



TSENSE

CO2 Sensor with Temperature, RH & Display

The TSENSE is an advanced and versatile 3 in 1 transmitter designed for installation in air conditioned zones. It measures carbon dioxide, temperature and relative humidity and features analog and relay outputs or communication protocols of BACnet™ or Modbus, depending on the application specifications. The TSENSE-LCD features a touch screen menu and is suitable for use in numerous energy efficiency strategies for commercial office buildings, hospitals, hotels, schools and other facilities. The TSENSE incorporates a NDIR (non-dispersive infrared) technology and complies with ASHRAE 189.1 allowing for a comfortable and healthy

environment for the occupants. (TSENSE units can be configured in the field using the touch screen key pad or by UIP5 software via a USB to serial adapter cable with a 3.5 mm audio jack).

Applications: Commercial Office Buildings, Hospitals & Schools

The TSENSE Series Gas Transmitters 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:	12 VDC, 24 VAC/VDC, ±20%; (Half-wave rectified) (50-60 Hz)
Power Consumption:	<0.35W average non-display, <0.6W display version, <2W maximum
Electrical Connections:	0.00232 in ² (1.5 mm ²) screw terminals
Operating Environment:	Residential and Commercial spaces
Operating Temperature:	32°F to 122°F (0°C to 50°C)
Operating RH:	0 – 95% RH Non-condensing
Warm-Up Time:	1 minute (@ full specs 15 minute)
Coverage Area:	7500 sq. ft. maximum
Pressure Dependence:	+1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmosphere = 14.7 psi (1.013 KPa))
Maintenance Interval:	Maintenance free
Mounting Height:	4-6' off the floor
Self-Diagnostics:	Complete function check
Display (Optional):	Touch display, configurable color LCD with CO2 (PPM), Temperature (°F or °C), and Humidity (%RH)
Storage:	-22° to 158°F (-30° to 70°C)
CO2 Accuracy 1:	±50 ppm (@ 1000 ppm, 63 to 82°F (17 to 28°C), 30 to 60% RH) Typical full range ±30 ppm ±3% of reading (CO2)
CO2 Sensing Method:	Single beam non-dispersive Infrared (NDIR)
CO2 Sensor Life 2:	>15 years (typical)
CO2 Response Time (T1/e):	<3 minute diffusion time
CO2 Sensing Range 3:	0 to 2000 ppm (CO2), optional 0 to 3000 ppm
Extended Range Accuracy:	Typically < (+/- 30 ppm +/- 20% of measured value)
CO2 Repeatability:	±20 ppm ±1% of measured value
CO2 Annual Zero Drift:	± 0.3% of measurement range
CO2 Calibration 3:	Senseair ABC algorithm (Automatic Baseline Correction)
Temperature Range:	32 to 122°F (0 to 50°C)
Temperature Accuracy:	±0.9°F @ 63 to 82°F, (±0.5°C @ 17 to 28°C) ±1.8°F @ 32 to 122°F, (±1.0°C @ 0 to 50°C)
Temperature Repeatability:	±0.45°F @ 63 to 82°F, (±0.25°C @ 17 to 28°C)
Temperature Response Time:	<6 minutes (Air velocity of 0.15m/s)
RH Sensor:	Capacitive
RH Measurement Range:	0 – 100%
RH Accuracy:	±5% @ 20 to 80% RH
RH Hysteresis:	±1% @ 20 to 80% RH
RH Annual Drift:	<±0.5% RH
RH Repeatability:	±0.25% RH @ 63 to 82°F, (±0.25% RH @ 17 to 28°C)
RH Response Time:	<6 minutes (Air velocity of 0.15m/s)

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 hrs/day, ABC must be turned off | Changes can be made using TTL-232R-3V3 cable and UIP5 software

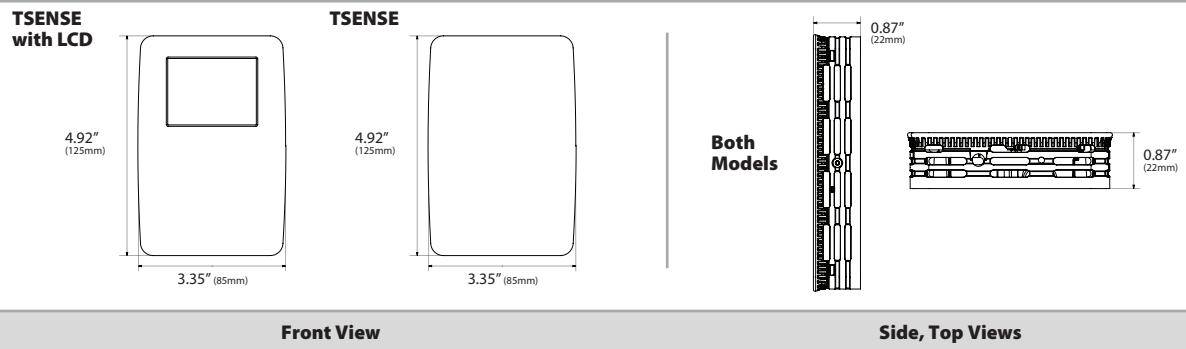




PRODUCT SPECIFICATIONS *continued*

RH Analog Outputs:	Out 1 (CO₂): 0 to 10V, 0 to 2000 ppm at the terminals, Out 2 (Temperature): 0-10V, 32 to 158°F, (0 to 50°C) at the terminals Out 3 (RH): 0 to 10V, 0 to 100% RH at the terminals
RH Output Signal:	Voltage Output: 0 to 10V, R out <100Ω, Load: >5KΩ
RH Output Resolution:	10-bits, 10 mV/step
Relay Trip Point (CO₂):	1000 ppm (factory set)
Relay Deadband / Hysteresis:	100 ppm (factory set)
Relay Type:	Form C, DPDT 1A @ 50 VAC / 24 VDC
Relay Durability:	Mechanical: 100,000,000 operations minimum (@ 36,000 operations / hour) Electrical: 100,000 operations minimum for AC (@ 1,800 operations / hour with rated load) 100,000 operations minimum for DC (@ 1,200 operations / hour with rated load)
Communication Protocol:	Modbus RTU or BACnet MS/TP
Baud Rates:	9600, 19200, 38400, 57600
BACnet MAC Address:	0 to 127 (Default 104)
Enclosure:	Bayblend FR3000 (PC & ABS blend), Flammability rating UL 94V-0
Enclosure Dimensions:	(H) 4.92" (125 mm) x (W) 3.35" (85 mm) x (D) 0.87" (22 mm)
Agency Approvals:	EMC directive 2004/108/EC, Rohs directive 2011/65/EU, complies with ASHRAE 189.1

DIMENSIONAL DRAWING



STANDARD ORDERING

Model # Example: TSENSE-LCD -OR- 135458

Model #	Item #	Description
TSENSE-LCD	135458	TSENSE Transmitter with LCD
TSENSE	135459	TSENSE Transmitter, Standard (No LCD)

ACCESSORIES ORDERING

Model # Example: TTL-232R-3V3-AJ -OR- 137011

Model #	Item #	Description
A/CUSTOM CAL GAS*	140970	Custom Calibration
TTL-232R-3V3-AJ	137011	USB to Serial Programming Cable, 3.5 mm Audio Jack
UIP5	---	Free Software Download (Contact ACI)

