

CM500 Series

# Inverter User Manual





# Preface

First of all,thank you for purchasing CM500 Series high-performance VFD developed by Coolmay Technology.

CM500 series inverter is a general high-performance current vector inverter, mainly used to control and adjust the speed and torque of three-phase AC asynchronous motors. CM500 adopts high-performance vector control technology, low-speed and high-torque output, good dynamic characteristics, super overload capacity, user-programmable communication bus function, rich and powerful combination functions, and stable performance. It can be used to drive textile, paper, wire drawing, machine tools, packaging, food, fans, water pumps and various automated production equipment.



Appearance

## Manual description

If you use it for the first time, please read this manual carefully. If you have any doubts about some functions and performance, please consult our company's technical support staff for help, which is beneficial to the correct use of this product.

## Standards Compliant

The specific certification qualifications obtained for this series of products are subject to the certification marks marked on the product nameplate.

| Certification Name | Certification mark                                                                  | Command name |            | Standard    |
|--------------------|-------------------------------------------------------------------------------------|--------------|------------|-------------|
| CE Certification   |  | EMC command  | 2014/30/EU | EN61800-3   |
|                    |                                                                                     | LVD command  | 2014/35/EU | EN61800-5-1 |
|                    |                                                                                     | RoHS command | 2011/65/EU | EN 50581    |



# Version Change Record

| Date    | Changed version | Changed Content        |
|---------|-----------------|------------------------|
| 2021-05 | A00             | First edition released |
| 2021-06 | A01             |                        |

## Manual and access

This manual is shipped with the product, if you need to order separately, please contact your seller.

This manual is a simple manual, mainly introducing product information, installation and wiring, troubleshooting, routine maintenance, etc., if you need more detailed guidance materials, please refer to <500 Series General Inverter Comprehensive Manual>, data code: 19010287.

The acquisition path is as follows:

1. Log in our official website(en.coolmay.com), click 'Support' → 'Manual Download' → Enter the name of the manual to be queried, download PDF file;
2. Scan the QR code on the right to download.



# Safety Precautions

## Security Statement

- 1)When installing, operating, and maintaining the product, please read and follow these safety precautions first.
- 2)In order to ensure the safety of personnel and equipment, please follow all safety precautions described in the product label and manual when installing, operating and maintaining the product.
- 3)The "Caution", "Warning" and "Danger" items in the manual do not represent all the safety items that should be followed, but only serve as a supplement to all the safety precautions.
- 4)This product should be used in an environment that meets the design specifications, otherwise it may cause malfunctions, and malfunctions or component damage caused by non-compliance with relevant regulations are not within the scope of product quality assurance.
- 5)Our company will not bear any legal responsibility for personal safety accidents and property losses caused by illegal operations.

## Security level definition

- 

Dangerous

“ means that death or serious bodily injury will result if the operation is not performed according to the regulations.
- 

Caution

Indicates that if you do not follow the regulations, it may result in death or serious bodily injury.
- 

Attention

“ means that if you do not follow the regulations, it may cause minor bodily injury or equipment damage.

## Safety Precautions

| Unpacking Acceptance                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <div><div></div><div>Attention</div></div> | <div>◆Before unpacking, please check whether the outer packaging of the product is intact, whether it is damaged, soaked, damp, deformed, etc.</div> <div>◆Please open the package in accordance with the order of hierarchy, and no violent beating is allowed!</div> <div>◆When unpacking, please check whether the surface of the product and product accessories is damaged, rusted, bruised, etc.</div> <div>◆After unpacking, please carefully check the packing list to check the quantity of products and product accessories, and whether the information is complete</div>                                                                                                                                                                                                                      |
| <div><div></div><div>Warn</div></div>      | <div>◆When unpacking the product and its accessories are found to be damaged, rusted, signs of use, etc., please do not install!</div> <div>◆When unpacking, if there is water in the product, missing parts, or damaged parts, please do not install it!</div> <div>◆Please check the packing list carefully, if you find that the packing list does not match the product name, please do not install</div>                                                                                                                                                                                                                                                                                                                                                                                             |
| Storing and Transporting                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <div><div></div><div>Attention</div></div> | <div>◆Please store and transport in accordance with the storage and transportation conditions of the product, and the storage temperature and humidity meet the requirements.</div> <div>◆Avoid storage and transportation in places such as water splash, rain, direct sunlight, strong electric field, strong magnetic field, and strong vibration.</div> <div>◆Avoid product storage for more than 3 months. If the storage time is too long, please carry out stricter protection and necessary inspections.</div> <div>◆Please pack the product strictly before transporting it by vehicle. A closed box must be used for long-distance transportation.</div> <div>◆It is strictly forbidden to transport this product together with equipment or items that may affect or damage the product.</div> |



|                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>Warning</b>     | <ul style="list-style-type: none"> <li>◆ Be sure to use professional loading and unloading equipment to move large or heavy equipment and products!</li> <li>◆ When handling the product with bare hands, be sure to hold the product shell firmly to avoid the product parts from falling, otherwise there is a danger of injury!</li> <li>◆ When handling the product, be sure to lift it gently, and pay attention to objects under your feet at all times to prevent tripping or falling, otherwise there is a risk of injury or product damage!</li> <li>◆ When the equipment is hoisted by a lifting tool, no one is allowed to stand or stay under the equipment.</li> </ul>                                                                                                                                                                                                                                                                                                                                         |
| <h3>Installing</h3>                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  <b>Warning</b>     | <ul style="list-style-type: none"> <li>◆ Please read the product manual and safety precautions carefully before installation!</li> <li>◆ It is strictly forbidden to modify this product!</li> <li>◆ It is strictly forbidden to screw the fixing bolts of product parts and components and the bolts marked in red!</li> <li>◆ Do not install this product in places subject to strong electric field or strong electromagnetic wave interference!</li> <li>◆ When this product is installed in a cabinet or terminal equipment, the cabinet or terminal equipment needs to provide corresponding fireproof enclosures, electrical protective enclosures and mechanical protective enclosures, etc. The protective device and the degree of protection should comply with the relevant IEC standards and local laws and regulations.</li> </ul>                                                                                                                                                                            |
|  <b>Dangerous</b>  | <ul style="list-style-type: none"> <li>◆ It is strictly forbidden for non-professionals to install, connect, maintain, inspect or replace parts of the product!</li> <li>◆ The installation, wiring, maintenance, inspection or component replacement of this product can only be carried out by professionals who have received relevant training in electrical equipment and have sufficient electrical knowledge.</li> <li>◆ The installer must be familiar with the product installation requirements and related technical information.</li> <li>◆ When it is necessary to install equipment with strong electromagnetic interference such as a transformer, please install a shielding protection device to avoid malfunction of this product!</li> </ul>                                                                                                                                                                                                                                                             |
| <h3>Wiring</h3>                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  <b>Dangerous</b> | <ul style="list-style-type: none"> <li>◆ It is strictly forbidden for non-professionals to install, wire, maintain, inspect or replace parts!</li> <li>◆ Do not perform wiring work while the power is on, otherwise there will be a risk of electric shock.</li> <li>◆ Before wiring, cut off the power of all devices. After the power supply is cut off, the internal capacitance of the device has residual voltage. Please wait at least 10 minutes before wiring and other operations.</li> <li>◆ Please ensure that the equipment and products are well grounded, otherwise there is a danger of electric shock.</li> <li>◆ Please follow the steps prescribed by ESD, and wear an electrostatic wristband for wiring and other operations to avoid damaging the device or the internal circuits of the product.</li> <li>◆ It is strictly forbidden to connect the input power supply to the output terminal of the device or product, otherwise it may cause damage to the device or even cause a fire.</li> </ul> |
|  <b>Warning</b>   | <ul style="list-style-type: none"> <li>◆ When connecting the drive equipment and the motor, please ensure that the phase sequence of the drive and the motor terminals are exactly the same to avoid causing the motor to rotate in the reverse direction.</li> <li>◆ The cables used in the wiring must meet the requirements of the corresponding wire diameter and shielding, and the shielding layer of the shielded cable needs to be grounded reliably at a single end!</li> <li>◆ After wiring, make sure that there are no fallen screws or exposed cables inside the device and product.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                |
| <h3>Power on</h3>                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  <b>Dangerous</b> | <ul style="list-style-type: none"> <li>◆ Before powering on, please make sure that the equipment and product are well installed, the wiring is firm, and the motor device is allowed to restart.</li> <li>◆ Before powering on, please confirm that the power supply meets the equipment requirements to avoid damage to the equipment or fire!</li> <li>◆ When the power is turned on, the mechanical device of the equipment or product may suddenly move, please keep away from the mechanical device.</li> <li>◆ After power-on, do not open the door of the equipment cabinet or the protective cover of the product, otherwise there is a danger of electric shock!</li> <li>◆ It is strictly forbidden to touch any terminal of the device when the power is on, otherwise there is a danger of electric shock!</li> <li>◆ It is strictly forbidden to disassemble any device or parts of the equipment and product when the power is on, otherwise there is a danger of electric shock!</li> </ul>                  |
| <h3>Running</h3>                                                                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  <b>Dangerous</b> | <ul style="list-style-type: none"> <li>◆ It is strictly forbidden to touch any wiring terminals of the equipment in the running state, otherwise there is a danger of electric shock!</li> <li>◆ It is strictly forbidden to disassemble any device or parts of the equipment and product in the running state, otherwise there is a danger of electric shock!</li> <li>◆ It is strictly forbidden to touch the device casing, fan or resistor to test the temperature, otherwise it may cause burns!</li> <li>◆ It is strictly forbidden for non-professional technicians to detect the signal during operation, otherwise it may cause personal injury or equipment damage!</li> </ul>                                                                                                                                                                                                                                                                                                                                    |



|                                                                                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  Warning   | <ul style="list-style-type: none"><li>◆ During operation, avoid other objects or metal objects from falling into the equipment, otherwise it may cause damage to the equipment!</li><li>◆ Do not use the on-off method of the contactor to control the start and stop of the equipment, otherwise it may cause damage to the equipment!</li></ul>                                                                                                                                                                                                                                                                               |
| Maintenance                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  Danger    | <ul style="list-style-type: none"><li>◆ It is strictly forbidden for non-professionals to install, wire, maintain, inspect or replace parts!</li><li>◆ It is strictly forbidden to maintain the equipment while the power is on, otherwise there is a danger of electric shock!</li><li>◆ After cutting off the power of all equipment, please wait at least 10 minutes before performing equipment maintenance and other operations.</li></ul>                                                                                                                                                                                 |
|  Danger    | <ul style="list-style-type: none"><li>◆ Please conduct daily and regular inspections and maintenance of equipment and products in accordance with equipment maintenance and maintenance requirements, and make maintenance records.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                   |
| Repairing                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  Danger  | <ul style="list-style-type: none"><li>◆ It is strictly forbidden for non-professionals to install, wire, maintain, inspect or replace parts!</li><li>◆ It is strictly forbidden to repair the equipment when the power is on, otherwise there is a danger of electric shock!</li><li>◆ After cutting off the power of all equipment, please wait at least 10 minutes before performing equipment inspection and maintenance.</li></ul>                                                                                                                                                                                          |
|  Caution | <ul style="list-style-type: none"><li>◆ Please report the equipment for repair in accordance with the product warranty agreement.</li><li>◆ When equipment failure or damage, professionals shall follow the maintenance instructions to troubleshoot and repair the equipment and products, and make maintenance records.</li><li>◆ Please follow the instructions for replacing the wearing parts of the product.</li><li>◆ Do not continue to use the damaged machine, otherwise it will cause greater damage.</li><li>◆ After replacing the device, be sure to re-check the device wiring and set the parameters.</li></ul> |
| Repairing                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  Caution | <ul style="list-style-type: none"><li>◆ Please scrap equipment and products in accordance with relevant national regulations and standards to avoid property damage or personal injury!</li><li>◆ Discarded equipment and products should be treated and recycled in accordance with industrial waste treatment standards to avoid environmental pollution.</li></ul>                                                                                                                                                                                                                                                           |

Safety Signs

In order to ensure the safe operation and maintenance of the equipment, be sure to observe the safety signs pasted on the equipment and products, and do not damage, damage or peel off the safety signs. The safety signs are described as follows:

| Safety Signs | Content Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              | <ul style="list-style-type: none"><li>◆ Please read the instruction manual before installation and operation, otherwise there will be danger of electric shock!</li><li>◆ Do not remove the cover when the power is on and within 10 minutes after the power is cut off!</li><li>◆ When performing maintenance, inspection, and wiring, please wait 10 minutes after cutting off the power supply on the input side and output side, and start the work after the power indicator is completely off.</li></ul> |



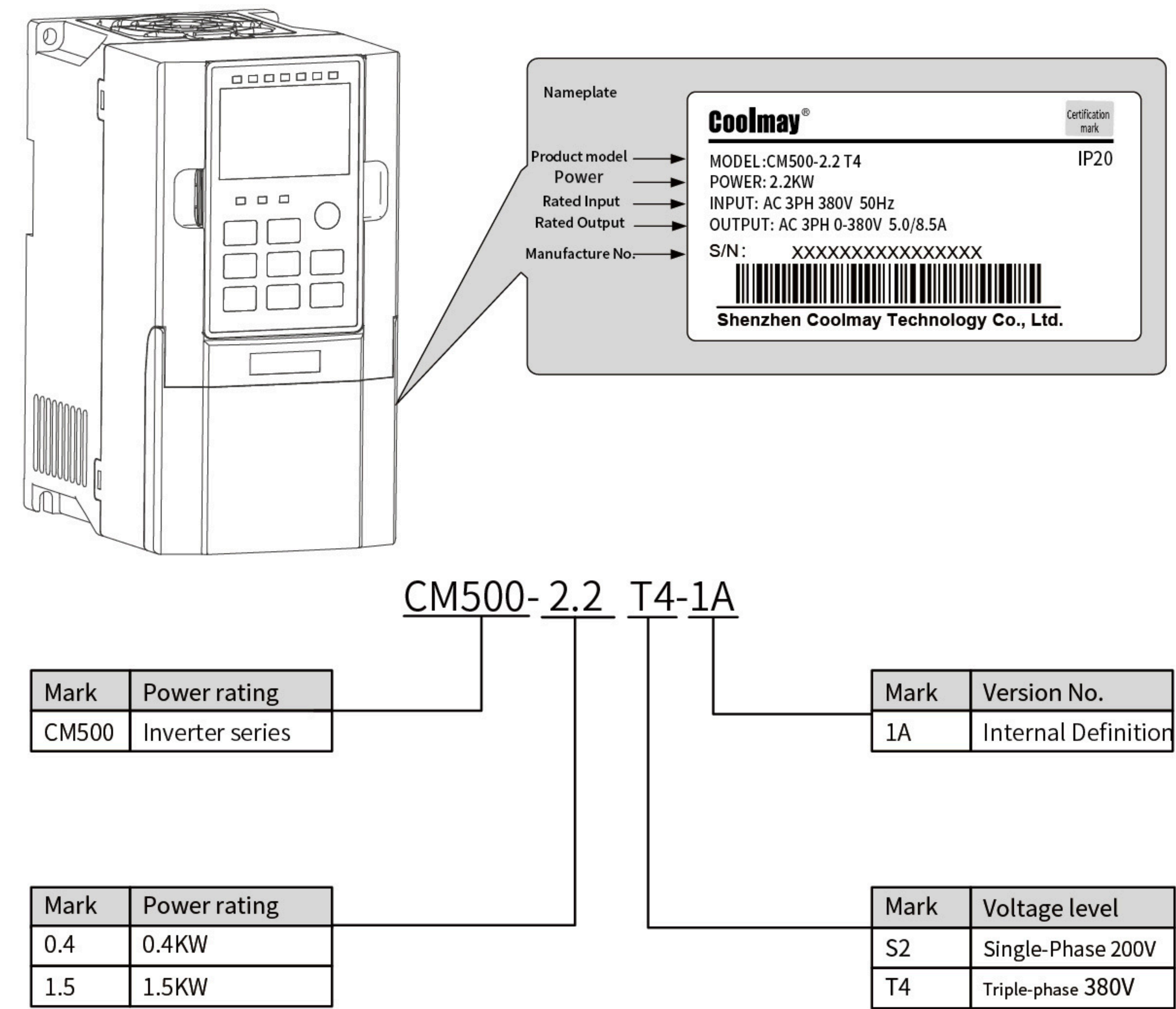
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# 1 Product information

## 1.1 Product information



Picture 1-1 Product nameplate and model description



1.2 Technical specifications

Table 1-1 Model and technical data of CM500 inverter

| project      |                                                 |      | Specification                                                                                              |      |     |      |     |      |      |      |
|--------------|-------------------------------------------------|------|------------------------------------------------------------------------------------------------------------|------|-----|------|-----|------|------|------|
| CM500TXXG(B) |                                                 |      | 0.4                                                                                                        | 0.75 | 1.5 | 0.75 | 1.5 | 2.2  | 3.7  | 5.5  |
| output       | adaptation Motor                                | (kW) | 0.4                                                                                                        | 0.75 | 1.5 | 2.2  | 3   | 3.7  | 5.5  | 7.5  |
|              |                                                 | (HP) | 0.5                                                                                                        | 1    | 2   | 3    | 4   | 5    | 7.5  | 10   |
|              | Rated output                                    |      | 1.5                                                                                                        | 2.1  | 3.8 | 2.1  | 3.8 | 5.1  | 13   | 17   |
|              | Current (A)                                     |      |                                                                                                            |      |     |      |     |      |      |      |
|              | The output voltage                              |      | 0~Input voltage                                                                                            |      |     |      |     |      |      |      |
|              | Maximum output frequency                        |      | 500Hz (can be changed by parameter)                                                                        |      |     |      |     |      |      |      |
|              | Carrier frequency                               |      | 0.8Khz~8.0kHz (according to the load characteristics, the carrier frequency can be automatically adjusted) |      |     |      |     |      |      |      |
|              | Overload capacity                               |      | 150% rated current 60s                                                                                     |      |     |      |     |      |      |      |
| input        | Rated input current (A)                         |      | 1.8                                                                                                        | 2.4  | 4.6 | 2.5  | 4.5 | 11.4 | 16.7 | 21.9 |
|              | Rated voltage<br>Rated frequency                |      | AC:single phase 220V~240V,50/60Hz; AC:three phase 380V~480V,50/60Hz                                        |      |     |      |     |      |      |      |
|              | Voltage allowed<br>Fluctuation range            |      | -50~10%, the actual allowable range: AC 323V~528V                                                          |      |     |      |     |      |      |      |
|              | Allowable fre-<br>quency fluctua-<br>tion range |      | ±5%                                                                                                        |      |     |      |     |      |      |      |
|              | battery capacity (kVA)                          |      | 1.5                                                                                                        | 2.5  | 4   | 2.1  | 3.8 | 5.1  | 9    | 13   |

Table 1-2 Technical specifications of CM500 series inverter

| project        |                                                 | Technical Specifications                                                                                                                                                   |              |
|----------------|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Basic function | Frequency command                               | Digital setting: 0.01Hz; Analog setting: the highest frequency X0.025%                                                                                                     |              |
|                | way to control                                  | Open loop vector control (SVC); Closed loop vector control (FVC); V/F control                                                                                              |              |
|                | Starting torque                                 | 0.25Hz/150% (SVC) ; 0Hz/180% (FVC)                                                                                                                                         |              |
|                | Speed range                                     | 1:200 (SVC)                                                                                                                                                                | 1:1000 (FVC) |
|                | Stable speed accuracy                           | ±0.5% (SVC)                                                                                                                                                                | ±0.02% (FVC) |
|                | Torque control accuracy                         | FVC: ±3%; SVC: 5Hz 以上 ±5%                                                                                                                                                  |              |
|                | Torque boost                                    | Automatic torque boost; manual torque boost 0.1%~30.0%                                                                                                                     |              |
|                | V/F curve                                       | Four types: linear type; multi-point type; complete V/F separation; incomplete V/F separation                                                                              |              |
|                | Acceleration and deceleration curve             | Linear or S-curve acceleration and deceleration method<br>Four kinds of acceleration and deceleration time, the range of acceleration and deceleration time is 0.0~6500.0s |              |
|                | DC braking                                      | DC braking initial frequency: 0.00Hz~maximum frequency; braking time: 0.0s~36.0s;<br>braking action current value: 0.0%~100.0%                                             |              |
|                | Jog control                                     | Jog frequency range: 0.00Hz~50.00Hz; Jog acceleration and deceleration time 0.0s~6500.0s                                                                                   |              |
|                | Simple PLC, multi-speed operation               | Realize up to 16-speed operation through built-in PLC or control terminal                                                                                                  |              |
|                | Built-in PID                                    | It is convenient to realize the process control closed-loop control system                                                                                                 |              |
|                | Automatic voltage adjustment (AVR)              | When the grid voltage changes, it can automatically keep the output voltage constant                                                                                       |              |
|                | Overvoltage and overcurrent stall speed control | Automatically limit the current and voltage during operation to prevent frequent over-current and over-voltage trips                                                       |              |
|                | Fast current limiting function                  | Minimize over-current faults to protect the normal operation of the inverter                                                                                               |              |
|                | Torque limit and control                        | The torque is automatically limited during operation to prevent frequent over-current trips. The vector control mode can realize torque control                            |              |

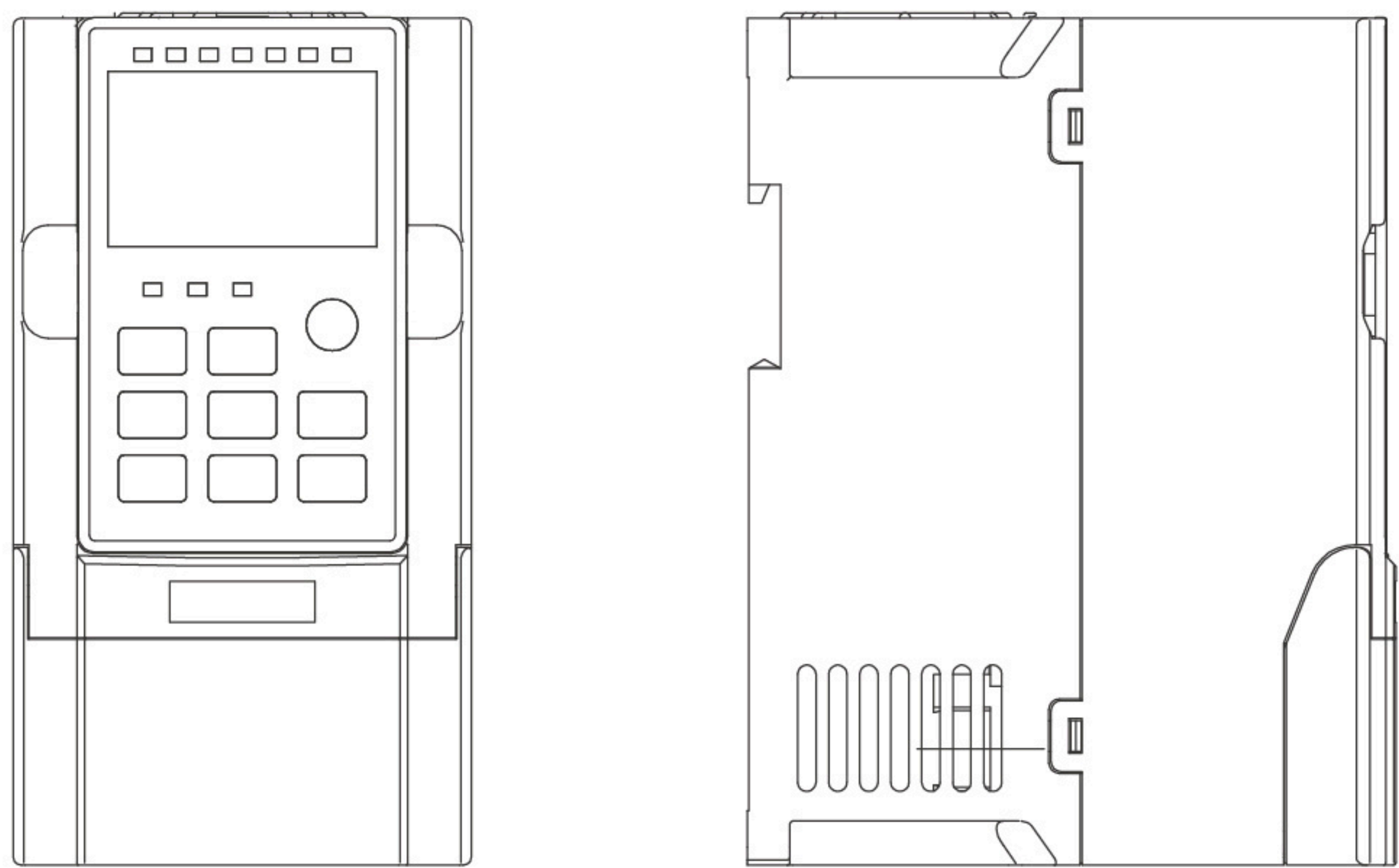


| Technical specifications       |                                      |                                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personalization function       | instantaneous stop and non-stop      | In the event of an instantaneous power failure, the load feedback energy is used to compensate for the voltage drop and maintain the inverter to continue running for a short period of time                                                                                                                                                                                 |
|                                | Fast current limit                   | Avoid frequent over-current faults of the inverter                                                                                                                                                                                                                                                                                                                           |
|                                | Virtual IO                           | Five groups of virtual DI DO, which can realize simple logic control                                                                                                                                                                                                                                                                                                         |
|                                | Timing control                       | Timing control function: set time range 0.0min~6500.0min                                                                                                                                                                                                                                                                                                                     |
|                                | Multi-motor switching                | Two sets of motor parameters can realize switching control of two motors                                                                                                                                                                                                                                                                                                     |
| Run                            | Multi-threaded bus support           | Support four field buses: Modbus                                                                                                                                                                                                                                                                                                                                             |
|                                | Run command                          | The operation panel is given, the control terminal is given, and the serial communication port is given. It can be switched in a variety of ways.                                                                                                                                                                                                                            |
|                                | Frequency command                    | 10 kinds of frequency commands: digital setting, analog voltage setting, analog current setting, pulse setting, serial port setting. It can be switched in a variety of ways.                                                                                                                                                                                                |
|                                | Auxiliary frequency command          | 10 kinds of auxiliary frequency commands. Flexible realization of auxiliary frequency fine-tuning and frequency synthesis                                                                                                                                                                                                                                                    |
|                                | Input terminal                       | standard:<br>5 DI terminals, one of which supports up to 100Khz to tell the pulse input<br>2 AI terminals, 1 only supports 0~10V voltage input, 1 supports 0~10V voltage input or 0~20mA current input<br>Expansion capacity:<br>5 DI terminals<br>1 AI terminal, support -10V~10V voltage input, and support PT100/PT1000                                                   |
| Display and keyboard operation | Output terminal                      | standard:<br>1 tell pulse output terminal (optional open collector type), support 0~100Khz square wave signal output<br>1 DO terminal<br>1 relay output terminal<br>1 AO terminal, support 0~20mA current output or 0~10v voltage output<br>Expansion capacity:<br>1 DO terminal<br>1 relay terminal<br>1 AO terminal, support 0~20mA current output or 0~10V voltage output |
|                                | LED display                          | Display parameters                                                                                                                                                                                                                                                                                                                                                           |
|                                | Case lock and function selection     | Realize partial or full lock of keys, define the scope of action of some keys to prevent misoperation                                                                                                                                                                                                                                                                        |
| Protective function            | Phase protection                     | Input phase loss protection, output phase loss protection                                                                                                                                                                                                                                                                                                                    |
|                                | Instantaneous overcurrent protection | Stop when the rated output current is more than 250%                                                                                                                                                                                                                                                                                                                         |
|                                | Overvoltage protection               | Shutdown when the main circuit DC voltage is above 820V                                                                                                                                                                                                                                                                                                                      |
|                                | Undervoltage protection              | Shutdown when the main circuit DC voltage is below 350V                                                                                                                                                                                                                                                                                                                      |
|                                | Overheating protection               | Protection is triggered when the inverter bridge is overheated                                                                                                                                                                                                                                                                                                               |
|                                | Overload protection                  | Run at 150% rated current and stop for 60s                                                                                                                                                                                                                                                                                                                                   |
|                                | Overcurrent protection               | Over 2.5 times the rated current of the inverter, shutdown protection                                                                                                                                                                                                                                                                                                        |
|                                | Brake protection                     | Braking unit overload protection, braking resistor short circuit protection                                                                                                                                                                                                                                                                                                  |
|                                | Short circuit protection             | Output phase short circuit protection, output to ground short circuit protection                                                                                                                                                                                                                                                                                             |
| Environ ment                   | Use place                            | Indoor, free from direct sunlight, no dust, corrosive gas, flammable gas, oil mist, water vapor, dripping water and salt                                                                                                                                                                                                                                                     |
|                                | Altitude                             | No derating is required for use below 1000m, derating 1% for every 100m above 1000m, the highest operating altitude is 3000m, please contact the manufacturer for more than 3000m<br>Note: The highest operating altitude of the 0.4~3KW drive is 2000m, please contact the manufacturer if it exceeds 2000m                                                                 |
|                                | Ambient Temperature                  | 10°C~+50°C, When the ambient temperature is 40~50°C, it needs to be cooled for use. For every 1°C increase in the ambient temperature, the derating will be 1.5%                                                                                                                                                                                                             |
|                                | Humidity                             | Less than 95%RH, no condensation                                                                                                                                                                                                                                                                                                                                             |
|                                | Vibration                            | Less than 5.9m/s (0.6g)                                                                                                                                                                                                                                                                                                                                                      |
|                                | Storage temperature                  | -20°C~+60°C                                                                                                                                                                                                                                                                                                                                                                  |



### 1.3 Product Size

Picture1-3.1 CM500 series machine size (0.4Kw-5.5kw)



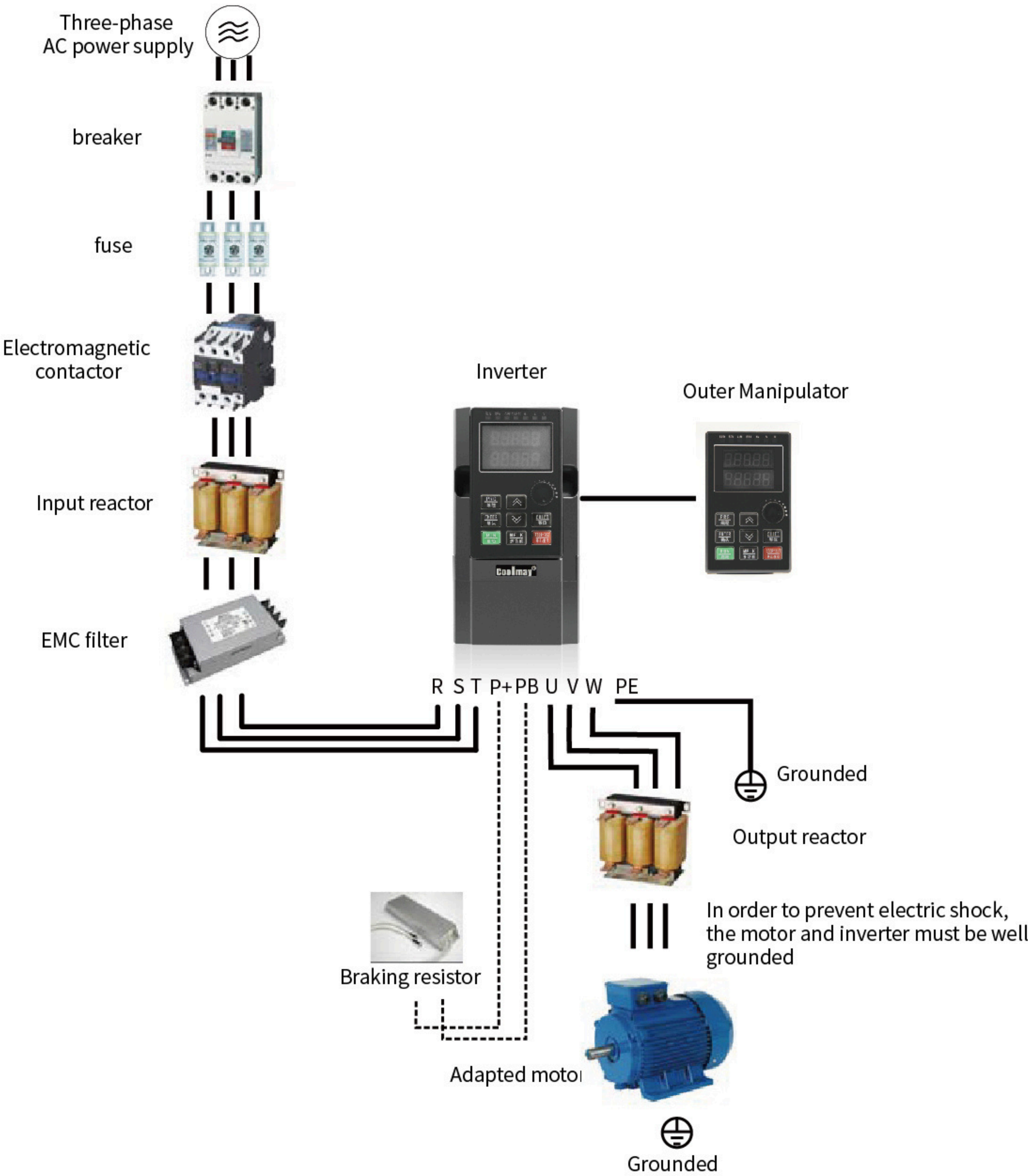
| Inverter model  | Mounting Hole(mm) |     | Dimensions (mm) |    |    |     | Mounting holes (mm) | weight kg |
|-----------------|-------------------|-----|-----------------|----|----|-----|---------------------|-----------|
|                 | A                 | B   | H               | H1 | W  | D   | d                   |           |
| CM500-0.4S2-1A  | 80                | 156 | 164             | -  | 86 | 125 | Ø5                  | 1.6       |
| CM500-0.75S2-1A |                   |     |                 |    |    |     |                     |           |
| CM500-1.5S2-1A  |                   |     |                 |    |    |     |                     |           |
| CM500-0.75T4-1A |                   |     |                 |    |    |     |                     |           |
| CM500-1.5T4-1A  |                   |     |                 |    |    |     |                     |           |
| CM500-2.2T4-1A  | 86                | 173 | 184             | -  | 97 | 136 | Ø5                  | 2.0       |
| CM500-3.7T4-1A  |                   |     |                 |    |    |     |                     |           |
| CM500-5.5T4-1A  |                   |     |                 |    |    |     |                     |           |
| CM500-7.5T4-1A  |                   |     |                 |    |    |     |                     |           |



## 2 System connection

### 2.1 CM500 system connection diagram

When using the CM500 series inverter to control an asynchronous motor to form a control system, it is necessary to install various electrical components on the input and output sides of the inverter to ensure the safety and stability of the system. The system structure of a product with a power of 0.4kW and above is shown in the figure below:



Picture 2-1 CM500 series system structure



● The above figure is only used as a schematic diagram of the CM500 inverter system connection. For the specific peripheral equipment selection, please refer to <Chapter 9 Specifications and Selection> of the <CM500 Series General Inverter Comprehensive Manual>.



## 2.2 CM500 system composition description

Table 2-1 Instructions for use of peripheral electrical components of CM500 inverter system

| Accessory name              | Installation location                                                               | Function Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----------------------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| breaker                     | Between power supply and inverter input side                                        | Short circuit breaker: cut off the power when the downstream equipment is overcurrent to prevent accidents.<br>Leakage protection circuit breaker: High-frequency leakage current may be generated when the inverter is working. In order to prevent electric shock accidents and induced electric fires, please choose and install a suitable leakage protection circuit breaker according to the site conditions.                                                                                                                                                                           |
| fuse                        | Between power supply and inverter input side                                        | Prevent accidents due to short circuits and protect downstream semiconductor devices                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| (Electromagnetic) contactor | Between the circuit breaker and the input side of the inverter                      | When the inverter is powered on and off, it is necessary to avoid frequent power-on and power-off operations (with an interval of not less than one hour) or direct start-up operations on the inverter through the contactor.                                                                                                                                                                                                                                                                                                                                                                |
| Input reactor               | Inverter input side                                                                 | Improve the power factor of the input side;<br>Effectively eliminate high-order harmonics on the input side to prevent damage to other equipment caused by voltage waveform distortion;<br>Eliminate the unbalanced input current caused by the unbalanced power supply phase                                                                                                                                                                                                                                                                                                                 |
| EMC filter                  | Inverter input side                                                                 | Reduce the external conduction and radiation interference of the inverter<br>Reduce the interference from the power source to the inverter and improve the anti-interference ability of the inverter                                                                                                                                                                                                                                                                                                                                                                                          |
| Braking resistor            | The main circuit terminal P+ of the inverter,<br>Between PB                         | For models with B, please select a braking resistor;<br>The motor consumes regenerative energy through the braking resistor when decelerating                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Brake unit                  | Between inverter main circuit terminals (+) and (-)                                 | Please select our braking unit (MDBUN, MDBU) and recommended resistors for the whole series without B models;<br>The motor consumes regenerative energy through the braking resistor when decelerating                                                                                                                                                                                                                                                                                                                                                                                        |
| Output reactor              | Install close to the inverter between the output side of the inverter and the motor | The output side of the inverter generally contains more high-order harmonics. When the distance between the motor and the inverter is far, there is a larger distributed capacitance in the circuit. One of the harmonics may cause resonance in the loop, bringing two effects<br>a) Destroy the insulation performance of the motor, and damage the motor for a long time<br>b) Large leakage current is generated, causing frequent inverter protection<br>Generally, the distance between the inverter and the motor is more than 100m, it is recommended to install an output AC reactor |
| dv/dt reactor               | Install close to the inverter on the output side of the inverter                    | Optional dv/dt reactor can protect motor insulation and reduce bearing current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Output magnetic ring        | Install close to the inverter on the output side of the inverter                    | The output magnetic ring is mainly used to reduce bearing current                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Motor                       | Inverter output side                                                                | Please select the suitable motor according to the recommendation                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| External keyboard           | External keyboard interface                                                         | External LED keyboard                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |



NOTE

- Do not install capacitors or surge suppressors on the output side of the inverter, otherwise it will cause the inverter to malfunction or damage the capacitors and surge suppressors
- The input/output (main circuit) of the inverter contains harmonic components, which may interfere with communication equipment near the inverter. Anti-interference filter can be installed to minimize interference



## 2.3 External operation panel

### 1) External LED operation panel

CM-KEY01 is an external operation panel (optional accessory) adapted to CM500. It adopts LED display. Its operation mode is exactly the same as that of the machine's own operation panel. For more information, please refer to "Chapter 4 Panel Operation". Due to its external characteristics, It is convenient for customers to debug.

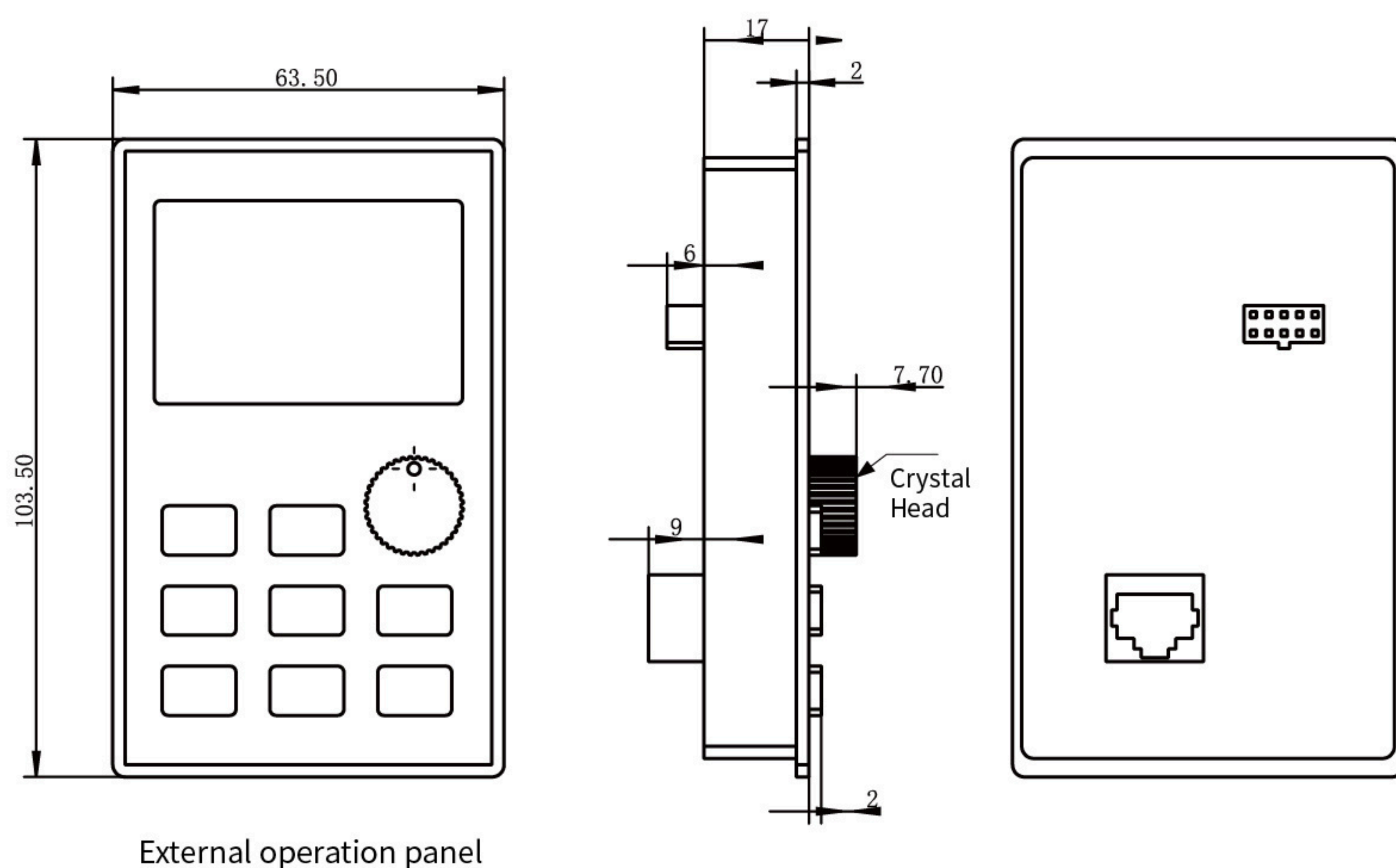


Figure 2-2 CM500 External Leading Operation Panel Dimensions (Unit: mm)



# 3 Installation and wiring

## 3.1 Installation

### 3.1.1 Installation environment

- 1) Ambient temperature: The ambient temperature has a great influence on the life of the inverter, and the operating environment temperature of the inverter is not allowed to exceed the allowable temperature range (-10°C~50°C)
- 2) Install the inverter on the surface of a flame-retardant object, with enough space around it for heat dissipation. When the inverter is working, it is easy to generate a lot of heat. And use screws to install vertically on the mounting support
- 3) Please install it in a place that is not prone to vibration. Vibration should not be greater than 0.6g. Pay special attention to stay away from punching machines and other equipment.
- 4) Avoid installing in places exposed to direct sunlight, humidity, and water droplets
- 5) Avoid installing in places with corrosive, flammable, and explosive gases in the air
- 6) Avoid installing in places with oil and dust

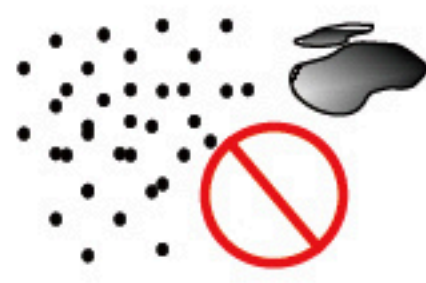
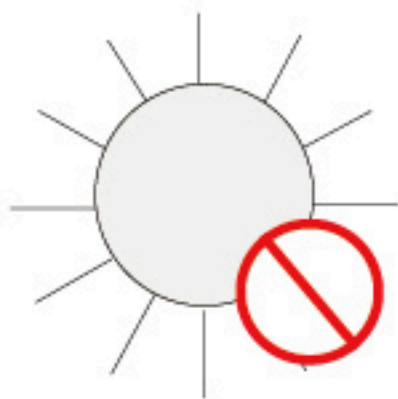
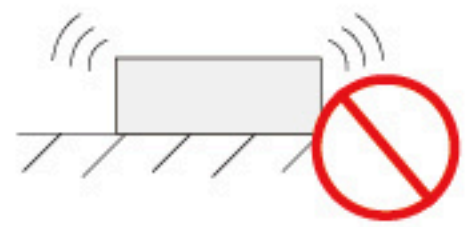
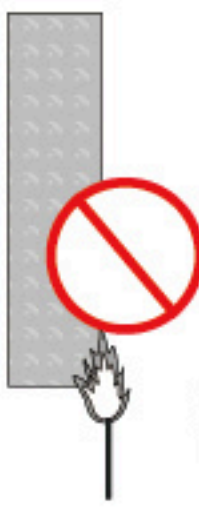
|                                                                                                                                                                                                |                                                                                                                                 |                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p>Dust and oil</p>                                                                                        |  <p>Direct sunlight</p>                     |  <p>Strong vibration, the vibration is not more than 1G</p>                                         |
|  <p>High temperature and humidity</p> <p>Operating environment temperature should not exceed -10°C~50°C</p> |  <p>Flammable, explosive, corrosive gas</p> |  <p>Combustible material</p> <p>Do not install the inverter on the surface of flammable objects</p> |

Figure 3-1 Installation environment requirements

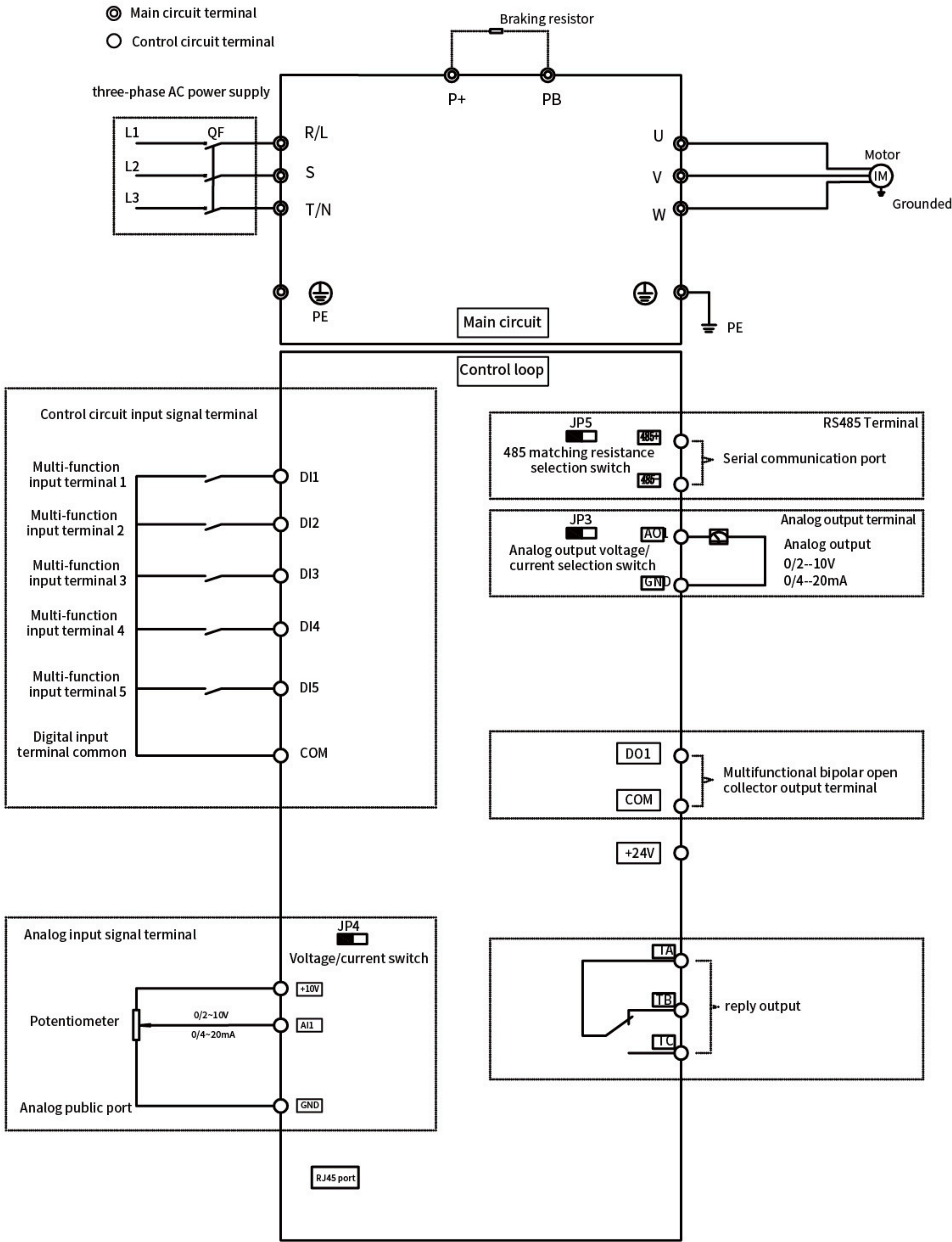
7) This series of products are installed in the cabinet and need to be installed in the final system. The final system should provide corresponding fireproof housing, electrical protection housing and mechanical protection housing, etc., and meet the requirements of local laws and regulations and relevant IEC standards



3.2 Wiring

3.2.1 Standard wiring diagram

As shown in the figure below, please note that there is a difference between the wiring part of the three-phase 380V 0.4KW~75KW model and the 90KW~450KW model at the double arrow on the way.





3.2.2 Main circuit terminal description

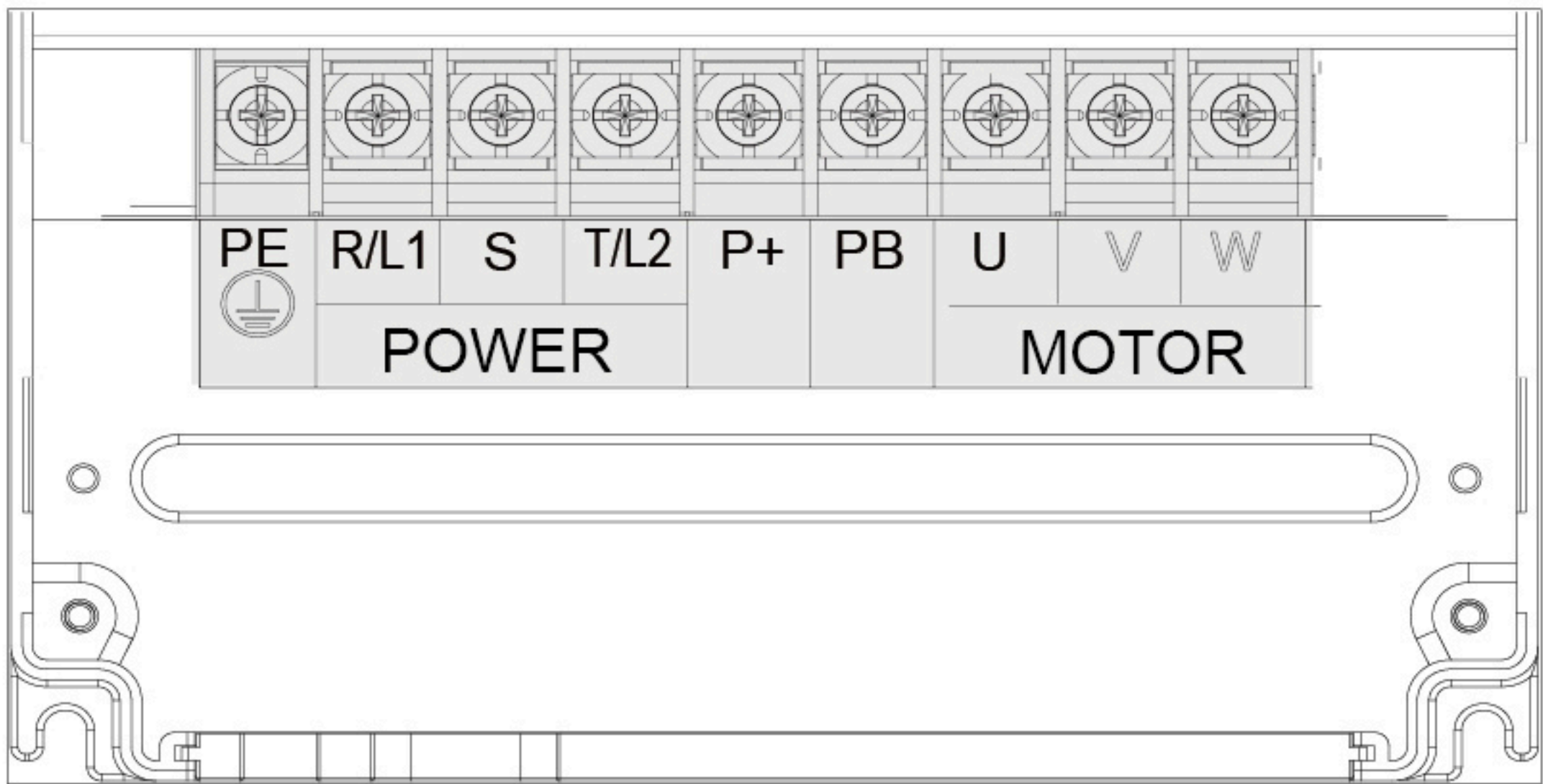


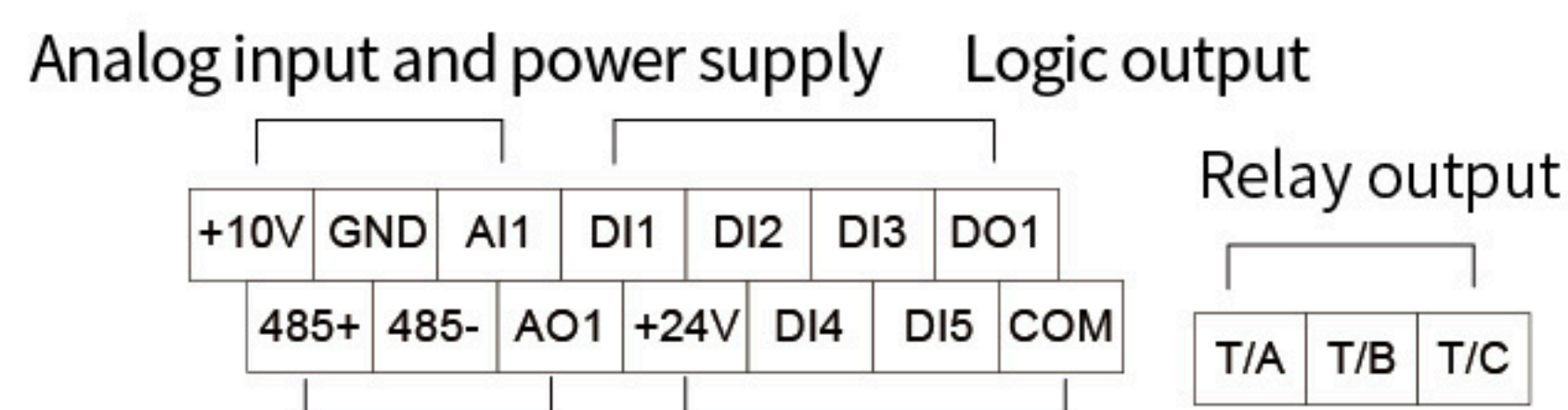
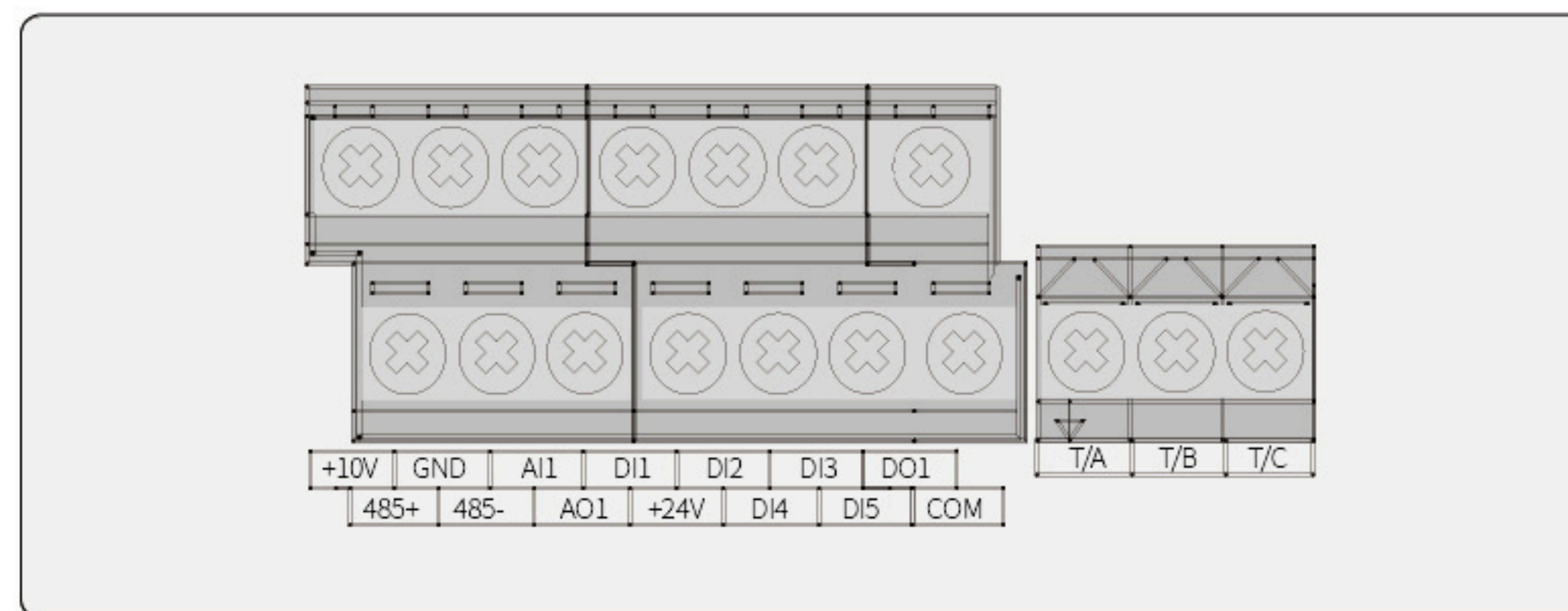
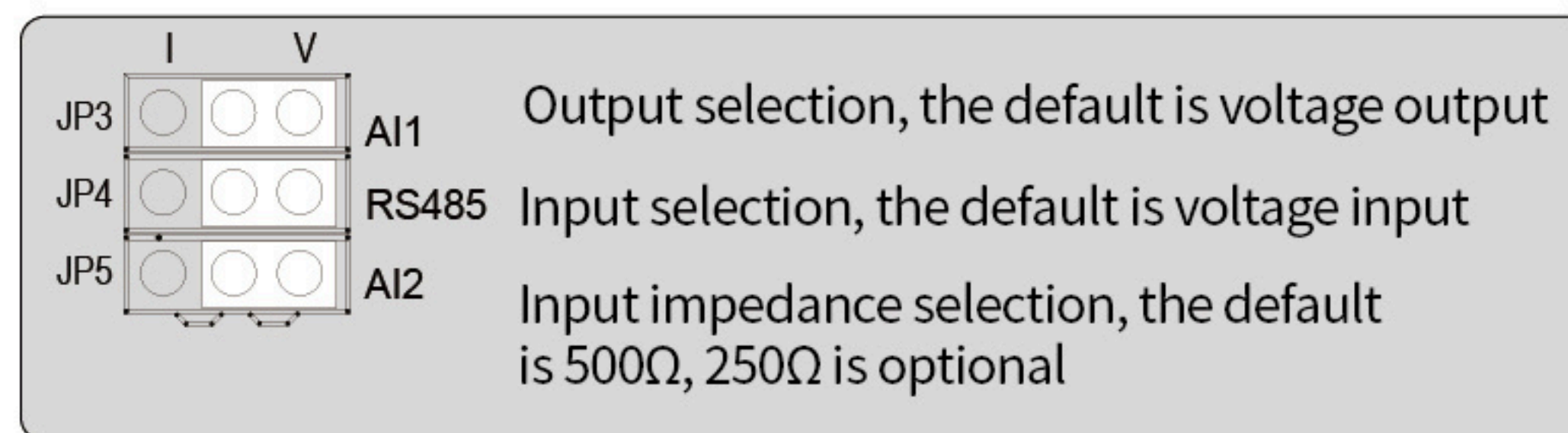
Figure 3-9 Main circuit terminal distribution diagram

Table 3-5 CM500 series inverter main circuit terminal description

| Terminal mark                                                                       | Terminal name                | Function Description                        |
|-------------------------------------------------------------------------------------|------------------------------|---------------------------------------------|
| R、S、T                                                                               | Three-phase power input      | AC input three-phase power connection point |
| P+、PB                                                                               | DC bus positive and negative | Common DC bus input point                   |
| U、V、W                                                                               | Inverter output terminal     | Connect a three-phase motor                 |
|  | Ground terminal(PE)          | Protective grounding                        |



### 3.2.3 Control circuit terminal description



Analog input and power supply      Pulse output and open collector output      Logic common and power supply

Figure 3-10 Control circuit terminal layout

### Table 3-6 Description of CM500 inverter control terminals

| category     | Terminal symbol | Terminal name              | Function Description                                                                                                                                                                                                        |
|--------------|-----------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| power supply | +10V-GND        | External +10V power supply | +10V power supply is provided outside the box, maximum output<br>Generally used as an external potentiometer power supply, the resistance range of the potentiometer: 1KΩ-5KΩ                                               |
|              | +24V-COM        | External +24V power supply | Provide +24V power supply, generally used as the power supply for digital input and output terminals and external sensor power supply<br>Maximum output current: 200mA [Note 1]<br>The factory default is connected to +24V |
| Analog input | AI1-GND         | Analog input 1             | Input range: 0Vdc~10Vdc/0mA~20mA, which is selected by the JP3 jumper on the control panel.<br>Input impedance: 22KΩ for voltage input, 500Ω or 250Ω for current input through JP5 jumper [Note 2]                          |



| category       | Terminal symbol | Terminal name            | Function Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|----------------|-----------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Digital input  | DI1-GND         | Digital input 1          | Optocoupler isolation, compatible with bipolar input<br>Input impedance: 1.39KΩ<br>Voltage range when valid level input: 9V~30V<br>In addition to the characteristics of DI1~DI4, it can also be used as a high-speed pulse input channel.<br>Input impedance: 1.03KΩ                                                                                                                                                                                                                                                                               |
|                | DI2-GND         | Digital input 2          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                | DI3-GND         | Digital input 3          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|                | DI4-GND         | Digital input 4          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Analog output  | A01-GND         | Analog output 1          | The voltage or current output is determined by the J7 jumper on the control board.<br>Output voltage range: 0V~10V<br>Output current range: 0mA~20mA                                                                                                                                                                                                                                                                                                                                                                                                |
| Digital output | DO1-COM         | Digital output 1         | Optocoupler isolation, bipolar open collector output<br>Output voltage range: 0V~24V<br>Output current range: 0mA~50mA<br><br>Note: The digital output ground CME and the digital input ground COM are internally isolated, but the CME and COM have been externally short-circuited when leaving the factory (the DO1 defaults to +24V drive). When DO1 wants to be driven by an external power supply, the external short circuit between CME and COM must be disconnected.Restricted by function code F5-00 "FM terminal output mode selection"; |
| Relay output   | T/A-T/B         | Normally closed terminal | Electric shock drive capability:<br>250Vac,3A,COSØ=1.4<br>300Vdc,1A                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|                | T/A-T/C         | Normally open terminal   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

[Note 1] When the ambient temperature is greater than 23°C, the user needs to derate according to "For every 1°C increase in the ambient temperature, the output current decreases by 1.8mA"; the maximum output current is 170mA at a 40°C ambient temperature.

When the user sets the OP When short-circuiting with 24V, the current of the DI terminal must also be taken into consideration.

[Note 2] Please select 500Ω or 250Ω impedance according to the load capacity of the signal source. The choice is based on the maximum output voltage of the signal source. For example, if 500Ω impedance is used, the maximum output voltage of the signal source must not be less than 10V to ensure that AI2 can be measured. To a current of 20mA.

[Note 3] The positions of jumpers JP3, JP4 and JP5 on the control board are shown in Figure 3-12.



## 4 Panel operation

### 4.1 Panel introduction

Through this operation panel, function code setting/modification, working status monitoring, operation control (start, stop)and other operations can be performed on the inverter. For detailed information on the operation panel, please refer to the "CM500 Series General Inverter Comprehensive Manual".

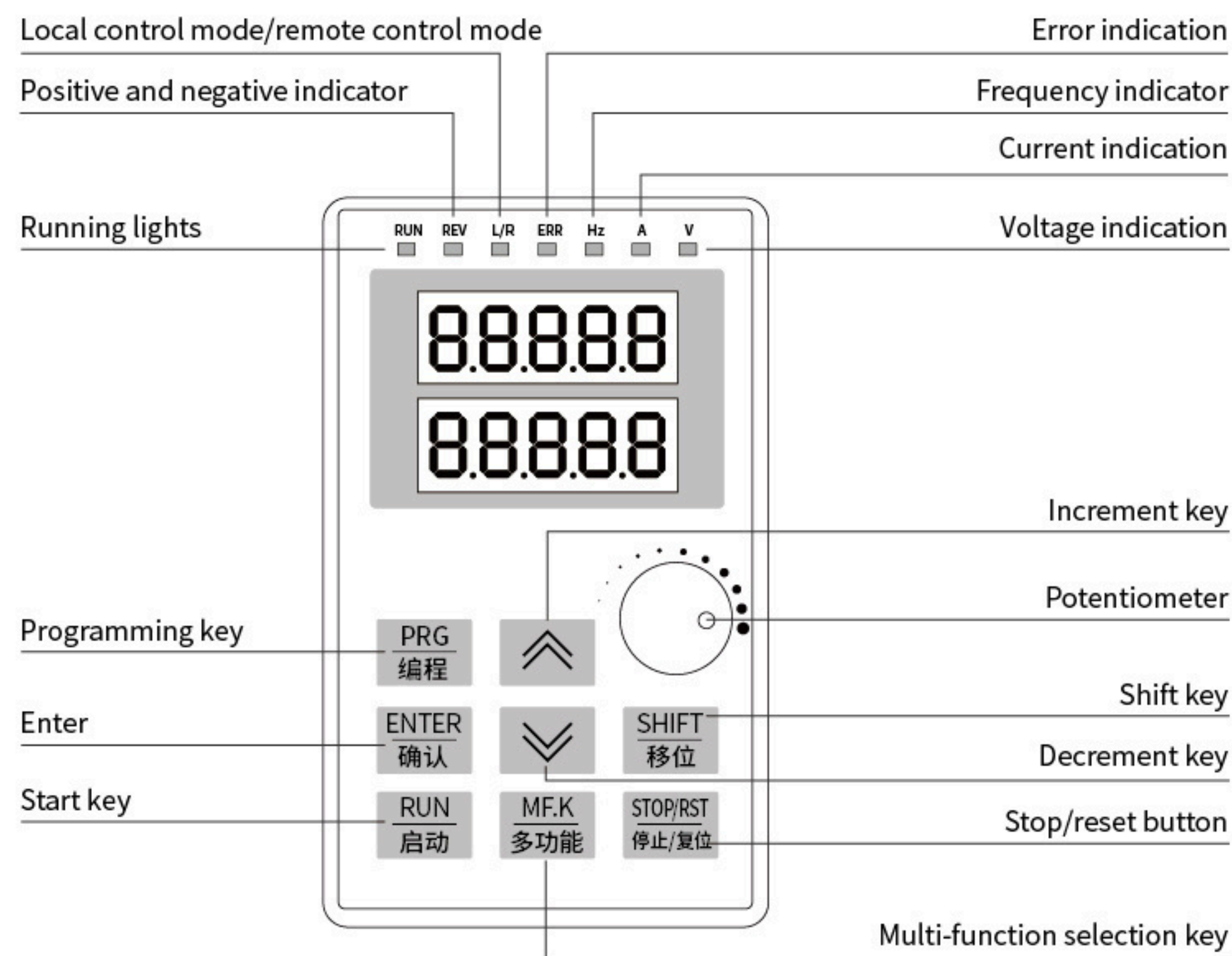


Figure 4-1 The name of each part of the panel

### 4.2 Button description

Table 4-1 Keyboard key function table

| button | name            | Function                                                                                                                                                                                                 |
|--------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        | Programming key | Enter or exit the first level menu                                                                                                                                                                       |
|        | Enter           | Enter the menu screen step by step, confirm the setting parameters                                                                                                                                       |
|        | Increment key   | Increment of data or parameters                                                                                                                                                                          |
|        | Decrement key   | Decrement of data or parameters                                                                                                                                                                          |
|        | Shift key       | In the stop display interface and the running display interface, the display parameters can be selected cyclically;<br>When modifying a parameter, you can select the modification bit of the parameter. |
|        | Start key       | In the start-stop control mode of "operation panel", it is used for running operation                                                                                                                    |



| button                                                                            | name                         | Function                                                                                                                     |
|-----------------------------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------|
|  | Stop/reset button            | In the running state, it is used to stop the running operation; in the fault alarm state, it is used to reset the operation. |
|  | Multi-function selection key | Switch between the selected functions according to the set value of P08.01                                                   |

### 4.3 Function indicator

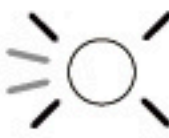
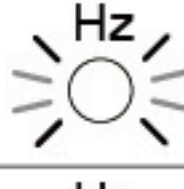
 in the small table means the light is on    
  the light is off    
  and it flashes

Table 4-2 Description of panel indicators

| Indicator status                                                                                                                                                                                                                                                                  |                                                                                                   | State description                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|------------------------------------------|
| RUN<br>Running lights                                                                                                                                                                                                                                                             |  RUN          | Light off: stop                          |
|                                                                                                                                                                                                                                                                                   |  RUN          | Light on: running                        |
| L/R<br>Command source indicator                                                                                                                                                                                                                                                   |  LOCAL/ REMOT | Light off: panel control                 |
|                                                                                                                                                                                                                                                                                   |  LOCAL/ REMOT | Light on: terminal control               |
|                                                                                                                                                                                                                                                                                   |  LOCAL/ REMOT | Flashing: communication control          |
| FWD/REV<br>Forward and reverse indicator                                                                                                                                                                                                                                          |  FWD/REV      | Light off: forward running               |
|                                                                                                                                                                                                                                                                                   |  FWD/ REV     | Light on: Reverse running                |
| ERR<br>Tuning/torque control/<br>fault indicator                                                                                                                                                                                                                                  |  TUNE/ TC     | Light off: normal operation mode         |
|                                                                                                                                                                                                                                                                                   |  TUNE/ TC     | Light on: Torque control mode            |
|                                                                                                                                                                                                                                                                                   |  TUNE/TC      | Slow flashing: tuning state (1 time/sec) |
|                                                                                                                                                                                                                                                                                   |  TUNE/TC      | Fast flashing: fault state (4 times/sec) |
|  Hz — RPM —  A — % —  V |                                                                                                   | Frequency unit Hz                        |
|  Hz — RPM —  A — % —  V |                                                                                                   | Current unit V                           |
|  Hz — RPM —  A — % —  V |                                                                                                   | Voltage unit V                           |
|  Hz — RPM —  A — % —  V |                                                                                                   | Speed unit RPM                           |
|  Hz — RPM —  A — % —  V |                                                                                                   | Percentage%                              |



## 5 Basic operation and trial run

### 5.1 Quick Commissioning Guide

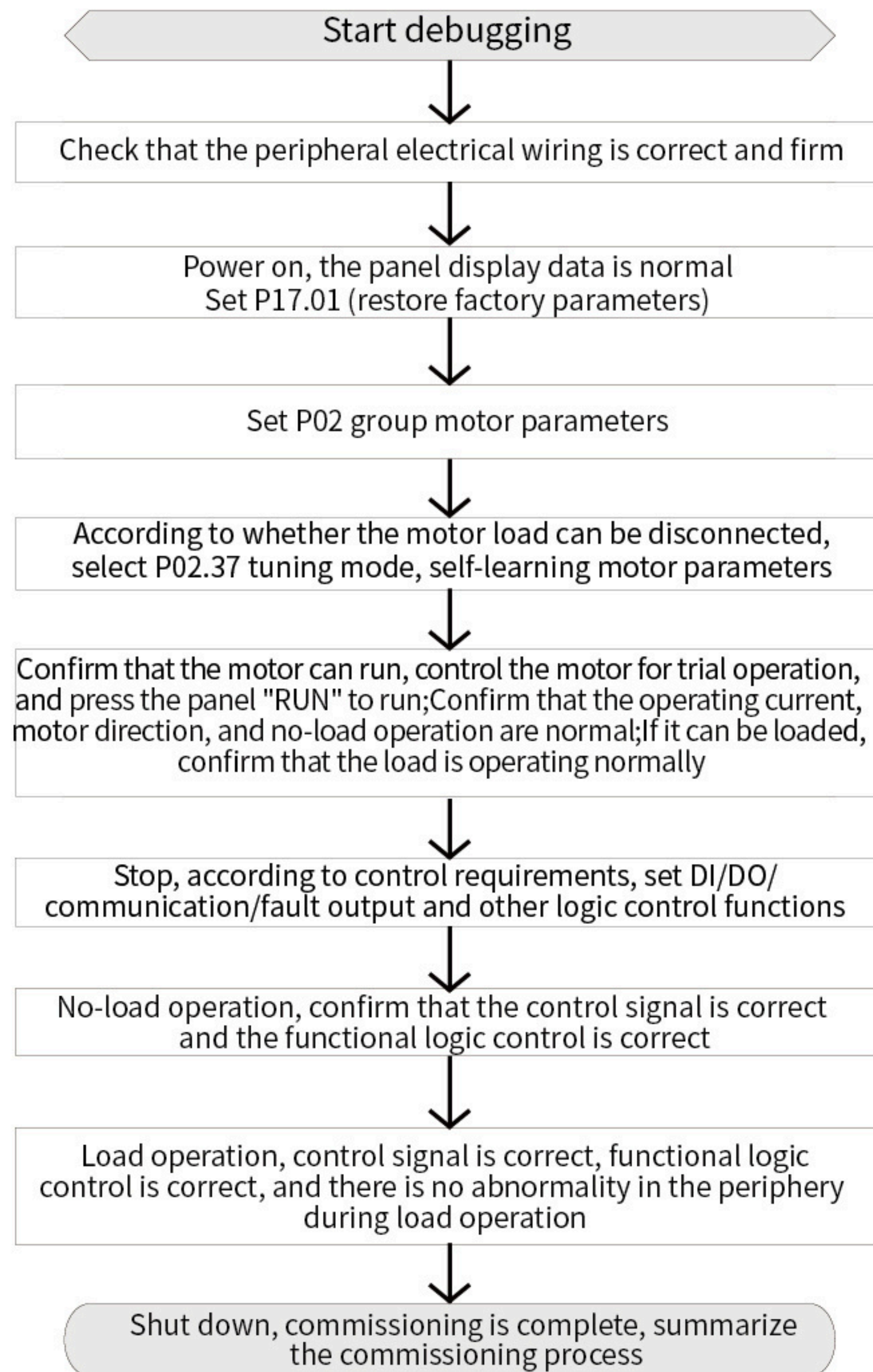


Figure 5-1 Quick commissioning step guide

### 5.2 Items to be confirmed before turning on the power

Be sure to check the items before turning on the power.

| project                                                                            | content                                                                                                                       |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Confirmation of power supply voltage                                               | Please confirm that the power supply voltage is correct AC 380V~480V/220V~240V 50/60Hz                                        |
|                                                                                    | Please connect the power input terminal (R/S/T) reliably                                                                      |
|                                                                                    | Confirm that the inverter and the motor are properly grounded                                                                 |
| Confirm the connection between the inverter output terminal and the motor terminal | Please confirm whether the connection between the inverter output terminal (U/V/W) and the motor terminal is firm             |
| Confirm the connection with the inverter control circuit terminal                  | Please confirm whether the connection between the control circuit terminals of the inverter and other control devices is firm |
| Status confirmation of inverter control terminals                                  | Please confirm whether the control circuit terminals of the inverter are all in the OFF state (the inverter is not running)   |
| Load confirmation                                                                  | Please confirm whether the motor is in no-load state and not connected to the mechanical system                               |



5.3 Display status confirmation after power on

After the power is turned on, the operator display in the normal state is as follows

| state                  | Dispaly          | illustrate                                                                                |
|------------------------|------------------|-------------------------------------------------------------------------------------------|
| Normal time            | <div>50.00</div> | The factory default display is digital setting 50.00Hz                                    |
| At the time of failure | <div>E.OC×</div> | In the event of a fault, the inverter is in a stop state, and the fault type is displayed |

5.4 Parameter initialization

The setting of the inverter can be restored to the factory value setting. After initialization, P17.01 automatically returns to zero.

| P17.01 | Parameter initialization |     | Factory default                                        | 0 |
|--------|--------------------------|-----|--------------------------------------------------------|---|
|        | Predetermi-<br>ned area  | 0   | No action                                              |   |
|        |                          | 1   | Restore factory parameters, excluding motor parameters |   |
|        |                          | 2   | Clear record information                               |   |
|        |                          | 4   | Backup user current parameters                         |   |
|        |                          | 501 | Restore user backup parameters                         |   |

1: Restore factory settings, excluding motor parameters

After setting P17.01 to 1, most of the inverter function parameters are restored to the factory factory parameters, but the motor parameters, frequency command decimal point (P01.22), fault record information, cumulative running time (P08.09), cumulative machine Time (P08.13), accumulated power consumption (P08.14), and IGBT heat sink temperature (P08.07) will not recover.

2: Clear record information

Clear the inverter fault record information, accumulated running time (P08.09), accumulated computer time (P08.13), accumulated power consumption (P08.14).

5.5 Basis for selection of motor control mode

| function code                               | illustrate                                         | Application occasions                                                                                                                                                                                                                               |
|---------------------------------------------|----------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P01.01:<br>SelectionMotor<br>control method | Set to 0: Speed sensorless<br>vector control (SVC) | Refers to open-loop vector control, which is suitable for general high-performance control occasions. One inverter can only drive one motor. Such as machine tools, centrifuges, wire drawing machines, injection molding machines and other loads. |
|                                             | Set to 2: V/F control (speed<br>open loop control) | It is suitable for occasions where the load requirements are not high, or one inverter drives multiple motors, such as fans and pumps. It can be used in occasions where one inverter drives multiple motors.                                       |



## 6 Fault handling

### 6.1 Fault handling

| Panel display | Fault                      | Panel display | Fault                                                  |
|---------------|----------------------------|---------------|--------------------------------------------------------|
| E.oCX         | Inverter unit protection   | E.EEP         | EEPROM Read and write failure                          |
| E.oC1         | Accelerating overcurrent   | E.INv         | Inverter hardware failure                              |
| E.oC2         | Deceleration overcurrent   | E.STG         | Short-to-ground fault                                  |
| E.oC3         | Constant speed overcurrent | E.TIo         | No response when the accumulated running time reaches  |
| E.oU1         | Accelerating overvoltage   | E.USE1        | User-defined fault 1                                   |
| E.oU2         | Deceleration overvoltage   | E.USE2        | User-defined fault 2                                   |
| E.oU3         | Constant speed overvoltage | E.PUT0        | No response when the accumulated power-on time reaches |
| E.Br          | Control power failure      | E.LOAD        | Offload fault                                          |
| E.LU          | Undervoltage fault         | E.PId         | PID feedback loss failure during operation             |
| E.oL1         | Inverter overload          | E.CBC         | CBC failure                                            |
| E.oL2         | Motor overload             | E.SrUN        | Switching motor failure during operation               |
| E.PHI         | Input phase loss           | E.SSD         | Excessive speed deviation fault                        |
| E.PHo         | Output phase loss          | E.oS          | Motor overspeed fault                                  |
| E.oH1         | The module is overheated   | E.oH2         | Motor over temperature                                 |
| E.SET         | External device failure    | A-LL          | Water shortage warning                                 |
| E.CE          | Communication failure      | A-tF          | Full water warning                                     |
| E.CoN         | Contactor failure          | A-HP          | High water pressure failure                            |
| E.oCC         | Current detection failure  | A-LP          | Low water pressure failure                             |
| E.TE          | Motor tuning failure       |               |                                                        |



## 7 Daily Maintenance

### 7.1 Daily maintenance

To ensure that the inverter functions normally and the product is not damaged, please check the following items. Please print this checklist and tick the confirmation box.

| Item                     | Content                                | Countermeasures                                                                                                                                                                                                                                                                   | Tick |
|--------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Motor                    | Abnormal sound and vibration           | <ul style="list-style-type: none"> <li>• Confirm if mechanical connection is normal</li> <li>• Confirm if motor is lack of phase</li> <li>• Confirm if motor fixing screws are firm</li> </ul>                                                                                    |      |
| Fan                      | Inver or motor fan                     | <ul style="list-style-type: none"> <li>• Confirm if inverter cooling fan is working</li> <li>• Confirm motor fan is working</li> <li>• Confirm if the ventilation channel is blocked</li> <li>• Confirm if the ambient temperature is within the allowable range</li> </ul>       |      |
| Installation environment | electric cabinet and cable trough      | <ul style="list-style-type: none"> <li>• Check if the cables in and out of the inverter have insulation damage</li> <li>• Check if there is vibration on the mounting bracket</li> <li>• Check if the copper bars and connecting cable terminals are loose or corroded</li> </ul> |      |
| Load                     | Inverter running current out of rating | <ul style="list-style-type: none"> <li>• Confirm if the motor parameter settings are correct</li> <li>• Check if the motor is overloaded</li> <li>• Confirm if the mechanical vibration is too large (normally &lt;1G).</li> </ul>                                                |      |
| INPUT VOLTAGE            | Main loop and control loop             | <ul style="list-style-type: none"> <li>• Confirm if the input voltage is within the allowable range</li> <li>• Check if there is a heavy load around starting</li> </ul>                                                                                                          |      |

### 7.2 Periodic Inspection

| Item                                    | Content                                                                                                                                                             | Countermeasures                                                                                                                                                                                                                                                                                                                 | Tick |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|
| Whole machine                           | Whether there is rubbish, dirt, dust accumulation on the surface                                                                                                    | <ul style="list-style-type: none"> <li>• Check whether the inverter cabinet is powered off.</li> <li>• Use a vacuum cleaner to remove rubbish or dust to avoid touching the parts.</li> <li>• When the dirt on the surface cannot be removed, you can wipe it with alcohol and let it dry and volatilize completely.</li> </ul> |      |
| Cables                                  | Whether the power line and the connection are discolored. Whether the insulation layer is aged or cracked.                                                          | <ul style="list-style-type: none"> <li>• Replace the cracked cable.</li> <li>• Replace the damaged connection terminal.</li> </ul>                                                                                                                                                                                              |      |
| Peripheral of electromagnetic contactor | Whether it sucks tightly or makes abnormal noises during the action. Whether there are peripheral devices that are short-circuited, contaminated by water, swelled, | <ul style="list-style-type: none"> <li>• Replace the abnormal components.</li> </ul>                                                                                                                                                                                                                                            |      |
| Air duct vent                           | Whether the air duct and heat sink are blocked. Whether the fan is damaged.                                                                                         | <ul style="list-style-type: none"> <li>• Sweep the air duct.</li> <li>• Replace the fan.</li> </ul>                                                                                                                                                                                                                             |      |
| Control loop                            | Whether the control components have poor contact. Whether the terminal screws are loose. Whether the control cable has insulation cracks.                           | <ul style="list-style-type: none"> <li>• Clean up foreign objects on the surface of the control circuit and connection terminals.</li> <li>• Replace the damaged and corroded control cables.</li> </ul>                                                                                                                        |      |



## 7.3 Replacement of Inverter Vulnerable Parts

### 7.3.1 Life span of wearing parts

The vulnerable parts of the frequency converter are mainly cooling fans and electrolytic capacitors for filtering. Their service life is closely related to the environment and maintenance conditions. The general life time is:

| Spare parts            | Life span(Note) |
|------------------------|-----------------|
| Fan                    | $\geq 5$ years  |
| Electrolytic capacitor | $\geq 5$ years  |

#### Note:

The life span is the time when it is used under the following conditions. The user can determine the replacement period according to the operating time.

1. Ambient temperature: 40°C
2. Load rate: 80%
3. Operation rate: 24 hours/day

#### 7.3.2 Cooling fan replacement

1. Possible causes of damage: bearing wear and blade aging.
2. Judgment criteria: Whether there are cracks in the fan blades, whether there is abnormal vibration sound when starting up, whether the fan blades are operating abnormally.
3. Fan replacement method:

After pressing the buckle of the fan plastic protective cover, pull to take it out. After replacing the fan, ensure that the wind direction blows upwards and pay attention to the wind direction.

#### 7.4 Storage of the frequency converter

After purchasing the inverter, the user must pay attention to the following points for temporary storage and long-term storage.

1. Please store it in the original packaging box while storing it.
2. The whole machine is not allowed to be placed in humid, high temperature, or outdoor exposure for a long time.
3. Long-term storage will cause the deterioration of the electrolytic capacitor. It must be energized once within 6 months for at least 5 hours.

The input voltage must be slowly increased to the rated value with a voltage regulator or consult the technical support of the inverter professional.



# ppendix A Parameter Table

- "☆": It means that the set value of this parameter can be changed when the inverter is in stop or running state.
- "★": It means that the set value of this parameter cannot be changed when the inverter is in the running state.
- "●" : Indicates that the value of this parameter is the actual test record value and cannot be changed.
- "\*": Indicates that the parameter is a "manufacturer parameter", which is limited to the manufacturer's settings, and users are forbidden to operate.



| P00 Monitoring group |                                                                |                                              |                 |      |
|----------------------|----------------------------------------------------------------|----------------------------------------------|-----------------|------|
| P00.00               | Running frequency (Hz)                                         | 0.00 ~ 320.00Hz (P01.22=2)                   | —               |      |
| P00.01               | Setting frequency (Hz)                                         | 0.0 ~ 3200.0Hz (P01.22=1)                    | —               |      |
| P00.02               | Bus voltage (V)                                                | 0.0V ~ 3000.0V                               | —               |      |
| P00.03               | Output voltage (V)                                             | 0V ~ 1140V                                   | —               |      |
| P00.04               | Output current (A)                                             | 0.00A ~ 655.35A                              | —               |      |
| P00.05               | Output power (kW)                                              | 0 ~ 32767                                    | —               |      |
| P00.06               | Output torque (%)Percentage output value of motor rated torque | -200.0% ~ 200.0%                             | —               |      |
| P00.07               | DI input status                                                | 0 ~ 32767                                    | —               |      |
| P00.08               | DO output status                                               | 0 ~ 1023                                     | —               |      |
| P00.09               | AI1 voltage(V)                                                 | 0.01V                                        | —               |      |
| P00.10               | AI2 voltage (V) /current (mA)                                  | 0.00V ~ 10.57V<br>0.00mA ~ 20.00mA           | —               |      |
| P00.12               | Count value                                                    | 0 ~ 65535                                    | —               |      |
| P00.13               | Length value                                                   | 0 ~ 65535                                    | —               |      |
| P00.14               | Load speed display                                             | 0 ~ 65535                                    | —               |      |
| P00.15               | PID setting                                                    | 0 ~ 65535                                    | —               |      |
| P00.16               | PID feedback                                                   | 0 ~ 65535                                    | —               |      |
| P00.17               | PLC period                                                     | 0 ~ 65535                                    | —               |      |
| P00.18               | PULSE input pulse frequency(Hz)                                | 0 ~ 100kHz                                   | —               |      |
| P00.19               | Response speed (Hz)                                            | -320.00Hz ~ 320.00Hz<br>-3200.0Hz ~ 3200.0Hz | —               |      |
| P00.20               | Remaining running time                                         | 0.0 ~ 6500.0Min                              | —               |      |
| P00.21               | AI1 voltage before calibration                                 | 0.000V ~ 10.570V                             | —               |      |
| P00.22               | AI2 voltage(V)/current(mA) before calibration                  | 0.000V ~ 10.570V<br>0.000mA ~ 20.000mA       | —               |      |
| P00.24               | Line speed                                                     | 0 ~ 65535m/Min                               | —               |      |
| P00.25               | Current power-on time                                          | 0 ~ 6500Min                                  | —               |      |
| P00.26               | Current running time                                           | 0.0 ~ 6500.0Min                              | —               |      |
| P00.28               | Communication settings                                         | -100.00% ~ 100.00%                           | —               |      |
| P00.30               | Main frequency X display                                       | 0.00Hz ~ 500.00Hz                            | —               |      |
| P00.31               | Auxiliary frequency Y display                                  | 0.00Hz ~ 500.00Hz                            | —               |      |
| P00.32               | View the value of any memory address                           | 0 ~ 65535                                    | —               |      |
| P00.35               | Target torque (%)                                              | 0.0° ~ 359.9°                                | —               |      |
| P00.37               | Power factor angle                                             |                                              | —               |      |
| P00.39               | VF separation target voltage                                   | 0V ~ Motor rated voltage                     | —               |      |
| P00.40               | VF separation output voltage                                   | 0V ~ Motor rated voltage                     | —               |      |
| P00.41               | DI input status visual display                                 | -                                            | —               |      |
| P00.42               | Visual display of DO input status                              | -                                            | —               |      |
| P00.43               | DI function status visual display 1 (Function 01. Function 40) | -                                            | —               |      |
| P00.44               | DI function status visual display 2 (Function 41. Function 80) | -                                            | —               |      |
| P00-45               | -                                                              | -                                            | —               |      |
| P00-59               | Accident details                                               | -100.00% ~ 100.00%                           | —               |      |
| P00-60               | Set frequency (%)                                              | -100.00% ~ 100.00%                           | —               |      |
| P00-61               | Running frequency (%)                                          | 0 ~ 65535                                    | —               |      |
| Function code        | Inverter status                                                | Setting range                                | Factory default | Edit |



| P01 Basic function group |                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                        |   |
|--------------------------|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|---|
| P01.00                   | GP type display                                                    | 1: G type(Constant torque load model)<br>2: P type (fan, pump load type)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1                      | ☆ |
| P01.01                   | 1st motor control method                                           | 0: Speed sensorless vector control (SVC)<br>2: V/F control                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 2                      | ★ |
| P01.02                   | Command source selection                                           | 0: Operation panel command channel<br>("LOCAL/REMOT" light is off)<br>1: Terminal command channel<br>("LOCAL/REMOT" light is on)<br>2: Communication command channel<br>("LOCAL/REMOT" light flashes)                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                      | ☆ |
| P01.03                   | DO output status                                                   | 0: Digital setting (preset frequency P01.08, UP/DOWN<br>can be modified, no memory when power off)<br>1: Digital setting (preset frequency P01.08, UP/DOWN<br>can be modified, retentive memory)<br>2: AI1 3: AI2 4: Potentiometer<br>5: PULSE setting (DI5)<br>6: Multi-segment instructions<br>7: Simple PLC<br>8: PID<br>9: communication setting                                                                                                                                                                                                                                                                                   | 4                      | ★ |
| P01.04                   | Auxiliary frequency source Y selection                             | Same as P01.03 (selection of main frequency source X)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0                      | ★ |
| P01.05                   | Auxiliary frequency source Y range<br>selection when superimposing | 0: Relative to the maximum frequency<br>1: Relative to frequency source X                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0                      | ☆ |
| P01.06                   | Y range of auxiliary frequency<br>source when superimposed         | 0% ~150%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 100%                   | ☆ |
| P01.07                   | Frequency source<br>superposition selection                        | One place: frequency source selection<br>0: Main frequency source X<br>1: Main and auxiliary calculation results (the calculation relationship is determined by the ten's place)<br>2: Switch between main frequency source X and auxiliary frequency source Y<br>3: Switch between main frequency source X and main and auxiliary calculation results<br>4: Switch between auxiliary frequency source Y and main and auxiliary calculation results<br>Tens place: main and auxiliary operation relationship of frequency source<br>0: main + auxiliary 1: main-auxiliary<br>2: The maximum value of both 3: The minimum value of both | 00                     |   |
| P01.08                   | Preset frequency                                                   | 0.00Hz ~ maximum frequency (P01 -10)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 50.00Hz                | ☆ |
| P01.09                   | Running direction                                                  | 0: Same direction 1: Opposite direction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 0                      | ☆ |
| P01.10                   | Maximum frequency                                                  | 50.00Hz ~ 500.00Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 50.00Hz                | ★ |
| P01.11                   | Upper limit frequency source                                       | 0: P01. Setting 1: AI1<br>2: AI2 3: AI3<br>4: PULSE setting (DI5) 5: Communication setting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0                      | ★ |
| P01.12                   | Upper limit frequency                                              | Lower limit frequency P01.14 ~ Maximum<br>frequency P01.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 50.00Hz                | ☆ |
| P01.13                   | Upper limit frequency offset                                       | 0.00Hz ~ maximum frequency P01.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.00Hz                 | ☆ |
| P01.14                   | Lower limit frequency                                              | 0.00Hz ~ upper limit frequency P01.12                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0.00Hz                 | ☆ |
| P01.15                   | Carrier frequency                                                  | 0.5kHz ~ 16.0kHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Model<br>determination | ☆ |
| P01.16                   | Carrier frequency adjusts<br>with temperature                      | 0: No 1: Yes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 1                      | ☆ |
| P01.17                   | Acceleration time 1                                                | 0.00s ~ 650.00s (P01.19=2)<br>0.0s ~ 6500.0s (P01.19=1)<br>0s ~ 65000s (P01.19=0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Model<br>determination | ☆ |
| P01.18                   | Deceleration time 1                                                | 0.00s ~ 650.00s (P01.19=2)<br>0.0s ~ 6500.0s (P01.19=1)<br>0s ~ 65000s (P01.19=0)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Model<br>determination | ☆ |
| P01.19                   | Acceleration and deceleration<br>time unit                         | 0: 1 second 1: 0.1 second 2: 0.01 second                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1                      | ☆ |
| P01.21                   | Auxiliary frequency source of<br>fset frequency when superimposing | 0.00Hz ~ maximum frequency P01.10                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.00Hz                 | ☆ |
| P01.22                   | Frequency command resolution                                       | This parameter is used to determine the resolution<br>of all frequency-related function codes                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 2                      | ★ |
| P01.23                   | Digital setting frequency shutdown<br>memory selection             | 0: No memory 1: Memory                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0                      | ☆ |
| P01.24                   | Motor parameter group selection                                    | 0: Motor parameter group 1<br>1: Motor parameter group 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 0                      | ★ |



|                                              |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |   |
|----------------------------------------------|------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---|
| P01.25                                       | Base frequency of acceleration and deceleration time | 0: Maximum frequency (P01.10)<br>1: Setting frequency 2: 100Hz                                                                                                                                                                                                                                                                                                                                                                                                                     | 0                   | ★ |
| P01.26                                       | Operation time frequency command UP/DOWN benchmark   | 0: operating frequency<br>1: Set frequency                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0                   | ★ |
| P01.27                                       | Command source bundling frequency source             | One place: Operation panel command binding frequency source selection<br>0: No binding 1: Digital setting frequency<br>2: AI1 3: AI2<br>4: AI3<br>5: PULSE setting (DI5)<br>6: Multi-speed<br>7: Simple PLC<br>8: PID<br>9: Communication setting<br>Tens place: terminal command binding frequency source selection<br>Hundreds: Communication order binding fixed frequency Rate source selection<br>Thousands of places: automatic operation binding frequency source selection | 0000                | ☆ |
| P02 First motor group                        |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |   |
| P02.00                                       | Motor type selection                                 | 0: Ordinary asynchronous motor<br>1: Variable-frequency asynchronous motor                                                                                                                                                                                                                                                                                                                                                                                                         | 0                   | ★ |
| P02.01                                       | Motor rated power                                    | 0.1kW ~ 400.0kW                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Model determination | ★ |
| P02.02                                       | Motor rated voltage                                  | 1V ~ 2000V                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Model determination | ★ |
| P02.03                                       | Motor rated current                                  | 0.01A ~ 655.35A (Inverter power ≤55kW)<br>0.1A ~ 6553.5A (Inverter power >55kW)                                                                                                                                                                                                                                                                                                                                                                                                    | Model determination | ★ |
| P02.04                                       | Motor rated frequency                                | 0.01Hz ~ Maximum frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Model determination | ★ |
| P02.05                                       | Motor rated speed                                    | 1rpm ~ 65535rpm                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Model determination | ★ |
| P02.06                                       | Stator resistance of asynchronous motor              | 0.001Ω ~ 65.535Ω (inverter power ≤55kW)<br>0.0001Ω ~ 6.5535Ω (Inverter power >55kW)                                                                                                                                                                                                                                                                                                                                                                                                | Tuning parameters   | ★ |
| P02.07                                       | Asynchronous motor rotor resistance                  | 0.001Ω ~ 65.535Ω (inverter power ≤55kW)<br>0.0001Ω ~ 6.5535Ω (Inverter power >55kW)                                                                                                                                                                                                                                                                                                                                                                                                | Tuning parameters   | ★ |
| P02.08                                       | Asynchronous motor leakage inductance                | 0.01mH ~ 655.35mH (Inverter power ≤55kW)<br>0.001mH ~ 65.535mH (Inverter power >55kW)                                                                                                                                                                                                                                                                                                                                                                                              | Tuning parameters   | ★ |
| P02.09                                       | Asynchronous motor mutual inductance                 | 0.1mH ~ 6553.5mH (Inverter power ≤55kW)<br>0.01mH ~ 655.35mH (Inverter power >55kW)                                                                                                                                                                                                                                                                                                                                                                                                | Tuning parameters   | ★ |
| P02.10                                       | Asynchronous motor no-load current                   | 0.01A ~ P02.03 (Inverter power ≤55kW)<br>0.1A ~ P02.03 (Inverter power >55kW)                                                                                                                                                                                                                                                                                                                                                                                                      | Tuning parameters   | ★ |
| P02.37                                       | Tuning options                                       | 0: No operation<br>1: Asynchronous machine static tuning 1<br>2: Dynamic tuning of asynchronous machine<br>3: Asynchronous machine static tuning 2                                                                                                                                                                                                                                                                                                                                 | 0                   | ★ |
| P03 The first motor vector control parameter |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                     |   |
| P03.00                                       | Speed loop proportional gain 1                       | 1 ~ 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 30                  | ☆ |
| P03.01                                       | Speed loop integral time 1                           | 0.01s ~ 10.00s                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 0.50s               | ☆ |
| P03.02                                       | Switching frequency 1                                | 0.00 ~ P03.05                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 5.00Hz              | ☆ |
| P03.03                                       | Speed loop proportional gain 2                       | 1 ~ 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 20                  | ☆ |
| P03.04                                       | Speed loop integral time 2                           | 0.01s ~ 10.00s                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.00s               | ☆ |
| P03.05                                       | Switching frequency 2                                | P03.02 ~ Maximum frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 10.00Hz             | ☆ |
| P03.06                                       | Vector control slip gain                             | 50% ~ 200%                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 100%                | ☆ |
| P03.07                                       | SVC torque filter time constant                      | 0.000s ~ 0.100s                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.050s              | ★ |



|                           |                                                                             |                                                                                                                                                                                                                               |                     |   |
|---------------------------|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---|
| P03.09                    | Torque upper limit source in speed control mode                             | 0: Function code P03.10 setting<br>1: AI1 2: AI2<br>3: AI3 4: PULSE setting (DI5)<br>5: Communication setting 6: MIN (AI1, AI2)<br>7: MAX (AI1, AI2)                                                                          | 0                   | ☆ |
| P03.10                    | Torque upper limit digital setting in speed control mode                    | 0.0% ~ 200.0%                                                                                                                                                                                                                 | 150.0%              | ☆ |
| P03.13                    | Excitation adjustment proportional gain                                     | 0 ~ 60000                                                                                                                                                                                                                     | 2000                | ☆ |
| P03.14                    | Excitation adjustment integral gain                                         | 0 ~ 60000                                                                                                                                                                                                                     | 1300                | ☆ |
| P03.15                    | Torque adjustment proportional gain                                         | 0 ~ 60000                                                                                                                                                                                                                     | 2000                | ☆ |
| P03.16                    | Torque adjustment integral gain                                             | 0 ~ 60000                                                                                                                                                                                                                     | 1300                | ☆ |
| P04 V/F control parameter |                                                                             |                                                                                                                                                                                                                               |                     |   |
| P04.00                    | VF curve setting                                                            | 0: Straight line V/F 1: Multi-point V/F<br>2: Square V/F 3: 1.2 Power V/F<br>4: 1.4 power V/F<br>6: 1.6 power V/F<br>8: 1.8 power V/F<br>10: VF completely separated mode<br>11: VF semi-separated mode                       | 0                   | ★ |
| P04.01                    | Torque boost                                                                | 0.0% (automatic torque boost); 0.1%~30.0%                                                                                                                                                                                     | Model determination | ☆ |
| P04.02                    | Torque boost cut-off frequency                                              | 0.00Hz ~ maximum frequency                                                                                                                                                                                                    | 50.00Hz             | ★ |
| P04.03                    | Multipoint VF frequency point 1                                             | 0.00Hz ~ P04.05                                                                                                                                                                                                               | 0.00Hz              | ★ |
| P04.04                    | Multi-point VF voltage point 1                                              | 0.0% ~ 100.0%                                                                                                                                                                                                                 | 0.0%                | ★ |
| P04.05                    | Multipoint VF frequency point 2                                             | P04.03 ~ P04.07                                                                                                                                                                                                               | 0.00Hz              | ★ |
| P04.06                    | Multi-point VF voltage point 2                                              | 0.0% ~ 100.0%                                                                                                                                                                                                                 | 0.0%                | ★ |
| P04.07                    | Multipoint VF frequency point 3                                             | P04.05 ~ motor rated frequency (P02.04)                                                                                                                                                                                       | 0.00Hz              | ★ |
| P04.08                    | Multi-point VF voltage point 3                                              | 0.0% ~ 100.0%                                                                                                                                                                                                                 | 0.0%                | ★ |
| P04.09                    | VF slip compensation gain                                                   | 0.0% ~ 200.0%                                                                                                                                                                                                                 | 0.0%                | ☆ |
| P04.10                    | VF overexcitation gain                                                      | 0 ~ 200                                                                                                                                                                                                                       | 64                  | ☆ |
| P04.11                    | VF oscillation suppression gain                                             | 0 ~ 100                                                                                                                                                                                                                       | Model determination | ☆ |
| P04.13                    | VF separate voltage source                                                  | 0: Digital setting (P04.14) 1: AI1<br>2: AI2 3: AI3<br>4: PULSE setting (DI5)<br>5: Multi-segment instructions 6: Simple PLC<br>7: PID 8: communication setting<br>Note: 100.0% corresponds to the rated voltage of the motor | 0                   | ☆ |
| P04.14                    | VF separate voltage digital setting                                         | 0V ~ motor rated voltage                                                                                                                                                                                                      | 0V                  | ★ |
| P04.15                    | Voltage acceleration time of VF separation                                  | 0.0s ~ 1000.0s<br>Note: Indicates the time from 0V to the rated voltage of the motor                                                                                                                                          | 0.0s                | ★ |
| P04.16                    | Voltage deceleration time for VF separation                                 | 0.0s ~ 1000.0s<br>Note: Indicates the time from 0V to the rated voltage of the motor                                                                                                                                          | 0.0s                | ☆ |
| P04.17                    | VF separation shutdown mode selection                                       | 0: Frequency/voltage are reduced to 0<br>1: The frequency is reduced after the voltage is reduced to 0                                                                                                                        | 0                   | ☆ |
| P04.18                    | Over-current stall action current                                           | 50% ~ 200%                                                                                                                                                                                                                    | 150%                | ☆ |
| P04.19                    | Over current stall inhibition enable                                        | 0: invalie 1: valid                                                                                                                                                                                                           | 1                   | ★ |
| P04.20                    | Over-current stall suppression gain                                         | 0 ~ 100                                                                                                                                                                                                                       | 20                  | ☆ |
| P04.21                    | Current compensation coefficient for double-speed over-current stall action | 50% ~ 200%                                                                                                                                                                                                                    | 50%                 | ★ |
| P04.22                    | Overvoltage stall action voltage                                            | 650.0V ~ 800.0V                                                                                                                                                                                                               | 760.0V              | ★ |
| P04.23                    | Overvoltage stall enable                                                    | 0: invalid 1: valid                                                                                                                                                                                                           | 1                   | ★ |
| P04.24                    | Overvoltage stall suppression frequency gain                                | 0 ~ 100                                                                                                                                                                                                                       | 30                  | ☆ |
| P04.25                    | Overvoltage stall suppression voltage gain                                  | 0 ~ 100                                                                                                                                                                                                                       | 30                  | ☆ |
| P04.26                    | Overvoltage stall maximum rise frequency limit                              | 0 ~ 50Hz                                                                                                                                                                                                                      | 5Hz                 | ★ |



| Group P05 Input terminal |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |          |   |
|--------------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---|
| P05.00                   | DI1 terminal function selection | 0: No function<br>1: Forward running FWD or running command                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 1        | ★ |
| P05.01                   | DI2 terminal function selection | 2: Reverse running REV or forward and reverse running direction<br>3: Three-line operation control<br>4: Forward JOG (FJOG)<br>5: Reverse JOG (RJOG)<br>6: Terminal UP<br>7: Terminal DOWN<br>8: Free parking<br>9: Fault reset (RESET)<br>10: Operation pause<br>11: External fault normally open input<br>12: Multi-segment command terminal 1<br>13: Multi-segment command terminal 2<br>14: Multi-segment command terminal 3<br>15: Multi-segment command terminal 4                                                                                                                                                                                                                                                                                                  | 4        | ★ |
| P05.02                   | DI3 terminal function selection | 16: Acceleration and deceleration time selection terminal 1<br>17: Acceleration and deceleration time selection terminal 2<br>18: Frequency source switching<br>19: UP/DOWN setting clear (terminal, keyboard)<br>20: Control command switching terminal 1<br>21: Prohibition of acceleration and deceleration<br>22: PID pause<br>23: PLC status reset<br>24: Swing frequency pause<br>25: Counter input<br>26: Counter reset<br>27: Length count input<br>28: Length reset<br>29: Torque control prohibited<br>30: PULSE setting (DI5)                                                                                                                                                                                                                                  | 9        | ★ |
| P05.03                   | DI4 terminal function selection | 31: Reserved<br>32: Immediate DC system<br>33: External fault normally closed input<br>34: Frequency modification enable<br>35: PID action direction is reversed<br>36: External parking terminal 1<br>37: Control command switching terminal 2<br>38: PID integration suspended<br>39: Frequency source X and preset frequency switch<br>40: Switch between frequency source Y and preset frequency<br>41: Motor selection terminal 1<br>43: PID parameter switching<br>44: User-defined fault 1<br>45: User-defined fault 2<br>46: Speed control/torque control switch<br>47: Emergency stop<br>48: External parking terminal 2<br>49: Deceleration DC braking<br>50: This time running time is cleared<br>51: Two-wire/three-wire switch<br>52: Reversal is prohibited | 12       | ★ |
| P05.04                   | DI5 terminal function selection |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 13       | ★ |
| P05.10                   | DI filter time                  | 0: 0.000s ~ 1.000s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.010s   | ☆ |
| P05.11                   | Terminal command mode           | 0: Two-wire type 1 1: Two-wire type 2<br>2: Three-line type 1 3: Three-line type 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0        | ★ |
| P05.12                   | Terminal UP/DOWN change rate    | 0.001Hz/s ~ 65.535Hz/s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1.00Hz/s | ☆ |
| P05.13                   | AI curve 1 minimum input        | 0.00V ~ P05.15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.00V    | ☆ |



# 8 Parameter Table

|                           |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                    |         |   |
|---------------------------|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---|
| P05.14                    | AI curve 1 minimum input corresponding setting       | -100.0% ~ +100.0%                                                                                                                                                                                                                                                                                                                                                                                  | 0.0%    | ☆ |
| P05.15                    | AI curve 1 maximum input                             | P05.13 ~ +10.00V                                                                                                                                                                                                                                                                                                                                                                                   | 10.00V  | ☆ |
| P05.16                    | AI curve 1 maximum input corresponding setting       | -100.0% ~ +100.0%                                                                                                                                                                                                                                                                                                                                                                                  | 100.0%  | ☆ |
| P05.17                    | AI1 filter time                                      | 0.00s ~ 10.00s                                                                                                                                                                                                                                                                                                                                                                                     | 0.10s   | ☆ |
| P05.18                    | AI curve 2 minimum input                             | 0.00V ~ P05.20                                                                                                                                                                                                                                                                                                                                                                                     | 0.00V   | ☆ |
| P05.19                    | AI curve 2 minimum input corresponding setting       | -100.0% ~ +100.0%                                                                                                                                                                                                                                                                                                                                                                                  | 0.0%    | ☆ |
| P05.20                    | AI curve 2 maximum input                             | P05.18 ~ +10.00V                                                                                                                                                                                                                                                                                                                                                                                   | 10.00V  | ☆ |
| P05.21                    | AI curve 2 maximum input corresponding setting       | -100.0% ~ +100.0%                                                                                                                                                                                                                                                                                                                                                                                  | 100.0%  | ☆ |
| P05.22                    | AI2 filter time                                      | 0.00s ~ 10.00s                                                                                                                                                                                                                                                                                                                                                                                     | 0.10s   | ☆ |
| P05.23                    | AI curve 3 minimum input                             | -10.00V ~ P05.25                                                                                                                                                                                                                                                                                                                                                                                   | -10.00V | ☆ |
| P05.24                    | AI curve 3 minimum input corresponding setting       | -100.0% ~ +100.0%                                                                                                                                                                                                                                                                                                                                                                                  | 0.0%    | ☆ |
| P05.25                    | AI curve 3 maximum input                             | P05.23 ~ +10.00V                                                                                                                                                                                                                                                                                                                                                                                   | 10.00V  | ☆ |
| P05.26                    | AI curve 3 maximum input corresponding setting       | -100.0% ~ +100.0%                                                                                                                                                                                                                                                                                                                                                                                  | 100.0%  | ☆ |
| P05.27                    | AI3 filter time                                      | 0.00s ~ 10.00s                                                                                                                                                                                                                                                                                                                                                                                     | 0.10s   | ☆ |
| P05.28                    | PULSE curve 3 minimum input                          | -10.00V ~ P05.25                                                                                                                                                                                                                                                                                                                                                                                   | 0.00V   | ☆ |
| P05.29                    | PULSE curve 3 minimum input corresponding setting    | -100.0% ~ +100.0%                                                                                                                                                                                                                                                                                                                                                                                  | 0.0%    | ☆ |
| P05.30                    | PULSE curve 3 maximum input                          | P05.23 ~ +10.00V                                                                                                                                                                                                                                                                                                                                                                                   | 10.00V  | ☆ |
| P05.31                    | PULSE curve 3 maximum input corresponding setting    | -100.0% ~ +100.0%                                                                                                                                                                                                                                                                                                                                                                                  | 100.0%  | ☆ |
| P05.32                    | PULSE filter time                                    | 0.00s ~ 10.00s                                                                                                                                                                                                                                                                                                                                                                                     | 0.10s   | ☆ |
| P05.33                    | AI curve selection                                   | One place: AI curve selection<br>1: Curve 1<br>(2 o'clock, see P05.13 ~ P05.16)<br>2: Curve 2<br>(2 o'clock, see P05.18 ~ P05.21)<br>3: Curve 3<br>(2 o'clock, see P05.23 ~ P05.26)<br>4: Curve 4 (4 points, see A6.00 ~ A6.07)<br>5: Curve 5 (4 points, see A6.08 ~ A6.15)<br>Tens place: AI2 curve selection (1~5, same as above)<br>Hundreds place: AI3 curve selection<br>(1~5, same as above) | 321     | ☆ |
| P05.34                    | AI is lower than the minimum input setting selection | One place: AI1 is lower than the minimum input setting selection<br>0: Corresponding to the minimum input setting 1: 0.0%<br>Tens place: AI2 is lower than the minimum input setting selection<br>(0 ~ 1, same as above)<br>Hundreds place: AI3 is lower than the minimum input setting selection(0 ~ 1, same as above)                                                                            | 000     | ☆ |
| P05.35                    | DI1 delay                                            | 0.0s ~ 3600.0s                                                                                                                                                                                                                                                                                                                                                                                     | 0.0s    | ★ |
| P05.36                    | DI2 delay                                            | 0.0s ~ 3600.0s                                                                                                                                                                                                                                                                                                                                                                                     | 0.0s    | ★ |
| P05.37                    | DI3 delay                                            | 0.0s ~ 3600.0s                                                                                                                                                                                                                                                                                                                                                                                     | 0.0s    | ★ |
| P05.38                    | P05.38                                               | 0: High level is valid 1: Low level is valid<br>Ones place: DI1 Tens place: DI2<br>Hundreds place: DI3<br>Thousand place: DI4 Million place: DI5                                                                                                                                                                                                                                                   | 00000   | ★ |
| P05.39                    | DI terminal effective mode selection 2               | 0: High level is valid 1: Low level is valid<br>Ones place: DI6 Tens place: DI7                                                                                                                                                                                                                                                                                                                    | 00000   | ★ |
| P06 group output terminal |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                    |         |   |
| P06.01                    | DO output function selection                         | 0: No output<br>1: The inverter is running<br>2: Fault output (for free stop fault)<br>3: Frequency level detection P14T1 output<br>4: Frequency reached                                                                                                                                                                                                                                           | 0       | ☆ |
|                           |                                                      |                                                                                                                                                                                                                                                                                                                                                                                                    |         |   |



|        |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |      |   |
|--------|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------|---|
| P06.02 | Control board relay function selection (RO1A-RO1B-RO1C) | 5: Running at zero speed (no output when stopped)<br>6: Motor overload pre-alarm<br>7: Inverter overload pre-alarm<br>8: Set count value reached<br>9: The designated count value is reached<br>10: Length reached<br>11: PLC cycle completed<br>12: The accumulated running time is reached<br>13: The frequency is being limited<br>14: Torque is being limited<br>15: Ready to run<br>16: AI1>AI2<br>17: Upper limit frequency reached<br>18: Lower limit frequency reached (related to operation)<br>19: Undervoltage status output<br>20: Communication settings<br>21: Positioning completed (reserved)<br>22: Positioning approach (reserved)<br>23: Zero-speed running 2 (also output when stopping)<br>24: The accumulated power-on time is reached<br>25: Frequency level detection P14T2 output<br>26: Frequency 1 reaches output<br>27: Frequency 2 reaches output<br>28: Current 1 reaches the output<br>29: Current 2 reaches the output<br>30: Timed arrival output<br>31: AI1 input exceeds limit<br>32: downloading<br>33: Reverse running<br>34: Zero current state<br>35: Module temperature reached<br>36: The output current exceeds the limit<br>37: Lower limit frequency reached (output when stopped)<br>38: Alarm output (all failures)<br>39: Motor over temperature pre-alarm<br>40: The running time arrives<br>41: fault output<br>(It is the fault of free stop and no output under voltage) | 2    | ☆ |
| P06.07 | AO1 output function selection                           | 0: Running frequency 1: Setting frequency<br>2: Output current 3: Output torque<br>4: Output power 5: Output voltage<br>6: PLUSE setting<br>7: AI1 8: AI2 9: AI3<br>10: length 11: count the value<br>12: Communication setting 13: Motor speed<br>14: output current<br>(100.0% corresponds to 1000.0A)<br>15: output voltage<br>(100.0% corresponds to 1000.0V)<br>16: Motor output torque<br>(Actual value, percentage relative to motor)<br>17: Inverter output torque                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 0    | ☆ |
| P06.08 | AO2 output function selection                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1    | ☆ |
| P06.10 | AO1 bias coefficient                                    | -100.0% ~ +100.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0% | ☆ |
| P06.11 | AO1 gain                                                | -10.00 ~ +10.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.00 | ☆ |
| P06.12 | AO2 bias coefficient                                    | -100.0% ~ +100.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 0.0% | ☆ |
| P06.13 | AO2 gain                                                | -10.00 ~ +10.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 1.00 | ☆ |
| P06.17 | DO output delay time                                    | 0.0s ~ 3600.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.0s | ☆ |
| P06.18 | Relay output delay time                                 | 0.0s ~ 3600.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0.0s | ☆ |



# 8 Parameter Table

|                                  |                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |   |
|----------------------------------|-------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---|
| P06.19                           | RELAY2 output delay time                        | 0.0s ~ 3600.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 0.0s                | ☆ |
| P06.22                           | DO output terminal valid state selection        | 0: Positive logic 1: Inverse logic<br>Ones place: DO Tens place: RELAY1 Hundreds place: RELAY2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 00000               | ☆ |
| Group P07 Start and stop control |                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |   |
| P07.0                            | Start method                                    | 0: Direct start 1: Speed tracking restart<br>2: Pre-excitation start (AC asynchronous motor)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0                   | ☆ |
| P07.01                           | Speed tracking method                           | 0: Start from the stop frequency<br>1: Start from power frequency<br>2: Start from the maximum frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 0                   | ★ |
| P07.02                           | Speed tracking                                  | 1 ~ 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | 20                  | ☆ |
| P07.03                           | Start frequency                                 | 0.00Hz ~ 10.00Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 0.00Hz              | ☆ |
| P07.04                           | Start frequency hold time                       | 0.0s ~ 100.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.0s                | ★ |
| P07.05                           | Start DC braking current/pre-excitation current | 0% ~ 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0%                  | ★ |
| P07.06                           | Start DC braking time / pre-excitation time     | 0.0s ~ 100.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.0s                | ★ |
| P07.07                           | Acceleration and deceleration method            | 0: Linear acceleration and deceleration<br>1: S curve acceleration and deceleration A<br>2: S curve acceleration and deceleration B                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 0                   | ★ |
| P07.08                           | S-curve start time ratio                        | 0.0% ~ (100.0%-P07.09)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 30.0%               | ★ |
| P07.09                           | S-curve end time ratio                          | 0.0% ~ (100.0%-P07.08)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 30.0%               | ★ |
| P07.10                           | Stop mode                                       | 0: decelerate to stop 1: free to stop                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0                   | ☆ |
| P07.11                           | Start frequency of DC braking at stop           | 0.00Hz ~ Maximum frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.00Hz              | ☆ |
| P07.12                           | DC braking waiting time at stop                 | 0.0s ~ 100.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.0s                | ☆ |
| P07.13                           | Stop DC braking current                         | 0% ~ 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 0%                  | ☆ |
| P07.14                           | DC braking time at stop                         | 0.0s ~ 100.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.0s                | ☆ |
| P07.15                           | Brake usage rate                                | 0% ~ 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | 100%                | ☆ |
| P07.18                           | Speed tracking current                          | 30% ~ 200%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Model determination | ★ |
| Group P08 Keyboard and display   |                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                     |   |
| P08.01                           | MF.K key function selection                     | 0: M key is invalid<br>1: Switch between operation panel command channel and remote command channel (terminal command channel or communication command channel). If the current command source is keyboard control, this key function is invalid.<br>2: Forward and reverse switching<br>Use the M key to switch the direction of the frequency command. This function is only valid when the command source is the operation panel command channel.<br>3: Forward jog<br>Realize forward jog (FJOG) by keyboard M key<br>4: Reverse jog<br>Reverse Jog (RJOG) is realized through the keyboard M key | 0                   | ★ |
| P08.02                           | STOP/RESET function                             | 0: Only in the keyboard operation mode, the stop function of the STOP/RES key is valid<br>1: In any operation mode, the stop function of the STOP/RES key is valid                                                                                                                                                                                                                                                                                                                                                                                                                                    | 1                   | ☆ |
| P08.03                           | LED running display parameter 1                 | 0000 ~ FFFF<br>Bit00: Operating frequency 1 (Hz)<br>Bit01: Setting frequency (Hz)<br>Bit02: Bus voltage (V)<br>Bit03: Output voltage (V)<br>Bit04: Output current (A)<br>Bit05: Output power (kW)                                                                                                                                                                                                                                                                                                                                                                                                     | 1F                  | ☆ |



|                                     |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |   |
|-------------------------------------|---------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|---|
|                                     |                                 | Bit06: Output torque (%)<br>Bit07: DI input status<br>Bit08: DO output status<br>Bit09: AI1 voltage (V)<br>Bit10: AI2 voltage (V)<br>Bit11: AI3 voltage (V)<br>Bit12: Count value<br>Bit13: Length value<br>Bit14: Load speed display<br>Bit15: PID setting                                                                                                                                                                                                                                                                                                                                                                    |                     |   |
| P08.04                              | LED running display parameter 2 | 0000 ~ FFFF<br>Bit00: PID feedback<br>Bit01: PLC stage<br>Bit02: PULSE input pulse frequency (kHz)<br>Bit03: Operating frequency 2 (Hz)<br>Bit04: Remaining running time<br>Bit05: AI1 voltage before calibration (V)<br>Bit06: AI2 voltage before calibration (V)<br>Bit07: AI3 voltage before calibration (V)<br>Bit08: Linear speed<br>Bit09: Current power-on time (Hour)<br>Bit10: current running time (Min)<br>Bit11: PULSE input pulse frequency (Hz)<br>Bit12: Communication setting value<br>Bit13: Encoder feedback speed (Hz)<br>Bit14: Main frequency X display (Hz)<br>Bit15: Auxiliary frequency Y display (Hz) | 0                   | ☆ |
| P08.05                              | LED stop display parameters     | 0000 ~ FFFF<br>Bit00: Setting frequency (Hz)<br>Bit01: Bus voltage (V)<br>Bit02: DI input status<br>Bit03: DO output status<br>Bit04: AI1 voltage (V)<br>Bit05: AI2 voltage (V)<br>Bit06: AI3 voltage (V)<br>Bit07: Count value<br>Bit08: Length value<br>Bit09: PLC stage<br>Bit10: Load speed<br>Bit11: PID setting<br>Bit12: PULSE input pulse frequency (kHz)                                                                                                                                                                                                                                                              | 33                  | ☆ |
| P08.06                              | Load speed display coefficient  | 0.0001 ~ 6.5000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 1.0000              | ☆ |
| P08.07                              | Module heat sink temperature    | 0.0°C ~ 100.0°C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -                   | ● |
| P08.08                              | Product ID                      | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | -                   | ● |
| P08.09                              | Cumulative running time         | 0h ~ 65535h                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | -                   | ● |
| <b>Group P09 Auxiliary function</b> |                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                     |   |
| P09.00                              | Jog operation frequency         | 0.00Hz ~ Maximum frequency                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 2.00Hz              | ☆ |
| P09.01                              | Jog acceleration time           | 0.0s ~ 6500.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20.0s               | ☆ |
| P09.02                              | Jog deceleration time           | 0.0s ~ 6500.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 20.0s               | ☆ |
| P09.03                              | Acceleration time 2             | 0.0s ~ 6500.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Model determination | ☆ |
| P09.04                              | Deceleration time 2             | 0.0s ~ 6500.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Model determination | ☆ |
| P09.05                              | Acceleration time 3             | 0.0s ~ 6500.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Model determination | ☆ |
| P09.06                              | Deceleration time 3             | 0.0s ~ 6500.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Model determination | ☆ |
| P09.07                              | Acceleration time 4             | 0.0s ~ 6500.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Model determination | ☆ |



|        |                                                                               |                                                                                       |                     |   |
|--------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------|---|
| P09.08 | Deceleration time 4                                                           | 0.0s ~ 6500.0s                                                                        | Model determination | ☆ |
| P09.09 | Hop frequency 1                                                               | 0.00Hz ~ maximum frequency                                                            | 0.00Hz              | ☆ |
| P09.10 | Hop frequency 2                                                               | 0.00Hz ~ maximum frequency                                                            | 0.00Hz              | ☆ |
| P09.11 | Hop frequency range                                                           | 0.00Hz ~ maximum frequency                                                            | 0.01Hz              | ☆ |
| P09.12 | Forward and reverse dead time                                                 | 0.0s ~ 3000.0s                                                                        | 0.0s                | ☆ |
| P09.13 | Reverse frequency prohibited                                                  | 0: Allowed 1: Forbidden                                                               | 0                   | ☆ |
| P09.14 | The set frequency is lower than the lower limit frequency operation mode      | 0: Run at lower frequency limit 1: Stop 2: Run at zero speed                          | 0                   | ☆ |
| P09.15 | Droop control                                                                 | 0.00Hz ~ 10.00Hz                                                                      | 0.00Hz              | ☆ |
| P09.16 | Set cumulative power-on arrival time                                          | 0h ~ 65000h                                                                           | 0h                  | ☆ |
| P09.17 | Set cumulative running arrival time                                           | 0h ~ 65000h                                                                           | 0h                  | ☆ |
| P09.18 | Start protection selection                                                    | 0: No protection 1: Protection                                                        | 0                   | ☆ |
| P09.19 | Frequency detection value (P14T1)                                             | 0.00Hz ~ maximum frequency                                                            | 50.00Hz             | ☆ |
| P09.20 | Frequency detection hysteresis value (P14T1)                                  | 0.0% ~ 100.0% (P14T1 level)                                                           | 5.0%                | ☆ |
| P09.21 | Frequency reach detection width                                               | 0.0% ~ 100.0% (maximum frequency)                                                     | 0.0%                | ☆ |
| P09.22 | Whether the jumping frequency is valid during acceleration and deceleration   | 0: invalid 1: valid                                                                   | 0                   | ☆ |
| P09.25 | Switching frequency point between acceleration time 1 and acceleration time 2 | 0.00Hz ~ maximum frequency                                                            | 0.00Hz              | ☆ |
| P09.26 | Switching frequency point between deceleration time 1 and deceleration time 2 | 0.00Hz ~ maximum frequency                                                            | 0.00Hz              | ☆ |
| P09.27 | Terminal jog priority                                                         | 0: invalid 1: valid                                                                   | 0                   | ☆ |
| P09.28 | Frequency detection value (P14T2)                                             | 0.00Hz ~ maximum frequency                                                            | 50.00Hz             | ☆ |
| P09.29 | Frequency detection hysteresis value (P14T2)                                  | 0.0% ~ 100.0% (P14T2 level)                                                           | 5.0%                | ☆ |
| P09.30 | Arbitrary arrival frequency detection value 1                                 | 0.00Hz ~ maximum frequency                                                            | 50.00Hz             | ☆ |
| P09.31 | Arbitrary arrival frequency detection width 1                                 | 0.0% ~ 100.0% (maximum frequency)                                                     | 0.0%                | ☆ |
| P09.32 | Arbitrary arrival frequency detection value 2                                 | 0.00Hz ~ maximum frequency                                                            | 50.00Hz             | ☆ |
| P09.33 | Arbitrary arrival frequency detection width 2                                 | 0.0% ~ 100.0% (maximum frequency)                                                     | 0.0%                | ☆ |
| P09.34 | Zero current detection level                                                  | 0.0% ~ 300.0% 100.0% corresponds to the rated current of the motor                    | 5.0%                | ☆ |
| P09.35 | Current detection delay time                                                  | 0.01s ~ 600.00s                                                                       | 0.10s               | ☆ |
| P09.36 | The output current exceeds the limit                                          | 0.0% (no detection)<br>0.1% ~ 300.0% (motor rated current)                            | 200.0%              | ☆ |
| P09.37 | Output current overrun detection delay time                                   | 0.00s ~ 600.00s                                                                       | 0.00s               | ☆ |
| P09.38 | Arbitrary arrival current 1                                                   | 0.0% ~ 300.0% (Motor rated current)                                                   | 100.0%              | ☆ |
| P09.39 | Arbitrarily reach current 1 width                                             | 0.0% ~ 300.0% (Motor rated current)                                                   | 0.0%                | ☆ |
| P09.40 | Arbitrary arrival current 2                                                   | 0.0% ~ 300.0% (Motor rated current)                                                   | 100.0%              | ☆ |
| P09.41 | Arbitrarily reach current 2 width                                             | 0.0% ~ 300.0% (Motor rated current)                                                   | 0.0%                | ☆ |
| P09.42 | Timing function selection                                                     | 0: invalid 1: valid                                                                   | 0                   | ☆ |
| P09.43 | Timing operation time selection                                               | 0: P09.44 setting 1: AI1<br>2: AI2 3: AI3<br>Analog input range corresponds to P09.44 | 0                   | ☆ |
| P09.44 | Timing running time                                                           | 0.0Min ~ 6500.0Min                                                                    | 0.0Min              | ☆ |
| P09.45 | AI1 input voltage protection value lower limit                                | 0.00V ~ P09.46                                                                        | 3.10V               | ☆ |
| P09.46 | AI1 input voltage protection value upper limit                                | P09.45 ~ 10.00V                                                                       | 6.80V               | ☆ |
| P09.47 | Module temperature reached                                                    | 0°C ~ 100 °C                                                                          | 75°C                | ☆ |
| P09.48 | Cooling fan control                                                           | 0: The fan runs during operation<br>1: The fan keeps running                          | 0                   | ☆ |
| P09.49 | Wake-up frequency                                                             | Sleep frequency (P09.51) to maximum frequency (P01.10)                                | 0.00Hz              | ☆ |
| P09.50 | Wake-up delay time                                                            | 0.0s ~ 6500.0s                                                                        | 0.0s                | ☆ |
| P09.51 | Sleep frequency                                                               | 0.00Hz~Wake-up frequency (P09.49)                                                     | 0.00Hz              | ☆ |
| P09.52 | Sleep delay time                                                              | 0.0s ~ 6500.0s                                                                        | 0.0s                | ☆ |
| P09.53 | Arrival time setting for this run                                             | 0.0 ~ 6500.0Min                                                                       | 0.0Min              | ☆ |



|                                       |                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |   |
|---------------------------------------|----------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---|
| P09.54                                | Output power correction factor                                                         | 0.00% ~ 200.0%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 100.0% | ☆ |
| <b>P10 group fault and protection</b> |                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |        |   |
| P10.00                                | Motor overload protection selection                                                    | 0: Forbidden 1: Allow                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1      | ☆ |
| P10.01                                | Motor overload protection gain                                                         | 0.20 ~ 10.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 1.00   | ☆ |
| P10.02                                | Motor overload warning coefficient                                                     | 50 ~ 100%                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 80%    | ☆ |
| P10.07                                | Power-on to ground short-circuit protection options                                    | 0: invalid 1: valid                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 1      | ☆ |
| P10.08                                | Starting voltage of braking unit action                                                | 650.0V ~ 800.0V                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 690V   | ☆ |
| P10.09                                | Automatic fault reset times                                                            | 0 ~ 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0      | ☆ |
| P10.10                                | Action selection of fault DO during fault automatic reset                              | 0: No action 1: Action                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0      | ☆ |
| P10.11                                | Automatic fault reset interval time                                                    | 0.1s ~ 100.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 1.0s%  | ☆ |
| P10.12                                | Input phase loss / contactor pick-up protection selection                              | One place: input phase loss protection selection<br>0: Forbidden 1: Allow<br>Ten place: contactor pick-up protection selection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 11     | ☆ |
| P10.13                                | Output phase loss protection option                                                    | 0: Forbidden 1: Allow                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1      | ☆ |
| P10.14                                | Type of first failure                                                                  | 0: No fault                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | -      | ● |
| P10.15                                | Type of second failure                                                                 | 1: reserved<br>2: Accelerating overcurrent<br>3: Deceleration overcurrent<br>4: Constant speed overcurrent<br>5: Accelerating overvoltage<br>6: Deceleration overvoltage<br>7: Constant speed overvoltage<br>8: snubber resistor overload<br>9: Undervoltage<br>10: Inverter overload<br>11: Motor overload                                                                                                                                                                                                                                                                                                                                                                    | -      | ● |
| P10.16                                | Type of third (most recent) failure                                                    | 12: Input phase loss<br>13: Output phase loss<br>14: The module is overheated<br>15: External fault<br>16: Communication abnormal<br>17: Abnormal contactor<br>18: Abnormal current detection<br>19: Motor tuning is abnormal<br>21: Parameter reading and writing is abnormal<br>22: Inverter hardware is abnormal<br>23: Short circuit of motor to ground<br>26: The running time arrives<br>27: User-defined fault 1<br>28: User-defined fault 2<br>29: Power-on time arrives<br>30: Offload<br>31: PID feedback is lost during operation<br>40: Fast current limit timeout<br>41: Switch motor during operation<br>42: Speed deviation is too large<br>43: Motor overspeed | -      | ● |
| P10.17                                | Frequency at the third (most recent) failure                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -      | ● |
| P10.18                                | Current at the third (most recent) fault                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -      | ● |
| P10.19                                | Bus voltage at the third (most recent) failure                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -      | ● |
| P10.20                                | The third time (the most recent time) the input terminal status at the time of failure |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | -      | ● |



## 8 Parameter Table

|        |                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |       |   |
|--------|-----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|---|
| P10.21 | Output terminal status at the third (most recent) failure | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.22 | Inverter status at the third (most recent) fault          | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.23 | Power-on time at the third (most recent) failure          | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.24 | Running time at the third (most recent) failure           | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.27 | Frequency at the second failure                           | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.28 | Current at the second fault                               | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.29 | Bus voltage at the second fault                           | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.30 | Input terminal status at the second failure               | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.31 | Output terminal status at the second failure              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.32 | Inverter status at the second fault                       | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.33 | Power-on time at the second failure                       | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.34 | Running time at the second failure                        | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.37 | Frequency at the first failure                            | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.38 | Current at the first failure                              | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.39 | Bus voltage at the first failure                          | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.40 | Input terminal status at the first failure                | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.41 | Output terminal status at the first failure               | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.42 | Inverter status at the first failure                      | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.43 | Power-on time at the first failure                        | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.44 | Running time at the first failure                         | -                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | -     | ● |
| P10.47 | Fault protection action selection 1                       | Ones place: Motor overload (Err11)<br>0: Free stop 1: Stop according to the stop mode 2: Continue to run<br>Tens place: input phase loss (Err12) (same as the ones place)<br>Hundreds place: output phase loss (Err13) (same as the ones place)<br>Thousands place: External fault (Err15) (same as the ones place)<br>Ten thousand place: communication abnormality (Err16) (same as the ones place)                                                                                      | 00000 | ☆ |
| P10.48 | Fault protection action selection 2                       | Ones place: reserved<br>Tens place: Abnormal function code reading and writing (Err21)<br>0: Free stop 1: Stop according to the stop mode<br>Hundreds: reserved<br>Thousands: reserved<br>Ten Thousand Places: Running time reached (Err26)                                                                                                                                                                                                                                                | 00000 | ☆ |
| P10.49 | Fault protection action selection 3                       | Ones place: user-defined fault 1 (Err27)<br>Tens place: User-defined fault 2 (Err28)<br>Hundreds place: Power-on time is up (Err29)<br>Thousands: Offload (Err30)<br>0: Free stop 1: Stop according to the stop mode<br>2: Jump directly to 7% of the rated frequency of the motor to continue running, and automatically return to the set frequency to run when the load is not dropped<br>Ten thousand place: PID feedback lost during operation (Err31)<br>(Same as P10.47 ones place) | 00000 | ☆ |
| P10.50 | Fault protection action selection 4                       | Ones place: Speed deviation is too large (Err42)<br>0: Free stop 1: Stop according to the stop mode 2: Continue to run<br>Tens place: motor overspeed (Err43)<br>Hundreds: reserved<br>Thousands place: Speed feedback error (Err52)                                                                                                                                                                                                                                                       | 00000 | ☆ |



|                  |                                                             |                                                                                                                                                                                                |        |   |
|------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---|
| P10.54           | Continue to run frequency selection in case of failure      | 0: Run at the current operating frequency<br>1: Run at the set frequency<br>2: Run at the upper limit frequency<br>3: Run at the lower frequency limit<br>4: Run at abnormal standby frequency | 00000  | ☆ |
| P10.55           | Abnormal standby frequency                                  | 0.0% ~ 100.0% (100.0% corresponds to the maximum frequency P01.10)                                                                                                                             | 100.0% | ☆ |
| P10.59           | Instantaneous stop and non-stop function option             | 0: Invalid 1: Decelerate 2: Decelerate to stop                                                                                                                                                 | 0      | ☆ |
| P10.60           | Instantaneous stop action pause judgement voltage           | 80.0% ~ 100.0%                                                                                                                                                                                 | 90.0%  | ☆ |
| P10.61           | Instantaneous stop and non-stop voltage rise judgement time | 0.00s ~ 100.00s                                                                                                                                                                                | 0.50s  | ☆ |
| P10.62           | Instantaneous stop and non-stop action judgement voltage    | 60.0% ~ 100.0% (Standard bus voltage)                                                                                                                                                          | 80.0%  | ☆ |
| P10.63           | Offload protection options                                  | 0: invalid 1: valid                                                                                                                                                                            | 0      | ☆ |
| P10.64           | Offload detection level                                     | 0.0 ~ 100.0%                                                                                                                                                                                   | 10.0%  | ☆ |
| P10.65           | Offload detection time                                      | 0.0 ~ 60.0s                                                                                                                                                                                    | 1.0s   | ☆ |
| P10.67           | Overspeed detection value                                   | 0.0% ~ 50.0% (Maximum frequency)                                                                                                                                                               | 20.0%  | ☆ |
| P10.68           | Overspeed detection time                                    | 0.0s: No detection 0.1 ~ 60.0s                                                                                                                                                                 | 1.0s   | ☆ |
| P10.69           | Excessive speed deviation detection value                   | 0.0% ~ 50.0% (Maximum frequency)                                                                                                                                                               | 20.0%  | ☆ |
| P10.70           | Excessive speed deviation detection time                    | 0.0s: No detection 0.1 ~ 60.0s                                                                                                                                                                 | 5.0s   | ☆ |
| P10.71           | Instantaneous stop and non-stop gain KP                     | 0 ~ 100                                                                                                                                                                                        | 40     | ☆ |
| P10.72           | Instantaneous stop and non-stop integral coefficient Ki     | 0 ~ 100                                                                                                                                                                                        | 30     | ☆ |
| P10.73           | Instantaneous stop and non-stop gaction deceleration time   | 0 ~ 300.0s                                                                                                                                                                                     | 20.0s  | ★ |
| P11 PID Function |                                                             |                                                                                                                                                                                                |        |   |
| P11.00           | PID reference source                                        | 0: P11.01 setting<br>1: AI1<br>2: AI2<br>3: AI3<br>4: PLUSE pulse setting<br>5: Communication setting<br>6: Multi-segment instruction setting<br>7: Keyboard encoder setting                   | 0      | ☆ |
| P11.01           | PID value given                                             | 0.0% ~ 100.0%                                                                                                                                                                                  | 3.00   | ☆ |
| P11.02           | PID feedback source                                         | 0: AI1<br>1: AI2<br>2: AI3<br>3: AI1.AI2 4: PLUSE pulse setting<br>5: Communication setting<br>6: AI1+AI2<br>7: MAX ( AI1 ,  AI2 )<br>8: MIN ( AI1 ,  AI2 )                                    | 0      | ☆ |
| P11.03           | PID action direction                                        | 0: Positive action 1: Reverse action                                                                                                                                                           | 0      | ☆ |
| P11.04           | PID given feedback range                                    | 0 ~ 65535                                                                                                                                                                                      | 1000   | ☆ |
| P11.05           | Proportional gain KP02                                      | 0.0 ~ 100.0                                                                                                                                                                                    | 20.0   | ☆ |
| P11.06           | Integration time Ti1                                        | 0.01s ~ 10.00s                                                                                                                                                                                 | 2.00s  | ☆ |
| P11.07           | Differential time Td1                                       | 0.000s ~ 10.000s                                                                                                                                                                               | 0.000s | ☆ |
| P11.08           | PID reverse cutoff frequency                                | 0.00 ~ Maximum frequency                                                                                                                                                                       | 2.00Hz | ☆ |
| P11.09           | PID deviation limit                                         | 0.0% ~ 100.0%                                                                                                                                                                                  | 1.0%   | ☆ |
| P11.10           | PID differential limit                                      | 0.00% ~ 100.00%                                                                                                                                                                                | 0.10%  | ☆ |
| P11.11           | PID given change time                                       | 0.00 ~ 650.00s                                                                                                                                                                                 | 0.00s  | ☆ |
| P11.12           | PID feedback filter time                                    | 0.00 ~ 60.00s                                                                                                                                                                                  | 0.00s  | ☆ |
| P11.13           | PID Output filter time                                      | 0.00 ~ 60.00s                                                                                                                                                                                  | 0.00s  | ☆ |
| P11.15           | Proportional gain KP03                                      | 0.0 ~ 100.0                                                                                                                                                                                    | 20.0   | ☆ |
| P11.16           | Integration time Ti2                                        | 0.01s ~ 10.00s                                                                                                                                                                                 | 2.00s  | ☆ |
| P11.17           | Differential time Td2                                       | 0.000s ~ 10.000s                                                                                                                                                                               | 0.000s | ☆ |
| P11.18           | PID Parameter switching conditions                          | 0: do not switch<br>1: Switch through DI terminal<br>2: Automatically switch according to deviation                                                                                            | 0      | ☆ |
| P11.19           | PID Parameter switching deviation 1                         | 0.0% ~ P11.20                                                                                                                                                                                  | 20.0%  | ☆ |
| P11.20           | PID Parameter switching deviation 2                         | P11.19 ~ 100.0%                                                                                                                                                                                | 80.0%  | ☆ |



## 8 Parameter Table

|                                                |                                                                 |                                                                                                                                                                                            |         |   |
|------------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---|
| P11.21                                         | PID initial value                                               | 0.0% ~ 100.0%                                                                                                                                                                              | 0.0%    | ☆ |
| P11.22                                         | PID initial value holding time                                  | 0.00 ~ 650.00s                                                                                                                                                                             | 0.00s   | ☆ |
| P11.23                                         | Two output deviation forward maximum value                      | 0.00% ~ 100.00%                                                                                                                                                                            | 1.00%   | ☆ |
| P11.24                                         | Two output deviation reverse maximum value                      | 0.00% ~ 100.00%                                                                                                                                                                            | 1.00%   | ☆ |
| P11.25                                         | PID integral properties                                         | Ones place: integral separation<br>0: invalid 1: valid<br>Tens place: whether to stop integration after outputting to the limit<br>0: Continue integration 1: Stop integration             | 00      | ☆ |
| P11.26                                         | PID feedback loss detection value                               | 0.0%: Don't judge feedback loss 0.1% ~ 100.0%                                                                                                                                              | 0.0%    | ☆ |
| P11.27                                         | PID feedback loss detection time                                | 0.0s ~ 20.0s                                                                                                                                                                               | 0.0s    | ☆ |
| P11.28                                         | PID shutdown calculation                                        | 0: No operation at shutdown 1: Operation at shutdown                                                                                                                                       | 0       | ☆ |
| P12 Swing frequency, fixed length and counting |                                                                 |                                                                                                                                                                                            |         |   |
| P12.00                                         | Swing frequency setting method                                  | 0: Relative to the center frequency (P01.07 frequency source)<br>1: Relative to the maximum frequency (P01.10)                                                                             | 0       | ☆ |
| P12.01                                         | Swing frequency amplitude                                       | 0.0% ~ 100.0%                                                                                                                                                                              | 0.0%    | ☆ |
| P12.02                                         | Sudden jump frequency amplitude                                 | 0.0% ~ 50.0%                                                                                                                                                                               | 0.0%    | ☆ |
| P12.03                                         | Swing frequency period                                          | 0.1s ~ 3000.0s                                                                                                                                                                             | 10.0s   | ☆ |
| P12.04                                         | Triangular wave rise time of swing frequency                    | 0.1% ~ 100.0%                                                                                                                                                                              | 50.0%   | ☆ |
| P12.05                                         | Set length                                                      | 0m ~ 65535m                                                                                                                                                                                | 1000m   | ☆ |
| P12.06                                         | Actual length                                                   | 0m ~ 65535m                                                                                                                                                                                | 0m      | ☆ |
| P12.07                                         | Number of pulses per meter                                      | 0.1 ~ 6553.5                                                                                                                                                                               | 100.0   | ☆ |
| P12.08                                         | Set count value                                                 | 1 ~ 65535                                                                                                                                                                                  | 1000    | ☆ |
| P12.09                                         | Specify count value                                             | 1 ~ 65535                                                                                                                                                                                  | 1000    | ☆ |
| P13 Multi-segment instructions, simple PLC     |                                                                 |                                                                                                                                                                                            |         |   |
| P13.00                                         | Multi-segment instructions 0                                    | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.01                                         | Multi-segment instructions 1                                    | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.02                                         | Multi-segment instructions 2                                    | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.03                                         | Multi-segment instructions 3                                    | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.04                                         | Multi-segment instructions 4                                    | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.05                                         | Multi-segment instructions 5                                    | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.06                                         | Multi-segment instructions 6                                    | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.07                                         | Multi-segment instructions 7                                    | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.08                                         | Multi-segment instructions 8                                    | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.09                                         | Multi-segment instructions 9                                    | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.10                                         | Multi-segment instructions 10                                   | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.11                                         | Multi-segment instructions 11                                   | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.12                                         | Multi-segment instructions 12                                   | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.13                                         | Multi-segment instructions 13                                   | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.14                                         | Multi-segment instructions 14                                   | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.15                                         | Multi-segment instructions 15                                   | -100.0% ~ 100.0%                                                                                                                                                                           | 0.0%    | ☆ |
| P13.16                                         | Simple PLC operation mode                                       | 0: stop at the end of a single operation<br>1: Keep the final value at the end of a single operation<br>2: Always loop                                                                     | 0       | ☆ |
| P13.17                                         | Simple PLC power-down memory selection                          | Ones place: Power-down memory selection<br>0: No memory when power off 1: Memory when power off<br>Tens place: shutdown memory selection<br>0: No memory at shutdown 1: Memory at shutdown | 00      | ☆ |
| P13.18                                         | Simple PLC 0 stage running time                                 | 0.0s (h) ~ 6553.5s (h)                                                                                                                                                                     | 0.0s(h) | ☆ |
| P13.19                                         | Simple PLC 0 stage acceleration and deceleration time selection | 0 ~ 3                                                                                                                                                                                      | 0       | ☆ |
| P13.20                                         | Simple PLC 1 stage running time                                 | 0.0s (h) ~ 6553.5s (h)                                                                                                                                                                     | 0.0s(h) | ☆ |
| P13.21                                         | Simple PLC 1 stage acceleration and deceleration time selection | 0 ~ 3                                                                                                                                                                                      | 0       | ☆ |



|                             |                                                                  |                                                                                                                                                    |         |   |
|-----------------------------|------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------|---------|---|
| P13.22                      | Simple PLC 2 stage running time                                  | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.23                      | Simple PLC 2 stage acceleration and deceleration time selection  | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.24                      | Simple PLC 3 stage running time                                  | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.25                      | Simple PLC 3 stage acceleration and deceleration time selection  | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.26                      | Simple PLC 4 stage running time                                  | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.27                      | Simple PLC 4 stage acceleration and deceleration time selection  | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.28                      | Simple PLC 5 stage running time                                  | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.29                      | Simple PLC 5 stage acceleration and deceleration time selection  | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.30                      | Simple PLC 6 stage running time                                  | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.31                      | Simple PLC 6 stage acceleration and deceleration time selection  | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.32                      | Simple PLC 7 stage running time                                  | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.33                      | Simple PLC 7 stage acceleration and deceleration time selection  | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.34                      | Simple PLC 8 stage running time                                  | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.35                      | Simple PLC 8 stage acceleration and deceleration time selection  | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.36                      | Simple PLC 9 stage running time                                  | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.37                      | Simple PLC 9 stage acceleration and deceleration time selection  | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.38                      | Simple PLC 10 stage running time                                 | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.39                      | Simple PLC 10 stage acceleration and deceleration time selection | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.40                      | Simple PLC 11 stage running time                                 | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.41                      | Simple PLC 11 stage acceleration and deceleration time selection | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.42                      | Simple PLC 12 stage running time                                 | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.43                      | Simple PLC 12 stage acceleration and deceleration time selection | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.44                      | Simple PLC 13 stage running time                                 | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.45                      | Simple PLC 13 stage acceleration and deceleration time selection | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.46                      | Simple PLC 14 stage running time                                 | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.47                      | Simple PLC 14 stage acceleration and deceleration time selection | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.48                      | Simple PLC 15 stage running time                                 | 0.0s (h) ~ 6553.5s (h)                                                                                                                             | 0.0s(h) | ☆ |
| P13.49                      | Simple PLC 15 stage acceleration and deceleration time selection | 0 ~ 3                                                                                                                                              | 0       | ☆ |
| P13.50                      | Simple PLC running time unit                                     | 0: s      1: h                                                                                                                                     | 0       | ☆ |
| P13.51                      | Multi-segment instruction 0 setting method                       | 0: Function code P13.00 given<br>1: AI1 2: AI 3: AI3<br>4: PULSE 5: PID<br>6: preset frequency (P01.08) given, UP/DOWN can be modified             | 0       | ☆ |
| P14 Communication Parameter |                                                                  |                                                                                                                                                    |         |   |
| P14.00                      | Communication baud rate                                          | Ones place: MODBUS<br>0: 300BPS 1: 600BPS<br>2: 1200BPS 3: 2400BPS<br>4: 4800BPS 5: 9600BPS<br>6: 19200BPS 7: 38400BPS<br>8: 57600BPS 9: 115200BPS | 5       | ☆ |
| P14.01                      | MODBUS data format                                               | 0: No parity (8.N-2) 1: Even parity (8.E-1)<br>2: Odd parity (8.O-1) 3: No parity (8.N-1)                                                          | 0       | ☆ |
| P14.02                      | Local address                                                    | 0: Broadcast address 1 ~ 247 (MODBUS)                                                                                                              | 1       | ☆ |
| P14.03                      | MODBUS response delay                                            | 0 ~ 20ms                                                                                                                                           | 2       | ☆ |
| P14.04                      | Serial communication timeout                                     | 0.0: Invalid 0.1 ~ 60.0s                                                                                                                           | 0.0     | ☆ |
| P14.05                      | MODBUS                                                           | Ones place: MODBUS<br>0: Non-standard MODBUS protocol<br>1: Standard MODBUS protocol                                                               | 1       | ☆ |
| P14.06                      | Communication reading current resolution                         | 0: 0.01A 1: 0.1A                                                                                                                                   | 0       | ☆ |



| P15 Special function code parameters for constant pressure water supply |                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |        |   |
|-------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---|
| P15.00                                                                  | Simple macro debugging function               | 0: No function<br>1: One for two water supply<br>2: Water supply for buildings and communities<br>3: Hotel water supply<br>4: Fire water supply<br>5: Pressurized water pump water supply<br>6: Deep water pump water supply                                                                                                                                                                                                                                                                                                                                         | 0      | ☆ |
| P15.01                                                                  | Wake-up Pressure                              | 0~Sleep Pressure Bar(KG) (P11.04)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 2.50KG | ☆ |
| P15.02                                                                  | Wake-up delay time                            | 0.0s~6500.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0s     | ☆ |
| P15.03                                                                  | Sleep Pressure                                | Wake-up pressure ~ pressure feedback range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 3.50KG | ☆ |
| P15.04                                                                  | Sleep delay time                              | 0.0s~6500.0s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 60.0s  | ☆ |
| P15.05                                                                  | Pressure proportional linkage enable          | 0: Proportional linkage enable is closed<br>1: Proportional linkage enable is turned on                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 1      | ☆ |
| P15.06                                                                  | Wake-up pressure linkage differential setting | 0-100.0Bar(Kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.50   | ☆ |
| P15.07                                                                  | Sleep pressure linkage differential setting   | 0-100.0Bar(Kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 0.50   | ☆ |
| P15.08                                                                  | High pressure alarm value                     | 0.00-pressure gauge range KG(Bar)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 9.00   | ☆ |
| P15.09                                                                  | High pressure alarm value delay time          | 0-6553.5S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 0.0S   | ☆ |
| P15.10                                                                  | Low pressure alarm value                      | 0.00-pressure gauge range KG(Bar)<br>This parameter is in order to reach the high pressure and the relay can act.                                                                                                                                                                                                                                                                                                                                                                                                                                                    | 0.0    | ☆ |
| P15.11                                                                  | Low pressure alarm value delay time           | 0-6553.5S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 20.0S  | ☆ |
| P15.12                                                                  | Water Inlet start pressure                    | 0-pressure gauge range KG(Bar)<br>Open the start and stop control of the water inlet through P01.02=3<br>The water inlet must use AI2 current sensor<br>If it is voltage type sensor, please change AI2 jumper                                                                                                                                                                                                                                                                                                                                                       | 3.00   | ☆ |
| P15.13                                                                  | Water Inlet Shutdown pressure                 | 0- pressure gauge range KG(Bar)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 3.20   | ☆ |
| P15.14                                                                  | Auxiliary pumps numbers                       | 0-3个                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 0      | ☆ |
| P15.15                                                                  | Auxiliary pump opening waiting time           | 0-1000.0S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 60.0S  | ☆ |
| P15.16                                                                  | Auxiliary pump switch waiting time            | 0-1000.0S                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 5.0S   | ☆ |
| P15.17                                                                  | RO1 function relay action frequency setting   | 0-50HZ When this value is reached, the relay outputs ON signal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 50.00  | ☆ |
| P15.18                                                                  | RO1 function relay cut-off frequency setting  | 0-50HZ When this value is reached, the relay outputs OFF signal                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 30.00  | ☆ |
| P15.19                                                                  | Water level control options                   | 0: Invalid<br>1: AI1<br>2: AI2<br>3: AI3<br>When 0 is selected, the water level control is invalid.<br>1~3 are the setting of water level control analog signal source.<br>The settings of P15.15, P15.16, P15.17, and P15.18 will be valid only after the analog signal source is selected.                                                                                                                                                                                                                                                                         | 0      | ☆ |
| P15.20                                                                  | Water level threshold                         | 0.0~100.0%<br>When the detected water level control analog signal is less than the water level threshold, and after the delay time of P15.16 has passed, it will report the full water warning (A-tF) and go to sleep.<br>If it is a non-continuous situation, that is, when the delay time is not reached, the given analog signal is greater than the water level threshold, the delay timer time will be automatically cleared.<br>Then when the measured water level control analog signal is less than the water level threshold, the delay timer will restart. | 25.0%  | ☆ |
| P15.21                                                                  | Full water level delay time                   | 0~1000.0S full water delay time setting                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 6.0S   | ☆ |



|                               |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                      |        |   |
|-------------------------------|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|---|
| P15.22                        | Simple PLC 2 stage running time                         | 0~1000.0S empty water delay time setting.<br>In the full water warning state, when the detected water level control analog signal is greater than the P15.15 water level threshold, the delay time starts. Continue this state after the delay time of this parameter, the full water warning is cleared and back to the normal state. In the case of non-continuous, the delay timer will be automatically cleared. | 60.0S  | ☆ |
| P15.23                        | Hydraulic probe damaged point                           | 0.0~100.0%<br>0.0% means invalid<br>When it is not 0.0%, when the detected water level control analog signal is greater than the P15.18 hydraulic probe damage point, it will directly report (E.tSF) failure and stop.                                                                                                                                                                                              | 0.0%   | ☆ |
| P15.24                        | Water shortage protection function                      | 0: off<br>1: Turn on, judge by frequency and pressure                                                                                                                                                                                                                                                                                                                                                                | 0      | ☆ |
| P15.25                        | Water shortage fault check value                        | 0.00-set pressure value KG(Bar)<br>Valid when P15.19=1<br>it will judge whether there is water shortage When the feedback value is less than this value.                                                                                                                                                                                                                                                             | 0.50   | ☆ |
| P15.26                        | Water shortage protection detection frequency           | 0-50.00HZ<br>Valid when P15.19=1<br>The comparison frequency for judging water shortage, when the running frequency is greater than or equal to this frequency, and the water shortage detection pressure is lower than or equal to P15.20, Judging It is in water shortage.                                                                                                                                         | 50.00  | ☆ |
| P15.27                        | Water shortage protection detection time                | 0-6553.5S<br>Delay time of water shortage fault alarm                                                                                                                                                                                                                                                                                                                                                                | 10     | ☆ |
| P15.28                        | Incoming water detection pressure                       | 0-Pressure gauge range KG(Bar)                                                                                                                                                                                                                                                                                                                                                                                       | 3.00   | ☆ |
| P15.29                        | Incoming water detection time                           | 0-9999S Incoming water detection time                                                                                                                                                                                                                                                                                                                                                                                | 20.0S  | ☆ |
| P15.30                        | Water leakage and Restart deviation                     | 0-Pressure gauge range KG(Bar)                                                                                                                                                                                                                                                                                                                                                                                       | 0      | ☆ |
| P15.31                        | Water leakage and Restart feedback value                | 0-Pressure gauge range KG(Bar)                                                                                                                                                                                                                                                                                                                                                                                       | 0      | ☆ |
| P15.32                        | Water leakage and Restart feedback value detection time | 0: No function 0.1.10.0s                                                                                                                                                                                                                                                                                                                                                                                             | 2.0S   | ☆ |
| P15.33                        | Sleep mode                                              | 0: Invalid<br>1: Sleep when the feedback pressure is greater than the sleep pressure<br>2: Sleep when the running frequency is less than the sleep output frequency (Affected by P15.29)<br>3: Sleep when the feedback pressure is greater than the sleep pressure and meantime the running frequency is less than the sleep output frequency                                                                        | 0      | ☆ |
| P15.34                        | Sleep output frequency                                  | 0-P01.12                                                                                                                                                                                                                                                                                                                                                                                                             | 20.0Hz | ☆ |
| P17 Function code management  |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                      |        |   |
| P17.00                        | User password                                           | 0 ~ 65535                                                                                                                                                                                                                                                                                                                                                                                                            | 0      | ☆ |
| P17.01                        | Parameter initialization                                | 0: No operation<br>01: Back to Factory setting, Excluding motor parameters<br>02: Clear record information                                                                                                                                                                                                                                                                                                           | 0      | ★ |
| P17.04                        | Function code modification attribute                    | 0: Can be modified 1: Cannot be modified                                                                                                                                                                                                                                                                                                                                                                             | 0      | ☆ |
| P18 Torque control parameters |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                      |        |   |
| P18.00                        | Speed/torque control mode selection                     | 0: Speed control 1: Torque control                                                                                                                                                                                                                                                                                                                                                                                   | 0      | ★ |
| P18.01                        | Torque setting source selection in torque control mode  | 0: Digital setting 1 (P18.03)<br>1: AI1 2: AI2<br>3: AI3 4: PLUSE pulse reference<br>5: Communication setting 6: MIN (AI1, AI2)<br>7: MAX (AI1, AI2)                                                                                                                                                                                                                                                                 | 0      | ★ |
| P18.03                        | Torque digital setting in torque control mode           | -200.0% ~ 200.0%                                                                                                                                                                                                                                                                                                                                                                                                     | 150.0% | ☆ |



## 8 Parameter Table

|                                     |                                                           |                                                                                                                 |                     |   |
|-------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|---------------------|---|
| P18.05                              | Maximum frequency of torque control forward               | 0.00Hz ~ Maximum frequency                                                                                      | 50.00Hz             | ☆ |
| P18.06                              | Maximum frequency of torque control reverse               | 0.00Hz ~ Maximum frequency                                                                                      | 50.00Hz             | ☆ |
| P18.07                              | Acceleration time of torque control                       | 0.00s ~ 65000s                                                                                                  | 0.00s               | ☆ |
| P18.08                              | Deceleration time of torque control                       | 0.00s ~ 65000s                                                                                                  | 0.00s               | ☆ |
| P23 Control optimization parameters |                                                           |                                                                                                                 |                     |   |
| P23.00                              | DPWM switching upper limit frequency                      | 5.00Hz ~ Maximum frequency                                                                                      | 8.00Hz              | ☆ |
| P23.01                              | PWM modulation method                                     | 0: Asynchronous modulation 1: Synchronous modulation                                                            | 0                   | ☆ |
| P23.03                              | Random PWM depth                                          | 0: : Random PWM is invalid<br>1 ~10: PWM carrier frequency random depth                                         | 0                   | ☆ |
| P23.04                              | Fast current limit enable                                 | 0: Disabled 1: Enable                                                                                           | 1                   | ☆ |
| P23.06                              | Undervoltage point setting                                | 60.0% ~ 140.0%                                                                                                  | 100.0%              | ☆ |
| P23.09                              | Overpressure point setting                                | 200.0V ~ 2200.0V                                                                                                | Model Confirm       | ★ |
| P23.10                              | Low frequency variable carrier enable                     | 0: Low frequency variable carrier enable is turned off<br>1: Low frequency variable carrier enable is turned on | 1                   | ☆ |
| P23.11                              | Zero speed running output control enable                  | 0: Disable 1: Enable                                                                                            |                     |   |
| P23.12                              | Power supply phase loss protection sensitivity            | 0~30.0%                                                                                                         | 13.0%               | ☆ |
| P24 AI curve setting                |                                                           |                                                                                                                 |                     |   |
| P24.00                              | AI curve 4 minimum input                                  | -10.00V~P24.02                                                                                                  | 0.00V               | ☆ |
| P24.01                              | AI curve 4 minimum input corresponding setting            | -100.0%~+100.0%                                                                                                 | 0.0%                | ☆ |
| P24.02                              | AI curve 4 inflection point 1 input                       | P24.00~P24.04                                                                                                   | 3.00V               | ☆ |
| P24.03                              | AI curve 4 inflection point 1 input corresponding setting | -100.0%~+100.0%                                                                                                 | 30.0%               | ☆ |
| P24.04                              | AI curve 4 inflection point 2 input                       | P24.02~P24.06                                                                                                   | 6.00V               | ☆ |
| P24.05                              | AI curve 4 inflection point 2 input corresponding setting | -100.0%~+100.0%                                                                                                 | 60.0%               | ☆ |
| P24.06                              | AI curve 4 maximum input                                  | P24.06~+10.00V                                                                                                  | 10.00V              | ☆ |
| P24.07                              | AI curve 4 maximum input corresponding setting            | -100.0%~+100.0%                                                                                                 | 100.0%              | ☆ |
| P24.08                              | AI curve 5 minimum input                                  | -10.00V~P24.10                                                                                                  | -10.00V             | ☆ |
| P24.09                              | AI curve 5 minimum input corresponding setting            | -100.0%~+100.0%                                                                                                 | -100.0%             | ☆ |
| P24.10                              | AI curve 5 inflection point 1 input                       | P24.08~P24.12                                                                                                   | -3.00V              | ☆ |
| P24.11                              | AI curve 5 inflection point 1 input corresponding setting | -100.0%~100.0%                                                                                                  | -30.0%              | ☆ |
| P24.12                              | AI curve 5 inflection point 2 input                       | P24.10~P24.14                                                                                                   | 3.00V               | ☆ |
| P24.13                              | AI curve 5 inflection point 2 input corresponding setting | -100.0%~100.0%                                                                                                  | 30.0%               | ☆ |
| P24.14                              | AI curve 5 maximum input                                  | P24.12~+10.00V                                                                                                  | 10.00V              | ☆ |
| P24.15                              | AI curve 5 maximum input corresponding setting            | -100.0%~100.0%                                                                                                  | 100.0%              | ☆ |
| P24.24                              | AI1 set jump point                                        | -100.0%~100.0%                                                                                                  | 0.0%                | ☆ |
| P24.25                              | AI1 set jump amplitude                                    | 0.0%~100.0%                                                                                                     | 0.5%                | ☆ |
| P24.26                              | AI2 set jump point                                        | -100.0%~100.0%                                                                                                  | 0.0%                | ☆ |
| P24.27                              | AI2 set jump amplitude                                    | 0.0%~100.0%                                                                                                     | 0.5%                | ☆ |
| P24.28                              | AI3 set jump point                                        | -100.0%~100.0%                                                                                                  | 0.0%                | ☆ |
| P24.29                              | AI3 set jump amplitude                                    | 0.0%~100.0%                                                                                                     | 0.5%                | ☆ |
| P30 AIAO calibration                |                                                           |                                                                                                                 |                     |   |
| P30.00                              | AI1 measured voltage1                                     | 0.500V~4.000V                                                                                                   | Factory calibration | ☆ |
| P30.01                              | AI1 display voltage1                                      | 0.500V~4.000V                                                                                                   | Factory calibration | ☆ |
| P30.02                              | AI1 measured voltage2                                     | 6.000V~9.999V                                                                                                   | Factory calibration | ☆ |
| P30.03                              | AI1 display voltage2                                      | 6.000V~9.999V                                                                                                   | Factory calibration | ☆ |
| P30.04                              | AI2 measured voltage1                                     | 0.500V~4.000V                                                                                                   | Factory calibration | ☆ |
| P30.05                              | AI2 display voltage1                                      | 0.500V~4.000V                                                                                                   | Factory calibration | ☆ |
| P30.06                              | AI2 measured voltage2                                     | 6.000V~9.999V                                                                                                   | Factory calibration | ☆ |
| P30.07                              | AI2 display voltage2                                      | 6.000V~9.999V                                                                                                   | Factory calibration | ☆ |
| P30.08                              | AI3 measured voltage1                                     | -9.999V~10.000V                                                                                                 | Factory calibration | ☆ |



|        |                       |                 |                     |   |
|--------|-----------------------|-----------------|---------------------|---|
| P30.09 | AI3 display voltage1  | -9.999V~10.000V | Factory calibration | ☆ |
| P30.10 | AI3 measured voltage2 | -9.999V~10.000V | Factory calibration | ☆ |
| P30.11 | AI3 display voltage2  | -9.999V~10.000V | Factory calibration | ☆ |
| P30.12 | AO1 target voltage1   | 0.500V~4.000V   | Factory calibration | ☆ |
| P30.13 | AO1 measured voltage1 | 0.500V~4.000V   | Factory calibration | ☆ |
| P30.14 | AO1 target voltage2   | 6.000V~9.999V   | Factory calibration | ☆ |
| P30.15 | AO1 measured voltage2 | 6.000V~9.999V   | Factory calibration | ☆ |
| P30.16 | AO2 target voltage1   | 0.500V~4.000V   | Factory calibration | ☆ |
| P30.17 | AO2 measured voltage1 | 0.500V~4.000V   | Factory calibration | ☆ |
| P30.18 | AO2 target voltage2   | 6.000V~9.999V   | Factory calibration | ☆ |
| P30.19 | AO2 measured voltage2 | 6.000V~9.999V   | Factory calibration | ☆ |



# 9 RS485 Appendix

## 9.1 Overview

It is specially developed to provide isolated RS485 communication function for CM500 series inverters. The electrical parameters comply with international standards. Users can choose rs485 according to their needs, and can realize functions such as remote control of inverter operation and parameter setting.

## RS485 Communication Protocol

## 9.2 Use introduction

CM500 series inverters provide RS232/RS485 communication interface, and use the international standard MODBUS communication protocol for master-slave communication. Users can realize centralized control (setting inverter control commands, operating frequency, related function code parameters, monitoring of inverter working status and fault information, etc.) through PC/PLC/upper computer controllers etc., to meet specific application requirements.

## 9.3 Detailed Description

### 9.3.1 Protocol

The CM500 series inverter communication protocol is an asynchronous serial master-slave MODBUS communication protocol. Only one device (host) in the network can establish a protocol (called "query/command"). Other devices (slave) can only respond to the "query/command" of the host by providing data, or make corresponding actions according to the "query/command" of the host. The host here refers to a personal computer (PC), industrial control equipment or programmable logic controller (PLC), etc., and the slave refers to a CM5200 inverter. The master can communicate with a certain slave alone, and it can also publish broadcast information to all the lower slaves. For the "query/command" of the master that is accessed separately, the slave must return a message (called a response). For the broadcast information sent by the master, the slave does not need to feed back a response to the master.

### 9.3.2 Application Method

The inverter is connected to a "single-master and multiple-slave" PC/PLC control network with RS232/RS485 bus.

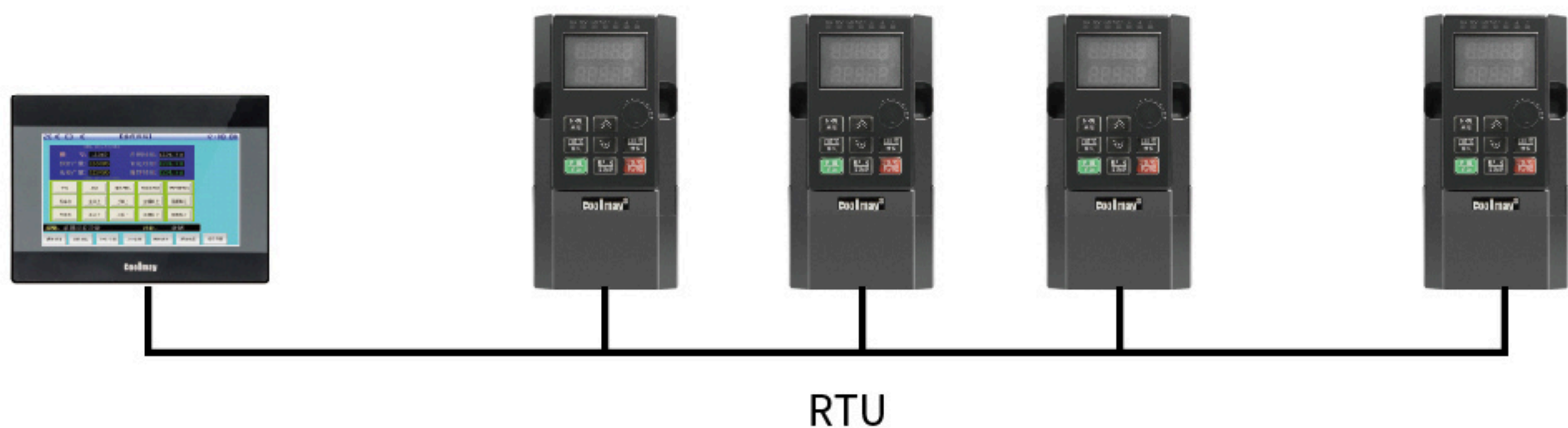
### 9.3.3 Bus structure

- (1) Interface mode: RS232 (JP8 2-3 short circuit)/RS485 (JP8 1-2 short circuit) hardware interface.
- (2) Transmission mode: asynchronous serial, half-duplex transmission mode.

At the same time, only one of the master and slave can send data and the other can only receive data. In the serial asynchronous communication process, data is sent frame by frame in the form of messages.

- (3) Topological structure:

Single master multi-slave system. The setting range of the slave address is from 1 to 247, and 0 is the broadcast communication address. The slave address in the network must be unique. As shown below:





### 9.3.4 Communication data structure

The MODBUS protocol communication data format of the CM500 series inverter is divided into RTU (remote terminal unit mode).

#### (1) in RTU Mode, Each byte format as follows:

Using RTU mode, the message transmission must start with a pause interval of at least 3.5 characters. This is the easiest way to achieve various character times under the network baud rate (as shown in below figure T1-T2-T3-T4 ).The first domain transmitted is the device address. The transmission characters that can be used are hexadecimal 0...9, A...F. The network device continuously detects the network bus, including the pause interval. When the first field (address field) is received, each device decodes it to judge whether to send to itself.After the last transmitted character, a pause of at least 3.5 characters marks the end of the message. A new message can start after this pause. The entire message frame must be transmitted as a continuous stream. If there is a pause of more than 1.5 characters before the frame is completed, the receiving device will refresh the incomplete message and assume that the next byte is the address domain of a new message. Similarly, if a new message starts after the previous message in less than 3.5 characters, the receiving device will consider it a continuation of the previous message. This will cause an error, because the value in the final CRC field can't be correct.

Table 2-1 RTU frame format:

|                                     |                                                                                                                               |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Frame header START                  | T1-T2-T3-T4( 3.5 bytes transmission time)                                                                                     |
| Slave address domain ADDR           | Communication address:0~247 (decimal) (0 is the broadcast address)                                                            |
| Functional domain CMD               | 03H: Read slave parameters;<br>06H: Write slave parameters                                                                    |
| Data domain DATA (N-1) ... DATA (0) | 2*N bytes of data, this part is the main content of communication, and it is also the core of data exchange in communication. |
| CRC CHK low bit                     | Detection value: CRC check value (16BIT)                                                                                      |
| CRC CHK high bit                    |                                                                                                                               |
| Frame end END                       | T1-T2-T3-T4 (3.5 bytes transmission time)                                                                                     |



**CMD (command command) and DATA (data word description) command code: 03H, read N words (Word)**  
(Up to 16 words can be read) For example: the starting address of the inverter with slave address 01 is 0107

Continuously read 2 consecutive values: host command information, RTU host command information

|                    |                                    |
|--------------------|------------------------------------|
| START              | T1-T2-T3-T4                        |
| ADDR               | 01H                                |
| CMD                | 03H                                |
| Start address high | 01H                                |
| Start address low  | 07H                                |
| Data numbers high  | 00H                                |
| Data numbers low   | 02H                                |
| CRC CHK low        | To be calculated its CRC CHK value |
| CRC CHK high       |                                    |
| END                | T1-T2-T3-T4                        |

**RTU slave response information**

|                 |                                    |
|-----------------|------------------------------------|
| START           | T1-T2-T3-T4                        |
| ADDR            | 01H                                |
| CMD             | 03H                                |
| Bytes numbers   | 04H                                |
| Data addr 0007H | 13H                                |
| Data addr 0007H | 88H                                |
| Data addr 0008H | 13H                                |
| Data addr 0008H | 88H                                |
| CRC CHK low     | To be calculated its CRC CHK value |
| CRC CHK high    |                                    |
| END             | T1-T2-T3-T4                        |

**Check method—CRC (Cyclical Redundancy Check)**

Using the RTU frame format, the message includes an error detection domain based on the CRC method. The CRC domain detects the content of the entire message. The CRC domain is two bytes and contains a 16-bit binary value. It is calculated by the transmission equipment and added to the message. The receiving device recalculates the CRC of the received message and compares it with the value in the received CRC domain. If the two CRC values are not equal, it means that there is an error in the transmission.

CRC is first stored in 0xFFFF, and then process the continuous 8-bit byte in the message with the value in the current register. Only the 8-bit data in each character is valid for CRC, and the start bit, stop bit and parity bit are invalid. During the CRC generation process, each 8-bit character is individually exclusive OR (XOR) with the contents of the register, and the result moves to the least significant bit, and the most significant bit is filled with 0. The LSB is extracted and tested. If the LSB is 1, the register is XORed separately with the preset value . If the LSB is 0, it is not performed.The whole process should be repeated 8 times. After the last bit (the 8th bit) is completed, the next 8-bit byte is XORed separately with the current value of the register. The value in the final register is the CRC value after all bytes in the message are executed.



When CRC is added to the message, the low byte is added first, and then the high byte. The simple function of CRC is as follows:

```

unsigned int crc_chk_value (unsigned char *data_value,unsigned char length)
{
    unsigned int crc_value=0xFFFF; int i;
    while (length--)
    {
        crc_value^=*data_value++; for (i=0;i<8;i++)
        {
            if (crc_value&0x0001)
            {
                crc_value= (crc_value>>1)
                ^0xa001;
            }
            else
            {
                crc_value=crc_value>>1;
            }
        }
    }
    return (crc_value) ;
}

```

### Communication parameters address definition.

This part is the content of communication, used to control the inverter operation, inverter status and related parameter settings.

Read and write function code parameters (some function codes cannot be changed and are only for manufacturers): Function code parameter address marking rules:

Use function code group number and label as parameter address expression rules:

High byte:70 (P00) ,F0~FF (P01-P16) ,A0~AC (P18-P30)

Low byte:00~FF

For example: P02.10, the address means F10A (hexadecimal);

P18.01, the address means A001(hexadecimal); Note: P00 group: can be only read ,can' t be changed;

P16 group:Parameters can neither be read nor changed; some parameters cannot be changed when the inverter is running; some parameters cannot be changed no matter what state the inverter is in;To change the function code parameter, pay attention to the parameter range, unit, and related description.

In addition, Due to the EEPROM is frequently stored, which will reduce the EEPROM lifetime. Therefore, some function codes do not need to be stored in the communication mode, only need to change the value in the RAM.



To realize this function, just change the high bit F of the function code address (P01-P16) to be 0 and the high bit A of the function code address (P18-P30) to be 4. The following table:

| Function code group | Function code communication access address (EEPROM) | Communication modification function code address (RAM) |
|---------------------|-----------------------------------------------------|--------------------------------------------------------|
| P00                 | 0x7000-0x70FF                                       | 0x0000-0x0FFF                                          |
| P01-P16             | 0xF000-0xFFFF                                       | 0x4000-0x4CFF                                          |
| P18-P30             | 0xA000-0xACFF                                       |                                                        |

Corresponding function code address, as below:

High Byte:00~0F (P01-P16) ,40~4F (P18-P30)

Low Byte:00~FF

For example: function code P02.10 is not stored in EEPROM, and the address is expressed as 010AH; this address means that it can only be used to write RAM, Can’ t read, and it is an invalid address when reading.

Shutdown/Operating parameter:

| Parameter address | Parameter Description                              |
|-------------------|----------------------------------------------------|
| 1000H             | Communication setting value (-10000~10000) Decimal |
| 1001H             | Operating frequency                                |
| 1002H             | Bus voltage                                        |
| 1003H             | Output voltage                                     |
| 1004H             | Output current                                     |
| 1005H             | Output power                                       |
| 1006H             | Output torque                                      |
| 1007H             | Operating speed                                    |
| 1008H             | DI input flag                                      |
| 1009H             | DO output flag                                     |
| 100AH             | AI1 voltage                                        |
| 100BH             | AI2 voltage                                        |
| 100CH             | Keyboard potentiometer voltage                     |
| 100DH             | Count value input                                  |
| 100EH             | Length value input                                 |
| 100FH             | Load speed                                         |
| 1010H             | PID given value                                    |
| 1011H             | PID feedback value                                 |
| 1012H             | PLC steps                                          |
| 1013H             | PULSE input pulse frequency, unit 0.01kHz          |
| 1014H             | Feedback speed, unit 0.1Hz                         |
| 1015H             | Remaining running time                             |
| 1016H             | AI1 voltage before calibration                     |
| 1017H             | AI2 voltage before calibration                     |
| 1018H             | Voltage before keyboard potentiometer calibration  |
| 1019H             | Line speed                                         |
| 101AH             | Current power-on time                              |
| 101BH             | Current running time                               |
| 101CH             | PULSE input pulse frequency, unit 1Hz              |
| 101DH             | Communication set value                            |
| 101EH             | Actual feedback speed                              |
| 101FH             | Main frequency X display                           |
| 1020H             | Auxiliary frequency Y display                      |



The communication setting value is the percentage of the relative value, 10000 corresponds to 100.00%, and -10000 corresponds to -100.00%.

For frequency dimension data, the percentage is relative to the maximum frequency (P01.10); for torque dimension data, the percentage is P03.10, P20.48, P21.48, P22.48

(Torque upper limit digital setting) correspond to the 1st,2nd,3rd,4th motors respectively.

### Control command input to the inverter: (write only)

| Command word address | Command function      |
|----------------------|-----------------------|
| 2000H                | 0001H:Forward running |
|                      | 0002H:Reverse running |
|                      | 0003H:Forward jog     |
|                      | 0004H:Reverse jog     |
|                      | 0005H:Free stop       |
|                      | 0006H:Slow down stop  |
|                      | 0007H:Fault reset     |

### Read inverter status: (read only)

| Status word address | Status word function definition |
|---------------------|---------------------------------|
| 3000H               | 0001H:Forward running           |
|                     | 0002H:Reverse running           |
|                     | 0003H:Inverter shutdown         |

Parameter lock password verification: (If the return is 8888H, it means the password verification passed)

| Password address | Enter password |
|------------------|----------------|
| 1F00             | *****          |

The communication address for parameter initialization is 1F01H, and its data content is defined as follows:

| Parameter initialization communication address | Command function                 |
|------------------------------------------------|----------------------------------|
| 1F01H                                          | 1:Back to Factory Parameters     |
|                                                | 2:Clear record information       |
|                                                | 4:Restore user backup parameters |
|                                                | 5:Backup user current parameters |

### Digital output terminal control: (write only)

| Command address | Command content                                                                                                                                                                                                      |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2001H           | BIT0: D01 Output control<br>BIT1: D02 Output control<br>BIT2: RELAY1 Output control<br>BIT3: RELAY2 Output control<br>BIT4: SPR Output control<br>BIT5: VDO1<br>BIT6: VDO2<br>BIT7: VDO3<br>BIT8: VDO4<br>BIT9: VDO5 |



**Analog output AO1 control: (write only)**

| Command address | Command function    |
|-----------------|---------------------|
| 2002H           | 0-7FFF means 0-100% |

**Analog output AO2 control: (write only)**

| Command address | Command function    |
|-----------------|---------------------|
| 2003H           | 0-7FFF means 0-100% |

**Pulse (PULSE) output SPP control: (write only)**

| Command address | Command function    |
|-----------------|---------------------|
| 2004H           | 0-7FFF means 0-100% |

**Inverter fault description:**

| Inverter fault address | error code | Inverter fault information                     |
|------------------------|------------|------------------------------------------------|
| 8000H                  |            | 0000:No fault                                  |
|                        |            | 0001:Retention                                 |
|                        | E.oC1      | 0002:Acceleration overcurrent (oC1)            |
|                        | E.oC2      | 0003:Deceleration overcurrent (oC2)            |
|                        | E.oC3      | 0004:Constant speed overcurrent (oC3)          |
|                        | E.oU1      | 0005:Acceleration overvoltage (oU1)            |
|                        | E.oU2      | 0006:Deceleration overvoltage (oU2)            |
|                        | E.oU3      | 0007:Constant speed overvoltage (oU3)          |
|                        | E.Br       | 0008:Snubber resistor overload fault           |
|                        | E.LU       | 0009:Bus undervoltage error (LU)               |
|                        | E.oL2      | 000A:Inverter overload (oL2)                   |
|                        | E.Ol1      | 000B:Motor overload (oL1)                      |
|                        | E.PHI      | 000C:Input side phase loss (PHI)               |
|                        | E.PHo      | 000D:Output side phase loss (PHo)              |
|                        | E.oH1      | 000E:Module overheating error (oH1)            |
|                        | E.SET      | 000F:External error (EF)                       |
|                        | E.CE       | 0010:Communication error (CE)                  |
|                        | E.CoN      | 0011:Contactor error                           |
|                        | E.oCC      | 0012:Current detection error (oCC)             |
|                        | E.TE       | 0013:Motor self-learning error (TE)            |
|                        | E.Enco     | 0014:Encoder/PG card error                     |
|                        | E.EEP      | 0015:EEPROM Operation error (EEP)              |
|                        | E.INT      | 0016:Inverter hardware error                   |
|                        | E.STG      | 0017:Motor to ground short circuit error       |
|                        | E.BL       | 0018:Retention                                 |
|                        | E.oH2      | 0019:Retention                                 |
|                        | E.TIo      | 001A:Running time arrived                      |
|                        | E.USE1     | 001B:User-defined error 1                      |
|                        | E.USE2     | 001C:User-defined error 2                      |
|                        | E.PUTo     | 001D:Power-on time arrives                     |
|                        | E.LOAD     | 001E:Offload                                   |
|                        | E.PId      | 001F:PID feedback lost during operation (PIDE) |
|                        | E.CBC      | 0028:Fast current limit timeout error          |
|                        | E.SrUN     | 0029:Cut off motor error during operation      |



| Inverter fault address | error code | Inverter fault information             |
|------------------------|------------|----------------------------------------|
| 8000H                  | E.SDD      | 002A:Excessive speed deviation error   |
|                        | E.oS       | 002B:Motor overspeed                   |
|                        | E.OH2      | 002D:Motor over temperature error      |
|                        | E.INIT     | 005A:Encoder line number setting error |
|                        | E.FDB      | 005B:Encoder not connected             |
|                        | E.INIT     | 005C:Initial position error            |
|                        | E.ESD      | 005D:Speed feedback error              |

### Communication fault information description data (error code):

| Communication fault address | Communication fault function description                                                                                                                                                                                         |
|-----------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 8001H                       | 0000: No fault<br>0001: Password error<br>0002: Command code error<br>0003: CRC check error<br>0004: invalid address<br>0005: invalid parameter<br>0006: Invalid parameter change<br>0007: system lock<br>0008: EEPROM operation |





# 10 Warranty

## 1 Warranty rules as below:

1. Specific content of the quality assurance that is the responsibility of the manufacturer:
  - 1.1 Using in China Mainland (Calculated from Shipment date)
    - within 1 month, Return/Replacement/Repairing supported.
    - within 3 months, Replacement/Repairing supported.
    - within 12 months, Repairing supported.
  - 1.2 Using in Overseas, within 12 months, Repairing supported.
2. Whenever and wherever you use coolmay products, you will enjoy paid lifetime service.
3. Any Sale / Producer/Agency of Coolmay can provide after-service , condition as below:
  - 3.1. Carry out "level three" inspection services (including troubleshooting) at the location of the unit.
  - 3.2. The after-sales service responsibility standards as contract signed by Coolmay and the Agent.
  - 3.3. After-sales service (regardless of warranty or not) can be requested from each agency for a fee.
4. Basic quality responsibility is based on 1.1 and 1.2; if you need more liability compensation guarantee, please purchase property insurance from the insurance company in advance.
5. Warranty Period: 12 months (from shipment date).
6. If fault is caused by follow, even within the warranty period, it is also a paid repair:
  - 6.1, Caused by incorrect operation (according to the manual) or self-repair or modification without permission
  - 6.2, Exceed the requirements of standard specifications to use inverters.
  - 6.3. Damage caused by falling or improper handling.
  - 6.4. Device aging or failure caused by poor environment.
  - 6.5, Due to earthquakes, fires, feng shui disasters, lightning strikes, abnormal voltages or other natural disasters
  - 6.6. Damage during transportation (Company assists in handling the procedures for goods transfer).
  - 6.7. When the brand, trademark, serial number, nameplate, etc. are damaged or unrecognizable.
  - 6.8. The payment was not paid in accordance with the purchase agreement.
  - 6.9. The installation, wiring, operation, maintenance or other usage conditions cannot be objectively described to the service unit of the company.
7. About return/replacement/repair service, the goods must be returned to manufacturer to check its status firstly, and the return or repair can be made only after the responsibility is confirmed.



