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› Microtek PWM UPS Solar PCU 1435 User Manual

MICROTEK 899-070-1435

Microtek PWM UPS Solar PCU 1435 User Manual

Model: 899-070-1435

INTRODUCTION

This user manual provides comprehensive instructions for the installation, operation, and maintenance of the Microtek PWM UPS Solar PCU 1435. This pure sinewave solar inverter is designed to provide reliable power backup and efficient solar energy utilization for your home or office. Please read this manual thoroughly before using the product to ensure safe and optimal performance.

PRODUCT OVERVIEW

The Microtek PWM UPS Solar PCU 1435 is an advanced solar power conditioning unit featuring PWM (Pulse Width Modulation) technology and a pure sinewave output. It is designed to manage power from both solar panels and the grid, providing uninterrupted power supply and optimizing solar energy usage.



Figure 1: Front view of the Microtek PWM UPS Solar PCU 1435, showing the LCD display and control buttons.



Figure 2: Close-up of the Microtek PWM UPS Solar PCU 1435 LCD display, indicating various operational statuses.

Key Features:

- Pure Sinewave Output: Ensures compatibility with sensitive electronic appliances.
- DSP (Digital Signal Processor) based design for enhanced performance.
- Protection from Overload, Deep Discharge, Short-Circuit, and Reverse Polarity.
- Automatic Low and High Cut-off for grid supply during power fluctuations.
- LCD display for monitoring various parameters like Grid Unit Saved (KWH), Solar Power Available (WATT), PV Voltage, Grid Charging Current, Output Load Percentage, Battery Voltage, Output Voltage, and PV Current.

SAFETY INSTRUCTIONS

Always adhere to the following safety guidelines to prevent injury or damage to the unit:

- Ensure proper grounding before installation.
- Do not open the unit casing; refer servicing to qualified personnel.
- Keep the unit away from water, moisture, and direct sunlight.

- Ensure adequate ventilation around the unit to prevent overheating.
- Disconnect all power sources before performing any maintenance or cleaning.

SETUP AND INSTALLATION

Follow these steps for proper installation of your Microtek PWM UPS Solar PCU 1435:

1. **Unpacking:** Carefully remove the unit from its packaging. Inspect for any physical damage. Ensure all included components (INVERTER) are present.
2. **Placement:** Place the inverter in a cool, dry, and well-ventilated area, away from flammable materials. Ensure the ambient temperature is within 0-45°C. The product dimensions are approximately 39 x 38.8 x 20 cm.
3. **Battery Connection:** Connect the battery terminals to the inverter. Ensure correct polarity (positive to positive, negative to negative). This model operates on 12 Volts.
4. **Solar Panel Connection:** Connect your solar panels to the designated solar input terminals. This unit supports a maximum solar panel current of 30A and a maximum solar power rating of 45W to 600W (for PCU 1235N/12 and PCU 1435N/12 models). Ensure the PV voltage is within the specified range.
5. **Grid Input Connection:** Connect the AC mains input to the inverter. The unit supports a wide input voltage range of 100V-280V or a narrow input voltage range of 170V-260V, depending on the setting.
6. **Load Connection:** Connect your appliances to the output sockets of the inverter. Do not overload the unit. The working power is 1135VA.
7. **Initial Power On:** Once all connections are secure, switch on the inverter. The LCD display will illuminate, showing system status.



Figure 3: Illustrative setup of the Microtek Solar PCU with solar panels, demonstrating its integration into a home power system.

OPERATING INSTRUCTIONS

The Microtek PWM UPS Solar PCU 1435 operates automatically, managing power flow between solar, battery, and grid. Here's how to understand its operation:

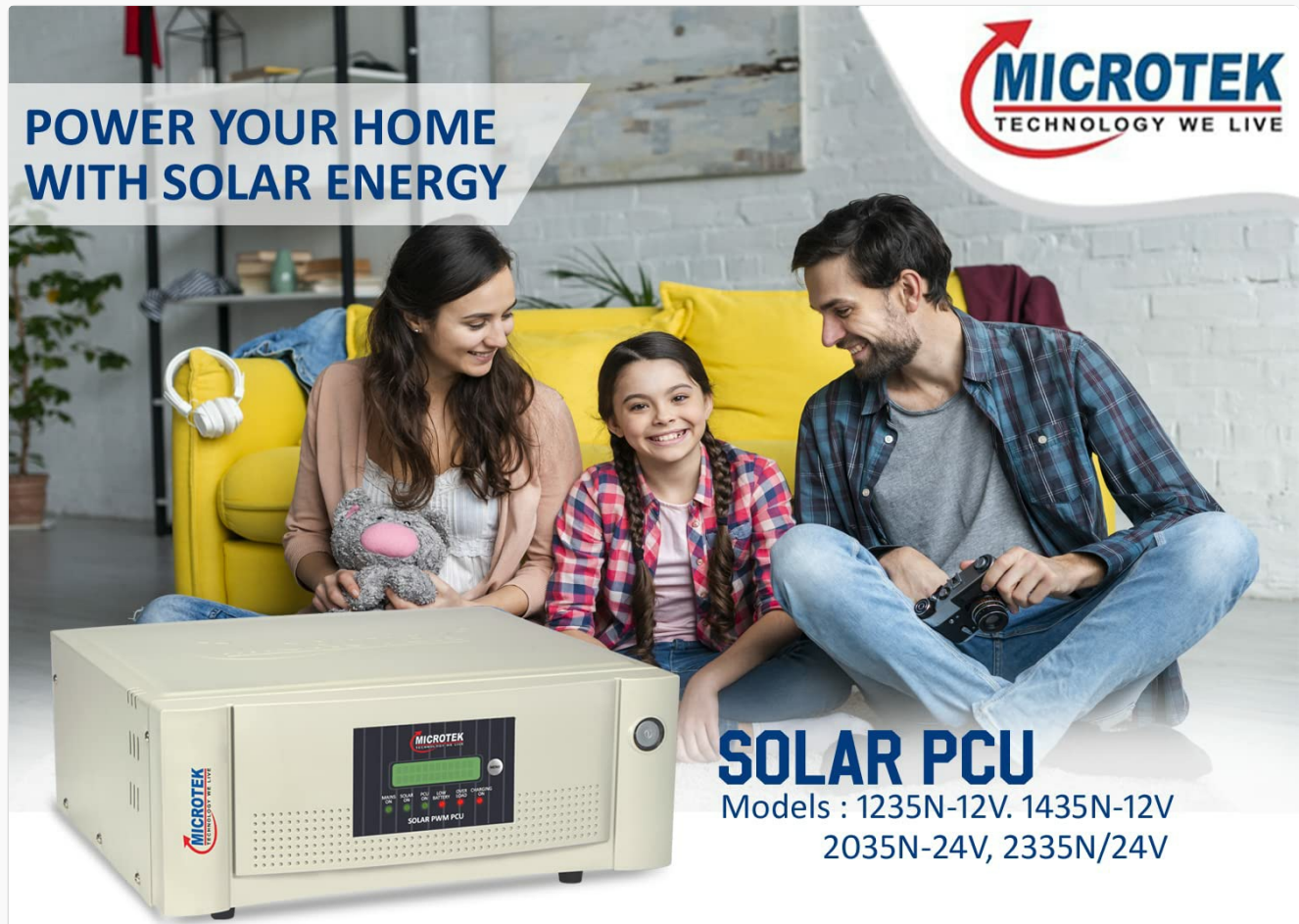
Modes of Operation:

- **Solar Mode:** When sufficient solar power is available, the unit prioritizes solar energy to power the load and charge the battery.
- **Battery Mode (UPS Mode):** In case of grid power failure, the unit automatically switches to battery power to provide uninterrupted supply. The output waveform on UPS mode is Pure Sinewave.
- **Grid Mode (Mains Mode):** When solar power is insufficient and grid power is available, the unit uses grid power to supply the load and charge the battery.

LCD Display Indications:

The LCD provides real-time information about the system's status:

- **Grid Unit Saved (KWH):** Displays the total energy saved from the grid by utilizing solar power.
- **Solar Power Available (WATT):** Shows the instantaneous power being generated by the solar panels.
- **PV Voltage:** Indicates the voltage from the photovoltaic (solar) panels.
- **Grid Charging Current:** Shows the current drawn from the grid for battery charging.
- **Output Load Percentage:** Displays the percentage of the inverter's capacity currently being used by connected appliances.
- **Battery Voltage:** Shows the current voltage of the connected battery bank.
- **Output Voltage:** Indicates the AC output voltage supplied to the load.
- **PV Current:** Shows the current generated by the solar panels.



POWER YOUR HOME WITH SOLAR ENERGY

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SOLAR PCU
Models : 1235N-12V, 1435N-12V
2035N-24V, 2335N/24V

USER FRIENDLY, LCD DISPLAY, Shows Following Parameters

Grid Unit Saved(KWH)	Solar Power Avail. (WATT)	PV Voltage
Output Load Percentage	Grid Charging Current	Grid Voltage
Battery Voltage	Output Voltage	PV Current

Figure 4: Example of a household benefiting from solar energy managed by a Microtek Solar PCU, highlighting user-friendly display parameters.

Charger Mode Selection:

The unit features a slide switch to select between "Solar Charger" and "Normal Charger" modes, allowing you to

prioritize solar charging or grid charging for the battery.

MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your Microtek PWM UPS Solar PCU 1435:

- **Cleaning:** Periodically clean the exterior of the unit with a dry, soft cloth. Do not use liquid cleaners or solvents.
- **Ventilation:** Ensure that the ventilation openings are clear of dust and obstructions to allow proper airflow and cooling. The cooling fan control is both by load & temperature and in charging mode.
- **Connections:** Regularly check all electrical connections (battery, solar, grid, load) for tightness and corrosion. Loose connections can lead to poor performance or safety hazards.
- **Battery Health:** Monitor battery voltage and ensure the battery is not deeply discharged. The unit has Battery Deep Discharge Pickup Capability.
- **Solar Panels:** Keep solar panels clean from dust, dirt, and debris to maximize solar energy harvesting.

TROUBLESHOOTING

This section addresses common issues you might encounter:

Problem	Possible Cause	Solution
Unit not turning on	No power input; Loose battery connection; Discharged battery.	Check grid power supply; Ensure battery terminals are securely connected; Charge battery.
No output power	Overload; Short-circuit; Battery low.	Reduce connected load (UPS Overload / UPS Short Circuit protection at 110% / 300%); Check for short circuits in wiring; Recharge battery.
Solar charging not active	Insufficient sunlight; Dirty solar panels; Incorrect PV connection; Solar Over Current.	Ensure adequate sunlight; Clean solar panels; Verify PV wiring and polarity (Reverse Panel Protection is available); Check for Solar Over Current (20% capacity).
Frequent beeping/alarms	Overload; Battery low; High output voltage alarm.	Reduce load; Charge battery; If "High output voltage alarm" is false, contact service.
Unit hangs or freezes	Software issue; Internal fault.	Try restarting the unit. If the problem persists, contact customer support. The unit has an Auto Reset Feature.

If the problem persists after attempting these solutions, please contact Microtek customer support.

TECHNICAL SPECIFICATIONS

Parameter	Specification
Model	Microtek UPS Solar PCU 1435 (899-070-1435)
Technology	DSP Micro Controller Based Design, PWM Based Technology

Parameter	Specification
Input Voltage Range (Wide)	100V~280V
Input Voltage Range (Narrow)	170V~260V
Output Voltage on Mains Mode	Same as Input Voltage
Output Voltage on UPS Mode	210V $\pm$ 10%
Output Frequency on UPS mode	50Hz $\pm$ 0.1Hz
Output Waveform on UPS mode	Pure Sinewave
UPS Transfer Time	$\leq$ 15 msec.
Maximum Solar Panel Current	30A
Solar Over Current Capacity	20%
Mains Mode Charger	Power Factor Controlled Boost Technology
Peak Efficiency	>80%
UPS Overload / UPS Short Circuit	110% / 300%
Auto Reset Feature	Yes
Reverse Panel Protection	Yes
Charging Profile with Solar	Complete
Battery Deep Discharge Pickup Capability	Yes
Thermal Protection	Both in Grid Charging & Backup Mode
Cooling Fan Control	Both by Load & Temperature and in Charging Mode too
Output Voltage Fluctuation (Backup Mode)	Not at All
Display Indications	LCD (16x2) for Display (KWH, WATT indications present)
DC Input Volt. High Cut Protection/Recover	Yes
Operating Temperature	0–45°C
Product Dimensions (LxWxH)	39 x 38.8 x 20 Centimeters
Item Weight	11 kg 400 g
Included Components	INVERTER

WARRANTY AND SUPPORT

Warranty: This product comes with a 1 Year Warranty from the date of purchase. Please retain your purchase receipt for warranty claims. The warranty covers manufacturing defects under normal use conditions.

Customer Support: For technical assistance, troubleshooting beyond this manual, or warranty claims, please contact Microtek customer service. Refer to the product packaging or Microtek's official website for the most current

contact information.

Manufacturer: UNIVERSAL POWER PRODUCT, PLOT NO. 20 & 20B, Sector-2, Parwanoo Distt : Solan
HIMACHAL PRADESH 173220

Importer/Packer: Microtek International Pvt. Ltd.

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