

ACE SINEWAVE DIGITAL HOME UPS

2 – 3.5 KVA - Rev 2.xx (01/04/2015)

Doc No. – 2015_SW48V_M01

Features :-

- 1) Microcontroller based design with DSP technology.
- 2) Pure Sinewave Output.
- 3) SMPS based battery charger, charges battery from 110V onwards (no sound from Transformer).
- 4) Fuzzy Logic multi – stage battery charger.
- 5) Charging Current 8.5 – 11 Amp.
- 6) Complete overload and short circuit protection with capability to run highly inductive loads.
- 7) Automatic overload reset.
- 8) Closed loop regulated Sine Wave output from no load to full load.
- 9) Changeover time less than 9 mSec. in Home UPS mode.
- 10) Line Synchronized change over .
- 11) Soft start Inverter mode for cold starting inductive loads.
- 12) Compact design , with minimum components. Easy to repair and maintain.

Assembly Instructions :-

- 1) Make the transformer as per given design (Use split bobbin only), and assemble according to wiring diagram. **Connect Fan as shown in the diagram. Keep fan approx. 2 inches away from the Heat sinks with air being pushed away from the PCB.**
- 2) Keep the Inverter switch off.
- 3) Connect the battery using minimum length of 16 sq mm. battery wire.
- 4) Switch on the Inverter switch. After self diagnostics the Inverter will start working. At this time the Inverter on LED will glow. The output voltage is @ 220-225 Volts.
- 5) Put some bulb load on the inverter. The output voltage will remain constant. If battery is below 1.72 v/cell Battery Low LED will be on, and buzzer will sound every 5 seconds. The Inverter is switched off when battery voltage falls below 1.62 v/cell. (Battery voltages measured on the card).
- 6) In case the load connected is more than the capacity of the Inverter , Overload LED will glow and the Inverter will switch of after some time (@ 20 seconds). It will switch on again to check if the overload condition has been removed. If the load is within limits the Inverter will keep on working , else it will switch off after 4 such tries.
- 7) Connect the inverter to Mains Line carefully, observing the correct polarity of Live and Neutral.
- 8) The inverter enters the mains mode after a few seconds. The Mains On LED starts glowing.
- 9) When battery is being charged Charge LED is in Blinking mode and when battery is fully charged the LED glows continuously.
- 10) **For Line Synchronization of AC Mains and Inverter mode connect Transformer wires as shown in the wiring diagram. Winding directions of primary and secondary being same.**
- 11) The Fan works in the boost charging mode , and in Inverter mode when the load is > 30%.
- 12) The battery boost voltage is 2.3V/cell when Jumper J7 is open. When J7 is shorted the boost voltage becomes 2.36V/cell , and the charging current increase by @ 30%.
- 13) In the Inverter mode (J8 – Open) . Change over voltages are 100Volts and 290Volts ($\pm 10V$).
- 14) In the Home UPS mode (J8-Short) , change over voltages are 180 Volts and 270 volts ($\pm 5V$).

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Sine Wave Micro Controller Based Home UPS Kits

Software Rev 2.xx

Transformer Details (Use Split Bobbin Only)

Inverter	Core Size	Voltage/ No. Of. Turns	Wire SWG
2 KVA 48V	7B No. stack - 3 1/2"	28.4V / 26 Turn 230V / 212 Turn 14.2V / 13 Turn	3 x 12 SWG 1 x 15 SWG 1 x 25 SWG
3 KVA 48V	8 No. stack - 3 1/2"	28.4V / 34 Turn 230V / 276 Turn 14.2V / 17 Turn	4 x 10 SWG 1 x 13 SWG 1 x 25 SWG
3.5 KVA 48V	8 No. stack - 4"	28.4V / 30 Turn 230V / 243 Turn 14.2V / 15 Turn	4 x 10 SWG 1 x 12 SWG 1 x 25 SWG

LED Connection Details

Connector CN3 Details :-

LED On / LED Blink

- 1 - Ground Common
- 2 - INV ON LED
- 3 - Mains On / Fuse Blown LED
- 4 - Charged / Charging LED
- 5 - Overload / Hot LED
- 6 - Battery Low LED

Jumper Details J7 and J8

Chg. Cur. / Batt. V	Jumper J7	Mode Selection	Jumper J8
8.5 Amp. / 2.3V/cell	Open	Inverter	Open
11 Amp. / 2.36V/cell	Short	Home UPS	Short

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