

DALY 20S72

DALY BMS Li-ion 72V 80A 20S Protection Board with Cooling Fan Instruction Manual

Model: 20S72

1. INTRODUCTION

This manual provides essential instructions for the DALY Li-ion 72V 80A 20S Battery Management System (BMS) with Cooling Fan. This device is designed to protect 20-series lithium-ion battery packs, ensuring their safe and efficient operation in various applications such as solar panel energy systems and DIY electricity supply. The BMS monitors and manages battery cells to prevent damage and extend battery lifespan.

2. SAFETY INFORMATION

Please read and understand all safety precautions before installation and operation. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- Installation should only be performed by qualified personnel with knowledge of electrical systems and battery safety.
- Always wear appropriate personal protective equipment (PPE), including insulated gloves and eye protection.
- Ensure the battery pack voltage and cell count match the specifications of this BMS (72V, 20S Li-ion).
- Avoid short-circuiting the battery terminals or BMS connections.
- Do not expose the BMS to water, excessive moisture, or extreme temperatures.
- Verify all wiring connections are correct and secure before applying power. Incorrect wiring can cause damage to the BMS, battery, or connected equipment.

3. PACKAGE CONTENTS

Verify that all items are present in the package:

- 3.7V Li-ion BMS (1 unit)
- NTC sensor (1 unit)
- Sampling cable (1 unit)
- Instruction Manual (1 unit)

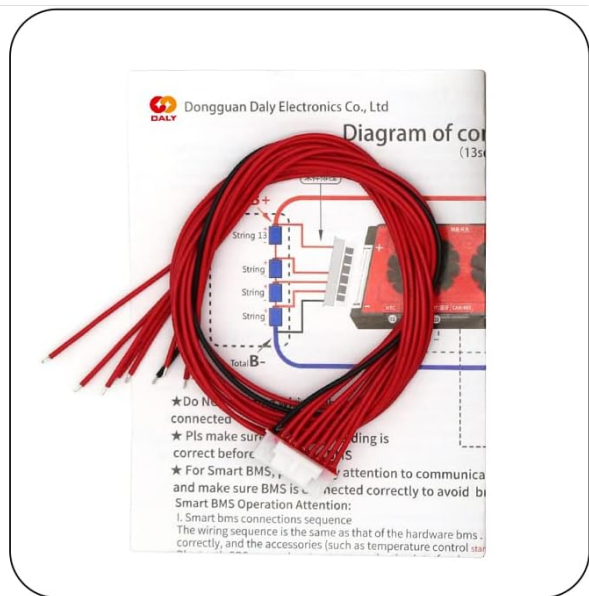


Image: Contents of the DALY BMS package, showing the main BMS unit, the included wiring harness, and a temperature sensor.

4. PRODUCT OVERVIEW

The DALY 72V 80A 20S Standard BMS is designed to provide comprehensive protection for your lithium-ion battery pack. Key features include:

- **Overcurrent Protection:** Prevents excessive current draw.
- **Overcharge Protection:** Safeguards against overcharging individual cells.
- **Overdischarge Protection:** Protects cells from being discharged too low.
- **Short Circuit Protection:** Automatically disconnects in case of a short circuit.
- **Temperature Protection:** Monitors and protects against extreme temperatures.
- **Cooling Fan:** Integrated fan for thermal management during high current operation.
- **Balance Function:** Helps maintain cell voltage consistency.

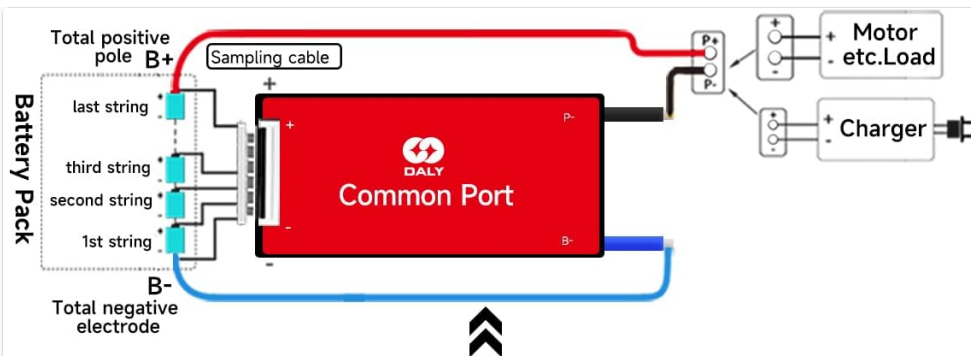


Image: Top-down view of the DALY 72V 80A 20S BMS, highlighting its red casing, integrated cooling fans, and main connection terminals.



Image: Angled view of the DALY 72V 80A 20S BMS, providing a clearer look at the cooling fan vents and the port for connecting the balance wires.

5. SPECIFICATIONS



(schematic diagram of the same pole)

1.The sequence of the protective board connection battery wiring:

※ Special attention: The wire cable of different manufacturers are not same standard, please make sure to use he-matching cables; the colors of B- and P- lines of different manufacturers are different, please pay attention to the B- and P- marks.

1、Remember! !! When welding sampling wire cable, do not insert the cable into the BMS.

2.The cable connects the total negative electrode B-from the fine black line. The second wire (red wire) is connected to the positive pole of the first string of batteries.Connect the positive electrode of each string of batteries in turn until the last wire cable of the total positive B+.

3.After the cable is connected, do not insert the plug directly into the BMS.First measure the voltage between each two adjacent metal terminals on the back of the plug. If it is a ternary lithium battery, the voltage should be between

3.0~4.15V, and the iron-lithium battery should be 2.5~ Between 3.6V, lithium titanate battery should be between

1.8~2.8V,make sure the voltage is correct before proceeding to the next step.

4.Receive the BMS B-line (blue thick line) to the total battery negative electro-de (B-line length should not exceed 40cm).

2. After the wiring is completed:

1.Measure whether the voltage of battery B+, B- is equal to the voltage of B+ and P- (that is, whether the voltage of the battery pack itself is equal to the voltage after passing through the protection board, if they are equal, the BMS is working normally, which can be used normally. If not , please follow Re -check the sequence of the wiring above.

2.The positive electrodes of the charging and discharging end are all directly connected to the total positive pole B+ of the battery; the wiring method of the same port BMS is that the charging and discharging negative poles are connected to the P- point of the BMS; the wiring method of the branch BMS is the negative pole of charging Connected to C-, the negative electrode of discharge is connected to P-

3.Finally, if you have any questions, please contact the customer

Image: Detailed specifications table for the DALY Li-ion 20S 80A BMS, including electrical parameters and physical characteristics.

Parameter	Value
Product Type	Li-ion 20S 80A Common Port with Balance
Discharge Current	80A
Over-discharge Current	360A ± 50A
Charge Current	40A
Overcharge Current	140A ± 20A
Overcharge Voltage	4.25V ± 0.05V (any string)
Over-discharge Voltage	2.7V ± 0.05V (any string)
Charge Voltage	S*4.2V (where S is the number of series cells)
Dimensions (L x W x H)	5.9 x 2.59 x 0.94 inches (150 x 66 x 24 mm)
Output Wire	7AWG / 100mm
Balance Wires	24AWG / 450mm

6. SETUP AND INSTALLATION

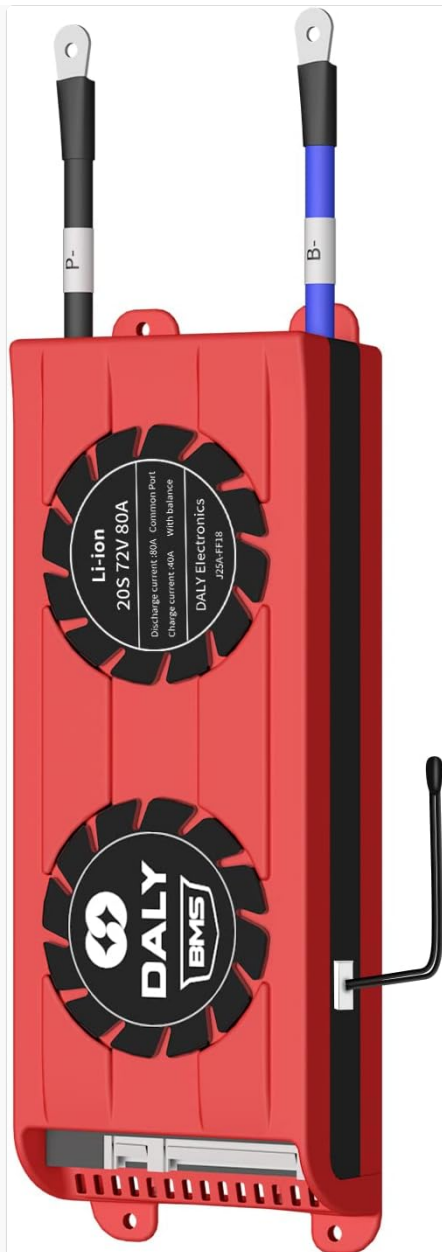
Careful wiring is crucial for the correct operation and safety of the BMS and battery pack. Follow these steps precisely:

6.1. Protective Board Connection Battery Wiring Sequence

1. **Special Attention:** The wire colors of different manufacturers are not standard. Ensure you use the provided matching cables. The colors of B- and P- lines from different manufacturers may vary. Pay attention to the B- and P- marks on the BMS.
2. **Important:** When welding the sampling wire cable, do not insert the cable into the BMS until all other connections are made.
3. Connect the total negative electrode B- of the battery pack to the fine black line of the sampling cable. The second wire (red wire) connects to the positive pole of the first string of batteries. Continue connecting the positive electrode of each battery string in turn until the last wire connects to the total positive B+.
4. After the cable is connected, do not insert the plug directly into the BMS. First, measure the voltage between each two adjacent metal terminals on the back of the plug. If it is a ternary lithium battery, the voltage should be between 3.0-4.15V. For iron-lithium batteries, it should be 2.5-3.6V. For lithium titanate batteries, it should be between 1.8-2.8V. Ensure the voltage is correct before proceeding to the next step.
5. Connect the BMS B- line (thick blue line) to the total battery negative electrode (B- line length should not exceed 40cm).

6.2. After Wiring is Completed

1. Measure the voltage of battery B+, B- which should be equal to the voltage of B+ and P- (that is, whether the voltage of the battery pack itself is equal to the voltage after passing through the protection board). If they are equal, the BMS is working normally. If not, please re-check the sequence of the wiring above.
2. The positive electrodes of the charging and discharging end are all directly connected to the total positive pole B+ of the battery. The wiring method of the same port BMS is that the charging and discharging negative poles are connected to the P- point of the BMS. The wiring method of the branch BMS is the negative pole of charging connected to C-, and the negative electrode of discharge is connected to P-.



Specifications

Product: Li-ion 20S 80A common port with balance
Discharge current: 80A
Over-discharge current: 360A±50A
Charge current: 40A
Overcharge current: 140A±20A
Overcharge voltage: 4.25V±0.05V (any string)
Over-discharge voltage: 2.7V±0.05V (any string)
Charge voltage: S*4.2V
Size: 65*184*33mm
Output wire: 7AWG / 100mm
Balance wires: 24AWG / 450mm

Image: Schematic diagram illustrating the wiring connections for the DALY BMS, including the battery pack, motor/load, and charger, with clearly labeled B+, B-, and P- terminals for a common port configuration.

7. OPERATING INSTRUCTIONS

This DALY BMS is a standard model, meaning it operates automatically to provide protection without requiring user intervention for its core functions. Once correctly installed and connected, the BMS continuously monitors the battery pack's voltage, current, and temperature. It will automatically activate its protection mechanisms (e.g., cut off discharge/charge) if any parameter exceeds safe limits.

Note: This Standard BMS does not include communication functions (e.g., Bluetooth, UART, RS485). For advanced monitoring or programmable features, a Smart BMS model would be required.

8. MAINTENANCE

To ensure the longevity and optimal performance of your DALY BMS:

- Regularly inspect all wiring connections for tightness and signs of corrosion.
- Keep the BMS clean and free from dust and debris, especially around the cooling fan vents.
- Ensure adequate airflow around the BMS, particularly during high-current operation, to allow the cooling fan to function effectively.

- Avoid physical impact or excessive vibration to the BMS unit.
- Store the battery pack and BMS in a cool, dry environment when not in use.

9. TROUBLESHOOTING

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

- **No Power Output:**
 - Check all main power connections (B-, P-) for secure contact.
 - Verify the battery pack voltage is within the operational range.
 - Inspect the balance wire connections for correct sequence and secure insertion into the BMS port.
 - The BMS may have entered a protection state (e.g., over-discharge, short circuit). Disconnect the load, allow the battery to rest, or attempt a charge to reset.
- **BMS Not Charging:**
 - Ensure the charger is connected correctly and functioning.
 - Check if the BMS has activated overcharge protection.
 - Verify the balance wire connections.
- **Overheating:**
 - Ensure the cooling fan is operating and not obstructed.
 - Reduce the load if operating at continuous high currents.
 - Verify ambient temperature is within acceptable limits.
- **Unusual Behavior / Error:**
 - Re-verify all wiring according to the installation diagram. Incorrect balance wire sequencing is a common cause of issues.
 - If issues persist after checking connections and basic troubleshooting, contact customer support.

10. WARRANTY AND SUPPORT

DALY Electronics Co., Ltd. provides quality products and offers lifetime technical support for its BMS units. If you encounter any issues or require assistance, please contact DALY customer service. For specific warranty details, refer to the purchase documentation or contact the seller.

Contact Information: Please refer to the contact details provided with your purchase or visit the official DALY website for support.