



# T3000 Series

## CO<sub>2</sub> Sensors for Harsh Environments



Telaire T3000 Series is a range of Carbon Dioxide (CO<sub>2</sub>) Sensors designed to meet the specific needs of customers who require measuring CO<sub>2</sub> in harsh or difficult environments. Based on a series of modules, the casing offers a number of combinations to meet the needs of range, supply voltage, and output type in various applications. Example applications include incubators, buses, refrigerators, subway stations, and railway carriages.

### Features

- Accurate CO<sub>2</sub> transmitter for HVAC control applications
- Easy mount with 2 external tabs
- Rated up to IP67 (build dependent)
- Available with potting
- Different calibrations available up to 20% CO<sub>2</sub> concentration
- Analog or digital output options
- Non-Dispersive Infrared (NDIR) measuring technology
- Sensors are shipped factory-calibrated
- Accuracy for 10 year life
- Extended operating temperature range

**Amphenol**  
Advanced Sensors

# T3000 Series Specifications

## Sensing Method

Non-Dispersive Infrared (NDIR), single or dual wavelength

## Power Supply Requirements

15 – 15 VDC  $\pm 10\%$

24 - 18-30 VAC RMS, 50/60 Hz, or 18 to 42 VDC, polarity protected

## Power Consumption

Typical 0.7 W at nominal voltage of 24V AC RMS

## Range

See Ordering Information for calibrated ranges

## Resolution

Minimum 10bit or analog equivalent

## Accuracy

### Single Wavelength

(0~2,000 ppm as example)

- 400-1250 ppm  $\pm 30$  ppm or 3% of reading, whichever is greater\*, \*\*
- 1250-2000 ppm  $\pm 5\%$  of reading + 30ppm \*, \*\*

### Dual Wavelength

(0~2,000 ppm range as example)

- 75 ppm or 10% of reading (whichever is greater)

(0~200,000 ppm range as example)

- $\pm 5\%$  of reading or  $\pm 0,3$  vol% CO<sub>2</sub> (whichever is larger) at 0 - 20 vol% CO<sub>2</sub> and 0°C to +25°C
- At 25°C to 50°C additional  $\pm 0,1\%$  of reading or  $\pm 0,01$  vol% CO<sub>2</sub> (whichever is larger) per degree C.

\*Tolerance based on span gas of  $\pm 2\%$

\*\* ABC Logic not deactivated

## Temperature Dependence

0.2% FS / °C

## Response Time, tau (63%)

< 200 sec

## Aging (Dual Wavelength Only)

+/- 5% of reading annual drift.

Less than +/- 25% of reading within product life time.

## Recommended Recalibration Interval

Single Wavelength – No calibration required

Dual Wavelength - 1 year

## Working Temperature

0° to +50°C (measures within tolerance)

## Operation Temperature (Sensor Is Powered)

-30° to +50°C

## Storage Temperature

-40° to +70°C

## Minimum Lifetime

10 years or 30,000 operating hours

## Flammability Classification

To UL94 5VA (dependent upon build)

## RH Range

0% to 99% RH (non-condensing)

## Atmospheric Conditions

Sensors have been designed and tested to the following However, not all models are as capable; please discuss your application with Telaire.

- Marine, salt mist and particles present
- O<sub>2</sub> level 0-21 vol%
- 0 to 100% RH.
- Ammonium max 200mg/m<sup>3</sup>
- SO<sub>2</sub> max 0,5 vol%
- Ethylene max 500ppm vol
- Ozone

## IP Class

Up to IP67, dust tight and immersion to 1m.

Optional potting

Discuss your requirement with Telaire.

## Output Configurations

### Digital

- Modbus over RS485
- UART

### Analogue\*

- 0 to 5 V
- 0 to 10 V
- 4 to 20mA

\*Digital to Analogue Error  $\pm 1\%$

## Carbon Dioxide ABC Logic™ Self Calibration

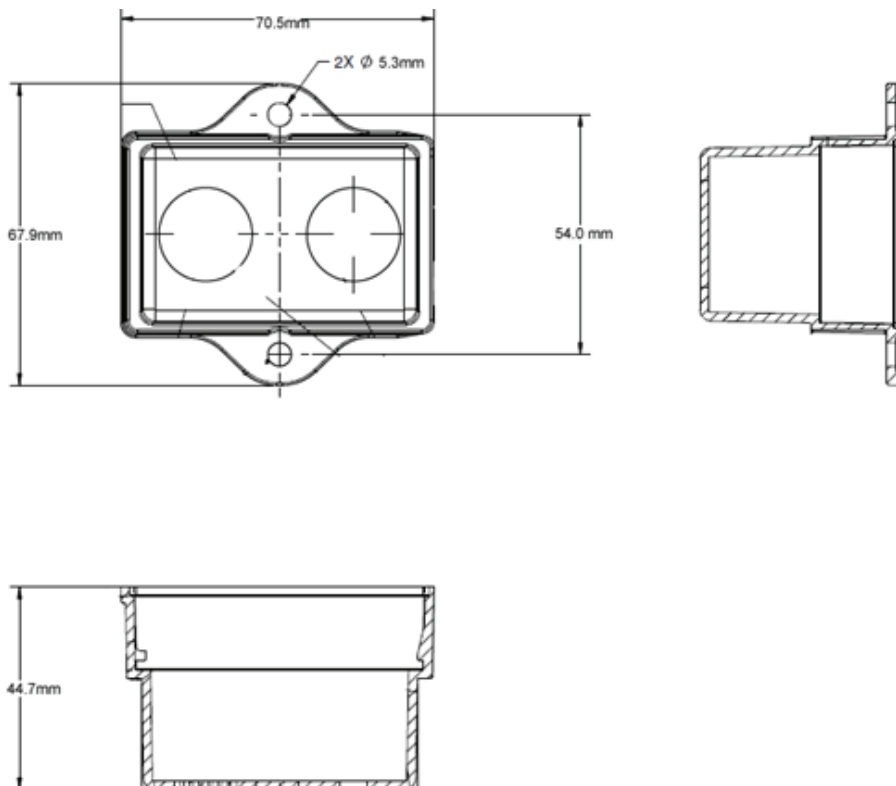
The single wavelength sensors employ the patented ABC (Automatic Background Calibration) Logic self-calibration system. ABC Logic virtually eliminates the need for manual calibration in applications where the indoor CO<sub>2</sub> level drops to outside levels during unoccupied periods (e.g. during evening hours). ABC Logic is a special software routine in the sensor that remembers the background readings for 14 consecutive evenings, calculates if there is a sensor drift, and then corrects for it.

With ABC Logic enabled, the sensor will typically reach its operational accuracy after 25 hours of continuous operation at a condition that is exposed to ambient reference levels. Sensors will maintain accuracy specifications with ABC Logic enabled, given that it is at least three times in 14 days exposed to the reference value and this reference value is the lowest concentration to which the sensor is exposed.

*Note: Applies when used in typical indoor ambient air. Consult Telaire if other gases or corrosive agents are part of the application environment.*

## CO<sub>2</sub> Calibration Guarantee

Telaire is serious about minimizing maintenance, so each single-wavelength sensor comes with a lifetime calibration guarantee. And each dual wavelength sensor has a two-year calibration guarantee.



## Ordering Information

Please discuss your specific needs with the Telaide account management team, as many configurations are possible. Some combinations are already in production.

Derivatives include lesser ingress protection, higher fire and smoke ratings, different outputs, and different calibration levels.

### Output Options:

Digital	Analogue
Modbus	0-5V
UART	0-10V
	4-20mA

### Measuring Technology Options:

Single Wavelength with ABC Logic™ for HVAC Applications

Dual Wavelength for 24/7 Applications

### Materials:

Materials to Railway Specifications, or room environment specification, with or without potting.

### Available Calibrations:

0-2K	0-5K	0-50K	0-200K
0-3K	0-10K	0-100K	ppm by volume

### Power Supply Options:

15 VDC supply  
24V nominal supply

**Amphenol**  
Advanced Sensors

[www.telaide.com](http://www.telaide.com)

[www.amphenol-sensors.com](http://www.amphenol-sensors.com)

© 2018 Amphenol Corporation. All Rights Reserved. Specifications are subject to change without notice.  
Other company names and product names used in this document are the registered trademarks or trademarks of their respective owners.

AAS-920-600C - 12/2018

## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

- [View T3031-2-10K-24-P on WIN SOURCE](#)
- [Amphenol Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

- ✓ Global Sourcing Solution
- ✓ Obsolete Management
- ✓ Cost Control Management
- ✓ Shortage Management
- ✓ Alternative Solution
- ✓ Excess Inventory Management