SIGNAL

INVERTER/UPS

OWNER'S MANUAL

SIGNAL POWER SYSTEMS

POST BOX : 2234 ,TRIVANDRUM-695 010
Phone: +91 924 944 7388
e-mail: signaltvm@gmail.com

TABLE OF CONTENTS

1. SAFETY INSTRUCTIONS

1. Carefully read the instructions before installing the inverter.
2. This product is designed to install at indoors only.Avoid exposure to rain,water spray,mist,dust or direct Sun light.
3. Do not install the inverter in congested spaces,bed rooms,close to LPG cylinders,fuels or near flammable chemicals,generators etc.
4. Ensure the electrical wiring is standard and safe to support the output from the inverter.
5. When handle battery, prevent contact with acid inside. It can cause severe burns in skin or major damage to eyes.If exposed to acid,wash the area with soap & water and seek medical assistance.

6. **!!! HIGH VOLTAGE WARNING: DO NOT OPEN THE CABINET OF INVERTER UNDER ANY CIRCUMSTANCE. DANGEROUSLY HIGH VOLTAGES ARE INSIDE.YOU WILL BE ELECTRO CUTED. IT CAN CAUSE SEVERE SHOCK,BURNS OR EVEN DEATH.**

   !!! KEEP AWAY FROM THE REACH OF CHILDREDN TO PREVENT SERIOUS ELECTRIC SHOCK.

7. Never short circuit the battery terminals accidently or otherwise with metallic objects like spanner,which may cause severe burns and explosion of battery.
8. Use safety gloves and goggles when working with battery.
9. After connecting the battery cable, cover the terminals with the cap provided.This is important.
10. When connecting/disconnecting the battery cables, use two spanners from both sides of the battery terminal ,otherwise it may be detached from the battery.
11. **Never reverse the battery cable polarity.Red cable should connect to Positive terminal and Black cable to Negative terminal only.**
12. If using more than one battery, use batteries of same grade and rating particularly when connected in series.

2. SPECIFICATIONS

(Specifications may subject to change without notice or obligation)

Mains Mode (When Mains is present)

Input Voltage.....100 to 230 VAC
Input Ferquency.....50 Hertz
Input Voltage in UPS Mode (Optional).....170 to 270 VAC

Inverter Mode (Backup Mode)

Output Voltage.....230 VAC
Output Frequency.....50 Hertz
Output wave form.....Sine/Square
Battery Voltage.....12 Volt (Vary with UPS Rating)
Power Factor.....0.8 to 1
Efficiency.....89 to 94%
Wave form.....Pure Sine wave in Sine wave units.
Square wave in Square wave units.

3. FEATURES

No separate electrical wiring is required.
Auto reset facility.
Micro controller based technology
UPS changeover for computers (Optional)
Solar Panel connectivity (Optional)
Alpha-Neumeric LCD display to monit functions
LED indicators for long distance viewing
Audio indicators for required functions/states

4. APPLICATIONS

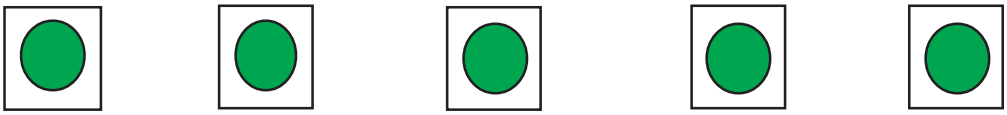
Can be connected with any normal domestic circuit contains Fluorescent lamps.(Tube lights),CFLs,Incandescent lamps,LED lamps,Fan,Television of any kind,Audio/Video entertainment gadgets,Musical instruments,Data transfer equipment and Computers (If UPS mode is equipped).Any inductive or capacitive load can be connected according to the rating of the inverter.

5. INSTALLATION

Steps:

1. Ensure the inverter is in OFF mode
2. Connect the battery cables to respective terminals of battery.
3. Connect Input/Line(Phase) to the connector slot marked **Phase in**,located at the rear panel.
4. Connect Neutral to the connector slot marked **Neutral** located at the rear panel
5. Connect the Load circuit to the connector slot marked **Phase Out** located at the rear panel.
6. Turn ON the inverter.
7. Trip the mains with main switch,ELCB or pull out the main fuse.
8. The inverter will be operarional at this time.
9. **Reinstate mains**.The inverter goes to charging mode.
10. Never reverse **Phase IN** and **Phase OUT** cables,which may cause heavy damage.

6. FRONT PANEL OF MODEL WITH LED INDICATORS



Mains On Charger On UPS On Low Battery Over Load

Mains ON

Indicates normal AC Mains is present,Load is working on normal mains supply. UPS mode (Optional), the display will glow,when the input range is 170 to 270 VAC.

Charger On

Will glow when the charger is ON. Turns OFF when charging is completed.

Inverter ON (UPS ON)

Blinks when normal mains is present.During backup it glows continuously with out blinking. The inverter switch must be in ON position.

Low Battery

Glows continuously along wih beep when the battery is almost discharged.Inverter may shut down.Turn OFF the inverter and let it be on charging mode up to 8 hours.

Over Load

Glows when the connected load is higher than the rating of inverter/UPS or during short circuit in back up mode.Turn OFF the excess load.Over load may also present when the battery charge is too low.System will reset automatically 4 times.If excess load exists the system will trip.Turn OFF the excess load then turn OFF the inverter.Wait for 5 seconds and turn ON the inverter. This process will reset the system.

7. FRONT PANEL OF MODEL WITH LCD

Mains ON - LED Indicator

Indicates normal AC Mains is present,Load is working on normal Mains supply. Turns OFF in backup mode and power failure.

UPS ON - LED Indicator

Blinks when inverter is ON and external Mains is present.In backup mode the indicator glows continuously without blinking

!!! Warning: In UPS mode if the line Voltage is below 170 VAC and above 270 VAC the connected load works on backup mode only.External Mains will be automatically disconnected.This will not happen in Inverter Mode.

LCD INFORMATION

DIGITAL	LOAD ON INVERTER
Digital Technology is employed	Load is working on backup . Mains is not present
SWITCH:INVERTER MODE	LOAD ON MAINS
System is working in inverter mode	Load is working on mains
SWITCH:UPS MODE	O/P LOAD.....%
System is working in UPS mode	Percentage of load level on backup (Max: load level upto 80% is ideal)
I/P VOLT.....V	AC CHARGER.....A
Indicates available mains Voltage (Input Voltage)	Indicates the charging current when the charger is ON.Start with 8 A and lowers down to Zero .
O/P VOLT.....V	INV:LOW BATTERY
Indicates output Voltage (Output Voltage on Mains&Backup)	Indicates the battery is discharged. Let the battery in charging mode for few hours.
BATTERY.....V	INV: OVER LOAD
Indicates present battery Voltage	Connected load is higher than the rating of inverter.Turn OFF excess load connected.

8. TIPS & MAINTENANCE

1. The inverter goes to trip mode if the overload condition exists.The inverter auto matically resets 4 times.If fails the inverter will remain in trip state.Turn off the excess load first.Turn off the inverter switch. Wait for 5 seconds and turn ON again (Manual Reset). When the battery is low over load state can arise.Reset manually and let the battery in charging mode for few hours.
2. During extended power failure,run the inverter in minimum load.LED lamps and CFLs are ideal.
3. After one complete discharge,it may takes about 6 to 8 hours to get the battery fully charged.Occurance of another power failure during this time,inverter can not provide satisfactory backup.
4. Once in a month watch the display carefully and make sure all parameters are working.
5. If there no power failure or power cut for more than 10 days continuously, trip your mains and run the load on inverter mode for atleast 30 minutes and reinstate mains.
6. Check the battery water level periodically with an interval of 3 to 4 months and if top up is required ,fill good quality battery water/de-ionized water just up to 1.5" below the top of vent .Never spill out the water while top up, if so the gravity of the acid became low causes battery damage.
7. Never connect excess load even when normal mains is present.Remember, the current flowing to the load is through the inverter always.Components inside the inverter will be damaged if excess load is connected even if the mains is present.
8. Never store anything on top of the inverter or battery.
9. Do not cover the inverter with cloth or plastic sheets.
10. Do not use wet cloth to clean the inverter. **Helpline : +91 924 944 7388**

MODE SWITCH : !!! In **UPS mode** the system works on **BACKUP mode**(From Battery) only when the Mains input is below 170 VAC and above 270 VAC. For normal use keep the system in **Inverter mode only**. UPS mode is dedicated to function computers and similar systems.

9. WIRING DIAGRAM