



Carbon Dioxide Monitor

Model 2008LRTB-24VDC 0.5% CO₂



Description:

The Valtronics Model 2008L RT is a Non-Dispersive Infrared gas monitor, designed as a remote transducer-transmitter for continuous monitoring of Carbon Dioxide in the range of 0 to 0.5% (5000 ppm) CO₂ full scale.

The Optical Diffusion Head is completely unaffected by humidity, and requires no gas sampling pump. The transducer output may be interfaced to any controller unit via the linear 0 to 1 Volt, or the 4-20 mA output signal.

Model 2008LRTB-24VDC 0.5% (5000 ppm) CO₂ Specifications:

Method:	N.D. I. R. (Non-dispersive Infra-red) gas diffusion sample cell
Gas:	Carbon dioxide (CO ₂)
Range:	0-0.5% (5000 ppm) CO ₂
Accuracy:	± 5% of reading from mid to full scale (± 0.0125% CO ₂ from 0-0.25% CO ₂)
Repeatability:	± 1% of full scale (challenge with same gas sample and assure zero)
External Power Source:	24 Volts D.C. @ 0.4 amp. max.(20.0 to 26.0 VDC absolute min./max.)
Power Consumption:	4 watts typical @ 24.0 VDC
Output Signals, voltage output: ..	0 to 1 volt = 0 to 0.5% (linear scale data provided)
	current loop output:... 4 to 20 mA = 0 to 0.5% (linear scale data provided) 500 Ω max loop resistance
Electronic Response Time:	8 seconds typical to a step change in gas concentration gas response depends on gas diffusion physics
Zero Noise at	
Constant Temperature:	Less than 10 mV peak to peak (measured during any 20 second period on V out) see VTI Application Note A8 -How to avoid GROUND LOOPS & EMI
Zero Drift at	
Constant Temperature:	Less than 2% of full scale per 24 hours (random not cumulative)
Zero Drift due to	
Ambient Temperature:	Less than 0.5% of full scale per degree Centigrade
Operating Temperature Range:	5 to 40°C (41° to 104°F) see Application Note A12
Ambient Relative Humidity:	5 to 95% RH non-condensing , see Application Note A30
Storage Temperature range:	40 to +70°C (-40 to +158°F)
Weight:	Less than 0.5 pound (0.23 kilogram)
External Dimensions:	
PCB Card:	3.7" x 5" x 1" see page 3 for mounting
Sample head and optics:	2" x 2", x 4.5" gas cell on a 9±1.5" cable, see page 3 for mounting



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5000 ppm (0.5%) & 1 volt full scale

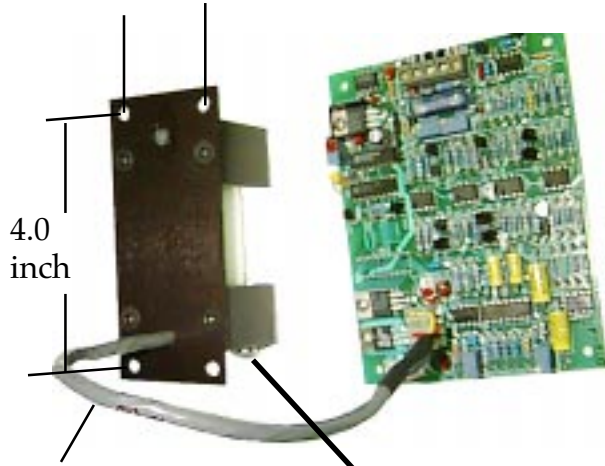
Chart revised on 3-15-95

<i>CO₂ Concentration in ppm</i>	Output in volts	<i>±5% of Reading</i>		<i>4-20 mA output</i>	<i>±5% of Reading</i>		<i>4-20 mA output across 250Ω in volts</i>
		<i>Max.</i>	<i>Min.</i>		<i>Max.</i>	<i>Min.</i>	
0	0.000	0.025	-0.025	4.00	4.40	3.60	1.00
100	0.020	0.045	-0.005	4.32	4.72	3.92	1.08
200	0.040	0.065	0.015	4.64	5.04	4.24	1.16
300	0.060	0.085	0.035	4.96	5.36	4.56	1.24
400	0.080	0.105	0.055	5.28	5.68	4.88	1.32
500	0.100	0.125	0.075	5.60	6.00	5.20	1.40
600	0.120	0.145	0.095	5.92	6.32	5.52	1.48
700	0.140	0.165	0.115	6.24	6.64	5.84	1.56
800	0.160	0.185	0.135	6.56	6.96	6.16	1.64
900	0.180	0.205	0.155	6.88	7.28	6.48	1.72
1000	0.200	0.225	0.175	7.20	7.60	6.80	1.80
1100	0.220	0.245	0.195	7.52	7.92	7.12	1.88
1200	0.240	0.265	0.215	7.84	8.24	7.44	1.96
1300	0.260	0.285	0.235	8.16	8.56	7.76	2.04
1400	0.280	0.305	0.255	8.48	8.88	8.08	2.12
1500	0.300	0.325	0.275	8.80	9.20	8.40	2.20
1600	0.320	0.345	0.295	9.12	9.52	8.72	2.28
1700	0.340	0.365	0.315	9.44	9.84	9.04	2.36
1800	0.360	0.385	0.335	9.76	10.16	9.36	2.44
1900	0.380	0.405	0.355	10.08	10.48	9.68	2.52
2000	0.400	0.425	0.375	10.40	10.80	10.00	2.60
2100	0.420	0.445	0.395	10.72	11.12	10.32	2.68
2200	0.440	0.465	0.415	11.04	11.44	10.64	2.76
2300	0.460	0.485	0.435	11.36	11.76	10.96	2.84
2400	0.480	0.505	0.455	11.68	12.08	11.28	2.92
2500	0.500	0.525	0.475	12.00	12.40	11.60	3.00
2600	0.520	0.546	0.494	12.32	12.74	11.90	3.08
2700	0.540	0.567	0.513	12.64	13.07	12.21	3.16
2800	0.560	0.588	0.532	12.96	13.41	12.51	3.24
2900	0.580	0.609	0.551	13.28	13.74	12.82	3.32
3000	0.600	0.630	0.570	13.60	14.08	13.12	3.40
3100	0.620	0.651	0.589	13.92	14.42	13.42	3.48
3200	0.640	0.672	0.608	14.24	14.75	13.73	3.56
3300	0.660	0.693	0.627	14.56	15.09	14.03	3.64
3400	0.680	0.714	0.646	14.88	15.42	14.34	3.72
3500	0.700	0.735	0.665	15.20	15.76	14.64	3.80
3600	0.720	0.756	0.684	15.52	16.10	14.94	3.88
3700	0.740	0.777	0.703	15.84	16.43	15.25	3.96
3800	0.760	0.798	0.722	16.16	16.77	15.55	4.04
3900	0.780	0.819	0.741	16.48	17.10	15.86	4.12
4000	0.800	0.840	0.760	16.80	17.44	16.16	4.20
4100	0.820	0.861	0.779	17.12	17.78	16.46	4.28
4200	0.840	0.882	0.798	17.44	18.11	16.77	4.36
4300	0.860	0.903	0.817	17.76	18.45	17.07	4.44
4400	0.880	0.924	0.836	18.08	18.78	17.38	4.52
4500	0.900	0.945	0.855	18.40	19.12	17.68	4.60
4600	0.920	0.966	0.874	18.72	19.46	17.98	4.68
4700	0.940	0.987	0.893	19.04	19.79	18.29	4.76
4800	0.960	1.008	0.912	19.36	20.13	18.59	4.84
4900	0.980	1.029	0.931	19.68	20.46	18.90	4.92
5000	1.000	1.050	0.950	20.00	20.80	19.20	5.00

Accuracy = ±5% of reading from 2500 to 5000 ppm CO₂ and ±125 ppm CO₂ from 0 to 2500 ppm CO₂

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Gas Cell mounts through
0.2" diameter holes
4 places on 2.5 x 4" centers

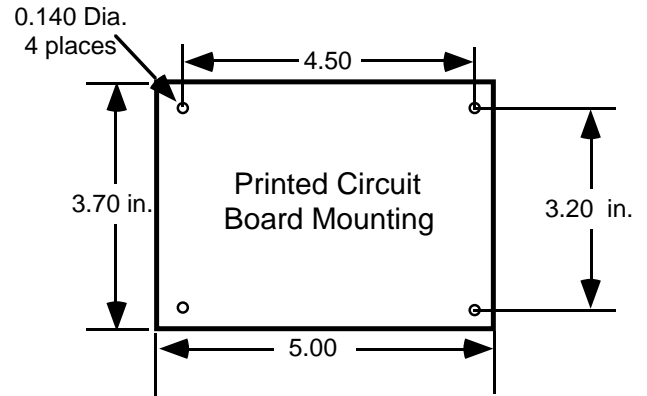


4.0
inch

0.25" dia. cable
1" in from side
and 0.75 inch in
from end of
mounting plate

Gas Calibration Port: A #10-32 screw may be removed and replaced by a #10-32 hose barb to flow calibration gas at about 0.3 to 0.5 LPM

Mounting & clearance information



Coarse Zero adj

Clock Adj. (requires frequency counter)

4 mA Adj.

ZERO Adj.

- 5. 4-20 mA out
- 4. Sig Common
- 3. 0-1 V out
- 2. 24V return (-)
- 1. +24 VDC

SPAN Adj.

20 mA Adj.

