

QL-Spectra Pro

ICP-OES

High-Precision Inductively Coupled
Plasma Optical Emission Spectrometer



Overview

The **QL-Spectra Pro ICP-OES** is a next-generation, full-spectrum direct-reading spectrometer engineered for ultra-sensitive, simultaneous multi-element analysis. It supports **axial + radial plasma observation** and a **scientific-grade CCD detector** for accurate quantification of trace and ultra-trace elements across diverse industries.



Applications

Environmental and water quality monitoring

Petroleum, rare-earth, and metallurgical analysis

Semiconductor materials testing

Chemical and pharmaceutical industries

Food safety and agricultural research

Biological and clinical laboratories

Key Features



Dual-View Optics (Axial + Radial)

Wide dynamic range > 5 orders of magnitude.



Echelle Grating + Prism Cross Dispersion

165 – 950 nm wavelength coverage using ultra-pure SiO₂ optics.



High-Resolution CCD Detector

1024 × 1024 pixels, 24 μm × 24 μm; full-spectrum capture in a single exposure.

Solid-State RF Generator

27.12 MHz system with automatic load matching and 1 W incremental control (700 – 1600 W).

Advanced Injection System

Cyclonic spray chamber and 12-roller peristaltic pump ensure stability for complex matrices.

Optional Auto-Sampler & Dilution System

Advanced Valve System

- Integrated Advanced Valve System switching valve
- Multi-port valve-based sample routing architecture
- Enables inline dilution, internal standard addition, and loop switching
- Fully controlled under a single 21 CFR Part 11 compliant software platform

Intelligent Software

QuakeLogic Spectra Suite with 70 000 + spectral lines, interference correction, and 21 CFR Part 11 compliance.

Safety & Efficiency & Environmental Conditions

Low-power standby, multi-path overload protection, and real-time system health tracking.

Exhaust & Air Management

- Utilizes existing laboratory exhaust systems
- Maximum exhaust requirement does not exceed 200 CFM
- Integrated onboard fan maintains positive-pressure instrument enclosure

Advanced Valve & Auto-Dilution System

- Integrated Advanced Valve System switching valve
- Inline dilution capability up to 400× (standard configuration)
- Supports prescriptive, reactive, and auto-calibration dilution modes
- Autosampler, auto-dilution system, and ICP-OES operate under a single software platform
- Fully compliant with 21 CFR Part 11

Technical Specifications

Optical System	Design	Echelle grating + cross-dispersion prism (SiO ₂)
	Wavelength Range	165 – 950 nm
	Focal Length	400 mm
	Temperature Control	38 ± 0.1 °C
	Stray Light	< 2 µg/mL (As 189.042 nm in 10 mg/mL Ca solution)
Detector	Type	Scientific-grade CCD (1024 × 1024 pixels)
	Pixel Size	24 µm × 24 µm
	Cooling	Peltier to –40 °C
	Quantum Efficiency	> 75 % UV response
RF Generator	Type	All-solid-state auto-matching
	Power Range	700 – 1600 W (1 W steps)
	Frequency	27.12 MHz ± 0.01 %
	Power Stability	≤ 0.1 %
Sample System	Torch	Three-concentric quartz (20 mm OD)
	Atomizer	Standard / HF-resistant / High-salt options
	Spray Chamber	Cyclonic (double-tube optional)
	Pump	5-channel, variable-speed, computer-controlled peristaltic pump Supporting online internal standard addition
	Argon Flow	8 – 18 L / min
Performance	Detection Limit	1 – 10 ppb (typical elements)
	Repeatability	RSD < 1 %
	Stability (2 h)	RSD < 1.5 %
	Dynamic Range	5 – 6 orders of magnitude
Environmental Conditions	Operating Temperature	15 – 30 °C
	Relative Humidity	≤ 70 % (non-condensing)
Power	Supply	220 V ± 22 V AC, 50 Hz ± 1 Hz
	Consumption	≤ 2 kW
Dimensions	Size (W×D×H)	740 × 625 × 887 mm
	Weight	Approx. 193 kg (net), 252 kg (gross)

Included Accessories

1

QL-Spectra Pro ICP-OES main unit

2

QL-Spectra Suite software and license

3

Quartz torch (2 pcs) and dual cylinder spray chambers (2 pcs)

4

High-performance nebulizer

5

Cooling circulator (2000 W capacity)

6

Regulated power supply (10 kVA)

7

Computer + monitor + printer

8

Argon regulators, hoses, and connection fittings





Certifications

- ISO 9001, ISO 14001, ISO 45001
- CE, FCC, RoHS, FDA Compliant

Warranty & Support

1

Comprehensive Warranty

12 months (excluding consumables)

2

Installation & Training

On-site setup and user training included

3

Technical Support

72-hour on-site response + remote diagnostics

4

Parts Availability

Guaranteed for 5 years



QL-Spectra Pro ICP-OES: Advancing Analytical Precision

QuakeLogic, an industry leader in analytical instrumentation, provides laboratories with the QL-Spectra Pro ICP-OES, designed for superior elemental analysis, robustness, and unparalleled data quality.

Connect with QuakeLogic for QL-Spectra Pro ICP-OES

Corporate Headquarters

QUAKELOGIC INC.

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Technical Sales & Support

+1 (916) 899-0391

For technical specifications, application support, and product inquiries regarding the QL-Spectra Pro ICP-OES.

Available Monday - Friday, 9 AM - 5 PM PST

Sales & Applications Inquiries

sales@quakelogic.net

Contact us for detailed product demonstrations, purchasing information, and tailored solutions for your analytical needs.

Our Commitment to ICP-OES Analytical Excellence



Certified Product Quality

Adhering to stringent international and industry standards, the QL-Spectra Pro ensures reliable performance, consistent results, and long-term operational stability.



Innovative Spectroscopy

Driving advancements in ICP-OES technology, our instrument delivers cutting-edge capabilities for demanding analytical applications and research.



Dedicated Customer Support

Providing comprehensive support from installation and training to application development, ensuring seamless integration and optimal utilization of your QL-Spectra Pro system.

Discover the QL-Spectra Pro ICP-OES



Scan for Detailed Product Information

Explore comprehensive specifications, application notes, and resources for the QL-Spectra Pro ICP-OES instrument, designed to elevate your laboratory's analytical capabilities.

www.quakelogic.net

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