

MODEL IR7000

Infrared Carbon Dioxide Point Detector



Features

- No routine calibration required
- Fail-to-safe operation
- Heated optics
- "Dirty optics" output
- Explosion-proof design
- RS-485 Modbus
 communications link

Benefits

- Low maintenance cost
- Virtually eliminates failure on demand
- Avoids condensation and false alarms
- Differentiates cleaning requirement from true fault
- Can be used in hazardous plant areas
- Two-way addressable communication for status information

Description

The General Monitors Model IR7000 Infrared Point Detector is a microprocessor-based Carbon Dioxide gas detector that continuously monitors CO_2 in ppm levels.

The IR7000 detection principle is based on measuring the absorption of infrared radiation passing through a volume of gas using a dual beam with a single detector. The IR detector measures the intensity of two specific wavelengths, one at an absorption wavelength and another outside of the absorption wavelength. The gas concentration is determined by a comparison of these two values.

All of the IR7000's electronics are contained within an explosion-proof housing allowing detector information to be processed at the point of detection. The IR7000 provides a 4-20mA signal proportional to 0-100% full scale. Another feature of the IR7000 is its RS-485 communications output for linking up to 128 Model IR7000's in series or up to 247 units with repeaters. The RS-485 output provides status, fault and other information for operation, including troubleshooting, or programming the detector.

The IR7000 Infrared Point Detector is available in either an aluminum or stainless steel housing and is designed for use in Class I, Div. 1, Groups B, C & D and Zone 1 areas. The housing is IP66/Type 4X rated.

Applications

- Chemicals
- Pharmaceuticals
- Pesticides
- Fertilizers
- Agriculture/Horticulture (Greenhouses)
- Food & Beverage Bottling Plants
- Sewer Entry
- Wastewater Treatment Facilities
- Coal Gasification
- Pulp & Paper
- Metals
- Enhanced Oil Recovery



Toxic Gases

MODEL IR7000

System Specifications

Length

Weight:

Mounting:

Housing:

10.2" (259mm)

3/4" NPT

3lbs (1.4kg) - aluminum

6lbs (2.7kg) - stainless steel

Aluminum (stainless steel optional)

Sensor Type: Infrared absorption type Measuring range: 0-5000 ppm Gas: Carbon Dioxide (CO₂) Sensor life: Greater than 5 years \pm 5% full scale \leq 2500 ppm Accuracy: ± 10% full scale > 2500 ppm (with 100% FS Gas applied) Response Time: T50 \leq 7 sec. & T90 \leq 15 sec. Modes: Power-on self test, normal operation, calibration (zero only or complete calibration) Junction box, flow block, duct Accessories: mount junction box, remote gassing guard, rain guard, field mounted display Classification: Class I, Division 1, Groups B, C & D, EE xd IIB + H₂ T5, IP66, Type 4X Warranty: Two years CSA, ATEX, CE Marking, Approvals: & GOST **Environmental Specifications Operating Temperature** Range: -40°F to +122°F (-40°C to +50°C) Storage Temperature - 58°F to +140°F Range: (-50°C to +60°C) **Operating Humidity** Range: 5% to 100% RH, non-condensing **Mechanical Specifications Diameter:** 2.9" (73.7mm)

Electrical Specifications

	Input Power:	20-36 VDC 24 VDC @ 0.40 amp (nominal)		
	Analog Signal:	4-20mA (600 Oh Fault Cal & Zero Dirty Optics Zero Reading 0 to 100% FS Over-range	ms max.) 0mA 1.5mA 2.0mA 4mA ± 0.2mA 4 to 20mA (proportional) 20 to 22mA	
	RS-485 Output:	Modbus RTU suitable for linking up to 128 units and up to 247 units with repeater(s).		
	RFI/EMI Protection:	Complies with EN50081-2, EN50082-2		
;	Cable Requirements:	Max. distance between IR7000 and power source @ 24 VDC nominal (10 ohms loop) 14 AWG 1830 ft (2 mm ² - 448m)		
	Faults Monitored:	Calibration errors EEPROM check failure/blockage,	s, EPROM and sum errors, optics low supply voltage	
	Standard Configuration:	IR7000-0-1-2-1 Aluminum housi with screen and	ng, splash guard remote check	
	Specifications s	Specifications subject to change without notice.		
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	Represente	Represented by:		

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