

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 (H₂S) is frequently the primary measured component, along with sulfur dioxide (SO₂). The 932 can also be configured to measure carbonyl sulfide (COS) and/or carbon disulfide (CS₂), when end users are required to measure these sulfur species for regulatory or process efficiency reasons. COS and CS₂ 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 (H₂), or infrared sensors for the measurement of hydrocarbons or carbon dioxide (CO₂).

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 (H₂S, CO₂)
- Sour water stripper feeds to SRU (H₂S, CO₂, ammonia (NH₃))
- Tail gas treater quench tower inlet (H₂, SO₂)
- Tail gas treater - absorber and quench tower outlets (H₂S, COS, CS₂, H₂; H₂S, SO₂, H₂)
- Chemical process application

KEY MARKETS

- Hydrocarbon processing
- Refining
- Sulfur recovery units

PERFORMANCE SPECIFICATIONS

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

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