Model GIR910 Infrared Carbon Dioxide (CO_2) Sensor

- ***Unitized optical gas detector based on infrared operating principle***
- ***Immune to poisoning***
- ***Factory calibrated. No field calibration required***
- ***No moving parts, no maintenance***
- ***Calibration can be verified without declassifying the area***
- ***Reading immune to wind velocity***
- ***Suitable for on-shore or off-shore use***
- ***Designed to UL, CSA, FM and CENELEC standards***
- ***Analog output for CO_2 concentration and sensor operating status***
- ***Maintains calibration even after exposure to high CO_2 concentrations***
- ***Sensing elements do not deteriorate with age***

THE DETECTOR

The GIR910 Infrared Carbon Dioxide Sensor is a completely self-contained device that measures and displays the concentration of carbon dioxide accumulated in a protected area and transmits this information to a central point.

OPERATING PRINCIPLE

The GIR910 Infrared Carbon Dioxide Sensor uses the proven non-dispersive infrared (NDIR) principle to detect and monitor the presence of CO_2. Using an infrared source lamp and an optical sensor with a narrow-band filter, an analysis of the optical absorption through the gas allows the concentration of the target gas to be determined. A second infrared sensor operating at a wavelength not affected by the target gas is used to eliminate effects resulting from ambient and physical variations. These include temperature changes, source and filter degradation and particle scattering.

OPERATIONAL CHARACTERISTICS

The GIR910 is available in versions to operate in ranges from 2% to 100% CO_2 by volume with a resolution of less than 2% of full scale. Operating over 0-100% relative humidity and ambient temperatures between 14°F and 122°F [-10°C and +50°C], the GIR910 is particularly suitable for the reliable monitoring of lethal CO_2 levels in industrial safety applications.

Each GIR910 includes a high-reliability microprocessor based transmitter. The transmitter converts the output from the infrared sensor elements to a standard 0-20 mA signal which may be connected to a suitable NOVA-5000 Gas Detection Module, or to any other device with a standard 0-20 mA input. Output levels between 4 and 20 mA indicate the measured concentration of carbon dioxide. An output of 2 mA indicates that the detector is in the calibration mode, while 0 mA indicates a malfunction or fault. Calibration of the transmitter output is initiated by activating the “calibrate” input on the transmitter. Calibration is completely automatic, requiring no hand adjustment of potentiometers. Calibration data is stored in the non-volatile RAM of the transmitter.

The GIR910 is suitable for the most demanding applications. A large body mass insures excellent vibrational characteristics when used off-shore. Corrosion resistant materials permit use in harsh environments.

ARCHITECTS AND ENGINEER'S SPECIFICATIONS

Carbon Dioxide gas sensing capability shall be provided by poison immune infrared gas detectors, contained in explosion-proof housings. The detector shall include control electronics which converts the measured gas concentration in percent LEL to the industry standard 0-20 mA signal. Calibration shall be completely automatic, with data stored in non-volatile RAM in the detector, and shall not require any operator adjustment. Safety Systems Technology Model GIR910 Infrared Carbon Dioxide Gas Sensor, or approved equivalent, shall be supplied.

Model GIR910 Sensor with 950-1 Junction Box

TECHNICAL SPECIFICATIONS

Power Input:	24 Volts DC nominal Will operate within specifications at any supply voltage between 16 and 32 VDC.
Range:	0-2%, 0-5%, 0-30% or 0-100% by volume Carbon Dioxide
Warm-up Time:	10 seconds operational, 20 minutes to specification
Operating Temperature:	+14°F to +122°F, -10°C to +50°C
Relative Humidity:	0 to 95% non-condensing
Ingress Protection:	IP40, IP52 (with dust cover), IP66 (with spray shield)
Repeatability:	Zero: ±0.1% of full scale Signal: ±0.05% of full scale
Maintenance Interval:	6 months for verification of performance only
Analog Output:	Standard 0-20 mA, self-powered source
Size:	2.2 inches (5.8 mm) diameter x 3.5 inches (88.9 mm) long Conduit connection is 3/4 inch NPT thread
Weight:	2 pounds (0.91 kg)
Approval Code:	Class I Division 1 Groups B,C,D

ORDERING INFORMATION

PART NO.	DESCRIPTION
910-84-xx	Model GIR910 Infrared Carbon Dioxide Gas Sensor with 0-20 mA output. Stainless Steel housing. Replace xx in part number to specify maximum reading: 2 = 2% by volume (20,000 PPM) 5 = 5% by volume (50,000 PPM) 30 = 30% by volume (300,000 PPM) 100 = 100% by volume (1,000,000 PPM)

OPTIONAL ACCESSORIES

950-1	Junction Box with mounting ears and terminal block for sensor connections. Copper free Aluminum. Class I Groups C,D. Two ¾ inch NPT connections for conduit or cable glands.
851-1	Rain Shield to protect sensor from rain or snow
852-1	Dust Cover with 40 micron filter to protect sensor from airborne dust
854-1	Duct Mounting Assembly Kit for extracting a sample from an air duct
854-1-10	Water Spray Shield to protect sensor from hose sprays
858-1	Remote Calibration Adapter for applying test gas to sensor.

DESIGNED & MANUFACTURED IN THE USA

SAFETY SYSTEMS TECHNOLOGY (NV), INC.
23282 Mill Creek Drive, Suite 215, Laguna Hills, California 92653
Tel. 1-949-583-1857 Fax 1-949-340-6643 http://www.safetysys.com