

The Model 4101 Series Gas Sensor Modules feature accurate detection of the specified gas with linear 4-20 mA output.

The Sierra Monitor Model 4101 Series provides the user with the features needed in a stand-alone, fixed-point hazardous gas monitor system. Utilizing catalytic bead sensor for combustible gas and electrochemical sensor technology for the oxygen and toxic gas sensors, the Model 4101 provides accurate monitoring of hazardous gas conditions. Proven sensor design matched with reliable state-of-the-art electronics results in the ideal complete single channel package to protect your plant and personnel.

Automatic Low Sensitivity Check

Monitoring integrity is ensured with the automatic low sensitivity check. After calibration, a sensor sensitivity check confirms that the sensor response to gas is sufficient to provide reliable operation without false indication. If the sensor has low sensitivity, an LED lights to indicate that sensor replacement is due.

False Alarm Avoidance

During Power-Up and Calibration, the transmitter output is locked at 4 mA (except Oxygen sensor modules). The output remains locked for five minutes directly after power is applied or after calibration gas is removed, allowing sufficient time to fully stabilize before coming on-line. This avoids erroneous readings during warm-up and prevents alarm caused by calibration gas.



Convenient Diagnostic Measurements

Critical measurements are made at convenient jacks for a Volt Ohm Meter. Each measurement location is clearly marked. All modules have a signal output adjustment.

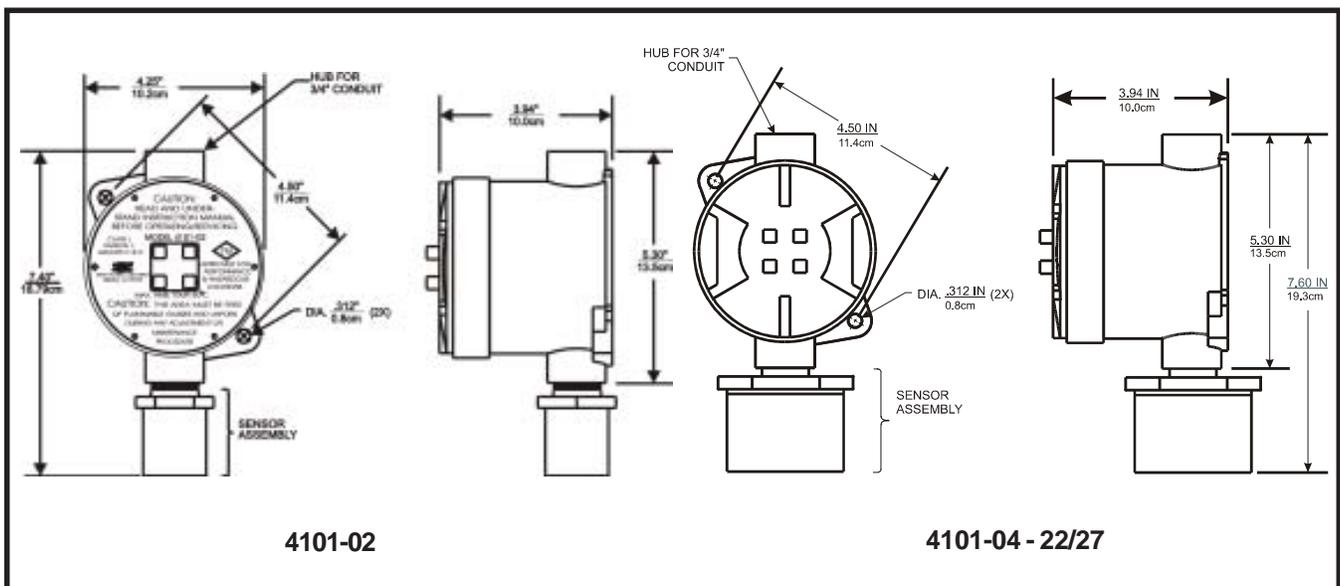
Simple Zero and Span Adjustments

Easily accessible potentiometers enable calibration adjustments to be made in minutes by non-technical personnel for reduced maintenance cost.

Flexible Alarm and Logging Options

The analog gas sensor modules can be used as part of a facility gas risk management plan. The 4-20 mA output signal is ideally suited to interface with a wide range of instrumentation for alarm annunciation and recording.

The sensor module is housed in a NEMA-7 enclosure rated for Class 1, Division 1, Groups C, D environments. An optional NEMA 4 Group B enclosure is available.



Specifications

Gas Type	Model	Sensor	Range	Units	Resolution	Response Time (1)	Sensor Life (2)	Operating Range		
								°F	°C	RH
Combustibles	4101-02	Catalytic	0-100	%LEL	+/-3% F.S.	(3)	3 Yrs	-40 to 167	-40 to 75	10 - 95%
Oxygen	4101-03EL	EC	0-25	% Vol	+/-0.1%	<10 sec.	2 Yr	5 to 122	-15 to 50	5 - 99%
Carbon Monoxide	4101-04	EC	0-500	PPM	1.0 PPM	<25 sec	2 Yrs	-4 to 122	-20 to 50	15 - 90%
Hydrogen Sulfide	4101-05	EC	0-100	PPM	0.1 PPM	<30 sec	2 Yrs	-40 to 122	-40 to 50	15 - 90%
Chlorine	4101-06	EC	0-10	PPM	0.1 PPM	<60 sec	2 Yrs	-4 to 122	-20 to 50	15 - 90%
Sulfur Dioxide	4101-10	EC	0-100	PPM	0.5 PPM	<20 sec	2 Yrs	-4 to 122	-20 to 50	15 - 90%
Nitrogen Dioxide	4101-12	EC	0-20	PPM	0.2 PPM	<35 sec	2 Yrs	-4 to 122	-20 to 50	15 - 90%
Carbon Monoxide 4	4101-13	EC	0-1000	PPM	0.5 PPM	<35 sec	2 Yrs	-4 to 122	-20 to 50	15 - 90%
Carbon Monoxide	4101-16	EC	0-2000	PPM	0.1 PPM	<35 sec	2 Yrs	-4 to 122	-20 to 50	15 - 90%
Nitric Oxide	4101-19	EC	0-20	PPM	0.5 PPM	<15 sec	3 Yrs	-4 to 122	-20 to 50	15 - 90%
Hydrogen Chloride	4101-21	EC	0-20	PPM	0.1 PPM	<100 sec	2 Yrs	-4 to 122	-20 to 50	15 - 90%
Hydrogen Cyanide	4101-22	EC	0-20	PPM	0.1 PPM	<70 sec	2 Yrs	-4 to 122	-20 to 50	15 - 90%
Ammonia	4101-25	EC	0-50	PPM	1.0 PPM	<30 sec	(5)	14 to 113	-10 to 45	20 - 95%
Hydrogen Fluoride	4101-26	EC	0-10	PPM	1.0 PPM	<30 sec	(5)	14 to 113	-10 to 45	20 - 95%
Ethylene Oxide	4101-27	EC	0-20	PPM	0.1 PPM	<90 sec	2 Yrs	-4 to 122	-20 to 50	15 - 90%

Notes: **(1)** Response time to 90% full signal value for applied concentration
(2) Sensor life typical for use at standard temperature and pressure with occasional exposure to gas of interest
(3) Step to 50% LEL within 10 seconds. Recovery to 10% LEL within 30 seconds
(4) Hydrogen tolerant
(5) Diffusion via membrane. Requires electrolyte and membrane replacement every 6 months.

Electrical Data

Loop Type	3 wire
Loop Resistance	800 Ohm with 28VDC 400 Ohms at 21 VDC (4101-02)
Input Voltage DC	14-30 VDC (20-30VDC 4101-02)
Input Current	40 mA (80 mA 4101-02)
Input Power Max	1.4W (2.3W 4101-02)
Signal Output	4-20 mA DC linear (trouble 0 mA)
Operating Pressure	+10% (variation from ambient)

Construction

Modules	Dimensions	Weight
4101-02	H: 7.5", D: 4.0", W: 4.0" (21.6 x 10.2 x 10.2 cm)	2.0 lb (0.9 Kg)
4101-03EL	H: 8.5", D: 4.0", W: 4.0" (21.6 x 10.2 x 10.2 cm)	2.1 lb (1.0 Kg)
4101-04-27	H: 8.0", D: 4.5", W: 4.0" (20.3 x 15.2 x 15.2 cm)	2.7 lb (1.3 Kg)
4101-25/26	H: 10.2", D: 6.0", W: 6.0" (25.9 x 15.2 x 15.2 cm)	2.7 lb (1.3 Kg)

Cross Sensitivity Data

Model Number	Gas type	Reading from 100 PPM of interfering gas										
		CO	H ₂ S	Cl ₂	H ₂	SO ₂	NO ₂	NO	HCl	HCN	C ₂ H ₄	
4101-04	CO	100	5	0	<20	0	0	6	0	0	<50	
4101-05	H ₂ S	<2	100	-20	<0.1	<15	-15	0	0	0	0	
4101-06	Cl ₂	0	<-10	100	0	0	105	0	0	0	0	
4101-10	SO ₂	<1	0	-40	0	100	-100	0	0	15	0	
4101-12	NO ₂	0	-20	90	0	0	100	0	0	-3	0	
4101-13	CO	100	350	0	<60	60	-60	25	0	0	<75	
4101-16	CO	100	0	0	0	0	0	0	0	0	35	
4101-19	NO	0	35	0	0	5	25	100	15	0	0	
4101-21	HCl	0	75	-10	0	35	-2	0	100	-8	0	
4101-22	HCN	<0.5		-50	0	160	-190	-5		100	<1	
4101-27	C ₂ H ₄ O (ETO)	Ethanol		55	 APPROVED 4101-02 Combustible Gas Sensor is FM Approved							
		Toluene		20								
		Methyl-ethyl-ketone		10								
		Carbon Monoxide		40								



05/04