



ISO9001:2000  
Certified

## Gas Detection Technology

### Ultra 1000 Infrared Hydrocarbon Gas Sensor

#### Features

- Low Maintenance.
- 4-20mA Analog Output
- Optional RS485 MODBUS RTU Serial Communication
- 12-28 VDC Operation
- Automated Non-Intrusive Calibration
- Optional Adjustable Alarm Relay Contacts
- Liquid Crystal display with back light



#### Description

Ultra 1000-IR series is a microprocessor based sensor for detection of combustible gases using Infrared sensor technology. The self- contained sensor features user friendly interface and menu driven calibration procedure and configuration.

Ultra 1000-IR uses NDIR (Non Dispersive Infrared) technique to monitor the combustible vapors. The detection principle is based on measuring the absorption of infrared radiation using dual wavelength infrared detectors. The IR detectors measure the intensity of two wavelengths, one absorbed by the target gases and other unaffected by the target gases. The gas concentration is determined by comparing the detector signals.

The complete sensor consists of a stainless steel sensor head assembly, a user connection board and a transmitter board assembly. All of the sensor electronics are enclosed in an explosion proof instrument box. Ultra 1000-IR provides a 4-20mA signal proportional to 0-100% LEL gas at the sensor. Optional MODBUS RTU serial interface is also available. The MODBUS output provides sensor status, alarm & fault conditions.



# Ultra 1000-IR Infrared Hydrocarbon Sensor

## Specifications

### Sensor Type

NDIR (Non Dispersive Infrared) absorption

### Measuring Range

0 to 100 % LEL

### Repeatability

± 2 % Full scale

### Zero Drift

< 2% per year

### Response Time

T50 < 8 seconds

T90 < 15 seconds

with 100% LEL gas applied

### Classification

Class I, division 1, Groups B,C & D

### Operating Temperature

-40°F to +158°F (-40°C to +70°C)

### Operating Humidity

5% to 90% RH, non-condensing

### Status Indicators

LC Display for gas concentration, Alarm relay status, calibration mode and sensor fault status.

### Mechanical Specifications

Length: 7 inches (178 mm)

Width: 5 inches (127 mm)

Height: 4.5 inches (114 mm)

### Display

2 lines by 8 Character LC Display with back light

### Input Power

14-28 VDC. 24 VDC nominal

### Power Consumption

90mA @ 24 VDC typical

### Alarm Relays

Fully programmable. 0 to Full scale Range of the sensor. Latching or Non-Latching.

### Relay Ratings

SPDT Form "C" type Relay contacts  
5 Amps @ 250 VAC or 30 VDC

### Analog Output

Linear 4-20mA (300 Ohms max. load)  
2.0 mA - Calibration mode  
< 1.0 mA - Sensor malfunction

### Optional Interface

RS-485 MODBUS RTU at 9600 Baud.

### Calibration

Non-Intrusive activated by internal Magnetic switch

### Cable Entry Hub

3/4" NPT Female

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