

Operation Manual

EA100 200~1000W

AC Servo Drive

Version:E12.1

Thank you for using this drive. This manual just provides relevant information of EA100 series AC servo drive and its adaptive motor.

- Installation and inspection of the servo drive and servo motor
- Operation instruction of the servo drive panel
- Code instruction
- Malfunction instruction

This manual suits for users as follows for reference

- Installation or wiring technician
- Debugging technician
- Maintenance and inspection technician

Before use, please read this manual carefully, and put it on a safe place.

Following instructions should be obeyed before going through this manual:

- There is no vapour, corrosive gas and inflammable gas on site.
- It is prohibited to connect 3-phase mains to the motor's terminals of U, V, W, which will damage the drive and motor.
- Grounding should conform to the related electrician regulations.
- Please do not disassemble the drive, motor or change its wiring when power is on.
- Please do not touch the radiator when power is on.

Please consult our distributors or services center if you still have any query.

Safety Cautions

(Please read the manual before use)

It is a must to read this operation manual, technical data and relevant information of servo motor carefully before installation, use, maintenance and inspection.

Description of Marks Related to Safety



Wrong use will lead to danger or injury.



Wrong use may cause danger, injury, or damage to the equipment.



Prohibited operation may lead to damage or malfunction of the product.

- Receiving inspection



Danger

- Please collocate and use the servo drive and motor as specified. Otherwise it may lead to fire or equipment malfunction.

- Installation cautions



Danger

- Please do not expose the drive to the place of vapour, corrosive gas and inflammable gas. Otherwise it may lead to electric shock or fire.

● Wiring cautions



Danger

- Please make the grounding reliable. Poor grounding may lead to electric shock or fire.
- Please do not connect 3-phase mains to motor's output terminals U, V, W; otherwise it may lead to injury or fire.
- Please make sure the jump ring on mains and motor's output terminals will not fall off by minor external force, otherwise it may cause fire.
- When wiring, please wire according to the selection of wire rod to prevent from danger.

● Operation cautions



Caution

- The setting values of parameters should meet the user's requirement before the mechanical equipment starts, otherwise, it may be out of control or cause malfunction.



Prohibition

- It is prohibited to touch any part of motor when it is revolving, otherwise it may cause injury.
- To avoid accidents, please separate the belt from coupling of mechanical equipment before starting for the first time.



Danger

- If wrong operation occurs after servo motor and mechanical equipment run, it will not only damage the equipment, but may lead to injury.
- It is strongly suggested to test if servo motor works well under no load before applying to the load, to avoid unwanted danger.
- Please do not touch radiator of servo drive when it is running, otherwise it may cause scald by high heat.

● Maintenance and inspection



Prohibition

- It is prohibited to touch interior of servo drive and servo motor, which may cause electric shock.
- It is prohibited to dismantle drive panel after power is on, there is risk of electric shock.
- Please do not touch any terminal in 10 minutes after power off. The residual voltage may cause electric shock.
- Please do not take servo motor apart, otherwise it may cause electric shock or injury.
- Please do not change the wiring when power is on, otherwise it may cause electric shock or injury.
- Installation, wiring and maintenance of servo drive and motor can be conducted by technician only.

● Wiring for main circuit



Caution

- Please do not tie down or put the cable of power and signal through the same pipeline, and separate each other by more than 30 cm (11.8 inch) when making wiring.
- Regarding signal, it is advised to use stranded wire no longer than 3 m(9.84 feet), and as for encoder (PG) feedback, multi-core glue bulk shielding wire no longer than 20 m(65.62 feet).
- Even if power is off, high voltage may still remain inside the servo drive. Please pause for 10 minutes and do not touch mains terminals. Make sure to make the inspection after the indicator [CHARGE] goes out.



Prohibition

- Please do not switch mains frequently, if necessary, the interval should be at least 1 minute.

- Wiring of main circuit terminals



Caution

- Please take the terminal blocks away from the drive.
- Please insert only one wire to every socket of terminal blocks.
- Please do not make short-circuit of the core-wires and nearby cables when inserting wires.
- Before power is on, please check carefully if the wiring is correct.

Due to our continuous efforts in product updating and improvement, this manual may be changed without notification.

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1 Inspection and Model Description

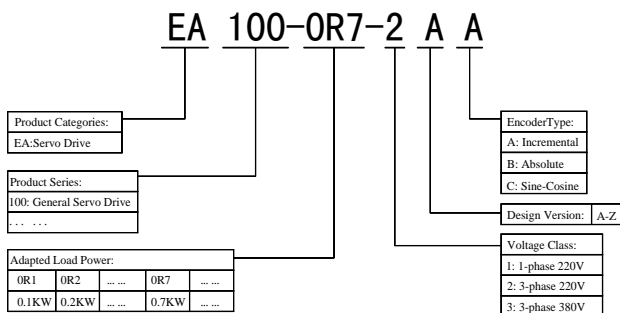
1.1 Inspection

To avoid any negligence during purchase and transportation, please carefully inspect items as follows:

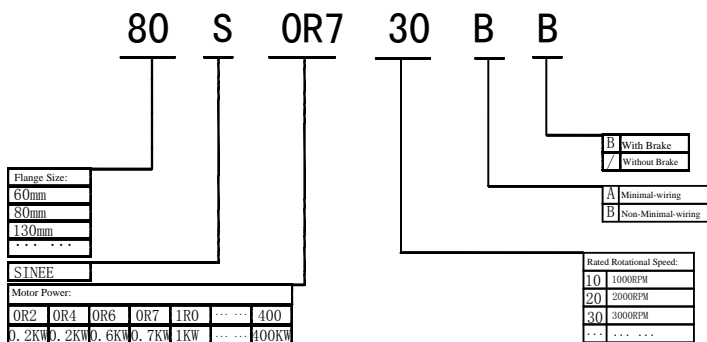
- If motor shaft runs smoothly: Rotate the shaft by hand, if it runs smoothly, then it is ok.
- Appearance: Visually inspect if there is any damage or scratch on appearance.
- If any screw is loose.

Please contact our agent for proper solutions in case any of the above cases occurs.

1.2 Model of Servo Drive



1.3 Model of Servo Motor



1.4 Description of Servo Motor Adaptation

Servo Drive	Adapted Servo Motor	Remarks of Servo Motor
EA100-0R2-2AA	60S0R230A	200W, 60mm flange, rated rotational speed 3000 rpm, minimal-wiring incremental encoder, servo motor without brake.
	60S0R230AB	200W, 60mm flange, rated rotational speed 3000 rpm, minimal-wiring incremental encoder, servo motor with brake.
	60S0R230B	200W, 60mm flange, rated rotational speed 3000 rpm, non-minimal-wiring incremental encoder, servo motor without brake.
	60S0R230BB	200W, 60mm flange, rated rotational speed 3000 rpm, non-minimal-wiring incremental encoder, servo motor with brake.
EA100-0R4-2AA	60S0R430A	400W, 60mm flange, rated rotational speed 3000 rpm, minimal-wiring incremental encoder, servo motor without brake.
	60S0R430AB	400W, 60mm flange, rated rotational speed 3000 rpm, minimal wiring incremental encoder, servo motor with brake.
	60S0R430B	400W, 60mm flange, rated rotational speed 3000 rpm, non-minimal-wiring incremental encoder, servo motor without brake.
	60S0R430BB	400W, 60mm flange, rated rotational speed 3000 rpm, non-minimal-wiring incremental encoder, servo motor with brake.
EA100-0R6-2AA	60S0R630A	600W, 60mm flange, rated rotational speed 3000 rpm, minimal-wiring incremental encoder, servo motor without brake.

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	60S0R630AB	600W, 60mm flange, rated rotational speed 3000 rpm, minimal-wiring incremental encoder, servo motor with brake.
	60S0R630B	600W, 60mm flange, rated rotational speed 3000 rpm, non-minimal-wiring incremental encoder, servo motor without brake.
	60S0R630BB	600W, 60mm flange, rated rotational speed 3000 rpm, non-minimal-wiring incremental encoder, servo motor with brake.
EA100-0R7-2AA	80S0R730A	750W, 80mm flange, rated rotational speed 3000 rpm, minimal-wiring incremental encoder, servo motor without brake.
	80S0R730AB	750W, 80mm flange, rated rotational speed 3000 rpm, minimal-wiring incremental encoder, servo motor with brake.
	80S0R730B	750W, 80mm flange, rated rotational speed 3000 rpm, non-minimal-wiring incremental encoder, servo motor without brake.
	80S0R730BB	750W, 80mm flange, rated rotational speed 3000 rpm, non-minimal-wiring incremental encoder, servo motor with brake.
EA100-1R0-2AA	80S1R025B	1000W, 80mm flange, rated rotational speed 2500 rpm, non-minimal-wiring incremental encoder, servo motor without brake.
	80S1R025BB	1000W, 80mm flange, rated rotational speed 2500 rpm, non-minimal-wiring incremental encoder, servo motor with brake.
	1301R010A	1000W, 130mm flange, rated rotational

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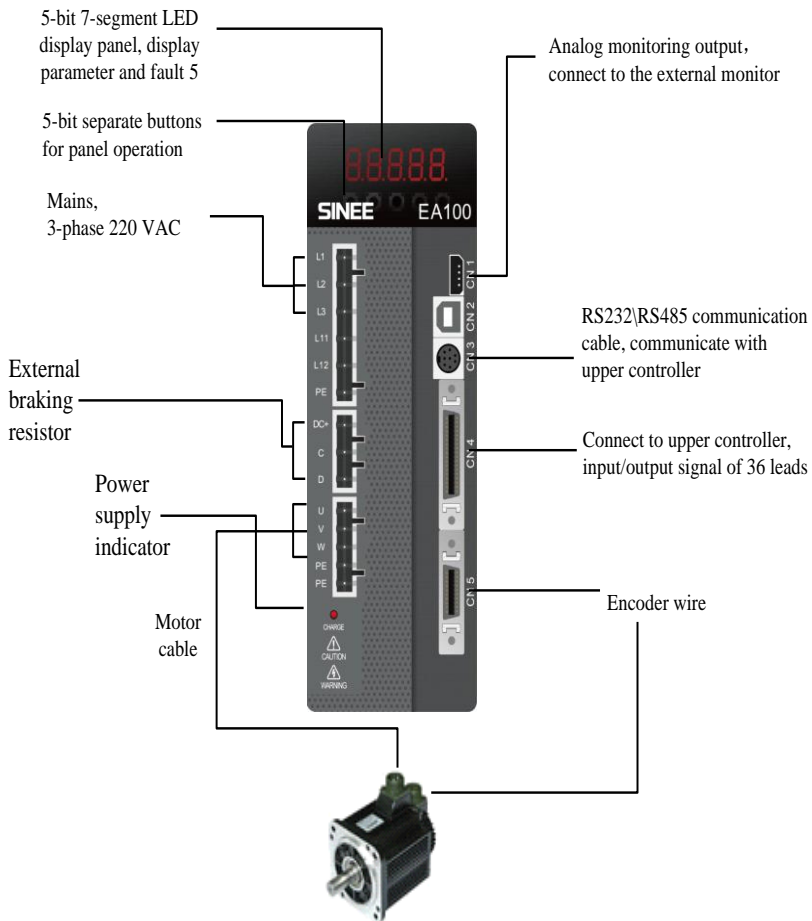
		speed 1000 rpm, minimal-wiring incremental encoder, servo motor without brake.
	1301R010AB	1000W, 130mm flange, rated rotational speed 1000 rpm, minimal-wiring incremental encoder, servo motor with brake.
	1301R010B	1000W, 130mm flange, rated rotational speed 1000 rpm, non-minimal-wiring incremental encoder, servo motor without brake.
	1301R010BB	1000W, 130mm flange, rated rotational speed 1000 rpm, non-minimal-wiring incremental encoder, servo motor with brake.

1.5 Brief Introduction to Servo Drive Operation Mode

Mode Name		Mode Mark	Mode Code
Single Mode	Speed Control Mode	S	0
	Position Control Mode	P	1
	Torque Control Mode	T	2
Mixed Mode	Speed-position Switch Mode	Sp	3
	Torque-speed Switch Mode	Ts	4
	Position-torque Switch Mode	Pt	5

1.6 Signal and Wiring of Servo Drive

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2 Installation

2.1 Cautions

Please pay attention to following cautions:

- The connection between drive and motor should not be tight.
- When installing drive, every screw should be fastened well.
- Motor axis must be well aligned to setting axis.
- Thicken the U, V, W cables and the encoder's connecting line if the wire between drive and motor is longer than 20m.
- Motor's retaining screws must be locked well.

2.2 Requirements of Storage Environment

This product should be kept in packing case before installation. To make the product meet our company's warranty scope and maintaining in the future, please pay much attention to the following items when storing, if it will not be used for the present.

- Must be put on place where is dustless and dry.
- The storage temperature must be within -20 °C to +65 °C.
- The storage relative humidity must be within 0% to 90% and there is no moisture condensation.
- Avoid to store at surroundings where there is corrosive gas or liquid.
- You had better store it on shelf or platform after appropriate packaging.

2.3 Requirements of Installation Environment

This drive's using environment temperature range is 0 °C~50 °C. Please put it in drafty places if ambient temperature is over 40 °C. It is suggested to be put in less 40 °C if running for a long time to guarantee its unflinching performance. If this product is installed in distribution box, the overall dimension of the distribution box and the ventilation conditions must meet the overheating-proof needs of all inner electronic devices. And please notice that whether machinery shake will affect the electronic devices. Moreover, the using conditions also include:

- No highheat device.
- No water-drop, vapour, dust and oiliness dust.

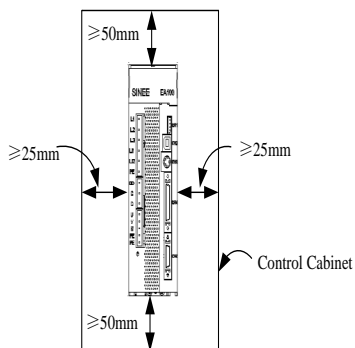
- No corrosive, inflammable gas or liquid.
- No shake.
- No electromagnetic noise.

The motor's using ambient temperature range is 0 °C ~40 °C. Its using conditions also include:

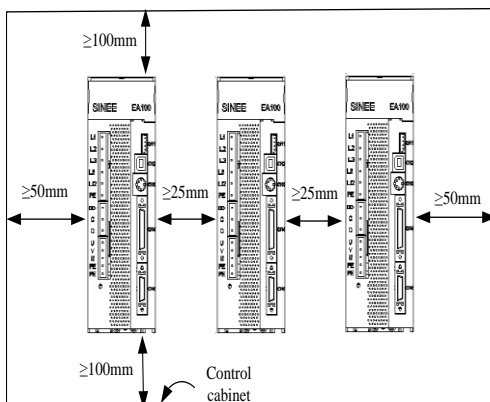
- No highheat device.
- No water-drop, vapour, dust and oiliness dust.
- No corrosive, inflammable gas or liquid.
- No floating dust and metal particle.

2.4 Installation Space

Single drive installation



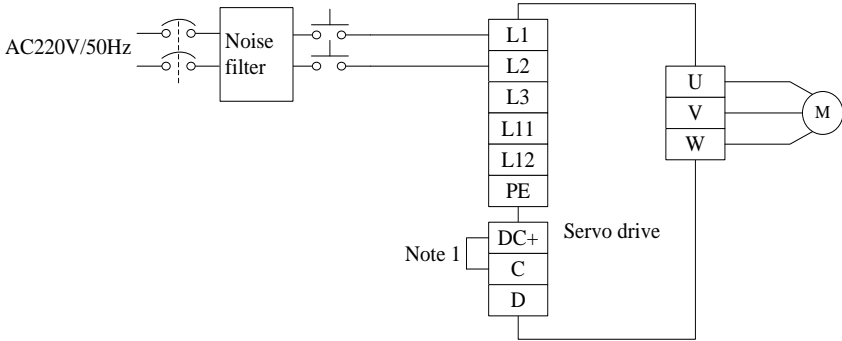
Multiple drives installation



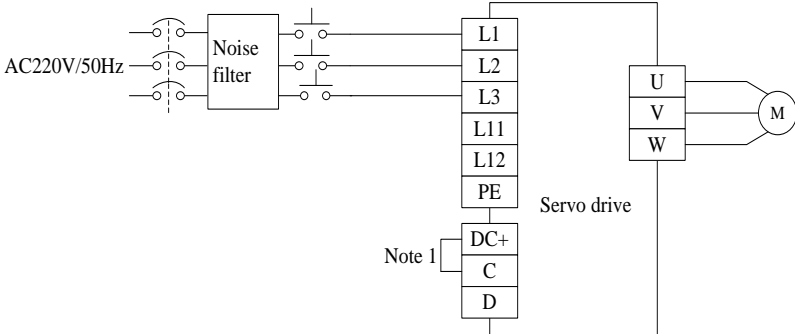
3 Wiring

3.1 Power Line

3.1.1 1-phase connection



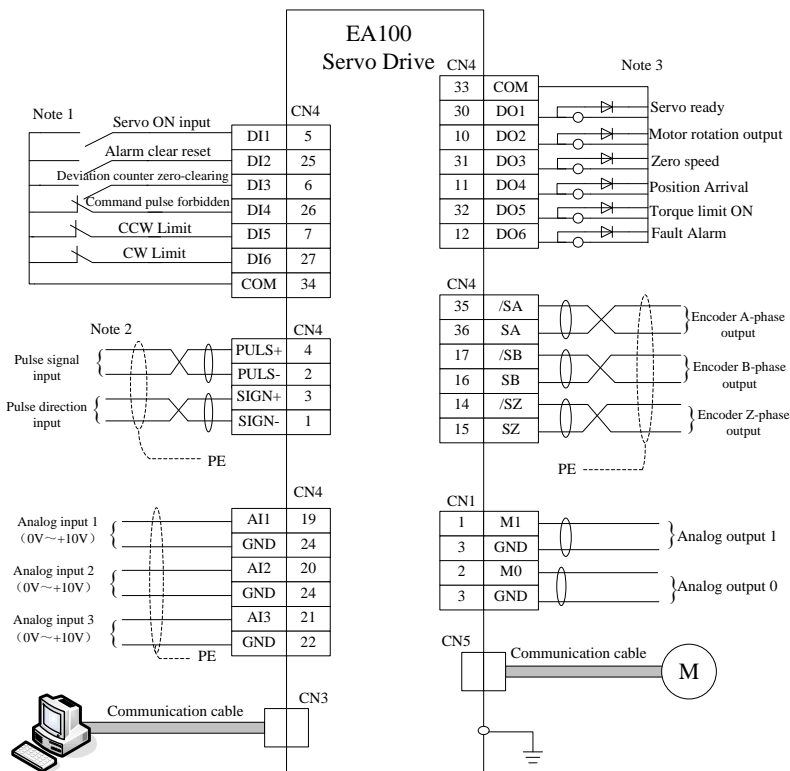
3.1.2 3-phase connection



Note 1: Make direct connection between C and DC+ (factory connected) when using internal braking resistor; disconnect C and DC+ when using external braking resistor, and connect external resistor between D and DC+.

3.2 Standard Wiring

3.2.1 Standard wiring of position mode

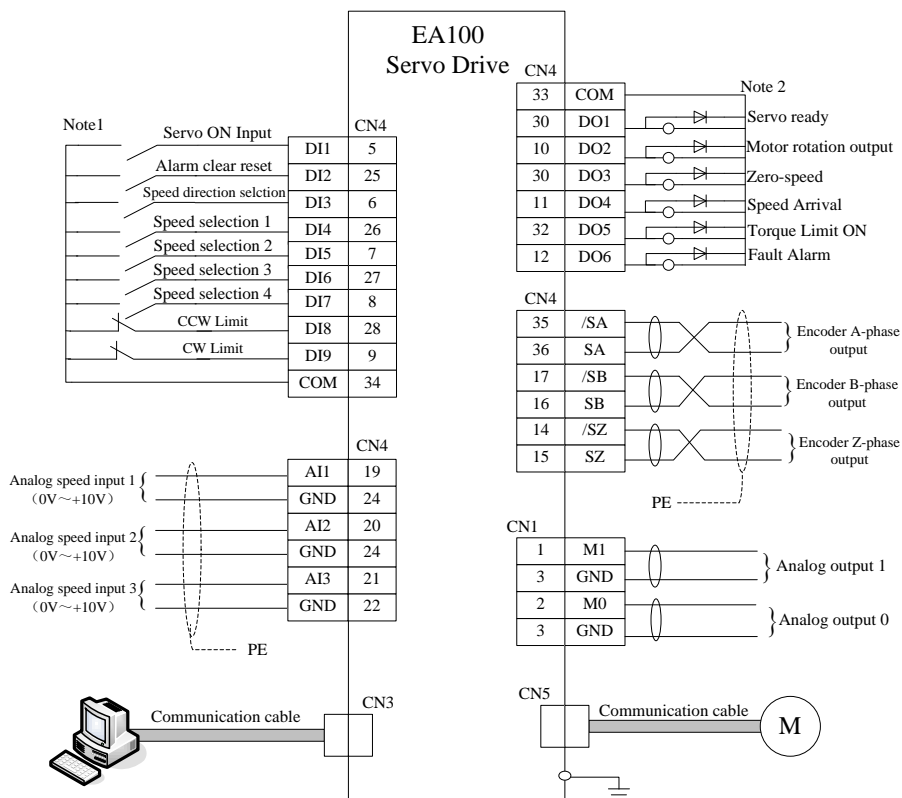


Note 1: The function and logic attribute of DI1, DI2, DI3, DI4, DI5, DI6 can be set in Function Codes.

Note 2: Pulse command type can be set as orthogonal or pulse + direction in Function Codes. The pulse signal and pulse direction showed in the above figure is orthogonal signal when setting as orthogonal. In order to prevent input pulse from interference, please be sure to make the drive grounds well.

Note 3: The function and logic attribute of DO1, DO2, DO3, DO4, DO5, and DO6 can be set in Function Codes.

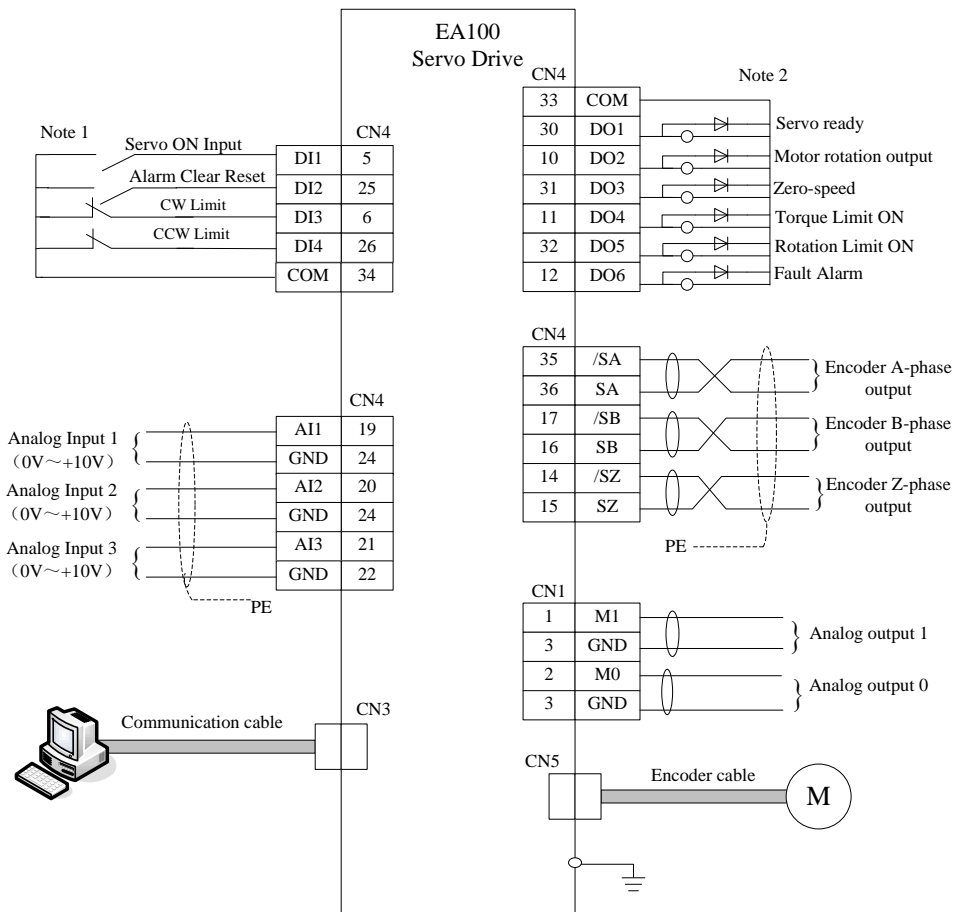
3.2.2 Standard wiring of speed mode



Note 1: The function and logic attribute of DI1, DI2, DI3, DI4, DI5, DI6, DI7, DI8, and DI9 can be set in Function Codes.

Note 2: The function and logic attribute of DO1, DO2, DO3, DO4, DO5, and DO6 can be set in Function Codes.

3.2.3 Standard wiring of torque mode

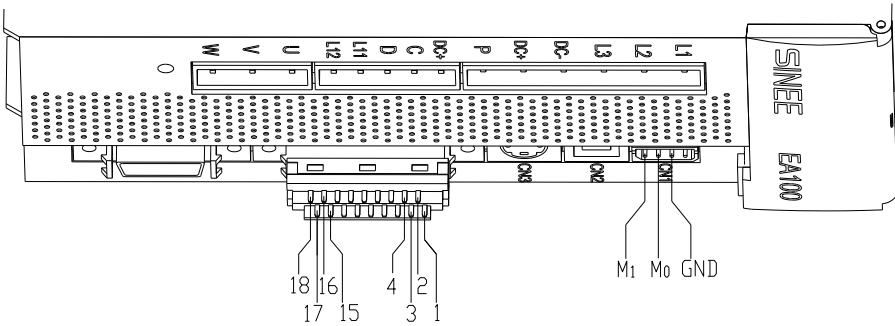


3.3 Information of Signal Line Terminals

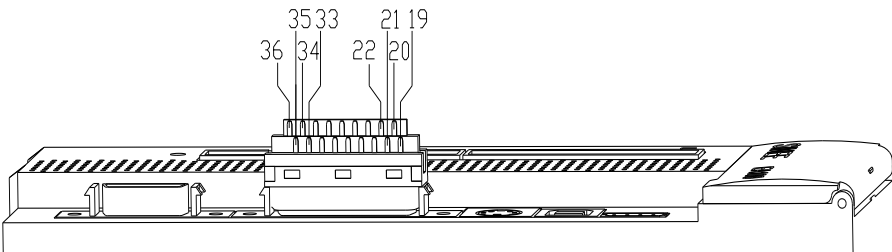
3.3.1 Correspondence between CN4 terminals and signal

1	2	3	4	5	6	7	8	9	10	11	12
SIGN-	PULS-	SIGN+	PULS+	DI1	DI3	DI5	DI7	DI9	DO2	DO4	DO6
13	14	15	16	17	18	19	20	21	22	23	24
PLC	/SZ	SZ	SB	/SB	24V	AI1	AI2	AI3+	AI3-	GND	GND
25	26	27	28	29	30	31	32	33	34	35	36
DI2	DI4	DI6	DI8	DI10	DO1	DO3	DO5	COM	COM	/SA	SA

Real 3D graphic model: please make the actual using wire rod according to the line number identification as showed in the graphic model.



In the figure above, the upper row terminals are even sequence 2, 4, 6... 16,18 from right to left, and the lower row terminals are odd sequence 1,3... 15,17 from right to left.



In the figure above, the upper row terminals are even sequence 20, 22...34,36 from right to left,

and the lower row terminals are odd sequence 19,21...33,35 from right to left.

3.3.2 Color description of control signal wires

Signal wire 1

Color	White	White/black	Red	Red/black	Green	Green/black
Signal	DI1	Analog 2	Analog 1	GND	DO1	COM

Signal wire 2

Color	White	White/black	Red	Red/black	Green	Green/black
Signal	SIGN-	SIGN+	PULS-	PULS+	DI1	COM

Signal wire 3

Color	Brown	Brown/white	Red	Red/black	Orange	Orange/black
Signal	SIGN-	SIGN+	PULS-	PULS+	DI1	DI3
Color	Yellow	Yellow/black	Green	Green/black	Blue	Blue/white
Signal	DI5	DI7	DI9	DO2	DO4	DO6
Color	Yellow/red	Purple	Purple/white	White	White/black	Pink
Signal	24V	SZ+	SZ-	SB-	SB+	GND
Color	Pink/black	Grey	Grey/black	Bright green	Bright green/black	Bright blue
Signal	Analog 2	Analog 3+	Analog 3-	GND	Analog 1	DI2
Color	Bright blue/black	White/red	White/blue	Red/white	Red/blue	Grey/red
Signal	DI4	DI6	DI8	DI10	D01	D03
Color	Grey/blue	Pink/red	Pink/blue	Green/white	Bright green/blue	--
Signal	D05	COM	COM	SA-	SA+	--

4 Panel Display and Operation

4.1 Name of Panel Components

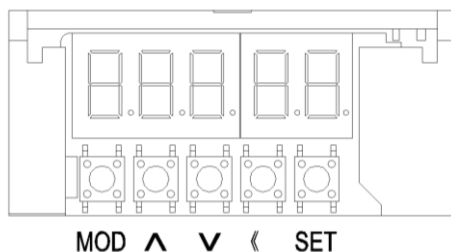


Fig 4-1 Panel cutline

Table 4-1 Description of panel components

Component	Name	Function
Digital display tube	Displayer	5-bit, 7-segment LED digital tube is used for displaying monitoring values, parameters and setting values.
MOD	MODE Key	Enter interblock mode or break away from interblock/interclass mode and parameter setting mode
《	SHIFT Key	Can be used for revising upper setting character value if the flashing character moves left in setting mode. Switchover the display between upper bit and lower bit if the displayed parameter is over 5 bits.
^	UP Key	Modify monitoring code, group number, parameter code or setting value.

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∨	DOWN Key	Modify monitoring code, group number or setting value.
SET	SET Key	Display and save setting value, enter interblock and parameter setting mode.

4.2 Process of Parameter Setting

- (1) Panel displays the default monitoring code of drive for one second, and then enters monitoring display mode when drive is powered on.
- (2) In monitoring mode, press UP or DOWN to switchover monitoring codes. Meanwhile, press SET to enter the monitoring display of the code. It will enter the monitoring display of the code automatically after one minute if no key operation.
- (3) In monitoring mode, monitoring parameter is as 32 bits, or when the value displayed is greater than 5 digits of binary number, press SHIFT key to switchover the digits displayed. When higher digits displayed, the decimal point of the highest digit LED will be lightened.
- (4) In monitoring mode, press MODE to enter parameter interblock mode, then press UP/DOWN to switchover group number, press MODE to break from interblock mode to monitoring mode.
- (5) In parameter interblock mode, press SET to enter parameter interclass mode. Press MODE to break from interclass mode to interblock mode. The flashing character will move left if pressing SHIFT, which can realize the modification of group numbers and interclass higher digits, to select required codes.
- (6) In parameter interclass mode, press SET to immediately enter parameter setting mode and display the setting value, press UP or DOWM to modify the later two digits.
- (7) In setting mode, the flashing character moves left when pressing SHIFT, and then set the higher digits through UP/DOWN.
- (8) After modification of the setting value, press SET to save codes or perform command.
- (9) After code setting, the displayer will display corresponding prompt codes such as *-End-* , and return to parameter interclass mode.
- (10) In setting mode, pressing MODE or no operation in one minute will lead to abandoning the modification of the parameter's setting value and returning to interclass mode. In other modes, no operation will also lead to returning to monitoring mode. The detailed flowchart is showed

on next page.

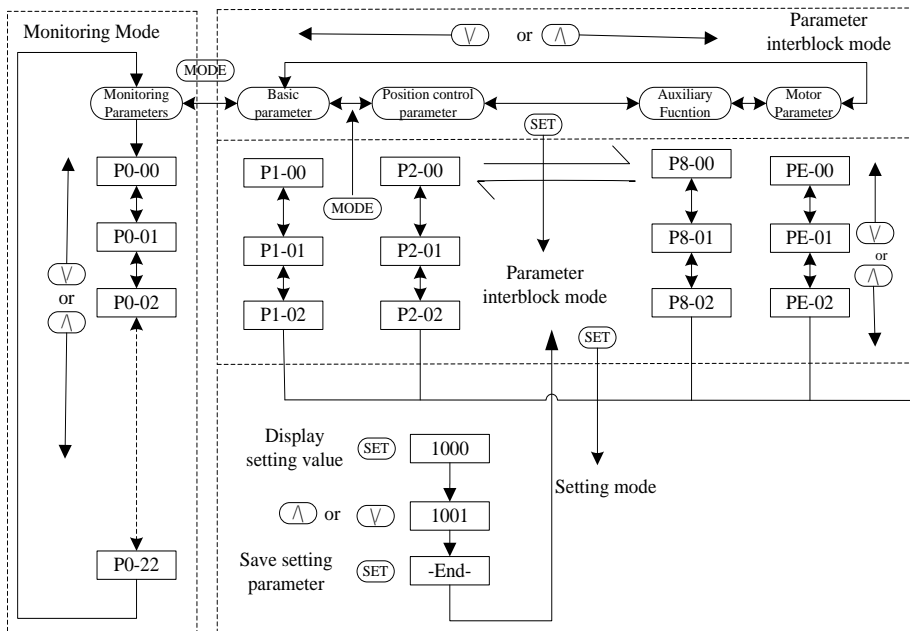


Fig 4-2 Flowchart of panel operation

4.3 Display of Memory State

Press SET Key to display the state in parameter-setting mode

Display Mark	Content Description
-End-	The setting value is saved correctly.
Po-On	The parameter is active only after power on again.
SrvOn	Parameter can not be set in starting of servo
Err-r	Read-only code, unmodifiable.
rESvd	Reserved code, unmodifiable.

4.4 Display of Fault and Alarm

Display Example	Content Description
AL.0xx	When drive malfunction occurs, the panel will display fault as the mark <i>AL.0</i> and <i>xx</i> . The range of <i>xx</i> is 01~FFH. Pressing operation button at mean time, you can see other marks. But the lowest decimal point of LED will flash until the malfunction is cleared. It will display <i>AL.---</i> when no fault or alarm.
AL.Exx	When drive alarm occurs, the panel will display alarm as the mark <i>AL.E</i> and <i>xx</i> . Pressing operation button this moment, you can see other marks. But the lowest decimal point of LED will flash until the alarm is cleared.

4.5 Display of Positive/Negative Sign

Display Example	Content Description
1528	After entering setting mode, you can press UP/DOWN to increase and decrease the displayed codes, press SHIFT to modify the carry value of the code you want to change. The carry value is displayed as flashing state at the moment.
- 528	When a code has positive/negative sign and its setting range is less than 5 digits, after operation as above, the highest character will be displayed as a minus sign, i.e., negative state.
2.4.680	When a code has positive/negative sign and its setting range is more than 4 digits, after operation as above, the lower right of the highest two

	characters will occur a dot, which means the code is in negative state.
. 23	The lower right decimal of the highest digit is lightened when displaying higher digits, which means the one displayed is a higher digit.
02468	It will display 0 when the code is a 32-bit number and its decimal value is over 5-digit number, and the highest of lower 5 digits is 0, which means there is still higher digit not displayed.

5 Function Codes

5.1 Definition of Codes

The codes are divided into 10 groups as follows. The 1st code after initial code P is a group number, and the subsequent two codes are the internal numbers. The communication address is made up of group number and internal number. The code groups are defined as follows:

P0-xx Group 0: Monitoring codes

P1-xx Group 1: Basic codes

P2-xx Group 2: Position control codes

P3-xx Group 3: Speed control codes

P4-xx Group 4: Torque control codes

P4-xx Group 5: Tuning codes

P6-xx Group 6: Input/output setting codes

P7-xx Group 7: Communication codes

P8-xx Group 8: Auxiliary function codes

PE-xx Group E: Motor codes

Code setting attributes instructions:

(○): Set at all times, effective immediately.

(●): Set at all times, effective when power on again.

(□): Set when the drive halt, effective immediately.

(■): Set when the drive halt, effective when power on again.

(▲): Read-only codes cannot be set.

Control modes instructions:

P—Position control mode

S—Speed control mode

T—Torque control mode

5.2 Codes List

Group P0 Monitoring Codes

Code	Instruction	Factory Setting	Setting Range	Unit	Attri .	Running Mode
P0-00	Display actual rotational speed of motor when running	-	-	rpm	▲	P S T
P0-01	Percentage relative to rated torque	-	-	%	▲	P S T
P0-02	Present electrical degree display	-	-	°	▲	P S T
P0-03	Display actual DI input level	-	-	-	▲	P S T
P0-04	Display DO state (ON or OFF)	-	-	-	▲	P S T
P0-05	Version number of software	-	-	-	▲	P S T
P0-06	Reserved					
P0-07	Reserved					
P0-08	Actual voltage value of AI1 sampling	-	-	mV	▲	P S T
P0-09	Actual voltage value of AI2 sampling	-	-	mV	▲	P S T
P0-10	Actual voltage value of AI3sampling	-	-	mV	▲	P S T
P0-11	Present bus voltage value	-	-	V	▲	P S T
P0-12	Effective value of present running current	-	-	A	▲	P S T
P0-13	Actual value of Iu-phase current			A	▲	P S T
P0-14	Actual value of Iv-phase			A	▲	P S T

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	current					
P0-15	Reserved					
P0-16	Present pulse command (Servo is OFF, 0 clearing)	-	-	plus	▲	P S T
P0-17	Reserved					
P0-18	Display selected malfunction code of P160	-	-	-	▲	P S T
P0-19	Rotational speed when P160 malfunction occurs	-	-	rpm	▲	P S T
P0-20	Bus voltage value when P160 malfunction occurs	-	-	V	▲	P S T
P0-21	Effective current value when P160 malfunction occurs	-	-	A	▲	P S T
P0-22~ P0-27	Reserved					
P0-28	Present output pulse Nos	-	-	plus	▲	P S T

Group P1 Basic Codes

Code	Instruction	Factory Setting	Setting Range	Unit	Attri.	Running Mode
P1-00	Control mode selections: 0: Speed control mode 1: Position control mode 2: Torque control mode 3: Speed-position switch mode 4: Torque-speed switch mode 5: Position-torque switch mode	0	0~5	-	<input type="checkbox"/>	P S T
P1-01	Position command source selections: 0: External pulse command (pt) 1: Internal multi-stage command (pr)	0	0~1	-	<input type="checkbox"/>	P
P1-02	Input modes of external pulse command : 0: Pulse + direction, positive logic 1: Pulse + direction, negative logic 2: Orthogonal, positive logic 3: Orthogonal, negative logic	0	0~3	-	<input checked="" type="checkbox"/>	P
P1-03	Multi-stage performance of internal position command selections: 0: Run from pr1 to pr16, circulate 1: Run from pr1 to pr16, not circulate	0	0~2	-	<input type="checkbox"/>	P

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	2: External Di switch					
P1-04	Reserved					
P1-05	Speed command sources: 0: Internal digital setting (P3-00 setting) 1: Analog value 1 (AI1) setting 2: Analog value 2 (AI2) setting 3: Analog value 3 (AI3) setting 4: Internal speed command switch 5: JOG (need active external DI JOG)	0	0~5	-	<input type="checkbox"/>	S
P1-06	Multi-stage speed selections: 0: Multi-stage auto-switch, circulate 1: Multi-stage auto-switch, not circulate 2: Multi-stage speed external DI switch	0	0~2	-	<input type="checkbox"/>	S
P1-07	Reserved					
P1-08	Torque command sources: 0: Internal digital setting (P4-00 setting) 1: Analog value 1 (AI1) setting 2: Analog value 2 (AI2) setting 3: Analog value 3 (AI3) setting	0	0~3	-	<input type="checkbox"/>	T
P1-09	Reserved					
P1-10						
P1-11						
P1-12	Position S-type smoothing	100	1~10000	ms	<input type="checkbox"/>	Pr

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	forward command acceleration and deceleration time constant					
P1-13	Position S-type smoothing reverse command acceleration and deceleration time constant	100	1~10000	ms	<input type="checkbox"/>	Pr
P1-14	Acceleration and deceleration smoothing time constant of position S-type smoothing curve	10	0~1000	ms	<input type="checkbox"/>	Pr
P1-15	Reserved					
P1-16	Speed S-type smoothing command acceleration time constant	100	1~10000	ms	<input type="checkbox"/>	S
P1-17	Speed S-type smoothing command deceleration time constant	100	1~10000	ms	<input type="checkbox"/>	S
P1-18	Acceleration and deceleration smoothing time constant of speed S-type smoothing curve	10	0~1000	ms	<input type="checkbox"/>	S
P1-19	Lowpass filtering smoothing time of speed command	5.0	0~1000.0	ms	<input type="checkbox"/>	S
P1-20	Analog speed command gain	3000	0~5000	rpm	<input type="checkbox"/>	S
P1-22	Lowpass smoothing constant of torque command	0	0~1000.0	ms	<input type="checkbox"/>	T
P1-23	Torque command when analog input is maximum (10V)	100	0~1000	%	<input type="checkbox"/>	T
P1-24	Reserved					
P1-25	Reserved					
P1-26	Reserved					
P1-27	Electronic gear numerator 1	1	1~32767	-	<input type="checkbox"/>	P
P1-28	Electronic gear denominator	1	1~32767	-	<input type="checkbox"/>	P

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P1-29	Electronic gear numerator 2	1	1~32767		<input type="checkbox"/>	P
P1-30	Electronic gear numerator 3	1	1~32767		<input type="checkbox"/>	P
P1-31	Electronic gear numerator 4	1	1~32767		<input type="checkbox"/>	P
P1-32	Position approach width, which will output position approach signal when deviation counter is less than the set value.	20	1~65535	Puls	<input type="checkbox"/>	P
P1-33	Position completing width, which will output position completing signal when deviation counter is less than the set value.	10	0~65535	Puls	<input type="checkbox"/>	P
P1-34	Deviation-clear action selections of external DI signal: 0: Clear through CLR rising edge. 1: Clear through CLR low level. 2: Clear through CLR high level. 3: Clear through CLR falling edge.	0	0~3	-	<input type="checkbox"/>	P
P1-35	Position deviation clear selections: 0: Clear deviation only when malfunction occurs. 1: Clear deviation when malfunction occurs and the servo is OFF. 2: Do not clear deviation.	0	0~2	-	<input type="checkbox"/>	P

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P1-36	Position deviation follows warning value	65535	10~65535	Puls	<input type="checkbox"/>	P
P1-37	Position deviation follows malfunction value	65535	1~65535	Puls	<input type="checkbox"/>	P
P1-38	Torque reaches threshold value	0	0~10.0	%	<input type="checkbox"/>	T
P1-39	Maximum rotational speed setting (over-speed setting value)	5000	0~5000	rpm	<input type="checkbox"/>	P S T
P1-40	Zero-speed signal output value	10	0~100	rpm	<input type="checkbox"/>	P S T
P1-41	Rotational signal output value	10	0~1000	rpm	<input type="checkbox"/>	P S T
P1-42	Speed approach threshold	100	10~3000	rpm	<input type="checkbox"/>	S
P1-43	Speed reaching threshold	20	1~3000	rpm	<input type="checkbox"/>	S
P1-44	Zero fixed value of analog speed command	10	0~300	rpm	<input type="checkbox"/>	S
P1-45	Reserved					
P1-46	Forward maximum torque threshold	300	0.0~300.0	%	<input type="checkbox"/>	P S T
P1-47	Reverse maximum torque threshold	300	0.0~300.0	%	<input type="checkbox"/>	P S T
P1-48	Torque-limit source selections: 0: Internal limit [P1-46、P1-47] 1: Limited by analog value 1 and P1-46, P1-47 2: Limited by analog value 2 and P1-46, P1-47 3: Limited by analog value 3 and P1-46, P1-47	0	0~3	-	<input type="checkbox"/>	P S T
P1-49 ~	Reserved					

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P1-52						
P1-53	Halt mode selections: 0: Free stop when the servo is OFF. 1: Zero-speed stop when the servo is OFF.	0	0~1	-	<input type="checkbox"/>	P S T
P1-54	Delay time after the servo is ON and before electromagnetic brake signal is open (braking removed).	100	0~500	ms	<input type="checkbox"/>	P S T
P1-55	Delay time after the servo is OFF and before electromagnetic brake signal is closed (braking started)	100	0~500	ms	<input type="checkbox"/>	P S T
P1-56	Speed command when electromagnetic brake is active	100	1~1000	rpm	<input type="checkbox"/>	P S T
P1-58 ~ P1-59	Reserved					
P1-60	Malfunction display selections: 0: The latest malfunction 1: The previous malfunction before the latest one 2: The second malfunction before the latest one 3: The third malfunction before the latest one.	0	0~3	-	<input type="checkbox"/>	P S T

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P1-61	System parameters initialization: 0: No operation 1: Clear malfunction record 2~65534: No Operation 65535: Recover factory setting (auto-reset when power on again)	0	0~ 65535	-	■	P S T
P1-62	Reserved code	0	0~ 65535	-	□	P S T
P1-63	Reserved code	0	0~ 65535	-	□	P S T

Group P2 Position Control Codes

Code	Instruction	Factory Value	Setting Range	Unit	Attri.	Running Mode
P2-00	Cycles of internal position command 1	0	-30000~ +30000	rev	□	P
P2-01	Pulses of internal position command 1	0	-9999~ +9999	Puls	□	P
P2-02	Move speed of internal position command 1	1000	1~Rated Value	rpm	□	P
P2-03	Time-lag between the completion of Pr1 and starting Pr2	1.0	0.0~3000.0	s	□	P
P2-04	Cycles of internal position command 2	0	-30000~ +30000	rev	□	P
P2-05	Pulses of internal position command 2	0	-9999~ +9999	Puls	□	P
P2-06	Move speed of internal	1000	1~Rated	rpm	□	P

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	position command 2		Value			
P2-07	Time-lag between the completion of Pr2 and entering Pr3	1.0	0.0~3000.0	s	<input type="checkbox"/>	P
P2-08	Cycles of internal position command 3	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-09	Pulses of internal position command 3	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-10	Move speed of internal position command 3	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-11	Time-lag between the completion of Pr3 and entering Pr4	1.0	0.0~3000.0	s	<input type="checkbox"/>	P
P2-12	Cycles of internal position command 4	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-13	Pulses of internal position command 4	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-14	Move speed of internal position command 4	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-15	Time-lag between the completion of Pr4 and entering Pr5	1.0	0.0~3000.0	s	<input type="checkbox"/>	P
P2-16	Cycles of internal position command 5	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-17	Pulses of internal position command 5	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-18	Move speed of internal position command 5	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-19	Time-lag between the completion of Pr5 and	1.0	0.0~3000.0	s	<input type="checkbox"/>	P

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	entering Pr6					
P2-20	Cycles of internal position command 6	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-21	Pulses of internal position command 6	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-22	Move speed of internal position command 6	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-23	Time-lag between the completion of Pr6 and entering Pr7	1.0	0.0~3000.0	s	<input type="checkbox"/>	P
P2-24	Cycles of internal position command 7	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-25	Pulses of internal position command 7	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-26	Move speed of internal position command 7	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-27	Time-lag between the completion of Pr7 and entering Pr8	1.0	0.0~3000.0	s	<input type="checkbox"/>	P
P2-28	Cycles of internal position command 8	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-29	Pulses of internal position command 8	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-30	Move speed of internal position command 8	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-31	Time-lag between the completion of Pr8 and entering Pr9	1.0	0.0~3000.0	s	<input type="checkbox"/>	P
P2-32	Cycles of internal position command 9	0	-30000~ +30000	rev	<input type="checkbox"/>	P

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P2-33	Pulses of internal position command 9	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-34	Move speed of internal position command 9	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-35	Time-lag between the completion of Pr9 and entering Pr10	1.0	0.0~3000.0	s	<input type="checkbox"/>	P
P2-36	Cycles of internal position command 10	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-37	Pulses of internal position command 10	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-38	Move speed of internal position command 10	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-39	Time-lag between the completion of Pr10 and entering Pr11	1.0	0.0~3000.0	S	<input type="checkbox"/>	P
P2-39		1.0	0.0~3000.0	s	<input type="checkbox"/>	P
P2-40	Cycles of internal position command 11	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-41	Pulses of internal position command 11	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-42	Move speed of internal position command 11	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-43	Time-lag between the completion of Pr11 and entering Pr12	1.0	0.0~3000.0	s	<input type="checkbox"/>	P
P2-44	Cycles of internal position command 12	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-45	Pulses of internal position command 12	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-46	Move speed of internal	1000	1~Rated	rpm	<input type="checkbox"/>	P

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	position command 12		Value			
P2-47	Time-lag between the completion of Pr12 and entering Pr13	1.0	0.0~3000.0	s	<input type="checkbox"/>	P
P2-48	Cycles of internal position command 13	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-49	Pulses of internal position command 13	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-50	Move speed of internal position command 13	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-51	Time-lag between the completion of Pr13 and entering Pr14	1.0	0.0~3000.0	s	<input type="checkbox"/>	P
P2-52	Cycles of internal position command 14	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-53	Pulses of internal position command 14	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-54	Move speed of internal position command 14	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-55	Time-lag between the completion of Pr14 and entering Pr15	1.0	0.0~3000.0	s		P
P2-56	Cycles of internal position command 15	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-57	Pulses of internal position command 15	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-58	Move speed of internal position command 15	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-59	Time-lag between the completion of Pr15 and	1.0	0.0~3000.0	s	<input type="checkbox"/>	P

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	entering Pr16					
P2-60	Cycles of internal position command 16	0	-30000~ +30000	rev	<input type="checkbox"/>	P
P2-61	Pulses of internal position command 16	0	-9999~ +9999	Puls	<input type="checkbox"/>	P
P2-62	Move speed of internal position command 16	1000	1~Rated Value	rpm	<input type="checkbox"/>	P
P2-63	Time-lag between the completion of Pr16 and entering Pr1	1.0	0.0~3000.0	s	<input type="checkbox"/>	P

Group P3 Speed Control Codes

Code	Instruction	Factory Value	Setting Range	Unit	Attri.	Running Mode
P3-00	Internal speed command register 1	400	-5000~ +5000	rpm	○	S
P3-01	Internal command 1 running time setting	1.0	0.1~6535.5	s	<input type="checkbox"/>	S
P3-02	Internal speed command register 2	0	-5000~ +5000	rpm	○	S
P3-03	Internal command 2 running time setting	1.0	0.1~6535.5	s	<input type="checkbox"/>	S
P3-04	Internal speed command register 3	-400	-5000~ +5000	rpm	○	S
P3-05	Internal command 3 running time setting	1.0	0.1~6535.5	s	<input type="checkbox"/>	S
P3-06	Internal speed command register 4	0	-5000~ +5000	rpm	○	S
P3-07	Internal command 4 running time setting	1.0	0.1~6535.5	s	<input type="checkbox"/>	S

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P3-08	Internal speed command register 5	800	-5000~ +5000	rpm	○	S
P3-09	Internal command 5 running time setting	1.0	0.1~6535.5	s	□	S
P3-10	Internal speed command register 6	0	-5000~ +5000	rpm	○	S
P3-11	Internal command 6 running time setting	1.0	0.1~6535.5	s	□	S
P3-12	Internal speed command register 7	-800	-5000~ +5000	rpm	○	S
P3-13	Internal command 7 running time setting	1.0	0.1~6535.5	s	□	S
P3-14	Internal speed command register 8	0	-5000~ +5000	rpm	○	S
P3-15	Internal command 8 running time setting	1.0	0.1~6535.5	s	□	S
P3-16	Internal speed command register 9	1200	-5000~ +5000	rpm	○	S
P3-17	Internal command 9 running time setting	1.0	0.1~6535.5	s	□	S
P3-18	Internal speed command register 10	0	-5000~ +5000	rpm	○	S
P3-19	Internal command 10 running time setting	1.0	0.1~6535.5	s	□	S
P3-20	Internal speed command register 11	-1200	-5000~ +5000	rpm	○	S
P3-21	Internal command 11 running time setting	1.0	0.1~6535.5	s	□	S
P3-22	Internal speed command register 12	0	-5000~ +5000	rpm	○	S

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P3-23	Internal command 12 running time setting	1.0	0.1~6535.5	s	<input type="checkbox"/>	S
P3-24	Internal speed command register 13	1600	-5000~ +5000	rpm	<input type="radio"/>	S
P3-25	Internal command 13 running time setting	1.0	0.1~6535.5	s	<input type="checkbox"/>	S
P3-26	Internal speed command register 14	0	-5000~ +5000	rpm	<input type="radio"/>	S
P3-27	Internal command 14 running time setting	1.0	0.1~6535.5	s	<input type="checkbox"/>	S
P3-28	Internal speed command register 15	-1600	-5000~ +5000	rpm	<input type="radio"/>	S
P3-29	Internal command 15 running time setting	1.0	0.1~6535.5	s	<input type="checkbox"/>	S
P3-30	Internal speed command register 16	0	-5000~ +5000	rpm	<input type="radio"/>	S
P3-31	Internal command 16 running time setting	1.0	0.1~6535.5	s	<input type="checkbox"/>	S

Group P4 Torque Control Codes

Code	Instruction	Factory Value	Setting Range	Unit	Attri.	Running Mode
P4-00	Internal digital torque command setting	100.0	-300.0~ 300.0	%	<input type="radio"/>	T
P4-01	Speed threshold value by torque control	1000	0~5000	rpm	<input type="checkbox"/>	T
P4-02	Torque speed threshold command sources: 0: P4-01 setting 1: Analog value 1 setting	0	0~3	--	<input type="checkbox"/>	T

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	2: Analog value 2 setting 3: Analog value 3 setting					
P4-03	Torque speed threshold command gain	3000	0~PE-06	rmp	<input type="checkbox"/>	T
P4-04	Torque compensation cycles	0	0~20	--	<input type="checkbox"/>	T

Group P5 Tuning Codes

Code	Instruction	Factory Value	Setting Range	Unit	Attri.	Running Mode
P5-00	Position regulator proportional gain	20.0	1.0~2000.0	Hz	○	P
P5-01	Reserved					
P5-02	Position regulator feedforward gain	0.0	0.0~100.0	%	○	P
P5-03	Position feedforward smoothing time	5	2~100	ms	○	P
P5-04	Speed regulator proportional gain	200.0	0.1~3000.0	Hz	○	S
P5-05	Speed loop integral constant	40.0	0.1~3000.0	ms	○	S
P5-06	Speed Loop Feedforward gain	0.0	0.0~100.0	%	○	S
P5-07	Reserved					
P5-08	Load-inertia Ratio = Total Inertia/Motor Inertia	1.00	0.01~50.00	%	<input type="checkbox"/>	P S T

Group P6 Input/Output Setting Codes

Code	Instruction	Factory Value	Setting Range	Unit	Attri.	Running Mode
P6-00	DI Filtering Setting	2	0~20	ms	<input type="checkbox"/>	P S T
P6-01	DI Level Logic	0	0~3FFH	-	■	P S T

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P6-02	DI1 Function No.	1	0~99	-	■	P S T
P6-03	DI2 Function No.	2	0~99	-	■	P S T
P6-04	DI3 Function No.	3	0~99	-	■	P S T
P6-05	DI4 Function No.	4	0~99	-	■	P S T
P6-06	DI5 Function No.	5	0~99	-	■	P S T
P6-07	DI6 Function No.	6	0~99	-	■	P S T
P6-08	DI7 Function No.	7	0~99	-	■	P S T
P6-09	DI8 Function No.	8	0~99	-	■	P S T
P6-10	DI9 Function No.	9	0~99	-	■	P S T
P6-11	DI10 Function No.	10	0~99	-	■	P S T
P6-12	DO Level Logic	0	0~3FH	-	■	P S T
P6-13	DO1 Function No.	1	0~99	-	■	P S T
P6-14	DO2 Function No.	2	0~99	-	■	P S T
P6-15	DO3 Function No.	3	0~99	-	■	P S T
P6-16	DO4 Function No.	4	0~99	-	■	P S T
P6-17	DO5 Function No.	5	0~99	-	■	P S T
P6-18	DO6 Function No.	6	0~99	-	■	P S T
P6-19	AI1 Bias Regulation	0	-1000~1000	mV	□	P S T
P6-20	AI2 Bias Regulation	0	-1000~1000	mV	□	P S T
P6-21	AI3 Bias Regulation	0	-1000~1000	mV	□	P S T
P6-22	AI1 Filtering Time	2	0~10000	ms	□	P S T
P6-23	AI2 Filtering Time	2	0~10000	ms	□	P S T
P6-24	AI3 Filtering Time	2	0~10000	ms	□	P S T
P6-25	AO1 Bias Regulation	0	-1000~1000	mV	□	P S T
P6-26	AO2 Bias Regulation	0	-1000~1000	mV	□	P S T
P6-27	AO1 Functional Planning 0: Motor Rotational Speed	0	0~4	-	□	P S T

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	1: Speed Command 2: Torque Command 3: Position Bias (The Electronic Gear) 4: Position Command Speed					
P6-28	AO2 Functional Planning 0: Motor Rotational Speed 1: Speed Command 2: Torque Command 3: Position Bias (The Electronic Gear) 4: Position Command Speed	1	0~4	-	<input type="checkbox"/>	P S T

Table 5-1 Digital Input (DI) Function Definition List

Input Signal Function Instruction					
Setting Value	Name	Function Name	Description	Trigger Mode	Running Mode
0	Disabled	Invalid function			
1	/S-ON	Servo Enabling	OFF-Servo motor enabling is forbidden ON-Servo motor is active when power on	Triggered by level	P S T
2	/ALM-RS T	Alarm Reset Signal	Malfunctions are divided into resettable and non-resettable.This	Triggered by edge	P S T

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			function can be used for malfunction resetting.		
3	/P-CLR	Clear of Position Control Pulse Bias Counter	The trigger mode is showed on P232 description	Triggered by edge/level	P
4	/DIR-SEL	Selection of Speed Command Direction	OFF-Default the command direction ON- Negative direction to the command	Triggered by level	S
5	CMD0	Internal Command bit0	This signal acts as Position Multi-stage Switch-over Function when in Position Control Mode, while as Speed Multi-stage Switch-over Function when in Speed Control Mode.	Triggered by level	P S
6	CMD1	Internal Command bit 1		Triggered by level	P S
7	CMD2	Internal Command bit 2		Triggered by level	P S
8	CMD3	Internal Command bit 3		Triggered by level	P S
9	CTRG	Internal Command Trigger	Trigger condition of multi-stage position	Triggered by edge	P
10	MSEL	Switch-over of Control Mode	Be used for switch-over of mixed control modes	Triggered by level	P S T
11	Reserved	Invalid function			

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12	/INHIBIT	Pulse Forbidden	ON-Command pulse input forbidden OFF-Command pulse input allowed	Triggered by level	P
13	P-OT	Forward Drive Forbidden	Enter overtravel preventing function when mechanical movement exceeds removable range. OFF-Forward drive forbidden ON-Forward drive allowed	Triggered by level	P S T
14	N-OT	Backward Drive Forbidden	Enter overtravel preventing function when mechanical movement exceeds removable range. OFF-Reverse drive forbidden ON- Reverse drive allowed	Triggered by level	P S T
15	Reserved	Invalid function			
16	Reserved	Invalid function			
17	/JOGCM D+	Forward JOG	ON-Input according to given command OFF-Stop the input of running command	Triggere d by level	S
18	/JOGCM D-	Reverse JOG	ON-Backward input according to given command OFF- Stop the input of running command	Triggere d by level	S

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19	/TDIR-SEL	Selections of Torque Command Direction	OFF-Default direction ON-Command reverse	Triggered by level	T															
20	GNUM0	Numerator Selection 0 of Electronic Gear Ratio	<table border="1"> <tr> <td>GNUM1</td> <td>GNUM</td> <td>Gear Ratio</td> </tr> <tr> <td>0</td> <td>0</td> <td>P1-27</td> </tr> <tr> <td>0</td> <td>1</td> <td>P1-29</td> </tr> <tr> <td>1</td> <td>0</td> <td>P1-30</td> </tr> <tr> <td>1</td> <td>1</td> <td>P1-31</td> </tr> </table>	GNUM1	GNUM	Gear Ratio	0	0	P1-27	0	1	P1-29	1	0	P1-30	1	1	P1-31	Triggered by level	P
GNUM1	GNUM	Gear Ratio																		
0	0	P1-27																		
0	1	P1-29																		
1	0	P1-30																		
1	1	P1-31																		
21	GNUM1	Numerator Selection 1 of Electronic Gear Ratio	Triggered by level	P																
22~99	Reserved	Invalid Function																		

Table 5-2 Digital Output Function Definition List

Function Instruction of Output Signal				
Setting Value	Name	Function Name	Description	Running Mode
0	Disable	Invalid Function		
1	/S-RDY+-	Servo is Ready	Servo state is ready, S-ON signal can be received: Active-Servo is ready Inactive-Servo is not ready	P S T
2	/BK+-	Brake Output	Output of brake signal: Active-Closed, unlocking the brake Inactive-Start the brake	P S T
3	/TGON+-	Output Signal	Output signal when servo motor rotates:	P S T

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		of Motor Rotating	Active-Motor rotating signal is active Inactive-Motor rotating signal is inactive	
4	/ZERO+-	Zero-speed Signal	Output signal when servo motor stops: Active-Rotational speed of motor is zero Inactive- Rotational speed of motor is not zero	P S T
5	/V-CLS+-	Velocity Approaching	In speed control, it is active when absolute value of the difference between servo motor speed and speed command is less than the setting value P142 of speed deviation.	S
6	/V-CMP+ -	Velocity Reaching	In speed control, it is active when absolute value of the difference between servo motor speed and speed command is less than the setting value P143 of speed deviation	S
7	/PNEAR+ -	Position Approaching	In position mode, it is active when position deviation pulse reaches the setting value of position completing width P132.	P
8	/COIN+-	Position Reaching	In position mode, it is active when position deviation pulse reaches the setting value of position completing width P133.	P

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9	/C-LT+-	Torque Limitation Signal	Confirming signal of torque limitation: Active-Motor torque is limited Inactive-Motor torque is not limited	P S
10	/V-LT+-	Rotational Speed Limitation Signal	In torque control, the confirming signal of speed limiting : Active-Motor rotational speed is limited Inactive-Motor rotational speed is not limited	T
11	/WARN+-	Output Signal of Warning	The warning output signal is conductive	P S T
12	/ALM+-	Output Signal of Malfunction	The detected malfunction state signal is effective	P S T
13	/Temp	Output Signal of Torque Reaching	Output corresponding signal when the torque reaches the setting value	T
14~99	Reserved	Invalid Function		

Table 5-3 Multi-stage (DI) Functions of Internal Speed Command

Internal Speed Command	CMD 3	CMD 2	CMD 1	CMD 0	Corresponding Code	Instruction
Spd1	0	0	0	0	P3-10	Setting speed (0~±5000)
Spd2	0	0	0	1	P3-12	Setting speed (0~±5000)
Spd3	0	0	1	0	P3-14	Setting speed (0~±5000)
Spd4	0	0	1	1	P3-16	Setting speed (0~±5000)
Spd5	0	1	0	0	P3-18	Setting speed (0~±5000)
Spd6	0	1	0	1	P3-20	Setting speed (0~±5000)

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Spd7	0	1	1	0	P3-22	Setting speed (0~±5000)
Spd8	0	1	1	1	P3-24	Setting speed (0~±5000)
Spd9	1	0	0	0	P3-26	Setting speed (0~±5000)
Spd10	1	0	0	1	P3-28	Setting speed (0~±5000)
Spd11	1	0	1	0	P3-30	Setting speed (0~±5000)
Spd12	1	0	1	1	P3-32	Setting speed (0~±5000)
Spd13	1	1	0	0	P3-34	Setting speed (0~±5000)
Spd14	1	1	0	1	P3-36	Setting speed (0~±5000)
Spd15	1	1	1	0	P3-38	Setting speed (0~±5000)
Spd16	1	1	1	1	P3-40	Setting speed (0~±5000)

Table 5-4 Multi-stage (DI) Functions of Internal Position Command

Pr Command	CM D3	CM D2	CM D1	CM D0	CTR G	Corresponding Code	Instruction	Speed Setting
Pr1	0	0	0	0	↑	P2-00 P2-01	Cycles (0~±30000) Pulses(0~±9999)	P2-02
Pr2	0	0	0	1	↑	P2-04 P2-05	Cycles (0~±30000) Pulses(0~±9999)	P2-06
Pr3 Pr3	0 0	0 0	1 1	0 0	↑ ↑	P2-08 P2-09	Cycles (0~±30000) Pulses(0~±9999)	P2-10 P2-10
Pr4	0	0	1	1	↑	P2-12 P2-13	Cycles (0~±30000) Pulses(0~±9999)	P2-14
Pr5	0	1	0	0	↑	P2-16 P2-17	Cycles (0~±30000) Pulses(0~±9999)	P2-18

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Pr6	0	1	0	1	↑	P2-20 P2-21	Cycles (0~±30000) Pulses(0~±9999)	P2-22
Pr7	0	1	1	0	↑	P2-24 P2-25	Cycles (0~±30000) Pulses(0~±9999)	P2-26
Pr8	0	1	1	1	↑	P2-28 P2-29	Cycles (0~±30000) Pulses(0~±9999)	P2-30
Pr9	1	0	0	0	↑	P2-32 P2-33	Cycles (0~±30000) Pulses(0~±9999)	P2-34
Pr10	1	0	0	1	↑	P2-36 P2-37	Cycles (0~±30000) Pulses(0~±9999)	P2-38
Pr11	1	0	1	0	↑	P2-40 P2-41	Cycles (0~±30000) Pulses(0~±9999)	P2-42
Pr12	1	0	1	1	↑	P2-44 P2-45	Cycles (0~±30000) Pulses(0~±9999)	P2-46
Pr13	1	1	0	0	↑	P2-48 P2-49	Cycles (0~±30000) Pulses(0~±9999)	P2-50
Pr14	1	1	0	1	↑	P2-52 P2-53	Cycles (0~±30000) Pulses(0~±9999)	P2-54
Pr15	1	1	1	0	↑	P2-56 P2-57	Cycles (0~±30000) Pulses(0~±9999)	P2-58

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Pr16	1	1	1	1	↑	P2-60 P2-61	Cycles (0~±30000) Pulses(0~±9999)	P2-62
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Group P7 Communication Codes

Code	Instruction	Factory Value	Setting Range	Unit	Attri.	Running Mode
P7-00	Station No. setting	1	1~254	-	○	P S T
P7-01	Communication transfer rates 0: 4800; 1: 9600; 2: 19200; 3: 38400; 4: 57600;	1	0~4	bps	○	P S T
P7-02	Communication data formats 0: No check 1+8+N+1; 1: Odd check 1+8+O+1; 2: Even check 1+8+E+1; 3: No check 1+8+N+2; 4: Odd check 1+8+O+2; 5: Even check 1+8+E+2;	0	0~5	-	○	P S T

Group P8 Auxiliary Function Codes

Code	Instruction	Factory Value	Setting Range	Unit	Attri.	Running Mode
P8-00	Software resetting: 0: No operation; 1: System software resets automatically once performing.	0	0~1	-	□	P S T

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P8-01	Malfunction Resetting 0: No operation; 1: Malfunction resets automatically once performing.	0	0~1	-	□	P S T
P8-02	JOG Function(when pilot run) Enter the function code, press UP, and then the motor will rotate forward at P803 setting value and stop if the button is loosened, press Down, and then the motor will reverse at P803 setting value and stop if it is loosened. Press MODE to leave this function code, so JOG is inactive.	JOGEN	-	-	□	P S T
P8-03	JOG speed setting	100	0~3000	rpm	○	P S T
P8-04	Reserved					
P8-05	Internal SON commands 0: Internal servo ON inactive, auto-reset after power-on 1: Enable internal servo ON	0	0~1	-	○	P S T
P8-06	Reserved					
P8-07	Reserved					
P8-08	Overheating warning point of drive	70	40~ P8-09	℃	■	P S T
P8-09	Overheating malfunction point of drive	80	P8-08~ 100	℃	■	P S T
P8-10	Fan detecting selections	0	0~1	-	○	P S T

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	0: Fan malfunction detecting 1: No detecting					
P8-11	Fan control selections 0: Fans run when the servo is ON in malfunction and the temperature is greater than 40° C; 1: Fans run when power-on.	0	0~1	-	○	P S T
P8-12	Drive warning setting	80	20~100	%	○	P S T
P8-13	Motor overload warning setting	80	20~100	%	○	P S T
P8-14	Son requirements selections of each stop mode 0: Free-stop, start Son according to requirements P8-15 1: Free-stop and zero-stop are selected at the same time	0	0~1	-	□	P S T
P8-15	Son requirements: 0: Start Son according to the time condition (P8-16) after Soff; 1: Start according to speed condition(P8-17); 2: Start according to time and speed conditions; 3: ON immediately.	0	0~3	-	□	P S T
P8-16	Valid required time-lag of Son after Soff	5.00	0.01~300.00	S	□	P S T
P8-17	Active speed setting of Son	20	0~Rated	rpm	□	P S T

Group PE Motor Parameters

Code	Instruction	Factory Value	Setting Range	Unit	Attri.	Running Mode
PE-00	Manufacturer Parameters	0	0~65535	-	<input type="checkbox"/>	P S T

Note: Reserved codes are invisible.

6 Malfunction Codes

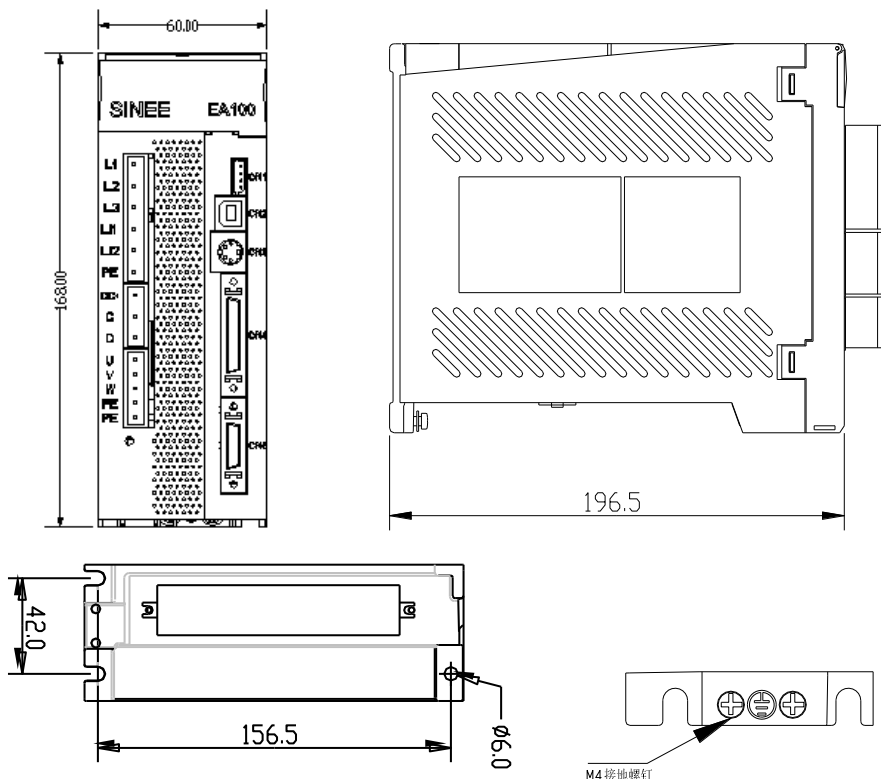
Marks	Name	Malfunction Actions	Type
Malfunctions			
■■■■	Hardware Protection	Detected short-circuit protection of power components	Nonresttable
■■■■	HOC	Detected over-current protection of power components	Nonresttable
■■■■	AD Initialization Fault	Initial revision fault of AD modules	Nonresttable
■■■■	Abnormal Code Storage	EEPROM storage is abnormal or frequent	Nonresttable
■■■■	Abnormal System Parameters	It acts when parameters exceed normal range.	Nonresttable
■■■■	AD Sampling Module Fault	AD translation exception (deviation oversize or translation overtime)	Nonresttable
■■■■	Encoder Abnormality 1	Encoder breaks line.	Nonresttable
■■■■	Encoder Abnormality 2	Abnormal running.	Nonresttable
■■■■	Encoder Abnormality 3	Abnormal running.	Nonresttable
■■■■	Undervoltage	The bus voltage is under 200V when power supply is 220V.	Resettable

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■	Overvoltage	The bus voltage is over 400V when power supply is 220V.	Resettable
■	Overcurrent	Output current of servo drive is over its permitted range.	Nonresettable
■	Motor Overload	Exceed certain time when motor is over 120% of rated load	Resettable
■	Drive Overload	Exceed certain time when drive is over 110% of rated load	Resettable
■	Motor Overheat	The temperature of motor exceeds motor's permitted value.	Resettable
■	Drive Overheat	Drive is overheated.	Resettable
■	Fan Abnormality	Fan breaks line or stalls.	Resettable
■	Overspeed	Motor's rotational speed exceeds its maximum value.	Resettable
■	Over-deviation of Position	Retention pulse in deviation counter exceeds its permitted range.	Resettable
Warning			
■	Motor Overheat Warning	Motor's temperature will reach the overheat threshold.	LED display is auto-cleared after warning is cleared up.
■	Drive Overheat Warning	Temperature of drive's major loop will reach its overhead threshold.	
■	Motor Overload Warning	The overload inverse time limit curve of motor will reach.	
■	Drive Overload Warning	The overload inverse time limit curve of drive will reach.	
■	Over-deviation of Position Warning	DC retention pulse in deviation counter exceeds the warning range.	

7 Appearance and Dimensions

7.1 Appearance and dimensions of EA100 series servo drive

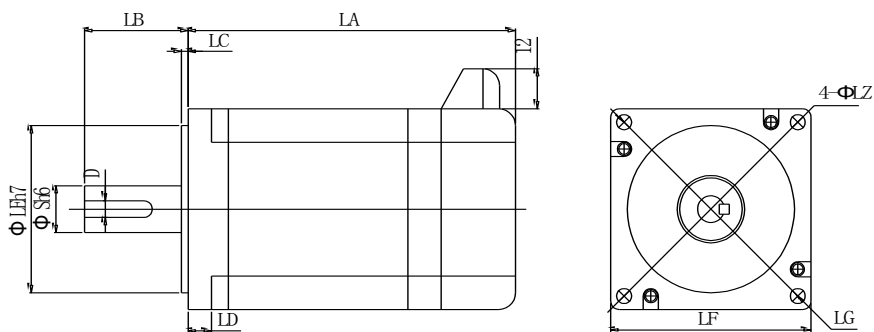


Notes: 1) The unit of mechanical dimensions is *mm*; and the weight's unit is *kg*.

2) The mechanical dimensions and weight are subject to change without notice.

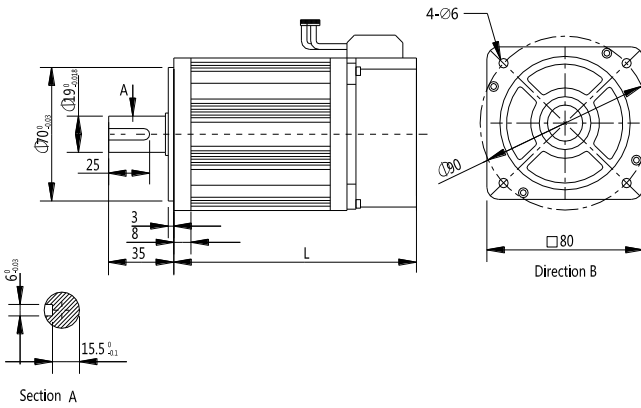
7.2 Dimensions of Motor

Installation dimensions of 60 series servo motor: Unit (mm)



Model	60S0R230B	60S0R230BB	60S0R430B	60S0R430BB	60S0R630B	60S0R630BB
LA	98	138	123	163	148	188
LB	31	31	31	31	31	31
LC	3	3	3	3	3	3
LD	8	8	8	8	8	8
LE	50	50	50	50	50	50
LF	60	60	60	60	60	60
LG	70	70	70	70	70	70
LZ	4.5	4.5	4.5	4.5	4.5	4.5
S	14	14	14	14	14	14
D	5	5	5	5	5	5

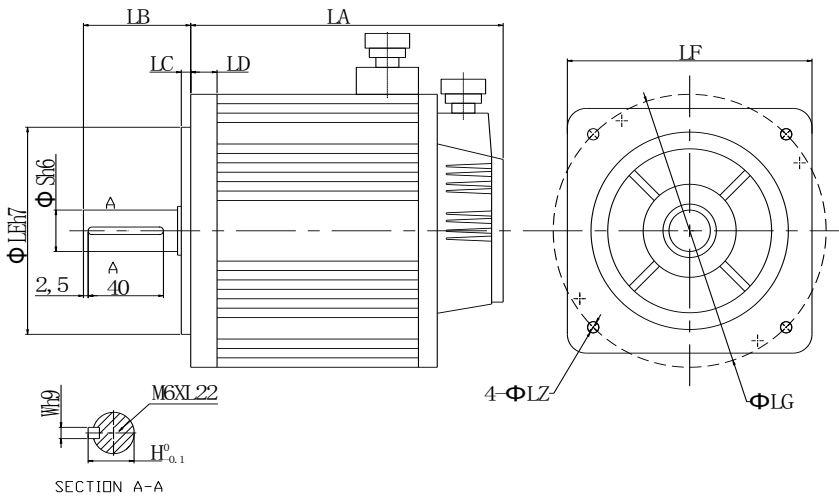
Installation dimensions of 80 series servo motor: Unit (mm)



Model	80S0R730B	80S0R730BB	80S1R025B	80S1R025BB
L	150	206	190	246

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Installation dimensions of 130 series servo motor: Unit (mm)



Model	130S1R010A	130S1R010AB	130S1R010B	130S1R010BB
LA	213	270	213	270
LB	57	57	57	57
LC	5	5	5	5
LD	14	14	14	14
LE	110	110	110	110
LF	130	130	130	130
LG	145	145	145	145
LZ	9	9	9	9
S	22	22	22	22
H	24.5	24.5	24.5	24.5
W	6	6	6	6