

SafetyNet EV Gas Monitoring and J1939

GAS DETECTION TECHNOLOGY FOR ELECTRIC VEHICLES

The age of battery electric powered vehicles has arrived. More industries, including mining, waste, and transit, continue to shift higher percentages of their fleets to battery electric power. This new technology brings with it new fire hazards. Amerex has developed the new SafetyNet-EV Gas Detection System to protect people against these risks.

FEATURES

- Advanced technology adapted for today's cleaner electric vehicles
- Sensors strategically placed around the vehicle register a warning before an event occurs
- System sounds an alert, allowing the driver more time to pull over and safely evacuate the vehicle
- Controller Area Network (CAN) Module telematics can be configured to alert the operations control center for faster on-scene response

BENEFITS

- Saves lives and property
- Early warning—rapid response
- Provides advance notice of a thermal runaway event

WHY AMEREX?

Amerex built the original mobile gas detection system in 1992 and has spent nearly 30 years improving the technology. With Amerex, you know that you are getting the safest, most dependable products on the market.

Contact us for more information:

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COMPONENT OVERVIEW



Gas Sensors are calibrated for use in electric vehicle battery compartments to monitor volatile combustible gases produced as a result of overheating, overcharge or other conditions.

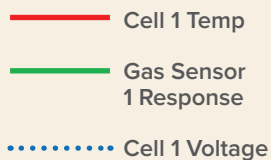
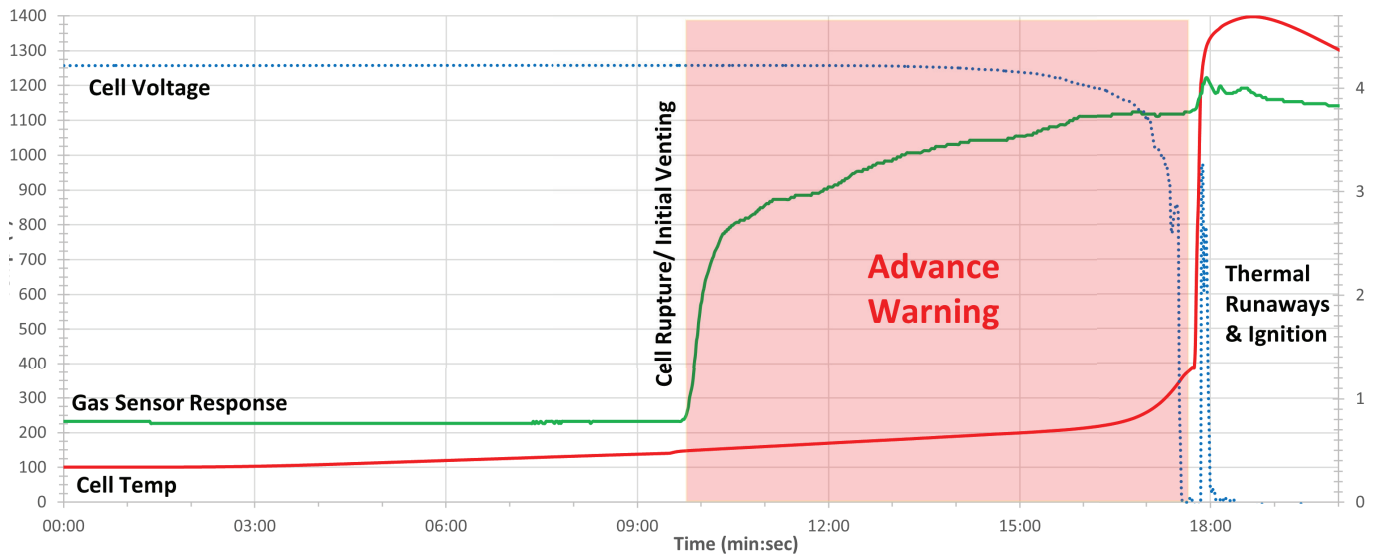


The **SafetyNet-EV Panel** is specifically designed to work with new gas sensors, alarm levels and programming. Tested and calibrated for EV Lithium ion gas characteristics.



SafetyNet CAN Module provides connection to the bus CAN network allowing for fault and alarm notifications from the SafetyNet-EV system panel to be transmitted to the central monitoring location.

Multi-Cell Lithium Ion Array Heated Until Thermal Runaway Event



The graph above highlights the early response from the Amerex gas sensor as compared to traditional monitoring methods including cell temperature and cell voltage. This window of advance warning, highlighted by the pink section of the graph, represents valuable time, well in advance of an eventual thermal runaway.

In this example, cell surface temperature (red) and cell voltage (blue) of the first cell are measured, which are traditional monitoring methods used in lithium ion battery packs. Also included in the graph is the Amerex gas sensor response (green), where the sensor is located adjacent to the cells.

As the first cell is heated, the first measurable event is a cell rupture and off-gassing event (around 10 min), where the cell begins to vent a volatile combustible gas, measured with an immediate gas sensor response. As the test progresses, a thermal runaway event eventually occurs (around 18 min). At this catastrophic event, a noticeable spike in temperature is measured where the cell surface temperature reaches almost 1400°F. Also, just prior to the thermal runaway, a drop in cell voltage is measured.

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