

Model 930 H₂S in Sulfur Pit Analyzer

THE NEED

In many sulfur recovery units, produced sulfur is stored in liquid form in sulfur pits. Operators are increasingly aware that sulfur pits present potential danger to plant personnel and overall plant safety. It is therefore critically important to monitor H₂S in the vapor space of sulfur pits to ensure that it remains below the Lower Explosive Limit (LEL) (4.3% by volume). Additionally, the presence of rising concentrations of SO₂ in the sulfur pit vapor space provides an early indication of smoldering fires. Therefore, on-line, continuous monitoring of SO₂ can enable detection of such fires before they get out of control.

Backed by over thirty years of process and analyzer experience in sulfur recovery, AMETEK Western Research developed the Model 930 H₂S Vapor Space Analyzer for sulfur pit storage applications. The AMETEK-designed Model 930 has been field proven as one of the industry's most reliable instruments for monitoring H₂S and SO₂.

DIRECT MEASUREMENT

The Western Research® Model 930 uses our proprietary high resolution UV technology in a dual beam, multiple wavelength configuration. Resolution better than 0.02 nm is provided by high intensity, line source lamps. These sources emit at a fixed wavelength, providing great measurement stability, and emit low total power, removing the potential for sample photolysis. The dual beam configuration, combined with the reference measurement, ensures low noise performance, with minimal baseline and span drift.

The Model 930 analyzer samples the vapor space gas using proven technology. The sampling system has a sulfur knock-out at the probe to eliminate entry of excess sulfur vapor or liquid into the system. The sample is transported through an electrically traced sample line.

The Model 930 is a multicomponent analyzer that is configured for simultaneous measurement of both H₂S and SO₂. Sulfur vapor concentrations in the sample can also be monitored.



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APPLICATION

- Sulfur recovery, storage, and de-gassing

SUPERIOR BENEFITS

- Simultaneous, accurate measurement of both H₂S and SO₂
- Output alarms for H₂S (LEL) and SO₂ (smoldering fire)
- Common design with Model 900 (air demand) and Model 910 (stack gas)
- Exceptional baseline stability and sensitivity
- Advanced Sulfur Removal (ASR) Probe prevents sulfur plugging

PERFORMANCE SPECIFICATIONS

Methodology: Multiple wavelength, high resolution, nondispersive UV

Speed of Response: Standard, 90% rise time, 15 seconds (analyzer only)

Accuracy: $\pm 2\%$ of reading SO_2 ; $\pm 2\%$ of reading H_2S

Typical Range: 0 to 4% H_2S , 0 to 2% SO_2

Repeatability: Less than 1.0% of reading SO_2 ; less than 1.0% of reading H_2S

Stability: $\pm 0.4\%$ of reading SO_2 ; $\pm 0.4\%$ of reading H_2S

Zero Drift: 24 hours $\pm 2\%$ of reading SO_2 ; $\pm 2\%$ of reading H_2S

Calibration: H_2S and SO_2 outputs, factory calibrated

Sensitivity: $\pm 2\%$ of reading SO_2 ; $\pm 2\%$ of reading H_2S

Outputs: 4 to 20 mA H_2S , SO_2 (optional loop-powered 4 to 20 mA in place of self-powered)

Communications: RS 232 / RS 422 / RS 485 / Modbus

Power Consumption: 500 W (excluding sample line and vent line)

Approvals and Certifications:

NEC/CEC Class I, Division 2, Groups C & D
CENELEC EEx pd IIB T3

GOST 1ExpdIIBT3 (certification pending)

Complies with all relevant European Directives

GOST Pattern Approval

Electrical Requirements:

Nominal	Voltage range	Frequency range
120 VAC	105 to 132 VAC	47 to 63 Hz
240 VAC	209 to 264 VAC	47 to 63 Hz

Typical Flow: 3 to 5 L/min. (0.1 to 0.2 CFM)

Ambient Temperature: 40°F to 120°F (5°C to 50°C)

Sample Transport: Air aspiration

Instrument Air Minimum: 30 psig, flow 1 CFM Instrument quality air

Physical Dimensions (H x W x D): 61 x 44 x 12 in. (1554 x 1118 x 305 mm)

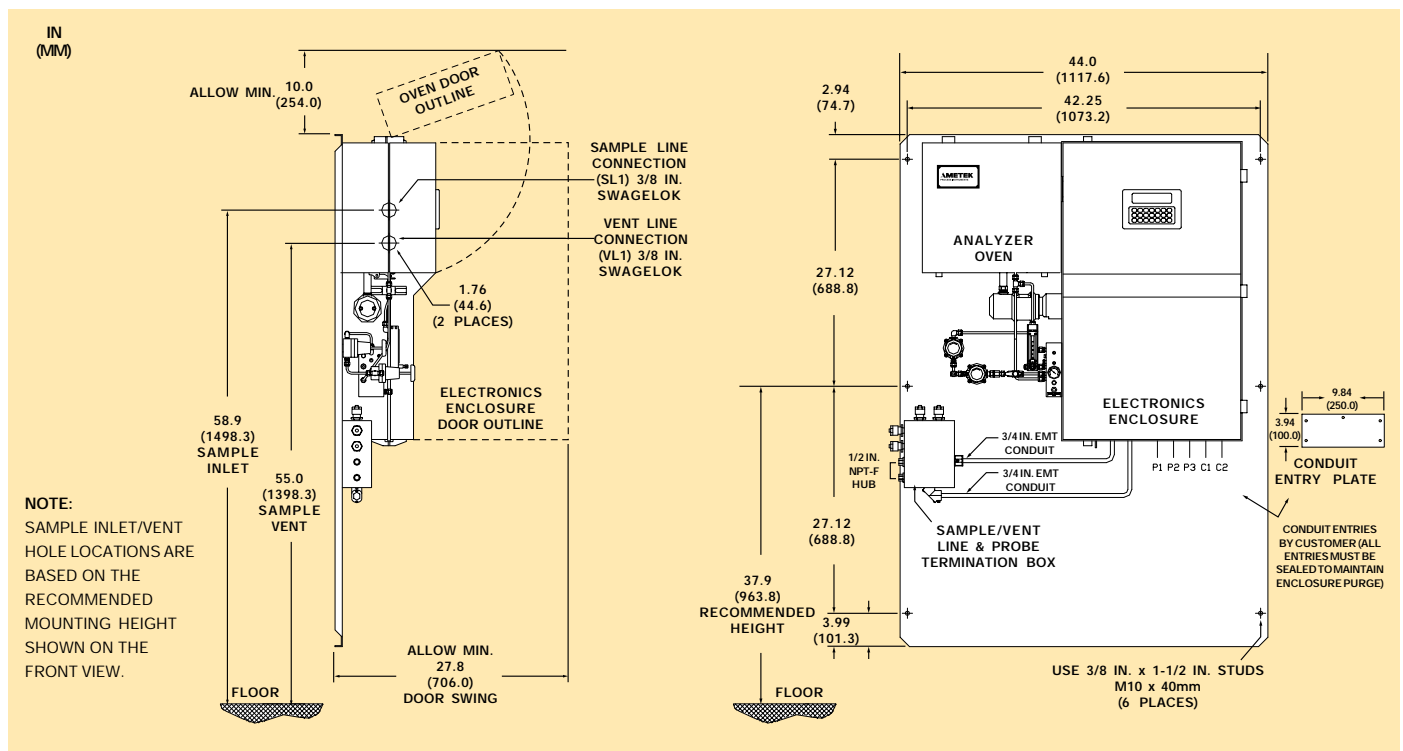
Weight: 250 to 350 lbs. (115 to 160 kg)

STANDARD FEATURES

Built-in resistance temperature device (RTD) control, with over-temperature protection of temperature zones for the: oven, sulfur condenser, sampling line, vent line

OPTION

Thermistor sensors



One of a family of innovative process analyzer solutions from AMETEK Process Instruments. Specifications subject to change without notice.



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