AMETEK® PROCESS INSTRUMENTS

WESTERN RESEARCH®

Model 881-NSL H_2S in Sulfur Pit Analyzer

Direct Measurement

AMETEK's No Sample Line technology for the sulfur pit. The 881-NSL has no costly troublesome external sample line. The analyzer mounts directly on your sulfur pit lid, eliminating sample line plugging, the number one problem in Claus Plant analysis. The 881-NSL photometer combines an extraordinary long lamp life (estimated 5 years!) with many innovative features designed to minimize maintenance and increase reliability. The 881-NSL is equipped with anti-clogging blowback features. Any out-of-range condition automatically initiates air blowback to clear the sample system. This feature minimizes the chance of costly downtime by reducing sample line plugging. The analyzer continuously monitors itself for proper operation and has built-in alarm features.

The Need

H_2S is entrained in liquid sulfur as it runs into the sulfur pit. Polysulfide compounds in the liquid sulfur break down with time to release H_2S. H_2S from these sources collects in the vapor space above the sulfur where it could exceed the lower explosive limit. To prevent an explosion, most pits are air purged to keep H_2S levels low. Compressed air is expensive, and most plants run with an excessively low H_2S level to be on the safe side. The AMETEK 881-NSL Sulfur Pit Analyzer measures H_2S in the vapor space above the sulfur pit. Substantial cost savings can be made using this reliable analyzer to control the H_2S level giving an adequate safety margin. Some customers also want to measure SO_2 in the sulfur pit, reasoning that the presence of SO_2 may indicate an incipient fire.

Model 881-NSL

Superior Benefits

Direct Process Mounting Design

Sample line plugging is the number one maintenance problem for all sulfur recovery analyzers. The 881-NSL is installed directly on your sulfur pit lid; sample gas is drawn directly into the analyzer and returned to the process through the same sample tap. There is no need for a costly, heated sample line.

Long Term Reliability

Mechanical parts will wear and reduce analyzer reliability. The 881-NSL employs a heated air aspirated sample system eliminating the need for moving parts. The detector is solid state with no moving parts.

Improved Plant Safety

Achieved through continuous monitoring of the H_2S content in the sulfur pit atmosphere to warn of buildup of explosive concentrations of H_2S in the space above the liquid sulfur.

Lower Operating Costs

Save purge air by using the analyzer to control the H_2S concentration at a safe level by adjusting the purge air flowrate.

Integrated Worldwide Design

The 881-NSL is optionally available as compliant with NEC/CSA or ATEX standards as well as other international standards.

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Performance Specifications

Methodology: Non-dispersive ultraviolet

Measurement Range: 0 to 1% SO_2, 0 to 5% H_2S typically. Other ranges on request.

Accuracy: H_2S and SO_2: ±2% full scale

Sensitivity: ±0.15% full scale

Reproducibility: ±1% of full scale

Speed of Response: 90% in less than 15 seconds, typical

Sample Flow: 2 LPM typical

Ambient Temperature: -20°C to 50°C (-4°F to 122°F)

Utilities

Electrical: 115/230 VAC 50/60 Hz 690W

Instrument Air: 490 to 700 kPa (70 to 100 psig)

Steam (optional ball valve jacket): 515 to 690 kPa (75 to 100 psig)

Outputs:

Four (4) 4-to-20 mA, self-powered, linear, 1200 ohms load proportional to H_2S, SO_2

One (1) digital, common fail-safe alarm for system fault

One (1) digital input for remote auto calibration

Digital Communication: RS485 serial port. Remote dial-in capabilities available with AMETEK Western Research software

Zero: Automatic with instrument air at 70 to 100 psig 0.1 nm^3/h (3 SCFH)

Noise: ±0.5% full scale

Zero Drift: Less than ±0.5% of full scale in 24 hours through periodic automatic zero standardization

Calibration: Automatic with span filter, manually operated from the controller

Process Sample Pressure: Not critical

Customer-Supplied Items: 2 in.-150 lbs. or DIN equivalent RF stainless steel flange connection

Enclosure Material: 316 stainless steel

Approvals and Certifications:

UL/CSA General Safety Requirements

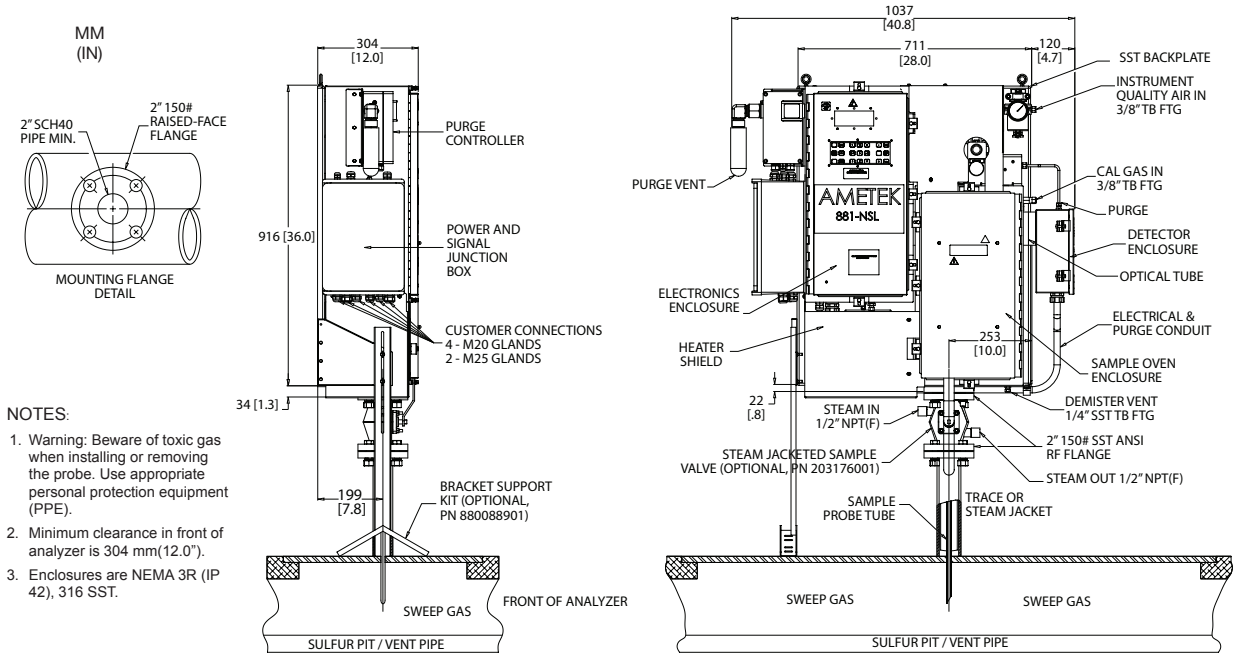
UL/CSA Class I, Division 2, Groups A, B, C and D

ATEX II 2 G, EEx p mde [ib] IIC T2B Complies with all relevant European Directives

Physical Dimensions: (H x W x D): 1161 x 1037 x 305 mm (46 x 41 x 12 in.)

Approximate Weight: 115 kg (250 lbs.)

Drawing depicts ATEX version. Non-ATEX version will vary slightly.



NOTES:

1. Warning: Beware of toxic gas when installing or removing the probe. Use appropriate personal protection equipment (PPE).
2. Minimum clearance in front of analyzer is 304 mm(12.0").
3. Enclosures are NEMA 3R (IP 42), 316 SST.

AMETEK®
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REGISTERED ISO 9001 MANAGEMENT SYSTEM

F-0139 Rev 5 (0614)

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

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