

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



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

connections.

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

Specifications:

Sensor type: Catalytic Bead

Performance
 Range: +/-1% LEL
 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
 Optional

Options:
 Relay : Optional
 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
 IIC 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 + H₂ 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 - A1 = AL ¾" NPT - A2 = AL M20 x 1.5 - S1 = SS ¾" NPT - S2 = SS M20 x 1.5 | - XX - 01 = No Relays (std) - 02 = Relays Option - 05 = HART Option | - XX - 00 = Standard | - X - 0 = Standard - 1 = Conformal Sensor | - X - 0 = None - 1 = Remote Sensor |

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, H₂S)
 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)

Authorized Distributor:

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 Houston, TX USA
 832-615-3588
 sales@GasDetectorsUSA.com