



**GENERAL MONITORS**  
Protection for life.

# 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<sub>2</sub> 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



# MODEL IR7000

## System Specifications

<b>Sensor Type:</b>	Infrared absorption type
<b>Measuring range:</b>	0-5000 ppm
<b>Gas:</b>	Carbon Dioxide (CO <sub>2</sub> )
<b>Sensor life:</b>	Greater than 5 years
<b>Accuracy:</b>	± 5% full scale ≤ 2500 ppm ± 10% full scale > 2500 ppm
<b>Response Time:</b>	(with 100% FS Gas applied) T50 ≤ 7 sec. & T90 ≤ 15 sec.
<b>Modes:</b>	Power-on self test, normal operation, calibration (zero only or complete calibration)
<b>Accessories:</b>	Flow block, duct mount kit, junction box, remote gassing guard, spray down guard, field mounted display
<b>Classification:</b>	Class I, Division 1, Groups B, C & D, EE xd IIB + H <sub>2</sub> T5, IP66, Type 4X
<b>Warranty:</b>	Two years
<b>Approvals:</b>	CSA, ATEX, CE Marking, & GOST

## Environmental Specifications

<b>Operating Temperature</b>	
<b>Range:</b>	-40°F to +122°F (-40°C to +50°C)
<b>Storage Temperature</b>	
<b>Range:</b>	- 58°F to +140°F (-50°C to +60°C)
<b>Operating Humidity</b>	
<b>Range:</b>	5% to 100% RH, non-condensing

## Mechanical Specifications

<b>Diameter:</b>	2.9" (73.7mm)
<b>Length</b>	10.2" (259mm)
<b>Weight:</b>	3lbs (1.4kg) - aluminum 6lbs (2.7kg) - stainless steel
<b>Mounting:</b>	3/4" NPT
<b>Housing:</b>	Aluminum (stainless steel optional)

## Electrical Specifications

<b>Input Power:</b>	20-36 VDC 24 VDC @ 0.40 amp (nominal)
<b>Analog Signal:</b>	4-20mA (600 ohms max.) Fault 0mA Cal & Zero 1.5mA Dirty Optics 2.0mA Zero Reading 4mA ± 0.2mA 0 to 100% FS 4 to 20mA (proportional) Over-range 20 to 22mA
<b>RS-485 Output:</b>	MODBUS RTU suitable for linking up to 128 units and up to 247 units with repeater(s).
<b>RFI/EMI Protection:</b>	Complies with EN50081-2, EN50082-2
<b>Cable Requirements:</b>	Max. distance between IR7000 and power source @ 24 VDC nominal (10 ohms loop) 14 AWG 1830 ft (2 mm <sup>2</sup> - 448m)
<b>Faults Monitored:</b>	Calibration errors, EPROM and EEPROM checksum errors, optics failure/blockage, low supply voltage
<b>Standard Configuration:</b>	IR7000-0-1-2-1

Specifications subject to change without notice.

Represented by:

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## General Monitors Worldwide



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