



CO₂-VEN

Carbon Dioxide Sensor with Temperature, RH & Relay Options

The CO₂-VEN Series monitors carbon dioxide levels in industrial and living environments from 0 to 2,000 ppm. They offer the installation flexibility of adding analog relative humidity and temperature sensors in a single wall-mounted enclosure. The CO₂-VEN offers multiple analog outputs of 4 to 20 mA, 0 to 5 VDC, and 0 to 10 VDC. The concentration of carbon dioxide is measured using a Single Beam/Non-Dispersive Infrared (NDIR) Absorption sensing method. The carbon dioxide transmitter is also equipped with a patented ABC Logic™ (Automatic Background Calibration) software. This software virtually eliminates the need for manual calibration in applications where the indoor carbon dioxide level drops to outside levels during unoccupied periods. The ABC Logic™ will not work properly in applications where the space is left unoccupied for less than 4 hours a day or where there are industrial sources of carbon dioxide. Units ending with the REL-2K or REL-5K suffixes also offer relay outputs. This allows fresh air into a ventilated space to meet regulated standards, providing immediate energy savings. Relay control can be used to control fresh air when no building automation system is available. The factory default setting is at 800 ppm but can be easily changed to 1,000, 1,200, or 1,500 ppm at the unit. Customizable settings are available via UIP software. In addition, the REL-5K suffix models feature conformal coating for added moisture protection. Analog temperature outputs are limited to 0 to 5 VDC, 0 to 10 VDC, and 4 to 20 mA for the relay option versions.

The A/CO₂-VEN Series is covered by ACI's Two (2) Year Limited Warranty. The warranty can be found in the front of ACI's Sensors & Transmitters catalog, as well as on ACI's web site, www.workaci.com.



SPECIFICATIONS

Supply Voltage	18 to 30 VAC, 50/60 Hz Half-Wave Rectified +18 to 42 VDC, Polarity Protected		
Power Consumption	0.7 W at nominal voltage of 24 VAC RMS typical		
CO2 Analog Output Signals	4 to 20 mA (RL maximum = 500 Ohms) 0 to 5 or 0 to 10 VDC (100 Ohms output impedance)		
CO2 Measurement Range	0 to 2000 ppm		
CO2 Accuracy (400-1250 ppm)	+/- 30 ppm or 3% of reading (whichever is greater)		
CO2 Accuracy (1250-2000 ppm)	+/-5% of reading + 30 ppm		
CO2 Warm-Up Time	< 2 minutes (operational), 25 hours (maximum accuracy)		
RH Accuracy @ 71.5°F (22°C)	+/- 2.5% RH (10 to 90% RH)		
Temperature Outputs	10K type II thermistor (default), 4 to 20 mA, 0 to 5 or 0 to 10 VDC		
Night Setback Override Button	Shorts the thermistor output when depressed (RO & RSO)		
Slide Potentiometer (RSO)	0 to 100KΩ (default), also available: 0 to 1KΩ, 2KΩ, 3KΩ, 5KΩ, 8.5KΩ, 10KΩ, and 20KΩ (contact ACI for details)		
Analog Temperature Range	32 to 122°F (0 to 50°C)		
Analog Temperature Accuracy	+/- 1.44°F @ 71.6°F (+/- 0.8°C @ 22°C)		
Operating Temperature Range	32 to 122°F (0 to 50°C)		
Operating RH Range	0 to 95% RH, non-condensing		
Sampling Method/Sample Rate	Single Beam Infrared Diffusion/Every 5 seconds		
Relay (REL-2K & REL-5K)	Normally open and normally closed contacts		
Relay Settings 1 (Default)	Switch #3: Down, Low	Switch #4: Down, Low	CO2 Relay Threshold & Hysteresis: 800 ppm, 100 ppm
Relay Settings 2	Switch #3: Down, Low	Switch #4: Up, High	CO2 Relay Threshold & Hysteresis: 1000 ppm, 100 ppm
Relay Settings 3	Switch #3: Up, High	Switch #4: Down, Low	CO2 Relay Threshold & Hysteresis: 1200 ppm, 100 ppm
Relay Settings 4	Switch #3: Up, High	Switch #4: Up, High	CO2 Relay Threshold & Hysteresis: 1500 ppm, 100 ppm
Product Dimensions (Room/Duct)	(H) 6.00" (W) 3.50" (D) 1.09"		
Rated Load	0.50A at 125 VAC, 1A 24 VDC		
Contact Material	Ag + Au-Alloy carry current 2A		
Max Operating	Voltage: 125 VAC, 60 VDC Current: 1A		
Max Switching Capacity	62.50 VA		

ORDERING

Select one Configuration (A), one BACnet® Option (If any "Room Mount" was selected as a Configuration (A)) & one Thermistor (C). **NOTE:** Temperature sensors for Duct models do not have the sensing element in the air stream. They are located inside the enclosure and this can affect the temperature output accuracy.

A Configuration	B BACnet™	C Thermistor
<input type="radio"/> R-W (Room Mount-White) (Complete B or C)	<input type="radio"/> BAC (BACnet™)	<input type="radio"/> ---- (10K Type II)
<input type="radio"/> R-B (Room Mount-Black) (Complete B or C)		<input type="radio"/> AN (10K Type III)
<input type="radio"/> RO-W (Room, Override-White) (Complete C)		<input type="radio"/> 20K
<input type="radio"/> RSO-W (Room, Setpoint, Override-White) (Complete C)		<input type="radio"/> 1.8K
<input type="radio"/> R-LCD-W (Room Mount, Display-White) (Complete B or C)		<input type="radio"/> 3K
<input type="radio"/> R-LCD-B (Room Mount, Display-Black) (Complete B or C)		
<input type="radio"/> R-RHT-W (Room Mount, RH & Analog Temp-White) (Complete B or C)		
<input type="radio"/> R-RHT-LCD-W (Room Mount, RH, Analog Temp, Display-White) (Complete B or C)		
<input type="radio"/> R-LCD-W-REL-2K (Room Mount, Relay, 2K ppm) (Not Compatible with B or C)		
<input type="radio"/> R-LCD-W-REL-5K (Room Mount, Relay, 5K ppm) (Not Compatible with B or C)		
<input type="radio"/> D-B (Duct Mount-Black) (For BACnet™ Option Complete B)		
<input type="radio"/> D-LCD-B (Duct Mount, Display-Black) (For BACnet™ Option Complete B)		

BUILD PART NUMBER

After completing corresponding (A), (B) & (C) options from the above table, fill in the Part Number Table below. The Sensor Series is a factory default. An "example" part number is offered.

CO2-VEN	—	—	—
SENSOR SERIES	A	B	C

EXAMPLE: CO2-VEN - R-B - BAC