



C Series



INDIVIDUAL OR 3-IN-1 CO₂, RH, AND TEMPERATURE

DESCRIPTION

CDL/CWL carbon dioxide (CO₂) sensors maximize energy savings, while helping optimize ventilation. These sensors allow ventilation systems to be controlled by the amount of CO₂ present in a space. The CWL/CDL Series detect fluctuations in CO₂ levels and signal ventilation systems to provide an inlet of fresh air optimal for the space at a given time saving energy and increasing tenant comfort.

FEATURES

- Microprocessor-based design increases accuracy and reduces installation time
- Non-dispersive infrared technology (NDIR) repeatable to ±20 ppm ±1% of measured value...high accuracy measurement
- Innovative self-calibration algorithm...easy to maintain
- 5-year calibration interval (recommended)
- Field-selectable outputs for operation flexibility
- Integrated transducer and probe...eliminates the need to install a separate pick-up tube
- Snap-on faceplate...no screws required, making installation and service easy
- CO₂, humidity, and temperature sensing all in one compact device... fewer units to buy and install

APPLICATIONS

- Controlling ventilation in response to occupancy
- Facilitating compliance with ASHRAE 62.1 standard for air quality
- Office buildings, conference rooms, schools, retail stores, etc.

SPECIFICATIONS

Input Power	Class 2; 20 to 30 Vdc/24 Vac 50/60 Hz; 100 mA max.
Analog Output	4 to 20 mA (clipped and capped)/0 to 5 Vdc/ 0 to 10 Vdc (selectable)
Operating Temp Range: CDL CWL	0 to 50 °C (32 to 122 °F) No humidity option: 0 to 50 °C (32 to 122 °F); With humidity option: 10 to 35 °C (50 to 95 °F)
Operating Humidity Range	0 to 95% RH non-condensing
Housing Material	High impact ABS plastic
Terminal Block Torque: CDL CWL	0.2 N-m (2.0 in-lbf) max. 0.22 N-m (2.0 in-lbf) max.
Terminal Block Wire Size: CDL CWL	28 to 14 AWG (0.5 to 1.5mm ²) 30 to 18 AWG (0.08 to 0.5mm ²)

CO₂ TRANSMITTER

Sensor Type	Non-dispersive infrared (NDIR), diffusion sampling
Output Range	0 to 2000/5000 ppm (programmable)
Accuracy	±30 ppm ±2% of measured value*
Repeatability	±20 ppm ±1% of measured value
Response Time	<60 seconds for 90% step change

RH TRANSMITTER OPTION

HS Sensor	Fully replaceable, digitally profiled thin-film capacitive (32-bit mathematics) U.S. Patent 5,844,138
Accuracy	±2% from 10 to 80% RH @ 25 °C; NIST traceable multi-point calibration
Hysteresis	1.5% typical
Stability	±1% @ 20 °C (68 °F) annually for two years
Output Range	0 to 100% RH
Temperature Coefficient	±0.1% RH/°C above or below 25 °C (typical)

TEMPERATURE TRANSMITTER OPTION

Sensor Type	Solid-state, integrated circuit
Accuracy	±0.5 °C (±1 °F) typical
Resolution	0.1 °C (0.2 °F)
Output Range	10 to 35 °C (50 to 95 °F)

RELAY CONTACTS

1 Form C (SPDT) (on wall models, relay is only available in units without the setpoint slider option)	1 A@30 Vdc, resistive; 30 W max.
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WARRANTY

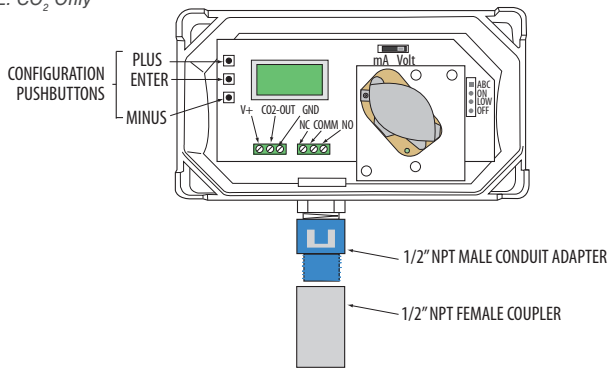
Limited Warranty	5 years
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*RTD/Thermistors in wall packages are not compensated for internal heating of product. EMC Conformance: Low voltage directive 2006/95/EC and EMC directive 2004/108/EC. EMC Special Note: Connect this product to a DC distribution network or an AC DC power adaptor with proper surge protection (EN 61000-6-1:2007 specification requirements). * Measured at NTP
Note: Rough handling and transportation may cause a temporary reduction of CO₂ sensor accuracy. With time, the ABC function will tune the readings back to the correct accuracy range. The default tuning speed is limited to 30 ppm per week.*

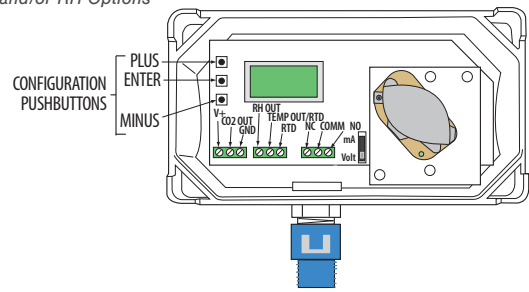


WIRING DIAGRAMS

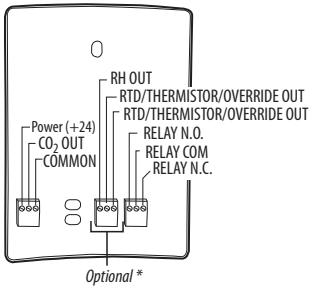
CDL: CO₂ Only



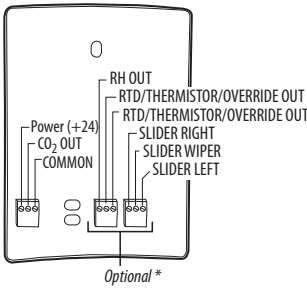
CDL: Temp and/or RH Options



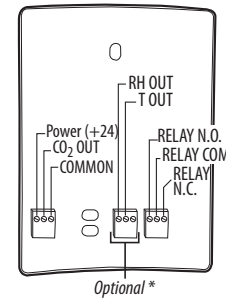
CWL: CO₂, RH, Thermistor, Pushbutton Override, and Relay Options



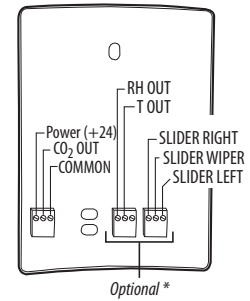
CWL: CO₂, RH, Thermistor, Pushbutton Override, and Setpoint Slider Options



CWL: CO₂, RH, Temperature Transmitter Options, and Relay Options



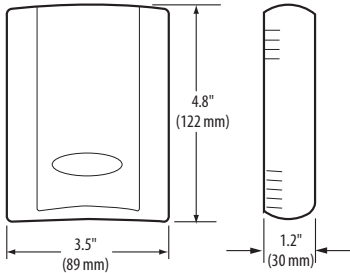
CWL: CO₂, RH, Temperature Transmitter, and Setpoint Slider Options



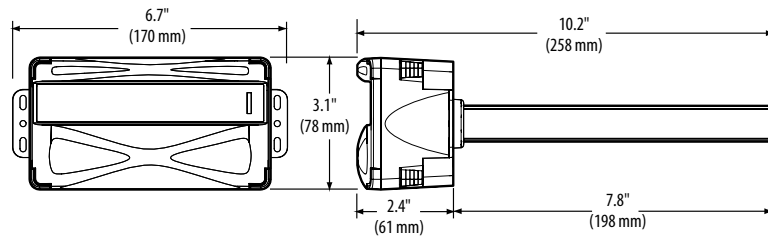
* Note: Connector blocks and headers for optional features are not included with non-option models.

DIMENSIONAL DRAWINGS

CWL Wall Mount



CDL Duct Mount



ORDERING INFORMATION

Duct Mount

RH Option	Temp	Sensor Type	Optional Cal Cert
CDLS <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H = RH2% X = No RH	T = Temp X = No Temp (Stop here)	A = Transmitter B = 100R Platinum, RTD C = 1k Platinum, RTD D = 10k T2, Thermistor E = 2.2k, Thermistor F = 3k, Thermistor G = 10k CPC, Thermistor H = 10k T3, Thermistor J = 10k Dale, Thermistor K = 10k w/11k shunt, Thermistor M = 20k NTC, Thermistor N = 1800 ohm, Thermistor R = 10k US, Thermistor S = 10k 3A221, Thermistor T = 100k, Thermistor U = 20k "D", Thermistor W = 10k T2 high accuracy, Thermistor Y = 10k T3 high accuracy, Thermistor Z = 10k E1, Thermistor	Blank = None 1 = 1 pt Temp Cert 2 = 2 pt Temp Cert

Wall Mount

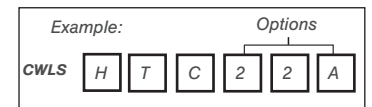
RH Option	Temp	Sensor Type	Temp Cal Cert	Option	Setpoint Slider Value	Housing
CWLS <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
H = RH 2% X = No RH	T = Temp X = No (stop here)	A = Transmitter B = 100R Platinum, RTD C = 1k Platinum, RTD D = 10k T2, Thermistor E = 2.2k, Thermistor F = 3k, Thermistor G = 10k CPC, Thermistor H = 10k T3, Thermistor J = 10k Dale, Thermistor K = 10k w/11k shunt, Thermistor M = 20k NTC, Thermistor N = 1800 ohm, Thermistor R = 10k US, Thermistor S = 10k 3A221, Thermistor T = 100k, Thermistor U = 20k "D", Thermistor W = 10k T2 high accuracy, Thermistor Y = 10k T3 high accuracy, Thermistor Z = 10k E1, Thermistor	X = No 1 = 1pt Temp Cert 2 = 2pt Temp Cert	1 = Push Button Override ** 2 = Set Point Slider 3 = Push Button Override+Set Point Slider	A = 1k F = 10k G = 20k K = 50k M = 100k	Blank = Cloud white B = Black

ACCESSORIES

Calibration kits & gases (AA01, AA26, AA27, AA28, AA29)
Handheld air quality testers (1010, 1008, 770)
Replacement covers and housing for wall units (AA52, AA52B, AA55)



Example:



*The CE mark indicates RoHS2 compliance. Please refer to the CE Declaration of Conformity for additional details.
** The Push Button Override feature is not available with temperature transmitter models. Only resistive temperature models qualify for this feature.