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Small general frequency converter

# Operating Instruction

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220V level    0.4kW-3.0kW

400V level    0.4kW-7.5kW

- Please read this manual carefully and understand the contents for correct installation and use.
- Please give this manual to the final user and keep it properly.
- The technical specifications of this product may change without notice.

2RI20211010-12.0 Version A

English

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V2.0

## Solemn statement

Thank you for using the frequency converter. Before use, must read this manual carefully, and use it after you are familiar with the safety precautions of this product.

### **Safety Precautions:**

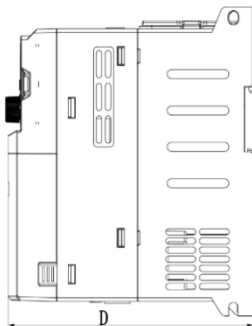
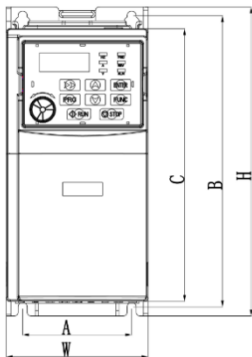
1. Before wiring, please confirm whether the input power is off.
2. For wiring work, please invite professional electrical engineer to work.
3. The ground terminal must be grounded.
4. After the wiring of the emergency stop circuit is completed, must check whether the action is effective.
5. The output wire of the frequency converter must not be connected to the housing, and the output wire should not be short-circuited.
6. Please confirm whether the voltage of the AC main circuit power supply is consistent with the rated voltage of the frequency converter.
7. Do not perform voltage withstand test on the frequency converter.
8. Please connect the braking resistor according to the wiring diagram.
9. Do not connect the power cord to the output U, V, W terminals.
10. Do not connect the contactor to the output circuit.
11. Be sure to install the protective cover before powering on. When removing the cover, must disconnect the power supply.
12. Select the frequency converter with the reset and retry function, please do not approach the mechanical equipment. It will restart suddenly when the alarm stops.
13. After confirming that the running signal is cut off, the alarm can be reset. If the alarm is reset in the running signal state, the frequency converter may start suddenly.
14. Do not touch the terminals of the frequency converter. There is high voltage on the terminals, which is very dangerous.
15. Do not change the wiring and terminal disassembly during power-on.
16. Cut off the main circuit power supply before inspection and maintenance.
17. Do not modify the frequency converter without authorization.

## 1.Parameters List

Rated data of frequency converter

| Model       | Power  | Power supply   | Output current (A) |
|-------------|--------|--|--------------------|
| 0.75G1-220V | 0.75KW | Single phase<br>alternating<br>220V-240V             | 4.5                |
| 1.5G1-220V  | 1.5KW  |  | 7                  |
| 2.2G1-220V  | 2.2KW  |  | 10                 |
| 0.75G3-380V | 0.75KW | Three-phase<br>alternating<br>380V-440V<br>50Hz/60Hz | 2.5                |
| 1.5G3-380V  | 1.5KW  |  | 3.7                |
| 2.2G3-380V  | 2.2KW  |  | 5                  |
| 4.0G3-380V  | 4.0KW  |  | 9                  |
| 5.5G3-380V  | 5.5KW  |  | 13                 |
| 7.5G3-380V  | 7.5KW  |  | 17                 |

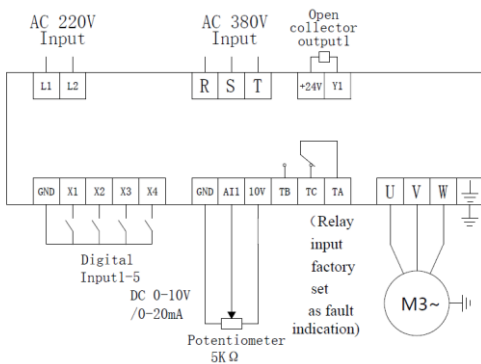
## 2.Product Size




## Product size of frequency converter

|             | H   | W   | D   | A   | B   | C   |
|-------------|-----|-----|-----|-----|-----|-----|
| 0.75G1-220V | 170 | 78  | 135 | 60  | 160 | 150 |
| 1.5G1-220V  | 170 | 78  | 135 | 60  | 160 | 150 |
| 2.2G1-220V  | 170 | 78  | 135 | 60  | 160 | 150 |
| 0.75G3-380V | 170 | 78  | 135 | 60  | 160 | 150 |
| 1.5G3-380V  | 170 | 78  | 135 | 60  | 160 | 150 |
| 2.2G3-380V  | 170 | 78  | 135 | 60  | 160 | 150 |
| 4.0G3-380V  | 212 | 95  | 151 | 78  | 200 | 180 |
| 5.5G3-380V  | 212 | 95  | 151 | 78  | 200 | 180 |
| 7.5G3-380V  | 240 | 140 | 181 | 129 | 230 | 240 |

## 3.Installation and wiring

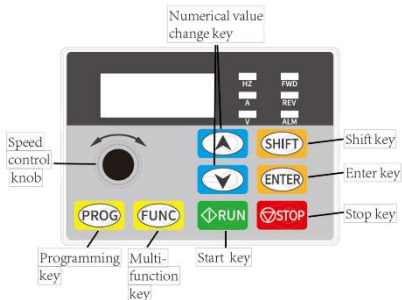


Note: AI1 cannot be controlled by external power (e.g. PLC analog output)

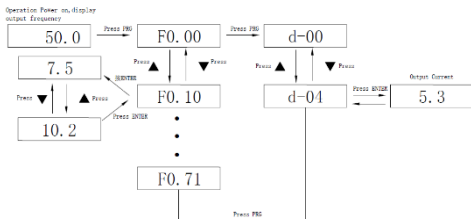
| Usage description of wire terminal  |   |  |
|---|---|--|
| Terminal  | Usage   | Setting and Description  |
| R、S、T   | Power supply of frequency converter:<br>380V model connects to R, S, T<br>220V model connect to R, S or R, T (determined according to terminal label) | The front end of the input power supply of the frequency converter should use an air switch as an overcurrent protection device. If a leakage protection switch is added, in order to prevent the leakage switch from malfunctioning, please choose a device with a sensitivity of 200mA and action time more than 100ms |
| U、V、W   | Frequency converter output which is connected to the motor  | In order to reduce the leakage current, the motor connection line should not exceed 50 meters.   |
|  | Grounding   | The frequency converter must be well grounded.   |
| X1  | Digital input X1  | Set by parameter F2.13, the factory default is forward   |
| X2  | Digital input X2  | Set by parameter F2.14, the factory default is reverse   |
| X3  | Digital input X3  | Set by parameter F2.15, the factory default is the first stage of multi-speed  |
| X4  | Digital input X4  | Set by parameter F2.16, the factory default is the second stage of multi-speed   |
| GND   | Signal common terminal  | Zero potential of analog input signal  |
| +24V  | Open collector output power supply  | +24V,10mA is the largest   |
| +10V  | Frequency set the potentiometer power supply  | +10V,10mA is the largest   |
| Y1  | Open collector output 1   | 4-20 mA, input impedance: 100 Ω  |
| AI1   | Analog input signal   | Set by parameter F0.02   |
| TA,TC   | Relay output  | Set by parameter F0.06<br>Contact rating: AC 250V/3A<br>DC 24V/2A  |

## 4. Commissioning

### ① Operation panel and method



Note: After the frequency converter is powered on, the running panel will display



### ② Frequency converter running command method setting

Method of return to the original interface after setting the parameters:

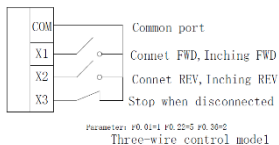
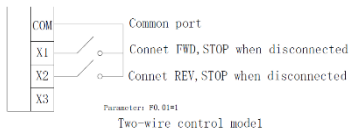
1. After power off, power on again.
2. Select parameter d-00, then press PRG key.
3. Long press the SET button for 3 seconds

The frequency converter operation command mode is set by parameter F0.02: there are three types: start and stop controlled by panel, terminal and communication (optional):

**(1) Panel control start and stop:** (factory default is panel start and stop F0.01=1)

To use the panel to control the start and stop of the frequency converter, press the green button on the panel to start and the red button to stop. The frequency converter will start forward by default, and the forward and reverse must be set through the input terminals X1-X5 (reverse set to 4).

## (2) Terminal start and stop:



## ③ Selection of frequency converter setting mode

The frequency setting mode of the frequency converter is set by parameter F0.02. When F0.02=0, the operating frequency is set by the potentiometer; when F0.02=1, the operating frequency is inputted by AVI (0-5V can be connected to the potentiometer, J1 line cap jumps to the upper position); when F0.02=2, the operating frequency is inputted by ACI (4-20mA, J1 line cap jumps to the lower position); when F0.02=3, which is controlled by external terminals (the switch amount value is set to frequency increase/decrease).

## 5. Parameters List

| Parameter                                   | Name                                | Factory Default | Predetermined Area            | Content  |
|---|-------------------------------------|-----------------|-------------------------------|--|
| <b>F0 Group- Basic operating parameters</b> |                                     |                 |                               |  |
| F0.00                                       | Motor control method                | 1               | 0~2                           | 0: VF control<br>1: Advanced VF control<br>2: Simple vector control  |
| F0.01                                       | Run command channel selection       | 0               | 0~1                           | 0: The panel runs the command<br>1: The terminal runs the command  |
| F0.02                                       | Frequency setting selection         | 0               | 0~5                           | 0: Panel potentiometer<br>1: Digital setting 1, adjust by operating ▲/▼ keys on the panel<br>2: AVI simulation given (0~1 0V/0~20 mA)<br>3: Digital setting 2, adjust by terminals UP/DOWN<br>4: Two-stage speed terminal is connected to the given and run, terminal UP/DO WN adjusts the frequency<br>5: The second-stage speed terminal triggers the setting and run<br>6: Reverse<br>7:PID given |
| F0.03                                       | Operation frequency digital setting | 50.0 Hz         | 0.0~upper limit frequency     | The set value is initial value of frequency digital setting  |
| F0.04                                       | Digital frequency control           | 00              | 0011                          | LED ones place: Store at power off<br>0: Store<br>1: Do not store<br>LED tens place: Keep state at downtime<br>0: Keep<br>1: Do not keep<br>LED hundreds place: reserve<br>Thousands place: reserve  |
| F0.05                                       | Running direction setting           | 0               | 0~1                           | 0: Forward<br>1: Reverse   |
| F0.06                                       | Maximum output frequency            | 50.0 Hz         | Max {50.0, [F0.06]} ~999.9 Hz | The maximum output frequency is the highest output frequency allowed by the frequency converter and the reference for the acceleration/ deceleration setting.  |



| Parameter | Name                                  | Factory Default | Predetermined Area  | Content  |
|-----------|---------------------------------------|-----------------|---|--|
| F0.07     | Upper limit frequency                 | 50.0 Hz         | Max {0.1, [F0.07]} ~ [F0.05]                                  | The operating frequency cannot exceed this frequency   |
| F0.08     | Low limit frequency                   | 0.0 Hz          | 0.0~Upper limit frequency                                     | The operating frequency cannot be lower than this frequency  |
| F0.09     | Acceleration time                     | Device setting  | 0.1~999.9 S<br>0.4~4.0 KW<br>7.5 S<br>5.5~7.5 KW              | Time required for the frequency converter to accelerate from zero frequency to the maximum output frequency  |
| F0.10     | Deceleration time                     |                 | 15.0 S  | Time required for the frequency converter to decelerate from maximum output frequency to zero frequency  |
| F0.11     | Torque lift amount                    | Device setting  | 0.0~30.0%   | Manual torque lift, and set as 0.0 if you need high torque lift, this value setting is percentage relative to the motor rating voltage   |
| F0.12     | Cut-off frequency of torque lift      | 15.0 Hz         | 0.0~50.0 Hz   | This setting is the lifting cut-off frequency point of manual torque lifting   |
| F0.13     | Carrier frequency setting             | Device setting  | 3.0~8.0 kHz<br>0.4~3.0 kW<br>4.0 kHz<br>4.0~7.5 kW<br>3.0 kHz | For occasions requiring silent operation, the carrier frequency can be appropriately increased to meet the requirements, but increasing the carrier frequency will increase the heat generation of the inverter. |
| F0.14     | Stop mode                             | 0               | 0~1   | 0: Slow down to stop<br>1: Stop freely   |
| F0.15     | Jog frequency setting                 | 10.0 Hz         | 0.0~Upper limit frequency                                     | Set the jog frequency  |
| F0.16     | A11 input lower limit voltage         | 0.00V           | 0.00~10.00 V/0.00~20.00 mA                                    | Set upper and lower limits of A11 voltage or current   |
| F0.17     | A11 input upper limit voltage         | 5.00V           | 0.0~10.0 V  |  |
| F0.18     | A11 lower limit corresponding setting | 0.0%            | -100.0%~100.0%  | Set the A11 upper and lower limits corresponding setting which is corresponding to the percentage of the upper limit frequency [F0.06]   |

| Parameter | Name                                  | Factory Default | Predetermined Area     | Content   |
|-----------|---------------------------------------|-----------------|------------------------|---|
| F0.19     | All upper limit corresponding setting | 100.0 %         | 0.1~frequency value F2 | 0: Idle control terminal<br>1: Forward jog control<br>2: Reverse jog control<br>3: Forward control (FWD)<br>4: Reverse control (REV)  |
| F0.20     | Input Terminal X1 function            | 3               | 0~26                   | 5: Three-wire operation control<br>6: Free stop control<br>7: External stop signal input (STOP)<br>8: External reset signal input (RST)   |
| F0.21     | Input Terminal X2 function            | 4               | 0~26                   | 9: External fault normally open input<br>10: Frequency up command (UP)<br>11: Frequency down command (DOWN)   |
| F0.22     | Input Terminal X3 function            | 7               | 0~26                   | 13: Multi-speed option S1<br>14: Multi-speed option S2<br>15: Multi-speed option S3<br>16: Run command channel forced to be terminal<br>17: Reserve<br>18: Reserve<br>19: Frequency switching to AVI<br>20: Frequency switching to digital frequency 1<br>21: Frequency switching to digital frequency 2                                |
| F0.23     | Input Terminal X4 function            | 0               | 0~26                   | 22: Reserve<br>23: Relay<br>24: Select speed 1 and run<br>25: Select speed 2 and run  |
| F0.24     | Reserve                               | 0               | -                      | 26: Multi-speed shutdown (only valid for functions 24 and 25)   |
| F0.25     | Y1 output setting                     | 0               | 0~20                   | 0: Idle<br>1: The frequency converter is running<br>2: Frequency converter failure<br>3: Input setting 23 is valid<br>4: Frequency/speed arrival signal (FAR)<br>5: Frequency/speed level detection signal (FDT)<br>6: Frequency converter overload pre-alarm level<br>7: Frequency converter overload pre-alarm delay<br>~20: reserved |
| F0.26     | R output setting                      | 2               | 0~20                   |   |
| F0.27     | R Closing delay                       | 0.0s            | 0.0~255.0s             | The delay between the relay R state has changes to output also has change   |

| Parameter | Name  | Factory Default | Predetermined Area          | Content  |
|-----------|---|-----------------|-----------------------------|--|
| F0.28     | R Disconnect on delay                             |                 |                             |  |
| F0.29     | Frequency reaches the FAR detection range         | 5.0Hz           | 0.0Hz~15.0Hz                | The output frequency is within the positive and negative detection width of the set frequency, and the terminal outputs a valid signal (low level) |
| F0.30     | FDT level setting value                           | 10.0 Hz         | 0.0Hz~frequency upper limit |  |
| F0.31     | FDT lagged value                                  | 1.0 Hz          | 0.0~30.0 Hz                 |  |
| F0.32     | UP/DOWN adjusting frequency rate                  | 10.0            | 0.0~50.0Hz/S                | Set the UP/DOWN Adjusting frequency rate   |
| F0.33     | Terminal electrical level selection               | 0               | 0~1FH                       | 0: Electrical level mode<br>1: Trigger mode  |
| F0.34     | Terminal input filter coefficient                 | 10              | 0~9999                      | Set the terminal input filter coefficient  |
| F0.35     | Terminal input logic                              | 0               | 0~1FH                       | Set terminal input logical   |
| F0.36     | FWD/REV terminal control mode                     | 0               | 0~3                         | 0: Two-wire control mode 1<br>1: Two-wire control mode 2<br>2: Three-wire control mode 1<br>3: Three-wire control mode 2                           |
| F0.37     | Terminal function detection selection at power-on | 0               | 0~1                         | 0: Terminal run command is invalid at power-on<br>1: Terminal run command is valid at power-on   |

| Parameter | Name                    | Factory Default | Predetermined Area                                     | Content                                  |
|-----------|-------------------------|-----------------|--|--|
| F0.38     | Multi-speed frequency 1 | 5.0 Hz          | Negative upper limit frequency ~ Upper limit frequency | Set the frequency in velocity period 1   |
| F0.39     | Multi-speed frequency 2 | 10.0 Hz         | Negative upper limit frequency ~ Upper limit frequency | Set the frequency in velocity period 2   |
| F0.40     | Multi-speed frequency 3 | 15.0 Hz         | Negative upper limit frequency ~ Upper limit frequency | Set the frequency in velocity period 3   |
| F0.41     | Multi-speed frequency 4 | 25.0 Hz         | Negative upper limit frequency ~ Upper limit frequency | Set the frequency in velocity period 4   |
| F0.42     | Multi-speed frequency 5 | 35.0 Hz         | Negative upper limit frequency ~ Upper limit frequency | Set the frequency in velocity period 5   |
| F0.43     | Multi-speed frequency 6 | 45 Hz           | Negative upper limit frequency ~ Upper limit frequency | Set the frequency in velocity period 6   |
| F0.44     | Multi-speed frequency 7 | 50.0 Hz         | Negative upper limit frequency ~ Upper limit frequency | Set the frequency in velocity period 7   |
| F0.45     | Acceleration time 2     | 10.0 s          | 0.1~999.9 s<br>0.4~4.0 kW<br>10.0 s                    | Set acceleration and deceleration time 2 |
| F0.46     | Deceleration time 2     |                 | 5.5~7.5 Kw<br>15.0 s                                   |  |

| Parameter | Name                                      | Factory Default | Predefined Area  | Content  |
|-----------|---|-----------------|--|--|
| F0.47     | Jog acceleration time                     | Device setting  | 0.1~255.0 s<br>0.4~4.0KW<br>10.0S<br>5.5~22KW<br>15.0S | Set the jog acceleration and deceleration time   |
| F0.48     | Jog deceleration time                     |                 |  |  |
| F0.49     | Motor rated voltage                       | Device setting  | 0~500V:<br>380V<br>0~250V:<br>220V                     | Motor parameter setting  |
| F0.50     | Motor rated frequency                     | 50.0 Hz         | 1.0~999.9 Hz   |  |
| F0.51     | Motor rated speed                         | Device setting  | 0~60000 rpm  |  |
| F0.52     | Motor rated current                       | Device setting  | 0.1~999.9 A  |  |
| F0.53     | Motor no-load current                     | Device setting  | 0.1~999.9 A  |  |
| F0.54     | Motor stator resistance                   | Device setting  | 0.001~20.00 0Ω   | Set the motor stator resistance  |
| F0.55     | Slip compensation selection               | 0               | 0~1  | 0 : Invalid<br>1: Valid  |
| F0.56     | Motor overload protection coefficient     | 100%            | 0%~200%  | The motor overload protection coefficient is the percentage of the motor rated current value to the rated output current of the frequency converter. |
| F0.57     | Undervoltage protection level             | 180/<br>360V    | 50-280/<br>50-480V                                     | This function code specifies the lower limit voltage allowed by the DC bus when the frequency converter is working normally                          |
| F0.58     | Deceleration voltage limiting coefficient | 1               | 0: shut down,<br>1~255                                 | This parameter is used to adjust the ability of the frequency converter to suppress overvoltage during deceleration.                                 |

| Parameter | Name  | Factory Default | Predetermined Area | Content   |
|-----------|---|-----------------|--------------------|---|
| F0.59     | Overvoltage limit level                     | 375/790V        | 350-400/660-850V   | The overvoltage limit level defines the operating voltage for overvoltage stall protection  |
| F0.60     | Acceleration current limiting coefficient   | 10              | 0: shut down, 1~99 | This parameter is used to adjust the ability of the frequency converter to suppress overcurrent during acceleration.  |
| F0.61     | Constant speed current limiting coefficient | 0               | 0: shut down, 1~10 | This parameter is used to adjust the ability of the frequency converter to suppress overcurrent during constant speed.  |
| F0.62     | Current limit level                         | 180%            | 50%~250%           | The current limit level defines the current threshold for the automatic current limit action, and its set value is relative to the percentage of rated current of the frequency converter.  |
| F0.63     | Parameter initialization                    | 0               | 0~1                | 0: No operation<br>The frequency converter is in normal parameter reading and writing status. Function code setting value.  |
| F0.63     | Parameter initialization                    | 0               | 0~1                | Whether it can be changed is related to the setting status of the user password and the current working status of the frequency converter.<br>1: Restore factory settings<br>All user parameters are restored to factory settings according to the model.   |
| F0.64     | Main interface display selection            | 10              | 00~FFH             | which means select the output current d-04, and the default display item of the main monitoring interface is the current output current value during operation.<br>LED's tens place: Selection of monitoring parameter during downtime. You can change the monitoring items of main interface display by changing the setting value of this function code. For example, set the tens place of F0.64 equal to 8, which means select the module temperature d-08, and the default display item of the main monitoring interface is the current module temperature during downtime.<br>LED hundreds place: Reserve<br>LED thousands place: Reserve |

| Parameter | Name   | Factory Default | Preetermined Area | Content  |
|-----------|--|-----------------|-------------------|--|
| F0.65     | Auxiliary display selection                        | 34              | 00~FFH            | LED ones place: monitoring parameter selection at operating status<br>LED tens place: monitoring parameter selection at down state<br>Hundreds of LEDs: reserved<br>LED Thousands: Reserved  |
| F0.66     | Voltage compensation                               | 0               | 0-1               | 0: Invalid<br>1: Valid   |
| F0.67     | Output phase loss protection detection coefficient | 2.00            | 0.00~20.00        | When the ratio of the maximum value to the minimum value of the three-phase output current is greater than this coefficient, and the duration exceeds 6 seconds, the frequency converter reports the output current unbalance fault ETUN |
| F0.68     | Frequency converter overload pre-alarm level       | 120%            | 0~150%            | The current threshold of the frequency converter overload pre-alarm action, the set value is relative to the rated current of the frequency converter.   |
| F0.69     | Frequency converter overload pre-alarm delay       | 5.0 s           | 0.0~15.0s         | The delay time between the output current of the frequency converter is continuously larger than the overload pre-alarm level (F0.68) and output overload pre-alarm signals.   |
| F0.70     | Motor tuning                                       | 0               | 0~1               | 0: Invalid<br>1: Statical tuning   |
| F0.71     | User password                                      | 0               | 0~9999            | Set any non-zero number and wait 3 minutes or power down before it takes effect  |
| F0.72     | JOG keys setting                                   | 0               | 0~3               | 0: JOG<br>1: Forward and reverse switch<br>2: Clear ▲/▼ key frequency setting<br>3: Run in reverse (at this time, the default Run key is forward)  |
| F0.73     | PID Functional Setting                             | 0               | 00~12             | LED one's place: PID sleep mode<br>0: disabled<br>1: Normal hibernation<br>2:Disturbance sleep<br>Same as the parameter setting  |

| Parameter | Name                        | Factory Default | Predetermined Area          | Content  |
|-----------|-----------------------------|-----------------|-----------------------------|--|
|           |                             |                 |                             | when the sleep mode is selected as 0, if the PID feedback value is within the range of the F0.85 setting value, the sleep delay time will be maintained and the disturbance sleep will be entered. When the feedback value is less than the wake-up threshold (PID polarity is positive), immediately wake up<br>LED ten's place: PID feedback disconnection selection<br>0: disabled<br>1: enabled<br>LED hundred's place: reserved<br>LED thousand's place: reserved |
| F0.74     | Pressure setting            | 0.00            | 0.00(MPa、Kg) ~ Sensor range | Use the keyboard to set the given amount of PID control  |
| F0.75     | Sensor range                | 10.00           | 0.00~90.00 (MPa、Kg)         | Set the maximum range of sensor  |
| F0.76     | Proportional gain P         | 2.00            | 0.01~5.00                   | The adjustment speed of PID is set by two parameters, Proportional gain P and Integration Time Ti. If you want a higher speed, you should increase the proportional gain P and decrease the integration Time; if you want a lower speed, you should decrease the proportional gain P and increase the integration time. Under general conditions, we do not set the derivative time.   |
| F0.77     | Integral time Ti            | 6.0s            | 0.1~50.0s                   |  |
| F0.78     | Threshold value of sleeping | 100.0%          | 0.0~150.0%                  | If the actual feedback value is greater than the set value and the inverter output frequency reaches the sleep frequency, The inverter will turn to sleeping state after the delay time defined by F0.79 (ie zero speed operation); The value is the percentage of the PID set value.  |



| Parameter                                   | Name   | Factory Default | Predetermined Area | Content   |
|---|--|-----------------|--------------------|---|
| F0.79                                       | Delay time of sleep  | 100.0s          | 0.0~999.9s         | Set the time-delay of sleeping  |
| F0.80                                       | Threshold value of awaking                                     | 90.0%           | 0.0~150.0%         | If the feedback value is less than the set value, the inverter will turn to sleeping state after waiting for the delay time defined by F0.81; This value is a percentage of the PID set value.  |
| F0.81                                       | Delay time of awaking  | 1.0s            | 0.0~999.9s         | Set the time-delay of awaking   |
| F0.82                                       | Feedback channel gain  | 1.00            | 0.01~10.00         | When the feedback channel is not consistent with the setting channel, the function can be used to adjust the signal of feedback channel.  |
| F0.83                                       | Feedback disconnection detection value                         | 0.0%            | 0.0~100.0%         | This value is percentage of PID given amount. When the PID feedback value continues to be less than the feedback disconnection detection value. The inverter will make the corresponding protection action. When F0.83=0.0%, this value is invalid. |
| F0.84                                       | Feedback disconnection detection time                          | 10.0s           | 0.1~999.9S         | When the feedback disconnection occurs, the time-delay before the protective action.  |
| F0.85                                       | Deviation limit of feedback when entering sleep state compared | 0.5%            | 0.0~20.0%          | The function parameter is only effective to the disturbance sleeping mode.  |
| F0.86                                       | Sleep frequency  | 0.0             | 0.0~pper limifreq. | Set sleep frequency   |
| <b>F1 Group- Basic operating parameters</b> |  |                 |                    |   |
| F1.00                                       | Manufacturer password  |                 | 1~9999             | System setting special password   |
| <b>Group d - Monitoring parameter group</b> |  |                 |                    |   |

| Parameter | Name   | Range                 | Minimum unit   |
|-----------|--|-----------------------|----------------|
| d-00      | Output frequency (Hz) setting                  | 0.0~999.9Hz           | 0.1Hz          |
| d-01      | Set frequency (Hz)                             | 0.0~999.9Hz           | 0.1Hz          |
| d-02      | Output voltage (V)                             | 0~999V                | 1V             |
| d-03      | Bus voltage (V)                                | 0~999V                | 1V             |
| d-04      | Output current (A)                             | 0.0~999.9A            | 0.1A           |
| d-05      | Terminal input status                          | 0~1FH                 | 0              |
| d-06      | Terminal output status                         | 0~FH                  | 0              |
| d-07      | AI1 analog input (V/mA)                        | 0.00~10.00V/20.00mA   | 0.00           |
| d-08      | Module temperature (°C)                        | 0.0~132.3°C           | 0.0            |
| d-09      | Software upgrade date (year)                   | 2010~2026             | 2020           |
| d-10      | Software upgrade date (month, day)             | 0~1231                | 0709           |
| d-11      | Last fault code                                | 0~14                  | 0              |
| d-12      | Current fault code                             | 0~14                  | 0              |
| d-13      | Output frequency (Hz) in the most recent fault | 0.0~999.9Hz           | 0.0 Hz         |
| d-14      | Output current (A) in the most recent fault    | 0.0~999.9A            | 0.0 V          |
| d-15      | Bus voltage (V) in the most recent fault       | 0~999V                | 0V             |
| d-16      | Software version                               | 1.00~99.99            | 1.00           |
| d-17      | Power model                                    | 0.10~99.99 kW         | Device setting |
| d-18      | Motor speed (rpm)                              | 0~60000 rpm           | Device setting |
| d-19      | PID set pressure                               | 0.00 ~ 90.00(MPa, Kg) | 0.00(MPa, Kg)  |
| d-20      | PID feedback pressure                          | 0.00 ~ 90.00(MPa, Kg) | 0.00(MPa, Kg)  |

#### Group E - Fault code

| Fault code | Name        | Possible reason of failure     | Troubleshooting                |
|------------|-------------|--------------------------------|--------------------------------|
| EOC1       | Overcurrent | Acceleration time is too short | Increase the acceleration time |

|       |   |   |  |
|-------|---|---|--|
|       | during acceleration                         | The power of frequency converter is too small | Use a frequency converter with a large power level |
|       |   | Improper setting of V/F curve or torque boost | Adjust the V/F curve or torque boost               |
| EOC2  | Overcurrent during deceleration             | Acceleration time is too short                | Increase the acceleration time                     |
|       |   | The power of frequency converter is too small | Use a frequency converter with a large power level |
| EOC3  | Overcurrent during constant speed operation | Low grid voltage                              | Check input power                                  |
|       |   | Load become mutational or abnormal            | Check load or reduce load change                   |
|       |   | The power of frequency converter is too small | Use a frequency converter with a large power level |
| EHU 1 | Overvoltage during acceleration             | Abnormal input voltage                        | Check input power                                  |
|       |   | Restart the rotating motor                    | Set to start after DC braking                      |
| EHU 2 | Overvoltage during deceleration             | Deceleration time is too short                | Increase deceleration time                         |
|       |   | Abnormal input voltage                        | Check input power supply                           |
| EHU 3 | Overvoltage during constant speed operation | Abnormal input voltage                        | Check input power supply                           |
| EHU 4 | Overvoltage during shut-down                | Abnormal input voltage                        | Check the power voltage supply                     |
| ELU0  | Undervoltage in operation                   | -   | -  |
| E-OH1 | Heat sink overheating                       | Ambient temperature is too high               | Reduce ambient temperature                         |
|       |   | Fan damage                                    | Replace the fan                                    |
|       |   | Air duct blockage                             | Dredge the air duct                                |

|      |                              |  |   |
|------|------------------------------|--|---|
| EOL1 | Frequency converter overload | Improper setting of V/F curve or torque boost                      | Adjust the V/F curve or torque boost  |
|      |                              | Grid voltage is too low  | Check the grid voltage  |
|      |                              | Acceleration time is too short                                     | Increase acceleration time  |
|      |                              | Motor overload   | Use a frequency converter with a large power level  |
| EOL2 | Motor overload               | Improper setting of V/F curve or torque boost                      | Adjust the V/F curve or torque boost  |
|      |                              | Grid voltage is too low  | Check grid voltage  |
|      |                              | Motor stalled or the mutation of load is too large                 | Check the load  |
|      |                              | Motor overload protection factor setting is incorrect              | Set the motor overload protection coefficient Correctly   |
| E-EF | External device failure      | External device fault input terminal is closed                     | Disconnect the external device fault input terminal and clear the fault (Pay attention to checking the cause) |
| EPID | PID Feedback disconnection   | PID feedback circuit is loose                                      | Check feedback connection   |
|      |                              | The feedback amount is less than the disconnection detection value | Adjust the detection input threshold  |
| ECCF | Current detection fault      | Current sampling circuit failure                                   | Ask the manufacturer for service  |
|      |                              | Auxiliary power failure  |   |
| EEEP | EEPROM read-write error      | EEPROM failure   | Ask the manufacturer for service  |
| E-LP | Output phase loss            | The output U, V and W have phase loss                              | Check the output wiring   |

|      |                    |  |  |
|------|--------------------|--|--|
| E-SC | The module failure |  |  |
|------|--------------------|--|--|

# 6.Applications

## **(1) constant pressure water supply control by frequency converter**

A: Electric contact pressure gauge control (the simplest control method)

Use the electric contact pressure gauge to control the water pressure. You only need to connect 2 wires, one from the green needle and the other from the black needle, respectively connected to the upper 2 of the 3 terminals of the electric contact pressure gauge (some electric contact table may be different). When the water pressure is low, the black needle is underneath the green needle, and the frequency converter is in the acceleration start state. When the water pressure is high, the black needle is on the top of green needle, and the frequency converter is in the deceleration stop state. Very simple and easy to maintain.

For this frequency converter, the debugging steps are as follows:

- ① Connect the two wires from the electric contact pressure gauge, one wire of the start signals to X1, and the other wire to GND (do not need to distinguish between positive and negative pole, please connect the start signal after setting all parameters).
- ② Set parameter F0.01=1 to select external terminal to start control.
- ③ Turn up the speed control knob on the panel to the maximum.
- ④ Frequency converter parameter setting: F0.20=3 (default value), F0.09=60, F0.10=60, F0.37 =1

It can start automatically after power on. If it does not start, you can use a wire to directly connect X1 and GND to see if it starts. If it still fails, it means there is a problem with the internal settings of the frequency converter. If it can be started, it means the external electric contact meter or circuit problem. You can check whether the two wires on the electric contact are connected. If the black needle is lower than the green needle, it should be connected, and if the black needle is higher than the green needle, it should be disconnected.

## **(2) Two speed setting mode control**

Equipment requirements: use the potentiometer knob to adjust the speed during forward rotation, and use multi-speed low-speed operation during reverse rotation.

- ①Parameter setting: F0.02=1, F0.03=3, F1.17=10 (reverse running speed 10HZ)
- ②Connection: 3 wires of the potentiometer are connected to GND, AVI, +10V,

the forward rotation signal is connected to X1 and GND, the reverse signal is connected to X2, GND, and X2 and X3 are short-circuited (set the frequency at the same time when reverse Select the setting value of multi-speed 1).

### **(3) Jog control**

Equipment that needs jog control:

① Parameter setting: F0.02=1, F2.15=1 (forward jog), F2.16=2 (reverse jog), forward jog frequency is given by parameter F1.09, reverse point The dynamic frequency is given by parameter F1.10. The jog acceleration time is set by parameter F1.11, and the jog deceleration time is set by parameter F1.12.

② Wiring: the forward jog signal is connected to GND and X3, and the reverse jog signal is connected to GND and X4.

### **(4) Torque is insufficient when running at low speed (rotation is weak)**

Adjust parameter F0.14, gradually adjust from small to large. Don't adjust it too large at the beginning. If it is adjusted too large, it may report OC overcurrent fault.

Adjust parameter F0.15, which is the cutoff frequency of torque boost.

# Service delivers value, quality creates glory

## **To customers:**

Thank you for using our products. In order to ensure that you get the best after-sales service from our company, please read the following terms carefully and do the relevant matters.

### **1. Product warranty scope**

Any failures that occur under normal use according to the requirements of use are covered by the warranty.

### **2. Product warranty period**

The warranty period of this product is within twelve months from the date of delivery. Long-term technical support services will be implemented after the warranty period.

### **3. Non-warranty coverage**

Any damage caused by human factors, natural disasters, water ingress, external force damage, harsh environment, etc. that violate the requirements of use, as well as unauthorized disassembly, modification and maintenance of the frequency converter, shall be deemed to automatically waive the warranty service.

### **4. Purchase products from middlemen**

Anyone who purchases products from distributors or agents should contact the distributor or agent if the product fails.

Please keep this manual properly in case you need it.