

Unlocking the Future of Materials Analysis



astrum **swift**

High Resolution
Glow Discharge Mass Spectrometry

astrum *swift*

Built to meet the demands of industry

Rapid analysis of conducting and non-conducting solids for when material purity is critical

Example Industries

Aerospace

Superalloys, Ni alloys, high performance Al and Fe alloys.

Electronics

High-purity metals and semiconductors such as Si, Cu, Ga, GaAs, SiC, etc.

Mining & Precious Metals

High-purity metals production.

Clean Energy

Fuel enrichment, process monitoring, remediation.

Battery Technology

Cu and Al use for cathode/anode current collectors, high purity alumina for insulators.

Medical

Biocompatible alloys for prosthetic implants.





Key Features

Low Flow Source

Ultimate stability and ease of tuning: ready to operate in as little as 5 minutes, with low gas backgrounds.

Fast Throughput Capability

Significantly reduced analysis time makes the Astrum Swift ideal for alloys & low purity material analysis.

Flexible Sample Geometry

Allows analysis of pin, flat, powder, granular, wire, foil, filament, and even liquid samples.

Pulsed Cryo-Cooling

Ultimate temperature control with innovative pulsed cryo-cooling giving lowest gas backgrounds and reduced liquid nitrogen consumption. Facilitates analysis of low melting point samples.

Low Cost of Ownership

Predictable costs, powerful results. Low consumable usage and minimal maintenance.

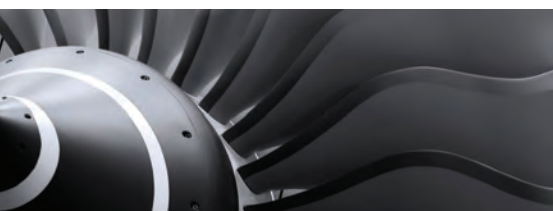


The Best Detection Limits for High Purity Materials Testing



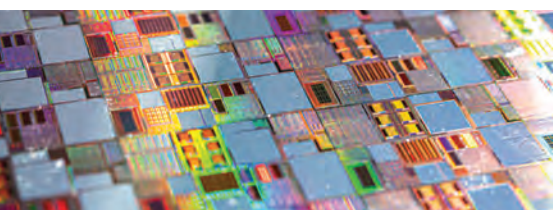
Pure Metal Industry

- Wide dynamic range
- Low Gas Background
- Flexible sample geometry



Alloy Industry

- Fast throughput
- Precision
- Industrial Design



Semiconductor Industry

- Secondary cathode for semi and non-conducting materials
- Low detection Limits
- Depth profiling capability

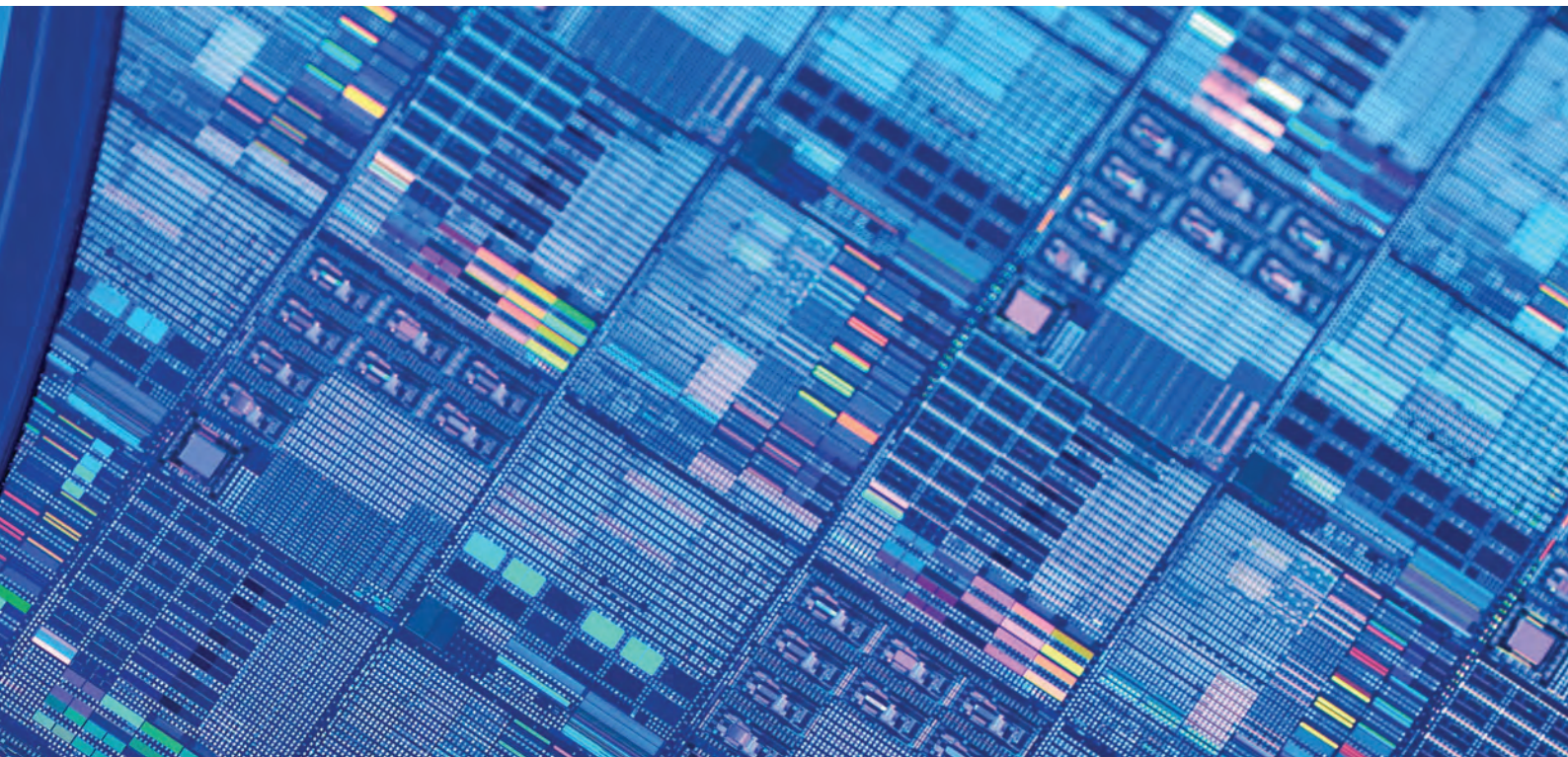
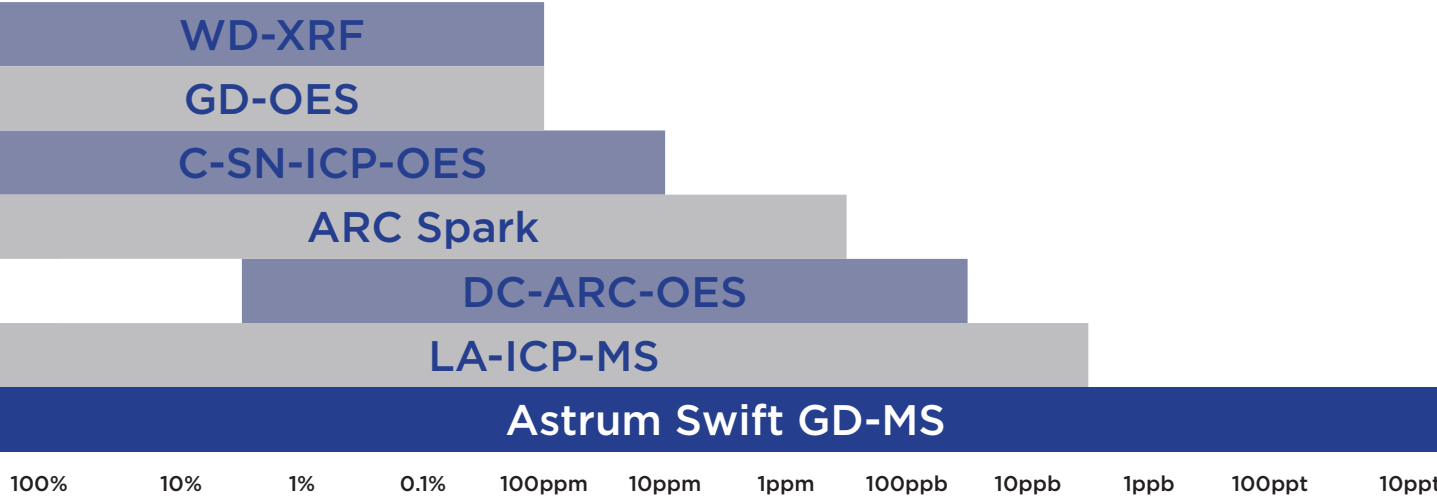


Choose GD-MS for the Widest Dynamic Range and Ultimate Analytical Performance

GD-MS enables direct analysis of solid materials with minimal sample preparation. The sample is sputtered and ionized using a low-pressure discharge gas, typically argon, in a process called glow discharge. The sample ions are accelerated and directed into the high-resolution mass spectrometer, where they are separated by mass using a powerful magnetic field. The ion beams are then measured using a dual-detector system, allowing detection of even individual ions. This enables the quantification of elemental composition.

Quantify virtually all elements from 100% to sub-ppb in a single scan, with a dynamic range spanning 12 orders of magnitude.

Using the dual-detector system with automatic cross calibration, the Astrum Swift can measure 78 isotopes, from lithium to uranium, in under 3 minutes.



Proven Technology - Reimagined

Low Flow DC Source

Provides ultimate stability and ease of tuning. Ready to operate in as little as 5 minutes from powering up. Low gas flow means low levels of gas borne interferences.

Flexible Sample Geometry

For ultimate analytical convenience. Allows analysis of pin, flat, powder, granular, wire, foil, filament, even liquid samples.

Semi & Non-Conductive Samples

Analysis of semiconductors and even non-conductive samples is possible, when using a secondary cathode to support glow discharge.

Easy Sample Changeover

Tool free sample holder change over with pre-loadable sample holders available for maximum efficiency. Stable tuning and quick set up with auto pump and vent.

Pulsed Cryo-Cooling

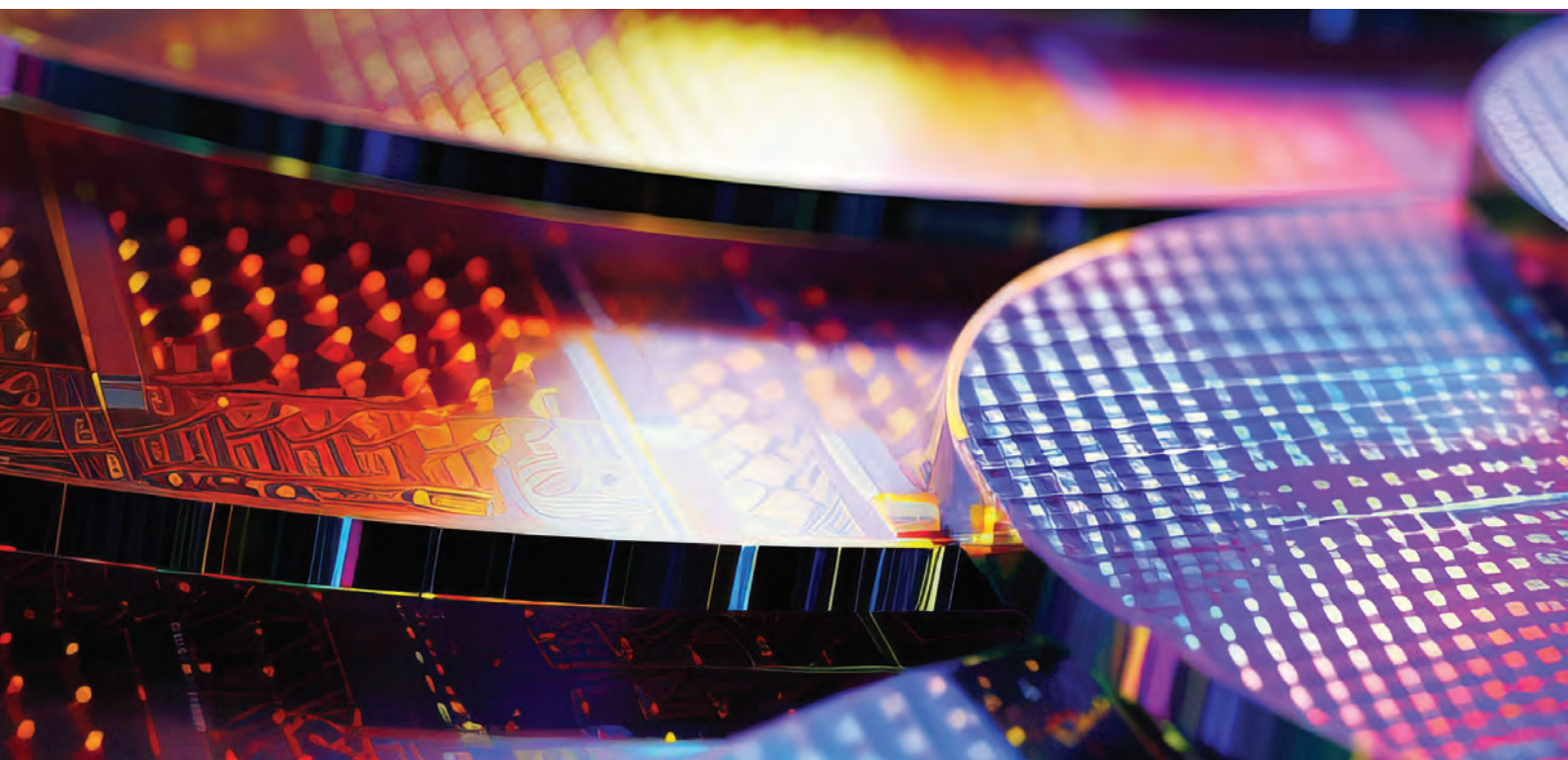
Ultimate temperature control with innovative pulsed cryo-cooling gives lowest gas backgrounds and reduced nitrogen consumption. Facilitates analysis of low melting point samples.

Low Gas Background

All Astrums come with a gas purification kit as standard to ensure the lowest C, N & O levels.

Low Cost of Ownership

Predictable costs, powerful results. Reduced liquid nitrogen consumption and user definable cooling schedules for optimises instrument cooling. Few consumable components, robust and reliable design for maximum uptime.



Low Gas Consumption

The low flow design means, at a typical flow rate, a standard pressurized argon bottle can last for years.

Reusable Source

All source components are reusable. The low contaminant tantalum source is easy to clean, and reduces memory effect.

Fast Throughput Capability

The Astrum Swift features fast throughput, significantly reducing analysis times, particularly for alloys & lower purity materials.

Wide Dynamic Range

Dual-detector system (faraday and ion counting multiplier) provides a dynamic range covering 12 orders of magnitude from 100% to sub ppb in a single scan.

Continuously Variable Resolution

Range: 300 to >10,000 RP.

Wide Mass Range

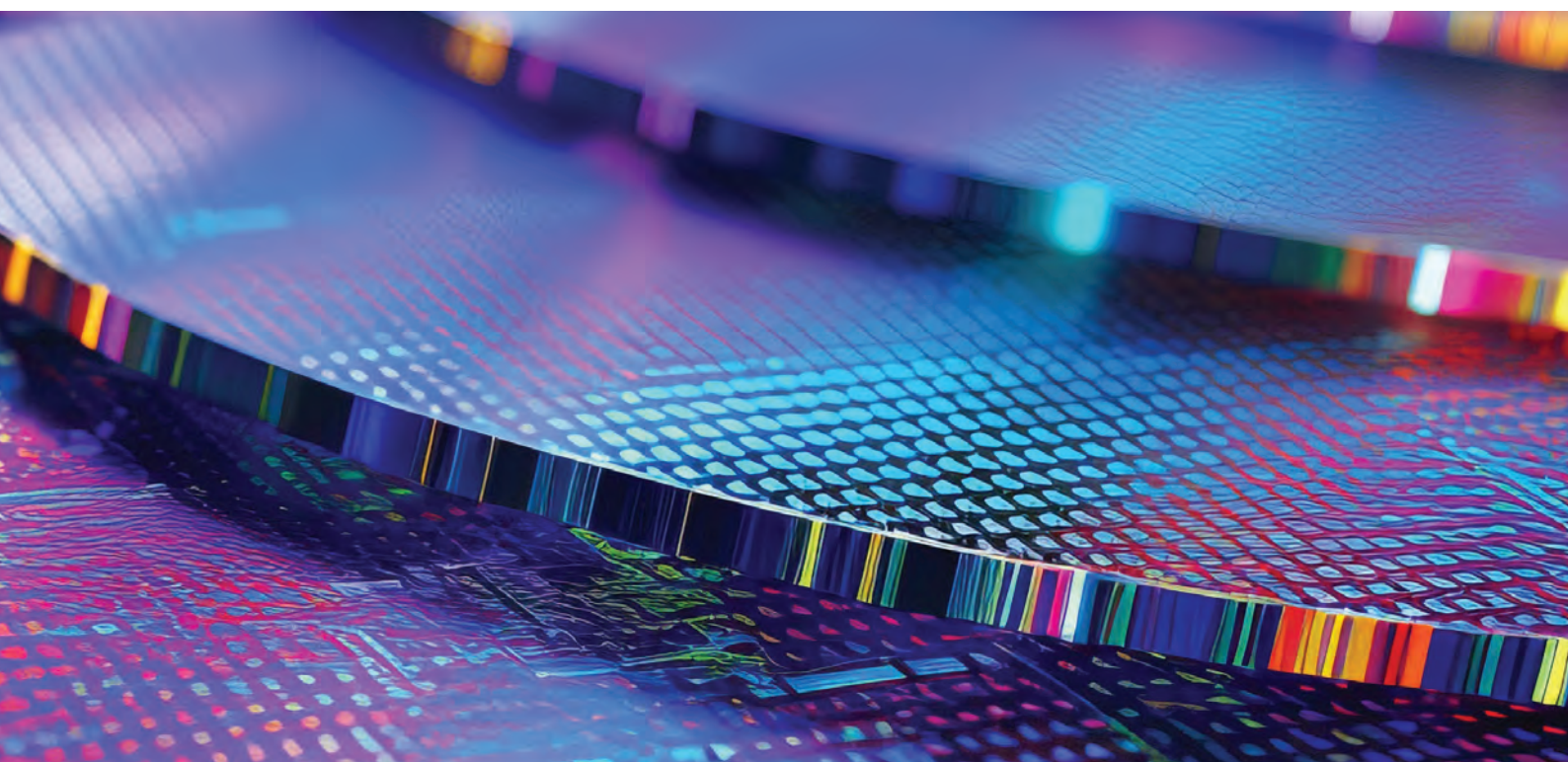
Mass range of 1-300 AMU in a single scan

CoDaq Software

Nu's intuitive control and data acquisition software makes getting your results simple, with automatic source tuning, ICE calibration, source pumping and venting.

Turbo Pumping System

Reduced maintenance and quicker pumping times after venting.

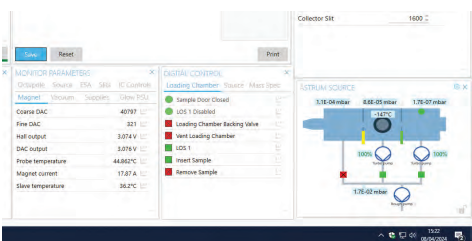


Nu CoDag Software Suite

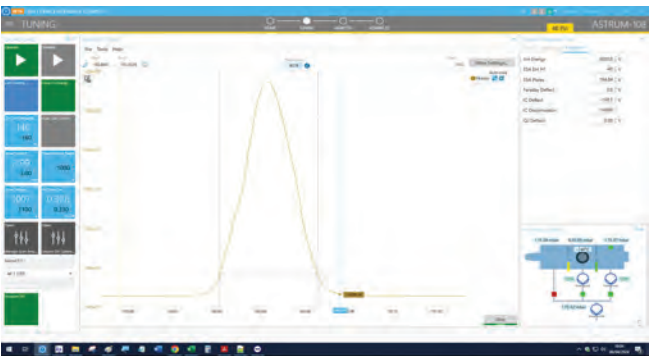
Featuring a flexible user interface and features developed in collaboration with industry experts, CoDaq is the new standard in GD-MS software.

Prioritizing user experience, the new Astrum CoDaq software allows for multiple access levels, automated workflows and customisable dashboards.

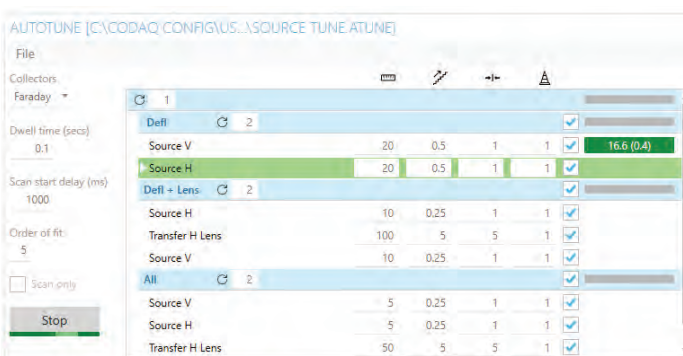
Multiple user-level profiles can be set in CoDaq to facilitate ease of training and maintain compliance in standard operating procedures.



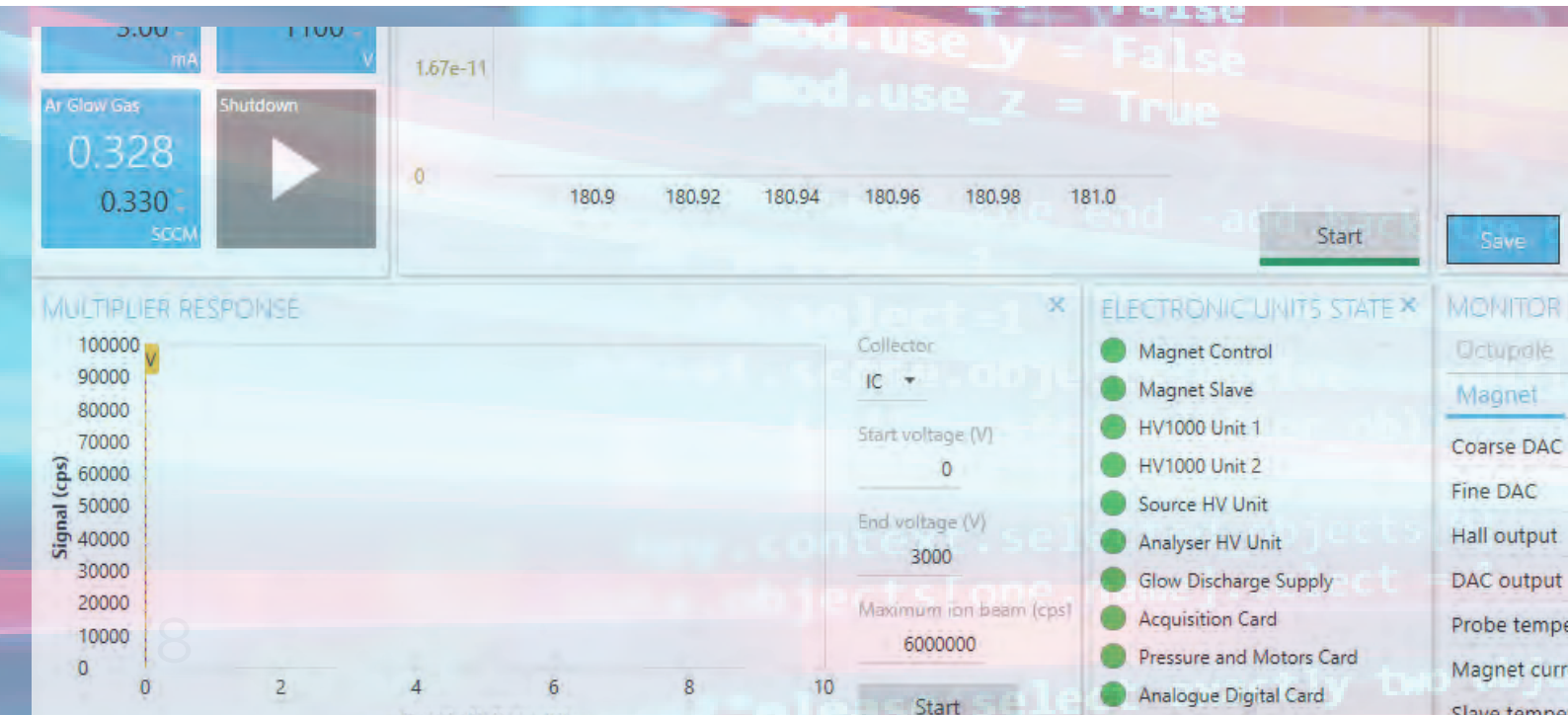
Advanced settings for ultimate user control



Simplified user interface with customisable layout and dashboard



Source Autotune

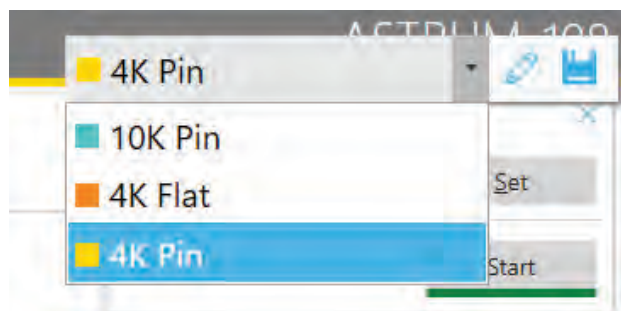


Intuitive Design with Industrial Focus

CoDaq is designed to facilitate new and experienced users alike.

- Fully automated source venting and pumping
- Automatic detector cross-calibration
- Flexible automatic source tuning
- Auto gas control to maintain glow stability
- Liquid nitrogen scheduler

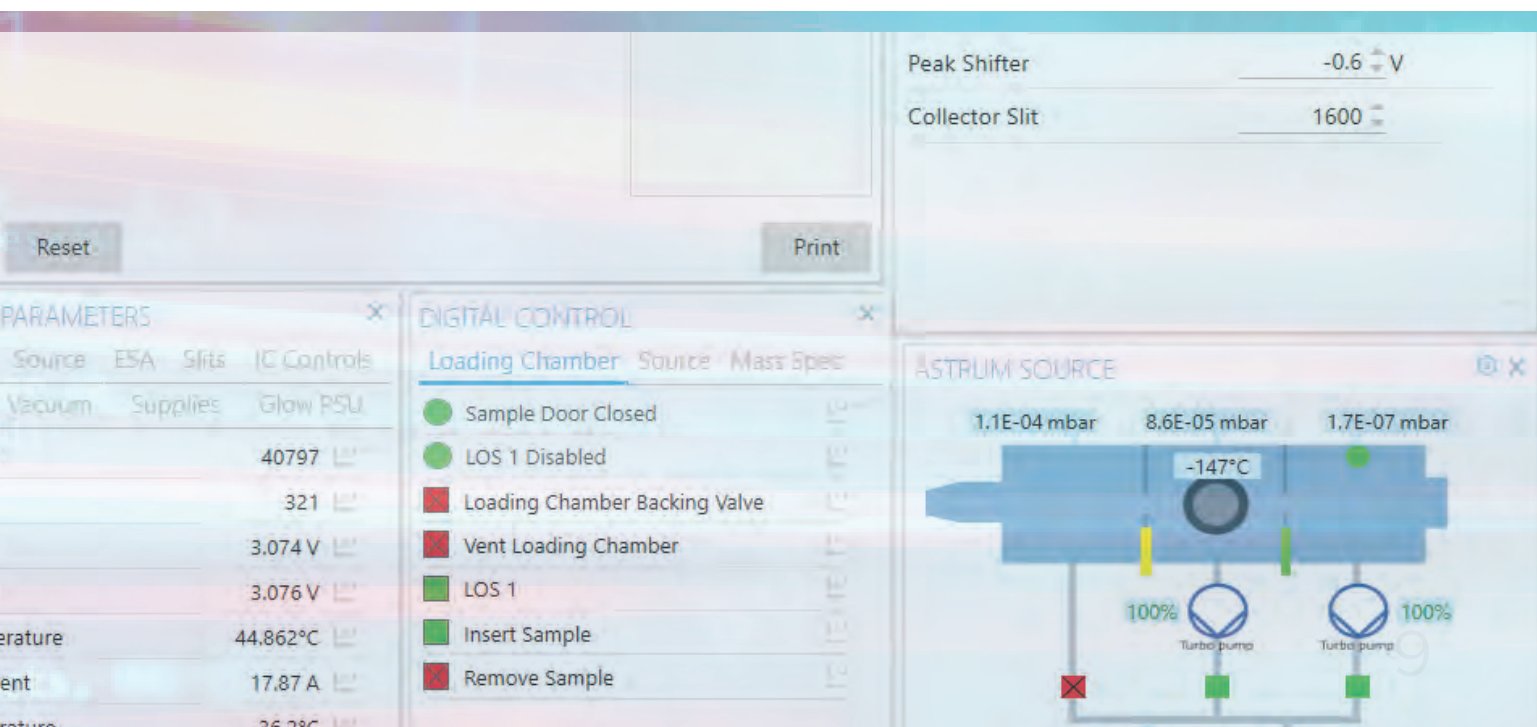
Fully customisable user dashboards, with workflow arrangement providing the choice to display essential data only or fully explore every setting. Visual display of key information, such as the source schematic, gives insight at a glance.



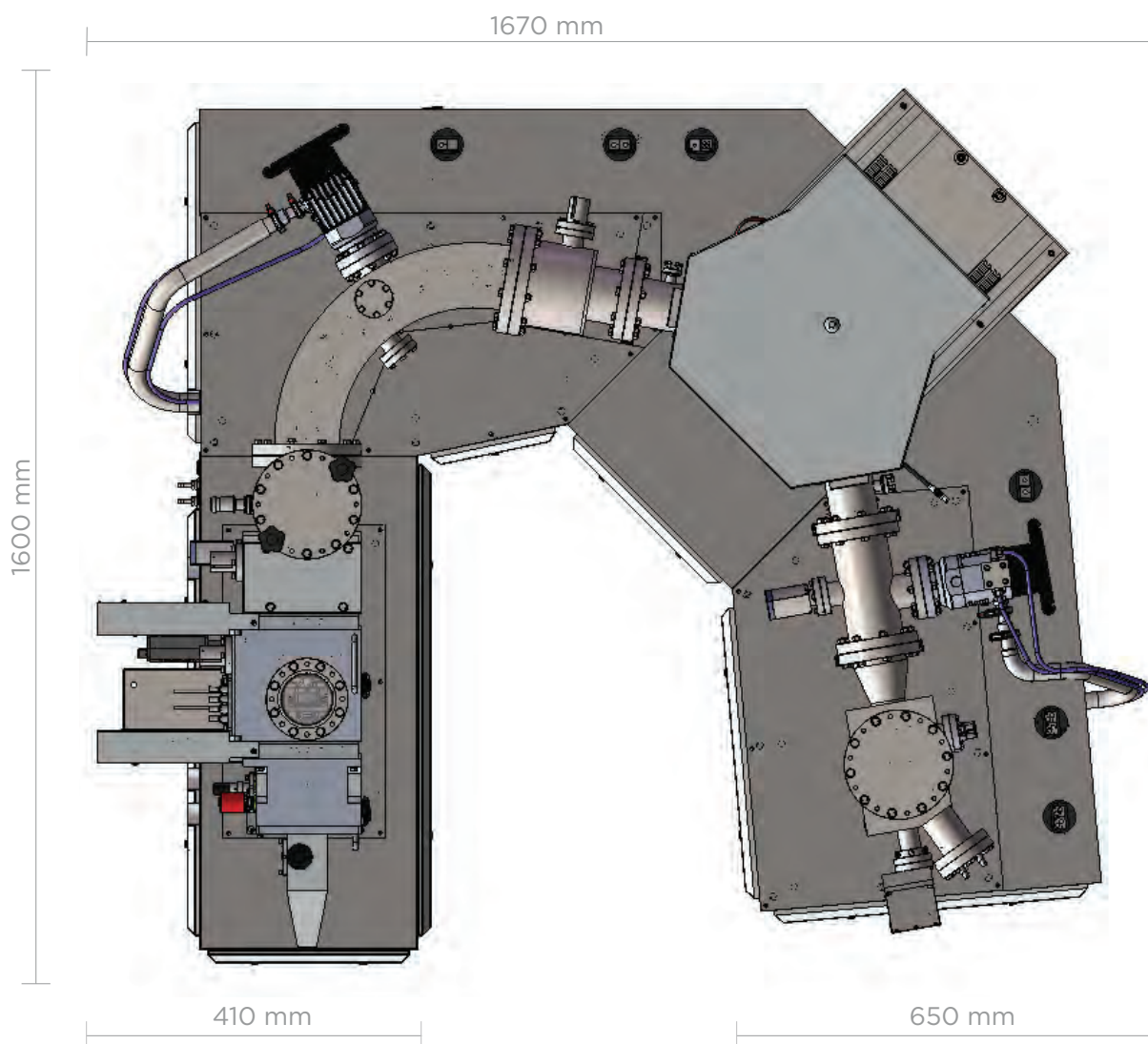
One click tuning within Analysis Modes

ANALYSIS					Sample Name	
METHOD	RUN NAME	PRESPUTTER (S)	ANALYSIS MODE	REPEATS		
BAS SS-CRM 345 Full	4000 Resolution	800	4K Pin	1	☐	☒
BAS SS-CRM 345 Full	10000 Resolution	0	10K Pin	1	☐	☒

Run different analysis modes sequentially



Astrum Swift - Specifications



Width:	1,670mm
Depth:	1,600mm
Power requirements:	230V, 50/60Hz, 6A (transformer supplied for sites with alternate voltage)
Water chiller:	Supplied (500W), for cooling turbo pumps, MFC and magnet slave
Heat loading:	~1.5 kW during normal operation
Vacuum pump exhaust:	12mm I/D flexible tubing
Temperature range:	20-24°C
Relative humidity:	40-70% non-condensing
Gas supplies required:	Argon (99.9995%) and compressed air
Cryo-cooling:	Liquid nitrogen with options to use an atmospheric or pressurised dewar system.
Communications:	Instrument PC can be connected to the internet for remote service support
Matrix current (sensitivity):	$>1.3 \times 10^{-9}$ amps at $RP > 4,000$ using total Cu signal
Operating analyser pressure:	$<2 \times 10^{-7}$ mbar under full gas load

Nu Instruments Benefits

Exceptional customer support. No exceptions

Investing in a Nu instrument means much more than just the instrument. Nu's commitment to exceptional customer experience ensures you receive only the best service.

Technical help is just a call or email away, and Nu endeavours to respond to all service enquiries within 24 hours. All enquiries are handled by experienced Astrum engineers who work together to find you a solution as fast as possible.

We offer a range of service plans ranging from technical support to comprehensive maintenance packages.

- Direct contact to service and installation engineers
- Remote support via email, video and phone
- Range of service contracts available
- Local service teams



astrum *swift*

Contact us today to book a demonstration: nu.sales@ametek.com
Visit www.nu-ins.com for more information



High Resolution GDMS



semiconductor



metals & alloys



material science



nuclear

Nu Instruments Limited

Corporate Headquarters
Unit 74, Clywedog Road South,
Wrexham Industrial Estate,
Wrexham,
LL13 9XS - UK.

Tel: +44 (0)1978 661304
nu.info@ametek.com

Innovators in Mass Spectrometry. We deliver cutting-edge science and technology solutions, and offer our customers unparalleled support and maintenance service.

Corporate Headquarters

Nu Instruments UK

• nu.sales@ametek.com

Regional Contacts

Nu Instruments Europe
Nu Instruments Americas
Nu Instruments Asia

• nu.europe-sales@ametek.com
• nu.america-sales@ametek.com
• nu.asia-sales@ametek.com

visit us online:
www.nu-ins.com

Astrum Swift BRO240411
All mentioned trademarks are registered by their respective owners.

