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FOSSIBOT SP420

FOSSiBOT 420W Foldable Solar Panel User Manual

Model: SP420 | Brand: FOSSIBOT

1. Introduction

This manual provides comprehensive instructions for the safe and efficient use of your FOSSiBOT 420W Foldable Solar Panel (Model SP420). Please read this manual thoroughly before operating the device to ensure proper functionality and longevity. This solar panel is designed to convert sunlight into usable electricity, making it ideal for charging compatible portable power stations and other devices in various outdoor and emergency scenarios.

2. Product Overview

2.1 Key Features

- **420W Solar Power Output:** Capable of providing up to 420W of solar power, suitable for FOSSiBOT F3600 and other compatible solar generators.
- **High Cell Efficiency:** Utilizes monocrystalline solar cells to convert up to 23.4% of sunlight into electricity, ensuring performance even in less ideal conditions.
- **Durable ETFE Coating:** Features a long-lasting and waterproof ETFE coating, providing resistance against scratches and water splashes, making it suitable for outdoor use.
- **Foldable & Portable Design:** Designed for easy transport and storage with its compact folded size.
- **MC4 Connector:** Equipped with an MC4 connector for broad compatibility with most third-party devices and power stations.
- **Adjustable Kickstands:** Integrated kickstands allow for easy adjustment of the panel's angle to optimize sun exposure.

2.2 Components

The FOSSiBOT 420W Foldable Solar Panel package includes the following components:

- 1 x FOSSiBOT SP420 Foldable Solar Panel with integrated cable.
- 1 x Carry Case.
- 1 x Extra Solar Panel Charging Cable (3-in-1 with Anderson, XT90, and XT60 ports).
- 1 x User Manual (this document).



Figure 2.2.1: The FOSSiBOT 420W Foldable Solar Panel shown unfolded with its various connection cables. The panel is dark grey with visible solar cells, and the cables include MC4, Anderson, XT90, and XT60 connectors.



Figure 2.2.2: The FOSSiBOT 420W Portable Solar Panel set up in a grassy outdoor environment next to two FOSSiBOT power stations,

with a tent and people in the background, illustrating its use for short trips and outdoor activities.

3. Setup Instructions

1. **Unfold the Solar Panel:** Carefully unfold the FOSSiBOT 420W solar panel completely. Ensure it is laid out on a flat, stable surface.
2. **Deploy Kickstands:** Locate the adjustable kickstands on the back of the panel. Snap them into position to support the panel.
3. **Adjust Angle for Optimal Sun Exposure:** Adjust the angle of the panel using the kickstands to face the sun directly. For best results, aim for a 90-degree angle between the sun's rays and the panel surface. The adjustable kickstands allow for angles between 35° and 60°.



Figure 3.1: Illustration of the adjustable kickstands on the FOSSiBOT solar panel, showing how to unfold and position them to achieve the optimal angle for solar energy capture. The image highlights the adjustable range.

4. **Connect to Power Station:**
   - Identify the appropriate input port on your power station (e.g., MC4, Anderson, XT90, XT60).
   - Use the provided 3-in-1 solar charging cable or the integrated MC4 cable to connect the solar panel to your power station. Ensure a secure connection.



Figure 3.2: A detailed view of the 3-in-1 solar charging cable included with the FOSSiBOT solar panel, showcasing its compatibility with Anderson, XT90, and XT60 ports, making it versatile for various portable power stations.

5. **Begin Charging:** Once connected, the power station should begin charging. Monitor the charging indicator on your power station.

4. Operating Instructions

4.1 Optimal Performance

To achieve the highest charging efficiency from your solar panel:

- **Direct Sunlight:** Always position the panel in direct sunlight, free from shadows cast by trees, buildings, or other obstructions.
- **Angle Adjustment:** Periodically adjust the panel's angle throughout the day to follow the sun's path. This maximizes energy capture.
- **Clear Surface:** Ensure the surface of the solar panel is clean and free of dust, dirt, leaves, or snow.
- **Temperature:** While the panel is designed for outdoor use, extreme temperatures can affect performance. Operate within the recommended temperature range (refer to specifications).

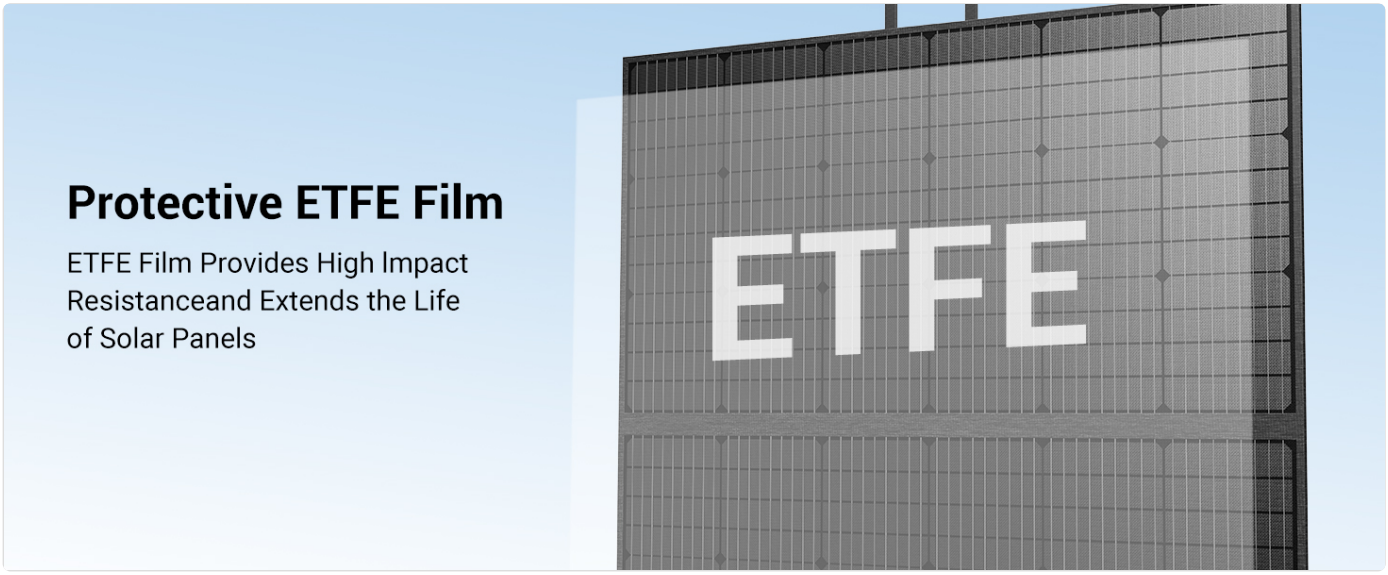


Figure 4.1: A visual representation illustrating the high conversion efficiency of the FOSSiBOT solar panel, indicating that it converts up to 23.5% of sunlight into usable energy for faster charging.

4.2 Usage Scenarios

The FOSSiBOT 420W Foldable Solar Panel is versatile and suitable for various applications:

- **Camping & RV Trips:** Provides a reliable power source for off-grid adventures.
- **Home Emergency Backup:** Can be used to charge power stations during power outages.
- **Outdoor Activities:** Ideal for fishing, hiking, and other remote activities where grid power is unavailable.



Figure 4.2: A collage of images demonstrating the FOSSiBOT solar panel in different use cases: RV trips, camping, home blackout situations, and fishing, highlighting its adaptability for various outdoor and emergency power needs.

5. Maintenance

Proper maintenance ensures the longevity and optimal performance of your solar panel.

- **Cleaning:** Regularly clean the surface of the solar panel with a soft, damp cloth to remove dust, dirt, and debris. Do not use abrasive cleaners or harsh chemicals.
- **Inspection:** Periodically inspect the panel for any physical damage, such as cracks, dents, or frayed cables. Ensure all connections are secure.
- **Storage:** When not in use, fold the solar panel and store it in its carry case in a cool, dry place, away from direct sunlight and extreme temperatures.
- **Water Resistance:** The panel features an IP67 waterproof rating, meaning it is protected against dust ingress and immersion in water up to 1 meter for 30 minutes. However, it is not designed for continuous submersion. Wipe off any water after exposure.



Figure 5.1: Close-up view of the FOSSiBOT solar panel's surface with water droplets, illustrating its IP67 waterproof and wear-resistant ETFE coating, designed to withstand various harsh weather conditions.

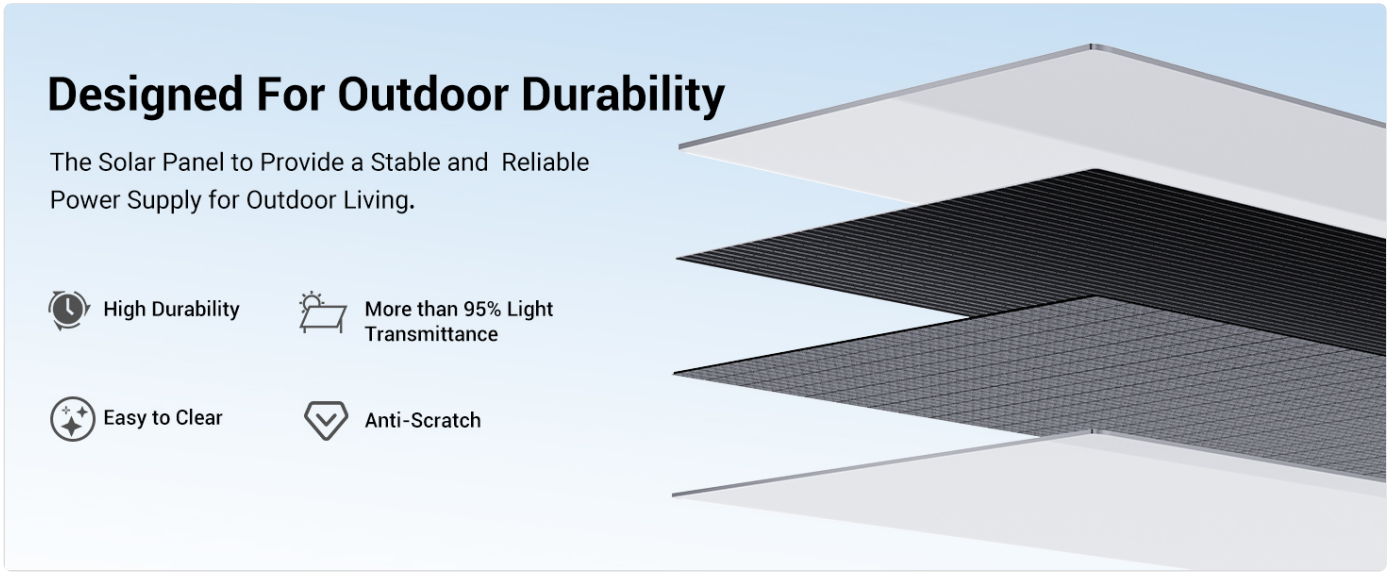


Figure 5.2: An exploded view diagram illustrating the multi-layered construction of the FOSSiBOT solar panel, highlighting the ETFE film, EVA, monocrystalline cells, and backsheet, which contribute to its high durability, light transmittance, ease of cleaning, and anti-scratch properties.

6. Troubleshooting

Problem	Possible Cause	Solution
No power output from the solar panel.	◦ Insufficient sunlight. ◦ Panel is shaded. ◦ Incorrect connection to power station. ◦ Damaged cable or panel.	◦ Move panel to direct sunlight. ◦ Relocate panel to an unshaded area. ◦ Verify all cables are securely connected and to the correct ports. ◦ Inspect cables and panel for visible damage. Contact customer support if damaged.

Problem	Possible Cause	Solution
Low power output.	◦ Panel not optimally angled. ◦ Panel surface is dirty. ◦ Cloudy weather or haze. ◦ High ambient temperature.	◦ Adjust panel angle to face the sun directly. ◦ Clean the panel surface. ◦ Output will naturally be lower in non-ideal weather. ◦ Ensure adequate ventilation around the panel.
Panel not recognized by power station.	◦ Incompatible connector type. ◦ Loose connection. ◦ Power station input issue.	◦ Ensure the correct cable and connector type are used for your power station. ◦ Check and re-secure all cable connections. ◦ Test with another compatible power source if possible, or consult your power station's manual.

7. Specifications

Feature	Detail
Model Number	SP420
Rated Power	420W
Cell Efficiency	Up to 23.4%
Coating Material	ETFE
Waterproof Rating	IP67
Connector Type	MC4 (with included 3-in-1 cable for Anderson, XT90, XT60)
Product Dimensions (Unfolded)	Approximately 21"L x 2"W x 94"H (53.34 cm L x 5.08 cm W x 238.76 cm H)
Special Feature	Portable, Foldable, Adjustable Kickstands
Color	Black

8. Warranty and Customer Support

8.1 Warranty Information

The FOSSiBOT 420W Foldable Solar Panel comes with a**24-month warranty** from the date of purchase. This warranty covers manufacturing defects and issues arising from normal use. Please retain your proof of purchase for warranty claims.
The warranty does not cover damage caused by misuse, accidents, unauthorized modifications, or natural disasters.

8.2 Customer Support

FOSSiBOT is committed to providing lifetime friendly customer service. If you encounter any issues, have questions about your product, or require technical assistance, please do not hesitate to contact our support team.

For support, please visit the official FOSSiBOT website or refer to the contact information provided on your product packaging or purchase documentation. Our team aims to respond to inquiries within 24 hours.



Figure 8.1: Image depicting customer service representatives, symbolizing the availability of support for FOSSiBOT products.

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