

# **SPECIFICATION DATA SHEET**

## **Appliance Battery Box Assembly**

### **P/N TFC12-0088-( )**



The AAE Battery Box Assembly, P/N TFC12-0088-( ), provides the necessary voltage and power to operate the AAE Fire Protection System (FPS) Appliance smoke detectors, aerosol containers, and control unit.

Each box is made of aluminum and holds one (1) 12V Lithium Iron Phosphate Battery that is surrounded on all sides with high-temperature ceramic insulation. When used in the AAE FPS Appliance, the battery has a continuous load of 118 microamps, allowing it to stay in-service for 12-18 months without recharging.

## **SPECIFICATIONS**

Nominal Voltage .....	12.8 VDC
Nominal Capacity.....	5 Ah
Energy .....	64 Wh
Continuous Load (when used in the AAE FPS Appliance) .....	118 micro amps
Chemistry .....	LiFePO <sub>4</sub>
Efficiency .....	99%
Resistance .....	130 mΩ
Self Discharge.....	<3%/mo.
Dimensions (Box Assembly) (L x W x H) .....	6.8 x 4.4 x 3.5"
Weight (Box Assembly) .....	3.2 pounds
Certifications .....	CE (Battery)
.....	UN38.3 (Battery)
.....	UL1642 & IEC62133 (Cells)
Shipping Classification .....	UN 3480, Class 9

## **SAFETY FEATURES**

When the battery box is installed in the AAE Appliance, it is completely encased in **high temperature ceramic insulation** inside an aluminum (.050 5052-H32) battery box designed by itself to contain the effects of a thermal runaway. The battery box is further isolated in its own compartment inside the Appliance which is also encased in **high temperature ceramic insulation**. The high temperature ceramic insulation has a temperature rating of 2300°F and protects the battery's terminals from short circuiting and damage.

Each battery contains Qty (8)  $\text{LiFePO}_4$  cells, which are a highly stable Lithium chemistry not prone to thermal runaway due to a very low exothermic rate (during charge and discharge) and do not contain flammable materials. **The battery does not contain liquid electrolyte.** Instead, it uses 108 mg (i.e., 0.004 oz) of solid Lithium Hexafluorophosphate. ***It is not a primary inhalation hazard.***

Each  $\text{LiFePO}_4$  cell is built with (a) Explosion-proof stainless-steel, (b) Over-Temperature Protection, (c) Built-in Safety Fuse, (d) High Pressure Safety Vent, and (e) Strong Spot-Welded Connections.

Each battery is equipped with an *internal* **Battery Management System (BMS)** that protects against Over-Voltage, Under-Voltage, Over-Current, Over-Temperature, Short Circuit, and Cell Imbalance. The BMS disconnects the battery from the circuit if any of these events occur.

The total energy contained in the battery is very small (i.e. 64 Wh).

The battery's case, electrodes, terminals, substrate, active material (i.e.  $\text{LiFePO}_4$ ), and electrolyte are ***not flammable***.

Standard industry testing has shown that the battery and its cells will not catch fire or explode.

When used with the AAE FPS Appliance, the design features of the Appliance also contribute to the safety of the battery by (1) isolating the battery from combustible cargo, and (2) isolating the combustible cargo from the battery. The battery is housed inside of an insulated battery box designed to contain the effects of a thermal runaway condition (no matter what the initiating cause might be), and to protect the battery from damage and short circuits at the terminals.