LI-ION TAMER®
GEN 3

LITHIUM ION BATTERY OFF-GAS DETECTION SYSTEM



Honeywell

LI-ION TAMER® GEN 3

As the world's leading provider of advanced safety systems, Honeywell has introduced the Li-ion Tamer GEN 3 off-gas detection system for the protection of lithium-ion batteries (LIB).

Li-ion Tamer GEN 3 reliably detects the early signs of failing LIBs (battery electrolyte vapours – off gas detection) allowing facility managers to respond to impending Thermal Runaway events much earlier than other protection systems. The system also provides multi-point temperature and humidity measurements for improved environmental control and situational awareness across a wide range of applications.

The Li-ion Tamer GEN 3 system is highly scalable allowing cost effective deployment in modular, containerised, and large scale LIB installations. Simplified installation, featuring daisy-chain connections between sensing nodes, reduces cabling material and setup time.

System configuration and commissioning are quickly and easily done through a software interface, which provides diagnostic information for ease of troubleshooting and maintenance. Improved networking enables users to customize their detection solution by grouping sensing nodes into zones which is especially useful for complex and large installations. The system provides extended connectivity options for integration into the Battery Management System (BMS) via relays and Modbus TCP/IP.



The Li-ion Tamer GEN 3 consists of the following major components:

(i) Sensing nodes, (ii) Hub, (iii) Power switch, (iv) Network switch, (v) Controller.

- Each sensing node comprises an off-gas sensor with advanced algorithms making it acutely sensitive to detecting battery electrolyte vapours (off-gassing compounds), does not require calibration, is compatible with all LIB form factors and chemistries, and has a lifetime comparable to a typical LIB system. The sensing node also includes temperature and humidity sensors for environmental monitoring.
- Sensing nodes are networked by the hubs and switches to the controller, which is the central point for managing and monitoring the entire system. The controller has relays and Modbus TCP/IP outputs that connect to the BMS or other control systems.

CUSTOMER BENEFITS

EARLIEST WARNING	Utilizes an advanced algorithm to provide the earliest detection of lithium-ion battery off-gassing, creating a barrier for the prevention of catastrophic thermal runaway events.
INCREASED SYSTEM VISIBILITY	Allows quick and easy configuration and monitoring via user interface software that reduces commissioning and setup costs.
LOWER MAINTENANCE COST	Provides calibration-free detection with an extended product lifetime to reduce overall cost of ownership and maintenance.
ENHANCED ENVIRONMENTAL MONITORING	Introduces granular environmental monitoring of the space with temperature and humidity detection at each detection node.
IMPROVED EVENT DATA LOGGING	Enhances storage capabilities of the controller to gather extensive event logging for more insight during post-event evaluation.

EASY SETUP AND MAINTENANCE

Setup and commissioning of the Li-ion Tamer GEN 3 system is done by connecting to the controller via the TCP/IP port.

The software Interface simplifies system installation, commissioning, and maintenance activities. Enhanced system visibility and error tracking saves time and money by clearly and automatically identifying sensor alarm and fault conditions.



KEY APPLICATIONS

INDUSTRY TYPE	KEY APPLICATIONS
Stationary Battery Energy Storage	Containerized / modular systems Built environment systems Residential systems
Data Centers	Battery UPS
Manufacturing	Assembly lines Battery formation process Cell aging and EOL testing Module or pack assembly
Automotive	Car parks / garages Charging bays Vehicle test facilities
Laboratory Safety	Environmental chambers Battery abuse testing
Shipping and Storage	Post-manufacturing storage Battery-powered equipment

SPECIFICATIONS

CONTROLLER SPECIFICATIONS	
Dimensions (LxWxH)	115mm x 82mm x 34mm
Input Power Range	12 VDC
Max Sensors Per Controller	100*
POWER CONSUMPTION SPECIFICATIONS	
Controller	3 A (36 W @ 12 VDC)
Hub (Fully Populated)	0.5 A (6.0 W (@ 12 VDC)
Additional Hardware	See User Manual for details.
MODBUS OUTPUT SPECIFICATIONS	
Hardware	TCP/IP Ethernet
RELAY OUTPUT SPECIFICATIONS	
Connector Type	Screw Terminals
Signal Type	16 SPDT Form C Relays See User Manual for details.
PRODUCT LIFE SPECIFICATIONS	
Target lifetime	> 10 years
GAS DETECTION SPECIFICATIONS	
Target Gases	Lithium-ion battery electrolyte solvent vapours, ex. DEC, DMC, EMC (FM 6540 Approved)
Min. Detection Threshold	10ppm/sec
Min. Response Time	5 seconds
Fault Detection	Single cell failure
TEMPERATURE MEASUREMENT SPECIFICATIONS	
Measurement Range	-40 to 125°C (–40 to 257°F)
Measurement Accuracy	± 0.4°C from 5 to 60°C (41 to 140°F)
HUMIDITY MEASUREMENT SPECIFICATIONS	
Measurement Range	0 to 100% RH (non-condensing)
Measurement Accuracy	± 2.0% RH from 20 to 80% RH
ENVIRONMENTAL SPECIFICATIONS	
Operating Temperature	Controllers: 0 to 40°C (32 to 104°F) Sensors and Hubs: -10 to 50°C (14 to 122°F)
Humidity	10 to 90% RH (non-condensing)

ABOUT HONEYWELL

Honeywell is a Fortune 100 technology company that delivers industry specific solutions that include aerospace products and services; control technologies for buildings and industry; and performance materials globally.

Our technologies help aircraft, buildings, manufacturing plants, supply chains, and workers become more connected to make our world smarter, safer, and more sustainable.

THE FUTURE IS WHAT WE MAKE IT

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