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› Aernair 18V 10-Cell 18650 Battery Case Replacement Manual - Model 18650-10C

Aernair 18650-10C

Aernair 18V 10-Cell 18650 Battery Case Replacement Manual

Model: 18650-10C

INTRODUCTION

This manual provides detailed instructions for the assembly and use of the Aernair 18V 10-Cell 18650 Battery Case Replacement Kit. This kit is designed to replace damaged battery cases for Milwaukee M18 batteries, allowing for the repair or custom assembly of 18V battery packs using 18650 cells. Please read all instructions carefully before proceeding.

Important: This kit does not include 18650 battery cells. Battery cells must be purchased separately.

SAFETY INFORMATION

- Always wear appropriate personal protective equipment, including safety glasses and gloves, when handling battery cells and performing assembly.
- Ensure you have a basic understanding of electronics and battery assembly before attempting this repair. Improper assembly can lead to fire, explosion, or electric shock.
- Only use high-quality, undamaged 18650 battery cells. Do not use cells that are dented, punctured, leaking, or show any signs of damage.
- Observe correct polarity when installing battery cells. Incorrect polarity can damage the PCB and battery cells.
- Avoid short-circuiting battery terminals or components.
- Perform assembly in a well-ventilated area, away from flammable materials.
- If you are unsure about any step, seek professional assistance.

PACKAGE CONTENTS

Verify that all components listed below are present in your kit:

- Battery Plastic Case (Top and Bottom Shells)
- Printed Circuit Board (PCB)
- Screws (various sizes for assembly)
- Sticker (for labeling or aesthetics)
- Conductive Nickel Sheets (for connecting battery cells)

Note: 18650 battery cells are not included and must be sourced separately.



Image 1: All components included in the Aernair 18V 10-Cell 18650 Battery Case Replacement Kit. This includes the top and bottom plastic case parts, the PCB, various screws, conductive nickel strips, and a sticker. Battery cells are not shown as they are not included.

SETUP AND ASSEMBLY INSTRUCTIONS

This section outlines the steps required to assemble your 18V 10-Cell battery pack using the Aernair replacement kit. This process requires careful attention to detail and basic soldering or spot-welding skills for connecting the 18650 cells.

Required Tools (Not Included):

- 10 x 18650 Lithium-Ion Battery Cells (high-discharge rate recommended for power tools)
- Spot Welder or Soldering Iron (with appropriate solder for battery connections)
- Small Phillips Head Screwdriver
- Multimeter (for checking voltage and continuity)
- Wire Strippers (if custom wiring is needed)

- Heat Shrink Tubing or Electrical Tape (for insulation, if needed)

Step-by-Step Assembly:

1. **Prepare Battery Cells:** Ensure all 10x 18650 cells are fully charged to a balanced voltage. Inspect each cell for any physical damage.
2. **Cell Arrangement:** Arrange the 10 cells into two parallel groups of five series-connected cells (5S2P configuration) or as indicated by the internal structure of the battery case. The case is designed for a 10-cell configuration.
3. **Connect Cells to Nickel Strips:** Using a spot welder (recommended) or soldering iron, connect the 18650 cells together with the provided conductive nickel strips according to the wiring diagram. Pay close attention to polarity (+ and -).

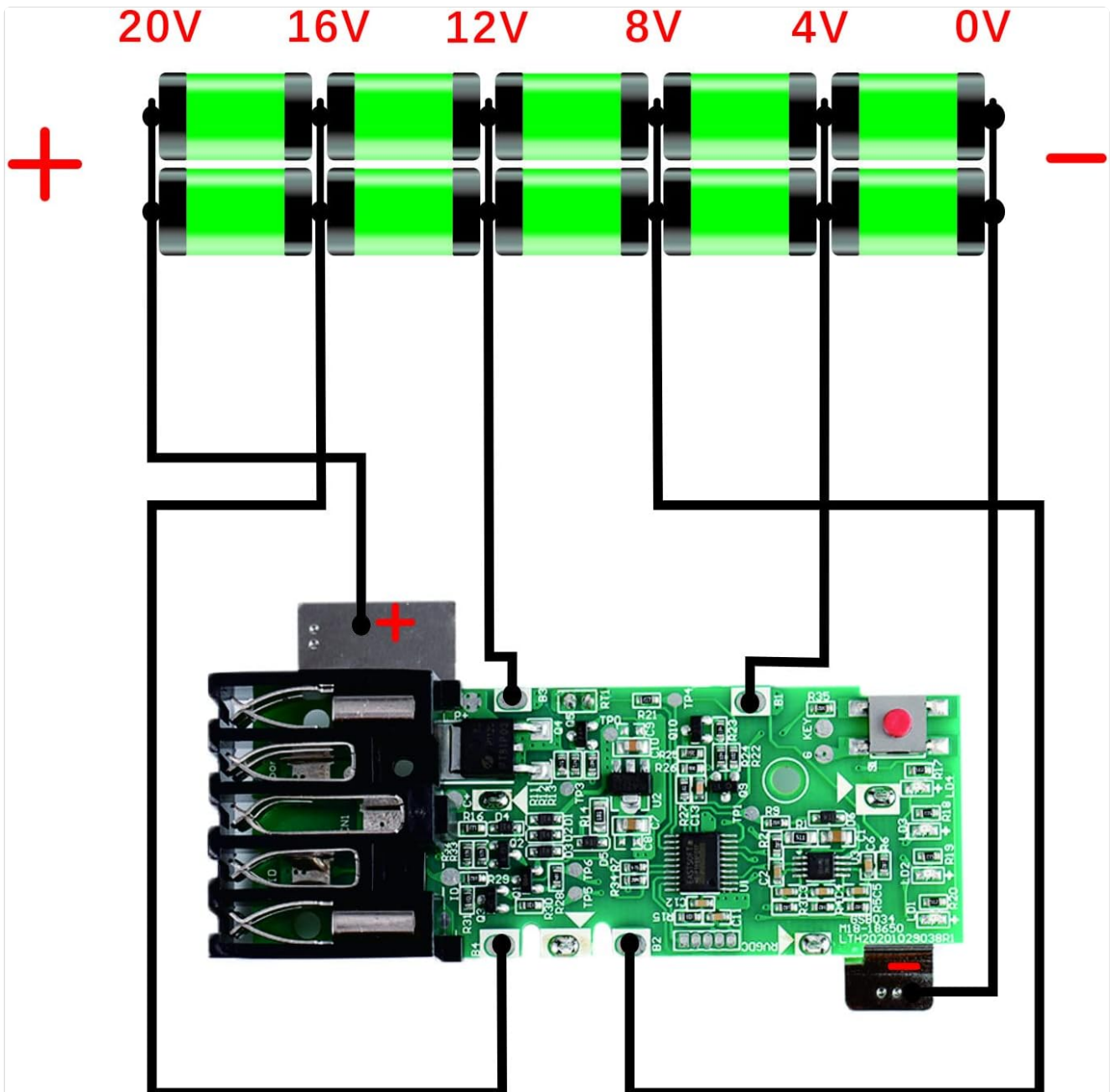


Image 2: Example wiring diagram illustrating the series and parallel connections of 18650 cells to achieve the desired voltage and capacity, and how they connect to the PCB. Note the voltage points (0V, 4V, 8V, 12V, 16V, 20V) for a 5-series pack.

4. **Install PCB:** Carefully place the PCB into the designated slot within the bottom battery case shell. Ensure it aligns correctly with the battery terminals and cell connection points.
5. **Connect Battery Pack to PCB:** Solder or spot-weld the main positive and negative terminals of your assembled 18650 cell pack to the corresponding pads on the PCB. Also, connect the balance leads from each series connection point of the battery pack to the appropriate balance pads on the PCB. Refer to the PCB markings for

correct connections.

6. **Test Connections:** Before closing the case, use a multimeter to verify all connections are secure and that the correct voltage is present at the main output terminals of the PCB. Check for any short circuits.
7. **Assemble Case:** Carefully place the assembled battery pack and PCB into the bottom half of the plastic case. Ensure all components fit without excessive force or pinching wires.
8. **Secure Top Shell:** Place the top half of the plastic case over the bottom half, aligning the clips and screw holes. Gently press the two halves together until they snap into place.
9. **Fasten Screws:** Insert and tighten the provided screws to secure the two halves of the battery case. Do not overtighten.
10. **Final Check:** Once assembled, perform a final voltage check at the battery's output terminals. The battery pack is now ready for use.

OPERATING THE ASSEMBLED BATTERY PACK

Once assembled, the battery pack functions as a standard 18V Milwaukee M18 compatible battery. It can be used with compatible power tools and charged with standard Milwaukee M18 chargers.

- **Charging:** Insert the assembled battery pack into a compatible 18V Milwaukee M18 charger. The PCB includes over-charging protection.
- **Discharging:** Attach the battery pack to any compatible 18V Milwaukee M18 power tool. The PCB provides over-discharge, over-current, and short-circuit protection.
- **Battery Indicator:** The integrated battery indicator on the top shell will display the approximate charge level of the battery pack.

MAINTENANCE

- **Cleaning:** Keep the battery case clean and free from dust and debris. Use a dry cloth to wipe the exterior. Do not use solvents or abrasive cleaners.
- **Storage:** Store the battery pack in a cool, dry place, away from direct sunlight and extreme temperatures. For long-term storage, it is recommended to store Lithium-Ion batteries at approximately 50% charge.
- **Inspection:** Periodically inspect the battery case for any signs of damage, cracks, or loose connections. If damage is found, discontinue use and consider disassembling for inspection or repair.
- **Cell Health:** The lifespan of the battery pack depends on the quality and health of the 18650 cells used. Monitor performance and replace cells if significant degradation occurs.

TROUBLESHOOTING

Problem	Possible Cause	Solution
Battery pack does not power tool.	<ul style="list-style-type: none">◦ Battery cells are not charged.◦ Incorrect cell connections (polarity).◦ Faulty PCB.◦ Loose connections within the case.◦ Tool malfunction.	<ul style="list-style-type: none">◦ Charge the battery pack.◦ Disassemble and check cell polarity and connections.◦ Test PCB functionality with a multimeter. Replace if faulty.◦ Ensure all internal connections are secure.◦ Test the tool with a known good battery.

Problem	Possible Cause	Solution
Battery pack does not charge.	<ul style="list-style-type: none"> Charger malfunction. Faulty PCB (charging circuit). Damaged battery cells. Poor contact with charger terminals. 	<ul style="list-style-type: none"> Test charger with a known good battery. Inspect PCB for damage. Replace if necessary. Disassemble and inspect 18650 cells. Replace damaged cells. Clean battery and charger terminals.
Battery indicator lights are not working.	<ul style="list-style-type: none"> Loose connection to indicator LEDs. Faulty PCB. 	<ul style="list-style-type: none"> Disassemble and check connections to the indicator. Test or replace the PCB.

SPECIFICATIONS

- Model:** 18650-10C
- Compatibility:** Milwaukee M18 18V Battery Systems (requires 10x 18650 cells)
- Battery Type:** Designed for 18650 Lithium-Ion cells (not included)
- Nominal Voltage:** 18V (when assembled with 5S2P 18650 cells)
- Protection Features (via PCB):** Over-charging, Over-discharge, Over-temperature, Over-current, Over-voltage, Short-circuit protection.
- Material:** Durable, fireproof plastic
- Dimensions:** Approximately 5.24 x 3.58 x 3.31 inches (Package Dimensions)
- Weight (Case Only):** Approximately 8.4 ounces

WARRANTY AND SUPPORT

Aernair offers a worry-free 60-day after-sales service for this product. If you encounter any issues or have questions regarding the Aernair 18V 10-Cell 18650 Battery Case Replacement Kit, please contact Aernair customer support. For support, please visit the official Aernair store on Amazon or contact their customer service directly. Contact information can typically be found on the seller's Amazon store page or through your order details.

Note: This warranty covers defects in materials and workmanship of the kit components. It does not cover damage resulting from improper assembly, use of incompatible or damaged battery cells, or unauthorized modifications.