

POWERTECH MB3504

POWERTECH MB3504 12V 1.5W Solar Trickle Charger User Manual

Model: MB3504

INTRODUCTION

The POWERTECH MB3504 is a 12V 1.5W solar trickle charger designed to maintain the charge of any rechargeable 12V battery, preventing natural discharge and extending battery life. It is suitable for various applications including cars, boats, tractors, and motorcycles. This charger provides a continuous low-current charge, ensuring your battery remains topped up, even on cloudy days, without overcharging. The unit features a built-in blocking diode to prevent current from flowing back from the battery to the solar panel during periods of darkness. It offers flexible connection options, including battery clips and a cigarette lighter adapter, and can be easily mounted on a dash or windshield using the supplied suction cups.

SAFETY INFORMATION

- Always ensure the solar panel is clean and free from obstructions for optimal performance.
- Do not attempt to open or modify the solar panel or its components.
- Ensure connections are secure and correct polarity is observed when connecting to a battery. Incorrect polarity can damage the battery or charger.
- Keep the charger and cables away from moving parts, extreme heat, and moisture.
- This device is designed for trickle charging and maintaining 12V batteries only. Do not use with other battery types or voltages.
- Disconnect the charger from the battery before performing any maintenance on the vehicle or battery.

PACKAGE CONTENTS

Please check the package for the following items:

- POWERTECH MB3504 Solar Trickle Charger Unit
- Battery Clip Adapter Cable
- Cigarette Lighter Adapter Cable
- Suction Cups (4 pieces)



Figure 1: Contents of the POWERTECH MB3504 package, showing the solar panel, battery clip cable, cigarette lighter adapter cable, and four suction cups.

SETUP

1. Mounting the Solar Panel

The MB3504 solar trickle charger can be mounted on a vehicle's dash or windshield to maximize exposure to sunlight.

1. Clean the desired mounting surface (dash or windshield) to ensure the suction cups adhere properly.
2. Attach the supplied suction cups to the designated holes on the back of the solar panel unit.
3. Press the solar panel firmly against the clean surface, ensuring the suction cups create a strong seal. Position the panel where it receives maximum direct sunlight.



Figure 2: The solar charger is suitable for various 12V battery applications, including cars, boats, and tractors, and can be mounted on a dash or windshield.

2. Connecting to the Battery

Choose one of the following connection methods:

- **Using Battery Clips:**
 - a. Connect the battery clip adapter cable to the solar panel's output port.
 - b. Connect the **red** (+) clip to the positive terminal of your 12V battery.
 - c. Connect the **black** (-) clip to the negative terminal of your 12V battery.
 - d. Ensure connections are secure and free from corrosion.

- **Using Cigarette Lighter Adapter:**
 - a. Connect the cigarette lighter adapter cable to the solar panel's output port.
 - b. Insert the cigarette lighter plug into your vehicle's 12V accessory socket.
 - c. **Note:** Some vehicle's cigarette lighter sockets are only active when the ignition key is in the "Accessory" or "On" position. For continuous charging, direct battery clip connection is recommended if your socket is not always live.

OPERATING INSTRUCTIONS

Once the solar panel is mounted and connected to your 12V battery, the POWERTECH MB3504 will automatically begin to trickle charge the battery when exposed to sunlight.

- The charger is designed to provide a low-current charge (up to 1.5W) to compensate for the natural self-discharge of 12V batteries. This helps prevent the battery from going flat during periods of inactivity.
- The built-in blocking diode prevents current from flowing back from the battery to the solar panel during nighttime or low-light conditions, ensuring no battery drain.
- For optimal charging, ensure the solar panel receives as much direct sunlight as possible. The charger will still provide some output on cloudy days, but at a reduced rate.
- This is a maintenance charger, not a rapid charger. It is intended to keep an already charged battery topped up, or to slowly recover a slightly discharged battery. It may not be sufficient to charge a deeply discharged battery quickly.

MAINTENANCE

- **Cleaning:** Periodically wipe the surface of the solar panel with a soft, damp cloth to remove dust, dirt, or debris. A clean panel ensures maximum light absorption and charging efficiency.
- **Connection Check:** Regularly inspect the battery connections (clips or cigarette lighter plug) for corrosion or looseness. Ensure they remain secure for effective charging.
- **Cable Inspection:** Check the cables for any signs of wear, cuts, or damage. Replace if necessary.
- **Storage:** If storing the charger for an extended period, disconnect it from the battery and store it in a cool, dry place away from direct sunlight.

TROUBLESHOOTING

- **Charger not appearing to work / Battery not charging:**
 - Ensure the solar panel is exposed to direct sunlight. Performance will be reduced in low light or

shade.

- Verify all connections are secure and correctly polarized (red to positive, black to negative).
 - If using the cigarette lighter adapter, confirm that your vehicle's 12V socket is active when the ignition is off. Some sockets only provide power when the key is in the "Accessory" or "On" position. Consider using the battery clips for continuous charging.
 - Check the solar panel surface for dirt or obstructions and clean if necessary.
 - Confirm the battery is a 12V rechargeable type. This charger is not designed for other battery types or voltages.
 - Note that this is a trickle charger. It provides a low current and may not show immediate significant voltage increases on a deeply discharged battery. Its primary function is maintenance.
- **Suction cups not holding:**
 - Ensure both the suction cups and the mounting surface are clean and dry.
 - Press firmly to expel all air from under the suction cup.
 - Avoid mounting on textured or porous surfaces.

SPECIFICATIONS

Model	MB3504
Brand	POWERTECH
Power Rating	1.5W ($\pm 5\%$)
Rated Voltage (Vmp)	17.5V
Rated Current (Imp)	85.7mA
Open Circuit Voltage (Voc)	21V
Short Circuit Current (Isc)	107mA
Input Voltage	12 Volts
Power Source	Solar Powered
Material	Plastic
Included Components	Suction cups, Battery clips, Cigarette lighter adapter

WARRANTY AND SUPPORT

Specific warranty information for the POWERTECH MB3504 Solar Trickle Charger is not provided in this manual. Please refer to the product packaging or the retailer's website for details regarding warranty coverage and terms.

For technical support or inquiries, please contact POWERTECH customer service through their official website or the contact information provided with your purchase.

