

SMC 5100-28-IT Infrared Combustible Gas Detector

The SMC 5100-28-IT Infrared (IR) Combustible Gas Sensor Module is networkenabled to provide the interface needed to your plant-wide control system, whether it be 4-20 mA, Modbus, HART, relay contacts or Sentry IT Bus. This USA-made, stand-alone smart gas sensor module is loaded with features you need. The SMC 5100-28-IT provides all the built-in features desired by instrumentation and safety professionals, including:

- 365-day calibration interval
- Sentry IT PSG digital bus interface
- · Optional alarm relays Alarm, Warning, Trouble
- Aluminum or 316 Stainless Steel enclosure
- Non-intrusive calibration
- Optional remote 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 IIB+H₂. The 5100-28-IT is suitable for SIL-2 service and meets UL 2075 requirements for gas detectors ATEX / IECEx certified.



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. More light is absorbed as the amount of absorbing gas increases. 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

- · Yearly calibration interval
- · Single person, Non-intrusive calibration
- Network-compatible with Modbus, 4-20 mA, Sentry IT PSG Bus, 4-20mA with HART, alarm relays
- FM and UL Approved for Performance and Hazardous Areas
- Suitable for SIL 2 service, IEC 61508 standard
- Bright scrolling LED display

Benefits

- Longest rated and FM-approved calibration cycle for any infrared gas detector reduced maintenance & cost of ownership
- 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: Infrared, Dual Wavelength Performance Default Range: 0-100% LEL Methane Optional Range: 0-100% by vol. Methane Repeatability: +/-1% LEL Accuracy: +/- 1% for 0-50% LEL range +/- 2% for 51-100% LEL range +/- 1% full scale per month Zero Drift: +/- 1% full scale per month @ 200C (680F) ambient (max +/- 3% full scale per year) Sensor Life: Typically >5 years Heated Sensor: Heated cell to prevent condensation Response Time: T90<10sec (T60<10 sec NRTL Approved option for noise suppression) Output Display: Fixed and Scrolling LED

Signal Output: Sentry IT digital bus Analog 4-20 mA Linear 3-wire Non-Isolated 4-wire Isolated Serial RS-485 Modbus RTU Relay: Optional HART: Optional

Accessories

General Accessories

5311-00Rainshield5311-02Rainshield with calibration port

Calibration Accessories

5358-01 Calibration Head, Standard

Options

Relays: 5 amp Alarm, Warning (0.25 amp Trouble) 5A@ 250V AC, 5A@ 30V DC (Alarm, Warning) Board includes auxiliary connection for Sentry IT multiplexing HART: Termination board includes HART, Modbus RS-485, 4-20mA, Digital Input, 2A Relay output, No Sentry IT Bus Remote Sensor: Up to 100 feet (30.4m) Operating Range

perating Range

Ambient Temp Range: -40° to 140 °F (-40° to 60°C) Relative Humidity: 0-95% Non-Condensing

Construction

Dimensions: (HxWxD) (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)

Enclosure Hazardous Area Classification:

Explosion proof, Class I, Div. 1, Groups A, B, C, D Class I, Zone 1, Group IIC, IP66, IP65, NEMA 4X, T6 Ta = -40° C to 85° C II2 GD, Ex d IIC

Power

Power consumption: 3 watts maximum Input voltage:24 VDC nominal: 10-30 VDC 2 Year Warranty

Approvals

UL2075 by Intertek Certificate # 4009658 ATEX II 2 G, Ex db IIB+H2 T5 Gb, Ta = -40° C to 75° C FM Approval 6320: Combustible Gas Detector Performance FM Approval: 3600|3615|3810| Class I Div. 1,

Groups B, C, D | Ta = -20° C to 60° C Suitable for SIL 2 service, IEC 61508 standard CSA: C22.2 Approved | Ta = -20° C to 60° C ABS: Certificate of Design Assessment CQST: Compulsory Certification CCOE/PESO: Declaration of Conformity IECEx: Certificate of Conformity ANSI/ISA: 12, 13, 01



Calibrators High Capacity

1250-01 1260-02 1260-00 Gas Sensor Calibration Kit, Type A Combustible Gas 50% LEL Gas Cylinder Type A Zero Air Cylinder

Note: This Bulletin contains only a general description of the products shown. While product uses and performance capabilities are generally described, the products shall not, under any circumstances, be used by untrained or unqualified individuals. The products shall not be used until the product instructions/user manual, which contains detailed information concerning the proper use and care of the products, including any warnings or cautions, have been thoroughly read and understood. Specifications are subject to change without prior notice.

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