SMART3G Gas Detectors



- Taratura non intrusiva (versioni Display)
- Facile sostituzione dei sensori
- Ampia gamma di sensori utilizzabili e di gas rilevabili
- Segnale standard 4-20 mA su 3 fili
- Ampia scelta di accessori per l'installazione e la manutenzione
- Inseguitore di zero e autodiagnosi continua del sistema
- Certificati ATEX per Gruppo II

APPLICAZIONI

- Raffinerie
- Stazioni di compressione
- Impianti farmaceutici
- Impianti chimici e petrolchimici
- Turbine a gas
- Depositi di gas GPL e Metano
- Laboratori

- Non-intrusive one man calibration (display version)
- Easy sensor replacement
- Wide range of sensors and detectable gases
- Standard 4-20 mA 3 wires output
- Wide range of accessories for installation and maintenance
- Zero tracking and system self diagnosis
- ATEX certified Group II

APPLICATION

- Refineries
- Compressor stations
- Pharmaceutical plants
- Petrochemical Plants
- Gas turbines
- LNG/LPG storage facilities
- Laboratories

- Etalonnage local non intrusif (version display)
- Echange du capteur aisé
- Large gamme de capteurs disponibles et de gaz détectables.
- Signal sortie 4-20 mA 3 fils
- Large gamme d'accessoires pour l'installation et la maintenance.
- Zéro automatique et auto-diagnostic continue du système
- Certifications ATEX Group II

APPLICATION

- Raffineries
- Stations de compression
- Implantations Pharmaceutiques
- Implantations Pétrochimiques
- Turbines à gaz
- Stockage de GPL/GNL
- Laboratoires



SIL 2
(EN 50402 & IEC 61508 part 1 to 7)
TUV
(Hw REPORT)



sensitron
GAS EVOLUTION

Descrizione

I rivelatori di gas serie **SMART3G** vengono impiegati per rivelare, in aree classificate, la presenza di sostanze infiammabili (%LIE), di gas tossici in ppm, oppure per la rivelazione di deficienza o eccesso di ossigeno.
Il sensore **Pellistore**, utilizzato nelle versioni per miscele esplosive, conferisce una linearità eccellente fino al 100% LIE.
Nei luoghi in cui i Pellistori non possono garantire una funzionalità ottimale, Sensitron ha sviluppato una serie di rivelatori con sensore **infrarosso**: i sensori IR permettono di aggiungere affidabilità e durata, evitando i problemi di avvelenamento a cui i Pellistori sono a volte soggetti.
Per la rivelazione dei gas tossici Sensitron ha operato una selezione tra le più affidabili **celle elettrochimiche** per realizzare strumenti che rappresentino lo stato dell'arte nella rivelazione dei gas tossici.
La serie **SMART3G** è stata concepita per offrire ai clienti un'ampia gamma di soluzioni, secondo le specifiche necessità dei clienti.
Lo **SMART3G-C** è stato disegnato per offrire elevate prestazioni per applicazioni civili e industriali.
Lo **SMART3G-D**, progettato per l'impiego in ambienti industriali, è fornito di un display luminoso a 4 cifre che visualizza in tempo reale la concentrazione di gas misurata. Inoltre, lo **SMART3G-D** consente una **taratura in campo non intrusiva** tramite magneti a effetto Hall che permettono di operare sullo strumento senza doverlo aprire o declassificare l'area.

Gli **SMART3G** sono certificati ATEX per:
Gruppo II 2G, 2GD, 3G & 3 GD

Gli **SMART3G** sono certificati **TUV SIL2 HW**

Description

SMART3G gas detectors are employed to detect flammable compounds (%LEL), toxic compounds (ppm) and Oxygen contents for both it depletion and enrichment in classified areas.
The **Pellistor** sensors employed for the flammable Gas detection show an excellent output linearity up to 100% LEL.
For aggressive atmospheres, where the Pellistor sensors would be seriously damaged, Sensitron developed a range of detectors employing industrial grade **Infrared** sensors: IR sensors are poison free and this grants a higher accuracy and a longer lifetime to the cell.
For the toxic gas detection, Sensitron has operated a reliable selection among the most performing **electrochemical cells** to supply units representing the state of the art in toxic gas detection.
The **SMART3G** line has been designed to offer a wide range of alternatives that grant customers the best solution to their requirements.
SMART3G-C has been specifically designed to offer high performance products for industrial applications.
SMART3G-D have been designed to meet with tougher industrial requirements and offer a 4 digits back-lit display and 5 mode status LEDs for the gas concentration reading. They feature **non intrusive magnetic calibration** for an accurate and easy calibration via Hall-effect switches, without opening the instrument and declassifying the area.

SMART3G detectors are ATEX certified for:
Group II 2G, 2GD, 3G & GD

SMART3G detectors are **SIL2 HW TUV** certified

Description

Les détecteurs de gaz de la série **SMART3G** sont utilisés dans les endroits classifiés pour détecter la présence de gaz combustibles, (%LIE), de substances toxiques en ppm ou bien pour la détection de déficience ou d'excès d'oxygène.
Le capteur **Pellistor** utilisé dans les versions pour les mélanges explosifs, confère une linéarité jusqu'à 100% LIE.
Dans les lieux où les Pellistors ne peuvent pas garantir une fonctionnalité optimale, Sensitron a développé une gamme de détecteurs avec cellule **Infrarouge** qui permet d'ajouter fiabilité et durée, en évitant les problèmes d'empoisonnement auxquels sont parfois sujets les Pellistors.
Pour la détection des gaz toxiques, Sensitron a effectué une sélection parmi les **cellules électrochimiques** fournissant les meilleures prestations afin de réaliser des appareils qui représentent la pointe de la technique dans la détection des gaz toxiques.
La série **SMART3G** a été élaborée afin d'offrir une large gamme de solutions qui satisfassent toutes les nécessités de la clientèle.
Les **SMART3G-C** sont des détecteurs à hautes performances conçus pour le secteur tertiaire et l'industrie.
Les **SMART3G-D** offrent la lecture immédiate de la concentration relevée sur l'écran LCD à 4 chiffres.
L'**étalonnage local non intrusif** à l'aide des aimants à effet Hall, permet d'intervenir sur les appareils, sans les ouvrir, ni mettre la zone hors service.

Les détecteurs **SMART3G** sont certifiés ATEX pour:
Groupe II 2G, 2GD, 3G & 3 GD

Les détecteurs **SMART3G** sont certifiés **TUV SIL2 HW**

Order P/N and protections

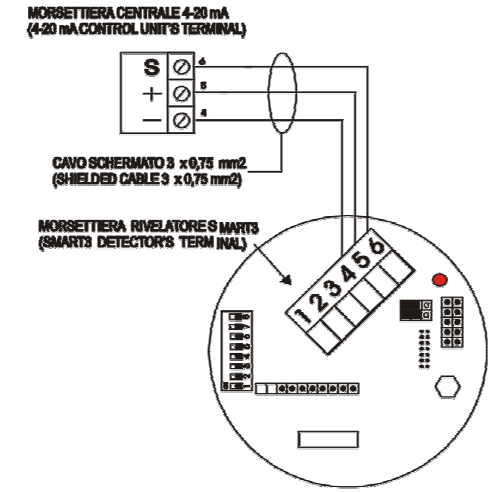
Flammable gases (% LEL)	G-D3 Ex II 3G	G-D2 Ex II 2G	G-D3 IR Ex II 3G	G-D2 IR Ex II 2G	G-C3 Ex II 3G	G-C2 Ex II 2G)	G-C3 IR Ex II 3G	G-C2 IR Ex II 2G
METHANE	S2156ME	S2157ME	S2601ME	S2602ME	S2096ME	S2097ME	S2653ME	S2654ME
LPG	S2156GP	S2157GP			S2096GP	S2097GP		
ACETIC ACID		S2157AA				S2097AA		
ACETONE		S2157AT				S2097AT		
ACETYLENE		S2179AC				S2151AC		
AMMONIA		S2157AM				S2155AM		
BENZENE		S2157BZ				S2155BZ		
BUTANE	S2156BU	S2157BU	S2601BU	S2602BU	S2096BU	S2097BU	S2653BU	S2654BU
BUTYL ACETATE		S2157AB				S2097AB		
BUTYL ALCOHOL		S2157BT				S2097BT		
CYCLOPENTANE		S2157CP				S2097CP		
ETHANE		S2157EN				S2097EN		
ETHYL ACETATE		S2157AE				S2097AE		
ETHYL ALCOHOL		S2157ET				S2097ET		
ETHYLENE		S2157EL				S2097EL		
ETHYLENE OXYDE						S2155OE		
HEPTANE		S2157EP				S2097EP		
HEXANE		S2157ET				S2097ES		
HYDROGEN		S2157H2				S2097H2		
ISO BUTANE		S2157IB				S2097IB		
ISO BUTYL ALCOHOL		S2157IT				S2097IT		
ISO PENTANE		S2157IN				S2097IN		
ISO PROPYL ALCOHOL		S2157IP				S2097IP		
JET PROPELLER AVIO FUEL		S2108P8				S2154P8		
METHYL ALCOHOL		S2157MT				S2097MT		
METHYL ETHYL KETONE		S2157MK				S2097MK		
NONANE		S2157NN				S2097NN		
PENTANE		S2157PE				S2097PE		
PETROL VAPOURS	S2156VB	S2157VB			S2096VB	S2097VB		
PROPANE	S2156PR	S2157PR	S2601PR	S2602PR	S2096PR	S2097PR	S2653PR	S2654PR
PROPYLENE		S2157PP				S2097PP		
PROPYL ALCOHOL		S2157PN				S2097PN		
STYRENE		S2157ST		S2602ST		S2155ST		S2654ST
TRI METHYLBENZENE						S2097TM		
TOLUENE		S2157TO				S2097TO		
VINYL ACETATE						S2155AV		
XYLENE		S2157XI				S2097XI		
Other gases on request								
Toxic gases	**GD3** Ex II 3G	**GD2** Ex II 2G	**GD3 IR** Ex II 3G	**GD2 IR** Ex II 2G	**GC3** Ex II 3G	**GC2** Ex II 2G	**GC3 IR** Ex II 3G	**GC2 IR** Ex II 2G
OXYGEN (O2) 25% Vol.	S2642O2	S2643O2			S2640O2	S2641O2		
CARBON MONOXIDE 500 ppm	S2162CO	S2163CO			S2130CO	S2131CO		
AMMONIA (NH3) 0-100 ppm	S3226AM	S3227AM			S3224AM	S3225AM		
AMMONIA (NH3) 0-200 ppm	S2164AM	S2165AM			S2132AM	S2133AM		
AMMONIA (NH3) 0-1000 ppm	S2166AM	S2167AM			S2134AM	S2135AM		
CARBON DIOXIDE 2% Vol			S2631CO2	S2634CO2			S2649CO2	S2651CO2
CARBON DIOXIDE 5% Vol			S2632CO2	S2635CO2			S2650CO2	S2652CO2
CHLORINE (CL2) 0-5 ppm	S3234CL	S3235CL			S3232CL	S3233CL		
CHLORINE (CL2) 20 ppm	S2174CL	S2175CL			S2142CL	S2143CL		
ETHYLENE 200 ppm					S2130ET			
HYDROGEN SULPHIDE 50 ppm	S2168HS	S2169HS			S2136HS	S2137HS		
NITRIC OXYDE 100 ppm	S2176NO	S2177NO			S2144NO	S2135NO		
NITROGEN DIOXIDE 20 ppm	S2172ND	S2173ND			S2140ND	S2141ND		
SULPHUR DIOXIDE 20 ppm	S2170SD	S2171SD			S2138SD	S2139SD		
Other toxic gases on request								
Accessories								
ST.GD/AD2 & ST.GD/AD3: Adapter to upgrade the ATEX protection from G to GD	O	O	O	O	O	O	O	O
STS/CSW: Calibration Software	O	O	O	O	O	O	O	O
STS/IDI: RS485 communication interface for SENTOX IDI and MULTISCAN++ panels	O	O	O	O	O	O	O	O
STS/CKD: Handheld calibration keypad.	O	O	O	O	O	O	O	O
STS/OC: 2-Open Collector card.	O	O	O	O	O	O	O	O
STS1REL: 1-Relay card.	O	O	O	O	O	O	O	O
STS3REL: 3-Relay card.	O	O	O	O	O	O	O	O

Technical specifications

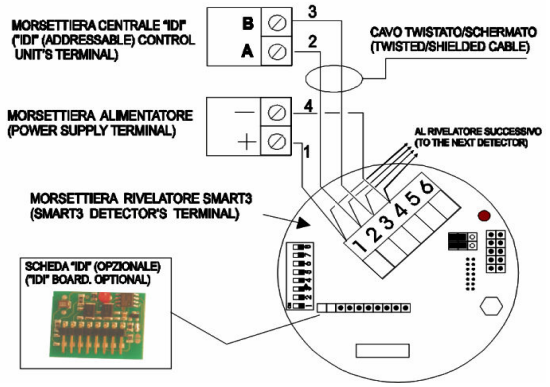
Sensing element	Pellistor sensors for flammable gas Electrochemical cells for toxic gas IR sensors for flammable and CO2
Measuring range	%LEL for flammable ppm for toxic % vol for O2 and CO2
Power supply	12-24Vdc -20% +15%
Consumption at 12Vdc	90mA (medium); 130mA (max) Pellistor 50mA (medium); 70mA (max) electr.cell 90mA (medium); 130mA (max) IR
Visual indications	SMART3G-C: flickering LED SMART3G-D: 3 red LED's for Alarm yellow for Fault, green for PS
Display characteristics (SMART3G-D)	4 digits, 7.5 mm high, 7 segments
Proportional output	4-20 mA (200 Ω)
Serial Output (optional)	RS 485 and proprietary protocol for addressable gas control panel
Relay outputs, with mode status LEDs (optional)	3 relays with tension free changeover contact 24V-1A (non latching relay)
Accuracy	from ±2% to ±5% FS (depending on sensor type)
Repeatability	from ±2% to ±5% FS (depending on sensor type)
Warm-up time	2 minutes
Stabilization time	60 minutes (for test/calibration)
Response time T90	From 15 to 30 sec. (depending on sensor type)
Storage temperature	-25°C ÷ +60°C (or limits of the sensor)
Operating temperature	-40°C ÷ +60°C (+65°C or 75°C on request) for Pellistor and IR sensors, -20°C ÷ +50°C for cells Always refer to the detector's label
Relative humidity	20-90% RH / 40°C (5-95% RH non condensing on request)
IP rating	IP65 for II 2G(D) (IP67 with: STGD/AD3 adapter and IP67 cable gland); IP55 for II3GD
Operative pressure	80-110 KPa
Max. air velocity	< 6 m/s
Weight	850÷1200 g Exn 950÷1700 g Exd
Dimension (approx)	Exd L.130 H.180 D.90 mm (max) Exn L.106 H.180 D.65 mm (max)
Orientation	Detector must be mounted sensor head downwards
Certificates	CESI 01 ATEX 053 (ESR II 2G/2GD) CESI 03 ATEX 339 (ESR II 3GD) CESI 02 ATEX 084 (Performance)
EMC Reference Norms	EN 50270: 2011, EN 61000

Electrical connections

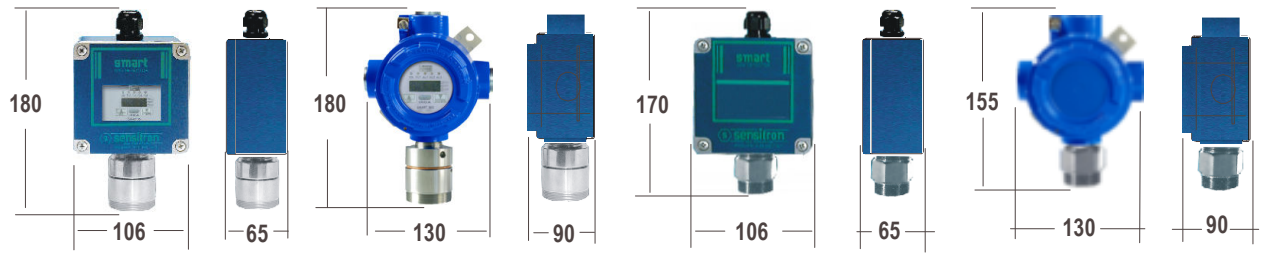
COLLEGAMENTO USCITA 4-20 mA SMART3 A CENTRALE ANALOGICA
(4-20 mA SMART3 CONNECTION TO ANALOG CONTROL UNIT)



COLLEGAMENTO USCITA RS485 SMART3 A CENTRALE "IDI"
(Rs485 SMART3 CONNECTION TO AN ADDRESSABLE CONTROL PANEL)



MECHANICAL DIMENSIONS (Measures in mm)



SENSITRON SRL Viale della Repubblica 48
20010 CORNAREDO (MI) ITALY
Tel. + 39 02 93548155 Fax. + 39 02 93548089
e-mail: sales@sensitron.it

Sensitron S.r.l., *allo scopo di migliorare i propri prodotti, si riserva il diritto di modificare le caratteristiche tecniche o estetiche in qualsiasi momento e senza alcun preavviso.*

Due to ***Sensitron*** *commitment to research, design and product improvement, specifications are subject to change without notice.*