TRANE®

Product Data

CO$_2$ Sensors
Data Sheet

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Overview

Part numbers: (Duct Mount) X13790423010, VACO2DUCT010, SEN01092 (Wall Mount) X13790422010, VACO2ZONE010, SEN01087

The maintenance-free carbon dioxide (CO_2) sensor is primarily designed for return air based demand-controlled ventilation applications. The exceptional stability and reliable performance comes from advanced silicon-based Non-Dispersive InfraRed (NDIR) technology combined with Automatic Background Calibration (ABC) and passive gas diffusion (no moving parts). The CO_2 sensor is designed to operate from either a 24 Vac or 24 Vdc power supplied from the HVAC controller.
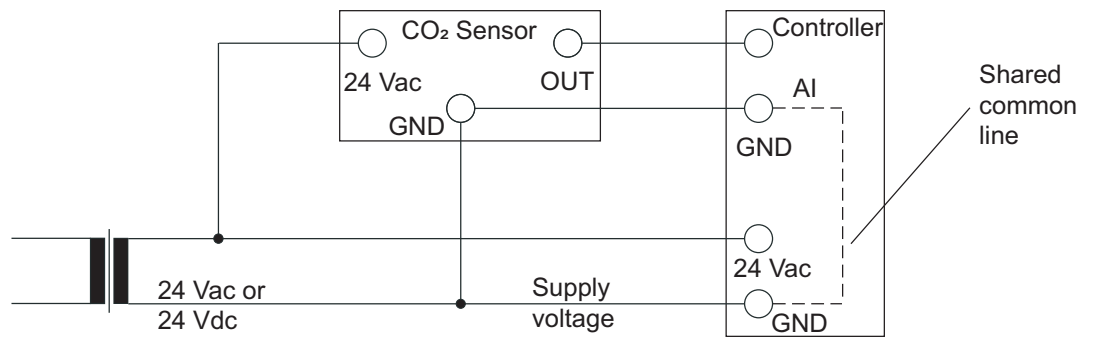
Features and Benefits

Features	Benefits
High accuracy	Reduced energy costs and improved environmental quality
0 to 2000 ppm range	Effective control of CO_2 levels for optimized energy efficiency and air quality
Multiple outputs (0 to 10 V or 4 to 20 mA)	Flexible for use with a wide range of Trane direct digital control (DDC) control
Automatic self-diagnostics	Diagnostic tools are built-in for minimized troubleshooting expenses
Maintenance-free design	Auto-calibration and reduced maintenance costs
Trane wall enclosure	Consistent enclosure designs for improved aesthetics

Specifications

Table 1.   Specifications

Type	Description
Duct mount	3.3 in. x 1.8 in. x 5.6 in. (84 mm x 46 mm x 142 mm)
Wall mount	4.8 in. x 2.9 in. x 1.1 in. (121 mm x 74 mm x 28 mm)
Probe length	8.00 in. (203 mm)
CO_2 range	0 to 2000 ppm CO_2
Accuracy at 25°C	±30 ppm CO_2 +3% of reading (includes repeatability)
Pressure dependence of output	+1.6% of reading per kPa
Annual zero drift	±10 ppm
Recommended calibration interval	None (auto-calibrated)
Response time	< 3 minutes
Operating temperature	From 32°F to 122°F (0°C to 50°C)
Storage temperature	From -40°F to 158°F (-40°C to 70°C)
Humidity range	0 to 85% relative humidity (RH)
Airflow range	0 to 33 ft/s (0 to 10 m/s)
Output signals	• OUT1 (V): 0 to 10 Vdc • OUT2 (I): 4 to 20 mA or 2 to 10 Vdc (jumper controlled)
Resolution of analog outputs	2ppm CO_2 Voltage: Rout < 100 W, RLoad > 5 kW
Recommended external load	Current: RLoad > 500 W
Power supply	Nominal 24 Vac or 24 Vdc
Power consumption	< 1 watt average
Warm-up time	< 1 min @full spec < 15 min
Housing material	ABS (duct), polycarbonate/ABS blend (wall)

Wiring Schematic

CO₂ Sensor

24 Vac   OUT
GND

Controller
AI
GND

24 Vac
GND

Shared
common
line

24 Vac or
24 Vdc

Supply
voltage

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