



# ASENSE DUCT

## CO2 Duct Sensor with IP65 Rated Enclosure

The ASENSE Duct series monitors the carbon dioxide (CO<sub>2</sub>) levels in industrial, commercial, school, and office type environments. The concentration of CO<sub>2</sub> is a strong indication of the overall indoor air quality. The ASENSE Series is based on a single beam non-dispersive infrared technology and is a cost-optimized solution for the climate control of buildings and other processes. In addition, ABC software eliminates the need for manual calibration. The ASENSE Series measures the CO<sub>2</sub> concentration in the ambient air up to 2,000 ppm and converts the data into an analog output. This data can be used in conjunction with a Building Automation or Demand Control Ventilation System to create a healthier indoor climate. This series features an analog temperature output (32 to 122°F) and come with combined output options of 0-10 VDC and 0 to 20 mA (4 to 20 mA and 2-10 VDC are

field selectable via an onboard jumper) or 0-5 VDC for “-5” versions. A relay option is available for this series as well. The UIP5 software and programming cable offer a configuration/test utility and provide access to the main features of the ASENSE series.

**Applications:** Commercial Office Buildings, Hospitals & Schools

**The ASENSE Duct Series is 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](http://www.workaci.com).**

### PRODUCT SPECIFICATIONS

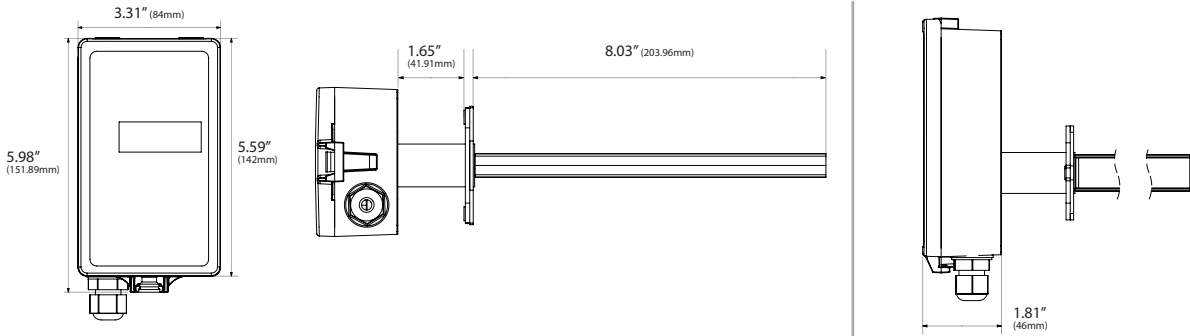
<b>Supply Voltage:</b>	24 VAC/VDC $\pm 20\%$ ; 50/60 Hz, 10.5 to 40 VDC maximum (Half-wave rectified)
<b>Power Consumption:</b>	<1W
<b>Wiring Connections:</b>	0.00232 in <sup>2</sup> (1.5 mm <sup>2</sup> ) screw terminals
<b>Operating Environment:</b>	Residential, commercial, and industrial spaces
<b>Operating Temperature:</b>	32°F to 122°F (0°C to 50°C)
<b>Operating RH:</b>	0 to 85% RH Non-condensing
<b>Warm-Up Time:</b>	<5 minutes (@ full specs 15 minutes)
<b>Accuracy:</b>	<b>CO<sub>2</sub>:</b> $\pm 30$ ppm $\pm 3\%$ of reading   <b>Temperature:</b> $\pm 1.8^\circ\text{F}$ (1°C)
<b>Repeatability:</b>	$\pm 20$ ppm $\pm 1\%$ of measured value
<b>Annual Zero Drift:</b>	$< \pm 0.3\%$ of measurement range
<b>Operating Pressure:</b>	+1.6% per 0.145 psi (1 kPa) deviation from normal pressure   (1 Atmosphere = 14.7 psi (1.013 KPa))
<b>Sensing Method:</b>	Single beam Non-dispersive Infrared (NDIR)
<b>Sensor Life<sup>1</sup>:</b>	>15 years
<b>Response Time (T1/e):</b>	<10 seconds @ 30 cc / minimum flow rate, <3 minutes diffusion time
<b>Sensing Range:</b>	<b>CO<sub>2</sub>:</b> 0 to 2000 ppm   <b>Temperature:</b> -4 to 140°F (-20 to 60°C)
<b>Extended CO<sub>2</sub> Ranges:</b>	2000 to 10,000 ppm (factory set or programming cable required)
<b>Extended Range Accuracy:</b>	+/- 30 ppm and +/- 5% of reading
<b>Coverage Area:</b>	7500 sq. ft. maximum
<b>Self-Diagnostics:</b>	Complete function check, yellow LED; LCD error indication (display model only)
<b>Display (Optional):</b>	4 digits, 7 segments LCD with ppm indicator
<b>Calibration<sup>2</sup>:</b>	Senseair ABC algorithm (Automatic Baseline Correction)
<b>Outputs:</b>	<b>Out 1 (CO<sub>2</sub>):</b> 0/2 to 10V, 0/4 to 20 mA, 0 to 2000 ppm <b>Out 2 (Temperature):</b> 0/2 to 10V, 0/4 to 20 mA, 32 to 122°F (0 to 50°C) <b>Out 3:</b> N.O. or N.C. rated 0.5A @ 125 VAC; 1A @ 24 VDC
<b>Relay (Optional):</b>	1000 ppm (factory set)
<b>Relay Trip Point<sup>3</sup>:</b>	100 ppm (factory set)
<b>Relay Deadband/Hysteresis:</b>	100 ppm (factory set)
<b>Relay Durability:</b>	<b>Mechanical:</b> 5,000,000 operations minimum (at 36,000 operations/hr) <b>Electrical:</b> 100,000 operations minimum (under rated load, at 1,800 operations/hr)
<b>Storage:</b>	<b>ASENSE-D:</b> -40 to 158°F (-40 to 70°C)   <b>ASENSE-D-LCD:</b> -4 to 122°F (-20 to 50°C) 0 to 85% RH Non-condensing
<b>Enclosure:</b>	<b>Duct Box:</b> PC & ABS blend, Flammability Rating UL94V-0 <b>Cover:</b> Makrolon® 6555 plastic, Flammability Rating UL94V-0 <b>Pipe:</b> PC & ABS blend, Flammability Rating UL94V-0
<b>Product Dimensions:</b>	(H) 5.95" (151.9 mm) x (W) 3.33" (84.6 mm) x (D) 1.85" (47 mm)
<b>Product Weight:</b>	0.812 lbs (0.368 kg)
<b>Agency Approvals:</b>	EMC Directive 2014/30/EC, RoHS Directive 2011/65/EU & RoHS 3 Directive 2015/863/EU

**Note <sup>1</sup>:** Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note <sup>2</sup>:** In normal Indoor Air Quality (IAQ) applications | Corrosive environments are excluded | **Note <sup>3</sup>:** Building CO<sub>2</sub> levels must drop to 400 ppm some time during the week for ABC to work properly | If the building is occupied 24 hrs/day, ABC must be turned off | **Note<sup>4</sup>:** Changes can be made using TTL-232R-3V3 cable and UIP5 software





DIMENSIONAL DRAWING



Front & Top Views

Right View

STANDARD ORDERING

Model # Example: ASENSE-D-5 -OR- 133507

Model #	Item #	Description
ASENSE-D-LCD	135205	CO2, Duct Mount with Display, 0-10 VDC or 0-20 mA Output, 4-20 mA or 2-10 VDC Field Selectable
ASENSE-D-LCD-REL	130532	CO2, Duct Mount with Display, Relay, 0-10 VDC or 0-20 mA Output, 4-20 mA or 2-10 VDC Field Selectable
ASENSE-D-REL	131190	CO2, Duct Mount, Relay, 0-10 VDC or 0-20 mA Output, 4-20 mA or 2-10 VDC Field Selectable

ACCESSORIES ORDERING

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

Model #	Item #	Description
A/CUSTOM CAL GAS*	140970	Custom Calibration
TTL-232R-3V3	134207	Programming Cable
UIP5	----	Free Software Download (Contact ACI)

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

