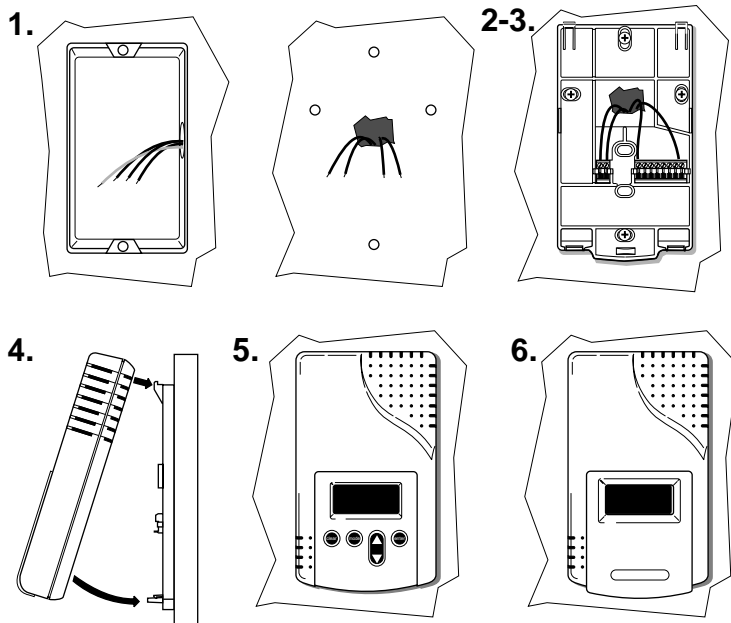


# Installing the Sensor

## Basic Installation of the Mounting Plate and Sensor



1. Prepare for installation by using the mounting holes configured for US or European junction boxes.
2. Use the mounting plate as a template to mark mounting holes.
3. Secure the Mounting Plate to the wall or junction box and make necessary wire connections.
4. Mount the Controller on the base by aligning the top clips and then securing to the bottom clips. A "snap" sound will indicate that the sensor is secure. The sensor will now have power. A 2 minute warm-up will take place. After 2 minutes, the sensor will stabilize and display the "Normal Mode" (current CO<sub>2</sub> readings).
5. At this point one of nine preset programs or one custom channel can be selected for operation. Refer to "8. Configuring the Sensor."
6. Finish installation by sliding the cover over the menu keys and secure with the supplied screw.

## Sensor Settings

Sensors with display can be adjusted via keypad and display or the UIP Software program (model 2072). Sensor without display will need the program to make any adjustments.

### Altitude:

All Telaire 8000 series products are calibrated at sea level. As altitude increases, the density of the air around us slightly decreases. This natural phenomenon affects the accuracy of all gas sensors and introduces an error of approximately -3% of the reading per 1,000 ft of elevation. Much of the urbanized world is at an elevation of less than 1000 ft meaning that altitude has very little effect on the reading and no adjustment is necessary. However, users in locations significantly higher than sea level such as Denver, Colorado may want to consider adjusting for elevation based on altitude to have the most accurate reading. The altitude setting can be adjusted on the unit in 500 ft increments.

### ABC Logic™ Self Calibration System:

All Telaire 8000 series sensors are factory set with the ABC Logic™ (ABC = Automatic Background Calibration) (formerly called TEMA) Self Calibration feature ON. This feature 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 (with the exception of cleaning or maintenance staff) 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 CO<sub>2</sub> such as greenhouses, breweries and other industrial and food processing applications.

## Sensor Setting

The standard factory settings are the typical settings used when a CO<sub>2</sub> sensor is connected to a building control system. If the installation is somewhat unique or specialized, the user can customize certain characteristics of the sensor. For example, non-factory settings may be applicable when the sensor is being connected to equipment that has a fixed input range (e.g actuators used with economizer systems).

Outlined below are the adjustable parameters of the sensor and the factory setting. In addition to these adjustable features, the programming interface allows for a fast and simple adjustment of sensor calibration.

Adjustment	Range	Factory Setting
Altitude Above Sea Level	0-10,000 Ft	0 Ft
ABC Logic™	On/Off	On
Select Standard Setting	1 to 9	1
Customize Setting		
PPM Range	0-10,000	0-2,000
Output Range	4-20mA / 0-10V	4-20mA / 0-10V
Proportional/ Exponential Output	Select One	Proportional
Relay Setpoint	0-10,000 PPM	1000 PPM
Relay Hysteresis	0-10,000 PPM	50 PPM

8000 Series Adjustment Parameters and Factory Settings

### Standard Pre-Programmed Settings:

There are 9 Standard settings that can easily be selected using the keypad (display units only) or the PC based UIP Program. The chart below describes each of the settings. The definitions for some of the terms used in the chart are described in more detail as part of the custom settings section to follow.

Settings 1, 2 and 3 are applicable for automated or computerized building control systems.

Settings 4 to 7 are specifically designed for operation with economizer controls and actuators where a 0-10 VDC signal will provide 0-100% outside air modulation. These control settings provide different modulation ranges depending on the target cfm-per-person ventilation rate desired. As described below the exponential setting is best used in applications that have large volumes of air and people such as auditoriums, gyms and large conference areas.

Setting 8 is intended for use in applications related to occupational health and safety where users may want to measure concentrations in relation to the 5000 ppm 8 hour exposure levels established by OSHA (Occupation Safety and Health Administration).

Setting 9 is intended for use in parking garages where CO<sub>2</sub> can be used as an indicator of the presence of combustion fumes. As part of most types of combustion, CO<sub>2</sub> is generated at a rate that is 50 times or more of other more harmful contaminants. This is particularly the case with the extensive use of catalytic converters that tend to remove most of the carbon monoxide from vehicle exhaust. The 700 ppm setting should maintain levels of other exhaust contaminants well below levels of concern.

### Custom Settings:

In addition to the 9 standard settings programmed into the 8000 series, users can also custom program the sensor for their own application. Outlined below is a brief description of each of the adjustable custom settings:

Setting No	Type of Equipment	Type of Output	Ventilation Rate (cfm/Person)	Analog Output	CO <sub>2</sub> Control Range (ppm)	Optional Relay Setpoint (ppm)	Relay Hysteresis (ppm)
1	Interface w/Standard Building Control System	Proportional	Any	0-10V 4-20mA	0-2000	1000	50
2	Interface w/Standard Building Control System	Proportional	Any	2-10V, 7-20 mA	0-2000	1000	50
3	Interface w/Standard Building Control System	Exponential	Any	0-10V 4-20mA	0-2000	1100	50
4	Economizer (Hvac)	Proportional	15	0-10V 4-20mA	0-1100	1100	50
5	Economizer (Hvac)	Proportional	20	0-10V 4-20mA	0-900	900	50
6	Economizer (Hvac)	Exponential	15	0-10V 4-20mA	0-1100	1100	50
7	Economizer (Hvac)	Exponential	20	0-10V 4-20mA	0-900	900	50
8	Health & Safety	Proportional	NA	0-10V 4-20mA	0-9999	5000	500
9	Parking/Air Intakes/ Loading Docks	Proportional	NA	0-10V 4-20mA	0-2000	700	50

Standard Sensor Settings Available Via the Keypad (Display Units Only) or PC Based UIP Interface (All Units).

## Adjusting Sensor (Display Units Only)

<b>Button Features</b>	[CLEAR]	- Resets Menu - Returns to Normal Mode
	[MODE]	- Toggles to Next Menu Item
	[ENTER]	- Press to Lock Menu
	[UP/DOWN]	- Increase/Decrease Selection Value

### Altitude Correction and ABC Logic™ (On/Off):

1. After 2 minute warm-up period, press [CLEAR] + [MODE] and hold (at least 5 seconds) until the sensor enters the edit mode.
2. The first menu will be the Altitude correction. The adjustments will increase/decrease in 500 ft. increments. To do this use the UP/DOWN Rocker Button to adjust to the proper altitude.
3. Press ENTER to lock in value then press MODE to proceed to ABC Logic™.
4. Use the UP/DOWN Rocker Button to switch to ON or OFF.
5. Press ENTER to lock in value then press MODE to proceed to Normal Mode.

Note: It is recommended that the ABC Logic™ feature be left ON for the best sensor operation.

### Selecting a Pre-Programmed Setting:

The pre-programmed settings shown in Table 3 are factory set and cannot be changed. These settings can be selected from the Standard Settings (STDSET) menu. The Altitude and ABC Logic™ features can be changed without entering the Standard Settings (STDSET) menu.

1. After 2 minute warm-up period, press CLEAR + MODE and hold (at least 5 seconds) until the sensor enters the edit mode.
2. Press MODE 2 times. You will enter the STDSET menu.
3. Use the UP/DOWN Rocker Button to select the desired pre-programmed number. Refer to "Configuring the Sensor" for the appropriate setting number.
4. Press ENTER to lock in selection then press MODE to return to Normal Mode.

### For Non-Standard (Custom) Settings:

The non-standard (custom) settings can be changed at any time after the sensor is powered up. The 7 variables are: PPM Range, Scale (proportional or exponential), Output (V or mA), Output Range V, Output Range mA, Relay Setpoint, and Relay Hysteresis. The Altitude and ABC Logic™ features can be changed without entering into the Non-Standard (NONSTD) menu.

1. After 2 minute warm-up period, press [CLEAR] + [MODE] and hold (at least 5 seconds) until the sensor enters the edit mode.
2. Press [MODE] 2 times. You will enter the STDSET menu.
3. Use the [UP/DOWN] Rocker Button to toggle to the NONSTD menu.
4. Press [MODE] to move through the variables. Use the [UP/DOWN] button to toggle to desired setting.
5. Press [ENTER] to lock in the selection then press [MODE] to continue to the next variable.

## NOTICE!

Use of cellular telephones or radio transceivers within two (2) feet of the sensor during calibration process could cause sensor interference, calibration errors and affect sensor accuracy. Please refrain from using these devices during sensor calibration.

## Warranty

Telaire seeks to present reliable information concerning the composition, properties and use of its products, however; (1) All advice concerning selection and use of any product is provided at no charge and with no warranty. (2) No warranty is made hereby. Products described herein are warranted to conform to Telaire specifications only at the time of sale. All sales are subject to Telaire standard terms and conditions, which are reproduced on the reverse side of each invoice. All warranties of merchantability and fitness of purpose are disclaimed and remedy for any breach of warranty is limited to replacement of the defective product. (3) Telaire assumes no responsibility for any patent liability arising from the use of any product in a process, manner or formula not designed by Telaire.

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# TELAIRE

6860 Cortona Drive, Suite B - Goleta, California 93117

P- 805-685-4000 F- 805-685-0015 www.telaire.com

# Ventostat® 8000 Series

## Dual Channel CO<sub>2</sub> Ventilation Controller



# TELAIRE

6860 Cortona Drive, Suite B - Goleta, California, 93117  
P- 805-685-4000 F- 805-685-0015

62332-007 09/08/2004

## Specifications

### Method

Dual Beam Absorption Infrared  
Diffusion sample method

### Performance

#### Measurement Range

0-2000 ppm factory default  
Adjustable to 10,000 ppm with UIP  
Software

#### Accuracy

@60-90°F (15-32°C)  
±50 ppm or 5% whichever is greater  
(7% for levels over 1500 ppm)  
@32-122°F (0-50°C)  
±100 ppm or 7% whichever is greater

#### Elevation (Pressure) Correction

Add 0.13% of reading per mm Hg  
decrease from 760 mm Hg (On-board  
correction, user set with UIP  
software), preset at sea level

#### Response Time 0-90%

<1 minute

#### Warm-Up Time @ 25°C

<2 minutes

#### Operating Conditions

0 – 50°C (32-120°F)  
0 – 95% RH, non-condensing

#### Storage Temperature

-40 – 70°C

#### Agency Certification

FCC Part 15 Class B / CE  
Plastic Case - UL94-5V Rated

## Input/Output

### Power

18-30 VAC RMS, 50/60 Hz -half-wave  
rectified  
18-42 VDC polarity protected  
1.75 VA maximum average power  
2.75 VA peak power

### Analog Output

0-10 VDC (100 Ohms output  
impedance)  
4-20 mA (RLmax = 500 Ohms)  
Both outputs available simultaneously

### Relay Output

Normally Open and Normally Closed  
(wire either way), gold bifurcated, 2A  
max. @ 24VAC. Adjustable setpoint  
(with UIP software kit), factory set at  
1000 ppm, 50 ppm hysteresis

### Wiring

18-28 AWG stranded copper wire  
only. 2 wires each for power, analog  
output, relay

### Digital I/O

RS-232 interface for use with optional  
PC software and cable in UIP kit  
2072

## Warranty/Other

### Warranty

18 months parts and labor

### Calibration

5-year calibration guarantee