SMART S

PREMIUM LINE GAS DETECTORS

Designed to meet the toughest industrial requirements, SMART S line allows monitoring gas contents in harsh environments. These detectors are SIL2 (3) and ATEX certified and satisfy the strict requirements of Oil&Gas, Chemical and Petrochemical sectors as well as wherever the concept of Safety Integrity Level is a fundamental condition. A flexible line of products capable of adapting to all needs and able to offer the new **Hybrid Technology** based on the adoption of a double technology (IR+Pell) or based on the state of art **NDIR Technology** for flammable or toxic gases or based on the new **Laser Technology**. Detectors are certified according to the EN 50402 and IEC 61508 Parts 1 to 7.

Sviluppati per garantire una rivelazione di gas sicura anche negli ambienti più difficili ed aggressivi, i rivelatori di gas serie SMART S sono certificati SIL 2(3) ed ATEX e sono stati studiati per soddisfare i restrittivi requisiti delle applicazioni nei settori Oil&Gas, chimico, petrolchimico ed ovunque il concetto di Safety Integrity Level sia una prerogativa fondamentale.
*Una famiglia di rivelatori flessibili nell'adattarsi ad ogni esigenza, gli unici ad offrire la nuova **tecnologia Ibrida** basata sull'adozione di un sensore a doppia tecnologia (IR+Pell) o basato sulla più evoluta **tecnologia NDIR** per gas infiammabili o tossici o basato sulla nuova **tecnologia Laser**. Certificati secondo le EN 50402 e IEC 61508 Parti da 1 a 7.*
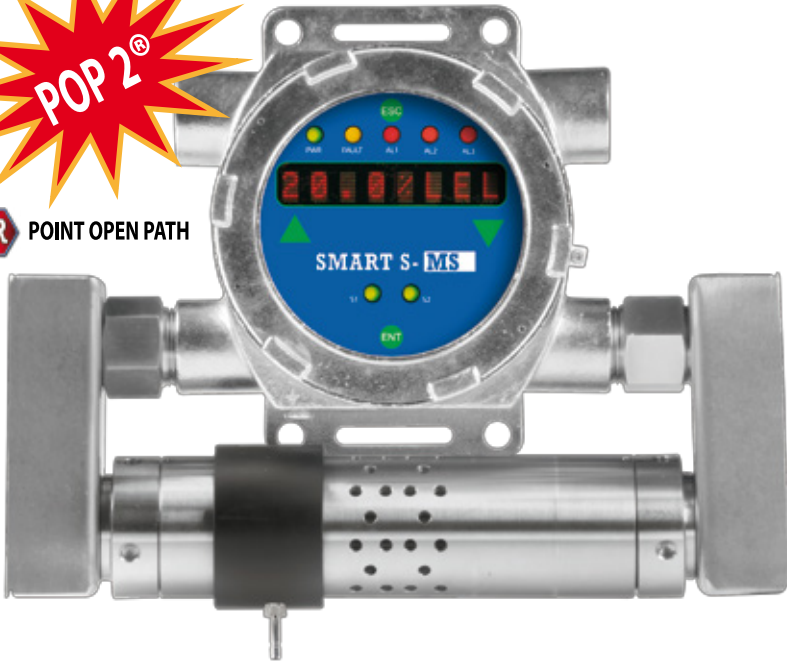
29-1 IEC60079-29-1 PERFORMANCE

SIL2 (3) (EN 50402 & IEC 61508 PARTS 1 to 7) approved

Ex ATEX notified company

IEC

IECEx

LASER GAS TECHNOLOGY

HYBRID GAS TECHNOLOGY

IR-Tech GAS TECHNOLOGY

LIGHT YEARS AHEAD IN GAS DETECTION TECHNOLOGIES

SMART S-MS

POP 2®

IR POINT OPEN PATH

CH4   H2S

Designed to meet the toughest industrial requirements, **SMART S-MS** line offers **two** intrinsically safe sensor heads to monitor toxic and flammable contents in harsh environments. These two sensors (POP2) may have the same technology offering a **point open path** one to backup the other or two sensors to detect different levels of the same gas or different gases.

SMART S-MS features:

- **Intrinsically safe sensor heads**
- **Two 4-20 mA 3-wire outputs**
- **Other features same as SMART S-SS**

SMART S-IR

SMART S-IR gas detectors employ a hybrid sensor, with double sensor technology, for flammable gas detection. They offer 5 status LEDs and an 8 digits back-lit display for the gas concentration reading to be chosen between LCD or LED display. The **SMART S-IR** have been especially developed for aggressive atmospheres, where the Pellistor sensors functionality could be seriously compromised. Industrial grade Infrared sensors are not vulnerable to poisoning, thus granting a higher accuracy and a longer lifetime to the detector. They feature non-intrusive calibration for an accurate and easy adjustment via Hall-effect switches, which allow to access the detector without opening the instrument and declassifying the area. The detectors can be housed in alloy or stainless steel housing and comply with SIL3 SW and SIL2 HW.

SMART S-IR features:

- **Hybrid sensor technology integrated in one sensor head: Catalytic + Infrared with single 4-20 mA 3-wire output**
- **Other features same as SMART S-SS**
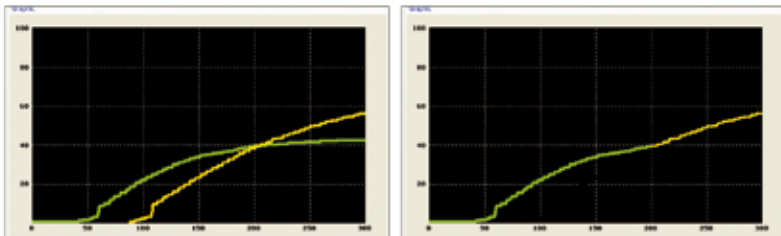
TWO DIFFERENT TECHNOLOGIES **(IR or PELL)**   ONE HYBRID TECHNOLOGY **(IR & PELL)**
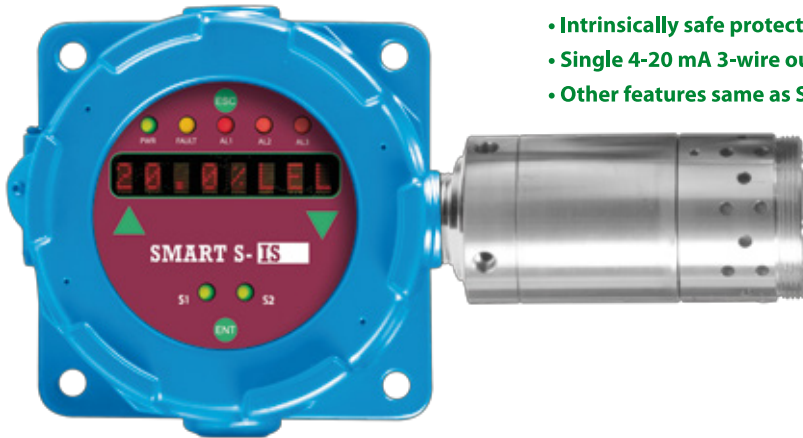
SMART S-SS

SMART S-IS

Designed to meet the toughest industrial requirements, **SMART S-SS** line allows monitoring toxic and flammable contents in harsh environments. They offer 5 status LEDs and an 8 digits back-lit display for the gas concentration reading to be chosen between LCD or LED display. They feature non-intrusive calibration for an accurate and easy adjustment via Hall-effect switches, which allow to access the detector without opening the instrument and declassifying the area. The detectors can be housed in alloy or stainless steel housing and comply with SIL3 SW and SIL2 HW.

SMART S-SS features:

- **Single 4-20 mA 3-wire output**
- **RS485 serial communication Modbus**
- **3 relay output (optional).**
- **HART communication interface (optional)**
- **Full Hot Swap for sensor replacement (optional)**
- **Sensor End of Life warning**
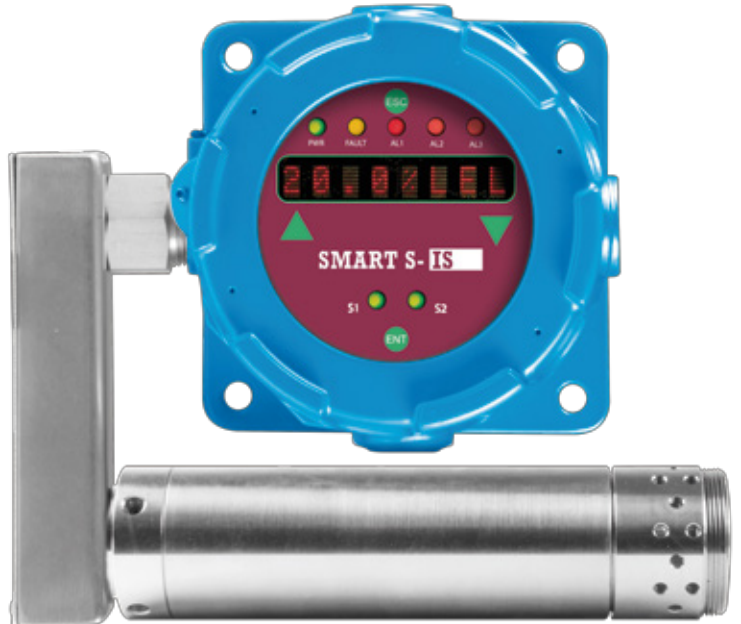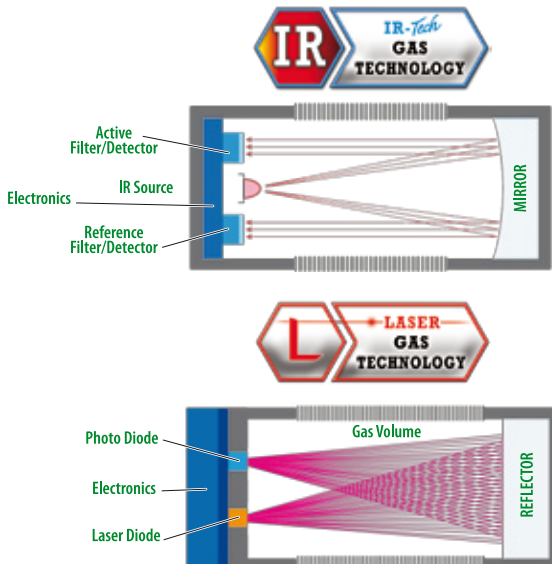- **IECEx, ATEX II2G (GD with optional adapter) and SIL 2 (3) (EN50402 / EN61508 part 1-7)**

SMART S-IS features:

- **Intrinsically safe protection and Galvanic Isolation**
- **Single 4-20 mA 3-wire output**
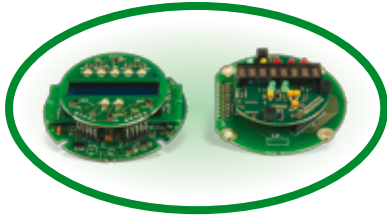- **Other features same as SMART S-SS**

POP 1®

IR IR-Tech GAS TECHNOLOGY

L LASER GAS TECHNOLOGY

POINT OPEN PATH FLAMMABLE

POINT OPEN PATH TOXIC

IR IR-Tech GAS TECHNOLOGY

Active Filter/Detector
Electronics
IR Source
Reference Filter/Detector
MIRROR

L LASER GAS TECHNOLOGY

Photo Diode
Gas Volume
Electronics
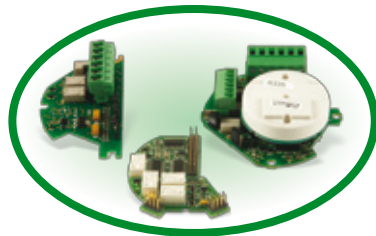Laser Diode
REFLECTOR

MAIN BOARDS

1X	1 Output 4-20 mA + RS 485
2X	1 Output 4-20 mA + RS 485+ IS Barrier & Galvanic isolation
3X	2 Output 4-20 mA + RS 485+ IS Barrier & Galvanic isolation
4X	1 Output 4-20 mA + RS 485+ with Hybrid Technologies
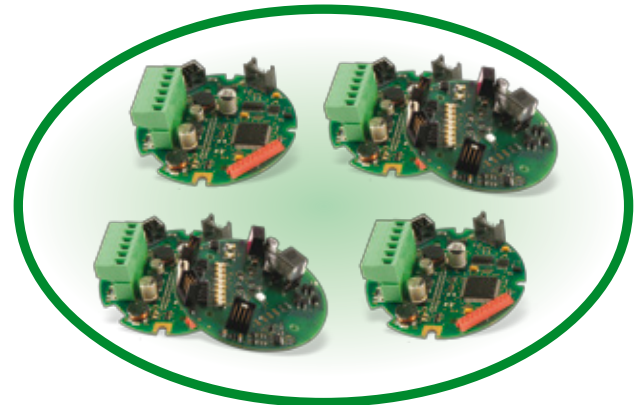
DISPLAY

- **LCD**   8-digit display (-20°C + 60°C)
- **LED**   8- digit display (-40°C + 65°C)

OPTIONAL FEATURES

- 3 Relay Card
- 3 Relay Card & Hart Modem
- Hot-Swap

FEATURES SELECTION

X1	4-20 mA + RS 485 Output-Display LCD
X2	4-20 mA + RS 485 Output-Display LED
X3	4-20 mA + RS 485 Output-Display LCD-3 Relay Card
X4	4-20 mA + RS 485 Output-Display LED-3 Relay Card
X5	4-20 mA + RS 485 Output-Display LCD-3 Relay Card-Hot Swap
X6	4-20 mA + RS 485 Output-Display LED-3 Relay Card-Hot Swap
X7	4-20 mA + RS 485 Output-Display LCD-3 Relay Card-Hot Swap-Hart Modem
X8	4-20 mA + RS 485 Output-Display LED-3 Relay Card-Hot Swap-Hart Modem

ENCLOSURES

1S STAINLESS STEEL FOR S-MS & S-IS

2S STAINLESS STEEL FOR S-MS, S-IS, S-SS & S-IR

5A ALUMINIUM FOR S-IR (CCCF-CHINA)

3A ALUMINIUM FOR S-SS, S-IR & S-IS

4A ALUMINIUM-COPPERFREE FOR S-SS, S-IR & S-IS

S4 [XXX GAS] SS head with sintered filter (for SMART S-SS)

- **PEL**   Industrial matched pair pellistor for flammable gases
- **IRS**   Industrial IRNET NDIR for flammable-SF6-CO2 gases
- **ECS**   Premium line electrochemical cells for toxic gases
- **MOS** Industrial metal-oxide semiconductor for H2S

S5 [XXX GAS] SS head without sintered filter (for SMART S-IS)

- **ECI**   Premium Electrochemical cells for exotic toxic gases
- **PID**   Photo ionization detector for VOC gases

S3 [XXX GAS+GAS]   HYBRID GAS TECHNOLOGY   SS head with sintered filter (for SMART S-IR)

- **HYB-FL** Hybrid technology IR+PELL for HC gases
- **HYB-TX** Hybrid technology MOS+ECell or EC+Solid EC for H2S

S6 [XXX GAS] SS head without sintered filter (for SMART S-IS)

- **IRM**   Innovative IR, extremely fast t90, specific mirror
- **LAS-FL** Revolutionary Laser technology for specific HC reflection mode
- **LAS-TX** Revolutionary Laser technology for Toxic Gases reflection mode

IR Source   Detector

POP 2®
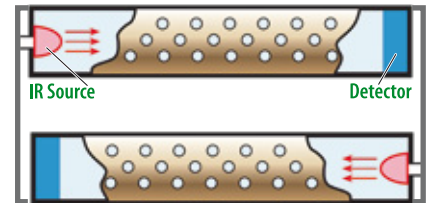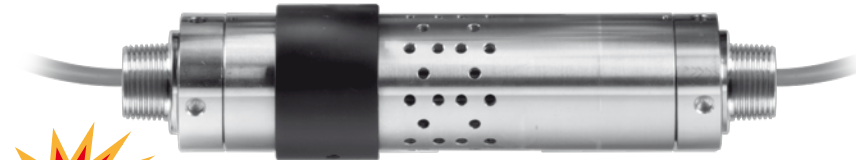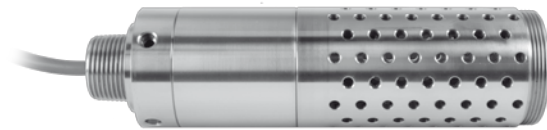
S7 [XXX GAS] SS head without sintered filter (for SMART S-MS)

TX

S8 [XXX GAS] ROP-1 Laser Reflective Open Path   20-30 meter distance

RX

REFLECTOR

S9 [XXX GAS] DOP-1 Laser Distance Open Path

RX   Optical fiber 100 meter distance max   **TX**

SMART S-DOP-1

DOP-1 TX

DOP-1 RX

DOP-1 DISTANCE OPEN PATH

Not just another "rabbits catcher" but a reliable low-cost open path.
Due its own patent laser technology SMART S-DOP 1 & SMART S-ROP assure:
- Optical laser beam measurement, no physical reference channel
- Long area coverage
- Immediate response
- No false alarms from interference gases
- No consumable sensing elements
- Extremely long-term perdiod maintenance
- Extremely high selectivity, precision and accuracy to target gas

Suitable for onshore and offshore, open and enclosed enviroments, the **SMART S-DOP** & **SMART S-ROP** represent the updated technology for methane detection in oil & gas exploration rigs, platforms, petrochemical refineries, landfill sites etc...
Detection of other gases (other than methane) available on request.
Detection of two gases **Laser DOP-2**, methane & H2S, available on request.
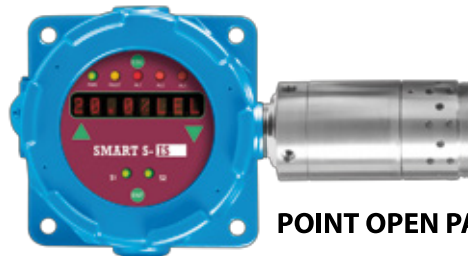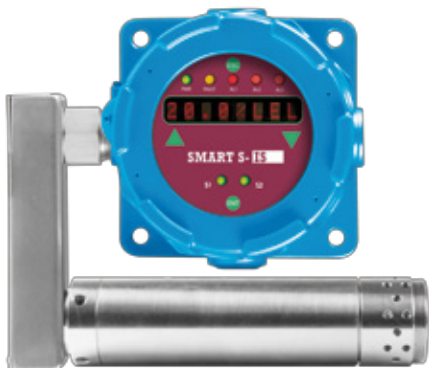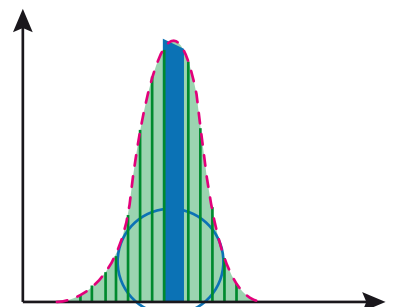
SMART S-ROP
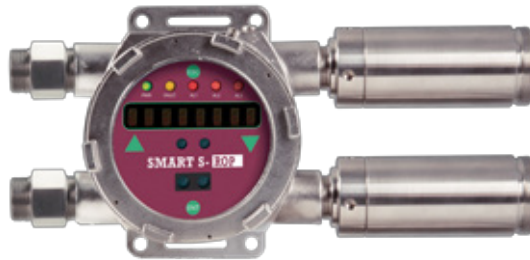
REFLECTOR

ROP REFLECTIVE OPEN PATH

SMART S-POP

POINT OPEN PATH FOR FLAMMABLE GASES

POP 1®

POINT OPEN PATH FOR TOXIC GASES

GALILEO GAS & FIRE

GALILEO GAS & FIRE Control Panel. Two separate and fully indipendent systems, designed to meet the standards, are monitored by a common management supervisor. **THE GALILEO GAS MULTISYSTEM** is a fully approved SIL 3 System, both HW & SW according to EN 50402 and IEC 61508 part 1 to 7.

The **EX FIRE MINI** is a fixed fire fighting system fully compliant with the requirements and test metods for electrical automatic control and delay devices specified in EN 12094-1 and EN 54-2.

Compliance to the SIL 3 requirements for the detection and automatic extinguishing function is available upon request.

All control panels are ATEX Certified according to EN 60079-29-1.

GALILEO GOLD GMS (Galileo Management Supervision)

Securnet ++

GALILEO & MULTISCAN ++

FUNCTIONAL SAFETY GAS CONTROL PANELS

To offer a complete gas detection system, fully compliant to SIL2 and SIL3 requirements, Sensitron proposes the Premium line range, consisting of SMART S detectors along with GALILEO and MULTISCAN ++ control panels. Thanks to the full-redundancy of the hardware and the broad range of self-testing facilities, GALILEO panels are SIL 3 certified according to EN 50402 and IEC 61508 parts 1 to 7. Available in different models, these panel can monitor from 8 up to 256 detectors. For applications where a less restrictive SIL capability is required, Sensitron proposes MULTISCAN++S2 control panel, certified SIL2. All control panels are ATEX certified according to EN 60079-29-1.

ATEX & SIL2
(EN 50402 & IEC 61508 PARTS 1 to 7)
approved

ATEX
Ex
NOTIFIED

ATEX & SIL 3
(EN 50402 & IEC 61508 PARTS 1 to 7)
approved

LIGHT YEARS AHEAD IN GAS DETECTION TECHNOLOGIES