

# Ultima® IR

## Combustible Gas Monitor

**The Ultima IR Gas Monitor is a compact, highly reliable, combustible gas monitor. The monitor is based upon proven infrared (IR) sensing technology. The unique design provides the IR sensor in a small, explosion-proof module. This module is fully compatible with the widely used and accepted Ultima sensor/transmitter platform. The small gas diffusion volume is designed to provide quick speed of response, and maximum protection from the harsh environmental conditions.**



**C**ontinuous lower explosive limit (LEL) gas detectors must operate in a variety of ambient conditions. IR technology is immune to the poisoning effects of certain compounds and is not affected by oxygen-deficient conditions. The Ultima IR Gas Monitor will operate unattended for long periods of time without maintenance in ever-changing environmental conditions. The Ultima IR Gas Monitor is designed for extended, trouble-free operation, with minimal zero drift over the rated temperature range.

### Features

- Field-proven infrared gas detection technique
- Easy to install, operate, and maintain
- "Fail to Safety" operation
- No poisoning effects by background compound(s)
- Automatic compensation for humidity & temperature changes
- Operates in high-gas and/or low-oxygen environments

- Compatible with Ultima add-on accessories (relays, pumps, etc.)

### How the Ultima IR Gas Monitor Works

Hydrocarbons and many other gases absorb infrared light energy at defined wavelengths, providing an absorption signature for each gas. The Ultima IR Gas Monitor has one infrared light source which is directed through two different wavelength filters. One light beam is used as a reference and measures IR intensity outside of the hydrocarbon absorption range. The other IR beam is the target gas beam, and it traverses the gas diffusion volume in the signature wavelength of hydrocarbons. Each light beam is then directed to its corresponding detector, and the difference in IR intensity is proportional to the target gas concentration. If no target gas is present, the difference between detectors is zero, and the monitor outputs a zero gas reading. The dual-beam concept also minimizes zero drift and temperature variation.

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### Specifications

Typical Gases:	C1-C7 hydrocarbons
Ranges:	0-100% LEL
Repeatability:	< ± 2% FSD for 0-100% LEL
Operating Temperature:	-20° to +50°C
Operating Humidity:	0-95% RH non-condensing
Stability:	±5% FSD/year
Linearity:	< ± 2% FSD
Warm-up Time:	30 seconds
Response Time:	T90 <30 seconds
Output Options:	4-20mA current sourcing Variable frequency (Model 5000) Digital (DAN 2001)
Power:	24VDC nominal (10-30VDC) 200mA max. current draw - standard unit 410mA max. current draw - with relays
Enclosure:	Rated for both NEMA 4X and Class I, Div. 1, Group B, C & D
Gland Entries:	(1) 3/4" NPT
Physical Size	5.25" W x 4.5" D (13.3 cm x 11.4 cm)
Weight	4.5 lb. (2.04 kg)
With Internal Relays:	
Size	5.25" W x 5.5" D (13.3 cm x 14.0 cm)
Weight	5.0 lb (2.27 kg)
Warranty:	2 years

### Accessories

- Internal Relay option provides 2 levels of alarm, plus a trouble-condition relay
- External Relay package provides 3 levels of alarm, plus a trouble condition relay
- Flow-through adapter for sample draw monitoring applications
- Duct-mounting kit

### Optional Modules

#### Relay Module

Provides three levels of alarm relay outputs along with a normally energized trouble relay. See Data Sheet 07-2019.

#### Sampling Module

Provides a method to draw a gas sample into the Ultima IR detection chamber. See Data Sheet 07-2023.

### Accessories

#### AC Power Supply

For AC-powered operation of an Ultima IR Gas Monitor

### Remote Sensor Assembly

Allows the IR sensing chamber to be separated from the transmitter for difficult-to-reach installations.

#### Duct Mount Kit

Provides an easy method to install an Ultima Gas Monitor in a ventilation duct

#### Flow Cap

Used when an Ultima Sampling Module or any other type of flow system is providing the gas sample to an Ultima Gas Monitor.

See Data Sheet 07-2022 for all Ultima Accessories.

### Ordering Information

All Ultima Gas Monitors are manufactured using MSA's unique Assemble-To-Order (ATO) process.

#### Represented by:



**Note:** This Data Sheet contains only a general description of the MSA Ultima IR Combustible Gas Monitor. While uses and performance capabilities are described, under no circumstances should the product be used except by qualified, trained personnel, and not until the instructions, labels or other literature accompanying the product have been carefully read and understood and the precautions therein set forth followed. Only they contain the complete and detailed information concerning this product.



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