



# HYDROGEN SULPHIDE GAS ANALYSER

## NOVASULF™ HG 300 SERIES

### IP.65 DETECTION MODULE INTRINSIC SAFE ATEX STANDARD ELECTRONIC MODULE 19" RACK REMOTE INSTALLATION

#### TYPICAL APPLICATIONS

- Offshore Platforms
- Sour Gas Treaters
- Amine Treaters
- Stack Gas Monitoring
- Fuel Gas to Boilers
- Gas Pipeline Monitoring
- Storage Tanks Monitoring
- Ammonia Plants
- Ethylene/Propylene Plants
- Reformer Recycle Gas

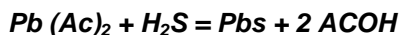
#### SPECIAL FEATURES

- ✓ ASTM D4080, D4084, D4323 compliance
- ✓ software SIL2 certified
- ✓ Interference free (selective to H<sub>2</sub>S only)
- ✓ Wide rangeability (50 PPB up to 600 PPM without dilution)
- ✓ Fibre optic technology
- ✓ Microprocessed electronics (PC 104)
- ✓ Multiplexing capability (up to 4 detection modules)
- ✓ Multistreaming capability (up to 4)
- ✓ Very short response time (typically 20 s at 5 PPM)
- ✓ No zero/span drifts
- ✓ 16 keys keypad TOUCHSENSE™ technology
- ✓ PPB sensitivity
- ✓ Dedicated failure alarms
- ✓ 1 analog output (4-20 mA) per detection module



#### OPERATING PRINCIPLE

Hydrogen sulphide reacts specifically in presence of lead acetate by forming lead sulphide (Pbs)



The NOVASULF™ HG 400 Series measures the speed of darkening resulting from the formation of lead sulphide on the tape by means of a fibre optical photo detector. At the beginning of each measurement cycle, the tape advances to a new blank portion (spot) of the tape. As soon as the H<sub>2</sub>S reacts on the tape, the speed of darkening measurement is done by comparison with the calibration curve stored in the instrument memory. Several measurements are done on the same spot, up to the saturation level.

When saturated, the tape advances for a new measurement cycle. During the tape advances the last measurement is hold in the instrument memory. Using this method no zero or span drifts can occurs. Furthermore measurements can be achieved even on already darkened (polluted) spots as far as it does not reach the saturation point.

By measuring every milliseconds and averaging every seconds, the instrument response time is very fast even on very low concentrations. The H<sub>2</sub>S concentration is directly digitally displayed in required units (PPB, PPM...). Several analog outputs are available including process and instrument failure relay contacts.

#### AVAILABLE MODELS

- ⇒ **MR 301** : Rangeability from 0-100 PPB up to 0-600 PPM -  
Detection Module - Sizes : W 370 x H 450 x D 210mm - Weight : 10 Kg approx.  
19" Electronic Module - Sizes : W 270 x H 177 x D 340mm - Weight : 5 Kg approx.

## STANDARD SPECIFICATIONS

- Principle	: Colorimetric.
- Detector	: Single photo detector acting as measure and reference linked to a fibre optic cable. Tape illuminated by a focused LED via the same fibre optic path.
- Electronics	: PC 104 type. Intel Celeron 400 MHz microprocessor. 256 Mb SDRAM embedded memory. 512 Mb compact Flash for the operating system, the application, the customer parameters and the calibration curves storage.
- Software	: C++, Windows™ XPe based.
- Range unit	: PPB/V, PPM/V, PPB/W, PPM/W, mg/m <sup>3</sup> , mg/l – depending of the application.
- Rangeability	: 0-50 PPB up to 0-20% depending on the selected model.
- Sensitivity	: 2 % of the concerned range.
- Response time	: Between 20 s and 120 s, depending on the range. Full scale deviation.(typically 20 s at 5 PPM)
- Linearity	: ± 2 % of calibration full scale. ± 3% below 10% of scale.
- Reproducibility	: ± 2 % of calibration full scale. ± 3% below 10% of scale.
- Accuracy	: ± 2 % of calibration full scale. ± 3% below 10% of scale.
- Zero/span drift	: None due to single photodetector technique.
- Multiplexing capability	: Up to 4 detection modules.
- Multistreaming capability	: Up to 4. Using up to 4 detection modules (optional) with only one electronic module.
- Process alarm	: 1 per stream. Adjustable level. Potential free relay contacts 3A 230 VAC rated in N.O. or N.C. Relay coil normally energised or de-energised (programmable).
- Instrument failure alarm	: 1 per stream. Potential free relay contacts 3A 230VAC rated in N.O. or N.C. Relay coil normally energised. Dedicated alarms available on the digital output (RS 485).
- Analog output(s)	: 1 as standard - up to 4 on option. 4-20 mA self powered, galvanically isolated, 1000 ohms max, loop load.
- Built in keyboard	: 16 keys, optical TOUCHSENSE™ technology.
- Built in display	: Alphanumeric 4 lines, 20 characters each, back lighted. - H <sub>2</sub> S concentration. - Functional parameters
- Power supply	: 85 up to 264 VAC - 47 up to 440 Hz. 120 VDC to 370 VDC.
- Power rating	: 40 VA max.
- Area classification	: <i>Detection Module :</i> <b>CE 0080 II 1 GD</b> <b>c Ex ia IIC T4</b> <b>c Ex iaD 20 IP66 T135°C</b> <b>c Ex is op Ga IIC T4 **</b> <i>** if optic fiber modules</i>
- Area classification	: <i>Electronic Module : Safe area – 19 inches rack</i>
- Ambient temp.	: - 20 °C à/to + 40°C
- Sensing tape	: Lead acetate impregnated cellulosic paper CHEMCOLOR™. 60m roll. (200 feet).
- Tape life	: Between 14 and 60 days depending on the range and application.
- Storage life	: 5 to 7 years, under original sealed envelope.
- RFI protection	: Conform to EN 50270 : 2006 (Product type 2)
- Sample flow rate	: 0.15 up to 0.30 l/min at 1.10 bara depending on the range and application. Flow alarm switch optional.
- Sample temperature	: 0°C up to + 40°C (gas phase).
- Sample humidifier	: 5 % acetic acid in distilled water, to optimize the chemical reaction on the tape. Consumption 5 to 10 ml per week depending on the sample nature. Low level alarm optional.
- Analyser vent	: To atmosphere. NO BACK PRESSURE OR VACUUM ALLOWED, which would affect the measure. Vent compensation system optional.
- Dilution systems	: Above 600 PPM for HG 302 and HG 303.
- Dilution gas	: Nitrogen, 0.5 up to 5 L/min at 1.10 bara depending on the application.
- Ambient working temp.	: 0°C up to + 40°C - ± 2°C stability for optimum performances.
- Storage temperature	: Analyser : -15°C up to + 60°C Sensing tape : -10°C up to + 60°C Humidifying solution: 0°C up to + 40°C.
- Relative humidity	: 90 % max. non condensing.
- Material	: 316 L Stainless steel, all material compatible with H <sub>2</sub> S.
- Connections	: 1/8 " OD, 1/4" NPT Female

In our continuing research and development, we reserve the right to make any model revisions and specification changes without prior notice



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### LOCAL REPRESENTATIVE

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