

# SMART S Premium Safety Line Gas detectors



## SMART S-MS

(DOUBLE SENSOR HEADS & DOUBLE OUTPUT)

Ex II2G (GD with optional adapter)

- Double sensor heads
- Single head with double technology (optional)
- Double 4-20 mA 3-wire output and 2 relay output with optional HART communication modem or
- Double 4-20 mA 3-wire output and 3 relay output.
- RS485 serial communication Modbus
- ATEX II2G (GD with optional adapter) and SIL 2 (3) (EN50402 / EN61508 TUV approved)

## SMART S-SS

(SINGLE SENSOR & SINGLE OUTPUT)

Ex II2G (GD with optional adapter)

- Single sensor technology (Catalytic, Electrochemical Cell, Smart Infrared).
- Single 4-20 mA 3-wire output and 2 relay output with optional HART communication modem. or
- Single 4-20 mA 3-wire output and 3 relay output (optional).
- RS485 serial communication Modbus
- ATEX II2G (GD with optional adapter) and SIL 2 (3) (EN50402 / EN61508 TUV approved)

## SMART S-IR

(DOUBLE SENSOR (IR+CAT) & SINGLE HYBRID OUTPUT)

Ex II2G (GD with optional adapter)

- Double sensor in one head
- Hybrid sensor technology integrated in the same sensor head: Catalytic + Infrared.
- Single 4-20 mA 3-wire output and 2 relay output with optional HART communication modem. or
- Single 4-20 mA 3-wire output and 3 relay output (optional).
- RS485 serial communication Modbus
- NDIR 7 Pins (OEM version) available
- ATEX II2G (GD with optional adapter) and SIL 2 (3) (EN50402 / EN61508 TUV approved)

## SMART S-MS

### DOUBLE SENSOR HEADS & DOUBLE OUTPUT



Designed to meet with the toughest industrial requirements, the **SMART S-MS** allow monitoring flammable contents in harsh environments.

They offer an 8 digits back-lit display and 5 mode status LEDs for the gas concentration reading.

They feature non intrusive calibration for an accurate and easy adjustment either via Hall-effect switches or IrDA interface and keypad, without opening the instrument and declassifying the area.

**SMART S-MS** is a unique series of gas detectors with a capability of two heads with inside one sensor with different technology or different gas (or two sensors in one head but for the same gas).

This gives the possibility to have two independent sensor output that can be confronted.

The detectors are complying with SIL3 SW and SIL2 HW.

**SMART S-MS** feature:

- **Double sensor heads**
- **Single head with double technology (optional)**
- **Double 4-20 mA 3-wire output and 2 relay output with optional HART communication modem or Double 4-20 mA 3-wire output and 3 relay output (optional)**
- **RS485 serial communication Modbus**
- **ATEX II2G (GD with optional adapter) and SIL 2 (3) (EN50402 / EN61508 TUV approved)**

### SINGLE SENSOR & SINGLE OUTPUT

## SMART S-SS

Designed to meet with the toughest industrial requirements, **SMART S-SS** allow monitoring toxic and flammable contents in harsh environments.

They offer an 8 Digits back-lit display and 5 mode status LED's for the gas concentration reading and feature non intrusive calibration for an accurate and easy adjustment either via Hall-effect switches or IrDA interface and keypad, without opening the instrument and declassifying the area.

The detectors are complying with SIL3 SW and SIL2 HW.

**SMART S-SS** feature:

- **Single sensor technology (Catalytic, Electrochemical Cell, Smart Infrared).**
- **Single 4-20 mA 3-wire output and 2 relay output with optional HART communication modem or Single 4-20 mA 3-wire output and 3 relay output (optional).**
- **RS485 serial communication Modbus**
- **ATEX II2G (GD with optional adapter) and SIL 2 (3) (EN50402 / EN61508 TUV approved)**



## SMART S-IR

### DOUBLE SENSOR (IR+CAT) & SINGLE HYBRID OUTPUT



**SMART S-IR** series gas detectors employ a high performing Infrared sensor detect flammable gases (% LEL) with two sensors technology

They offer an 8 digits back-lit display and 5 mode status LEDs for the gas concentration reading and feature non intrusive calibration for an accurate and easy adjustment either via Hall-effect switches or IrDA interface and keypad, without opening the instrument and declassifying the area.

**SMART S-IR** series has 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. The detectors are complying with SIL3 SW and SIL2 HW.

- **Double sensor in one head**
- **Hybrid sensor technology integrated in the same sensor head: Catalytic + Infrared.**
- **Single 4-20 mA 3-wire output and 2 relay output with optional HART communication modem or Single 4-20 mA 3-wire output and 3 relay output (optional).**
- **RS485 serial communication Modbus**
- **NDIR 7 Pins (OEM version) available**
- **ATEX II2G (GD with optional adapter) and SIL 2 (3) (EN50402 / EN61508 TUV approved)**

## SMART S-TX

### SENSING

Pellistor  
Electr. Cell  
NDIR  
Solid Electrode E.C.  
VID (under development)

### COMMUNICATION

HART protocol Modem  
ModBus protocol (RS485)  
2 x 4-20 mA (2 gases  
and/or 2 technologies)  
1 x 4-20 mA (1 gas + 1 tech)  
1 x 4-20 mA (Dual hybrid output,  
same gas different technology)  
2 or 3 relays  
Wireless (under development)



### HEADS

1 head (1 sensor)  
2 heads (2 sensors)  
1 head (2 sensors)  
1 ATEX antenna  
(under development)

### CERTIFICATIONS

ATEX  
SIL 2  
IIGD (with adapter)

**PERHAPS THE MOST POWERFUL GAS TRANSMITTER  
SURELY THE BEST COST-EFFECTIVE SOLUTION**

### Optionals



XD/I enclosure (for S-IR)






GD adapter






Modem Hart

### Sensor selection for Smart "S"

Smart S-MS

Genius (Ir + Pell)

Genius (Pell + Pell)

Genius (Ir-CO2) + (E.C.-CO)

### Sensor by N.E.T. ([www.nenvitech.com](http://www.nenvitech.com))

Smart S-SS	
	
Pell matched	Pell single
	
IrNet Pro 20 mm / 32 mm	
	
E.C. 20 mm / 32 mm	




Smart S-IR

Genius (Ir + Pell)

IrNet 7 Pin 20 mm / 32 mm

Iris 7 pin 32 mm



**Technical specifications**

Technical specifications	S-MS	S-SS	S-IR
Sensing element	Pellistor sensors for flammable gas, Electrochemical cells for toxic gas, IR sensors for flammable and CO2		IR + Pellistor sensors for flammable gases
Measuring range	% LEL for flammable ppm for toxic ,% vol for O2 and CO2		% LEL % Vol. for flammable
Power supply	12-24Vdc -20% +15%		
Consumption at 24 Vdc	160 mA min. 220 mA max (IR+Pell.)	Pellistor: 100 mA (medium); 160 mA (max) E.C. 70 mA (medium); 130 mA (max) IR: 110 mA (medium);160 mA (max)	160 mA min. 220 mA max (IR+Pell.)
Visual indications	7 LED indications: Power (green), Fault (yellow), Al.1, Al2, Al.3 (red), S1 (green) (sensor1/RS485 indication) and S2 (green) (sensor 2)	6 LED indications: Power (green), Fault (green), Al.1, Al2, Al.3 (red), S1 (yellow) (RS485 indication)	7 LED indications: Power (green), Fault (yellow), Al.1, Al2, Al.3 (red), S1 (green) (sensor1/RS485 indication) and S2 (green) (sensor 2)
Display characteristics	Dot matrix 8 alphanumeric digits, 4,5 mm high, 2,5 mm width		
Proportional analog output (optional)	2 x 4-20 mA (300 Ω max; 200 Ω typical)	4-20 mA (300 Ω max; 200 Ω typical)	
Proportional Serial Output	RS485 and proprietary protocol for addressable gas control panel. 2 addresses are to be reserved.	RS485 and proprietary protocol for addressable gas control panel	RS485 and proprietary protocol for addressable gas control panel.
Relay outputs	2 relays with tension free changeover contact 24V-1A (optional card with 3 relays)		
Accuracy	<±5% full scale (according to IEC 60079-29-1). Typically < 2% full scale		
Repeatability	<±2% full scale		
Warm-up time	5 minutes		
Stabilization time	< 2 minutes		
Response time	t50 < 20 sec., t90 < 60 sec. (according to IEC 60079-29-1). Typically t50 < 10 sec., t90 < 30 sec.		
Storage temperature	-40°C ÷ +60°C		
Operating temperature	Average -25°C ÷ +55°C (or better depending on model, see detector's label)		
Relative humidity	20-90% RH / 40°C		
IP rating	IP 65		
Operative pressure	80-110 KPa		
Max. air velocity	6 m/s		
Weight	2500 g (max)		2000 g (big enclosure); 1200 g (small enclosure)
Dimension (approx)	L. 145 (max) H.190 D.130 mm	Small enclosure: L. 130 H.180 D. 90 mm Big enclosure: L. 145 H.190 D.130 mm	
Orientation	Detector shall be mounted sensor head downwards		
Detector certificates (ESR)	ATEX CESA 01ATEX053		
Sensor head certificates (ESR)	ATEX CESA 01ATEX066U		
EMC Reference Norms (pending)	EN 50270: 2006 EN 61000-6-3: 2007		

**Control panels**

		
Galileo SMS (ATEX & SIL 3)	Galileo 8/32 (ATEX & SIL 3)	Multiscan++S2 (ATEX & SIL 2)