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FlexSolar T-20W

FlexSolar 20W 12V Solar Panel Battery Charger Maintainer T-20W User Manual

Model: T-20W

1. INTRODUCTION

The FlexSolar 20W 12V Solar Panel Battery Charger Maintainer T-20W is a high-efficiency monocrystalline solar solution designed for maintaining 12V batteries across various applications. This device is engineered to prevent battery discharge and extend battery life by providing a continuous trickle charge using solar energy. It is ideal for vehicles, marine crafts, outdoor electronics, and seasonal equipment that are not in regular use.

FlexSolar Solar Trickle Battery Charger and Maintainer for 12 volts battery daily

INTELLIGENT CHARGE CONTROLLER
MORE SAFE CONFIDENT TRICKLE CHARGING

LED CHARGING INDICATOR
3 LIGHTS VISUALIZATION

STRONGER AND MORE DURABLE
UP GRADE

EASY TO INSTALL

SMART TEMPERATURE CONTROL
MORE EFFECTIVELY EXTEND THE BATTERY LIFE

WILL NOT CONSUME BATTERY POWER

Image: FlexSolar 12V Battery Maintenance. This image illustrates the solar panel connected to a 12V battery, emphasizing its role in maintaining battery charge.

2. SAFETY INFORMATION

Please read and understand all safety instructions before using the FlexSolar 20W Solar Panel Battery Charger Maintainer. Failure to follow these instructions may result in electric shock, fire, or serious injury.

- **Do not stand or step on the solar panel:** This can cause damage to the solar cells and reduce efficiency.
- **Avoid manual folding or compressing:** Do not manually fold or cause compression to the solar panel when storing it in a backpack or other confined spaces.
- **Keep away from sharp objects:** Ensure the solar panel is kept away from sharp objects to prevent punctures or

scratches.

- **Water Resistance:** The panel is water-resistant (IP65 rated) but should not be submerged in water.
- **Proper Connection:** Always ensure correct polarity when connecting to a battery. Incorrect connections can cause damage to the battery or the charger.
- **Ventilation:** Ensure adequate ventilation around the battery during charging.

3. PACKAGE CONTENTS

The FlexSolar 20W 12V Solar Panel Battery Charger Maintainer T-20W package includes the following items:

- 1 x FlexSolar 20W Solar Panel
- 4 x Carabiners
- 4 x Suction Cups
- 1 x SAE to OBD-II Connector
- 1 x SAE to Alligator Clip Connector
- 1 x SAE to Car Charger (Cigarette Lighter) Connector
- 1 x SAE to O-Ring Terminal Connector

WHAT YOU GET



Image: FlexSolar 20W Solar Panel Package Contents. This image displays all the components included in the product box, such as the solar panel, various connectors, carabiners, and suction cups.

4. PRODUCT FEATURES

- **High-Efficiency Monocrystalline Core:** Precision-engineered with premium monocrystalline cells, delivering 20%-25% photoelectric conversion efficiency (STC). This outperforms polycrystalline and amorphous counterparts in energy yield under equivalent conditions.
- **Adaptive Battery Preservation:** Features intelligent two-phase charging: rapid bulk charging for low-voltage batteries, transitioning seamlessly to micro-current trickle mode at near-full capacity. This neutralizes self-discharge while preventing overcharge degradation, ensuring optimal 12V battery maintenance.
- **Universal Compatibility Ecosystem:** Offers versatile connectivity via OBDII, cigarette lighter, alligator clips, and O-ring interfaces. Supports vehicles, marine crafts, outdoor electronics (cameras, pumps, electric fences), and seasonal equipment. Compatible with lead-acid, LiFePO₄, AGM, GEL, lithium, and flooded batteries.
- **Fail-Safe Charging Intelligence:** Integrated smart controller enables autonomous charge cycling – halting at full capacity and reactivating upon voltage drop. Guarantees zero reverse current discharge for perpetual battery

safeguarding.

- **Sustainable Energy Autonomy:** Solar-powered preservation ideal for infrequently used assets. Proactively combats parasitic drain from vehicle telematics/alarms, ensuring instant start readiness. Engineered for battery longevity, not deep-cycle recharge.

High-efficiency monocrystalline solar cells

Up To 24% 

E film

with better light transmittance

EVA

Upgraded Monocrystalline

EVA

PCB

Superior craftsmanship and a protective E film



Image: FlexSolar High-Efficiency Monocrystalline Core. This image illustrates the layered construction of the solar panel, highlighting its high-efficiency monocrystalline cells.



Image: FlexSolar Intelligent Charge Controller and LED Indicator. This image highlights the intelligent charge controller, LED charging indicator, and smart temperature control features of the solar panel.

5. SETUP AND INSTALLATION

Follow these steps to set up and install your FlexSolar 20W Solar Panel Battery Charger Maintainer:

1. **Unfold the Solar Panel:** Carefully unfold the solar panel to its full size.
2. **Positioning for Optimal Sunlight:** Position the solar panel to receive maximum direct sunlight. The solar panels achieve optimal charging power when they are positioned perpendicular to the rays of light, or at a 90-degree angle. Use the included suction cups to mount the panel on a windshield or sunroof, or use carabiners to hang it.
3. **Connect to Your Battery:** Choose the appropriate connector for your battery type and vehicle. Ensure correct polarity (red to positive, black to negative).
 - **OBDII Connector:** Plug the SAE to OBD-II connector into the solar panel's SAE port, then plug the OBD-II end into your vehicle's OBD-II port.
 - **Cigarette Lighter Connector:** Plug the SAE to car charger connector into the solar panel's SAE port, then insert the car charger end into your vehicle's cigarette lighter socket.
 - **Alligator Clips:** Plug the SAE to alligator clip connector into the solar panel's SAE port. Connect the red alligator clip to the positive (+) terminal of your 12V battery and the black alligator clip to the negative (-) terminal.
 - **O-Ring Terminals:** Plug the SAE to O-ring terminal connector into the solar panel's SAE port. Secure the red O-ring to the positive (+) terminal of your 12V battery and the black O-ring to the negative (-) terminal.
4. **Verify Charging:** The integrated smart controller will automatically begin charging. Monitor the LED charging indicator on the controller to confirm charging status.

EASY INSTALLATION



On the windshield



Sunroof installation



Car cigarette lighter port



Battery charging

Image: FlexSolar Easy Installation Methods. This image demonstrates various installation options, including mounting on a windshield or sunroof, and connecting via cigarette lighter or directly to the battery.

PLUG & PLAY

4 Charging Methods



Image: FlexSolar Plug & Play 4 Charging Methods. This image visually explains the four different connection methods: cigarette lighter, direct battery connection, and OBDII port.

Your browser does not support the video tag.

Video: Solar for Dash cam parking? Ep1 VIOFO A129 plus, Solar. This video demonstrates the use of a solar panel for maintaining a car battery, specifically in the context of powering a dash cam during parking mode. It provides insights into power output and battery charge levels under various conditions.

6. OPERATING INSTRUCTIONS

The FlexSolar 20W Solar Panel operates autonomously once connected to a 12V battery and exposed to sunlight. It is designed for continuous maintenance charging.

- **Automatic Charging:** The built-in charge controller intelligently manages the charging process. It initiates rapid bulk charging when the battery voltage is low and transitions to a micro-current trickle mode as the battery approaches full capacity.
- **Overcharge Protection:** The smart controller prevents overcharging by halting the charge when the battery reaches full capacity and reactivating it if the voltage drops.

- **Reverse Current Protection:** The controller ensures zero reverse current discharge, preventing the battery from draining back into the solar panel during periods of low light or darkness.
- **LED Indicator:** The LED indicator on the controller provides visual feedback on the charging status. Refer to the label on the controller for specific light indications (e.g., blue light for charging, red light for fully charged).

Your browser does not support the video tag.

Video: Large panel, perfect attachments. Revived 4-wheeler battery in 6 hours. Recommended! This video showcases the solar panel successfully reviving a 4-wheeler battery, demonstrating its effectiveness in real-world charging scenarios.

7. MAINTENANCE

To ensure optimal performance and longevity of your FlexSolar 20W Solar Panel, follow these maintenance guidelines:

- **Cleaning:** Regularly clean the surface of the solar panel with a soft, damp cloth to remove dust, dirt, and debris. Avoid using abrasive materials or harsh chemicals that could scratch the panel.
- **Inspection:** Periodically inspect the panel and connectors for any signs of damage, wear, or corrosion. Ensure all connections are secure.
- **Storage:** When not in use for extended periods, store the solar panel in a cool, dry place away from direct sunlight and extreme temperatures. Ensure it is not manually folded or compressed.

8. TROUBLESHOOTING

If you encounter issues with your FlexSolar 20W Solar Panel, refer to the following common troubleshooting tips:

- **No Charging Indication:**
 - Ensure the solar panel is exposed to direct sunlight.
 - Check all connections for proper seating and polarity.
 - Verify the battery is a 12V battery and is not fully charged. The controller will not charge a fully charged battery.
- **Low Charging Efficiency:**
 - Clean the solar panel surface to remove any obstructions.
 - Adjust the panel's angle to face the sun directly for optimal performance.
 - Ensure there are no shadows cast on the panel.
- **Panel Not Powering On:**
 - Confirm the solar panel is receiving adequate sunlight.
 - Check the integrity of the cables and connectors for any damage.

For more detailed troubleshooting or issues not listed here, please contact FlexSolar customer support.

9. SPECIFICATIONS

Attribute	Detail
Brand	FlexSolar
Model	T-20W (YL-20W-TC)
Material	Monocrystalline

Maximum Power	20 Watts
Maximum Voltage	12 Volts
Efficiency	High Efficiency (20%-25% photoelectric conversion)
Product Dimensions	15.9"L x 11.9"W x 0.11"H
Item Weight	1.7 Pounds
Special Features	Lightweight Design, Travel, Water Resistant
Included Components	Carabiner×4, Sucker×4, SAE to OBD-II, SAE to alligator clip, SAE to car charger, SAE to terminal

10. WARRANTY AND SUPPORT

FlexSolar is committed to ensuring customer satisfaction. This product comes with a standard manufacturer's warranty. For specific details regarding warranty coverage, duration, and claims, please refer to the documentation included in your package or contact customer support.

If you have any questions, require technical assistance, or need to report an issue, please contact FlexSolar customer service. We offer real-time professional sales and technical support 24 hours a day.



Image: FlexSolar 24-Hour Customer Support. This image depicts a customer service team ready to provide assistance, emphasizing 24-hour support.