



Preventive Maintenance For 3 Phase Uninterruptible Power Systems

Scope Of Work

- Includes two annual UPS preventive maintenance inspections, scheduled during normal working hours
- Includes two annual battery preventive maintenance inspections of VRLA batteries
- UPS semi annual maintenance includes items 1-5 , and is conducted with the equipment on line
- UPS annual Maintenance includes items 1-11, and requires the UPS to be taken off line and de-energized
- Labor for additional service, and parts are not included, however if required, will be provided at discounted contract customer rates.
- Includes 24 X 7 X 365 emergency service availability.
- Includes 24 x 7 X 365 telephone technical support.

UPS Preventive Maintenance – Detailed Check List

<ol style="list-style-type: none"> 1. Visual Checks <ul style="list-style-type: none"> • Insulation , Overheating, Damage 2. Cleaning/Air Flow <ul style="list-style-type: none"> • Check Fans, Door/Compartment Seals • Replace Filters (Customer supplied) • Clean Module 3. Check/Record Voltage Waveforms And Currents <ul style="list-style-type: none"> • Input/Output, Rectifier, AC&DC Caps • Filter Trap currents and balance 4. Power Measurements (On Line) <ul style="list-style-type: none"> • Output RMS Current (Phase and Neutral) • Output Peak Current (Phase and Neutral) 5. Metering <ul style="list-style-type: none"> • DC Volts And Current • Input Volts/Current • Output Volts/Current • Frequency 6. Fuses <ul style="list-style-type: none"> • Verify type, value, condition 	<ol style="list-style-type: none"> 7. Synchronizing <ul style="list-style-type: none"> • Verify Utility Sync & Transfer To Bypass • Transfer From Bypass To UPS • Verify Voltage And Phase Lockout • Verify Static Bypass Operation 9. Control Calibrations <ul style="list-style-type: none"> • Check/Adjust as necessary* 10. Circuit Breakers/Isolators <ul style="list-style-type: none"> • Verify Free Travel • Check Mag/Thermal Settings 11. System/Module Safety Parameters <ul style="list-style-type: none"> • Check Battery Current Limit* • Check Input Current Limit* • Check Overload Levels* • Check Overtemp Circuits* <p style="text-align: center; margin-top: 10px;">* Where possible/available</p>
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Battery Preventive Maintenance – Detailed Check List

<ol style="list-style-type: none"> 1. Perform safety evaluation of battery, racks, protective equipment and environment. Note and report any discrepancies. 2. Record the ambient temperature of the battery room. 3. Clean normal cell dirt/dust accumulation. Note: some environments may not allow for practical management of dust accumulation. 4. Inspect each jar for signs of cracks, excessive bulging and leakage. 	<ol style="list-style-type: none"> 5. Measure and record the full string charging voltage and current. 6. Measure and record the AC ripple voltage and current. 7. Measure and record the voltage to ground for each string/cabinet. 8. Measure and record the float voltage across each cell/jar. 9. Measure and record the conductance of each cell /jar. 10. Check for corrosion on battery terminals and connectors. Clean as necessary. 11. Verify proper torque on 10% of connections
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