MICROTEK

SOLAR PCU

PCU 1235/12V and PCU 2035/24V

USER MANUAL

ISO CERTIFIED COMPANY
ISO CERTIFIED 9001:2015

ISO 14001:2015

CE

2 YEARS WARRANTY

DSP MICRO CONTROLLER BASED SOLAR PURE SINEWAVE HYBRID PCU is designed using latest state-of-the-art Technology for Better Performance and High Reliability. The Solar Sinewave Technology used, enhances the life of the battery and minimum effort has to be put for maintenance.

- MICRO-CONTROLLER DSPIC BASED Intelligent Control Design.
- Dual Charging, Mains Mode and Solar Mode. (Solar Panel for PCU 1235/12V: upto 600Wp & for PCU 2035/24V: upto 1500Wp).
- Pure Sine Wave Regulated Output.
- Smart PWM Controlled multistage ATM (Automatic Trickle Mode) Charging.
- LCD and Graphical Display Indications (Status & Fault).
- Smart and Faster Overload Sense and Short Circuit Protection.
- Easily Serviceable.
- Auto Reset Feature.
- Mains Input Voltage Range Selection.
- Charging Voltage Selection Switch.
- PCU Mode ON/OFF Selection Switch.
- Grid Charging Enable/Disable Selection.
- HI/Low Grid Charging Selection Switch.

TECHNICAL SPECIFICATIONS

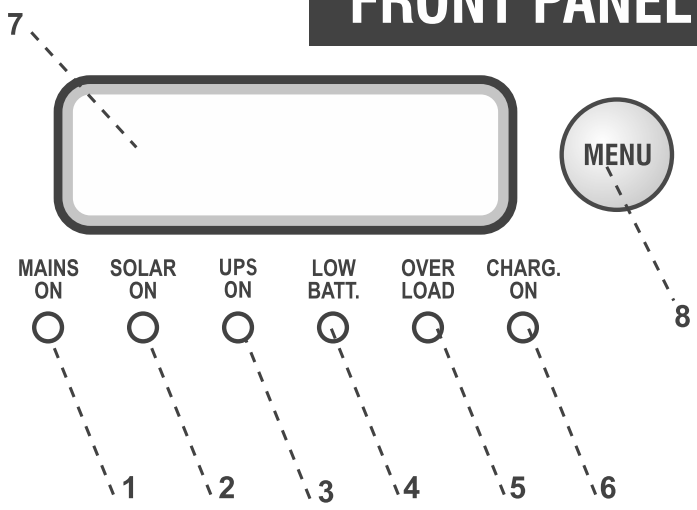
Input voltage	(Wide Range) (Narrow range)	100V~280V 170V~260V
Output Voltage on mains mode		Same as input
Output Voltage on UPS mode		230V ± 10%
Output frequency on UPS mode		50 Hz ± 0.1 Hz
Switching from mains to UPS and from UPS to mains		Automatic
Output waveform on mains mode		Same as Input
Output waveform on UPS mode		PURE SINEWAVE
Battery charging current mains		Constant charging approx 10% of the rated battery current in AH
Maximum Solar Panel Current		35A
Charger		Power Factor Controlled Boost Technology
Efficiency (Peak)		> 80%
UPS Overload/UPS Short Circuit		110% / 300%
UPS Transfer Time		≤ 15msec.
Technology		DSPIC MICRO CONTROLLER BASED DESIGN
Auto Reset Feature		Yes
Operating Temperature		0~45°C

NOTE: *Power Factor may vary depending upon the Load.

** Because of a policy of continuous product improvement, specifications are subject to change without notice.*

LED Indications

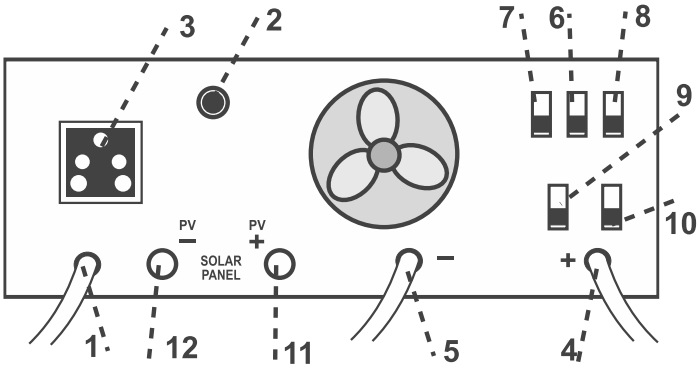
FRONT PANEL



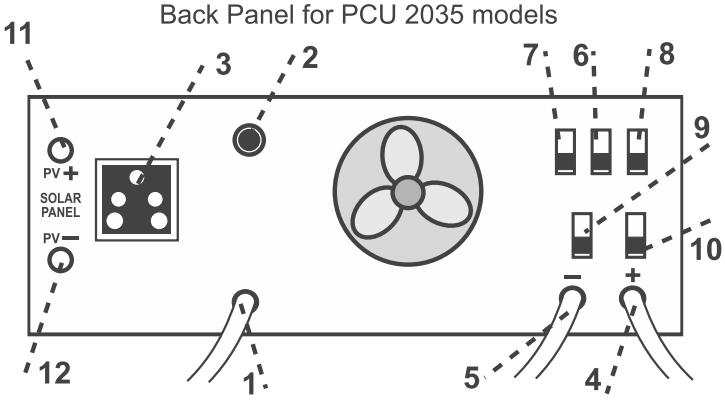
1. Mains ON.
2. Solar Charging
   - ✱ LED Continuously Blinks when Charging from Solar Panel.
   - ✱ LED Continuously Glows when Battery is Charged by Solar.
   - ✱ LED OFF when Solar is not available or Fault in Solar Connection.
3. PCU on Backup. (UPS ON)
4. Battery Low.
5. Overload.
   - ✱ LED Blinks with Beep, if PCU is Overloaded.
   - ✱ LED Continuously Glows with Beep and No Output, if Short Circuit.
6. Battery Charging.
   - ✱ LED Continuously Glows when Charged.
   - ✱ LED Blinks when Battery is Charging.
7. **LCD Display.**
8. **Press and hold Switch to see Display for Solar Power available and Grid Units Saved.**

BACK PANEL

Back Panel for PCU 1235 models



Back Panel for PCU 2035 models



1. Mains Input Lead for AC input.
2. Circuit Breaker for Mains overload, Short Circuit & for Charger Protection.
3. Output socket for load.
4. Positive Battery Lead.
5. Negative Battery Lead.
6. Slide Switch for Mains Input Voltage

   Range : Standard: 100V~280V
   Narrow: 170V~260V)
7. Slide Switch Smart / Normal Mode.
8. Slide Switch to Select the Float Charging Voltage / Type of Battery. (HIGH / STD).

   Select the appropriate Voltage as recommended by Battery Manufacturer / Supplier.

CAUTION: Proper selection of switch position is recommended based on the battery manufacturers specifications, for proper backup and also to avoid any damage to the battery due to wrong selection.

9. Slide Switch for Grid Charging Enable and Disable Selection. 1: Enable 2: Disable.
10. Slide Switch for HI/LO Charging Current Selection in Grid Mode.
11. Solar Panel Positive.
12. Solar Panel Negative.

LCD DISPLAY

LCD DISPLAY IN NORMAL MODE OPERATION

S.No.	DISPLAY MESSAGE	SCREEN NO.	SYSTEM STATUS (MESSAGE)
1.0	LINE:1> WELCOME TO LINE:2> MICROTEK INT'L	SCREEN 1	At Initialization
2.0	LINE:1> SYSTEM INITIALISE LINE:2> WAIT FOR 10 SECS	SCREEN 2	At Initialization
3.0	LINE:1> SOLAR PCU LINE:2> MODEL NO.	SCREEN 3	At Initialization
4.0	LINE:1> UPS MODE LINE:2> BATT VOLT: ___ V	SCREEN 4	Instant Battery Voltage in Backup Mode
5.0	LINE:1> UPS MODE LINE:2> LOAD ___ %AGE	SCREEN 5	Instant Discharging Current
6.0	LINE:1> UPS MODE LINE:2> O/P VOLT: 230 V	SCREEN 6	Instant Output Voltage in Backup Mode
7.0	LINE:1> SOLAR MODE LINE:2> PV VOLT: ____ V	SCREEN 7	Instant Solar Voltage
8.0	LINE:1> SOLAR MODE LINE:2> PV CRNT: ____ A	SCREEN 8	Instant Solar Current
9.0	LINE:1> MAINS MODE LINE:2> GRID VOLT: 220 V	SCREEN 9	Instant Grid Voltage in Mains Mode
10.0	LINE:1> MAINS MODE LINE:2> O/P VOLT: 220 V	SCREEN 10	Instant Output Voltage in Mains Mode
11.0	LINE:1> MAINS MODE LINE:2> BATT VOLT: ____ V	SCREEN 11	Instant Battery Voltage in Mains Mode
12.0	LINE:1> MAINS MODE LINE:2> GRID CHARG: 12.0 A	SCREEN 12	Instant Charging Current
13.0	LINE:1> SOLAR MODE LINE:2> PV VOLT: ____ V	SCREEN 13	Instant Solar Voltage
14.0	LINE:1> SOLAR MODE LINE:2> PV CRNT: ____ A	SCREEN 14	Instant Solar Current

* Above all displays are automatic scrolled.

LCD DISPLAY FOR ENERGY SAVING MODE

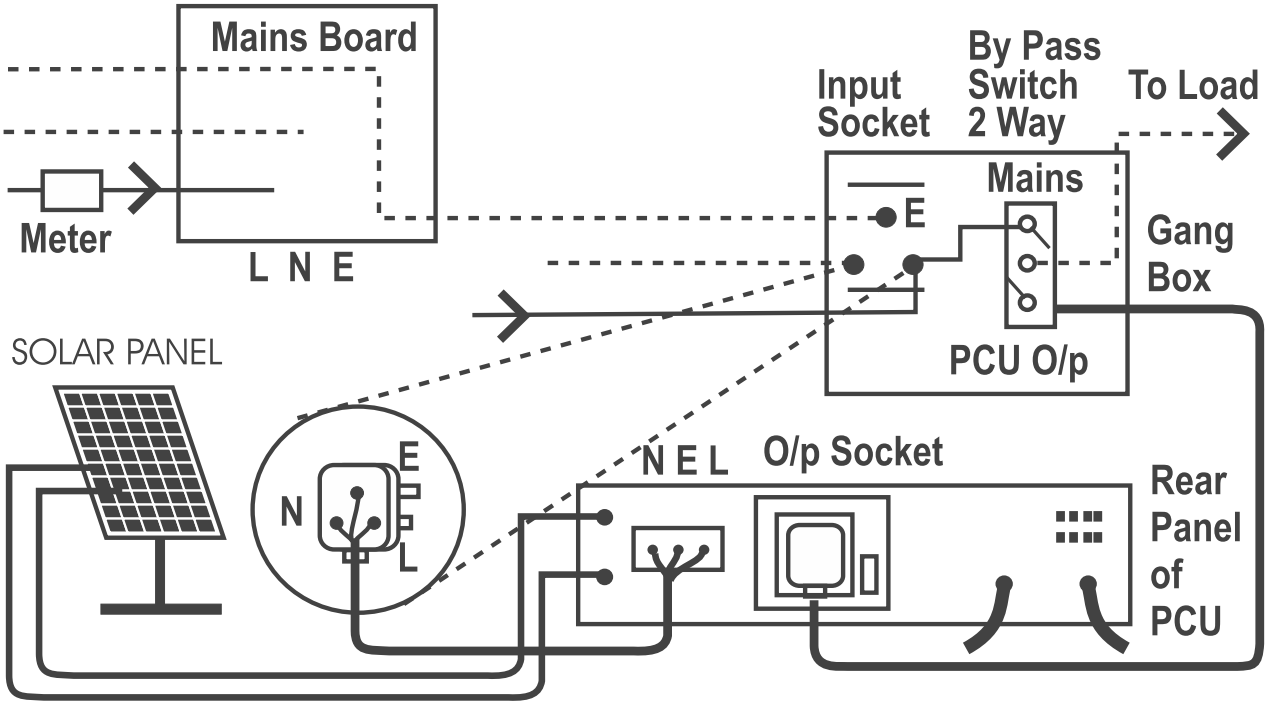
S.No.	DISPLAY MESSAGE	SCREEN NO.	SYSTEM STATUS (MESSAGE)
1.0	LINE:1> SOLAR POWER LINE:2> _____ WATT	SCREEN 23	Instant Solar Power
2.0	LINE:1> GRID UNITS SAVED LINE:2> 0000000.000 KWH	SCREEN 24	Numbers of Units Saved till date

LCD DISPLAY IN ABNORMAL (FAULT) MODE OPERATION

S.No.	DISPLAY MESSAGE	SCREEN NO.	SYSTEM STATUS (MESSAGE)
1.0	LINE:1> OUTPUT LINE:2> OVERLOAD	SCREEN 15	Output Over Load Fault
2.0	LINE:1> OUTPUT LINE:2> SHUTDOWN	SCREEN 16	Output Over Load Shutdown
3.0	LINE:1> O/P OVERVOLTAGE LINE:2>	SCREEN 17	Output Over Voltage Fault
4.0	LINE:1> O/P SHORT CKT LINE:2>	SCREEN 18	Output Short Circuit Fault
5.0	LINE:1> BATTERY LOW LINE:2>	SCREEN 19	Battery Low
6.0	LINE:1> BAT LOW SHUTDOWN LINE:2>	SCREEN 20	Battery Low Shutdown
7.0	LINE:1> BATT OVR VOLTAGE LINE:2>	SCREEN 21	Battery Over Voltage Fault
8.0	LINE:1> THERMAL SHUTDOWN LINE:2>	SCREEN 22	Over Temperature Shutdown

CONNECTION DIAGRAM FOR INSTALLATION

TO BE DONE BY A COMPETENT & KNOWLEDGEABLE PERSON.



P - Positive Terminal of PCU O/p

L - Mains Line I/p

N - Neutral

E - Earth

* **When the Push switch is at OFF position then it By-Pass the mains AC supply & charges the Battery.**
* **When the Push switch is at ON position(Pressed) and is having alternating supply, It charges the battery and has mains By-Pass and when the alternating supply(mains) is not present at that instant it is ready for Backup.**

SERVICING / WARRANTY

Microtek International P. Ltd., warrants each instrument to be free from defects in materials and workmanship for a period of Two years after initial delivery. This obligation is limited to servicing any instrument or part returned to the authorised service center for that purpose and to making good any parts thereof which shall, within the warranty period, be returned to the company or authorised Service center under a written intimation and which to the company's satisfaction be found defective. The company reserves the right to decide as to whether the repair work should be carried out in the company's service center or at site or at any other place.

The freight incurred for to and fro dispatch will have to be borne by the customer and the transit risk for the material will rest with the customer.

The warranty will be invalidated if defects arising in company's opinion are by reasons of accident, abuse, misuse, neglect, Improper Installation (If not undertaken by the company or its representative), fire, flood, any other act of God and any other natural calamities. Further, this warranty does not extend to any instrument which has been repaired / tampered with by any agency/person not authorized by the company. The services given for the same will be paid service.

The warranty will last for a period of 24 months from the date of initial delivery/dispatch of the instrument if used within its specifications. The warranty for the replaced components will lapse along with that of the main instrument.

MICROTEK International P. Ltd., reserves the right to make changes in design and specifications without notice and without any obligation to install such changes on units previously supplied.

In no event will MICROTEK International P. Ltd., its distributors / dealers be liable for any loss or injury or damage caused to life or property or death & disability caused to any form of life for any reasons whatsoever. The company, its distributors / dealers will also not be liable for consequential damages or for any expenses incurred by the buyer or user, due to use or sale of products sold by MICROTEK International P. Ltd., directly or through its authorised Distributors / dealers or any third party.

SAFETY INSTRUCTIONS

Always connect the PCU to a two pole, three-wire grounding mains socket, near by the product. The socket must be connected to appropriate branch protection (fuse/circuit-breaker). Connection to any other type of socket may result in a shock hazard.

To switch off the PCU output in emergency, use switch on the Front panel. Also disconnect the mains cord and battery wires.

Avoid installing the PCU in open, excessively humid place or where there is water or near flammable materials (plywood, chemicals, gasoline etc.). Care must be taken to ensure that the PCU is kept away from heat-emitting appliances such as a heater, blower, oven etc.

The unit must also be placed in a manner that it avoids exposure to sunlight. The place of installation should be well-ventilated & easily accessible for servicing. Ensure that ELCB/RCCB is not connected at either Input or Output, Only MCB upto 63A or MCCB above 100A to be used as per PCU capacity.

Foreign objects and water must not enter the PCU. Always ensure that objects containing liquid are avoided near the unit.

Place the Battery Compartment as near as possible to the PCU. Don't allow sparks near the Battery. Be sure not to come in contact with Battery Acid by any means.

Always Switch Off the PCU and disconnect mains when disconnecting the Battery.

Avoid connecting the stabilizer between Utility Power and PCU. The AVR of the stabilizer may cause rebooting of the Computer. The equipment must be earthed.

Do not open the PCU there are dangerous high voltages inside even when the power is OFF, Contact the Company only if it is not working properly.

Replace Batteries and the Fuse only with same Rating and Type.

Do not place PCU on a sloping shelf unless properly secured. Use perfect stand to hold the PCU.

Backfeed, See the warning label on the PCU.

IMPORTANT

In the event of any instrument requiring service at our authorised service centre, the following procedure should be adopted:-

1. The instrument must be securely packed, preferably in its original packing. Also ensure that nothing inside packing is damaged. Please transport the product in its original packing to protect against shock, damage & Impact.
2. We reserve the right to charge the consignee for any damage incurred during transit.
3. The output of the PCU should never be connected to a generator or incoming utility power source. This situation is far worse than a short-circuit. If the unit survives the condition, it will shutdown until correction is made.

GOING ON VACATIONS

1. Must put the PCU ON/OFF Switch in OFF Position.

DO'S & DON'TS RELATED TO PCU

Do's Related to PCU

- ✓ Unplug and Switch OFF the PCU before touching or cleaning the surface.
- ✓ Unplug the PCU from the wall outlet during a Lightening Strom.

Don'ts Related to PCU

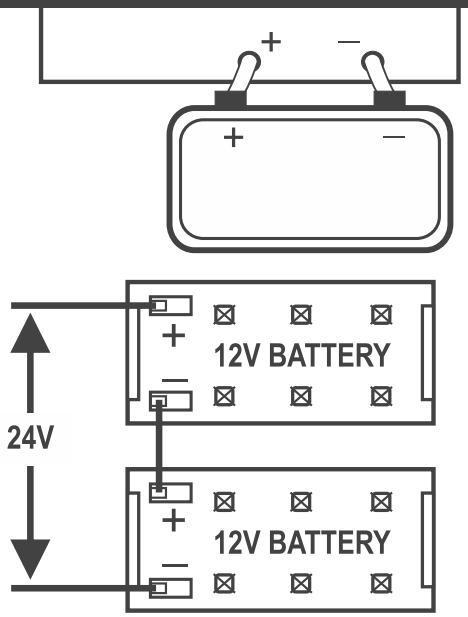
- ☒ Don't block the bottom ventilation slots by cloth or other material it may result in fire hazard.
- ☒ Don't place the PCU near radiation or heat source.
- ☒ Don't Install near Kitchen Sink, Laundry, Wash Bowl, Bath Tub or Swimming Pool.

BATTERY - INSTALLATION & CONNECTIONS

CAUTION: Battery Polarity must be checked before connections. Wrong Polarity connection with PCU will cause Reverse Protection Fuse Blown and may lead to Fire Hazards.

Installation shall be done by a knowledgeable person.

- Take precautions while connecting the thimble of battery cable to the battery post, avoid short circuit by spanner etc.



BATTERY CONNECTIONS:

SERIES CONNECTION: Voltage adds & AH remains same.

NOTE: Recommended Battery (Lead Acid Type):
12Vx1 for PCU 1235/12V model. (100AH to 180AH)
12Vx2 for PCU 2035/24V model. (100AH to 200AH)

POST WARRANTY ANNUAL MAINTENANCE CONTRACT (AMC)

Microtek Offers Annual Maintenance Contract to save you from any inconvenience in case of a product failure post warranty. Various options are available in select cities for all models of Microtek Products: ***For Details, Contact nearest Microtek Branch or e-mail at: ho@microtek.in***

In case of any Service requirement kindly contact Microtek Customer Care, specifying following details:

(i) Model Number & Serial Number of the Product.

(ii) Name & phone no. of the contact person with full address & e-mail ID if any.

(iii) Reported problem/description of the complaint.

Note: (a) Refer all servicing queries to Microtek Customer Care only.

(b) Please take care that Serial Number is kept intact and that the product is not allowed to be fiddled (opened) by any unauthorised person; otherwise the warranty will be void.

MICROTEK CUSTOMER CARE: ALL INDIA: 7283838383
WHATSAPP: 8800255733 E-mail: cc@microtek.in

*All disputes subject to Delhi jurisdiction only.

MICROTEK INTERNATIONAL P. LTD.
H-57, Udyog Nagar, Rohtak Road, New Delhi-110041.

INSTRUMENT DESCRIPTION - MICROTEK SOLAR SINEWAVE PCU

Single Battery (12V) System:

PCU 1235/12V ☐

Double Battery (24V) Sys:

PCU 2035/24V ☐

SERIAL NO.

Authorised Dealer
Stamp with Signatures

Vend. C:
Form No.: QPN/003-235
Issue No.: 03, 17/05/2024 (PART CODE: 902-072-2335) 002-270-PCU-1235-2035 ALL V.3