

GDS-IR Infrared Gas Sensor for Hydrocarbons & CO₂

Fast Hydrocarbon Sensor for Harsh Environments

- * Suitable for use in SIL-2 rated safety systems
- * High speed response for critical applications (T50 less than 3 sec)
- * 5 Year Warranty and long life lowers total cost of ownership
- * 12 Year Warranty on infrared radiation source
- * Rugged stainless steel construction with no moving parts
- * Heated optical chamber maintains accuracy in cold conditions
- * Operates in constant hydrocarbon and anaerobic atmospheres
- * Ten discrete fault indication values for all failure states
- * Straight line optical path eliminates need for mirrors
- * Managed power-up delay reduces initial load on power supply
- * Industry standard 4-20mA current loop calibrated output
- * Multiple gas calibration curves for %LEL and % by volume
- * CSA Certified C22.2 No. 152-M1984 Performance Tested
- * Manufactured in USA

The GDS-IR Infrared Gas Sensor uses proven, reliable infrared sensing technology to detect dangerous levels of carbon dioxide or explosive levels of methane, propane and other hydrocarbons. The GDS-IR sensor is CSA certified for use in Class 1 Division 1 explosive environments and is CSA performance tested.

Advanced Infrared Technology

The GDS-IR infrared combustible gas sensor offers low total cost of ownership and a seventeen-year MTBF rating. Designed for especially harsh environments, the GDS-IR is virtually maintenance-free and immune to poisoning or etching by any known gas. The sensor element features a self-compensating optical bench, heated optical chamber and fault indication for all failure modes. The optical path can be easily opened for cleaning.

No periodic span calibrations are required. On initial setup and after each cleaning, a simple 'auto zero' procedure is used to establish proper operating conditions.

Flexibility

The GDS-IR can be calibrated to read a wide range of combustible hydrocarbons, including methane, propane, hexane, pentane, ethanol, Jet-A, isobutane, propylene and isopropyl alcohol, as well as carbon dioxide to 5% by volume. GDS-IR sensors are factory programmed and calibrated when shipped and can be field programmed for alternate response curves. Both LEL and % by volume ranges are available.



GASMAX + GDS-IR Combo

When combined with the GASMAX II monitor, the duo provides local display, 4-20mA output with diagnostics, optional second electrochemical sensor, isolated 4-20mA outputs or MODBUS slave interface with programmable relays.

Reliable Detection

The GDS-IR is manufactured in the USA and includes a five year operational warranty. Applications include refineries, onshore and offshore drilling platforms, fuel loading docks, biogas processing, breweries, wastewater treatment facilities and natural gas storage and distribution.

GDS
Corp

Gas and Flame Detection

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GDS-IR SPECIFICATIONS	
Power Input	18-30VDC at 5 watts (typical). Delayed IR source turn-on minimizes inrush power for distributed systems.
Max Current	Average: 210 mA, peak 400 mA at 24VDC
Display	None.
Sensor Technology	Reliable infrared sensing technology with patented self-compensating optics and easy-to-clean
Standard Output	Standard 3-wire 4-20mA current source. Max loop R is 1000 ohms with nominal 24VDC power supply
Output Alarm Conditions	Discrete 4-20mA output levels indicate general fault, reference & optics fault, warm-up, zero drift fault, calibration fault, zero and span set and overrange conditions.
Accuracy	± 3% LEL, 0-50% LEL ± 5% LEL, 51 - 100% LEL
Response Time	T50 < 3 seconds; T90 < 5 seconds
Temp	-40°C to +70°C at 0 to 99% RH
Housing	#316 Stainless Steel
Dimensions with j-box	Width 5.4" (137 mm), Height with junction box 12.75" (324 mm), Depth 3.5" (89 mm) Shipping weight 6.5 pounds (3 kg)
Approvals	CSA Certified for Class I, Div 1, Grps B, C, D C22.2 No.152-M1984 (R1997) for performance
Warranty	5 years from date of purchase

GDS-IR Order Guide	
GDS-IR A - B - C	
"A"	SENSOR HEAD 1 = Stainless Steel Sensor Head 2 = Stainless Steel Flow Cell
"B"	TARGET GAS (see chart)
"C"	OPTIONS 0 = includes standard junction box with zero-set pushbutton 1 = IR sensor only (no j-box)

GDS-IR Output States	
4-20mA	Normal Output Range
0.0 mA	Unit fault
0.2 mA	Reference channel fault
0.4 mA	Analytica channel fault
0.8 mA	Unit warm up
1.0 mA	Optics fault
1.2 mA	Zero drift fault
1.6 mA	Calibration fault
2.0 mA	Unit spanning
2.2 mA	Unit zeroing
4.0 mA	Zero gas level
5.6 mA	10% of range
8.0 mA	25% of range
12 mA	50% of range
16 mA	75% of range
20 mA	100% of range
20+ mA	Overrange

"B" - TARGET GAS & RANGE					
99	Specify target gas	-40 to +70C	119	Ethylene, 0-100% LEL	-40 to +70C
110	Methane 0-100% LEL	-40 to +70C	120	Hexane, 0-100% LEL	-40 to +70C
111	Propane 0-100% LEL	-40 to +70C	121	Jet-A, 0-100% LEL	-40 to +70C
112	Isobutane 0-100% LEL	-40 to +70C	122	Diesel, 0-100% LEL	-40 to +70C
113	Pentane 0-100% LEL	-40 to +70C	123	Gasoline, 0-100% LEL	-40 to +70C
114	Cyclopentane, 0-100% LEL	-40 to +70C	124	Isopropyl Alcohol, 0-100% LEL	-40 to +70C
115	n-Butane, 0-100% LEL	-40 to +70C			
116	Ethanol, 0-100% LEL	-40 to +70C	130	Methane, 0-100% volume	-40 to +70C
117	Methanol, 0-100% LEL	-40 to +70C	131	Propane, 0-100% volume	-40 to +70C
118	Propylene, 0-100% LEL	-40 to +70C	132	Carbon Dioxide, 0-5% volume	-40 to +70C

Available Accessories for GDS-IR Infrared Sensor:

- 10-0271 Sample flow cell assembly for process monitoring applications
- 10-0193 Junction box with zero-set pushbutton
- 10-0251 Programming adapter for GDS-IR infrared sensor. Requires Windows-based personal computer with hardware RS-232 serial port
- 10-0270 Stainless steel duct mount



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