



INSTALLATION MANUAL

Energy Storage System For Home

POWER BOX



Home Energy Storage Unit POWER BOX

CONGRATULATIONS on having POWER BOX on your property as a supplementary power source!

This manual describes how to safely install the POWER BOX from Trinabess.

Read this manual thoroughly before you attempt to install and use the product.

If you are uncertain about any of the requirements, recommendations, or safety procedures described in this manual, contact Trinabess immediately for advice and clarification.

NOTE

The information included in this document is accurate at the time of publication. However, this product is subject to change without prior notice. In addition, the illustrations in this document are meant only to help explain system configurations concepts and installation instructions. The illustrated items may differ from the actual items at the installation location.

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1. Equipment Introduction

The POWER BOX is mainly applied and developed for the renewable energy generation system compatible with lead-acid batteries and lithium-ion batteries. It helps to achieve the optimal usage of renewable energy. The POWER BOX can control the bi-directional flow of electric power, work under the auto / manual mode and time-of-use (TOU) price mode, automatically controls the PowerCube 2.0 charge / discharge. The POWER BOX control features will store renewable energy as well as grid power in PowerCube 2.0 & discharge the PowerCube 2.0 to supply power to the load.

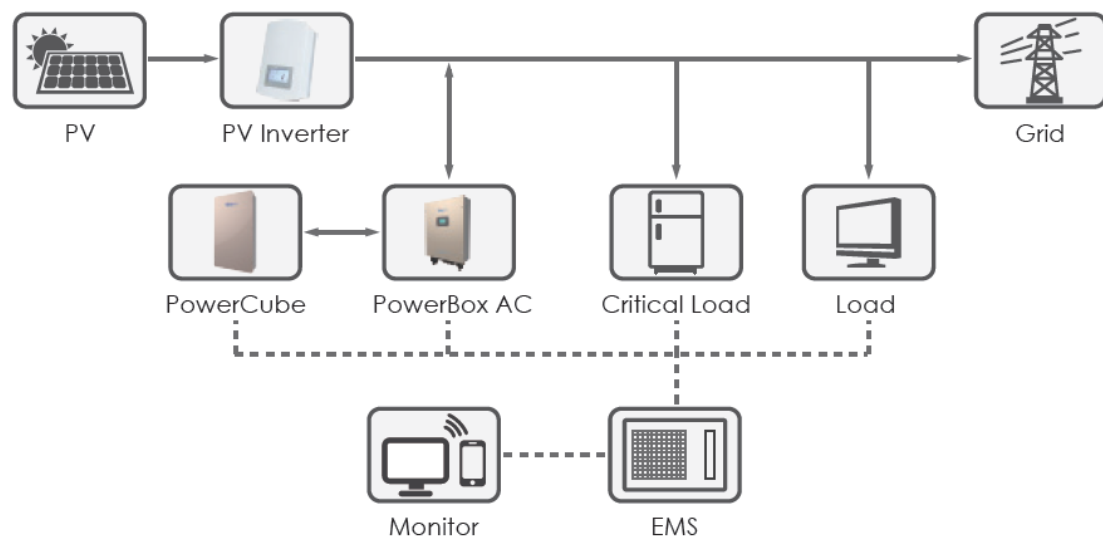







Fig. 1 POWER BOX Storage System Solution

2. Equipment Safety Notes

Before the inverter is used, please read all instructions, warning signs and this manual. The inverter strictly meets safety rules of design and testing. Operators should abide by safety regulations during installation, operation and maintenance. Any improper operation may cause an electric shock or damage the equipment and properties.

2.1 Safety Signs

 Danger	Danger indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 Warning	Warning indicates a hazardous situation which, if not avoided, could result in death or serious injury.
 Caution	Caution indicates a hazardous situation, if not avoided, could result in minor or moderate injury.
 Attention	Attention indicates there are potential risks. If fail to prevent, may lead to equipment cannot run normally or property damage.
 Note	Note provides tips that are valuable for the optimal operation of the product.

2.2 Safety Notes

- ✧ Electrical installation and maintenance must be carried out by competent electricians according to national connection rules.
- ✧ The POWER BOX must be installed only by qualified technical personnel, and only after receiving appropriate approvals, as required by the local authority having jurisdiction.
- ✧ The PowerCube 2.0 should keep a certain distance with the POWER BOX and protected well to prevent from any collision.
- ✧ It is forbidden to place explosives and combustibles, e.g. gasoline, kerosene, oil, slab, cotton and rag, etc. around the POWER BOX.
- ✧ To avoid electric shock, the input of PowerCube 2.0 and AC output of the inverter should be shut down for at least 5min. before installation or maintenance.
- ✧ The temperature of some parts of the inverter may exceed 60°C. The inverter shall be cooled down in order to avoid getting burnt during the maintenance.
- ✧ Children should not go near the inverter.
- ✧ Please do not open the external cover of the inverter without permission, except for installation/maintenance. Without following proper installation/maintenance procedures, someone could be injured and/or even damage the inverter.

- ✧ Static power may damage electronic elements. Please neutralize the static first to avoid damage to the inverter which could void warranty.
- ✧ The warranty may be void if the equipment is damaged because it is not operated according to the operation method of the specified manufacturer.
- ✧ To completely isolate the inverter: - The first step is to shut down the DC switch and followed by disconnecting the PowerCube 2.0 and the AC terminal.
- ✧ The POWER BOX shall be isolated and shut down completely before conducting any maintenance. The inverter must not be maintained in any other modes!
- ✧ It is FORBIDDEN to disconnect the PowerCube 2.0 terminal and the AC terminal when the POWER BOX is running.

2.3 PowerCube 2.0 Installation and Maintenance

Notes

- ✧ PowerCube 2.0 has been charged before delivery and should therefore be prevented from short circuit during transportation and installation.
- ✧ PowerCube 2.0 shall be placed in a well-ventilated space. Do not install the PowerCube 2.0 in airtight or badly ventilated spaces.
- ✧ Do not place the PowerCube 2.0 in high-temperature situations, direct sunshine or in front of a furnace or fire to prevent PowerCube 2.0 from circuit leakage causing fire and/or explosion.
- ✧ The connection cable shall be as short as possible to avoid significant voltage drop.
- ✧ Before connecting the terminal for PowerCube 2.0 system, check the anode and cathode of the PowerCube 2.0 system to ensure correct installation.
- ✧ If it becomes necessary to store PowerCube 2.0, the system needs to be isolated from the DC terminal and be disconnected from Power Box and load. It should be stored away in a cool, dry and ventilated environment.

Please take precaution when conducting the following:

- The maintenance operators shall have the know-how and technical skill for the maintenance of the PowerCube 2.0;
- When the battery is changed, the battery of the same model and quantity shall be changed. It may be necessary to switch out the entire array of batteries to avoid significant battery system loss due to mismatch;

- Warning: Do not dispose the scrap batteries directly to fire. Such disposal may cause the batteries to explode.
- Warning: Do not dismantle the PowerCube 2.0. Its electrolyte may be toxic and direct contact could cause serious irritation to skin and eyes and/or worse personal injuries.
- Warning: PowerCube 2.0 may cause an electric shock or short circuit when mishandled. Please take the following measures before and during operation of PowerCube 2.0:
 - a) Do not wear watch, ring or any other metal objects.
 - b) Use tools with insulated handles.
 - c) Wear rubber gloves and shoes.
 - d) Do not put tools and metals above the PowerCube 2.0.
 - e) Switch off the power supply mode before the PowerCube 2.0 terminal is connected.
 - f) Ensure PowerCube 2.0 is not installed too close to the ground or connecting components like cables and terminals touches or installed too close to the ground. Having the system or connecting components too close to the ground may cause trip over or accidental pull off disconnections causing electric shock!

3. Installation

3.1 Product Overview

The inverter is checked strictly before being packed and delivered. It is forbidden to put it upside down position during delivery.

Please check the product package and internal components carefully before installation, e.g. housing, display and DC connection terminals.

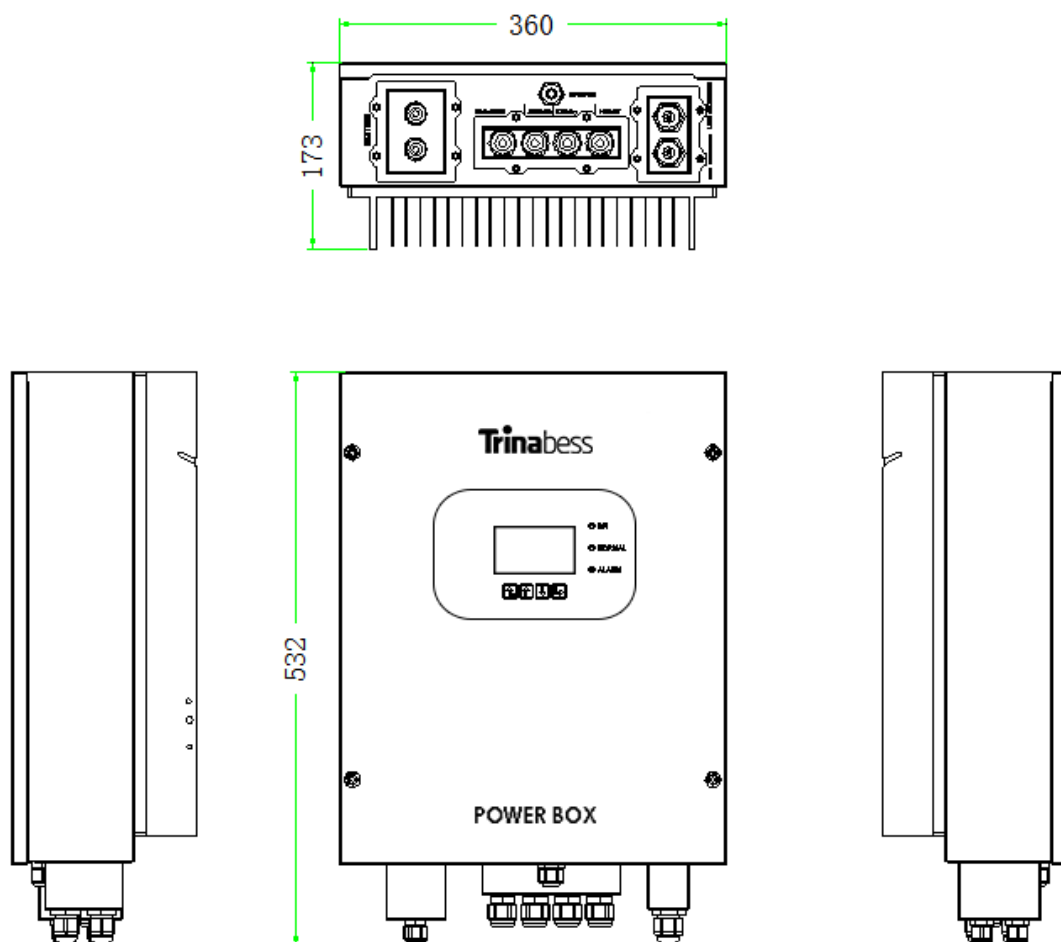
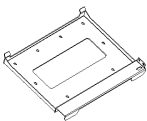

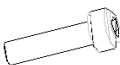


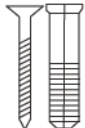

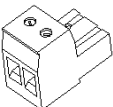


Fig. 2 POWER BOX Overview

3.2 Packing List

Before installation, please inspect the unit. Make sure nothing inside the package is damaged. You should have received the following items inside the package:

 <p>Mounting Bracket×1</p>	 <p>AC terminal×6</p>	 <p>M5 screw×2</p>	 <p>PowerCube 2.0 terminal×2</p>
 <p>M6 flat washer×8</p>	 <p>Wall plug & Screw ×8</p>	 <p>Terminal cap×4</p>	 <p>CT terminal×2</p>

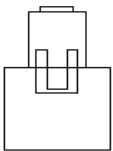



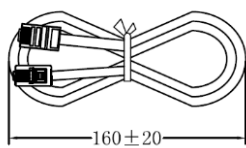

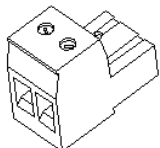
			
Current Transformer×2	User Manual×1	Warranty card×1	Quality Certificate×1
			
communication line×1	AC contactor×1	RS485s terminal×2	

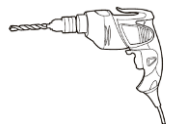
Fig. 3 Accessories of POWER BOX


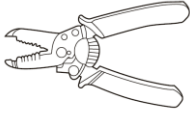
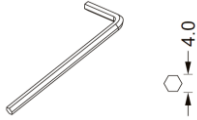
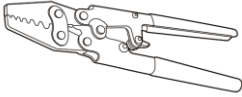
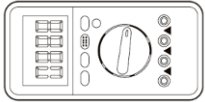

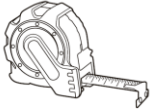
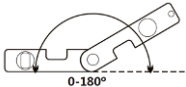
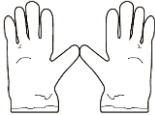


3.3 Installation Environment

- Please ensure a clean, tidy and dry environment during installation.
- Ambient temperature scope:-25℃~60℃.
- Relative humidity: 0~100 %(non-condensed).
- The POWER BOX shall be installed in the place with an independent air inlet and outlet channels.
- There is neither inflammable nor explosive around.
- The POWER BOX shall be connected to the power grid with an over-voltage of CAT III and CAT II.
- The maximum working condition altitude is 2000m.
- Please consult our engineers about detailed requirements for installation when in doubt.

3.4 Installation Tools

The following tools shall be prepared before installation:

No.	Tool	Model	Function
1		Hammer drill Recommend drill dia.6mm	Drill holes on the wall

2		Screwdriver	Wiring
3		Wire stripper	Strip wire
4		4mm Allen Wrench	Turn the screw to connect rear panel with inverter
5		Crimping tools	Crimp power cables
6		Multi-meter	Check grounding
7		Marker pen	Mark signs
8		Measuring tape	Measure distances
9		Level	Ensure that the rear panel is properly installed
10		ESD gloves	Operators wear
11		Safety goggles	Operators wear
12		Anti-dust respirator	Operators wear

3.5 Installation Position

The POWER BOX should be vertically mounted (to ensure proper heat dissipation), please choose a position without direct sunlight / snow accumulation to install the POWER BOX.

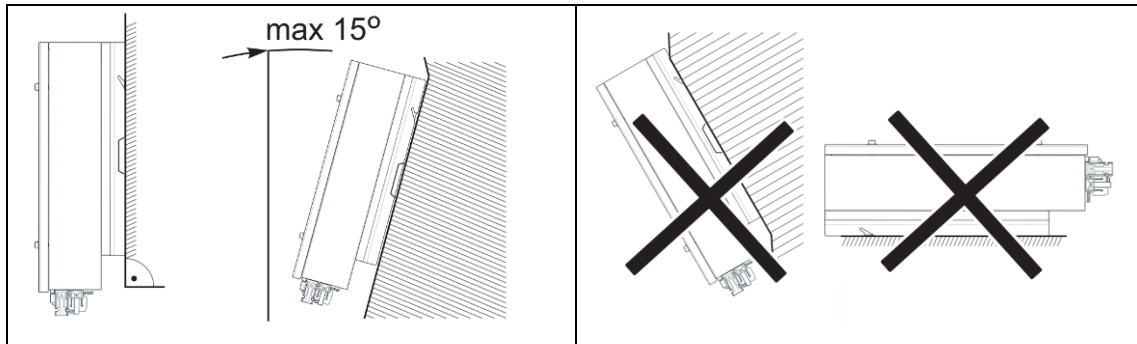


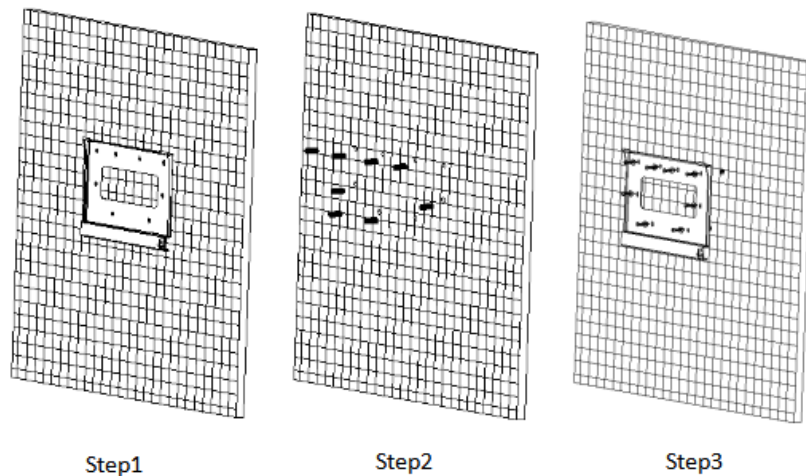
Fig. 4 Installation Position of POWER BOX

3.6 Mounting

Step 1: Put the mounting bracket on the wall and mark the 8 drill holes by using a marker pen. Drill 8 holes (drill bit 6mm) on the wall.

Step 2: Insert the wall plug vertically into the hole, note the insertion depth. (Not too shallow or too deep)

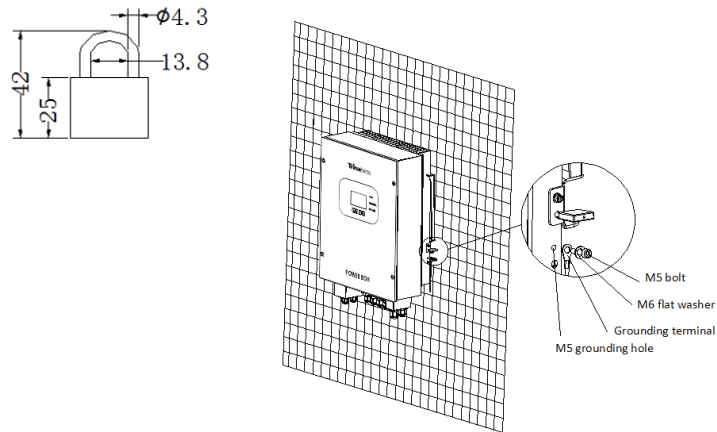
Step 3: Fix the mounting bracket on the wall by using screws & flat washers.



Step 4: Put the POWER BOX on the mounting bracket.

Step 5: Ground the POWER BOX by using the grounding hole on the heat sink.

Step 6: OPTIONAL: you can lock the POWER BOX



4. Electrical Connection



- **Warning** Be aware of electric shock and chemical hazards!
- Before connecting the PowerCube 2.0, ensure the cable connectors have the correct polarity. Reversed polarity will damage the inverter!
- Before connecting the PowerCube 2.0, please make sure that the PowerCube 2.0 isolator is off; ensure the inverter can be disconnected securely during maintenance.
- Before connecting to Grid, please install a separate AC breaker (20A) between POWER BOX and grid. A double pole AC breaker will be required to connect critical load to the POWER BOX as well.
- It is very important for system safety and efficient operation to use appropriate cable for electrical connection.
 - PowerCube 2.0 connection: cable of AWG8 (10mm²) or AWG6 (16mm²).
 - Grid & Load connection: cable of AWG12 (4mm²).
- Make sure N wire is connected to PE wire when the POWER BOX is working in EPS (Emergency Power Supply) mode.

4.1 PowerCube 2.0 Connection

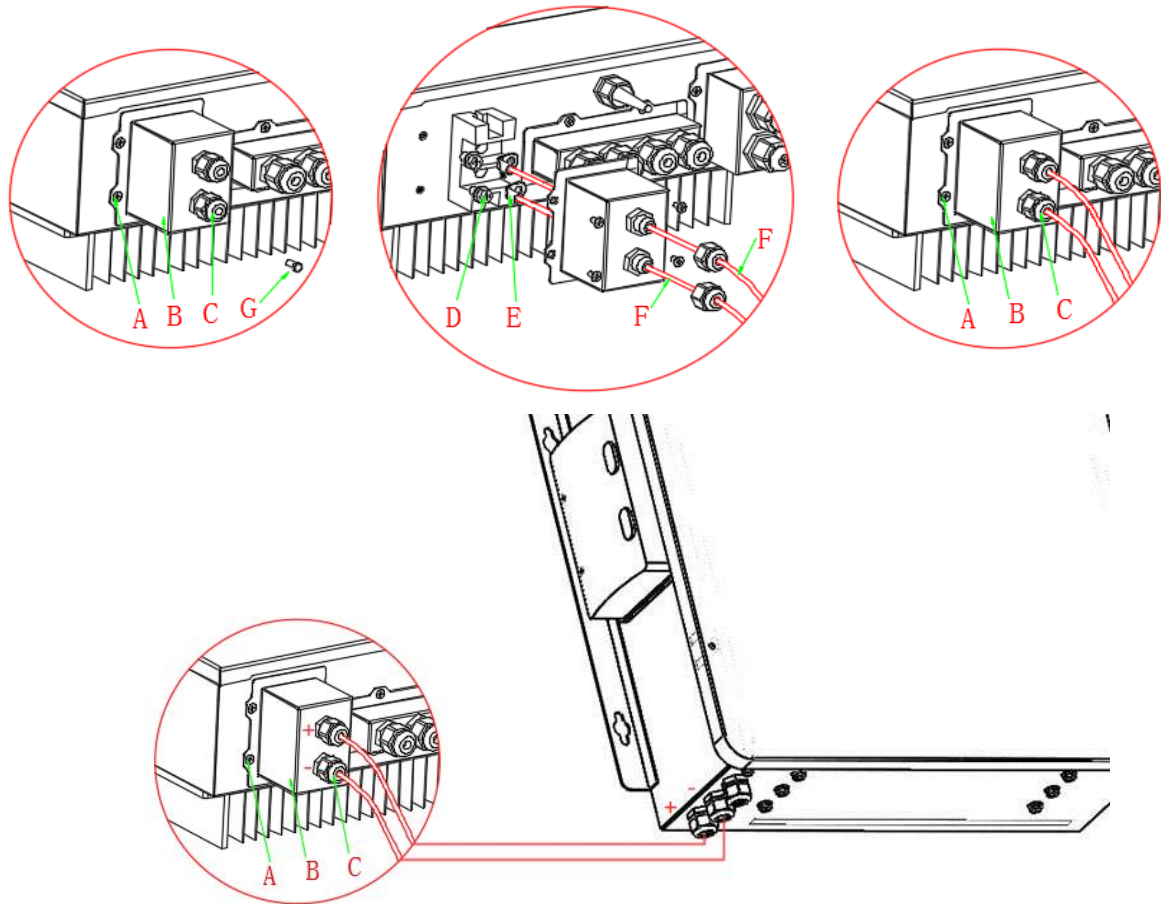


Fig. 6 PowerCube 2.0 connection (Test PowerCube 2.0 wires polarity before connection)

- Step 1:** Loosen 4 screws (A) using a screwdriver (fig. 6);
- Step 2:** Remove the waterproof cover (B), loosen the cable gland (C), and then remove the stopper (G);
- Step 3:** Route the PowerCube 2.0 wires (F) through the cable gland, then connect PowerCube 2.0 wires using crimp ring terminal (E);
- Step 4:** Fasten the waterproof cover using 4 screws.

4.2 CT / RS485 connection

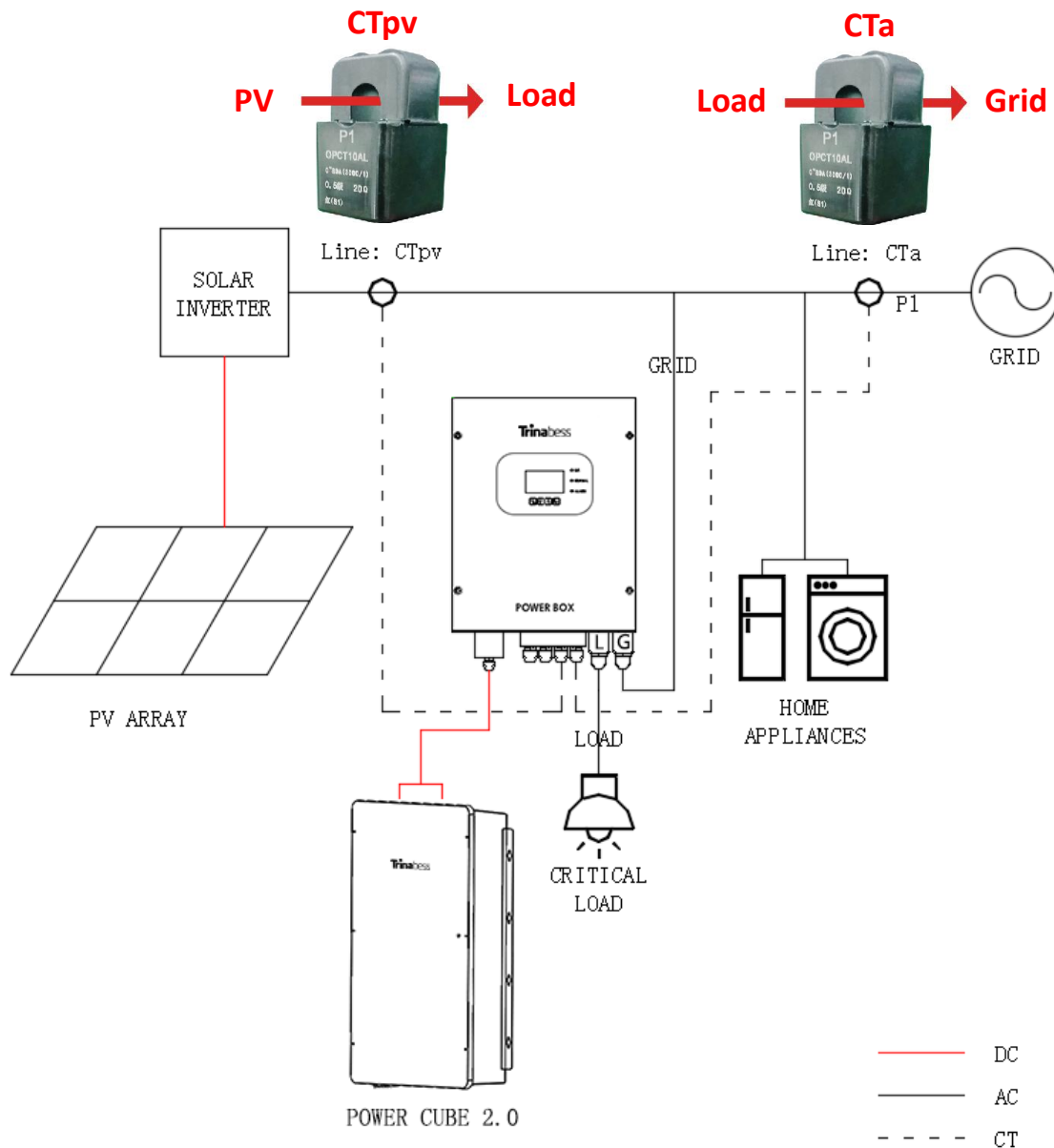


Fig. 7 Single Line Diagram (POWER BOX: energy storage add-on to existing renewable system)

Step 1: Use network cable & terminal cap to extend the CT wire. (Network cable is not provided)

NOTE: The recommended maximum distance for the CT wire is 5 meters. For longer distance, it is advised to conduct necessary tests and ensure signal does not get distorted prior installing.



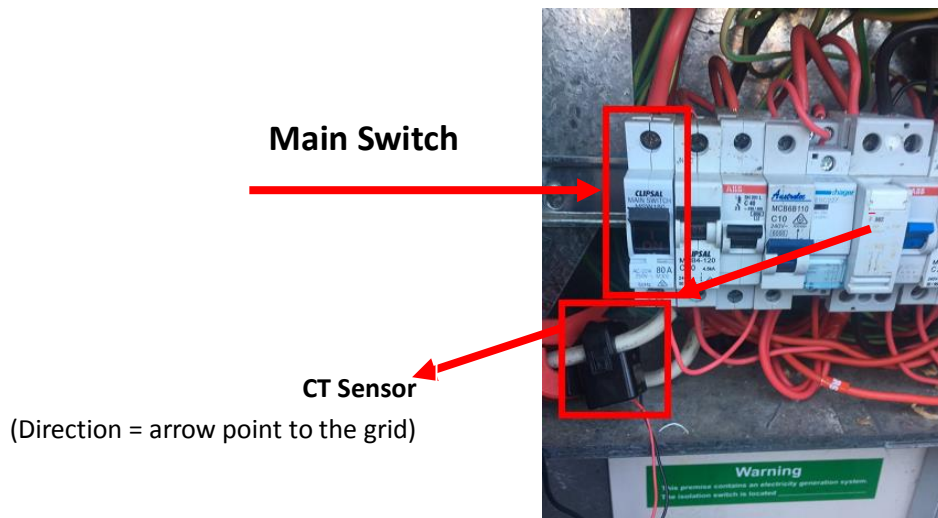


Fig. 8 Example of CT wire extension / Direction of CTa

CT wire	Extension cable (network cable)	POWER BOX
Red	Orange / white orange / brown / white brown	CT+
Black	Green / white green / blue / white blue	CT-

Table 1 CT connection

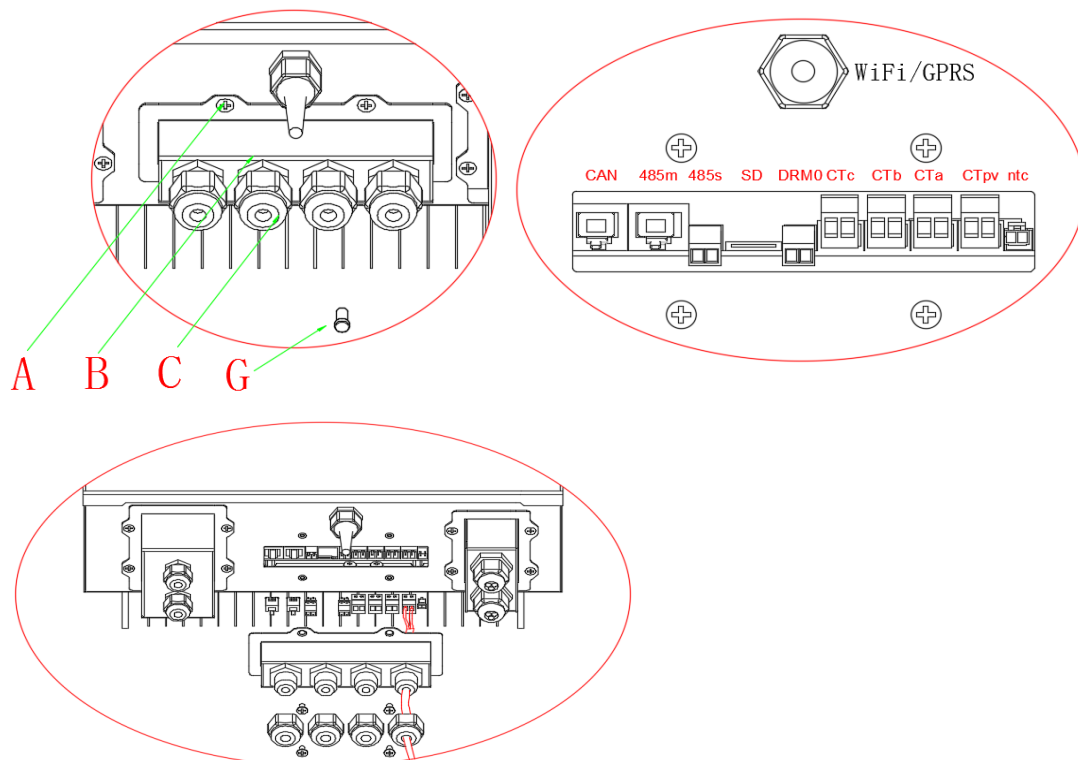


Fig. 9 CT / RS485 connection

Step 2: Loosen 4 screws (part A) using a screwdriver (fig. 6)

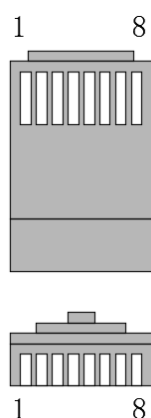
Step 3: Remove the waterproof cover (part B), loosen the cable gland (part C), then remove the stopper (part G)

Step 4: Route CT cable through the cable gland, connect CT cable to CT terminal,

then insert CT terminal into corresponding ports. (Table 1)

Step 5: Route RS485 network cable through the cable gland, connect RS485 network cable to RJ45 connector and then insert the RJ45 connector into RS485m port. (Fig. 9)

NOTE: A 2 meter long RS485m communication cable (between the powerbox to the powercube) is supplied with the powerbox. However, if the cable need to be extended, follow the table below to make a custom cable. The recommended distance is 5 meters.



Pin	POWER BOX 485M	PACK (BMS firmware should be B62 or newer)
1	Not Connect	RS485B
2	Not Connect	RS485A
3	Not Connect	Not Connect
4	RS485B	Not Connect
5	RS485A	Not Connect
6	Not Connect	Not Connect
7	Not Connect	RS485A
8	Not Connect	RS485B

Table 2 RS485m connection

Step 6: Fasten the waterproof cover using 4 screws.

Note: NTC wire is not required to be connected.

4.3 Grid Connection

For most of the customers, please ONLY connect the GRID port.

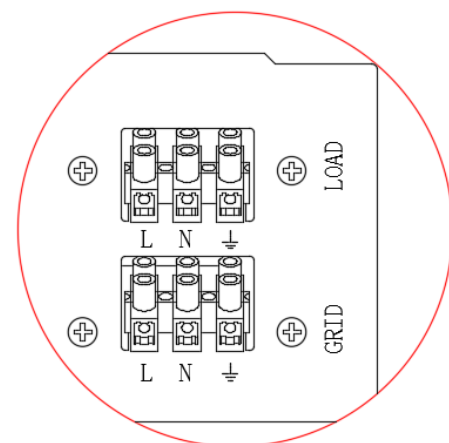
Please leave LOAD port unconnected.

Step 1: Loosen 4 screws (part A) using a screwdriver (fig. 10)

Step 2: Remove the waterproof cover (part B), loosen the cable gland (part C), then remove the stopper (part G)

Step 3: Route 3-core cable through GRID cable gland, then connect 3 wires to corresponding terminal blocks. (BROWN – L, BLUE – N, YELLOW/GREEN – PE)

Step 4: Fasten the waterproof cover using 4 screws.



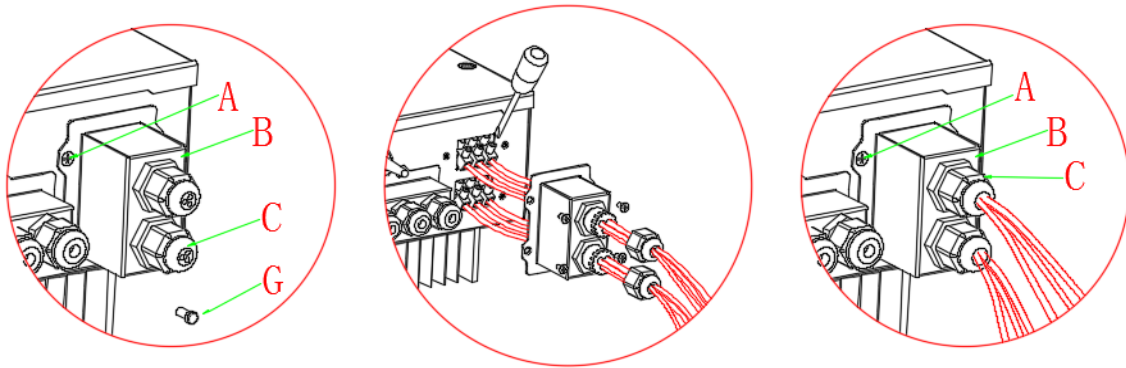


Fig. 10 Grid & Load connection

4.4 Load Connection

Critical load: in case of grid outage, the POWER BOX will work in EPS (Emergency Power Supply) mode, discharge the PowerCube 2.0 & supply power to critical load via LOAD port.

LOAD port is only for critical load connection. Please make sure that you've purchased the AC contactor accessory from Trinabess .

The connection procedure to LOAD port is the same as grid connection (Fig. 10). Before connecting the critical load, please make sure that you understand the following diagram (Fig. 11).

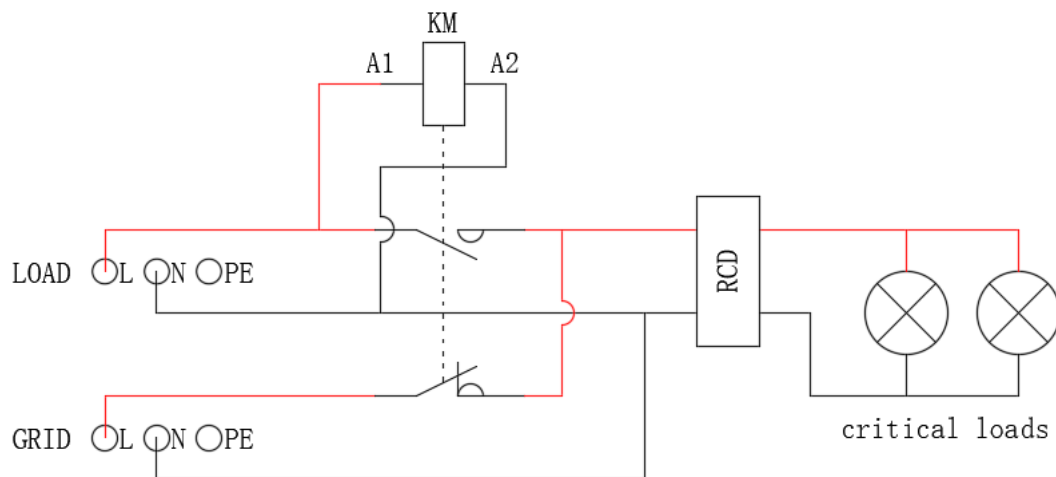


Fig. 11 Connection of critical load (AC contactor: 2 Normally Closed, 2 Normally Open)

5. Indicators and Keys



Buttons:

- press "Back" to the previous screen or enter the main interface;
- press "Up" to the upper menu option or value plus 1;
- press "Down" to the lower menu option or value minus 1;
- Press "OK" to select the current menu option or switch to the next digit.

LED lights:

- Discharging status Light (Green)
 - Discharging light flashing: system check before discharging the PowerCube 2.0
 - Discharging light ON: discharging the PowerCube 2.0
 - Discharging light OFF: system is faulty (fault, or permanent)
- Charging status Light (Green)
 - Charging light flashing: system check before charging the PowerCube 2.0
 - Charging light ON: charging the PowerCube 2.0
 - Charging light OFF: system is faulty (fault, or permanent)
- Alarm light (Red)

Alarm light ON: system is fault (fault, or permanent)

6. Operation

6.1 Double Check

Please double check the following items before operation.

1. The POWER BOX is firmly fastened to the mounting bracket on the wall;
2. The polarity of the PowerCube 2.0 wires is correct, the PowerCube 2.0 wires are firmly connected;
3. DC isolator is correctly connected between PowerCube 2.0 & POWER BOX, DC isolator: OFF;
4. GRID / LOAD cables are firmly / correctly connected;
5. AC circuit breaker is correctly connected between POWER BOX GRID port & GRID, AC circuit breaker: OFF;
6. AC connector is connected correctly(fig. 11);
7. For the PowerCube 2.0, please ensure that the RS485 communication wire has been connected;

6.2 Commissioning

Power on the POWER BOX per the following steps to complete sensor calibration on the grid and PV:

IMPORTANT: PLEASE FOLLOW THE FOLLOWING PROCEDURE:

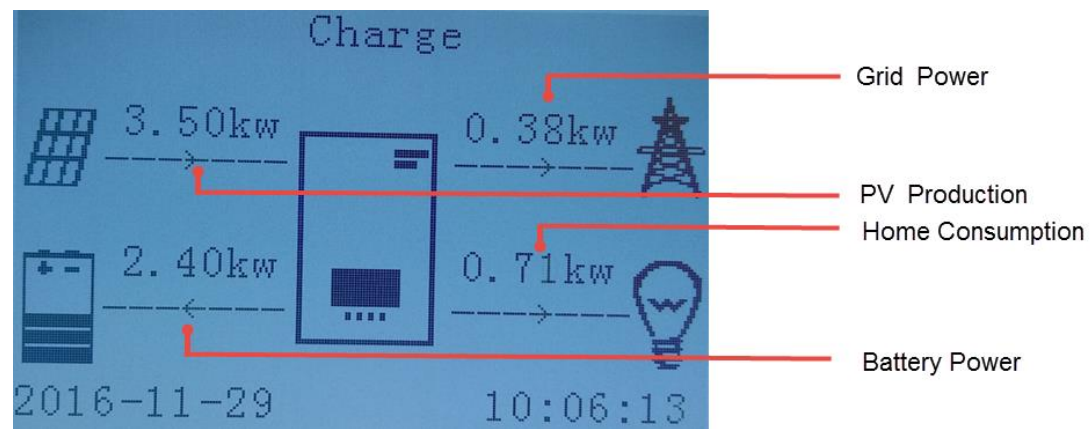
- 1) Turn OFF the solar inverter. Make sure there's no power generation in the POWER BOX's phase.
- 2) Turn ON all the battery pack and press softer star button (red button on the battery pack) just for any one of the battery packs.
- 3) Turn ON DC isolator between PowerCube 2.0 & POWER BOX.
- 4) Turn ON AC circuit breaker between POWER BOX GRID port & GRID. The POWER BOX should start to operate now.
- 5) Turn ON some home appliances. Make sure power consumption in the POWER BOX's phase is greater than 200W. You should be able to read the data on the screen.
- 6) Turn ON the solar inverter. (power generation > 100W)

If power generation > power consumption, the PowerCube 2.0 is not full. The POWER BOX will charge the PowerCube 2.0.

If power generation < power consumption, the PowerCube 2.0 is not flat. The POWER BOX will discharge the PowerCube 2.0.

NOTE: Every time you change the CT connection, you need to repeat the procedure above.

The main interface:



6.3 Main Menu

At the standard interface, press the "back" button to enter the main menu. The main menu includes five options: parameter settings, event list, system information, software upgrade, and energy statistics.

Main Menu
1.Enter Setting
2.Event List
3.System Information
4.Software Update
5.Energy Statistics

6.3.1 Parameter setting:

1.Enter Setting	
1.Batt Parameter	7.Set Language
2.Clear Energy Data	8.Set Time
3.Clear Events	9.Set EPS Mode
4.Set Country	10. DRMs0 Control
5.Set Communication Add	11. Auto Test
6.Function to Set Country	12. Work Mode Set

1. Batt Parameter

1.Batt Parameter		
	1.Battery Type	7.Max. Discharge (A)
	2.Battery Capacity	8.Low (V) Protection
	3.Discharge Depth	9.Max. Charge (V)
	4.Max. Charge (A)	10.Discharge Time
	5.Over (V) Protection	11.Empty Charged Voltage
	6.Min. Discharge (V)	12.Full Charged Voltage

Press the "back" button to enter main menu, select "1. Enter Setting", press "OK". Select "1. Batt Parameter" and press "OK", "input password" is shown, press "OK" again. Input the password (normal "0001", advanced "0715"), press "Up" or "Down" to change the 1st digit, press "OK" to switch to next digit, when "0001 / 0715" is shown on the screen, press "OK" to enter "Batt Parameter" interface. If "Error! Try again" is shown on the screen, press "Back" and input the password again.

1) Battery Type

Select "1. Battery Type" and press "OK". Press "up" or "down" to select the battery and then press "OK".

2) Battery Capacity

Select "2. Battery Capacity" and press "OK". Press "up" or "down" to change the 1st digit, press "OK" to switch to next digit. Input the value of battery capacity. Press "OK".

3) Discharge Depth

Select "3. Discharge Depth" and press "OK". Press "up" or "down" to change the 1st digit, press "OK" to switch to next digit. Input the value of Depth of Discharge per battery specification. Press "OK".

For example: if Depth of Discharge = 80%, the POWER BOX won't discharge the battery when its SOC (State of Charge) is less than 20%.

4) Max. Charge (A)

Select "4. Max. Charge (A)" and press "OK". Press "up" or "down" to change the 1st digit, press "OK" to switch to next digit. Input the value of the Max. Charge (A) per battery specification. Press "OK".

5) Over (V) Protection

Select "5. Over (V) Protection" and press "OK". Press "up" or "down" to change the 1st digit, press "OK" to switch to next digit. Input the value of Over (V) Protection per battery specification. Press "OK".

6) Min. Discharge (V)

Select "6. Min. Discharge (V)" and press "OK". Press "up" or "down" to change the 1st digit, press "OK" to switch to next digit. Input the value of the Min. Discharge (V) per battery specification. Press "OK".

7) Max. Discharge (A)

Select "7. Max. Discharge (A)" and press "OK". Press "up" or "down" to change the 1st digit, press "OK" to switch to next digit. Input the value of the Max. Discharge (A) per battery specification. Press "OK".

8) Low (V) Protection

Select "8. Low (V) Protection" and press "OK". Press "up" or "down" to change the 1st digit, press "OK" to switch to next digit. Input the value of Low (V) Protection per battery specification. Press "OK".

9) Max. Charge (V)

Select "9. Max. Charge (V)" and press "OK". Press "up" or "down" to change the 1st digit, press "OK" to switch to next digit. Input the value of the Max. Charge (V) per battery specification. Press "OK".

Settings for customers using the PowerCube 2.0:

Recommended Settings	1 x PACK	2 x PACK	3 x PACK	4 x PACK
Battery type	Trinabess	Trinabess	Trinabess	Trinabess
Battery capacity	50Ah	100Ah	150Ah	200Ah
Depth of Discharge	80%	80%	80%	80%
Max Charge (A)	25A	50A	60A	60A
Over (V) Protection	54V	54V	54V	54V
Min Discharge (V)	47V	47V	47V	47V
Max Discharge (A)	25A	50A	60A	60A
Low (V) Protection	46V	46V	46V	46V
Max Charge (V)	53.8V	53.8V	53.8V	53.8V

2. Clear Energy Data

Select "2. Clear Energy" and press "OK", "input password" is shown, press "OK" again. Input the password "0001/0715", press "Up" or "Down" to change the 1st digit, press "OK" to switch to next digit, when "0001" is shown on the screen, press "OK". If "Error! Try again" is shown on the screen, press "Back" and input the password again.

3. Clear Events

Select "3. Clear Events", press "OK" button twice to clear all the events.

4. Set Country

Select "4. Set Country", press "OK", "Input Country Code" is shown, press "OK", if "Set Disable" is shown, you need to go to "6. Function to Set Country" to enable country setting, then return to "4. Set Country" to input the country code (refer to Page 17 of this manual). Press "OK".

5. Set Communication Add

Select "5. Set Communication Add", press "OK" button twice to enter Communication Address setting interface. Press "Up" or "Down" to change the 1st digit, press "OK" to switch to next digit, after inputting the communication address, press "OK".

6. Function to Set Country

Select "6. Function to Set Country", press "OK", "input password" is shown, press "OK" again. Input the password "0001", press "Up" or "Down" to change the 1st digit, press "OK" to switch to next digit, when "0001" is shown on the screen, press "OK". If "Error! Try again" is shown on the screen, press "Back" and input the password again.

CODE	Country	CODE	Country
00	Germany4105	14	Germany_0126
01	CEI021_INT	15	Italy_CEI0_16
02	Australia	16	UK_G83
03	SpainRD1699	17	Greece island
04	Turkey	18	EU_EN50438
05	Denmark	19	EU_EN61727
06	Greece Continent	20	Korea
07	Netherland	21	Sweden
08	Belgium	22	Europe general
09	UK_G59	23	CEI021_EXT
10	China	24	Cyprus

11	France	25	India
12	Poland	26	Philippines
13	Germany_BDEW	27	New Zealand

7. Set Language

Select "7. Set Language", press "OK". Press "up" or "down" to select the language and press "OK".

8. Set Time

Select "8.Set Time", press "OK" to enter into time setting interface, the format of the time is YYYY-MM-DD HH:MM:SS. Press "Up" or "Down" to change the 1st digit, press "OK" to switch to next digit, after inputting the current time, press "OK".

9. Set EPS (Emergency Power Supply) Mode

MENU		
9. Set EPS Mode	1.EPS Mode Control	1.Enable EPS Mode
		2.Disable EPS Mode
	2.Set EPS Changeover Time	*** seconds

Description:

PowerBox in the EPS mode can withstand the following load type and respective rated power:

- 1, resistive load \leq 3kW, such as: incandescent, electric water heaters, electric irons;
- 2, inductive load \leq 1kW, such as: hair dryer, coffee machine, refrigerator, air conditioning, washing machines, vacuum cleaners,
- 3, capacitive load \leq 1kW, such as: computers, LED lights etc.

Inductive load and capacitive load will cause at least five time of the rate impact power to the power. When the energy storage system in the EPS mode of operation, if the inductive load and capacitive load power is too large (more than the recommended value system alarm would shows ID27, ID29, ID30, ID70, ID100 and other system overload protection fault. Disconnect the capacitive load and inductive load, restart the energy storage system, the system will return to normal working condition. If you have any questions, please contact us.

10. DRMs0 Control (This part is valid for Australian Market ONLY)

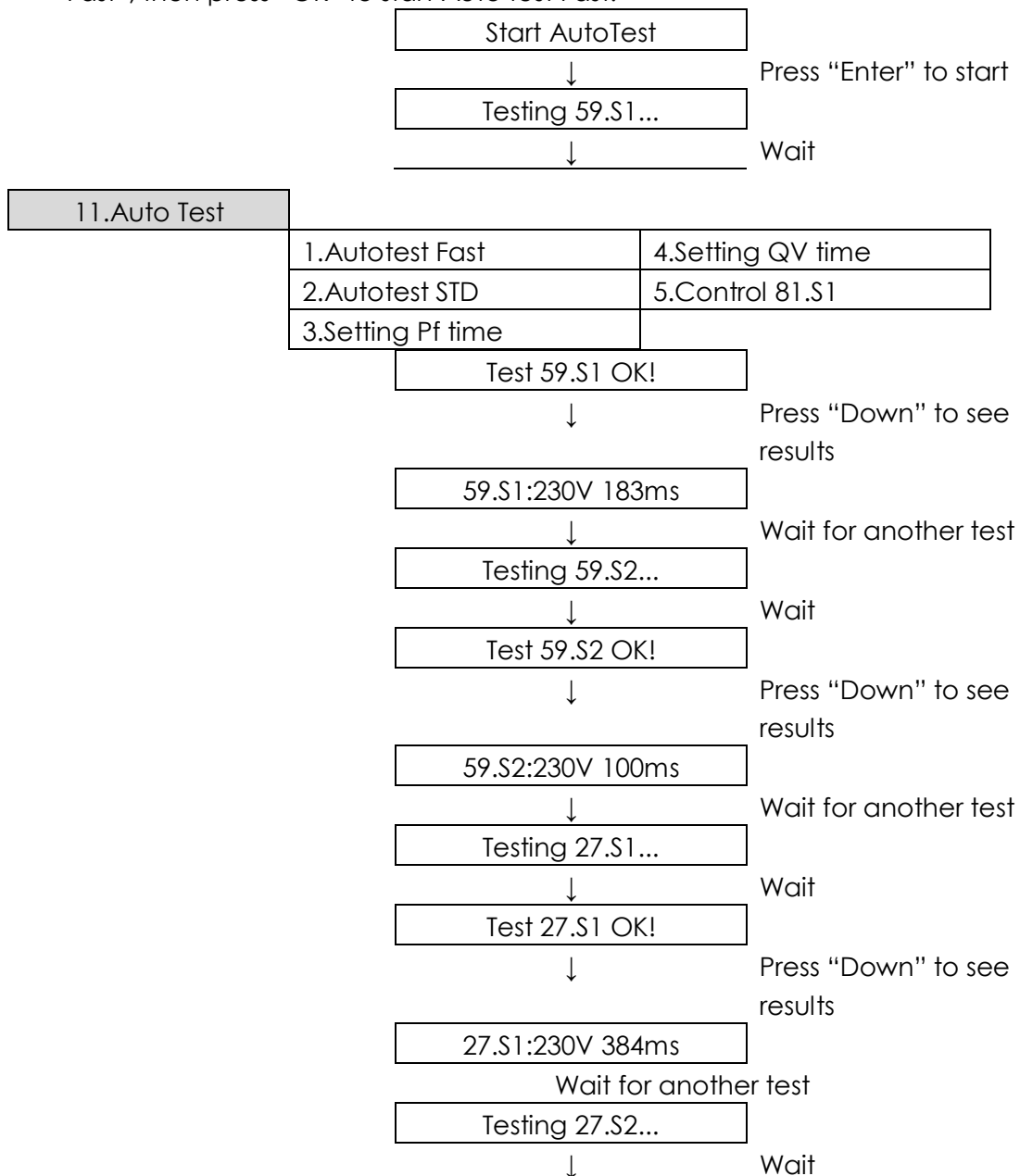
Default setting is "disabled". To change, select "10. DRMs0 Control" , press "OK", "input password" is shown, press "OK" again. Input the password "0001", press "Up" or "Down" to change the 1st digit, press "OK" to switch to next digit, when "0001" is shown on the screen, press "OK". After entering DRMs0 control interface, press "up" or "down" to select "1. Enable DRMs0" or "2. Disable DRMs0", press "OK".

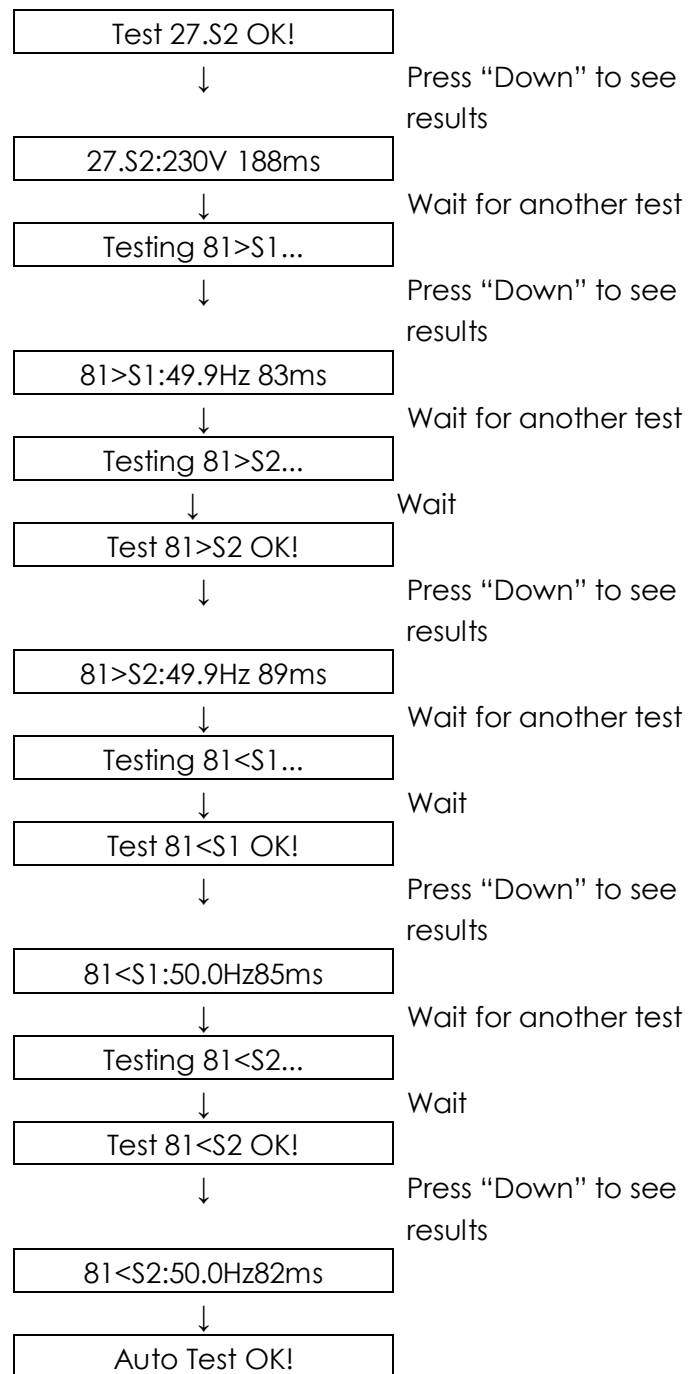
11. Auto Test (This part is valid for Italian Market ONLY)

Select "11.Auto Test", press "OK" to enter autotest interface.

1) Autotest Fast

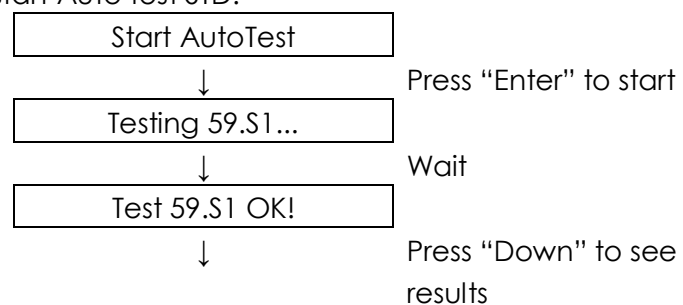
After entering Auto Test interface, press "up" or "down" to select "1.Autotest Fast", then press "OK" to start Auto test Fast.

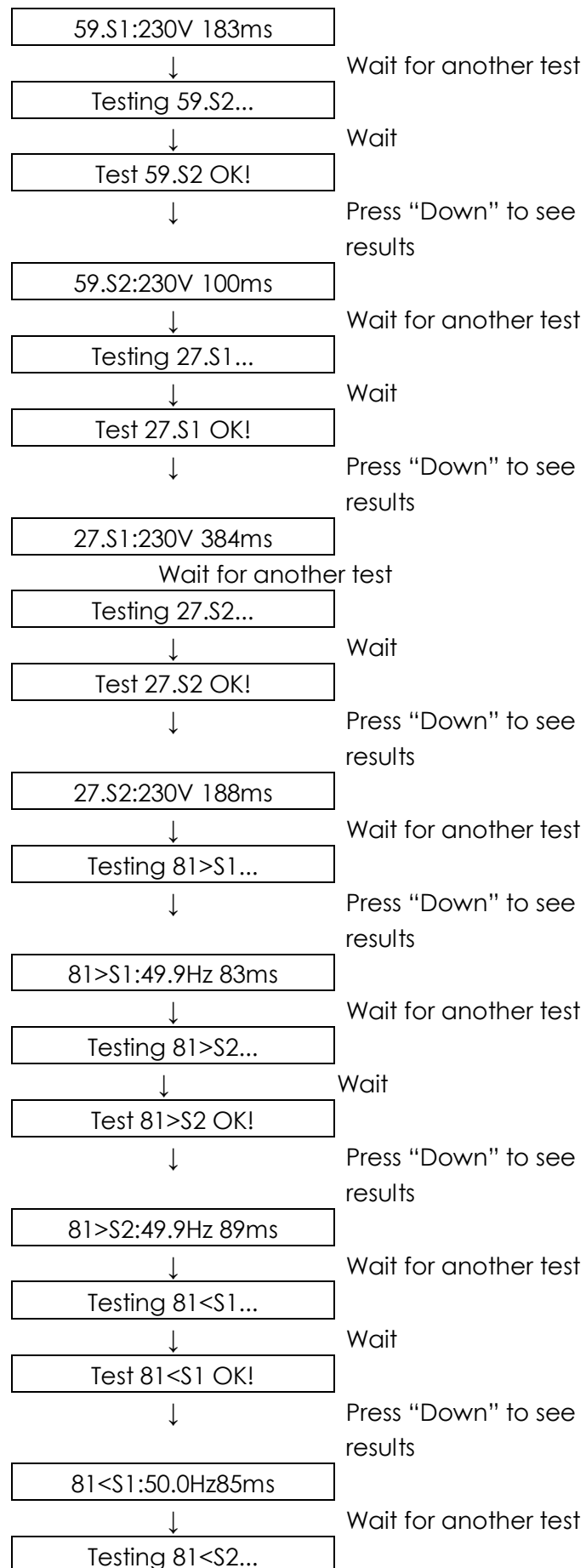


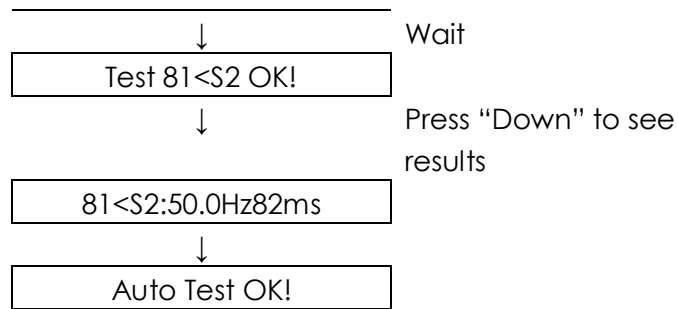


2) Autotest STD

After entering Auto Test interface, press "up" or "down" to select "2.Autotest STD", then press "OK" to start Auto test STD.







3) Setting Pf time

After entering Auto Test interface, press "up" or "down" to select "3.Setting Pf time", then press "OK" to enter Setting Pf time interface.

After entering Setting Pf time interface, it will display as below:

Set: *. *** s

*, *** is the time value need to be set. Press "Up" or "Down" to change the 1st digit, press "OK" to switch to next digit. After inputting numbers for all digits, press "OK".

4) Setting QV time

After entering Auto Test interface, press "up" or "down" to select "4.Setting QV time", then press "OK" to enter Setting QV time interface.

After entering Setting QV time interface, it will display as below:

Set: ** s

** is the time value need to be set. Press "Up" or "Down" to change the 1st digit, press "OK" to switch to next digit. After inputting numbers for all digits, press "OK".

5) Control 81.S1

After entering Auto Test interface, press "up" or "down" to select "5.Control 81.S1". After entering control 81.S1 interface, press "up" or "down" to select "1. Enable 81.S1" or "2. Disable 81.S1", press "OK".

12. Work Mode Set

Select "12. Work Mode Set", press "OK" to enter work mode setting interface.

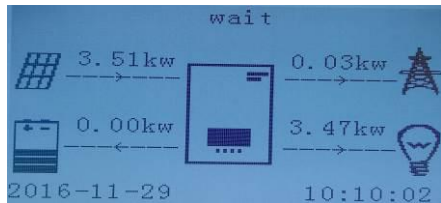
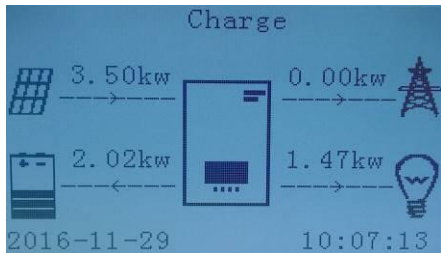
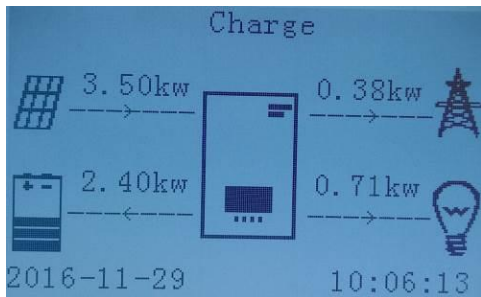
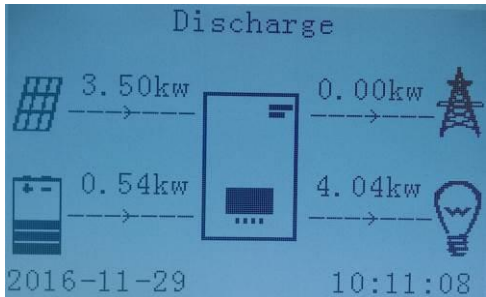
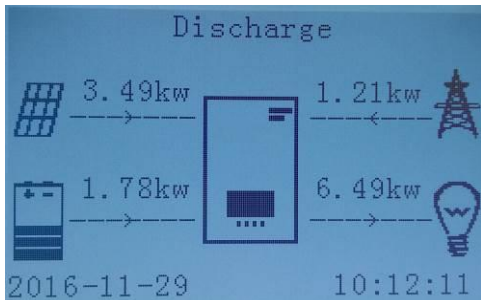
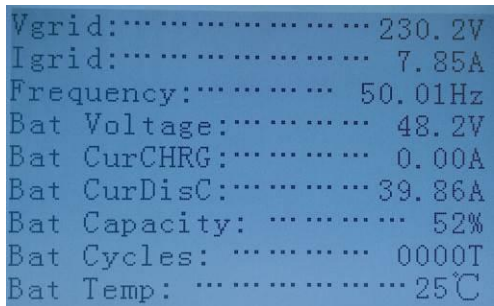
12.Work Mode Set

- 1.Set Auto Mode
- 2.Set Time-of-use Mode
- 3.Set Timing Mode

1) Set Auto Mode

Select "1. Set Auto Mode", then press "OK".

In auto mode, the device will automatically determine the charging time & discharging time, & ensure that the SOC (State of Charge) of PowerCube 2.0 won't be too low.

<p>1) PV generation = LOAD consumption ($\Delta P < 100W$), the POWER BOX will stay in Standby state</p> 	<p>2) PV generation > LOAD consumption, the surplus power will be stored in the PowerCube 2.0 firstly.</p> 
<p>3) When the PowerCube 2.0 is full (or already at the Max. Charge Power), excess power will be exported to the grid.</p> 	<p>4) PV generation < LOAD consumption, discharge the PowerCube 2.0 to supply power to load firstly,</p> 
<p>5) If PV generation + PowerCube 2.0 < LOAD consumption, the POWER BOX will import power from the grid.</p> 	<p>6) Press "DOWN" button to view current information of the POWER BOX in the main interface, as below.</p> 

2) Set Time-of-use Mode

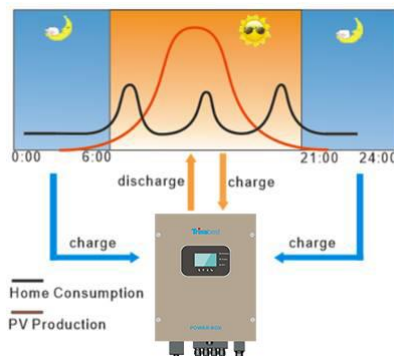
Select "2.Set Time-of-use Mode", and then press "OK" to enter Set Time-of-use mode interface. End user can set an off-peak time period (evening charging time period) and target SOC (SOC to terminate evening charging). The

interface of Time-of-use Mode is shown as below. This mode is for customers who have TOU (Time-of-use) pricing electricity (cheaper rate in off peak time & more expensive rate in peak time) and owning a PV on-grid system.

For example:

- a) From 9:00PM to 6:00AM, when the electricity is cheap, the POWER BOX will import power from grid & charge the PowerCube 2.0 to target SOC.
- b) From 6:00AM to 8:00AM, when the electricity is expensive and the PV generation capacity is quite low, the POWER BOX will discharge the PowerCube 2.0 to supply the morning peak consumption;
- c) From 8:00AM to 7:00PM, PV generation > LOAD consumption, the surplus PV power will be stored in the PowerCube 2.0;
- a) From 7:00PM to 9:00PM, when the electricity is expensive and the POWER BOX will discharge the PowerCube 2.0 to supply the night peak consumption.

b)



Charge Start:	21 h 00 m
Charge End:	06 h 00 m
Set Aimed SOC	080 %

3) Set Timing Mode

Select "3.Set Timing Mode", and then press "OK" to enter Set Timing mode interface. End user can set an off-peak time period (evening charging time period) & a peak time period (daylight discharging time period) & corresponding powers. The interface of Set Timing Mode is shown as below. This mode is for customers who have TOU (Time-of-use) pricing electricity (cheaper rate in off peak time & more expensive rate in peak time).

Charge Start	22 h 00 m
Charge End	05 h 00 m
Charge Power	2000 W
DisCharge Start	14 h 00m
DisCharge End	16 h 00m
DisCharge Power	25000 W

6.3.2 Event List

2.Event List	1.Current Event List
	2.History Event List

Event list of POWER BOX includes current event list and history event list.

1) Current Event List

Select "1. Current Event List", press "OK" to check the current events.

2) History Event List

Select "2. History Event List", press "OK" to check the history events. Press "up" or "down" to check all history events if there're more than 1 page of events.

6.3.3 System information interface

3.System Information	1.Product SN	7.EPS Mode
	2.Software Version	8.Batt Parameter
	3.Hardware Version	9.Setting Pf time
	4.RS485 Address	10.Setting QV time
	5.Country	11. Defa. Pf time
	6.Power Factor	12. Defa. QV time

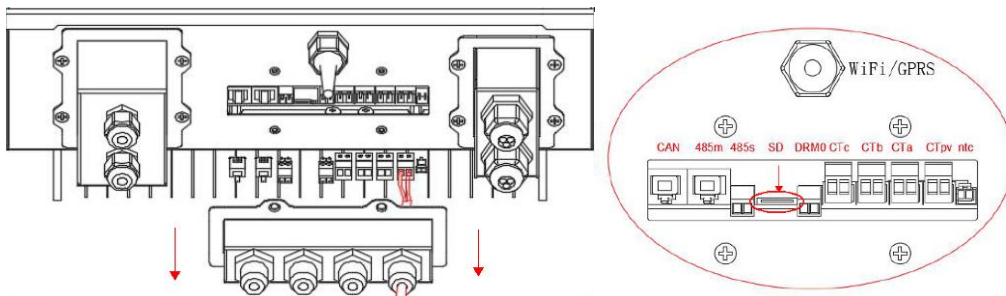
6.3.4 Software upgrading

Select "4. Software Update" in the main menu, press "OK", "input password" is shown, press "OK" again. Input the password ("0715"), press "Up" or "Down" to change the 1st digit, press "OK" to switch to next digit, when "0715" is shown on the screen, press "OK". The POWER BOX will start to upgrade the software automatically.

It's easy to upgrade the software of the POWER BOX. New software includes new features & improvements for reliability.

Upgrading Procedure:

Step 1 Turn off the DC isolator (PowerCube 2.0) and AC circuit breaker (grid), then remove the communication waterproof cover (as shown in the following picture). If the communication cables (RS485, NTC, CT) have been connected, please loosen their cable glands before removing the waterproof cover.



Step 2: Press SD card once, the SD card will automatically pop up, insert the SD card into a micro-SD card reader, then insert micro-SD card reader into a PC; **(NOTE: micro-SD card reader & PC are not provided by Trinabess)**

Step 3: If there is a folder named "ES3000firmware" in the SD card, empty the folder.

If there isn't, create a new folder named "ES3000firmware" in the SD card. Copy these 3 files: "ARM.hex", "DSPM.hex" and "DSPS.hex" into the "ES3000firmware" folder. (Ask our technical support to send you the latest software version)

Step 4: Eject the SD card from the micro-SD card reader, and then insert the SD card back into the POWER BOX.

Step 5: Then turn on DC isolator (PowerCube 2.0) and AC circuit breaker (grid), press "Back" to enter main menu. Press "Down" to select "4. Software Update", then press "OK".

Step 6: "input password" is shown, press "OK" again. Input the password ("0715"), press "Up" or "Down" to change the 1st digit, press "OK" to switch to next digit, when "0715" is shown on the screen, press "OK" to start software update.

Step 7: After the update is complete, turn OFF AC circuit breaker (grid) & DC isolator (PowerCube 2.0), lock the communication waterproof cover with four screws, then turn ON DC isolator, wait for 5 seconds, turn ON AC circuit breaker again, the POWER BOX will start to operate automatically.

NOTE: If "DSP communicate fail", "Update DSP1 Fail" or "Update DSP2 Fail" is shown on the screen, which means the software upgrade is unsuccessful, please turn off AC circuit breaker (grid) & DC isolator (PowerCube 2.0), wait for 1 minute, then start from "Step 5"

6.3.5 Energy Statistics:

5. Energy Statistics	Today		
Renewable	100.00KWh		
Self-Use	80.00KWh		80%
Export	20.00KWh		20%
For Load	100.00KWh		
Self-Use	80.00KWh		80%
Import	20.00KWh		20%

Select "5. Energy Statistics" in the main menu, press "OK" to enter Energy Statistics interface, it shows the energy generation capacity and consumption capacity within a certain range of time. Press "Up" or "Down" to check the daily / weekly / monthly / yearly / lifetime statistics.

7. WIFI MONITORING SETUP GUIDE

7.1 Establishing a WLAN (Wi-Fi) connection to the user interface and setting up the monitoring on smart device

7.1.1 Open the WLAN interface of the inverter by connecting to the inverter's SSID (Wifi name)

- 1 How to identify Inverter SSID in WLAN: [AP_serial number (SN)] (e.g. fig. 1, 0805574402), See SN on the label on the side of the inverter

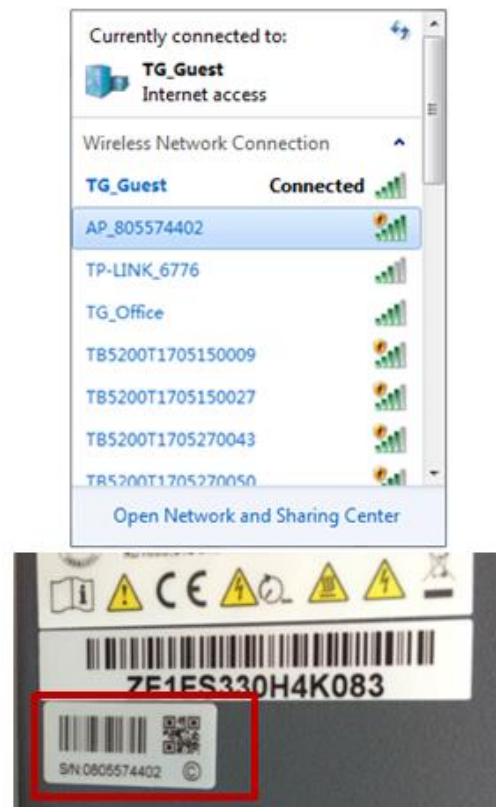


Figure 1 WLAN Connection and Serial Number (SN)

- 2 Open up an internet browser using a computer PC or from any smart device.
Enter the inverter IP address in the address bar (URL) to open up its settings and configurations: 10.10.100.254, (default username / password: admin / admin)



Figure 2 Login Interface for Wizard

7.1.2 Using the wizard to set up the WLAN monitoring

- 1 Click Start button under Wizard



Figure 3 Wizard setting Step1

2 Select Wireless connection, click NEXT

Connection Settings:

☒ Wireless connection
☐ Cable connection

Wireless **Enabled** ▼

Back **Next**

1 2 3 4 5 6 7

Help

The STA mode of wireless connection will be turned off by system automatically when you choose cable network connection.

Whether to keep the AP mode of wireless connection or not can be set by turning on or off the wireless function.

Figure 4 Wizard setting Step2

3 Then, select your current wireless network:

Please select your current wireless network:

Site Survey

SSID	BSSID	RSSI	Channel
TP-LINK_6776	bc:4e:99:5e:67:76	60%	1
<input checked="" type="radio"/> TG_Guest	54:4a:00:79:a2:10	55%	4
<input type="radio"/> TG_Office	54:4a:00:79:a2:f1	55%	4
<input type="radio"/> TB5200T1705270047	c8:93:46:34:61:dd	34%	9
<input type="radio"/> TB5200T1705270036	c8:93:46:34:62:35	60%	9
<input type="radio"/> TB5200T1705270015	c8:93:46:34:5e:6e	65%	9
<input type="radio"/> TB5200T1705270063	c8:93:46:34:5d:e5	39%	9
<input type="radio"/> TB5200T1705270008	c8:93:46:34:60:d4	50%	9
<input type="radio"/> TB5200T1705150007	c8:93:46:34:62:ea	24%	9
<input type="radio"/> TB5200T1705270050	c8:93:46:34:63:67	34%	9

★Note: When RSSI of the selected WiFi network is lower than 15%, the connection may be unstable, please select other available network or shorten the distance between the device and router.

Refresh

Add wireless network manually:

Network name (SSID) (Note: case sensitive)

Encryption method **WPA2PSK** ▼

Encryption algorithm **AES** ▼

Back **Next**

Help

This step will help to connect the device to your desired WLAN. If you do not find your wireless router on the left list, please refresh several times or add it manually.

Please check your wireless router for the right encryption method and encryption algorithm.

If your wireless router does not broadcast SSID, please add a wireless network manually.

Figure 5 local Wi-Fi Selection

4 enter your WLAN/Wi-Fi password and re-enter it again, Click NEXT

The screenshot shows the 'Wizard' interface for setting up a wireless network. On the left, a sidebar lists options: Status, Wizard (highlighted), Wireless, Cable, Advanced, Upgrade, Restart, and Reset. The main area is titled 'Please enter the wireless network password:'. It contains two password input fields: 'Password (8-64 bytes) (Note: case sensitive)' and 'Re-enter password'. Both fields are filled with dots. A checkbox labeled 'Show Password' is located below the second field. A red rectangle highlights both password fields and the 'Next' button. Below the input fields are 'Back' and 'Next' buttons. At the bottom, a progress bar shows seven steps, with step 4 highlighted. On the right, a 'Help' section contains the text: 'Please make sure you have entered the correct password.'

Figure 6 Wizard setting Step 4

5 Select 'Enable' for Obtain an IP address automatically, and click 'next'

The screenshot shows the 'Wizard' interface for setting up a wireless network. On the left, a sidebar lists options: Status, Wizard (highlighted), Wireless, Cable, Advanced, Upgrade, Restart, and Reset. The main area is titled 'Please fill in the following information:'. It contains a dropdown menu for 'Obtain an IP address automatically' with 'Enable' selected. Below this are input fields for 'IP address', 'Subnet mask', 'Gateway address', and 'DNS server address', all containing '0.0.0.0'. A red rectangle highlights the 'Enable' dropdown and the 'Next' button. Below the input fields are 'Back' and 'Next' buttons. At the bottom, a progress bar shows seven steps, with step 5 highlighted. On the right, a 'Help' section contains the text: 'Most systems support the function of DHCP to obtain IP address automatically. Please select disable and add it manually if your router does not support such function.'

Figure 7 Wizard setting Step 5

6 Do not select any option under steps 6, click NEXT

The screenshot shows the 'Enhance Security' step of a configuration wizard. On the left is a sidebar with a 'Status' section containing 'Wizard' (highlighted), 'Wireless', 'Cable', 'Advanced', 'Upgrade', 'Restart', and 'Reset'. The main area is titled 'Enhance Security' and contains the text: 'You can enhance your system security by choosing the following methods'. Below this are three options, each with a checkbox: 'Hide AP' (unchecked), 'Change the encryption mode for AP' (unchecked), and 'Change the user name and password for Web server' (unchecked). At the bottom of the main area are two buttons: 'Back' and 'Next'. The 'Next' button is highlighted with a red rectangle. Below the buttons is a progress bar with steps 1 through 7; step 6 is highlighted with a blue bar. On the right is a 'Help' sidebar with three sections: 'Hide AP' (explaining that the SSID will be invisible), 'Change the encryption mode for AP' (explaining that a password will be required), and 'Change the user name and password for Web server' (explaining that new credentials will be required).

Figure 8 Wizard setting Step 6

7 Click NEXT and wait for it to show 'Configuration completed!' then press OK to continue.

The screenshot shows the 'Configuration completed!' step of the configuration wizard. The sidebar on the left is identical to the previous step. The main area is titled 'Configuration completed!' and contains the text: 'Click OK, the settings will take effect and the system will restart immediately.' and 'If you leave this interface without clicking OK, the settings will be ineffective.' At the bottom of the main area are two buttons: 'Back' and 'OK'. The 'OK' button is highlighted with a red rectangle. Below the buttons is a progress bar with steps 1 through 7; step 7 is highlighted with a blue bar. The 'Help' sidebar on the right contains a single section: 'After clicking OK, the system will restart immediately.'

Figure 9 Wizard setting Step 7

Status	<p>Configuration completed! Please close this page manually!</p> <p>★Note: Please wait for 3 minutes, and check if the configuration is successful following the procedures below.</p> <p>1) Please re-connect to the AP of the data logger;</p> <p>2) Enter the IP address 10.10.100.254 in the browser, and login the configuration page again;</p> <p>3) Please check if the remote server A is pingable. It indicates that the configuration is successful when remote server A is pingable.</p> <p>4) If the remote server A is not pingable, please check ("Device information"— "Wireless STA mode") if the data logger has obtained an IP address, and if the signal strength is strong(>15%);</p> <p>a. If the data logger has obtained an IP address, please check if you can access the Internet via the router;</p> <p>b. If the data logger has not obtained an IP address from the router, please restart the data logger and configure again following the wizard;</p> <p>c. If the signal strength is weaker than 15%, please try to adjust the antenna direction, and shorten the distance between the data logger and the router.</p>	Help
Wizard		<p>★Note: The IP address of the device may have changed, please refer to User Manual to check the procedures to obtain the new IP address.</p>
Wireless		
Cable		
Advanced		
Upgrade		
Restart		
Reset		

Figure 10 Finished Wizard setting

8 2.3. Select 'Status' and under Device Information confirm that the inverter Wi-Fi is connected to selected router SSID (Wi-Fi name). Also make sure 'Remote server A' is configured to 'Pingable'

Status	<p>▲ Device information</p> <table border="1"> <tr> <td>Device serial number</td> <td>805574402</td> </tr> <tr> <td>Firmware version</td> <td>H4.01.51MW.2.01W1.0.53(sofar-03-291-D)</td> </tr> <tr> <td>Wireless AP mode</td> <td>Enable</td> </tr> <tr> <td>SSID</td> <td>AP_805574402</td> </tr> <tr> <td>IP address</td> <td>10.10.100.254</td> </tr> <tr> <td>MAC address</td> <td>BC:54:F9:F4:23:58</td> </tr> <tr> <td>Wireless STA mode</td> <td>Enable</td> </tr> <tr> <td>Router SSID</td> <td>TG_Guest</td> </tr> <tr> <td>Signal quality</td> <td>44%</td> </tr> <tr> <td>IP address</td> <td>10.38.7.41</td> </tr> <tr> <td>MAC address</td> <td>BC:54:F9:F4:23:59</td> </tr> <tr> <td>Cable mode</td> <td>Disable</td> </tr> <tr> <td>IP address</td> <td></td> </tr> <tr> <td>MAC address</td> <td></td> </tr> </table>	Device serial number	805574402	Firmware version	H4.01.51MW.2.01W1.0.53(sofar-03-291-D)	Wireless AP mode	Enable	SSID	AP_805574402	IP address	10.10.100.254	MAC address	BC:54:F9:F4:23:58	Wireless STA mode	Enable	Router SSID	TG_Guest	Signal quality	44%	IP address	10.38.7.41	MAC address	BC:54:F9:F4:23:59	Cable mode	Disable	IP address		MAC address		Help
Device serial number		805574402																												
Firmware version		H4.01.51MW.2.01W1.0.53(sofar-03-291-D)																												
Wireless AP mode		Enable																												
SSID		AP_805574402																												
IP address		10.10.100.254																												
MAC address		BC:54:F9:F4:23:58																												
Wireless STA mode		Enable																												
Router SSID		TG_Guest																												
Signal quality		44%																												
IP address		10.38.7.41																												
MAC address		BC:54:F9:F4:23:59																												
Cable mode		Disable																												
IP address																														
MAC address																														
Wizard	<p>The device can be used as a wireless access point (AP mode) to facilitate users to configure the device, or it can also be used as a wireless information terminal (STA mode) to connect the remote server via wireless router.</p>																													
Wireless																														
Cable																														
Advanced																														
Upgrade																														
Restart																														
Reset																														

<div> <div></div> <div>Connected Inverter</div> </div>	
Type	Trina
Number	1
Inverter serial number	TE1ES330H4K083
Firmware version (main)	V031
Firmware version (slave)	---
Inverter model	TE1ES330
Rated power	---
Current power	0 W
Yield today	0 kWh
Total yield	0 kWh
Alerts	---
Last updated	0 min ago
<div> <div></div> <div>Remote server information</div> </div>	
Remote server A	Pingable

Figure 11 Status Review

7.2 APP Installation and Monitoring Set Up

7.2.1 Download the Monitoring APP

Monitoring app can be found for both IOS and Android smart devices.

For IOS system: Search “Solarman” in APP Store and install, or click the link

<https://itunes.apple.com/au/app/solarman-the-best-use-of-pv-owners-app/id1269498647?mt=8>

Or simply scan the QR code below:



Figure 12 Solarman app QR code for IOS device

For Android system: Search "Solarman" in Google Play and install, or click the link

<https://play.google.com/store/apps/details?id=com.igen.rrgf>

Or simply scan the QR code below:

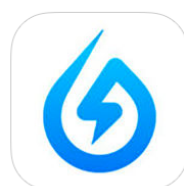


Figure 13 RRGF app QR code for Android device

solarman–The best use of PV owners APP

By IGEN Tech Co., Ltd.

This app is only available on the App Store for iOS devices.



Free
Category: Utilities
Updated: 01 September 2017
Version: 1.2.3
Size: 39.5 MB
Languages: English, Simplified Chinese

Description

–Real-time Remote Monitoring
Users can check their own plants via SOLARMAN, including real-time generation, consumption, storage battery, etc(daily, weekly, monthly).

[IGEN Tech Co., Ltd. Web Site](#) > [solarman](#)

What's New in Version 1.2.3

This update:
–Fix some bugs.

iPhone Screenshots

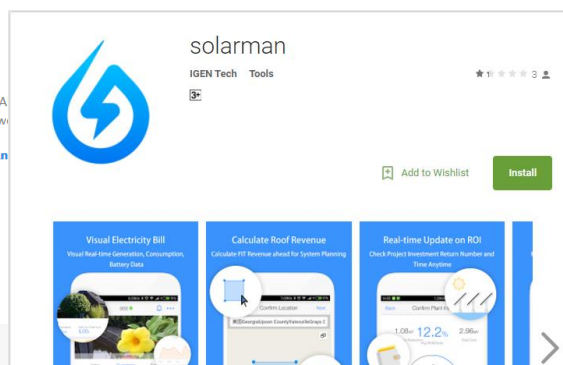
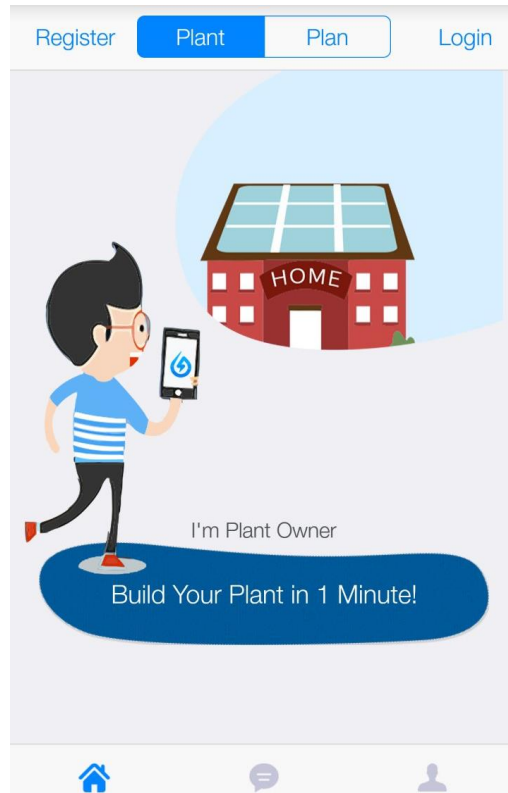


Figure 14 Download Page from IOS app store (left) and Google play (right)

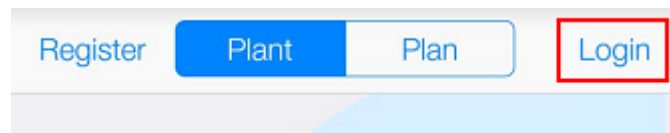
7.2.2 Register/Login

Note! Only one account is allowed to be set up per inverter (once the inverter WiFi has binded with an account, the user must delete the plant profile/WiFi logger to unbind the connection). It is suggested the installer sets up the account on behalf of the end user.

Open the APP and if you have an account, choose "Login", otherwise chose "Register".



1 Click “Login”

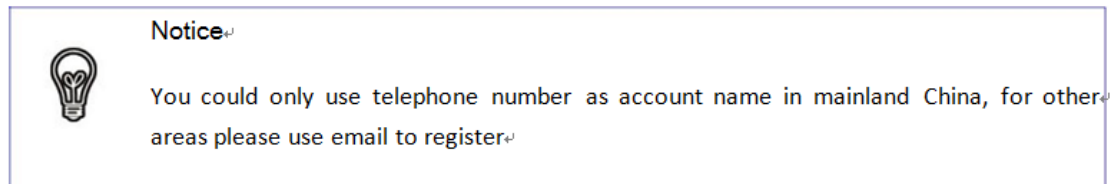
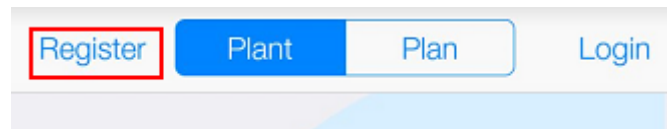


2 Input account and password

The image shows the login screen of the mobile application. At the top, there is a navigation bar with a blue 'X' icon, the text 'Login', and a blue 'Register' link. Below the navigation bar, there are two input fields: 'Email or telephone number' and 'Password'. The 'Password' field has a toggle icon (an eye) to its right. Below the input fields, there is a blue button labeled 'Login'. At the bottom of the screen, there is a link that says 'Can't log in?'.

If you do not have an account, please click “Register”

1 Click “Register”



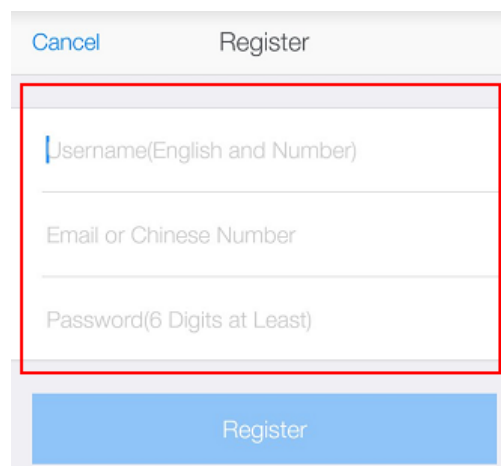
2 Input username

3 Input email or phone number as account name

4 Set password

5 Click “Register” to finish registration

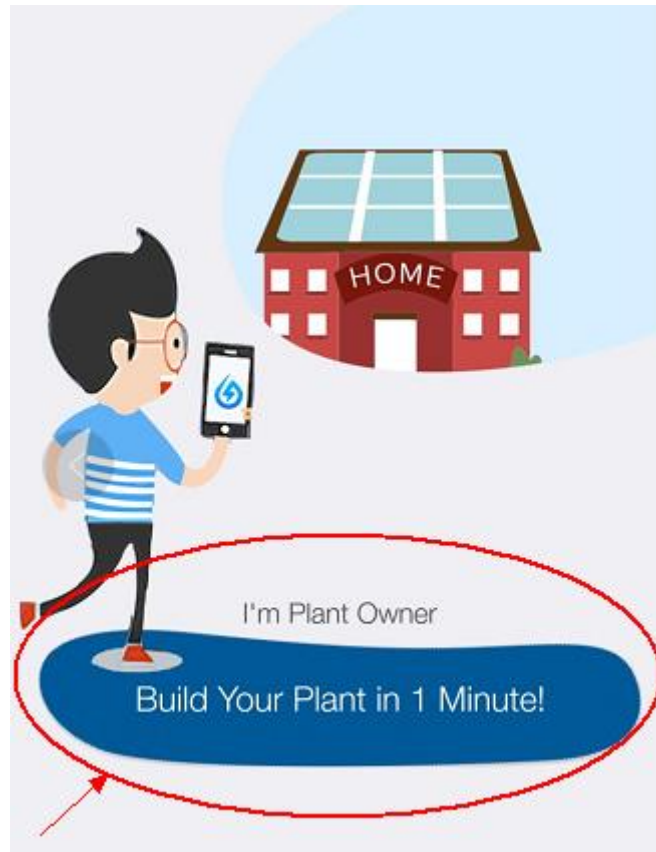
6 After registration, choose “Login” to start using the APP



7.2.3 Plant setting

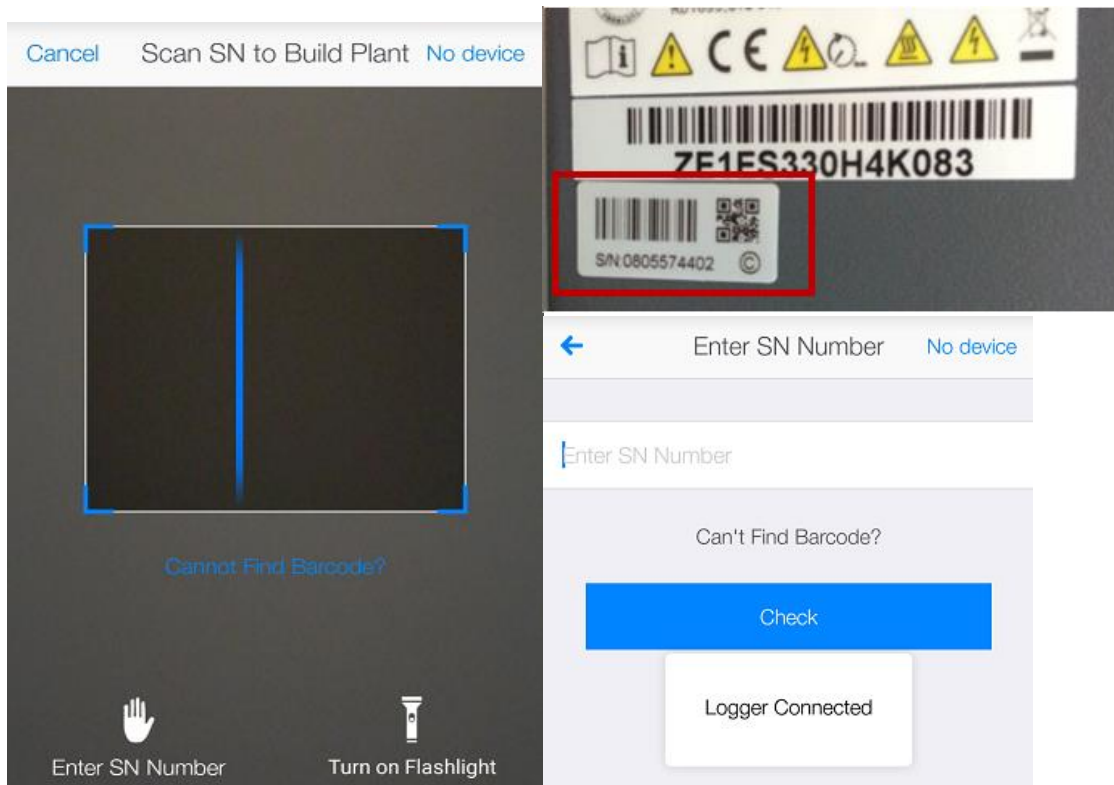
1 Choose  on the left bottom to visit “Homepage”

2 Choose “Build your plant in 1 minute” to create plant



3 Scan / Enter WIFI serial number (SN)

(Note: If you see the message «**Logger connected**» after checking SN number, please ensure there are no other accounts associated with the entered WiFi SN)



4 Enter Plant Info:

[Back](#) Confirm Plant Info [Next](#)

Plant Location

Longitude 151°12'27" Loc Map

Latitude -34°51'51"

Plant Address

New South Wales Sydney Sydney

Plant Type

Resi Roof Commercial Industrial

Utility

Grid Type

Distributed Self Use Left on Grid Distributed All Power on Grid

Ground All Power on Grid Offline Storage System

- i. Locate the plant on the maps

[Back](#) Confirm Plant Info [Next](#)

Plant Location

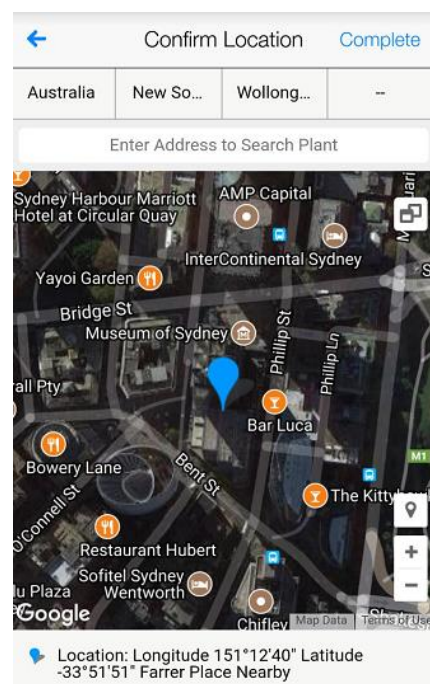
Longitude 151°12'27" Loc Map

Latitude -34°51'51"

Plant Address

New South Wales Sydney Sydney

Plant Type



- ii. Configure plant type. Choose “Resi Roof” & “Storage System”.

Plant Type

Resi Roof

Commercial

Industrial

Utility

Grid Type

Distributed Self Use Left on Grid

Distributed All Power on Grid

Ground All Power on Grid

Offline

Storage System

5 Fill in plant capacity and other details

Capacity (kWp)

5

Direction

0°(N)

N

W

E

S

Tilt Angle

6 Name the plant and put in installer/person who manages the app

[Back](#) [Confirm Plant Info](#) [Complete](#)

7 Check and ensure the correct WIFI SN has been entered.

[Back](#) [Add New Device\(1\)](#) [Complete](#)

Corresponding Hardware and Communication Mode Unfound

Choose “Complete” to finish configuration. After configuration has successfully completed, please wait for 10-20min (depend on network speed) for the WiFi logger to establish connection and upload data to the server. You should see the following screen and a green tick once inverter has established the connection. ***Please note that the data uploads frequency is every 5 minutes.***

[←](#) Mpower office

Updated: 2Min Ago

[Intro](#) [Summary](#) [Device](#)

Inverter

Logger

Online Num
1

Offline Num
0

All Num
1

Logger

If configuration fails, please ensure inverter WiFi is connected to local router and there's established internet connection. If problem persists, please contact customer service.

8. Technical Data

Technical Data	POWER BOX
BATTERY PARAMETERS	
Battery Type	Lead-acid,Lithium-ion
Nominal battery voltage	48V
Battery voltage range	42-58V
Recommended battery capacity	200Ah(100~500Ah optional)
Recommended Storage capacity	9.6kWh
Max.Charging Current	60A
Charging Current Range	0-60A(Programmable)
Charging curve	3-stage adaptive with maintenance
Max.Discharging Current	60A
Electronic protection	OCP OTP OVP
Short circuit protection	Fuse(100A)
AC PARAMETERS	
Max.Output Power	3kVA
Rated Input/Output Voltage	230V
Max.Input/Output Current	13A
AC Input Voltage Range	180V-270V
Grid Frequency Range	44~55Hz/54~66Hz
THD	<3%
Power Factor	1(Adjustable+/-0.8)
Connection phase	single
Current(inrush)	0.8A/1us
Maximum output fault current	100A/1us
Maximum outout overcurrent protection	13A
SYSTEM PARAMETERS	
Max.Charging Efficiency	94.1%
Max.Discharging Efficiency	94.3%
Standby Losses	<5W
Topology	High Frequency Isolated Transformer
Degree Of Protection	IP 65
Safety Protection	Anti islanding,RCMU,Ground Fault Monitoring
Certification	AS4777,VDE0126-1-1,G83/2,C10/11,RD1699,ITEC15-712-1,EN50438,VDE-AR-N4105
Communication	WiFi,RS485,CAN2.0
ENVIRONMENTAL	
Ambient temperature range	-25℃—+60℃ (Above45°Derating)
Allowable Relative Humidity Range	0—100%,No Condensing
Protective Class	Class I
Max.Operating Altitude	2000m
Current Senor Connection	external
GENERALDATA	
Noise	<25dB
Weight	16kg
Cooling	Natural
Dimension(W*H*D)	532*360*173mm
Display	LCD display
Warranty	5 Years(Optional:extension to 10 years)
Emergency Power Supply	
ESP rated power	3000VA
ESP rated voltage,Frequency	230V,50/60Hz
ESP rated current	13A
Total harmonic distortion	<3%
Switch time	<3s

9. Troubleshooting

FAQ

Question: What if the Alarm light is flashing?

Answer: If the Alarm light flashing while no fault report is on display, it due to the higher ambient temperature. Please look for cause of the higher temperature.

Question: The system is not working properly, what should I do?

Answer: Check for current fault codes and refer to the list below for solutions. For further information, please contact us.

Code	Name	description	solution
ID01	GridOVP	The power grid voltage is too high	If the alarm occurs occasionally, the possible cause is that the electric grid is abnormal. The POWER BOX automatically returns to normal operating status when the electric grid's back to normal.
ID02	GridUVP	The power grid voltage is too low	
ID03	GridOFP	The power grid frequency is too high	
ID04	GridUFP	The power grid frequency is too low	<p>If the alarm occurs frequently, check whether the grid voltage/frequency is within the acceptable range. If no, contact technical support. If yes, check the AC circuit breaker and AC wiring of the POWER BOX.</p> <p>If the grid voltage/frequency is within the acceptable range and AC wiring is correct, while the alarm occurs repeatedly, contact technical support to change the grid over-voltage,</p>

			under-voltage, over-frequency, under-frequency protection points after obtaining approval from the local electrical grid operator.
ID05	BatOVP	The PowerCube 2.0 voltage is too high	<p>If the alarm occurs occasionally, the possible cause is during the process of charging.</p> <p>If the alarm occurs occasionally, check whether the overvoltage setting of the PowerCube 2.0 consistent with the parameter of the PowerCube 2.0 manufacturer and contact technical support.</p>
ID09	HW_LLCCBus_OVP	LLCCBus voltage is too high and has triggered hardware protection	<p>ID09- ID26 are internal faults of the POWER BOX, turn OFF the "DC & AC switch", wait for 5 minutes, then turn ON the "DC switch" and turn ON the "AC switch". Check whether the fault is rectified. If no, please contact technical support.</p>
ID10	HW_Boost_OVP	Boost voltage is too high and has triggered hardware protection	
ID11	HwBuckBoostOCP	BuckBoost current is too high and has triggered hardware protection	
ID12	HwBatOCP	The PowerCube 2.0 current is too high and has triggered hardware protection	
ID15	HwAcOCP	The grid current is too high and has triggered hardware protection	
ID17	HwADFaultlGrid	The grid current sampling error	

ID18	HwADFaultDCI	The DCI sampling error	
ID19	HwADFaultVGrid	The grid voltage sampling error	
ID21	MChip_Fault	The master chip fault	
ID22	HwAuxPowerFault	The auxiliary voltage error	
ID25	LLCBusOVP	LLCBus voltage is too high	
ID26	SwBusOVP	Bus voltage is too high and has triggered software protection	
ID27	BatOCP	PowerCube 2.0 current is too high	If the fault occurs frequently, please contact technical support.
ID28	DciOCP	The DCI is too high	<p>ID28-ID55 are internal faults of the POWER BOX, turn OFF the "DC&AC switch", wait for 5 minutes, then turn ON the "DC switch" and turn ON the "AC switch". Check whether the fault is rectified. If no, please contact technical support.</p> <p>For ID52: Please check and ensure the cable between Powerbox and Powercube is wired correctly. Note that the Ethernet cable is customized and not a standard cable, refer to Table 2. On how to make the cable.</p>
ID29	SwOCPIinstant	The grid current is too high	
ID30	BuckOCP	Buck current is too high	
ID31	AcRmsOCP	The output current is too high	
ID49	ConsistentFault_V Grid	The grid voltage sampling value between the master DSP and slave DSP is not consistent	
ID50	ConsistentFault_F Grid	The grid frequency sampling value between the master DSP and slave DSP is not consistent	
ID51	ConsistentFault_DC I	The Dci sampling value between the master DSP and slave DSP is not consistent	
ID52	BatCommunicationFlag	PowerCube 2.0 communication fault	

ID53	SpiCommLose	SPI communication is fault	
ID54	SciCommLose	SCI communication is fault	
ID55	RecoverRelayFail	The relays fault	
ID57	OverTempFault_BAT	The PowerCube 2.0 temp is too high	ID57-ID59 Check whether the air condition around the equipment is good. Or set the "max discharging & charging current "a little lower to check whether the fault is rectified. If the fault occurs frequently, please contact technical support.
ID58	OverTempFault_HeatSink	The temperature of heat sink is too high	
ID59	OverTempFault_Environment	The environment temp is too high	
ID65	unrecoverHwAcOCP	The grid current is too high and has caused unrecoverable hardware fault	ID65-ID77 are internal faults of the POWER BOX, turn OFF the "DC switch", wait for 5 minutes, then turn ON the "DC switch" and turn ON the "AC switch". Check whether the fault is rectified. If no, please contact technical.
ID66	unrecoverBusOVP	The bus voltage is too high and has caused unrecoverable fault	
ID67	BitEPSunrecoverBatOCP	Unrecoverable fault of the PowerCube 2.0 overcurrent in EPS mode	
ID70	unrecoverOCPIstant	The grid current is too high, and has caused unrecoverable fault. Please check the circuit with any ground fault.	
ID75	unrecoverEEPROM_W	The EEPROM is unrecoverable	
ID76	unrecoverEEPROM_R	The EEPROM is unrecoverable	
ID77	unrecoverRelayFail	Relay has happened permanent fault	
ID81	Over temperature	Internal temperature is too high.	1. Please make sure the POWER BOX is installed in

			<p>a place without direct sunlight.</p> <p>2. Please make sure the inverter is vertically installed & the ambient temperature is less than the temperature upper limit of the POWER BOX</p>
ID82	Over frequency	AC frequency is too high	
ID85	Battery voltage is low		The POWER BOX won't discharge the PowerCube 2.0 before charging it. Code should disappear when solar PV re-charges it. If not, change the work set mode to either Time-of-use mode or Timing mode and choose a charging period to manually force charge the battery to a higher capacity.
ID94	Software version is not consistent		Contact technical support to upgrade software.
ID95	CommEEPROMFault	The Communication board EEPROM is fault	ID95-ID96 are internal faults of the POWER BOX, turn OFF the "DC&AC switch", wait for 5 minutes, then turn ON the "DC switch" and turn ON the "AC switch". Check whether the fault is rectified. If no, please contact technical support.
ID96	RTCFault	RTC clock chip is fault	
ID97	InValidCountry	Invalid Country	Check the country setting according to country ID
ID98	SDfault	The SD card is fault	Please replace the SD card.

ID100	BatOCD	The PowerCube 2.0 over current discharging protect	ID100-ID103 is PowerCube 2.0 fault. If this fault occurs occasionally, wait few minutes to see whether the fault is rectified. If this fault occurs frequently, please contact technical support.
ID101	BatSCD	Discharging short circuit protect	
ID102	BatOV	PowerCube 2.0 high voltage protect	
ID103	BatUV	PowerCube 2.0 low voltage protect	
ID104	BatOTD	PowerCube 2.0 discharging high temperature protect	Battery fault. Check whether the air condition around the equipment is good. Or set the “max discharging & charging current” a little lower to check whether the fault is rectified. If the fault occurs frequently, please contact technical support.
ID105	BatOTC	PowerCube 2.0 charging high temperature protect	
ID106	BatUTD	PowerCube 2.0 discharging Low temperature protect	Id106-id107 is PowerCube 2.0 fault. Increase the temperature of the PowerCube 2.0. If the fault occurs frequently, please contact technical support.
ID107	BatUTC	PowerCube 2.0 charging Low temperature protect	
In addition,if the Alarm light flashing while no fault report is on display,it due to the higher ambient temperature.Please look for cause of the higher temperature.			



Trina Energy Storage Solutions (Jiangsu) Co.,Ltd.

Add: No. 2 Tianhe Road, Trina PV Industrial Park, New District, Changzhou, Jiangsu, China 213031

[http: //www.trinaenergystorage.com](http://www.trinaenergystorage.com);

Tel: (+86)0519-85176686

Fax: (+86)0519-81588398

www.trinaenergystorage.com