







# Lithium Iron Phosphate (LiFePO4) Battery

## MB-LFP12100 (12.8V 100Ah)

### APPLICATION

-  Electric vehicles, electric mobility
-  Solar/wind energy storage system
-  UPS, backup power
-  Telecommunication
-  Medical equipment
-  Lighting



### FEATURES OF LIFEPO4 BATTERY

#### Longer Cycle Life

Offers up to 20 times longer cycle life and five times longer float/calendar life than lead acid battery, helping to minimize replacement cost and reduce total cost of ownership.

#### Superior Safety

Lithium Iron Phosphate chemistry eliminates the risk of explosion or combustion due to high impact, overcharging or short circuit situation.

#### Lighter Weight

About 40% of the weight of a comparable lead acid battery. A 'drop in' replacement for lead acid batteries.

#### Higher Power

Delivers twice power of lead acid battery, even high discharge rate, while maintaining high energy capacity.

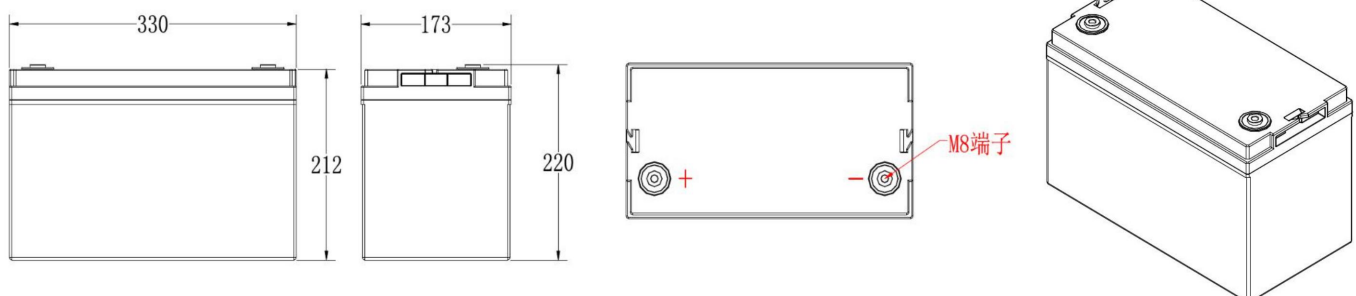
#### Battery Management System

Melasta Batteries comes with an intelligent Built-in BMS to monitor and manage the current and voltages during charge and discharge. Smart balancing algorithms protect the battery from over-charge and over-discharge.

#### Increased Flexibility

Modular design enables deployment of up to four batteries in series and up to ten batteries in parallel.

### PHYSICAL DIMENSION



# Lithium Iron Phosphate (LiFePO<sub>4</sub>) Battery

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### Electrical Characteristics

The battery management system (BMS) is a programmable circuit board used to protect the battery during charging and discharging. The protection is provided by monitoring voltages, current, lithium cell temperature and circuit board temperature and comparing the monitored values to predetermined limits used to protect the battery from damage. If one of the variables being monitored exceeds a limit, the BMS will disable either the charging or discharging circuit, depending on the state of the battery, to prevent current flowing into or out of the battery to protect the battery from damage. The battery will exit the protection mode based on the release method described BMS protections.

#### GENERAL PERFORMANCE SPECIFICATIONS

<b>Nominal Voltage</b>	12.8V
<b>Rated Capacity</b>	100±2Ah @ 0.2C Constant Current to 10V
<b>Life Expectancy (Years)</b>	5 years (1 cycle/day)
<b>Cycle Life (100% DoD)</b>	2000 cycles ≥80% of initial capacity
<b>Assembly Method</b>	4S1P
<b>Housing Material</b>	ABS
<b>Series Connection</b>	Cannot be connected in series
<b>Parallel Connection</b>	Can customized designed
<b>Internal Monitoring</b>	BMS
<b>Communication</b>	Bluetooth/ Wifi/SMBus/CANbus/RS485
<b>Total Weight</b>	Approx 18.5±0.5Kg
<b>Terminals</b>	M8
<b>Internal impedance</b>	≤40mΩ at AC 1KHz of 50% SOC
<b>Max Dimension</b>	L*W*H 330x173x220mm

#### DISCHARGE SPECIFICATIONS

<b>Discharge Temperature Range</b>	-20-60°C	
<b>Standard Discharge</b>	0.2C Constant Current	
<b>Max Continuous Discharge Current</b>	150A at 20°C	
<b>Peak Discharge Current</b>	300A ≤10S	
<b>Discharge Cut-off Voltage</b>	About 10V (can be customized designed)	
<b>Standard Discharge</b>	0.2C Constant Current	
<b>Discharge Temperature Characteristics</b>	-10°C	50%
	0°C	80%
	25°C	100%
	55°C	95%

#### STORAGE SPECIFICATIONS

<b>Self-discharge Rate</b>	<3% / Month	
<b>Storage Temperature Range</b>	<3 Months	-5-35°C
	<1 Year	15-25°C
<b>Recommended Storage SOC</b>	Recommended storage range is 50% State of Charge. We recommend cycling the battery once every three months if it is in long-term storage.	

#### CHARGE SPECIFICATIONS

<b>Charge Temperature Range</b>	0-45°C
<b>Charge Voltage</b>	14.6V
<b>Recommended Float Charge Voltage (For Standby Use)</b>	13.8V
<b>Max Continuous Charge Current</b>	0.5C at 20°C
<b>Recommended Charge Current</b>	≤20A
<b>Charge Cut-off Voltage</b>	15.6±0.2V
<b>Standard Charge</b>	0.2C constant current charge to 14.6V then constant voltage 14.6V charge until charge current declines to ≤0.01C

#### BMS SPECIFICATIONS

<b>Voltage</b>	<b>Charging</b>	14.6V
	<b>Balancing per series</b>	3.6±0.05V
<b>Current</b>	<b>Self-discharge</b>	≤3%/month
	<b>Max Charging</b>	100A
	<b>Max Discharging</b>	300A
<b>Over-charging Protection</b>	<b>Over-charging Voltage</b>	3.80±0.025V/Cell
	<b>Over-charge Delay Time</b>	1-2s
<b>Over-discharging Protection</b>	<b>Over-charging Release Voltage</b>	3.60±0.025V/Cell
	<b>Over-discharging Voltage</b>	2.30±0.1V/Cell
<b>Over-discharging Protection</b>	<b>Over-discharge Delay Time</b>	1-2s
	<b>Over-discharging Release Voltage</b>	2.50±0.1V/Cell
<b>Over-current Protection</b>	<b>Over-current (Discharge)</b>	350±30A
	<b>Over-current Delay Time</b>	50-150ms
	<b>Release Condition</b>	Charge to release
<b>Short Circuit Protection</b>	Do not short circuit the electrodes.	
<b>Over-temperature Protection</b>	<b>Charge Over-temperature Protection</b>	55±5°C
	<b>Charge Release Temperature</b>	50±5°C
	<b>Discharge Over-temperature Protection</b>	65±5°C
	<b>Discharge Release Temperature</b>	50±5°C