



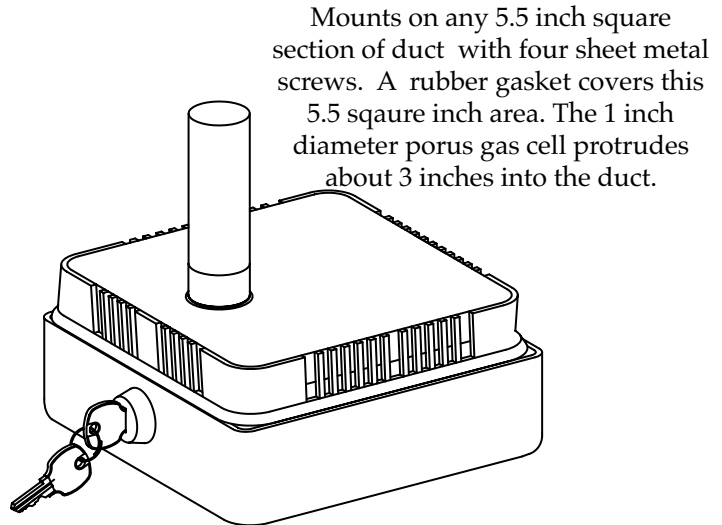
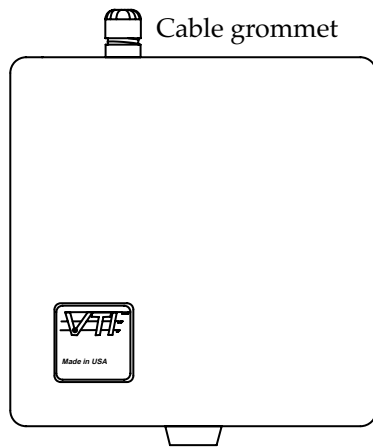
The CO₂ Direct DUCT-STAT™ Indoor Air Quality Sensor Model 6289D

Features:

The Ideal IAQ CO₂ Sensor with long term low maintenance operation

- No moving parts infrared sensor
- Convenient 24 VAC or DC operation
- Smallest, most compact size available
- Excellent long term stability
- **ECONO-CAL™** Calibration Gas Kit
- Tamper Resistant Enclosure with key
- Diffusion gas sampling, no pump or filters
- Adjustable set point SPDT control relay
- **Linear** 0-5 VDC and 4-20 mA outputs
- LED's indicate power on and relay activation
- Non-Dispersive Infra-Red (**NDIR**) technology
- Calibration gas port easily accessible
- Mounts **Directly** on the **HVAC Duct**
- **Test Connector** installed as an **Option**

Model 6289D



Mounts on any 5.5 inch square section of duct with four sheet metal screws. A rubber gasket covers this 5.5 square inch area. The 1 inch diameter porous gas cell protrudes about 3 inches into the duct.

Application:

HVAC

- Hospitals
- Offices
- Schools
- Theaters
- Office Buildings

The **VALTRONICS** Model 6289D is a non-dispersive infrared carbon dioxide monitor for use as an indoor air quality sensor. It produces a control signal proportional to carbon dioxide concentration. This control signal is then used to provide remote control of the outdoor air dampers, thereby controlling the fresh air intake or varying the ventilation rates while still maintaining safe indoor air quality. It is housed in a tamper resistant enclosure with a lock and key. The sensor probe is mounted on the back of the unit for simple, one piece mounting on the air duct.



The CO₂ Direct DUCT-STAT™ Indoor Air Quality Sensor Model 6289D

Description:

The Model 6289D consists of a patented no moving parts infrared CO₂ monitor in a tamper proof protective plastic case with a sensing cell that flange mounts through a hole in the duct. This sensing cell consists of a non-dispersive infrared carbon dioxide optical diffusion gas cell that mounts directly into the duct. It uses a pulsed infrared source and has no free air optical path. This configuration is designed for use as a direct duct mounted CO₂ sensor in HVAC control systems of all sizes from a single sensor up to a complete computer controlled multiple point system.

The 6289D has linear signal outputs of 0-5 Volts DC and a 4-20 mA current loop (no external power is required in the current loop) to connect to a computer or controller. Most building management systems and direct digital control systems are capable of interfacing with the Model 6289D.

Specifications: 6289D

- Method: N.D. I. R. (Non-dispersive Infra-red) Diffusion type gas sampling in duct
- Gas: Carbon dioxide (CO₂)
- Range: 0-2,000 ppm (0.2%) CO₂
- Accuracy: ± 5% of reading from 1000 to 2000 ppm (±50 ppm at 1000 ppm and below)
- Repeatability: ± 1% of full scale (challenge with same gas sample and assure zero)
- External Power Source: 24 Volts A.C. 50 or 60 Hz or D.C. @ 0.5 amp. max. (20.0 to 30.0 VAC RMS or VDC)
See Instruction Manual for wiring, test connector features, and theory of operation
- Power Consumption: 4.25 watts typical @ 24.0 V.A.C. (6 watts maximum)
- Adjustable Level Detect set point,
factory set at 1000 ppm: SPDT Control relay (SPDT N.C. , N.O. 3Amp @250 VAC or 30 VDC)
- Set point is slide switch: (3 position) selectable: 800, 1000, or 1200 ppm or
internally jumper selected to be continuously variable
- Output Signals:
 - Voltage: 0 to 5 volt = 0 to 2000 ppm (linear scale data attached)
 - Current Loop: 4 to 20 mA = 0 to 2000 ppm (linear scale data attached) no external power
 - 9 pin "D" **Test Connector**: Removed Aug 2000 - **installed as an option only.**
- Zero Drift at Constant Temperature: Less than 100 ppm per year (random not cumulative)
- Zero Noise at Constant Temperature: Less than 20 ppm peak to peak measured during any 10 to 20 second period
- Zero Drift due to Ambient Temperature: Less than 10 ppm per degree Centigrade
- Operating Temperature Range: .. 0 to 50°C (32° to 122°F) see **Application Note A12**
- Storage Temperature Range: -40 to +70°C (-40 to +158°F)
- Operating Humidity Range: 0 to 95% RH non-condensing
- Weight: Less than 0.5 pound (<0.23 kilogram)
- External Dimensions:
 - Enclosure: 5.75" x 5.75" x 2.5" (14.61 cm, x 14.61 cm, x 6.35 cm)
 - Sensor : 1.125" diameter sensor probe protrudes approximately 4" into duct



The CO₂ Direct DUCT-STAT™

Indoor Air Quality Sensor

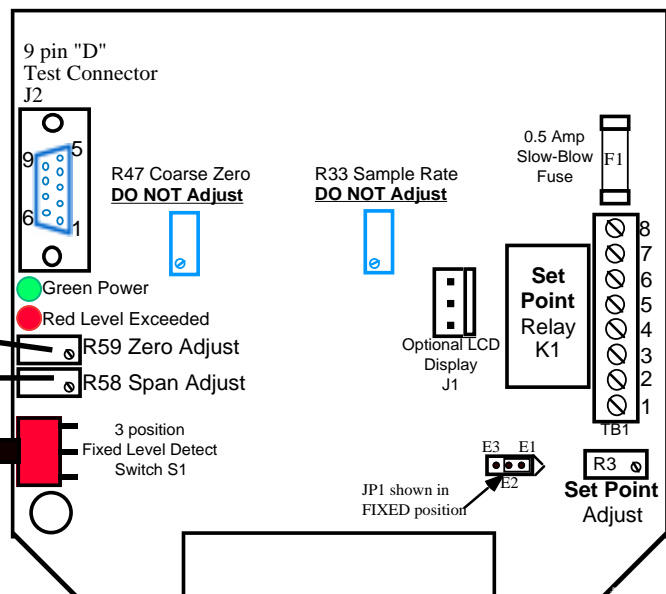
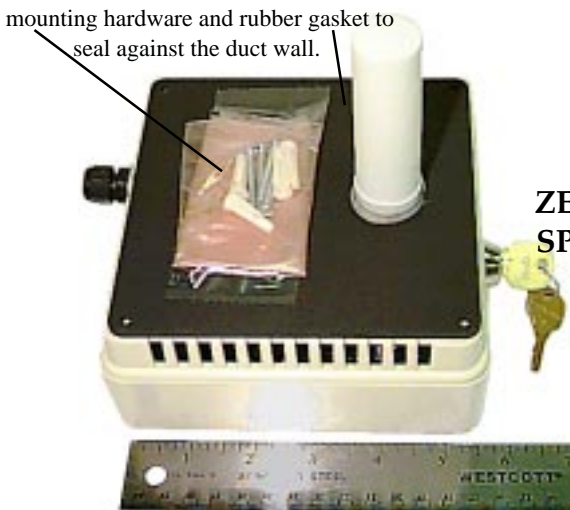
Model 6289D

PPM CO ₂	Output V	Max	Min	4-20 mA	Max	Min
0	0.000	0.125	-0.125	4.00	4.4	3.6
50	0.125	0.250	0.000	4.40	4.80	4.00
100	0.250	0.375	0.125	4.80	5.20	4.40
150	0.375	0.500	0.250	5.20	5.60	4.80
200	0.500	0.625	0.375	5.60	6.00	5.20
250	0.625	0.750	0.500	6.00	6.40	5.60
300	0.750	0.875	0.625	6.40	6.80	6.00
350	0.875	1.000	0.750	6.80	7.20	6.40
400	1.000	1.125	0.875	7.20	7.60	6.80
450	1.125	1.250	1.000	7.60	8.00	7.20
500	1.250	1.375	1.125	8.00	8.40	7.60
550	1.375	1.500	1.250	8.40	8.80	8.00
600	1.500	1.625	1.375	8.80	9.20	8.40
650	1.625	1.750	1.500	9.20	9.60	8.80
700	1.750	1.875	1.625	9.60	10.00	9.20
750	1.875	2.000	1.750	10.00	10.40	9.60
800	2.000	2.125	1.875	10.40	10.80	10.00
850	2.125	2.250	2.000	10.80	11.20	10.40
900	2.250	2.375	2.125	11.20	11.60	10.80
950	2.375	2.500	2.250	11.60	12.00	11.20
1000	2.500	2.625	2.375	12.00	12.40	11.60
1050	2.625	2.756	2.494	12.40	12.82	11.98
1100	2.750	2.888	2.613	12.80	13.24	12.36
1150	2.875	3.019	2.731	13.20	13.66	12.74
1200	3.000	3.150	2.850	13.60	14.08	13.12
1250	3.125	3.281	2.969	14.00	14.50	13.50
1300	3.250	3.413	3.088	14.40	14.92	13.88
1350	3.375	3.544	3.206	14.80	15.34	14.26
1400	3.500	3.675	3.325	15.20	15.76	14.64
1450	3.625	3.806	3.444	15.60	16.18	15.02
1500	3.750	3.938	3.563	16.00	16.60	15.40
1550	3.875	4.069	3.681	16.40	17.02	15.78
1600	4.000	4.200	3.800	16.80	17.44	16.16
1650	4.125	4.331	3.919	17.20	17.86	16.54
1700	4.250	4.463	4.038	17.60	18.28	16.92
1750	4.375	4.594	4.156	18.00	18.70	17.30
1800	4.500	4.725	4.275	18.40	19.12	17.68
1850	4.625	4.856	4.394	18.80	19.54	18.06
1900	4.750	4.988	4.513	19.20	19.96	18.44
1950	4.875	5.119	4.631	19.60	20.38	18.82
2000	5.000	5.250	4.750	20.00	20.80	19.20

Unit as shipped showing mounting hardware and rubber gasket to seal against the duct wall.



9 pin "D" Test Connector installed as an option only



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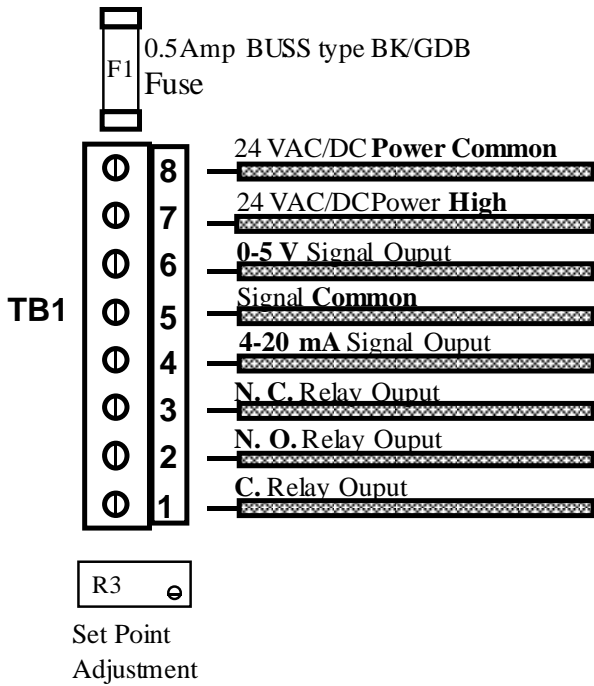
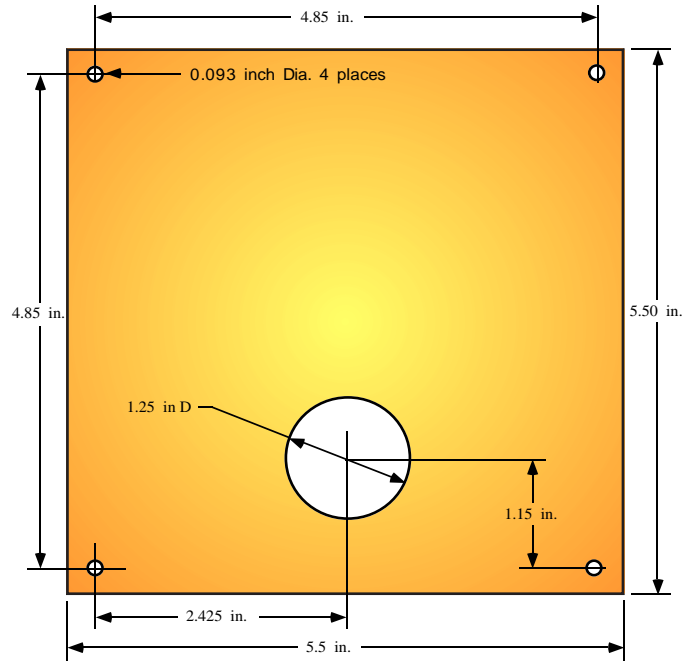
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MOUNTING directly on the DUCT:

Remove the cover of the unit using the key provided.

Locate the unit on a flat mounting surface of the duct, shown at the right, that is at least 5.5" square using the screws provided. Drill four 0.093 inch diameter (³/₃₂) holes and punch a 1.25 inch hole for the 1 inch dia. sensor probe.

Using 22 AWG to 14 AWG (20 AWG typical) wire connected to terminal block TB1 (see diagram below and block diagram on right), pull the power, signal, and relay contact wires (you only need to wire the functions that you want to use) through the black strain relief provided. Note: No external power should be applied to the 4-20 mA output nor the 0 to 5 volt output. **CAUTION: DO NOT** power a Model 6289 from the same transformer that powers an older Model 2088 or 2089 unit.



Shown with cover removed

Gas Calibration Tube

Calibration and preventive maintenance:

The units are delivered calibrated, using precision 1000±20 ppm certified carbon dioxide. They may be ordered for special high altitude calibration (Cities like Denver, CO where the CO₂ density is about 17% less than at sea level). See Application Note A12. Sensors should be checked every 6 to 12 months using our gas calibration kit. See Application Note A25 or A40 for details. The green 1/16 inch I.D. calibration tube is provided to make this simple and quick.

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