008_DC Coupled Unit_DCU2000Lite_EN

Release Notes

This document records the changes related to SolarCan User Manual.

Version	Update Date	Content Change
V1.0	2025/7/23	Initial Version

Read before using

This manual is valid for the following product models:

Product Name	Model
SolarCan-DC Coupled Unit	TSOL-DCU2000Lite
Stackable Micro Battery	TSOL-DB2000Lite

The following security symbols are used in this manual. Before installing or operating the system, familiarize yourself with these symbols and their meanings.

Identification	Explanation
	**Danger:** Danger indicates a dangerous situation that may cause fatal electric shock, other serious personal injury, or fire danger.
	**Warning:** Warnings indicate instructions that must be fully understood and followed to avoid potential safety hazards, including equipment damage or personal injury.
	**Note:** Note indicate that the described operation should not be performed. Before continuing, readers should stop using and fully understand the explained operation.

Read the manual and other related documents before any work on the battery is carried out. Documents must be stored carefully and be available at all times. All rights to the content of this manual are owned by TSUNESS Co., Ltd (hereinafter “TSUN”). This document cannot be modified, distributed, reproduced or published in any form or by any means without prior written permission from TSUN. Content may be periodically updated or revised due to product development. The information in this manual is subject to change without notice. The latest manual can be acquired at www.tsun-ess.com.

Safety Instructions

1. Please store this product in a cool and dry place and Do not use this product near any fire.
2. Do not soak this product in water. It is not recommended to use this product in any rain or humid environment.
3. Do not use this product in any flammable, explosive or corrosive environment such as gasoline, gas and chemical agent, otherwise, your safety may be endangered.

◦ Be sure to operate this product all the time in accordance with regulations, instructions and signs in an environment where explosion may occur.

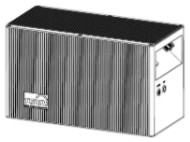
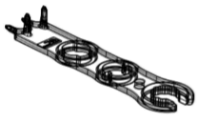
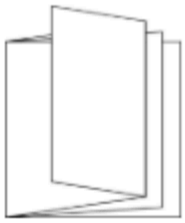
◦ Do not store any flammable liquids, gases or explosives in a case containing this product.

4. Do not use this product in any strong electrostatic or strong magnetic field environment.
5. Do not disassemble or puncture this product with any sharp object in any way.
6. Do not use wires or other metal objects for connection without permission, so as not to cause short circuit of this product.
7. Do not use unofficially provided components or accessories.
8. When using the product, strictly follow the ambient temperature specifications in this user manual. High temperatures may cause the battery to ignite or even explode. Low temperatures may significantly reduce product performance or even cause it to stop working.
9. Do not pile any other heavy object on.
10. Please avoid impact, fall or violent vibration, and in case of serious external impact, please immediately turn off the power and stop using this product. Please fix this product properly during transportation to avoid vibration and impact. It is recommended to use the original packaging for long-distance transportation.
11. If this product accidentally falls into water in the process of using, please keep it in a safe open area and Do not get close to this product before it is dried in air. The dried product should be not reused but properly disposed of with the method specified in the section of "Waste" below. If this product caught fire, please use suitable extinguishing media in the following recommended order: water or water mist, sand, fire blanket, dry powder and carbon dioxide fire extinguisher.
12. In case of any dirt on the interface of this product, please wipe it clean with a dry cloth.
13. Please place this product carefully to prevent damage caused by dumping. If this product is seriously damaged after dumping, please shut down immediately, place the battery in an open area away from combustibles or people, and scrap it according to local laws and regulations.

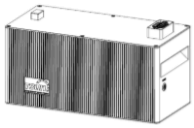
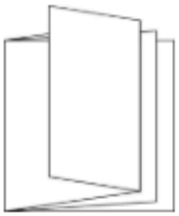
14. Please store this product out of reach of children and pets to avoid potential safety hazards.
15. If water is found inside this product, please Do not power on for use again. Please take measures against electric shock before touching this product. Please stand in a safe and waterproof open area immediately, and contact the customer service immediately.
16. This product is not recommended to supply power to medical emergency equipment related to personal safety.
17. Electromagnetic fields will inevitably be generated when power products are used, which may affect the normal operation of implantable medical devices or personal medical devices, such as pacemakers, cochlear implants, hearing aids, defibrillators and so on. If these medical devices are used, please consult their manufacturers about restrictions on their use, so as to keep the safe distance between this product and any implanted medical devices (such as pacemakers, cochlear implants, hearing aids, defibrillators, etc.) when working.
18. When such device is installed, the household electrical wiring can only be modified by trained professionals.
19. Please be sure to use the cable originated from us. When disconnecting the cable, if the plug has threads, please unscrew the nut before disconnecting the cable. Do not operate this product with damaged cables.

Package List

DCU2000Lite

Appearance	Quantity	Description
	1	DCU2000Lite
	4	DC Input Cable (3m)
	1	DC output Cable (1.8m)
	1	RS485 connector
	1	DC Connector Wrench
	1	Quick installation guide
	1	Warranty card

Stackable Storage Battery（Sold separately）

Appearance	Quantity	Description
	1	DB2000Lite
	1	Quick installation guide
	1	Warranty card

What's DC COUPLED UNIT(DCU)

DCU2000Lite is a key component of the plug&play storage system or micro storage system, it integrates both DC- DC inverter(PV charge and battery discharge function) and battery pack. DC Coupled Unit, which is connected between PV modules and balcony microinverter, can store excess electrical energy in the battery and discharge it when needed.

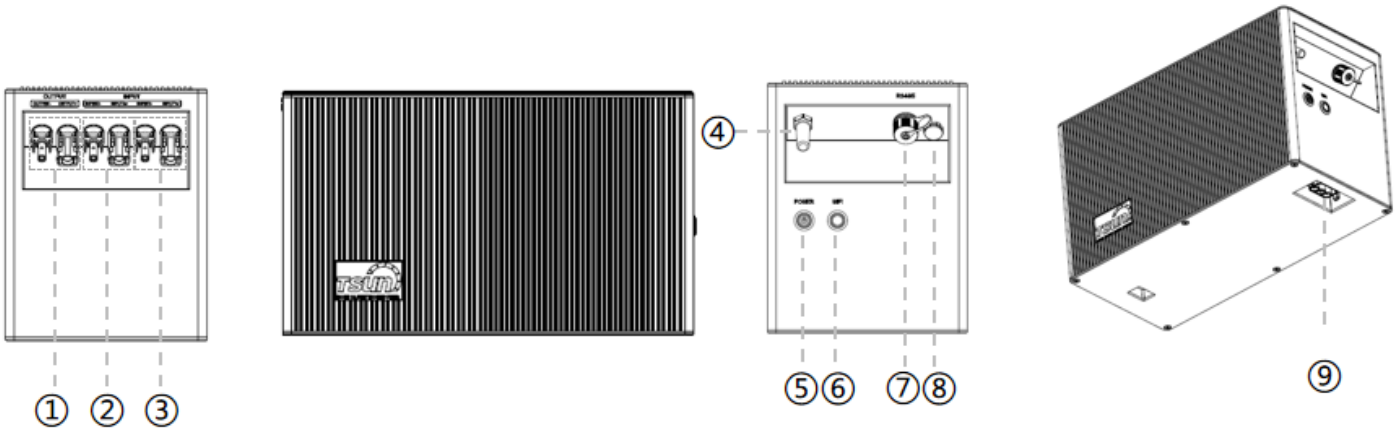
This solution, PV Module + DCU+ Balcony microinverter, is typically used as a micro energy storage solution for small household, conventional balconies, courtyards, family carports, and other plug & play scenarios. This system has 3 main functions:

1. Utilizes abundant sunlight during daytime to generate electricity to charge DCU2000Lite;
2. Conversion of stored energy for home appliances at night;

If the capacity of the DCU2000Lite does not meet your needs, you can expand it by adding additional DB2000Lite battery packs.

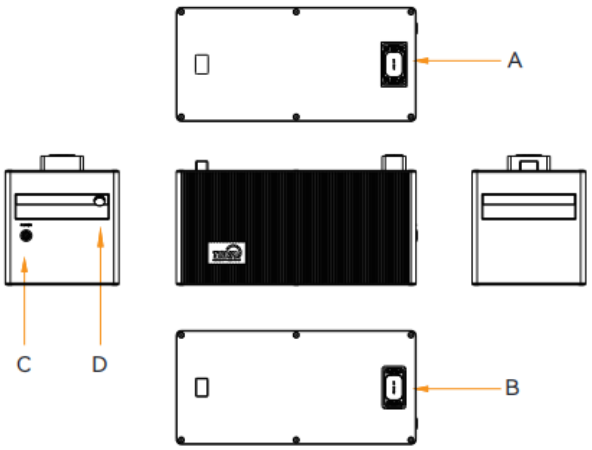
Product Appearance

DCU2000Lite



1. DC Output Port
2. PV Input Port 2
3. PV Input Port 1
4. Antenna
5. Power Button
6. WiFi Button
7. RS485 Port（Pin1-RS485 A、Pin2-RS485 B、Pin3-5V、Pin1-GND）
8. Vent Valve
9. Expansion Port (Down)

DB2000Lite



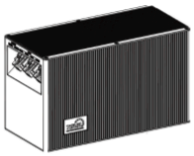
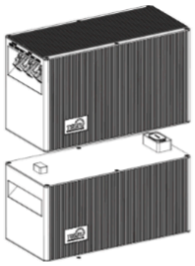
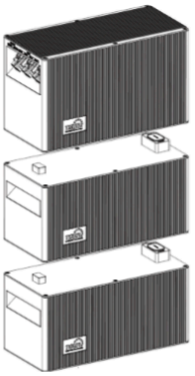
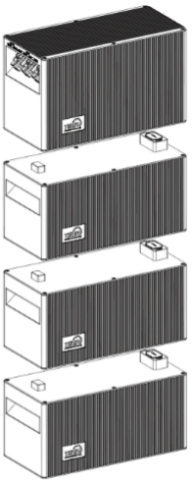
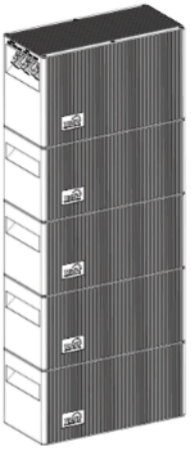
A: Expansion Port (Up)

B: Expansion Port (Down)

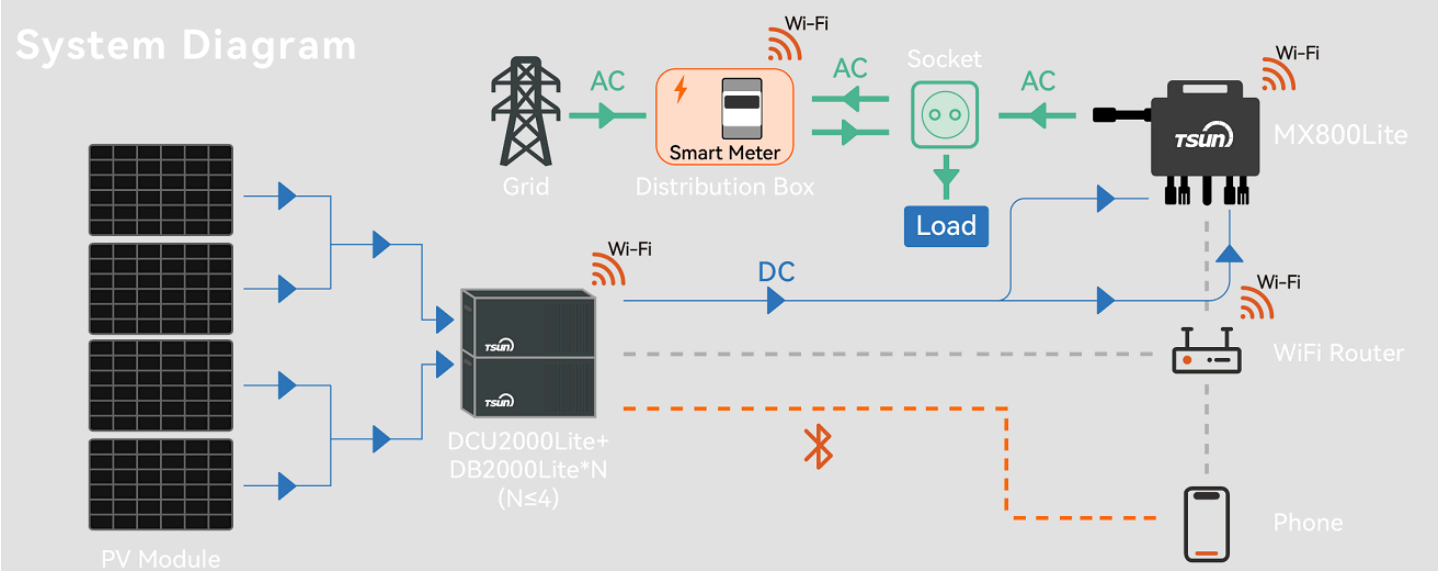
C: Power Button&Status Indicator

D: Vent Valve

System Description

System Overview					
DCU2000Lite	*1	*1	*1	*1	*1
DB2000Lite	*0	*1	*2	*3	*4
System Capacity	2010 Wh	4020 Wh	6030 Wh	8040 Wh	10050 Wh

System Diagram



RS485 Interface Description

Pin	1	2	3	4
RS485 Function	485A	485B	5V	GND

Pins 1 & 2: Used to connect external RS485 devices, such as smart meters.

Pins 3 & 4: Provide power output to external devices.

How to install DCU

Pre-installation

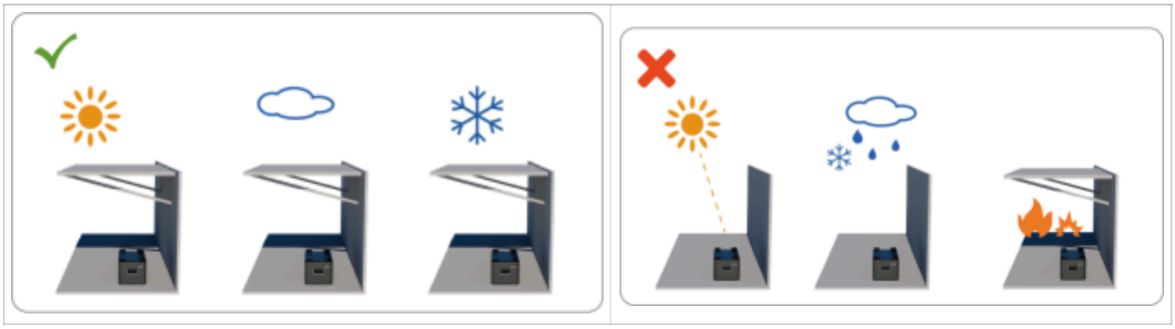
· This user guide only describes the cable connection method and assembly of DCU2000Lite/DB2000Lite. To install the PV modules, please read the instructions for the PV module and accessories.

· If you want to check the function of the PV system, carry out the installation on a sunny day.

· Make sure DCU2000Lite is within the WiFi coverage area.

· Please check the accessories before installation, some accessories need to be purchased separately.

· Please do not expose the device to direct sunlight, rain, or snow, and ensure that it is kept in well-ventilated conditions.



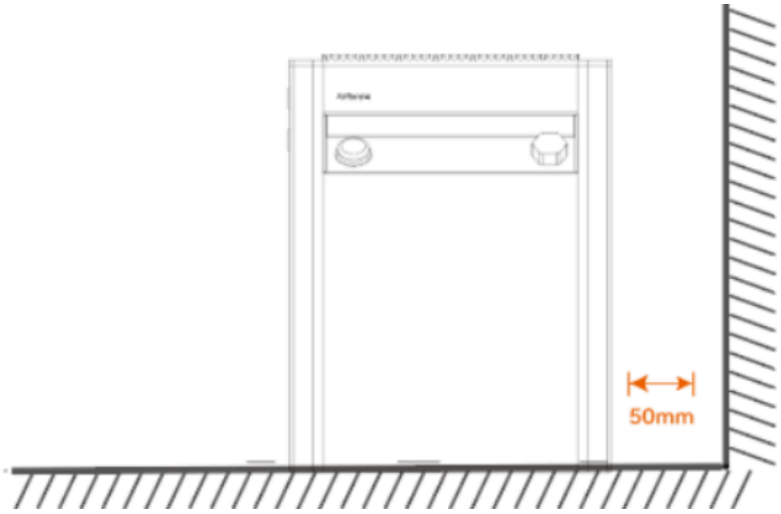
· Before installing or disassembling the DCU2000Lite and DB2000Lite, make sure the device is turned off and disconnected to PV modules and microinverter.

Installation steps:

1. Place the Bottom expansion Battery, and keep about 50mm away from the wall.
   （If you did't purchase the DB2000Lite separately, please skip this step, go directly to step 4.）



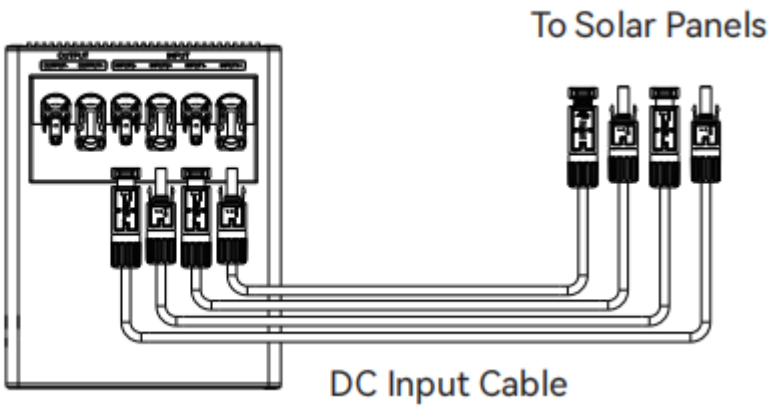
Make sure the selected location has a strong and stable WiFi connection.



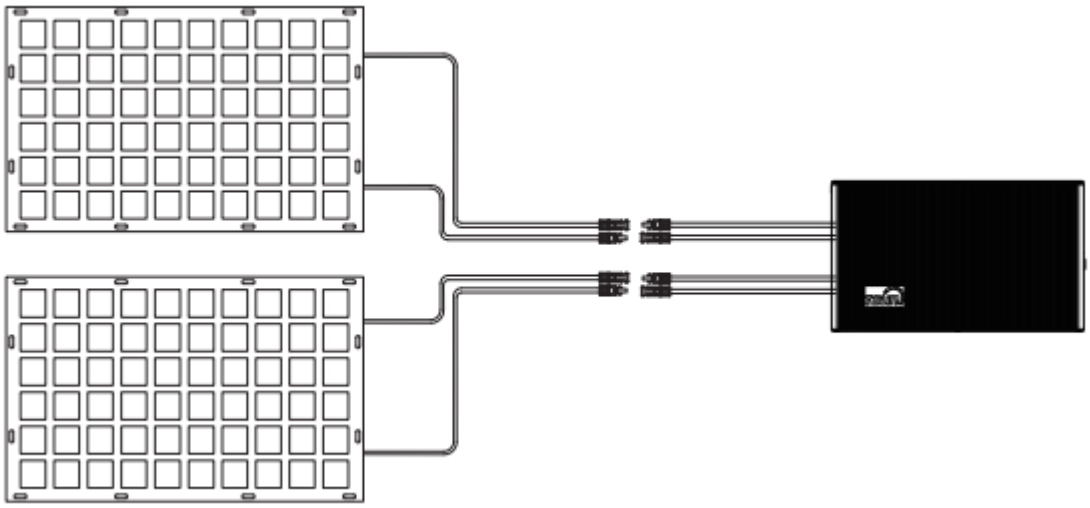
2. Stack all expansion batteries one by one. (Up to 4 Stackable Micro Batteries can be stacked.)
3. Remove the bottom rubber plugs of SolarCan, and stack it on the expansion batteries.

If you didn't buy the expansion batteries separately, you can place the SolarCan directly on the ground, but make sure that the rubber plugs at the bottom of the device should not be removed!

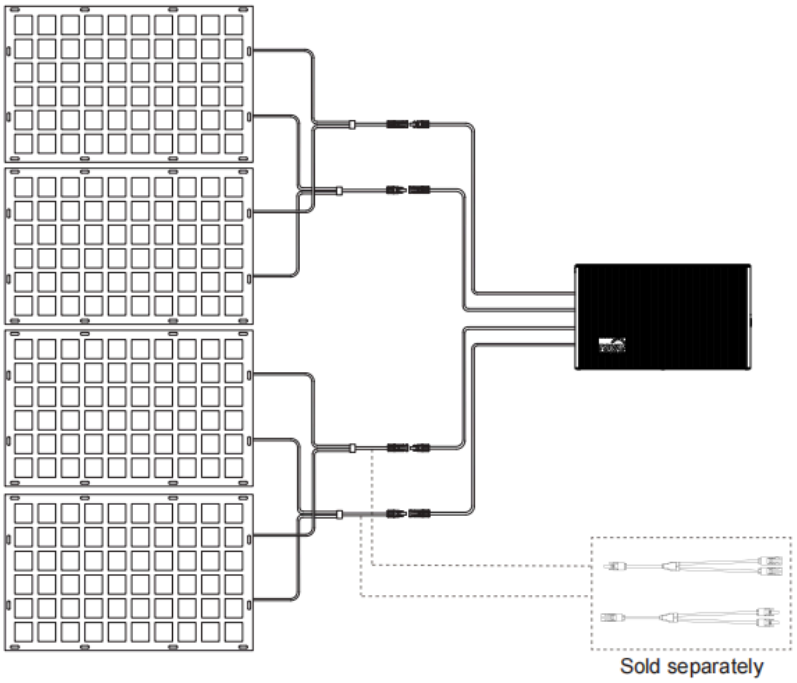
4. Connect solar modules to the DCU2000Lite with DC Input cables.



Application 1: Connect two PV modules to the DCU2000Lite



When installing 2 PV modules, connect the positive and negative terminals of each PV module to the positive and negative input ports of the DCU2000Lite respectively.

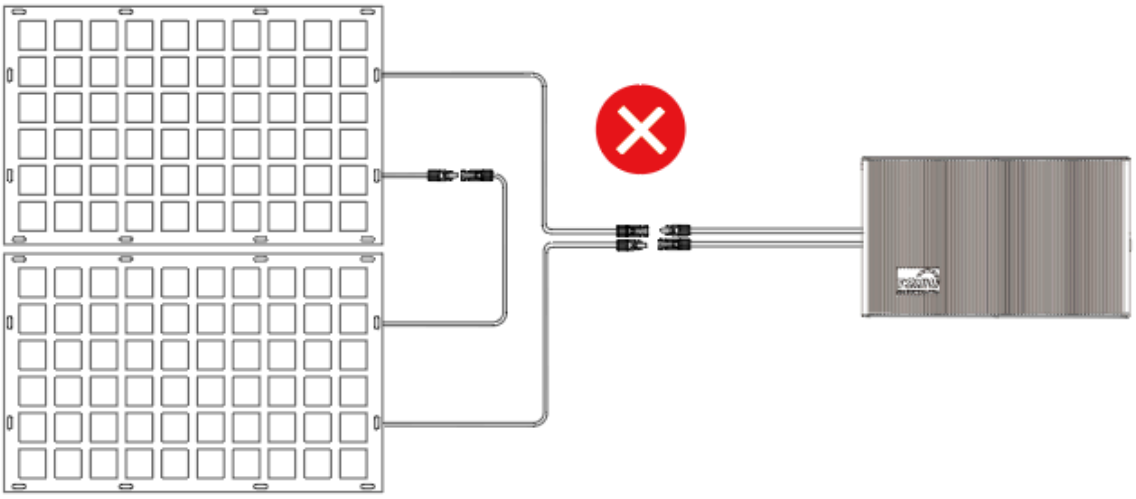


Application 2: Connect four PV modules to the DCU2000Lite

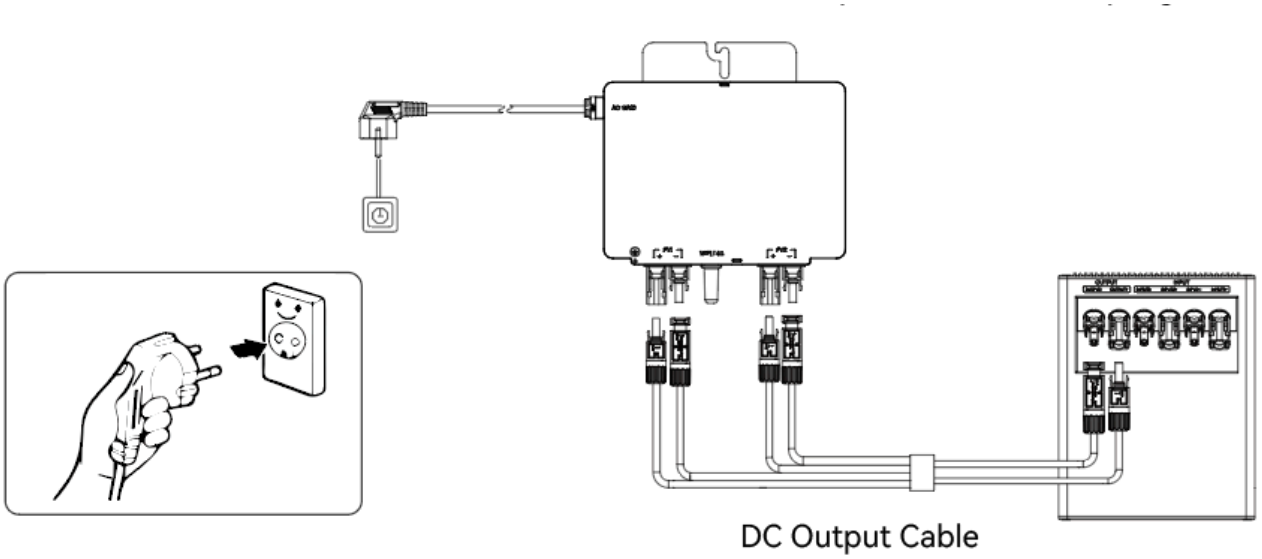
If installing 4 PV modules, a Y-cable needs to be purchased separately. First, confirm the positive and negative poles of the cables of each module. Then, connect the positive terminals of every two modules together and the negative terminals of every two modules together via Y-cables respectively. After that, connect them to the positive and negative input ports of the DCU2000Lite correspondingly.



Please do not connect two PV modules in series because this causes the input voltage to exceed 60V and will damage the equipment.



5. Connect micro-inverter to DCU2000Lite with DC output cable，then plug into household socket.



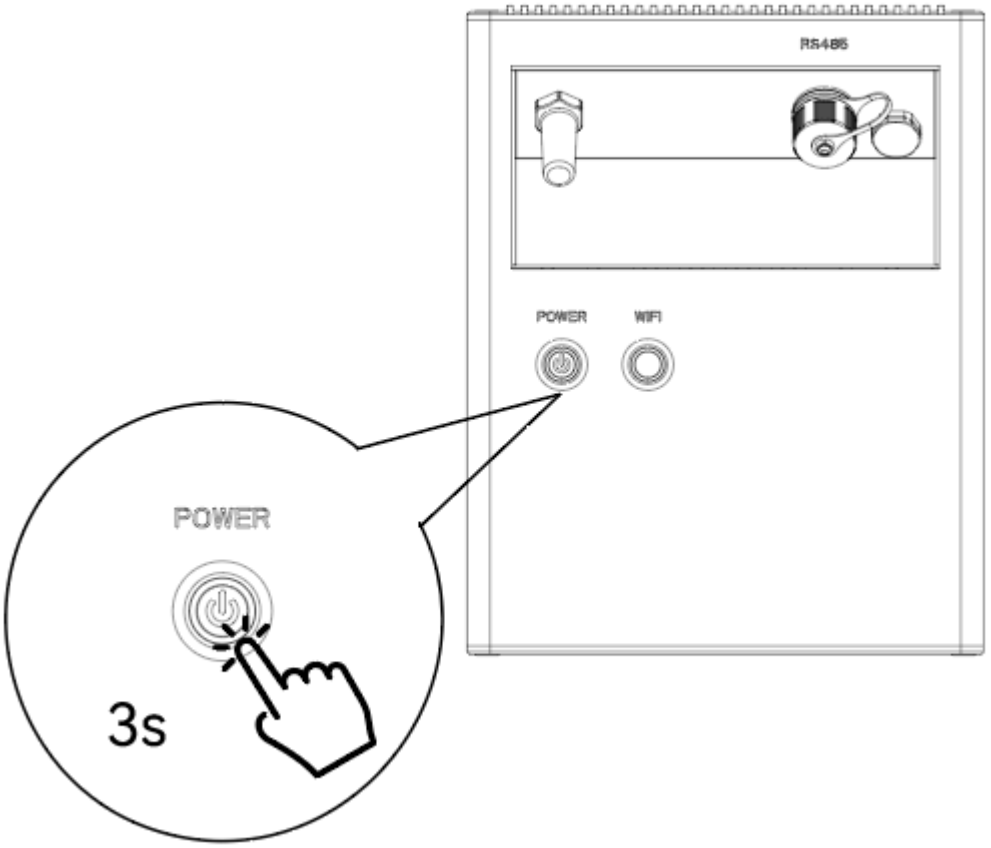
6. Power On/Off

With solar input:

SolarCan turns on automatically.To turn it off, disconnect it from both the PV modules and the microinverter, and then press the power button for 3 seconds.

Without solar input:

Press the power button for 3 seconds to turn SolarCan on or off.



Introduction of button & indicators

Buttons/Indicators	Operation/Status	Description
Power Button	Press for 3s	Power on/off
	Off	No power
	Steady on	Charging/Discharging normally
	Blink fast	Fault
	Blink slowly	Standby
WiFi Button	Off	Not connect to the router
	Steady on	Connected to the server
	Blink slowly	Connected to the router but not to the server

Monitoring System

APP Basic setting

Step 1 Download the APP

1. IOS users can directly search for "TSUN Smart" in the APP Store and download the software.
2. Android users can directly search for "TSUN Smart" in Google Play and download the software.
3. Android users who cannot access Google Play can scan the QR code below to download and install "TSUN Smart".

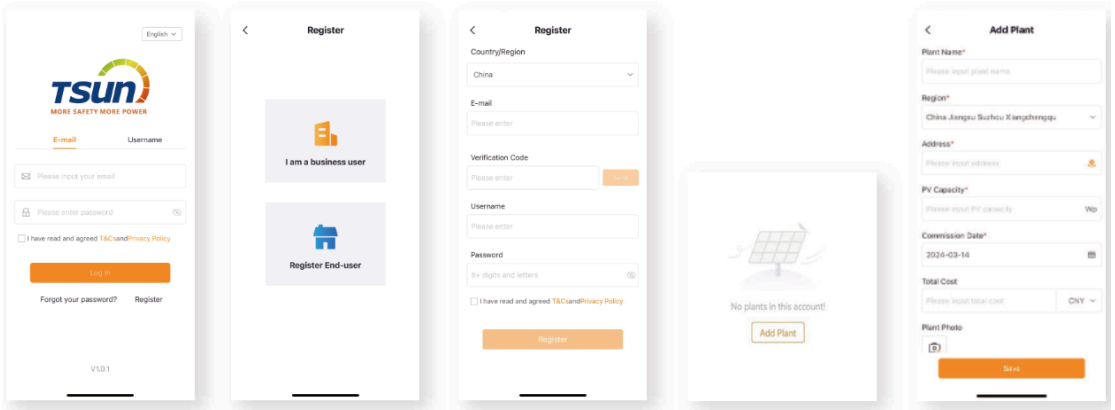
Get it on Google Play

Download on the APP Store

Step 2 Register & Log in

For Distributors & Installers

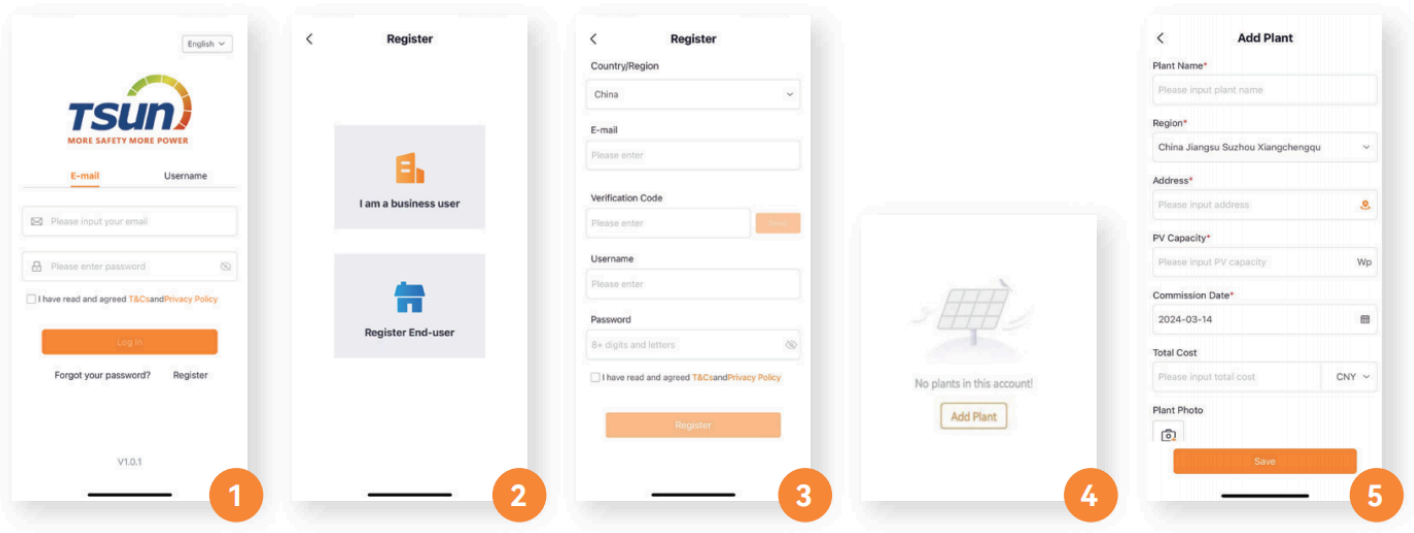
1. Click the “Register” button.
2. Select “I am a Distributor or Installer”
3. Fill in the required information, read and accept the Service Agreement and Privacy Policy, then submit the form.
4. Log in to the app and click “Add Plant.”
5. Enter the plant details to complete creation.



For End-users

1. Click the “Register” button.
2. Select “I am an End User”
3. Fill in the required information, read and accept the Service Agreement and Privacy Policy, then submit the form.

4. Log in to the app and Click “Add Plant.”
5. Enter the plant details to complete creation.



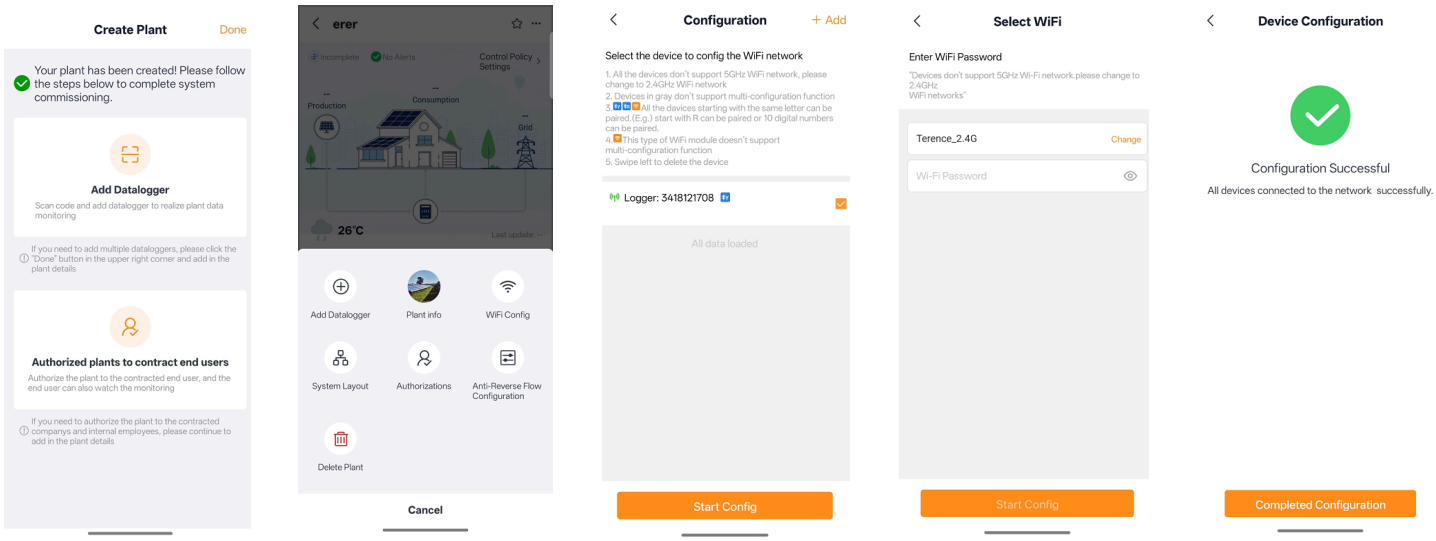
Step 3 Add Device & Wi-Fi Configuration

For Distributors & Installers

1. Click “Add DataLogger,” scan the QR code on the DC Coupled Unit, and finish device pairing.

(If you want to enable the zero-export function in the Smart Meter Mode and he optional meter is a WiFi-enabled one, you also need to add the DataLogger of the meter . Then, scan the SN QR code on it to perform network configuration and meter configuration. For details, please refer to the meter's user manual.)

2. Click “Authorized Plants to contract End-users,” fill in the end-user information, and complete authorization.
3. Open the plant homepage, click the “…” icon in the upper-right corner, and select “Wi-Fi Settings.”
4. Choose the corresponding Logger, click “Start Config,” select a **2.4 GHz** Wi-Fi network, and enter the password.
5. After successful Wi-Fi configuration, live data on the plant homepage will begin updating within about 10 minutes.

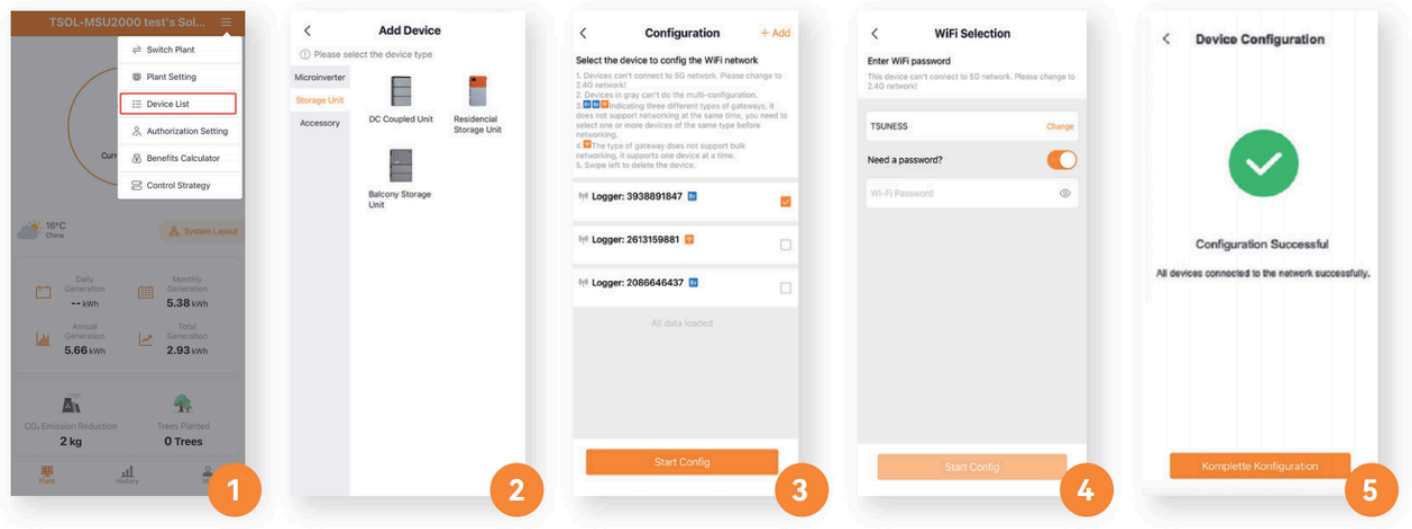


For End-users

1. Click “≡” in the upper-right corner of the plant homepage to open the “Device List.”
2. Click “Add Device,” choose the “SolarCan “, scan its QR code, and finish pairing.

(If you want to enable the zero-export function and the optional meter is a WiFi-enabled one, you need to go to the "Accessories" menu, select the corresponding meter device, and scan the QR code on the meter to complete the device addition.)

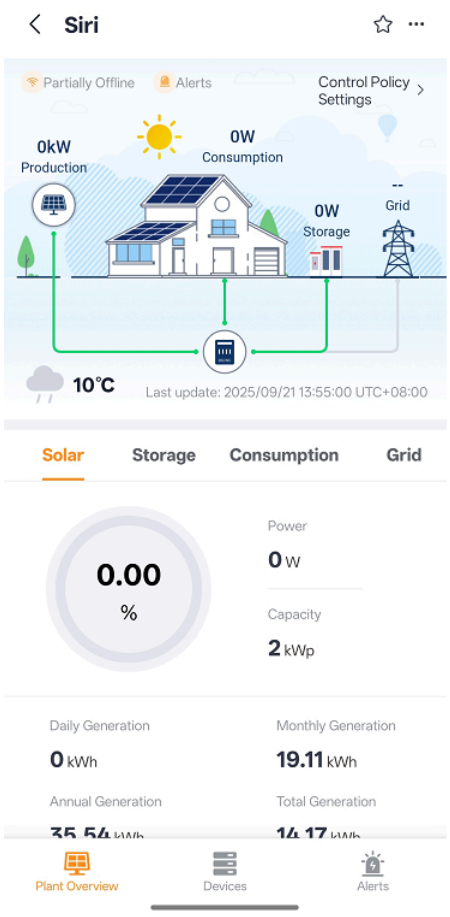
3. In the Device List page, click “Wi-Fi Settings” ,select the logger corresponding to the device, then “Start Config”
4. Select a **2.4 GHz** Wi-Fi network, enter the password, and let the app automatically complete the setup.
5. After successful Wi-Fi configuration, live data on the plant homepage will begin updating within about 10 minutes.

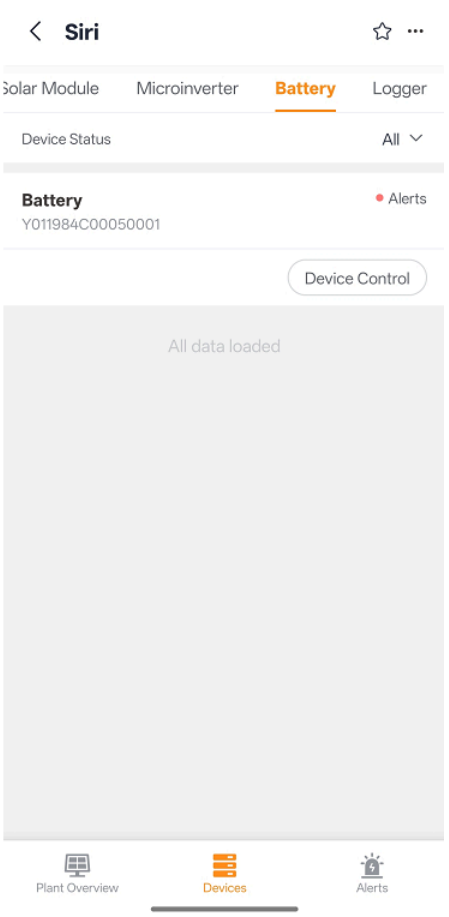


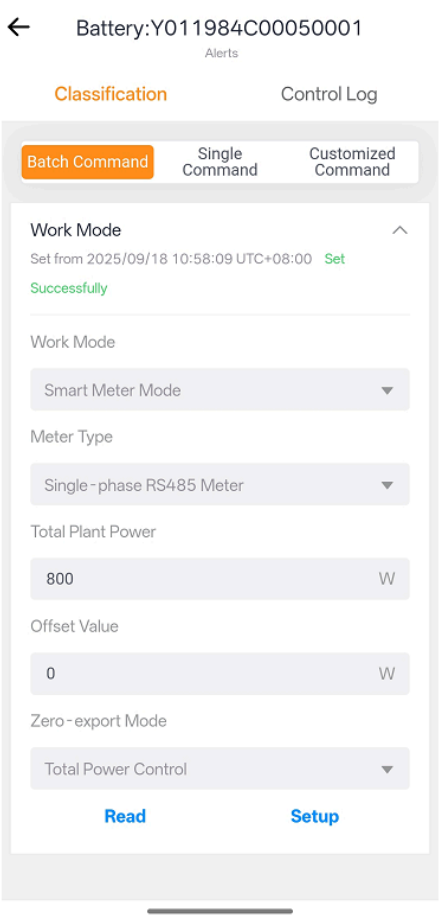
Step 4 Settings & Operating Mode

For Distributors & Installers

1. Click "Devices" in the bottom navigation bar
2. Click "Device Control"
3. Complete the work mode settings

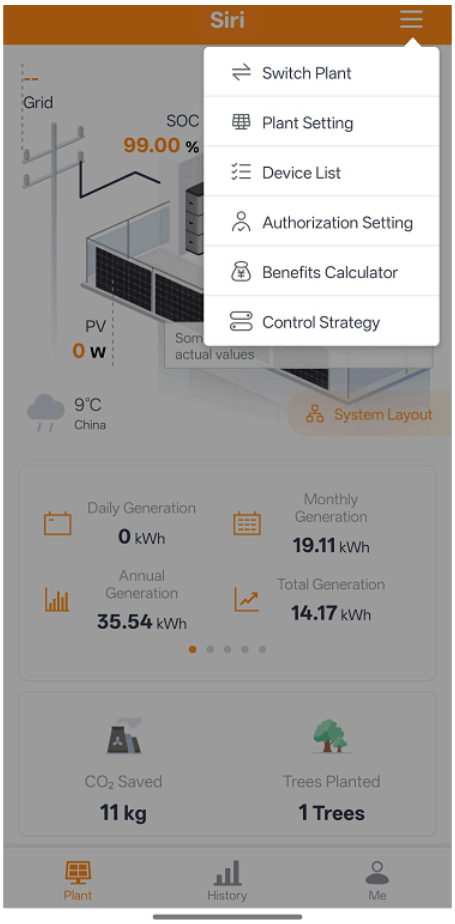


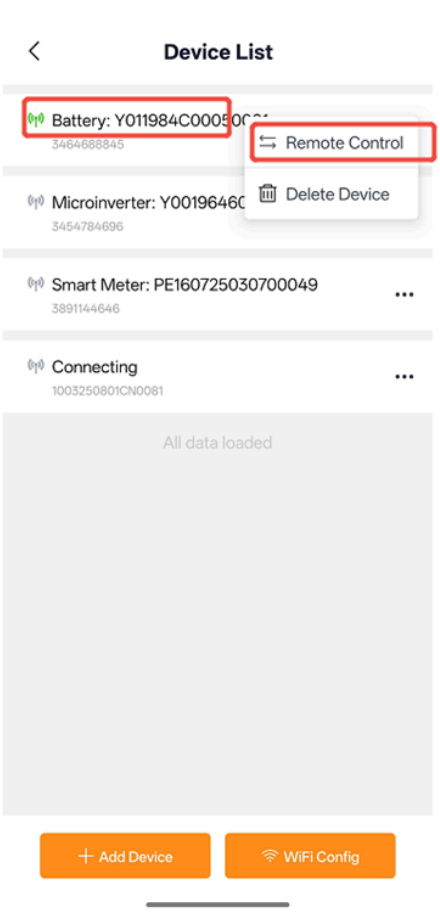


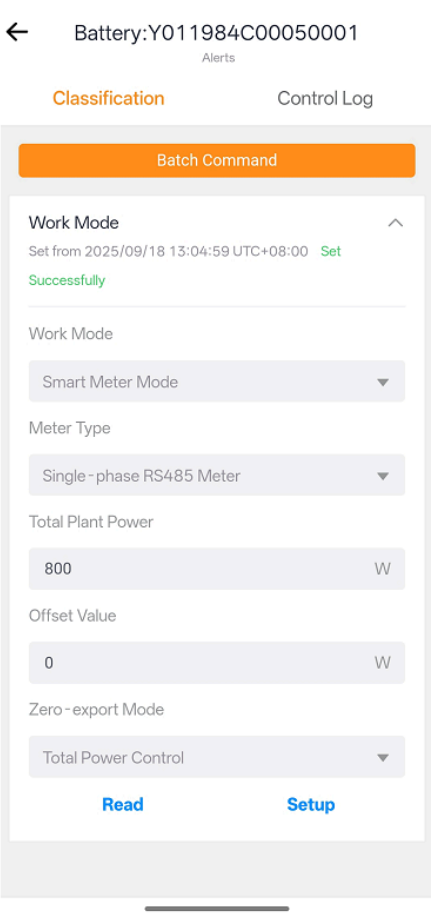


For End-Users

1. Click “≡” in the upper-right corner of the plant homepage to open the “Device List.”
2. Click”⋯” ,then click “Remote Control”
3. Select and confirm the desired operating mode.





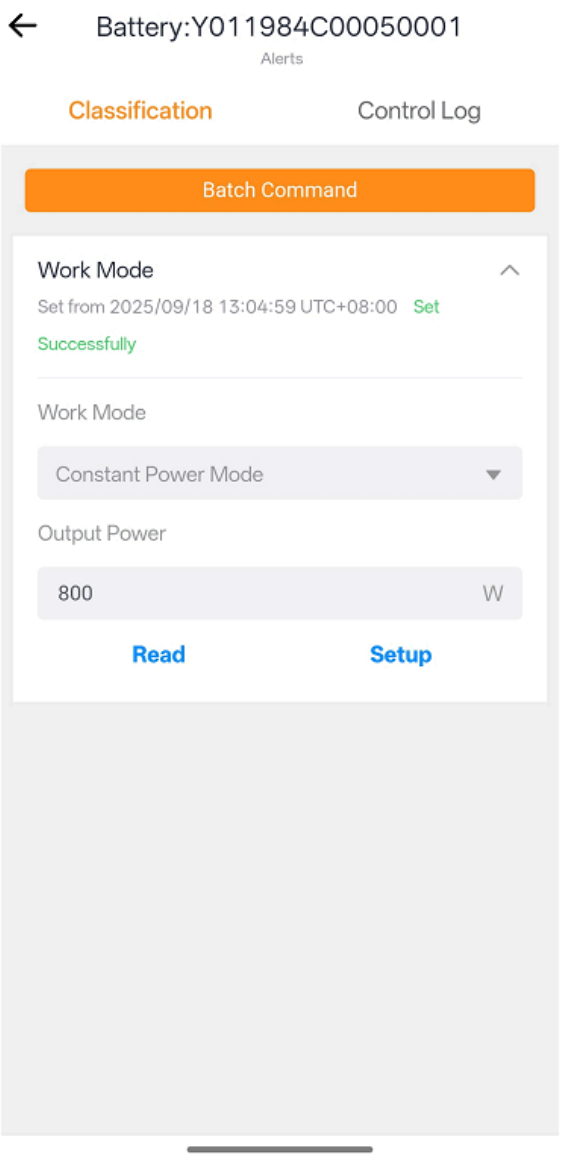


Work mode

SolarCan supports three work modes as below:

Constant Power Mode	The device outputs at a settable constant power.
Smart Meter Mode	The device outputs based on the power read from the smart meter, which is compatible with single/three-phase meters using WiFi or RS485 communication.
Time-Segmented Mode	Supports up to 6 time periods for outputting at a settable constant power.

Constant Power Mode:



When the output power is set to less than 100W, the device will not output power, and it is a normal condition for the micro-inverter to not work.

If you want to use this mode to achieve the zero-export function, you also need to configure the zero-export settings for the micro-inverter.

Smart Meter Mode:

Battery:Y011984C00050001

Alerts

Classification | Control Log

Batch Command

Work Mode

Set from 2025/09/18 13:04:59 UTC+08:00 Set Successfully

Work Mode

Smart Meter Mode

Meter Type

Single-phase RS485 Meter

Total Plant Power

800 W

Offset Value

0 W

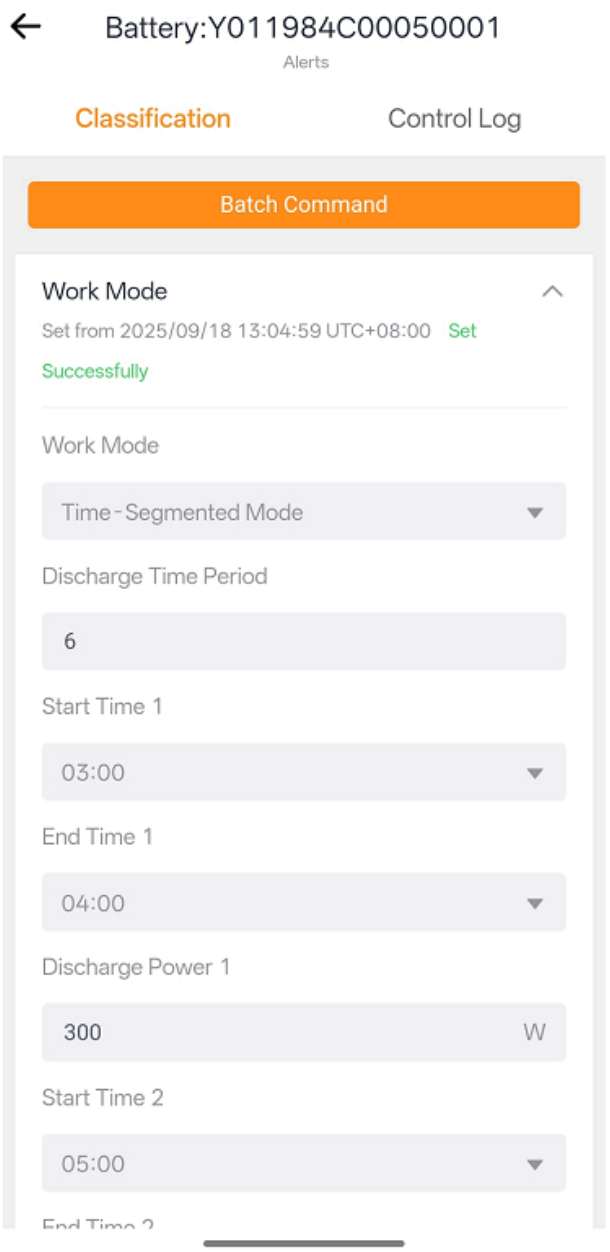
Zero-export Mode

Total Power Control

Read **Setup**

Menu	Option	Remark
Meter Type	Single-phase WiFi Meter	Choose the right type of meter you have installed
	Three-phase WiFi Meter	
	Single-phase RS485 Meter	
	Three-phase RS485 Meter	
	Single-phase Shelly Meter	
	Three-phase Shelly Meter	
Total Plant Power	_W	Maximum output power of the machine
Offset Value	_W	The amount of power allowed to flow to the grid, usually set to “0”
Zero-export Type	OFF	Turn off the zero-export function
	Total Power Control	Please select the corresponding option according to the specific local regulations.
	Phase Power Control (Phase A)	
	Phase Power Control (Phase B)	
	Phase Power Control (Phase C)	

Time-Segmented Mode:



Before installing the smart meter, please check the WiFi signal first. If the signal is weak, it is recommended to purchase a repeater and set the router and repeater in the 2.4-GHz ban.

How to set the repeater, here we take FRITZ! Repeater for as an example:

Enable the 2.4-GHz band in the FRITZ!Box user interface (http://fritz.box) under “Wi-Fi / Wi-Fi Network”.Enter the website printed on the product, enter your username and password（also printed on the product）, and switch the FRITZ! repeater to the 2.4-GHz band.

During the network configuration process, please only use the 2.4GHz network. If the page displays an error, check the following possible causes and try again:

1. Check if the WiFi password is correct or not, and make sure WiFi names no special characters, only numbers and English letters are acceptable .
2. Check if WiFi and router work only in 2.4GHz , the device cannot connect to the 5G network.

3. WiFi signal strength should be at least 2 bars shown on your phone for 2.4GHz band.
4. One router can only connect to up to 9 devices (not only SolarCan, but also phones, PCs, etc.). Please check if the connected device already exceeds 9.
5. Make sure that your phone's WLAN is turned on.
6. Try shortening the distance between the phone and the device.

After approximately 10 seconds, the WiFi configuration will be completed successfully, and the data of SolarCan will be uploaded to the server in about 5-10 minutes.

FAQs

1. Q: What precautions should I take before installing/adding expansion batteries?

A: When installing/adding expansion batteries, it is necessary to power off the system to protect yourself and the machine. Performing this operation while powered on is not covered under warranty. Please follow the steps below for proper installation:

a. Disconnect the SolarCan and the solar panels.

b. Press the on/off button for 3 seconds to turn off the power.

c. After turning off the SolarCan, install the expansion batteries to the SolarCan.

d. Connect solar panels for normal use.

2. Q: Does SolarCan support simultaneous charging and discharging?

A: Yes, the input/output ports of SolarCan are different, allowing simultaneous charging and discharging

3. Q: Can I change the battery to the SolarCan or DB2000Lite by myself?

A: No. If your battery in SolarCan or DB2000Lite does not work or working conditions do not meet expectations, please contact the TSUN customer service team for further help.

4. Q: Is it possible to charge SolarCan with solar panels from other brands?

A: Yes, just meet the photovoltaic charging specifications of this product.

5. Q: How to store my SolarCan?

A: If long-term storage is required, please fully charge the machine, disconnect the photovoltaic connection, and then turn off the machine. Charge and discharge the product every 3 months: first discharge it to 20%, then charge it to 80%.

6. Q: Can SolarCan be connected to four solar panels?

A: Sure, you can purchase the Y-Branch Solar Parallel Cable to connect 4 solar panels.

7. Q: How to monitor the electricity generation of SolarCan Solar Balcony Storage system?

A: On the TSUN Smart app, you can monitor solar power generation data and adjust the system's real-time output power.

8. Q: How does the smart meter help SolarCan achieve zero energy waste?

A: The smart meter detects the total household electricity consumption, which lets SolarCan continually adjust output power. It's real-time and precise electrical discharge for your home, helping you achieve efficient energy use without waste.

Product Maintenance

· During normal operation, check that the environmental and logistic conditions are appropriate. Make sure that the conditions have not changed over time and that the unit is not exposed to adverse weather conditions and has not been covered with foreign bodies.

· DO NOT use the unit if any problems are found and restore the normal conditions after the fault has been corrected.

· The firmware version can be checked by using the monitoring system.

· Avoid temporary repairs. All repairs should be carried out using only genuine spare parts.

Storage and Disposal

· If the unit is not used immediately or is stored for long periods, check whether it is correctly packed. The unit must be stored in well-ventilated indoor areas that do not have characteristics that might damage the components of the unit.

· For long-term storage, please charge and discharge this product once every 3 months. Products that have not undergone charging and discharging for more than 3 months will not be covered by the warranty.

· If the battery level of this product is critically low and it has been idle for an extended period, it needs to be recharged before it can be used again.

· Take a complete inspection when restarting after a long time or prolonged stop.

· Please dispose of the unit properly after scrapping, as component parts are potentially harmful to the environment, following the regulations in force in the country of installation.

· If conditions permit, make sure that the battery is fully discharged before disposing it in a designated battery recycling bin. The product contains batteries with potentially dangerous chemicals, so it is strictly prohibited to dispose of it in ordinary trash cans. For more details, please follow the local laws and regulations on battery recycling and disposal.

· If the battery cannot be fully discharged due to a product failure, please do not dispose of the battery directly in the battery recycling box. In such case, you should contact a professional battery recycling company for further processing.

· Please dispose of over-discharged batteries that cannot be recharged.

Warranty Service

This Warranty is subject to the following conditions:

· The products must have been installed and correctly commissioned by an authorized and licensed installer. Proof may be required of correct commissioning of the Product (such as a certificate of compliance). Claims for failures due to incorrect installation or commissioning are not covered under this Warranty.

· Where a Product or part thereof is replaced or repaired under this Warranty, the balance of the original Warranty period will apply. The replacement product or part(s) do not carry a new voluntary warranty.

· The product must have its original serial number and rating labels intact and readable.

· This Warranty does not extend to any product that has been completely or partially disassembled or modified, except where such disassembly is carried out by TSUNESS.

· The terms of this Warranty cannot be amended except in writing by one of our authorized officers.

· There must have been a commissioning report signed by the end user and the installer for product commissioning and handling instructions.

Exclusions

1. TSUNESS makes no warranties, either expressed or implied, orally, or in writing, concerning any other warranty coverage except those expressly stated in this limited Factory warranty.
2. The Factory warranty does not cover damages that occur due to:
   - Transport damage;
   - Failure to observe the user manual, maintenance regulations, and intervals;
   - Modifications, changes, or attempted repairs, except as conducted by an Authorized Dealer;
   - Incorrect use or inappropriate operation;
   - Insufficient ventilation of the covered product;
   - Failure to observe the applicable safety regulations;
   - Force majeure.
3. This factory warranty does not cover cosmetic defects which do not directly influence energy production, or degrade form, fit, and function.

4. Claims that go beyond the scope of this limited factory warranty, in particular claims for compensation for direct or indirect damages arising from the defective device, for compensation forcosts arising from disassembly and installation, or loss of profits, are expressly NOT covered by this factory warranty.
5. In no event will TSUNESS Co., Ltd be held responsible or liable for any personal injuries resulting from the use of the system, or for any other damages, whether direct, indirect, incidental, or consequential; even if TSUNESS Co., Ltd has been advised of such damages.

Appendix

DCU2000Lite Datasheet

Model	TSOL-DCU2000Lite
PV Input	
Recommended Module Power (Wp)	300 - 600+
Max. PV Input Power (W)	2400
Start up Voltage @Rated condition (V)	15
Max. Input Voltage per Input (V)	60
Operating Voltage Range per Input (V)	13- 60
MPPT Voltage Range (V)	20 - 54
Short Circuit Current per Input (A)	40
Max. Input Current per Input (A)	32
Quantity of inputs	2
Max. PV modules per input	2(parallel)
Battery Specifications	
Battery Type	LiFePO4
Battery Capacity (Wh)	2010
Max. expansion capacity(kWh)	10.05 (1 DCU2000Lite + 4 DB2000Lite)
Nominal Voltage (V)	51.2
Operating Voltage Range (V)	43.2-57.6
Nominal Discharge Power (W)	800
Max. Discharge Current (A)	25
Max. Charge Power (W)	2400 (When configuring DB2000lite)
Nominal Charge Current (A)	25
Battery Output (DC to Microinverter)	
Nominal output power (W)	800
Max. Output Current (A)	30
Output Voltage Range (V)	20-45
Efficiency	
MPPT Efficiency	99.90%
Battery Charge/Discharge Efficiency	94.00%
Mechanical Data	
Dimensions (W×H×D mm)	380*180*226
Weight [kg]	22
General Data	
Communication	Server : WiFi (Bluetooth) +RS485
Ingress Protection	IP65
Cooling	Natural convection
Charging temperature range	0~55°C*
Discharging temperature range	-20~55°C*
Relative Humidity	0-90%, Non condensing
Max. Operating Altitude Without Derating [m]	2000
*Support -20°C startup and automatically self-heat the device for a certain time to the charge temperature range.	

DB2000Lite Datasheet

Model	TSOL-DB2000Lite
Battery Specifications	
Battery Type	LiFePO4
Battery Capacity (Wh)	2010
Nominal Voltage (V)	51.2
Operating Voltage Range (V)	43.2-57.6
Nominal Discharge Power (W)	800
Max. Discharge Current (A)	25
Mechanical Data	
Dimensions (W×H×D mm)	380*180*203
Weight [kg]	20
General Data	
Ingress Protection	IP65
Cooling	Natural convection
Charging temperature range	0~55℃*
Discharging temperature range	-20~55℃*
Relative Humidity	0-90%, Non condensing
Max. Operating Altitude Without Derating [m]	2000
*Support -20°C startup and automatically self-heat the device for a certain time to the charge temperature range.	