180 Day Calibration Interval
Network enabled toxic gas detection

Information Technology (***IT***) at the component level! A network enabled Gas Sensor Module with the brilliance to provide Sentry, 4-20 mA or Modbus output. This is a stand alone module with the intelligence to provide integral alarms, loaded with features you need. A gas detector with a Sierra Monitor pedigree, Factory Mutual approved and ready to Manage Your Gas Risk. The 5100-XX-IT Series provides all the built-in features desired by instrumentation and safety professionals, including:

- FM Approval for performance and safety (5100-05-IT for performance)
- SIL-2 Certified
- Aluminum or 316 Stainless Steel enclosure
- Optional Integral alarm relays – Alarm, Warning
- Integral scrolling LED display
- 4-20 mA output
- Modbus RTU RS-485 interface
- SMC Sentry digital bus interface
- 180 day calibration frequency
- Remote alarm reset
- Optional remote sensor

The 5100-XX-IT can be used as a 4-20 mA component or as a Modbus RTU node. For higher level system capabilities the module can interface directly to Sierra Monitor's Sentry Controller. As part of a Sentry system the user gains capability of system Modbus serial communications, extensive diagnostic features, area and zone alarm management, WebServer interface and multiplexing sensor connections.

O_2
CO
H_2S
Cl_2
ClO_2
SO_2
NO_2
NH_3
HF

180 Day Calibration Internal

Factory Mutual (FM) Approved for electrical safety and environmental parameters including Class I, Div. 1, Groups B, C, D and Class I, Zone 1, Group IIB+H2 IP66. The 5100-XX-IT is also SIL Certified and meets NFPA-72 requirements for gas detectors.

How It Works

Electrochemical sensors are fuel cell-like devices consisting of an anode, cathode and electrolyte. The components of the cell are selected so a subject gas, allowed to diffuse into the cell, will cause a chemical reaction and generate a current. The cells are diffusion limited so the rate the gas enters the cell is solely dependent on the gas concentration. The current generated is proportional to the rate of the consumption of the subject gas in the cell.

Features

♦ Local scrolling display

♦ Non-intrusive calibration, menu driven system

♦ FM Approved for hazardous area operation, Class I, Div. 1, Groups B, C, D.
NEMA 4X rated for -40° to 176° F areas

♦ Flexible Modbus, 4-20mA, Sentry bus, relay interface

♦ SIL-2 Certified

Benefits

Ease of calibration and easy access to gas concentration, relay status and diagnostics

Able to easily and quickly calibrate module without declassifying the area

For safe and reliable operation in hazardous areas

5100-05-IT also includes FM Approval for performance

Easy to install in a variety of field applications plus easy to obtain critical safety information wherever needed

Meets long term reliability design standards

Specifications:

Gas Type	Model	Std. Range[1]	Opt. Max Range	Resolution	Response Time [2]	Accuracy	Operating Range		
							°F	°C	RH
Oxygen	5100-03-IT	5-25 %Vol	25 %Vol	0.1%	<10 sec.	+/- 0.2%	- 4 to 122	-20 to 50	15 – 99%
Carbon Monoxide	5100-04-IT	0-500 PPM	1200 PPM	0.5 PPM	<35 sec.	+/- 1 PPM	- 4 to 122	-20 to 50	15 – 90%
Hydrogen Sulfide	5100-05-IT	0-100 PPM	100 PPM	0.1 PPM	<35 sec.	+/- 1 PPM	- 4 to 122	-20 to 50	15 – 90%
Chlorine	5100-06-IT	0-10 PPM	10.0 PPM	0.1 PPM	<60 sec.	+/- 0.5 PPM	- 4 to 122	-20 to 50	15 – 90%
Chlorine Dioxide	5100-08-IT	0-3 PPM	3.0 PPM	0.1 PPM	<60 sec.	+/- 0.5 PPM	- 4 to 122	-20 to 50	15 – 90%
Sulfur Dioxide	5100-10-IT	0-100 PPM	100 PPM	0.5 PPM	<20 sec.	+/- 0.5 PPM	- 4 to 122	-20 to 50	15 – 90%
Nitrogen Dioxide	5100-12-IT	0-20 PPM	20.0 PPM	0.2 PPM	<35 sec.	+/- 0.5 PPM	- 4 to 122	-20 to 50	15 – 90%
Ammonia	5100-25-IT	0-100 PPM	100 PPM	1.0 PPM	<30 sec.	+/- 1 PPM	+ 14 to 113	-10 to 45	20 – 95%
Hydrogen Fluoride	5100-26-IT	0-10 PPM	10 PPM	0.5 PPM	<30 sec.	+/- 1 in.	+ 14 to 113	-10 to 45	20 – 95%

(1)   Optional ranges available
(2)   Response time to 90% full signal value for applied concentration

Specifications common to all *IT* Toxic Gas Sensor Modules

Sensor type: Electrochemical

Performance
  Range: Default range as above
                          User selectable alternative ranges)
  Sensor Life[3]:   Typically >2 years

Output:
  Display: Fixed and Scrolling LED
  Signal Outputs: Sentry digital bus
                          Analog 4-20 mA (Trouble, 2.5 mA,
                          Calib. 1.5 mA)
                          Serial RS-485 Modbus RTU
                          Trouble (2A)
                          Optional Relays – Alarm & Warning (8A)
  Digital Input: Normally open (supervised and non-
                          supervised)

Electrical Data:
  Power consumption: 2 watts maximum
  Connection type: 3 wire
  Input voltage: 24 VDC nominal: 10-30VDC

Construction:
  Dimensions: (HxWxD) [4]
    Aluminum :   8.3 x 4.8 x 4.9 in. (21.0 x 12.2 x12.4 cm)
    316SS :   7.6 x 4.4 x 4.9 in. (19.3 x 11.2 x12.4 cm)
  Weight: Aluminum Enclosure: 2.7 lb. (1.3 Kg)
                          316SS Enclosure: 5.4 lb. (2.6 Kg)
  Housing: Epoxy-coated, die-cast, copper-free Aluminum or
                          316 Stainless Steel
  Rating: Explosion proof, Class 1, Div. I, Groups B, C, D
                          Group IIB + H2 IP66, IP65, NEMA 4X
  Warranty: 2 years

Remote Sensor Option: Distance:

5100-03-IT	10 feet	5100-10-IT	15 feet
5100-04-IT	15 feet	5100-12-IT	10 feet
5100-05-IT	15 feet	5100-25-IT	10 feet
5100-06-IT	10 feet	5100-26-IT	10 feet
5100-08-IT	10 feet		

Modbus:
  Format: RS-485
  Baud: 38400 (Adjustable 2400 – 38400)
  Parity: None
  Stop bit: 1
  Data bits: 8
  Flow Control: None
  Memory map available from Sierra Monitor

Approvals: FM, CSA for enclosure in hazardous locations
                          FM Performance Approval 5100-05-IT
                          SIL-2 Certified (5100-04-IT, 5100-05-IT,
                          5100-06-IT)

Specifications subject to change without notice
(3)   Sensor life typical for use at standard temperature and
*   pressure with occasional exposure to gas of interest*
*   5100-25-IT sensor life typically 1 year*
(4)   5100-25-IT dimensions are different

Ordering Information:

				Relay/Connection			Sensor	Remote Option
Model	**Gas**		**Enclosure**	**Output**			**Protection**	
5100	**XX**	**IT**	**XX**	**XX**		**XX**	**X**	**X**
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5100 Series   - 03 = O₂   - IT Series   - A1 = AL ¾" NPT   - 01 = No Relays   - 00 = Standard   - 0 = Standard   - 0 = None
                  - 04 = CO   - A2 = AL M20 x 1.5   - 02 = Relays   - 1 = Marine   - 1 = Remote
                  - 05 = H₂S   - S1 = SS ¾" NPT   - 2 = Conformal   Sensor
                  - 06 = Cl₂   - S2 = SS M20 x 1.5
                  - 08 = ClO₂
                  - 10 = SO₂
                  - 12 = NO₂
                  - 25 = NH₃
                  - 26 = HF

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

Calibration Accessories:
1250-01   Gas Sensor Calibration Kit, Type A (CO, H₂S)
1250-02   Gas Sensor Calibration Kit, Type B (SO₂, NO₂)
1250-03   Gas Sensor Calibration Kit, Type C (Cl₂, ClO₂)
1260-00   Gas Cylinder, Air, (Type A) 105 Liters
1260-04   Gas Cylinder, CO, 100 PPM, (Type A) 105 Liters
1260-05   Gas Cylinder, H₂S in N₂, 25 PPM, (Type A) 57 Liters
1260-06   Gas Cylinder, Cl₂, 5 PPM, (Type C) 104 Liters

1260-10   Gas Cylinder, SO₂, 50 PPM, (Type B) 74 Liters
1260-12   Gas Cylinder, NO₂, 10 PPM, (Type B) 74 Liters
1260-13   Gas Cylinder, CO, 1000 PPM, (Type A) 105 Liters
5360-00   Calibration Head, Standard
9210-00   Calibrator, Permeation Type
9211-09   Permeation Tube, Ammonia, NH₃

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