

## SPECIFICATIONS

- AC Input**
- 95V<sub>AC</sub> to 135V<sub>AC</sub>, 47 to 63 Hz, sinusoidal.
  - 75V<sub>AC</sub> to 150V<sub>AC</sub>, UPS-400LIC & 600LIC.
- UPS Output**
- 108 to 125 V<sub>RMS</sub>, 50 or 60 ±3 Hz (user selectable), modified sine wave.
  - UPS-400: 400 VA/240 W maximum.
  - UPS-600: 600 VA/400 W maximum.
- Power Conditioning**
- Standard models provide 3-way MOV surge suppression and EMI/RFI noise filtering.
- Low Impedance Power Conditioning (optional)**
- UPS-400LI & 600LI models include low-impedance isolation transformers for complete input-to-output line isolation.
  - UPS-400LIC & 600LIC models include line isolation and wide input voltage range power conditioning.
- Efficiency (Standard Model)**
- 98% or higher during AC operation.
  - 90% or higher for LI and LIC options.
  - 70% or higher during inverter operation.
- Transfer Times**
- 4 ms. typical between AC and inverter.
- Battery & Charger**
- UPS-400 has 84 VAh of battery capacity for about 5 minutes of holdup at full load, 15 minutes at half load.
  - UPS-600 has 120 VAh of battery capacity for about 4 minutes of holdup at full load, 13 minutes at half load.
  - Optional extended battery models UPS-400X and UPS-600X have battery capacities of 204 VAh, doubling or tripling the usual holdup times.
- Audible Noise**
- Less than 40dB at 1.5m, ANSI A scale, during inverter operation.
- Safety and Reliability Features**
- Designed to meet UL/CSA/IEC standards of safety.
  - External fuse protects all AC circuits.
  - Internal fuse protects all DC circuits.
- Size and Weight**
- Width: 5" (12.7 cm)
  - Depth: 16" (40.6 cm)
  - Height: 7" (17.8 cm)
  - Weight: UPS-400: 18 lbs (8.2 kg)  
UPS-600: 20 lbs (9.1 kg)
- Operating Environment**
- Operating Temperature: 0°C to 40°C (32°F to 100°F).
  - Relative Humidity: 90%, non-condensing at 25°C.
  - Estimated MTBF: 12 years excluding batteries.
- Warranty**
- Two years limited warranty, parts and labor (excluding batteries).
  - Extended warranty available.

## LIMITED WARRANTY

TSi Power warrants this product to be free from defects in materials and workmanship for two (2) years<sup>†</sup> from the date of purchase from TSi Power or its authorized representatives. TSi Power will repair (or at its option, replace) any defective component(s) during this warranty period.

To make a request or claim for service under this limited warranty, the original purchaser must return the product, in the original shipping container or equivalent, to TSi Power or its authorized distributor, accompanied by a written receipt showing the date of purchase, dealer's name, and both the model name and serial number of the product.

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. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.

<sup>†</sup>Excluding batteries. Battery manufacturer's warranty applies on batteries.

## LIMITATION OF LIABILITY

IN NO EVENT SHALL TSi POWER OR ITS SUPPLIERS BE LIABLE FOR ANY DAMAGES WHATSOEVER (INCLUDING WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR OTHER PECUNIARY LOSS) 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. SOME STATES DO NOT ALLOW THE LIMITATION OR EXCLUSION OF LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

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# TSi POWER

## Operating Instructions

### UPS-400 & UPS-600



Uninterruptible Power Supply

# IMPORTANT SAFETY INSTRUCTIONS

## SAVE THESE INSTRUCTIONS

This manual contains important information for models UPS-400 and UPS-600 that should be followed during installation and maintenance of the UPS and batteries.

Nominal voltage of the battery supply inside the UPS is 12 volts.

Maximum Operating Ambient Temperature for the UPS is 40 degrees Celsius.

### IMPORTANT NOTICE FOR SERVICING PERSONNEL

- Servicing of batteries should be performed or supervised by personnel knowledgeable of batteries and the required precautions. Keep unauthorized personnel away from batteries.
- When replacing batteries, use the same number and the following type batteries: SEALED LEAD-CALCIUM.
- CAUTION** — Do not dispose of battery or batteries in a fire. The battery may explode.
- CAUTION** — Do not open or mutilate the battery or batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
- CAUTION** — A battery can present a risk of high short circuit current. The following precautions should be observed when working on batteries:
  - Remove watches, rings or other metal objects.
  - Use tools with insulated handles.

Be sure to mail the enclosed warranty registration card so that we may better serve you. When you call TSi Power's customer support (at 1-800-TSI-3160), please have your unit's model number and serial number (located in the rear of the UPS) ready at hand.

MODEL NO.:	SERIAL NO.:
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### INTRODUCTION

Your TSi Power uninterruptible power supply model UPS-400 or UPS-600 is designed to provide continuous AC power to your equipment during power outages, glitches or brownouts. Normally, the UPS acts as a filter, to reduce the noise and spikes in the utility voltage that powers your equipment. However, when the utility voltage fails completely, or when it is too low to reliably hold up your equipment, the UPS takes over, supplying clean, regulated power—generated from its internal batteries—to your equipment. In addition, the models equipped with the "LI" or "LIC" options include true isolation and power conditioning for further protection.

### OPERATING INSTRUCTIONS

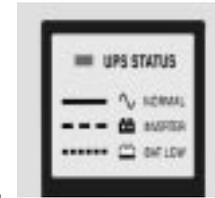
- After unpacking the UPS, make sure that the power switch (in the rear of the UPS) is in the OFF position and plug it into a grounded (3-pronged) 120V electrical outlet. *Do not connect anything yet to the outlets on the UPS.*
- To ensure that your batteries are fully charged, leave the UPS plugged in and turned on for at least four hours before hooking up any equipment to the UPS.
- After at least four hours, plug in the equipment you want backed up by the UPS into the AC outlets in the rear of the UPS. Make sure that your equipment is initially turned off, and that you don't exceed the maximum power rating of your UPS model (240W for UPS-400 and 400W for UPS-600).

*NOTE: A typical IBM compatible PC or Macintosh with color monitor draws 240W or less. Older equipment, file servers and high-end PC workstations with large monitors usually draw more. Check your equipment's specifications for exact figures. Install only essential equipment to your UPS. **WARNING: NO LASER PRINTERS EVER!!***

- Turn on the UPS with the rear-panel power switch, and then your equipment. After they've powered up, you may want to test the operation of the UPS by unplugging the power cord of the UPS from the electrical outlet. Your equipment should continue operating normally. But now, the green light of the UPS should blink and the audible alarm should sound, indicating that your equipment is being supplied with battery power.
- Plug the power cord back into the outlet. Within several seconds, the audible alarm will go off, and the green light will remain on without blinking. Once again, your equipment will continue to operate normally.
- In the event of a real, prolonged power outage, the UPS will continue to operate on battery power, until the batteries have only a few minutes of reserve power left. In such a case, the audible alarm will beep more rapidly and the front panel indicator light will blink more rapidly, warning you to save your work and prepare for a shutdown.
- Your UPS may be equipped with a port that allows it to communicate with file servers and workstations for automatic backup & shutdown. Consult the enclosed "Network Installation Instructions" for more information.

Load	50W	100W	150W	200W	240W	300W	350W	400W
UPS-400	0:38	0:18	0:11	0:07	0:05	n/a	n/a	n/a
UPS-600	1:00	0:32	0:20	0:13	0:10	0:07	0:05	0:04

### FRONT PANEL INDICATOR



The front panel indicator light monitors the status of the UPS in the following manner:

- Continuously ON:** The UPS is operating on AC power (normal operation). The buzzer will be off.
- Blinking slowly:** The UPS is operating on battery power (AC power failed, inverter on). The buzzer will beep.
- Blinking rapidly:** The UPS is operating on battery power, and the battery is running low. Only a few minutes of holdup time remains. The buzzer will beep more rapidly.
- OFF:** The UPS is turned off, or has shut down due to low battery.

### REAR PANEL CONTROLS

The *Power Switch* turns the UPS on or off.

The *Alarm Interface* connects to your network file server (e.g. Novell Netware) or PC to provide UPS alarm reporting functions. See enclosed instructions for network installation.

*Setup switch No.1* is inactive.

With *setup switch No.2* in the OFF position, the audible alarm will sound only when the reserve battery is running low (as a continuous tone). In the ON position, the audible alarm will beep when running on battery power.

Setting *setup switch No.3* to the OFF position reduces the switch-over voltage by about 10%. Use this switch when the UPS is transferring to battery power too often.

*Setup switch No.4* determines the operating frequency of the UPS (50 or 60Hz). Be sure to set it to be the same as your AC power.

The *Battery Extension Connector* plugs into an EXT-400 for extended holdup times. Refer to the installation instructions enclosed with EXT-400.

No Function	ON†	OFF
2. Audible Alarm	ON	OFF
3. Switchover Voltage	HIGH	LOW
4. UPS Output Frequency	60Hz	50Hz

†ON means the switch is DOWN

