AMETEK®
PROCESS INSTRUMENTS

MEASURES: H_2S, COS, CH_3SH (H_2 and CO_2 optional)

PRODUCT DATA SHEET

9933 Gas Analyzer

Measures natural gas impurities, such as hydrogen sulfide, carbonyl sulfide, and methyl mercaptan. Analysis of hydrogen and carbon dioxide concentrations optional.

The 9933 builds upon the proven success and performance of the 933 line of gas analyzers, while providing fully redesigned enclosures and user interfaces.

The analyzer is wall mountable, with integrated heater and sample conditioning system, designed to operate within a wide ambient temperature range.

The 993X is also available in multiple configurations, to meet specific end user hazardous location requirements.

It is capable of measuring additional components that may be present in traditional natural gas streams, including hydrogen and carbon dioxide.

Interference free measurements
The 9933 utilizes a unique, proprietary frontal elution chromatography to separate hydrogen sulfide (H_2S), carbonyl sulfide (COS), and methyl mercaptan (CH_3SH) from interfering components in natural gas. Two long-life columns are employed in the 9933. While the first column is conditioning the gas sample, the standby column is automatically regenerated.

Accurate performance
Non-dispersive, dual-beam hollow cathode ultraviolet (UV) photometric detection of H_2S (optional COS and CH_3SH) provides accuracy better than ±0.25 ppm. Infrared and



KEY BENEFITS

- H_2S Range minimum 0 to 3 parts per million
- Measurement of other sulfur compounds
- Integrated sample system
- Direct measurement of H_2S
- Fast response to changing H_2S
- No carrier gas or stripping media
- Designed for outdoor installation (IP66 and -20 to 50°C rated , with 60°C option available)
- Optional H_2 & CO_2 measurements

APPLICATIONS

- Natural gas processing/transmission/storage
- Hydrogen addition
- Biogas/Biomethane
- Carbon Dioxide purity

KEY MARKETS

- Natural gas
- Refining and Petrochemical

PERFORMANCE SPECIFICATIONS

Methodology	Proprietary frontal elution chromatography; nondispersive UV analysis for H_2S, COS and CH_3SH; optional H_2 measurement via thermal conductivity (TCD) and CO_2 via infrared (IR).
Measurement units	ppm measuring units are standard; mg/Nm³ and other units are available; contact factory for custom measurement unit(s)
Standard range	H_2S: 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_3SH option: 0 to 50 ppm min. to 0 to 250 ppm max. H_2 option: 0-10% CO_2 option: 0-5% Other ranges are available upon request. Please contact AMETEK.
Extra Low range	H_2S: 0 to 3 ppm min. to 0 to 15 ppm max. COS option: 0 to 15 ppm min. to 0 to 50 ppm max. CH_3SH option: 0 to 9 ppm min. to 0 to 30 ppm max.
Accuracy	Standard range: ±2% of full scale. Extra Low range: ±5% of full scale, with best accuracies of ±0.25ppm H_2S, ±1ppm COS, ±0.75ppm CH_3SH. H_2 option: application dependent. CO_2 option: ±5% full scale range
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_2S: Less than 30 seconds to 90% response. COS option: Less than 60 seconds to 90% response CH_3SH option: Less than 180 seconds to 90% response
Zero gas	UHP: Nitrogen, carbon dioxide, or methane
Sample pressure	Minimum 690 kPag (100 psig); maximum 10,342 kPag (1,500 psig)
Typical sample flow	2.5 L/min. (5 SCFH)
Outputs	Up to four isolated 4-20 mA, self-powered. Five (5) Form A (SPST), Normally Open (NO), user configurable as Status Alarms and Process Alarms
Data communication	(1) RJ-45 Ethernet Modbus-TCP port, (1) RS485 Modbus-RTU port
Power requirements	120 VAC (+/- 10%), 50/60 Hz; 240 VAC (+/- 10%), 50/60 Hz; <440VA (standard temperature oven), <550VA (high temperature oven)
Enclosure	Enclosures and back panel are 316SS for most configurations. The Exd electronics enclosure is an aluminum alloy
Ingress protection	IP66 & NEMA 4X
Ambient temperature	-20 to 50°C (-4 to 122°F); 60°C (140°F) configuration available for some applications. Contact AMETEK for more information.
Physical dimensions (W x H x D)	Standard: 839 x 1169 x 318 mm (33" x 46" x 12.5") Explosion proof Zone 1: 1270 x 1195 x 334 mm (50" x 47" x 13.2")
Weight	Standard: Approximately 100kg (220 lb) Purged Zone 1: Approximately 105 kg (235 lbs) Explosion proof Zone 1: Approximately 182 kg (400 lbs)
Certifications	ATEX / IECEx / UKEx Zone 2 ATEX / IECEx Zone 1 - purged and Exd versions cETLus Class 1, Division 2, Groups A, B, C, D
Options	Gas/liquid (glycol) separating filter, other measuring ranges, COS, CH_3SH, H_2 and CO_2 measurements.

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One of a family of innovative process analyzer solutions from AMETEK Process Instruments.
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