



SMART 3 gas detectors



DESCRIPTION

- Non-intrusive one man calibration (display or IrDA versions)
- Easy sensor replacement
- Wide range of sensors and gases detectable
- Standard 4-20 mA 3 wires output
- Wide range of accessories for installation and maintenance
- Zero tracking to maintain the detector zero point from possible drifts
- Ongoing system self diagnosis
- ATEX certified Group I & II

APPLICATION

- Refineries
- Drilling Platforms
- Compressor stations
- Fuel loading stations
- Chemical Plants
- Gas turbines
- LNG/LPG storage facilities
- Laboratories
- Tunnels and mines



DESCRIZIONE

- Taratura non intrusiva (versioni Display e IrDA)
- 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 per il mantenimento del parametro di zero da possibili derive
- Autodiagnosi continua del sistema
- Certificati ATEX per Gruppo I & II

APPLICAZIONI

- Raffinerie
- Piattaforme di perforazione
- Stazioni di compressione
- Distributori di carburante
- Impianti chimici
- Turbine a gas
- Depositi di gas GPL e Metano
- Laboratori
- Miniere e gallerie



DESCRIPTION

- Etalonnage local non intrusif (versions display et IrDA)
- Echange du capteur aisé
- Large gamme de capteurs disponibles et de gaz détectables.
- Signal sortie standard 4-20 mA 3 fils
- Large gamme d'accessoires pour l'installation et la maintenance.
- Zéro automatique pour le maintien du paramètre de zéro par possibles dérives
- Auto-diagnostic continu du système
- Certifications ATEX Group I & II

APPLICATION

- Raffineries
- Plateformes de forage
- Stations de compression
- Stations de service
- Implantations Chimiques
- Turbines à gaz
- Stockage de GPL/GNL
- Laboratoires
- Tunnels et mines



II 3GD



II 2GD





DESCRIPTION

SMART3 series gas detectors (trade name of **ST/x** ATEX detector) are employed to detect either flammable compounds (in terms of %LEL), toxic compounds in ppm (parts per million), or Oxygen depletion and enrichment.

The **Pellistor** cells (industrial grade Catalytic sensors) employed for the flammable Gas detection show an excellent output linearity up to 100 % LEL.

For aggressive atmospheres, where the Pellistor cells would seriously be damaged, Sensitron developed the **SMART3 IR** 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 SMART3 line has been designed to offer a wide range of alternatives that grant customers the best solution to their requirements.

SMART3 CC has been specifically designed to offer high performance products for light industrial applications.

SMART3 CD, designed to meet with tougher industrial requirements, 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.

Gas detectors series **SMART3 IrDA** have the same technical specifications and performance than **SMART3** detectors, but offer a one-man **non intrusive calibration via a handheld calibration keypad ST.S/CKD IrDA**. It will be neither necessary to declassify the area nor open the instrument to operate on it.

Specific SMART3 gas detectors for tunnels and mines are available with certification for **Group I**.

SMART3 gas detectors are ATEX certified for Group II 2G, 2GD & 3 GD and for Group I M2.



DESCRIZIONE

I rivelatori di gas della serie **SMART3** (nome commerciale dei rivelatori ATEX **ST/x**) vengono impiegati per rivelare la presenza di sostanze infiammabili in valori di %LIE, di gas tossici in ppm (parti per milione), oppure per la rivelazione di deficienza o eccesso di ossigeno.

Il sensore catalitico industriale (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 **SMART3 IR**. I sensori Infrarosso 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 SMART3 è stata concepita per offrire ai clienti un'ampia gamma di soluzioni, secondo le specifiche necessità dei clienti.

Lo **SMART3 CC** è stato disegnato per offrire elevate prestazioni a strumenti per applicazioni civili e industriali.

La versione **SMART3 CD** (display), progettata per l'impiego in ambienti industriali è fornita con un display luminoso a 4 cifre che visualizza in tempo reale la concentrazione di gas misurata. Inoltre, lo **SMART3 CD** 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.

I rivelatori nella versione **SMART3 IrDA** hanno le medesime caratteristiche tecniche e prestazionali dei rivelatori **SMART3** descritti sopra con in più la possibilità di **taratura in campo non intrusiva tramite la tastiera di calibrazione ST.S/CKD IrDA**. Non sarà quindi necessario aprire lo strumento o declassificare l'area per poter effettuare la taratura periodica.

Per sottosuolo e miniere, è disponibile una versione certificata **Gruppo I**.

I rivelatori serie **SMART3** sono certificati ATEX per Gruppo II 2G, 2GD & 3 GD e per Gruppo I M2.



DESCRIPTION

Les détecteurs de gaz de la série **SMART3** (nom commercial des détecteurs ATEX **ST/x**) sont utilisés pour détecter la présence de substances combustibles, dans des concentrations exprimables % LIE, et de substances toxiques dans des concentrations en ppm (parties par million) ou bien pour la détection de déficience ou d'excès d'oxygène.

Le capteur catalytique industriel (Pellistor), utilisé dans les versions pour les mélanges explosifs, confère une linéarité jusqu'à 100% LIE et une précision optimale avec n'importe quel type de gaz inflammable. Dans les lieux où les Pellistors ne peuvent pas garantir une fonctionnalité optimale, Sensitron a développé une gamme de détecteurs avec cellule Infrarouge **SMART3 IR** 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 SMART 3 a été élaborée afin d'offrir une large gamme de solutions qui satisfassent toutes les nécessités de la clientèle.

Les **SMART 3 CC** sont des détecteurs à hautes performances conçus pour le secteur tertiaire et l'industrie légère.










Les **SMART3 CD** 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 de la série smart3 IrDA ont les mêmes caractéristiques techniques que les autres SMART3 mais ils permettent un **étalonnage local non intrusif** à l'aide de la **télécommande infra-rouge ST.S/CKD IrDA**.

Pour les mines et les tunnels, une version certifiée pour Groupe I M2, est également disponible.

Les détecteurs **SMART 3** sont certifiés ATEX pour Groupe II 2G, 2GD & 3 GD et le Groupe I M2.

Order codes and versions

Flammable gases (% LEL):	CD Ex II 3GD	CD Ex II 2GD	CD IR Ex II 3G	CD IR Ex II 2G	CC Ex II 3GD	CC Ex II 2GD	CC IR Ex II 3G	CC IR Ex II 2G	IrDA Ex II 2GD	GR I Ex I M 2
METHANE	S2156ME	S2157ME	S2601ME	S2602ME	S2096ME	S2097ME	S2653ME	S2654ME	S2300ME	S1255ME
LPG	S2156GP	S2157GP	S2601GP	S2602GP	S2096GP	S2097GP	S2653GP	S2654GP	S2300GP	
ACETIC ACID						S2097AA			S2300AA	
ACETONE		S2157AT				S2097AT			S2300AT	
ACETYLENE		S2179AC				S2151AC				
AMMONIA		S2157AM				S2155AM				
BENZENE						S2155BZ				
BUTANE	S2156BU	S2157BU	S2601BU	S2602BU	S2096BU	S2097BU	S2653BU	S2654BU	S2300BU	
BUTYL ACETATE						S2097AB				
BUTYL ALCOHOL						S2097BT				
CYCLOPENTANE		S2157CP				S2097CP			S2300CP	
ETHANE		S2157EN				S2097EN			S2300EN	
ETHYL ACETATE		S2157AE				S2097AE			S2300AE	
ETHYL ALCOHOL		S2157ET				S2097ET			S2300ET	
ETHYLENE		S2157EL				S2097EL			S2300EL	
ETHYLENE OXYDE						S2155OE				
HEPTANE						S2097EP			S2300EP	
HEXANE		S2157ES				S2097ES			S2300ES	
HYDROGEN		S2157H2				S2097H2			S2300H2	
ISO BUTANE		S2157IB				S2097IB			S2300IB	
ISO BUTYL ALCOHOL						S2097IT			S2300IT	
ISO PENTANE						S2097IN				
ISO PROPYL ALCOHOL						S2097IP			S2300IP	
JP8 (JET PROPELLER)		S2108P8				S2154P8				
METHYL ALCOHOL		S2157MT				S2097MT			S2300MT	
METHYL ETHYL KETONE		S2157MK				S2097MK			S2300MK	
NONANE						S2097NN				
PENTANE		S2157PE				S2097PE			S2300PE	
PETROL VAPOURS	S2156VB	S2157VB			S2096VB	S2097VB			S2300VB	
PROPANE	S2156PR	S2157PR	S2601PR	S2602PR	S2096PR	S2097PR	S2653PR	S2654PR	S2300PR	
PROPYLENE		S2157PP				S2097PP			S2300PP	
PROPYL ALCOHOL		S2157PN				S2097PN			S2300PN	
STYRENE		S2157ST				S2155ST				
TRI-METHYLBENZENE						S2097TM				
TOLUENE		S2157TO				S2097TO			S2300TO	
VINYL ACETATE						S2155AV				
XYLENE		S2157XI				S2097XI			S2300XI	
<i>Other flammable gases on request</i>										
Toxic gases:	CD Ex II 3G	CD Ex II 2G	CD IR Ex II 3G	CD IR Ex II 2G	CC Ex II 3G	CC Ex II 2G	CC IR Ex II 3G	CC IR Ex II 2G	IrDA Ex II 2G	GR I Ex I M 2
OXYGEN (O2) 25% Vol.	S2642O2	S2643O2			S2640O2	S2641O2				
CARBON MONOXIDE 500 ppm	S2162CO	S2163CO			S2130CO	S2131CO				S1493CO
AMMONIA (NH3) 0-200 ppm	S2164AM	S2165AM			S2132AM	S2133AM				
AMMONIA (NH3) 0-1000 ppm	S2166AM	S2167AM			S2134AM	S2135AM				
CARBON DIOXIDE (CO2) 2% Vol			S2631CO2	S2634CO2			S2649CO2	S2651CO2		
CARBON DIOXIDE (CO2) 5% Vol			S2632CO2	S2635CO2			S2650CO2	S2652CO2		
CHLORINE (CL2) 20 ppm	S2174CL	S2175CL			S2142CL	S2143CL				
ETHYLENE 200 ppm					S2130ET					
HYDROCHLORIC ACID (HCL) 50 ppm		S2311HC				S2147HC				
HYDROGEN SULPHIDE (H2S) 50 ppm	S2168HS	S2169HS			S2136HS	S2137HS				
NITRIC OXYDE (NO) 100 ppm	S2176NO	S2177NO			S2144NO	S2135NO				
NITROGEN DIOXIDE (NO2) 20 ppm	S2172ND	S2173ND			S2140ND	S2141ND				
SULPHUR DIOXIDE (SO2) 20 ppm	S2170SD	S2171SD			S2138SD	S2139SD				
<i>Other toxic gases on request</i>										
Accessories										
ST.S/CSW: Software for SMART3	O	O	O	O	O	O	O	O	O	O
ST.S/IDI: RS485 interface for "IDI" addressable control panel.	O	O	O	O	O	O	O	O	O	O
ST.S/CKD: Handheld calibration keypad.	O	O	O	O	O	O	O	O	O	O
ST.S/CKD IrDA: Intrinsically safe handheld calibration keypad.	NA	NA	NA	NA	NA	NA	NA	NA	O	NA
ST.S/OC: 2-Open Collector card.	O	O	O	O	O	O	O	O	O	O
ST.S1REL: 1-Relay card.	E	E	E	E	O	O	O	O	O	O
ST.S3REL: 3-Relay card.	O	O	O	O	O	O	O	O	O	O

E: enclosed, O: optional, NA: not available

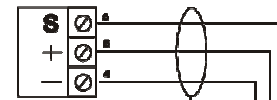
Technical specifications

Sensing element	Pellistor sensors for flammable gases Electrochemical cells for toxic gases 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) (version without display)
Visual indications	SMART3 CC: flickering LED SMART3 CD: 3 red LED's for Alarm levels, yellow for Fault and green for Power supply.
Display characteristics (SMART3 CD version)	4 digit, 7.5 mm high, 7 segments
Proportional output	4-20 mA (200 Ω)
Serial Output (optional)	RS 485 for "IDI" gas control panel
Relay outputs, with mode status LEDs (optional)	3 relays with tension free changeover contact 24V-1A
Accuracy	<±5% full scale or 10% readout
Repeatability	<±5% full scale or 10% readout
Warm-up time	5 minutes
Stabilization time	< 2 minutes
Response time	<20 sec. T50; <60 sec. T90 (pellistor) <60 sec. T50; <120 sec. T90 (elec.cell) according to the cell being used
Storage temperature	-25°C ÷ +60°C
Operating temperature	Average -20°C ÷ +60°C. Better refer to what stated on the detector's label
Relative humidity	20-90% RH / 40°C
IP rating	IP 65 (II 2G-II 2GD); IP 55 (II3GD)
Operative pressure	80-110 KPa
Max. air velocity	6 m/s
Weight	800 g II3GD 900 ÷ 1400 g II 2G / II 2GD
Dimension (approx)	II 2G / II 2GD L.106 H.160 D.80 mm II 3GD L.106 H.180 D.65 mm
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 04 ATEX 106 (ESR Group I) CESI 02 ATEX 084 (Performance)
EMC Reference Norms	EN 50270: 1999 EN 61000-6-3:01 + A11:04

Electrical connections

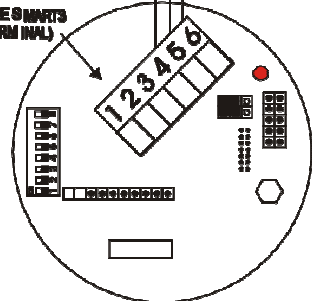
COLLEGAMENTO USCITA 4-20 mA SMART3 A CENTRALE ANALOGICA (4-20 mA SMART3 CONNECTION TO ANALOG CONTROL UNIT)

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



CAVO SCHERMATO 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 "IDI" (RS485 SMART3 CONNECTION TO AN ADDRESSABLE CONTROL PANEL)

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



CAVO TWISTATO/SCHERMATO (TWISTED/SHIELDED CABLE)

MORSETTIERA ALIMENTATORE (POWER SUPPLY TERMINAL)

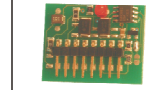


AL RIVELATORE SUCCESSIVO (TO THE NEXT DETECTOR)

MORSETTIERA RIVELATORE SMART3 (SMART3 DETECTOR'S TERMINAL)

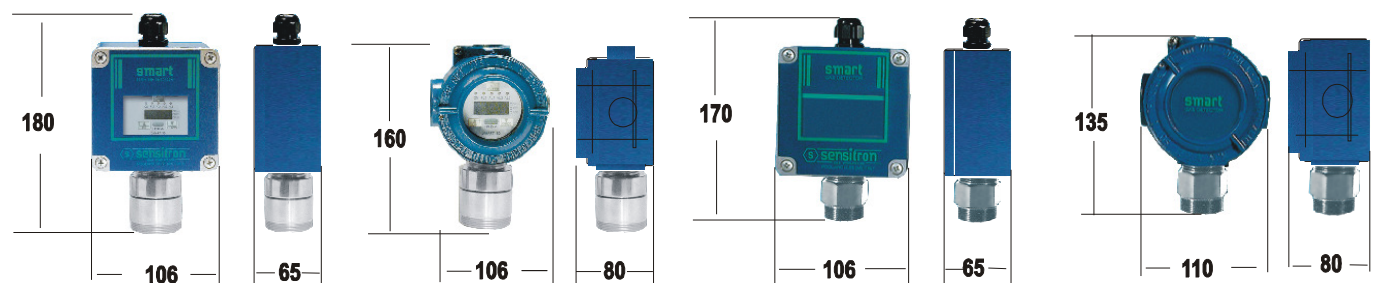


SCHEDA "IDI" (OPZIONALE) (IDI BOARD, OPTIONAL)



MECHANICAL DIMENSIONS

Measures in mm



INSTRUMENT TEAM AS

Tlf: 67150 250 Faks: 67 150 251

Mail: post@instrumentteam.no

Web: www.instrumentteam.no

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.

