



**Data Sheet**

**12V 20Ah LiFePO<sub>4</sub> Remote Power Pack**

Product Name	12V 20AH RFL12-20 RPP 6.8A CHRG
Part Number	7162-0058
Short Description	RFL12-20

## 1 Scope

This document describes the performance characteristics and testing methods for LiFePO<sub>4</sub> batteries.

## 2 Product type and model number

### 2.1 Product type

LiFePO<sub>4</sub> Batteries in Case

### 2.2 Model number

RFL12-20

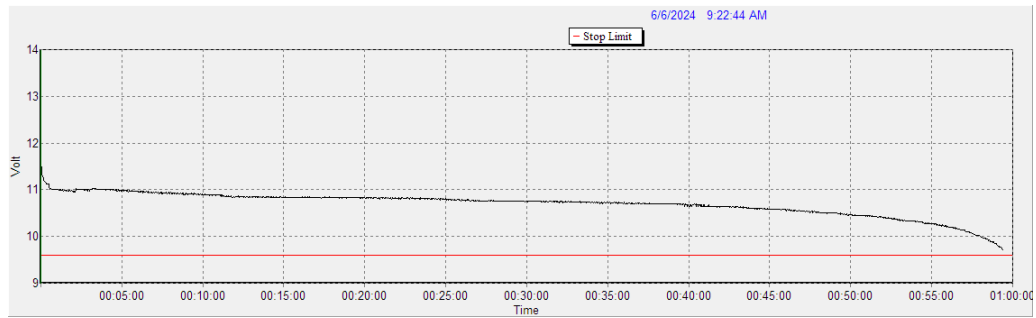
## 3 Product Information

**Table 1: Rated Performance**

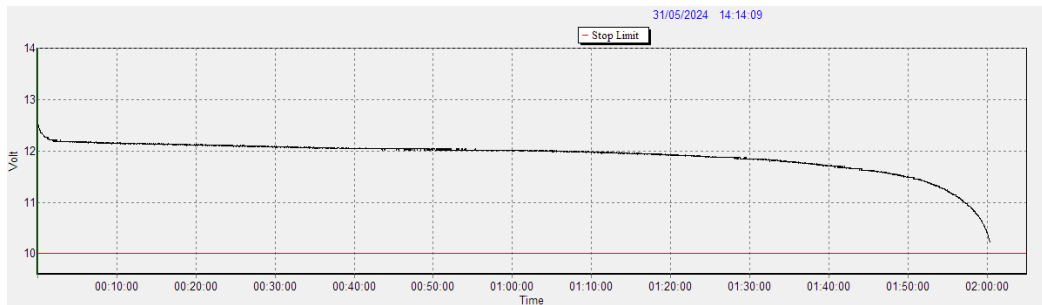
#	Item	Rated performance	Remark
1	Nominal capacity	20A	Standard discharge after standard charge
2	Nominal voltage	12.8V	Mean operation voltage during standard discharge after standard charge
3	Voltage at end of discharge	10.5V	Discharge cut-off voltage
4	Charging voltage	14.4~14.6V	
5	Standard charge	Constant current: 6.8A Constant voltage: 14.4V	Time to 100% capacity is 3-4 hours
6	Standard discharge	Constant current: 20A End voltage: 10.5V	
7	Maximum charge	Constant current: 20A	
8	Maximum continuous discharge current	20A	20A output from the Amphenol connection with 20A resettable inline fuse.
9	Peak discharge current	20A	
10	Operation temperature range	Charge: 0~50°C Discharge: -20~55°C	
11	Cycle life	> 2000 cycles	Charging/discharging in the below condition: Charge: standard charge Discharge: 20A to 10.5V Rest time between charge/discharge: 30min Until the discharge capacity < 80% of NC
12	Storage temperature	≤1 month: -20~55°C ≤3 months: -20~55°C ≤6 months: 0~25°C	0-90% R.H Best: 10~25°C for long-time storage
13	Weight	Approx: 4.3 kg	
14	Case Dimensions	Length: 270mm Width: 215mm Height 165mm	To widest points, with handle folded down.

#### 4 Discharge graphs

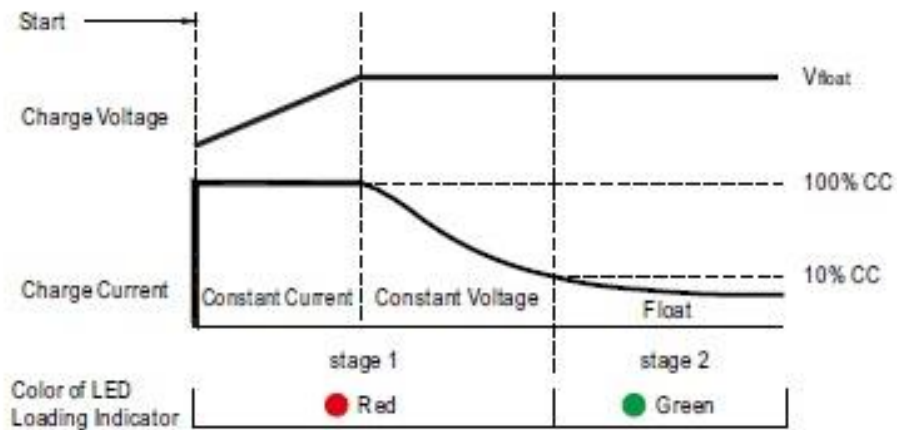
##### 20A (1C) discharge



##### 10A (0.5C) discharge



#### 5 2 stage charge graph



## Supplied items.

- DMS technologies 12V 20Ah RFL12-20 RPP
- Mains 6.8A fast charger fitted with Amphenol connector.
- Amphenol connection to bare ends wire (Length: 1m)

## 6 Product features

- One Amphenol socket fitted for external output/charger connection.
- Panel mounted Coulomb Meter.
- External illuminated power switch
- Robust case to IP67 standard.
- Dual USB charger.
- Integral BMS providing battery protection from:
  - Over charge
  - Over discharge
  - Over temperature
  - Short circuit

## 7 Amphenol connection

**Table 2: Amphenol Characteristics**

Item	Value	Remark
Number of connections	3	
Current rating per connection	20A	Ambient temperature up to 25°C
Capable of being used as Uninterrupted Power Supply (UPS)	✓	Output current must not exceed the charging current
Panel mount socket on case	n/a	AIT2-16-10SS-472 (Black RoHS compliant)
Amphenol plug	n/a	AIT6A16-10PS-472 (Black RoHS compliant)

The Amphenol sockets fitted to the Case are a 3-pin socket. They utilise wire terminals “A” for the positive (+ve) connection and “B” for the negative discharge (-ve) connection and “C” for the negative charge (-ve) connection. For more connection details and detailed wiring instructions visit [www.amphenol.co.uk](http://www.amphenol.co.uk)

## 8 Electrical performances

**Table 3: Battery Electrical Performances**

#	Items	Test procedure	Requirements
1	Nominal voltage	The average value of the working voltage during the whole discharge process.	12.8V
2	Discharge performance	The discharge capacity of the battery, measured with 0.2C <sub>5</sub> A down to 10.5V within 1 hour after a standard charge at 25±5°C	Discharge ≥ Minimum capacity
3	Capacity retention	After 28 days storage at 25±5°C, after having been standard charged and discharged at 0.2C <sub>5</sub> A to 10.5V (the residual capacity is above 90% of nominal capacity)	Discharge time ≥ 4h
4	Cycle life	Charging/discharging in the below condition: Charge: standard charge at 25±5°C Discharge: 20A to 10.5V Rest time between charge/discharge: 30min. Until the discharge capacity < 80% of nominal capacity	> 2000 cycles
5	Storage	(Within 3 months after manufactured) The battery is charged with 0.2C <sub>5</sub> A to 40-50% capacity and stored at ambient temperature 25±5°C, 0-90% RH for 12 months. After the 12 months storage period, the cell is fully charged and discharged to 10.5V with 0.2C <sub>5</sub> A	Discharge time ≥ 4h

## 9 Standard test conditions

Any tests are to be conducted with new batteries that have not been cycled more than five times before the test. Unless otherwise defined, test and measurements done under a temperature of 20±5°C and relative humidity of 0~90%.

## **10 Cautions in use**

To ensure proper use of the battery please read the following before using it.

### **10.1 Handling**

Do not expose to or dispose of the battery in fire.

Do not put the battery in a charger or equipment with wrong terminals connected.

Avoid short-circuiting the battery.

Avoid excessive physical shock or vibration.

Do not disassemble or deform the battery.

Do not immerse in water.

Do not use the battery mixed with other different make, type, or model batteries.

Keep out of the reach of children.

### **10.2 Charge and discharge**

Battery must be charged with appropriate charger only.

Never use a modified or damaged charger.

Do not leave the battery in a discharged state for over 24 hours.

### **10.3 Storage**

Store the battery in a cool, dry and well-ventilated area.

### **10.4 Disposal**

Regulations vary for different countries, dispose of in accordance with local regulations.

Dispose of responsibly by contacting your local refuse centre.

## **11 Battery operation instruction**

### **11.1 Charging**

Charging current: Must not surpass the highest charging current which is specified within Table 1.

Charging voltage: Must be regulated to the charging voltage specified within Table 1.

Charging temperature: The battery must be charged in the ambient temperature scope in Table 1.

Use constant electric current and constant voltage to charge.

Do not reverse charge.

The battery electrode and the cathodes must not meet as this can damage the battery.

### **11.2 Discharging current**

The discharge current must not surpass the highest discharge current specified in Table 1.

An oversized discharge current can cause the battery's nominal capacity to reduce and the battery to overheat.

### **11.3 Electric discharge temperature**

The battery must be discharged in the ambient temperature scope specified in Table 1.

### **11.4 Over-discharge**

When excessively discharged the battery should always be charged immediately after use to ensure the battery maintains nominal capacity and does not deteriorate.

### **11.5 Storing the batteries**

The battery should always be stored in conditions as specified in Table 1.

If the battery is left unused for a period longer than 6 months, it should be placed on charge.

## **12 Period of warranty**

The warranty provided is governed by and subject to the terms and conditions stipulated in the conditions of sale. Please refer to these conditions for comprehensive details regarding the scope, coverage, and limitations of the warranty.

## **13 Other - Chemical reaction**

Because batteries utilise a chemical reaction, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, if the various usage conditions such as charge, discharge, ambient temperature, etc. are not maintained within the specified ranges, the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage. If the batteries cannot maintain a charge for long periods of time, even when they are charged correctly, this may indicate it is time to change the battery.

## **14 Note**

Any other items which are not covered in this specification shall be agreed by both parties.