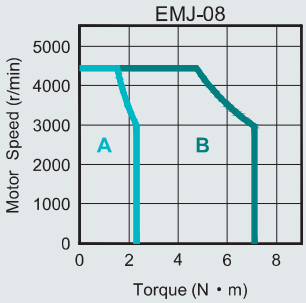
Torque-Speed Feature

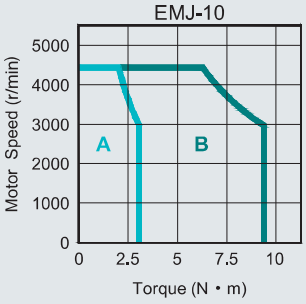












A: Continuous Working Area B: Repeatedly Working Area

EMG Model

Specification Description

EMG - 10 A F B 2 4

EMG	-	10	A	F	B	2	4
EMG Model Servo Motor		Rated Output Power	PowerVoltage	Encoder	Designing Sequence	Shaft End	Option Parts

Sign	Spec.
10	1.0kW

Sign	Spec.
A	200VAC

Sign	Spec.
F	20 Bit Incremental : Encoder 1048576P/R
S	17 Bit Absolute Encoder: 131072P/R

Sign	Spec.
A,B	Designing Sequence

Sign	Spec.
2	Flat, With Keys With Screw Thread

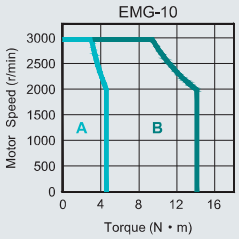
Sign	Spec.
2	With Oil Seal
4	With Oil Seal, With Brake (DC24V)

Rated Value and Specification

Voltage		200VAC
Servo Motor Model	**EMG-**	**10A□B□□**
Rated Output Power	kW	1.0
Rated Torque	N·m	4.78
Instantaneous Peak Torque	N·m	14.3
Rated Current	Arms	5.8
Instantaneous Max. Current	Arms	17.4
Rated Speed	r/min	2000
Max. Speed	r/min	3000
Rotor Moment of Inertia	$\times 10^{-4}$kg·m^2	13.2(14.3)
Brake Rated Voltage		DC24V±10%
Brake Rated Power	W	19.5
Brake Holding Torque	N·m	12
Encoder		20 bit Incremental Encoder 1048576P/R 17 bit Absolute Encoder 131072 P/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

EML Model

Specification Description

EML-	10	A	F	B	2	4
EML Model Servo Motor	Rated Output Power	PowerVoltage	Encoder	Designing Sequence	Shaft End	Option Parts

Sign	Spec.
10	1.0kW

Sign	Spec.
A	200VAC

Sign	Spec.
F	20 Bit Incremental : Encoder 1048576P/R
S	17 Bit Absolute Encoder: 131072P/R

Sign	Spec.
A,B	Designing Sequence

Sign	Spec.
2	Flat, With Keys With Screw Thread

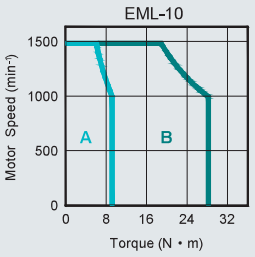
Sign	Spec.
2	With Oil Seal
4	With Oil Seal, With Brake (DC24V)

Rated Value and Specification

Voltage		200VAC
Servo Motor Model	EML-	10A□B□□
Rated Output Power	kW	1.0
Rated Torque	N.m	9.55
Instantaneous Peak Torque	N.m	28.7
Rated Current	Arms	5.5
Instantaneous Max. Current	Arms	16.5
Rated Speed	r/min	1000
Max. Speed	r/min	1500
Rotor Moment of Inertia	$\times 10^{-4}$kg·m^2	23.5(24.6)
Brake Rated Voltage		DC24V±10%
Brake Rated Power	W	19.5
Brake Holding Torque	N·m	12
Encoder		20 bit Incremental Encoder 1048576P/R 17 bit Absolute Encoder 131072 P/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

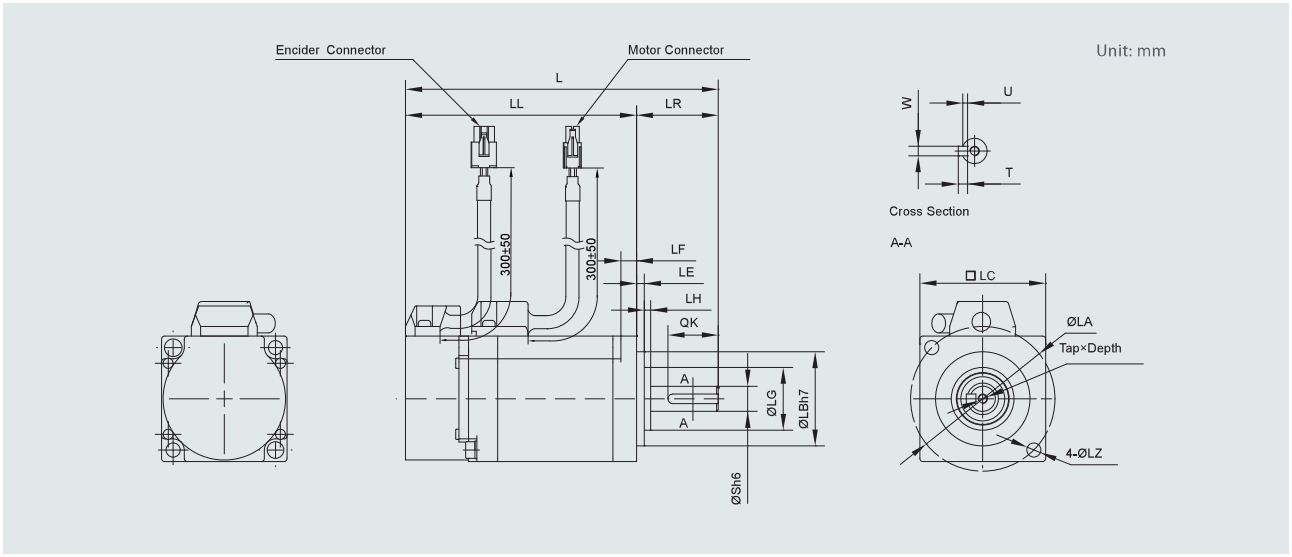


A: Continuous Working Area B: Repeatedly Working Area

Dimension

Servo Drive

EMJ Dimension

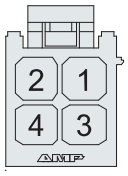


Model EMJ-	L	LL	Dimension									S	Tap×Depth	Key			
			LR	LH	LG	LE	LF	LC	LA	LB	LZ			QK	W	T	U
A5ASA	84.5(120.1)	59.5(95.1)	25	2	20	2.5	5	40	46	30	4.5	8	M3×10L	16	3	3	1.8
01ASA	98.5(134.1)	73.5(109.1)	25	2	20	2.5	5	40	46	30	4.5	8	M3×10L	16	3	3	1.8

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

Power Connector Specification for EMJ-A5/01ASA

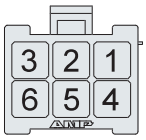
- Plug: 172167-1(AMP)
- Pin: 170360-1(AMP)



Pin No.	Signal
1	U
2	V
3	W
4	FG

Power/Brake Connector Specification for EMJ-A5/01ASA

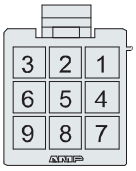
- Plug: 172165-1(AMP)
- Pin: 170360-1(AMP)



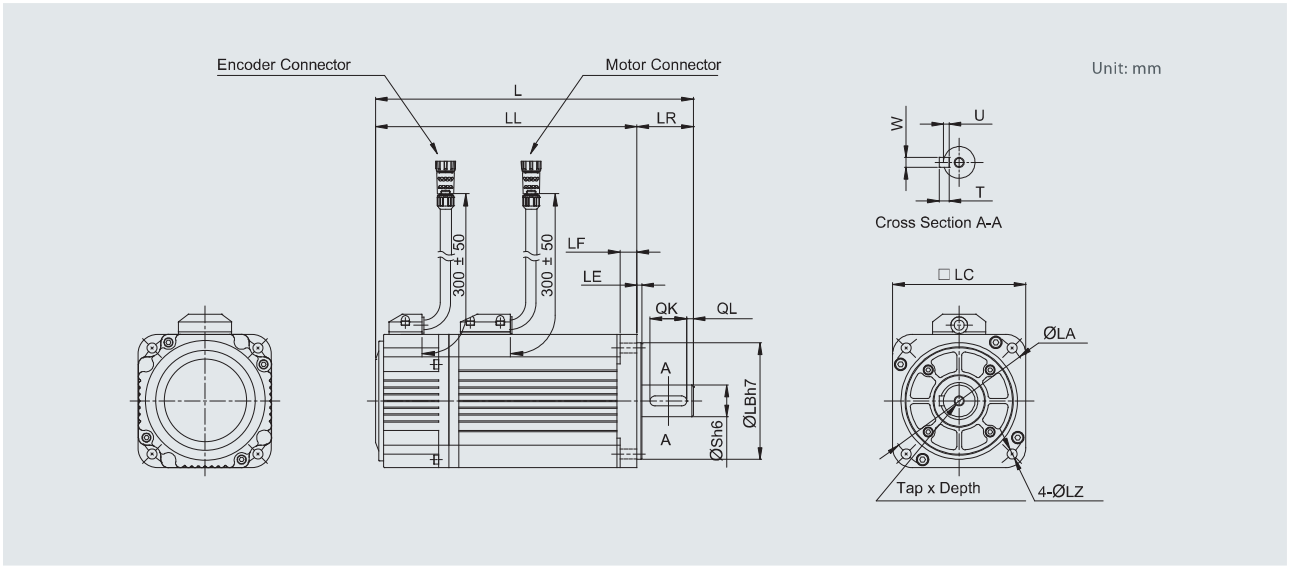
Pin No.	Signal
1	U
2	V
3	W
4	FG
5	BK1
6	BK2

Encoder Connector Specification for EMJ-A5/01ASA

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



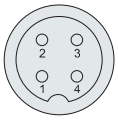
Pin No.	Signal	Pin No.	Signal
1	S+	6	PG5V
2	S-	7	PG0V
3	BAT+	8	BAT-
4	–	9	FG
5	–		



Model EMJ-	L	LL	Dimension							S	Tap×Depth	Key				
			LR	LE	LF	LC	LA	LB	LZ			QK	QL	W	T	U
02ASA	154(194)	124(164)	30	3	6	60	70	50	5.5	14	M5×10L	16	4	5	5	3
02AFA	142(182)	112(152)														
04AFB	161(201)	131(171)														
04ASA	174(214)	144(184)														
04AFH	172(212)	142(182)														
04ASH	182(222)	152(192)														
08AFB	173(216)	138(181)	35		9	80	90	70	7	19	M6×15L	22		6	6	3.5
08ASB	186(229)	151(194)														
10AFB	191(234)	156(199)														
10ASB	204(247)	169(212)														

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

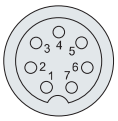
Power Connector Specification for EMJ-02/04/08/10AS/F



- Plug: CGRSB–4BFMA–SL8001

Pin No.	Signal
1	U
2	V
3	W
4	FG

Encoder Connector Specification for EMJ-02/04/08/10AS



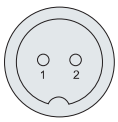
- Plug: CGRSD–7BFMA–SL8001

Pin No.	Signal
1	S+
2	S-
★3	BAT+
★4	BAT-

Pin No.	Signal
5	PG5V
6	PG0V
7	FG

Brake Connector Specification for EMJ-02/04/08/10AS/F

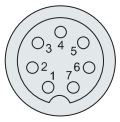
- Plug: CGRSB–2BFMA–SL8001



Pin No.	Signal
1	BK1
2	BK2

Encoder Connector Specification for EMJ-02/04/08/10AF

- Plug: CGRSD–7BFMA–SL8001

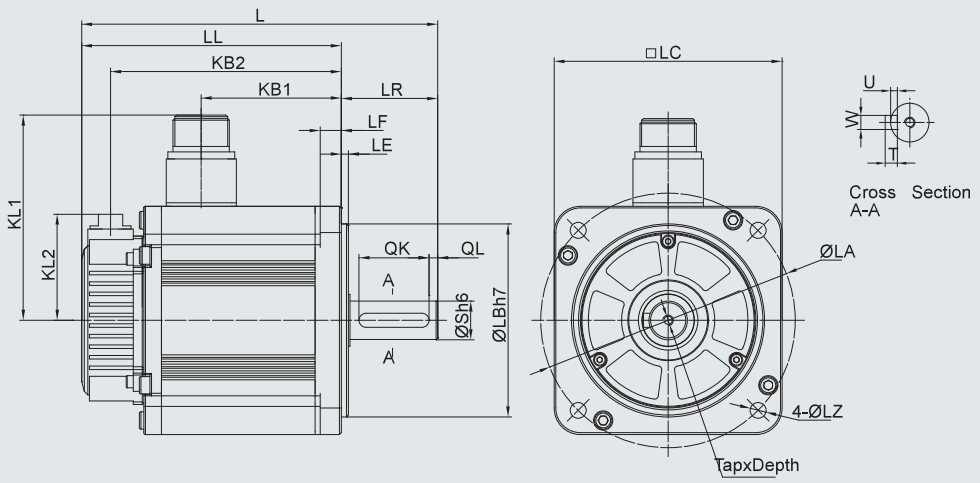


Pin No.	Signal
1	S+
2	S-
3	MA+
4	MA-

Pin No.	Signal
5	PG5V
6	PG0V
7	FG

EMG Dimension

Unit: mm

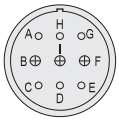


Model EMG-	L	LL	KB1	KB2	KL1	KL2	Dimension							S	Tap x Depth	Key				
							LR	LE	LF	LC	LA	LB	LZ			QK	QL	W	T	U
10□□B	203(245.5)	148(190.5)	80(103.2)	131.5(174)	117	60.5	55	4	12	130	145	110	9	22	M6×20L	40	5	8	7	4

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

Power/Brake Connector Specification

- Receptacle:
  MS3102E20–18P
- Plug:
  MS3108AE20–18S

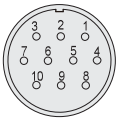


Pin No.	Signal
A	–
B	U
C	FG
D	FG
E	–
F	W
★ G	BK1
★ H	BK2
I	V

★ Note : There are no B1, B2 signals in motor without brake.

Encoder Connector Specification

- Receptacle:
  M–CAN–CM1002–10P
- Plug:
  M–CAN–CM1008–10S



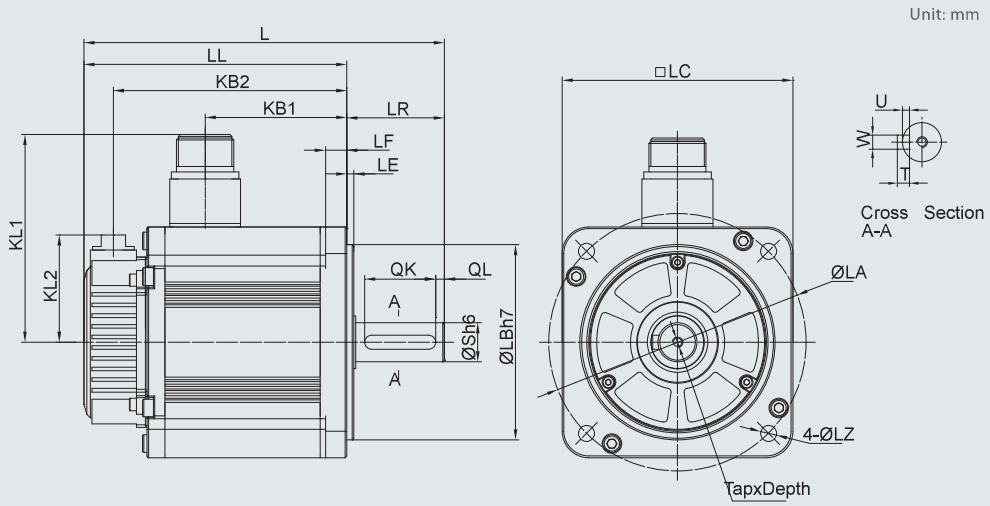
Incremental/Absolute Encoder

Pin No.	Signal
1	S+
2	S-
★3	BAT+
★4	BAT-
7	PG0V
8	PG5V
10	FG

★ Note : There are no BAT+, BAT- signal in incremental/ single-turn absolute encoder.

EML Dimension

Unit: mm

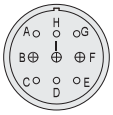


Model EML-	L	LL	KB1	KB2	KL1	KL2	Flange side							S	Tap × Depth	Key				
							LR	LE	LF	LC	LA	LB	LZ			QK	QL	W	T	U
10□□B	247(289.5)	192(234.5)	124(147.2)	175.5(218)	117	60.5	55	4	12	130	145	110	9	22	M6×20L	40	5	8	7	4

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

Power/Brake Connector Specification

- Receptacle:
  HMS3102E20–18P
- Plug:
  HMS3106AE20–18S

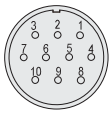


Pin No.	Signal
A	–
B	U
C	FG
D	FG
E	–
F	W
★G	BK1
★H	BK2
I	V

★ Note : There are no B1, B2 signals in motor without brake.

Encoder Connector Specification

- Receptacle:
  M–CAN–CM1002–10P
- Plug:
  M–CAN–CM1008–10S



Incremental/Absolute Encoder

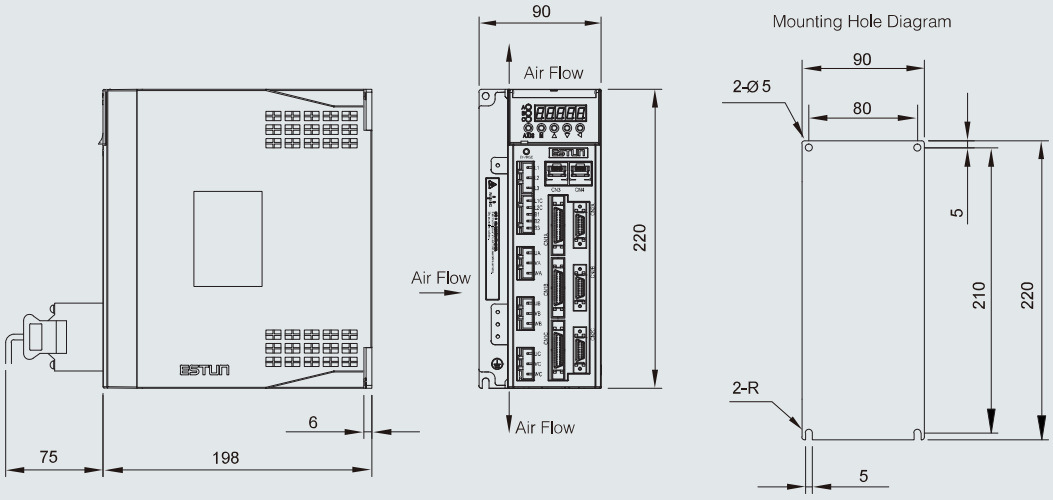
Pin No.	Signal
1	S+
2	S-
★3	BAT+
★4	BAT-
7	PG0V
8	PG5V
10	FG

★ Note : There are no BAT+, BAT- signal in incremental/single-turn absolute encoder.

ETS Series Servo Drive Dimension

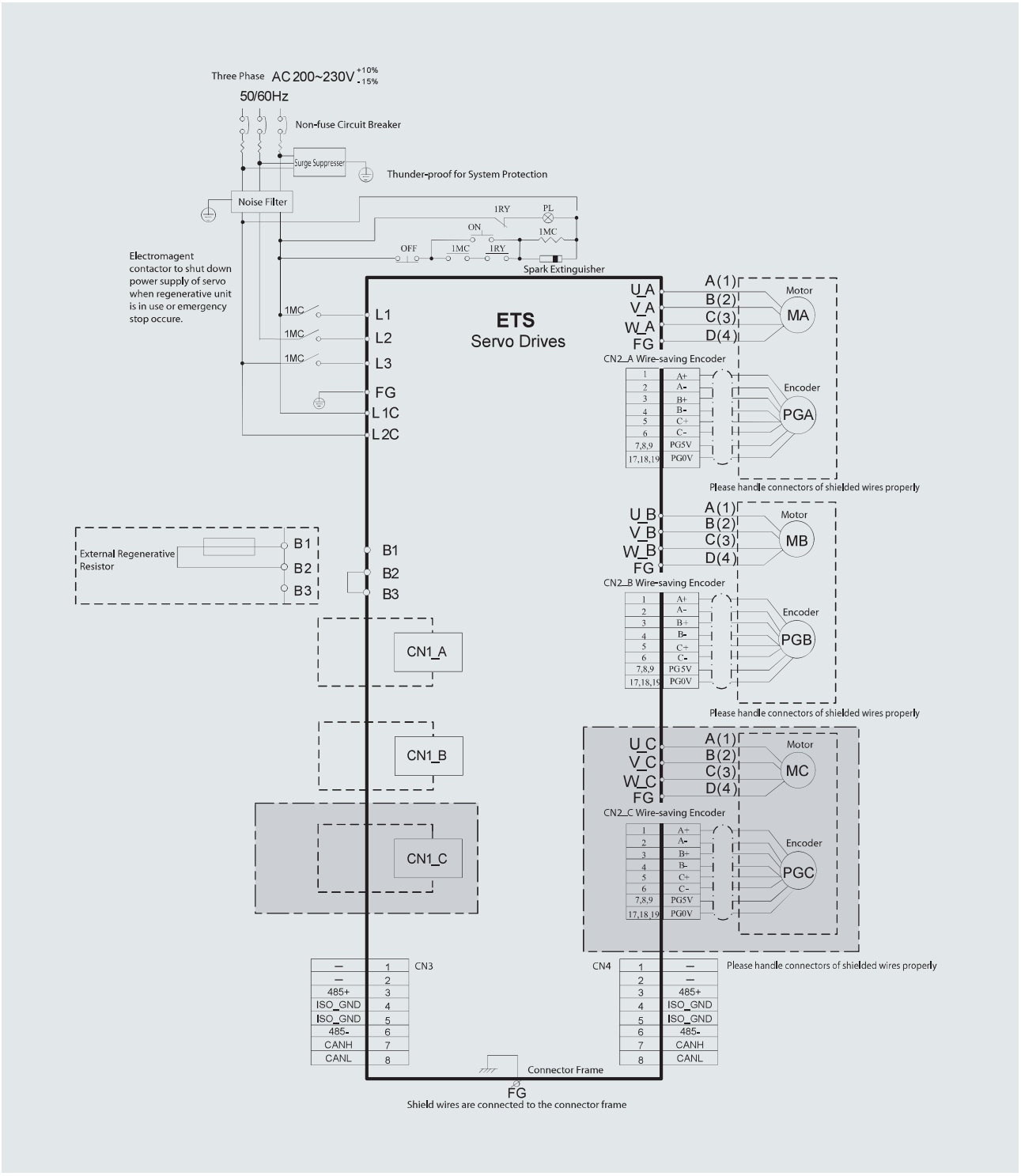
ETS Dimension

Unit: mm

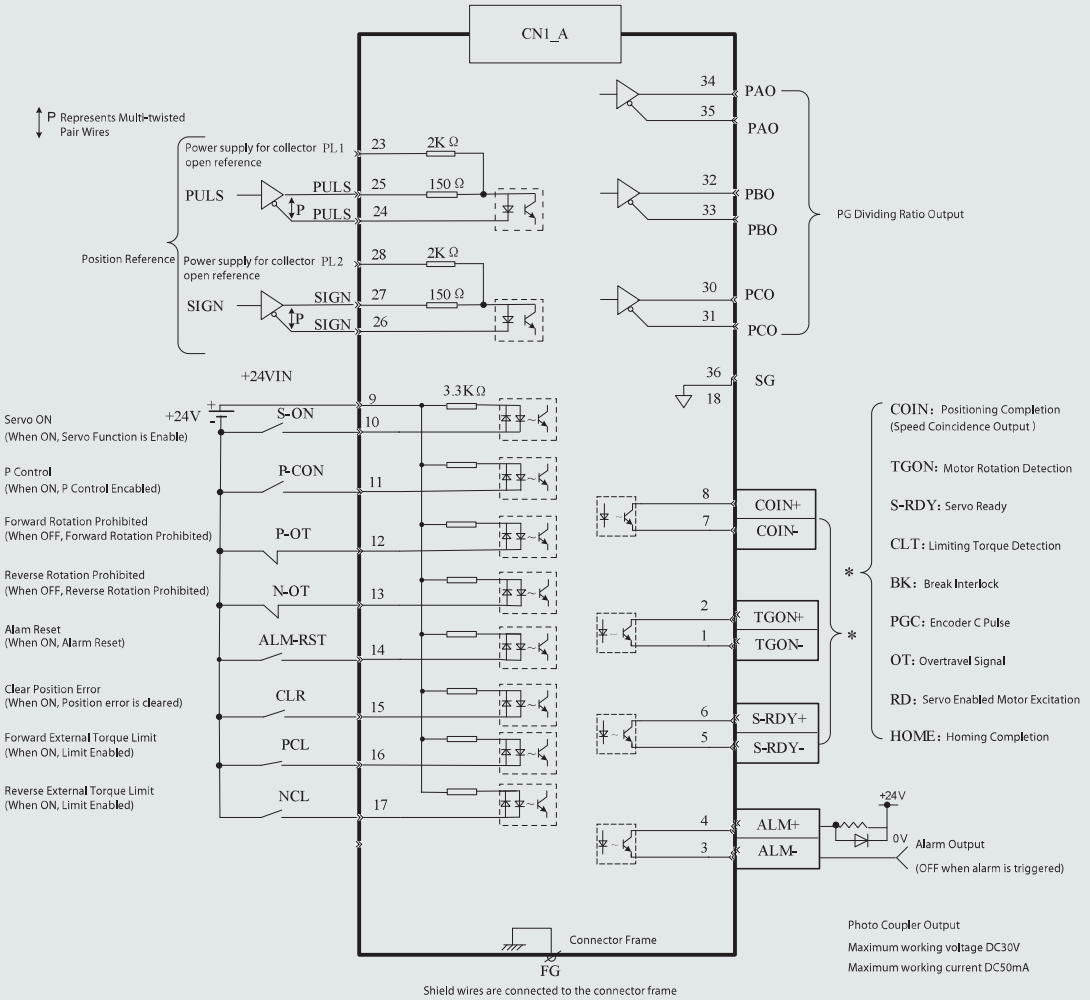


ETS Series Servo Drive Typical Connection Example

ETS Connection Example



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



Note: The wirings of CN1_A、CN1_B、CN1_C are the same.

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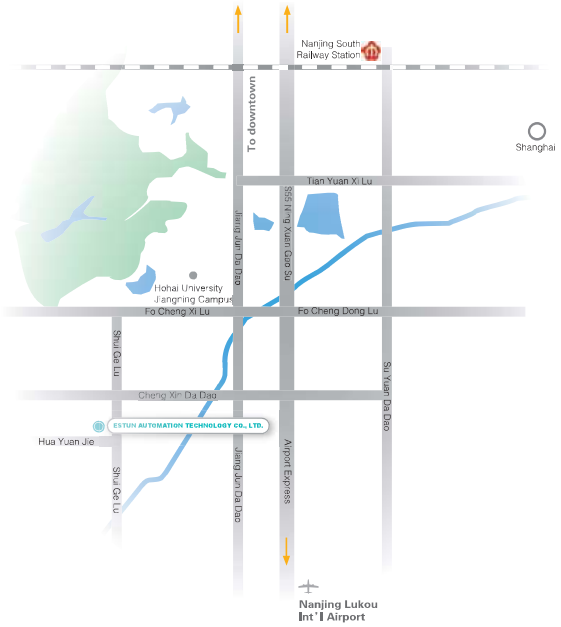

Version: ETS-1710A