

(V1.0)
User Manual

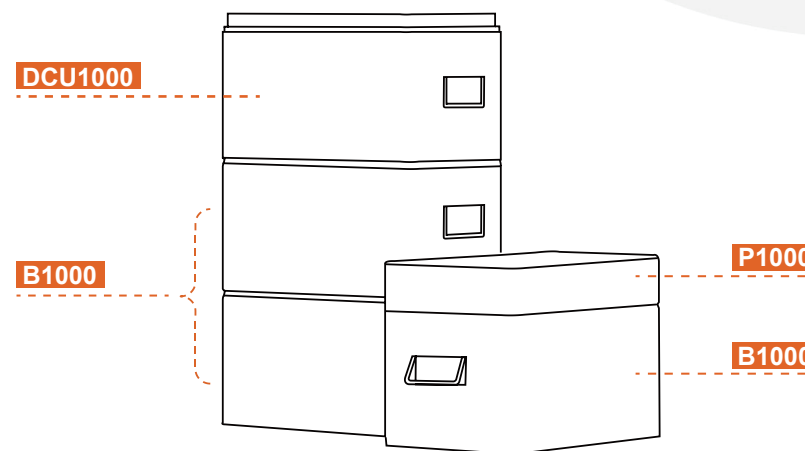


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Model: DCU1000/B1000/P1000

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Disclaimer

To protect the legal rights and interests of users, please carefully read the user manual of this product before use to ensure correct use after full understanding. After reading, please keep the user manual properly for future reference. Failure to operate this product correctly may cause serious injury to yourself or others, or may result in product damage and property loss. Once you start using this product, it is deemed that you have read, understood, acknowledged, and accepted all the terms and contents of the product manual, disclaimer, and safety instructions. The user is committed to being responsible for their own actions and all consequences arising from them. The company is not responsible for any losses incurred by the user's failure to use the product in accordance with the user manual.

In the event of natural disasters such as lightning, earthquakes, floods, or other irresistible forces causing product damage or property loss, or if the use of the balcony photovoltaic storage system is not compliant with local policies, all consequences shall be borne by the user, and the company is not responsible for any losses arising therefrom.

To the extent permitted by applicable laws, the company's total liability for any matter shall not exceed the purchase price paid by the buyer to the company for the product under warranty. The buyer acknowledges that the above disclaimers are an integral part of the agreement between both parties, and without these limitations, the purchase price of the product would be significantly different.

In compliance with laws and regulations, the company reserves the ultimate right to interpret all relevant documents of this document and this product. In case of updates, revisions, or terminations, no separate notice will be given.

Not covered by the warranty:

Products that have been damaged or altered.

The product was operated with a damaged cord, plug, or output cord.

Products that have been cleaned with harmful chemicals or detergents.

Items that are out of warranty.

Purchases from Unlawful Sources.

Purchases from unauthorized resellers.

Products without sufficient proof of purchase.

Third Party Repaired Products.

Purchases from resellers.

Lost, stolen or free products.

Damage from External Sources.

Damage caused by misuse of products (including but not limited to falls, use of the product beyond its rated capability, exposure of the product to rain or snow, extreme low air pressure, extreme temperatures, water, improper operation of equipment).

Safety Guidelines

1. Store the product in a cool, dry place and avoid using it near a heat source.
2. Do not allow the product to come into contact with any liquids. Do not immerse it in water or get it wet. Avoid using the product in rainy or humid environments.
3. Do not use the product in environments with flammable, explosive, or highly corrosive substances such as gasoline, gas, or chemicals, as it may pose a safety hazard.
 - Always follow regulations, instructions, and signs in environments where explosions may occur.
 - Do not store flammable liquids, gases, or explosives in boxes containing this product.
4. Avoid using the product in environments with strong electrostatic or magnetic fields.
5. Do not disassemble the product or puncture it with sharp objects in any way.
6. Do not use wires or other metallic objects to connect privately, as this may cause a short circuit.
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 stack heavy objects on the product.
10. Avoid impacts, drops, and severe vibrations. In case of severe external force impact, immediately power off and stop using the product. During transportation, secure it to prevent vibration and impact. For long-distance transportation, it is recommended to use the original packaging.
11. If the product accidentally falls into water during use, place it in a safe, open area. Do not approach the product until it is completely dry. Do not use a dried product again. Follow the disposal method in the "Disposal" section below. If the product catches fire, use fire-fighting equipment in the following recommended order: water or mist, sand, fire blanket, dry powder, CO2 fire extinguisher.
12. If the product interface is dirty, use a dry cloth to clean it.
13. Handle the product with care to prevent damage caused by tilting. If the product is severely damaged after tilting, immediately power off, place the battery in an open area away from flammable materials or crowds, and dispose of it in accordance with local laws and regulations.
14. Store the product in a place inaccessible to children and pets to avoid accidental triggering and safety hazards.
15. In humid environments, it is recommended to use a moisture-proof bag to prevent water immersion. If water is found inside the product, do not use it or turn it on again. Take precautions against electric shock before touching the product. Place it in a safe and waterproof open area immediately and contact Tsun customer service promptly.

16. This product is not recommended for powering medical emergency equipment related to personal safety, including but not limited to hospital-grade respiratory machines (hospital version CPAP: Continuous Positive Airway Pressure), artificial lungs (ECMO, Extracorporeal Membrane Oxygenation), etc. Additionally, home-use respiratory machines (home version CPAP) intended for household environments can be used normally without the need for continuous professional monitoring. Follow medical advice and consult the manufacturer of the relevant equipment for usage restrictions.

17. Power products will inevitably generate an electromagnetic field during use, which may affect the normal operation of implanted medical devices or personal medical equipment such as pacemakers, cochlear implants, hearing aids, defibrillators, etc. If you use these medical devices, consult their manufacturer for usage restrictions to ensure that this product maintains a sufficient safety distance from the implanted medical equipment (such as pacemakers, cochlear implants, hearing aids, defibrillators, etc.) during operation.

Disposal

1. When conditions permit, completely discharge the battery of this product before placing it in the designated battery recycling bin. This product contains a battery, which is a hazardous chemical. It is strictly prohibited to dispose of it in a regular waste bin. For specific details, please follow local

laws and regulations regarding battery recycling and disposal.

2. If the battery cannot be completely discharged due to a malfunction of this product, do not directly dispose of the battery in the battery recycling bin. Instead, contact a professional battery recycling company for further handling.

1.1 DCU1000

1.1.1 Specifications

Basic Parameters

	Project Description	Technical Specifications	Remark
Mainframe	Capacity	1024 Wh	
	Dimensions (L*W*H)	12.99*8.27*7.68(in)/ 330*210*195(mm)	Single Module
	Weight	24.25lbs/11Kg	
	Battery Type	LiFePO4	
	Cycle Times	6000 cycles, remaining capacity ≥ 70%	
	Maximum Input Power	1200W	600W*2
	Maximum Output Power	800W	Compliant with EU Standards
	Input Voltage Range	18-55V	
	Maximum Input Current	15A	Single Channel
	Output Voltage Range	20-45V	
	Maximum Number of Parallel Battery Packs	5	
	Maximum Expandable Capacity	5120Wh	
	Protection Level	IP65	
	Operating Temperature	-20°C-60°C	
Protection	Overcharge, Over-discharge, Overcurrent, High Temperature, Low Temperature, Short Circuit Protection	Support	
Others	WiFi Module	Support	
	Balancing Mode	Support	
	Communication		

Operating Environment:

Description Technical	Description Technical	Description Technical Specifications
Operating Temperature	-20°C-60°C	Discharge only below 0°C
Relative Humidity	5 ~ 95%	No condensation
Altitude	≤4000 m	Derate use above 2000 meters
Atmospheric Pressure	70K ~ 106K Pa	

1.1.2 DCU1000 Package List

List Inside the Box



DCU1000



User Manual



PV Connection Cable
(MC4 to Aviation Plug)



Micro-Inverter One-to-Two
Connection Cable



Extension Cable
(MC4 to MC4) (Optional)



Micro-Inverter
Connection Cable
(MC4 to Aviation Plug)

1.2 B1000

1.2.1 Specifications

Basic Parameters

Project Description		Technical Specifications	Remark
Mainframe	Capacity	1024 Wh	
	Dimensions (L*W*H)	12.99*8.27*7.68(in)/ 330*210*195(mm)	Single Module
	Weight	23.2lbs/10.52Kg	
	Battery Type	LiFePO4	
	Cycle Times	6000 cycles, remaining capacity \geq 70%	
	Rated Battery Voltage	48V	
	Voltage Range	40V~58.4V	
	Typical Max Current	50A	Single Channel
	Output Voltage Range	20~45V	
	Under-voltage Protection Point	40V \pm 5%	
	Battery Fuse	63A	
	Maximum Number of Parallel Battery Packs	5	
	Maximum Expandable Capacity	5120Wh	
	Protection Level	IP65	
	Operating Temperature	-20°C~60°C	
Protection	Overcharge, Over-discharge, Overcurrent, High Temperature, Low Temperature, Short Circuit Protection	Support	
	Balancing Mode	Support	
	Communication		

1.2.2 Package List

List Inside the Box



B1000

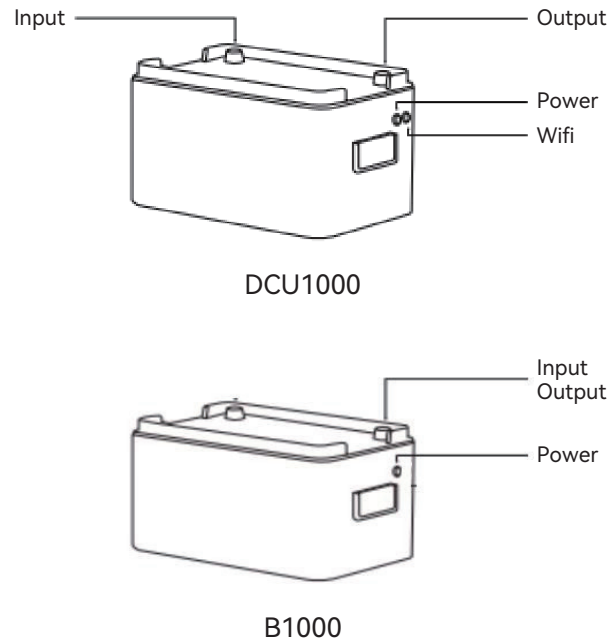


User Manual

1.3 Important Tips

1. Please check if your region allows the installation of the Balcony Photovoltaic Storage System. You need to obtain official permission from the local government before installation.
2. Before installation, please check the accessories. Some accessories may need to be purchased separately.
3. Before installing or disassembling the DC1000 and B1000, make sure the device is turned off and disconnect the photovoltaic panel and micro-inverter.
4. After installation, you will need to download the application and synchronize it with the device by connecting to the internet.

1.4 Product Display



Power On:

It will be automatically powered on in case of PV input.

In case of no PV input, please press and hold the Power key for approx. 2s till the Power indicator is lit up for start-up (if multi-modules are connected in parallel, please start them up in turn).

Power Off: Please press and hold the Power key for about 5s till the indicator light is OFF for shutdown (if multi-modules are connected in parallel, please shut them down in turn).

Network Connection: Once the Smart Lithium Battery Pack is turned on, please press and hold the WiFi key for about 5s till the WiFi indicator is blinking and then enter the mode of network connection, and open the APP for network connection (if multi-modules are connected in parallel, only one shall be networked once all turned on).

Indicator status:

Multiple modules, if connected in parallel, will be sorted by their SN in the process of power-on self-test and one is selected as the master and others are taken as slaves; if there is one single module, it will be defaulted as the master.

Operating status	Power status		WiFi status		Remarks
Power-On Self-Test	Blinking		Off		The power-on self-test will be completed in approx. 10s.
WiFi Configuration	With no input and output power	Normally ON	Configuring	The master will fast blink (approx. 0.3s) and slaves will go off.	
	With input or output power	Blinking	Configured	The master will go off and then Normally ON approx. 10s later.	
Configuration Failed			Off		
In Operation	With no input and output power	Normally ON	WiFi connected	The master is Normally ON while slaves go off.	
	With input or output power	1) 1S on, 1S off - The module is operating in a state of simultaneous charging and discharging. 2) 1S on, 3S off - The module is operating in a discharge-only state. 3) 1S off, 3S on - The module is operating in a charge-only state.	WiFi unconnected	Off	
Upgrade	Download the upgrade file	The Power Indicator remains in its original state.	WiFi Indicator OFF		
	Upgrading	The Power Indicator Normally ON.	WiFi Indicator OFF		
	Upgraded	The Power Indicator is Normally ON and goes off approx. 5s later.	The WiFi Indicator is Normally ON and goes off approx. 5s later.		If there is input from the Smart Lithium Battery Pack, the device will automatically power on; if no input, it needs to be powered on manually after the upgrade is completed.

Note: For multi-modules working in parallel. When the following conditions occur, please check whether there is poor contact in hardware connection of Smart Lithium Battery Pack.

1) 2 or more WiFi indicators are normally ON or blink.

2. P1000

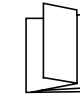
2.1 Specifications

Description	Technical Specifications
Input DC Voltage	42-58VDC (Rated 48VDC)
Noise Level	≤55dB
AC Output Voltage	AC Output Voltage AC 220V~240V
Output Frequency	50Hz/60Hz
Maximum Output Power	1000W
Dimensions (L*W*H)	12.99*8.27*2.36(in)/330*210*60(mm)
Weight	5.51lbs/2.5kg
Protection Functions	Input undervoltage, output short circuit, output overload, high/low temperature protection, etc.
Communication Interface	RS485/CAN

2.2 Package List



Mainframe

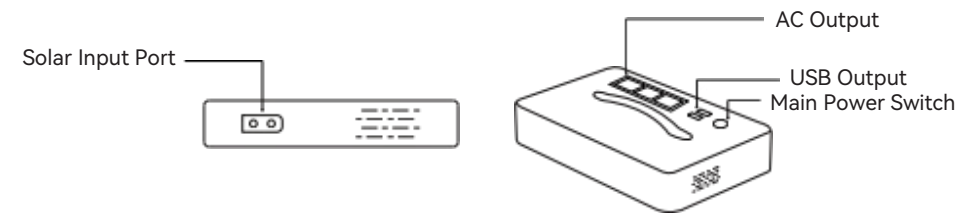


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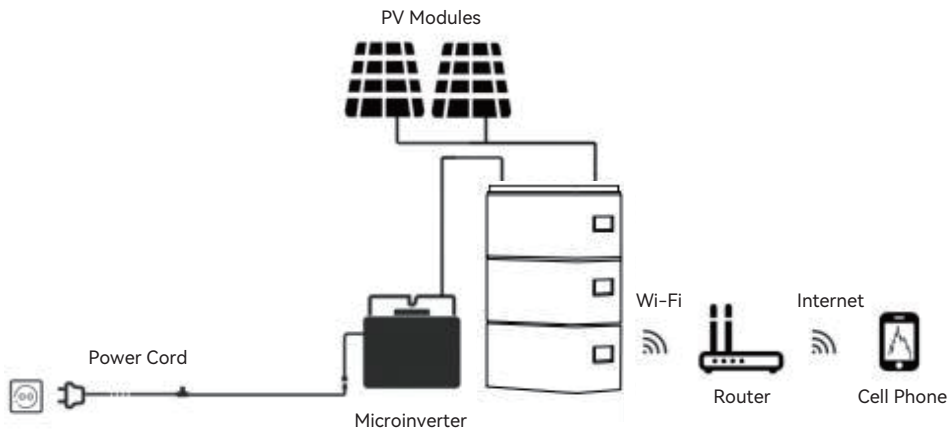
PV Connection Cable (MC4 to XT60)
Standard Configuration

2.3 Product Display



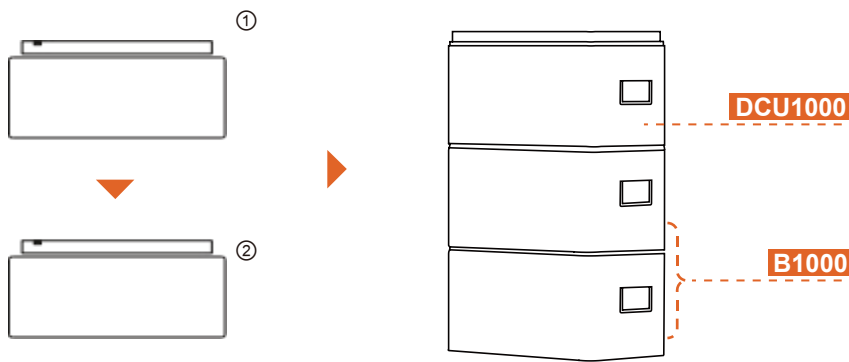
3. Operating Mode 1 - Balcony Photovoltaic Storage System

3.1 System Configuration



3.2 Product Installation

You can stack and parallel connect multiple modules to expand the capacity. Up to 5 modules can be connected in parallel. The modules are connected with hard links, no additional cables are needed. Refer to the diagram for details:

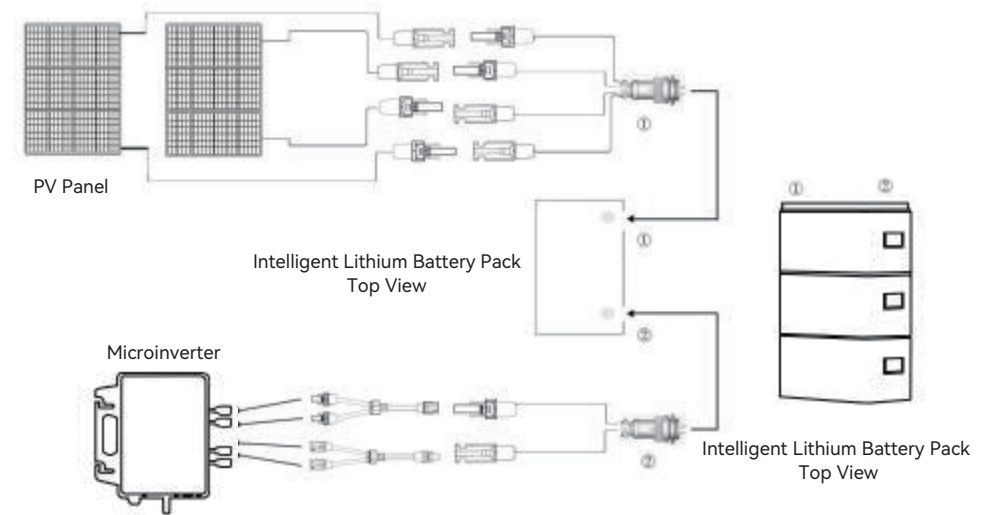


Connect ①DCU1000 and ②B1000 together.

Friendly Reminder:

- 1) The DCU1000 should be in the off state before stacking the devices.
- 2) After stacking the devices, connect the photovoltaic panels first, and then connect to the WiFi network.
- 3) When the photovoltaic panels are generating power, the device automatically powers on without the need to press the power button. If the device is in operation, it can be powered off by pressing the power button.
- 4) Do not touch the metal contacts of the connectors with your hands or any other objects. Use a dry cloth to clean them gently if necessary.

3.3 System Combination Display



Note: When disassembling the system, please turn off the smart lithium battery pack switch, disconnect the photovoltaic panel, and disconnect the micro inverter. Handle the single module separately when disassembling and moving.

3.4 User Guide

Charging

In the balcony solar storage system, once the photovoltaic equipment is connected, the DCU1000 automatically powers on. At this point, the DCU1000 can be charged through the solar panel.

1) You can charge this product using solar energy, supporting a maximum of 1200W solar charging.

2) Before connecting the solar panel, please ensure that the open-circuit voltage output of the solar panel is within 55V.

Refer to the system connection diagram above for details.

4. Operating Mode 2 - Portable Energy Storage Power Station

4.1 System Configuration

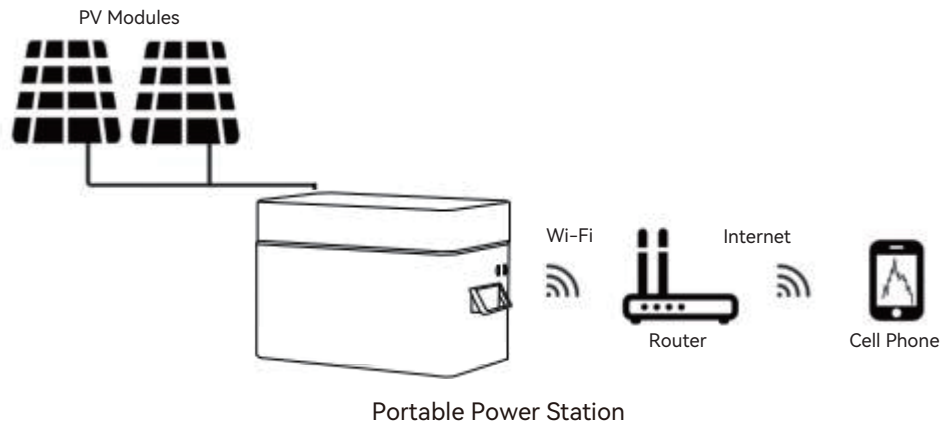


Figure: Portable power station system configuration diagram

Item	Parameters
AC Output Voltage	AC 220~240V
Frequency	50/60Hz
Max PV Input Power	600W
AC Output Power	1000W
Maximum Output Power	Equipped
WiFi	330*210*60(mm)
Dimensions (L*W*H)	12.99in*8.27in*9.25in/ 330mm*210mm*235mm(1kWh)

4.2 Product Combination Display

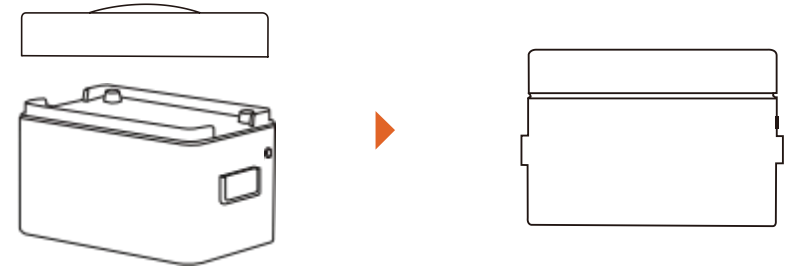


Image: Product Combination Display (P1000 + B1000)

4.2 Product Combination Display

1. Turn off the switches of the P1000 and the B1000. Ensure that the

Power P1000 is not connected to the photovoltaic panel. Then, follow the product display to connect the P1000 and the B1000.

2. Turn on the switches of the P1000 and the B1000. Enable WiFi connection. For detailed steps on connecting to WiFi, refer to the APP User Manual.

3. The product can be charged by connecting the photovoltaic panel to the solar charging port on the P1000. It is important to note that you must first connect the B1000 and the P1000, ensure they are turned off, and then connect the solar photovoltaic panel. Supports a maximum of 600W PV input, allowing for the series and parallel connection of solar panels, while ensuring that the total open-circuit voltage specification of the series and parallel solar panels is within 55V.

4. When replacing the B1000, make sure to first turn off the switches of the B1000 and the P1000, disconnect the solar photovoltaic panel, and then proceed with the battery replacement.

Battery Replacement Mode

Each P1000 is connected to one B1000 module. When the B1000 runs out of power, it can be replaced after shutting down the power, allowing for continued use.

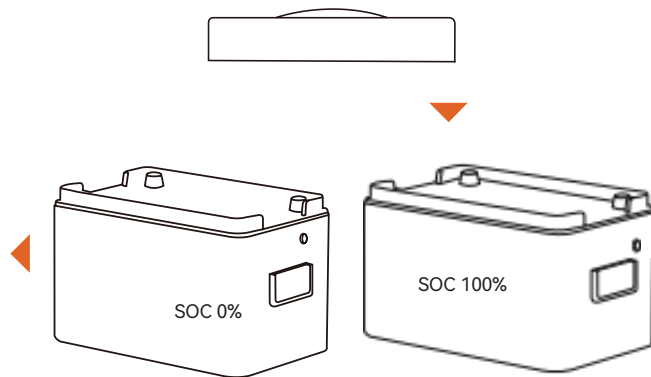


Diagram: Battery Pack Replacement

5. Common Problem

1. How many solar panels can be connected to each DCU1000?

Each DCU1000 can be connected to two 600W solar panels. When multiple B1000 are connected in parallel, the DCU1000 (the topmost battery pack) is connected to the solar panels.

2. How to clean the DCU1000 product?

Since it is placed outside on the balcony and exposed to wind and sun, we recommend a simple cleaning routine. Please use a dry, non-abrasive cloth for wiping. If a deeper clean is desired, consider using a professional screen cleaner for phones or computers. However, be careful not to allow a large amount of liquid to enter the device or terminals, as this could damage the internal circuits or affect terminal conductivity, which could pose a risk to personal safety.

3. How to use this device safely and what precautions should be taken?

When using the DCU1000/B1000/P1000, pay attention to the temperature range of the operating environment DCU1000/B1000/P1000. This product will perform optimally within its suitable temperature range. Operating the machine outside of this temperature range may significantly reduce its performance and could potentially shorten its lifespan.

4. How is the safety performance of this device?

DCU1000/B1000/P1000 This product has sufficient safety performance and certifications, making it suitable for indoor and outdoor use.

5. In what range of environmental temperatures is this device suitable for use?

It is recommended to use the device within the range of -20°C to 60°C . Operating outside of this range may affect the efficiency of charging and discharging. In temperatures below freezing, only discharging is possible, and charging is not recommended.

6. Maintenance and Care

1. Please store the product in a place far from water sources and heat sources.
2. To extend the battery's lifespan, it is best to use or store this product in an environment with a temperature range of 20°C to 30°C.
3. For long-term storage, please charge and discharge this product once every 3 months (first discharge to 0%, then fully charge, and finally discharge to 80% for long-term storage). Products that have not undergone charging and discharging for more than 6 months will not be covered by the warranty.
4. For safety reasons, do not store this product in an environment with temperatures exceeding 45°C or lower than -10°C for an extended period of time.
5. 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.