VFD550i
Special servo injection moulding AC drives

User Manual

Contents

1. Model description

Nameplate：

Product number ——
Applicable motor ——
Input specifications ——
Output specifications ——
Product barcode ——

MODEL: VFD550i-9A4-T4B   CE
POWER: 22KW
INPUT: 3PH AC380-440V   50Hz/60Hz
OUTPUT: 3PH 0-440V 0-600Hz   9.4A —— Rated current
S/N: VFD550iT4-190001217080639   V 1.00 —— Software version

Figure 1-1   Nameplate

Model description：

VFD550i-9A4-T4B

Product series code

Rated output current, 9A4 is 9.4A

Power phase number：
T-Three phase

Voltage level：
2-220v 4-380v

B:Built-in brake unit
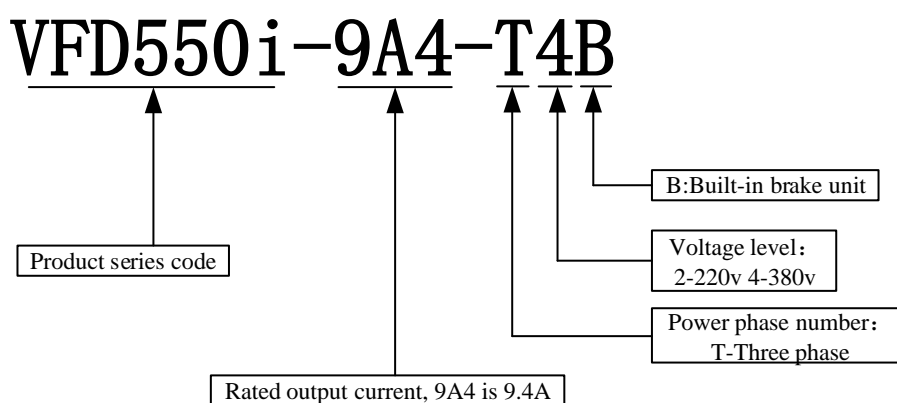
Figure 1-2   Model description

Table 1-1 Model and technical data

Drive model	Rated output current (A)	Size	Braking unit
Three-phase voltage: 380V, 50/60Hz			
VFD550i-5A6-T4B	5.6	SIZE A	Internal
VFD550i-9A4-T4B	9.4	SIZE A	Internal
VFD550i-13A-T4B	13.0	SIZE B	Internal
VFD550i-17A-T4B	17.0	SIZE B	Internal
VFD550i-25A-T4B	25.0	SIZE C	Internal
VFD550i-32A-T4B	32.0	SIZE C	Internal
VFD550i-37A-T4B	37.0	SIZE D	Internal
VFD550i-45A-T4B	45.0	SIZE D	Internal

VFD550i-60A-T4B	60.0	SIZE E	Internal
VFD550i-75A-T4B	75.0		
VFD550i-90A-T4B	90.0	SIZE F	
VFD550i-110A-T4B	110.0		
VFD550i-152A-T4B	152.0	SIZE G	
VFD550i-176A-T4B	176.0		

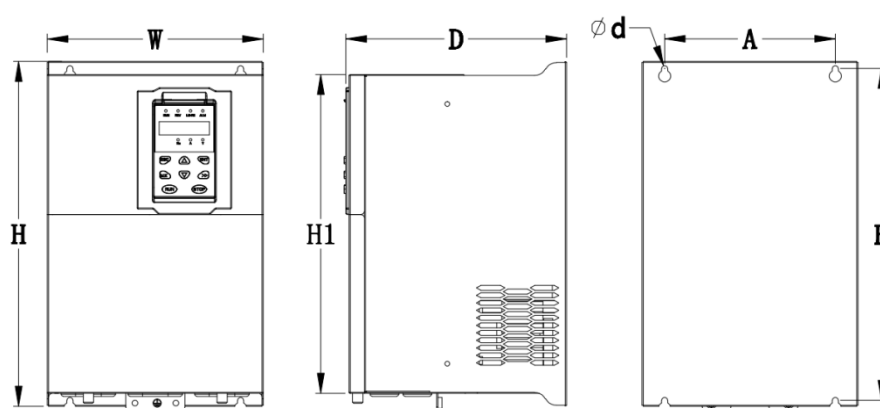## 2. Dimensions of servo drive

◆ Product appearance and installation

Figure 2-1 Drive dimensions

Table 2-1 Product appearance and installation

Size	Model	Appearance and installation dimension（mm）							
		A	B	H	H1	W	D	Φd	Mounting screws
SIZE A	VFD550i-5A6-T4B VFD550i-9A4-T4B	87	206.5	215	/	100	170	ø5.0	M4×16
SIZE B	VFD550i-13A-T4B VFD550i-17A-T4B	113	239.5	250	/	130	180	ø5.0	M4×16
SIZE C	VFD550i-25A-T4B VFD550i-32A-T4B	153	299	310	/	170	193	ø6.0	M5×16
SIZE D	VFD550i-37A-T4B VFD550i-45A-T4B	165	350	370	335	210	205	ø6.0	M5×16
SIZE E	VFD550i-60A-T4B VFD550i-75A-T4B	218	438	452.5	424	260	230	Ø7	M6×16
SIZE F	VFD550i-90A-T4B VFD550i-110A-T4B	250	535	555	520	320	275	Ø10	M8×20
SIZE G	VFD550i-152A-T4B	280	620	640	605	350	290	Ø10	M8×20

Remark： （1） Φd is the diameter of the mounting screw hole of the whole machine.

3. Servo driver wiring method

3.1 Main circuit and encoder wiring

As shown in the figure below, the power line is connected to the R, S, and T terminals of the drive, the motor line is connected to the U, V, and W terminals of the drive, and the brake resistance line is connected to the main circuit of the drive "+" and "PB" , The ground wire is connected to the main circuit terminal PE or ⏚.
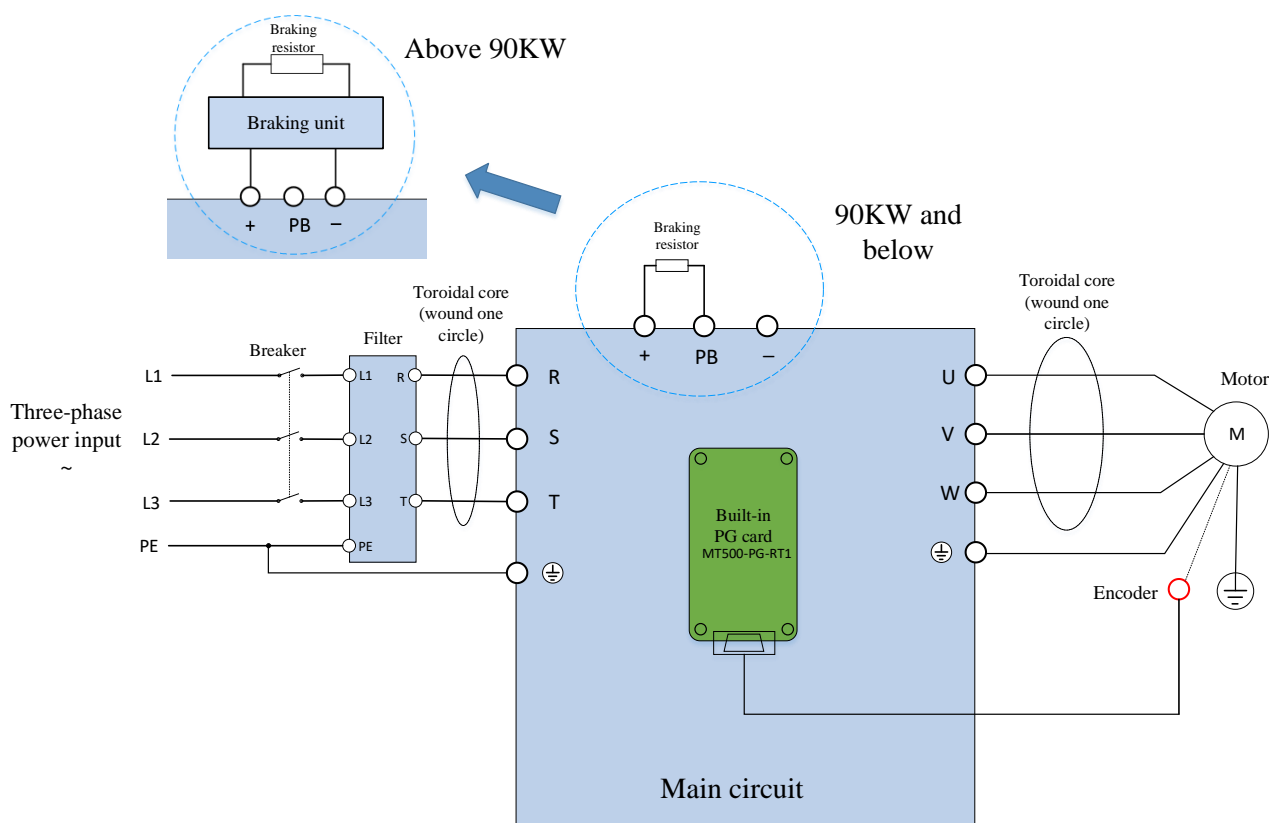

Figure 3-1Main circuit wiring diagram

Note: The power grid input is connected to the "R" "S" and "T" terminals. It is strictly forbidden to connect the power cord to the output terminals "U", "V" and "W" of the driver, otherwise the internal components of the driver will be damaged. Before use, make sure that the voltage level of the driver is consistent with the voltage level of the power grid.

3.2 Control circuit wiring

The pressure command line of the injection molding machine computer is connected to the control board AI1; the flow command line is connected to the control board AI2; GND is connected to the GND of the control board; the power line of the oil pressure sensor is connected to the control board +13V or +15V, and the ground wire is connected Control board GND, output signal wire connected to control board AI3.

The injection molding machine motor enable signal line is connected to the control board COM and DI1

respectively. If you want the driver to run when powered on, you can short connected the DI1 terminal and the COM terminal directly.
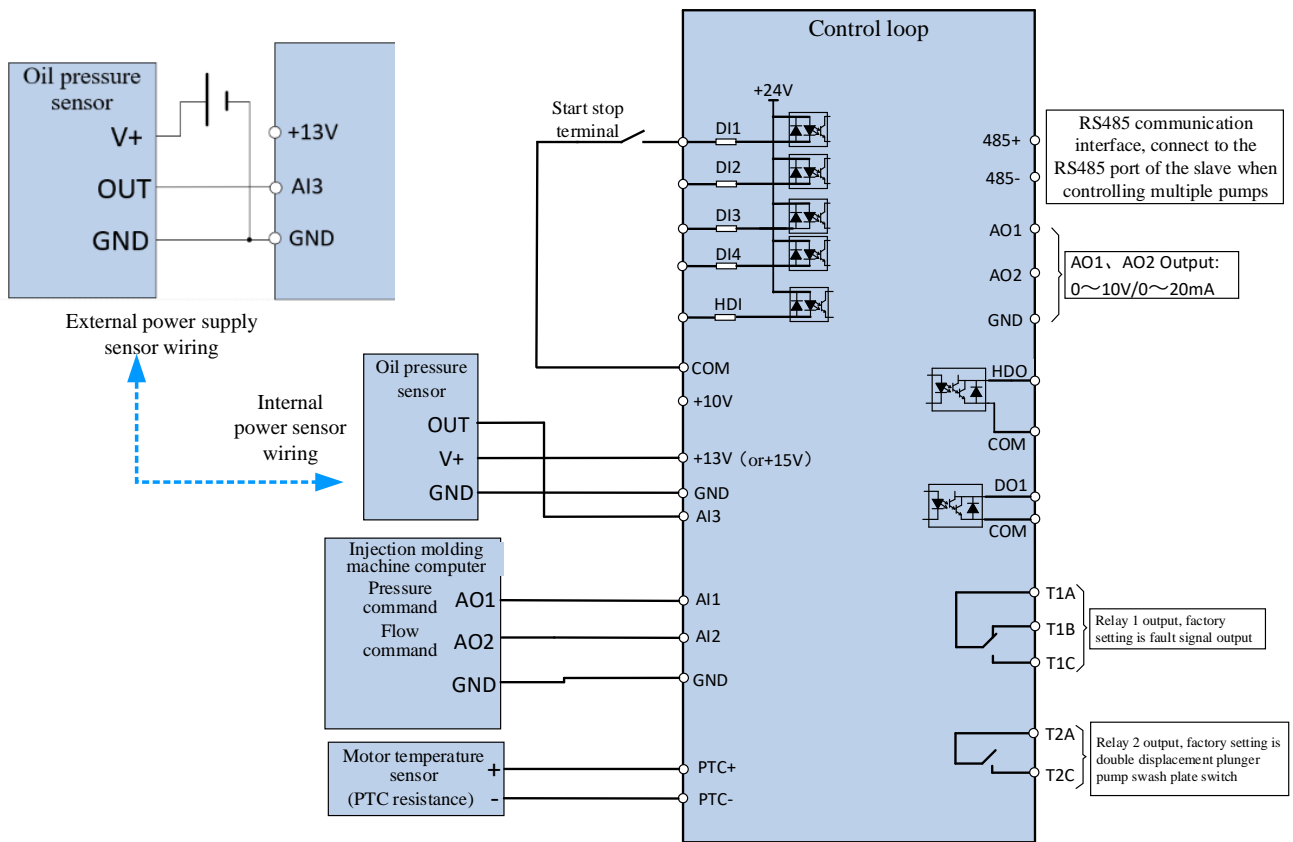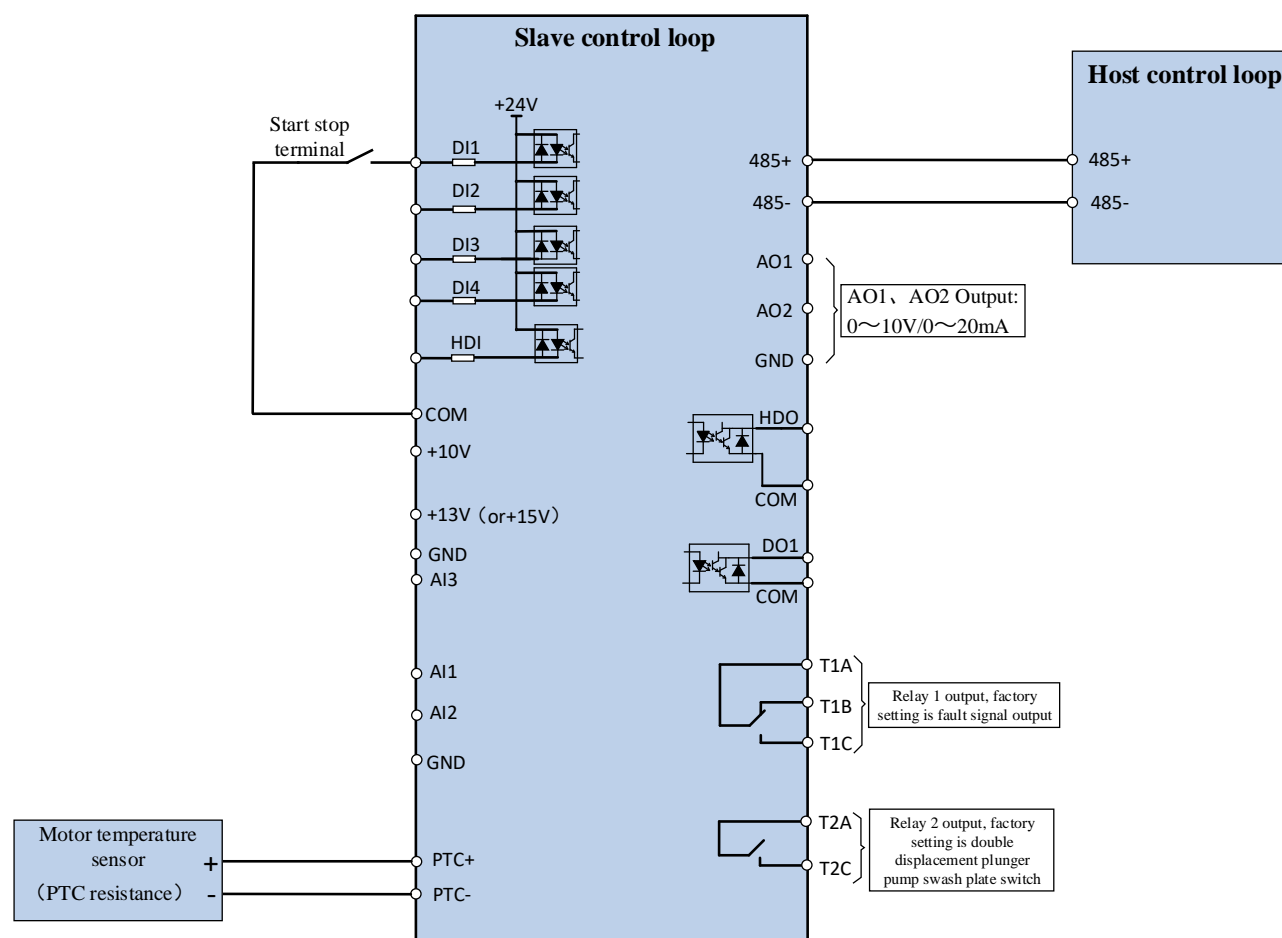
Figure 3-2 Diagram of control circuit terminals

Multi-pump mode slave connection

Table 3-1 Definition of control circuit terminals

Type	Terminal Symbol	Terminal Name	Terminal function description
Analog input	+10v	Analog input reference voltage	10.10V±1%
			Maximum output current:10mA, it provides power supply to external potentiometer with resistance range of: 1KΩ~51KΩ
	GND	Analog ground	Internal isolation from COM
	AI1	Analog input 1 (Default voltage given)	Input 0~10V: input impedance 22KΩ
			Input 0~20mA: input impedance 500Ω
			AI1 0~10V and 0~20mA can be switched by jumper, the factory default is voltage input
	AI2	Analog input 2 (Default current setting)	Input 0~10V: input impedance 22KΩ
			Input 0~20mA: input impedance 500Ω
			AI2 0~10V and 0~20mA can be switched by jumper, the factory default is voltage input
	AI3	Analog input 3 (The default pressure sensor	Input 0~10V: input impedance 22KΩ

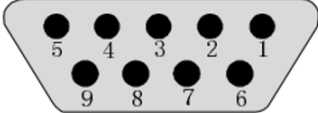|			
		feedback is given)	
Analog output	AO1	Analog output 1	Output 0-10V: Impedance requirement ≧10KΩ
			Output 0~20mA: Impedance requires 200Ω~500Ω
			Switching AO1 0~10V and 0~20mA through jumper, the factory default is voltage output
	AO2	Analog output 2	Output 0-10V: Impedance requirement ≧10KΩ
			Output 0~20mA: Impedance requires 200Ω~500Ω
			Switching AO2 0~10V and 0~20mA through jumper, the factory default is voltage output
	GND	Analog ground	Internal isolation from COM
Switch input	+24V	+24V power supply	24V±10%, Internal isolation from GND
			Maximum output current：200mA
			Provide 24V power supply to the outside, generally used as digital input and output terminal working power supply and external sensor power supply
	PLC	Digital input terminal common	It is used to switch the high and low level of the digital input. It is short-connected with +24V at the factory, that is, the low digital input is effective
			As an external power input, disconnect the PLC from +24V
	COM	+24V ground	Internal isolation from GND
	PTC+ /PTC-	Motor temperature protection	Motor temperature protection
	DI1~DI4	Digital input terminal 1~4	Optocoupler isolation, compatible with bipolar input
			Frequency range：0~200Hz
			Voltage range：10V~30V
	HDI	Digital input terminal /High-speed pulse input	Digital input terminal：same as DI1~DI4
			Pulse input frequency input：0~50KHz
			Voltage range：10V~30V
Switch output	DO1	Open collector output	Optocoupler isolation
			Voltage range：0V~24V
			Current range：0mA ~50mA
	HDO	Open collector output /High-speed pulse output	Open collector output：same as DO1
			High-speed pulse output：0~50KHz

Type	Terminal Symbol	Terminal Name	Terminal function description
Relay output 1	T1A/T1B/T1C	Relay output	T1A-T1B: Normally closed
			T1A-T1C: Normally open
			Contact rating: AC 250V, 3A：DC 30V, 1A
Relay 2 output	T2A/T2C	Relay output	T2A-T2C: Normally open
			Contact rating: AC 250V, 3A：DC 30V, 1A
485 communication terminal	485+	485 Positive differential signal	Baud rate : 1200/2400/4800/9600/19200/38400/57600/115200 bps
	485-	485 Negative differential signal	

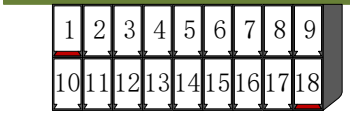## 3.3 PG card wiring

1、Resolver PG card wiring

Connect the encoder signal line to the DB9 interface of the PG card. The definition of the resolver signal line is shown in the following table.

Table 3-2 Resolver PG card and encoder cable signal description

Pin number diagram	Pin number	Name	Cable color	Usage
（Interface Type：DB9）	1	EXCLO	Red	Resolver excitation negative
	2	EXC	Black	Resolver excitation positive
	3	SIN	Yellow	Resolver feedback SIN positive
	4	SINLO	Green	Resolver feedback SIN negative
	5	COS	Brown	Resolver feedback COS positive
	6	NC		Hanging in air
	7	NC		Hanging in air
	8	NC		Hanging in air
	9	COSLO	Blue	Resolver feedback COS negative

2、Incremental PG card wiring

Table 7-4 Incremental encoder PG card (VFD500-PG-INC1) port definition

Pin number diagram	Pin number	Name	Usage
	1，10	PE	Shield terminal
	2，11	VCC	Power output for powering the encoder 5V ± 2%, maximum 200mA

		12V±5%, maximum 200mA	
3，12	GND	Power and signal common	
4	Z-	Encoder Z-signal	
5	Z+	Encoder Z+signal	
6	B-	Encoder B+signal	
7	B+	Encoder B+signal	
8	A-	Encoder A-signal	
9	A+	Encoder A-signal	
13	W-	Encoder W-signal	Note: U, V, W are used to adapt the incremental encoder of the synchronous machine, no wiring is needed when not used.
14	W+	Encoder W-signal	
15	V-	Encoder V-signal	
16	V+	Encoder V-signal	
17	U-	Encoder U-signal	
18	U+	Encoder U-signal	

◆ **Open collector type, push-pull output type encoder wiring:**

Select the encoder power supply through SW3 on the PG card, SW1 and SW2 to the OC side, as shown below:
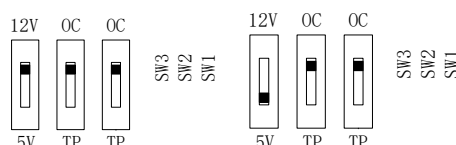

Figure 7-1 Collector open type, push-pull output type encoder DIP switch selection

When wiring, the /A, /B, /Z terminals of the PG card are not wired, and the signal output of the encoder is connected to the A, B, and Z terminals of the PG card, as shown in the figure below:
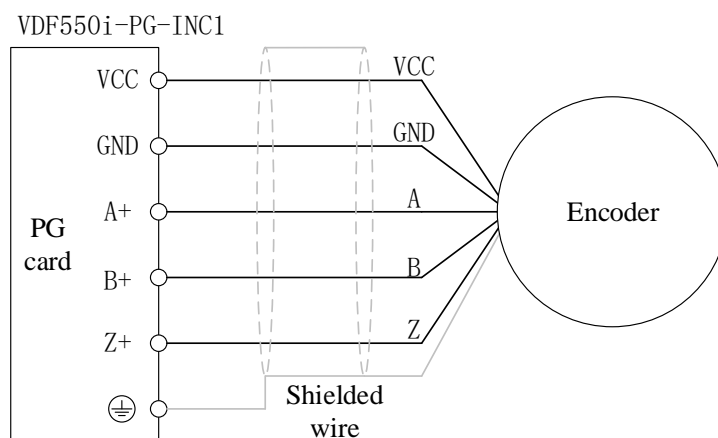
Figure 7-2 Collector open type, push-pull output type encoder wiring diagram

◆ **Differential output encoder wiring：**

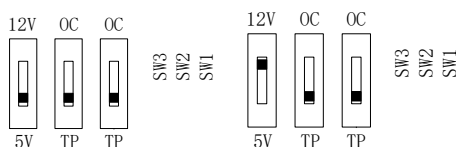Select the encoder power supply through SW3 on the PG card, SW1 and SW2 to the TP side, as shown below：

Figure 7-3 Differential output type encoder DIP switch selection

The wiring of the PG card and the encoder are connected one by one according to the silkscreen.

4. LED keyboard description

LED keyboard consists of 5 digital tubes, 7 lights, 8 keys and a potentiometer; can be used to set the parameters, status monitoring and operation control, LED keyboard shape as shown in Figure 4-1:

Figure 4-1 LED keyboard

4.1 Description of function indicator

Table 4-1 LED Keyboard indicator description

No.	Icon	Name	Function
1		Indicator light: Hz	The unit of the current display parameter is Hz.
2		Indicator light: A	The unit of the current display parameter is A.
3		Indicator light: V	The unit of the current display parameter is V.
4		Indicator light: HZ+A (rpm/minute)	When "Hz" and "A" light up at the same time, it means that the unit of the currently displayed

No.	Icon	Name	Function
			parameter is "revolutions per minute"
5		Indicator light: A+V(%)	When "A" and "V" light up at the same time, the unit of the currently displayed parameter is "percent"
6	RUN	Indicator: RUN	• Off: indicates a stop condition. • On: indicates inverter is running.· Blinking: Deceleration stopped.
7	REV	Indicator: REV	• Used to indicate the sign of the variable when the LED is displaying one of the variables listed in 27.02; • In other cases the sign of the output frequency is indicated.
8	LO/RE	Indicator: LO/RE	• Off: The command source is the keyboard. • On: The command source is terminal. • Blinking: The command source is communication.
9	ALM	Indicator: ALM	When it is on, the drive is faulty.

`4.2 Key Description

Under the monitoring interface, press ⊙ switch the display amount, the 4 display amounts are as follows:

Current speed→Current feedback pressure→Output current→Bus voltage, that is 27.00 → 48.31 → 27.06 → 27.03.

Table 4-2 LED Keyboard key description

No.	Icon	Name	Function
1	ESC	Exit	Exit menu level
2	ENT	Confirmation	• Enter the menu interfaces level by level, • Confirm the parameter setting and save to EEPROM
3	△	Increment / Up	• The number indicated by the cursor increases by one. • Next function code. • Used to switch the left and right screens while in monitor mode
4	▽	Decrement / Down	• The number indicated by the cursor minus one. • The previous function code.

No.	Icon	Name	Function
5		Mufti-function	The function is "forward jog" when leaving the factory, its function can be changed by parameter 21.02
6		Shift	• Cursor shift. • Monitor Status Displays the next monitor volume. • Switch left and right screens.
7		Run	When the command source is a keyboard, it is used to make the drive run
8		Stop / Reset	• During operation, press to stop the operation (restricted by parameter 21.03). • In fault status, press this key to reset the fault.

5. Selection of braking resistor for servo drive

Table 5-1 Braking resistor selection table

Servo drive model	Recommended power of braking resistor	Recommended resistance of braking resistor
VFD550i-5A6-T4B	300w	>180Ω
VFD550i-9A4-T4B	500w	>90Ω
VFD550i-13A-T4B	800w	>60Ω
VFD550i-17A-T4B	1000w	>60Ω
VFD550i-25A-T4B	1.2kw	>25Ω
VFD550i-32A-T4B	1.5kw	>25Ω
VFD550i-37A-T4B	2.0kw	>18Ω
VFD550i-45A-T4B	2.5kw	>18Ω
VFD550i-60A-T4B	3.0kw	>12Ω
VFD550i-75A-T4B	3.7kw	>8Ω
VFD550i-90A-T4B	4.5kw	>8Ω
VFD550i-110A-T4B	5.5kw	>6Ω
VFD550i-152A-T4B	7.5kw	>6Ω
VFD550i-176A-T4B	9.0kw	>6Ω

6. Servo drive debugging steps

1. Power-on

The cables are all connected. Then after checking for correctness, power on the drive.

2. Enter motor nameplate and encoder parameters

Set the following parameters of the drive according to the motor nameplate and encoder type. For permanent magnet synchronous motors, please set P11.06 first and then P11.05.

Parameter	Explanation
P11.00	Motor type: 0: Asynchronous motor, 1: Synchronous motor(Special software) After the motor type is changed, P00.04, P48.17~P48.24 will be automatically set to the appropriate value!
P11.02	Motor rated power
P11.03	Motor rated voltage
P11.04	Motor rated current
P11.06	Motor rated RPM
P11.05	Motor rated frequency(Please set P11.06 before setting P11.05 for permanent magnet motor motor)
P10.01	Encoder type: 0: ABZ incremental encoder; 1: ABZUVW incremental encoder; 2: resolver
P10.02	Number of encoder lines The resolver should be set to: 1024×resolver pole pairs
P00.04	0: VF control, 1: Vector control without encoder, 2: Closed loop vector control

3. Motor static self-learning

After the motor nameplate parameters are set correctly, set function code P11.10 to 1, the panel will display "tUnE", and then press the "RUN" key on the keyboard to perform motor static self-learning. The motor static self-learning lasts about 1 minute, and it will automatically stop after completion.

4. Motor encoder self-learning (closed-loop vector control)

4.1 Synchronous motor closed-loop vector:

Set parameter P11.10 to 3, press the "RUN" key on the keyboard to perform encoder self-learning. The

self-learning process lasts about 2 minutes, and will automatically stop after the self-learning is completed.

4.2 Asynchronous motor closed-loop vector:

First set P00.04=1 or 0, use P00.07 to give a smaller speed, run the motor, and observe whether the size and symbol (REV indicator) of r10.12 and r27.00 are consistent. After the agreement, set P00.04=2. If they are inconsistent, the parameter setting is incorrect or the wiring is incorrect.

4.3 After the encoder self-learning is finished, you can use P00.07 to give a smaller speed for trial operation.

5. Oil pump direction confirmation

Press [M.K] on the keyboard to jog, or use P00.07 to give an appropriate speed and then press [RUN] to run, then observe whether the oil pressure pointer changes to see if the motor rotation direction is correct. If the oil pressure gauge shows that the pressure is always zero, indicating that the direction is incorrect, you should disconnect the power and replace any two-phase wiring of the motor (closed-loop control requires encoder self-learning), or set the function code P22.13 to 1 (software replacement Phase sequence, without re-encoder self-learning).

When the direction of the oil pump is correct, the pressure can be established when the motor rotates forward.

6. Motor rotation self-learning

Asynchronous motor open-loop vector or closed-loop vector, synchronous motor open-loop vector must perform this step; **synchronous motor closed-loop can skip this step**.

Warning: Be sure to perform motor rotation self-learning after confirming the direction of the oil pump!

Set P11.10=2, press the "RUN" key to perform motor rotation self-learning, and the motor rotation direction is reverse during rotation self-learning. Automatic shutdown after the completion of self-learning.

7. AI zero drift calibration

In keyboard control mode (P48.00=0), set function code P48.09 to 1, then the keyboard displays "Aicor", press the "RUN" key on the keyboard, the drive will run for about 3~5 seconds, AI zero Drift will automatically complete the calibration. After the operation, the parameter value of function code P48.09 will automatically return to "0".

It can also be calibrated manually. When the drive is not enabled, check the values of parameters r04.09, r04.13, r04.17, and input the checked values to parameters P04.23, P04.27, P04.31 respectively , Complete the initial setting of AI.

8. Set special function code for injection molding machine

After the encoder learning is completed, set the following special function code for injection molding machine.

Parameter	Explanation
P48.00	Hydraulic control macro

P48.01	Maximum speed setting, this is the maximum speed of the motor required by the injection molding machine, corresponding to 100% flow setting
P48.02	The system oil pressure (the maximum system pressure required by the injection molding machine), that is, the pressure given when the given pressure is equal to 100%.
P48.03	Hydraulic sensor range (Maximum measurement value of pressure gauge)

Note:

When the P48.00 function code is set from 0 to non-zero, the following parameters are automatically set:

Parameter	Name	Set
P00.06	Command source	1：Terminal control
P03.01，P03.02	Acceleration time、deceleration time	0.00s
P07.03	Relay 1 function	3：Fault output
P07.04	Relay 2 function (Normally open)	47：Double displacement plunger pump swash plate switch (Pressure control state reversed)

9. AI input maximum correction

Set the computer pressure of the injection molding machine to the maximum value, try the action, see r04.09, fill it into P04.25; Set the computer flow of the injection molding machine to the maximum value, try the action, see r04.13, fill it P04.29.

Note: For Japanese injection molding machines, pressure and flow commands are common in the form of 0~5V.

10. Other

➢ If the pressure fluctuation is large when the pressure is maintained, please increase the speed loop response to improve the pressure stability, that is, increase P13.00 and P13.02 appropriately, each time changing 2.0, do not set too large, if the setting is too large, the motor will vibrate phenomenon. Or increase P48.17 and P48.18 as appropriate.

➢ The setting value of pressure control Kp (P48.17, P48.21, P48.23): the setting value of the asynchronous machine is smaller than that of the synchronous machine, the asynchronous machine is about 1.00, and the synchronous machine is about 1.50~3.00.

➢ If the noise is too loud when the machine is running, it may be that the hydraulic oil in the oil circuit flows back to the oil tank, causing air to enter the oil circuit, causing system operation noise and instability, so it is necessary to appropriately increase the underflow and bottom pressure.

7. List of main parameters of servo drive

Symbol Description:

"☆" It means that the setting value of this parameter can be changed when the drive is stopped or running.

"★" It means that the setting value of this parameter cannot be changed when the drive is in running state.
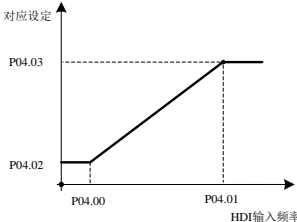
"●" It means that the value of this parameter is the actual detection record value and cannot be changed.

Unit description：1kg/cm^2≈ 0.1MPa

Function code	Name	Description	Factory default	Properties
48 Group Special group for hydraulic control				
P48.00	Hydraulic control macro	0: Non-hydraulic control mode 1: Drive hydraulic control mode 1 (CAN communication channel given) 2: Drive hydraulic control mode 2 (analog channel given) 3: CAN oil pressure mode (host computer CAN oil pressure control mode) 4~8: reserved 9: Internal pressure mode (P48.29 is the pressure command, P00.07 is the flow command)	0	★
P48.01	Maximum speed given	1rpm～30000rpm Set the maximum speed of the motor, that is, the motor speed corresponding to 100% of the flow command. In hydraulic control mode, setting this value will automatically set the maximum frequency P01.06 and the upper limit frequency P01.08.	2000rpm	★
P48.02	System oil pressure	0.0kg/cm2～range of hydraulic sensor (P48.03). That is, the pressure given when the given pressure is equal to 100%.	175.0kg/cm^2	★
P48.03	Hydraulic sensor range	1kg/cm^2～500.0kg/cm^2	250.0kg/cm^2	★

Function code	Name	Description	Factory default	Properties
P48.04	Bottom pressure	0.0kg/cm2～50.0kg/cm2 Due to the internal leakage of the oil pump, when the flow and pressure commands are not given by the system, the hydraulic oil in the oil circuit will flow back to the oil tank, causing air to enter the oil circuit, causing system operation noise and instability, so a certain bottom flow and bottom need to be given Pressure.	0.5kg/cm^2	☆
P48.05	Under current	0.0%～50.0%， 100%对应于最大速度。	1.0%	☆
P48.06	Flow leakage compensation	0.0%～50.0%	0.0%	☆
P48.07	Maximum reverse speed	0.0%～100.0% The maximum reverse speed during pressure relief is used to set the maximum reverse running speed of the motor. The larger the setting value, the faster the pressure relief, but too large will cause the pump reverse noise: the smaller the setting value. The slower the pressure relief.	5.0%	☆
P48.09	AI zero drift automatic correction	0：Invalid 1：Self-learning enable	0	★
P48.11	The first group of pressure command rise time	0.000s～2.000s	0.050s	☆
P48.12	The first group of pressure command fall time	0.000s～2.000s	0.050s	☆
P48.13	The first set of flow command rise time	0.000s～5.000s	0.100s	☆
P48.14	The first set of flow command fall time	0.000s～5.000s	0.100s	☆
P48.17	Pressure control Kp1	1.00～60.00, Used when the pressure is steady	2.00	☆
P48.18	Pressure control Ti1	0.001s～10.000s	0.100s	☆
P48.20	Pressure steady state range	When the oil pressure fluctuates within this range, it is considered to be in a steady state interval	2.0%	☆
P48.21	Pressure control Kp2	1.00～60.00, Used when pressure rises	1.50	☆
P48.22	Pressure control Ti2	0.001s～10.000s	0.100s	☆
P48.23	Pressure control Kp3	1.00～60.00, Use when the pressure is overshoot	2.00	☆
P48.24	Pressure control Ti3	0.001s～10.000s	0.080s	☆

Function code	Name	Description	Factory default	Properties
P48.29	Internal pressure given	When P48.00=9, it is used to set the pressure reference, 100.00% corresponds to P48.02.	0.00%	☆
r48.30	Current pressure command	Read only, unit：0.1kg/cm^2	-	●
r48.31	Current feedback pressure	Read only, unit：0.1kg/cm^2	-	●
r48.32	Current flow command	Read only, unit：0.1Hz	-	●
P48.40	Pressure sensor failure detection time	0.000s～60.000s	1.000s	☆
P48.41	Pressure sensor fault detection current	0%～300%	100%	☆
P48.42	Pressure sensor failure detection speed	0.0%～100.0%	10.0%	☆
P48.43	Pressure control state output maximum speed	0.0%～100.0%	10.0%	☆
P48.44	Pressure control state output minimum pressure	0.0%～100.0%	60.0%	☆
P48.45	Pressure control status output delay time	0.0s～10.000s	0.100s	☆
Driver common parameters				
P00.00	User password	0～65535 ➢ No user password status after power-on): The way to set a user password to lock is that Entering the same non-zero value twice in succession ➢ Locked staus Enter the password to unlock ➢ Unlocked status Enter the original password to lock inverter; enter the same value twice in a row to change the password (password will be cleared if you enter 0 twice in a row).	--	☆
P00.01	Access authority	0：End user 1：Standard	--	●
P00.03	Parameter initialization	11：Restore factory settings (Motor and related parameters are not restored) 12：Restore factory settings (All parameters are restored)	--	★

Function code	Name	Description		Factory default	Properties
		13：Clear fault record			
P00.04	Motor control method	0：VF 1：SVC（Open-loop vector without encoder） 2：VC（Closed-loop vector）		Synchronous motor：2 Asynchronous motor：1	★
P00.06	Source of the Operation Command	0：keypad 1：Terminal 2：Communication		0	★
P00.07	Digital setting speed	It is used to set the motor running speed in speed mode (P48.00=0). In internal pressure mode (P48.00=9), it is used to set flow setting. When P21.17=0, the unit is 0.01Hz, when P21.17=1, the unit is 1Rpm		--	☆
P01.00	Main frequency source selection	0: Digital setting 1: AI1 2: AI2 5: HDI 6: Multi-step speed 7: Communication		0	★
P01.37	Jog frequency	0.00Hz～maximum frequency(P01.06)		5.00Hz	☆
P03.01	Acceleration time 1	When the hydraulic control macro is set to non-zero, it is automatically set to 0.00s		Depend on model	☆
P03.02	Deceleration time 1	When the hydraulic control macro is set to non-zero, it is automatically set to 0.00s		Depend on model	☆
AI related parameters					
P04.00	HDI input minimum frequency	0.00kHz ～ 50.00kHz		1.00kHz	☆
P04.01	HDI input maximum frequency	0.00kHz ～ 50.00kHz		30.00kHz	☆
P04.02	Conversion value corresponding to HDI minimum frequency	-100.0%～100.0%		0.0%	☆
P04.03	Conversion value corresponding to HDI maximum frequency	-100.0%～100.0%		100.0%	☆
P04.04	HDI detection frequency filtering time	0.000s～10.000s		0.050s	☆
r04.05	HDI input frequency	0.00kHz～50.00kHz Used to view the frequency of HDI input pulses.		-	●
r04.06	HDI conversion value	-100.0%～100.0%		-	●

Function code	Name	Description	Factory default	Properties
		Used to view the output of HDI mapping curve.		
P04.08	AI1 Filter time	0.000s～10.000s, (AI1 is pressure command when P48.00=2)	0.010s	☆
r04.09	AI 1 Actual value	0.00V～10.00V Used to view the voltage of AI1 port. When AI1 is current type (0~20mA) input, the value multiplied by 2 is the input current (mA) of AI1 port.	-	●
r04.10	AI 1 Conversion value	-100.0%～100.0%, Used to view the output of AI1 after the mapped curve.	-	●
P04.12	AI2 Filter time	0.000s～10.000s, (AI2 is flow command when P48.00=2)	0.005s	☆
r04.13	AI 2 Actual value	0.00V～10.00V Used to view the voltage of AI2 port. When AI2 is current type (0~20mA) input, the value multiplied by 2 is the input current (mA) of AI2 port.	-	●
r04.14	AI 2 Conversion value	-100.0%～100.0% Used to view the output of AI2 after the mapped curve.	-	●
P04.16	AI3 filter time	0.000s～10.000s, (AI3 is pressure feedback when P48.00=2)	0.000s	☆
r04.17	AI3 Actual value	0.00V～10.00V	-	●
r04.18	AI3 Conversion value	-100.0%～100.0%	-	●
P04.23	The abscissa of curve A (pressure) 1	0.00V～P04.25, the minimum input of AI1, (Zero drift self-learning can automatically correct this parameter)	0.00V	☆
P04.24	The ordinate 1 of curve A	-100.0%～100.0%	0.0%	☆
P04.25	Abscissa 2 of curve A	P04.23～10.00V, the maximum input of AI1 (Corresponding to the maximum pressure command given by the computer board of the injection molding machine)	10.00V	☆
P04.26	The ordinate 2 of curve A	-100.0%～100.0%	100.0%	☆
P04.27	The abscissa of curve B (flow) 1	0.00V～P04.29, the minimum input of AI2 (Zero drift self-learning can automatically correct this parameter)	0.00V	☆
P04.28	The ordinate of curve B 1	-100.0%～100.0%	0.0%	☆
P04.29	Abscissa 2 of curve B	P04.27～10.00V, the maximum input of AI2 (Corresponding to the maximum flow command given by the computer board of the injection molding machine)	10.00V	☆
P04.30	The ordinate 2 of curve B	-100.0%～100.0%	100.0%	☆

Function code	Name	Description	Factory default	Properties
P04.31	Abscissa 1 of curve C (feedback)	0.00V～P04.33, the minimum input of AI3 (Zero drift self-learning can automatically correct this parameter)	0.01V	☆
P04.32	The ordinate of curve C 1	-100.0%～100.0%	0.0%	☆
P04.33	Abscissa 2 of curve C	P04.31～10.00V, the maximum input of AI3 (Corresponding to the maximum voltage output by the pressure sensor)	10.00V	☆
P04.34	The ordinate 2 of curve C	-100.0%～100.0%	100.0%	☆
DI and DO				
r06.00	DI port status	Bit0～Bit8 correspond to DI1～DI9	-	●
P06.01	DI1 Function selection	0: No function	1	★
P06.02	DI2 Function selection	1: Run	2	★
P06.03	DI3 Function selection	2: Reverse/Forward and reverse switch-over	56	★
P06.04	DI4 Function selection	4: Forward jog command	10	★
P06.05	DI5(HDI) Function selection	5: Reverse jog command 9: Coast to stop/free stop 10: Fault reset 11: Reverse forbidden 12: Switching run command to Keypad 13: Switch command source between terminal/communication 14: Fast stop 15: External stop 18: DC braking 21: Multi-step speed terminal 1 22: Multi-step speed terminal 2 23: Multi-step speedterminal 3 24: Multi-step speed terminal 4 56: Switch pressure control to speed control	0	★
P06.21	DI1 Effective delay time	0.000s～30.000s It is not recommended to add a contactor between the drive and the motor; if there is a contactor for the convenience of wiring in the transformation occasion, DI1 and the contactor control coil come from the same control signal, then this time should be increased to ensure that the contactor is reliable when the drive is running Pull in.	0.000s	☆
P07.03	Relay 1 function selection (T1A、T1B、T1C)	0: No function 1: Ready 2: Run	3	☆

Function code	Name	Description	Factory default	Properties
P07.04	Relay 2 function selection (T2A、T2B、T2C)	3: Fault 1 (shutdown fault) 46: Pressure control status 47: Swash plate switching of double displacement plunger pump	47	☆
Encoder parameters				
P10.01	Encoder type	0: ABZ 1: ABZUVW 2: Rotary/resolver 3: Sin/cos encoder	0	★
P10.02	Encoder line number	1～65535 Rotary pulse number: 1024× rotary pair of poles	1024	★
P10.03	AB pulse direction	0: Forward，1: Reverse ➢ If control mode is VC (with PG card)we can get this value by auto tuning for motor. ➢ You can also run the motor in open loop and observe whether r10.12 and r27.00 are in the same direction to determine whether this value is set correctly. If it is different, change this setting.	0	★
P10.04	UVW phase sequence	0: Forward， 1: Reverse Generally, this value is obtained through encoder self-learning (P11.10=3, 13).	0	★
P10.05	Z pulse angle	0.0～359.9	0.0	★
P10.06	UVW angle	0.0～359.9	0.1	★
P10.09	Encoder disconnection detection time	0.0(Do not detect)～10.0s	2.0	★
P10.11	Encoder speed filter time	0～32 speed loop control cycle	1	★
r10.12	Encoder feedback speed	Current rotating speed by measuring, unit: 0.01Hz/1Rpm ➢ unit set by P21.17. ➢ No symbolic number, Function code r27.02:Bit5 for direction; keypad indicator 【REV】indicate direction	-	●
r10.13	Encoder current position	0 ～ 4*encoder pulse number -1 encoder current position refer Z pulse as zero point, motor forward running and one cycle to Z pulse, then position to zero	-	●
r10.14	Z pulse mark value	0 ～ 4*encoder pulse number-1 (It is used to monitor encoder slipping and AB being disturbed)	-	●
r10.15	UVW status	Used to monitor the current UVW level of the	-	●

Function code	Name	Description	Factory default	Properties
		ABZUVW encoder.		
Motor parameters				
P11.00	Motor type	0: AC asynchronous motor 1: Permanent magnet synchronous motor	1	●
P11.02	Motor rated power	0.1kW～800.0kW ➢ When power is less than 1kw ,0.75kw set to 0.8 as per round up principle ,0.55kw motor set 0.6 ➢ When change motor rated power,AC drive will automatically set other parameter of motor name plate and motor model parameter **be careful to use**	Depend on model	★
P11.03	Motor rated voltage	10V～2000V	Depend on model	★
P11.04	Motor rated current	Unit:0.01A(P11.02＜30kW); 0.1A(P11.02≥30kW)	Depend on model	★
P11.05	Motor rated frequency	1.00Hz～600.00Hz，（永磁电机请先设置 P11.06）	50.00Hz	★
P11.06	Motor rated speed	1～60000rpm	Depend on model	★
r11.08	Motor rated torque	Read only, 0.1Nm(P11.02 ＜ 30kW); 1Nm(P11.02≥30kW)	-	●
r11.09	Number of motor 1 pairs of pole	Read only, Automatic calculation based on motor rated frequency and rated speed.	-	●
P11.10	Self-learning	**Units:** Self-learning 0：No action 1：Motor static self-learning 2：Motor rotation self-learning 3：Encoder self-learning **Tens**：Load type during self-learning 0：No load or light load 1：Heavy load or with brake	00	★
P11.22	Synchronous machine back EMF	0.0V~2000.0V Induced electromotive force at rated speed	Depend on model	★
Vector control related parameters				
P13.00	ASR proportional gain 1	0.1～100.0	5.0	☆
P13.01	ASR integration time 1	0.001s～30.000s	0.100s	☆
P13.02	ASR proportional gain 2	0.1～100.0	7.0	☆
P13.03	ASR integration time 2	0.001s～30.000s	0.300s	☆
P13.04	ASR parameter switching frequency 1	0.00Hz～ASR parameter switching frequency 2 (P13.05); When the speed is lower than P13.04, use ASR	5.00Hz	☆

Function code	Name	Description	Factory default	Properties
		proportional gain 1 and integral gain 1.		
P13.05	ASR parameter switching frequency 2	ASR parameter switching frequency 1 (P13.04) ~ 600.00Hz; When the speed is higher than P13.05, use ASR proportional gain 2 and integral gain 2.	10.00Hz	☆
P13.07	Electric torque limit	Range: 0.0~300.0% During SVC or VC control, the maximum electric torque output by the motor.	170.0%	☆
P13.08	Upper limit of brake torque	Range: 0.0%～300.0%; The maximum braking torque output by the motor during SVC or VC control.	170.0%	☆
Hardware configuration parameters				
P22.00	Carrier frequency	When P22.01 is equal to 0, the drive always uses this setting during operation; When P22.01 is equal to 1, the output frequency is between P22.04 and P22.05.	Depend on model	☆
P22.01	Carrier frequency adjustment	**Unit' digit**：adjustment as per Rotation 0: No；1: Yes **Ten' digit**：adjustment as per Temperature 0: No；1: Yes	00	★
P22.02	Low speed carrier frequency	1.0kHz～15.0kHz	Depend on model	☆
P22.03	High speed carrier frequency	1.0kHz～15.0kHz	Depend on model	☆
P22.04	Carrier frequency switching point 1	0.00Hz～600.00Hz When the unit digit of P22.01 is equal to 1, the carrier frequency set by P22.02 is used when the output frequency is lower than this set value.	10.00Hz	☆
P22.05	Carrier frequency switching point2	0.00Hz～600.00Hz When the unit digit of P22.01 is equal to 1, the carrier frequency set by P22.03 is used when the output frequency is higher than this set value.	100.00Hz	☆
P22.11	Energy braking voltage function	0: Disabled 1: Enabled 2: Only enable when ramp to stop ➤ This parameter is only used to control the built-in brake unit. For models without a built-in brake unit, this setting can be ignored.	1	☆
P22.12	Energy braking voltage	Set the operating voltage of the energy	680V	☆

Function code	Name	Description	Factory default	Properties
		consumption brake tube. Increasing this setting reduces the heating of the braking resistor, reduces the braking force, and slows the pressure relief.		
P22.13	Output phase switch	0: No Operation 1: Output phase switch (Equivalent to exchange motor wiring V and W)	0	★
P22.14	Cooling method (fan control)	0: Effective when running 1: Always effective after power on 2: Automatically controlled according to temperature	0	☆
r22.16	Drive rated power	Read only, Unit: 0.1kw	-	●
r22.17	Drive rated Voltage	Read only, Unit: V	-	●
r22.18	Drive rated current	Read only, Unit: 0.1A	-	●
Protection related parameters				
P23.00	DC Bus voltage control option	**Units: Over-voltage stall control** 0: Over-pressure stall is invalid 1: Over-pressure stall is effective 2: Over-pressure stall is effective (Adaptive pressure limit, suitable for cam type load) ➤ The over-voltage stall function limits the amount of power generated by the motor by extending the deceleration time or even increasing the speed to avoid over-voltage faults due to excessive DC side voltage. **Tens: Under-voltage stall control (Reserved)**	01	★
P23.01	Over-pressure stall point	540V～800V When the unit digit of P23.00 is enabled, the deceleration becomes slower when the voltage exceeds this value, to control the motor power generation to prevent the driver DC bus voltage from being too high and skip the voltage protection fault.	725V	★
P24.08	Motor temperature sensor type	**Unit：** 0：No 1：PT100 2：PT1000 3：KTY84-130 **Tens：** Motor temperature switch protection 0：Forbid	0	☆

Function code	Name	Description	Factory default	Properties
		1：Enable, when the motor temperature sensor detects excessive temperature, report Er.OH3 fault.		
P24.09	Motor overheating fault threshold	0.0℃～200.0℃	120.0℃	☆
P24.10	Motor overheat warning threshold	0.0℃～200.0℃ When the motor temperature detected by the temperature sensor is greater than this value, the DO terminal of function "27: Motor over-temperature warning" is selected to output a valid signal.	90.0℃	☆
r24.11	Motor temperature reading	Unit 0.1℃ Displays the motor temperature detected by the temperature sensor.	-	●
Sleeping function				
P41.00	Sleep mode and wake up selection	**Unit's digit: Sleep mode selection** 0: No sleep function 1: Sleep by frequency 2: AI1 sleep 3: AI2 sleep 4: AI3 sleep 5: AI4 sleep **Ten's digit : Wake up mode selection** 0: Wake up by frequency 1: AI1 wake up 2: AI2 wake up 3: AI3 wake up 4: AI4 wake up **Hundred's digit: Sleep wake direction selection** 0: P**ositive direction** 　Sleep source (AI1 ~ AI4) > P41.03, inverter will sleep 　Wake-up source (AI1 ~ AI4) < P41.04, the inverter will wake up 1: R**everse direction** 　Sleep source (AI1 ~ AI4) < P41.03, inverter sleep 　Wake-up source (AI1 ~ AI4) > P41.04, the inverter wakes up. ➢　Normally, the frequency source is given by PID, and the direction of sleep wake up is the same as the direction of PID action P40.14.	120	☆

Function code	Name	Description	Factory default	Properties
		➢ When the sleep source and wake up source are the same, please pay attention to the size relationship between P41.03 and P41.04. If the parameter setting is unreasonable, when the wake-up condition is selected to be established, even if the sleep condition is established, the sleep state cannot be entered, and special attention is required when using.		
P41.03	Sleep setting value by pressure	0～100.0%	0.0%	☆
P41.04	Wake up threshold by pressure	0～100.0%	0.0%	☆
P41.05	Sleep delay time	0.0s～6000.0s	0.0s	☆
P41.06	Wake up delay up	0.0s～6000.0s	0.0s	☆
Fault tracking (Recorded data of the last fault)				
r25.00	Type of recent failure	For details of fault types, please refer to the chapter 《Fault Diagnosis and Treatment》	-	●
r25.01	Output frequency at fault	Unit: 0.01Hz	-	●
r25.02	Output current at fault	Unit: 0.1A	-	●
r25.03	Bus voltage at fault	Unit: V	-	●
r25.04	Running mode status 1 at fault	See Parameter r27.10 in detail	-	●
r25.05	Input terminal status at fault	Bit0～Bit6 corresponds to DI1～DI7 Bit12～Bit15 corresponds to VDI1～VDI4	-	●
r25.06	Working time at fault	Unit: 0.01S	-	●
r25.07	Accumulated working time at fault	Unit: Hour	-	●
r25.08	Frequency source at fault	Unit: 0.01hz	-	●
r25.09	Torque source at fault	Unit: 0.1% relative to the motor rated torque	-	●
r25.10	Encoder speed at fault	Unit: RPM	-	●
r25.11	Electrical angle at fault	Unit: 0.1°	-	●
r25.12	Running mode status 2 1at fault	See Parameter r27.11 in detail	-	●
r25.13	Input terminal status at fault	Define as per unit, 0: Ineffective, 1: Effective Bit0: DO1;　　Bit1: DO2	-	●

Function code	Name	Description	Factory default	Properties
		Bit2: Relay 1; Bit3: Relay 2 Bit4: DO3; Bit5: DO4 Bit6: DO5; Bit7: DO6 Bit8: VDO1; Bit9: VDO2		
r25.14	Heat sink temperature at fault	Unit: 0.1℃	-	●
r25.15	Low-level fault	For details of fault types, please refer to the chapter 《Fault Diagnosis and Treatment》	-	●
r25.16	Warning type	For details of warning types, please refer to the chapter of 《Fault Diagnosis and Treatment》; when equal to 0, there is no warning at present.	-	●
Fault record (Fault record data that occurred earlier)				
r26.00	Type of previous fault	For details of fault types, please refer to the chapter 《Fault Diagnosis and Treatment》	-	●
r26.01	Output frequency at the previous fault	Unit: 0.01Hz	-	●
r26.02	Output current during the previous fault	Unit: 0.1A	-	●
r26.03	Bus voltage during the previous fault	Unit: V	-	●
r26.04	Status word 1 in the previous fault	See Parameter r27.10 in detail	-	●
r26.05	Input terminal status during the previous fault	Bit0～Bit6 corresponds to DI1～DI7 Bit12～Bit15 corresponds to VDI1～VDI4	-	●
r26.06	Current running time of the previous fault	Unit: 0.01s	-	●
r26.07	Cumulative running time of the previous fault	Unit: Hour	-	●
r26.08	Types of the first 2 failures		-	●
r26.09	Output frequency in the first 2 faults		-	●
r26.10	Output current during the first 2 faults		-	●
r26.11	Bus voltage during the first 2 faults		-	●
r26.12	Status word 1 during the first 2 faults		-	●
r26.13	Input terminal status during the first 2 faults	Same as the previous fault description	-	●

Function code	Name	Description	Factory default	Properties
r26.14	Current running time of the first 2 faults		-	●
r26.15	Cumulative running time of the first 2 faults		-	●
r26.16	Types of the first 3 failures		-	●
r26.17	Output frequency in the first 3 faults		-	●
r26.18	Output current during the first 3 faults		-	●
r26.19	Bus voltage during the first 3 faults	Same as the previous fault description	-	●
r26.20	Status word 1 during the first 3 faults		-	●
r26.21	Input terminal status during the first 3 faults		-	●
r26.22	Current running time of the first 3 faults		-	●
r26.23	Cumulative running time of the first 3 faults		-	●
Keypad and Display				
P21.02	MK function option	0: No function; 1: Forward Jog 2: Reverse Jog; 3: Forward/reverse Switch 4: Quick stop; 5: Coast to stop 6: **Curse left shift(LCD keypad)**	1	★
P21.03	STOP function	0: Valid only at Keypad Control 1: Valid at all command Channels	1	☆
P21.04	Monitoring display 1	00.00～99.99(Function code index)	27.00	☆
P21.05	Monitoring display 2	00.00～99.99(Function code index)	48.31	☆
P21.06	Monitoring display 3	00.00～99.99(Function code index)	27.06	☆
P21.07	Monitoring display 4	00.00～99.99(Function code index)	27.05	☆
P21.08	Monitoring display 5	00.00～99.99(Function code index)	27.03	☆
P21.09	Monitoring display 6	00.00～99.99(Function code index)	27.08	☆
P21.10	Monitoring display 7	00.00～99.99(Function code index)	06.00	☆
P21.11	Running status Monitoring display parameter option	Unit' digit to Thousand' digit set 1-4 monitor parameter 0 means no display, 1～7 corresponds to monitor parameter 1～7 Unit' digit：Choose first monitoring data, 0～7 Ten's digit：Choose second monitoring data, 0～7	5321	☆

Function code	Name	Description	Factory default	Properties
		Hundred's digit：Choose third monitoring data, 0～7 Thousand's digit：Choose fourth monitoring display, 0～7		
P21.12	Running status Monitoring display parameter option	Same as P21.11	5321	☆
P21.14	Load speed display coefficient	0.001～65.000	30.000	☆
P21.15	Load speed decimal point digit	0～3	0	☆
r21.16	Load speed display	Load speed = r27.00*P21.14, the number of decimal places is specified by P21.15.	-	●
P21.17	Speed display unit	0: 0.01Hz； 1: 1Rpm It is used to select the display unit of P00.07, r27.00, r27.01, r10.12.	1	★
Monitoring parameter				
r27.00	Running frequency	It can set unit as per Parameter P21.17	-	●
r27.01	Set frequency	It can set unit as per Parameter P21.17	-	●
r27.02	Direction indicator	Bit0: Direction of the running frequency (0-positive direction; 1-negative direction, the same below) Bit1: Set the direction of the frequency Bit2: Direction of the main frequency Bit3~4: Reserve Bit5: Direction of the encoder feedback frequency Bit6 Above reserved	-	●
r27.03	Bus voltage	Unit: 1V	-	●
r27.05	Output voltage	Unit: 0.1V	-	●
r27.06	Output current	Unit: 0.1A	-	●
r27.10	Drives running mode status 1	Bit0: Running status, 0-Stop; 1-Run; Bit1: Motor direction, 0-Forward; 1-Reverse Bit2: Ready signal: 0-Not ready; 1-Ready Bit3: Fault status, 0-No fault; 1-Fault Bit4～5: Fault type: Free stop; 1-Fast stop; 2-Stop as per stop mode；3: Continue to run Bit6: Jog status:0-No jog; 1-Jog status Bit7: Auto tune:0-No; 1-Yes	-	●

Function code	Name	Description	Factory default	Properties
		Bit8: DC braking:0-Non DC braking; 1-DC braking Bit9: Reserved Bit10～11: Acceleration and Deceleration: 0: Stop/zero output; 1: Accelerate; 2: Decelerate; 3: Constant speed Bit12: Reserved Bit13: Current limit state: 0-Unrestricted; 1-Restricted Bit14: Over pressure stall: 0-No stall adjustment; 1-Stall adjustment Bit15: Under voltage stall:0-No stall adjustment; 1-Stall adjustment		
r27.14	Cumulative power-on time	Unit: Hour	-	●
r27.15	Cumulative running time	Unit: Hour	-	●
r27.18	Radiator temperature	Unit: 0.1℃	-	●

8. Fault display

Fault Name	Fault code	Display	Possible Causes	Solutions
Output short circuit	1	Er. SC **Er. SC**	1. Motor insulation aging 2. Contact or short circuit occurs due to cable damage 3. The motor and driver wiring is too long 4. Output IGBT breakdown 5. The driver hardware is bad	1. Confirm the insulation resistance of the motor, and replace the motor if it is on 2. Check the power cable of the motor 3. Install reactor or output filter 4. Seek technical support 5. Seek technical support
Over current during acceleration	2	Er.oC1 **Er.oC1**	1. The acceleration and deceleration time is too short 2. The aging of the motor insulation, damaged cables, or other reasons cause a short circuit between phases or a short circuit to ground 3. A contactor on the output side of the driver is opening or closing 4. The control mode is vector without parameter identification 5. Start the rotating motor 6. Excessive load or sudden	1. Use SVC or VC 2. Eliminate peripheral faults 3. Make sure that the contactor will not open or close when the drive has output 4. Identify motor parameters in cold state 5. Make sure that the motor stops when starting 6. Increase the drive capacity, or decrease P13.07
Over current during deceleration	3	Er.oC2 **Er.oC2**	1. The deceleration time is too short 2. The aging of the motor insulation, damaged cables, or other reasons cause short circuit between phases or short circuit to ground 3. A contactor on the output side of the driver is opening or closing 4. The control mode is vector without parameter identification 5. Excessive load or sudden impact load	1. Use SVC or VC 2. Eliminate peripheral faults 3. Make sure that the contactor will not open or close when the drive has output 4. Identify motor parameters in cold state 5. Increase the drive capacity, or decrease P13.08
Over current at constant speed	4	Er.oC3 **Er.oC3**	1. Motor insulation aging, cable damage, or other reasons cause short circuit between phases or short circuit to ground 2. A contactor on the output side of the driver is opening or closing 3. The control mode is vector without parameter identification 4. Excessive load or sudden	1. Eliminate peripheral faults 2. Make sure that the contactor will not open or close when the drive has output 3. Identify the motor parameters in the cold state 4. Increase the drive capacity and decrease P13.07 and P13.08

Fault Name	Fault code	Display	Possible Causes	Solutions
Overvoltage during acceleration	5	Er.oU1 **Er.oU1**	1. The input voltage is too high 2. The surge voltage is mixed in the input power supply 3. The motor is driven by an external force, or the braking load is too heavy 4. The motor has a short circuit to ground	1. Reduce the power supply voltage to the normal range 2. Install DC reactor 3. Cancel the external force that can drag the motor to run, or install a braking unit 4. Exclude the location where the ground short circuit occurs
Overvoltage during deceleration	6	Er.oU2 **Er.oU2**	1. The input voltage is too high 2. The surge voltage is mixed in the input power supply 3. The motor is driven by an external force, or the braking load is too heavy 4. The resistance of the braking resistor is too large	1. Reduce the power supply voltage to the normal range 2. Install DC reactor 3. Cancel the external force that can drag the motor to run, or install a braking unit 4. Reduce the braking resistance
Overvoltage at constant speed	7	Er.oU3 **Er.oU3**	1. The input voltage is too high 2. The surge voltage is mixed in the input power supply 3. The motor is driven by an external force, or the braking load is too heavy 4. The resistance of the braking resistor is too large 5. The motor has a short circuit to ground	1. Reduce the power supply voltage to the normal range 2. Install DC reactor 3. Cancel the external force that can drag the motor to run, or install a braking unit 4. Reduce the braking resistance 5. Eliminate the location where the ground short circuit occurs
Low voltage	8	Er.Lv1 **Er.Lu1**	1. Input phase loss or instantaneous power failure 2. The voltage at the input end of the driver is not within the scope of the specification 3. Cut off the power supply during operation 4. The internal wiring of the drive is loose, or the hardware is bad	1. Check whether the input power is abnormal, whether the input power terminal is loose, whether the input contactor or air switch is abnormal 2. Adjust the voltage to the normal range 3. Power off after the drive stops 4. Seek technical support

Fault Name	Fault code	Display	Possible Causes	Solutions
Contactor open	9	Er.Lv2	1. Instantaneous power failure 2. The voltage at the input end of the driver is not within the scope of the specification 3. Cut off the power supply during operation 4. The internal wiring of the drive is loose, or the hardware is bad	1. Check whether the input power is abnormal, whether the input power terminal is loose, whether the input contactor or air switch is abnormal 2. Adjust the voltage to the normal range 3. Power off after the drive stops 4. Seek technical support
Frequency inverter overload	10	Er. oL	1. Excessive load or motor stall 2. The driver selection is too small 3. Overload at low speed	1. Reduce the load and check the motor and mechanical conditions 2. Choose a driver with a higher power level 3. Perform motor self-learning in cold state and reduce the carrier frequency at low speed
Motor overload	11	Er.oL1	1. Excessive load or motor stall 2. The motor selection is too small 3. Overload at low speed 4. Improper setting of motor parameters and motor protection parameters	1. Reduce the load and check the motor and mechanical conditions to correctly set the motor parameters and motor protection parameters 2. Increase P24.00 3. Perform motor self-learning in cold state and reduce the carrier frequency at low speed 4. Check the settings of related parameters
Power input phase loss	12	Er.iLP	1. Three-phase input power is abnormal 2. Bad hardware	1. Check and eliminate problems in peripheral circuits 2. Seek technical support
Power output phase loss	13	Er.oLP	1. The wiring from the drive to the motor is loose or the motor is burnt out 2. The three-phase output of the driver is unbalanced when the motor is running 3. Bad hardware	1. Eliminate peripheral faults 2. Check whether the three-phase winding of the motor is balanced; check whether the rated current of the motor is too small than the rated current of the driver 3. Seek technical support 4. Seek technical support

Fault Name	Fault code	Display	Possible Causes	Solutions
IGBT Module overheat	14	Er. oH	1. The ambient temperature is too high 2. The air duct is blocked 3. The fan is damaged 4. Bad hardware	1. Reduce the ambient temperature 2. Clean the air duct 3. Replace the fan 4. Seek technical support
Motor overheating	16	Er.oH3	1. Reduce the ambient temperature 2. Clean the air duct 3. Replace the fan 4. Seek technical support	1. Check the temperature sensor wiring 2. Increase the carrier frequency, strengthen the heat dissipation of the motor, reduce the load, and select a motor with a higher power 3. Check whether the set threshold is reasonable
By wave current limitingfault	17	Er.CbC	1. Refer to Er.SC, Er.oC1, Er.oC2, Er.oC3 for the cause of failure	1. Refer to Er.SC, Er.oC1, Er.oC2, Er.oC3 troubleshooting measures
Ground short circuit	18	Er.GF	1. The motor burns out or insulation aging occurs 2. Contact or short circuit occurs due to cable damage 3. The distributed capacitance of the motor cable and the terminal is large 4. Bad hardware	1. Confirm the insulation resistance of the motor, and replace the motor if it is on 2. Check the power cable of the motor and eliminate the fault point 3. Reduce the carrier frequency and install an output reactor 4. Seek technical support
Module temperature detection fault	20	Er.tCK	1. The driver hardware is bad 4. The ambient temperature is too low	1. Seek technical support 2. Manual intervention increases the temperature of the driver
Current detection fault	21	Er.Cur	1. Abnormal current detection element 2. The driver board is abnormal 3. Abnormal main control board	1. Seek technical support 2. Seek technical support 3. Seek technical support
Encoder offline	22	Er.PGL	1. Motor stall occurs 2. The number of encoder lines is set incorrectly 3. The encoder is disconnected	1. Check the motor and mechanical conditions 2. Set the encoder parameters correctly 3. Check the encoder connection

Fault Name	Fault code	Display	Possible Causes	Solutions
Motor over-speed	25	Er. oS	1. The encoder parameter setting is incorrect 2. No parameter identification 3. Unreasonable setting of motor overspeed detection parameters 4. SVC control is not connected to the motor to run	1. Set the encoder parameters correctly 2. Identify the motor parameters 3. Set the detection parameters reasonably according to the actual situation 4. Normal phenomenon,
Too large speed deviation	26	Er.dEv	1. The encoder parameter setting is incorrect 2. No parameter identification 3. Unreasonable detection parameter setting for excessive speed deviation 4. The load is too heavy	1. Set the encoder parameters correctly 2. Identify the motor parameters 3. Set the detection parameters reasonably according to the actual situation 4. Increase the current limit or reduce the load
Motor auto-tuning fault 1	27	Er.tU1	1. The motor parameters are not set according to the nameplate 2. Abnormal motor resistance identification	1. Set the motor parameters correctly according to the nameplate 2. Please make sure that the motor cable is connected correctly; if there is a contactor between the driver output and the motor, please make sure that the contactor has been pulled in
Motor auto-tuning Fault 2	28	Er.tU2	1. The motor has a heavier load when it is rotating and self-learning. 2. The difference between the rated output current of the driver and the rated current of the motor is too large.	1. Turn off the load to perform rotating self-learning or static self-learning 2. Replace the matching drive or motor
Off load	31	Er. LL	1. Loss of motor load 2. The unloading protection parameters (P24.12~P24.14) are set unreasonably	1. Confirm whether the load is separated 2. Adjust the parameter settings to meet the actual operating conditions
EEPROM read- write fault	32	Er.EEP	1. EEPROM operation is too frequent 2. The EEPROM chip is damaged	1. The host computer should avoid frequent operation of EEPROM 2. Replace the main control board

Fault Name	Fault code	Display	Possible Causes	Solutions
Running time arrival	33	Er.TTA	1. The drive trial time arrives	1. Contact the dealer
485 Communication fault	34	Er.485	1. The upper computer does not work normally 2. The wiring of the communication cable is incorrect, or a short circuit or disconnection occurs 3. No data received within the specified time	1. Check the wiring of the host computer 2. Check whether the communication cable is abnormal 3. Set P30.01~P30.05 correctly; ensure that the communication configuration of the host computer is consistent with the driver;
Loss of pressure feedback	36	Er.FbL	1. The pressure sensor has no feedback signal	1. Check whether the sensor feedback signal is abnormal 2. Increase P48.40
User-defined fault 1	37	Er.Ud1	DI/VDI terminal function is set to "user-defined fault 1", and the terminal is valid	1. Check the source of the fault 2. Reset operation
User-defined fault 2	38	Er.Ud2	DI/VDI terminal function is set to "user-defined fault 2", and the terminal is valid	1. Check the source of the fault 2. Reset operation