



**GENERAL MONITORS**  
Protection for life.

# MODEL IR4000

## Single / Multi-Point Monitors for use with Model IR400 Point IR Gas Detector



### Features

- IR4000M can connect to as many as eight remote IR400 detectors
- IR4000M onboard data concentrator reads status for up to 8 devices at once with one command
- IR4000M can calibrate, gas check and zero multiple IR400 devices based on a single command
- Explosion-proof enclosure and magnetic interface
- Optional 8 Amp relays

### Benefits

- Operates as an integrated gas detection system with voting
- Useful in large, multi-point systems
- Provides ease of maintenance and accessibility
- Allows installation and calibration in hazardous locations
- Expands system functions, potentially eliminating the need for additional equipment like a PLC

### Description

The IR4000 Monitor is available in two options. The Model IR4000S is a Single-Point Monitor and the Model IR4000M is a Multi-Point Monitor. Both feature a three-digit LED display and user interface to our Model IR400 point IR gas detector. The monitor allows local calibration and displays gas concentration. Both are housed in an explosion-proof junction box enclosure that can be installed in hazardous locations adjacent to the detectors.

Optional relays for both monitors provide output for Alarm, Warn, and Fault conditions occurring at each detector. Users can select operating mode, warn, and alarm setpoints via a magnetically activated switch. The relays are user-programmable as Latching or Non-Latching, normally De-Energized or normally Energized. Latching relays can be reset via a remote reset input or via the magnetic switch.

The Model IR4000M Multi-Point Monitor is a display, relay module, and a data concentrator. It provides monitoring and control functions for up to eight connected IR400 gas detectors. The highest current % LEL among all connected detectors is shown continuously during normal operation. In addition, the IR4000M reads seven data items from each of the IR400's connected to it, at least once per second. An extensive set of menus are navigated using a magnetic switch to request the status and configuration data stored by the IR4000M.

In addition, over 200 IR4000M and IR400 Modbus registers provide the greatest possible flexibility in reviewing current status data and settings, and configuring operating parameters. For example, the IR4000M can report % LEL data for all eight detectors with one command, which is useful in large multi-point systems.

### Applications

- Chemical Plants
- Compressor Stations
- Drilling and Production Platforms
- Fuel Loading Facilities
- LNG/LPG Processing and Storage Facilities
- Oil Well Logging
- Refineries
- Wastewater Treatment Facilities



# MODEL IR4000

## System Specifications

**Classification:** Class I, Division 1 & 2, Groups B, C & D  
Class I, Zone 1, IIB +H<sub>2</sub> T5, Type 4X,  
Ex d, IIB+H<sub>2</sub> T5 Gb  
(Ta=-40°C to +75°C)  
Ex t IIIB, T100°C Db IP66

**Warranty:** Two years

**Approvals:** ATEX, IECEx, CE Marking, FM 6310, 6320 and CSA 22.2 No. 152 M1984 Performance Approved HART registered (IR4000M) SIL 2 suitable

## Environmental Specifications

**Operating Temperature Range:** -40°F to +167°F (-40°C to +75°C)

**Storage Temperature Range:** -58°F to +185°F (-50°C to +85°C)

**Humidity:** 5% to 100% RH, non-condensing

## Mechanical Specifications

**Length:** 6.5 inches (165 mm)

**Width:** 6.0 inches (152 mm)

**Height:** 3.21 inches (82 mm)

**Weight:** 5.5 lbs (2.5 kg)

**Mounting holes:** 5.05 inches (127 mm) Center to center

**Housing:** Aluminum

## Electrical Specifications

**Input Power:**  
IR4000M 20-36 VDC @ 100 mA max.  
IR4000S 20-36 VDC @ 83 mA max  
24 VDC nominal

**Analog Signal:** 0-21.7 mA  
(600 Ohms max. - IR4000M;  
500 Ohms max. - IR4000S)  
Start up, Fault (non-HART) 0 mA  
Start up, All Faults (HART)\* 1.25 mA  
Cal, Zero, Gas Check\* 1.5 mA  
Dirty Optics\* 2.0 mA  
0 to 100% LEL 4 to 20 mA  
(proportional)  
Over-range 20 to 21.7 mA

**RF/EMI Protection:** Complies with EN50270

**Status Indicators:** Three-digit LED display with gas concentration, Warn and Alarm LED's, calibration prompts, fault codes, and setup options

**Relay Ratings:** 8 A @ 250 VAC / 8 A @ 30 VDC res. max.  
(Optional) (3x) SPDT - Warning, Alarm & Fault

**RS-485 Output:** Single Modbus (IR4000S) or dual redundant Modbus RTU (IR4000M), suitable for linking up to 128 units or up to 247 units with repeaters  
(Optional)

**Baud Rate:** 2400, 4800, 9600, or 19200 BPS

**HART:** HART 6, HART Device  
(Optional) Description Language available. AMSAware

**Faults Monitored:** Re-calibration Error, EPROM Checksum Error, Optics Failure / Blockage; Low Supply Voltage, EEPROM Checksum Error, Reference or Active Lamp Failure, Heater Failure, Time to Re-zero unit

**Cable Requirements:** Max. distance between IR4000 and power source @ 24 VDC nominal (20 Ohm loop):  
14 AWG (2.0 mm<sup>2</sup>) - 2606 ft (794 m)

Max. distance for analog output (500 Ohms max):  
14 AWG (2.0 mm<sup>2</sup>) - 9000 ft. (2740m)

**Wireless Communication:** Available with ELPRO Technologies wireless devices

**Standard Configuration:** IR4000S-0-0-21-1-0-1  
IR400 (methane, 0-20 mA/HART, splashguard w/screen), no relays  
IR4000M-0-0-00-1-0-0-1  
No relays, no Modbus, IR400 sold separately

*Specifications subject to change without notice.*

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\* Under HART, the analog output minimum level can be configured as 3.5 mA or as stated above, depending on user selection.