LiFePO4 Battery 48V/50Ah

Lithium Iron Phosphate Battery

LiFePO4 ADVANTAGES

- High Voltage DC Distribution Improves Efficiency
- Lighter Than Conventional Batteries
- Increased Cyclability
- Longer Life

KEY FEATURES

- Attractive Cycle Life
- Extended Safety Performance
- Wide Operating Temperature Range
- Unrivalled High Temperature Performance
- Green Energy without Metal Contaminant
- High Capacity
- Steady Output Voltage
- Low Self-Discharge Rate
- Double Safety Protection
- Withstands Very High Levels of Vibration & Shock

CELL STRUCTURE & DESIGN



- Cylindrical LiFePO4 Cell— 32650 3.2V / 5-5.5Ah
- Bolted Cells for Safety, Stability & Reliability
- Each Cell is Protected by a Patented PCB
- Built-in BMS (Battery Management System)

CELL SAFETY

Passed the Following Abuse & Safety Tests

Impact Test , Puncture Test, Drop & Shock Test, Puncture Test, Crush Test, Thermal Shock, Over-Charge, Over-Discharge, Positive & Negative Short Circuit.

All tests resulted in No Fire, No Explosion while retaining a Stable Chemical Structure.

ELECTRICAL CHARACTERISTICS

Nominal Voltage	48V
Nominal Capacity (at 0.5C, 25˚C)	50Ah
DC Internal Resistance	≤ 45m Ω
Expected Cycle Life	More than 2000 cycles, w/ 1C charge and discharge rate, @ 25C

MECHANICAL CHARACTERISTICS

BCI Group Size	8D
Length	20.5” / 525mm (± 2mm)
Width	10.5” / 270mm (± 2mm)
Height	8.75” / 220mm (± 2mm)
Weight	88lbs / 40kg
Terminal Torque Setting	135-165 in lbs. / 15.3-18.6N*M

OPERATIONAL CONDITIONS

Charge Method	Constant Current / Constant Voltage (CC-CV)
Max. Charge Voltage	54.75V
Continuous Charge Current	Max. 50A
Charge Temperature	32˚F~ 113˚F / 0˚C~ 45˚C
Continuous Discharge Current	Max. 50A
Peak Discharge Current	100A (10 Sec.)
Discharge Cut-off Voltage	37.5 V
Discharge Temperature	-4˚F~ 149˚F / -20˚C ~ 65˚C
Storage Temperature	-4˚F~ 113˚F / -20˚C ~ 45˚C
Self-Discharge (Stored @ 50 % SOC)	<3% Per Month

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PERFORMANCE CHARACTERISTICS

CYCLYING CAPACITY		
NUMBER OF CYCLES	DEPTH OF DISCHARGE %	CAPACITY
100	100	100
500	100	96.3
1000	100	90.8
1500	100	85.4
2000	100	80.1

CYCLE LIFE @ 25˚C	
NUMBER OF CYCLES	DEPTH OF DISCHARGE %
2200	100
4000	80
6200	50
9300	30

TEMPERATURE PERFORMANCE		
FARENHEIT ˚F	CELSIUS ˚C	CAPACITY %
104	40	103
68	20	98
50	10	92
32	0	83
0	-17.78	75

FUNCTION OF PCM / BMS (Battery Management System)

Circuit Protection: Constant Power Lithium cells are optimized through the use of its PCM / BMS. Monitoring the cells provides protection against overcharge, over discharge and short circuit. It also enables every battery pack to obtain an independent balancing function. Overall the BMS helps to ensure safe and accurate operation.

ITEM	CONTENT	CRITERIA
Overcharge Protection	Overcharge Detection Voltage	3.90 ± 0.05V
	Overcharge Release Voltage	3.45 ± 0.05V
	Maximum Charge Voltage	3.65 ± 0.05V
	Maximum Charge Current	**≤ 55A**
Over Discharge Protection	Over Discharge Detection Voltage	2.0 ± 0.1V
	Over Discharge Detection Delay Time	≤167mS
	Over Discharge Release Voltage	2.3 ± 0.075V
Over Current Protection	Over Current Detection Current	**≤ 200A ± 10A**
	Detection Delay Time	≤ 1 S
	Release Condition	Cut Load
	Maximum Continuous Current	**≤ 55A**
Short Circuit Protection	Detection Condition	Exterior Short Circuit
	Detection Delay Time	230 - 500uS
	Release Condition	Cut Short Circuit
Cell Balancing	Balancing Current	40 ± 10mA
	Balancing Voltage	3.60 ± 0.01V
Remark	NONE	

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STORAGE & TRANSPORTATION

1. Based on the character of the cell, a proper environment for transportation of the LiFePO4 battery pack needs to be created to protect the battery.
2. During transportation 50% SOC must be kept to insure that short circuit, appearance of liquid on the battery never occurs.
3. Do not immerse the battery in liquid.
4. Battery should be kept at –20˚C - 45˚C (0˚F - 110˚F) in a warehouse where it is clean, dry and well ventilated.
5. During transportation of the battery, attention must be paid against dropping, turning over and serious stacking.

WARNINGS AND TIPS

*** In order to prevent the battery from leaking, getting hot and exploding. Please pay attention to the following instructions ***

WARNING!

- Never submerse the battery into water. Keep it dry and in a cool place when not in use.
- Do not install or store upside down.
- Never allow metal to contact to the Positive and Negative Terminals.
- Never ship or store the battery with metal.
- Never knock, throw or trample the battery.
- Never puncture or cut the battery with a sharp tool.

TIPS!

- Never use or store the battery under high temperatures. Otherwise it may overheat, catch fire or reduce the life span and functionality of the battery. The proposed temperature for long term storage is –20˚C - 45˚C (0˚F - 110˚F).
- Never throw the battery into a fire. Avoid excessive heat. Dispose of the scrap battery to your supplier and authorized recycling station.
- Never use the battery under a strong static or magnetic field, otherwise damage to the protection system will occur.
- If the battery is leaking and battery electrolyte get in your eyes, do not knead. Wash with water and get medical attention immediately
- If the battery begins to emit a peculiar smell, appears distorted or unconventional during storage, charging or use. Remove the battery for the devise, stop charging and stop using.
- Check battery terminals and connections before use.
- Use of a correct Lithium Battery charger is required.
- Prior to charging inspect the battery for improper physical condition and ageing. Do not charge if these conditions exist.
- The battery pack voltage must not be less than the cut-off voltage. If this problem exists contact your Customer Service Department for proper battery repair and charging.
- The battery should be stored at 50% SOC. Batteries need to be charged if stored for 3 months.
- Clean dirty battery terminals with a clean dry cloth or poor contact / operation may occur.

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ADDITIONAL LOCATIONS INCLUDE:

BROWARD / MIAMI, FL * PALM BAY, FL
HOLLY HILL (Daytona), FL * PENSACOLA, FL
MACON, GA * BIRMINGHAM, AL