Industrial Automation Expert

Servo drive system

II Catalogue V3.5

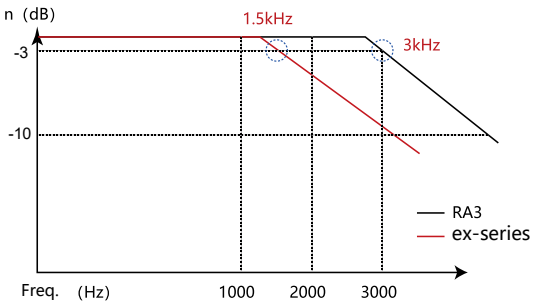
Intelligent. Valuable. Reliable

More efficient - excellent performance, stimulate the potential of the machine

▲Excellent performance, rich functions, high precision, high response, high protection, etc., significantly improve mechanical production efficiency

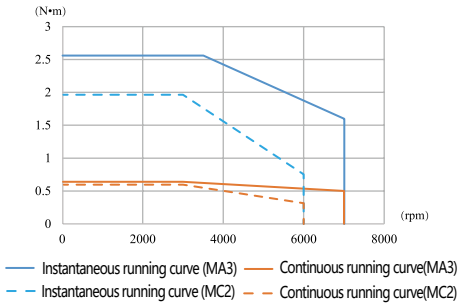
3kHz response frequency

▲ The speed response frequency of the servo drive is 3kHz, the command response is faster, the position setting time is shorter, combined with the high-resolution absolute position encoder, it can realize high-speed and high-precision operation



4 times peak torque/7000rpm peak speed

▲ MA3 series servo motors have up to 4 times the peak torque and 7000rpm peak speed, wider servo operating range, better dynamic performance of the servo system, and higher output rate.



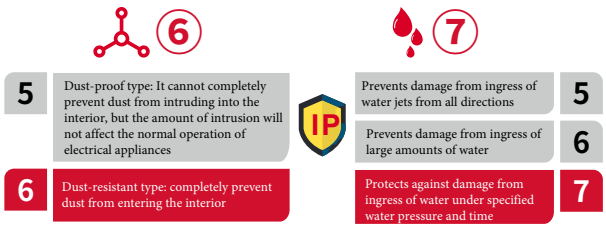
23-bit absolute encoder

▲ MA3 series servo motors use 23-bit single-turn/multi-turn absolute encoders with high resolution to improve the positioning accuracy of the equipment.

23-Bit=8388608pulses/rev

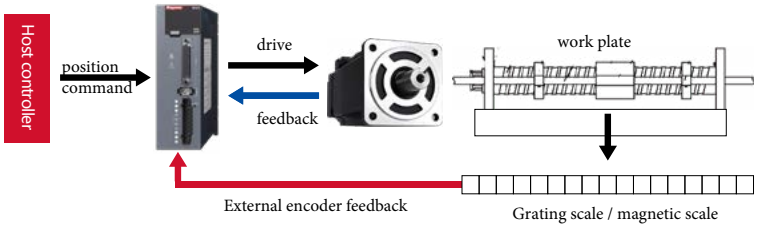
IP67 degree of protection

▲ The protection level of the whole series of MA3 motors can reach IP67, which provides higher waterproof and oil resistance capabilities, expands the scope of application of the product, and improves the reliability of the equipment



Support full closed-loop control

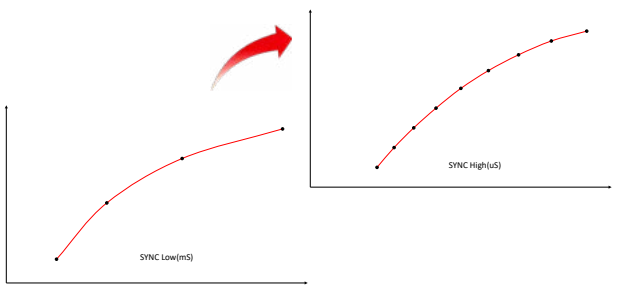
▲ The servo drive can support full-closed-loop control, provide a variety of control methods, and realize high-precision control on the mechanical side.



EtherCAT high-speed communication

▲ Adopt ETG-certified communication chips to ensure high-speed and reliable communication;

▲ The transmission rate is as high as: 2x100Mbps (full duplex), and the bus can support 250us synchronous signal cycle, which is especially suitable for interpolation and cam track control in printing, machine tools, electronics and other industries, and improves the synchronization of multiple axes.



Easier to use - safe and convenient

▲ Adhering to the concept of humanized design, it provides safe, easy-to-use and compatible software and hardware product functions to meet the needs of use from design to production

Increased power range to 7.5kW

▲ The power range of RA3 series servo drives has been increased to 7.5kW, enriching the product line and providing more application solutions.

Series		
RA1	100W	3kW
RA3	100W	7.5kW

Smaller size

▲ The body of RA3 series servo driver is further reduced to save more space and easy to install;

▲ The MA3 series servo motors have an industry-leading shorter body, especially suitable for applications with limited installation space such as the robotics industry.

Reduce the size of driver

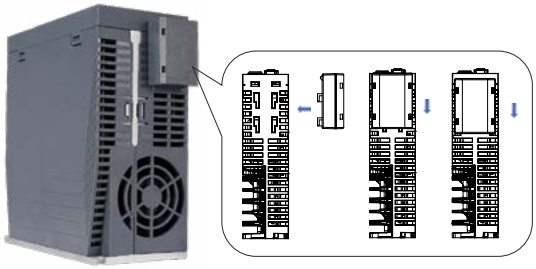
40%

Shorten the length of the motor

20%

Encoder battery buckle design

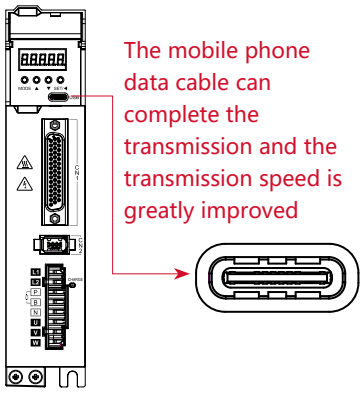
▲ Absolute encoder battery can be installed at the bottom of the drive, snap-on design, more convenient installation and replacement, improve ease of use.



TYPE-C debugging interface

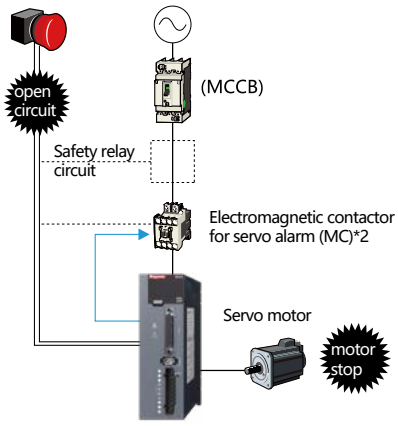
▲ The debugging interface is improved to USB Type C, the speed of downloading programs and parameters is faster, and the download time is greatly reduced;

▲ Cables are easy to get and support reversible plugging.



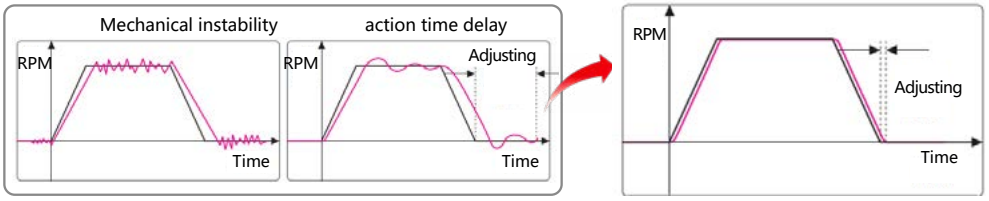
Optional STO safety function

▲ The STO (Safe torque off) function is optional, and the safety level is raised from SIL 2 to SIL 3. It is easy to build a safety system for equipment and effectively protect personal and equipment safety.



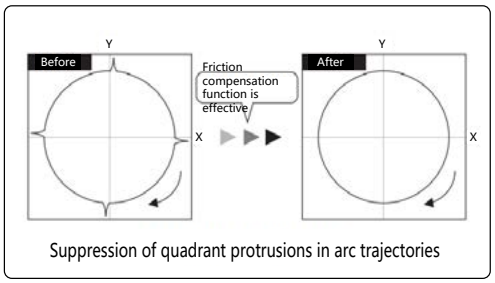
Software upgrade, more powerful

▲ One-button self-learning: one-button adjustment function, which can easily implement automatic tuning, complete automatic setting of inertia ratio, gain, resonance and other parameters, and maximize servo performance



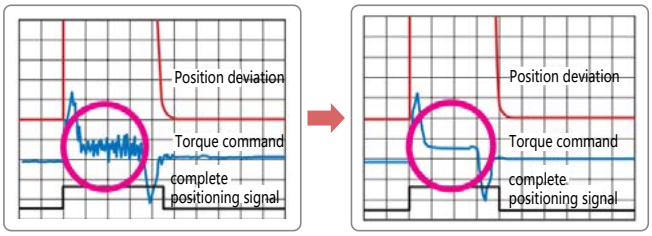
High-speed positioning, exactly the same

▲ Friction compensation function: It can effectively control the phenomenon of quadrant protrusion when the rotation direction of the servo motor is reversed due to friction, improve the accuracy of the arc track, and run more smoothly.



Suppression of quadrant protrusions in arc trajectories

▲ Medium and low resonance frequency suppression: In addition to low-frequency and high-frequency vibration suppression, it can also suppress low- and medium-frequency vibrations at a frequency of 1kHz, which helps to improve debugging efficiency and save time.

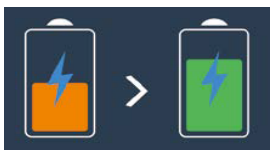


More energy-saving - energy saving and environmental protection

▲ Optimized electromagnetic design, advanced manufacturing process, reduced motor temperature rise, extended service life, improved energy efficiency, green and low-carbon environmental protection

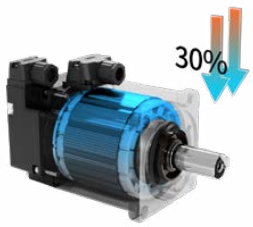
more energy efficient

▲ The servo motor adopts a new electromagnetic design and leading manufacturing process, which has higher efficiency, lower power consumption and more energy saving.



Lower temperature rise

▲ The optimized electromagnetic design of the servo motor cooperates with the pole slot, the temperature rise of the motor is lower, the operation is more reliable for a long time, and the service life of the motor is longer



Various certificates

▲ The product complies with CE certification and the European Union's Restriction of the Use of Specific Hazardous Substances (RoHS) Directive, green and environmentally friendly design, meeting the needs of equipment export and sustainable development of an environmentally friendly society

CE RoHS

1 Servo System Architecture and Industry Applications

Servo System Application Architecture

HMI

HMI

UH400

UH500

Controller

PLC

Motion control type PLC

high speed pulse
MODBUS
Analog
EtherCAT
CANopen

Driver

RA3 Series

RS3 Series

RS31 Series

RS2 Series

Motor

MA3 Series

40mm 0.1kW 60mm 0.2/0.4kW 80mm 0.75/1kW
100mm 1~2.5kW 110mm 0.8~2kW

MC2 Series

60mm 0.2/0.4kW 80mm 0.75/1kW
130mm 0.85~3kW 180 mm 2.9~7.5kW

Industry application example

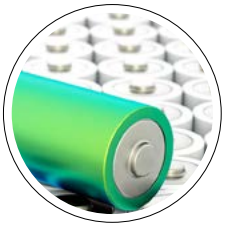
In order to meet the ever-changing market demand, with its excellent performance, perfect functions and small size, Rui Neng servo helps to build a system solution with high precision, high reliability and high ease of use, and further expands the scope of application.

Textile machiner

High-speed and high-precision servo system is adopted to fully guarantee the quality consistency of textiles and greatly improve production efficiency.

Logistics equipment

With the high-speed and high-precision positioning function of the servo system, the fast and precise operation of various logistics equipment such as handling machinery is realized.



Lithium battery equipment

With rich product specifications, perfect protection mechanism, and high-speed and high-precision drive capability, the servo system meets the requirements of continuous technological progress and realizes the perfect combination of battery quality and production efficiency.

Woodworking machinery

Servo system with large torque and large inertia, stable and reliable output, adapt to more types of plates, built-in perfect drive model and compensation algorithm, perfectly matching multiple brands of upper controllers.

Robot

Small size, high speed, low temperature rise servo system, adapt to the development trend of more compact robot installation space and faster beat.

Cutting equipment

The high precision of the servo system and the ability to run stably at high speeds improve the cutting accuracy and surface finish of the workpiece.

3C industry equipment

The high speed, high precision, and high dynamic response performance of the servo system fully meet the high-speed and complex process requirements of 3C industry equipment, and help 3C product manufacturers improve quality and efficiency.

Printing machine

The multi-axis servo synchronization scheme based on high-speed bus ensures high-precision synchronous action in the high-speed printing process and realizes high-quality printing.

Packaging Machinery

The servo system with high dynamic response and high-precision positioning performance can easily meet the process requirements of labeling machines, horizontal packaging machines, vertical packaging machines and other packaging machinery.

Metal forming machine

The high-precision and high-response performance of the servo system fully meets the motion control requirements such as cams, and easily realizes the processing and molding of various shapes of workpieces.

2 Product Series

- RA3 series Servo drive
- RS3 series Servo drive
- RS31 series Servo drive
- RS2 series Servo drive
- MA3 series Servo motor
- MC2 series Servo motor

RA3 series Servo drive

FULL-FEATURED

3kHz

Speed loop bandwidth

7.5kW

Maximum power

23-bit

High Precision Optical Encoder

4 control method

Pulse, Analog, EtherCAT, CANopen

full-featured

Full closed loop, STO, gantry synchronization, electronic cam, etc.

RA3 Series Model Design

RA3 P - 5R5 L - □□

① ② ③ ④ ⑤

① Product Series

RA3：Servo Drive

② Control type

P：pulse
A：pulse, analog
E：EtherCAT
C：CANopen

③ Rated current

1R6：1.6A
2R8：2.8A
3R5：3.5A
5R4：5.4A
5R5：5.5A
6R6：6.6A
7R6：7.6A
8R4：8.4A
12R：12A
17R：16.5A
21R：21A
26R：25.7A

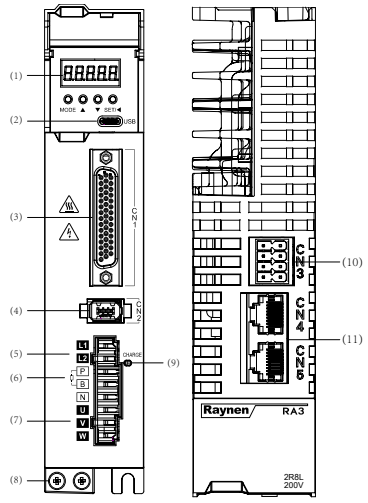
④ Input voltage

L：1 PH 220V
M：1 / 3PH 220V
T：3PH 380V

⑤ Optional features

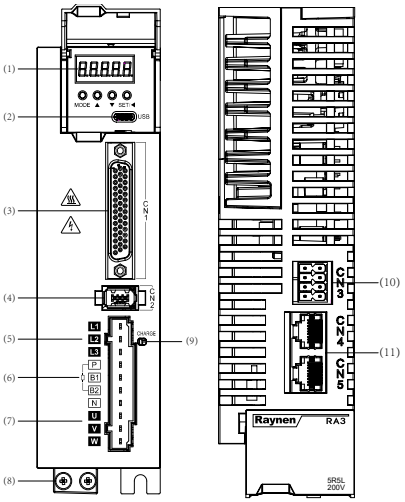
None：/
S：STO
F：Full closed loop
FS：full-featured

RA3 series terminal definition



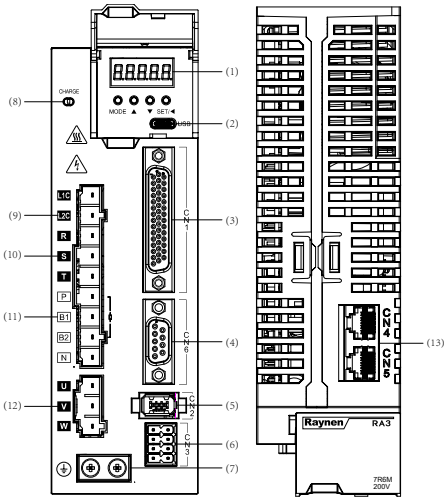
■ Size A

NO.	Terminal	Direction
1	-	7-digital display
2	USB	USB Type-C ， connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN2	Encoder interface, connected to the encoder on the servo motor
5	L1、L2	Main circuit power supply, single-phase (200~240VAC, 50/60Hz)
6	brake / common DC	Use external braking resistor, common DC bus
7	U、V、W	Servo drive output, connected to motor (U, V, W)
8	ground screw	Connect to power ground wire and motor groundwire
9	CHARGE	Power Indicator
10	CN3	STO interface, only '-S/FS' models support this function
11	CN4/CN5	485
		EtherCAT
		CAN



■ Size B

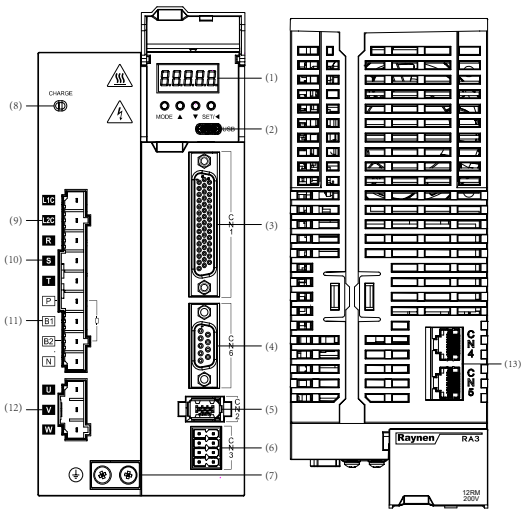
NO.	Port	Direction
1	-	7-digital display
2	USB	USB Type-C ， connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN2	Encoder interface, connected to the encoder on the servo motor
5	L1、L2、L3	Main circuit power supply, single-phase power supply (200~240VAC, 50/60Hz) connected between L1 and L2
6	. rake / Common DC	Use external braking resistor (remove the P and B1 short-circuit, connect it to P and B2), internal braking resistor, common DC bus
7	U、V、W	Servo drive output, connected to motor (U, V, W)
8	Ground screw	Connect to power ground wire and motor groundwire
9	CHARGE	Power Indicator
10	CN3	STO interface, only '-S/FS' models support this function
11	CN4/CN5	485
		EtherCAT
		CAN



■ Size C

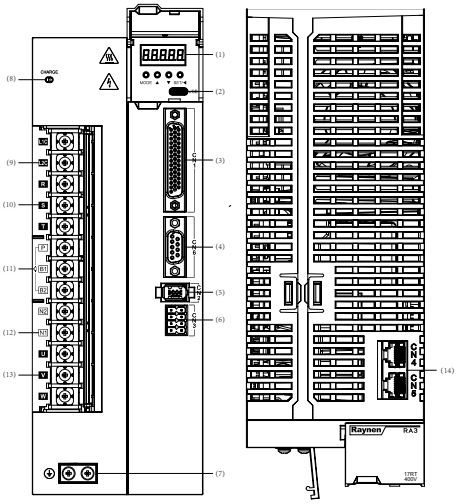
NO.	Port	Direction
1	-	7-digital display
2	USB	USB Type-C ， connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN6	Full closed loop interface, connect to external second encoder, '-FS' model supports this function
5	CN2	Encoder interface, connected to the encoder on the servo motor
6	CN3	STO interface, only '-S/FS' models support this function
7	Ground screw	Connect to power ground wire and motor ground wire
8	CHARGE	Power Indicator
9	L1C、L2C	Control circuit power supply, connect to the 1PH power supply (200~240VAC or 380~440VAC, 50/60Hz according to the model)
10	R、S、T	Main circuit power supply, connected to 3PH power supply (200~240VAC or 380~440VAC, 50/60Hz according to model)
11	Brake / Common DC	Use external braking resistor (remove the P and B1 short-circuit, connect it to P and B2), internal braking resistor, common DC bus
12	U、V、W	Servo drive output, connected to motor (U, V, W)
13	CN4/CN5	485
		EtherCAT
		CAN

RA3 series port definition



Size D

NO.	Port	Direction
1	-	7-digital display
2	USB	USB Type-C， connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN6	Full closed loop interface, connect to external second encoder, '-FS' model supports this function
5	CN2	Encoder interface, connected to the encoder on the servo motor
6	CN3	STO interface, only '-S/FS' models support this function
7	Ground screw	Connect to power ground wire and motor ground wire
8	CHARGE	Power Indicator
9	L1C、L2C	Control circuit power supply, connect to the 1PH power supply (200~240VAC or 380~440VAC, 50/60Hz according to the model)
10	R、S、T	Main circuit power supply, connected to 3PH power supply (200~240VAC or 380~440VAC, 50/60Hz according to model)
11	Brake /Common DC	Use external braking resistor (remove the P and B1 short-circuit, connect it to P and B2), internal braking resistor, common DC bus
12	U、V、W	Servo drive output, connected to motor (U, V, W)
13	CN4/CN5	485
		EtherCAT
		CAN



Size E

NO.	Port	Direction
1	-	7-digital display
2	USB	USB Type-C， connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN6	Full closed loop interface, connect to external second encoder, '-FS' model supports this function
5	CN2	Encoder interface, connected to the encoder on the servo motor
6	CN3	STO interface, only '-S/FS' models support this function
7	Ground screw	Connect to power ground wire and motor groundwire
8	CHARGE	Power Indicator
9	L1C、L2C	Control circuit power supply, connect to the 1PH power supply (380~440VAC, 50/60Hz)
10	R、S、T	Main circuit power supply, connected to 3PH power supply (380~440VAC, 50/60Hz) according to model
11	Brake /Common DC	Use external braking resistor (remove the P and B1 short-circuit, connect it to P and B2), internal braking resistor, common DC bus
12	N1、N2	Connect the external DC reactor (remove the shorting piece), please short circuit when not in use
13	U、V、W	Servo drive output, connected to motor (U, V, W)
14	CN4/CN5	485
		EtherCAT
		CAN

RA3 Series Electrical Specifications

■ 1-phase 220V drive electrical specifications

Item		Size A		Size B		Size C	Size D
Model		1R6L	2R8L	5R5L	6R6L	7R6M	12RM
Power [kW]		0.2	0.4	0.75	0.85	1	2
Power capacity [kVA]		0.5	1	1.7	2	2.3	4.2
Rated current [Arms]		1.6	2.8	5.5	6.6	7.6	12
Maximum output current [Arms]		5.9	10.1	16.9	17	23	32
Main circuit	Input current [Arms]	2.3	4	7.9	9.4	10.5	19.1
	Main circuit power supply	1 phase 200~240Vac, -10%~+10%, 50/60Hz					
Control circuit	Control loop power supply	1 phase 200~240Vac, -10%~+10%, 50/60Hz					
Power loss	Main circuit power loss [W]	30.5	41	60.8	63	42.9	83.3
	Control circuit power loss [W]					22	25
Braking resistor	Braking resistor	Can't built-in		Built-in			
	Resistance [Ω]	-	-	50	50	25	25
	Capacity [W]	-	-	50	50	80	80
	External min. resistance [Ω]	50	45	40	40	20	15
Cooling method		Natural cooling		Air cooling			
Overvoltage level		OVC III					

■ 3-phase 220V drive electrical specifications

Item		Size C	Size D
Model		7R6M	12RM
Power [kW]		1	2
Power capacity [kVA]		2.3	4.2
Rated current [Arms]		7.6	12
Maximum output current [Arms]		23	32
Main circuit	Input current [Arms]	5.1	8.1
	Main circuit power supply	3 phase 200~240Vac, -10%~+10%, 50/60Hz	
Control circuit	Control loop power supply	1phase 200~240Vac, -10%~+10%, 50/60Hz	
Power loss	Main circuit power loss [W]	42.9	83.3
	Control circuit power loss [W]	22	25
Braking resistor	Braking resistor	Built-in	
	Resistance [Ω]	25	25
	Capacity [W]	80	80
	External min. resistance [Ω]	20	15
Cooling method		Air cooling	
Overvoltage level		OVC III	

*7R6M and 12RM are recommended to use three-phase 220V power input for stronger performance.

■ 3-phase 380V drive electrical specifications

Item		Size C		Size D		Size E		
Model		3R5T	5R4T	8R4T	12RT	17RT	21RT	26RT
Power [kW]		1	1.5	2.5	3	4.4	5.5	7.5
Power capacity [kVA]		2.3	3.5	4.5	6.2	8.1	11	14.5
Rated current [Arms]		3.5	5.4	8.4	12	16.5	21	25.7
Maximum output current [Arms]		11	14	20	29.75	41.25	52.12	64.25
Main circuit	Input current [Arms]	3.4	4.5	6.6	9.3	12	16	21
	Main circuit power supply	3 phase 380~440Vac, -10%~+10%, 50/60Hz						
Control circuit	Control loop power supply	1 phase 380~440Vac, -10%~+10%, 50/60Hz						
Power loss	Main circuit power loss [W]	34.4	70.9	95	155	238	275	336
	Control circuit power loss[W]	22	22	25	25	27	27	27
Braking resistor	Braking resistor	built-in						
	Resistance [Ω]	100	100	50	50	35	35	35
	Capacity [W]	80	80	80	80	100	100	100
	External min. resistance [Ω]	80	60	45	40	35	25	25
Cooling method		Air cooling						
Overvoltage level		OVC III						

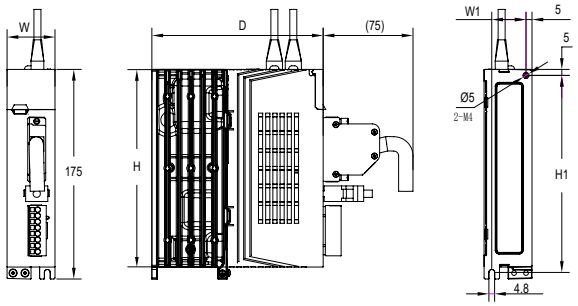
RA3P/C/A Basic Specifications

Item			Specification
Basic Specifications	Control method		IGBT PWM control, Sine wave current drive method
	Encoder type		Communication encoder (RS485)
	Communication	USB	Type-C ， used for PC host computer communication
		RS485	Modbus, used for host controller control communication
		CAN	CAN ， used for host controller control communication
	dynamic braking		Main circuit power off, servo alarm, servo off, action when overtravel
	Protective function		Overvoltage, undervoltage, phase loss, overcurrent, overload, overspeed, encoder disconnection, etc.
	Accessibility		Gain adjustment, notch filter, alarm record query, JOG operation, motor initial angle identification, etc.
	Number of control signals		DI *5，HDI *2，DO *5（pulse）
			DI*4，HDI *2，DO*4（CANopen）
			DI*2，HDI*2，DO*3（Size A/B Analog）
			DI *5，HDI*2，DO*5（Size C/D/E Analog）
Position control	DI input function		Zero fixed enable, position command prohibited, forward overtravel switch, reverse overtravel switch, electronic gear ratio selection, position command direction setting, multi-stage position command enable, interrupt fixed-length state release, origin switch, origin reset Enable, disable fixed-length interruption, clear position deviation, and disable pulse command
	DO output function		The positioning is completed, the positioning is close, the interruption and fixed length are completed, and the origin return is completed
	Pulse input	Input pulse shape	Differential input, open collector
		Input pulse mode	Direction + pulse, CW+CCW, two pulses with 90 degree phase difference
		Max. pulse frequency	Differential input: high-speed maximum 4Mpps, pulse width not less than 0.125us
			Open collector: maximum 200kpps, pulse width not less than 2.5us
		Command filter	Average filtering, first-order low-pass filtering
	Frequency division output Frequency	Frequency division output range	Any frequency division ratio
		Division output form	Phase A, Phase B: Differential output
			Phase Z: differential output or open collector output
		Internal position command	Encoder position or command pulse
	Divider output source		Switch the maximum 16-segment position command of internal planning through DI
Speed control	DI input function		Multi-stage speed running direction switching, internal multi-stage speed selection (1-4), speed command direction setting, internal speed limit source
	DO output function		Zero speed clamp, motor rotation, zero speed signal, consistent speed, speed limited, speed reached
	Analog input	Command voltage	±10V
		Command filter	Average filtering, first-order low-pass filtering
	Internal speed command		Switch up to 16 speed commands internally planned by DI
Torque control	DI input function		Forward torque limit, reverse torque limit, torque command direction setting, speed limit selection
	DO output function		Torque limit, torque reach
	Analog input	Command voltage	±10V
Conditions	Degree of protection		IP20
	Environmental Pollution Level		PD2
	Altitude		Lower than 1000m, use with derating above 1000m
	Ambient temperature		0~55℃ (when the ambient temperature is above 45℃, derate by 10% for every 5℃ increase)
	Storage temperature		-20~70℃
	Use/Storage Environment Humidity		Below 90%RH (no condensation)
	Vibration Resistance		4.9m/s^2
	Impact strength		19.6m/s^2

RA3E Basic Specifications

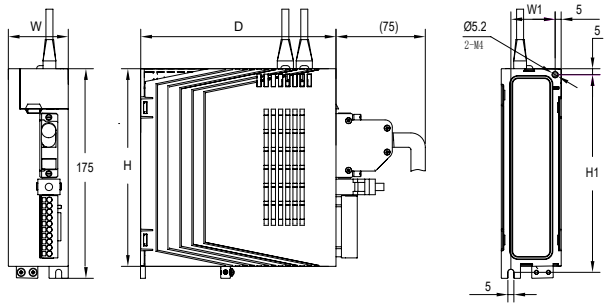
Item			Specifications
Basic Specifications	Control method		IGBT PWM control, sine wave current drive method
	Encoder type		Communication encoder (RS485)
	Communication	USB	Type-C, used for communication with PC host computer
		EtherCAT	IEC 61158 Type12, IEC 61800-7 CiA 402
	Dynamic braking		Main circuit power off, servo alarm, servo off, action when overtravel
	Protective function		Overvoltage, undervoltage, phase loss, overcurrent, overload, overspeed, encoder disconnection, etc.
	Accessibility		Gain adjustment, notch filter, alarm record query, JOG operation, motor initial angle identification, etc.
	Number of control signals		DI *4，HDI *2，DO*4
Position control	DI input function		Forward limit switch, reverse limit switch, origin switch
	DO output function		positioning complete
	Position command		Given based on EtherCAT communication
	Internal position command		Encoder position
Speed control	DI input function		-
	DO output function		Zero speed clamp, motor rotation, zero speed signal, consistent speed, speed limited, speed reached
	Speed command		Given based on EtherCAT communication
Torque control	DI input function		-
	DO output function		Torque limit, torque reach
	Torque command		Given based on EtherCAT communication
Conditions of Use	Degree of protection		IP20
	Environmental Pollution Level		PD2
	Altitude		Lower than 1000m, use with derating above 1000m
	Ambient temperature		0~55℃ (when the ambient temperature is above 45℃, derate by 10% for every 5℃ increase)
	Storage temperature		-20~70℃
	Use/Storage Environment Humidity		90%RH 以下（no condensation）
	Vibration Resistance		4.9m/s^2
	Impact strength		19.6m/s^2
EtherCAT Communication Specifications	Communication standard		IEC 61158 Type12, IEC 61800-7 CiA Drive Profile
	physical layer		100BASE-TX (IEEE802.3)
	Connector		RJ45*2 (with shield)
			IN(EtherCAT input)，OUT(EtherCAT ouput)
	Communication cable		Recommended network cable: twisted-pair double-layer shielded network cable, Ethernet Category 5 (100BASE-TX) or higher
	Baud rate		100Mbps
	Communication length		Maximum distance between nodes is 100 meters
	Process data		Fixed PDO, Variable PDO
	Mailbox (COE)		SDO request, SDO reply
	Synchronous mode		DC Sync (Sync0 Event)
	Communication cycle		250us~10000us
	Supported CiA 402 modes		PP，PV，PT，HM，CSP，CSV，CST

RA3 series appearance and installation dimensions



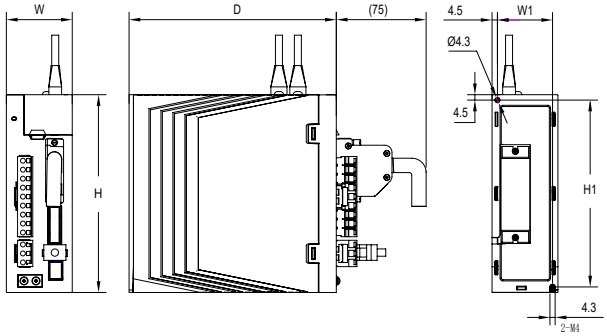
Size A

Size A - 1R6L/2R8L			
W(mm)	40	W1(mm)	28.6
H(mm)	165	H1(mm)	164.5
D(mm)	143	screw	2-M4



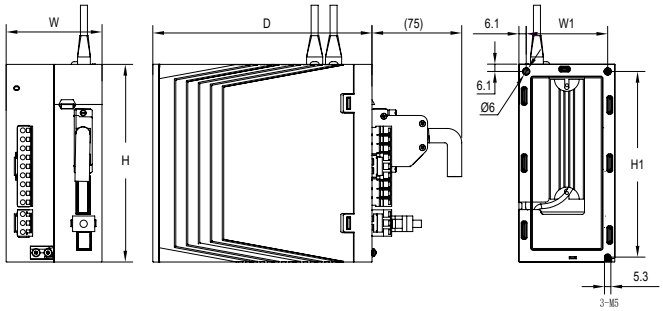
Size B

Size B - 5R5L/6R6L			
W(mm)	50	W1(mm)	37
H(mm)	165	H1(mm)	165
D(mm)	163	screw	2-M4



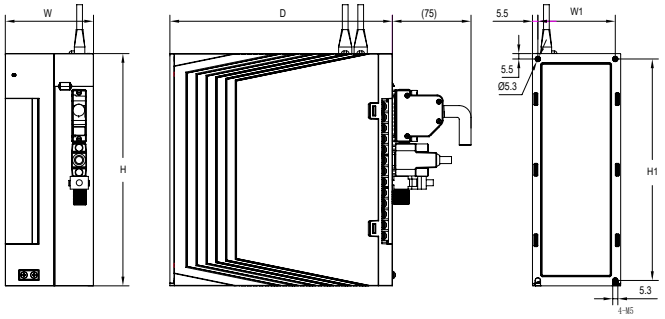
Size C

Size C - 7R6M/3R5T/5R4T			
W(mm)	55	W1(mm)	46
H(mm)	165	H1(mm)	156
D(mm)	173	screw	2-M4



Size D

Size D - 12RM/8R4T/12RT			
W(mm)	80	W1(mm)	65
H(mm)	165	H1(mm)	155
D(mm)	183	screw	3-M5

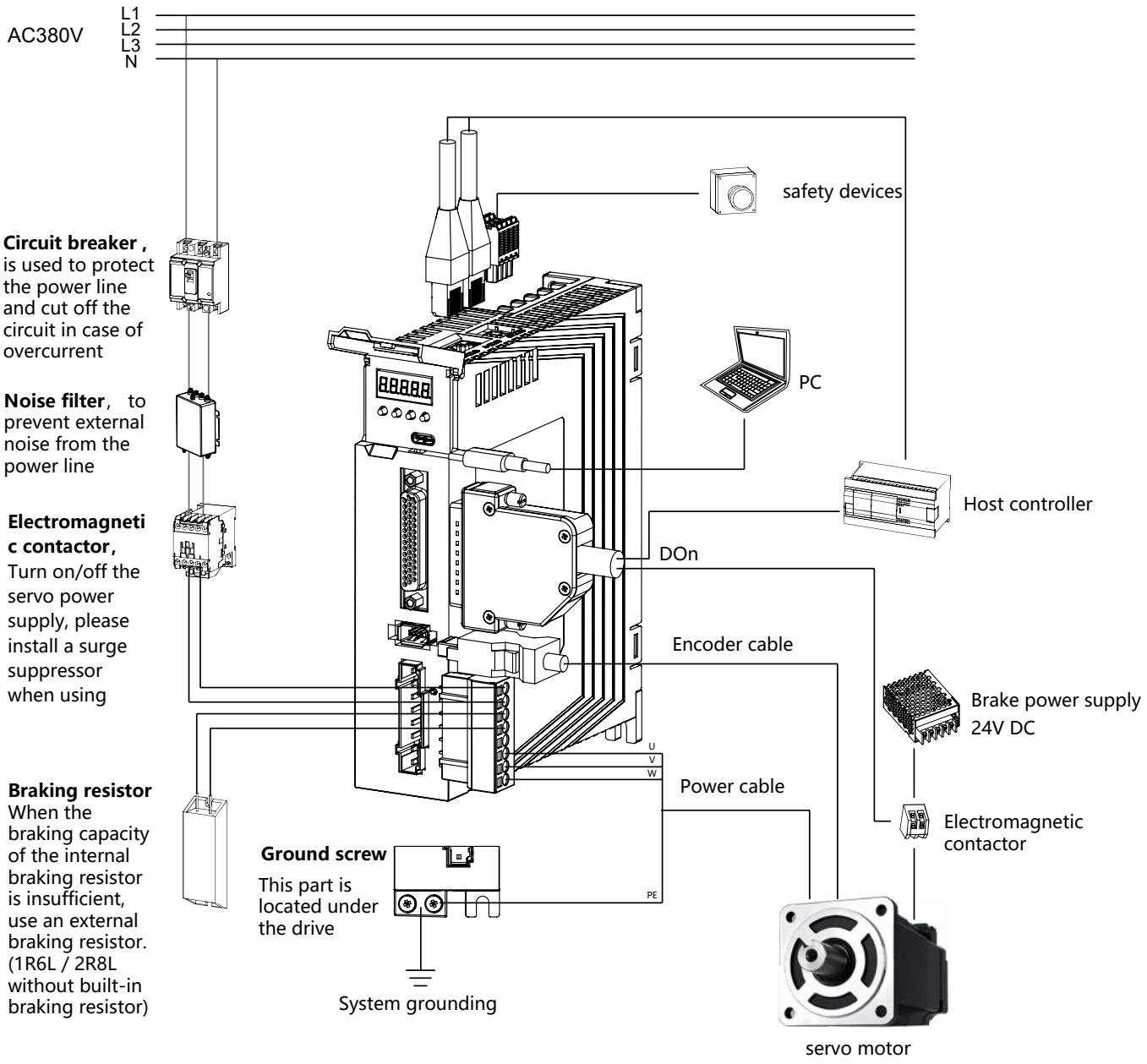


Size E

Size E - 17RT/21RT/26RT			
W(mm)	90	W1(mm)	79
H(mm)	237	H1(mm)	226
D(mm)	227	screw	4-M5

RA3 series wiring diagram

■ 1 PHASE 220V Size A



Circuit breaker , is used to protect the power line and cut off the circuit in case of overcurrent

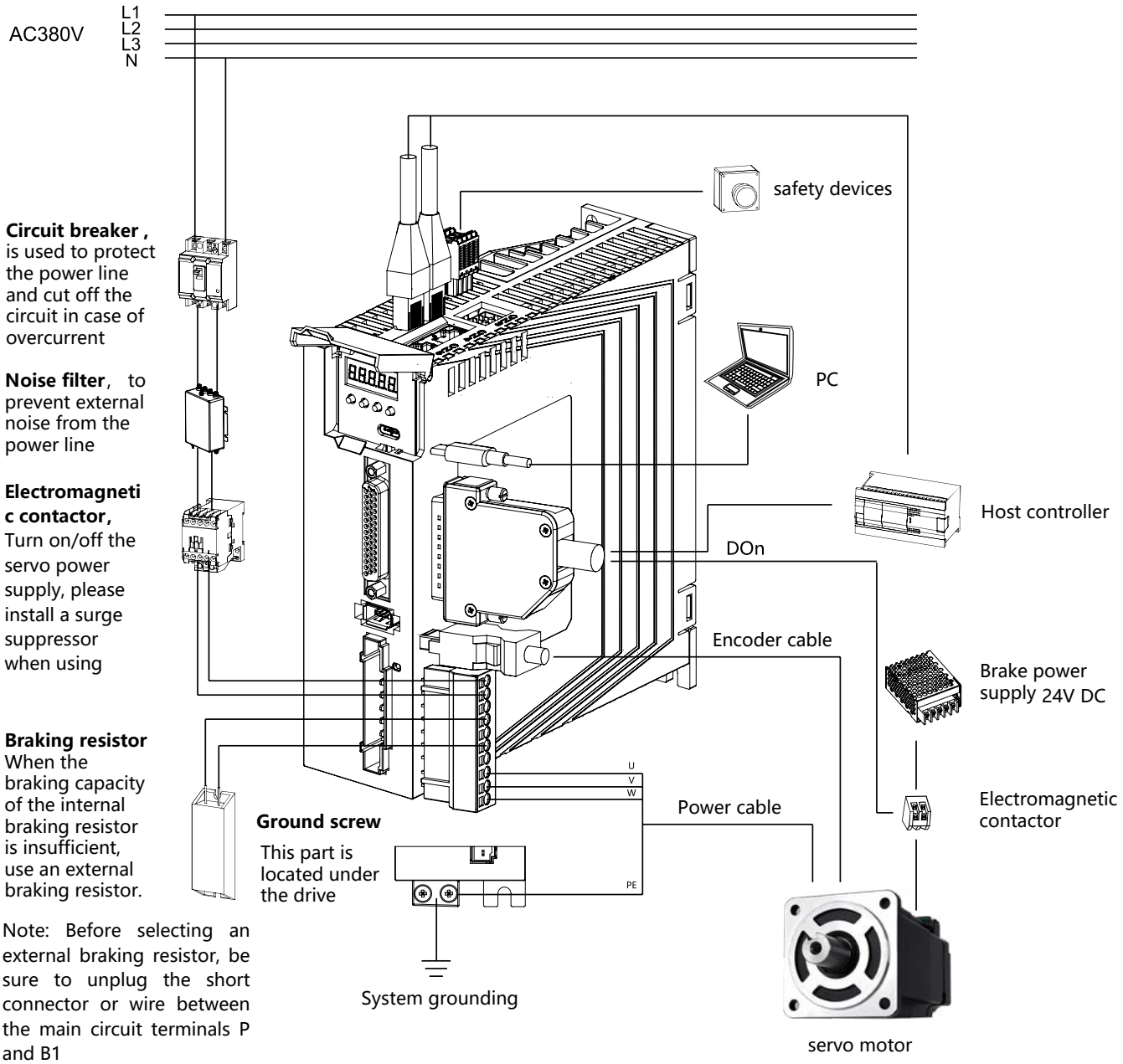
Noise filter, to prevent external noise from the power line

Electromagnetic contactor, Turn on/off the servo power supply, please install a surge suppressor when using

Braking resistor When the braking capacity of the internal braking resistor is insufficient, use an external braking resistor. (1R6L / 2R8L without built-in braking resistor)

RA3 series wiring diagram

■ 1 PHASE 220V Size B



Circuit breaker , is used to protect the power line and cut off the circuit in case of overcurrent

Noise filter, to prevent external noise from the power line

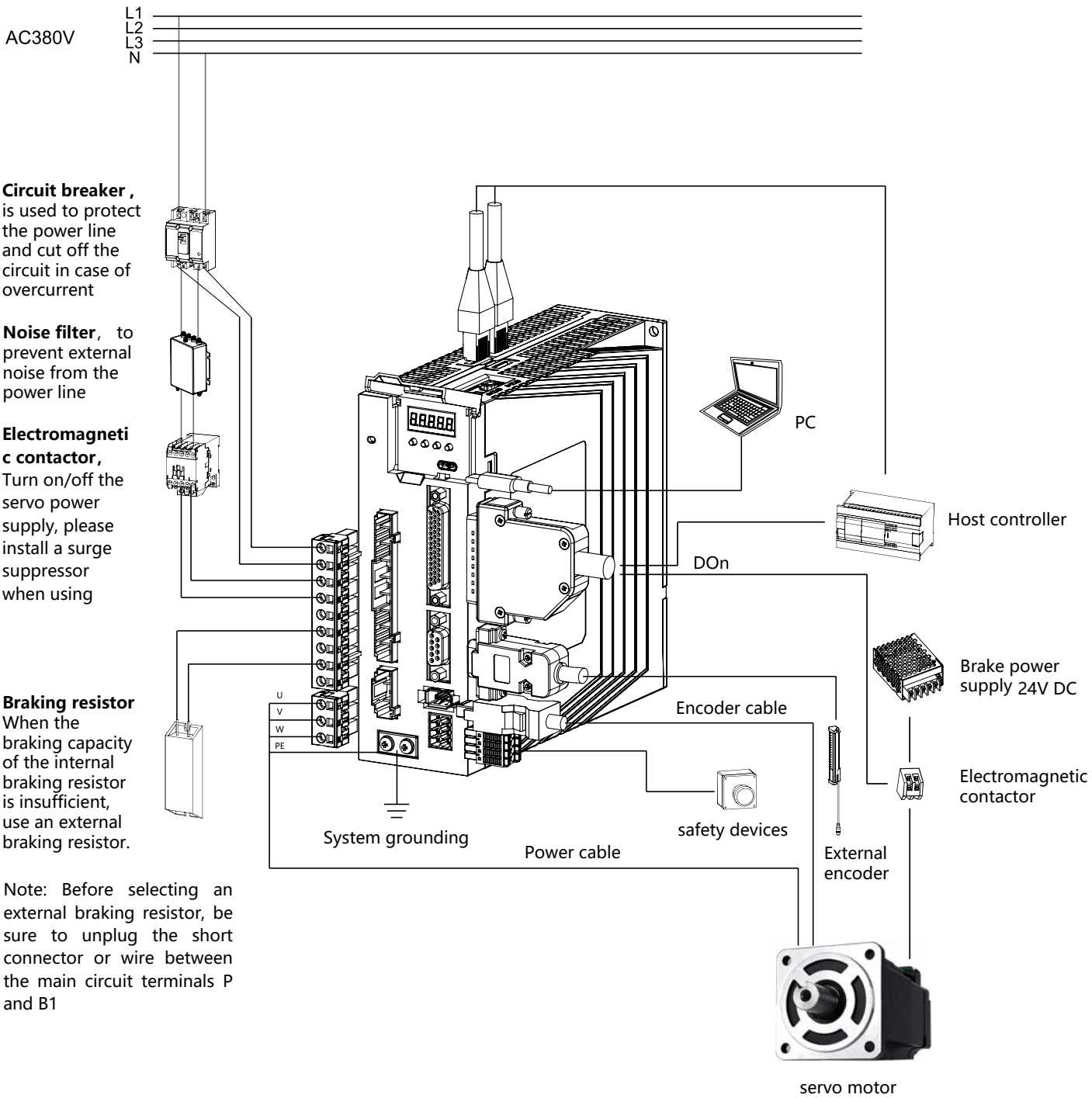
Electromagnetic contactor, Turn on/off the servo power supply, please install a surge suppressor when using

Braking resistor When the braking capacity of the internal braking resistor is insufficient, use an external braking resistor.

Note: Before selecting an external braking resistor, be sure to unplug the short connector or wire between the main circuit terminals P and B1

RA3 series wiring diagram

■ 1 PHASE 220V Size C/D



Circuit breaker , is used to protect the power line and cut off the circuit in case of overcurrent

Noise filter, to prevent external noise from the power line

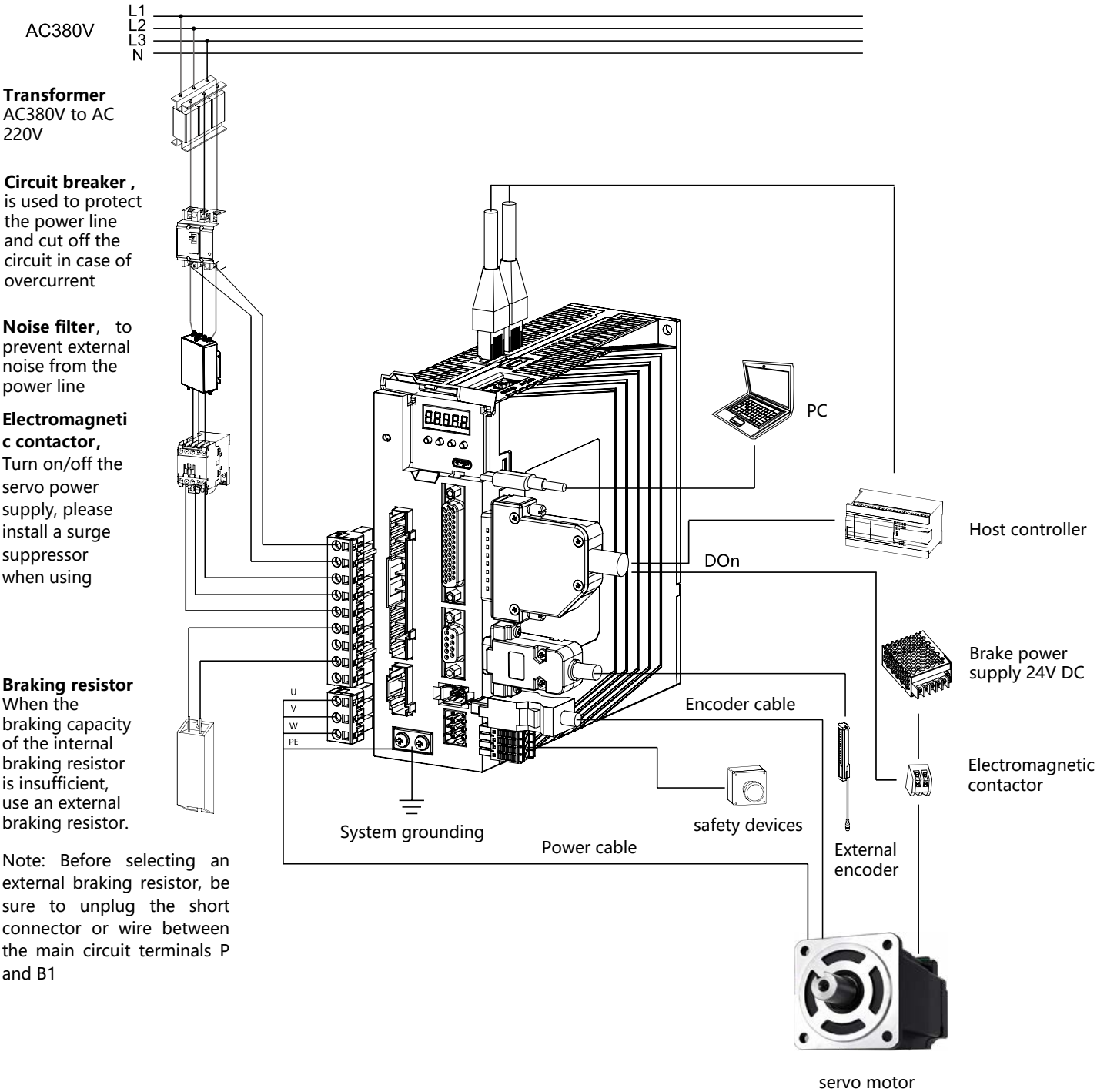
Electromagnetic contactor, Turn on/off the servo power supply, please install a surge suppressor when using

Braking resistor When the braking capacity of the internal braking resistor is insufficient, use an external braking resistor.

Note: Before selecting an external braking resistor, be sure to unplug the short connector or wire between the main circuit terminals P and B1

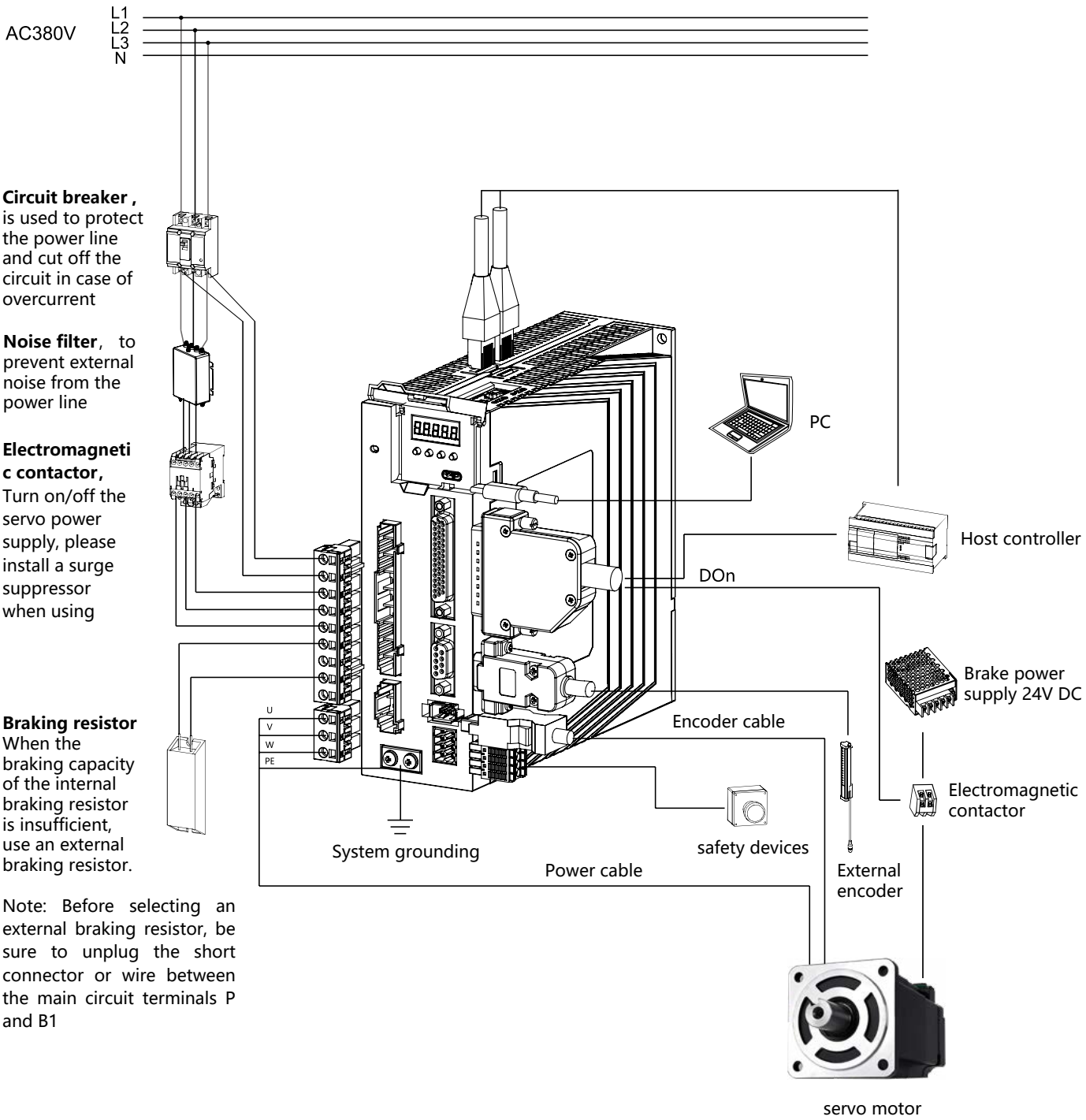
RA3 series wiring diagram

■ 3 PHASE 220V Size C/D



RA3 series wiring diagram

■ 3 PHASE 380V Size C/D



Circuit breaker , is used to protect the power line and cut off the circuit in case of overcurrent

Noise filter, to prevent external noise from the power line

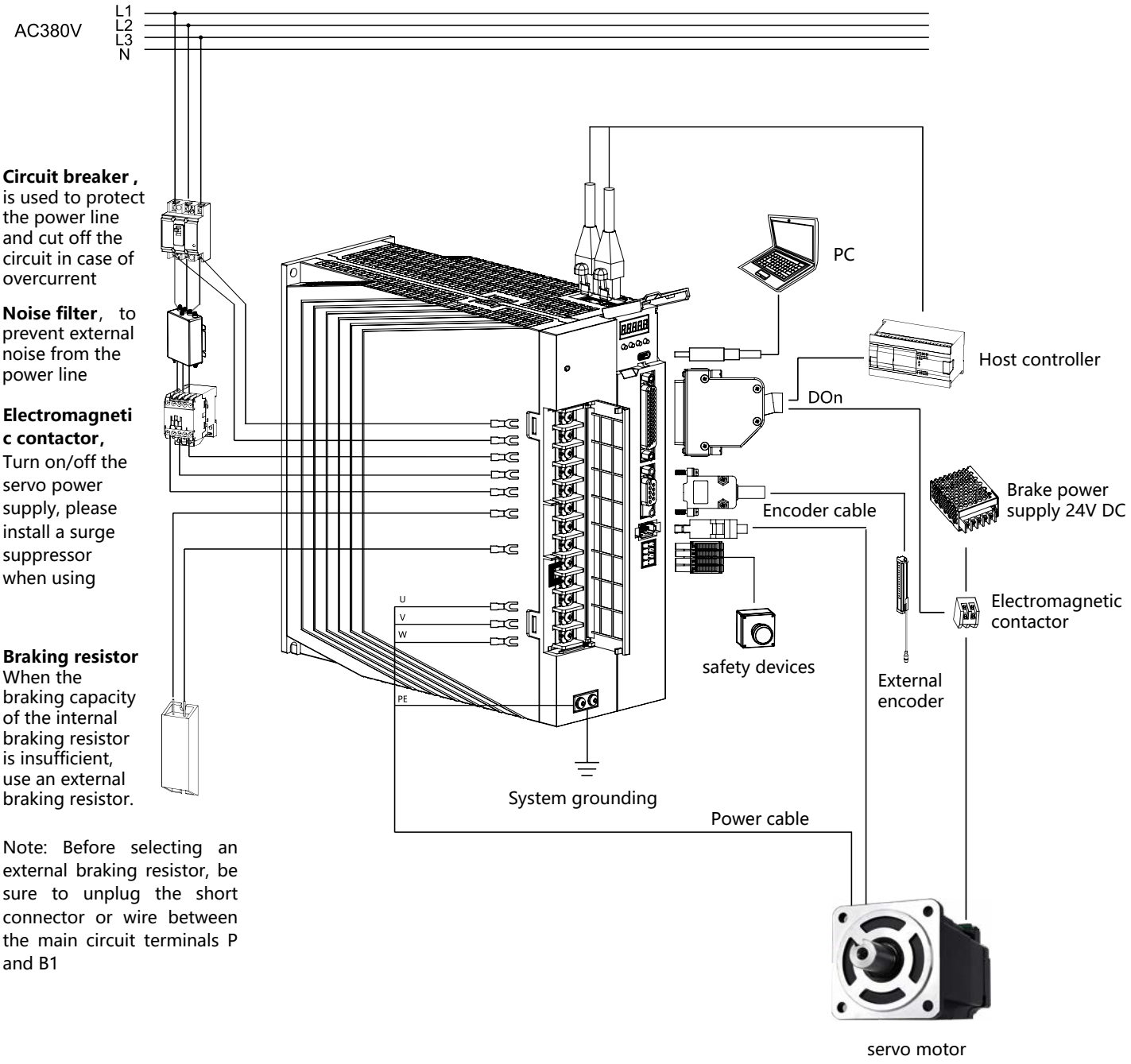
Electromagnetic contactor, Turn on/off the servo power supply, please install a surge suppressor when using

Braking resistor When the braking capacity of the internal braking resistor is insufficient, use an external braking resistor.

Note: Before selecting an external braking resistor, be sure to unplug the short connector or wire between the main circuit terminals P and B1

RA3 series wiring diagram

■ 3 PHASE 380V Size E



Circuit breaker , is used to protect the power line and cut off the circuit in case of overcurrent

Noise filter, to prevent external noise from the power line

Electromagnetic contactor, Turn on/off the servo power supply, please install a surge suppressor when using

Braking resistor When the braking capacity of the internal braking resistor is insufficient, use an external braking resistor.

Note: Before selecting an external braking resistor, be sure to unplug the short connector or wire between the main circuit terminals P and B1

RS3 Series servo drive

Standard model

3kHz

Speed loop bandwidth

3kW

Maximum power

23 位

High Precision Optical Encoder

3 control methods

Pulse, EtherCAT, CANopen

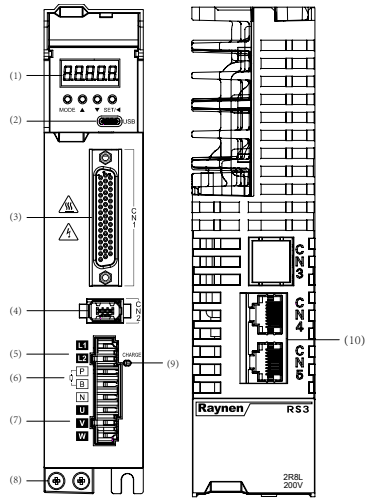
RS3 Series Model Design

RS3 P - 5R5 L - □□

① ② ③ ④ ⑤

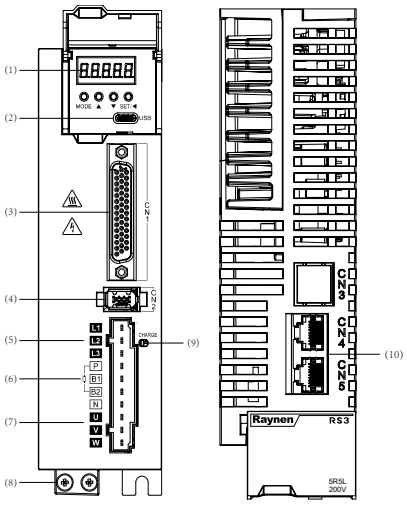
① **Product Series** RS3：Servo Drive	② **Control Type** P：pulse E：EtherCAT C：CANopen	③ **Rated current** 1R6：1.6A 2R8：2.8A 3R5：3.5A 5R4：5.4A 5R5：5.5A 6R6：6.6A 7R6：7.6A 8R4：8.4A 12R：12A
④ **Input voltage** L：1 PH 220V M：1/ 3PH 220V T：3PH 380V	⑤ **Optional features** None：/	

RS3 series terminal definition



■ Size A

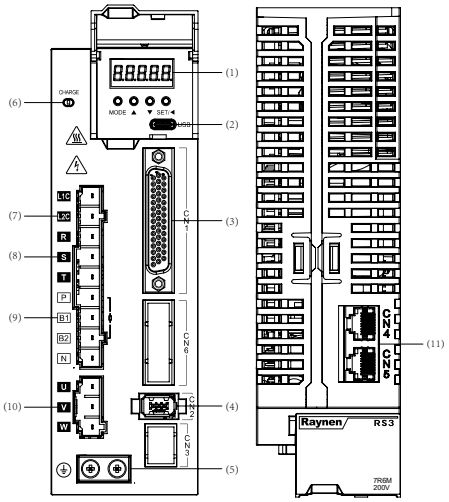
NO	Terminal	Direction
1	-	7-digital display
2	USB	USB Type-C ，connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN2	Encoder interface, connected to the encoder on the servo motor
5	L1、L2	Main circuit power supply, single-phase (200~240VAC, 50/60Hz)
6	brake / common DC	Use external braking resistor, common DC bus
7	U、V、W	Servo drive output, connected to motor (U, V, W)
8	ground screw	Connect to power ground]OXK and motor ground]OXK
9	CHARGE	Power Indicator
10	CN4/CN5	485 communication port
		EtherCAT
		CAN



■ Size B

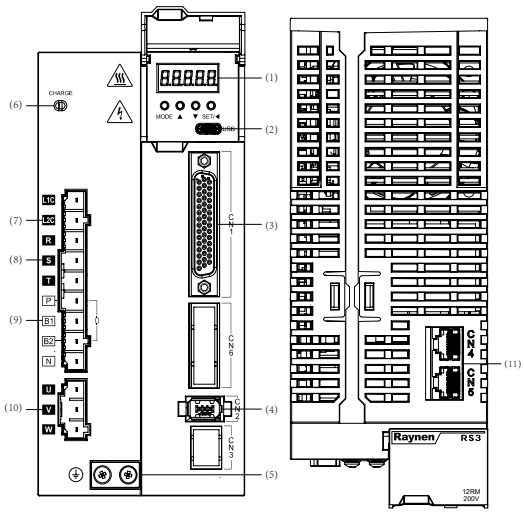
No	Terminal	Direction
1	-	7-digital display
2	USB	USB Type-C ，connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN2	Encoder interface, connected to the encoder on the servo motor
5	L1、L2、L3	Main circuit power supply, single-phase power supply (200~240VAC, 50/60Hz) connected between L1 and L2
6	Brake / Common DC	Use external braking resistor (remove the P and B1 short-circuit, connect it to P and B2), internal braking resistor, common DC bus
7	U、V、W	Servo drive output, connected to motor (U, V, W)
8	Ground screw	Connect to power ground]OXK and motor ground]OXK
9	CHARGE	Power Indicator
10	CN4/CN5	485
		EtherCAT
		CAN

RS3 series terminal definition



Size C

No	Terminal	Direction
1	-	7-digital display
2	USB	USB Type-C , connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN2	Encoder interface, connected to the encoder on the servo motor
5	Ground screw	Connect to power ground]OXK and motor ground]OXK
6	CHARGE	Power Indicator
7	L1C、L2C	Control circuit power supply, connect to the 1PH power supply (200~240VAC or 380~440VAC, 50/60Hz according to the model)
8	R、S、T	Main circuit power supply, connected to 3PH power supply (200~240VAC or 380~440VAC, 50/60Hz according to model)
9	Brake / Common DC	Use external braking resistor (remove the P and B1 short-circuit, connect it to P and B2), internal braking resistor, common DC bus
10	U、V、W	Servo drive output, connected to motor (U, V, W)
11	CN4/CN5	485
		EtherCAT
		CAN



Size D

NO	Terminal	Direction
1	-	7-digital display
2	USB	USB Type-C , connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN2	Encoder interface, connected to the encoder on the servo motor
5	Ground screw	Connect to power ground]OXK and motor ground]OXK
6	CHARGE	Power Indicator
7	L1C、L2C	Control circuit power supply, connect to the 1PH power supply (200~240VAC or 380~440VAC, 50/60Hz according to the model)
8	R、S、T	Main circuit power supply, connected to 3PH power supply (200~240VAC or 380~440VAC, 50/60Hz according to model)
9	Brake / Common DC	Use external braking resistor (remove the P and B1 short-circuit, connect it to P and B2), internal braking resistor, common DC bus
10	U、V、W	Servo drive output, connected to motor (U, V, W)
11	CN4/CN5	485
		EtherCAT
		CAN

RS3 Series Electrical Specifications

■ 1-phase 220V drive electrical specifications

Item		Size A		Size B		Size C	Size D
Model		1R6L	2R8L	5R5L	6R6L	7R6M	12RM
Power [kW]		0.2	0.4	0.75	0.85	1	2
Power capacity [kVA]		0.5	1	1.7	2	2.3	4.2
Rated current [Arms]		1.6	2.8	5.5	6.6	7.6	12
Max output Current [Arms]		5.9	10.1	16.9	17	23	32
Mian circuit	Input current [Arms]	2.3	4	7.9	9.4	10.5	19.1
	Main circuit	1 phase 200~240Vac, -10%~+10%, 50/60Hz					
control circuit	Control loop power supply	1 Phase 200~240Vac, -10%~+10%, 50/60Hz					
Power Loss	Main circuit power loss [W]	30.5	41	60.8	63	42.9	83.3
	Control circuit power loss [W]					22	25
Braking resistor	Braking resistor	Can't built-in		Built-in			
	Resistance [Ω]	-	-	50	50	25	25
	Capacity [W]	-	-	50	50	80	80
	External min Resistance [Ω]	50	45	40	40	20	15
Cooling method		Natural cooling		Air cooling			
Overvoltage level		OVC Ⅲ					

■ 3-phase 220V drive electrical specifications

Item		Size C	Size D
Model		7R6M	12RM
Power [kW]		1	2
Power capacity [kVA]		2.3	4.2
Rated current [Arms]		7.6	12
Max output Current [Arms]		23	32
Mian circuit	Input current [Arms]	5.1	8.1
	Main circuit	3-phase 200~240Vac, -10%~+10%, 50/60Hz	
control circuit	Control loop power supply	1phase 200~240Vac, -10%~+10%, 50/60Hz	
Power Loss	Main circuit power loss [W]	42.9	83.3
	Control circuit power loss [W]	22	25
Braking resistor	Braking resistor	built-in	
	Resistance [Ω]	25	25
	Capacity [W]	80	80
	External min Resistance [Ω]	20	15
Cooling method		Air cooling	
Overvoltage level		OVC Ⅲ	

*7R6M and 12RM are recommended to use three-phase 220V power input for stronger performance.

■ 3-phase 380V drive electrical specifications

项目		Size C		Size D	
Model		3R5T	5R4T	8R4T	12RT
Power [kW]		1	1.5	2.5	3
Power capacity [kVA]		2.3	3.5	4.5	6.2
Rated current [Arms] Maximum		3.5	5.4	8.4	12
output current [Arms]		11	14	20	29.75
Main circuit	Input current [Arms]	3.4	4.5	6.6	9.3
	Main circuit power supply	3-phase 380~440Vac, -10%~+10%,			
Control circuit	Control loop power supply	50/60Hz 1-phase 380~440Vac, -10%~			
Power loss	Main circuit power loss [W]	34.4	70.9 +10%, 50/60Hz	95	155
	Control circuit power loss[W]	22	22	25	25
Braking resistor	Braking resistor	Built-in			
	Resistance [Ω]	100	100	50	50
	Capacity [W]	80	80	80	80
	External min. resistance [Ω]	80	60	45	40
Cooling method		Air cooling			
Overvoltage level		OVC Ⅲ			

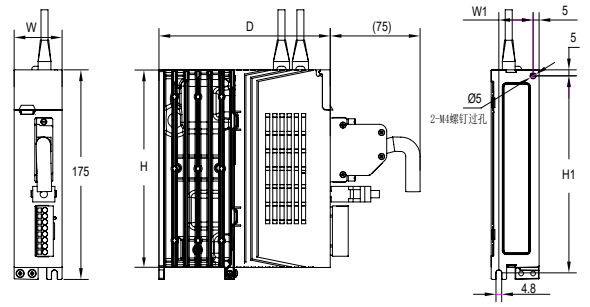
RS3P/C Basic Specifications

Item			Specificaiton
Basic Specifications	Control method		IGBT PWM control, Sine wave current drive method
	Encoder type		Communication encoder (RS485)
	Communication	USB	Type-C, used for PC host computer communication
		RS485	Modbus, used for host controller control communication
		CAN	CAN ，used for host controller control communication
	dynamic braking		Main circuit power off, servo alarm, servo off, action when overtravel
	Protective function		Overvoltage, undervoltage, phase loss, overcurrent, overload, overspeed, encoder disconnection, etc.
	Accessibility		Gain adjustment, notch filter, alarm record query, JOG operation, motor initial angle identification, etc.
	Number of control signals		DI *5 ，HDI *2 ，DO *5 （pluse）
			DI *4 ，HDI *2 ，DO *4 （CANopen）
Position control	DI input function		Zero fixed enable, position command prohibited, forward overtravel switch, reverse overtravel switch, electronic gear ratio selection, position command direction setting, multi-stage position command enable, interrupt fixed-length state release, origin switch, origin reset Enable, disable fixed-length interruption, clear position deviation, and disable pulse command
	DO output function		The positioning is completed, the positioning is close, the interruption and fixed length are completed, and the origin return is completed
	Pulse input	Input pulse shape	Differential input, open collector
		Input pulse mode	Direction + pulse, CW+CCW, two pulses with 90 degree phase difference
		Max. pulse frequency	Differential input: high-speed maximum 4Mpps, pulse width not less than 0.125us
			Open collector: maximum 200kpps, pulse width not less than 2.5us
		Command filter	Average filtering, first-order low-pass filtering
	Frequency division output Frequency	Frequency division output range	Any frequency division ratio
		Division output form	Phase A, Phase B: Differential output
			Phase Z: differential output or open collector output
		Frequency division output source	Encoder position or command pulse
	Internal position command		Switch the maximum 16-segment position command of internal planning through DI
Speed control	DI input function		Multi-stage speed running direction switching, internal multi-stage speed selection (1-4), speed command direction setting, internal speed limit source
	DO output function		Zero speed clamp, motor rotation, zero speed signal, consistent speed, speed limited, speed reached
	Internal speed command		Switch up to 16 speed commands internally planned by DI
Torque control	DI input function		Forward torque limit, reverse torque limit, torque command direction setting, speed limit selection
	DO output function		Torque limit, torque reach
Conditions	Degree of protection Environmental		IP20
	Pollution Level Altitude		PD2
	Ambient temperature		Lower than 1000m，use with derating above 1000m
	Storage temperature		~55°C (when the ambient temperature is above 45°C, derate by 10% for every 5°C increase)
	Use/Storage Environment Humidity		-20~70℃
	Vibration Resistance		Below 90%RH (no condensation)
	Impact strength		4.9m/s^2
			19.6m/s^2

RS3E Basic Specifications

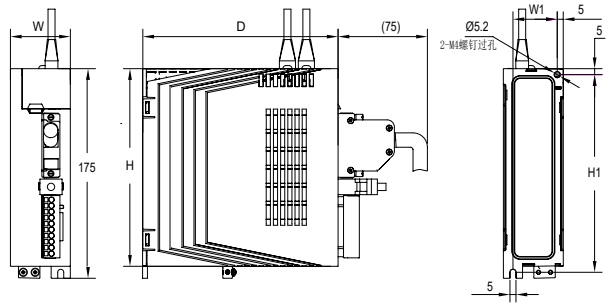
Item			Specification
Basic Specifications	Control method		IGBT PWM control, sine wave current drive method
	Encoder type		Communication encoder (RS485)
	Communication	USB	Type-C, used for communication with PC host computer
		EtherCAT	IEC 61158 Type12, IEC 61800-7 CiA 402
	Dynamic braking		Main circuit power off, servo alarm, servo off, action when overtravel
	Protective function		Overvoltage, undervoltage, phase loss, overcurrent, overload, overspeed, encoder disconnection, etc.
	Accessibility		Gain adjustment, notch filter, alarm record query, JOG operation, motor initial angle identification, etc.
	Number of control signals		DI *4 , HDI *2, DO*4
Position control	DI input function		Forward limit switch, reverse limit switch, origin switch
	DO output function		positioning complete
	Position command		Given based on EtherCAT communication
Speed control	DI input function		-
	DO output function		Zero speed clamp, motor rotation, zero speed signal, consistent speed, speed limited, speed reached
	Speed command		Given based on EtherCAT communication
Torque control	DI input function		-
	DO output function		Torque limit, torque reach
	Torque command		Given based on EtherCAT communication
Conditions of Use	Degree of protection		IP20
	Environmental Pollution Level		PD2
	Altitude		Lower than 1000m, use with derating above 1000m
	Ambient temperature		0~55℃ (when the ambient temperature is above 45℃, derate by 10% for every 5℃ increase)
	Storage temperature		-20~70℃
	Use/Storage Environment Humidity		90%RH 以下 (no condensation)
	Vibration Resistance		4.9m/s^2
	Impact strength		19.6m/s^2
EtherCAT Communication Specifications	Communication standard		IEC 61158 Type12, IEC 61800-7 CiA Drive Profile
	physical layer		100BASE-TX (IEEE802.3)
	Connector		RJ45*2 (with shield)
			IN(EtherCAT input) , OUT(EtherCAT ouput)
	Communication cable		Recommended network cable: twisted-pair double-layer shielded network cable, Ethernet Category 5 (100BASE-TX) or higher
	Baud rate		100Mbps
	Communication length		Maximum distance between nodes is 100 meters
	Process data		Fixed PDO, Variable PDO
	Mailbox (COE)		SDO request, SDO reply
	Synchronous mode		DC Sync (Sync0 Event)
	Communication cycle		250us~10000us
	Supported CiA 402 modes		PP, PV, PT, HM, CSP, CSV, CST

RS3 series appearance and installation dimensions



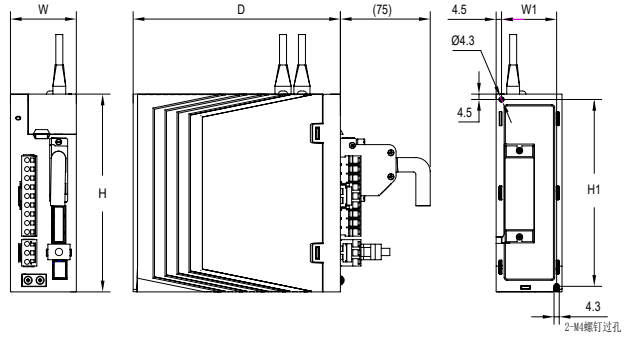
Size A

Size A - 1R6L/2R8L			
W(mm)	40	W1(mm)	28.6
H(mm)	165	H1(mm)	164.5
D(mm)	143	Screw	2-M4



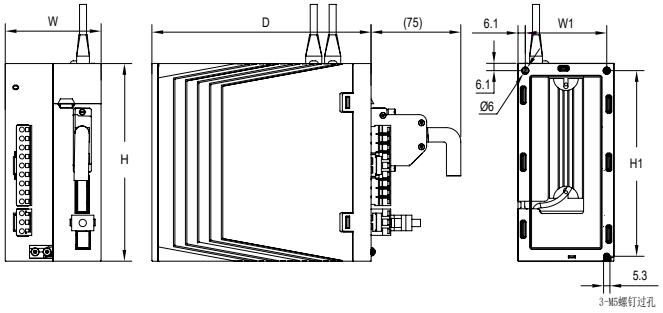
Size B

Size B - 5R5L/6R6L			
W(mm)	50	W1(mm)	37
H(mm)	165	H1(mm)	165
D(mm)	163	Screw	2-M4



Size C

Size C - 7R6M/3R5T/5R4T			
W(mm)	55	W1(mm)	46
H(mm)	165	H1(mm)	156
D(mm)	173	Screw	2-M4

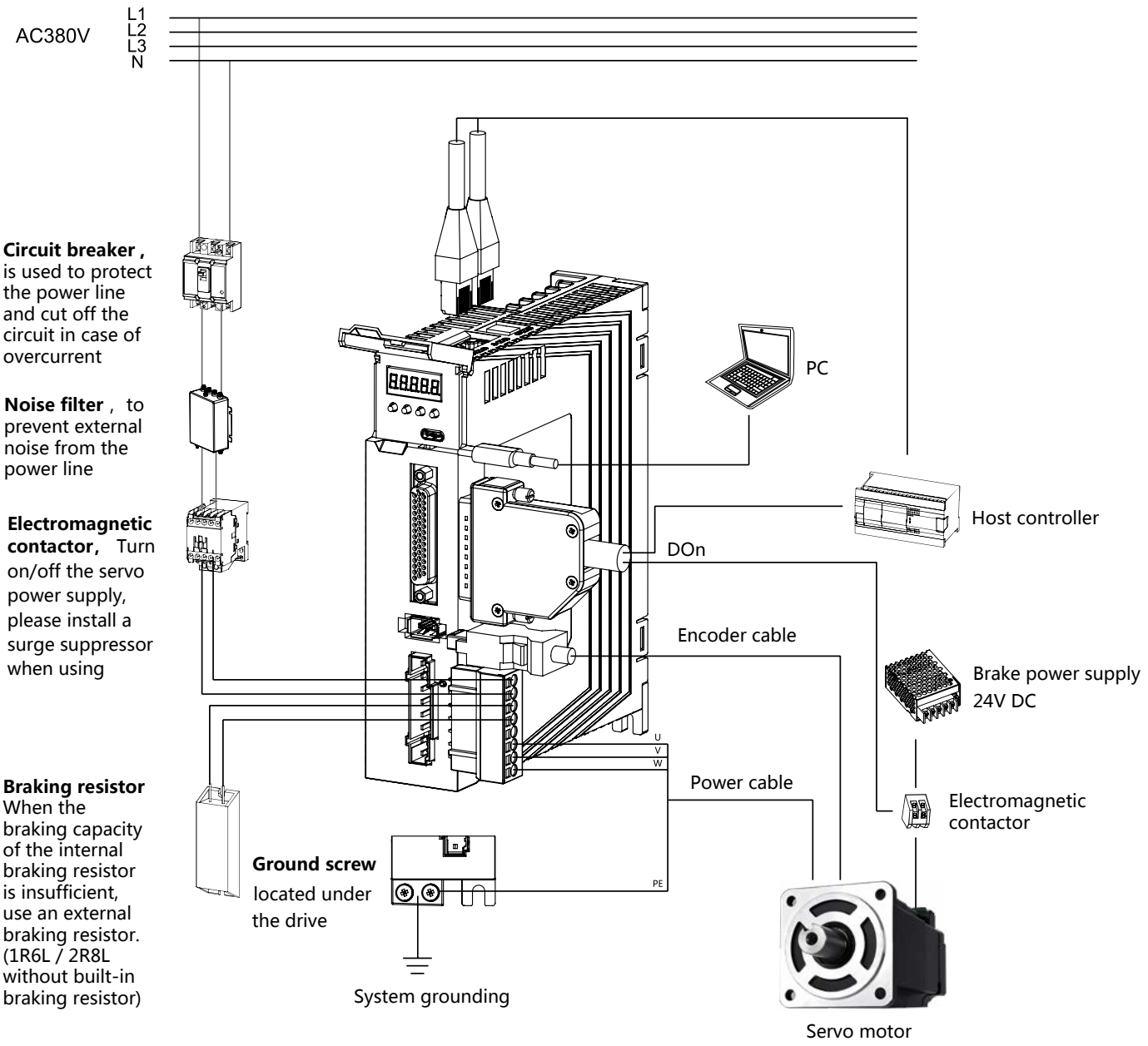


Size D

Size D - 12RM/8R4T/12RT			
W(mm)	80	W1(mm)	65
H(mm)	165	H1(mm)	155
D(mm)	183	Screw	3-M5

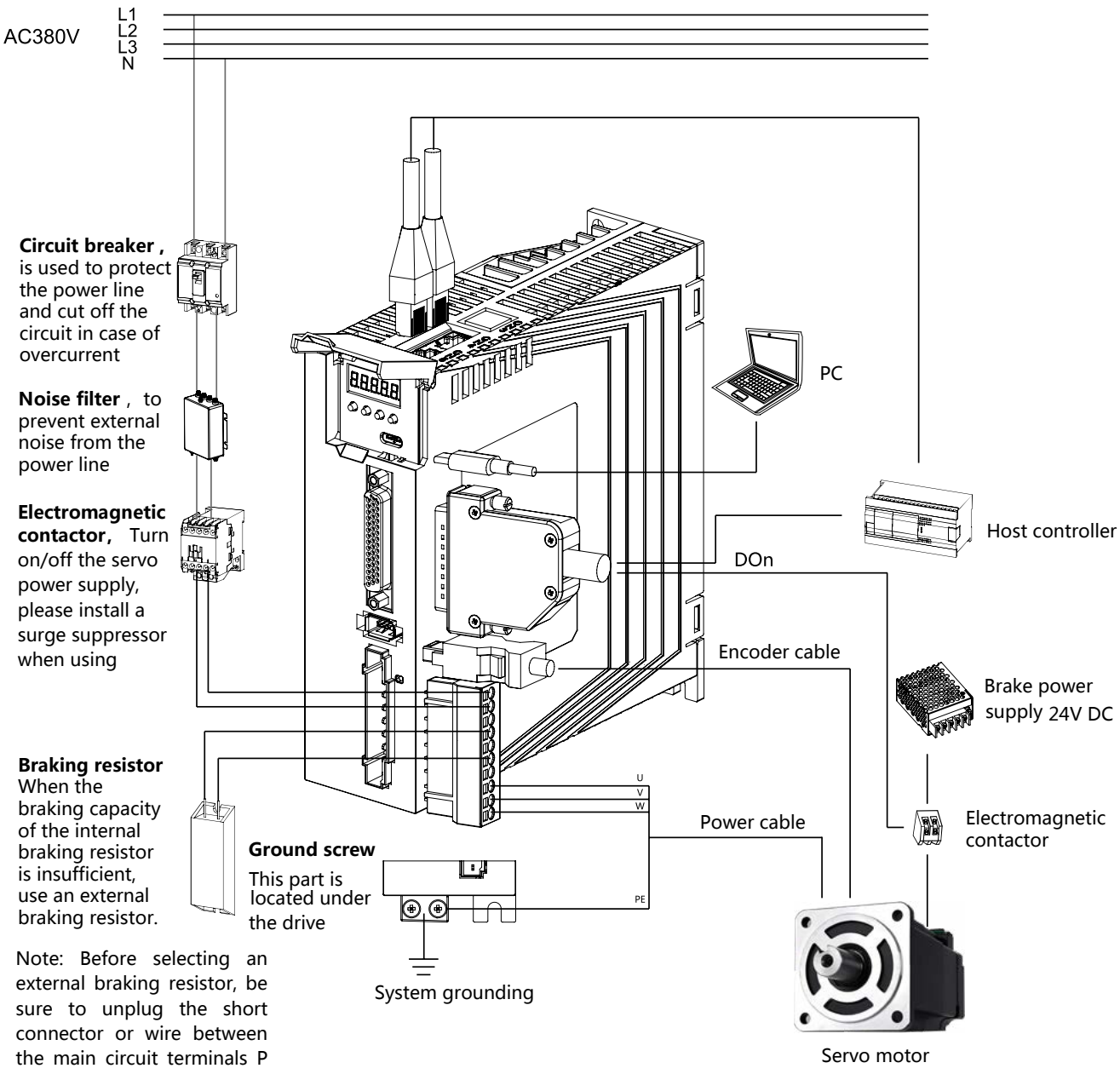
RS3 series wiring diagram

■ 1-phase 220V Size A



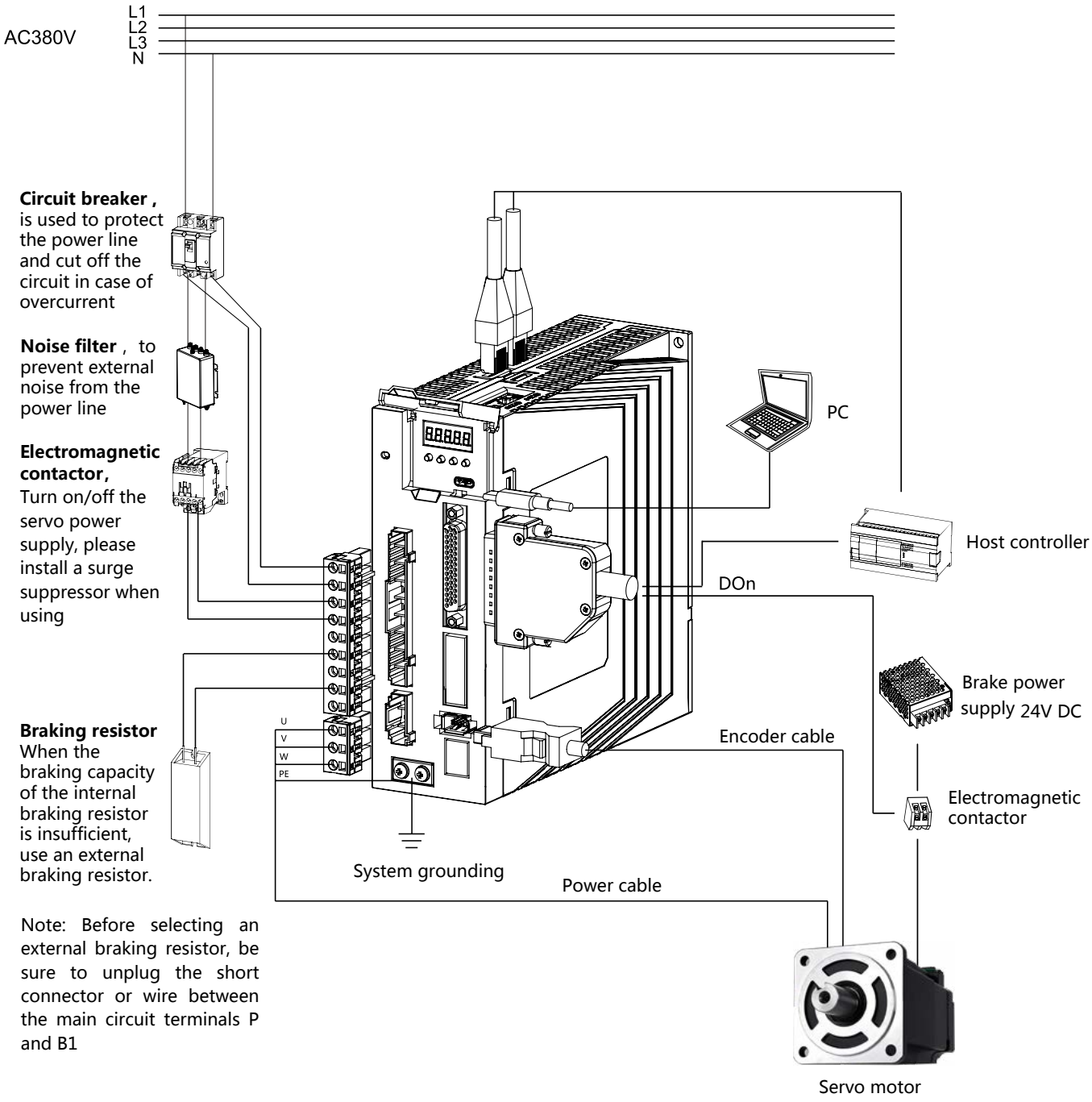
RS3 series wiring diagram

■ 1-phase 220V Size B



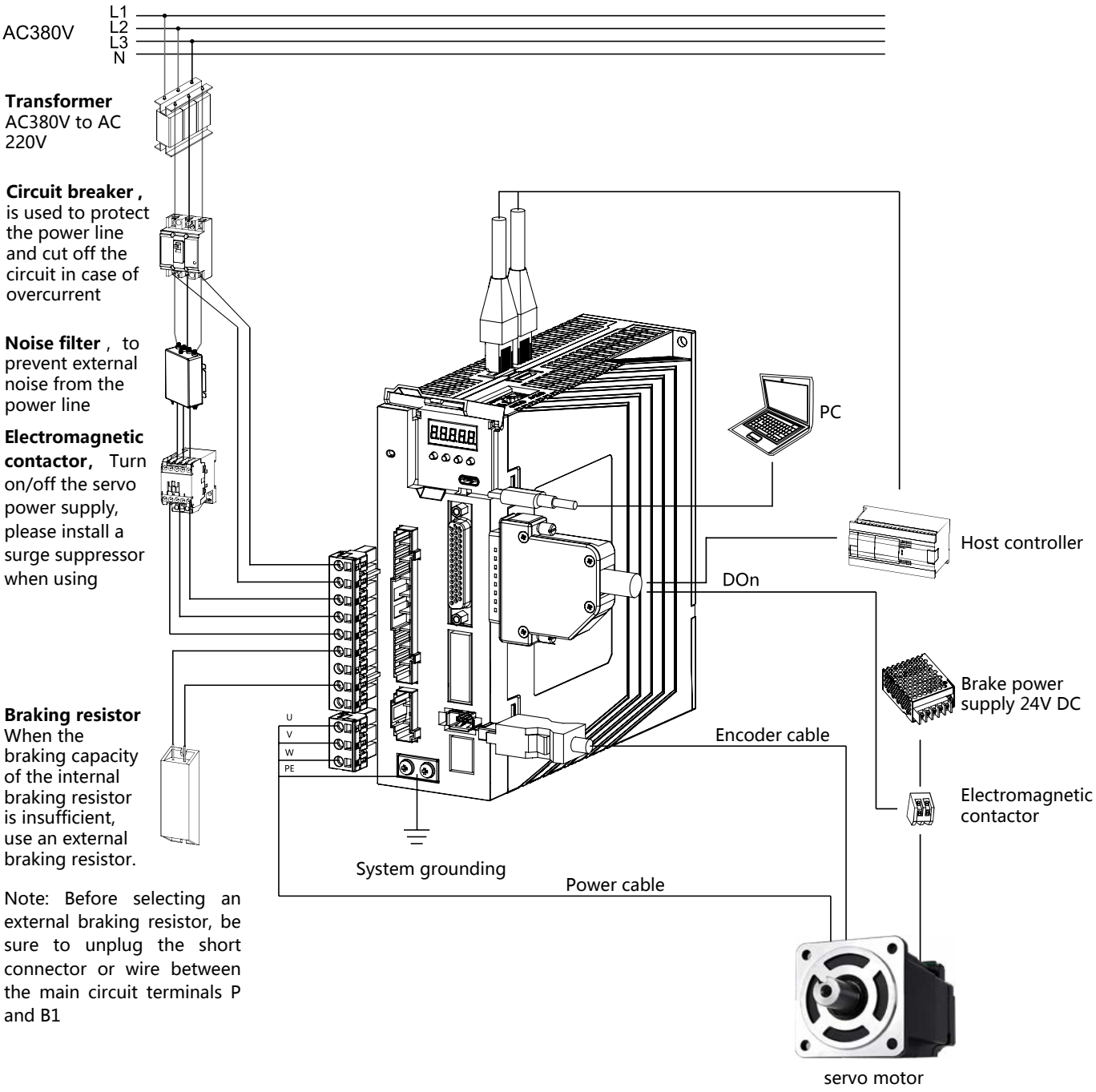
RS3 series wiring diagram

1-phase 220V Size C/D



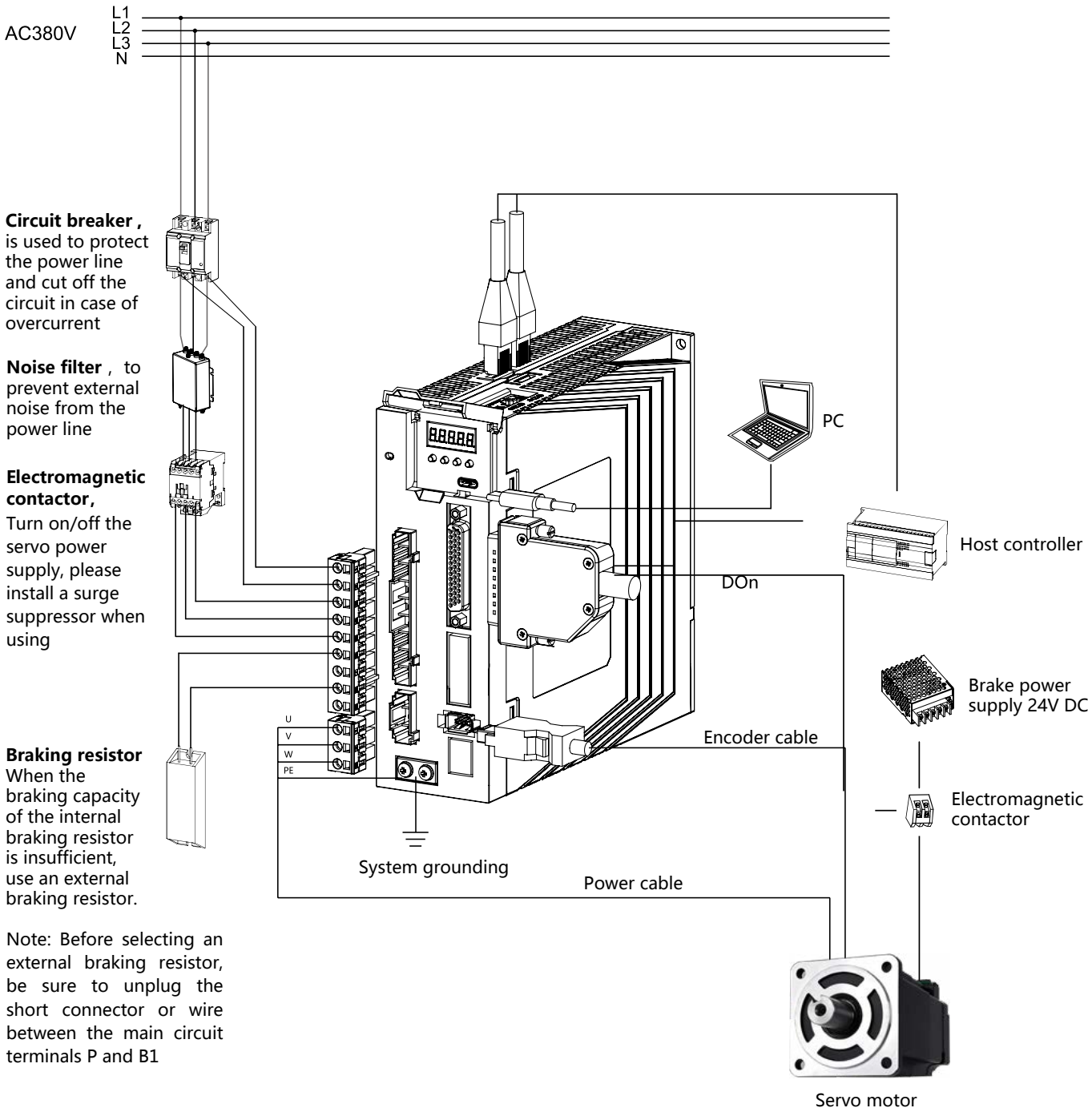
RS3 series wiring diagram

■ 3-phase 220V Size C/D



RS3 series wiring diagram

■ 3-phase 380V Size C/D



RS31 Series Servo Drive

COMPACT TYPE

2kHz

Speed loop bandwidth

2kW

Maximum power

17-bit

Reliable Magnetic Encoders

3 Control mode

Pulse、EtherCAT、CANopen

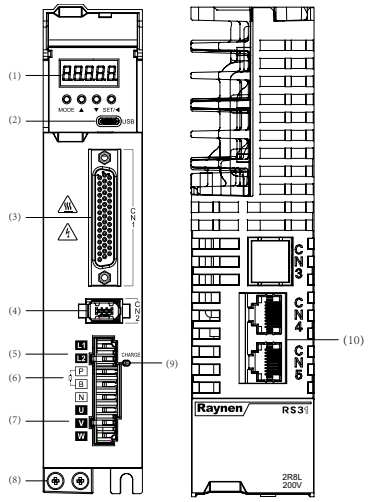
RS31 Series Model Design

RS3 P 1 - 5R5 L - □

① ② ③ ④ ⑤ ⑥

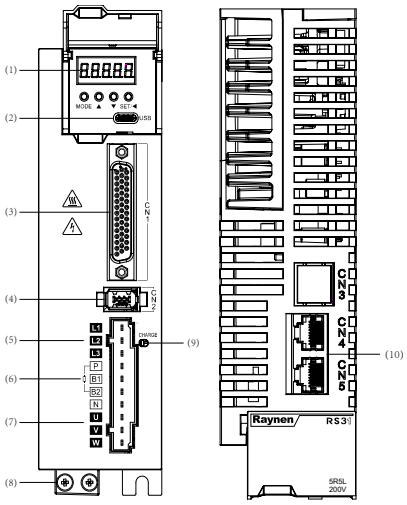
① **Product Series** RS3：Servo Drive	② **Control type** P：Pulse E：EtherCAT C：CANopen	③ **Product type** 1：Compact
④ **Rated current** 1R6：1.6A 2R8：2.8A 5R5：5.5A 6R6：6.6A 7R6：7.6A 12R：12A	⑤ **Input voltage** L：1 PH 220V M：1/ 3 PH 220V	⑥ **Optional features** None：/ B：Built-in braking resistor (suitable for 5R5/6R6)

RS31 series port definition



■ Size A

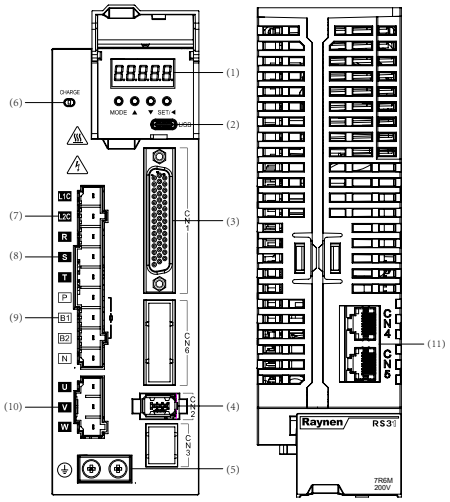
NO.	Port	Direction
1	-	7-digital display
2	USB	USB Type-C ， connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN2	Encoder interface, connected to the encoder on the servo motor
5	L1、L2	Main circuit power supply, single-phase (200~240VAC, 50/60Hz)
6	brake / common DC	Use external braking resistor, common DC bus
7	U、V、W	Servo drive output, connected to motor (U, V, W)
8	Ground screw	Connect to power ground wire and motor groundwire
9	CHARGE	Power Indicator
10	CN4/CN5	485
		EtherCAT
		CAN



■ Size B

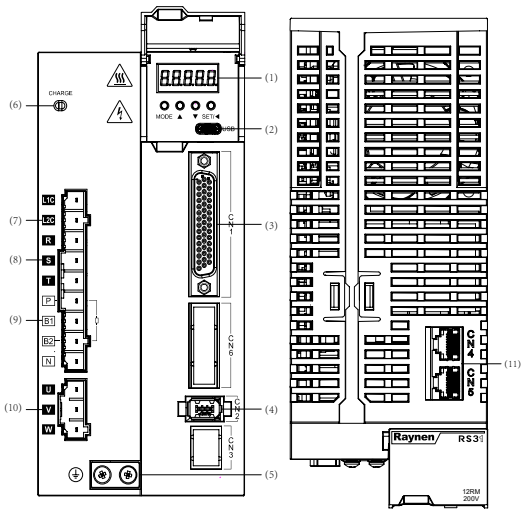
NO.	Port	Direction
1	-	7-digital display
2	USB	USB Type-C ， connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN2	Encoder interface, connected to the encoder on the servo motor
5	L1、L2、L3	Main circuit power supply, single-phase power supply (200~240VAC, 50/60Hz) connected between L1 and L2
6	. rake / Common DC	Use external braking resistor (remove the P and B1 short-circuit, connect it to P and B2), internal braking resistor, common DC bus
7	U、V、W	Servo drive output, connected to motor (U, V, W)
8	Ground screw	Connect to power ground wire and motor groundwire
9	CHARGE	Power Indicator
10	CN4/CN5	485
		EtherCAT
		CAN

RS31 series port definition



■ Size C

NO.	Port	Direction
1	-	7-digital display
2	USB	USB Type-C， connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN2	Encoder interface, connected to the encoder on the servo motor
5	Ground screw	Connect to power ground wire and motor groundwire
6	CHARGE	Power Indicator
7	L1C、L2C	Control circuit power supply, connect to the 1PH power supply (200~240VAC or 380~440VAC, 50/60Hz according to the model)
8	R、S、T	Main circuit power supply, connected to 3PH power supply (200~240VAC or 380~440VAC, 50/60Hz according to model)
9	Brake / Common DC	Use external braking resistor (remove the P and B1 short-circuit, connect it to P and B2), internal braking resistor, common DC bus
10	U、V、W	Servo drive output, connected to motor (U, V, W)
11	CN4/CN5	485
		EtherCAT
		CAN/485



■ Size D

NO.	Port	Direction
1	-	7-digital display
2	USB	USB Type-C， connect to PC
3	CN1	Connector for output/input signal, connect to PLC or I/O
4	CN2	Encoder interface, connected to the encoder on the servo motor
5	Ground screw	Connect to power ground wire and motor groundwire
6	CHARGE	Power Indicator
7	L1C、L2C	Control circuit power supply, connect to the 1PH power supply (200~240VAC, 50/60Hz according to the model)
8	R、S、T	Main circuit power supply, connected to 3PH power supply (200~240VAC, 50/60Hz according to model)
9	Brake / Common DC	Use external braking resistor (remove the P and B1 short-circuit, connect it to P and B2), internal braking resistor, common DC bus
10	U、V、W	Servo drive output, connected to motor (U, V, W)
11	CN4/CN5	485
		EtherCAT
		CAN/485

RS31 series port definition

■ 1-phase 220V drive electrical specifications

Item		Size A		Size B		Size C	Size D
Model		1R6L	2R8L	5R5L	6R6L	7R6M	12RM
Power [kW]		0.2	0.4	0.75	0.85	1	2
Power capacity [kVA]		0.5	1	1.7	2	2.3	4.2
Rated current [Arms] Maximum		1.6	2.8	5.5	6.6	7.6	12
output current [Arms]		5.9	10.1	16.9	17	23	32
Main circuit	Input current [Arms]	2.3	4	7.9	9.4	10.5	19.1
	Main circuit power supply	1 phase 200~240Vac, -10%~+10%, 50/60Hz					
Control circuit	control circuit power supply	1 phase200~240Vac, -10%~+10%, 50/60Hz					
Power loss	Main circuit power loss [W]	30.5	41	60.8	63	42.9	83.3
	Control circuit power loss [W]					22	25
Braking resistor	Braking resistor	Can't built-in		Optional built-in (-B)		Built-in	
	resistance [Ω]	-	-	50	50	25	25
	Capacity [W]	-	-	50	50	80	80
	External min.resistance [Ω]	50	45	40	40	20	15
Cooling method		Natural cooling		Air cooling			
Overvoltage level		OVC III					

*7R6M and 12RM are recommended to use three-phase 220V power input for stronger performance.

■ 3-phase 220V drive electrical specifications

Item		SizeC	Size D
Model		7R6M	12RM
Power [kW]		1	2
Power capacity [kVA]		2.3	4.2
Rated current [Arms] Maximum		7.6	12
output current [Arms]		23	32
Main circuit	Input current [Arms]	5.1	8.1
	Main circuit power supply	3 phase 200~240Vac, -10%~+10%, 50/60Hz	
Control circuit	Control circuit power supply	1 phase 200~240Vac, -10%~+10%, 50/60Hz	
Power loss	Main circuit power loss [W]	42.9	83.3
	Control circuit power loss [W]	22	25
Braking resistor	Braking resistor	Built-in	
	Resistance [Ω]	25	25
	Capacity [W]	80	80
	External min.resistance [Ω]	20	15
Cooling method		Air cooling	
Overvoltage level		OVC III	

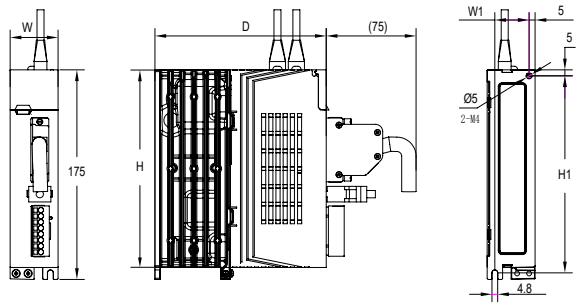
RS3P1/C1 Basic Specifications

Item			Specifications
Basic Specifications	Control method		IGBT PWM control, Sine wave current drive method
	Encoder type		Communication encoder (RS485)
	Communication	USB	Type-C， used for PC host computer communication
		RS485	Modbus, used for host controller control communication
		CAN	CAN， used for host controller control communication
	Protective function		Overvoltage, undervoltage, phase loss, overcurrent, overload, overspeed, encoder disconnection, etc.
	Accessibility		Gain adjustment, notch filter, alarm record query, JOG operation, motor initial angle identification, etc.
	Number of control signals		DI *3，DO *3（Pulse）
			DI*3，DO*3（CANopen）
Position control	DI input function		Zero fixed enable, position command prohibited, forward overtravel switch, reverse overtravel switch, electronic gear ratio selection, position command direction setting, multi-stage position command enable, interrupt fixed-length state release, origin switch, origin reset Enable, disable fixed-length interruption, clear position deviation, and disable pulse command
	DO output function		The positioning is completed, the positioning is close, the interruption and fixed length are completed, and the origin return is completed
	Pulse input	Input pulse shape	Differential input, open collector
		nput pulse mode	Direction + pulse, CW+CCW, two pulses with 90 degree phase difference
		Max. pulse frequency	Differential input: high-speed maximum 4Mpps, pulse width not less than 0.125us
			Open collector: maximum 200kpps, pulse width not less than 2.5us
		Command filter	Average filtering, first-order low-pass filtering
	internal position command		Switch the maximum 16-segment position command of internal planning through DI
Speed control	DI input function		Multi-stage speed running direction switching, internal multi-stage speed selection (1-4), speed command direction setting, internal speed limit source
	DO output function		Zero speed clamp, motor rotation, zero speed signal, consistent speed, speed limited, speed reached
	Internal speed command		Switch up to 16 speed commands internally planned by DI
Torque control	DI input function		Forward torque limit, reverse torque limit, torque command direction setting, speed limit selection
	DO output function		Torque limit, torque reach
Conditions	degree of protection		IP20
	Environmental Pollution Level		PD2
	altitude		Lower than 1000m, use with derating above 1000m
	Ambient temperature		0~55° C (when the ambient temperature is above 45° C, derate by 10% for every 5° C increase)
	storage temperature		-20~70℃
	Use/Storage Environment		Below 90%RH (no condensation)
	Humidity Vibration Resistance		4.9m/s^2
	Impact strength		19.6m/s^2

RS3E1 Basic Specifications

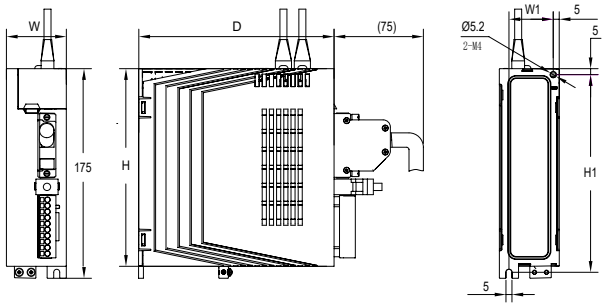
Item			Specifications
Basic Specifications	Control method		IGBT PWM control, sine wave current drive method
	Encoder type		Communication encoder (RS485)
	Communication	USB	Type-C, used for communication with PC host computer
		EtherCAT	IEC 61158 Type12, IEC 61800-7 CiA 402
	Protective function		Overvoltage, undervoltage, phase loss, overcurrent, overload, overspeed, encoder disconnection, etc.
	Accessibility		Gain adjustment, notch filter, alarm record query, JOG operation, motor initial angle identification, etc.
	Number of control signals		DI *3，DO *3
Position control	DI input function		Forward limit switch, reverse limit switch, origin switch
	DO output function		positioning complete
	Position command		Given based on EtherCAT communication
Speed control	DI input function		-
	DO output function		Zero speed clamp, motor rotation, zero speed signal, consistent speed, speed limited, speed reached
	Speed command		Given based on EtherCAT communication
Torque control	DI input function		-
	DO output function		Torque limit, torque reach
	Torque command		Given based on EtherCAT communication
Conditions of Use	Degree of protection		IP20
	Environmental Pollution Level		PD2
	Altitude		Lower than 1000m, use with derating above 1000m
	Ambient temperature		0~55°C (when the ambient temperature is above 45°C, derate by 10% for every 5°C increase)
	Storage temperature		-20~70℃
	Use/Storage Environment		90%RH 以下（no condensation）
	Humidity Vibration Resistance		4.9m/s^2
	Impact strength		19.6m/s^2
EtherCAT Communication Specifications	Communication standard		IEC 61158 Type12, IEC 61800-7 CiA Drive Profile
	physical layer		100BASE-TX (IEEE802.3)
	Connector		RJ45*2 (with shield)
			IN(EtherCAT input)，OUT(EtherCAT ouput)
	Communication cable		Recommended network cable: twisted-pair double-layer shielded network cable, Ethernet Category 5 (100BASE-TX) or higher
	Baud rate		100Mbps
	Communication length		Maximum distance between nodes is 100 meters
	Process data		Fixed PDO, Variable PDO
	Mailbox (COE)		SDO request, SDO reply
	Synchronous mode		DC Sync (Sync0 Event)
	Communication cycle		250us~10000us
	Supported CiA 402 modes		PP，PV，PT，HM，CSP，CSV，CST

RS31 series appearance and installation dimensions



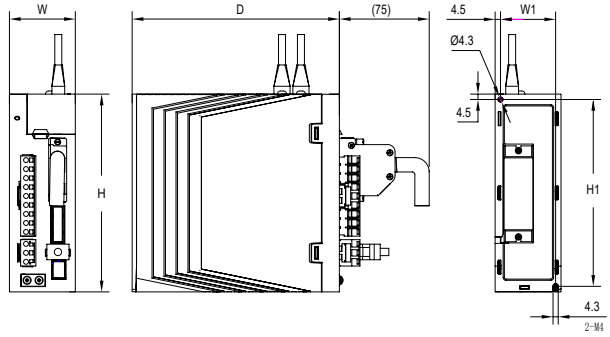
Size A

Size A - 1R6L/2R8L			
W(mm)	40	W1(mm)	28.6
H(mm)	165	H1(mm)	164.5
D(mm)	143	螺丝	2-M4



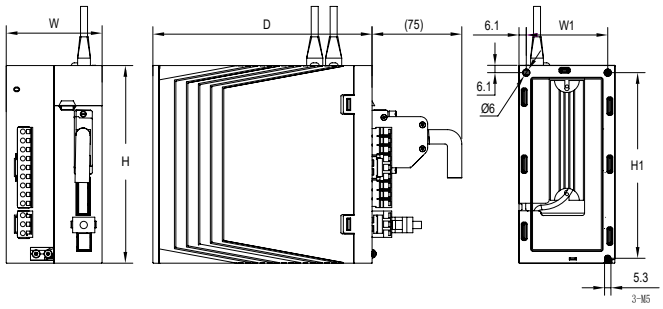
Size B

Size B - 5R5L/6R6L			
W(mm)	50	W1(mm)	37
H(mm)	165	H1(mm)	165
D(mm)	163	screw	2-M4



Size C

Size C - 7R6M			
W(mm)	55	W1(mm)	46
H(mm)	165	H1(mm)	156
D(mm)	173	screw	2-M4

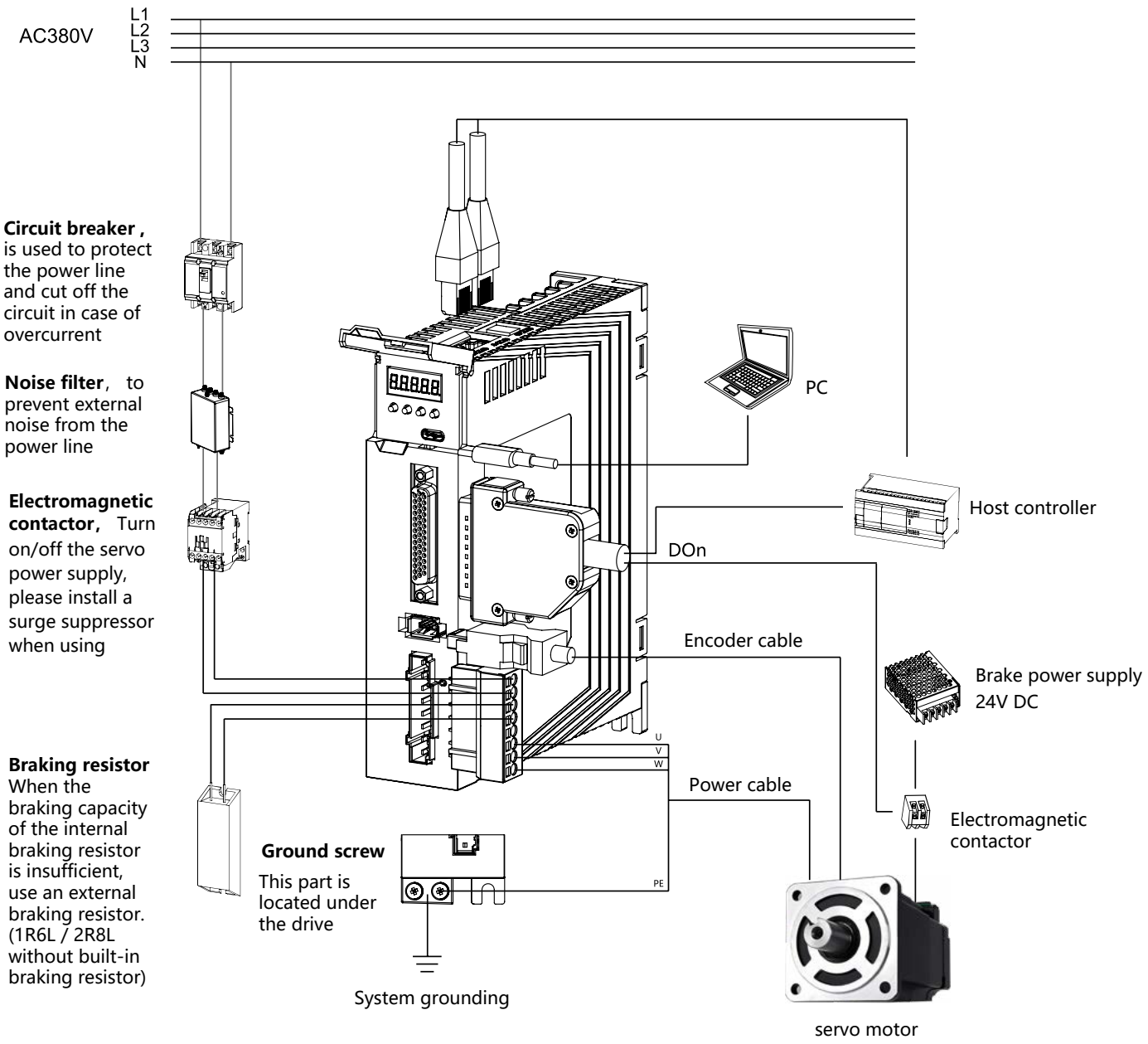


Size D

Size D - 12RM			
W(mm)	80	W1(mm)	65
H(mm)	165	H1(mm)	155
D(mm)	183	screw	3-M5

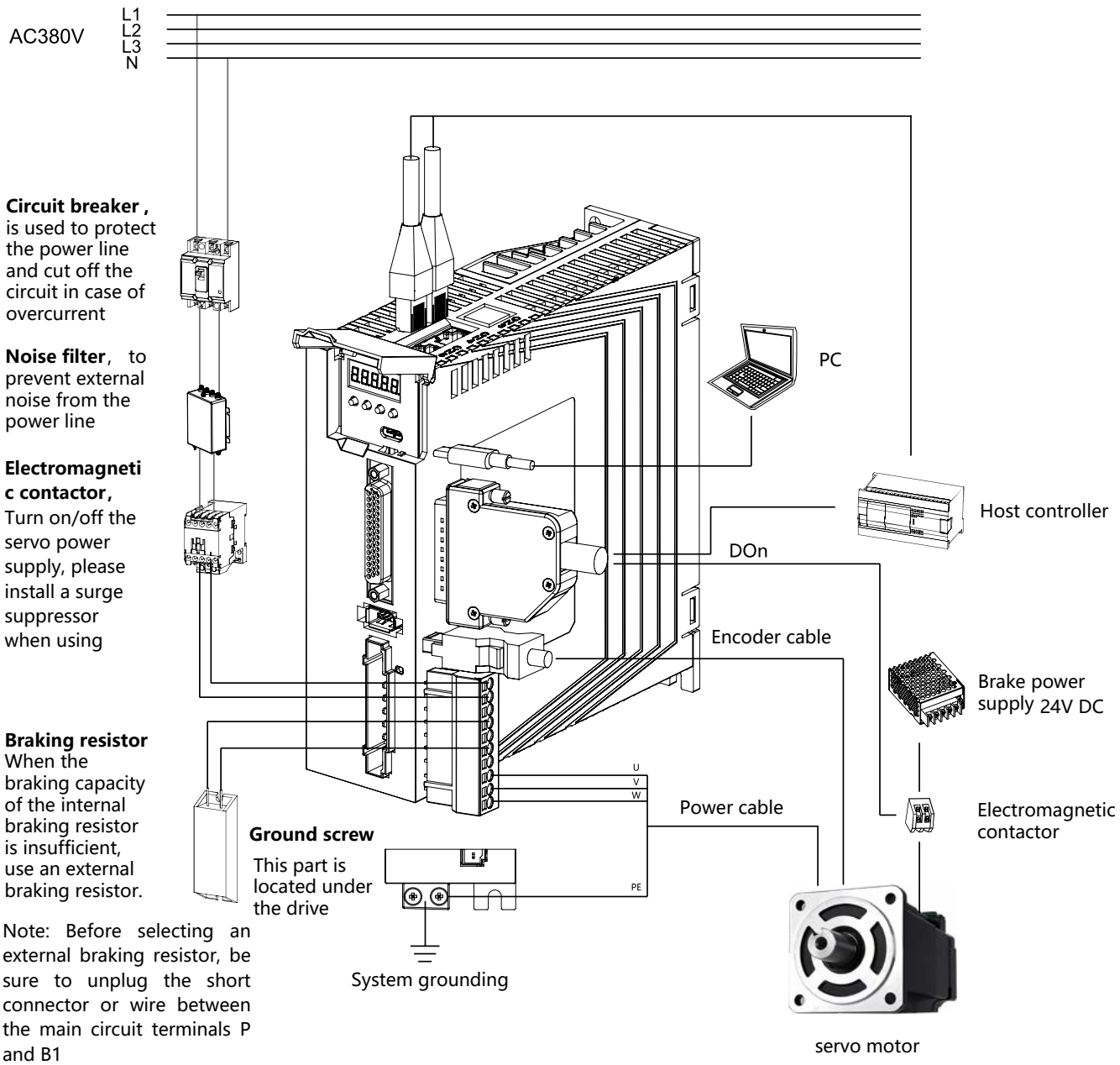
RS31 series wiring diagram

■ 1 PHASE 220V Size A



RS31 series wiring diagram

1 phase 220V Size B



Circuit breaker , is used to protect the power line and cut off the circuit in case of overcurrent

Noise filter, to prevent external noise from the power line

Electromagnetic contactor, Turn on/off the servo power supply, please install a surge suppressor when using

Braking resistor When the braking capacity of the internal braking resistor is insufficient, use an external braking resistor.

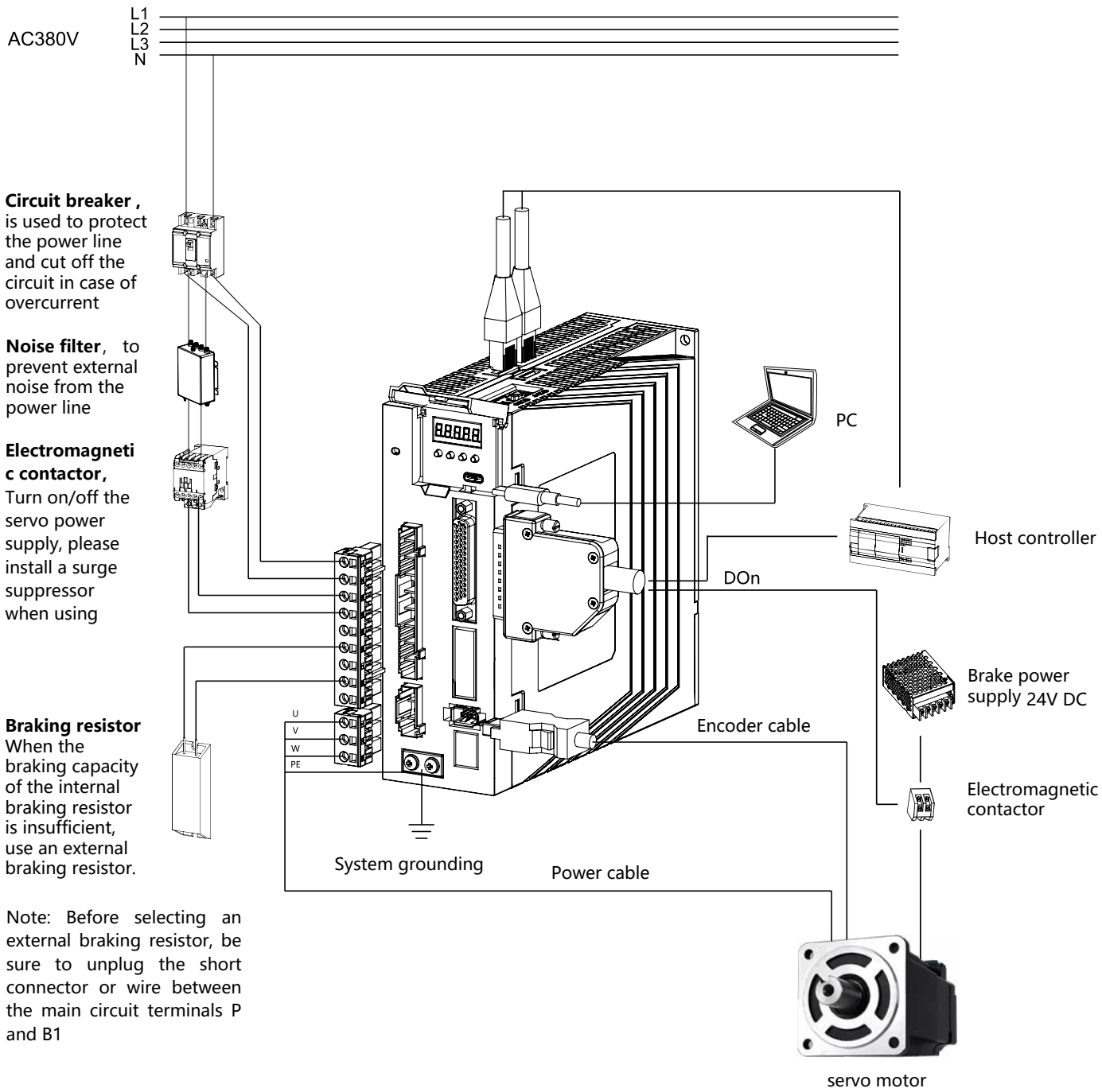
Ground screw

This part is located under the drive

Note: Before selecting an external braking resistor, be sure to unplug the short connector or wire between the main circuit terminals P and B1

RS31 series wiring diagram

1 PHASE 220V Size C/D



Circuit breaker , is used to protect the power line and cut off the circuit in case of overcurrent

Noise filter, to prevent external noise from the power line

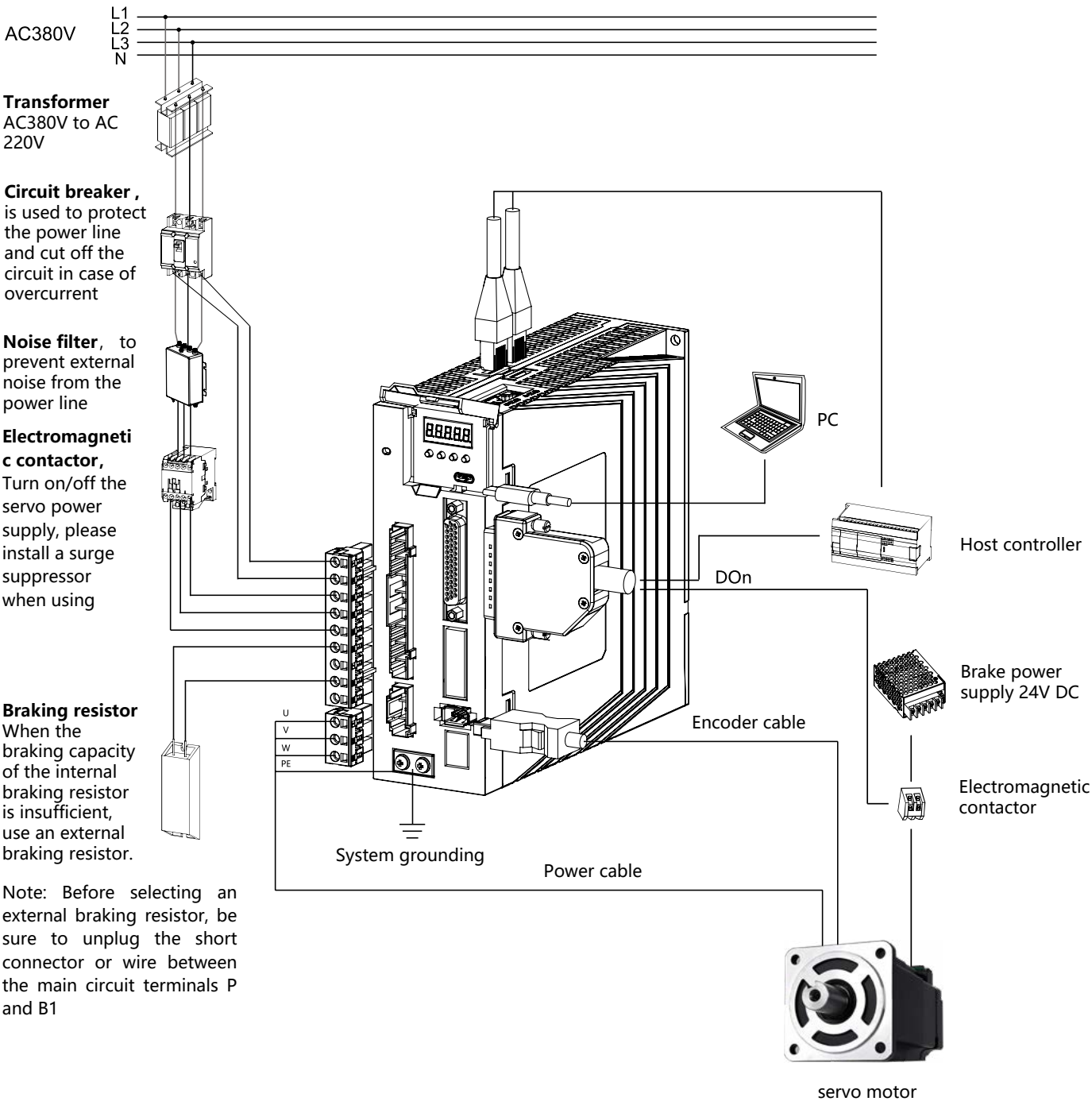
Electromagnetic contactor, Turn on/off the servo power supply, please install a surge suppressor when using

Braking resistor When the braking capacity of the internal braking resistor is insufficient, use an external braking resistor.

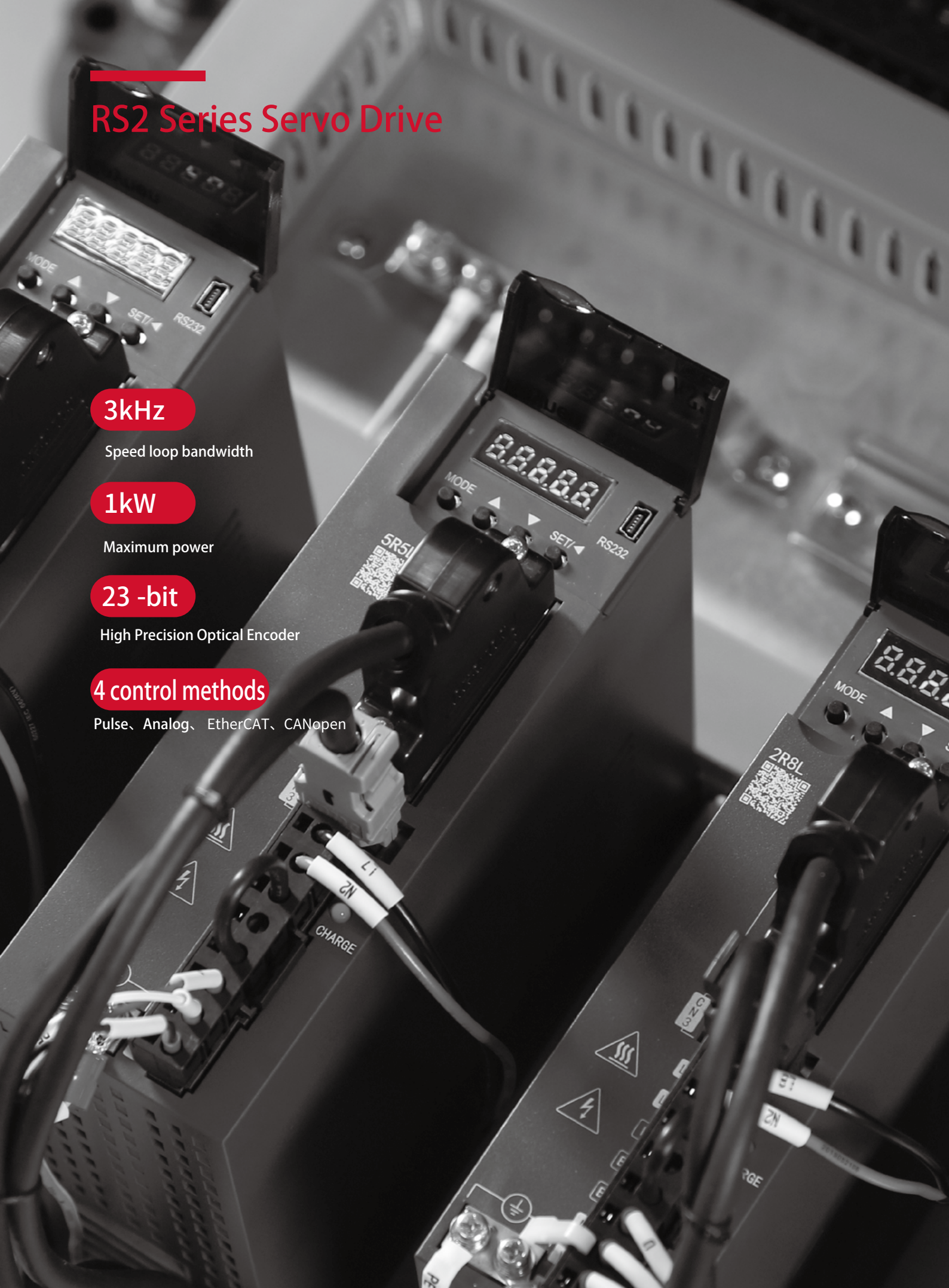
Note: Before selecting an external braking resistor, be sure to unplug the short connector or wire between the main circuit terminals P and B1

RS31 series wiring diagram

■ 3 PHASE 220V Size C/D



RS2 Series Servo Drive



3kHz

Speed loop bandwidth

1kW

Maximum power

23 -bit

High Precision Optical Encoder

4 control methods

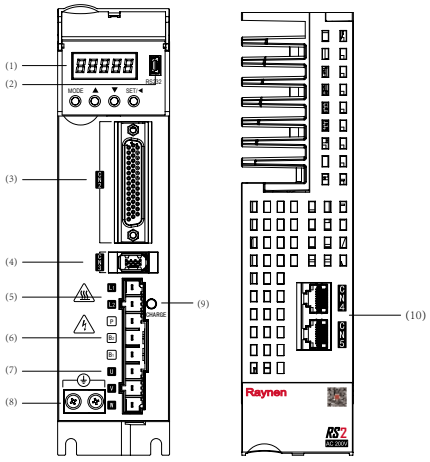
Pulse、Analog、 EtherCAT、CANopen

RS2 Series Model Design

RS2 P - 5R5 L - □
① ② ③ ④ ⑤

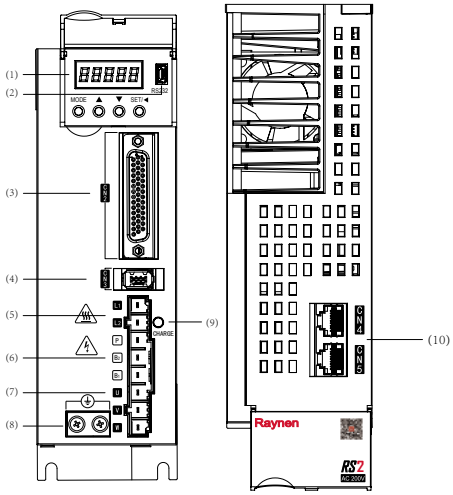
① Product Series RS2：Servo Drive	② Control type P：pulse A：pulse, analog E：EtherCAT C：CANopen	③ Rated current 1R6：1.6A 2R8：2.8A 5R5：5.5A 6R6：6.6A
④ Input voltage L：1 phase 220V	⑤ Optional features None：/ B：Built-in braking resistor	

RS2 series port definition



Size A

NO.	Port	Direction
1	-	7-digital display
2	mini USB	RS232 interface, connect to PC
3	CN2	Connector for output/input signal, connect to PLC or I/O
4	CN3	Encoder interface, connected to the encoder on the servo motor
5	L1、L2	Main circuit power supply, single-phase (200~240VAC, 50/60Hz)
6	Brake	Use external braking resistor
7	U、V、W	Servo drive output, connected to motor (U, V, W)
8	Ground screw	Connect to power ground and motor ground
9	CHARGE	Power Indicator
10	CN4/CN5	485
		EtherCAT
		CAN



Size B

NO.	Port	Direction
1	-	7-digital display
2	mini USB	RS232 interface, connect to PC
3	CN2	Connector for output/input signal, connect to PLC or I/O
4	CN3	Encoder interface, connected to the encoder on the servo motor
5	L1、L2	Main circuit power supply, single-phase (200~240VAC, 50/60Hz)
6	Brake	Use external braking resistor
7	U、V、W	Servo drive output, connected to motor (U, V, W)
8	Ground screw	Connect to power ground and motor ground
9	CHARGE	Power Indicator
10	CN4/CN5	485
		EtherCAT
		CAN

1 Phase 220V Series Drive Electrical Specifications

Item		Size A		Size B	
Model		1R6L	2R8L	5R5L	6R6L
Power [kW]		0.2	0.4	0.75	1
Power capacity [kVA]		0.5	1	1.7	2
Rated current [Arms]		1.6	2.8	5.5	6.6
Maximum output current [Arms]		5.9	9.3	16.9	17
Main circuit	Input current [Arms]	2.4	5	8.7	11
	Main circuit power supply	单相 200~240Vac, -15%~+10%, 50/60Hz			
Control circuit	Control loop power supply	单相 200~240Vac, -15%~+10%, 50/60Hz			
Power loss	Main circuit power loss [W]	30.5	41	60.8	66.2
	Control circuit power loss [W]				
Braking resisitor	Braking resisitor	Optional			
	Resistance [Ω]	50	50	50	50
	Capacity [W]	30	30	50	50
	External min.resistance [Ω]	50	45	40	40
	Cooling method	Natural cooling		Air cooling	
	Overvoltage level	OVC III			

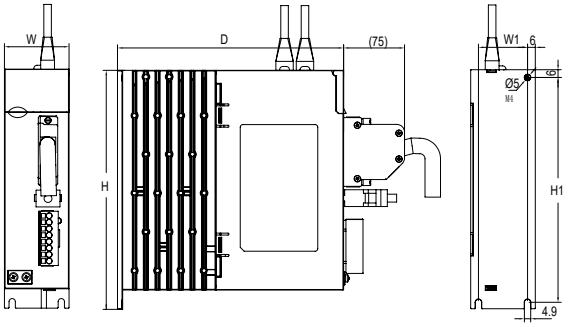
RS2P/C/A Basic Specifications

Item			Specifications
Basic Specifications	Control method		IGBT PWM control, Sine wave current drive method
	Encoder type		Communication encoder (RS485)
	Communication	RS232	used for PC host computer communication
		RS485	used for host controller control communication
		CAN	CAN , used for host controller control communication
	Protective function		Overvoltage, undervoltage, phase loss, overcurrent, overload, overspeed, encoder disconnection, etc.
	Accessibility		Gain adjustment, notch filter, alarm record query, JOG operation, motor initial angle identification, etc.
	Number of control signals		DI *7, DO*5
Position control	DI input function		Zero position fixed enable, position command prohibited, positive overtravel switch, reverse overtravel switch, electronic gear ratio selection, position command direction setting, multi-stage position command enable, interrupt fixed-length state release, origin switch, clear position Deviation, pulse command prohibited
	DO output function		Positioning is completed, Positioning is close, Interruption and fixed length are completed, and Origin return is completed
	Pulse input	Max. pulse freq.	4MHz
		Input pulse shape	Differential input, open collector
		Input pulse mode	Direction + pulse, CW+CCW, two pulses with 90 degree phase difference
		Command filter	Average filtering, first-order low-pass filtering
	Frequency division output	Freq. division output range	Any frequency division ratio
		Division output form	Phase A, Phase B: Differential output
			Phase Z: differential output or open collector output
		Divider output source	Encoder position or command pulse
	Internal position command		Switch the maximum 16-segment position command of internal planning through DI
Speed control	DI input function		Multi-stage speed running direction switching, internal multi-stage speed selection (1-4), speed command direction setting, internal speed limit source
	DO output function		Motor rotates, zero speed signal, speed is consistent, speed is limited, and speed is reached
	Analog input	Command voltage	±10V
		Command filter	Average filtering, first-order low-pass filtering
	Internal speed command		Switch up to 16 speed commands internally planned by DI
Torque control	DI input function		Positive external torque limit, negative external torque limit, torque command direction setting
	DO output function		Torque limit, torque reach
	Analog input	Command voltage	±10V
Conditions	Degree of protection		IP20
	Environmental Pollution Level		PD2
	Altitude		Lower than 1000m, use with derating above 1000m
	Ambient temperature		0~55°C (when the ambient temperature is above 45°C, derate by 10% for every 5°C increase)
	Storage temperature		-20~85°C
	Use/Storage Environment Humidity		Below 90%RH (no condensation)
	Vibration Resistance		4.9m/s^2
	Impact strength		19.6m/s^2

RS2E Basic Specifications

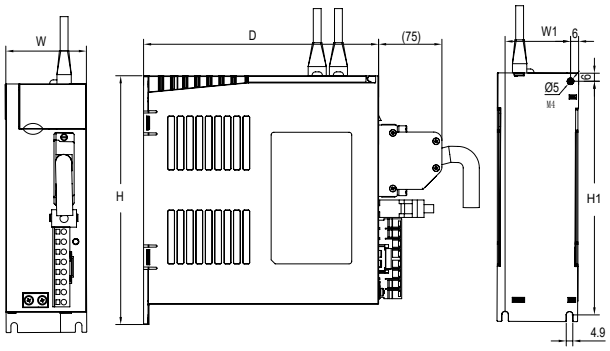
Item			Specifications
Basic Specifications	Control method		IGBT PWM control, sine wave current drive method
	Encoder type		Communication encoder (RS485)
	Communication	RS232	Used to connect PC background debugging software
		EtherCAT	IEC 61158 Type12, IEC 61800-7 CiA 402
	Protective function		Overvoltage, undervoltage, phase loss, overcurrent, overload, overspeed, encoder disconnection, etc.
	Accessibility		Gain adjustment, notch filter, alarm record query, JOG operation, motor initial angle identification, etc.
	Number of control signals		DI *6，DO*4
Position control	DI input function		Forward limit switch, reverse limit switch, origin switch
	DO output function		positioning complete
	Position command		Given based on EtherCAT communication
Speed control	DI input function		-
	DO output function		Motor rotates, zero speed signal, speed is consistent, speed is limited, and speed is reached
	Speed command		Given based on EtherCAT communication
Torque control	DI input function		-
	DO output function		Torque limit, torque reach
	speed command		Given based on EtherCAT communication
Conditions of Use	Degree of protection		IP20
	Environmental Pollution Level		PD2
	Altitude		Lower than 1000m, use with derating above 1000m
	Ambient temperature		0~55°C (when the ambient temperature is above 45°C, derate by 10% for every 5°C increase)
	Storage temperature		-20~70℃
	Use/Storage Environment Humidity		90%RH 以下（no condensation）
	Vibration Resistance		4.9m/s2
	Impact strength		19.6m/s2
EtherCAT Communication Specifications	Communication standard		IEC 61158 Type12, IEC 61800-7 CiA Drive Profile
	physical layer		100BASE-TX (IEEE802.3)
	Connector		RJ45*2 (with shield)
			IN(EtherCAT input)，OUT(EtherCAT ouput)
	Communication cable		Recommended network cable: twisted-pair double-layer shielded network cable, Ethernet Category 5 (100BASE-TX) or higher
	Baud rate		100Mbps
	Communication length		Maximum distance between nodes is 100 meters
	Process data		Fixed PDO, Variable PDO
	Mailbox (COE)		SDO request, SDO reply
	Synchronous mode		DC Sync (Sync0 Event)
	Communication cycle		250us~10000us
	Supported CiA 402 modes PP		PP，PV，PT，HM，CSP，CSV，CST

RS2 series appearance and installation dimensions



■ Size A

Size A - 1R6L/2R8L			
W(mm)	50	W1(mm)	38
H(mm)	185	H1(mm)	174
D(mm)	175	screw	3-M4

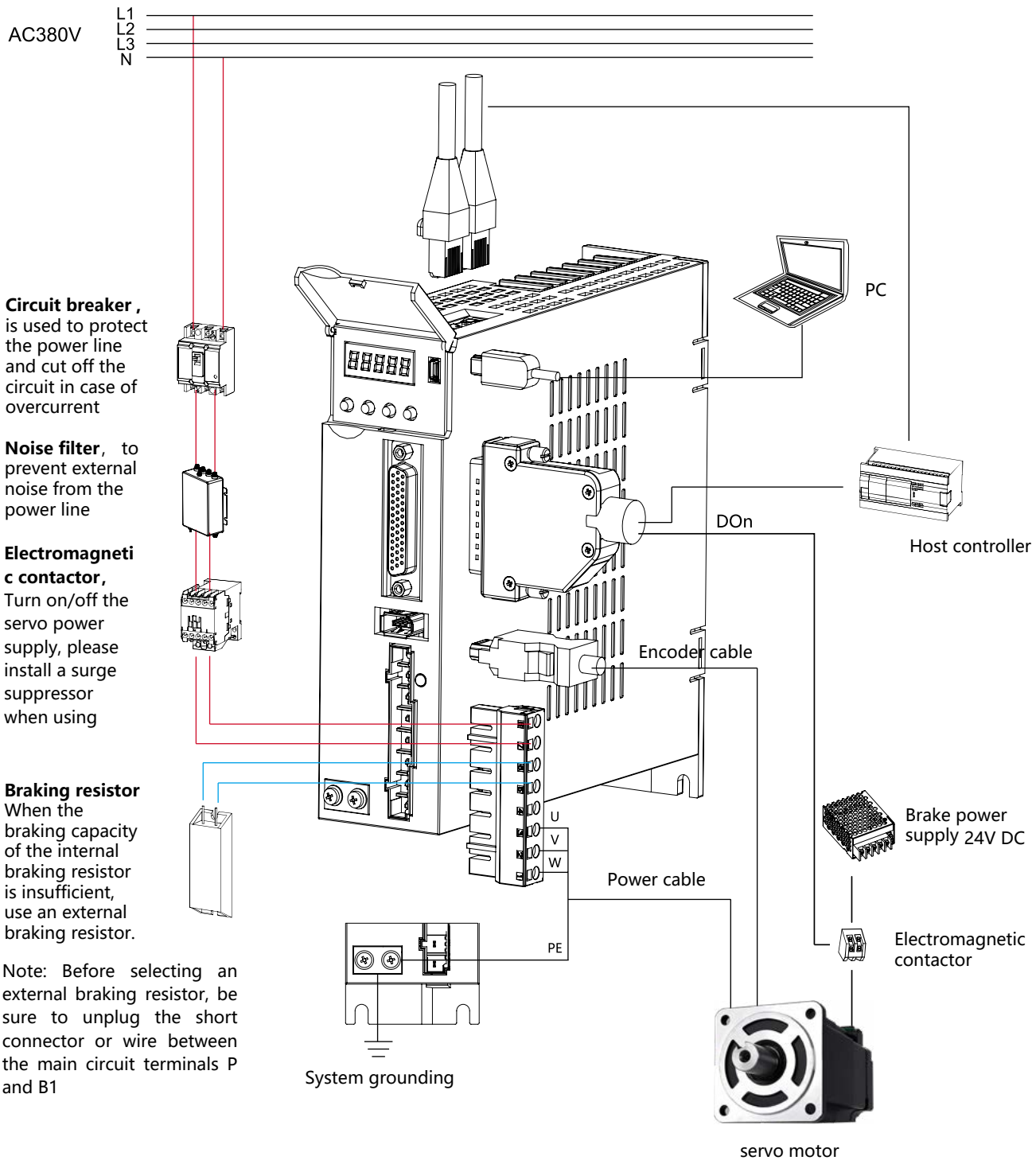


■ Size B

Size B - 5R5L/6R6L			
W(mm)	60	W1(mm)	48
H(mm)	185	H1(mm)	174
D(mm)	175	screw	3-M4

RS2 series wiring diagra

■ 1 PHASE 220V Size A/B



Circuit breaker , is used to protect the power line and cut off the circuit in case of overcurrent

Noise filter, to prevent external noise from the power line

Electromagneti c contactor, Turn on/off the servo power supply, please install a surge suppressor when using

Braking resistor When the braking capacity of the internal braking resistor is insufficient, use an external braking resistor.

Note: Before selecting an external braking resistor, be sure to unplug the short connector or wire between the main circuit terminals P and B1

MA3 Series Servo Motor

New Electromagnetic Design

Manufacturing process upgrade
Miniaturization / high protection / more energy saving

Speed up

4 times peak torque
7000rpm peak speed
23-bit high-precision optical encoder
30% lower temperature rise

Security

Integrated case design
IP67 protection level

Compact

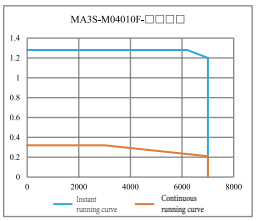
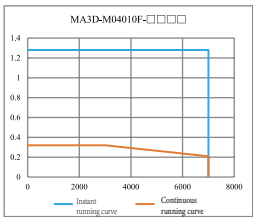
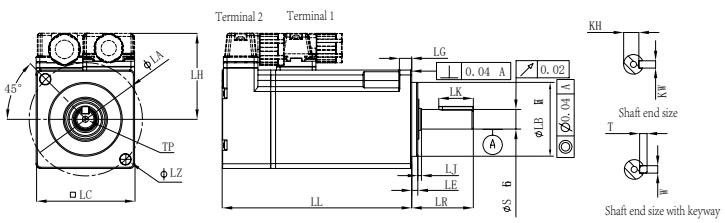
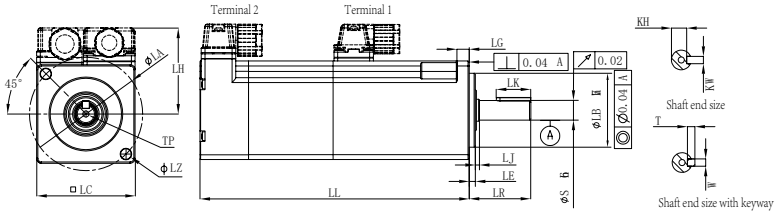
20% shorter product length

MA3 Series model design

MA3 S - M 04 010 F - A0 Q 2 L
① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩

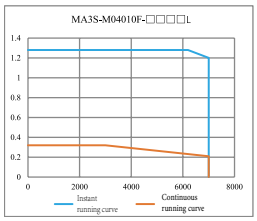
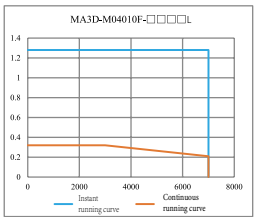
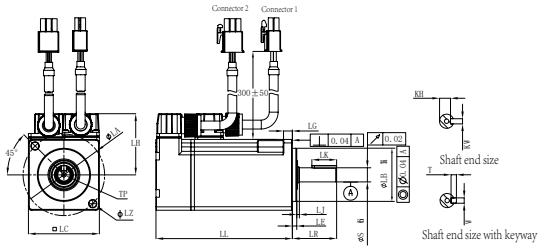
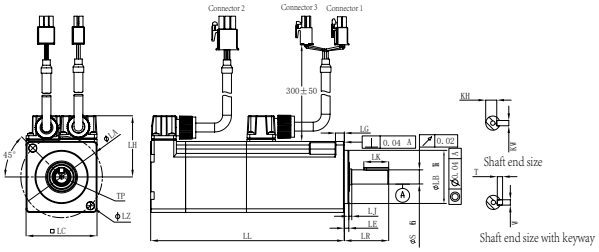
① Product series MA3：Servo motor	② Inertia S：Low inertra D：Medium inertra H：High inertra	⑤ Rated power 010：0.1kW 020：0.2kW 040：0.4kW 075：0.75kW 080：0.80kW 095：0.95kW 100：1kW 120：1.2kW 150：1.5kW 180：1.8kW 200：2kW 250：2.5kW	⑥ Rated RPM C：1500rpm D：2000rpm F：3000rpm
③ Voltage class M：220V T：380V	④ 框号 04：40mm 06：60mm 08：80mm 10：100mm 11：110mm		⑦ encoder type A0: 17-bit single-turn magnetic encoding E0: 23-bit single-turn optical encoder A1: 17-bit multi-turn magnetic encoder E1: 23-bit multi-circle optical encoder
⑧ Shaft Specifications P: With threaded hole, optical axis Q: With threaded hole, with key R: Without threaded hole, optical axis S: without threaded hole, with key	⑨ Brake / Oil seal 0: no brake, no oil seal 2: Without brake, with oil seal 4: With brake, without oil seal 5: With brake and oil seal	⑩ Wiring type L: wire type Blank: terminal type / aviation plug type	

MA3 Series Servo Motor- 40 frame

Item	Motor Parameter	
Model	MA3S-M04010F- □□□□	MA3D-M04010F- □□□□
Class of inertia	low	middel
Voltage (V)	220	220
Frame No. (mm)	40	40
Connect type	Terminal	Terminal
Rated power (kW)	0.1	0.1
Rated Torque(N·m)	0.32	0.32
Max Torque (N·m)	1.28	1.28
Rated Current (Arms)	1.1	1.1
Max Current (Arms)	4.5	4.5
Rated Speed (rpm)	3000	3000
Max RPM (rpm)	7000	7000
Rotational inertia(kg·cm^2)	0.0368 (0.0374)	0.067 (0.068)
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)		
LL	77(110.5)	68.5(100.5)
LR	25	25
LA	46	46
LZ	2-ϕ4.3	2-ϕ4.3
LH	34.9	34.9
LC	40	40
LE	2.5	2.5
S	8	8
LB	30	30
TP	M3x10	M3x10
LK	14	14
KH	6.2	6.2
KW	3	3
W	3	3
T	3	3
LG	5	5
LJ	1.5	1.5
Without locking brake		
With locking brake		

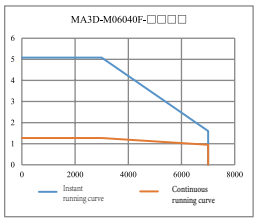
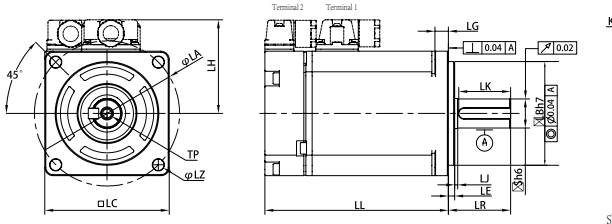
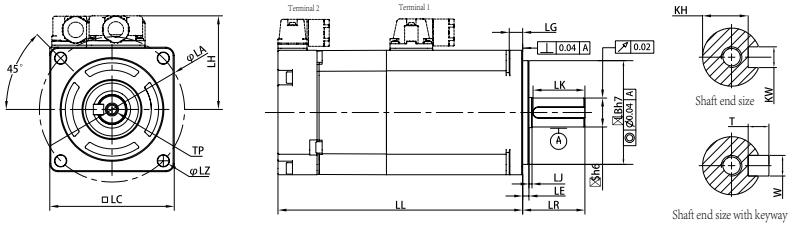
* The locking brake data is in ()

MA3 Series Servo motor - 40 Frame

Iten	Motor Parameter	
Model	MA3S-M04010F- □□□□ L	MA3D-M04010F- □□□□ L
Class of inertia	low	middel
Voltage (V)	220	220
Frame No. (mm)	40	40
Connect type	lead wire	lead wire
Rated power (kW)	0.1	0.1
Rated Torque(N·m)	0.32	0.32
Max Torque (N·m)	1.28	1.28
Rated Current (Arms)	1.1	1.1
Max Current (Arms)	4.5	4.5
Rated Speed (rpm)	3000	3000
Max RPM (rpm)	7000	7000
Rotational inertia(kg·cm^2)	0.0368 (0.0374)	0.067 (0.068)
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)		
LL	77(110.5)	68.5(100.5)
LR	25	25
LA	46	46
LZ	2-ϕ4.3	2-ϕ4.3
LH	34.5	34.5
LC	40	40
LE	2.5	2.5
S	8	8
LB	30	30
TP	M3x10	M3x10
LK	14	14
KH	6.2	6.2
KW	3	3
W	3	3
T	3	3
LG	5	5
LJ	1.5	1.5
Without locking brake		
With locking brake		

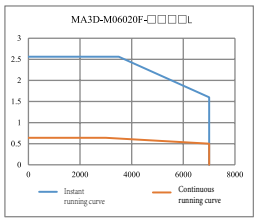
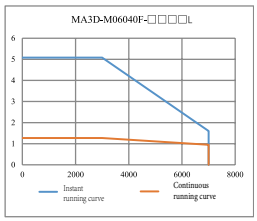
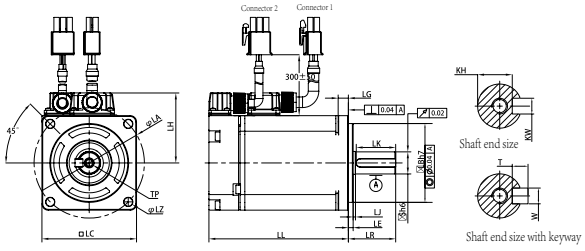
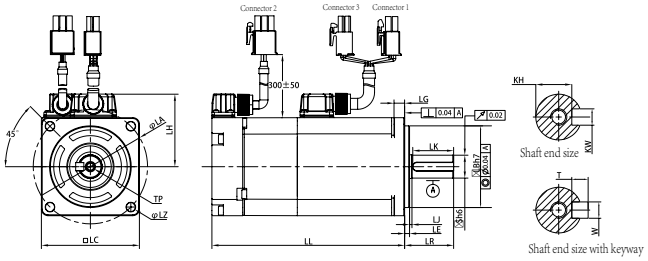
* The locking brake data is in ()

MA3 Series Servo Motor - 60 Frame

Item	Motor parameter	
Model	MA3D-M06020F- □□□□	MA3D-M06040F- □□□□
Class of inertia	中	中
Voltage (V)	220	220
Frame No. (mm)	60	60
Connect type	Terminal	Terminal
Rated power (kW)	0.2	0.4
Rated Torque(N·m)	0.64	1.27
Max Torque (N·m)	2.56	5.08
Rated Current (Arms)	1.6	2.5
Max Current (Arms)	5.8	10.1
Rated Speed (rpm)	3000	3000
Max RPM (rpm)	7000	7000
Rotational inertia(kg·cm^2)	0.29 (0.3)	0.54 (0.55)
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)		
LL	70.5 (100)	88.5 (118)
LR	30	30
LA	70	70
LZ	4-ϕ5.5	4-ϕ5.5
LH	45.3	45.3
LC	60	60
LE	3	3
S	14	14
LB	50	50
TP	M5x10	M5x10
LK	25	25
KH	11	11
KW	5	5
W	5	5
T	5	5
LG	6.5	6.5
LJ	1.5	1.5
Without locking brake		
With locking brake		

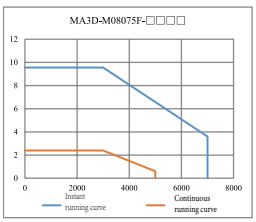
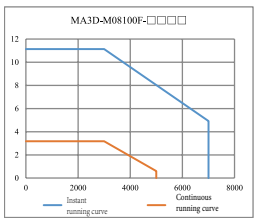
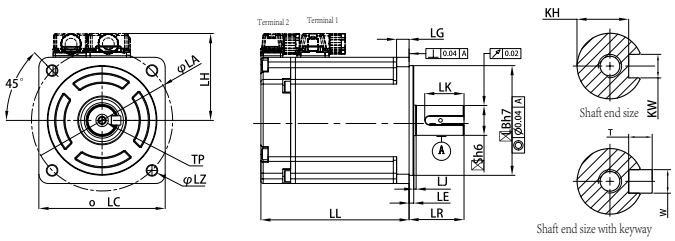
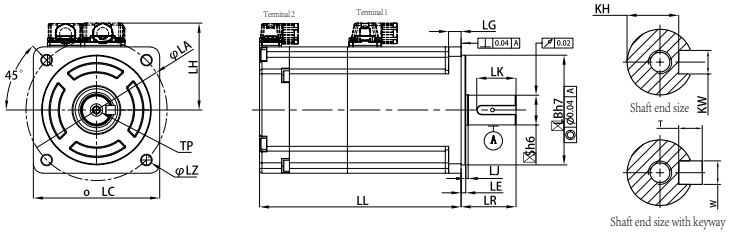
* The locking brake data is in ()

MA3 Series Servo motor - 60 Frame

Item	Motor Parameter	
Model	MA3D-M06020F- □□□□ L	MA3D-M06040F- □□□□ L
Class of inertia	Middle	Middle
Voltage (V)	220	220
Frame No. (mm)	60	60
Connect type	Lead wire	Lead wire
Rated power (kW)	0.2	0.4
Rated Torque(N·m)	0.64	1.27
Max Torque (N·m)	2.56	5.08
Rated Current (Arms)	1.6	2.5
Max Current (Arms)	5.8	10.1
Rated Speed (rpm)	3000	3000
Max RPM (rpm)	7000	7000
Rotational inertia(kg·cm^2)	0.29 (0.3)	0.54 (0.55)
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)		
LL	70.5 (100)	88.5 (118)
LR	30	30
LA	70	70
LZ	4-ϕ5.5	4-ϕ5.5
LH	45.3	45.3
LC	60	60
LE	3	3
S	14	14
LB	50	50
TP	M5x10	M5x10
LK	25	25
KH	11	11
KW	5	5
W	5	5
T	5	5
LG	6.5	6.5
LJ	1.5	1.5
Without locking brake		
With locking brake		

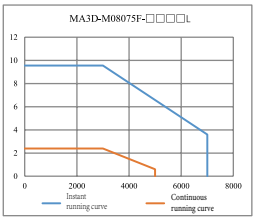
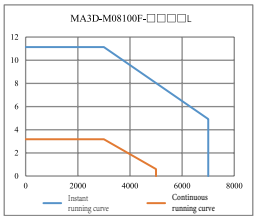
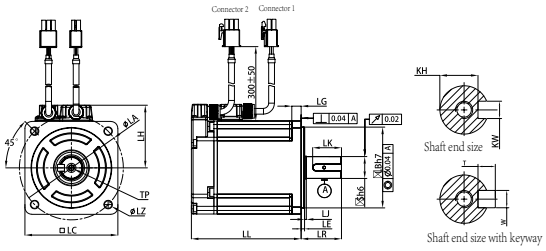
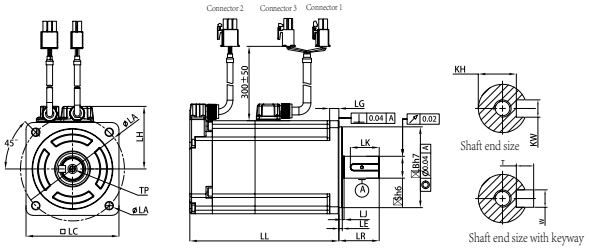
* The locking brake data is in ()

MA3 Series Servo Motor - 80 Frame

Item	Motor Parameter	
Model	MA3D-M08075F- □□□□	MA3D-M08100F- □□□□
Class of inertia	Middle	Middle
Voltage (V)	220	220
Frame No. (mm)	80	80
Connect type	Terminal	Terminal
Rated power (kW)	0.75	1
Rated Torque(N·m)	2.39	3.18
Max Torque (N·m)	9.56	11.14
Rated Current (Arms)	4.4	6.6
Max Current (Arms)	16.9	23
Rated Speed (rpm)	3000	3000
Max RPM (rpm)	7000	7000
Rotational inertia(kg·cm^2)	1.55 (1.65)	2 (2.1)
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)		
LL	94.5(128.5)	106.5(140.5)
LR	35	35
LA	90	90
LZ	4-ϕ6.5	4-ϕ6.5
LH	56	56
LC	80	80
LE	3	3
S	19	19
LB	70	70
TP	M5x10	M5x10
LK	25	25
KH	15.5	15.5
KW	6	6
W	6	6
T	6	6
LG	8	8
LJ	1.5	1.5
Without locking brake		
With locking brake		

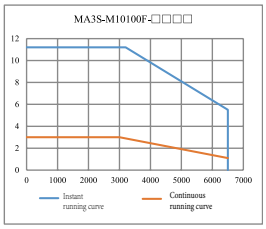
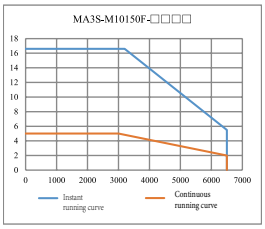
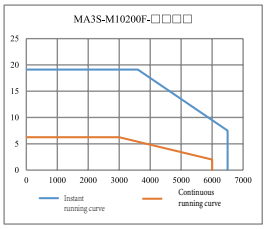
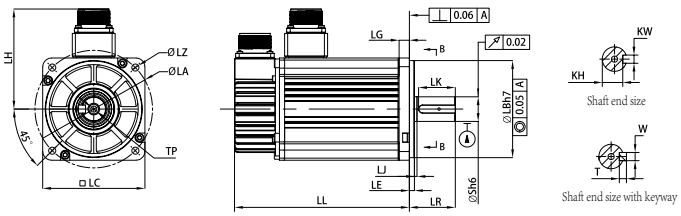
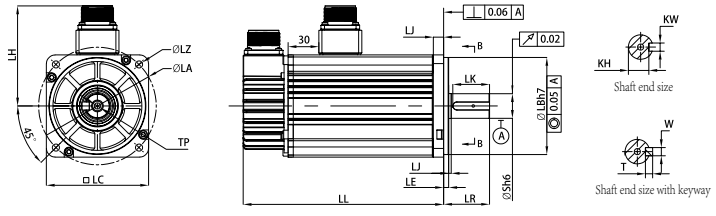
* The locking brake data is in ()

MA3 Series Servo motor - 80 Frame

Item	Motor Parameter	
Model	MA3D-M08075F- □□□□ L	MA3D-M08100F- □□□□ L
Class of inertia	Middle	middle
Voltage (V)	220	220
Frame No. (mm)	80	80
Connect type	Lead wire	Lead wire
Rated power (kW)	0.75	1
Rated Torque(N·m)	2.39	3.18
Max Torque (N·m)	9.56	11.14
Rated Current (Arms)	4.4	6.6
Max Current (Arms)	16.9	23
Rated Speed (rpm)	3000	3000
Max RPM (rpm)	7000	7000
Rotational inertia(kg·cm^2)	1.55 (1.65)	2 (2.1)
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)		
LL	94.5(128.5)	106.5(140.5)
LR	35	35
LA	90	90
LZ	4-ϕ6.5	4-ϕ6.5
LH	56	56
LC	80	80
LE	3	3
S	19	19
LB	70	70
TP	M5x10	M5x10
LK	25	25
KH	15.5	15.5
KW	6	6
W	6	6
T	6	6
LG	8	8
LJ	1.5	1.5
Without locking brake		
With locking brake		

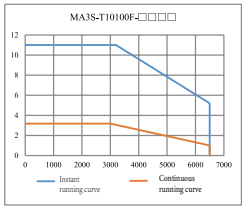
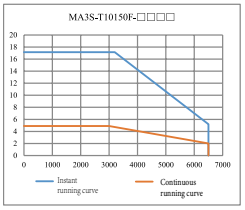
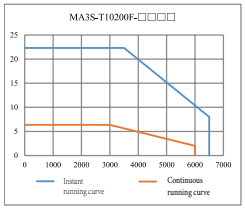
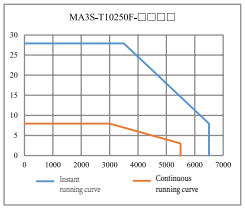
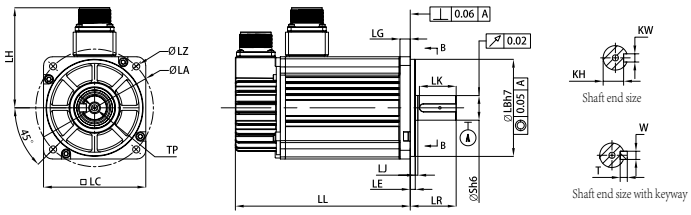
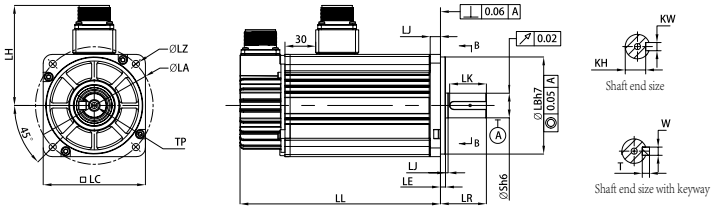
* The locking brake data is in ()

MA3 Series Servo Motor - 100 Frame

Item	Motor Parameter		
Model	MA3S-M10100F- □□□□	MA3S-M10150F- □□□□	MA3S-M10200F- □□□□
Class of inertia	Low	Low	Low
Voltage (V)	220	220	220
Frame No. (mm)	100	100	100
Connect type	Aviation plug	Aviation plug	Aviation plug
Rated power (kW)	1	1.5	2
Rated Torque(N·m)	3.18	4.9	6.37
Max Torque (N·m)	11.2	16.6	19.1
Rated Current (Arms)	6.3	8.6	10.7
Max Current (Arms)	23	32	32
Rated Speed (rpm)	3000	3000	3000
Max RPM (rpm)	6500	6500	6500
Rotational inertia(kg·cm^2)	1.75 (1.95)	2.5 (2.7)	3.1 (3.3)
T-N Curve (X : Rotate speed (rpm) (Y : Torque(N·m)			
LL	152 (177)	171 (196)	190 (215)
LR	45	45	45
LA	115	115	115
LZ	4-ϕ7	4-ϕ7	4-ϕ7
LH	98	98	98
LC	100	100	100
LE	5	5	5
S	24	24	24
LB	95	95	95
TP	M8X22	M8X22	M8X22
LK	36	36	36
KH	20	20	20
KW	8	8	8
W	8	8	8
T	7	7	7
LG	10	10	10
LJ	2.5	2.5	2.5
Without locking brake			
With locking brake			

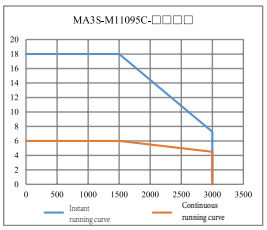
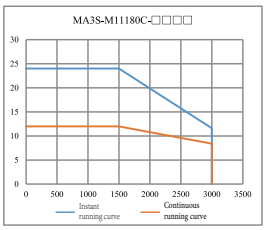
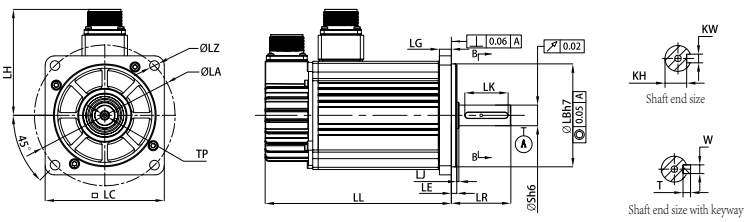
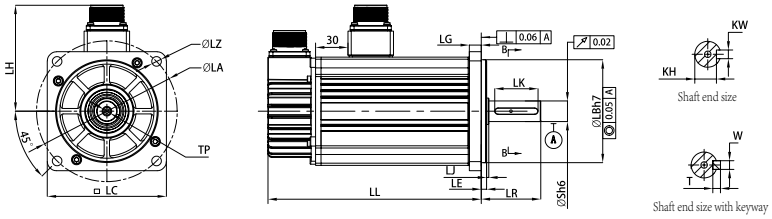
* The locking brake data is in ()

MA3 Series Servo Motor - 100 Frame

Item	Motor Parameter			
Model	MA3S-T10100F- □□□□	MA3S-T10150F- □□□□	MA3S-T10200F- □□□□	MA3S-T10250F- □□□□
Class of inertia	Low	Low	Low	Low
Voltage (V)	380	380	380	380
Frame No. (mm)	100	100	100	100
Connect type	Aviation plug	Aviation plug	Aviation plug	Aviation plug
Rated power (kW)	1	1.5	2	2.5
Rated Torque(N·m)	3.18	4.9	6.37	7.96
Max Torque (N·m)	11	17.15	22.3	27.9
Rated Current (Arms)	3.1	4.7	6	8.1
Max Current (Arms)	11	20	24.5	29.7
Rated Speed (rpm)	3000	3000	3000	3000
Max RPM (rpm)	6500	6500	6500	6500
Rotational inertia(kg·cm^2)	1.75 (1.95)	2.5 (2.7)	3.1 (3.3)	4 (4.2)
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)				
LL	152 (177)	171 (196)	190 (215)	214 (239)
LR	45	45	45	45
LA	115	115	115	115
LZ	4-ϕ7	4-ϕ7	4-ϕ7	4-ϕ7
LH	98	98	98	98
LC	100	100	100	100
LE	5	5	5	5
S	24	24	24	24
LB	95	95	95	95
TP	M8X22	M8X22	M8X22	M8X22
LK	36	36	36	36
KH	20	20	20	20
KW	8	8	8	8
W	8	8	8	8
T	7	7	7	7
LG	10	10	10	10
LJ	2.5	2.5	2.5	2.5
Without locking brake				
With locking brake				

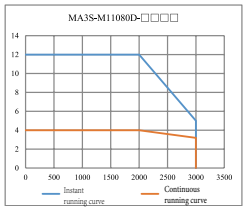
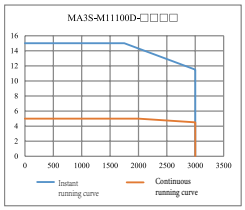
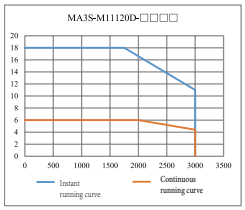
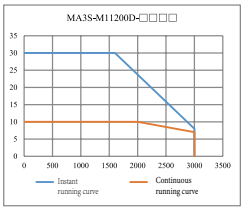
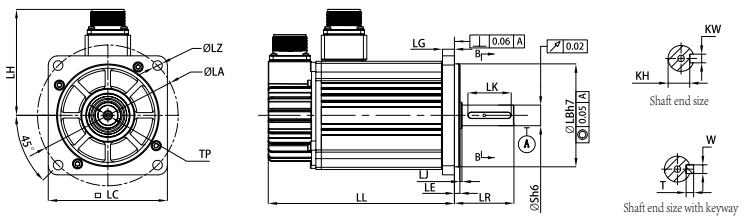
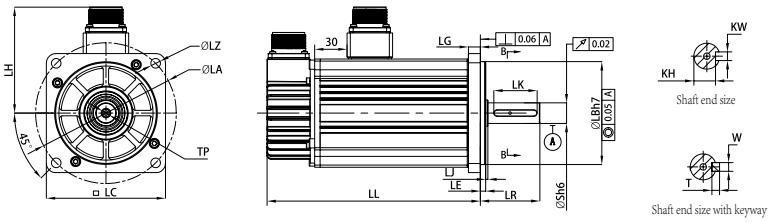
* The locking brake data is in ()

MA3 Series Servo Motor - 110 Frame

Item	Motor Parameter	
Model	MA3S-M11095C- □□□□	MA3S-M11180C- □□□□
Class of inertia	Low	Low
Voltage (V)	220	220
Frame No. (mm)	110	110
Connect type	Aviation plug	Aviation plug
Rated power (kW)	0.95	1.8
Rated Torque(N·m)	6	12
Max Torque (N·m)	18	24
Rated Current (Arms)	5.8	9.6
Max Current (Arms)	23	20.5
Rated Speed (rpm)	1500	1500
Max RPM (rpm)	3000	3000
Rotational inertia(kg·cm^2)	2.5	4.2
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)		
LL	172	215
LR	55	55
LA	130	130
LZ	4-φ9	4-φ9
LH	98	98
LC	110	110
LE	5	5
S	19	19
LB	95	95
TP	M5X25	M5X25
LK	40	40
KH	15.5	15.5
KW	6	6
W	6	6
T	6	6
LG	11	11
LJ	2	2
Without locking brake		
With locking brake		

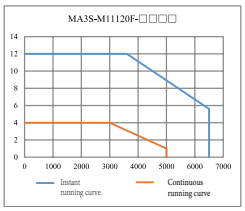
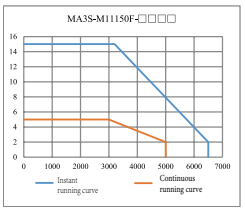
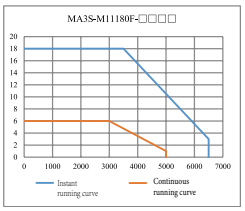
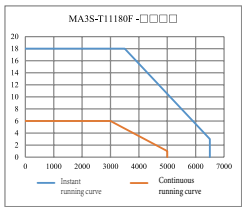
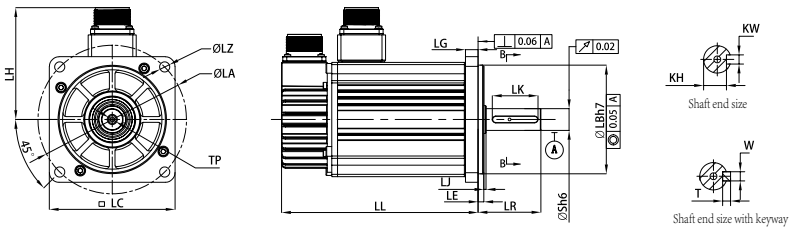
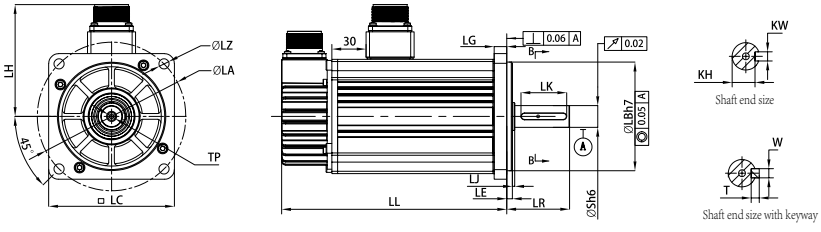
* The locking brake data is in ()

MA3 Series Servo Motor - 110 Frame

Item	Motor parameter			
Model	MA3S-M11080D- □□□□	MA3S-M11100D- □□□□	MA3S-M11120D- □□□□	MA3S-M11200D- □□□□
Class of inertia	Low	Low	Low	Low
Voltage (V)	220	220	220	220
Frame No. (mm)	110	110	110	110
Connect type	Aviation plug	Aviation plug	Aviation plug	Aviation plug
Rated power (kW)	0.8	1	1.2	2
Rated Torque(N·m)	4	5	6	10
Max Torque (N·m)	12	15	18	30
Rated Current (Arms)	5.6	6	6.6	10.1
Max Current (Arms)	19	23	23	32
Rated Speed (rpm)	2000	2000	2000	2000
Max RPM (rpm)	3000	3000	3000	3000
Rotational inertia(kg·cm^2)	1.75	1.75	2.5	4.2
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)				
LL	153	153	172	215
LR	55	55	55	55
LA	130	130	130	130
LZ	4-ϕ9	4-φ9	4-ϕ9	4-ϕ9
LH	98	98	98	98
LC	110	110	110	110
LE	5	5	5	5
S	19	19	19	19
LB	95	95	95	95
TP	M5X25	M5X25	M5X25	M5X25
LK	40	40	40	40
KH	15.5	15.5	15.5	15.5
KW	6	6	6	6
W	6	6	6	6
T	6	6	6	6
LG	11	11	11	11
LJ	2	2	2	2
Without locking brake				
With locking brake				

* The locking brake data is in ()

MA3 Series Servo Motor - 110 Frame

Item	Motor Parameter			
Model	MA3S-M11120F- □□□□	MA3S-M11150F- □□□□	MA3S-M11180F- □□□□	MA3S-T11180F- □□□□
Class of inertia	low	low	low	low
Voltage (V)	220	220	220	380
Frame No. (mm)	110	110	110	110
Connect type	Aviation plug	Aviation plug	Aviation plug	Aviation plug
Rated power (kW)	1.2	1.5	1.8	1.8
Rated Torque(N·m)	4	5	6	6
Max Torque (N·m)	12	15	18	18
Rated Current (Arms)	7.6	8.8	9.7	4.9
Max Current (Arms)	26	29	32	15.6
Rated Speed (rpm)	3000	3000	3000	3000
Max RPM (rpm)	6500	6500	6500	6500
Rotational inertia(kg·cm^2)	1.75	2.5	3.1	3.1
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)				
LL	153	172	191	191
LR	55	55	55	55
LA	130	130	130	130
LZ	4-ϕ9	4-ϕ9	4-ϕ9	4-ϕ9
LH	98	98	98	98
LC	110	110	110	110
LE	5	5	5	5
S	19	19	19	19
LB	95	95	95	95
TP	M5X25	M5X25	M5X25	M5X25
LK	40	40	40	40
KH	15.5	15.5	15.5	15.5
KW	6	6	6	6
W	6	6	6	6
T	6	6	6	6
LG	11	11	11	11
LJ	2	2	2	2
Without locking brake				
With locking brake				

* The locking brake data is in ()

MC2 Series servo motor

7.5kW

Maximum power

5 Poles

Smooth start, higher power density

6000rpm

High speed and stable operation

23 -bit

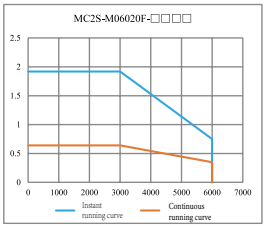
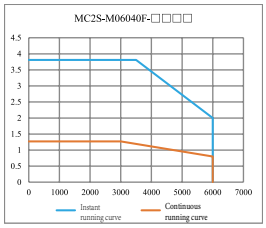
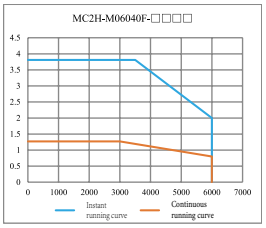
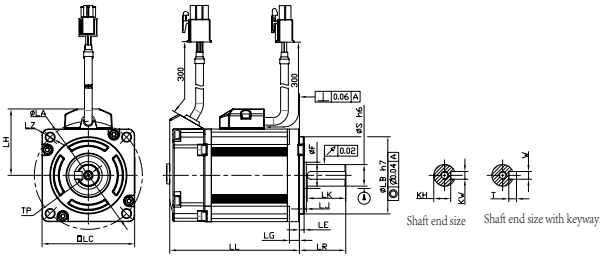
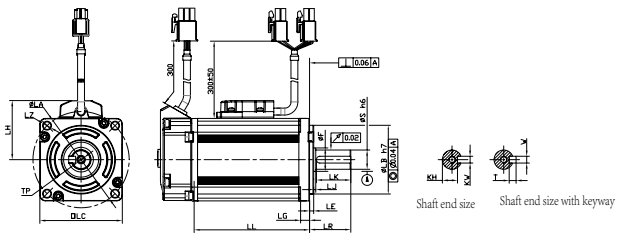
High precision absolute value optical encoder, more precise

MC2 series model design

MC2 S - M 06 020 F - A0 B2
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

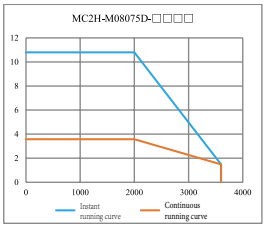
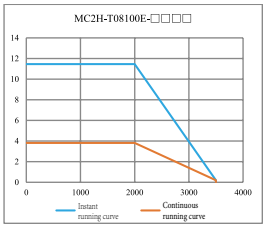
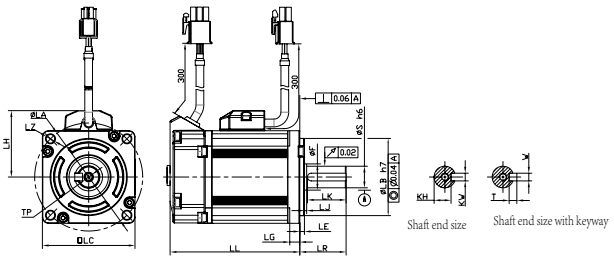
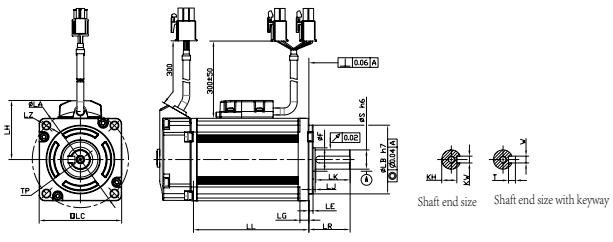
① Product series MC2: Servo Motor	② Inertia S: Low inertia D: Medium inertia H: High inertia	⑤ Rated power 020: 0.2kW 040: 0.4kW 075: 0.75kW 085: 0.85kW 100: 1kW 130: 1.3kW 150: 1.5kW 180: 1.8kW 200: 2kW 230: 2.3kW 290: 2.9kW 300: 3kW 440: 4.4kW 550: 5.5kW 750: 7.5kW
③ Voltage class M: 220V T: 380V	④ Diameter 06: 60mm 08: 80mm 13: 130mm 18: 180mm	
⑥ Rated RPM B: 1000rpm C: 1500rpm D: 2000rpm E: 2500rpm F: 3000rpm	⑦ Encoder type A0: 17-bit single-turn magnetic encoding E0: 23-bit single-turn optical encoder A1: 17-bit multi-turn magnetic encoder E1: 23-bit multi-circle optical encoder	⑧ Shaft size / Oil seal / Brake A1: With threaded hole, optical axis, with oil seal, with brake A2: With threaded hole, optical axis, with oil seal, without brake B1: With threaded hole, with key, with oil seal, with brake B2: With threaded hole, with key, with oil seal, without brake

MC2 Series Servo Motor - 60 Frame

Item	Motor Parameter		
Model	MC2S-M06020F- □□□□	MC2S-M06040F- □□□□	MC2H-M06040F- □□□□
Class of inertia	low	low	high
Voltage (V)	220	220	220
Frame No. (mm)	60	60	60
Connect type	Lead wire	Lead wire	Lead wire
Rated power (kW)	0.2	0.4	0.4
Rated Torque(N·m)	0.64	1.27	1.27
Max Torque (N·m)	1.92	3.81	3.81
Rated Current (Arms)	1.4	2.7	2.8
Max Current (Arms)	4.2	8.1	8.4
Rated Speed (rpm)	3000	3000	3000
Max RPM (rpm)	6000	6000	6000
Rotational inertia(kg·cm^2)	0.2 (0.22)	0.27 (0.29)	0.436 (0.456)
T-N Curve (X :Rotate speed (rpm) (Y :Torque(N·m)			
LL	84 (108.5)	110.2 (135)	110.2 (135)
LR	30	30	30
LA	70	70	70
LZ	4-ϕ5.5	4-ϕ5.5	4-ϕ5.5
LH	43	43	43
LC	60	60	60
LE	3	3	3
S	14	14	14
LB	50	50	50
TP	M5X10	M5X10	M5X10
LK	25	25	25
KH	11	11	11
KW	5	5	5
W	5	5	5
T	5	5	5
LG	6.5	6.5	6.5
LJ	1.5	1.5	1.5
F	14.5	14.5	14.5
Without locking brake			
With locking brake			

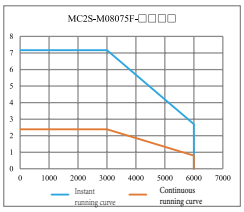
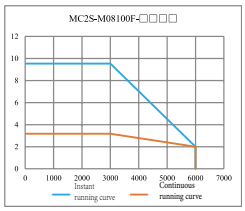
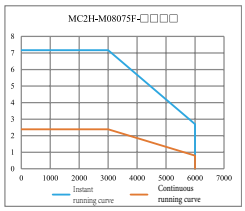
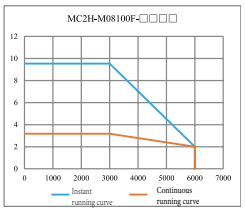
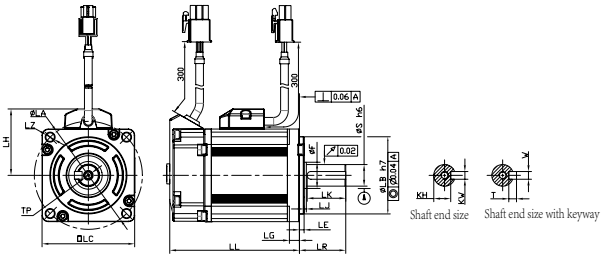
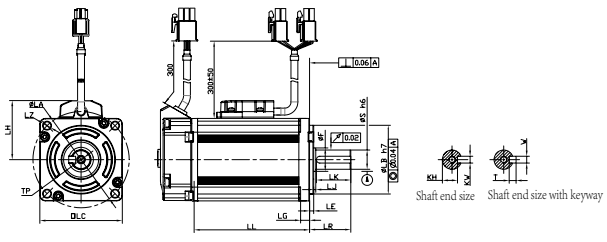
* The locking brake data is in ()

MC2 Series Servo Motor - 80 Frame

Item	Motor parameter	
Model	MC2H-M08075D- □□□□	MC2H-T08100E- □□□□
Class of inertia	high	high
Voltage (V)	220	380
Frame No. (mm)	80	80
Connect type	Lead wire	Lead wire
Rated power (kW)	0.75	1
Rated Torque(N·m)	3.58	3.82
Max Torque (N·m)	10.8	11.46
Rated Current (Arms)	3.9	2.3
Max Current (Arms)	11.7	6.9
Rated Speed (rpm)	2000	2500
Max RPM (rpm)	3500	3500
Rotational inertia(kg·cm^2)	1.655	1.655
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)		
LL	139.2	139.2
LR	35	35
LA	90	90
LZ	4-ϕ7	4-ϕ7
LH	53	53
LC	80	80
LE	3	3
S	19	19
LB	70	70
TP	M5X10	M5X10
LK	25	25
KH	15.5	15.5
KW	6	6
W	6	6
T	6	6
LG	8	8
LJ	1.5	1.5
F	19.4	19.4
Without locking brake		
With locking brake		

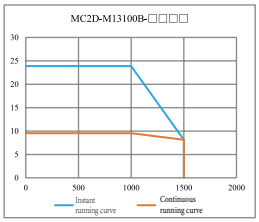
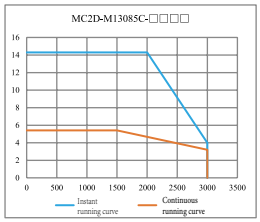
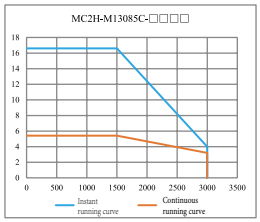
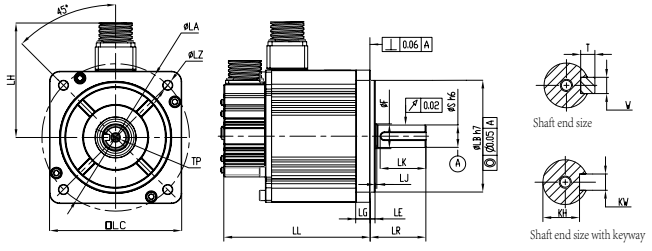
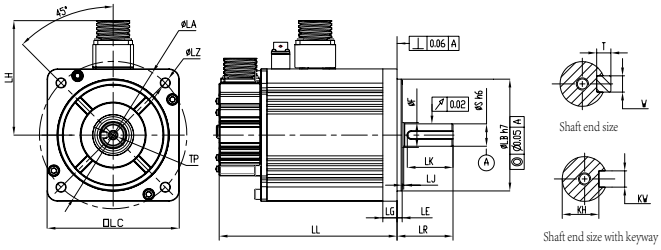
* The locking brake data is in ()

MC2 Series Servo Motor - 80 Frame

Item	Motor parameter			
Model	MC2S-M08075F- □□□□	MC2S-M08100F- □□□□	MC2H-M08075F- □□□□	MC2H-M08100F- □□□□
Class of inertia	low	low	high	high
Voltage (V)	220	220	220	220
Frame No. (mm)	80	80	80	80
Connect type	Lead wire	Lead wire	Lead wire	Lead wire
Rated power (kW)	0.75	1	0.75	1
Rated Torque(N·m)	2.39	3.18	2.39	3.18
Max Torque (N·m)	7.17	9.54	7.17	9.54
Rated Current (Arms)	4.5	5.6	4.5	5.6
Max Current (Arms)	13.5	16.8	13.5	16.8
Rated Speed (rpm)	3000	3000	3000	3000
Max RPM (rpm)	6000	6000	6000	6000
Rotational inertia(kg·cm^2)	0.9 (0.96)	1.125 (1.185)	1.43 (1.49)	1.655 (1.715)
T-N Curve (X : Rotate speed (rpm) (Y :Torque(N·m)				
LL	125.5 (156)	139.2(170.5)	125.5 (156)	139.2 (170.5)
LR	35	35	35	35
LA	90	90	90	90
LZ	4-ϕ7	4-ϕ7	4-ϕ7	4-ϕ7
LH	53	53	53	53
LC	80	80	80	80
LE	3	3	3	3
S	19	19	19	19
LB	70	70	70	70
TP	M5X10	M5X10	M5X10	M5X10
LK	25	25	25	25
KH	15.5	15.5	15.5	15.5
KW	6	6	6	6
W	6	6	6	6
T	6	6	6	6
LG	8	8	8	8
LJ	1.5	1.5	1.5	1.5
F	19.4	19.4	19.4	19.4
Without locking brake				
With locking brake				

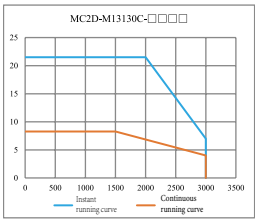
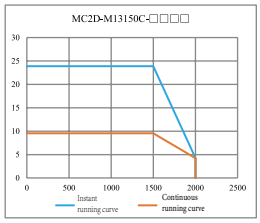
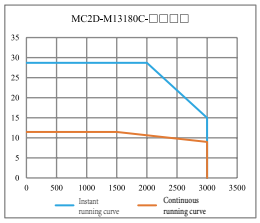
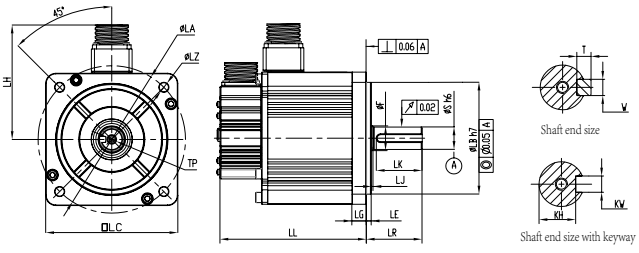
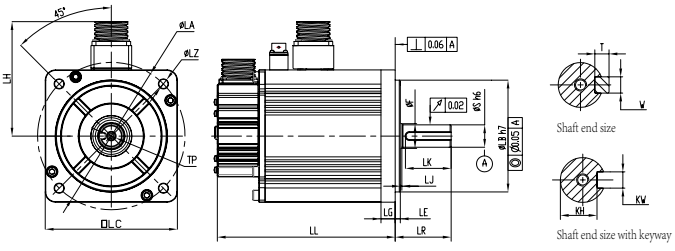
* The locking brake data is in ()

MC2 Series Servo Motor - 130 Frame

Item	Motor Parameter		
Model	MC2D-M13100B- □□□□	MC2D-M13085C- □□□□	MC2H-M13085C- □□□□
Class of inertia	middle	middle	high
Voltage (V)	220	220	220
Frame No. (mm)	130	130	130
Connect type	Aviation plug	Aviation plug	Aviation plug
Rated power (kW)	1	0.85	0.85
Rated Torque(N·m)	9.55	5.41	5.41
Max Torque (N·m)	23.9	14.3	16.6
Rated Current (Arms)	5	6.5	6
Max Current (Arms)	13	17.2	19
Rated Speed (rpm)	1000	1500	1500
Max RPM (rpm)	1500	3000	3000
Rotational inertia(kg·cm^2)	12.36	8.26 (10.16)	13.2(15.1)
T-N Curve (X : Rotate speed (rpm) (Y :Torque(N·m)			
LL	147	133 (161)	147(175)
LR	55	55	55
LA	145	145	145
LZ	4-ϕ9	4-ϕ9	4-ϕ9
LH	113	113	113
LC	130	130	130
LE	5	5	5
S	22	22	22
LB	110	110	110
TP	M6X22	M6X22	M6X22
LK	45	45	45
KH	18	18	18
KW	8	8	8
W	8	8	8
T	7	7	7
LG	14	14	14
LJ	1.5	1.5	1.5
F	24.3	24.3	24.3
Without locking brake			
With locking brake			

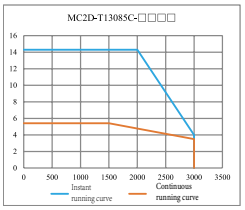
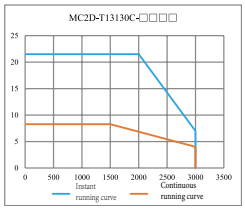
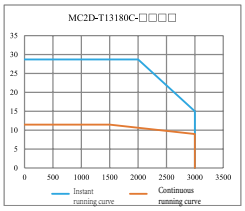
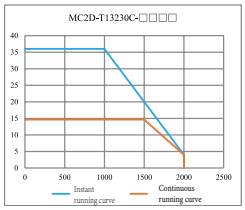
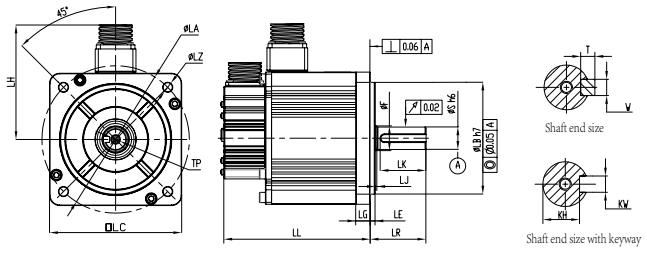
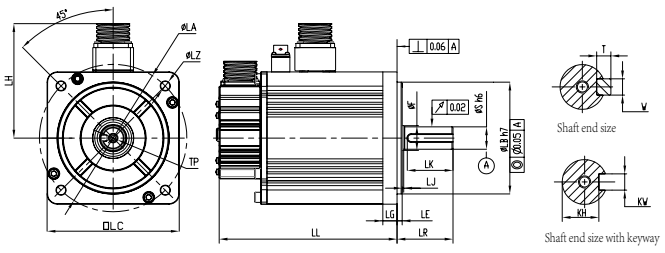
* The locking brake data is in ()

MC2 Series Servo Motor- 130 Frame

Item	Motor Parameter		
Model	MC2D-M13130C- □□□□	MC2D-M13150C- □□□□	MC2D-M13180C- □□□□
Class of inertia	middle	middle	middle
Voltage (V)	220	220	220
Frame No. (mm)	130	130	130
Connect type	Aviation plug	Aviation plug	Aviation plug
Rated power (kW)	1.3	1.5	1.8
Rated Torque(N·m)	8.28	9.55	11.48
Max Torque (N·m)	21.5	23.9	28.7
Rated Current (Arms)	9.5	5.9	11.8
Max Current (Arms)	25	15	29.5
Rated Speed (rpm)	1500	1500	1500
Max RPM (rpm)	3000	2000	3000
Rotational inertia(kg·cm^2)	12.36 (14.26)	12.66	17.58 (19.48)
T-N Curve (X : Rotate speed (rpm) (Y :Torque(N·m)			
LL	147 (175)	163	167 (195)
LR	55	55	55
LA	145	145	145
LZ	4-ϕ9	4-ϕ9	4-ϕ9
LH	113	113	113
LC	130	130	130
LE	5	5	5
S	22	22	22
LB	110	110	110
TP	M6X22	M6X22	M6X22
LK	45	45	45
KH	18	18	18
KW	8	8	8
W	8	8	8
T	7	7	7
LG	14	14	14
LJ	1.5	1.5	1.5
F	24.3	24.3	24.3
Without locking brake			
With locking brake			

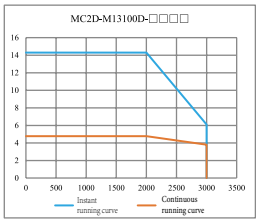
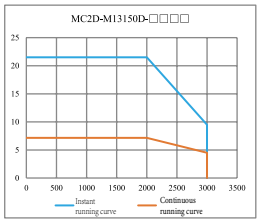
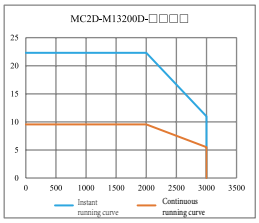
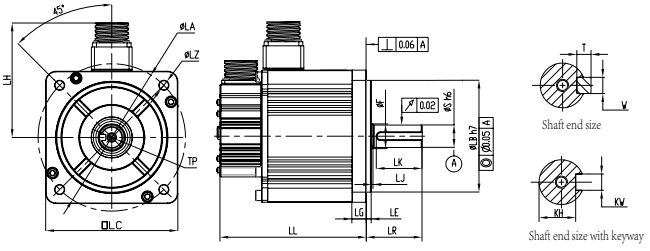
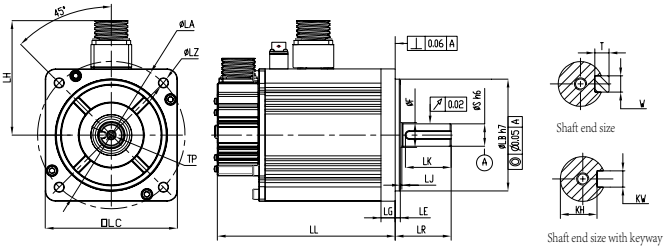
* The locking brake data is in ()

MC2 Series Servo Motor - 130 Frame

Item	Motor Parameter			
Model	MC2D-T13085C- □□□□	MC2D-T13130C- □□□□	MC2D-T13180C- □□□□	MC2D-T13230C- □□□□
Class of inertia	middle	middle	middle	middle
Voltage (V)	380	380	380	380
Frame No. (mm)	130	130	130	130
Connect type	Aviation plug	Aviation plug	Aviation plug	Aviation plug
Rated power (kW)	0.85	1.3	1.8	2.3
Rated Torque(N·m)	5.41	8.28	11.48	14.65
Max Torque (N·m)	14.3	21.5	28.7	36
Rated Current (Arms)	3.3	5.2	7.5	5.4
Max Current (Arms)	8.8	13.6	18.8	13.5
Rated Speed (rpm)	1500	1500	1500	1500
Max RPM (rpm)	3000	3000	3000	2000
Rotational inertia(kg·cm^2)	8.26 (10.16)	12.36 (14.26)	17.58 (19.48)	24 (25.9)
T-N Curve (X :Rotate speed (rpm) (Y :Torque(N·m)				
LL	133 (161)	147 (175)	167 (195)	191 (219)
LR	55	55	55	55
LA	145	145	145	145
LZ	4-ϕ9	4-ϕ9	4-ϕ9	4-ϕ9
LH	113	113	113	113
LC	130	130	130	130
LE	5	5	5	5
S	22	22	22	22
LB	110	110	110	110
TP	M6X22	M6X22	M6X22	M6X22
LK	45	45	45	45
KH	18	18	18	18
KW	8	8	8	8
W	8	8	8	8
T	7	7	7	7
LG	14	14	14	14
LJ	1.5	1.5	1.5	1.5
F	24.3	24.3	24.3	24.3
Without locking brake				
With locking brake				

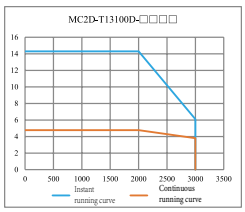
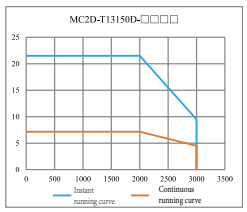
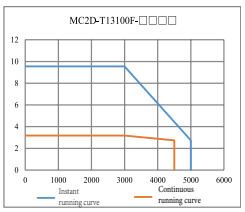
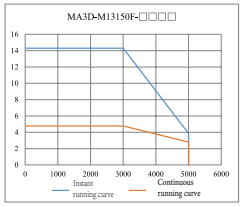
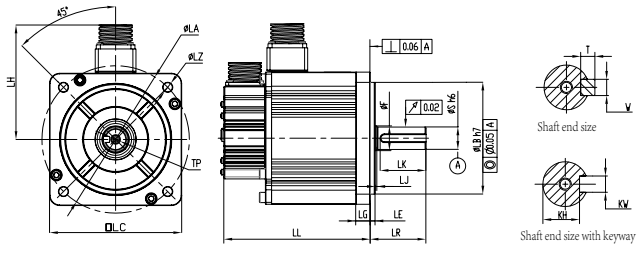
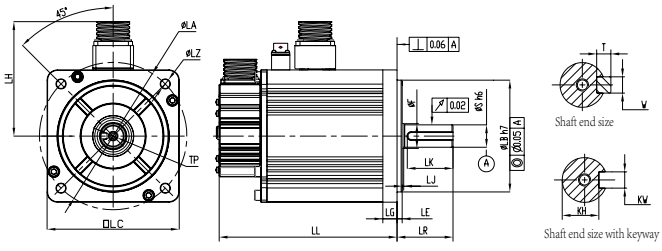
* The locking brake data is in ()

MC2 Series Servo Motor - 130 Frame

Item	Motor Parameter		
Model	MC2D-M13100D- □□□□	MC2D-M13150D- □□□□	MC2D-M13200D- □□□□
Class of inertia	middle	middle	middle
Voltage (V)	220	220	220
Frame No. (mm)	130	130	130
Connect type	Aviation plug	Aviation plug	Aviation plug
Rated power (kW)	1	1.5	2
Rated Torque(N·m)	4.77	7.16	9.55
Max Torque (N·m)	14.3	21.5	22.3
Rated Current (Arms)	5.3	8	10.5
Max Current (Arms)	15.9	24	24.5
Rated Speed (rpm)	2000	2000	2000
Max RPM (rpm)	3000	3000	3000
Rotational inertia(kg·cm^2)	6.4 (8.3)	9.3 (11.2)	12.66 (14.56)
T-N Curve (X : Rotate speed (rpm) (Y : Torque(N·m)			
LL	133 (161)	147 (175)	163 (191)
LR	55	55	55
LA	145	145	145
LZ	4-ϕ9	4-ϕ9	4-ϕ9
LH	113	113	113
LC	130	130	130
LE	5	5	5
S	22	22	22
LB	110	110	110
TP	M6X22	M6X22	M6X22
LK	45	45	45
KH	18	18	18
KW	8	8	8
W	8	8	8
T	7	7	7
LG	14	14	14
LJ	1.5	1.5	1.5
F	24.3	24.3	24.3
Without locking brake			
With locking brake			

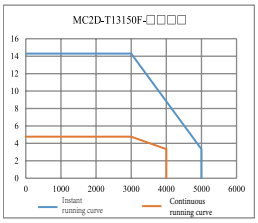
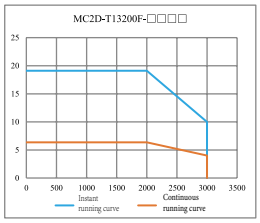
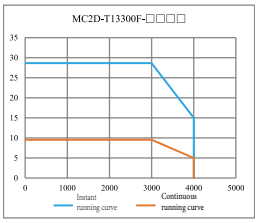
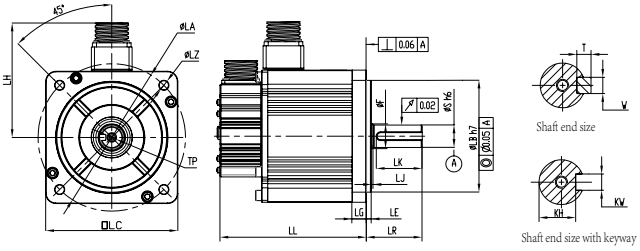
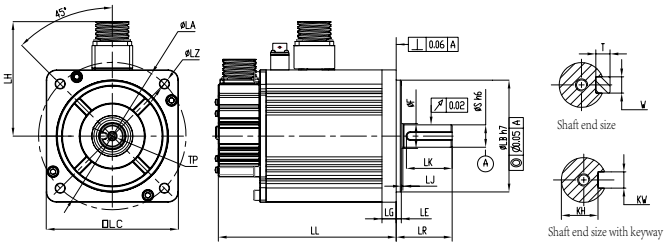
* The locking brake data is in ()

MC2 Series Servo Motor - 130 Frame

Item	Motor Parameter			
Model	MC2D-T13100D- □□□□	MC2D-T13150D- □□□□	MC2D-T13100F- □□□□	MC2D-M13150F- □□□□
Class of inertia	middle	middle	middle	middle
Voltage (V)	380	380	380	220
Frame No. (mm)	130	130	130	130
Connect type	Aviation plug	Aviation plug	Aviation plug	Aviation plug
Rated power (kW)	1	1.5	1	1.5
Rated Torque(N·m)	4.77	7.16	3.18	4.78
Max Torque (N·m)	14.3	21.5	9.54	14.34
Rated Current (Arms)	2.9	4.4	2.8	8.7
Max Current (Arms)	8.8	13.2	8.4	26.1
Rated Speed (rpm)	2000	2000	3000	3000
Max RPM (rpm)	3000	3000	5000	5000
Rotational inertia(kg·cm^2)	6.4(8.3)	9.3 (11.2)	5.98(7.88)	8.26(10.16)
T-N Curve (X : Rotate speed (rpm) (Y :Torque(N·m)				
LL	133 (161)	147 (175)	125(153)	133(161)
LR	55	55	55	55
LA	145	145	145	145
LZ	4-ϕ9	4-ϕ9	4-ϕ9	4-ϕ9
LH	113	113	113	113
LC	130	130	130	130
LE	5	5	5	5
S	22	22	22	22
LB	110	110	110	110
TP	M6X22	M6X22	M6X22	M6X22
LK	45	45	45	45
KH	18	18	18	18
KW	8	8	8	8
W	8	8	8	8
T	7	7	7	7
LG	14	14	14	14
LJ	1.5	1.5	1.5	1.5
F	24.3	24.3	24.3	24.3
Without locking brake				
With locking brake				

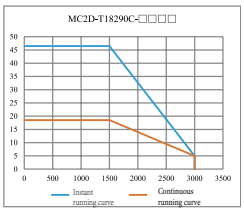
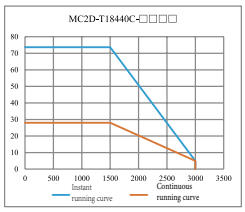
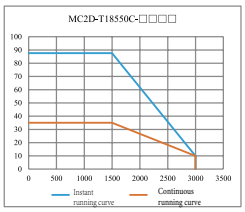
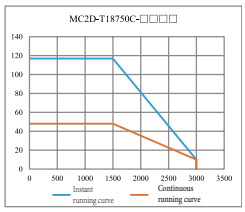
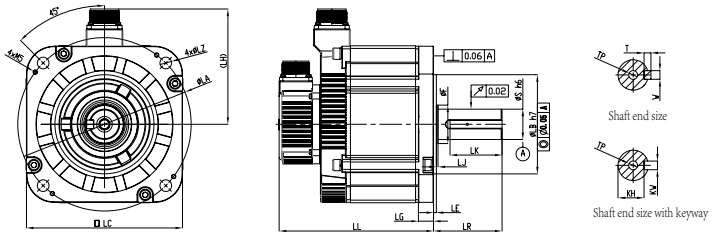
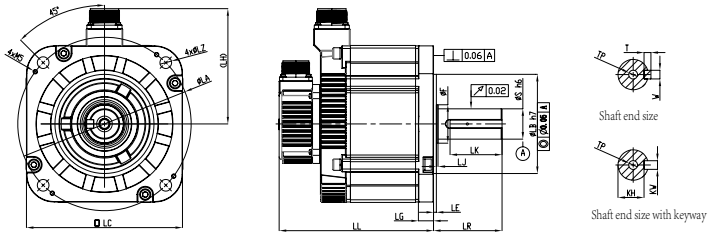
* The locking brake data is in ()

MC2 Series Servo Motor - 130 Frame

Item	Motor Parameter		
Model	MC2D-T13150F- □□□□	MC2D-T13200F- □□□□	MC2D-T13300F- □□□□
Class of inertia	Middle	Middel	Middle
Voltage (V)	380	380	380
Frame No. (mm)	130	130	130
Connect type	Aviation plug	Aviation plug	Aviation plug
Rated power (kW)	1.5	2	3
Rated Torque(N·m)	4.78	6.37	9.55
Max Torque (N·m)	14.34	19.11	28.65
Rated Current (Arms)	3.75	5.3	7.7
Max Current (Arms)	11.25	15.9	23.1
Rated Speed (rpm)	3000	3000	3000
Max RPM (rpm)	5000	5000	5000
Rotational inertia(kg·cm^2)	8.26(10.16)	11.21 (13.11)	16.46 (18.36)
T-N Curve (X : Rotate speed (rpm) (Y : Torque(N·m)			
LL	133(161)	163(191)	163 (191)
LR	55	55	55
LA	145	145	145
LZ	4-ϕ9	4-ϕ9	4-ϕ9
LH	113	113	113
LC	130	130	130
LE	5	5	5
S	22	22	22
LB	110	110	110
TP	M6X22	M6X22	M6X22
LK	45	45	45
KH	18	18	18
KW	8	8	8
W	8	8	8
T	7	7	7
LG	14	14	14
LJ	1.5	1.5	1.5
F	24.3	24.3	24.3
Without locking brake			
With locking brake			

* The locking brake data is in ()

MC2 Series Servo Motor - 180 Frame

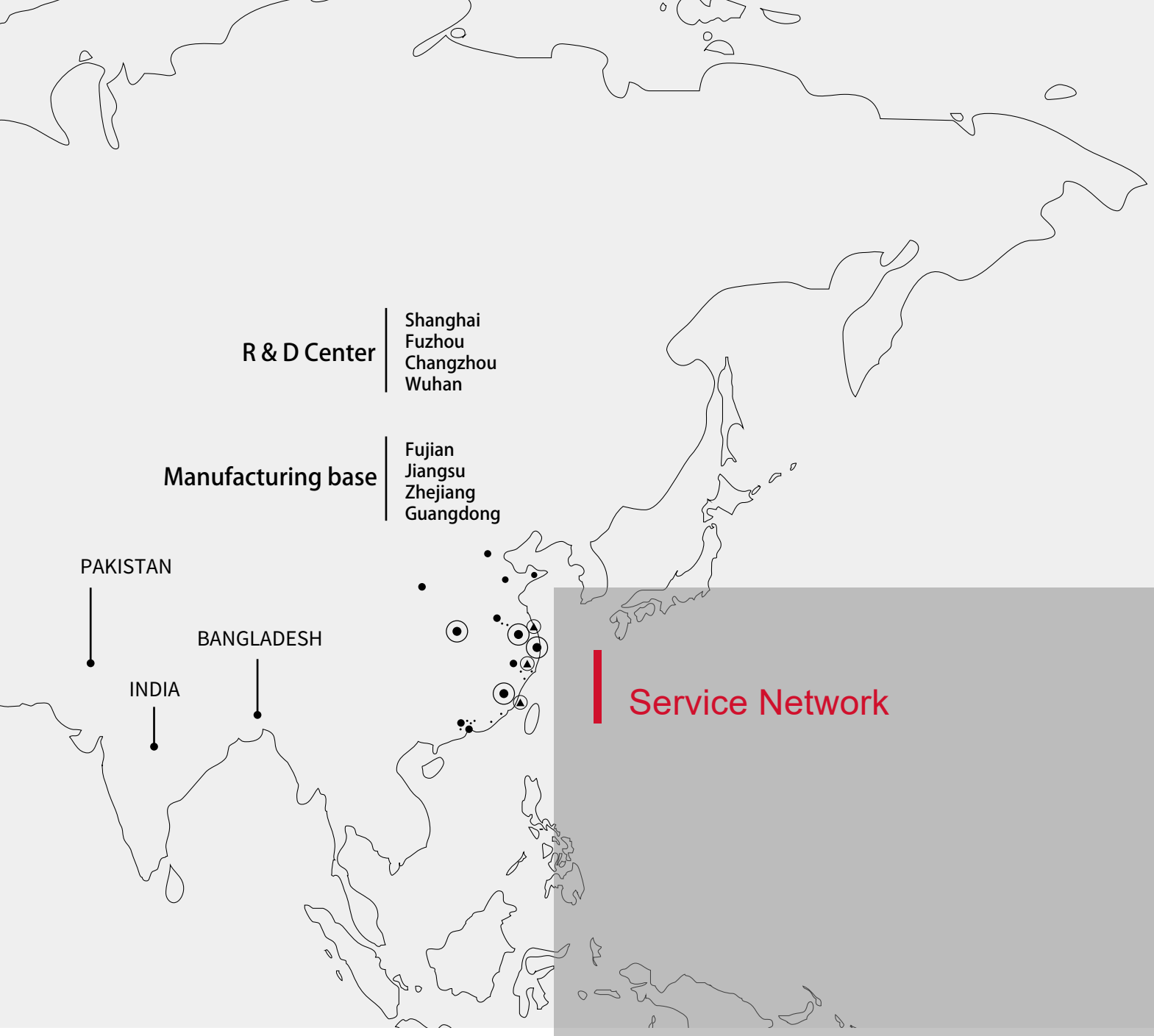
Item	Motor Parameter			
Model	MC2D-T18290C- □□□□	MC2D-T18440C- □□□□	MC2D-T18550C- □□□□	MC2D-T18750C- □□□□
Class of inertia	Middle	Middle	Middle	Middle
Voltage (V)	380	380	380	380
Frame No. (mm)	180	180	180	180
Connect type	Aviation plug	Aviation plug	Aviation plug	Aviation plug
Rated power (kW)	2.9	4.4	5.5	7.5
Rated Torque(N·m)	18.5	28	35	48
Max Torque (N·m)	46.5	73.7	87.6	117
Rated Current (Arms)	10	15	19	25.5
Max Current (Arms)	25	39.8	50	62
Rated Speed (rpm)	1500	1500	1500	1500
Max RPM (rpm)	3000	3000	3000	3000
Rotational inertia(kg·cm^2)	55.71 (60.37)	81.01 (86.03)	105.26 (110.28)	155.1 (160.12)
T-N Curve (X： Rotate speed (rpm) (Y： Torque(N·m)				
LL	178 (216.5)	205.5 (244)	230 (268.5)	281 (319.5)
LR	79	79	113	113
LA	200	200	200	200
LZ	4-ϕ13.5	4-ϕ13.5	4-ϕ13.5	4-ϕ13.5
LH	132.4	132.4	132.4	132.4
LC	180	180	180	180
LE	3.2	3.2	3.2	3.2
S	35	35	42	42
LB	114.3	114.3	114.3	114.3
TP	M12X25	M12X25	M16X32	M16X32
LK	60	60	90	90
KH	30	30	37	37
KW	10	10	12	12
W	10	10	12	12
T	8	8	8	8
LG	17.4	17.4	17.4	17.4
LJ	2	2	2	2
F	44.3	44.3	44.3	44.3
Without locking brake				
With locking brake				

* The locking brake data is in ()

Selection

Product	Voltage	Inertia	Rated RPM (rpm)	Max RPM (rpm)	Rated Power (W)	Motor model	Flange (mm)	Torque (N·m)	Inertia moment (kg·cm²)	Drive model	Overload multiple
MA3	220V	Low inertia (MA3S)	3000	7000	100	MA3S-M04010F	40	0.32	0.0368(0.0374)	1R6L	4
				6500	1000	MA3S-M10100F	100	3.18	1.75(1.95)	7R6M	3.5
					1500	MA3S-M10150F	100	4.9	2.5(2.7)	12RM	3
					2000	MA3S-M10200F	100	6.37	3.1(3.3)	12RM	3
			3000	6500	1200	MA3S-M11120F	110	4	1.75	7R6M	3
					1500	MA3S-M11150F	110	5	2.5	12RM	3
					1800	MA3S-M11180F	110	6	3.1	12RM	3
			2000	3000	800	MA3S-M11080D	110	4	1.75	6R6L	3
					1000	MA3S-M11100D	110	5	1.75	7R6M	3
					1200	MA3S-M11120D	110	6	2.5	7R6M	3
					2000	MA3S-M11200D	110	10	4.2	12RM	3
			1500	3000	950	MA3S-M11095C	110	6	2.5	7R6M	3
					1800	MA3S-M11180C	110	12	4.2	12RM	2
		Medium inertia (MA3D)	3000	7000	100	MA3D-M04010F	40	0.32	0.067(0.068)	1R6L	4
					200	MA3D-M06020F	60	0.64	0.29(0.3)	1R6L	4
					400	MA3D-M06040F	60	1.27	0.54(0.55)	2R8L	4
					750	MA3D-M08075F	80	2.39	1.55(1.65)	5R5L	4
					1000	MA3D-M08100F	80	3.18	2(2.1)	7R6M	3.5
	380V	Low inertia (MA3S)	3000	6500	1000	MA3S-T10100F	100	3.18	1.75(1.95)	3R5T	3.5
					1500	MA3S-T10150F	100	4.9	2.5(2.7)	5R4T	3
					2000	MA3S-T10200F	100	6.37	3.1(3.3)	8R4T	3
					2500	MA3S-T10250F	100	7.96	4(4.2)	8R4T	2.5
										12RT	3.5
					1800	MA3S-T11180F	110	6	3.1	8R4T	3
MC2	220V	Low inertia (MC2S)	3000	6000	200	MC2S-M06020F	60	0.64	0.2(0.22)	1R6L	3
					400	MC2S-M06040F	60	1.27	0.27(0.29)	2R8L	3
					750	MC2S-M08075F	80	2.39	0.9 (0.96)	5R5L	3
					1000	MC2S-M08100F	80	3.18	1.125(1.185)	7R6M	3
		Medium inertia (MC2D)	1500	3000	850	MC2D-M13085C	130	5.41	8.26(10.16)	6R6L	2.5
					1300	MC2D-M13130C	130	8.28	12.36(14.26)	12RM	2.5
					1800	MC2D-M13180C	130	11.48	17.58(19.48)	12RM	2.5
			1000	1500	1000	MC2D-M13100B	130	9.55	12.36	7R6M	2.5
			1500	2000	1500	MC2D-M13150C	130	9.55	12.66	12RM	2.5
			2000	3000	1000	MC2D-M13100D	130	4.77	6.4(8.3)	7R6M	3
					1500	MC2D-M13150D	130	7.16	9.3(11.2)	12RM	3
					2000	MC2D-M13200D	130	9.55	12.66(14.56)	12RM	2
			3000	5000	1500	MC2D-M13150F	130	4.77	8.26(10.16)	12RM	3
		High inertia (MC2H)	3000	6000	400	MC2H-M06040F	60	1.27	0.436(0.456)	2R8L	3
					750	MC2H-M08075F	80	2.39	1.43(1.49)	5R5L	3
					1000	MC2H-M08100F	80	3.18	1.655(1.715)	7R6M	3
			2000	3500	750	MC2H-M08075D	80	3.58	1.655	5R5L	3
			1500	3000	850	MC2H-M13085C	130	5.41	13.2(15.1)	6R6L	2.5
	380V	Medium inertia (MC2D)	1500	3000	850	MC2D-T13085C	130	5.41	8.26(10.16)	3R5T	2.5
					1300	MC2D-T13130C	130	8.28	12.36(14.26)	5R4T	2.5
					1800	MC2D-T13180C	130	11.48	17.58(19.48)	8R4T	2.5
				2000	2300	MC2D-T13230C	130	14.65	24(25.9)	8R4T	2.5
			2000	3000	1000	MC2D-T13100D	130	4.77	6.4(8.3)	3R5T	3
					1500	MC2D-T13150D	130	7.16	9.3(11.2)	5R4T	3
			3000	5000	1000	MC2D-T13100F	130	3.18	6.4(8.3)	3R5T	3
					1500	MC2D-T13150F	130	4.78	8.26(10.16)	5R4T	3
					2000	MC2D-T13200F	130	6.37	11.21(13.11)	8R4T	3
					3000	MC2D-T13300F	130	9.55	16.46(18.36)	12RT	3
			1500	3000	2900	MC2D-T18290C	180	18.5	55.71(60.37)	12RT	2.5
					4400	MC2D-T18440C	180	28	81.01(86.03)	17RT	2.5
					5500	MC2D-T18550C	180	35	105.26(110.28)	21RT	2.5
					7500	MC2D-T18750C	180	48	155.1(160.12)	26RT	2.5
		High inertia (MC2H)	2500	3500	1000	MC2H-T08100E	80	3.82	1.655	3R5T	3

Note: The parameters in () are the parameters with brake



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