

## Model 930 H<sub>2</sub>S in Sulfur Pit Analyzer

### Benefits

- || Simultaneous, accurate measurement of both H<sub>2</sub>S and SO<sub>2</sub>
- || Output alarms for H<sub>2</sub>S (LEL and SO<sub>2</sub> 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

### 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 H<sub>2</sub>S 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 SO<sub>2</sub> in the sulfur pit vapor space provides an early indication of smoldering fires. Therefore, on-line, continuous monitoring of SO<sub>2</sub> 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 developed the Model 930 H<sub>2</sub>S 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 H<sub>2</sub>S and SO<sub>2</sub>.

### Direct Measurement

The AMETEK Model 930 uses 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 multi-component analyzer that is configured for simultaneous measurement of both H<sub>2</sub>S and SO<sub>2</sub>. Sulfur vapor concentrations in the sample can also be monitored.

### Application

- || Sulfur recovery, storage, and de-gassing



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## Performance Specifications

**Methodology:** Multiple wavelength, high resolution, nondispersive UV

**Typical Range:** 0 to 4% H<sub>2</sub>S, 0 to 2% SO<sub>2</sub> (other ranges available on request)

**Accuracy:** Better than 1% full scale

**Repeatability:** Better than 0.5% full scale

**Linearity:** Better than 1% full scale

**Response Time:** Typically less than 30s to T90 (excl. sample system)

**Sample Transport:** Air aspiration

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

**Temperature Control:** Independent control of four zones (oven, sample line, probe, vent line)

**Ambient Temperature:** 5° to 50°C (41° to 122°F)

**Instrument Air:** Minimum 413.6KPa (60 psig), 120 L/min (4.24 CFM), instrument quality air

**Power:** 120 VAC ±10%, 47-63 Hz or 240 ±10%, 47-63 Hz; 600 W for analyzer only excluding sample and vent line and ASR probe

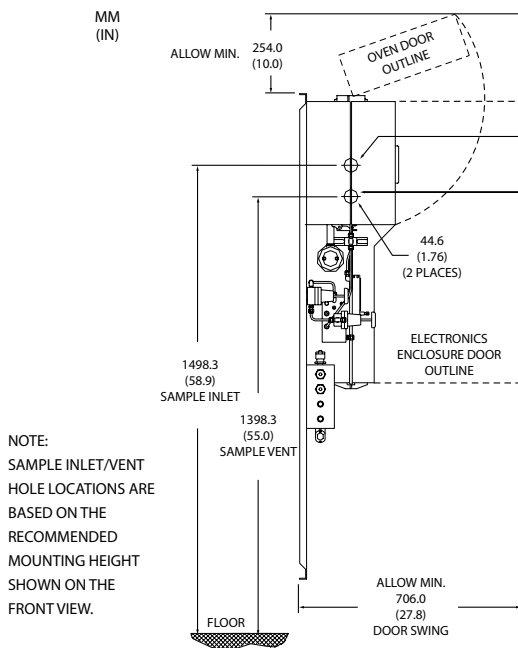
**Analog Outputs:** 4 to 20 mA self-powered (optional loop-powered), maximum of 4

**Communications:**  
RS422 with Modbus protocol  
RS485 optional  
Ethernet optional  
Relays 3 independent sets of SPDT relays alarm conditions

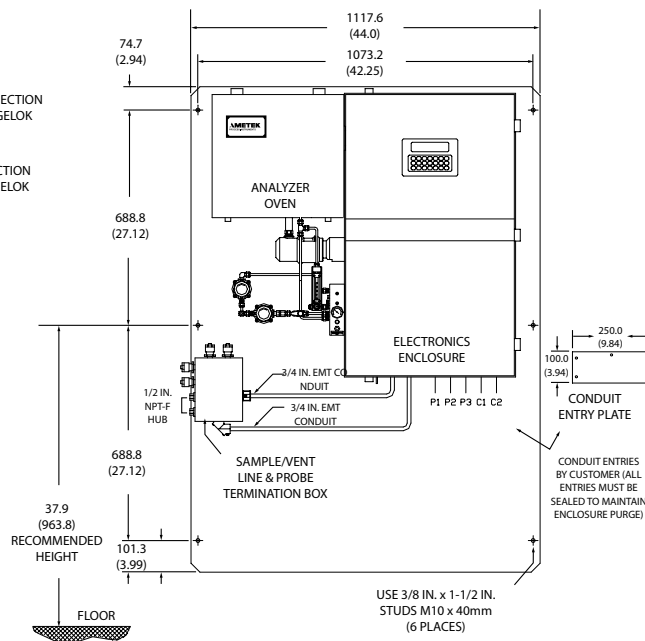
**Physical Dimensions:**  
1553.6 x 1117.6 x 306 mm  
(61.17 x 44 x 12 in.)

**Weight:** Estimated minimum 160 kg (350 lbs)

**Approvals and Certifications:**  
NEC/CEC Class I, Division 2, Groups C & D  
ATEX II 2G EEx pd IIB T3  
Russian Ex Proof Certification; 1ExpydIIBT3  
Russian Gosstandart Pattern Approval  
Complies with all relevant European Directives



Side View



Front View

**AMETEK**  
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WESTERN RESEARCH

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

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