

# MONOCOLOR 1N and 2Ex Hydrogen Sulfide Gas Analyzer

**H<sub>2</sub>S gas analysis with the colorimetric measuring principle**



Two designs are available:

### MONOCOLOR 1N

- 19" slide-in unit, 6 HU for non-Ex areas, IP 20
- When used in a hazardous area the valid EC-Type Examination Certificate "PTB 02 ATEX 2177 X" has to be observed.
- H x W x D: approx. 265 x 483 x 310 mm (approx. 10.5 x 19 x 12 in)
- Weight: approx. 20 kg

### MONOCOLOR 2Ex

- Wall mounting case for Ex zone 1, IP 65, EEx de (ib) IIB T4
- When used in a hazardous area the valid EC-Type Examination Certificate "PTB 02 ATEX 2177 X" has to be observed.
- H x W x D: approx. 565 x 415 x 260 mm (approx. 22 x 16 x 10 in)
- Weight: approx. 38 kg

### Principle of measurement

The H<sub>2</sub>S gas analyzer MONOCOLOR operates semi-continuously by the colorimetric measurement principle. H<sub>2</sub>S is measured with a dry reaction on a test paper strip which is saturated with a chemically selective color indicator (lead acetate or silver nitrate). The intensity of the test paper strip is proportional to the mean concentration and to the flowrate and will be determined by comparison between gased or not gased test paper strip.

This measuring principle is very selective, even in case of different sulfur compounds in the sample gas and allows the measurement of smallest H<sub>2</sub>S concentrations.

### Measuring ranges

- Measuring ranges between 0.8 ppm (approx. 1.25 mg/m<sup>3</sup>) and 1.6 vol % (approx. 25 g/m<sup>3</sup>)
- Measuring range switching possible with MONOCOLOR 1N
- Measuring ranges higher than 160 ppm (approx. 250 mg/m<sup>3</sup>) are realised by using an integrated proportioning device (option)

### Typical applications

- Desulfurization plants
- Natural gas purity monitoring
- Sewage treatment gas
- Land fill gas
- Pulp and paper industry
- Ambient air monitoring
- Coke over gas
- Emission monitoring

Technical Data	MONOCOLOR 1N	MONOCOLOR 2Ex
Principle of measurement	colorimetric (discoloration of test paper)	
Measuring components	H <sub>2</sub> S (hydrogen sulfide)	
Measuring ranges	as per customer specification, from 0 to 0.8 ppm (approx. 0 ... 1.25 mg/m <sup>3</sup> ) to 0 ... 1.6 vol % (approx. 0 ... 25 g/m <sup>3</sup> )	
Response time, T <sub>90</sub>	9 min. (for measuring ranges higher than 0 ... 6.4 ppm)	
Reproducibility	≤ 3 % of measuring range end value (for 50 % of measuring span)	
Zero drift	≤ 2 % of measuring range end value per week	
Sensitivity drift	≤ 3 % of measuring range end value per week (for measuring values up to 50 % of measuring span)	
Linearity deviation	< 3 % of measuring range end value (for measuring values up to 50 % of measuring span) > 5 % and < 15 % of measuring range end value (for measuring values higher than 50 % of measuring span)	
Power supply	115 or 230 V (+10 %, -15 %) 50/60 Hz (±4 %)	115 or 230 V (+10 %, -15 %) 50/60 Hz
Influence of ambient atmospheric pressure	none	
Ambient temperature	+5 ... +40 °C (+40 ... +105 °F)	
Influence of ambient temperature	≤ 2% of measuring range end value/10 K	≤ 3 % of measuring range end value/10 K
Output signal	0, 2, 4, ... 20 mA, load 500 Ω galvanically isolated only with linearisation	4 ... 20 mA, load < 750 Ω intrinsically safe; out of external isolating transformer, which is installed outside the Ex area
Failure indication	via contacts, in case of pressure drop in gas line or end paper	via analog output at 1.6 mA, in case of measuring signal < 3.6 mA, torn paper or end of paper, defect lamp, motor break down, pressure drop in gas line
Sample gas flow	15 ... 60 l/h (4 ... 16 gal/hr)	
Sample gas inlet pressure	60 ... 120 hPa (9.9 ... 1.7 psi)	
Sample gas temperature	+5 ... +45 °C (+40 ... +113 °F)	
Purge gas flow	> 60 l/h (> 16 gal/hr), (H <sub>2</sub> S-free air)	
Gas connection (Standard: SWAGELOK)	metric (imperial*)	metric (imperial*)
Gas inlet	6 mm (1/4")	6 mm (1/4")
Gas outlet	6 mm (1/4")	12 mm (1/2")
Case purging	6 mm (1/4")	8 mm (3/8")
Bypass	8 mm (3/8")	
EMI tested according to	EN 50081, part 1 and 2 EN 50082, part 1 and 2	EN 50081, part 2 EN 50082, part 1 and 2

\*) Option