



The Powerstar PS10000-GXT3 PS3300LCS, PS3150, PS3200 are based on the Liebert GXT3 UPS. Powerstar modifies or replaces the chassis and exchanges the circuit breakers and ruggedizes these units. Therefore, Powerstar will use the computed values for MTBF given to us by Liebert /Emerson. This MTBF applies to all of these units.

Quoted from Liebert document [UPS MTBF 9/10](#)

*MTBF is an acronym for Mean Time Between Failure. This is a mathematical / statistical calculation that attempts to give a figure of merit to a particular product. This is often incorrectly assumed to be a measure of how long a product will last. Actually, a True MTBF is a measure of when a fixed number of products shipped will fail.*

*Various organizations have defined methods to calculate MTBF; some widely accepted standards include MIL 217, Telcordia SR-332 Issue 1, and the IEEE. Assumptions considered for calculations include operational temperature, operational elevation (sea-level or above), and individual component stress level. Therefore, the MTBF values of products can vary according to the assumptions made as well as the calculation method used.*

*For MTBF data, Emerson Network Power assumes sea-level operation at full rated load. Emerson Network Power also incorporates the Failure Mode Effects Analysis (FMEA) to help define potential failure modes and improve the safety of our product. Our Engineering team reviews each circuit to determine the true stress level of each component at full rated load. Development testing ensures that individual components are checked for temperature and electrical application in each location in the circuitry to make sure that they are applied well within their specs. To provide additional stress testing and verification, designs are operated for weeks at elevated temperatures under both load and power cycling conditions.*

**Liebert GXT3 500 – 3kVA (PS3150, PS3200,PS3300)** *The calculated Mean Time Between Failure for the UPS shall be greater than 200k hours when operated at an ambient temperature of 25 OC and 100% resistive load. The duty cycle for back up mode shall be assumed to be once per week. The calculation shall be based upon the Telcordia SR-332 Issue 1. The MTBF calculation does not include the batteries or fans.*

**Liebert GXT3 5kVA-10kVA (PS10000-GXT)**

*The calculated Mean Time Between Failure for the UPS shall be greater than 200k hours when operated at an ambient temperature of 25 OC and 100% resistive load. The duty cycle for back up mode shall be assumed to be once per week. The calculation shall be based upon the Telcordia SR-332 Issue 1. The MTBF calculation does not include the batteries or fans.*

**Summary:**

- *MTBF numbers vary based on assumptions and methods used to calculate.*
- *MTBF numbers can only be compared when all assumptions made and methods used are known.*
- *Emerson Network Power assumes the worst-case conditions to insure that our customers get the best-case performance. The calculated Mean Time Between Failure for the UPS shall be greater than 100k hours when operated at an ambient temperature of 25 °C and 100% resistive load. The duty cycle for back up mode shall be assumed to be once per week. The calculation shall be based upon BellCore Method 1, case 3 specification. The calculation is not to include the battery or cooling fans.*

**Summary:**

- *MTBF numbers vary based on assumptions and methods used to calculate.*
- *MTBF numbers can only be compared when all assumptions made and methods used are known.*
- *Liebert assumes the worst-case conditions to insure that our customers get the best-case performance.*

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