

BattLion
Lithium Iron Phosphate
48 VDC Battery



Lithium is the most effective storage media for various energy storage applications. Lithium battery cells can be serialized to reach required DC high voltage levels.

BattLion System is made up of Lithium Ferrite Phosphate (LiFePO₄-LFP) cells which are made for 48V based Telecom Energy Storage System. "BATKON Battery Control Technologies Co." has designed hardware and software control algorithms are used as for battery management system.

In the **BattLion**, LBC unit has a RJ45 Ethernet interface for remote management and IoT functions.

LBC sends "keep alive" message to remote monitoring server and basic alarms and voltage data will be sent in this data package

Keep alive message period is set by the server (1 sec to hours)

Remote Monitoring & Control engineer can initiate an online connection to site over the server.

In this mode LBC can send more detailed parameters to server in every 1-5 sec.

Remote Monitoring & Control engineer can manage the server. If it is needed battery group currents and charging parameters can be adjusted by the engineer.

Server could download the version updates to LBC card's flash memory and LBC install the new version firmware onto its memory itself

BattLion System Structure:

Rectifier's battery charge output will directly connected on to the faceplate of the **BattLion** system

LBC Card is the main system control card which has 32-Bit micro controller. The current measurement of LFP is done by Hall Effect current sensors.

LBC controls the LFP charge and discharge contactors. LBC reads the voltage and temperature values of the LFP cells.



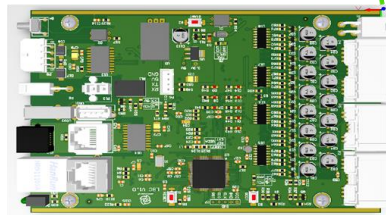
LBC

BattLion System Mechanical Structure

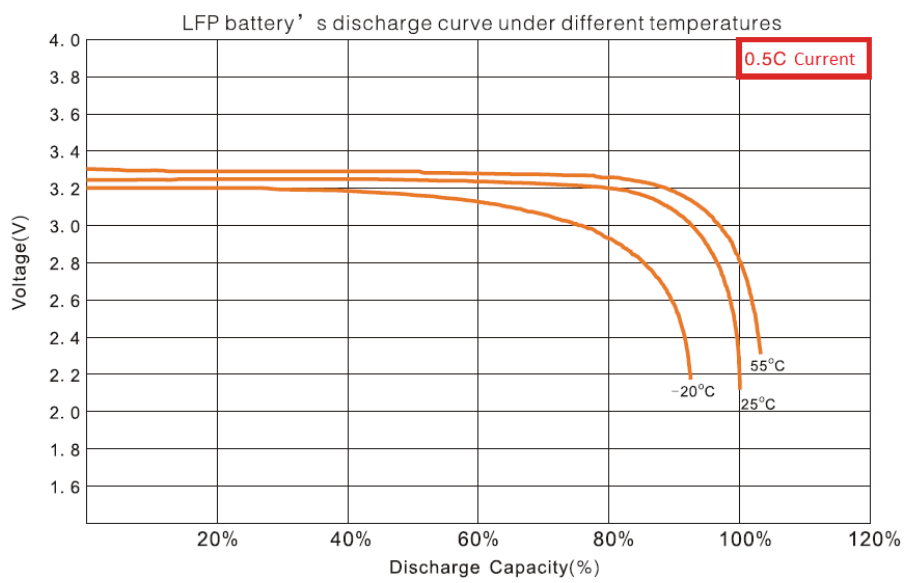
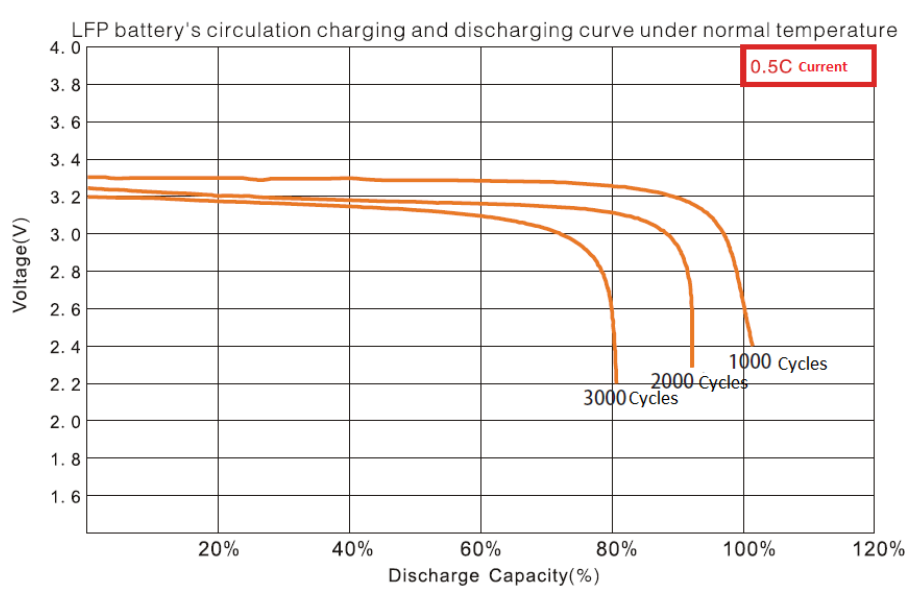
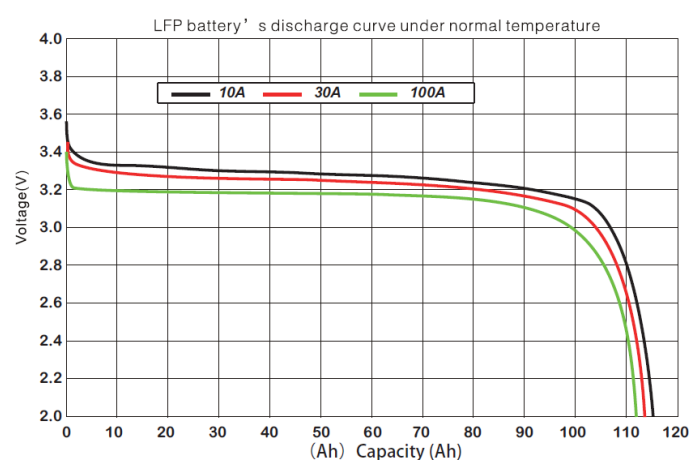
BattLion has 15 LFP cells and BMS electronics placed in one box.

LBC card and CDC cards are placed to front panel.

Metric-8 terminal compatible, barrier type power connectors are suitable for cable connections in the GSM sites. The plastic barriers are prevent the short-circuit during installation.



Battery Discharge Specifications:



Technical Parameters:

Physical Dimensions:

- 25 x 44.2 x 37,5 cm (H x W x D), 70 kg
- Cell Sizes: 142 x 81 x 222 mm , Weight: 3.13 kg

Electrical:

- Input Voltage: – 42V.. – 56VDC
- LFP Battery Capacity: 100Ah
- LFP Charge Current: Max 100A (1C)
- LFP Charge Voltage: Max 54V
- >2000 cycle on 80% DoD (20-25 °C)
- >3000 cycle on 70% DoD (20-25 °C)

Environmental:

- Operation Temperature: 0 .. 50 °C
- Relative Humidity: 90% RH

BMS Specifications:

- LBC Microcontroller: ARM M3, Cell monitoring chipset: MAXIM
- Cell Balancing Method: “Active Balancing”. Flying Capacitor circuit.
- Cell Protection Feature: Charging stops in case of any cell voltage exceeds 3.85V, discharging stops in case of any cell voltage drops under 2.5V
- RS485 interface for site Management systems
- USB-A interface for maintenance PC and USB Memory connections (firmware upgrade)
- RJ45 Ethernet for Remote monitoring & Control system and IoT
- 2 pole Metric-8 barrier type power connector to prevent short circuits during cable installation
- 5 LED LFP State of Charge display (0%, 20% ... 100%)
- 3 LED System Alarm and status monitoring display. 1 LED for BMS power status