



solid partners
proven solutions



Elements

Simultaneous Analysis of Total Sulfur
and Total Nitrogen in One Single Run



- 🌐 Unrivaled performance under 30 ppbw and excellent precision
- 🌐 Four orders of linear dynamic range and long term stability
- 🌐 Convenient service access, touchscreen interface and intuitive software
- 🌐 Smallest simultaneous combustion analyzer on the market

MARKET LEADER FOR ELEMENTAL COMBUSTION ANALYSIS OF TOTAL SULFUR AND TOTAL NITROGEN

ElementS is the most advanced, modular analytical system available for the detection of Total Nitrogen and/or Total Sulfur content in solid, liquid, gaseous materials and LPG samples. ElementS is available in a vertical configuration with direct injection, and horizontal with boat inlet introduction. Both configurations can be equipped with dedicated detectors: ElementS-N for Nitrogen analysis, ElementS-S for Sulfur analysis and ElementS-N/S for simultaneous Nitrogen and Sulfur analysis.

ElementS detects sulfur and nitrogen through a uniquely efficient process that includes Ultra Violet Fluorescence (UVF) and Chemiluminescence (CLD). The analyzer is key for monitoring and protecting key processes in the refining industry.



Vertical configuration with 749 autosampler

Front maintenance door to allow easy access for consumable parts



10" touchscreen swivels to operate at any position for extra comfort



Compatible with high-capacity Liquid Autosampler 749

Compatible with Accura for gaseous and LPG samples



Horizontal ElementS with Boat Inlet Drive (BID), 749 autosampler and Accura gas sampler

Boat Inlet Drive (BID)

KEY ADVANTAGES

HIGH PERFORMANCE FOR WIDE APPLICATION RANGE & QUICK ANALYSIS

- Quick analysis of various sample types
- Ability to analyze solids, liquids and gases quickly and accurately
- Simultaneous analysis of Nitrogen and Sulfur
- Low maintenance, optimal combustion and conditioning of gases results in near zero downtime
- Intuitive software and user interface ensure smooth operation of the instrument
- Long term stability for continuous use

IMPROVED LAB PRODUCTIVITY THROUGH REDUCED USER INTERVENTION

- Factory tuned analyzer. The instrument is ready for analysis as soon as it's installed
- Direct instrument control and data preview through user touch screen
- High capacity liquid autosampler (324 samples) reduces need for operators to be present when running samples
- Long term stability reduces calibration frequency by operators for any measurement range

APPLICATION-SPECIFIC CONFIGURATION PROVIDES EXCELLENT PRECISION

- Dedicated sample analyzer means that your analyzer can truly be optimized for its intended application and can be configured for multiple applications
- PAC application specialists can develop customized methods (no on-site method development needed)
- Factory-tuned analyzer prior to shipment

PROVEN COMPLIANCY FOR MULTIPLE INDUSTRIES

- Low detection limits ensures regulatory and quality requirements
- Wide application range helps multiple industries meet standards requirements
- Complies with international standards like: ASTM, ISO, EN, IP, UOP, GB/T, SH/T, JIS K, and GOST

SAMPLING OPTIONS

ElementS can be configured with a 749 Liquid autosampler for both the vertical and horizontal configuration. The vertical configuration can also be used with the Single Shot Autosampler.

749 Liquid Autosampler:
High capacity liquid autosampler for large sample throughput. Available syringe sizes: 10, 25, 50 and 100 µl.

Single Shot Autosampler:
cost-effective solution for injecting a single replicate sample by syringe. Available syringe size: 25 µl.



749 Autosampler



Single Shot Autosampler



SPECIFICATIONS

Ordering Information				
38.00.001	ElementS Vertical Combustion Analyzer, Sulfur, 115/230V			
38.00.002	ElementS Vertical Combustion Analyzer, Nitrogen, 115/230V			
38.00.003	ElementS Vertical Combustion Analyzer, Sulfur + Nitrogen, 115/230V			
39.00.001	ElementS Horizontal Combustion Analyzer, Sulfur, 115/230V			
39.00.002	ElementS Horizontal Combustion Analyzer, Nitrogen, 115/230V			
39.00.003	ElementS Horizontal Combustion Analyzer, Sulfur + Nitrogen, 115/230V			
Analytical Range	Application Range	LOD ¹	Linear Dynamic Range	Repeatability
ElementS Sulfur Analyzer	Low ppb to % level	< 20 ppb	10e4	<1% at 5 ppm
ElementS Nitrogen Analyzer	Low ppb to % level	< 30 ppb	10e3	<1% at 5 ppm
ElementS Sulfur & Nitrogen Analyzer	Low ppb to % level	< 30 ppb		<1% at 5 ppm
Typical Sample Size ²				
Gas: 10 ml	LPG: 10 ml	Liquids: 20 µl	Solids: 50 mg	
Typical Analysis Time				
Gases / Liquids: 5 minutes		Solids: 2-15 minutes (dependent upon sample type/weight)		
Standard Test Methods				
Sulfur	ASTM D5453, EN ISO 20846, ASTM D6667, ASTM D7183, ASTM D7551, EN 15486, IP 490, JIS K 2541			
Nitrogen	ASTM D4629, ASTM D5176, ASTM D5762, ASTM D7184, DIN 51444, ISO/TR 11905, GB/T 17674, UOP 936, JIS K 2609,			
Temperatures	Vertical	Horizontal		
Combustion Zone	Dual zone combustion top temperature typical 950 °C Bottom temperature typical 1050 °C	Single zone combustion dual pass pyrotube typical temperature 1050 °C (up to 1100 °C)		
Gases				
Dry Oxygen	> 600 ml/min, >5 bar (75 psig), grade 5.0 or better (99.999%)			
Dry carrier (Argon or Helium*)	Helium*: > 200 ml/min >5 bar (75 psig), grade 5.0 or better (99.999%) Argon: > 200 ml/min >5 bar (75 psig), grade 5.0 or better (99.999%)			
* Helium may be substituted for Argon as a carrier gas (carrier gas adjustment is required)				
Miscellaneous Specifications				
Power	100 - 240 Vac, 50/60 Hz, 1550 VA			
Weight	41 kg (90 lbs)			
Dimensions (WxDxH) ³				
Vertical model: 52.5 x 55.5 x 51.5 cm. or 20.6 x 21.8 x 20.2 in.				
Horizontal model: 100 x 55x 51.5 cm. or 39.4 x 21.8 x 20.2 in.				

Continuing research and development may result in specifications or appearance changes at any time.

Note 1: The above referenced LOD's have been determined using hydrocarbon matrices and optimized instrument configurations with stacked analyses conform ISO 11843 using direct injection. For specific applications, LOD needs to be validated.

Note 2: Samples size can differ depending on the application.

Note 3: dimensions excluding autosampler.

ABOUT PAC

PAC develops advanced instrumentation for lab and process applications based on strong **Analytical Expertise** that ensures **Optimal Performance** for our clients. Our analyzers help our clients meet complex industry challenges by providing a low cost of ownership, safe operation, high performance with fast, accurate, and actionable results, high uptime through reliable instrumentation, and compliance with standard methods.

Our solutions are from industry-leading brands: AC Analytical Controls, Advanced Sensors, Alcor, Antek, Herzog, ISL, Cambridge Viscosity, PetroSpec and Phase Technologies. We are committed to delivering superior and local customer service worldwide with 16 office locations and a network of over 50 distributors. PAC operates as a unit of Roper Technologies, Inc., a diversified technology company and a constituent of S&P 500, Fortune 1000, and Russell 1000 indices.

HEADQUARTERS

PAC LP | 8824 Fallbrook Drive | Houston, Texas 77064 | USA
www.paclp.com | T: +1 800.444.8378 | F: +1 281.580.0719