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
- Integral scrolling LED display
- SIL-2 certified
- Optional Integral 8 AMP alarm relays – Alarm, Warning
- 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

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 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	**Electrical Data:**	
Performance:		Power consumption:	3 watts max.
Range:	0-100% LEL	Connection type:	3 wire
Repeatability:	+/-1% LEL	Input voltage:	24 VDC nominal: 10-30VDC
Response time:	<12 sec to 60% full scale	RFI/EMI Protection:	EN50081-2, EN50082-2
Calibration freq:	180 days	**Operating Range:**	
Accuracy:	+/- 1% for 0-50% LEL range	Ambient Temp Range:	-40° to 176°F (-40° to 80°C)
	+/- 2% for 51-100% LEL range	Relative Humidity:	0-99%

Output:

Display:	Fixed and Scrolling LED	**Construction:**	
		Dimensions:	(AI) 7.2 x 5.0 x 4.8 in. (18 x 13 x 12 cm)
Signal Output:	Sentry digital bus		(SS) 7.5 x 5.0 x 4.4 in. (19 x 13 x 11 cm)
	3-wire sensor powered analog 4-20	Weight:	(AI) 2.7 lb. (1.3 Kg) -- (SS) 5.2 lb (2.5 Kg)
	mA or optically isolated (Calibration	Housing:	Epoxy coated aluminum or
	1.5 mA), (Trouble 2.5mA)		316 Stainless Steel
	Serial RS-485 Modbus RTU	Hazardous Area	
Standard Relay:	Trouble 0.25 AMP	Classification:	Explosion proof, Class I, Div. 1,
Optional Relay:	8 amp (alarm, warning), SPDT,		Groups B, C, D Class I, Zone 1,
	8A@250VAC, 5A@30VDC		Group IIC, IP66, IP65, NEMA 4X
	Board includes auxiliary connections		II2 GD, Ex d IIC TA = -40°C to 85°C
	for sentry multiplexing	Warranty	2 years

Options:

Approvals:

Auxiliary	Internal connection board when daisy	FM Standard 6320	Combustible Gas Detector Performance
Connection:	chain for Sentry multiplexing	FM Standard 3600	Class I, Div. 1, Groups B, C, D
	installations	SIL-2 Certified	Certified by Lloyd's Register (IEC 61508)
Auxiliary RS-485	Internal connection board provides	NFPA72 Compliant	
Multidrop:	additional terminals for In/Out RS-485	CSA	For enclosure in hazardous locations
	terminations		

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**	**-XX**		**-XX**	**-X**
	- A1 = AL 3/4" NPT	- 01 = No Relays		- 00 = Standard	**-X**
	- A2 = AL M20 x 1.5	- 02 = Relays/Aux. Conn.	- 0 = Standard		- 0 = None
	- S1 = SS 3/4" NPT	- 03 = Aux Connection			- 1 = Remote Sensor
	- S2 = SS M20 x 1.5	- 04 = Aux RS-485			

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)