

Energy storage power Specification

Model	CEBA-500
Nominal Capacity	38.4Ah/14.8V
Customer	
Total Page	8

Registered By	Checked By	Approved By
Livian	Control	Leeway
2020-11-11	2020-11-11	2020-11-12

Customer Approval		
Department	Signature	Date
QA Dept		
R&D Dept		
Approved By		

1. Application Scope

This product is the universal power pack source for cell phone use developed by EnnoPro Group Limited.

Basic components

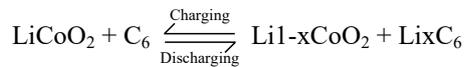
- 32 pcs Lithium-ion cells for CEBA-500
- 4 PCB
- Housing and another structural parts
- Input/Output interface

2. Chemical Composition And Reaction Mechanism

2.1 The battery is environmentally friendly batteries, the main chemical components:

- Carbon (C)
- The cobalt acid lithium (LiCoO₂)
- Six Lithium Hexafluorophosphate (of LiPF₆)
- The metal mercury (Hg)

2.2 Battery's chemical reaction-based management as follows:



3. Executive Standards

3.1 Implementation of standard products

Certificate name	Controlled number/ version number	Standard categories
PSE		Safety require
ROHS		Environmental protection
UN38.3 MSDS		Shipment require

3.2 batteries implementation of standards

Document name	Controlled number/ version number	Standard categories
ICE	IEC62321	Safety require

4. Battery Packs Basic Performance

4.1 Test Conditions:

To test environmental conditions

Unless otherwise specified, this specification of the test should be carried out under standard atmospheric conditions of the test:

Temperature: 15°C to 25°C

Relative Humidity: 45%~75%

Atmospheric pressure: 86 kPa 106 kPa

Measuring instruments and equipment requirements

- Voltage-measuring instrument accuracy should not be less than 0.5, the resistance should not be less than 10KΩ/V.
- The instrument accuracy of the measuring current should be not less than 0.5.
- Constant current load adjustable constant current in the measured power supply voltage range, its current relative error of 0.1%

4.2 Basic performance of battery packs

Testing instruments: Multi-meter Fluke187 and Fluke45 Dual Display Multi-meter, electronic load, timer, discharge cabinet.

Performance is as the annexed table

Project	Parameter	CEBA-500
Battery	Battery Class	Lithium ion battery
	Battery Power	500Wh
	Total Capacity	3.7V/153.6Ah
	Voltage	14.8V
	Ampere-Hour	38.4Ah
	Cycle Life	800 cycles
	BMS	Overvoltage, under voltage, high and low temperature, three-stage overcurrent, short circuit protection
AC Output	Output Voltage	100-240V (Depending on the factory settings in different countries and regions)
	Output Frequency	50-60Hz (Depending on the factory settings in different countries and regions)
	Output Power	AC 500W about 60 minutes
		AC 400W about 75 minutes
		AC 300W about 100 minutes
		AC 200W about 150 minutes
	Waveform	Pure sine wave
Efficiency	70%load: >90%	
DC Output	DC6.5 Port	DC12V10A
	Cigarette Lighter Port	DC12V12A
	Efficiency	70%load: >93%
USB Output	USB1	5V2.4A
	USB2	5V2.4A
	USB3	QC3.0, 5-12V, 18W (MAX)
LED Lighting	High Bright	1W (MAX)
	SOS	NA
	Flash	NA
Charge	Adapter	20V/5A about 6h
	Car	12V/8A about 6h
	PV	24V/5A about 8h
Power Consumption	Quiescent Current	<100uA
Product Weight	Net Weight	5kg
	Gross Weight	6kg
Product Volume	Host	275*170*215 mm
	Packing	292*212*312 mm
Temperature	Charge	0~40°C (32~104°F)
	Discharge	-20~50°C (-4~122°F)
	Storage	-20~45°C (-4~113°F)

5. Introduction Of Functional Parts

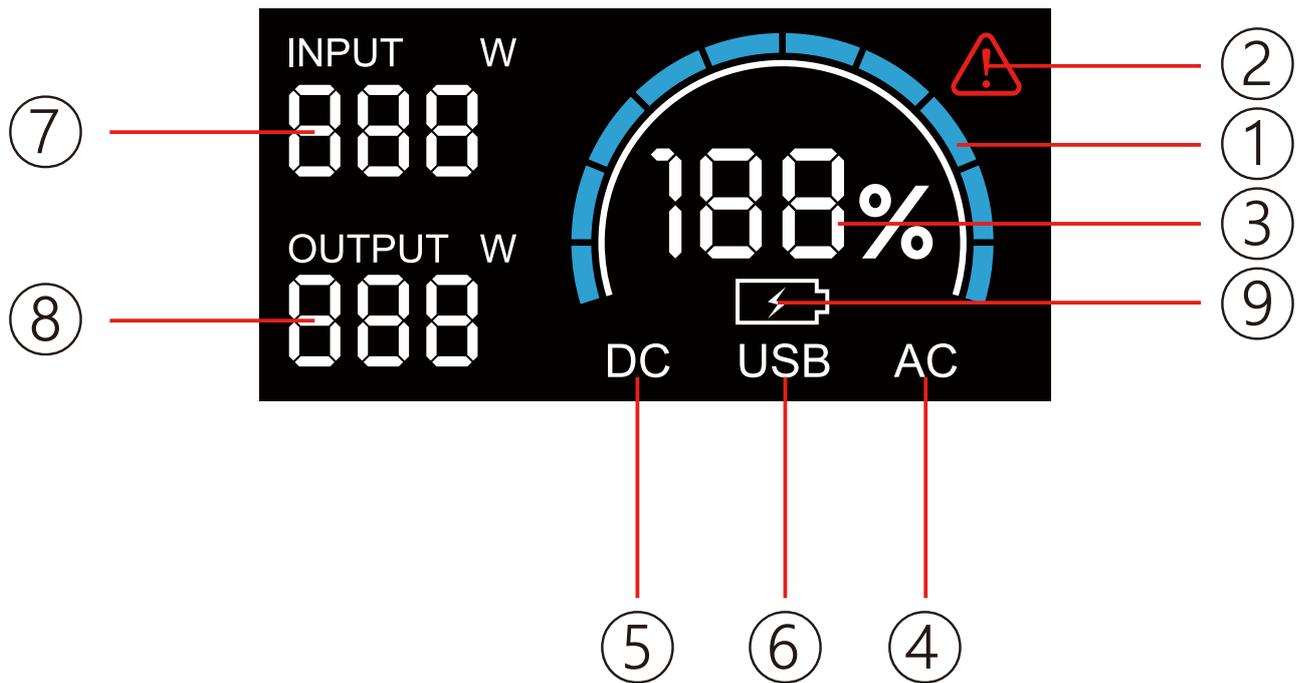
Before using the emergency power, please read the main features of the product carefully and understand the specific characteristics of each functional part to avoid damages caused by the incorrect use.

5.1 Accessories

- Power adapter
- Instruction manual
- Car charger cable
- 100W photovoltaic panel (optional)

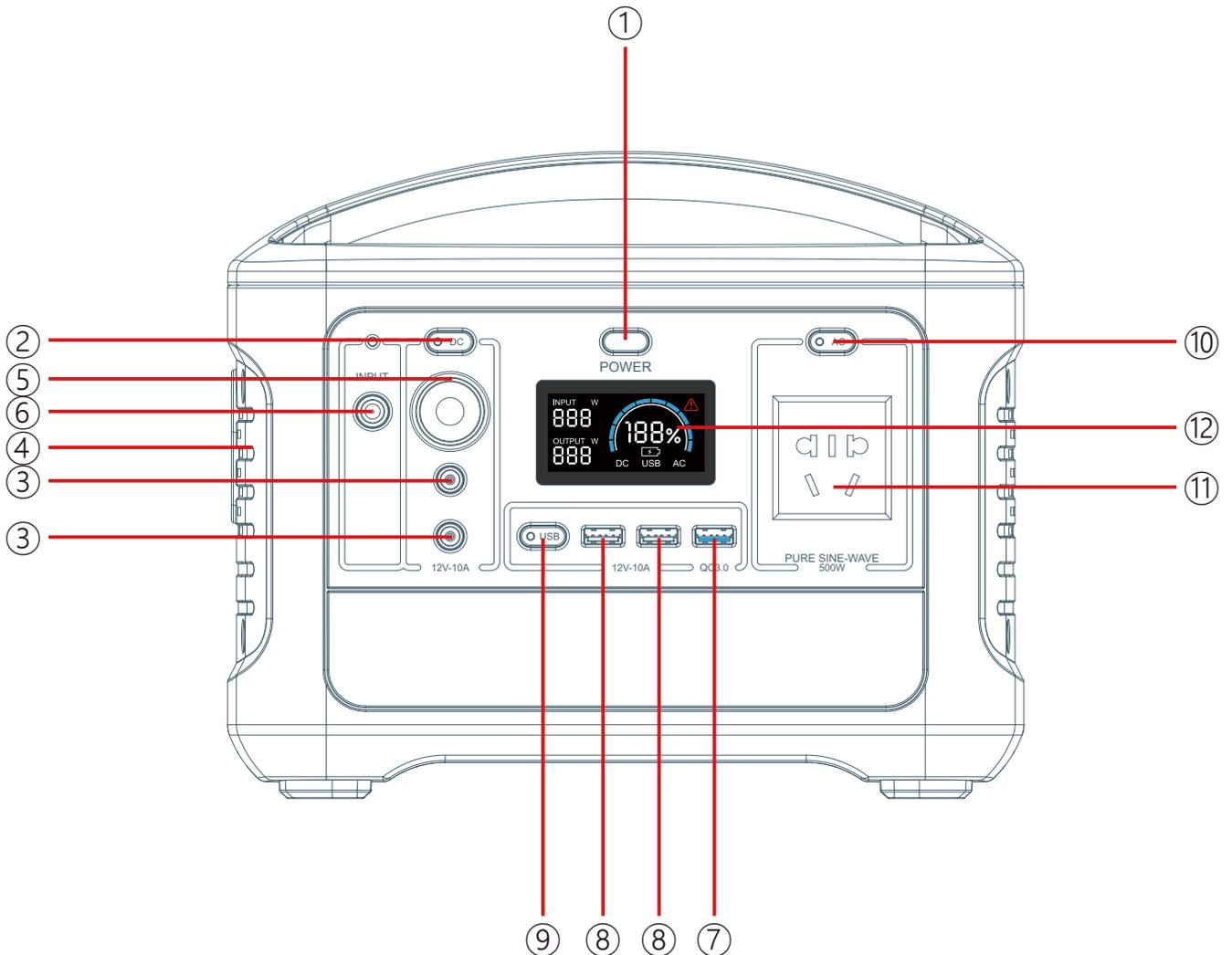
5.2 Function description of front panel

The keys on the front panel are display keys; press the keys to display the electric quantity, power. Functions displayed by LED screen include input information, output information, capacity information, while the running information bar includes overcharge, over discharge, over-temperature.



NO.	Name	function
1	Electricity Icon	Each grid represents 10% power
2	temperature alarm	Turn off the power when the temperature reaches 65°C
3	Battery Indicator	Percentage of digital capacity 0% - 100%
4	AC work lights	AC normally on indicates that the port is open for power supply
5	DC working indicator	The DC is always on indicates that the port is open for power supply
6	USB work light	If the USB is always on, it means that the port is open and can supply power
7	Input power	Displays the current input power value
8	output power	Display the current output power value
9	A few alarms	A small number of alarms

5.3 Function description of front pane



NO.	Function description	NO.	Function description
1	Screen display	7	QC3.0 output port
2	DC switch	8	USB 5V2.4A output port
3	DC6.5 12V output port	9	USB switch
4	LED Floodlight	10	AC switch
5	Cigarette lighter port	11	AC output port
6	DC input port	12	POWER

6. Basic Functions And Usage Methods

6.1 Charging function and usage methods

- Charging operation of the power adapter
Plug the adapter in the device's Input port , the battery bar of display lights up and charging starts; when the battery bar is full and steady, charging ends.
- Charging operation of the photovoltaic cell panel
Plug the solar panel in the device's Input port, the battery bar of display lights up and charging starts; when the battery bar is full and steady, charging ends.
- Charging operation of the CAR
Plug the car cigar lighter in the device's cigar lighter, the battery bar of display lights up and charging starts; when the battery bar is full and steady, charging ends.

6.2 DC discharge function and method of use

- USB 5V discharge operation
Press the USB/ USB C key, it turns blue and screen displays USB, plug in and charge your wanted device with USB output. The maximum output of 5V USB single-port is 2.4A which can have load simultaneously.
- USB C discharge operation
USB C PD 60W Output: same as USB 5V.The maximum output of USB C is 18W, please do not use excessive load
Press the DC/Car Cigar Lighter key, it turns blue and screen displays DC 12V, plug in and charge your wanted power device with DC output. . The maximum output of DC 12V is12A, please do not use excessive load.

6.3 AC discharge function and method of use

Press the AC key, it turns blue and screen displays AC 220V/AC110V, plug in and charge your wanted power device with AC output. These devices have initial power greater than the real-time maximum power of this emergency power supply, so that the overload protection of power shall be triggered to turn off the power.

Operating sequence:

- ① Open the AC load switch;
- ② Check whether the load power is beyond the rated power of this power supply, if it exceeds, please use the Company's other emergency power supplies with more power;
- ③ Insert the AC load plug into an AC load output socket, turn on the switch on the load;
- ④ After use, please turn off the AC output switch, and charge the power supply in time.

6.4 How to use the torch

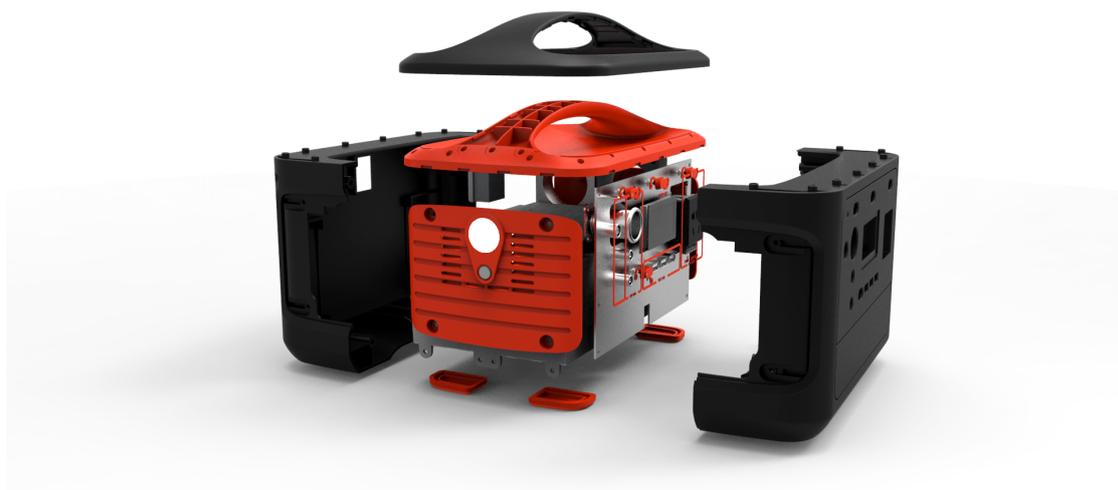
Long Press the LED key until the LED light turns on, after using, long press the key for 1 second to shut the LED.

7. Usage time

The following are some common devices and their power requirements, and the usage time to use this power supply to supply power to them.

Device	Usage Time
LED light 5W	About 90 hours
Smartphone 5-7Wh	80+ time
Tablet PC 25-42Wh	13+ times
DVD player20-25W	About 15-20 hours
Notebook computer 50W	About 9-18hours
Fan 30W	About 15 hours
Speaker 40W	About 9 hours
Desktop computer 100W	About 4.5 hours
32 inch LCD TV 98-156W	About 3-5hours
200 liters fridge	About 6-12 hours

8. Structural Performance Index



9. Reliability And Security Performance

Collision	Fix the standard charged battery to a vibration table and vibrate it for 30 minutes along with X, Y, Z three directions, vibration amplitude is 1.6mm, vibration frequency is 10Hz~55Hz and changes 1Hz for every minute.	Battery appearance should have no significant damages, the battery is not allowed to fall apart, leak liquids, generate smoke, break out a fire, or explode.
Drop	Drop the standard charged battery to the concrete floor from 1meter height for twice.	The battery is not allowed to leak liquids, generate smoke, break out a fire, or explode.
Constant Moist Heat Performance	After the battery is fully charged, place the battery into a constant temperature humidity chamber with constant temperature of 40±2°C and relative humidity of 90%-95% for 48h, after the experiment, place the battery in an environment with temperature of 20±5°C for 2h, and check the appearance of the battery. Discharge with 1C ₅ A constant-current to the cut-off discharge voltage of 2.75V.	Battery appearance should have no significant deformation, corrosion, smoke or explosion, battery discharge time is ≥36min
Low Temperature Performance	After the battery is fully charged, place the battery into a cryogenic box with constant temperature of -10±2°C for 16h-24h, discharge with 0.2C ₅ A current to the cut-off discharge voltage of 2.75V. After the experiment, place the battery in an environment with temperature of 20°C ± 5°C for 2h, and check the appearance of the battery.	Battery appearance should have no deformation, smoke or explosion, battery discharge time is > 3h

10. Identification

10.1 The following should be specified in the packaging of the battery.

- Use the specified charger.
- Do not put the battery into fire or heat the battery pack.
- Do not short circuit the battery at both ends.
- Do not decomposition or break up of the battery

10.2 The battery mark provided according to customer requirements, content need clear and legible.

11. Packing And Shipping

Battery packaging according to customer drawings or packaging requirements
 Shipment mode: according to customer requirements
 Standard Package:
 Packing: Pearl Cotton + Paper
 Instructions: printed on the back of the paper card
 Label: PET

12. Storage

Stored for a long time (more than 3 months), the need to keep the battery in 50% of rated capacity (Subject to charge per 3 months), stored in a cool dry place, the temperature range 0~40°C, and avoid corrosive substances in contact, away from sources of ignition and heat sources.

13. Warranty: 12 Months.

The warranty period lasts for 12months from the date of delivery. This warranty does not extend to damage through neglect or misuse.

14. Modification Of Specs

Clients will be advised if there is any modification.

15. Warnings And Matters Needing Attention On Battery Use

To prevent the potential leakage, burning or explosion of the batteries, please pay attention to the following precautionary measures

Danger!

- If you do not read the following matters carefully, leakage, explosion and burning of the batteries may occur.
- Do not put the product into water or get it wet;
- Do not use or store the product near a heat source (such as fire or heaters);
- Please use the original charger;
- Do not reversely connect the positive and negative electrode;
- Do not directly connect the product to a wall socket or vehicle-mounted cigarette-lighting type socket;
- Do not put the product into fire or heat the batteries;
- Do not connect the positive electrode to the negative one to avoid short circuit, and do not transport or store the battery together with necklaces, hair pins or other metal objects;
- Do not bump, throw or expose the product to mechanical shock;
- Do not puncture the product with a nail or other sharp objects, and do not hammer or stamp on it;
- Do not directly weld the product terminals;
- Do not decompose the battery in the product by any means;
- Do not charge the product near a fire or extremely hot conditions.

Warnings!

- Failure to carefully read the following notes may result in leakage, explosion and burning of batteries.
- Do not put the product into a microwave oven or pressure vessel;
- Do not combine the battery with once-for-all batteries (such as dry cells) or the batteries of different capacities, models or varieties of functions;
- Do not use the battery if it is in abnormal conditions such as peculiar smell, heating, deformation, discolouration or other abnormalities;
- Please move the product away from the place close to open flame if its battery is leaking or giving off peculiar smell;
- The leakage of electrolyte may cause fire hazards or explosion.

Attention!

- If the equipment may not be used for a long time, please take the battery out and place it in a cool and dry place; otherwise the battery may rust and the performance may become poor.
- If the product terminals become dirty, please wipe them clean with a piece of dry cloth before using; otherwise the batteries may have poor contact to cause energy loss or failure of charge.