# Solar Pumping Inverter
# User Manual


Figure 1 YB solar pumping inverter

## Designed & Manufactured by

## Shenzhen Power Hero Technology Co., Limited

# Safety Instruction

To ensure safe operation of solar pumping inverter, it must choose the right way of transportation, installation, operation and maintenance. Please be aware of the safety notices before operation:

Warning: Misuse will result in fire, serious injury to person or even death.

Caution: misuse will cause low or middle-grade injury to person or equipment damage.

Prompt: Point out some useful information

**First Inspection**

| |
|---|
| Caution |
| If inverter is damaged or missing parts, no installation allowed in case of any accidents. |

**Installation**

| |
|---|
| Caution |
| 1.It must be installed vertically for good convection cooling effect .<br>2.Keep under the condition of good ventilation opening or ventilating device. Never exposes directly to the sunlight. |

**Connection**

| |
|---|
| Caution |
| 1.All wire cable connection must be under the instruction of correct wiring diagram .<br>2.Handling by qualified electrical professionals, all wire cable should be wrapped with electrical tape for safety. |

**Storage**

| |
|---|
| Caution |
| Placed in dry, dust-free, no corrosive gas, liquid.<br>Temperature of the storage location must be at the -20℃ to +70℃.<br>Relative Humidity of the storage location must be between 5% to 90% range, and no condensation. |

# Chapter 1 System Introduction

## 1.1 Brief Introduction

A complete solar pumping system consist of solar array, pump and solar pumping inverter. SPI series solar pumping inverter can convert the DC power from solar PV array to AC power to run pump motors.

Solar array, an aggregation of many solar modules connected in series and parallel, absorbs sunlight radiation and converts it into electrical energy, providing dynamical water for the whole system.

Inverter controls the system operation and adjust the output frequency in real-time according to the variation of sunlight intensity to realize the maximum power point tracking (MPPT).

Pump, drive by 3-phase AC motor, can draw water from the deep wells or rivers and lakes to pour into the storage tank or reservoir, or directly connect to the irrigation system, fountain system, etc.

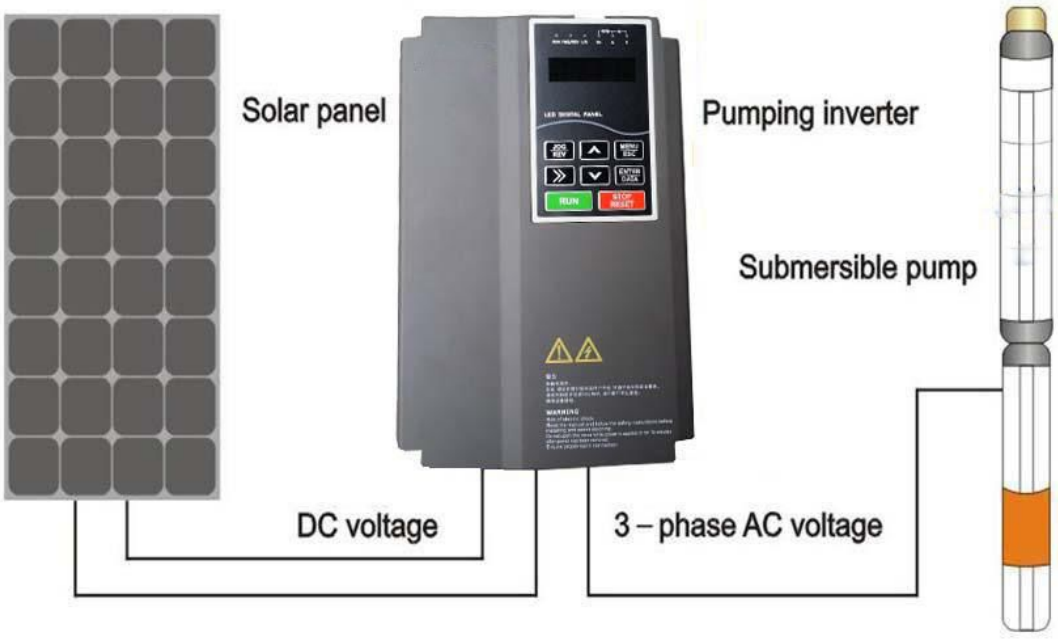


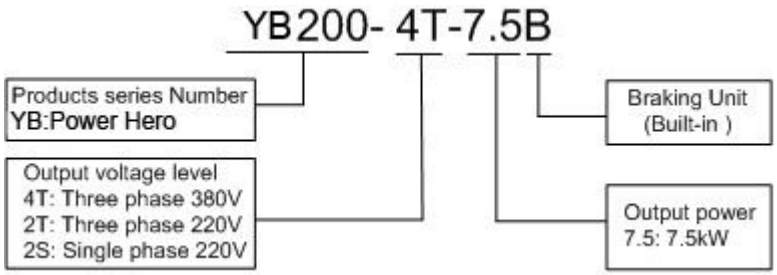

Figure 2 Structure of solar pumping system

# Chapter 2 Solar Pumping Inverter

## 2.1 Inverter Specification

Model Description

Model numbers on name plate consist of numbers, symbols, and letters, to express its respective series, suitable power type, power level and other information.




## 2.2 Inverter Features

· Apply to all kinds of single phase or 3 phase AC induction motor .

·With Infineon IGBT .Maximum power point tracking (MPPT) algorithm for dynamic VI, fast response speed,

. Good stability, the efficiency of MPPT 99.99%;

·Both AC and DC input, but can not use DC and AC at the same time.

.For single phase inverter , MPPT working voltage is 180V~450V ; for three phase inverter , MPPT working voltage is 250V~800V .

·Remote control , support RS323/RS485 protocol.

· Outdoor working environment temperature: -10℃~+40℃

·Start in the morning and stop in the late afternoon full automatically.

·Full protections : overload , overcurrent, over voltage , undervoltage ,short circuit , dry pumping etc，

PV reversed connection protection.

## 2.3Parameters :

| Solar Pump Inverter | | | | | | Solar Array | AC Pump |
|---|---|---|---|---|---|---|---|
| Model | Rated Power(KW) | Max. DC Input Voltage(V) | MPPT Voltage(V) | Rated output Voltage(V) | Output Frequency(Hz) | DC Power(KW) | Rated Power(KW) |
| YB100-2S-0.75B | 0.75 | 450 | 250-400 | Single PH 220 | 0-50/60 | 0.825 | 0.75 |
| YB100-2S-1.5B | 1.5 | 450 | 250-400 | Single PH 220 | 0-50/60 | 2.25 | 1.5 |
| YB100-2S-2.2B | 2.2 | 450 | 250-400 | Single PH 220 | 0-50/60 | 3.3 | 2.2 |
| YB100-2S-4.0B | 4 | 450 | 250-400 | Single PH 220 | 0-50/60 | 6.0 | 4.0 |
| YB100-2T-0.75B | 0.75 | 450 | 250-400 | 3PH220 | 0-50/60 | 0.825 | 0.75 |
| YB100-2T-1.5B | 1.5 | 450 | 250-400 | 3PH220 | 0-50/60 | 2.25 | 1.5 |
| YB100-2T-2.2B | 2.2 | 450 | 250-400 | 3PH220 | 0-50/60 | 3.3 | 2.2 |
| YB100-2T-4.0B | 4 | 450 | 250-400 | 3PH220 | 0-50/60 | 6.0 | 4.0 |
| YB100-2T-5.5B | 5.5 | 450 | 250-400 | 3PH220 | 0-50/60 | 8.25 | 5.5 |
| YB200-4T-0.7B | 0.75 | 800 | 450-800 | 3PH380 | 0-50/60 | 0.825 | 0.75 |
| YB200-4T-1.5B | 1.5 | 800 | 450-800 | 3PH380 | 0-50/60 | 2.25 | 1.5 |
| YB200-4T-2.2B | 2.2 | 800 | 450-800 | 3PH380 | 0-50/60 | 3.3 | 2.2 |
| YB200-4T-4.0B | 4.0 | 800 | 450-800 | 3PH380 | 0-50/60 | 6 | 4.0 |
| YB200-4T-5.5B | 5.5 | 800 | 450-800 | 3PH380 | 0-50/60 | 8.25 | 5.5 |
| YB200-4T-7.5B | 7.5 | 800 | 450-800 | 3PH380 | 0-50/60 | 11.25 | 7.5 |
| YB200-4T-11B | 11 | 800 | 450-800 | 3PH380 | 0-50/60 | 16.5 | 11 |
| YB200-4T-15B | 15 | 800 | 450-800 | 3PH380 | 0-50/60 | 20 | 15 |
| YB200-4T-18.5B | 18.5 | 800 | 450-800 | 3PH380 | 0-50/60 | 24 | 18.5 |
| YB200-4T-22B | 22 | 800 | 450-800 | 3PH380 | 0-50/60 | 29 | 22 |
| YB200-4T-30B | 30 | 800 | 450-800 | 3PH380 | 0-50/60 | 39 | 30 |
| YB200-4T-37B | 37 | 800 | 450-800 | 3PH380 | 0-50/60 | 48 | 37 |
| YB200-4T-45B | 45 | 800 | 450-800 | 3PH380 | 0-50/60 | 54 | 45 |
| YB200-4T-55B | 55 | 800 | 450-800 | 3PH380 | 0-50/60 | 66 | 55 |
| YB200-4T-75B | 75 | 800 | 450-800 | 3PH380 | 0-50/60 | 90 | 75 |
| YB200-4T-90B | 90 | 800 | 450-800 | 3PH380 | 0-50/60 | 108 | 90 |
| YB200-4T-110B | 110 | 800 | 450-800 | 3PH380 | 0-50/60 | 132 | 110 |

## 2.4 Technical Parameter Table

### 2.4.1 Single phase inverter (YB100-2S-0.7B~4.0B,YB100-2T-0.7B~5.5B)

| Input specification | |
|---|---|
| PV Input | |
| Maximum Input DC Voltage | 450VDC |
| Recommended MPPT Voltage Range | 250～400VDC |
| Recommended Input Operation Voltage | 310VDC (Vmpp) |
| Grid or backup generator input | |
| - Input voltage | 1PH &3PH 220V(-15%～30%) |
| Output specification | |
| Rated output voltage | 1PH &3PH 220V |
| Output frequency | 0～600.00Hz（default: 0～60.00Hz） |
| Protection | |
| Built-in Protection | Lighting Protection, over-current, overvoltage, output phase-lose, under-load, under-voltage, short circuit, overheating, water pump run dry etc. |

### 2.4.2 Three Phase inverter (YB200-4T-0.7B~110B)

| Input specification | |
|---|---|
| PV Input | |
| Maximum Input DC Voltage | 800VDC |
| Recommended MPPT Voltage Range | 450～600VDC |
| Recommended Input Operation Voltage | 540VDC (Vmpp) |
| Grid or backup generator input | |
| Input Voltage | Three phase 380V(-15%～30%) |
| Output specification | |
| Rated output voltage | 3PH 380V |
| Output frequency | 0～600.00Hz（Default 0～60.00Hz） |
| Protection | |
| Built-in Protection | Lighting Protection, over-current, overvoltage, output phase-lose, under-load, under-voltage, short circuit, overheating, water pump run dry etc. |
| General Parameters | |
| Application Site | No direct sunshine, no dust, corrosive gas, combustible gas, oil mist, steam, dripping or salinity etc. |
| Altitude | 0～2000 m |

| | |
|---|---|
| | Derated use above 1000m,per 100m, the rated output current decrease 1%. |
| Environment Temperature | -10℃～40℃ (Environment Temperature be 40℃～50℃, please keep derated use.) |
| Humidity | 5～95%,non-condensation |
| Vibration | less than 5.9 m/s$^2$（0.6g） |
| Storage Temperature | -20℃～+70℃ |
| Efficiency | Rated Power Run≥93% |
| Installation | Wall or rail mounting |
| Cooling | Forced Air Cooling |

## 2.5 Inverter Introduction

### 2.5.1 Brief Instruction


Figure 3 Inverter keypad

### 2.5.2 Operation panel button and potentiometer function

| | | |
|---|---|---|
| MENU ESC | MENU/ESC | Enter or exit Level I menu |
| ENTER DATA | ENTER/DATA | Enter the menu interfaces level by level, and confirm the parameter setting |
| ∧ | UP | Increase data or function code |
| ∨ | DOWN | Decrease date or function code |
| ≫ | SHIFT | Select the displayed parameters in turn in the stop or running state, and select the digit to be modified when modifying parameters |
| RUN | RUN | Start the inverter in the keypad control mode |

| | | |
|---|---|---|
| STOP RESET | STOP/RESET | Stop the inverter when it is in the running state and perform the reset operation when it is in the fault state |
| JOG REV | JOG/REV | Perform function switchover (such as jog run and quick switchover of command source or direction) |

### 2.5.3 Main Circuit Terminals

2.5.3.1Schematic Diagram for Connection of Main Circuit Terminals

①Connection diagram of main circuit for the inverter of 220v

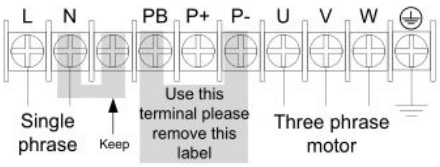



Figure 4 Terminals Connection diagram of main circuit for the inverter of 220v

②Connection diagram of main circuit for the inverter of 380v below 2.2KW

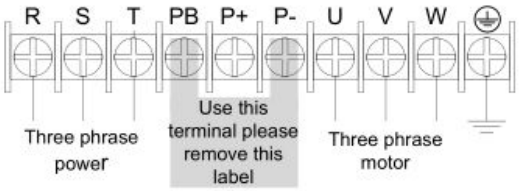



Figure 5 Connection diagram of main circuit for the inverter of 380V below 2.2KW

③3.7kW~15kW Connection diagram of main circuit for the inverter of 380v 3.7KW-15KW

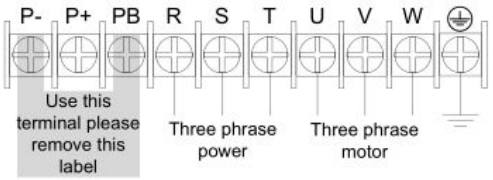



Figure 6Connection diagram of main circuit for the inverter of 380V 3.7kw-15kw

④Connection diagram of main circuit for the inverter of 380v up 18.5kw

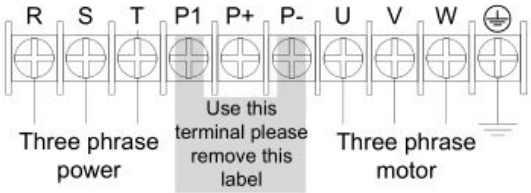



Figure 7 Connection diagram of main circuit for the inverter of 380V over 18.5kw

2.5.3.2 Instructions of main circuit terminals of inverter:

| Terminals | Function Instruction |
|---|---|
| L,N | single-phase 220V input terminal, external connection of grid single phase 220V |

| | |
|---|---|
| | AC power |
| R,S,T | input terminal of AC 3-phase power, external connection of grid 3phase AC power |
| U,V,W | output terminal of 3phase power, external connection of AC 3phase motor |
| P+,P- | Negative and positive terminals of DC power, external connection of brake unit terminal |
| P+,PB | External connecting of brake resistor terminal |
| P1,P+ | External connection of DC electric reactor terminal |
| ⏚ | Earth terminal |

**DANGER**

● the voltage class of VD300A series inverter 3phase power has 2 class: 220V, 380V, before connecting power, please make sure the power class on inverter nameplate is the same with the accessing power. Otherwise do not connect.
● DC bus P+ P-terminal: take note that when power outrage there is residual voltage on DC bus P+ P- terminal, need to wait for a while until CHARGE LED off. Otherwise it is danger of electric shock.
●When selecting external brake unit, note the polarity of P= P- cannot be reversely connected, otherwise it can result in damage or even fire.
Do not directly connect brake resistor to DC bus, it may result damage or fire.

**WARNING**

1) Input power L,N or R, S T: the cable connection at input side of the inverter has no phase sequence requirement.
2) Brake unit cable length should not exceed 10m, twisted pair or double cable parallel wiring should be used.
3)Brake resistor connecting terminal P+ P-: confirm whether the device has built-in brake unit, its brake resistor connecting terminal is effect. The brake resistor selection table 2-4 recommending value and the wiring distance should less than 5M.
Other it can damage inverter.
4)External DC electric reactor connecting terminal P1 P+: for external DC reactor to 18.5Kw and above power inverter, get rid off the connector between P1 P+ terminal during installation, reactor is installed between the 2 terminal.
5)Inverter output side U V W: the output side cannot connect capacitor or surge absorber, otherwise it will affect inverter in self-protection frequently or damage.
6)In case the motor cable is too long, it may generate electrical resonance easily due to the impact of distributed capacitance, thus damaging the motor insulation or generating higher leakage current to invoke over current protection of the inverter. When the length of motor cables longer than 100 meters, it needs to install a AC output reactor.
7)Earth terminal PE:
This terminal shall be earthed reliably, with resistance of earth cable of less than 10Ω.Otherwise, it may cause fault or damage the inverter.
Do not share the earth terminal with zero line N terminal, otherwise it will result equipment abnormal running or damage.

### 2.5.4 Control Circuit terminal

① Control terminals and Functional

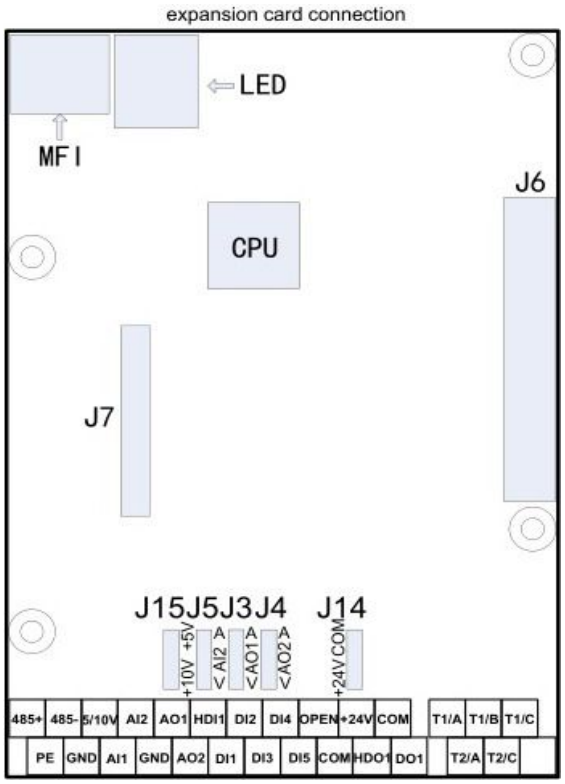



Figure 4 Diagram of main control board and function extension card connection

② Function description of control circuit

| Type | Terminal sign | Terminal name | function |
|---|---|---|---|
| Power supply | 5V/10V-GND | External 5V/10V power supply | 1. provide +5V/10V power supply for external-units, the maximum output current is 20mA.J15 jumper on main control board to select 5V or 10V power output, default is 10V.<br>2.It is generally used as the operating power supply for the external potentiometer. The potentiometer resistance range is 1kΩ~10KΩ |
| | +24V-COM | 24V power supply | 1.Provide +24V power supply for external units. It is generally used as the operating power supply for digital input/output terminals and the external sensor. The maximum output current is 200mA. |
| | OPEN | External power input terminal | 1. Connect to 24V by default, J14 jumper on main control board to select +24V or COM connection.<br>2. When external power is used to drive DI1~DI5, HDI1, OPEN needs to connect to the external power supply and disconnect J14(disconnecting with +24V/COM). |
| Commu nication | 485+-485- | RS-485 terminals | Standard RS-485 communication terminal, should use twisted pair cable |
| Analog input | AI1-GND | Analog input terminal 1 | 1.Input Voltage range :DC 0V to 10V<br>2. input resistance ： 22kΩ |
| | AI2-GND | Analog input terminal 2 | 1.Input range :DC 0V to 10V or 0/4mA~20mA, can be selected by J5 jumper on main control board.<br>2. input resistance: under voltage input-22 kΩ, Under current input-500Ω. |
| Digital input | DI1-COM | Digital input 1 | 1. Optical coupling isolation, compatible with dual polarity input, internal resistance 3.3kΩ; |
| | DI2-COM | Digital input 2 | |

| | | | |
|---|---|---|---|
| | DI3-COM | Digital input 3 | 2. Multi-function digital input, through P05.01-P05.05 to set function.<br>3. The inverter default +24v power supply built-in, COM is common terminal.<br>4. when using external power, JP14 should be suspended, external +24V connect to OPEN, COM is common terminal(external voltage range +24V±10%.<br>5. internal resistance 1.65 Kω. |
| | DI4-COM | Digital input 4 | |
| | DI5-COM | Digital input 5 | |
| | HDI1-COM | Rapid pulse input terminal | 1、when used as general digit input, it is the same function as DI1 to DI5; can combine with OPEN as bipolar rapid pulse input terminal. Max input frequency is 100kHz。<br>3、When use external power, input voltage range +24V±10%;<br>4、The internal impedance 1.65 kΩ |
| Analog output | AO1-GND | Analog output terminal 1 | 0V~10V voltage and 0/4mA~20mA current output |
| | AO2-GND | Analog output terminal 2 | 0V~10V voltage 0/4mA~20mA current output |
| Digital output | DO1-COM | Digital output 1 | 1.Optical coupling isolation, dual polarity open collector output<br>2.Output voltage range: 5V~24V<br>3.Output current range:2mA~50mA. |
| | HDO1-COM | Rapid pulse input terminal | 1.when used as general digital output, same function as DO1.<br>2.pull-up voltage range:5V-24V(pull-up impedance range: 0.48 kΩ~10kΩ).<br>3.output current range: 2mA~50mA |
| Relay output | T1/A-T1/B | Relay T1 normally closed terminal | Contact driving capacity:<br>AC250V, 3A,DC 30V, 1A |
| | T1/A-T1/C | Relay T1 normally open terminal | |
| | T2/A-T2/C | Relay T2 normally open terminal | |
| ground | PE | Shield cable ground terminal | 1.control cable shield grounding, when the interference is big on site or control cable is too long, the PE should be well grounded to reduce EMC affect.<br>2.PE is not allowed to connect with power N line, otherwise it can damage inverter |

③Jumper switch function description

| Jumper Code | Jumper wire | Function |
|---|---|---|
| J3 | A terminal | When jump cap plug connect to A, AO1 terminal select DC0/4mA-20mA current output |
| | V terminal | When jump cap plug connect to V, AO1 terminal select DC0V-10V voltage output |
| J4 | A terminal | When jump cap plug connect to A, AO1 terminal select DC0/4mA-20mA current output |
| | V terminal | When jump cap plug connect to V, AO1 terminal select DC0V-10V voltage output |
| J5 | A terminal | When jump cap plug connect to A, AI2 terminal select DC0/4mA-20mA current output |
| | V terminal | When jump cap plug connect to V, AI2 terminal select DC0V-10V voltage output |
| J14 | 24V terminal | When jump cap plug connect to 24V, OPEN terminal connect with +24V, and HDI1, DI1~DI5 with COM short circuit input effective. |

| | | |
|---|---|---|
| | COM terminal | When jump cap plug connect to 24V, OPEN terminal connect with COM, and HDI1, DI1~DI5 with +24V short circuit input effective. |
| J15 | +5V terminal | When jump cap plug connect to +5V, terminal +5V/10V-GND on main board provide power supply +5V |
| | +10V terminal | When jump cap plug connect to +10V, terminal +5V/10V-GND on main board provide power supply +10V |

④Jack connection function description

| Jack Code | Function | Description |
|---|---|---|
| J6 | Control board-power board | J6 is connection port of main control board and power board, power board supply power to main control board and is electric signal gateway between the 2 parts |
| J7 | Control board-extension card | J7 is connection port of extension card and main control board, main control board supply power to extension card and is electric signal gateway between the 2 parts |
| LED | Control board-LED panel | This plug is connection port of main control board and LED panel, main control board supply power to LED panel and is electric signal gateway between the 2 parts |
| MFI | Control board-MFI interface | This plug is connection port of main control board and MFI port, main control board supply power to MFI port and is electric signal gateway between the 2 parts |

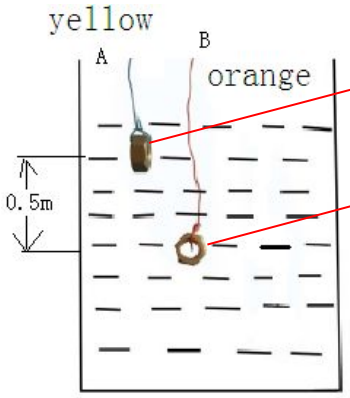
### 2.5.5 Tank water full and Well water dry protection:

Tips:

**1**use the signal wire connect some screw or conductor to put the sensor inside the well or tank;

**2**use the water as conductor to connect A, B or disconnect A, B to control the pump inverter ;

**A, Tank water full protection**

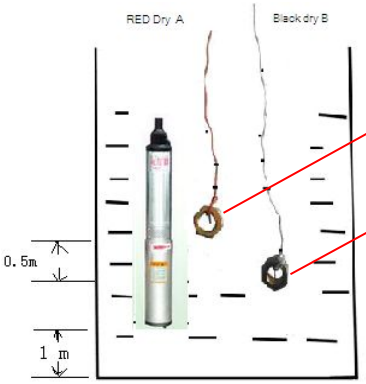



Put the yellow ring where you want to stop the pump

Put the orange B about 0.5 meter lower than yellow A

Reminder:
1, only two ring connected by water, and that can stop the pump; when disconnect in air or only one in water, pump continue its working.
2, the distance 0.5meter means not too close that stop the pump without water full, or not too far away that can't connect each other even both of them inside water.
3, Yellow A and Orange B can exchange the position.

**B, Well water dry protection**




Put the Red A above the pump motor

Put Black B about 0.5 meter lower than Red A

Reminder:
1, only two ring disconnected from water, and that can stop the pump; when connect inside the water, pump continue its working.
2, the distance 0.5meter means not too close that cann't stop the pump when water dry, or not too far away that pump cann't start since always disconnected .
3, Red A and Black B can exchange the position.

**Important remark:**

**For water dry protection, after the sensor connected ready, we need set: P11.33 = 1.**
**For water full protection, no need parameter setting.**
**For the Screw or conductor, we'd better use Anti-oxidant material. otherwise, we need to change a new one in case of rusty or corrosion after few months.**

# Chapter 3 Function Parameters

## 3.1 The Basic Function Parameters

The symbols in the function code table are described as follows:

"○" means the value of this parameter can be modified in stop and running status of drive;

"◎" means the value of this parameter cannot be modified when drive is running;

"●" means this parameter is a measured value that cannot be modified;

Default: The value when restored to factory default. Neither measured parameter value nor recorded value will be restored.
Setting Range: the scope of setting and display of parameters.

| Code | Name | Description | Factory Default | Attribute |
|---|---|---|---|---|
| P00.01 | Command Source Selection of Run/Start | 0：Operation Panel（LED off）<br>1：Terminal Panel（L/R on）<br>2：Computer Communications（L/R flash） | 1 | ○ |
| P00.14 | Acceleration Time 0 | 0.0s~3600.0s | 2.0s | ○ |
| P00.15 | Deceleration Time 0 | 0.0s~3600.0s | 0.1s | ○ |
| P01.05 | Stop mode | 0：Ramp to stop<br>1：Coast to stop | 1 | ○ |
| P01.22 | Terminal Control When Power-On | 0：Terminal Command Enabled<br>1：Terminal Command Disabled | 1 | ○ |
| P01.23 | Restart when Power-off | 0：Forbid to Restart<br>1：Allow to restart | 1 | ○ |
| P01.24 | Wait Time of Restart When Power-off | 0.0~3600.0s(whenP01.23, 1Mean Enabled) | 1.0s | ○ |
| P02.00 | Motor1 type | 0：Asynchronous motor | 0 | ● |
| P02.01 | Motor 1 Rated Power | 0.4kW~1000.0kW | Model Set | ◎ |
| P02.02 | Motor 1 Rated Voltage | 0V~1500V | Model Set | ◎ |
| P02.03 | Motor 1 Rated Current | 0.0A~2000.0A | Model Set | ◎ |
| P02.04 | Motor 1 Rated Frequency | 0.00Hz~650.00Hz | Model Set | ◎ |
| P02.05 | Motor 1 Rated Rotational Speed | 0RPM~65535RPM | Model Set | ◎ |

| | | | | |
|---|---|---|---|---|
| P05.01 | Terminal DI1 Function Selection | 0： Disabled<br>1： Forward run<br>49：PV Inverter Forbid<br>50：Full-Water<br>51：Dry -Water | 1 | ◎ |
| P05.02 | Terminal DI2 Function Selection | | 50 | ◎ |
| P05.03 | Terminal DI3 Function Selection | | 51 | ◎ |
| P05.04 | Terminal DI4 Function Selection | | 49 | ◎ |
| P05.05 | Terminal DI5 Function Selection | | 0 | ◎ |
| P05.11 | Terminal DI1~DI5 Positive/Negative Logic | 0x00~0x1FF | 4 | ◎ |
| P05.12 | DI Terminal Filtering Time | 0.000~1.000s | 0.010s | ○ |
| P06.02 | Output Terminal Positive/Negative Logic | 0x0~0x1F | 0x0 | ○ |
| P06.03 | DO1 Output Function | 0：Disabled<br>16：Weak Light Pre-Warning<br>17：Full-Water Pre-Warning<br>18：Reservoir Dry-Water<br>19：Analog Reservoir Dry Pumping<br>20：Terminal Reservoir Dry-Water | 16 | ○ |
| P06.04 | HDO1 Output Function | | 0 | ○ |
| P06.05 | Relay T1 Output Function | | 17 | ○ |
| P06.06 | RelayT2 Output Function | | 20 | ○ |
| P08.26 | PID Dormancy Wait Time | 0.0s~6000.0s | 1.0s | ○ |
| P11.16 | PV Inverter Selection | 0：Disabled<br>1：Enabled | 1 | ○ |
| P11.17 | Vmpp Voltage Selection | 0：Constant Voltage<br>1：Max. Power Point Tacking(MPPT) | 1 | ○ |
| P11.18 | Vmpp Voltage Keypad Set | 0.0~6553.5Vdc | 555.0V | ○ |
| P11.19 | PID Off set Limits | 0.0~100.0%(100.0%对应P11.18) | 0.0% | ◎ |
| P11.20 | PID Max. Output Frequency | 0~100.0% | 100.0% | ○ |
| P11.21 | PID Min. Output Frequency | 0.0%~100.0% | 0.0% | ○ |
| P11.22 | KP1 | 0.00~100.00 | 1.00 | ○ |
| P11.23 | KI1 | 0.00~100.00 | 1.00 | ○ |
| P11.24 | KP2 | 0.00~100.00 | 4.00 | ○ |
| P11.25 | KI2 | 0.00~100.00 | 4.00 | ○ |
| P11.26 | PI Amplitude | 0.0~6553.5Vdc | 50.0V | ○ |

| | | | | |
|---|---|---|---|---|
| P11.27 | Analog Channel Selection of Reservoir Water Level | 0：Disabled<br>1：AI1<br>2：AI2<br>3：AI3 | 0 | ○ |
| P11.28 | Dry-Water Threshold | 0.0~100.0% | 25.0% | ○ |
| P11.29 | Delay Time of Dry-Water | 0~10000s | 10s | ○ |
| P11.30 | Wake-up Delay Time of Dry-Water | 0~10000s | 300s | ○ |
| P11.31 | Dry Pumping Threshold | 0.0~50.0% | 0.0% | ○ |
| P11.32 | Delay Time of Full-Water | 0.0~1000.0s | 60.0s | ○ |
| P11.33 | Dry Pumping Function | 0: Disabled<br>1: Enabled | 0 | ○ |
| P11.34 | Reset Delay of Full-Water | 0.0~1000.0s | 300.0s | ○ |
| P11.35 | Frequency of Weak Light | 0~50Hz | 5.00Hz | ○ |
| P11.36 | Delay Time of Weak Light | 0.0~3600.0s | 100.0s | ○ |
| P11.37 | Reset Delay of Weak Light | 0.0~3600.0s | 300.0s | ○ |
| P11.38 | Reference Voltage of Given Display | 0.0~2000.0V | 0V | ○ |
| P11.39 | Min. Voltage of MPPT | 0.0~6553.5Vdc | 100.0V | ○ |
| P11.40 | Max. Voltage of MPPT | 0.0~6553.5Vdc | 800.0V | ○ |
| P14.01 | Fault Code | 0：No Fault<br>A-LS Warning of Weak Light<br>A-LL Warning of Dry-water<br>A-TF Warning of Full -water<br>Er001：Acceleration Overcurrent（Hardware）<br>Er002：Deceleration Overcurrent（Hardware）<br>Er003：Constant-speed Overcurrent（Hardware）<br>Er004：Acceleration Overcurrent<br>Er005：Deceleration Overcurrent<br>Er006：Constant-speed Overcurrent<br>Er007：Acceleration Overvoltage<br>Er008：Deceleration Overvoltage<br>Er009：Constant-speed Overvoltage<br>Er010：Bus Under voltage protection<br>Er011：Motor Overload<br>Er012：Inverter Overload<br>Er013：Input Open-phase<br>Er014：Output Open-phase<br>Er015：Overheat<br>Er016：Over Current Fault<br>Er017：External Input Fault<br>Er018：Communication Fault | 0 | • |

| | | | | |
|---|---|---|---|---|
| | | Er019：Current Inspect Fault<br>Er020：Self-identification Fault<br>Er021：EEPROM Version Incompatible<br>Er022：PID Feedback Over Limit<br>Er023：PID feedback Disconnection on Running<br>Er024：Motor Ground Circuit Fault<br>Er025：--<br>Er026：--<br>Er027：Run Time Over<br>Er028：Power-on Time Over<br>Er029：Off Load<br>Er030：--<br>Er031：--<br>Er032：--<br>Er033：--<br>Er034：Motor Over Heat<br>Er035：--<br>Er036：Electronic Over Load<br>Er037~Er040：--<br>Er041：User Defined Fault 1<br>Er042：User Defined Fault 2<br>Er043：User Defined Fault 3<br>Er044：User Defined Fault 4<br>Er060：User Time Lock<br>Er061：Factory Time Lock | | |
| P14.02 | Output Frequency When Fault | 0.00~650.00Hz | 0.00 | ● |
| P14.03 | Output Current When Fault | 0.0~2000.0A | 0.0 | ● |
| P14.04 | Output Voltage When Fault | 0~2000V | 0 | ● |
| P14.05 | Busbar Voltage when Fault | 0.0~2000.0V | 0.0 | ● |
| P14.06 | Input Terminal Status When Fault | 0x00~0x1FF | 0x00 | ● |
| P14.07 | Output Terminal Status When Fault | 0x00~0x1F | 0x00 | ● |
| P14.08 | Inverter Temperature When Fault | -20.0~120.0°C | 0.0 | ● |
| P14.09 | Run Time When Fault | 0~65535min | 0 | ● |
| P14.10 | Power-On Time when Fault | 0~65535min | 0 | ● |
| P14.11 | Total Run Time when Fault | 0~65535h | 0 | ● |
| P14.12 | Total Power-on When Fault | 0~65535h | 0 | ● |
| P28.00 | Run Frequency | 0.00Hz~300.00 | 0.00 | ● |

| | | | | |
|---|---|---|---|---|
| P28.01 | Set Frequency | 0.00Hz~300.00 | 0.00 | ● |
| P28.02 | Slope Set Frequency | 0.00Hz~300.00 | 0.00 | ● |
| P28.03 | Busbar Voltage | 0.0~2000.0V | 0.0 | ● |
| P28.04 | Output Voltage | 0~1200V | 0 | ● |
| P28.05 | Output Current | 0.0~2000.0A | 0.0 | ● |
| P29.00 | User Password | 0~65535 | 0 | ○ |
| P29.01 | Parameter Initialization | 0：No Operation<br>1：Factory Reset<br>2：Remove Factory Record<br>3：Remove Total Run/Power-On Time | 0 | ◎ |
| P29.02 | Item Code | 0~65535 | Factory Set | ● |
| P29.03 | Software Version | 1.00~10.00 | Factory Set | ● |
| P29.04 | Inverter Rated Power | 0.4~1000.0kW | Factory Set | ● |
| P29.05 | Inverter Rated Voltage | 220~1140V | Factory Set | ● |
| P29.06 | Inverter Rated Current | 2.4~2000.0A | Factory Set | ● |

# Chapter 4 Warranty

### 4.1 Warranty

The warranty of this inverteris18 months , or we provide 2% spare parts for free. When any fault or damage occurs on the product, within the warranty period, our company will provide free maintenance. After the warranty time, we can provide lifetime paid warranty service.

### 4.2 Supplementary

In order to enjoy better after-sales service , please pay attention to the following ：

| | | |
|---|---|---|
| **Provide below information when inquiry, we will make good configuration for you.** | | |
| 1 | Pump | Power, Voltage, Phase |
| 2 | Solar Panel | Each panel power, voc voltage, vmp voltage |
| **Provide below photos and information after installation.** | | |
| 1 | Pump | Photos show pump, pump specification ,pump and inverter connection |
| 2 | Inverter | Photos show inverter installation environment, inverter connection and switch, LCD screen parameter setting. |
| 3 | Solar Panel | Photos show solar panel and inverter connection, solar panel specification , solar panel array and quantity. |

**Prompt: Warranty only covers the body of the inverter**

### 4.3 Warranty agreement

1 The warranty of this inverteris18 months , or 2% spare parts for free. When any fault or damage occurs on the product, within the warranty period, our company will provide free maintenance. After the warranty time, we can provide life time paid warranty service.

2 The warranty time starts from the date when the product is leaving the factory, and the machine frame code is the only proof to determine the warranty period.

3 Certain maintenance charge should be considered during warranty period if the fault is caused by the following reason:

·Fault caused by operating against the manual or surpass the standard specification

·Fault caused by self fix and modification without permission.

·Fault caused by poor preservation

·Fault by using the inverter in a normal function

·Machine damage caused by fire, salt corrosion,gas corrosion,earthquake,storm,flood,lightning,abnormal voltage or other force majeure.

4 Please be sure to retain this card and show it to the maintenance service.

# User’s Information

**User Company:** _____ **Contact person:**_____

**Address :** _____ **Phone:**_____

**Dealer company:**_____ **Postcode:**_____

**Model:**_____ **Serial number:**_____

**Purchase date:**_____ **Handling person:**_____

# Repair Record

| Date | Record | Abstract | Technician | Signature |
|---|---|---|---|---|
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