



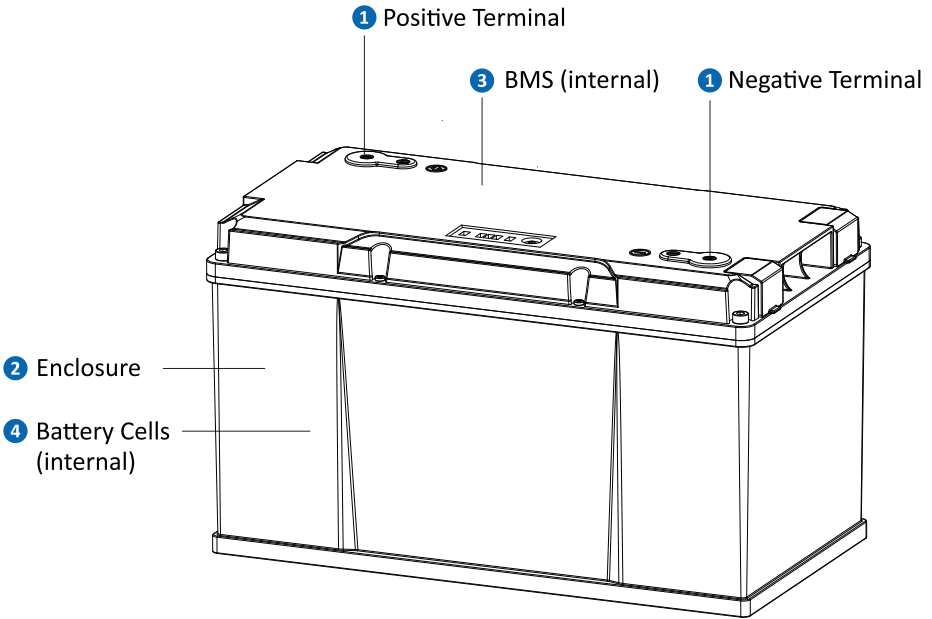
BLUE NOVA energy

User Manual

BN13V-108-1.4k BT

with Bluetooth™

1 Product Introduction



Description

No.	Item	Description
1	Terminals	Battery terminals / M8 threaded hole.
2	Enclosure	Dimensions: 330 x 170 x 195mm (L x W x H)
3	BMS	Integrated BMS with over-charge, over-discharge, over-current, over-temperature & short circuit protection.
4	Battery Cells	Lithium Iron Phosphate (LiFePO ₄) chemistry.

Operating Conditions

- These batteries are mainly used in RV's, utility trucks, emergency vehicles, yachts, golf carts, solar street lights, UPS systems, emergency lighting, alarm systems, 48V low speed vehicles and other types of deep cycle lead-acid battery replacement applications.
- Batteries must be operated under the following conditions:
 - * Acceptable ambient operating temperature:
Charging at 0°C~45°C / Discharging at -20°C~55°C
 - * Charging voltage is 14.4V
 - * Ambient humidity: ≤85%

⚠ Caution: Improper use will cause irreversible damage to the battery, and could cause battery swelling and smoke in extreme cases.

Installation

Please follow the peripheral equipment manufacturer's instructions as well as the following:

- When replacing lead acid batteries, please ensure that the LiFePO4 battery capacity is not less than the original lead-acid battery capacity.
- Please check the battery status before installation:
 - * Please check the battery voltage with a multimeter. If the battery voltage is less than 13V, please recharge it (Refer to "Charging Instruction").
 - * When connecting in series or in parallel, please ensure the capacity and voltage between each battery is consistent (Refer to "Instruction for Connecting in Series and Parallel").
 - * Please check the battery to ensure the terminals and screws are clean and rust-free.
 - * Please ensure that the cable connecting the battery terminals is long enough.
 - * Please ensure that the screws on the terminals are fixed/tightened to the maximum to avoid loosening during operation.
 - * Please ensure that the maximum output voltage of the charging device connected to the battery does not exceed 14.6V before connecting.

Charging Instructions

- Please ensure charging voltage is 14.4V.
- The charging current must not exceed the maximum charging current which is indicated in the specification sheet in this User Manual.
- Batteries connected in serie do not need to be disconnected for separate charging with every cycle. However, batteries must be fully charged individually before being connected in serie for the first time. For further details, please see "Series and Parallel Precautions".
- Please ensure to charge at an ambient temperature of 0°C~45°C. Below 0°C or above 45°C will likely result in irreversible damage to the battery and may pose a safety risk.
- DO NOT use a lead-acid battery charger in the following modes:
 - * "Equalization mode"
 - * "Desulfation mode"
 - * "Pulse function"
- DO NOT leave a lead acid battery charger connected to maintain or store the battery. Most lead acid battery chargers will NOT maintain the proper voltage charge algorithm for lithium batteries and will likely result in damage to the battery.
- To charge the battery with a lead acid charging system, please ensure that the charge voltage is less than 14.6V. If charging batteries in serie, make sure that the charge voltage is less than 14.6V times the number of batteries in serie (i.e. for 4 batteries connected in serie, the charge voltage should be less than 58.4V, and the charge current must meet requirements detailed under "Charging Instructions").

Discharging Instructions

- Please do not exceed the maximum discharge current specified in this User Manual.
- Do not discharge the battery at the maximum specified discharge current several times in succession. This may cause damage to the battery in the long term.
- The maximum continuous power demand from the battery should not exceed 1280W. When connected to a 1000W inverter, the maximum continuous load should not exceed 1100W (assuming conversion efficiency = 85%).
- Do not connect a new battery and a used battery in a same configuration.

Instructions for Connecting in Series and Parallel

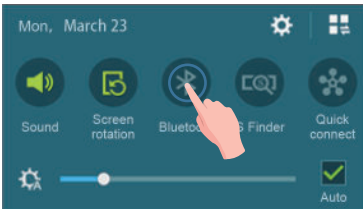
- Please ensure to fully charge each battery to 14.2V before connecting in series or parallel.
- The battery top cover has a label showing number 1-N, such as 1-1, 1-2, 1-3, 1-4, indicating that the batteries are grouped during production to ensure high consistency in cases where batteries are connected in series or parallel. The first number is the group number, and the second number is the sequence within the group. Please do not mix different groups of batteries.
- Batteries can be connected in serie up to 4 batteries, or in parallel up to 2 batteries. For instance, 4 batteries connected in series can create a 48V100Ah battery bank and 2 batteries connected in parallel can create a 12V200Ah battery bank. For configurations that include both serie and parallel connection, please contact BlueNova Technical Support.
- Parallel batteries can only increase the capacity of the battery system and by extension the working time of the connected devices. However, the maximum/peak discharge current applicable should be the same as that of a single battery i.e. for 2 x 100Ah batteries connected in parallel, the maximum continuous power should not exceed 1100W (assuming conversion efficiency of 85%).

2 Connecting to Bluetooth

1. The Bluetooth App is available on Google Play Store and Apple's App Store for download. Install the app & allow notifications when prompted.



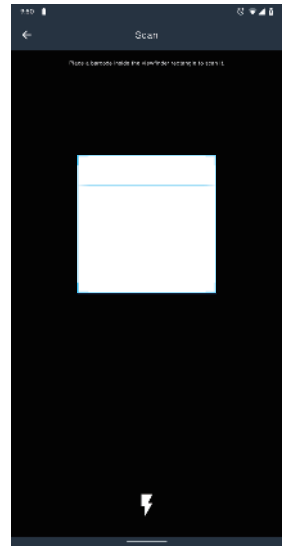
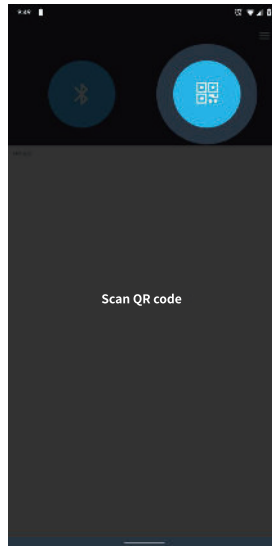
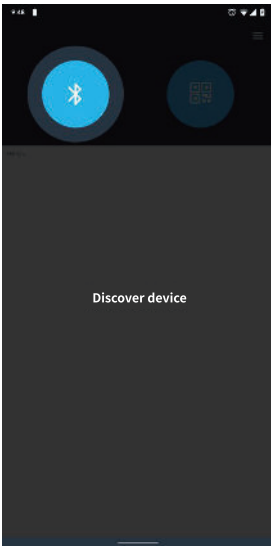
2. Activate Bluetooth mode on your phone before connecting to the battery.



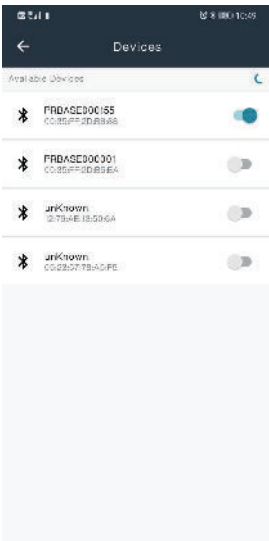
3. Connect to the battery from your phone. You can rename the battery after connecting.
There are 2 ways for connecting:

- 1) Search for the battery from the Bluetooth device list on your phone.
- 2) Scan the QR code on the battery, and the battery name will appear.

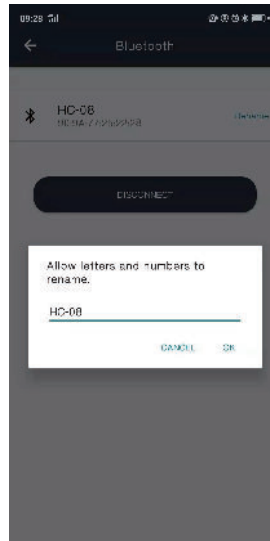
Note: One smartphone can only connect to one battery at any given time. For serie/parallel configurations, batteries will have to be connected to individually & one at a time.



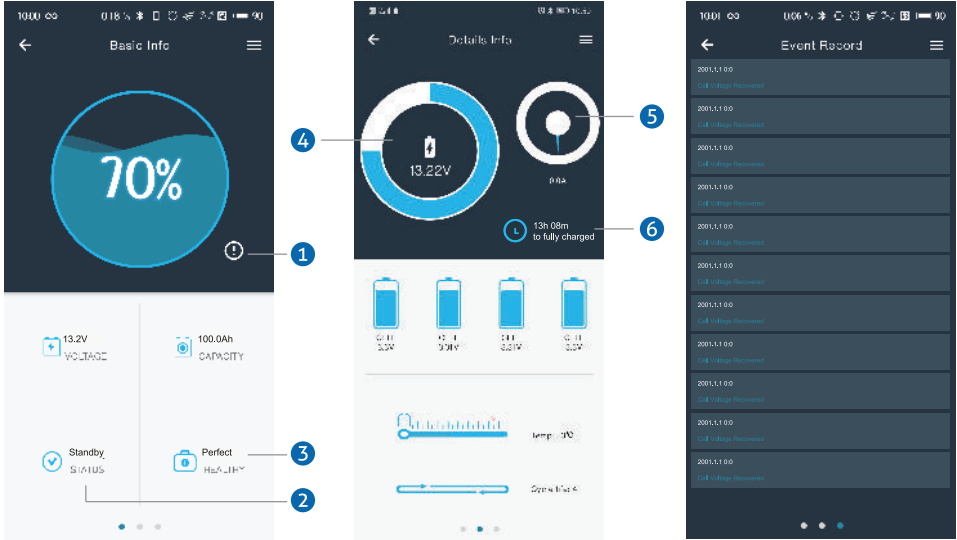
3) Choose the device and connect to it:




4) You can rename the battery after having connected.
The newly-named device will appear in the history when accessing the app again.

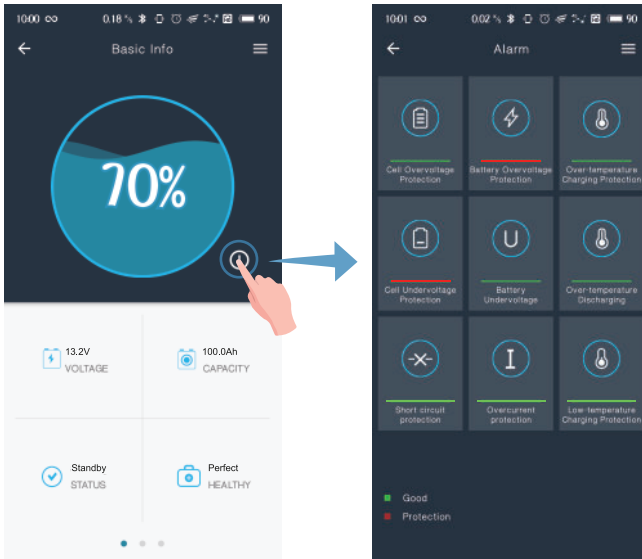


4. After having connected, you can see the SoC (States of Charge) on the Basic Info page. There are 4 battery cells in total. If the voltage difference between any two of them reaches or exceeds 400mV, these two cells will be displayed in red:

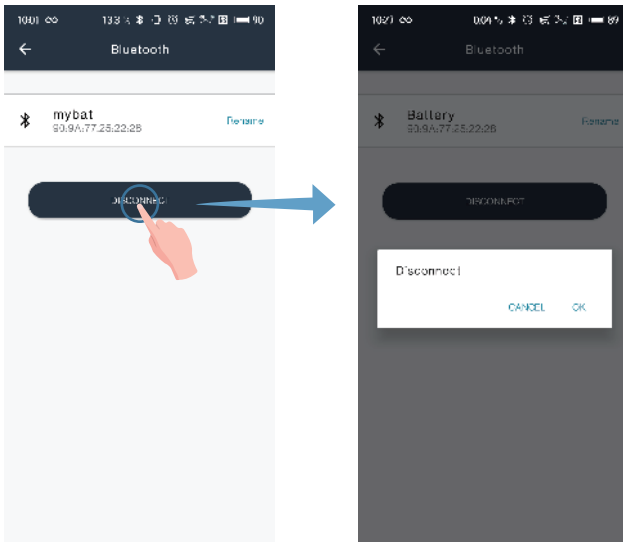


- 1 Click  to check the Alarm details.
- 2 Battery State: Standby/Charging/Discharging
- 3 Perfect: >90% Initial Capacity
Good: 80%~90% Initial Capacity
Service: ≤80% Initial Capacity
- 4 Battery Voltage (4 cells in serie)
- 5 The discharge status is indicated by a counterclockwise flowing circle in orange, which is displayed as a negative value; the charge status is indicated by a clockwise flowing circle in blue, which is displayed as a positive value.
- 6 Time to fully charge

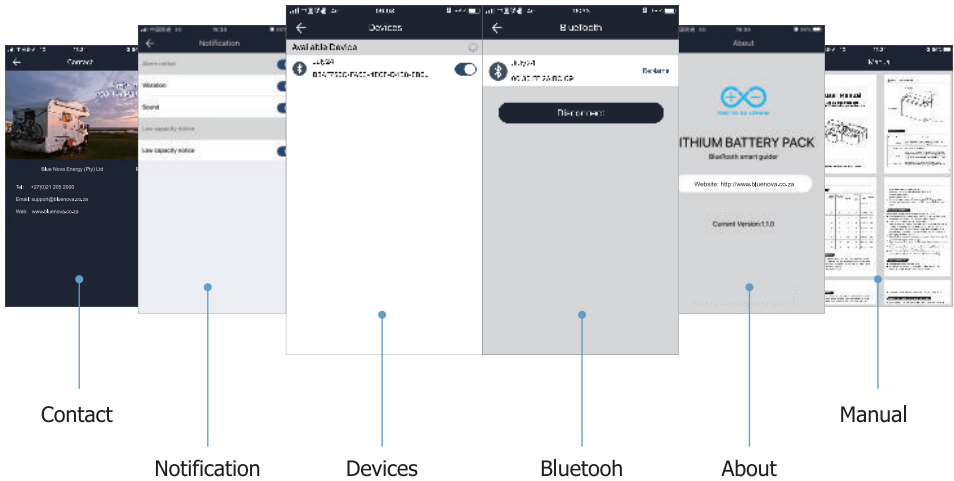
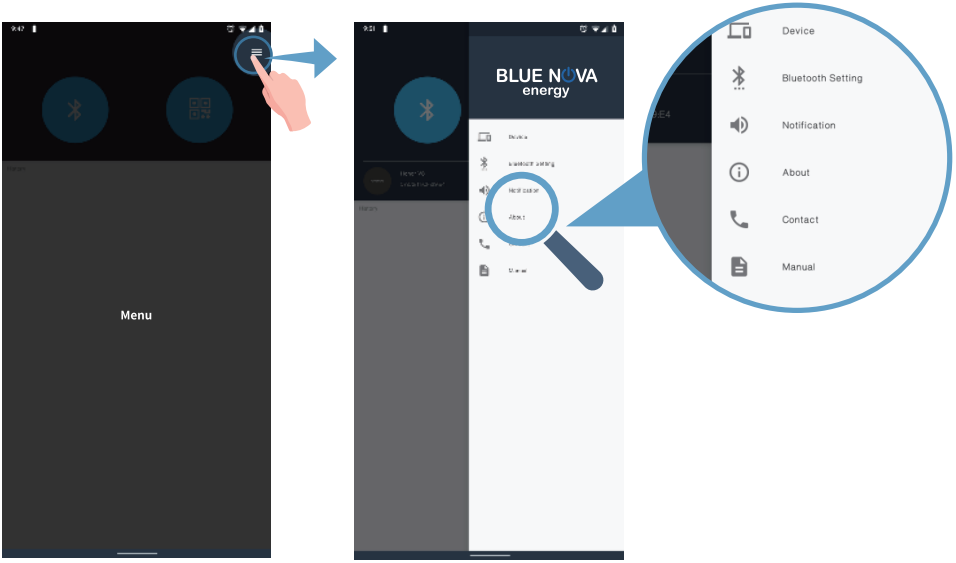
5. Recent alarm events can be viewed as follows:



6. To disconnect the Bluetooth connection:



Note: This User Manual and other information can be accessed from the main menu.



3 Warning and Attention

- Do not connect the battery in reverse polarity.
- Do not short-circuit the battery terminals. Avoid storing the battery with wires connected to the terminals to avoid short-circuit.
- Do not puncture, drop or subject the battery to blunt force impact.
- Do not disassemble the battery or physically modify the enclosure.
- Do not expose the battery to direct sunlight. This may cause overheating, fire, or premature battery failure.
- Do not incinerate or subject the battery to high temperatures. Do not store the battery in a high temperature environment.
- Do not submerge the battery in water or install in overly damp environments. Batteries should be installed and/or stored in cool and dry environments.
- If you detect any abnormal odours or noises during charge or discharge, disconnect the battery immediately if it is safe to do so, and contact BlueNova Technical Support.
- If batteries are operated outside the temperature range of 0°C~50°C, the capacity may decrease. This is not necessarily an indication that the battery is damaged.

4 Troubleshooting

No.	Symptom	Possible Causes	Corrective Actions
1	No DC output	Battery being protected by BMS	Check the circuits & connections. Ensure that the load power demand does not exceed the max. power limitation stated in specifications.
		BMS failed	Replace the battery.
2	Battery working time is too short	The charging voltage is too low and the battery cannot be fully charged	Adjust the charging voltage to at least 14.4V.
		The load voltage is too high and the battery cannot be fully discharged	Reduce the load voltage or increase battery capacity.
		Over temperature	Reduce ambient temperature.
		Battery capacity has decreased	Replace the battery.

3	Battery heat up	Over-current	Reduce load power.
		Over-temperature	Reduce ambient temperature.
4	Spark occurs on cable terminals	Initial connect to capacitive load or inductive load	No action required.
		Power supply short circuit	Check the power supply. Repair or replace if necessary.

5 Storage & Transportation

Item		Criteria
Storage Temperature	Less than 1 month	-10°C~+45°C
	Less than 3 months	-10°C~+35°C
	More than 3 months	0°C~+30°C
Relative Humidity		≤75% RH
SOC		40%~60%

- To optimise the lifespan of the battery, recharge it at least every 3-6 months.
- Please ensure the battery terminals and screw holes are clean and securely connected.
- If the load is in an unused situation for a long time, disconnect the battery from the load to prevent the battery/load from leakage and battery over-discharge.
- Insulation and shockproof materials should be used for the outer packaging to minimise the chances of damage during transportation.