

Smart Gas Detector

GT-2511-FLP



AMBETRONICS®

ISO 9001:2015
Quality



ISO 14001:2015
Environment



ISO 45001:2018
Health & Safety



PROVISIONAL DATA SHEET



Features

► IR Technology:

- Multi Beam, Dual compensated Infrared technology with built in heated optics & temperature compensation
- Fast Response Time of just 5 seconds.
- Operates In Oxygen-deficient Atmospheres

► Reliable detection, Minimal Maintenance

- Early Clean Optics Warning Indication
- The mirror and window are heated to prevent misting or icing of the optics and allow operation in harsh weather conditions.
- No sensitivity loss in case of high gas concentrations

► Environmental Protection

- Mesh fitted over the measuring section of the detector to keep insects from blocking the Optics (Mosquito Net).
- Comes with splash guard by default for protection against effects of Rain, Dirt & snow etc.
- Stainless steel (Non-Magnetic) SS316, IP66-rated, rugged housing protects unit from environmental extremes.

► Device features

- High-contrast, Antiglare OLED display shows gas concentration.
- Display specific error codes for sensor and system Issues/errors.
- Non-intrusive programming for flameproof models via magnetic wand.
- User menu is Password-protected.
- Test mode simulates gas values for electronic checks.
- Hardware test mode works with or without sensor.

► Outputs:

- 4-20mA output in Source, Sink, Isolated mode.
- Optional Two configurable alarm relays and one fault relay.
- Alarm acknowledgment from front, rear terminal, or via MODBUS.
- Optional HART protocol with 4-20mA output.
- Optional isolated RS-485 with MODBUS RTU for communication.

GAS RANGE & RESOLUTION LIST

GAS LIBRARY					
HYDROCARBON (MULTI BEAM) IR SENSOR MODULE					
SR.NO	GASES	RANGE	UNIT	RES	ORDER CODE
C1	METHANE (CH ₄)	100	%LEL	1	IRP-FLP-HC-IR-14-02
C2	Ethane (C ₂ H ₆)	100	%LEL	1	IRP-FLP-HC-IR-14-02
C3	Propane (C ₃ H ₈)	100	%LEL	1	IRP-FLP-HC-IR-14-02
C4	Butane (C ₄ H ₁₀)	100	%LEL	1	IRP-FLP-HC-IR-14-02
C5	Pentane (C ₅ H ₁₂)	100	%LEL	1	IRP-FLP-HC-IR-14-02
C6	Hexane (C ₆ H ₁₄)	100	%LEL	1	IRP-FLP-HC-IR-14-02
C7	Heptane (C ₇ H ₁₆)	100	%LEL	1	IRP-FLP-HC-IR-14-02
C8	Octane (C ₈ H ₁₈)	100	%LEL	1	IRP-FLP-HC-IR-14-02
C9	Nonane (C ₉ H ₂₀)	100	%LEL	1	IRP-FLP-HC-IR-14-02
C10	Decane (C ₁₀ H ₂₂)	100	%LEL	1	IRP-FLP-HC-IR-14-02
C11	Undecane (C ₁₁ H ₂₄)	100	%LEL	1	IRP-FLP-HC-IR-14-02
C12	Dodecane (C ₁₂ H ₂₆)	100	%LEL	1	IRP-FLP-HC-IR-14-02

Applications

- Oil & Gas Exploration & Production
- Shipping Tankers, Freighters & Marine Vessels
- Fuel Loading & Distribution Facilities
- Refineries, Bulk Terminals & Tank Farms
- LNG / LPG Processing & Storage Facilities
- Gas Pipelines, Compressor Stations & Metering Systems
- Power Plants & Gas Turbine Facilities

MUST FOR HUMAN & INDUSTRIAL SAFETY

Certifications

CIMFR & PESO Certification

- PESO: Certified to Ex d
Ex db IIC T6 Gb (-25°C ≤ Ta ≤ +60°C)
Ex tb IIIC T85°C Db (-25°C ≤ Ta ≤ +60°C)
- Standards: IS/IEC 60079-0, IS/IEC 60079-1, IS/IEC 60079-31.
- CIMFR tested : IIA, IIB & IIC
IIIA, IIIB & IIIC
- Ingress Protection IP66 & IP68 as per Standard : IS/IEC 60529 : 2011

ATEX Certification

- II 2GD
Ex db IIC T4 Gb
Ex tb IIIC T135°C Db
Tamb= -40°C ≤ Ta ≤ +80°C • Standards : EN IEC 60079-0, EN 60079-1, EN 60079-31.

IECEx Certification

- Ex db IIC T4 Gb
Ex tb IIIC T135°C Db
Tamb= -40°C ≤ Ta ≤ +80°C • Standards: IEC 60079-0, IEC 60079-1, IEC 60079-31.

Functional Safety Certification

SIL certified compliance as per requirement of EN IEC 61508: 2010, Part1 to Part7 & meets requirements providing a level of integrity to SIL2 capable, Type B element, SIL2@ HFT=0, Route1_u (Models SFF ≥ 90%).

EMC Directive 2014/30/EU Compliance

EMC/EMI compatibility as per standard EN IEC 61000-6-2, BS EN 50270: 2015
Emission compatibility as per standard EN IEC 61000-6-4

Low Voltage Directive (LVD) 2014/35/EU Compliance

Compliance to meet the requirements of standard EN 61010-1

RoHS Directive 2015/863/EU

Compliance to meet the requirements of EN IEC 63000

Technical Specifications

Product General Specification :

- Sensor Technology : Multi Beam, Dual compensated Infrared technology with built in heated optics & temperature compensation
- Gas Detected : Hydro carbon C1 to C12 Configurable Library
- Range : 0-100% LEL
- Display : High bright OLED Display
8 LEDs to indicate status of instrument
- Setting : By using Magnetic Wand, (optional) Hart Communicator
- Calibration : The device is factory calibrated any ready for use, regular calibration is required in accordance with applicable national and regional regulations.

Performance :

- Response time : Without Splash Guard ≤ 5 SEC.
- Overall Accuracy : ±2% for 0 to 50 %LEL,
±5% for 51 to 100 %LEL
- Zero Drift : ± 2% Full Scale Deflection (FSD) per year
- Repeatability : ± 2% Full Scale Deflection (FSD)
- Warm-up time : Less than 2 Minutes

Electrical :

- Supply Voltage : 18 to 32 VDC, Typically 24VDC
- Power Consumption : < 6 Watts @ 24VDC
- Connector Cross-section : 2.5mm² for Flexible or Armoured Shielded Cable.

4-20mA Output Levels

- Signals : • Warning error (3 mA)
• Safety error (3.7 mA)
• Calibration mode/ programming mode/Inhibit mode user configurable between 2mA to 3.8mA
• Scale over range (21mA)
• 2mA dirty optics warning (at 75% obscuration, configurable)
- Self-Check : Self diagnostic feature required for detecting dirty optics, internal hardware faults

Environmental :

- Operating Temperature : -40°C to +80°C (-40°F to +176°F)
- Storage : -40°C to +85°C (-40°F to +185°F)
- Humidity : 5 to 95% Non Condensing.
- Ingress Protection : IP66 as per EN 60529

Common Deliverable

- 1) Test Calibration Certificate
- 2) 'Operational / Instrument' User Manual
- 3) Reference Calibration Gas Certificate
- 4) Safety Manual

Output Signal :

- 3 wire 4-20mA (Sink or Source) or 4 Wire 4-20mA (Isolation)
- 4-20mA output in Source, Sink and Isolated mode.
- Load resistance : 250-600 Ω at 24VDC
- Optional Alarm Relay : Max Switching Voltage:- 5A, 30VDC
Two configurable alarm relays and one fault relay.
- Optional Communication : Isolated RS-485 Communication with MODBUS RTU and HART Communication.

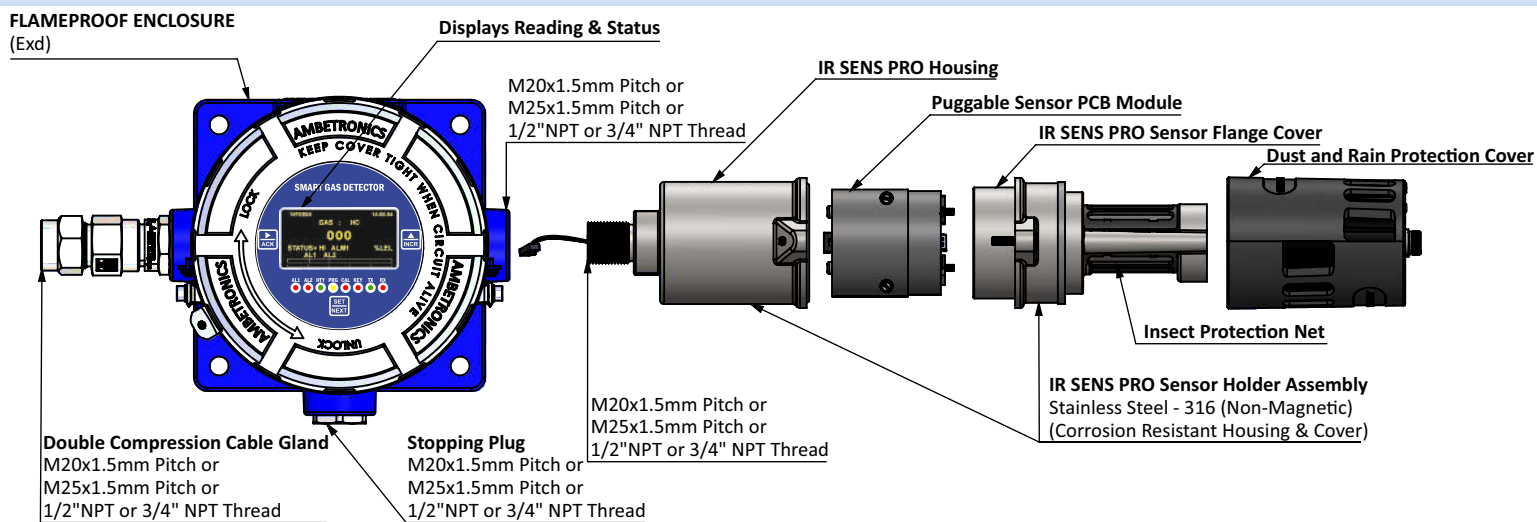
Accessories (Optional) :

- 1) CE Certified 24 VDC Power Supply.
- 2) Canopy & Mounting stand.
- 3) Gas Calibration Kit (0.5,1, 3,10)Liter.
- 4) Hooter Cum Flasher
- 5) PC Based SCADA software, Modem
- 6) Splash Guard
- 6) Insect Net
- 11) Optics Cleaning Kit

Flameproof Housing Dimension Details

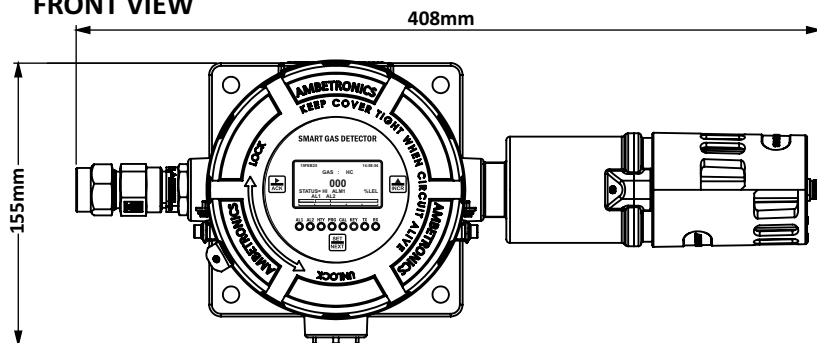
- Transmitter Enclosure : • Pressure Die Cast Aluminium alloy OR
- Material : • Stainless steel (Non-magnetic) : SS316
- Cable Entry : M20/ M25/ ½" NPT/ ¾" NPT
- Stopping Plug : M20/ M25/ ½" NPT/ ¾" NPT
- Mounting : Wall Mounting / Stand Mounting / Pipe Mounting
- Dimension : 155mm (H) x 408mm (W) with IR SENS PRO x
122 mm (D)
- Weight : Approx 4 kg

EXPLODED VIEW

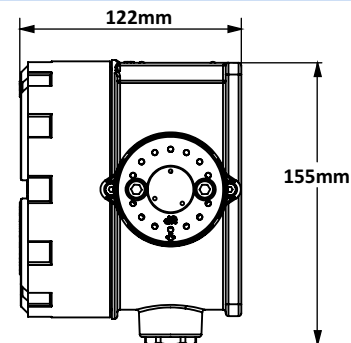


OPTION A: RIGHT SIDE SENSOR CONNECTION

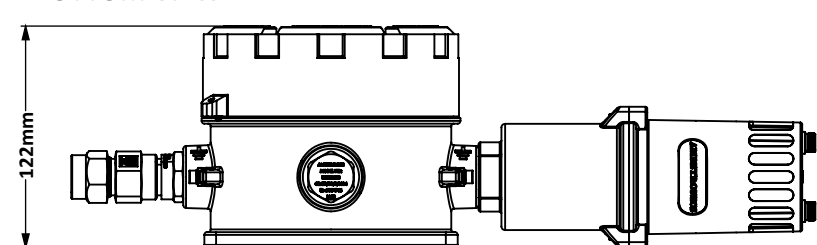
FRONT VIEW



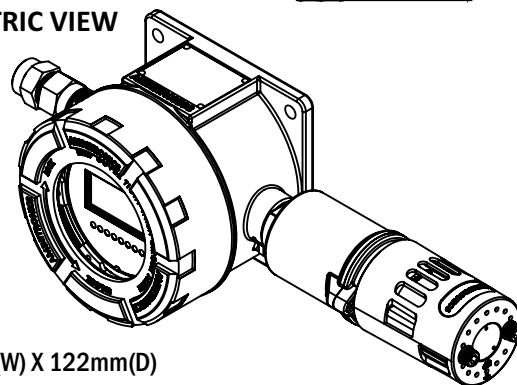
SIDE VIEW



BOTTOM VIEW



ISOMETRIC VIEW



NOTE: 1) ALL DIMENSIONS ARE IN mm. 2) TOLERANCE ± 3 mm 3) SIZE: 155mm(H) X 408mm(W) X 122mm(D)

ORDERING INFORMATION

GT	- 2511 - FLP	- 0	- 0
MODEL NO.	FLAMEPROOF ENCLOSURE	RS-485 COMMUNICATION 0- NO 1- YES	HART COMMUNICATION 0- NO 1- YES
(E.g. For Order Code : GT-2511-FLP-1-1, Selected Model : GT-2511-FLP-RS485-HART)			

*Before placing order please refer the above ordering information or contact below address for assistance

XXX	- FLP - XX	- XX	- XX - XX
1) IRP: IR SENS PRO (MULTI BEAM) PLUGGABLE SENSOR MODULE	GAS NAME	SENSOR TECHNOLOGY EN: ELECTROCHEMICAL NEGATIVE EP: ELECTROCHEMICAL POSITIVE EC: ELECTROCHEMICAL IR: INFRARED CT: CATALYTIC PD: PID	GAS RANGE GAS UNIT
(E.g For Order Code: IRP-FLP-HC-IR-14-02, Selected Model : IR SENS PRO (Multi Beam) Pluggable Sensor Module- Flameproof-HC-Infrared-100-%LEL)			

Manufactured by:



AMBETRONICS ENGINEERS PVT. LTD.

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Specifications subject to change without any prior notice