

Special Specification 6152

Uninterruptible Power Supply



1. DESCRIPTION

Furnish and install an Uninterruptible Power Supply (UPS) in the satellite building as shown on the plans and as detailed in this special specification.

2. MATERIALS

2.1. **General Requirements.** Furnish, assemble, fabricate, or install new corrosion resistant materials in accordance with these specifications.

Provide a UPS unit with a microprocessor controlled inverter, precision 3 step battery charger, a detachable keypad, a front panel with indicators and control switches, electronic digital meter, and vacuum-fluorescent display, with a full duplex RS232 port to display information on a screen. Provide an UL listed free standing unit.

2.2. **Functional Requirements.** Provide output power through its Ferro resonant constant voltage transformer under normal conditions and through its backup battery and inverter circuits during failure. Units switching to the inverter during the input power interruption are unacceptable. No interruption to AC service to equipment will be allowed during any power outages within the time limit described below.

Provide an UPS unit that meets the following requirements:

- Output rating: 10 KVA/7.5 KW
- Input: 240 VAC, nominal, single phase
- Output: 120 VAC, single phase
- Output voltage regulation: $\pm 3\%$.
- Output wave shape: Computer-grade sine wave, 5% total harmonic distortion (THD) maximum
- Output frequency: 60 ± 0.5 Hz
- Overload capacity: 150% surge and 125% for 10 minutes on line. 150% surge and 110% for 10 minutes on inverter.
- Backup power: 30 minutes full load; 60 minutes half load
- Backup battery: Sealed, maintenance free type, 5 year life minimum
- Efficiency: Better than 90% on line and 80% on inverter, at full load
- Line noise rejection: 120 dB common mode, 60 dB transverse mode
- Audible noise: 55 dBA maximum at 5 ft.
- Lightning & surge protection: Must reduce the input spike to less than 3 volts on the output, for a 2000 to 1 spike attenuation.
- Isolation: Provide a true separately derived power source with output neutral bonded to ground. There shall be no direct connection between input and output and less than 2 pF of effective input to output capacitance.
- Operating temperature range: 32°F to 104°F
- Intelligent Interactive Interface: RS232 port featuring full-duplex serial communication, alarm contacts, inverter contacts, and Remote Emergency Power Off
- Alarm provision: A 10 sec. audible alarm on input power failure
- Front panel controls: (Or via the RS232 port and a remote terminal with CRT display), Capable of monitoring the meter functions and alarm conditions; test capability, selectable baud rate from 50 to

38400, and ability to view and change system set points; capable of monitoring and display as a minimum of meter functions including: AC volts out, AC volts in, Battery voltage, AC current out, VA load, Watts, power factor, percent of full load, log of power outages, log of alarm conditions

- Front panel displays: Displays to show input and output AC voltages, output current, output frequency, and battery condition indicator to show excessive battery discharge
- Size: 40 in. H X 20 in. W X 40 in. D, maximum, with internal bypass switch
- Weight: 850 lb. maximum include battery
- Heat generated (on line): 2900 BTU/hr maximum

3. CONSTRUCTION

- 3.1. **General.** Provide equipment design and construction with a minimum number of parts, subassemblies, circuits, cards, and modules to maximize standardization and commonality.

Provide equipment that is designed for ease of maintenance. Ensure that all component parts are readily accessible for inspection and maintenance and test points are provided for checking essential voltages and waveforms.

- 3.2. **Electronic Components.** Provide electronic components in conformance with Special Specification 6006, "Electronic Components."
- 3.3. **Mechanical Components.** Provide stainless steel external screws, nuts and locking washer. Do not use self-taping screws unless approved. Provide corrosion resistant materials and materials resistant to fungus growth and moisture deterioration. Separate dissimilar metals with an inert dielectric material.
- 3.4. **Testing.** Perform testing in accordance with Special Specification 6005, "Testing, Training, Documentation, Final Acceptance, and Warranty."
- 3.5. **Training.** Perform training in accordance with Special Specification 6005, "Testing, Training, Documentation, Final Acceptance, and Warranty."
- 3.6. **Documentation.** Provide documentation in accordance with Special Specification 6005, "Testing, Training, Documentation, Final Acceptance, and Warranty."
- 3.7. **Warranty.** Provide a warranty in accordance with Special Specification 6005, "Testing, Training, Documentation, Final Acceptance, and Warranty."

4. MEASUREMENT

This Item will be measured as each unit furnished, installed, made fully functional, and tested.

5. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under "Measurement" will be paid for at the unit price bid for "Uninterruptible Power Supply." This price is full compensation for all the equipment described under this Item; all cables and connectors; all documentation and testing; labor, materials, warranty, training, incidentals, and equipment necessary to complete the work.