

# LiFe 15-12

12V / 15Ah

Lithium - Iron Phosphate



## Features

High energy density  
Automatic protection with battery management system (internal)  
Low self-discharge  
Long cycle life  
Excellent performance in all operating temperatures  
Cost effective  
Fast charge  
Drop-in replacement  
Guaranteed Safety



## Nominal characteristics

|                           |                                     |
|---------------------------|-------------------------------------|
| Nominal Voltage           | : 12.8V                             |
| Nominal capacity          | : 15Ah                              |
| Energy                    | : 192Wh                             |
| IR                        | : $\geq 40\text{m}\Omega$ @100% SOC |
| Efficiency                | : $\geq 99.5\%$                     |
| Maximum Modules in Series | : 2 (Single Use)                    |

## Mechanical characteristics

|                     |                                   |
|---------------------|-----------------------------------|
| Case Material       | : ABS                             |
| Dimensions (LxWxH)  | : 151x97x101 mm                   |
| Weight              | : 1.9kg $\pm 3\%$                 |
| Terminal Type       | : F2                              |
| IP Grade            | : -                               |
| Cell Type-Chemistry | : Cylindrical LiFePO <sub>4</sub> |

## Charge & discharge characteristics

|                           |                              |
|---------------------------|------------------------------|
| Voltage Window            | : 10.8-14.6V                 |
| Max. Continuous Charge    | : 15A                        |
| Max. Continuous Discharge | : 20A                        |
| Peak Discharge Current    | : 35A (10s $\pm 1\text{s}$ ) |
| Recomm. Charge Current    | : 7.5A                       |
| Recomm. Discharge Current | : 7.5A                       |

## Operating Conditions

|                       |                                                |
|-----------------------|------------------------------------------------|
| Cycle Life            | : $\geq 2000$                                  |
| Operating Temperature | : Charge 10°C ~ 45°C<br>Discharge -20°C ~ 55°C |
| Storage Temperature   | : 20°C ~ 30°C                                  |
| Storage Duration      | : 12 months at 25°C                            |

## BMS characteristics

|                                   |             |                         |
|-----------------------------------|-------------|-------------------------|
| Primary Charging Protection       | : Current   | 25~35A                  |
|                                   | : Delaytime | 15 $\pm 2\text{s}$      |
| Secondary Charging Protection     | : Current   | $\geq 35\text{A}$       |
|                                   | : Delaytime | 3 $\pm 1\text{s}$       |
| Primary Discharging Protection    | : Current   | 30~40A                  |
|                                   | : Delaytime | 15 $\pm \text{s}$       |
| Secondary Discharging Protection  | : Current   | 40~86A                  |
|                                   | : Delaytime | 3 $\pm 1\text{s}$       |
| Over-charge Voltage Protection    | : Voltage   | $\geq 14.8\text{V}$     |
|                                   | : Delaytime | $\leq 3\text{s}$        |
| Over-discharge Voltage Protection | : Voltage   | $\geq 9.2\text{V}$      |
|                                   | : Delaytime | $\leq 3\text{s}$        |
| Temperature Protection            | : PCB Temp. | $\geq 90^\circ\text{C}$ |
|                                   | : Recover   | $\leq 65^\circ\text{C}$ |

## Constant Current Discharge Data (Amp @25°C)

|                         | 1h  | 2h   | 3h | 5h | 10h  |
|-------------------------|-----|------|----|----|------|
| Cut-off voltage (10.8V) | 15A | 7.5A | 5A | 3A | 1.5A |

## Constant Power Discharge Data (Watt @25°C)

|                         | 1h   | 2h  | 3h  | 5h  | 10h |
|-------------------------|------|-----|-----|-----|-----|
| Cut-off voltage (10.8V) | 187W | 92W | 65W | 38W | 19W |

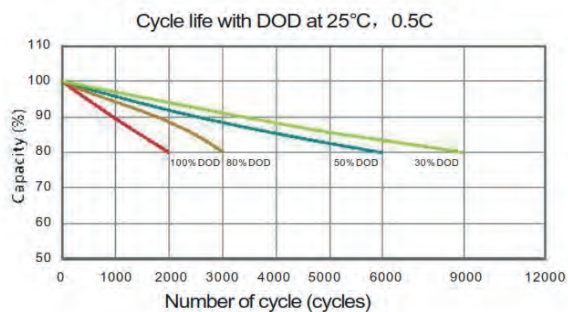
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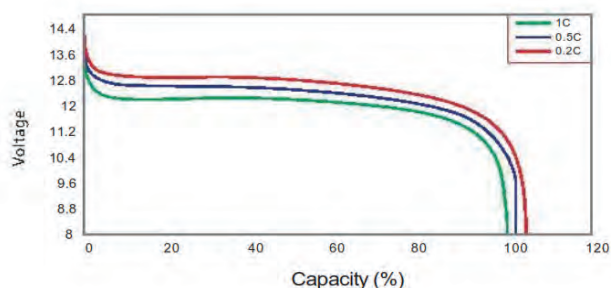
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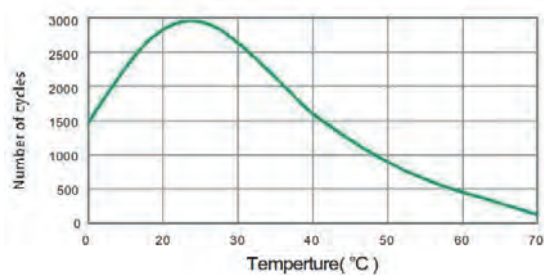
### Number of Cycles Vs. DOD



### Discharge Performance at R.T.

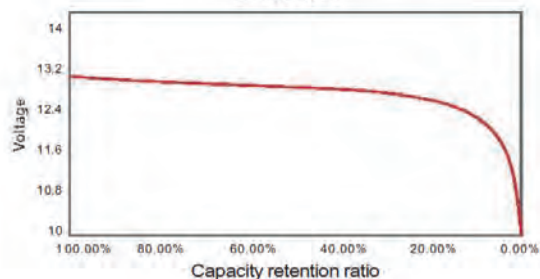


### Cycle Life in Relation to Temperature



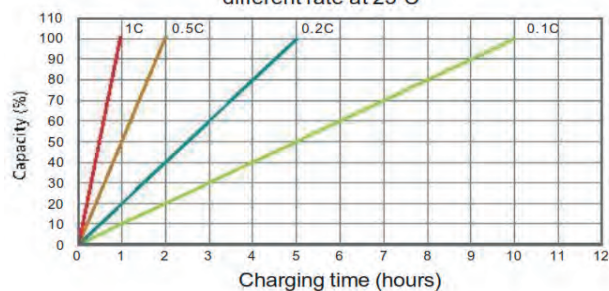
### Battery Capacity (C) Vs. Open Circuit Voltage (OCV)

SOC Vs OCV



### Battery Capacity Vs. Charging Time

Charging capacity(%) VS time with different rate at 25°C



### Temperature Effects on Capacity

