

## Model 919 Hot/Wet Single Gas Analyzer

### Benefits

- High reliability and reduced maintenance requirements through a no-moving-parts design
- Hot/wet analysis prevents errors associated with:
  - Correcting for water vapor
  - Absorption losses in driers
- Accuracy better than 2.5 ppm SO<sub>2</sub>
- Able to measure SO<sub>2</sub>, NO, NO<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, or a number of other chemicals
- No H<sub>2</sub>O or CO<sub>2</sub> interference
- Automated zero and span gas calibration
- Provides serial interface with plant DCS

### The Need

The AMETEK Western Research® Model 919 has been specifically designed to meet the requirements of the most challenging process and emissions monitoring applications in a cost-effective fashion. The Model 919 is a UV-based photometric analyzer capable of measuring any one of hundreds of UV-absorbing compounds. The 919 is a complete system with a sample extraction and transport system designed to maintain sample integrity. Housing options for the analyzer unit include a cabinet or walk-in shelter built to client specifications.

The simple and robust design of the Model 919 is complemented by powerful data processing capabilities. Both analog and digital outputs are available with serial communications via Modbus protocol being an available option. An optional oxygen sensor can be included.

In process and emission streams, as a stand-alone system from probe to output, the Model 919 is the standard of excellence and versatility.

### The Measurement

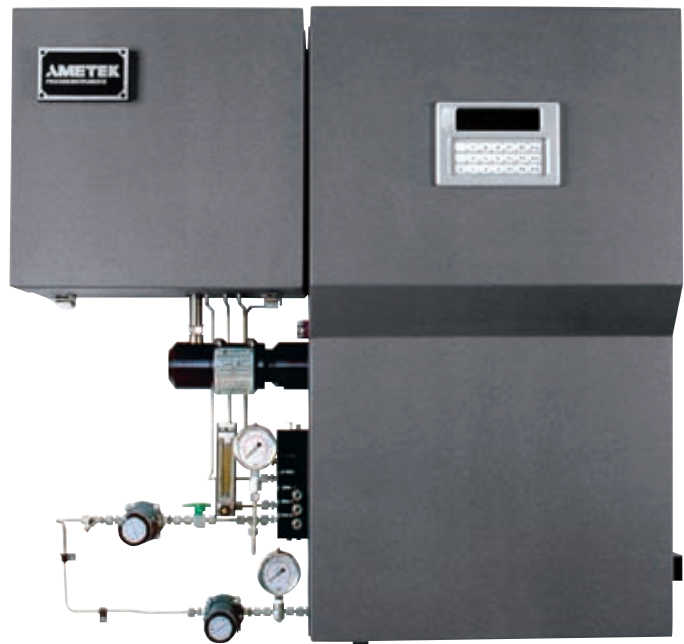
The Model 919 uses our proprietary high resolution UV technology in a dual beam configuration. Resolution better than 0.02 nm is provided by high intensity, line source lamps. These sources emit at a fixed wavelength providing great measurement stability, and emit low total power removing the potential for sample photolysis. The high resolution enables unparalleled linearity over a wide dynamic range which, in turn, leads to simple, robust data analysis. The dual beam configuration, combined with the reference measurement, ensures low noise performance with minimal baseline and span drift.

UV measurements do not suffer from H<sub>2</sub>O and CO<sub>2</sub> interference as these species are transparent in the UV. This greatly simplifies sample handling. The Model 919 is a fully extractive, heated wet-basis analyzer. The sample cell and all components

in contact with the sample are heated above the dew points of all gases in the sample stream. This results in a simpler and more accurate calculation of gas concentrations requiring no corrections for condensed and dissolved components. It also results in a simpler analytical system as there is no need for sample drying. The Model 919 has built-in zero and span calibration and four zone temperature control.

### Typical Applications

- CEM applications in:
  - Sulfur plants
  - Smelters
  - Coal, oil, and gas-fired power plants
  - Industrial boilers and process heaters
- Non-CEM applications in:
  - SRU feed gas monitoring
  - H<sub>2</sub>S monitoring in contactor overheads



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## Performance Specifications

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

Species Measurable	Minimum Full Scale†	Maximum Full Scale
SO <sub>2</sub>	250 ppm	100%
NO	300 ppm	100%
NO <sub>2</sub>	300 ppm	100%
H <sub>2</sub> S	500 ppm	100%
NH <sub>3</sub>	125 ppm	100%
Cl <sub>2</sub>	500 ppm	100%

**Optional O<sub>2</sub>:** Integral zirconium oxide

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

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

**Response Time:** Typically less than 30 s to T90 (excludes 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 up to five zones

**Pressure and Temperature Compensation:** Standard

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

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

**Power:** 120 VAC ±10%, 47-63 Hz or 240 VAC ±10%, 47-63 Hz  
600 W for analyzer only

**Communications:**

**Analog:** 4 x 4-to-20 mA self-powered

**Digital:** One RS232 port for service diagnostics

One RS422 with Modbus protocol

**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

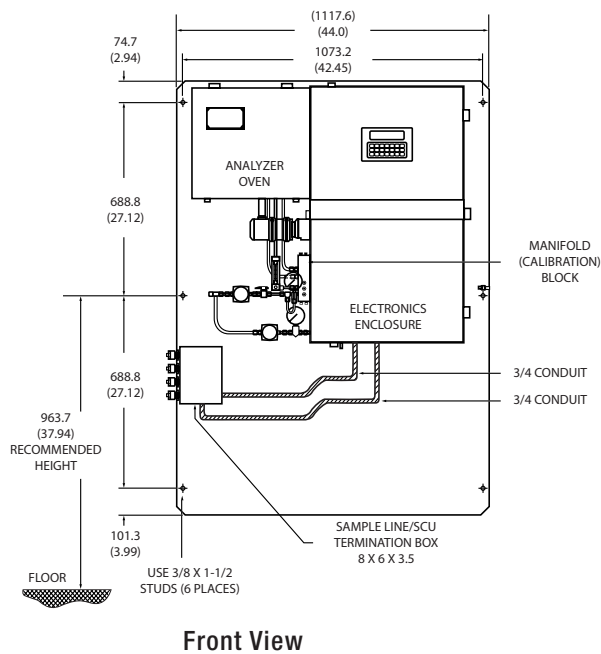
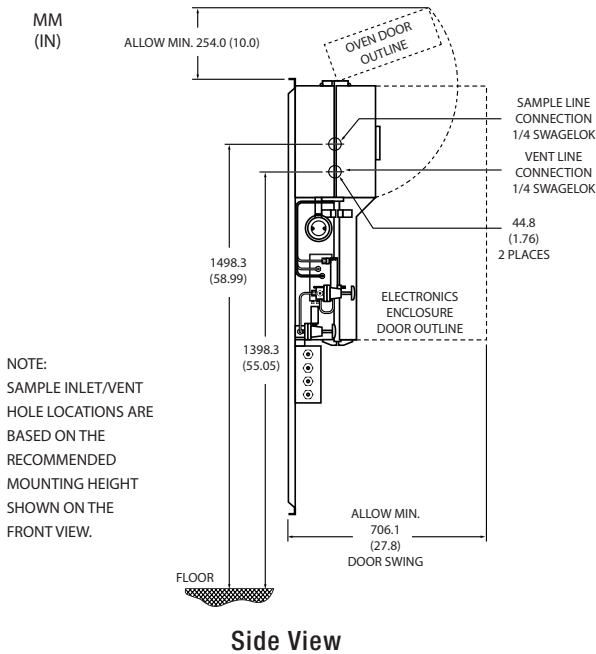
ATEX II 2G EEx pd IIB T3

Russian Ex Proof Certification; 1ExpydIIBT3

Russian Gosstandard Pattern Approval

Complies with all relevant European Directives

\* Temperature drift is approximately 1 ppm/°C for the species listed. To achieve maximum accuracy and stability, you can either install the analyzer in a temperature-controlled environment or zero the analyzer more frequently.



NOTE:  
SAMPLE INLET/VENT HOLE LOCATIONS ARE BASED ON THE RECOMMENDED MOUNTING HEIGHT SHOWN ON THE FRONT VIEW.

**AMETEK®**  
PROCESS INSTRUMENTS  
WESTERN RESEARCH

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919 (03/23/07)

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

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