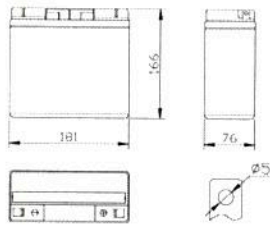


## 1. Scope

This specification is applied to the LiFePO4 battery pack without communication port distributed by Master Instruments Pty Ltd.

## 2. Specification

No.	Item	General Parameter	Remark
1	Rated Capacity	20.0Ah	Standard discharge (0.2C) after standard charge (0.2C)
2	Minimal Capacity	19.2Ah	
3	Nominal Voltage	12.8V	
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: 30min. 3) Discharge: 0.2C to 10.0V Temperature: 20±5℃ Carry out 1500 cycles
5	Discharge cut-off voltage	2.0V/cell ( > 8.0V )	10.0V recommended
6	Charging cut-off voltage	3.9V/cell ( < 15.6V )	14.6V recommended
7	Assembly method	IFR26650EC-3.3AH	4S6P
8	Housing material	ABS	
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 7.0h

10	Standard discharge	Constant current 0.2C Cut-off voltage 10.0V	
11	Maximum Continuous Charge Current	10A@20°C	
12	Maximum Continuous Discharge Current	25A@20°C	Over current 60±10A 10ms
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	2.55Kg	
16	Dimension	Height: 166 mm	
		Width: 76 mm	
		Length: 181 mm	
17	Short Circuit Protection	Recover after charging	
18	Cell balancing	Yes	

### 3. Performance And Test Conditions

#### 3.1 Standard Test Conditions

Test should be conducted with new batteries within one week after shipment from our factory and the batteries shall not be cycled more than five times before the test. Unless otherwise specified, test and measurement shall be done under temperature of  $20 \pm 5^{\circ}\text{C}$  and relative humidity of 45~85%. If it is judged that the test results are not affected by such conditions, the tests may be conducted at temperature 15~30 $^{\circ}\text{C}$  and humidity 25~85%RH.

#### 3.2 Measuring Instrument or Apparatus

##### 3.2.1 Dimension Measuring Instrument

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.01mm.

##### 3.2.2 Voltmeter

Standard class specified in the national standard or more sensitive class having inner impedance more than 10k $\Omega$ /V

##### 3.2.3 Ammeter

Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than 0.01 $\Omega$ .

##### 3.2.4 Impedance Meter

Impedance shall be measured by a sinusoidal alternating current method (1kHz LCR meter).

#### 3.3 Standard Charge/Discharge

##### 3.3.1 Standard Charge : 0.2C

Charging at 0.2C constant current until the battery reaches 14.6V. The battery shall then be charged at constant voltage of 14.6V while tapering the charge current. Charging shall be terminated when the current has tapered to 0.05C. Charge time is approx 7.0 hours, The battery shall demonstrate no permanent degradation when charged between 0 $^{\circ}\text{C}$  and 55 $^{\circ}\text{C}$ .

##### 3.3.2 Standard Discharge : 0.2C

Battery shall be discharged at a constant current of 0.2C to 10.0V @  $20 \pm 5^{\circ}\text{C}$

3.3.3 If no otherwise specified, the rest time between charging and discharging is 30min.

#### 3.4 Appearance

There shall be no such defect as crack, rust, leakage, which may adversely affect commercial value of battery.