



LI-ION TAMER®

## Li-ion Tamer® AWARE Rack Level Monitor



**PROTECT YOUR PERSONNEL, PROPERTY, AND BRAND FROM LITHIUM ION BATTERY INCIDENTS WITH NEW SAFETY PRODUCTS THAT GIVE YOU CONTROL AT THE EARLIEST POSSIBLE INDICATION OF FAILURE.**



### FEATURES

1. Distributed sensors provide localized gas detection
2. Calibration-free gas sensor with patent-pending algorithm
3. Controller with 3 inputs - 1 controller can monitor 3 racks
4. Digital output for controlling mitigating actions

### BENEFITS

- Gives you the earliest possible indication of battery failures with a diagnostic signal
- Measures what other systems can't, giving you a more complete view of battery health
- Compatible with all lithium ion chemistries
- Keep one system - monitoring feed can be provided directly to the BMS, so all of your battery health information is still in one place
- Easy integration - does not require electrical or mechanical contract with cells
- Trust the system - you won't have to worry about false alarms that waste your time with the highly reliable output signal from our patent-pending algorithm

**NEW PRODUCTS  
ENABLED BY SAFETY  
TECHNOLOGY  
CREATED TO PROTECT  
THE U.S. NAVY**

# ASSESSMENTS AND REGULATIONS

Our technology helps reduce the risks and hazards associated with li-ion battery systems, which help your system become **UL, NFPA,** and **DNV-GL** certified.

## UP TO 30 MINUTES NOTICE

This system alerted personnel of a battery failure 30 minutes before the failure actually occurred in a destructive failure test conducted by a third party.

**SINGLE CELL FAILURE** Detect individual cell failures without contact to the cells. Take action to prevent propagation by knowing as soon as a single battery cell begins to fail.

## NEW SAFETY STANDARDS

Lithium-ion battery systems continue to grow larger and larger, and concerns of safety grow with them. Proactive companies and regulators have identified our technology as a path to safer systems, and are working with us to improve their safety processes.

## PROTECT YOUR ASSETS

Take control of a battery failure by giving you and your team time to take action. Our system can **detect failure at the individual cell level** and at the earliest possible indication of failure. This makes it easy to isolate the event and gives you time to activate any preventative controls you have installed.

## THE SENSORS

At the heart of the system are the unique sensors that detect off-gas events, tripping a customizable alerting protocol. The sensors are designed to work **without any connections to the batteries or modules**, upholding the integrity of your system while making installation quick and simple.

## Technical Characteristics

Voltage input	4.75-5.5 VDC*
Power consumption per rack	0.95 W (typical) -1.95 W (max)
Target gases	Lithium-ion battery electrolyte
Off-gas indication	Digital output - sinking transistor
Response time	3 seconds

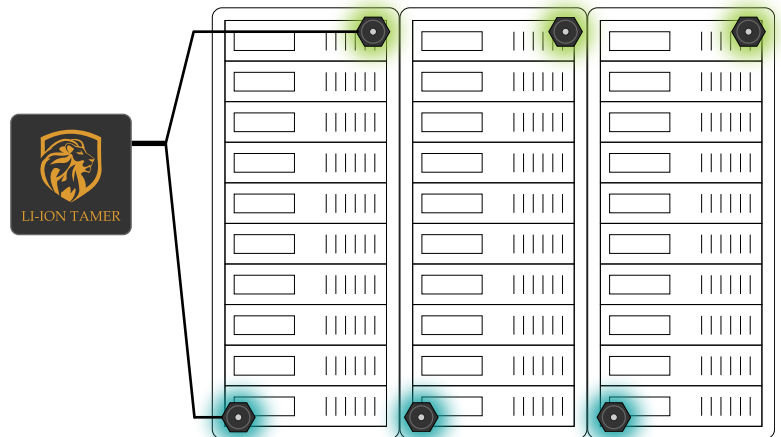
\*AC/DC Power Supplies can be provided

## COMPATIBLE INTEGRATIONS

- Shut down charging processes
- Disconnect loads
- Activate integrated fire suppression
- Activate cooling systems
- Battery Management System
- Energy Management System

## SYSTEM IMPLEMENTATION

- Each rack monitoring system consists of two sensors.
- Signal integration requires that the controller where the signals are being sent can read digital (high/low) signals, where the high signal is between 5 and 24 VDC, depending on the needs of the application.
- The low signal of the digital output is 0.6VDC.



**NOTICE:** This device detects off-gas from lithium ion batteries. It does not prevent fires or thermal runaway. This device is not a stand-alone safety device and should be incorporated into a proper safety system. If device responds, there is a risk of battery fault which could lead to thermal runaway. To avoid injury, leave area immediately.

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