



## Full Service Maintenance For Single Phase Uninterruptible Power Systems

### Scope Of Work

- Includes travel, on site labor, and mileage for UPS breakdowns , 7 days/week, 24 hours/day
- Includes one annual UPS preventive maintenance service, scheduled during normal working hours.
- Includes 100% UPS parts coverage (excluding batteries and power capacitors).
- Includes 1 preventive maintenance visit on the battery system for up to 2 strings of VRLA batteries (performed in conjunction with the UPS inspection)
- UPS annual Maintenance includes items 1-11, and requires the UPS to be taken off line and de-energized
- Subject to all Terms & Conditions as noted in the 24/7 Technology Maintenance Agreement.

### **UPS Preventive Maintenance – Detailed Check List**

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

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