

Deluxe Duct and Wall CO<sub>2</sub> Sensors

## C Series

5 Year  
Warranty

CWL

CDL

Individual or 3-in-1 CO<sub>2</sub>, RH,  
and Temperature

## FEATURES

- Microprocessor-based design increases accuracy and reduces installation time
- Non-dispersive infrared technology (NDIR) repeatable to  $\pm 20$  ppm  $\pm 1\%$  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
- CO<sub>2</sub>, humidity, and temperature sensing all in one compact device...fewer units to buy and install

## DESCRIPTION

CDL/CWL carbon dioxide sensors maximize energy savings, while helping optimize ventilation. These sensors allow ventilation systems to be controlled by the amount of CO<sub>2</sub> present in a space. The CWL/CDL Series detect fluctuations in CO<sub>2</sub> 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.

## SPECIFICATIONS

<b>Input Power</b>	Class 2; 20 to 30VDC/24VAC 50/60Hz; 100mA max.
<b>Analog Output</b>	4-20mA (clipped & capped)/0-5VDC/0-10VDC (selectable)
<b>Operating Temp Range</b>	CDL 0° to 50°C (32° to 122°F) CWL No humidity option: 0° to 50°C (32° to 122°F); With humidity option: 10° to 35°C (50° to 95°F)
<b>Operating Humidity Range</b>	0 to 95% RH noncondensing
<b>Housing Material</b>	High impact ABS plastic
<b>Terminal Block Torque</b>	CDL 0.2N-m (2.0 in-lbf) max. CWL 0.22N-m (2.0 in-lbf) max.
<b>Terminal Block Wire Size</b>	CDL 28-14 AWG (0.5-1.5mm <sup>2</sup> ) CWL 30-18 AWG (0.08-0.5mm <sup>2</sup> )
<b>CO<sub>2</sub> TRANSMITTER</b>	
<b>Sensor Type</b>	Non-dispersive infrared (NDIR), diffusion sampling
<b>Output Range</b>	0-2000/5000 ppm (programmable)
<b>Accuracy</b>	$\pm 30$ ppm $\pm 2\%$ of measured value*
<b>Repeatability</b>	$\pm 20$ ppm $\pm 1\%$ of measured value
<b>Response Time</b>	<60 seconds for 90% step change
<b>RH TRANSMITTER</b>	
<b>HS Sensor</b>	Fully replaceable, digitally profiled thin-film capacitive (32-bit mathematics) U.S. Patent 5,844,138
<b>Accuracy</b>	$\pm 2\%$ from 10 to 80% RH @ 25°C; NIST traceable multi-point calibration
<b>Hysteresis</b>	1.5% typical
<b>Stability</b>	$\pm 1\%$ @ 20°C (68°F) annually for two years
<b>Output Range</b>	0-100% RH
<b>Temperature Coefficient</b>	$\pm 0.1\%$ RH/°C above or below 25°C (typical)
<b>TEMPERATURE TRANSMITTER</b>	
<b>Sensor Type</b>	Solid-state, integrated circuit
<b>Accuracy</b>	$\pm 0.5^\circ\text{C}$ ( $\pm 1^\circ\text{F}$ ) typical
<b>Resolution</b>	0.1°C (0.2°F)
<b>Output Range</b>	10° to 35°C (50° to 95°F)
<b>RELAY CONTACTS</b>	
<b>1 Form C (SPDT) (on wall models, relay is only available in units without the setpoint slider option)</b>	1A@30VDC, resistive; 30W max.

RTD/Thermistors in wall packages are not compensated for internal heating of product.  
EMC Conformance: Low voltage directive 2006/95/EC & 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

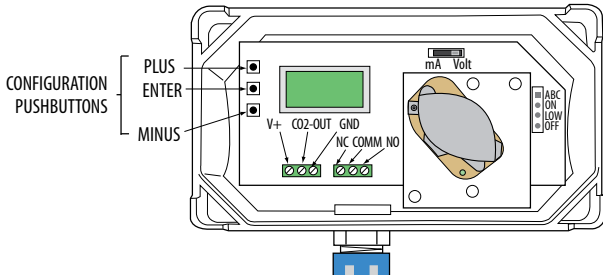
Note: Rough handling and transportation may cause a temporary reduction of CO<sub>2</sub> sensor accuracy. With time, the ABC function will tune the readings back to the correct accuracy range. The default tuning speed is limited to 30 ppm per week.

## APPLICATIONS

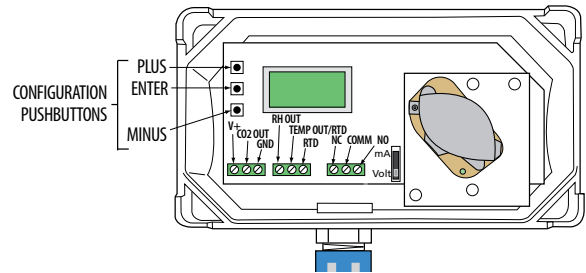
- Controlling ventilation in response to occupancy
- Facilitating compliance with ASHRAE 62.1 standard for air quality
- Office buildings, conference rooms, schools, retail stores, etc.

WIRING DIAGRAMS

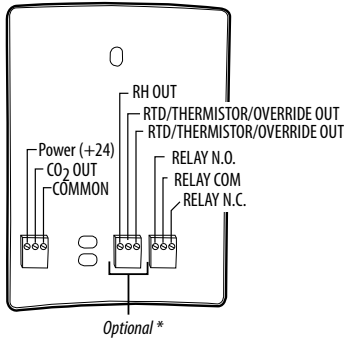
CDL: CO<sub>2</sub> Only



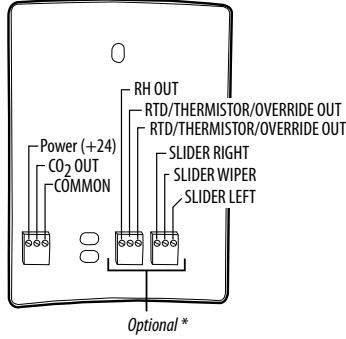
CDL: Temp and/or RH Options



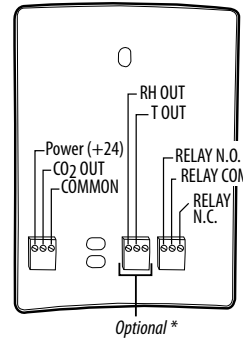
CWL: CO<sub>2</sub>, RH, Thermistor, Pushbutton Override, and Relay Options



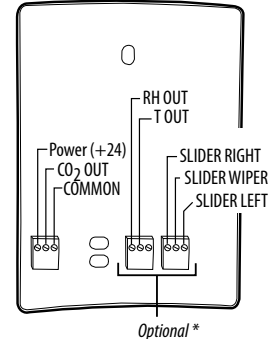
CWL: CO<sub>2</sub>, RH, Thermistor, Pushbutton Override, and Setpoint Slider Options



CWL: CO<sub>2</sub>, RH, Temperature Transmitter Options, and Relay Options

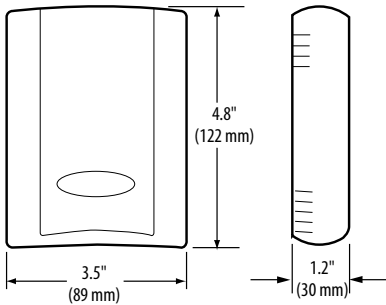


CWL: CO<sub>2</sub>, RH, Temperature Transmitter, and Setpoint Slider Options

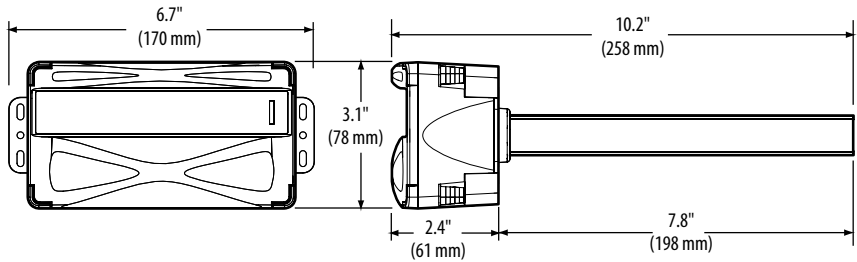


DIMENSIONAL DRAWINGS

CWL Wall Mount



CDL Duct Mount



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

ORDERING INFORMATION



Duct Mount				Wall Mount				Available Options				
RH Option	Temp	Sensor Type	Optional Cal Cert	RH Option	Temp	Sensor Type	Temp Cal Cert	Option	Setpoint Slider Value	Housing		
CDLS <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	CWLS <input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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	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, AA55)

Example: Options

CWLS  H  T  C  2  2  A

\* The Push Button Override feature is not available with temperature transmitter models. Only resistive temperature models qualify for this feature.