

Lithium BLUE – TROUBLESHOOTING

CSB Number	855-0015 Rev A
Date	MAY 15 2023

URGENCY



HIGH:
Action immediately



MEDIUM:
Action by next possible occasion



LOW:
Action if necessary



GENERAL:
General Information

PRODUCTS CONCERNED

Discover Lithium BLUE Series

MODEL	PART NUMBER
DLB-G24-12V	900-0046
DLB-G24-24V	900-0047
DLB-G24-36V	900-0048

MODEL	PART NUMBER
DLB-GC12-12V	900-0049
DLB-GC12-24V	900-0050

POSSIBLE SYMPTOMS

Refer to the latest version of the Manual https://assets.discoverbattery.com/documents/dl_blue/opm-dl-blue-manual.pdf.

Bluetooth will not connect:

Usually this is an issue on the connection device, rarely is there ever an issue with the battery bluetooth module.

Steps to resolve this issue:

- Reset apps on connecting device (sometimes they can be running in background).
- Check that no other devices are connected to the battery, one battery can only connect to one device each time.
- Perform a BMS power reset (remove top cover/BMS, disconnect from battery, reconnect, and reinstall).

Charging issues / over voltage protection fault:

Generic lithium settings of many chargers on the market are too high.

- Many manufacturers have moved to higher charge voltage settings. Discover charge specifications are based in the interest of cell health and longevity.
 - Over voltage protection is triggered at >3.65V/cell; charger output may fluctuate and trigger protection even at slightly lower settings.

Battery Voltage	Over Voltage Protection
12V	>14.6V
24V	>29.2V
36V	>43.8V

- Refer to the Manual for protections (section 2.4) and charge settings (section 7.4).

Discharge issues / low voltage protection fault:

- Low voltage protection (2.5V/cell) should not be used as cut-off as it is the last line of defense.
- Set low voltage cut-off at 3.0V/cell.

Battery Voltage	Low Voltage Cut-off
12V	12.0V
24V	24.0V
36V	36.0V

Storage / dead battery issues:

- Failure to monitor the battery charge status can result in the battery becoming over-discharged and damaging cells beyond recovery (affecting battery life expectancy and performance or becoming non-functioning).
- Fully charge the batteries prior to storage.
- Battery terminals should be disconnected. Many devices don't have a physical switch that disconnects power, but rather shut down electronically. Parasitic power draws accelerate draining the battery.
- Refer to the Manual section 11.
- Batteries that have not been maintained and are left to over discharge need to be removed from service.

BMS Charge/Discharge control circuit damage:

The power electronics on the BMS can be sensitive to excessive ripple (usually a load such as a microwave) and undersized wires. When either charge/discharge or both circuits are damaged, the battery will not allow either charge/discharge or both.

- To identify this, the battery will not be in fault or protection mode, but with a load the voltage gradually drops as if there is a fault when attempt to discharge.



- To identify charge circuit damage, the battery terminal voltage jumps up to the charge voltage while the app shows no current and a much lower voltage, the exact discrepancy depends on the actual block voltage.
- It is normal to have a small discrepancy between terminal and battery voltage shown in app during normal operations.

SoC is inaccurate:

Lithium batteries have a flat discharge curve making it necessary to estimate SoC based on an algorithm considering numerous present data points and historical usage factors. Low currents and usage. parasitic draws, may result in an inaccurate SoC calculation.

- To reset the SoC calibration please refer to CSB 855-0014 Lithium BLUE – SOC Calibration https://assets.discoverbattery.com/documents/dl_blue/csb-dlb-soc-calibration.pdf.
- Customers with multiple batteries may benefit from using an external SoC gauge (such as Victron).

Reference SoC Voltages				
Battery Voltage	0% SoC	20% SoC	80% SoC	100% SoC
12V	12.0V	~12.8V	~13.3V	>=13.6V
24V	24.0V	~25.6V	~26.6V	>=27.2V
36V	36.0V	~38.4V	~39.9V	>=40.8V

Positive terminal deformation / melting of cover

Refer to CSB 855-0012 DLB 12V Positive Terminal Overheating

https://assets.discoverbattery.com/documents/dl_blue/csb-dlb-12v-positive-terminal-overheating.pdf.

For other issues or additional support, please submit a support request at:

<https://discoverbattery.com/contact/contact-support>.

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