

ATP LFP48V-100Ah

4800W LiFePO4 Battery Module



The lithium iron phosphate battery module is specially designed for backup power applications in telecommunication systems. This integrated battery module with intelligent BMS inside has great advantages in safety, cycle life, energy density, temperature range and environmental protection. This product specification describes the type, size, structure, electrochemical performance, service life and characteristics of BMS.

Battery Module

The battery module consists of single LFP cells, wire, BMS and metal container.

- Packed with high performance LFP single cell, long life, safety and wide temperature range.
- High energy density, small size, light weight, no pollution;
- Packing with single cell container, fire retardant wire and copper connecting bar.
- Stable and safe Built-in BMS, with battery voltage, current, temperature and health management.
- LED indicate the battery SOC and operating status.
- Optional integrated SNMP communication interface.
- 19 inches metal module container rack, simple installation and expand capacity by parallel up to 16 modules.
- Flexible customization of dimensions.
- 15 years design life, Stable performance, maintenance free.

Applications

- Telecommunications
- Power inverters
- IT equipment
- UPS Systems
- Emergency light systems
- Firefighting

Certification



ATP T48 100-LFP Battery module specification

Model/Parameters	T48100-LFP	
Item	Parameter	Condition/Notes
PACK		
Rated Voltage	48V	25°C±2°C
Rated Capacity	100Ah	0.2C , @25°C
Rated Energy	4800Wh	0.2C , @25°C
Cell & Pack	LiFePO4 Cell	---
IP GRADE	IP20	---
Dimension L*W*H (mm)	442*450*134	---
Case material	Metal	---
Installation type	Rack Mount or mounting in standard 19-inch cabinet	---
Weight (kg)	45.0	± 0.5kg
Output voltage range	42.0V~54.0V	>0°C
Charging voltage	52.5V~54.0V, CC-CV (Recommended 52.5V)	25°C±2°C
Cut-off voltage	42.0V	25°C±2°C
Max. Constant current	100A	25°C±2°C
Recommended charging current	<75A, best @ 20A	25°C±2°C
Recommended charging type	CC-CV until current <0.05C	0.2C , @25°C
Parallel modules	16 (Assignments of ID address capacity)	---
Communication	RS232 , RS485 , Optional integrated SNMP communication module, support access to dynamic environment monitoring system	---
Internal resistance	<20mΩ	50%SOC , 25°C±2°C
Capacity Efficiency	≥99.5%	0.5C/0.5C , @25°C
Cycle life	6000 cycles	0.2C 80%DOD 25°C
Design life	>10 years	0.2C 40%DOD 25°C
Built-in BMS		
Over-charge protection	Module>57.0V or Cell>3.8V	25°C±2°C
Over-discharge protection	Module<42.0V or Cell<2.5V	25°C±2°C
Over-current protection Short circuit protection	Charging: >102A, delay 10S; Discharging:1ST: >102A, delay 10S; 2ND:>150A,delay 2S;Short circuit protection: Integrated	25°C±2°C
Cell balance	Passive, 50mA	---
Over temperature protection	Charging: < -5°C or >70°C Discharging: <-20°C or >75°C	---
Optional Features		
Anti-theft function	Optional gyroscope: disables output with >30°C motion	
Localization	Optional GPS	
Environment		
Humidity	5%~95% relative humidity	---
Discharging /Charging temperature	-20°C~+55°C/0°C~50°C	---
Storage temperature	-20°C~45°C	---
atmospheric pressure	61kPa~113kPa	---
Certification	CE	---

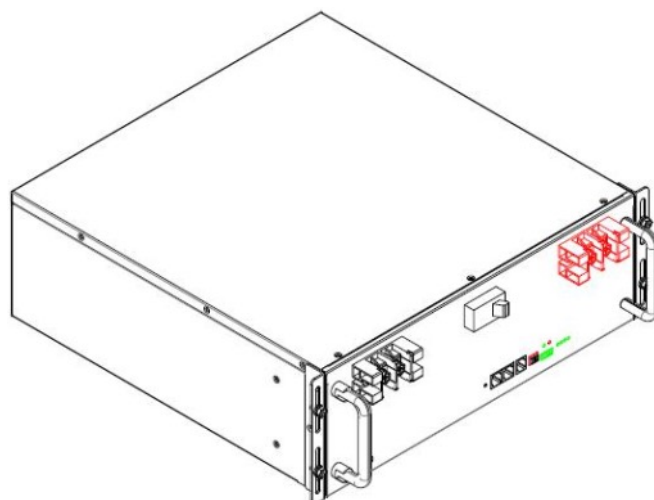
BMS specification

- BMS provides complete management and protection for the battery.
- Voltage warning and protection for module and each single cell.
- Current warning and protection, and the maximum operating current can be customized.
- Temperature warning and protection, 4 sensors for battery pack and 1 sensor for BMS.
- Short protection function.
- Balance function. Control and balance the voltage between cells during charging, detailed cell balance algorithm: The function of the cell voltage balance will be activated when the cell voltage is higher than 3.40V (adjustable) and its voltage difference is 40mV (adjustable) higher than the lowest cell voltage in the battery module.
- Current limit (when charging current higher than 100A).
- Storage function, record > 600 history events of battery (alarm, protect functions).
- Display of SOC and alarm of battery by LED.
- Communicate function (Modbus- RS485): Connect to computer through PC BMS software and dedicated cable, PC BMS software could realize Connect to 1 battery to get history data:
 - Monitor all parameters of battery.
 - Monitor battery status, alarms, protection, errors;
 - Display default parameters of manufacturer when connect to BMS software; connect to 1 battery to get instantaneous data of all other batteries module in the system (max 15 batteries).

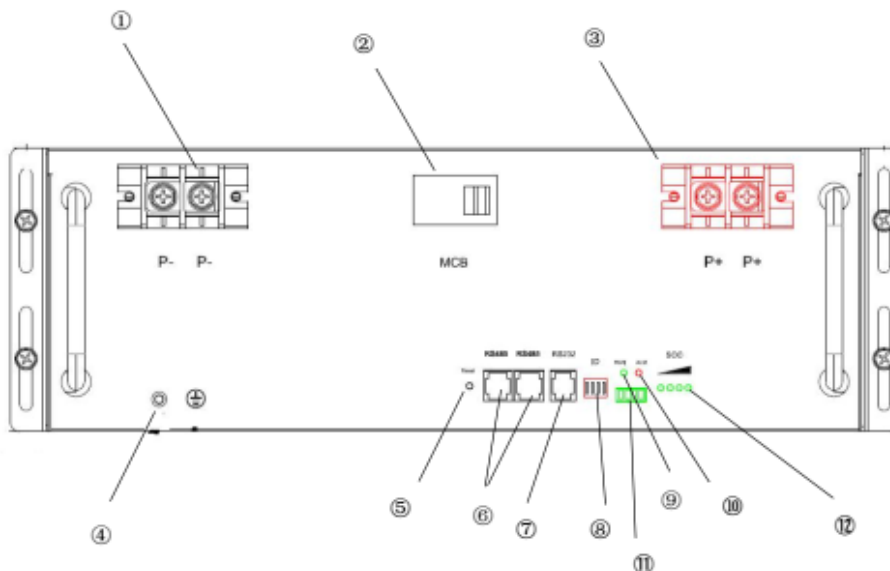
BMS parameters

Item		Parameters		Condition
Charge	Cell voltage protection	3.8V	Delay 1s	Warning: 3.7V
	Module voltage protection	57.0V	Delay 1s	Warning: 56.0V
	Over charging current 1	>100A	Delay 20s	
	Over charging current 2	≥120A	Delay 2s	
	Temperature protection	<-5°C or >70°C	Delay 1s	
Discharge	Cell voltage protection	2.5V	Delay 1s	Warning: 2.8V
	Module voltage protection	42.0V	Delay 1s	Warning: 45.0V
	Over discharging current 1	> 100A	Delay 15s	
	Over discharging current 2	> 150A	Delay 5s	
	Short circuit	>200A	Delay 0.1mS	
	Temperature protection	<-20°C or >75°C	Delay 1s	
BMS	Temperature accuracy	3%	Cycle measurement	
	Voltage accuracy	0.5%	Cycle measurement	
	Current accuracy	3%	Cycle measurement	
	SOC	5%		
	Communication ports	RS485		
	Dry Contact	2pcs Dry Contact		

Module Drawing



Interface description



No.	Item	Description	Remarks
1	Battery -	Terminal M6/M8	Negative
2	MCB	DC output	
3	Battery +	Terminal M6/M8	Positive
4	GND	GND	
5	Reset	On/OFF /Reset	
6	RS485	RS485	RJ45
7	RS232	RS232	RJ25
8	Address	Battery address	
9	RUN	LED display	
10	ALM	LED display	
11	DO	Dry Contact	
12	SOC	SOC	

Address description

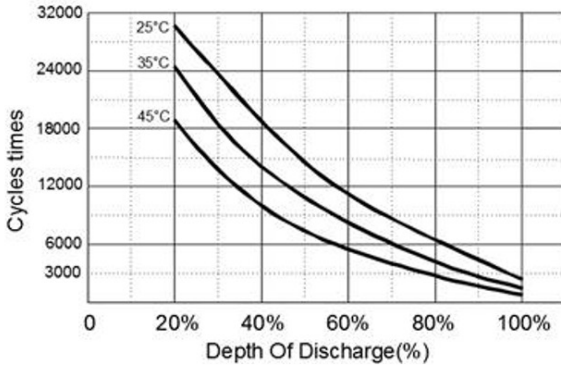
No.	Address Switch Position				Remarks
	#1	#2	#3	#4	
0	OFF	OFF	OFF	OFF	Pack 0
1	ON	OFF	OFF	OFF	Pack 1
2	OFF	ON	OFF	OFF	Pack 2
3	ON	ON	OFF	OFF	Pack 3
4	OFF	OFF	ON	OFF	Pack 4
5	ON	OFF	ON	OFF	Pack 5
6	OFF	ON	ON	OFF	Pack 6
7	ON	ON	ON	OFF	Pack 7
8	OFF	OFF	OFF	ON	Pack 8
9	ON	OFF	OFF	ON	Pack 9
10	OFF	ON	OFF	ON	Pack 10
11	ON	ON	OFF	ON	Pack 11
12	OFF	OFF	ON	ON	Pack 12
13	ON	OFF	ON	ON	Pack 13
14	OFF	ON	ON	ON	Pack 14
15	ON	ON	ON	ON	Pack 15

LED description

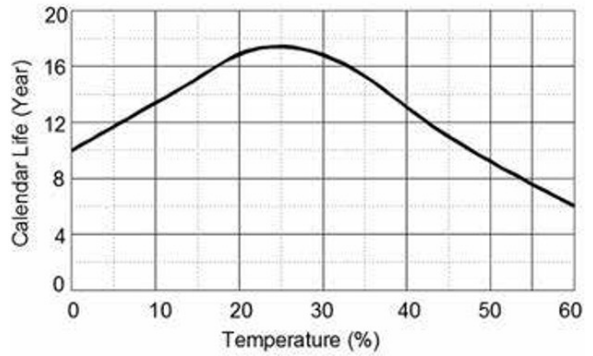
State	Item	RUN	ALM	Remarks
		●	●	
OFF	Off	OFF	OFF	Flash 1: 0.25s on 3.75s off Flash 3: 0.5s on 1.5s off
Stand By	Normal	Flash 1	ON	
	Alarm	Flash 1	Flash 3	
Charge	Normal	ON	OFF	
	Alarm	ON	Flash 3	
	Over voltage/current/ temperature Error protection	ON	ON	
Discharge	Normal	Flash 3	OFF	
	Alarm	Flash 3	Flash 3	
	Over discharge protection	OFF	OFF	
	Over current/temperature/ Error protection	OFF	ON	
Error		ON	OFF	

Battery module performance curves

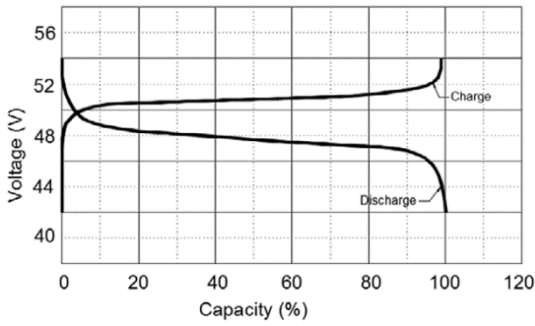
Cycle life with DOD @ 0.2C



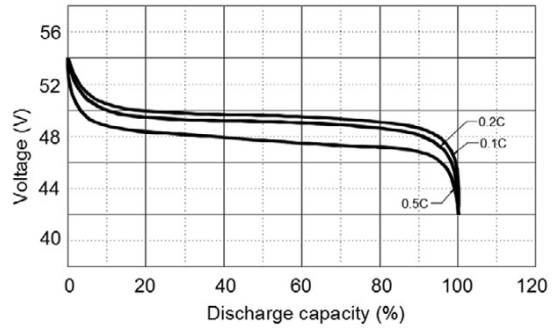
Calendar Life (year) VS. OP. Temperature



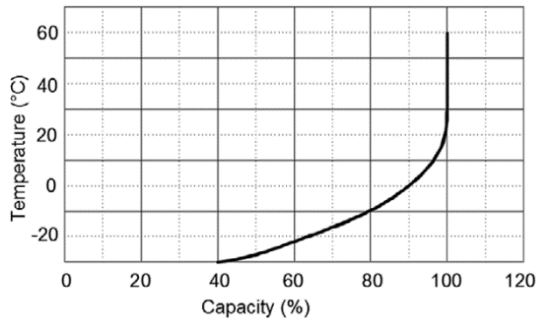
Charge & Discharge curve with 0.5C @ 25°C



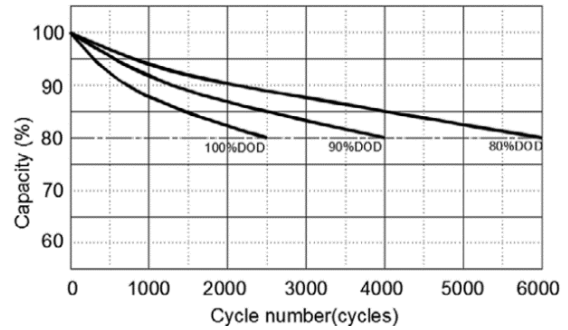
Discharge performance with different rate @ 25°C



Discharge capacity with different temperature @ 0.5C



Cycle life with DOD @ 0.5C, 25°C



Self-discharge @ different temperature

