User Manual

Thunder 280

120VAC/450W

Thank you for choosing GOLDENMATE portable power station!
Please read this manual carefully before using.

Version: 1.2

Disclaimer

Please read this manual carefully before using the product and ensure that you fully understand the content and can use the product correctly. After reading this manual in details, please keep it properly for future reference. If the product is not properly operated according to the instructions, it may cause serious injury to you or others, damage to the product or loss of your property. By using this product, you are deemed to have read, understood, recognized and accepted all the terms of this document. The operator will be responsible for his own behavior and any results caused by the use of this product Shandong Goldencell Power Technology Co., Ltd. shall not be responsible for any loss caused by the operator's misuse. In accordance with laws and regulations, Goldencell reserves the right to the final interpretation of this document and all related documents of this product. Subject to update, revision or termination without prior notice, please visit GOLDENMATE's official website for the latest product information.

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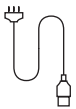
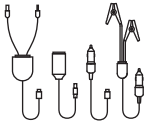
User Manual

1. Package Content

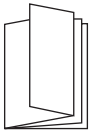
Portable Power Station



AC Cable



Accessory Cable



User Manual

2. Maintenance and Precautions

1. This product should be used away from heat sources (such as fire and other heat generating objects).
2. Do not expose the product to any liquids. Do not use the product in the rain or humid environment.
3. If the product is accidentally flooded or accidentally dropped into the water, please stop using it immediately and turn off the product, move the product to a safe open area to dry. Do not approach the product until it is completely dried, please take electric shock protection measures when touching the product, do not continue to use or discard the product after drying.
4. For long-term storage, please turn off the product and store it in a cool and dry place, charge and discharge the product once every two months (discharge to 30% of capacity first, then charge to 80% of capacity).

5.Do not supply power to external devices during charging. Otherwise, the battery pack will heat up and the product lifespan will be affected.
6. Please use it in normal environment, otherwise the product's performance may be affected by low or high temperature environment. If the temperature is too high, the battery may catch fire or even explode. If the temperature is too low, the product performance will be seriously affected, or even cannot meet the requirements of normal use.
7. Before using, make sure that the product has enough power for outdoor use.
8. When the product appears high temperature, the power supply should be turned off immediately and check whether there is overload use.
9. Do not disassemble, repair or refit the product by yourself. In case of product problem, you can contact the after-sales personnel to deal with it.
10. When the battery life of the power supply expires, please recycle and dispose of it according to local laws.
11.If the battery leaks inside the products and liquid splashes into the eyes or skin, do not rub, wash it with clean water, and immediately seek medical attention.
12.In case of accidental fire, dry powder fire extinguisher or sand should be used to exdinguish.
13.If the product emits peculiar odor, heat, discoloration, deformation or any abnormality occurs during use, storage and charging, immediately stop charging and using, remove it from the device and isolate it under the condition of ensuring safety.

14.Please use this product within the temperature range specified by this product, the performance of the battery pack inside the product is greatly affected by the temperature, and the most intuitive performance is the change of battery pack capacity, which is normal.
15.Avoid condensation caused by sudden change of ambient temperature during use or storage, which can cause internal electronics to fail or metal parts to rust.
16.After receiving the product, carefully check the package for abnormalities and avoid impact during handling. Check whether the shell and accessories are damaged or missing, or any bad phenomena. If there is damaged or missing, please contact us.
17.When the battery pack is low, please charge within 12 hours, which is beneficial to extend the life of the battery pack. If it is not charged in time, the battery pack will be in a state of lack of power for a long time, which will affect the service life of the battery pack.
18.Do not cleane the battery pack housing with organic solvents.
19.The shallow charge and discharge of the battery can ensure the economical use of the battery pack, which is beneficial to improve the cycle life, and overcharge and discharge may cause the internal battery pack to overheat, fire or function failure, short life, and even danger.
20.The switch, LCD screen, USB, and battery pack of the product are consumable parts, and can provide paid after-sales service.

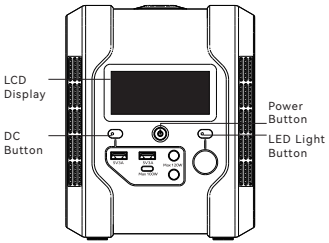
3. Warnings

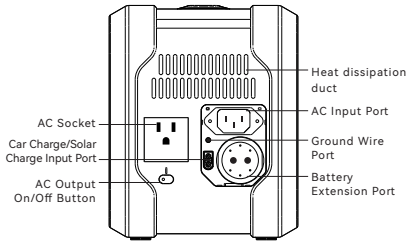
1. Please make sure to read this product manual carefully before operating this product.
2. Do not let children to touch or operate this product to avoid danger.
3. Do not allow coins, keys, hairpins or other metal pieces to expose or enter ports. Metal pieces may short circuit the product.
4. Do not use this product in a strong electrostatic or electromagnetic environment.
5. Do not stack other sundries on this product.
6. Do not use this product in an unventilated or dusty area to avoid blocking the vents and causing damage to the product due to overheating.
7. Please avoid impacts, drops, and severe vibrations. In the event of a severe external impact, please turn off the power immediately and stop using it.
8. If there is dirt on the interface of this product, please turn off the power and wipe it with a dry cloth before using.
9. Do not use this product outdoors in rain or snow, otherwise there is a risk of electric shock.
10. Do not expose the product to fire, heat sources, direct sunlight or temperature above 140°F (60 °C), it may cause an explosion.
11.Do not charge at high temperature over 45℃; Do not discharge and leave the battery at high temperature over 60℃. Also keep away from fire, heater or corrosive materials. Otherwise, it can cause overheat, fire, or function failure, shortened life, or even danger happening.
12.Do not overload the product.

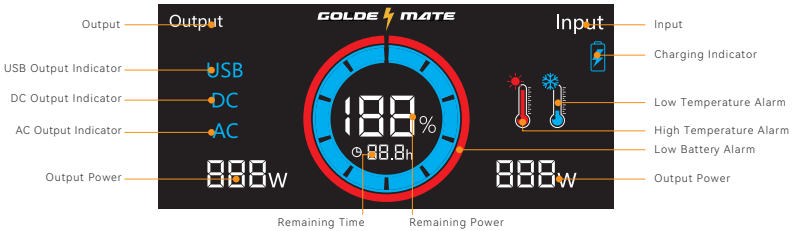
13.Do not deform the product under pressure, which may cause damage to electronic components or part of the circuit, and make the product unstable.

The company does not assume any responsibility for losses caused by fire, explosion or electric shock due to improper operation.

4. Functions







(LCD Display Interface Introduction)

5. Operation instructions

Power On/Off:

1.Long press the power button for 1.5 seconds to turn it on. The indicator light and display are on.

2.If using USB/TYPE-C/DC output, first turn on the power button, then long press DC On/Off button for 1.5 seconds. The DC button indicator light will be on, and the USB/TYPE-C/DC output port will be powered normally.

3.If using the AC port, first turn on the power button, and then long press the AC output button for 1.5 seconds; the AC output button indicator light is on, and the AC socket port is powered normally.

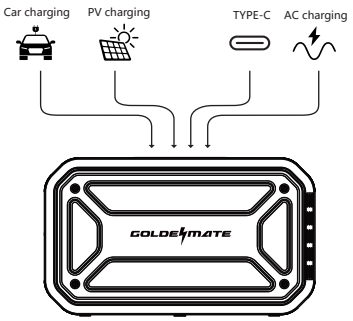
4.If you use the lighting function, first turn on the power button, and then long press the LED light button for 1.5 seconds, the LED light indicator is on, and the LED light is on. At this moment, the light is only 50% power output; click the LED light button, the light will be full power output; if you need to activate the SOS function, press the LED light button again, and the light will flash as SOS signal. After using, you need to long press the LED light button again for 1.5 seconds to turn it off.

5.Please turn off the power station after usage.

Attention:

For your safety, when using AC high-power electrical appliances, please lead out the ground wire of this product with a copper wire and ground it.

Charging method



This product supports:

AC charging, TYPE-C charging, Car charging and PV charging.

AC charging: Must use the original AC wiring harness, the LCD screen lights up during charging. The word "Input" will appear in the upper right corner of the screen, and the Charging indicator will be on, the charging power will be displayed in the lower right corner of the screen.

TYPE-C charging: Must use a TYPE-C power supply. For 100W TYPE-C charging, must use a charger and TYPE-C cable that meet the necessary charging parameters.

Car charging: Must use standard car charging cable.
PV charging(optional): Support 11-60V/8A charging.
Attention: To avoid car battery power loss and affecting car's performance, your car is only allowed to charge the product when your car engine is on.
Users who use their universal solar panels with non-MC4 connector to power the equipment, please note: the solar panel should be in the voltage and current range (please find more information about the requirement in the User Guide). Connecting the wrong MC4 interface may damage the device. EcoFlow does
not guarantee equipment failure caused by improper personal operation(For example, the open circuit voltage exceeds 60V).

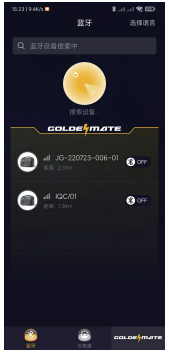
6. Goldenmate APP Download Guide

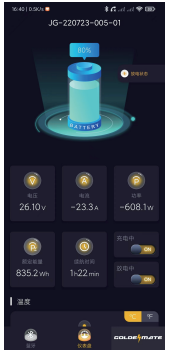
1.Check battery data through GOLDENMATE APP.
2.Scan below QR code to download GOLDENMATE APP.

iOS

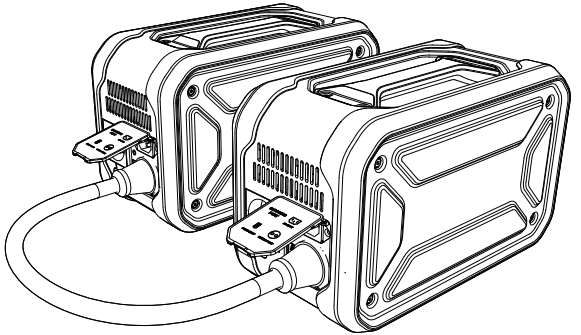
Android

3. Turn on Bluetooth, select and connect to this product.
4. After connection, you can check all information in Bluetooth management and dashboard interface.





7. Use of Paralleling



Parallel function:

This product supports parallel use, the original wiring harness connection must be used.
Please turn off the power of this product before parallel use.
The parallel function only supports capacity expansion and does not support power expansion. Do not use excessive power when the parallel function is used.

8. Technical Parameters*

Model	**Thunder 280**
Energy	277Wh（23.1VDC 12Ah）
Size	315*160*200mm
Net weight	5.70kg
Input specifications	
Input voltage/frequency	90-140VAC~50/60Hz
Charging power	200W(Max)
Solar charging	200W/11-60VDC/8A(Max)
Car charging input	8A/100W（Max）
TYPE-C charging	Support PD3.0 input: 15V3A 20V5A; 100W（MAX）
Output specifications	
AC output	120VAC/60Hz，450W
DC output	12.8VDC 10A/10A，single port Max 128W，total 128W

USB output	Support AFC output: 15W 5VDC 2A, 9VDC 1.67A. Support FCP output: 18W 5VDC 3A, 9VDC 2A. Support SCP output: 22.5W 5VDC 4.5A, 4.5VDC 5A, 5VDC 2A.
Type-C output	Support PD3.0 output: 100W 5VDC 3A, 9VDC 3A, 12VDC 3A,15VDC 3A,20VDC 5A. Support QC3.0 output: 18W 5VDC 3A, 9VDC 2A, 12VDC 1.5A. Support AFC, FCP.

(Remarks: When using the TYPE-C fast charging function, the USB interface will affect the fast charging power)

LED light	3W
Battery specifications	
Cell type	$LiFePO_4$
Cycle life	5000+ 25℃, 0.2C, 80% DOD, Capacity Retention rate≥ 70%
Operating temperature	
Working temperature	-20℃~50℃
Charge temperature	0℃~45℃
Optimal operating environment temperature	20℃~30℃
Storage temperature	-20℃~40℃ (optimal 20℃~30℃)
Shelf life	1 year

***Note:** The above are laboratory data obtained under standard testing conditions, and actual products may differ from laboratory data due to different usage conditions and environment

9. Troubleshooting

Output power logic:

Is it connected to the grid	Power	Device status
On Grid mode	450-650W	Alarm, not turned off
	≥650W	Turned off after continuous overload for 100ms
Battery mode	450-500W	Alarm, not turned off
	500-800W	Turned off after continuous overload for 60s
	800-1000W	Turned off after continuous overload for 5s
	≥1000W	Turned off after continuous overload for 40ms

Attention: On Grid mode, you can only unplug the charging cable first and then restart the product to restore.

Display alarm analysis:

No.	Display status	State analysis	Problem Solving
1	Display is off	Power does not work: BMS protection	1.Disconnect the load and return to normal after restarting. 2.If it cannot be solved after disconnecting the load and restarting it, carry out the charging process. 3.If the problem still cannot be solved after charging, please contact our after-sales personnel to deal with it.
2	"Input""Output" "AC" "Charging indicator" flash simultaneously at a frequency of 1s/time	Inverter abnormal: load overpower, inverter damagedpersonnel to deal with it	1.Disconnect the load, the screen stops alarming. 2.Disconnect the load, if the screen still alarms, turn off the power button, restart the power after five minutes, and the screen alarm disappears. 3.If the load is disconnected and the power button is turned off, the screen still flashes when restarting the power after 5 minutes, please contact our after-sales. personnel to deal with it
3	"SOC" and "Charge and discharge time indicator (sometimes)" flash simultaneously at a frequency of 1s/time	BMS failure	1.Disconnect the load and return to normal after restarting. 2.If it cannot be solved after disconnecting the load and restarting it , carry out the charging process.
4	"DC" and "Output" flash simultaneously at a frequency of 1s/time	DC (output) 12V abnormal	Disconnect the DC load and wait for 10 seconds. If not restored, restart the switch.
5	"USB""Output" flash simultaneously at a frequency of 1s/time	USB output abnormal	Disconnect the USB load, wait for 10S and return to normal.
6	"USB""Output" "Input" flash simultaneously at a frequency of 1s/time	TYPE-C output abnormal	Disconnect the TYPE-C load, wait for 10S and return to normal.
7	The high temperature indicator is on	Inverter high temperature abnormal	Disconnect the load and resume after the product cools down.

Problem Solving:

Problems	Solutions
There is no responce when the product is turned on, and there is no output from AC, DC, USB, and indicators.	(1) Check if the product is under voltage, remove the load, charge for 5-10 minutes, and restart. (2) Please make sure that the product is currently used within the normal temperature range.
The product can be turned on, but the corresponding output ports has no output.indicators.	(1) Check if the battery level is too low, if so, please charge in time. (2) Check if the load's power is higher than the output power of the product, remove the load, and restart. (3) Check if the output of the product meets the requirements of the load. (4) Check if there is a short circuit between the output port and the load, remove the device and restart the power. (5) Use other power to see if the device works normally, it may be caused by the incompatibility of individual devices.
The product cannot be charged	(1) Please check if the charging electrical parameters are covered by the charging range of this product. (2) Check if the current power supply has activated temperature protection due to high or low temperature.
Unexpected shutdown during product use	(1) The product may shut down due to the activation of the internal protection system. (2) Please remove all electrical equipment and keep the product temperature within the normal temperature range for 10-20 minutes. (3) Check if there are any faults with the electrical equipment, unplug all electrical equipment, and restart it.

10. After-sales service

Fault code	Failure type	Cancellation method
U0	BMS board communication failure	Communication is restored and the fault is eliminated
U1	PCS board communication failure	Communication is restored and the fault is eliminated
U2	DC5521 software overshoot	Turn it back on and the fault is eliminated
U3	DC5521 output overcurrent	Turn it back on and the fault is eliminated
U4	The DC5521 outputs undervoltage	Turn it back on and the fault is eliminated
U5	DC5521 output overvoltage	Failure recovery is automatic
UA	LED lamp beads short circuit/overcurrent	Power cycle back on and the fault is eliminated
UF	Bluetooth communication failure	Communication is restored and the fault is eliminated
b0	Cell overvoltage protection	Voltage recovery fault elimination
b1	Cell low voltage protection	Voltage recovery fault elimination
b2	Battery pack overvoltage protection	Voltage recovery fault elimination
b3	Battery pack low voltage protection	Voltage recovery fault elimination
b4	Short-circuit protection	Power cycle back on and the fault is eliminated
b5	MOS high temperature	Power cycle back on and the fault is eliminated
b6	High temperature protection for charging	Turn it back on and the fault is eliminated
b7	Charging low temperature protection	Turn it back on and the fault is eliminated
b8	Discharge high temperature protection	Turn it back on and the fault is eliminated
b9	Discharge low temperature protection	Turn it back on and the fault is eliminated
bA	Ambient high temperature protection	Turn it back on and the fault is eliminated

Fault code	Failure type	Cancellation method
bb	Environmental low temperature protection	Temperature recovery fault elimination
bC	Charge overcurrent protection	Power cycle back on and the fault is eliminated
bd	Discharge overcurrent protection	Power cycle back on and the fault is eliminated
bE	Charging overvoltage protection	Power cycle back on and the fault is eliminated
		Power cycle back on and the fault is eliminated
A0	Front-end sampling communication failure	Power cycle back on and the fault is eliminated
A1	The temperature sensor is open	Power cycle back on and the fault is eliminated
A2	Charge-discharge MOS failure	Power cycle back on and the fault is eliminated
A3	The battery pack has a large differential voltage	Power cycle back on and the fault is eliminated
		Power cycle back on and the fault is eliminated
P0	fc_soft_timeout	Power cycle back on and the fault is eliminated
P1	fc_inv_volt_short	Power cycle back on and the fault is eliminated
P2	fc_bus_voltunder	Power cycle back on and the fault is eliminated
P3	fc_bus_volthigh	Return to normal fault eliminated
P4	fc_bus_volt_short	Power cycle back on and the fault is eliminated
P5	fc_inv_curover	Power cycle back on and the fault is eliminated
P6	fc_inv_dcover	Power cycle back on and the fault is eliminated
P7	fc_rad_temphigh	Return to normal fault eliminated
P8	fc_dischg_curover	Power cycle back on and the fault is eliminated
P9	fc_chg_curover	Power cycle back on and the fault is eliminated
PA	fc_currsensorfail	Power cycle back on and the fault is eliminated
Pb	fc_inv_abnormal	Power cycle back on and the fault is eliminated

Fault code	Failure type	Cancellation method
PC	fc_alway_overload	Power cycle back on and the fault is eliminated
Pd	fc_ip_relay_fail	Power cycle back on and the fault is eliminated
PE	fc_fan_fail	Power cycle back on and the fault is eliminated
PF	fc_bat_voltunder	Power cycle back on and the fault is eliminated
C0	fc_bat_volthigh	Power cycle back on and the fault is eliminated
C1	fc_bat_volt_short	Power cycle back on and the fault is eliminated
C2	fc_bat_curover	Power cycle back on and the fault is eliminated
C3	fc_invvolt_zero_fault	Power cycle back on and the fault is eliminated
C4	fc_opcurr_zero_fault	Power cycle back on and the fault is eliminated
C5	fc_batcurr_zero_fault	Power cycle back on and the fault is eliminated
C6	fc_pvcurr_zero_fault	Power cycle back on and the fault is eliminated
C7	fc_opvvolt_zero_fault	Power cycle back on and the fault is eliminated
C8	fc_invcurr_zero_fault	Power cycle back on and the fault is eliminated
C9	fc_soft_timeout_dsg	Power cycle back on and the fault is eliminated
CA	fc_soft_timeout_chg	Power cycle back on and the fault is eliminated
Cb	fc_soft_timeout_pfc	Power cycle back on and the fault is eliminated
CC	fc_soft_timeout_inv	Power cycle back on and the fault is eliminated
Cd	fc_hardware_fault	Power cycle back on and the fault is eliminated
CE	fc_power_mode	Power cycle back on and the fault is eliminated
CF	fc_sci_fail	Power cycle back on and the fault is eliminated

11. After-sales service

If the product fails, please follow the manual to operate. If the fault still cannot be eliminated, please contact our after-sales service personnel and provide following information: purchase date, phone number, detailed address, and description of the product failure. Please cooperate in answering the detail inquiries from our after-sales department, including on-site conditions, fault performance, frequent/occasional accidents, and whether there are any errors in the operating procedures, so that our after-sales department can identify the cause and response (or guide) the user on how to solve the product problem. If the fault still cannot be eliminated, please contact our company.

▲ During the warranty period, if the product is damaged due to material defect, process defect, as well as damage caused by non-human factors, our company will provide free repair and replacement of parts, which belong to our company.

▲ During the warranty period, the following situations cannot obtain free repair services:

△ Unauthorized disassemble the product;

△ Damage to the surface appearance is not covered by the warranty;

△ The user does not use the product according to the manual;

△ Faults or damages caused by accidents, human factors, environmental factors (such as operational errors, collisions, unreasonable voltages, dampness, etc.);

△ The outer packaging and accessories of the product are not covered by the warranty.

FCC Warning

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause
harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC
Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This
equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions,
may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular
installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning
the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following
measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help.

Note: The Grantee is not responsible for any changes or modifications not expressly approved by the party responsible for
compliance. such modifications could void the user's authority to operate the equipment.

The device has been evaluated to meet general RF exposure requirement.

To maintain compliance with FCC's RF exposure guidelines, the distance must be at least 20 cm
between the radiator and your body, and fully supported by the operating and installation
configurations of the transmitter and its antenna(s).