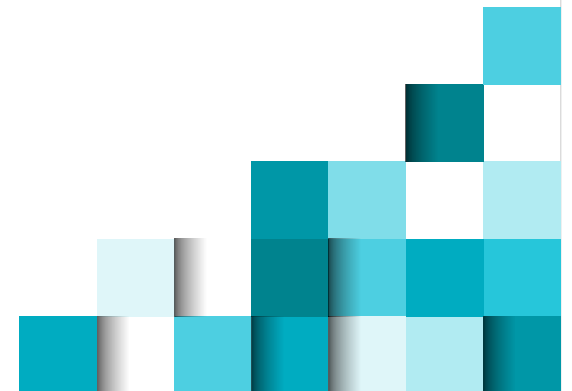


*Outstanding Quality  
Achieves Extraordinary*

## **Hig Performance Vector AC Drive**

### **Operation Manual**

Edition:V1.2  
40010000170



# Preface

Thank you for purchasing the series inverter developed by Our company.

For the users who use this product for the first time, read the manual carefully.

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# Warranty Agreement

1. The warranty period of the product is 18 months (refer to the bar code on the equipment body). During the warranty period , if the product fails or damaged under the condition of normal use by following the instruction, we will be responsible for free maintenance.

2. Within the warranty period , maintenance will be charged for the damages caused by the following reasons :

The damage caused by improper use or repair/modification without prior permission.

The damage caused by fire , flood , abnormal voltage , other natural disasters and second disaster.

The hardware damage caused by artificial falling or transportation after purchase.

The damage caused by the improper operation.

The damage or failure caused by the trouble out of the equipment (e.g. : External device)

3. If there is any failure or damage to the product, please fill in the information of the Product Warranty Card in details correctly.

4. The maintenance fee is charged according to the newly adjusted Maintenance Price List of our company .

5. In general , the warranty card will not be re-issued. Please keep the card and present it to the maintenance personnel when asking for maintenance .

6. If there is any problem during the service , please contact the agent of our company or our company directly .

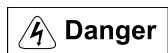
7. The company reserves the right to interpret this agreement



# Chapter 1 Safety and Cautions

## 1.1 Safety and Cautions Definition

Read this manual carefully so that you have a thorough understanding. Installation, commissioning or maintenance may be performed in conjunction with this chapter. Our company will assume no ability and responsibility for any injury or loss caused by improper operation.







Operations which are not performed comply with the requirements may cause severe hurt or even death.








Operations which are not performed comply with requirements may cause personal injury or property damage.

## 1.2 Safety Cautions

Use Stage	Safety Grade	Precautions
Before Installation	 <b>Danger</b>	<ul style="list-style-type: none"> <li>+ Do not install the equipment if you find water seepage, component missing or damage upon unpacking.</li> <li>+ Do not install the equipment if the packing list does not conform to the product you received.</li> </ul>
	 <b>Danger</b>	<ul style="list-style-type: none"> <li>+ Handle the equipment with care during transportation to prevent damage to the equipment.</li> <li>+ Do not use the equipment if any component is damaged or missing. Failure to comply will result in personal injury.</li> <li>+ Do not touch the components with your hands. Failure to comply will result in static electricity damage.</li> </ul>
During Installation	 <b>Danger</b>	<ul style="list-style-type: none"> <li>+ Install the equipment on incombustible objects such as metal, and keep it away from combustible materials. Failures to comply may result in a fire.</li> <li>+ Do not loosen the fixed screws of the components, especially the screws with the red marks.</li> </ul>
	 <b>Note</b>	<ul style="list-style-type: none"> <li>+ Do not drop wire end or screw into the AC drive. Failure it will result in damage to the AC drive.</li> <li>+ Install the AC drive in places free of vibration and direct sunlight.</li> <li>+ When two AC drives are laid in the same cabinet ,arrange the installation positions properly to ensure the cooling effect.</li> </ul>

## Safety and Cautions

Use Stage	Safety Grade	Precautions
At wiring	 <b>Danger</b>	<ul style="list-style-type: none"> <li>+ A circuit breaker must be used to isolate the power supply and the AC drive. Failure to comply may result a fire.</li> <li>+ Ensure that the power supply is cut off before wiring. Failure to comply may result in electric shock.</li> <li>+ Never connect the power cables to the output terminals(U,V,W) of the AC drive. Pay attention to the marks of the wiring terminals and ensure correct wiring. Failure to comply may result in damage to the AC drive.</li> <li>+ Ensure that the main cable line comply with the standard, the line meets the EMC requirements and the area safety standard. Failure to comply may result in risk or accident.</li> <li>+ Never connect the power cables the braking resistor between the DC bus terminals P+, P-. Failure to comply may result in a fire.</li> </ul>
At wiring	 <b>Danger</b>	<ul style="list-style-type: none"> <li>+ Use a shielded cable for the encoder, and ensure that the shielding layer is reliably grounded.</li> </ul>
Before Power-on	 <b>Danger</b>	<ul style="list-style-type: none"> <li>+ Please confirm the peripheral equipment and cable converter is configured in this manual of the recommended model, all the configuration line in accordance with the connection method of the manual provides the correct wiring. Failure to comply will result in accidents.</li> <li>+ Check that the voltage class of the power supply is consistent with the rated voltage class of the AC drive.</li> </ul>
After Power-on	 <b>Danger</b>	<ul style="list-style-type: none"> <li>+ Do not open the AC drive's cover after power-on. Failure to comply may result in electric shock.</li> <li>+ Do not touch the operation of AC drive during the hands is wet. Failure to comply will result in accident.</li> <li>+ Do not touch any I/O terminal of the AC drive. Failure to comply may result in electric shock.</li> <li>+ Do not change the default settings of the AC drive. Failure to comply will result in damage to the AC drive.</li> <li>+ Do not touch the rotating part of the motor during the motor auto-tuning or running. Failure to comply will result in accident.</li> </ul>
During Operation	 <b>Danger</b>	<ul style="list-style-type: none"> <li>+ Signal detection must be performed only by qualified personnel during operation. Failure to comply will result in personal injury or damage to the AC drive.</li> <li>+ Do not touch the fan or the discharging resistor to check the temperature. Failure to comply will result in personal burnt.</li> </ul>

## Safety and Cautions

Use Stage	Safety Grade	Precautions
During Operation	⚡ <b>Danger</b>	<ul style="list-style-type: none"> <li>+ Avoid objects falling into the AC drive when it is running. Failure to comply will result in damage to the AC drive.</li> <li>+ Do not start or stop the AC drive by turning the contactor ON/OFF. Failure to comply will result in damage to the AC drive.</li> </ul>
After Power-on	⚡ <b>Danger</b>	<ul style="list-style-type: none"> <li>+ Do not repair or maintain the AC drive at power-on. Failure to comply will result in electric shock.</li> <li>+ Ensure that the AC drive is disconnected from all power suppliers before starting repair or maintenance on the AC drive.</li> <li>+ Repair or maintenance of the AC drive may be performed only by qualified personnel. Failure to comply will result in personal injury or damage to the AC drive.</li> </ul>
After Power-on	⚡ <b>Danger</b>	<ul style="list-style-type: none"> <li>+ Set and check the parameters again after the AC drive is replaced.</li> </ul>

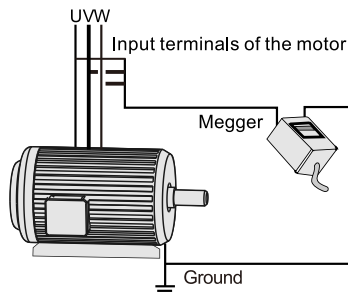
### 1.3 Cautions

#### 1.3.1 Requirement on Residual Current Device(RCD)

The AC drive generates high leakage current during running, which flows earthing (PE) conductor. Thus install a type-B RCD at the transient and steady-state leakage current to ground that may be generated at startup and during running of the AC drive. You can select a specialized RCD with the function of suppressing high harmonics or general-purpose RCD with relatively large residual current.

#### 1.3.2 Motor Insulation Test

Perform the insulation test when the motor is used for the first time, or when it is reused after being stored for a long time, or in a regular check-up, in order to prevent the poor insulation of motor windings from damaging the AC drive during the insulation test. A 500-V mega-Ohm meter is recommended for the test. The insulation resistance must not be less than 5 MΩ.



### **1.3.3 Thermal Protection of Motor**

If the selected AC drive does not match the rated capacity of the motor, especially when the rated power of the AC drive is higher than that of the motor, adjust the parameters for motor protection in the AC drive or to install thermal relay to protect the motor.

### **1.3.4 Running Below and Above Rated Frequency**

The AC drive provides frequency output of 0 to 600.00Hz. When the users use the frequency converter for a long time, please pay attention to the motor cooling or use of variable frequency motor. If the AC drive is required to run at over 50Hz, consider the capacity of the machine.

### **1.3.5 Vibration of mechanical device**

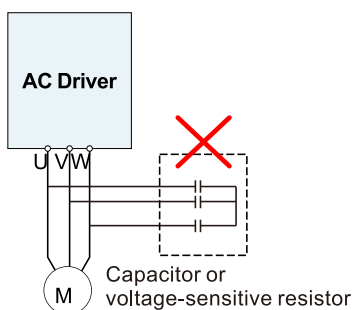
The AC drive may encounter the mechanical resonance point at some output frequencies, which can be avoided by setting the skip frequency. If the operating frequency of the customer coincide with the resonant frequency please modify the operating frequency or change the inherent resonance frequency of the mechanical system.

### **1.3.6 Motor heat and noise**

The output of the AC drive is pulse width modulation (PWM) wave with certain harmonic frequencies, and therefore, the motor temperature, noise, and vibration are slightly greater than those when the AC drive runs at power frequency (50 Hz).

### **1.3.7 Voltage-sensitive device or capacitor on output side of the AC drive**

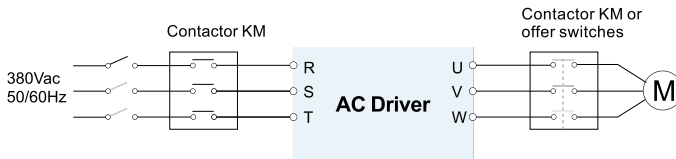
Do not install the capacitor for improving power factor or lightning protection voltage sensitive resistor on the output side of the AC drive because the output of the AC drive is PWM wave. Otherwise, the AC drive may suffer transient overcurrent or even be damaged.



### 1.3.8 Contactor at the I/O terminal of the AC drive

When a contactor is installed between the input side of the AC drive and the power supply, the AC drive must not be started or stopped by switching the contactor on or off. If the AC drive has to be operated by the contactor, ensure that the time interval between switching is at least one hour since frequent charge and discharge will shorten the service life of the capacitor inside the AC drive.

When a contactor is installed between the output side of the AC drive and the motor, do not turn off the contactor when the AC drive is active. Otherwise, modules inside the AC drive may be damaged.



Do not start/stop the AC drive by switching the contactor on/off. If the AC drive has to be operated by the contactor, ensure that the time interval is at least one hour.

Turn on /off the contactor when the AC drive has no output. Otherwise, modules inside the AC drive may be damaged.

### 1.3.9 The Use Occasion of the External Voltage Out of Rated Voltage Range

The AC drive must not be used outside the allowable voltage range specified in this manual. Otherwise, the AC drive's components may be damaged. If required, use a corresponding voltage step[-]up or step-down device.

### 1.3.10 The Above Derating of the Default

Different power grade frequency converter has its default carrier frequency, when to run at a higher carrier frequency, the AC Drive must to reduce the amount when running.

### 1.3.11 Change Three Phase Input into Two Phase Input

It is not allowed to change the three phase AC drive into two phase one. Otherwise, it may cause fault or damage the AC drive.

### 1.3.12 The Protection of the Lighting Impulse

Although the AC drive has equipped with lightning overvoltage, overcurrent device, which has a certain protection function for the induction lightning. For the lightning prone areas, the user is necessary to install lightning protection device at the front of the AC drive, which will benefit to the service life of the transducer.

### **1.3.13 Ambient Temperature and De-rating**

The normal use of the frequency converter ambient temperature is -10°C~40°C. Temperature exceeds 40°C, the equipment need to reduce the amount of use. The ambient temperature of each increase is reduced by 1.5%, the maximum use of the ambient temperature is 50°C.

### **1.3.14 Altitude and Derating**

In places where the altitude is above 1000m and the cooling effect reduces due to thin airt is necessary to de-rate the AC drive. Contact Our company for technical support.

### **1.3.15 Some Special Usages**

If writing that is not described in this manual, such as common DC bus is applied, contact the agent or Our company for technical support.

### **1.3.16 The Cautious of the AC drive Disposal**

The electrolytic capacitors on the main circuits and PCB may explore when they are burnt. Poisonous gas is generated when the plastic parts are burn. Treat them as ordinary industrial refer to relevant national laws and regulations.

### **1.3.17 Adaptable Motor**

1. The standard parameters of the adaptable motor is adaptable four-squirrel-cage asynchronous induction motor or PMSM. For other types of motor, select a proper AC drive according to the rated motor current.
2. The cooling fan and rotor shaft of general AC Drive are coaxial, which results in reduced cooling effect when the rotational speed declines. If variable speed is required, add a more powerful fan or replace.
3. The standard parameters of the adaptable motor have been configured inside the AC drive. It is still necessary to perform motor auto-tuning or modify the default values based on actual conditions. Otherwise, the running result and protection performance will be affected.
4. The AC drive may alarm or even be damaged when short-circuit exists on cables or inside the motor. Therefore, perform insulation short-circuit test when the motor and cables are newly installed or during routine maintenance. During the test, make sure that the AC drive is disconnected from the tested parts.

## Chapter 2 Product Information

---

### 2.1 Naming Rules

4T  
①
11  
②
G  
③
/15  
②
P  
③
C  
④

Field	Mark	Explanation	Content
Voltage Level	①	Voltage Level	2S:single-phase 220V 2T:Three-phase 220V 4T:Three-phase 380V
Adaptive Power	②	Adaptive Power	0.7KW~500KW
Function Type	③	Function Type	G:General P:Fan pump
braking Unit	④	braking Unit	Null:None C:braking unit

Figure 2-1 Name Designation Rules

### 2.2 Nameplate

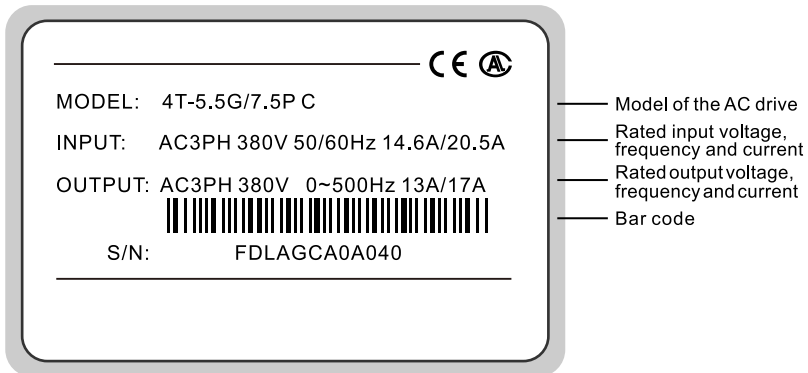


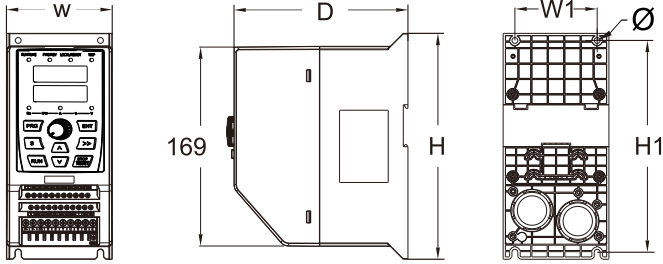
Figure 2-2 Name Designation Rules

### 2.3 Series of AC drive

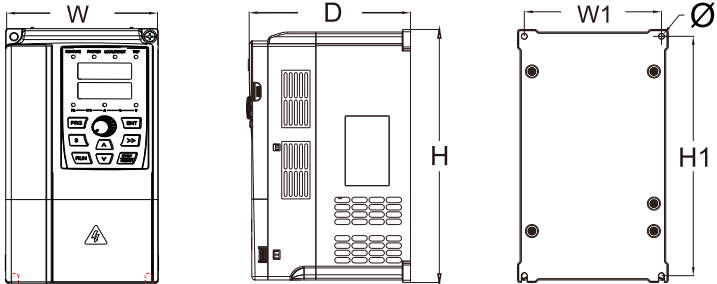
Model	Power Capacity (KVA)	Input Current (A)	Output Current (A)	Adaptable Motor (KW)	Recommended input side main circuit wire (mm <sup>2</sup> )	Recommended output side main circuit wire (mm <sup>2</sup> )
single-phase 220V Range:-15%~20%						
2S-0.7G	1.5	8.2	4.7	0.75	2.5	2.5
2S-1.5G	3.0	14.0	7.5	1.5	4.0	2.5
2S-2.2G	4.0	23.0	10.0	2.2	6.0	4.0
Three-phase 220V Range:-15%~20%						
2T-0.7G	1.5	5.5	4.7	0.75	2.5	2.5
2T-1.5G	3.0	7.7	7.5	1.5	4.0	2.5
2T-2.2G	4.0	12.0	10.0	2.2	4.0	4.0
Three-phase 380V Range:-15%~20%						
4T-0.7G	1.5	3.4	2.3	0.75	2.5	2.5
4T-1.5G	3.0	5.0	3.7	1.5	2.5	2.5
4T-2.2G	4.0	5.8	5.1	2.2	2.5	2.5
4T-4.0G	5.9	10.5	8.5	4.0	4.0	4.0
4T-5.5G	8.9	14.6	13	5.5	4.0	4.0
4T-7.5G	11	20.5	17	7.5	4.0	6.0
4T-11G	17	26.0	25	11	4.0	6.0
4T-15G	21	35.0	32	15	6.0	10
4T-18.5G	24	38.5	37	18.5	6	10
4T-22G	30	46.5	45	22	10	10
4T-30G	40	62.5	60	30	16	16
4T-37G	57	76.0	75	37	16	25
4T-45G	69	92.0	91	45	25	25
4T-55G	85	113	112	55	50	35
4T-75G	114	157	150	75	60	50
4T-90G	134	180	176	90	70	50
4T-110G	160	214	210	110	120	120
4T-132G	192	256	253	132	150	150
4T-160G	231	307	304	160	185	185
4T-185G	255	333	330	185	185	185
4T-200G	287	380	377	200	150*2	150*2
4T-220G	311	429	426	220	150*2	150*2
4T-250G	355	470	465	250	185*2	185*2
4T-280G	396	525	520	280	185*2	185*2
4T-315G	439	605	600	315	150*3	150*3
4T-350G	479	665	660	350	150*4	150*4
4T-400G	530	730	725	400	150*4	150*4
4T-450G	600	825	820	450	150*4	150*4
4T-500G	660	910	900	500	150*4	150*4



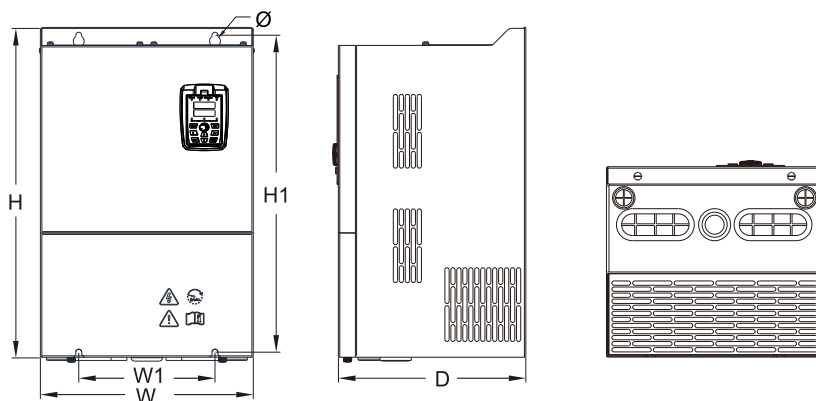
## 2.4 Product Outline, Installation Hole Size



Model	inverter			Installation			GW(kg)
	H (mm)	W (mm)	D (mm)	H1 (mm)	W1 (mm)	Diameter (mm)	
4T-0.7G	192	90	148	180	70	Ø5	1.7
4T-1.5G							
4T-2.2G							
4T-4.0G							

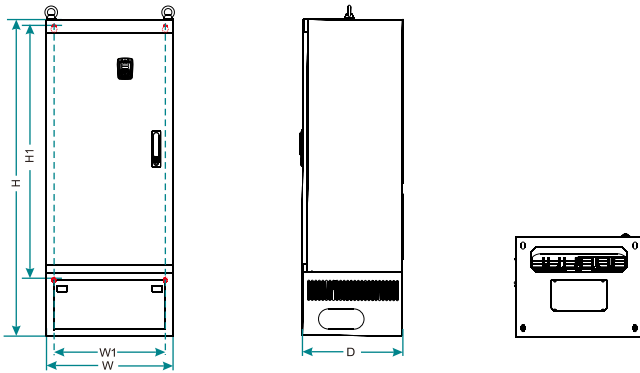


Model	inverter			Installation			GW(kg)
	H (mm)	W (mm)	D (mm)	H1 (mm)	W1 (mm)	Diameter (mm)	
4T-5.5G	190	110	150	179	98	Ø5	2.6
4T-7.5G	210	130	160	198	118	Ø5	3.8
4T-11G	250	155	176	236	141	Ø5	5.0
4T-15G	295	176	188	279	160	Ø7	7.5
4T-18.5G							
4T-22G	337	245	188	320	228	Ø7	10.5
4T-30G							



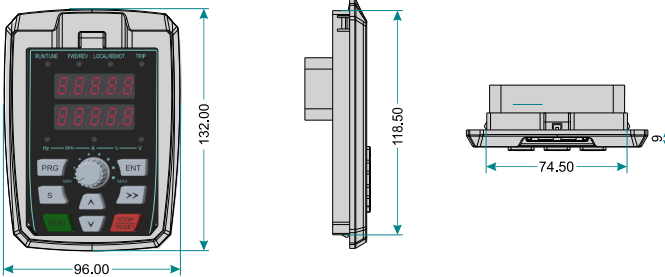
Model	inverter			Installation			GW(kg)
	H (mm)	W (mm)	D (mm)	H1 (mm)	W1 (mm)	Diameter (mm)	
4T-37G	387	250	220	372	150	Ø7	14
4T-45G	440	270	256	426	180		25
4T-55G							
4T-75G	469	307	263	450	200	Ø10	32
4T-90G	590	340	305	565	200		52
4T-110G							55
4T-132G	740	450	329	715	360	Ø12	96.5
4T-160G							98
4T-185G							98.7
4T-200G							168.5
4T-220G							170
4T-250G	940	500	369	914	400	Ø13	172
4T-280G							
4T-315G							
4T-350G	1045	725	390	1012	600		222

## Product Information

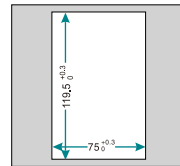


Model	inverter			Installation			GW(kg)
	H (mm)	W (mm)	D (mm)	H1 (mm)	W1 (mm)	Diameter (mm)	
4T-400G	1810	850	405	1410	513	Ø13	309
4T-450G							
4T-500G							

## 2.5 External Keypad Installation Dimensions

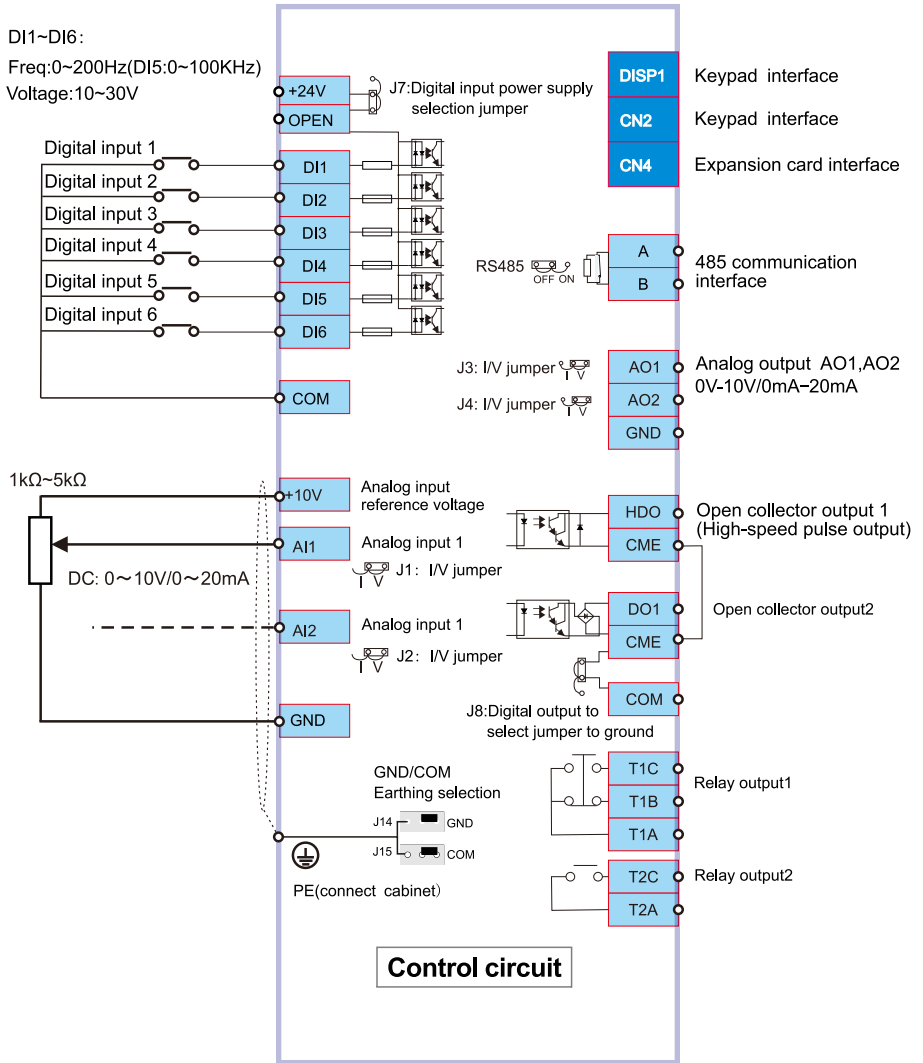


type keypad base dimension diagram  
(suitable for the keypad installation or  
external keypad of models  $\geq 5.5\text{KW}$ )



Opening dimension diagram  
for keypad with base

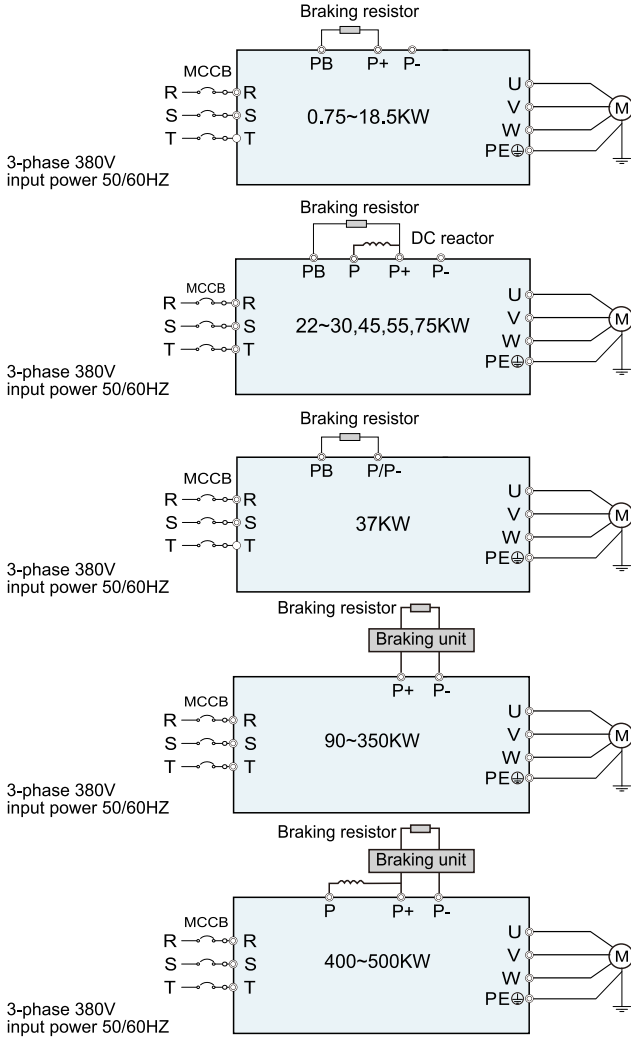
## 2.6 Control Circuit Wiring Diagram



**NOTE:**

The control panel for the power segment below 5.5kW lacks DI6, AO2, DO1 and CME compared to the above figure.

## 2.7 Main Circuit Wiring Diagram

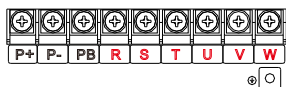


### Note:

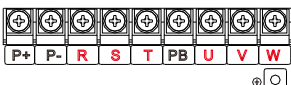
Figure 2-6 Main circuit wiring diagram

1. DC reactor, braking unit and braking resistor are optional accessories".
2. P1 and(+) are short circuited in factory, if need to connect with the DC reactor, please remove the contact tag between P1 and (+).
3. Do not install capacitor or surge suppressor on the output side of the AC drive. Otherwise, it may cause faults to the AC drive or damage to the capacitor and surge suppressor;
4. Input/output (main circuit) of the AC drive include harmonic components, which may interfere with the AC drive attachment communications equipment. Therefore, install an anti-aliasing filter to minimize the interference;

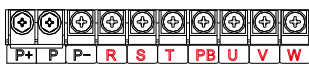
## 2.8 Terminal wiring diagram



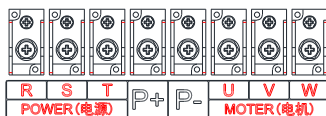
0.7~11KW Schematic diagram of main circuit terminals



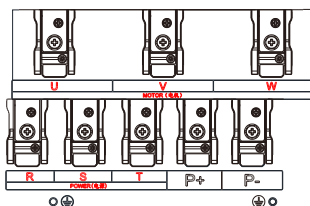
15~18.5KW Schematic diagram of main circuit terminals



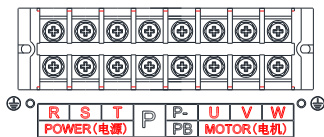
22~30KW Schematic diagram of main circuit terminals



90~110KW Schematic diagram of main circuit terminals

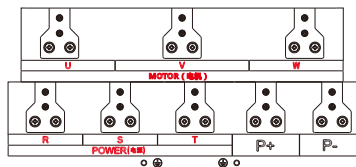


132~250KW Schematic diagram of main circuit terminals

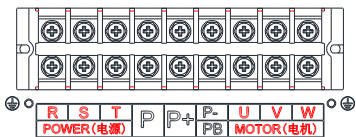


37KW Schematic diagram of main circuit terminals

G type with P-without PB  
GC type without P-with PB

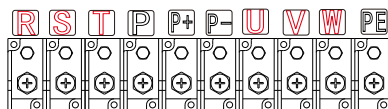


280~350KW Schematic diagram of main circuit terminals



45~75KW Schematic diagram of main circuit terminals

G type with P-without PB  
GC type without P-with PB

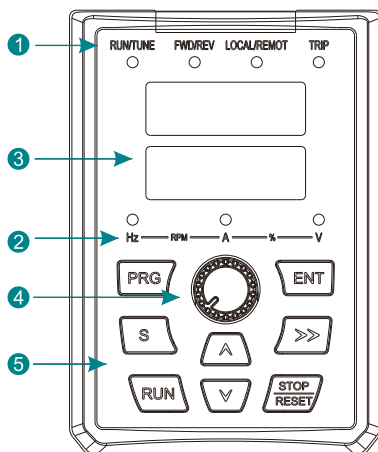


400~500KW Schematic diagram of main circuit terminals

## Chapter 3 Operation And Display

### 3.1 Introduction of the keypad

The keypad is used to control inverters, read the state data and adjust parameters.

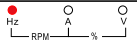

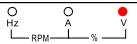
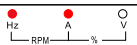
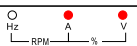










Keypad diagram for models  $\geq 5.5\text{KW}$

Figure 3-1 Keypad diagram

**Note:**  
Optional LCD keyboard.

No.	Name	Instructions		
<b>1</b>	Status indicator	RUN/TUNE	OFF	The AC drive is in the stopping state;
			ON	The AC drive is in the running state.
		FWD/REV	OFF	The AC drive is in the forward rotation state
			ON	The AC drive is in the reverse rotation state.
			Flash	The AC drive is running from reverse to forward
		LOCAL/REMOT	OFF	Operation panel control
			ON	Terminals control
			Flash	Communication control
		TRIP	ON	Torque control mode
			Flash quickly	The AC drive is in the fault state
Flash slowly	The AC drive is in the parameter autotuning state;			

No.	Name	Instructions		
2	Unit indicator	It represents the current display of the Keypad		
			Hz	Frequency unit
			A	Current unit
			V	Voltage unit
			RPM	Speed unit
			%	Percentage
3	Code Display Zone	5-figure LED display displays various monitoring data and alarm code such as set frequency and output frequency.		
4	Potentiometer	When the frequency source X or Y is set to 1, the setting of the frequency source is determined by the analog potentiometer input voltage .		
5	Keypad button zone		Program key	Enter or escape from the first level menu and remove the parameter quickly
			Entry key	Enter the menu step-by-step confirm parameters
			Up key	Increase data or function code progressively
			Down key	Decrease data or function code progressively
			Right-Shift key	Move right to select the displaying parameter circularly in stopping and running mode. Select the parameter modifying digit during the parameter modification
			Run key	The key is used to operate on the AC drive in key operation mode
			Stop/Reset	This key is used to stop in running state; This key is used to reset all control modes in the fault state.
			S Key	Corresponding to F10.00

### 3.2 Keypad Operation

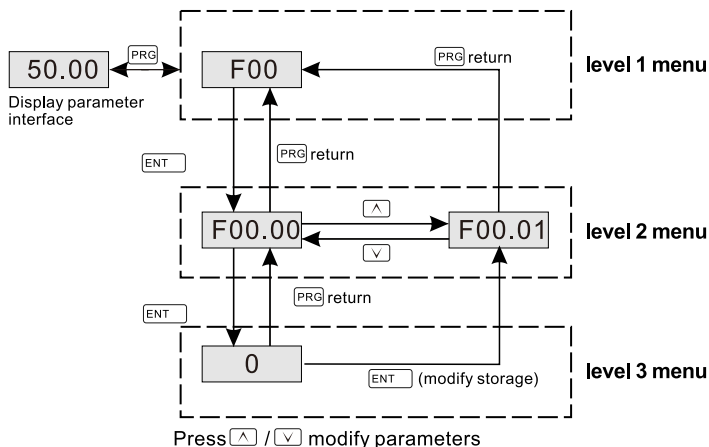
Operate the AC drive via operations panel. See the detailed structure description of function code in the brief diagram of function codes.

The AC drive has three-level menus, they are:

1. Group number of function code(first-level menu)
- 2.Tab of function code(second-level menu)
- 3.Set value of function code(third-level menu)



Operation procedure on the operation panel:



**Note:**

Press both the "PRG" and the "ENT" key to return to level2 menu from the level3 menu. The difference is: pressing "ENT" will save the set parameters into the control panel, and then return to the level2 menu with shifting to the next function code automatically; while pressing "PRG" will directly return to the level 2 menu without saving the parameters, and keep staying at the current function code.

In Level 3 menu, if the parameter has no blinking digit, it means that the parameter cannot be modified. This may be because:

- a. Such a function code is only readable, such as, AC drive model, actually detected parameter and running record parameter;
- b. Such a function code cannot be modified in the running state and can only be changed to stop.

**Example:** Set function code F03.08 from 20.00S to 10.00S.

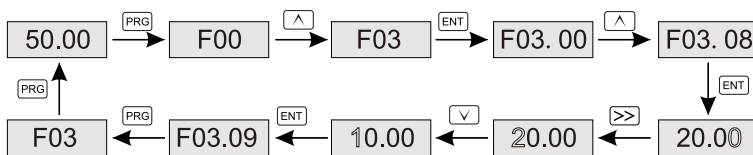


Figure 3-2 Modifying parameters diagram

**Note:**

If you press PRG key for a long time, you can enter the user customized parameter mode. The parameters in this mode can be set by F30 groups









### 3.3 Introduction to LCD Keyboard

The AC drive can be equipped with LCD keyboard, which can control the start and stop of the AC drive, read state data and set parameters.



Note: type keypad base choose the models  $\leq 4.0\text{KW}$   
 type keypad base choose the models  $\geq 5.5\text{KW}$

No.	Name	Instructions		
①	Status indicator	RUN/TUNE	OFF	The AC drive is in the stopping state;
			ON	The AC drive is in the running state.
		FWD/REV	OFF	The AC drive is in the forward rotation state
			ON	The AC drive is in the reverse rotation state.
			Flash	The AC drive is running from reverse to forward
		LOCAL/REMOT	OFF	Operation panel control
			ON	Terminals control
			Flash	Communication control
		TRIP	ON	Torque control mode
Flash quickly	The AC drive is in the fault state			
Flash slowly	The AC drive is in the parameter autotuning state;			
②	LCD	Display	3 monitoring parameters or 5 sub-menu items can be displayed simultaneously	

No.	Name	Instructions		
3	Keypad button zone		Program key	Enter or exit the menu interface; Click on the main screen for a short time: Enter the main menu page Click on the main screen for a short time: Go to the shortcut menu page Click on the menu page for a short time: Return to the previous page Click on the menu page for a long time: Return to the home page
			Entry key	Enter the menu step-by-step and confirm parameters
			Run key	Running or Parameter setting confirmation
			Stop/Reset key	In running state: Press this key to stop running operation; In fault alarm state: The key can be used to double position operation.
			Up key	Move up to see what is displayed, increasing the number.
			Down key	Move down to see what is displayed decreasing the number.
			S Key	1: On the main monitor page only: The S key is restricted by function code F10.00. (The S key function is jogging by default). 2: Non-main monitoring page: Page up, select the cursor to move to the left.
			Right-Shift key	1: Main monitoring page only: Right click to enter the secondary monitoring page. 2: NON-main monitoring page: Turn down the page, select the cursor to move right.

### 3.4 Interface specification

#### Monitoring interface:

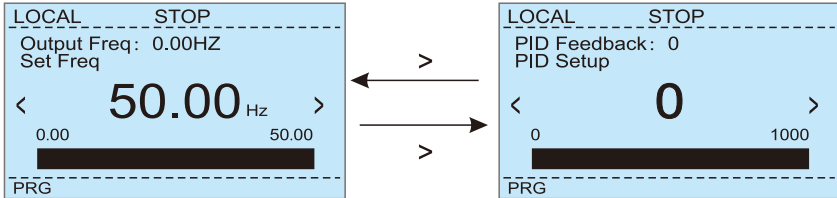
This interface can monitor the relevant parameters in shutdown or running state, which can be set through F10.01~F10.04. The corresponding position 1 of the parameter to be displayed can be displayed on the monitoring interface.

Local	STOP
Set Freq F99.01 Hz	50.00
Motor Speed F99.03 rpm	1460
Bus Volt F99.08 v	540.8
PRG	▲▼

F10.01	0x3F35	Hz	○
Run Status Monitor Parm1 Running Freq(Hz ON)			
0011100011101011			
[▲, ▼]: [ 0x0000,0xFFFF]			
PRG			ENT

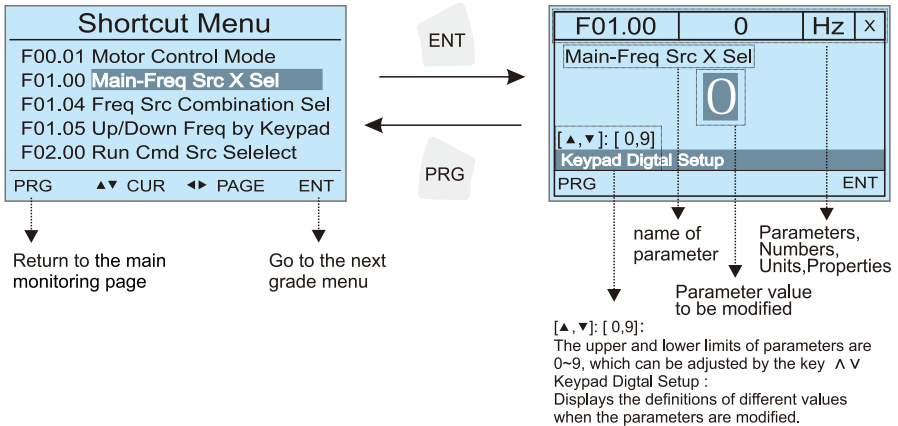
**Shortcut digital setting interface:**

Click the right arrow key in the monitoring interface to enter the Digital setting mode, and adjust the frequency through the up and down keys; Click the right arrow key again to enter the PID digital setting (effective when the PID feedback is not 0).



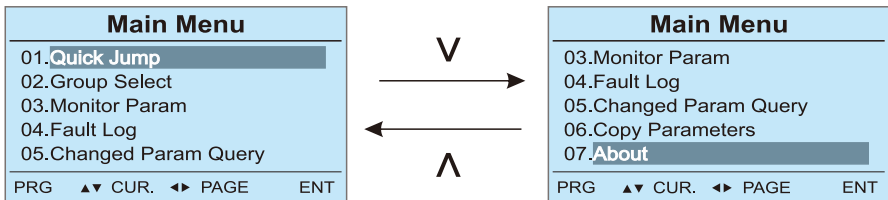
**shortcut menu:**

Long press the PRG button on the monitoring interface to enter the shortcut menu, and then view or modify the parameters according to the requirements. The parameters in the shortcut menu can be set by the parameter F30 group.



**The main menu:**

Click the PRG button in the monitoring interface to enter the main menu, and then select the parameters according to the requirements.



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## Chapter 4 Function Parameters Table

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### 4.1 Function Parameters Table

The function parameters of series inverter have been divided according to the function. Each function group contains certain function codes applying 3-level menus. For example, "F08.08" means the eighth function code in the F8 group function.

For the convenience of function codes setting, the function group number corresponds to the first level menu, the function code corresponds to the level 2 menu and the function code corresponds to the level 3 menu.

1. Below is the instruction of the function lists:

The first line "Function code": codes of function parameter group and parameters;

The second line "Name": full name of function parameters;

The third line "Setting range": effective setting value of the function parameters;

The fourth line "Default value": the original factory values of the function parameter;

The fifth line "Modify": the modifying character of function codes (the parameters can be modified or not and the modifying conditions), below is the instruction:

"o": means the set value of the parameter can be modified on stop and running state;

"X": means the set value of the parameter can not be modified on the running state;

"\*": means the value of the parameter is the real detection value which can not be modified.

The sixth line "Address": The address of the function parameter in the communication.

2. "Parameter radix" is decimal (DEC), if the parameter is expressed by hex, then the parameter is separated from each other when editing. The setting range of the certain bits are 0-F (hex).

3. "The default value" means the function parameter will restore to the default value during default parameters restoring. But the detected parameter or recorded value won't be restored.

4. For a better parameter protection, the AC drive provides password protection to the parameters. After setting the password (set F00.08 to any non-zero number), the system will come into the state of password verification firstly after the user press "PRG" to come into the function code editing state. And then "0.0.0.0" will be displayed. Unless the user input right password, they cannot enter into the system. For the factory setting parameter zone, it needs correct factory password (remind that the users cannot modify the factory parameters by themselves, otherwise, if the parameter setting is incorrect, damage to the AC drive may occur). If the password protection is unlocked, the user can modify the password freely and the AC drive will work as the last setting one. When F00.08 is set to 0, the password can be canceled. If F00.08 is not 0 during powering on, then the parameter is protected by the password. When modify the parameters by serial communication the function of the password follows the above rules, too.

Function Parameters Table

Function code	Name	Setup range	Default Value	Modification	Add.
Group F00 Basic Function Group					
F00.00	Motor selection	0: Motor 1 1: Motor 2	0	X	0x000
F00.01	Motor control technique	Ones: motor 1 control parameter 0: V/F control 1: SVC control 2: FVC control Tens: motor 2 control parameter 0: V/F control 1: SVC control 2: FVC control	0	X	0x001
F00.02	Type of drive	0: Type G (applicable to constant-torque load) 1: Type P (applicable to light-duty load)	0	X	0x002
F00.03	LCD display language	0: Chinese 1: English 2: Russian	0	○	0x003
F00.04	RESERVED			*	
F00.05	Parameters copy	0: No operation 1: Displays the modified parameters 2: Parameters copied to control panel 3: Parameters copied(excluding motor parameters)to control board 4: Parameters copied(including motor parameters)to control board	0	○	0x005
F00.06	Parameters protection	0: All parameter programming allowed 1: Only this parameter programming allowed	0	○	0x006
F00.07	Software version	XXXXX		*	0x007
F00.08	User's password	0: No password Other: Password protection	0	○	0x008
F00.09	Supplier's password	XXXXX	Model dependent	○	0x009
F00.10	Parameter restoration	0: No operation 1: Restore all parameters to factory default (excluding motor parameters) 2: Clear fault record 3: Restore all parameters to factory default (including motor parameters)	0	X	0x00A

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F01 Basic Function Group</b>					
F01.00	X frequency command	0: Keypad digital setting 1: Keypad potentiometer setting 2: Analog AI1 setting 3: Analog AI2 setting 4: Analog AI3 setting 5: High-speed pulse DI5 setting	1	X	0x100
F01.01	Y frequency command	6: Multi-step Freq running setting 7: Simple PLC setting 8: PID control setting 9: Communication setting	3	X	0x101
F01.02	Y frequency command reference	0: MAX. output frequency(F01.07) 1: X frequency command	0	○	0x102
F01.03	Y frequency range	0.0~100.0%	100.0%	○	0x103
F01.04	Combination of the setting codes	Ones: Frequency reference selection 0: X 1: X and Y calculation (based on tens position) 2: Switchover between X and Y 3: Switchover between X and "X&Y calculation" 4: Switchover between Y and "X&Y calculation"  Tens: X and Y calculation formula 0: X + Y 1: X - Y 2: Max. (X, Y) 3: Min. (X, Y)	00	○	0x104
F01.05	Keypad digital setting frequency	0.00Hz~F01.07(Max. Freq)	50.00Hz	○	0x105
F01.06	Retentive of digital setting frequency	Ones: Retentive selection of digital setting frequency upon stop 0: Not retentive 1: Retentive  Tens: Retentive selection of digital setting frequency upon power-off 0: Not retentive 1: Retentive	11	○	0x106

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
F01.07	Max. output frequency	50.00Hz~500.00Hz	50.00Hz	×	0x107
F01.08	Upper limit frequency source selection	0: F01.09 1: AI1 2: AI2 3: AI3 4: Pluse	0	○	0x108
F01.09	Upper limit frequency	F01.10~F01.07(Max. frequency)	50.00Hz	○	0x109
F01.10	Lower limit frequency	0.00Hz~F01.09 (Upper limit frequency)	0.00Hz	○	0x10A
F01.11	Jog frequency	0.00Hz~F01.07(Max. frequency)	5.00Hz	○	0x10B
F01.12	Jog selection in running state	0:allowed 1:prohibited	0	○	0x10C
F01.13	Action if running frequency<lower limit frequency	0: Operating frequency lower limit 1: Zero speed operation 2: Stop	0	○	0x10D
F01.14	Time-delay of stop when running frequency<lower limit frequency	0.0s~6500.0s	0.0s	○	0x10E
F01.15	Jump frequency 1	0.00Hz~F01.07(Max. frequency)	0.00Hz	○	0x10F
F01.16	Jump frequency 1 width	0.00Hz~F01.07(Max. frequency)	0.00Hz	○	0x110
F01.17	Jump frequency 2	0.00Hz~F01.07(Max. frequency)	0.00Hz	○	0x111
F01.18	Jump frequency 2 width	0.00Hz~F01.07(Max. frequency)	0.00Hz	○	0x112



**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F02 Startup and stop Control</b>					
F02.00	Run command channel	0: Keypad run command channel 1: Terminal command channel (Keypad STOP disabled) 2: Terminal command channel (Keypad STOP enable) 3: Communication command (Keypad STOP disabled) 4: Communication command (Keypad STOP enabled)	0	○	0x200
F02.01	Binding command source to frequency source	Ones: Binding keyboard command to frequency source 0: No function 1: Keypad digital setting 2: Keypad potentiometer setting 3: Analog AI1 setting 4: Analog AI2 setting 5: Analog AI3 setting 6: High-speed pulse DI5 setting 7: Multi-speed running setting 8: Simple PLC program setting 9: PID control setting A: Communication setting  Tens: Binding terminal command to frequency source 0-9, same as Ones  Hundreds: Binding communication command to frequency source 0-9, same as Ones	000	○	0x201
F02.02	Rotation direction	0: Same direction 1: Reverse direction	0	○	0x202
F02.03	Start-up mode	0: Start-up directly 1: Start-up after Speed tracking 2: Start-up after DC braking/Pre excitation	0	○	0x203
F02.04	Starting frequency of direct start	0.00~10.00Hz	0.00Hz	×	0x204
F02.05	Retention time of the starting frequency	0.0~100.0s	0.0s	×	0x205

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
F02.06	DC injection braking level/ Pre excitation level	0.0~100.0%	50.0%	×	0x206
F02.07	DC injection braking active time/ Pre-excitation active time	0.0~1000.0s	0.0s	×	0x207
F02.08	RESERVED			*	—
F02.09	Stop Mode	0: Decelerate to stop 1: Coast to stop	0	○	0x209
F02.10	Starting frequency of DC braking	0.00~F01.07(Max. frequency)	0.00Hz	○	0x20A
F02.11	Waiting time of DC braking	0.0~1000.0s	0.0s	○	0x20B
F02.12	Stopping DC braking current	0.0~100.0%	50.0%	○	0x20C
F02.13	Stopping DC braking time	0.0~1000.0s	0.0s	○	0x20D
F02.14	Reverse disabled	0: Reverse enabled 1: Reverse disabled	0	○	0x20E
F02.15	Dead time of FWD/REV rotation	0.0~3000.0s	0.0s	○	0x20F
F02.16	The protection of the electric terminals	0: Invalid operation command on terminal 1: valid operation command on terminal	0	○	0x210
F02.17	Select restart after power failure	0: prohibit restart 1: allow restart	0	○	0x211
F02.18	RESERVED				—
F02.19	Energy braking selection	0: Disable 1: Enable	1	○	0x213
F02.20	Energy braking threshold voltage	600.0~800.0V	Model dependent	○	0x214
F02.21	Brake use ratio	0.0%~100.0%	100.0%	○	0x215
F02.22	The coefficient of Magnetic flux braking	1~100%: The bigger the coefficient, the stronger the braking is)	0.0%	○	0x216

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F03 Acc/Dec Parameters</b>					
F03.00	Acc-time 1	0.0~6500.0s	Model dependent	○	0x300
F03.01	Dec-time 1	0.0~6500.0s	Model dependent	○	0x301
F03.02	ACC time2	0.0~6500.0s	Model dependent	○	0x302
F03.03	DEC time2	0.0~6500.0s	Model dependent	○	0x303
F03.04	ACC time3	0.0~6500.0s	Model dependent	○	0x304
F03.05	DEC time3	0.0~6500.0s	Model dependent	○	0x305
F03.06	ACC time4	0.0~6500.0s	Model dependent	○	0x306
F03.07	DEC time4	0.0~6500.0s	Model dependent	○	0x307
F03.08	Jogging ACC time	0.0~6500.0s	20.0s	○	0x308
F03.09	Jogging DEC time	0.0~6500.0s	20.0s	○	0x309
F03.10	Switching frequency of ACC time 1, 2	0.00~F01.07(Max. frequency)	0.00Hz	○	0x30A
F03.11	Switching frequency of DEC time 1, 2	0.00~F01.07(Max. frequency)	0.00Hz	○	0x30B
F03.12	ACC/DEC selection	0: Linear type 1: S-curve type	0	×	0x30C
F03.13	S curve start ratio	0.0~(100.0~F03.14)%	30.0%	×	0x30D
F03.14	S curve end ratio	0.0~(100.0~F03.13)%	30.0%	×	0x30E

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Modification
<b>Group F04 V / F Control Group</b>					
F04.00	Motor 1V / F curve setting	0: Straight line V/F curve 1: Multi-dots V/F curve 2: 2.0en power V/F curve 3: V/F separation	0	X	0x400
F04.01	V/F frequency 1 of motor 1	0.00Hz~F04.03	0.00Hz	X	0x401
F04.02	V/F Voltage 1 of motor 1	0.0%~100.0%(motor1 rated voltage)	0.0%	X	0x402
F04.03	V/F frequency 2 of motor 1	F04.01~F04.05	25.00Hz	X	0x403
F04.04	V/F frequency 2 of motor 1	0.0%~100.0%(motor1 rated voltage)	50.0%	X	0x404
F04.05	V/F frequency 3 of motor 1	F04.03~F02.02 (motor1 rated frequency)	50.00Hz	X	0x405
F04.06	V/F Voltage 3 of motor 1	0.0%~100.0%(motor1 rated voltage)	100.0%	X	0x406
F04.07	Torque boost of motor 1	0.0%(automatic torque boost) 0.1%~30.0%(Manual torque boost)	Model dependent	○	0x407
F04.08	Frequency limit of torque boost of motor1	0.00~F01.07(Max. frequency)	50.00Hz	X	0x408
F04.09	V/F oscillation suppression gain of motor 1	0~100	Model dependent	○	0x409
F04.10	AVR selection	0 : Invalid 1 : valid 2 : Invalid during deceleration	1	○	0x040A
F04.11	RESERVED				—
F04.12	RESERVED				—
F04.13	RESERVED				—
F04.14	RESERVED				—
F04.15	RESERVED				—
F04.16	RESERVED				—

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
F04.17	Torque boost of motor 2	0.0%(automatic torque boost) 0.1%~30.0%(Manual torque boost)	Model dependent	○	0x411
F04.18	Frequency limit of torque boost of motor2	0.00~F01.07(Max. frequency)	50.00Hz	X	0x412
F04.19	V/F oscillation suppression gain of motor2	0~100	Model dependent	○	0x413
F04.20	V/F slip compensation gain of motor 2	0.0~200.0%	100%	○	0x414
F04.21	Droop control	0.0~100.0%	0.0%	○	0x415
F04.22	Voltage setting on V/F separated pattern	0: Keypad digital setting(F04.23) 1: Keypad potentiometer setting 2: Analog AI1 setting 3: Analog AI2 setting 4: Analog AI3 setting 5: High-speed pulse DI5 setting 6: Multi-step Freq running setting 7: Simple PLC program setting 8: PID control setting 9: Communication setting	0	○	0x416
F04.23	Keypad setting voltage	0.0~Motor rated voltage	0.0v	○	0x417
F04.24	Voltage ACC time	0.0~1000.0s	0.0s	○	0x418
F04.25	Voltage DEC time	0.0~1000.0s	0.0s	○	0x419
F04.26	Automatic current limit action selection	0: Disable 1: Enable	1	X	0x41A
F04.27	Automatic current limit	50.0~200.0%	150%	X	0x41B
F04.28	RESERVED				—
F04.29	RESERVED				—
F04.30	Over-voltage stall protection	0: Invalid 1: Stall protection mode 1 2: Reserved	1	X	0x41E
F04.31	Voltage protection of over-voltage stall	650.0V~800.0V	Model dependent	X	0x41F

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F05 Motor 1 Parameter Group</b>					
F05.00	Motor 1 type	0: Ordinary asynchronous motor (with low frequency compensation) 1: AC drive motor (without low frequency compensation)	0	×	0x500
F05.01	Rated power of motor 1	0.1~1000.0kW	Model dependent	×	0x501
F05.02	Rated voltage of motor 1	0~1200V	Model dependent	×	0x502
F05.03	Rated current of motor 1	0.1~6000.0A	Model dependent	×	0x503
F05.04	Rated frequency of motor 1	0.01~F01.07(Max. frequency)	50.00Hz	×	0x504
F05.05	Rated speed of motor1	1~36000rpm	Model dependent	×	0x505
F05.06	Stator resistance of motor 1	0.001~65.535Ω	Model dependent	×	0x506
F05.07	rotor resistance of motor 1	0.001~65.535Ω	Model dependent	×	0x507
F05.08	leakage inductance of motor 1	0.01~655.35mH	Model dependent	×	0x508
F05.09	Mutual inductance of motor 1	0.01~655.35mH	Model dependent	×	0x509
F05.10	Non-load current of motor 1	0.1A~F05.03	Model dependent	×	0x50A
F05.16	Encoder type	0: ABZ incremental encoder 2: Resolver	0	×	0x510
F05.17	Encoder pulses per revolution	1~65535	1024	×	0x511
F05.18	A/B phase sequence of ABZ incremental encoder	0: Forward 1: Reserve	0	×	0x512
F05.19	Number of pole pairs of resolver	1~65535	1	×	0x513
F05.25	Encoder disconnection fault detection time	0:No detection 1:0.1s~10.0s	0.0	×	0x519
F05.26	Motor 1 parameter autotuning	0: No operation 1: Rotation autotuning 2: Static autotuning	0	×	0x51A

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F06: Motor 1 Vector Control Parameters</b>					
F06.00	Speed loop proportional gain 1	1~100	30	○	0x600
F06.01	Speed loop integral time 1	0.01~10.000s	0.50s	○	0x601
F06.02	Low switching frequency	0.00Hz~F06.05	5.00Hz	○	0x602
F06.03	Speed loop proportional gain 2	1~100	20	○	0x603
F06.04	Speed loop integral time 2	0.01~10.00s	1.0s	○	0x604
F06.05	High switching frequency	F06.02~F01.07 ( Max. frequency )	10.00Hz	○	0x605
F06.06	ASR feedback input filtering time	0.000~0.100s	0.015s	○	0x606
F06.07	Current loop percentage coefficient KP1	0~60000	Model dependent	○	0x607
F06.08	Current loop integral coefficient KI1	0~60000	Model dependent	○	0x608
F06.09	Current loop percentage coefficient KP2	0~60000	Model dependent	○	0x609
F06.10	Current loop integral coefficient KI2	0~60000	Model dependent	○	0x60A
F06.11	Electric torque upper limit setting source selection	0: Keypad digital setting(F06.13) 1: Keypad potentiometer setting 2: Analog AI1 setting 3: Analog AI2 setting 4: Analog AI3 setting 5: High-speed pulse DI5 setting 6: Communication setting Note: Full range of values 1~6 corresponds to the digital setting of F06.13.	Model dependent	○	0x60B
F06.12	Braking torque upper limit setting source selection	0: Keypad digital setting(F06.14) 1: Keypad potentiometer setting 2: Analog AI1 setting 3: Analog AI2 setting 4: Analog AI3 setting 5: High-speed pulse DI5 setting 6: Communication setting Note: Full range of values 1~6 corresponds to the digital setting of F06.14.	Model dependent	○	0x60C

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**Function Parameters Table**

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<b>Function code</b>	<b>Name</b>	<b>Setup range</b>	<b>Default Value</b>	<b>Modification</b>	<b>Add.</b>
F06.13	Keypad digital setting of electric torque	0.0~200.0% ( Motor rated current )	150.0%	<input type="radio"/>	0x60D
F06.14	Keypad digital setting of braking torque	0.0~200.0% ( Motor rated current )	150.0%	<input type="radio"/>	0x60E
F06.15	Torque limit coefficient influx weakening	50~200	100	<input type="radio"/>	0x60F
F06.16	Compensation coefficient of slip	50%~200%	100%	<input type="radio"/>	0x610



**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F07 Motor 2 Parameter Group</b>					
F07.00	Motor 2 type	0: Ordinary asynchronous motor (with low-frequency compensation) 1: AC drive motor (without low frequency compensation)	0	×	0x700
F07.01	Rated power of motor 2	0.1~1000.0kW	Model dependent	×	0x701
F07.02	Rated voltage of motor 2	0~1200V	Model dependent	×	0x702
F07.03	Rated current of motor 2	0.1~6000.0A	Model dependent	×	0x703
F07.04	Rated frequency of motor 2	0.01~F01.07(Max. frequency)	50.00Hz	×	0x704
F07.05	Rated speed of motor2	1~36000rpm	Model dependent	×	0x705
F07.06	Stator resistance of motor 2	0.001~65.535Ω	Model dependent	×	0x706
F07.07	Rotor resistance of motor 2	0.001~65.535Ω	Model dependent	×	0x707
F07.08	leakage inductance of motor 2	0.01~655.35mH	Model dependent	×	0x708
F07.09	Mutual inductance of motor 2	0.01~655.35mH	Model dependent	×	0x709
F07.10	Non-load current of motor 2	0.1A~F07.03	Model dependent	×	0x70A
F07.16	Encoder type	0: ABZ incremental encoder 1: Resolver	0	×	0x710
F07.17	Encoder pulses per revolution	1~65535	1024	×	0x711
F07.18	A/B phase sequence of ABZ incremental encoder	0: Forward 1: Reserve	0	×	0x712
F07.19	Number of pole pairs of resolver	1~65535	1	×	0x713
F07.25	Encoder disconnection fault detection time	0: No detection 0.1s~10.0s	0.0	×	0x719
F07.26	Motor 2 parameter autotuning	0: No operation 1: Rotation autotuning 2: Static autotuning	0	×	0x71A

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F08: Motor 2 Vector Control Parameters</b>					
F08.00	Speed loop proportional gain 1	1~100	30	○	0x800
F08.01	Speed loop integral time 1	0.01~10.00s	0.50s	○	0x801
F08.02	Low switching frequency	0.00Hz~F08.05	5.00Hz	○	0x802
F08.03	Speed loop proportional gain 2	1~100	20	○	0x803
F08.04	Speed loop integral time 2	0.01~10.00s	1.0s	○	0x804
F08.05	High switching frequency	F08.02~F01.07 ( Max. frequency )	10.00Hz	○	0x805
F08.06	ASR feedback input filtering time	0.000~0.100s	0.015s	○	0x806
F08.07	Current loop percentage coefficient KP1	0~60000	Model dependent	○	0x807
F08.08	Current loop integral coefficient KI1	0~60000	Model dependent	○	0x808
F08.09	Current loop percentage coefficient KP2	0~60000	Model dependent	○	0x809
F08.10	Current loop integral coefficient KI2	0~60000	Model dependent	○	0x80A
F08.11	Electric torque upper limit setting source selection	0: Keypad digital setting(F08.13) 1: Keypad potentiometer setting 2: Analog AI1 setting 3: Analog AI2 setting 4: Analog AI3 setting 5: High-speed pulse DI5 setting 6: Communication setting Note: Full range of values 1~6 corresponds to the digital setting of F08.13.	Model dependent	○	0x80B
F08.12	Braking torque upper limit setting source selection	0: Keypad digital setting(F08.14) 1: Keypad potentiometer setting 2: Analog AI1 setting 3: Analog AI2 setting 4: Analog AI3 setting 5: High-speed pulse DI5 setting 6: Communication setting Note: Full range of values 1~6 corresponds to the digital setting of F08.14.	Model dependent	○	0x80C

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**Function Parameters Table**

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<b>Function code</b>	<b>Name</b>	<b>Setup range</b>	<b>Default Value</b>	<b>Modification</b>	<b>Add.</b>
F08.13	Keypad digital setting of electric torque	0.0~200.0% ( Motor rated current )	150.0%	<input type="radio"/>	0x80D
F08.14	Keypad digital setting of braking torque	0.0~200.0% ( Motor rated current )	150.0%	<input type="radio"/>	0x80E
F08.15	Torque limit coefficient influx weakening	50~200	100	<input type="radio"/>	0x80F
F08.16	Compensation coefficient of slip	50%~200%	100%	<input type="radio"/>	0x810

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F09: Torque Control Parameters</b>					
F09.00	Speed/Torque control selection	0: Speed control 1: Torque control	0	X	0x900
F09.01	Torque setting source in torque control	0: Keypad digital setting(F09.02) 1: Keypad potentiometer setting 2: Analog AI1 setting 3: Analog AI2 setting 4: Analog AI3 setting 5: High-speed pulse DI5 setting 6: Communication setting	0	○	0x901
F09.02	Torque digital setting in torque control	-200.0%~200.0%	150.0%	○	0x902
F09.03	ACC time in torque control	0.00~650.00s	0.00s	○	0x903
F09.04	DEC time in torque control	0.00~650.00s	0.00s	○	0x904
F09.05	Torque control forward rotation upper limit frequency setting source selection	0: Keypad digital setting(F09.06) 1: Keypad potentiometer setting 2: Analog AI1 setting 3: Analog AI2 setting 4: Analog AI3 setting 5: High-speed pulse DI5 setting 6: Communication setting Note: Full range of values 1~6 corresponds to the digital setting of F09.06	0	○	0x905
F09.06	Torque control forward rotation upper limit frequency keyboard limit value	0.00Hz~F01.07 ( Max. frequency )	50.0Hz	○	0x906
F09.07	Torque control reverse rotation upper limit frequency setting source selection	0: Keypad digital setting(F09.08) 1: Keypad potentiometer setting 2: Analog AI1 setting 3: Analog AI2 setting 4: Analog AI3 setting 5: High-speed pulse DI5 setting 6: Communication setting Note: Full range of values 1~6 corresponds to the digital setting of F9.08.	0	○	0x907
F09.08	Torque control reverse upper limit frequency keyboard limit value	0.00Hz~F01.07 ( Max. frequency )	50.0Hz	○	0x908

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**Function Parameters Table**

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<b>Function code</b>	<b>Name</b>	<b>Setup range</b>	<b>Default Value</b>	<b>Modification</b>	<b>Add.</b>
F09.09	Zero speed torque compensation	0.0~100.0%(rated torque)	0.0%	<input type="radio"/>	0x909
F09.10	Zero speed frequency threshold	0.00Hz~P00.07(Max. frequency)	3.00Hz	<input type="radio"/>	0x90A
F09.11	Sliding friction compensation	0.0~100.0%(rated torque)	0.0%	<input type="radio"/>	0x90B

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F10: Keypad Operation and LED Display</b>					
F10.00	The key of S function selection	0: No function 1: Forward jog 2: Reverse jog 3: Forward/reverse switchover 4: Run command sources shifted 5: Clear the date of exact stop	1	×	0x0A00
F10.01	Display parameter setting 1 on run status	0~65535 BIT0: Running frequency(Hz ON) $2^0=1$ BIT1: Setting frequency(Hz flash) $2^1=2$ BIT2: Bus voltage(V ON) $2^2=4$ BIT3: Output voltage(V ON) $2^3=8$ BIT4: Output current(A ON) $2^4=16$ BIT5: Motor speed(rpm ON) $2^5=32$ BIT6: Output power(% ON) $2^6=64$ BIT7: Output torque(% ON) $2^7=128$ BIT8: PID reference (% ON) $2^8=256$ BIT9: PID feedback(% ON) $2^9=512$ BIT10: Input terminal state $2^{10}=1024$ BIT11: Output terminal state $2^{11}=2048$ BIT12: AI1(V on) $2^{12}=4096$ BIT13: AI2(V on) $2^{13}=8192$ BIT14: AI3(V on) $2^{14}=16384$ BIT15: Linear speed $2^{15}=32768$ Note: If you want to display the above parameters, add the corresponding decimal to enter this parameter	53	○	0x0A01
F10.02	Display parameter setting 2 on run status	0~65535 BIT0: PLC current stage $2^0=1$ BIT1: Pulse count value $2^1=2$ BIT2: Length value $2^2=4$ BIT3: Torque setting value(% ON) $2^3=8$ BIT4: Pulse Di5 frequency $2^4=16$ BIT5: Load speed $2^5=32$ BIT6: IGBT temperature $2^6=64$ BIT7: AC input voltage $2^7=128$ BIT8: Encoder feedback speed $2^8=256$ BIT9~BIT15: Reserve Note: If you want to display the above parameters, add the corresponding decimal to enter this parameter	0	○	0x0A02
F10.03	RESERVED				—

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
F10.04	Display parameter setting on stop status	0~65535 BIT0: Setting frequency(Hz ON) $2^0=1$ BIT1: Motor speed(rpm ON) $2^1=2$ BIT2: Bus voltage(V ON) $2^2=4$ BIT3: AC input voltage $2^3=8$ BIT4: Input terminal state $2^4=16$ BIT5: Output terminal state $2^5=32$ BIT6: PID reference (% ON) $2^6=64$ BIT7: PID feedback(% ON) $2^7=128$ BIT8: AI1(V on) $2^8=256$ BIT9: AI2(V on) $2^9=512$ BIT10: AI3(V on) $2^{10}=1024$ BIT11: Length value $2^{11}=2048$ BIT12: Pulse count value $2^{12}=4096$ BIT13: PLC current stage $2^{13}=8192$ BIT14: Load speed $2^{14}=16384$ BIT15: Pulse Di5 frequency $2^{15}=32768$ Note: If you want to display the above parameters, add the corresponding decimal to enter this parameter	7	○	0x0A04
F10.05	RESERVED				0x0A05
F10.06	Auxiliary Monitoring	The parameter value is consistent with the monitoring parameter group F99	2	○	0x0A06
F10.07	RESERVED				—
F10.08	RESERVED				—
F10.09	Load speed display coefficient	0.001~ 65.000	1.000	○	0x0A09
F10.10	Number of decimal places for loadspeed display	0.Zero decimal point 1.One decimal point 2.Two decimal points 3.Three decimal points	0	○	0x0A0A

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Modification
<b>Group F11 Digital Input Terminal Group</b>					
F11.00	DI1 terminals function selection	0: No function 1: Forward 2: Reverse 3: Three-wire control operation 4: Forward Jogging 5: Reverse Jogging 6: Coast to stop 7: External STOP terminal 1 8: External STOP terminal 2(DEC time4) 9: Immediate DC injection braking 10: DEC DC injection braking 11: Run Pause 12: Fault reset 13: Shift the command 1 14: Shift the command 2 15: Shift frequency command 16: Terminal UP 17: Terminal DOWN 18: Clear UP/DOWN (including $\wedge/\vee$ key) adjustment 19: Multi-step speed terminal K1 20: Multi-step speed terminal K2 21: Multi-step speed terminal K3 22: Multi-step speed terminal K4 23: PLC status reset 24: PID parameters switching 25: PID second digital given switching terminal 26: PID action direction reverse 27: PID pause 28: Pulse input (valid only for DI5) 29: Swing pause 30: Counter input 31: Counter reset 32: Length count input 33: Length reset 34: Clear the current running time 35: Reverse prohibited 36: DEC/ACC time 1 37: DEC/ACC time 2 38: DEC/ACC disabling 39: External fault input 1 40: External fault input 2 41: Motor 1/2 switchover 42: Speed control/Torque control switchover 43: Torque control prohibited	1	×	0x0B00
F11.01	DI2 terminals function selection		2	×	0x0B01
F11.02	DI3 terminals function selection		4	×	0x0B02
F11.03	DI4 terminals function selection		12	×	0x0B03
F11.04	DI5 terminals function selection		0	×	0x0B04
F11.05	DI6 terminals function selection (extension card function)		0	×	0x0B05
F11.06	DI7 terminals function selection (extension card function)		0	×	0x0B06
F11.07	DI8 terminals function selection (extension card function)		0	×	0x0B07
F11.08	DI9 terminals function selection (extension card function)		0	×	0x0B08
F11.09	DI10 terminals function selection (extension card function)		0	×	0x0B09



**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
F11.10	Filtering time of digital input terminal	0.000~1.000s	0.010s	○	0x0B0A
F11.11	DI active mode selection 1	0:Positive logic 1:Negative logic  Units position: DI1 active mode Tens position: DI2 active mode Hundreds position: DI3 active mode Thousand position: DI4 active mode Ten thousands position: DI5 active mode	00000	X	0x0B0B
F11.12	DI active mode selection 2	0:Positive logic 1:Negative logic  Units position: DI6 active mode Tens position: DI7 active mode Hundreds position: DI8 active mode Thousand position: DI9 active mode Ten thousands position: DI10 active mode	00000	X	0x0B0C
F11.13	Terminals control running mode	0: 2-wire control 1 1: 2-wire control 2 2: 3-wire control 1 3: 3-wire control 2	0	X	0x0B0D
F11.14	Terminal UP/DOWN rate	0.001Hz/s ~ 65.000Hz/s	1.000Hz	○	0x0B0E
F11.15	Switch-on delay of DI1 terminal	0.0~3600.0s	0.0s	X	0x0B0F
F11.16	Switch-off delay of DI1 terminal	0.0~3600.0s	0.0s	X	0x0B10
F11.17	Switch-on delay of DI2 terminal	0.0~3600.0s	0.0s	X	0x0B11
F11.18	Switch-off delay of DI2 terminal	0.0~3600.0s	0.0s	X	0x0B12
F11.19	Switch-on delay of DI3 terminal	0.0~3600.0s	0.0s	X	0x0B13
F11.20	Switch-off delay of DI3 terminal	0.0~3600.0s	0.0s	X	0x0B14

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F12 Digital Output Terminal Group</b>					
F12.00	HDO output	0: Open collector pole high speed pulse output(See F15.02 for detailed information of the related function) 1: Open collector pole output ( See F12.02 for detailed information of the related function)	0	○	0x0C00
F12.01	DO1 output	0: Invalid 1: AC drive running 2: Forward running 3: Reverse running 4: Jogging running 5: Zero-speed running 6: Ready for operation 7: AC drive fault	0	○	0x0C01
F12.02	HDO output	8: AC drive overload pre-alarming 9: Motor overload pre-alarming 10: AC drive underload pre-alarming 11: Frequency arrival 12: Upper limit Freq attained 13: Lower limit Freq attained	0	○	0x0C02
F12.03	Relay T1 output	14: Frequency detection FDT1 15: Frequency detection FDT2 16: Frequency 1 reached 17: Frequency 2 reached 18: Reserved	1	○	0x0C03
F12.04	Relay T2 output	19: Completion of PLC stage 20: Completion of PLC Circle 21: PID sleeping 22: Current 1 reached 23: Current 2 reached 24: Load status	7	○	0x0C04
F12.05	Relay T2 output	25: Setting count value attained 26: Designated count value attained 27: Setting length attained 28: Designated length attained 29: Setting running time reached 30: Communication setting 31: Output DI1 32: Output DI2 33: Limit the output DI1 34: AI1 input limit exceeded 35: Brake control 36: PID feedback offline 37: Motor overheat warning	0	○	0x0C05
F12.06	Polarity of output terminals	0:Positive logic 1:Negative logic  Units position: D01 active mode Tens position: HDO active mode Hundreds position: T1 active mode Thousand position: T2 active mode Ten thousands position: T3 active mode	0	○	0x0C06

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
F12.07	DO1 switch-on delay time	0.0~3600.0s	0.0s	○	0x0C07
F12.08	DO1 switch-off delay time	0.0~3600.0s	0.0s	○	0x0C08
F12.09	HDO switch-on delay time	0.0~3600.0s	0.0s	○	0x0C09
F12.10	HDO switch-off delay time	0.0~3600.0s	0.0s	○	0x0C0A
F12.11	T1 switch-on delay time	0.0~3600.0s	0.0s	○	0x0C0B
F12.12	T1 switch-off delay time	0.0~3600.0s	0.0s	○	0x0C0C
F12.13	T2 switch-on delay time	0.0~3600.0s	0.0s	○	0x0C0D
F12.14	T2 switch-off delay time	0.0~3600.0s	0.0s	○	0x0C0E
F12.15	RESERVED				—
F12.16	RESERVED				—
F12.17	Frequency arrival detection value	0.0%~100.0%	0.0%	○	0x0C11
F12.18	FDT1 frequency detection value	0.00Hz~F01.07(Max. frequency)	50.00Hz	○	0x0C12
F12.19	FDT1 frequency detection hysteresis	0.0%~100.0%	5.0%	○	0x0C13
F12.20	FDT2 frequency detection value	0.00Hz~F01.07(Max. frequency)	50.00Hz	○	0x0C14
F12.21	FDT2 frequency detection hysteresis	0.0%~100.0%	5.0%	○	0x0C15
F12.22	Detection of any frequency 1	0.00Hz~F01.07(Max. frequency)	50.00Hz	○	0x0C16
F12.23	Detection width of any frequency 1	0.0%~100.0%(Max. frequency)	0	○	0x0C17
F12.24	Detection of any frequency 2	0.00Hz~F01.07(Max. frequency)	50.00Hz	○	0x0C18
F12.25	Detection width of any frequency 2	0.0%~100.0%(Max. frequency)	0	×	0x0C19

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
F12.26	Upper limit of load current	0.0%~300.0%(Motor rated current)	100.0%	×	0x0C1A
F12.27	Lower limit of load current	0.0%~300.0%(Motor rated current)	50.0%	×	0x0C1B
F12.28	Any current reaching 1 value	0.0%~300.0%(Motor rated current)	100.0%	○	0x0C1C
F12.29	Any current reaching 1 amplitude	0.0%~300.0%(Motor rated current)	0.0%	○	0x0C1D
F12.30	Any current reaching 2 value	0.0%~300.0%(Motor rated current)	100.0%	○	0x0C1E
F12.31	Any current reaching 2 amplitude	0.0%~300.0%(Motor rated current)	0.0%	○	0x0C1F
F12.32	AI1 input voltage lower limit	0.0V~F12.33	3.0V	○	0x0C20
F12.33	AI1 input upper limit voltage	F12.32~10.00V	7.0V	○	0x0C21
F12.34	Brake control selection	0: Disabled 1: Enabled (When changing the steering, the brake is in action) 2: Enable (When changing the steering, the brake does not act and the frequency jumps)	0	×	0x0C22
F12.35	Upward release frequency	0.00~F12.37	2.0Hz	×	0x0C23
F12.36	Upward release current	0.0%~200.0%(Rated current of motor)	30%	×	0x0C24
F12.37	Release the delay frequency upward	F12. 35~Maxfrq	2.0Hz	○	0x0C25
F12.38	Release the delay time upward	0.0s~10.0s	0.2s	○	0x0C26
F12.39	Upward brake frequency	F12.40~Maxfrq	2.0Hz	×	0x0C27
F12.40	Frequency of upward holding brake against sliding	0.0~F12.39	2.0Hz	×	0x0C28

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
F12.41	Upward holding brake anti-slide maintenance time	0.0~10.0s	0.2s	○	0x0C29
F12.42	Downward release frequency	0.00~F12.44	2.00Hz	×	0x0C2A
F12.43	Downward release current	0.0%~200.0%(Rated current of motor)	30%	×	0x0C2B
F12.44	Release the delay frequency downward	F12.42~Maxfrq	2.00Hz	×	0x0C2C
F12.45	Release the delay time downward	0.0s~10.0s	0.2s	○	0x0C2D
F12.46	Downward brake frequency	F12.47~Maxfrq	2.00Hz	×	0x0C2E
F12.47	Frequency of downward holding brake against sliding	0.00~F12.46	2.00Hz	×	0x0C2F
F12.48	Downward holding brake anti-slide maintenance time	0.0~10.0s	0.2s	○	0x0C30
F12.49	Holding brake start-stop torque limit	0.0~200.0%	0	○	0x0C31
F12.50	Change the steering start delay time	0.00~1000.0s	0.5s	○	0x0C32
F12.51	Jump frequency when changing steering(When P04. 34=2)	0.00~Maxfrq	2.00Hz	○	0x0C33

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F14 Analog Curve And Pulse Input Setting Function Group</b>					
F14.00	Lower limit of AI1	0.00V~ F14.02	0.00V	<input type="radio"/>	0x0E00
F14.01	Corresponding setting of the lower limit of AI1	-100.0%~100.0%	0.0%	<input type="radio"/>	0x0E01
F14.02	AI1 inflexion 1 input	F14.00~F14.04	10.00V	<input type="radio"/>	0x0E02
F14.03	Corresponding percentage of AI1 inflexion 1 input	-100.0%~100.0%	100.0%	<input type="radio"/>	0x0E03
F14.04	AI1 inflexion 2 input	F14.02~F14.06	10.00V	<input type="radio"/>	0x0E04
F14.05	Corresponding percentage of AI1 inflexion 2 input	-100.0%~100.0%	100.0%	<input type="radio"/>	0x0E05
F14.06	Upper limit of AI1	F14.04~10.00V	10.00V	<input type="radio"/>	0x0E06
F14.07	Corresponding setting of the upper limit of AI1	-100.0%~100.0%	100.0%	<input type="radio"/>	0x0E07
F14.08	AI1 input filter time	0.00s~10.00s	0.100s	<input type="radio"/>	0x0E08
F14.09	Lower limit of AI2	0.00V~ F14.11	0.00V	<input type="radio"/>	0x0E09
F14.10	Corresponding setting of the lower limit of AI2	-100.0%~100.0%	0.0%	<input type="radio"/>	0x0E0A
F14.11	AI2 inflexion 1 input	F14.09~F14.13	10.00V	<input type="radio"/>	0x0E0B
F14.12	Corresponding percentage of AI2 inflexion 1 input	-100.0%~100.0%	100.0%	<input type="radio"/>	0x0E0C
F14.13	AI2 inflexion 2 input	F14.11~F14.15	10.00V	<input type="radio"/>	0x0E0D
F14.14	Corresponding percentage of AI2 inflexion 2 input	-100.0%~100.0%	100.0%	<input type="radio"/>	0x0E0E
F14.15	Upper limit of AI2	F14.13~10.00V	10.00V	<input type="radio"/>	0x0E0F
F14.16	Corresponding setting of the upper limit of AI2	-100.0%~100.0%	100.0%	<input type="radio"/>	0x0E10
F14.17	AI2 input filter time	0.00s~10.00s	0.100s	<input type="radio"/>	0x0E11
F14.18	Lower limit of AI3	-10.00V~ F14.20	-10.00V	<input type="radio"/>	0x0E12
F14.19	Corresponding setting of the lower limit of AI3	-100.0%~100.0%	-100.0%	<input type="radio"/>	0x0E13
F14.20	AI 3 inflexion 1 input	F14.18~F14.22	-3.00V	<input type="radio"/>	0x0E14
F14.21	Corresponding percentage of AI3 inflexion 1 input	-100.0%~100.0%	-30.0%	<input type="radio"/>	0x0E15

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
F14.22	AI3 inflexion 2 input	F14.20~F14.24	3.00V	○	0x0E16
F14.23	Corresponding percentage of AI3 inflexion 2 input	-100.0%~100.0%	30.0%	○	0x0E17
F14.24	Upper limit of AI 3	F14.22~10.00V	10.00V	○	0x0E18
F14.25	Corresponding setting of the upper limit of AI3	-100.0%~100.0%	100.0%	○	0x0E19
F14.26	AI3 input filter time	0.00s~10.00s	0.10s	○	0x0E1A
F14.27	AI lower than Min. input setting selection	000~111  Ones: AI1 lower than minimum input setting selection 0: Corresponding percentage of min. input 1: 0.0%  Tens: AI2 lower than minimum input setting selection (As above)  Hundreds: AI3 lower than minimum input setting selection (As above)	0x000	○	0x0E1B
F14. 28	Lower limit frequency of pulse DI5	0.00KHz~F14.30	0.00 KHz	○	0x0E1C
F14. 29	Corresponding setting of lower limit frequency of pulse DI5	-100.0%~100.0%	0.0%	○	0x0E1D
F14. 30	Upper limit frequency of pulse DI5	F14.28~100.00KHz	50.00 KHz	○	0x0E1E
F14. 31	Corresponding setting of upper limit frequency of pulse DI5	-100.0%~100.0%	100.0%	○	0x0E1F
F14. 32	Input filter time of pulse DI5	0.00s~10.00s	0.10s	○	0x0E20

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F15 Analog Curve And Pulse Output Setting Function Group</b>					
F15.00	AO1 output	0: Running frequency 1: Setting frequency 2: Output current (relative to twice rated current of the motor) 3: Output voltage	0	<input type="radio"/>	0x0F00
F15.01	AO2 output	4: High speed pulse DI5 input value 5: Analog AI1 input value 6: Analog AI2 input value 7: Analog AI3 input value 8: Length 9: Count value	1	<input type="radio"/>	0x0F01
F15.02	HDO output	10: Running time 11: Output torque 12: Output power 13: Communication setting 14: Keypad potentiometer setting	0	<input type="radio"/>	0x0F02
F15.03	Lower output limit of AO1	0.0%~F15.05	0.0%	<input type="radio"/>	0x0F03
F15.04	Corresponding AO1 output of lower limit	0.00V~10.00V	0.00V	<input type="radio"/>	0x0F04
F15.05	Upper output limit of AO1	F15.03~100.0%	100.0%	<input type="radio"/>	0x0F05
F15.06	The corresponding AO1 output of upper limit	0.00V~10.00V	10.00V	<input type="radio"/>	0x0F06
F15.07	Lower output limit of AO2	0.0%~F15.09	0.0%	<input type="radio"/>	0x0F07
F15.08	Corresponding AO2 output of lower limit	0.00V~10.00V	0.0%	<input type="radio"/>	0x0F08
F15.09	Upper output limit of AO2	F15.07~100.0%	100.0%	<input type="radio"/>	0x0F09
F15.10	The corresponding AO2 output of upper limit	0.00V~10.00V	10.00V	<input type="radio"/>	0x0FOA
F15.11	Lower output limit of HDO	0.0%~F15.13	0.0%	<input type="radio"/>	0x0FOB
F15.12	Corresponding HDO output of lower limit	0.00~60.00kHz	0.00Hz	<input type="radio"/>	0x0FOC
F15.13	Upper output limit of HDO	F15.11~100.0%	100.0%	<input type="radio"/>	0x0F0D
F15.14	Corresponding HDO output of upper limit	0.00~60.00kHz	10.00 kHz	<input type="radio"/>	0x0FOE



**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F16 AI/AO Correction Group</b>					
F16.00	AI,AO corrective active selection	0: No action 1: AI1 channel correction 2: AI2 channel correction 3: AI3 channel correction 4: AO1 channel correction 5: AO2 channel correction	0	<input type="radio"/>	0x1000
F16.01	AI1 measured voltage1	0.000V~10.000V	Correction before delivery	<input type="radio"/>	0x1001
F16.02	AI1 display voltage1	0.000V~10.000V		<input type="radio"/>	0x1002
F16.03	AI1 measured voltage2	0.000V~10.000V		<input type="radio"/>	0x1003
F16.04	AI1 display voltage 2	0.000V~10.000V		<input type="radio"/>	0x1004
F16.05	AI2 measured voltage1	0.000V~10.000V		<input type="radio"/>	0x1005
F16.06	AI2 display voltage1	0.000V~10.000V		<input type="radio"/>	0x1006
F16.07	AI2 measured voltage 2	0.000V~10.000V		<input type="radio"/>	0x1007
F16.08	AI2 display voltage 2	0.000V~10.000V		<input type="radio"/>	0x1008
F16.09	AI3 measured voltage 1	0.000V~10.000V		<input type="radio"/>	0x1009
F16.10	AI3 display voltage 1	0.000V~10.000V		<input type="radio"/>	0x100A
F16.11	AI3 measured voltage 2	0.00V~10.000V		<input type="radio"/>	0x100B
F16.12	AI3 display voltage 2	0.00V~10.000V		<input type="radio"/>	0x100C
F16.13	AO1 measured voltage 1	0.000V~10.000V		<input type="radio"/>	0x100D
F16.14	AO1 display voltage 1	0.000V~10.000V		<input type="radio"/>	0x100E
F16.15	AO1 measured voltage 2	0.000V~10.000V		<input type="radio"/>	0x100F
F16.16	AO1 display voltage 2	0.000V~10.000V		<input type="radio"/>	0x1010
F16.17	AO2 measured voltage1	0.000V~10.000V		<input type="radio"/>	0x1011
F16.18	AO2 display voltage1	0.000V~10.000V		<input type="radio"/>	0x1012
F16.19	AO2 measured voltage 2	0.000V~10.000V		<input type="radio"/>	0x1013
F16.20	AO2 display voltage 2	0.000V~10.000V		<input type="radio"/>	0x1014

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Modification
<b>Group F18 Serial Communication Function Group</b>					
F18.00	Local communication address	0~247 0: Broadcast address 1: Slaver address	1	○	0x1200
F18.01	Communication baud rate	Units position : Modbus Communication baud rate 0: 300 BPS 1: 600 BPS 2: 1200 BPS 3: 2400 BPS 4: 4800 BPS 5: 9600 BPS 6: 19200 BPS 7: 38400 BPS 8: 57600 BPS 9: 115200 BPS  Tens position : CAN Communication baud rate 0:20 KBPS 1:50 KBPS 2:100 KBPS 3:125 KBPS 4:250 KBPS 5:500 KBPS 6:1 MBPS	45	○	0x1201
F18.02	Data format symbol	0: No check (8-N-2) 1: Even parity check (8-E-1) 2: Odd parity check (8-O-1) 3: No check, data format (8-N-1)	0	○	0x1202
F18.03	Answer delay	0~20ms	2ms	○	0x1203
F18.04	Fault time of communication overtime	0.0s (Invalid); 0.1~60.0s	0.0s	○	0x1204
F18.05	Transmission fault processing	0: Alarm and stop freely 1: Alarm and stop according to the stop mode 2: No alarm and continue to run	0	○	0x1205
F18.06	Current resolution readyby communication	0: 0.01A 1: 0.1A	0	○	0x1206
F18.07	Modbus Protocol compatibility selection	0: 600 protocol 1: 100 protocol 2: 200 protocol	0	○	0x1207
F18.08	RESERVE				—

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	ADD.	
F18.09	Communication protocol selection	Units position: Communication run command channel selection 0: Modbus 1: Profibus-DP 2: CAN 3: CANopen Tens position : Communication protocol selection 0: Modbus 1: CANopen	00	○	0x1209	
F18.10	PPO type	0: PPO1 format 1: PP02 format 2: PPO3 format 3: PPO4 format 4: PPO5 format	2	×	0x120A	
F18.11	DP slave address	1~127	1	×	0x120B	
F18.12	PZD3 Write	0: No operation	0	○	0x120C	
F18.13	PZD4 Write	1: Communication setting frequency 2: PID Given value(0~PID range)	0	○	0x120D	
F18.14	PZD5 Write	3: PID feedback(0~PID range) 4: Torque setting value(-10000~10000)	0	○	0x120E	
F18.15	PZD6 Write	5: Forward upper limit frequency setting value (0~10000)	0	○	0x120F	
F18.16	PZD7 Write	6: Reverse upper limit frequency setting value (0~10000)	0	○	0x1210	
F18.17	PZD8 Write	7: Electric torque upper limit torque(0~10000)	0	○	0x1211	
F18.18	PZD9 Write	8: Braking torque upper limit torque(0~10000)	0	○	0x1212	
F18.19	PZD10 Write	9: Virtual output terminal command	0	○	0x1213	
F18.20	PZD11 Write	10: Voltage setting (V/F separation purpose)(0~1000)	0	○	0x1214	
F18.21	PZD12 Write	11: AO1 output setting (0~0X7FFF) 12: AO2 output setting (0~0X7FFF) 13: HDO output setting (0~0X7FFF)	0	○	0x1215	
F18.12	PZD3 Read	0: No-operation 1~40: Corresponding to F99.01~F99.40	0	○	0x1216	
F18.13	PZD4 Read		0	○	0x1217	
F18.14	PZD5 Read		41: Running frequency at current fault	0	○	0x1218
F18.15	PZD6 Read		42: Output current at current fault	0	○	0x1219
F18.16	PZD7 Read		43: Output voltage at current fault	0	○	0x121A
F18.17	PZD8 Read		44: Bus voltage at current fault	0	○	0x121B
F18.18	PZD9 Read		45: The Max. temperature at current fault	0	○	0x121C
F18.19	PZD10 Read		46: Input terminal state at current fault	0	○	0x121D
F18.20	PZD11 Read		47: Output terminal state at current fault	0	○	0x121E
F18.19	PZD10 Read		48: Inverter status at current fault	0	○	0x121D
F18.20	PZD11 Read		49: Power on time at current fault	0	○	0x121E
F18.21	PZD12 Read		50: Running time at current fault	0	○	0x121F

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F19 PID Control Group</b>					
F19.00	PID reference source	Units position: PID reference source 0: Keypad potentiometer setting 1: PID digital setting(F19.02) 2: AI1 3: AI2 4: AI3 5: Pulse DI5 6: Communication setting Tens position: PID feedback source 0: AI1 1: AI2 2: AI3 3: AI1+AI2 4: AI1-AI2 5: MAX(AI1,AI2) 6: MIN(AI1,AI2) 7: Pulse DI5 8: Communication setting	01	○	0x1300
F19.01	PID range	0~65535	1000	○	0x1301
F19.02	PID digital 1 setting	0~F19.01	500	○	0x1302
F19.03	PID digital 2 setting	0~F19.01	500	○	0x1303
F19.04	PID operation direction	0: PID output is positive 1: PID output is negative	0	○	0x1304
F19.05	Proportional gain(P1)	0.00~100.0%	20.0%	○	0x1305
F19.06	Intergal time(I1)	0.0~100.0s	2.0s	○	0x1306
F19.07	Differential time(D1)	0.00~10.00s	0.00s	○	0x1307
F19.08	PID offse limit	0.00~50.0%	0.0%	○	0x1308
F19.09	PID differential limit	0.0%~100.0%	1.0%	○	0x1309
F19.10	PID reference change time	0.00~650.00s	0.00s	○	0x130A
F19.11	PID feedback filter time	0.00~60.00s	0.00s	○	0x130B
F19.12	PID output filter time	0.00~60.00s	0.00s	○	0x130C
F19.13	Proportional gain(P2)	0.00~100.0%	20.0%	○	0x130D
F19.14	Intergal time(I2)	0.0~100.0s	2.0s	○	0x130E
F19.15	Differential time(D2)	0.00~10.00s	0.00s	○	0x130F

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
F19.16	Upper limit Freq when opposite to rotary set direction	0.00Hz~F01.07(max. frequency)	0.00Hz	○	0x1310
F19.17	PID Preset Value	0.0%~100.0%	0.0%	○	0x1311
F19.18	PID Preset Value Keeping time	0.0~650.0s	0.00s	○	0x1312
F19.19	PID Hibernate Frequency	0.00Hz~F01.07(max. frequency)	0.0	○	0x1313
F19.20	PID Hibernate Delay Time	0.0~6500.0s	30.0s	○	0x1314
F19.21	PID Awaken Value	0.0~100.0%	0.0%	○	0x1315
F19.22	PID Awaken Value delay time	0.0~6500.0s	0.5S	○	0x1316
F19.23	Upper protective pressure value	0.0%~100.0%	100.0%	○	0x1317
F19.24	Upper limit protection detection time	0.0s~1000.0s	1.0s	○	0x1318
F19.25	Forced sleep deviation	0.0%~50.0%	0.0%	○	0x1319
F19.26	Forced sleep delay time	0.0~6000.0s	0.0S	○	0x131A
F19.27	Detection value of feedback offline	0.0~100.0%	0.0%	○	0x131B
F19.28	Detection time of feedback offline	0.0~6500.0s	0.0s	○	0x131C
F19.29	PID feedback offline processing	0: Alarm and stop freely 1: Alarm and stop according to the stop mode 2: No alarm and continue to run	0	○	0x131D
F19.30	PID range decimal number	0~4	0	○	0x131E

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F20 Swing Frequency, Fixed Length, Count and Timing</b>					
F20.00	Swing Frequency setting mode	0: Relative to center frequency 1: Relative to Max. frequency	0	<input type="radio"/>	0x1400
F20.01	Swing frequency amplitude	0.0~100.0%	0.0%	<input type="radio"/>	0x1401
F20.02	Kick frequency amplitude	0.0~50.0%	0.0%	<input type="radio"/>	0x1402
F20.03	Cycle of swing frequency	0.1s~3000.0s	10.0s	<input type="radio"/>	0x1403
F20.04	Triangular wave ramp-up time coefficient	0.1%~100.0%	50.0%	<input type="radio"/>	0x1404
F20.05	Setup length	0~65535m	1000m	<input type="radio"/>	0x1405
F20.06	Designed length	0~65535m	1m	<input type="radio"/>	0x1406
F20.07	The number of pulses of each meter	0.1~6553.5	100.0	<input type="radio"/>	0x1407
F20.08	Set count value	1~65535	1000	<input type="radio"/>	0x1408
F20.09	Designated count value	1~65535	1	<input type="radio"/>	0x1409
F20.10	Running time setting	0.0~65535min	0.0Min	<input type="radio"/>	0x140A
F20.11	Exact stop mode	0: invalid 1: setting length arrive 2: setting count value arrive 3: setting running time arrive	0	<input type="radio"/>	0x140B

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F21 Simple PLC and Multi-step Freq Control Group</b>					
F21.00	Multi-step Freq 0	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x1500
F21.01	Multi-step Freq 1	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x1501
F21.02	Multi-step Freq 2	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x1502
F21.03	Multi-step Freq 3	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x1503
F21.04	Multi-step Freq 4	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x1504
F21.05	Multi-step Freq 5	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x1505
F21.06	Multi-step Freq 6	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x1506
F21.07	Multi-step Freq 7	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x1507
F21.08	Multi-step Freq 8	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x1508
F21.09	Multi-step Freq 9	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x1509
F21.10	Multi-step Freq 10	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x150A
F21.11	Multi-step Freq 11	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x150B
F21.12	Multi-step Freq 12	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x150C
F21.13	Multi-step Freq 13	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x150D
F21.14	Multi-step Freq 14	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x150E
F21.15	Multi-step Freq 15	0.0Hz~F01.07(Max.Freq)	0.00Hz	○	0x150F
F21.16	Simple PLC running method	Ones : PLC runmode 0: Stop after running once 1: Run at the final value after running once 2: Cycle running  Tens : Unit of simple PLC runtime 0: Second (s) 1: Minute (min)	00	○	0x1510
F21.17	Simple PLC memory selection when in power loss	Ones : Power loss memory 0:No memory on power loss 1: Memorized on power loss Tens: Stop memory 0:No memory on stop 1: Memorized on stop	00	○	0x1511
F21.18	The running time of step 0	0.0~6553.5s(min)	0.00s (Min)	○	0x1512

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Modification
F21.19	Setting of multi-step 0	<p>Ones :Run direction 0: Forward 1: Reverse</p> <p>Tens: Accel/Decel time 0: Accel/Decel time 1 1: Accel/Decel time 2 2: Accel/Decel time 3 3: Accel/Decel time 4</p> <p>Hundreds : Freq setting 0: Multi-step Freq 0 (F21.00) 1: Keypad digital setting 2: Keypad potentiometer setting 3: AI1 setting 4: AI2 setting 5: AI3 setting 6: DI5 pulse input 7: Process PID output 8: Communication setting</p>	000	○	0x1513
F21.20	The running time of step 1	0.0~6553.5s(min)	0.0s	○	0x1514
F21.21	Setting of multi-step 1	Same as F21-19	000	○	0x1515
F21.22	The running time of step 2	0.0~6553.5s(min)	0.0s	○	0x1516
F21.23	Setting of multi-step 2	Same as F21-19	000	○	0x1517
F21.24	The running time of step 3	0.0~6553.5s(min)	0.0s	○	0x1518
F21.25	Setting of multi-step 3	Same as F21-19	000	○	0x1519
F21.26	The running time of step 4	0.0~6553.5s(min)	0.0s	○	0x151A
F21.27	Setting of multi-step 4	Same as F21-19	000	○	0x151B
F21.28	The running time of step 5	0.0~6553.5s(min)	0.0s	○	0x151C
F21.29	Setting of multi-step 5	Same as F21-19	000	○	0x151D
F21.30	The running time of step 6	0.0~6553.5s(min)	0.0s	○	0x151E
F21.31	Setting of multi-step 6	Same as F21-19	000	○	0x151F



**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Modification
F21.32	The running time of step 7	0.0~6553.5s(min)	0.0s	<input type="radio"/>	0x1520
F21.33	Setting of multi-step 7	Same as F21-19	000	<input type="radio"/>	0x1521
F21.34	The running time of step 8	0.0~6553.5s(min)	0.0s	<input type="radio"/>	0x1522
F21.35	Setting of multi-step 8	Same as F21-19	000	<input type="radio"/>	0x1523
F21.36	The running time of step 9	0.0~6553.5s(min)	0.0s	<input type="radio"/>	0x1524
F21.37	Setting of multi-step 9	Same as F21-19	000	<input type="radio"/>	0x1525
F21.38	The running time of step 10	0.0~6553.5s(min)	0.0s	<input type="radio"/>	0x1526
F21.39	Setting of multi-step 10	Same as F21-19	000	<input type="radio"/>	0x1527
F21.40	The running time of step 11	0.0~6553.5s(min)	0.0s	<input type="radio"/>	0x1528
F21.41	Setting of multi-step 11	Same as F21-19	000	<input type="radio"/>	0x1529
F21.42	The running time of step 12	0.0~6553.5s(min)	0.0s	<input type="radio"/>	0x152A
F21.43	Setting of multi-step 12	Same as F21-19	000	<input type="radio"/>	0x152B
F21.44	The running time of step 13	0.0~6553.5s(min)	0.0s	<input type="radio"/>	0x152C
F21.45	Setting of multi-step 13	Same as F21-19	000	<input type="radio"/>	0x152D
F21.46	The running time of step 14	0.0~6553.5s(min)	0.0s	<input type="radio"/>	0x152E
F21.47	Setting of multi-step 14	Same as F21-19	000	<input type="radio"/>	0x152F
F21.48	The running time of step 15	0.0~6553.5s(min)	0.0s	<input type="radio"/>	0x1530
F21.49	Setting of multi-step 15	Same as F21-19	000	<input type="radio"/>	0x1531
F21.50	PLC model	0: PLC model 1 1: PLC model 2	0	<input type="radio"/>	0x1532

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Modification
<b>Group F28 Strengthen Function Groups</b>					
F28.00	Carrier frequency setting	1.0~16.0	Model dependent	○	0x1C00
F28.01	Carrier frequency adjusted with temperature	0: Invalid 1: Valid	1	○	0x1C01
F28.02	PWM mode	0: Three-phase modulation 1: Three-phase and two-phase modulation switching	0	×	0x1C02
F28.03	Random PWM	0: Fixed PWM 1~10: Random PWM coefficient	0	×	0x1C03
F28.04	Voltage over modulation coefficient	100~110	105	×	0x1C04
F28.04	Cooling fan working mode	0: Working during drive running 1: Working continuously	0	×	0x1C05

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F29 Protection Parameters Group</b>					
F29.00	Phase loss protection	0x00~0x11 Ones: Input phase loss protection 0: Disable 1: Enable  Tens: Output phase loss protection 0: Disable 1: Enable	0x11	×	0x1D00
F29.01	Detection of short-circuit to ground	0x00~0x11 Ones: Detection of short-circuit to ground upon power-on 0: Disable 1: Enable  Tens: Before running detection of short-circuit to ground 0: Disable 1: Enable	0x01	×	0x1D01
F29.02	Motor overload protection	0: Invalid 1: Valid	1	×	0x1D02
F29.03	Motor overload protection gain	50~300	100	×	0x1D03
F29.04	Overload pre-alarm setting	0x00~0x12 Ones: Overload pre-alarm processing 0: Alarm and stop freely 1: Alarm and stop according to the stop mode 2: No alarm and continue to run  Tens: Detection mode 0: Detection all the time 1: Detection in constant running	02	○	0x1D04
F29.05	Overload pre-alarm detection	50.0%~200%	150%	○	0x1D05
F29.06	Overload pre-alarm detection time	0.1s~60.0s	1.0s	○	0x1D06
F29.07	Motor underload protection	0: Invalid 1: Valid	0	×	0x1D07
F29.08	Underload pre-alarm detection	0.0%~100%	25%	○	0x1D08
F29.09	Underload pre-alarm detection time	0.1s~60.0s	1.0s	○	0x1D09

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
F29.10	Underload pre-alarm processing	0: Alarm and stop freely 1: Alarm and stop according to the stop mode 2: No alarm and continue to run	0	○	0x1D0A
F29.11	Fault reset times	0~20	0	○	0x1D0B
F29.12	Selection of DO action during auto reset	0: Not act 1: Act	0	○	0x1D0C
F29.13	Delay time of auto reset	0.0s~100.0s	1.0s	○	0x1D0D
F29.14	Detection level of speed error	0.0%~50.0%	20.0%	○	0x1D0E
F29.15	Detection time of speed error	0.0:Don't detection 0.1s~60.0s	5.0s	○	0x1D0F
F29.16	Overspeed detection level	0.0%~50.0%	20.0%	○	0x1D10
F29.17	Overspeed detection time	0.0:Don't detection 0.1s~60.0s	1.0s	○	0x1D11
F29.18	Power dip ride-through function selection	0: Disabled 1: Bus voltage constant control 2: Decelerate to stop	0	×	0x1D12
F29.19	Threshold of power dip ride-through function disabled	80.0%~100.0%	85.0%	×	0x1D13
F29.20	Judging time of bus voltage recovering from power dip	0.0s~100.0s	0.5s	×	0x1D14
F29.21	Threshold of power dip ride-through function enabled	60.0%~100.0%	80.0%	×	0x1D15
F29.22	Type of motor temperature sensor	0: No temperature sensor 1: PT100 2: PT1000	0	○	0x1D16
F29.23	Motor overheat protection threshold	0.0~200.0℃	110℃	○	0x1D17
F29.24	Motor overheat pre-warningthreshold	0.0~200.0℃	90℃	○	0x1D18

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F30 User-Defined Parameters Group</b>					
F30.00	User-Defined Parameter 0	F00.00~F99.XX	F00.01	○	0x1E00
F30.01	User-Defined Parameter 1	F00.00~F99.XX	F02.00	○	0x1E01
F30.02	User-Defined Parameter 2	F00.00~F99.XX	F01.00	○	0x1E02
F30.03	User-Defined Parameter 3	F00.00~F99.XX	F01.04	○	0x1E03
F30.04	User-Defined Parameter 4	F00.00~F99.XX	F01.05	○	0x1E04
F30.05	User-Defined Parameter 5	F00.00~F99.XX	F03.00	○	0x1E05
F30.06	User-Defined Parameter 6	F00.00~F99.XX	F03.01	○	0x1E06
F30.07	User-Defined Parameter 7	F00.00~F99.XX	F04.00	○	0x1E07
F30.08	User-Defined Parameter 8	F00.00~F99.XX	F04.07	○	0x1E08
F30.09	User-Defined Parameter 9	F00.00~F99.XX	F11.00	○	0x1E09
F30.10	User-Defined Parameter 10	F00.00~F99.XX	F11.01	○	0x1E0A
F30.11	User-Defined Parameter 11	F00.00~F99.XX	F11.02	○	0x1E0B
F30.12	User-Defined Parameter 12	F00.00~F99.XX	F12.03	○	0x1E0C
F30.13	User-Defined Parameter 13	F00.00~F99.XX	F15.00	○	0x1E0D
F30.14	User-Defined Parameter 14	F00.00~F99.XX	F02.03	○	0x1E0E
F30.15	User-Defined Parameter 15	F00.00~F99.XX	F02.09	○	0x1E0F
F30.16	User-Defined Parameter 16	F00.00~F99.XX	F28.00	○	0x1E10
F30.17	User-Defined Parameter 17	F00.00~F99.XX	F00.00	○	0x1E11
F30.18	User-Defined Parameter 18	F00.00~F99.XX	F00.00	○	0x1E12
F30.19	User-Defined Parameter 19	F00.00~F99.XX	F00.00	○	0x1E13
F30.20	User-Defined Parameter 20	F00.00~F99.XX	F00.00	○	0x1E14
F30.21	User-Defined Parameter 21	F00.00~F99.XX	F00.00	○	0x1E15
F30.22	User-Defined Parameter 22	F00.00~F99.XX	F00.00	○	0x1E16
F30.23	User-Defined Parameter 23	F00.00~F99.XX	F00.00	○	0x1E17
F30.24	User-Defined Parameter 24	F00.00~F99.XX	F00.00	○	0x1E18
F30.25	User-Defined Parameter 25	F00.00~F99.XX	F00.00	○	0x1E19
F30.26	User-Defined Parameter 26	F00.00~F99.XX	F00.00	○	0x1E1A
F30.27	User-Defined Parameter 27	F00.00~F99.XX	F00.00	○	0x1E1B
F30.28	User-Defined Parameter 28	F00.00~F99.XX	F00.00	○	0x1E1C
F30.29	User-Defined Parameter 29	F00.00~F99.XX	F00.00	○	0x1E1D
F30.30	User-Defined Parameter 30	F00.00~F99.XX	F00.00	○	0x1E1E
F30.31	User-Defined Parameter 31	F00.00~F99.XX	F00.00	○	0x1E1F

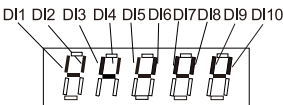
**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Modification
<b>Group F98 History Fault</b>					
F98.00	Current fault type	0: No fault 1: Inverter module protection(E.OUT) 2: Current detection fault(E.ICE) 3: Short circuit to ground(E.ERH) 4: Input phase loss(E.SPI) 5: Output phase loss(E.SPO) 6: Overcurrent during acceleration(E.OC1) 7: Overcurrent during deceleration(E.OC2) 8: Overcurrent at constant speed(E.OC3) 9: Overvoltage during acceleration(E.OU1) 10: Overvoltage during deceleration(E.OU2) 11: Overvoltage at constant speed(E.OU3)	-	*	0x2200
F98.01	Previous fault type	12: Undervoltage(E.LU) 13: AC drive overload(E.OL1) 14: Motor overload(E.OL2) 15: Motor overload prealarm(E.OL3) 16: Motor underload(E.LL) 17: AC drive overheated(E.OH) 18: Motor auto-tuning fault(E.TUNE) 19: EEPROM read-write fault(E.EEP) 20: External fault 1(E.EF1) 21: External fault 2(E.EF2) 22: Port communication fault(E.CE)	-	*	0x2201
F98.02	Previous 2 fault type	23: PID feedback loss(E.PID) 24: Speed feedback fault(E.EDU) 25: Imbalance fault(E.STO) 26: Encoder fault(E.ECD) 27: Motor overheated fault(E.PTC) 28: Reserve 29: Magnetic pole initial position detection fault(E.PLR) 30: Motor switchover fault during running(E.CH) 31: RESERVE	-	*	0x2202
F98.03	Running frequency at current fault	----	----	*	0x2203
F98.04	Output current at current fault	----	----	*	0x2204
F98.05	Output voltage at current fault	----	----	*	0x2205
F98.06	Bus voltage at current fault	----	----	*	0x2206
F98.07	IGBT temperature at current fault	----	----	*	0x2207
F98.08	Input terminals state at current fault	----	----	*	0x2208
F98.09	Output terminals state at current fault	----	----	*	0x2209

**Function Parameters Table**

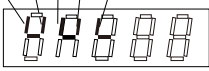
<b>Function code</b>	<b>Name</b>	<b>Setup range</b>	<b>Default Value</b>	<b>Modification</b>	<b>Modification</b>
F98.10	AC drive state at current fault	---	---	*	0x220A
F98.11	Power-on time at current fault	---	---	*	0x220B
F98.12	Running time at current fault	---	---	*	0x220C
F98.13	Running frequency at previous fault	---	---	*	0x220D
F98.14	Output current at previous fault	---	---	*	0x220E
F98.15	Output voltage at previous fault	---	---	*	0x220F
F98.16	Bus voltage at previous fault	---	---	*	0x2210
F98.17	IGBT temperature at previous fault	---	---	*	0x2211
F98.18	Input terminals state at previous fault	---	---	*	0x2212
F98.19	Output terminals state at previous fault	---	---	*	0x2213
F98.20	AC drive state at previous fault	---	---	*	0x2214
F98.21	Power-on time at previous fault	---	---	*	0x2215
F98.22	Running time at previous fault	---	---	*	0x2216
F98.23	Running frequency at previous 2 fault	---	---	*	0x2217
F98.24	Output current at previous 2 fault	---	---	*	0x2218
F98.25	Output voltage at previous 2 fault	---	---	*	0x2219
F98.26	Bus voltage at previous 2 fault	---	---	*	0x221A
F98.27	IGBT temperature at previous 2 fault	---	---	*	0x221B
F98.28	Input terminals state at previous 2 fault	---	---	*	0x221C
F98.29	Output terminals state at previous 2 fault	---	---	*	0x221D
F98.30	AC drive state at previous 2 fault	---	---	*	0x221E
F98.31	Power-on time at previous 2 fault	---	---	*	0x221F
F98.32	Running time at previous 2 fault	---	---	*	0x2220

**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Add.
<b>Group F99 Monitoring Function Group</b>					
F99.00	Output frequency	0.00Hz~F01.08(Upper limit Freq)	---	*	0x2100
F99.01	Setting frequency	0.00Hz~F01.08(Upper limit Freq)	---	*	0x2101
F99.02	Output current	0.01~5000.0A	---	*	0x2102
F99.03	Motor speed	0~65535rpm	---	*	0x2103
F99.04	Load speed display	0~65535	---	*	0x2104
F99.05	Output power	0.1~6553.5KW	---	*	0x2105
F99.06	Output torque	-300.0%~300.0%	---	*	0x2106
F99.07	Output voltage	0~1000V	---	*	0x2107
F99.08	DC bus voltage	0.0~2000.0V	---	*	0x2108
F99.09	AC input voltage	0.0~2000.0V	---	*	0x2109
F99.10	AC drive status	1: Forward 2: Reverse 3: Forward Jogging 4: Reverse Jogging 5: AC drive Fault 6: Under-voltage 7: AC drive stop	---	*	0x210A
F99.11	Fault information	0~33(Corresponding to F98.00)	---	*	0x210B
F99.12	AI1 input voltage	0.00~10.00V	---	*	0x210C
F99.13	AI2 input voltage	0.00~10.00V	---	*	0x210D
F99.14	AI3 input voltage	0.00~10.00V	---	*	0x210E
F99.15	AO1 output voltage	0.00~10.00V	---	*	0x210F
F99.16	AO2 output voltage	0.00~10.00V	---	*	0x2110
F99.17	DI state	0x00~0xFFFF	---	*	0x2111
F99.18	DI state display	The state of each function end is indicated by the on-off of the specified section of the LED digital tube. The on-off of the digital tube segment means that the corresponding terminal state is valid, while the off-off means that the corresponding terminal state is invalid.  	---	*	0x2112



**Function Parameters Table**

Function code	Name	Setup range	Default Value	Modification	Modification
F99.19	DO state	0x00~0xFFFF	---	*	0x2113
F99.20	DO state display	Same as F99. 18. 	---	*	0x2114
F99.21	Di5 pulse frequency	0.01~100.00kHz	---	*	0x2115
F99.22	HDO output frequency	0.01~100.00kHz	---	*	0x2116
F99.23	PID reference	0~65000	---	*	0x2117
F99.24	PID feedback	0~65000	---	*	0x2118
F99.25	Counting value	0~65535	---	*	0x2119
F99.26	Length value	0~65535	---	*	0x211A
F99.27	Linear speed	0~65535	---	*	0x211B
F99.28	Target torque	-300.0%~300.0%	---	*	0x211C
F99.29	Remaining running time	0.1Min~6553.5Min	---	*	0x211D
F99.30	PLC step	0~15	---	*	0x211E
F99.31	Feedback frequency	0. 01Hz~F01. 07(MAX. Freq)	---	*	0x211F
F99.32	Feedback speed of encode	0. 01Hz~F01. 07(MAX. Freq)	---	*	0x2120
F99.33	Motor temperature	1~200℃	---	*	0x2121
F99.34	AC drive temperature	-30~200℃	---	*	0x2122
F99.35	Current Power-on time	1Min~65535Min	---	*	0x2123
F99.36	Current Running time	0.1Min~6553.5Min	---	*	0x2124
F99.37	G/P type	0: G type 1: P type	---	*	0x2125
F99.38	AC drive power	0.7~500.0KW	---	*	0x2126
F99.39	Motor seletion	1: Motor 1 2: Motor 2	---	*	0x2127
F99.40	Accumulative power-on time	1Min~65535Min	---	*	0x2128
F99.41	Accumulative running time	0.1Min~6553.5Min	---	*	0x2129

## Chapter 5 Troubleshooting



✦ Only qualified electricians are allowed to maintain the AC drive. Read the safety instruction in chapter safety precaution before working on the AC drive.

No.	Code	Fault	Cause	Solution
1	E.OUT	IGBT protection	<ul style="list-style-type: none"> <li>◆ The acceleration is too fast .</li> <li>◆ There is damage to the internal to IGBT of the phase.</li> <li>◆ The connection of the driving wires and the grounding is not good.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Increase Acc time.</li> <li>◆ Change the power unit.</li> <li>◆ Check the driving wires.</li> <li>◆ Check if there is strong interference to the external equipment</li> </ul>
2	E.LCE	Current-detecting fault	<ul style="list-style-type: none"> <li>◆ The connection of the control board is not good.</li> <li>◆ Hoare components is broken</li> <li>◆ The modifying circuit is abnormal.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Check the connector and repatch.</li> <li>◆ Change the hoare.</li> <li>◆ Change the main panel.</li> </ul>
3	E.ERH	Grounding shortcut fault	<ul style="list-style-type: none"> <li>◆ The output of the AC drive is short circuited with the ground.</li> <li>◆ There is fault in the current detection circuit.</li> </ul>	<ul style="list-style-type: none"> <li>◆ The output of the AC drive is short circuited with the ground.</li> <li>◆ There is fault in the current detection circuit.</li> </ul>
4	E.SPI	Input phase loss	◆ Phase loss or fluctuation of input R,S,T.	◆ Check input power
5	E.SPO	Output phase loss	◆ U,V,W phase loss input (or serious asymmetrical three phase of the load)	◆ Check input power
6	E.OC 1	Accelerating overcurrent	<ul style="list-style-type: none"> <li>◆ The acceleration or deceleration is too fast.</li> <li>◆ The voltage of the grid is too low.</li> <li>◆ The power of the AC drive is too low.</li> <li>◆ The load transient or abnormal.</li> <li>◆ The grounding is short circuited or the output is phase loss.</li> <li>◆ There is strong external interference.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Increase the Acc time.</li> <li>◆ Check the input power.</li> <li>◆ Select the AC drive with a large power.</li> <li>◆ Check if the load is short circuited(the grounding short circuited) or the rotation is not smooth.</li> <li>◆ Check the output configuration.</li> <li>◆ Check if there is strong interference.</li> </ul>
7	E.OC 2	Decelerating overcurrent		
8	E.OC 3	Constant overcurrent		
9	E.OU 1	Accelerating overvoltage	<ul style="list-style-type: none"> <li>◆ The input voltage is abnormal.</li> <li>◆ There is large energy feedback.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Check the input power.</li> <li>◆ Check if the DEC time of the load is too short or the AC drive starts during the rotation of the motor or it needs to increase the energy consumption components</li> </ul>
10	E.OU 2	Decelerating overvoltage		
11	E.OU 3	Constant overvoltage		

## Troubleshooting

No.	Code	Fault	Cause	Solution
12	E.LU	Under-voltage fault	<ul style="list-style-type: none"> <li>◆ The voltage of the power supply is too low.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Check the input power of the supply line.</li> </ul>
13	E.OL1	AC drive overload	<ul style="list-style-type: none"> <li>◆ The acceleration is too fast.</li> <li>◆ Reset the rotating motor.</li> <li>◆ The voltage of the power supply is too low.</li> <li>◆ The load is too heavy.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Increase the Acc time.</li> <li>◆ Avoid the restarting after stopping.</li> <li>◆ Check the power of the supply line,</li> <li>◆ Select an AC drive with bigger power,</li> <li>◆ Select a proper motor.</li> </ul>
14	E.OL2	Motor overload	<ul style="list-style-type: none"> <li>◆ The voltage of the power supply is too low.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Check the input power of the supply line.</li> </ul>
15	E.oL3	Motor overload prealarm	<ul style="list-style-type: none"> <li>◆ The AC drive will report the overload pre-alarm according to the set value.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Check the load and the overload pre-alarm point.</li> </ul>
16	E.LL	Motor underload fault	<ul style="list-style-type: none"> <li>◆ The AC drive will report the underload pre-alarm according to the set value.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Check the load and the underload pre-alarm point.</li> </ul>
17	E.OH	AC drive overheated	<ul style="list-style-type: none"> <li>◆ Air duct jam or fan damage.</li> <li>◆ Ambient temperature is too high.</li> <li>◆ The time of overload running is too long</li> </ul>	<ul style="list-style-type: none"> <li>◆ Lower the ambient temperature.</li> <li>◆ Clean the ventilation.</li> <li>◆ Replace the cooling fan.</li> <li>◆ Replace the damaged thermally sensitive resistor.</li> <li>◆ Replace the AC Drive IGBT.</li> </ul>
18	E.TUE	Motor-autotuning fault	<ul style="list-style-type: none"> <li>◆ The motor capacity does not comply with the AC drive capability.</li> <li>◆ The rated parameter of the motor does not set correctly.</li> <li>◆ The offset between the parameters from autotune and the standard parameter is huge.</li> <li>◆ Autotune overtime.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Check the connector and repatch.</li> <li>◆ Change the hoare.</li> <li>◆ Change the main panel.</li> </ul>
19	E.EEP	EEPROM operation fault	<ul style="list-style-type: none"> <li>◆ Error of controlling the write and read of the parameters.</li> <li>◆ Damage to EEPROM.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Press STOP/RESET to reset.</li> <li>◆ Change the main control panel.</li> </ul>
20	E.EF1	User-defined fault 1	User-defined fault 1 is input via DI.	Reset the operation.
21	E.EF2	User-defined fault 2	User-defined fault 2 is input via DI.	Reset the operation.
22	E.CE	Communication fault	<ul style="list-style-type: none"> <li>◆ The baud rate setting is incorrect.</li> <li>◆ Fault occurs to the communication wiring.</li> <li>◆ The communication address is wrong.</li> <li>◆ There is strong interference to the communication.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Set proper baud rate.</li> <li>◆ Check the communication connection distribution.</li> <li>◆ Set proper communication address.</li> <li>◆ Change or replace the connection distribution or improve the anti-interference capability.</li> </ul>

## Troubleshooting

No.	Code	Fault	Cause	Solution
23	E.PID	PID feedback outline fault	<ul style="list-style-type: none"> <li>◆ PID feedback offline.</li> <li>◆ PID feedback source disappear.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Check the PID feedback signal.</li> <li>◆ Check the PID feedback source.</li> </ul>
24	E.EDU	Speed deviation fault	<ul style="list-style-type: none"> <li>◆ Encoder parameters are set improperly.</li> <li>◆ Motor auto-tuning is not performed.</li> <li>◆ F29. 14 (detection level of speed error) and F29. 15 (detection time of speed error) are set incorrectly.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Set encoder parameters properly.</li> <li>◆ Perform motor auto-tuning.</li> <li>◆ Set F9-69 and F9-70 correctly based on actual condition.</li> </ul>
25	E.STO	Maladjustment fault	<ul style="list-style-type: none"> <li>◆ The control parameters of the synchronous motors not set properly.</li> <li>◆ The autoturn parameter is not right.</li> <li>◆ The AC drive is not connected to the motor.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Check the load and ensure it is normal.</li> <li>◆ Check whether the control parameter is set properly or not.</li> <li>◆ Increase the maladjustment detection time.</li> </ul>
26	E.ECD	Encoder fault	<ul style="list-style-type: none"> <li>◆ Encoder is not matched.</li> <li>◆ Encoder wiring is incorrect.</li> <li>◆ Encoder is damaged.</li> <li>◆ PG card is abnormal.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Set the type of encoder correctly.</li> <li>◆ Check the PG card power supply and phase sequence.</li> <li>◆ Replace encoder.</li> <li>◆ Replace PG card.</li> </ul>
27	E.PTC	Motor overheat	<ul style="list-style-type: none"> <li>◆ Cable connection of temperature sensor becomes loose</li> <li>◆ The motor temperature is too high.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Check cable connection of temperature sensor.</li> <li>◆ Check cable connection of temperature sensor.</li> </ul>
28	RESERVE			
29	E.PLR	Motor overheat		
30	E.CH	Motor switchover fault	Motor switchover via terminal during drive running of the AC drive	Perform motor switchover after the AC drive stops

# Chapter 6 RS485 Communication Protocol

## 6.1 Function Protocol

1. Read a single or multiple data ( 0x03 )

ADDR	xx
CMD	0x03
High bit of the start	xx
Low bit of the start	xx
High bit of data number	xx
Low bit of data number	xx
Check low bit of CRC	xx
Check high bit of CRC	xx

Read data: Slave responding frame

ADDR	xx
CMD	0x03
Byte number N*2	N*2
High bit of data 1	xx
Low bit of data 1	xx
.....	xx
High bit of data N	xx
Low bit of data N	xx
Check low bit of CRC	xx
Check high bit of CRC	xx

2. Write a single data 0x06

ADDR	xx
CMD	0x06
High bit of register Add.	xx
Low bit of register Add.	xx
High bit of write data	xx
Low bit of write data	xx
Check low bit of CRC	xx
Check high bit of CRC	xx

Write data response:

ADDR	xx
CMD	0x06
High bit of register Add.	xx
Low bit of register Add.	xx
High bit of write data	xx
Low bit of write data	xx
Check low bit of CRC	xx
Check high bit of CRC	xx

3. Host broadcast frequency and start-stop command(0x20)

ADDR	xx
CMD	0x20
High bit of start-stop commandXX	xx
Low bit of start-stop command XX	xx
High bit of setting frequency value XX	xx
Low bit of setting frequencyvalue XX	xx
Check low bit of CRC	xx
Check high bit of CRC	xx

**4. The error message response**

Sometimes, errors occurs during the process of the communication, For example, reading or writing data to an illegal address, etc., then the slave will not work as a normal read-write response to reply the host, but send a wrong message frame. Error message frame format is as follows, where the command code is the result of the operation between highest-bit (Bit 7) of host operation and 1 ( read error is 0x83 / write error is 0x86).

ADDR	xx
CMD	0x83 or 0x86
Error code	xx
Check low bit of CRC	xx
Check high bit of CRC	xx

The error code define as follows:

Error Code	Error Name	Descriptions
0x01	Illegal CMD	Slave received command code is illegal or does not exist
0x02	Illegal Data Add	Slave receives operation addis cross-border operation or illegal
0x03	Illegal Data	Slave received data is not within the scope of the function or the range set by other functional limitations is illegal.
		Slave received the function of the write operation parameters as read-only
		Slave in operation of the received write operation functions do not modify the parameters in running
		Slave is busy,ttis mainly occurs when data is stored in memory

**6.2 Communication Parameters Address**

MODBUS communication includes read and write functions of the parameters of the operation of some special registers read and write operations, which include the control register, set register, state register and factory information.

**6.2.1. The Definition of Communication Parameter Add.**

The function code number and parameter label is the representation rule of the parameter address.

High byte: F00-F99;    Low byte: 00-FF

For example, to access F01.12, the access address of the parameter is 0x010C.

Function code group	Absolute Add.	Function code group	Absolute Add.
F00 Group	0x00	F01 Group	0x01
F02 Group	0x02	F03 Group	0x03
F04 Group	0x04	F05 Group	0x05
F06 Group	0x06	F07 Group	0x07
F08 Group	0x08	F09 Group	0x09
F10 Group	0x0A	F11 Group	0x0B
F12 Group	0x0C	F13 Group	0x0D
F14 Group	0x0E	F15 Group	0x0F
F16 Group	0x10	F18 Group	0x12
F19 Group	0x13	F20 Group	0x14
F21 Group	0x15	F28 Group	0x1C
F29 Group	0x1D	F30 Group	0x1E
F98 Group	0x22	F99 Group	0x21

Note: Because EEPROM is frequently stored, it will reduce the life of EEPROM. Therefore, some parameters in the mode of communication don't need to store as long as change the value of RAM. Absolute address in the table corresponds to the high byte of RAM address, to achieve this function, simply add 0X40 to all high bytes in the table.

For example:

The parameter F01.12 is stored in EEPROM , and the address is represented as 0x010C;

The parameter F01.12 is not stored in the EEPROM, and the address is represented as 0x410C;

Read of both EEPROM address and RAM address are valid.

When read the function code parameters, user can only read the maximum of 16 consecutive address parameters.more than 16, the AC drive will return the illegal data.

When writing function parameter, each can only write a parameter. Users should pay attention to the setting value that cannot exceed the set range of function parameters.

Function parameters set permissions and function code attributes related parameters, such as read-only parameter is not writable, the operation cannot be changed in the running also cannot be written.

The password is set by the user, in the case without decryption, all of the parameters cannot write. User password and parameter autotune cannot via communication to write. Otherwise, the AC drive will return the fault information.

6.2.2 The Definition of the Status parameters

Add.	Number	Setting instruction	R/W
2100H	F99.99	Output frequency	R
2101H	F99.01	Setting frequency	W/R
2102H	F99.02	Output current	R
210AH	F99.10	AC drive status 1: Forward running 2: Reverse running 3: Forward jogging 4: Reverse jogging 5: AC drive fault 6: Under-voltage status 7: AC drive stop	R
210BH	F99.11	0~10000  0: No fault 1: IGBT protection 2: Current detecting fault 3: Grounding shortcut fault 4: Input phase loss 5: Output phase loss 6: Accelerating over-current 7: Decelerating over-current 8: Constant over-current 9: Accelerating over-voltage 10: Decelerating over-voltage 11: Constant over-voltage 12: Under-voltage fault 13: AC drive overload 14: Motor overload 15: Motor overload prealarm 16: Motor underload fault  17: AC drive overheat 18: Motor autotuning fault 19: EEPROM operation fault 20: User-defined fault 1 21: User-defined fault 2 22: Communication fault 23: PID feedback outline fault 24: Speed deviation fault 25: Maladjustment fault 26: Encoder fault 27: Motor overheat	R
.....	.....	.....	R
2117H	F99.23	PID reference	W/R
2118H	F99.24	PID feedback	W/R
.....	.....	.....	R



## 6.2.3 The Definition of the Special Register Address

Register	Function instruction	Add.	Setting instruction	R/W
Control register	Control register	2000H	0001H: Forward running 0002H: Reverse running 0003H: Forward jogging 0004H: Reverse jogging 0005H: Dcclerate stop 0006H: Coast to stop(emergency stop) 0007H: Fault reset	W
Setting register	Torque setting value	2001H	-10000~10000 (Corresponding to -200.0%~200.0%)	W
	Forward upper limit frequency	2002H	0~10000 Correspond to 0.0Hz~F01.07(Max. Freq)	W
	Reverse upper limit frequency	2003H	0~10000 Correspond to 0.0Hz~F01.07(Max. Freq)	W
	Electric torque upper limit value	2004H	0~10000	W
	Brake torque upper limit value	2005H	0~10000	W
	Voltage setting on V/f separated pattern	2006H	0~1000 (Corresponding to 0~Motor rated voltage)	W
	DO control	2007H	0~0X000F	W
	Ao1 control	2008H	0~0X7FFF	W
	Ao2 control	2009H	0~0X7FFF	W
	HDO control	200AH	0~0X7FFF	W

## Note:

1. R is read-only, invalid write and error reporting address;
2. W for write only, invalid read and error reporting address.