

Zone Ventilation And Temperature Control For VAV Boxes



TR9230- L



TR9230

A CO₂ & Temperature Transmitter and a VAV Controller!

The TR9230 family of products senses CO₂ and temperature but also has the capability to control a VAV box based on temperature and ventilation. It is designed as a cost effective platform for new or retrofit VAV applications that requires minimal changes to existing control systems.

- ✓ Provides a single analog output to modulate a VAV box based on both temperature (PI control) and measured ventilation rate using CO₂ (P control).
- ✓ Push buttons allow occupant adjustment of temperature set point within programmable limits and allows for reset from setback conditions.
- ✓ Automatically initiates reheat if requirements for ventilation over-cool the space. Also has programmed temperature limit for non-reheat applications.
- ✓ Programmable setback temperature can be initiated by external timer switch or by indication of unoccupied conditions with CO₂.
- ✓ Provides analog signal that can be used to control fresh air delivery at central air handler. A third analog signal can be used to report temperature conditions to central system.
- ✓ Add-on options for Lonworks® or RS-485 network/central system communication.
- ✓ Purposefully built for quality - designed and built using Internationally Certified ISO 9001 processes.
- ✓ State of the art infrared sensing of CO₂ with gold plated optical sensor for long-term durability.

Why Active Ventilation Control With CO₂?

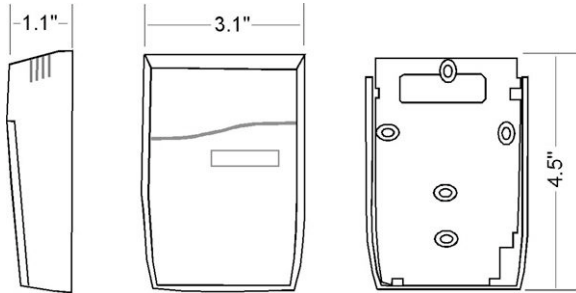
Zone ventilation control with CO₂ is a viable and energy efficient way of controlling ventilation to target cfm/person levels based on actual occupancy. It saves energy and effectively provides real time air balancing for outside air ventilation. This approach offers many advantages over the traditional approach of a one time set-up adjustment of outside air to provide fixed ventilation based on assumed building maximum occupancy.

- ⇒ Reduce ventilation and energy costs in applications with variable occupancy.
- ⇒ In static occupancy applications, owner can continuously control ventilation rates to reflect current occupancy conditions.
- ⇒ Actively control ventilation to eliminate unintended over and under ventilation conditions resulting from arbitrary adjustment of outside air quantities.
- ⇒ Monitor and control zone ventilation efficiency and take advantage of using preconditioned transfer air from under occupied spaces for ventilation.
- ⇒ Documented CO₂ levels can provide ongoing verification that code-required ventilation rates are being maintained.

A VAV Controller For Ventilation & Temperature

The TR9230 is a state controller that measures temperature and ventilation conditions in a space and provides direct control to a VV box. The controller allows preprogramming of various set points including: temperature set point, set back set point, user adjustable temperature range, cfm/person ventilation rate. Versions are also available for duct mounting.

TR9230 Dimensions

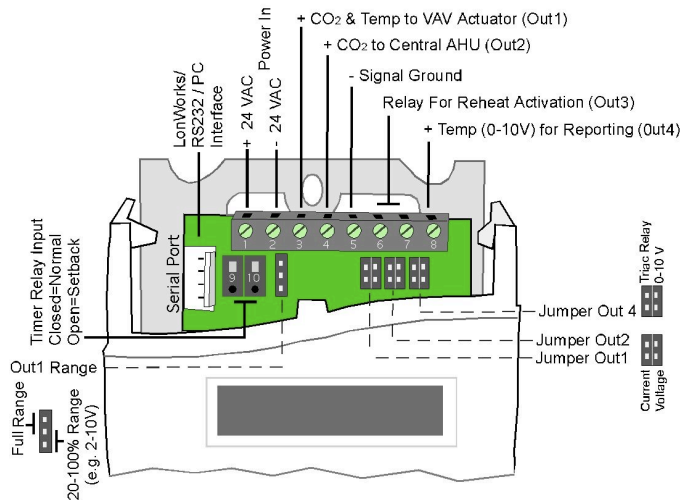


Ordering Information

TR9230	Solid Flip Open Cover, Display Under Cover, Two Adjustment Buttons
TR9230-L	Display Visible Through Flip Open Cover, Two Adjustment Buttons

For Lonworks® add “-LON” to suffix, For RS485 add “-485” to suffix.

Wiring



Other AirTest CO₂ Products

AirTest™ also offers other programmable CO₂ monitors that offer additional capabilities including:

- ➔ Measurement of humidity or dew point,
- ➔ Measurement up to 20% CO₂,
- ➔ The ability to receive inputs from other sensors,
- ➔ Integrated thermostat and economizer functionality,
- ➔ A variety of enclosures for industrial and other uses.

Distributed By:
Global Controls, Inc.
 3008-B 16th Avenue West Seattle, WA 98119-2029
 Phone : (206) 282 - 4666 Toll Free : (800) 821 - 4863
 Fax : (206) 282 - 4888 E-Mail : info@global-controls.net
<http://www.global-controls.net>

Specifications

General

CO₂ Detection Method: Gold Plated Non-Dispersive Infrared Optical Sensor with Automatic Baseline Correction for Self-Calibration. Diffusion Sampling.

Certification: CE, EMC89/336/EEC, CA Energy Commission

Temperature Measurement: Thermistor With Linear Output

Transmitter Rated Life: 15 years

Operating Conditions: 32 to 122° F (0 to 50°C), 0 to 95% RH

Storage Conditions: -40 to 158° F (-40 to 70° C)

Performance

CO₂ Measurement Range: 0-2000 ppm (factory set), user adjustable to 6000 ppm

CO₂ Accuracy: +/- 1% of measurement range + 5% of measured value.

Response Time: T₉₀ = <2 minutes (diffusion)

Temperature Measurement Accuracy: +/- 0.9° F (0.5° C)

Power

Input: 18-30 VAC, 50-60 hz (half-wave rectified)

Average Power Consumption: £ 3 Watts average

Inputs:

Switch Input: For external timer input for setback(9,10)

Push Buttons: Temp adjustment/reset/program change

Program Adjustment & Defaults: All program variables adjustable via simple PC or button/display interface. (Bracketed values indicate factory setting)

- Temperature set point (74°F)
- Temperature setback set point (78°F)
- Temperature button adjustment limits (+/-2°F from sp)
- Low temperature limit for ventilation control (72°F)
- Target outside air ventilation rate (15 cfm/person)

Outputs

Adjustment: All outputs including display values shown, measurement range, analog output range and relay set point can be easily adjusted by the user or your distributor using a PC and the AirTest™ Interface(AI) program.

Digital Display: CO₂ Concentrations in ppm, Temperature in °F or °C. (User selectable with PC or PDA interface)

Linear Analog Outputs:

- Out1*: CO₂ (P) and Temp (PI) based on highest output
- Out2*: CO₂ (P) for signal to air intake on AHU
- Out3**: Reheat Activation (if OA demand > temp demand)
- Out4: 0-10 V linear output for temp reporting (also can be configured to be a triac relay)

* jumper selectable for VDC or mA

0 to 10 VDC R_{OUT} < 100 ohm, 0 to 5 VDC R_{LOAD} >5k ohm, 4 to 20 mA R_{LOAD} < 500 ohm

**Relay: Isolated, NO, 1mA/5V up to 1A/50VAC/24VDC

**Relay

Lonworks® Option: CO₂, Temperature

RS-485 Option: Network capability for up to 30 units (Custom protocol: contact AirTest™ or Distributor for details).

Wiring Access: remove top front panel of sensor to access wiring terminals. Access can be protected with locking screw.

Covered By US Patents: 6194735, 6016203, other patents pending



AirTest™ Technologies Inc. specializes in the application of cost effective, state-of-the-art gas monitoring technology to ensure the comfort, security, health and energy efficiency of buildings.

