

# TOTAL SULFUR ANALYZER

Series 1600 & 1700 | Continuous Process Analyzer for GAS/LPG/LNG



## Product Features

- Specific to sulfur only. No false positives, ever
- Conformity to ASTM methods
- Explosion proof for hazardous areas (Series 1700)
- Automatic self-zero (no zero gas required)
- Does not suffer from sensor 'zero drift'
- Fast response time
- Accurate and continuous analysis
- Quantitative measurement in PPB, PPM & percent Levels
- Proven reliability
- Automatic Calibration (optional)
- Long tape life: As few as 3 tape changes per year
- Remote & Web based monitoring/control (optional)

## Applications

- Alkylation processes • Sulfurs in Ammonia • Reformers • Sales gas • Sulfur in Synthesis Gas • Landfills • Chemical plants
- Food & beverage plants • Refineries • Liquid Petroleum Gas (LPG) / Liquid Natural Gas (LNG) • Environmental

## Product Description

Total Sulfur Analyzer: The petrochemical, gas processing, and gas pipeline industry has required an accurate, dependable, low maintenance, and cost-effective sulfur analyzer for quality and process control purposes. With over twenty-five years of experience in developing and manufacturing sulfur analyzers and associated parts and supplies, Analytical Systems Keco has met these requirements with their proven microprocessor based analyzer. The Series 1700 (explosion proof) and Series 1600 (general purpose) systems measure total sulfur by hydrogenation similar to that as described in ASTM Method D3031, D4084-82, D4468-85 and 4045-81. The sulfur sample is precisely metered into a continuous flowing stream of hydrogen gas. The sample and hydrogen are heated in the furnace up to 1,315°C resulting in thermal cracking of the sulfur that are reduced to short chain hydrocarbons. These reactions result in the formation of H<sub>2</sub>S. After complete humidification of the sample, the H<sub>2</sub>S comes in direct contact with the lead acetate tape and produces a darkening of lead sulfide that is immediately measured by the photodiode/LED optics and rate-of-reaction digital electronics to provide an accurate and reproducible total sulfur analysis with PPB or PPM sensitivity up to 100%. The LCD display provides the current reading, any alarm condition, procedure prompts (i.e., calibration procedure), and failure indicators (local and remote capability). Quality materials are selected for their compatibility and utilized through fabrication. Special attention is given to wetted parts that come in contact with the process stream and are selected to be non-reactive with H<sub>2</sub>S and other sulfurs.

The rateometric-colorimetric tape detector offered by ASI is the only total sulfur detection method that is practically free from cross-interference. The analyzer will not suffer from "false positives" like other total sulfur analyzer methods. Users demand Analytical System Keco's total sulfur analyzer due to its precision and reliability proven by thousands of worldwide installations around the globe.



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# Typical Specifications

## DISPLAY

- Alpha Numeric LCD
- 128 x 64 pixel
- Back-lit display (optional)
- LCD Graph Display w/ month of data (optional)

## TEMPERATURE RANGES

- neg. -10°C to 50°C (operating)
- 0°C to 70°C (storage)

## ANALOG

- 4-20mA Isolated

## ANALYTICAL PERFORMANCE

- Resolution: 1 ppb
- Accuracy:  $\pm 2\%$
- Repeatability:  $\pm 1\%$
- Linearity:  $\pm 1\%$
- Drift: Nil
- Temp. Coefficient: 0.01% / °C
- Analysis time: 0.75 Second

## DETECTION RANGES

- 0-1 ppm by wt.
- 0-10 ppm by wt.
- 0-50 ppm by wt.
- 0-100 ppm by wt.
- 0-500 ppm by wt.
- Customer specified (contact factory)

## SAMPLING SYSTEM (STANDARD)

- Sample Pressure Regulator
- Sample Flow Meter
- Secondary particulate filter
- Fast sweep (fast loop) needle valve

## ENCLOSURE (CABINET)

- High-impact, industrial strength fiberglass
- NEMA 4X / IP 65 options
- Other options available

## WEIGHT/DIMENSIONS

- ~200 lbs. w/o options (Series 1700)
- ~100 lbs. w/o options (Series 1600)
- 30" W X 50" H X 12" D (Series 1700)
- 36" W X 36" H X 12" D (Series 1600)

## UTILITIES/SETTINGS

- 10VAC or 220VAC
- ~1 KWatt
- Hydrogen: 100 ml/min
- Sample flow: 0.3 SCFH
- Sample pressure: 10 psig constant
- Calibration gas: H<sub>2</sub>S ~25% of scale balance N<sub>2</sub>, 2L per cal

## AREA CLASSIFICATIONS

- Class 1 Division 1 (Series 1700)
- Class 1 Division 2 (Series 1700)
- Zone 1 or Zone 2 (Series 1700)
- NRTL certificates available optionally (added cost)
- General purpose/ non-explosion proof (Series 1600)

## AVAILABLE OPTIONS

- Concentration relay alarms
- Diagnostic/fault relay alarms
- Low flow relay alarms
- RS-232/485 Modbus
- Data Logger for data download to PC
- Remote monitoring/control with PC
- Automatic calibration
- H<sub>2</sub>S Scrubber (for vent)
- Fugitive Emission Control Unit (for vent)
- Sample Probe
- Sampling System for gas contaminated with liquids
- Sampling System for LNG/LPG (Vaporizing Regulator)

## Advantages

**No 'false positives'** The only detection method specific to sulfur only, proven by thousands of applications

**Ultra low-maintenance** Advanced Colorimetric-Rateometric Detector is guaranteed hassle-free for long term operation

**Field-proven operation** The analyzer conforms to ASTM methods & field proven by thousands of global applications

Analytical Systems Keco provides design and application engineering assistance for the User's analyzer requirements. For a quotation, please complete Analyzer Quote Request Form at [www.LiquidGasAnalyzers.com/quote](http://www.LiquidGasAnalyzers.com/quote)