

锐特RSE系列伺服快速启动指南

Rtelligent RSE series Servo System
Quick Start Guide



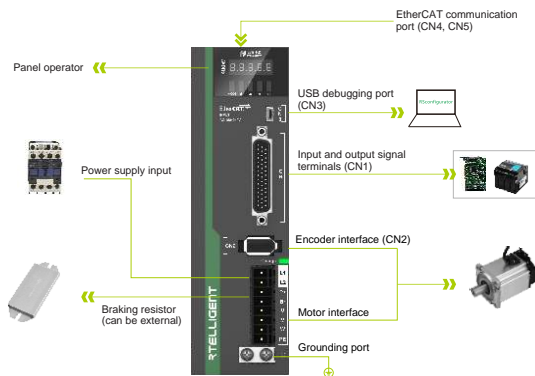
Shenzhen Rtelligent
Mechanical Electrical Technology Co.,Ltd

Cautions

Thank you for using the Rtelligent RSE series AC servo system! This operating manual provides information about the RSE series drivers and RSM series motors. Before use, please read the manual carefully to ensure proper use!

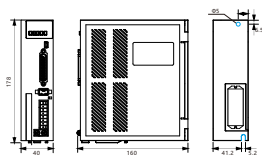
- Please disconnect the power supply for more than 5 minutes before removing or disassembling the driver, otherwise it may cause electric shock due to residual voltage.
- Please never touch the inside of the servo driver, otherwise it may cause electric shock
- Please insulate the connection part of the power supply terminal, otherwise it may cause electric shock.
- Please do not damage or pull on the cable, subject the cable to excessive force, put it under heavy objects or clamp it. Doing so may result in electric shock, which may cause the product to stop or burn out.
- Unless designated personnel, please do not set up, disassemble or repair, otherwise it may cause electric shock or injury.
- Please do not remove the cover, cables, connectors and optional accessories while the power is on, otherwise it may cause electric shock and damage the drive.
- Please follow the steps required by this manual for trial operation.
- If an operation error occurs while the servo motor is connected to the machine, it will not only cause damage to the machine, but also sometimes cause personal accidents.
- Please do not change the maximum speed value, except for special purposes. Inadvertent change may damage the machine or cause injury.
- When the power is turned on and for a period of time after the power is cut off, the heat sink of the servo driver, the external braking resistor, and the servo motor may become hot.
- Please do not touch it, otherwise it may cause burns. To prevent accidental contact with hands or parts (cables, etc.), please take safety precautions such as installing an enclosure.
- Please do not touch the rotating part of the servo motor while it is running, as this may result in injury.
- If the servo motor is installed on the supporting machine and starts to run, make sure that the servo motor can be stopped at any time, otherwise you may get injured.
- Please install a stop device on the machine side to ensure safety.
- The brake of the servo motor with brake is not a stopping device to ensure safety. If a stop device is not provided, it may cause injury.
- If power is restored after a momentary power failure occurs during operation, the machine may restart suddenly, so please do not approach the machine.
- Please take measures to ensure that personal safety will not be endangered when restarting, otherwise it may cause injury.
- Please do not modify the product in any way, otherwise it may cause injury or mechanical damage.
- Please install the servo driver, servo motor, and external braking resistor on non-combustible materials, otherwise it may cause a fire.
- Between the power supply and the main circuit power supply of the servo driver (L1, L2 for single-phase, L1, L2, L3 for three-phase), please connect an electromagnetic contactor and a non-fuse circuit breaker. Otherwise, when the servo driver fails, the large current cannot be cut off, which may cause a fire.

Model combination list

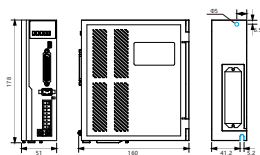


Servo driver dimension drawing

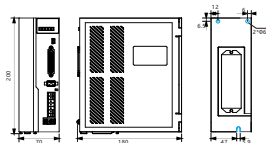
SizeA Below 400W



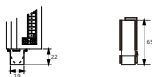
SizeB Below 1500W



SizeC Below 3000W



Absolute battery box dimensions



List of standard model combinations

Motor base	Model	Rated power	Matching driver	Encoder cable	Power cable
40	RSM-M04J0130A	50W	RS100(E)	SES4-030	SMS-030
	RSM-M04J0330A	100W	RS100(E)	SES4-030	SMS-030
60	RSMA-M06J0630A	200W	RS200(E)	SES4-030	SMS-030
	RSMA-M06J1330A	400W	RS400(E)	SES4-030	SMS-030
80	RSMA-M08J2430A	750W	RS750(E)	SES4-030	SMS-030
	RSMA-M08J3230A	1KW	RS1000(E)	SES4-030	SMS-030
110	RSM-M11W4030A	1.2KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M11W5030A	1.5KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M11W6020A	1.2KW	RS2000(E)	SEH4-030	SMH-030
130	RSM-M11W6030A	1.8KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M13W5025A	1.3KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M13W6025A	1.5KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M13W7725A	2.0KW	RS2000(E)	SEH4-030	SMH-030
	RSM-M13W10025A	2.5KW	RS3000(E)	SEH4-030	SMH-030
RSM-M13W15015A	2.3KW	RS3000(E)	SEH4-030	SMH-030	
RSM-M13W15025A	3.8KW	RS3000(E)	SEH4-030	SMH-030	

* Driver with E is EtherCAT function

** Wiring is 3 meters as standard, other specifications please specify when ordering

Servo cable list

Naming of AC servo supporting cables

S E S 4 -030

1

2

3

4

5

1

Cable series
S:220V AC servo
H:380V high-voltage servo
D:Low-voltage brushless servo

2

Cable category
E:Encoder extension cable
M:Motor power cable

3

Plug category
S:Plastic Amp Head
H:Aviation plugs

4

Number of cable cores
Power cable 4 cores can be omitted

5

Cable length
030: 3 meters

Cable of 80mm and below

Motor cable SMS-030

Color definition:

U	V	W	PE
Red	White	Black	Yellow-green



110mm / 130mm Cable

电机线 SMH4-030

颜色定义:

U	V	W	PE
棕	蓝	黑	黄绿




Motor model description

RSMA -M 06 J 13 30 A-S

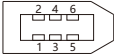
① ② ③ ④ ⑤ ⑥ ⑦ ⑧

- | | | |
|--|---|---|
| <p>1 RSM Series Servo Motor
A: 5 pole pairs,Ultra thin none: 4 pole pairs</p> <p>2 Motor inertia code
S: Small inertia
M: Medium inertia
H: Large inertia</p> <p>3 Motor flange size
06:60mm 13:130mm</p> | <p>4 Encoder resolution
Z: 17bit magnetic encoder
H: 23bit optical encoder
G: 17bit magnetic Multi-turn absolute encoder
L: 23bit optical Multi-turn absolute encoder
W: 10000 lines optical encoder</p> <p>5 Motor rated torque
13:1.3 Nm 150: 15 Nm</p> | <p>6 Motor rated speed
30: 3000 rpm 15: 1500 rpm</p> <p>7 Oil seal or not
A: with oil seal
none: without</p> <p>8 Brake or not
Z: With brake</p> |
|--|---|---|

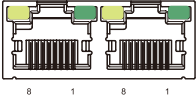
Main circuit wiring definition

Functions	Terminal symbol	Description	Diagram
Input power supply	L1	Single-phase 220 VAC	
	L2		
Braking resistance	P+	When using an external braking resistor, just replace the P+ and Br wiring	
	Br		
Motor wiring	U	Connect the motor extension cable	
	V		
	W		
	PE		

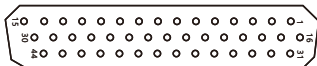
CN2 Encoder terminal wiring definition

Pin numbers	Terminal symbol	Description	Diagram
1	Vcc	The encoder power supply is provided by the driver	
2	Gnd		
5	PS+	Encoder communication terminal	
6	PS-		
3	Reserved		
4	Reserved		

CN4, CN5—EtherCAT Communication interface

Pin	Definition	Color	Diagram
1	TX+	orange&white	 <p>Dual RS-485 interface</p>
2	TX-	orange	
3	RX+	green&white	
4	---	blue	
5	---	blue&white	
6	RX-	green	
7	---	brown&white	
8	GND	brown	

CN1-DB44 control signal interface definition

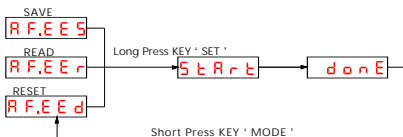


Functions	Signal	Pin	Definition	Function	Description	
Differential input interface	IN7+	17	differential input 7 positive		differential input, 5V	
	IN7-	18	differential input 7 negative			
	IN8+	20	differential input 8 positive	Emergency stop		
	IN8-	21	differential input 8 negative			
		24VIN7+	16	24V input 7 positive		24V positive
		24VIN8+	19	24V input 8 positive		
General input interface	IN1(SV-ON)	2	input 1	Undefined	Below 24V support common cathode or common anode Does not support the mixed use of NPN and PNP	
	IN2(POT)	3	input 2	probe 1		
	IN3(NOT)	4	input 3	probe 2		
	IN4(ALMRST)	5	input 4	positive limit		
	IN5(PULStop)	6	input 5	negative limit		
	IN6(Home)	7	input 6	origin input		
Common cathode general output port	OUT1(SV-RDY)	32	output 1	servo ready	Below 24V Common cathode output Current does not exceed 50mA	
	OUT2(ALM)	33	output 2	alarm output		
	OUTCOM-	31	output common	output grounding		
Differential output interface	DFOUT3+(INP+)	34	output 3 positive	Positioning completed positive	Below 24V Differential input Current does not exceed 200mA	
	DFOUT3-(INP-)	35	output 3 negative	Positioning completed negative		
	DFOUT4+(BRK+)	36	output 4 positive	Brake positive		
	DFOUT4-(BRK-)	37	output 4 negative	Brake negative		

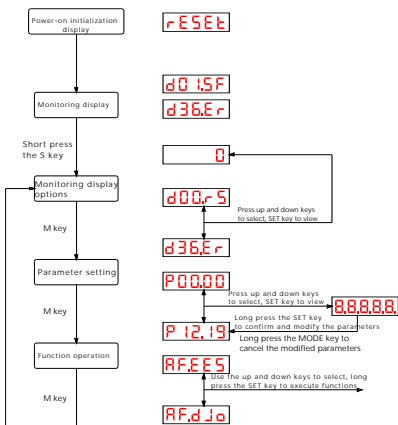
Display and panel operation

Functions	Symbol	Description	Diagram
Mode/Return	MODE	Mode switch	
Shift key	◀	Shift left	
Increase	▲	Switch up selection or increase value	
Decrease	▼	Switch down selection or decrease the value	
Confirm	SET	Confirm operation	

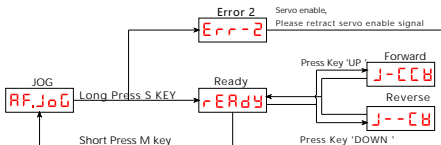
Operation progress of parameters



Panel operation menu



Jog Test Operation



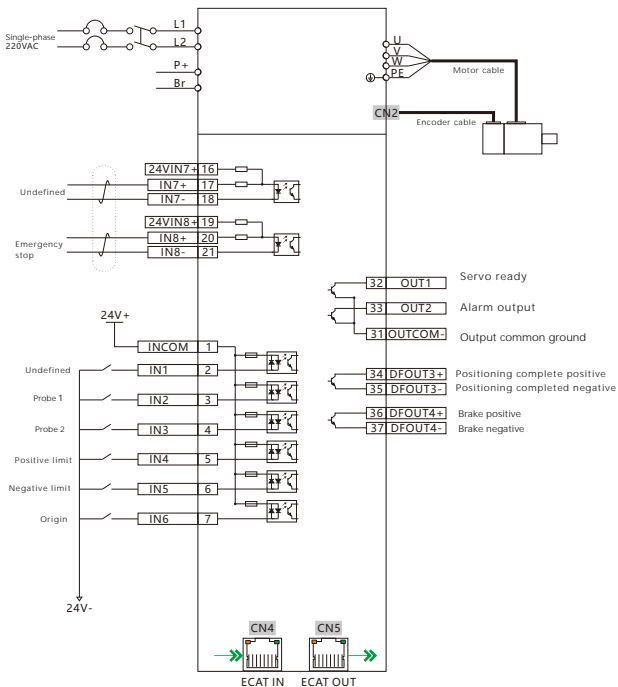
Monitor State Content

NO.	Unit	Content
d 0 0. r S	—	Run statement
d 0 1.5 F	rpm	Speed of motor
d 0 2.5 C	rpm	Speed command
d 0 3. t F	%	Motor torque
d 0 4. t C	%	Torque command
d 0 5. C U	%	Run current
d 0 7. P C	Common unit(pulse)	Position command counter
d 1 1. P F	Encoder unit(pulse)	Position feedback counter
d 1 5. P E	Encoder unit(pulse)	Position error
d 1 7. F S	rpm	Pulse command speed
d 1 8. F r	KHz	Pulse command frequency
d 1 9. I S	—	Input signal state
d 2 0. o S	—	Output signal state
d 2 1. n R	Encoder unit(pulse)	Motor mechanical position
d 2 2. E A	°	Motor electrical angle
d 2 3. U b	V	Bus voltage
d 2 4. E S	—	Encoder statement
d 2 5. E o	Encoder unit(pulse)	Motor single-turn value
d 2 6. E n	circle	Motor multiturn value
d 3 6. E r	—	Alarm code

Common alarm & handling

Code	Fault content	Handling
AL.100	Parameter read error	Modify the P00.00 and reset
AL.105	Encoder mismatch	Confirm encoder style
AL.110	IPM module overload	Grounding correctly
AL.112	Command overload	The output torque of the drive exceeds the allowable range
AL.113	Motor thermal protection	Adjust command setting, change motor
AL.115	Internal voltage error	Internal circuit error, change new driver
AL.120	Encoder interference	Check encoder shield
AL.121	Encoder data error	Check encoder wiring
AL.125	Encoder counter error	
AL.126	Encoder disconnection	
AL.200	Mode error	Confirm control mode setting
AL.210	High Bus Voltage	High power voltage or too large braking energy
AL.211	Low Bus Voltage	Low power voltage
AL.220	Low encoder supply power 1	Change encoder battery
AL.221	Low encoder supply power 2	Reset encoder alarm
AL.230	Motor overspeed	Decrease motor speed
AL.240	Position feedback error	Adjust load and speed
AL.250	Brake inoperative	Check brake circuit
AL.252	Limit fault	Check limit switch

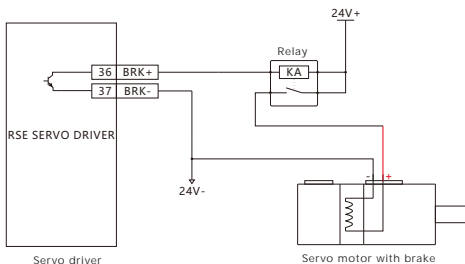
RSE driver wiring guide



Remark:

- 1.The general input signal is a two-way optocoupler circuit, which can be connected to a single common anode or a separate common cathode (pin 1 is the common terminal). The common anode and the common cathode cannot be mixed.
- 2.The two differential input signals have a total of 6 pins, please pay attention to check the specifications of the input voltage.
- 3.The general output signal is a common cathode connection, and pin 31 is a common ground. Maximum output circuit current 50mA.
- 4.The maximum current of the differential output signal output loop is 200mA, which can be used to drive the relay switch. The relay for brake control must be connected to the differential output circuit, which is the OUT4 port by default.

Brake wiring diagram



Remarks:

1. The output signal of brake control can only be specified as OUT3 or OUT4 port, OUT4 is shown as default.
2. Motor brake cable has polarity, please pay attention to distinguish

Basic parameters of position control mode

No.	Parameter name	Sample value
P01.00	Control mode	0,positioncontrolmode
P01.01	Rotation direction	0 or 1
P01.02	Servo forced enable	0, external IO control enable; 1, internal enable
P02.00	IN1 function selection	Default 1 ,IN1 as servo enable
P02.01	IN1 polarity selection	0, valid at low level; 1, valid at high level
.....	IN2-8 function and polarity
P02.32	OUT1 function selection	Default 4 ,OUT1 as servo ready
P02.33	OUT1 polarity selection	0, valid at low level; 1, valid at high level
.....	OUT2-6 function and polarity
P03.00	Position command source	0,External pulse input
P03.02	Pulse command type	0, PUL+DIR
P03.03	Pulse command filter constant	Input pulse frequency limit
P03.04	Command smoothing time	Default is 1 invalid
P03.06	pulses required for one revolution	Default 10000
P06.00	First speed gain	Rough adjustment of rigidity
P06.01	The first speed integral time	Rough adjustment of rigidity
P06.02	First position gain	Rough adjustment of rigidity