sensitron
GAS EVOLUTION

SMART S
Premium Safety Line
SSS-SIR Gas detectors

**LARGE ENCLOSURE
LED DISPLAY**

MAIN FEATURES:

SINGLE OR DOUBLE SENSOR IN ONE HEAD
4-20 mA OUTPUT
RS485 MODBUS SERIAL COMM
HART COMMUNICATION MODEM (optional)
3 RELAY OUTPUTS
HYBRID SENSOR TECHNOLOGY (SIR)
FULL HOT SWAP SENSOR PERFORMANCE
SENSOR END OF LIFE

SIL 2 (SIL 3)
(EN 50402 & IEC 61508 parts 1 to 7)
TUV APPROVED

Ex

ATEX
Ex
NOTIFIED

I'm "GENIUS"

**THE NEW HYBRID
TECHNOLOGY OUTPUT
(PELL + NDIR)**

www.nenvitech.com

LCD DISPLAY

SMART SSS SINGLE SENSOR HEAD & SINGLE OUTPUT

Designed to meet with the toughest industrial requirements, **SMART SSS** 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; they feature non intrusive calibration for an accurate and easy adjustment either via Hall-effect switches without opening the instrument and declassifying the area. A special calibration keypad is available.

The detectors are complying with SIL3 SW and SIL2 HW.

SMART SSS features:

- **Single 4-20 mA 3-wire output and 3 relay outputs**
- **RS485 serial communication Modbus**
- **Optional HART communication interface**
- **Full Hot Swap sensor optional performance**
- **Sensor End of Life warning**
- **ATEX II2G and SIL 2 (3) certified (EN50402 / EN61508 approved)**

SMART SIR DOUBLE SENSOR SINGLE HEAD, SINGLE *HYBRID* OUTPUT

SMART SIR gas detectors employ a high performing double sensor technology for flammable gas detection.

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 without opening the instrument and declassifying the area. A special calibration keypad is available.

The **SMART SIR** 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.

SMART SIR features:

- **Hybrid sensor technology integrated in one sensor head: Catalytic + Infrared.**
- **Single 4-20 mA 3-wire output and 3 relay outputs. Optional HART communication interface**
- **RS485 serial communication Modbus**
- **Full Hot Swap sensor optional performance**
- **Sensor End of Life warning**
- **NDIR 7 Pins (OEM version) available**
- **ATEX II2G (GD with optional adapter) and SIL 2 (3) (EN50402 / EN61508 approved)**

SMART "S" LINE

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

COMMUNICATION / OUTPUTS
HART protocol Modem (not for SMS)
ModBus protocol (RS485)
2 x 4-20 mA (2 gases
    and/or 2 technologies)
1 x 4-20 mA (Dual hybrid output,
    same gas different technology)
3 relays
Wireless (under development)

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

CERTIFICATIONS
ATEX IIG
SIL 2
IIGD (with adapter)

Optionals

Small enclosure	*GD and IP67 adapter*	Modem Hart

Sensor selection for Smart "S"

Sensor by N.E.T. (www.nenvitech.com)

GENIUS DOUBLE SENSOR TECH. (S3 HEAD SERIE)	NET SINGLE SENSOR TECHNOLOGY (S4 HEAD SERIE)		
Genius (Ir + Pell)	Pell matched	IrNet Pro 20 mm / 32 mm	E.C. 20 mm / 32 mm

THE NEW HYBRID TECHNOLOGY (SMART SMS vs. SMART SIR)

Two 4-20 mA Output	One "*Hybrid*" 4-20 mA Output
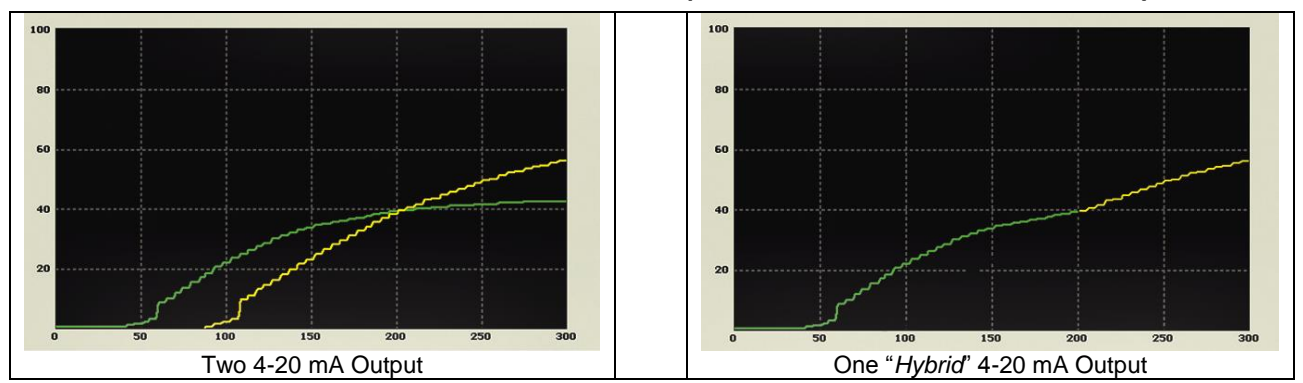
Technical specifications

	SSS	SIR
Sensing element	Pellistor sensors for flammable gas, Electrochemical cells for toxic gas, Dual Output Pyro IR sensors for flammable and CO2	Dual Output Pyro IR + Pellistor sensors for flammable gases
Measuring range	100% LEL for flammable, ppm for toxic ,% Vol. for O2 and CO2, %vol for CH4	100% LEL % Vol. for flammable
Power supply	12-24Vdc -20% +15%	
Consumption at 24 Vdc	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	6 LED indications: Power (green), Fault (green), AI.1, AI2, AI.3 (red), D1 (yellow) (RS485 indication)	7 LED indications: Power (green), Fault (yellow), AI.1, AI2, AI.3 (red), D1 (green) (sensor1/RS485 indication) and D2 (green sensor 2)
Display characteristics	Dot matrix 8 alphanumeric digits, 4,5 mm high, 2,5 mm width	
Proportional analog output	1 x 4-20 mA (300 Ω max; 200 Ω typical); optional Transmitter Hart	
Proportional Serial Output	1 x RS485 and proprietary protocol for addressable gas control panel	
Relay outputs	3 relays with tension free changeover contact 24V-1A (non latching relay)	
Resolution	0,5% Full scale	
Warm-up time	2 minutes	
Stabilization time	60 minutes for calibration	
Storage temperature	-25°C ÷ +60°C (or limits of the sensor)	
Operating temperature	-40°C ÷ +60°C (+65°C or 75°C on request) -20°C ÷ +50°C for cells	
Relative humidity	20-90 % Rh / 40° C (5-95% RH non condensing, on request)	
IP rating	IP 65 (IP67 with: STGD/AD3 adapter and IP67 cable gland)	
Enclosure material	Aluminium or Stainless Steel AISI316	
Input cable	2 x ¾" NPT or M25	
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)	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 CESI 01ATEX053 (ESR) ATEX CESI 01ATEX084 (EN 60079-29-1)	
Sensor head certificates (ESR)	ATEX CESI 01ATEX066U	
EMC Reference Norms *(pending)*	EN 50270: 2006 EN 61000-6-3: 2007	
Safety Integrity Level	SIL 2 (SIL 3 SW)	

Detector performance, depending on the sensor head type

	CAT S4XXX series		IR S4XXX series		CELL S4XXX series		SIR HYBRID S3XXX series	
	Ch4	**Other gases**	**Ch4**	**Others gases**	**CO**	**H2S**	**Ch4**	**Others gases**
Accuracy	±2% FS	±2,5%FS	±2% FS	±2% FS	±1% FS	±2% FS	±2% FS	±2% FS
Repeatability	±2% FS	±5% FS	±5% FS	±5% FS	±3% FS	±5% FS	±2% FS	±5% FS
Response time (t90)*	< 9sec	< 30sec	< 25sec	< 60sec	< 60sec	< 60sec	< 9sec	< 20sec
Sensor head material	Steel AISI316							

(*) According to IEC 60079-29-1 Paragraphs 5.3.3 & 5.4.16