

# Winery Applications



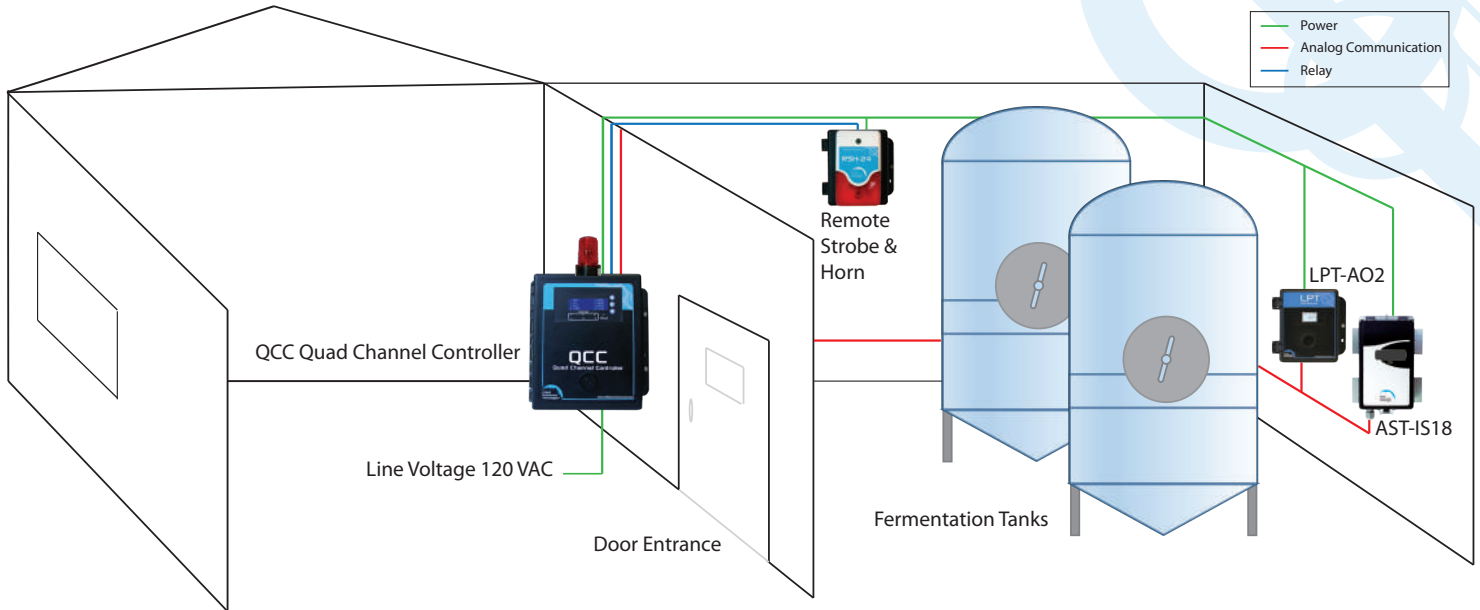
## Peace of mind. Guaranteed.

Continuous monitoring of CO<sub>2</sub>  
and O<sub>2</sub> in fermentation rooms.

Areas of concern for high levels of Carbon dioxide (CO<sub>2</sub>) in wineries include pits, sumps, storage tanks and bottling rooms, but in particular, fermentation rooms. During fermentation a significant amount of CO<sub>2</sub> is generated. If the tanks are indoors, the CO<sub>2</sub> that escapes can collect in low lying areas and pose a safety hazard to employees. CO<sub>2</sub> is twice as heavy as air and will sink to the bottom of a room or tank, forming potentially hazardous pools of gas that build up and displace Oxygen (O<sub>2</sub>). Being odourless and colourless, the presence of CO<sub>2</sub> is not known until symptoms of exposure are experienced, unless gas detection equipment is used.

Using Critical Environment Technologies Canada Inc. (CETCI)'s **QCC Quad Channel Controller** with an **LPT-A Analog Transmitter** and an **AST-IS18 Industrial CO<sub>2</sub> Transmitter** is the solution. The placement of the two transmitters inside the fermentation room provides continuous monitoring for Oxygen levels and a potential leak 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 Oxygen levels fall below safety levels or if a CO<sub>2</sub> 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.

## Typical O<sub>2</sub> and CO<sub>2</sub> Fermentation Room Monitoring System



The LPT-A-02 Analog Transmitter with an electrochemical oxygen sensor and should be mounted on the wall inside the fermentation room, at the breathing zone height (4 - 6 feet from the floor). It should be close to the fermentation tanks where oxygen is most likely to be depleted in the event of a build-up of CO<sub>2</sub>. The measurement range for oxygen is 0 - 25% volume. With the optional splash guard installed, the enclosure is water tight (IP54 rated) and will withstand water spray or wash down applications.

The AST-IS18 Industrial Transmitter with a non-dispersive infrared sensor that provides accurate, reliable carbon dioxide (CO<sub>2</sub>) detection, should be mounted on the wall inside the fermentation room, next to the LPT-A-02 transmitter. The measurement range for Carbon dioxide is 0 - 4% volume. The enclosure is waterproof (IP65 rated) and will withstand water spray or wash down applications.

The QCC Quad Channel Controller with a top mounted strobe should be mounted outside the fermentation room entry door. It will interface to the LPT-A and CO<sub>2</sub> transmitters inside the room and will display the target gas levels for viewing prior to entering the room. 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 analog and/or digital transmitters using Modbus® RS-485 digital communication, making it the ideal central controller for any additional gas detection transmitters that may be needed throughout the winery.

Remote visual and audible alarm devices such as the Remote Strobe / Horn (RSH-24VDC) should be set up inside the 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.