The T8041 and T8042 are CO₂ transmitters designed to be installed in HVAC return air ducts. The technology is based on the absorption of light in a gold-plated reflective light pipe or waveguide diffusion gas chamber. A gas permeable PTFE filter prevents particulate and water contamination of the sensor. Light is absorbed in proportion to the CO₂ concentration and the remaining light is measured and converted into an analog signal.

Installation Instructions

1. Before installing the sensor, note the direction of the airflow. Ensure all mounting holes are sealed tightly.
2. Drill/cut one 1-1/2” hole and punch/drill two 1/8” holes for mounting screws.
3. Slide the sensor into 1 ½” hole and secure with #10 sheet metal screws.
4. Connect the conduit and make necessary wire connections.
5. Install lid, and ensure it snaps into place.

Figure 1: T8041 Installation

Figure 2: T8042 Installation

Figure 3: Wiring
**Specifications**

**Measurement Range**
0-2000 PPM factory calibrated

**Duct Air Velocity**
0 to 1500 ft/min (0 to 450 meter/min)

**Temperature Dependence**
0.2% of full scale per °C

**Stability**
<2% of full scale over the life of the sensor (10 years typical)

**Accuracy**
±40 ppm +3% of reading @ 22°C (72°F) when compared with a factory certified reference

**Non-linearity**
<1% of full scale @ 22°C (72°F)

**Pressure Dependence**
0.13% of reading per mm of mercury

**Calibration**
Sensors will be calibrated at zero and span at the factory. Calibration in the field will not be required. Sensors will be shipped with ABC Logic™ turned on.

**Response Time**
Three minutes typical for a 90% step change at low duct speeds

**Sampling Rate**
Every two seconds

**Warm-up Time**
< two minutes (operational); 10 minutes to achieve maximum accuracy

**Certifications**
RoHS compliance
FCC Part 15,B
CE EMC EN61000-6-2, class B, criterion B*
*Deviations of the output signal may occur during strong electrical fast transients on the power line
Enclosure flammability rating – UL94-5VA

**Operating Conditions**
- Temperature: 0°C to 50°C (32°F to 122°F)
- Humidity: 0 to 95% relative humidity, non-condensing

**Storage Conditions**
-40°C to 70°C (-40°F to 158°F)

**Output**
Voltage 0 to 10 VDC; 0 to 2000 ppm CO₂ (100 ohm output impedance)

**Power Supply Requirements**
18 to 30 VAC RMS, 50/60 Hz or 18 to 42 VDC, polarity protected.

**Power Consumption**
Typical values (1.65 watts peak, 0.65 watts avg.@ 42 VDC)
*Note: The Telaire product line offers patented ABC Logic™ software for self correction of drift to better than ±20 ppm per year. The system is virtually free of maintenance and typically has a lifetime of more than 10 years.

**Physical Requirements**

**Dimensions:**
Probe Length: T8041 4.09 in (10.38 cm)
T8042 8.07 in (20.51 cm)
Probe Diameter: 1.24 in (3.15 cm)
Junction Box Depth: 1.58 in (4.02 cm)
Junction Box H x L: 3.05 in x 3.05 in (7.46 cm x 7.46 cm)
Color: Grey (GY6275)

**Installation Kit**
Included with the transducer are wire nuts, mounting screws and installation instructions.
Customer Support Centers

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