



Model 4100 Series Gas Sensor Modules

The Model 4100 Series Gas Sensor Modules monitor a variety of toxic and combustible gases and provide a 4-20 mA DC output signal of gas concentration

The Model 4100 Series utilizes semiconductor sensor technology to provide monitoring of gases in the parts per million (PPM) ranges. These modules operate on 24 VDC input and have a non-linear 4-20 mA DC current loop output.

The four gas sensor modules in this series are:

- 4100-33 Gas Sensor Module 4-20 mA DC
- 4100-34 Gas Sensor Module 4-20 mA DC
- 4100-35 Gas Sensor Module 4-20 mA DC
- 4100-36 Gas Sensor Module 4-20 mA DC

These gas sensor modules can monitor a wide variety of gases. Table A provides a partial list of gases that can be reliably monitored. If your gas is not on this list, check with Sierra Monitor to determine if a 4100 Series gas sensor module is available to meet your requirements.

Also, these gas sensor modules can be calibrated with the gas of interest or with methane or carbon monoxide. Thus, the user does not have to obtain a special calibration gas.

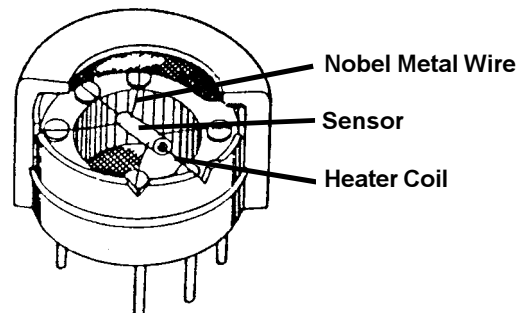
The Model 4100 Series provides a non-linear 4-20 mA output signal that can interface with the Sierra Monitor Sensys controller or other linearizing controllers / indicators. Curves and linearizing equations can be provided for a specific gas and sensor to enable the operation of these sensor modules with other brand controllers.



How it Works

Semiconductor sensors have a resistance in air that is affected by oxygen adsorbed on the surface of the sensor. Oxygen atoms capture electrons on the semiconductor surface, thereby increasing its resistance.

The sensors can be impregnated with dopants such that the sensor's resistance changes when specific gases displace the adsorbed oxygen.



Specifications

Sensor

Type: Solid State Metal Oxide Semiconductor
 Range: 20-500 ppm or 50-5000 ppm See Table A.
 Response: 80% of concentration in less than 3 mins.
 Typical Life: 1-3 years in Normal Service.

Detectable Gases And Vapors

Typical List: See Table A

Maintenance

Calibration
 Adjustments: Zero Adjust, Span Adjust
 Sensor LED: OFF indicates heater or film is an open circuit.

Environmental

Operating: Temperature -10°C to +40°C (14°F to 104°F)
 Humidity 5% to 95% non-condensing
 Storage: Temperature -55°C to +85°C (-67°F to 185°F)

Electrical Data

Wiring: 3 wire non-isolated
 Input Voltage: 14 - 30 VDC
 Current: 70mA @ 4mA DC loop current;
 90mA @ 20mA DC loop current at 24VDC.
 Power: 2.1 Watts
 Output Range: 4-20mA DC Non-linear
 Loop Res.: 800 ohms at 28VDC

Mechanical

Size: 6.75" x 4" x 3.5" (HxWxD)
 (17.1 cm x 10.2 cm x 8.9 cm)
 Material: Cast aluminum epoxy painted
 Weight: 2 pounds (0.9 Kg)
 Classification: Class I Division I Groups C,D
 Mounting: Connects to a vertical 3/4" electrical conduit



ORDERING INFORMATION

- 4100-33 Gas Sensor Module 4-20 mA DC
- 4100-34 Gas Sensor Module 4-20 mA DC
- 4100-35 Gas Sensor Module 4-20 mA DC
- 4100-36 Gas Sensor Module 4-20 mA DC

Spare Parts & Accessories

- 4200-33 Sensor Replacement Assy for 4100-33
- 4200-34 Sensor Replacement Assy for 4100-34
- 4200-35 Sensor Replacement Assy for 4100-35
- 4200-36 Sensor Replacement Assy for 4100-36
- 5311-00 Rainshield
- SPM 28009 Assembly, Transmitter Electronics

Calibration Accessories

- 1200-26 Gas Sensor Calibrator w/2 gas cylinders
- 1290-03 Gas Cylinder - Methane 5000 ppm
- 1290-04 Gas Cylinder - Methane 1000 ppm
- 1290-05 Gas Cylinder - Carbon Monoxide 100 ppm

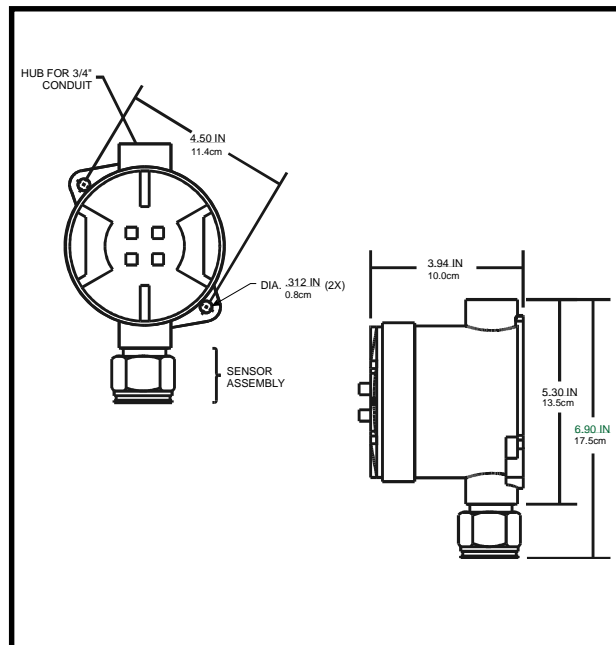


Table A: Gases and ranges for 4100 Series Gas Sensor Modules

GAS	500 PPM	5,000 PPM	GAS	500 PPM	5,000 PPM
	FULL SCALE	FULL SCALE		FULL SCALE	FULL SCALE
acetic acid	4100-34	4100-35	hexafluoropropylene	4100-34	4100-33
acetone	4100-34	4100-35	hydrogen	4100-34	
acetonitrile	4100-34	4100-35	methane		4100-35
acetylene	4100-34	4100-35	methanol	4100-34	4100-35
acrylonitrile	4100-34	4100-35	methyl bromide	4100-34	4100-35
ammonia (<0°C)	4100-34		methyl chloride	4100-34	4100-35
ammonia (>0°C)	4100-36		methyl ethyl ketone	4100-34	4100-35
benzene	4100-34		methyl propyl ketone	4100-34	4100-35
1-butanol	4100-34		methylene chloride	4100-34	
2-butanol	4100-34		nitroethane	4100-34	4100-35
i-butane	4100-34	4100-35	nitromethane	4100-34	4100-35
n-butane	4100-34	4100-35	1-pentanol	4100-34	4100-35
1-butanol		4100-35	propanal		4100-35
2-butanol		4100-35	propane	4100-34	
i-butanol	4100-34	4100-35	i-propanol	4100-34	4100-35
t-butanol	4100-34	4100-35	n-propanol	4100-34	4100-35
butene	4100-34	4100-35	propylene	4100-34	4100-35
carbon monoxide	4100-34		R-11	4100-33	
chloroform	4100-34		R-12	4100-33	
cyclohexane	4100-34	4100-35	R-22	4100-33	
cyclopentane	4100-34	4100-35	R-113	4100-33	
diethylketone	4100-34	4100-35	R-123	4100-33	
dipropylether	4100-34	4100-35	R-134a	4100-33	
ethane	4100-34	4100-35	R-141b	4100-33	
ethanol	4100-34	4100-35	R-142b	4100-33	
ethylene	4100-34	4100-35	R-500	4100-33	
n-heptane	4100-34	4100-35	R-502	4100-33	
n-hexane	4100-34	4100-35	toluene	4100-34	
1-hexanol	4100-34	4100-35	xylene	4100-34	

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