

Common CO₂ Wiring Issues

Interfacing with A Honeywell Economizer Control

Set minimum position potentiometer to twice the design load. For example if the space is designed to 30 people at 15 cfm/person, adjust the minimum position potentiometer at the economizer to 900 cfm. This will allow the economizer to deliver 450 cfm at a CO₂ level of 1000. If the Concentration is less than 1000 the signal will modulate the damper position proportionally according to the CO₂ concentration. This will ensure the system is providing 15 cfm/person based on actual occupancy of the space. Since levels never drop below about 400 ppm, the signal from the sensor will always provide a base ventilation rate to control non-occupant related sources.

Where further customization of the voltage signal to control damper actuation is desired, the output signal of the all TELAIRE sensors with display and keypad can also be adjusted so that a specific voltage output corresponds to a specific CO₂ range (see instruction manual). For units without a display TELAIRE's UIP Kit (model 2072) allows adjustment of output parameters on all 8000 series sensors using a PC interface.

Multiple Sensors with a Single Air Handler

This approach would be used in applications where a single air handler or rooftop system serves a number of zones that have potentially different occupancy patterns. One CO₂ sensor should be placed in each major occupancy zone. The signals from each of the sensors would be connected through a transducer that would pass through only the highest signal to the equipment. This allows the equipment to control off the worst-case zone and ensure adequate ventilation is provided to all spaces.

ACT (Automated Control Technologies) makes a 4 into 1 transducer that can be used with voltage or current signals. If more than 4 sensor are involved multiple transducers would have to be used. In this case one transducer signal would provide one of the input signals for a second transducer. The transducer is model no 4N1-1. Contact Info: 800 886-2281, www.act-solutions.com.

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Connection	Description	Diagram
Single Sensor Multiple Air Handlers	A large space like an auditorium may have multiple air handlers serving a single space. Generally a CO ₂ sensor should be designed to serve a space of up to 5,000 to 7,000 ft ² open space. There are a number of ways one CO ₂ sensor can be used to control multiple pieces of equipment.	
Voltage Signal	The voltage output from the sensor can be split to supply two air handlers. The sensor can be mounted in the duct or in the space. To avoid signal degradation and noise the signal wiring should be shielded and total wiring length should be no more than 50 feet.	
Current Signal	ACT makes a 1-into-2 current transducer (model no ARM2). Carrier price is \$47.75. If more sensors need to be connected to a single device multiple transducers will be required.	
Equipment	Another approach is to have all units provide a base ventilation level and designate a percentage of units to provide the modulated outside air requirements to the space.	