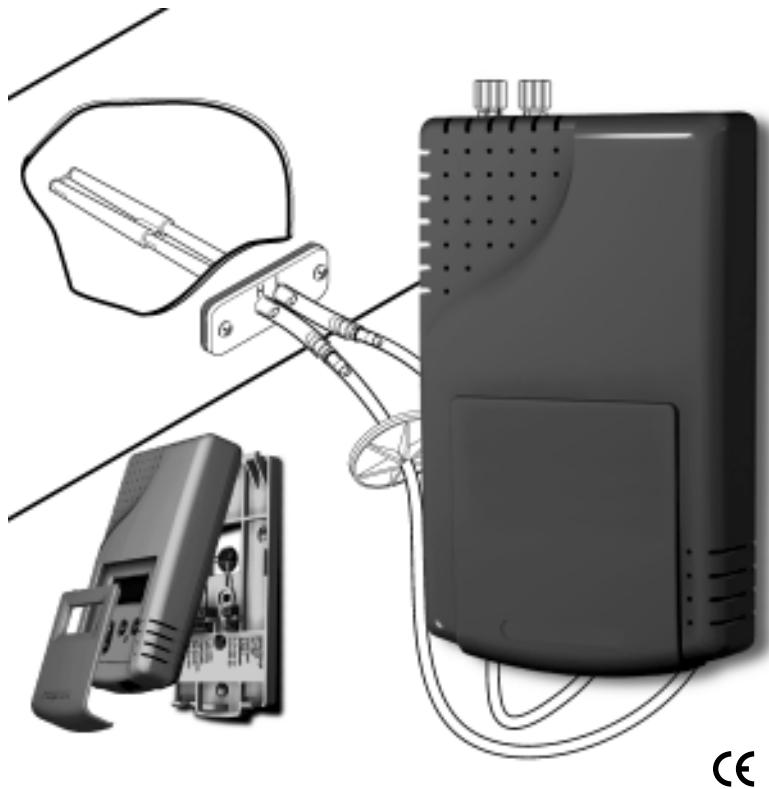


Ventostat® 8007/8008 Pitot Duct Sample CO2 Ventilation Controller

The Ventostat® 8007 and 8008 are designed for in-duct sampling using a pitot sampling tube that is inserted into the duct (tube provided). The sensor can also be used in applications where a flow through type sample is desired. The primary application for these sensors is Demand Controlled Ventilation (DCV) in buildings. This approach, using CO2 as an indicator of occupancy, allows ventilation based on actual occupancy while still maintaining ASHRAE recommended per-person ventilation rates. Over-ventilation of buildings can be reduced, energy can be saved and air quality can be optimized. The pitot sampling method used with these



Commercial Grade

sensors is designed for in-duct sampling and is best used when air velocities are between 600 and 1200 fpm, and the remote mounting capability offers easier accessibility when making sensor adjustments or calibrating. The controller is not intended for mounting directly inside the ductwork (see Ventostat® 8005). Typical applications for the 8007 and 8008 include office buildings, conference rooms, schools, retail stores, restaurants, gymnasiums, and movie theaters. This sensor can also be applied for other flow-through type sampling applications.

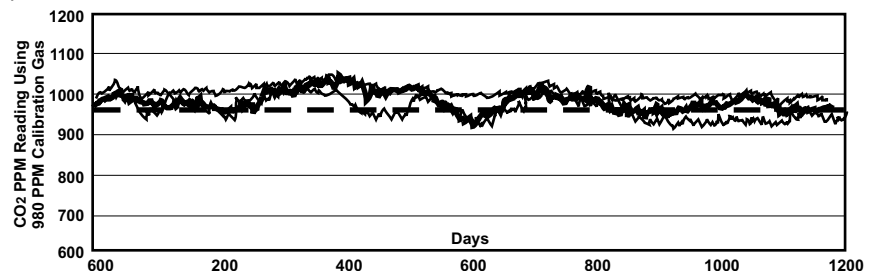
Features/Benefits

- Telaire's Patented Absorption Infrared™ gas sensing engine provides high accuracy in a compact low cost package.
- Includes pitot sampling tube and three feet of tygon tubing for easy installation.
- Patented ABC Logic™ self-calibration system eliminates the need for manual calibration in most applications (see ABC Logic section).
- 10 years of Telaire® experience and reliability built in.
- Gold-plated optical sensor increases sensor life and durability.
- Attractive low profile case in either white or black to suit your building décor.
- Mounting plate with terminal block provides quick, easy wiring. Compatible with standard US and European junction boxes.
- Gas permeable, water resistant diffusion filter prevents particulate and water contamination of the sensor.
- Locking screw secures cover and sensor to the mounting plate for tamper resistance.
- Dual simultaneous analog output (V & mA).
- On-board relay (normally open or closed) with adjustable setpoint and dead-band.
- Choice of 9 pre-programmed "standard settings".
- Adjustable settings allow for simple configuration with economizers to deliver specific target cfm/person ventilation rates.
- Simple plug-in PC based user interface program allows for configuring and calibrating the sensor.
- On-board push-button interface and 2 line by 8 character display allows for quick, easy customizing (8002 models only).
- Optional enclosures available for wet and cold temperature environments.
- One-step calibration process (if necessary) can be completed in 5 minutes.
- The sensor includes a conformal coated PCB with a UL94-5V rated enclosure for direct in duct mounting or increased environmental durability.

ABC Logic™ Provides Automatic Calibration

Telaire's 8007 and 8008 commercial CO₂ controllers use the patented **ABC Logic™** (Automatic Background Calibration) self-Calibration system that virtually eliminates the need for manual calibration in applications where the indoor CO₂ level drops to outside levels during unoccupied periods (e.g. during evening hours). **ABC Logic™** is a special software routine in the sensor that

remembers the background readings for 14 consecutive evenings and calculates if there is sensor drift and then corrects for it. **ABC Logic™** will not work properly in applications where the space is unoccupied for less than four hours a day or where there are industrial sources of CO₂ in the building such as breweries or wineries.



Fast One Step Calibration

All 8000 Series CO₂ Sensors feature a fast one step calibration process should it ever be required. A zero calibration can be performed in 5 minutes by flowing gas to the calibration port and activating the calibration routine. If drift occurs in the sensors it usually affects the zero setting of the sensor only. If a full two point calibration is desired, it can be performed using the UIP Program.

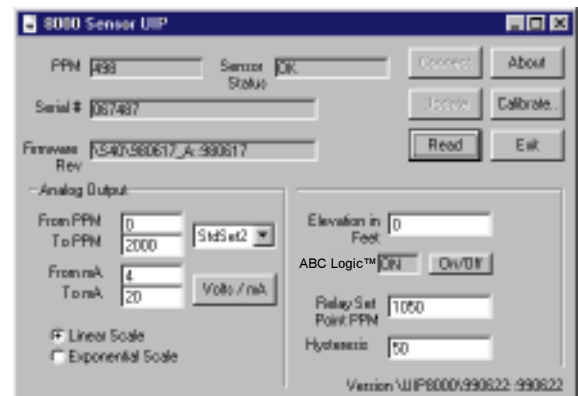
5-Year Calibration Guarantee

Telaire® is serious about calibration stability and backs Ventostat® 8007 and 8008 models with a 5 year calibration guarantee. If a Telaire® 8000 sensor drifts out of calibration range in the first five years of use it can be sent back to Telaire® for a free factory calibration. Further information on the guarantee is provided with every product.

User Interface Program (UIP)

All Ventostat® 8000 series controllers can be connected to a PC using the UIP 2072 easy-to-use Windows® program. Simply connect to the sensor using the on-board RJ45 jack and you can adjust the output scaling, elevation adjustment, relay setpoint, relay

dead-band, select linear or proportional or exponential output, perform single-point or two-point calibration, and check ppm levels. Display units can also be adjusted using the keypad.



CO2 Engineering Specification

The CO2 sensor for demand control ventilation shall be the 8007 or 8008 non-dispersive infrared sensor made by Te-laire® (805-964-1699). The flow-through gas chamber in the sensor should incorporate a reflective, gold plated light pipe, or waveguide surrounded by a gas permeable 10 micron filter of 0.050" thickness that prevents particulate contamination of the sensor. The sensor shall provide simultaneous analog outputs in volts and milliamps and shall have a gold contact relay that can be operated as normally open or closed. All sensor electronics shall be conformal coated for durability. The sensor shall sample duct air through a pitot tube assembly that connects to the sensor through tygon tubing. The sensor shall incorporate elevation correction adjustment and ABC Logic™ (Automatic Background Calibration) software for self-correction of drift to better than ± 10 ppm per year. The sensor shall have accuracy of ± 100 ppm or 7% of the reading (whichever is greater). All adjustments to the sensor including output scaling, elevation adjustment, relay setpoint, relay dead-band, linear or exponential output, and single-point calibration shall be made via computer connected to an on-board RJ45 jack. The 8008 product shall also be adjusted using the on-board push buttons and LCD display. For ease of installation, the sensor shall have a detachable base with all field wiring terminals on the base. This product meets or exceeds specifications for the Model Ventostat® 8002P.

Accessories



2072 UIP Program
For Customizing Settings and Calibration



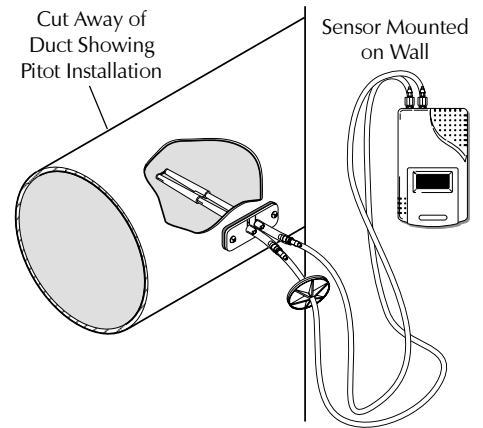
2075 Calibration Kit
For Performing Zero and Span Calibration.



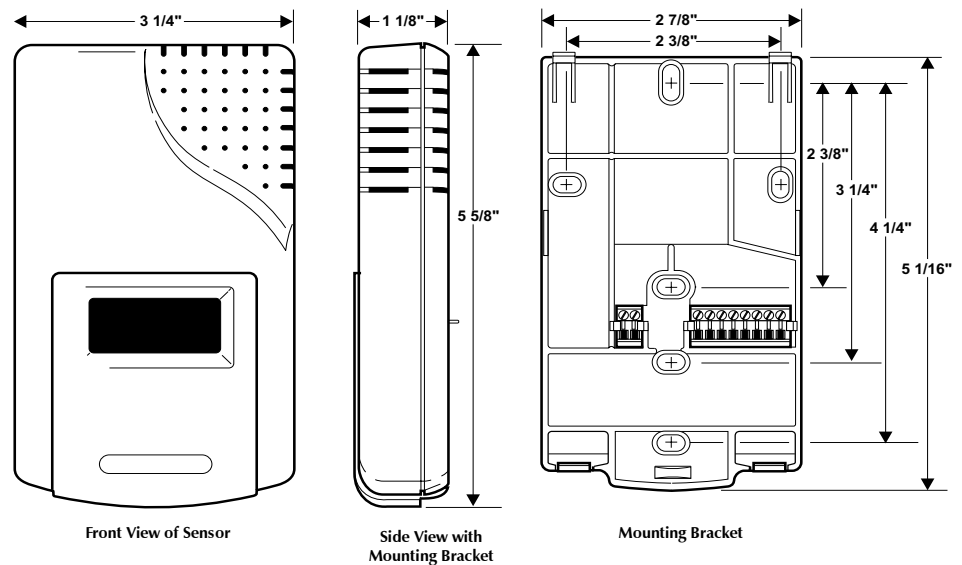
Replacement Bottles
For Replacing 2075 Gas Bottles

Factory calibration available - Call for details.

Installation Sample



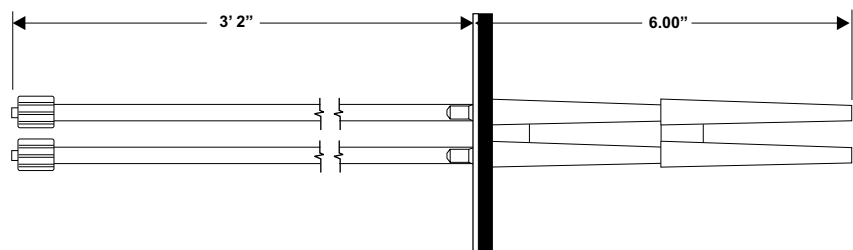
Dimensions - Sensor



Cross-Reference

The Ventostat® 8007 and 8008 controller meets or exceeds the performance specifications and functionality for the Model Ventostat® 8002P and may be used as a direct substitute.

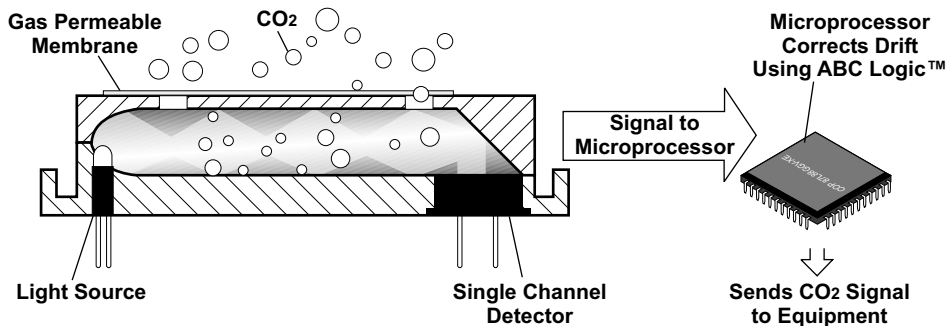
Dimensions - Pitot and Tubing



How The Commercial Grade Sensor Works

Telaire's CO₂ sensor can detect gases based on the fact that gases will absorb light at very specific wavelengths in the infrared spectrum. In the Telaire® sensor, gas diffuses through a gas permeable membrane and into the sample chamber. The gas permeable membrane allows gas molecules to pass freely but prevents the entry of particulates. A light source at one end of the chamber generates a broad band of infrared energy that is directed through the sample chamber. Because much of the light bounces off the gold plated walls of the sensor, a longer effective sample path can be achieved in a small distance.

At the other end of the sensor is a special optical filter installed on top of a light detector. The optical filter is designed to only admit light at the wavelength where CO₂ is known to absorb light. The small change in light intensity caused by a change in CO₂ concentrations is then measured by the detector and converted into a CO₂ measurement by a microprocessor. The microprocessor also automatically calibrates and corrects the sensor for long term drift using Telaire's patented ABC Logic™ self calibration software.



Specifications

Method

Single Beam Absorption Infrared™
Flow-through sample method

Performance

Measurement Range

0-2000 ppm factory default- Adjustable to 10,000 ppm with UIP software kit

Accuracy

±75 ppm or 7% whichever is greater

Elevation (Pressure) Correction

Add 0.13% of reading per mm Hg decrease from 760 mm Hg (On-board correction, user set with UIP software), preset @ 1000 ft above sea level

Response Time 0-90%

<1 minute

Warm-Up Time @ 25°C

<2 minutes

Operating Conditions

15 – 32°C (60-90°F)

0 – 95% RH, non-condensing

Storage Temperature

-40 – 70°C

Agency Certification

FCC Part 15 Class B / CE

Black Case - UL94-5V Rated

Input/Output

Power

18-30 VAC RMS, 50/60 Hz -half-wave rectified
18-42 VDC polarity protected
1.75 VA maximum average power
2.75 VA peak power

Analog Output

0-10 VDC (100 Ohms output impedance)
4-20 mA (RLmax = 500 Ohms)

Both outputs available simultaneously

Relay Output

Normally Open and Normally Closed (wire either way), gold bifurcated, 2A max. @ 24VAC. Adjustable setpoint (with UIP software kit), factory set at 1000 ppm, 50 ppm hysteresis

Wiring

18-28 AWG stranded copper wire only. 2 wires each for power, analog output, relay

Digital I/O

RS-232 interface for use with optional PC software and cable in UIP kit 2072

Warranty/Other

Warranty

18 months parts and labor

Guarantee

5-year calibration guarantee



TELAIRE

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It is our intention to keep the product information current and accurate. We can not cover specific applications or anticipate all requirements. All specifications are subject to change without notice. For more information or questions relative to this Specification Sheet, contact Telaire.

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