



## Technical Bulletin

### UPS Maintenance and Precautions

#### Harsh Environments:

Marathon Power UPS's are generally designed for clean environments, free of dust, salt, and other environmental contaminants. Some of the harmful effects of environmental contamination are as follows:

- Dust, chemicals and airborne pollutants can clog and corrode the inside of a UPS and lead to failures.
- Installing a UPS in a harsh environment leads to overheating, and damage to internal boards, components, etc. It can also create arc flashes which can be very dangerous to anyone in close proximity to the UPS. Arc flashes are a shock hazard to anyone nearby and could potentially cause serious injury or death.
- Salt from humid, ocean air can also corrode the internal components of a UPS as well as the batteries. This can cause premature failure of parts/components and lead to electrical short circuits.
- Adding fan filters to the cooling fan is not recommended because the cooling fan in these units is an exhaust fan. The cooling fan/s are located on the rear panel and rotate to create negative pressure as it draws in fresh air through the ventilation slots on the front and or side of the UPS cabinet. This air exits the UPS system through the cooling fan on the rear panel. Therefore, adding-fan filters to the exhaust fan/s will not stop dust and fibers from entering through the ventilation slot.
- If a filter is added at the front panel of the UPS, it will reduce air flow/ventilation which can cause the UPS to overheat and/or sustain damage.

#### Precautionary Measures:

If our products must be used in harsh environments, the following must be performed:

**Vacuuming:** Properly clean the UPS by vacuuming and cleaning it thoroughly, periodically (every 3 to 6 months).

1. Do not use vacuum cleaners with a very strong suction. The vacuum hose needs to be about one inch away from the components and should not touch them.
2. Use a plastic brush about 2 inches long, with soft bristles to dislodge and remove dust and debris from the surface of the PCBA and components.
3. This should be followed by the use of computer-grade compressed air duster to blow out the dust.

**Conformal coating:** Adding a protective layer to the internal components can protect the UPS. Conformal coating is used for enhanced protection in harsh environments such as mentioned in this document. It is a resin that is added to the PCBA and it forms a thin film or protective clear coating. (Available upon request).

**Additional Notes:**

- The UPS should not be used in hazardous locations as defined in National Electrical Code (NFPA 70).
- The ambient temperature should be within +32 °F ~ +104 °F / 0 °C ~ +40 °C.
- For safety during servicing, the UPS needs to be turned Off and unplugged from AC input power and the internal battery should be temporarily disconnected.