

The Model 4501-05 Hydrogen Sulfide 2-wire gas sensor module allows easy direct connection to many DCS, PLC and other control devices. The sensor module, in a stainless steel enclosure, is best in class for ease of installation, reliable operation and ease of use.

The 4501-05 Gas Sensor Module utilizes the electrochemical cell to monitor for Hydrogen Sulfide (H₂S) over an adjustable 0-100 ppm range. This compact Module requires minimal maintenance. Internal continuous self-diagnostics will automatically indicate any fault problems. The 4501-05 is best in class providing all the built-in features desired by instrumentation and safety professionals, including:

- Industry's longest calibration interval of 180 days
- 2-wire loop powered for easy installation and direct interface to common PLC and DCS
- Integral scrolling LCD 2-line, 16 character display
- Non-intrusive one-person calibration
- Stainless steel or aluminum enclosure
- 4-20 mA output
- Long sensor life
- Robust RFI immunity
- Ability to rotate face plate to enable the enclosure to be mounted in any orientation.

How It Works

Electrochemical sensors are fuel cell-like devices consisting of an anode, cathode, and electrolyte. The components of the cell are selected so a subject gas, al-



lowed to diffuse into the cell, will cause a chemical reaction and generate a current. The cells are diffusion limited so the rate the gas enters the cell is solely dependent on the gas concentration. The current generated is proportional to the rate of consumption of the subject gas in the cell.

Sierra Monitor electrochemical sensors provide improved reliability by allowing the gas to diffuse into the sensor through a capillary port, rather than diffusing through membranes. The result is an extremely stable sensor with very low temperature and pressure coefficients and the capability to monitor gas as ppm (toxics).

Features

- 180 day calibration interval Scrolling LCD display
- Two-wire, 4-20 mA loop-powered
- FM Approval for performance and Class I, Div. 1, Group B, C, D. NEMA4X rated for -4° to 122°F
- Fast response time, highest accuracy and specifications unmatched in the industry
- 316 Stainless steel enclosure
- Non-intrusive calibration matched with scrolling menu-driven LCD display
- Three hub design with rotatable faceplate

Benefits

- Lower maintenance costs
- Low installation costs, easy to interface to plant systems
- Proven performance designed to meet area safety need requirements
- Best in class performance and specifications
- Rugged, corrosion-proof construction to meet environmental requirements
- Ease of calibration and easy access to gas concentration, diagnostics and maintenance data
- Adaptable to user's specific mounting needs

Specifications:

Performance:

Sensor Type: Electrochemical
 Range: Selectable 0-10, 0-50 or 0-100 PPM (default 0-100 PPM)
 Repeatability: +/-1% Full Scale
 Response time: < 12 sec to T50, <35 to T90
 Accuracy: +/- 1 PPM
 Sensor Life: Typically 2-3 years

Output:

Display: Scrolling LCD, 2-line, 16-characters
 Signal Output: 2-wire sensor powered analog 4-20 mA (Trouble: 3.6 mA)
 Loop Resistance: 800 ohm

Electrical Data:

Power consumption: <160 milliwatts
 Connection type: 2-wire, loop-powered
 Input voltage: 24 VDC nominal: 14-30VDC
 RFI/EMI Protection: EN50081-2, EN50082-2

Operating Range:

Ambient Temp Range:
 Standard: -4⁰ to 122⁰F (-20⁰ to 50⁰C)
 Extended Temp: Sensor and 4-20 mA will continue to operate to -40⁰F (-40⁰C) but the LCD display will decay over time if exposed to temperatures below -4⁰ (-20⁰ C) for significant time
 Storage Temp: -4⁰ to 122⁰F (-20⁰ to 50⁰C)

Construction:

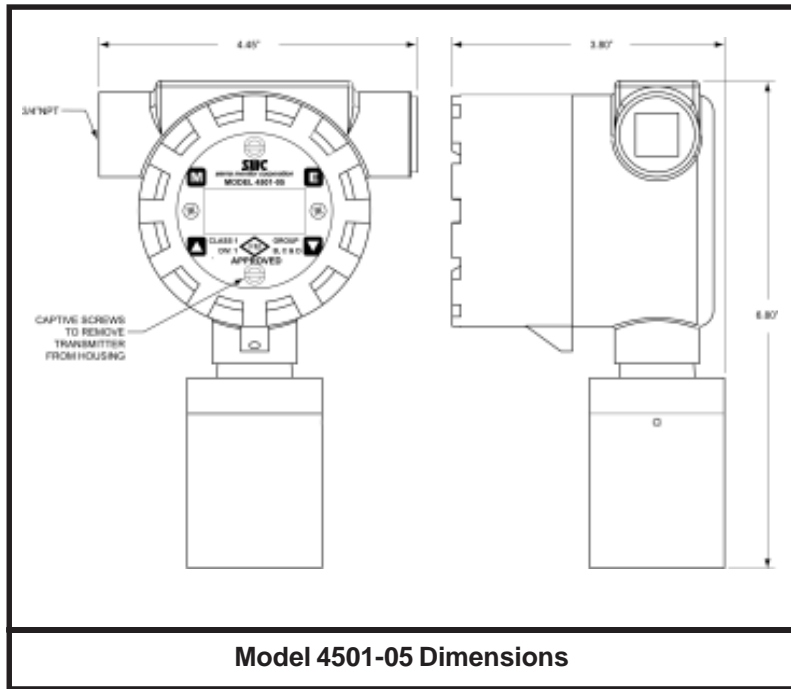
Dimensions: 7.0 x 3.6 x 4.0 inches (H x W x D) (17.8 x 9.1 x 11.2 cm)
 Weight: 4.4 lb. (2.0 Kg)
 Enclosure: 316 Stainless Steel, NEMA 4X

Approvals and Warranty:

FM Approval: Explosion proof, Class 1, Div. I, Groups B, C, D Class 1, Zone 1, Group IIB+H2 IP66
 FM Performance: Standards ISA-92.0.02, Part I-1998 and FM 3600, 3615, 3810, CSA C22.2 No. 0.4, 0.5, 94
 Limited warranty: 2 years



Specifications subject to change without notice



Cross-sensitivity data

	Conc.	4501-05
Carbon Monoxide	300 ppm	<1.5 ppm
Sulfur Dioxide	5 ppm	<1 ppm
Chlorine	1 ppm	~-0.2 ppm
Nitric Oxide	35 ppm	<2 ppm
Hydrogen Cyanide	10 ppm	~-1.4 ppm
Nitrogen Dioxide	5 ppm	~-1 ppm

Ordering Information

4501-05-SS Sensor Module, 2-Wire, Hydrogen Sulfide, H₂S, 0-100 ppm
 4501-51 Remote sensor assembly, 4501 Series

Calibration Accessories

5358-01 Calibration Adapter, Standard
 5360-00 Calibration Gas Delivery Fitting
 5358-51 Calibration/Configuration Magnetic Tool, 4501-05

High Capacity Calibration Accessories

1250-01 Gas Sensor Calibration Kit, Type A
 1260-05 H₂S in N₂, 25 ppm Gas Cylinder, Type A
 1260-45 H₂S in N₂, 10 ppm Gas Cylinder, Type A