

Tipo de vector de alto rendimiento

## EGH AC DRIVE

Manual del usuario

EGH CA   
CONTROL AND AUTOMATION

TRIFASICO  
220 V CA - 25HP - 18.5KW  
HEAVY DUTY



EGH-2T-18.5GC



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# Preface

Thank you for purchasing the SD600 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 .

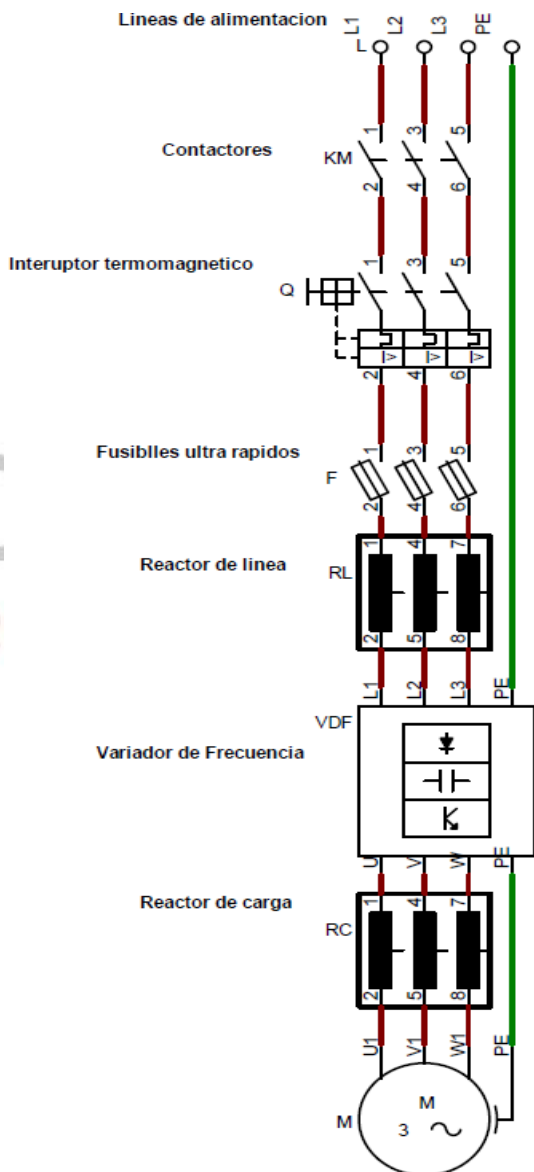
5. In general , the warranty card will not be re-issued. Please keep the card and present it to the maintenance personnel when asking for maintenance .

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

8. The installation of the inverter must maintain the following structure to validate the equipment's warranty, as it is your responsibility to ensure the connection is proper and correct.



# 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.

### **Danger**

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

### **Note**

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>                  |

| 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>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| 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>                                                                                                                                                                                                                                                                                                                                                  |

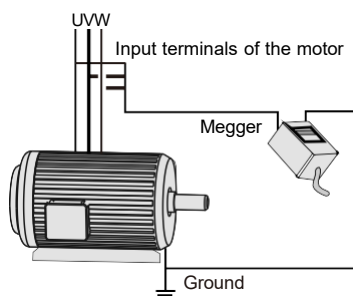
## 1.3 Cautions

### 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 500.00Hz. 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

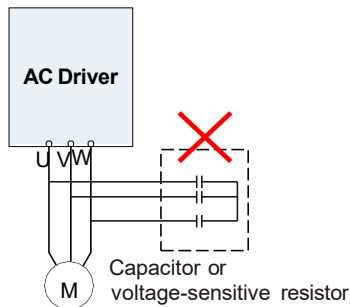
The AC drive may encounter the mechanical resonance point at some output frequencies, which can be avoided by setting the skip frequency. If the operating frequency of the customer coincide with the resonant frequency please modify the operating frequency or change the inherent resonance frequency of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

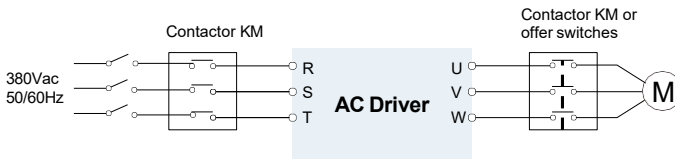
Do not install the capacitor for improving power factor or lightning protection voltage sensitive resistor on the output side of the AC drive because the output of the AC drive is PWM wave. Otherwise, the AC drive may suffer transient overcurrent or even be damaged.



### 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 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  $-10^{\circ}\text{C}\sim 40^{\circ}\text{C}$ . Temperature exceeds  $40^{\circ}\text{C}$ , 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  $50^{\circ}\text{C}$ .

### **1.3.14 Altitude and Derating**

In places where the altitude is above 1000m and the cooling effect reduces due to thin air it 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 explode 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

EGH<sub>1</sub> - 2T<sub>2</sub> - 0.7<sub>3</sub> G<sub>4</sub> <sub>5</sub>

| Field           | Mark | Explanation     | Content                                                            |
|-----------------|------|-----------------|--------------------------------------------------------------------|
| Ac drive series | ①    | Ac drive series | SD600 series                                                       |
| Voltage Level   | ②    | Voltage Level   | 2S:single-phase 220V<br>2T:Three-phase 220V<br>4T:Three-phase 380V |
| Adaptive Power  | ③    | Adaptive Power  | 0.7KW~500KW                                                        |
| Function Type   | ④    | Function Type   | G:General<br>P:Fan pump                                            |
| braking Unit    | ⑤    | braking Unit    | Null:None<br>C:Inbuilt braking unit                                |

Figure 2-1 Name Designation Rules

### 2.2 Nameplate

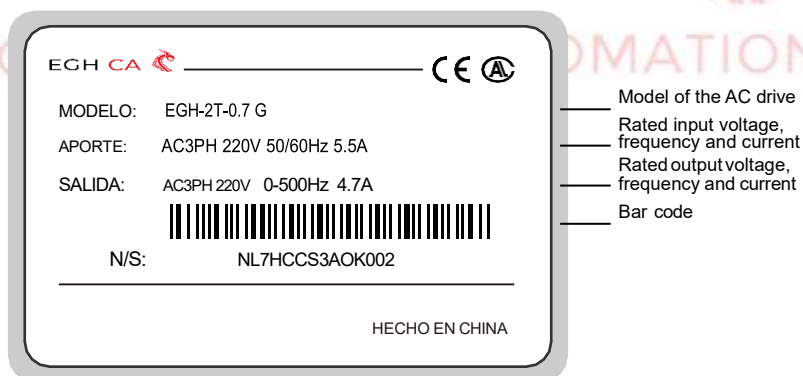


Figure 2-2 Name Designation Rules

## 2.3 SD600 Series of AC drive

| Model                           | Power Capacity (KVA) | Input Current (A) | Output Current (A) | Adaptable Motor (KW) |
|---------------------------------|----------------------|-------------------|--------------------|----------------------|
| Three-phase 220V Range:-15%~20% |                      |                   |                    |                      |
| EGH-2T-0.7G                     | 1.5                  | 5.5               | 4.7                | 0.75                 |
| EGH-2T-1.5G                     | 3.0                  | 7.7               | 7.5                | 1.5                  |
| EGH-2T-2.2G                     | 4.0                  | 12.0              | 10.0               | 2.2                  |
| EGH-2T-4.0GC                    | 18                   | 17                | 4.0                | 5                    |
| EGH-2T-5.5GC                    | 26                   | 25                | 55                 | 7                    |
| EGH-2T-7.5GC                    | 35                   | 32                | 7.5                | 10                   |
| EGH-2T-11GC                     | 50                   | 49                | 11                 | 15                   |
| EGH-2T-15GC                     | 66                   | 65                | 15                 | 20                   |
| EGH-2T-18.5G                    | 84                   | 75                | 18.5               | 25                   |
| EGH-2T-22G                      | 92                   | 90                | 22                 | 30                   |
| EGH-2T-30G                      | 113                  | 112               | 30                 | 40                   |
| EGH-2T-37G                      | 157                  | 150               | 37                 | 50                   |
| Three-phase 380V Range:-15%~20% |                      |                   |                    |                      |
| EGH-4T-0.7G                     | 1.5                  | 3.4               | 2.3                | 0.75                 |
| EGH-4T-1.5G                     | 3.0                  | 5.0               | 3.7                | 1.5                  |
| EGH-4T-2.2G                     | 4.0                  | 5.8               | 5.1                | 2.2                  |
| EGH-4T-4.0G                     | 5.9                  | 10.5              | 8.5                | 4.0                  |
| EGH-4T-5.5G                     | 8.9                  | 14.6              | 13                 | 5.5                  |
| EGH-4T-7.5G                     | 11                   | 20.5              | 17                 | 7.5                  |
| EGH-4T-11G                      | 17                   | 26.0              | 25                 | 11                   |
| EGH-4T-15G                      | 21                   | 35.0              | 32                 | 15                   |
| EGH-4T-18.5G                    | 24                   | 38.5              | 37                 | 18.5                 |
| EGH-4T-22G                      | 30                   | 46.5              | 45                 | 22                   |
| EGH-4T-30G                      | 40                   | 62.5              | 60                 | 30                   |
| EGH-4T-37G                      | 57                   | 76.0              | 75                 | 37                   |
| EGH-4T-45G                      | 69                   | 92.0              | 91                 | 45                   |
| EGH-4T-55G                      | 85                   | 113               | 112                | 55                   |
| EGH-4T-75G                      | 114                  | 157               | 150                | 75                   |

## 2.4 Braking resistor selection reference

When the equipment driven by the VFD needs to brake quickly, the brake unit is required to release the energy feed back to the DC bus when the motor brakes. The 400V voltage class 0.7~30kW has a built-in braking unit as standard. If you need to stop quickly, please choose a suitable braking unit and braking resistor according to the capacity of the VFD. If you need to stop quickly, you can directly connect the braking resistor.

380V braking resistor selection table

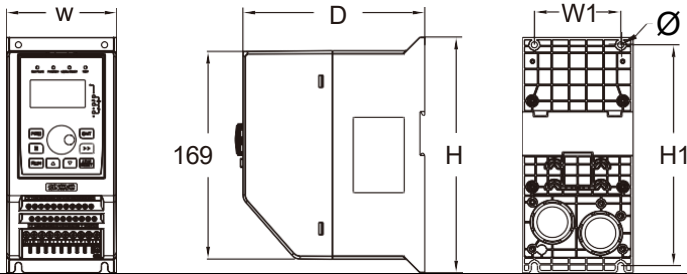
| VFD capacity<br>□ KW □ | Braking unit          |               | Braking resistor(D=10%) |                   |               |
|------------------------|-----------------------|---------------|-------------------------|-------------------|---------------|
|                        | Specification         | Quantity(PCS) | Recommended Resistance  | Recommended power | Quantity(PCS) |
| 0.7                    | Standard built-in     | 1             | 750Ω                    | 150W              | 1             |
| 1.5                    |                       | 1             | 400Ω                    | 300W              | 1             |
| 2.2                    |                       | 1             | 250Ω                    | 400W              | 1             |
| 4.0                    |                       | 1             | 150Ω                    | 500W              | 1             |
| 5.5                    |                       | 1             | 100Ω                    | 800W              | 1             |
| 7.5                    |                       | 1             | 75Ω                     | 1000W             | 1             |
| 11                     |                       | 1             | 50Ω                     | 1200W             | 1             |
| 15                     |                       | 1             | 40Ω                     | 2000W             | 1             |
| 18.5                   |                       | 1             | 32Ω                     | 3000W             | 1             |
| 22                     |                       | 1             | 27Ω                     | 4000W             | 1             |
| 30                     | Built-in optional     | 1             | 22Ω                     | 5000W             | 1             |
| 37                     |                       | 1             | 20Ω                     | 6000W             | 1             |
| 45                     |                       | 1             | 16Ω                     | 7000W             | 1             |
| 55                     |                       | 1             | 13Ω                     | 10000W            | 1             |
| 75                     | External braking unit | 1             | 10Ω                     | 14000W            | 1             |
| 90                     |                       | 1             | 6.8Ω                    | 16000W            | 1             |
| 110                    |                       | 1             | 6.5Ω                    | 22000W            | 1             |
| 132                    |                       | 1             | 6.2Ω                    | 24000W            | 1             |
| 160                    |                       | 1             | 5.4Ω                    | 30000W            | 1             |
| 185                    |                       | 1             | 4.7Ω                    | 32000W            | 1             |
| 200                    |                       | 2             | 4.5Ω                    | 17000W            | 2             |
| 220                    |                       | 2             | 4.1Ω                    | 20000W            | 2             |
| 250                    |                       | 2             | 3.6Ω                    | 23000W            | 2             |
| 280                    |                       | 2             | 3.2Ω                    | 27000W            | 2             |
| 315                    |                       | 3             | 4.3Ω                    | 20000W            | 3             |
| 355                    |                       | 3             | 3.8Ω                    | 23000W            | 3             |
| 400                    |                       | 3             | 3.4Ω                    | 25000W            | 3             |
| 450                    |                       | 3             | 3.0Ω                    | 26000W            | 3             |
| 500                    |                       | 3             | 2.8Ω                    | 30000W            | 3             |

220V braking resistor selection table

| VFD capacity<br>(KW) | Braking unit          |               | Braking resistor(D=10%) |                   |               |
|----------------------|-----------------------|---------------|-------------------------|-------------------|---------------|
|                      | Specification         | Quantity(PCS) | Recommended Resistance  | Recommended power | Quantity(PCS) |
| 0.7                  | Standard built-in     | 1             | 200Ω                    | 120W              | 1             |
| 1.5                  |                       | 1             | 100Ω                    | 300W              | 1             |
| 2.2                  |                       | 1             | 75Ω                     | 500W              | 1             |
| 4.0                  |                       | 1             | 33Ω                     | 800W              | 1             |
| 5.5                  |                       | 1             | 22Ω                     | 1300W             | 1             |
| 7.5                  |                       | 1             | 16Ω                     | 1700W             | 1             |
| 11                   |                       | 1             | 12Ω                     | 2300W             | 1             |
| 15                   |                       | 1             | 9Ω                      | 3000W             | 1             |
| 18.5                 |                       | 1             | 16Ω                     | 3900W             | 1             |
| 22                   | Built-in optional     | 1             | 12Ω                     | 4600W             | 1             |
| 30                   |                       | 1             | 9Ω                      | 5500W             | 1             |
| 37                   |                       | 1             | 7Ω                      | 6800W             | 1             |
| 45                   | External braking unit | 2             | 6Ω                      | 5000W             | 2             |
| 55                   |                       | 2             | 5Ω                      | 6000W             | 2             |

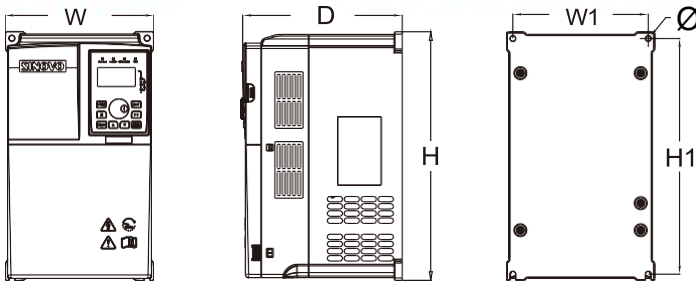
## 2.5 Product Outline, Installation Hole Size

Model 1



| Modelo       | inversor |            |       | Instalación |        |               | GW(kg) |
|--------------|----------|------------|-------|-------------|--------|---------------|--------|
|              | Mmm)     | Ancho (mm) | D(mm) | H1(mm)      | W1(mm) | Diámetro (mm) |        |
| EGH-2T-0.7G  | 192      | 90         | 148   | 180         | 70     | Ø5            | 1.6    |
| EGH-2T-1.5G  |          |            |       |             |        |               |        |
| EGH-2T-2.2G  |          |            |       |             |        |               |        |
| EGH-2T-4.0GC |          |            |       |             |        |               |        |
| EGH-4T-0.7G  |          |            |       |             |        |               |        |
| EGH-4T-1.5G  |          |            |       |             |        |               |        |
| EGH-4T-2.2G  |          |            |       |             |        |               |        |
| EGH-4T-4.0G  |          |            |       |             |        |               |        |

Model 2



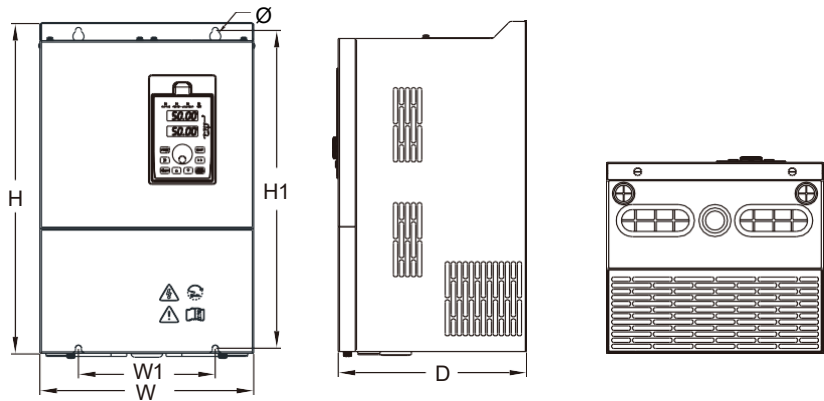
| Modelo       | inversor |            |       | Instalación |        |               | GW(kg) |
|--------------|----------|------------|-------|-------------|--------|---------------|--------|
|              | Mmm)     | Ancho (mm) | D(mm) | H1(mm)      | W1(mm) | Diámetro (mm) |        |
| EGH-4T-5.5G  | 190      | 110        | 150   | 179         | 98     | Ø5            | 2.3    |
| EGH-2T-5.5GC | 250      | 155        | 176   | 236         | 141    | Ø5            | 4.4    |
| EGH-4T-7.5G  | 210      | 130        | 160   | 198         | 118    | Ø5            | 3.3    |
| EGH-2T-7.5GC | 295      | 176        | 188   | 279         | 160    | Ø7            | 6.4    |
| EGH-4T-11G   | 250      | 155        | 176   | 236         | 141    | Ø5            | 4.4    |

**Product Information**

|              |     |     |     |     |     |    |     |
|--------------|-----|-----|-----|-----|-----|----|-----|
| EGH-2T-11GC  | 337 | 245 | 188 | 320 | 228 | Ø7 | 9.5 |
| EGH-4T-15G   | 295 | 176 | 188 | 279 | 160 | Ø7 | 6.4 |
| EGH-4T-18.5G |     |     |     |     |     |    |     |
| EGH-2T-15GC  | 337 | 245 | 188 | 320 | 228 | Ø7 | 9.5 |
| EGH-4T-22G   |     |     |     |     |     |    |     |
| EGH-4T-30G   |     |     |     |     |     |    |     |



Model 3



| Modelo       | inversor |            |       | Instalación |        |               | GW(kg) |
|--------------|----------|------------|-------|-------------|--------|---------------|--------|
|              | Mmm)     | Ancho (mm) | D(mm) | H1(mm)      | W1(mm) | Diámetro (mm) |        |
| EGH-4T-37G   | 387      | 250        | 220   | 372         | 150    | Ø7            | 13.5   |
| EGH-2T-18.5G | 387      | 250        | 220   | 372         | 150    |               | 13.5   |
| EGH-2T-37G   | 387      | 250        | 220   | 372         | 150    |               | 13.5   |
| EGH-4T-45G   | 440      | 270        | 256   | 426         | 180    | Ø7            | 20.6   |
| EGH-4T-55G   |          |            |       |             |        |               | 20.6   |
| EGH-2T-22G   | 440      | 270        | 256   | 426         | 180    |               | 20.6   |
| EGH-4T-75G   | 469      | 307        | 263   | 450         | 200    | Ø10           | 26.8   |
| EGH-2T-30G   | 469      | 307        | 263   | 450         | 200    |               | 26.8   |
| EGH-2T-37G   | 940      | 500        | 369   | 914         | 400    | Ø12           | 136.2  |

## 2.1 External Keypad Installation Dimensions

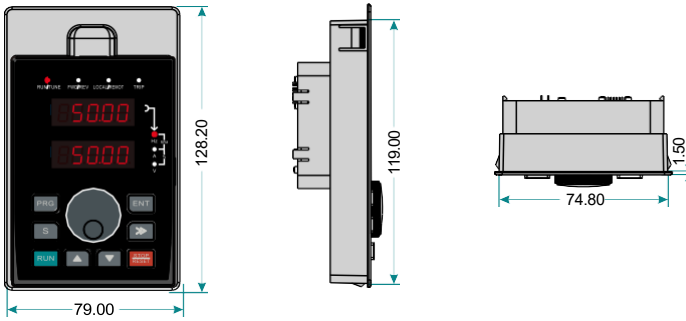


Figure 2-3 Keypad Installation dimensions

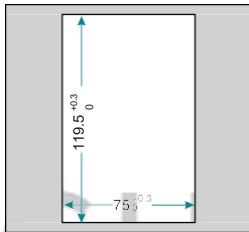


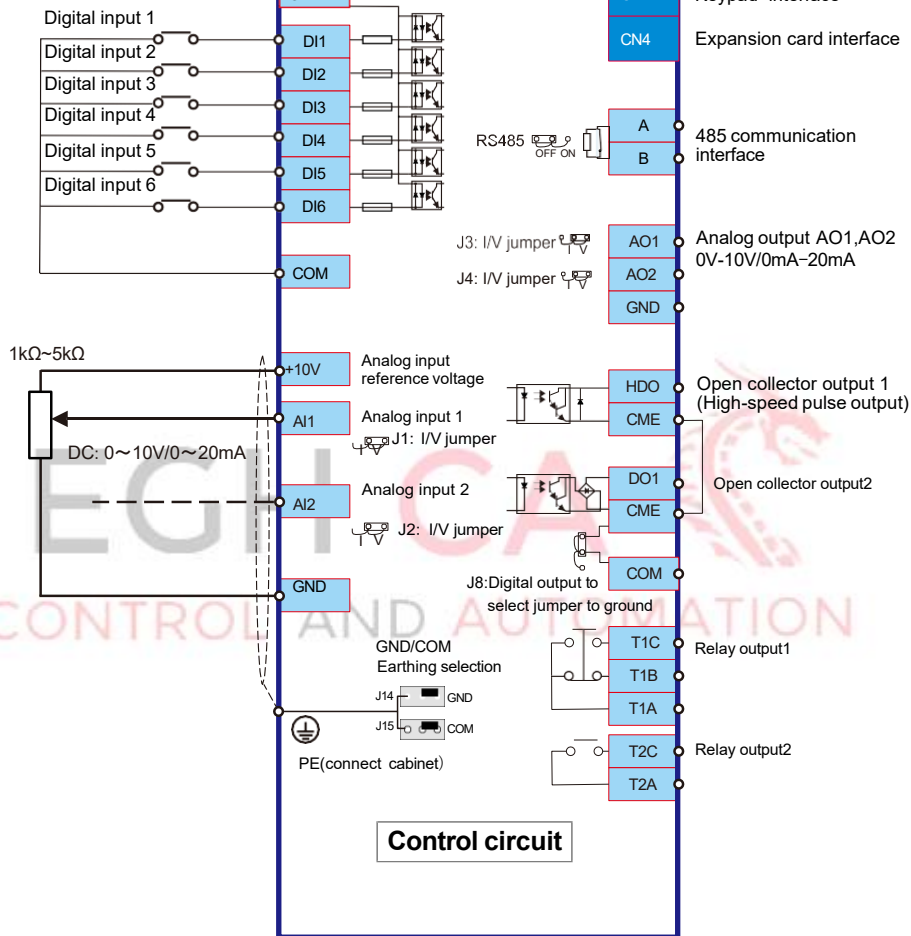
Figure 2-4  
Opening dimension diagram  
for keypad with base



DI1~DI6:

Freq:0~200Hz(DI5:0~100KHz)

Voltage:10~30V



NOTE:

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

## 2.2 Main Circuit Wiring Diagram

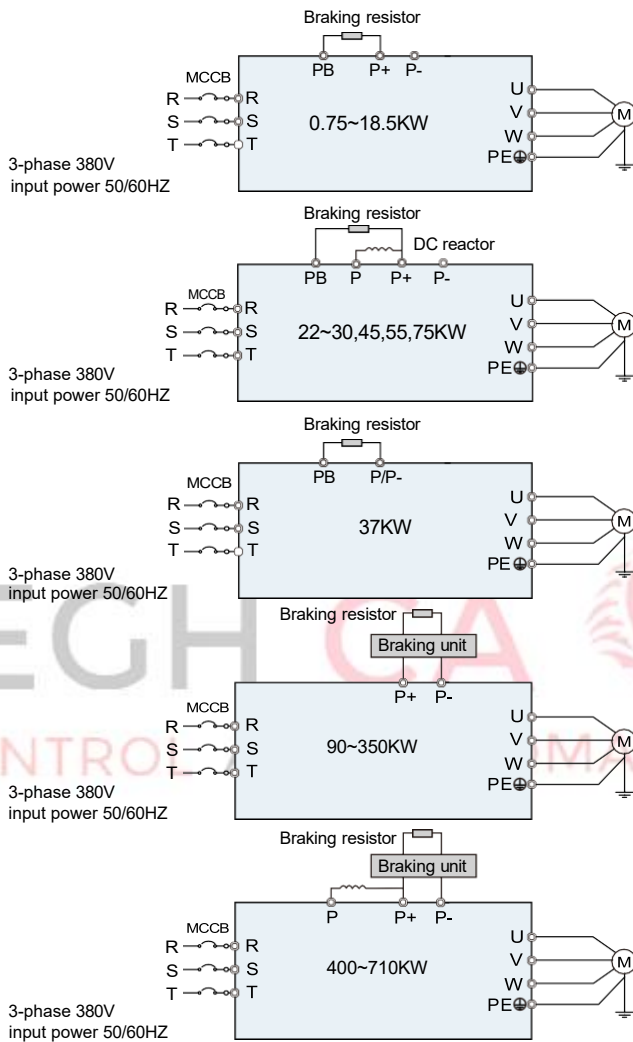


Figure 2-6 Main circuit wiring diagram

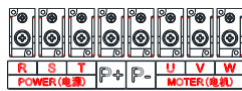
### Note:

1. DC reactor, braking unit and braking resistor are optional accessories".
2. P and (+) are short circuited in factory, if need to connect with the DC reactor, please remove the contact tag between P 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;

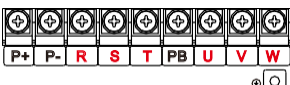
## 2.3 Terminal wiring diagram



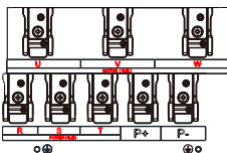
0.7~11KW Schematic diagram of main circuit terminals



90~110KW Schematic diagram of main circuit terminals



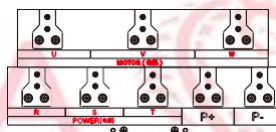
15~18.5KW Schematic diagram of main circuit terminals



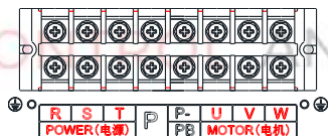
132~250KW Schematic diagram of main circuit terminals



22~30KW Schematic diagram of main circuit terminals

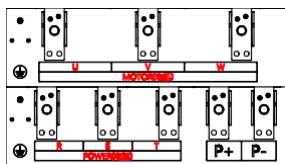


280~350KW Schematic diagram of main circuit terminals

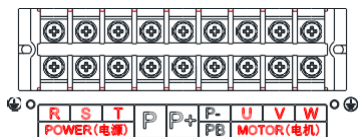


37KW Schematic diagram of main circuit terminals

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

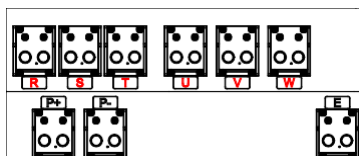


400~500KW Schematic diagram of main circuit terminals



45~75KW Schematic diagram of main circuit terminals

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



630~710KW 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.

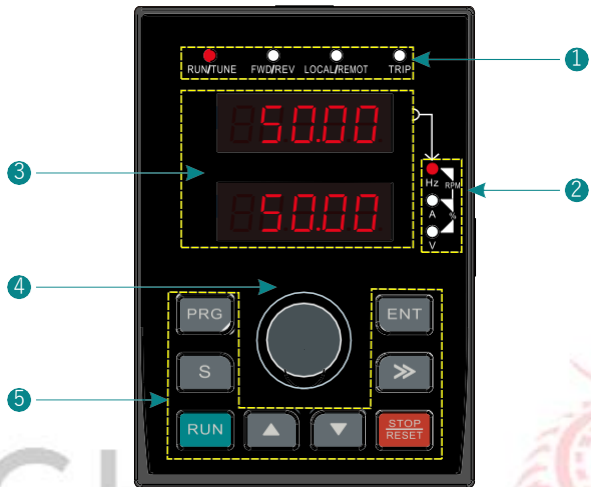
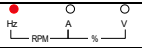


Figure 3-1 Keypad diagram

**Note:**  
Optional LCD keyboard.

| 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                             |
|     |                  |              | Quick flash | Fault state                                     |
|     |                  |              | Slow flash  | Parameter autotuning status                     |

| 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                                                                                                                                       |

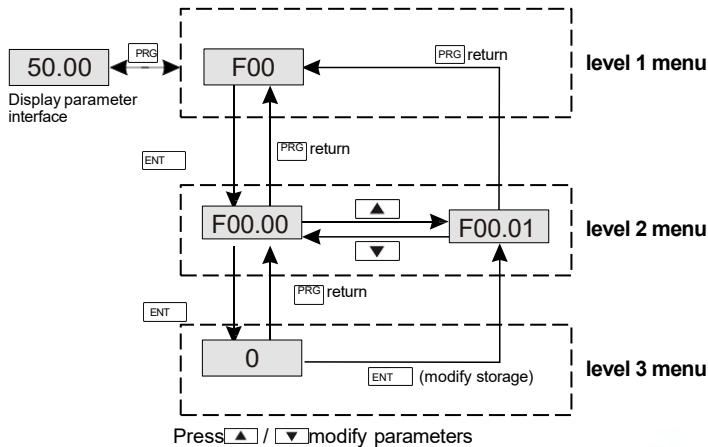
### 3.2 Keypad Operation

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:

- Such a function code is only readable, such as, AC drive model, actually detected parameter and running record parameter;
- 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.

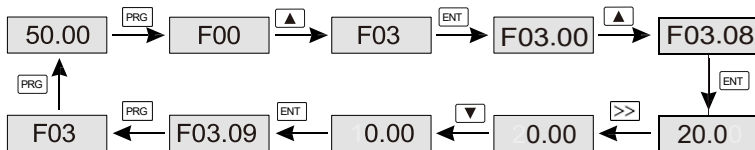


Figure 3-2 Modifying parameters diagram

### 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 of LCD keyboard

The inverter can be equipped with an LCD keyboard(optional), which can control the start and stop of the inverter, read status data and set parameters.



| Serial number | Name             | Illustrate     |                                                                         |                                                                                                                                                                                                                                                              |
|---------------|------------------|----------------|-------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1             | Indicator Status | RUN/TUNE       | Off                                                                     | VFD stop                                                                                                                                                                                                                                                     |
|               |                  |                | On                                                                      | VFD run                                                                                                                                                                                                                                                      |
|               |                  | FWD/REV        | Off                                                                     | Forward rotation command state                                                                                                                                                                                                                               |
|               |                  |                | On                                                                      | Reverse rotation command state                                                                                                                                                                                                                               |
|               |                  |                | Flashing                                                                | Forward and reverse switching state                                                                                                                                                                                                                          |
|               |                  | LOCAL/REMOT    | Off                                                                     | Panel start-stop control mode                                                                                                                                                                                                                                |
|               |                  |                | On                                                                      | Terminal start and stop control mode                                                                                                                                                                                                                         |
|               |                  |                | Flashing                                                                | Communication start and stop control mode                                                                                                                                                                                                                    |
|               |                  | TRIP           | On                                                                      | Torque control mode                                                                                                                                                                                                                                          |
|               |                  |                | Quick flash                                                             | Fault state                                                                                                                                                                                                                                                  |
|               |                  |                | Slow flash                                                              | Parameter autotuning status                                                                                                                                                                                                                                  |
| 2             | LCD screen       | Display screen | Can display 3 Monitoring parameters or 5 Submenu items at the same time |                                                                                                                                                                                                                                                              |
| 3             | Button area      | PRG            | Program ming key                                                        | Enter or exit the menu interface<br>Home page short press: enter the main menu page;<br>Long press on the home page: Enter the shortcut menu page;<br>Short press on the menu page:Return to the previous page;<br>Menu page long press:Return to home page; |

|   |             |                                                                                   |                |                                                                                                                                                                                                                                                                                      |
|---|-------------|-----------------------------------------------------------------------------------|----------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 3 | Button area |  | Run key        | Run or confirm before auto tuning                                                                                                                                                                                                                                                    |
|   |             |  | Stop/reset key | In the running state, press this key to stop the running operation.<br>In the fault alarm state, this key can be used to reset the operation.                                                                                                                                        |
|   |             |  | Increment key  | Move up to view the display, the number increments                                                                                                                                                                                                                                   |
|   |             |  | Down key       | Move down to view the display, the number is decremented                                                                                                                                                                                                                             |
|   |             |  | S key          | 1: Only in the main monitoring page, the S key is restricted by the function code F10.00 (The default S key is the jog function on the main monitoring page);<br>2: Under the non-main monitoring page Turn the page up, select the functions such as moving the cursor to the left; |
|   |             |  | Right click    | 1: Under the main monitoring page Right click to enter the secondary monitoring page;<br>2: Under the non-main page Flip page down, select functions such as moving the cursor to the right;                                                                                         |

### 3.3.1 Interface introduction

Monitoring interface:

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

| LOCAL                     | STOP  |
|---------------------------|-------|
| Set Freq<br>F99.01 Hz     | 50.00 |
| Motor Speed<br>F99.03 rpm | 1460  |
| Bus Volt<br>F99.08 v      | 565.8 |
| PRG                       | ▲▼    |

|                                             |        |   |
|---------------------------------------------|--------|---|
| F10.01                                      | 0x3F35 | o |
| Run Status Monitor Parm1<br>Output Torq(ON) |        |   |
| 00111000 ■ 101011                           |        |   |
| [▲,▼]: [ 0x0000,0xFFFF]                     |        |   |
| PRG                                         | ENT    |   |

Quick digital setting interface:

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

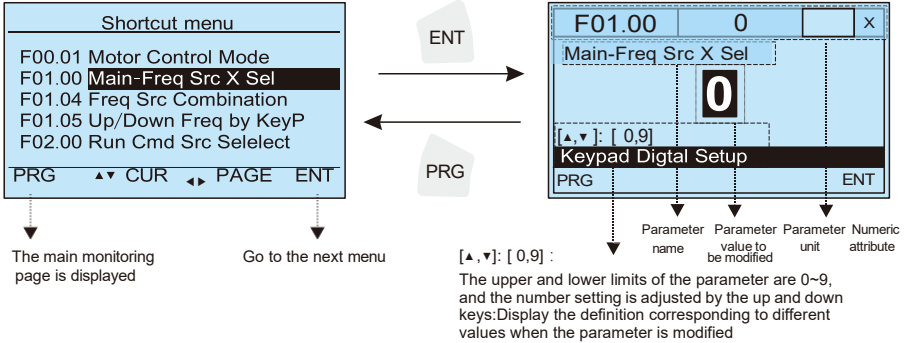
| LOCAL                          | STOP       |
|--------------------------------|------------|
| Output Freq:0.00HZ<br>Set Freq |            |
| <                              | 50.00 Hz > |
| 0.00                           | 50.00      |
| PRG                            |            |

| LOCAL                       | STOP |
|-----------------------------|------|
| PID Feedback:0<br>PID Setup |      |
| <                           | 0 >  |
| 0                           | 1000 |
| PRG                         |      |



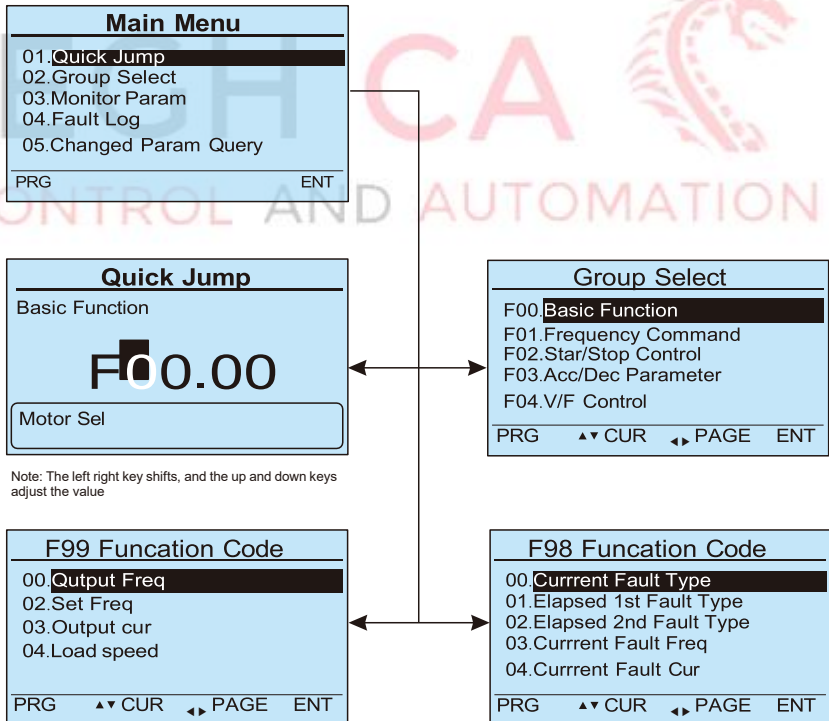
Shortcut menu:

Long press the PRG button in the monitoring interface to enter the shortcut menu, and then view or modify the parameters according to the needs. The parameters in the shortcut menu are set through the parameter F30 group.



Main menu:

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



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## Chapter 4 Function Parameters Table

---

### 4.1 Function Parameters Table

The function parameters of SD600 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 "0.0.0.0.0" 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<br>1: Motor 2                                                                                                                                                                                                       | 0               | X            | 0x000 |
| F00.01                         | Motor control technique | Ones: motor 1 control parameter<br>0: V/F control<br>1: SVC control<br>2: FVC control<br>Tens: motor 2 control parameter<br>0: V/F control<br>1: SVC control<br>2: FVC control                                                 | 0               | X            | 0x001 |
| F00.02                         | Type of drive           | 0: Type G<br>(applicable to constant-torque load)<br>1: Type P<br>(applicable to light-duty load)                                                                                                                              | 0               | X            | 0x002 |
| F00.03                         | LCD display language    | 0: Chinese<br>1: English<br>2: Russian                                                                                                                                                                                         | 0               | ○            | 0x003 |
| F00.04                         | RESERVED                |                                                                                                                                                                                                                                |                 | *            |       |
| F00.05                         | Parameters copy         | 0: No operation<br>1: Displays the modified parameters<br>2: Upload the parameters<br>3: Parameters copied (excluding motor parameters) to control board<br>4: Parameters copied (including motor parameters) to control board | 0               | ○            | 0x005 |
| F00.06                         | Parameters protection   | 0: All parameter programming allowed<br>1: Only this parameter programming allowed                                                                                                                                             | 0               | ○            | 0x006 |
| F00.07                         | Software version        | XXXXX                                                                                                                                                                                                                          |                 | *            | 0x007 |
| F00.08                         | User's password         | 0: No password<br>Other: Password protection                                                                                                                                                                                   | 0               | ○            | 0x008 |
| F00.09                         | Supplier's password     | XXXXX                                                                                                                                                                                                                          | Model dependent | ○            | 0x009 |
| F00.10                         | Parameter restoration   | 0: No operation<br>1: Restore all parameters to factory default (excluding motor parameters)<br>2: Clear fault record<br>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<br>1: Keypad potentiometer setting<br>2: Analog AI1 setting<br>3: Analog AI2 setting<br>4: Analog AI3 setting<br>5: High-speed pulse DI5 setting                                                                                                                                                                      | 1             | X            | 0x100 |
| F01.01                                | Y frequency command                    | 6: Multi-step Freq running setting<br>7: Simple PLC setting<br>8: PID control setting<br>9: Communication setting                                                                                                                                                                                                                               | 3             | X            | 0x101 |
| F01.02                                | Y frequency command reference          | 0: MAX. output frequency(F01.07)<br>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:<br>Frequency reference selection<br>0: X<br>1: X and Y calculation<br>(based on tens position)<br>2: Switchover between X and Y<br>3: Switchover between X and "X&Y calculation"<br>4: Switchover between Y and "X&Y calculation"<br><br>Tens:<br>X and Y calculation formula<br>0: X + Y<br>1: X - Y<br>2: Max. (X, Y)<br>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:<br>Retentive selection of digital setting frequency upon stop<br>0: Not retentive<br>1: Retentive<br><br>Tens:<br>Retentive selection of digital setting frequency upon power-off<br>0: Not retentive<br>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<br>1: AI1<br>2: AI2<br>3: AI3<br>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<br>(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<br>1:prohibited                                                | 0             | ○            | 0x10C |
| F01.13        | Action if running frequency<lower limit frequency               | 0: Operating frequency lower limit<br>1: Zero speed operation<br>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<br>1: Terminal command channel (Keypad STOP disabled)<br>2: Terminal command channel (Keypad STOP enable)<br>3: Communication command (Keypad STOP disabled)<br>4: Communication command (Keypad STOP enabled)                                                                                                                                                                                                                                                                                                                | 0             | ○            | 0x200 |
| F02.01                                    | Binding command source to frequency source | Ones:<br>Binding keyboard command to frequency source<br>0: No function<br>1: Keypad digital setting<br>2: Keypad potentiometer setting<br>3: Analog AI1 setting<br>4: Analog AI2 setting<br>5: Analog AI3 setting<br>6: High-speed pulse DI5 setting<br>7: Multi-speed running setting<br>8: Simple PLC program setting<br>9: PID control setting<br>A: Communication setting<br><br>Tens:<br>Binding terminal command to frequency source<br>0-9, same as Ones<br><br>Hundreds:<br>Binding communication command to frequency source<br>0-9, same as Ones | 000           | ○            | 0x201 |
| F02.02                                    | Rotation direction                         | 0: Same direction<br>1: Reverse direction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0             | ○            | 0x202 |
| F02.03                                    | Start-up mode                              | 0: Start-up directly<br>1: Start-up after Speed tracking<br>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/<br>Pre excitation level             | 0.0~100.0%                                                                         | 50.0%           | ×            | 0x206 |
| F02.07        | DC injection braking active time/<br>Pre-excitation active time | 0.0~1000.0s                                                                        | 0.0s            | ×            | 0x207 |
| F02.08        | RESERVED                                                        |                                                                                    |                 | *            | —     |
| F02.09        | Stop Mode                                                       | 0: Decelerate to stop<br>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<br>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<br>1: valid operation command on terminal | 0               | ○            | 0x210 |
| F02.17        | Select restart after power failure                              | 0: prohibit restart<br>1: allow restart                                            | 0               | ○            | 0x211 |
| F02.18        | RESERVED                                                        |                                                                                    |                 |              | —     |
| F02.19        | Energy braking secection                                        | 0: Disable<br>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<br>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<br>1: Multi-dots V/F curve<br>2: 2.0en power V/F curve<br>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 Voltage 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)<br>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                               | RESERVED                                    |                                                                                                        |                 |              | —            |
| 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)<br>0.1%~30.0%(Manual torque boost)                                                                                                                                                                                                                                                 | Model dependent | <input type="radio"/> | 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 | <input type="radio"/> | 0x413 |
| F04.20        | V/F slip compensation gain                 | 0.0~200.0%                                                                                                                                                                                                                                                                                                      | 100%            | <input type="radio"/> | 0x414 |
| F04.21        | Droop control                              | 0.0~100.0%                                                                                                                                                                                                                                                                                                      | 0.0%            | <input type="radio"/> | 0x415 |
| F04.22        | Voltage setting on V/F separated pattern   | 0: Keypad digital setting(F04.23)<br>1: Keypad potentiometer setting<br>2: Analog AI1 setting<br>3: Analog AI2 setting<br>4: Analog AI3 setting<br>5: High-speed pulse DI5 setting<br>6: Multi-step Freq running setting<br>7: Simple PLC program setting<br>8: PID control setting<br>9: Communication setting | 0               | <input type="radio"/> | 0x416 |
| F04.23        | Keypad setting voltage                     | 0.0~Motor rated voltage                                                                                                                                                                                                                                                                                         | 0.0v            | <input type="radio"/> | 0x417 |
| F04.24        | Voltage ACC time                           | 0.0~1000.0s                                                                                                                                                                                                                                                                                                     | 0.0s            | <input type="radio"/> | 0x418 |
| F04.25        | Voltage DEC time                           | 0.0~1000.0s                                                                                                                                                                                                                                                                                                     | 0.0s            | <input type="radio"/> | 0x419 |
| F04.26        | Automatic current limit action selection   | 0: Disable<br>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<br>1: Stall protection mode 1<br>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<br>(with low frequency compensation)<br>1: AC drive motor<br>(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<br>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<br>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<br>1:0.1s~10.0s                                                                                                   | 0.0             | ×            | 0x519 |
| F05.26                                   | Motor 1 parameter autotuning                  | 0: No operation<br>1: Rotation autotuning<br>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)<br>1: Keypad potentiometer setting<br>2: Analog AI1 setting<br>3: Analog AI2 setting<br>4: Analog AI3 setting<br>5: High-speed pulse DI5 setting<br>6: Communication setting<br>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)<br>1: Keypad potentiometer setting<br>2: Analog AI1 setting<br>3: Analog AI2 setting<br>4: Analog AI3 setting<br>5: High-speed pulse DI5 setting<br>6: Communication setting<br>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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| Function code | Name                                      | Setup range                        | Default Value | Modification | Add.  |
|---------------|-------------------------------------------|------------------------------------|---------------|--------------|-------|
| F06.13        | Keypad digital setting of electric torque | 0.0~200.0% ( Motor rated current ) | 150.0%        | ○            | 0x60D |
| F06.14        | Keypad digital setting of braking torque  | 0.0~200.0% ( Motor rated current ) | 150.0%        | ○            | 0x60E |
| F06.15        | Torque limit coefficient influx weakening | 50~200                             | 100           | ○            | 0x60F |
| F06.16        | Compensation coefficient of slip          | 50%~200%                           | 100%          | ○            | 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<br>(with low-frequency compensation)<br>1: AC drive motor<br>(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<br>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<br>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<br>0.1s~10.0s                                                                                                    | 0.0             | ×            | 0x719 |
| F07.26                                   | Motor 2 parameter autotuning                  | 0: No operation<br>1: Rotation autotuning<br>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)<br>1: Keypad potentiometer setting<br>2: Analog AI1 setting<br>3: Analog AI2 setting<br>4: Analog AI3 setting<br>5: High-speed pulse DI5 setting<br>6: Communication setting<br>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)<br>1: Keypad potentiometer setting<br>2: Analog AI1 setting<br>3: Analog AI2 setting<br>4: Analog AI3 setting<br>5: High-speed pulse DI5 setting<br>6: Communication setting<br>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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| Function code | Name                                      | Setup range                        | Default Value | Modification | Add.  |
|---------------|-------------------------------------------|------------------------------------|---------------|--------------|-------|
| F08.13        | Keypad digital setting of electric torque | 0.0~200.0% ( Motor rated current ) | 150.0%        | ○            | 0x80D |
| F08.14        | Keypad digital setting of braking torque  | 0.0~200.0% ( Motor rated current ) | 150.0%        | ○            | 0x80E |
| F08.15        | Torque limit coefficient influx weakening | 50~200                             | 100           | ○            | 0x80F |
| F08.16        | Compensation coefficient of slip          | 50%~200%                           | 100%          | ○            | 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<br>1: Torque control                                                                                                                                                                                                                                                         | 0             | X            | 0x900 |
| F09.01                                      | Torque setting source in torque control                                        | 0: Keypad digital setting(F09.02)<br>1: Keypad potentiometer setting<br>2: Analog AI1 setting<br>3: Analog AI2 setting<br>4: Analog AI3 setting<br>5: High-speed pulse DI5 setting<br>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)<br>1: Keypad potentiometer setting<br>2: Analog AI1 setting<br>3: Analog AI2 setting<br>4: Analog AI3 setting<br>5: High-speed pulse DI5 setting<br>6: Communication setting<br>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)<br>1: Keypad potentiometer setting<br>2: Analog AI1 setting<br>3: Analog AI2 setting<br>4: Analog AI3 setting<br>5: High-speed pulse DI5 setting<br>6: Communication setting<br>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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| Function code | Name                           | Setup range                   | Default Value | Modification | Add.  |
|---------------|--------------------------------|-------------------------------|---------------|--------------|-------|
| F09.09        | Zero speed torque compensation | 0.0~100.0%(rated torque)      | 0.0%          | ○            | 0x909 |
| F09.10        | Zero speed frequency threshold | 0.00Hz~F00.03(Max. frequency) | 3.00Hz        | ○            | 0x90A |
| F09.11        | Sliding friction compensation  | 0.0~100.0%(rated torque)      | 0.0%          | ○            | 0x90B |



**Function Parameters Table**

| Function code                               | Name                                      | Setup range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                                                                                                                                                                             | Default Value | Modification | Add.   |
|---------------------------------------------|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|--------|
| Group F10: Keypad Operation and LED Display |                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                             |               |              |        |
| F10.00                                      | The key of S function selection           | 0: No function<br>1: Forward jog<br>2: Reverse jog<br>3: Forward/reverse switchover<br>4: Run command sources shifted<br>5: Clear the date of exact stop                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                             | 1             | ×            | 0x0A00 |
| F10.01                                      | Display parameter setting 1 on run status | 0~65535<br>BIT0: Running frequency(Hz ON)<br>BIT1: Setting frequency(Hz flash)<br>BIT2: Bus voltage(V ON)<br>BIT3: Output voltage(V ON)<br>BIT4: Output current(A ON)<br>BIT5: Motor speed(rpm ON)<br>BIT6: Output power(% ON)<br>BIT7: Output torque(% ON)<br>BIT8: PID reference(% ON)<br>BIT9: PID feedback(% ON)<br>BIT10: Input terminal state<br>BIT11: Output terminal state<br>BIT12: AI1(V on)<br>BIT13: AI2(V on)<br>BIT14: AI3(V on)<br>BIT15: Linear speed<br>Note: If you want to display the above parameters, add the corresponding decimal to enter this parameter | $2^0=1$<br>$2^1=2$<br>$2^2=4$<br>$2^3=8$<br>$2^4=16$<br>$2^5=32$<br>$2^6=64$<br>$2^7=128$<br>$2^8=256$<br>$2^9=512$<br>$2^{10}=1024$<br>$2^{11}=2048$<br>$2^{12}=4096$<br>$2^{13}=8192$<br>$2^{14}=16384$<br>$2^{15}=32768$ | 53            | ○            | 0x0A01 |
| F10.02                                      | Display parameter setting 2 on run status | 0~65535<br>BIT0: PLC current stage<br>BIT1: Pulse count value<br>BIT2: Length value<br>BIT3: Torque setting value(% ON)<br>BIT4: Pulse Di5 frequency<br>BIT5: Load speed<br>BIT6: IGBT temperature<br>BIT7: AC input voltage<br>BIT8: Encoder feedback speed<br>BIT9~BIT15: Reserve<br>Note: If you want to display the above parameters, add the corresponding decimal to enter this parameter                                                                                                                                                                                    | $2^0=1$<br>$2^1=2$<br>$2^2=4$<br>$2^3=8$<br>$2^4=16$<br>$2^5=32$<br>$2^6=64$<br>$2^7=128$<br>$2^8=256$                                                                                                                      | 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<br>BIT0: Setting frequency(Hz ON)<br>BIT1: Motor speed(rpm ON)<br>BIT2: Bus voltage(V ON)<br>BIT3: AC input voltage<br>BIT4: Input terminal state<br>BIT5: Output terminal state<br>BIT6: PID reference(% ON)<br>BIT7: PID feedback(% ON)<br>BIT8: AI1(V on)<br>BIT9: AI2(V on)<br>BIT10: AI3(V on)<br>BIT11: Length value<br>BIT12: Pulse count value<br>BIT13: PLC current stage<br>BIT14: Load speed<br>BIT15: Pulse Di5 frequency<br>Note: If you want to display the above parameters, add the corresponding decimal to enter this parameter | $2^0=1$<br>$2^1=2$<br>$2^2=4$<br>$2^3=8$<br>$2^4=16$<br>$2^5=32$<br>$2^6=64$<br>$2^7=128$<br>$2^8=256$<br>$2^9=512$<br>$2^{10}=1024$<br>$2^{11}=2048$<br>$2^{12}=4096$<br>$2^{13}=8192$<br>$2^{14}=16384$<br>$2^{15}=32768$ | 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<br>1. One decimal point<br>2. Two decimal points<br>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<br>1: Forward<br>2: Reverse<br>3: Three-wire control operation                                                                                              | 1             | ×            | 0x0B00       |
| F11.01                                        | DI2 terminals function selection                            | 4: Forward Jogging<br>5: Reverse Jogging<br>6: Coast to stop<br>7: External STOP terminal 1<br>8: External STOP terminal 2(DEC time4)<br>9: Immediate DC injection braking | 2             | ×            | 0x0B01       |
| F11.02                                        | DI3 terminals function selection                            | 10: DEC DC injection braking<br>11: Run Pause<br>12: Fault reset<br>13: Shift the command 1<br>14: Shift the command 2                                                     | 4             | ×            | 0x0B02       |
| F11.03                                        | DI4 terminals function selection                            | 15: Shift frequency command<br>16: Terminal UP<br>17: Terminal DOWN<br>18: Clear UP/DOWN (including $\wedge/\vee$ key) adjustment                                          | 12            | ×            | 0x0B03       |
| F11.04                                        | DI5 terminals function selection                            | 19: Multi-step speed terminal K1<br>20: Multi-step speed terminal K2<br>21: Multi-step speed terminal K3<br>22: Multi-step speed terminal K4                               | 0             | ×            | 0x0B04       |
| F11.05                                        | DI6 terminals function selection (extension card function)  | 23: PLC status reset<br>24: PID parameters switching<br>25: PID second digital given switching terminal                                                                    | 0             | ×            | 0x0B05       |
| F11.06                                        | DI7 terminals function selection (extension card function)  | 26: PID action direction reverse<br>27: PID pause<br>28: Pulse input (valid only for DI5)<br>29: Swing pause<br>30: Counter input                                          | 0             | ×            | 0x0B06       |
| F11.07                                        | DI8 terminals function selection (extension card function)  | 31: Counter reset<br>32: Length count input<br>33: Length reset<br>34: Clear the current running time<br>35: Reverse prohibited                                            | 0             | ×            | 0x0B07       |
| F11.08                                        | DI9 terminals function selection (extension card function)  | 36: DEC/ACC time 1<br>37: DEC/ACC time 2<br>38: DEC/ACC disabling<br>39: External fault input 1<br>40: External fault input 2                                              | 0             | ×            | 0x0B08       |
| F11.09                                        | DI10 terminals function selection (extension card function) | 41: Motor 1/2 switchover<br>42: Speed control/Torque control switchover<br>43: Torque control prohibited                                                                   | 0             | ×            | 0x0B09       |
| F11.10                                        | Filtering time of digital input terminal                    | 0.000~1.000s                                                                                                                                                               | 0.010s        | ○            | 0x0B0A       |

**Function Parameters Table**

| Function code | Name                             | Setup range                                                                                                                                                                                                                           | Default Value | Modification | Add.   |
|---------------|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|--------|
| F11.11        | DI active mode selection 1       | 0:Positive logic<br>1:Negative logic<br><br>Units position: DI1 active mode<br>Tens position: DI2 active mode<br>Hundreds position: DI3 active mode<br>Thousand position: DI4 active mode<br>Ten thousands position: DI5 active mode  | 00000         | X            | 0x0B0B |
| F11.12        | DI active mode selection 2       | 0:Positive logic<br>1:Negative logic<br><br>Units position: DI6 active mode<br>Tens position: DI7 active mode<br>Hundreds position: DI8 active mode<br>Thousand position: DI9 active mode<br>Ten thousands position: DI10 active mode | 00000         | X            | 0x0B0C |
| F11.13        | Terminals control running mode   | 0: 2-wire control 1<br>1: 2-wire control 2<br>2: 3-wire control 1<br>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 |

F11.13 Illustrate

|                                                                      |                                                                      |
|----------------------------------------------------------------------|----------------------------------------------------------------------|
| <p align="center">Schematic diagram of two-line operation mode 1</p> | <p align="center">Schematic diagram of two-line operation mode 2</p> |
| <p align="center">Schematic diagram of linear operation mode 1</p>   | <p align="center">Schematic diagram of linear operation mode 2</p>   |

**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)<br>1: Open collector pole output ( See F12.02 for detailed information of the related function)                                                           | 0             | ○            | 0x0C00 |
| F12.01                                         | DO1 output                   | 0: Invalid<br>1: AC drive running<br>2: Forward running<br>3: Reverse running<br>4: Jogging running<br>5: Zero-speed running<br>6: Ready for operation<br>7: AC drive fault                                                                                           | 0             | ○            | 0x0C01 |
| F12.02                                         | HDO output                   | 8: AC drive overload pre-alarming<br>9: Motor overload pre-alarming<br>10: AC drive underload pre-alarming<br>11: Frequency arrival<br>12: Upper limit Freq attained<br>13: Lower limit Freq attained<br>14: Frequency detection FDT1<br>15: Frequency detection FDT2 | 0             | ○            | 0x0C02 |
| F12.03                                         | Relay T1 output              | 16: Frequency 1 reached<br>17: Frequency 2 reached<br>18: Reserved<br>19: Completion of PLC stage<br>20: Completion of PLC Circle                                                                                                                                     | 1             | ○            | 0x0C03 |
| F12.04                                         | Relay T2 output              | 21: PID sleeping<br>22: Current 1 reached<br>23: Current 2 reached<br>24: Load status<br>25: Setting count value attained<br>26: Designated count value attained<br>27: Setting length attained<br>28: Designated length attained<br>29: Setting running time reached | 7             | ○            | 0x0C04 |
| F12.05                                         | Relay T3 output selection    | 30: Communication setting<br>31: Output DI1<br>32: Output DI2<br>33: Limit the output DI1<br>34: AI1 input limit exceeded<br>35: Brake control<br>36: PID feedback offline<br>37: Motor overheating forecast alarm                                                    | 0             | ○            | 0x0C05 |
| F12.06                                         | Polarity of output terminals | 0: Positive logic<br>1: Negative logic<br><br>Units position: DO1 active mode<br>Tens position: HDO active mode<br>Hundreds position: T1 active mode<br>Thousand position: T2 active mode<br>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          | <input type="radio"/> | 0x0C07 |
| F12.08        | DO1 switch-off delay time           | 0.0~3600.0s                   | 0.0s          | <input type="radio"/> | 0x0C08 |
| F12.09        | HDO switch-on delay time            | 0.0~3600.0s                   | 0.0s          | <input type="radio"/> | 0x0C09 |
| F12.10        | HDO switch-off delay time           | 0.0~3600.0s                   | 0.0s          | <input type="radio"/> | 0x0C0A |
| F12.11        | T1 switch-on delay time             | 0.0~3600.0s                   | 0.0s          | <input type="radio"/> | 0x0C0B |
| F12.12        | T1 switch-off delay time            | 0.0~3600.0s                   | 0.0s          | <input type="radio"/> | 0x0C0C |
| F12.13        | T2 switch-on delay time             | 0.0~3600.0s                   | 0.0s          | <input type="radio"/> | 0x0C0D |
| F12.14        | T2 switch-off delay time            | 0.0~3600.0s                   | 0.0s          | <input type="radio"/> | 0x0C0E |
| F12.15        | Relay T3 closed delay               | 0.0~3600.0s                   | 0.0s          | <input type="radio"/> | 0x0C0F |
| F12.16        | Relay T3 disconnect delay           | 0.0~3600.0s                   | 0.0s          | <input type="radio"/> | 0x0C10 |
| F12.17        | Frequency arrival detection value   | 0.0%~100.0%                   | 0.0%          | <input type="radio"/> | 0x0C11 |
| F12.18        | FDT1 frequency detection value      | 0.00Hz~F01.07(Max. frequency) | 50.00Hz       | <input type="radio"/> | 0x0C12 |
| F12.19        | FDT1 frequency detection hysteresis | 0.0%~100.0%                   | 5.0%          | <input type="radio"/> | 0x0C13 |
| F12.20        | FDT2 frequency detection value      | 0.00Hz~F01.07(Max. frequency) | 50.00Hz       | <input type="radio"/> | 0x0C14 |
| F12.21        | FDT2 frequency detection hysteresis | 0.0%~100.0%                   | 5.0%          | <input type="radio"/> | 0x0C15 |
| F12.22        | Detection of any frequency 1        | 0.00Hz~F01.07(Max. frequency) | 50.00Hz       | <input type="radio"/> | 0x0C16 |
| F12.23        | Detection width of any frequency 1  | 0.0%~100.0%(Max. frequency)   | 0             | <input type="radio"/> | 0x0C17 |
| F12.24        | Detection of any frequency 2        | 0.00Hz~F01.07(Max. frequency) | 50.00Hz       | <input type="radio"/> | 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 :Disable<br>1 :Enable(When changing the steering, the brake is in action)<br>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                                                                                                                                                         | 2.00Hz        | ×            | 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                                                                                                                                                       | 2.00Hz        | ○            | 0x0C25 |
| F12.38        | Release the delay time upward                     | 0.0s~10.0s                                                                                                                                                          | 0.2s          | ×            | 0x0C26 |
| F12.39        | Upward brake frequency                            | F12.40~Maxfrq                                                                                                                                                       | 2.00Hz        | ○            | 0x0C27 |
| F12.40        | Frequency of upward holding brake against sliding | 0.00~F12.39                                                                                                                                                         | 2.00Hz        | ○            | 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                              | 0~200%(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   | 0.0~F12.36                     | 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%                     | 100.0%        | ×            | 0x0C31 |
| F12.50        | Change the steering start delay time                  | 0.00~F12.37                    | 0.5s          | ×            | 0x0C32 |
| F12.51        | Jump frequency when changing steering (When F12.34=2) | 0.0%~F01.07                    | 2.00Hz        | ×            | 0x0C33 |
| F12.52        | Relay T4 output selection                             | 0~37                           | 0             | ○            | 0x0C34 |
| F12.53        | Output terminal polarity Select 2                     | 11111                          | 00000         | ○            | 0x0C35 |
| F12.54        | Relay T4 closed delay                                 | 0.0~3600.0s                    | 0.0s          | ○            | 0x0C36 |
| F12.55        | Relay T4 disconnect delay                             | 0.0~3600.0s                    | 0.0s          | ○            | 0x0C37 |

**Function Parameters Table**

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

**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.   |
|-----------------------------------------------------------------------|---------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|--------------|--------|
| <b>Group F15 Analog Curve And Pulse Output Setting Function Group</b> |                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                  |               |              |        |
| F15.00                                                                | AO1 output                                  | 0: Running frequency<br>1: Setting frequency<br>2: Output current (relative to twice rated current of the motor)<br>3: Output voltage<br>4: High speed pulse DI5 input value<br>5: Analog AI1 input value<br>6: Analog AI2 input value<br>7: Analog AI3 input value<br>8: Length<br>9: Count value<br>10: Running time<br>11: Output torque<br>12: Output power<br>13: Communication setting<br>14: Keypad potentiometer setting | 0             | ○            | 0x0F00 |
| F15.01                                                                | AO2 output                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1             | ○            | 0x0F01 |
| F15.02                                                                | HDO output                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0             | ○            | 0x0F02 |
| F15.03                                                                | Lower output limit of AO1                   | 0.0%~F15.05                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.0%          | ○            | 0x0F03 |
| F15.04                                                                | Corresponding AO1 output of lower limit     | 0.00V~10.00V                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.00V         | ○            | 0x0F04 |
| F15.05                                                                | Upper output limit of AO1                   | F15.03~100.0%                                                                                                                                                                                                                                                                                                                                                                                                                    | 100.0%        | ○            | 0x0F05 |
| F15.06                                                                | The corresponding AO1 output of upper limit | 0.00V~10.00V                                                                                                                                                                                                                                                                                                                                                                                                                     | 10.00V        | ○            | 0x0F06 |
| F15.07                                                                | Lower output limit of AO2                   | 0.0%~F15.09                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.0%          | ○            | 0x0F07 |
| F15.08                                                                | Corresponding AO2 output of lower limit     | 0.00V~10.00V                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.0%          | ○            | 0x0F08 |
| F15.09                                                                | Upper output limit of AO2                   | F15.07~100.0%                                                                                                                                                                                                                                                                                                                                                                                                                    | 100.0%        | ○            | 0x0F09 |
| F15.10                                                                | The corresponding AO2 output of upper limit | 0.00V~10.00V                                                                                                                                                                                                                                                                                                                                                                                                                     | 10.00V        | ○            | 0x0F0A |
| F15.11                                                                | Lower output limit of HDO                   | 0.0%~F15.13                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.0%          | ○            | 0x0F0B |
| F15.12                                                                | Corresponding HDO output of lower limit     | 0.00~60.00kHz                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.00Hz        | ○            | 0x0F0C |
| F15.13                                                                | Upper output limit of HDO                   | F15.11~100.0%                                                                                                                                                                                                                                                                                                                                                                                                                    | 100.0%        | ○            | 0x0F0D |
| F15.14                                                                | Corresponding HDO output of upper limit     | 0.00~60.00kHz                                                                                                                                                                                                                                                                                                                                                                                                                    | 10.00 kHz     | ○            | 0x0F0E |

**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<br>1: AI1 channel correction<br>2: AI2 channel correction<br>3: AI3 channel correction<br>4: AO1 channel correction<br>5: AO2 channel correction | 0                          | ○            | 0x1000 |
| F16.01                                  | AI1 measured voltage1             | 0.000V~10.000V                                                                                                                                                | Correction before delivery | ○            | 0x1001 |
| F16.02                                  | AI1 display voltage1              | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1002 |
| F16.03                                  | AI1 measured voltage2             | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1003 |
| F16.04                                  | AI1 display voltage 2             | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1004 |
| F16.05                                  | AI2 measured voltage1             | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1005 |
| F16.06                                  | AI2 display voltage1              | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1006 |
| F16.07                                  | AI2 measured voltage 2            | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1007 |
| F16.08                                  | AI2 display voltage 2             | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1008 |
| F16.09                                  | AI3 measured voltage 1            | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1009 |
| F16.10                                  | AI3 display voltage 1             | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x100A |
| F16.11                                  | AI3 measured voltage 2            | 0.00V~10.000V                                                                                                                                                 |                            | ○            | 0x100B |
| F16.12                                  | AI3 display voltage 2             | 0.00V~10.000V                                                                                                                                                 |                            | ○            | 0x100C |
| F16.13                                  | AO1 measured voltage 1            | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x100D |
| F16.14                                  | AO1 display voltage 1             | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x100E |
| F16.15                                  | AO1 measured voltage 2            | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x100F |
| F16.16                                  | AO1 display voltage 2             | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1010 |
| F16.17                                  | AO2 measured voltage1             | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1011 |
| F16.18                                  | AO2 display voltage1              | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1012 |
| F16.19                                  | AO2 measured voltage 2            | 0.000V~10.000V                                                                                                                                                |                            | ○            | 0x1013 |
| F16.20                                  | AO2 display voltage 2             | 0.000V~10.000V                                                                                                                                                |                            | ○            | 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<br>0: Broadcast address<br>1: Slaver address                                                                                                                                                                                                                                                                                                              | 1             | ○            | 0x1200       |
| F18.01                                               | Communication baud rate                   | Units position :<br>Modbus Communication baud rate<br>0: 300 BPS<br>1: 600 BPS<br>2: 1200 BPS<br>3: 2400 BPS<br>4: 4800 BPS<br>5: 9600 BPS<br>6: 19200 BPS<br>7: 38400 BPS<br>8: 57600 BPS<br>9: 115200 BPS<br><br>Tens position :<br>CAN Communication baud rate<br>0:20 KBPS<br>1:50 KBPS<br>2:100 KBPS<br>3:125 KBPS<br>4:250 KBPS<br>5:500 KBPS<br>6:1 MBPS | 45            | ○            | 0x1201       |
| F18.02                                               | Data format symbol                        | 0: No check (8-N-2)<br>1: Even parity check (8-E-1)<br>2: Odd parity check (8-O-1)<br>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);<br>0.1~60.0s                                                                                                                                                                                                                                                                                                                                    | 0.0s          | ○            | 0x1204       |
| F18.05                                               | Transmission fault processing             | 0: Alarm and stop freely<br>1: Alarm and stop according to the stop mode<br>2: No alarm and continue to run                                                                                                                                                                                                                                                     | 0             | ○            | 0x1205       |
| F18.06                                               | Current resolution ready by communication | 0: 0.01A<br>1: 0.1A                                                                                                                                                                                                                                                                                                                                             | 0             | ○            | 0x1206       |
| F18.07                                               | Modbus Protocol compatibility selection   | 0: SD600 protocol<br>1: SD100 protocol<br>2: SD200 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:<br>Communication run command channel selection<br>0: Modbus<br>1: Profibus-DP<br>2: CAN<br>3: CANopen<br>Tens position :<br>Communication protocol selection<br>0: Modbus<br>1: CANopen                                                                                                                                                                                                                                                                                                                                                                                                   | 00            | ○            | 0x1209 |
| F18.10        | PPO type                         | 0: PPO1 format<br>1: PP02 format<br>2: PPO3 format<br>3: PPO4 format<br>4: PPO5 format                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2             | ×            | 0x120A |
| F18.11        | DP slave address                 | 1~127                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1             | ×            | 0x120B |
| F18.12        | PZD3 Write                       | 0: No operation<br>1: Communication setting frequency<br>2: PID Given value(0~PID range)<br>3: PID feedback(0~PID range)<br>4: Torque setting value(-10000~10000)<br>5: Forward upper limit frequency setting value (0~10000)<br>6: Reverse upper limit frequency setting value (0~10000)<br>7: Electric torque upper limit torque(0~10000)<br>8: Braking torque upper limit torque(0~10000)<br>9: Virtual output terminal command<br>10: Voltage setting (V/F separation purpose)(0~1000)<br>11: AO1 output setting (0~0X7FFF)<br>12: AO2 output setting (0~0X7FFF)<br>13: HDO output setting (0~0X7FFF) | 0             | ○            | 0x120C |
| F18.13        | PZD4 Write                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x120D |
| F18.14        | PZD5 Write                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x120E |
| F18.15        | PZD6 Write                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x120F |
| F18.16        | PZD7 Write                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x1210 |
| F18.17        | PZD8 Write                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x1211 |
| F18.18        | PZD9 Write                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x1212 |
| F18.19        | PZD10 Write                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x1213 |
| F18.20        | PZD11 Write                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x1214 |
| F18.21        | PZD12 Write                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x1215 |
| F18.22        | PZD3 Read                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x1216 |
| F18.23        | PZD4 Read                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x1217 |
| F18.24        | PZD5 Read                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x1218 |
| F18.25        | PZD6 Read                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x1219 |
| F18.26        | PZD7 Read                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x121A |
| F18.27        | PZD8 Read                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x121B |
| F18.28        | PZD9 Read                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x121C |
| F18.29        | PZD10 Read                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x121D |
| F18.30        | PZD11 Read                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0             | ○            | 0x121E |
| F18.31        | PZD12 Read                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 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:<br>PID reference source<br>0: Keypad potentiometer setting<br>1: PID digital setting(F19.02)<br>2: AI1<br>3: AI2<br>4: AI3<br>5: Pulse DI5<br>6: Communication setting<br>Tens position:<br>PID feedback source<br>0: AI1<br>1: AI2<br>2: AI3<br>3: AI1+AI2<br>4: AI1-AI2<br>5: MAX(AI1,AI2)<br>6: MIN(AI1,AI2)<br>7: Pulse DI5<br>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<br>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        | <input type="radio"/> | 0x1310 |
| F19.17        | PID Preset Value                                       | 0.0%~100.0%                                                                                                 | 0.0%          | <input type="radio"/> | 0x1311 |
| F19.18        | PID Preset Value Keeping time                          | 0.0~6500.0s                                                                                                 | 0.00s         | <input type="radio"/> | 0x1312 |
| F19.19        | PID Hiberate Frequency                                 | 0.00Hz~F01.07(max. frequency)                                                                               | 0.0           | <input type="radio"/> | 0x1313 |
| F19.20        | PID Hiberate Delay Time                                | 0.0~6500.0s                                                                                                 | 30.0s         | <input type="radio"/> | 0x1314 |
| F19.21        | PID Awaken Value                                       | 0.0~100.0%                                                                                                  | 0.0%          | <input type="radio"/> | 0x1315 |
| F19.22        | PID Awaken Value delay time                            | 0.0~6500.0s                                                                                                 | 0.5S          | <input type="radio"/> | 0x1316 |
| F19.23        | Upper protective pressure value                        | 0.0%~100.0%                                                                                                 | 100.0%        | <input type="radio"/> | 0x1317 |
| F19.24        | Upper limit protection detection time                  | 0.0s~1000.0s                                                                                                | 1.0s          | <input type="radio"/> | 0x1318 |
| F19.25        | Forced sleep deviation                                 | 0.0%~50.0%                                                                                                  | 0.0%          | <input type="radio"/> | 0x1319 |
| F19.26        | Forced sleep delay time                                | 0.0~6000.0s                                                                                                 | 0.0S          | <input type="radio"/> | 0x131A |
| F19.27        | Detection value of feedback offline                    | 0.0~100.0%                                                                                                  | 0.0%          | <input type="radio"/> | 0x131B |
| F19.28        | Detection time of feedback offline                     | 0.0~6500.0s                                                                                                 | 0.0s          | <input type="radio"/> | 0x131C |
| F19.29        | PID feedback offline processing                        | 0: Alarm and stop freely<br>1: Alarm and stop according to the stop mode<br>2: No alarm and continue to run | 0             | <input type="radio"/> | 0x131D |
| F19.30        | PID range decimal number                               | 0~4                                                                                                         | 0             | <input type="radio"/> | 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<br>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<br>1: setting length arrive<br>2: setting count value arrive<br>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                      | <p>Ones :</p> <p>PLC runmode</p> <p>0: Stop after running once</p> <p>1: Run at the final value after running once</p> <p>2: Cycle running</p> <p>Tens :</p> <p>Unit of simple PLC runtime</p> <p>0: Second (s)</p> <p>1: Minute (min)</p> | 00            | ○            | 0x1510 |
| F21.17                                                        | Simple PLC memory selection when in power loss | <p>Ones:</p> <p>Power loss memory</p> <p>0:No memory on power loss</p> <p>1: Memorized on power loss</p> <p>Tens:</p> <p>Stop memory</p> <p>0:No memory on stop</p> <p>1: Memorized on stop</p>                                            | 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<br/>0: Forward<br/>1: Reverse</p> <p>Tens: Accel/Decel time<br/>0: Accel/Decel time 1<br/>1: Accel/Decel time 2<br/>2: Accel/Decel time 3<br/>3: Accel/Decel time 4</p> <p>Hundreds : Freq setting<br/>0: Multi-step Freq 0 (F21.00)<br/>1: Keypad digital setting<br/>2: Keypad potentiometer setting<br/>3: AI1 setting<br/>4: AI2 setting<br/>5: AI3 setting<br/>6: DI5 pulse input<br/>7: Process PID output<br/>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<br>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<br>1: Valid                                                         | 1               | ○            | 0x1C01       |
| F28.02                                      | PWM mode                                    | 0: Three-phase modulation<br>1: Three-phase and two-phase modulation switching | 0               | ×            | 0x1C02       |
| F28.03                                      | Random PWM                                  | 0: Fixed PWM<br>1~10: Random PWM coefficient                                   | 0               | ×            | 0x1C03       |
| F28.04                                      | Voltage over modulation coefficient         | 100~110                                                                        | 105             | ×            | 0x1C04       |
| F28.05                                      | Cooling fan working mode                    | 0: Working during drive running<br>1: Working continuously                     | 0               | ×            | 0x1C05       |


  
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**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<br>Ones: Input phase loss protection<br>0: Disable<br>1: Enable<br><br>Tens: Output phase loss protection<br>0: Disable<br>1: Enable                                                                                                               | 0x11          | ×            | 0x1D00 |
| F29.01                                       | Detection of short-circuit to ground | 0x00~0x11<br>Ones: Detection of short-circuit to ground upon power-on<br>0: Disable<br>1: Enable<br><br>Tens: Before running detection of short-circuit to ground<br>0: Disable<br>1: Enable                                                                 | 0x01          | ×            | 0x1D01 |
| F29.02                                       | Motor overload protection            | 0: Invalid<br>1: Valid                                                                                                                                                                                                                                       | 1             | ×            | 0x1D02 |
| F29.03                                       | Motor overload protection gain       | 50~300                                                                                                                                                                                                                                                       | 100           | ×            | 0x1D03 |
| F29.04                                       | Overload pre-alarm setting           | 0x00~0x12<br>Ones: Overload pre-alarm processing<br>0: Alarm and stop freely<br>1: Alarm and stop according to the stop mode<br>2: No alarm and continue to run<br><br>Tens: Detection mode<br>0: Detection all the time<br>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<br>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<br>1: Alarm and stop according to the stop mode<br>2: No alarm and continue to run | 0             | <input type="radio"/> | 0x1D0A |
| F29.11        | Fault reset times                                     | 0~20                                                                                                        | 0             | <input type="radio"/> | 0x1D0B |
| F29.12        | Selection of DO action during auto reset              | 0: Not act<br>1: Act                                                                                        | 0             | <input type="radio"/> | 0x1D0C |
| F29.13        | Delay time of auto reset                              | 0.0s~100.0s                                                                                                 | 1.0s          | <input type="radio"/> | 0x1D0D |
| F29.14        | Detection level of speed error                        | 0.0%~50.0%                                                                                                  | 20.0%         | <input type="radio"/> | 0x1D0E |
| F29.15        | Detection time of speed error                         | 0.0:Don't detection<br>0.1s~60.0s                                                                           | 5.0s          | <input type="radio"/> | 0x1D0F |
| F29.16        | Overspeed detection level                             | 0.0%~50.0%                                                                                                  | 20.0%         | <input type="radio"/> | 0x1D10 |
| F29.17        | Overspeed detection time                              | 0.0:Don't detection<br>0.1s~60.0s                                                                           | 1.0s          | <input type="radio"/> | 0x1D11 |
| F29.18        | Power dip ride-through function selection             | 0: Disabled<br>1: Bus voltage constant control<br>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:invalid<br>1:PT100<br>2:PT1000<br>3:KTY84                                                                 | 0             | <input type="radio"/> | 0x1D16 |
| F29.23        | Motor overheat protection threshold                   | 0.0~200.0°C                                                                                                 | 110°C         | <input type="radio"/> | 0x1D17 |
| F29.24        | Motor overheat pre-alarm threshold                    | 0.0~200.0°C                                                                                                 | 90°C          | <input type="radio"/> | 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<br>1: Inverter module protection(E.OUT)<br>2: Current detection fault(E.ICE)<br>3: Short circuit to ground(E.ERH)<br>4: Input phase loss(E.SPI)<br>5:Output phase loss(E.SPO)<br>6: Overcurrent during acceleration(E.OC1)<br>7: Overcurrent during deceleration(E.OC2)<br>8: Overcurrent at constant speed(E.OC3)<br>9: Overvoltage during acceleration(E.OU1)<br>10: Overvoltage during deceleration(E.OU2)<br>11: Overvoltage at constant speed(E.OU3) | -             | *            | 0x2200       |
| F98.01                         | Previous fault type                     | 12: Undervoltage(E.LU)<br>13: AC drive overload(E.OL1)<br>14: Motor overload(E.OL2)<br>15: Motor overload prealarm(E.OL3)<br>16: Motor underload(E.LL)<br>17: AC drive overheated(E.OH)<br>18: Motor auto-tuning fault(E.TUNE)<br>19: EEPROM read-write fault(E.EEP)<br>20: External fault 1(E.EF1)<br>21: External fault 2(E.EF2)<br>22: Port communication fault(E.CE)                                                                                              | -             | *            | 0x2201       |
| F98.02                         | Previous 2 fault type                   | 23: PID feedback loss(E.PID)<br>24: Speed feedback fault(E.EDU)<br>25: Imbalance fault(E.STO)<br>26: Encoder fault(E.ECD)<br>27: Motor overheated fault(E.PTC)<br>28: Reserve<br>29: Magnetic pole initial position detection fault(E.PLR)<br>30: Motor switchover fault during running(E.CH)<br>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**

| Function code | Name                                       | Setup range | Default Value | Modification | Modification |
|---------------|--------------------------------------------|-------------|---------------|--------------|--------------|
| 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<br>2: Reverse<br>3: Forward Jogging<br>4: Reverse Jogging<br>5: AC drive Fault<br>6: Under-voltage<br>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   | <p>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.</p> <p align="center">DI1 DI2 DI3 DI4 DI5 DI6 DI7 DI8 DI9 DI10</p>  | ----          | *            | 0x2112 |

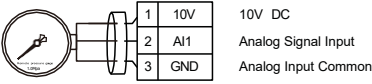
**Function Parameters Table**

| 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.<br><div style="text-align: center;">  </div> | ----          | *            | 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          | 0~200°C                                                                                                                                       | 0°C           | *            | 0x2121       |
| F99.34        | AC drive temperature       | -30~200°C                                                                                                                                     | ----          | *            | 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<br>1: P type                                                                                                                        | ----          | *            | 0x2125       |
| F99.38        | AC drive power             | 0.7~500.0KW                                                                                                                                   | ----          | *            | 0x2126       |
| F99.39        | Motor selection            | 1: Motor 1<br>2: Motor 2                                                                                                                      | ----          | *            | 0x2127       |
| F99.40        | Accumulative power-on time | 1Min~65535Min                                                                                                                                 | ----          | *            | 0x2128       |
| F99.41        | Accumulative running time  | 0.1Min~6553.5Min                                                                                                                              | ----          | *            | 0x2129       |

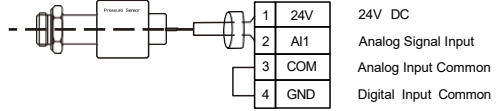
## 2.Constant pressure water supply

This application uses constant pressure water supply PID control, internal initialization of command source, frequency source, default display, sleep wake-up and other parameters, and sets the value of parameter F00.10 to 4.

### Wire connection example



Remote Pressure Gauge



24V Pressure Transmitter

### Note:

- When a voltage signal is input, the AI1 jumper cap J1 jumps to the V position (factory default V position). When a current signal is input, the AI1 jumper cap J1 jumps to the I position.
- When the current signal input is 4~20mA, F14.00 should be set to 2.00.

|   |     |                                                        |
|---|-----|--------------------------------------------------------|
| 1 | DI1 | Forward                                                |
| 2 | DI2 | Reverse                                                |
| 3 | DI3 | Set According To On-site Needs Sleep Frequency 30.00hz |
| 4 | DI4 | Fault Reset                                            |
| 5 | DI5 | Set According To On-site Needs Sleep Frequency 30.00hz |
| 6 | DI6 | Set According To On-site Needs Sleep Frequency 30.00hz |
| 7 | COM | Digital Input Common                                   |

The parameters are as follows: :

|                |                                                                                    |
|----------------|------------------------------------------------------------------------------------|
| F01.00=8       | Frequency Source PID                                                               |
| F01.10=20.00Hz | Lower Limit Frequency 20.00hz                                                      |
| F02.00=2       | Command Source Terminal Control                                                    |
| F10.01=273     | Operation monitoring display items are output frequency, output current, PID given |
| F10.04=64      | The Outage Monitoring Display Item Is Given By PID                                 |
| F10.06=24      | The lower row shows PID feedback                                                   |
| F19.19=30.00Hz | Sleep Frequency 30.00hz                                                            |
| F19.21=90.0%   | Wake Up Value 90.0%                                                                |
| F19.30=2       | Set Feedback 2 Decimal Places                                                      |

- When the PID setting reference source is the default digital reference, regardless of whether it is running or stopped, regardless of whether the current monitoring item is PID setting or PID feedback, just press the UP/DN key to directly adjust the setting. pressure.
- After setting the water supply application, you can press and hold the "PRG" button for 3 seconds to enter the user parameter mode. Press the UP/DN button to directly view the parameters related to constant pressure water supply (display mode is "uXX.XX"). Press "ENT" key to view and modify parameter values, press.The "PRG" key can exit this mode.

## 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.ICE  | 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 output 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 |                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                                                                                                                                                                                                            |
| 10  | E.OU 2 | Decelerating 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>                                                                                                                    |
| 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(0x08)

|                                        |      |
|----------------------------------------|------|
| ADDR                                   | xx   |
| CMD                                    | 0x08 |
| 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, this 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   |
| ..... | .....  | .....                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | R   |
| 210AH | F99.10 | AC drive status<br>1: Forward running<br>2: Reverse running<br>3: Forward jogging<br>4: Reverse jogging<br>5: AC drive fault<br>6: Under-voltage status<br>7: AC drive stop                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | R   |
| 210BH | F99.11 | 0~10000<br>0: No fault<br>1: IGBT protection<br>2: Current detecting fault<br>3: Grounding shortcut fault<br>4: Input phase loss<br>5: Output phase loss<br>6: Accelerating over-current<br>7: Decelerating over-current<br>8: Constant over-current<br>9: Accelerating over-voltage<br>10: Decelerating over-voltage<br>11: Constant over-voltage<br>12: Under-voltage fault<br>13: AC drive overload<br>14: Motor overload<br>15: Motor overload prealarm<br>16: Motor underload fault<br>17: AC drive overheat<br>18: Motor autotuning fault<br>19: EEPROM operation fault<br>20: User-defined fault 1<br>21: User-defined fault 2<br>22: Communication fault<br>23: PID feedback outline fault<br>24: Speed deviation fault<br>25: Maladjustment fault<br>26: Encoder fault<br>27: Motor overheat<br>28: Output signal feed back fault<br>29: Motor autotuning fault<br>30: EEPROM operation fault<br>31: Reserve<br>32: Power-on time arrive<br>33: Communi time arrive | 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<br>0002H: Reverse running<br>0003H: Forward jogging<br>0004H: Reverse jogging<br>0005H: Dcclerate stop<br>0006H: Coast to stop(emergency stop)<br>0007H: Fault reset | W   |
| Setting register | Torque Setting value                     | 2001H | -10000~10000<br>(Corresponding to -200.0%~200.0%)                                                                                                                                           | W   |
|                  | Forward upper limit frequency            | 2002H | 0~10000<br>Correspond to 0.0Hz~F01.07(Max. Freq)                                                                                                                                            | W   |
|                  | Reverse upper limit frequency            | 2003H | 0~10000<br>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<br>(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.