

SF100 变频器 使用说明



单相220V: 0.4~3.7KW

三相380V: 0.75~315KW

Technical Support

Dealer Paste

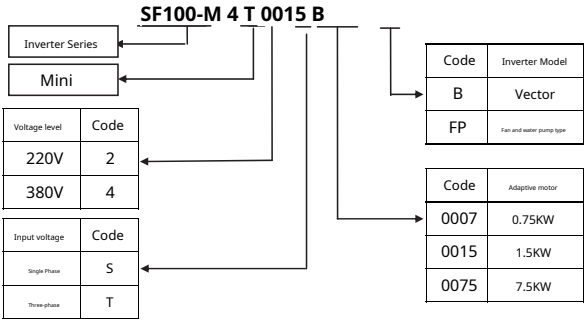
Chapter 1 Model Naming

1.1Product Confirmation

When unpacking, please carefully check whether there is any damage or scratches during transportation, and whether the rated value on the nameplate of the machine is consistent with your order requirements.

If you find any adverse conditions, please contact the supplier or our company directly. **Inverter**

model description



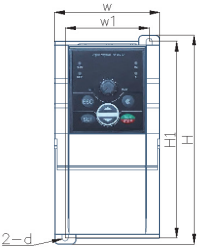
picture1-1Inverter model description

Under the right side panel of the inverter chassis, there is a nameplate indicating the inverter model and rating. The content is as follows:

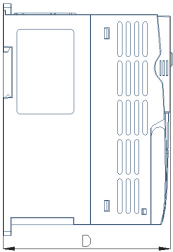


Note: Subject to change

1.2 Dimensions



(a) 2.2KW and below specifications and dimensions



(b) 3.7KW~7.5KW Specifications and Dimensions

Table 1-1 Inverter appearance and installation series dimensions (mm)

Specification	W	W1	H	H1	D	D1	d
SF100-2S0004	83	66	166	156	118	/	5
SF100-2S0007							
SF100-2S0015							
SF100-4T0007							
SF100-4T0015							
SF100-4T0022	106	95	170	157	160	60	5
SF100-2S0022							
SF100-4T0022							
SF100-4T0030							
SF100-4T0040	152	135	230	215	160	68	6
SF100-4T0055							
SF100-4T0075	200	180	300	280	193	195	6
SF100-4T0110							
SF100-4T0150							

Note: If it is different from the above table, the actual product shall prevail! No further notice will be given.

Chapter 2Installation and wiring of frequency converter

2.1 Wiring of main circuit terminals

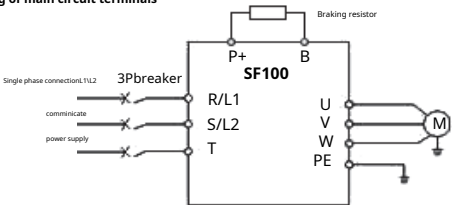
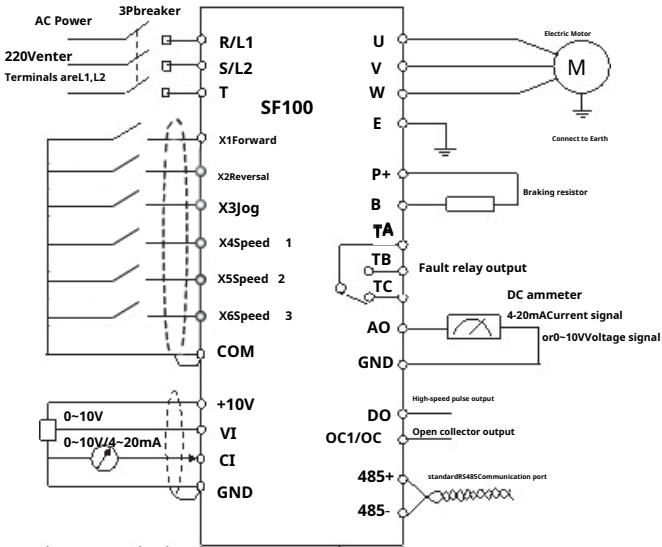


Figure 2-1 Simple wiring of main circuit

2.2 Basic operation wiring diagram



2.3 Description of control board terminals

(1) The function description of CN1 terminal is shown in Table 2-1

Table 2-1 Control board CN5 terminal function

category	Terminals Label	name	Terminal Function Description	Specification
Relay Output son	TA	Frequency Converter	Programmable relay outputs with multiple functions Output terminal, see Chapter 6, Section 6.5 Terminal Function for details. Parameter P4.11 output terminal function introduction.	TA-TC: Normally Closed, TA-TB: Normally Open Contact Capacity: AC250V/2A (COSΦ=1) AC250V/1A (COSΦ=0.4) DC30V/1A
	TB	Versatile Relay		
	TC	Output Terminals		

(2) Control circuit terminal CN2 is arranged as follows:

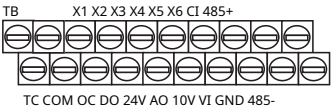


Figure 2-2 Control board terminal arrangement sequence diagram

(3) The function description of CN2 terminal is shown in Table 2-2.

Table 2-2 Control board CN2 terminal function table





category	Terminals Label	name	Terminal Function Description	Specification
communication	485+	RS485 communication interface	RS485 differential signal positive terminal	Standard RS485 communication interface, please
	485-		RS485 differential signal negative terminal	Use twisted pair or shielded wire
Multi-function Can lose Output son	OC	Open collector output Terminal 1,2	Programmable switch input with multiple functions Output terminal, see Chapter 6, Section 6.5 Terminal Function for details. Parameter P4.10 output terminal function introduction. (Common port: COM)	Optocoupler isolation output Working voltage range: 9~30V Maximum output current: 50mA See P4.10 parameter description for usage
pulse Output Terminals	DO		Programmable pulse output with various functions Terminals, see Chapter 6, Section 6.5 Terminal Function Reference for details. Number P4.19/4.20 output terminal function introduction. (Common port: COM)	Output frequency range: by function code Determined by P4.20, maximum 20KHz
simulation Volume enter	VI	Analog Input VIs	Accepts analog voltage input (Reference ground: GND)	Input voltage range: 0~10V (Input impedance: 47KΩ) Resolution: 1/1000
	CI	Analog input CI	Accepts analog voltage/current input, The voltage and current are selected by jumper JP3, and the factory default voltage (reference ground: GND)	Input voltage range: 0~10V (Input impedance: 47KΩ) Input current range: 0~20mA (Input impedance: 500Ω) Resolution: 1/1000
simulation Volume out	AO	Analog output AO1	Provide analog voltage/current output, which can be used to 7 kinds of quantities are displayed, and the output voltage/current is controlled by jumpers. JP2 selection, factory default output voltage. (Reference ground: GND)	Current output range: 4~20mA Voltage output range: 0~10V
Multi-function Can lose Input son	X1	X1 defaults to forward rotation	Programmable switch with multiple functions Input terminals, see Chapter 6, Section 6.5 Terminals for details. Function parameters (P4 group) Input terminal function introduction (Public terminal: COM)	Optocoupler isolated input Input impedance: R=2KΩ Maximum input frequency: 200Hz Input voltage range 9~30V X1~X6 COM closure efficient
	X2	X2 defaults to inversion		
	X3	X3 defaults to jog		
	X4	X4 defaults to speed 1		
	X5	X5 defaults to speed 2		
	X6	X6 defaults to speed 3		
power supply	24V	+24V power supply	Provide +24V power supply to the outside (negative terminal: COM)	
	10V	+10V power supply	Provide +10V power supply to the outside (negative terminal: GND)	Maximum output current: 50mA
	GND	+10V power common	Reference ground for analog signals and +10V power supply	COM and GND are mutually
	COM	+24V power common	Digital signal input, output common terminal	No internal isolation

Chapter 3 Function Parameter Table

3.1 Explanation of symbols in the table

- "○" : Parameters can be modified during operation.
- "×" : Parameters cannot be modified during operation.
- "*": Read-only parameter, users cannot modify it.









3.2 Function code table

Group P0: Basic operating parameters					
Function code	name	Setting range	Minimum unit	Factory settings	Change
P0.00	Control mode selection	0: V/F control 1: Sensorless vector control 2: Direct torque control	1	0	○
P0.01	Frequency setting channel selection	0: Panel digital potentiometer 1: Keyboard  ,  key setting 2: Digital setting 1, operation panel 3: Digital setting 2, terminal UP/DOWN adjustment 4: Digital setting 3, serial port setting 5: VI analog reference (VI-GND) 6: CI analog reference (CI-GND) 7: Terminal pulse (PULSE) given 8: Combination setting (see P3.00 parameter) 9: Main tuning VI*CI fine tuning 10: Master VI* Keyboard  ,  keys for fine adjustment 11: Main VI* panel potentiometer fine-tuning 12: Special function, reserved by the manufacturer	1	0	○
P0.02	Operating frequency digital setting	P0.20 lower frequency limit ~ P0.19 upper frequency limit	0.01HZ	50.00HZ	○
P0.03	Run command channel selection	0: Operation panel running frequency channel 1: Terminal operation command channel 2: Serial port command channel	1	0	○
P0.04	Running direction setting	Units: 0: Forward 1: Reverse Tens: 0: Allow reversal1: Reverse is prohibited	1	10	○
P0.05	Forward and reverse dead time	0.0~120.0s	0.1s	0.1s	○
P0.06	Maximum output frequency	50.00Hz~500.00Hz	0.01Hz	50.00Hz	×
P0.07	Basic operating frequency	1.00Hz~500.00Hz	0.01Hz	50.00Hz	×
P0.08	Maximum output voltage	1~480V	1V	Inverter rated	×
P0.09	Torque boost	0.0%~30.0%	0.1%	2.0%	×
P0.10	Torque boost cut-off frequency	0.00Hz~Basic operating frequency P0.07	0.00	25.00Hz	○
P0.11	Torque boost mode	0: Manual 1: Automatic	1	0	○
P0.12	Carrier frequency	1.0K~15.0K	0.1K	8.0K	×
P0.13	Acceleration/deceleration mode selection	0: Linear acceleration and deceleration 1: S curve acceleration and deceleration	1	0	×
P0.14	SCurve start time	10.0%~50.0% (acceleration/deceleration time) P0.14+P0.15 《90%》	0.1%	20.0%	○
P0.15	SCurve rising time	10.0%~80.0% (acceleration/deceleration time) P0.14+P0.15 《90%》	0.1%	60.0%	○
P0.16	Acceleration and deceleration time unit	0: seconds 1: Minute	0	0	×
P0.17	Acceleration time 1	0.1~6000.0	0.1	20.0	○
P0.18	Deceleration time 1	0.1~6000.0	0.1	20.0	○
P0.19	Upper frequency	Lower limit frequency ~ maximum output frequency P0.06	0.01Hz	50.00Hz	×
P0.20	Lower frequency	0.00Hz~Upper frequency limit	0.01Hz	0.00Hz	×
P0.21	Lower frequency operation mode	0: Run at the lower frequency limit 1: Shutdown	1	0	×
P0.22	V/F curve setting	0: Constant torque curve 1: Torque reduction characteristic curve 1 (1.2 power) 2: Torque reduction characteristic curve 2 (1.7 power) 3: Torque reduction characteristic curve 3 (2.0 power) 4: Multi-stage V/F curve	1	0	×
P0.23	V/F frequency value P3	P0.25 ~ P0.07 Basic operating frequency	0.01Hz	0.00Hz	×
P0.24	V/F voltage value V3	P0.26~100.0%	0.1%	0.0%	×
P0.25	V/F frequency value P2	P0.27 ~ P0.23	0.01Hz	0.00Hz	×
P0.26	V/F voltage value V2	P0.28 ~ P0.24	0.1%	0.0%	×
P0.27	V/F frequency value P1	0.00~P0.25	0.01Hz	0.00Hz	×
P0.28	V/F Voltage value V1	0~ P0.26	0.1%	0.0%	×
P0.29	UP/DOWN control when power off Frequency saving mode	0: Do not save when power is off, restart with P0.02 The frequency setting value is the initial value. 1: Save the frequency during UP/DOWN control	1	1	○

P1Group: Frequency setting parameters					
Function code	name	Setting range	Minimum unit	Factory settings	Change
P1.00	Analog filter time constant	0.01~30.00s	0.01s	0.20s	○
P1.01	VI Channel Gain	0.01~9.99	0.01	1.00	○
P1.02	VI minimum setting	0.00~P1.04	0.01Hz	0.00V	○
P1.03	VI minimum given corresponding frequency	0.00~Upper frequency limit	0.01Hz	0.00Hz	○
P1.04	VI maximum setting	P1.04~10.00V	0.01V	10.00V	○
P1.05	VI Maximum given corresponding frequency	0.00~Upper frequency limit	0.01Hz	50.00Hz	○
P1.06	CI Channel Gain	0.01~ 9.99	0.01	1.00	○
P1.07	CI minimum given	0.00~ P1.09	0.01V	0.00V	○
P1.08	CI Minimum given corresponding frequency	0.00~Upper frequency limit	0.01Hz	0.00Hz	○
P1.09	CI Maximum given	P1.07 ~ 10.00V	0.01V	10.00V	○
P1.10	CI Maximum given corresponding frequency	0.00~Upper frequency limit	0.01Hz	50.00Hz	○
P1.11	PULSE Maximum input pulse	0.1~20.0K	0.1K	10.0K	○
P1.12	PULSE minimum setting	0.0~P2.14(PULSE maximum setting)	0.1K	0.0K	○

P1.13	PULSE minimum given corresponding frequency	0.00~Upper frequency limit	0.01Hz	0.00Hz	<input type="radio"/>
P1.14	PULSE maximum setting	P1.12 (PULSE minimum setting) - P1.11 (maximum input pulse)	0.1K	10.0K	<input type="radio"/>
P1.15	PULSE maximum response frequency	0.00~Upper frequency limit	0.01Hz	50.00Hz	<input type="radio"/>
P1.16	Analog input accuracy	0.0~100%	0.1%	0.2%	<input type="radio"/>

P2Group: Starting and braking parameters					
Function code	name	Setting range	Minimum unit	Factory settings	Change
P2.00	Start-up operation mode	0: Start from starting frequency 1: Brake first and then start from the starting frequency 2: Detection speed restart	1	0	×
P2.01	Starting frequency	0.40~20.00Hz	0.01Hz	0.50Hz	<input type="radio"/>
P2.02	Starting frequency duration	0.0~30.0s	0.1s	0.0s	<input type="radio"/>
P2.03	DC braking current at starting	0.0~80.0%	0.1%	0%	<input type="radio"/>
P2.04	DC braking time at starting	0.0~60.0s	0.1s	0.0s	<input type="radio"/>
P2.05	Shutdown mode	0: Slow down 1: Free parking 2: Deceleration + DC braking	1	0	×
P2.06	DC braking starting frequency during shutdown	0.0~15.00Hz	0.0Hz	3.00Hz	<input type="radio"/>
P2.07	DC braking time at shutdown	0.0~60.0s	0.1s	0.0s	<input type="radio"/>
P2.08	DC braking current during shutdown	0.0~80.0%	0.1%	0.0%	<input type="radio"/>

P3 Group: Auxiliary Operation Parameters					
Function code	name	Setting range	Minimum unit	Factory settings	Change
P3.00	Frequency input Channel combination	0: VI + CI 1: VI-CI 2: External pulse setting + VI + keyboard  key setting 3: External pulse setting - VI - keyboard  key setting 4: External pulse setting + CI 5: External pulse setting - CI 6: RS485 setting + VI + keyboard  key setting 7: RS485 setting - VI - keyboard  key setting 8: RS485 setting + CI + keyboard  key setting 9: RS485 setting - CI - keyboard  key setting 10: RS485 setting + CI + external pulse setting 11: RS485 setting - CI - external pulse setting 12: RS485 setting + VI + external pulse setting 13: RS485 setting - VI - external pulse setting 14: VI + CI + keyboard  key setting + digital setting 15: VI + CI - Keyboard  key setting + digital setting 16: MAX (VI, CI) 17: MIN(VI,CI) 18: MAX (VI, CI, PULSE) 19: MIN (VI, CI, PULSE) 20: Any non-zero value of VI or CI is valid, and VI takes precedence.	1	0	×
P3.01	Parameter initialization Parameter determination	Units: 0: All parameters can be modified 1: Except this parameter, other parameters are not allowed to be modified 2: Except P0.02 and this parameter, other parameters are not allowed Revise Tens: 0: No action 1: Restore to factory defaults 2: Clear fault records	1	0	×

P3 Group: Auxiliary Operation Parameters					
Function code	name	Setting range	Minimum unit	Factory settings	Change
P3.02	Parameter copy	0: No action 1: Parameter upload 2: Parameter download Note: Only remote control keyboard is effective	1	0	×
P3.03	Automatic energy-saving operation	0: No action 1: Action	1	0	×
P3.04	AVR Features	0: No action 1: Keep moving 2: No action during deceleration only	1	0	×
P3.05	Slip frequency compensation	0~150%	1%	0%	×
P3.06	Jog operation frequency	0.10~50.00Hz	0.01Hz	5.00Hz	<input type="radio"/>
P3.07	Jog acceleration time	0.1~60.0s	0.1s	20.0s	<input type="radio"/>
P3.08	Jog deceleration time	0.1~60.0s	0.1s	20.0s	<input type="radio"/>
P3.09	Communication Configuration	LED units digit: baud rate selection 0:1200BPS 1: 2400BPS 2: 4800BPS 3:9600BPS 4:19200BPS 5:38400BPS LED tens: data format 0: 1-7-2 format, no checksum 1: 1-7-1 format, odd parity 2: 1-7-1 format, even parity 3: 1-8-2 format, no checksum 4: 1-8-1 format, odd parity	1	154	×

		5: 1-8-1 format, even parity 6: 1-8-1 format, no checksum LED hundreds digit: communication mode 0: MODBUS, ASCII mode 1: MODBUS, RTU mode			
P3.10	Local address	0~248 0: Broadcast address 248: Inverter as host	1	1	×
P3.11	Communication timeout detection time	0.0~1000.0s 0.0: The detection function is invalid	0.1s	0.0s	×
P3.12	Local answer delay	0~1000ms	1	5ms	×
P3.13	Multi-machine linkage ratio	0.01~1.00	0.01	1.00	×
P3.14	Acceleration time 2	0.1~6000.0	0.1	20.0	○
P3.15	Deceleration time 2	0.1~6000.0	0.1	20.0	○
P3.16	Acceleration time 3	0.1~6000.0	0.1	20.0	○
P3.17	Deceleration time 3	0.1~6000.0	0.1	20.0	○
P3.18	Acceleration time 4	0.1~6000.0	0.1	20.0	○
P3.19	Deceleration time 4	0.1~6000.0	0.1	20.0	○
P3.20	Acceleration time 5	0.1~6000.0	0.1	20.0	○
P3.21	Deceleration time 5	0.1~6000.0	0.1	20.0	○
P3.22	Acceleration time 6	0.1~6000.0	0.1	20.0	○
P3.23	Deceleration time 6	0.1~6000.0	0.1	20.0	○
P3.24	Acceleration time 7	0.1~6000.0	0.1	20.0	○
P3.25	Deceleration time 7	0.1~6000.0	0.1	20.0	○
P3.26	Multi-band frequency 1	Lower frequency limit ~ upper frequency limit	0.01Hz	5.00Hz	○
P3.27	Multi-band frequency 2	Lower frequency limit ~ upper frequency limit	0.01Hz	10.00Hz	○
P3.28	Multi-band frequency 3	Lower frequency limit ~ upper frequency limit	0.01Hz	20.00Hz	○
P3.29	Multi-band frequency 4	Lower frequency limit ~ upper frequency limit	0.01Hz	30.00Hz	○
P3.30	Multi-band frequency 5	Lower frequency limit ~ upper frequency limit	0.01Hz	40.00Hz	○
P3.31	Multi-band frequency 6	Lower frequency limit ~ upper frequency limit	0.01Hz	45.00Hz	○
P3.32	Multi-band frequency 7	Lower frequency limit ~ upper frequency limit	0.01Hz	50.00Hz	○
P3.33	Hop frequency 1	0.00~500.00Hz	0.01Hz	0.00Hz	×
P3.34	Hop frequency 1 range	0.00~30.00Hz	0.01Hz	0.00Hz	×
P3.35	Hop frequency 2	0.00~500.00Hz	0.01Hz	0.00Hz	×
P3.36	Hop frequency 2 range	0.00~30.00Hz	0.01Hz	0.00Hz	×
P3.37	Hop frequency 3	0.00~500.00Hz	0.01Hz	0.00Hz	×
P3.38	Hop frequency 3 range	0.00~30.00Hz	0.01Hz	0.00Hz	×
P3.39	Set the run time	0~65.535K hours	0.001K	0.000K	○
P3.40	Running time accumulation	0~65.535K hours	0.001K	0.000K	*
P3.41	Display parameter selection 1	0000~1111 Units: running time 0: Do not display 1: Display Continue to next page Tens digit: Input and output terminal status 0: Do not display 1: Display Hundreds: Analog Input VI 0: Do not display 1: Display Thousands: Analog input CI 0: Do not display 1: Display	1	0000	○
P3.42	Display parameter selection 2	0000~1111 Units: External pulse input 0: Do not display 1: Display Tens: External count value 0: Do not display 1: Display Hundreds place: actual length 0: Do not display 1: Display	1	0000	○
P3.43	Display parameter selection 3	00~15 0: Display output frequency 1: Display the set frequency 2: Display output voltage 3: Display output current 4: Display DC bus voltage 5: Display module temperature 6: Display motor speed 7: Display the inverter running time 8: Display input terminal status 9: Display VI value 10: Display CI value 11: Display PLUSE value 12: Display the rated current of the inverter 13: Display the rated voltage of the inverter 14: Display speed without unit, unpolarized speed 15: Display inverter model	1	00	○
P3.44	Display coefficients without units	0.1~60.0	0.1	1.0	○
P3.45	JOG/REV switch control system	0: Select JOG operation 1: Select REV to run in reverse	1	0	×

Group P4: Terminal function parameters					
Function code	name	Setting range	Minimum unit	Factory settings	Change
P4.00	Input terminal X1 function selection select	0: The console is idle or in default function 1: Multi-speed control terminal 1 2: Multi-speed control terminal 2 3: Multi-speed control terminal 3 4: External forward jog control input 5: External reverse jog control input 6: Acceleration/deceleration time terminal 1 7: Acceleration/deceleration time terminal 2 8: Acceleration/deceleration time terminal 3 9: Three-wire operation control shutdown, normally closed 10: Free stop input (FRS) 11: External stop command 12: Shutdown DC braking input command DB 13: Inverter operation prohibited 14: Frequency increase command (UP) 15: Frequency decrease instruction (DOWN) 16: Acceleration and deceleration prohibition command 17: External reset input (clear fault) 18: External device fault input (normally open) 19: Frequency setting channel selection 1 20: Frequency setting channel selection 2 21: Frequency setting channel selection 3 22: Command switch to terminal 23: Run command channel selection 1 24: Run command channel selection 2 25: Swing frequency input selection 26: Swing frequency status reset 27: Closed loop failure 28: Simple PLC pause operation command 29: PLC failure 30: PLC stop status reset 31: Frequency switch to CI 32: Counter trigger signal input 33: Counter clear input 34: External interrupt input 35: Pulse frequency input (valid only for X6) 36: Actual length reset input 37: Three-wire operation control shutdown, normally open 38: Forward 39: Reversal 40: Reserved	1	38	×
P4.01	Terminal X2 function selection	Same as above	1	39	×
P4.02	Terminal X3 function selection	Same as above	1	4	×
P4.03	Terminal X4 function selection	Same as above	1	1	×
P4.04	Terminal X5 function selection	Same as above	1	2	×
P4.05	Terminal X6 function selection	Same as above	1	3	×
P4.06	reserve	Same as above	1	0	
P4.07	reserve	Same as above	1	0	
P4.08	FWD/REV operation mode selection select	0: Two-wire control mode 1 1: Two-wire control mode 2 2: Three-wire control mode 1 3: Three-wire control mode 2	1	0	×
P4.09	Terminal UP/DN rate	0.01～99.99Hz/time	0.01	1.00Hz	○
P4.10	Bidirectional open collector output Output terminal OC output selection	0: Inverter is running (RUN) 1: Frequency Arrival Signal (FAR) 2: Frequency level detection signal (FDT1) 3: Frequency level detection signal (FDT2) 4: Overload early warning signal (OL) 5: Inverter undervoltage lockout shutdown (LU) 6: External fault shutdown (EXT) 7: Output frequency reaches the upper limit (FH) 8: Output frequency reaches the lower limit (FL) 9: The inverter is running at zero speed 10: Simple PLC stage operation completed 11: PLC runs a cycle and ends 12: Set count value reached 13: The specified count value has been reached 14: Inverter operation preparation completed (RDY) 15: Inverter fault 16: Start frequency running time 17: DC braking time at start 18: Stop brake time 19: Upper and lower limits of regenerative frequency 20: Set running time reached 21: Constant pressure water supply pump control output	1	0	×
P4.11	Relay output selection	Same as above	1	15	×
P4.12	Frequency Arrival (FAR) Detection Output Range	0.00～50.00Hz	0.01Hz	5.00Hz	○
P4.13	FDT1 frequency value	0.00～Upper frequency limit	0.01Hz	10.00Hz	○
P4.14	FDT1 Hysteresis	0.00～50.00Hz	0.01Hz	1.00Hz	○
P4.15	FDT2 frequency value	0.00～Upper frequency limit	0.01Hz	10.00Hz	○

P4.16	FDT2 Hysteresis	0.00~50.00Hz	0.01Hz	1.00Hz	○
P4.17	Analog output (AO) selection	0: Output frequency (0 to upper limit frequency) 1: Output current 0 to 2 times the rated current of the motor 2: Output voltage (0 to 1.2 times the rated voltage of the inverter) Constant voltage) 3: Bus voltage (0~800V) 4: PID given 5: PID feedback 6: VI (0-10V) 7: CI (0~10V/4~20mA)	1	0	○
P4.18	Analog output (AO) gain	0.10~2.00	0.01	1.00	○
P4.19	DO output terminal function selection select	0: Output frequency (0 to upper limit frequency) 1: Output current (0 to 2 times the rated current of the motor) flow) 2: Output voltage (0~1.2 inverter rated Voltage) 3: Bus voltage (0~800V) 4: PID given 5: PID feedback 6: VI (0-10V) 7: CI (0~10V/4~20mA) 8: Constant pressure water supply pump control output	1	0	○
P4.20	DO maximum pulse output frequency Rate	0.1K~20.0K (maximum 20KHz)	0.1KHz	10.0KHz	○
P4.21	Set the count value to Certainly	F4.22~9999	1	0	○
P4.22	The specified count value reaches Certainly	0~F4.21	1	0	○
P4.23	Overload warning water detection flat	20%~200%	1	130%	○
P4.24	Overload pre-alarm delay between	0.0~20.0s	0.1s	5.0s	○
P4.25	Bidirectional open collector output Output terminal OC2 Output selection Select (this level does not have this terminal)	Same as P4.10	1	0	×
P4.26	Terminal signal filtering	0~4	1	4	×

Group P5: Protection function parameters					
Function code	name	Setting range	Minimum unit	Factory setting	Change
P5.00	Motor overload protection mode selection select	0: Inverter output is blocked 1: No action	1	0	×
P5.01	Motor overload protection factor	20~120%	1	100%	×
P5.02	Overvoltage stall selection	0: Disable 1: Allow	1	1	×
P5.03	Stall overvoltage point	380V: 120~150% 220V: 110~130%	1%	140% 120%	○
P5.04	Automatic current limiting level	10%~200%	1%	150%	○
P5.05	Frequency reduction rate during current limiting	0.00~99.99Hz/s	0.01Hz/s	15.00Hz/s	○
P5.06	Automatic current limiting action selection	0: Constant speed invalid 1: Constant speed is effective Note: Acceleration and deceleration are always effective	1	1	×
P5.07	Power failure restart setting	0: No action 1: Action	1	0	×
P5.08	Power outage restart waiting room	0.0~10.0s	0.1s	0.5s	×
P5.09	Fault self-recovery times	0~10 0: No automatic reset function Note: Overload and overheating have no self-recovery Function	1	0	×
P5.10	Fault self-recovery interval	0.5~20.0s	0.1s	5.0s	×
P5.11	Output phase loss protection	0. No protection 1. With phase loss protection	1	1	×
P5.12	Input phase loss protection	0. No protection 1. Protection	1	0	○
P5.13	Module overheat protection value	0~200	1	80	○

Group P6: Fault Record Parameters					
Function code	name	Illustrate	Minimum unit	Factory settings	Change
P6.00	Previous fault record	Previous fault record	1	0	*
P6.01	The previous fault Output frequency	Output frequency at the last fault	0.01Hz	0	*
P6.02	The previous fault Fixed frequency	The set frequency at the last fault	0.01Hz	0	*
P6.03	The previous fault Output current	Output current at the last fault	0.1A	0	*
P6.04	The previous fault Output voltage	Output voltage at the last fault	1V	0	*
P6.05	The previous fault Bus voltage	DC bus voltage at the last fault	1V	0	*
P6.06	The model of the previous failure Block temperature	Module temperature at the time of the previous fault	1℃	0	*
P6.07	Previous two fault records	Previous two fault records	1	0	*
P6.08	The last three fault records	The last three fault records	1	0	*

P6.09	The last four fault records	The last four fault records	1	0	*
P6.10	The last five fault records	The last five fault records	1	0	*
P6.11	Previous six fault records	Previous six fault records	1	0	*

Group P7: PID process closed loop control parameters					
Function code	name	Setting range	Minimum unit	Factory settings	Change
P7.00	Closed loop operation control option select	0: PID closed loop operation control is invalid 1: PID closed loop operation control is valid	1	0	×
P7.01	Given channel selection	0: P7.05 digital setting 1: 0~10V voltage given by VI simulation 2: Given by CI simulation 3: Panel potentiometer setting 4: RS485 communication setting 5: Pulse PLUSE setting, only X6 is valid	1	0	○
P7.02	Feedback channel selection	0: VI analog input voltage 0~10V 1: Analog input from CI 2: VI+CI 3:VI-CI 4: Min{VI, CI} 5: Max{VI, CI} 6: Pulse feedback PLUSE is only valid for X6	1	0	○
P7.03	Feedforward channel selection	0: No feedforward function 1: P7.05 digital setting feedforward 2: VI simulates 0~10V voltage feedforward 3: Feedforward simulation by CI 4: Panel potentiometer feedforward 5: RS485 communication feedforward 6: Pulse PLUSE feedforward, only valid for X6	1	0	○
P7.04	Feedback channel filtering	0.01~50.00s	0.01s	0.50s	○
P7.05	Digital setting of given amount	0.000~20.00Mpa Refer to P7.27	0.001Mpa	0.000Mpa	○
P7.06	Feedback signal characteristics	0: Positive characteristic 1: Negative characteristics	1	0	○
P7.07	Feedback channel gain	0.01~10.00	0.01	0	○
P7.08	Lower pressure limit	0.001~P7.09	0.001	0.001	○
P7.09	Upper pressure limit	P7.08~P7.27	0.001Mpa	1.000Mpa	○
P7.10	Segmented PID coefficient KP1	0~6000.0	0.1	20.0	○
P7.11	Segmented PID coefficient KP2	0~6000.0	0.1	200.0	○
P7.12	Segmented PID coefficient KP3	0~6000.0	0.1	1000.0	○
P7.13	Segmented PID coefficient KP4	0~6000.0	0.1	5000.0	○
P7.14	Sampling period	0.01~1.00 seconds	0.01 sec	0.10 sec	○
P7.15	Allowable deviation limit	0~20%	1%	0%	○
P7.16	PID feedback disconnection detection Measurement threshold	0.0~20.0%	0.1%	0.0%	○
P7.17	PID feedback disconnection Make a choice	0: Shutdown. 1: Run at the frequency set by P0.02. 2: Run at the upper frequency limit. 3: Run at half the upper frequency limit.	1	0	○
P7.18	PID feedback disconnection Delay time	0.01~5.00 seconds	0.01 sec	1.00 sec	○
P7.19	Awakening pressure level	0.001~P7.27	0.001Mpa	0.001Mpa	○
P7.20	Sleep pressure level	P7.19~P7.27	0.001Mpa	1.000Mpa	○
P7.21	Sleep level continuous time between	0~250 seconds	1	10 seconds	○
P7.22	Sleep frequency	0.00~500.00Hz	0.01	20.00Hz	○
P7.23	Sleep frequency continuous between	0~250 seconds	1	10 seconds	○
P7.24	Alarm lower limit pressure	0.001~P7.25	0.001Mpa	0.001Mpa	○
P7.25	Alarm upper limit pressure	P7.24~P7.27	0.001Mpa	1.000Mpa	○
P7.26	Constant pressure water supply mode	0: Do not select constant pressure water supply mode 1: One-to-one water supply mode (select constant pressure water supply plate). 2: One-to-two water supply mode (select constant pressure water supply plate).	1	0	○
P7.27	Pressure gauge range	0.001~20.00Mpa	0.001Mpa	1.000Mpa	○
P7.28	Multi-pump operation mode	0: Fixed order switching 1: Timed rotation	1	0	○
P7.29	Timed rotation interval between	0.5-100.0 hours	0.1 hour	5.0 hours	○
P7.30	Pump switching judgment time	0.1 — 1000.0 seconds	0.1 sec	300.0 seconds	○
P7.31	Electromagnetic switch switching delay Delay time	0.1~10.0 seconds	0.1 sec	0.5 sec	○
P7.32	Water supply monitoring parameters display Show	0: B-09, B-10 display the voltage of VI, CI value. 1: B-09, B-10 display PID given pressure and Feedback pressure.	1	0	○
P7.33	Given channel filtering	0.01~50.00s	0.01s	0.50s	○

P8: Simple PLC operating parameters					
Function code	name	Setting range	Minimum unit	Factory settings	Change
P8.00	Simple PLC operation mode choose	0000~1113 Units: Mode selection 0: No action 1: Stop after single cycle 2: Keep the final value after a single cycle 3: Continuous loop Tens: PLC interruption restart mode selection select 0: Restart from the first paragraph 1: Continue to operate from the stage frequency at the time of interruption OK Hundreds place: PLC status parameter storage option when power is off select 0: Do not store 1: Store the phase and frequency of power failure Thousands: Unit of stage running time 0: seconds 1: Minute	1	0000	×
P8.01	Phase 1 Setup	000~621 LED units digit: frequency setting 0: Multi-frequency i (i = 1 to 7) 1: The frequency is determined by the P8.01 function code LED tens digit: running direction selection 0: Forward 1: Reverse 2: Determined by operation command LED hundreds place: acceleration/deceleration time selection 0: Acceleration/deceleration time 1 1: Acceleration and deceleration time 2 2: Acceleration and deceleration time 3 3: Acceleration and deceleration time 4 4: Acceleration and deceleration time 5 5: Acceleration and deceleration time 6 6: Acceleration and deceleration time 7	1	000	○
P8.02	Phase 1 Running Time	0.1~6000.0	0.1	10.0	○
P8.03	Phase 2 Setup	000~621	1	000	○
P8.04	Phase 2 Run Time	0.1~6000.0	0.1	10.0	○
P8.05	Phase 3 Setup	000~621	1	000	○
P8.06	Phase 3 Running time	0.1~6000.0	0.1	10.0	○
P8.07	Phase 4 Setup	000~621	1	000	○
P8.08	Phase 4: Run time	0.1~6000.0	0.1	10.0	○
P8.09	Stage 5 Setup	000~621	1	000	○
P8.10	Phase 5: Running time	0.1~6000.0	0.1	10.0	○
P8.11	Stage 6 Setup	000~621	1	000	○
P8.12	Phase 6: Run time	0.1~6000.0	0.1	10.0	○
P8.13	Stage 7 Setup	000~621	1	000	○
P8.14	Phase 7: Run time	0.1~6000.0	0.1	10.0	○

Group P9: Swing frequency and measurement function parameters					
Function code	name	Setting range	Minimum unit	Factory settings	Change
P9.00	Swing frequency function selection	0: Do not use the swing frequency function 1: Use the swing frequency function	1	0	×
P9.01	Swing frequency operation mode	0000~11 LED units digit: input method 0: Automatic input mode 1: Terminal manual input mode LED tens digit: swing control 0: variable swing 1: Fixed swing	1	00	×
P9.02	Swing frequency preset frequency	0.00~500.00Hz	0.01Hz	0.00Hz	○
P9.03	Swing frequency preset frequency, etc. Waiting time	0.0~3600.0s	0.1s	0.0s	○
P9.04	Swing frequency amplitude	0.0~50.0%	0.1%	0.0%	○
P9.05	Jump frequency	0.0~50.0% (relative to P9.04)	0.1%	0.0%	○
P9.06	Swing frequency cycle	0.1~999.9s	0.1s	10.0s	○
P9.07	Triangle wave rise time	0.0~98.0%(referring to swing frequency cycle)	0.1%	50.0%	○
P9.08	Set length	0.000 ~ 65.535 (km)	0.001km	0.000km	○
P9.09	Actual length	0.0~65.535km(power-off storage)	0.001km	0.000km	○
P9.10	Length ratio	0.001~30.000	0.001	1.000	○
P9.11	Length correction factor	0.001~1.000	0.001	1.000	○
P9.12	Measuring shaft circumference	0.01~100.00cm	0.01cm	10.00cm	○
P9.13	Pulses per shaft revolution	1~9999	1	1	○
P9.14	User Password	1~9999	1	0	○

PA Group: Vector Control Parameters					
Function code	name	Setting range	Minimum unit	Factory settings	Change
PA.00	Motor parameter self-learning function enable	0: No operation 1: Dynamic self-learning, to release the motor load 2: Static self-learning, no need to release the load	1	0	×
PA.01	Motor rated power	0.0~900.0KW	0.1	Model settings	
PA.02	Motor rated voltage	0~400V	1	Model settings	×
PA.03	Motor rated current	0.01~500.00A	0.01A	Model settings	×
PA.04	Motor rated frequency	1~500Hz	1Hz	Model settings	×
PA.05	Motor rated speed	1~9999 r/min	1r/min	Model settings	×
PA.06	Motor poles	2~16	1	Model settings	×
PA.07	Motor stator resistance	0.001~50.000Ω	0.001Ω	Learning to determine	×
PA.08	Motor rotor resistance	0.001~50.000Ω	0.001Ω	Learning to determine	×
PA.09	Motor stator inductance	0.1~5000.0 mH	0.1mH	Learning to determine	×
PA.10	Motor stator and rotor mutual inductance	0.1~5000.0 mH	0.1mH	Learning to determine	×
PA.11	Motor no-load current	0.01~655.32A	0.01A	Learning to determine	○
PA.12	Torque current overcurrent protection coefficient	0~200.0%	0.1%	150.0%	○
PA.13	Speed deviation proportional adjustment coefficient	0~9999	1	15	○
PA.14	Speed deviation integral adjustment coefficient	0~100.00	0.01	2.00	○
PA.15	Vector torque boost	0~200.0%	0.1%	50.0%	×
PA.16	Switch low frequency	0~400.00Hz	0.01Hz	5.00Hz	○
PA.17	Speed loop proportional gain 2	0~9999	1	10	○
PA.18	Speed loop integral time 2	0.01~100.00	0.01	3.00	○
PA.19	Switch high frequency	0.01~400.00Hz	0.01Hz	15.00Hz	○
PA.20	VC slip compensation coefficient	50~200	1	100	○
PA.21	Closed loop flux calculation switching Voltage	0~30	1	15	×
PA.22	Open/closed loop switching frequency	0~10.00Hz	0.01Hz	0.00Hz	×
PA.23	Speed filter coefficient	0~1.000	0.001	0.625	×
PA.24	No-load current compensation coefficient	0~9.999	0.001	1.000	×
PA.25	Resistance compensation coefficient	0~9.999	0.001	1.000	×

Group Pb: Vibration suppression parameters and torque control					
Function code	name	Setting range	Minimum unit	Factory settings	Change
Pb.00	Suppress oscillation low frequency threshold point	0~100%	1%	5%	○
Pb.01	Suppress high frequency oscillation threshold	0~100%	1%	5%	○
Pb.02	Suppress oscillation limit	0~100%	1%	10%	○
Pb.03	Suppress the high and low frequency boundary of oscillation	0~400.00Hz	0.01Hz	12.50Hz	○
Pb.04	Suppress oscillation	0: Enable anti-oscillation 1: Disable anti-oscillation	1	0	○
Pb.05	Torque setting method	0: Pb.06 digital setting 1: VI simulates 0~10V voltage Given 2: Given by CI simulation 3: Panel potentiometer setting 4: RS485 communication setting 5: Pulse PLUSE given, only X6	1	0	○
Pb.06	Keyboard setting torque	- 200.0%~200.0%	0.1%	50%	○
Pb.07	PWM Mode	Units: 0: 7-segment cut to 5-segment 1: 7 sections in total 2: 5 sections in total 3: Keep 4: EPS transformer load Tens: 0: Disable overmodulation 1: Turn on some overmodulation 2: Turn on all overmodulation Hundreds place: 0: Reserved 1: Keep	000~114	000	×

PC Group: Factory Parameters					
Function code	name	Setting range	Minimum unit	Factory setting	Change
PC.00~PC.18	reserve	-	-	-	-

Pd group: custom-made special machine parameters					
Function code	name	Setting range	Minimum unit	Factory setting	Change
Pd.00~Pd.16	reserve	-	-	-	-

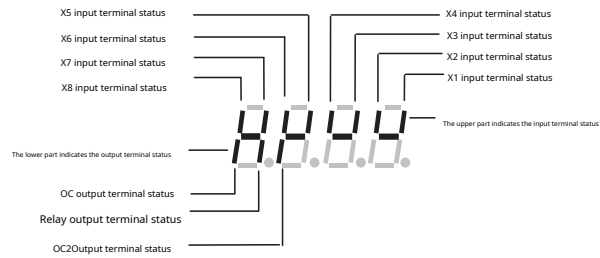
5.3 Status parameter monitoring table

B—Monitoring Function Parameters					
Code	name	illustrate	Minimum unit	Factory settings	Change
b-00	Output frequency	Current output frequency	0.01Hz		*
b-01	Setting frequency	Current set frequency	0.01Hz		*

b-02	Output voltage	The effective value of the current output voltage	1V		*
b-03	Output Current	The effective value of the current output current	0.1A		*
b-04	Bus voltage	Current DC bus voltage	1V		*
b-05	Module temperature	IGBT heat sink temperature	1℃		*
b-06	Load motor speed	Current load motor speed	1r/min		*
b-07	Run time	One continuous operation time of the inverter	1 hour		*
b-08	Input and output terminal status	Switching input and output terminal status	— —		*
b-09	Analog Input Vfs	The value of the analog input Vt	0.01V		*
b-10	Analog input CI	The value of analog input CI	0.01V		*
b-11	External pulse input PLUSE	External pulse width input value	1 ms		*
b-12	Inverter rated current	Inverter rated current	0.1A		*
b-13	Inverter rated voltage	Inverter rated voltage	1V		*
b-14	No unit displayed	No unit displayed	1		
b-15	Inverter Model	Inverter Model	1		

3.3Terminal monitoring status

Note: The corresponding relationship between the monitoring parameter input and output terminal status display is as follows:



Note: " " indicates invalid (light off) " / " means it is valid (the light is on)

Chapter 4 Serial PortRS485Communication Protocol

4.1Communication protocol description

This inverter can be used as a host or a slave in the RS485 network. When used as a host, it can control other inverters of our company to achieve multi-level linkage. When used as a slave, the PC or PLC can be used as the host to control the inverter. The specific communication methods are as follows:

- (1)The inverter is a slave, and the master-slave communication is point-to-point. When the host uses the broadcast address to send a command, The slave does not respond.

- (2)The inverter acts as the host and uses the broadcast address to send commands to the slave, but the slave does not respond.

(3)The user can set the inverter's local address, baud rate, Data format.

- (4)The slave reports the current fault information in the response frame of the most recent poll to the master.

4.2Communication interface

The communication is RS485 interface, asynchronous serial, half-duplex transmission. The default communication protocol is ASCII.

The default data format is: 1 start bit, 7 data bits, 2 stop bits. The default rate is 9600bps. For communication parameter settings, refer to P3.09~P3.12 function codes.

4.3 ASCIIandRTUCommunication protocol

character structure:

10Bit character box (For ASCII)

(1-7-2 format, no checksum)

Starting Bit	1	2	3	4	5	6	7	stop Bit	stop Bit
--------------	---	---	---	---	---	---	---	----------	----------

(1-7-1 format, odd parity)

Starting Bit	1	2	3	4	5	6	7	Odd Bit	stop Bit
--------------	---	---	---	---	---	---	---	---------	----------

(1-7-1 format, even parity)

Starting Bit	1	2	3	4	5	6	7	Odd Bit	stop Bit
--------------	---	---	---	---	---	---	---	---------	----------

11Bit character box (For RTU)

(1-8-2 format, no checksum)

起始位	0	1	2	3	4	5	6	7	停止位	停止位
-----	---	---	---	---	---	---	---	---	-----	-----

(1-8-1 format, odd parity)

起始位	0	1	2	3	4	5	6	7	奇校验	停止位
-----	---	---	---	---	---	---	---	---	-----	-----

(1-8-1 format, even parity)

起始位	0	1	2	3	4	5	6	7	偶校验	停止位
-----	---	---	---	---	---	---	---	---	-----	-----

Communication data structure:

ASCIImodel

Frame Header	Start character = "3A" (3AH)
Address Hi	Correspondence Address: The 8-bit address is composed of 2 ASCII codes.
Address Lo	
Function Hi	Function code: The 8-bit address is composed of 2 ASCII codes.
Function Lo	
DATA(n - 1)	Contents: The n*8-bit data content is composed of 2*n ASCII codes, with the high bit first.
.....	
DATA 0	
LRC CHK Hi	LRC check code:
LRC CHK Lo	The 8-bit checksum is composed of 2 ASCII codes.
END Hi	End character:
END Lo	

RTU mode:

START	Keep no input signal greater than or equal to10ms
Address	Correspondence Address:8-bitBinary Address
Function	Function code:8-bitBinary Address
DATA(n - 1)	Contents: N*8-bitmaterial,N<=8,maximum8Bytes
.....	
DATA 0	
CRC CHK Low	CRCCheck code
CRC CHK High	16-bit CRCThe check code is2indivual8-bitBinary Combinations
END	Keep no input or output signal greater than or equal to10ms

Correspondence Address:

00H: All inverter broadcasts (broadcast)

01H:right01Address inverter communication.

0FH:right15Address inverter communication.

10H:right16Address inverter communication. And so on....., the maximum247 (F7H).

Function code (Function) and data content (DATA):

03H: Read the register contents.

06H: Write a piece of data into the register.

08H: Loop detection.

10H: Read multiple register contents

Function code03H: Read the contents of a register:

For example: read register address2104HContent (output current):

ASCIImodel:

state	Frame Header	address	Function	content	check	Finish
send	:	0 1 0 3 2 1 0 4 0 0 0 1			D 7	CR LF
hexadecimal	3A	30 31 30	33 32 31 30 34 30 30 31		44 37	0D 0A
Response	:	0 1 0 3 0 2		0 0 0 0	D 7	CR LF
hexadecimal	3A	30 31 30	33 30 32	30 30 30 30	44 37	0D 0A

RTUmodel:

state	Frame Header	address	Function	content	check	Finish
send16Base		01	03	twenty one 04 00 01	CF F7	
Response16Base		01	03	02 00 00	B8 44	

Function code06H: Write a piece of data into the register.

For example: for the inverter address01H,WriteP0.02=50.00HZFunction code.

ASCIImodel:

state	Frame Header	address	Function	content	check	Finish
send	:	0 1 0 6 0 0 0 2 1 3 8 8			5 C	CR LF
hexadecimal	3A	30 31 30	36 30 30 30 32 31 33 38 38		35 43	0D 0A
Response	:	0 1 0 6 0 0 0 2 1 3 8 8			5 C	CR LF
hexadecimal	3A	30 31 30	36 30 30 30 32 31 33 38 38		35 43	0D 0A

RTUmodel:

state	Frame Header	address	Function	content	check	Finish
send16Base		01	06	00 02 13 88	25 5C	
Response16Base		01	06	00 02 13 88	25 5C	

Command code08HCommunication loop test

This command is used to test whether the communication between the main control device and the inverter is normal. The inverter sends the received data to the main control device intact.

ASCIImodel:

state	Frame Header	address	Function	content	check	Finish
send	:	0 1 0 8 0 1 0 2 0 3 0 4			E D	CR LF
hexadecimal	3A	30 31 30	38 30 31 30 32 30 33 30 34		45 44	0D 0A

Response	:	0	1	0	8	0	1	0	2	0	3	0	4	E	D	CR	LF
hexadecimal	3A	30	31	30	38	30	31	30	32	30	33	30	34	45	44	0D	0A

RTUmodel:

state	Frame Header	address	Function	content										check	Finish
send16Base		01	08	01	02	03	04							41	04
Response16Base		01	08	01	02	03	04							41	04

Verification code:

ASCII Mode: Double-byte ASCII code. Calculation method: For the message sender, the calculation method of LRC is to continuously accumulate all bytes from "slave address" to "running data" in the message to be sent that have not been converted into ASCII code, discard the carry, and invert the obtained 8-bit byte bit by bit, then add 1 (convert to complement code), and finally convert it into ASCII code and put it into the check area, with the high byte in front and the low byte in the back. For the message receiver, the same LRC method is used to calculate the checksum of the received message, and compare it with the actual received checksum. If they are equal, the received message is correct. If they are not equal, the received message is wrong. If the check is wrong, the message frame is discarded, no response is made, and the next frame of data is received.

RTU Mode: double-byte hexadecimal number.

The CRC field is two bytes, containing a 16-bit binary value. It is calculated by the sender and added to the message; the low byte is added first, then the high byte, so the high byte of the CRC is the last byte of the message sent. The receiving device recalculates the CRC of the received message and compares it with the value in the received CRC field. If the two values are different, the received message is wrong, the message frame is discarded, no response is made, and the next frame of data is received. For the specific CRC check calculation method, refer to the MODBUS protocol description.

4.4 Communication protocol parameter definition:

definition	Parameter address	Functional Description
Internal setting parameters	G JZ	GG stands for parameter group and nn stands for parameter number.
Command the inverter (06H)	2000H	Bit 0 to 1
		00B: No function
		01B: Stop
		10B: Run
		11B: Jog
	Bits 4 to 5	Positions 2 to 3
		reserve
		00B: No function
		01B: Running in positive direction
		10B: Reverse direction
		11B: Change direction of operation
	Positions 6 to 7	
	reserve	
	2001H	Serial port frequency setting command
Inverter fault reset	2002H	00: No function; 01: EF.; 02: Fault reset
Monitor inverter status (03H)	2100H	Read inverter fault codes.
	2101H	Read inverter status
		BIT0: Run stop flag, 0: stop; 1: run
		BIT1: Undervoltage flag, 1: undervoltage; 0: normal.
		BIT2: Forward and reverse rotation flag, 1: reverse; 0: forward.
		BIT3: Jog operation flag, 1: Jog; 0: Non-jog.
		BIT4: Closed-loop operation control selection, 1: closed loop; 0: non-closed loop.
		BIT5: Swing frequency mode operation flag, 1: swing frequency; 0: non-swing frequency.
		BIT6: PLC operation flag, 1: PLC operation, 0: non-PLC operation.
		BIT7: Terminal multi-speed operation flag, 1: multi-speed; 0: non.
		BIT8: Normal operation flag, 1: normal operation; 0: non-normal operation.
		BIT9: The main frequency comes from the communication interface, 1: Yes; 0: No.
		BIT10: The main frequency comes from analog input, 1: Yes; 0: No.
		BIT11: The operation command comes from the communication interface, 1: Yes; 0: No.
		BIT12: Function parameter password protection, 1: Yes; 0: No.
	2102H	Read the inverter set frequency.
	2103H	Read the inverter output frequency.
	2104H	Read the inverter output current.
	2105H	Read the inverter bus voltage.
	2106H	Read the inverter output voltage.
	2107H	Read the motor speed.
	2108H	Read module temperature.
	2109H	Read VI analog input.
		Read CI analog input.
		Read the inverter software version.
Read function code data (03H)	G JZ (GG: function code group number. nn: function code number)	The inverter responds with function code data.
Write function code data (06H)	G JZ (GG: function code group number. nn: function code number.)	Write the function code data of the inverter.

Error code definition:

Error Code	illustrate
01H	Function code error. The inverter can identify the function code:03H,06H,08H.
02H	Data address error. The inverter cannot identify the data address.
03H	The data content is incorrect. The data content exceeds the limit.

Chapter 5 Fault Diagnosis and Exception Handling

5.1 Fault phenomenon and countermeasures







When an abnormality occurs in the inverter, the LED digital tube will display the function code and content of the corresponding fault, the fault relay will be activated, and the inverter will stop outputting. When a fault occurs, if the motor is rotating, it will stop freely until it stops rotating.

SF100The possible fault types are shown in Table 5-1. When the inverter fails, the user should first check according to the prompts in the table and record the fault phenomenon in detail. If technical service is required, please contact this

Please contact the company's after-sales service and technical support department or our local agents.

surface5-1Fault alarm content and countermeasures

Fault Code	Fault type	Possible causes of failure	Troubleshooting
E-01	Inverter plus Fast running	The load is too heavy and the acceleration time is too short.	Extend the acceleration time
		V/FThe curve is not suitable	AdjustmentV/FCurve settings.
		Restarting a rotating motor	Set to speed detection restart function
	Current	The torque boost setting value is too large.	Adjust the manual torque boost or change to automatic torque boost
		The inverter power is too small	Choose a frequency converter with a large power rating
E-02	Inverter reduction	Deceleration time is too short	Extend the deceleration time
	Fast running	Loads with potential energy or large inertia	Increase the braking power of external energy-consuming brake components
		The inverter power is too small	Choose a frequency converter with a large power rating
E-03	Inverter Constant Fast running	Sudden load change	Check for sudden changes in load or reduce load
		The acceleration and deceleration time is set too short	Properly extend the acceleration and deceleration time
		Abnormal load	Perform a load check
	Current	Low grid voltage	Check the input power
		The inverter power is too small	Choose a frequency converter with a large power rating
E-04	Inverter plus	Abnormal input voltage	Check the input power
	Fast running	The acceleration time is set too short	Properly extend the acceleration time
		Restarting a rotating motor	Set to the speed detection tracking restart function
E-05	Inverter reduction	Deceleration time is too short	Extend the deceleration time
	Fast running	Loads with potential energy or large inertia	Increase the braking power of external energy-consuming brake components
E-06	Inverter Constant Fast running	Abnormal input voltage	Check the input power
		The acceleration and deceleration time is set too short	Properly extend the acceleration and deceleration time
	Voltage	Abnormal change in input voltage	Installing the input reactor
		Large load inertia	Use dynamic braking components
E-07	Inverter control Power supply over Voltage	Abnormal input voltage	Check the input power or seek service
E-08	Inverter over hot	Air duct obstruction	Clean the air duct or improve ventilation conditions
		Ambient temperature is too high	Improve ventilation conditions and reduce carrier frequency
		Fan failure	Replace the fan
		Inverter module abnormality	Find Service
E-09	Inverter over load	Acceleration time is too short	Extend time to speed up
		DC braking amount is too large	Reduce DC braking current and extend braking time
		V/FThe curve is not suitable	AdjustmentV/FCurve and torque boost
		Restarting a rotating motor	Set to speed detection restart function
		Grid voltage is too low	Check the grid voltage
		Too much load	Choose a more powerful inverter
E-10	Motor overload	V/FThe curve is not suitable	AdjustmentV/FCurve and torque boost
		Grid voltage is too low	Check the grid voltage
		Long-term low-speed and high-load operation of general-purpose motor	For long-term low-speed operation, a variable-frequency motor can be selected
		The motor overload protection factor is set incorrectly	Correctly set the motor overload protection factor
		The motor is stalled or the load is too sudden.	Check the load
E-11	Running short Voltage	Grid voltage is too low	Check the grid voltage
E-12	Inverter module Protect	Inverter instantaneous overcurrent	See Overcurrent Countermeasures
		There is a phase-to-phase short circuit or ground short circuit in the three-phase output	Rewiring
		The air duct is blocked or the fan is damaged	Clean the air duct or replace the fan
		Ambient temperature is too high	Lower the ambient temperature
		The control panel connection or plug-in is loose	Check and reconnect
		Output lack of phase causes current fluctuations	Check wiring
		Abnormal shape	
		Auxiliary power supply is damaged, driving voltage is undervoltage	Seeking manufacturers or agents services
		Control panel abnormality	Seeking manufacturers or agents services
E-13	External devices Fault	External fault emergency stop terminal closed	Disconnect the external fault terminal after handling the external fault


E-14	Current Sensing	The control panel connection or plug-in is loose	Check and reconnect
	Circuit Fault	Auxiliary power supply damaged	Seeking manufacturers or agents services
		Hall device damage	Seeking manufacturers or agents services
		Amplifier circuit abnormality	Seeking manufacturers or agents services
E-15	RS232/485 Communication failure	Improper baud rate setting	Set the baud rate appropriately
		Serial port communication error	according to the  Key reset, seek service
		Improper setting of fault alarm parameters	Revise P3.09~P3.12 Settings
		The host computer is not working	Check whether the host computer is working and whether the wiring is correct.
E-16	System interference	Serious interference	according to the  key to reset or add power to the power input side Source Filter
		Main control board DSP Read and write errors	Press the reset button and seek service
E-17	E ₂ PROM Read and write errors	An error occurred while reading or writing control parameters.	according to the  Key reset Seeking manufacturers or agents services
E-18	Time of use arrive	The time set by the equipment manufacturer expires	Please contact the equipment manufacturer
E-21	Acceleration moment	During the acceleration process, the current reaches Rated 2.5 times, hardware short circuit protection	Because it is a momentary overcurrent, it may be caused by the motor acceleration and deceleration Too fast, or the phase insulation of the motor is broken down, causing the
	Overcurrent	It belongs to the protection range of output short circuit.	There is a short circuit between phases, or a short circuit on the output line.
		Category.	Capacitive load, or output connected to a contactor, etc.
E-22	Deceleration moment	During deceleration, the current reaches Rated 2.5 times, hardware short circuit protection	Yes, please check. Of course, the inverter itself current cannot be ruled out.
	Overcurrent	It belongs to the protection range of output short circuit.	The possibility of a problem with the detection device can be solved by replacing the inverter Eliminate this phenomenon. If the problem persists after replacing the inverter
		Category.	If it happens frequently, please repair or replace the motor.
E-23	Constant speed moment	During constant speed or shutdown, the current transient The rated 2.5 times, hardware	It is easy to burn the inverter. In addition, when the motor insulation Please use 1000V The megohmmeter should be above volts, otherwise it will be inaccurate.
	Overcurrent	Short circuit protection action. Output short circuit	The inverter output is a high-frequency and high-voltage square wave.
		Protection scope.	The insulation requirements of the machine are 1200V So the electricity The machine may be on mains 50Hz 380V The sine wave voltage is This is normal. When the frequency converter is used, a phase short circuit will occur.
E-26	U Mutual protection Protection	U Phase output missing phase error	according to the  Key reset Check the inverter U Phase output circuit
E-27	V Mutual protection Protection	V Phase output missing phase error	according to the  Key reset Check the inverter V Phase output circuit
E-28	W Phase missing Protect	W Phase output missing phase error	according to the  Key reset Check the inverter W Phase output circuit
E-30	Module driver Protect	The module is considered short-circuited when it is driven	Check if the output is short-circuited, remove the load and try again. If there is a protection module, it means it is broken. If there is no protection module, it means it is broken. There is a short circuit outside. To check, you can also connect another Try it with the machine. If the motor is replaced, the protection is still available. Maybe the module driver is faulty and needs to be repaired.
E-37	Self-learning barrier	Vector parameter self-learning failed	The motor is not well matched to the inverter.


5.2 Fault record query

This series of inverters records the recent 6 The fault code and the last 1 The inverter operating parameters at the time of the fault can help find the cause of the fault. All fault information is saved in P6 In the group parameters, please refer to the keyboard operation method to enter P6 Group parameter lookup information.

5.3 Fault Reset

When the inverter fails, to restore normal operation, you can choose any of the following operations:

- (1) When the fault code is displayed, confirm that it can be reset.  key.
- (2) Set any terminal from X1 to X8 as external RESET After input (P4.00~P4.07=17), it is closed with the COM terminal and then disconnected.
- (3) Cut off the power supply.

**Notice**

(1) Before resetting, the cause of the fault must be thoroughly identified and eliminated; otherwise, permanent damage to the inverter may occur.

(2) If the inverter cannot be reset or the fault reoccurs after reset, check the cause. Continuous reset will damage the inverter.

(3) When overload or overheat protection is activated, it should be reset after a delay of 5 minutes.