4U 48V Lithium Iron Phosphate Battery – Technical Specifications

Product Description

The PowerUpESS LIFEPO4 battery is the most advanced lithium battery in the industry. The battery uses UltraLifeA™ cells with the longest life in the industry. The PowerUpESS SmartLogicBMS™ battery management system provides advanced battery management with the tools to configure it for any application. The BMS also allows for commutation, monitoring, and data collection for all common invertors.

Features

- UltraLife™ best cycle life cells – up to 7000 cycles @ 80% DOC for effectively lower cost of ownership.
- Low maintenance batteries with stable chemistry.
- Built with circuit protection.
- Better storage form factor
- Lightweight: Lithium batteries provide more watt-h/Kg compared to lead acid AGM batteries.
- Quick recharge
- SmartLogic™ BMS – advanced battery management to maximize life and safety. Completely configurable and customizable.
- Advanced communication and data collection CAN bus and RS485: Lux, Sol-Ark, Growatt, Schnieder, Deye, Victron
- Design lifetime 20 years, 10-year warranty,

Specifications

ELECTRICAL PERFORMANCE

Nominal Voltage	51.2 V
Mean Operation Voltage	49.5-50.5V
Nominal Capacity	100 Ah
Energy	5120 Wh
Communication	CAN 2.0 / RS232/ RS485
Resistance	≤40 mΩ @ 50% SOC

CHARGE PERFORMANCE

Recommended Charge Current	20A (Charge time: ≈6hrs)
Maximum Charge Current	100A (Charge time: ≈2hrs)
Charge Over Current Protection (BMS)	110±5A
Recommended Charge Voltage	53.2-54V
Charge Cut-Off Voltage (BMS)	3.70±0.025 V/Cell (1sec)
Reconnect Voltage (BMS)	3.45±0.02 V/Cell
Balancing Voltage Threshold BMS)	3.45V/Cell

DISCHARGE PERFORMANCE

Maximum Continuous Discharge Current	100 A
Standard Discharge Current	20 A
Discharge Cut-off Voltage	40.5-42.5V
Discharge Cut-Off Voltage (BMS)	2.75±0.02 V/Cell
Reconnect Voltage (BMS)	3.05±0.02 V/Cell
Short Circuit Protection	≤800 µs

COMPLIANCE

Certifications	ROHS compliant UN38.3 (battery) UL1973 & IEC62619 (cells)
Shipping Classification	UN 3480, CLASS 9

MECHANICAL SPECIFICATIONS

Dimension (L x W x H)	17.4" x 16.9" x 7"
Approx. Weight	104lb)
Terminal Type	M8 SCREW POST (FEMALE)
Enclosure Type	IP21
Lug Torgue	60 in-lb

TEMPERATURE PERFORMANCE

Discharge Temperature	-4 to 131°F
Charge Temperature	32 to 113°F
Storage Temperature	14 to 131°F
BMS High Temperature Cut-Off	140±5.4°F
Reconnect Temperature	131±5.4°F
BMS High Temperature Cut-Off	23±3.6°F
Reconnect Temperature	32±3.6°F
Humidity Operation	60±25%

BATTERY MANAGEMENT SYSTEM

BMS Version	PowerUpESS Ver1.1
Technology	Integrated Circuit with MOSFET in and out.
Communication	RS232, RS485, CAN
Voltage Accuracy	<= 20mV
Current Accuracy	<=2% FS
Temperature Monitoring	4 – Battery sensors 1 – MOSFET Sensor 1 – Environmental
Advanced Configuration and monitoring	Overvoltage, Overcurrent, State of charge, Battery health, short circuit, cell balancing, individual battery parameter configuration.

CAUTIONS

- Do NOT short circuit, reverse polarity, crush or disassemble.
- Do NOT heat or incinerate.
- Do NOT immerse in any liquid.
- Store at 30~50% SOC. Recharging every 3 months is recommended. The storage area should be clean, cool, dry and ventilated.
- Install per detailed installation instructions.

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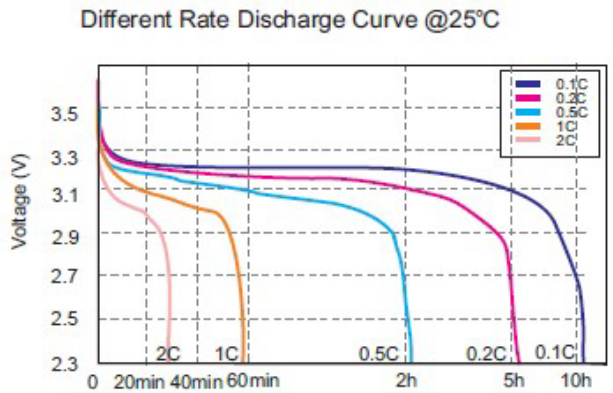
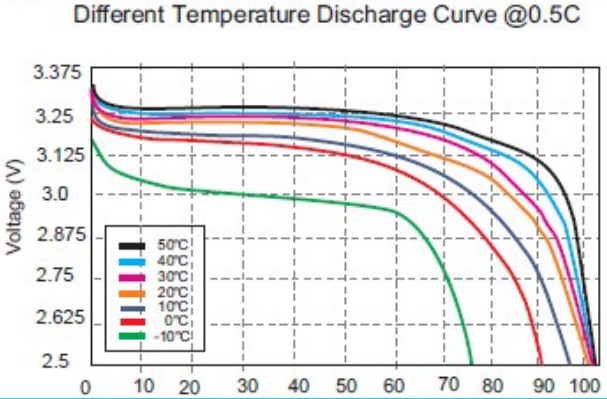
Discharge curves at variable rates

Different Rate Discharge Curve



Discharge curves at variable temperatures

Different Temperature Discharge Curve



State of Charge Curve

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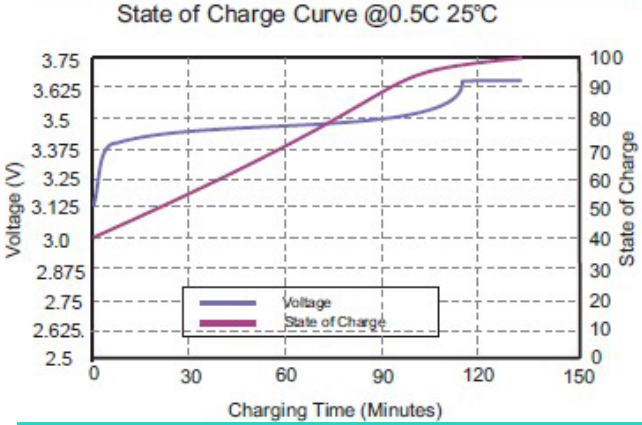

Charging Characteristics

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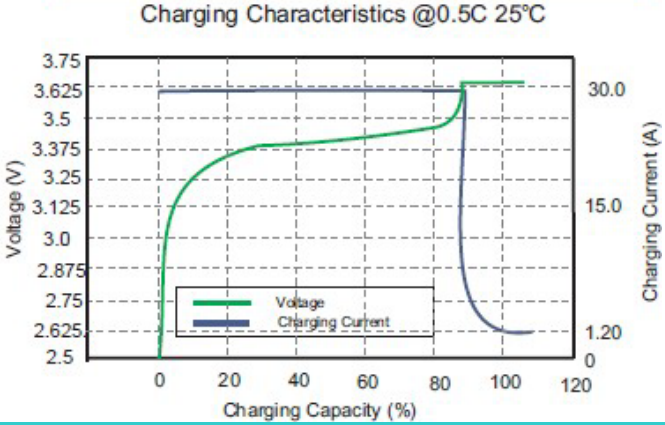
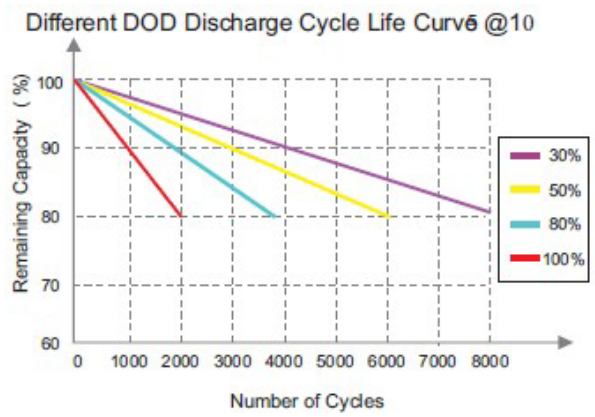


Life cycle at various Depth of Discharge

Cycle Life Curve



Self discharge at variable temperature

Self Discharge Characteristics Curve