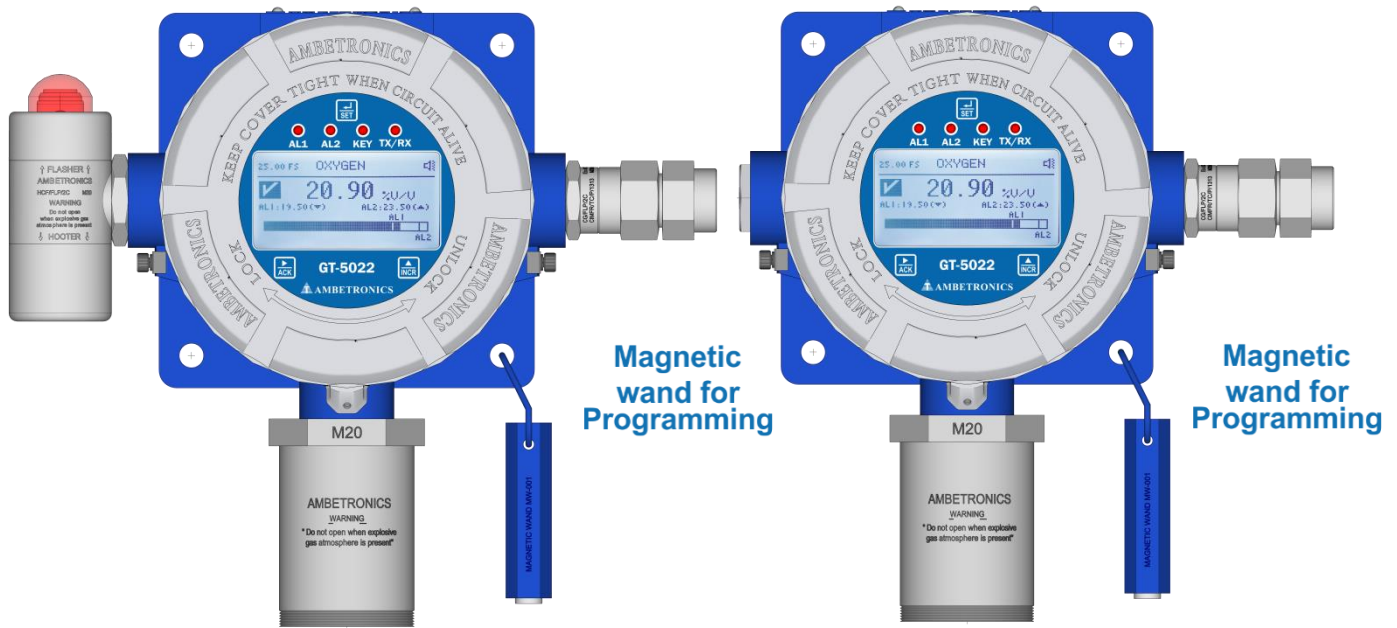


SMART GAS TRANSMITTER


GT-5022-FLP-PDA WITH HOOTER CUM FLASHER
GT-5022-FLP-PDA

INTRODUCTION

The GT-5022-FLP-PDA is a Microprocessor based Smart Gas Transmitter, which provides the industrial standard analog 4-20 mA output as well as an optional RS-485 digital output. The Transmitter utilizes smart sensor technology, using Swappable Sensor Modules, where all of the sensor information & its calibration data, Alarm setting, offset setting, configurable current output setting is stored on Sensor Module which is easy for maintenance & servicing.

FEATURES

- Provides a fast and reliable response by using Electrochemical / Catalytic / Pellistor / NDIR/ PID technology
- Optimised for detection of smallest leakage of Gas.
- Highly resistant to poisoning and etching.
- Shows MIN/MAX value for Gas Concentration on single key press.
- Bar graph representation of Gas Concentration with Alarm Set point mark.
- Symbols on Graphical Display to guide operator during calibration procedure as well as normal operation.
- 'Calibration Due' & 'Sensor Replace' indication.
- Bump Test mode/ Inhibit mode/ Test mode (without sensor interface) available for servicing point of view.
- Standard 4-20 mA signal output with configurable range.
- Optional Proprietary HART protocol available over 4-20 mA signal output with HART communicator/ convertor
- Non-intrusive programming with Magnetic Wand.
- Password protected programming menu.
- Optional 2 alarm relay contacts with two configurable alarm levels.
- Optional relay for fail safe operation.

APPROVAL & COMPLIANCE

- Approval & compliance for flameproof: Certified to EX-d IIC, T6, IP66
- Standard compliance : IS/IEC 60079-0: 2004
IS/IEC 60079-12:2007
IS/IEC 60529-2001

APPLICATIONS

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

TECHNICAL SPECIFICATIONS

GENERAL

Sensor	: Electrochemical / Catalytic / Pellistor / NDIR / PID
Detection Method	: Continuous Diffusion
Gas Name	: (Kindly Select Gas as specified in the table)
Range & Resolution	: (Kindly select Range & Resolution as specified in the table)
Display	: 128 x 64 Graphical Display. 4 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 for Alarm.
Setting	: Use of Magnetic wand without opening enclosure cover


OUTPUT SIGNAL

Standard current output	: 4-20mA Current Output with configurable range selection.
Load Driving Capacity	: 1) 560 ohm at 18VDC to 36VDC 2) 820 ohm load driving capacity at 22VDC to 36VDC.
Current Output Accuracy	: $\pm 0.125\%$ Full Scale
Optional	: HART protocol over 4-20 mA current output with Range selection with 250 Ω load driving capacity with HART communicator/ converter.
Optional	: Three SPDT relays (Two for Alarm Indication and one for fault) of rating 2A/24VDC
Optional	: Isolated RS -485 Communication Port with MODBUS RTU protocol

PERFORMANCE

SR. NO	SENSOR TECHNOLOGY	CALIBRATION ACCURACY
1	Electrochemical	$\pm 2\%$ F.S
2	Catalytic / Pellistor	$\pm 2\%$ F.S
3	NDIR - CH ₄	$\pm 0.2\%$ V/V OR $\pm 5\%$ of Applied Gas whichever is MAX
4	NDIR - CO ₂	$\pm 10\%$ of Applied Gas
5	PID	0 to 5000 PPM $\pm 10\%$ of Applied Gas
		0 to 1000 PPM $\pm 5\%$ of Applied Gas
		0 to 50 PPM $\pm 3\%$ of Applied Gas

ACCESSORIES (OPTIONAL)

-  certified 24 VDC power supply
- Canopy & Stand Mounting.
- Gas Calibration Kit (0.5, 1, 3, 10) Litre.
- Hooter Cum Flasher.
- Gas Sampling & Conditioning System.
- RS-485 to USB OR RS-232 Converter.
- Ethernet to RS-485 Converter.
- PC based SCADA software, modem
- HART communicator/ HART converter.

COMMON DELIVERABLE

- Test calibration certificate
- Reference calibration gas certificate
- User manual
- Standard mounting hardware

FLAMEPROOF HOUSING (GT-5022-FLP-PDA)

Protection Class	: IP-66
Approval	: CMRI approved for IIA & IIB or IIC gas group
Cabinet Material	: Cast aluminium alloy, LM-6
Cable Entry	: Double compression cable gland (EX-proof M20 X 1.5mm(P))
Dimension	: 230mm(H) with Sensor Holder X 223mm(W) with One Cable Gland and One Stopper X 125mm(D)
Dimension (with hooter cum flasher)	: 230mm(H) with Sensor Holder X 263mm(W) with One Cable Gland X 125mm(D)
Mounting	: Wall Mounting / Stand Mounting / Pipe Mounting
Weight	: Approx. 3.25kg (with hooter cum flasher)

TIME

Response Time : Less than 15 Seconds

ELECTRICAL

Supply Voltage : 18 to 36 VDC, Typically 24 VDC

Power

Consumption : Less than 3.6 Watts.

Connector : 2.5 mm² for Flexible or Armoured

Cross-section : Shielded Cable.

ERROR MONITORING

- During Sensor Break/ Open the Display Shows 'SENSOR OPEN' & Output current will be as per Upscale/Downscale
- During Over Range the Display Shows 'OVER RANGE' & Output current will be as per Upscale/ Downscale
- Upscale current : 22mA / 21mA
Down scale current : 1mA/ 3.7mA
Inhibit mode current adjustable & user selectable
- Oxygen/N₂ : 2mA /17.4mA
Transmitter
- Toxic / PID / combustible / NDIR : 2mA / 4mA
Transmitter

ENVIRONMENTAL

Operating Temp : -15 to +55 C

Storage Temp : -10 to +60 C

Relative Humidity : Less than 95% Non-Condensing.

LIST OF GASES WITH RANGE AND RESOLUTION

ELECTROCHEMICAL SENSOR TECHNOLOGY					CATALYTIC/ PELLISTOR SENSOR TECHNOLOGY				
SR. NO	GASES	RANGE	UNIT	RES.	SR. NO	GASES	RANGE	UNIT	RES.
O1	Oxygen (O ₂)	25	% Vol.	0.01	COMBUSTIBLE GASES				
NT1	Nitrogen (N ₂)	75 To 100	% Vol.	0.1					
TOXIC GASES					C1	Acetone (CH ₃) ₂ CO	100	%LEL	1
T1	Ammonia (NH ₃)	100	PPM	1	C2	Acetylene (C ₂ H ₂)	100	%LEL	1
T2	Ammonia (NH ₃)	1000	PPM	1	C3	Ammonia (NH ₃)	100	%LEL	1
T3	Bromine (Br ₂)	10	PPM	0.01	C4	Butane/n-Butane (C ₄ H ₁₀)	100	%LEL	1
T4	Carbon Monoxide (CO)	1000	PPM	1	C5	Carbon Monoxide(CO)	100	%LEL	1
T5	Carbon Monoxide (CO)	2000	PPM	1	C6	Ethanol (C ₂ H ₅ OH)	100	%LEL	1
T6	Chlorine (Cl ₂)	10	PPM	0.01	C7	Ethyl Acetate (C ₄ H ₈ O ₂)	100	%LEL	1
T7	Ethylene Oxide (ETO)	100	PPM	1	C8	Ethylene (C ₂ H ₄)	100	%LEL	1
T8	Hydrogen (H ₂)	2000	PPM	1	C9	Hexane/n-Hexane (C ₆ H ₁₄)	100	%LEL	1
T9	Hydrogen Bromide (HBr)	100	PPM	1	C10	Hydrogen (H ₂)	100	%LEL	1
T10	Hydrogen Chloride (HCL)	100	PPM	1	C11	Isopropanol (CH ₃ C ₂ H ₄ OH)	100	%LEL	1
T11	Hydrogen Cyanide(HCN)	100	PPM	1	C12	Methane (CH ₄)/HC	100	%LEL	1
T12	Hydrogen Fluoride (HF)	10	PPM	0.01	C13	Methyl Ethyl Ketone (CH ₃ -CO-C ₂ H ₅)	100	%LEL	1
T13	Hydrogen Fluoride (HF)	100	PPM	1	C14	Methanol (CH ₃ OH)	100	%LEL	1
T14	Hydrogen Sulfide (H ₂ S)	100	PPM	1	C15	N-Heptane (C ₇ H ₁₆)	100	%LEL	1
T15	Ozone (O ₃)	20	PPM	0.01	C16	N-Pentane (C ₅ H ₁₂)	100	%LEL	1
T16	Phosphine (PH ₃)	10	PPM	0.01	C17	Pentane/n-Pentane (C ₅ H ₁₂)	100	%LEL	1
T17	Nitrogen Dioxide (NO ₂)	20	PPM	0.01	C18	Propane/n-Propane (C ₃ H ₈)	100	%LEL	1
T18	Nitric Oxide (NO)	250	PPM	1	C19	Toluene (C ₆ H ₅ CH ₃)	100	%LEL	1
T19	Sulphur Dioxide (SO ₂)	50	PPM	0.1	C20	Unleaded Petrol	100	%LEL	1
T20	Sulphur Dioxide (SO ₂)	2000	PPM	1	C21	CNG/LNG/LPG/Natural Gas/Flammable Gas	100	%LEL	1

NDIR SENSOR TECHNOLOGY					PID SENSOR TECHNOLOGY				
SR.NO	GASES	RANGE	UNIT	RES.	SR. No	GASES	RANGE	UNIT	RES
N1	Carbon Dioxide (CO ₂)	5000	PPM	1	P1	Isobutylene(C ₄ H ₈) / other VOC	50	PPM	0.1
N2	Carbon Dioxide (CO ₂)	5	%V/V	0.1					
N3	Carbon Dioxide (CO ₂)	100	%V/V	1					
N4	Methane(CH ₄)	100	%LEL	1					
N5	Methane(CH ₄)	5	%V/V	0.1					
N6	Methane(CH ₄)	100	%V/V	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					
P2	Isobutylene(C ₄ H ₈) / other VOC	1000	PPM	1	P3	Isobutylene(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

ORDERING INFORMATION

GT	→	GT
↓		
A	→	A) MODEL NUMBER 1) 5022
↓		
B	→	B) ENCLOSURE 1) FLP-PDA (flameproof PDA)
↓		
C	→	C) GAS NUMBER, RANGE & RESOLUTION 1) Select the serial number of the gas form the list given above
↓		
D	→	D) OUTPUT 1) 4-20mA O/P 2) HART over 4-20 O/P with HART communicator/ HART convertor. 3) None
↓		
E	→	E) RELAY OUTPUT 1) Relays (AL1, AL2, fault) 2) None
↓		
F	→	F) COMMUNICATION PORT 1) RS-485 Serial Port 2) None
↓		
G	→	G) POWER SUPPLY 1) 24 VDC 2) 230 VAC ADAPTOR
↓		
H	→	H) ACCESSORIES 1) Ambtronics – Hooter Cum Flasher 24VDC operated 2) Hooter Cum Flasher 230VAC operated 3) External Relay 4) None

NOTE:

- Before placing the order, refer the above information or contact factory for assistance.
- **SELECT ORDER CODE E.G. GT-5022-1-(O1)-1-1-1-1-1 I.E. GT-5022– FLAMEPROOF PDA – OXYGEN 25.00% V/V – 4-20MA O/P–RELAYS (AL1, AL2, FAULT) – ISOLATED RS-485 COMMUNICATION PORT –24 VDC - AMBETRONICS – HOOTER CUM FLASHER 24VDC OPERATED**

Manufactured by :

AMBETRONICS ENGINEERS PVT. LTD.

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Version GT-5022-FP-R6-22-10-2019