

# Greenhouse Production Applications

## Peace of mind. Guaranteed.

### Continuous monitoring of ethylene and carbon monoxide in production greenhouses

Ethylene is a gas that is naturally produced by plants and aids in the growth and development of the crop. However, too much ethylene can damage the plants and affect marketability. Decaying foliage, ripening fruit and stressed plants produce more ethylene than young, healthy plants. Other sources of ethylene gas are blowers, trimmers and carts with combustion engines, propane powered forklifts, heating systems, vent stacks and leaky fuel lines. Most often when there are high levels of ethylene gas, there is also a high concentration of carbon monoxide, which is dangerous to humans working inside the greenhouse.

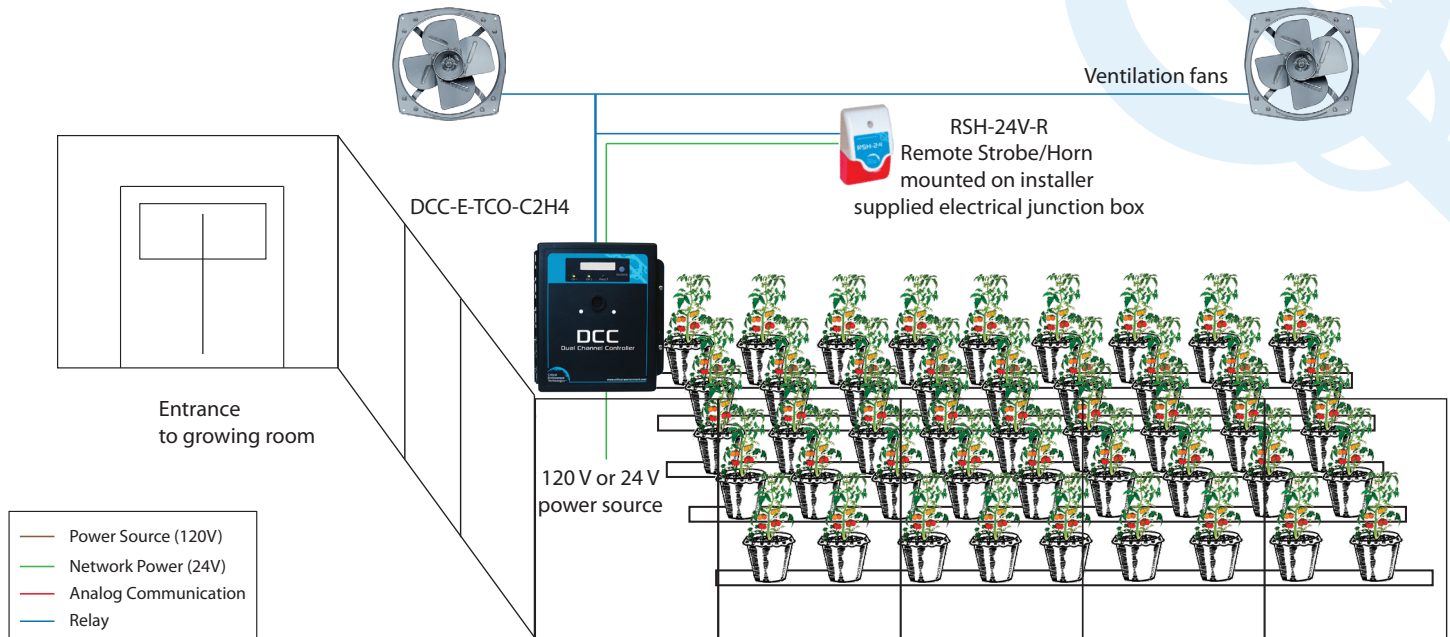
Critical Environment Technologies Canada Inc. (CETCI)'s **DCC** Dual Channel Controller with an internal CO sensor and an internal ethylene gas sensor is the solution. The **DCC** provides both gas detection and controller functions. It should be mounted in the growing area at the "breathing zone" height (4 - 6 ft from the floor) to provide continuous monitoring of carbon monoxide and ethylene levels inside the room where workers are present. The gas level readings are viewable on the LCD display of the **DCC** Controller.

If the ethylene or carbon monoxide concentration rises above acceptable levels, an audible alarm will sound, the display will indicate an alarm condition and the relays will activate a preset response, such as turning on a remote strobe/horn and turning on the ventilation system.



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## Typical Greenhouse Production Monitoring System



The DCC-E-TCO-C2H4 Dual Channel Controller with an internal Carbon Monoxide sensor and internal Ethylene sensor should be mounted in the greenhouse where the plants are growing. Both gases are close to the same weight as air and will hang around in the “breathing zone” so the DCC should be mounted (1.2 m - 1.8 m / 4 - 6 ft) from the floor.

An RSH-24VDC Remote Strobe / Horn should be visibly mounted inside the growing room. One of the two internal relays of the DCC can be used to trigger the Remote Strobe / Horn device in the event either gas level reaches or exceeds the alarm setpoints. The second relay can be used to activate the mechanical ventilation system or trigger another set response as required.

The DCC has two 4-20 mA outputs that include VFD control and may also be used to interface with a Building Automation System (BAS) which in turn can trigger the alarm and other safety procedures as appropriate. One DCC can monitor approximately 650 sq m (7,000 sq ft). The gas level readings will show on the display of the DCC for easy viewing. It comes standard with an internal audible alarm and is available with an optional extra loud buzzer or a watertight buzzer that can be ordered and installed at the time of purchase. It can be powered by low voltage or line voltage and has a SILENCE push button that can be used to temporarily turn off the buzzer and clear the latched relays. The DCC comes standard in a water / dust tight enclosure that is rated IP54 with the optional splash guard installed. The DCC-E-TCO-C2H4 is fully set up, programmed, calibrated and tested prior to being shipped from the factory. It is ready to install and operate upon arrival.