

TELAIRE®

Telaire T5100-LED Series



Low-Cost Wall Mount CO₂ Transmitter

The new Telaire T5100-LED series is a new low cost, high performing CO₂ transmitter for the building controls market. It works seamlessly with building automation systems, and allows you to simply and effectively control fresh air into a ventilated space to regulated standards, providing immediate energy savings.

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 CO₂ calibration guarantee when using ABC Logic™.
- Mounting plate with two-piece terminal blocks provide quick, easy wiring.

Amphenol
Advanced Sensors

- Gas permeable, water resistant CO₂ 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
- Low-cost
- Reliable (20 years of low-cost infrared sensor manufacturing)
- Available CO₂ and Temperature output options:
Voltage 0-10V or 0-5V (switch selectable)
Or current 4-20 mA
- UIP software compatible for customizations
- CE, RoHS, REACH and WEEE compliant
- Lifetime calibration warranty
- Two enclosure sizes for regional acceptance

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 CO₂ 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 CO₂-based ventilation control in different commercial HVAC applications. Some utility companies also offer rebates to building owners for installing CO₂ sensors.

Wall mount sensors are used to control a specific area such as a conference room, classroom, meeting hall, etc. The Telaire 5000 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

CO₂ Measurement Range

0 to 2000 ppm
(0 ppm = 0 V, 4 mA)

CO₂ 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 CO₂ 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



*CO₂ 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

CO₂ 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

Output

Analog (Temperature and CO₂)

- 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

CO₂ ABC Logic Self Calibration

T5100-LED 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 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, calculates if there is a sensor drift, and then corrects for it.

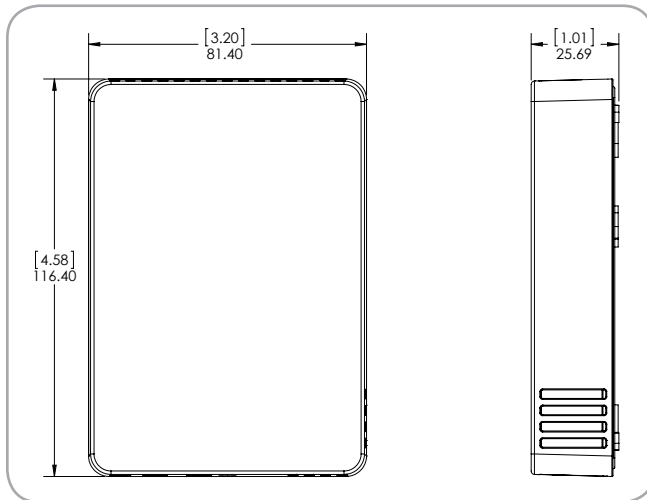
With ABC Logic enabled, the sensor will typically reach its operational accuracy after 25 hours of continuous operation at a condition that is exposed to ambient reference levels. Sensors will maintain accuracy specifications with ABC Logic enabled, given that it is at least three times in 14 days

exposed to the reference value and this reference value is the lowest concentration to which the sensor is exposed.

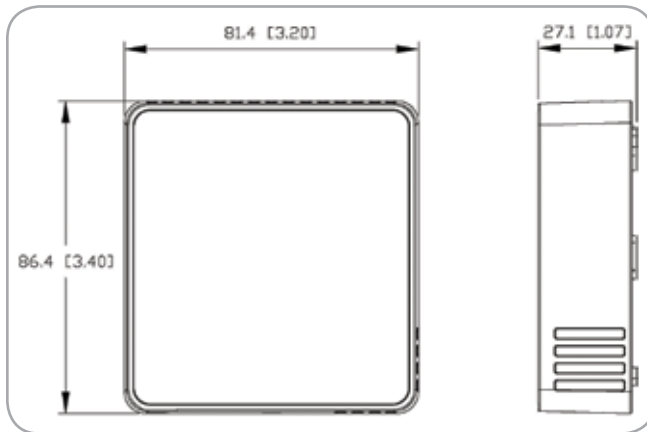
Note: Applies when used in typical indoor ambient air. Consult Telaire if other gases or corrosive agents are part of the application environment.

CO₂ Calibration Guarantee

Telaire is serious about minimizing maintenance, so each T5100 sensor comes with a lifetime calibration guarantee.



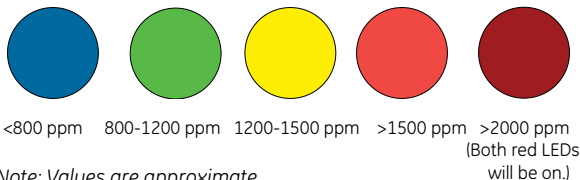
T5100 standard enclosure



T5100-EC smaller Euro enclosure

LED Sequence

Color LEDs in dot mode indicate the level of CO₂ in the environment.



Note: Values are approximate.

Accessories

Enclosure Specifications

T1508 Aspiration Box for Duct Mounting

The Model 1508 is designed for in-duct sampling of CO₂ concentrations at flow rates greater than 400 fpm. Clear cover allows for observation of the sensor. They will accommodate any of the T5100 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. CO₂ sensor not included.



T1508 Aspiration Box for Duct Mounting

T1505 Splash Resistant Enclosure

The Model 1505 is designed to protect the T5100 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 T5100 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 CO₂. 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. CO₂ sensor not included.

