

Imperium

Lithium Battery 105

LITHIUM-ION RECHARGEABLE BATTERY PACK

PRODUCT SPECIFICATION



Product Name:

LiFePO4 Li-ion Battery Pack

Model No.:

IMP001

Specification No.:

12V/105Ah

Issue Date:

2021-07-21

SCOPE

This specification describes the performance, testing methods and safety precautions required for the Imperium LiFePO4 Li-ion battery pack supplied by Purple Line Pty Ltd.

BATTERY MODULE STRUCTURE



Item	Specification (mm)
L	330
W	173
H1	220
Charge/Discharge port type	M8
Communication mode	Bluetooth App
Serial Module numbers	N/A
Parallel Module numbers	Max.6(Voltage rangeIV)

SINGLE BATTERY MODULE PERFORMANCE

Item	Specification	Remark
3-1 Nominal Capacity	105±5%Ah	0.2C, 25±3°C
3-2 Nominal Voltage	12.8V	
3-3 Cycle Life(DOD-80% under controlled conditions)	>2000	
3-4 Battery Charge Temperature	0~45°C	
3-5 Normal Charge Voltage CV/CC	14.6V	
3-6 Standby(Float) Voltage	13.8V	
3-7 Maximum Charge Current	50A	
3-8 Recommended Charge Current for Maximum Life	20A	
3-9 Battery Discharge Temperature	-20~60°C	
3-10 Battery Output Voltage Range	10~14.6V	
3-11 Maximum Discharge Current	100A	
3-12 Pulse Discharge Current	120A	2S
3-13 Discharge Cut-off Voltage	10V	
3-14 Over-charge Protection Per Cell	3700mv	
3-15 Over-charge Release Per Cell	3350mv	
3-16 Over-charge Release Method	Discharge	
3-17 Over-Discharge Protection Per Cell	2500mv	
3-18 Over-Discharge Release Per Cell	3000mv	
3-19 Over-Discharge Release Method	Charge	
3-20 Discharge Over Current Protection	102A	
3-21 Discharge Over Current Protection Response Time	2S	
3-22 Discharge Over Current Protection Release Method	Disconnect the load	
3-23 Battery Discharge Over Temperature Protection	60°C	
3-24 Battery Discharge Low Temperature Protection	-20°C	
3-25 Battery Charge Over Temperature Protection	50°C	
3-26 Battery Charge Low Temperature Protection	-10°C	
3-27 Short Circuit Protection Current	700A	
3-28 Short Circuit Protection Response Time	300us	
3-28 Enter to Sleep	Standby for 24h	
3-29 Sleep wake up method	Charge	
3-28 Self-discharge Rate	10%/month	
3-29 Weight	10.7±0.2kg	
3-30 Storage Temperature & Humidity range	-10~45°C	

PRODUCT COMPLIANCE

The IMP001 Imperium 105Ah LiFePO4 battery has been tested and gained accreditation for the following compulsory compliance standards:

- IEC 62133-2:2017
- AS/NZS 61000.6.3:2012

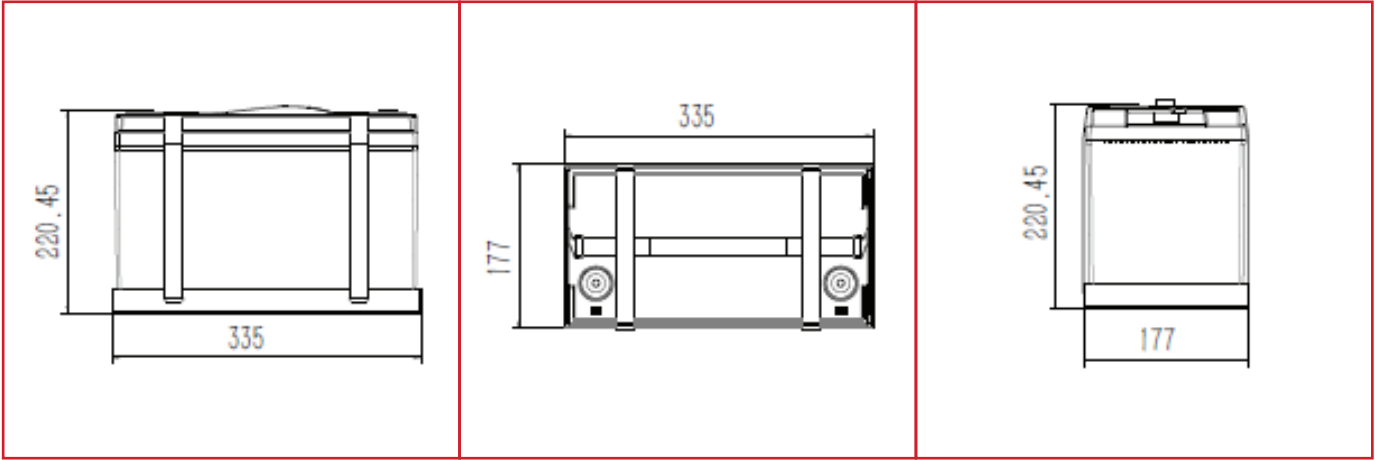
ENVIRONMENTAL CHARACTERISTICS

NO	Item	Criterion	Test Methods
1	Constant temperature and constant humidity test	No fire, no explosion, no leakage. Discharge capacity is not less than 60% nominal capacity.	After standard charge, test condition as follows: Temperature: 40±5°C Relative Humidity: 90-95%RH Storage Time:48Hours Then return to room temperature for 2 hours, discharge to cut-off Voltage at 15A.
2	Vibration test	No fire, no explosion, no leakage.	After standard charged, fix the cell to vibration table, then subjected to vibration test for 30 minutes per axis of XYZ axes. Frequency rate: 1oct/min Vibration frequency: 10Hz-30Hz Excursion (single amplitude): 0.38mm Vibration frequency: 30Hz-55Hz Excursion (single amplitude): 0.19mm
3	Shock test	No fire, no explosion, no leakage.	After standard charged, test condition: Acceleration:100m/s ² Pulse lasting time: <16ms Shock times: 1000±10 times
4	Drop test	No fire, no explosion e, no leakage.	Drop the battery in the shipment condition from 1m height onto 5cm or thicker concrete with p-tile on it 3 times each of X, Y and Z directions.

SAFETY PERFORMANCE

NO	Item	Criterion	Test Methods
1	Over-charge test	No fire, no explosion	<p>Charge in accordance with the following two ways(Choosing one between the two).</p> <p>(1)Charge at 1C current for 90min or until voltage of certain single battery reaches 5.0V(stop test when fulfills either condition).</p> <p>(2)Charge at 3C current until the voltage of certain single battery reaches 10.0V, then stop the test.</p>
2	Over- discharge test	No fire, no explosion	<p>Charge the battery. Place at 20±5°C for 1h, then discharge in 1/3C current at the same temperature until certain cell's voltage is 0V (if there are electronic protection circuit, remove it temporarily).</p>
3	Heating test	No fire, no explosion	<p>After standard charged, the battery is to be heated in a gravity convection or circulating air oven. The temperature of the oven is to be raised at a rate of (5±2)°C/min to a temperature of 150°C±2°C, keep that temperature for 30 minutes before the test is discontinued.</p>
4	Short circuit test	No fire, no explosion	<p>After standard charged, the battery shall be subjected to a short-circuit condition with a wire of resistance less than 3mΩ for 1 hour. Temperature less than 115°C.</p>
5	Prick test	No fire, no explosion	<p>After standard charged, hitting from the direction perpendicular to the series batteries with a nail of 3~8mm diameter and more than 90 mm in length, nail pierces through at least three parallel batteries. Keep the nail in the batteries for at least 1h.</p>
6	Impact test	No fire, no explosion	<p>After standard charged, the battery is to be placed on a flat surface, A 10Kg weight is to be dropped from a height of 1m onto the battery.</p>
7	Squeeze test	No fire, no explosion	<p>After standard charged, Put the battery between two squeeze plates of the Extrusion equipment, then increase pressure to 13kN, hold on for 1 min. The squeeze direction is on the direction perpendicular to arranged battery.</p>

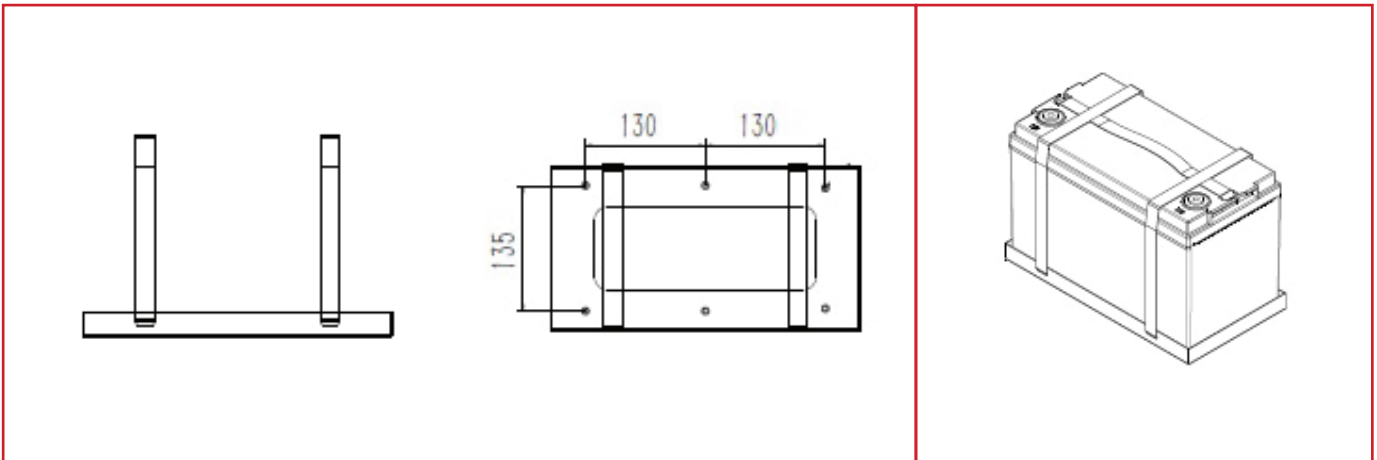
PRODUCT DIMENSIONS



SIDE

TOP

TOP



TRAY & STRAP

**12V105AH WITH
TRAY & STRAP**

STORAGE AND TRANSPORTATION

STORAGE

When the battery pack is going to be placed into long term storage, firstly charge it up to about 50% capacity prior to storage. Ensure that it is stored in a dry and ventilated location. Charge and discharge the battery every 3 months.

TRANSPORTATION

Pack the battery securely prior to transportation, in a way that prevents excessive vibration, exposure of any part of it or potential for it to be struck by anything. Ensure that it is not exposed to the elements, i.e. sun, rain, etc.

BATTERY HANDLING PRECAUTIONS

- DO NOT submerge the battery in water, or get it wet
- DO NOT charge, use or store the battery near a heat source such as fire and heater
- If the battery leaks or releases a strange odour, remove it immediately and call the manufacturer
- Fully charge the battery before it's first-time use
- DO NOT reverse the positive and negative pole
- DO NOT expose the battery pack to fire or heat
- DO NOT short-circuit the battery pack with wire or other metal objects
- DO NOT tamper with or disassemble the battery pack in any way
- If the battery pack gives off an unusual odour, heat, starts to deform or discolour in any way stop using it. Immediately disconnect the battery and remove it. Report to the manufacturer.
- DO NOT use battery pack under direct sunlight
- If the battery leaks and electrolyte leakage enters into the eyes, do not rub. Rinse with water immediately and seek immediate medical assistance.
- BE AWARE - the ambient temperature will affect the discharge capacity and if the ambient temperature is beyond the standard environment (25±5),°C the discharge capacity will drop

SPECIAL CONSIDERATIONS:

- During charging, if you detect an unusual odour or noise, immediately stop charging.
- During discharging, if you detect an unusual odour or noise, immediately stop discharging.
- If either of the above happens please contact the manufacturer. DO NOT disassemble the battery by yourself.

WARRANTY

1. The battery has a 2 year manufacturers warranty.
2. Purple Line assumes no responsibility for damage or injury caused by not operating the product in accordance with this specification.
3. All information contained within this document is correct at the time of publication. If the contents of this specification are updated due to ongoing product developments the latest product information can be found at:

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Photographs & diagrams for illustration purposes only. Actual product may differ slightly. All weights & dimensions are approximate. The manufacturer reserves the right to change product specification without prior notice. E & OE.