GDS-IR2 Infrared Gas Sensor for Hydrocarbons, Ammonia & CO$_2$

Fast Infrared Sensor for Harsh Environments

✳ Highly reliable infrared sensing technology

✳ High speed response for critical applications (T50 less than 10 sec)

✳ Five year warranty; virtually maintenance free

✳ Immune to poisoning and etching by common solvents & gases

✳ Rugged stainless steel construction with no moving parts

✳ Available with extended length optical path for higher sensitivity

✳ 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

✳ IECEx Certified for Class I Zone 1, Group IIC

✳ CSA Certified C22.2 No. 152-M1984 Performance Tested

✳ Manufactured in USA

The GDS-IR2 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-IR2 sensor is CSA certified for use in Class 1 Division 1 explosive environments and is CSA performance tested.

Advanced Infrared Technology

The GDS-IR2 infrared combustible gas sensor offers low total cost of ownership and a seventeen-year MTBF rating. Designed for especially harsh environments, the GDS-IR2 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-IR2 can be calibrated to read a wide range of combustible hydrocarbons, including methane, propane, hexane, pentane, ethanol, Jet-A, isobutane, propylene and isoproply alcohol, as well as carbon dioxide to 5% by volume. GDS-IR2 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-IR2 Combo

When combined with the GASMAX II or GASMAX CX 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. The GASMAX CX also provides dual serial MODBUS and an Ethernet interface with built-in web server and MODBUS/TCP database.

Reliable Detection

The GDS-IR2 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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Toxic & Combustible Gas Detection • Controllers • Process Monitors • Calibration Supplies

GDS-IR2 SPECIFICATIONS

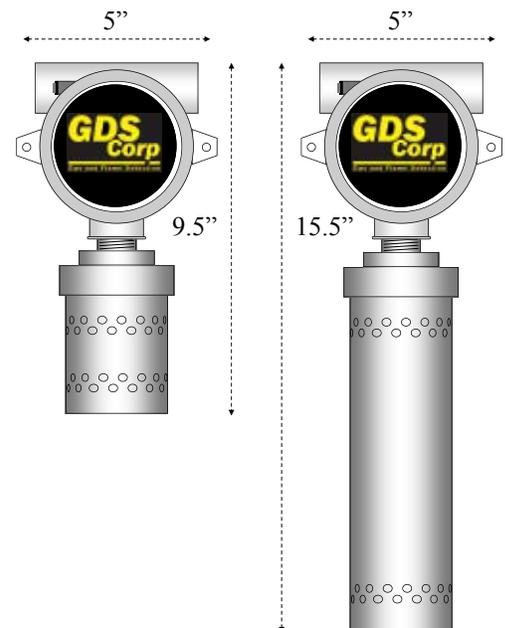|	
Power Input	18-32VDC at 5 watts (typical). Delayed IR source turn-on minimizes inrush power for distributed systems.
Max Current	Average: 210 mA, peak 400 mA at 24VDC
Display	None.
Sensor Technology	Reliable infrared sensing technology with patented self-compensating optics and easy-to-clean optical path
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	± 5% of value or 0.5% of scale
Repeatability	± 3% LEL, 0-50% LEL ± 5% LEL, 51 - 100% LEL
Response Time	T50 < 10 seconds; T90 < 20 seconds
Temp	-40°C to +70°C at 0 to 99% RH (Sensor 1HT to +90°C)
Sensor Housing	Anodized Aluminum Optional #316 Stainless Steel [SI]
Junction Box	Painted Aluminum Optional #316 Stainless Steel [SS]
Dimensions with j-box	Methane, CO2:Width 5.4", Height with junction box 10", Depth 3.5" Shipping weight 6.pounds (Aluminum) Ammonia: Width 5.4", Height with junction box 16", Depth 3.5" Shipping weight 8 pounds (Aluminum)
Approvals	CSA Certified for Class I, Div 1, Grps B, C, D C22.2 No.152-M1984 (R1997) for performance IECEx Certified for Class I, Zone 1, Group IIC
Warranty	5 years from date of purchase 12 years on infrared source

"B" - TARGET GAS & RANGE

210	Methane 0-100% LEL	-40 to +70C	**301**	Ammonia, 0-1000 ppm	-40 to +70C
211	Propane 0-100% LEL	-40 to +70C	**302**	Ammonia, 0-2500 ppm	-40 to +70C
			303	Ammonia, 0-1% volume	-40 to +70C
230	Methane, 0-100% volume	-40 to +70C	**304**	Ammonia, 0-10% volume	-40 to +70C
231	Propane, 0-100% volume	-40 to +70C			
232	Carbon Dioxide, 0-5%	-40 to +70C	**501**	Dual CO2/CH4 (contact factory)	-40 to +70C
233	Carbon Dioxide 0-3.5%	-40 to +70C			

Available Accessories for GDS-IR2 Infrared Sensor:

10-TBD	Sample flow cell assembly for process monitoring applications
10-0193	Junction box with zero-set pushbutton
10-TBD	Programming adapter for GDS-IR2 infrared sensor. Requires Windows-based personal computer with hardware RS-232 serial port
10-0270	Stainless steel duct mount

GDS-IR2 Order Guide

GDS-IR2 A - B - C [SI][SS][TAG][SM]

"A"	SENSOR HEAD 1 = Stainless Steel Sensor Head 2 = Stainless Steel Flow Cell
"B"	TARGET GAS (see table)
"C"	OPTIONS 0 = GDS-IR2 + j-box with zero-set 1 = GDS-IR2 sensor only (no j-box) 2 = GDS-IR2 with local GDS-56XP 3 = GDS-IR2 with remote GDS-56XP
	[SI] = Stainless steel GDS-IR2 housing [SS] = Stainless steel junction box [TAG] = Stainless steel identification tag [SM] = Sitemax quick-connect fitting

GDS-IR2 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
20.1+ mA	Overrange