Reduce Energy Cost Using On Demand Ventilation

Series CDT Carbon Dioxide and Temperature Transmitters: accurately monitor the CO₂ concentration and temperature in schools, office buildings, and other indoor environments to help achieve LEED® certification. For increased sensor life, a single-beam dual-wavelength non-dispersive infrared (NDIR) sensor is used to automatically correct the measurement in both occupied and unoccupied buildings against aging effects. The single-beam dual-wavelength sensor technology provides the highest level of accuracy compared to Automatic Baseline Correction methods, which can uncontrollably change the calibration based on CO₂ levels and barometric pressure conditions. In order to achieve a higher level of accuracy, the Series CDT includes digital barometric pressure adjustment and the ability to field-calibrate the sensor.

Universal outputs allow users to select the transmitter output to be 4 to 20 mA, 0 to 5 VDC, or 0 to 10 VDC to work with virtually any building management controller. An optional relay with user adjustable set points can be used to control exhaust fans, open actuated windows or dampers, or signal a light or horn.

For applications that require visual indication, the Series CDT can be configured to display temperature only, can be locked out using an internal jumper from accessing the menu items to prevent tampering.

ADVANTAGES
Single Beam Dual-Wavelength Sensor
- Reduces error due to light source aging effects.

DUAL-WAVELENGTH SENSOR
- Provides immediate notification of low CO₂ levels and temperature readings in the duct without having to access the building management system or connect to the transmitter wires.

Remote LCD Display
- Allows one LCD display to be used or multiple transmitters
- Prevents false CO₂ and temperature readings by blocking air flow from unsealed conduit entries
- Reduces installation time by giving the installer more room to work on installing the wires.

Inside View of Duct Mount

**SPECIFICATIONS**
- **Range:** CO₂: 0 to 2000 or 0 to 5000 ppm (depending on model).
- **Temperature:** 32 to 122°F (0 to 50°C).
- **Accuracy:** ±40 ppm + 3% of reading.
- **Temperature Dependence:** ±8 ppm °C / 1100 ppm.
- **Non-Linearity:** 36 ppm.
- **Power Requirements:** 16 to 35 VDC / 19 to 28 VAC.
- **Power Consumption:** Average: 2 watts; Peak: 3.75 watts.
- **Sensor:** Single beam, dual-wavelength NDIR.
- **Output:** Current: 4 to 20 mA (max 500 Ω); Voltage: 0 to 5 VDC or 0 to 10 VDC (max 500 Ω); Relay: SPST NO 2A @ 30 VDC, RTD or thermistor per r-t curves (depending on model).
- **Weight:** 5.6 oz (158.8 g).
- **Agency Approvals:** CE, RoHS.

**ACCESSORY**
- **A-449 REMOTE DISPLAY** Remote LCD Display allows remote indication of CO₂ and temperature readings in the duct without having to access the building management system or connect to the transmitter wires.

**CO₂ Output**
- **Range:** 0 to 5000 ppm CO₂ range
- **Configuration:** Range
- **Options:** Menu items that can be accessed include: engineering units, relay output set points, display configuration, transmitter output scaling, ambient barometric pressure, and field calibration of the transmitter.

**SENSOR ADVANTAGES**
- Automatically corrects for aging effects in occupied and unoccupied buildings.
- Perfect for hospitals and manufacturing plants that are occupied 24 hours per day.
- Measures actual unfiltered light intensity directly.
- Eliminates error from incorrect assumptions of barometric pressure adjustment and the ability to field-calibrate the sensor.

**SENSOR BOARD**
- Prevents false CO₂ and temperature readings by blocking air flow from unsealed conduit entries.
- Reduces replacement labor cost by eliminating the need to wire the replacement transmitter.
- Protects the electronics from damage by blocking air flow from unsealed conduit entries.
- Provides immediate notification if the temperature sensor fails before the CO₂ sensor is used to automatically correct the measurement in both occupied and unoccupied buildings against aging effects.

**REMOVABLE TERMINAL BLOCK**
- Reduces replacement labor cost by eliminating the need to wire the replacement transmitter.
- Protects the electronics from damage by blocking air flow from unsealed conduit entries.
- Provides immediate notification if the temperature sensor fails before the CO₂ sensor

**PROBE GASKET**
- Prevents false CO₂ and temperature readings by blocking air flow from unsealed conduit entries.
- Provides immediate notification if the temperature sensor fails before the CO₂ sensor

**Remote Display Connector**
- Allows one LCD display to be used or multiple transmitters
- Eliminates building occupants questions about proper CO₂ level

**OUTPUT SELECTOR SWITCH**
- Allows installers to select 4 to 20 mA, 0 to 5 VDC, or 0 to 10 VDC output in order to reduce number of stocked models and eliminate ordering mistakes.

**SENSOR ADVANTAGES**
- Provides immediate notification if the temperature sensor fails before the CO₂ sensor

**OPTIONAL RELAY OUTPUT**
- Prevents false CO₂ and temperature readings by blocking air flow from unsealed conduit entries.
- Reduces replacement labor cost by eliminating the need to wire the replacement transmitter.

**LOCK OUT**
- Enables the front buttons from accessing the menu items to prevent tampering.

**FAN GASKET**
- Provides immediate notification if the temperature sensor fails before the CO₂ sensor

**REMOTE DISPLAY CONNECTOR**
- Allows one LCD display to be used or multiple transmitters
- Eliminates building occupants questions about proper CO₂ level

**OPTIONAL RELAY OUTPUT**
- Prevents false CO₂ and temperature readings by blocking air flow from unsealed conduit entries.
- Reduces replacement labor cost by eliminating the need to wire the replacement transmitter.

**REMOTE DISPLAY CONNECTOR**
- Allows one LCD display to be used or multiple transmitters
- Eliminates building occupants questions about proper CO₂ level

**OUTPUT SELECTOR SWITCH**
- Allows installers to select 4 to 20 mA, 0 to 5 VDC, or 0 to 10 VDC output in order to reduce number of stocked models and eliminate ordering mistakes.
**Reduce Energy Cost Using On Demand Ventilation**

**Series CDT**

Series CDT Carbon Dioxide and Temperature Transmitters accurately monitor the CO₂ concentration and temperature in schools, office buildings, and other indoor environments to help achieve LEED® certification. For increased sensor life, a single-beam dual-wavelength non-dispersive infrared (NDIR) sensor is used to automatically correct the measurement in both occupied and unoccupied buildings against aging effects. The single-beam dual-wavelength sensor technology provides the highest level of accuracy compared to Automatic Baseline Correction methods, which can contaminate the calibration based on CO₂ levels and barometric pressure conditions. In order to achieve a higher level of accuracy, the Series CDT includes digital barometric pressure adjustment and the ability to field-calibrate the sensor.

Universal outputs allow users to select the transmitter output to be 4 to 20 mA, 0 to 5 VDC, or 0 to 10 VDC to work with virtually any building management controller. An optional relay with user adjustable set points can be used to control exhaust fans, open actuated windows, or dampers, or signal a light or horn.

**Sensor Advantages**

**Single Beam Dual-Wavelength Sensor Advantages**

- Automatically corrects for aging effects in occupied and unoccupied buildings.
- Precise for hospitals and manufacturing plants that are occupied 24 hours per day.
- Measures actual unfiltered light intensity directly.
- Eliminates errors from incorrect assumptions of gas concentration in theoretical logic assumption methods.

**Advantages**

- **Accuracy:** 1% of reading per month or 0.13% of reading per °C at 1100 ppm CO₂.
- **Non-Linear Error:** ±8 ppm / °C at 1100 ppm CO₂.
- **Temperature Dependence:** ±200 ppm / °C.
- **Range:** CO₂: 0 to 2000 or 0 to 5000 ppm (depending on model).
- **Ambient Operating Humidity:** 0 to 95% RH (non-condensing).
- **Ambient Operating Temperature:** 32 to 122°F (0 to 50°C).
- **Power Consumption:** Average: 2 watts; Peak: 3.75 watts.
- **Sensor:** Single beam, dual-wavelength NDIR.
- **Output:** Current: 4 to 20 mA (max 500Ω); Voltage: 0 to 5 VDC or 0 to 10 VDC (max 500Ω).
- **Relay:** SPST NO 2A @ 30 VDC, RTD or thermistor per r-t curves (depending on model).
- **Weight:** 5 oz (158.8 g).
- **Agency Approvals:** CE, RoHS.

**Specifications**

- **Range:** CO₂: 0 to 2000 or 0 to 5000 ppm (depending on model).
- **Temperature:** 32 to 122°F (0 to 50°C).
- **Accuracy:** ±40 ppm / ±3% of reading.
- **Temperature Dependence:** ±8 ppm / °C at 1100 ppm.
- **Non-Linearity:** ±6 ppm.
- **Pressure Dependence:** 0.53% of reading per mm of Hg.
- **Response Time:** 2 minutes for 99% step change.
- **Ambient Operating Temperature:** 32 to 122°F (0 to 50°C).
- **Ambient Operating Humidity:** 10 to 95% RH (non-condensing).
- **Power Requirements:** 16 to 35 VDC / 19 to 28 VAC.
- **Power Consumption:** Average: 2 watts; Peak: 3.75 watts.
- **Sensor:** Single beam, dual-wavelength NDIR.
- **Output:** Current: 4 to 20 mA (max 500Ω); Voltage: 0 to 5 VDC or 0 to 10 VDC (max 500Ω).
- **Relay:** SPST NO 2A @ 30 VDC, RTD or thermistor per r-t curves (depending on model).
- **Weight:** 5 oz (158.8 g).
- **Agency Approvals:** CE, RoHS.

**Accessories**

- **A-449 Remote Display:** Remote LCD Display allows remote indication of single beam wall mount transmitters.

**Inside View of Wall Mount**

**Inside View of Duct Mount**

**REMOTE DISPLAY CONNECTOR**

- Allows one LCD display to be used or multiple transmitters
- Prevents false CO₂ and temperature readings by blocking air flow from unsealed conduit entries

**PUSH BUTTONS**

- Used to access and navigate display menus that allow users to calibrate the sensor, adjust set points on relay models, and scale the analog outputs
- Provides immediate notification or control based on high or low CO₂ level

**OUTPUT SELECTOR SWITCH**

- Allows installers to select 4 to 20 mA, 0 to 5 VDC, or 0 to 10 VDC output in order to reduce number of stock models and eliminate ordering mistakes
- Prevents human error of installing wrong transmitter on a job
- Reduces error due to light source blocking air flow from duct without having to access the building management system or connect to the transmitter wires

**PROBE GASKET**

- Prevents false CO₂ and temperature readings by blocking air flow from unsealed conduit entries
- Reduces installation time by giving the installer more room to work on installing the wires

**SEPARATE TEMPERATURE SENSOR BOARD**

- Allows replacement of only the temperature sensor output if the temperature sensor fails before the CO₂

**SENSORS**

- Single-beam dual-wavelength NDIR
- 3.75 watts.
- Average: 2 watts; Peak: 3.75 watts.
- Sensor: Single beam, dual-wavelength NDIR.
- Output: Current: 4 to 20 mA (max 500Ω); Voltage: 0 to 5 VDC or 0 to 10 VDC (max 500Ω).
- Relay: SPST NO 2A @ 30 VDC, RTD or thermistor per r-t curves (depending on model).
- Weight: 5 oz (158.8 g).
- Agency Approvals: CE, RoHS.

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