10S30A 36V without Switch

BeMuchSafer 10S 30A 36V Battery Management System (BMS) Instruction Manual

Model: 10S30A 36V without Switch

1. Introduction

This manual provides essential information for the safe and effective use of your BeMuchSafer 10S 30A 36V Battery Management System (BMS). This BMS is designed to protect 10-series lithium-ion battery packs, commonly used in DIY eBike battery applications. It features a separate charging port with a diode for enhanced safety and includes a temperature sensor.
Please read this manual thoroughly before installation and operation to ensure proper functionality and to prevent damage to the BMS or battery pack.

2. Safety Instructions

WARNING: Improper installation or use of a BMS can lead to serious injury, fire, or damage to equipment. Always follow these safety guidelines:

- Ensure all connections are correct and secure before applying power. Incorrect wiring can cause irreversible damage.
- Work in a well-ventilated area.
- Wear appropriate personal protective equipment (PPE), including safety glasses and insulated gloves.
- Do not short-circuit the battery terminals or BMS connections.
- Verify the battery pack voltage and cell count (10S) match the BMS specifications (36V nominal).
- Keep the BMS away from water, moisture, and extreme temperatures.
- If the BMS shows signs of damage or malfunction, discontinue use immediately.
- Installation should only be performed by individuals with knowledge of electronics and battery systems.

3. Product Features

The BeMuchSafer 10S 30A 36V BMS provides comprehensive protection for your 10-series lithium battery pack. Key features include:

- **Cell Configuration:** Designed for 10-series (10S) battery packs.

- **Current Rating:** Maximum continuous discharge current of 30A, maximum continuous charging current of 5A.
- **Separate Port Design:** Dedicated ports for charging and discharging.
- **Charging Port Diode:** The charging input circuit is protected by a diode.
- **Temperature Sensor:** Integrated temperature detection for high and low temperature protection during charging and discharging.
- **Basic Protection Functions:**
  - Over Voltage Protection
  - Under Voltage Protection (Over-discharge Protection)
  - Over Charging Current Protection
  - Over Discharging Current Protection
  - Short Circuit Protection
- **Compact Size:** Dimensions of 65mm x 35mm x 11mm.

Figure 3.1: Front view of the BeMuchSafer 10S 30A 36V BMS, showing its compact design and main components.

4. Setup and Installation

Proper wiring is crucial for the correct operation and safety of the BMS. Refer to the wiring diagram below and follow the steps carefully.

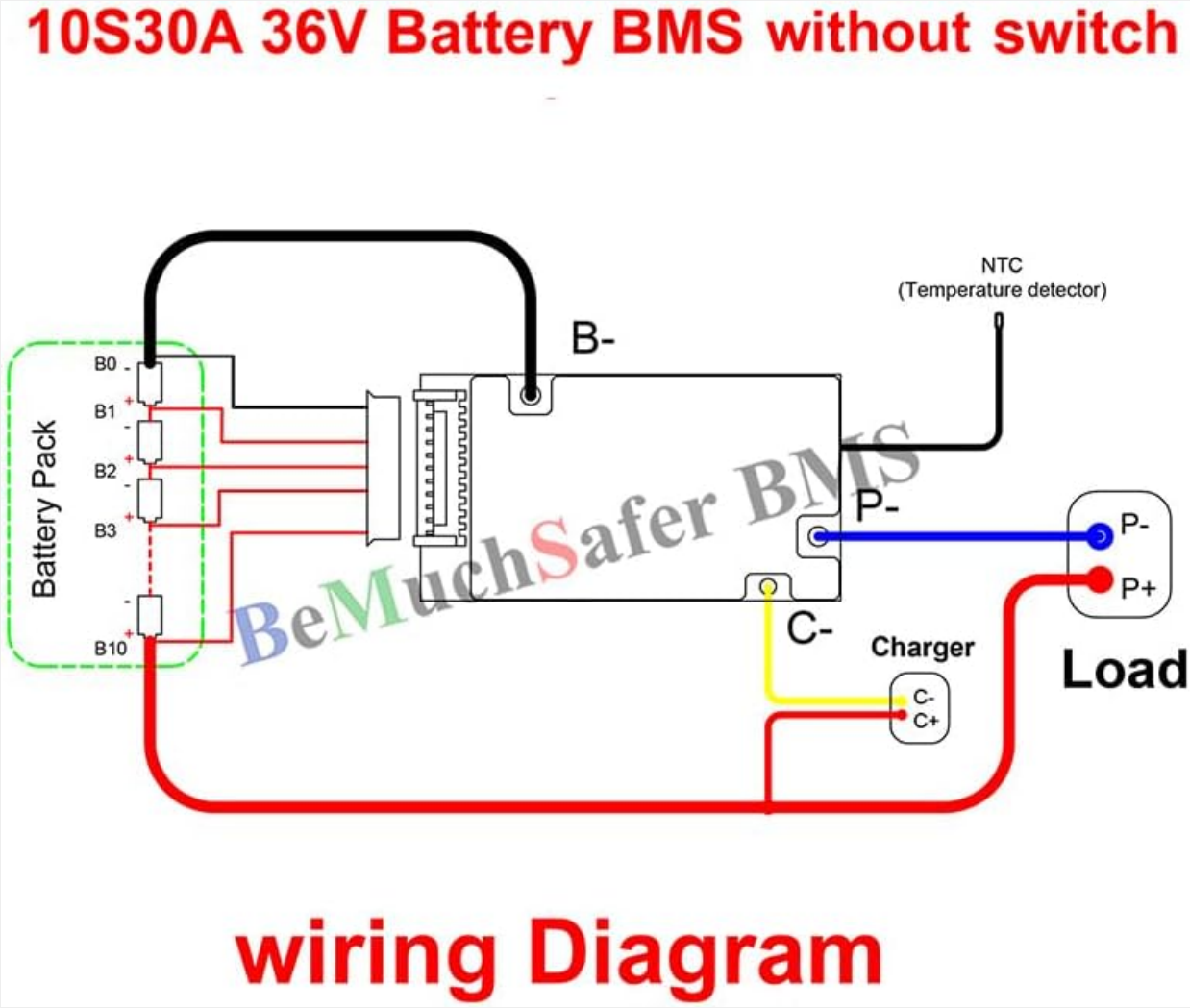

Figure 4.1: Wiring Diagram for the 10S 30A 36V Battery BMS. This diagram illustrates the connections for the battery pack, charger, and load.

4.1 Wiring Steps:

1. **Connect B- (Thick Black Wire):** Connect the thick black wire labeled "B-" from the BMS to the negative terminal of the entire 10S battery pack (B0).
2. **Connect Balance Wires:** Connect the balance wires (B0, B1, B2, ... B10) from the BMS to the corresponding positive terminals of each cell in the battery pack. Ensure the order is correct, starting from B0 (negative of the first cell) up to B10 (positive of the last cell, which is the main positive of the pack). The B0 wire is typically the same as the main B- connection.
3. **Connect P- (Thick Blue Wire):** Connect the thick blue wire labeled "P-" from the BMS to the negative terminal of your load (e.g., eBike motor controller).
4. **Connect C- (Thick Yellow Wire):** Connect the thick yellow wire labeled "C-" from the BMS to the negative terminal of your charger.
5. **Connect NTC (Temperature Sensor):** Connect the NTC (temperature detector) wires to the battery pack, ideally in the center, to monitor battery temperature.
6. **Connect P+ (Main Positive):** The main positive terminal of the battery pack (B10) serves as the P+ for both the load and the charger.
7. **Connect C+ (Charger Positive):** The positive terminal of the charger connects directly to the main positive terminal of the battery pack (P+).

Important: Double-check all connections for polarity and sequence before applying power. Incorrect wiring can permanently damage the BMS and battery.

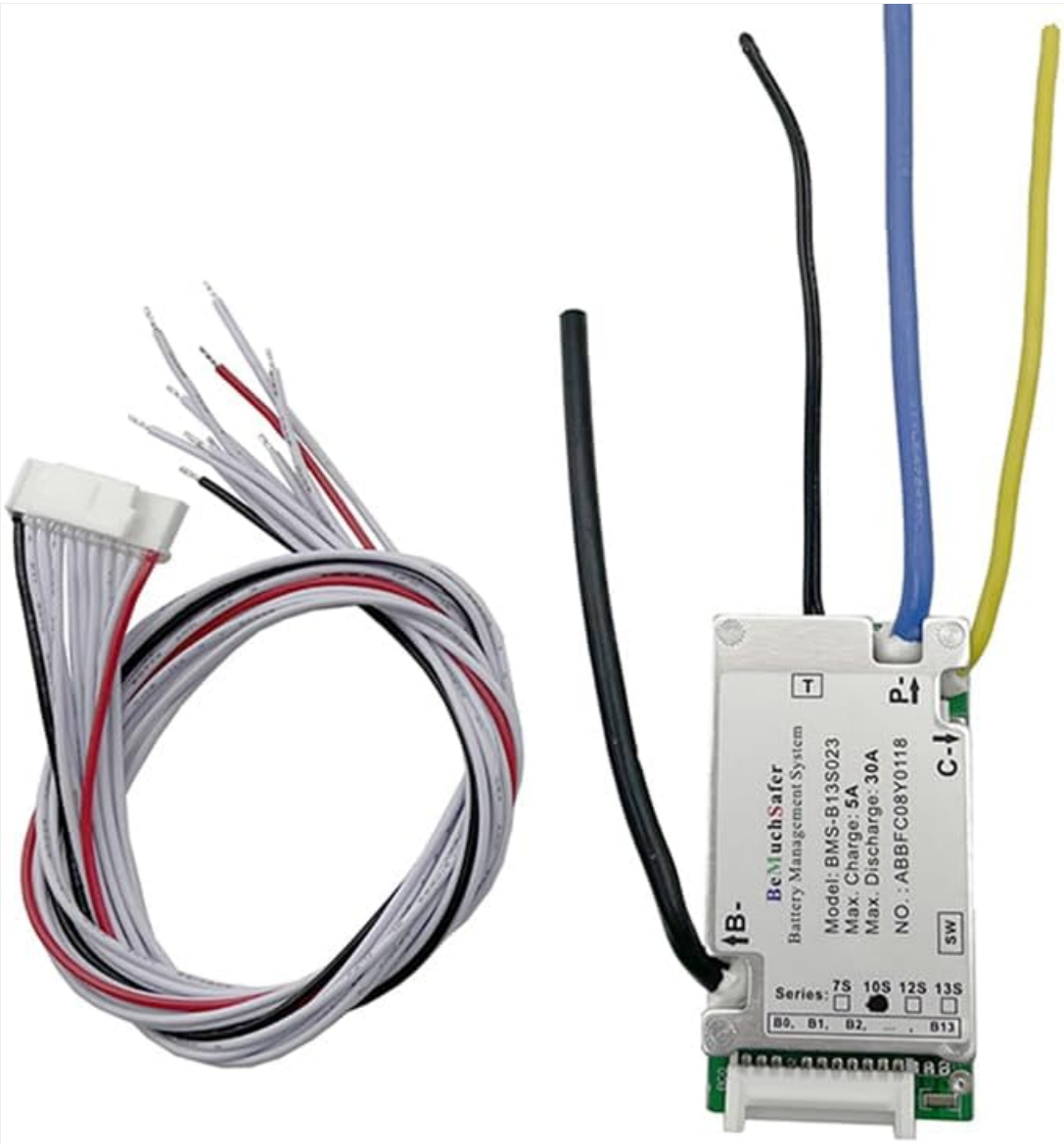

Figure 4.2: The BMS module showing the multi-pin connector for balance wires and main power connections.

5. Operating Instructions

Once properly installed, the BMS operates automatically to protect your battery pack. There are no user-adjustable settings or controls on this model.

- **Charging:** Connect your 42V (10S) charger to the designated charging port (C- and P+). The BMS will manage the charging process, preventing overcharging and high-temperature charging.
- **Discharging:** Connect your load (e.g., eBike motor) to the designated discharge port (P- and P+). The BMS will monitor discharge current, preventing over-discharge, overcurrent, and high/low-temperature discharging.
- **Protection Activation:** If any protection threshold is exceeded (e.g., over-discharge, overcurrent), the BMS will temporarily cut off power to protect the battery. Power will typically resume once the condition returns to normal.

6. Maintenance

The BeMuchSafer BMS requires minimal maintenance. Follow these guidelines to ensure its longevity:

- Keep the BMS clean and free from dust and debris.
- Periodically inspect all wiring connections for tightness and signs of corrosion or damage.
- Ensure the BMS is mounted in a location that allows for adequate airflow and prevents excessive heat buildup.

- Avoid exposing the BMS to direct sunlight or extreme temperatures.

7. Troubleshooting

If you encounter issues with your BMS, consider the following:

Problem	Possible Cause	Solution
No output power from BMS.	Battery pack is over-discharged. Short circuit detected. Overcurrent protection activated. Incorrect wiring.	Charge the battery pack. Check for short circuits in the load or wiring. Reduce load current. Verify all wiring connections according to the diagram.
Battery not charging.	Charger not connected correctly. Over-voltage protection activated (battery already full). High-temperature charging protection activated. Faulty charger.	Check charger connections to C- and P+. Monitor battery voltage. Allow battery to cool down. Test charger functionality.
BMS becomes excessively hot.	Excessive discharge current. Poor ventilation. Internal fault.	Reduce load. Ensure adequate airflow around the BMS. Discontinue use and inspect for damage.

If problems persist after following these steps, contact a qualified technician or the product supplier for assistance.

8. Specifications

Parameter	Value
Model	BMS-B13S023-10S30A 36V (without Switch)
Cell Configuration	10 Series (10S)
Nominal Voltage	36V
Max. Continuous Charging Current	5A
Max. Continuous Discharge Current	30A
Charging Port Type	Separate Port with Diode Protection
Balance Function	Without (No active balancing)
Temperature Protection	High and Low Temperature (Charging and Discharging)
Dimensions	65mm x 35mm x 11mm
Input Voltage (Charger)	42 Volts (for 10S 36V battery)
Output Voltage (Load)	36 Volts (nominal)

9. Warranty and Support

This product is manufactured by PURO POWER. For warranty information or technical support, please refer to the retailer's policy or contact the manufacturer directly. Keep your purchase receipt as proof of purchase.
Ensure to provide the model number (10S30A 36V without Switch) and any relevant details when seeking support.