

Carbon Dioxide (CO₂) Gas Room Transmitters



I-M307

DESCRIPTION

Carbon dioxide (CO₂) room transmitters with analog output.

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 PPM CO₂, or optional 0-5,000 PPM CO₂ range*
- *0-10 VDC*
- *5-year calibration interval*
- *Simple single-point calibration*
- *Low cost & easy maintenance*
- *Executive style room housing*
- *24 VAC or 24 VDC power*



SPECIFICATIONS

Electrical

Power supply 20-28 VAC, 18-30 VDC
Power consumption 5 VA, max.

Sensor Performance

Gas detected Carbon Dioxide (CO₂)
Sensor element Non-dispersive infrared (NDIR) w/ metal-chromated housing protection

Gas sampling method Diffusion
Range 0-2,000 PPM CO₂, or optional 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 performing one gas auto calibration

Drift, max. ± 100 PPM
Response time Less than 1 minute
Calibration interval recommended (5) Five years
Calibration adjustment Span only, zero adjustment automatically self-tuned

Calibration procedure time 2-3 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
Warm-up time 1 minute

Environmental

Permissible ambient
- humidity 5 to 95% RH, non-condensing
- working pressure relates to altitude dependence
- 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, ABS, UL 94 V0
- color White, satin finish
- cover Snap-on, w/ locking screw for 3/32" allen wrench
- installation Wall (surface) mounted, or single gang electrical box

Dimensions 4.5 x 2.8 x 0.9 in. (114 x 71 x 23 mm)

Cable entry 1 slot on separate base plate for wall (surface) mounted or single gang electrical box mounting

Wire connection 8.5 in (216 mm) pig tail cable, 4 conductors, color coded

Wire size 18 AWG (0.75 mm²)

Weight 0.8 lb. (0.35 kg)

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

Warranty 1 year material and workmanship

ORDERING INFORMATION

I-M307	0-10 VDC, 0-2,000 PPM CO ₂
I-M307-5	0-10 VDC, 0-5,000 PPM CO ₂

WIRING CONFIGURATION

I-M307



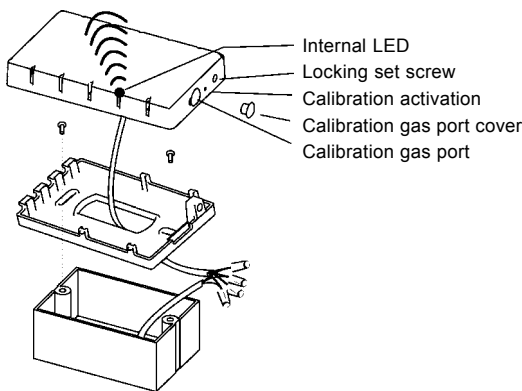
* Inside of transmitters, (-) common of power and signal are bridged

Recommended
• Twisted, shielded wire

- Transmitters powered with AC:
Always use a separate floating transformer when one side of the controllers AC power is not connected to the analog signal common.
“Do not connect 24 VAC to earth ground”
- To verify a requirement of a separate floating transformer perform a continuity check on the controller as follows: Use K Ohms range on meter, power-off the controller and measure between each lead common; if a short occurs between the AC leads and analog signal common, then a separated transformer is not needed.
- Observe polarity on secondary of transformers. All common and signal (-) must be connected in line. Incorrect polarity can cause transmitter damage or operation error.

INSTALLATION & CALIBRATION

I-M307



Transmitter	Signal	CO ₂
I-M307	0 VDC	0 PPM
	1 VDC	200 PPM
	10 VDC	2,000 PPM
I-M307-5	0 VDC	0 PPM
	1 VDC	500 PPM
	10 VDC	5,000 PPM

The I-M307 transmitter is factory calibrated and does not need to be calibrated upon initial installation.

Field calibration:

- Have available appropriate calibration gas cylinder with flow regulator and connection tubing.
- The I-M307 transmitter design provides automatic self-tuned zero adjustment.
- A single point span adjustment for the 0-2,000 PPM CO₂ transmitter is implemented as follows:

“Do not disconnect transmitter power and signal to controller”

1. Remove port cover, connect tubing between gas port and calibration gas cylinder, and supply 2,000 PPM CO₂ calibration gas.
2. Use a thin tool, i.e. paper clip, and press activation button.
3. Keep the activation button pressed until the internal green LED is on.
4. Release the activation button and wait about 1 minute and the LED begins to flash. At this point, shut-off the calibration gas supply, replace the port cover, and the I-M307 is calibrated.

The transmitter will automatically resume operation within 1 minute.