

Proven Performance - FM Approved**Cost effective - 180 day Calibration
frequency, maintenance cut in half!**

The **5100-02-IT Combustible Gas Sensor Module** is a key member of the powerful Sierra Monitor **IT** Series family of gas sensor modules. The 5100-02-IT provides the features needed by safety and instrumentation engineers including:

- 180 day calibration interval
- FM Approval for performance and safety
- SIL-2 certified
- Modbus RTU RS-485 interface
- 4-20 mA output
- HART Interface
- SMC Sentry digital bus interface
- Optional Integral 8 AMP alarm relays – Alarm, Warning
- Aluminum or 316 Stainless Steel enclosure
- Non-intrusive calibration
- Integral scrolling LED display
- Optional remote sensor
- Remote alarm reset capable

Model 5100-02-IT utilizes the proven, reliable, catalytic bead technology to monitor for combustible gases (methane and others). Output range is 0-100% of Lower Explosive Limit (LEL). This detector has minimal maintenance requirements and is Factory Mutual approved for six month calibration intervals. Internal, continuous self-diagnostics automatically detect and alarm any fault problems. The 5100-02-IT can be used as a 4-20 mA component or as a Modbus RTU node. For higher level system capability the module can interface directly to Sierra Monitor's Sentry Controller enabling system level Modbus serial communications, area and zone alarm management, extensive system diagnostic features, WebServer interface, and multiplexing sensor connections.

**180 Day Calibration Interval**

Factory Mutual (FM) Approval for performance, electrical safety and environmental parameters including Class I, Div. 1, Groups B, C, D and Class I, Zone 1, Group IIC, IP66. With a NEMA-4X enclosure standard, approved multiplexing, and approved six month calibration interval, cost of ownership is minimized at the acquisition, installation and operating stages.

How It Works

Catalytic Bead gas sensors detect gas by comparing the resistance of two heated elements. One element is catalytic to enhance the burning of combustible gases, the other element is passive. Electronic circuits are used to compare the change in the catalytic bead resistance relative to the passive bead. The relative change is calibrated to determine the concentration of the gas of interest.

Features

- ◆ Six-month calibration interval
- ◆ Non-intrusive calibration
- ◆ Network-compatible with Modbus, 4-20 mA, Sentry bus, HART and relay interface
- ◆ FM Approved for Performance and Hazardous Areas
- ◆ SIL-2 Certified
- ◆ Local scrolling display

Benefits

- Longest rated and FM-approved calibration cycle for any catalytic-bead gas detector - reduced maintenance
- Able to calibrate module without declassifying the area
- Easily meets users needs for access to critical plant safety information
- Proven and approved for installation in areas where combustible gases are located
- Meets long term reliability design standards
- Ease of calibration and easy access to gas concentration, relay and alarm status and diagnostics

Specifications:

Sensor type: Catalytic Bead
Performance:
 Range: 0-100% LEL
 Repeatability: +/-1% LEL
 Response time: <12 sec to 60% full scale
 Calibration freq: 180 days
 Accuracy: +/- 1% for 0-50% LEL range
 +/- 2% for 51-100% LEL range
Output:
 Display: Fixed and Scrolling LED
 Signal Output: Sentry digital bus
 Analog 4-20 mA (Trouble, 2.5 mA),
 Calibration (1.5 mA),
 (Trouble 2.5mA)
 Serial RS-485 Modbus RTU
 Relay: 0.25 Amp. Trouble
Options:
 Relays: 8 amp (alarm, warning), SPDT,
 8A @ 250 VAC, 5A @ 30VDC
 Board includes auxiliary connections
 for Sentry multiplexing
 HART: Termination board includes HART,
 Modbus RS-485, 4-20mA, Digital
 Input, 2A Relay output, No Sentry Bus

Electrical Data:
 Power consumption: 3 watts max.
 Connection type: 3 wire
 Input voltage: 24 VDC nominal: 10-30VDC
 RF/EMI Protection: EN50081-2, EN50082-2
Operating Range:
 Ambient Temp Range: -40° to 176°F (-40° to 80°C)
 Relative Humidity: 0-99%
Construction:
 Dimensions: (Al) 7.2 x 5.0 x 4.8 in. (18 x 13 x 12 cm)
 (SS) 7.5 x 5.0 x 4.4 in. (19 x 13 x 11 cm)
 Weight: (Al) 2.7 lb. (1.3 Kg) -- (SS) 5.2 lb (2.5 Kg)
 Housing: Epoxy coated aluminum or
 316 Stainless Steel
 Hazardous Area
 Classification: Explosion proof, Class I, Div. 1,
 Groups B, C, D Class I, Zone 1,
 Group IIC, IP66, IP65, NEMA 4X
 I/2 GD, Ex d IIC T6 = -40°C to 85°C
 Warranty: 2 years
Approvals:
 FM Standard 6320 Combustible Gas Detector Performance
 FM Standard 3600 Class I, Div. 1, Groups B, C, D
 SIL-2 Certified Certified by Lloyd's Register (IEC 61508)
 CSA For enclosure in hazardous locations

Specifications subject to change without notice



Remote Sensor Option

It is often necessary to sample the combustible gas at some distance from the gas sensor module. The IT Series enables the user to mount the sensor remotely from the transmitter without the need for expensive and high-maintenance sample pumps. The Remote Sensor Option provides a separate gas sensor that can be mounted up to 50 feet from the transmitter and connected via a cable included.

Ordering Information

Model	Enclosure	Relay/ Connection	Protection	Remote Option	
5100-02-IT	-XX - A1 = AL 3/4" NPT - A2 = AL M20 x 1.5 - S1 = SS 3/4" NPT - S2 = SS M20 x 1.5	-XX - 01 = No Relays (std.) - 02 = Relays Option - 05 = HART Option	-XX - 00 = Std.	-X - 0 = Std.	-X - 0 = None - 1 = Remote Sensor

Calibration Accessories

5358-01	Calibration Head, Standard
5360-00	Calibration Gas Delivery Fitting

Accessories

5311-00	Rainshield
5311-02	Rainshield with calibration port

Calibrators

High Capacity

1250-01	Gas Sensor Calibration Kit, Type A
1260-02	Combustible Gas 50% LEL Gas Cylinder Type A
1260-42	Hydrogen, 50% LEL, Gas Cylinder, Type A
1260-00	Zero Gas (Air), Gas Cylinder, Type A (if satisfactory zero ambient air not available)