

## Peace of mind. Guaranteed.

Continuous monitoring of carbon dioxide used for pH control in aquatic facilities.

Carbon dioxide (CO<sub>2</sub>) can be used to maintain optimum pH levels in swimming pools at recreational facilities, hotels and other aquatic facilities. It provides a natural, environmentally beneficial alternative to mineral acids and its use is growing in popularity. While CO<sub>2</sub> is a natural, non-corrosive gas and in low concentrations is not harmful, in high concentrations it is toxic and it can displace oxygen, causing rapid asphyxiation and death, especially in a confined area. It is also colourless and odourless, making it difficult to detect without a gas detector.

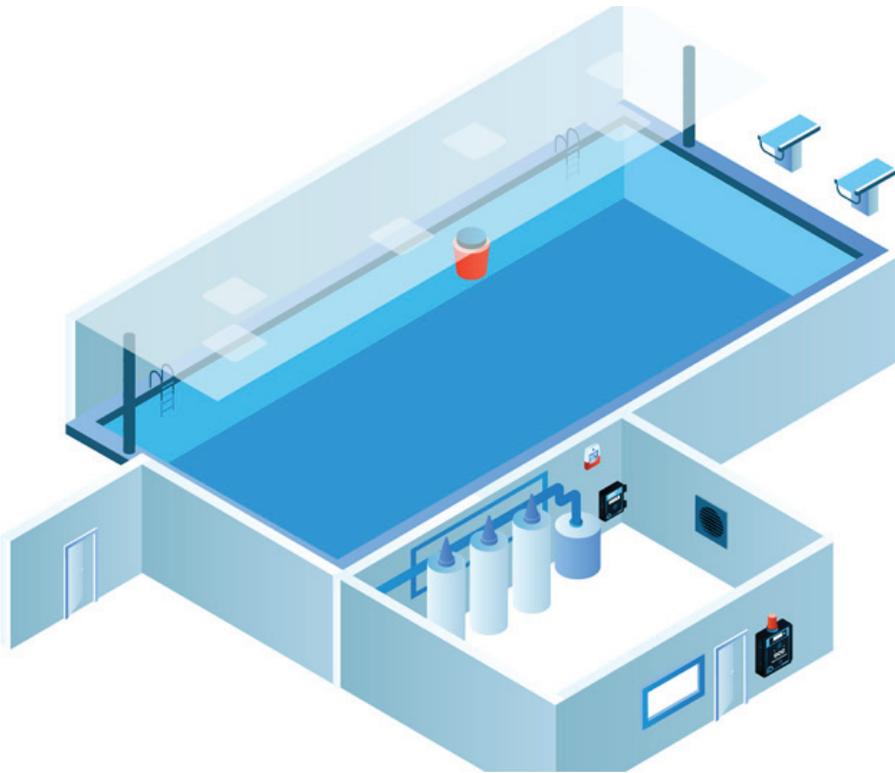
CO<sub>2</sub> is available in pressurized gas cylinders/tanks as well as compressed liquefied gas cylinders/tanks. Both pose a danger but liquefied gas cylinders pose an increased danger because they contain a much higher concentration of CO<sub>2</sub>. A small leak inside an enclosed space can become a very dangerous situation quickly.

Critical Environment Technologies' [DCC](#) Dual Channel Controller with an analog [CGAS](#) Detector with a Carbon Dioxide sensor offers the features and functionality to ensure a safe, breathable environment.



## Continuous Monitoring of Carbon Dioxide (CO<sub>2</sub>) in the Chemical Storage Room of Aquatic Facilities

Recreational facilities that use carbon dioxide to keep the swimming pool water clean typically have a storage room with tanks or cylinders of pressurized or compressed CO<sub>2</sub> gas. To make sure the breathing environment remains safe at all times and a gas leak is detected as soon as possible, a fixed gas detection system with a DCC Controller, one or more CGAS-A detectors with an infrared CO<sub>2</sub> sensor (0 - 5,000 ppm range) and one or more remote horn/strobe devices should be installed.



The DCC Controller should be mounted outside the door of the CO<sub>2</sub> feed or storage room. It will provide a visual confirmation prior to entering the room of the gas level readings inside. Inside the room the CGAS-A-CO<sub>2</sub>-5K detector should be mounted close to the cylinders in an area where a potential leak may occur. CO<sub>2</sub> is heavier than air and tends to collect and pool in low-lying areas, which means the detector should be mounted 6 inches above the floor. The gas detector will continuously send a signal back to the DCC Controller, and if there is a leak and the gas reading reaches or exceeds the alarm setpoint, it will activate the DCC's predetermined protocol to turn on the ventilation system, trigger internal and/or remote alarms, alert emergency personnel, etc.

Mounted on the wall near the ceiling inside the room should be an alarm device, such as the RSH-24V, with both audible and visual indications that will alert anyone inside the room that there is an emergency and they should leave the room immediately. There may also be an alarm device elsewhere in the facility.

The DCC Controller has two gas alarm setpoints (LOW and HIGH), two dry contact relays rated 5A @ 240 VAC, LED indicators and an internal buzzer. Upon detection of 1000 ppm of CO<sub>2</sub>, the system will go into LOW alarm, changing the channel LED to orange and triggering relay one to activate the exhaust fans to clear the area of the gas and bring the gas level down to an acceptable level. If the ventilation system is inadequate or malfunctions, upon detection of 1500 ppm CO<sub>2</sub>, the system will go into HIGH alarm, changing the channel LED to red, sounding the internal buzzer and triggering the second relay which will respond as configured and remain active for a minimum of 10 minutes. If there is a remote strobe/horn device, such as the RSH-24V-R connected to the DCC, it will be activated at the HIGH alarm. DCC has two 4-20 mA outputs that include VFD control and may be used to interface with a Building Automation System (BAS) which in turn can trigger alarms and other safety procedures as appropriate.

The DCC 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. The DCC and CGAS-A come standard in a water / dust tight enclosure with copper coating to reduce RF interference. The DCC and CGAS-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 a warm up period.