

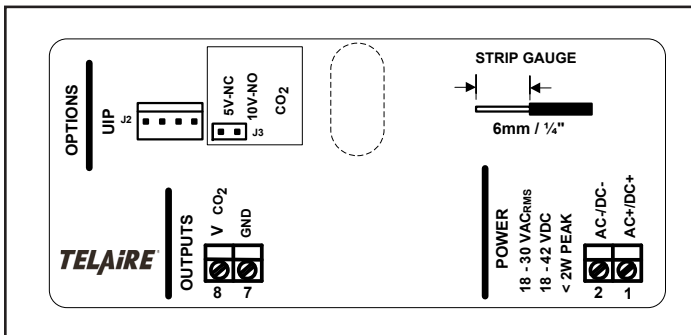
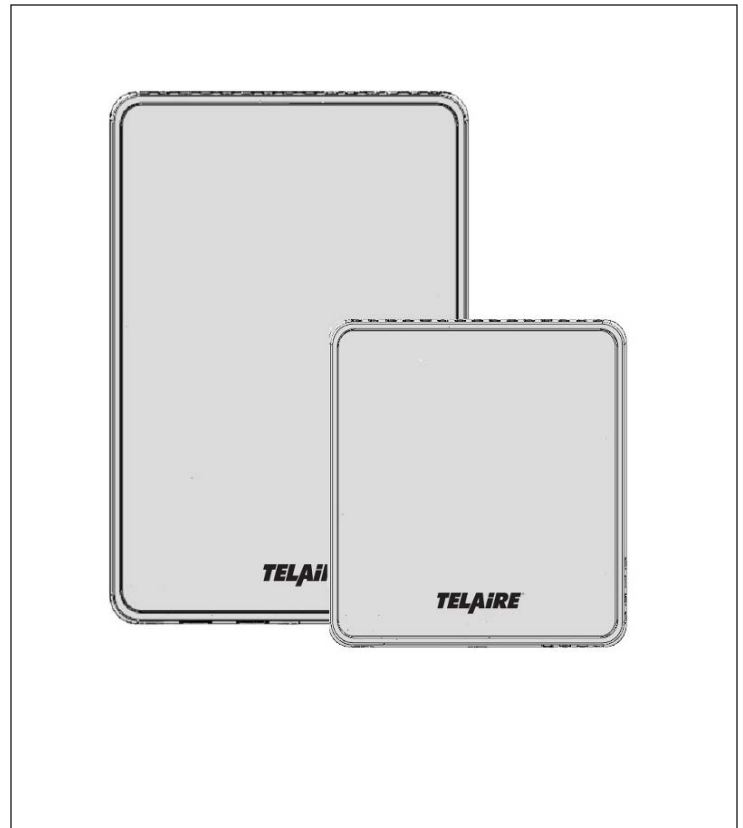
Installing the Sensor

!WARNING!

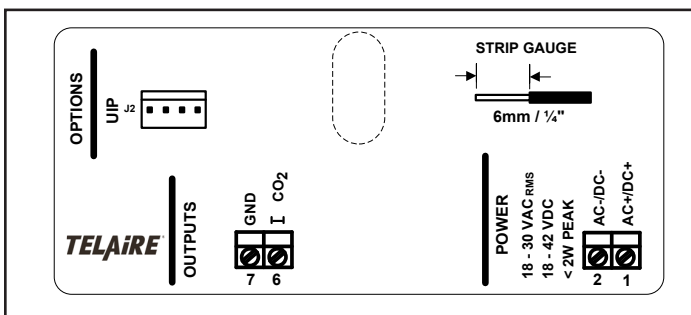
Before performing service or maintenance operations on the systems, turn OFF main power switches to the unit. Electric shock can cause personal injury. Please read and follow the wiring instructions precisely; miswiring may cause permanent damage to the product.

Basic Installation

1. Separate the case into its front and rear sections.
2. Secure the rear section of the case to the wall or junction box using the supplied screws, and make necessary wire connections.
3. Mount the Controller on the base by aligning the top clips and then securing to the bottom clips. Secure the Ventostat with the supplied set screw. A one-minute stabilization warmup will take place.



Internal Label for Voltage Version



Internal Label for 4-20 mA Version

T5100 Wiring Diagrams

!WARNING!

T5100 products have two terminal pins that are connected inside the sensor to a common/ground: pin #7 on the I/O terminal blocks and pin #2 on the power block. Do NOT connect positive (hot) 24 VAC power line to terminal number #2 of the terminal block.

Caution!

The T5100 products are either 3-wire or 4-wire type configurations, powered by either AC or DC voltage. They are not 2-wire or loop-powered devices. Wiring the units as 2-wire or loop-powered devices will irreparably damage the sensors and void the warranty.

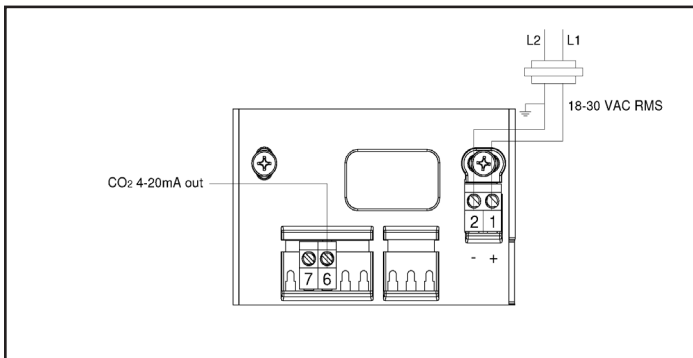


Figure 1: Current Wiring for 3-Wire System - AC Power

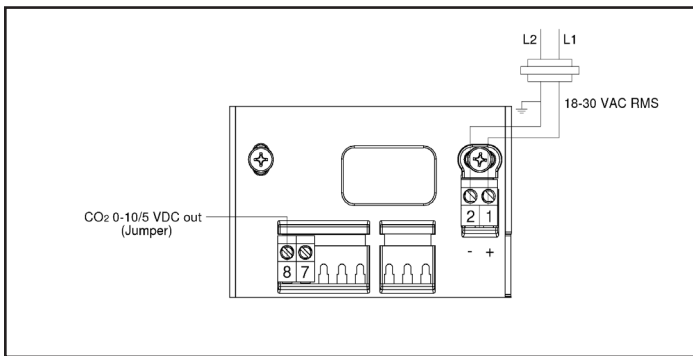


Figure 2: Voltage Wiring for 3-Wire System - AC Power

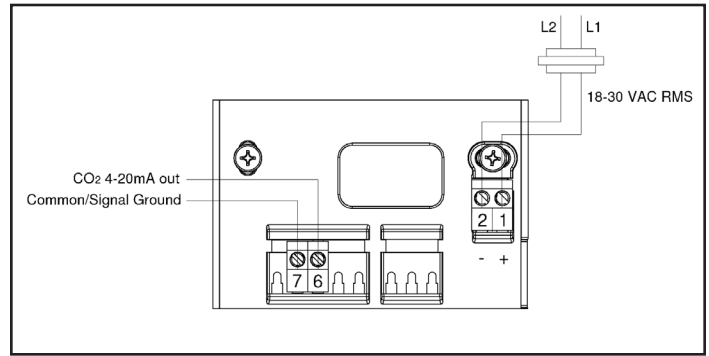


Figure 3: Current Wiring for 4-Wire System - AC Power

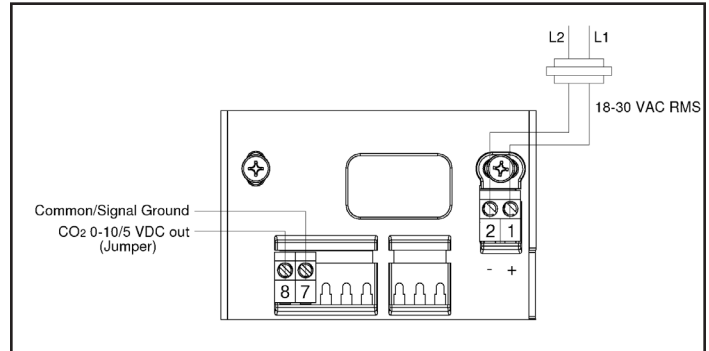


Figure 4: Voltage Wiring for 4-Wire System - AC Power

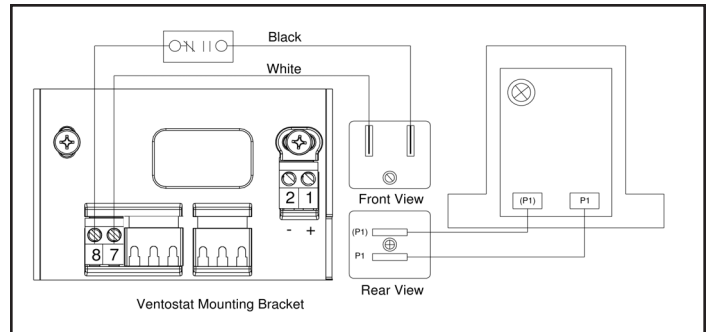


Figure 5: Wiring CO₂ Sensor Voltage Output to Honeywell M7415 Damper Actuator with W7459 Logic Module

Sensing Duct CO₂ Concentrations

Duct-Mounting the Enclosures

T5100 products can be installed inside the return air ductwork, if needed. As an alternative, please consider the T8031 unit. When mounting these products inside the ductwork, seal the hole around the wires and leave the duct insulation in place to prevent condensation which may damage the sensor.

Accessory Enclosures

Model T1508 Duct Mount Enclosure (Aspiration Box)

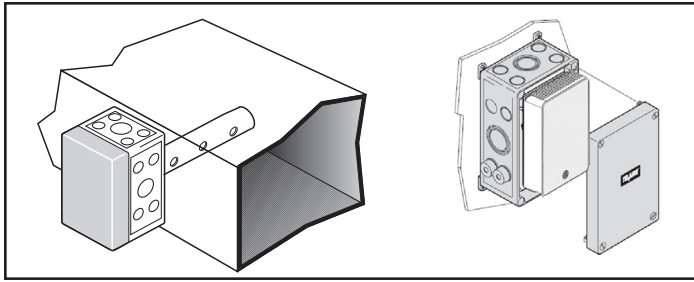
The T5100 units can be installed inside a Model 1508 Duct Mount Enclosure.

Model T1552 Outside Air Measurement Enclosure

This NEMA-3R weatherproof enclosure includes thermostat and allows installing the sensor in environments with temperatures down to -40°F.

Model T1505 Harsh Environment Enclosure

For extreme environments where the sensor might be subjected to condensation or water spray such as those found in greenhouses or breweries- NEMA-3R rated.



T5100 Specifications

Sensing Method

Non-dispersive infrared (NDIR) absorption
Gold-plated optics
Patented ABC Logic self calibration algorithm

CO₂ Measurement Range

T5100 - Single Channel: 0 to 2000 ppm (0 ppm = 0 V, 4 mA)

CO₂ Accuracy

T5100 - Single Channel
400-1250 ppm ± 40 ppm + 3% of reading*, **
1250-2000 ppm ± 50 ppm + 5% of reading *, **

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

** ABC Logic not deactivated

Power Supply Requirements

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

Temperature Dependence

0.2% FS per °C ($\pm 0.11\%$ per °F)

Stability

T5100 - Single Channel

<2% of FS over life of sensor (15 years)

Pressure Dependence

0.135% of reading per mm Hg

Certifications

CE, RoHS and REACH compliant

Signal Update

Every 5 seconds

CO₂ 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)

Flammability Classification

UL94 5VA

ABC Logic™ Self Calibration System

ABC Logic™ (Automatic Background Calibration) self calibration allows the sensor to continually recalibrate itself when the indoor concentrations drop to outside levels while the building is unoccupied. Generally a building must be regularly unoccupied for 4 hours or more for this self-calibration system to operate properly. Under these conditions, ABC Logic™ should maintain sensor calibration over the lifetime of the sensor. The ABC Logic™ should be turned OFF where a building is continuously occupied 24 hours per day, or where there could be significant sources of non-occupant related CO₂ such as greenhouses, breweries and other industrial and food processing applications.

Output

Analog

0 to 5 V, or 0 to 10 V jumper selectable (100 Ω output impedance)

Or 4 to 20 mA (R_L maximum 500 Ω)

Voltage and current outputs are not available simultaneously

Digital to analog error $\pm 1\%$

Warranty/Other

Warranty

18 months parts and labor

This product is covered by one or more of the following patents:

5,650,624 / 5,721,430 / 5,444,249 / 5,747,808 / 5,834,777 / 5,163,332 /
5,340,986 / 5,502,308 / 6,344,798 / 6,023,069 / 5,370,114 / 5,601,079 /
5,691,704 / 5,767,776 / 5,966,077 / 6,107,925 / 5,798,700 / 5,945,924 /
5,592,147 / 6,255,653 / 6,250,133 / 6,285,290

Warranty Repairs

Amphenol Advanced Sensors will repair Telaire product that fails to meet the terms provided for in the Return and Warranty Policy Statement (See, <http://www.telaire.com>). Warranty period shall start from date of manufacture and be based on product category and type of equipment as specified in Table 1: Product Warranty Periods. For all warranty repairs, Amphenol Advanced Sensors will bear all product repair parts, labor, and standard ground shipping charges.

Contact

www.telaire.com

North America and Asia +1 814 834 9140

Europe +44 1823 335 200