Sentry *IT* Gas Sensor Module
IT Combustible – Catalytic Bead

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
- ATEX Certified
- Optional Integral and Trouble 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.

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 status and diagnostics

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Specifications:

Sensor type: Catalytic Bead
Performance
- Range:
- Repeatability: +/-1% LEL
- Response Time: T60<10sec
- 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
  3-wire Non-Isolated
  4-wire Isolated
  Serial RS-485 Modbus RTU
- Relay : Optional

Options:
- Relays: 5 amp Alarm, Warning (0.25 amp Trouble) 5A@ 250 VAC, 5A@ 30VDC (Alarm, Warning) Board includes auxiliary connection for Sentry multiplexing
- HART: Termination board includes HART, Modbus RS-485, 4-20mA, Digital Input, 2A Relay output, No Sentry Bus

Power:
- Power consumption: 3 watts max.
- Input voltage: 24 VDC nominal: 10-30VDC
- RFI/EMI Protection: EN50081-2, EN50082-2

Operating Range:
- Ambient Temp Range: -40° to 176°F (-40° to 80°C)
- Relative Humidity: 0-99% Non-Condensing

Construction:
- Dimensions: (H x W x D)
  - (A1 & A2) 6.9 x 5.7 x 3.9 in. (17.5 x 14.5 x 9.9 cm)
  - (S1 & S2) 7.5 x 5.0 x 4.4 in. (19 x 13 x 11 cm)
- Weight:
  - (A1 & A2) 3.4 lb. (1.5 Kg)
  - (S1 & S2) 7.2 lb. (3.3 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 II2 GD, Ex d IIC T6 = -40°C to 85°C
- Warranty: 2 years

Approvals:

FM Approval 6320	Combustible Gas Detector Performance
FM Approval 3600	Class I Div. 1, Groups B, C, D
SIL-2 Certified	Certified by Lloyd's Register (IEC 61508)
ATEX Certified	II 2G, Ex d IIB + H_2 T5 Gb
CE Marked	Certificate of Approval
CSA	For enclosure in hazardous locations
ABS	Certificate of Compliance
CQST	Certificate for China
CCOE/PESO	Certificate for India

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 Output	Gas Type	Sensor Protection	Remote Option
5100-02-IT	**- XX**	**- XX**	**- XX**	**- X**	**- X**
	- A1 = AL ¾" NPT	- 01 = No Relays (std)	- 00 = Standard	- 0 = Standard	- 0 = None
	- A2 = AL M20 x 1.5	- 02 = Relays Option		- 1 = Conformal Sensor	- 1 = Remote Sensor
	- S1 = SS ¾" NPT	- 05 = HART Option			
	- S2 = SS M20 x 1.5				

Accessories:
5311-00 Rainshield
5311-02 Rainshield with calibration port

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

Calibrators High Capacity:
1250-01 Gas Sensor Calibration Kit, Type A (CO, H_2S)
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)

Manufactured by
sierra monitor corporation

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