TABLE OF CONTENTS

Chapter 1 Product Information

1.1 Servo drive

1.1.1 Drive nameplate description

Model Description:

Model: SD300 P – 2S – 3R0

Product series

SD300: SD300 series servo drive

Product type

P: pulse type
N: bus type (EtherCAT)

Input voltage

2S: 2 phase 220V input
2T: 3 phase 220V input
4T: 3 phase 380V input

Rated output current

3R0: 3.0A
5R5: 5.5A
7R6: 7.6A
5R4: 5.4A
8R5: 8.5A
012: 12A
017: 17A
021: 21A
...

1.1.2 Drive model list

Size	Specifications and models	Input voltage	Optional motor power KW	Rated current (A)
A	SD300P-2S-1R8	Single phase 220V	0.2	1.8
	SD300P-2S-3R0		0.4	3
	SD300P-2S-5R5		0.75	5.5
B	SD300P-2T-7R6	Three-phase 220V	1	7.6
	SD300P-4T-5R4	Three-phase 380V	1.5	5.4
C	SD300P-2T-012	Three-phase 220V	1.5	12
	SD300P-4T-8R5	Three-phase 380V	2	8.5
	SD300P-4T-012		3	12
D	SD300P-4T-017	Three-phase 380V	5	17
	SD300P-4T-021		6	21
	SD300P-4T-025		7.5	25

<div align="center">Pulse type</div>

1.1.3 Drive product size

◆ Dimensional diagram:
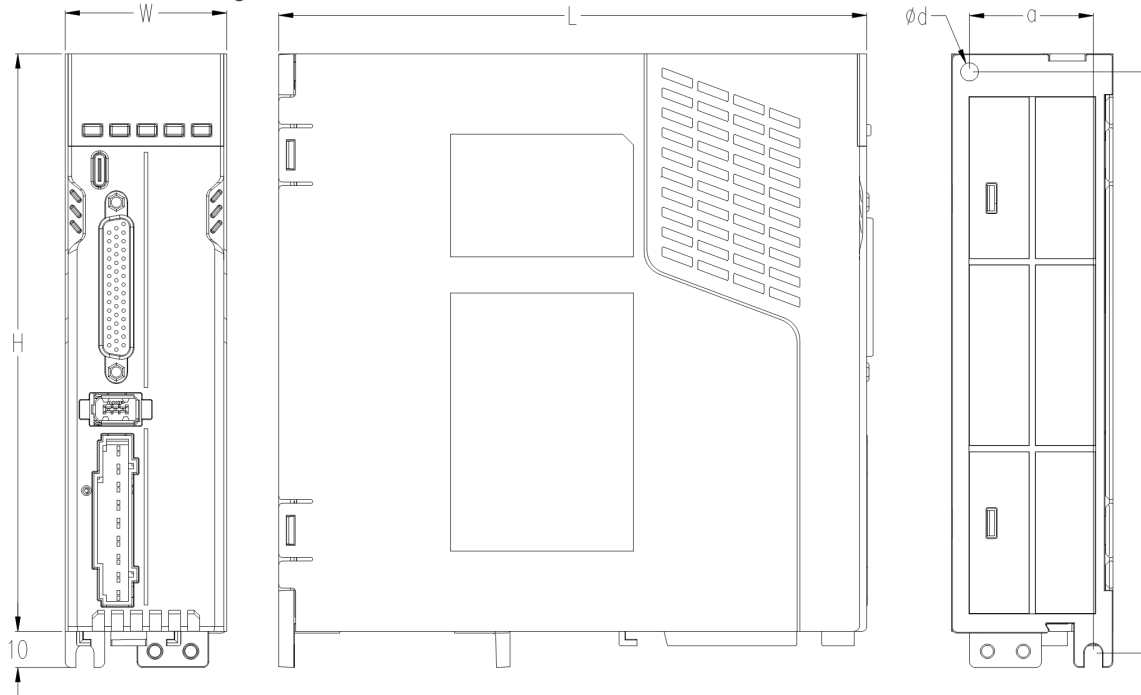
◆ Size Chart

Size	Product size (mm)					
	L	W	H	a	b	d
A	166	45	160	34.5	161	5
B	172	66	167	54.5	157.2	5
C	170	83	167	71.5	157.2	5
D	230	85	250	73.5	240.2	5.5

3

1.2 Servo motor

1.2.1 Motor nameplate description

FRECON AC SERVO MOTOR
MODEL : F1M-75A30L2-A180
Tn : 2.39N.m Pn : 0.75kw
In : 4.4A   nN : 3000rpm
FRECON ELECTRIC(SHENZHEN)CO.,LTD.
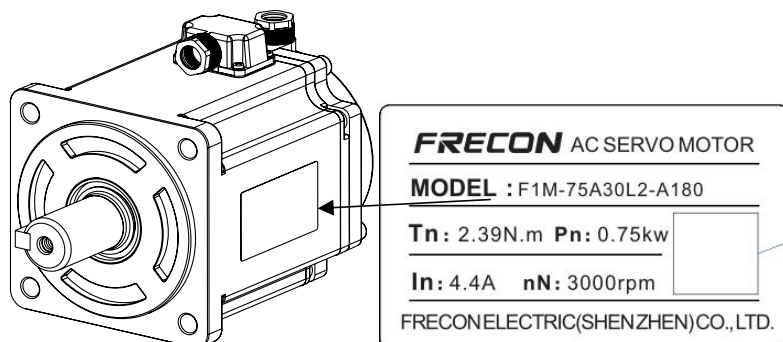
◆ Model Description:

F1 M – 40A 30 L 1 – A3 60
① ②   ③   ④ ⑤ ⑥   ⑦ ⑧

①Product Series
F1: F1 series motor
F2: F2 series motor

②Rotor inertia
H: high inertia
M: medium inertia
S: low inertia

③Rated power(W)
A: x 10
B: x 100
For example:
40A=400W...............

④Rated speed(Rpm)
15 = 1500rpm
20 = 2000rpm
25 = 2500rpm
30 = 3000rpm

⑤Input voltage
L: AC220V
H: AC380V

⑥Brake
1: Without brake
2: With brake

⑦Encoder type
A: Magnetic Encoder,
B: Optical Encoder

1: 17-bit Absolute Value Single-turn
2: 17-bit Absolute Value Multi-turn
3: 23-bit Absolute Value Single-turn
4: 23-bit Absolute Value Multi-turn

⑧Motor flange
40:40 flange
60:60 flange
80:80 flange
13:130 flange

1.2.2 Motor model list

Motor specifications and models	Rated output kW	Voltage	Rated torque N.m	Rated current A	Rated speed/maximum speed rpm
F1M-20A30L□-B460	200W	220V	0.64	1.7	3000/6000
F1M-40A30L□-B460	400W	220V	1.27	2.5	3000/6000
F1M-60A30L□-B460	600W	220V	1.91	3.6	3000/6000
F1M-75A30L□-B480	750W	220V	2.39	4.4	3000/6000
F1M-10B30L□-B480	1000W	220V	3.18	5.8	3000/6000
F1M-85A15L□-B413	850W	220V	5.41	4.6	1500/3000
F1M-85A15H□-B413	850W	380V	5.41	3.1	1500/3000
F1M-13B15L□-B413	1300W	220V	8.28	7.7	1500/3000
F1M-13B15H□-B413	1300W	380V	8.28	5.1	1500/3000
F1M-18B15L□-B413	1800W	220V	11.46	9.8	1500/3000

Motor model table continued:

Motor specifications and models	Rated output kW	Voltage	Rated torque N.m	Rated current A	Rated speed/maximum speed rpm
F1M-18B15H□-B413	1800W	380V	11.46	6.3	1500/3000
F1M-23B15L□-B413	2300W	220V	14.64	12.4	1500/3000
F1M-23B15H□-B413	2300W	380V	14.64	8.5	1500/3000
F1M-30B15H□-B413	3000W	380V	14.64	8.5	1500/3000
F1M-30B15H□-B418	3000W	380V	19.1	11.6	1500/3500
F1M-45B15H□-B418	4500W	380V	28.65	16.6	1500/3500
F1M-55B15H□-B418	5000W	380V	35	21.4	1500/3500
F1M-75B15H□-B418	7500W	380V	47.76	26.7	1500/3500

1.3 Cable

1. 3.1 Power cable model description

```
LPG  -  0   075   0 - 3.0  -  G
 ①       ②    ③    ④    ⑤       ⑥
```

①Motor power cable
   LPG: General 4-core power
   LPB: Power cable with brake

②Drive Side Plug Type
   0: U-shaped type terminal
   1: Needle type terminal

③Wire diameter(mm²)
   050: 0.5
   075: 0.75
   100: 1.0
   150: 1.5
   250: 2.5
   ....

④Motor side plug type
   0: 4-core Amp head
   1: SC-MC6S (Gecko Head)
   2: 6P-core aviation head

⑤Cable length
   3.0: 3m
   5.0: 5m
   10.0: 10m
   ....

⑥Cable type
   G: General Cable
   H: Super High-flex Cable(Bend endurance over 10 million cycles)

1.3.2 Encoder cable model description

```
LEG  -  0   0 - 3.0  -  G
 ①       ②   ③    ④       ⑤
```

①Encoder cable
   LEG : Universal absolute encoder cables
   LEB : Battery-powered absolute encoder cables

②Drive side plug type
   0:1394 plug
   1:DB15 plug
   2:DB9 plug

③Motor side plug type
   1:SC-MC7S (Gecko Head)
   2:10P-core aviation plug

④Cable length
   3.0 : 3m
   5.0 : 5m
   10.0: 10m
   ...

⑤Cable type
   G: General Cable
   H: Super High-flex Cable
   (Bend endurance over 10 million cycles)

Chapter 2 Terminals and Wiring

2.1 System wiring diagram

SD300P-2S series use single-phase 220V (L1, L2):
SD300P-2T series use three-phase 220V (L1, L2, L3):
SD300P-4T series use three-phase 380 V (L1, L2, L3):
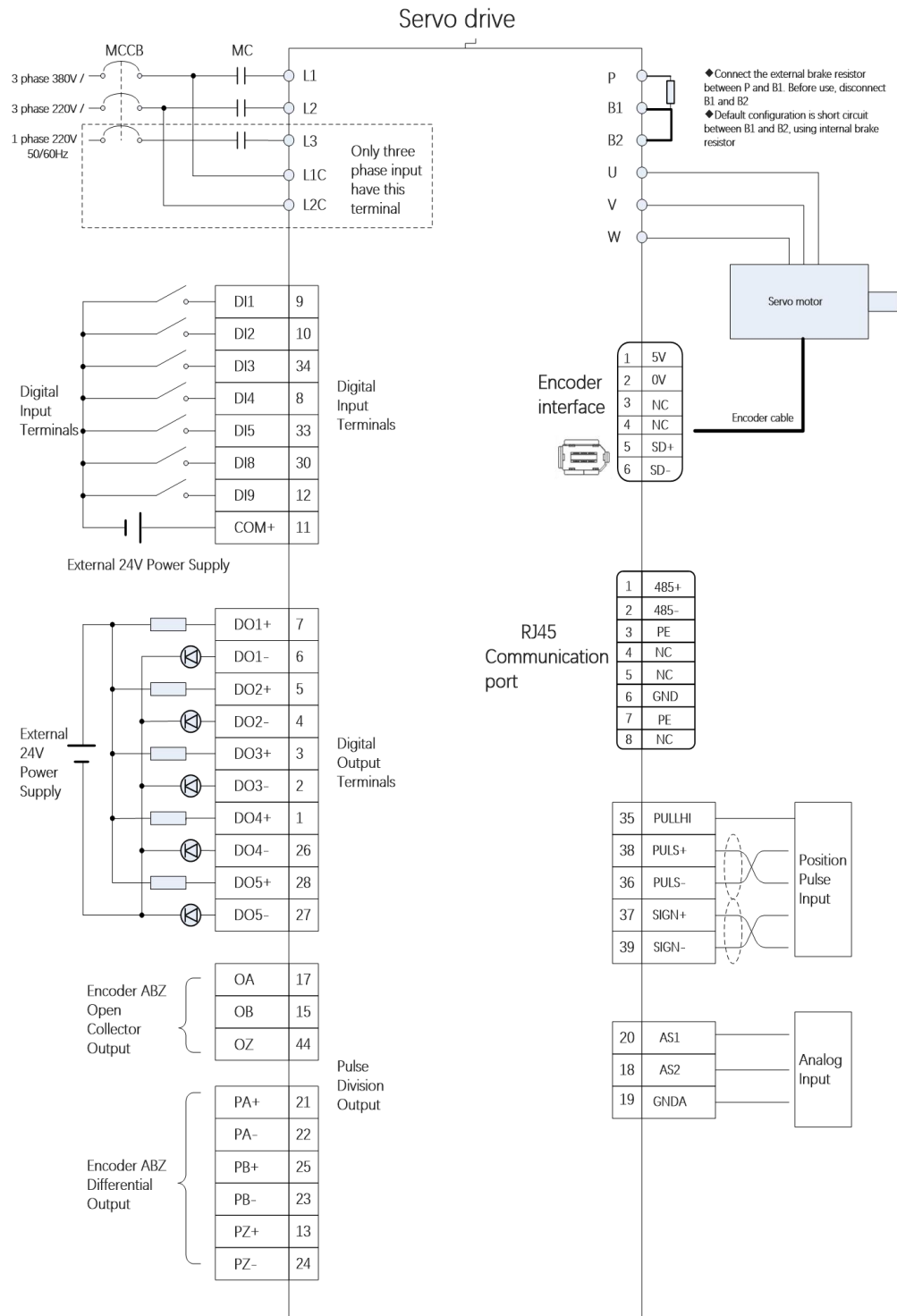
2.2 Terminal distribution and description

RJ45

1	485+
2	485-
3	PE
4	NC
5	NC
6	GND
7	PE
8	NC

TYPE-C

Encoder interface

1	5V
2	0V
3	PE
4	SD+
5	SD-
6	NC
7	NC

Main circuit terminal

L1
L2
P
B1
B2
U
V
W
PE

Control terminal

2.2.1 Main circuit terminals

L1
L2
P
B1
B2
U
V
W
PE

Single-phase 220V main circuit terminals

L1C
L2C
L1
L2
L3
P+
B1
B2
N-

U
V
W
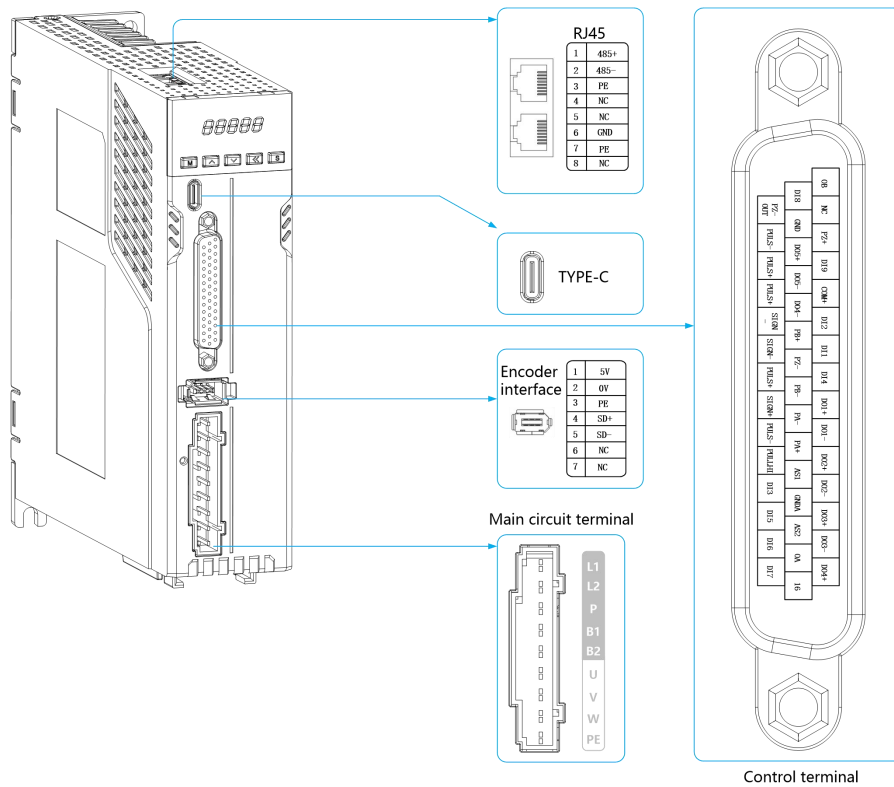
Three-phase 380/220V main circuit terminals
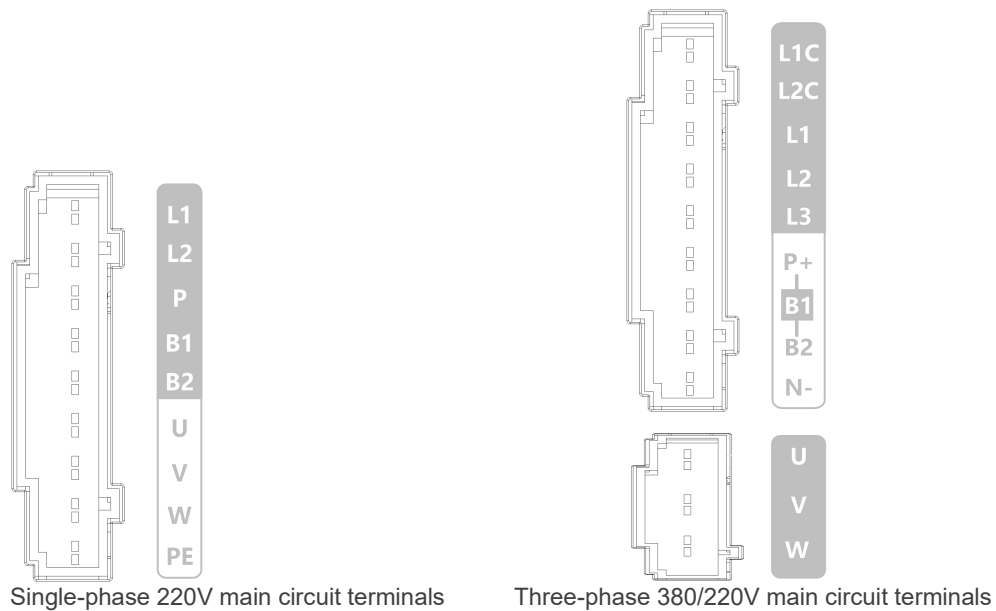
Terminal function description:

Name	Terminal symbol	Model	Detailed description
The main circuit Power terminal	L1, L2	SD300P-2S	To connect external AC power: Single phase 220VAC -15% ~ +10%50/60Hz
	L1, L2, L3	SD300P-2T	To connect external AC power: Three-phase 220VAC -15% ~ +10% 50/60Hz
	L1, L2, L3	SD300P-4T	To connect external AC power: Three phase 380 VAC -15% ~ +10% 50/60Hz
Brake resistor terminals	P, B1, B2	SD300P-2S SD300P-2T SD300P-4T	Connect the external brake resistor between P and B1. Before use, disconnect B1 and B2. Default configuration is short circuit between B1 and B2, use internal brake resistor.
Motor connection terminal	U ,V,W	SD300 all series	Output to motor U VW power

◆ The factory default connection method of internal brake resistor: B1 and B2 are short-circuited.

2.2.2 Control terminal

Control terminal diagram:

15	14	13	12	11	10	9	8	7	6	5	4	3	2	1

30	29	28	27	26	25	24	23	22	21	20	19	18	17	16

44	43	42	41	40	39	38	37	36	35	34	33	32	31

OB	NC	PZ+	DI9	COM+	DI2	DI1	DI4	DO1+	DO1−	DO2+	DO2−	DO3+	DO3−	DO4+

DI8	GND	DO5+	DO5−	DO4−	PB+	PZ−	PB−	PA−	PA+	AS1	GNDA	AS2	OA	NC

PZ−OUT	PULS−	PULS+	PULS+	SIGN−	SIGN−	PULS+	SIGN+	PULS−	PULLHI	DI3	DI5	NC	NC
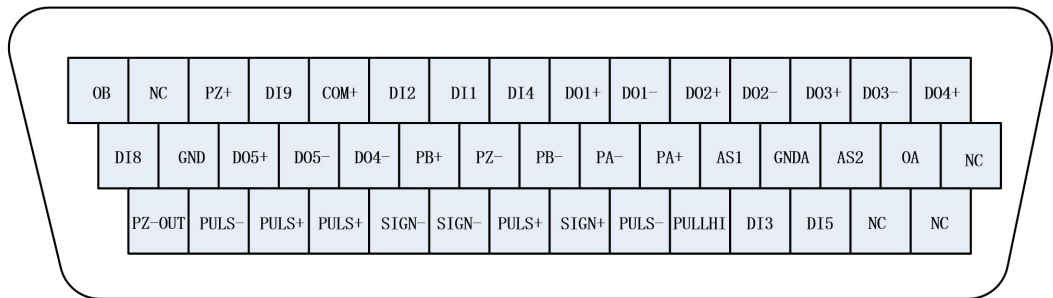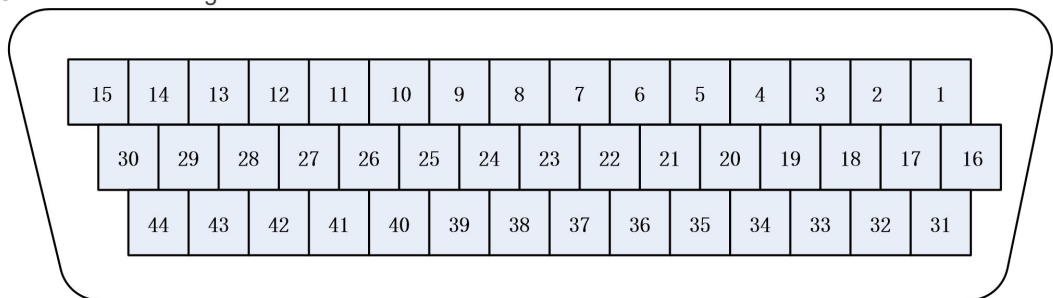
Terminal function description :

| Signal name		Pin number	Terminal description	Function Description
Universal digital input	DI1	9	Numeric input 1	Universal digital input terminal, COM+ is the input common terminal and needs to be used with an external 24V power supply. ◆If DI is low (0V) and valid, COM+ is connected to the external DC power supply (12V~24V); ◆If DI is high (12V~24V) and valid, then COM+ is connected to the corresponding signal reference ground
	DI2	10	Numeric input 2	
	DI3	34	Numeric input 3	
	DI4	8	Numeric input 4	
	DI5	33	Numeric input 5	
	DI8	30	Numeric input 8	
	DI9	12	Numeric input 9	
	COM+	11	Digital input common	
Universal digital output	DO1+, DO1-	7, 6	Digital output 1±	Universal digital output terminal ◆During PNP output, DOx+ is connected to the external power supply (12V~24V) and DOx- is connected to the positive terminal of the load. ◆When NPN is output, DOx- is connected to the corresponding signal reference ground, and DOx+ is connected to the negative terminal of the load.
	DO2+, DO2-	5, 4	Digital output 2±	
	DO3+, DO3-	3, 2	Digital output 3±	
	DO4+, DO4-	1, 26	Digital output 4±	
	DO5+, DO5-	28, 27	Digital output 5±	
Encoder signal input	PULS+	38/41	Pulse input positive	◆As a position command input terminal (valid only in position mode); ◆Input frequency: Low speed: 500KHz (differential), 200kHz (collector). High speed: differential mode 4M ◆High/low speed can be switched through F05.01
	PULS-	36/43	Pulse input negative	
	SIGN+	37/42	Direction input is positive	
	SIGN-	39/40	Direction input negative	
	PULLHI	35	Pulse input common terminal	
Encoder signal output	PA+, PA-	21, 22	Encoder A phase differential output	◆The output A-phase pulse and B-phase pulse are still orthogonal. During forward rotation, phase A leads B phase by 90°, and during reverse rotation, B phase leads phase A by 90°; ◆Can be divided by any integer; ◆The output signal is not isolated.
	PB+, PB-	25, 23	Encoder B-phase differential output	
	PZ+, PZ-	13, 24	Encoder Z phase differential output	
	OA	17	Encoder A phase open drain output	Output the open-drain signal of A phase without isolation.
	OB	15	Encoder B phase open drain output	Output B phase open-drain signal without isolation.
	OZ	44	Encoder Z phase open drain output	Output the Z-phase open-drain signal without isolation.
Analog input	AS1	20	Analog input 1	Its output function definition can be set, and its range and offset settings can be set.
	AS2	18	Analog input 2	
	GNDA	19	Analog signal ground	
other	GND	29	internal power ground	internal power ground

2.3 Terminal wiring

2.3.1 Universal input terminal wiring

Take DI 1 as an example: the interface circuits from DI 2 to DI9 are the same
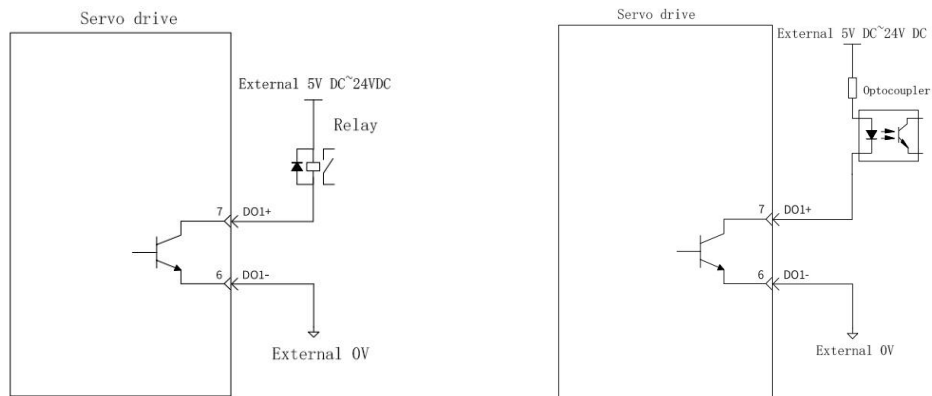
◆ Universal wiring:

Common anode wiring Common cathode wiring
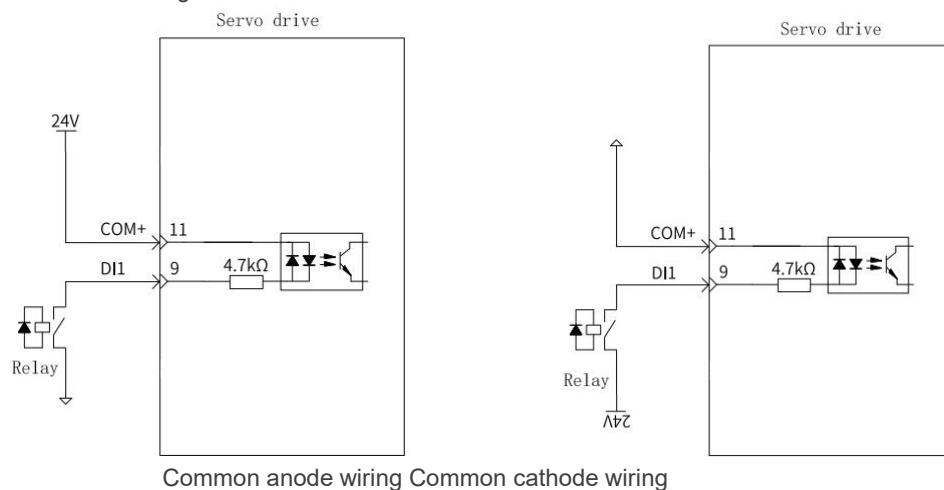
◆ When the upper device is collector output, the wiring diagram is as follows:
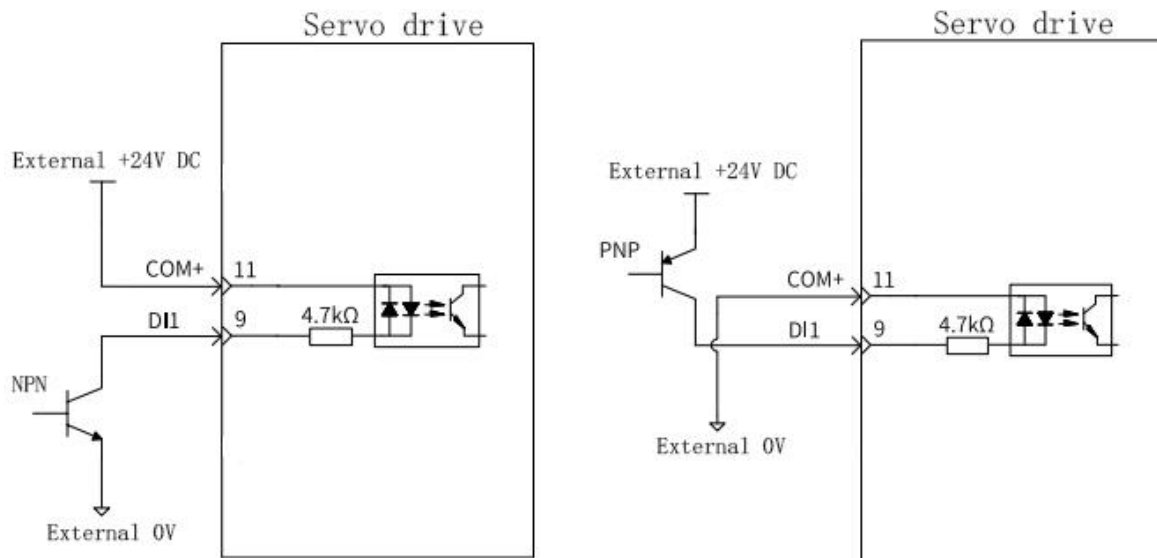
Note: Mixed use of PNP and NPN inputs is not supported .
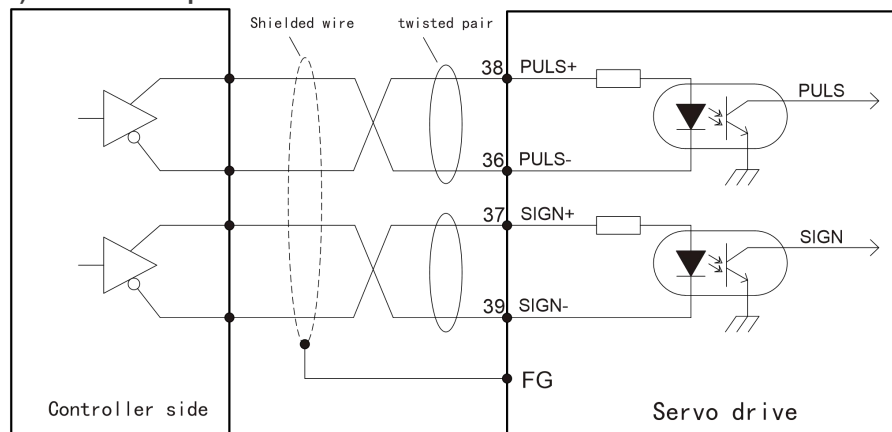
2.3.2 Universal output terminal wiring

Take DO1 as an example: the electrical circuits of the DO2 to DO5 interfaces are the same.

The upper device is a relay. The upper device is an optocoupler input.
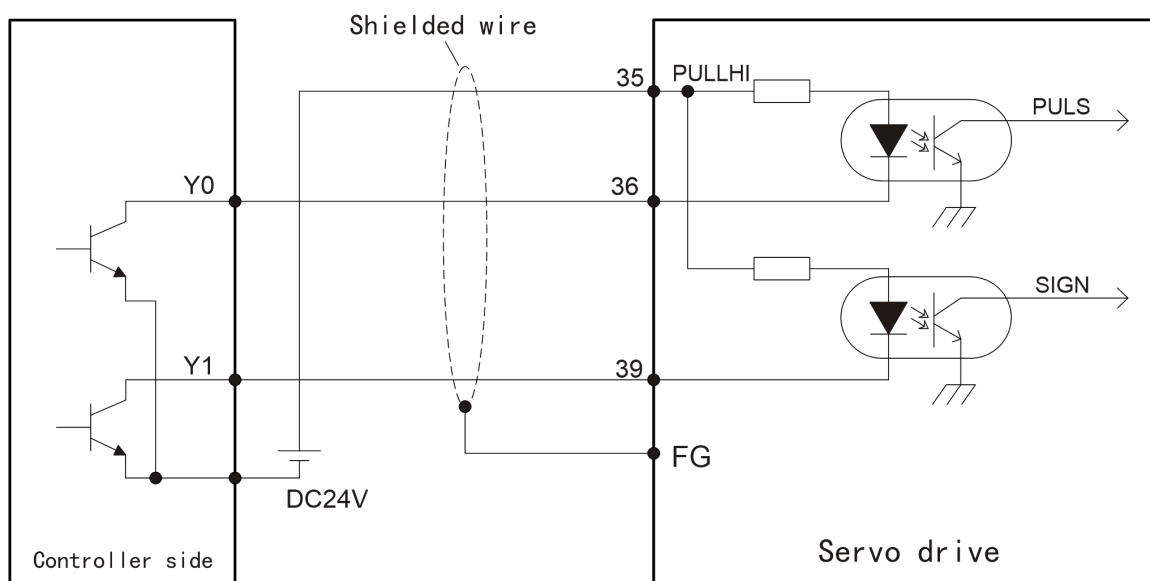
2.3.3 pulse input terminal wiring
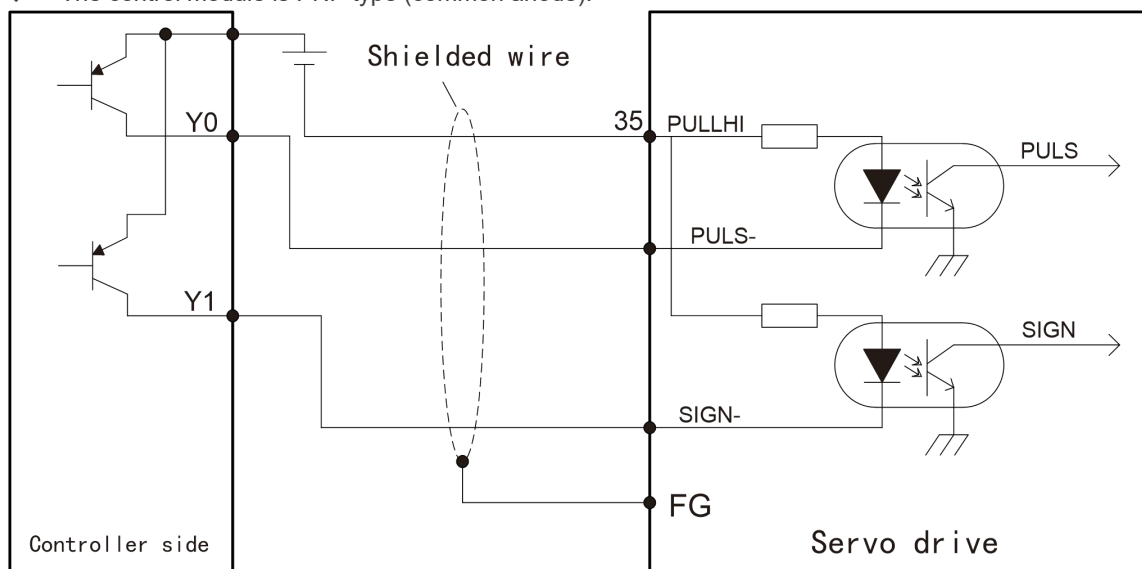
1) Differential input:

◆　Differential pulse input signal voltage ±5V, maximum frequency 500 K Hz;
◆　This signal transmission method has the best anti-noise ability, and it is recommended to use this connection method first.

2) Open collector mode 1:
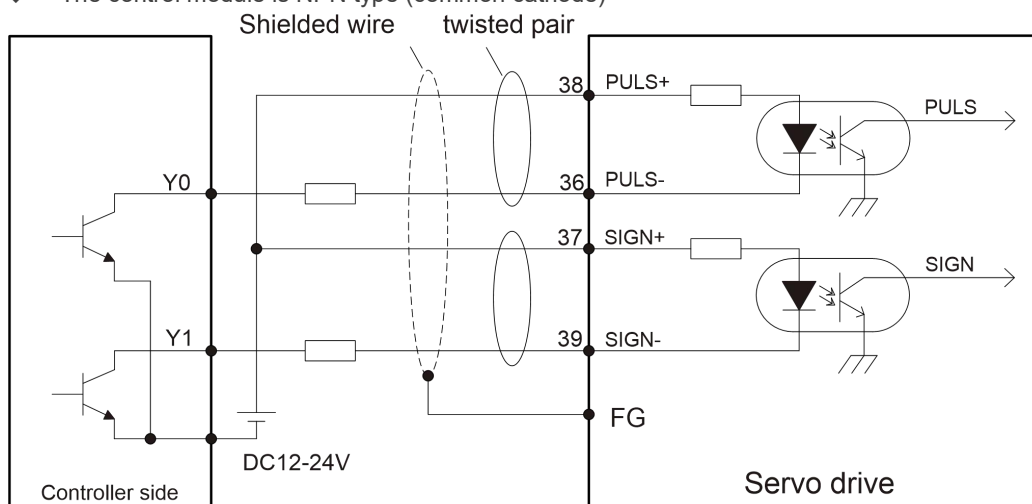
◆ The control module is NPN type (common cathode):

◆ The control module is PNP type (common anode):

*Note: The maximum input pulse frequency is 200kHz; user-prepared 24V power supply, no need to connect current limiting resistor. Generally, most Japanese PLC are of NPN type, while European PLC are mostly of PNP type.

3) Open collector mode 2:

◆ The control module is NPN type (common cathode)

◆ The control module is PNP type (common anode)
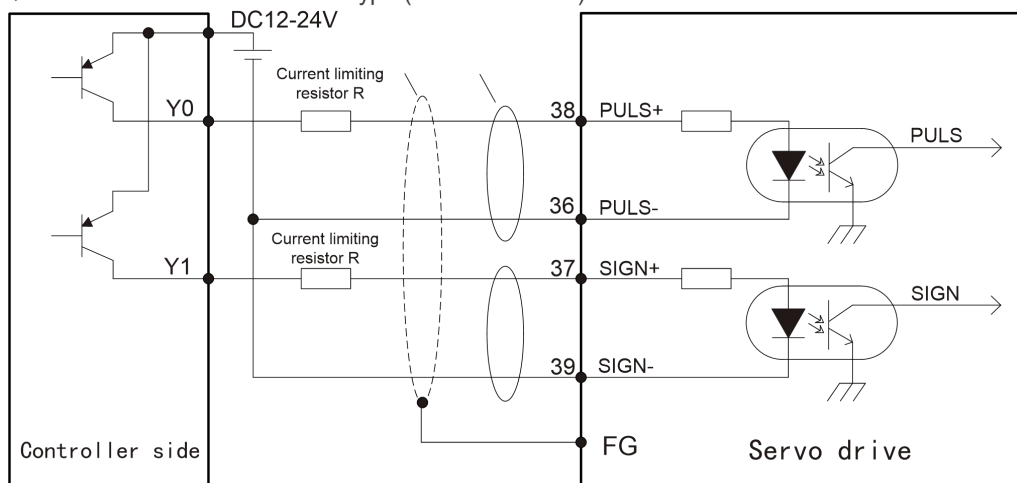
*Note: The input pulse frequency is 200kHz; the user's own 12~24V power supply requires an external current-limiting resistor. The size of the current-limiting resistor is selected according to the table:

DC 12V	1kΩ , 1 / 4W
DC 24V	2kΩ , 1 / 2W

Resistance value calculation formula:

$(VDC -1.5)/(R+150)=10$ mA

2.3.4 Analog input terminal wiring

Controller side

Drive side
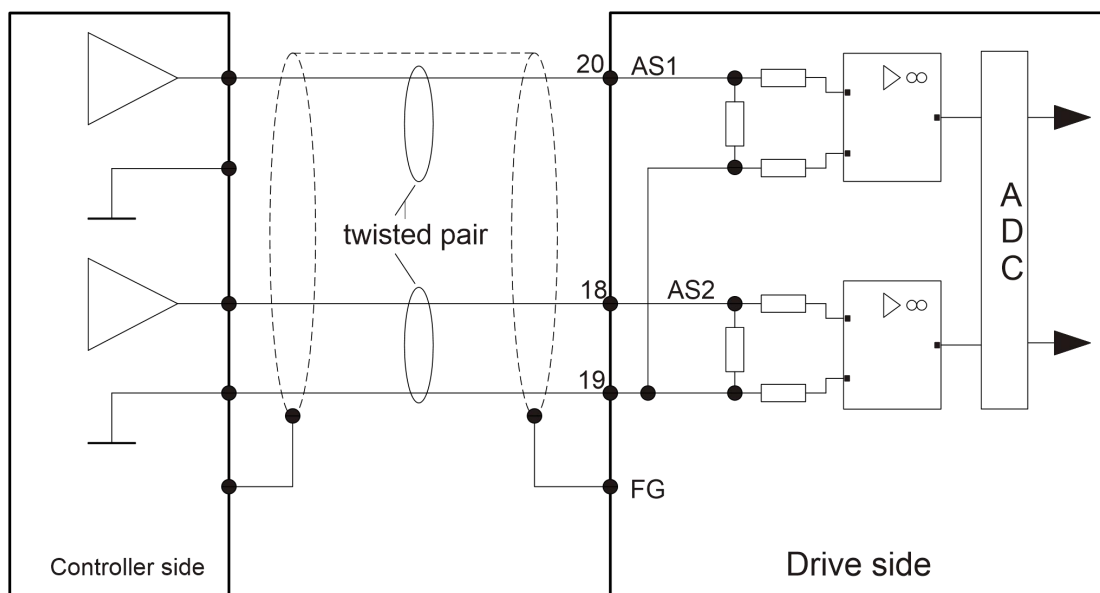
●Two analog input circuits, AS1 and AS2 have an accuracy of 12 bits. Input impedance 10kΩ; input voltage range

-10V~+10V .

2.3.5 Encoder signal frequency division output

1) Differential output mode

Please connect the shielded wire according to the equipment requirements
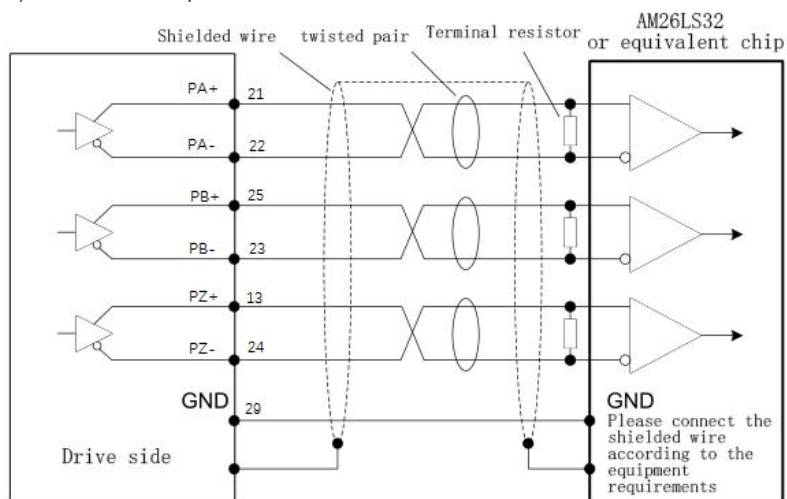
2) Open collector output mode:
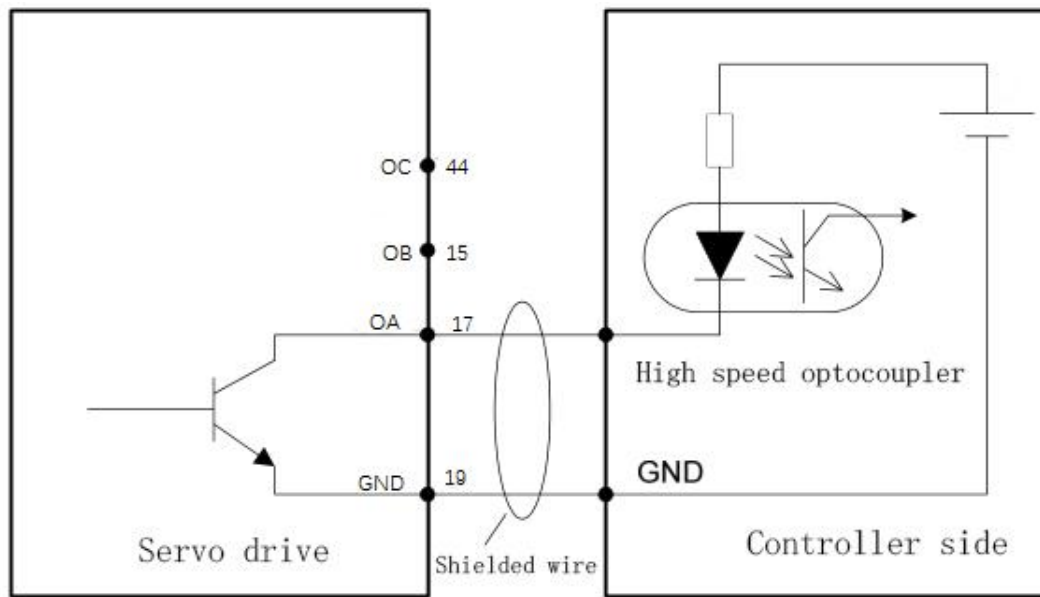
●The A, B, and Z phases of the encoder all provide differential output and open collector output signals.

● For differential output signals, it is recommended that users use AM26C32 or equivalent differential receiving chips, and

be sure to add a terminal matching resistor of approximately 220Ω.

● For open-collector output A, B, Z phase signals, since the signal pulse width is very narrow, the user needs to use a

high-speed optocoupler to receive this signal.

● Both output circuits are not isolated.

Chapter 3 Operation and Display

Panel screen
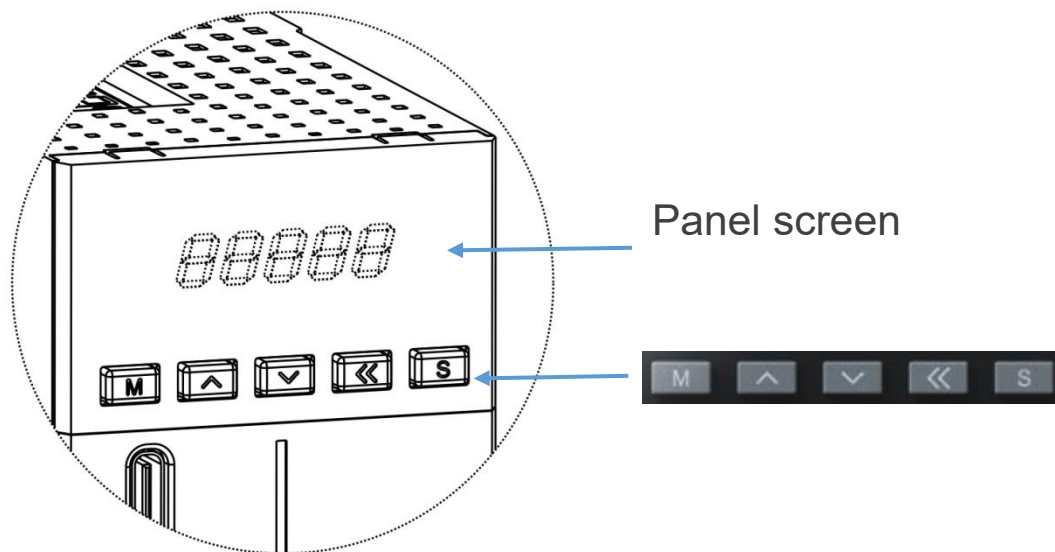
The panel of the SD300P servo drive consists of a display (5-digit 8-segment LED digital tube) and 5 buttons. It can be used for various displays, parameter settings, user password settings and general function execution of the servo drive.

Taking parameter setting as an example, the general functions of the keys are as shown in the following table:

Name	Picture	General functions
MODE key	M	Switch between modes. Return to the previous menu.
UP key	∧	Increase the number of flashing digits of the LED digital tube.
DOWN key	∨	Reduce the number of blinking digits of the LED digital tube.
SHIFT key	≪	Change the LED digital tube flash bit. View the high-order value of data longer than 5 digits.
SET key	S	Enter the next level menu. Execute commands such as storing parameter settings.

Chapter 4 Parameter Summary

Parameter group	Parameter summary	parameter group	Parameter summary	parameter group	Parameter summary	parameter group	Parameter summary
F00	Servo motor parameters	F04	Terminal output parameters	F08	Gain parameters	F0C	Communication parameters
F01	Drive parameters	F05	position control parameters	F09	self-tuning parameters	F0d	Auxiliary function parameters
F02	Basic control parameters	F06	Speed control parameters	F0A	Fault and protection parameters		
F03	Terminal input and output parameters	F07	Torque control parameters	F0b	Monitoring parameters		

F00 group parameter list

Parameter	Function	Parameter setting range	Default value	Unit	Setting method	Related
F00.08	Encoder type	0~9	0	-	Power on again	All
F00.11	Rated current	0.1~400.0	2.7	A	Power on again	All
F00.12	Rated torque	0.1~400.0	1.3	Nm	Power on again	All
F00.13	Maximum torque percentage	0~1000	300	%	Power on again	All
F00.14	Rated speed	1~10000	3000	rpm	Power on again	All
F00.15	Maximum speed percentage	0~300	200	%	Power on again	All
F00.16	Moment of inertia	0.001~32.767	0	$10^{-3}kgcm2$	Power on again	All
F00.17	Number of motor pole pairs	1~50	5	-	Power on again	All
F00.18	Stator phase resistance	0.01~327.67	1.72	Ω	Power on again	All
F00.19	Stator phase inductance	0.01~327.67	5.8	mH	Power on	All

	Lq				again	
F00.20	Stator phase inductance Ld	0.01~327.67	5.8	mH	Power on again	All
F00.21	Line back electromotive force coefficient	1~32767	33	V/KRPM	Power on again	All
F00.28	Encoder zero offset	-360.0~360.0	123	℃	Power on again	All
F00.31	Encoder resolution	4~31	23	-	Power on again	All
F00.32	2nd encoder resolution	4~31	23	-	Power on again	All
F00.45	2nd encoder type	1~31	10	-	Power on again	All
F00.52	Number of lines of the 1st pulse encoder	1000~10000	2500	-	Power on again	All
F00.53	1st pulse encoder rotation direction	0~1	0	-	Power on again	All
F00.54	Number of lines of the 2nd pulse encoder	1000~10000	2500	-	Power on again	All
F00.55	2nd pulse encoder rotation direction	0~1	0	-	Power on again	All
F00.56	Motor rotation direction	0-1	0	-	Power on again	All
F00.57	Encoder multi-turn number	0-24	0	-	Power on again	All
F00.58	Motor 1 parameter source	0-1	1	-	Power on again	All
F00.61	Motor 2 parameter source	0-1	1	-	Power on again	All

F01 group parameter list

Parameter	Function	Parameter setting range	Default value	Unit	Setting method	Related
F01.00	MCU software version	-	-	-	show	All
F01.02	Servo drive model	-	-	-	show	All
F01.30	Rated DC voltage	1-3000	300	V	Power on again	All
F01.31	Current sensor gain	1~20000	2048	1/A	Power on again	All
F01.32	IPM maximum current	0.1~400.0	5.0	A	Power on again	All
F01.33	IPM overload detection point	0 ~100	95	%	Power on again	All
F01.34	IPM overload detection filter time constant	0~32767	60	s	Power on again	All
F01.35	IPM dead time	1.0~10.0	2.0	us	Power on again	All
F01.36	IPM minimum pulse width	0.0~20.0	4.0	us	Power on again	All
F01.37	PWM cycle time	20.00~300.00	125.00	us	show	All
F01.40	Overcurrent detection point	1~32767	16380	-	Power on again	All
F01.41	Continuous times of overcurrent detection	1~10000	10	-	Power on again	All
F01.42	Power board maximum current	0.1~400.0	2.7	A	Power on again	All
F01.43	Power board adapts to power	0.01~300.00	1.50	KW	Power on again	All
F01.44	Power board rated current	0.1~400.0	0.7	A	Power on again	All
F01.45	Bus voltage protection action time	0.01~40.00	3.00	s	Power on again	All
F01.51	Is dynamic braking onboard?	0-1	0	-	show	All
F01.52	Onboard NTC type	0~255	0	-	show	All
F01.53	Power board current sampling bootsnotch filter	0-1	0	-	show	All
F01.54	Power board NTC temperature alarm point	50~125	120	-	Power on again	All
F01.60	Current loop gain	1-600	110	Hz	Power on again	All
F01.61	Current loop integration time constant	1-1000	10	%	Power on again	All
F01.63	Overload characteristic point	1-1000	200	%	Power on	All

Parameter	Function	Parameter setting range	Default value	Unit	Setting method	Related
					again	
F01.64	Overload characteristic point duration	1~30000	10	ms	Power on again	All
F01.65	IIT thermal overload point	0-300	112	%	Power on again	All
F01.66	IIT thermal overload detection filter time constant	0-32767	3000	s	Power on again	All
F01.67	Moment of inertia unit multiple	1~10000	1	-	Power on again	All
F01.68	Inductance unit multiple	1~10000	1	-	Power on again	All
F01.70	Open loop run speed	0~3000	60rpm	rpm	Power on again	All
F01.71	Open loop run current	0~100	20	%	Power on again	All
F01.72	Encoder to zero current	0-500	50	%	Power on again	All
F01.73	Encoder to zero point high speed	1-3000	50	-	Power on again	All
F01.74	Encoder is slow to zero	1 ~1000	7	-	Power on again	All
F01.76	Encoder counting maximum error	0~10000	25	pulse	Power on again	All
F01.77	Encoder disconnection detection times	1~1000	35	-	Power on again	All
F01.78	Encoder Z signal loss detection turns	0 ~300	3	rpm	Power on again	All
F01.80	Voltage during power board self-test	0~1000	310	V	Power on again	All
F01.81	Power board AD sampling value conversion voltage coefficient	0~3000	32	-	Power on again	All
F01.83	Fan temperature point	25~125	50	℃	Effective immediately	All

F02 group parameter list

Parameter	Function	Parameter setting range	Default value	Unit	Setting method	Related
F02.00	Control mode selection	0-5	0	-	Effective immediately	PST
F02.01	Absolute value system selection	0-2	0	-	Power on again	PST
F02.03	Output pulse phase	0-1	0	-	Power on again	PST

F02.09	Delay from brake output ON to command reception	0-1000	0	ms	Effective immediately	PST
F02.10	In static state, the delay from brake output OFF to motor enable OFF	0-2000	150	ms	Effective immediately	PST
F02.11	Rotation state, speed when brake output is OFF	0-3000	100	rpm	Effective immediately	PST
F02.12	Rotation state, delay from servo enable OFF to brake output OFF	0-2000	0	rpm	Effective immediately	PST
F02.22	Built-in brake resistor rated power	2-10000	-	W	Power on again	PST
F02.23	Built-in brake resistor value	10-750		Ω	Power on again	PST
F02.25	Brake resistor settings	0-1	0	-	Effective immediately	PST
F02.26	Rated power of external braking resistor	1-10000	-	W	Power on again	PST
F02.27	External brake resistor value	1-750	-	Ω	Power on again	PST
F02.30	user password	0-9999	0	-	Power on again	PST
F02.31	System parameter initialization	0-2	0	-	Power on again	PST
F02.32	Panel default display function	0-99	0	-	Effective immediately	PST
F02.40	CWL, CCWL direction prohibition method	0-1	0	-	Effective immediately	P
F02.41	Speed/torque corresponding analog channel selection	0-1	0	-	Effective immediately	PST
F02.44	Acceleration and deceleration time in stop mode	0-10000	1000	ms	Effective immediately	PST
F02.55	Regenerative brake voltage	1-1000	-	-	Power on again	PST
F02.56	Maximum peak brake power	5-10000	-	W	Power on again	PST
F02.57	Maximum average brake power	5-10000	-	W	Power on again	PST
F02.58	Peak brake power detection filter time constant	0-32767	-	10ms	Power on again	PST
F02.59	Average brake power detection filter time constant	0-32767		s	Power on again	PST
F02.61	Dynamic brake action wait time	30-1000	100	ms	Effective immediately	PST
F02.62	Dynamic brake action speed	0-100	50	%	Effective immediately	PST

F02.64	Dynamic brake mode	0-1	0	%	Power on again	PST
F02.65	2nd encoder absolute value system selection	0-2	0	-	Power on again	PST
F02.66	2nd encoder related servo selection	0-1	0	-	Power on again	PST
F02.67	3rd encoder related servo selection	0-1	0	-	Power on again	PST
F02.69	Position deviation clear method	0-1	0	-	Effective immediately	P
F02.70	emergency shutdown mode	0-1	0	-	Effective immediately	PS.
F02.76	Drive axis associated encoder settings	0-2	0	-	Power on again	PST
F02.97	Ignore drive ban	0-3	3	-	Effective immediately	PST
F02.98	Force drive enable ON	0-1	0	-	Effective immediately	PST
F02.99	Wave record output simulated triangle wave data	0-1	0	-	Effective immediately	PST

F03 group parameter list

Parameter	Function	Parameter setting range	Default value	Unit	Setting method	Related
F03.00	DI1 terminal function selection	When set to a negative number, the terminal is inverse logic.	0	-	Effective immediately	PST
F03.01	DI2 terminal function selection	DI terminal functions are as follows:	0	-	Effective immediately	PST
F03.02	DI3 terminal function selection	FunIN.1 : Servo enable	0	-	Effective immediately	PST
F03.03	DI4 terminal function selection	FunIN.2: Fault and warn reset FunIN.3: Gain switching	0	-	Effective immediately	PST
F03.04	DI5 terminal function selection	FunIN.10: Mode switch 1 FunIN.11: Mode switch 2	0	-	Effective immediately	PST
F03.05	DI6 terminal function selection	FunIN.12: Zero position fixed enable	0	-	Effective immediately	PST
F03.06	DI7 terminal function selection	FunIN.13: Zero instruction FunIN.14: Forward overtravel	0	-	Effective immediately	PST
F03.07	DI8 terminal function selection	switch FunIN.15: Reverse overtravel	0	-	Effective immediately	PST
F03.08	DI9 terminal function selection	switch FunIN.16: Forward external torque limit FunIN.17: Reverse external	0	-	Effective immediately	PST

		torque limit FunIN.18: Forward jog FunIN.19: Reverse jog FunIN.24: Electronic gear selection FunIN.27: Command direction setting FunIN.31: home switch FunIN.32: home return enable FunIN.34: Emergency shutdown FunIN.35: Clear position deviation FunIN.37: Pulse command prohibited FunIN.41: Set the current position as the home FunIN.43: Internal speed selection 1 FunIN.44 : Internal speed selection 2 FunIN.46: Internal torque selection 1 FunIN.47: Internal torque selection 2 FunIN.49 : Proportional control				
F03.10	DI1 input filter time	0.1~100.0	2.0	ms	Effective immediately	PST
F03.11	DI2 input filter time	0.1~100.0	2.0	ms	Effective immediately	PST
F03.12	DI3 input filter time	0.1~100.0	2.0	ms	Effective immediately	PST
F03.13	DI4 input filter time	0.1~100.0	2.0	ms	Effective immediately	PST
F03.14	DI5 input filter time	0.1~100.0	2.0	ms	Effective immediately	PST
F03.15	DI6 input filter time	0.1~100.0	2.0	ms	Effective immediately	PST
F03.16	DI6 input filter time	0.1~100.0	2.0	ms	Effective immediately	PST
F03.17	DI8 input filter time	0.1~100.0	2.0	ms	Effective immediately	PST
F03.18	DI9 input filter time	0.1~100.0	2.0	ms	Effective immediately	PST

F03.20	DI function is forced to be valid 1	00000~11111	0000	-	Effective immediately	PST
F03.21	DI function is forced to be valid 2	00000~11111	0000	-	Effective immediately	PST
F03.22	DI function is forced to be valid 3	00000~11111	0000	-	Effective immediately	PST
F03.23	DI function is forced to be valid 4	00000~11111	0000	-	Effective immediately	PST
F03.24	DI function is forced to be valid 5	00000~11111	0000	-	Effective immediately	PST
F03.25	DI function is forced to be valid 6	00000~11111	0000	-	Effective immediately	PST
F03.26	DI function is forced to be valid 7	00000~11111	0000	-	Effective immediately	PST
F03.27	DI function is forced to be valid 8	00000~11111	0000	-	Effective immediately	PST
F03.28	DI function is forced to be valid 9	00000~11111	0000	-	Effective immediately	PST
F03.29	DI function is forced to be valid 10	00000~11111	0000	-	Effective immediately	PST
F03.30	DI function is forced to be valid 11	00000~11111	0000	-	Effective immediately	PST
F03.31	DI function is forced to be valid 12	00000~11111	0000	-	Effective immediately	PST
F03.32	DI function is forced to be valid 13	00000~11111	0000	-	Effective immediately	PST
F03.51	AS1 analog command filter time constant	0.20~50.00	0.2	ms	Power on again	ST
F03.53	AS1 analog command dead zone	0~13000	0	mV	Power on again	ST
F03.54	AS1 analog command zero offset compensation	-1500.0~1500.0	0.0	mV	Power on again	ST
F03.56	AS2 analog command filter time constant	0.20~50.00	0.2	ms	Power on again	ST
F03.58	AS2 analog command dead zone	0~13000	0	mV	Power on again	ST
F03.59	AS2 analog command zero offset compensation	-1500.0~1500.0	0.0	mV	Power on again	ST
F03.65	Analog speed command gain	10-3000	300	rpm/V	Effective immediately	S
F03.66	Analog torque command gain	1~300	30	%/V	Effective immediately	T

F03.70	DO1 terminal function selection	When set to a negative number, the terminal is inverse logic.	0	-	Effective immediately	PST
F03.71	DO2 terminal function selection	DO terminal functions are as follows:	0	-	Effective immediately	PST
F03.72	DO3 terminal function selection	FunOUT.1 : Servo ready output	0	-	Effective immediately	PST
F03.73	DO4 terminal function selection	FunOUT.3: Zero speed FunOUT.6: Position completed	0	-	Effective immediately	PST
F03.74	DO5 terminal function selection	FunOUT.7: Torque limit FunOUT.8: Speed limit FunOUT.9: Brake output FunOUT.10: warn output FunOUT.11: Fault output FunOUT.16: home return completed FunOUT.17: Electrical zero return output FunOUT.18: Torque arrival output FunOUT.19: Speed arrival output FunOUT.21: DB brake output FunOUT.26: Servo is running	0	-	Effective immediately	PST
F03.80	DO output is forced to be valid	00000~11111	0 0000	-	Effective immediately	PST
F03.82	DO output mandatory content	00000~11111	0 0000	-	Effective immediately	PST

F05 group parameter list

Parameter	Function	Parameters setting range	Default value	Unit	Setting method	Related
F05.01	Pulse command input terminal selection	0-1	0	-	Power on again	P
F05.02	Number of position commands per motor rotation	1 ~1048576	10000	P/r	Power on again	P
F05.04	Position command exponential smoothing filter time	0~1000	0	ms	Power on again	P
F05.06	Position command linear filter time	0~256	0	ms	Power on again	P
F05.07	Electronic gear ratio 1 numerator	1 ~1073741824	1	-	Power on again	P
F05.09	Electronic gear ratio 1 denominator	1 ~1073741824	1	-	Power on again	P

F05.11	Electronic gear ratio 2 numerator	1 ~1073741824	1	-	Power on again	P
F05.13	Electronic gear ratio 2 denominator	1 ~1073741824	1	-	Power on again	P
F05.15	Command pulse input method	0-2	0	-	Power on again	P
F05.17	Number of encoder pulse output lines	1 ~ 16384	2500	-	Power on again	P
F05.21	Position completion range	0~32767	10	P	Effective immediately	P
F05.22	Position proximity range	0~32767	500	P	Effective immediately	P
F05.23	Position completion return difference	0~32767	5	p	Effective immediately	P
F05.24	Position proximity return difference	0~32767	50	p	Effective immediately	P
F05.28	Home position delay	0~3000	50	ms	Effective immediately	
F05.29	Home return completion signal delay	1~3000	100	ms	Effective immediately	P
F05.30	Home return enable mode	1-3	1	-	Effective immediately	P
F05.31	Home return action mode	0-37 _ _	1	-	Effective immediately	P
F05.32	High-speed search home switch signal speed	1~3000	500	r/min	Effective immediately	P
F05.33	Low speed search home switch signal speed	1~3000	50	r/min	Effective immediately	P
F05.34	Search the acceleration and deceleration time of the home	0~30000	0	ms	Effective immediately	P
F05.36	Offset of mechanical home	-1073741824 ~ 1073741824	0	pulse	Effective immediately	P
F05.38	A B pulse output selection	0 ~1	0	-	Power on again	P
F05.41	Z pulse output polarity selection	0-1	0	-	Power on again	P
F05.42	Z pulse output width selection	0-1	0	-	Power on again	P
F05.70	Command pulse input signal filter	0-31	0	-	Power on again	P
F05.72	Command pulse input direction signal polarity	0-1	0	-	Effective immediately	P
F05.73	Command pulse input signal logic	0-3	0	-	Power on again	P

| F05.75 | Command pulse input signal filter mode | 0-1 | 0 | - | Power on again | P |

F06 group parameter list

Parameter	Function	Parameters setting range	Default value	Unit	Setting method	Related
F06.04	JOG speed setting value	0~7500	100	rpm	Effective immediately	S
F06.05	Speed command ramp acceleration time	0~30000	0	ms	Effective immediately	S
F06.06	Speed command ramp deceleration time	0~30000	0	ms	Effective immediately	S
F06.07	Maximum speed limit	0~7500	5000	rpm	Effective immediately	S
F06.15	Zero speed detection threshold	0~1000	10	rpm	Effective immediately	S
F06.18	Speed reaches signal threshold	-5000~5000	500	rpm	Effective immediately	S
F06.20	Zero speed detection hysteresis	0-1000	30	rpm	Effective immediately	S
F06.26	Speed arrival hysteresis	0-5000	30	rpm	Effective immediately	S
F06.27	Speed reaches polarity	0-1	0	-	Effective immediately	S
F06.59	Speed command source	0-5	0	-	Effective immediately	S
F06.60	Analog speed command direction	0-1	0	-	Effective immediately	S
F06.61	Analog speed command polarity	0-2	0	-	Effective immediately	S
F06.66	Speed detection filter time constant	0.01~50.00	2.00	ms	Effective immediately	S
F06.80	Internal speed 1	-5000~5000	0	rpm	Effective immediately	S
F06.81	Internal speed 2	-5000~5000	0	rpm	Effective immediately	S
F06.82	Internal speed 3	-5000~5000	0	rpm	Effective immediately	S
F06.83	Internal speed 4	-5000~5000	0	rpm	Effective immediately	S
F06.90	Zero fixed mode selection	0-1	0	-	Effective immediately	S

F07 group parameter list

Parameter	Function	Parameters setting range	Default value	Unit	Setting method	Related
F07.05	Torque command filter time constant	0.01~50.00	1.00	ms	Effective immediately	PST
F07.06	2nd torque command filter time constant	0.01~50.00	1.00	ms	Effective immediately	PST
F07.07	Torque limit source	0-2	0	-	Effective immediately	PST
F07.09	Internal forward torque limit	0-500	300	%	Effective immediately	PST
F07.10	Internal reverse torque limit	-500~0	-300	%	Effective immediately	PST
F07.11	External forward torque limit	0-500	100	%	Effective immediately	PST
F07.12	External reverse torque limit	-500~0	-1.00	%	Effective immediately	PST
F07.17	Speed limit source selection	0-2	0	-	Effective immediately	T
F07.59	Torque command source	0-2	0	-	Effective immediately	T
F07.60	Analog torque command direction	0-1	0	-	Effective immediately	T
F07.61	Analog torque command polarity	0-2	0	-	Effective immediately	T
F07.62	Speed limit during torque control	0 ~5000	3000	rpm	Effective immediately	T
F07.80	Internal torque 1	-300~300	0	%	Effective immediately	T
F07.81	Internal torque 2	-300~300	0	%	Effective immediately	T
F07.82	Internal torque 3	-300~300	0	%	Effective immediately	T
F07.83	Internal torque 4	-300~300	0	%	Effective immediately	T
F07.84	Torque reaches signal threshold	-300~300	0	%	Effective immediately	PST
F07.85	Torque arrival return difference	0~300	5	%	Effective immediately	PST
F07.86	Torque reaches polarity	0 ~1	0	-	Effective immediately	PST

F08 group parameter list

Parameter	Function	Parameters setting range	Default value	Unit	Setting method	Related
F08.00	Speed loop gain	1~3000	40	Hz	Effective immediately	P.S.
F08.01	Speed loop integration time constant	1.0~1000.0	20.0	ms	Effective immediately	P.S.
F08.02	Position loop gain	1~1000	40	1/s	Effective immediately	P
F08.03	2nd speed loop gain	1~3000	40	Hz	Effective immediately	P.S.
F08.04	2nd speed loop integration time constant	1.0~1000.0	20.0	ms	Effective immediately	P.S.
F08.05	2nd position loop gain	1~1000	40	1/s	Effective immediately	P
F08.06	2nd torque filter frequency	100-5000	5000	Hz	Effective immediately	PST
F08.07	2nd torque filter quality factor	1~100	50	-	Effective immediately	PST
F08.09	Gain switch selection	0 ~5	0	-	Effective immediately	PST
F08.10	Gain switch delay time	0~3000	5	ms	Effective immediately	PST
F08.11	Gain switch level	0~32767	100	-	Effective immediately	PST
F08.12	Gain switch time lag	0~32767	5	-	Effective immediately	PST
F08.13	Position gain switch time	0~3000	5	ms	Effective immediately	PST
F08.15	Load inertia ratio	0.0-200.0	1.0	times	Power on again	PST
F08.18	Speed feedforward filter time constant	0-100	0	%	Power on again	P
F08.19	Speed feedforward gain	0-100	0	%	Power on again	P
F08.24	Speed loop PDFF control coefficient	0~100	100	%	Effective immediately	S
F08.38	speed observer gain	10~1000	120	Hz	Effective immediately	P
F08.39	Speed observer compensation coefficient	0~1000	150	%	Effective immediately	P
F08.40	Speed observer feedback speed source	0-1	0	-	Effective immediately	P

F08.42	Model tracking control switch	0-3	0	-	Effective immediately	P
F08.43	Model tracking control gain	10-2000	40	Hz	Effective immediately	P
F08.44	Model tracking control attenuation coefficient	50-200	100	-	Effective immediately	P
F08.46	Model tracking control speed compensation coefficient	0~100	100	%	Effective immediately	P
F08.47	Model tracking control forward deviation compensation coefficient	0-1000	100	%	Effective immediately	P
F08.48	Model tracking control reverse deviation compensation coefficient	0-1000	100	%	Effective immediately	P
F08.49	Model tracking control speed loop gain	1-3000	40	Hz	Effective immediately	P
F08.50	Model tracking control speed loop integral time constant	1.0-1000.0	20.0	ms	Effective immediately	P
F08.51	Model tracking control acceleration feedforward filter time	0.10~50.00	0.50	ms	Effective immediately	P
F08.52	Medium frequency vibration suppression 1 switch	0-2	0	-	Effective immediately	P
F08.53	Medium frequency vibration suppression 1 vibration frequency	50~2000	100	Hz	Effective immediately	P
F08.54	Medium frequency vibration suppression 1 damp coefficient	0 ~300	150	%	Effective immediately	P
F08.56	Medium frequency vibration suppression 1 compensation coefficient	1 ~1000	100	%	Effective immediately	P
F08.58	Medium frequency vibration suppression 2 switch	0-2	0	-	Effective immediately	P
F08.59	Medium frequency vibration suppression 2 vibration frequency	50~2000	100	Hz	Effective immediately	P
F08.60	Medium frequency vibration suppression 2 damp coefficient	0 ~300	150	%	Effective immediately	P
F08.61	Medium frequency vibration suppression 2 compensation coefficient	1 ~1000	100	%	Effective immediately	P

F09 group parameter list

Parameter	Function	Parameters setting range	Default value	Unit	Setting method	Related
F09.01	Rigidity level selection	0-22	0	-	Effective immediately	PST
F09.02	Automatic notch switch	0-FFFF	0	-	Effective immediately	PST
F09.03	Inertia estimation method	0-10	0	-	Effective immediately	P
F09.05	Inertia estimation mode	0-2	0	-	Effective immediately	P
F09.06	Inertia estimation gain level	0-2	0	-	Effective immediately	P
F09.12	1st resonance notch filter frequency	50-5000	5000	Hz	Effective immediately	PST
F09.13	1st resonance notch filter quality factor	1-100	7	-	Effective immediately	PST
F09.14	1st resonance notch filter depth	0-60	0	dB	Effective immediately	PST
F09.15	2nd resonance notch filter frequency	50-5000	5000	Hz	Effective immediately	PST
F09.16	2nd resonance notch filter quality factor	1-100	7	-	Effective immediately	PST
F09.17	2nd resonance notch filter depth	0-60	0	dB	Effective immediately	PST
F09.18	3rd resonance notch filter frequency	50-5000	5000	Hz	Effective immediately	PST
F09.19	3rd resonance notch filter quality factor	1-100	7	-	Effective immediately	PST
F09.20	3rd resonance notch filter depth	0-60	0	dB	Effective immediately	PST
F09.21	4th resonance notch filter frequency	50-5000	5000	Hz	Effective immediately	PST
F09.22	The 4th resonance notch filter quality factor	1-100	7	-	Effective immediately	PST
F09.23	4th Resonance notch filter Depth	0-60	0	dB	Effective immediately	PST
F09.33	Friction Compensated Disturbance Observer Switch	0-1 _	0	-	Effective immediately	P
F09.34	Friction Compensated Disturbance Observer Gain	10~1000	100	-	Effective immediately	P

F09.35	Friction compensation disturbance observer compensation coefficient	0-1000	0	-	Effective immediately	P
F09.36	Friction Compensation Disturbance Observer Torque Coefficient	0-1200	400	Hz	Effective immediately	P
F09.38	End vibration suppression period	0~1000	0	ms	Effective immediately	P
F09.39	End vibration suppression compensation coefficient	1.0-100.0	1.0	-	Effective immediately	P
F09.44	End vibration detection filter frequency	10~2000	200	Hz	Effective immediately	P
F09.46	End vibration suppression mode	0-3	0	-	Effective immediately	P
F09.47	Minimum detection amplitude of end vibration	3~32767	5	P	Effective immediately	P
F09.55	Vibration detection alarm time	0 ~100	0	s	Effective immediately	P
F09.80	Highly responsive mode switch	0-1	0	-	Effective immediately	P
F09.81	High response mode velocity loop observer gain	100-2000	300	Hz	Effective immediately	P.S.
F09.82	High response mode speed observer gain selection	0-1	0	-	Effective immediately	P.S.
F09.83	High response mode speed feedback source	0-1	0	-	Effective immediately	P
F09.84	High response mode speed loop current loop method selection	0-1	0	-	Effective immediately	P.S.
F09.85	High response mode current loop observer gain	50-400	180	10Hz	Effective immediately	P.S.
F09.86	High response mode current loop observer gain selection	0-1	0	-	Effective immediately	P.S.
F09.87	High response mode speed loop tracking coefficient	10~1000	100	-	Effective immediately	P.S.
F09.88	High response mode speed loop strong robustness function switch	0-2	0	-	Effective immediately	P.S.
F09.89	High response mode speed loop robustness coefficient	0-1000	50	%	Effective immediately	P.S.
F09.90	High response mode 1st torque filter time constant	5-500	10	-	Effective immediately	PST
F09.91	High response mode nonlinear control method	0-1	1	-	Effective immediately	P
F09.92	High response mode exponential nonlinear grade	0-5	0	-	Effective immediately	PST
F09.93	High response mode non-exponential	0-100	15	-	Effective	PST

	nonlinear gain				immediately	

F0A group parameter list

Parameter	Function	Parameters setting range	Default value	Unit	Setting method	Related
F0A.04	Overload protection detection gain	0-500	117	%	Effective immediately	PST
F0A.08	Speeding detection percentage	0-400	140	%	Effective immediately	PST
F0A.10	Excessive position deviation detection threshold	0.00-327.67	4.00	lock up	Effective immediately	P
F0A.25	Speed feedback display value filter time parameter	0.1~1000.0	80.0	ms	Power on again	PST
F0A.36	Encoder multi-turn overflow fault selection	0-1	1	-	Power on again	PST
F0A.50	Forward torque overload alarm threshold	0-300	300	%	Power on again	PST
F0A.51	Reverse torque overload alarm threshold	-300 – 0	-300	%	Power on again	PST
F0A.52	Torque overload alarm duration threshold	0-10000	0	10ms	Power on again	PST
F0A.60	Protection detection program run cycle	5-100	5	ms	Power on again	PST
F0A.61	Speed feedback monitoring value filter time parameter	0.0-300.0	2.0	ms	Power on again	PST
F0A.62	Speed read value filter time parameter	0.1-300.0	0.1	ms	Power on again	PST
F0A.63	Pulse command frequency detection filter time constant	0.1-1000.0	4.0	ms	Effective immediately	P
F0A.64	Current feedback monitor value filter time constant	1-3000	24	ms	Effective immediately	PST
F0A.65	Torque feedback monitor value filter time constant	1-3000	24	ms	Effective immediately	PST
F0A.66	Brake power feedback pre-detection filter time constant	1-3000	40	ms	Effective immediately	PST
F0A.67	Average load rate feedback detection filter time constant	1-3000	30	ms	Effective immediately	PST
F0A.68	Peak detection data statistics time	1-30	10	s	Power on again	PST
F0A.70	Motor static speed detection threshold	0-1000	5	rpm	Power on again	PST
F0A.72	Switch position control mode speed detection threshold	0-3000	15	rpm	Power on again	PST

F0b group parameter list

Parameter	Function	Display range	Default value	Unit	Setting method	Related
F0B.00	Motor actual speed	-9999~9999	0	rmp	cannot be change	PST
F0B.01	Speed command	-9999~9999	0	rmp	cannot be change	PST
F0B.02	Internal torque command	-300-300	0	%	cannot be change	PST
F0B.03	Input signal monitor DI	0~65535	0	-	cannot be change	PST
F0B.05	Output signal monitor DO	0~65535	0	-	cannot be change	PST
F0B.07	Absolute position counter	-2147483648 2147483647	0	P	cannot be change	PST
F0B.09	Mechanical angle	0~65535	0	°	cannot be change	PST
F0B.10	Electrical angle	0.0-360.0	0	°	cannot be change	PST
F0B.12	Average load value	0-800	0	%	cannot be change	PST
F0B.13	Input instruction counter	-2147483648 2147483647	0	P	cannot be change	PST
F0B.15	Encoder position deviation counter	-2147483648 2147483647	0	P	cannot be change	PST
F0B.17	Feedback pulse counter	-2147483648 2147483647	0	P	cannot be change	PST
F0B.21	Analog channel 1 voltage sampling value	- 10.00~10.00	0	V	cannot be change	ST
F0B.22	Analog channel 2 voltage sampling value	- 10.00~10.00	0	V	cannot be change	ST
F0B.24	Phase current effective value	0.0~6553.5	0	A	cannot be change	PST
F0B.26	Bus voltage value	0.0~6553.5	0	A	cannot be change	PST
F0B.27	Module humidity value	-20~200	0	℃	cannot be change	PST
F0B.33	Fault record	0~ 7	0	-	cannot be change	PST
F0B.34	Selected number of fault codes	~	0	-	cannot be change	PST
F0B.37	Motor speed at selected fault	-32767~32767	0	rpm	cannot be change	PST

F0B.38	Motor U-phase current at selected fault	-32767~32767	0	A	cannot be change	PST
F0B.39	Motor V-phase current at selected fault	-32767~32767	0	A	cannot be change	PST
F0B.40	Bus voltage at selected fault	0.0~6553.5	0	V	cannot be change	PST
F0B.41	Input terminal status at selected fault	0~65535	0	-	cannot be change	PST
F0B.43	Output terminal status at selected fault	0~65535	0	-	cannot be change	PST
F0B.53	Position deviation counter	-2147483648~ 2147483647	0	P	cannot be change	PST
F0B.55	Motor actual speed	-2147483648~ 2147483647	0	rpm	cannot be change	PST
F0B.58	Mechanical absolute position	-2147483648~ 2147483647	0	p	cannot be change	PST
F0B.60	Mechanical absolute position	-2147483648~ 2147483647	0	P	cannot be change	PST
F0B.64	Real-time input instruction counter	-2147483648~ 2147483647	0	-	cannot be change	PST
F0B.70	Absolute encoder revolutions	0~2147483647	0	P	cannot be change	PST
F0B.71	Position within 1 revolution of absolute encoder	0~2147483647	0	P	cannot be change	PST
F0B.77	Absolute value position	-2147483648~ 2147483647	0	P	cannot be change	PST
F0B.79	Absolute value position	-2147483648~ 2147483647	0	P	cannot be change	PST
F0B.87	Current absolute position	0~65535	0	P	cannot be change	PST
F0B.90	Firmware version date	-	-	-	cannot be change	P ST
F0B.91	Encoder error count	0~65535	0	P	cannot be change	PST
F0B.92	Power board error count	0~65535	0	P	cannot be change	PST
F0B.98	U phase current sampling value	0 ~FFFF	0	-	cannot be change	PST
F0B.99	W phase current sampling value	0 ~FFFF	0	-	cannot be change	PST

F0C group parameter list

Parameter	Function	Parameters setting	Default	Unit	Setting	Related

SD 300P series servo driver

		range	value		method	
F0C.00	Drive device address	1-32	1	-	Power on again	PST
F0C.02	Modbus communication baud rate setting	1-6	2	-	Power on again	PST
F0C.03	Modbus communication wave mode	0-5	3	-	Power on again	PST

F0d group parameter list

Parameter	Function	Parameters setting range	Default value	Unit	Setting method	Related
F0D.10	Analog channel zero adjustment	0 ~2	0	-	Effective immediately	ST
F0D.11	Speed 100% torque JOG run	-	-	-	Effective immediately	S
F0D.12	Speed 300% torque JOG run	-	-	-	Effective immediately	S
F0D.13	Speed test run	0-3	0	-	Effective immediately	S
F0D.20	Absolute encoder operation	0-3	0	-	Effective immediately	PST
F0D.24	Open loop run	0 -2	0	-	Effective immediately	T
F0D.25	Encoder operates on zero	0-1	0	-	Effective immediately	PST
F0D.29	Power board self-test	0-1	0	-	Effective immediately	PST

F0E group parameter list

Parameter	Function	Parameters setting range	Default value	Unit	Setting method	Related
F0E. 48	High-speed search for home switch signal distance	0 ~ 2147482647	2147482647	pulse	Effective immediately	P
F0E. 50	Low speed search home switch signal distance	0 ~ 2147482647	2147482647	pulse	Effective immediately	P

Chapter 5 Partial Parameter Function Description

F00 group servo motor parameter description

Parameter	Parameter Description
F00.08	0: Single-turn absolute encoder 1: Tamagawa 2.5M absolute encoder, resolution 23 bits and below 7: Tamagawa 2.5M absolute encoder, resolution 25 bits and above 8: Tamagawa 4M absolute encoder, 25 bits Resolution and above 9: Tamagawa 5M absolute encoder, resolution 25 bits and above
F00.53	0: In-phase 1: Out-of-phase
F00.58	0: Motor 1 parameters come from parameter table 1: Motor 1 parameters come from encoder

F02 group basic control parameters

Parameter	Parameter Description
F02.00	0: Position mode 1: Speed mode 2: Torque mode 3: Position/speed mode, - the run mode is selected by the M1 SEL signal of DI: M1 - SEL valid speed mode M1 - SEL invalid position mode. 4: Position/torque mode, - the run mode is selected by the M1 SEL signal of DI: M1 - SEL valid torque mode M1 - SEL invalid position mode. 5: Speed/torque mode, - the run mode is selected by the M1 SEL signal of DI: M1 - SEL valid torque mode M1 - SEL invalid speed mode.
F02.01	0: Single-turn absolute value mode 1: Multi-turn absolute value mode 2: Incremental use mode
F02.03	Set the phase relationship between the output A-phase pulse and B-phase pulse when the motor rotation direction remains unchanged when using the pulse output function. 0: A leads B 1: A lags B
F02.09	After setting the servo driver to enable, it starts to receive input commands. Within the delay time F02.09 until the brake output (BK) turns ON, the servo does not receive position/speed/torque commands.
F02.31	The user restores parameters to factory values or clears fault records 0: No operation. 1: Restore factory settings. 2: Clear fault records.
F02.32	According to the settings, the panel can automatically switch to the monitoring parameter display mode (F0B group parameters). This parameter is used to set the intra-group offset of the F0B group parameters. When a non-existent F0B group parameter is set, the panel does not switch to the F0B group parameter display.
F02.41	0: AS1 channel and AS2 channel correspond to speed command and torque command respectively. 1: AS1 channel and AS2 channel correspond to torque command and speed command respectively.
F02.61	Set the dynamic brake relay action wait time
F02.64	0: The dynamic brake function does not take effect. 1: Dynamic brake function takes effect.
F02.68	0: The servo axis encoder information comes from the main encoder

F02.69	When setting the position control mode, the DI signal clears the position deviation counter method 0: DI signal high level. 1: DI signal rise edge.
F02.70	Set the drive stop mode in emergency stop mode through FunIN.34 (Emergency Stop). 0: The drive is directly enabled OFF and the motor free stop. 1: The drive controls the motor to decelerate and stop according to the deceleration time set by F02.44.
F02.97	Set whether the DI input forward drive prohibition CCWL signal and reverse rotation drive prohibition CWL signal are effective. CCWL and CWL adopt normally closed switches. The motor can run in this direction only when the input is ON, and is prohibited from running in this direction when the input is OFF. The CCWL and CWL signals can be ignored through this parameter, and the motor can run without access to the drive prohibition signal. 0: CWL is used, CCWL is used 1: CWL is used, CCWL is ignored 2: CWL is ignored, CCWL is used 3: CWL is ignored, CCWL is ignored
F02.98	0: The drive enable ON is controlled by other conditions. 1: Force the drive to enable ON.
F02.99	Set the wave record output data to 0: the wave record outputs normal data. 1: Wave record outputs simulated triangle wave data.

F03 Group terminal input parameters

Parameter	Parameter Description
F03.00~ F03.08	Set DI function selection. The absolute value of the parameter represents the function, the parameter symbol represents the logic, the positive number represents positive logic, the negative number represents negative logic, ON is valid, and OFF is invalid. The parameter value is a positive number: DI is open (OFF), DI is on (ON); the parameter value is a negative number: DI is open (ON), DI is on (OFF)
F03.10~ F03.18	Set the DI1 input filter time. The smaller the parameter value, the faster the signal response speed; the larger the parameter value, the slower the signal response speed, but the stronger the noise filter ability.
F03.20	Set by Bit, 1 means that the correspond DI function is forcibly valid, as shown below. Bit0: FunIN.0 is meaningless Bit1: FunIN.1 (S‑ON) Bit2: FunIN.2 (ALM‑RST) Bit3: FunIN.3 (GAIN‑SEL) Bit4: FunIN.4 is meaningless
F03.22	Bit0: FunIN.10(M1-SEL)Bit1: FunIN.11(M2-SEL)Bit2: FunIN.12(ZCLAMP)Bit3: FunIN.13(INHIBIT)Bit4: FunIN.14(P-OT)
F03.23	Bit0: FunIN.15(N-OT)Bit1: FunIN.16(P-CL)Bit2: FunIN.17(N-CL)Bit3: FunIN.18 is meaningless Bit4: FunIN.19 is meaningless
F03.24	Bit4: FunIN.24(GEAR-SEL), other bits are meaningless
F03.25	Bit2: FunIN.27(DIR-SEL), other bits are meaningless
F03.26	Bit1: FunIN.31 (HomeSwitch) Bit2: FunIN.32 (HomingStart) Bit4: FunIN.34 (EmergencyStop), other bits are meaningless
F03.27	Bit0: FunIN.35(ClrPosErr) Bit2: FunIN.37(PulseInhibit), other bits are meaningless
F03.28	Bit3: FunIN.43(SP1) Bit4: FunIN.44(SP2), other bits are meaningless
F03.29	Bit0: FunIN.45 (SP3) Bit1: FunIN.46 (TRQ1) Bit2: FunIN.47 (TRQ2) Bit3: FunIN.48 meaningless Bit4: FunIN.49 (PC)
F03.51	Set the low-pass filter time constant of the AS1 analog instruction. The larger the setting, the slower the response to the input analog command, which is beneficial to reduce high-frequency noise

	interference. The smaller the setting, the faster the response to the input analog command, but the high-frequency noise interference is greater.
F03.53	Set the absolute value of the AS1 analog input dead zone range. When the input analog voltage value is within the positive and negative dead zone range, the input command is forced to be 0.
F03.54	Set the AS1 analog input zero offset compensation amount. The actual command is to input the analog input minus the parameter value.
F03.56	Set the low-pass filter time constant of the AS2 analog instruction. The setting method is the same as F03.51.
F03.58	Set the absolute value of the AS2 analog input dead zone range. When the input analog voltage value is within the positive and negative dead zone range, the input command is forced to be 0.
F03.59	Set the AS2 analog input zero offset compensation amount. The actual command is to input the analog input minus the parameter value.
F03.65	Set the proportional relationship between the analog input voltage and the analog speed command. The analog input range is -10V~10V.
F03.66	Set the proportional relationship between the analog input voltage and the analog torque command. The analog input range is -10V~10V.
F03. 69~ F03.74	DO1 terminal function selection , parameter symbol represents logic, positive number represents positive logic, negative number represents negative logic, ON outputs 1, OFF outputs 0. The parameter value is a positive number: ON (DO is on), OFF (DO is off) The parameter value is a negative number: ON (DO cutoff), OFF (DO on)
F03.80	Bit0: 1 (DO1 output is determined by the Bit0 content of F04.20), 0 (DO1 outputs internal function status) Bit1: 1 (DO2 output is determined by the Bit1 content of F04.20), 0 (DO2 output internal function status) Bit2: 1 (DO3 output is determined by the Bit2 content of F04.20), 0 (DO3 output internal function status) Bit3: 1 (DO4 output is determined by the Bit3 content of F04.20), 0 (DO4 output internal function status) Bit4: 1 (DO5 output is determined by the Bit4 content of F04.20), 0 (DO5 output internal function status)
F03.82	Bit0: 1 (DO1 output 1), 0 (DO1 output 0); Bit1: 1 (DO2 output 1), 0 (DO2 output 0) Bit2: 1 (DO3 output 1), 0 (DO3 output 0) Bit3: 1 (DO4 output 1), 0 (DO4 output 0) Bit4: 1 (DO5 output 1), 0 (DO5 output 0)

F05 group position control parameters

Parameter	Parameter Description
F05.01	0: Low speed, single-ended input frequency is up to 200K, differential input frequency is up to 500K. 1: High speed, differential input maximum frequency 4M
F05.04	Set the position command exponential smoothing filter time, and perform exponential acceleration and deceleration smoothing filtering on the command pulse.
F05.06	Set position command linear filter time
F05.15	Set the command pulse input form. 0: pulse and direction; 1: forward and reverse pulse; 2: orthogonal pulse

F05.17	Set the number of pulses output by the pulse output terminal when the motor rotates for one revolution, that is, the number of pulse outputs = (F05.17) x 4
F05.21	Set the position completion pulse range in the driver position control mode. When the position deviation counter value is less than or equal to the F05.21 parameter setting value, the DO output position completion is ON, otherwise it is OFF. The comparator has hysteresis function, which is set by parameter F05.23
F05.22	Set the position proximity pulse range in the driver position control mode. When the position deviation counter count value is less than or equal to the F05.22 parameter setting value, the DO output position proximity is ON, otherwise it is OFF. The comparator has hysteresis function, which is set by parameter F05. 24 .
F05.30	Set the home return enable mode 1: Triggered by the high level of the DI input FunIN.32 (HomingStart) signal; 2: Triggered by the rise edge of the DI input FunIN.32 (HomingStart) signal; 3: Automatically executed after power-on.
F05.36	Set the offset of the mechanical home during the home return action. The pulse resolution is fixed at 65536/revolution.
F05.41	Set the level when the pulse output Z signal is valid. 0: Positive polarity; 1: Negative polarity
F05. 42	Set the effective level width of the pulse output Z signal. 0: 1 times A pulse width; 1: 4 times A pulse width
F05.70	Set the filter value of the command pulse input signal. It is used to filter noise on the signal line. The larger the value, the larger the filter time constant, and the maximum pulse input frequency will be reduced accordingly.
F05.72	Set the polarity of the command pulse input direction signal. 0: SIGN forward; 1: SIGN reverse
F05.73	Set the command pulse input signal logic to adjust the count edge and count direction. 0: PULS forward, SIGN forward 1: PULS reverse, SIGN forward 2: PULS forward, SIGN reverse 3: PULS reverse, SIGN reverse
F05.75	Set the command pulse input signal filter mode. 0: PULS and SIGN signals are filtered at the same time; 1: Only the PULS signal is filtered, and the SIGN signal is not filtered.

F06 group speed control parameters

Parameter	Parameter Description
F06.05	Set the time for the speed command to accelerate from 0 to 1000rpm.
F06.06	Set the time for the speed command to decelerate from 1000rpm to 0.
F06.15	Set the zero speed detection point in the driver speed control mode. When the motor speed is less than or equal to the F06.15 parameter setting value, the DO output zero speed is ON, otherwise it is OFF. The comparator has hysteresis function, which is set by parameter F06.88.
F06.18	Set the speed arrival detection point in the driver speed control mode. When the motor speed exceeds the F06.18 parameter setting value, the DO output speed reaches ON, otherwise it is OFF. The comparator has hysteresis function, which is set by parameter F06.85. The comparator has a polarity setting function, which is set by parameter F06.86.
F06.20	Set the speed arrival hysteresis in the drive speed control mode and use it in conjunction with parameter F06.18.
F06.27	Sets the speed arrival polarity in drive speed control mode. 0: F06.18 > 0, the rotation speed is detected regardless of direction; 1: F06.18 > 0, only positive rotation

	speed is detected, F06.18 < 0, only negative rotation speed is detected
F06.59	Set the speed command source in the drive speed control mode.
	0: Analog speed command.
	1: Internal speed command, select internal speed parameters through DI input SP2 and SP1, | SP2 | SP1 | signal description is as follows:
	00: Internal speed 1, the F06.80 parameter value is the speed command; 01: Internal speed 2, the F06.81 parameter value is the speed command
	10: Internal speed 3, the F06.82 parameter value is the speed command; 11: Internal speed 4, the F06.83 parameter value is the speed command
	2: Analog speed command + internal speed command, selected by DI input SP2, SP1, | SP2 | SP1 | The signal description is as follows.
	00: Analog speed command, the analog value is used as the speed command; 01: Internal speed 2, the F06.81 parameter value is the speed command
	10: Internal speed 3, the F06.82 parameter value is the speed command; 11: Internal speed 4, the F06.83 parameter value is the speed command
	3: Automatically set when use JOG speed command. 4: Functions retained. 5: Automatically set when demonstrate speed command.
F06.60	0: Analog positive voltage -> forward speed command, analog negative voltage -> reverse speed command.
	1: Analog positive voltage->reverse speed command, analog negative voltage->forward speed command.
F06.61	0: Both the positive and negative voltages of the analog quantity are valid; 1: The positive voltage of the analog quantity is valid, and the negative voltage forces the speed command to be 0.
	2: The negative voltage of the analog quantity is valid, and the positive voltage forces the speed command to be 0.
F06.65	Set the PDFF coefficient of the drive speed regulator and select the speed controller structure. 0: IP regulator; 1~99: PDFF regulator; 100: PI regulator
	When the parameter value is too large, the system has a high frequency response; when the parameter value is too small, the system has high stiffness; when the parameter value is medium, both frequency response and stiffness are considered.
F06.66	Set the drive speed feedback filter filter time constant.
	The larger the parameter value, the smoother the detection. If it is too large, it may cause noise. The smaller the parameter value, the faster the detection response. If it is too small, it may cause oscillation.
F06.90	Set the drive zero position fixed mode implementation.
	When the follow conditions are met, the zero-position fixed mode is turned on; when any condition is not met, normal speed control is performed:
	1: Speed control mode 2: DI input zero fixed signal ON 3: Speed command lower than F06.15
	When the zero fixed mode is turned on, the mean of the F06.90 parameter is as follows:
	0: The motor position is fixed at the moment when the function is turned on. At this time, the internal position control is connected. Even if the rotation occurs due to external force, it will return to the zero fixed point.
	1: When the function is turned on, the speed command is forced to 0, and the speed control is still performed internally, and rotation may occur due to external force.

F07 group torque control parameters

Parameter	Parameter Description
F07.05	Setting the drive torque command low-pass filter time constant can suppress vibration caused by machinery. The larger the value, the better the vibration suppression effect. If it is too large, the response will slow down and cause oscillation; the smaller the value, the faster the response. When the load inertia is small, a smaller value can be set; when the load inertia is large, a larger value can be set.
F07.07	the limit parameter source is determined by DI input P‑CL and N CL respectively.- Forward rotation limit, P‑CL is valid: the F07.11 parameter value is used as the forward torque limit value, P‑CL is invalid: the F07.09 parameter value is used as the forward torque limit value Reverse rotation limit, N‑CL is valid: F07.12 parameter value is used as the reverse rotation torque limit value, N‑CL is invalid: F07.10 parameter value is used as the reverse rotation torque limit value 1: In addition to the basic torque limit, it is also limited by the analog torque command. The analog torque command limit does not distinguish between forward and reverse rotation. 2: In addition to the basic torque limit, it is also limited by the internal torque command. The internal torque command is selected by DI input and does not distinguish between forward and reverse rotation. If multiple limits occur, the final limit value is the limit value with the smallest absolute value. Even if the set value exceeds the maximum torque allowed by the system, the actual torque will be limited to the maximum torque.
F07.09 _	Set the driver internal forward torque limit. The F07.09 parameter take effect when the DI input forward torque limit is ON. When the limit is valid, the actual torque limit is the minimum value of the maximum overload capacity allowed by the system, the internal forward torque limit, and the external forward torque limit.
F07.10	Set the driver internal reverse torque limit. The F07.10 parameter take effect when the DI input reverse torque limit is ON. When the limit is valid, the actual torque limit is the minimum value of the maximum allowable overload capacity of the system, the internal reverse torque limit, and the external reverse torque limit.
F07.17	0: Basic speed limit: limited by F07.62 parameter. 1: In addition to the basic speed limit, it is also limited by the analog speed command. 2: Basic speed + internal speed command limit, the internal speed is selected by DI input SP2, SP1, | SP2 | SP1 | signal description is as follows. 00: Internal speed 1, the F06.80 parameter value is the speed limit value; 01: Internal speed 2, the F06.81 parameter value is the speed limit value 10: Internal speed 3, the F06.82 parameter value is the speed limit value; 11: Internal speed 4, the F06.83 parameter value is the speed limit value If multiple limits occur, the final limit value will be the limit value with the smallest absolute value. Even if the set value exceeds the maximum speed allowed by the system, the actual speed will be limited to the maximum speed.
F07.59	0: Analog torque command. 1: Internal torque command, select internal torque parameters through DI input TRQ2 and TRQ1, | TRQ2 | TRQ1 | signal description is as follows: 00: Internal torque 1, the F07.80 parameter value is the torque command; 01: Internal torque 2, the

	F07.81 parameter value is the torque command
	    10: Internal torque 3, the F07.82 parameter value is the torque command; 11: Internal torque 4, the F07.83 parameter value is the torque command
	2: Analog torque command + internal torque command, select analog torque command or internal torque parameter through DI input.
	    00: Internal torque 1, analog value is used as torque command; 01: Internal torque 2, F07.81 parameter value is torque command
	    10: Internal torque 3, the F07.82 parameter value is the torque command; 11: Internal torque 4, the F07.83 parameter value is the torque command

F07.60	0: Analog positive voltage -> forward torque command, analog negative voltage -> reverse torque command. 1: Analog positive voltage -> reverse torque command, analog negative voltage -> forward torque command.
F07.61	0: Both the positive and negative voltages of the analog quantity are valid; 1: The positive voltage of the analog quantity is valid, and the negative voltage forced torque command is 0. 2: The negative voltage of the analog quantity is valid, and the positive voltage forced torque command is 0.
F07.84	Set the torque arrival detection point in the driver torque control mode. When the motor torque exceeds the F07.84 parameter setting value, the DO output torque reaches ON, otherwise it is OFF. The comparator has hysteresis function, which is set by parameter F07.85. The comparator has a polarity setting function, which is set by parameter F07.86. For details, please refer to the description of F07.86.
F07.86	0: F07.84 > 0, speed detection regardless of direction; 1: F07.84 > 0, only detects positive torque, F07.84 < 0, only detects negative torque

F08 group gain parameters

Parameter	Parameter Description
F08.00	Set the proportional gain of the speed regulator. This parameter determines the response of the speed loop. The larger the parameter is, the faster the speed loop will respond. If it is too large, it will easily cause vibration and noise. If the over moment of inertia ratio is set correctly, the parameter value is equivalent to the speed response bandwidth.
F08.01	Set the integral time constant of the speed regulator. The smaller the parameter value, the smaller the speed control error and increase the rigidity. If it is too small, it will easily cause vibration and noise. When set to the maximum value, it means cancel the integral, and the speed regulator is a P controller.
F08.02	Set the proportional gain of the position regulator. This parameter determines the response of the position loop. Increase the parameter value can reduce the position follow error and improve the rigidity. But setting it too high will cause oscillation and overshoot.
F08.10	Set the delay time from when the gain switch condition is met to start switch. If it is detected during the delay stage that the switch condition is not met, the switch will be cancel.
F08.11	Set the level that meets the gain switch conditions. The setting values and units are different for different switch conditions. The comparator has hysteresis function, which is set by parameter F08.12.

	When F08.72 is set to 3, the mean of parameter F08.11 indicates the command pulse frequency, the unit is 0.1kHz When F08.72 is set to 4, the mean of the F08.11 parameter indicates the pulse deviation, and the unit is pulse. When F08.72 is set to 5, the mean of F08.11 parameter indicates the motor speed, the unit is rpm
F08.13	Set the linear smoothing time for switch from the current gain combination to the target gain combination to avoid the impact of sudden parameter changes.
F08.15	Set the ratio of the mechanical load moment of inertia (converted to the motor shaft) to the motor rotor moment of inertia.
F08.18	Set the filter time constant for speed feedforward to increase the stability of feedforward control.
F08.19	Set the gain for speed feedforward. Increase the parameter can reduce the position tracking error during position control and improve the position control response. If it is too large, the system will be unstable and prone to oscillation.
F08.40	Set whether the speed observer is effective. 0: Turn off the speed observer, speed feedback source and filter. 1: Turn on the speed observer, speed feedback source and observer.
F08.42	Set the model tracking control mode, which is suitable for position control. Select appropriate parameters accord to different loads to improve the system response. 0: Model tracking is invalid. 1: Applicable to rigid load. 2: Reserved. 3: Universal type.
F08.46	Set the model tracking speed compensation feedforward, which is suitable for modes 1~3. The larger the parameter value, the greater the speed loop feedforward effect. If it is too large, it will cause noise.
F08.51	Model tracking controls the acceleration feedforward filter time, which is suitable for mode 3. The larger the parameter value, the smaller the noise. If it is too large, it will cause compensation lag.
F08.52 _	Medium frequency vibration suppression 1 switch . 0: Medium frequency vibration suppression is invalid. 1: Medium frequency vibration suppression is effective. 2: Automatic setting of medium frequency vibration suppression.
F08.53	Medium frequency vibration suppression 1 vibration frequency . It is necessary to turn on the medium frequency vibration suppression 1 switch (F08.52=1)
F08.54	Medium frequency vibration suppression 1 damp coefficient . Increase the damp coefficient can improve the anti-vibration effect, but if it is too large, it will increase the vibration.
F08.56	Compensation coefficient for medium frequency vibration suppression 1 . When the load inertia ratio (F08.15) is set appropriately, it is recommended to set this parameter to 100. If the inertia cannot be obtained, this value is inversely proportional to the actual load inertia.
F08.58 _	Medium frequency vibration suppression 2 switch . 0: Medium frequency vibration suppression is invalid. 1: Medium frequency vibration suppression is effective. 2: Automatic setting of medium frequency vibration suppression.
F08.5 9	Medium frequency vibration suppression 2 vibration frequency . It is necessary to turn on the medium frequency vibration suppression 2 switch (F08.58=1)
F08.60 _	Medium frequency vibration suppression 2 damp coefficient . Increase the damp coefficient can improve the anti-vibration effect, but if it is too large, it will increase the vibration.
F08.61 _	Compensation coefficient for medium frequency vibration suppression 2 . When the load inertia ratio (F08.15) is set appropriately, it is recommended to set this parameter to 100. If the inertia cannot be obtained, this value is inversely proportional to the actual load inertia.

F09 group self-adjusting parameters

Parameter	Parameter Description
F09.01	0: The rigidity level setting does not take effect. 1~22: The higher the rigidity level, the stronger the gain and the faster the response. If it is too high, it will cause vibration.
F09.02	automatic notch switch , Bit0: 0: The automatic setting of the first notch filter is turned on; 1: The automatic setting of the first notch filter is turned off. Bit1: 0: The automatic setting of the second notch filter is on; 1: The automatic setting of the second notch filter is off. Bit2: 0: The automatic setting of the third notch filter is on; 1: The automatic setting of the third notch filter is off. Bit3: 0: The automatic setting of the fourth notch filter is turned on; 1: The automatic setting of the fourth notch filter is turned off. Bit4: 0: The automatic setting function of the first notch filter is turned off after the automatic setting is successful; 1: The automatic setting function of the first notch filter is always on. Bit5: 0: The automatic setting function of the second notch filter is turned off after the automatic setting is successful; 1: The automatic setting function of the second notch filter is always on. Bit6: 0: The automatic setting function of the third notch filter is turned off after the automatic setting is successful; 1: The automatic setting function of the third notch filter is always on. Bit7: 0: The automatic setting function of the fourth notch filter is turned off after the automatic setting is successful; 1: The automatic setting function of the fourth notch filter is always on.
F09.03	Inertia estimation mode ; 0: Opposite resistance compensation mode. 1: Same direction resistance compensation method
F09.05	Inertia estimation mode ; 0: Turn off inertia estimation. 1: Keep the manufacturer applicable. 2: Online estimation mode.
F09.06	Inertia estimation gain level ; 0: low gain. 1: Medium gain. 2: High gain.
F09.12	The center frequency of the first resonance notch filter. If the parameter value is 0, the notch filter is turned off.
F09.13	The first resonance notch filter quality factor, the larger the quality factor, the sharper the notch filter shape, and the narrower the -3dB notch width.
F09.14	The depth of the first resonance notch, the greater the depth, the greater the notch depth, the greater the filter gain attenuation; the parameter value 0 turns off the notch.
F09.15~ F09.23	F09.15~F09.17, the second resonance notch filter , refer to the description of F09.12-F09.14 F09.18~F09.20, the third resonance notch filter , refer to the description of F09.12-F09.14 F09.21~F09.23, the fourth resonance notch filter , refer to the description of F09.12-F09.14
F09.33 ~ F09.36	Friction Compensated Disturbance Observer F09.33: Observer switch ; 0: Observer is turned off. 1: Observer is on F09.34: Observer gain ; when the load inertia ratio is set reasonably, it is recommended to set this parameter to 100; when the load inertia ratio is uncertain, this parameter value is inversely proportional to the actual load inertia ratio . F09.35: Observer compensation coefficient ; 0: Turn off friction compensation function. Non-0: Increase the parameter value can suppress vibration, but if it is too large, it will increase vibration. F09.36: Observer torque coefficient ; increase the parameter value can compensate for external

	disturbances faster. If it is too large and the machine has a resonance frequency, it will cause vibration.
F09.38~ F09.47	End vibration suppression function F09.46: Vibration suppression switch ; 0: Turn off the vibration suppression function. 1: Automatically detect vibration frequency, suitable for situations where inertia changes little. 2: Automatically detect vibration frequency, suitable for situations where inertia is always changing. 3: Manually set the vibration frequency, suitable for situations where the vibration frequency is known. F09.38: Suppression period ; F09.39: Suppression compensation coefficient ; F09.44: Vibration detection filter frequency; F09.47: Minimum vibration detection amplitude
F09.55	The vibration detection alarm time does not take effect when the maximum value is set . The unit is 3 , and each unit corresponds to 1 second.
F09.80	High response mode switch ; 0: Servo loop control adopts traditional control mode. 1: Servo loop control adopts high response mode.
F09.81	High response mode speed loop observer gain . Increase the parameter value can improve the follow ability and anti-interference ability. If it is too large, it will be easily affected by noise interference.
F09.82	High response mode speed loop observer gain selection ; 0 : The observer uses the default gain parameters. 1: The observer use F09.81 as the gain parameter .
F09.83	High response mode speed feedback source ; 0: Speed feedback comes from the original speed. 1: Speed feedback comes from the filter output speed.
F09.84	High response mode speed loop current loop mode selection ; 0: Speed loop adopts advanced control. 1: Both speed loop and current loop adopt advanced control.
F09.85	High response mode current loop observer gain ; current loop observer bandwidth gain . Increase the parameter value can improve the current follow ability and anti-interference ability. If it is too large, it will be easily affected by noise interference.
F09.86	High response mode current loop observer gain selection ; 0: The observer use the default gain parameters. 1: The observer uses F09.85 as the gain parameter .
F09.87	High response mode speed loop tracking coefficient ; it is recommended to set it between 75 and 150. Increase this value can improve the speed follow tail phenomenon
F09.88	High response mode speed loop strong robustness function switch ; 0: Turn off the high response mode speed loop strong robustness function. 1: Turn on the strong robustness function of the speed loop in high response mode and keep the default gain. 2: Turn on the high response mode speed loop strong robustness function, with adjustable gain
F09.89	High response mode speed loop robustness coefficient ; setting 20~80 can meet the needs. If it is too high, it will cause mechanical vibration.
F09.90	The first torque filter time constant of high response mode ; increasing the parameter value can better suppress vibration and reduce torque current fluctuations. If it is too large, the response will be slower and cause vibration; decreasing the parameter value can make the response faster. But it will be subject to mechanical conditions .
F09.91	High response mode nonlinear control method ; 0: Exponential control method. 1: Non-exponential control method.
F09.92	High response mode exponential nonlinear level ; 0: linear. 1: Nonlinear type 1. 2: Nonlinear type 2. 3: Nonlinear type 3. 4: Nonlinear type 4. 5: Nonlinear type 5.
F09.93	High response mode non-exponential nonlinear gain ; increasing the parameter value can improve speed following ability and interference immunity .

F0A group fault and protection parameters

Parameter	Parameter Description
F0A.08	Based on the maximum speed of the motor, set the motor overspeed detection percentage.
F0A.10	Set the excessive position deviation detection range, the unit is revolution, and multiply it with the motor encoder resolution to get the number of pulses. In position control mode, when the position deviation counter value exceeds the F0A.10 parameter setting value, the servo drive will give an alarm.
F0A.25	Set the filter time constant when the speed feedback value is used for display to make the speed display smoother.
F0A.36	Set whether to detect encoder multi-turn overflow fault. 0: Detect encoder multi-turn overflow fault. 1: Shield the encoder multi-turn overflow fault.
F0A.50	Set the forward torque overload alarm threshold. When the motor's forward torque exceeds the F0A.50 parameter setting value and the duration exceeds the F0A.52 parameter setting value, the servo driver will give an alarm; when the parameter value is 0, forward rotation will not be detected. Torque overload.
F0A.51	Set the reverse torque overload alarm threshold. When the motor reverse torque exceeds the F0A.51 parameter setting value and the duration exceeds the F0A.52 parameter setting value, the servo driver will give an alarm; when the parameter value is 0, reverse rotation will not be detected. Torque overload.
F0A.68	Set the statistical time for various peak detection data, including peak current, peak torque, etc.
F0A.70	Set the motor static speed detection threshold. When the motor speed is lower than the F0A.70 parameter setting value, the motor is considered to be in a static state.
F0A.72	Set the speed detection threshold for switching to position control mode. When switching to position control mode, when the speed value is less than the F0A.70 parameter value, the position deviation is cleared; otherwise, the initial value of the position deviation needs to be set appropriately to avoid impact.

F0b group monitoring parameters

Parameter	Parameter Description
F0B.00	Displays the actual speed of the servo motor, rounded off, with an accuracy of 1 rpm. The filter time constant for F0b.00 can be set through F0A.25 (speed feedback display value filter time constant).
F0B.01	In position and speed mode, the current speed command value of the drive is displayed with an accuracy of 1rpm.
F0B.02	Displays the current torque command value with an accuracy of 0.1%. 100.0% corresponds to 1 times the motor rated torque.
F0B.03	Displays the current level status of 7 hardware DI terminals. Display mode: The upper part of the digital tube lights up to indicate that the optocoupler is conducting; the lower part to lights up indicates that the optocoupler is not conducting.
F0B.05	Display the current level status of 5 hardware DO terminals. Display mode: The upper part of the digital tube lights up to indicate that the optocoupler is conducting; the lower part to lights up indicates that the optocoupler is not conducting.
F0B.07	In position mode, the current absolute position of the motor (command unit) is displayed. This parameter is 32 bits, and the panel displays decimal data.
F0B.09	The number of pulses starting from the home shows the current mechanical angle of the motor (encoder unit), 0 corresponds to the mechanical angle of 0°.
F0B.10	Displays the current electrical angle of the motor with an accuracy of 0.1°. When the motor rotates, the electrical angle changes within a range of ±360.0°; When the motor has 4 pairs of poles, the electrical angle of the motor will change 4 times from 0° to 359° each time it rotates; When the motor has 5 pairs of poles, the electrical angle will change from 0° to 359° 5 times each time the motor rotates.
F0B.12	Displays the average load torque as a percentage of the motor's rated torque. The accuracy is 0.1%. 100.0% corresponds to 1 times the motor's rated torque.
F0B.13	During servo operation, the number of position instructions that have not been multiplied by the electronic gear ratio is counted and displayed. This parameter is 32 bits, and the panel displays decimal data.
F0B.15	In position mode, the position deviation value after multiplication of the electronic gear ratio is counted and displayed. This parameter is 32 bits, and the panel displays decimal data.
F0B.17	In any mode, the position pulses fed back by the encoder are counted. This parameter is 32 bits, and the panel displays decimal data.
F0B.21	Analog channel 1 voltage sampling value, display accuracy is 0.01V.
F0B.22	Analog channel 2 voltage sampling value, display accuracy is 0.01V.
F0B.24	Servo motor phase current effective value, display accuracy is 0.01A.
F0B.33	0: Current fault. 1: Last failure. 2: The last 2 failures. 3: The last 3 failures occurred. 4: The last 4 failures occurred. 5: Last 5 failures. 6: The last 6 failures occurred. 7: The last 7 failures occurred. Setting instructions: Used to select and view the last 7 failures of the servo drive.
F0B.34	Displays the fault code selected by F0b.33.
F0B.53	In position control mode, the position deviation value without electronic gear ratio.

	The position deviation (command unit) is the value converted by the encoder position deviation. When perform division operation, there will be a loss of accuracy. This parameter is 32 bits, and the panel displays decimal data.
F0B.55	Displays the actual operate speed of the servo motor with an accuracy of 0.1rpm. This parameter is 32 bits, and the panel displays decimal data. The speed feedback filter time constant for display can be set through F0A.25.
F0B.58	Displays the lower 32-bit value (encoder unit) of the mechanical correspond position feedback when use the absolute value function.
F0B.60	When the absolute value function is used, the position feedback correspond to the machine is 32 bits higher (encoder unit).
F0B.64	Setting instructions: -2147483648 command unit ~ 2147483647 command unit Displays the pulse command counter before the electronic gear ratio is multiplied, regardless of the current status of the servo and the control mode.
F0B.77	Display the position feedback value of the absolute encoder, the lower 32-bit data.
F0B.79	Display the position feedback value of the absolute encoder, the upper 32-bit data.

F0C group communication parameters

Parameter	Parameter Description
F0C.00	Set the drive device address. When multiple servo drives are networked, each drive needs to be set with a unique address to avoid communication conflicts.
F0C.02	Set the driver Modbus communication baud rate. 1: 4800. 2: 9600. 3: 19200. 4: 38400. 5: 57600. 6: 115200
F0C.03	Set the driver Modbus communication mode. 0~2: Reserved. 3: RTU, data length 8, no parity, stop bit 1. 4: RTU, data length 8, even parity, stop bit 1. 5: RTU, data length 8, odd parity, stop bit 1

F0d group auxiliary function parameters

Parameter	Parameter Description
F0D.10	Quick parameter, analog channel zero adjustment. 0: No action. 1: Trigger the zero adjustment of analog channel AS1, the zero adjustment result will automatically take effect and be stored in the F03.54 parameter. 2: Trigger the zero adjustment of analog channel AS2, the zero adjustment result will automatically take effect and be stored in the F03.59 parameter.
F0D.11	Speed 100% torque JOG operation , 0: No action 1: Trigger generator runs at 100% rated torque at set speed
F0D.12	JOG operation at speed 300% torque , 0: No action 1 : Trigger generator operates at 300% rated torque at set speed
F0D.20	Shortcut parameters to trigger encoder related operations. 0: No action 1: Trigger encoder fault reset operation. 2: Trigger encoder fault reset and multi-turn clearing operation. 3: Trigger parameter write encoder EEPROM operation
F0D.24	Open loop operation , 0: no action 1: trigger open loop operation

F0D.25	Shortcut parameter, triggers the encoder zero adjustment. After the operation is completed, the zero point information needs to be written into the encoder EEPROM through F0D.20. 0: No action. 1: Trigger the encoder to zero operation
F0D.29	Quick parameters to trigger power board self-test. 0: No action. 1: Trigger power board self-test

Chapter 6 Detailed explanation of general IO functions

6.1 Detailed explanation of universal input function

Signal name	Symbol	Applicable mode	Function code	Instructions for use
Servo enable	S‑ON	ALL	FunIN.1	To reset a resettable fault, you need to turn off the servo enable signal before use this function.
Fault and warn reset	ALM‑RST	ALL	FunIN.2	◆The driver will process it internally according to edge validity. ◆To reset a resettable fault, you need to turn off the servo enable signal (S‑ON is set to OFF) before using this function. ◆Depending on the alarm type, the servo can continue to work after some alarms are reset.
Gain switch	GAIN‑SEL	ALL	FunIN.3	When F08.09=1: ◆ Invalid‑speed control loop is PI control. ◆ valid‑speed control loop is P control. When F08.09=2: ◆ Invalid‑fixed to the first group of gains. ◆ valid‑fixed to the second set of gains.
Mode switch 1	M1‑SEL	ALL	FunIN.10	Accord to the selected control mode (3, 4, 5), switch between speed, position and torque.
Mode switch 2	M2‑SEL	ALL	FunIN.11	Accord to the selected control mode (6), switch between speed, position and torque.
Zero fixed enable	ZCLAMP	ALL	FunIN.12	◆Valid‑enable the zero position fix function. ◆Invalid‑and disabled zero position fix function.
zero instruction	INHIBIT		FunIN.13	◆ Valid‑command pulse input prohibited. ◆Invalid‑command pulse input is allowed.
Forward overtravel switch	CCWL	ALL	FunIN.14	When the mechanical movement exceeds the movable range, the overtravel prevention function is entered: ◆Valid‑reverse drive is prohibited.
Reverse overtravel switch	CWL	ALL	FunIN.15	◆Invalid‑allows reverse drive. ◆Valid mode: level
Positive external torque limit	P‑CL	ALL	FunIN.16	Accord to the selection of F07.07, the torque limit source is switched.
Anti-external torque limit	N‑CL	ALL	FunIN.17	Accord to the selection of F07.07, the torque limit source is switched.
Forward jog	JOGCMD+	ALL	FunIN.18	◆Valid‑Input accord to the given command. ◆ Invalid‑ Run command stop input.

Negative jog	JOGCMD-	ALL	FunIN.19	◆Valid - input in reverse direction according to the given command. ◆ Invalid - Run command stop input..
Electronic gear selection	GEAR_SEL	ALL	FunIN.24	◆Invalid - electronic gear ratio 1. ◆Valid - electronic gear ratio 2.
Command direction setting	dIRS	ALL	FunIN.27	◆Invalid, the actual command direction is the same as the set position command direction. ◆Valid, the actual command direction is opposite to the set command direction.
Home switch	HomeSwitch	ALL	FunIN.31	◆It is recommended to assign it to the fast DI terminal. If set to 2 (valid on rise edge), the driver will be forced to change to 1 (valid on high level) internally. If set to 3 (valid on falling edge), the drive will be forced to change to 0 (valid on low level) internally. If it is set to 4 (valid on both rise and falling edges), the driver will be forced to change to 0 internally (valid on low level)
Home return enabled	HomingStart	ALL	FunIN.32	◆Invalid - prohibition. ◆Valid - enabled.
Emergency shutdown	Emergency Stop	ALL	FunIN.34	◆ Valid- position lock after zero speed stop. ◆Invalid - has no impact on the current running status.
Clear position deviation	V_LmtSel	P	FunIN.36	◆ Valid- position deviation clear. ◆Invalid - position deviation is not cleared. ◆This DI function is recommended to be configured on the DI8 or DI9 terminal.
Internal speed limit source	V_LmtSel	S	FunIN.36	◆Invalid -F07.19 is used as the internal forward/reverse speed limit value. ◆Valid -F07.20 is used as the internal forward/reverse speed limit value.
Pulse command prohibited	PulseInhibit	P	FunIN.37	In position control mode, when the position command source is pulse command (F05.00=0): ◆Invalid - can respond to pulse command. ◆Valid - not responding to pulse command.
Set the current position as the home	HomeRecord	P	FunIN.41	◆invalid - not trigger. ◆Valid - trigger with current position as home.
Internal speed selection	SP1	S	FunIN.43	When speed control and speed limit, select internal speed
Internal speed selection	SP2	S	FunIN.44	◆00: Internal speed 1 (F06.80) ◆01: Internal speed 2 (F06.82) ◆10: Internal speed 3 (F06.82) ◆ 11: Internal speed 4 (F06.83)
Internal torque selection	TRQ1	T	FunIN.46	For torque control and torque limitation, select internal torque
Internal torque	TRQ2	T	FunIN.47	◆00: Internal torque 1 (F07.80) ◆01: Internal torque 2

selection				(F07.81) ◆10: Internal torque 3 (F07.82) ◆11: Internal torque 4 (F07.83)
Proportional control	PC	S	FunIN.49	◆Valid - speed loop P control ◆Invalid - speed loop PI control

6.2 Detailed explanation of general output function

Signal name	Symbol	Applicable mode	Function code	Instructions for use
Servo is ready to output	S - RDY	ALL	FunOUT.1	The servo state is ready and can receive the S - ON valid signal: ◆Valid - servo is ready. ◆Invalid - servo is not ready.
Motor rotation output	TGON	ALL	FunOUT.2	◆Invalid - the absolute value of the motor speed after filter is less than the setting value of function code F06.16. ◆Valid - the absolute value of motor speed after filter reaches the setting value of function code F06.16.
zero speed	ZERO	ALL	FunOUT.3	◆Invalid - When the difference between the motor's speed feedback and the given value is greater than the setting value of function code F06.15. ◆Valid - when the difference between the motor's speed feedback and the given value is not greater than the setting value of function code F06.15.
consistent speed	V - CMP	ALL	FunOUT.4	During speed control, it is valid when the absolute value of the difference between the servo motor speed and the speed command is less than the F06.17 speed deviation setting value.
Positioning completed	COIN	P	FunOUT.5	During position control, the position deviation pulse is valid when it reaches the positioning completion range F05.21.
Positioning close to	NEAR	P	FunOUT.6	During position control, the position deviation pulse is effective when it reaches the position approach signal amplitude F05.22 setting value.
Torque limit	C - LT	T	FunOUT.7	Confirmation signal of torque limit: ◆Valid - motor torque is limited. ◆Invalid - motor torque is not limited.
RPM limit	v - LT	T	FunOUT.8	Confirmation signal of limited speed during torque control: ◆Valid - motor speed is limited. ◆Invalid - motor speed is not limited.
Brake output	BK	P	FunOUT.9	◆Valid - close and release the brake. ◆Invalid - start brake.
warning output	WARN	ALL	FunOUT.10	The warn output signal is valid. (turn on)
fault output	ALM	ALL	FunOUT.11	The status is valid when a fault is detected. (turn on when normal, disconnected when fault occurs)
Home return	HomeAttain	ALL	FunOUT.16	◆Valid - home return to zero. ◆Invalid - home does not return to zero.

completed				
Electrical zero return output	ElecHome Attain	P	FunOUT.17	◆Valid - electrical home return to zero. ◆Invalid - electrical home does not return to zero.
Torque reaches output	ToqReach	T	FunOUT.18	◆ - The absolute value of effective torque reaches the set value. ◆ - The absolute value of invalid torque is less than the set value.
Speed reaches output	V-Arr	ALL	FunOUT.19	◆Valid - speed feedback reaches the set value. ◆Invalid - speed feedback does not reach the set value.
DB brake output	DB	P.S.	FunOUT.21	◆Valid - dynamic brake relay is disconnected. ◆Invalid - dynamic brake relay is activated.
Servo is running	RUN		FunOUT.26	◆Valid - servo enable ON ◆Invalid - servo enable OFF

Chapter 7 List of faults and warn

7.1 Category 1 (NO.1) fault table

Category 1 (NO.1) non-reset fault table

Show	Fault name	Fault type	Can it be reset?
Er.101	The servo internal parameters are abnormal.	NO.1	no
Er.102	Programmable logic fault	NO.1	no
Er.103	Programmable logic device check error	NO.1	no
Er.108	Parameter storage failure	NO.1	no
Er.109	Software security check error	NO.1	no
Er.120	Product match failure	NO.1	no
Er.124	Auxiliary encoder setting error	NO.1	no
Er.126	Power board communication failure	NO.1	no
Er.136	The data verification in the motor ROM is incorrect or the parameters are not stored.	NO.1	no
Er.201	Overcurrent 2	NO.1	no
Er.611	Over torque	NO.1	no
E r.627	Dynamic brake failure	NO.1	no
E r.653	Module temperature alarm	NO.1	no
Er.735	Encoder multi-turn count overflow	NO.1	no
Er.739	Encoder recognition error	NO.1	no
Er.740	Encoder interference	NO.1	no
Er.741	Pulse encoder signal error	NO.1	no
E r.742	Pulse encoder counting error	NO.1	no
E r.743	Pulse encoder Z signal lost	NO.1	no
Er.744	Encoder overspeed	NO.1	no
E r.745	Encoder overheating	NO.1	no
E r.800	Current sampling error	NO.1	no
Er.A33	Encoder data abnormality	NO.1	no
Er.A34	Encoder feedback verification exception	NO.1	no
E r.A35	Encoder frame data error	NO.1	no
Er.A36	Encoder EEPROM read error	NO.1	no
Er.207	D/Q axis current overflow fault	NO.1	yes
Er.400	Main circuit voltage overvoltage	NO.1	yes
Er.410	Main circuit voltage undervoltage	NO.1	yes
Er.500	Over speed	NO.1	yes
Er.610	Drive overload	NO.1	yes
Er.620	Motor overload	NO.1	yes
Er.650	Radiator overheated	NO.1	yes

| Er.B00 | Position deviation is too large | NO.1 | yes |
| Er.B01 | Position error overflow | NO.1 | yes |

7.2 Category 2 (NO.2) fault table

Show	Fault name	Fault type	Can it be reset?
Er.420	Main circuit electrical phase loss	NO.2	yes
Er.430	Control voltage undervoltage	NO.2	yes
Er.660	Excessive vibration	NO.2	yes
Er.731	Encoder battery failure	NO.2	yes
Er.939	Motor power cable is broken	NO.2	yes

7.3 Category 3 (NO.3) warn table

Show	Fault name	Fault type	Can it be reset?
Er.603	The signal for returning to zero and find the reference point exceeds the limit.	NO.3	yes
Er.604	Return to zero point Z signal exceeds the limit	NO.3	yes
Er.652	Module temperature warn	NO.3	yes
Er.730	Encoder battery warn	NO.3	yes
Er.920	Brake resistor overload	NO.3	yes
Er.924	Drain pipe overtemperature warn	NO.3	yes
Er.950	Forward overtravel warn	NO.3	yes
Er.952	Reverse overtravel warn	NO.3	yes
Er.954	Driver disabled exception	NO.3	yes