

## Model 880-NSL Tail Gas Analyzer

### THE NEED

Accurate, reliable measurement of H<sub>2</sub>S and SO<sub>2</sub> in the tail gas from a Claus sulfur recovery plant is critical. Unfortunately, tail gas analysis has historically been one of the most difficult applications because of common problems with sample line plugging due to sulfur vapors present in the sample.

### DIRECT MEASUREMENT

AMETEK Western Research, the leader in tail gas analysis for over 25 years, is proud to present the Model 880-NSL (No Sample Line) tail gas analyzer. The Model 880-NSL uses field-proven UV techniques to accurately monitor the H<sub>2</sub>S and SO<sub>2</sub> concentrations in the tail gas. This compact, rugged, transmitter-style analyzer mounts directly on your process pipe, eliminating sample line plugging. The 880-NSL is also equipped with anti-clogging blowback features that automatically initiate an air blowback of the analyzer should any internal fault condition occur.

In addition to these reliability-enhancing design features, the 880-NSL comes standard with an extraordinary long-life lamp which will last for up to five years! Reliability is further enhanced as the detector assembly is solid state with no moving parts. The analyzer is also provided with self-monitoring and self-diagnostic features including a calibration filter for performing automatic span verifications.

Both the Zone 1 and Class 1, Div 2 versions of the Model 880-NSL are housed in weatherproof, stainless steel enclosures which are suitable for direct outdoor installation in most parts of the world.

### APPLICATIONS

- Sulfur recovery tail gas analysis
  - Claus process
  - Claus with tail gas cleanup
  - Claus with oxygen enrichment



ATEX version of the Model 880-NSL. One of a family of AMETEK Analyzer Systems for optimizing sulfur removal and recovery.

### SUPERIOR BENEFITS

- No Sample Line!
- Outdoor installation
- High reliability / low maintenance
- Fast response time
- Extraordinary lamp life
- Automatic zero and span check
- Hot water back-flush for salts removal (optional)
- Self-diagnostic and self-preservation features

# PERFORMANCE SPECIFICATIONS

**Methodology:** Non-dispersive ultraviolet

**Measurement Range:** 0 to 1% SO<sub>2</sub>, 0 to 2% H<sub>2</sub>S, -1 to 1% excess H<sub>2</sub>S typically (0 to 2% SO<sub>2</sub>/0 to 4% H<sub>2</sub>S optional)

**Accuracy:** H<sub>2</sub>S and SO<sub>2</sub>: ±2% of 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:** 120/240 VAC 50/60 Hz 720W, single phase

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

## Steam Pressure:

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

For optional blow back: 210 to 345 kPa (30 to 50 psig)

## Outputs

Three (3) 4-to-20 mA, self-powered, linear, 1200 ohms load proportional to H<sub>2</sub>S, SO<sub>2</sub>, and either Excess H<sub>2</sub>S or Ratio

One (1) digital, System Alarm incorporates concentration, overrange, system errors, and Watchdog alarm (30 Vac, 60 Vdc, 50 VA, maximum, resistive load)

One (1) digital, Data Valid Signal (30 Vac, 60 Vdc, 50VA, maximum, resistive load)

RS-485 Serial Communication Port, half duplex, two-wire

## Inputs

One (1) digital input for remote auto calibration, contact closure, 5 Vdc @ 2.5 mA

One (1) digital input for remote blowback, contact closure, 12 Vdc @ 100 mA

Note: Provide isolated contact closure only. Do not apply voltage.

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

**Noise:** ±0.5% full scale

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

**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

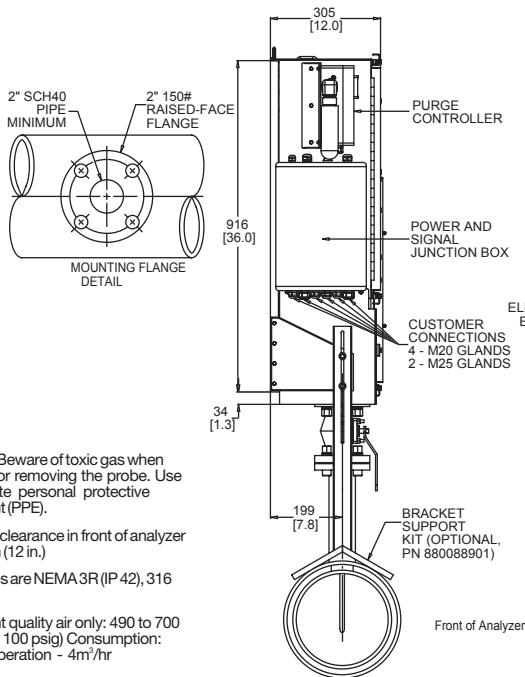
ATEX II 2 G, EEx p mde [ib] IIC T3

Complies with all relevant European directives

**Physical Dimensions:** (H x W x D): 950 x 1037 x 305 mm (37.3 x 41 x 12 inch)

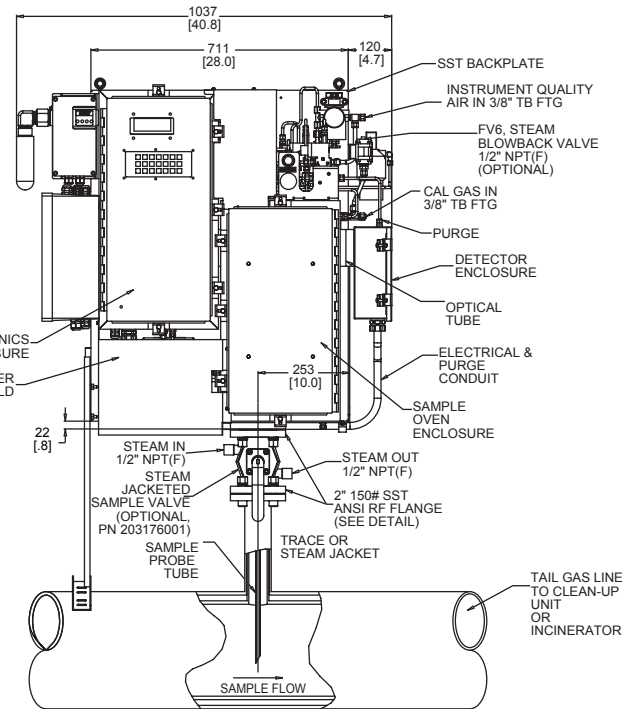
**Approximate Weight:** 115 kg (250 lbs.)

MM  
(IN)



## NOTES:

- Warning: Beware of toxic gas when installing or removing the probe. Use appropriate personal protective equipment (PPE).
- Minimum clearance in front of analyzer is 304 mm (12 in.)
- Enclosures are NEMA 3R (IP 42), 316 SST.
- Instrument quality air only: 490 to 700 kPa (70 to 100 psig) Consumption: Normal operation - 4m<sup>3</sup>/hr



Drawing depicts ATEX version of the Model 880-NSL

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

**USA - Pennsylvania**  
150 Freeport Road  
Pittsburgh, PA 15238  
Ph. 412-828-9040  
Fax 412-826-0399

**USA - Delaware**  
455 Corporate Blvd.  
Newark, DE 19702  
Ph. 302-456-4400  
Fax 302-456-4444

**CANADA**  
2876 Sunridge Way N.E  
Calgary, AB T1Y 7H9  
Ph. 403-235-8400  
Fax 403-248-3550

**MANUFACTURING LOCATIONS**  


**AMETEK®**  
PROCESS INSTRUMENTS  
www.ametekpi.com

© 2004, by AMETEK, Inc. All rights reserved.  
880PDF (02/17/04)



## SUPPORT LOCATIONS

**USA - Texas**  
Ph. 281-463-2820  
Fax 281-463-2701

**CHINA - Beijing**  
Ph. 86-10-85262111  
Fax 86-10-85262141

**CHINA - Shanghai**  
Ph. 86 21 6426 7049  
Fax 86 21 6426 7054

**FRANCE**  
Ph. 33 1 30 68 69 20  
Fax 33 1 30 68 69 29

**GERMANY**  
Ph. 49 21 59 91 36 0  
Fax 49 21 59 91 36 80

**MIDDLE EAST - Dubai**  
Ph. 971-4-881 2052  
Fax 971-4-881 2053

**SINGAPORE**  
Ph. 65-6484-2388  
Fax 65-6481-6588