

Self Calibrating - CO₂ Transmitters

With BACnet® or LonMark® Certified Communicating Options



Wall Mount
TR9290

Wall Mount
TR9294

In-Duct Mount
TR9291

Splash Resistant
Wall Mount
TR9293

Aspiration Duct Probe
TR9292

A No Calibration CO₂ Transmitter

The TR9290 family of sensors are quality-engineered CO₂ transmitter targeted at applications where a dependable CO₂ sensor is required that never needs calibration.

Key features of these CO₂ transmitters include:

- ❑ Internal self-calibration method based on background measurement that also eliminates need for outdoor CO₂ sensor.
- ❑ Choice of outputs: 0-10V, 0-5V or 4-20mA and LonWorks®.
- ❑ Built to ISO 9001 standards
- ❑ Mounting options include wall, duct and in-duct.
- ❑ Utilizes a proven infrared measurement technology with over 18 years of flawless operating history.
- ❑ Supported by a team of knowledgeable application specialists. We are just a phone call away if you have questions.
- ❑ LonMark® Certified output option.

AirTest also offers CO₂ sensors that feature self-calibrating dual beam technology, and that integrate CO₂ temperature and humidity in one device. We also have a wide variety of other sensors to measure combustible and toxic gases, humidity, dew point and air velocity. Contact us for more information.

Length Does Matter...

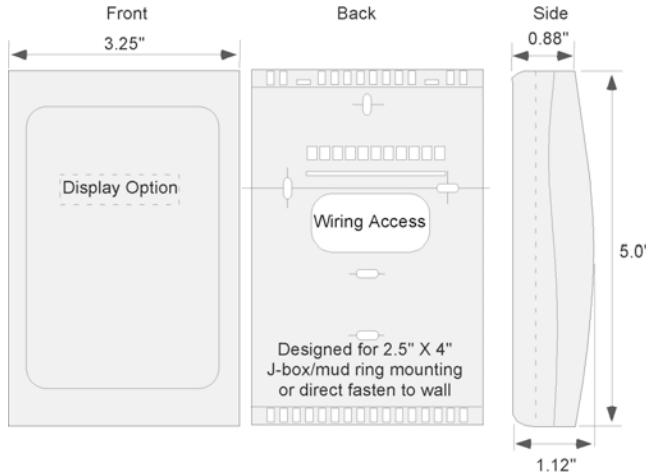
The AirTest CO₂ transmitter has proven itself to be the most trouble free CO₂ product available today. A important reason for this is the unique, patented, oval design of the sensor. All competitive sensors use a straight path of infrared energy shining through an air sample to measure CO₂. The amount of gas that can be sampled, called the "path length" is limited by the size constraints of their wall-mounted and duct-mounted cases.

The AirTest design, using a similar sized case, provides over double the path length of any other CO₂ sensor (4.8") by bouncing the light around the small oval sensor element. Longer path length means that a larger sample of air is measured. In technical terms this results in an increased signal-to-noise ratio. This means that the AirTest sensor performs better at long-term sensor stability and accuracy than other devices.

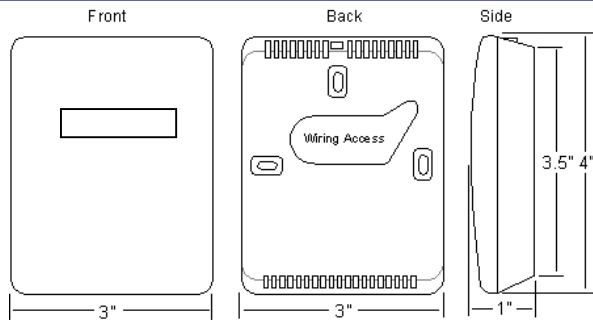
Greater dependability is the ultimate result.



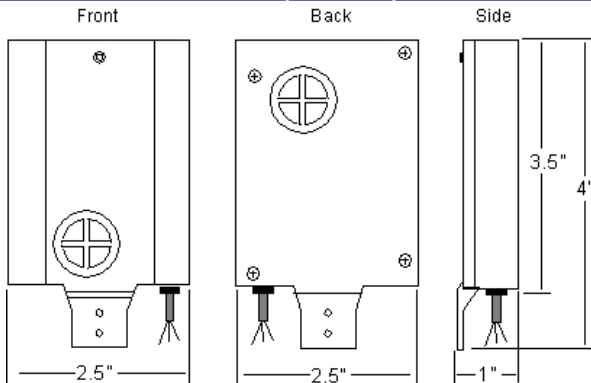
Dimensions TR9294 (New Wall Mount)



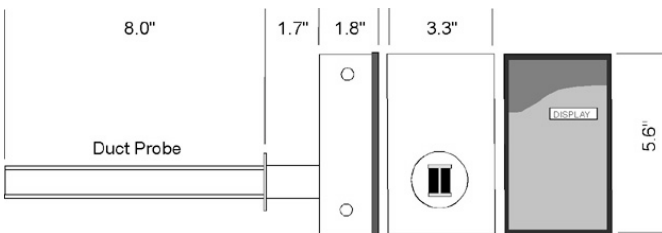
Dimensions: TR-9290 (Wall)



Dimensions: TR-9291 (In-Duct)



Dimensions: TR9292 (Aspiration Duct Probe)



Distributed By:

Specifications

General

CO₂ Detection Method: Gold Plated Non-Dispersive Infrared Optical Sensor with Automatic Baseline Correction for Self-Calibration, 4.8" optical path length, diffusion sampling.

Certification: CE, EMC89/336/EEC, CA Energy Commission, NYSEKDA, LonMark® Certified (V3.4).

Transmitter Rated Life: minimum 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 adjustable to 10,000 ppm upon request),

CO₂ Accuracy: +/- 1% of measurement range +/- 3% of measured value.

Calibration: Self Calibrating, Calibration Not Required

Response Time: T90 = <2 minutes (diffusion), < 15 seconds for flow through.

Power

Input: 24 VAC/VDC ±20%, 50-60 hz (half-wave rectified)

Average Power Consumption: ≤ 1 Watt average

Ground: Analog output transmitters must share common ground with control system.

Outputs

Linear Analog Output: Two simultaneous dual output options available: A) 0-5V & 4-20mA, B) 0-10V & 4-20mA.

LonWorks®: CO₂ ppm & % SNVT (See LonWorks® Specification on next page). LonMark® Certified.

More Information: www.airtest.com/net/Lon.pdf

BACnet® MS/TP:

User Interface: Simple DIP Switch Selection

Output To Host Control: RS485 BACnet® MS/TP

Baud Rates: 9.6K, 19.2K, 38.4K, 57.6K, 76.8K

More Information: www.airtest.com/net/BACnet.pdf

Model Number	Output	Display
TR9290 - Wall (EU-3.5' x 3")	A - 0-5V, 4-20mA	- No Display
TR9291 - In Duct	B - 0-10V, 4-20mA	L - Display ²
TR9292 - Duct Probe	Lon - LonWorks® ¹	
TR9293 - Splash Resistant	BAC - BACnet MS/TP ¹	
TR9294 - Wall (US-3.25 x 5")		

Notes: 1 - Only available on TR9294

2 - Not Available On TR9291



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

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



1/13/12

AirTest LonWorks[®] Specifications

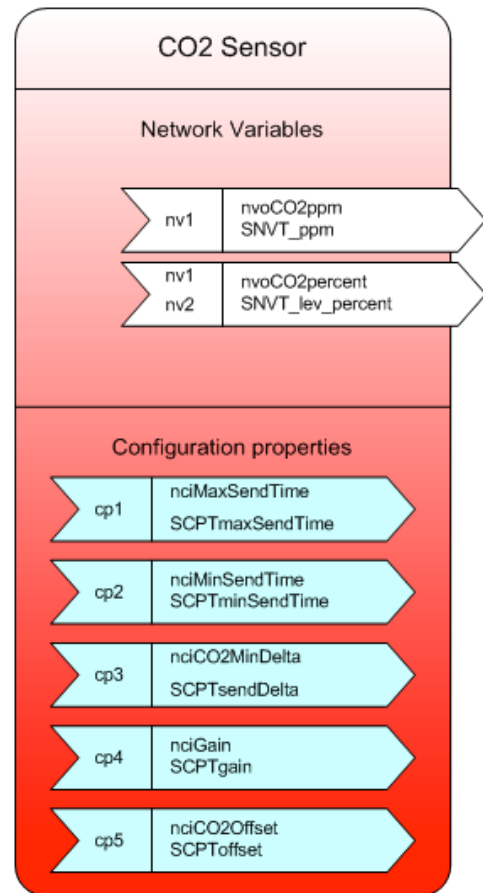
Description: This LonWorks[®] output is only available for the AirTest Model TR9294 wall Mount CO₂ Transmitter. These sensors are all self-calibrating and will not require any maintenance for the life for the sensor (typically 15 years). These sensors provide a CO₂ ppm & % SNVT for 0-2000 ppm CO₂. Other ranges up to 0-10,000 can be factory set.



TR9294-Lon TR9294-L-Lon

LonMark[®] Specification:

AirTest Models: TR9294-L-Lon, TR9294-Lon,
Category: Sensor
Measurement Range: 0-2000 ppm (factory adjustable to 10,000 ppm)
Standard Program ID: 80:00:E5:0A:46:06:04:01
LonMark[®] Version: 3.4
Manufacturer ID: 229
Device Class: CO₂ Sensor (10.70)
Usage: 06 – Residential/Commercial
XIF/DRF Download: www.airtest.ca/support/sw/AirTestLon.zip
Transceiver: 04-TPFT-10
Model: 1
XIF Available: True
DRF available: True
LonMark Objects: 0000 Node object (1), 1070 CO₂ Sensor (1)
Clock Rate: 10 MHz
Power Requirement: 18-30VAC/VDC (1/2 wave rectified) < 1 W average
Object Details: See diagram



AirTest CO₂ BACnet® Specifications

Description:

This BacNet® output is only available for the AirTest Model TR9294 wall Mount CO₂ Transmitter. These sensors are all self-calibrating and will not require any maintenance for the life for the sensor (typically 15 years). These sensors provide a CO₂ ppm output object for 0-2000 ppm CO₂. Evaluated by the BACnet® Interoperability Testing Service (BITS), BACnet® Testing Laboratory (BTL) Certification in progress.



TR9294-?-BAC TR9294-?-L-BAC

TR9294-BAC Overview

The BACnet® objects associated with the TR9294 permits display of current values of the CO₂ transmitter. The BACnet® objects associated with the TR9294 are described below.

BACnet® Device Object

The device object allows the configuration of the TR9294. Object properties can be specified as follows.

BACnet® Device Object	Description
TR9294	This allows the operator to specify the following: Device name Device location Time and Date Universal Time Coordinates Offset APDU properties MS/TP properties Object Identifier

Other BACnet® Objects

BACnet® Objects	Default Present-Value	Range	Description
Analog Input Objects			
CO2 Level (AI1)	Display Only	NA	Displays present CO2 value
Temperature (AI2)	Display Only	NA	Displays present temperature value
Analog Value Objects			
None			
Binary Input Objects			
Pushbutton ID (BI1)	Inactive	Active/Inactive	Pushbutton on sensor module to facilitate identifying and locating
Sensor Error (BI2)	Active	Active/Inactive	Output from raw sensor indicating an error condition
Binary Output Objects			
Remote Calibration Request (BO1)	Inactive	Active/Inactive	optional remote calibration request
ID LED (BO2)	Inactive	Active/Inactive	LED for ID purpose