Preface

Thank you for purchasing the GT20 series inverter developed and produced by Shenzhen Easydrive Electric Co., Ltd.!

The GT20 series inverter is a universal high-performance inverter with advanced control performance such as large low-frequency torque, self-identification of motor parameters, and optimal acceleration and deceleration control; it has functions to meet different process requirements, such as multi-step control and simple PLC control , PI control, fixed-length control, droop control, automatic energy-saving operation, flexible frequency setting method, diversified frequency combination methods and combination algorithms, and other practical functions. It can be used to drive machine tools, cables, textiles, papermaking, food, packaging, chemicals, municipal engineering and other automated production equipment to meet the performance and function requirements of different industrial equipment.

Before using this inverter, the users and relevant technicians shall read this manual carefully to ensure that the inverter can be properly installed and operated, so that the inverter can perform its best performance.

If there is any change to this user manual, please refer to the new version without notice.

High-performance Inverter
User Manual

Version: V1.1

This product implements standards:

The design and production of this product refer to the latest national standards (GB or GB/T), International Electrotechnical Commission Standards (IEC) and International System of Units (SI). The technical parameters of the relevant parts can meet the requirements of national standards (GB or GB/T) and International Electrotechnical Commission Standards (IEC). Main standards:

GB/T 12668.2-2002 Adjustable Speed Electrical Power Drive Systems - Part 2: General Requirements - Rating Specifications for Low Voltage Adjustable Frequency AC Power Drive Systems

GB 12668.3-2012 Adjustable Speed Electrical Power Drive Systems - Part 3: EMC Requirements and Specific Test Methods

GB 12668.501-2013 Adjustable Speed Electrical Power Drive Systems - Part 5: Safety Requirements - Electrical, Thermal and Energy

GB/T 2423.1-2008 Environmental Testing for Electric and Electronic Products - Part 1: Test Methods Tests A: Cold

GB/T 2423.2-2008 Environmental Testing for Electric and Electronic Products - Part 2: Test Methods Tests B: Dry Heat

GB/T 2423.3-2016 Environmental Testing - Part 2: Testing Method - Test Cab: Damp Test, Steady State

GB/T 2423.4-2008 Environmental Testing for Electric and Electronic Products - Part 2: Test method - Test Db: Damp heat, cyclic (12h+12h Cycle)

GB/T 2423.22-2012 Environmental Testing - Part 2: Test Methods - Test N: Change of Temperature

GB/T 2423.7-2018 Environmental Testing - Part 2: Test Methods - Test Ec: Rough Handling Shocks, Primarily for Equipment-type Specimens

GB/T4798.1-2005 Environmental Conditions Existing in the Application of Electric and Electronic Products Section 1: Storage

GB/T4798.2-2008 Environmental Conditions Existing in the Application of Electric and Electronic Products - Part 2: Transportation

GB/T4798.3-2007 Environmental Conditions Existing in the Application of Electric and Electronic Products - Part 3: Stationary Use at Weather-protected Locations

⚠ **Danger**

The inverter must be reliably grounded. If the inverter is not reliably grounded, there may be a potential danger of personal injury in the device.

Readers

This user manual is suitable for the following readers.

Inverter installers, engineering technicians (electrical engineers, electrical operators, etc.), designers, etc. Please ensure that this user manual reaches the end users.

Notational conventions in this manual

⚠ **Caution:** Moderate or minor injuries may occur due to failure to operate as required.

⚠ **Danger:** Deaths or serious injuries may occur due to failure to operate as required.

Table of Contents

Chapter I Product Specification and Ordering Instructions

1.1 Inverter series models

This inverter has two voltage levels of 220V and 380V. The applicable motor power range is: 380V: 0.4kW-5.5kW; 220V: 0.4kW-2.2kW. The models of this series inverters are shown in Table 1-1.

Table 1-1 Inverter Models

Inverter model (G: Constant torque load)		Rated capacity (kVA)	Rated output current (A)	Adaptable motor (kW)
220V single phase	GT20-2S0004G	0.75	2.4	0.4
	GT20-2S0007G	1.5	4.5	0.75
	GT20-2S0015G	2.7	7.1	1.5
	GT20-2S0022G	3.7	9.8	2.2
220V three-phase	GT20-2T0022G	3.7	9.8	2.2
380V three-phase	GT20-4T0004G	0.75	1.5	0.4
	GT20-4T0007G	1.5	2.3	0.75
	GT20-4T0015G	2.7	3.7	1.5
	GT20-4T0022G	3.7	5.0	2.2
	GT20-4T0040G	7.5	8.8	4.0
	GT20-4T0055G	9.0	13.0	5.5

Note: For other power stage models of 220V voltage level, please consult the manufacturer before ordering.

1.2 Product appearance and installation dimensions
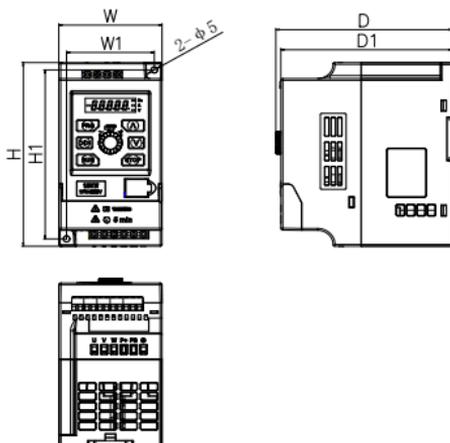
(a) Specifications
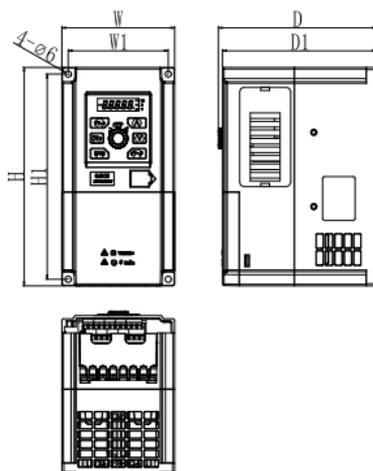
(b) Specifications

Table 1-2 Inverter Appearance and Installation Series Dimensions
(Unit: mm)

Specification	W	W1	H	H1	D	D1	Mounting hole diameter (Φ)	Reference diagram
GT20-4T0004G	80	68	150	138	136.5	133	5	(a)
GT20-2S0004G								
GT20-4T0007G								
GT20-2S0007G								
GT20-4T0015G								
GT20-2S0015G								
GT20-4T0022G								
GT20-4T0055G	106	94	200	188	148.5	144.6	6	(b)
GT20-4T0040G								
GT20-2S0022G								
GT20-2T0022G								

1.3 Optional parts

1.3.1 Remote control keyboard
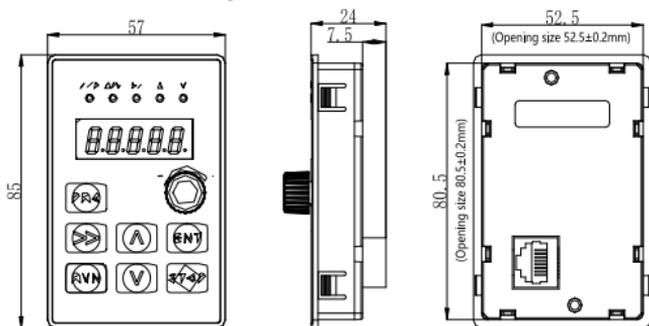
Figure 1-1 Remote Control Keyboard 1 (GT20-LKD)

Note: The standard keyboard network cables are 2m and 5m optional. If you need network cables of other specifications, please order separately.

1.3.2 Dustproof sticker (cover plate)

Figure 1-2 Dustproof Sticker

Table 1-3 Dustproof Sticker Optional Table

Dustproof sticker model	Adaptable models
GT20-4T0022	GT20-4T0004G, GT20-2S0004G, GT20-4T0007G, GT20-2S0007G, GT20-4T0015G, GT20-2S0015G, GT20-4T0022G
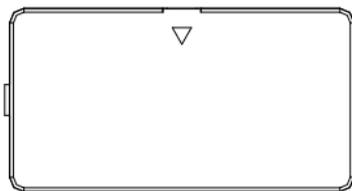
Figure 1-3 Dustproof Cover Plate

Table 1-4 Dustproof Cover Plate Optional Table

Dustproof cover plate model	Adaptable models
GT200-4T0040 (black)	GT20-4T0055G, GT20-4T0040G, GT20-2S0022G, GT20-2T0022G

1.4 Braking resistors

Please select energy consumption braking resistors according to Table 1-5 and Table 1-6. The wiring of the braking resistors is shown in Figure 1-4.
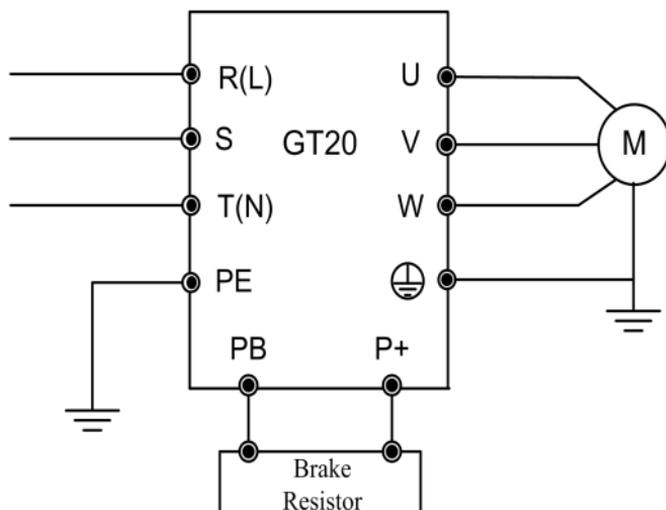
Figure 1-4 Inverter and Braking Assembly Wiring Diagram

Note:

1. The power derating of the braking resistor shall not exceed 30%, otherwise there is a risk of fire;

2. The wiring length of the braking resistor shall be less than 5m. During the energy consumption braking process, the braking resistor will cause temperature rise due to energy consumption. During installation, pay attention to safety protection and sound ventilation.

The braking resistor resistance and the power are selected according to the actual situation. The greater the system inertia, the shorter the deceleration time required, the more frequent the braking, the greater the power required by the braking resistor and the smaller the resistance required. Table 1-5 and Table 1-6 are recommended based on general applications (braking usage rate is 10%).

Table 1-5 Braking Resistor Selection Table (380V Voltage Level)

Specification	Suitable motor power (kW)	Braking resistor recommendation Resistance (Ω)	Braking resistor recommendation Power (W)
GT20-4T0004G	0.4	≥750	75
GT20-4T0007G	0.75	≥500	100
GT20-4T0015G	1.5	≥300	200
GT20-4T0022G	2.2	≥200	200
GT20-4T0040G	4.0	≥200	300
GT20-4T0055G	5.5	≥80	750

Table 1-6 Braking Resistor Selection Table (220V Voltage Level)

Specification	Suitable motor power (kW)	Braking resistor recommendation Resistance (Ω)	Braking resistor recommendation Power (W)
GT20-2S0004G	0.4	≥200	75
GT20-2S0007G	0.75	≥150	100
GT20-2S0015G	1.5	≥100	200
GT20-2S0022G	2.2	≥75	300
GT20-2T0022G	2.2	≥75	300

Chapter II Installation and Wiring of Inverter

2.1 Inverter installation environment

2.1.1 Installation environment requirements

(1) Install in a well-ventilated indoor place. The ambient temperature is required to be within the range of -10ºC-40ºC. If the temperature exceeds 40ºC, external forced cooling or derating is required.

(2) Avoid installing in places with direct sunlight, dusty, floating fibers and metal powder.

(3) Do not install in places with corrosive or explosive gases.

(4) The humidity is required to be lower than 90%RH, without condensation of water droplets.

(5) Install in places where the plane fixed vibration is less than 5.9 m/s^2.

(6) Try to keep away from electromagnetic interference sources and other electronic instruments and equipment that are sensitive to electromagnetic interference.

2.1.2 Installation direction and space

(1) Generally, vertical installation shall be adopted.

(2) Minimum installation intervals and distances are shown in Figure 2-1.

(3) When multiple inverters are installed up and down, the baffle applied in the middle is shown in Figure 2-2.
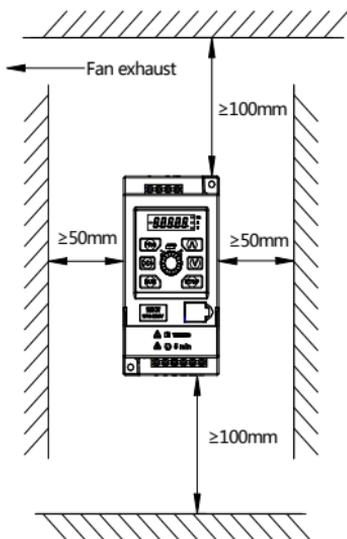
Figure 2-1 Installation Interval Diagram
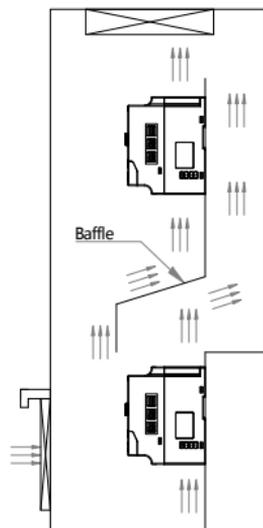
Figure 2-2 Installation Diagram ofMultiple Inverters

2.1.3 Mechanical installation methods and steps(wall-mounted installation and guide rail installation are supported)

1. Wall-mounted screw installation
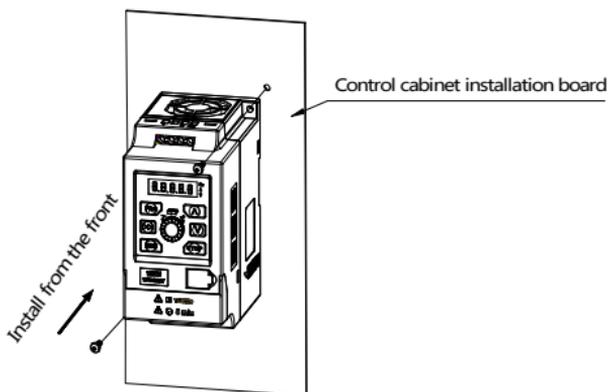
Figure 2-3 Wall-mounted Installation Diagram

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2. Guide rail installation
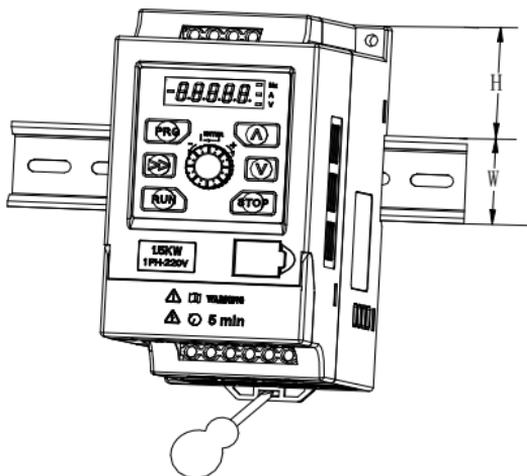
Figure 2-4 Guide Rail Installation Diagram

(1) Use a slotted screwdriver to insert into the slide block groove at the bottom, to move the slide block out;

(2) Install the machine onto the guide rail support, push the guide rail slide block up to the original place and clamp.

Note: H is 45mm, W is 35mm

Table 2-1 Guide Rail Installation Table

Specification	Whether supported
GT20-4T0004G	Supported
GT20-2S0004G	
GT20-4T0007G	
GT20-2S0007G	
GT20-4T0015G	
GT20-2S0015G	
GT20-4T0022G	
GT20-4T0055G	Not supported
GT20-4T0040G	
GT20-2S0022G	
GT20-2T0022G	

2.2. Removal and installation of inverter panel

1. RJ45 flip shell
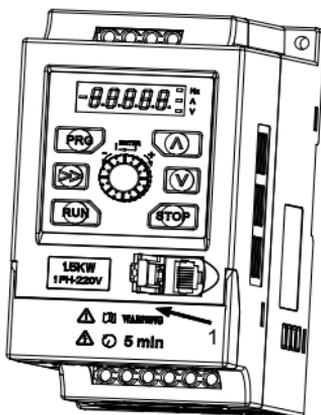
Figure 2-5 RJ45 Flip Shell's Open-Connect External Keyboard

2. Wiring flip shell
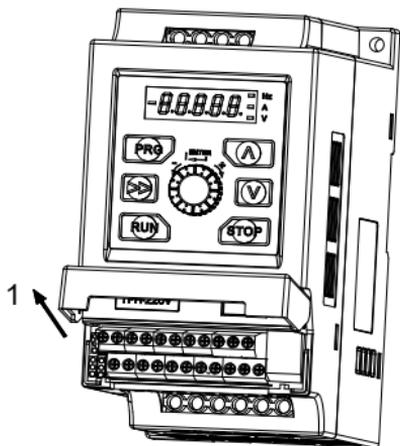
Figure 2-6 Wiring Flip Shell's Open-Control Terminal Wiring
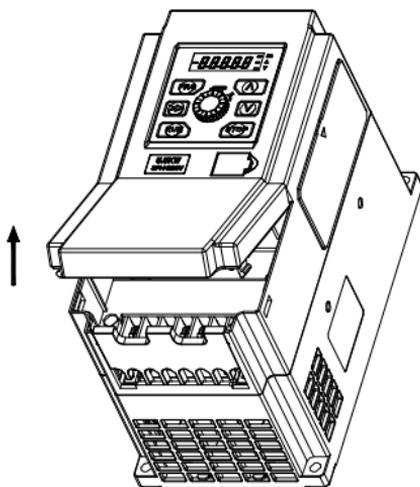
Figure 2-7 Wiring Flip Shell's Open-Control Terminal Wiring

2.3 Standard wiring diagram
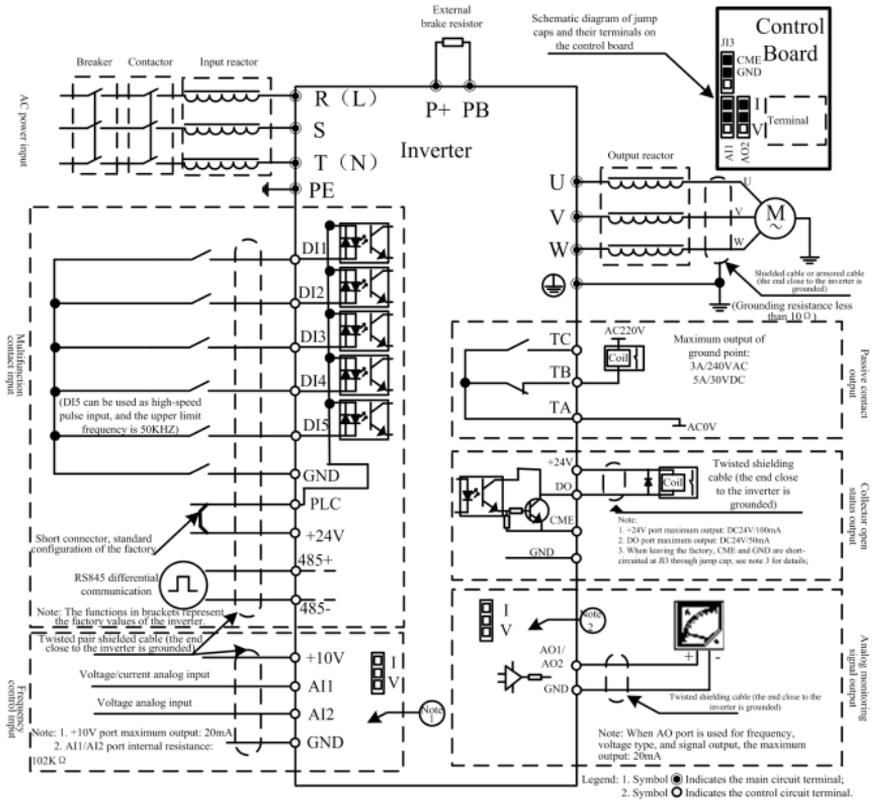
Note 1: The AI1 port can receive both voltage signals and current signals; AI1 (three-PIN needle on corresponding control board, the silk screen of which is AI1) in the corresponding wiring diagram (as shown in the upper right corner of the above figure); the middle of jump cap short connection and the upper pin are of current signal input; the middle pin and lower pin of short connection are of voltage signal input; the AI2 port can only receive voltage signals.

Note 2: The AO2 port can output both voltage signals and current signals; AO2 (three-PIN needle on corresponding control board, the silk screen of which is AO2) in the corresponding wiring diagram (as shown in the upper right corner of the above figure); the middle of jump cap short connection and the upper pin are of current signal output; the middle pin and lower pin of short connection are of voltage signal output; the AO1 port can only output voltage signals.

Note 3: The standard factory configuration of CME and GND is that the middle pin of JI3 is short-circuited to its upper pin (under standard factory configuration, DO port uses the internal +24V as the pull-up power supply, and its ground system is inverter GND), that is, CME is short circuited to GND; when GND interfaces are insufficient, the CME interfaces can be used as GND interfaces;

When DO port uses the external +24V power supply as pull-up (DO port is pulled up to +24V through 4.7K resistance), just remove the jump cap of JI3 port (just place the short-circuited cap to the JI3 middle pin and the lower pin, to avoid jump cap missing), in this case, CME is short-circuited to the ground system of external +24V power supply.

2.3.1 Wiring of main circuit terminals

(1)The main circuit input and output terminals are shown in Table 2-2.

Applicable models	Main circuit terminals	Terminal name	Function description
GT20-4T0004G GT20-4T0007G GT20-4T0015G GT20-4T0022G	R S T PE	R, S, T	Three-phase AC 380V input terminal
		PE	Protective ground terminal
	U V W P+ PB ⏚	U, V, W	Three-phase AC output terminal
		P+, PB	Braking resistor wiring terminal
		⏚	Motor ground terminal
GT20-2S0004G GT20-2S0007G GT20-2S0015G	L N PE	L, N	Single-phase AC input terminal
		PE	Protective ground terminal
	U V W P+ PB ⏚	U, V, W	Three-phase AC output terminal
		P+, PB	Braking resistor wiring terminal
		⏚	Motor ground terminal

Applicable models	Main circuit terminals	Terminal name	Function description
GT20-4T0040G GT20-4T0055G	P+ PB R S T U V W PE	R, S, T	Three-phase AC 380V input terminal
		U, V, W	Three-phase AC output terminal
		P+, PB	Braking resistor wiring terminal
		PE	Protective ground terminal
		⏚	Motor ground terminal
GT20-2S0022G GT20-2T0022G	P+ PB L N U V W PE	L, N	Single-phase AC input terminal
		U, V, W	Three-phase AC output terminal
		P+, PB	Braking resistor wiring terminal
		PE	Protective ground terminal
		⏚	Motor ground terminal

(2) The type selection of main circuit cable diameter, inlet protection circuit breaker QF or fuse in Table 2-3 is as follows:

Specification	Circuit breaker (A)	Fuse (A)	Recommended input and output power wires (mm²)	Control wire (mm²)
GT20-4T0004G	10	10	1.5	1
GT20-2S0004G	10	10	1.5	1
GT20-4T0007G	10	10	1.5	1
GT20-2S0007G	10	10	1.5	1
GT20-4T0015G	10	10	1.5	1
GT20-2S0015G	20	16	2.5	1
GT20-4T0022G	16	10	2.5	1
GT20-4T0040G	20	16	2.5	1
GT20-4T0055G	25	25	4.0	1

2.4 Control circuit configuration and wiring

2.4.1 Control circuit terminal arrangement is as follows

| DI1 | DI3 | DI5 | DO2 | GND | CME | AO2 | +24V | PLC | GND | TB |
| DI2 | DI4 | DO1 | 485- | 485+ | AO1 | AI1 | AI2 | +10V | TA | TC |
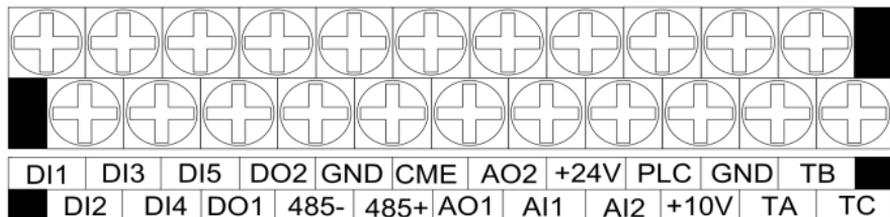
Figure 2-8 Arrangement Sequence of Control Plate Terminals

2.4.2 CN3 terminal function description is shown in Table 2-4.

Table 2-4 Control Terminal Function Table

Category	Terminal Label	Name	Terminal function description	Specification
Communication	485+	RS485 communication interface	RS485 differential signal positive terminal	For standard RS485 communication interface, please use twisted pair or shielded wire.
	485-		RS485 differential signal negative terminal	
Multifunctional output terminal	DO1	Open collector output terminal	It can be programmed and defined as switch output terminal with multiple functions, see terminal function parameter F6.11 for details, output terminal function introduction (common port CME)	Optocoupler isolated output; Working voltage range 9-30V; Maximum output current: 50mA
Multifunctional output terminal	DO2	Open collector output terminal	It can be programmed and defined as switch output terminal with multiple functions, see terminal function parameter F6.12 for details, output terminal function introduction (common port CME)	Optocoupler isolated output; Working voltage range 9-30V; Maximum output current: 50mA; Maximum output frequency: 50KHZ;

Analog Input	AI1	Analog input AI1	AI1 terminal receiving analog current, and voltage input (selected and switched through jump cap)	Input voltage range: 0~10V (input impedance: 102KΩ) Resolution: 1/1000 Input current range: 0~20mA (input impedance: 255Ω) Resolution: 1/1000
	AI2	Analog input AI2	Receives analog voltage input	
Analog output	AO1	Analog output	Provides analog voltage output, which can correspond to 12 physical quantities (see F5.25 for details)	Voltage output range: 0~10V
	AO2	Analog output	Provides analog voltage output, and current output (AO2 terminal can be realized by jump cap) can correspond to 12 physical quantities (see F5.26 for details)	Voltage output range: 0~10V Current output range: 0~20mA
Multifunctional input terminal	DI1	Multifunctional input terminal 1	It can be programmed and defined as switch input terminal with multiple functions, see Chapter VI terminal function parameters (switch input and output) input terminal function introduction. (See F6.00-6.04 for details)	The forward and reverse functions can be configured for the terminal; DI5 can be used as a high-speed pulse input terminal, and the upper limit of the input frequency is 50KHZ;
	DI2	Multifunctional input terminal 2		
	DI3	Multifunctional input terminal 3		

	DI4	Multifunctional input terminal 4		
	DI5	Multifunctional input terminal 5		
Power supply	10V	+10 power supply	Provides +10V power supply for external	Maximum output current: 20mA
	+24V	+24V power supply	Digital signal power supply	Maximum output current: 100mA
	GND	Power supply common port	Power reference ground (including +10V and +24V)	It is the only ground system on the control board.
	PLC	Multifunctional input common	Common port of DI1-DI5	Shot-circuited to 24V when leaving the factory
	CME	Digital output common port	Common port of multifunctional DO1 and DO2.	Short-circuited to GND when leaving the factory
Relay output terminal	TA TB TC	Programmable relay output	Usually, TA-TB is normally off, and TA-TC is normally on; during operating, TA-TB is normally on, and TA-TC is normally off.	Electric shock rating: NO: 5A　250VAC NC: 3A　250VAC

2.4.3 Wiring of communication terminal

PLC or PC is used for master control, with the inverter as the slave, which are connected through RS485. It can realize single master and single slave communication or single master and multiple slaves communication. With the increasing connection units, the communication system becomes more easily to be interfered, so it is suggested to connect wires as follows (see Annex for communication protocol):
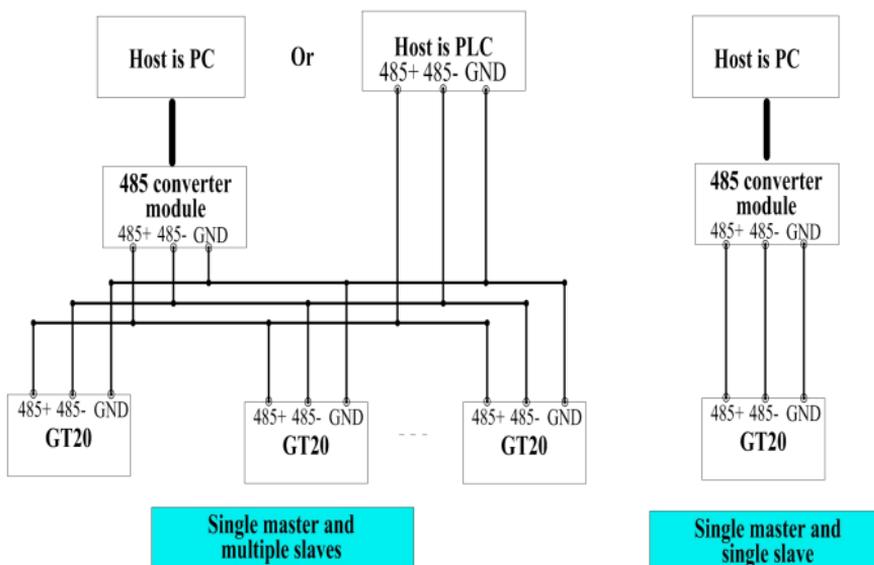
Figure 2-9 Wiring of Communication Terminal

2.4.4 Multifunctional contact input wiring

(1) Wiring method of PNP characteristic transistor
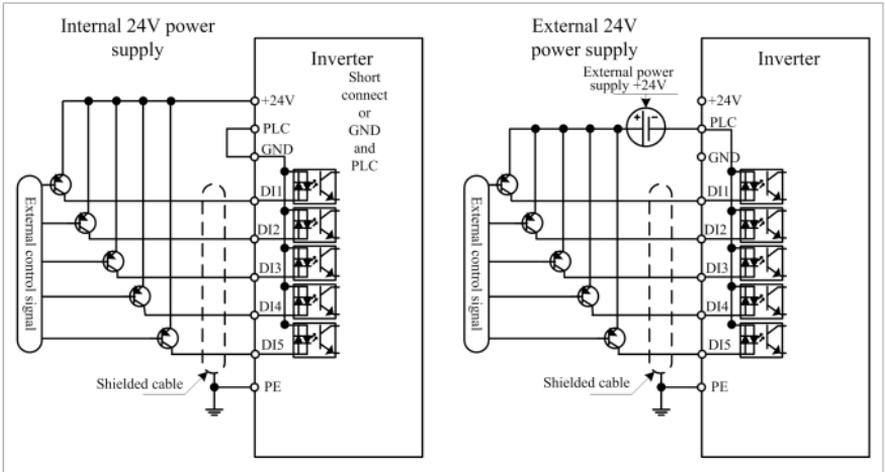
(2) Wiring method of NPN characteristic transistor
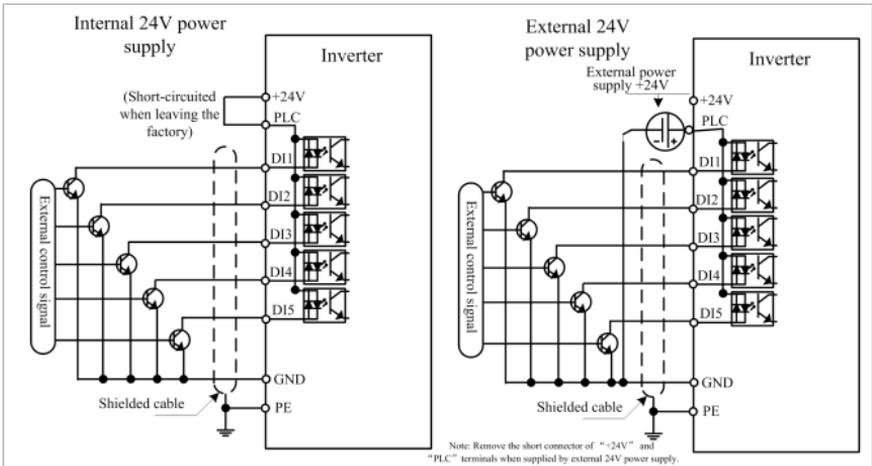
Chapter III Operation Instructions of Inverter

3.1 Key function description

The inverter operation panel is provided with 7 keys and 1 rotary encoder. The functions are defined in Table 3-1.

Table 3-1 Operation Panel Function Table

Key	Name	Label in the manual	Function description
PRG	Program/ Exit key	PRG	Enter or exit programming state
RUN	Run key	RUN	In the operation panel mode, press this key to run the inverter.
STOP	Stop key	STOP	When the inverter is in the normal running state, if the inverter's running instruction channel is set to the keyboard stop effective mode, press this key and the inverter will stop according to the set mode. When the inverter is in the fault state, press this key to reset the inverter and return to the normal stop state.
▲	Increase key	▲	Increase data or function code
▼	Decrease key	▼	Decrease data or function code
▶▶	Shift key	▶▶	In the edit state, you can select the modification bit of the set data

![ENTER rotary encoder icon]	Rotary encoder	⊘	When pressed down, it is the ENT key, you can enter the drop-down menu or data confirmation.
		ENT	When the frequency channel is given by the operation panel, the rotary encoder can modify the set frequency of the inverter.

3.2 Keyboard operation methods

You can perform various operations on the inverter by operating the keyboard, as follows:

3.2.1 Shortcut monitoring parameter view

6 shortcut parameters are fixedly displayed in the shortcut monitoring interface, and the order can be switched by the Up or Down key. When the ENT key is pressed down in this interface, it will immediately return to the first shortcut parameter, and the 6 shortcut parameter sequence list is as follows.

Shortcut parameter 1	Determined by function code FC.17
Shortcut parameter 2	Output current
Shortcut parameter 3	Bus voltage
Shortcut parameter 4	Set frequency
Shortcut parameter 5	AI1
Shortcut parameter 6	Terminal state 1

The above is the shortcut display in the general mode, which will vary with different industry characteristics in other industries.

3.2.2 Settings of function code parameters

The function parameter system of this inverter includes function code F0~FF group, monitoring parameter U0 group, and fault record parameter U1 group. Each function group includes several function codes. The function code is identified by (function code group number + function code number). For example, "F5.08" indicates the 8th function code of the 5th function group.

Function code setting example:

Example 1: Change the forward jog frequency setting from 5Hz to 10Hz (F2.20 changed from 5.00Hz to 10.00Hz)

1) Press the PRG key to enter the programming state, the digital tube displays function parameter "-F0-", and press the ▲ key to make the LED digital tube display "-F2-".

2) Press ENT, you can see the digital tube displays function parameter "**F2.00".**

3) Press the ▲ key to make the digital tube display function parameter "**F2.20**".

4) Press the ENT key, you will see the data(5.00) corresponding to F2.20, meanwhile, the LED (Hz) corresponding to its unit frequency lights up.

5) Press the ▶▶ key, if flashes, shift to the highest bit "5", and press the ▲ key five times, to change to 10.00.

6) Press the ENT key, if the parameter does not flash, it indicates the modification is successful.

7) Press the PRG key, to exit the programming state.

Note: In P.off state, it is forbidden to modify the function code parameter.

3.2.3 Jog function operation

Use the operation panel to perform the jog operation of the inverter:

1) Press the PRG key three times to enter the jog operation state, and the digital tube displays function parameter "JOG-".

2) Press and hold the Up key to forward and jog.

3) Press and hold the Down key to reverse and jog.

3.2.4 Parameter upload and download operations

The external keyboard has the function of uploading and downloading the function code.

1) On the external keyboard, press the ▶▶ key + the ▲ key, to execute the function code uploading function. The external keyboard reads all the function code values from the control board, and then writes into the keyboard memory chip.

2) On the external keyboard, press the ▶▶ key + the ▼ key, to execute the function code downloading function. The external keyboard reads all the function code values from the memory chip, and then writes into the inverter control board chip. However, when downloading, the keyboard will automatically distinguish the software version, inverter voltage level, and inverter power level. The specific conditions are as follows:

a. If the downloaded function code is inconsistent with the inverter software version of the parameter to be downloaded, it will not be downloaded and an E028 fault will be reported.

b. If the downloaded function code is inconsistent with the inverter voltage level of the parameter to be downloaded (e.g. The downloaded function code is of 2S model, but the inverter is of 4T model), it will not be downloaded and an E028 fault will be reported.

c. If the downloaded function code is consistent with the inverter voltage level of the parameter to be downloaded but the power level is inconsistent, the F3 group motor related parameters will not be downloaded, and other parameters will be downloaded normally.

d. If the downloaded function code is consistent with the inverter software version, voltage level, and power level of the parameter to be downloaded, all parameters will be downloaded.

Remarks:

1. The machine's standard external keyboard is a short-line keyboard (the length of the keyboard line is 15m or less). The keyboard does not support online update software (GT20-LKD);

2. The long-line keyboard (the length of the keyboard line is 80m or less) is an optional accessory. The long-line keyboard with LCD screen supports online software update. If the customer needs a long-line keyboard, special instructions are needed for special treatment of the whole machine.

Chapter IV Function Parameter Table

4.1 Function parameter table

Description of symbols in the table:

× - Indicates this parameter cannot be changed during the operation.

○ - Indicates this parameter can be changed during the operation.

● - Indicates the actual test parameter, which cannot be changed.

* - Indicates this parameter is the reserved parameter of the manufacturer, which is prohibited to be changed.

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F0 group system management parameter					
F0.00	Parameter operation protection	0: Password operation. You can view the function code value without entering a password, but you cannot change it. You need to enter the correct password in F0.05 before changing the function code. 1: Password operation. You cannot view the function code value when no password is entered, and the function code will display "-----". You need to enter the correct password in F0.05 before viewing and changing the	1	0	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
		function code. **Note: This function will take effect only after setting the function code operation password in F0.05.**			
F0.01	Reserved	-	-	-	*
F0.02	Inverter operation deadline	0~Maximum timing 65535h (0 indicates unlimited)	1h	0h	○
F0.03	Parameter initialization	0: No operation 1: Restore the factory settings (the inverter model, running time, and fault records will not be restored) 2: Clear the fault memory information (clear fault memory parameters of U1 group)	1	0	×
F0.04	Industry code	0: Universal inverter 1: Special inverter for water supply **Note: Changing the industry code will restore other function codes to their factory settings.** **The factory value of part of function codes of the special inverter for water supply is restored according to the**	1	0	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
		following list:			
			Function code	Factory value	
			F1.01	1	
			F1.02	8	
			F8.14	4ms	
			F8.15	5.0%	
			FC.17	14	
F0.05	Function code operation password	Setting range: 0~65535 0 indicates no password, set any non-zero number, the password protection function will take effect immediately, please keep the set password in mind. After setting the password, if you want to clear the password, you must enter the correct password first, and then set the password value to 0. After setting the password, if you want to change the password, you must clear the password before you can set a new password. **Note: The password protection authority is set in F0.00, which is used to prohibit unauthorized personnel from viewing and changing the function code parameters.**	1	0	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
		Basic operating parameters of F1 group			
F1.00	Control method	0: Reserved 1: V/F control	1	1	×
F1.01	Run command channel selection	0: Operation panel run command channel 1: Terminal run command channel 2: Serial port run command channel	1	0	○
F1.02	Main frequency x given channel selection	0: Operation panel digital potentiometer given 1: Digital given 1, setting frequency by modifying function code F1.05 (corresponding to auxiliary frequency Y) or F1.07 (corresponding to main frequency X).	1	0	○
F1.03	Auxiliary frequency Y given channel selection	2: Digital given 2, terminal UP/DN adjustment. 3: Digital given 3, and communication given. 4: AI1 given 5: AI2 given 6: Terminal pulse given 7: Multistage instruction given, the inverter runs in multistage instruction mode, select simple PLC operation or multistage speed operation through function code F9.00. 8: PID given 9: External operation panel analog potentiometer given. 10-15: Reserved	1	1	○

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Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F1.04	Frequency source combination mode	0: X 1: Y 2: X+Y 3: X-Y 4: Max(X,Y) 5: Min(X,Y) **Note: If the X and Y directions are not the same, the frequency direction after the combination of 2 and 3 is based on the main frequency X, while 4 and 5 is based on the selected frequency direction. Besides the calculation during combination is based on the absolute value of the main and auxiliary frequencies, if the calculated value is less than 0, it will run at zero frequency.**	1	0	○
F1.05	Digital setting of auxiliary frequency Y	Lower limit frequency~upper limit frequency	0.01Hz	50.00 Hz	○
F1.06	Maximum output frequency	Upper limit frequency~ 650.00Hz	0.01Hz	50.00 Hz	×
F1.07	Main frequency x digital setting	Lower limit frequency~upper limit frequency	0.01Hz	50.00 Hz	○
F1.08	Reserved	-	-	-	*

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F1.09	Upper limit frequency	Lower limit frequency~maximum output frequency	0.01Hz	50.00 Hz	○
F1.10	Lower limit frequency	0.00~upper limit frequency	0.01Hz	0.00Hz	○
F1.11	Acceleration time 1	0.01~600.00 **Note: The default unit is s. For the selection of acceleration/deceleration time unit, see FC.07.**	0.01	6.00	○
F1.12	Deceleration time 1		0.01	6.00	○
F1.13	Acceleration/deceleration filtering time	0~1000Ms~1000ms (0 indicates no filtering)	1ms	0ms	○
F1.14	Reserved	-	-	-	*
F1.15	Reserved	-	-	-	*
F1.16	Reserved	-	-	-	*
F1.17	V/F curve setting	0: Straight line VF 1: User-set V/F curve, see F1.18~ F1.23 function code setting for details. 2: Reduced torque characteristic curve 1 (2.0 power) 3: Reduced torque characteristic curve 2 (1.7 power) 4: Reduced torque characteristic curve 3 (1.2 power)	1	0	×
F1.18	V/F frequency value F1	0.00~F1.20	0.01Hz	12.50 Hz	×

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Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F1.19	V/F voltage value V1	0~F1.21	0.1%	25.0%	×
F1.20	V/F frequency value F2	F1.18~F1.22	0.01Hz	25.00 Hz	×
F1.21	V/F voltage value V2	F1.19~F1.23	0.1%	50.0%	×
F1.22	V/F frequency value F3	F1.20~F3.04	0.01Hz	37.50 Hz	×
F1.23	V/F voltage value V3	F1.21~100.0%	0.1%	75.0%	×
F1.24	Running direction setting	0: Forward 1: Reverse	1	0	○
F1.25	Carrier frequency setting	1~15kHz	1kHz	4kHz	○
F2 group start-stop control					
F2.00	Start operation mode	LED single digit: Start mode 　0: Start from start frequency 　1: Brake and then start from the start frequency 　2: Speed tracking restart LED tens digit: Speed tracking mode 　0: Track down from the frequency of shutdown, usually this	11	00	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
		method is used. 1: Track down from the maximum frequency, suitable for power generation load.			
F2.01	Start frequency	0.20~60.00Hz	0.01Hz	0.50Hz	○
F2.02	Start frequency hold time	0.0~10.0s	0.1s	0.0s	○
F2.03	Start DC braking current	0.0~150.0% inverter rated current	0.1%	100.0%	○
F2.04	Start DC braking time	0.0~30.0S (0.0 indicates the DC braking does not act)	0.1s	0.0s	○
F2.05	Acceleration/deceleration mode selection	0: Linear acceleration/deceleration 1: Reserved	1	0	×
F2.06	Start protection selection (only valid for two-wire control)	This function realizes whether the inverter automatically starts running when the inverter is powered on, the fault is cleared, or the command channel is switched to the terminal two-wire mode. 0: If the run command is valid, the inverter does start, and the inverter is in the running protection	1	0	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
		state. The inverter will not run until the run command terminal is canceled and then the terminal is enabled. 1: If the run command is valid, the inverter speed tracking starts. **Note: For safety, be cautious when setting to 1.**			
F2.07	Start protection wait time	Set range: $0.0\sim10.0$s	0.1s	0.0s	○
F2.08	Stop mode	0: Decelerate and stop 1: Run freely and stop 2: Decelerate and stop + DC brake	1	0	×
F2.09	DC braking start frequency at stop	$0.00\sim60.00$Hz	0.01Hz	0.00Hz	○
F2.10	DC braking wait time at stop	$0.00\sim10.00$s	0.01s	0.10s	○
F2.11	DC braking current at stop	$0.0\sim150.0\%$ inverter rated current	0.1%	100.0%	○
F2.12	DC braking time at stop	$0.0\sim60.0$S (0.0 indicates the DC braking does not act)	0.1s	0.0s	○
F2.13	Action selection within DC braking wait time at stop	0: No output 1: Run at the braking start frequency	1	1	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F2.14	Acceleration time 2	Set range: 0.01~600.00 **Note: The default unit is s. For the selection of acceleration/deceleration time unit, see FC.07.**	0.01s	6.00s	○
F2.15	Deceleration time 2				○
F2.16	Acceleration time 3				○
F2.17	Deceleration time 3				○
F2.18	Acceleration time 4				○
F2.19	Deceleration time 4				○
F2.20	Jog run frequency	0.10~50.00Hz	0.01Hz	5.00Hz	○
F2.21	Jog interval time	0.0~100.0s	0.1s	0.0s	○
F2.22	Jog acceleration time	0.01~600.00s	0.01s	6.00s	○
F2.23	Jog deceleration time				○
F2.24	Jump frequency 1	0.00~650.00Hz	0.01Hz	0.00Hz	×
F2.25	Jump frequency 1 range	0.00~30.00Hz	0.01Hz	0.00Hz	×
F2.26	Jump frequency 2	0.00~650.00Hz	0.01Hz	0.00Hz	×
F2.27	Jump frequency 2 range	0.00~30.00Hz	0.01Hz	0.00Hz	×
F2.28	Jump frequency 3	0.00~650.00Hz	0.01Hz	0.00Hz	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F2.29	Jump frequency 3 range	0.00～30.00Hz	0.01Hz	0.00Hz	×
F2.30	Forward and reverse dead zone time	0.00～360.00s	0.01s	0.01s	×
F3 group motor and torque control parameters					
F3.00	Motor model code	Set range: 1～10 The motor model code indicates the power code. Model code | Motor power 1 | 2T 0.4KW 2 | 2T 0.75KW 3 | 2T 1.5KW 4 | 2T 2.2KW 5 | 4T 0.4KW 6 | 4T 0.75KW 7 | 4T 1.5KW 8 | 4T 2.2KW 9 | 4T 4.0KW 10 | 4T 5.5KW **Note:** **1. When the factory value is restored, this function code will be restored to the default parameters the same as the inverter power.** **2. When this function code is reset, F3.01～F3.10 motor parameters can be initialized.**	1	Model determination	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F3.01	Rated power	0.4~999.9KW	0.1KW	Model determination	×
F3.02	Rated current	0.01~655.35A	0.01A		×
F3.03	Rated speed	1~65535rpm	1rpm		×
F3.04	Rated frequency	1.00~650.00Hz	0.01Hz		×
F3.05	Rated voltage	1~480V	1V		×
F3.06	No-load current I0	0.01~655.35A	0.01A	Model determination	×
F3.07	Stator resistance R1	0.000~50.000Ω	0.001Ω		○
F3.08	Leakage inductance X	0.0~6553.5mH	0.1mH		○
F3.09	Rotor resistance R2	0.000~50.000Ω	0.001Ω		○
F3.10	Mutual inductance Xm	0.0~6553.5mH	0.1mH		○
F3.11	Motor poles	2~14	2	4	×
F3.12	Parameter self-learning	0: No action 1: Action (motor rotation): Perform comprehensive self-learning of motor parameters. It is recommended to use rotary self-learning for occasions with high control accuracy	1	0	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
		requirements. **Note: Before starting the self-learning, make sure that the motor is stopped and remove the motor shaft from the load, otherwise the self-learning cannot be performed normally.**			
F3.13	Self-learning acceleration and deceleration speeds	0.01~600.00s	0.01s	6.00s	○
F3.14	Self-learning current	1~100%	1%	25%	×
F5 group analog terminal parameters					
F5.00	AI1 minimum value	0.00~F5.02	0.01V	0.00V	○
F5.01	Set value corresponding to AI1 minimum value	-100.0%~100.0%	0.1%	0.0%	○
F5.02	AI1 maximum value	F5.00~10.00V	0.01V	10.00V	○
F5.03	Set value corresponding to AI1 maximum value	-100.0%~100.0%	0.1%	100.0%	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F5.04	AI1 zero drift setting	0.00～10.00V	0.01V	0.00V	○
F5.05	AI1 filter time	0～1000ms	1ms	10ms	○
F5.06	AI2 minimum value	0.00～F5.08	0.01V	0.00V	○
F5.07	Set value corresponding to AI2 minimum value	-100.0%～100.0%	0.1%	0.0%	○
F5.08	AI2 maximum value	F5.06～10.00V	0.01V	10.00V	○
F5.09	Set value corresponding to AI2 maximum value	-100.0%～100.0%	0.1%	100.0%	○
F5.10	AI2 zero drift setting	0.00～10.00V	0.01V	0.00V	○
F5.11	AI2 filter time	0～1000ms	1ms	10ms	○
F5.12	Reserved	-	-	-	*
F5.13	Reserved	-	-	-	*
F5.14	Reserved	-	-	-	*
F5.15	Reserved	-	-	-	*
F5.16	Reserved	-	-	-	*
F5.17	Reserved	-	-	-	*

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F5.18	Analog automatic zero drift adjustment	Set range: 0~1 When set to 1, the automatic zero drift adjustment of the analog quantity must be performed. It must be ensured that there is no external analog input quantity input.	0	0	○
F5.19	PULSE minimum input	0.00~F5.21	0.01KHz	0.00 KHz	○
F5.20	Correspondence setting of PULSE minimum input	-100.0%~100.0%	0.1%	0.0%	○
F5.21	PULSE maximum input	F5.19~50.00KHz	0.01KHz	50.00 KHz	○
F5.22	Correspondence setting of PULSE maximum input	-100.0%~100.0%	0.1%	100.0%	○
F5.23	PULSE filter time	0~1000ms	1ms	10ms	○
F5.24	HDO function selection (DO2 terminal)	0: Running frequency (0~Maximum output frequency) 1: Set frequency (0~ Maximum output frequency) 2: Output current (0~2	1	5	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F5.25	AO1 function selection	times rated current) 3: Output torque (0~2 times rated torque) 4: Output voltage (0~1.2	1	0	○
F5.26	AO2 function selection	times rated voltage) 5: Bus voltage (0~1000V) 6: AI1 (0~10V/0~20mA) 7: AI2 (0~10V) 8: Reserved 9: Output power (0~2 times rated frequency) 10: Pulse input (0~50.00KHz) 11: Communication setting (0~1000)	1	1	○
F5.27	HDO (DO2 terminal) output lower limit	0.0~F5.29	0.1%	0.0%	○
F5.28	Corresponding lower limit HDO (DO2 terminal) output frequency	0.00~50.00KHz	0.01KHz	0.00 KHz	○
F5.29	HDO (DO2 terminal) output upper limit	F5.27~100.0%	0.1%	100.0%	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F5.30	Corresponding upper limit HDO (DO2 terminal) output frequency	0.00～50.00KHz	0.01KHz	50.00 KHz	○
F5.31	AO1 output lower limit	0.0～F5.33	0.1%	0.0%	○
F5.32	Corresponding lower limit AO1 output voltage	0.00～10.00V	0.01V	0.00V	○
F5.33	AO1 output upper limit	F5.31～100.0%	0.1%	100.0%	○
F5.34	Corresponding upper limit AO1 output voltage	0.00～10.00V	0.01V	10.00V	○
F5.35	AO2 output lower limit	0.0～F5.37	0.1%	0.0%	○
F5.36	Corresponding lower limit AO2 output voltage	0.00～10.00V	0.01V	0.00V	○
F5.37	AO2 output lower limit	F5.35～100.0%	0.1%	100.0%	○
F5.38	Corresponding upper limit AO2 output voltage	0.00～10.00V	0.01V	10.00V	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F5.39	External keyboard analog potentiometer zero drift setting	0.00～10.00V	0.01V	0.00V	○
F5.40	External keyboard analog potentiometer zero filter time	0～1000ms	1ms	10ms	○
F6 group digital terminal parameters					
F6.00	Multifunctional input terminal DI1 function selection	0: No function 1: Forward running FWD (level + edge) 2: Reverse running REV (level + edge) 3: Three-wire running control Sin (level) 4: Forward jog (level) 5: Reverse jog (level) 6: Free stop (level) 7: Fault reset (edge signal) 8: Run pause (level) 9: External fault input 10: Frequency setting increase (UP) 11: Frequency setting decreases (DOWN) 12: Multistage speed terminal 1 13: Multistage speed terminal 2 14: Multistage speed terminal 3	1	1	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F6.01	Multifunctional input terminal DI2 function selection	15: Multistage speed terminal 4 16: Acceleration/deceleration time selection 1 17: Acceleration/deceleration time selection 2 18: PLC pause 19: PLC operation stop and reset 20: PID control pause 21: PID parameter switching 22: Counter trigger 23: Counter reset 24: Length reset 25: Acceleration/deceleration prohibited (level) 26: Immediate DC braking 27: UP/DOWN setting cleared 28: Control command switched to keyboard 29: Control command switched to terminal 30: Control command switched to communication 31: Frequency source switched to the main frequency X 32: Frequency source switched to auxiliary frequency Y 33: High-frequency pulse count reset		2	

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F6.02	Multifunctional input terminal DI3 function selection	34-50: Reserved **Note: The function of each terminal cannot be the same. If the functions of the two terminals are set to the same, the DI ports ranked first will work first, and the latter ones will not work.** Detailed description of terminal functions: $1\sim3$: Forward running FWD, reverse running REV, three-wire running control Sin: For terminal two-wire and three-wire		7	
F6.03	Multifunctional input terminal DI4 function selection	control signals, see function code F6.09 description for details. $4\sim5$: Forward jog and reverse jog: Used for jog running control under terminal run command mode, the jog running frequency, jog interval time and jog acceleration/deceleration time are defined in $F2.20\sim F2.23$. 6: Free stop: If the function of this terminal is valid, the inverter immediately terminates the output, and the load stops freely according to the mechanical inertia. 7: Fault reset: When a		12	

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F6.04	Multifunctional input terminal DI5 function selection	fault alarm occurs in the inverter, the fault can be reset through this terminal. Its function is consistent with the STOP key function of the keyboard. 8: Running pause: If this terminal is valid during running, the terminal will decelerate to zero frequency running according to the deceleration time. This function is invalid during jog running. 9: External fault input: The fault signals of external devices can be input through this terminal, which is		13	
F6.05	Reserved	convenient for the inverter to monitor the faults of external devices. After receiving fault signals from external devices, the inverter displays "E015", which is the fault alarm of external devices. 10~11: Frequency setting increase UP, and frequency setting decrease DOWN: The frequency increase or decrease is realized through the control terminal, to perform remote control replacing the operation panel.		0	

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F6.06	Reserved	Effective when the main frequency F1.02 = 2 or the auxiliary frequency F1.03 = 2, the acceleration/deceleration rate is set by F6.10. 12~15: Multistage speed terminals 1~4: By selecting the terminal ON/OFF combination of these functions, you can define up to 16 stages of speed running curves, the frequency of multistage instructions, the selection of acceleration/deceleration time, and the rotating direction are set in group F9.		0	
F6.07	Reserved	<table><tr><td>K4</td><td>K3</td><td>K2</td><td>K1</td><td>Frequency setting</td></tr><tr><td>OFF</td><td>OFF</td><td>OFF</td><td>OFF</td><td>Multistage instruction 1</td></tr><tr><td>OFF</td><td>OFF</td><td>OFF</td><td>ON</td><td>Multistage instruction 2</td></tr><tr><td>OFF</td><td>OFF</td><td>ON</td><td>OFF</td><td>Multistage instruction 3</td></tr><tr><td>OFF</td><td>OFF</td><td>ON</td><td>ON</td><td>Multistage instruction 4</td></tr><tr><td>OFF</td><td>ON</td><td>OFF</td><td>OFF</td><td>Multistage instruction 5</td></tr></table>		0	
F6.08	Reserved	<table><tr><td>OFF</td><td>ON</td><td>OFF</td><td>ON</td><td>Multistage instruction 6</td></tr><tr><td>OFF</td><td>ON</td><td>ON</td><td>OFF</td><td>Multistage instruction 7</td></tr><tr><td>OFF</td><td>ON</td><td>ON</td><td>ON</td><td>Multistage instruction 8</td></tr><tr><td>ON</td><td>OFF</td><td>OFF</td><td>OFF</td><td>Multistage</td></tr></table>		0	

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Parameter Code	Parameter name	Parameter detailed description					Minimum Unit	Factory value	Change
			F	F	F	instruction 9			
		ON	OFF	OFF	ON	Multistage instruction 10			
		ON	OFF	ON	OFF	Multistage instruction 11			
		ON	OFF	ON	ON	Multistage instruction 12			
		ON	ON	OFF	OFF	Multistage instruction 13			
		ON	ON	OFF	ON	Multistage instruction 14			
		ON	ON	ON	OFF	Multistage instruction 15			
		ON	ON	ON	ON	Multistage instruction 16			

16~17:
Acceleration/deceleration time selection 1~2: The ON/OFF combination of acceleration/deceleration time terminals 1 and 2 can realize the selection of acceleration/deceleration time 1~4.

K2	K1	Acceleration/deceleration time selection
OFF	OFF	Acceleration/deceleration time 1
OFF	ON	Acceleration/deceleration time 1
ON	OFF	Acceleration/deceleration time 3
ON	ON	Acceleration/deceleration time 4

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
		18: PLC pause: Used to realize the pause control of the PLC running process. When this terminal is valid, it runs at zero frequency. The PLC running is not counted.			
		19: PLC running stop and reset: PLC is prohibited from starting when the terminal is valid, deceleration and stop control is implemented for the PLC running process, and the PLC is reset to the initial state.			
		20: PID control pause: PID is temporarily invalid, and the inverter maintains the current output frequency without performing PID adjustment.			
		21: PID parameter switching: When the PID parameter switching condition (F8.12) is set to 1 (via terminal switching), the F8.06~F8.08 are used for PID parameters when the terminal is invalid, and F8.09~F8.11 are used when the terminal is valid.			
		22: Counter trigger: Count pulse input port of the built-in counter, the highest pulse frequency: 50Hz, and the current			

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
		count value can be stored and memorized when power is off. See function codes F6.22 and F6.23 for details. 23: Counter reset: Clear the built-in counter of the inverter and use it in conjunction with function 22 (counter trigger signal input). 24: Length reset: When the function terminal is valid, the actual length is cleared to zero. 25: Acceleration/deceleration prohibition: Keep the motor from being affected by any external signal (except stop command), maintain operating at the current speed. This function is invalid during jog running. 26: Immediate DC brake: When the stop mode is decelerate and stop + DC brake, it is switched to DC brake status when the terminal is valid during stop. 27: UP/DOWN setting is cleared: When the frequency given channel is set to terminal UP/DN, this function terminal can directly clear the frequency set by UP/DN. 28: Control command switched to keyboard			

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
		29: Control command switched to terminal 30: Control command switched to communication If the above three terminals or two of them are closed at the same time, the priority is keyboard> terminal> communication. **Note: When switching to terminal two-wire control, the running state changes are affected by the F2.06 parameter; when switching to other control modes, the current running state is maintained.** 31: Frequency source switched to the main frequency X 32: Frequency source switched to auxiliary frequency Y If the above two terminals are closed at the same time, the priority is switching to the main frequency X> switching to the auxiliary frequency Y 33: High-frequency pulse count reset: The high-frequency pulse count value recorded by function code U0.16 is cleared.			

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F6.09	Forward/reverse running mode setting	0: Two-wire control mode 1 1: Two-wire control mode 2 2: Three-wire running control 1 3: Three-wire running control 2	1	0	×
F6.10	UP/DN rate	0.01~99.99Hz/s	0.01Hz/s	1.00 Hz/s	○
F6.11	Open collector output terminal DO1	0: No output 1: Inverter running signal (RUN) 2: Frequency arrival signal (FAR) 3: Frequency level detection signal (FDT1) 4: Frequency level detection signal (FDT2) 5: Reserved 6: Undervoltage lockout stopping (LU) 7: External fault stop (EXT) 8: Frequency upper limit (FHL) 9: Frequency lower limit (FLL) 10: Inverter running at zero frequency 11: PLC phase running completion	1	0	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F6.12	Open collector output terminal HDO (DO2 terminal)	12: PLC cycle completion 13: Set count value arrival 14: Specified count value arrival 15: Set length arrival 16: Inverter ready to run (RDY) 17: Inverter fault 18: Reserved 19: Set cumulative running time arrival 20: Forward running 21: Reverse running 22: Reserved 23: Water supply sleep running indication	1	1	×
F6.13	Relay output function (TA/TB/TC)	24: Water pipe overpressure indication 25: Water pipe underpressure indication 26: Water pipe shortage indication 27-30: Reserved	1	17	×
F6.14	FDT1 level	0.00~650.00Hz	0.01Hz	50.00 Hz	○
F6.15	FDT1 lag	0.00~650.00Hz	0.01Hz	1.00Hz	○
F6.16	FDT2 level	0.00~650.00Hz	0.01Hz	25.00 Hz	○
F6.17	FDT2 lag	0.00~650.00Hz	0.01Hz	1.00Hz	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F6.18	Frequency arrival (FAR) detection width	0.00~650.00Hz	0.01Hz	2.50Hz	○
F6.19	HDI terminal input mode selection (DI5)	0: Switch input 1: High-frequency pulse input (see F5.19~F5.23)	1	0	×
F6.20	HDO terminal output mode selection (DO2)	0: Switch output 1: High-frequency pulse output (see F5.27~F5.30)	1	0	×
F6.21	Reserved	-	-	-	*
F6.22	Counter reset value setting (set count value arrival)	F6.23~9999	1	0	○
F6.23	Counter detection value setting (specified count value arrival)	0~F6.22	1	0	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F6.24	DI input switch polarity 1	00000~11111 LED single digit: DI1 positive/negative logic definition LED tens digit: DI2 positive/negative logic definition LED hundreds digit: DI3 positive/negative logic definition LED thousands digit: DI4 positive/negative logic definition LED 10 thousands digit: DI5 positive/negative logic definition	11111	11111	○
F6.25	DI input switch polarity 2	00000~11111 LED single digit: Reserved LED tens digit: Reserved LED hundreds digit: Reserved LED thousands digit: Reserved LED 10 thousands digit: Reserved	11111	11111	○
F6.26	DO output switch polarity 1	00000~11111 LED single digit: DO1 positive/negative logic definition LED tens digit: DO2 positive/negative logic definition LED hundreds digit: Relay positive/negative logic definition LED thousands digit: Reserved LED 10 thousands digit: Reserved	11111	11111	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F6.27	Reserved	-	-	-	*
F6.28	DI filter time	$0\sim1000ms$	1ms	20ms	○
F6.29	DO1 output on delay	$0.0\sim600.0s$	0.1s	0.0s	○
F6.30	DO1 output off delay	$0.0\sim600.0s$	0.1s	0.0s	○
F6.31	DO2 output on delay	$0.0\sim600.0s$	0.1s	0.0s	○
F6.32	DO2 output off delay	$0.0\sim600.0s$	0.1s	0.0s	○
F6.33	Relay output on delay	$0.0\sim600.0s$	0.1s	0.0s	○
F6.34	Relay output off delay	$0.0\sim600.0s$	0.1s	0.0s	○
F7 group advanced function parameters					
F7.00	Overpressure stall point	$100.0\sim160.0\%Udc$	0.1% Udc	Model determination	○
F7.01	Overvoltage control voltage	$0.000\sim10.000V$	0.001V	5.000V	○
F7.02	Overvoltage stall gain Kp	$0\sim1000$	1	5	○
F7.03	Overvoltage stall integration time	$1\sim1000ms$	1ms	200ms	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F7.04	Overcurrent stall level	80.0~230.0%	0.1%	180.0%	○
F7.05	Overcurrent stall action selection	0: Constant speed invalid 1: Constant speed valid **Note: Acceleration and deceleration are always valid.**	1	1	○
F7.06	Overcurrent stall gain Kp	0~1000	1	5	○
F7.07	Overcurrent stall integration time	1~1000ms	1ms	200ms	○
F7.08	Speed tracking gain Kp	0~100	1	10	○
F7.09	Speed tracking integration time	1~1000ms	1ms	50ms	○
F7.10	Speed tracking acceleration and deceleration	0.1~600.0s	0.1s	20.0s	○
F7.11	Speed tracking judgment threshold	1~100%	1%	10%	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F7.12	Speed tracking switching completion judgment threshold	1～100%	1%	3%	○
F7.13	Instant stop/nonstop function selection	0: Invalid 1: Decelerate	1	0	○
F7.14	Instant stop action pause judgment voltage	80.0～100.0%	0.1%	90.0%	○
F7.15	Instant stop voltage rise judgment time	0.00～100.00s	0.01s	0.50s	○
F7.16	Instant stop action judgment voltage	70.0～100.0%	0.1%	80.0%	○
F7.17	Instant stop gain Kp	0~1000	1	5	○
F7.18	Instant stop integration time	1～1000ms	1ms	100ms	○
F7.19	Instant stop deceleration time setting	0～300.0s	0.1s	20.0s	○
F7.20	Overcurrent stall speed recovery time limit	0.01～600.00s	0.01s	0.20s	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F7.21	Torque boost limit	0.1~30.0%	0.1%	10.0%	○
F7.22	Torque boost cutoff point	0.00~F3.04	0.01Hz	50.00 Hz	○
F7.23	Torque boost gain 1	0~500 (when set to 0, it is manual torque boost)	1	20	○
F7.24	Torque boost integration time 1	1~10000ms	1ms	150ms	○
F7.25	Torque boost gain switching frequency point	0.00~F3.04	0.01Hz	Model determination	○
F7.26	Torque boost gain 2	0~500	1	10	○
F7.27	Torque boost integration time 2	1~10000ms	1ms	500ms	○
F7.28	Automatic torque boost factor	0~100%	1%	30%	○
F7.29	Motor oscillation suppression methods	0: Suppress oscillation by adjusting output frequency 1: Suppress oscillation by adjusting output voltage	1	0	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F7.30	Motor oscillation suppression coefficient	0~1000	1	3	○
F7.31	Motor oscillation suppression filter time	0~10000ms	1ms	100ms	○
Group F8 PID control parameters					
F8.00	PID operation control selection	0: PID standby (not acting) 1: PID standby (acting)	1	0	×
F8.01	Given channel selection	0: F8.05 digital given 1: AI1 2: AI2 3: Reserved 4: PULSE setting 5: Communication setting 6: Multistage instruction setting 7: Operation panel digital potentiometer given 8: Analog potentiometer given on external operation panel	1	0	×
F8.02	Feedback channel selection	0: AI1 1: AI2 2: Reserved 3: Pulse 4: Communication setting	1	0	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F8.03	Given channel filter	$0\sim1000ms$	1ms	10ms	○
F8.04	Feedback channel filter	$0\sim1000ms$	1ms	10ms	○
F8.05	Given quantity digital setting	Universal inverter mode: $0.0\sim100.0\%$ Special inverter mode for water supply: $0.0\sim$F8.23	0.1% or 0.1bar	0.0% or 0.0bar	○
F8.06	Proportional gain Kp1	$0\sim1000$	1	10	○
F8.07	Integration time Ti1	$1\sim10000ms$	1ms	500ms	○
F8.08	Differential time Td1	$0\sim10000ms$	1ms	0ms	○
F8.09	Proportional gain Kp2	$0\sim1000$	1	5	○
F8.10	Integration time Ti2	$1\sim10000ms$	1ms	2000ms	○
F8.11	Differential time Td2	$0\sim10000ms$	1ms	0ms	○
F8.12	Gain switching conditions	0: Do not switch 1: Switch through DI terminal 2: Switch automatically based on deviation 3: Switch automatically according to PID output	1	0	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F8.13	Gain switching threshold	$0.0\sim100.0\%$	0.1%	0.0%	○
F8.14	PID sampling period	$1\sim60000ms$	1ms	1ms	○
F8.15	Deviation limit	$0.0\sim50.0\%$	0.1%	0.0%	○
F8.16	Closed-loop regulation features	0: Positive action 1: Negative action	1	0	○
F8.17	PID initial value	$0.0\sim100.0\%$	0.1%	0.0%	×
F8.18	PID initial value hold time	$0.00\sim600.00s$	0.01s	0.00s	×
F8.19	Closed-loop output polarity selection	0: Closed-loop output is negative, run at zero-frequency 1: Closed-loop output is negative, reverse	1	0	○
F8.20	PID reverse cutoff frequency	0.00~upper limit frequency	0.01Hz	2.00Hz	×
F8.21	PID feedback loss detection value	$0.0\sim100.0\%$	0.1%	10.0%	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F8.22	PID feedback loss detection time	0.0~200.0S (0.0s indicates no detection)	0.1s	0.0s	○
F8.23	Maximum sensor range	0.0~200.0bar	0.1bar	10.0bar	○
F8.24	Water supply sleep selection	0: Automatic sleep 1: Run at lower limit frequency	1	0	○
F8.25	Water supply sleep detection time	0.0~3600.0s	0.1s	10.0s	○
F8.26	Water supply sleep deceleration time	0.01~600.00s	0.01s	10.00s	○
F8.27	Water supply wake pressure tolerance	0.0~100.0% (100.0% is the set pressure value)	0.1%	10.0%	○
F8.28	Water supply wake detection time	0.0~3600.0s	0.1s	2.0s	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F8.29	Water pressure overpressure alarm detection value	0.0~100.0% (Do not test when set to 0, 100.0% is the maximum range of pressure sensor)	0.1%	90.0%	○
F8.30	Water pressure undervoltage alarm detection value	0.0~100.0% (Do not test when set to 0, 100.0% is the maximum range of pressure sensor)	0.1%	0.0%	○
F8.31	Water pressure abnormal alarm detection time	0.0~3600.0s	0.1s	50.0s	○
F8.32	Water shortage alarm set value	0.0~100.0% (100.0% is the set pressure value)	0.1%	20.0%	○
F8.33	Water shortage alarm detection time	0.0~3600.0s	0.1s	20.0s	○
F8.34	Water shortage restart wait time	0~10000min (0min indicate there's no water shortage restart function)	1min	0min	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
		Group F9 multistage speed control parameters			
F9.00	Simple PLC run mode selection	LED single digit: PLC run mode 　0: No action 　1: Stop after a single cycle 　2: Keep the final value after a single cycle 　3: Continuous cycle 　4: DI selective operation LED tens digit: Start mode 　0: Start running from the first stage 　1: Continue running from the stage of interruption LED hundreds digit: Stage time unit selection 　0: Second 　1: Minute LED thousands digit: Store at power failure 　0: Do not store at power failure 　1: Stage at power failure storage interruption	1111	0000	×
F9.01	Running stages	1~16	1	16	○
F9.02	Multistage instruction 1	Lower limit frequency~upper limit frequency	0.01Hz	20.00 Hz	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change

F9.03	Stage 1 instruction setting	LED single digit:
		    0: Multistage instruction 1 (F9.02)
		    1: AI1
		    2: AI2
		    3: Pulse frequency
		    4: Communication
		    5: Operation panel digital potentiometer given
		    6: Analog potentiometer given on external operation panel
		LED tens digit:
		    0: Acceleration/deceleration time 1
		    1: Acceleration/deceleration time 2
		    2: Acceleration/deceleration time 3
		    3: Acceleration/deceleration time 4
		LED hundreds digit:
		    0: Forward running
		    1: Reverse running
		Note: Only the LED single digit frequency source of stage 1 instruction can be set.
			111	000	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F9.04	Stage 1 instruction running time	Set range: 0.1~6000.0 **Note: For the time unit selection, see F9.00 hundreds digit setting.**	0.1	10.0	○
F9.05	Multistage instruction 2	Stage X instruction (F9.05, F9.08, F9.11, F9.14, F9.17, F9.20, F9.23, F9.26, F9.29, F9.32, F9.35、F9.38, F9.41, F9.44, and F9.47) setting range: Lower limit frequency~upper limit frequency	0.01Hz	20.00 Hz	○
F9.06	Stage 2 instruction setting		111	000	○
F9.07	Stage 2 instruction running time		0.1	10.0	○
F9.08	Multistage instruction 3	Stage X instruction (F9.06, F9.09, F9.12, F9.15, F9.18, F9.21, F9.24, F9.27, F9.30, F9.33, F9.36、F9.39, F9.42, F9.45, and F9.48) setting range: LED single digit: 0: Multistage instruction x 1: Reserved LED tens digit: 0:Acceleration/deceleration time 1 1:Acceleration/deceleration time 2 2:Acceleration/deceleration time 3	0.01Hz	20.00 Hz	○
F9.09	Stage 3 instruction setting		111	000	○
F9.10	Stage 3 instruction running time		0.1	10.0	○
F9.11	Multistage instruction 4		0.01Hz	20.00 Hz	○
F9.12	Stage 4 instruction setting		111	000	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F9.13	Stage 4 instruction running time	3:Acceleration/deceleration time 4 LED hundreds digit: 0: Forward running 1: Reverse running Stage X instruction running time (F9.07, F9.10, F9.13, F9.16, F9.19, F9.22, F9.25, F9.28, F9.31, F9.34, F9.37、F9.40, F9.43, F9.46, and F9.49) setting range: 0.1~6000.0 **Note: For the time unit selection, see F9.00 hundreds digit setting.**	0.1	10.0	○
F9.14	Multistage instruction 5		0.01Hz	20.00 Hz	○
F9.15	Stage 5 instruction setting		111	000	○
F9.16	Stage 5 instruction running time		0.1	10.0	○
F9.17	Multistage instruction 6		0.01Hz	20.00 Hz	○
F9.18	Stage 6 instruction setting		111	000	○
F9.19	Stage 6 instruction running time		0.1	10.0	○
F9.20	Multistage instruction 7		0.01Hz	20.00 Hz	○
F9.21	Stage 7 instruction setting		111	000	○
F9.22	Stage 7 instruction running time		0.1	10.0	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F9.23	Multistage instruction 8		0.01Hz	20.00 Hz	○
F9.24	Stage 8 instruction setting		111	000	○
F9.25	Stage 8 instruction running time		0.1	10.0	○
F9.26	Multistage instruction 9		0.01Hz	20.00 Hz	○
F9.27	Stage 9 instruction setting		111	000	○
F9.28	Stage 9 instruction running time		0.1	10.0	○
F9.29	Multistage instruction 10		0.01Hz	20.00 Hz	○
F9.30	Stage 10 instruction setting		111	000	○
F9.31	Stage 10 instruction running time		0.1	10.0	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F9.32	Multistage instruction 11		0.01Hz	20.00 Hz	○
F9.33	Stage 11 instruction setting		111	000	○
F9.34	Stage 11 instruction running time		0.1	10.0	○
F9.35	Multistage instruction 12		0.01Hz	20.00 Hz	○
F9.36	Stage 12 instruction setting		111	000	○
F9.37	Stage 12 instruction running time		0.1	10.0	○
F9.38	Multistage instruction 13		0.01Hz	20.00 Hz	○
F9.39	Stage 13 instruction setting		111	000	○
F9.40	Stage 13 instruction running time		0.1	10.0	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
F9.41	Multistage instruction 14		0.01Hz	20.00 Hz	○
F9.42	Stage 14 instruction setting		111	000	○
F9.43	Stage 14 instruction running time		0.1	10.0	○
F9.44	Multistage instruction 15		0.01Hz	20.00 Hz	○
F9.45	Stage 15 instruction setting		111	000	○
F9.46	Stage 15 instruction running time		0.1	10.0	○
F9.47	Multistage instruction 16		0.01Hz	20.00 Hz	○
F9.48	Stage 16 instruction setting		111	000	○
F9.49	Stage 16 instruction running time		0.1	10.0	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
Group FA protection function parameters					
FA.00	DC bus undervoltage protection point	50～999V	1V	Model determination	×
FA.01	Undervoltage fault action selection	0: During running, the voltage is lower than the undervoltage point, and an undervoltage fault E007 is reported. 1: During running, the voltage is lower than the undervoltage point, and P.oFF is reported.	1	0	×
FA.02	Motor overload protection action selection	0: No action 1: Action, E008 fault is reported when the motor is overloaded.	1	0	×
FA.03	Reserved	-	-	-	*
FA.04	Reserved	-	-	-	*
FA.05	Reserved	-	-	-	*
FA.06	Output phase loss protection delay time	0.0～6000.0S (0.0s indicates no detection for output phase loss)	0.1s	0.0s	×
FA.07	485 communication fault protection action selection	0: No action 1: Action, E016 fault is reported when 485 communication is abnormal.	1	0	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
FA.08	Number of automatic resets	0～100 (0 indicates no automatic reset function)	1	0	×
FA.09	Automatic reset interval time	0.1～1000.0s	0.1s	5.0s	×
FA.10	Reserved	-	-	-	*
FA.11	Reserved	-	-	-	*
FA.12	Reserved	-	-	-	*
Group Fb serial communication parameters					
Fb.00	Local address	0~247 **Note: 0 is the broadcast address**	1	1	×

Fb.01	Communication configuration	LED single digit: Baud rate selection
		    0: 1200BPS
		    1: 2400BPS
		    2: 4800BPS
		    3: 9600BPS
		    4: 19200BPS
		    5: 38400BPS
		LED tens digit: Data format
		    0: 1-8-2-N format, RTU
		    1: 1-8-1-E format, RTU
		    2: 1-8-1-O format, RTU
		    3: 1-7-2-N format, ASCII
		    4: 1-7-1-E format, ASCII
		    5: 1-7-1-O format, ASCII
		    6: 1-8-1-N format, RTU
			11	03	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
Fb.02	Reserved	-	-	-	*
Fb.03	Local response delay	0～1000ms	1	5ms	×
Fb.04	Communication timeout detection time	0.0～100.0s	0.1s	0.0s	×

Fb.05	Host send selection	LED single digit: Current host running status
		  0: Invalid
		  1: Valid
		LED tens digit: Current host running frequency
		  0: Invalid
		  1: Valid
		Note: Only RTU communication mode supports host sending.
			11	11	×

Group FC auxiliary function parameters					
FC.00	Energy consumption braking threshold	350～800V	1V	Model determination	×
FC.01	Energy consumption braking duty cycle	0～100%	1%	50%	×
FC.02	AVR function	0: No action 1: Act always 2: Do not act only during deceleration	1	2	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
FC.03	Automatic energy-saving operation	0: No action 1: Action	1	0	○
FC.04	Slip compensation gain	0~1000 (0 indicates no compensation)	1	0	○
FC.05	Slip compensation filter time	0.1~20.0ms	0.1ms	10.0ms	○
FC.06	Cooling fan control	0: Run in automatic mode Note: The fan is turned off at least 3 minutes after stop and when the temperature is lower than 40 degrees. 1: The fan keeps rotating during power-on	1	0	×
FC.07	Acceleration/deceleration time unit	0: Second 1: Minute	1	0	×
FC.08	Droop control frequency	0.00~10.00Hz	0.01Hz	0.00Hz	○
FC.09	Deceleration factor	50.0%~180.0%	0.1%	100.0%	○
FC.10	Zero frequency arrival range	0.00~10.00Hz	0.01Hz	0.00Hz	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
FC.11	Set length	$0 \sim 65535m$ (0 indicates the fixed length stop function is invalid)	1m	0m	○
FC.12	Measuring shaft circumference	$0.001\sim10.000m$	0.001m	0.100m	○
FC.13	Pulse per revolution	1~9999	1	1	○
FC.14	Dead zone compensation coefficient	0~20	1	Model determination	×
FC.15	STOP key stop function selection	0: Only valid for keyboard control 1: Valid for all control modes (invalid in two-wire control mode)	1	0	○
FC.16	Digital potentiometer power failure save selection	0: The digital potentiometer frequency is not saved during power failure, and will start from 0.00Hz after power-on. 1: The digital potentiometer frequency is saved during power failure, and will start from the power failure frequency after power-on.	1	1	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
FC.17	The first shortcut parameter display selection	Set range: 0~29 When set to 0~28, it corresponds to group U0 parameter subscript; when set to 29, it displays the operation frequency during fixed operation, and displays the instruction frequency during standby; when set to 4, it displays the operation speed during fixed operation, and displays the instruction speed during standby; when set to 5, it displays the operating linear speed during fixed operation, and displays the instruction linear speed during standby.	1	29	○
FC.18	Speed display factor	0.01~100.00 **Note: Speed = 120*frequency*FC.18/number of motor poles (F3.11)**	0.01	1.00	○
FC.19	Linear speed display factor	0.01~100.00 **Note: Linear speed = speed*FC.19**	0.01	1.00	○

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
FC.20	Frequency linkage selection	0: No linkage ratio 1: FC.21 is the coefficient linkage instruction frequency and acceleration/deceleration 1 2: FC.21 is used as the factor linkage instruction frequency 3: AI1 voltage value is the coefficient linkage instruction frequency and acceleration/deceleration 1 4: AI1 voltage value is used as the factor linkage instruction frequency	1	0	○
FC.21	Linkage ratio factor	0.000~10.000	0.001	1.000	○
Group Fd virtual terminal parameter function					
Fd.00	VDI1 terminal function selection	Same as F6.00~F6.08 function code setting. Note: The VDI virtual terminal is an extension of the physical input terminal. The communication sends instructions to simulate the actual terminal. Each bit in the communication data represents a terminal, and the value of each bit	1	0	×
Fd.01	VDI2 terminal function selection		1	0	×
Fd.02	VDI3 terminal function selection		1	0	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
Fd.03	VDI4 terminal function selection	represents the status of the corresponding terminal. For specific bit definition, please refer to the communication address 0x1206 description. **The function of each terminal cannot be the same. If the functions of the two terminals are set to the same, the physical terminal will act prior to the virtual terminal in order, the DI ports ranked first will work first, and the latter ones will not work.**	1	0	×
Fd.04	VDI5 terminal function selection		1	0	×
Fd.05	VDI6 terminal function selection		1	0	×
Fd.06	VDI7 terminal function selection		1	0	×
Fd.07	VDI8 terminal function selection		1	0	×
Fd.08	VDI9 terminal function selection		1	0	×
Fd.09	VDI10 terminal function selection		1	0	×
Fd.10	VDO1 terminal function selection	Same as F6.11～F6.13 function code setting. Note: The VDO virtual terminal is an extension	1	0	×

Parameter Code	Parameter name	Parameter detailed description	Minimum Unit	Factory value	Change
Fd.11	VDO2 terminal function selection	of the physical output terminal. The virtual terminal status can be read only through communication. Each bit in the communication data represents a terminal, and the value of each bit represents the status of the corresponding terminal. For specific bit definition, please refer to the communication address 0x1207 description.	1	0	×
Fd.12	VDO3 terminal function selection		1	0	×
Fd.13	VDO4 terminal function selection		1	0	×
Fd.14	VDO5 terminal function selection		1	0	×
Fd.15	VDO1 output on delay		0.1s	0.0s	○
Fd.16	VDO2 output on delay		0.1s	0.0s	○
Fd.17	VDO3 output on delay	Same as F6.29～F6.34 function code setting.	0.1s	0.0s	○
Fd.18	VDO4 output on delay		0.1s	0.0s	○
Fd.19	VDO5 output on delay		0.1s	0.0s	○

4.2 Monitoring parameter group U0

Parameter Code	Parameter name	Parameter detailed description
U0.00	Output frequency	Displays the output frequency of the current inverter
U0.01	Set frequency	Displays the set frequency of the current inverter
U0.02	Output current	Displays the output current of the current inverter
U0.03	Bus voltage	Displays the bus voltage of the current inverter
U0.04	Running speed	Displays the running speed of the current inverter **Note: Speed = 120*frequency*speed display factor (FC.18)/number of motor poles (F3.11)**
U0.05	Linear running speed	Displays the linear running speed of the current inverter **Note: Linear speed = speed*linear speed display factor (FC.19)**
U0.06	Output power	Displays the output power of the current inverter
U0.07	Output torque	Displays the output torque of the current inverter
U0.08	Output voltage	Displays the output voltage of the current inverter
U0.09	AI1	Displays the actual input voltage/current of AI1 of the current inverter (when the input is of current type, 1mA current corresponds to 0.5V voltage display)
U0.10	AI2	Displays the actual input voltage of AI2 of the current inverter

Parameter Code	Parameter name	Parameter detailed description
U0.11	PID setting	Displays the PID set value of the current inverter
U0.12	PID feedback	Displays the PID feedback value of the current inverter
U0.13	Counter value	Displays the counter value of the current inverter
U0.14	Closed-loop pressure display	Displays the closed-loop pressure value of the current inverter **Note: Closed-loop pressure = PID feedback value*pressure sensor range (F8.23)**
U0.15	Actual length	Displays the actual length accumulated by the fixed length control function of the current inverter
U0.16	High-frequency pulse count value	Displays the accumulated pulse count value of the DI5 high-speed input signal of the current inverter (not saved after power failure)
U0.17	Pulse frequency display	Displays the pulse frequency of the DI5 high-speed input signal of the current inverter
U0.18	Inverter rated power	Displays the rated power of the inverter
U0.19	Inverter rated voltage	Displays the rated voltage of the inverter
U0.20	Inverter rated current	Displays the rated current of the inverter
U0.21	Reserved	-
U0.22	IGBT temperature	Displays the IGBT temperature of the current inverter

Parameter Code	Parameter name	Parameter detailed description
U0.23	DI terminal status 1	Displays current input terminal function status (defined by bit, 0 indicates that the current terminal input function is invalid, and 1 indicates that the current terminal input function is valid): LED single digit: DI1 input status LED tens digit: DI2 input status LED hundreds digit: DI3 input status LED thousands digit: DI4 input status LED ten thousands digit: DI5 input status
U0.24	Reserved	-
U0.25	DO terminal status	Displays current output terminal function status (defined by bit, 0 indicates that the current terminal output function is invalid, and 1 indicates that the current terminal output function is valid): LED single digit: DO1 output status LED tens digit: DO2 output status LED hundreds digit: Relay output status LED thousands digit: Reserved LED 10 thousands digit: Reserved
U0.26	Reserved	-
U0.27	Running time accumulation	Displays the accumulated running time of the current inverter
U0.28	Software version number	Displays the software version number of the current inverter

4.3 Fault record parameter group U1

Parameter Code	Parameter name	Parameter detailed description	Factory value	Change
U1.00	Historical fault number	Set range: 0~9 According to the setting of this function code, you can view the fault record information of the last 10 times. By setting different values within U1.01~ U1.06, the corresponding fault record will display.	0	○
U1.01	Fault code during fault	Fault record information at the xth fault (x is the set value of U1.00)	-	●
U1.02	Bus voltage during fault		-	●
U1.03	Output current during fault		-	●
U1.04	Running frequency during fault		-	●
U1.05	Running temperature during fault		-	●
U1.06	Fault occurrence time		-	●

4.4 Fault code table

Fault code	Fault type	Fault code	Fault type
E001	Inverter accelerated running overcurrent	E016	485 communication error alarm
E002	Inverter decelerated running overcurrent	E017	Current detection circuit fault alarm
E003	Inverter constant-speed running overcurrent	E018	Reserved
E004	Inverter accelerated running overvoltage	E019	Reserved
E005	Inverter decelerated running overvoltage	E020	Closed-loop feedback loss alarm
E006	Inverter constant-speed running overvoltage	E021	Water pressure overpressure alarm
E007	Undervoltage alarm during running	E022	Reserved
E008	Motor overload alarm	E023	Water shortage alarm
E009	Inverter overload alarm	E024	Reserved
E010	Reserved	E025	Reserved
E011	Reserved	E026	Reserved
E012	Phase loss alarm at output side	E027	Reserved
E013	Inverter module radiator overheat alarm	E028	Operation panel parameter copy error
E014	Rectifier module radiator overheat alarm	E029	Reserved
E015	External fault alarm	E099	Reserved

# Appendix I Communication Protocol

Networking mode
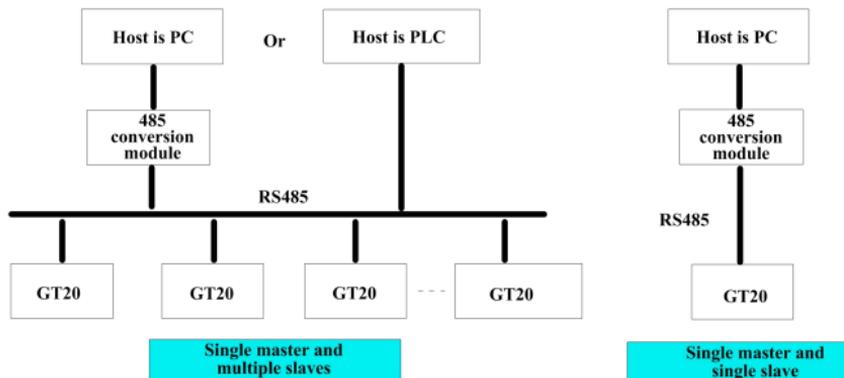
Figure 1 Schematic Diagram of Inverter Networking Mode

Interface mode

RS485: asynchronous, half-duplex. Default: 8-N-2, 9600BPS. For parameter setting, please refer to group Fb description.

Protocol format

The Modbus protocol supports both RTU mode and ASCII mode. The corresponding frame format is as follows:

ASCII Mode
Modbus Data Frame

| Start: "0x3A" | Slave address | Function code | Data | Check | End:0xD,0xA |
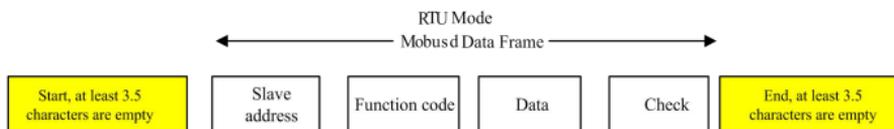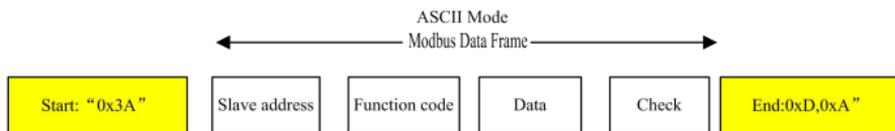
Protocol function:

The main function of Modbus is to read and write parameters. Different function codes determine different operation requests. The inverter Modbus protocol supports the following function code operations:

Function code	Function code significance
0x03	Read inverter function code parameter and running status parameter
0x06	Rewrite function code or control parameter of single inverter
0x10	Rewrite function code or control parameter of multiple inverters

The function code parameter, control parameter and status parameter of the inverter are mapped as Modbus read-write registers. The read-write characteristics and range of the function code parameters follow the instructions in the inverter user manual. The group number of the inverter function code is mapped to the high byte address of the register, and the index in the group is mapped to the low byte address of the register. The control parameter of the inverter is virtualized to the inverter function code group 18, and the status parameter of the inverter is virtualized to the inverter function code group 19. The correspondence between the function code group number and the high byte of its mapped register address is as follows:

Group F0: 0x00; group F1: 0x01; group F2: 0x02; group F3: 0x03; group F4: 0x04; group F5: 0x05; group F6: 0x06; group F7: 0x07; group F8: 0x08; group F9: 0x09; FA group: 0x0A; Fb group: 0x0B; FC group: 0x0C; Fd group: 0x0D; FE group: 0x0E; FF group: 0x0F; U0 group: 0x10; U1 group: 0x11; inverter control parameter group: 0x12; inverter status parameter group: 0x13.

For example, the register address of the inverter function code parameter F3.02 is 0x0302, and the register address of the inverter function code parameter FE.01 is 0x0E01.

If the operation request fails, the response is an error code and an exception code. The error code is equal to (function code + 0x80), and the exception code indicates the error reason. The exception code is listed as follows:

Exception code	Exception code significance
0x1	Illegal function code.
0x2	Illegal register address.
0x3	Data error, that is, the data exceeds the upper or lower limit.
0x4	Slave operation failed (including errors caused by invalid data, although the data is within the upper and lower limits).
0x18	Information frame error: Including information length error and check error.
0x20	Parameters cannot be modified.
0x21	Out of the range of function group.

The inverter control parameters can complete functions to start, stop, and set running frequency of the inverter. By searching inverter status parameters, parameters such as operating frequency, output current, and output torque of the inverter can be obtained. The specific inverter control parameters and status parameters are enumerated as follows (except 0x1207 virtual output terminal is read-only, other parameters are readable and writable):

GT20 inverter control parameter index

Register address	Parameter name	Whether save after power failure
0x1200	Control command word 1	No
0x1201	Main frequency setting	Yes
0x1202	Reserved	-
0x1203	PID given	Yes
0x1204	PID feedback	Yes
0x1205	Analog output AO, high-speed DO2 setting	No
0x1206	Virtual input terminal: Define by bit: BIT0~9 = VDI1~VDI10, BIT10~15 = Reserved	No
0x1207	Virtual output terminals (read-only): Define by bit: BIT0~4 = VDO1~VDO5, BIT5~15 = Reserved	No
0x2000	Control command word 2	No
0x2001	Main frequency setting	Yes

GT20 inverter status parameter index

Register address	Parameter name
0x1300	Running status word
0x1301	Inverter model

The inverter control word 1 (register address 0x1200) bit is defined as follows:

Control word (bit)	Value	Significance	Function description
Bit2, 1, 0	111B	Run command	Start the inverter
	110B	Stop command	Stop according to the way set by function code F2.08
	Remaining	No command	
Bit3	1	Reverse	Set the running direction when the run command is valid (invalid for jog command)
	0	Forward	
Bit8～Bit4	0	Reserved	-
Bit9	1	Fault reset valid	
	0	Fault reset invalid	
Bit15～Bit5	0	Reserved	-

The inverter control word 2 (register address 0x2000) bit is defined as follows:

Control word (bit)	Value	Significance	Function description
Bit1, 0	00B	No function	
	01B	Stop	Stop according to the way set by function code F2.08
	10B	Start	Start the inverter
	11B	No function	
Bit3, 2	0	Reserved	-
Bit5, 4	00B	No function	
	01B	Forward instruction	
	10B	Reverse	
	11B	Fault reset	
Bit15～Bit5	0	Reserved	-

The inverter status word (register address 0x1300) bit is defined as follows:

Status word (bit)	Value	Significance	Remarks
Bit0	1	Inverter	
	0	Inverter stop	
Bit1	1	Inverter reverse	
	0	Inverter forward	
Bit2	1	Reach the main setting	
	0	Not reach the main setting	
Bit7~Bit3	0	Reserved	
Bit15~Bit8	00~0xFF	Fault code	0: Indicates the inverter is normal; Not 0: Indicates a fault, and refer to the user manual of the inverter of relevant type for detailed fault code significance. For example, the fault code for motor overload E008 is 0x08, and for undervoltage is 0x1F.

Application example

The command to start the 1# inverter to run in the forward direction and set the speed to 50.00HZ (internally indicated as 5000) is as follows:

	Address	Function code	Register address	Register number	Register content bytes	Register content	Verification code
Request	0x01	0x10	0x1200	0x0002	0x04	0x0007, 0x1388	0x9B98
Response	0x01	0x10	0x1200	0x0002	None	None	0x44B0

5# inverter fault reset:

Address	Function code	Register address	Register content	Verification code
0x05	0x06	0x1200	0x0200	0x8C56
0x05	0x06	0x1200	0x0200	0x8C56

Read the running frequency of the 4# inverter, and the inverter response running frequency is 50.00HZ:

Address	Function code	Register address	Register number or read bytes	Register content	Verification code
0x04	0x03	0x1000	0x0001	None	0x809F
0x04	0x03	None	0x02	0x1388	0x7912

Write the acceleration time 1 (i.e. function code F1.11) of 5# inverter to 1.00s, and do not save after power failure.

Address	Function code	Register address	Register content	Verification code
0x05	0x06	0x010B	0x0064	0xF99B
0x05	0x06	0x010B	0x0064	0XF99B

Read the output current of 5# inverter, and the inverter response output current is 3.00A.

Address	Function code	Register address	Register number or read bytes	Register content	Verification code
0x05	0x03	0x1002	0x0001	None	0x208E
0x05	0x03	None	0x02	0x012C	0x49C9

Calibration relationship of the inverter

A) The calibration of the frequency is 1:100

To make the inverter run at 50Hz, the main setting shall be 0x1388 (5000).

B) The calibration of the time is 1:100

To make the inverter acceleration time be 3s, the function code setting shall be 0x012C (300).

C) The calibration of the current is 1:100

If the inverter feedback current is 0x012C (300), the current of the inverter is 3A.

Warranty Agreement

1. The warranty covers only the inverter itself.

2. During normal use, if the inverter fails or is damaged within 18 months, the company shall be responsible for repairing;

   If above 18 months, a reasonable maintenance fee will be charged.

3. The start of the warranty period is the date of manufacture of our company.

4. Within 18 months, a certain maintenance fee shall also be charged if:

   ● Unable to follow the operation steps in the user manual causing damages to the inverter.

   ● The inverter is damaged due to flood, fire, abnormal voltage, etc.

   ● The inverter is damaged due to incorrect wiring, etc.

   ● Damages caused by using the inverter for abnormal functions.

5. The related service fee is calculated based on actual cost. If there is a contract, the contract shall prevail during treatment.

6. Please keep this card and show it to the repair unit during warranty. If there are any questions, you can contact the supplier directly or contact our company.

Inverter Warranty Form

User unit:		
Detailed address:		
Zip code:	Contact person:	
Phone:	Fax:	
Machine number :		
Power:	Model:	
Contract number:	Date of purchase:	
Service unit:		
Contact person:	Phone:	
Repairman:	Phone:	
Date of repair:		
User comments and evaluation: □ Excellent □ Good □ Normal □ Poor		
Other comments:		
User signature: Day Month Year		
Company return visit records:		
Others:		

Certificate

Inspector: _____

This product is qualified via inspection and is allowed to leave the factory.