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> Walfront 5V 500mA 2.5W Mini Polycrystalline Solar Panel (2-Pack) Instruction Manual

Walfront 5V500mA

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Model: 5V500mA | Brand: Walfront

INTRODUCTION

This manual provides essential information for the safe and efficient use of your Walfront 5V 500mA 2.5W Mini Polycrystalline Solar Panels. These panels are designed for various low-power applications, including DIY projects, experimental setups, and powering small electronic devices. Please read these instructions thoroughly before installation and operation.

PRODUCT FEATURES

- **Dimensions:** Approximately 130 x 150 mm (5.1 x 5.9 inches) with a 2 mm (0.08 inches) thickness.
- **Cable Length:** 100 cm (39.4 inches) pre-attached cable.
- **Operating Voltage:** DC 5V
- **Operating Current:** 0.5A (500mA)
- **Maximum Power:** 2.5W
- **Material:** Polysilicon
- High conversion efficiency and power output.
- Effective performance in low-light conditions.
- Weather-resistant design, suitable for snow and wind.
- Easy to install for DIY projects.
- Ideal for solar lawn lamps, solar landscape lights, solar mobile phone chargers, solar flashlights, and various small solar toys.

PACKAGE CONTENTS

- 2 x Walfront 5V 500mA 2.5W Mini Polycrystalline Solar Panels

SAFETY INFORMATION

- Do not attempt to disassemble or modify the solar panels.
- Avoid direct contact with the electrical terminals when the panel is exposed to light.
- Ensure proper polarity when connecting to devices. Incorrect polarity can damage the connected device or the solar panel.
- Keep the panels away from flammable materials.
- Do not immerse the panels in water. While weather-resistant, they are not designed for submersion.
- Handle with care to avoid physical damage to the panel surface.

SETUP

The Walfront mini solar panels are designed for straightforward integration into various projects.

1. Unpacking

Carefully remove the solar panels from their packaging. Inspect for any visible damage.

2. Placement

For optimal performance, position the solar panel in a location that receives maximum direct sunlight throughout the day. Avoid shaded areas. The panel should be angled towards the sun for best efficiency.



Image: Two Walfront mini solar panels connected to a breadboard and multimeter, demonstrating their use in a garden for experimental power.

3. Electrical Connection

Each solar panel comes with a pre-attached cable. The red wire typically indicates the positive (+) terminal, and the

black wire indicates the negative (-) terminal.

- Connect the red wire to the positive input of your device or charging circuit.
- Connect the black wire to the negative input of your device or charging circuit.
- Ensure all connections are secure and insulated to prevent short circuits.



Image: Rear view of a Walfront mini solar panel, highlighting the attached red (positive) and black (negative) connection wires.

OPERATING INSTRUCTIONS

Once properly set up, the solar panels will begin generating electricity when exposed to sunlight.

1. Power Generation

The panels convert sunlight into DC electrical energy. The output voltage and current will vary depending on the intensity of the sunlight and the load connected.

2. Optimal Performance

For maximum power output, ensure the panels are clean and positioned directly facing the sun. Any shading, even partial, can significantly reduce efficiency.

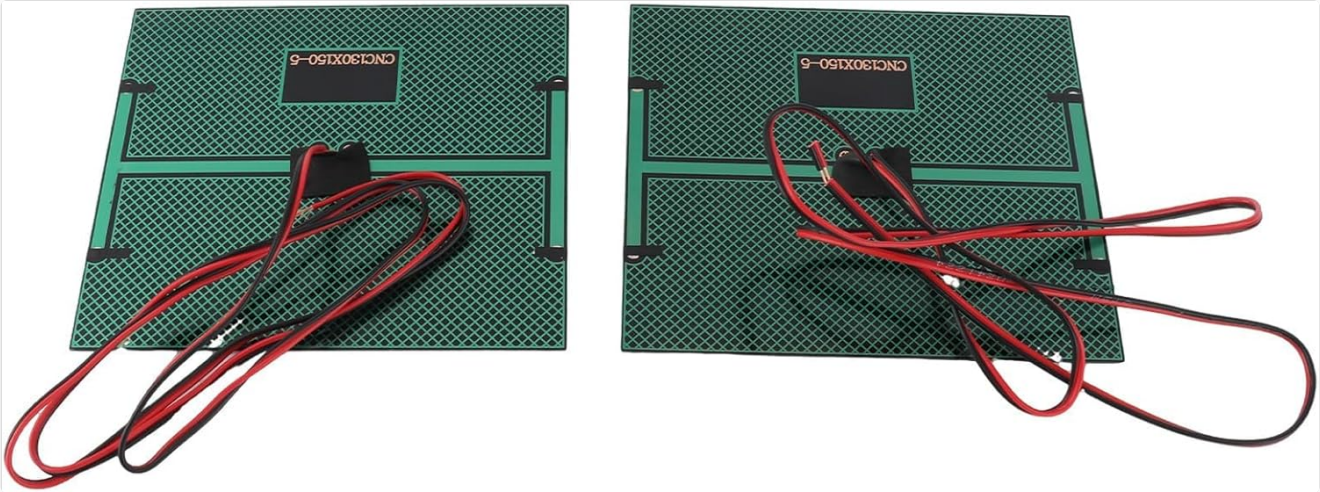


Image: Front view of two Walfront mini solar panels, showcasing their polycrystalline solar cells.

3. Applications

These panels are suitable for:

- Powering small DC motors or fans.
- Charging small batteries (requires a charge controller, not included).
- Educational projects and scientific experiments.
- DIY solar lighting or small electronic devices.

MAINTENANCE

Minimal maintenance is required for these solar panels.

- **Cleaning:** Regularly wipe the surface of the solar panels with a soft, damp cloth to remove dust, dirt, or debris. A clean surface ensures maximum light absorption and efficiency. Do not use abrasive cleaners or harsh chemicals.
- **Inspection:** Periodically check the cables and connections for any signs of wear, damage, or corrosion. Ensure connections remain secure.
- **Storage:** If storing the panels for an extended period, keep them in a dry, cool place away from direct sunlight and extreme temperatures.

TROUBLESHOOTING

If your solar panels are not performing as expected, consider the following:

No Power Output

- **Check Sunlight:** Ensure the panels are receiving direct, unobstructed sunlight. Even partial shading can drastically reduce output.
- **Clean Surface:** Verify that the panel surface is clean and free of dirt, dust, or obstructions.
- **Check Connections:** Inspect all wiring for loose connections, incorrect polarity, or damage.
- **Test with Multimeter:** Use a multimeter to measure the voltage output of the panel directly under sunlight. A 5V panel should show approximately 5V or slightly higher (open circuit voltage) in good sunlight.

Low Power Output

- **Angle and Orientation:** Adjust the panel's angle and orientation to face the sun directly.
- **Temperature:** Extreme temperatures can affect solar panel performance.
- **Cloud Cover:** Overcast conditions will naturally reduce power output.
- **Load Matching:** Ensure the connected device's power requirements are within the panel's capacity (5V, 500mA, 2.5W).

SPECIFICATIONS

Feature	Detail
Model Number	5V500mA
Material	Polysilicon
Dimensions (L x W x H)	Approx. 130 x 150 x 2 mm (5.1 x 5.9 x 0.08 inches)
Cable Length	100 cm (39.4 inches)
Operating Voltage	DC 5V
Operating Current	0.5A (500mA)
Maximum Power	2.5W
Efficiency	16-18%
Output Connection	Bare wire leads (Red for positive, Black for negative)

WARRANTY INFORMATION

Walfront products typically come with a standard manufacturer's warranty. For specific warranty details, including duration and coverage, please refer to the product packaging or contact Walfront customer support directly. Keep your proof of purchase for warranty claims.

SUPPORT INFORMATION

For technical assistance, troubleshooting not covered in this manual, or general inquiries, please visit the official Walfront website or contact their customer service department.

Website: www.walfront.com

Email: support@walfront.com