

ECO-WORTHY L02M195TM-1

ECO-WORTHY 195 Watt 12 Volt Bifacial Monocrystalline Solar Panel

Model: L02M195TM-1

1. INTRODUCTION

Thank you for choosing the ECO-WORTHY 195 Watt 12 Volt Bifacial Monocrystalline Solar Panel. This manual provides essential information for the safe and efficient installation, operation, and maintenance of your solar panel. Please read it thoroughly before use.

This solar panel features exclusive bifacial power generation technology, absorbing solar energy from both sides to increase efficiency by up to 10% and maximize light utilization. It utilizes a high-level 12BB cell design, achieving a conversion rate over 22%. The panel is designed to charge a 12V battery or 24/48V batteries when multiple panels are connected in series. With a durable IP67-rated junction box, it withstands wind loads up to 2400Pa and snow loads up to 5400Pa, ensuring a reliable and long-lasting energy solution.



Image: ECO-WORTHY 195 Watt 12 Volt Bifacial Solar Panel installed on a glass greenhouse roof, demonstrating a typical application.

2. SAFETY INSTRUCTIONS

- Always wear appropriate personal protective equipment (PPE) including safety glasses and insulated gloves during installation and maintenance.
- Do not attempt to disassemble, repair, or modify the solar panel. This may void the warranty and cause injury.
- Ensure all electrical connections are secure and properly insulated to prevent electric shock.
- Avoid touching the panel's surface with sharp objects or applying excessive pressure, which can damage the cells.
- Install the panel in a well-ventilated area, away from flammable materials or gases.
- In case of fire, use a Class C fire extinguisher (suitable for electrical fires). Do not use water.
- Keep children and unauthorized personnel away from the installation area.
- Refer to local electrical codes and regulations for proper installation practices.

3. PRODUCT OVERVIEW

The ECO-WORTHY 195 Watt Bifacial Monocrystalline Solar Panel is engineered for high performance and durability. Its unique bifacial design captures sunlight from both the front and rear surfaces, significantly enhancing energy yield. The panel incorporates 12BB (12 Busbar) cell technology for improved current collection and higher conversion efficiency.

Key Features:

- **Bifacial Technology:** Up to 10% increased efficiency by utilizing reflected light on the rear side.
- **12BB Cell Design:** Enhanced power output and higher conversion rate (over 22%).
- **Durable Construction:** IP67-rated junction box, tempered glass, and aluminum frame for extreme weather resistance.
- **Wide Compatibility:** Suitable for 12V, 24V, or 48V battery systems.
- **Easy Integration:** Pre-drilled holes for quick and secure mounting.

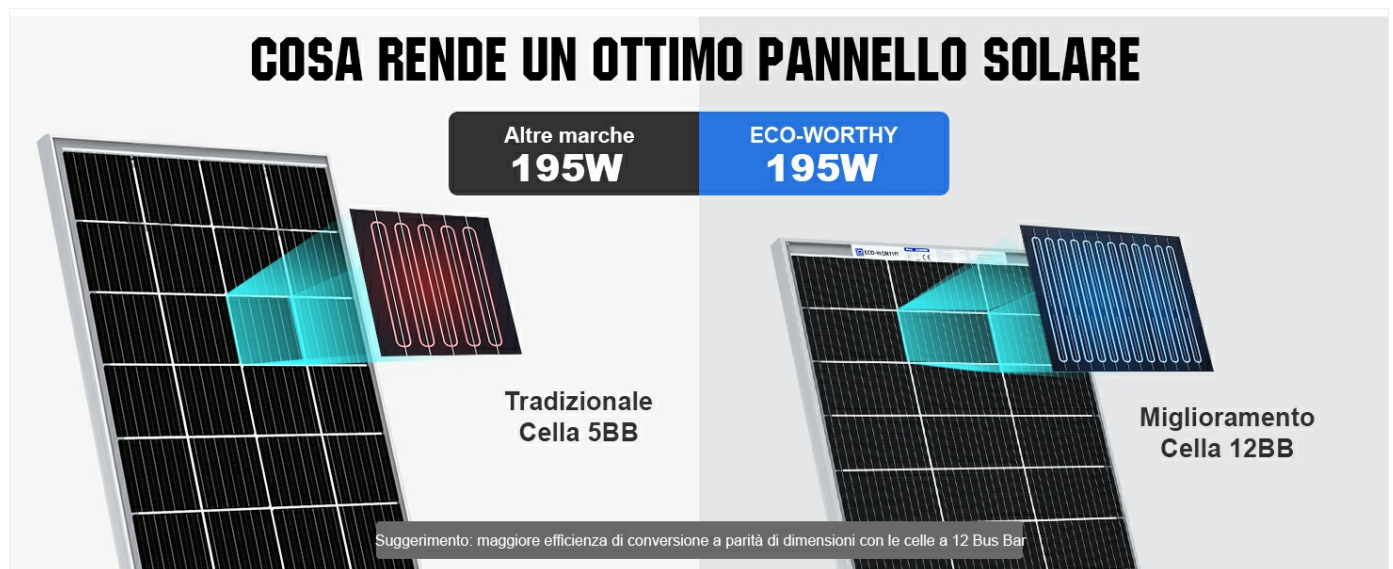


Image: Comparison illustrating traditional 5BB cells versus improved 12BB cells, highlighting the enhanced design of the 195W panel.

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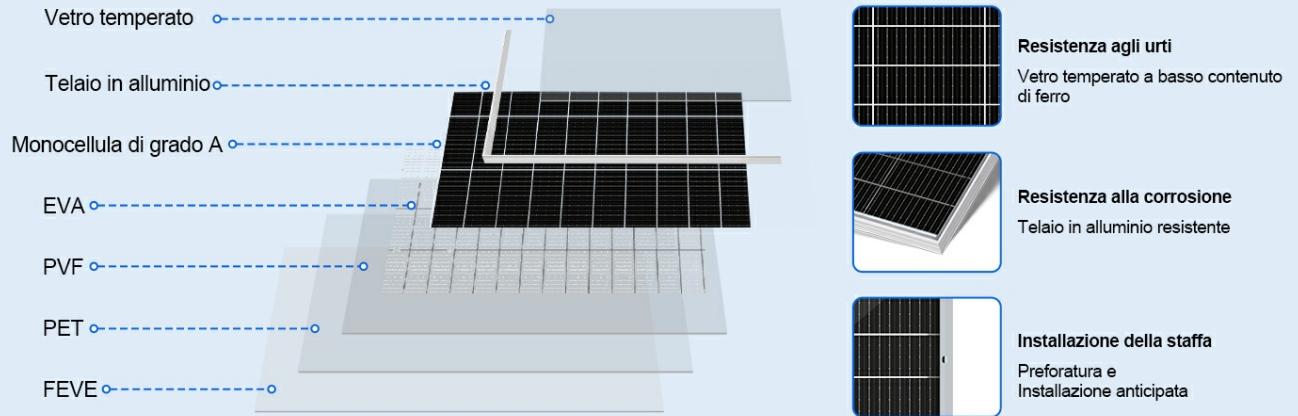


Image: Detailed cross-sectional view of the solar panel construction, showing layers of tempered glass, aluminum frame, EVA, and photovoltaic cells.

4. INSTALLATION

The ECO-WORTHY solar panel is designed for straightforward installation across various applications, including RVs, home rooftops, campers, yachts, and off-grid systems. Always ensure the mounting surface is structurally sound and can support the weight of the panel.

4.1 Unpacking

Carefully remove the solar panel from its packaging. Inspect the panel for any signs of damage during transit. The packaging includes multiple layers of protection, such as corner protectors and protective cotton padding.

IMBALLAGGIO AFFIDABILE CON PROTEZIONE MULTIPLA



Image: Illustration of the solar panel packaging, highlighting corner protectors and internal padding for safe transport.

4.2 Mounting

- Choose Location:** Select a location that receives maximum direct sunlight throughout the day and is free from shading. Consider the bifacial nature of the panel; reflective surfaces below or behind the panel can enhance performance.
- Secure Mounting:** The panel features pre-drilled holes on the back for quick and secure installation. Use appropriate mounting hardware (not included) suitable for your chosen surface (e.g., roof, ground mount, RV rack).

3. **Angle Adjustment:** Optimize the panel's tilt angle to maximize solar exposure based on your geographical location and season.



Image: Solar panels installed on a house roof, illustrating a common application for the product.

4.3 Electrical Connections

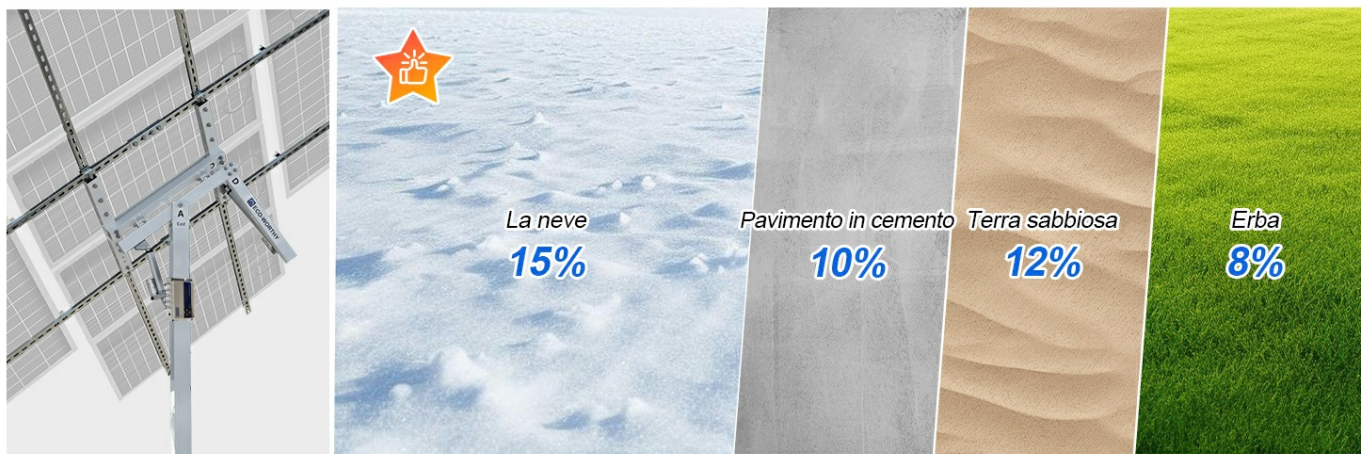
- Connect the solar panel to a compatible charge controller using MC4 connectors. Ensure correct polarity (positive to positive, negative to negative).
- If connecting multiple panels, ensure they are wired correctly in series or parallel according to your system's voltage and current requirements. Consult a qualified electrician if unsure.
- Connect the charge controller to your battery bank.

5. OPERATION

Once installed and connected, the ECO-WORTHY solar panel will begin converting sunlight into electrical energy. The bifacial design allows for enhanced energy capture, especially in environments with reflective surfaces like snow, light-colored rooftops, or ground mounts.

5.1 Energy Generation

The panel's 12BB monocrystalline cells efficiently capture direct sunlight. Simultaneously, the transparent back panel allows reflected light from the ground or surrounding surfaces to be absorbed, contributing to additional power generation. This can result in up to 10% higher energy yield compared to traditional monofacial panels.



Questi dati sono stati ottenuti confrontandoli con quelli dei pannelli solari convenzionali sotto STC installati sulla staffa ad inseguimento ECO-WORTHY.

Image: Comparative diagram illustrating the efficiency benefits of bifacial panels on different reflective surfaces like snow, concrete, sand, and grass.

5.2 Battery Charging

The panel's output is regulated by your charge controller to safely charge your 12V, 24V, or 48V battery bank. Monitor your charge controller's display for real-time charging status and battery voltage.

6. MAINTENANCE

Regular maintenance ensures optimal performance and longevity of your solar panel.

- **Cleaning:** Periodically clean the panel's surface with a soft cloth and mild, non-abrasive cleaner to remove dirt, dust, leaves, or bird droppings. Clean panels generate more power.
- **Inspection:** Annually inspect the panel for any physical damage, such as cracks in the glass, loose frames, or damaged cables. Check all electrical connections for corrosion or loosening.
- **Shading:** Ensure no new obstructions (e.g., growing trees, new structures) are casting shadows on the panel, as shading can significantly reduce power output.

7. TROUBLESHOOTING

If you experience issues with your solar panel, refer to the following common problems and solutions:

Problem	Possible Cause	Solution
No power output	Loose or incorrect wiring; Charge controller fault; Insufficient sunlight; Damaged panel.	Check all connections for proper polarity and tightness. Verify charge controller functionality. Ensure panel is in direct sunlight. Inspect panel for visible damage.
Low power output	Partial shading; Dirty panel surface; Incorrect tilt angle; Overcast weather.	Remove any shading. Clean the panel surface. Adjust panel angle for optimal sun exposure. Output will naturally be lower on cloudy days.
Battery not charging	Charge controller settings incorrect; Battery fault; Panel not producing enough power.	Verify charge controller settings match battery type. Test battery health. Refer to 'Low power output' solutions.

8. SPECIFICATIONS

Technical specifications for the ECO-WORTHY 195 Watt 12 Volt Bifacial Monocrystalline Solar Panel (Model: L02M195TM-1).

SPECIFICHE

Potenza nominale	195W
Cella solare	Monocristallino
Tensione massima/picco (Vmp)	19.8V
Tensione a circuito aperto (Voc)	23.7V
Corrente di cortocircuito	10.5A
Corrente massima	9.85A
Tolleranza in uscita	±3%
Coefficiente di temperatura di Isc	(010+/-0.01)%/°C
Coefficiente di temperatura di Voc	-(0.38+/-0.01)%/°C
Intervallo di temperatura	-40°C~ +85°C
Telaio	Telaio in lega di alluminio
Lunghezza del cavo di estensione	90 cm (2,95 piedi)
Dimensioni del cavo di estensione	4 mm² (11AWG)
Peso	20,48lbs/9,20kg
Dimensioni	52.6x26.4x1.4in/1335*670*35mm

Image: Visual representation of the solar panel alongside its key technical specifications.

Specification	Value
Brand	ECO-WORTHY
Model Number	L02M195TM-1
Material Type	Monocrystalline Silicon
Product Dimensions (L x W x H)	133.5 cm x 67 cm x 3.5 cm
Item Weight	9.2 Kilograms
Max Power	195 Watt
Efficiency	19.5%
Max Current	9.85 Ampere
Max Voltage	19.8 Volt
Output Voltage	19.8 Volt (DC)
Upper Temperature Estimate	85 Degrees Celsius
Special Features	Bifacial design and transparent back panel
Connector Type	MC4
Components Included	195 Watt Solar Module
UPC	810127131507

Specification	Value
Manufacturer	ECO-WORTHY
Manufacturer Part Number	L02M195TM-1

9. WARRANTY AND SUPPORT

ECO-WORTHY is committed to providing high-quality products and excellent customer service. We offer lifetime service for our solar panels. Should you encounter any issues while using your ECO-WORTHY solar panel, please do not hesitate to contact us.

Our dedicated customer support team is available to provide professional guidance for your solar system setup and address any concerns. We aim to provide responses within 24 hours.



Image: Customer service representatives ready to assist, emphasizing a 24-hour response time for inquiries.

For support, please visit the official ECO-WORTHY website or contact our customer service directly through the contact information provided with your purchase.

ASK A QUESTION ABOUT THIS MANUAL

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page’s manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question