EP Series Servo System

EP1C
General Purpose Servo Drive

EP1C Plus
Modbus MECHATROLINK
High Performance Servo Drive

EP3E
PROFINET EtherCAT ETHERNET POWERLINK MECHATROLINK
Multi-Network Servo Drive

M/G Series
AC Servo Motor

Maxsine 迈信电气

武汉迈信电气技术有限公司
WUHAN MAXSINE ELECTRIC CO.,LTD

CE

Company Profile

Founded in 2004, Maxsine focuses on R&D, manufacturing and sales of Servo system. We are committed to providing advanced products and first-class services for customers in the field of industrial automation.

With nearly a decade of continuous efforts and more than two decades of technical accumulation and innovation, Maxsine has become a leading technology enterprise in China. On the basis of owning technologies with proprietary intellectual property rights, we offer reliable, high performance and precision digital AC servo drive and permanent magnetic synchronous motor to serve global customers. All of Maxsine servo drives are provided with a superior DSP which represents a high-speed performance of the control circuit loop.

We cooperate with machine makers in various applications such as CNC machine tools, packaging, textile, robots, laser processing, and automation production lines. Maxsine servo products are exported to Southeast Asia, India, South Africa, Russia and Brazil etc. Our mission is to help industrial companies be more productive.

Maxsine Products

Advanced servo system

EP3E Multi-Network Servo Drive: PROFINET/EtherCAT/POWERLINK/MECHATROLINK-Ⅲ, AC220V/380V, 0.1kW~15kW
EPR6 6-axis Servo Drive for Robot: AC220V, 6-axis total power 7.5kW

High performance general purpose servo system

EP1C Plus High Performance Servo Drive: AC220V/380V, 0.1kW~15kW
EP1C General Purpose Servo Drive: AC220V, 0.1kW~15kW
EPX Servo Drive for Position Control: AC220V, 0.4kW~2.5kW

Special purpose servo system

EP3L DC Servo Drive: DC24V-48V, 0.2kW~1.0kW
EP3M Turret Servo Drive: AC220V/380V, 0.1kW~15kW

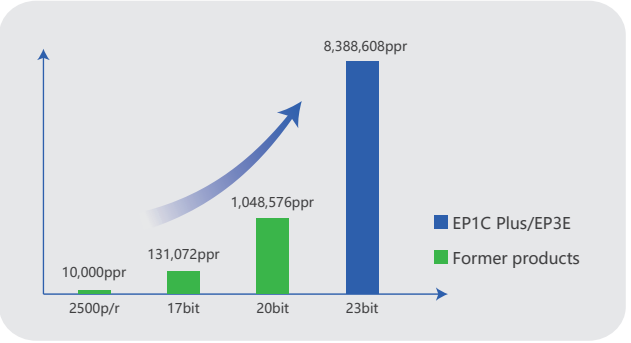
AC permanent magnet servo motor

MS: medium and low inertia, high speed, high dynamic performance, torque range 0.32N·m~14.3N·m
MA: medium and low inertia, medium speed, low current, torque range 4.0N·m~48.0N·m
GS: high inertia, high speed, torque range 5.39N·m~15.0N·m
GA: high inertia, medium speed, torque range 0.64N·m~15.0N·m
MN: low inertia, high dynamic performance, torque range 1.0N·m~334.3N·m
MK: low voltage, medium and low inertia, high speed, torque range 0.32N·m~1.27N·m

Stable and Reliable Servo System

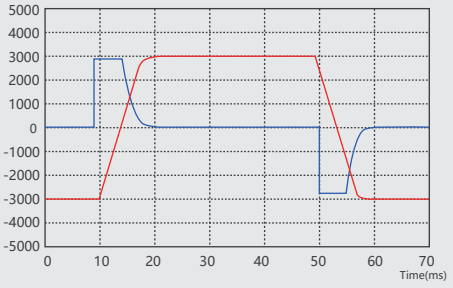
23-bit High-resolution encoder

- 23-bit encoder with 8,388,608 pulses/revolution enables smooth and precise operation.
- Multi-turn absolute encoder can count up to 65,536 turns.



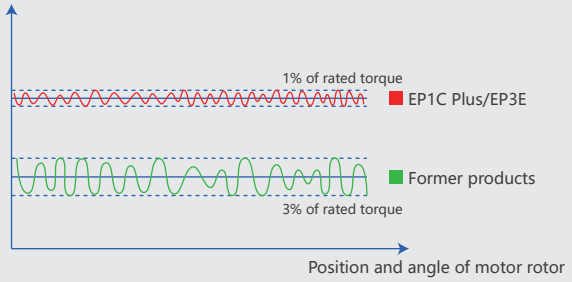
M/G High dynamic performance servo motor

- Low inertia and high speed, and high torque to current ratio. Some low inertia motors can acclelerate from -3000r/min to 3000r/min within only 6-7ms.



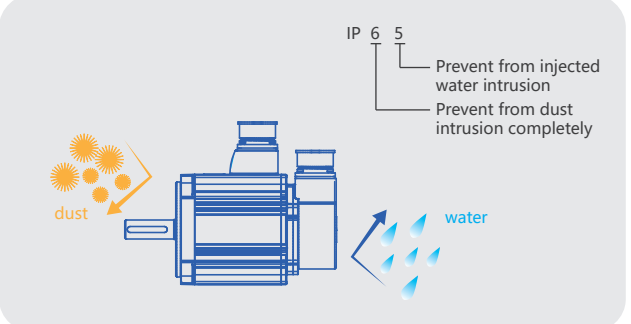
M/G Servo motor low cogging torque

- The optimal combination of motor's pole number and cogging number greatly reduces the fluctuation range of electric torque and positioning torque to achieve a more smoothly operation.
- The anti-cogging / torque ripple suppression algorithm improves the torque precision effectively.



IP65 rated motor for applications in wet factory environments

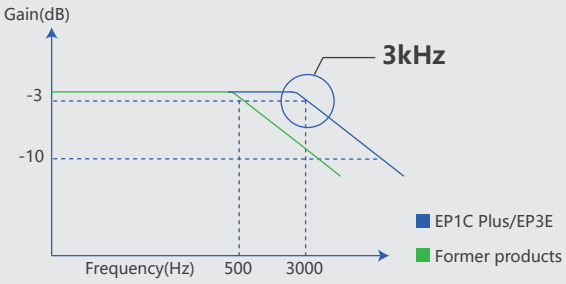
- M/G motor with IP65 rating protection.
- The motor shaft is equipped with seal.



Stable and Reliable Servo System

3KHz response bandwidth(velocity mode), 1ms settling time

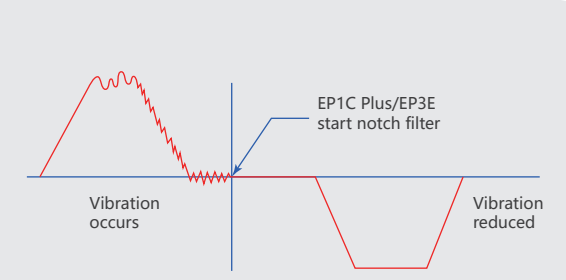
- Velocity response bandwidth up to 3kHz.
- High response control based on the torque feed forward could reduce the response delay and optimize settling time up to 1ms.



The notch filter for High-frequency vibration suppression

Manual/Auto notch filter

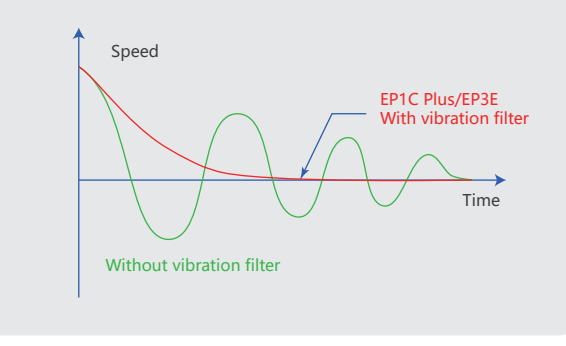
- The notch filter could suppress the vibration and audible noise greatly generated by the equipment resonant frequency. It is important to drive high speed and high accuracy.
- Two notch filters are available with adjustable width and depth, working frequency from 50-1500Hz.



The damping filter suppresses low frequency jitter

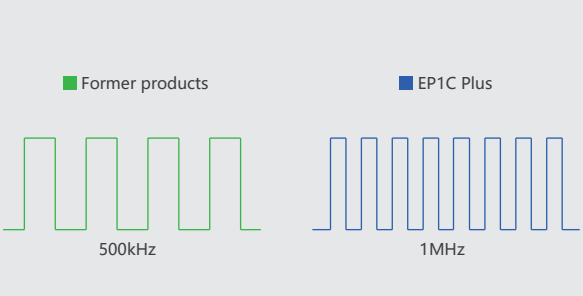
The vibration filter

- The filter eliminates the natural vibration frequency and greatly reduce the vibration of axis when stopping, with an applicable frequency of 1-100Hz.



EP1C Plus with 1M differential plus train input or optional single-ended input

- Both the instruction input and the feedback output frequency could reach 1Mpps, and the high resolution operation can be achieved. When the duty ratio of the instruction input pulse is deviated, the receiving frequency will decrease.
- Special version supports 24V NPN/PNP single ended drive connection and the highest frequency is 200kHz.

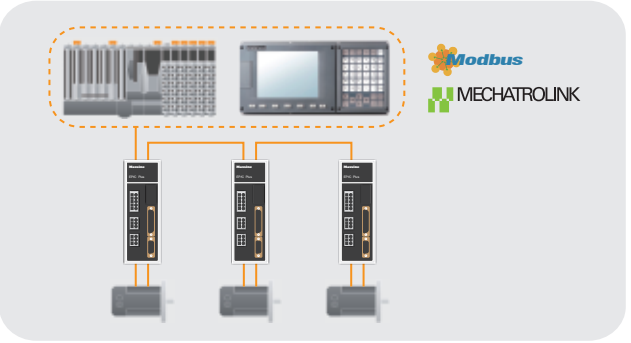


Stable and Reliable Servo System

EP1C Plus with optional Modbus/CAN/M-II communuication

- Modbus protocol: applies to robot, digital control system, and automation equipment etc.
- M-II protocol: supports 17byte/32 byte transformat with USB Bus interface and 250μs -times communication cycle.
- CAN communications: customized communication protocol is provided.

Note:
Modbus and CAN communications are not standard configuration.
Instead of CANOpen protocol, CAN communication adopts MCAN protocol which is suitable for embedded solution. Please contact sales for inquiry.



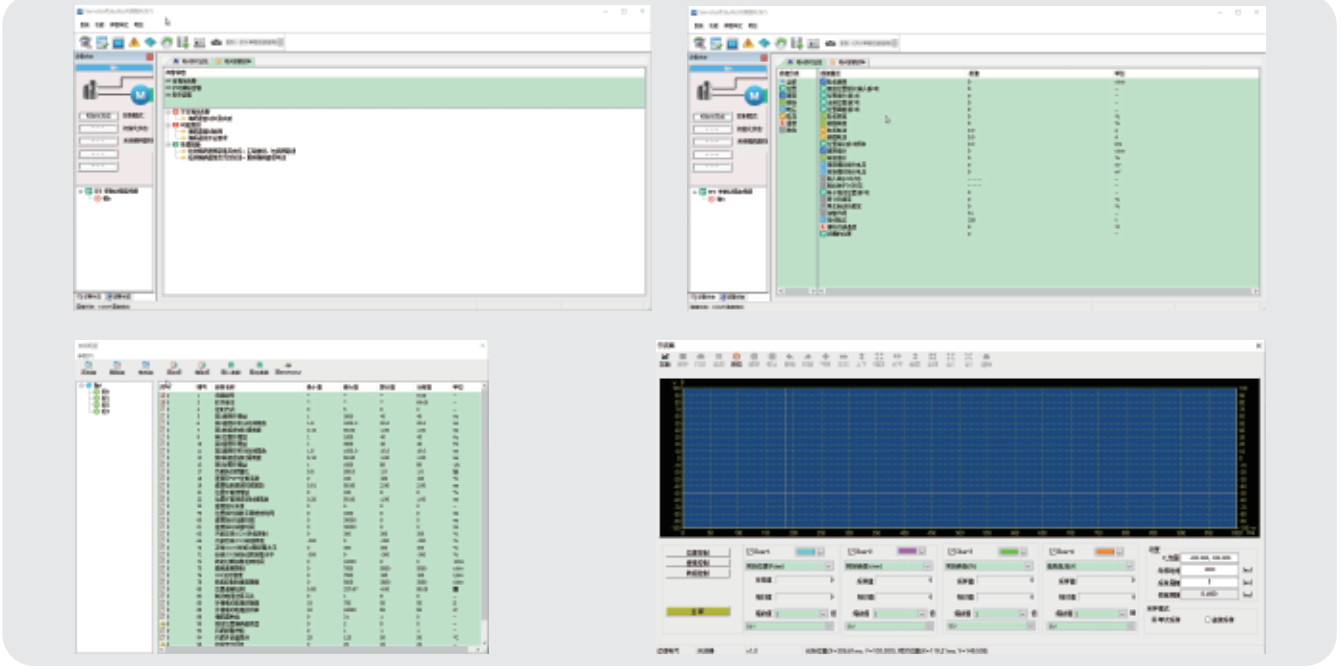
EP3E Multi-Network servo drive with various industrial Ethernet protocols

Note:
customized protocols are also provided, please contact us for more infomation.

ETHERNET POWERLINK
MECHATROLINK
EtherCAT
PROFINET

ServoSoft: multifunctional software for quick setting

- USB communication interface, plug and play;
- Parameter reading and setting;
- Support real-time recording, online debugging.



EP1C Servo drive

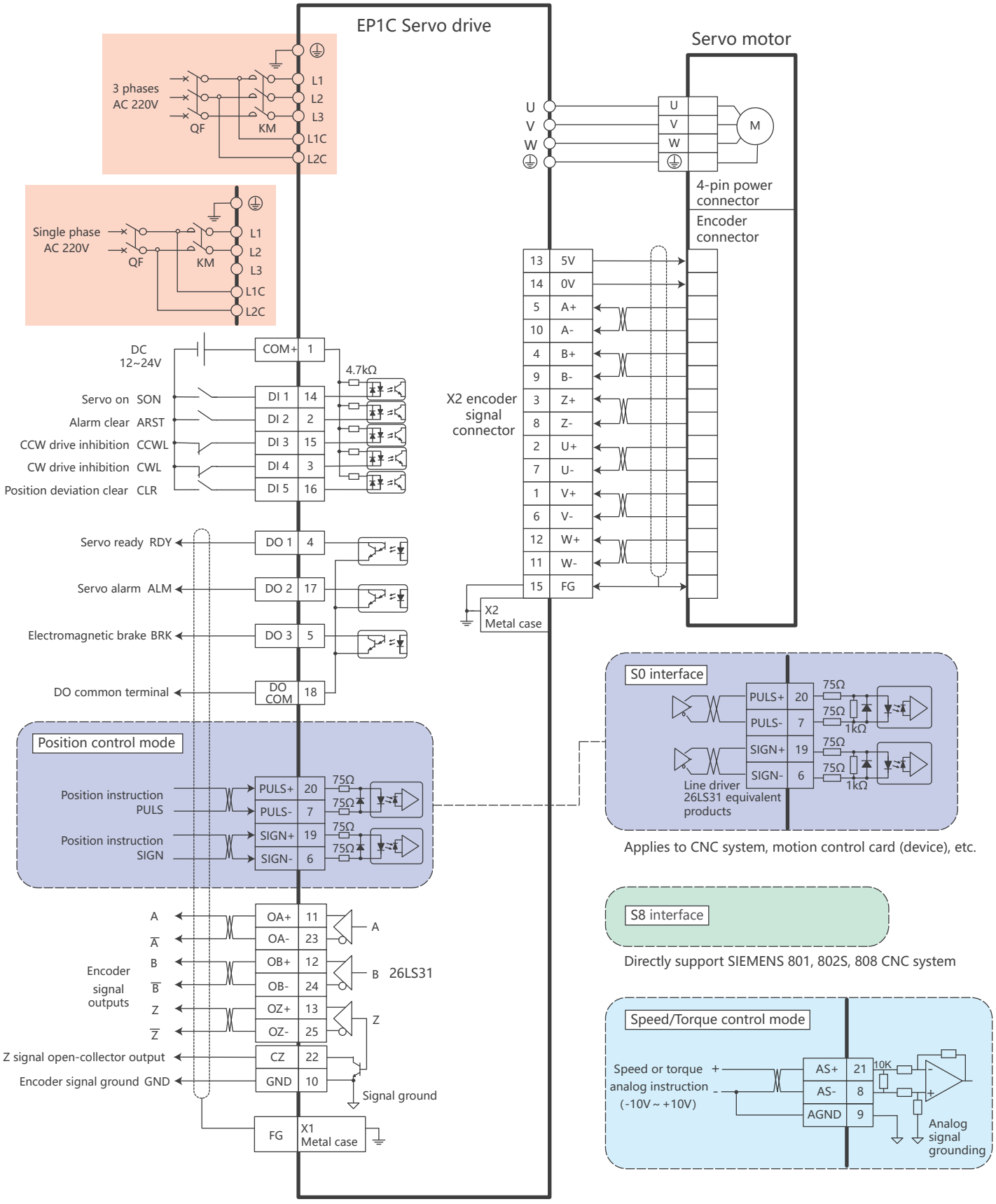
Technical data

EP1C series		TL01	TL02	TL05	TL08	TL10	TL15	TL25	TL35	TL55	TH06	TH10	TH15	TH20	TH30	TH50	TH75	TH90	TH110	TH150
Rated output power (kW)		0.1	0.2	0.5	0.8	1.0	1.5	2.5	3.5	5.5	0.6	1.0	1.5	2.0	3.0	5.0	7.5	9.0	11.0	15.0
Continuous output current (Arms)		1.0	1.8	3.0	4.0	5.0	7.5	12.0	19.0	24.0	2.0	3.5	5.4	8.5	13.0	17.0	21.0	25.5	32.0	39.0
Instantaneous maximum output current (Arms)		3.0	5.4	9.0	10.0	11.3	14.9	22.6	28.5	40.0	6.0	7.1	10.0	12.7	28.3	31.2	39.6	44.0	55.0	78.0
Input power supply	Main power supply	Single phase AC220V -15% ~ +10% 50/60Hz			3 phase AC220V -15% ~ +10% 50/60Hz						3 phase AC380V -15% ~ +10% 50/60Hz									
	Control power supply	Single phase AC220V -15% ~ +10% 50/60Hz									24V DC ±15% ≥1.5A									
Environment	Temperature	Operation: 0℃ ~ 40℃ Storage: -40℃ ~ 50℃																		
	Humidity	Operation: 40% ~ 80% (No Condensation) Storage: less than 93% (no condensation)																		
	Atmospheric pressure	86kPa ~ 106kPa																		
Protection rating		IP20																		
Control method		Vector control																		
Regenerative resistor		External	Internal / External optional							External	Internal / External optional				External					
Encoder feedback		2500P/R Incremental encoder																		
Operation mode		Position, Speed, Torque, Position/Speed, Speed/Torque, Position/Torque																		
Digital inputs		5 programmable input terminals (photoelectric isolation)																		
Digital outputs		3 programmable input terminals (photoelectric isolation)																		
Encoder signal outputs		A, B, Z Differential output, Z signal open-collector output																		
Position	Input frequency	differential input: ≤500kHz (kpps), single-ended input: ≤200kHz (kpps)																		
	Command modes	Pulse+Signal, CCW Pulse/CW Pulse, orthogonal Pulse																		
	Electronic gear ratio	1~32767 / 1~32767																		
Speed	Analog command input	-10V ~ +10V, Input impedance10kΩ																		
	Acceleration/-deceleration command	Parameter setting																		
	Command source	Analog, Internal Torque Instruction																		
Torque	Analog command input	-10V ~ +10V, Input impedance 10kΩ																		
	Speed limit	Parameter setting																		
	Command source	Analog, Internal Torque Instruction																		
Monitoring function		Revolving Speed, Current Position, Positional Deviation, Motor Torque, Motor Current, Instructions Pulse Frequency etc.																		
Protection function		Over speed, over voltage, over current, overload, braking abnormal, encoder abnormal, position deviation and so on																		
Characteristic	Velocity frequency response	≥300Hz																		
	Speed fluctuation rate	< ±0.03% (Load 0%~100%), < ±0.02% (Power-15%~+10%)																		
	Speed ratio	1:5000																		

EP1C Servo drive

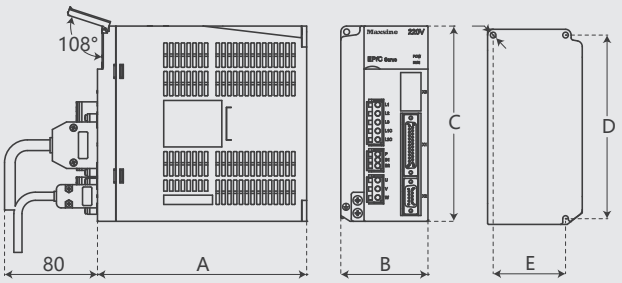
Control mode

Take EP1C-TL15 series as an example. For the wiring of other drive models configuration, please refer to EP1C MANUAL.

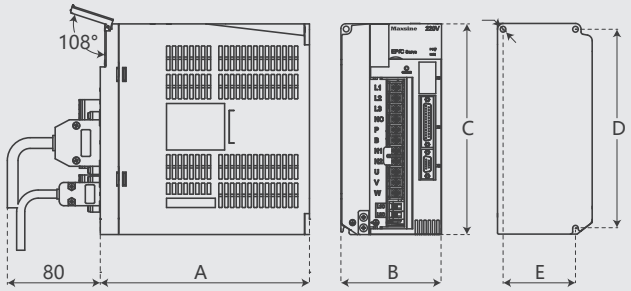


EP1C Servo drive

Dimension drawing

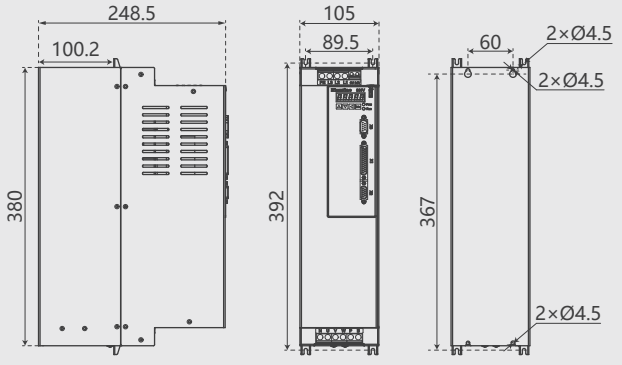


Dimension drawing 1

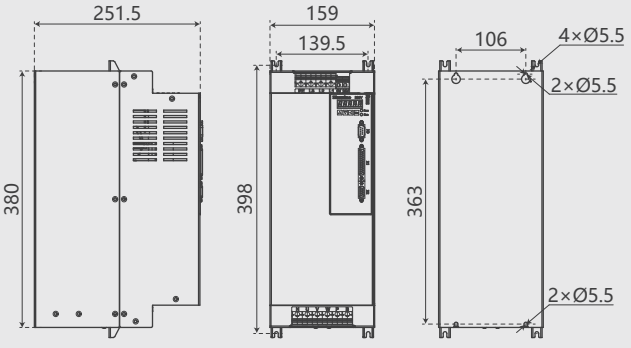


Dimension drawing 2

Model / Dimension(mm)	Dimension drawing 1										Dimension drawing 2		
	TL01	TL02	TL05	TL08	TL10	TL15				TL25	TL35	TL55	
							TH06	TH10	TH15	TH20	TH30	TH50	TH75
A	150	150		180		180	180			180	180	210	
B	55	65		75		85	95			95	105	115	
C	168	168		168		168	168			200	220	250	
D	158	158		158		158	158			189	209	239	
E	--	55		65		65	65			84	94	104	



Dimension drawing 3：applies to TH90

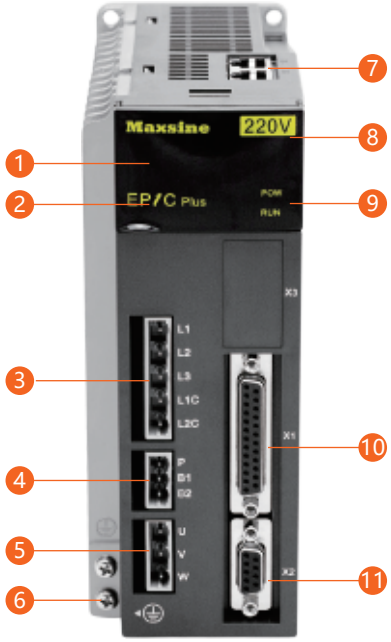


Dimension drawing 4：applies to TH110, TH150

EP1C Plus Servo drive

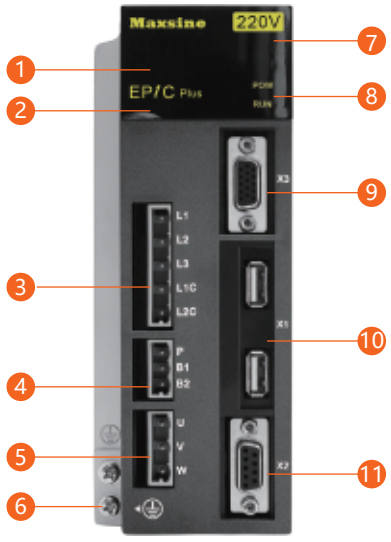
EP1C Plus series servo drive supportsanalog voltage, pulse train input and MECHATROLINK-II communication protocol. Take the following picture EP1C Plus-TL05 as an example.

EP1C Plus series



Modbus

1. Display LED
2. Operation buttons
3. Main power input terminals
4. External regenerative resistor terminals
5. Servo motor connection terminals
6. Ground terminals
7. RJ45 interface X5，X6
8. USB interface X4
9. 2 indicators
10. Connector X1 for input and output signal
11. Connector X2 for servo motor encoder



MECHATROLINK

1. Display LED
2. Operation buttons
3. Main power input terminals
4. External regenerative resistor terminal
5. Servo motor connection terminals
6. Ground terminals
7. USB interface X4
8. 2 indicators
9. Connector X3 for input and output signal
10. Connector X1 for MECHATROLINK-Ⅱ interface
11. Connector X2 for servo motor encoder

EP1C Plus Servo drive

Power terminals description

Name	Symbol	Model name	Detailed description
Main circuit power	L1、L2	TL01、TL02、TL05	Single-phase 220VAC -15%~+10% 50/60Hz
	L1、L2、L3	TL08、TL10、TL15、TL25、TL35、TL55	Three-phase 220VAC -15%~+10% 50/60Hz
	L1、L2、L3	EP1C Plus-TH series	Three-phase 380VAC -15%~+10% 50/60Hz
Control circuit power	L1C、L2C	EP1C Plus-TL series	Single-phase 220VAC -15%~+10% 50/60Hz
	24V、0V	EP1C Plus-TH series	External DC24V
Regenerative resistor	P、B1、B2	TL01、TL02、TL05、TL08、TL10、TL15、TL25、TH06、TH10、TH15	When using external regenerative resistor, disconnect B1 and B2, connect the external resistor to P and B1 ends, and let B2 be suspended
	NC、P、B	TL35、TL55、TH20、TH30、TH50、TH75、TH90、TH110、TH150	When using the external regenerative resistor, the internal regenerative resistor line between P and B should be disconnected, and connect the 2 internal regenerative resistor line to NC. Then crossover the external regenerative resistor to terminals P and B
DC reactor	N1、N2	TL35、TL55、EP1C Plus-TH series	Connect the DC reactor between N1 and N2 for harmonic suppression
Motor power	U	EP1C Plus full range	Output to motor U phase power supply
	V		Output to motor V phase power supply
	W		Output to motor W phase power supply
Grounding	⏚	EP1C Plus full range	Motor casting grounding terminals
	⏚		Drive grounding terminals

X1 Connector signal instruction

Control signal terminal name		Pin No.	Function
Inputs	DI1	14	Photoelectric isolated input, function can be programmed and defined by parameter P100~P104
	DI2	2	
	DI3	15	
	DI4	3	
	DI5	16	
	COM+	1	DI power supply (DC12V~24V)
Outputs	DO1	4	Photoelectric isolated output, maximum output capacity 50mA/25V, function can be programmed, defined by parameter P130~P132
	DO2	17	
	DO3	5	
	DOCOM	18	DO common port
Position command pulse	PULS+	20	High speed photo isolated input; Working mode set by parameter P035: Pulse + Mark Positive/Reverse pulse Orthogonal pulse
	PULS-	7	
	SIGN+	19	
	SIGN-	6	
Analog command inputs	AS+	21	Speed/torque analog quantity input; the range is -10V to + 10V
	AS-	8	
	AGND	9	Analog signal Ground
Encoder output pulse	OA+	11	Outputs of differential driver (Line Driver) after the frequency division of encoder signal
	OA-	23	
	OB+	12	
	OB-	24	
	OZ+	13	
	OZ-	25	
	CZ	22	Open collector output of Z signal
	GND	10	Encoder signal ground
Shielded cable ground protection	Metal case of connector		Shielded wire for connection with shielded cable

X2 Connector signal instruction

Encoder signal		Pin No.		Function
		Absolute encoder	Incremental encoder	
Encoder power supply	5V	4	4	Use 5VDC power supply (provided by servo driver). If the cable is longer than 20m, in order to prevent encoder from voltage drop down, it is better to use multi wire or thick wire for power line and ground line
	0V	5	5	
Signal input	SD+	1	1	Connect to absolute encoder signal output
	SD-	2	2	
Shielding wire protection	FG	9	9	Connect to signal cable shielding line

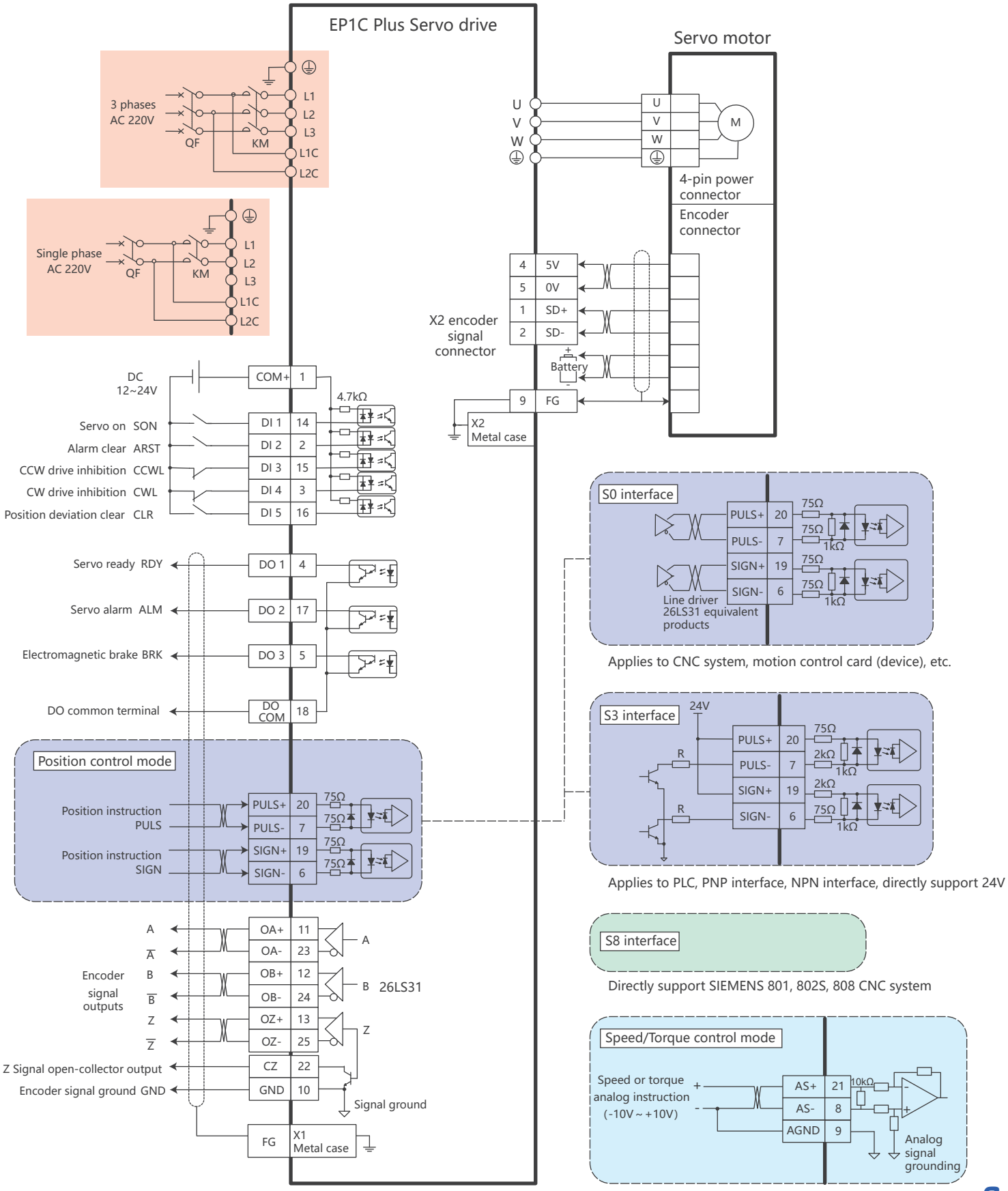
X5、X6 Interface signal instruction

RJ45		Pin No.	Function
RS-485	485B	1	Isolated 485B
	485A	2	Isolated 485A
	485-GND	6	RS485 ground
CAN	CANH	4	Isolated CAN high level voltage input/output
	CANL	5	Isolated CAN low level voltage input/output
	CAN-GND	8	CAN GND
Shield ground	PE	7	GND
	PE	3	GND

EP1C Plus Servo drive

Control mode

Here takes EP1C Plus - TL series (220V) as an example. For the wiring of EP1C Plus - TH series (380V) configuration, please refer to EP1C Plus MANUAL.



EP1C Plus Servo drive

X1 Communication Connector signal instruction

Control signal	Pin No.	function
NC	1	MECHATROLINK-II interface
DATA-	2	
DATA+	3	
HC	4	

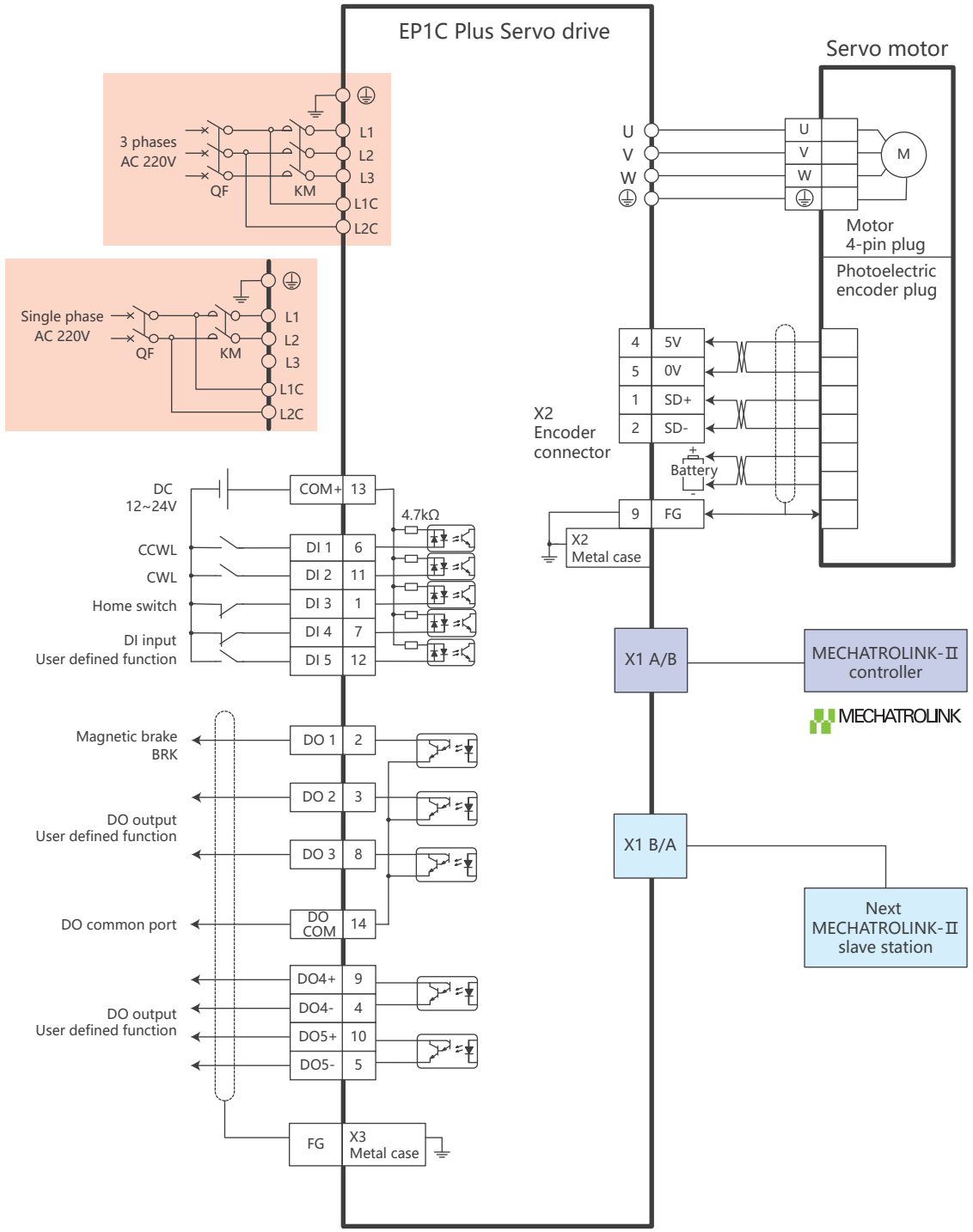
X3 Connector input/output instruction

(reserved)

Note: For the instructions of MECHATROLINK high-voltage terminal and X2 terminal, please refer to Modbus.

MECHATROLINK-Ⅱ model

Take EP1C Plus-TL series (220V) as an example. For the wiring of EP1C Plus-TH series (380V) configuration, please refer to EP1C Plus MANUAL.



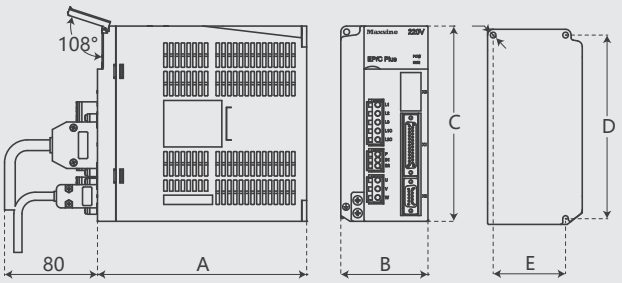
EP1C Plus Servo drive

Technical data

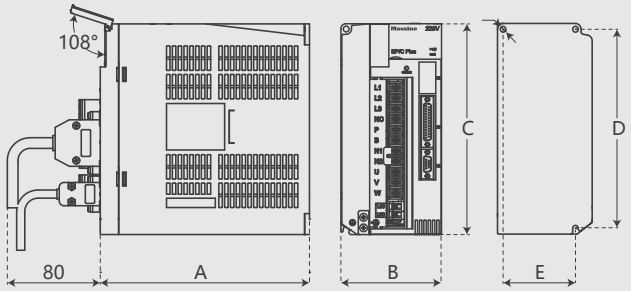
EP1C Plus series		TL01	TL02	TL05	TL08	TL10	TL15	TL25	TL35	TL55	TH06	TH10	TH15	TH20	TH30	TH50	TH75	TH90	TH110	TH150
Rated output power (kW)		0.1	0.2	0.5	0.8	1.0	1.5	2.5	3.5	5.5	0.6	1.0	1.5	2.0	3.0	5.0	7.5	9.0	11.0	15.0
Continuous output current (Arms)		1.0	1.8	3.0	4.0	5.0	7.5	12.0	19.0	24.0	2.0	3.5	5.4	8.5	13.0	17.0	21.0	25.5	32.0	39.0
Instantaneous maximum output current (Arms)		3.0	5.4	9.0	10.0	11.3	14.9	22.6	28.5	40.0	6.0	7.1	10.0	12.7	28.3	31.2	39.6	44.0	55.0	78.0
Input power supply	Main power supply	Single phase AC220V -15% ~ +10% 50/60Hz			3 phase AC220V -15% ~ +10% 50/60Hz						3 phase AC380V -15% ~ +10% 50/60Hz									
	Control power supply	Single phase AC220V -15% ~ +10% 50/60Hz									24V DC ±15% ≥1.5A									
Environment	Temperature	Operation: 0℃ ~ 40℃ Storage: -40℃ ~ 50℃																		
	Humidity	Operation: 40% ~ 80% (No Condensation) Storage: less than 93% (no condensation)																		
	Atmospheric pressure	86kPa ~ 106kPa																		
Protection rating		IP20																		
Control method		Vector control																		
Regenerative resistor		External	Internal / External optional							External	Internal / External optional				External					
Encoder feedback		Serial encoder																		
Operation mode		Position, Speed, Torque																		
Digital inputs		5 programmable input terminals (photoelectric isolation) Function: SRVON, ACLR, CW Drive inhibition, CCW Drive inhibition, CW Torque inhibition, CCW Torque inhibition, Emergency Stop, Electronic gear selection 1, electronic gear selection2, Position deviation clear, pulse input inhibition																		
Digital outputs		3 programmable input terminals (photoelectric isolation) Function: SRDY, alarm, Finish Orientation Output, Reach Speed, electro-magnetic brake, Torque restrictions																		
Encoder signal outputs		A, B, Z Differential output, Z signal open-collector output																		
Position	Input frequency	differential input: ≤1000kHz (kpps), single-ended input: ≤200kHz (kpps)																		
	Command modes	Pulse+Signal, CCW Pulse/CW Pulse, orthogonal Pulse																		
	Electronic gear ratio	1~32767 / 1~32767																		
Speed	Analog command input	-10V ~ +10V, Input impedance10kΩ																		
	Acceleration/-deceleration command	Parameter setting																		
	Command source	Analog																		
Torque	Analog command input	-10V ~ +10V, Input impedance 10kΩ																		
	Speed limit	Parameter setting																		
	Command source	Analog																		
Monitoring function		Revolving Speed, Current Position, Positional Deviation, Motor Torque, Motor Current, Instructions Pulse Frequency, busbar voltage, internal temperature of module etc.																		
Protection function		Over speed, over voltage, over current, overload, braking abnormal, encoder abnormal, position deviation and so on																		
Characteristic	Velocity frequency response	3kHz																		
	Speed fluctuation rate	< ±0.03% (Load 0%~100%), < ±0.02% (Power-15%~+10%)																		
	Speed ratio	1:5000																		

EP1C Plus Servo drive

Dimension drawing

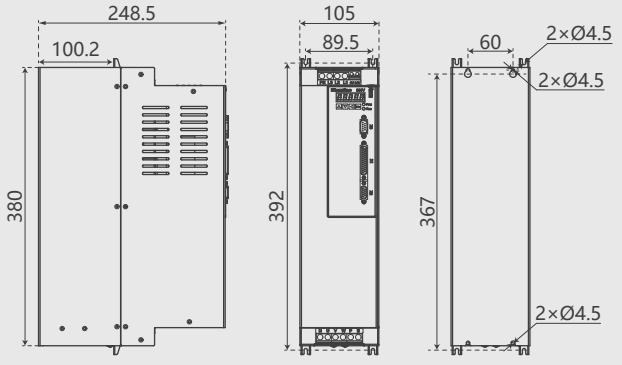


Dimension drawing 1

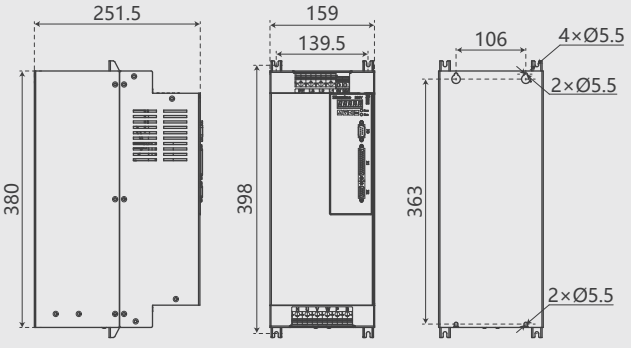


Dimension drawing 2

Model / Dimension(mm)	Dimension drawing 1										Dimension drawing 2		
	TL01	TL02	TL05	TL08	TL10	TL15				TL25	TL35	TL55	
							TH06	TH10	TH15	TH20	TH30	TH50	TH75
A	150	150		180		180	180			180	180	210	
B	55	65		75		85	95			95	105	115	
C	168	168		168		168	168			200	220	250	
D	158	158		158		158	158			189	209	239	
E	--	55		65		65	65			84	94	104	



Dimension drawing 3：applies to TH90



Dimension drawing 4：applies to TH110, TH150

EP3E Servo drive

Terminal definition

Front panel

5-digit LED
4 buttons
2 LED indicators
USB (X4 Terminal)

Main power input

Control circuit power

External regenerative resistor

Servo motor power

Grounding

Ethernet communication

X5 Interface：IN
X6 Interface：OUT

Control signal connector X1

5 programmable inputs
5 programmable outputs
2 high speed inputs

Encoder signal connector X2

Ethernet protocols

PROFINET

- Support RT, IRT communication
- Synchronous jitter time is less than 1μs
- 250μs min. communication cycle, 500μs min. synchronization cycle
- PROFIdrive: AC4 Telegram 3/5/102/105, AC3 Telegram 9/111
- Operation mode: position and speed control

EtherCAT

- Communication protocol: CANopen over EtherCAT
- Communication cycle time: 125μs, 250μs, 500μs, 1ms, 2ms, 4ms
- Process data channel: 4R×PDO,2T×PDO,32bytes/PDO
- Service data channel: 1SDO
- Synchronous jitter: ＜1μs, DC Synchronization(SYNC0)
- Control cycle: 62.5us for current-loop, speed-loop and position-loop
- Operation mode: CSP, CSV, CST

ETHERNET POWERLINK

- Communication protocol: CANopen over POWERLINK
- Communication cycle time: Multiplication of 100us
- Process data channel: 2R×PDO,2T×PDO,32bytes/PDO
- Service data channel: 1SDO
- Synchronous jitter: ＜1μs
- Control cycle: current loop 50μs, speed loop100μs, position loop 100μs
- Operation mode: CSP, CSV, CST

MECHATROLINK

- Communication protocol: MECHATROLINK-Ⅲ
- Communication cycle time: 250μs
- Communication data: 32bytes or 64bytes
- Synchronous jitter: ＜1μs
- Control cycle: current loop 62.5μs, speed loop125μs, position loop 125μs

EP3E Servo drive

Power terminals description

Name	Symbol	Model name	Detailed description
Main circuit power supply	L1、L2	GL1A0、GL1A8、GL3A0	Single-phase 220VAC -15%~+10% 50/60Hz
	L1、L2、L3	GL7A5、GL120、GL160、GL190、GL240	Three-phase 220VAC -15%~+10% 50/60Hz
	L1、L2、L3	EP3E-GH series	Three-phase 380VAC -15%~+10% 50/60Hz
Control circuit power	L1C、L2C	EP3E-GL series	Single-phase 220VAC -15%~+10% 50/60Hz
	24V、0V	EP3E-GH series	External DC24V
Regenerative resistor	P、B1、B2	GL1A0、GL1A8、GL3A0、GL5A5、GL7A5、GL120、GL160、GH2A0、GH3A5、GH5A4	When using external regenerative resistor, disconnect B1 and B2, connect the external resistor to P and B1 ends, and let B2 be suspended
	NC、P、B	GL190、GL240、GH8A5、GH130、GH170、GH210、GH260、GH320、GH390	When using the external regenerative resistor, the internal regenerative resistor line between P and B should be disconnected, and connect the 2 internal regenerative resistor line to NC. Then crossover the external regenerative resistor to terminals P and B
DC reactor	N1、N2	GL190、GL240、EP3E-GH series	Connect the DC reactor between N1 and N2 for harmonic suppression
Motor power	U	EP3E full range	Output to motor U phase power
	V		Output to motor V phase power
	W		Output to motor W phase power
Grounding	⏚	EP3E full range	Motor casting grounding terminals
	⏚		Drive grounding terminals

X1 Connector signal instruction

Control signal terminal name		Pin No.	Function
Inputs	DI1	14	Photoelectric isolated input, function can be programmed and defined by parameter P100~P104
	DI2	2	
	DI3	15	
	DI4	3	
	DI5	16	
	COM+	1	DI power supply (DC12V~24V)
Outputs	DO1	4	Photoelectric isolated output, maximum output capacity 50mA/25V, function can be programmed, defined by parameter P130~P132
	DO2	17	
	DO3	5	
	DOCOM	18	DO common port
	DO4+	11	Photoelectric isolated output, maximum output capacity 50mA/25V, function can be programmed, defined by parameter. Digital differential output
	DO4-	23	
	DO5+	12	
	DO5-	24	
Latch inputs	HDI1+	20	High speed photoelectric isolated input
	HDI1-	7	
	HDI2+	19	
	HDI2-	6	
Shielding wire protection	Plug with metal case		Shielded wires for connecting shielded cable

X2 Connector signal instruction

Encoder signal name		Pin No.		Function
		Absolute type	Incremental type	
Encoder power supply	5V	4	4	Use 5VDC power supply (provided by servo driver).If the cable is longer than 20m, in order to prevent encoder from voltage drop down, it is better to use multi wire or thick wire for power line and ground line
	0V	5	5	
Signal input	SD+	1	1	Connect to absolute encoder signal output
	SD-	2	2	
Shielding wire protection	FG	9	9	Connected to signal cable shielding line

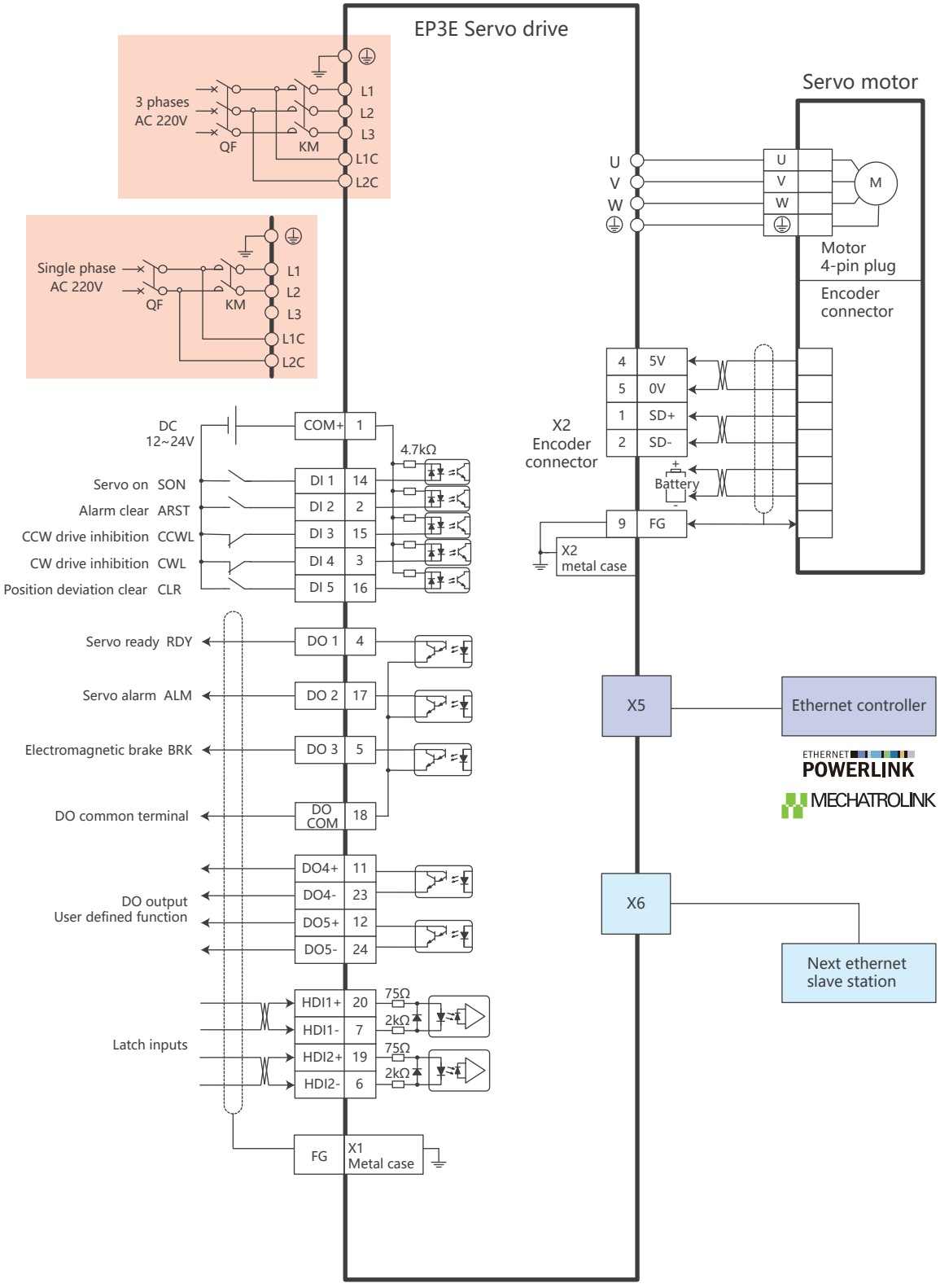
X5(input) and X6(output) Interface

RJ45	Pin No.	Function
TX+	1	Send signal+
TX-	2	Send signal-
RX+	3	Receive signal+
RX-	6	Receive signal-

EP3E Servo drive

POWERLINK/MECHATROLINK-Ⅲ model

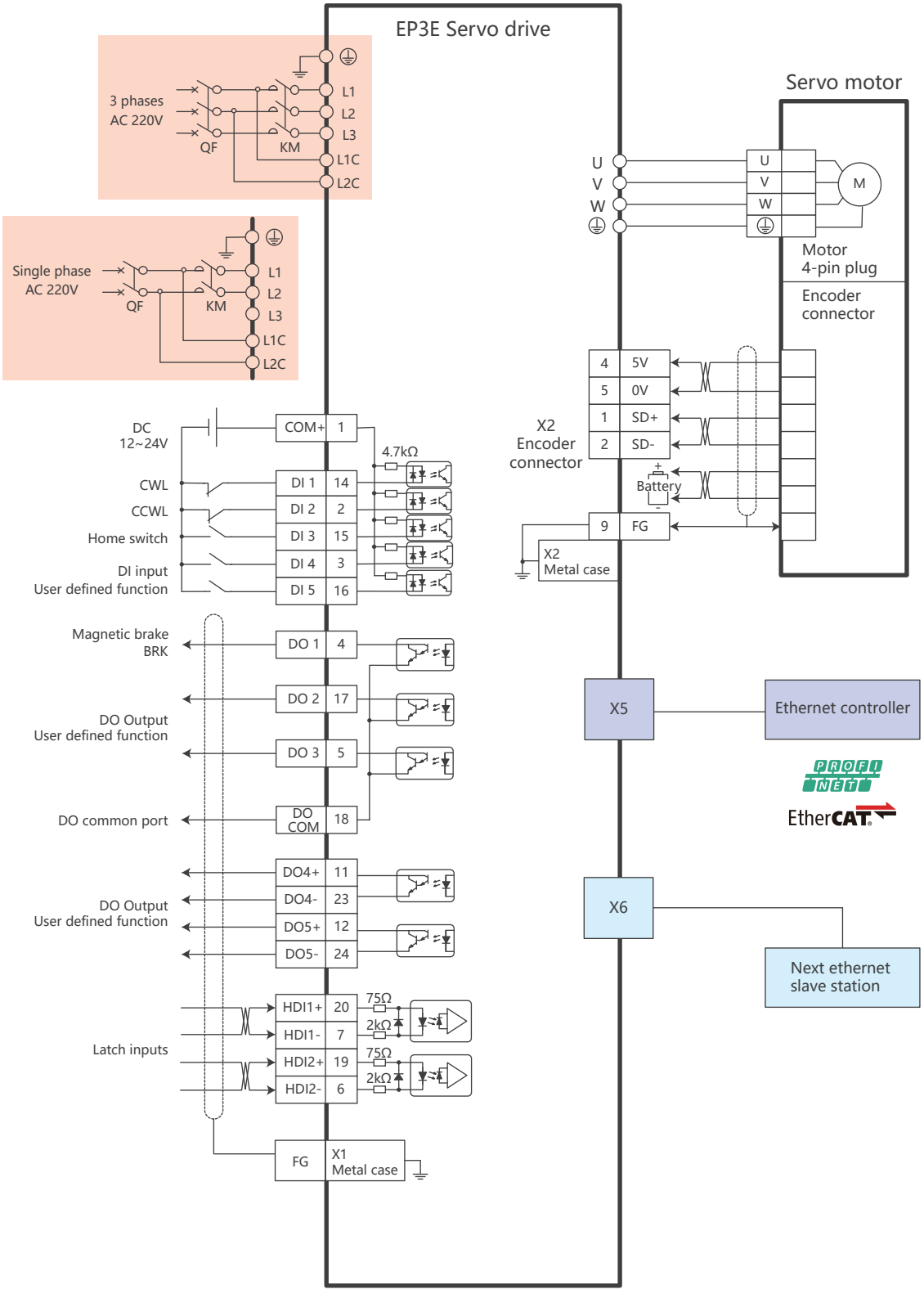
Take the GL series of EP3E as an example. Please refer to the product user manual for other products wiring.



EP3E Servo drive

PROFINET/EtherCAT model

Take the GL series of EP3E as an example. Please refer to the product user manual for other products wiring.



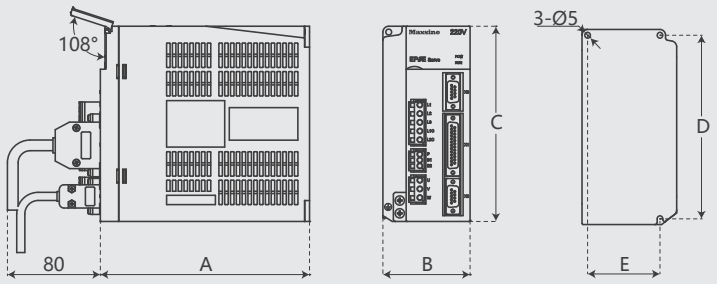
EP3E Servo drive

Technical data

EP3E series		GL1A0	GL1A8	GL3A0	GL5A5	GL7A5	GL120	GL160	GL190	GL240	GH2A0	GH3A5	GH5A4	GH8A5	GH130	GH170	GH210	GH260	GH320	GH390
Rated output power (kW)		0.1	0.2	0.5	1.0	1.5	2.0	2.5	3.5	5.5	0.6	1.0	1.5	2.0	3.0	5.0	7.5	9.0	11.0	15.0
Continuous output current (Arms)		1.0	1.8	3.0	5.0	7.5	11.5	15.5	19.0	24.0	2.0	3.5	5.4	8.5	13.0	17.0	21.0	25.5	32.0	39.0
Instantaneous maximum output current (Arms)		3.0	5.4	9.0	11.3	14.9	21.0	24.5	28.5	40.0	6.0	7.1	10.0	12.7	28.3	31.2	39.6	44.0	55.0	78.0
Input power supply	Main power supply	Single phase AC220V -15% ~ +10% 50/60Hz			3 phase AC220V -15% ~ +10% 50/60Hz						3 phase AC380V -15% ~ +10% 50/60Hz									
	Control power supply	Single phase AC220V -15% ~ +10% 50/60Hz									24V DC ±15% ≥1.5A									
Environment	Temperature	Operation: 0℃ ~ 40℃ Storage: -40℃ ~ 50℃																		
	Humidity	Operation: 40% ~ 80% (no condensation) Storage: less than 93% (no condensation)																		
	Atmospheric pressure	86kPa ~ 106kPa																		
Protection rating		IP20																		
Control method		Vector control																		
Regenerative resistor		External	Internal / External optional							External	Internal / External optional				External					
Feedback mode		Serial encoder																		
Operation mode		Cyclic Synchronous Position Mode (CSP), Cyclic Synchronous Velocity Mode (CSV), Cyclic Synchronous Torque Mode (CST) For more details, please refer to the user manual.																		
Digital inputs		5 programmable input terminals (photoelectric isolation), 2 high speed optocoupler input																		
Digital outputs		5 programmable input terminals (photoelectric isolation)																		
Special function		Mechanical resonance notch filter, vibration suppression																		
Monitoring function		Speed, current position, position deviation, motor torque, motor current, instruction pulse frequency, etc																		
Protection function		Over speed, over voltage, over current, overload, braking abnormal, encoder abnormal, position deviation and so on																		
Characteristic	Velocity frequency response	3kHz																		
	Speed fluctuation rate	< ±0.03% (Load 0%~100%), < ±0.02% (Power-15%~+10%)																		
	Speed ratio	1:5000																		

EP3E Servo drive

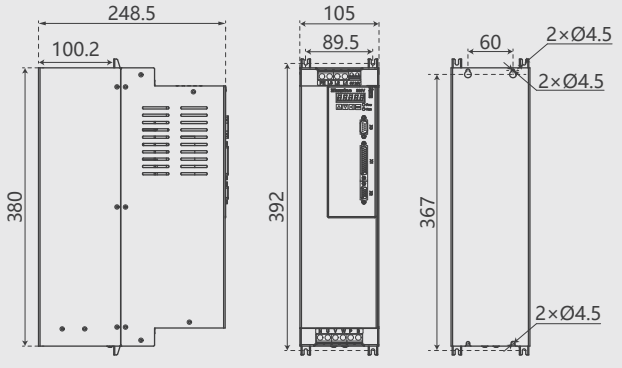
Dimension drawing



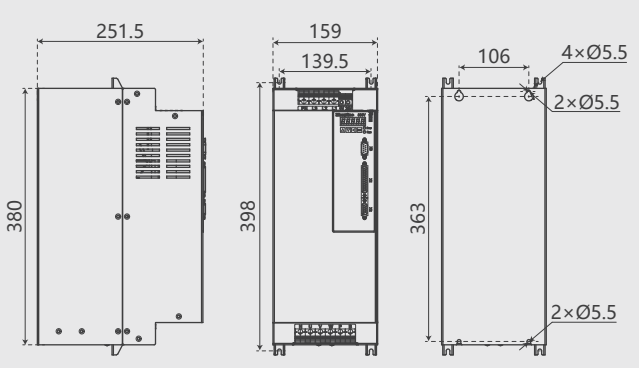
Dimension drawing 1

Model / Dimension(mm)	GL1A0	GL1A8/GL3A0	GL5A5	GL7A5	GL120	GL160	GL190	GL240
A	150	150	180	180	180	180	180	210
B	55	65	75	85	95	95	105	115
C	168	168	168	168	168	200	220	250
D	158	158	158	158	158	189	209	239
E	--	55	65	65	65	84	94	104

Model / Dimension(mm)	GH2A0/GH3A5/GH5A4	GH8A5	GH130	GH170/GH210
A	180	180	180	210
B	95	95	105	115
C	168	200	220	250
D	158	189	209	239
E	65	84	94	104



Dimension drawing 2: applies to GH260



Dimension drawing 3: applies to GH320, GH390

Order number description

EP1C Servo drive

EP1C - T L 05 - F0 S0 M
① ② ③ ④ ⑤

①

Symbol	Main power supply voltage
L	AC220V
H	AC380V

②

TL series	Rated power	TH series	Rated power
01	0.1kW	06	0.6kW
02	0.2kW	10	1.0kW
05	0.5kW	15	1.5kW
08	0.8kW	20	2.0kW
10	1.0kW	30	3.0kW
15	1.5kW	50	5.0kW
25	2.5kW	75	7.5kW
35	3.5kW	90	9.0kW
55	5.5kW	110	11.0kW
		150	15.0kW

③

Symbol	Encoder
F0	Incremental encoder

④

Symbol	Control mode
S0	Standard 5V differential signal input
S8	Special specifications for SIEMENS CNC

⑤

Symbol	Communication protocol
M	Modbus

EP1C Plus Servo drive

EP1C Plus - T L 05 - E3 S0 M
① ② ③ ④ ⑤

①

Symbol	Main power supply voltage
L	AC220V
H	AC380V

②

TL series	Rated power	TH series	Rated power
01	0.1kW	06	0.6kW
02	0.2kW	10	1.0kW
05	0.5kW	15	1.5kW
08	0.8kW	20	2.0kW
10	1.0kW	30	3.0kW
15	1.5kW	50	5.0kW
25	2.5kW	75	7.5kW
35	3.5kW	90	9.0kW
55	5.5kW	110	11.0kW
		150	15.0kW

Note: EP1C Plus supports Modbus and MECHATROLINK-II protocols. Please refer to the right for definitions of ③④⑤ of both protocols.

③

Symbol	Encoder
B0	serial INC encoder
E3	serial ABS encoder

④

Symbol	Control mode
S0	Standard 5V differential signal input
S3	Standard 24V single ended signal input
S8	Special specifications for SIEMENS CNC

⑤

Symbol	Communication protocol
M	Modbus

③

Symbol	Encoder
B0	serial INC encoder
E3	serial ABS encoder

④

Symbol	Control mode
S0	X3 control terminal DB15

⑤

Symbol	Communication protocol
M2	MECHATROLINK

Order number description

EP3E Servo drive

EP3E - G ① L ② 1A0 - ③ E3 ④ S0 ⑤ EP

①

Symbol	Main power supply voltage
L	AC220V
H	AC380V

②

GL series	Rated power	GH series	Rated power
1A0	0.1kW	2A0	0.6kW
1A8	0.2kW	3A5	1.0kW
3A0	0.5kW	5A4	1.5kW
5A5	1.0kW	8A5	2.0kW
7A5	1.5kW	130	3.0kW
120	2.0kW	170	5.0kW
160	2.5kW	210	7.5kW
190	3.5kW	260	9.0kW
240	5.5kW	320	11.0kW
		390	15.0kW

③

Symbol	Encoder
B0	serial INC encoder
E3	serial ABS encoder

④

Symbol	Control mode
S0	X1 control terminal DB25

⑤

Symbol	Communication protocol
EP	ETHERNET POWERLINK
EC	EtherCAT
M3	MECHATROLINK
PN	PROFINET
...	Please contact us for customization

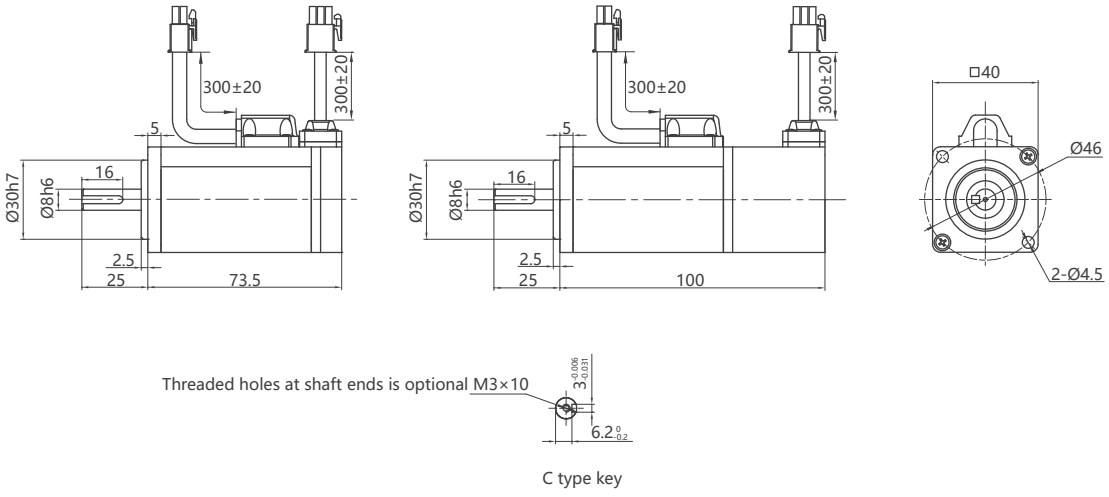
MS 40 series motor 220V

Technical parameters

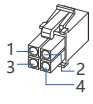
Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
040MSL00330	0.1	220	1.10	3.00	3000	5000	0.32	0.96	0.035 (0.052)	0.3 (0.5)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥0.32	4.0		0~+40	Relative humidity < 90% (no condensation)	IP65

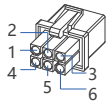
Dimensions



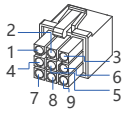
Connection definition



Standard power plug A04	
Terminal symbol	Signal
1	U
2	V
3	W
4	FG (SHIELD)



With brake power plug A06	
Terminal symbol	Signal
1	U
2	V
3	W
4	FG (SHIELD)
5	BK+
6	BK-



Absolute value signal plug A09	
Terminal symbol	Signal
1	SD+
2	SD-
3	BAT+
4	—
5	—
6	VCC
7	GND
8	BAT-
9	FG (SHIELD)

Note: 40 series motor only supports absolute encoder.

MS 60 series motor 220V

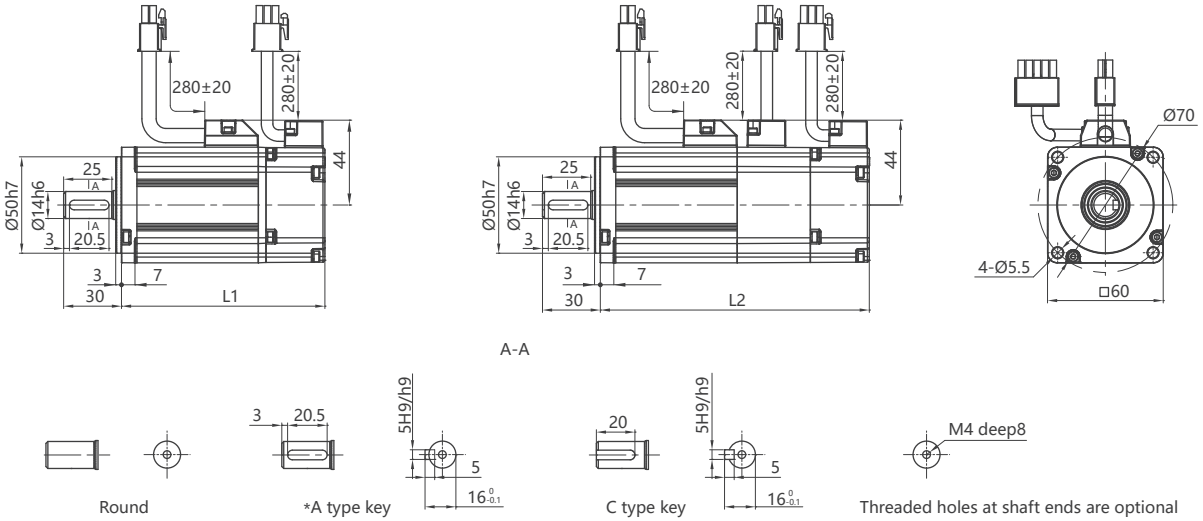
Technical parameters

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
060MSL00630	0.2	220	1.70	5.10	3000	6000	0.64	1.92	0.017 (0.019)	1.10 (1.60)
060MSL01330	0.4	220	2.70	8.10	3000	6000	1.27	3.81	0.027 (0.030)	1.60 (2.00)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥1.3	7.2		0~+40	Relative humidity < 90% (no condensation)	IP65

Dimensions

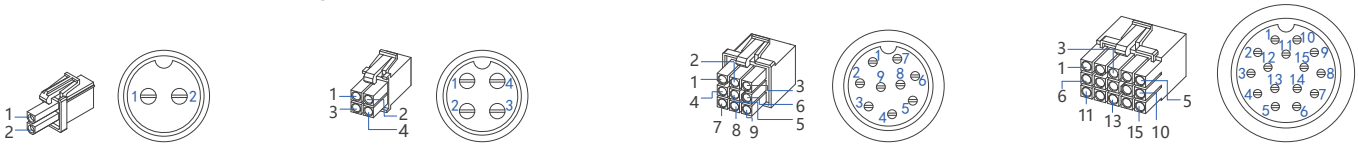
Note: "*" represents standard key.



Rated torque (N·m)		0.64	1.27
L(mm)	L1	114.0	139.0
	L2	148.0	173.0

Connection definition

Note: AMP connector is the standard configuration of 60 and 80 series motors, round connector is optional.



Brake plug A02/Y02	
Terminal symbol	Signal
1	Power supply +
2	Power supply -

Power supply plug A04/Y104/Y204	
Terminal symbol	Signal
1	U
2	V
3	W
4	FG (SHIELD)

Encoder plug A09/Y109/Y209		
Terminal symbol	ABS	INC
1	SD+	SD+
2	SD-	SD-
3	BAT+	—
4	—	—
5	—	—
6	VCC	VCC
7	GND	GND
8	BAT-	—
9	FG (SHIELD)	FG (SHIELD)

Encoder plug A15/Y115/Y215	
Terminal symbol	Standard INC
1	GND
2	DC+5V
3	0V
4	B+
5	Z-
6	U+
7	Z+
8	U-
9	A+
10	V+
11	W+
12	V-
13	A-
14	B-
15	W-

MS 80 series motor 220V

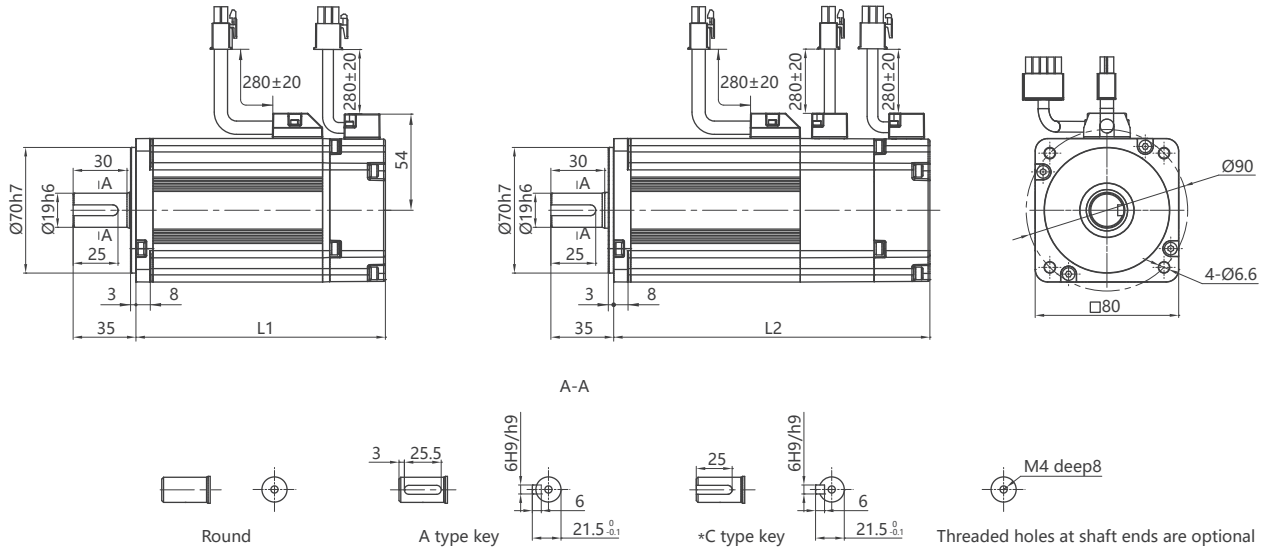
Technical parameters

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
080MSL01330	0.4	220	2.40	7.20	3000	6000	1.27	3.81	0.068 (0.073)	2.10 (2.70)
080MSL02430	0.75	220	5.10	15.30	3000	6000	2.39	7.17	0.113 (0.118)	2.90 (3.50)
080MSL03230	1.0	220	6.50	19.50	3000	6000	3.18	9.54	0.113 (0.118)	2.90 (3.50)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥3.2	11.5		0~+40	Relative humidity < 90% (no condensation)	IP65

Dimensions

Note: "*" represents standard key.



Rated torque (N·m)		1.27	2.39	3.18
L(mm)	L1	122.5	147.5	147.5
	L2	159.5	184.5	184.5

Connection definition

The wiring definition of motor power cable, brake cable and encoder cable are the same as 60 series MSL/MAL motor.

Note: AMP connector is the standard configuration of 60 and 80 series motors, round connector is optional.

MA 110 series motor 220V

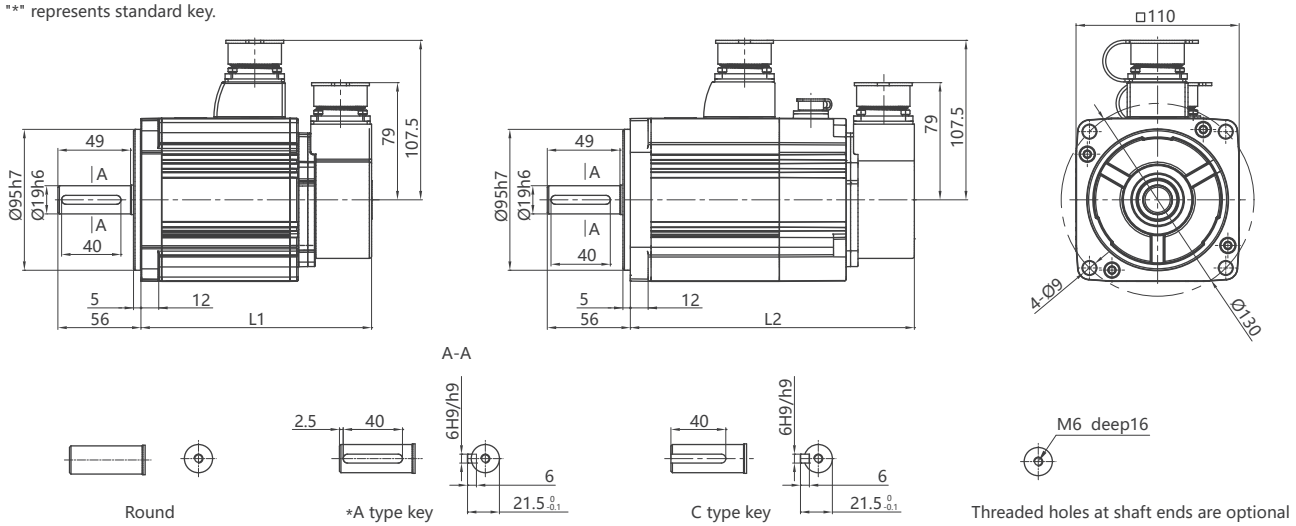
Technical parameters

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
110MAL04030	1.26	220	5.30	15.90	3000	4000	4.00	12.00	0.31 (0.33)	4.80 (6.60)
110MAL06030	1.88	220	6.60	19.80	3000	3500	6.00	18.00	0.50 (0.52)	6.70 (8.30)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥8	14.4		0~+40	Relative humidity < 90% (no condensation)	IP65

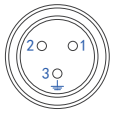
Dimensions

Note: "*" represents standard key.

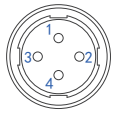


Rated torque (N·m)		4.00	6.00
L(mm)	L1	163.5	195.5
	L2	199.5	231.5

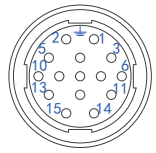
Connection definition



Brake plug H03	
Terminal symbol	Signal
1	Power supply +
2	Power supply -
3	FG (SHIELD)



Power supply plug H04	
Terminal symbol	Signal
1	FG (SHIELD)
2	U
3	V
4	W



Encoder plug H15			
Terminal symbol	ABS	INC	Standard INC
1	FG (SHIELD)	FG (SHIELD)	FG (SHIELD)
2	VCC	VCC	DC+5V
3	GND	GND	0V
4	BAT+	—	A+
5	BAT-	—	B+
6	SD+	SD+	Z+
7	SD-	SD-	A-
8	—	—	B-
9	—	—	Z-
10	—	—	U+
11	—	—	V+
12	—	—	W+
13	—	—	U-
14	—	—	V-
15	—	—	W-

MS/MA 130 series motor 220V

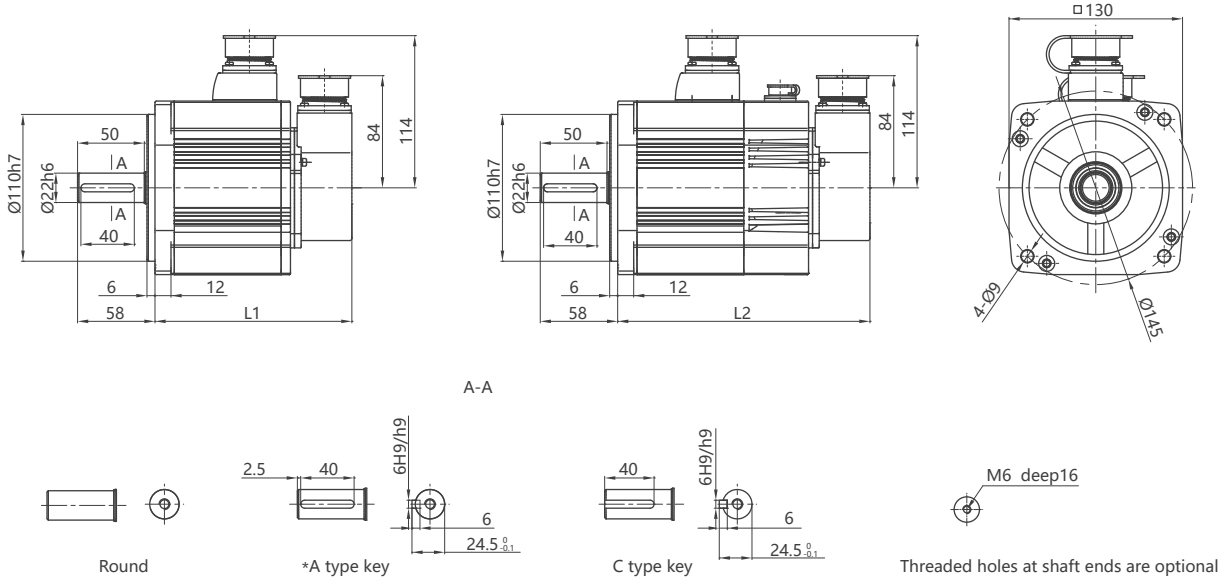
Technical parameters

	Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
MSL series	130MSL04025	1.00	220	5.10	15.30	2500	4000	4.00	12.00	0.48 (0.58)	5.50 (8.10)
	130MSL04820	1.00	220	5.80	17.40	2000	4000	4.77	14.31	0.48 (0.58)	5.50 (8.10)
	130MSL05025	1.30	220	6.10	18.30	2500	4000	5.00	15.00	0.48 (0.58)	5.50 (8.10)
	130MSL07220	1.50	220	8.60	25.80	2000	4000	7.16	21.48	0.71 (0.74)	7.10 (9.70)
	130MSL09620	2.00	220	11.30	33.90	2000	4000	9.55	28.65	0.94 (0.97)	8.70 (11.30)
	130MSL10025	2.60	220	11.50	34.50	2500	4000	10.00	30.00	0.94 (0.97)	8.70 (11.30)
	130MSL14320	3.00	220	14.10	42.30	2000	3500	14.30	42.90	1.41 (1.44)	12.30 (14.70)
MAL series	130MAL06025	1.57	220	5.90	17.70	2500	3000	6.00	18.00	0.65 (0.68)	6.80 (9.30)
	130MAL07725	2.02	220	7.70	23.10	2500	3000	7.70	23.10	0.83 (0.86)	8.00 (10.60)
	130MAL10015	1.57	220	6.60	19.80	1500	2000	10.00	30.00	0.94 (0.97)	8.80 (11.40)
	130MAL15015	2.36	220	9.50	27.00	1500	2000	15.00	45.00	1.41 (1.44)	12.10 (14.60)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥15	15		0~+40	Relative humidity < 90% (no condensation)	IP65

Dimensions

Note: "*" represents standard key.



Type		MSL							MAL			
Rated torque (N·m)		4.00	4.77	5.00	7.16	9.55	10.00	14.30	6.00	7.70	10.00	15.00
L(mm)	L1	147.5			167.5	187.5		227.5	162.5	177.5	187.5	227.5
	L2	189.0			209.0	229.0		269.0	204.0	219.0	229.0	269.0

Connection definition

The wiring definition of motor power cable, brake cable and encoder cable are the same as motor 110 MSL/MAL series.

MA 110/130 series motor 380V

110 MAH

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
110MAH04030	1.26	380	3.80	11.40	3000	5500	4.00	12.00	0.31 (0.33)	4.80 (6.60)
110MAH06030	1.88	380	4.20	12.60	3000	4000	6.00	18.00	0.50 (0.52)	6.70 (8.30)

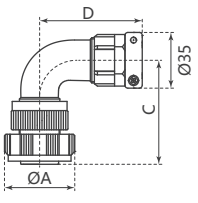
Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥8	14.4		0~+40	Relative humidity < 90% (no condensation)	IP65

130 MAH

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
130MAH04025	1.00	380	2.70	8.10	2500	4500	4.00	12.00	0.48 (0.58)	5.50 (8.10)
130MAH04820	1.00	380	3.40	10.20	2000	4500	4.77	14.31	0.48 (0.58)	5.50 (8.10)
130MAH05025	1.30	380	3.70	11.10	2500	4500	5.00	15.00	0.48 (0.58)	5.50 (8.10)
130MAH06025	1.57	380	4.10	12.30	2500	4000	6.00	18.00	0.65 (0.68)	6.80 (9.30)
130MAH07725	2.02	380	5.00	15.00	2500	4000	7.70	23.10	0.83 (0.86)	8.00 (10.60)
130MAH10015	1.57	380	4.30	12.90	1500	2500	10.00	30.00	0.94 (0.97)	8.80 (11.40)
130MAH15015	2.36	380	6.20	18.60	1500	2500	15.00	45.00	1.41 (1.44)	12.10 (14.60)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥15	15		0~+40	Relative humidity < 90% (no condensation)	IP65

Note: The motor dimension and wiring definition of 380V motors are the same as 220V motors.
For details, please refer to: 110 series MSL/MAL motor (220V); 130 series MSL/MAL motor (220V).



Bending tail cover of electric coupler		
Shell number / Dimensions (mm)	28#	32#
A	38.5	47
C	75.5	76.5
D	61.5	65.5

Notes:
1. 28# is equipped on the power plug of 110 and 130 motors, and 32# on 180 motor;
2. 28# is equipped on the encoder plug of 110, 130, and 180 motors;
3. the dimensions of power plug (H04B) of 180 motor are slightly larger than those of 110 and 130 motors.

MA 180 series motor 380V

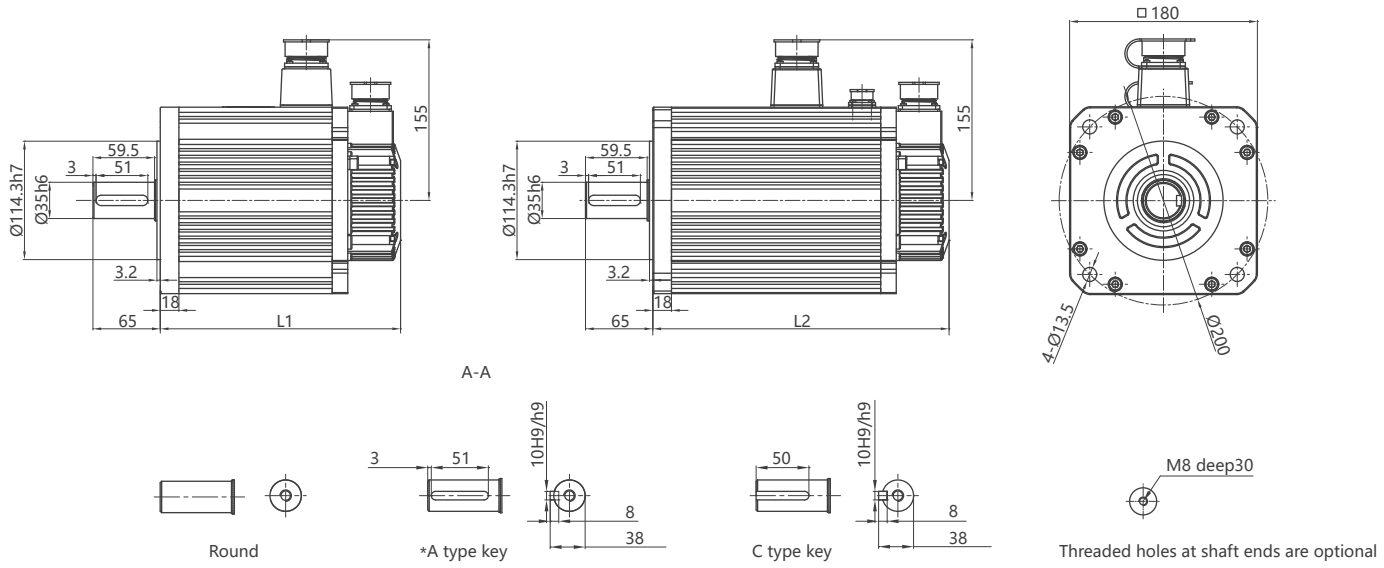
Technical parameters

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
180MAH19015	3.00	380	7.80	23.40	1500	1800	19.00	57.00	6.50 (6.70)	20.5 (23.0)
180MAH27015	4.30	380	10.00	30.00	1500	1800	27.00	81.00	9.10 (9.30)	25.5 (28.0)
180MAH35015	5.50	380	13.60	40.80	1500	1800	35.00	105.00	11.80 (12.00)	30.5 (33.0)
180MAH48015	7.50	380	17.50	52.50	1500	1800	48.00	144.00	15.80 (16.00)	40.0 (42.5)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥48	26		0~+40	Relative humidity < 90% (no condensation)	IP65

Dimensions

Note: "*" represents standard key.



Rated torque (N·m)		19.00	27.00	35.00	48.00
L(mm)	L1	232.0	262.0	292.0	346.0
	L2	286.0	316.0	346.0	400.0

Connection definition

The wiring definition of motor power cable, brake cable and encoder cable are the same as 110 series MSL/MAL motor.

Note: The dimensions of H04B of motor 180 are slightly larger than those of H04 for motor 110 and 130.

GS 60 series motor 220V

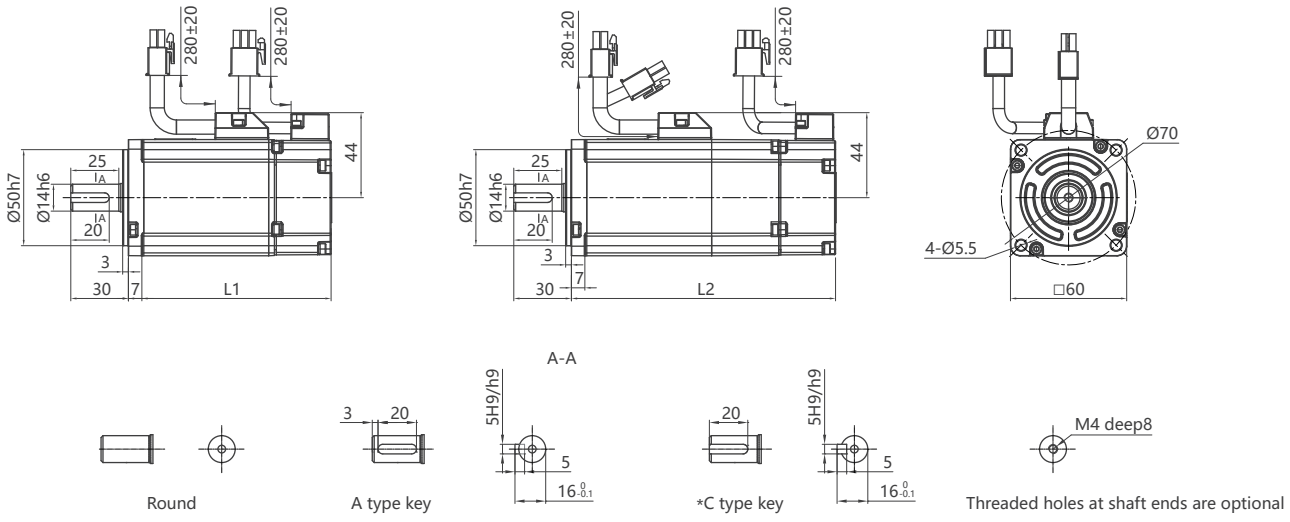
Technical parameters

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
060GSL00630	0.2	220	1.60	4.80	3000	6000	0.64	1.92	0.031(0.032)	1.0(1.35)
060GSL01330	0.4	220	2.80	8.40	3000	6000	1.27	3.81	0.056(0.057)	1.3(1.65)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥1.5	7.6		0~+40	Relative humidity < 90% (no condensation)	IP65

Dimensions

Note: "*" represents standard key.



Rated torque (N·m)		0.64	1.27
L(mm)	L1	88.5	105.5
	L2	120.5	137.5

Connection definition

The wiring definition of motor power cable, brake cable and encoder cable are the same as 60 series MSL/MAL motor.

Note: AMP connector is the standard configuration of 60 and 80 series motors, round connector is optional.

GS 80 series motor 220V

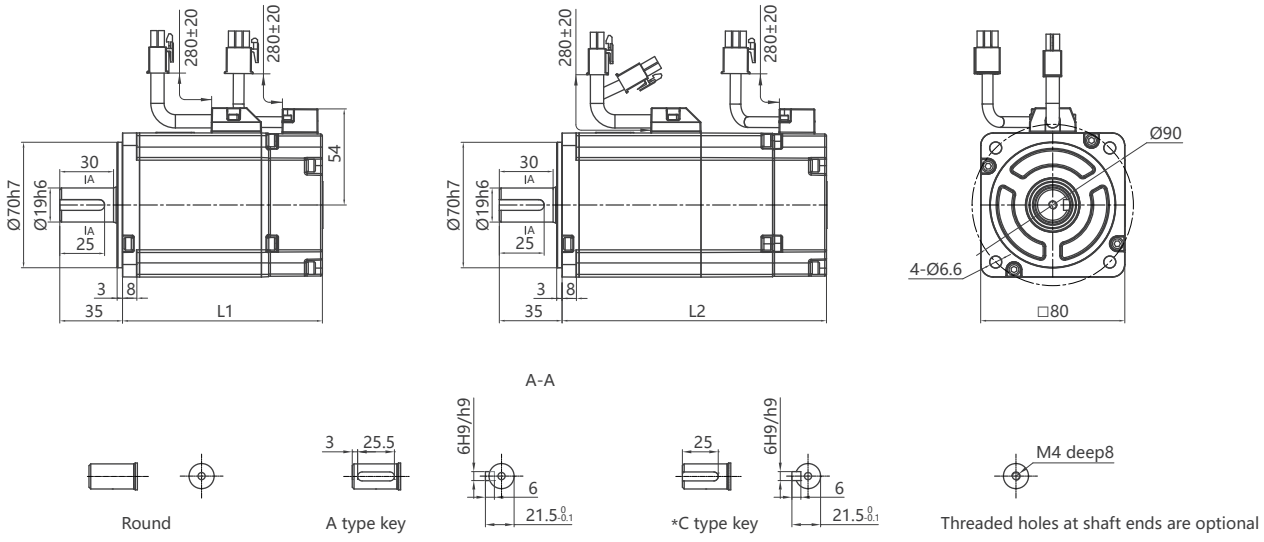
Technical parameters

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
080GSL01330	0.4	220	2.50	7.50	3000	6000	1.27	3.81	0.099(0.101)	1.85(2.65)
080GSL02430	0.75	220	4.40	13.20	3000	6000	2.39	7.17	0.15(0.16)	2.35(3.15)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥3.2	11.5		0~+40	Relative humidity < 90% (no condensation)	IP65

Dimensions

Note: "*" represents standard key.



Rated torque (N·m)		1.27	2.39
L(mm)	L1	96.5	111.5
	L2	132.5	147.5

Connection definition

The wiring definition of motor power cable, brake cable and encoder cable are the same as 60 series MSL/MAL motor.

Note: AMP connector is the standard configuration of 60 and 80 series motors, round connector is optional.

GS/GA 110 series motor 220V

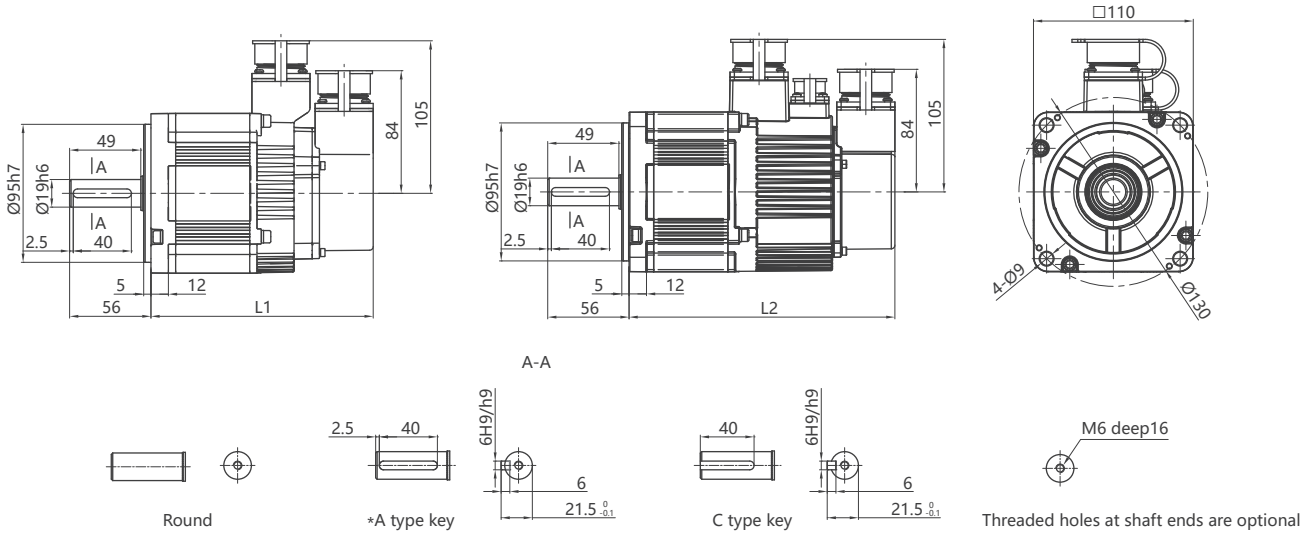
Technical parameters

	Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
GSL series	110GSL04030	1.26	220	6.00	18.00	3000	4000	4.00	12.00	0.56(0.58)	4.4(5.7)
	110GSL06025	1.57	220	8.10	24.30	2500	4000	6.00	18.00	0.85(0.87)	5.6(6.9)
GAL series	110GAL04020	0.84	220	4.40	13.20	2000	3000	4.00	12.00	0.56(0.58)	4.4(5.7)
	110GAL06020	1.26	220	6.40	19.20	2000	3000	6.00	18.00	0.85(0.87)	5.6(6.9)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥15	15		0~+40	Relative humidity < 90% (no condensation)	IP65

Dimensions

Note: "*" represents standard key.



Type		GSL/GAL	
Rated torque (N·m)		4.00	6.00
L(mm)	L1	153.0	173.0
	L2	183.0	203.0

Connection definition

The wiring definition of motor power cable, brake cable and encoder cable are the same as motor 110 MSL/MAL series.

GS/GA 130 series motor 220V

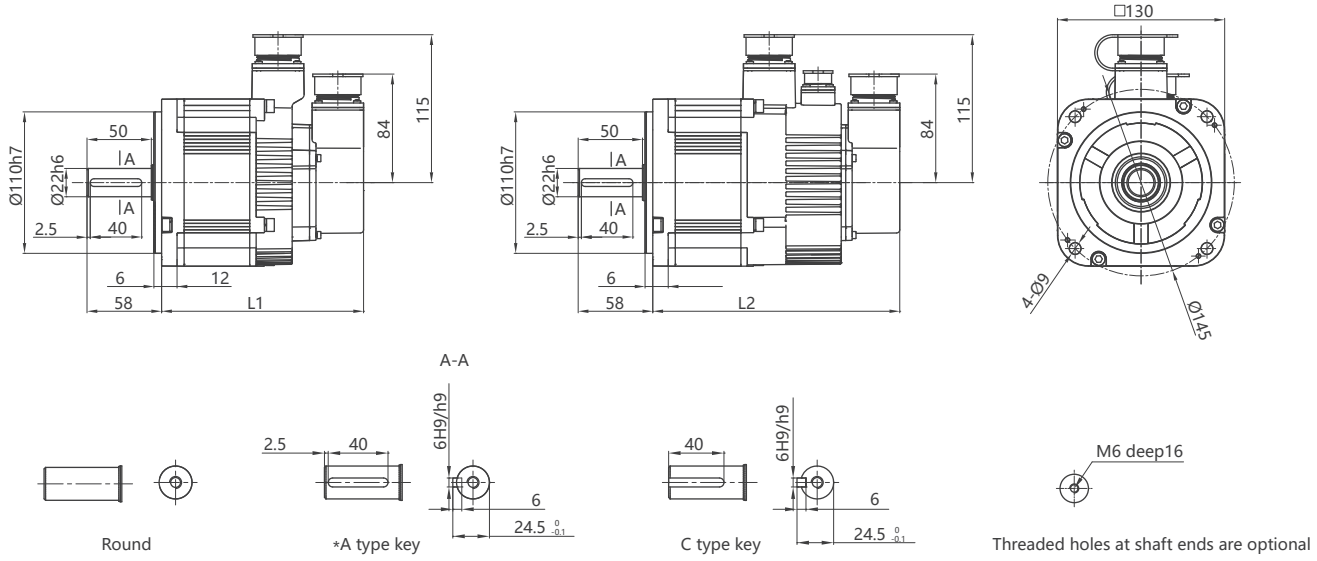
Technical parameters

	Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
MSL series	130GSL05415	0.85	220	6.70	20.10	1500	3000	5.39	16.17	1.14(1.30)	5.6(7.7)
	130GSL08315	1.30	220	9.90	31.80	1500	3000	8.34	25.02	1.70(1.85)	7.0(9.1)
	130GSL11515	1.80	220	12.00	37.80	1500	3000	11.50	34.50	2.32(2.47)	8.6(10.7)
	130GSL15015	2.36	220	14.70	38.40	1500	3000	15.00	40.20	3.18(3.33)	11.3(13.4)
MAL series	130GAL05415	0.85	220	5.10	15.00	1500	2000	5.39	16.17	1.14(1.30)	5.6(7.7)
	130GAL08315	1.30	220	6.40	19.20	1500	2000	8.34	25.02	1.70(1.85)	7.0(9.1)
	130GAL11515	1.80	220	7.40	22.20	1500	2000	11.50	34.50	2.32(2.47)	8.6(10.7)
	130GAL15010	1.57	220	6.70	20.10	1000	1500	15.00	45.00	3.18(3.33)	11.3(13.4)
	130GAL15015	2.36	220	9.50	28.50	1500	2000	15.00	45.00	3.18(3.33)	11.3(13.4)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥15	15		0~+40	Relative humidity < 90% (no condensation)	IP65

Dimensions

Note: "*" represents standard key.



Type		GSL				GAL			
Rated torque (N·m)		5.39	8.34	11.50	15.00	5.39	8.34	11.50	15.00
L(mm)	L1	157.0	173.0	191.0	222.0	157.0	173.0	191.0	222.0
	L2	192.0	208.0	226.0	257.0	192.0	208.0	226.0	257.0

Connection definition

The wiring definition of motor power cable, brake cable and encoder cable are the same as motor 110 MSL/MAL series.

GA 130 series motor 380V

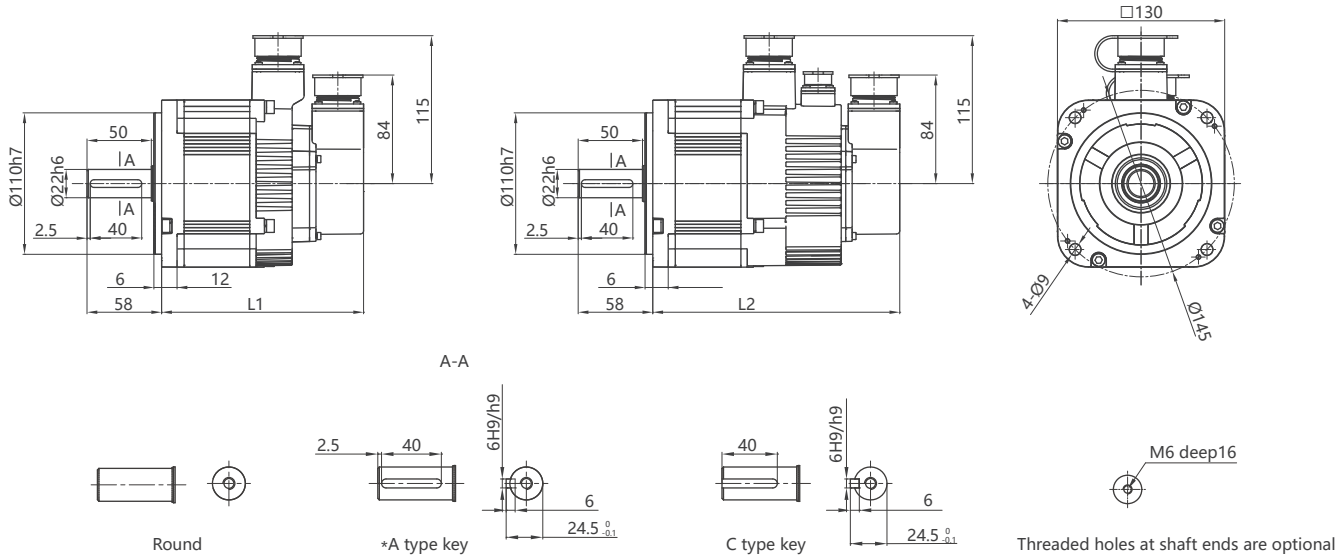
Technical parameters

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
130GAH05415	0.85	380	3.10	9.30	1500	3000	5.39	16.17	1.14(1.30)	5.6(7.7)
130GAH08315	1.30	380	4.90	14.70	1500	3000	8.34	25.02	1.70(1.85)	7.0(9.1)
130GAH10025	2.62	380	5.40	16.20	2500	3000	10.00	30.00	2.32(2.47)	8.6(10.7)
130GAH11515	1.80	380	4.30	12.90	1500	2000	11.50	34.50	2.32(2.47)	8.6(10.7)
130GAH15015	2.36	380	6.60	19.80	1500	2000	15.00	45.00	3.36(3.51)	11.3(13.4)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	≥15	15		0~+40	Relative humidity < 90% (no condensation)	IP65

Dimensions

Note: "*" represents standard key.



Rated torque (N·m)		5.39	8.34	10.00	11.50	15.00
L(mm)	L1	157.0	173.0	191.0		222.0
	L2	192.0	208.0	226.0		257.0

Connection definition

The wiring definition of motor power cable, brake cable and encoder cable are the same as motor 110 MSL/MAL series.

Order number description

Servo motor

110	MA	L	040	30	B	N	O	1	Y1
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

①

Symbol	The base number
040	40mm
060	60mm
080	80mm
110	110mm
130	130mm
180	180mm

②

Symbol	Model
MS	MS series
MA	MA series
GS	GS series
GA	GA series

③

Symbol	Voltage
L	AC 220V
H	AC 380V

④

Symbol	Rated torque
040	4.00N·m
050	5.00N·m
060	6.00N·m
096	9.55N·m
100	10.00N·m

⑤

Symbol	Rated speed
10	1000rpm
15	1500rpm
20	2000rpm
25	2500rpm
30	3000rpm

⑥

Symbol	Encoder
B	23bit INC encoder
C	17bit ABS encoder
M	23bit ABS encoder
F	Standard INC encoder

⑦

Symbol	Brake
N	Without brake
Z	With brake

⑧

Symbol	Model
O	Circular shaft
A	Closed key
C	Forelock key

⑨

Symbol	Model
1	Default
2	Customized

⑩

Symbol	Model
A [Note]	AMP connector
H [Note]	Aviation plug
Y1	Round plug of 60 and 80 motors
Y2	Waterproofing plug of 60 and 80 motors

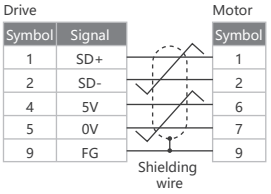
Note: "A" represents the standard plug of 40, 60, and 80 series motors; "H" represents the standard plug of 110, 130, and 180 series motors.

Cables

Encoder cable

MS/MA 40/60/80 series motors

E□□□-DB09B0A09/Y109/Y209



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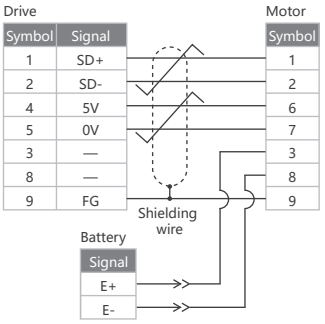
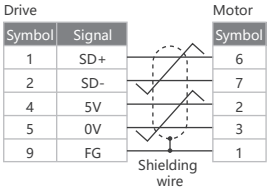
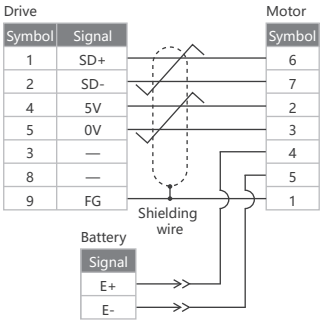


MS/MA 110/130/180 series motors

E□□□-DB09B0H15



E□□□-DB09E0H15

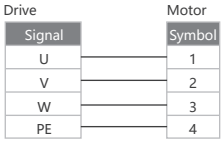


Note: SD+ and SD- are twisted pair. 0V and 5V are twisted pair.

Power cable

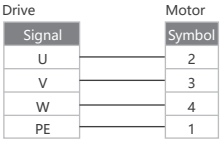
MS/MA 60/80 series motors

P□□□-04075A04/Y104/Y204



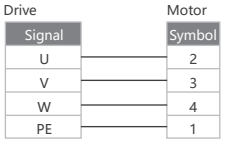
MS/MA 110/130 series motors

P□□□-04□□□H04



MS/MA 180 series motors

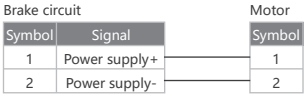
P□□□-04□□□H04B



Brake cable

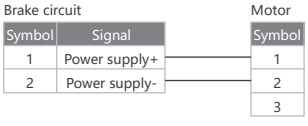
MS/MA 60/80 series motors

B□□□-02050A02



MS/MA 110/130/180 series motors

B□□□-02050H03



Order number for cables

P □□□ - 04 075 A04 R

① ② ③ ④ ⑤ ⑥

①

Symbol	Cable type
P	Power cable
B	Brake cable

②

Symbol	Cable length
030	3m
050	5m
070	7m
100	10m

③

Symbol	Cable core	Motor type					
		40	60	80	110	130	180
02	2 cores brake cable	√	√	√	√	√	√
04	4 cores power cable	√	√	√	√	√	√
06	6 cores power and beake cable	√					

④

Symbol	Cable diameter
050	0.50mm²
075	0.75mm²
150	1.50mm²
250	2.50mm²
400	4.00mm²
600	6.00mm²

⑤

Symbol	Motor power/ Brake plug	Type	Motor type					
			40	60	80	110	130	180
A02	2 cores AMP plug	B		√	√			
A04	4 cores AMP plug	P		√	√			
A06	6 cores AMP plug	P	√					
Y1/Y2 02	2 cores round plug	B		√	√			
Y1/Y2 02	4 cores round plug	P		√	√			
H03	3 cores aviation plug	B				√	√	√
H04	4 cores aviation plug	P				√	√	
H04B	4 cores aviation plug	P						√

⑥

Symbol	Specification
R	Flexible cable

Note: Six-core AMP plug applies to six-core power and brake cable. Cable type P is provided when placing order.

E □□□ - DB09 □□ A09 R

① ② ③ ④ ⑤ ⑥

①

Symbol	Cable type
E	Encoder cable

②

Symbol	Cable length
030	3m
050	5m
070	7m
100	10m

③

Symbol	Servo drive encoder connector
DB09	Absolue type/incremental subdivision type
DB09	Resolver
DB15	Incremental type/Fewer lines type
S261	S261 encoder type

④

Symbol	Encoder specification
F0	Standard incremental encoder
F1	Fewer lines incremental encoder
B0	23 bits incremental encoder
E0	23 bits absolute encode
R0	Resolver

⑤

Symbol	Servo motor encoder connector	Motor type					
		40	60	80	110	130	180
Y1/Y2 09	9 cores round plug		√	√			
Y1/Y2 15	15 cores round plug		√	√			
A09	9 cores AMP plug	√	√	√			
A15	15 cores AMP plug		√	√			
H15	15 cores aviation plug				√	√	√
H07	For special use						
H09	For special use						

⑥

Symbol	Specification
R	Flexible cable

L □□□ - ETH

① ② ③

①

Symbol	Cable type
L	Communication cable

②

Symbol	Cable length
003	0.3m (standard length)
010	1.0m
030	3.0m
050	5.0m
100	10.0m

③

Symbol	Specification
ETH	Double RJ45 plug, straight-through wired cables
M3	Double RJ45 plug, crossover wired cables
M2	Double M-Ⅱ USB plug

L_M2D

L□□□-M2 cable plug

C □□□ - EP1C DB25 S/808DN R

① ② ③ ④ ⑤ ⑥

①

Symbol	Cable type
C	Control cable

②

Symbol	Cable length
030	3m
050	5m
070	7m
100	10m

③ Adaptable servo drive series

④

Symbol	Servo drive control plug
DB25	Servo drive control plug DB25
DB44	Servo drive control plug DB44
S361	Servo drive control plug DS361

⑤

Symbol	PLC/CNC system/Motion controller
S/808DN	Siemens 808DCNC system(with no brake control)
MAX/16	Standard 16 cores speed /torque control
MAX/10	Standard 10 cores position control

⑥

Symbol	Specification
R	Flexible cable

Combinations of motors(220V), EP1C and accessories

Motor model	Torque N·m	Speed rpm	Power kW	Rated current Arms	Rotor inertia ($\times10^{-3}$kg·m^2)	Recommended match / Available match	Power cable	Encoder cable	Brake cable
MSL series									
040MSL00330	0.32	3000 (5000)	0.10	1.10	0.0035	TL01	P□□□-04075A04	E□□□-DB15E0A09	P□□□-06075A06
060MSL00630	0.64	3000 (6000)	0.20	1.70	0.017	TL02	AMP Plug P□□□-04075A04 Round plug P□□□-04075Y104 P□□□-04075Y204	AMP Plug E□□□-DB15□□A09 Round plug E□□□-DB15□□Y109 E□□□-DB15□□Y209	AMP Plug B□□□-02050A02 Round plug B□□□-02050Y102 B□□□-02050Y202
060MSL01330	1.27	3000 (6000)	0.40	2.70	0.027	TL05			
080MSL01330	1.27	3000 (6000)	0.40	2.40	0.068	TL05			
080MSL02430	2.39	3000 (6000)	0.75	5.10	0.113	TL10、TL15			
080MSL03230	3.18	3000 (6000)	1.00	6.50	0.113	TL10、TL15			
130MSL04025	4.00	2500 (4000)	1.00	5.10	0.48	TL10、TL15	P□□□-04150H04	E□□□-DB15□□H15	B□□□-02050H03
130MSL04820	4.77	2000 (4000)	1.00	5.80	0.48	TL10、TL15			
130MSL05025	5.00	2500 (4000)	1.30	6.10	0.48	TL15			
130MSL07220	7.16	2000 (4000)	1.50	8.60	0.71	TL15、TL25			
130MSL09620	9.55	2000 (4000)	2.00	11.30	0.94	TL25			
130MSL10025	10.00	2500 (4000)	2.60	11.50	0.94	TL25、TL35			
130MSL14320	14.30	2000 (3500)	3.00	14.10	1.41	TL35	P□□□-04250H04		
MAL series									
110MAL04030	4.00	3000 (4000)	1.26	5.30	0.31	TL10、TL15	P□□□-04150H04	E□□□-DB15□□H15	B□□□-02050H03
110MAL06030	6.00	3000 (3500)	1.88	6.60	0.50	TL15、TL25			
130MAL06025	6.00	2500 (3000)	1.57	5.90	0.65	TL15、TL25			
130MAL07725	7.70	2500 (3000)	2.02	7.70	0.83	TL15、TL25			
130MAL10015	10.00	1500 (2000)	1.57	6.60	0.94	TL15、TL25			
130MAL15015	15.00	1500 (2000)	2.36	9.50	1.41	TL25、TL35			
GSL series									
060GSL00630	0.64	3000 (6000)	0.20	1.6	0.031	TL02	AMP Plug P□□□-04075A04 Round plug P□□□-04075Y104 P□□□-04075Y204	AMP Plug E□□□-DB15□□A09 Round plug E□□□-DB15□□Y109 E□□□-DB15□□Y209	AMP Plug B□□□-02050A02 Round plug B□□□-02050Y102 B□□□-02050Y202
060GSL01330	1.27	3000 (6000)	0.40	2.8	0.056	TL05			
080GSL01330	1.27	3000 (6000)	0.40	2.5	0.099	TL05			
080GSL02430	2.39	3000 (6000)	0.75	4.4	0.15	TL10、TL15			
110GSL04030	4.00	3000 (4000)	1.26	6.0	0.56	TL10、TL15	P□□□-04150H04	E□□□-DB15□□H15	B□□□-02050H03
110GSL06025	6.00	2500 (4000)	1.57	8.1	0.85	TL15、TL25			
130GSL05415	5.39	1500 (3000)	0.85	6.7	1.14	TL15			
130GSL08315	8.34	1500 (3000)	1.30	9.9	1.70	TL25			
130GSL11515	11.50	1500 (3000)	1.80	12.0	2.32	TL25、TL35			
130GSL15015	15.00	1500 (3000)	2.36	14.7	3.18	TL35			
GAL series									
110GAL04020	4.00	2000 (3000)	0.84	4.4	0.56	TL08、TL10	P□□□-04150H04	E□□□-DB15□□H15	B□□□-02050H03
110GAL06020	6.00	2000 (3000)	1.26	6.4	0.85	TL10、TL15			
130GAL05415	5.39	1500 (2000)	0.85	5.1	1.14	TL10			
130GAL08315	8.34	1500 (2000)	1.30	6.4	1.70	TL15、TL25			
130GAL11515	11.50	1500 (2000)	1.80	7.4	2.32	TL15、TL25			
130GAL15010	15.00	1000 (1500)	1.57	6.7	3.18	TL15、TL25			
130GAL15015	15.00	1500 (2000)	2.36	9.5	3.18	TL25、TL35			

Combinations of motors(380V), EP1C and accessories

Motor model	Torque N·m	Speed rpm	Power kW	Rated current Arms	Rotor inertia ($\times10^{-3}$kg·m^2)	Recom-mended match / Available match	Power cable	Encoder cable	Brake cable
MAH series									
110MAH04030	4.00	3000 (5500)	1.26	3.80	0.31	TH10、TH15	P□□□-04150H04	E□□□-DB15□□H15	B□□□-02050H03
110MAH06030	6.00	3000 (4000)	1.88	4.20	0.50	TH15、TH20			
130MAH04025	4.00	2500 (4500)	1.00	2.70	0.48	TH10			
130MAH04820	4.77	2000 (4500)	1.00	3.40	0.48	TH10、TH15			
130MAH05025	5.00	2500 (4500)	1.30	3.70	0.48	TH15			
130MAH06025	6.00	2500 (4000)	1.57	4.10	0.65	TH15、TH20			
130MAH07725	7.70	2500 (4000)	2.02	5.00	0.83	TH15、TH20			
130MAH10015	10.00	1500 (2500)	1.57	4.30	0.94	TH15、TH20			
130MAH15015	15.00	1500 (2500)	2.36	6.20	1.41	TH20、TH30			
180MAH19015	19.00	1500 (1800)	3.00	7.80	6.50	TH30	P□□□-04250H04B		
180MAH27015	27.00	1500 (1800)	4.30	10.00	9.10	TH30、TH50			
180MAH35015	35.00	1500 (1800)	5.50	13.60	11.80	TH50			
180MAH48015	48.00	1500 (1800)	7.50	17.50	15.80	TH75			
GAH series									
130GAH05415	5.39	1500 (3000)	0.85	3.10	1.14	TH10	P□□□-04150H04	E□□□-DB15□□H15	B□□□-02050H03
130GAH08315	8.34	1500 (3000)	1.30	4.90	1.70	TH15、TH20			
130GAH10025	10.00	2500 (3000)	2.62	5.40	2.32	TH20、TH30			
130GAH11515	11.50	1500 (2000)	1.80	4.30	2.32	TH15、TH20			
130GAH15015	15.00	1500 (2000)	2.36	6.60	3.36	TH20、TH30			

Note:

1. The servo motor of base number "40" only supports the 23 bit ABS encoder.
2. The "□□□ " in the above table represents cable length. Please refer to the introduciton of cable specification.
3. The "□□ " in "encoder cable" list above represents encoder type. "B0" stands for 23 bit INC encoder, and "E0" stands for 23 bit ABS encoder. For more details, please refer to the introduciton of cable specification.

Combinations of motors(220V), EP1C Plus and accessories

Motor model	Torque N·m	Speed rpm	Power kW	Rated current Arms	Rotor inertia ($\times10^{-3}$kg·m^2)	Recommended match / Available match	Power cable	Encoder cable	Brake cable
MSL series									
040MSL00330	0.32	3000 (5000)	0.10	1.10	0.0035	TL01	P□□□-04075A04	E□□□-DB09E0A09	P□□□-06075A06
060MSL00630	0.64	3000 (6000)	0.20	1.70	0.017	TL02	AMP Plug P□□□-04075A04 Round plug P□□□-04075Y104 P□□□-04075Y204	AMP Plug E□□□-DB09□□A09 Round plug E□□□-DB09□□Y109 E□□□-DB09□□Y209	AMP Plug B□□□-02050A02 Round plug B□□□-02050Y102 B□□□-02050Y202
060MSL01330	1.27	3000 (6000)	0.40	2.70	0.027	TL05			
080MSL01330	1.27	3000 (6000)	0.40	2.40	0.068	TL05			
080MSL02430	2.39	3000 (6000)	0.75	5.10	0.113	TL10、TL15			
080MSL03230	3.18	3000 (6000)	1.00	6.50	0.113	TL10、TL15			
130MSL04025	4.00	2500 (4000)	1.00	5.10	0.48	TL10、TL15	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
130MSL04820	4.77	2000 (4000)	1.00	5.80	0.48	TL10、TL15			
130MSL05025	5.00	2500 (4000)	1.30	6.10	0.48	TL15			
130MSL07220	7.16	2000 (4000)	1.50	8.60	0.71	TL15、TL25			
130MSL09620	9.55	2000 (4000)	2.00	11.30	0.94	TL25			
130MSL10025	10.00	2500 (4000)	2.60	11.50	0.94	TL25、TL35			
130MSL14320	14.30	2000 (3500)	3.00	14.10	1.41	TL35	P□□□-04250H04		
MAL series									
110MAL04030	4.00	3000 (4000)	1.26	5.30	0.31	TL10、TL15	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
110MAL06030	6.00	3000 (3500)	1.88	6.60	0.50	TL15、TL25			
130MAL06025	6.00	2500 (3000)	1.57	5.90	0.65	TL15、TL25			
130MAL07725	7.70	2500 (3000)	2.02	7.70	0.83	TL15、TL25			
130MAL10015	10.00	1500 (2000)	1.57	6.60	0.94	TL15、TL25			
130MAL15015	15.00	1500 (2000)	2.36	9.50	1.41	TL25、TL35			
GSL series									
060GSL00630	0.64	3000 (6000)	0.20	1.6	0.031	TL02	AMP Plug P□□□-04075A04 Round plug P□□□-04075Y104 P□□□-04075Y204	AMP Plug E□□□-DB09□□A09 Round plug E□□□-DB09□□Y109 E□□□-DB09□□Y209	AMP Plug B□□□-02050A02 Round plug B□□□-02050Y102 B□□□-02050Y202
060GSL01330	1.27	3000 (6000)	0.40	2.8	0.056	TL05			
080GSL01330	1.27	3000 (6000)	0.40	2.5	0.099	TL05			
080GSL02430	2.39	3000 (6000)	0.75	4.4	0.15	TL10、TL15			
110GSL04030	4.00	3000 (4000)	1.26	6.0	0.56	TL10、TL15	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
110GSL06025	6.00	2500 (4000)	1.57	8.1	0.85	TL15、TL25			
130GSL05415	5.39	1500 (3000)	0.85	6.7	1.14	TL15			
130GSL08315	8.34	1500 (3000)	1.30	9.9	1.70	TL25			
130GSL11515	11.50	1500 (3000)	1.80	12.0	2.32	TL25、TL35			
130GSL15015	15.00	1500 (3000)	2.36	14.7	3.18	TL35			
GAL series									
110GAL04020	4.00	2000 (3000)	0.84	4.4	0.56	TL08、TL10	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
110GAL06020	6.00	2000 (3000)	1.26	6.4	0.85	TL10、TL15			
130GAL05415	5.39	1500 (2000)	0.85	5.1	1.14	TL10			
130GAL08315	8.34	1500 (2000)	1.30	6.4	1.70	TL15、TL25			
130GAL11515	11.50	1500 (2000)	1.80	7.4	2.32	TL15、TL25			
130GAL15010	15.00	1000 (1500)	1.57	6.7	3.18	TL15、TL25			
130GAL15015	15.00	1500 (2000)	2.36	9.5	3.18	TL25、TL35			

Combinations of motors(380V), EP1C Plus and accessories

Motor model	Torque N·m	Speed rpm	Power kW	Rated current Arms	Rotor inertia ($\times10^{-3}$kg·m^2)	Recom-mended match / Available match	Power cable	Encoder cable	Brake cable
MAH series									
110MAH04030	4.00	3000 (5500)	1.26	3.80	0.31	TH10、TH15	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
110MAH06030	6.00	3000 (4000)	1.88	4.20	0.50	TH15、TH20			
130MAH04025	4.00	2500 (4500)	1.00	2.70	0.48	TH10			
130MAH04820	4.77	2000 (4500)	1.00	3.40	0.48	TH10、TH15			
130MAH05025	5.00	2500 (4500)	1.30	3.70	0.48	TH15			
130MAH06025	6.00	2500 (4000)	1.57	4.10	0.65	TH15、TH20			
130MAH07725	7.70	2500 (4000)	2.02	5.00	0.83	TH15、TH20			
130MAH10015	10.00	1500 (2500)	1.57	4.30	0.94	TH15、TH20			
130MAH15015	15.00	1500 (2500)	2.36	6.20	1.41	TH20、TH30			
180MAH19015	19.00	1500 (1800)	3.00	7.80	6.50	TH30	P□□□-04250H04B		
180MAH27015	27.00	1500 (1800)	4.30	10.00	9.10	TH30、TH50			
180MAH35015	35.00	1500 (1800)	5.50	13.60	11.80	TH50			
180MAH48015	48.00	1500 (1800)	7.50	17.50	15.80	TH75			
GAH series									
130GAH05415	5.39	1500 (3000)	0.85	3.10	1.14	TH10	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
130GAH08315	8.34	1500 (3000)	1.30	4.90	1.70	TH15、TH20			
130GAH10025	10.00	2500 (3000)	2.62	5.40	2.32	TH20、TH30			
130GAH11515	11.50	1500 (2000)	1.80	4.30	2.32	TH15、TH20			
130GAH15015	15.00	1500 (2000)	2.36	6.60	3.36	TH20、TH30			

Note:

1. The servo motor of base number "40" only supports the 23 bit ABS encoder.
2. The "□□□ " in the above table represents cable length. Please refer to the introduciton of cable specification.
3. The "□□ " in "encoder cable" list above represents encoder type. "B0" stands for 23 bit INC encoder, and "E0" stands for 23 bit ABS encoder. For more details, please refer to the introduciton of cable specification.

Combinations of motors(220V), EP3E and accessories

Motor model	Torque N·m	Speed rpm	Power kW	Rated current Arms	Rotor inertia ($\times10^{-3}$kg·m^2)	Recommended match / Available match	Power cable	Encoder cable	Brake cable
MSL series									
040MSL00330	0.32	3000 (5000)	0.10	1.10	0.0035	GL1A0	P□□□-04075A04	E□□□-DB09E0A09	P□□□-06075A06
060MSL00630	0.64	3000 (6000)	0.20	1.70	0.017	GL1A8	AMP Plug P□□□-04075A04 Round plug P□□□-04075Y104 P□□□-04075Y204	AMP Plug E□□□-DB09□□A09 Round plug E□□□-DB09□□Y109 E□□□-DB09□□Y209	AMP Plug B□□□-02050A02 Round plug B□□□-02050Y102 B□□□-02050Y202
060MSL01330	1.27	3000 (6000)	0.40	2.70	0.027	GL3A0			
080MSL01330	1.27	3000 (6000)	0.40	2.40	0.068	GL3A0			
080MSL02430	2.39	3000 (6000)	0.75	5.10	0.113	GL5A5、GL7A5			
080MSL03230	3.18	3000 (6000)	1.00	6.50	0.113	GL5A5、GL7A5			
130MSL04025	4.00	2500 (4000)	1.00	5.10	0.48	GL5A5、GL7A5	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
130MSL04820	4.77	2000 (4000)	1.00	5.80	0.48	GL5A5、GL7A5			
130MSL05025	5.00	2500 (4000)	1.30	6.10	0.48	GL7A5			
130MSL07220	7.16	2000 (4000)	1.50	8.60	0.71	GL7A5、GL120			
130MSL09620	9.55	2000 (4000)	2.00	11.30	0.94	GL120、GL160			
130MSL10025	10.00	2500 (4000)	2.60	11.50	0.94	GL120、GL160			
130MSL14320	14.30	2000 (3500)	3.00	14.10	1.41	GL160、GL190	P□□□-04250H04		
MAL series									
110MAL04030	4.00	3000 (4000)	1.26	5.30	0.31	GL5A5、GL7A5	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
110MAL06030	6.00	3000 (3500)	1.88	6.60	0.50	GL7A5、GL120			
130MAL06025	6.00	2500 (3000)	1.57	5.90	0.65	GL7A5、GL120			
130MAL07725	7.70	2500 (3000)	2.02	7.70	0.83	GL7A5、GL120			
130MAL10015	10.00	1500 (2000)	1.57	6.60	0.94	GL7A5、GL120			
130MAL15015	15.00	1500 (2000)	2.36	9.50	1.41	GL120、GL160			
GSL series									
060GSL00630	0.64	3000 (6000)	0.20	1.6	0.031	GL1A8	AMP Plug P□□□-04075A04 Round plug P□□□-04075Y104 P□□□-04075Y204	AMP Plug E□□□-DB09□□A09 Round plug E□□□-DB09□□Y109 E□□□-DB09□□Y209	AMP Plug B□□□-02050A02 Round plug B□□□-02050Y102 B□□□-02050Y202
060GSL01330	1.27	3000 (6000)	0.40	2.8	0.056	GL3A0			
080GSL01330	1.27	3000 (6000)	0.40	2.5	0.099	GL3A0			
080GSL02430	2.39	3000 (6000)	0.75	4.4	0.15	GL5A5、GL7A5			
110GSL04030	4.00	3000 (4000)	1.26	6.0	0.56	GL5A5、GL7A5	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
110GSL06025	6.00	2500 (4000)	1.57	8.1	0.85	GL7A5、GL120			
130GSL05415	5.39	1500 (3000)	0.85	6.7	1.14	GL7A5			
130GSL08315	8.34	1500 (3000)	1.30	9.9	1.70	GL120			
130GSL11515	11.50	1500 (3000)	1.80	12.0	2.32	GL120、GL160			
130GSL15015	15.00	1500 (3000)	2.36	14.7	3.18	GL160、GL190			
GAL series									
110GAL04020	4.00	2000 (3000)	0.84	4.4	0.56	GL5A5	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
110GAL06020	6.00	2000 (3000)	1.26	6.4	0.85	GL5A5、GL7A5			
130GAL05415	5.39	1500 (2000)	0.85	5.1	1.14	GL5A5			
130GAL08315	8.34	1500 (2000)	1.30	6.4	1.70	GL7A5、GL120			
130GAL11515	11.50	1500 (2000)	1.80	7.4	2.32	GL7A5、GL120			
130GAL15010	15.00	1000 (1500)	1.57	6.7	3.18	GL7A5、GL120			
130GAL15015	15.00	1500 (2000)	2.36	9.5	3.18	GL120、GL160			

Combinations of motors(380V), EP3E and accessories

Motor model	Torque N·m	Speed rpm	Power kW	Rated current Arms	Rotor inertia ($\times10^{-3}$kg·m^2)	Recom-mended match / Available match	Power cable	Encoder cable	Brake cable
MAH series									
110MAH04030	4.00	3000 (5500)	1.26	3.80	0.31	GH3A5、GH5A4	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
110MAH06030	6.00	3000 (4000)	1.88	4.20	0.50	GH5A4、GH8A5			
130MAH04025	4.00	2500 (4500)	1.00	2.70	0.48	GH3A5			
130MAH04820	4.77	2000 (4500)	1.00	3.40	0.48	GH3A5、GH5A4			
130MAH05025	5.00	2500 (4500)	1.30	3.70	0.48	GH5A4			
130MAH06025	6.00	2500 (4000)	1.57	4.10	0.65	GH5A4、GH8A5			
130MAH07725	7.70	2500 (4000)	2.02	5.00	0.83	GH5A4、GH8A5			
130MAH10015	10.00	1500 (2500)	1.57	4.30	0.94	GH5A4、GH8A5			
130MAH15015	15.00	1500 (2500)	2.36	6.20	1.41	GH8A5、GH130			
180MAH19015	19.00	1500 (1800)	3.00	7.80	6.50	GH130	P□□□-04250H04B		
180MAH27015	27.00	1500 (1800)	4.30	10.00	9.10	GH130、GH170			
180MAH35015	35.00	1500 (1800)	5.50	13.60	11.80	GH170			
180MAH48015	48.00	1500 (1800)	7.50	17.50	15.80	GH210			
GAH series									
130GAH05415	5.39	1500 (3000)	0.85	3.10	1.14	GH3A5	P□□□-04150H04	E□□□-DB09□□H15	B□□□-02050H03
130GAH08315	8.34	1500 (3000)	1.30	4.90	1.70	GH5A4、GH8A5			
130GAH10025	10.00	2500 (3000)	2.62	5.40	2.32	GH8A5、GH130			
130GAH11515	11.50	1500 (2000)	1.80	4.30	2.32	GH5A4、GH8A5			
130GAH15015	15.00	1500 (2000)	2.36	6.60	3.36	GH8A5、GH130			

Note:

1. The servo motor of base number "40" only supports the 23 bit ABS encoder.
2. The "□□□ " in the above table represents cable length. Please refer to the introduciton of cable specification.
3. The "□□ " in "encoder cable" list above represents encoder type. "B0" stands for 23 bit INC encoder, and "E0" stands for 23 bit ABS encoder. For more details, please refer to the introduciton of cable specification.

Order process

Plan selection

1. Choose your controllers

SIEMENS, Beckhoff, B&R, Yaskawa, SYNTEC, LNC, ZMotion.....

2. Choose drive according to control mode

Control mode	Servo drive
Pulse analog	EP1C, EP1C Plus
Yaskawa M-Ⅱ	EP1C Plus
Ethernet protocol	EP3E

Servo motor selection

1. Choose motor type according to mechanical system load and motor inertia

2. Determine the rated power of motor according to the required torque and speed

3. Choose the encoder type

Control mode		Symbol	Control mode		Symbol
2500 line INC	Standard	F0	Multi-turn ABS	Battery type	E0.E1.E2.E3
				Mechani-cal type	E4.E5
Serial incremental	Subdivi-sion	B0	Resolver	Resolver	R0

4. Choose motor brake

- With or without brake
- Brake voltage rating

5. Confirm the motor shaft

- O key type
- C key type
- A key type

Servo drive selection

1. Choose servo drive according to the motor encoder and rated power

Servo drive	Rated voltage	Servo drive	Rated voltage
EP1C	AC220V	EP3E	AC220V / AC380V
EP1C Plus	AC220V / AC380V	EP3L	DC24V~60V

2. Choose control mode

- S0: Differential pulse
- S3: Single ended pulse
- S8: Siemens CNC

3. Choose the communication mode

Communication protocol	Servo drive	Order No.
Modbus	EP1C Plus	M
Yaskawa M-Ⅱ	EP1C Plus	M2
POWERLINK	EP3E	EP
EtherCAT	EP3E	EC
Yaskawa M-Ⅲ	EP3E	M3
PROFINET	EP3E	PN

Cable selection

1. Select the connection cable between the drive and the servo motor

- Select power cable according to length and cross section. Optional: 0.75mm², 1.50mm², 2.50mm², 4.00mm²
- Select encoder cable according to length and encoder type
- Cable section should be 0.50mm² according to brake cable length in the presence of motor with brake

2. Select the control cable between the drive and the main station

3. Communication cable

- RS485, CAN, Ethernet communication use L□□□-ETH cable
- Yaskawa M-Ⅱ communication useL□□□-M2 cable
- Yaskawa M-Ⅲ communication useL□□□-M3 cable

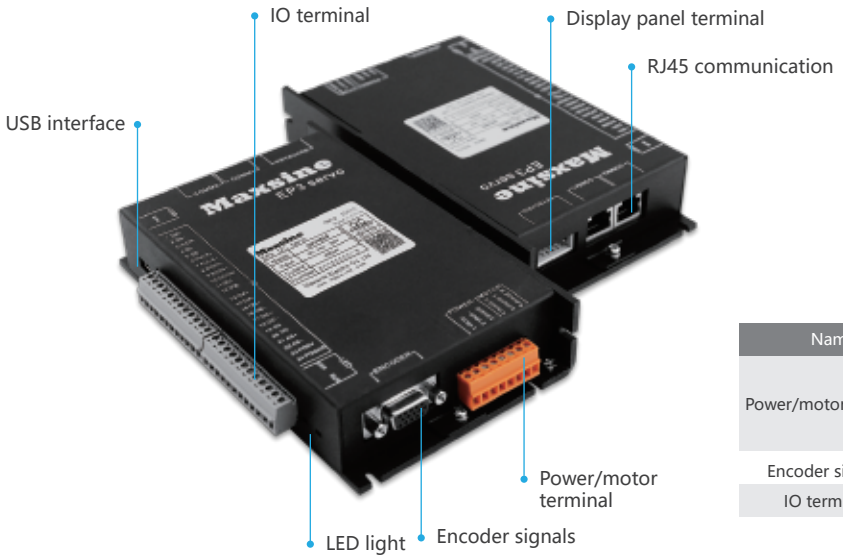
Plan check

Check the functions, performances, techniques and environmental requirements

- Function: functions of controller and servo drive system.
- Performance: prediction accuracy, velocity and efficiency of plan.
- Technique: difficulties of customized plan and motion control system.
- Environmental requirement: servo motor, protection (waterproofing) level of cable, and flexible carrier of cable.

EP3L servo system

Definition of drive terminal

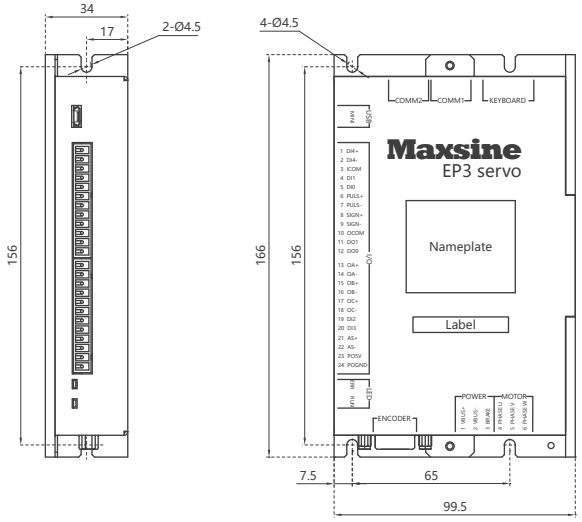


Name	Symbol	Detailed description
Power/motor terminal	VBUS+、VBUS-	Power terminal
	BRAKE	Regenerative resistance
	PHASE（U、V、W）	Output to U/V/W phase power of motor
Encoder signals	ENCODER	Feedback signal of encoder
IO terminal	I/O	Connect to controller/PLC

Technical data

Model		GKL8A0
Rated output power (kW)		200W/400W
Continuous/Instantaneous maximum output current		8Arms/24Arms
Input power supply	Main power supply	DC 24V~48V
	Control power supply	DC 24V~48V
Environ-ment	Temperature	Operation：0℃ ~ 40℃ Storage：-40℃ ~ 50℃
	Humidity	Operation：40% ~ 80% (No Condensation) Storage：less than 93% (no condensation)
	Atmospheric pressure/ Protection rating	86kPa~106kPa/IP20
Digital inputs/outputs		5 programmable input/2 programmable output
Regenerative braking		Built-in and externally connected brake resistance
Feedback mode		Parallel type (incremental)
Operation mode		Position, Speed, Torque
Protection function		Over speed, over voltage, over current, overload, braking abnormal, encoder abnormal, position deviation and so on
Frequency response		Vector control，≥300Hz，Speed ratio：1:5000
Speed fluctuation rate		＜±0.03% (Load 0%~100%)，＜±0.02% (Power-15%~+10%)

Dimension drawing



Order number description

EP3L - G K L 8A0 - F0 S4 M

① ② ③ ④ ⑤

①

Symbol	Main power supply voltage
L	DC24V~DC48V

②

Symbol	Current
8A0	8A

③

Symbol	Communication protocol
B0	Serial INC encoder
E3	Serial ABS encoder
F0	Standard INC encoder

④

Symbol	Control mode
S4	IO terminal. Control mode: pulse/analog

⑤

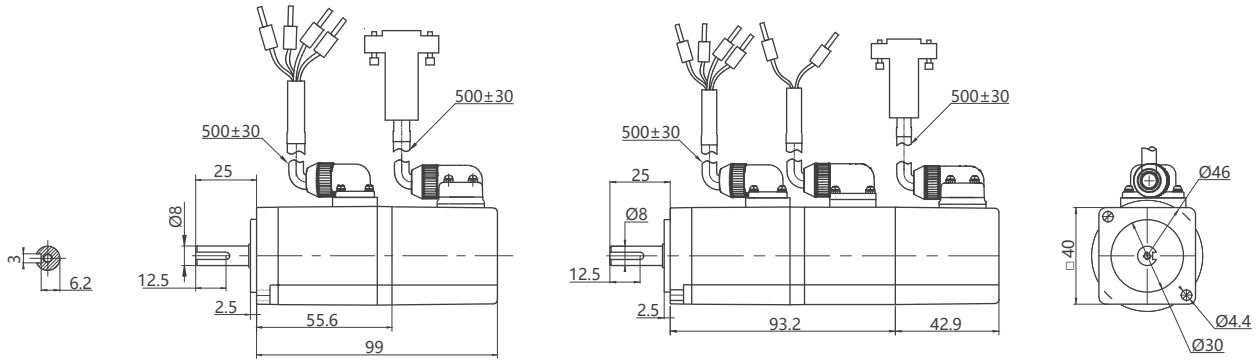
Symbol	Communication protocol
M	Modbus
C	CAN
O/Null	Does not support CAN or Modbus

Technical parameters

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
040G2K00330	DC24	100	7.5	15	3000	3200	0.32	0.64	0.035	0.5 (0.8)
040G4K00330	DC48	100	3.5	7	3000	3200	0.32	0.7	0.035 (0.038)	0.5 (0.8)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	0.32	6.1		-20~+50	Relative humidity < 90% (no condensation)	IP65

Dimensions

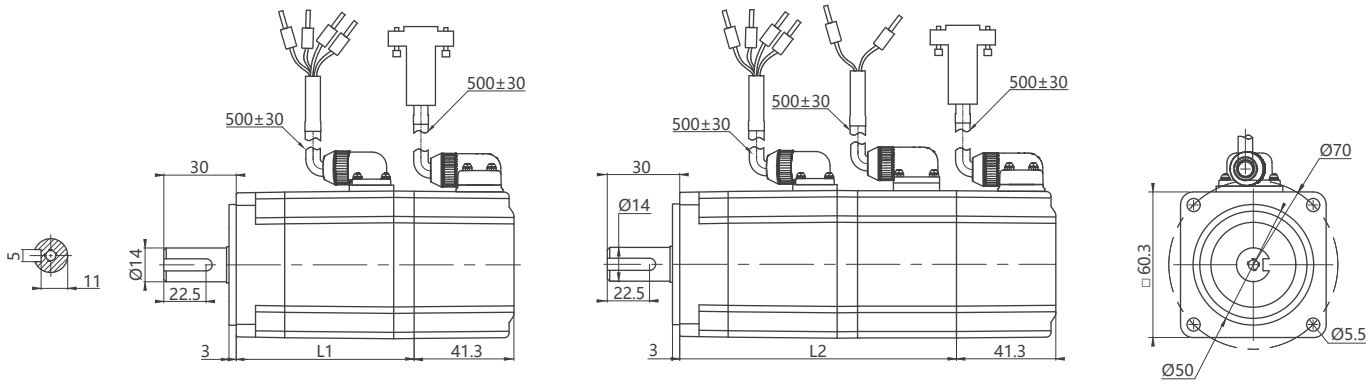


Technical parameters

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
060G2K00630	DC24	200	16	32	3000	3200	0.64	1.2	0.264	1.3 (1.7)
060G2K01330	DC24	400	25	50	3000	3200	1.27	2.4	0.526	1.8 (2.3)
060G4K00630	DC48	200	6.5	13	3000	3200	0.64	1.2	0.264 (0.293)	1.3 (1.7)
060G4K01330	DC48	400	12.8	25.6	3000	3200	1.27	2.4	0.407 (0.441)	1.8 (2.3)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	1.3	6.44		-20~+50	Relative humidity < 90% (no condensation)	IP65

Dimensions



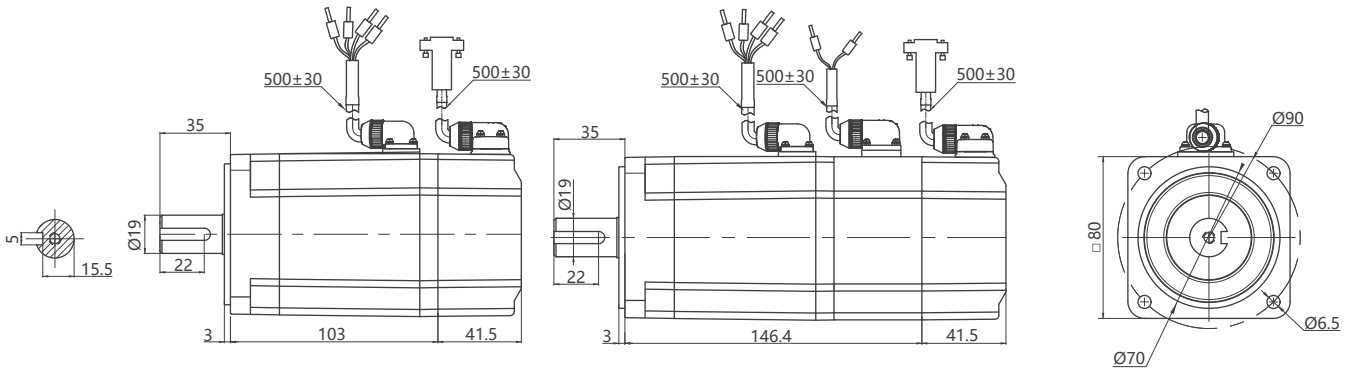
Type		60G2K		60G4K	
Rated torque (N·m)		0.64	1.27	0.64	1.27
L(mm)	L1	73.6	101.6	73.6	101.6
	L2	114.6	142.6	114.6	142.6

Technical parameters

Model	Rated power kW	Rated voltage V	Rated current Arms	Peak current Arms	Rated speed rpm	Peak speed rpm	Rated torque N·m	Peak toque N·m	Inertia (×10⁻⁴kg·m²) (Inertia with brake)	Motor weight kg (Weight with brake)
080G4K02430	DC48	750	20	40	3000	3200	2.39	3.8	0.924 (0.973)	3 (3.8)

Brake parameters	Brake voltage (DC) V	Brake torque N·m	Brake power W	Environmental parameters for operation	Operation temperature ℃	Operation humidity	Protection rating IP
	24	3.2	11.5		-20~+50	Relative humidity < 90% (no condensation)	IP65

Dimensions



Order number description

060 G4K 006 30 C N C 2

① ② ③ ④ ⑤ ⑥ ⑦ ⑧

①

Symbol	The base number
040	40mm
060	60mm

②

Symbol	Voltage
G2K	DC 24V
G4K	DC 48V

③

Symbol	Rated torque
003	0.32N·m
006	0.64N·m
013	1.27N·m
024	2.39N·m

④

Symbol	Rated speed
30	3000rpm

⑤

Symbol	Encoder
C	Serial magnetic encoder

⑥

Symbol	Brake
N	Without brake
Z	With brake

⑦

Symbol	Model
C	Forelock key

⑧

Symbol	Model
1	Default
2	Customized

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