Lithium Iron Phosphate (LiFePO4) Battery

MORNINGSUN 12.8V40AH

Features

◆ Using the technology of lithium iron phosphate cell, superior safety, thousands of cycles, 100%DOD, under normal conditions

◆ Built-in automatic protection for over-charge, over discharge, over current and over temperature

◆ Maintenance free

◆ Internal cell balancing

◆ Lighter weight: About 40% ~50% of the weight of a comparable lead acid battery.

◆ Wider temperature range:-20℃~60℃



Application

◆ UPS

◆ Solar &Wind power system

◆ Golf Cart

◆ Electric vehicle , E-bike, E-rickshaw e.g.

◆ Lighting

General Specifications

Electrical Characteristics	Nominal Voltage	12.8V
	Nominal Capacity	40Ah@0.2C
	Energy	512Wh
	Internal Resistance	60≤mΩ
	Cycle Life	>3000 Cycles @ 0.2C Charge/Discharge at 80%DOD,End of Life 80% Capacity.
	Months Self Discharge	≤3.0% per month at 25℃
Standard Charge	Charge Voltage	14.6±0.2V
	Charge Mode（CC/CV）	At 0℃~45℃ temperature, charged to 14.6V at a constant current of 0.2C8A, and then,changed continuously with constant voltage of 14.6V until the current was not more than 0.02C8A.
	Charger Current	20A
	Max.Charge Current	50A
Standard Discharge	Discharge Current	20A
	Max. Continuous Current	50A
	Max.Pulse Current	100A(<3S）
	Disxcharge Cut-off Voltage	10.0V
Environmental	Charge Temperature	0℃ to 45℃(32℉ to 113℉) @60±25% Relative Humidity
	Disxcharge Temperature	-25℃ to 60℃(-4℉ to 140℉) @60±25% Relative Humidity
	Storage Temperature	0℃ to 45℃(32℉ to 113℉) @60±25% Relative Humidity
	Water Dust Resistance	IP55
Mechanical	Cell & Method	N60, 4S1P
	Plastic Case	ABS
	Dimension(L*W*H*TH)	196*166*171mm
	Weight	Approx. 6.5Kg
	Terminal	M8

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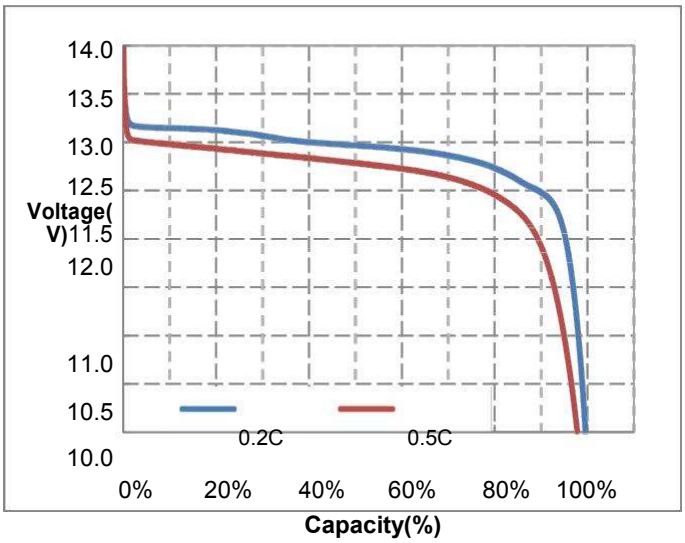
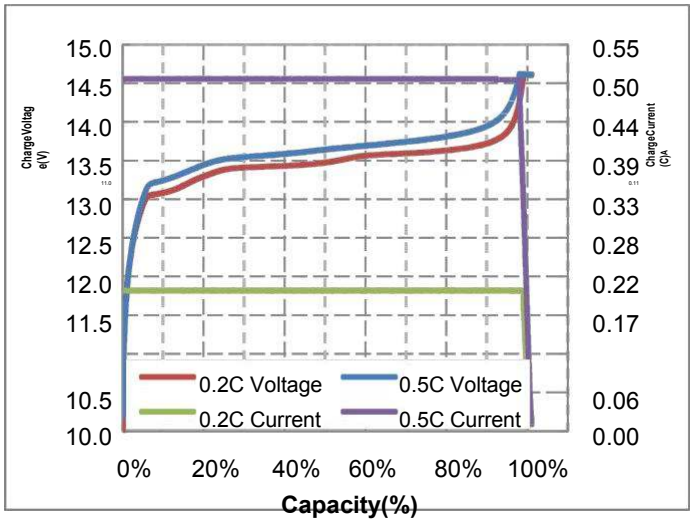
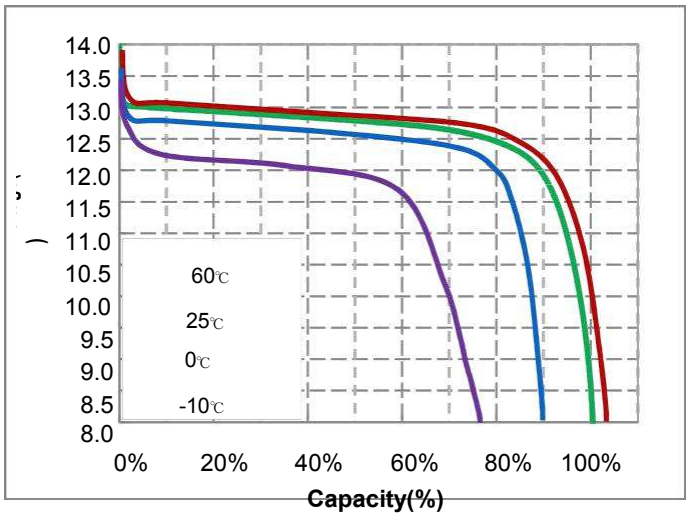
Different Rate Discharge Curve @ 25℃



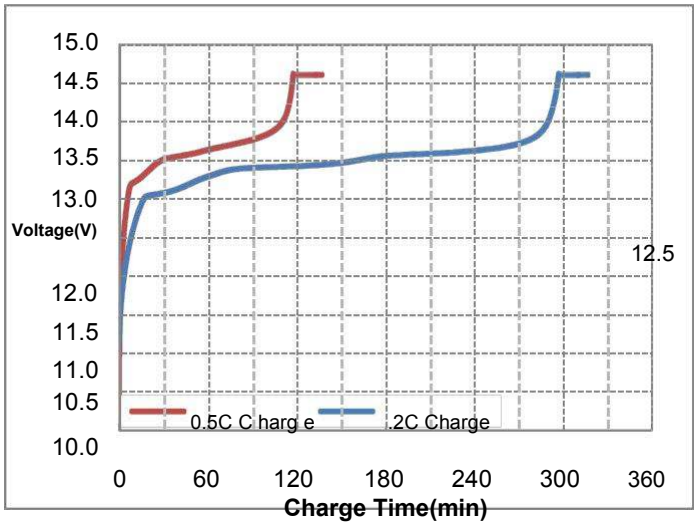
Charge Characteristics @0.2C&0.5C, 25℃



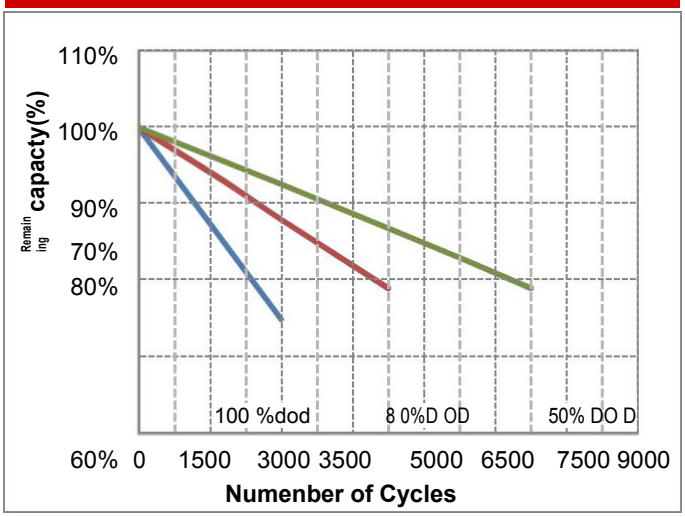
Different Temperature Discharge Curve @0.5C, 25℃



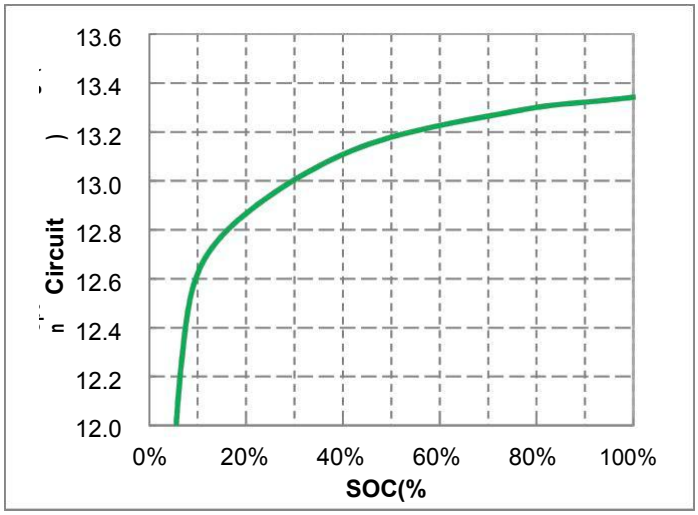
Charge Characteristics @0.2C&0.5C, 25℃



Different DOD Discharge Cycle Life Curve @0.5C, 25



Open circuit voltage VS SOC%



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Connection Tips

Premise of connection:To connect in series or/and in parallel,batteries should meet below conditions:

A. the same battery capacity(Ah);

B. from same brand (as lithium battery from different

C. purchased in near time(within one month)

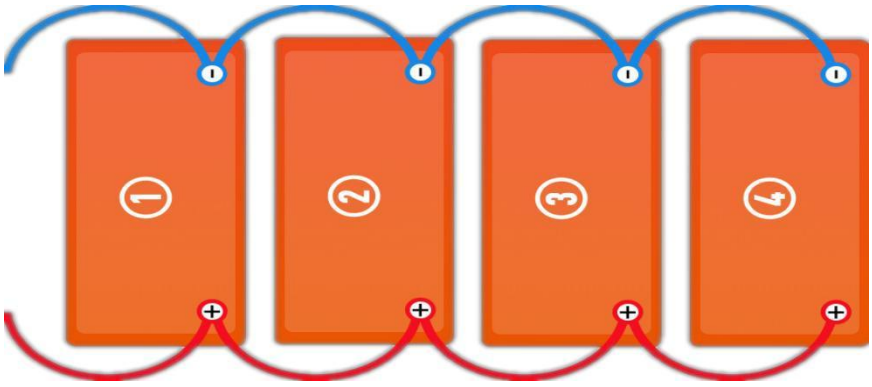
Two Necessary Steps Before Connecting:

These two steps are necessary in order to reduce the voltage difference between batteries, and through these, the battery system can perform the best of it in series or/and in parallel.

Step 1: Fully charge your batteries separately.

Step 2: Connect your batteries one by one in parallel, and leave them together for 12-24hrs. And then, you can connect your batteries in series or/and in parallel.

Parallel connection of batteries



Capacity of parallel battery	Battery Numbers	Limited Charge Voltage	Discharge Cut-off voltage
12.8V(25.6V) Capacity *1	1PC	14.6V(29.2V)	10.8V(18.4V)
12.8V(25.6V) Capacity *2	2PCS	14.6V(29.2V)	10.8V(18.4V)
12.8V(25.6V) Capacity *3	3PCS	14.6V(29.2V)	10.8V(18.4V)
12.8V(25.6V) Capacity *4	4PCS	14.6V(29.2V)	10.8V(18.4V)

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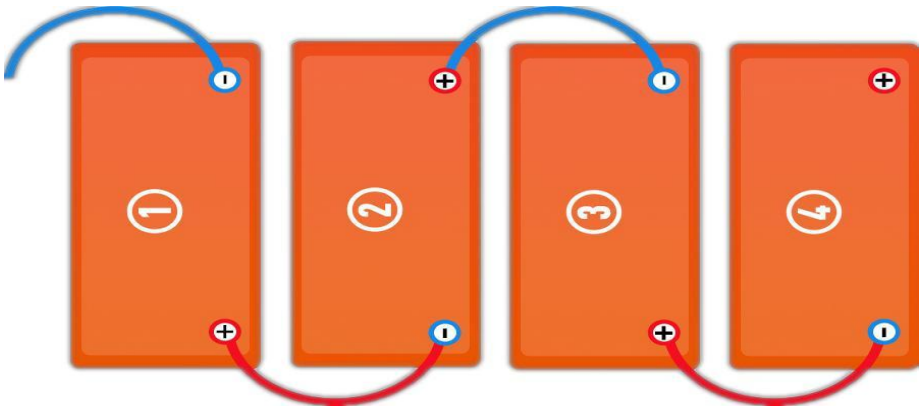
Battery in series



Voltage of series battery	Battery Numbers	Limited Charge Voltage	Discharge Cut-off voltage
12.8V(25.6V)	1PC	14.6V(29.2)	10.8V(21.6V)
25.6V(51.2V)	2PCS	29.2V(58.4V)	21.6V(43.2V)
38.4V(76.8V)	3PCS	43.8V(87.6V)	32.4V(64.8V)
51.2V(102.4V)	4PCS	58.4V(116.8V)	43.2V(86.4V)

Notes for series and parallel connection:

- Fully charge all the battery firstly, then connect them in series or parallel.
- The number of batteries in series is ≤4PCS. and the number of batteries in parallel is ≤4PCS.
- Do not mix in series or parallel with lead-acid batteries or different types of lithium batteries[Only use batteries with the same type (lead-acid battery or lithium), same capacity and same brand]
- Battery series and parallel connections need to be charged according the standard charging voltage in the above table, and a special charger for lithium batteries is recommended.(Follow note as above when selecting proper chargers)