



MODEL IR5500

Open Path Gas Detector



Features

- Dual detection ranges
- Performance approved
- Single detection beam
- Continuous self-check
- Multiple communication outputs (HART, Modbus, AMS Support)
- Unitized display
- Automatic gain control

Benefits

- Sensitive to both small (ppm•meter) and large (LEL•meter) gas leaks
- Ideal for use in harsh environments
- Improves accuracy and reduces drift
- Fail to safe operation
- Provides complete status and control capability in the control room
- Ease of operation, reduced cost
- Compensates for dirty optics, rain, and fog

Description

The Model IR5500 is an open path IR gas detector that provides continuous monitoring of methane and propane gas concentrations. The system consists of an IR source and receiver which continuously monitors for methane in both the 0 to 5000 ppm•meter and 0 to 5 LEL•meter range. A 0 to 2000 ppm•meter and 0 to 1 LEL•meter range is also available for monitoring propane. The IR5500 provides two 4 to 20 mA analog signals proportional to each of the above ranges, in addition to a digital display and relay contacts.

The IR5500 is easily aligned using the digital display and adjustable mounting arms, therefore it does not require any bulky setup equipment (e.g. digital volt meters, handheld alignment aids). The IR5500's sensitivity can be checked by placing a test gas film in front of the receiver.

The IR5500 is calibrated at the factory and needs no further calibration. It also requires little maintenance save for a periodic visual inspection, test gas film check, and cleaning of the windows to assure dependable performance.

Sensor data and status information from the IR5500 can be transmitted up to 9,000 feet to any industrial analog to digital (A/D) converter for use in multipoint computer-based monitoring.

Applications

- Compressor Stations
- Drilling and Production Platforms
- Fence Line Monitoring
- Fuel Loading Facilities
- Gas Turbines
- LNG/LPG Processing and Storage Facilities
- Petrochemical Tanks
- Tank Farms
- Wastewater Treatment



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System Specifications

Sensor Type: Infrared Absorption

Ranges

Methane: 0 to 5000 ppm•meter
0 to 5 LEL•meter
Propane: 0 to 2000 ppm•meter
0 to 1 LEL•meter

Path Length: 16 - 100 ft (5-30 m)
66 - 330 ft (20 - 100 m)
Consult factory for distances over 100 m

Response Time: $T_{90} < 5$ s

Repeatability: $\leq \pm 5\%$

Linearity: $\leq \pm 5\%$ of full scale for each scale
or $\pm 10\%$ of applied gas, whichever is greater

Approvals: CSA, FM, ATEX, IEC Ex, CE Marking,
GOST
SIL 3 suitable. HART registered

Classification: 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 ($T_{amb} = -55^{\circ}\text{C}$ to
+65°C)

Haz Loc: T3C ($T_{amb} = -60^{\circ}\text{C}$ to +75°C);
Performance
Verified: T4 ($T_{amb} = -55^{\circ}\text{C}$ 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: Two years

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 (2): $\frac{3}{4}$ " NPT (standard)
M25 (optional)

Environmental Specifications

Operating Temperature
Range: -67°F to +149°F (-55°C to +65°C)

Operating Humidity
Range: 0-95% RH, non-condensing

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, no heater)
Consult factory for lower power consumption options for
other configurations

Dual Analog

Signals: 600 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

* HART units can be configured to never output current less than 3.5 mA
if the 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

Relay

Ratings: 8 A @ 250 VAC / 8 A @ 30 VDC res. max.
Four (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 Language available.
AMSaware

RFI/EMI

Protection: Complies with EN 61000-6-3, EN 61000-6-4 and EN 50270

Cable

Requirements:

Three-wire shielded cable. Max. distance between
IR5500 and power source @ 24 VDC nominal:
14 AWG - 930 ft (280 m) – Receiver

Max. distance for analog output (250 Ohms max.):
14 AWG - 9000 ft (2740 m)

Wireless

Communication: Available with ELPRO Technologies wireless
devices

Digital

Display: LED indication of scale displayed
Two digit, seven segment (auto range change)

Standard

Configuration: IR5500-1-1-1-1-1-2-1-1-1-1
Methane, Dual 0-20 mA, Dual Modbus, relays, mounting
arm, 20-100 m path length

Specifications subject to change without notice.

Represented by:

Publication #: DS-IR5500-A0910

GENERAL MONITORS WORLDWIDE



www.generalmonitors.com

Lake Forest, CA

26776 Simpatica Circle
Lake Forest, California 92630
Tel: +1-949-581-4464
Fax: +1-949-581-1151
Email: info@generalmonitors.com

Houston, TX

9776 Whithorn Drive
Houston, Texas 77095
Tel: +1-281-855-6000
Fax: +1-281-855-3290
Email: gmhou@generalmonitors.com

Ireland

Ballybrit Business Park
Galway
Republic of Ireland
Tel: +353-91-751175
Fax: +353-91-751317
Email: info@gmil.ie

Singapore

No. 2 Kallang Pudding Road
#09-16 Mactech Building
Singapore 349307
Tel: +65-6748-3488
Fax: +65-6748-1911
Email: genmon@gmpacifica.com.sg

United Arab Emirates

P.O. Box 61209
Jebel Ali
Dubai
United Arab Emirates
Tel: +971-4-8143814
Fax: +971-8-4480051
Email: gmme@generalmonitors.ae

United Kingdom

Heather Close
Lyme Green Business Park
Macclesfield, Cheshire
United Kingdom, SK11 0LR
Tel: +44-1625-619583
Fax: +44-1625-619098
Email: info@generalmonitors.co.uk