# 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 output is 4-20 mA, whereas 0-5 VDC and 0-10 VDC outputs are 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 website, www.workaci.com.**
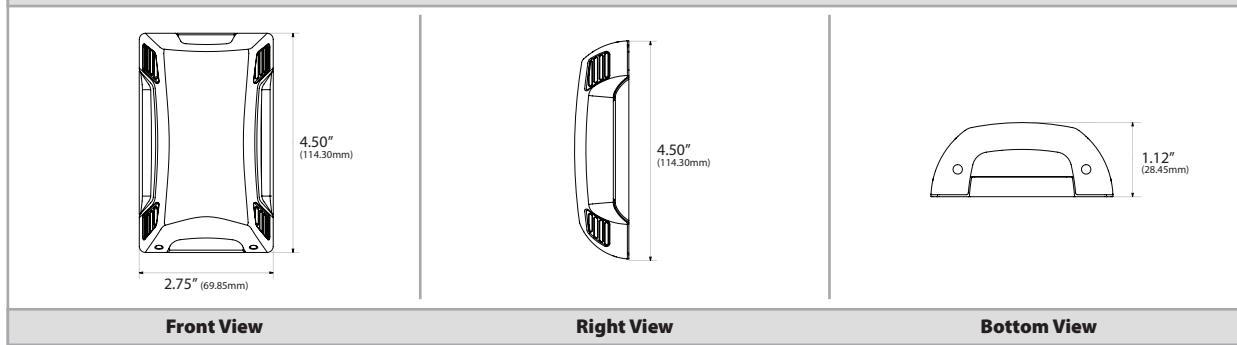
## PRODUCT SPECIFICATIONS

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

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

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## DIMENSIONAL DRAWING

| Front View | Right View | Bottom View |
|---|---|---|
| 4.50" (114.30mm) / 2.75" (69.85mm) | 4.50" (114.30mm) | 1.12" (28.45mm) |

## STANDARD ORDERING

**Model # Example:** CO2_CONFIGURATOR -OR- CO2CONFIG

| Model # | Item # | Description |
|---|---|---|
| A/CO2-R2 | 144220 | CO2 Room (0-5 VDC, 0-10 VDC, 4-20 mA Outputs) |
| CO2_CONFIGURATOR | CO2CONFIG | CO2 Room Configurator for Temperature, Setpoint & Override (0-5 VDC, 0-10 VDC, 4-20 mA Outputs) |

## CUSTOM ORDERING

**Model # Example:** A/CO2-R2 | 1.8K | | | | DC
A. B. C. D. E. F.

| | | MODEL # |
|---|---|---|
| **A. Sensor Series** *No Selection Required* | A/CO2-R2 ⟶ | **A/CO2-R2** |
| **B. Temperature Sensor Options** *Select One (1)* | ---- (None) │ **1.8K** │ **3K** │ **AN** (Type III) │ **AN-BC** │ **CP** (Type II) │ **10K-E1** │ **CSI** │ **20K** │ **100KS** | |
| **C. Potentiometer Options** *Select One (1)* | ---- (None) │ **400 Ohms** │ **1K Ohms** │ **2K Ohms** │ **5K Ohms** │ **10K Ohms** / **20K Ohms** │ **100K Ohms** | |
| **D. Offset Resistor** *Select One (1)* | ---- (None) │ **0 Ohms** │ **51.1 Ohms** │ **499 Ohms** │ **806 Ohms** │ **910 Ohms** │ **1K Ohms** / **2K Ohms** │ **2.05K Ohms** │ **4.75K Ohms** │ **4.99K Ohms** │ **6.19K Ohms** │ **7.32K Ohms** / **7.87K Ohms** │ **8.25K Ohms** │ **10K Ohms** │ **20K Ohms** | |
| **E. Setpoint Indicator** *No Selection Required* | ---- = Blue/Red ⟶ | |
| **F. Override Options** *No Selection Required* | **DC** = Dry Contact (Separate Input) ⟶ | **DC** |

## ACCESSORIES ORDERING

**Model # Example:** A/CUSTOM CAL GAS -OR- 140970

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

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

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CE