



# CO2 ROOM

## Sensor with Temperature, Setpoint & Override

The ACI Carbon Dioxide Room Series (A/CO2-R2) monitors the carbon dioxide (CO2) levels in commercial, school, and office-type environments. The concentration of CO2 is a strong indication of the overall indoor air quality. The A/CO2 Series is based on a single beam, non-dispersive infrared technology and is a cost-efficient solution for measuring carbon dioxide levels for building climate control. In addition, ABC software eliminates the need for manual calibration. Carbon Dioxide concentration is measured up to 2,000 ppm and is converted into proportional analog outputs. The factory default outputs are 0-10 VDC (Output 1) and 4-20 mA (Output 2), whereas 0-5 VDC is field selectable via integral dip switches. Thermistor temperature outputs, along with setpoint and override, are available as options for this configuration as well. Please see the order grid for the available sensor options. The A/CO2-R2 Series provides data which can be used in conjunction with a Building Automation System or Demand Control Ventilation to

decrease energy consumption while creating a healthier indoor climate.

**Applications:** Schools, Office Buildings, Auditoriums, Gymnasiums, Shopping Malls, Theatres, Demand Control Ventilation & Economizers

**The CO2 Room Series are covered by ACI's Five (5) 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, [workaci.com](http://workaci.com).**

### PRODUCT SPECIFICATIONS

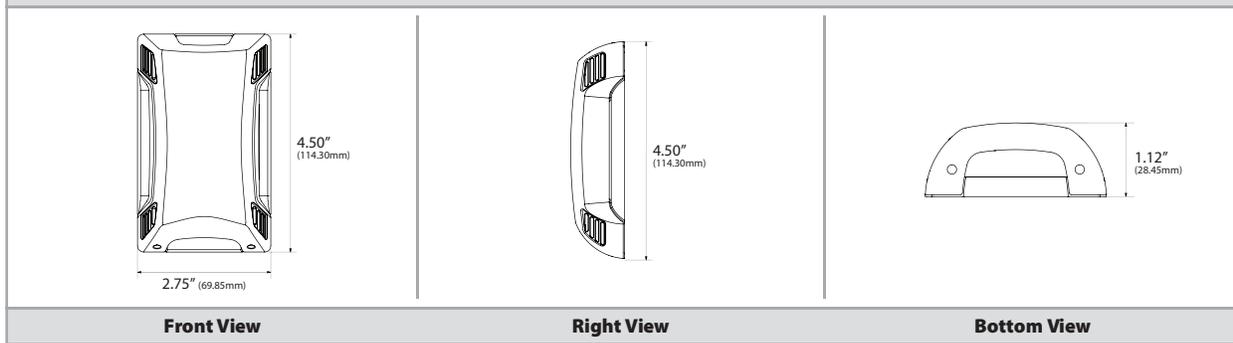
<b>Supply Voltage:</b>	24 VAC +/-20%, 50/60 Hz (half-wave rectifier)   16.5-40 VDC maximum
<b>Power Consumption:</b>	3 VA for 24 VAC, 3W for 24 VDC (peak); <0.9W (average)
<b>Sensing Technology:</b>	Single beam infrared sensing technology (NDIR)
<b>Sensing Method:</b>	Diffusion
<b>Measurement Range Default:</b>	0 to 2,000 ppm
<b>Extended CO2 Ranges:</b>	Up to 10,000 ppm (factory set)
<b>CO2 Accuracy<sup>1</sup>:</b>	+/- 40 ppm and +/- 3% of reading (@ 15-35°C; 20-70% RH and 101.3 kPa)
<b>Extended Range Accuracy:</b>	+/- 30 ppm and +/- 5% of reading
<b>CO2 Output Signal:</b>	<b>Output 1:</b> 0-5 VDC or 0-10 VDC (Default) <b>Output 2:</b> 4-20 mA (500 Ohm load maximum)
<b>Fail Safe:</b>	Polarity protected
<b>Pressure Dependence:</b>	+ 1.6% reading per kPa (deviation from standard pressure 101.3 kPa)
<b>Response Time:</b>	≤ 2 minutes, diffusion
<b>Warm-Up Time:</b>	< 1 Minute (@ full specs < 15 minutes)
<b>Temperature Output Range:</b>	Various (See Ordering Grid)
<b>Temperature Accuracy:</b>	+/- 1°F (+/- 0.6°C)
<b>Operating Temperature Range:</b>	32 to 122°F (0 to 50°C)
<b>Operating Humidity Range:</b>	0 to 95%, non-condensing
<b>Connections   Wire Size:</b>	Screw Terminal Blocks   16 (1.31 mm <sup>2</sup> ) to 26 (0.129 mm <sup>2</sup> ) AWG
<b>Terminal Block Torque Rating:</b>	0.5 Nm (minimum); 0.6 Nm (maximum)
<b>Enclosure:</b>	ABS, Plastic, White, UL94-HB
<b>Sensor Coverage Area:</b>	7,500 sq. ft maximum
<b>Mounting Height:</b>	4-6 ft
<b>Sensor Life<sup>2</sup>:</b>	> 15 years (typical)
<b>Calibration<sup>3</sup>:</b>	ABC algorithm (Automatic Baseline Correction)
<b>Product Dimensions:</b>	(H) 4.50" (114.30 mm) x (W) 2.75" (69.85 mm) x (D) 1.12" (28.45 mm)
<b>Product Weight:</b>	0.230 lbs (0.104 kg)
<b>Agency Approvals:</b>	EMC Directive 2014/30/EC   RoHS Directive 2011/65/EU

**Note 1:** Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note 2:** In normal indoor air quality (IAQ) applications | Corrosive environments are excluded | **Note 3:** Building CO2 levels must drop to 400 ppm some time during the week for ABC to work properly | If the building is occupied 24 hours / day, ABC must be turned off





**DIMENSIONAL DRAWING**



**STANDARD ORDERING**

Model #	Item #	Description
A/CO2-R2	144220	CO2 Room (0-5 VDC, 0-10 VDC, 4-20 mA Outputs)

**CUSTOM ORDERING**

Model # Example: A/CO2 R250 CP A01G 5		MODEL #
		A/CO2
<b>A. Sensor Series</b> <i>No Selection Required</i>	A/CO2	A/CO2
<b>B. Configuration</b> <i>Select One (1)</i>	R2 = Room   R20 = Room with Override*   R25 = Room with Set Point   R250 = Room with Set Point and Override	
<b>C. Temperature Sensor Options</b> <i>Select One (1)</i>	---- (None)   1.8K   3K   AN (Type III)   AN-BC   CP (Type II)   10K-E1   CSI   20K   100KS	
<b>D. Slidepots**</b> <i>Select One (1)</i>	<p><b>Direct Acting</b> (Range in Ohms)</p> <p>A01 = 0 to 100K   A02 = 0 to 20K   A03 = 0 to 10K   A06 = 4.75K to 24.75K</p> <p>A07 = 10K to 30K   A08 = 1K to 11K   A09 = 0 to 2K   A10 = 0 to 1K</p> <p>A11 = 2.05K to 3.05K   A12 = 0 to 400   A16 = 0 to 5K   A18 = 10K to 15K</p> <p>A20 = 6.19K to 26.19K   A26 = 866 to 1,266   A29 = 7.87K to 27.8K</p> <p><b>Reverse Acting</b> (Range in Ohms)</p> <p>A04 = 1051.1 to 51.1   A14 = 10K to 0   A24 = 9.5K to 1K</p>	
<b>E. Setpoint Indication</b> <i>Select One (1)</i>	G5 = BLUE/RED (R2 Enclosure)	

**Note 1:** Override options is Dry Contact (Separate Input) only. Short Sensor is not available by jumpers, only field wiring.

**Note 2:** Other Setpoint configurations are available. Please contact ACI.

**ACCESSORIES ORDERING**

Model #	Item #	Description
A/CUSTOM CAL GAS*	140970	Custom Calibration

**Note:** Contact ACI's Technical Support for custom calibration ranges