GDS-IR Infrared Gas Sensor for Hydrocarbons & CO_2

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 atmosphers
- 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 isoproply 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 CX + GDS-IR

GASMAX + GDS-IR 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-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 (Sensor 1HT to +90°C)
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

"B" - TARGET GAS & RANGE					
105	Butanol, 0-100% LEL	-40 to +70C	**119**	Ethylene, 0-100% LEL	-40 to +70C
106	Toluene, 0-100% LEL	-40 to +70C	**120**	Hexane, 0-100% LEL	-40 to +70C
107	Turpentine, 0-50% LEL	-40 to +70C	**121**	Jet-A, 0-100% LEL	-40 to +70C
108	Ethane, 0-100% LEL	-40 to +70C	**122**	Diesel, 0-100% LEL	-40 to +70C
109	Acetylene, 0-100% LEL	-40 to +70C	**123**	Gasoline, 0-100% LEL	-40 to +70C
110	Methane 0-100% LEL	-40 to +70C	**124**	Isopropyl Alcohol, 0-100%	-40 to +70C
1HT	Methane, 0-100% LEL	-40 to +90C	**125**	Acetone, 0-100% LEL	-40 to +70C
111	Propane 0-100% LEL	-40 to +70C	**126**	p-Xylene, 0-100% LEL	-40 to +70C
112	Isobutane 0-100% LEL	-40 to +70C	**127**	Ethylene Oxide, 0-50% LEL	-40 to +70C
113	Pentane 0-100% LEL	-40 to +70C	**128**	MEK, 0-100% LEL	-40 to +70C
114	Cyclopentane, 0-100% LEL	-40 to +70C	**129**	Styrene, 0-50% 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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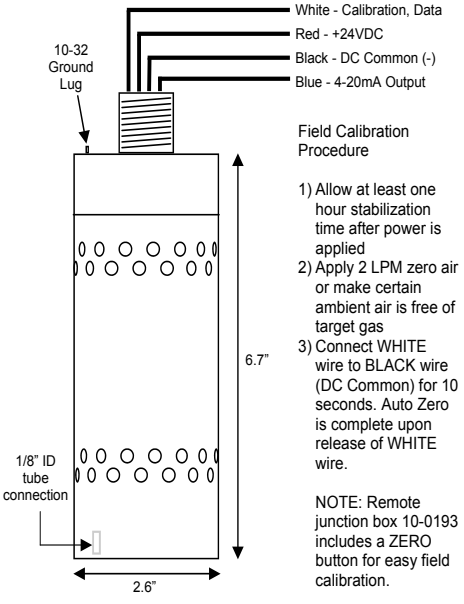
GDS-IR Order Guide	
GDS-IR A - B - C [SM][IRSG]	
"A"	SENSOR HEAD 1 = Stainless Steel Sensor Head 2 = Stainless Steel Flow Cell
"B"	TARGET GAS (see chart)
"C"	OPTIONS 0 = includes standard junction box with zero-set pushbutton 1 = IR sensor only (no j-box)

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



Field Calibration Procedure

1) Allow at least one hour stabilization time after power is applied
2) Apply 2 LPM zero air or make certain ambient air is free of target gas
3) Connect WHITE wire to BLACK wire (DC Common) for 10 seconds. Auto Zero is complete upon release of WHITE wire.

NOTE: Remote junction box 10-0193 includes a ZERO button for easy field calibration.