

INSTALLATION INSTRUCTIONS

INSTALLATION OF TELAIRE 2001V
CO₂ SENSOR WITH HONEYWELL
W7415A MOTOR & W7459A LOGIC MODULE
547848

FORM# 602A-0298

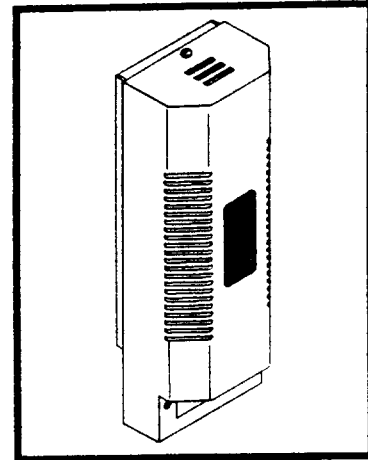
Ventostat[®] Model 2001V

PRODUCT DESCRIPTION

The Ventostat[®] 2001V all-digital ventilation controller is designed to monitor the carbon dioxide level in the air and control the ventilation system according to ventilation requirements (ASHRAE 62-1989). The sensor features a membrane-covered sample chamber resulting in a stable, reliable and highly accurate carbon dioxide sensor.

FEATURES

- State-of-the-art non-dispersive infrared (NDIR) technology to measure carbon dioxide gas as the ventilation index
- Displays CO₂ levels on built-in LED display from 0-5,000 ppm (factory preset for maximum voltage output at 1000 ppm).
- Ideal for multiple zonal control for adequate ventilation
- AC/DC power
- Programmable set-point relay (factory preset at 800 ppm)
- Programmable analog output 0-10 V for proportional control (factory preset at 6-9 VDC to work with Economizer systems)
- Easy verification and recalibration with User Interface Program (UIP) (Optional)
- RS-232 interface to PC and advanced facility management systems
- Saves energy costs using Demand Controlled Ventilation strategy
- Special factory preset requirements are available upon request



APPLICATIONS

Carbon dioxide has been acknowledged by ASHRAE as a good indicator of occupancy and the ventilation rate within a space. Studies indicate that ventilation control based on CO₂ levels saves energy costs. Proper ventilation can also help to clear the air, reducing the sometimes deleterious effects of floating toxins and organic compounds that hang in the air. Adequate ventilation can reduce the spread of common viruses and bacteria that lead to temporary sickness, downtime and lost productivity.

Some applications of CO₂ measurement / control include:

- Monitoring and controlling CO₂ levels according to indoor air quality (IAQ) ventilation guidelines (ASHRAE 62-1989)
- Activating a high-limit alarm in CO₂ storage and use areas whenever levels exceed an acceptable value
- Other CO₂ monitoring applications include:
 - Classrooms
 - Greenhouses
 - Mushroom farming
 - Food storage
 - Theaters, etc.

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- Step 1:** Open shipping box and verify components.
1 - 2001V CO2 Sensor
1 - Q769A 6-9 Volt Adaptor (If ordered without Economizer)
- Step 2:** Follow the 2001V installation instruction for mounting the sensor in the conditioned space. A 24 VAC power supply is required, it must be provided by a non grounded transformer.
- Step 3:** Pull wires from the terminal board TB-9 and TB-10 on CO2 Sensor to the Q769A at economizer damper motor. Use red wire for TB-9 and violet wire for TB-10.
- Step 4:** At the Q769A, connect terminal TB-9 (red wire) to the "+" on the Q769A and TB-10 (purple wire) to the "-" on the Q769A.
- Note:** *If Q769A is installed skip to Step 7.*
- Step 5:** Pull the jumper wire from the "P" and "P1" terminal on the W7459A Logic Module.
- Step 6:** Connect the red wire that is inserted in the "P1" on the back of the Q769A to the "P1" terminal on the W7459A Logic Module. Connect the violet wire from the "P" on the back of Q769A to the "P" terminal on the W7459A Logic Module.
- Step 7:** Set the minimum position on the W7459A to the full open position.
- Step 8:** Set the minimum position on the Q769A to the "mid position" (slot vertical).
- Step 9:** Apply power to the CO2 sensor terminal board at TB-1 (Supply) and TB-5 (Ground).
- Step 10:** Raise the level of PPM on the CO2 sensor above 800 PPM by blowing on the sensor. Adjust the maximum amount of fresh air required by ASHRAE standard 62-1989 by turning the potentiometer on the Q769A to the desired position for minimum position.
- Step 11:** When in the "economizer mode" the sensor will be overridden and the damper will modulate the fresh air.

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SPECIFICATIONS

Product.....	Ventostat® (CO ₂ -based ventilation controller)
Model	2001V
Operating Principle.....	Non-dispersive infrared (NDIR)
Gas Sampling Mode.....	Diffusion
Measurement Range (LED display).....	0-5,000 ppm
Accuracy.....	+/- 5% of reading or +/- 100 ppm, whichever is greater
Repeatability.....	+/- 20 ppm
Maximum Drift (per year).....	+/- 100 ppm
Response Time (@ 500 ml/min.).....	<= 1 min.
Warm-up Time (@ 22° C).....	<= 6 min.
Output (linear, programmable).....	0-10 VDC (0-5,000 ppm)
Output Requirement.....	R _{OUT} = 1,000Ω
Alarm Threshold Adjust Range.....	Floating (not grounded)
Alarm Threshold Adjust Resolution.....	50-5,000ppm, programmable(factory set @1,000 ppm)
Alarm Threshold Hysteresis.....	+/- 20 ppm
Calibration Adjustments.....	50 ppm
Calibration Procedure.....	Zero and span via RS-232 serial port
Recommended Calibration Interval.....	Automated with User Interface Program (UIP)
Operating Temperature Range.....	One year
Storage Temperature Range.....	+32° to 122°F (0° to +50°C)
Operating Humidity Range.....	-40° to 158°F (-40° to +70°C)
Operating Pressure Range.....	5 to 95% RH non-condensing
Pressure Dependence.....	+/- 1.5% local mean pressure
Relay Closure.....	+ 0.19% reading per mmHg
Relay Rating.....	Closes on CO ₂ rise
Power Requirements (Full-wave bridge input).....	1.5 Amp AC, or 0.75 Amp DC 24 V
Current Requirements.....	16-24 VAC 50-60 Hz, or 16-30 VDC
Wiring Connections.....	300 mA average, 500 mA peak
Data Interface.....	Terminal block, 14 gauge stranded wire maximum
Mounting.....	Via RS-232 serial port
Dimensions (LxWxD).....	Integral mounting base for 2 #8 screws
Weight.....	6.4" x 2.2" x 1.7" (16.3 x 5.6 x 4.3 cm)
Warranty.....	
Accessories.....	

Covered by U.S. Patent Nos. 5,060,508 / 5,163,332 / 5,215,498
Others patents pending

DEMAND CONTROLLED VENTILATION - using CO₂-based ventilation controller.

The device is a non-dispersive infrared carbon dioxide monitor/controller. The diffusion gas sample chamber is surrounded by a semi-permeable membrane, has an electronically pulsed infrared source and no moving parts.

The device limits the CO₂ level to any user selectable set point between 50 and 5,000 ppm (parts-per-million) in an occupied space by providing pilot duty dry contact switching for ventilation equipment. It provides an auxiliary linear monitor output of 0-10 VDC for connection to building management systems or data loggers. The sensor is located: a) in the occupied space to be conditioned, or b) in a returned air stream from the space via an aspiration box attached to the return air duct. Use no less than one sensor for every 25,000 square feet of habitable space.

Certified to the California Energy Commission Energy Efficiency Standards - Ventilation Controls