Contends

# Chapter 1 Product Information

1.1 Servo drive

1.1.1 Drive nameplate description

Model Description:
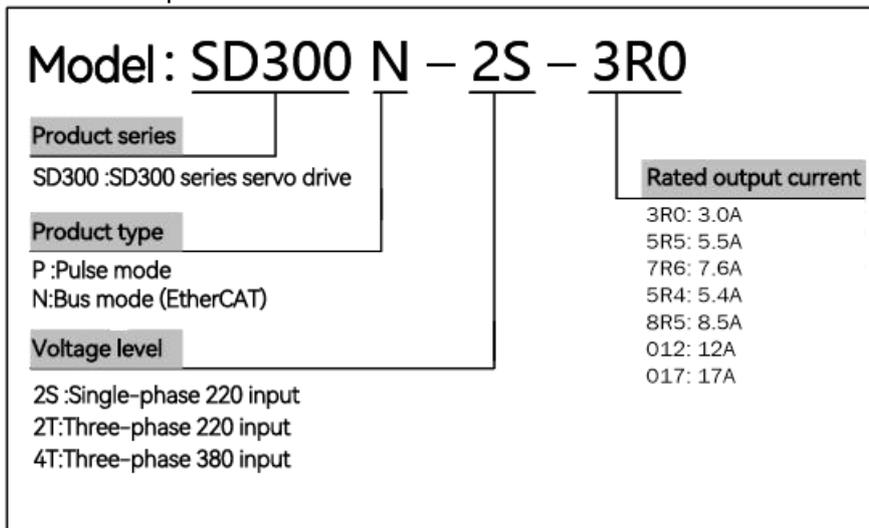
1.1.2 Drive model list

Bus type				
Size	Specifications and models	Input voltage	Optional motor power KW	Rated current (A)
A	SD300N-2S-1R8	Single phase 220V	0.2	1.8
	SD300N-2S-3R0		0.4	3
	SD300N-2S-5R5		0.75	5.5
B	SD300N-2T-7R6	Three-phase 220V	1	7.6
	SD300N-4T-5R4	Three-phase 380V	1.5	5.4
C	SD300N-2T-012	Three-phase 220V	1.5	12
	SD300N-4T-8R5	Three-phase 380V	2	8.5
	SD300N-4T-012		3	12
D	SD300N-4T-017	Three-phase 380V	5	17
	SD300N-4T-021		6	21
	SD300N-4T-025		7.5	25

1.1.3 Driver specification

Specifications			Explain
Voltage	220V system input voltage		AC220V(-15%)~240V(+10%) 50Hz~60Hz
	380V system input voltage		AC380V(-10%)~440V(+10%) 50Hz~60Hz
Port	Control signal	Input	4 DI
		Output	3 DO
	High speed latch	Input	2 DI
	Pulsing signal	Output	Open-circuit collector output (Z)
	Coder	Input	17bit, 23bit absolute value encoder, 1394 interface
	Communication function	USB	Communication, connected to the host computer (standard configuration)
Control model			PP Profile Position PV Profile Velocity PT Profile Torque HM Homing CSP Cyclic Sync Position CSV Cyclic Sync Velocity CST Cyclic Sync Torque
Function	Position control	Control input	Retention pulse clear
			Vibration control switch and so on
		Control output	Positioning to complete the output, etc
		Vibration control	It can suppress the front end vibration of 5~2000Hz
		Pulse output	Z signal collector open circuit output

Specifications			Explain
Function	Speed control	Control input	Zero speed clamp position
		Control output	Speed to reach
		Speed command acceleration and deceleration adjustment	Acceleration and deceleration time can be set separately
		Zero speed clamp position	Zero speed clamp function In speed mode, can be set to work in speed mode or position mode
	Torque control	Rate limitation	Speed limits can be set by the parameters
Protection	Hardware protection		Over-voltage, under-voltage, over-current, overload, overload, encoder failure, etc
	Software protection		Memory failure, initialization failure, excessive position deviation, brake resistor overload, driver overheating, etc.

1.1.4 Drive product dimensions

◆   Schematic diagram of size：
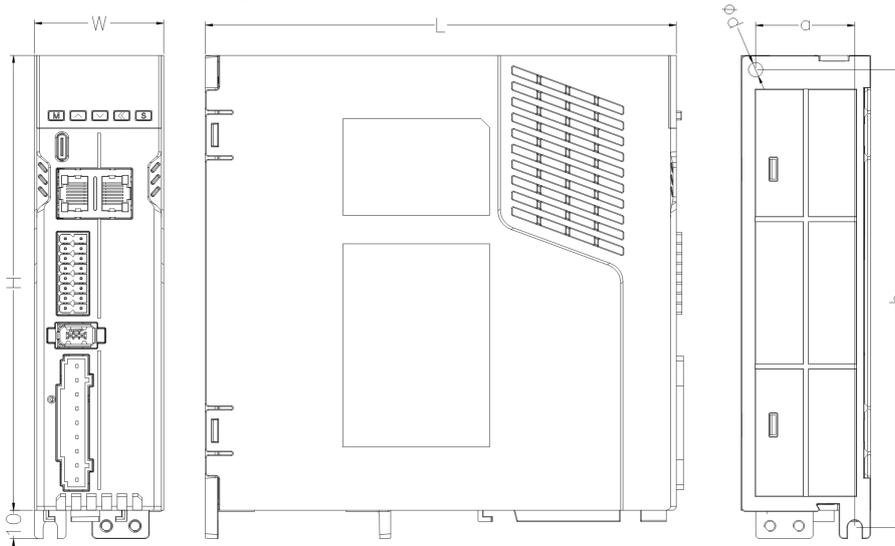
◆   size specification

Configuration	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

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.
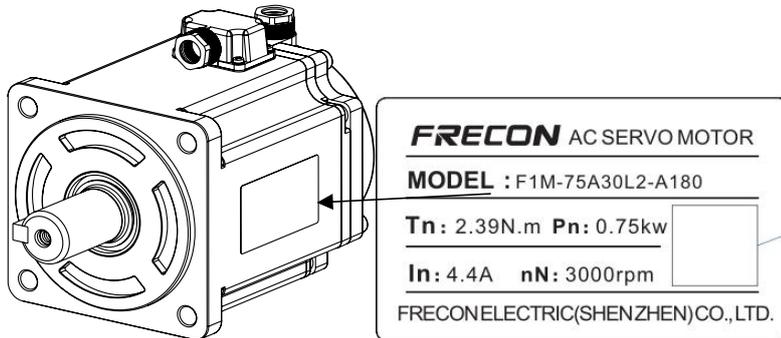
◆ **Model Description:**

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

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

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

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

⑤Input voltage
L： AC220V
H： AC380V

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

⑥Brake
1： Without brake
2： With brake

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 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

Note：

□：1Non-locking brake，2 band-type brake

1.3 Matching cable 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 cable
LEB : Absolute encoder cable with battery

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 Description of the driver terminal distribution

◆Distribution diagram of driver terminals (for 0.75kW machine)

TYPE-C

EtherCAT communication interface

01-DI1			02-DO3+
03-DI2			04-DO3-
05-HI1			06-DO2+
07-HI2			08-DO1+
09-COM+			10-COM-
11-STO_A			12-STO_O+
13-STO_B			14-GND
15-OZ			16-PE

Main loop input terminal

L1
L2
P
B1
B2
U
V
W
PE

Encoder interface	1	5V
	2	0V
	3	PE
	4	SD+
	5	SD-
	6	NC
	7	NC
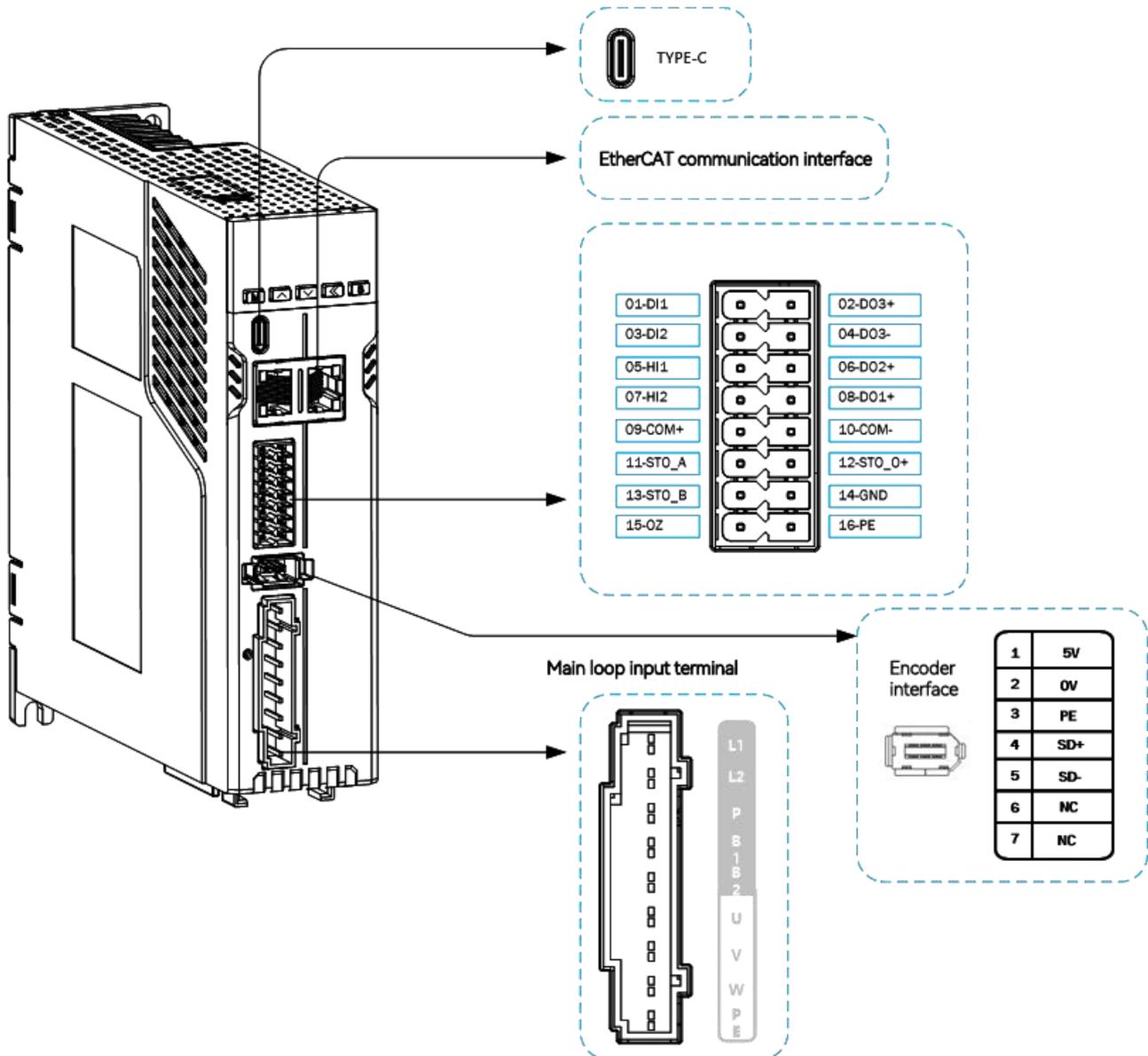
2.2 Main circuit terminal wiring

2.2.1 Description of the main circuit terminals
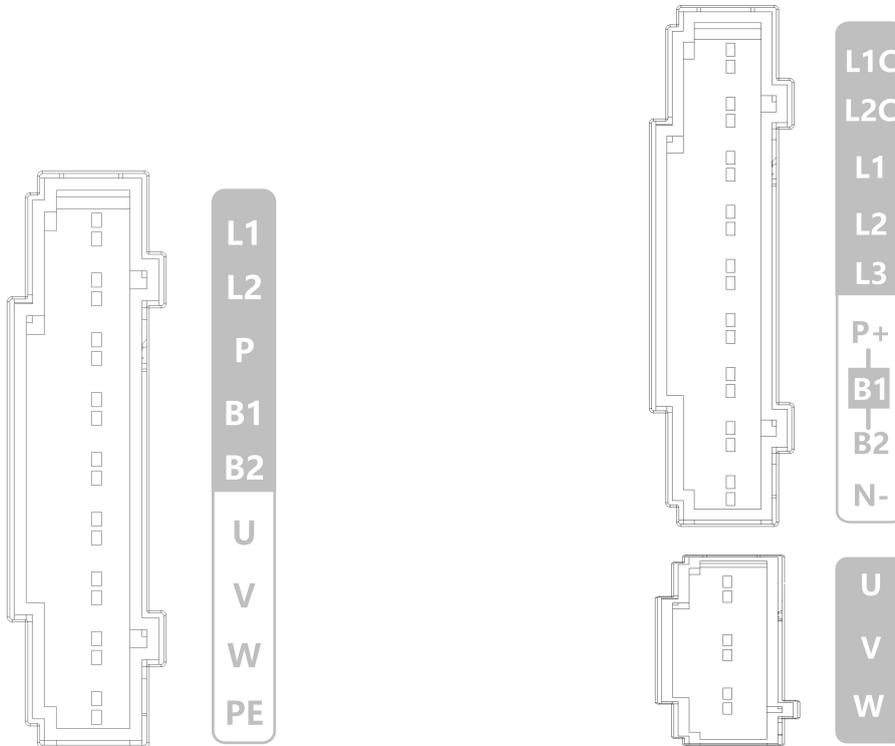
Single-phase 220V main circuit terminal   Three-phase 380 / 220V main main circuit terminal

Name	Terminal symbol	Model	Detailed description
The main circuit Power terminal	L1、L2	SD300N-2S	To connect external AC power: Single phase 220VAC -15%～+10%50/60Hz
	L1、L2、L3	SD300N-2T	To connect external AC power: Three-phase 220VAC -15%～+10% 50/60Hz
	L1、L2、L3	SD300N-4T	To connect external AC power: Three phase 380 VAC -15%～+10% 50/60Hz
Brake resistor terminals	P、B1、B2	SD300N-2S SD300N-2T SD300N-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 V W

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

2.2.3 Brake resistance wiring

If the internal brake resistance is used, the driver should short-connect B1 and B2, that is, it can be used normally according to the factory state. If the external brake resistance is used, the short connection between B1 and B2 must be disassembled first, and then the external brake resistance must be connect on P and B1. As shown in the figure below:
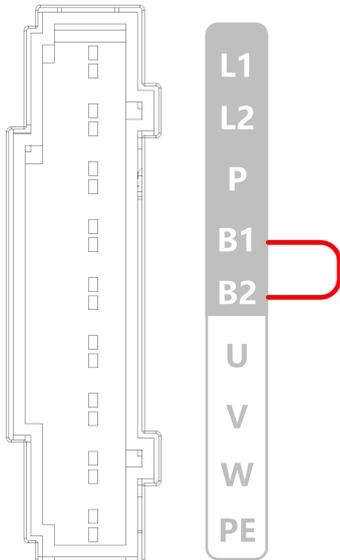
Use the internal brake resistance   Use an external brake resistance
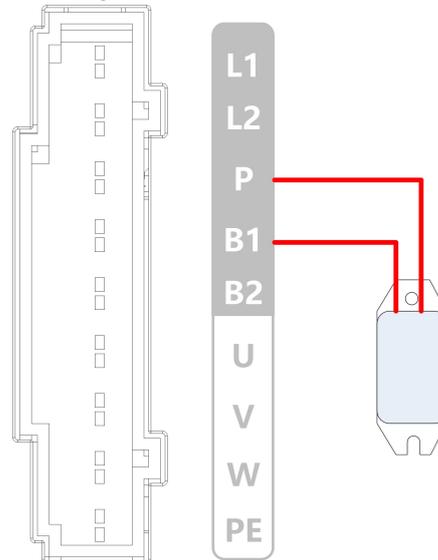
2.2.4 Adjustment of the brake resistance

Drive series		Internal brake resistor specifications	Recommended specification for external brake resistance	External brake resistance minimum resistance value
Single phase 220V	SD300N-2S-3R0	47Ω/50W	36Ω/200W	25Ω
	SD300N-2S-5R5	47Ω/50W	36Ω/200W	25Ω
Three-phase 220V	SD300N-2T-7R6	47Ω/100W	25Ω/200W	20Ω
	SD300N-4T-5R4	47Ω/100W	25Ω/200W	20Ω
	SD300N-2T-012	47Ω/100W	20Ω/500W	12Ω
Three-phase 380V	SD300N-4T-8R5	47Ω/100W	25Ω/200W	20Ω
	SD300N-4T-012	47Ω/100W	25Ω/200W	20Ω

Note 1: The resistance shown in the table can satisfy most applications. In practical application, if the demand cannot be met, please contact the manufacturer.
Note 2: When all drives are changed to external brake resistance, the parameters F02.25, F02.26, F02.27 should be modified accordingly, refer to the corresponding parameters in Chapter 5.

2.3 Control terminal wiring

◆**Bus Type A Control Terminal Figure CN1:**

01-DI1			02-DO3+
03-DI2			04-DO3-
05-HDI1			06-DO2+
07-HDI2			08-DO1+
09-COM+			10-COM-
11-DI3			12-NC
13-DI4			14-GND
15-OZ			16-PE
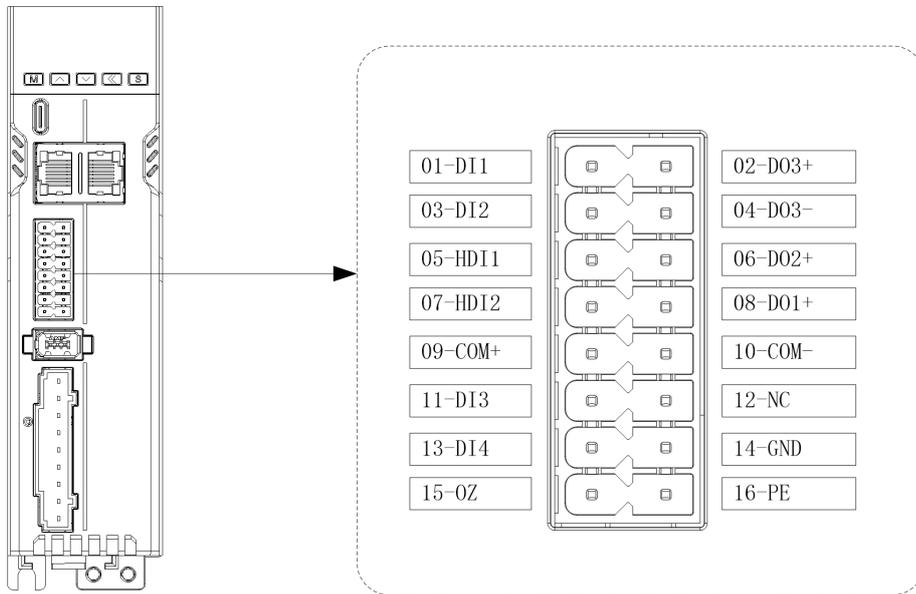
◆**Bus A, B, C and D control terminals:**

16-PE			15-OZ
14-GND			13-DI4
12-NC			11-DI3
10-COM-			09-COM+
08-DO1+			07-HDI2
06-DO2+			05-HDI1
04-DO3-			03-DI2
02-DO3+			01-DI1
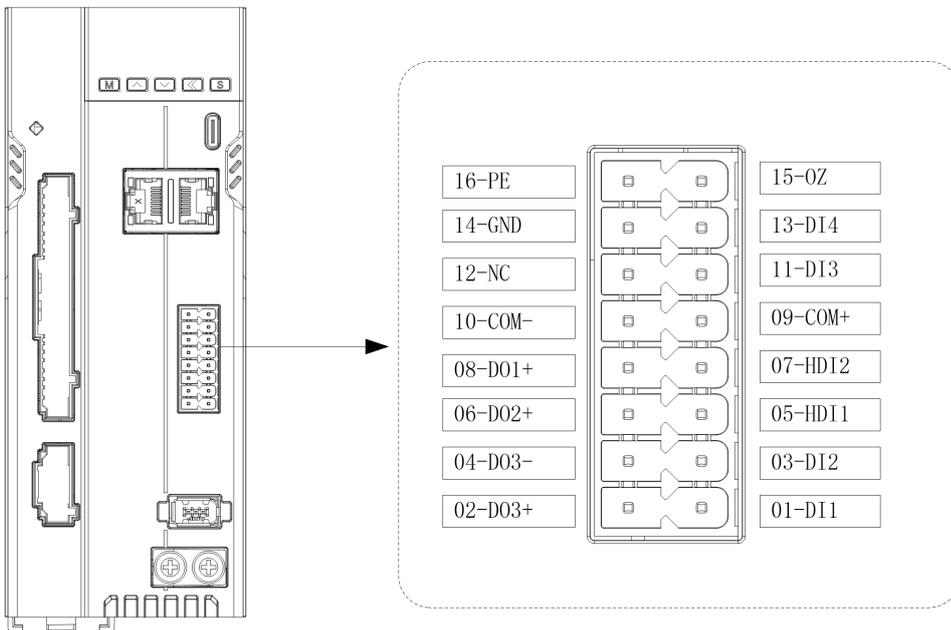
2.3.1 Description of terminal function

Signal name		Pin number	Terminal description	Function Description
Universal digital input	DI1	1	Digital 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	3	Digital input 2	
	DI3	11	Digital input 3	
	DI4	13	Digital input 4	
	COM+	9	Digital input common	
High-speed lock storage input	HDI1	5	High-speed digital input of 1	High-speed lock storage input
	HDI2	7	High-speed digital input of 2	
	COM+	9	Common port	
Universal digital output	DO1+, COM-	8, 10	Digital output 1±	Universal digital output terminal ◆When PNP is 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+, COM-	6, 10	Digital output 2±	
	DO3+, DO3-	3, 2	Digital output 3±	
Other	GND	14	internal power ground	internal power ground

2.3.2 Universal input terminal wiring

Take DI1 for example: DI1 to DI2, HI 1 to HI 2 interface circuit is the same.
◆General wiring：
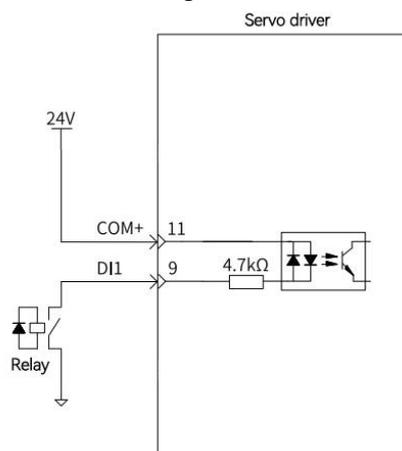
Common anode wiring   Common cathode wiring
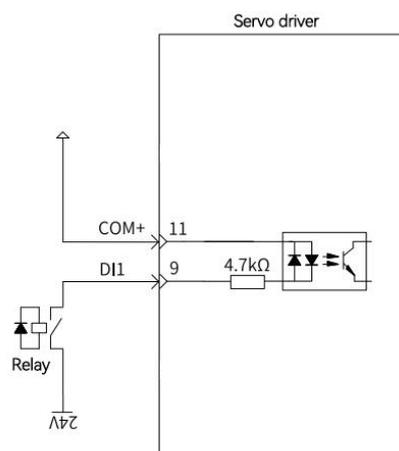
◆When the host device is collector output, the wiring diagram is as follows:
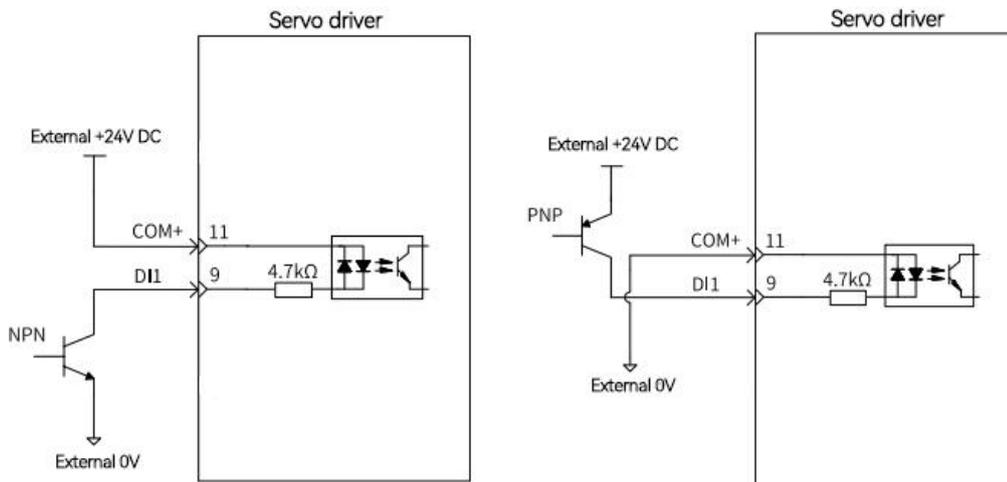
Note: Mixed use of PNP and NPN inputs is not supported .

2.3.3 Universal output terminal wiring

◆Take DO 1 as an example: DO 1 to DO 2 interface electrical circuit is the same, and the common end of DO 3 + is DO 3-.
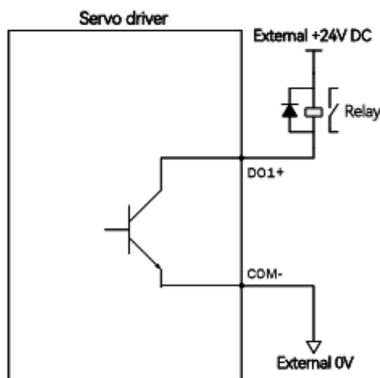
The host device is a relay   The host device is the optical coupling input
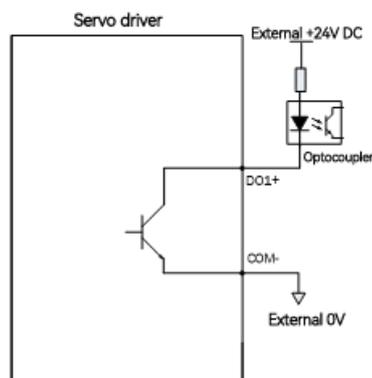
Chapter 3 Operation and Display

3.1 Display panel introduction

Panel screen
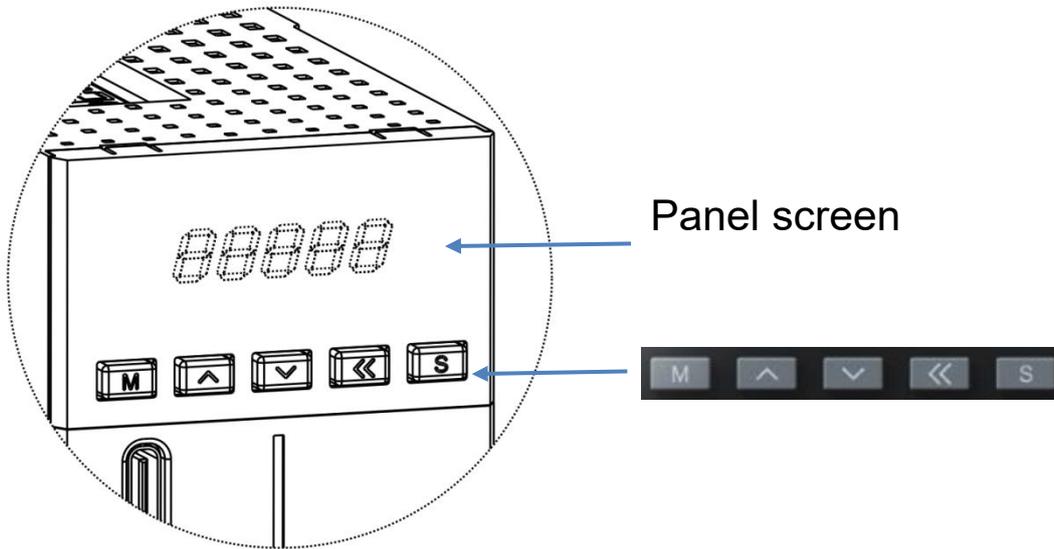
The display panel of the SD300D servo drive consists of a display (5-digit 8-segment LED display) and 5 buttons. It can be used for various displays, parameter settings, user password settings and general function execution of the servo drive. Taking parameter setting as an example, the general functions 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 display.
DOWN key	∨	Reduce the number of blinking digits of the LED display.
SHIFT key	≪	Change the LED display 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.

3.2 Status display

Examples：

Digital tube position	Display	Explain
The first digit		Lower line: In port connection status of EtherCAT, bright: In port has network connection. Medium line: DC mode in cycle synchronous mode state, bright: cycle synchronized. Upper line: out port connection status of EtherCAT, bright: out port has a network connection.
The second digit		◆Represents the current state of the Ethercat state machine 1: Init initialization state 2: PreOP Pre-running status 4: SafeOP Safe operation status 8: The Op is running in the enable state Decimal point: An error has occurred in the current state
The third digit		◆Represents the control mode that the CiA402 is currently running 1：PP 3：PV 4：PT 6：HM 8：CSP 9：CSV A：CST
The fourth digit		◆Represents the current state of the CiA402 state machine nr：Switch On Disable ry：Switch On rn：Operation Enable

Chapter 4 Parameter Summary

Parameter group	Parameter summary
F00	Servo motor parameters
F01	Drive parameters
F02	Basic control parameters
F03	Terminal input and output parameters
F04	Terminal output parameters
F05	position control parameters
F06	Speed control parameters
F07	Torque control parameters
F08	Gain parameters
F09	self-tuning parameters
F0A	Fault and protection parameters
F0b	Monitoring parameters
F0C	Communication parameters
F0d	Auxiliary function parameters
F0e	General function 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 Lq	0.01~327.67	5.8	mH	Power on again	All
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
F00.45	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 again	All
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

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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

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	0-32767	-	10ms	Power on	PST

Parameter	Function	Parameter setting range	Default value	Unit	Setting method	Related
	detection filter time constant				again	
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
F02.68	Drive shaft-associated encoder settings	0-2	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.
F02.97	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	-59~59	0	-	Effective immediately	PST
F03.01	DI2 terminal function selection	-59~59	0	-	Effective immediately	PST
F03.02	DI3 terminal function selection	-59~59	0	-	Effective immediately	PST
F03.03	DI4 terminal function selection	-59~59	0	-	Effective immediately	PST
F03.04	DI5 terminal function selection	-59~59	0	-	Effective immediately	PST

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
F03.20	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
F03.69	DO 1 terminal function selection	-41~41	0	-	Effective immediately	PST
F03.71	DO 2 terminal function selection	-41~41	0	-	Effective immediately	PST
F03.72	DO 3 terminal function selection	-41~41	0	-	Effective immediately	PST
F03.80	Analog speed command gain	10-3000	300	rpm/V	Effective immediately	S
F03.81	Analog torque command gain	1~300	30	%/V	Effective immediately	T
F03.82	DO output the mandatory	00000~11111	00000	-	Downtime	PST

	content				takes effect	
F03.94	The HDI 1 high-speed input filter	1~8	4	-	Downtime takes effect	PST
F03.95	The HDI 2 high-speed input filter	1~8	4	-	Downtime takes effect	PST

F05 group parameter list

Parameter	Function	Parameters setting range	Default value	Unit	Setting method	Related
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
F05.21	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
F05.41	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
F05.78	The spline interpolation type	0-2	2	-	Power on again	P
F05.87	Home position delay	0~3000	50	ms	Effective immediately	

F06 group parameter list

参数	功能	设定范围	默认值	单位	设定方式	相关
F06.04	JOG speed set 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	0~100	30	rpm	Effective immediately	S
F06.26	Speed arrival hysteresis	0~5000	30	rpm	Effective immediately	PST
F06.27	Speed reaches polarity	0~1	30	-	Effective immediately	PST
F06.66	Speed detection filter time constant	0.01~50.00	2.00	ms	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	-500~0	-1.00	%	Effective	PST

	torque limit				immediately	
F07.17	Speed limit source selection	0-2	0	-	Effective immediately	T
F07.62	Speed limit during torque control	0~5000	3000	rpm	Effective immediately	T
F07.64	Network mode torque control speed limit source	0~1	1	-	Downtime takes effect	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	PS
F08.01	Speed loop integration time constant	1.0~1000.0	20.0	ms	Effective immediately	PS
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	PS
F08.04	2nd speed loop integration time constant	1.0~1000.0	20.0	ms	Effective immediately	PS
F08.05	2nd position loop gain	1~1000	40	1/s	Effective immediately	PS
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	倍	Power on	PST

					again	
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	0	%	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
F08.44	Model tracking control attenuation coefficient	50~200	100	-	Effective immediately	P
F08.46	Model reference speed feedforward compensation	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	-	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	1~1000	100	%	Effective immediately	P

Parameter	Function	Parameters setting range	Default value	Unit	Setting method	Related
	compensation coefficient					
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	PST
F09.05	Inertia estimation mode	0~2	0	-	Effective immediately	PST
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	03~32767	5	-	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
F09.82	High response mode speed observer gain	0~1	0	-	Effective immediately	PS

	selection				Effective immediately	
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
F09.85	High response mode current loop observer gain	50~400	180	10Hz	Effective immediately	PS
F09.86	High response mode current loop observer gain selection	0~1	0	-	Effective immediately	PS
F09.87	High response mode speed loop tracking coefficient	10~1000	100	%	Effective immediately	PS
F09.88	High response mode speed loop strong robustness function switch	0~2	0	-	Effective immediately	PS
F09.89	High response mode speed loop robustness coefficient	0~1000	0	%	Effective immediately	PS
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	P
F09.93	High response mode non-exponential nonlinear gain	0~100	15	-	Effective immediately	PST

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	Rpm	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.19	Total power time	0.0~429496729.5	0	s	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 times fault	~	0	-	cannot be	PST

	code				change	
F0B.35	Selected number of failure timestamps	0.0~429496729.5	0	s	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	PST
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

Parame ter	Function	Parameters setting range	Default value	Unit	Setting method	Relat ed
F0C.00	Drive device address	0-239	1	-	Power on again	PST
F0C.92	PP mode path Halt cancel recovery mode	0-1	0	-	Power on again	PST

F0d group parameter list

Parame ter	Function	Parameters setting range	Default value	Unit	Setting method	Rel ated
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	PST
F0D.25	Encoder operates on zero	0-1	0	-	Effective immediately	PST
F0D.29	Power board self-test	0-1	0	-	Effective immediately	PST
F0D.40	Network mode single-machine mode switching	0～2	0	-	Effective immediately	P

F0E group parameter list

Parameter	Function	Parameters setting range	Default value	Unit	Setting method	Related
F0E.00	Object 0x607E	0-255	-	-	Power on again	PVT
F0E.02	Object 0x6092_0x01	1~4294967295	131072	**UserUnit**	Power on again	PV
F0E.04	Object 0x6091_0x01	1~4294967295	1		Power on again	PV
F0E.06	Object 0x6091_0x02	1~4294967295	1		Power on again	PV
F0E.08	Object 0x607F	1~4294967295	10922667	UserUnit/s	Effective immediately	PV
F0E.10	Object 0x60C5	1~4294967295	26214400	UserUnit/s2	Effective immediately	PV
F0E.12	Object 0x60C6	1~4294967295	26214400	UserUnit/s2	Effective immediately	PV
F0E.18	Object 0x6083	1~4294967295	1638400	UserUnit/s2	Effective immediately	PV
F0E.20	Object 0x6084	0~4294967295	1638400	UserUnit/s2	Effective immediately	PV
F0E.22	Object 0x6085	0~4294967295	6553600	UserUnit/s2	Effective immediately	PV
F0E.26	Object 0x6072	0~30000	3000	0.1%	Effective immediately	PVT
F0E.28	Object 0x6087	0~4294967295	1000	0.1%/s	Effective immediately	T
F0E.30	Object 0x60E0	0~30000	3000	0.1%	Effective immediately	PVT
F0E.31	Object 0x60E1	0~30000	3000	0.1%	Effective immediately	PVT
F0E.34	Object 0x605A	0~7	0	-	Effective immediately	PVT
F0E.35	Object 0x605B	0~1	0	-	Effective immediately	PVT
F0E.36	Object 0x605C	0~1	0	-	Effective immediately	PVT
F0E.38	Object 0x605E	0~2	0	-	Effective immediately	PVT
F0E.44	Object 0x6098	-128~127	1	-	Effective immediately	PVT
F0E.47	Mode 8 Switch mode 6 to automatically return to home	0~1	1	-	Power on again	P

		setting					
	F0E.48	High-speed search for the home switch signal distance	0～2147482647	2147482647	UserUnit	Power on again	P
	F0E.50	Low-speed search home switch signal distance	0～2147482647	2147482647	UserUnit	Power on again	P
	F0E.52	Object 0x609A	0～4294967295	13107200	UserUnit/s2	Effective immediately	P
	F0E.54	Object 0x6099_0x01	1～4294967295	1310720	UserUnit/s	Effective immediately	P
	F0E.56	Object 0x6099_0x02	1～4294967295	131072	UserUnit/s	Effective immediately	P
	F0E.66	Object 0x607D_0x01	-2147482648～2147482647	0	UserUnit	Effective immediately	P
	F0E.68	Object 0x607D_0x02	-2147482648～2147482647	0	UserUnit	Effective immediately	P

Chapter 5 Detailed explanation of general IO functions

5.1.Details of the general input function

Signal name	Symbol	Function code	Applicable mode		
Servo enable	S‑ON	Fun IN.1	P	S	T
◆Invalid servo motor enable is prohibited.					
◆Effective servo motor is enabled.					

Signal name	Symbol	Function code	Applicable mode		
Fault and warn reset	ALM‑RST	Fun IN.2	P	S	T
◆After the cause of the fault or warning is removed, you can reset it.					
◆The inside of the drive is effectively processed according to the edge.					
◆According to the alarm type, the servo can continue to work after some alarms are reset.					

Signal name	Symbol	Function code	Applicable mode		
Gain switch	GAIN‑SEL	Fun IN.3	P	S	T
When F08.72=2：					
◆ Invalid‑ fixed to first group gain					
◆ Effective‑ fixed to the second set of gains.					

Signal name	Symbol	Function code	Applicable mode		
Mode switch 1	M1‑SEL	Fun IN.10	P	S	T
Switch between the speed, position, and torque according to the selected control mode (3,4,5).					

Signal name	Symbol	Function code	Applicable mode		
Mode switch 2	M2‑SEL	Fun IN.11	P	S	T
According to the selected control mode (6), perform the switch between speed, position and torque.					

Signal name	Symbol	Function code	Applicable mode		
Zero fixed enable	ZCLAMP	Fun IN.12	P	S	T
◆Valid‑ The zero fixing function is enabled.					
◆Invalid‑ The zero fixed function is disabled.					

Signal name	Symbol	Function code	Applicable mode		
Forward override switch	POT	Fun IN.14	P	S	T
Reverse override switch	NOT	Fun IN.15	P	S	T

When the machine moves beyond the movable range, enter the override prevention function:

◆Valid - Reverse drive is prohibited.

◆Invalid - Reverse drive is allowed.

◆Effective mode: Level

Signal name	Symbol	Function code	Applicable mode		
Zero instruction	INHIBIT	Fun IN.13	P	S	T

◆Valid - Speed command and torque command input is prohibited.

◆Invalid - Speed instruction and torque instruction input is allowed.

Signal name	Symbol	Function code	Applicable mode		
Forward override switch	POT	Fun IN.14	P	S	T
Reverse override switch	NOT	Fun IN.15	P	S	T

When the machine moves beyond the movable range, activate the override prevention function:

◆Valid - Reverse drive is prohibited.

◆Invalid - Reverse drive is allowed.

◆Effective mode: Level

Signal name	Symbol	Function code	Applicable mode		
Positive external torque limit	P-CL	Fun IN.16 Fun IN.17	P	S	T

According to the selection of F07.07, the torque limit source is switched.

F07.07=1:

◆Valid - forward external torque limit in effect.

◆Invalid - Forward internal torque restriction in effect.

Signal name	Symbol	Function code	Applicable mode		
Forward dotting	JOGCMD+	Fun IN.18	P	S	T

◆Valid - Enter as given.

◆Invalid - run instruction to stop input.

Signal name	Symbol	Function code	Applicable mode		
Negative phase dotting	JOGCMD-	Fun IN.19	P	S	T

◆Valid - Follow the given instructions in reverse.

◆Invalid - run instruction to stop input.

Signal name	Symbol	Function code	Applicable mode		
Electronic gear selection	GEAR_SEL	Fun IN.24	P	S	T

◆Invalid - electronic gear ratio 1.

◆Effective - electronic gear ratio 2.

Signal name	Symbol	Function code	Applicable mode		
Directive direction setting	DirSel	Fun IN.27	P	S	T

◆Invalid, the actual instruction direction is the same as the set position instruction direction.

◆Valid, the actual instruction direction is the opposite of the set instruction direction.

Signal name	Symbol	Function code	Applicable mode		
Origin switch	HomeSwitch	Fun IN.31	P	S	T

◆Invalid - origin switch invalid

◆Valid - origin switch valid

◆Effective mode: level

Signal name	Symbol	Function code	Applicable mode		
The origin restoration function is enabled	HomingStart	Fun IN.32	P	S	T

◆Invalid - prohibited.

◆Valid - Enabled.

Signal name	Symbol	Function code	Applicable mode		
Emergency shut down	Emergency Stop	Fun IN.34	P	S	T

◆Valid - Stop as set by F02.70.

F02.70 = 0：Servo motor direct break enable, free stop

F02.70 = 1：The servo motor decelerates and stops at the speed reduction set by F02.44

◆Invalid - has no impact on the running status.

Signal name	Symbol	Function code	Applicable mode		
Clear position bias	ClrPosErr	Fun IN.35	P	S	T

◆Valid - position deviation cleared.

◆Invalid - position deviation is not clear.

◆It is recommended that the DI function be configured on DI8 or DI9 terminals.

Signal name	Symbol	Function code	Applicable mode		
Impulse command disable	PulseInhibit	Fun IN.37	P	S	T

In position control mode, the position instruction source is pulse instruction (F05.00=0)：

◆Invalid - responds to pulse instruction

◆Valid - does not respond to pulse command.

Signal name	Symbol	Function code	Applicable mode		
Set the current position as the origin	HomeRecord	Fun IN.41	P	S	T

◆Invalid - does not trigger.

◆Valid - trigger takes the current position as the origin.

Signal name	Symbol	Function code	Applicable mode		
Internal speed selection	SP1~SP2	Fun IN.43 Fun IN.44	P	S	T

Speed control and speed limit when selecting internal speed

◆00：Internal speed 1（F06.80）

◆01：Internal speed 2（F06.82）

◆10：Internal speed 3（F06.82）

◆11：Internal speed 4（F06.83）

Signal name	Symbol	Function code	Applicable mode		
Internal torque selection	TRQ1~TRQ2	Fun IN.46 Fun IN.47	P	S	T

For the torque control and torque limit, select the internal torque

◆00：Internal torque 1（F07.80）

◆01：Internal torque 2（F07.81）

◆10：Internal torque 3（F07.82）

◆11：Internal torque 4（F07.83）

Signal name	Symbol	Function code	Applicable mode		
Ratio control	PC	Fun IN.49	P	S	T

◆Effective-Speed loop P control

◆Invalid-Speed loop PI control

5.2 Details of the general output function

Signal name	Symbol	Function code	Applicable mode		
Servo is ready for the output	S-RDY	FunOUT.1	P	S	T

Servo status ready to receive S-ON effective signal：

◆Effective - servo ready.

◆Invalid - Servo not ready.

Signal name	Symbol	Function code	Applicable mode		
Zero-speed	ZERO	FunOUT.3	P	S	T

◆Invalid - When the motor speed feedback and the given difference are greater than the value set by function code F06.15.

◆Valid - when the motor speed feedback and the given difference are not greater than the value set by function code F06.15.

Signal name	Symbol	Function code	Applicable mode		
Positioning completed	COIN	FunOUT.5	P	S	T

During position control, the position deviation pulse is valid within the completed positioning amplitude F05.21.

Signal name	Symbol	Function code	Applicable mode		
Location approach	NEAR	FunOUT.6	P	S	T

During position control, the position deviation pulse is valid when the positioning reaches the signal

amplitude F05.22。

Signal name	Symbol	Function code	Applicable mode		
Torque limitation	C-LT	FunOUT.7	P	S	T
Validation signal of the torque limit：					
◆Effective - Motor torque limited.					
◆Invalid - Motor torque is not limited.					

Signal name	Symbol	Function code	Applicable mode		
Speed limit	V-LT	FunOUT.8	P	S	T
Validation signal with speed limitation during torque control：					
◆Effective - Motor speed limited.					
◆Invalid - Motor speed is not limited.					

Signal name	Symbol	Function code	Applicable mode		
Lock output	BK	FunOUT.9	P	S	T
Lock signal output：					
◆Effective - close, release the lock.					
◆Invalid - Start lock.					

Signal name	Symbol	Function code	Applicable mode		
Warning output	WARN	FunOUT.10	P	S	T
The warning output signal is valid.(Breakover)					

Signal name	Symbol	Function code	Applicable mode		
Failure output	ALM	FunOUT.11	P	S	T
Status is valid when a fault is detected.					

Signal name	Symbol	Function code	Applicable mode		
Output a 3-bit alarm code	ALMO1	FunOUT.12	P	S	T
Output a 3-bit alarm code.					

Signal name	Symbol	Function code	Applicable mode		
Output a 3-bit alarm code	ALMO2	FunOUT.13	P	S	T
Output a 3-bit alarm code.					

Signal name	Symbol	Function code	Applicable mode		
Output a 3-bit alarm code	ALMO3	FunOUT.14	P	S	T
Output a 3-bit alarm code.					

Signal name	Symbol	Function code	Applicable mode

The origin is done back to zero	HomeAttain	FunOUT.16	P	S	T

Origin back to zero state:

◆Valid - origin return to zero.

◆Invalid - origin does not return to zero.

Signal name	Symbol	Function code	Applicable mode		
Electrical back zero output	ElecHome Attain	FunOUT.17	P	S	T

Electrical return to zero state:

◆Effective - Electrical origin return to zero.

◆Invalid - Electrical origin does not return to zero.

Signal name	Symbol	Function code	Applicable mode		
The torque reaches the output	ToqReach	FunOUT.18	P	S	T

◆Effective - Absolute torque reaches the set value.

◆Invalid - The absolute torque is less than the set value.

Signal name	Symbol	Function code	Applicable mode		
The speed reaches the output	V- Arr	FunOUT.19	P	S	T

◆Effective - Speed feedback reaches the set value.

◆Invalid - Speed feedback has not reached the set value.

Signal name	Symbol	Function code	Applicable mode		
DB brake output	DB	FunOUT.21	P	S	T

◆Effective - Dynamic brake relay disconnected.

◆Invalid - Dynamic brake relay pull in.

Signal name	Symbol	Function code	Applicable mode		
FunOUT.26	RUN	Servo in operation	P	S	T

◆Effective - Servo enabled ON

◆Invalid - Servo enabled OFF

Chapter 6: Fault list

The servo drive is able to output the current highest level of fault or warning coding.

"Fault code output" means that the three DO terminals of the servo drive are set to DO function 12, 13, 14, where FunOUT.12: ALMO1(alarm code number 1, referred to as AL1), FunOUT.13: ALMO2(alarm code number 2, referred to as AL2), FunOUT.14: ALMO3(alarm code number 3, referred to as AL3). When different faults occur, the levels of the three DO terminals will change.

◆Class 1 (NO.1) non-resettable fault table

Show	Fault name	Fault type	Can it be reset	Encoding output		
				AL3	AL2	AL1
Er.101	The servo internal parameters are abnormal.	NO.1	No	1	1	1
Er.102	Programmable logic failure	NO.1	No	1	1	1
Er.103	Programmable logic device check error	NO.1	No			
Er.108	Parameter storage failure	NO.1	No	1	1	1
Er.109	Software safety inspection error	NO.1	No			
Er.120	Product matching failure	NO.1	No	1	1	1
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	1	1	1
Er.201	Over-current 2	NO.1	No	1	1	0
Er.611	Over torque	NO.1	No			
Er.627	Dynamic brake failure	NO.1	No			
Er.653	Module temperature alarm	NO.1	No			
Er.735	Encoder multi-turn count overflow	NO.1	No	1	1	1
Er.739	Encoder recognition error	NO.1	No			
Er.740	Encoder interference	NO.1	No	1	1	1
Er.741	Pulse encoder signal error	NO.1	No			
Er.742	Pulse encoder counting error	NO.1	No			
Er.743	Pulse encoder Z signal lost	NO.1	No			
Er.744	Encoder over speed	NO.1	No			
Er.745	Encoder overheating	NO.1	No			
Er.800	Current sampling error	NO.1	No			
Er.A33	Encoder data abnormality	NO.1	No	0	1	0
Er.A34	Encoder feedback verification exception	NO.1	No	0	1	0
Er.A35	Encoder frame data error	NO.1	No			
Er.A36	Encoder EEPROM read error	NO.1	No			
Er.D01	Network synchronization failure	NO.1	No			
Er.D10	Network module interface error	NO.1	No			
Er.D13	Network module data exchange error	NO.1	No			

◆Class 1 (NO.1) can reset the fault table

Show	Fault name	Fault type	Can it be reset	Encoding output		
				AL3	AL2	AL1
Er.207	D/Q axis current overflow fault	NO.1	Yes	1	1	0
Er.400	Main loop voltage overvoltage	NO.1	Yes	0	1	1
Er.410	Main circuit voltage undervoltage	NO.1	Yes	0	1	1
Er.500	Over speed	NO.1	Yes	0	1	0
Er.610	Drive overload	NO.1	Yes	0	0	0
Er.620	Motor overload	NO.1	Yes	0	0	0
Er.650	Radiator overheated	NO.1	Yes	0	0	0
Er.B00	Position deviation is too large	NO.1	Yes	1	0	0
Er.B01	Position error overflow	NO.1	Yes			

◆Class 2 (NO.2) can reset fault table

Show	Fault name	Fault type	Can it be reset	Encoding output		
				AL3	AL2	AL1
Er.420	Main circuit electrical phase loss	NO.2	Yes	1	1	1
Er.430	Control voltage undervoltage	NO.2	Yes	0	1	1
Er.550	No control mode is set when the motor is enabled	NO.2	Yes			
Er.551	Control mode is not supported	NO.2	Yes			
Er.660	Excessive vibration	NO.2	Yes	0	0	0
Er.731	Encoder battery failure	NO.2	Yes	1	1	1
Er.939	Motor power cable is broken	NO.2	Yes	1	0	0

◆Class 3 (NO.3) can reset the warning table

Show	Fault name	Fault type	Can it be reset	Encoding output		
				AL3	AL2	AL1
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	1	1	1
Er.920	Brake resistor overload	NO.3	Yes	1	0	1
Er.924	Drain pipe over temperature warn	NO.3	Yes	1	0	1
Er.950	Forward overtravel warn	NO.3	Yes	0	0	0
Er.951	Forward software limit warning	NO.3	Yes	0	0	0
Er.952	Reverse overtravel warn	NO.3	Yes	0	0	0
Er.953	Reverse software limit warning	NO.3	Yes	0	0	0
Er.954	Driver disabled exception	NO.3	Yes			
Er.E11	Ethercat Operation EEPROM failed	NO.3	Yes			