

ACE SINEWAVE LINE INTERACTIVE UPS

1500VA - Rev 2.xx (01/04/2015)

Features :-

- 1) Microcontroller based design with DSP technology.
- 2) Pure Sinewave Output.
- 3) Four step AVR with input range 140-275 VAC (Output Range – 195 – 250V AC).
- 4) SMPS based battery charger, charges battery from 140V onwards (no sound from Transformer).
- 5) Fuzzy Logic multi – stage battery charger.
- 6) Adjustable Charging Current from 5 – 12 Amp.
- 7) Complete overload and short circuit protection . Suitable for 3 standard configuration computers.
- 8) Closed loop regulated Sine Wave output from no load to full load.
- 9) Changeover time from Mains to UPS mode less than 9 mSec.
- 10) Line Synchronized change over.
- 11) Soft start UPS mode.
- 12) Compact double sided PTH 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 3 “ DC Fan (Fan voltage same as that of DC system) as shown in the diagram.**
- 2) Keep the UPS switch off.
- 3) Connect the battery using minimum length of 10-16 sq mm. battery wire.
- 4) Switch on the UPS switch. After self diagnostics the UPS will start working. At this time the UPS on LED will glow. The output voltage is @ 225 Volts.
- 5) Put some load on the UPS. The output voltage will remain constant. If battery is below 20.8 volts Battery Low LED will be on, and buzzer will sound every 5 seconds. The UPS is switched off when battery voltage falls below 19.2 volts.
- 6) In case the load connected is more than the capacity of the UPS, Overload LED will glow and the UPS will switch of after some time (@ 20 seconds). It has to be manually reset after that.
- 7) Connect the UPS to Mains Line carefully, observing the correct polarity of Live and Neutral.
- 8) The UPS 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 UPS mode connect Transformer wires as shown in the wiring diagram.**
- 11) The Fan works in the boost charging mode , and in UPS mode when the load is > 40%.
- 12) Charging current can be adjusted by preset VR2 .
- 13) 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%.
- 14) Mains to UPS mode change over voltages are 140 Volts and 275 volts ($\pm 10V$).
- 15) Change over AC voltage can be adjusted by preset VR1. Pin2 (of uC) to ground resistance should be around 11k ohm at the changeover voltages mentioned in point 14.

Transformer Details (Use Split Bobbin Only)

UPS	Core Size	Voltage/ No. Of. Turns	Wire SWG
1500VA 24V	7 (43) No. stack – 3”	14.2V / 18 Turn	4 x 12 SWG
		0-158-183-212-230-250V 0-210-232-268-290-315 T	1 x 17 SWG
		14.2V / 18 Turn	1 x 25 SWG

Jumper Details J7

Chg. Cur. / Batt. V	Jumper J7
8 Amp. / 2.3V/cell 10 Amp. / 2.36V/cell	Open Short

LED Connection Details

Connector CN5 on AVR PCB :-

LED On / LED Blink

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

SRISHTI ELECTRONICS

New Delhi - 110015 Phone : 9810094997

e-mail : dghai65@gmail.com

Sine Wave Micro Controller Based Line Interactive UPS Kits

1500VA / 24V AVR (Software Rev 2.xx)

