

Carbon Dioxide (CO₂) Gas Transmitters/Control Systems



ITS-M2000



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 for 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

- *Selectable ppm CO₂ ranges*
- *4-20 mA / 2-10 VDC signal*
- *Relay output control*
- *Adj. setpoint for relay control*
- *Digital display standard*
- *Push-button programming*
- *Password protected*
- *Fuse protected*
- *14-year sensor life, normal service*
- *Autozero, high accuracy*
- *2-year calibration interval*
- *2-year warranty*

SPECIFICATIONS

Electrical

Power supply 12-28 VAC, floating, 50/60 Hz, or 15-40 VDC
 Protection One (1) 1.0 A socketed pico fuse
 Power consumption < 2 VA (100 mA)
 250 mA turn-on surge

Sensor Performance

Gas detected Carbon Dioxide (CO₂)
 Sensor element Single beam, non-dispersive infrared (NDIR), thermo compensated aluminum block
 Range 0-2,500 ppm for altitude 300 ft. factory set, adjustable to 0-5,000 or 5,000-0 ppm CO₂, any base and span, in increments of 50 ppm

Resolution 1 ppm CO₂
 Accuracy ± 2% over full range
 Repeatability ± 10 ppm CO₂
 Output drift Max. 2% of full scale/year
 Response time 15-45 seconds to 90% of step change

Sample rate 12 seconds
 Calibration 2 years, applying calibration gas standards
 Sensor life expectancy 14 years, normal service

Type of Control

General Continuous proportional analog sensor signal output, selectable
 Output signal 4-20 mA
 max. impedance 750 Ω
 or 2-10 VDC
 min. impedance 100 kΩ

Relay output (TB3)

- type (1) SPDT, dry contacts
 - contact rating 115 VAC, 30 VDC, 1 A, contact resistance 50 mΩ max.
 - setpoint Adjustable setting, 800 ppm CO₂, factory set
 - switching differential Individual adjustments for cut-in and cut-out, 100 ppm CO₂, factory set
 - time delay 0-60 minutes in 5 minute increments on or off, selectable switching for each (cut-in and cut-out), 0 minute factory set

Digital Display

Programming

LCD, two lines x 8 characters, 1 digit resolution, display CO₂ ppm values
 Alarm level/setpoint set-up, range configuration, differential, and time delay via (3) push buttons and LCD display

Environmental

Permissible ambient
 - humidity 0 to 99% RH, non condensing
 - working temperature 41°F to 104°F (5°C to 40°C)
 - storage temperature 0°F to 122°F (-18°C to 50°C)
 - operating pressure Atmospheric ± 10%

Physical

Enclosure
 - material Polycarbonate, ABS blend, fire-retardant, UL-V0
 - color Cool gray, 2U pantone
 - cover Snap-on, secured by (2) screws
 - protection NEMA 1, general purpose
 - installation Wall (surface) mounted, or

SPECIFICATIONS

Physical (cont...)

Dimensions	single gang electrical box, 4 to 6 feet (1.2 m to 1.8 m) above floor for room version
Cable entry	6.0 x 3.5 x 1.09 in. (152 x 89 x 28 mm)
Wire connection	1 hole on back side of base plate for single gang electrical box mounting
Wire size	Terminal blocks, screw type for lead wire
Wire distance	Min. 26 AWG (0.4 mm ²), Max. 16 AWG (1.3 mm ²)
Weight	Loop resistance 750 Ω max. (= wire resistance plus controller input resistance)
Listings/Approvals	0.5 lbs. (0.3 kg)
Warranty	CSA pending 24 months material and workmanship

OPTIONS

Duct mount package "D"	Standard enclosure w/inlet and outlet ports, duct probe, tubing, and filter
Air velocity requirement	minimum 400 ft./min. (3 m/sec)

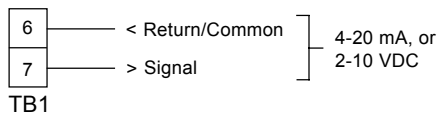
ORDERING INFORMATION

ITS-M2000-Q	Room, surface mount
ITS-M2000-D	Duct mount

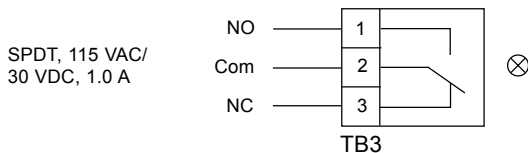
WIRING CONFIGURATION

ITS-M2000

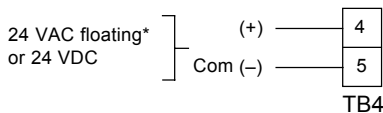
TB1 Analog Signal Output



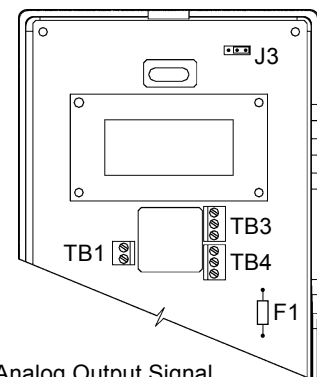
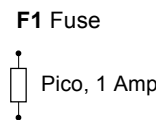
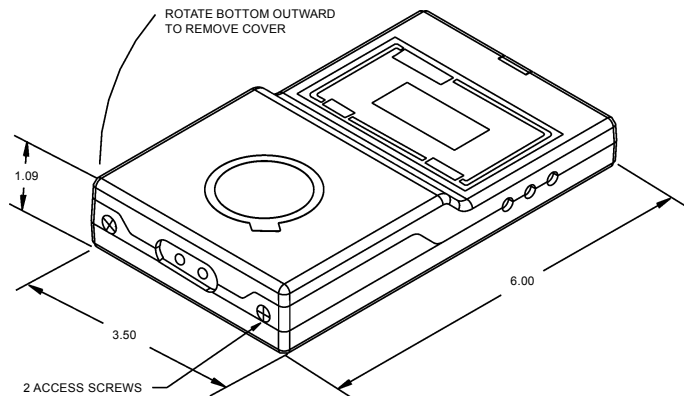
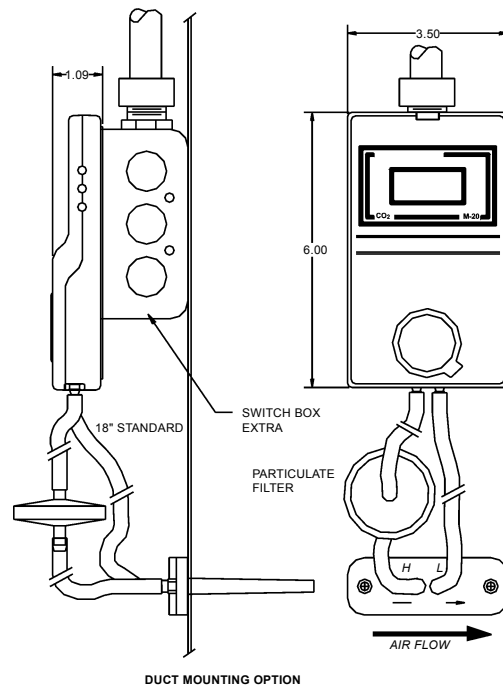
TB3 Relay Output Control w/ Status LED



TB4 Power Supply 24 VAC or 24 VDC



Note: • * Do not connect 24 VAC to earth ground.
• For 3-wire installations, where signal return may be equivalent to power negative or ground, a jumper wire must be supplied between power negative and signal return (terminal 5 and 6). This may be done with 24 VDC systems and AC systems grounded on one side.



J3 Jumper Selector, Analog Output Signal

- 4-20 mA selection (factory set)
- 2-10 VDC selection