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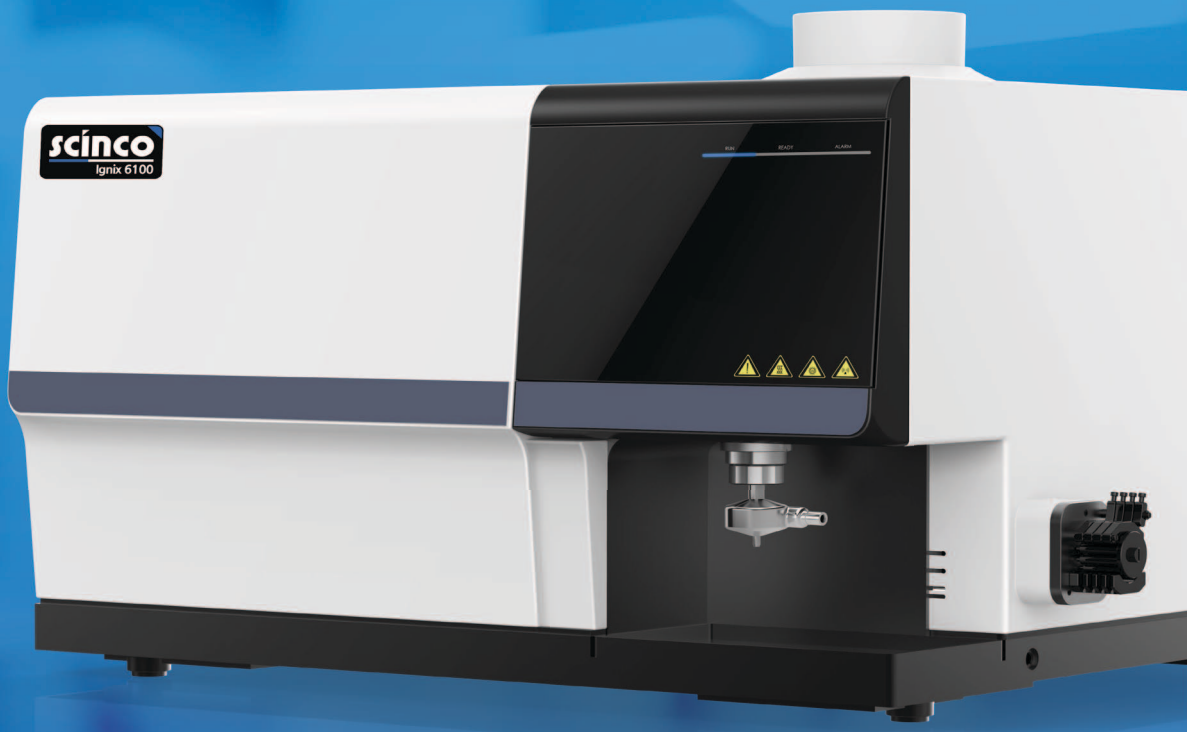
Ignix 6100

Redefining the Standard of ICP-OES

Ignix 6100 delivers the complete emission spectrum with unparalleled accuracy, turning complex challenges into superior results.

Redefining the Standard of ICP-OES



The culmination of years of dedicated research and development, the Ignix 6100 represents a monumental leap forward in Inductively Coupled Plasma-Optical Emission Spectrometry (ICP-OES). SCINCO has engineered breakthroughs in critical components, including the RF power supply, the large-area array detector and our innovative plasma observation technology.

Ignix 6100 is engineered to meet the most demanding analytical challenges, from high-resolution, full-spectrum analysis of rare earth elements to the difficult detection of Cl/Br in the deep-ultraviolet range. By integrating intelligent, user-friendly functions and automated accessories, we've created a smart analysis system that streamlines your workflow. It empowers operators by reducing complex, repetitive tasks, boosting efficiency, and allowing your team to focus on what truly matters: generating valuable, high-quality data.

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Ignix 6100

Perfect Precision Outstanding Performance

Ignix 6100 is built on cutting-edge innovations to deliver superior performance and reliability.

Its revolutionary vertical torch with dual-view technology effortlessly analyzes samples with vast concentration differences within complex matrices. Our specially optimized RF generator delivers exceptional stability and sample adaptability.

At the heart of the system, a proprietary large-area, high-sensitivity UCCD (UltraField CCD) detector captures the entire spectrum with outstanding clarity. Built on decades of spectroscopic expertise, our advanced technologies work as one. They deliver rock-solid performance: <1% RSD stability over 8 hours and <0.1% RSD precision. The system delivers fast, consistent, and reliable results you can trust.

Revolutionary Vertical Dual-View Technology

Our next-generation ICP-OES system is engineered for maximum flexibility and robustness. The vertical torch orientation is inherently resistant to high-salt deposition, extending torch lifetime and reducing maintenance. This design combines two powerful observation modes:

Axial View

Delivers the highest sensitivity for trace-level detection.

Radial View

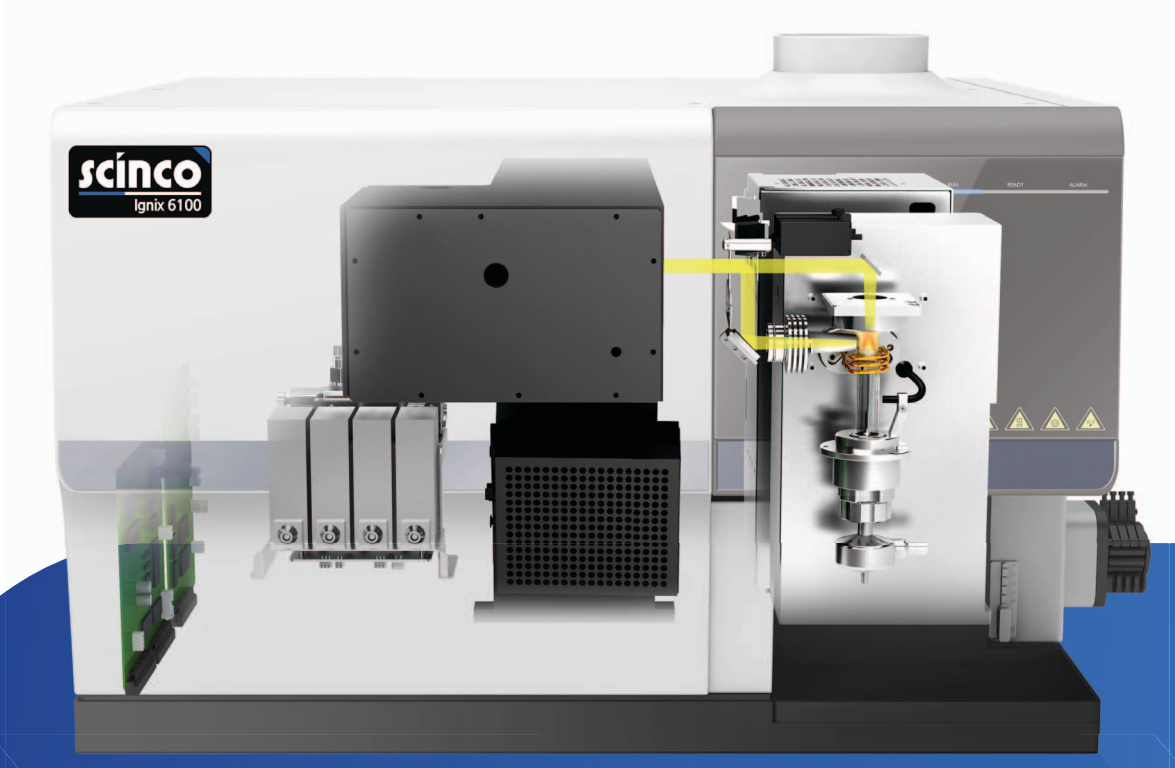
Eliminates matrix interference in challenging samples.

Ignix 6100 seamlessly utilizes both, providing the advantages of each in a single analysis. Furthermore, the innovative adjustable-height observation allows the system to optimize the viewing position for each element, ensuring the best possible sensitivity and repeatability across the periodic table.

Highly Optimized RF Generator

The heart of our plasma system is a robust, self-excited RF power supply that provides unparalleled stability and adaptability. Its rapid matching capability ensures a stable plasma even when introducing challenging samples like organic solvents or air, eliminating plasma flameout and reducing the need for complex sample preparation.

With a wide, continuously adjustable power range from 500 W to 1600 W, it offers superior flexibility for any application.



UltraField CCD Detector: Enhanced Sensitivity, Wider Spectral Range

Capture the complete elemental picture with our proprietary large-area UCCD (UltraField CCD) detector. This state-of-the-art sensor features larger pixels than conventional CCDs, is engineered for ultra-low noise, and delivers exceptional deep-ultraviolet response for superb detection limits. Its unique anti-blooming design prevents intense spectral lines from overflowing into adjacent pixels, ensuring accurate results even when measuring trace elements next to major components.

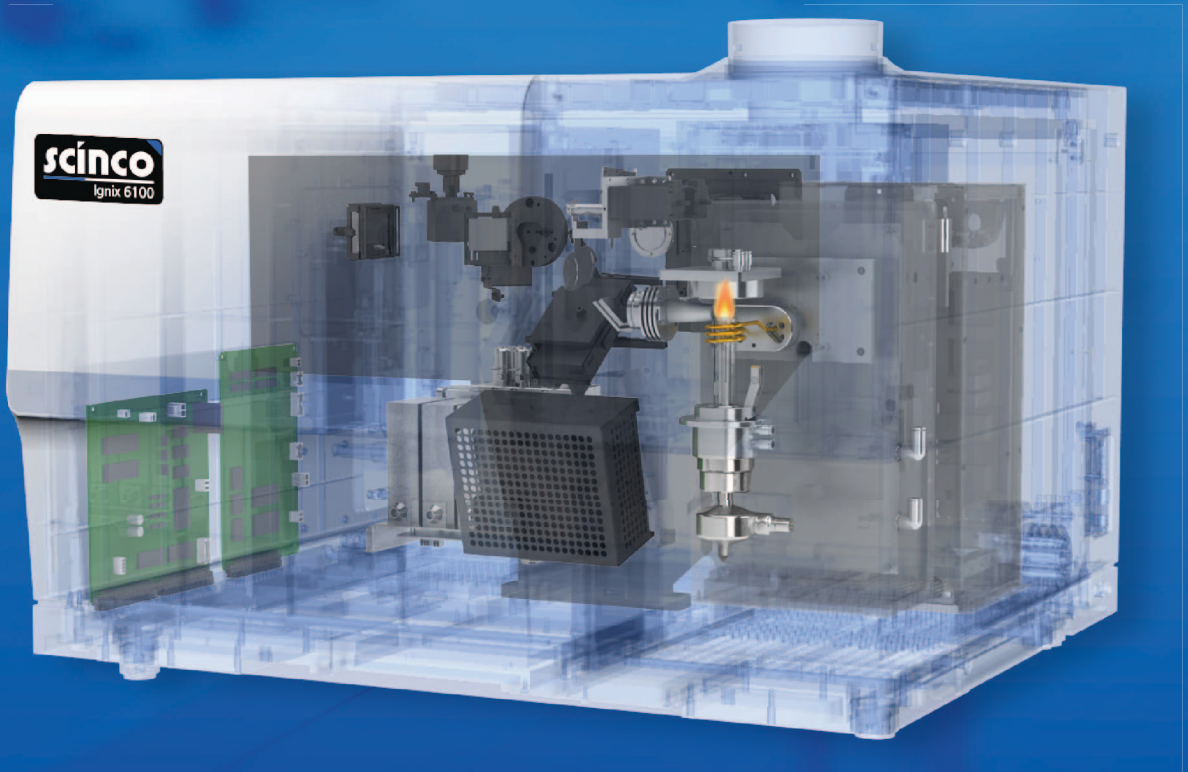
The expansive detector area allows the Ignix 6100 to acquire the entire spectral range from 165 nm to 900 nm in a single measurement. This superior functionality enables the simultaneous analysis of 72 elements in a few seconds, dramatically accelerating your sample throughput.

Innovative Design of Internal Architecture for Reliable Performance

Ignix 6100 features an all-solid-state and constant-temperature two-dimensional optical system with full-spectrum real-time correction.

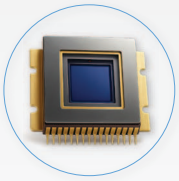
Its optimized optical path significantly minimizes refraction and reflection to ensure maximum UV light intensity.

The stability of critical components, including the RF devices and injection systems, is designed for long-term consistency, enabling 8-hour RSD below 1% and delivering world-class, highly competitive instrument stability.



Elevate Your Research with Ignix 6100

UltraField CCD



- Specially developed large 1-inch CCD sensor
- Re-engineered larger pixel size to improve sensitivity
- Up to 72 elements can be captured in a single exposure simultaneously.
- Superior detection efficiency in the deep-UV range

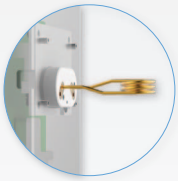
Robust, efficient multi-dimensional optical system

- Thermally stabilized, solid-state multi-dimensional optical structure
- Instant startup, real-time spectral calibration
- Anti-reflective and refraction-minimizing design for superior UV output

Innovative dual-view vertical torch structure

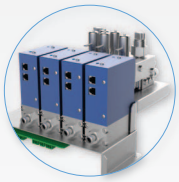
- Optimized for both sensitivity and endurance in high-salt matrices, the observation position may be adjusted to follow element distribution in the plasma, avoiding extra tail-flame interference.

Highly optimized RF generator



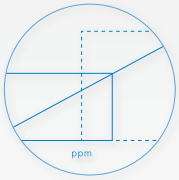
- Ultra-stable power performance
- Wide RF power range (500–1600 W)
- Fast, self-exciting impedance tuning
- High thermal efficiency and long-term reliability

High-performance, efficient multi-channel MFC system



- Fine-tuned control over nebulizer, cooling, and auxiliary gas streams
- Optional dilution-in-gas capability for analyzing high-salt samples without preparation

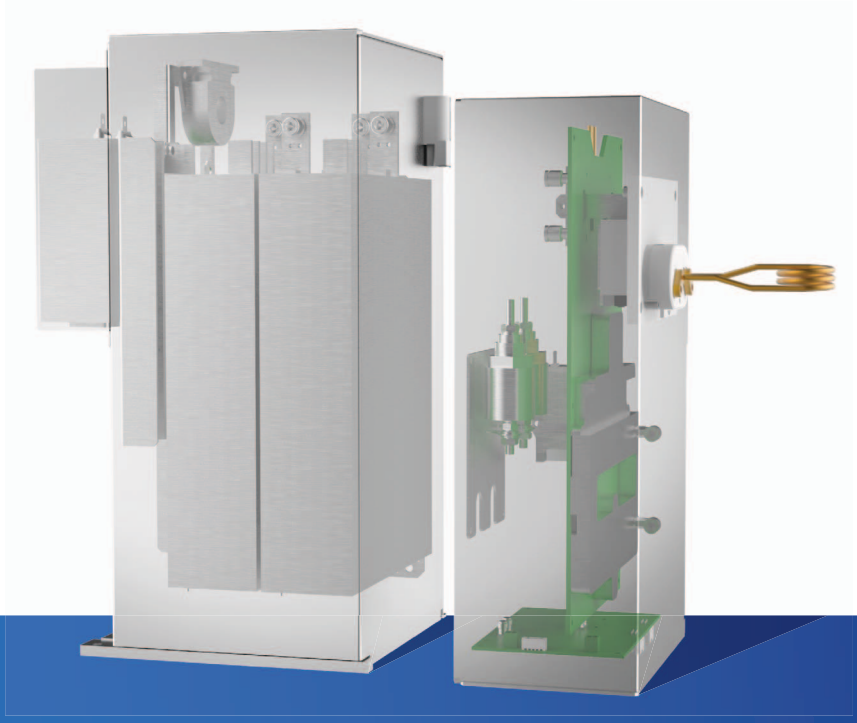
Real-time intelligent gain optimization



- Dynamic attenuation for easy handling of samples across a 1–100× concentration range

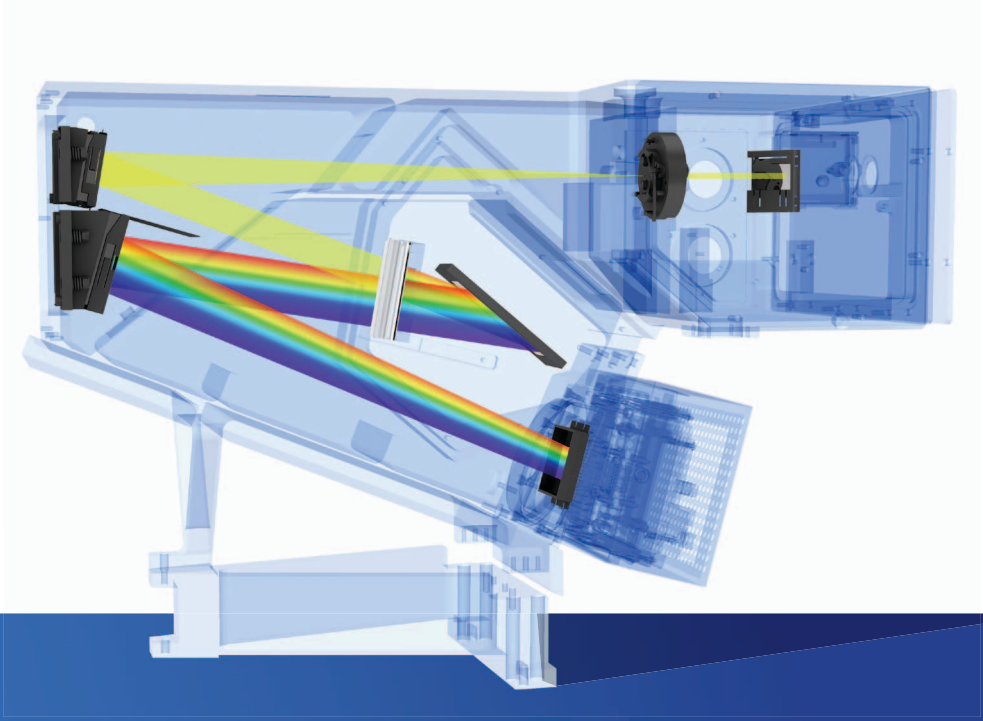
Highly Optimized RF Generator

- Highly efficient water-cooled thermal management system rapidly removes heat and reduces power drift to below 0.1%.
- Integrated digital dual-supply power control system enables seamless 500–1600 W RF power for unmatched adaptability to diverse sample matrices.
- The self-excited design achieves fast impedance tuning for challenging or variable sample matrices while removing mechanical components to enhance long-term reliability.

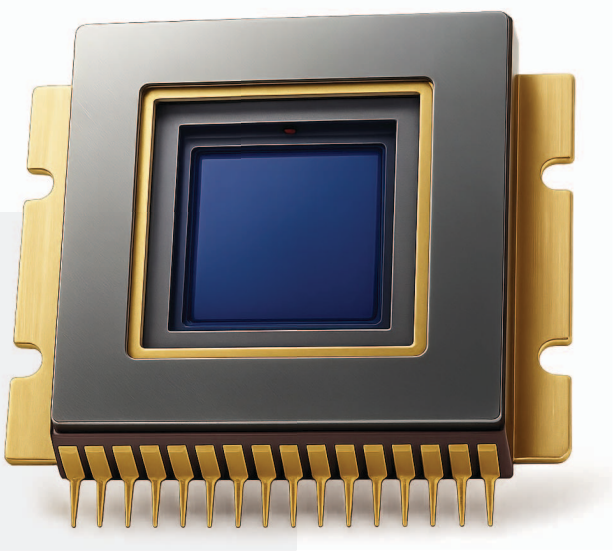


Robust, Efficient Multi-Dimensional Optical System

- Advanced 2D spectrometer architecture that preserves signal integrity by eliminating internal reflections and minimizing loss of light signal
- Maintaining the optical enclosure at 36 °C produces a reliable, drift-free measurement baseline.
- Engineered with fluid-dynamics-driven purge channels, the system quickly achieves a contaminant-free argon environment for UV analysis, conserving argon and accelerating readiness.
- Thermal barrier between enclosure and optics prevents ambient conditions from influencing optical stability.
- Superior ruggedness and stability deliver reliable performance for field and mobile applications.

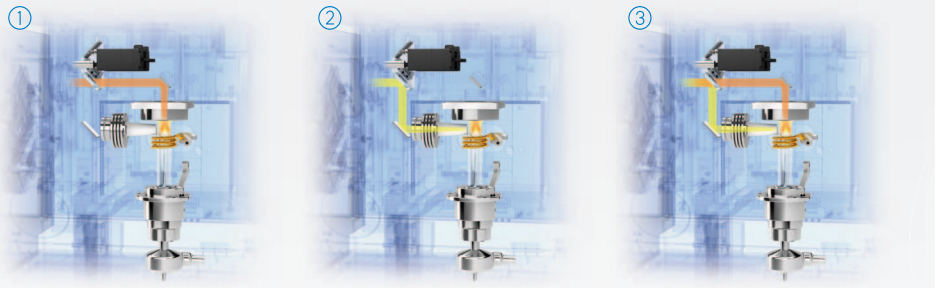


UltraField Large-Area CCD: proprietary design delivering superior performance



- Large-format 1-inch detector with enlarged pixels for improved signal response across broad spectra
- Full-frame 1024 × 1024 acquisition captures as many as 72 channels across 165–900 nm in one exposure and returns data in just a few seconds.
- Exceptional sensitivity in the deep-UV with excellent spectral discrimination
- Charge-overflow protection at the rear of the detector eliminates charge spillover, preserving the integrity of neighboring spectral channels.
- Integrated thermoelectric cooling per pixel effectively suppresses dark current and reduces background noise under all conditions.
- Despite intense argon emissions from 800–900 nm, analyte peaks are resolved and quantified accurately.
- The detector provides clear signals for carbon and aluminum around 160 nm and resolves UV band structure with precision.

Torch Dual-View

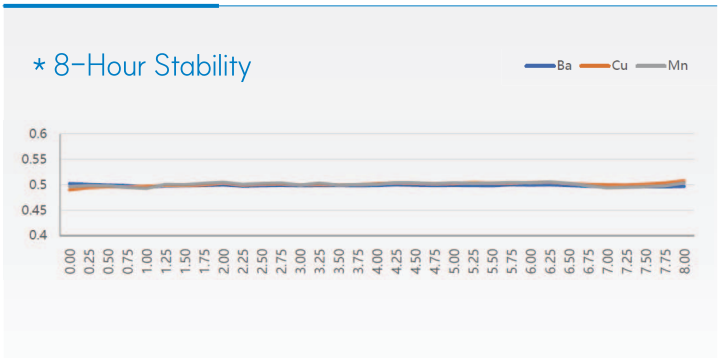


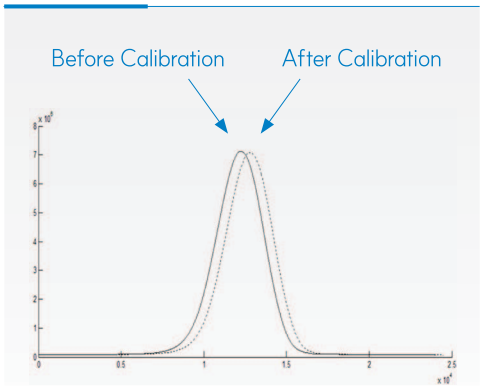
Innovative Dual-View Vertical Torch Structure

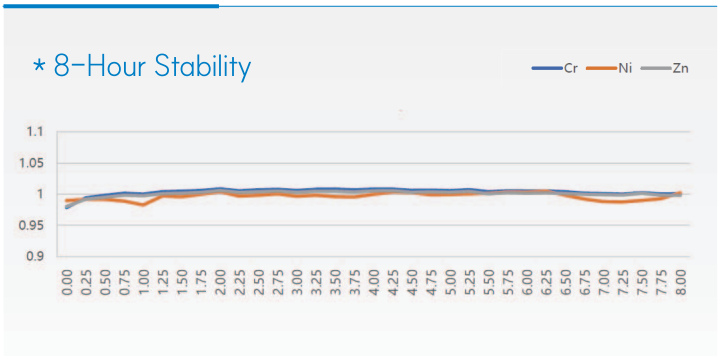
- Vertical plasma torch reduces argon consumption and minimizes salt deposition.
- Enhanced torch lifetime with decreased erosion
- Axial viewing drives superior sensitivity; radial viewing prioritizes interference elimination for more reliable quantitation.
- Adjustable viewing height of the plasma helps operators position the observation height to maximize elemental signal intensity.
- Bidirectional observation integrates the advantages of axial sensitivity and radial selectivity for superior results.

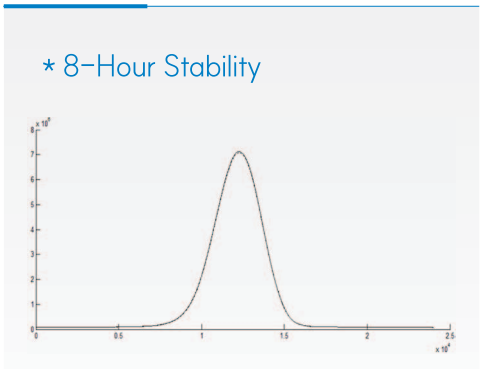
Active Drift Guard

- Automatic spectral positioning uses native lines (C, N, Ar) for startup and ignition, completing spectral correction without sample injection.
- Self-calibrating spectral positioning performs ignition and alignment using intrinsic carbon, nitrogen, and argon lines, eliminating the need for sample-based calibration.
- Full-spectrum live alignment references a non-interfering neon line to correct subtle spectral shifts during acquisition, ensuring better integration and stability.







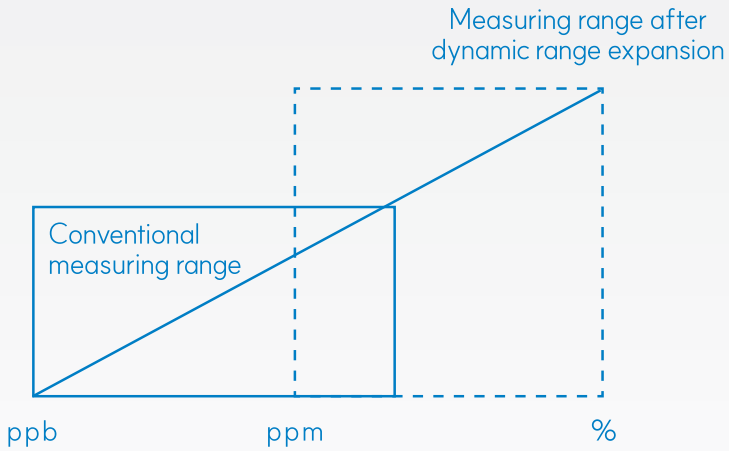


OnePass Gain

- The system increases attenuation automatically based on element concentration, allowing one-time analysis of samples with wide dynamic ranges and eliminating the need for multiple dilutions as well as sample pretreatment effort.

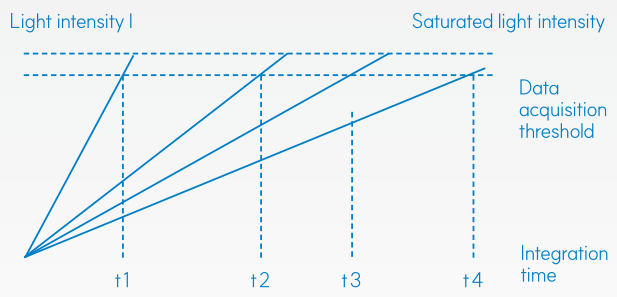
- Adaptive attenuation enables direct measurement of samples with 1 to 100 times concentration.

Effect of dynamic range expansion



Dynamic Data Integration System

Schematic diagram for self-adaptive integration data acquisition system



The integration system captures signal and background simultaneously and automatically selects the optimal exposure from live spectral intensity. Integration time is set with microsecond precision, intensities are normalized and calibration curves combined, extending dynamic range and preventing detector saturation. This real-time optimization reduces the need for repeated sample dilutions and accelerates accurate quantitation.

Smart MFC-Controlled Dilution Structure

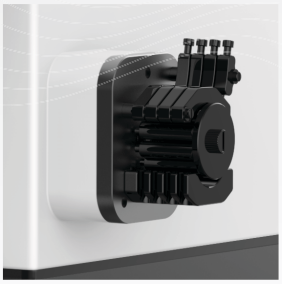
- An MFC-regulated argon dilution line added upstream of the torch dilutes samples above 10% salinity, simplifying pretreatment.
- Fully modular torch design with self-aligning parts; only the central tube is replaced for different setups to reduce consumable use.

Torch

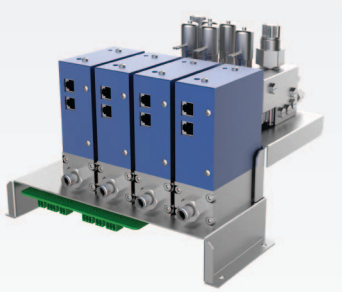
Advanced Injection Control System

- Robust peristaltic pump platform (12-rotor, 4-channel) designed for smooth sample transport and automated addition of standards
- Multi-channel MFC with 0.01 L/min control capability, enabling precise and reproducible gas flow control

Peristaltic Pump Platform



Multi-Channel MFC



Compatible with a broad selection of accessories

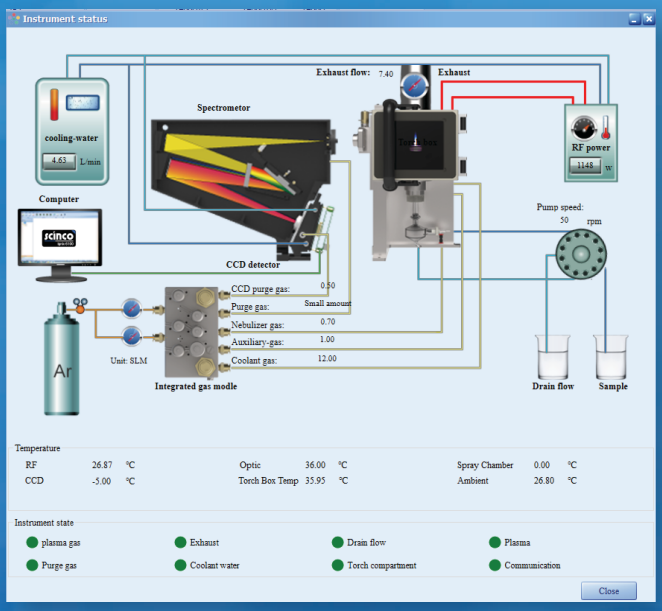
Autosampler

Hydride Generation System

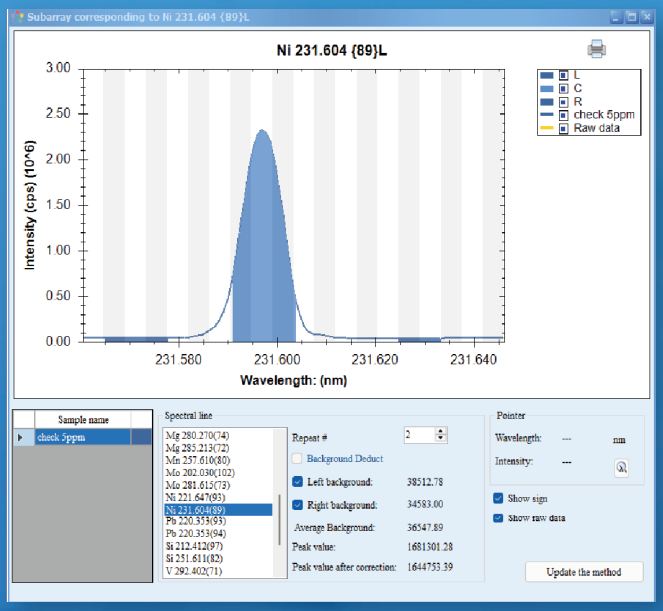
Organic Sample Injection System

Powerful, Easy-to-Use IgnixPro Software

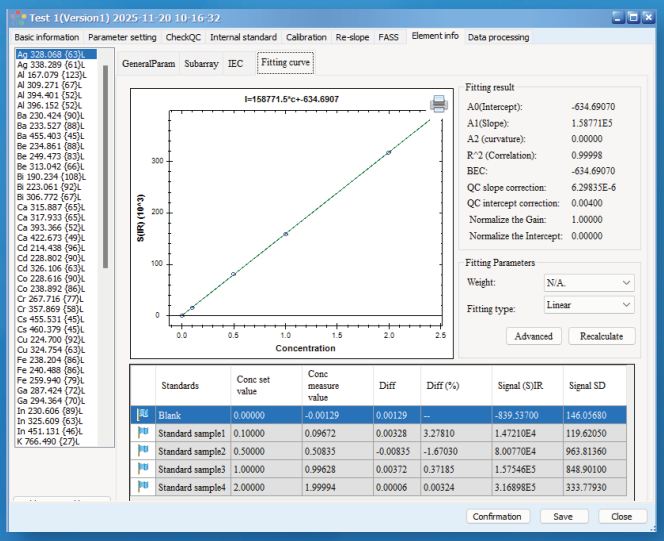
☑ Real-time instrument status and alerts



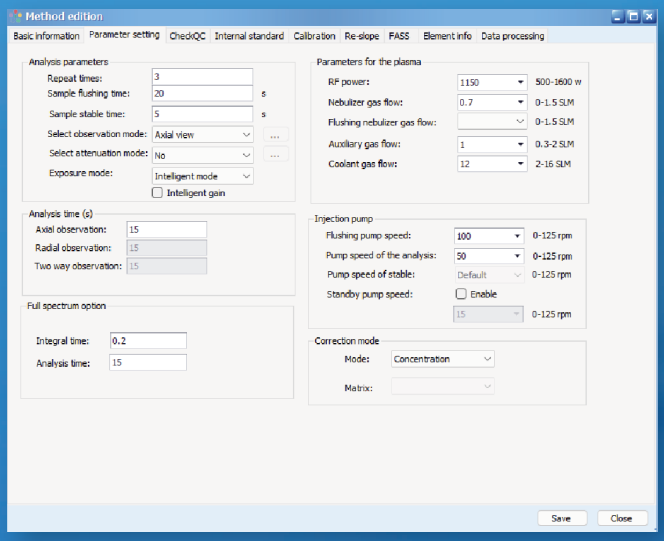
☑ Full-range spectral control and sub-array configuration



☑ Managing methods include backup / import



☑ Software with easy-to-use UI



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