Sentry *IT* Gas Sensor Module
IT Combustible - Infrared

Proven Performance
Proven Technology
Proven Support

Information Technology (IT) at the component level! An Infrared (IR) Combustible Gas Sensor Module is network-enabled to provide the interface needed to your plant-wide control system, whether it be 4-20 mA, Modbus, HART, relay contacts or SentryBus. This USA-made, stand-alone smart gas sensor module is loaded with features you need. As usual, Sierra Monitor A gas detector with a Sierra Monitor pedigree, Factory Mutual approved and ready to Manage Your Gas Risk. The 5100-28-IT provides all the built-in features desired by instrumentation and safety professionals, including:

- 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
- Optional Integral alarm relays – Alarm, Warning and Trouble
- Aluminum or 316 Stainless Steel enclosure
- Annual calibration frequency
- %LEL or % volume
- Interface to multiple protocols
- Integral scrolling LED display
- Optional remote sensor

The 5100-28-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. 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.

Factory Mutual (FM) Approval for performance, electrical safety and environmental parameters including Class I, Div. 1, Groups C, D and Class I, Zone 1, Group IIC. The 5100-28-IT is also SIL-2 Certified and meets NFPA-72 requirements for gas detectors.

How It Works

Most combustible gases absorb infrared light energy at defined wavelengths, providing an absorption signature for that gas. The principle of an infrared detector is based upon the absorption of the infrared light at a specific wavelength as it passes through the gas. The more of the absorbing gas that is present, the more light is absorbed. The detector measures the energy from an infrared light beam at a wavelength that is absorbed by the gas and compares it to the energy emitted by the source. The difference in energy received by the detector indicates the level of gas in the atmosphere.

Features	Benefits
♦ Non-intrusive calibration, menu driven system	Able to easily and quickly calibrate module without declassifying the area
♦ Network compatible with Modbus, 4-20mA, Sentry bus, HART, relay interface	Easy to install in a variety of field applications plus easy to obtain critical safety information wherever needed
♦ FM Approved for performance and hazardous area operation, Class I, Div. 1, Group C, D, with NEMA 4X enclosure rated for -40° to 176°F areas	For safe and reliable operation in hazardous areas
♦ SIL-2 Certified	Meets long term reliability design standards
♦ Local scrolling display	Ease of calibration and easy access to gas concentration, relay status and diagnostics

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Specifications:

Sensor type: Infrared, Dual Wavelength
Performance
- Dual Range:
- Default: 0-100% LEL Methane
- User Setting: 0-100% by vol. Methane
- Repeatability: +/-1% LEL
- Accuracy: +/- 1% for 0-50% LEL range
  +/- 2% for 51-100% LEL range
- Zero Drift: +/- 1% full scale per month
  @ 20°C (68°F) ambient,
  (max +/- 3% full scale per year)
- Sensor Life: Typically >5 years
- Heated Sensor: Heated cell to prevent condensation
- Response Time: T90<10sec*

Output:
- Display: Fixed and Scrolling LED
- Signal Outputs: Sentry digital bus
  Analog 4-20 mA Linear
  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
- Remote Sensor: Up to 100 feet (30.4m)

Power:
- Power consumption: 3 watts
- Input voltage: 24 VDC nominal: 10-30VDC

Operating Range:
- Ambient Temp Range: -40° to 140°F (-40° to 60°C)
- Relative Humidity: 0-99% Non-Condensing

Construction:
- Dimensions: (H x W x D)
  - (A1 & A2) 7.8 x 5.7 x 3.9 in. (19.8 x 14.5 x 9.9 cm)
  - (S1 & S2) 7.5 x 4.4 x 4.9 in. (19 x 11 x 12 cm)
- Weight:
  - (A1 & A2) 3.4 lb. (1.5 Kg)
  - (S1 & S2) 7.2 lb. (3.3 Kg)
- Enclosure: Epoxy coated Aluminum or 316 Stainless Steel
- Housing: AL or SS (same as enclosure)
- Hazardous Area Classification: Explosion proof, Class 1, Div. I, Groups C, D
  Class I, Zone 1
  Group IIC, IP66, IP65, NEMA 4X, T6
  TA = - 40°C to 85°C II2 GD, Ex d IIC
- Warranty: 2 years

Approvals:

ATEX II 2 G, Ex d IIB+H2 T6 Gb, Ta = -20°C to 60°C	
FM Approval 6320	Combustible Gas Detector Performance
FM Approval 3600	Class I Div. 1, Groups C, D
SIL-2 Certified	Certified by Lloyd's Register (IEC 61508)
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

** T60<10 sec NRTL Approved option for noise suppression*

Ordering Information:

Model	Enclosure	Relay/Connection Output	Gas Type	Sensor Protection	Remote Option	Approvals
5100-28-IT	**- XX**	**- XX**	**- XX**	**- X**	**- X**	**- X**
	- A1 = AL ¾" NPT - A2 = AL M20 x 1.5 - S1 = SS ¾" NPT - S2 = SS M20 x 1.5	- 01 = No Relays (std) - 02 = Relays Option - 05 = HART Option	- 01 = Methane (Std.)	- 0 = Standard - 2 = Conformal Transmitter	- 0 = None - 1 = Remote Sensor	- F = FM - C = ATEX

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
1260-02 Combustible Gas 50% LEL Gas Cylinder Type A

Manufactured by
sierra monitor corporation