Duct CO2 Sensor

CD2DT Series

The CD2DT CO2 device uses a highly accurate and reliable non-dispersive infrared (NDIR) sensor to monitor CO2 levels. The sensor uses dual wavelength optics and LTA (long term adjustment) signal processing technology to deliver industry leading long-term accuracy and reliability. These technology features ensure optimum measurement stability for both periodic and constant occupancy applications, so the device is equally suitable for the classroom or the hospital room.

PRODUCT HIGHLIGHTS

* Microprocessor based menu setup with LCD
* Field selectable 4-20 mA, 0-5 or 0-10 Vdc outputs
* Reversible analog output signal direction
* Field selectable CO2 measurement span (1000 - 10,000 ppm)
* 24 Vac/dc power supply
* Dual wavelength optics
* LTA (long term adjustment) signal processing technology for long term accuracy
* CO2 accuracy of ± 30 ppm + 3% of measured value
* Transparent cover for LCD viewing
* Configurable LCD backlight and display information
* Test modes for analog output and relay
* Optional integral resistive output temperature sensor (thermistor or RTD)
* Optional temperature display with selectable °C/°F units
* Optional control relay assignable as high or low alarm for either CO2 or temperature
* Programable relay setpoint, hysteresis and time delay
* Operating temperature range of 0 - 50 °C (32 – 122 °F)
* 5-year calibration guarantee
* Field Calibration kit available.

ENGINEERING SPEC’S

* Shall be IP65 (NEMA 4X) with a UL94-V0 rated enclosure
* External mounting tabs must be slotted & tapered away from enclosure to ease field installation
* Enclosure shall be complete with neoprene gasket for duct to enclosure seal
* Enclosure shall be complete with threaded (1/2 NPT and/or M16) conduit connection
* Cover must be hinged and securely attached in the open position
* Operating range must be 0 - 50°C (32 - 122°F)
* Cover must contain security screw as extra protection from opening
* Product shall be CE approved

SPECIFICATIONS

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| Description | CD2DT |
| Gas Type Detected | Carbon dioxide (CO2) |
| Sensor Type | Dual channel non-dispersive infrared (NDIR) |
| Sensor Accuracy | ± (30 ppm + 3% of measured value) |
| Measurement Range | 0-10,000 ppm |
| Temperature Dependency | ±2.5ppm/°C |
| Response Time | 20 seconds (T63) |
| Warm-up Time | 1 minute |
| Sensor Life Span | > 15 years |
| Transmitter Accuracy | ± 0.25% of span (including linearity, hysteresis and repeatability) |
| Power Supply | 24 Vdc ± 20% or 24 Vac ± 10% (non-isolated half-wave rectified) |
| Protection Circuitry | Reverse voltage and transient protected |
| Input Voltage Effect | Negligible over specified operating range |
| Output Signal Type | 4-20 mA (3-wire), 0-5 or 0-10 Vdc (field selectable) |
| Current Consumption (4-20 mA output) | 75 mA @ 24 Vdc max, 150 mA @ 24 Vac max |
| Current Consumption (voltage output) | 50 mA @ 24 Vdc max, 100 mA @ 24 Vac max |
| Output Drive @ 24 Vdc | 550Ω max (4-20 mA output), 10 KΩ min (voltage output) |
| Operating Temperature | 0 - 50°C (32 - 122°F) |
| Storage Temperature | -40 - 70°C (-40 - 158°F) |
| Operating Humidity | 0 to 95 %RH non-condensing |
| LCD Display Units | ppm (CO2), °C/°F (optional temperature) |
| Display Range | 0 - 10,000 ppm, 0 - 50 °C / 32 - 122 °F |
| Display Size | 1.4 x 0.6” (35 x 15 mm) |
| Digit Height | 2 line x 8 character |
| Temperature Sensor (Optional) | See below |
| Temperature Sensor Accuracy | See below |
| Temperature Sensor Range | 0 - 50 °C / 32 - 122 °F |
| Temperature Sensor Output | 2-wire resistive |
| Relay (Optional 2-wire output) | Form A (N.O.), 2 Amps @ 140 Vac / 30 Vdc |
| Enclosure Material | Polycarbonate (UL94-V0) |
| Enclosure Dimension | 116 x 100 x 54 mm (4.6 x 3.9 x 2.1”) |
| Enclosure Protection | IP65 |
| Probe Material | Polycarbonate (UL94-V0) |
| Probe Dimension | 152 x 22.5 mm (6 x 0.85”) |
| Process Connection | 1/2” NPT |
| Wiring | Screw terminal block (14 - 22 AWG) |

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| **Sensor**  **Code** | **Temperature Sensor Description** | **Accuracy** |
| 02 | 100Ω Platinum, IEC 751, 385 alpha, 2/3-wire, Class B | ± 0.3 °C (± 0.54 °F) @ 0 °C (32 °F) |
| 05 | 1,801 Ω NTC thermistor | ± 0.5 °C (± 0.9 °F) @ -20 - 50 °C (-4 - 122 °F) |
| 06 | 3,000 Ω NTC thermistor | ± 0.2 °C (± 0.36 °F) @ 0 - 70 °C (32 - 158 °F) |
| 07 | 10,000 Ω (type 3) NTC thermistor | ± 0.2 °C (± 0.36 °F) @ 0 - 70 °C (32 - 158 °F) |
| 08 | 2.252 KΩ NTC thermistor | ± 0.2 °C (± 0.36 °F) @ 0 - 70 °C (32 - 158 °F) |
| 12 | 1000Ω Platinum, IEC 751, 385 alpha, 2-wire, Class B | ± 0.3 °C (± 0.54 °F) @ 0 °C (32 °F) |
| 13 | 1000Ω Nickel, DIN 43760, 2-wire, Class B | ± 0.4 °C (± 0.72 °F) @ 0 °C (32 °F) |
| 14 | 10,000 Ω (Type 3) NTC thermistor c/w 11 KΩ shunt | ± 0.2 °C (± 0.36 °F) @ 0 - 70 °C (32 - 158 °F) |
| 20 | 20,000 Ω NTC thermistor | ± 0.2 °C (± 0.36 °F) @ 0 - 70 °C (32 - 158 °F) |
| 24 | 10,000 Ω (Type 2) NTC thermistor | ± 0.2 °C (± 0.36 °F) @ 0 - 70 °C (32 - 158 °F) |
| 59 | 10,000 Ω NTC thermistor | ± 1% @ 25°C (77°F), β25/85 = 3435 ± 1% |