

Phosphate-base Lithium-ion (LiFePO4) Battery Pack

Model : LFP50-48 48V50AH

Product Specification

MERITSUN[®]
Lithium Energy Solution

1 Scope (适用范围)

This specification is applied to the reference battery in this Specification .

本说明书适用于本书中所提及的电池。

2 Product Specification (产品技术规格)

Table 1 (表 1)

No. (序号)	Item (项目)	General Parameter (常规参数)		Remark (备注)	
		Typical (标称容量)	50Ah		
1	Rated Capacity (额定容量)	Minimum (最小容量)	50Ah	Standard discharge (0.2C ₅ A) after Standard charge (标准充电后 0.2C ₅ A 标准放电)	
2	Nominal Voltage (正常电压)	3.2V			Mean Operation Voltage (即工作电压)
3	Internal Impedance (内阻)	<3.0 mΩ		Internal resistance measured at AC 1KHz after 50% charge (半电态下用交流法测量内阻) The measure must uses the new batteries that within one week after shipment and cycles less than 5 times (使用出货后不到一个星期及循环 次数少于 5 次的新电池测量)	
4	Dimension (尺寸)	Thickness/厚度:Max 31mm		Initial Dimension (初始尺寸)	
		Width/宽度: Max 136mm			
		Height/高度: Max 186mm			
5	Weight (重量)	1410g		APPROX	
Cell 单体电芯	6	Standard charge (标准充电)	Constant Current 0.2C ₅ A Constant Voltage 3.6V 0.02C ₅ A cut-off (持续电流: 0.2C ₅ A 持续电压: 3.6V 截止电流: 0.02C ₅ A)		Charge time : Approx6h
	7	Rapid Charge 快速充电	Constant Current 1C ₅ A Constant Voltage 3.65V 0.01C ₅ A cut-off (持续电流: 1C ₅ A 持续电压: 3.65V 截止电流: 0.01C ₅ A)		Charge time : Approx3h
	8	Standard discharge (标准放电)	Constant current 0.2C ₅ A end voltage 2.7V (持续电流: 0.2C ₅ A 截止电压: 2.7V)		10A
	9	Maximum discharge current 最大放电持续电 流	Constant current: 1C ₅ A end voltage: 2.7V (持续电流 2C ₅ A 截止电压: 2.7V)		100A
	10	Volumetric specific energy (体积比能量)	244 WH/L		APPROX
	11	Gravimetric specific energy (质量比能量)	110WH/KG		APPROX

Continuous the table 1 (续 表 1)

Package 电池组	No. (序号)	Item (项目)	General Parameter (常规参数)		Remark (备注)
	1	Combination method (组合方式)	15S1P		
	2	Rated Capacity (额定容量)	Typical (标称容量)	50Ah	Standard discharge after Standard charge (package) (标准充电后标准放电 (针对电池组))
			Minimum (最小容量)	50Ah	
	3	Factory Voltage (出厂电压)	49.5-50.5V		Mean Operation Voltage (即工作电压)
	4	Voltage at end of Discharge (放电终止电压)	39-40.5V		Discharge Cut-off Voltage (放电截止电压)
	5	Charging Voltage (充电电压)	53.2-54V		
	6	Internal Impedance (内阻)	≤30mΩ		Internal resistance measured at AC 1KHz after 50% charge (半电态下用交流法测量内阻) The measure must uses the new batteries that within one week after shipment and cycles less than 5 times (使用出货后不到一个星期及循环次数少于 5 次的新电池测量)
	7	Standard charge (标准充电)	Constant Current 10A Constant Voltage see No.5 0.01CA cut-off (持续电流: 10A 持续电压: 见序号 5 截止电流: 0.01CA)		Charge time : Approx 6 h (充电时间: 大约 6 个小时)
	8	Standard discharge (标准放电)	Constant current: 10A end voltage see NO.4 (持续电流: 10A 截止电压: 见序号 4)		
9	Maximum Continuous Charge Current (最大充电持续电流)	50A			

Continuous the table 2 (续 表 2)

	No. (序号)	Item (项目)	General Parameter (常规参数)	Remark (备注)
Package 电池组	10	Maximum Continuous Discharge Current (最大放电持续电 流)	50A	
	11	Operation Temperature Range (工作温度范围)	Charge (充电) : 0~45°C	60±25%R.H. Bare Cell (单体电池储存湿度范围)
			Discharge (放电) : -20~55°C	
	12	Storage Temperature Range (储存温度范围)	Less than 12 months : -10~35°C (小于 12 月: -10~35°C)	60±25%R.H. at the shipment state (出货状态时的湿度范围)
			less than 3 months: -10~45°C (小于 3 个月: -10~45°C)	
			Less than 7 day : -20~65°C (小于 7 天: -20~65°C)	
	13	Dimensions (尺寸)	442*385*132 mm	Include case
	14	Weight (重量)	30kg	Include case
15	Volumetric specific energy (体积比能量)	105 WH/L	Include case	
16	Gravimetric specific energy (质量比能量)	90.5WH/KG	Include case	

3 Battery Management System (电池管理系统)

3.1 BMS Specification (电池管理系统说明)

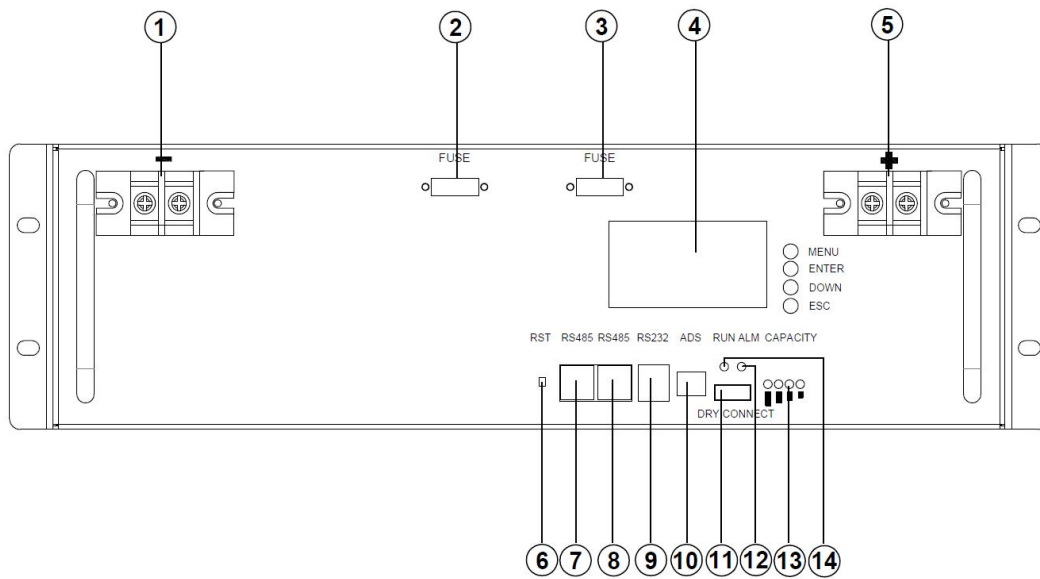
- The BMS is designed for 15/16 series lithium battery. (BMS 为 15/16 串锂离子电池设计)
- The BMS have all functions which are : (该 BMS 系统具有以下一些功能)
 - overcharge detection function (过充电保护功能)
 - over discharge detection function (过放电保护功能)
 - over current detection function (过电流保护功能)
 - short detection function (短路保护功能)
 - Temperature detection function 温度保护功能
 - balance function (均衡功能)
 - communicate function (通讯功能)
 - Alarm function (告警功能)

3.2 BMS Protect parameter (电池管理系统保护参数)

48V 15S 磷酸铁锂保护线路模块设定 Typical value specifications

Items	Details	Standard
Cell overcharge protection	Overcharge detection voltage	3.70±0.025V
	Overcharge detection delay time	Typical:1.0s
	Overcharge release voltage	3.45±0.02V
Cell over-discharge protection	Over-discharge detection voltage	2.7±0.02V
	Over-discharge detection delay time	Typical:1.0s
	Over-discharge release voltage	3.05±0.02V or charge release
Over-current protection	discharge Over-current protection current1	60±2A
	discharge Over-current detection delay time 1	1S
	discharge Over-current protection current2	80±5A
	discharge Over-current detection delay time2	≤100ms
	Charge OC protection current	60±5A
Short protection	Short protection current	300±10A
	Protection condition	Load short
	Detection delay time	≤800us
	Protection release condition	Charging release
Temperature(T) protection	Charge high T protection	78±2℃
	Charge high T recover	60±5℃
	Discharge high T protection	78±2℃
	Discharge high T recover	60±5℃
	Charge low T protection	-5±2℃
	Charge low T recover	0±2℃
	Discharge low T protection	-20±5℃
	Discharge low T recover	-15±5℃
Balance	Balance threshold voltage	3.45V
Communication	It has RS232 and RS485 standard communication interface, it can real-time monitoring the capacity of battery bank, the voltage, current, environment temperature, and charging/discharging current.	
Alarm	It has over-temperature, over charge, under-voltage, over-current, short circuit alarm function.	

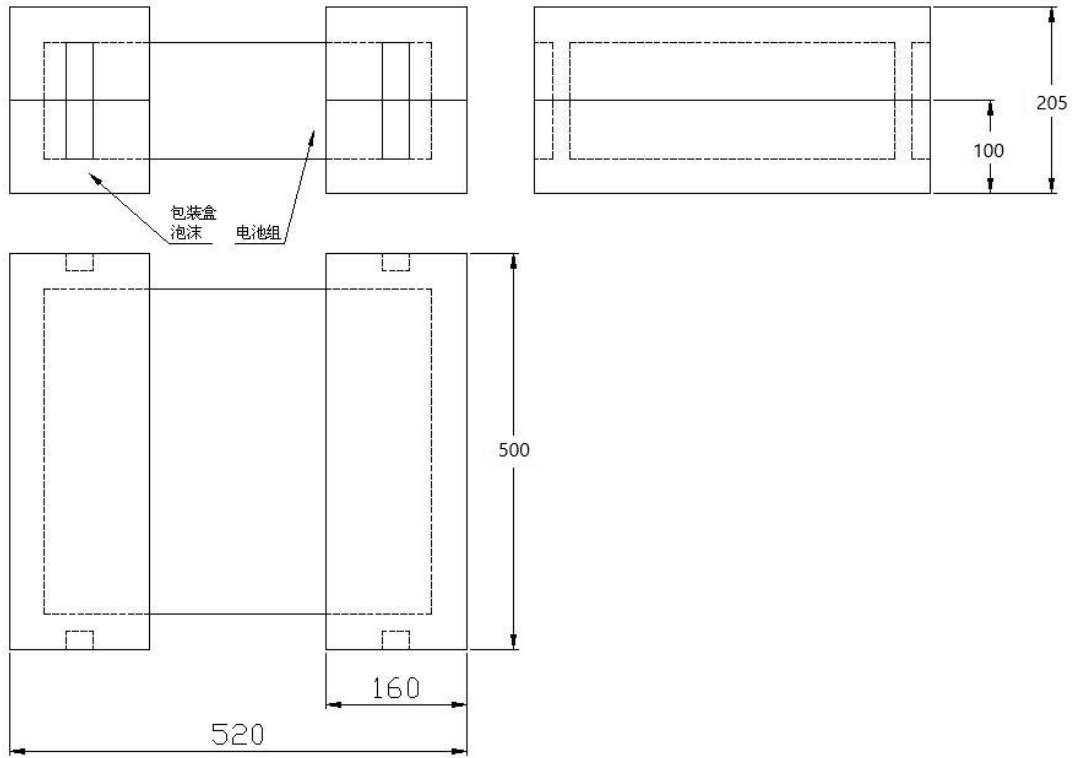
4 Case Structure of Battery Pack



No.	Description	Functional Description
1	Battery -	Negative terminal
2	FUSE	Input/Output protection
3	FUSE	Input/Output protection
4	LCD	Display screen
5	Battery +	Positive terminal
6	Reset key	On/OFF button
7	RS-485connection port-B RS485	RS485 communication interface
8	RS-485connection port-B RS485	RS485 communication interface
9	RS-232 connection port RS232	RS232 communication interface
10	Display connection address	ADS Dialer
11	Dry contact	2 roads dry contact
12	Display state information	ALM alarm indicator light blinking
13	Display the battery's capacity	Electricity volume indicator
14	Red- trouble-light on	Run indicator light OFF

5 Packaging of Battery Pack

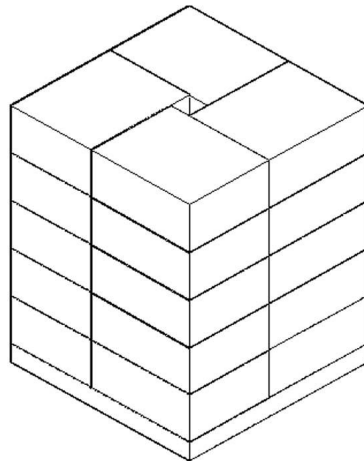
5.1. Inner packing material: EPE foam, overall dimension: 520*500*205mm



5.2. Seven layers of corrugated packaging on the outside, overall dimension: 530*510*215mm

6 Transportation

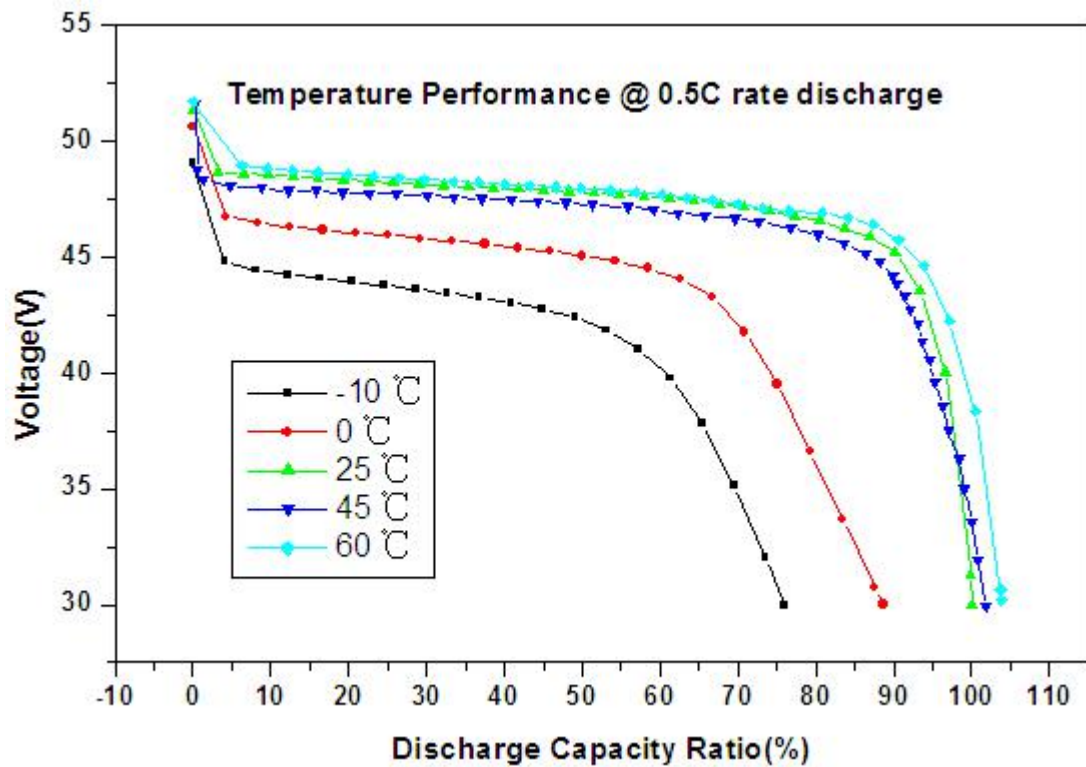
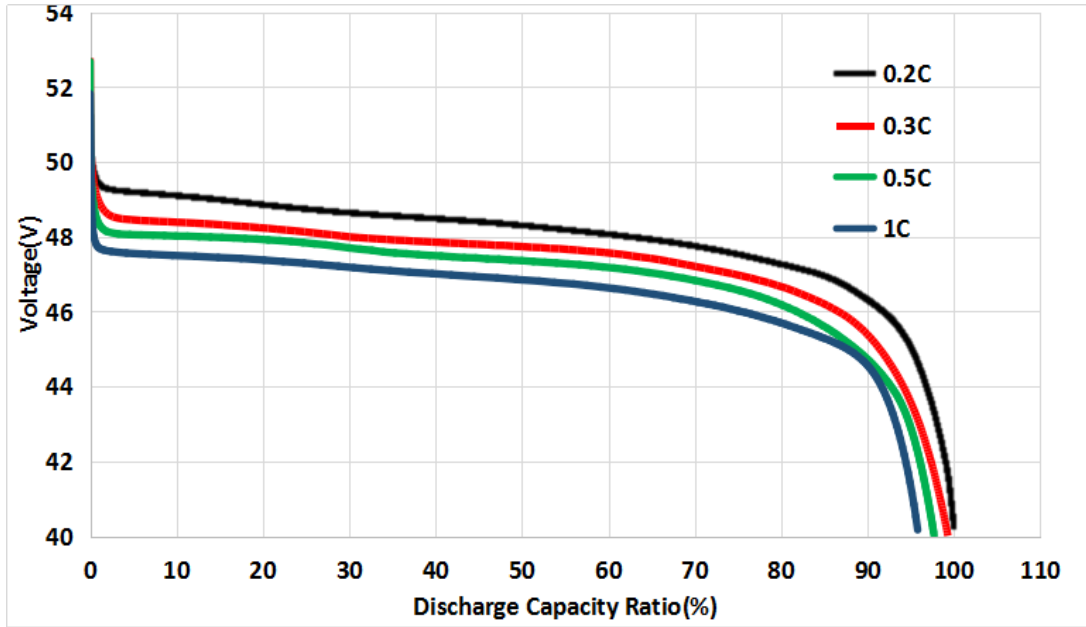
6.1 Placing on pallet during transportation, 4 boxes on each layer, and a total of 5 layers.

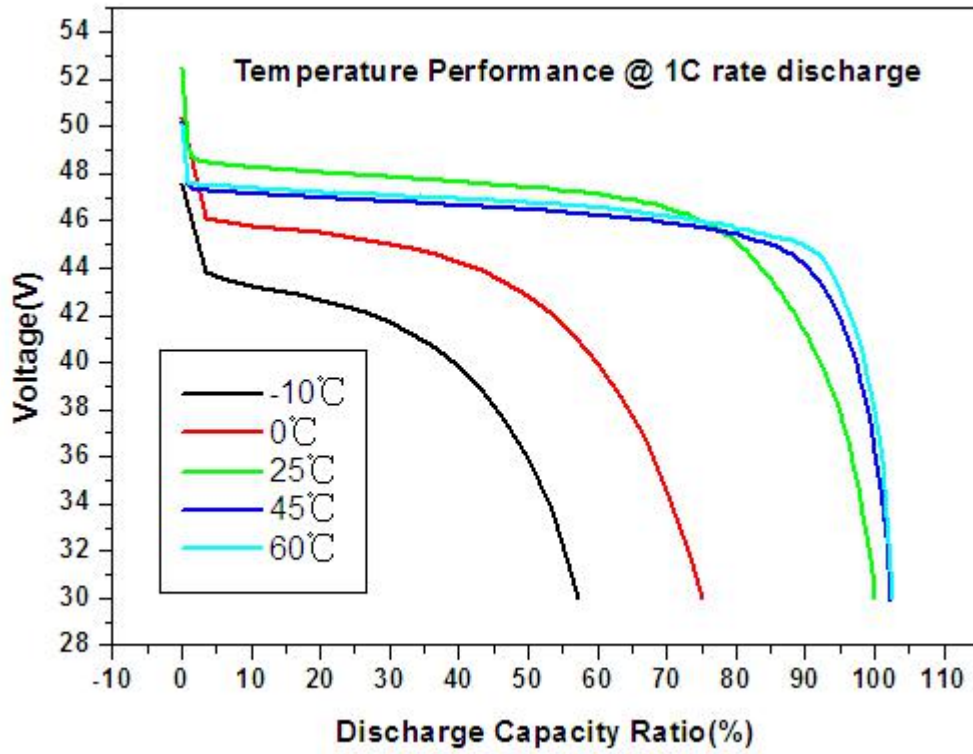


6.2 Shall pay attention to moisture and dampness during transportation, avoiding the extrusion and collision so as to preventing the battery from damaging.

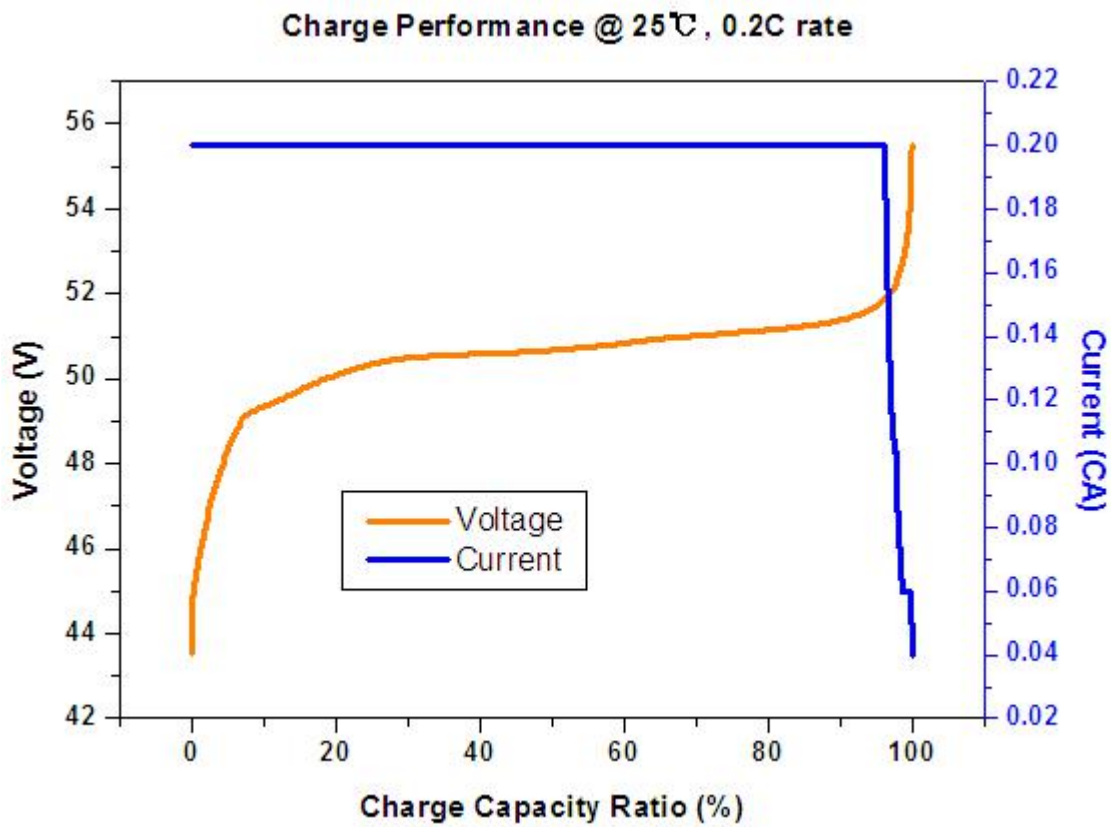
7 Appendix

Discharge curve





Charge curve



Cycle Life Curve

