



Model 2008SDH-5V 10% CO₂ 2008SDH-P-5V 10%

(low profile terminal block and 90° hose barbs on gas cell option)

Specification: 2008SDH-5V 10% CO₂

Method: N.D. I. R. (Non-dispersive Infra-red) Sample draw type gas sampling
(see **Application Note A67** - Recommended Gas Conditioning)

Gas sample hose barbs: Designed for 1/8 inch I.D. tubing and **flow rates** between 0.05 and 0.3 liter/minute
see Application Note A24 about gas calibration.

Gas: Carbon Dioxide CO₂

Range: 0-10% CO₂

Accuracy: ± 5% of reading (±0.25% CO₂ from 0 to 5% CO₂) - see scale data

Repeatability: ± 1% of full scale (challenge with same gas sample and assure zero)

External Power Source: 12 Volts D.C. @ 0.6 amp. max.(11.0 to 16.0 VDC absolute min./max.)

Power Consumption: less than 3 watts @ 12.0 VDC (2.4 watts typical, 7.2 watts peak at 12.0 V)

Output Signals: Std. output connector is a Phoenix 5 pin male with mating terminal block, see option below

Voltage: 0 to 5 volt = 0 to 10% CO₂ (linear scale data attached)

Current Loop: 4 to 20 mA = 0 to 10% CO₂ (linear scale data attached) 300Ω max loop R

Zero Drift at Constant Temperature: Less than 2% of full scale per 24 hours (random not cumulative)

Zero Noise at Constant Temperature: .. Less than 50 mV peak to peak, measured on V out during any 20 second period

Zero Drift due to Ambient Temp.: Less than 0.5% of full scale 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)

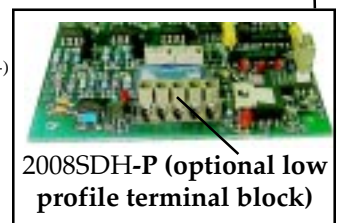
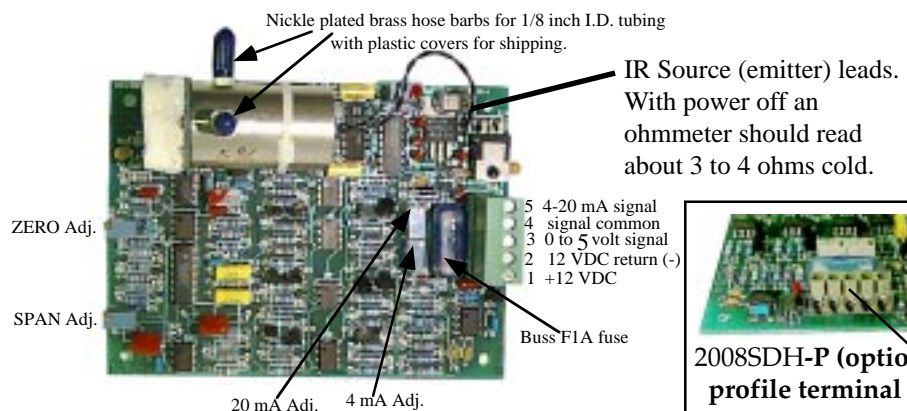
Operating Humidity Range: 5 to 95% RH non-condensing See **Application Note A30**

Weight: Less than 0.5 pounds (0.23 kilograms)

External Dimensions: PCB Card: 3.9" x 5" x 1.5" dimensions are in inches
..... see diagram on page 2 for mounting



Gas calibration should be done every 6 months. Flow nitrogen at about 0.3 to 1 liter/min through the cell and adjust ZERO for a 0-1 volt output of 0.00 volt Check the 4-20 mA output for 4.0±0.4 mA. Adjust 4mA if necessary. Flow 5.0±0.1% CO₂ through cell and adjust SPAN for 2.50 volt and check current loop for an output of 12.0±0.4 mA. Adjust 20 mA if necessary.



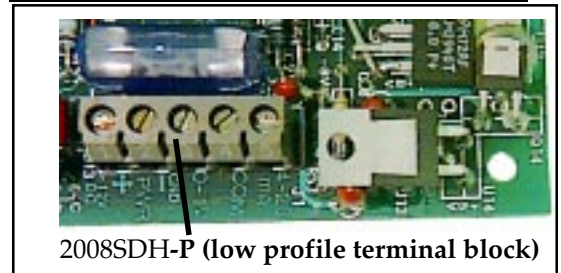
Note: Flow rate through the gas cell should not exceed 1 liter per minute to assure that the gas cell is not pressurized. A pressure in the gas cell above atmospheric pressure will result in a SPAN error (gas law). Gas calibration should be done every 6 months, especially ZERO adjust using ZERO gas (nitrogen) flowing at about 500 mL/min. flow rate for a 0-5 volt output of 0.000 ± 0.05 volt. See **Application Note A67** for info about gas conditioning and parts for filtering the gas and preventing water droplets from entering the gas cell. See **Application Note A50** for PC board troubleshooting.

VALTRONICS 10% & 5 volt full scale

Gas in %	Output in volts	±5% of reading		Output 4-20 mA	±5% of reading	
		Max	Min		Max	Min
0.00	0.000	0.125	-0.125	4.00	4.40	3.60
0.20	0.100	0.225	-0.025	4.32	4.72	3.92
0.40	0.200	0.325	0.075	4.64	5.04	4.24
0.60	0.300	0.425	0.175	4.96	5.36	4.56
0.80	0.400	0.525	0.275	5.28	5.68	4.88
1.00	0.500	0.625	0.375	5.60	6.00	5.20
1.20	0.600	0.725	0.475	5.92	6.32	5.52
1.40	0.700	0.825	0.575	6.24	6.64	5.84
1.60	0.800	0.925	0.675	6.56	6.96	6.16
1.80	0.900	1.025	0.775	6.88	7.28	6.48
2.00	1.000	1.125	0.875	7.20	7.60	6.80
2.20	1.100	1.225	0.975	7.52	7.92	7.12
2.40	1.200	1.325	1.075	7.84	8.24	7.44
2.60	1.300	1.425	1.175	8.16	8.56	7.76
2.80	1.400	1.525	1.275	8.48	8.88	8.08
3.00	1.500	1.625	1.375	8.80	9.20	8.40
3.20	1.600	1.725	1.475	9.12	9.52	8.72
3.40	1.700	1.825	1.575	9.44	9.84	9.04
3.60	1.800	1.925	1.675	9.76	10.16	9.36
3.80	1.900	2.025	1.775	10.08	10.48	9.68
4.00	2.000	2.125	1.875	10.40	10.80	10.00
4.20	2.100	2.225	1.975	10.72	11.12	10.32
4.40	2.200	2.325	2.075	11.04	11.44	10.64
4.60	2.300	2.425	2.175	11.36	11.76	10.96
4.80	2.400	2.525	2.275	11.68	12.08	11.28
5.00	2.500	2.625	2.375	12.00	12.40	11.60
5.20	2.600	2.730	2.470	12.32	12.74	11.90
5.40	2.700	2.835	2.565	12.64	13.07	12.21
5.60	2.800	2.940	2.660	12.96	13.41	12.51
5.80	2.900	3.045	2.755	13.28	13.74	12.82
6.00	3.000	3.150	2.850	13.60	14.08	13.12
6.20	3.100	3.255	2.945	13.92	14.42	13.42
6.40	3.200	3.360	3.040	14.24	14.75	13.73
6.60	3.300	3.465	3.135	14.56	15.09	14.03
6.80	3.400	3.570	3.230	14.88	15.42	14.34
7.00	3.500	3.675	3.325	15.20	15.76	14.64
7.20	3.600	3.780	3.420	15.52	16.10	14.94
7.40	3.700	3.885	3.515	15.84	16.43	15.25
7.60	3.800	3.990	3.610	16.16	16.77	15.55
7.80	3.900	4.095	3.705	16.48	17.10	15.86
8.00	4.000	4.200	3.800	16.80	17.44	16.16
8.20	4.100	4.305	3.895	17.12	17.78	16.46
8.40	4.200	4.410	3.990	17.44	18.11	16.77
8.60	4.300	4.515	4.085	17.76	18.45	17.07
8.80	4.400	4.620	4.180	18.08	18.78	17.38
9.00	4.500	4.725	4.275	18.40	19.12	17.68
9.20	4.600	4.830	4.370	18.72	19.46	17.98
9.40	4.700	4.935	4.465	19.04	19.79	18.29
9.60	4.800	5.040	4.560	19.36	20.13	18.59
9.80	4.900	5.145	4.655	19.68	20.46	18.90
10.00	5.000	5.250	4.750	20.00	20.80	19.20



Adjustable **90° hose barbs** option on gas cell for lower profile **-P** Option



2008SDH-P (low profile terminal block)

