Proven Performance
Proven Technology
Proven Support

Information Technology (IT) at the component level! An Infrared (IR) Carbon Dioxide 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 5100-88-IT provides all the built-in features desired by instrumentation and safety professionals, including:

- 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
- Interface to multiple protocols
- Integral scrolling LED display

The 5100-88-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.
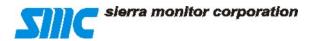
How It Works

Carbon Dioxide absorbs infrared light energy at defined wavelengths, providing an absorption signature for CO_2. 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
◆ Local scrolling display	Ease of calibration and easy access to gas concentration, relay status and diagnostics

Specifications:

Sensor type: Infrared, Dual Wavelength
Performance
  Range: 0-5000 PPM Carbon Dioxide
  Repeatability: +/-1%
  Accuracy: +/- 2%
  Sensor Life: Typically >5 years
  Heated Sensor: Heated cell to prevent condensation
  Response Time: T60<20sec
Output:
  Display: Fixed and Scrolling LED
  Signal Outputs: Sentry digital bus
  Analog 4-20 mA
    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

Power:
  Power consumption: 3 watts
  Input voltage: 24 VDC nominal: 10-30VDC
Operating Range:
  Ambient Temp Range: -4° to 140°F (-20° to 60°C)
  Relative Humidity: 0-99% Non-Condensing
Construction:
  Dimensions: (H x W x D)
  (A1) 7.8 x 5.7 x 3.9 in. (19.8 x 14.5 x 9.9 cm)
  (A2) 8.1 x 4.8 x 4.9 in. (21 x 12 x 12 cm)
  (S1 & S2) 7.5 x 4.4 x 4.9 in. (19 x 11 x 12 cm)
  Weight:
  (A1) 3.4 lb. (1.5 Kg)
  (A2) 5.4 lb. (2.5 Kg)
  (S1 & S2) 7.2 lb. (3.3 Kg)
  Housing: Epoxy coated Aluminum or 316 Stainless Steel Hazardous Area
  Classification: Explosion proof, Class 1, Div. I, Groups 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
  Warranty: 2 years

Specifications subject to change without notice

ISO 9001:2008 REGISTERED QUALITY SYSTEM

Ordering Information:

Model 5100-88-IT	Enclosure - XX	Relay/Connection Output - XX	- XX	Sensor Protection - X	Remote Option - X
	- A1 = AL ¾" NPT	- 01 = No Relays (std)	- 00 = Std. (0-5000 PPM)	- 0 = Standard	- 0 = None
	- A2 = AL M20 x 1.5	- 02 = Relays Option	- 81 = 0-5% Vol.	- 2 = Conformal	
	- S1 = SS ¾" NPT	- 05 = HART Option	- 82 = 0-20% Vol.	Transmitter	
	- S2 = SS M20 x 1.5				

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
1260-80   2000 PPM CO_2 Gas Cylinder Type A

Authorized Distributor:
GasDetectorsUSA.com
Houston, TX USA
832-615-3588
sales@GasDetectorsUSA.com