

ORDER CODE : GT-2511-WP-0-0-Octa Safe

Hot Swappable Sensor

Features

- Provides a fast reliable output for detection a smallest leak of Oxygen, Toxic, Combustible Gases 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.
- Digital display of Gas Concentration on LCD Display
- 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 Weatherproof Model using front keys.
- Password protected programming with Password Changing Facility.
- Alarm Acknowledgement Facility from front as well as rear 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.

Applications

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

GREEN Colour Display for OK



RED Colour Display for Alarm



BLUE Colour Display for Sensor Open/Fault



TECHNICAL SPECIFICATIONS

General :

Sensor Technology	: Electrochemical/ Catalytic/ Pellistor/ NDIR / PID
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 LCD 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	: By Using Magnetic Wand.

Accuracy :

SR. NO.	SENSOR TECHNOLOGY	CALIBRATION ACCURACY
1	Electrochemical	± 2 % F.S
2	Catalytic/ Pellistor	± 2 % F.S
3	NDIR-CH4/ CO2/ C3H8	± 10 % of Applied Gas/ F.S
4	PID	0 to 4000 PPM
		0 to 1000 PPM
		0 to 40 PPM

Performance :

Response time : Less than 15 seconds

Electrical :

Supply Voltage	: 18 to 36 VDC, Typically 24VDC
Power Consumption	: Less than 3.6 Watts
Connector Cross-section	: 1.5mm ² for Flexible or Armoured Shielded Cable.

Output Signal :

Standard Current/Voltage	: 4-20mA/ 0-10V/0-5V/0-1V Output with configurable range selection.
Current Output Capacity	: ±0.125% Full Scale
Load Driving	: 1) 560 ohm at 18VDC to 36VDC
Capacity	: 2) 820 ohm load driving capacity at 22VDC to 36VDC.
Relay	: Three SPDT Relay (one for FailSafe and Two for Alarm indication) of rating NO : 10A 250VAC/ 5A 30VDC & NC : 3A 125VAC/ 3A 30VDC.
Optional	: Isolated RS-485 Communication port with MODBUS RTU Communication

Environmental :

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

Accessories (Optional) :

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

Common Deliverable

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

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

Weatherproof Housing

Protection Class	: IP-65
Enclosure Material	: Polycarbonate, Grey Colour (RAL7032)
Mounting	: Wall Mounting / Stand Mounting / Pipe Mounting

With Hooter Cum Flasher

Dimension	: 1175 mm (H) with sensor holder x 174mm (W) x 70 mm (D)
Weight	: Approx. 636.5 grams

With Two Side Cable Gland

Dimension	: 180 mm (H) with sensor holder x 156mm (W) x 70 mm (D)
Weight	: Approx. 584 grams

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-WP-O2-EC-08-03
2	Oxygen (O ₂)	100	%V/V	0.01	SSM-WP-O2-EC-14-03
3	Nitrogen (N ₂)	100	%V/V	0.01	SSM-WP-N2-EC-14-03

TOXIC GASES

1	Ammonia (NH ₃)	100	PPM	1	SSM-WP-NH3-EC-14-01
2	Ammonia (NH ₃)	1000	PPM	1	SSM-WP-NH3-EC-24-01
3	Bromine (Br ₂)	10	PPM	0.1	SSM-WP-BR2-EC-05-01
4	Carbon Monoxide (CO)	1000	PPM	1	SSM-WP-CO-EC-24-01
5	Carbon Monoxide (CO)	2000	PPM	1	SSM-WP-CO-EC-28-01
6	Chlorine (Cl ₂)	10	PPM	0.1	SSM-WP-CL2-EC-05-01
7	Ethylene Oxide (ETO)	100	PPM	1	SSM-WP-ETO-EC-14-01
8	Hydrogen (H ₂)	2000	PPM	1	SSM-WP-H2-EC-26-01
9	Hydrogen Bromide (HBr)	100	PPM	1	SSM-WP-HBR-EC-14-01
10	Hydrogen Chloride (HCL)	100	PPM	1	SSM-WP-HCL-EC-14-01
11	Hydrogen Cyanide (HCN)	100	PPM	1	SSM-WP-HCN-EC-14-01
12	Hydrogen Fluoride (HF)	10	PPM	0.1	SSM-WP-HF-EC-05-01
13	Hydrogen Fluoride (HF)	100	PPM	1	SSM-WP-HF-EC-14-01
14	Hydrogen Sulfide (H ₂ S)	100	PPM	1	SSM-WP-H2S-EC-14-01

TOXIC GASES

SR.NO	GASES	RANGE	UNIT	RES	ORDER CODE
15	Ozone (O ₃)	20	PPM	0.1	SSM-WP-O3-EC-06-01
16	Phosphine (PH ₃)	10	PPM	0.1	SSM-WP-PH3-EC-05-01
17	Nitrogen Dioxide (NO ₂)	20	PPM	0.1	SSM-WP-NO2-EC-06-01
18	Nitric Oxide (NO ₂)	250	PPM	1	SSM-WP-NO-EC-17-01
19	Sulfur Dioxide (SO ₂)	50	PPM	0.1	SSM-WP-SO2-EC-11-01
20	Sulfur Dioxide (SO ₂)	2000	PPM	1	SSM-WP-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-WP-ACETONE-CT-14-02
2	Acetylene (C ₂ H ₂)	100	%LEL	1	SSM-WP-ACETYLENE-CT-14-02
3	Ammonia (NH ₃)	100	%LEL	1	SSM-WP-NH3-CT-14-02
4	Butane/n-Butane (C ₄ H ₁₀)	100	%LEL	1	SSM-WP-BUTANE-CT-14-02
5	Carbon Monoxide (CO)	100	%LEL	1	SSM-WP-CO-CT-14-02
6	Ethanol (C ₂ H ₅ OH)	100	%LEL	1	SSM-WP-ETHANOL-CT-14-02
7	Ethyl Acetate (C ₄ H ₈ O ₂)	100	%LEL	1	SSM-WP-ETHYL ACETATE-CT-14-02
8	Ethylene (C ₂ H ₄)	100	%LEL	1	SSM-WP-ETHYLENE-CT-14-02

LIST OF GASES WITH RANGE AND RESOLUTION

CATALYTIC/ PELLISTOR SENSOR TECHNOLOGY

COMBUSTIBLE GASES

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

NDIR SENSOR TECHNOLOGY

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

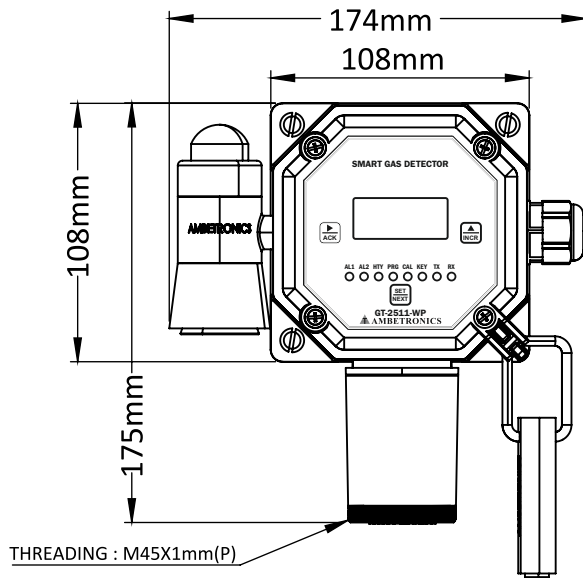
PID SENSOR TECHNOLOGY

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

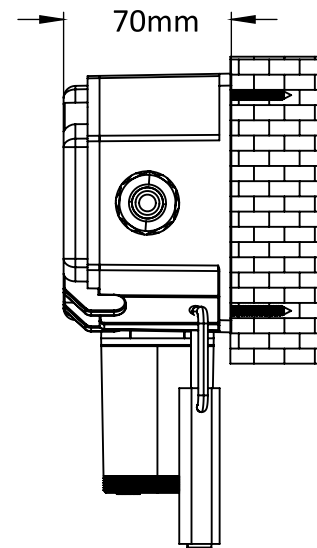
NOTE:

- 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

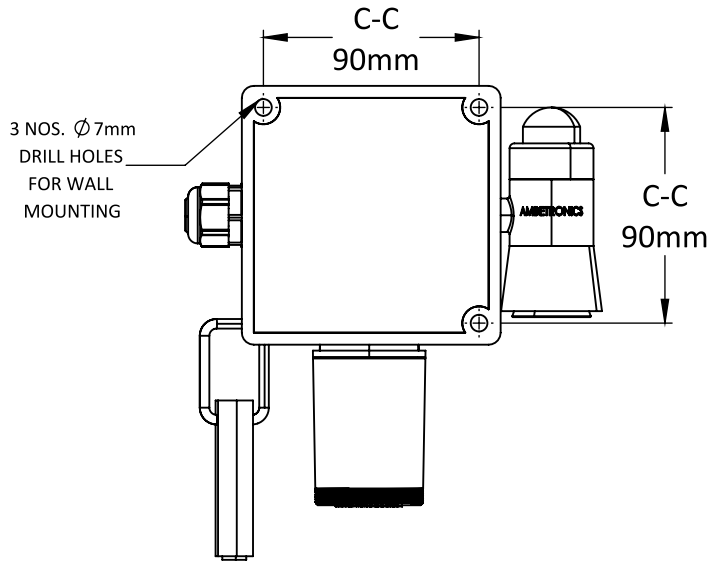
FRONT VIEW



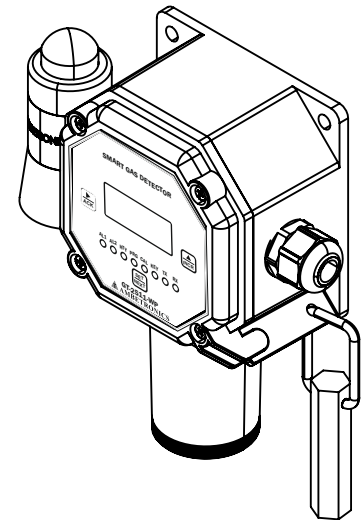
SIDE VIEW



BACK VIEW



ISOMETRIC VIEW

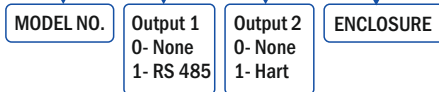


NOTE :

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

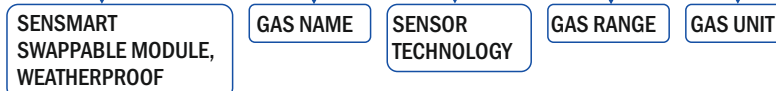
ORDERING INFORMATION

1) GT-2511-WP-0-0-Octa Safe



(E.g. Smart Gas Detector Weatherproof)

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



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

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

Manufactured by :



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