TELAIRE®

T3030 Series

CO_2 Sensors for Harsh Environments with Analog Outputs



Telaire T3030 Series is a range of Carbon Dioxide (CO_2) Sensors designed to meet the specific needs of customers who require measuring CO_2 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, in addition to agricultural applications, such as glass houses, mushroom sheds, and pig and chicken sheds.

Features

- Accurate CO_2 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_2 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

T3030 Series Specifications

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

Power Supply Requirements
15 – 15 VDC ±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 ±30 ppm or 3% of reading, whichever is greater*,**
- 1250-2000 ppm ±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)
- ±5% of reading or ±0,3 vol% CO_2 (whichever is larger) at 0 - 20 vol% CO_2 and 0°C to +25°C
- At 25°C to 50°C additional ±0,1% of reading or ±0,01 vol% CO_2 (whichever is larger) per degree C.

*Tolerance based on span gas of ±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
- 0_2 level 0-21 vol%
- 0 to 100% RH.
- Ammonium max 200mg/m^3
- $S0_2$ 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

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

*Digital to Analog Error ±1%

Carbon Dioxide ABC Logic™ Self Calibration

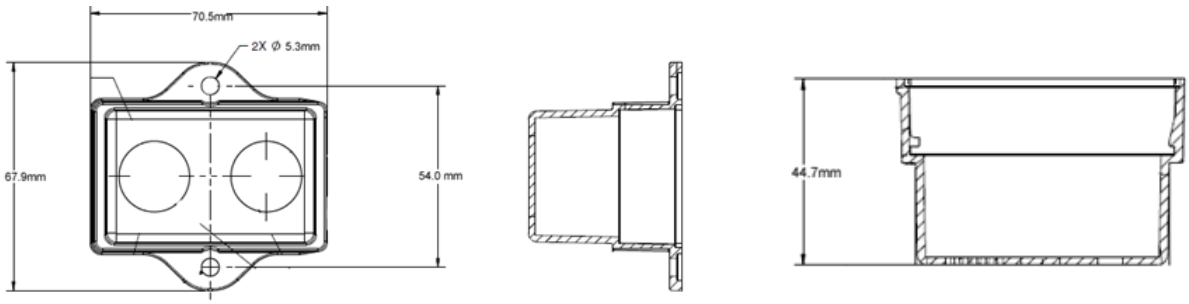
The single wavelength sensors employ the patented ABC (Automatic Background Calibration) Logic self-calibration system. ABC Logic virtually eliminates the need for manual calibration in applications where the indoor CO_2 level drops to outside levels during unoccupied periods (e.g. during evening hours). 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_2 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.

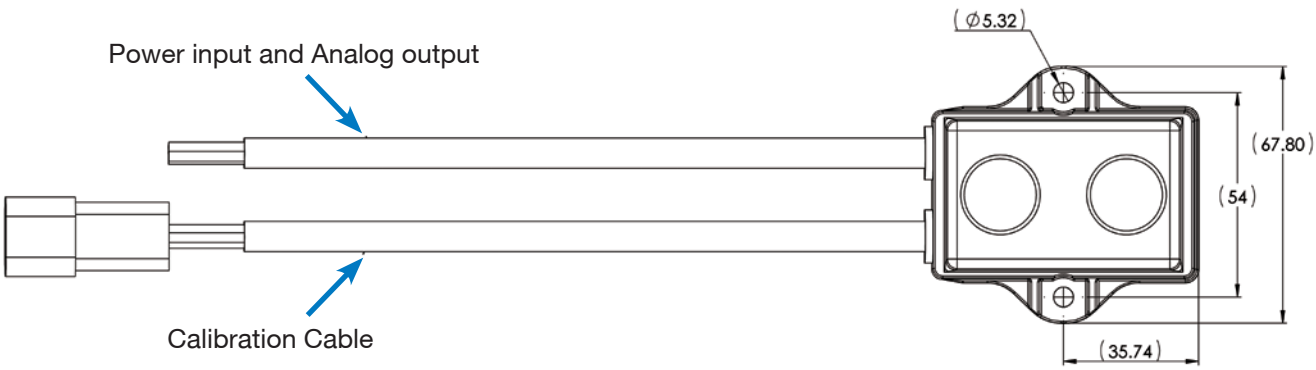


Wiring

Power Input and Analog Output Connection
Wire 1 +/~ 24VCC/24VAC
Wire 2 output, 4~20mA or 0-10Vdc
Wire 3 -/~ 24VCC/24VAC
Wire 4 Ground

Calibration Cable (Deutch Connector)
Connection 1 + 5 VDC
Connection 2 Ground
Connection 3 TX UART
Connection 4 RX UART

Note:
ONLY ONE CONNECTION SHOULD BE POWERED AT ANY ONE TIME. POWER INPUT MUST BE OFF WHEN CALIBRATION CABLE IS CONNECTED AND POWERED



Ordering Information

Telaire Harsh Environment 2 channel, potted sensors (T303X-2-XX-24-P)	
T3031-2-2K-24-P	Industrial CO2 Sensor, Dual Channel, 0-2000 PPM, 0 to 10 VDC o/p, Potted
T3031-2-5K-24-P	Industrial CO2 Sensor, Dual Channel, 0-5000 PPM, 0 to 10 VDC o/p, Potted
T3031-2-10K-24-P	Industrial CO2 Sensor, Dual Channel, 0-10,000 PPM, 0 to 10 VDC o/p, Potted
T3032-2-5K-24-P	Industrial CO2 Sensor, Dual Channel, 0-5000 PPM, 4 to 20 mA o/p, Potted
T3032-2-10K-24-P	Industrial CO2 Sensor, Dual Channel, 0-10,000 PPM, 4 to 20 mA o/p, Potted
T3032-2-20K-24-P	Industrial CO2 Sensor, Dual Channel, 0-20,000 PPM, 4 to 20 mA o/p, Potted

* Other configurations available. Please contact Telaire.

Please discuss your specific needs with the Telaire 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	Analog
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

Available Calibrations:

0-2K	0-5K
0-10K	0-20K

Power Supply:

24V nominal supply

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www.telaire.com

www.amphenol-sensors.com

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Click to view pricing, inventory, delivery, and lifecycle information:

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10147520-144-THLF 69958-104LF 87402-145 L77HDDH78SOL2RM8 61083-061422LF 78098-104LF 98414-G06-32U-LF D09S90C6GL00LF L17DCFRAA37P L77SDAH15SVF 61082-041426LF 76342-326LF G42V14332HR L717SDC37PA4CH4FC309 L77HDBH44SOL2RM8C309 76342-310LF L17DAFRA15SC309 L717SDC37POL2 66900-334LF L77SDA15SVFC309 68293-009LF L17DEFRCA09P L77SDB25SVFC309 57202-G52-04ALF 98414-F06-10LF L177TWA7W2SP2SY L17DCFRCA37P L77SDB25SA4CH4F 77313-418-66LF G97R21312HR