

PRODUCT DATA SHEET

933RM UV Hydrogen Sulfide Analyzer

Measurement of hydrogen sulfide (H₂S), carbonyl sulfide (COS), and methyl mercaptan (CH₃SH) in a convenient, rack mount package

The 933RM features a unique sample conditioning system using frontal elution chromatography to separate and eliminate interfering species. This ensures an accurate analysis of the gas via direct-UV absorption spectroscopy for independent measurements of H₂S, COS, and CH₃SH. The 933RM delivers the same performance as the field-proven 933 analyzer and is designed for unattended operation for an extended time period.

Self-recovery

Two columns are employed in the 933RM. While the first column is conditioning the gas sample, the standby column is automatically regenerated.

Interference free measurements

The 933 utilizes a unique, proprietary frontal elution chromatography to separate H₂S, COS and CH₃SH from interfering components in natural gas.

Accurate performance

Non-dispersive, dual-beam hollow cathode ultraviolet (UV) photometric detection of H₂S (optional COS and CH₃SH) provides accuracy better than ± 0.25 ppm.



KEY BENEFITS

- Ranges from 0 to 5 parts per million (ppm) to 0 to 100 ppm
- Fully integrated analyzer and sample system
- Direct measure of H₂S, no scrubbing
- Self-recovery after high concentration H₂S events
- Fast response time to increasing or decreasing H₂S concentrations
- Multi-component capability (CH₃SH and COS options available)
- No consumables, reagents, or disposables other than zero gas
- Rack-mount package for general purpose area mounting

APPLICATIONS

- Natural gas sweetening
- Amine contactor overhead
- Natural gas custody transfer stations
- Natural gas pipelines
- Synthetic natural gas (SNG)
- Natural gas blending stations
- CO₂ purity
- Biogas

KEY MARKETS

- Natural gas
- Refining
- Chemical and petrochemical
- Industrial gas

PERFORMANCE SPECIFICATIONS

Methodology	Proprietary frontal elution sampling; nondispersive UV analysis for H ₂ S, COS and CH ₃ SH
Full scale range	ppm ranges are standard; mg/nm ³ and other ranges are available
Standard range	H ₂ S: 0 to 25 ppm min. to 0 to 100 ppm max. COS option: 0 to 100 ppm min. to 0 to 500 ppm max. CH ₃ SH option: 0 to 50 ppm min. to 0 to 250 ppm max. Higher ranges are available upon request
Low range	H ₂ S: 0 to 5 ppm min. to 0 to 50 ppm max. COS option: 0 to 25 ppm min. to 0 to 250 ppm max. CH ₃ SH option: 0 to 15 ppm min. to 0 to 100 ppm max.
Accuracy	Standard range: ±2% of full scale Low range: ±5% of full scale
Repeatability	Standard range: ±2% of full scale
Zero drift	Standard range: Less than ±2% of full scale in 24 hours Low range: Less than ±5% of full scale in 24 hours
Response time, excluding sampling system	H ₂ S: Less than 30 seconds to 90% response COS option: Less than 60 seconds to 90% response CH ₃ SH option: Less than 180 seconds to 90% response
Zero gas	Instrument zero purity carbon dioxide; UHP nitrogen, or UHP methane Minimum auto-zero interval is once per 24 hours
Sampling pressure requirement	830 kPag to 13,790 kPag (120 psig to 2,000 psig)
Typical flow	2.5 L/min. (5 SCFH)
Outputs	Up to four isolated 4-20 mA, loop or self-powered; four non-isolated 1 to 5 VDC; five independent sets of SPDT, Form C, potential free alarm relay contacts, 2 A at 240 VAC
Digital communication	RS485 Modbus port; RS232/RS485 service port
Power consumption	<500 W (analyzer only)
Power	104 to 132 VAC, 47 to 63 Hz, <3A 207 to 264 VAC, 47 to 63 Hz, <2A
Ambient temperature	0 to 40°C (32 to 104°F)
Dimensions (W x H x D)	355 x 482 x 560 mm (13.975 x 18.975 x 22.047 in.)
Weight	Approximately 28 kg (62 lbs)
Options	Gas/liquid (glycol) separating filter, other measuring ranges, COS and CH ₃ SH measurement, pressure compensation, and up to 4 V/I outputs 1. 0.6% maximum water content is based on a 35°C (95°F) maximum water dew point temperature at 830 kPag (120 psig)

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