TELAIRE®

Telaire T8000-R Series



Wall Mount CO_2 and Temperature Transmitter with Relay

The new Telaire T8000-R series is a new low cost, high performing CO_2 transmitter for the building controls and indoor growers markets. It works seamlessly with building automation systems, and allows you to simply and effectively control fresh air into a ventilated space to meet regulated standards, providing immediate energy savings. Relay control can be used to control fresh air when no building automation system is available. The Telaire 8000-R series can also be used with its built-in relay to control CO_2 producing equipment to assist with plant growth.

Features:

- Patented, Absorption Infrared Gas sensing engine provides high accuracy in a compact low cost package.
- Patented ABC Logic™ self-calibration system eliminates the need for manual calibration in most applications.
- Lifetime CO_2 calibration guarantee when using ABC Logic™.
- Mounting plate with two-piece terminal blocks provide quick, easy wiring.
- Gas permeable, water resistant CO_2 diffusion filter prevents particulate and water contamination of the sensor.
- Locking screw secures cover and sensor to the mounting bracket for tamper resistance.
- Sensors are shipped factory calibrated.
- Modern enclosure
- Conformal coating on 0-5000 ppm models
- Low-cost
- Reliable (20 years of low-cost infrared sensor manufacturing)
- Available CO_2 and Temperature output options:
  Voltage 0-10V or 0-5V (switch selectable)
  Or current 4-20 mA, Relay
- UIP software compatible for customizations
- CE, RoHS, REACH and WEEE compliant
- Lifetime calibration warranty

Amphenol
Advanced Sensors

Controlled Ventilation

Ventilation is an important part of maintaining a comfortable, healthy, productive environment for people. Improper ventilation can have a negative impact on occupant health and performance, increase the risk from litigation, and/or waste energy. Demand-controlled ventilation using CO_2 sensors prevents energy losses from over-ventilation while maintaining indoor air quality. The most energy savings potential is in buildings where occupancy fluctuates during a 24-hour period. Numerous organizations now require and/or recommend CO_2-based ventilation control in different commercial HVAC applications. Some utility companies also offer rebates to building owners for installing CO_2 sensors.

Wall mount sensors are used to control a specific area such as a conference room, classroom, meeting hall, etc. The Telaire 8000-R Ventostat series are easy to install and have a clean, modern look that suits most indoor environments.

Wall Mount Specifications

Sensing Method
- Non-dispersive infrared (NDIR) absorption
- Gold-plated optics
- Patented ABC Logic self calibration algorithm

CO_2 Measurement Range
8100-R 0 to 2000 ppm
8200-R 0 to 5000 ppm
(0 ppm = 0 V, 4 mA)

CO_2 Accuracy
±30 ppm or 3% of the reading shown, whichever is higher *

Active Temperature Accuracy /Range
0-50°C (32-122°F)
±1°C from 15-30°C (±1.8°F from 59 to 86°F)

Power Supply Requirements
18-30 VAC RMS, 50/60 Hz, or 18 to 42 VDC, polarity protected

*AHRAE — regulation 62 states maximum indoor CO_2 level of 1000 ppm

Power Consumption
Typical 0.7 W at nominal voltage of 24V AC RMS

Temperature Dependence
0.2% FS per °C (±0.11% per °F)

Stability
<2% of FS over life of sensor (15 years)

Pressure Dependence
0.135% of reading per mm Hg

**$C0_2$ accuracy statement excludes standard gas used for calibration that has an accuracy of 2%. In addition, there is a potential digital to analog error of up to 2%.*

Warranty
24 months on mechanical defects
Calibration - lifetime warranty (ABC Logic on.)

Certifications
CE EMC, RoHS, REACH and WEEE compliant

Signal Update
Every 5 seconds

CO_2 Warm-up Time
- < 2 minutes (operational)
- 10 minutes (maximum accuracy)

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

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

Flammability Classification
UL94 5VA

Relay
Normally open and normally close contacts

Rated Load
0.50 A at 125 VAC, 1A 24 VDC

Contact Material
Ag + Au-Alloy
Carry current 2 A

Max. Operating Voltage
125 VAC, 60 VDC

Max. Operating Current
1 A

Max. Switching Capacity
62.50 VA

Output

Analog (Temperature and CO_2)
- 0 to 5 V, or 0 to 10 V switch selectable (100 Ω output impedance)
- Or 4 to 20 mA (RL maximum 500 Ω)
- Voltage and current outputs are not available simultaneously
- Digital to analog error ±2%

Sensor Accuracy & Field Calibration

CO_2 ABC Logic Self Calibration

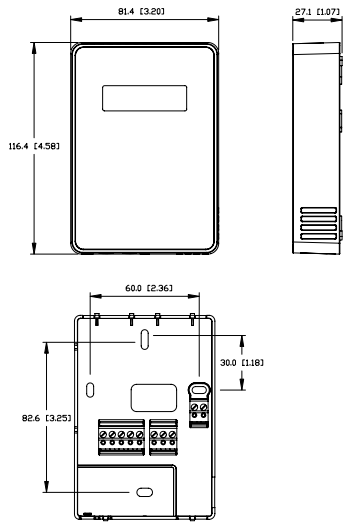
T8100-R sensors employ the patented ABC (Automatic Background Calibration) Logic self-calibration system. ABC Logic virtually eliminates the need for manual calibration in applications where the indoor CO_2 level drops to outside levels during unoccupied periods (e.g. during evening hours). ABC Logic is a special software routine in the sensor that remembers the background readings for 14 consecutive evenings, calculates if there is a sensor drift, and then corrects for it.

With ABC Logic enabled, the sensor will typically reach its operational accuracy after 25 hours of continuous operation at a condition that is exposed to ambient reference levels. Sensors will maintain accuracy specifications with ABC Logic enabled, given that it is at least three times in 14 days exposed to the reference value and this reference value is the lowest concentration to which the sensor is exposed.

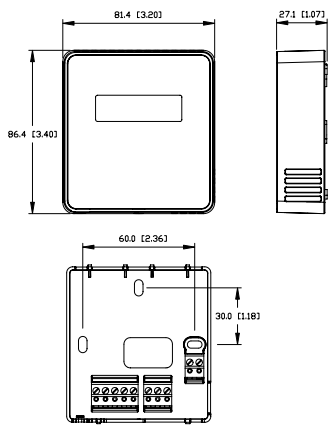
Note: Applies when used in typical indoor ambient air. Consult Telaire if other gases or corrosive agents are part of the application environment.

CO_2 Calibration Guarantee

Telaire is serious about minimizing maintenance, so each T8000-R sensor comes with a lifetime calibration guarantee.



T8100 standard enclosure



T8100-EC smaller Euro enclosure

Relay Settings

Switch #3	Switch #4	CO_2 Relay Threshold and Hysteresis
Down, Low	Down, Low	Factory default setting 800 ppm, 100 ppm
Down, Low	Up, High	1000 ppm, 100 ppm hysteresis
Up, High	Down, Low	1200 ppm, 100 ppm hysteresis
Up, High	Up, High	1500 ppm, 100 ppm hysteresis

Note: Customizable settings available via UIP software T2090.

Accessories

Enclosure Specifications

T1508 Aspiration Box for Duct Mounting

The Model 1508 is designed for in-duct sampling of CO_2 concentrations at flow rates greater than 400 fpm. Clear cover allows for observation of the sensor. They will accommodate any of the T8000-R series, and can be used for temperature and RH when fitted. Enclosure is screwed to the duct with probe inserted into air stream. Air sampling probe is 1-inch (25.4mm) diameter and 8-inch (203.2mm) long. Enclosure (ABS plastic) has knockouts for conduit connection. Note: Wiring penetrations must be sealed prior to use. CO_2 sensor not included.



T1508 Aspiration Box for Duct Mounting

T1505 Splash Resistant Enclosure

The Model 1505 is designed to protect the T8000-R series in damp or wet environments as might occur in agricultural, industrial or food processing environments. This enclosure (ABS plastic) is designed to protect the sensor from dripping or sprayed water. Any wall mount model of the T8000-R series sensor can be installed inside the enclosure. The transparent cover allows for viewing of the sensor/display. Four diffusion ports allow for entry of CO_2. Knockouts are provided for conduit connection. Response time of the sensor is slowed to approximately 30 minutes to measure a 90% step change in concentrations. Enclosure is designed to screw directly to a wall. CO_2 sensor not included.

T1552 Outside Air Enclosure

The Model 1552 is a rugged weatherproof enclosure (ABS plastic), designed to allow the T8100 series sensor to operate in an outdoor environment and/or where ambient temperatures are below freezing. The 1552 is ideal for monitoring outside air or CO_2 as a surrogate for combustion fumes in parking garages, tunnels and loading docks. This enclosure features a temperature control circuit and internal heaters to maintain the sensor within its normal operating temperature range, even if temperatures outside the enclosure are as low as -20°F (-29°C). Four diffusion ports allow for entry of CO_2. Response time of the sensor is slowed to approximately 30 minutes to measure a 90% step change in concentrations. Enclosure is designed to screw directly to a wall. CO_2 sensor not included. Power consumption is 24V, 1.5 Amp (max), and includes the T8100 series.



T1505 Splash Resistant Enclosure and T1552 Outside Air Enclosure

Ventostat UIP Software

The Ventostat UIP software allows you to modify the standard settings on the T8100 series products.

Ordering Information

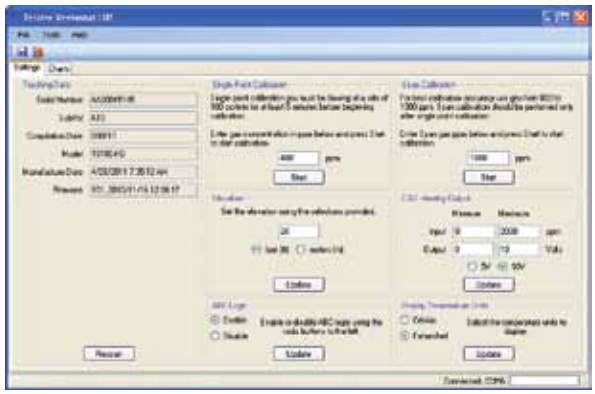
Examples:
T8100 - D - R = US size case 0-2000 ppm
T8100-E-D-GN -5P-R = EU case, no Telaire logo, 0-5000 ppm

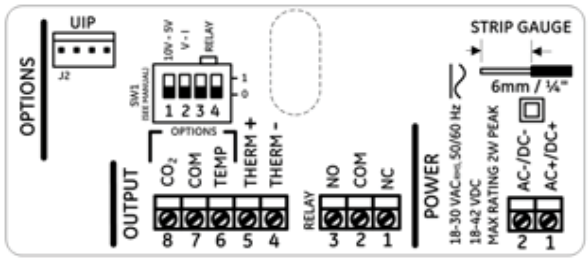
The software features:

- Altitude adjustment for maximum accuracy performance
- Analog output adjustment
- Single point and span gas calibration
- Turn on and off ABC Logic™
- Graphing and logging of CO_2
- Custom relay settings

The software can be used by distributors to make modifications to the T8100 prior to shipping to the customer, as well as to make adjustments in the field. The USB cable supplies power to the Ventostat, negating the need for a separate power supply.

The T2090 UIP software kit is supplied with a USB cable and software CD.





Internal Label

E for Euro case
nothing for US case

GN for no brand

T8100 (0-2000 ppm)	_____ — D--	_____ —	R
T8200 (0-5000 ppm)	_____ — D--	_____ —	5P

Note: Telaire T8100-R uses the Telaire 6613 CO_2 sensor with patented ABC Logic™ self-calibration. T8200-R uses the Telaire 6615 CO_2 sensor with dual channel self calibration. The calibration interval will depend on the installation environment.

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AAS-920-636B-03/2014