

48V 25Ah Portable Lithium-ion Battery Pack

Data Sheet

Model: pJIL-48V/25Ah-PA5-1A

Maintenance-free lead acid replacement with standard plug output,
3-5 year lifetime with 3 year limited warranty,
integrated dual-layer BMS protection, IP54 watertight enclosure,
current, voltage and temperature monitoring.



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1. Features

Safe

- Designed to the highest automotive standards
- Integrated autonomous JTT P-Series BMS ensures 24/7 battery performance and safety
- Protects against: short circuit, cell overvoltage, cell undervoltage, charge overcurrent, discharge overcurrent, over and under temperature
- Monitors: battery current, 13 cell voltages and 2 cell temperatures

High-performance

- High-power NMC lithium-ion cells
- 25 A continuous discharge current
- 15 A continuous charge current
- Extremely low power dissipation (Shelf-life of more than 5 years)
- Up to 85 mA passive cell balancing

2. Description

The JTT 48V 25Ah portable battery pack is a compact, safe and economical lithium-ion battery pack. This standalone battery pack was designed for electric scooters, with high-power NMC lithium-ion cells. No additional equipment is needed for the safe operation of this battery pack.

In extreme operating conditions, the integrated P-Series BMS disconnects the battery from the system. This ensures safe operation and protects the battery pack against short circuits, over-charge, over-discharge, overcurrent, over temperature and under temperature events.

Convenient

- Direct lead acid replacement
- Standard plug power output
- 3 to 5 year lifetime
- 3 year limited warranty
- Short charging times
- Portable and lightweight, less than 9 kg (20 lb)
- IP54 watertight enclosure
- Compatible with regenerative braking systems

The integrated JTT P-Series BMS passively balances the charge between all cells in the battery pack. Energy is discharged from the cells with the highest charge in the pack, which maximizes the runtime of the battery pack and extends its life.

This lithium-ion battery pack is maintenance free, and has a longer run time with a shorter recovery time than equivalent lead acid battery packs. It weighs 70% less and takes up 60% less space than equivalent lead acid battery packs, providing increased range and product compatibility.

3. Applications

- Electric scooters
- Electric bikes
- Portable battery pack
- Backup power

4. Related Products and Accessories

- (**pBMS-NMC-13-1A**) Integrated P-Series BMS controller
- (**JLC-54.6V/5A**) 48V Lithium-ion Battery Charger
- (**JBA-PA5-1A**) Portable Battery Pack Carrying Strap

5. General Usage Guidelines

USING

The JTT 48V 25Ah portable battery pack can be used at ambient temperatures between -20 and 40°C. A typical use is in a 500 W electric scooter with regenerative braking.

CHARGING

Charge only with JTT approved chargers between 0 and 40°C. Lower amp chargers (5 A) will result in longer battery lifetime, higher amp chargers (15 A) will result in a faster charge time.

STORING

Store between 0 and 35°C. To maximize battery lifetime, store at 50% to 100% charge capacity, and recharge the battery every 3 months.

6. Operations

MODES OF OPERATION

The JTT 48V 25Ah portable battery pack has two modes of operation: active mode and low power mode.

In active mode all BMS monitoring operates normally. Active mode is entered automatically when battery use is detected.

Low power mode maintains all battery and safety protections, but with a reduced measurement frequency. This reduces power consumption and increases shelf life without sacrificing safety. Low power mode is entered automatically when the battery has not been used for 5 minutes.

For details on BMS operating parameters, see the P-Series BMS data sheet available on our website.

DISCHARGING

The JTT 48V 25Ah portable battery pack can provide up to 25 A of continuous current.

CHARGING

The JTT 48V 25Ah portable battery pack should only be charged with JTT approved chargers. Charging with a 5 A charger will result in a slightly longer battery lifetime, but our battery is compatible with up to 15 A charging for convenience.

The battery pack is compatible with charging from regenerative braking technology.

PACK MONITORING

The JTT 48V 25Ah portable battery pack monitors 13 cell voltages, 2 cell temperatures and battery current. For more information about monitoring specifications, see the P-Series BMS data sheet available on our website.

PASSIVE CELL BALANCING

The integrated P-Series BMS provides passive balancing of up to 85 mA. Cell balancing is achieved by discharging energy from the highest charged cells, resulting in increased pack lifetime with a higher capacity and longer runtime than unbalanced battery packs.

PRIMARY FAULT PROTECTION

The integrated P-Series BMS monitors the battery to ensure safe operation. Protections include: cell undervoltage and overvoltage, low and high temperature, short circuit, charging overcurrent, and discharging overcurrent. The cell thresholds are configured according to the lithium-ion cell chemistry.

If a protection is triggered, solid state relays open to disconnect the battery from the system and ensure safety.

All battery pack protection thresholds, timing and recovery conditions are contained in the P-Series BMS data sheet available on our website.

SECONDARY FAULT PROTECTION

The integrated P-Series BMS will permanently disconnect the battery pack from the system if the primary protection system is compromised, ensuring battery pack safety.

7. Block Diagram

The following block diagram shows the internal pack components and their configuration. This diagram is for informational purposes only and does not reflect the physical placement of components. For details on our P-Series BMS operating parameters, see the P-Series BMS data sheet available on our website.

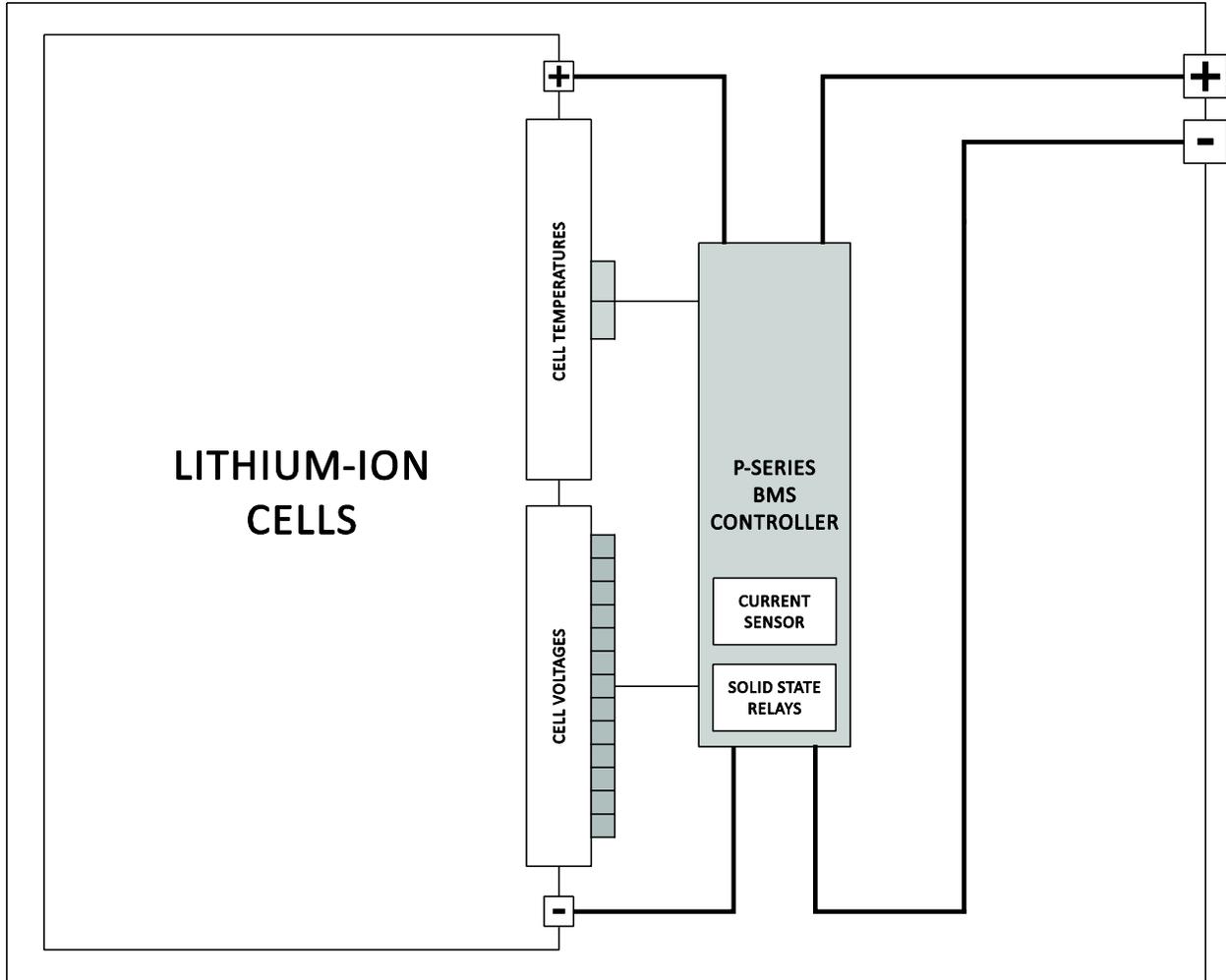


Figure 1. JTT 48V 25Ah portable battery pack block diagram.

8. Typical Application

The JTT 48V 25Ah portable battery pack is typically used in electric scooters, backup power systems and other portable power applications.

The following is an example of a JTT 48V 25Ah portable battery pack used in a 48 V electric scooter with a charger.

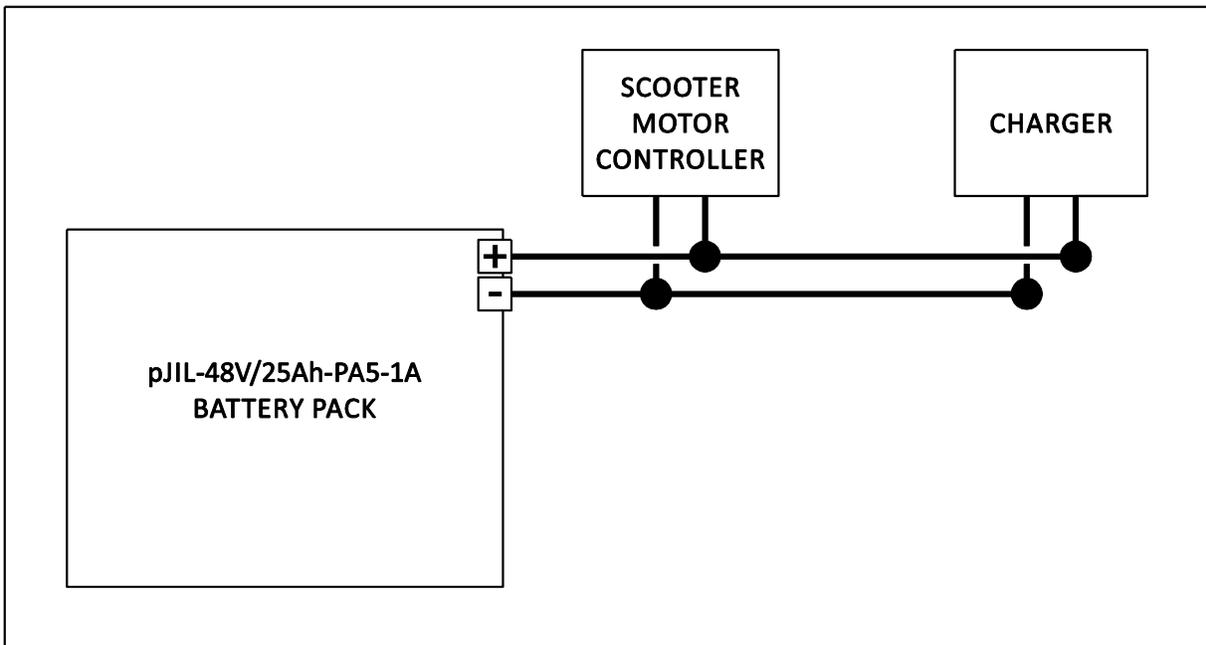


Figure 2. JTT 48V 25Ah portable battery pack connected to a charger and a scooter motor controller.

9. Product Characteristics

PARAMETER	MIN	TYP	MAX	UNITS
Battery Pack Specifications				
Voltage output	39	48	54.6	V
Capacity (@ 25°C)		25		Ah
Energy		1.2		kWh
Discharging current (continuous)		25	30	A
Charging current (continuous)		15	18	A
Charging voltage			54.6	V
Physical Characteristics				
Width		145 (5.7)		mm (in)
Height		225 (8.8)		mm (in)
Length		155 (6.1)		mm (in)
Weight		8.6 (18.5)		kg (lb)
Operating Conditions				
Discharge temperature range	-20		40	°C
Charge temperature range	0		40	°C
Storage temperature range	0		35	°C

NOTE

For more detailed information on the integrated P-Series BMS and monitoring parameters, please see the P-Series BMS data sheet available on our website.

10. Connectors and Pin Out

Connector	Connector Standard	
Power Output	IEC 60320 C14	

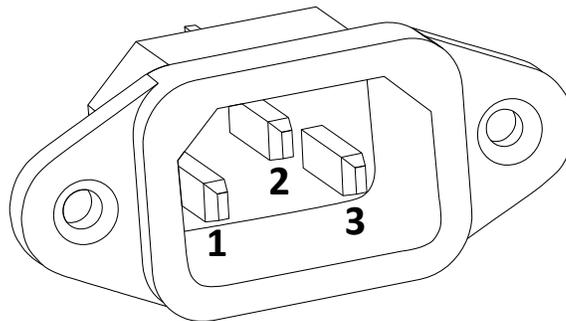


Figure 3. JTT 48V Battery power plug pin assignment.

Cell Voltage and Temperature Monitoring			
Pin	Tag	AWG	Description
1	SYS +	14	Battery pack positive output
2	Not Used	-	N/A
3	SYS -	14	Battery pack negative output

11. Size and Mounting

All measurements are given in mm.

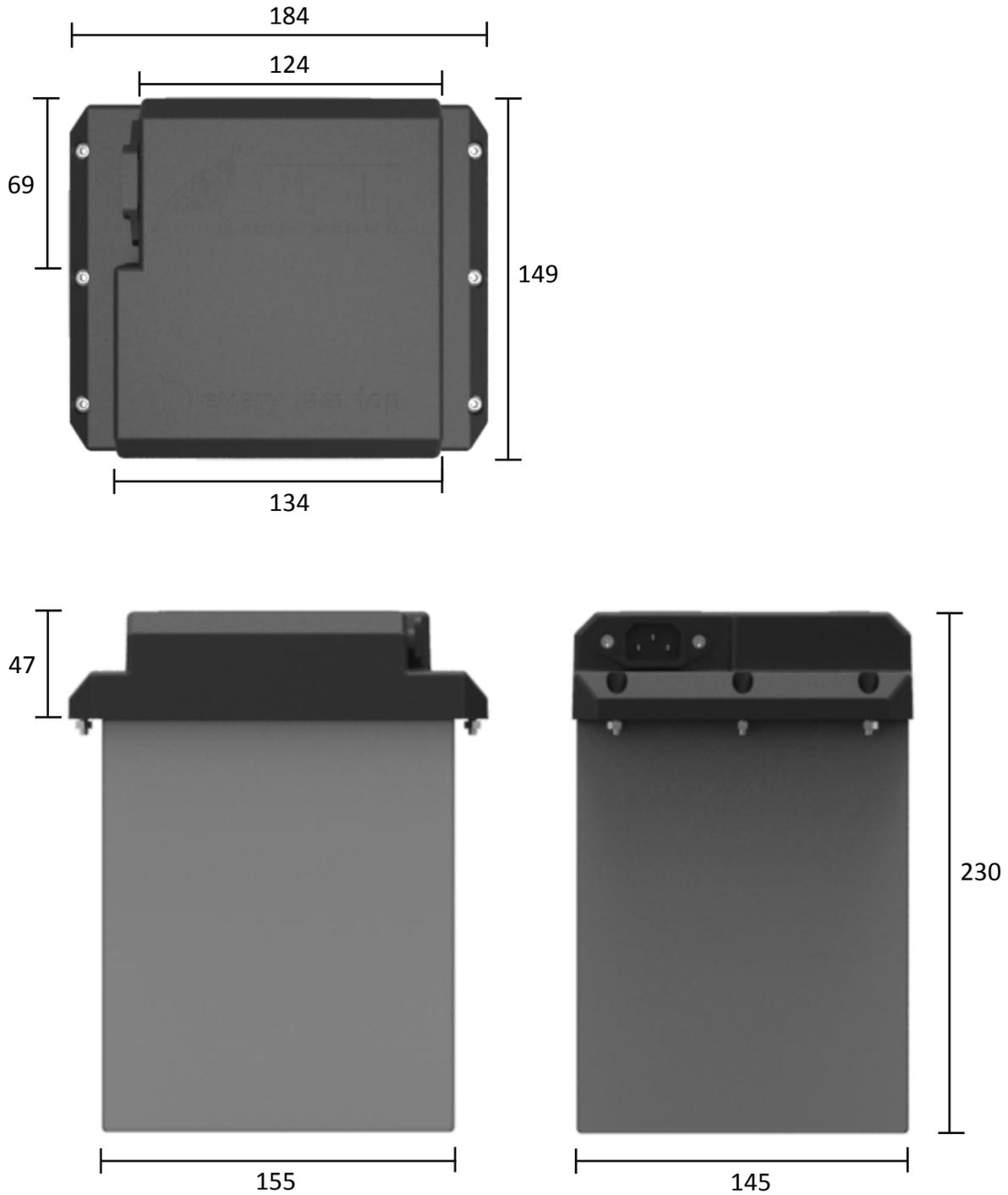


Figure 4. JTT 48V 25Ah portable battery pack dimensions.