



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. The TSENSE-LCD can be configured through the touch screen or with the TTI-232R-3V3-AJ programming cable and UIP5 software. **The TSENSE without LCD must use the TTL-232R-3V3-AJ programming cable and UIP5 software to change settings or for BACnet or Modbus communication.**

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 web site, workaci.com.

PRODUCT SPECIFICATIONS

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| 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 mins) |
| Coverage Area: | 7500 sq. ft. maximum |
| Pressure Dependence: | ±1.6% per 0.145 psi (1 kPa) deviation from normal pressure (1 Atmospher = 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°F to 158°F (-30°F to 70°F) |
| Analog Output: | Out 1 (CO2): 0 to 10V, 0 to 2000 ppm Out 2 (Temperature): 0-10V, 32°F to 122°F (0°C to 50°C) Out 3 (RH): 0 to 10V, 0 to 100% RH |
| Analog Output Signal: | Voltage Output: 0 to 10V, R out <100Ω, Load: >5KΩ |
| Analog Output Resolution: | 10-bits, 10mV/steps, , 0.1% steps of full ppm/°C/%RH range |
| CO2 Accuracy¹: | ±50 ppm (@ 1000 ppm, 63°F to 82°F (17°C to 28°C), and Humidity (%RH)) Typical full range ±30 ppm ±3% of reading (CO2) |
| CO2 Sensing Method: | Single beam non-dispersive Infrared (NDIR) |
| CO2 Sensor Life²: | > 15 years (typical) |
| CO2 Sensor Response Time (T1/e): | <3 minute diffusion time |
| CO2 Sensing Range³: | 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 Calibration³: | Senseair ABC algorithm (Automatic Baseline Correction) |
| Temperature Range: | 32°F to 122°F (0°C 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 (Aire 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) |

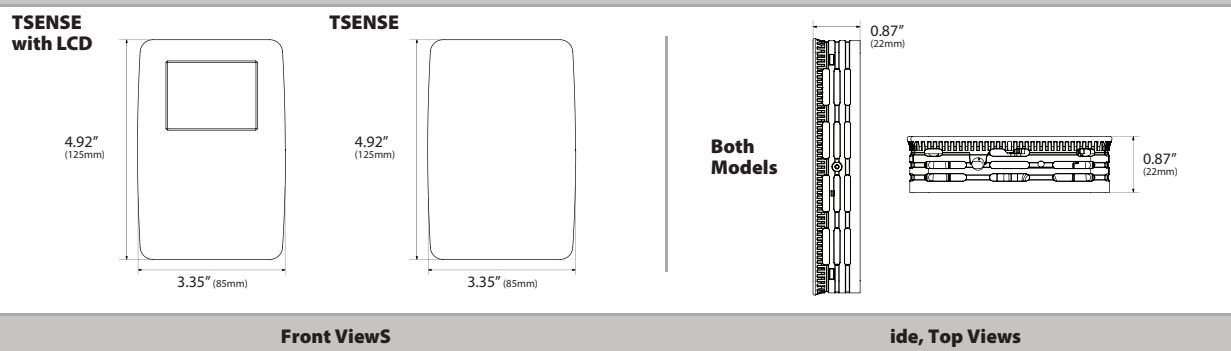


PRODUCT SPECIFICATIONS CONTINUED

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| Relay Trip Point (CO2): | 1000 ppm (factory set) |
| Relay Input Source: | CO2 (Default) / Temp/RH Configurable via Touchscreen or UIP5 Software |
| Relay Deadband / Hysteresis: | 100 ppm (factory set) |
| Relay Type: | Form C, SPDT 1A @ 50 VAC / 24 VDC |
| Relay Durability: | Mechanical: 100,000,000 operations minimum (@ 36,000 operations/hour)t 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, 76800, 115200 |
| 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) |
| Product Weight: | TSENSE: 0.361 lbs (0.166kg) TSENSE-LCD: 0.414 lbs (0.188kg) |
| Agency Approvals: | EMC directive 2004/108/EC, Rohs directive 2011/65/EU, complies with ASHRAE 189.1, Compliant with CA Bill 841 requirements |

Note¹: Accuracy is defined after minimum three (3) ABC periods (1 period = 8 days) of continuous operations | **Note²:** 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 | Changes can be made using TTL-232R-3V3 cable and UIP5 software

DIMENSIONAL DRAWING



STANDARD ORDERING

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

Note*: Must order TTL-232R-3v3-AJ Programming Cable for BACnet™ or MODBUS communication settings

ACCESSORIES ORDERING

| 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) |