CO2, Temp & Humidity Combined Sensors
Automatic Calibration Technology

The Titan TPVR CO2 range of room sensors provide CO2 measurement using NDIR technology and can be supplied with optional temperature and relative humidity outputs.

Optional LED’s can be added to provide indication of the measured CO2 concentration levels.

The CO2 sensor employs Automatic Calibration Technology to continuously adjust the calibration base to correct for changes in the background concentration levels and sensor drift.

The CO2 sensor calibration algorithm starts after the first 24hrs of operation and continuously monitors and automatically adjusts the sensor calibration over the life time of the product.

The automatic self-calibration takes place over a 24 hour period of operation when the space being monitored is subjected to an unoccupied period and the background CO2 concentration is subjected to the prevailing external level.

### Specification

**Material:** Flame retardant polycarbonate

**Sensor:** NDIR technology

**Outputs:**
- **CO2:** 0-10V for 0-2000ppm
- **Temp:** 0-10V for 0-50°C
- **Humidity (optional):** +/- 40ppm +2% of reading
  - Temp (voltage): +/- 0.5°C
  - Temp (resistive): +/- 0.5°C
  - Humidity (optional): +/- 3% RH

**Power Supply:** 24V AC/DC (+/- 15%)

**Power Consumption:** 100mA

**Operating Conditions:**
- Temperature: 0-50°C
- Humidity: 10-80% RH non-condensing
- Warm up time: 2 mins (operational), 10 mins (peak accuracy)
- LED Indication: Green - on below 800ppm, Yellow - on at 800 to 1500ppm, Red - on above 1500ppm
- Max cable size: 1.0mm

**Terminals:**
- Dimensions: 80mm x 90mm x 29mm
- Fixing holes: 6mm holes at 61mm centres

### Product Codes

<table>
<thead>
<tr>
<th>Product Code</th>
<th>Sensor Type</th>
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<tbody>
<tr>
<td>TPVR CO2</td>
<td>Room CO2 only 0-10V output</td>
</tr>
<tr>
<td>TPVR CO2T</td>
<td>Room CO2 and Temp 0-10V outputs</td>
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<tr>
<td>TPVR CO2-RT</td>
<td>Room CO2 0-10V with thermistor temperature output</td>
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<tr>
<td>TPVR CO2HT</td>
<td>Room CO2 with Humidity and Temperature all 0-10V outputs</td>
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<tr>
<td>TPVR CO2H-RT</td>
<td>Room CO2 with Humidity 0-10V and thermistor temperature sensor.</td>
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<tr>
<td>TPVR CO2/L</td>
<td>Room CO2 only with LED 0-10V output</td>
</tr>
<tr>
<td>TPVR CO2T/L</td>
<td>Room CO2 and Temperature 0-10V outputs plus LED’s</td>
</tr>
<tr>
<td>TPVR CO2-RT/L</td>
<td>Room CO2 0-10V with thermistor temperature output plus LED’s</td>
</tr>
<tr>
<td>TPVR CO2HT/L</td>
<td>Room CO2 with Humidity and Temperature all 0-10V outputs plus LED’s</td>
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<td>TPVR CO2H-RT/L</td>
<td>Room CO2 with Humidity 0-10V and thermistor temperature sensor plus LED’s</td>
</tr>
</tbody>
</table>

### Dimensions

- 90mm x 29mm
- 80mm x 80mm

### Wiring

24V 0V 0-10V 0-10V 0-10V 0-10V
- 2 wire NTC
- Ni1000
- PT100 & PT1000

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Ref: SKU 27 / 241
**Applications**
The Titan TPVRCO2T range of sensors are ideal for applications that require ventilation on demand such as Schools, Universities, Sports Halls, Theatres & lecture halls, Offices and Leisure centres.

**Operation**
Automatic calibration requires the background CO2 levels to drop to 40ppm at least once during the first 24 hours of power up and to at least once every 7 days thereafter. This will become the base rate the sensor will calibrate to preventing long term drift.

**Installation and Maintenance**
Solvents in the air derived from sources such as paints, cleaning products and adhesives can have a detrimental impact on the sensor cell. All sensors should therefore be installed after the space has been decorated and any flooring fitted. The sensors should also be kept away from adhesives and should the housing require cleaning a dry non-solvent based product must be used. Do not spray any liquid or cleaning products directly onto the ventilated housing. Exposing the sensor to such solvents or moisture will invalidate the product warranty.

**The CO2 sensors are designed to be used with Titan BACnet controllers.**

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**Features**
- 24V AC or DC supply
- 0-10V outputs
- LED CO2 concentration indication
- Temperature and Humidity output options
- Resistive output option for temperature
- NDIR sensor for accuracy and stability
- Automatic Calibration Technology
- Lifetime accuracy (typical life 15 years)