

**Only FM Performance Approved  
Catalytic Bead Combustible Gas  
Sensor Module with 180 day  
Calibration Interval, twice as long as  
the industry standard resulting in half  
the maintenance costs!**

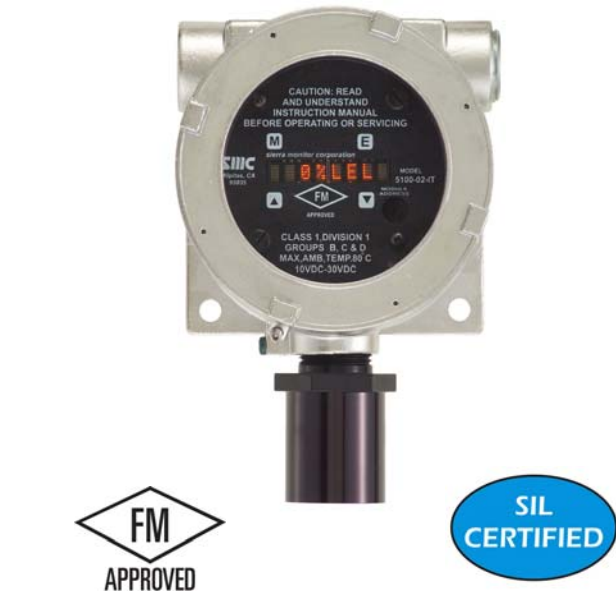
The 5100-02-IT Combustible Gas Sensor Module is a key member of the powerful Sierra Monitor *IT* Series family of gas sensor modules. The 5100-02-IT provides the features needed by safety and instrumentation engineers including:

- 180 day calibration interval
- Integral scrolling LED display
- SIL-1 rated
- Integral alarm relays – High, Low, Trouble
- Aluminum or 316 Stainless Steel enclosure
- Non-intrusive calibration
- 4-20 mA output
- Modbus RTU RS-485 interface
- SMC Sentry digital bus interface
- Remote alarm reset capable
- Optional remote sensor
- Optional control relay pack

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.

#### Features

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



#### 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 IIB+H2 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.

#### Benefits

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

**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  
 Standard Relay: SPDT, high, low, trouble (30VDC/2A, 125VAC/0.5A, 250VAC/0.25A)  
 Optional Relay: 8 amp (high, low), SPDT, 8A@250VAC, 5A@30VDC  
 Signal Output: Sentry digital bus  
 3-wire sensor powered analog 4-20 mA or optically isolated (Calibration, 4.0 mA default, 1.5 mA, Normal)  
 Serial RS-485 Modbus RTU

Specifications subject to change without notice

**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: Standard: Epoxy coated aluminum  
 Option: 316 Stainless Steel  
 Hazardous Area Classification: Explosion proof, Class I, Div. 1, Groups B, C, D Class I, Zone 1, Group IIB+H2 IP66, IP65, NEMA 4X  
 2 years  
 Warranty  
**Approvals:**  
 FM Standard 6320 Combustible Gas Detector Performance  
 FM Standard 3600 Class I, Div. 1, Groups B, C, D  
 SIL Certified FMEDA data for SIL-1  
 NFPA72 Compliant

**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 (5394-51) provides a separate gas sensor that can be mounted up to 50 feet from the transmitter and connected via a cable.

Maximum distance from sensor to transmitter: 50 feet



**Ordering Information**

5100-02-IT-AL Combustible Gas Sensor Module IT Series - Aluminum  
 5100-02-IT-SS Combustible Gas Sensor Module IT Series - Stainless Steel

**Options**

5394-51 Remote Sensor Option  
 5394-61 Auxiliary Connectors  
 5394-62 Auxiliary Integral 8 amp Relays  
 5394-64 Auxiliary Multidrop Connections  
 SPL53050 Cable, Remote Sensor Kit 5394-51

**Calibration Accessories**

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

**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



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