

Carbon Dioxide (CO₂) Gas Transmitters/Control Systems



I-310e

DESCRIPTION

Microprocessor-based, analog environmental and commercial air quality/carbon dioxide (CO₂) transmitters and control systems.

APPLICATION

To sense the concentration of Carbon Dioxide (CO₂) in air in a wide variety of commercial applications such as demand controlled ventilation in buildings, schools, theaters, etc., and transmit to any compatible electronic analog control, DDC/PLC control or automation system in accordance with ASHRAE standards.

FEATURES

- Continuous monitoring
- Microprocessor-based
- 0-2,000/0-5,000 PPM CO₂ ranges
- 4-20 mA or 0-10 VDC selectable
- Relay output optional w/adj. setpoint
- Digital display, optional
- Simple single-point calibration
- Low cost & easy maintenance
- Executive styled room housing
- 24 VAC or 24 VDC power
- Electrically isolated



SPECIFICATIONS

Electrical

Power supply 20-28 VAC, 18-30 VDC

Power consumption 2.5 VA, max.

Sensor Performance

Gas detected Carbon Dioxide (CO₂)

Sensor element Non-dispersive infrared (NDIR)

Gas sampling method Diffusion or sample draw

Range 0-2,000 PPM CO₂, factory set, adj. to 0-5,000 PPM CO₂

Accuracy ± 5% of reading or ± 75 PPM

Repeatability ± 20 PPM

Altitude dependence Calibrated for sea level, adjustable to altering altitude levels by setting correction multiplier

Drift, max. per year ± 75 PPM @ 1,200 PPM

Response time Less than 1 minute

Calibration interval recommended Three to five years

Calibration adjustment Span only, zero adjustment, automatically self-tuned

Calibration verification procedure time 10 minutes, generally

Sensor life expectancy 10 years, normal service

Type of Control

General Continuous proportional analog sensor signal output

Analog outputs

- CO₂ 0-10 VDC factory set, 4-20 mA, 500 Ohms max., selectable, polarity protected

Warm-up time 3 minutes

Environmental

Permissible ambient

- humidity 0 to 90% RH, non-condensing relate to altitude dependence
- working pressure
- working temperature 32°F to 122°F (0°C to 50°C)
- storage temperature -22°F to 140°F (-30°C to 60°C)

Physical

Enclosure

- material High impact plastic, UL 94 V0
- color White, light grey
- cover Snap-on
- installation Wall (surface) mounted, or single gang electrical box

Dimensions 5.25 x 3.5 x 1.38 in. (134 x 89 x 35 mm)

Cable entry 1 hole on back side of base plate for single gang electrical box mounting

Wire connection Terminal blocks, screw type for lead wire

Wire size Min. 24 AWG (0.25 mm²), Max. 14 AWG (2.5 mm²)

Wire distance Loop resistance 500 Ohms max. (= wire resistance plus controller input resistance)

Weight 0.8 lb. (0.35 kg)

Installation

Surface mount, 4 to 6 feet above floor (1.2 m to 18 m)

Warranty 18 months material and workmanship

OPTIONS

Relay package "R"

High limit control (1) SPST, N.O. or N.C., select.,
 contact rating 2.0 A
 @ 24 VAC/VDC,
 Adj. trip/setpoint over entire span,
 factory set @ 1,000 PPM
 Switching differential 50 PPM, fixed

Digital display "L"

One line liquid crystal display,
 LCD, 0.35 in. (8.9 mm), 4 digits,
 10 PPM resolution

Duct mount package "D"

Enclosure w/inlet and
 outlet ports, duct probe,
 tubing, filter and
 duct mount bracket

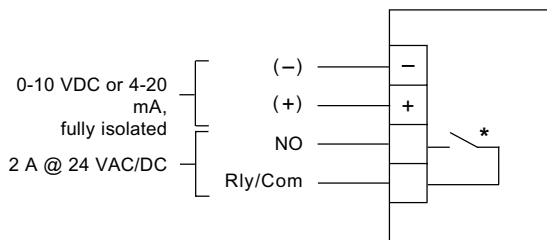
Air velocity requirement minimum 400 ft./min. (3 m/sec)

ORDERING INFORMATION

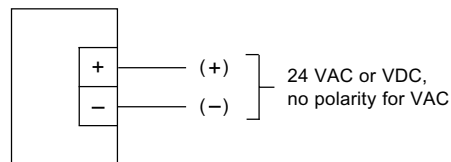
I-310e	Room, surface mount
I-310eR	Room, surface mount, w/relay
I-310eL	Room, surface mount, w/LCD display
I-310eRL	Room, surface mount, w/relay and LCD display
I-310eD	Duct mount
I-310eRD	Duct mount, w/relay
I-310eLD	Duct mount, w/LCD display
I-310eRLD	Duct mount, w/relay and LCD display

WIRING CONFIGURATION

I-310e...



Recommended
 • Twisted, shielded wire



Analog output signal selector

- 0-10 VDC selection
- 4-20 mA selection

* Optional relay, factory set N.O., will close when CO₂ rise above trip/setpoint. Field adjustable to N.C.