

## Peace of mind. Guaranteed.

Continuous monitoring of hydrogen gas in data centers and UPS applications

We have come to rely heavily on computing services and infrastructure, expecting all data to be available at our fingertips around the clock. To make that possible are data centers that house the equipment needed to keep the data flowing without interruption. Data centers have battery rooms where large banks of lead acid batteries are continuously charging to ensure the data center has an uninterrupted power supply. During the charging process, hydrogen is created. Hydrogen is a highly flammable gas and can explode when present in high concentrations. As hydrogen gas is vented from the batteries, it will rise towards and collect at the ceiling, creating a potentially explosive situation.

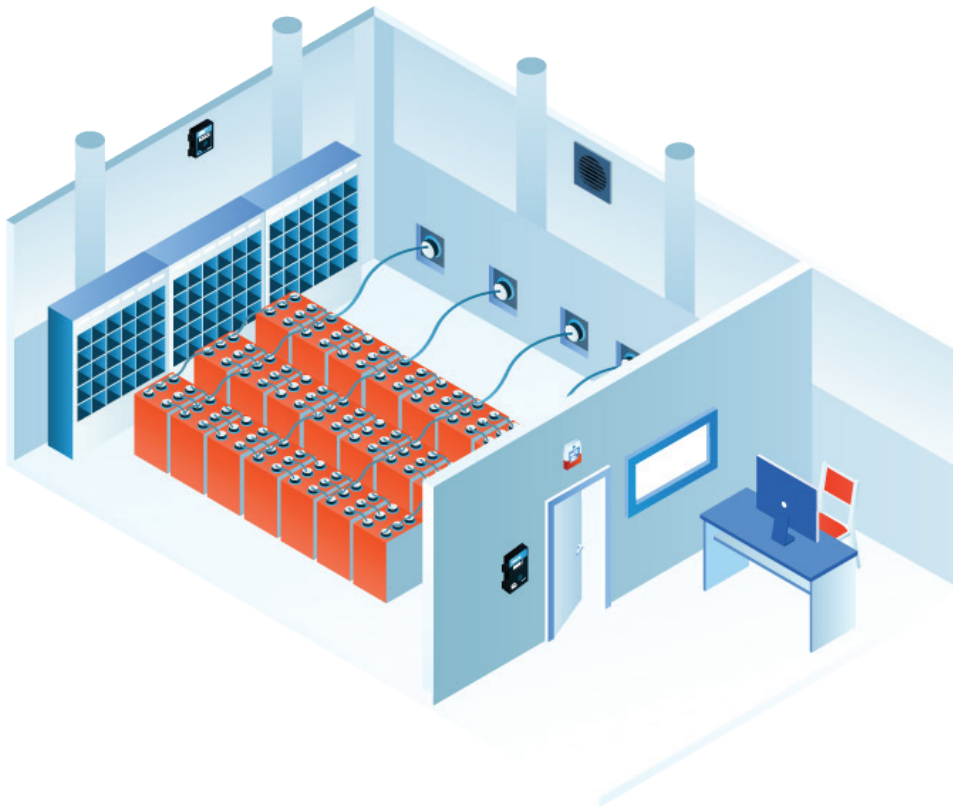
The best way to monitor hydrogen levels is with a fixed gas detection system. Gas level readings can be used to turn on the ventilation system, trigger alarms and call emergency response.

Critical Environment Technologies' **cGas-SC** Self Contained Controller with an **ESH-A** with a combustible Hydrogen gas sensor offers the features and functionality to ensure a safe, non-explosive environment.



## Continuous Monitoring of Hydrogen (H<sub>2</sub>) in Lead Acid Battery Rooms

A battery room can become a dangerous area due to the potential off gassing of hydrogen. To help ensure a safe working environment and protection of property, a fixed gas detection system should be installed as follows. One fixed remote ESH-A-CH2-100 with a catalytic hydrogen sensor with a detectable range of 0 - 100% LEL will provide coverage of 465m<sup>2</sup> / 5,000ft<sup>2</sup>, a radius of 12 m / 40 ft. The remote sensor should be mounted on or near the ceiling above the battery charging area, where hydrogen gas will concentrate. Care should be taken to make sure the sensor is away from ventilation fans and any rapidly moving air.



The ESH-A will continuously transmit a 4 - 20 mA analog signal to the cGas-SC Controller which will show the corresponding gas level readings. The cGas-SC should be mounted at viewing height in a suitable area so the display is easy to read. Wiring between the devices should be 4-conductor, 16 to 18 gauge, stranded, shielded and installed in conduit. The distance between the cGas-SC and ESH-A should be no more than 61m / 200ft.

The cGas-SC Controller has three gas alarm setpoints and two dry contact relays rated 5A @ 240 VAC. Alarm level 1, 2 and 3 may also be referred to as LOW, MID and HIGH. Depending on the application, all three may be used or

just the LOW and HIGH. The LED lights on the front of the enclosure will turn red in sequence from LED 1 to 3, corresponding with the level of alarm. If the device goes into low alarm, LED 1 will turn red and relay 1 will be triggered, activating the exhaust fans to clear the area of the gas and bring the gas concentration down to an acceptable level. If the ventilation system is inadequate or malfunctioning and the level of hydrogen reaches the third setpoint, the system will go into HIGH alarm. All 3 LEDs will turn red, the second relay will trigger the internal buzzer and side mounted strobe (if installed) and any remote horn/strobes connected to the cGas-SC to turn on.

The cGas-SC can be ordered with two 4-20 mA outputs (Option -2AO) that can be used for VFD control and/or interface with a Building Automation System (BAS) which in turn can trigger alarms and other safety procedures as appropriate.

The cGas-SC comes standard with an internal audible alarm and is available with an optional extra loud buzzer that can be ordered and installed at the time of purchase. If enabled, the OK button can be used to silence the internal and any remote horns/strobes temporarily (default is 2 minutes) and clear any latched relays. The cGas-SC and ESH-A come standard in a water / dust tight enclosure with copper coating to reduce RF interference. The cGas-SC and ESH-A fixed system is fully set up, programmed, calibrated and tested prior to being shipped from the factory. It is ready to install upon arrival and operate following the warm up period.