

# PRODUCT DATA SHEET

## 932 Multi-Gas Analyzer

Sophisticated ultraviolet (UV) photometer measures up to five UV-absorbing gas species for process monitoring and control

The 932 is a rugged, multi-component UV photometric gas analyzer housed in an explosion-proof package designed for a variety of gas monitoring and process control applications. Hydrogen sulfide (H<sub>2</sub>S) is frequently the primary measured component, along with sulfur dioxide (SO<sub>2</sub>). The 932 can also be configured to measure carbonyl sulfide (COS) and/or carbon disulfide (CS<sub>2</sub>), when end users are required to measure these sulfur species for regulatory or process efficiency reasons. COS and CS<sub>2</sub> can poison some catalysts used in sulfur recovery units, driving up operating expenses at the plant.

The 932 uses a dual beam design, with one detector used as a reference to reduce drift. Span drift is further minimized through the use of a hollow cathode lamp that is extremely stable over temperature changes and/or time. The hollow cathode lamps also have very narrow emission lines, improving linearity when compared to dispersive or non-dispersive broadband light sources.

The optical assembly in the 932 supports the simultaneous generation and detection of multiple wavelengths, enabling users to measure multiple analytes of interest, or even different ranges of a single analyte, with one analyzer. Many process applications require the detection of species which do not absorb in the UV spectrum. The 932 may optionally be incorporated with a thermal conductivity detector (TCD) for the measurement of hydrogen (H<sub>2</sub>), or infrared sensors for the measurement of hydrocarbons or carbon dioxide (CO<sub>2</sub>).

### Condensation solution

For those applications where sample condensation may occur, the 932 analyzer system is available with a heated cell option. The fully integrated heated cell ensures reliable dew point temperature control without running the risk of plugging, contaminating, or flooding the analyzer.



### KEY BENEFITS

- Measures up to five species simultaneously
- Couples with the Heated Acid Gas (HAG) probe sample handling system (no pump, no water removal)
- Fully parts compatible with 9xx suite of sulfur recovery analyzers
- Sample return to process (with HAG probe option)
- Minimal sample conditioning
- Dual-beam, dual-wavelength design
- Class I, Division 1 and ATEX II 2 G Hazardous Area Rating

### APPLICATIONS

- Gas plant amine treater inlet (H<sub>2</sub>S, CO<sub>2</sub>)
- Sour water stripper feeds to SRU (H<sub>2</sub>S, CO<sub>2</sub>, ammonia (NH<sub>3</sub>))
- Tail gas treater quench tower inlet (H<sub>2</sub>, SO<sub>2</sub>)
- Tail gas treater - absorber and quench tower outlets (H<sub>2</sub>S, COS, CS<sub>2</sub>, H<sub>2</sub>; H<sub>2</sub>S, SO<sub>2</sub>, H<sub>2</sub>)
- Chemical process application

### KEY MARKETS

- Hydrocarbon processing
- Refining
- Sulfur recovery units

## PERFORMANCE SPECIFICATIONS

<b>Methodology</b>	Multiple-wavelength, high-resolution, non-dispersive UV/VIS
<b>Full scale range</b>	ppm and % vol are standard, other ranges are available
<b>Accuracy</b>	±1.0% full-scale of standard ranges ±2.0% full-scale of standard ranges for the H <sub>2</sub> S+NH <sub>3</sub> application Optional (TCD) H <sub>2</sub> sensor for TGTU applications: ±2% on a 0-10% range
<b>Repeatability</b>	Better than ±0.5% of full-scale range
<b>Linearity</b>	Better than ±1% of reading for H <sub>2</sub> S
<b>Zero drift</b>	Better than 2% of full-scale range, with auto zero disabled, over 24-hour period
<b>Speed of response</b>	Typically less than 30s to T90 (excluding sample system)
<b>Number of gases</b>	Up to five
<b>Maximum sample cell pressure</b>	Application dependant
<b>Maximum sample gas temperature</b>	165°C (329°F)
<b>Zero gas</b>	Gas: Nitrogen or instrument air
<b>Typical sample flow</b>	Gas: 2.5 L/min (5 SCFH)
<b>Sample transport</b>	Application-dependant (options include HAG probe)
<b>Outputs</b>	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
<b>Digital communication</b>	RS485 Modbus port; RS232/RS485 service port
<b>Utility requirements</b>	120 VAC (104 to 132 VAC), 47 to 63 Hz, <3A; 240 VAC (207 to 264 VAC), 47 to 63 Hz, <2A
<b>Power consumption</b>	500 W maximum (with heated probe and cell), sample lines or additional heated sample components not included
<b>Ambient temperature</b>	0 to 50°C (32 to 122°F)
<b>Physical dimensions (W x H x D)</b>	1185 x 780 x 254 mm (46.5 x 30.7 x 9.97 in.)
<b>Weight</b>	Approximately 145 kg (320 lb)
<b>Approvals and certifications</b>	CEC Class I, Division 1, Groups B,C,D; Ex d IIB+H <sub>2</sub> T3 NEC Class I, Division 1, Groups B,C,D/Class 1, Zone 1, AEx d IIB+H <sub>2</sub> T3 CEC/NEC Class I, Division 2, Groups B,C,D; ExP (unit verification) ATEX: II 2G Ex db IIB+H <sub>2</sub> T3 Gb IECEX: DEK 12.0035x Ex db IIB+H <sub>2</sub> T3 Gb GOST: 1ExdIIBT3 Complies with all relevant European Directives

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