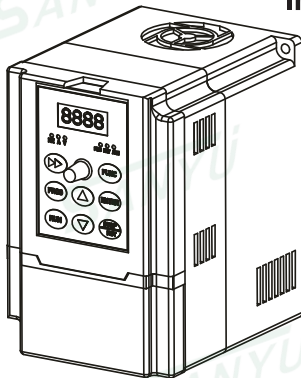


SANYU STAR

**SY2000 Series Frequency
Inverter User Manual**



Sanyu, control and protect your motors

Shanghai Sanyu Industry Co., Ltd.

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Foreword

Thank you for using our company's inverter. Before using it, you must read this instruction manual carefully. Please use it after you are familiar with the precautions of this product.

Installation Environment :

1. Installed indoors and in a well-ventilated place, generally should be installed vertically to ensure the best cooling effect.
2. The ambient temperature is required to be in the range of $-10\sim 45^{\circ}\text{C}$.
3. The ambient humidity is required to be less than 90%, without water droplets condensing.
4. Install in a place with vibration less than 0.5G to prevent falling damage. The inverter is not allowed to suffer sudden impact.
5. Install in an environment away from magnetic fields and free of flammable and explosive substances.
6. Make sure to install the inverter on fireproof materials (such as metal) to prevent fire.
7. Make sure that no foreign objects enter the inverter to prevent circuit shortcuts from burning down the inverter.

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Safety Precautions

1. Before wiring, please confirm whether the input power is in the power off state.
2. It is strictly forbidden to operate with wet hands during wiring operation, and professional electrical engineering personnel are required.
3. The main circuit terminal and the cable must be firmly connected, otherwise the inverter may be damaged due to poor contact.
4. For safety reasons, the ground terminal of the inverter must be reliably grounded.
5. It is strictly forbidden to connect the AC 220V or 380V power supply to the terminals other than TA and TC in the control terminal.
6. It is strictly forbidden to connect the AC power supply to the output U, V, W terminals of the inverter.
7. On the input power supply side of the inverter, be sure to configure a fuseless circuit breaker for circuit protection or a circuit breaker with leakage protection to prevent the accident caused by the inverter from expanding.
8. Please confirm whether the voltage of the AC main circuit power supply is consistent with the rated voltage of the inverter.
9. Do not intervene the contactor in the output circuit. If necessary, please consult our company or relevant qualified

personnel in advance.

10. When the inverter is powered on, do not open the cover or perform wiring work.
11. Do not touch the inside of the inverter after power-on, and do not put conductive rods or other objects into the inverter.
12. For inverters that have been stored for more than half a year, a charging experiment should be conducted before use to restore the characteristics of the filter capacitor of the inverter main circuit. When charging, the voltage regulator should be used to gradually increase the voltage to the rated value. Within 1~2 hours, otherwise there is a risk of electric shock or explosion.
13. Since the output voltage of the inverter is a PWM pulse wave, please do not install capacitors or inrush current absorbers at its output. If it has been installed, be sure to remove it.
14. It is strictly forbidden to use contactors and other switching devices on the input side of the inverter to directly start and stop frequently.
15. Derating is required for areas with an altitude of more than 1000 meters. Generally, the derating is about 10% every 1000 meters.
16. If there are abnormal phenomena such as smoke, odor, strange noise, etc. in the inverter, please immediately cut off the power and carry out maintenance or call the agent for service.
17. When carrying out inspection and maintenance, the main circuit power should be cut off first.

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18. The company will not be responsible for any loss of property and personnel caused by unauthorized modification of the inverter or failure to follow the procedures in this manual.

1 General technical specifications and product models

General technical specifications

| | Item | Description |
|--------------|------------------------------------|---|
| Input | Rated voltage frequency | 380V or 220V : 50HZ/60HZ |
| | Allowable voltage working range | Fluctuation range: $\leq \pm 20\%$; voltage unbalance rate: $< 3\%$; frequency: $\pm 5\%$ |
| Output | Rated voltage | 0~380V or 0 ~220V |
| | Frequency | 0~999.9HZ |
| | Overload capacity | 150% rated current for 1 minute |
| Main control | Control model | V/F control, advanced VF control, separate VF control, VF square curve |

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| | | |
|-------------|------------------------------|--|
| performance | | control, without PG current vector control |
| | Modulation | Space voltage vector PWM modulation |
| | Speed range | 1: 100 (without PG vector control) |
| | Starting torque | 150% rated torque at 3.0 Hz (Advanced VF control) |
| | Speed stabilization accuracy | $\leq \pm 0.2\%$ rated synchronous speed |
| | Speed fluctuation | $\leq \pm 0.5\%$ rated synchronous speed |
| | Torque response | $\leq 50\text{ms}$ without PG vector control |
| | Torque control | Support torque control without PG vector control mode Torque control accuracy: $\pm 5\%$ |
| | Frequency accuracy | Digital setting: maximum frequency $\times \pm 0.01\%$; Analog setting: maximum frequency $\times \pm 0.2\%$ |
| | Frequency resolution | Digital setting: 0.01Hz; Analog setting: maximum frequency $\times 0.05\%$ |
| | Torque boost | Automatic torque boost, manual torque boost 0.1%~30.0% |
| | V/F curve | 6 control modes: 1 user setting V/F curve mode, 4 torque reduction characteristic curve modes (2.0 power, 1.7 power, 1.5 power, 1.3 power) |

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| | | |
|---------------|-------------------------------------|---|
| | | and linear curve, square curve, multi-point VF curve |
| | Acceleration and deceleration curve | Linear acceleration and deceleration. Time unit (minutes/second) optional, up to 999.9 seconds |
| | DC braking | Starting frequency of DC braking at stop: 0.00-50.00HZ Braking time: 0.0-30.0S; braking current: 0.0%-50.0% rated current |
| | Automatic Voltage Adjustment (AVR) | When the grid voltage changes, it can automatically keep the output voltage constant |
| | Automatic current limit | Automatically limit the current during operation to prevent frequent overcurrent fault tripping |
| | Voltage stall | Control the voltage during deceleration to prevent overvoltage protection from stopping |
| | Automatic carrier adjustment | Automatically adjust carrier frequency according to load characteristics and temperature characteristics; multiple carrier modes are optional |
| Customization | Separate VF control | Easy to implement various power supply designs |
| | Textile swing frequency | Textile swing frequency control, can realize fixed swing frequency and variable swing frequency . |

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| | | |
|--------------------|--------------------------------------|---|
| function | Frequency combination function | The running command channel and frequency reference channel can be combined arbitrarily |
| | Jog | The jog forward rotation frequency can be set and the jog priority is enabled. The jog frequency range: 0.00Hz~50.00Hz; the jog acceleration and deceleration time can be set from 0.1 to 999.9s, and the jog interval time can be set from 0.1 to 999.9s . |
| | Multi-speed operation | Achieve multi-speed operation through built-in PLC or control terminal |
| | Built-in process closed-loop control | Can easily form a closed-loop control system. |
| | Water supply burst detection | Burst detection delay time, high pressure detection threshold, low pressure detection threshold |
| Operation function | Run command channel | Operation panel bolt terminal, serial communication port, can be switched in various ways |
| | Frequency given channel | 2 kinds of digital setting, analog voltage setting, analog current setting, pulse setting, terminal setting, multi-speed setting, etc. |
| | Auxiliary frequency | Achieve flexible auxiliary frequency fine-tuning and frequency synthesis |

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| | | |
|-----------------|------------------------|--|
| | setting | |
| | Pulse output terminal | 0~50kHz pulse square wave signal output, can realize the output of physical quantities such as set frequency and output frequency |
| | Analog output terminal | 2 analog signal outputs. The output range is flexibly set between 0~20mA or 0~10 V, which can realize the output of physical quantities such as set frequency and output frequency |
| operating panel | LED display | Can display 26 parameters such as set frequency, output frequency, output voltage, output current, etc. |
| | Key function selection | Define the action range of some keys to prevent misoperation |
| | Protective function | Phase loss protection (optional), over-current protection, over-voltage protection, under-voltage protection, over-temperature protection, overload protection, load loss protection, etc. |
| Environment | Location | Indoor. Free from direct sunlight, dust, corrosive gas, flammable gas, oil mist, water vapor, dripping or salt etc. |
| | Altitude | Use derating above 1000 meters, derate 10% for every 1000 meters raised |

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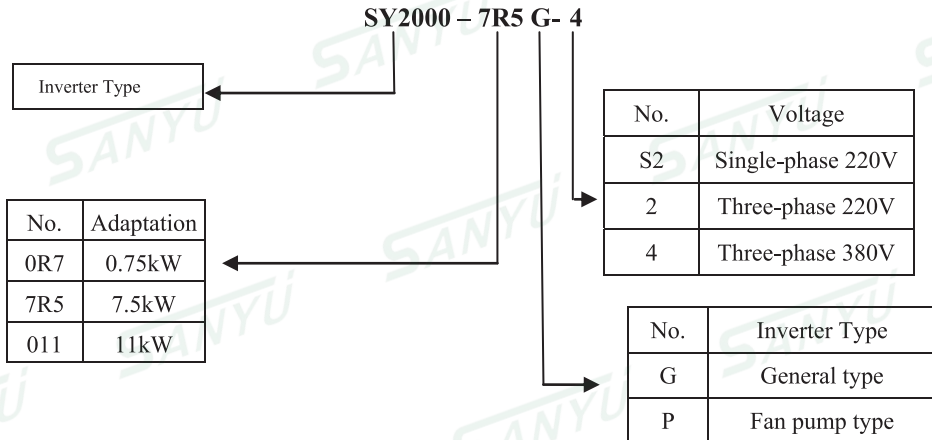
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| | Ambient temperature | -10°C~+40°C(If ambient temperature is 40°C-50°C , please use derating) |
| | Humidity | 5%~95%RH, no condensation |
| | Vibration | Less than 5.9m/s(0.6g) |
| | Storage temperature | -40°C ~+70°C |
| Structure | Protection level | IP20 |
| | Cooling method | Air-cooled, with fan control |
| | Efficiency | 7.5KW and below > 93% |

Product Design Executive Standard

- EN 61800-3: 2017 Adjustable speed electric drive system. Part 3: Electromagnetic compatibility (EMC) requirements and specific test methods.
- EN61800-2: 2015 Adjustable speed electric drive system. Part 2: General requirements. Rating specifications for low voltage adjustable frequency AC drive systems.
- EN 61800-5-1:2007/A1:2017 Adjustable speed electric drive system-Part 5-1: Safety requirements-electricity, heat and energy.

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4. Model specification



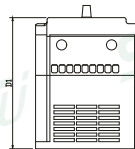
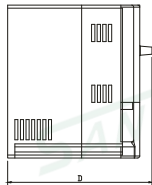
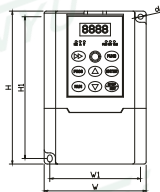
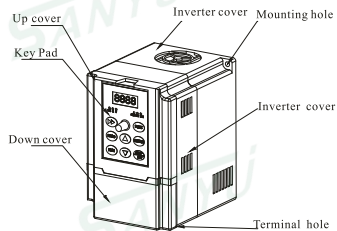
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Model table

| Input voltage | Model | Capacity (KVA) | Input Current (A) | Adapted motor(KW) |
|---------------|----------------|----------------|---------------------|-------------------|
| 220V 1-phase | SY2000-0R7G-S2 | 1.4 | 4 | 0.75 |
| | SY2000-1R5G-S2 | 2.6 | 7 | 1.5 |
| | SY2000-2R2G-S2 | 3.8 | 10 | 2.2 |
| | SY2000-004G-S2 | 8.8 | 16 | 4 |
| | SY2000-5R5G-S2 | 11 | 22 | 5.5 |
| 380V 3-phase | SY2000-0R7G-4 | 1.5 | 2.3 | 0.75 |
| | SY2000-1R5G-4 | 3.7 | 3.7 | 1.5 |
| | SY2000-2R2G-4 | 4.7 | 5 | 2.2 |
| | SY2000-004G-4 | 5.9 | 10.5 | 4 |
| | SY2000-5R5G-4 | 8.9 | 14.6 | 5.5 |
| | SY2000-7R5G-4 | 11 | 20 | 7.5 |

2 Installation and wiring

1. Dimensions

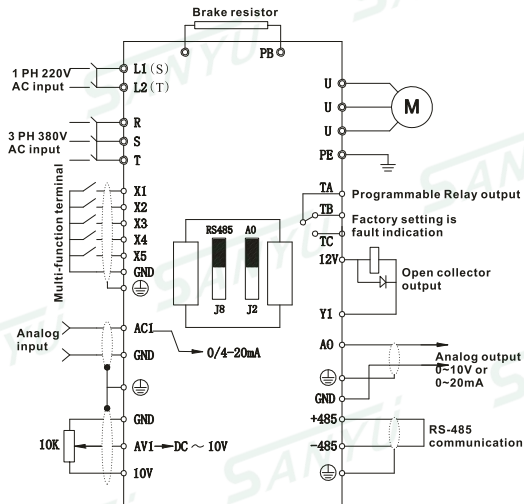


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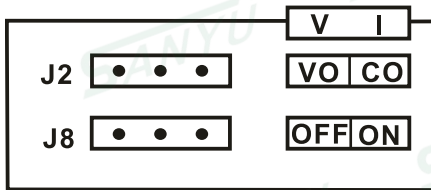
| Model | Dimension (mm) | | | | | | | Net weight |
|----------------|----------------|-----|-------|-----|-----|-------|----|------------|
| | W | H | D | W1 | H1 | D1 | φd | (kg) |
| SY2000-0R7G-S2 | 100 | 151 | 141.5 | 89 | 140 | 129.5 | 5 | 1.1 |
| SY2000-1R5G-S2 | 100 | 151 | 141.5 | 89 | 140 | 129.5 | 5 | 1.1 |
| SY2000-2R2G-S2 | 100 | 151 | 141.5 | 89 | 140 | 129.5 | 5 | 1.1 |
| SY2000-004G-S2 | 120 | 215 | 165 | 108 | 202 | 155 | 5 | 2 |
| SY2000-0R7G-4 | 100 | 151 | 141.5 | 89 | 140 | 129.5 | 5 | 1.1 |
| SY2000-1R5G-4 | 100 | 151 | 141.5 | 89 | 140 | 129.5 | 5 | 1.1 |
| SY2000-2R2G-4 | 100 | 151 | 141.5 | 89 | 140 | 129.5 | 5 | 1.1 |
| SY2000-004G-4 | 120 | 215 | 165 | 108 | 202 | 155 | 5 | 2 |
| SY2000-5R5G-4 | 120 | 215 | 165 | 108 | 202 | 155 | 5 | 2 |
| SY2000-7R5G-4 | 120 | 215 | 165 | 108 | 202 | 155 | 5 | 2 |

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2. Basic wiring diagram



3. Jumper Correspondence:



| | | |
|--------------|-------------|---|
| J2 | | |
| V | VO position | AO output voltage signal |
| I | CO position | AO output current signal |
| J8 | | |
| OFF position | | Indicates that the matched resistance on 485 communication is not connected |
| ON position | | Indicates that the matched resistance on 485 communication is connected |

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4.Control circuit terminal description:

| Terminal function description of control circuit | | | |
|--|----------------|---|---|
| Item | Terminal label | Function Description | Specification |
| Multi-function digital input terminal | X1 | X (X1, X2, X3, X4, X5) ~ GND is valid when they are short connected, its function is set by parameters P2.13 ~ P2.17. (Common: GND) | INPUT, 0 ~ 10V level signal, low level valid, 5mA. |
| | X2 | | |
| | X3 | | |
| | X4 | | |
| | X5 | | |
| Digital signal output terminal | Y1 | Multi-function programmable open collector output, it can be programmed as a switching output terminal with multiple functions. (Common: GND) | OUTPUT, the maximum load current cannot bigger than 50mA. |
| Analog input and | ACI | ACI only receives current input, AVI only | INPUT, input voltage range: 0 ~ |

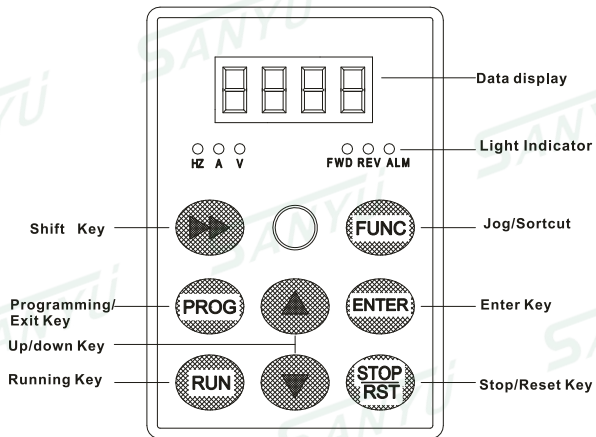
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| | | | |
|-----------------------|-----|--|--|
| output terminals | AVI | receives voltage input. The setting of the measuring range refers to the description of function codes P2.00 ~ P2.09. (Reference ground: GND) | 10V (input impedance: 100K Ω), input current range: 0 ~ 20mA (input impedance: 500 Ω). |
| | AO | AO provides analog voltage / current output, which can represent 6 kinds of physical values. The output voltage and current are selected by the jumper J2 (AO jumper terminal). The default is voltage output. If want current output, only need to shorted connect the middle and the other end. For details please refer to function code F2.10. (Reference ground: GND) | OUTPUT, 0 ~ 10V DC voltage. The output voltage of the AO terminal is the PWM waveform from the CPU. The output voltage is proportional to the width of the PWM waveform. |
| Relay output terminal | TA | The output of programmable relay terminals | TA-TB: normally closed; TA-TC: |
| | TB | | |

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| | | | |
|--------------------|------|---|--|
| | TC | TA and TC can reach 14 kinds. For details, please refer to the introduction of F2.20 output terminal function | normally open. Contact capacity: 250VAC / 2A (COSΦ = 1); 250VAC / 1A (COSΦ = 0.4), 30VDC / 1A. |
| Power supply port | 10V | 10V is the common power supply of the analog input terminal circuit | The maximum output current is 20mA. |
| | 12V | 12V is the common power supply for digital signal input terminals | The maximum output current is 100mA. |
| | GND | Analog signal and 10V, digital signal and 12V power supply GND | Analog signals and digital signals common grounded. |
| Communication port | 485+ | RS485 signal + port | Standard RS485 communication interface, not isolated from GND, please use twisted pair or shielded wire. |
| | 485- | RS485 signal-port | |

3 Operation panel instruction



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| Panel indicator description | | |
|-----------------------------|---------------------|---|
| Symbol | Name | Function |
| FWD | Forward indicator | The inverter is running forward |
| REV | Reverse indicator | The inverter is running reverse |
| ALM | Warning indicator | Lights up when the inverter failure |
| V | Voltage indicator | When the light is on, it means that the LED display content is voltage data |
| A | Current indicator | When the light is on, it means that the LED display content is current data |
| HZ | Frequency indicator | When the light is on, it means that the LED display content is frequency data |

4 Peripheral equipment selection

For inverters of different power levels, the recommended values of air switch MCCB, contactor capacity and copper core insulated conductor cross-sectional area are shown in the table below.

Recommended table of inverter input and output wiring specifications

| Model | Incoming protection | | Power cable | | Signal line(mm) |
|----------------|---------------------------|---------------|----------------------------------|----------------------------------|-----------------|
| | Air switch MCCB (A) | Contactor (A) | Power line (mm ²) | Motor line (mm ²) | |
| SY2000-0R7G-S2 | 16 | 10 | 1.5 | 1.5 | ≥0.5 |
| SY2000-1R5G-S2 | 20 | 16 | 2.5 | 1.5 | ≥0.5 |
| SY2000-2R2G-S2 | 32 | 20 | 4 | 2.5 | ≥0.5 |
| SY2000-0R7G-4 | 10 | 10 | 1 | 1 | ≥0.5 |
| SY2000-1R5G-4 | 16 | 10 | 1 | 1 | ≥0.5 |

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| | | | | | |
|---------------------|-----|-----|-----|-----|------------|
| SY2000-2R2G-4 | 16 | 10 | 1.5 | 1.5 | ≥ 0.5 |
| SY2000-004G/5R5P-4 | 25 | 16 | 2.5 | 2.5 | ≥ 0.5 |
| SY2000-5R5G/7.7P -4 | 32 | 25 | 4 | 4 | ≥ 0.5 |
| SY2000-7R5G/11P-4 | 40 | 32 | 4 | 4 | ≥ 0.5 |
| SY2000-011G/15P-4 | 63 | 40 | 6 | 6 | ≥ 0.5 |
| SY2000-015G/018P-4 | 63 | 40 | 6 | 6 | ≥ 0.5 |
| SY2000-018G/22P-4 | 100 | 63 | 10 | 10 | ≥ 0.5 |
| SY2000-022G/30P-4 | 100 | 63 | 16 | 16 | ≥ 0.5 |
| SY2000-030G/37P-4 | 125 | 100 | 25 | 25 | ≥ 0.5 |
| SY2000-037G/45P-4 | 160 | 100 | 25 | 25 | ≥ 0.5 |
| SY2000-045G/55P-4 | 200 | 125 | 35 | 35 | ≥ 0.5 |
| SY2000-055G/75P-4 | 200 | 125 | 50 | 50 | ≥ 0.5 |

5 Parameter monitor and fault record

| Group d-Monitoring parameter group | | | | | |
|------------------------------------|------------------------|--------------|---------------|---------------|-----------|
| Code | Item | Description | Setting Range | Default Value | Amendment |
| d-00 | Output frequency (Hz) | 0.00~999.9Hz | 0.1HZ | 0.0Hz | ◆ |
| d-01 | Setting frequency (Hz) | 0.00~999.9Hz | 0.1HZ | 0.0Hz | ◆ |
| d-02 | Output voltage (V) | 0~999V | 1V | 0V | ◆ |
| d-03 | Bus voltage (V) | 0~999V | 1V | 0V | ◆ |
| d-04 | Output current (A) | 0.0~999.9A | 0.1A | 0A | ◆ |
| d-05 | Motor speed (Krpm) | 0~6Krpm | 1Krpm | Model setting | ◆ |
| d-06 | Analog input AVI | 0.00~10V | 0.01V | 0.00V | ◆ |

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| | | | | | |
|------|-------------------------------|--------------------------------|----------------|----------------|---|
| | (V) | | | | |
| d-07 | Analog input ACI (mA) | 0.00~20.00mA | 0.01mA | 0.00mA | ◆ |
| d-08 | Analog output AO (V / mA) | 0.00~10.00V/0.00-20.00mA | 0.01V/0.01mA | 0.00V/mA | ◆ |
| d-09 | Reserved | - | - | 0 | ◆ |
| d-10 | Pulse input frequency (KHz) | 0.00~99.99KHz | 0.01KHz | 0.00KHz | ◆ |
| d-11 | PID pressure feedback value | 0.00~10.00V/0.00~99.99(MPa/Kg) | 0.01V/(MPa/Kg) | 0.00V/(MPa/Kg) | ◆ |
| d-12 | Current count value | 0~9999s | 1s | 0s | ◆ |
| d-13 | Current timing value (s) | 0~9999s | 1s | 0s | ◆ |
| d-14 | Input terminal status (X1-X5) | 0 ~1FH | 1H | OH | ◆ |
| d-15 | Output status (Y / R) | 0 ~ 1H | 1H | OH | ◆ |

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| | | | | | |
|------|---------------------------------------|--------------|-------|-------|---|
| d-16 | Module temperature (°C) | 0.0~132.3°C | 0.1°C | 0.0 | ◆ |
| d-17 | Software upgrade date (year) | 2010~2026 | 1 | 2017 | ◆ |
| d-18 | Software upgrade date (month, day) | 0~1231 | 1 | 0914 | ◆ |
| d-19 | Second fault code | 1~19 | 1 | 0 | ◆ |
| d-20 | Last fault code | 1~19 | 1 | 0 | ◆ |
| d-21 | Output frequency at last fault (Hz) | 0.00~999.9Hz | 0.1HZ | 0.0Hz | ◆ |
| d-22 | Output current at the last fault (A) | 0.0~999.9A | 0.1A | 0.0A | ◆ |
| d-23 | Bus voltage at the last fault (V) | 0~999V | 1V | 0V | ◆ |
| d-24 | Module temperature at last fault (°C) | 0.0~132.3°C | 0.1°C | 0.0 | ◆ |

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| | | | | | |
|------|--------------------------------------|--|----|----|---|
| d-25 | Inverter running cumulative time (h) | 0~9999h | 1h | 1h | ◆ |
| d-26 | Inverter status | 0 ~ FFFFH 0: Run / Stop 1: Reverse / Forward 2: Jog 3: DC braking 4: Reserved 5: Overvoltage limit 6: Constant speed frequency down 7: Over-current limit 8 ~ 9: 00-zero speed / 01-acceleration / 10-deceleration / 11-constant speed 10: Overload pre-alarm 11: Reserved 12 ~ 13:Running command channel: 00-panel / 01-terminal / 10-reserved | 1H | 0H | ◆ |

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| | | | | |
|--|--|--|--|--|
| | | 14~15:Bus voltage status: 00-normal / 01-low voltage protection / 10-overpressure protection | | |
|--|--|--|--|--|

| Group E-Fault code | | | |
|--------------------|----------------------------------|---|------------------------------------|
| Code | Description | Fault cause | Solution |
| E0C1 | Over-current during acceleration | The acceleration time is too short | Increase acceleration time |
| | | Inverter power is too small | Adopt large power inverter |
| | | Improper setting of V / F curve or torque boost | Adjust V / F curve or torque boost |
| E0C2 | Over-current during deceleration | Deceleration time is too short | Increase deceleration time |
| | | Inverter power is too small | Adopt large power inverter |
| E0C3 | Over-current during constant | Low grid voltage | Check input power |
| | | Abrupt or abnormal load | Check load or reduce sudden load |

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| | | | |
|------|-----------------------------------|--|---|
| | speed | Inverter power is too small | Adopt large power inverter |
| EHU1 | Overvoltage during acceleration | Abnormal input voltage | Check input power |
| | | Restart the rotating motor | Set to start after DC braking |
| EHU2 | Overvoltage during deceleration | Deceleration time is too short | Increase deceleration time |
| | | Abnormal input voltage | Check input power |
| EHU3 | Overvoltage during constant speed | Abnormal input voltage | Check input power |
| EHU4 | Over-voltage during shutdown | Abnormal input voltage | Check input power |
| ELU0 | Under-voltage during operation | Input voltage is abnormal or the relay is disconnect | Check the power supply voltage or ask service from the manufacturer |
| ESC1 | Power module | Inverter output short circuit or grounded | Check motor wiring |

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|------|----------------------|---|-------------------------------------|
| | failure | Inverter instantaneous overcurrent | Refer to overcurrent solution |
| | | Control board abnormal or serious interference | Ask service from the manufacturer |
| | | Power device damage | Ask service from the manufacturer |
| E-OH | Radiator overheating | The ambient temperature is too high | Decrease ambient temperature |
| | | Damaged fan | Replace the fan |
| | | Clogged air duct | Dredge air duct |
| EOL1 | Inverter overload | Improper setting of V / F curve or torque boost | Adjust V / F curve and torque boost |
| | | The grid voltage is too low | Check grid voltage |
| | | The acceleration time is too short | Increase acceleration time |
| | | The motor is overloaded | Choose big power inverter |
| EOL2 | Motor overload | Improper setting of V / F curve or torque | Adjust V / F curve and torque boost |

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| | | | |
|------|---------------------------|---|--|
| | | boost | |
| | | The grid voltage is too low | Check grid voltage |
| | | The motor is locked or the load is too large | Check the load |
| | | The motor overload protection factor is set incorrectly | Correctly set the motor overload protection factor |
| E-EF | External equipment fault | Fault input terminal of the external device is closed | Disconnect the fault input terminal of the external device and clear the fault (Attention to check the reason) |
| EPID | PID feedback disconnected | PID feedback circuit is loose | Check the feedback connection |
| | | Feedback value is less than broken wire detection value | Adjust the detection input threshold |
| E485 | RS485 communication | Does not match the baud rate of the host computer | Adjust the baud rate |

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| | | | |
|------|------------------------------|---|---|
| | fault | RS485 channel interference | Check whether the communication connection is shielded and whether the wiring is reasonable. If necessary, consider connecting parallel filter capacitors |
| | | Communication timeout | Retry |
| ECCF | Current detection fault | Current sampling circuit fault | Ask service from the manufacturer |
| | | Auxiliary power fault | |
| EEEP | EEPROM read and write fault | EEPROM fault | Ask service from the manufacturer |
| EPAO | Burst fault | Feedback pressure is less than low pressure detection threshold or greater than or equal to high pressure detection threshold | Check the feedback connection or adjust the detection high and low pressure threshold |
| EPOF | Dual CPU communication fault | CPU communication fault | Ask service from the manufacturer |

6 Parameter summary and instructions

| Parameter Description | | | | | |
|---|---|---|-------------------|------------------|-----------|
| ○—Parameters that can be modified in any state | | | | | |
| ×—Parameters that cannot be modified in running state | | | | | |
| ◆—Actual detection parameters, which cannot be modified | | | | | |
| ◇—Manufacturer parameters, which are limited to manufacturer modification, and users are prohibited | | | | | |
| Group F0-Basic operating parameters | | | | | |
| Code | Item | Description | Setting range | Default Value | Amendment |
| F0.00 | Power | Display current power | 0.10 ~ 99.99KW | Model setting | ◆ |
| F0.01 | Main controller software version | Display the current software version number | 1.00 ~ 99.99 | 1.00 | ◆ |
| F0.02 | Running | 0 : Panel command channel | 0 ~ 2 | 0 | ○ |

SY2000 Series frequency inverter

| | | | | | |
|-------|-----------------------------|--|---------------------------------|--------|---|
| | command channel selection | 1 : Terminal command channel 2 : Communication command channel | | | |
| F0.03 | Frequency setting selection | 0 : Panel potentiometer 1 : Digital setting 1, panel ▲, ▼ key adjustment 2 : Digital setting 2, terminal UP / DOWN adjustment 3 : AVI analog setting (0 ~ 10V) 4 : Combination setting 5 : ACI setting (0 ~ 20mA) 6 : Communication setting 7 : Pulse setting Note: When combination setting chosen, the combination setting is selected in F1.15. | 0 ~ 7 | 0 | ○ |
| F0.04 | Maximum output frequency | The maximum output frequency is the highest frequency that the inverter is allowed to output, and it is the benchmark for acceleration and deceleration | MAX { 50.0, 【F0.05】 } ~ 999.9Hz | 50.0Hz | × |

SY2000 Series frequency inverter

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|-------|--|--|-------------------------------------|--------|---|
| | | settings. | | | |
| F0.05 | Upper limit frequency | The operating frequency cannot exceed this frequency | MAX{0.1 , 【F0.06】 } ~ 【F0.04】 | 50.0Hz | × |
| F0.06 | Lower limit frequency | The operating frequency cannot be lower than this frequency | 0.0 ~ Upper limit frequency | 0.0Hz | × |
| F0.07 | Processing when Lower limit frequency reaching | 0 : Zero speed operation 1 : Run at the lower limit frequency 2 : Stop | 0 ~ 2 | 0 | × |
| F0.08 | Digital setting of operating frequency | The value is the initial value of frequency digital setting | 0.0 ~ Upper limit frequency | 10.0Hz | ○ |
| F0.09 | Digital frequency control | LED ones: power-off storage 0 : Save 1 : Do not save | 0000 ~ 2111 | 0000 | ○ |

SY2000 Series frequency inverter

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|-------|-------------------|--|------------------------------|---------------|---|
| | | <p>LED tens: Keep down</p> <p>0 : Keep</p> <p>1 : Do not keep</p> <p>LED hundreds : UP / DOWN negative frequency adjustment</p> <p>0: Useless</p> <p>1: Useful</p> <p>LED thousands: PID, PLC frequency superposition selection</p> <p>0 : Useless</p> <p>1 : F0.03+PID</p> <p>2 : F0.03+PLC</p> | | | |
| F0.10 | Acceleration time | The time required for the inverter to accelerate from 0 to the maximum output frequency | 0.1 ~ 999.9S 0.4 ~ 4.0KW | Model setting | ○ |
| F0.11 | Deceleration time | The time required for the inverter to decelerate from the maximum output frequency to 0 | 7.5S 5.5 ~ 7.5KW 15.0S | | |

SY2000 Series frequency inverter

| | | | | | |
|-------|-------------------------------|--|--------------|---------------|---|
| F0.12 | Direction setting | 0 : Forward 1 : Reverse 2 : No reversal | 0 ~ 2 | 0 | ○ |
| F0.13 | V / F curve setting | 0 : Linear curve 1 : Square curve 2 : Multi-point VF curve | 0 ~ 2 | 0 | × |
| F0.14 | Torque boost | Manual torque boost, this setting is a percentage relative to the motor rated voltage; if F0.14 = 0.0, it is vector control. | 0.0 ~ 30.0% | Model setting | ○ |
| F0.15 | Torque boost cutoff frequency | This setting is the lifting cut-off frequency point during manual torque boost | 0.0 ~ 50.0Hz | 15.0Hz | × |

SY2000 Series frequency inverter

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|-------|---------------------------|---|---|---------------|---|
| | | | | | |
| F0.16 | Carrier frequency setting | <p>For occasions requiring silent operation, the carrier frequency can be appropriately increased to meet the requirements, but it will increase the heat generation of the inverter.</p> <p>When the inverter leaves the factory, the manufacturer has set a reasonable carrier frequency.</p> <p>Under normal circumstances, the user does not need to modify this parameter.</p> | 2.0 ~ 16.0KHz 0.4 ~ 3.0KW 4.0KHz 4.0 ~ 7.5KW 3.0KHz | Model setting | × |
| F0.17 | V/F frequency | When P0.13=2 (multi-point V/F curve), users can | 0.1 ~ | 12.5Hz | × |

SY2000 Series frequency inverter

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|-------|------------------------|--|--|--------|---|
| | value F1 | <p>use F0.17~F0.22 V/F curve. The V/F curve is usually set according to the load characteristics of the motor.</p> <p>Note: $V1 < V2 < V3$, $F1 < F2 < F3$, the low frequency voltage setting is too high may cause the motor to overheat or even burn, the inverter may be over current stall or over current protection.</p> | Frequency value F2 | | |
| F0.18 | V/F voltage value V1 | | 0.0 ~ Voltage value V2 | 25.0% | × |
| F0.19 | V/F frequency value F2 | | Frequency value F1 ~ frequency value F3 | 25.0Hz | × |
| F0.20 | V/F voltage value V2 | | Voltage value V1 ~ voltage value V3 | 50.0% | × |
| F0.21 | V/F frequency value F3 | | Frequency value F2 ~ motor rated frequency 【F4.03】 | 37.5Hz | × |
| F0.22 | V/F voltage | | Voltage value | 75.0% | × |

SY2000 Series frequency inverter

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|-------|---------------|---|--|---|---|
| | value V3 | | V2 ~ 100.0% * Vout (motor rated voltage [F4.00]) | | |
| F0.23 | User password | Set any non-zero number, you need to wait 3 minutes or power down to take effect. | 0 ~ 9999 | 0 | ○ |

| Group F1-Auxiliary operating parameters | | | | | |
|---|----------|-------------------------|---------------|---------------|-----------|
| Code | Item | Description | Setting range | Default value | Amendment |
| F1.00 | Starting | LED ones: Starting mode | 0000 ~ 0011 | 00 | × |

SY2000 Series frequency inverter

| | | | | | |
|-------|--------------------------------|--|-------------------------------------|-------|---|
| | Method | <p>0 : Starting from the starting frequency</p> <p>1 : DC braking first and then starting from the starting frequency</p> <p>LED tens : Power failure or abnormal restart method</p> <p>0 : Useless</p> <p>1 : Starting from the starting frequency</p> <p>LED hundreds: Reserved</p> <p>LED thousands: Reserved</p> | | | |
| F1.01 | Direct Starting frequency | Direct starting frequency: Refers to the initial frequency when the inverter starts. | 0.0 ~ 50.0Hz | 1.0Hz | ○ |
| F1.02 | DC braking current at starting | Starting DC braking current and time: When the inverter starts, perform DC braking according to the set DC braking current before starting, and then start the acceleration operation after the set DC braking time before starting. If the DC braking time is set to 0, the DC braking is invalid. The greater the DC | 0.0 ~ 50.0% ×Motor rated current | 0.0% | ○ |

SY2000 Series frequency inverter

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|-------|-----------------------------|---|-------------|------|---|
| | | braking current, the greater the braking force. | | | |
| F1.03 | DC braking time at starting | <p>The DC braking current before starting refers to the percentage of the rated current of the inverter.</p> <p>Output frequency</p> <p>Time</p> <p>Output current (Effective Value)</p> <p>DC braking amount</p> <p>Time</p> <p>Operate command</p> <p>DC braking time</p> | 0.0 ~ 30.0s | 0.0s | ○ |
| F1.04 | Stop mode | <p>0 : Slow down</p> <p>1 : Free stop</p> | 0 ~ 1 | 0 | × |

SY2000 Series frequency inverter

| | | | | | |
|-------|--|--|---|--------------|--------|
| F1.05 | Starting frequency of DC braking at stop | | 0.0 ~ Upper limit frequency | 0.0Hz | ○ |
| F1.06 | Voltage of DC braking at stop | | 0.0 ~ 50.0% ×Motor rated voltage | 0.0% | ○ |
| F1.07 | DC braking time at stop | | 0.0 ~ 30.0s | 0.0s | × |
| F1.08 | DC braking waiting time at stop | | 0.00 ~ 99.99s | 0.00s | × |
| F1.09 | Forward Jog frequency setting | | Jog forward and reverse frequency setting | 0.0 ~ 50.0Hz | 10.0Hz |

SY2000 Series frequency inverter

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|-------|--------------------------------------|---|-------------------------------|---------------|---|
| F1.10 | Reverse jog frequency setting | | | | |
| F1.11 | Jog acceleration time | Jog acceleration and deceleration time setting | 0.1 ~ 999.9S 0.4 ~ 4.0KW | Model setting | ○ |
| F1.12 | Jog deceleration time | | 10.0S 5.5 ~ 7.5KW 15.0S | | |
| F1.13 | Jump frequency | By setting the jump frequency and range, the inverter can avoid the mechanical resonance point of the load. | 0.0 ~ Upper limit frequency | 0.0Hz | ○ |
| F1.14 | Jump range | | 0.0 ~ 10.0Hz | 0.0Hz | ○ |
| F1.15 | Combination frequency setting method | 0 : Potentiometer + digital frequency 1 : Potentiometer + digital frequency 2 : Potentiometer + AVI 3 : Digital frequency 1 + AVI 4 : Digital frequency 2 + AVI | 0 ~ 7 | 0 | × |

SY2000 Series frequency inverter

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|-------|--|---|-------------|------|---|
| | | <p>5 : Digital frequency 1+ multi-speed</p> <p>6 : Digital frequency 2+ multi-speed</p> <p>7 : Potentiometer + multi-speed</p> | | | |
| F1.16 | <p>Programmable operation control (simple PLC operation)</p> | <p>LED ones: PLC enable control</p> <p>0 : Useless</p> <p>1 : Useful</p> <p>LED tens: Operating mode selection</p> <p>0 : Single cycle</p> <p>1 : Continuous cycle</p> <p>2 : Keep the final value after a single cycle</p> <p>LED hundreds: Starting method</p> <p>0 : Restart from the first stage</p> <p>1 : Start from the stage of shutdown (fault) moment</p> <p>2 : Start from the stage , frequency at the moment of shutdown (fault)</p> <p>LED thousands: Power-down storage options</p> <p>0 : Storage</p> | 0000 ~ 1221 | 0000 | × |

SY2000 Series frequency inverter

| | | 1 : Do not storage | | | | | | | | | | | | | | | | | | | | | | |
|---------------|-------------------------|--|--------|---|--|-------------------------------------|----------------|----------------|----------------|---|---|---|---|---|---|---|---|---|---|---|---|-------------------------------------|-------|---|
| F1.17 | Multi-speed frequency 1 | <p>F1.17-P1.35 to determine the operating frequency, time and direction of each section.</p> <p>The multi-step speed frequency can be set continuously from -upper limit frequency (-fmax) to upper limit frequency (fmx).</p> <p>Note: The sign of the multi-step speed determines the running direction of the simple PLC. Negative values indicate reverse operation. This machine can set 7-step speed frequency, corresponding to multi-step speed frequency 0 (f0) to multi-step speed 6 (f6)</p> <table border="1"> <thead> <tr> <th>Speed segment</th> <th>Multi-speed S1</th> <th>Multi-speed S2</th> <th>Multi-speed S3</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>1</td> <td>0</td> <td>0</td> </tr> <tr> <td>1</td> <td>0</td> <td>1</td> <td>0</td> </tr> <tr> <td>2</td> <td>1</td> <td>1</td> <td>0</td> </tr> </tbody> </table> | | | | Speed segment | Multi-speed S1 | Multi-speed S2 | Multi-speed S3 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 0 | 2 | 1 | 1 | 0 | -Upper frequency to upper frequency | 5.0Hz | ○ |
| Speed segment | Multi-speed S1 | | | | | Multi-speed S2 | Multi-speed S3 | | | | | | | | | | | | | | | | | |
| 0 | 1 | | | | | 0 | 0 | | | | | | | | | | | | | | | | | |
| 1 | 0 | | | | | 1 | 0 | | | | | | | | | | | | | | | | | |
| 2 | 1 | | | | | 1 | 0 | | | | | | | | | | | | | | | | | |
| F1.18 | Multi-speed frequency 2 | | | | | -Upper frequency to upper frequency | 10.0Hz | ○ | | | | | | | | | | | | | | | | |
| F1.19 | Multi-speed frequency 3 | -Upper frequency to upper frequency | 15.0Hz | ○ | | | | | | | | | | | | | | | | | | | | |
| F1.20 | Multi-speed frequency 4 | -Upper frequency to upper frequency | 20.0Hz | ○ | | | | | | | | | | | | | | | | | | | | |
| F1.21 | Multi-speed frequency 5 | -Upper frequency to upper frequency | 25.0Hz | ○ | | | | | | | | | | | | | | | | | | | | |
| | | -Upper frequency to upper frequency | | | | | | | | | | | | | | | | | | | | | | |
| F1.22 | Multi-speed | -Upper | 37.5Hz | ○ | | | | | | | | | | | | | | | | | | | | |

SY2000 Series frequency inverter

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|-------|------------------------------|--|---|---|---|-------------------------------------|--------|---|
| | frequency 6 | 3 | 0 | 0 | 1 | frequency to upper frequency | | |
| | | 4 | 1 | 0 | 1 | | | |
| F1.23 | Multi-speed frequency 7 | 5 | 0 | 1 | 1 | -Upper frequency to upper frequency | 50.0Hz | ○ |
| | | 6 | 1 | 1 | 1 | | | |
| F1.24 | Speed segment 1 running time | Set the running time of segment speed 1 (unit is selected by [F1.35], default is second) | | | | 0.0 ~ 999.9s | 10.0s | ○ |
| F1.25 | Speed segment 2 running time | Set the running time of segment speed 2 (the unit is selected by [F1.35], the default is second) | | | | 0.0 ~ 999.9s | 10.0s | ○ |
| F1.26 | Speed segment 3 running time | Set the running time of segment speed 3 (the unit is selected by [F1.35], the default is second) | | | | 0.0 ~ 999.9s | 10.0s | ○ |
| F1.27 | Speed segment 4 running time | Set the running time of segment speed 4 (unit is selected by [F1.35], default is second) | | | | 0.0 ~ 999.9s | 10.0s | ○ |

SY2000 Series frequency inverter

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|-------|---|---|--------------|-------|---|
| F1.28 | Speed segment 5 running time | Set the running time of segment speed 5 (the unit is selected by [F1.35], the default is second) | 0.0 ~ 999.9s | 10.0s | ○ |
| F1.29 | Speed segment 6 running time | Set the running time of segment speed 6 (unit is selected by [F1.35], default is second) | 0.0 ~ 999.9s | 10.0s | ○ |
| F1.30 | Speed segment 7 running time | Set the running time of segment speed 7 (the unit is selected by [F1.35], the default is second) | 0.0 ~ 999.9s | 10.0s | ○ |
| F1.31 | Segment acceleration and deceleration time selection 1 | LED ones: Speed segment 1 acceleration and deceleration time 0 ~ 1 LED tens: Speed segment 2 acceleration and deceleration time 0 ~ 1 LED Hundreds : Speed segment 3 acceleration and deceleration time | 0000 ~ 1111 | 0000 | ○ |

SY2000 Series frequency inverter

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|-------|--|---|-----------------------------|-------|---|
| | | 0 ~ 1 LED Thousands: Speed segment 4 acceleration and deceleration time 0 ~ 1 | | | |
| F1.32 | Segment acceleration and deceleration time selection 1 | LED ones: Speed segment 5 acceleration and deceleration time 0 ~ 1 LED tens: Speed segment 6 acceleration and deceleration time 0 ~ 1 LED Hundreds : Speed segment 7 acceleration and deceleration time 0 ~ 1 LED Thousands: reserved | 000 ~ 111 | 000 | ○ |
| F1.33 | Acceleration time 2 | Set acceleration and deceleration time 2 | 0.1 ~ 999.9s 0.4 ~ 4.0KW | 10.0s | ○ |
| F1.34 | Deceleration | | 10.0s | | |

SY2000 Series frequency inverter

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|-------|---------------------|---|----------------------|-----|---|
| | time 2 | | 5.5 ~ 7.5KW 15.0s | | |
| F1.35 | Time unit selection | <p>LED ones: process PID time unit</p> <p>LED Tens: simple PLC time unit</p> <p>LED Hundreds :general acceleration and deceleration time unit</p> <p>LED Thousands: reserved</p> <p>0: unit is 1 second</p> <p>1: unit is 1 minute</p> <p>1: unit is 0.1 second</p> | 000 ~ 211 | 000 | × |

| Group F2-Analog and digital input and output parameters | | | | | |
|---|-----------------------|--|----------------|---------------|-----------|
| Code | Item | Description | Setting range | Default value | Amendment |
| F2.00 | AVI input lower limit | Set AVI upper and lower voltage limits | 0.00 ~ 【F2.01】 | 0.00V | ○ |

SY2000 Series frequency inverter

| | | | | | |
|-------|---------------------------------------|---|----------------------|---------|---|
| | voltage | | | | |
| F2.01 | AVI input upper limit voltage | | 【F2.01】 ~ 10.00V | 10.00V | ○ |
| F2.02 | AVI lower limit corresponding setting | Set the corresponding setting of AVI upper and lower limits, this setting corresponds to the percentage of upper limit frequency [F0.05]. | -100.0% ~ 100.0% | 0.0% | ○ |
| F2.03 | AVI upper limit corresponding setting | | | 100.0% | ○ |
| F2.04 | ACI input lower limit current | Set ACI input upper and lower current limit | 0.00 ~ 【F2.05】 | 0.00mA | ○ |
| F2.05 | ACI input upper limit | | 【F2.04】 ~ 20.00mA | 20.00mA | ○ |

SY2000 Series frequency inverter

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|-------|---|--|------------------|--------|---|
| | current | | | | |
| F2.06 | ACI lower limit corresponding setting | Set the corresponding setting of the upper and lower limits of ACI, which corresponds to the percentage of upper limit frequency [F0.05]. | -100.0% ~ 100.0% | 0.0% | ○ |
| F2.07 | ACI upper limit corresponding setting | | | 100.0% | ○ |
| F2.08 | Analog input signal filtering time constant | This parameter is used to filter the input signal of AVI, ACI and panel potentiometer to eliminate the influence of interference. | 0.1 ~ 5.0s | 0.1s | ○ |
| F2.09 | Analog input anti-shake deviation limit | When the analog input signal frequently fluctuates around the given value, you can set F2.09 to suppress the frequency fluctuation caused by this fluctuation. | 0.00 ~ 0.10V | 0.00V | ○ |
| F2.10 | AO analog | 0: Output frequency | 0 ~ 5 | 0 | ○ |

SY2000 Series frequency inverter

| | | | | | |
|-------|------------------------------------|--|----------------------------------|--------|---|
| | output terminal function selection | 1: Output current 2: Motor speed 3: Output voltage 4: AVI 5: ACI | | | |
| F2.11 | AO output lower limit | Set the upper and lower limits of AFM output | 0.00 ~ 10.00V/ 0.00 ~ 20.00mA | 0.00V | ○ |
| F2.12 | AO output upper limit | | | 10.00V | ○ |
| F2.13 | Input terminal X1 function | 0: The control terminal is in idle 1: Forward jog control | 0 ~ 27 | 3 | × |
| F2.14 | Input terminal X2 function | 2: Reverse jog control 3: Forward control (FWD) | 0 ~ 27 | 4 | × |
| F2.15 | Input terminal X3 function | 4: Reverse control (REV) 5: Three-wire operation control | 0 ~ 27 | 0 | × |
| F2.16 | Input terminal X4 function | 6: Free stop control 7: External stop signal input (STOP) | 0 ~ 27 | 0 | × |

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|-------|-------------------------------|---|--------|----|---|
| F2.17 | Input terminal X6 function | 8: External reset signal input (RST) 9: Normally open input for external fault 10: Frequency increasing command (UP) 11: Frequency decreasing command (DOWN) 13: Multi-speed selection S1 14: Multi-speed selection S2 15: Multi-step speed selection S3 16: Run command channel is forced to be terminal 17: Run command channel is forced to be communication 18: Stop DC braking command 19: Frequency switch to AVI 20: Frequency switch to digital frequency 1 21: Frequency switch to digital frequency 2 22: Pulse frequency input (only valid for X5) 23: Counter clear signal 24: Counter trigger signal 25: Timer clear signal | 0 ~ 27 | 22 | × |
|-------|-------------------------------|---|--------|----|---|

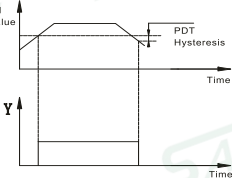
SY2000 Series frequency inverter

| | | | | | |
|-------|---|--|--------|---|---|
| | | 26: Timer trigger signal 27: Acceleration and deceleration time selection | | | |
| F2.18 | FWD / REV terminal control mode | 0: Two-wire control mode 1 1: Two-wire control mode 2 2: Three-wire control mode 1 3: Three-wire control mode 2 | 0 ~ 3 | 0 | × |
| F2.19 | Terminal function detection selection at power-on | 0: Terminal running command is invalid when power on 1: Terminal running command is valid when power on | 0 ~ 1 | 0 | × |
| F2.20 | Relay TA/TB/TC Output settings | 0: In idle 1: The inverter is ready for operation 2: Inverter is running 3: The inverter is running at zero speed | 0 ~ 14 | 5 | ○ |
| F2.21 | Y1 open collector | 4: External fault shutdown 5: Inverter failure | 0 ~ 14 | 0 | ○ |

SY2000 Series frequency inverter

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|-------|---|---|----------------|-------|---|
| | output | 6: Frequency / speed arrival signal (FAR) 7: Frequency / speed level detection signal (FDT) 8: The output frequency reaches the upper limit 9: The output frequency reaches the lower limit 10: Inverter overload pre-alarm 11: Timer overflow signal 12: Counter detection signal 13: Counter reset signal 14: Auxiliary motor | | | |
| F2.22 | Relay TA/TC closing delay | The delay from the change of relay state to the change of output | 0.0 ~ 255.0s | 0.0s | × |
| F2.23 | Relay TA/TC closing delay | | | | |
| F2.24 | Frequency reach FAR detection amplitude | The output frequency is within the positive and negative detection width of the set frequency, and the terminal outputs a valid signal (low level). | 0.0Hz ~ 15.0Hz | 5.0Hz | ○ |

SY2000 Series frequency inverter

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|-------|-------------------|---|-------------------------------|--------|---|
| F2.25 | FDT level setting | | 0.0Hz ~ Upper limit frequency | 10.0Hz | ○ |
| F2.26 | FDT hysteresis | <p>When the output frequency exceeds the frequency corresponding to the PDT level, the multi-function digital output terminal outputs the "frequency level detection FDT" signal [F2. 20~F2. 21] until the output frequency drops below the corresponding frequency(PDT level-PDT lag detection value), and then signal is invalid, the specific waveform is as shown below:</p>  | 0.0 ~ 30.0Hz | 1.0Hz | ○ |

SY2000 Series frequency inverter

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|-------|---|--|------------------|---------|---|
| F2.27 | UP / DOWN terminal modification rate | The function code is the frequency modification rate when setting the frequency by the UP / DOWN terminal, that is, the UP / DOWN terminal and the COM terminal are shorted for one second, and the amount of frequency change | 0.1Hz ~ 99.9Hz/s | 1.0Hz/s | ○ |
| F2.28 | Input terminal pulse trigger mode setting (X1 ~ X5) | 0: Indicates the level trigger mode 1: Indicates pulse trigger mode | 0 ~ 1FH | 0 | ○ |
| F2.29 | Input terminal effective logic setting (X1 ~ X5) | 0: Positive logic, that is, when Xi terminal connected to the public terminal, it is valid, and the disconnection is invalid 1: Inverse logic, that is, when Xi terminal connected and public terminal, it is invalid, and the disconnection is valid | 0 ~ 1FH | 0 | ○ |

SY2000 Series frequency inverter

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|-------|-----------------------|--|----------|---|---|
| F2.30 | X1 filter coefficient | <p>Used to set the sensitivity of the input terminal. If the digital input terminal is susceptible to interference and causes malfunction, the parameter can be increased to increase the anti-interference ability, but if the setting is too large, the sensitivity of the input terminal will be reduced.</p> <p>1: Represents 2MS scanning time unit</p> | 0 ~ 9999 | 5 | ○ |
| F2.31 | X2 filter coefficient | | 0 ~ 9999 | 5 | ○ |
| F2.32 | X3 filter coefficient | | 0 ~ 9999 | 5 | ○ |
| F2.33 | X4 filter coefficient | | 0 ~ 9999 | 5 | ○ |
| F2.34 | X5 filter coefficient | | 0 ~ 9999 | 5 | ○ |

| Group F3-PID parameters | | | | | |
|-------------------------|----------------------|--|---------------|---------------|-----------|
| Code | Item | Description | Setting range | Default value | Amendment |
| F3.00 | PID function setting | <p>LED ones: PID adjustment characteristic</p> <p>0: Invalid</p> | 0000 ~ 2122 | 1010 | × |

SY2000 Series frequency inverter

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|--|--|---|--|--|
| | | <p>1: Positive effect</p> <p>When the feedback signal is greater than the given amount of PID, the output frequency of the inverter is required to decrease (that is, to reduce the feedback signal).</p> <p>2: Negative effect</p> <p>When the feedback signal is greater than the given amount of PID, the output frequency of the inverter is required to increase (ie, reduce the feedback signal).</p> <p>LED hundreds: PID given input channel</p> <p>0: Keyboard potentiometer</p> <p>The PID amount is given by the potentiometer on the operation panel.</p> <p>1: Digital setting</p> <p>The PID amount is given by digital input and set by function code F3.01.</p> | | |
|--|--|---|--|--|

SY2000 Series frequency inverter

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|--|--|---|--|--|
| | | <p>2: Pressure setting (MPa, Kg)</p> <p>Set pressure by setting F3.01 and F3.18.</p> <p>LED hundreds: PID feedback input channel</p> <p>0: AVI</p> <p>1: ACI</p> <p>LED thousands : PID sleep selection</p> <p>0: Invalid</p> <p>1: Normal sleep</p> <p>This method needs to set specific parameters of F3.10 ~ F3.13.</p> <p>2: Disturb sleep</p> <p>It is the same as the parameter setting when the sleep mode is selected as 0. If the PID feedback value is within the range set by F3.14, it will enter to the disturbance sleep after maintaining the sleep delay time. If the feedback value is less than the wake-up threshold (PID polarity is positive), it will wake up</p> | | |
|--|--|---|--|--|

SY2000 Series frequency inverter

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|-------|--------------------------------|--|--------------|------|---|
| | | immediately. | | | |
| F3.01 | Digital setting of given value | Use the operation keyboard to set the given value of PID control. This function is valid only when the digital setting of the PID given channel selects digital setting (F3.00 tens place is 1 or 2). If the tens place of F3.00 is 2, it is given by pressure. This parameter is consistent with the unit of F3.18. | 0.0 ~ 100.0% | 0.0% | ○ |
| F3.02 | Feedback channel gain | When the level of the feedback channel and the set channel are inconsistent, this function can be used to adjust the gain of the feedback channel signal. | 0.01 ~ 10.00 | 1.00 | ○ |
| F3.03 | Proportional gain P | The speed of PID adjustment speed is set by the two parameters of proportional gain and integration time. If fast adjustment speed asked, it needs to increase the proportional gain and reduce the integration time. If slow adjustment speed asked, it needs to reduce the proportional gain and increase the integration time. In general, the derivative time is | 0.01 ~ 5.00 | 2.00 | ○ |
| F3.04 | Integration time Ti | | 0.1 ~ 50.0s | 1.0s | ○ |
| F3.05 | Differential time Td | | 0.1 ~ 10.0s | 0.0s | ○ |

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| | | | | | |
|-------|------------------------------|--|-----------------------------|--------|---|
| | | not set. | | | |
| F3.06 | Sampling period T | The larger the sampling period, the slower the response, but the better the suppression effect of the interference signal, it is not necessary to set it under normal circumstances. | 0.1 ~ 10.0s | 0.0s | ○ |
| F3.07 | Deviation limit | The deviation limit is the ratio of the absolute value of the deviation between system feedback amount and the given amount to the given amount. When the feedback amount is within the deviation limit range, the PID adjustment does not work. | 0.0 ~ 20.0% | 0.0% | ○ |
| F3.08 | Closed loop preset frequency | Frequency and running time of inverter before PID operation | 0.0 ~ Upper limit frequency | 0.0Hz | ○ |
| F3.09 | Preset frequency retain time | | 0.0 ~ 999.9s | 0.0s | × |
| F3.10 | Sleep | If the actual feedback value is greater than the given | 0.0 ~ 150.0% | 100.0% | ○ |

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| | | | | | |
|-------|------------------------------------|--|--------------|--------|---|
| | threshold coefficient | value, and when the frequency output by the inverter reaches the lower limit frequency, the inverter enters the sleep state (ie, running at zero speed) after the delay waiting time defined by F3.12. The value is the percentage of PID setting. | | | |
| F3.11 | Wake up threshold coefficient | If the actual feedback value is less than the given value, the inverter will leave the sleep state and start working after the delay waiting time defined by F3.13, this value is the percentage of the PID set value. | 0.0 ~ 150.0% | 90.0% | ○ |
| F3.12 | Sleep delay time | Set sleep delay time | 0.0 ~ 999.9s | 100.0s | ○ |
| F3.13 | Wake up delay time | Set wake up delay time | 0.0 ~ 999.9s | 1.0s | ○ |
| F3.14 | The deviation between the feedback | This function parameter is only valid for disturbance sleep mode | 0.0 ~ 10.0% | 0.5% | ○ |

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| | | | | | |
|-------|--|--|--------------|--------|---|
| | when entering sleep and the set pressure | | | | |
| F3.15 | Pipe burst detection delay time | Set delay time of the pipe burst detection | 0.0 ~ 130.0s | 30.0S | ○ |
| F3.16 | High pressure detection threshold | When the feedback pressure is greater than or equal to this set value, the burst pipe fault "EPA0" will be reported after F3.15 burst pipe delay. When the feedback pressure is less than this set value, the burst pipe fault "EPA0" will be automatically reset; the threshold is the percentage of constant pressure. | 0.0 ~ 200.0% | 150.0% | ○ |
| F3.17 | Low pressure detection threshold | When the feedback pressure is less than this set value, the burst pipe fault "EPA0" will be reported after F3.15 burst pipe delay. When the feedback pressure is greater than or equal to this set value, the burst pipe fault "EPA0" will be automatically reset; | 0.0 ~ 200.0% | 50.0% | ○ |

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| | | | | | |
|-------|--------------|--|---------------------------|----------|---|
| | | the threshold is the percentage of constant pressure | | | |
| F3.18 | Sensor range | Set the maximum range of the sensor | 0.00 ~ 99.99 (MPa, Kg) | 10.00MPa | ○ |

| Group F4-Advanced function parameters | | | | | |
|---------------------------------------|-----------------------|-------------------------|------------------------------------|-----------------|-----------|
| Code | Item | Description | Setting range | Default value | Amendment |
| F4.00 | Motor rated voltage | Motor parameter setting | 0 ~ 500V : 380V 0 ~ 250V : 220V | Model setting | × |
| F4.01 | Motor rated current | | 0.1 ~ 999.9A | Model setting | × |
| F4.02 | Motor rated speed | | 0 ~ 60000Krpm | Model setting | × |
| F4.03 | Motor rated frequency | | 1.0 ~ 999.9Hz | 50.0Hz | × |
| F4.04 | Motor stator | | Set motor stator resistance | 0.001 ~ 20.000Ω | Model |

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| | resistance | | | setting | |
|-------|-------------------------------------|--|-----------------|---------------|---|
| F4.05 | Motor no-load current | Set motor no-load current | 0.1 ~ 【F4.01】 | Model setting | × |
| F4.06 | AVR function | 0: Invalid 1: Valid throughout 2: Only invalid when decelerating | 0 ~ 2 | 0 | × |
| F4.07 | Cooling fan control | 0: Automatic control mode 1: Keep running when the power on. | 0 ~ 1 | 0 | ○ |
| F4.08 | Fault automatic reset times | When the number of fault resets is set to 0, there is no automatic reset function, which can only be reset manually. 10 means that the number of times is unlimited, that is, countless times. | 0 ~ 10 | 0 | × |
| F4.09 | Fault automatic reset interval time | Set the interval time of fault automatic reset | 0.5 ~ 25.0s | 3.0s | × |
| F4.10 | Starting | If the internal DC voltage of the inverter is higher | 330 ~ 380/660 ~ | 350/780 | ○ |

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| | | | | | |
|-------|--|--|-----------|------|---|
| | voltage of energy consumption braking | than the initial voltage of energy consumption braking, the built-in braking unit will act. If a braking resistor is connected at this time, the internally raised voltage energy of the inverter will | 800V | V | |
| F4.11 | Ratio of energy consumption braking action | be released through the braking resistor to make the DC voltage drop. | 10 ~ 100% | 100% | ○ |

| Group F5-Protection function parameters | | | | | |
|---|---------------------|--|---------------|---------------|-----------|
| Code | Item | Description | Setting range | Default value | Amendment |
| F5.00 | Protection settings | LED ones: Motor overload protection selection 0: Invalid 1: Valid LED tens: PID feedback disconnection protection | 0000 ~ 1211 | 0001 | × |

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| | | | | | |
|-------|----------------------------------|---|--------------------|-----------|---|
| | | <p>0: Invalid 1: Protective action and free stop LED hundreds: 485 communication failure processing 0: Protective action and free stop 1: Alarm but maintain the status quo operation 2: Alarm and stop according to the set method LED thousands : Shock suppression selection 0: Invalid 1: Valid</p> | | | |
| F5.01 | Motor overload protection factor | The motor overload protection factor is the percentage of the motor rated current value to the inverter rated output current value | 30% ~ 110% | 100% | × |
| F5.02 | Undervoltage protection level | This function code specifies the allowable lower limit voltage of the DC bus when the inverter is working normally. | 50 ~ 280/50 ~ 480V | 180/360 V | × |

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| | | | | | |
|-------|--|---|----------------------|-----------|---|
| F5.03 | Deceleration voltage limit factor | This parameter is used to adjust the inverter's ability to suppress overvoltage during deceleration | 0 : close , 1 ~ 255 | 1 | × |
| F5.04 | Overvoltage limit level | The overvoltage limit level defines the operating voltage during overvoltage stall protection | 350 ~ 400/660 ~ 850V | 375/790 V | × |
| F5.05 | Acceleration current limit factor | This parameter is used to adjust the inverter's ability to suppress overcurrent during acceleration. | 0 : close , 1 ~ 99 | 10 | × |
| F5.06 | Constant speed current limiting factor | This parameter is used to adjust the inverter's ability to suppress overcurrent during constant speed operation | 0 : close , 1 ~ 10 | 0 | × |
| F5.07 | Current limit level | The current limiting level defines the current threshold of the automatic current limiting action, and its set value is a percentage relative to the rated current of the inverter. | 50% ~ 250% | 180% | × |
| F5.08 | Feedback disconnection | This value is the percentage of PID given amount. When the feedback value of PID continues to be | 0.0 ~ 100.0% | 0.0% | × |

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| | | | | | |
|-------|---------------------------------------|---|--------------|-------|---|
| | detection value | smaller than the feedback disconnection detection value, the inverter will make corresponding protection actions according to the setting of F5.00, and it will be invalid when F5.08 = 0.0%. | | | |
| F5.09 | Feedback disconnection detection time | The delay time before the protection action after feedback disconnection occurs. | 0.1 ~ 999.9S | 10.0s | × |
| F5.10 | Inverter overload pre-alarm level | The current threshold of the inverter overload pre-alarm action is set as a percentage of the inverter's rated current. | 0 ~ 150% | 120% | ○ |
| F5.11 | Inverter overload pre-alarm delay | The delay time between the inverter output current and the overload pre-alarm level (F5.10) to the output of the overload pre-alarm signal. The delay time from the output current of the inverter is continuously greater than the overload pre-alarm level (F5.10) to the output of the overload | 0.0 ~ 15.0s | 5.0s | × |

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| | | | | | |
|-------|--|---|-------------------|--------|---|
| | | pre-alarm signal. | | | |
| F5.12 | Jog priority enable | 0: Invalid 1: When the inverter is running, the jogging priority is the highest | 0 ~ 1 | 0 | × |
| F5.13 | Oscillation suppression factor | When motor vibration occurs, it is necessary to set F5.00 thousands to be effective, turn on the vibration suppression function, and then adjust by setting the vibration suppression coefficient. In general, if the vibration amplitude is large, increase the vibration suppression coefficient F5.13, F5.14 ~ F5.16 does not need to be set; if special occasions, F5.13 ~ F5.16 should be used together. | 0 ~ 200 | 30 | ○ |
| F5.14 | Amplitude suppression factor | | 0 ~ 12 | 5 | ○ |
| F5.15 | Lower limit frequency of oscillation suppression | | 0.0 ~ 【F5.16】 | 5.0Hz | ○ |
| F5.16 | Upper limit frequency of oscillation | | 【F5.15】 ~ 【F0.05】 | 45.0Hz | ○ |

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| | | | | |
|-------|--|--|-----------|-------|
| | suppression | | | |
| F5.17 | Wave-by-wave current limit selection | <p>LED ones: select when acceleration</p> <p>0: Invalid</p> <p>1: Valid</p> <p>LED tens digit: select when deceleration</p> <p>0: Invalid</p> <p>1: Valid</p> <p>LED hundreds o: select when constant speed</p> <p>0: Invalid</p> <p>1: Valid</p> <p>LED thousands: reserved</p> | 000 ~ 111 | 011 × |

| Group F6-Communication parameters | | | | | |
|-----------------------------------|-------|--|---------------|---------------|-----------|
| Code | Item | Description | Setting range | Default value | Amendment |
| F6.00 | Local | Set the local address, 0 is the broadcast address. | 0 ~ 247 | 1 | × |

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| | address | | | | |
|-------|--|---|--------------|-------|---|
| F6.01 | MODBUS communica tion configuration | LED ones: baud rate selection 0: 9600BPS 1: 19200BPS 2: 38400BPS LED tens: data format 0: No check 1: Even parity 2: Odd parity LED hundreds: communication response mode 0: Normal response 1: Only respond to slave address 2: No response 3: The slave does not respond to the free stop command of the master in the broadcast mode LED thousands: reserved | 0000 ~ 0322 | 0000 | × |
| F6.02 | Communica | If the machine does not receive the correct data | 0.1 ~ 100.0s | 10.0s | × |

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| | | | | | |
|-------|--|---|--------------|------|---|
| | tion timeout detection time | signal within the time interval defined by this function code, then the machine considers that the communication has failed, and the inverter will decide whether to protect or maintain the current operation according to the setting of the communication failure action mode. When the value is set to 0.0, RS485 communication timeout detection is not performed. | | | |
| F6.03 | Local response delay | This function code defines the end of the inverter data frame reception and sends the intermediate time interval of the response data frame to the host computer. If the response time is less than the system processing time, the system processing time shall prevail. | 0 ~ 200ms | 5ms | × |
| F6.04 | Proportional linkage coefficient | This function code is used to set the weight coefficient of the frequency command received by the inverter through the RS485 interface which as | 0.01 ~ 10.00 | 1.00 | ○ |

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| | | | | | |
|--|--|---|--|--|--|
| | | <p>the slave</p> <p>The actual operating frequency of this machine is equal to the value of this function code times the frequency setting command value received through the RS485 interface. In linkage control, this function code can set the ratio of the operating frequency of multiple inverters.</p> | | | |
|--|--|---|--|--|--|

| Group F7- Supplementary functional parameters | | | | | |
|---|--------------------------|--|---------------|---------------|-----------|
| Code | Item | Description | Setting range | Default value | Amendment |
| F7.00 | Counting and timing mode | <p>LED ones: count arrival processing</p> <p>0: Single period counting, stop output</p> <p>1: Single period, continue to output</p> <p>2: Cycle count, stop output</p> <p>3: Cycle count, continue to output</p> | 000 ~ 303 | 103 | × |

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| | | | | | |
|-------|---|--|-----------------------|---------|---|
| | | <p>LED tens: reserved</p> <p>LED hundreds: timing arrival processing</p> <p>0: Single-week timing, stop output</p> <p>1: Weekly timing, continue to output</p> <p>2: Cycle timing, stop output</p> <p>3: Cycle timing, continue to output</p> <p>LED thousands: reserved</p> | | | |
| F7.01 | Counter reset value setting | Set counter reset value | 【F7.02】 ~ 9999 | 1 | ○ |
| F7.02 | Counter detection value setting | Set counter detection value | 0 ~ 【F7.01】 | 1 | ○ |
| F7.03 | Timing setting | Set timing time | 0 ~ 9999s | 0s | ○ |
| F7.04 | External pulse X5 input lower limit frequency | Set external pulse X5 input upper and lower limit frequency | 0.00 ~ 【F7.14】 | 0.00KHz | ○ |

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| | | | | | |
|-------|--|---|-----------------------|--------------|---|
| F7.05 | External pulse X5 input upper limit frequency | | 【F7.13】 ~ 99.99KHz | 20.00KH z | ○ |
| F7.06 | External pulse X5 lower limit corresponding setting | Set the external pulse X5 upper and lower limit corresponding settings, this setting is a percentage relative to the maximum output frequency | -100.0% ~ 100.0% | 0.0% | ○ |
| F7.07 | External pulse X5 upper limit corresponding setting | | -100.0% ~ 100.0% | 100.0% | ○ |

| Group F8-Management and display parameters | | | | | |
|--|------|-------------|---------------|---------------|-----------|
| Code | Item | Description | Setting range | Default value | Amendment |

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| | | | | | |
|-------|--|---|--------------|------|---|
| F8.00 | Operation monitoring parameter selection | For example: F8.00 = 2, that is, select the output voltage (d-02), and then the default display item of the main monitoring interface is the current output voltage value. | 0 ~ 26 | 0 | ○ |
| F8.01 | Selection of shutdown monitoring parameter items | For example: F8.01 = 3, that is, select the bus voltage (d-03), and then the default display item of the main monitoring interface is the current bus voltage value. | 0 ~ 26 | 1 | ○ |
| F8.02 | Motor speed display coefficient | It is used to correct the display error of the speed scale and has no effect on the actual speed. | 0.01 ~ 99.99 | 1.00 | ○ |
| F8.03 | Parameter initialization | 0: No operation The inverter is in the normal parameter reading and writing state. Whether the setting value of the function code can be changed depends on the setting state of the | 0 ~ 2 | 0 | × |

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| | | | | | |
|-------|-------------------|--|-------|---|---|
| | | <p>user password and the current working state of the inverter.</p> <p>1: Restore factory settings All user parameters are restored to factory settings according to the model.</p> <p>2: Clear fault record Clear the contents of the fault record (d-19 ~ d-24). After the operation is completed, this function code is automatically cleared to 0.</p> | | | |
| F8.04 | JOG key setting | <p>0: JOG</p> <p>1: Switching between forward and reverse</p> <p>2: Clear the ▲ / ▼ key frequency setting</p> <p>3: Reverse running (at this time, the RUN key defaults to forward running)</p> | 0 ~ 3 | 0 | × |
| F8.05 | Slip compensation | <p>0: Invalid</p> <p>1: Valid</p> | 0 ~ 1 | 0 | × |

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| | | | | | |
|--|-----------|--|--|--|--|
| | selection | After the asynchronous motor is loaded, it will cause the speed to drop. The use of slip compensation can make the motor speed close to its synchronous speed, so that the motor speed control accuracy is higher. | | | |
|--|-----------|--|--|--|--|

7 Communication Protocol

(The following data are all hexadecimal)

1、 RTU mode and format

When the controller communicates on the Modbus bus in RTU mode, each 8-bit byte in the information is divided into two 4-bit hexadecimal characters. The main advantage of this mode is that the density of characters transmitted is higher than that of ASCII mode at the same baud rate, each message must be transmitted continuously.

(1) The format of each byte in RTU mode

Coding system: 8-bit binary, hex 0-9, A-F.

Data bits: 1 start bit, 8 bits of data (lowest bit sent first), 1 stop bit, parity bit can be selected. (Refer to RTU data frame bit sequence diagram)

Error check area: cyclic redundancy check (CRC).

(2) RTU data frame bit sequence diagram

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With Parity check

| | | | | | | | | | | |
|-------|---|---|---|---|---|---|---|---|-----|------|
| Start | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Par | Stop |
|-------|---|---|---|---|---|---|---|---|-----|------|

Without Parity check

| | | | | | | | | | |
|-------|---|---|---|---|---|---|---|---|------|
| Start | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | Stop |
|-------|---|---|---|---|---|---|---|---|------|

2、 Reading and writing function code description :

| Function code | Function description |
|---------------|----------------------|
| 03 | Read register |
| 06 | Write register |

3、 Parameter address description of communication protocol :

| Function Description | Address definition | Explanation of data | R/W |
|----------------------|--------------------|---------------------|-----|
| | | | |

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| | | | |
|---|-------|---|---|
| Communication control commands | 2000H | 0001H : Downtime | W |
| | | 0012H : Forward run | |
| | | 0013H : Jog forward | |
| | | 0022H : Reverse run | |
| | | 0023H : Jog reverse | |
| Communication frequency setting address | 2001H | <p>The communication frequency setting range is -10000 ~ 10000.</p> <p>Note: The communication frequency setting is a percentage relative to the maximum frequency, and its range is -100.00% ~ 100.00%).</p> | W |
| Communication control commands | 2002H | 0001H : External fault input | W |
| | | 0002H : Fault reset | |
| Read run / stop | 2102H | Set frequency (two decimal places) | R |

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| | | | |
|------------|-------|---|---|
| parameters | 2103H | Output frequency (two decimal places) | R |
| | 2104H | Output current (one decimal places) | R |
| | 2105H | Bus voltage (one decimal places) | R |
| | 2106H | The output voltage(one decimal places) | R |
| | 210DH | Inverter temperature (one decimal places) | R |
| | 210EH | PID Feedback value (two decimal places) | R |
| | 210FH | PID Given value (two decimal places) | R |
| | 2101H | Bit0 : Run Bit1 : Downtime Bit2 : Jog Bit3 : Forward Bit4 : Reverse Bit5 ~ Bit7 : Reserved Bit8 : Communication given | R |

SY2000 Series frequency inverter

| | | | |
|------------------------------------|--------------|---|----------|
| | | <p>Bit9 : Analog signal input</p> <p>Bit10 : Communication operation command channel</p> <p>Bit11 : Parameter lock</p> <p>Bit12 : Running</p> <p>Bit13 : Jog command</p> <p>Bit14 ~ Bit15 : Reserved</p> | |
| <p>Read fault code description</p> | <p>2100H</p> | <p>00 : No abnormality</p> <p>01 : Module failure</p> <p>02 : Overvoltage</p> <p>03 : Temperature failure</p> <p>04 : Inverter overload</p> <p>05 : Motor overload</p> <p>06 : External fault</p> <p>07 ~ 09 : Reserved</p> <p>10 : Overcurrent during acceleration</p> <p>11 : Overcurrent during deceleration</p> <p>12 : Overcurrent at constant speed</p> | <p>R</p> |

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| | | | |
|--|--|------------------------------------|--|
| | | 13 : Reserved 14 : Undervoltage | |
|--|--|------------------------------------|--|

4、 03H Reading function mode :

Inquiry information frame format (Send frame):

| | |
|-----------------------|-----|
| Address | 01H |
| Function | 03H |
| Starting data address | 21H |
| | 02H |
| Data(2Byte) | 00H |
| | 02H |
| CRC CHK Low | 6FH |
| CRC CHK High | F7H |

Data analysis :

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01H Inverter address

03H Function code

2102H Starting address

0002H To read the number of addresses, I.e. 2102H and 2103H

F76FH 16-bit CRC check code

Response information frame format(Return frame):

| | |
|--------------|-----|
| Address | 01H |
| Function | 03H |
| DataNum*2 | 04H |
| Data1[2Byte] | 17H |
| | 70H |
| Data2[2Byte] | 00H |
| | 00H |
| CRC CHK Low | FEH |
| CRC CHK High | 5CH |

Data analysis :

01H Inverter address

03H Reading function code.

04H Is the product of reading items * 2

1770H Read the data of 2102H (set frequency)

0000H Read the data of 2103H (output frequency)

5CFEH 16-bit CRC check code

5、06H Writing function mode

Inquiry information frame format(Sending frame):

| | |
|-----------------------|-----|
| Address | 01H |
| Function | 06H |
| Starting data address | 20H |
| | 00H |
| Data(2Byte) | 00H |
| | 01H |
| CRC CHK Low | 43H |
| CRC CHK High | CAH |

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Data analysis :

01H Inverter address

06H Writing function code

2000H Control command address

0001H Stop command

43CAH 16-bit CRC check code

Response information frame format(Return frame):

| | |
|-----------------------|-----|
| Address | 01H |
| Function | 06H |
| Starting data address | 20H |
| | 00H |
| Number of Data(Byte) | 00H |
| | 01H |
| CRC CHK Low | 43H |
| CRC CHK High | CAH |

Data analysis of this segment: If the settings are correct, return the same input data.

8 Regular inspection and maintenance

Changes in the operating environment of the inverter, such as the effects of temperature, humidity, smoke, and the aging of internal components of the inverter, may cause various failures of the inverter. Therefore, the inverter must be inspected daily during storage and use, and regular maintenance should be carried out.

1: Daily maintenance

When the inverter is turned on normally, please confirm the following:

- (1) Does the motor have abnormal sound and vibration?
- (2) Is the inverter and motor overheated abnormally?
- (3) Is the ambient temperature too high?
- (4) Is the load current meter the same as usual?
- (5) Is the cooling fan of the inverter running normally?

2: Regular maintenance

1) Regular maintenance

The user can conduct regular inspections of the inverter in the short-term or 3-6 months according to the usage, to eliminate hidden troubles and ensure long-term stable operation. When the inverter checked, the power must be cut off. Only after the monitor is not displayed and the power indicator of the main circuit is off, the inspection can be carried

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out

- (1) If the control terminal screws are loose, tighten them with a screwdriver.
- (2) Whether the main circuit terminals are in poor contact, and whether there are traces of overheating in the connections of cables or copper bars, screws。
- (3) Whether the power cable and control wire are damaged, especially whether the external insulation layer is cracked or cut.
- (4) Whether the connection between the power cable and the cold-pressed connector is loose, and whether the insulation explosion zone at the connection is aging or falling off.
- (5) Clean up dust on printed circuit boards, air ducts, etc., and take anti-static measures when cleaning.
- (6) For the insulation test of the inverter, you must first remove the power supply of the inverter and all the connections between the inverter and the motor, and after all the main circuit input and output terminals are reliably shorted with wires, then test the ground, please use a qualified 500V megohmmeter (or the corresponding voltage range of the insulation tester), do not use a faulty instrument. It is strictly forbidden to connect only a single main circuit terminal to the insulation test, otherwise there will be a risk of damage to the transformer. Do not perform insulation test on the control terminals, otherwise the inverter will be damaged. After the test is completed, remember to remove all the wires shorting the loop terminals.
- (7) If the insulation test is performed on the motor, the wires between the motor and the inverter must be

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completely disconnected before testing the motor separately. Otherwise, there is a risk of damage to the inverter.

2) Regular maintenance

In order to make the inverter work normally for a long time, the service life of the electronic components inside the inverter must be regularly maintained. The use of the electronic components differs depending on the conditions. The maintenance period of the inverter as shown in the following table is for reference.

| Item | Standard replacement years |
|------------------------|----------------------------|
| Cooling fan | 2 ~ 3 years |
| Electrolytic capacitor | 4 ~ 5 years |
| Printed circuit board | 5 ~ 8 years |

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