

WINNER OF SMART LIVING AND EFY AWARDS



MICROTEK
DIGITAL INVERTER



MICRO
COMPUTER
INSIDE



CERTIFIED
ISO 9001 : 2000
MILLENNIUM
COMPANY

www.MICROTEKDIRECT.com

USER'S MANUAL



AN ISO 9001:2000 COMPANY

Congratulations on selecting Micro Controller Based MICROTEK Digital Inverter & subsequently joining the family of the millions of satisfied users of Microtek Products.

Before using this inverter, Please read this manual carefully to familiarize yourself with all its features, controls and safety precautions.

Enjoy Uninterrupted Power !

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TABLE OF CONTENTS

The Product	- Page 04
Salient Features	- Page 04
Front Panel	- Page 05
Back Panel	- Page 06
Load Chart	- Page 07
Noise on Inverter Mode	- Page 07
Troubleshooting	- Page 08
Bypassing the Inverter	- Page 10
Technical Specifications	- Page 11
Servicing	- Page 12
Warranty	- Page 12
Safety Instructions	- Page 14
Important	- Page 14
Going on Vacations	- Page 14

THE PRODUCT

Inverter is a electronic power source which stores the energy in batteries connected to it when the AC source is present and converts this energy automatically to AC power when the Input AC source fails and automatically feeds generated AC power to the loads connected & returns to mains when the AC source comes back on the input side.

SALIENT FEATURES

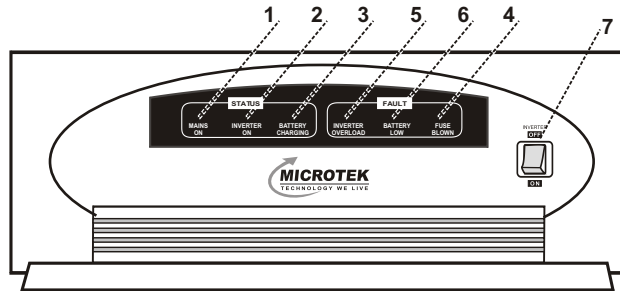
MICRO CONTROLLER BASED DIGITAL INVERTERS are designed using latest state-of-the-art Technology for Better Performance and High Reliability. The Digital Technology used enhances the life of the battery and minimum effort has to be put for maintenance.

- ◆ MICRO-CONTROLLER BASED Intelligent Control Design.
- ◆ Display Indications (Status & Fault)
- ◆ CCCV Technology with Auto Trickle Mode
- ◆ Smart Overload Sense and Short Circuit Protection
- ◆ Battery State Monitoring
- ◆ Easily Serviceable
- ◆ Multi Stage Battery Charger
- ◆ Optional UPS mode for Computer Applications

FRONT PANEL

I. LED Indications

1. Mains ON.
2. Inverter ON.
3. Battery Charging.
* LED Continuously Glows when Charged.
* LED Blinks when Battery is Charging.
4. Fuse Blown.
5. Inverter Overload.
6. Battery Low.

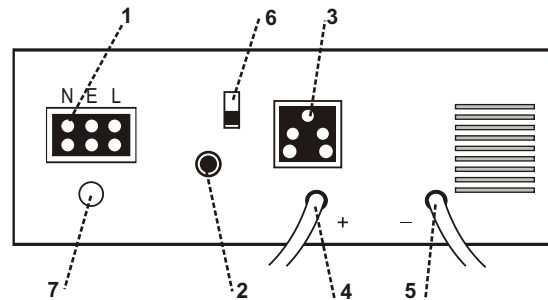


II. Switch

7. Power On / Off & Reset.

BACK PANEL

1. Mains Input Terminal Block for AC input.
2. Circuit Breaker for mains overload / short circuit protection.
(4Amps/7Amps for IN-600VA Model, 8Amps/10Amps for IN-800VA Model & 10Amps/16Amps for IN-1400VA Model).
3. Output socket for load.
4. Positive Battery Lead. $\left\{ \begin{array}{l} \text{In case of IN-600VA / IN-800VA - 12V Batt. Sys.} \\ \text{In case of IN-1400VA - 24V Batt. Sys.} \end{array} \right\}$
5. Negative Battery Lead.
6. Slide Switch to Select the Maximum Charging Voltage.
(HIGH= 14.2V DC / Standard (STD)= 13.8 V DC).
Select the appropriate Voltage as recommended by the 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.**
7. Fuse (10Amp Slow Blow for all models) for Charger.

LOAD CHART

The following Data should be used for calculating the total load in VA, while using the Inverter.

LOAD	STANDARD RANGE	GENERAL RANGE
1. Tube light new / good choke	75 VA	60 VA ~ 75 VA
2. Tube light with old / inferior choke	105 VA	75 VA ~ 105 VA
3. Electric bulb	As per actual Wattage (eg. 60 W Bulb as 60 VA)	
4. Fan below 48" size	100 VA	75 VA ~ 100 VA
5. Fan above 48" size	125 VA	100 VA ~ 125 VA
6. Television 14" / 21"	150 VA	125 VA ~ 150 VA
7. C. F. L. 9 W / 11 W	40VA	25 VA ~ 40 VA

NOISE ON INVERTER MODE

Generally on inverter mode, a noise may be observed from tube light / fan, which is due to the following reasons:-

- 1. Because of inferior quality choke.**
- 2. Weak / Leaky capacitor in fan.**

These noises may not be present while on mains mode, but shall be on the inverter mode because of TPZi waveform, which allows higher backup as compared to Sine Wave (Mains Waveform) in inverter mode with noise as nuisance.

This can be reduced by Loading the inverter output with a R-C Circuit:-

For 600/800VA : Use a Resistance of 22 Ohms / 150W in series with a Polyester Capacitor of 2.5MFD / 440V.

For 1400VA : Use a Resistance of 22 Ohms / 150W in series with a Polyester Capacitor of 4MFD / 440V.

NOTE:- Loading of the inverter with a R-C Circuit reduces the backup time.

TROUBLE SHOOTING

Problem

Possible Cause / Action Suggested

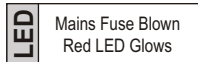
1. Main Supply is Normal but:-

a) **Inverter is working on battery**



a) Dead wall socket. Line AC input connections are loose.

b) **Fuse Blown**



b) Check Charger Fuse at the rear. If blown change it to 10Amp rating. If fuse still blows call authorised service engineer.

c) No output from inverter

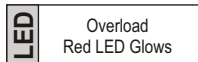
c) **Check Circuit Breaker** at the Rear. Push the Circuit Breaker (Reset), to Switch On the output. If it trips again, call electrician to check shorting/overload in the load wiring.

2. Inverter trips frequently at inverter mode.

The load is more. Reduce the load and reset the inverter.

3. Inverter Mode but no power:-

a) Overload



a) Reduce the load and turn the reset switch on the front panel ON-OFF-OFF-ON.

TROUBLE SHOOTING

Problem

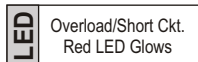
Possible Cause / Action Suggested

b) Low Battery



b) Battery has discharged. Recharge the battery after the mains restoration.

c) Short Circuit



c) Check the wiring and reduce the load and turn the reset switch on the front panel ON-OFF-OFF-ON.

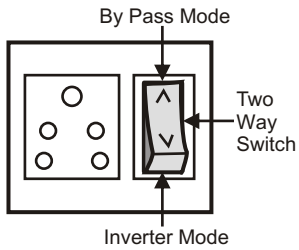
4. Backup time less.

a) Check battery water and charge the battery with mains minimum for 8-12 hours. If still less backup, get the battery checked up from authorised service personnel.

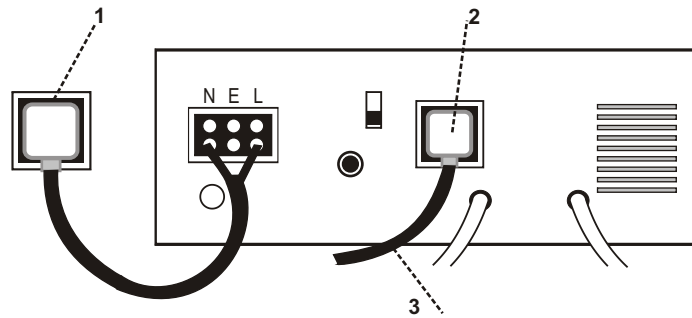
5. Inverter does not operate.

a) Check the battery connections and the mains connections.

b) Internal problem. Bypass the inverter as explained in next section and call authorised service personnel.



BYPASSING THE INVERTER



1. Input Plug.
2. Output Plug.
3. To Load.

The Inverter can be bypassed by connecting the O/P plug (which connects the load to the inverter) directly to the socket on the wall from where the inverter input has been taken. Care must be taken to ensure that the **INVERTER-ON SWITCH has been switched off** in order that the battery does not discharge.

To bypass the inverter follow the following steps:

1. Remove input plug from the wall socket,
2. Remove output plug from the inverter's output socket, and
3. Insert output plug into the wall socket.

OR

Alternatively use a two way bypass switch externally & Simply make it ON to Bypass Mode.

TECHNICAL SPECIFICATIONS

Input voltage	100V~300V
Output Voltage on mains mode	Same as input
Output Voltage on inverter mode	200V ~ 230V \pm 10%
Output frequency on inverter mode	50 Hz \pm 0.1 Hz
Switching from mains to inverter and from inverter to mains	Automatic
Output waveform on mains mode	Same as Input
Output waveform on inverter mode	TPZi Wave form (TRAPE ZOIDAL WAVEFORM)
Battery charging current	Constant charging approx 10% of the rated battery current in AH
Charger	Constant current, Constant wattage
Efficiency	> 84%
Inverter Overload	100%
Inverter short circuit	300%
Browns out mains voltage	100V \pm 40V
Technology	MICRO CONTROLLER BASED DESIGN
Auto Reset Feature	Yes

NOTE:- Because of a policy of continuous product improvement, the specifications are subject to change without notice.

SERVICING

In the unlikely event of your facing problem that has not been sorted out by troubleshooting, kindly contact your authorised dealer and give details of the problem along with the serial number and the date of installation. This would enable a prompt action on part of the authorised service personnel and cause minimum down time.

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 does not extend to any parts of the instrument which have been subjected to misuse or accident. Further, this warranty does not extend to any instrument which has been tampered with by any agency not authorized by the company.

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.

WARRANTY

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 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.

Until superceded otherwise or in contractual form this warranty is made expressly in lieu of all other liabilities and obligations on part of MICROTEK International P. Ltd.

Title to the Instrument passes to the buyer upon delivery to the common carrier.

POST WARRANTY ANNUAL MAINTENANCE CONTRACT

For Microtek Inverters, Microtek Offers Annual Maintenance Contract to save you from any inconvenience in case of a product failure. Various options are available in select cities for all models of Microtek Inverters:-

For Details, Contact nearest Microtek Branch or e-mail at: power.support@microtekdirect.com

SAFETY INSTRUCTIONS

Always connect the inverter to a two pole, three-wire grounding mains socket. 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 inverter output in emergency, use switch on the Front panel. Also disconnect the mains cord and battery wires.

Avoid installing the inverter in open, excessively humid place or where there is water. Care must be taken to ensure that the inverter 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 and easily accessible for servicing.

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

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.
2. The instrument should be despatched on Freight-prepaid basis duly insured.
3. One of our Service / Sales Executive should be informed of the goods Receipt No. and date of despatch along with the name of carrier.
4. The above procedure should only be adopted on the advise of one of our Service / Sales Executive or Dealer.
5. We reserve the right to charge the consignee for any damage incurred during transit.

GOING ON VACATIONS

1. Must put the inverter ON/OFF Switch in OFF Position.
2. Mains Input should remain connected to keep the battery always in charged condition.

In case of any "Customer Support" requirement kindly contact the nearest Microtek Authorised Dealer or Microtek Branch/Service Centre, 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 complaint.**

Note:- (a) Refer all servicing queries to Microtek Authorised Dealer or Microtek Service Centres 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.**

Service H.O. Tel: 011-42733333 E-mail: power.support@microtekdirect.com

*All disputes subject to Delhi jurisdiction only.



MICROTEK INTERNATIONAL P. LTD.

H-57, Udyog Nagar, Rohtak Road, New Delhi-110041. Sales Tel.: 011-42733377

Sales E-mail: sales@microtekdirect.com **Service E-mail:** power.support@microtekdirect.com