

# Catalog

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# Chapter 1 General

## 1.1 Safety Precautions

Please fully understand the safety precautions described in this manual before using to ensure safety of both persons and products.

### Warning signs and their meanings

The following marks are used in this manual to indicate that this part is of great safety importance. Failure to follow these precautions may result in personal injury, damage or even death to the product and associated systems.



|   |   |
|---|---|
|  | <b>DANGER:</b> death or major safety accidents may occur due to wrong operations. |
|  | <b>Caution:</b> minor injuries may occur due to wrong operations.                 |

Table 1- 1

### Operating qualification

This product must be operated by trained professionals. In addition, operators must go through professional skills training, familiar with the installation, wiring, operation and maintenance of the equipment, and correctly respond to various emergency situations in use.

### Safety rules

Safety rules are put forward for your safety and are measures taken to prevent injury to operators and damage to the product and associated systems; Read this manual carefully before use and strictly follow the safety rules and warning signs in this manual.

- Correct transportation, storage, installation, as well as careful operation and maintenance, is very important for the safe operation of the frequency inverter. During transportation and storage, the inverter must be protected from shock and shake. It must also be stored in places which are dry and free from non-corrosive gas, non-conductive dust and where ambient temperature is lower than 60°C.
- This product has dangerous voltage, and it is controlled by a potentially dangerous movement mechanism. Any operations against the regulations or the requirements of this manual may lead to personal injury or damage of the product and related system.
- Do not wire when power is on otherwise there is a risk of death by electric shock; When connecting cables, checking, or maintaining cables, power off all related devices and ensure that the DC voltage of the main loop is reduced to a safe level. Wait five minutes before performing related operations.
- Power cables, motor cables and control cables must be connected tight and all of the ground terminals must be grounded, and the grounding resistance is less than 10Ω.
- The static electricity of human body will seriously damage the internal sensitive devices. Before performing related operations, please follow the instructions specified in ESD prevention measures (ESD), otherwise the frequency inverter may be damaged.
- Output voltage of the inverter is a kind of pulse waveform, if the output side is equipped with capacitors or lightning protection varistor devices to improve the power factor, be sure to remove or refit the input side of the inverter.
- Switch devices such as circuit breakers and contactors shall not be added on the output side of the inverter (if the switch device must be connected on the output side, the output current of the inverter must be zero when the switch is operated in the control).
- No matter where the fault occurs in the control equipment, it may cause production suspension and major accidents. Therefore, take necessary external protection measures or backup devices.
- Please use this product only for the purposes prescribed by the manufacturer, usage for special occasions of emergency and rescue like marine, medical, aviation and nuclear facilities without permission are seriously forbidden.
- Maintenance of this product can only carry out by Veichi or professionals who have been licensed by Veichi, unauthorized modification or use of accessories without Veichi's authorization may lead to product failure. Any defective components must be replaced in time for product maintenance.

## 1.2 Pre-use

Upon receipt of your ordered products, please check whether the outer package is damaged, open the outer package after confirming that it is intact, and confirm whether the frequency inverter is damaged, scratched or contaminated (Damage caused during transportation does not fall within the scope of Veichi's "three guarantees"). If you receive a product with transportation damage, please contact the company or transportation

company immediately. After confirming that the received product is intact, please confirm again whether you received what you have ordered.

# AC01 - S 2 - R75 G - B

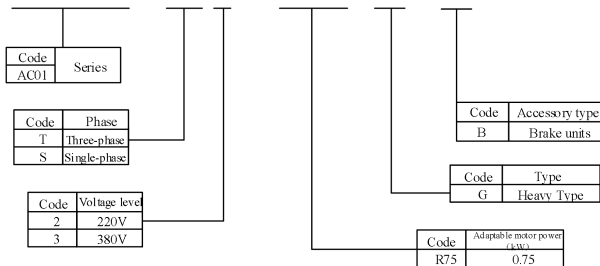


Figure 1-1

| Voltage   | 220V                    | 380V |
|-----------|-------------------------|------|
| Power(kW) | Rated output current(A) |      |
| 0.4       | 3.0                     | —    |
| 0.75      | 4.0                     | 2.5  |
| 1.5       | 7.0                     | 3.7  |
| 2.2       | 10.0                    | 5.0  |
| 4         | 16.0                    | 9.5  |
| 5.5       | —                       | 13.0 |
| 7.5       | —                       | 17.0 |

Table 1-2

## 1.3 Technical Specifications

| Item                        |   | Specification   |
|-----------------------------|---|---|
| Power input                 | Voltage & Frequency                         | S2: single-phase 200V ~ 240V 50Hz/60Hz;<br>T3: Three-phase 380V ~ 480V 50Hz/60Hz.   |
|                             | Allowable fluctuation                       | T/S2: -10% ~ 10%; T3: -15% ~ 10%; Voltage unbalance rate: <3%; Frequency: ±5%;<br>distortion rate conforming to IEC61800-2  |
|                             | Closing striking current                    | Lower than rated current  |
| Output                      | Output voltage                              | Rated output: 3 phase, 0V ~ input voltage, error lower than 5%  |
|                             | Output frequency range                      | 0Hz ~ 600Hz   |
|                             | Output frequency accuracy                   | ±0.5% of the maximum frequency value  |
|                             | Overload capacity                           | T3 model: 150% of rated current for 89 s, 180% of rated current for 10 seconds, 200% rated current for 3 s<br>S2 model: 150% of rated current for 24 seconds, 180% of rated current for 3.4 seconds |
| Primary control performance | Motor control mode                          | No PG V/F control, no PG vector control   |
|                             | Modulation mode                             | Optimized space vector PWM modulation   |
|                             | Motor type                                  | Three-phase asynchronous motor & permanent magnet synchronous motor supported   |
|                             | Carrier frequency                           | 2.0kHz ~ 12.0kHz  |
|                             | Speed control range                         | No PG vector control, rated load 1:100;   |
|                             | Steady-state speed accuracy                 | No PG vector control: ≤2% of rated synchronous speed;   |
|                             | Starting torque                             | No PG vector control: 150% of rated torque at 0.5Hz;  |
| Torque ripple               | No PG vector control: ≤0.1% of rated torque |   |

|                         |                                       |   |  |
|-------------------------|---------------------------------------|---|--|
| Product basic functions | Torque response                       | No PG vector control: < 20ms;   |  |
|                         | Frequency accuracy                    | Digital setting: maximum frequency $\times \pm 0.01\%$ ; Simulation setting: maximum frequency $\times \pm 0.2\%$   |  |
|                         | Frequency resolution                  | Digital setting: 0.01Hz; Simulation setting: maximum frequency $\times 0.05\%$  |  |
|                         | Torque control                        | Torque setting calculation, torque mode speed limit   |  |
|                         | DC braking capability                 | Starting frequency: 0.00Hz ~ 50.00Hz; Braking time: 0.0s ~ 60.0s; Braking current: 0.0% ~ 150.0% of rated current   |  |
|                         | Torque boost                          | Automatic torque increased by 0.0% ~ 100.0%; Manual torque increased by 0.0% ~ 30.0%  |  |
|                         | V/F curve                             | Four methods: linear torque characteristic curve, self-setting V/F curve, reduced torque characteristic curve (power 1.1 ~ 2.0), square V/F curve   |  |
|                         | Acceleration & Deceleration curves    | Two methods: linear acceleration and deceleration, S-curve acceleration and deceleration<br>Four settings of acceleration and deceleration time, time unit 0.01s, 65000s max.   |  |
|                         | Rated output voltage                  | Power supply voltage compensation enables setting within the range of 50% ~ 100% (the output cannot exceed the input voltage) when rated motor voltage is 100%.   |  |
|                         | Automatic voltage regulation          | The output voltage can be kept constant automatically during grid voltage fluctuation.  |  |
|                         | Automatic energy-saving operation     | The V/F control mode automatically optimizes the output voltage according to the load to realize energy saving.   |  |
|                         | Automatic current limiting            | Automatic current limit during operation to prevent frequent overcurrent failure trip   |  |
|                         | Instantaneous power failure treatment | Uninterrupted running during instantaneous power failure through the bus voltage control  |  |
|                         | Standard functions                    | PID control, speed tracking and power-off restart, jump frequency, frequency upper and minimum control, program operation, multi-speed, RS485 communication port, analog output, parameter access level setting, common parameter setting, monitoring parameter comparator output, counting and timing, and swing frequency   |  |
|                         | Environment                           | Frequency setting channel   | Analog voltage/current terminals AS (VS), communication and multi-channel terminals setting, combination of primary and secondary channels, and external keyboard settings can be switched in various ways |
|                         |                                       | Command running channel   | Communication setting via upper computer<br>Terminal setting via the X terminal<br>The number entering via the external keyboard   |
| Input command signal    |                                       | Start, stop, positive and negative rotation, point, multi-speed, free stop, reset, acceleration and deceleration time selection, frequency and channel setting and external fault alarm   |  |
| External output signal  |                                       | 1-way relay output, 1-way collector open output   |  |
| Protections             |                                       | Overvoltage, undervoltage, current limiting, overcurrent, overload, electronic thermal relay, overheat, overvoltage stall, data protection, rapid protection, input and output phase loss protection  |  |
| Environment             | Parameter copy                        | Function code information of the inverter can be uploaded and downloaded to realize fast parameter replication (only external keyboard)   |  |
|                         | Condition monitoring                  | 1. External keyboard input all parameters of monitoring parameter group including output frequency, given frequency, output current, input voltage, output voltage, motor speed, PID feedback, PID setting, module temperature, given torque and output torque.<br>2. The relevant status of the inverter can be indicated through the three LED lights on the product.<br>POWER indicates the power and it's red when power is normal.<br>RUN indicates running status and it's green when running is normal.<br>FAULT indicates warning or fault and it's red when something is abnormal. |  |
|                         | Fault warning                         | Overvoltage, undervoltage, overcurrent, short circuit, phase loss, overload, overheating, overvoltage stall, current limiting, data protection, current fault conditions and historical faults  |  |
| Environment             | Installation site                     | If the altitude is higher than 1000 meters, reduce 1% for each elevation of 100 meters;<br>No condensation, icing, rain, snow, hail, etc., solar radiation lower than 700W/m <sup>2</sup> , air pressure between 70kPa ~ 106kPa   |  |
|                         | Temperature & Humidity                | -20°C ~ +50°C, reduce 5% for each increase of 1°C when it's above 40 °C, 50°C max (no-load running)<br>≤95%RH (20°C; relative humidity change rate shall not exceed 5% per hour, and no condensation)   |  |
|                         | Vibration                             | 5.9m/s <sup>2</sup> (0.6G) when during 9Hz~200Hz  |  |
|                         | Storage temperature                   | -30°C~+60°C   |  |
|                         | Installation method                   | wall-mounted  |  |

|  |                  |  |
|--|------------------|--|
|  | Protection level | IP20   |
|  | Pollution level  | Level 2  |
|  | Cooling method   | Natural cooling for models with V1 cases<br>Forced air cooling for models with V2 and V3 cases |

Table 1-3

# Chapter 2 Installation

Please use the product in strict accordance with the requirements of the environment, wiring, and ventilation described in this chapter.

in order to ensure safety of the users and best performance of the inverter.

● **Dimensions of the inverter and keyboard**

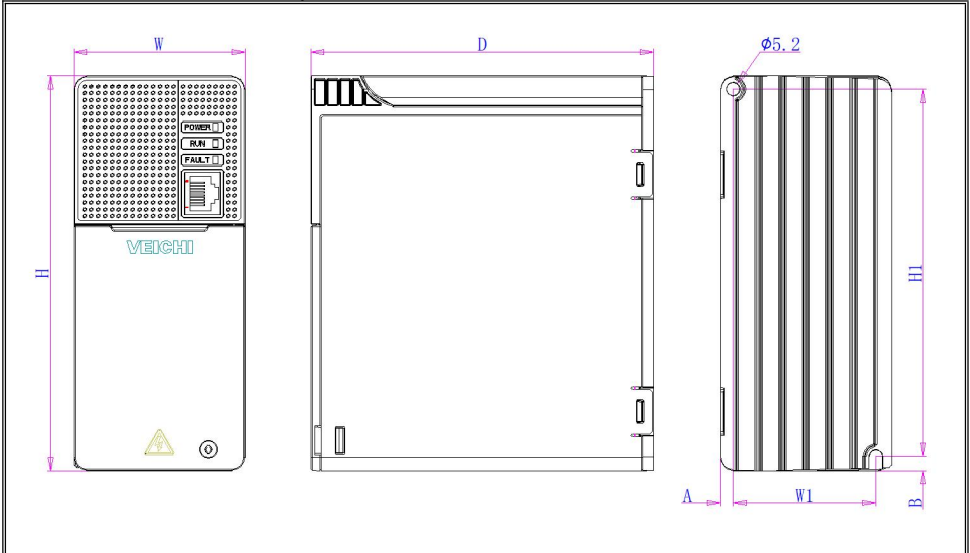


Figure 2- 1 Installation dimensions of V1 model

| Model          | Boundary dimension (mm) |     |     | Mounting dimension (mm) |     |    |       | Mounting aperture( mm) |
|----------------|-------------------------|-----|-----|-------------------------|-----|----|-------|------------------------|
|                | W                       | H   | D   | A                       | B   | W1 | H1    |                        |
| AC01-S2-R40G-B | 65                      | 150 | 130 | 5                       | 5.5 | 54 | 139.5 | Φ5.2                   |
| AC01-S2-R75G-B |                         |     |     |                         |     |    |       |                        |
| AC01-T3-R75G-B |                         |     |     |                         |     |    |       |                        |
| AC01-T3-1R5G-B |                         |     |     |                         |     |    |       |                        |

Table 2-2 Installation dimensions of V1 model

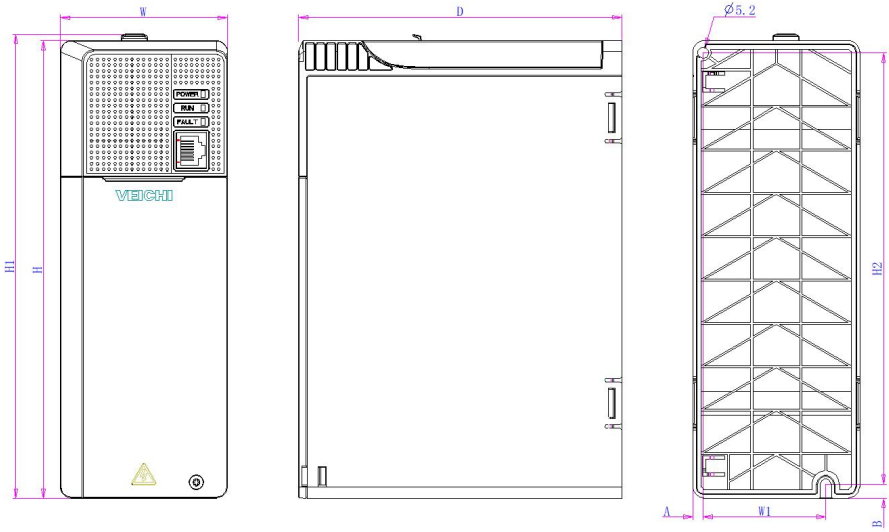


Figure 2- 2 Installation dimensions of V2 model

| Model          | Boundary dimension (mm) |     |     | Mounting dimension (mm) |    |       |        | Mounting aperture (mm) |
|----------------|-------------------------|-----|-----|-------------------------|----|-------|--------|------------------------|
|                | W                       | H   | D   | A                       | W1 | H1    | H2     |                        |
| AC01-S2-1R5G-B | 75                      | 205 | 145 | 4.7                     | 55 | 207.9 | 193.25 | Φ5.2                   |
| AC01-S2-2R2G-B |                         |     |     |                         |    |       |        |                        |
| AC01-T3-2R2G-B |                         |     |     |                         |    |       |        |                        |
| AC01-T3-004G-B |                         |     |     |                         |    |       |        |                        |

Table 2- 2 Installation dimensions of V2 model

● **Standard connection diagram**

Note:

1. Select the appropriate brake resistance according to the field conditions and *Brake Resistance Specifications*;
2. Multifunctional input terminals (X1 ~ X3) can be used as input for NPN transistor signals;
3. The digital and analog grounding terminals are combined into the COM terminal in the control circuit;



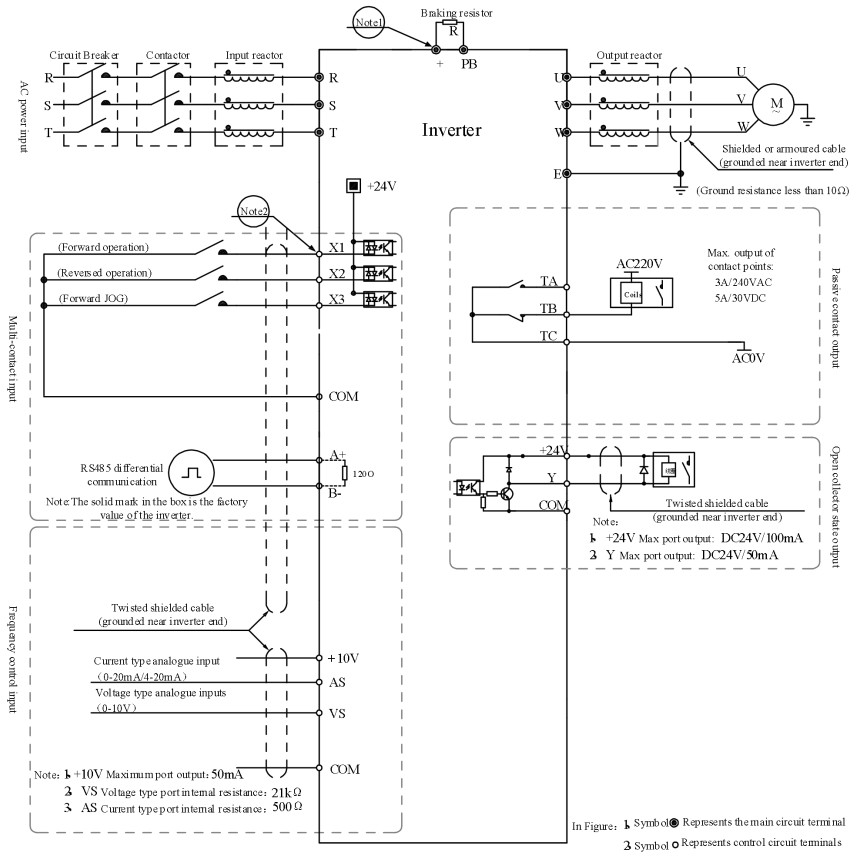


Figure 2- 3 Standard connection diagram

● Auxiliary terminals and output capacity

| Terminal    | Function  | Maximum output             |
|-------------|---|----------------------------|
| +10V        | a loop formed with a 10V auxiliary analog power output and COM                                  | 50mA                       |
| +24V        | a loop formed with a 24V auxiliary digital power output and COM                                 | 100mA                      |
| COM         | digital and analog power supply   |                            |
| X1 , X2, X3 | digit input terminal  | NPN-type, impedance 15 k Ω |
| Y           | Collector open output & programmable action object.   | DC24V/50mA                 |
| TA/TB/TC    | TA TC: normally on; TB TC: normally off<br>Passive contact output & programmable action object. | 3A/240VAC<br>5A/30VDC      |
| AS          | Current analog input  | 0-20mA/ 4-20mA             |
| VS          | Voltage analog input  | 0-10V                      |
| A+ B-       | RS485 communication terminal  |                            |

Table 2- 3 Auxiliary terminals and output capacity

● **Main loop terminal**

| Symbol | Designation               | Function   |
|--------|---------------------------|--|
| R/L    | main loop input terminal  | T3: three-phase power input R phase<br>S2: single-phase power input L line |
| S      |                           | T3: three-phase power input S phase<br>S2: reserved                        |
| T/N    |                           | T3: three-phase power input T phase<br>S2: single-phase power input N wire |
| U      | main loop output terminal | U-phase output   |
| V      |                           | V-phase output   |
| W      |                           | W-phase output   |
| +      | DC bus power terminal +   | Used on external brake resistance to realize quick stop                    |
| PB     | brake resistance terminal |  |
| ⏏      | ground terminal           | Used to ground the inverter  |

Table 2- 4 Main loop terminal

● **RJ45 interface pin definition**

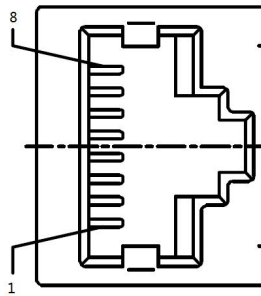


Figure 2- 4 RJ45 interface

It's the top view above and the specific network interpretations are as follows:

| Pin label | Pin definition | Description                                     |
|-----------|----------------|---|
| 1         | COM            | 5V power supply ground terminal                 |
| 2         | NC             | Reserved  |
| 3         | COM            | 5V power supply ground terminal                 |
| 4         | 5V             | 5V power  |
| 5         | 5V             | 5V power  |
| 6         | LOAD           | software programming to select pin              |
| 7         | B-             | RS485 communication B-, shared with terminal B- |
| 8         | A+             | RS485 communication A+, shared with terminal A+ |

Table 2-5 Network interpretations

- **Recommended brake resistance specifications**

The braking resistance and resistance power in the following table are verified by ordinary inertia load and intermittent braking mode. If it needs to be used in the occasion of large inertia and frequent braking for a long time, please adjust the braking resistance and resistance power appropriately according to the specifications of the selected inverter and the rated parameters of the braking unit. If you have any questions, please consult the service hotline of technical service department of Suzhou Veichi Electric Technology Co., LTD.

| <b>Three-phase 380V</b>  |                         |                    |   |                       |                                |
|--------------------------|-------------------------|--------------------|---|-----------------------|--------------------------------|
| <b>Model</b>             | <b>Motor power (kW)</b> | <b>Brake unit</b>  | <b>Recommended resistance (on 100% braking torque and 10% braking rate)</b> |                       | <b>Minimum resistance( Ω )</b> |
|                          |                         |                    | <b>Resistance model</b>   | <b>Resistors qty.</b> |                                |
| AC01-T3-R75G-B           | 0.75 kW                 | Built-in, standard | 750 Ω 150W  | 1                     | 100Ω                           |
| AC01-T3-1R5G-B           | 1.5 kW                  | Built-in, standard | 400 Ω 300W  | 1                     | 100Ω                           |
| AC01-T3-2R2G-B           | 2.2 kW                  | Built-in, standard | 250 Ω 400W  | 1                     | 100Ω                           |
| AC01-T3-004G-B           | 4.0 kW                  | Built-in, standard | 150 Ω 500W  | 1                     | 40Ω                            |
| AC01-T3-5R5G-B           | 5.5 kW                  | Built-in, standard | 100 Ω 600W  | 1                     | 40Ω                            |
| AC01-T3-7R5G-B           | 7.5 kW                  | Built-in, standard | 75 Ω 780W   | 1                     | 40Ω                            |
| <b>Single-phase 220V</b> |                         |                    |   |                       |                                |
| <b>Model</b>             | <b>Motor power (kW)</b> | <b>Brake unit</b>  | <b>Recommended resistance (on 100% braking torque and 10% braking rate)</b> |                       | <b>Minimum resistance( Ω )</b> |
|                          |                         |                    | <b>Resistance model</b>   | <b>Resistors qty.</b> |                                |
| AC01-S2-R40G-B           | 0.4 kW                  | Built-in, standard | 400Ω 100W   | 1                     | 50Ω                            |
| AC01-S2-R75G-B           | 0.75 kW                 | Built-in, standard | 200Ω 120W   | 1                     | 50Ω                            |
| AC01-S2-1R5G-B           | 1.5 kW                  | Built-in, standard | 100Ω 300W   | 1                     | 50Ω                            |
| AC01-S2-2R2G-B           | 2.2 kW                  | Built-in, standard | 75.0Ω 300W  | 1                     | 20Ω                            |
| AC01-S2-004G-B           | 4kW                     | Built-in, standard | 50.0Ω 500W  | 1                     | 20Ω                            |

Table 2-6 Recommended brake resistance specifications

# Chapter 3 Indicators, Keyboard and Operation Instructions

## ● Indicators

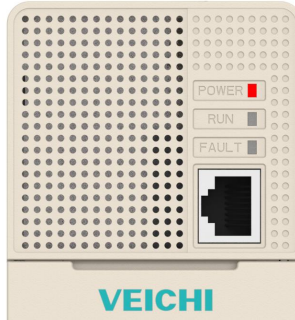


Figure 3-1 AC01 series main interface

States of AC01 Series inverters can be told via the three indicating lights on its interface:

| Symbol | Indicator | Status  | Description                            |
|--------|-----------|---|--|
| POWER  | RED       | on  | Power on, and ready for operation      |
|        |           | off   | Abnormal power supply                  |
| RUN    | GREEN     | on  | The inverter runs in positive rotation |
|        |           | Flash (500ms on and then 500ms off, and cycle starts again)                                     | Inverter runs in reverse               |
|        |           | off   | Inverter is not running                |
| FAULT  | RED       | on  | Faults of main codes 1~11 occur        |
|        |           | Flash (100ms on and then 100ms off, and cycle starts again)                                     | Faults of main codes 12~117 occur      |
|        |           | Flash slowly (100ms on and then 100ms off+100ms on and then 1700ms off, and cycle starts again) | warning                                |
|        |           | off   | fault-free                             |

Table 3-1 Indicators

Note: Refer to PAGE 54 of this manual for main FAULT/WARNING codes 1~163.

## ● Keyboard layout

Note: The current version of AC01 series inverter does not have its own keyboard, and KBD300-25 or KBD10-15 keyboard can be extended via RJ45 network port.

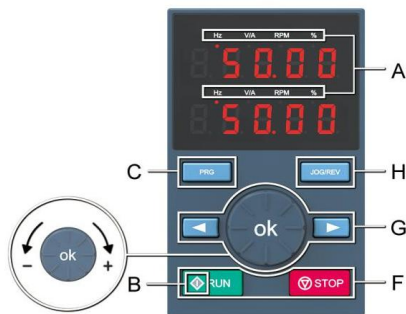


Figure 3- 2 KBD300-25 dual-line display keyboard

● External keyboard functions







| Symbol | Dual-line display keyboard   | Functions  |
|--------|--|--|
| A      | Unit indicator   | Hz: Frequency; A: current; V: voltage; V/A: voltage or current; RPM: speed; %: percentage.   |
| B      | Status indicator   | On: forward running; flash: reverse running; Off: shutdown.  |
| C      | Menu<br>                | Enter the menu interface when standby or running. Press the key to exit the modification after parameters are modified and long press the key for 1 second to directly enter the status interface.   |
| F      | Run<br>                 | When run/stop is controlled by the keyboard, press the key to make inverter rotate forward. The status indicator is on for forward rotating and flashing for reverse rotating.   |
|        | Stop/Reset<br>          | When the command is given via keyboard, press the key to stop the inverter. F11.03[keyboard stop key setting] can be used to define whether other command channels are valid or not; Press the key to reset the inverter in the fault state. |
| G      |                        | Digital potentiometer: press the up key to increase the operating value for clockwise rotation and press down key to reduce the operating value for counterclockwise rotation.   |
|        | Move left/ right<br>  | Confirm key: Press this key to confirm after modifying the value<br>Move left or right   |
| H      | Multifunction key<br> | Select the function of the key via F11.02[multi-function key selection via keyboard]   |

Table 3-2 External keyboard meanings

● Meaning of external keyboard indicators

| Designation                      | Status | Meaning  |                 |
|----------------------------------|--------|----------|-----------------|
| External keyboard unit indicator | Hz     | flash/on | frequency unit  |
|                                  | A      | on       | current unit    |
|                                  | V      | on       | voltage unit    |
|                                  | RPM    | on       | speed unit      |
|                                  | %      | flash/on | Percentage unit |

Table 3-3 Meaning of external keyboard indicators

● **Basic parameter group setting**

Take F0.122 [acceleration time] setting as an example to illustrate the basic operations of the external LED keyboard.

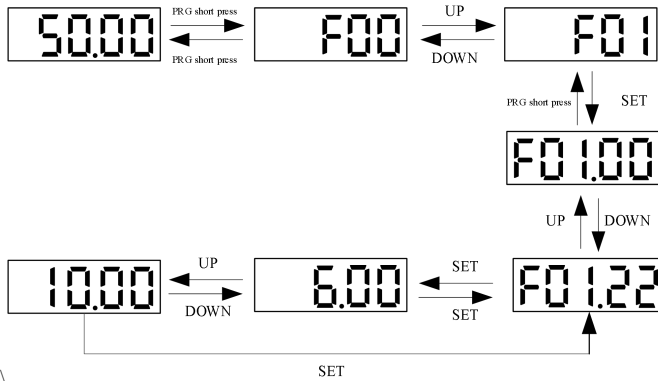


Figure 3- 3 Setting steps

Note: The keyboard shift key on the external keyboard can be used to quickly select the tens, hundreds and thousands of parameter values.

● **Operation monitoring status checking**

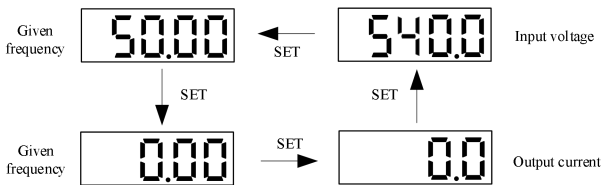


Figure 3- 4 Checking steps

Note: When using the external keyboard, use the left shift key to cycle switch the first row of monitoring parameters, and use the right shift key to cycle switch the second row of monitoring parameters.

● **Monitoring parameters checking**

Take C02.05[PLC operation phase] parameter checking as an example to explain the basic operation of the external LED keyboard.

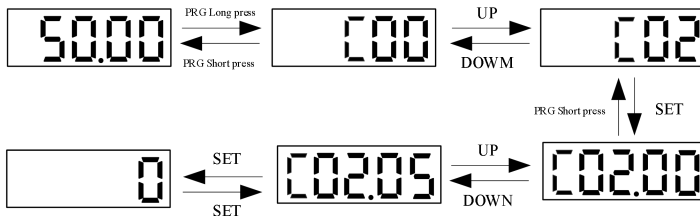


Figure 3- 5 Checking steps

# Chapter 4 Function List

This section only provides a brief list of functions. For details please refer to the technical manual of AC01 series inverter or consult relevant staff of Veichi.

## 4.1 Safety Precautions

| Danger   |
|--|
| Note all the information about safety in this book.  |
| Please note that failure to follow these warnings may result in serious injury or even death. We shall not be liable for any personal injury or equipment damage resulting from failure to comply with this manual by users. |

Table 4-1 Safety precautions

## 4.2 Reading Method of the Parameter List

### ◆ Icons and terms under control mode

| Mark | Meaning   | Mark | Meaning                                |
|------|---|------|--|
| V/F  | Valid parameters in V/F control mode              | RUN  | Changeable parameters during running   |
| SVC  | Valid parameters in open-loop vector control mode | STOP | Unchangeable parameters during running |
|      |   | READ | Read-only parameters, unchangeable     |

Table 4-2 Icons and terms

## 4.3 Function Group

| Note  |
|---|
| Setting parameter [F11.30] to choose RS485 or foreign keyboard and this parameter will not be reset with [F00.03] parameter. It is strongly recommended that the user disconnects the hardware of the other channel when using one of them. |

Table 4-3 Note

### ◆ Parameters of the Inverter

| Parameter     | Designation                                    | Parameter | Designation                                  |
|---------------|--|-----------|--|
| F00.0x        | Environment settings                           | F07.0x    | Start  |
| F00.1x        | Common parameter setting                       | F07.1x    | Stop   |
| F01.0x        | Basic command                                  | F07.2x    | DC braking & speed tracking                  |
| F01.1x        | Frequency command                              | F07.3x    | Jog  |
| F01.2x-F01.3x | Acceleration & deceleration time               | F07.4x    | Start/stop frequency keeping& frequency jump |
| F01.4x        | PWM control                                    | F08.0x    | Counting and timing                          |
| F02.0x        | Motor basic parameters & self-learning setting | F08.1x    | Reserved                                     |
| F02.1x        | Advanced parameters of asynchronous motor      | F08.2x    | Reserved                                     |
| F02.2x        | Advanced parameters of synchronous motor       | F08.3x    | Swing frequency control                      |
| F02.3x-F02.4x | Reserved                                       | F10.0x    | Current protection                           |
| F02.5x        | Motor application parameters                   | F10.1x    | Voltage protection                           |
| F03.0x        | Speed ring                                     | F10.2x    | Auxiliary protection                         |
| F03.1x        | Current loop and torque limit                  | F10.3x    | Load protection                              |
| F03.2x        | Torque optimization                            | F10.4x    | Stall protection                             |
| F03.3x        | Magnetic flow optimization                     | F10.5x    | Fault recovery & motor overload protection   |

|               |  |               |  |
|---------------|--|---------------|--|
| F03.4x-F03.5x | Torque control                             | F11.0x        | keys operation   |
| F04.0x        | V/F control                                | F11.1x        | Cyclic state monitoring                                  |
| F04.1x        | User-defined V/F curve                     | F11.2x        | Monitoring parameter control                             |
| F04.2x        | Reserved                                   | F11.3x        | Keyboard special characteristics                         |
| F04.3x        | V/F energy saving control                  | F12.0x        | Modbus slave parameters                                  |
| F05.0x        | Digital input terminal                     | F12.1x        | Modbus master parameters                                 |
| F05.1x        | Delay X1-X3 detection                      | F13.00-F13.06 | PID setting and feedback                                 |
| F05.2x        | Digital input terminal operation selection | F13.07-F13.24 | PID adjustment   |
| F05.3x        | Reserved                                   | F13.25-F13.28 | PID feedback of disconnection                            |
| F05.4x        | Analog type processing                     | F13.29-F13.33 | Sleep mode   |
| F05.5x        | Analog linear processing                   | F14.00-F14.14 | Multi-speed frequency setting                            |
| F05.6x        | AS/VS curve-1 processing                   | F14.15        | PLC operation mode selection                             |
| F05.7x        | AS/VS curve 2 processing                   | F14.16-F14.30 | PLC operation time selection                             |
| F05.8x        | AS/VS as digital input terminal            | F14.31-F14.45 | PLC direction & acceleration/deceleration time selection |
| F06.0x        | Reserved                                   | F16 group     | Reserved   |
| F06.1x        | Reserved                                   | C00.xx        | Basic monitoring   |
| F06.2x-F06.3x | Digital & relay output                     | C01.xx        | Fault monitoring   |
| F06.4x        | Frequency detection                        | C02.xx        | Application monitoring                                   |
| F06.5x        | Monitoring parameter comparator output     | C03.xx        | Reserved   |
| F06.6x-F06.7x | Virtual input and output terminals         |               |  |

Table 4- 4 Parameters of the inverter

## 4.4 F00 Group: Environmental Applications

### F00.0x group: environment setting

| Parameter code (Address) | Designation              | Content  | Factory default (setting range) | Adjustable attribute |
|--------------------------|--------------------------|--|---------------------------------|----------------------|
| F00.00 (0x0000)          | Parameter access level   | V/F SVC<br>Set parameter access level according to parameter access limits<br>0: standard parameters (Fxx.yy, Cxx.yy)<br>1: common parameters (F00.00, Pxx.yy)<br>2: monitored parameters (F00.00, Cxx.yy)<br>3: changed pa (F00.00, Hxx.yy) | 0<br>(0~3)                      | RUN                  |
| F00.03 (0x0003)          | Initialization           | V/F SVC<br>Set the inverter initialization mode.<br>0: No initialization<br>11: Choose the set value according to purposes (excluding motor parameters)<br>22: All parameters initialized<br>33: Clear the failure records                   | 0<br>(0~33)                     | STOP                 |
| F00.04 (0x0004)          | Keyboard parameters copy | V/F SVC<br>0: No function<br>11: Upload parameters to keyboard<br>22: Download parameters to the inverter<br>Note: The built-in keyboard does not support parameter copying.   | 0<br>(0~30)                     | STOP                 |
| F00.07 (0x0007)          | Free parameter 1         | V/F SVC<br>machine number when using multiple machines;<br>mode number for purposes when using multiple machines   | 0<br>(0~65535)                  | RUN                  |



|                    |                  |  |                |     |
|--------------------|------------------|--|----------------|-----|
| F00.08<br>(0x0008) | Free parameter 2 | V/F SVC<br>machine number when using multiple machines;<br>mode number for purposes when using multiple machines | 0<br>(0-65535) | RUN |
|--------------------|------------------|--|----------------|-----|

Table 4- 5 F00.0x group

**F00.10~F00.39 group: common parameters setting**

| Parameter code                          | Designation                        | Content   | Factory default (setting range)           | Adjustable attribute |
|---|------------------------------------|---|---|----------------------|
| F00.1~<br>F00.39<br>(0x000A~<br>0x0027) | Common parameter addresses setting | V/F SVC<br>LED ones & tens-place: set "yy" between 00~ 99 among the parameter code Fxx.yy<br>00-99<br>LED hundreds & thousands-place: set "xx" between 00~ 31 among the parameter code Fxx.yy | Generic default parameters<br>(0000~2999) | RUN                  |

Table 4- 6 F00.10-F00.39 group

**4.5 F01 Group: Basic Setting****F01.0x group: basic setting**

| Parameter code (Address) | Designation                        | Content   |  | Factory default (setting range) | Adjustable attribute |
|--------------------------|------------------------------------|---|--|---------------------------------|----------------------|
| F01.00<br>(0x0100)       | Motor 1 control mode               | V/F SVC<br>Controlling method of the motor<br>0:AM-V/F: V/F control mode<br>1:AM-SVC: open loop vector control, current closed loop control<br>PM:<br>10:PM-V/F: V/F control<br>11:PM-SVC:open loop vector control, current closed loop control |  | 0<br>(0-11)                     | STOP                 |
| F01.01<br>(0x0101)       | Command running channel            | V/F SVC<br>The channel set for the inverter to receive command of operation, stop and direction.<br>0: keyboard control (external keyboard preferred)<br>1: terminal control<br>2: RS485 communication control<br>3: reserved                   |  | 1<br>(0-3)                      | RUN                  |
| F01.02<br>(0x0102)       | Source channel A of set frequency  | V/F SVC<br>Setting frequency source channel for the inverter:<br>0: via keyboard number entering<br>1: via keyboard analog potentiometer<br>2: via current analog AS<br>3: via voltage analog VS<br>4: reserved                                 | 5: reserved<br>6: via RS485 communication port<br>7: via UP/DW terminal<br>8: via PID control<br>9: via program control (PLC)<br>10: reserved<br>11: via multi-speed setting | 2<br>(0-11)                     | RUN                  |
| F01.03<br>(0x0103)       | Gain of frequency source channel A | V/F SVC<br>Gain of the frequency source channel A   |  | 100.0<br>(0.0%~500.0%)          | STOP                 |
| F01.04<br>(0x0104)       | Source channel B of set frequency  | V/F SVC<br>Source channel of frequency setting for the inverter, the same as [F01.02]   |  | 0<br>(0-11)                     | RUN                  |
| F01.05<br>(0x0105)       | Gain of frequency source channel B | V/F SVC<br>Gain of the frequency source channel B   |  | 100.0<br>(0.0%~500.0%)          | STOP                 |

|                    |  |  |  |                               |     |
|--------------------|--|--|--|-------------------------------|-----|
| F01.06<br>(0x0106) | Reference frequency source for channel B | V/F SVC<br>Change this parameter to select reference source for frequency setting channel B<br>0: refer to the maximum output frequency<br>1: refer to the frequency of channel A  | 0<br>(0-1)   | RUN                           |     |
| F01.07<br>(0x0107) | Selection of frequency source channel    | V/F SVC<br>Used for setting combination method of frequency channel A and B for the inverter.<br>0: channel A<br>1: channel B<br>2: channel A + channel B<br>3: channel A - channel B<br>4: the higher frequency between channel A and channel B<br>: the lower frequency between channel A and channel B  | 0<br>(0-5)   | RUN                           |     |
| F01.08<br>(0x0108) | Command of running bundled frequencies   | V/F SVC<br>When this parameter is valid, it is used to set the source channel for each command running channel of bundled frequencies<br>Ones-place: bundled command from keyboard<br>Tens-place: bundled command from terminals<br>Hundreds-place: bundled command from communication port<br>Thousands-place: reserved<br>0:no bundling<br>1: via keyboard number entering<br>2: via keyboard analog potentiometer | 3: via current analog AS<br>4: via voltage analog VS<br>5: reserved<br>6: reserved<br>7: via RS485 communication port<br>8: via UP/DW terminal<br>9: via PID control<br>A: via program control (PLC)<br>B: reserved<br>C: via multi-speed setting<br>D: reserved | 0x0000<br>(0x0000~0x<br>DDDD) | RUN |
| F01.09<br>(0x0109) | Frequency setting via keyboard numbers   | V/F SVC<br>Used to set and modify the frequency set via input keyboard numbers   | 50.00Hz<br>(0.00Hz~<br>upper limit<br>frequency)   | RUN                           |     |

Table 4- 7 F01.0x group

**F01.1x group: command about frequency**

| Parameter code (Address) | Designation                                       | Content   |  | Factory default (setting range)                      | Adjustable attribute |
|--------------------------|---|---|--|--|----------------------|
| F01.10<br>(0x010A)       | Maximum frequency                                 | V/F SVC<br>The maximum frequency can be set for the inverter.   |  | 50.00Hz<br>(upper limit<br>frequency<br>~500.00Hz)   | STOP                 |
| F01.11<br>(0x010B)       | Upper limit frequency source selection            | V/F SVC<br>Select the source channel of upper limit frequency for the inverter<br>0: via keyboard number entering<br>1: via keyboard analog | 3: via current analog AS<br>4: reserved<br>5: reserved<br>6: via RS485 communication port<br>7: reserved | 0<br>(0~7)   | RUN                  |
| F01.12<br>(0x010C)       | Upper limit frequency setting via number entering | V/F SVC<br>Set upper limit frequency value when F01.11 is set 0   |  | 0.00Hz<br>(lower limit~<br>upper limit<br>frequency) | RUN                  |
| F01.13<br>(0x010D)       | Lower limit frequency                             | V/F SVC<br>Set lower limit value of frequency.  |  | 0.00Hz<br>(0.00Hz~ upper<br>limit frequency)         | RUN                  |

|                    |                                 |  |            |      |
|--------------------|---------------------------------|--|------------|------|
| F01.14<br>(0x010E) | Resolution of frequency command | V/F SVC<br>Set the resolution of the frequency command.<br>0:0.01Hz; 1:0.1Hz; 2:0.1 rpm; 3:1 rpm; 4:10 rpm | 0<br>(0-4) | STOP |
|--------------------|---------------------------------|--|------------|------|

Table 4-8 F01.1x group

**F01.2x~F01.3x group: acceleration & deceleration time**

| Parameter code<br>(Address) | Designation  | Content   | Factory default<br>(setting range) | Adjustable attribute |
|-----------------------------|--|---|------------------------------------|----------------------|
| F01.20<br>(0x0114)          | Acceleration & deceleration time benchmark frequency | V/F SVC<br>Set benchmark frequency to calculate acceleration & deceleration time<br>0: Maximum frequency; 1: fixed frequency of 50Hz; 2: set frequency                              | 0<br>(0-2)                         | STOP                 |
| F01.21<br>(0x0115)          | Acceleration time unit                               | V/F SVC<br>The unit of the set acceleration time<br>0:1s; 1:0.1s; 2:0.00s   | 2<br>(0-2)                         | STOP                 |
| F01.22<br>(0x0116)          | Acceleration time 1                                  | V/F SVC<br>Time required to accelerate the output frequency from 0.00Hz to the benchmark frequency<br>1s~65000s (F01.21 = 0); 0.1s~6500.0s (F01.21 = 1); 0.01s~650.00s (F01.21 = 2) | Model setting(0.01s~650.00s)       | RUN                  |
| F01.23<br>(0x0117)          | Deceleration time 1                                  | V/F SVC<br>Time required for the output frequency to decelerate from benchmark frequency to 0.00Hz.   | Model setting(0.01s~650.00s)       | RUN                  |
| F01.24<br>(0x0118)          | Acceleration time 2                                  | V/F SVC<br>Time required to accelerate the output frequency from 0.00Hz to the benchmark frequency  | Model setting(0.01s~650.00s)       | RUN                  |
| F01.25<br>(0x0119)          | Deceleration time 2                                  | V/F SVC<br>Time required for the output frequency to decelerate from benchmark frequency to 0.00Hz  | Model setting(0.01s~650.00s)       | RUN                  |
| F01.26<br>(0x011A)          | Acceleration time 3                                  | V/F SVC<br>Time required to accelerate the output frequency from 0.00Hz to the benchmark frequency  | Model setting(0.01s~650.00s)       | RUN                  |
| F01.27<br>(0x011B)          | Deceleration time 3                                  | V/F SVC<br>Time required for the output frequency to decelerate from benchmark frequency to 0.00Hz.   | Model setting(0.01s~650.00s)       | RUN                  |
| F01.28<br>(0x011C)          | Acceleration time 4                                  | V/F SVC<br>Time required to accelerate the output frequency from 0.00Hz to the benchmark frequency  | Model setting(0.01s~650.00s)       | RUN                  |
| F01.29<br>(0x011D)          | Deceleration time 4                                  | V/F SVC<br>Time required for the output frequency to decelerate from benchmark frequency to 0.00Hz.   | Model setting(0.01s~650.00s)       | RUN                  |
| F01.30<br>(0x011E)          | S-curve acceleration & deceleration selection        | V/F SVC<br>Whether the S-curve acceleration & deceleration selection is valid<br>0:invalid; 1:valid; 2:flexible S-curve   | 1<br>(0-2)                         | STOP                 |
| F01.31<br>(0x011F)          | S-curve acceleration start time                      | V/F SVC<br>Set start time of acceleration for S-curve   | 0.20s<br>(0.00s~10.00s)            | STOP                 |
| F01.32<br>(0x0120)          | S-curve acceleration end time                        | V/F SVC<br>Set end time of acceleration for S-curve   | 0.20s<br>(0.00s~10.00s)            | STOP                 |
| F01.33<br>(0x0121)          | S-curve deceleration start time                      | V/F SVC<br>Set start time of deceleration for S-curve   | 0.20s<br>(0.00s~10.00s)            | STOP                 |
| F01.34<br>(0x0122)          | S-curve deceleration end time                        | V/F SVC<br>Set end time of deceleration for S-curve   | 0.20s<br>(0.00s~10.00s)            | STOP                 |

|                    |  |   |   |     |
|--------------------|--|---|---|-----|
| F01.35<br>(0x0123) | Switch frequency<br>between acceleration<br>time 1 & 2 | V/F SVC<br>Set frequency switch between acceleration time 1 & 2 | 0.00Hz<br>(0.00Hz~<br>Upper limit<br>frequency) | RUN |
|--------------------|--|---|---|-----|

Table 4-9 F01.2x~F01.3x group

**F01.4x group: PWM control**

| Parameter code     | Designation                      | Content  |   | Factory default (setting range)   | Adjustable attribute |
|--------------------|----------------------------------|--|---|-----------------------------------|----------------------|
| F01.40<br>(0x0128) | Carrier frequency                | V/F SVC<br>Used to set the switching frequency of inverter IGBT.   |   | Model setting<br>(2.0kHz~12.0kHz) | RUN                  |
| F01.41<br>(0x0129) | PWM control mode                 | V/F SVC<br>LED ones-place:<br>relationship between carrier<br>and temperature<br>0: irrelevant<br>1: relevant<br>LED tens-place:<br>relationship between carrier<br>and output frequency<br>0: irrelevant<br>1: relevant | LED hundreds-place:<br>random PWM enable<br>0: forbidden<br>1: valid under V/F<br>mode<br>2: valid under vector<br>mode<br><br>LED thousands-palce:<br>PWM modulation<br>mode<br>0: three-phase only<br>1: automatic switching<br>between two-phase<br>&three-phase | 1111<br>(0000~1211)               | RUN                  |
| F01.43<br>(0x012B) | Compensated gain<br>of dead zone | V/F SVC<br>Compensated gain of dead zone   |   | 306<br>(0~512)                    | RUN                  |
| F01.46<br>(0x012E) | PWM random depth                 | V/F SVC<br>When the PWM random depth is effective, the larger it<br>is set, the larger the carrier fluctuation will be.  |   | 0<br>(0~20)                       | RUN                  |

Table 4-10 F01.4x group

**4.6 F02 Group: Parameter of Motor 1****F02.0x group: basic parameters and self-learning type selection of the motor**

| Parameter code     | Designation     | Content  | Factory default (setting range)                  | Adjustable attribute |
|--------------------|-----------------|--|--|----------------------|
| F02.00<br>(0x0200) | Motor type      | V/F SVC<br>Set the type of motor.<br>0: Asynchronous motor (AM)<br>1: Synchronous motor (PM) | 0<br>(0~1)                                       | READ                 |
| F02.01<br>(0x0201) | Pole number     | V/F SVC<br>Set the motor pole number.  | 4<br>(2~98)                                      | STOP                 |
| F02.02<br>(0x0202) | Rated power     | V/F SVC<br>Set the rated power of motor  | Model setting<br>(0.1 kW~22.0 kW)                | STOP                 |
| F02.03<br>(0x0203) | Rated frequency | V/F SVC<br>Set the rated frequency of motor  | Model setting<br>(0.01 Hz~<br>maximum frequency) | STOP                 |
| F02.04<br>(0x0204) | Rated speed     | V/F SVC<br>Set the rated speed of motor  | Model setting<br>(0 rpm~65000 rpm)               | STOP                 |
| F02.05<br>(0x0205) | Rated voltage   | V/F SVC<br>Set the rated voltage of motor  | Model setting<br>(0 V~2000 V)                    | STOP                 |

|                    |                                    |  |                                   |      |
|--------------------|------------------------------------|--|-----------------------------------|------|
| F02.06<br>(0x0206) | Rated current                      | V/F SVC<br>Set the rated current of motor  | Model setting<br>(0.1 A~3000.0 A) | STOP |
| F02.07<br>(0x0207) | Parameters self-learning selection | V/F SVC<br>[F02.07] will automatically be set to "0" after the parameter self-tuning is finished.<br>0: no operation<br>1: rotational self-learning<br>2: static self-learning<br>3: stator resistance self-learning | 0<br>(0~3)                        | STOP |

Table 4-11 F02.0x group

**Note:** When F02.00 [motor type] is a synchronous motor, F2.04 [motor rated speed] is calculated from F2.01 [motor pole number] and F2.03 [motor rated frequency], please set the corresponding parameters correctly. The calculation formula is:  $F2.04 [\text{rated speed of motor}] = 60 \times F2.03 [\text{rated frequency of motor}] / (F2.01 [\text{number of poles of motor}] / 2)$

### F02.1x group: advanced parameters of asynchronous motor

| Parameter code (Address) | Designation                              | Content   | Factory default (setting range)          | Adjustable attribute |
|--------------------------|--|---|--|----------------------|
| F02.10<br>(0x020A)       | No-load current                          | V/F SVC<br>Set no-load current of asynchronous motor  | Model setting<br>(0.1 A~3000.0 A)        | STOP                 |
| F02.11<br>(0x020B)       | Stator resistance                        | V/F SVC<br>Set stator resistance of asynchronous motor  | Model setting<br>(0.01 mΩ ~ 60000.00 mΩ) | STOP                 |
| F02.12<br>(0x020C)       | Rotor resistance                         | V/F SVC<br>Set rotor resistance of asynchronous motor   | Model setting<br>(0.01 mΩ ~ 60000.00 mΩ) | STOP                 |
| F02.13<br>(0x020D)       | Stator leakage inductance                | V/F SVC<br>Set stator leakage inductance of asynchronous motor  | Model setting<br>(0.01 mH ~ 65535.00 mH) | STOP                 |
| F02.14<br>(0x020E)       | Stator inductance                        | V/F SVC<br>Set stator inductance of asynchronous motor  | Model setting<br>(0.01 mH ~ 65535.00 mH) | STOP                 |
| F02.15<br>(0x020F)       | Stator resistance per-unit value         | V/F SVC<br>Set stator resistance per-unit value   | Model setting<br>(0.01% ~ 50.00%)        | READ                 |
| F02.16<br>(0x0210)       | Rotor resistance per-unit value          | V/F SVC<br>Set rotor resistance per-unit value  | Model setting<br>(0.01% ~ 50.00%)        | READ                 |
| F02.17<br>(0x0211)       | Stator leakage inductance per-unit value | V/F SVC<br>Set stator leakage inductance per-unit value   | Model setting<br>(0.01% ~ 50.00%)        | READ                 |
| F02.18<br>(0x0212)       | Stator inductance per-unit value         | V/F SVC<br>Set stator inductance per-unit value   | Model setting<br>(0.1% ~ 999.0%)         | READ                 |
| F02.19<br>(0x0213)       | F02.11~F02.14 decimal point selection    | V/F SVC<br>Set the decimal point of the four parameters from F02.11 to F02.14. This parameter is read-only. | 0x0000<br>(0x0000 ~ 0x2222)              | READ                 |

Table 4-12 F02.1x group

### F02.2x group: advanced parameters of synchronous motor

| Parameter code (Address) | Designation                           | Content   | Factory default (setting range)           | Adjustable attribute |
|--------------------------|---------------------------------------|---|---|----------------------|
| F02.20 (0x0214)          | Stator resistance                     | V/F SVC<br>Set stator resistance of synchronous motor.  | Model setting<br>(0.01 mΩ ~ 60000.00 mΩ)  | STOP                 |
| F02.21 (0x0215)          | D-axis inductance                     | V/F SVC<br>Set d-axis inductance of synchronous motor.  | Model setting<br>(0.001 mH ~ 6553.500 mH) | STOP                 |
| F02.22 (0x0216)          | Q-axis inductance                     | V/F SVC<br>Set q-axis inductance of synchronous motor.  | Model setting<br>(0.001 mH ~ 6553.500 mH) | STOP                 |
| F02.23 (0x0217)          | Counter electromotive force           | V/F SVC<br>Set counter electromotive force of synchronous motor. Only recognized during rotation self-tuning. | Model setting<br>(0 V ~ 500 V)            | STOP                 |
| F02.24 (0x0218)          | Encoder mounting angle                | V/F SVC<br>Set encoder mounting angle of synchronous motor  | Model setting<br>(0.0° ~ 360.0° )         | RUN                  |
| F02.25 (0x0219)          | Stator resistance per-unit value      | V/F SVC<br>Set stator resistance per-unit value of synchronous motor  | Model setting<br>(monitored value)        | READ                 |
| F02.26 (0x021A)          | D-axis inductance per-unit value      | V/F SVC<br>Set d-axis inductance per-unit value of synchronous motor  | Model setting<br>(monitored value)        | READ                 |
| F02.27 (0x021B)          | Q-axis inductance per-unit value      | V/F SVC<br>Set q-axis inductance per-unit value of synchronous motor  | Model setting<br>(monitored value)        | READ                 |
| F02.28 (0x021C)          | Pulse width coefficient               | V/F SVC<br>Set pulse width coefficient of synchronous motor   | Model setting<br>(00.00 ~ 99.99)          | STOP                 |
| F02.29 (0x021D)          | F02.20~F02.22 decimal point selection | V/F SVC<br>Set the decimal point of the three parameters from F02.20 to F02.22. This parameter is read-only.  | 0x0000<br>(0x0000 ~ 0x2222)               | READ                 |

Table 4-13 F02.2x group

**F02.3x~F02.4x group: reserved****F02.5x~F02.6x group: motor application parameters**

| Parameter code (Address) | Designation                                  | Content  | Factory default (setting range) | Adjustable attribute |
|--------------------------|--|--|---------------------------------|----------------------|
| F02.50 (0x0232)          | Stator resistor learning selection           | V/F SVC<br>0: invalid; 1: only learn without update; value greater than 1: learn and update; | 0<br>(0 ~ 3)                    | STOP                 |
| F02.51 (0x0233)          | Stator resistance learning starting factor 1 | V/F SVC<br>Set stator resistance learning starting factor 1.                                 | 0<br>(0 ~ 1000)                 | RUN                  |
| F02.52 (0x0234)          | Stator resistance learning starting factor 2 | V/F SVC<br>Set stator resistance learning starting factor 2.                                 | 0<br>(-20.00% ~ 20.00%)         | RUN                  |
| F02.53 (0x0235)          | Stator resistance learning starting factor 3 | V/F SVC<br>Set stator resistance learning starting factor 3.                                 | 0<br>(0 ~ 65535)                | RUN                  |

|                    |   |   |                          |      |
|--------------------|---|---|--------------------------|------|
| F02.60<br>(0x023C) | Magnetic pole search of synchronous motor | V/F SVC<br>Ones-place: reserved<br>Tens-place: open loop vector<br>0: off; 1: on; 2: on but only the first power-on start<br>The hundreds-place: V/F<br>0: off; 1: on; 2: on, but only the first power-on start | 0010<br>(0000 ~ 3223)    | STOP |
| F02.61<br>(0x023D) | Current for magnetic pole search          | V/F SVC<br>Set the current value of magnetic pole search  | 0.0%<br>(0.0% ~ 6553.5%) | STOP |

Table 4-14 F02.5x ~ F02.6x group

## 4.7 F03 Group: Vector Control

### F03.0x group: speed ring

| Parameter code (Address) | Designation                          | Content   | Factory default (setting range)    | Adjustable attribute |
|--------------------------|--------------------------------------|---|------------------------------------|----------------------|
| F03.00<br>(0x0300)       | ASR speed stiffness level            | SVC<br>Set speed stiffness level. The higher the level, the better the speed stiffness. | 32<br>(1 ~ 128)                    | RUN                  |
| F03.01<br>(0x0301)       | ASR speed stiffness mode             | SVC<br>Set ASR speed stiffness mode.  | 0x0000<br>(0x0000 ~ 0x1111)        | RUN                  |
| F03.02<br>(0x0302)       | ASR (speed ring) proportional gain 1 | SVC<br>Set ASR (speed ring) proportional gain 1   | 10.00<br>(0.01 ~ 100.00)           | RUN                  |
| F03.03<br>(0x0303)       | ASR (speed ring) integral time1      | SVC<br>Set ASR (speed ring) integral time 1   | 0.100s<br>(0.000 s ~ 6.000 s)      | RUN                  |
| F03.04<br>(0x0304)       | ASR filter time 1                    | SVC<br>Set ASR filter time 1.   | 0.0ms<br>(0.0 ms ~ 100.0 ms)       | RUN                  |
| F03.05<br>(0x0305)       | ASR switching frequency 1            | SVC<br>Set ASR switching frequency 1.   | 0.00Hz<br>(0.00Hz ~ max frequency) | RUN                  |
| F03.06<br>(0x0306)       | ASR (speed ring) proportional gain 2 | SVC<br>Set ASR (speed ring) proportional gain 2.  | 10.00<br>(0.01 ~ 100.00)           | RUN                  |
| F03.07<br>(0x0307)       | ASR (speed ring) integral time 2     | SVC<br>Set ASR (speed ring) integral time 2.  | 0.100s<br>(0.000s ~ 6.000s)        | RUN                  |
| F03.08<br>(0x0308)       | ASR filter time 2                    | SVC<br>Set ASR filter time 2.   | 0.0ms<br>(0.0ms ~ 100.0ms)         | RUN                  |
| F03.09<br>(0x0309)       | ASR switching frequency 2            | SVC<br>Set ASR switching frequency 2.   | 0.00Hz<br>(0.00Hz ~ max frequency) | RUN                  |

Table 4-15 F03.0x group

### F03.1x group: current loop & torque limit

| Parameter code (Address) | Designation              | Content   | Factory default (setting range) | Adjustable attribute |
|--------------------------|--------------------------|---|---------------------------------|----------------------|
| F03.10<br>(0x030A)       | D-axis proportional gain | SVC<br>Set d-axis proportional gain of current loop | 1.000<br>(0.001 ~ 4.000)        | RUN                  |
| F03.11<br>(0x030B)       | D-axis integral gain     | SVC<br>Set d-axis integral gain of current loop     | 1.000<br>(0.001 ~ 4.000)        | RUN                  |
| F03.12                   | Q-axis proportional      | SVC   | 1.000                           | RUN                  |

|                    |  |   |                              |     |
|--------------------|--|---|------------------------------|-----|
| (0x030C)           | gain   | Set q-axis proportional gain of current loop  | (0.001 ~ 4.000)              |     |
| F03.13<br>(0x030D) | Q-axis integral gain                             | SVC<br>Set q-axis integral gain of current loop   | 1.000<br>(0.001 ~ 4.000)     | RUN |
| F03.15<br>(0x030F) | Torque limit of motoring                         | SVC<br>Set torque limit of motoring   | 250.0%<br>(0.0% ~ 400.0%)    | RUN |
| F03.16<br>(0x0310) | Torque limit of power generation                 | SVC<br>Set torque limit of power generation   | 250.0%<br>(0.0% ~ 400.0%)    | RUN |
| F03.17<br>(0x0311) | Regenerative torque limit at low speed           | SVC<br>Set regenerative torque limit at low speed   | 0.0%<br>(0.0% ~ 400.0%)      | RUN |
| F03.18<br>(0x0312) | Amplitude-frequency of torque limit at low speed | SVC<br>Set amplitude & frequency of torque limit at low speed   | 6.00Hz<br>(0.00Hz ~ 30.00Hz) | RUN |
| F03.19<br>(0x0313) | Torque limit selection                           | SVC<br>Ones-place: torque limit channel of motoring decided<br>0: via keyboard number entering;<br>1: via keyboard potentiometer;<br>2: via AS setting; 3: via VS setting<br>4: reserved; 5: reserved;<br>6: via RS485 communication port (0x3014)<br>7: reserved;<br>Tens-place: torque limit channel of power generation decided<br>0: via keyboard number entering;<br>1: via keyboard potentiometer;<br>2: via AS setting; 3: via VS setting<br>4: reserved; 5: reserved;<br>6: via RS485 communication port (0x3014);<br>7: reserved;<br>Hundreds-place<br>0:C00.06 displays torque limit of motoring<br>1:C00.06 displays torque limit of power generation<br>Thousands-place: reserved | 0x0000<br>(0x0000-0x0177)    | RUN |

Table 4-16 F03.1x group

**F03.2x group: torque optimization**

| Parameter code (Address) | Designation                                     | Content  | Factory default (setting range) | Adjustable attribute |
|--------------------------|---|--|---------------------------------|----------------------|
| F03.20<br>(0x0314)       | LF sourcing current of synchronous motor        | SVC<br>When the open-loop control of PM motor is valid, and the greater sourcing current, the greater the torque output. | 20.0%<br>(0.0%~50.0%)           | RUN                  |
| F03.21<br>(0x0315)       | HF sourcing current of synchronous motor        | SVC<br>When the open-loop control of PM motor is valid, and the greater sourcing current, the greater the torque output. | 10.0%<br>(0.0%~50.0%)           | RUN                  |
| F03.22<br>(0x0316)       | Sourcing current frequency of synchronous motor | SVC<br>100.0% of the set sourcing current frequency corresponds to F01.10[Upper limit frequency].                        | 10.0%<br>(0.0%~100.0%)          | RUN                  |
| F03.23<br>(0x0317)       | Slip compensation of asynchronous motor         | SVC<br>Set slip compensation of asynchronous motor.  | 100.0%<br>(0.0%~250.0%)         | RUN                  |
| F03.24<br>(0x0318)       | Initial Starting torque                         | SVC<br>Set initial starting torque.  | 0.0%<br>(0.0%~250.0%)           | RUN                  |

Table 4-17 F03.2x group



**F03.3x group: magnetic flow optimization**

| Parameter code (Address) | Designation                                     | Content  | Factory default (setting range) | Adjustable attribute |
|--------------------------|---|--|---------------------------------|----------------------|
| F03.30 (0x031E)          | Feedforward coefficient of weak magnetism       | SVC<br>Set feedforward coefficient of weak magnetism.      | 10.0%<br>(0.0% ~ 500.0%)        | RUN                  |
| F03.31 (0x031F)          | Magnetic weakening control gain                 | SVC<br>Set magnetic weakening control gain                 | 10.0%<br>(0.0% ~ 500.0%)        | RUN                  |
| F03.32 (0x0320)          | Upper limit magnetic weakening current          | SVC<br>Set upper limit magnetic weakening current.         | 60.0%<br>(0.0% ~ 250.0%)        | RUN                  |
| F03.33 (0x0321)          | Magnetic weakening voltage coefficient          | SVC<br>Set magnetic weakening voltage coefficient          | 90.0%<br>(0.0% ~ 120.0%)        | RUN                  |
| F03.34 (0x0322)          | Output power limit                              | SVC<br>Set output power limit.                             | 250.0%<br>(0.0% ~ 400.0%)       | RUN                  |
| F03.35 (0x0323)          | Over-excitation braking gain                    | SVC<br>Set over-excitation braking gain                    | 100.0%<br>(0.0% ~ 500.0%)       | RUN                  |
| F03.36 (0x0324)          | Over-excitation brake clipping                  | SVC<br>Set over-excitation brake clipping                  | 100.0%<br>(0.0% ~ 250.0%)       | RUN                  |
| F03.37 (0x0325)          | Energy-saving running                           | SVC<br>0: off;<br>1: on                                    | 0<br>(0~1)                      | RUN                  |
| F03.38 (0x0326)          | Lower limit excitation of energy-saving running | SVC<br>Set lower limit excitation of energy-saving running | 50.0%<br>(0.0%~80.0%)           | RUN                  |
| F03.39 (0x0327)          | Filter coefficient of energy-saving running     | SVC<br>Set filter coefficient of energy-saving running     | 0.010s<br>(0.000s~6.000s)       | RUN                  |

Table 4-18 F03.3x group

**F03.4x~F03.5x group: torque control**

| Parameter code (Address) | Designation              | Content   | Factory default (setting range)  | Adjustable attribute |     |
|--------------------------|--------------------------|---|--|----------------------|-----|
| F03.40 (0x0328)          | Torque control selection | SVC<br>0: speed control mode to limit torque<br>1: torque control mode to limit speed   | 0<br>(0~1)   | RUN                  |     |
| F03.41 (0x0329)          | Torque command setting   | SVC<br>Ones-place: channel A:<br>0: torque setting via keyboard number entering<br>1: via keyboard potentiometer;<br>2: via AS<br>3: via VS<br>4: reserved<br>5: reserved<br>6: via RS485 communication port<br>7: reserved<br>8: reserved<br>9: reserved | Tens-place:<br>channel B:<br>Setting methods the same with channel A<br>Hundreds-place: combination:<br>0: A channel<br>1: B channel<br>2: A+B<br>3: A-B<br>4: MIN(A, B) | 0000<br>(0000~0599)  | RUN |
| F03.42                   | Torque setting via       | SVC   | 0.0%   | RUN                  |     |

|                    |  |   |                               |     |
|--------------------|--|---|-------------------------------|-----|
| (0x032A)           | keyboard number entering                         | Set torque via keyboard number entering.  | (0.0%~100.0%)                 |     |
| F03.43<br>(0x032B) | Lower limit torque input                         | SVC<br>Set the lower limit value of torque input.   | 0.00%<br>(0.00%~100.00%)      | RUN |
| F03.44<br>(0x032C) | Corresponding Lower limit value                  | SVC<br>Set corresponding Lower limit value.   | 0.00%<br>(-250.00%~300.00%)   | RUN |
| F03.45<br>(0x032D) | Upper limit torque input                         | SVC<br>Set upper limit torque input.  | 100.00%<br>(0.00%~100.00%)    | RUN |
| F03.46<br>(0x032E) | Corresponding upper limit value                  | SVC<br>Set corresponding upper limit value.   | 100.00%<br>(-250.00%~300.00%) | RUN |
| F03.47<br>(0x032F) | Filter time of torque                            | SVC<br>Set filter time of torque.   | 0.100s<br>(0.000s~6.000s)     | RUN |
| F03.52<br>(0x0334) | Upper limit torque command                       | SVC<br>Set upper limit output torque.   | 150.0%<br>(0.0%~300.0%)       | RUN |
| F03.53<br>(0x0335) | Lower limit torque command                       | SVC<br>Set lower limit output torque.   | 0.0%<br>(0.0%~300.0%)         | RUN |
| F03.54<br>(0x0336) | Torque controlling forward speed limit selection | SVC<br>0: set via code F03.56;<br>1: value from external keyboard potentiometer × F03.56;<br>2:AS×F03.56;<br>3:VS×F03.56;<br>4: reserved;<br>5:reserved;<br>6: value from RS485 communication port×F03.56;<br>7:reserved;<br>8: reserved;   | 0<br>(0~8)                    | RUN |
| F03.55<br>(0x0337) | Torque controlling reverse speed limit selection | SVC<br>0: set via code F03.57;<br>1: value from external keyboard potentiometer × F03.57;<br>2:AS×F03.57;<br>3:VS×F03.57;<br>4: reserved;<br>5: reserved;<br>6: value from RS485 communication port×F03.57;<br>7: reserved;<br>8: reserved; | 0<br>(0~8)                    | RUN |
| F03.56<br>(0x0338) | Torque controlling maximum forward speed         | SVC<br>Set torque controlling maximum forward speed   | 100.0%<br>(0.0%~100.0%)       | RUN |
| F03.57<br>(0x0339) | Torque controlling maximum reverse speed         | SVC<br>Set torque controlling maximum reverse speed   | 100.0%<br>(0.0%~100.0%)       | RUN |
| F03.58<br>(0x033A) | Torque gain switching frequency                  | SVC<br>Set torque gain switching frequency.   | 1.00Hz<br>(0.00Hz~50.00Hz)    | RUN |
| F03.59<br>(0x033B) | Torque gain                                      | SVC<br>Set torque gain  | 100.0%<br>(0.0%~500.0%)       | RUN |

Table 4-19 F03.4x~F03.5x group

## 4.8 F04 Group: V/F Control

### F04.0x group: V/F control

| Parameter code (Address) | Designation                         | Content  | Factory default (setting range) | Adjustable attribute |
|--------------------------|-------------------------------------|--|---------------------------------|----------------------|
| F04.00 (0x0400)          | Linear V/F curve selection          | V/F<br>Used to select the type of V/F curve to meet the requirements of different load characteristics.<br>0: straight V/F curve;<br>1-9: V/F curves to the powers of 1.1 to 1.9;<br>10: V/F curve squared;<br>11: self-defined V/F curve; | 0<br>(0~11)                     | STOP                 |
| F04.01 (0x0401)          | Torque boost                        | V/F<br>0.0%: automatic torque boost<br>0.1%~30.0%: manual torque boost   | 机型确定<br>(0.0%~30.0%)            | RUN                  |
| F04.02 (0x0402)          | Torque boost cut-off frequency      | V/F<br>Set the effective range of the torque boost so when the output frequency exceeds this value, the torque boost will be cut off.  | 100.0%<br>(0.0%~100.0%)         | RUN                  |
| F04.03 (0x0403)          | Slip compensation gain              | V/F<br>Set slip compensation gain  | 0.0%<br>(0.0%~200.0%)           | RUN                  |
| F04.04 (0x0404)          | Slip compensation limit             | V/F<br>Set slip compensation limit   | 100.0%<br>(0.0%~300.0%)         | RUN                  |
| F04.05 (0x0405)          | Slip compensation filter time       | V/F<br>The slip compensation function requires correct input of parameters on the motor nameplate to start parameter learning and then deliver the best performance.   | 0.200s<br>(0.000s~6.000s)       | RUN                  |
| F04.06 (0x0406)          | Oscillation suppression gain        | V/F<br>By adjusting this value, the low frequency resonance can be suppressed, but if it's too large, additional stability problems will further occur.  | 100.0%<br>(0.0%~900.0%)         | RUN                  |
| F04.07 (0x0407)          | Oscillation suppression filter time | V/F<br>Set oscillation suppression filter time   | 1.0s<br>(0.0s~100.0s)           | RUN                  |
| F04.08 (0x0408)          | Output voltage percentage           | V/F<br>Set output voltage percentage   | 100.0%<br>(25.0%~120.0%)        | STOP                 |

Table 4-20 F04.0x group

### F04.1x group: self-defined V/F curve

| Parameter code (Address) | Designation           | Content                                       | Factory default (setting range)           | Adjustable attribute |
|--------------------------|-----------------------|---|---|----------------------|
| F04.10 (0x040A)          | Self-set voltage V1   | V/F<br>Set the value of self-set voltage V1   | 3.0%<br>(0.0%~100.0%)                     | STOP                 |
| F04.11 (0x040B)          | Self-set frequency F1 | V/F<br>Set the value of self-set frequency F1 | 1.00Hz<br>(0.00Hz ~<br>maximum frequency) | STOP                 |
| F04.12 (0x040C)          | Self-set voltage V2   | V/F<br>Set the value of self-set voltage V2   | 28.0%<br>(0.0%~100.0%)                    | STOP                 |
| F04.13 (0x040D)          | Self-set frequency F2 | V/F<br>Set the value of self-set frequency F2 | 10.00Hz<br>(0.00Hz~<br>maximum frequency) | STOP                 |
| F04.14 (0x040E)          | Self-set voltage V3   | V/F<br>Set the value of self-set voltage V3   | 55.0%<br>(0.0%~<br>100.0%)                | STOP                 |

|                    |                       |   |   |      |
|--------------------|-----------------------|---|---|------|
| F04.15<br>(0x040F) | Self-set frequency F3 | V/F<br>Set the value of self-set frequency F3 | 25.00Hz<br>(0.00Hz~<br>maximum frequency) | STOP |
| F04.16<br>(0x0410) | Self-set voltage V4   | V/F<br>Set the value of self-set voltage V4   | 78.0%<br>(0.0%~100.0%)                    | STOP |
| F04.17<br>(0x0411) | Self-set frequency F4 | V/F<br>Set the value of self-set frequency F4 | 37.50Hz<br>(0.00Hz~<br>maximum frequency) | STOP |
| F04.18<br>(0x0412) | Self-set voltage V5   | V/F<br>Set the value of self-set voltage V5   | 100.0%<br>(0.0%~100.0%)                   | STOP |
| F04.19<br>(0x0413) | Self-set frequency F5 | V/F<br>Set the value of self-set frequency F5 | 50.00Hz<br>(0.00Hz~<br>maximum frequency) | STOP |

Table 4-21 F04.1x group

**F04.2x group: reserved****F04.3x group: V/F energy-saving control**

| Parameter code     | Designation                          | Content  | Factory default (setting range)           | Adjustable attribute |
|--------------------|--------------------------------------|--|---|----------------------|
| F04.30<br>(0x041E) | Automatic energy saving control      | V/F<br>0: off<br>1: on   | 0<br>(0~1)                                | STOP                 |
| F04.31<br>(0x041F) | Lower limit step-down frequency      | V/F<br>Set lower limit step-down frequency of energy-saving      | 15.0Hz<br>(0.0Hz~50.0Hz)                  | STOP                 |
| F04.32<br>(0x0420) | Lower limit step-down voltage        | V/F<br>Set lower limit step-down voltage of energy-saving        | 50.0%<br>(20.0%~100.0%)                   | STOP                 |
| F04.33<br>(0x0421) | Regulation rate of step-down voltage | V/F<br>Set regulation rate of step-down voltage of energy-saving | 0.010 V/ms<br>(0.000 V/ms ~ 0.200 V/ms)   | RUN                  |
| F04.34<br>(0x0422) | Recovery rate of step-down voltage   | V/F<br>Set recovery rate of step-down voltage of energy-saving   | 0.200 V/ms<br>(0.000 V/ms~<br>2.000 V/ms) | RUN                  |

Table 4-22 F04.3x group

**4.9 F05 Group: Input Terminal****F05.0x group: setting terminal function via number entering**

| Parameter code (Address) | Designation                    | Content  | Factory default (setting range) | Adjustable attribute |
|--------------------------|--------------------------------|--|---------------------------------|----------------------|
| F05.00<br>(0x0500)       | Terminal X1 function selection | V/F SVC<br>See the functions of terminal X for details | 1<br>(0~95)                     | STOP                 |
| F05.01<br>(0x0501)       | Terminal X2 function selection | V/F SVC<br>See the functions of terminal X for details | 2<br>(0~95)                     | STOP                 |
| F05.02<br>(0x0502)       | Terminal X3 function selection | V/F SVC<br>See the functions of terminal X for details | 4<br>(0~95)                     | STOP                 |

Table 4-23 F05.0x group

**F05.1x group: X1~X3 delay detection**

| Parameter code (Address) | Designation                   | Content   | Factory default (setting range) | Adjustable attribute |
|--------------------------|-------------------------------|---|---------------------------------|----------------------|
| F05.10 (0x050A)          | X1 detected effective delay   | V/F SVC<br>The delay time of transition of terminal X1 from the invalid state to the valid state  | 0.010s<br>(0.000s~6.000s)       | RUN                  |
| F05.11 (0x050B)          | X1 detected ineffective delay | V/F SVC<br>The delay time of the transition of terminal X1 from a valid state to an invalid state | 0.010s<br>(0.000s~6.000s)       | RUN                  |
| F05.12 (0x050C)          | X2 detected effective delay   | V/F SVC<br>The delay time of transition of terminal X2 from the invalid state to the valid state  | 0.010s<br>(0.000s~6.000s)       | RUN                  |
| F05.13 (0x050D)          | X2 detected ineffective delay | V/F SVC<br>The delay time of the transition of terminal X2 from a valid state to an invalid state | 0.010s<br>(0.000s~6.000s)       | RUN                  |
| F05.14 (0x050E)          | X3 detected effective delay   | V/F SVC<br>The delay time of transition of terminal X1 from the invalid state to the valid state  | 0.010s<br>(0.000s~6.000s)       | RUN                  |
| F05.15 (0x050F)          | X3 detected ineffective delay | V/F SVC<br>The delay time of the transition of terminal X3 from a valid state to an invalid state | 0.010s<br>(0.000s~6.000s)       | RUN                  |

Table 4-24 F05.1x group

**F05.2x group: Terminal action selection via number entering**

| Parameter code (Address) | Designation  | Content   | Factory default (setting range)  | Adjustable attribute |
|--------------------------|--|---|----------------------------------|----------------------|
| F05.20 (0x0514)          | Terminal controlling running mode                                | V/F SVC<br>0: two-wire system 1<br>1: two-wire system 2<br>2: three-wire system 1<br>3: three-wire system 2   | 0<br>(0~3)                       | STOP                 |
| F05.22 (0x0516)          | X1~X3 terminal characteristic selection                          | V/F SVC<br>0: valid when connected<br>1: valid when disconnected<br>LED ones-place: X1 terminal<br>LED tens-place: X2 terminal<br>LED hundreds -place: X3 terminal<br>LED thousands-place: reserved | 0000<br>(0000~1111)              | RUN                  |
| F05.25 (0x0519)          | UP/DW terminal control selection                                 | V/F SVC<br>0: power-off frequency storage<br>1: no power-off frequency storage<br>2: adjustable in operation and clear all at stop  | 0<br>(0~2)                       | STOP                 |
| F05.26 (0x051A)          | UP/DW terminal controlling increase & decrease rate of frequency | V/F SVC<br>Set UP/DW terminal controlling increase & decrease rate of frequency   | 0.50Hz/s<br>(0.01Hz/s~50.00Hz/s) | RUN                  |
| F05.27 (0x051B)          | Terminal emergency stop deceleration time                        | V/F SVC<br>Set emergency stop deceleration time g for the terminal  | 1.00s<br>(0.01s~650.00s)         | RUN                  |

Table 4-25 F05.2x group

**F05.3x group: reserved****F05.4x group: analog type processing**

| Parameter code (Address) | Designation                  | Content   |  | Factory default (setting range) | Adjustable attribute |
|--------------------------|------------------------------|---|--|---------------------------------|----------------------|
| F05.43 (0x052B)          | Analog input curve selection | V/F SVC<br>0: straight line (default)<br>1: curve-1<br>2: curve 2 | LED ones-place: AS<br>LED tens-place: VS<br>LED hundreds- place: reserved<br>LED thousands-place: reserved | 0000<br>(0000~2222)             | RUN                  |

Table 4-26 F05.4x group

**F05.5x group: analog linear processing**

| Parameter code (Address) | Designation                             | Content  |  | Factory default (setting range) | Adjustable attribute |
|--------------------------|---|--|--|---------------------------------|----------------------|
| F05.50 (0x0532)          | Lower limit AS                          | V/F SVC<br>Define the signal received by the AS terminal, and the voltage signal below this value is processed as the lower limit. |  | 0.0%<br>(0.0%~100.0%)           | RUN                  |
| F05.51 (0x0533)          | Setting corresponding to lower limit AS | V/F SVC++<br>Set percentage for the set AS lower limit value.  |  | 0.00%<br>(-100.00%~100.00%)     | R                    |
| F05.52 (0x0534)          | Upper limit AS                          | V/F SVC<br>Define the signal received by the AS terminal, and the voltage signal above this value is processed as the upper limit. |  | 100.0%<br>(0.0%~100.0%)         | RUN                  |
| F05.53 (0x0535)          | Setting corresponding to upper limit AS | V/F SVC<br>Set percentage for the set AS upper limit value.  |  | 100.00%<br>(0.00%~100.00%)      | RUN                  |
| F05.54 (0x0536)          | AS filter time                          | V/F SVC<br>Define the size of the AS circuit analog signal filtering to eliminate interference signals.                            |  | 0.100s<br>(0.000s~6.000s)       | RUN                  |
| F05.55 (0x0537)          | Lower limit VS                          | V/F SVC<br>Define the signal received by the VS terminal, and the voltage signal below this value is processed as the lower limit. |  | 0.0%<br>(0.0%~100.0%)           | RUN                  |
| F05.56 (0x0538)          | Setting corresponding to lower limit VS | V/F SVC<br>Set percentage for the set VS lower limit value.  |  | 0.00%<br>(-100.00%~100.00%)     | RUN                  |
| F05.57 (0x0539)          | Upper limit VS                          | V/F SVC<br>Define the signal received by the VS terminal, and the voltage signal above this value is processed as the upper limit. |  | 100.0%<br>(0.0%~100.0%)         | RUN                  |
| F05.58 (0x053A)          | Setting corresponding to upper limit VS | V/F SVC<br>Set percentage for the set AS upper limit value.  |  | 100.00%<br>(0.00%~100.00%)      | RUN                  |
| F05.59 (0x053B)          | VS filter time                          | V/F SVC<br>Define the size of the VS circuit analog signal filtering to eliminate interference signals.                            |  | 0.100s<br>(0.000s~6.000s)       | RUN                  |

Table 4-27 F05.5x group

**F05.6x group: analog quantity curve-1**

| Parameter code (Address) | Designation                                    | Content  | Factory default (setting range) | Adjustable attribute |
|--------------------------|--|--|---------------------------------|----------------------|
| F05.60 (0x053C)          | Curve-1 lower limit                            | V/F SVC<br>Set lower limit value for curve-1.                                | 0.0%<br>(0.0%~100.0%)           | RUN                  |
| F05.61 (0x053D)          | Setting corresponding to curve-1 lower limit   | V/F SVC<br>Set percentage of lower limit value for curve-1.                  | 0.00%<br>(-100.00%~100.00%)     | RUN                  |
| F05.62 (0x053E)          | Input voltage on inflection point-1 of curve-1 | V/F SVC<br>Set input voltage on inflection point-1 of curve-1.               | 30.0%<br>(0.0%~100.0%)          | RUN                  |
| F05.63 (0x053F)          | Setting corresponding to F05.62                | V/F SVC<br>Set percentage of input voltage on inflection point-1 of curve-1. | 30.00%<br>(-100.00%~100.00%)    | RUN                  |
| F05.64 (0x0540)          | Input voltage on inflection point 2 of curve-1 | V/F SVC<br>Set input voltage on inflection point 2 of curve-1.               | 60.0%<br>(0.0%~100.0%)          | RUN                  |
| F05.65 (0x0541)          | Setting corresponding to F05.64                | V/F SVC<br>Set percentage of input voltage on inflection point 2 of curve-1. | 60.00%<br>(-100.00%~100.00%)    | RUN                  |
| F05.66 (0x0542)          | Curve-1 upper limit                            | V/F SVC<br>Set upper value for curve-1.                                      | 100.0%<br>(0.0%~100.0%)         | RUN                  |
| F05.67 (0x0543)          | Setting corresponding to curve-1 upper limit   | V/F SVC<br>Set percentage of upper limit value for curve-1.                  | 100.00%<br>(-100.00%~100.00%)   | RUN                  |

Table 4-28 F05.6x group

**F05.7x group: analog quantity curve 2**

| Parameter code (Address) | Designation                                    | Content  | Factory default (setting range) | Adjustable attribute |
|--------------------------|--|--|---------------------------------|----------------------|
| F05.70 (0x0546)          | Curve-2 lower limit                            | V/F SVC<br>Set lower limit value for curve-2.                                | 0.0%<br>(0.0%~100.0%)           | RUN                  |
| F05.71 (0x0547)          | Setting corresponding to curve-2 lower limit   | V/F SVC<br>Set percentage of lower limit value for curve-2.                  | 0.00%<br>(-100.00%~100.00%)     | RUN                  |
| F05.72 (0x0548)          | Input voltage on inflection point-1 of curve-2 | V/F SVC<br>Set input voltage on inflection point-1 of curve-2.               | 30.0%<br>(0.0%~100.0%)          | RUN                  |
| F05.73 (0x0549)          | Setting corresponding to F05.72                | V/F SVC<br>Set percentage of input voltage on inflection point-1 of curve-2. | 30.00%<br>(-100.00%~100.00%)    | RUN                  |
| F05.74 (0x054A)          | Input voltage on inflection point-2 of curve-2 | V/F SVC<br>Set input voltage on inflection point-2 of curve-2.               | 60.0%<br>(0.0%~100.0%)          | RUN                  |
| F05.75 (0x054B)          | Setting corresponding to F05.74                | V/F SVC<br>Set percentage of input voltage on inflection point-2 of curve-2. | 60.00%<br>(-100.00%~100.00%)    | RUN                  |
| F05.76 (0x054C)          | Curve-2 upper limit                            | V/F SVC<br>Set upper value for curve-2.                                      | 100.0%<br>(0.0%~100.0%)         | RUN                  |
| F05.77 (0x054D)          | Setting corresponding to curve-2 upper limit   | V/F SVC<br>Set percentage of upper limit value for curve-2.                  | 100.00%<br>(-100.00%~100.00%)   | RUN                  |

Table 4-29 F05.7x group

**F05.8x group: AS/VS as digital signal input terminal**

| Parameter code (Address) | Designation  | Content  |   | Factory default (setting range) | Adjustable attribute |
|--------------------------|--|--|---|---------------------------------|----------------------|
| F05.80 (0x0550)          | Characteristic selection of AS/VS as digital signal input terminal | V/F SVC<br>0: effective for low level<br>1: effective for high level<br>LED ones-place: AS | LED tens-place: VS<br>LED hundreds-place: reserved<br>LED thousands-place: reserved | 0000 (0000~1111)                | RUN                  |
| F05.81 (0x0551)          | AS terminal function selection (used as X)                         | V/F SVC<br>See X terminal functions for details.   |   | 0 (0~95)                        | RUN                  |
| F05.82 (0x0552)          | AS high-level setting  | V/F SVC<br>It's high level when AS input setting is greater than the high-level setting.   |   | 70.00% (0.00%~100.00%)          | RUN                  |
| F05.83 (0x0553)          | AS low-level setting   | V/F SVC<br>It's low level when AS input setting is smaller than the low-level setting.     |   | 30.00% (0.00%~100.00%)          | RUN                  |
| F05.84 (0x0554)          | VS terminal function selection (used as X)                         | V/F SVC<br>See X terminal functions for details.   |   | 0 (0~95)                        | RUN                  |
| F05.85 (0x0555)          | VS high-level setting  | V/F SVC<br>It's high level when VS input setting is greater than the high-level setting.   |   | 70.00% (0.00%~100.00%)          | RUN                  |
| F05.86 (0x0556)          | VS low-level setting   | V/F SVC<br>It's low level when VS input setting is smaller than the low-level setting.     |   | 30.00% (0.00%~100.00%)          | RUN                  |

Table 4-30 F05.8x group

**4.10 F06 Group: Output Terminal**

**F06.0x group: reserved**

**F06.1x group: reserved**

**F06.2x~F06.3x group: digital & relay output**

| Parameter code (Address) | Designation                        | Content   |  | Factory default (setting range) | Adjustable attribute |
|--------------------------|------------------------------------|---|--|---------------------------------|----------------------|
| F06.20 (0x0614)          | Output terminal polarity selection | V/F SVC<br>0: positive<br>1: negative<br>LED ones-place: Y terminal | Tens-place: relay output terminal<br>Hundreds-place: reserved<br>Thousands-place: reserved | 0000 (0000~1111)                | RUN                  |
| F06.21 (0x0615)          | Output terminal Y                  | V/F SVC<br>See Y terminal functions for details.                    |  | 1 (0~63)                        | RUN                  |
| F06.22 (0x0616)          | Relay output (TA-TB-TC)            | V/F SVC<br>See Y terminal functions for details.                    |  | 4 (0~63)                        | RUN                  |
| F06.25 (0x0619)          | Y output delayed start time        | V/F SVC<br>Set delay time when Y terminal starts output.            |  | 0.010s (0.000s~60.000s)         | RUN                  |
| F06.26 (0x061A)          | Relay output delayed start time    | V/F SVC<br>Set delay time when relay starts output.                 |  | 0.010s (0.000s~60.000s)         | RUN                  |
| F06.29 (0x061D)          | Y output delayed stop time         | V/F SVC<br>Set delay time when Y terminal stops output.             |  | 0.010s (0.000s~60.000s)         | RUN                  |
| F06.30 (0x061E)          | Relay output delayed stop time     | V/F SVC<br>Set delay time when relay stops output.                  |  | 0.010s (0.000s~60.000s)         | RUN                  |



Table 4-31 F06.2x~F06.3x group

**F06.4x group: frequency detection**

| Parameter code (Address) | Designation                          | Content   | Factory default (setting range) | Adjustable attribute |
|--------------------------|--------------------------------------|---|---------------------------------|----------------------|
| F06.40 (0x0628)          | Frequency detection value 1          | V/F SVC<br>Set frequency detection value 1.           | 2.00Hz<br>(0.00Hz~ maximum)     | RUN                  |
| F06.41 (0x0629)          | Frequency detection amplitude 1      | V/F SVC<br>Set frequency detection amplitude 1.       | 1.00Hz<br>(0.00Hz~ maximum)     | RUN                  |
| F06.42 (0x062A)          | Frequency detection value 2          | V/F SVC<br>Set frequency detection value 2.           | 2.00Hz<br>(0.00Hz~ maximum)     | RUN                  |
| F06.43 (0x062B)          | Frequency detection amplitude 2      | V/F SVC<br>Set frequency detection amplitude 2.       | 1.00Hz<br>(0.00Hz~ maximum)     | RUN                  |
| F06.44 (0x062C)          | Detection amplitude of set frequency | V/F SVC<br>Set detection amplitude for set frequency. | 2.00Hz<br>(0.00Hz~ maximum)     | RUN                  |

Table 4-32 F06.4x group

**F06.5x group: comparator output of monitored parameter**

| Parameter code (Address) | Designation                              | Content   | Factory default (setting range) | Adjustable attribute |
|--------------------------|--|---|---------------------------------|----------------------|
| F06.50 (0x0632)          | Comparator 1 monitoring selection        | V/F SVC<br>LED ones-& tens-place: set "yy" between 00~63 among monitoring parameter "Cxx.yy";<br>LED hundreds-&thousands-place: set "xx" between 00~07 among monitoring parameter "Cxx.yy"; | 0001<br>(0000~0763)             | RUN                  |
| F06.51 (0x0633)          | Upper limit of comparator 1              | V/F SVC<br>Set upper limit value of comparator 1.   | (up to F06.50)                  | RUN                  |
| F06.52 (0x0634)          | Lower limit of comparator 1              | V/F SVC<br>Set lower limit value of comparator 1.   | (up to F06.50)                  | RUN                  |
| F06.53 (0x0635)          | Comparator 1 bias                        | V/F SVC<br>Set comparator 1 bias.   | (up to F06.50)                  | RUN                  |
| F06.54 (0x0636)          | Action selection of sending comparator 1 | V/F SVC<br>0: go on running (digital terminal output only)<br>1: display warning and stop freely<br>2: display warning and go on running<br>3: forced stop                                  | 0<br>(0~3)                      | RUN                  |
| F06.55 (0x0637)          | Comparator 2 monitoring selection        | V/F SVC<br>LED ones-& tens-place: set "yy" between 00~63 among monitoring parameter "Cxx.yy";<br>LED hundreds-&thousands-place: set "xx" between 00~07 among monitoring parameter "Cxx.yy"; | 0002<br>(0000~0763)             | RUN                  |
| F06.56 (0x0638)          | Upper limit of comparator 2              | V/F SVC<br>Set upper limit value of comparator 2.   | (up to F06.55)                  | RUN                  |
| F06.57 (0x0639)          | Lower limit of comparator 2              | V/F SVC<br>Set lower limit value of comparator 2.   | (up to F06.55)                  | RUN                  |
| F06.58 (0x063A)          | Comparator 2 bias                        | V/F SVC<br>Set comparator 2 bias.   | (up to F06.55)                  | RUN                  |
| F06.59 (0x063B)          | Action selection of sending comparator 2 | V/F SVC<br>0: go on running (digital terminal output only)<br>1: display warning and stop freely<br>2: display warning and go on running<br>3: forced stop                                  | 0<br>(0~3)                      | RUN                  |

Table 4-33 F06.5x group

**F06.6x ~ F06.7x group: virtual input & output terminals**

| Parameter code (Address)                 | Designation                                      | Content  |  | Factory default (setting range) | Adjustable attribute |
|--|--|--|--|---------------------------------|----------------------|
| F06.60 (0x063C) ~ F06.63 (0x063F)        | Function selection of virtual vX1~vX3 terminals  | V/F SVC<br>See X terminal functions for details.   |  | 0 (0~95)                        | STOP                 |
| F06.64 (0x0640)                          | State source of vX terminal                      | V/F SVC<br>0: interconnect with the virtual vYn terminal;<br>1: connect to the physical terminal Xn<br>2: function code valid or not | Ones-place: vX1<br>Tens-place: vX2<br>Hundreds-place: vX3<br>Thousands-place: reserved | 0000 (0000~0222)                | RUN                  |
| F06.65 (0x0641)                          | Virtual vX terminal function code status setting | V/F SVC<br>0: invalid;<br>1: valid;<br>Ones-place: vX1   | Tens-place: vX2<br>Hundreds-place: vX3<br>Thousands-place: reserved                    | 0000 (0000~0111)                | RUN                  |
| F06.66 (0x0642) ~ F06.69 (0x0645) F06.69 | Output selection of virtual vY1~vY3 terminals    | V/F SVC<br>See Y terminal functions for details.   |  | 0 (0~63)                        | RUN                  |
| F06.70 (0x0646) ~ F06.73 (0x0649)        | vY1~vY3 output delayed start time                | V/F SVC<br>Set delay time when vY1~vY3 starts output.  |  | 0.010s (0.000s~60.000s)         | RUN                  |
| F06.74 (0x064A) ~ F06.77 (0x064D)        | vY1~vY3 output delayed stop time                 | V/F SVC<br>Set delay time when vY1~vY3 stops output.   |  | 0.010s (0.000s~60.000s)         | RUN                  |

Table 4-34 F06.6x ~F06.7x group

**4.11 F07 Group: Running Control****F07.0x group: start control**

| Parameter code (Address) | Designation               | Content  | Factory default (setting range) | Adjustable attribute |
|--------------------------|---------------------------|--|---------------------------------|----------------------|
| F07.00 (0x0700)          | Start method              | V/F SVC<br>0: started by the starting frequency<br>1: DC braking before started by the starting frequency<br>2: speed tracking & direction judgment and then start | 0 (0~2)                         | STOP                 |
| F07.01 (0x0701)          | Start pre-excitation time | V/F SVC<br>Only asynchronous motor vector control without PG supports pre-excitation, so ignore this code on other motors.   | 0.00s (0.00s~60.00s)            | STOP                 |

|                    |  |   |   |   |      |
|--------------------|--|---|---|---|------|
| F07.02<br>(0x0702) | Start frequency                          | V/F SVC<br>Remain stop and standby when set frequency is lower than start frequency.  |   | 0.50Hz<br>(0.00Hz~upper<br>limit frequency<br>via number<br>entering) | STOP |
| F07.03<br>(0x0703) | Start protection<br>selection            | V/F SVC<br>0: off<br>1: on<br>LED ones-place: terminal protection activated on exit<br>exception<br>Tens-place: jogging terminal protection activated exit<br>exception<br>Hundreds-place: terminal protection activated when the<br>command channel switches to the terminal<br>Thousands-place: reserved<br>Note: When the free stop, emergency stop and forced<br>stop commands are valid, the terminal protection is<br>enabled by default. |   | 0111<br>(0000~1111)   | STOP |
| F07.05<br>(0x0705) | Rotation direction<br>selection          | V/F SVC<br>LED ones-place:<br>rotation direction<br>0: remain;<br>1: reverse the direction;<br>Tens-place: rotation<br>direction permission:<br>0: forward and reverse<br>commands allowed  | 1: forward command only<br>2: reverse command only<br>Hundreds-place: frequency<br>controlling command<br>direction:<br>0: controlling command<br>direction invalid<br>1: controlling command<br>direction valid<br>Thousands-place: reserved | 0000<br>(0000~1121)   | STOP |
|                    |  | Note: Initialization will not restore this value.<br>Parameter downloading will not change the ones digit<br>value.   |   |   |      |
| F07.06<br>(0x0706) | Restart after power<br>failure selection | V/F SVC<br>0: invalid<br>1: speed tracking and restart<br>2: restart as the start mode.   |   | 0<br>(0~2)  | STOP |
| F07.07<br>(0x0707) | Restart waiting time<br>after power cut. | V/F SVC<br>Set the waiting time to restart after power cut.   |   | 0.50s<br>(0.00s~60.00s)   | STOP |

Table 4-35 F07.0x group

**F07.1x group: stop control**

| Parameter<br>code<br>(Address) | Designation  | Content   | Factory default<br>(setting range)                        | Adjustable<br>attribute |
|--------------------------------|--|---|---|-------------------------|
| F07.10<br>(0x070A)             | Stop method  | V/F SVC<br>0: deceleration stop<br>1: free stop   | 0<br>(0~1)  | RUN                     |
| F07.11<br>(0x070B)             | Stop detection<br>frequency                              | V/F SVC<br>Stop when inverter output frequency is lower than this<br>value under deceleration stop.                                   | 0.50Hz<br>(0.00Hz~<br>upper limit via<br>number entering) | RUN                     |
| F07.12<br>(0x070C)             | Limit time to restart<br>after stop                      | V/F SVC<br>Set waiting time to restart after stop.  | 0.000s<br>(0.000s~60.000s)                                | STOP                    |
| F07.15<br>(0x070F)             | action selection<br>when lower than<br>minimum frequency | V/F SVC<br>0: run by frequency command<br>1: stop freely and remains pause<br>2: run at the minimum frequency<br>3: run at zero speed | 2<br>(0~3)  | RUN                     |
| F07.16                         | Torque holding   | V/F SVC   | 60.0%   | RUN                     |

|                    |                                      |  |                        |      |
|--------------------|--------------------------------------|--|------------------------|------|
| (0x0710)           | current at zero speed                | Set torque holding current at zero speed, 100.0% of rated current of the inverter. | (0.0%~150.0%)          |      |
| F07.17<br>(0x0711) | Torque holding time at zero speed    | V/F SVC<br>Set Torque holding time at zero speed.                                  | 0.0s<br>(0.0s~6000.0s) | RUN  |
| F07.18<br>(0x0712) | Forward & reverse rotation dead time | V/F SVC<br>Zero frequency holding time during forward & reverse switching.         | 0.0s<br>(0.0s~120.0s)  | STOP |

Table 4-36 F07.1x group

**F07.2x group: DC braking and speed tracking**

| Parameter code (Address) | Designation                     | Content   |   | Factory default (setting range) | Adjustable attribute |
|--------------------------|---------------------------------|---|---|---------------------------------|----------------------|
| F07.20<br>(0x0714)       | Braking current before starting | V/F SVC<br>100.0% of the motor rated current, and the upper limit of the braking current is the rated current of the inverter.                                |   | 60.0%<br>(0.0%~150.0%)          | STOP                 |
| F07.21<br>(0x0715)       | Braking time before starting    | V/F SVC<br>Set braking time before starting   |   | 0.0s<br>(0.0s~60.0s)            | STOP                 |
| F07.22<br>(0x0716)       | DC braking start frequency      | V/F SVC<br>Set DC braking start frequency   |   | 1.00Hz<br>(0.00Hz~50.00Hz)      | STOP                 |
| F07.23<br>(0x0717)       | DC braking current              | V/F SVC<br>The reference is the rated current of the inverter, and the internal limit shall not exceed the rated current of the motor.                        |   | 60.0%<br>(0.0%~150.0%)          | STOP                 |
| F07.24<br>(0x0718)       | DC braking time of stop         | V/F SVC<br>Set DC braking time in stop state.   |   | 0.0s<br>(0.0s~60.0s)            | STOP                 |
| F07.25<br>(0x0719)       | Speed tracking                  | V/F SVC<br>Ones-place: tracking mode<br>0: tracking from the maximum frequency;<br>1: tracking from stop frequency;<br>Tens-place: reverse tracking<br>0: off | 1: on<br>Hundreds-place: tracking source<br>0: software tracking;<br>1: hardware tracking;<br>Thousands-place: reserved | 0000<br>(0000~1111)             | STOP                 |
| F07.26<br>(0x071A)       | Speed tracking time             | V/F SVC<br>Set speed tracking time  |   | 0.50s<br>(0.00s~60.00s)         | STOP                 |
| F07.27<br>(0x071B)       | Speed tracking stop delay time  | V/F SVC<br>Set delay time when speed tracking stops.  |   | 1.00s<br>(0.00s~60.00s)         | STOP                 |
| F07.28<br>(0x071C)       | Speed tracking current          | V/F SVC<br>Set speed tracking current.  |   | 120.0%<br>(0.0%~400.0%)         | STOP                 |

Table 4-37 F07.2x group

**F07.3x group: jogging**

| Parameter code (Address) | Designation               | Content                                      |  | Factory default (setting range)      | Adjustable attribute |
|--------------------------|---------------------------|--|--|--------------------------------------|----------------------|
| F07.30<br>(0x071E)       | Jogging frequency         | V/F SVC<br>Set running frequency of jogging. |  | 5.00Hz<br>(0.00Hz~maximum frequency) | RUN                  |
| F07.31<br>(0x071F)       | Jogging acceleration time | V/F SVC<br>Set jogging acceleration time.    |  | 10.00s<br>(0.00s~650.00s)            | RUN                  |
| F07.32<br>(0x0720)       | Jogging deceleration time | V/F SVC<br>Set jogging deceleration time.    |  | 10.00s<br>(0.00s~650.00s)            | RUN                  |
| F07.33<br>(0x0721)       | Jogging S-curve selection | V/F SVC<br>0: invalid<br>1: valid            |  | 1<br>(0~1)                           | RUN                  |

|                    |                   |  |            |     |
|--------------------|-------------------|--|------------|-----|
| F07.34<br>(0x0722) | Jogging stop mode | V/F SVC<br>0: stop as F7.10 setting;<br>1: decelerate and stop | 0<br>(0~1) | RUN |
|--------------------|-------------------|--|------------|-----|

Table 4-38 F07.3x group

**F07.4x group: start & stop holding frequency and hopping frequency**

| Parameter code (Address) | Designation                  | Content   | Factory default (setting range)                               | Adjustable attribute |
|--------------------------|------------------------------|---|---|----------------------|
| F07.40<br>(0x0728)       | Start holding frequency      | V/F SVC<br>Start holding frequency is higher than the start frequency and lower than the upper limit frequency via number entering.   | 0.50Hz<br>(0.00Hz~upper limit frequency via number entering)  | STOP                 |
| F07.41<br>(0x0729)       | Start holding frequency time | V/F SVC<br>This shall be higher than the starting frequency, and the starting frequency should be taken when it is lower than it.   | 0.00s<br>(0.00s~60.00s)                                       | STOP                 |
| F07.42<br>(0x072A)       | Stop holding frequency       | V/F SVC<br>Set stop holding frequency.  | 0.50Hz<br>(0.00Hz~ upper limit frequency via number entering) | STOP                 |
| F07.43<br>(0x072B)       | Stop holding frequency time  | V/F SVC<br>Stop holding frequency time is invalid when <ul style="list-style-type: none"> <li>● terminal DC braking and jogging;</li> <li>● stop DC braking is effective while the stop holding frequency is lower than stop DC braking frequency;</li> <li>● no stop DC braking and the stop holding frequency is lower than the stop detection frequency</li> </ul> | 0.00s<br>(0.00s~60.00s)                                       | STOP                 |
| F07.44<br>(0x072C)       | Hopping frequency 1          | V/F SVC<br>Set hopping frequency 1.   | 0.00Hz<br>(0.00 Hz~ maximum frequency)                        | RUN                  |
| F07.45<br>(0x072D)       | Hopping frequency amplitude  | V/F SVC<br>Set hopping frequency1 amplitude.  | 0.00Hz<br>(0.00Hz~ maximum frequency)                         | RUN                  |
| F07.46<br>(0x072E)       | Hopping frequency 2          | V/F SVC<br>Set hopping frequency 2.   | 0.00Hz<br>(0.00Hz~ maximum frequency)                         | RUN                  |
| F07.47<br>(0x072F)       | Hopping frequency amplitude  | V/F SVC<br>Set hopping frequency 2 amplitude.   | 0.00Hz<br>(0.00Hz~ maximum frequency)                         | RUN                  |

Table 4-39 F07.4x group

**4.12 F08 Group: Auxiliary Control 1****F08.0x group: counting and timing**

| Parameter code (Address) | Designation                      | Content   | Factory default (setting range) | Adjustable attribute |
|--------------------------|----------------------------------|---|---------------------------------|----------------------|
| F08.00<br>(0x0800)       | Counter input source             | V/F SVC<br>0: from common X terminal            | 0<br>(0~2)                      | RUN                  |
| F08.01<br>(0x0801)       | Counter input frequency division | V/F SVC<br>Set counter input frequency division | 0<br>(0~6000)                   | RUN                  |

|                    |                  |  |  |      |
|--------------------|------------------|--|--|------|
| F08.02<br>(0x0802) | Counter maximum  | V/F SVC<br>Set counter maximum value.  | 1000<br>(0-65000)                          | RUN  |
| F08.03<br>(0x0803) | Counter value    | V/F SVC<br>Set counter value.  | 500<br>(0-65000)                           | RUN  |
| F08.04<br>(0x0804) | Pulses per meter | V/F SVC<br>Set pulses per meter.   | 10.0<br>(0.1-6553.5)                       | RUN  |
| F08.05<br>(0x0805) | Length           | V/F SVC<br>Set a length, when the actual length is greater than or equal to setting length, the terminal will output a valid signal, then reset after the output | 1000m<br>(0m-65535m)                       | STOP |
| F08.06<br>(0x0806) | Actual length    | V/F SVC<br>No power-off saving.  | 0m<br>(0m-65535m)                          | STOP |
| F08.07<br>(0x0807) | Timer time unit  | V/F SVC<br>0: second (s)   | 1: minute (m)<br>2: hour (h)<br>0<br>(0-2) | STOP |
| F08.08<br>(0x0808) | Timer value      | V/F SVC<br>Set timer value.  | 0<br>(0-65000)                             | STOP |

Table 4-40 F08.0x group

**F08.1x ~ F08.2x group: reserved****F08.3x group: swing frequency**

| Parameter code<br>(Address) | Designation                         | Content  |  | Factory default<br>(setting range)    | Adjustable attribute |
|-----------------------------|-------------------------------------|--|--|---------------------------------------|----------------------|
| F08.30<br>(0x081E)          | Swing frequency                     | V/F SVC<br>0: swing frequency invalid<br>1: swing frequency valid  |  | 0<br>(0-1)                            | STOP                 |
| F08.31<br>(0x081F)          | Swing frequency amplitude           | V/F SVC<br>Ones-place: start mode<br>0: auto;<br>1: manual terminal setting<br>Tens-place: amplitude control<br>0: refer to center frequency | 1: refer to maximum frequency<br>Hundreds-place: preset frequency<br>0: unenabled<br>1: enabled<br>Thousands-place: reserved | 0000<br>(0000-0111)                   | STOP                 |
| F08.32<br>(0x0820)          | Preset swing frequency              | V/F SVC<br>Set preset swing frequency.   |  | 0.00Hz<br>(0.00Hz~ maximum frequency) | STOP                 |
| F08.33<br>(0x0821)          | Preset swing frequency waiting time | V/F SVC<br>Set preset swing frequency waiting time.  |  | 0.0s<br>(0.0s-3600.0s)                | STOP                 |
| F08.34<br>(0x0822)          | Swing frequency amplitude value     | V/F SVC<br>Set swing frequency amplitude value.  |  | 10.0%<br>(0.0%-50.0%)                 | STOP                 |
| F08.35<br>(0x0823)          | Hopping frequency                   | V/F SVC<br>Set hopping frequency.  |  | 10.0%<br>(0.0%-50.0%)                 | STOP                 |
| F08.36<br>(0x0824)          | Triangular wave rise time           | V/F SVC<br>Set triangular wave rise time.  |  | 5.00s<br>(0.00s-650.00s)              | STOP                 |
| F08.37<br>(0x0825)          | Triangular wave fall time           | V/F SVC<br>Set triangular wave fall time.  |  | 5.00s<br>(0.00s-650.00s)              | STOP                 |

Table 4-41 F08.3x group

**4.13 F09 Group: Auxiliary Control 2****F09.0x group: maintenance**

| Parameter code<br>(Address) | Designation | Content | Factory default<br>(setting range) | Adjustable attribute |
|-----------------------------|-------------|---------|------------------------------------|----------------------|
|-----------------------------|-------------|---------|------------------------------------|----------------------|

|                    |                                      |   |                           |      |
|--------------------|--------------------------------------|---|---------------------------|------|
| F09.02<br>(0x0902) | Device maintenance warning selection | V/F SVC<br>Ones-place: cooling fan<br>0: invalid; 1: valid<br>Tens-place: main relay<br>0: invalid; 1: valid<br>Hundreds-place: reserved<br>Thousands-place: reserved | 0x0000<br>(0x0000-0x1111) | RUN  |
| F09.03<br>(0x0903) | Cooling fan maintenance              | V/F SVC<br>Set this parameter in hours and set it to 0 after replacing with a new one.  | 0<br>(0-65535)            | STOP |
| F09.04<br>(0x0904) | Main relay maintenance               | V/F SVC<br>Set this parameter to 0.0% after replacing with a new relay.   | 0.0%<br>(0.0%~150.0%)     | STOP |

Table 4-42 F09.0x group

## 4.14 F10 Group: Protection Parameter

### F10.0x group: current protection

| Parameter code<br>(Address) | Designation                   | Content   | Factory default<br>(setting range) | Adjustable attribute |
|-----------------------------|-------------------------------|---|------------------------------------|----------------------|
| F10.00<br>(0x0A00)          | Overcurrent suppression       | V/F SVC<br>Automatically limited output current shall not exceed the set overcurrent suppression point to prevent overcurrent fault triggered by excessive current.<br>0: suppression always valid;<br>1: valid during acceleration & deceleration, while invalid during constant speed   | 0<br>(0-1)                         | RUN                  |
| F10.01<br>(0x0A01)          | Overcurrent suppression point | V/F SVC<br>Set the load current limiting level, 100% of rated motor current.  | 160.0%<br>(0.0%~300.0%)            | RUN                  |
| F10.02<br>(0x0A02)          | Overcurrent suppression gain  | V/F SVC<br>Set the response effect of overcurrent suppression.  | 100.0%<br>(0.0%~500.0%)            | RUN                  |
| F10.03<br>(0x0A03)          | Current protection setting 1  | V/F SVC<br>Set whether the current-related protection is activated:<br>Ones-place: current limiting by wave (CBC)<br>0: off<br>1: on<br>Tens-place: OC protection interference suppression<br>0: normal<br>1: primary interference suppression<br>2: secondary interference suppression<br>Hundreds-place: SC protection interference suppression<br>0: normal<br>1: primary interference suppression<br>2: secondary interference suppression<br>LED thousands-place: reserved | 0001<br>(0000-F221)                | STOP                 |
| F10.04<br>(0x0A04)          | Current protection setting 2  | V/F SVC<br>Ones-place: three-phase current and protection selection<br>0: off; 1: on<br>Tens-place: three-phase current unbalance protection, fault code E. oLF4.<br>0: off; 1: on  | 0001<br>(0000-0011)                | STOP                 |
| F10.05<br>(0x0A05)          | Current imbalance threshold   | V/F SVC<br>The ratio of the maximum to the minimum phase in the three phases of the current, and the set value is compared to tell if it's current imbalance fault.   | 160%<br>(0%~500%)                  | STOP                 |

|                    |   |   |                   |      |
|--------------------|---|---|-------------------|------|
| F10.06<br>(0x0A06) | Current imbalance filtering coefficient | V/F SVC<br>Increase this parameter on occasions with great current fluctuation. | 2.0<br>(0.0~60.0) | STOP |
|--------------------|---|---|-------------------|------|

Table 4-43 F10.0x group

**F10.1x group: voltage protection**

| Parameter code<br>(Address) | Designation                          | Content   | Factory default<br>(setting range)  | Adjustable attribute |
|-----------------------------|--------------------------------------|---|---|----------------------|
| F10.11<br>(0x0A0B)          | Bus overvoltage suppression          | V/F SVC<br>When the bus voltage is greater than the overvoltage suppression point, the acceleration and deceleration will be slowed down or stopped to prevent the overvoltage fault.<br>Ones-place: overvoltage suppression<br>0: off; 1: on<br>Tens-place: overexcitation<br>0: off; 1: enabled during deceleration; 2: enabled during running; | 0011<br>(0000~0021)   | STOP                 |
| F10.12<br>(0x0A0C)          | Bus overvoltage suppression point    | V/F SVC<br>Set the bus voltage value for triggering the overvoltage suppression function<br>Note: T3 overpressure point :820V(750V~840V)<br>S2 overpressure point :400V(360V~410V)  | T3:750V<br>S2:370V<br>(T3:650V~800V<br>S2:340V~380V)<br>Also limited by overvoltage point | STOP                 |
| F10.13<br>(0x0A0D)          | Bus overvoltage suppression gain     | V/F SVC<br>Set the response effect of overvoltage suppression.  | 100.0%<br>(0.0%~500.0%)   | RUN                  |
| F10.14<br>(0x0A0E)          | Dynamic braking                      | V/F SVC<br>Set dynamic braking on or off;<br>0: off;<br>1: on with the overvoltage suppression off;<br>2: on with the overvoltage suppression on;   | 2<br>(0~2)  | RUN                  |
| F10.15<br>(0x0A0F)          | Dynamic braking action voltage       | V/F SVC<br>Set the dynamic braking action voltage. When the bus voltage is greater than this value, this function starts to act.<br>Note: T3 overpressure point :820V(750V~840V)<br>S2 overpressure point :400V(360V~410V)  | T3:740V<br>S2:360V<br>(T3:650V~800V<br>S2:350V~390V)<br>Also limited by overvoltage point | RUN                  |
| F10.16<br>(0x0A10)          | Bus undervoltage suppression         | V/F SVC<br>When the bus voltage is lower than the undervoltage suppression point, the operating frequency will be automatically adjusted to stop the bus voltage reduction to prevent undervoltage fault reporting<br>0: off; 1: on   | 0<br>(0~1)  | STOP                 |
| F10.17<br>(0x0A11)          | Bus undervoltage suppression point   | V/F SVC<br>Set the bus voltage value to trigger the undervoltage suppression function.<br>Note: T3 overpressure point :820V(750V~840V)<br>S2 overpressure point :400V(360V~410V)  | T3:430<br>S2:240<br>(T3:350V~450V<br>S2:180V~260V)<br>Also limited by overvoltage point   | STOP                 |
| F10.18<br>(0x0A12)          | Busbar undervoltage suppression gain | V/F SVC<br>Set the response effect of undervoltage suppression.   | 100.0%<br>(0.0%~500.0%)   | RUN                  |



|                    |                                      |   |   |      |
|--------------------|--------------------------------------|---|---|------|
| F10.19<br>(0x0A13) | Busbar undervoltage protection point | V/F SVC<br>Set the allowable lower limit of busbar voltage, below which inverter will report undervoltage fault.<br>Note : T3 overpressure point : 820V(750V~840V)<br>S2 overpressure point : 400V(360V~410V) | T3:320V<br>S2:190V<br>(T3:300V~400V<br>S2:160V~240V)<br>Also limited by overvoltage point | STOP |
|--------------------|--------------------------------------|---|---|------|

Table 4-44 F10.1x group

**F10.2x group: auxiliary protection**

| Parameter code (Address) | Designation                                      | Content  | Factory default (setting range) | Adjustable attribute |
|--------------------------|--|--|---------------------------------|----------------------|
| F10.20<br>(0x0A14)       | Input & output phase loss protection             | V/F SVC<br>Set input & output phase loss protection on or off.<br>Ones-place: output phase loss protection<br>0: off;<br>1: on;<br>Tens-place: input phase loss protection<br>0: off;<br>1: on , report A. iLF warning when phase loss detected but go on running;<br>2: on , report A. iLF warning when phase loss detected and stop freely.<br>Hundreds-place: reserved;<br>Thousands-place: reserved; | 0021<br>(0000~1121)             | STOP                 |
| F10.21<br>(0x0A15)       | Input phase loss threshold value                 | V/F SVC<br>Set percentage of the input phase loss detected voltage, 100% of the rated bus voltage.   | 10.0%<br>(0.0%~30.0%)           | STOP                 |
| F10.22<br>(0x0A16)       | Grounding short circuit protection               | V/F SVC<br>Set inverter output & cooling fan grounding short circuit protection on or off;<br>Ones-place: Output grounding short circuit protection:<br>0: off; 1: on;<br>Tens-place: Cooling fan grounding short circuit protection:<br>0: off; 1: on;<br>Hundreds-place: reserved;<br>Thousands-place: reserved;   | 11<br>(00~12)                   | STOP                 |
| F10.23<br>(0x0A17)       | Cooling fan                                      | Set the operation mode of the cooling fan<br>0: fan runs after the inverter is powered on<br>1: fan runs or not up to temperature after shutdown;<br>2: fan stops after the set time of F10.24 during shutdown, and runs or not up to temperature then.  | 1<br>(0~2)                      | RUN                  |
| F10.24<br>(0x0A18)       | Delay time of cooling fan                        | V/F SVC<br>Set the time from release of the running command to the cooling fan stops running   | 30.00s<br>(0.00s~600.00s)       | STOP                 |
| F10.25<br>(0x0A19)       | Inverter overheating oH1 warning detection level | V/F SVC<br>Set the temperature of overheat warning of the inverter, any value detected larger will cause overheating warning.  | 80.0°C<br>(0.0°C<br>~100.0°C)   | RUN                  |

Table 4-45 F10.2x group

**F10.3x group: load protection**

| Parameter code<br>(Address) | Designation                    | Content  | Factory default<br>(setting range) | Adjustable attribute |
|-----------------------------|--------------------------------|--|------------------------------------|----------------------|
| F10.32<br>(0x0A20)          | Load detection warning         | V/F SVC<br>Set load detection mode and the corresponding warning mode<br>Ones-place: load detection warning 1 setting<br>0: detection off;<br>1: excessive load;<br>2: excessive load only at constant speed;<br>3: insufficient load;<br>4: insufficient load only at constant speed;<br>Tens-place: warning mode of load detection warning 1<br>0: go on running, report A. Ld1<br>1: stop freely, report E. Ld1<br>Hundreds-place: load detection warning 2 setting<br>0: detection off;<br>1: excessive load;<br>2: excessive load only at constant speed;<br>3: insufficient load;<br>4: insufficient load only at constant speed;<br>Thousands-place: warning mode of load detection warning 2<br>0: go on running, report A. Ld2<br>1: stop freely, report E. Ld2 | 0000<br>(0000~1414)                | STOP                 |
| F10.33<br>(0x0A21)          | Load warning detection level 1 | V/F SVC<br>Set the detectable value of load warning 1;<br>For V/F control, the value equals to 100% of the rated current of the motor;<br>For vector control, the value equals to 100% of the rated output torque of the motor   | 130.0%<br>(0.0%~200.0%)            | STOP                 |
| F10.34<br>(0x0A22)          | Load warning detection time 1  | V/F SVC<br>Set the duration of load detection warning 1. If the load is greater than the load warning detection level, load detection warning 1 functions.   | 5.0s<br>(0.0s~60.0s)               | STOP                 |
| F10.35<br>(0x0A23)          | Load warning detection level 2 | V/F SVC<br>Set the detectable value of load warning 2;<br>For V/F control, the value equals to 100% of the rated current of the motor;<br>For vector control, the value equals to 100% of the rated output torque of the motor   | 30.0%<br>(0.0%~200.0%)             | STOP                 |
| F10.36<br>(0x0A24)          | Load warning detection time 2  | V/F SVC<br>Set the duration of load detection warning 2. If the load is greater than the load warning detection level, load detection warning 2 functions.   | 5.0s<br>(0.0s~60.0s)               | STOP                 |

Table 4-46 F10.3x group

**F10.4x group: stall protection**

| Parameter code<br>(Address) | Designation                          | Content   | Factory default<br>(setting range) | Adjustable attribute |
|-----------------------------|--------------------------------------|---|------------------------------------|----------------------|
| F10.40<br>(0x0A28)          | Excessive speed deviation protection | V/F SVC<br>Set the detection mode and warning mode when the deviation between the given motor speed and the | 00<br>(00~12)                      | STOP                 |

|                    |   |   |                           |      |
|--------------------|---|---|---------------------------|------|
|                    |   | feedback speed is too large<br>Ones-place: detection mode selection<br>0: detection off;<br>1: on at constant speed only;<br>2: on;<br>Tens-place: warning mode<br>0: stop freely and report warning;<br>1: report warning and go on running                                    |                           |      |
| F10.41<br>(0x0A29) | Excessive speed deviation detection threshold value | V/F SVC<br>Set the detectable value with excessive speed deviation, 100% of F01.10[maximum frequency]   | 10.0%<br>(0.0%~60.0%)     | STOP |
| F10.42<br>(0x0A2A) | Excessive speed deviation detection time            | V/F SVC<br>Set the duration of detecting speed deviation. If the given speed & feedback speed deviation is greater than F10.41 and lasts for this setting, report excessive speed deviation warning.  | 2.0s<br>(0.0s~60.0s)      | STOP |
| F10.43<br>(0x0A2B) | Stall protection                                    | V/F SVC<br>Set detection mode and warning mode of motor stall.<br>Ones-place: detection mode selection<br>0: detection off;<br>1: on at constant speed only;<br>2: on;<br>Tens-place: warning mode<br>0: stop freely and report warning;<br>1: report warning and go on running | 02<br>(00~12)             | STOP |
| F10.44<br>(0x0A2C) | Stall protection detection threshold value          | V/F SVC<br>Set the detectable value of stall warning, which corresponds 100% of F01.10[maximum frequency]   | 110.0%<br>(0.0%~150.0%)   | STOP |
| F10.45<br>(0x0A2D) | Stall protection detection time                     | V/F SVC<br>Set the duration of stall detection. If feedback speed deviation is greater than F10.44 and lasts for this setting, report stall warning.  | 0.100s<br>(0.000s~2.000s) | STOP |

Table 4-47 F10.4x group

**F10.5x group: fault recovery protection and motor overload**

| Parameter code<br>(Address) | Designation                            | Content   | Factory default<br>(setting range) | Adjustable attribute |
|-----------------------------|--|---|------------------------------------|----------------------|
| F10.50<br>(0x0A32)          | Times of self-recovery                 | V/F SVC<br>Set the allowable times of self-recovery.<br>Note: 0 indicates that the fault self-recovery function is off. Otherwise, it's on. | 0<br>(0~10)                        | STOP                 |
| F10.51<br>(0x0A33)          | Interval between fault self-recoveries | V/F SVC<br>Set the waiting time between each inverter failure and recovery.   | 1.0s<br>(0.0s~100.0s)              | STOP                 |
| F10.52<br>(0x0A34)          | Times of recovered faults              | V/F SVC<br>The times of self-recoveries that have been performed. This parameter is read-only.  | 0                                  | STOP                 |
| F10.55<br>(0x0A37)          | Motor overload model                   | V/F SVC<br>0: common motor<br>1: inverter motor (50Hz)<br>2: inverter motor (60Hz)<br>3: motor without cooling fan                          | 0<br>(0~3)                         | RUN                  |

|                    |                                    |  |                         |      |
|--------------------|------------------------------------|--|-------------------------|------|
| F10.56<br>(0x0A38) | Motor insulation level             | V/F SVC<br>0: insulation level A; 1: insulation level E<br>2: Insulation level B; 3: insulation level F<br>4: Insulation class H; 5: special level S | 3<br>(0-5)              | STOP |
| F10.57<br>(0x0A39) | Motor working system               | V/F SVC<br>0-1: S1 working system (continuous working)<br>2: S2 working system<br>3-9: corresponds to S3-S9  | 0<br>(0-9)              | STOP |
| F10.58<br>(0x0A3A) | Motor overload threshold           | V/F SVC<br>Set motor overload threshold. The actual current is greater than accumulated excess load.   | 105.0%<br>(0.0%~130.0%) | STOP |
| F10.59<br>(0x0A3B) | Motor overload current coefficient | V/F SVC<br>Motor overload calculated current = actual current * motor overload current coefficient.  | 100.0%<br>(0.0%~250.0%) | STOP |

Table 4-48 F10.5x group

## 4.15 F11 Group: Keyboard Parameter

### F11.0x group: keyboard operation (external keyboard required)

| Parameter code<br>(Address) | Designation  | Content  | Factory default<br>(setting range) | Adjustable attribute |
|-----------------------------|--|--|------------------------------------|----------------------|
| F11.00<br>(0x0B00)          | Key lock   | V/F SVC<br>0: lock off;<br>1: keyboard parameters changing function locked;<br>2: function parameters and the non-start & stop key locked;<br>3: all function parameters and keys are locked;  | 0<br>(0-3)                         | RUN                  |
| F11.01<br>(0x0B01)          | Key lock password  | V/F SVC<br>Function together with the key lock; Remember the password after setting, otherwise, the operation cannot be performed if it is locked.   | 0<br>(0-65535)                     | RUN                  |
| F11.02<br>(0x0B02)          | Multi-function key selection                                     | V/F SVC<br>0: invalid;<br>1: reverse running;<br>2: forward jogging;<br>3: backward jogging;<br>4: switch between the keyboard command channel and the terminal command channel;<br>5: switch between the keyboard command channel and the communication command channel;<br>6: switch between the terminal command channel and the communication command channel;<br>7: switch between the keyboard, terminal, and communication command channel; | 0<br>(0~7)                         | STOP                 |
| F11.03<br>(0x0B03)          | Keyboard STOP key setting  | V/F SVC<br>0: non-keyboard control invalid;<br>1: non-keyboard control stops as stop mode;<br>2: non-keyboard control stops as free mode;  | 0<br>(0~2)                         | STOP                 |
| F11.04<br>(0x0B04)          | Up/down button on the status interface (knob) function selection | V/F SVC<br>Ones-place; keyboard up & down function selection<br>0: invalid;<br>1: used to change the frequency of F01.09;<br>2: used to adjust PID keyboard of F13.01;<br>3: keyboard up & down keys to change the parameters;<br>Tens-place: power failure storage  | 0011<br>(0000-0213)                | STOP                 |

|                    |                                      |   |                     |     |
|--------------------|--------------------------------------|---|---------------------|-----|
|                    |                                      | 0: off;<br>1: on;<br>Hundreds-place: action limit<br>0: adjustable both during running & shutdown;<br>1: adjustable during running and keeping during shutdown;<br>2: adjustable during running and clearing all after shutdown;<br>Thousands-place: reserved |                     |     |
| F11.05<br>(0x0B05) | Up & down key quick change parameter | V/F SVC<br>Ones-place: set yy value from 00 to 99 among code "Fxx.yy";<br>Tens-place: set xxvalue from 00 to 15 among code "Fxx.yy"   | 0109<br>(0000-2999) | RUN |

Table 4-49 F11.0x group

**F11.1x group: status interface cycle monitoring**

| Parameter code<br>(Address) | Designation  | Content  | Factory default<br>(setting range) | Adjustable attribute |
|-----------------------------|--|--|------------------------------------|----------------------|
| F11.10<br>(0x0B0A)          | Left & right key on the status screen function selection | V/F SVC<br>Ones-place: left key to adjust the first row;<br>0: invalid; 1: valid<br>Tens-place: right key to adjust the second row;<br>0: invalid; 1: valid                  | 0011<br>(0000-0011)                | STOP                 |
| F11.11<br>(0x0B0B)          | Keyboard first line cycle- display parameter 1           | V/F SVC<br>Ones- & tens-place: set yy from 00 to 63 among monitoring parameter Cxx.yy;<br>Hundreds-& Thousands-plac: set xx from 00 to 07 among monitoring parameter Cxx.yy; | 0000<br>(0000-0763)                | RUN                  |
| F11.12<br>(0x0B0C)          | Keyboard first line cycle- display parameter 2           | V/F SVC<br>Ones- & tens-place: set yy from 00 to 63 among monitoring parameter Cxx.yy;<br>Hundreds-& Thousands-plac: set xx from 00 to 07 among monitoring parameter Cxx.yy; | 0001<br>(0000-0763)                | RUN                  |
| F11.13<br>(0x0B0D)          | Keyboard first line cycle- display parameter 3           | V/F SVC<br>Ones- & tens-place: set yy from 00 to 63 among monitoring parameter Cxx.yy;<br>Hundreds-& Thousands-plac: set xx from 00 to 07 among monitoring parameter Cxx.yy; | 0002<br>(0000-0763)                | RUN                  |
| F11.14<br>(0x0B0E)          | Keyboard first line cycle- display parameter 4           | V/F SVC<br>Ones- & tens-place: set yy from 00 to 63 among monitoring parameter Cxx.yy;<br>Hundreds-& Thousands-plac: set xx from 00 to 07 among monitoring parameter Cxx.yy; | 0011<br>(0000-0763)                | RUN                  |
| F11.15<br>(0x0B0F)          | Keyboard second line cycle- display parameter 1          | V/F SVC<br>Ones- & tens-place: set yy from 00 to 63 among monitoring parameter Cxx.yy;<br>Hundreds-& Thousands-plac: set xx from 00 to 07 among monitoring parameter Cxx.yy; | 0002<br>(0000-0763)                | RUN                  |
| F11.16<br>(0x0B10)          | Keyboard second line cycle- display parameter 2          | V/F SVC<br>Ones- & tens-place: set yy from 00 to 63 among monitoring parameter Cxx.yy;<br>Hundreds-& Thousands-plac: set xx from 00 to 07 among monitoring parameter Cxx.yy; | 0004<br>(0000-0763)                | RUN                  |

|                    |   |  |                     |     |
|--------------------|---|--|---------------------|-----|
| F11.17<br>(0x0B11) | Keyboard second line cycle- display parameter 3 | V/F SVC<br>Ones- & tens-place: set yy from 00 to 63 among monitoring parameter Cxx.yy;<br>Hundreds-& Thousands-plac: set xx from 00 to 07 among monitoring parameter Cxx.yy; | 0010<br>(0000-0763) | RUN |
| F11.18<br>(0x0B12) | Keyboard second line cycle- display parameter 4 | V/F SVC<br>Ones- & tens-place: set yy from 00 to 63 among monitoring parameter Cxx.yy;<br>Hundreds-& Thousands-plac: set xx from 00 to 07 among monitoring parameter Cxx.yy; | 0012<br>(0000-0763) | RUN |

Table 4-50 F11.1x group

**F11.2x group: monitoring parameter control**

| Parameter code (Address) | Designation                                  | Content   | Factory default (setting range) | Adjustable attribute |
|--------------------------|--|---|---------------------------------|----------------------|
| F11.20<br>(0x0B14)       | Keyboard item display selection              | Ones-place: input frequency display selection<br>0: target frequency<br>1: running frequency<br>>=2: running frequency, filtering depth increases with this value.<br>Tens-place: reserved<br>0: invalid<br>1: remove the active power of stator resistance loss<br>Hundreds-place: power display dimension<br>0: display percentage (%)<br>1: display kW (kW)<br>Thousands-place: reserved | 0x0002<br>(0x0000-0x111F)       | RUN                  |
| F11.21<br>(0x0B15)       | Speed factor display                         | V/F SVC<br>Set keyboard monitoring speed parameter factor ratio display.  | 100.0%<br>(0.0%~500.0%)         | RUN                  |
| F11.22<br>(0x0B16)       | Power factor display                         | V/F SVC<br>Set keyboard monitoring power parameter factor ratio display.  | 100.0%<br>(0.0%~500.0%)         | RUN                  |
| F11.23<br>(0x0B17)       | Monitoring parameter group display selection | V/F SVC<br>Ones-place: reserved<br>0: invalid;<br>1: valid;<br>Tens-place: C05 display selection<br>0: Automatically switches with control modes<br>1: V/F mode related parameters;<br>2: V/C mode related parameters;<br>Hundreds-place: C00.40-C00.63 display selection<br>0: off;<br>1: on;<br>Thousands-place: reserved   | 0x0000<br>(0x0000-0xFFFF)       | RUN                  |
| F11.24<br>(0x0B18)       | Monitoring parameter filtering selection     | V/F SVC<br>Ones- place: output current filtering displayed<br>0 to F: The larger the value, the deeper the filtering  | 0x0002<br>(0x0000-0x000F)       | RUN                  |
| F11.25<br>(0x0B19)       | Motor self- learning display selection       | V/F SVC<br>0: status of the self-learning process displayed<br>1: status of the self-learning process not displayed<br>Note: T/S2 models do not support this parameter.   | 0<br>(0-1)                      | RUN                  |

|                    |                         |  |                           |     |
|--------------------|-------------------------|--|---------------------------|-----|
| F11.27<br>(0x0B1B) | Fault display selection | Ones-place: The fault display during self-recovery:<br>0: off<br>1: on | 0x0001<br>(0x0000~0x0001) | RUN |
|--------------------|-------------------------|--|---------------------------|-----|

Table 4-51 F11.2x group

**F11.3x group: keyboard special functions**

| Parameter code<br>(Address) | Designation  | Content  | Factory default<br>(setting) | Adjustable attribute |
|-----------------------------|--|--|------------------------------|----------------------|
| F11.30<br>(0x0B1E)          | AC01 Serial port function select                       | V/F SVC<br>0: RS485 communication port;<br>1: external keyboard;<br>Choose one of the two functions of the 485 bus and the external keyboard. If the external keyboard is valid and connected, the 485 bus (master/slave) remains invalid. | 0<br>(0~1)                   | STOP                 |
| F11.31<br>(0x0B1F)          | Keyboard potentiometer lower limit voltage             | V/F SVC<br>Define the keyboard potentiometer voltage lower limit, any value smaller than this value will still be taken as this one.   | 0.50V<br>(0.00V~3.00V)       | RUN                  |
| F11.32<br>(0x0B20)          | Keyboard potentiometer lower limit corresponding value | V/F SVC<br>Set the input percentage of lower voltage limit of the keyboard potentiometer.  | 0.00%<br>(0.00%~100.00%)     | RUN                  |
| F11.33<br>(0x0B21)          | Keyboard potentiometer upper limit voltage             | V/F SVC<br>Define the keyboard potentiometer upper voltage limit, any value bigger than this value will still be taken as this one.  | 2.80V<br>(0.00V~3.00V)       | RUN                  |
| F11.34<br>(0x0B22)          | Keyboard potentiometer upper limit corresponding value | V/F SVC<br>Set the input percentage of upper voltage limit of the keyboard potentiometer.  | 100.0%<br>(0.0%~100.0%)      | RUN                  |
| F11.35<br>(0x0B23)          | Keyboard potentiometer selection                       | V/F SVC<br>Set the keyboard potentiometer channel<br>0: built-in keyboard potentiometer effective;<br>1: external single-line display keyboard potentiometer effective   | 0<br>(0~1)                   | STOP                 |

Table 4-52 F11.3x group

**4.16 F12 Group: Communication Parameter**

(Note: The Modbus bus (master/slave) cannot be used when the external keyboard selected for F11.30 is valid and connected.)

**F12.0x group : Modbus slave parameters**

| Parameter code<br>(Address) | Designation                  | Content  | Factory default<br>(setting range) | Adjustable attribute |
|-----------------------------|------------------------------|--|------------------------------------|----------------------|
| F12.00<br>(0x0C00)          | Master/slave selection       | V/F SVC<br>0: slave<br>1: master                                       | 0<br>(0~1)                         | STOP                 |
| F12.01<br>(0x0C01)          | Modbus communication address | V/F SVC<br>Set the communication address of the Modbus slave computer. | 1<br>(1~247)                       | STOP                 |

|                    |   |   |  |                          |      |
|--------------------|---|---|--|--------------------------|------|
| F12.02<br>(0x0C02) | Communication baud rate selection                     | V/F SVC<br>0:1200 bps<br>1:2400 bps<br>2:4800 bps   | 3:9600 bps<br>4:19200 bps<br>5:38400 bps<br>6:57600 bps  | 3<br>(0-6)               | STOP |
| F12.03<br>(0x0C03) | Modbus communication data format                      | V/F SVC<br>0:(N, 8,1) No check,<br>Data bit :8,<br>Stop bit :1<br>1:(E, 8,1) Parity check,<br>Data bit :8,<br>Stop bit :1<br>2:(O, 8,1) odd check,<br>Data bit :8,<br>Stop bit :1 | 3:(N, 8,2) No check,<br>Data bit :8,<br>Stop bit :2<br>4:(E, 8,2) Parity check,<br>Data bit :8,<br>Stop bit :2<br>5:(O, 8,2) odd check,<br>Data bit :8,<br>Stop bit :2 | 0<br>(0-5)               | STOP |
| F12.04<br>(0x0C04) | Modbus communication transmission response processing | V/F SVC<br>0: write operation valid;<br>1: write operation invalid;   |  | 0<br>(0-1)               | RUN  |
| F12.05<br>(0x0C05) | Modbus communication response delay                   | V/F SVC<br>The time interval between receiving the data and replying to the master.   |  | 0ms<br>(0ms-5000ms)      | RUN  |
| F12.06<br>(0x0C06) | Modbus communication timeout failure time             | V/F SVC<br>interval time between two communication to tell communication disconnection.   |  | 1.0s<br>(0.1s-100.0s)    | RUN  |
| F12.07<br>(0x0C07) | Communication disconnection processing                | V/F SVC<br>0: timeout fault undetected;<br>1: report fault and stop freely;<br>2: report warning and go on running;<br>3: forced stop   |  | 0<br>(0-3)               | RUN  |
| F12.08<br>(0x0C08) | Received data (address 0x3000) with zero bias         | V/F SVC<br>Set the bias value of the set frequency of communication (100.00 corresponding to 100.00Hz)  |  | 0.00<br>(-100.00-100.00) | RUN  |
| F12.09<br>(0x0C09) | Receive data (address 0x3000) gain                    | V/F SVC<br>Set the gain of communication at the set frequency<br>Set frequency = actual communication × gain + bias value   |  | 100.0%<br>(0.0%-500.0%)  | RUN  |

Table 4-53 F12.0x group

**F12.1x group : Modbus master parameters**

| Parameter code (Address) | Designation                              | Content  |   | Factory default (setting range) | Adjustable attribute |
|--------------------------|--|--|---|---------------------------------|----------------------|
| F12.10<br>(0x0C0A)       | Master loop-sending parameters selection | V/F SVC<br>Ones-, tens-, hundreds-, thousands-place<br>0: invalid;<br>1: running command;<br>2: set frequency;<br>3: output frequency;<br>4: upper limit frequency;<br>5: set torque ; | 6: output torque;<br>7: reserved<br>8: reserved<br>9: PID setting<br>A: PID feedback;<br>B: reserved;<br>C: Active current component; | 0x0031<br>(0x0000-0xCCCC)       | RUN                  |



|                    |  |  |                           |     |
|--------------------|--|--|---------------------------|-----|
| F12.11<br>(0x0C0B) | Self-defined frequency address         | V/F SVC<br>Set this parameter to non-0 in place of frequency address of 0x3000 or 0x2000 set via communication port. | 0x0000<br>(0x0000-0xFFFF) | RUN |
| F12.12<br>(0x0C0C) | Self-defined command address           | V/F SVC<br>Set this parameter to non-0 in place of command address of 0x3001 or 0x2001 set via communication port.   | 0x0000<br>(0x0000-0xFFFF) | RUN |
| F12.13<br>(0x0C0D) | Forward running command value setting  | V/F SVC<br>Set this parameter in place of 0001H forward running set via communication port.                          | 0x0001<br>(0x0000-0xFFFF) | RUN |
| F12.14<br>(0x0C0E) | Backward running command value setting | V/F SVC<br>Set this parameter in place of 0002H backward running set via communication port.                         | 0x0002<br>(0x0000-0xFFFF) | RUN |
| F12.15<br>(0x0C0F) | Stop command value                     | V/F SVC<br>Set this parameter in place of 0005H deceleration stop set via communication port.                        | 0x0005<br>(0x0000-0xFFFF) | RUN |
| F12.16<br>(0x0C10) | Reset command value                    | V/F SVC<br>Set this parameter in place of 0007H fault recovery set via communication port.                           | 0x0007<br>(0x0000-0xFFFF) | RUN |
| F12.19<br>(0x0C13) | Master sending command selection       | V/F SVC<br>Master sending command selection<br>0: sending the running command<br>1: sends the running status         | 0<br>(0~1)                | RUN |

Table 4-54 F12.1x group

## 4.17 F13 Group: PID Control

### F13.00~F13.06:PID setting and feedback

| Parameter code<br>(Address) | Designation                                       | Content  |   | Factory default<br>(setting range) | Adjustable attribute |
|-----------------------------|---|--|---|------------------------------------|----------------------|
| F13.00<br>(0x0D00)          | PID controller signal source setting              | V/F SVC<br>0: via keyboard number setting;<br>1: via keyboard potentiometer;<br>2: via current analog quantity AS;<br>3: via voltage analog quantity VS; | 4: reserved<br>5: reserved<br>6: via RS485 communication port;<br>7: reserved<br>8: via terminal selection;<br>9: via active current of communication | 0<br>(0-9)                         | RUN                  |
| F13.01<br>(0x0D01)          | PID setting/feedback via keyboard number entering | V/F SVC<br>The parameter is valid when [F13.00]or [F13.03] is selected with "PID setting/feedback via keyboard number entering".                         |   | 50.0%<br>(0.0%~100.0%)             | RUN                  |
| F13.02<br>(0x0D02)          | PID time  | V/F SVC<br>Set PID time needed from 0.0% to 100%.  |   | 1.00s<br>(0.00s~60.00s)            | RUN                  |
| F13.03<br>(0x0D03)          | PID controller feedback signal source setting     | V/F SVC<br>0: via keyboard number setting;<br>1: via keyboard potentiometer;   | 5: reserved<br>6: via RS485 communication port;<br>7: reserved<br>8: via terminal   | 2<br>(0-9)                         | RUN                  |

|                    |                                      |   |  |                           |     |
|--------------------|--------------------------------------|---|--|---------------------------|-----|
|                    |                                      | 2: via current analog quantity AS;<br>3: via voltage analog quantity VS;<br>4: reserved                 | selection;<br>9: via local active current; |                           |     |
| F13.04<br>(0x0D04) | Feedback signal low-pass filter time | V/F SVC<br>The longer the filter time, the stronger the anti-interference, and the slower the reaction. |  | 0.010s<br>(0.000s~6.000s) | RUN |
| F13.05<br>(0x0D05) | Feedback signal gain                 | V/F SVC<br>Used for linear proportional modulation of feedback input signal.                            |  | 1.00<br>(0.00~10.00)      | RUN |
| F13.06<br>(0x0D06) | Feedback signal range                | V/F SVC<br>PID feedback signal range is a dimensionless unit used to adjust PID feedback.               |  | 100.0<br>(0.0~100.0)      | RUN |

Table 4-55 F13.00-F13.06

**F13.07~F13.24:PID modulation**

| Parameter code<br>(Address) | Designation                       | Content   | Factory default<br>(setting range) | Adjustable attribute |
|-----------------------------|-----------------------------------|---|------------------------------------|----------------------|
| F13.07<br>(0x0D07)          | PID control selection             | V/F SVC<br>Ones-place: feedback characteristic selection<br>0: positive characteristic;<br>1: negative characteristic<br>Tens-place: reserved<br>Hundreds-place: reserved<br>Thousands-place: differential regulation characteristics<br>0: differentiates the deviation<br>1: differentiate the feedback | 0100<br>(0000~1111)                | RUN                  |
| F13.08<br>(0x0D08)          | PID preset output                 | V/F SVC<br>Output as PID preset value after PID starts.   | 100.0%<br>(0.0%~100.0%)            | RUN                  |
| F13.09<br>(0x0D09)          | PID preset output time            | V/F SVC<br>Set PID preset output time and set output starts after countdown.  | 0.0s<br>(0.0s~6500.0s)             | RUN                  |
| F13.10<br>(0x0D0A)          | PID deviation limit               | V/F SVC<br>Set maximum deviation between PID feedback and PID set   | 0.0%<br>(0.0%~100.0%)              | RUN                  |
| F13.11<br>(0x0D0B)          | Proportional gain P1              | V/F SVC<br>Set PID parameter group 1 proportional gain.   | 0.100<br>(0.000~4.000)             | RUN                  |
| F13.12<br>(0x0D0C)          | Integral time I1                  | V/F SVC<br>Set PID parameter group 1 integral time.   | 1.0s<br>(0.0s~600.0s)              | RUN                  |
| F13.13<br>(0x0D0D)          | Rate time D1                      | V/F SVC<br>Set PID parameter group 1 rate time.   | 0.000s<br>(0.000s~6.000s)          | RUN                  |
| F13.14<br>(0x0D0E)          | Proportional gain P1              | V/F SVC<br>Set PID parameter group 2 proportional gain.   | 0.100<br>(0.000~4.000)             | RUN                  |
| F13.15<br>(0x0D0F)          | Integral time I2                  | V/F SVC<br>Set PID parameter group 2 integral time.   | 1.0s<br>(0.0s~600.0s)              | RUN                  |
| F13.16<br>(0x0D10)          | Rate time D2                      | V/F SVC<br>Set PID parameter group 2 rate time.   | 0.000s<br>(0.000s~6.000s)          | RUN                  |
| F13.17<br>(0x0D11)          | PID parameter switching condition | V/F SVC<br>0: off;<br>1: switch via DI terminal;<br>2: switch according to deviation;   | 0<br>(0~2)                         | RUN                  |
| F13.18<br>(0x0D12)          | Set lower deviation value         | V/F SVC<br>Apply the gain 1 parameter when the PID deviation is smaller than this value.  | 20.0%<br>(0.0%~100.0%)             | RUN                  |

|                    |                            |   |                           |     |
|--------------------|----------------------------|---|---------------------------|-----|
| F13.19<br>(0x0D13) | Set higher deviation value | V/F SVC<br>Apply the gain 1 parameter when the PID deviation is larger than this value. | 80.0%<br>(0.0%~100.0%)    | RUN |
| F13.21<br>(0x0D15) | Differential limit         | V/F SVC<br>Differential limit is used to set the range of PID differential output.      | 5.0%<br>(0.0%~100.0%)     | RUN |
| F13.22<br>(0x0D16) | PID upper limit output     | V/F SVC<br>Set the upper limit of PID output.   | 100.0%<br>(0.0%~100.0%)   | RUN |
| F13.23<br>(0x0D17) | PID lower limit output     | V/F SVC<br>Set the lower limit of PID output.   | 0.0%<br>(-100.0%~F13.22)  | RUN |
| F13.24<br>(0x0D18) | PID output filter time     | V/F SVC<br>Set the filter time for PID output.  | 0.000s<br>(0.000s~6.000s) | RUN |

Table 4-56 F13.07~F13.24

**F13.25~F13.28:PID Feedback disconnection**

| Parameter code     | Designation                           | Content   | Factory default (setting range) | Adjustable attribute |
|--------------------|---------------------------------------|---|---------------------------------|----------------------|
| F13.25<br>(0x0D19) | Action selection of PID disconnection | V/F SVC<br>0: PID continues running and no fault is reported;<br>1: PID stops running and fault is reported;<br>2: PID continues running and sends output warning signal;<br>3: PID continues running at the current frequency and sends output warning signal; | 0<br>(0~3)                      | STOP                 |
| F13.26<br>(0x0D1A) | Detection time of PID disconnection   | V/F SVC<br>Set detection time of PID disconnection diagnosis.   | 1.0s<br>(0.0s~120.0s)           | RUN                  |
| F13.27<br>(0x0D1B) | Upper limit of disconnection warning  | V/F SVC<br>If the feedback signal exceeds this value and persists for [F13.26], the sensor is considered disconnected   | 100.0%<br>(0.0%~100.0%)         | RUN                  |
| F13.28<br>(0x0D1C) | Lower limit of disconnection warning  | V/F SVC<br>If the feedback signal is lower than this value and persists for [F13.26], the sensor is considered disconnected   | 0.0%<br>(0.0%~100.0%)           | RUN                  |

Table 4-57 F13.25~F13.28

**F13.29~F13.33:PID sleep mode**

| Parameter code     | Designation      | Content  | Factory default (setting range)      | Adjustable attribute |
|--------------------|------------------|--|--------------------------------------|----------------------|
| F13.29<br>(0x0D1D) | Sleep selection  | V/F SVC<br>0: off;<br>1: on  | 0<br>(0~1)                           | RUN                  |
| F13.30<br>(0x0D1E) | Sleep frequency  | V/F SVC<br>When the sleep function is effective, PID output frequency is lower than [F13.30] and last for sleep delay of [F13.31], then starts the sleep mode. | 10.00Hz<br>(0.00Hz ~ max. frequency) | RUN                  |
| F13.31<br>(0x0D1F) | Sleep delay      |  | 60.0s<br>(0.0s~3600.0s)              | RUN                  |
| F13.32<br>(0x0D20) | Wakeup deviation | V/F SVC<br>PID feedback is lower than/greater than (positive characteristic/negative characteristic) PID minus/plus  | 5.0%<br>(0.0%~50.0%)                 | RUN                  |
| F13.33<br>(0x0D21) | Wakeup delay     | (positive characteristic/negative characteristic) wakeup deviation [F13.32] and lasts for wakeup delay [F13.33], sleep mode ends and running is resumed.       | 1.0s<br>(0.0s~60.0s)                 | RUN                  |

Table 4-58 F13.29~F13.33

### 4.18 F14 Group: Multi-speed and Simple PLC

#### F14.00~F14.14: multi-speed frequency setting

| Parameter code (Address)                | Designation                  | Content   | Factory default (setting range)                        | Adjustable attribute |
|---|------------------------------|---|--|----------------------|
| F14.00 (0x0E00)<br>~<br>F14.14 (0x0E0E) | PLC multi-speed 1~15 setting | <p>V/F SVC<br/>[F01.02] frequency source channel is 9: program control (PLC) setting. Frequency and running direction of inverter is controlled by PLC with up to 15 stages speed; See Setting [F14.15] for running mode. If one stage of speed time is set to "0", the program will skip that speed.</p> <p>[F01.02] frequency source channel is 11: multi-speed setting. Frequency is set via "multi-speed terminal". Running direction, acceleration &amp; deceleration time are [F14.31~F14.45] respectively. If multi-speed terminals are invalid, multi-speed is set to 0. "multi-speed terminal" parameters see [F5.00~F5.03].</p> <p>Default values are set as follows:<br/>                     F14.00 multi-speed1 = 10.00Hz; F14.08 multi-speed9 = 10.00Hz<br/>                     F14.01 multi-speed2 = 20.00Hz; F14.09 multi-speed10 = 20.00Hz<br/>                     F14.02 multi-speed3 = 30.00Hz; F14.10 multi-speed11 = 30.00Hz<br/>                     F14.03 multi-speed4 = 40.00Hz; F14.11 multi-speed12 = 40.00Hz<br/>                     F14.04 multi-speed5 = 50.00Hz; F14.12 multi-speed13 = 50.00Hz<br/>                     F14.05 multi-speed6 = 40.00Hz; F14.13 multi-speed14 = 40.00Hz<br/>                     F14.06 multi-speed7 = 30.00Hz; F14.14 multi-speed15 = 30.00Hz<br/>                     F14.07 multi-speed8 = 20.00Hz;</p> | See description on the left (0.00Hz~maximum frequency) | RUN                  |

Table 4-59 F14.00-F14.14

#### F14.15: PLC running mode selection

| Parameter code  | Designation                | Content  | Factory default (setting range)  | Adjustable       |     |
|-----------------|----------------------------|--|--|------------------|-----|
| F14.15 (0x0E0F) | PLC running mode selection | <p>V/F SVC<br/>Ones-place: cycle mode<br/>0: stops after a single cycle;<br/>1: continues with cycles;<br/>2: keep the final value after a single cycle;</p> <p>Tens-place: timing unit<br/>0: second (s);<br/>1: minute (m);<br/>2: hour (h);</p> | <p>Hundreds-place: power failure storage mode<br/>0: off;<br/>1: on;</p> <p>Thousands-place: start mode<br/>0: restart from stage 1;<br/>1: restart the interrupted stage all over again;<br/>2: restart the interrupted stage for the remaining time;</p> | 0000 (0000~2122) | RUN |

Table 4-60 F14.15

#### F14.16~F14.30: PLC running time selection

| Parameter code                          | Designation                             | Content  | Factory default (setting range)         | Adjustable |
|---|---|--|---|------------|
| F14.16 (0x0E10)<br>~<br>F14.30 (0x0E1E) | PLC 1st ~ 15th stage speed running time | <p>V/F SVC<br/>Set PLC running time for 1st ~ 15th stage speed</p> | 10.0(s/m/h) (0.0(s/m/h) ~6500.0(s/m/h)) | RUN        |

Table 4-61 F14.16 ~ F14.30

#### F14.31~F14.45: PLC running direction and time selection

| Parameter code                                | Designation  | Content  | Factory default (setting range) | Adjustable |
|---|--|--|---------------------------------|------------|
| F14.31<br>(0x0E1F)<br>~<br>F14.45<br>(0x0E2D) | PLC 1st ~ 15th stage speed running directions and acceleration & deceleration time | V/F SVC<br>Ones-place: running direction of this stage (compared with running command)<br>0: in the same direction;<br>1: in the opposite direction<br>Tens-place: acceleration and deceleration time of this stage<br>0: acceleration and deceleration time 1;<br>1: acceleration and deceleration time 2;<br>2: acceleration and deceleration time 3;<br>3: acceleration and deceleration time 4;<br>Hundreds-place: reserved<br>Thousands-place: reserved | 0000<br>(0000-0031)             | RUN        |

Table 4-62 F14.31~F14.45

#### 4.19 F15 Group: Reserved

#### 4.20 F25 Group: AS/VS Correction

Please refer to the corresponding technical manual for detailed introduction of the function codes and description of this group.

#### 4.21 C0x Group: Monitoring Parameter

##### C00.xx group : basic monitoring

| Parameter code (Address) | Designation          | Content         | Factory default (setting range)    | Adjustable attribute | Parameter code (Address)                  |
|--------------------------|----------------------|-----------------|------------------------------------|----------------------|---|
| C00.00 (0x2100)          | set frequency        | C00.14 (0x210E) | input terminal X connection status | C00.28 (0x211C)      | software version                          |
| C00.01 (0x2101)          | output frequency     | C00.15 (0x210F) | input terminal Y connection status | C00.29 (0x211D)      | reserved                                  |
| C00.02 (0x2102)          | output current       | C00.16(0x2110)  | simulated quantity AS input value  | C00.30 (0x211E)      | timer timing                              |
| C00.03 (0x2103)          | input voltage        | C00.17 (0x2111) | simulated quantity VS input value  | C00.31 (0x211F)      | PID output value                          |
| C00.04 (0x2104)          | output voltage       | C00.18 (0x2112) | keyboard potentiometer input value | C00.32 (0x2120)      | inverter software sub-version             |
| C00.05 (0x2105)          | machinery speed      | C00.19 (0x2113) | reserved                           | C00.33(0x2121)       | reserved                                  |
| C00.06 (0x2106)          | set torque           | C00.20 (0x2114) | reserved                           | C00.34 (0x2122)      | reserved                                  |
| C00.07 (0x2107)          | output torque        | C00.21 (0x2115) | reserved                           | C00.35 (0x2123)      | reserved                                  |
| C00.08 (0x2108)          | PID set quantity     | C00.22 (0x2116) | counter value                      | C00.36 (0x2124)      | fault warning code                        |
| C00.09 (0x2109)          | PID feedback qty.    | C00.23 (0x2117) | run time                           | C00.37 (0x2125)      | cumulative electricity consumption (low)  |
| C00.10 (0x210A)          | output power         | C00.24 (0x2118) | accumulative run time              | C00.38 (0x2126)      | cumulative electricity consumption (high) |
| C00.11 (0x210B)          | busbar voltage       | C00.25 (0x2119) | inverter power level               | C00.39 (0x2127)      | power factor angle                        |
| C00.12 (0x210C)          | module temperature 1 | C00.26 (0x211A) | inverter rated voltage             |                      |   |
| C00.13 (0x210D)          | module temperature 2 | C00.27 (0x211B) | inverter rated current             |                      |   |

Table 4-63 C00.xx group

##### C01.xx group: fault monitoring

| Parameter code (Address) | Designation                      | Parameter code (Address) | Designation                         | Parameter code (Address) | Designation                            |
|--------------------------|----------------------------------|--------------------------|-------------------------------------|--------------------------|--|
| C01.00 (0x2200)          | fault type diagnosis information | C01.08 (0x2208)          | fault input terminal status         | C01.16 (0x2210)          | module temperature of last fault       |
| C01.01 (0x2201)          | fault diagnosis information      | C01.09 (0x2209)          | fault output terminal status        | C01.17 (0x2211)          | inverter status of last fault          |
| C01.02 (0x2202)          | fault running frequency          | C01.10 (0x220A)          | last fault type                     | C01.18 (0x2212)          | input terminal status of last fault    |
| C01.03 (0x2203)          | fault output voltage             | C01.11 (0x220B)          | diagnosis information of last fault | C01.19 (0x2213)          | fault type of last 2 faults            |
| C01.04 (0x2204)          | fault output current             | C01.12 (0x220C)          | running frequency of last fault     | C01.20 (0x2214)          | diagnosis information of last 2 faults |
| C01.05 (0x2205)          | fault bus voltage                | C01.13 (0x220D)          | output voltage of last fault        | C01.21 (0x2215)          | diagnosis information of last 2 faults |
| C01.06 (0x2206)          | fault module temperature         | C01.14 (0x220E)          | output current of last fault        | C01.22 (0x2216)          | fault type of last 3 faults            |
| C01.07 (0x2207)          | fault inverter status            | C01.15 (0x220F)          | bus voltage of last fault           | C01.23 (0x2217)          | diagnosis information of last 3 faults |

Table 4-64 C01.xx group

Note: fault inverter status means:

- ones-place: running direction 0: forward; 1: backward
- tens-place: running state 0: stop; 1: at steady speed; 2: acceleration; 3: deceleration
- hundreds-place: overvoltage and overcurrent 0: normal; 1: overvoltage; 2: overcurrent; 3: overvoltage and overcurrent
- thousands-place: reserved

### C02.xx group: application monitoring

| Parameter code (Address) | Designation                       | Parameter code (Address)          | Designation  |
|--------------------------|-----------------------------------|-----------------------------------|--|
| C02.00 (0x2300)          | PID setting                       | C02.13 (0x230D) ~ C02.14 (0x230E) | reserved   |
| C02.01 (0x2301)          | PID feedback                      | C02.15 (0x230F)                   | inverter overload timing factor                                |
| C02.02 (0x2302)          | PID output                        | C02.16 (0x2310)                   | inverter overload timing factor                                |
| C02.03 (0x2303)          | PID control status                | C02.17 (0x2311) ~ C02.18 (0x2312) | reserved   |
| C02.05 (0x2305)          | PLC running stage                 | C02.19 (0x2313)                   | number of current limiting per wave                            |
| C02.06 (0x2306)          | PLC stage frequency               | C02.20 (0x2314) ~ C02.31 (0x231F) | reserved   |
| C02.07 (0x2307)          | PLC stage run time                | C02.32 (0x2320) ~ C02.47 (0x232F) | power-off storage parameter 1 ~ power-off storage parameter 16 |
| C02.08 (0x2308)          | forward & reverse command setting | C02.48 (0x2330) ~ C02.49 (0x2331) | reserved   |
| C02.09 (0x2309)          | jogging command setting           | C02.50 (0x2332) ~ C02.59 (0x233B) | cache register 0 to cache register 9                           |
| C02.10 (0x230A)          | AS current before correction      | C02.60 (0x233C) ~ C02.61 (0x233D) | reserved   |
| C02.11 (0x230B)          | VS voltage before correction      | C02.62 (0x233E)                   | external keyboard version                                      |
| C02.12 (0x230C)          | reserved                          |                                   |  |

Table 4-65 C02.xx group

### C03.xx: maintenance parameter monitoring

| Parameter code (Address) | Designation | Parameter code (Address) | Designation |
|--------------------------|-------------|--------------------------|-------------|
|                          |             |                          |             |

|                                      |                               |                                      |                |
|--------------------------------------|-------------------------------|--------------------------------------|----------------|
| C03.00 (0x2400)                      | run time                      | C03.23 (0x2417)                      | reserved       |
| C03.01 (0x2401)                      | accumulative run time(h)      | C03.24 (0x2418)                      | reserved       |
| C03.02 (0x2402)                      | accumulative power-on time(h) | C03.25 (0x2419)                      | reserved       |
| C03.03 (0x2403)                      | accumulative power-on time(m) | C03.26 (0x241A)                      | reserved       |
| C03.04 (0x2404)                      | cooling fan run time          | C03.27 (0x241B)                      | reserved       |
| C03.05 (0x2405)                      | cooling fan maintenance       | C03.28 (0x241C)                      | reserved       |
| C03.06 (0x2406)                      | reserved                      | C03.29 (0x241D)                      | reserved       |
| C03.07 (0x2407)                      | Main relay maintenance        | C03.30 (0x241E)                      | reserved       |
| C03.08 (0x2408) ~<br>C03.19 (0x2413) | reserved                      | C03.31 (0x241F) ~<br>C03.39 (0x2427) | reserved       |
| C03.20 (0x2414)                      | reserved                      | C03.50 (0x2432)                      | machine code 1 |
| C03.21 (0x2415)                      | reserved                      | C03.51 (0x2433)                      | machine code 2 |
| C03.22 (0x2416)                      | reserved                      | C03.52 (0x2434)                      | machine code 3 |

Table 4-66 C03.xx group

## 4.22 Input & Output Terminal Functions Selection

| X  | Functional definition   | X  | Functional definition                                 | X     | Functional definition                                     |
|----|---|----|---|-------|---|
| 0  | null  | 24 | PID switch 1  | 48    | command channel switched to keyboard                      |
| 1  | forward running   | 25 | PID switch 2  | 49    | command channel switched to terminal                      |
| 2  | backward running  | 26 | PID switch 3  | 50    | command channel switched to communication                 |
| 3  | three-wire system control (xi)                                    | 27 | PID feedback switch 1                                 | 51    | reserved  |
| 4  | forward jogging   | 28 | PID feedback switch 2                                 | 52    | operation prohibited                                      |
| 5  | backward jogging  | 29 | PID feedback switch 3                                 | 53    | forward prohibited  |
| 6  | free stop   | 30 | program operation (PLC)                               | 54    | backward prohibited                                       |
| 7  | emergency stop  | 31 | program operation (PLC)                               | 55    | reserved  |
| 8  | fault recovery  | 32 | terminal 1 acceleration & deceleration time selection | 56    | reserved  |
| 9  | external fault input  | 33 | terminal 2 acceleration & deceleration time selection | 57    | reserved  |
| 10 | frequency progressive increase (up)                               | 34 | acceleration & deceleration                           | 58    | reserved  |
| 11 | frequency progressive decrease (dw)                               | 35 | swing frequency input                                 | 59    | reserved  |
| 12 | frequency increasing & decreasing clearance (up/dw zero clearing) | 36 | swing frequency pause                                 | 60    | speed torque control switch                               |
| 13 | channel a switched to channel b                                   | 37 | swing frequency reset                                 | 62    | jogging frequency as upper limit frequency of torque mode |
| 14 | frequency channel combination switches to a                       | 38 | keys & self- inspection display selection             | 63-87 | reserved  |
| 15 | frequency channel combination switches to b                       | 39 | reserved  | 88    | reserved  |
| 16 | multi-speed terminal 1  | 40 | timer triggered terminal                              | 89    | reserved  |
| 17 | multi-speed terminal 2  | 41 | timer clearing terminal                               | 90    | reserved  |
| 18 | multi-speed terminal 3  | 42 | counter clock input terminal                          | 91    | reserved  |
| 19 | multi-speed terminal 4  | 43 | counter clearing terminal                             | 92    | reserved  |
| 20 | PID control off   | 44 | DC brake command                                      | 93    | reserved  |

|          |  |          |                                  |          |                              |
|----------|--|----------|----------------------------------|----------|------------------------------|
| 21       | PID control pause  | 45       | pre-excitation command           | 94       | reserved                     |
| 22       | PID characteristic switch                                    | 46       | reserved                         | 95       | reserved                     |
| 23       | PID parameter switch   | 47       | reserved                         |          |                              |
| <b>Y</b> | <b>Functional definition</b>                                 | <b>Y</b> | <b>Functional definition</b>     | <b>Y</b> | <b>Functional definition</b> |
| 0        | null   | 13       | upper frequency arrival          | 26       | emergency stop now           |
| 1        | inverter in motion   | 14       | lower frequency arrival          | 27       | overload warning output 1    |
| 2        | inverter backward running                                    | 15       | program run cycle completed      | 28       | underload warning output 2   |
| 3        | inverter forward running                                     | 16       | program run stage completed      | 29       | inverter warning             |
| 4        | fault trip warning 1 (warning during fault self-recovery)    | 17       | PID feedback over limit          | 30       | 0x3018 control output        |
| 5        | fault trip warning 2 (no warning during fault self-recovery) | 18       | PID feedback below limit         | 31       | inverter overheating warning |
| 6        | external failure shutdown                                    | 19       | PID feedback sensor disconnected | 32       | reserved                     |
| 7        | inverter undervoltage  | 20       | reserved                         | 33~36    | reserved                     |
| 8        | inverter ready for operation                                 | 21       | timer time out                   | 37       | comparator 1 detection       |
| 9        | output frequency level detection 1 (FDT1)                    | 22       | counter maximum value arrival    | 38       | comparator 2 detection       |
| 10       | output frequency level detection 2 (FDT 2)                   | 23       | counter set value arrival        | 39~63    | reserved                     |
| 11       | set frequency arrival  | 24       | energy consumption braking       | —        | —                            |
| 12       | running at zero speed  | 25       | reserved                         | —        | —                            |

Table 4-67 Input &amp; output terminal functions selection

## 4.23 Fault Code Table

Note:

1. Refer to the relevant instructions on page 9 of this manual for inverter fault/operation status information.
2. The numbers in the code column in brackets are fault codes OR warning codes (Dec means decimal), the following codes need to be obtained from the external keyboard OR by reading the inverter address 0x3003/0x3010 information through communication.

| Display (DEC.) | Fault                              | Type  | Display (DEC.)     | Fault                               | Type  |
|----------------|------------------------------------|-------|--------------------|-------------------------------------|-------|
| E. SC1(1)      | system fault during acceleration   | fault | E. Ld2(80)         | load protection 2                   | fault |
| E. SC2(2)      | system fault during deceleration   | fault | E. CPu (81)        | CPU timeout failure                 | fault |
| E. SC3(3)      | system fault during constant speed | fault | Reserved (82-84)   | reserved                            | fault |
| E. SC4(4)      | shutdown system fault              | fault | E. LoC (85)        | chip lock                           | fault |
| E. oC1(5)      | overcurrent during acceleration    | fault | E. EEP (86)        | parameter storage failure           | fault |
| E. oC2(6)      | overcurrent during deceleration    | fault | Reserved (87-96)   | reserved                            | fault |
| E. oC3(7)      | overcurrent during constant speed  | fault | E. CP1(97)         | monitor comparison output 1 failure | fault |
| E. oC4(8)      | AC01 software overcurrent          | fault | E. CP2(98)         | monitor comparison output 2 failure | fault |
| E. ou1(9)      | overvoltage during acceleration    | fault | E. dAT (99)        | parameter setting failure           | fault |
| E. ou2(10)     | overvoltage during deceleration    | fault | reserved (100~109) | reserved                            | fault |
| E. ou3(11)     | overvoltage during constant speed  | fault | E. FA1(110)        | external extension reserved 1       | fault |
| Reserved (12)  | reserved                           | fault | E. FA2(111)        | external extension reserved 2       | fault |
| E. Lu (13)     | undervoltage during                | fault | E. FA3(112)        | external extension reserved 3       | fault |



|                  |   |       |                       |   |         |
|------------------|---|-------|-----------------------|---|---------|
|                  | operation                               |       |                       |   |         |
| E. oL1(14)       | motor overload                          | fault | E. FA4(113)           | external extension reserved 4           | fault   |
| E. oL2(15)       | inverter overload 1                     | fault | E. FA5(114)           | external extension reserved 5           | fault   |
| E. oL3(16)       | inverter overload 2                     | fault | E. FA6(115)           | external extension reserved 6           | fault   |
| E. oL4(17)       | inverter overload 3                     | fault | E. FA7(116)           | external extension reserved 7           | fault   |
| E. iLF (18)      | input phase loss                        | fault | E. FA8(117)           | external extension reserved 8           | fault   |
| E. oLF (19)      | three-phase output phase loss           | fault |                       |   |         |
| E. oLF1(20)      | U-phase output phase loss               | fault | Here are the warnings |   |         |
| E. oLF2(21)      | V-phase output phase loss               | fault | A. Lu1(128)           | undervoltage shutdown                   | warning |
| E. oLF3(22)      | W-phase output phase loss               | fault | A. ou (129)           | overvoltage shutdown                    | warning |
| Reserved (23-29) | reserved                                | fault | A. iLF (130)          | input phase loss                        | warning |
| E. oH1(30)       | rectifier overheat                      | fault | A. PID (131)          | PID feedback disconnection              | warning |
| E. oH2(31)       | inverter overheat                       | fault | A. EEP (132)          | parameter storage warning               | warning |
| Reserved (32)    | reserved                                | fault | A. dEF (133)          | excessive speed deviation               |         |
| E. EF (33)       | external fault                          | fault | A. SPd (134)          | Stall warning                           | warning |
| E. CE (34)       | Modbus communication fault              | fault | A. GPS1(135)          | GPS lock                                | warning |
| E. HAL1(35)      | U-phase excessive zero drift            | fault | A. GPS2(136)          | GPS disconnection                       | warning |
| E. HAL2(36)      | V-phase excessive zero drift            | fault | A. CE (137)           | Modbus disconnection warning            | warning |
| E. HAL (37)      | non-zero sum of three phase currents    | fault | A. Ld1(138)           | load protection 1                       | warning |
| E. HAL3(38)      | W-phase excessive zero drift            | fault | A. Ld2(139)           | load protection 2                       | warning |
| Reserved (39)    | reserved                                | fault | Reserved (140)        | reserved                                | warning |
| E. SGxx (40)     | ground short circuit                    | fault | A. oH1(141)           | Module overheat warning                 | warning |
| E. FSG (41)      | fan short circuit                       | fault | Reserved (142)        | reserved                                | warning |
| E. PID (42)      | PID feedback disconnection              | fault | A. run1(143)          | warning 1 in motion                     | warning |
| E. CoP(43)       | parameter copy failure                  | fault | A. PA2(144)           | external keyboard disconnection warning | warning |
| Reserved (44)    | reserved                                | fault | A. CoP (145)          | parameter copy warning                  | warning |
| Reserved (45-49) | reserved                                | fault | A. CP1(146)           | monitor comparison output 1 warning     | warning |
| E. bru (50)      | brake unit failure                      | fault | A. CP2(147)           | monitor comparison output 2 warning     | warning |
| Reserved (51)    | reserved                                | fault | A. run2(148)          | warning 2 in motion                     | warning |
| E. TExx (52)     | self-learning output current over limit | fault | A. run3(149)          | warning 3 in motion                     | warning |
| reserved (53~70) | reserved                                | fault | A. FA1(150)           | external extension reserved 1           | warning |
| E. iAE1(71)      | motor angle learning fault 1            | fault | A. FA2(151)           | external extension reserved 2           | warning |
| E. iAE2(72)      | motor angle learning fault 2            | fault | A. FA3(152)           | external extension reserved 3           | warning |
| E. iAE3(73)      | motor angle learning fault 3            | fault | A. FA4(153)           | external extension reserved 4           | warning |
| E. PST1(74)      | synchronous motor step out fault 1      | fault | A. FA5(154)           | external extension reserved 5           | warning |
| E. PST2(75)      | synchronous motor step out fault 2      | fault | A. FA6(155)           | external extension reserved 6           | warning |
| E. PST3(76)      | synchronous motor step out fault 3      | fault | A. FrA (157)          | reserved                                | warning |

|             |                           |       |             |                                  |         |
|-------------|---------------------------|-------|-------------|----------------------------------|---------|
| E. dEF (77) | excessive speed deviation | fault | A. 161(161) | cooling fan service life warning | warning |
| E. SPd (78) | stall protection          | fault | A. 163(163) | Main relay service life warning  | warning |
| E. Ld1(79)  | load protection 1         | fault |             |                                  |         |

Table 4-68 Fault code

# Chapter 5 Regular Inspection and Maintenance

## 5.1 Inspection

Inverters are composed of semiconductor devices, passive electronic devices and motion devices, and these devices have a service life. Even under normal working conditions, some of the devices may have characteristics change or failures if the service life is exceeded, thus preventive maintenance such as routine check, periodic check, and component replacement must be performed. It is recommended to check the machine every 3 to 4 months after installation.

● Daily inspection: in order to avoid damage to inverters and shortened service life, please check the following items daily.

| Item           | Content   | Method  |
|----------------|---|---|
| Power supply.  | Check whether the power supply voltage meets requirements and any phase loss.   | Address by requirements of the nameplate.   |
| Surroundings   | Check whether the installation environment meets requirements.  | Identify the source and address it properly.  |
| Cooling system | Whether there is abnormal heating and discoloration of inverter and motor, and the working condition of cooling fan.      | Check whether it is overloaded, the heat sink of the converter is dirty or not, whether the fan is blocked, tighten the screws. |
| Motor          | Check whether the motor has abnormal vibration and abnormal sound.  | Tighten mechanical and electrical connections and lubricate mechanical parts.   |
| Load status    | Check whether the inverter output current is higher than the motor or inverter rated values for a certain period of time. | Confirm whether overload occurs and whether the selection of inverter is correct.   |

Table 5- 1 Daily inspection

● Regular inspection: Generally, it is appropriate to carry out regular inspection every 3 to 4 months, please determine the actual inspection period based on the use of each machine and working environment.

| Item                     | Content  | Method   |
|--------------------------|--|--|
| Overall                  | ● Insulation resistance & environment check.   | ● Tighten and replace defective parts; Clean and improve the working environment.  |
| Electrical connection    | ● Whether there is discoloration on wires and connected parts; whether there is discoloration, damage, cracking, aging traces on insulation layer;<br>● Whether terminal are worn, damaged or loose;<br>● Grounding check; | ● Replace the damaged wire;<br>● Tighten the loose terminals and replace damaged terminals;<br>● Measure the grounding resistance and tighten the corresponding grounding terminals; |
| Mechanical connection    | ● Whether there is any abnormal vibration and sound, and connected parts loose;  | ● Tighten, lubricate and replace defective parts.  |
| Semiconductor or device  | ● Whether there is garbage and dust;<br>● Whether there is a significant change in appearance;   | ● Clean and improve the working environment;<br>● Replace the damaged parts;   |
| Electrolytic capacitance | ● Whether there is liquid leakage, discoloration, cracking, and exposure, expansion, rupture or leakage on safety valves;  | ● Replace the damaged parts;   |
| Peripheral device        | ● Peripheral equipment appearance and insulation inspection;   | ● Clean and improve the working environment;<br>● Replace the damaged parts;   |
| Printed circuit board    | ● Whether there is abnormal odor, discoloration, serious rust, and connectors are correct and tight;   | ● Fasten connectors;<br>● Clean the printed circuit board;<br>● Replace the damaged printed circuit board;   |
| Cooling system           | ● Whether cooling fan is damaged and blocked<br>● Whether heat sink is stained with garbage and dust;<br>● Whether the air inlet and exhaust outlet are blocked or stained with foreign matters;                           | ● Clean and improve the working environment;<br>● Replace the damaged parts;   |
| Keyboard                 | ● Whether keyboard is damaged and display complete or not;   | ● Replace the damaged parts;   |
| Motor                    | ● Whether the motor has abnormal vibration and abnormal sound.   | ● Tighten the mechanical and electrical connection, and lubricate the motor shaft.   |

Table 5- 2 Regular inspection



: Do not perform any operations when the power supply is on, otherwise there is a risk of death by electric shock. When performing operations, cut off the power supply and ensure that the DC voltage of the main loop has been decreased to a safe level and then wait 5 minutes.

## 5.2 Maintenance

All devices and components have service life. Proper maintenance can prolong the service life, but will not make up for the damage of devices and components. Please replace the components as required.

| Part | Service life | Part                     | Service life | Part                  | Service life |
|------|--------------|--------------------------|--------------|-----------------------|--------------|
| Fan  | 2~3 year     | Electrolytic capacitance | 4~5 year     | Printed circuit board | 8~10 year    |

Table 5- 3 Parts and service life

The replacement of other components requires high maintenance technology and product familiarity, and they must pass strict testing before being put into use. Therefore, please don't replace other internal components by yourself. If you do need a replacement, please contact the purchasing

agent or our sales department.

### **5.3 Product Guarantee**

1. If the product fails within the warranty period, please refer to the clauses and scope in the warranty card.
2. Primary fault diagnosis is performed by customers in principle, but if required, we or our service network stations can provide according service. On the result of negotiation between us, if the fault is on the product or caused behavior of Veichi ,it's free, otherwise it will be charged;
3. Exemption from liability: any inconvenience caused to our customers or secondary customers, any damage caused to non-Veichi products due to the failure of our products, whether within the warranty period or not, shall not be within the scope of our company's liability

# Appendix I: Modbus Communication Protocol

## ● Communication frame structure

The communication data format is as follows:

Byte composition: includes the start bit, 8 data bits, check bit and stop bit.

|           |      |      |      |      |      |      |      |      |           |          |
|-----------|------|------|------|------|------|------|------|------|-----------|----------|
| start bit | Bit1 | Bit2 | Bit3 | Bit4 | Bit5 | Bit6 | Bit7 | Bit8 | check bit | stop bit |
|-----------|------|------|------|------|------|------|------|------|-----------|----------|

Table Appendix I-1 Communication frame structure

The information of a frame must be transmitted as a continuous data stream. If the interval of more than 1.5 bytes is longer before the end of the frame transmission, the receiving device will clear the incomplete information and mistakenly assume that the next byte is the address domain part of the new frame. Similarly, if the interval between the start of a new frame and the previous frame is less than 3.5 bytes, the receiving device will consider it as a continuation of the previous frame. Due to the misalignment of the frame, the CRC check value will eventually be incorrect, resulting in a communication error.

## ● Communication control parameter group address description

| Function description                          | Address definition | Data description   | R/W characteristics                          |   |
|---|--------------------|--|--|---|
| Frequency from communication                  | 0x3000 or 0x2000   | 0~50000 corresponding to 0.00Hz~500.00Hz   | W/R  |   |
| Communication command setting                 | 0x3001 or 0x2001   | 0000H: null<br>0001H: forward running;<br>0002H: backward running;<br>0003H: forward jogging;<br>0004H: backward jogging;<br>0005H: decelerate and stop;<br>0006H: free stop;<br>0007H: fault reset<br>0008H: Operation prohibited command<br>0009H: Operation allowed command | W/R  |   |
| Inverter status                               | 0x3002 or 0x2002   | Bit0   | 0: stopped<br>1: running                     | R |
|   |                    | Bit1   | 0: non-accelerating state<br>1: accelerating |   |
|   |                    | Bit2   | 0: non-decelerating state<br>1: decelerating |   |
|   |                    | Bit3   | 0: forward<br>1: backward                    |   |
|   |                    | Bit4   | 0: no faults<br>1: inverter failure          |   |
|   |                    | Bit5   | 0: GPRS unlocking<br>1: GPRS locked          |   |
|   |                    | Bit6   | 0: no warning<br>1: inverter warning         |   |
| Inverter fault code                           | 0x3003 or 0x2003   | Current inverter fault code (see fault code table)   | R  |   |
| Upper limit frequency from communication      | 0x3004 or 0x2004   | 0~32000 corresponding to 0.00Hz~320.00Hz   | W/R  |   |
| Torque setting from communication             | 0x3005 or 0x2005   | 0~1000 corresponding to 0.0%~100.0%  | W/R  |   |
| Forward maximum frequency limited by torque   | 0x3006 or 0x2006   | 0~1000 corresponding to 0.0%~100.0%  | W/R  |   |
| Backward maximum frequency limited by torque  | 0x3007 or 0x2007   | 0~1000 corresponding to 0.0%~100.0%  | W/R  |   |
| PID value setting from communication          | 0x3008 or 0x2008   | 0~1000 corresponding to 0.0%~100.0%  | W/R  |   |
| PID feedback value setting from communication | 0x3009 or 0x2009   | 0~1000 corresponding to 0.0%~100.0%  | W/R  |   |
| Failure and warning code reading              | 0x3010 or 0x2010   | 0~63 are fault codes and 64~are warning codes  | R  |   |
| Output terminal status                        | 0x3018 or 0x2018   | External inverter output terminal,<br>BI10~Y<br>BIT1--TA1-TB1-TC<br>1;<br>BIT2--TA2-TB2-TC<br>2  | W  |   |
| AO output                                     | 0x3019 or 0x2019   | 0~10000 corresponding to output 0V~10V, 0mA~20mA   | W  |   |

Table Appendix I-2 Communication control parameter group address description

**Note:** For other function code addresses, see the "Communication Address" column in the function code table.

When the F00 to F15 parameter group parameters are written with write command (06H), if the highest bit in the address field of the function code parameter is 0, the parameters are only written into the RAM of the inverter and are not stored after power failure. If the address field height of the function code parameter is 1, the parameter is written into the EEPROM. For example, F00 group :0x00XX (write RAM)0x10XX(store in EEPROM).

When using the write command (06H) to write parameters of F16 to F29, if the highest bit in the address field of the function code parameter is 5, it is only written into the RAM of the inverter, and is not stored after power failure. If the address field height of the function code parameter is D, the parameter is written into the EEPROM, which is power-off storage. For example, F16 group :0x50XX(write RAM)0xD0XX(store in EEPROM); Group F17 :0x51XX(write to RAM)0xD1XX(save to EEPROM).

**● Error code meaning from the slave's response to the exception message**

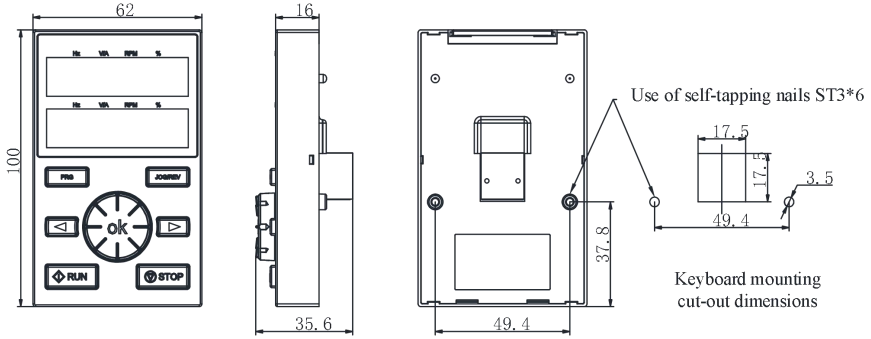
| Error code | Description             | Error code | Description                       | Error code | Description   |
|------------|-------------------------|------------|-----------------------------------|------------|---|
| 1          | Wrong command code      | 3          | CRC check error                   | 4          | Illegal address                                       |
| 5          | Illegal data            | 6          | Unchangeable parameters in motion | 8          | Converter busy (EEPROM in storage)                    |
| 9          | Parameters out of range | 10         | Unchangeable saved parameters     | 11         | The number of bytes in the parameter read incorrectly |

Table Appendix I-3 Error code meaning

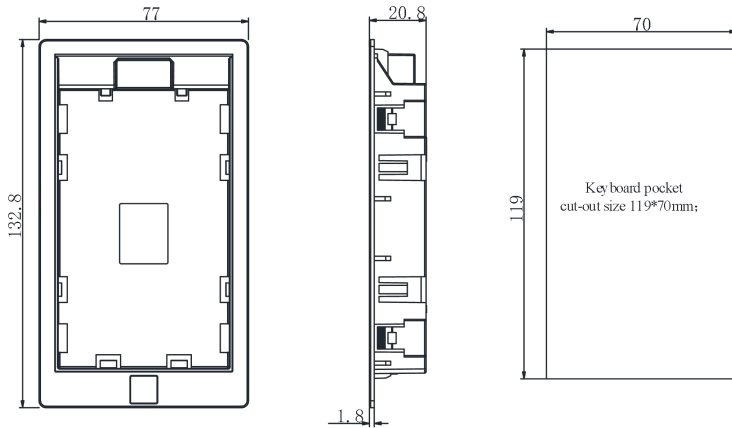
# Appendix II: External Keyboard Size and Model

- External double-row display keyboard shape and hole size

Model: KBD300-25(Note: LCD is fully compatible with LED keyboard dimensions and hole sizes (unit: mm)).



AC01 series external two-row display keyboard size



AC01 series external two-row display keyboard shape and hole size

- External single-row keyboard shape and hole size

Model: KBD10-15 (Note: hole size of mounting plate :61mmx36mm. (Unit in the figure: mm))

