



Petrol / Diesel vapour sensor transmitter / detector

Model: SMART S2097VB

For zone 1, 2 (gas explosion) hazardous areas



SMART S series petrol / diesel (gasoline) vapour sensor transmitter is an industrial grade gas detector suitable for installation at most stringent & tough working conditions. It is designed for online, continuous measurement and monitoring of gasoline vapour presence in ambient air or sampled gas / air. Its 10-bit microprocessor based electronic module converts these corresponding measured values to industry standard electrical signals.

The gas sensor instrument is ATEX certified with safety integrity level SIL 2, thereby suitable for installation in gas explosion, hazardous area classified Zone 1 or Zone 2 eg. Petrol, gasoline warehouse, gasoline stockyard, bullets, oil & gas refinery, oil wells, filling pumps, solvent manufacturing units, paint etc.

It offers industry standard linear, proportional analog current output. Optionally, RS485 serial interface with Modbus RTU communication is also available. Manual addressing can be done with onboard module. The instrument is also available with or without optional onboard LCD display, potential free relay contacts and alarm LEDs.

These can be mounted on wall, ceiling, surface or duct with help of suitable mounting kit.

Transmitter enclosure is of anti-static epoxy coated metal alloy, while sensor cell is housed in stainless steel 316 enclosure with flashback arrestor with sintered filter.





Key Features:

- Catalytic bead based Pellistor sensor cell with low flash energy
- 10-bit microprocessor control unit
- Non-intrusive one man calibration via hall effect switches
- ATEX certified explosion proof / flameproof, suitable for Zone 1, 2 gas explosion installation
- Linear, proportional analog industry standard current output
- Continuous system self-diagnosis with watch dog
- Flashback arrestor with sintered filter
- Auto Zero point tracking to zero point compensation
- SIL 2 HW TUV certified
- RS485 serial interface with Modbus RTU communication (optional)
- 1 or 3 relay output module (optional)
- System and alarm LED indicators (optional)
- Modbus RTU output allows instrument networking.

Application Areas / Industries:

- Petrol, diesel, gasoline filling pump
- Oil & gas plant
- Refinery
- Paint booth etc
- Solvent extraction plants
- Warehouse, stockyards





Technical Specifications:

Parameters	Specifications
Gas name	Petrol / Diesel / Gasoline Vapour
Calibrated against	Petrol vapour
Measuring range	0 ~ 100 %LEL (LFL)
Sensor element technology	Pellistor with catalytic bead
Accuracy	± 5% of full scale
Repeatability	± 5% of full scale
Response time T90	< 30 sec
Stabilization time	< 2 mins
Warm-up time	< 5 mins
In-built Control microprocessor unit	
Microprocessor type	10 bit
Digital filter	Variable average of sampled measuring values
Watch dog	Inbuilt internal, with microprocessor status monitor and control With continuous system self-diagnosis
Resolution	1024 points
Auto zero tracking	Zero drift compensation
Power supply	12 – 24 VDC – 20% + 15%
Consumption at 12 VDC	90mA (medium), 130mA (max.)
Analog output	4-20mA (200 Ω), 3 - wire Linear, proportional
Ingress protection	IP65 weather-proof also available IP67 with weather-proof adaptor and cable gland
Mounting	Supplied with mounting strip <ul style="list-style-type: none"> • Wall / Column / Surface (with sensor head face downward) • Pipe / duct (with sampling kit)
Enclosure, material	Anti-static epoxy coated metal alloy
Sensor cell enclosure, material	Stainless steel 316
Cable entry	3 x NPT ¾ in
Earth / Ground terminal	Screw terminal
Weight	1250 ~ 1550 gm
Max. air velocity	< 6 m / s
Operating pressure	80 – 110 kPa
Relative humidity	20 ~ 90% Rh / 40°C
Operating temperature	- 40°C ~ + 60°C
Storage temperature	- 25°C ~ + 60°C
Dimensions	130 mm (L) x 180 mm (H) x 90 mm (D)

Specifications are subject to change, without prior notice.
April 2017.



ATEX marking	CE 722  II 2G EEx d IIC T6 CE 722  II 3G EEx nA IIC T6
Certificates	CESI 01 ATEX 053 CESI 02 ATEX 084 (performance)
Sensor head	CESI 01 ATEX 013U or CESI 01ATEX066U
System integrity level	SIL 2 HW TUV certified
EMC reference norms	EN50270:1999 EN61000-6-3
Warranty	One year on material and bad workmanship (excluding sensor cell) (from date of supply)
Calibration	Non-intrusive via hall effect switches (display version) System tool kit (without display)
Optional features	
Display	4 digits, 7.5 mm high, 7 segments
Visual indications	3 x Red LEDs for Alarms 1 x yellow LED for fault 1 x green LED for power supply
Serial Interface output	RS485, with Modbus RTU With manual addressing
Relay outputs	<ul style="list-style-type: none"> • 1 x potential free relay (max. 24 V AC/DC, 1A)(with or without display option) • 3 x potential free relay (max. 24 V AC/DC, 1A) (without display option) tension free changeover contact 24V – 1A (non-latching relay)