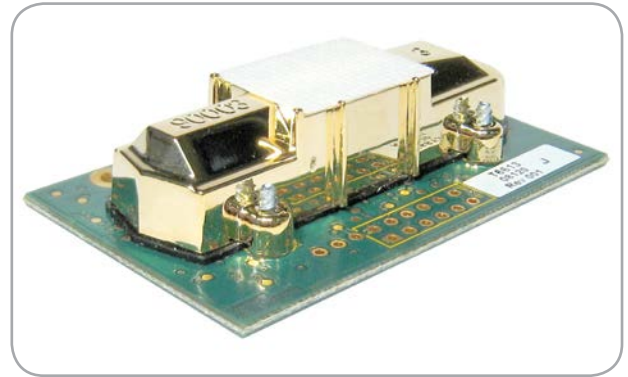




# Telaire T6613 CO<sub>2</sub> Sensor Module

A Small, Compact Module  
Designed to Integrate  
Into Existing Controls and  
Equipment



The Telaire T6613 is a small, compact CO<sub>2</sub> Sensor Module designed to meet the volume, cost, and delivery expectations of Original Equipment Manufacturers (OEMs). The module is ideal for customers who are familiar with the design, integration, and handling of electronic components.

All units are factory calibrated to measure Carbon Dioxide (CO<sub>2</sub>) concentration levels up to 2000 and 5000 ppm. For higher concentrations, Telaire dual channel sensors are available.

Telaire offers high-volume manufacturing capabilities, a global sales force, and additional engineering resources to support your sensing application needs.

## Features

- An affordable gas sensing solution for OEMs
- Small, compact in size
- Designed to integrate into existing controls and equipment
- All units are factory-calibrated
- A reliable sensor design based on 15 years of engineering and manufacturing expertise
- Flexible CO<sub>2</sub> sensor platform designed to interact with other microprocessor devices
- Eliminates the need for calibration in most applications with Telaire's patented ABC Logic™ software
- Lifetime calibration warranty

**Amphenol**  
**Advanced Sensors**

# Telaire T6613 CO<sub>2</sub> Sensor Module Specifications

## Method

Non Dispersive Infrared (NDIR), gold plated optics, diffusion or flow-through sampling (with Telaire's Patented ABC Logic™ Self Calibrated Algorithm)

## Measurement Range

0 to 2000 ppm\*\*

## Dimensions

2.25 in X 1.365 in X 0.60 in  
(57.15 mm X 34.67 mm X 15.24 mm)

## Accuracy\*

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

## Temperature Dependence

0.2% FS per °C

## Stability

< 2% of FS over life of sensor (15 year typical)

## Pressure Dependence

0.13% of reading per mm Hg

## Calibration Interval

Not required

## Response Time

< 2 minutes for 90% step change typical

## Signal Update

Every 4 seconds

## Warm Up Time

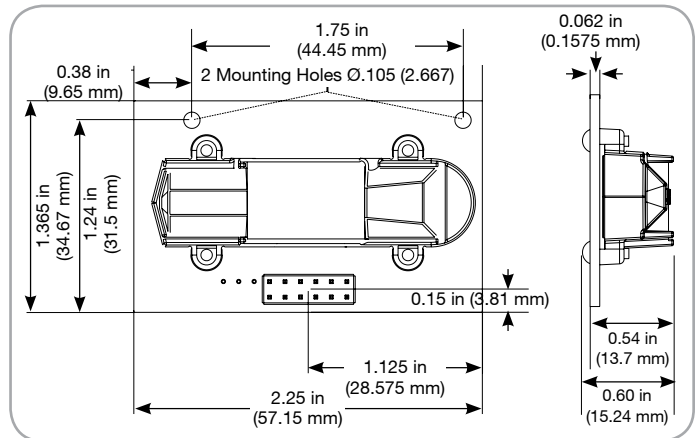
- < 2 minutes (operational)
- 10 minutes (maximum accuracy)

## Operating Conditions

- 32°F to 122°F (0°C to 50°C)
- 0 to 95% RH, non-condensing

## Storage Conditions

-40°F to 158°F (-40°C to 70°C)



## Output

### Digital

UART @ 19200 Baud

I<sup>2</sup>C slave up to 100kHz

(Please call for detailed product specifications).

### Analog

0 to 4 VDC

## Power Supply Requirements

5 VDC regulated ( $\pm$ 5%)

## Power Consumption

- 0.90 Watts peak
- 0.165 Watts average

## Interface Connections

Designed for 12-pin male header with 0.1 in (2.54 mm) spacing. Header not included.

## Flow Rates (Via Flow Ports)

Flow-through version 40 to 50 cc/min

## Warranty Terms

12 months

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

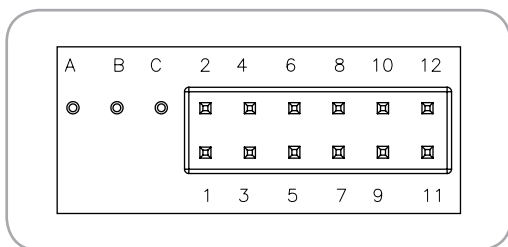
\*\* Subjecting sensors to environments less than 400 ppm for more than 15 minutes may affect accuracy due to ABC Logic algorithm.

Automatic Background Logic, or ABC Logic, is a patented self-calibration technique that is designed to be used in applications where concentrations will drop to outside ambient conditions (400 ppm) at least three times in a 14 day period, typically during unoccupied periods.

*\*Full accuracy to be achieved utilizing ABC Logic. With ABC Logic enabled, the sensor will typically reach its operational accuracy after 25 hours of continuous operation at a condition that it was exposed to ambient reference levels of air at 400 ppm  $\pm$ 10 ppm CO<sub>2</sub>. Sensor will maintain accuracy specifications with ABC Logic enabled, given that it is at least four times in 21 days exposed to the reference value and this reference value is the lowest concentration to which the sensor is exposed. ABC Logic requires continuous operation of the sensor for periods of at least 24 hours. Note: Applies when used in typical residential ambient air. Consult Telaire if other gases or corrosive agents are part of the application environment.*

## Pin Designations

| Connector Pinout | Function             |
|------------------|----------------------|
| A                | TX (UART)            |
| B                | RX (UART)            |
| C                | V+ (5 VDC)           |
| 1                | V+ (5 VDC)           |
| 2                | GND                  |
| 3                | GND                  |
| 4                | AV OUT (0 to 4 VDC)  |
| 5                | I <sup>2</sup> C SCL |
| 6                | No Connect           |
| 7                | I <sup>2</sup> C SDA |
| 8                | No Connect           |
| 9                | No Connect           |
| 10               | TX (UART)            |
| 11               | RX (UART)            |
| 12               | GND                  |



## Module T6613-F (Flow-Through)

The diffusion membrane is replaced with a non-permeable seal. The two flow ports can be used for flow-through sampling. Flow rate of 50 cc/min recommended.

## Handling and Installation

Telaire T6613 CO<sub>2</sub> Sensor Modules are infrared gas sensors on a printed circuit board and should be treated carefully. Precautions should be taken to observe specified limits and prevent damage from electrostatic discharge or rough handling. Please refer to ANSI/ESD S20. 20-1999 for more information on preventing ESD damage and IPC 610 Rev D for more information on proper electronic assembly practices.

## Calibration

Telaire does not recommend the customer recalibrate the T6613 module after installation. The ABC Logic algorithm will begin after 24 hours, adjusting the sensor measurement resulting in sensor-to-sensor consistency. If immediate consistency is desired, the sensors may be single point calibrated using pre-mixed reference gas or ambient air measured by a reference sensor.

## Available Models

| Part Number | Sampling Method           | Measurement Range |
|-------------|---------------------------|-------------------|
| T6613       | Diffusion                 | 0-2,000 ppm       |
| T6613-F     | Flow Through              | 0-2,000 ppm       |
| T6613-C     | Diffusion with gas ports  | 0-2,000 ppm       |
| T6613-R12   | Diffusion, 12 second rate | 0-2,000 ppm       |
| T6613-5K    | Diffusion                 | 0-5,000 ppm       |
| T6613-5KF   | Flow-Through              | 0-5,000 ppm       |
| T6613-5KC   | Diffusion with gas ports  | 0-5,000 ppm       |

