

Peace of mind. Guaranteed.

Continuous monitoring of carbon dioxide in fermentation rooms

Areas of concern for high levels of Carbon dioxide (CO₂) in wineries include pits, sumps, storage tanks and bottling rooms, but in particular, fermentation rooms. During fermentation a significant amount of CO₂ is generated. If the tanks are indoors, the CO₂ that escapes can collect in low lying areas and pose a safety hazard to employees. CO₂ is twice as heavy as air and will sink to the bottom of a room or a tank, forming potentially hazardous pools of gas that build up and displace Oxygen (O₂). Being odourless and colourless, the presence of CO₂ is not known until symptoms of exposure are experienced, unless gas detection equipment is used.

Using Critical Environment Technologies' **QCC** Quad Channel Controller with a **CGAS** Detector CO₂ Transmitter, along with a personal, portable O₂ detector is the solution. The placement of the transmitter inside the fermentation room provides continuous monitoring for potential leaks of Carbon dioxide. The **QCC** Controller with a top mounted strobe mounted outside the room door provides a status of the air quality conditions inside the room prior to entry. If a CO₂ leak is detected the top mounted strobe will activate and an audible alarm will sound. The designated relays will activate a preset response, such as turning on a remote alarm device, actuating the mechanical ventilation system and/or triggering another set response as required.



Continuous Monitoring of Carbon Dioxide (CO₂) in a Winery Fermentation Room

Inside the fermentation room, there should be a cGas Detector with an infrared CO₂ sensor, mounted on the wall at the breathing zone height (4 - 6 feet from the floor). It should be close to the fermentation tanks, micro bins and barrels where the possibility of a Carbon dioxide leak is most likely to occur. The measurement range for Carbon dioxide is 0 - 5% volume. With the optional splash guard installed, the enclosure is water tight (IP54 rated) and will withstand water spray or wash down applications.



If Ozone is used to disinfect the bottles and equipment there should be an cGas Detector with an Ozone sensor mounted 6 in / 15 cm from the floor in the bottling area.

The QCC Quad Channel Controller with a top mounted strobe should be mounted outside the fermentation room entry door. It will be connected to both cGas Detectors and will display the target gas levels for viewing prior to entering the rooms.

The QCC is pre-programmed and field adjustable. Functions that can be set include relay assignment,

time delays, logic control, sensor types and ranges, alarm set points, etc. There is a 4-line x 20 character backlit LCD display that actively scrolls through the programmed channels and displays the gas name, concentration and alarm status. The QCC should be configured to set off alarms and activate the exhaust ventilation system, shut down the chillers or other alarm procedures as appropriate when a leak is detected. The QCC can accept inputs from up to 4 transmitters, using either an analog (4 - 20 mA) signal and/or Modbus® RS-485 digital communication, making it the ideal central controller for any additional gas detectors that may be needed throughout the winery.

The CGAS Detector CO₂ transmitter is available with analog output (CGAS-A-CO2-5%) or Modbus output (CGAS-D-CO2-5%).

Remote visual and audible alarm devices such as the Remote Strobe / Horn (RSH-24V-R) should be set up inside each room and if there is another entrance to the room, a QCC-RDM Remote Display Module should be mounted outside the door of that entrance, to provide visual confirmation of gas level readings prior to entering the room.

The levels of O₂ and CO₂ should be checked prior to cleaning the tanks by lowering a personal, portable O₂ and CO₂ detector into the vessel to determine if it is safe to enter. Follow local confined entry requirements and regulations.