

## Model 921 Single Gas Analyzer

### Benefits

- No moving parts
  - Reduced noise levels and maintenance
- Accuracy better than 0.25 ppm SO<sub>2</sub>
- Excellent baseline stability, minimal span drift
- Linearity better than 1% over 4 orders of magnitude
- No interference from H<sub>2</sub>O and CO<sub>2</sub>
- Optional O<sub>2</sub> measurement
- Serial communication with plant DCS
- PC-User interface software

### The Need

The Model 921 is a rugged single gas analyzer housed in a single 19-inch, rack-mounted unit which can be integrated into CEM systems or used alone for a variety of gas monitoring applications. The Model 921's no-moving-parts design was specifically developed to enable the high sensitivity, low concentration measurements required by the latest environmental regulations.

The Model 921 can be configured to measure most gas species that absorb in the UV. The optional low range white cell provides longer path length for measuring lower concentrations. For example, the minimum full scale for SO<sub>2</sub> is 25 ppm, with an accuracy of 1% of full scale.

The simple and robust design of the Model 921 is complemented by powerful data processing capabilities. The user-friendly keyboard enables programming of such variables as timing and

frequency of local zero and span checks and calibration gas values. A serial communications interface enables direct interfacing with data acquisition and control systems using Modbus protocol.

When your requirement is for a rugged, low concentration, gas analyzer, free of interferences from water and CO<sub>2</sub>, the Model 921 is your answer.

### The Measurement

The Western Research® Model 921 uses our proprietary high resolution UV technology in a dual beam, dual wavelength configuration. The major innovation in the Model 921 is that it is a true dual beam, dual wavelength analyzer with no moving parts. Instead of using a filter/chopper wheel to alternate between measure and reference wavelengths, the Model 921 uses a fixed optical configuration and pulsed UV lamps. This leads to increased light throughput, reduced noise levels, and reduced maintenance. The dual beam configuration combined with the

reference measurement ensures low noise performance with minimal baseline and span drift.

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 (less than 1% deviation over 4 to 5 orders of magnitude) which, in turn, leads to simple, robust data analysis.

### Applications

- Source testing
- Continuous emissions monitoring, new and retrofit
  - Low range SO<sub>2</sub>
- Manufactured gas QA
  - Calibration, medical, and industrial gases
- SRU tail gas clean-up
  - H<sub>2</sub>S and SO<sub>2</sub>
- Research



# Model 921 Single Gas Analyzer

## Performance Specifications

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

Species Measured (see Note 1)	Minimum Full Scale (see Note 2)	Maximum Full Scale
SO <sub>2</sub>	25 ppm	100%
NO	25 ppm	100%
NO <sub>2</sub>	50 ppm	100%
H <sub>2</sub> S	50 ppm	100%

**Note 1:** Other species include: NH<sub>3</sub>, COS, CS<sub>2</sub>, mercaptans.

**Note 2:** Minimum full scale is based on  $\pm 1\%$  full scale accuracy over 24 hours with auto zero disabled.

**Optional O<sub>2</sub>:** Integral paramagnetic sensor

**Accuracy:** Typically better than 1% full scale

**Repeatability:** Typically  $\pm 0.5\%$  of full scale

**Linearity:** Typically better than  $\pm 1\%$  of full scale

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

**Number of Gases:** Single gas analyzer

**Typical Sample Flow:** 1 to 2 l/min (2 to 4 SCFH)

**Sample Gas Temperature:** Ambient

**Pressure and Temperature Compensation:** Optional

**Ambient Conditions:** 5° to 40°C (41° to 104°F); 5 to 95% relative humidity, non-condensing

**Zero Drift:** 2% full scale standard ranges in 24 hours

**Power:** 120 VAC  $\pm 10\%$ , 47 to 63 Hz or 240 VAC  $\pm 10\%$ , 47 to 63 Hz 90 W

**Analog Outputs:**

4 x voltage outputs  
Up to four 4-to-20 mA self-powered outputs

**Communications:**

RS232 and RS422 ports  
PC User interface optional  
Modbus protocol optional

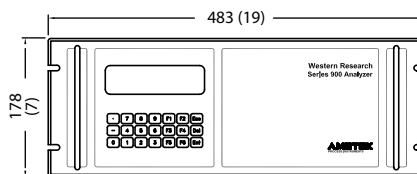
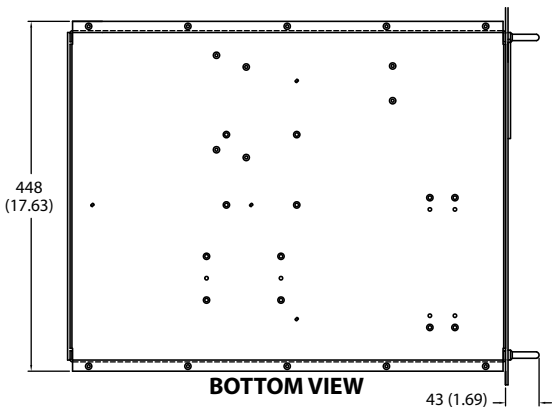
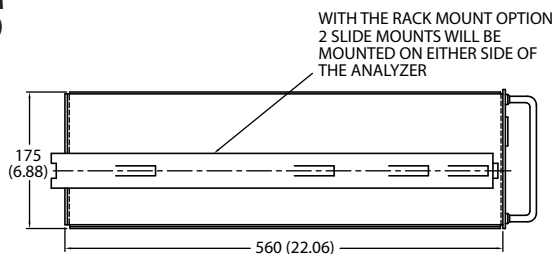
**Physical Dimensions:** 178 x 483 x 603 mm (7 x 19 x 23.75 in.)

**Weight:** Approximately 18.2 kg (40 lbs.)

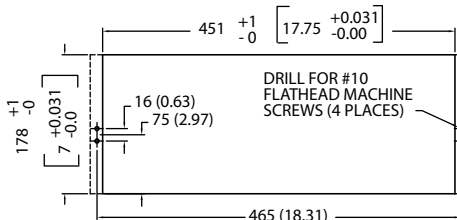
**Approvals and Certifications:**

General purpose (non-hazardous)  
CE  
CSA

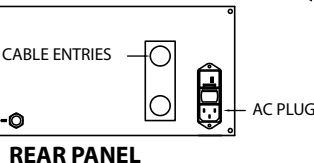
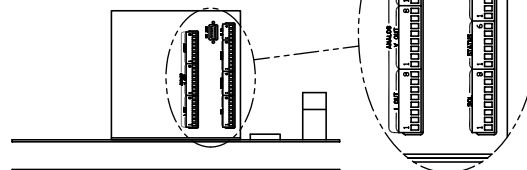
MM  
(IN)



FRONT PANEL



PANEL CUTOUT DETAIL



REAR PANEL



PROCESS INSTRUMENTS  
WESTERN RESEARCH

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

www.ametekpi.com



© 2007, by AMETEK, Inc.  
All rights reserved. Printed in the U.S.A.  
921 (03/23/07)

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

**SALES AND MANUFACTURING:**

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

**USA - Oklahoma**  
2001 N. Indianwood Ave., Broken Arrow OK 74012 • Tel: 918-250-7200, Fax: 918-459-0165

**USA - Pennsylvania**  
150 Freeport Road, Pittsburgh PA 15238 • Tel: 412-828-9040, Fax: 412-826-0399

**WORLDWIDE SALES AND SERVICE LOCATIONS:**

**USA - Texas**  
Tel: 281 463 2820, Fax: 281 463 2701

**CHINA**  
Beijing / Tel: 86 10 8526 2111, Fax: 86 10 8526 2141  
Chengdu / Tel: 86 28 8675 8111, Fax: 86 28 8675 8141  
Shanghai / Tel: 86 21 6426 8111, Fax: 86 21 6426 7818

**FRANCE**  
Tel: 33 1 30 68 89 20, Fax: 33 1 30 68 89 29

**GERMANY**  
Tel: 49 21 59 91 36 0, Fax: 49 21 59 91 3639

**MIDDLE EAST - Dubai**  
Tel: 971 4 881 2052, Fax: 971 4 881 2053

**SINGAPORE**  
Tel: 65 6484 2388, Fax: 65 6481 6588

WESTERN RESEARCH®