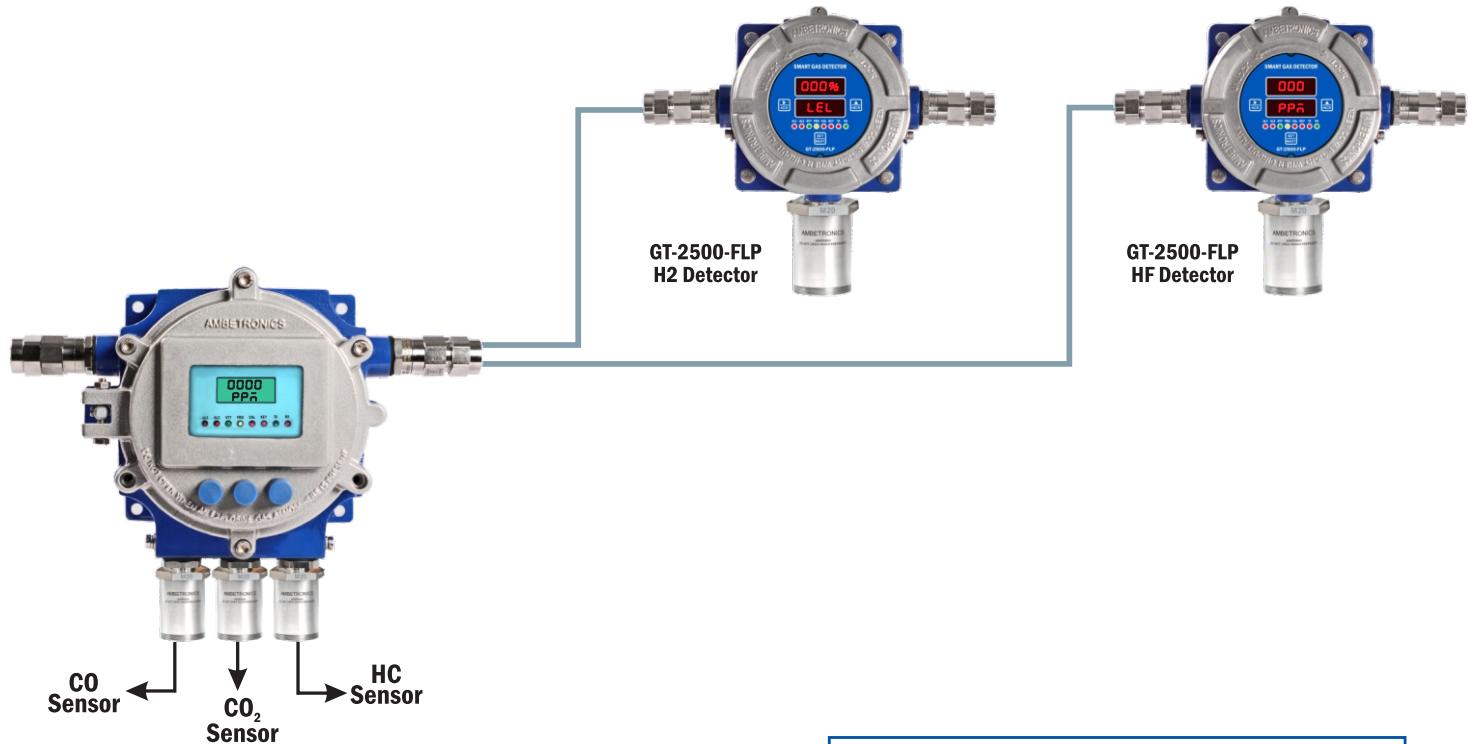


GT-6022-FLP-JB-150

Smart Gas Detector for Toxic, Combustible, Oxygen & VOC Gases



AMBETRONICS
AN ISO 9001:2015 CERTIFIED COMPANY



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, PPB, mg/m³, ug/m³.
- 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.
- 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 front push button.
- Password protected programming with Password Changing Facility.
- Alarm Acknowledgment 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.
- Optional Alarm Relay contacts on board with two configurable Alarm Levels & One Fail Safe Relay.

Approvals & Compliance

- Approval & Compliance for Flameproof Certified to Ex-d IIC T6 Gb, IP66
- CIMFR CERTIFICATE NO. : IN/CIMFR/TR21/P/1417 Dt. : 13/08/2021
- PESO CERTIFICATE NO. : P538248/1 Dt. : 14/06/2022
- Standard Compliance :
 - IS / IEC 60079-0 : 2011
 - IS / IEC 60079-1 : 2014
 - IS / IEC 60529 : 2001

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

MUST FOR HUMAN & INDUSTRIAL SAFETY

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 front keys 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	± 10 % 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 : Less than 15 seconds

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.

Output Signal :

Standard Current/ Voltage : 4-20mA/ 0-10V/0-5V/0-1V Output with configurable range selection. (NOTE: Confirm output current or voltage while ordering.)
 Current Output Accuracy : ±0.125% Full Scale
 Voltage Output Accuracy : ±0.25% Full Scale
 Load Driving Capacity : 1) 560 ohm at 18VDC to 36VDC
 2) 820 ohm load driving capacity at 22VDC to 36VDC.
 Optional 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 communication : Isolated RS-485 Communication port with MODBUS RTU protocol.

Error Monitoring :

- During Sensor Break / Open, the Display shows 'SENSOR OPEN' & Output Current/voltage will be as per Upscale/ Downscale
- During Over range, the Display shows 'OVER RANGE' & Output Current will be as per Upscale/ Downscale
- During output current open condition the display indicates "mA LOOP OPEN" & the message disappears after Acknowledgment
- mA Loop Open setting can be Enabled or disabled
- Upscale current : 21mA/ 22mA Selectable
- Downscale current : 1mA / 3.7mA Selectable
- Upscale voltage for 0-10V : 10V
- Upscale voltage for 0-5V : 5V
- Upscale voltage for 0-1V : 1V
- Downscale voltage for 0-10V/0-5V/0-1V : 0V

- 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

- 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

- 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

- 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/79

Environmental :

Operating Temperature : -15 to +55°C
 Storage : -10 to 60°C
 Humidity : Less than 95% Non-Condensing.

Accessories (Optional) :

- CE certified 24 VDC Power supply.
- Canopy & Mounting stand.
- Gas Calibration Kit (0.5,1, 3,10)Liter.
- Hooter Cum Flasher : P538850/1 Dt.:16/06/2022
- Gas sampling & Conditioning System
- RS-485 to USB or RS-232 convertor
- Ethernet convertor
- PC Based SCADA software, Modem

Common Deliverable

- Test Calibration Certificate
- Reference Calibration Gas Certificate
- 'Operational / Instrument' User Manual
- Standard Mounting Hardware

Flameproof Housing

Protection Class : IP-66
 Cabinet Material : Cast Aluminium alloy, LM-6
 Approval : CIMFR approved for IIA, IIB group, IIC

Certificate Agency	Certificate No.	Certificate Dt.
CIMFR	IN/CIMFR/TR21/P/1417	13/08/2021
PESO	P538248/1	14/06/2022

Cable Entry : Double Compression Cable Gland EX-proof M20 X 1.5mm (P)

Certificate Agency	Certificate No.	Certificate Dt.
CIMFR	IN/CIMFR/TR21/R/2147	12/10/2021
PESO	P538850/7	16/06/2022

Stopping Plug : (M20 x 1.5P & M25 x 1.5P)

Certificate Agency	Certificate No.	Certificate Dt.
CIMFR	IN/CIMFR/TR21/R/1143	23/07/2021
PESO	P538850/3	16/06/2022

Mounting : Wall Mounting / Stand Mounting / Pipe Mounting

With Hooter Cum Flasher

Dimension : 277 mm(H) with sensor holder x 310 mm(W) with Hooter Cum Flasher & Cable Gland x 154 mm(D)

Weight : Approx. 5.400 kg

With Stopping Plug & Cable Gland

Dimension : 277 mm(H) with sensor holder x 271 mm(W) with Stopping Plug & Cable Gland x 154 mm(D)

Weight : Approx. 5 kg

ELECTROCHEMICAL SENSOR TECHNOLOGY

SR.NO	GASES	RANGE	UNIT	RES
O1	Oxygen (O ₂)	25	%V/V	0.01
O2	Oxygen (O ₂)	0 TO 100	%V/V	0.01
NT1	Nitrogen (N ₂)	0 TO 100	%V/V	0.01

TOXIC GASES

T1	Ammonia (NH ₃)	100	PPM	1
T2	Ammonia (NH ₃)	1000	PPM	1
T3	Bromine (Br ₂)	10	PPM	0.01
T4	Carbon Monoxide (CO)	1000	PPM	1
T5	Carbon Monoxide (CO)	2000	PPM	1
T6	Chlorine (CL ₂)	10	PPM	0.01
T7	Ethylene Oxide (ETO)	100	PPM	1
T8	Hydrogen (H ₂)	2000	PPM	1
T9	Hydrogen Bromide (HBr)	100	PPM	1
T10	Hydrogen Chloride (HCL)	100	PPM	1
T11	Hydrogen Cyanide (HCN)	100	PPM	1
T12	Hydrogen Fluoride (HF)	10	PPM	0.01
T13	Hydrogen Fluoride (HF)	100	PPM	1
T14	Hydrogen Sulfide (H ₂ S)	100	PPM	1
T15	Ozone (O ₃)	20	PPM	0.01
T16	Phosphine (PH ₃)	10	PPM	0.01
T17	Nitrogen Dioxide (NO ₂)	20	PPM	0.01
T18	Nitric Oxide (NO)	250	PPM	1
T19	Sulfur Dioxide (SO ₂)	50	PPM	0.01
T20	Sulfur Dioxide (SO ₂)	2000	PPM	1

NDIR SENSOR TECHNOLOGY

SR.NO	GASES	RANGE	UNIT	RES
N1	Carbon Dioxide(CO ₂)	5000	PPM	1
N2	Carbon Dioxide (CO ₂)	5	%V/V	0.1
N3	Carbon Dioxide (CO ₂)	100	%V/V	1
N4	Methane (CH ₄)	100	%V/V	0.1
N5	Methane (CH ₄)	100	%LEL	1
N6	Methane (CH ₄)	5	%V/V	0.1
N7	Propane/LPG (C ₃ H ₈)	100	%LEL	1
N8	Propane/LPG (C ₃ H ₈)	5	%V/V	0.1
N9	Propane/LPG (C ₃ H ₈)	100	%V/V	1

COMBUSTIBLE GASES

SR.NO	GASES	RANGE	UNIT	RES
C1	Acetone (CH ₃) ₂ CO	100	%LEL	1
C2	Acetylene (C ₂ H ₂)	100	%LEL	1
C3	Ammonia (NH ₃)	100	%LEL	1
C4	Butane/ n-Butane (C ₄ H ₁₀)	100	%LEL	1
C5	Carbon Monoxide (CO)	100	%LEL	1
C6	Ethanol (C ₂ H ₅ OH)	100	%LEL	1
C7	Ethyl Acetate (C ₄ H ₈ O ₂)	100	%LEL	1
C8	Ethylene (C ₂ H ₄)	100	%LEL	1
C9	Hexane/ n-Hexane (C ₆ H ₁₄)	100	%LEL	1
C10	Hydrogen (H ₂)	100	%LEL	1
C11	Isopropanol (CH ₃ -C ₂ H ₄ OH)	100	%LEL	1
C12	Methane (CH ₄)/ HC	100	%LEL	1
C13	Methyl Ethyl Ketone (CH ₃ -CO-C ₂ H ₅)	100	%LEL	1
C14	Methanol (CH ₃ OH)	100	%LEL	1
C15	N-Heptane (C ₇ H ₁₆)	100	%LEL	1
C16	N-Heptane (C ₇ H ₁₂)	100	%LEL	1
C17	Pentane / n-Pentane (C ₅ H ₁₂)	100	%LEL	1
C18	Propane / n-Propane (C ₃ H ₈)	100	%LEL	1
C19	Toluene (C ₆ H ₅ CH ₃)	100	%LEL	1
C20	Unleaded Petrol	100	%LEL	1
C21	CNG/ LNG/ LPG/ Natural Gas/ Flammable Gas	100	%LEL	1

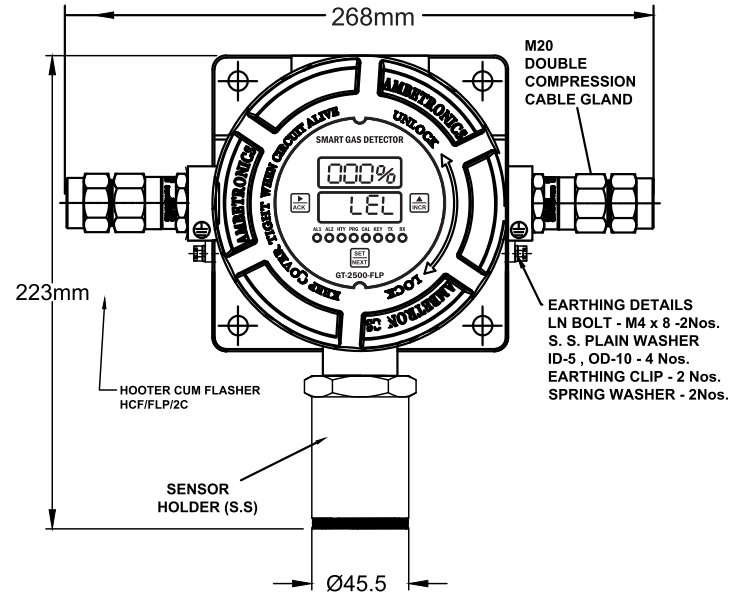
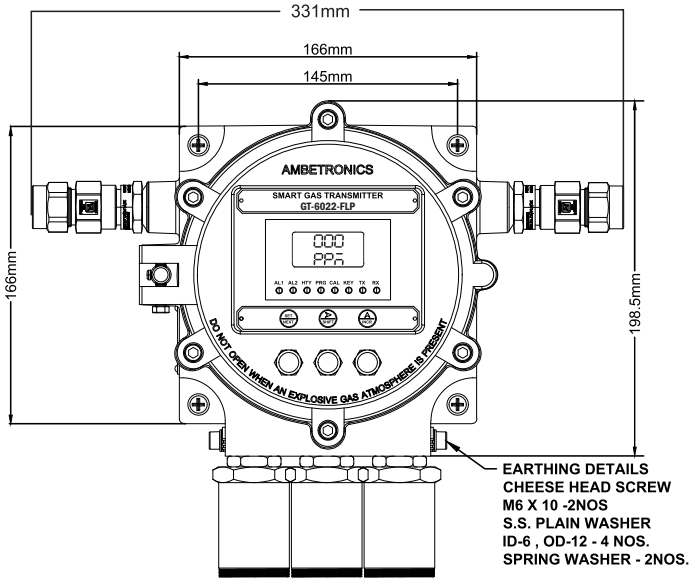
PID SENSOR TECHNOLOGY

Sr. No.	GASES	RANGE	UNIT	RES
P1	Isobutylene (C ₄ H ₈)/ other VOC	50	PPM	0.1
P2	Isobutylene (C ₄ H ₈)/ other VOC	1000	PPM	1
P3	Isobutylene (SPAN C ₄ H ₈)/ other VOC	5000	PPM	1

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

FLAMEPROOF ENCLOSURE DIMENSION & MOUNTING DETAILS



ORDERING INFORMATION

GT	A	B	C	D	E	F	G
A) Model No. 1) GT-2511-FLP	B) Enclosure 1) FLP (Flameproof)	C) Gas Please select the Serial No. of the gas from the list given above.	D) Retransmission Output 1) None 2) 4 to 20mA 3) 0-10 V 4) 0-5 V 5) 0-1 V	E) Relay Output 1) None 2) 3 Relays (AL1, AL2 Failsafe Relay)	F) Communication Port 1) None 2) RS-485 serial port	G) Sensor Housing 1) Stainless steel (SS316)	

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

Manufactured by :



AMBETRONICS ENGINEERS PVT. LTD.

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