

CWE2

CWE2 Analog Series

Economy Wall Mount Air Quality Sensors

Product Overview

The CWE2 Series of air quality sensors for living space are for use with BAS controllers designed to accept 4 to 20mA, 0 to 5 Vdc or 0 to 10 Vdc outputs. These sensors measure CO_2 levels using a dual-beam, non-dispersive infrared (NDIR) technology.

The CWE2 Series Economy sensor has an accuracy of ±30 ppm ±3% of measured value, features 2-wire 4 to 20mA and 3-wire voltage outputs, and is available with optional temperature output.

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⚠ WARNING

HAZARD OF ELECTRIC SHOCK, EXPLOSION OR ARC FLASH

- Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E or CSA Z462.
- This equipment must only be installed and serviced by qualified electrical personnel.
- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage sensing device to confirm power is off.
- Replace all devices, doors and covers before turning on power to this equipment.

Failure to follow these instructions can result in death, serious injury or equipment damage.

This product is intended for use in HVAC and building environmental control applications.
It is not intended for direct medical monitoring of patients.
Read and understand these instructions before installing this product.
The installer is responsible for all applicable codes.
If this product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired. No responsibility is assumed by the manufacturer for any consequences arising out of the use of this material.

Product Identification

User Interface

CWE2 ☐

Blank = None
C = 1000 PT RTD
D = 10K T2 thermistor
H = 10K T3 thermistor
K = 10K curve G/11K shunt
M = 20K NTC thermistor
N = 1.8K TAC thermistor

Specifications

OPERATING ENVIRONMENT	
Input Power	Class 2; 20 to 30 Vdc, 24 Vac, 50 to 60 Hz
Max. Current	20 mA
Analog Output	Selectable 4 to 20 mA, 0 to 5 V, 0 to 10 V
Analog Voltage Output Mode	5kΩ minimum load resistance
Analog Current (mA) Output Mode	500Ω maximum load resistance
Operating Temp. Range	0 to 50 °C (32 to 122 °F)
Operating Humidity Range	0 to 95% RH non-condensing
Housing Material	High-impact ABS plastic
Terminal Block Torque	0.5 to 0.6 N-m (0.37 to 0.44 in-lbf)
IP Rating	IP 30
Mounting Location	For indoor use only. Not suitable for wet locations.
Surface Mount	The device can be surface mounted on Single Gang J-Box, British Standard and CE60 wall boxes
CO_2 TRANSMITTER	
Sensor Type	Dual-beam, non-dispersive infrared (NDIR), diffusion sampling
Output Range	0 to 2000 ppm
Accuracy	±30 ppm ±3% of measured value
Repeatability	±20 ppm ±1% of measured value
Startup Time	≤20 seconds
Response Time	≤ 75 seconds for 90 degree step change

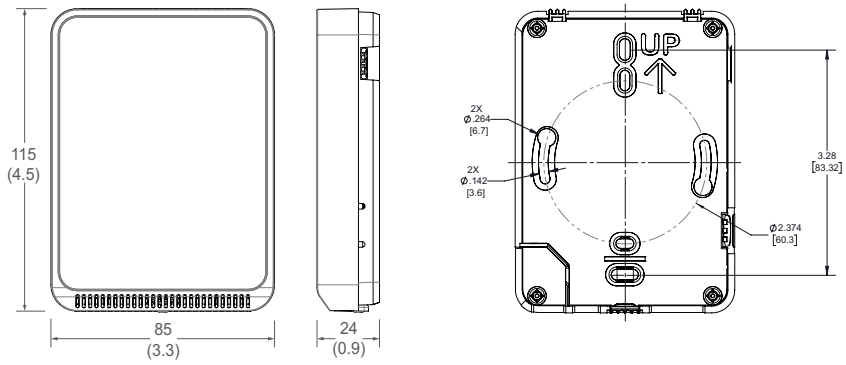
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Specifications (cont.)

Max. Load Resistance*	100 Ω at 20 Vdc 250 Ω at 24 Vdc 500 Ω at 30 Vdc
WIRING TERMINALS	
Terminal Blocks	Screw terminals, 18-24 AWG
Screw Terminal Torque	0.2 N-m (2.0 in-lbF) max.
WARRANTY	
Limited Warranty	3 years
COMPLIANCE INFORMATION	
Agency Approvals	UL 916, European conformance CE: EN61000-6-2 EN61000-6-3 EN61000 Series - industrial immunity EN 61326-1 FCC Part 15 Class B, REACH, RoHS, RCM (Australia), ICES-003 (Canada), UKCA (UK)

** Applicable for CWE2 4-20 mA current mode only. If load parameters are not met, product will reset.*

Dimensions



Functions

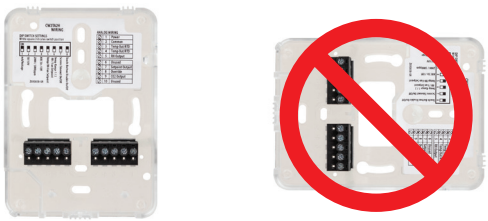
The CWE2 Series sensor measures CO_2 and temperature (if equipped) in a room and provides analog outputs to a controller.

Installation

1. Remove the cover from the base at the bottom of the device.



2. Position the sensor base vertically on the wall 1.35 m (4.5 ft.) above the floor with the "UP" arrow facing upward. Locate away from windows, vents and other sources of draft. If possible, do not mount on an external wall, as this may cause inaccurate temperature readings.

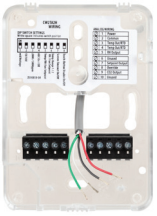


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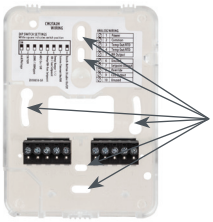
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Installation (cont.)

3. Pull 18 or 22 AWG cable(s) through the hole in the backplate.

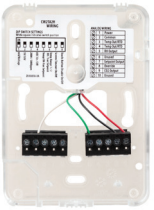


4. Mount the backplate onto the wall using the screws provided.

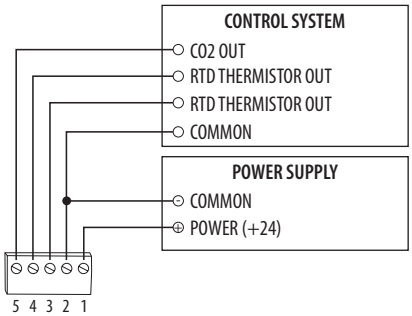


Six screw holes available. Use a minimum of two for secure mounting.

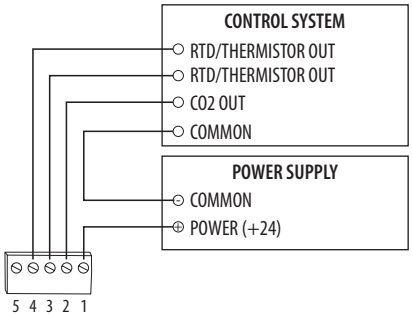
Connect the wires to the screw terminals. Do not over-tighten the screws.



CWE2 voltage output wiring diagram:



CWE2 current output wiring diagram:

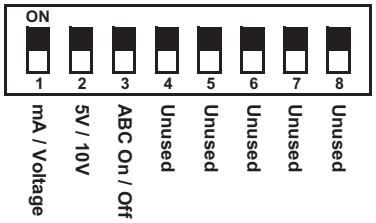


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Installation (cont.)

Set the DIP switches.



Switch	Function	Description
1	Output mode	ON - 4-20mA output mode enabled OFF - Voltage output mode enabled
2	Voltage output range*	ON - 0-5V output range enabled OFF 0-10V output range enabled
3	Automatic Baseline Calibration (ABC) for CO_2	ON - ABC enabled OFF - ABC disabled
4	Unused	Unused
5	Unused	Unused
6	Unused	Unused
7	Unused	Unused
8	Unused	Unused

** Only used with voltage output mode enabled. Not applicable to setpoint output. Setpoint is 0-10V fixed.*

6. With sensor base fully installed, align top of cover to mounting tabs on top of sensor base. Swing cover downward until it latches at the bottom.



7. Install locking screw to secure cover in closed position.



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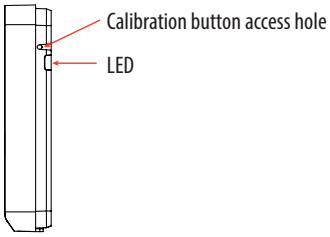
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CO_2 Sensor Calibration

There are two methods for CO_2 calibration available: 400 ppm baseline calibration and automatic baseline calibration (ABC).

400 ppm Baseline Calibration

400 ppm baseline calibration allows the sensor to be set at 400 ppm. Push and hold the calibration button for 3 to 5 seconds. The LED will flash green. Once the button is released, calibration is complete and the LED switches off.



Automatic Baseline Calibration (ABC)

The ABC mode addresses the 400 ppm calibration. It allows turning on or off a background correction/recovery mode that will minimize any calibration error that has been caused by shock during handling and transportation or is caused by a long term shift in measurement. The ABC algorithm constantly keeps track of the sensor's lowest reading over a preconfigured time interval and slowly corrects for any long-term drift detected as compared to the expected fresh air value of 400 ppm. After initial startup, it is expected that the sensor reaches specified accuracy after 7 to 21 days.

China RoHS Compliance Information

Environment-Friendly Use Period (EFUP) Table

部件名称	有害物质 - Hazardous Substances					
Part Name	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr (VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
电子件 Electronic	X	O	O	O	O	O

本表格依据SJ/T11364的规定编制。
O: 表示该有害物质在该部件所有均质材料中的含量均在GB/T 26572规定的限量要求以下。
X: 表示该有害物质至少在该部件的某一均质材料中的含量超出GB/T 26572规定的限量要求。
（企业可在此处，根据实际情况对上表中打 "X" 的技术原因进行进一步说明。）

This table is made according to SJ/T 11364.
O: indicates that the concentration of hazardous substance in all of the homogeneous materials for this part is below the limit as stipulated in GB/T 26572.
X: indicates that concentration of hazardous substance in at least one of the homogeneous materials used for this part is above the limit as stipulated in GB/T 26572

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