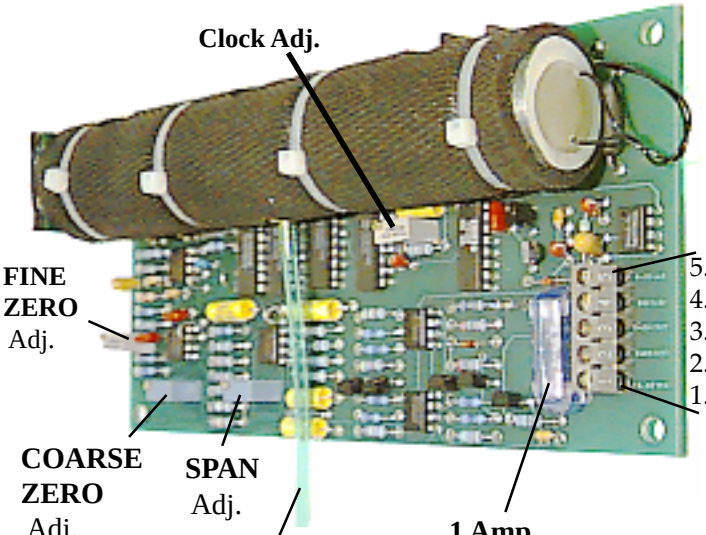
VALTRONICS

Ammonia Monitor
Model 2024 2% NH_3

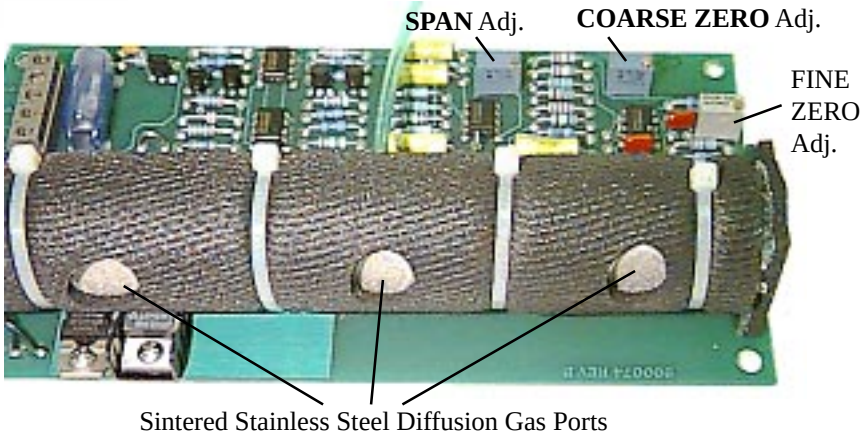
Features:

- OEM optical bench
- Non dispersive infrared (NDIR) technology
- Precision gas calibration kit available
- Fast warm-up
- Industrially robust
- Cost effective - High quality
- Diffusion Gas Cell - no moving parts
- Solid state throughout
- Not affected by water vapor
- Linear voltage and current loop outputs

Model 2024 2% Ammonia (NH_3)



The board is 6.75″ long, by 3.5″ wide, by 1.75″ vertical clearance. It has four (4) 0.194 diameter mounting holes that are on 6.35″ x 3.1″ centers in the four courners of the board.



Application:

- Industrial Safety:

The ***VALTRONICS*** Model 2024-2% NH_3 is a non-dispersive infrared NH_3 monitor for use as an OEM module. It produces a control signal proportional to NH_3 concentration.

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Ammonia Monitor
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Description:

TThe ***VALTRONICS*** Model 2024-2% NH_3 is a non-dispersive infrared NH_3 monitor for use as an OEM module. It produces a control signal proportional to NH_3 concentration.

The linear signal outputs of 0-5 VDC and 4-20 mA current loop may be used with any central control alarm of air monitoring system.

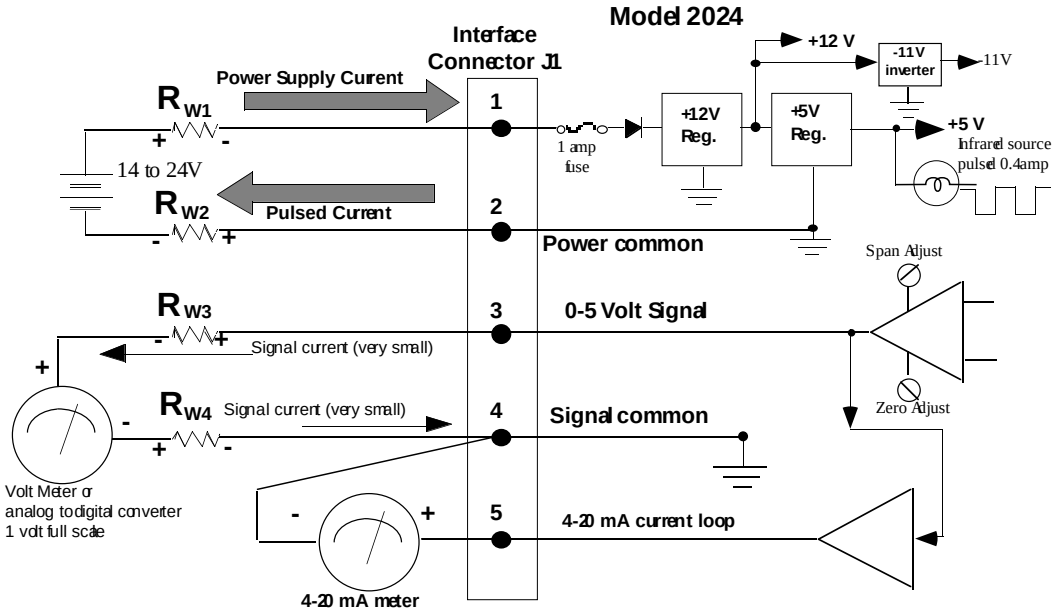
Specifications: 2024 2% Ammonia (NH_3)

Method: ..... N.D. I. R. (Non-dispersive Infra-red) Gas Diffusion type gas sampling
Gas: ..... **Ammonia (NH_3)**
Range: ..... 0-2% NH_3
Accuracy: ..... ± 5% of reading from 1 to 2% NH_3
..... ± 0.05% NH_3 from 0 to 1% NH_3
Repeatability: ..... ± 1% of full scale (challenge with same gas sample and assure zero)
External Power Source: ..... 14.0 to 24.0 VDC absolute min./max.
Power Consumption: ..... Less than 3 watts @ 15 VDC
Output Signals:
Voltage: ..... 0 to 5 volt = 0 to 2% NH_3 (linear scale data attached)
Current Loop: ..... 4 to 20 mA = 0 to 2% NH_3 (linear scale data attached)
Zero Drift at constant Temperature: . 2% of full scale per 24 hours maximum (random not cumulative)
Zero Noise at constant Temperature: Less than 50 mV peak to peak measured during any 20 second period
..... measured on the 0-5 V signal output terminal with respect to signal common
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)
Operating Humidity Range: ..... 0 to 95% RH non-condensing
Storage Temperature range: ..... -40 to +70°C (-40 to +158°F)
Weight: ..... Less than 0.5 pound
External Dimensions: ..... 7.75 inches x 4.5 inches x 3.75 inches (5.5 inch long gas calibration tube)

VALTRONICS 2% & 5 volt linear full scale

Gas	Output	±0.05% NH_3		4-20 mA	±0.4 mA		Gas	Output	±5% of reading		4-20 mA	±5% of reading	
in %	in volts	Max.	Min.	0utput	Max.	Min.	in %	in volts	Max.	Min.	0utput	Max.	Min.
0.00	**0.000**	0.125	-0.125	**4.00**	4.40	3.60							
0.02	**0.050**	0.175	-0.075	**4.16**	4.56	3.76	**1.02**	**2.550**	2.678	2.423	**12.16**	12.57	11.75
0.04	**0.100**	0.225	-0.025	**4.32**	4.72	3.92	**1.04**	**2.600**	2.730	2.470	**12.32**	12.74	11.90
0.06	**0.150**	0.275	0.025	**4.48**	4.88	4.08	**1.06**	**2.650**	2.783	2.518	**12.48**	12.90	12.06
0.08	**0.200**	0.325	0.075	**4.64**	5.04	4.24	**1.08**	**2.700**	2.835	2.565	**12.64**	13.07	12.21
0.10	**0.250**	0.375	0.125	**4.80**	5.20	4.40	**1.10**	**2.750**	2.888	2.613	**12.80**	13.24	12.36
0.12	**0.300**	0.425	0.175	**4.96**	5.36	4.56	**1.12**	**2.800**	2.940	2.660	**12.96**	13.41	12.51
0.14	**0.350**	0.475	0.225	**5.12**	5.52	4.72	**1.14**	**2.850**	2.993	2.708	**13.12**	13.58	12.66
0.16	**0.400**	0.525	0.275	**5.28**	5.68	4.88	**1.16**	**2.900**	3.045	2.755	**13.28**	13.74	12.82
0.18	**0.450**	0.575	0.325	**5.44**	5.84	5.04	**1.18**	**2.950**	3.098	2.803	**13.44**	13.91	12.97
0.20	**0.500**	0.625	0.375	**5.60**	6.00	5.20	**1.20**	**3.000**	3.150	2.850	**13.60**	14.08	13.12
0.22	**0.550**	0.675	0.425	**5.76**	6.16	5.36	**1.22**	**3.050**	3.203	2.898	**13.76**	14.25	13.27
0.24	**0.600**	0.725	0.475	**5.92**	6.32	5.52	**1.24**	**3.100**	3.255	2.945	**13.92**	14.42	13.42
0.26	**0.650**	0.775	0.525	**6.08**	6.48	5.68	**1.26**	**3.150**	3.308	2.993	**14.08**	14.58	13.58
0.28	**0.700**	0.825	0.575	**6.24**	6.64	5.84	**1.28**	**3.200**	3.360	3.040	**14.24**	14.75	13.73
0.30	**0.750**	0.875	0.625	**6.40**	6.80	6.00	**1.30**	**3.250**	3.413	3.088	**14.40**	14.92	13.88
0.32	**0.800**	0.925	0.675	**6.56**	6.96	6.16	**1.32**	**3.300**	3.465	3.135	**14.56**	15.09	14.03
0.34	**0.850**	0.975	0.725	**6.72**	7.12	6.32	**1.34**	**3.350**	3.518	3.183	**14.72**	15.26	14.18
0.36	**0.900**	1.025	0.775	**6.88**	7.28	6.48	**1.36**	**3.400**	3.570	3.230	**14.88**	15.42	14.34
0.38	**0.950**	1.075	0.825	**7.04**	7.44	6.64	**1.38**	**3.450**	3.623	3.278	**15.04**	15.59	14.49
0.40	**1.000**	1.125	0.875	**7.20**	7.60	6.80	**1.40**	**3.500**	3.675	3.325	**15.20**	15.76	14.64
0.42	**1.050**	1.175	0.925	**7.36**	7.76	6.96	**1.42**	**3.550**	3.728	3.373	**15.36**	15.93	14.79
0.44	**1.100**	1.225	0.975	**7.52**	7.92	7.12	**1.44**	**3.600**	3.780	3.420	**15.52**	16.10	14.94
0.46	**1.150**	1.275	1.025	**7.68**	8.08	7.28	**1.46**	**3.650**	3.833	3.468	**15.68**	16.26	15.10
0.48	**1.200**	1.325	1.075	**7.84**	8.24	7.44	**1.48**	**3.700**	3.885	3.515	**15.84**	16.43	15.25
0.50	**1.250**	1.375	1.125	**8.00**	8.40	7.60	**1.50**	**3.750**	3.938	3.563	**16.00**	16.60	15.40
0.52	**1.300**	1.425	1.175	**8.16**	8.56	7.76	**1.52**	**3.800**	3.990	3.610	**16.16**	16.77	15.55
0.54	**1.350**	1.475	1.225	**8.32**	8.72	7.92	**1.54**	**3.850**	4.043	3.658	**16.32**	16.94	15.70
0.56	**1.400**	1.525	1.275	**8.48**	8.88	8.08	**1.56**	**3.900**	4.095	3.705	**16.48**	17.10	15.86
0.58	**1.450**	1.575	1.325	**8.64**	9.04	8.24	**1.58**	**3.950**	4.148	3.753	**16.64**	17.27	16.01
0.60	**1.500**	1.625	1.375	**8.80**	9.20	8.40	**1.60**	**4.000**	4.200	3.800	**16.80**	17.44	16.16
0.62	**1.550**	1.675	1.425	**8.96**	9.36	8.56	**1.62**	**4.050**	4.253	3.848	**16.96**	17.61	16.31
0.64	**1.600**	1.725	1.475	**9.12**	9.52	8.72	**1.64**	**4.100**	4.305	3.895	**17.12**	17.78	16.46
0.66	**1.650**	1.775	1.525	**9.28**	9.68	8.88	**1.66**	**4.150**	4.358	3.943	**17.28**	17.94	16.62
0.68	**1.700**	1.825	1.575	**9.44**	9.84	9.04	**1.68**	**4.200**	4.410	3.990	**17.44**	18.11	16.77
0.70	**1.750**	1.875	1.625	**9.60**	10.00	9.20	**1.70**	**4.250**	4.463	4.038	**17.60**	18.28	16.92
0.72	**1.800**	1.925	1.675	**9.76**	10.16	9.36	**1.72**	**4.300**	4.515	4.085	**17.76**	18.45	17.07
0.74	**1.850**	1.975	1.725	**9.92**	10.32	9.52	**1.74**	**4.350**	4.568	4.133	**17.92**	18.62	17.22
0.76	**1.900**	2.025	1.775	**10.08**	10.48	9.68	**1.76**	**4.400**	4.620	4.180	**18.08**	18.78	17.38
0.78	**1.950**	2.075	1.825	**10.24**	10.64	9.84	**1.78**	**4.450**	4.673	4.228	**18.24**	18.95	17.53
0.80	**2.000**	2.125	1.875	**10.40**	10.80	10.00	**1.80**	**4.500**	4.725	4.275	**18.40**	19.12	17.68
0.82	**2.050**	2.175	1.925	**10.56**	10.96	10.16	**1.82**	**4.550**	4.778	4.323	**18.56**	19.29	17.83
0.84	**2.100**	2.225	1.975	**10.72**	11.12	10.32	**1.84**	**4.600**	4.830	4.370	**18.72**	19.46	17.98
0.86	**2.150**	2.275	2.025	**10.88**	11.28	10.48	**1.86**	**4.650**	4.883	4.418	**18.88**	19.62	18.14
0.88	**2.200**	2.325	2.075	**11.04**	11.44	10.64	**1.88**	**4.700**	4.935	4.465	**19.04**	19.79	18.29
0.90	**2.250**	2.375	2.125	**11.20**	11.60	10.80	**1.90**	**4.750**	4.988	4.513	**19.20**	19.96	18.44
0.92	**2.300**	2.425	2.175	**11.36**	11.76	10.96	**1.92**	**4.800**	5.040	4.560	**19.36**	20.13	18.59
0.94	**2.350**	2.475	2.225	**11.52**	11.92	11.12	**1.94**	**4.850**	5.093	4.608	**19.52**	20.30	18.74
0.96	**2.400**	2.525	2.275	**11.68**	12.08	11.28	**1.96**	**4.900**	5.145	4.655	**19.68**	20.46	18.90
0.98	**2.450**	2.575	2.325	**11.84**	12.24	11.44	**1.98**	**4.950**	5.198	4.703	**19.84**	20.63	19.05
1.00	**2.500**	2.625	2.375	**12.00**	12.40	11.60	**2.00**	**5.000**	5.250	4.750	**20.00**	20.80	19.20

Accuracy = ±5% of reading from 1% NH3 to 2% NH3 and ±0.05% NH3 from 0 to 1% NH3 Chart modified on 4-24-97



• The pulsating **power supply return current** will take the path of least resistance. If the wire from pin# 2 is large and short it will travel through it and not in the signal path which would introduce an offset and noise. The **SIGNAL COMMON** must have a separate wire for signal current to flow through. There must be a minimum of four (4) wires A three (3) wire connection where one wire is used for both power supply and signal common will **not work** even with the current loop.

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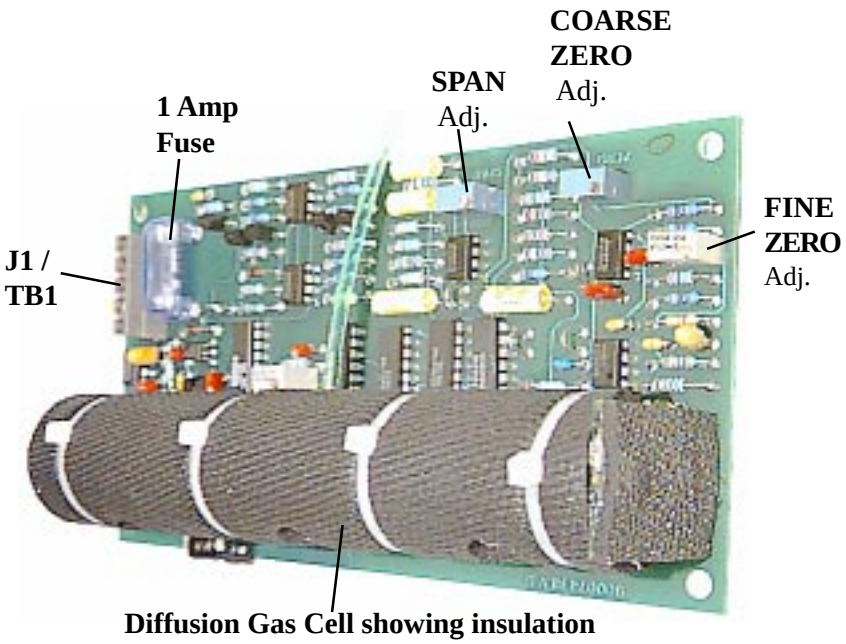
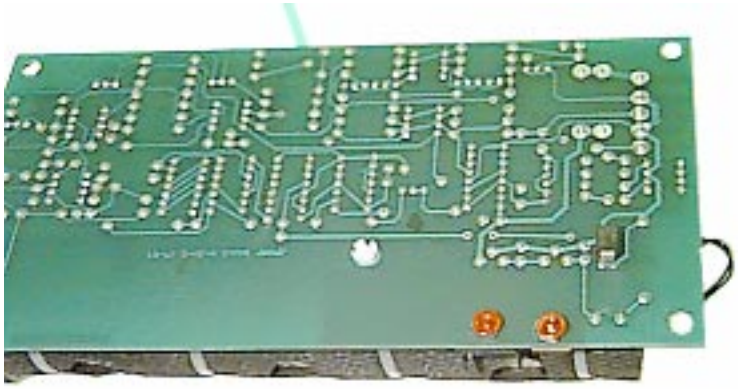


Diffusion Gas Cell showing insulation



Circuit Side of printed circuit board

