Ultima OPIR-5 Open Path Gas Detector

An open-path IR gas detector that provides continuous monitoring of combustible hydrocarbon gas concentrations

The Ultima OPIR-5 System consists of an IR source and receiver that continuously monitor for methane in both 0 to 5000 ppm•meter and 0 to 5 LEL•meter ranges. 0 to 2000 ppm•meter and 0 to 1 LEL•meter ranges are also available for monitoring propane. The Ultima OPIR-5 Detector provides two 4-20 mA analog signals proportional to each of the above listed ranges, in addition to digital display and relay contacts.

The Ultima OPIR-5 Detector is easily aligned using the digital display and adjustable mounting arms, and does not require any bulky setup equipment such as digital volt meters or handheld alignment aids. Ultima OPIR-5 Detector sensitivity can be checked by placing a test gas film in front of the receiver.

The Ultima OPIR-5 Detector is factory-calibrated and needs no further calibration. This unit also requires little maintenance except for periodic visual inspection, test gas film check (e.g., digital volt meters, handheld alignment aids) and window cleaning to help ensure dependable performance. Sensor data and status information from the receiver can be transmitted up to 9,000 feet to any industrial analog to digital (A/D) converter for use in multi-point computer-based monitoring.

Features

- Dual detection range enables sensitivity to both small (ppm•meter) and large (LEL•meter) gas leaks
- Performance-approved for use in harsh environments
- Single detection beam improves accuracy and reduces drift
- Up to 150 meter path length
- Multiple communication outputs (HART, Modbus, AMS Support) provide complete status and control capability in the control room
- Unitized display for ease of operation and reduced cost
- Automatic gain control compensates for dirty optics, rain and fog

System Specifications	
SENSOR TYPE	Infrared absorption detects hydrocarbon gases over an open path
RANGES METHANE PROPANE	 0 to 5000 ppm•meter 0 to 5 LEL•meter 0 to 2000 ppm•meter 0 to 1 LEL•meter
PATH LENGTH LEL•METER PPM•METER	 5-30 m, 20-100 m, 50-150 m 5-30 m, 20-100 m, 80-150 m
RESPONSE TIME	T90 < 3 s
REPEATABILITY	< +5%
LINEARITY	< +5% of full scale for each scale or +10% of applied gas, whichever is greater
CLASSIFICATION HAZ LOC PERFORMANCE VERIFIED	Class I, Div 1 & 2, Groups B, C & D; Class II, Div 1 & 2, Groups E, F & G Class III; Type 4X Class I, Zone 1, IIB+H2 II 2 G D, Ex d IIB+H2 T4 Gb Ex tb IIIC T135°C Db, IP66/67 (Tamb=-55°C to 65°C) T3C (Tamb=-60°C to 75°C); T4 (Tamb=-55°C to 65°C)
CALIBRATION	No calibration required. Field background zero adjustment provided
MODES	Setup, alignment, test gas, run
ACCESSORIES	Test gas films, mounting arm, mounting base, scope, attenuation plate
WARRANTY	2 years
APPROVALS	CSA, FM, ATEX, IEC Ex, CE Marking. SIL 3-suitable. HART-registered.
STANDARD CONFIGURATION	OPIR5-1-1-1-1-1-2-1-1-1-1 Methane, dual 0-20 mA, dual Modbus, relays, mounting arm, 20-100 m path length, NPT

* *HART units can be configured to never output current less than 3.5 mA if host equipment is incapable of working below this level*

** *0 to 2000 ppm•meter and 0 to 1 LEL•meter on propane unit*

*** *Using optional split range*

Environmental Specifications	
OPERATING TEMPERATURE RANGE	-67°F to 149°F (-55°C to 65°C)
OPERATING HUMIDITY RANGE	0-95% RH, non-condensing

Mechanical Specifications	
HOUSING	316 stainless steel
SOURCE	5.3" dia. x 12.4" length (135 mm dia. x 315 mm length)
RECEIVER	5.3" dia. x 12.4" length (135 mm dia. x 315 mm length)
CONDUIT ENTRIES	¾" NPT (standard) M25 (optional)

Electrical Specifications		
INPUT POWER	20 to 36 VDC range 24 VDC @ 12 W (max.) – source 24 VDC @ 10 W (max.) – receiver (w/relays) 24 VDC @ 5 W (max.) – receiver (no relays, heater off) *Consult factory for lower power consumption options for other configurations*	
DUAL ANALOG SIGNALS	700 ohm load max.	
	0-5000 ppm•meter	**0-5 LEL•meter**
0 mA*	Startup/fault	Startup/fault
1.5 mA*	Test gas/setup	Test gas/setup
2 mA*	Beam block	Beam block
4-20 mA**	0-5000 ppm•m	0-5 LEL•m
4-12 mA***	0-5000 ppm•m	—
12-20 mA***	—	0-5 LEL•m
21.7 mA	Over-range	Over-range
RELAY RATINGS	8 A @ 250 VAC / 8 A @ 30 VDC res. max. 4 SPDT - Fault, ppm Warning, LEL Warning and Alarm	
RS-485 OUTPUT	Modbus RTU with block and single data transfer modes	
BAUD RATE	2400, 4800, 9600, 19200, or 38400 BPS	
HART	HART 6, HART Device Description available. AMS Device Management Support	
RFI/EMI PROTECTION	Complies with EN 61000-6-4 and EN 50270	
SAMPLE CABLE DISTANCES	For cable resistance of 3 ohms/1,000 ft, max. distance between OPIR-5 and power source @ 24VDC 14 AWG, 1,330 ft (405 m) - receiver 14 AWG, 1,040 ft (317 m) - source For 16 AWG cable with cable resistance of 5 ohms/1,000 ft, max. distance for analog output (100 ohms max.) 10,000 ft (3,048 m).	
DIGITAL DISPLAY	LED indication of scale displayed; 2- digit, 7- segment (auto range change)	