

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 e IECEx

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 and IECEx certified

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 et IECEx

APPLICATION

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





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, di gas refrigeranti oppure per la rivelazione di deficienza o eccesso di ossigeno.

Il sensore **Pellistor**, 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** hanno ottenuto le seguenti certificazioni:

- ATEX Gruppo II 2G, 2GD, 3G & 3 GD
- IECEX
- ATEX Gruppo I M2 (richiedere data sheet specifico)

Gli **SMART3G** sono testati **SIL2 HW**.



Description

SMART3G gas detectors are employed to detect flammable compounds (%LEL), toxic compounds (ppm), refrigerant gases 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 have got the following certificates:

- ATEX Group II 2G, 2GD, 3G & GD.
- IECEX
- ATEX Group I M2 (refer to specific data sheet)

SMART3G detectors are **SIL2 HW** tested.



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, de gaz réfrigérants 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 Pellistor 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 Pellistor.

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** ont obtenu les certifications suivantes:

- Groupe II 2G, 2GD, 3G & 3 GD.
- IECEX
- Groupe I M2 (dépliant spécifique à la demande)

Les détecteurs **SMART3G** sont testés **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 | S2625ME | S2626ME | S2096ME | S2097ME | S2623ME | S2624ME |
| LPG | S2156GP | S2157GP | | | S2096GP | S2097GP | | |
| ACETIC ACID | | S2157AA | | | | S2097AA | | |
| ACETONE | | S2157AT | | S2602AT | | S2097AT | | S2654AT |
| 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 | | S2602EN | | S2097EN | | S2654EN |
| ETHYL ACETATE | | S2157AE | | | | S2097AE | | |
| ETHYL ALCOHOL | | S2157ET | | | | S2097ET | | |
| ETHYLENE | | S2157EL | | | | S2097EL | | |
| ETHYLENE OXYDE | | | | | | S2155OE | | |
| HEPTANE | | S2157EP | | S2602EP | | S2097EP | | S2654EP |
| HEXANE | | S2157ET | | S2602ES | | S2097ES | | S2654ES |
| HYDROGEN | | S2157H2 | | | | S2097H2 | | |
| ISO BUTANE | | S2157IB | | S2602IB | | S2097IB | | S2654IB |
| 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 | | S2602PE | | S2097PE | | S2654PE |
| PETROL VAPOURS | S2156VB | S2157VB | | | S2096VB | S2097VB | | |
| PROPANE | S2156PR | S2157PR | S2601PR | S2602PR | S2096PR | S2097PR | S2653PR | S2654PR |
| PROPYLENE | | S2157PP | | S2602PP | | S2097PP | | S2654PP |
| PROPYL ALCOHOL | | S2157PN | | | | S2097PN | | |
| STYRENE | | S2157ST | | | | S2155ST | | |
| TRI METHYLBENZENE | | S2157TM | | | | S2097TM | | |
| TOLUENE | | S2157TO | | | | S2097TO | | |
| VINYL ACETATE | | | | | | S2155AV | | |
| XYLENE | | S2157XI | | | | S2097XI | | |
| <i>Other gases on request</i> | | | | | | | | |
| Toxic gases | 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 |
| 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 |
| CARBON DIOXIDE 30% Vol | | | S2447CO2 | S2449CO2 | | | S2443CO2 | S2445CO2 |
| CARBON DIOXIDE 5000 ppm | | | S2448CO2 | | | | S2444CO2 | |
| HYDROGEN 2000 ppm | S3594H2 | S3313H2 | | | S3592H2 | S3593H2 | | |
| HYDROGEN SULPHIDE 50 ppm | S2168HS | S2169HS | | | S2136HS | S2137HS | | |
| NITRIC OXYDE 100 ppm | S2176NO | S2177NO | | | S2144NO | S2135NO | | |
| R134A | | | S3597R134A | S3163R134A | | | S3595R134A | S3596R134A |
| SF6 | | | S3600SF6 | S3601SF6 | | | S3598SF6 | S3599SF6 |
| <i>SO2, NO2, Cl2 and other toxic gases on request</i> | | | | | | | | |
| Accessories |  |  |  |  |  |  |  |  |
| ST.GD/AD2 & ST.GD/AD3: Adapter to upgrade the ATEX protection from G to GD | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| STS/CSW: Calibration Software | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| STS/IDI: RS485 communication interface for SENTOX IDI and MULTISCAN++ panels | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| STS/CKD: Handheld calibration keypad. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| STS1REL: 1-Relay card. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| STS3REL: 3-Relay card. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

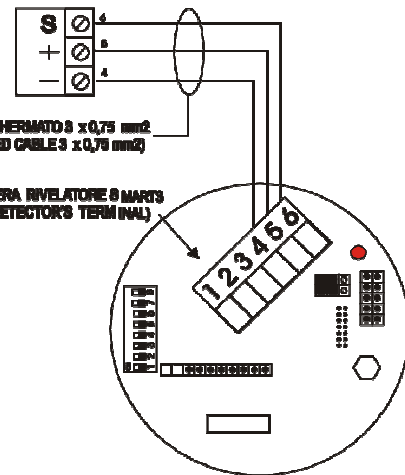
Technical specifications

| | |
|---|---|
| Sensing element | Pellistor sensors for flammable gas Electrochemical cells for toxic gas IR sensors for HC, CO ₂ , SF ₆ , Refrigerant |
| Measuring range | %LEL for flammable gases ppm for toxic gases and refrigerants % vol for O ₂ and CO ₂ |
| 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 panels |
| Relay outputs, with mode status LEDs (optional) | 3 relays with tension free changeover contact 24V-1A (non-latching type) |
| 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 | -20°C ÷ +60°C (-40°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 Ex n 950±1700 g Ex d |
| Dimension (approx) | Ex d L.130 H.180 D.90 mm (max) Ex n L.106 H.180 D.65 mm (max) |
| Orientation | Detector must be mounted sensor head downwards |
| Certificates | CESI 17 ATEX 003X (ESR II 2G/2GD) CESI 16 ATEX 046X (Intrinsic Safety) CESI 02 ATEX 084 (Performance) IECEX CES 17.0011X & 17.0010X |
| EMC Reference Standards | EN 50270, EN 61000-6-4 |

Electrical connections

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

MORSETTIERA CENTRALE 4-20 mA (4-20 mA CONTROL UNIT'S TERMINAL)



CAVO SCHEMATO 3 x 0,75 mm² (SHIELDED CABLE 3 x 0,75 mm²)

MORSETTIERA RIVELATORE SMART3 (SMART3 DETECTOR'S TERMINAL)

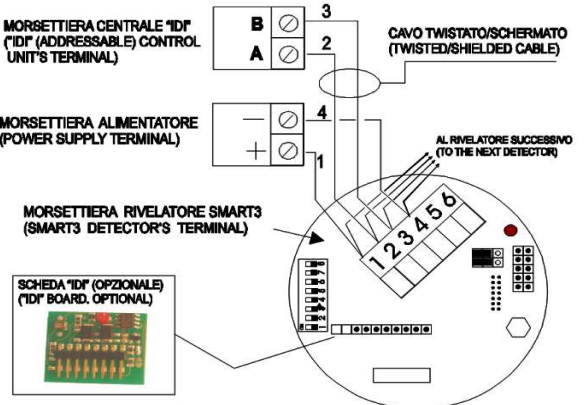
COLLEGAMENTO USCITA RS485 SMART3 A CENTRALE "ID1" (RS485 SMART3 CONNECTION TO AN ADDRESSABLE CONTROL PANEL)

MORSETTIERA CENTRALE "ID1" ("ID1" (ADDRESSABLE) CONTROL UNIT'S TERMINAL)

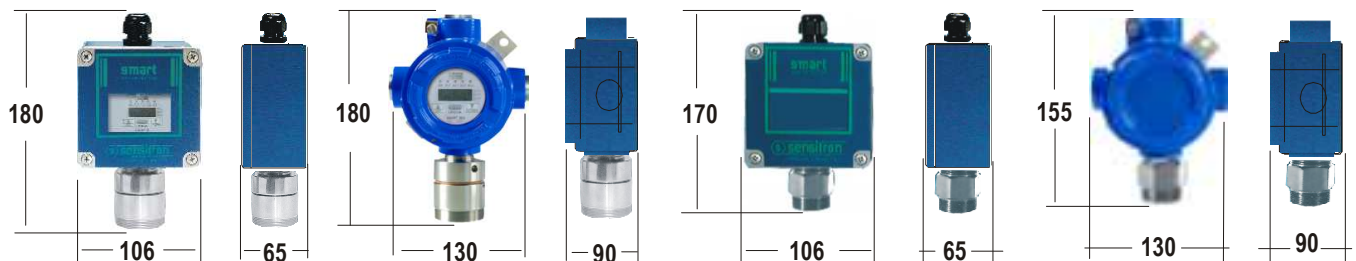
MORSETTIERA ALIMENTATORE (POWER SUPPLY TERMINAL)

MORSETTIERA RIVELATORE SMART3 (SMART3 DETECTOR'S TERMINAL)

SCHEDA "ID1" (OPZIONALE) ("ID1" BOARD, OPTIONAL)



MECHANICAL DIMENSIONS (Measures in mm)



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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.

