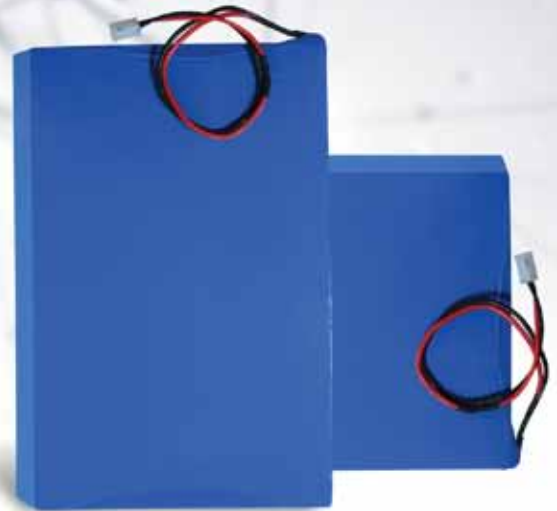




Rechargeable Lithium Iron Phosphate **LiFePO₄** BATTERY 12V 20Ah



Lithium-iron-phosphate (LiFePO₄ or LFP) is the safest of the mainstream li-ion battery types. The nominal voltage of a LFP cell is 3,2V (lead-acid: 2V/cell). A 12,8V LFP battery therefore consists of 4 cells connected in series; and a 25,6V battery consists of 8 cells connected in series.

Rugged

A lead-acid battery will fail prematurely due to sulfation:

- If it operates in deficit mode during long periods of time (i.e. if the battery is rarely, or never at all, fully charged).
- If it is left partially charged or worse, fully discharged (yacht or mobile home during wintertime).

A LFP battery does not need to be fully charged. Service life even slightly improves in case of partial charge instead of a full charge. This is a major advantage of LFP compared to lead-acid. Other advantages are the wide operating temperature range, excellent cycling performance, low internal resistance and high efficiency (see below).

LFP is therefore the chemistry of choice for very demanding applications.

Efficient

In several applications (especially off-grid solar and/or wind), energy efficiency can be of crucial importance. The round trip energy efficiency (discharge from 100% to 0% and back to 100% charged) of the average leadacid battery is 80%.

The round trip energy efficiency of a LFP battery is 92%. The charge process of lead-acid batteries becomes particularly inefficient when the 80% state of charge has

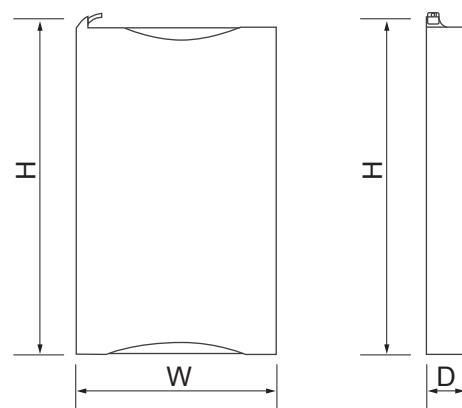
been reached, resulting in efficiencies of 50% or even less in solar systems where several days of reserve energy is required (battery operating in 70% to 100% charged state). In contrast, a LFP battery will still achieve 90% efficiency under shallow discharge conditions.

Expensive?

LFP batteries are expensive when compared to lead-acid. But in demanding applications, the high initial cost will be more than compensated by longer service life, superior reliability and excellent efficiency.

Endless flexibility

LFP batteries are easier to charge than lead-acid batteries. The charge voltage may vary from 14 V to 16 V (as long as no cell is subjected to more than 4,2 V), and they do not need to be fully charged. Therefore several batteries can be connected in parallel and no damage will occur if some batteries are less charged than others.



SPECIFICATION LIP1220LF

No.	Item	General Parameter	Remark
1	Nominal Voltage	14.6V	
2	Rated Capacity	20 Ah	At 25°C Standard discharge (0.2C) after standard charge (0.2C)
3	Minimal Capacity	19Ah	
4	Life Expectation	Residual capacity is more than 60% of the rated capacity	1) Charge: CC@0.2C to 14.6V, then CV till current to 0.05C 2) Rest : 30 min. 3) Discharge : 0.2C to 10V Temperature : 20±5 Carry out 1200 cycles
5	Discharge cut-off voltage	2.5V/cell (≥20.0V)	20.0V recommended
6	Charging cut-off voltage	3.9V/cell (≤31.2V)	29.2V recommended
7	Assembly method	IFR26650PE-3.4AH	4S6P
8	Housing material	PVC	
9	Standard charge	0.2C constant current (CC) charge to 14.6V, then constant voltage (CV) 14.6V charge till charge current decline to ≤0.05C	Charge time : Approx 7 hours
10	Standard discharge	Constant current 0.2C Cut-off voltage 20V	
11	Maximum Charge Current	10A@20°C	
12	Maximum Continuous Discharge Current	10A@ 20°C	Over current 45±10A (7.2~11ms) and 30A 30s
13	Operation Temperature Range	Charge: 0 ~ 55°C	60±25%R.H.
		Discharge: -10 ~ 60°C	
14	Storage Temperature Range	Less than 1 year : 0 ~ 25°C	60±25%R.H. at the shipment state
		Less than 3 months : -5 ~ 35°C	
15	Approx. Weight	9.9Kg	
16	Dimension W x H x D (mm)	165 x 275 x 30±3mm	PVC
17	Automatic Balancing function	Yes	
18	Short circuit protection	Recover after charging	
19	Wires	AWG#16	

