

## SMC 4101-28 Infrared Combustible Gas Detector

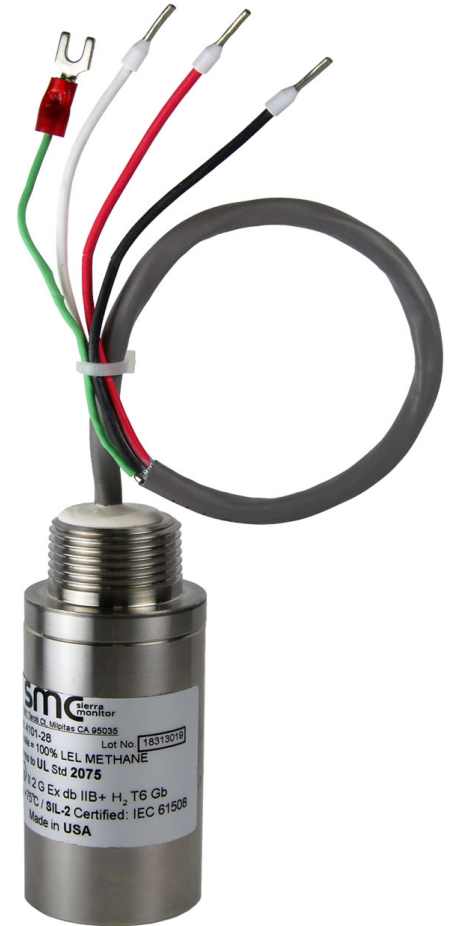
The SMC 4101-28 Infrared Combustible Gas Detector is a ruggedized instrument designed specifically for high-vibration environments like compressor stations. Providing an industry standard analog 4-20 mA interface to connect into customers PLC's, DCS systems, or SMC controllers.

This USA-made, stand-alone gas sensor module is purpose built to meet extreme operating conditions and remote locations. Built with SMC's trusted and proven pedigree, and ready to manage your gas risk.

The SMC 4101-28 provides all the built-in features required by instrumentation and safety professionals working with LNG/CNG environments, including:

- 365-day calibration interval
- UL2075 performance approval
- SIL-2 Suitable
- ATEX, IECEx approvals for hazardous locations
- 316 Stainless Steel enclosure
- 3 Wire, current source, 4-20 mA output
- Non-intrusive calibration

Hazardous location approvals for Class I, Div. 1, Groups B, C, D and Class I, Zone 1, Group IIB+H2. The SMC 4101-28 is also SIL-2 suitable and meets UL2075 performance requirements.



## 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

- Ruggedized design ideal for high-vibration locations, such as compressor stations
- Analog 0-20mA output
- Single person, non-intrusive calibration

## Benefits

- Longest rated calibration cycle for any infrared gas detector - reduced maintenance & cost of ownership
- Industry standard 3 wire analog current source
- Able to calibrate module without declassifying the area

## Specifications

### Sensor

**Type:** Infrared, Dual Wavelength

**Connection:** Red = Power, + 24 VDC

Black = Ground, - 24 VDC

White = Signal, 0-20mA out

Green = Shield

### Performance

**Default Range:** 0-100% LEL Methane

**Repeatability:** +/- 1% LEL

**Accuracy:** 0-100% LEL range

+/- 5% @ -20 to 30°C (-4 to 86°F)

+/- 9% above 30°C (86°F)

**Zero Drift:** +/- 1% full scale per month

@ 20°C (68°F) ambient

(max +/- 3% full scale per year)

**Response Time:** T90 < 10sec

### Operating Range

**Ambient Temp Range:** -40° to 140 °F (-40° to 60°C)

**Relative Humidity:** 0-95% Non-Condensing

### Construction

**Dimensions:** 1.5 x 4.5 inches

**Weight:** 0.6 lbs. (0.3 Kg)

**Enclosure:** 316 Stainless Steel

**Enclosure Hazardous Area Classification:**

Explosion proof, Class I, Div. 1, Groups B, C, D

Class I, Zone 1, Group IIB+H2, IP66, IP65, NEMA 4X, T6

TA = -20°C to 60°C IIC GD, Ex d IIB+H2

### Power

24 VDC +/- 10%

3 Watts

### Limited Warranty

2 years

### Outputs

**Display:** None

**Signal Output:** Analog 4-20 mA Linear, current source

3-wire Non-Isolated

### Approvals

UL2075 by Intertek

ATEX/IECEX, II 2 G, Ex d IIB+H2 T6 Gb

Ta = -20°C to 60°C

Suitable for SIL 2 service, IEC 61508 standard



## Operation

Analog 0-20 mA output: Output begins at 0 mA for 30 seconds upon power up. Then remains at 4 mA for up to 15 minutes during warm up and stabilization. Automatically returns to service once stabilization is complete.

## Calibration

Must use magnetic calibration fitting # 5358-00.

Zero Step = Screw magnetic fitting on sensor housing and keep

attached for a minimum of 60 seconds. Output drops to 2.5 mA.

Deliver Zero Air at 300 cc/min if necessary. Keep fitting attached.

Span Step = Connect tube and deliver 50% LEL Methane gas at 300

cc/min for a minimum of 3 minutes but no more than 10 minutes.

Output remains at 2.5 mA. Remove fitting and output returns to 4 mA

for a 5-minute countdown. After 5 minutes, sensor returns to normal

operation.

If calibration fails, sensor output drops to 1.4 mA. Power must be

cycled to clear condition.

## Accessories

### General Accessories

5311-00 Rainshield

5100-99-IT-A1-01-00-0-0, Optional IT Transmitter

### Calibration Accessories

5358-00 Calibration Head, Magnetic

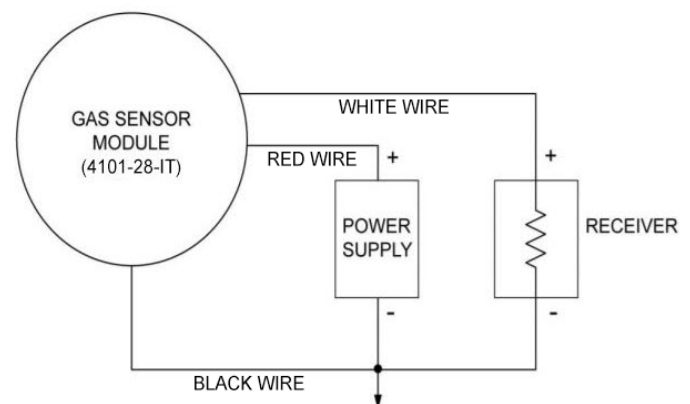
### Calibrators High Capacity

1250-01 Gas Sensor Calibration Kit, Type A

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

1260-00 Zero Air Cylinder

TYPE 3 CIRCUIT (3 WIRE NON-ISOLATED)



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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