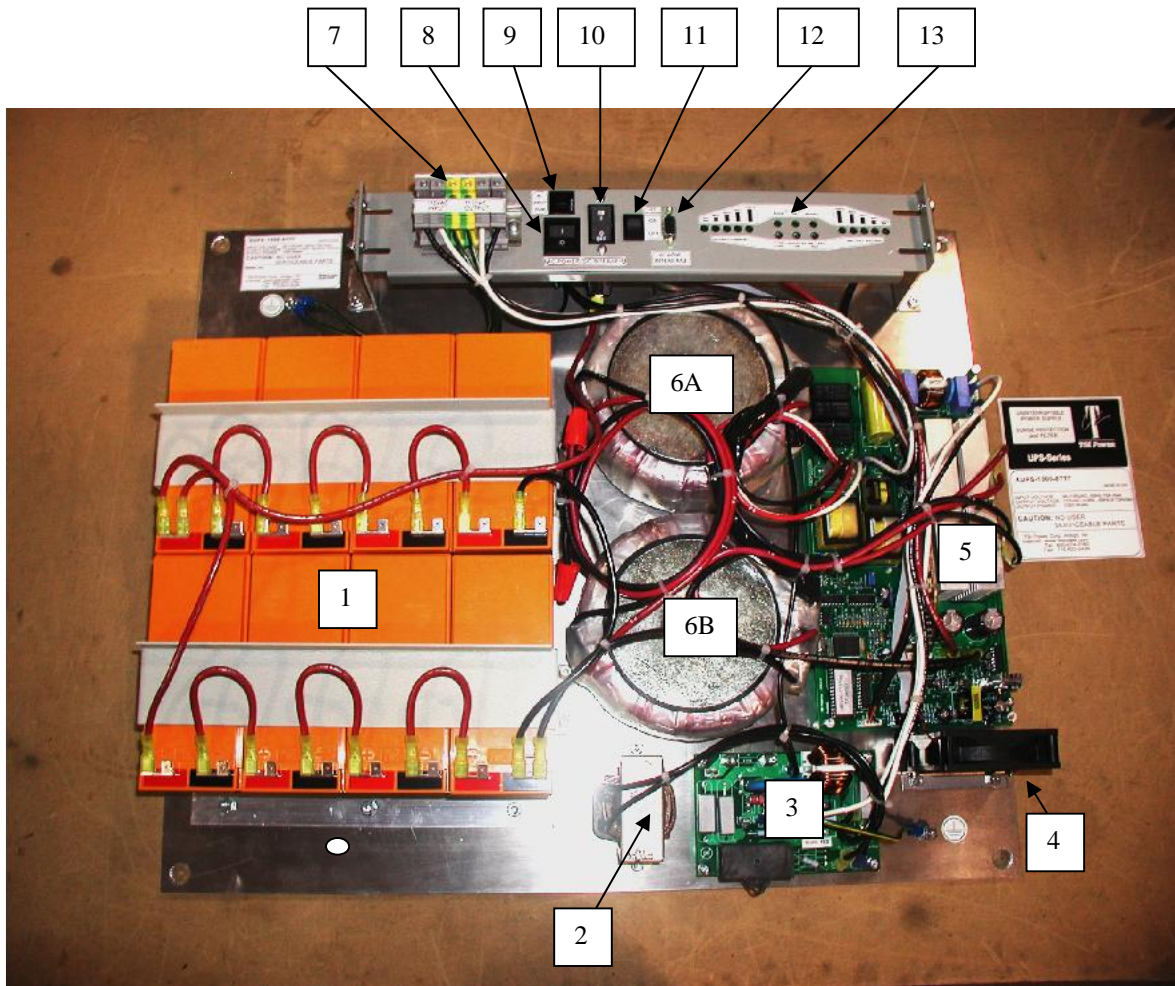


TSi Power Corporation

XUPS-1500-8777 Operating & Service Manual

General Description

TSi Power's XUPS-1500-8777 is a UPS system built on a metal baseplate, designed to supply uninterrupted clean sinewave AC power to telecommunication, computer, networking and security systems which must operate through all types of AC power conditions including blackouts. Lithium-ion batteries can operate over wide temperature range (-20 to +55 deg. C) and in airtight environments such as sealed outdoor cabinets.



Important Safety Instructions

Read this manual before operating the UPS. Visually inspect the UPS to ensure that there is no physical damage to the case. If there is a loose wire, do not turn on the UPS. Contact factory for correct wiring instructions

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1. **Lithium Ion Batteries:** A123 Systems ALM12V7-B (eight batteries total)
2. **AC Input Filter Inductor:** Used as part of LC filter circuit for Filter Board (item 3)
3. **Filter Board (PZ00075-4):** Protects equipment from surges/spikes/noise on AC line
4. **DC fan (VF00015):** Cools the main board (item 5)
5. **Main Control Board (PZ00111-4):** Includes microprocessor, charger & inverter
6. **Toroidal Transformers:** Two parallel connected transformers (6A & 6B) are used.
7. **Terminal Blocks:** Make input & output wire connections to pins marked as below.
For AC input wires: LI (Line Input), NI (Neutral Input) & G (Ground)
For UPS output wires: LO (Line Output), NO (Neutral Output) & G (Ground)
8. **AC Input On/Off Switch:** 120 vac input on/off switch
9. **AC Input Circuit Breaker:** Protects from overload or short circuits (push to reset)
10. **DC Input On/Off Switch:** 53 vdc battery input on/off switch
11. **UPS On/Off Switch:** Activates or deactivates the UPS system
12. **Relay Contact Alarm Signals** (from DB-9 connector pins 6, 7, 8 & 9):
Pins 6 & 7: Open relay contact when UPS is operating with AC (normal)
Closed relay contact when UPS is operating on battery (alarm)
Pins 8 & 9: Open relay contact when battery voltage is above 46V (normal)
Closed relay contact when battery voltage is below 46V (alarm)

Alarm Board Assembly number is PZ00114-1

13. **Display Board Assembly (PZ00112-2)** Displays status of UPS with LED indicators

IMPORTANT: Items 5 (Main Control Board), 12 (Alarm Board Assembly) and 13 (Display Board Assembly) must be replaced together as a set.

Warning: Never wear rings, watches or other metal objects and use only insulated tools when touching any batteries or parts on the UPS unit as

Warning: 48 volt battery bank can produce very high levels of DC current, presenting potential fire and burn hazards. Also, 120 vac from AC input circuit or UPS circuit can also present potential electric shock and/or fire hazard.

Turn-on & Operating Procedure

1. Verify that battery voltage is at least 11.5 volts per each and every battery. Entire battery bank voltage (between red wire and black wire) must be 46 volts or higher.
2. Turn on the DC input circuit breaker (item 10)
3. Turn on the UPS on/off switch (item 11).
4. LED's on the display board (item 13) must light up one by one over several seconds.
5. INVERTER ON (yellow LED) should be lit and battery voltage level indicator (5 green LED's) should show the DC input voltage level ranging from 44 to 54 volts.
6. Use a DMM (digital multi-meter) to measure the UPS output voltage (measured across LO and NO of the terminal block, item 7). It should be 115 vac +/-3%.
7. If the output voltage from the UPS is correct, then DC to AC inverter is working.
8. UPS sends a closed relay contact signal (alarm condition) out of pins 6 & 7 of the DB-9 connector when it is operating on batteries and inverter.

When 120 vac is applied to LI (Line In) and NI (Neutral in) pins of terminal block (item 7) and AC input switch is turned to ON position, then pins 6 & 7 of the DB-9 connector will change to open contact status (normal condition).

9. When the battery is strong (battery voltage is over 44 volts), then pins 8 & 9 of the DB-9 connector is open. However, if the battery voltage drops below 44 volts, UPS sends a LVA (Low Voltage Alarm) by sending a closed relay contact signal out of pins 8 & 9.
10. When battery voltage drops below 42 vdc, UPS will automatically shut down (Low Battery Shutdown) in order to prevent deep discharge of batteries.

After Low Battery Shutdown, re-introduce 120 vac to the UPS (by turning on the AC input switch). UPS must automatically start recharging the batteries until battery voltages reach about 13.5 volts per each battery (or 54 volts for the whole battery bank). Expected battery recharge time is about 6 hours after Low Battery Shutdown.

Important Battery Care & Replacement Instructions:

Under normal operating conditions, expected battery lifetime is about 8 ~ 10 years (at average ambient temperature of 20 deg. C).

Specifications

AC Input Voltage:	Nominal 115 vac (100~130 vac without using batteries)
AC Input Frequency:	50/60 hz (UPS operates over 47~63 hz input frequency range)
AC Input Current:	13A maximum
AC Input Waveform:	Sinewave (requires less than 5% total harmonic distortion)
UPS Output Voltage:	115 vac +/- 8% under all AC input & load conditions
UPS Output Rating:	1050 watts (115 vac, 9.2A) maximum for
Inverter Waveform:	Inverter output waveform is sinewave (less than 3% distortion)
Output Frequency:	Same as input frequency (50 or 60 Hz nominal)
Battery Bank:	53 volt, 4.6AH x 2 parallel banks; total capacity is 53 volt, 9.2AH
Battery Runtimes:	About 15 minutes for full load (1050 watts) About 35 minutes for 50% load (525 watts)
Battery Charger:	Built-in 54 vdc, 2 amp charger will recharge internal batteries within 6 hours.
Low Voltage Alarm:	Activates when battery voltage is lower than 46 vdc
Low Battery Shutdown:	UPS shuts down when battery voltage drops below 44 vdc
Dimension:	20 wide x 24 long x 8 high (inches)
Weights:	Approximately 90 lbs
Operating Temperature Range	-20 to +60 degrees C
Operating Humidity: Range	Relative Humidity of 10 to 95% (non-condensing)
Operating Altitude: Range	0 to 10,000 feet above sea level

TSi Power's Warranty Policy

TSi Power warrants this product to be free from defects in materials and workmanship for two years from the date of purchase from TSi Power or its authorized representative. Batteries are covered by battery manufacturer's warranty (typical warranty is one year).

TSi Power will repair (or at its option, replace) any defective electrical and mechanical component(s) without charge during the warranty period. Warranty does not cover transportation costs.

To make a request for warranty repair, customer must first call TSi Power and obtain a RMA (return material authorization) number and shipping instructions. Defective unit must be returned to TSi Power in the original shipping container (or equivalent) which provides maximum protection during shipping. Address label must show RMA number.

Shipment must be accompanied by a sales receipt or invoice showing the date of purchase and model number as well as a written description of the problem, return address, name and phone number of the customer.

Warranty does not cover transportation costs. Damage by misuse, accident or unauthorized tampering of the product is not covered by the warranty. NO OTHER WARRANTIES ARE EXPRESSED OR IMPLIED. TSI POWER IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES (INCLUDING, BUT NOT LIMITED TO, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTIONS, LOSS OF BUSINESS INFORMATION OR OTHER PECUNIARY LOSSES) ARISING OUT OF THE USE OR INABILITY TO USE THIS TSI POWER PRODUCT, EVEN IF TSI POWER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Technical Support & Repair Service

Please call TSi Power's technical support department if you encounter difficulty during installation or operation of this product (or send E-mail to sales@tsipower.com). Also, all warranty and out-of-warranty repair service requests should be made to TSi Power's technical support department.

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