

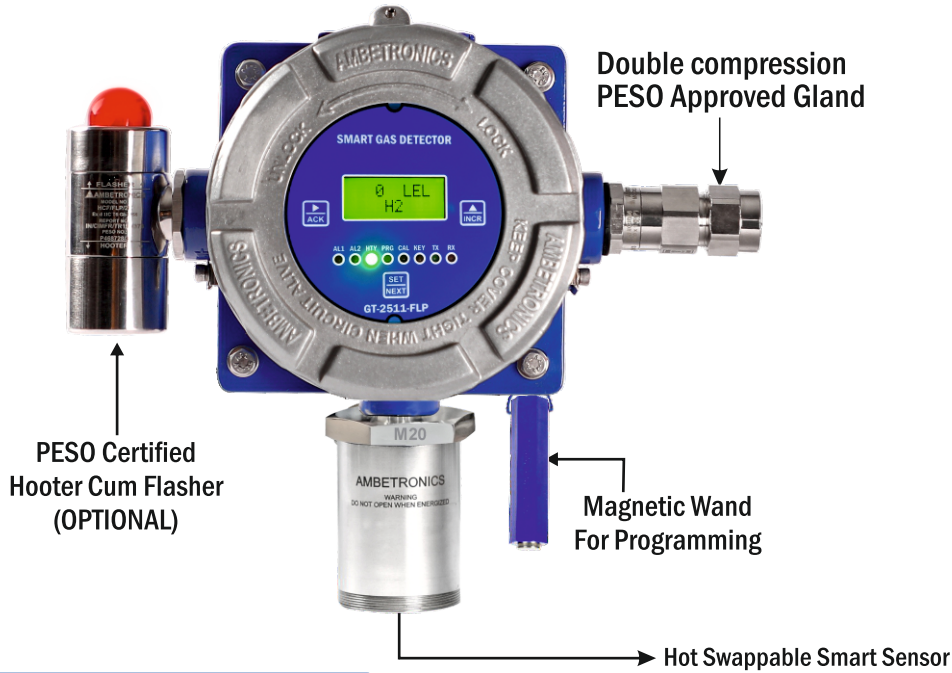
Intrinsically Safe

PESO Approved Enclosure

EN-50270 Compliance



MAKE IN INDIA



ORDER CODE : **GT-2511-FLP-0-0-Quatum Safe**

Features

- Provides a fast reliable output for detection a smallest leak of Oxygen, Toxic, Combustible and Volatile Organic Compounds (VOC).
- Provision for smart – Pluggable gas sensor module for Oxygen, Toxic, Combustible, PID & NDIR sensors.
- Calibration data, Alarm data, Offset data, Output current data is saved in the particular sensor module, for easy maintenance & servicing.
- Highly resistant to poisoning and etching.
- Capable of detecting down to PPM, %V/V, %LEL, mg/m3.
- 2-Line, 4-Digit 8 mm (H) Seven Segment LCD Display & 8 LEDs to indicate status of instrument
- Indication for 'Sensor Open', 'Over Range', 'Sensor Replace', 'Cal Due', 'Cal Fail', mA Loop Open.
- Standard 4-20mA signal output with configurable range.
- Optional Standard 0-10V/0-5V/ 0-1V signal output with configurable range.
- Optional STEL and TWA set points can be configured for Toxic & VOC Gases.
- Optional RS-485 Communication Port with MODBUS RTU PROTOCOL.
- Non - Intrusive programming for Flameproof Model using Magnetic Wand.
- Password protected programming with Password Changing Facility.
- Alarm Acknowledgement Facility from front as well as rare terminal.
- 'Test Mode' provided to check the electronics as Alarm LEDs, Relays, Output current/voltage with or without sensor module.
- Alarm Relay contacts on board with two configurable Alarm Levels & One Fail Safe Relay.

Approvals & Compliance

Approval & Compliance for Flameproof Enclosure :

Ex db IIC T6 Gb IP66

Approval & Compliance for Smart Gas Detector / Transmitter :

Ex db IIC T6 Gb Ex tb/tc IIIC T85°C Db/Dc IP68

• Standard Compliance :

- IS/IEC 60079-1 : 2014 Ex d IIC T6 Gb (Flameproof Protection)
- IS/IEC 60079-31 : 2013 Ex ta IIIC T85°C Da (Dust Ignition Protection)
- IS/IEC 60079-11 : 2011 Ex ia IIC T6 Ga (Intrinsically Safe)
- IS/IEC 60529 : 2001 IP66 AND IP68 (Ingress Protection)

Approval & Compliance for Intrinsically Safe Certified to

Ex d [ia] IIC T6 Ga Ex tb IIIC T85°C Db IP68

• EMI & EMC Compliance : EN-50270

Approval & Compliance for Sensor Holder SenSmart

Model No. SM-FLP-IIC Safe Certified to

Ex db IIC T6 Gb Ex tb IIIC T85°C Db IP-66

- ATEX II 2G Ex db IIC T6 Gb (-20°C ≤ Ta ≤ +60°C)
- IECEx Ex db IIC T6 Gb

TECHNICAL SPECIFICATIONS

Applications

- Refineries
- Cold Storage
- Sewage Plants
- Fertilizers Plants
- Stack Monitoring
- Chlorination Plant
- Ambient Monitoring
- Gas Metering skid
- Gas Cylinder Bank
- Oil & Gas Industries
- Gas Pipeline Project
- Pulp & Paper Plants
- Gas Metering Station
- Burner / Furnace Areas
- Bullet Yard / Storage Yard
- Chemical Processing Plant
- Heat Treatment Plants
- Chemical Storage Area
- Control Atmosphere
- Power & Industrial Plants
- Acid Alkalizes & Dyes Mfg. Plants
- Offshore Drilling & Processing Platforms
- Coal Mine and Confined Area
- Chemical & Petrochemical Plants
- Automotive Industries / Paint Shops

General

- Sensor Technology : Electrochemical/Catalytic / Pellistor / NDIR / PID / Solid State
- Detection Method : Diffusion
- Gas Detected : (Please select gas as specified in the table)
- Range & Resolution : (Please select Range & Resolution as Specified in the table)
- Display : 8 x 2 Alphanumeric L.C.D. with configurable backlit 8 LEDs to indicate status of instrument.
- Control Action : i) Two independent Alarm set points with Latch & Non-latch facility.
ii) User selectable Hysteresis and Logic option
iii) Configurable STEL and TWA set points for Toxic Gases (optional)
- Setting : Magnetic Wand without opening enclosure cover

Accuracy

SR. NO.	SENSOR TECHNOLOGY		CALIBRATION ACCURACY
1	Electrochemical		±2 % F.S
2	Catalytic/ Pellistor		±2 % F.S
3	NDIR-CH4/ CO2/ C3H8		≤ ±2 % of Applied Gas
4	PID	0 to 5000 PPM	± 10 % of Applied Gas
		0 to 1000 PPM	± 5 % of Applied Gas
		0 to 50 PPM	± 3 % of Applied Gas

Performance

- Response time : <15sec/90%, <10sec/50%

Electrical :

- Supply Voltage : 18 to 36 VDC, Typically 24VDC
- Power Consumption : Less than 3.6 Watts
- Connector Cross-section : 2.5mm² for Flexible or Armoured Shielded Cable.

Environmental :

- Operating Temperature : -20°C to +60°C
- Storage : -30°C to 70°C
- Humidity : Less than 95% Non-Condensing.

Accessories (Optional) :

- 1) CE certified 24VDC Power supply
- 2) Canopy & Mounting stand
- 3) Gas Calibration Kit (0.5, 1,3,10) Liter.
- 4) Hooter Cum Flasher : P468728/3 Dt.: 21/02/2020
- 5) Gas sampling & Conditioning System
- 6) RS-485 to USB or RS-232 converter
- 7) Ethernet converter
- 8) PC Based SCADA software, Modem

Error Monitoring

- 1) During Sensor Break / Open, the Display shows 'SENSOR OPEN' & Output Current/voltage will be as per Upscale/ Downscale
- 2) During Over range, the Display shows 'OVER RANGE' & Output Current will be as per Upscale/ Downscale
- 3) During output current open condition the display indicates "mA LOOP OPEN" & the message disappears after Acknowledgment
- 4) mA Loop Open setting can be Enabled or disabled
- 5) Upscale current: 21mA/ 22mA Selectable
- 6) Downscale current 1mA / 3.7mA Selectable
- 7) Upscale voltage for 0-10V: 10V
- 8) Upscale voltage for 0-5V: 5V
- 9) Upscale voltage for 0-1V: 1V
- 10) Downscale voltage for 0-10V/0-5V/0-1V: 0V
- 11) Inhibit mode current is adjustable & user selective
Oxygen for 25% V/V range : 3.8mA / 17.4mA
Oxygen for 100% V/V range : 3.8mA / 7.34mA
Nitrogen for 100% V/V range : 3.8mA/ 16.656mA
Toxic / combustible / PID /NDIR : 2mA / 3.8mA / 4mA
- 12) Inhibit mode for 0-10V voltage output is adjustable & user selective
Oxygen for 25% V/V range : 0V / 8.36V
Oxygen/N2 for 100% V/V range : 0V/ 2.09V
Nitrogen for 100% V/V range : 0V/7.91V
Toxic / combustible / PID /NDIR : 0V
- 13) Inhibit mode for 0-5V voltage output is adjustable & user selective
Oxygen for 25% V/V range : 0V / 4.18V
Oxygen/N2 for 100% V/V range : 0V/ 1.045V
Nitrogen for 100% V/V range : 0V/3.955V
Toxic / combustible / PID /NDIR : 0V
- 14) Inhibit mode for 0-1V voltage output is adjustable & user selective
Oxygen for 25% V/V range : 0V / 836mV
Oxygen/N2 for 100% V/V range : 0V/ 209mV
Nitrogen for 100% V/V range : 0V/791mV
Toxic / combustible / PID /NDIR : 0mV

Output Signal

- Standard Current / : 4-20mA output with configurable range
- Voltage : selection.
- Current output capacity : ± 0.125% Full Scale
- Load Driving Capacity : 1) 560 ohm at 18VDC to 36VDC
2) 820 ohm load driving capacity at 22VDC to 36VDC
- Relay : Three SPDT Relay (one for Fail Safe and Two for Alarm indication) of rating No: 10a 250VAC / 5A 30VDC & NC: 3A 125VAC / 3A 30VDC
- Display : 8 x 2 Alphanumeric L.C.D. with configurable backlit 8 LEDs to indicate status of instrument.
- Optional communication : Isolated RS-485 Communication port with MODBUS RTU protocol

Common Deliverable

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

TECHNICAL SPECIFICATIONS

Flameproof Housing

Protection Class : IP66 / IP68
 Enclosure Material : Cast Aluminium alloy, LM-6 or SS-316 (optional)
 Approval : CIMFR approved for IIA, IIB group, IIC
 Cable Gland : Double Compression Cable Gland - Model No. : CG/FLP/2C
 Cable Entry : M20 x 1.5(P) & 25 x 1.5P
 Stopping Plug : Ex Proof
 Mounting : Wall Mounting / Stand Mounting / Pipe Mounting

Dimension with Hooter cum Flasher

Dimension : 225 mm (H) with sensor holder x 270 mm (W) x 120 mm (D)
 Weight : Approx. 2.7 kg

GAS WITH RANGE & RESOLUTION

ELECTROCHEMICAL SENSOR TECHNOLOGY

SR.NO	GASES	RANGE	UNIT	RES	ORDER CODE
1	Oxygen (O ₂)	25	%V/V	0.01	SSM-FLP-O2-EC-08-03
2	Oxygen (O ₂)	100	%V/V	0.01	SSM-FLP-O2-EC-14-03
3	Nitrogen (N ₂)	100	%V/V	0.01	SSM-FLP-N2-EC-14-03

TOXIC GASES

SR.NO	GASES	RANGE	UNIT	RES	ORDER CODE
1	Ammonia (NH ₃)	100	PPM	1	SSM-FLP-NH3-EC-14-01
2	Ammonia (NH ₃)	1000	PPM	1	SSM-FLP-NH3-EC-24-01
3	Bromine (Br ₂)	10	PPM	0.1	SSM-FLP-BR2-EC-05-01
4	Carbon Monoxide (CO)	1000	PPM	1	SSM-FLP-CO-EC-24-01
5	Carbon Monoxide (CO)	2000	PPM	1	SSM-FLP-CO-EC-28-01
6	Chlorine (Cl ₂)	10	PPM	0.1	SSM-FLP-CL2-EC-05-01
7	Ethylene Oxide (ETO)	100	PPM	1	SSM-FLP-ETO-EC-14-01
8	Hydrogen (H ₂)	2000	PPM	1	SSM-FLP-H2-EC-26-01
9	Hydrogen Bromide (HBr)	100	PPM	1	SSM-FLP-HBR-EC-14-01
10	Hydrogen Chloride (HCL)	100	PPM	1	SSM-FLP-HCL-EC-14-01
11	Hydrogen Cyanide (HCN)	100	PPM	1	SSM-FLP-HCN-EC-14-01
12	Hydrogen Fluoride (HF)	10	PPM	0.1	SSM-FLP-HF-EC-05-01

NDIR SENSOR TECHNOLOGY

SR.NO	GASES	RANGE	UNIT	RES	ORDER CODE
1	Carbon Dioxide(CO ₂)	5000	PPM	1	SSM-FLP-CO2-IR-28-01
2	Carbon Dioxide (CO ₂)	5	%V/V	0.1	SSM-FLP-CO2-IR-04-03
3	Carbon Dioxide (CO ₂)	100	%V/V	0.1	SSM-FLP-CO2-IR-14-03
4	Methane (CH ₄)	100	%V/V	0.1	SSM-FLP-METHANE-IR-14-03
5	Methane (CH ₄)	100	%LEL	1	SSM-FLP-METHANE-IR-14-02
6	Methane (CH ₄)	5	%V/V	0.1	SSM-FLP-METHANE-IR-04-03
7	Propane/ LPG(C ₃ H ₈)	100	%LEL	1	SSM-FLP-PROPANE-IR-14-02
8	Propane/LPG (C ₃ H ₈)	5	%V/V	0.1	SSM-FLP-PROPANE-IR-04-03
9	Propane/LPG (C ₃ H ₈)	100	%V/V	1	SSM-FLP-PROPANE-IR-14-03

PID SENSOR TECHNOLOGY

SR.NO	GASES	RANGE	UNIT	RES	ORDER CODE
1	Isobutylene (C ₄ H ₈)/ other VOC	40	PPM	0.1	SSM-FLP-ISOBUTYLENE- PD-10-01
2	Isobutylene (C ₄ H ₈)/ other VOC	1000	PPM	1	SSM-FLP-ISOBUTYLENE- PD-24-01
3	Isobutylene (SPAN C ₄ H ₈)/other VOC	4000	PPM	1	SSM-FLP-ISOBUTYLENE- PD-27-01

NOTE :

- In above Table, Range of gases start from zero.
- Gases which are not listed, are available on request & for other details contact factory.
- All VOCs are available in PID detection principle in PPM ranges.
- PID detector will be provided by calibration with Isobutylene gas.
- In PID detector, VOC other than Isobutylene is calibrated with Isobutylene gas by setting VOC correction factor, In Calibration Report, VOC factor with respect to Isobutylene gas will be mentioned.
- Detection value of VOC = Isobutylene gas concentration value x factor

TOXIC GASES

SR.NO	GASES	RANGE	UNIT	RES	ORDER CODE
13	Hydrogen Fluoride (HF)	100	PPM	1	SSM-FLP-HF-EC-14-01
14	Hydrogen Sulfide (H ₂ S)	100	PPM	1	SSM-FLP-H2S-EC-14-01
15	Ozone (O ₃)	20	PPM	0.1	SSM-FLP-O3-EC-06-01
16	Phosphine (PH ₃)	10	PPM	0.1	SSM-FLP-PH3-EC-05-01
17	Nitrogen Dioxide (NO ₂)	20	PPM	0.1	SSM-FLP-NO2-EC-06-01
18	Nitric Oxide (NO ₂)	250	PPM	1	SSM-FLP-NO-EC-17-01
19	Sulfur Dioxide (SO ₂)	50	PPM	0.1	SSM-FLP-SO2-EC-11-01
20	Sulfur Dioxide (SO ₂)	2000	PPM	1	SSM-FLP-SO2-EC-26-01

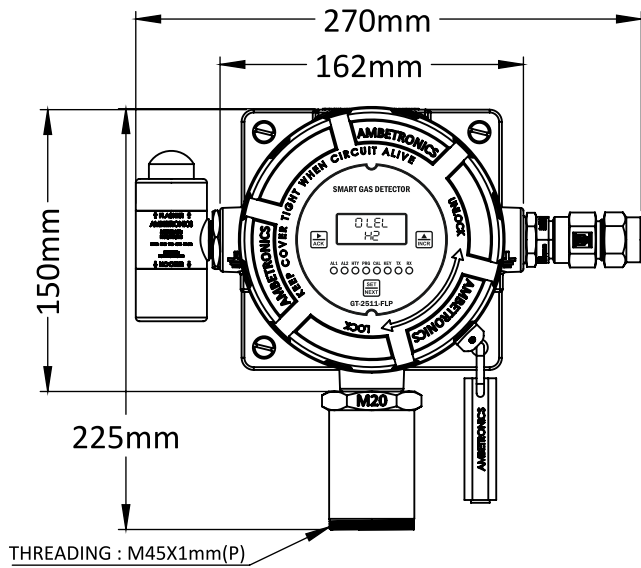
CATALYTIC/ PELLISTOR SENSOR TECHNOLOGY

COMBUSTIBLE GASES

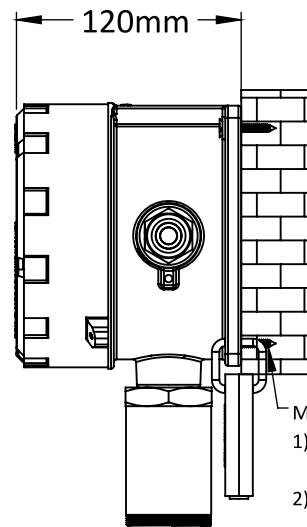
SR.NO	GASES	RANGE	UNIT	RES	ORDER CODE
1	Acetone (CH ₃) ₂ CO	100	%LEL	1	SSM-FLP-ACETONE-CT-14-02
2	Acetylene (C ₂ H ₂)	100	%LEL	1	SSM-FLP-ACETYLENE-CT-14-02
3	Ammonia (NH ₃)	100	%LEL	1	SSM-FLP-NH3-CT-14-02
4	Butane/n-Butane (C ₄ H ₁₀)	100	%LEL	1	SSM-FLP-BUTANE-CT-14-02
5	Carbon Monoxide (CO)	100	%LEL	1	SSM-FLP-CO-CT-14-02
6	Ethanol (C ₂ H ₅ OH)	100	%LEL	1	SSM-FLP-ETHANOL-CT-14-02
7	Ethyl Acetate (C ₄ H ₈ O ₂)	100	%LEL	1	SSM-FLP-ETHYL ACETATE- CT-14-02
8	Ethylene (C ₂ H ₄)	100	%LEL	1	SSM-FLP-ETHYLENE-CT-14-02
9	Hexane/n-Hexane (C ₆ H ₁₄)	100	%LEL	1	SSM-FLP-HEXANE-CT-14-02
10	Hydrogen (H ₂)	100	%LEL	1	SSM-FLP-H2-CT-14-02
11	Isopropanol (CH ₃ C ₂ H ₄ OH)	100	%LEL	1	SSM-FLP-IPA-CT-14-02
12	Methane (CH ₄)/HC	100	%LEL	1	SSM-FLP-METHANE-CT-14-02
13	Methyl Ethyl Ketone (C ₄ H ₈ O)	100	%LEL	1	SSM-FLP-METHYL ETHYL KETONE-CT-14-02
14	Methanol (CH ₃ OH)	100	%LEL	1	SSM-FLP-METHANOL-CT-14-02
15	N-Heptane (C ₇ H ₁₆)	100	%LEL	1	SSM-FLP-N-HEPTANE-CT-14-02
16	N-Pentane (C ₅ H ₁₂)	100	%LEL	1	SSM-FLP-N-PENTANE-CT-14-02
17	Pentane/n-Pentane (C ₅ H ₁₂)	100	%LEL	1	SSM-FLP-PENTANE-CT-14-02
18	Propane/n-Propane / LPG (C ₃ H ₈)	100	%LEL	1	SSM-FLP-PROPANE-CT-14-02
19	Toluene (C ₇ H ₈)	100	%LEL	1	SSM-FLP-TOLUENE-CT-14-02
20	Unleaded Petrol	100	%LEL	1	SSM-FLP-UNLEADED PETROL-CT-14-02
21	CNG/LNG/LPG/Natural Gas/ Flammable Gas	100	%LEL	1	SSM-FLP-CNG/LNG-CT-14-02

FLAMEPROOF ENCLOSURE DIMENSION & MOUNTING DETAILS

FRONT VIEW



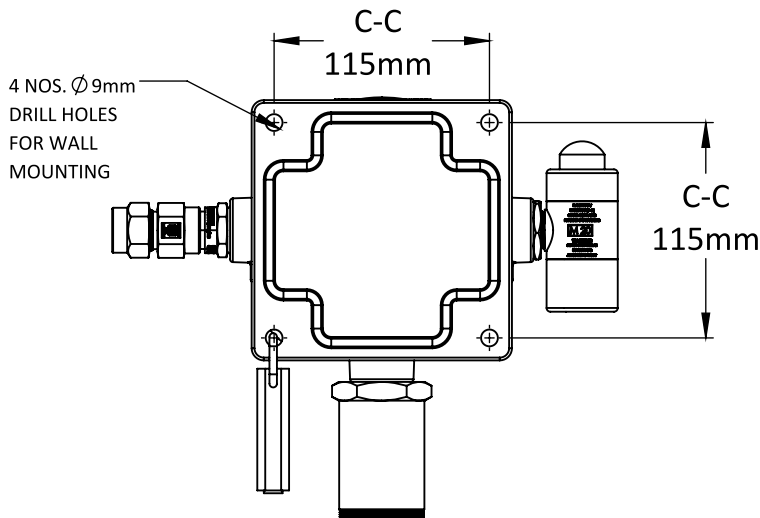
SIDE VIEW



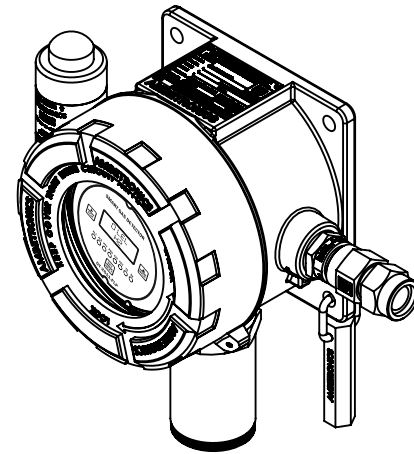
MOUNTING DETAILS :

- 1) METAL WASHER ID-6mm, OD-12mm, 4 NOS.
- 2) 5X30 CHIPBOARD SCREW 4 NOS.

BACK VIEW



ISOMETRIC VIEW

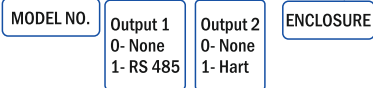


NOTE :

1. ALL DIMENSIONS ARE IN "mm", UNLESS OTHERWISE SPECIFIED.
2. TOLERANCE ON DIMENSION ± 5 mm, UNLESS OTHERWISE SPECIFIED.

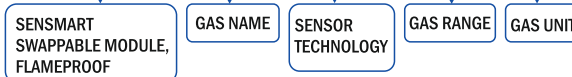
ORDERING INFORMATION

1) GT-2511-FLP-0-0-Quatum Safe



(E.g. Smart Gas Detector Flameproof)

2) SSM-FLP-02-EC-08-03



(E.g. Flameproof SenseSmart Swappable Module;
Gas Name: OXYGEN (O2);
Sensor operating Principle/ Technology: Electrochemical (EC)
Gas Range & Unit: 25.00 %V/V)

3) HCF-FLP-95d-R-24V-AE



* Before placing order please Refer the above ordering information or Contact below address for assistance.

Manufactured by :



AMBETRONICS ENGINEERS PVT. LTD.

17-B, 16, 14A, Tarun Industrial Estate, New Nagardas Road, Mogra Pada, Andheri (E.) Mumbai - 400 069, India.

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