

Selected Upgrades

Catalogue

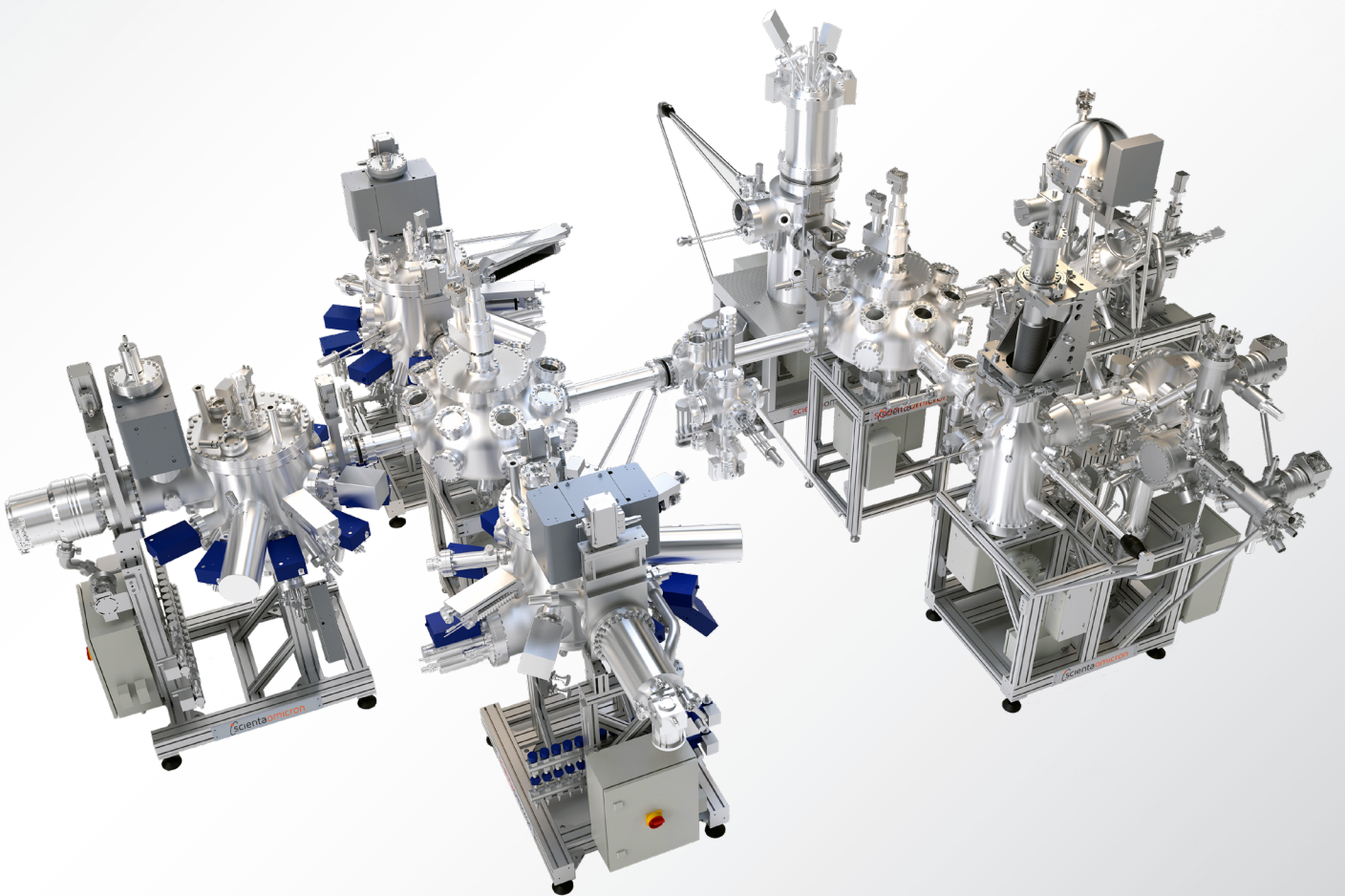


Table of contents

	Page
Electron Spectroscopy	
Throughput enhancement package	5
DA20 deflection & alignment upgrades	5
Electrostatic 3D focus adjustment upgrades	6
Deflection upgrades for DA30-L	6
PEAK (software platform)	7
PEAK slit control	8
Analyser control upgrade	8
VUV5k high uptime kit	9
VUV5k flat rate repair	9
Scanning Probe Microscopy	
INFINITY cooling system maintenance	11
QPlus upgrade for all TRIBUS SPM head based instruments	11
MATRIX SPM Computer with Microsoft Windows 11	12
HF-Filter set for POLAR, INFINITY and STREAM SPMs	12
Temperature variation package for POLAR, INFINITY and STREAM SPMs	13
Heating stage for TRIBUS STM tips	13
Extended-Range scanner for LT STM	14
Tip Enhanced Raman Spectroscopy (TERS) option for LT STM	14
Systems	
System controller - MISTRAL upgrade package	16
Data logging, visualisation and alerting upgrade: for MISTRAL control system	16
PBN sample heater upgrade package	17
E-beam heater upgrade package - High temperature version	17
High temperature heater stage upgrade package	18
UHV Gemini electronics and software upgrade	18
SpectaLEED	19
LEED spot analysis upgrade for SpectaLEED optics	19
High sensitivity Auger Electron Spectroscopy upgrade	19
Sputter ion source upgrade package	20
Universal hot-filament fine-focus ion source	20
Remote Support Services	
Remote support sessions	22

Selected service catalogue overview

This catalogue provides an overview of selected upgrade and service opportunities designed to enhance the performance, capabilities, and lifetime of your Scienta Omicron systems. All Scienta Omicron solutions are developed with a strong focus on supporting advanced research environments and evolving experimental needs.

The offerings presented here highlight a curated selection of possibilities for extending and optimizing your existing Scienta Omicron equipment and are intended to illustrate the range of support available.

Our expertise extends well beyond the options included in this catalogue, encompassing a comprehensive portfolio of services, including tailored maintenance programs, preventive care, and expert support, all designed to ensure reliable operation and long-term performance.

We welcome the opportunity to discuss your specific requirements and identify the most suitable solutions. Please feel free to contact us directly.

To learn more - scan or click the QR-code.



With decades of experience supporting surface science and materials research, Scienta Omicron remains committed to enabling high-performance and reliable experimental systems.



Learn more at [scientaomicron.com/service-upgrades](https://www.scientaomicron.com/service-upgrades)



Electron Spectroscopy

Service & Upgrades



Throughput enhancement package

Boost productivity for your most challenging applications

For state-of-the-art facilities researching complex applications, detector signal density often limits achievable throughput, signal-to-noise ratios, and measurement efficiency.

The Throughput Enhancement Package (TEP) removes these constraints, dramatically increases the detector capacity, and allows 10x enhanced electron throughput.

Developed for high-flux beamline and ambient pressure workflows on HiPP analysers. By distributing signal across the detector area, TEP boosts throughput while preserving traditional lens operation.

Upgrade advantages:

- Up to 10x enhanced throughput and linear range
- Increase detector lifetime with improved active area utilization
- Improved uptime of analyser due to extended detector life time
- Instant upgrade: No vacuum work required
- Enjoy rapid measurements
- Optimally suited for synchrotrons today and tomorrow

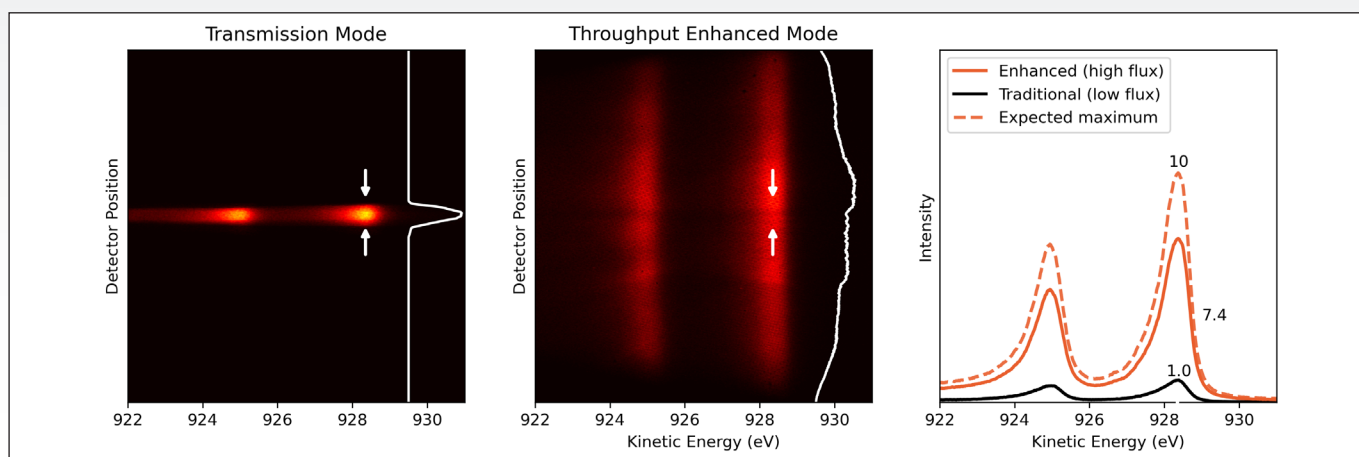


Figure 1: Pt $4f_{7/2}$ spectra acquired with a small excitation spot (< 0.3 mm). Arrows indicate equal detector length. Inset: Signal along y-axis integrated. (left) traditional transmission mode. Signal density concentrated along the centre and only using $< 5\%$ of the total available detector area. The acceptable flux is limited by the signal density. (center) with Throughput Enhancement Package a highly uniform signal intensity is achieved using the entire detector area – enabling 10x more signal than traditionally possible. (right) The extracted Pt $4f_{7/2}$ signal clearly shows the limit of the traditional mode. A ~ 7 x higher signal intensity demonstrated by throughput enhancement. (Both spectra: HiPP-3 at HIPPIE beamline, $E_{\gamma}=1,000$ eV, $t=100$ s). If the signal density is increased to the level of the traditional transmission mode measurement, 10x higher signal intensity is expected.



DA20 deflection & alignment upgrades

Unlock full cone ARPES and faster alignment

Measure a full cone without tilting the sample. Maintain geometry, reduce matrix effects, and achieve higher accuracy across the slit.

Upgrade options:

Alignment

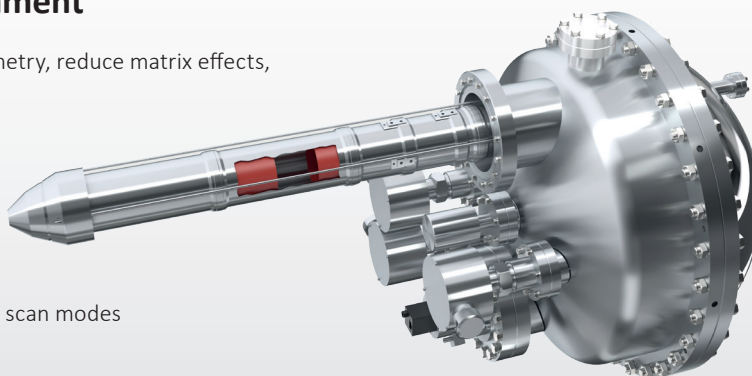
- Faster signal optimisation with less manual adjustment

Full Deflection

- Complete ARPES mapping with full deflection and new line scan modes
- Available for DA20(R) models

Key Upgrade benefits:

- Measure a 20° full acceptance cone without sample tilt, preserving experimental geometry
- Reduce matrix element effects and improve data quality
- Ensure the same sample area is probed throughout the measurement
- Improve accuracy perpendicular to the slit (θ_y)
- On-site upgrade: can be performed at customer site without removing the analyser and without breaking vacuum



Electrostatic 3D focus adjustment upgrades

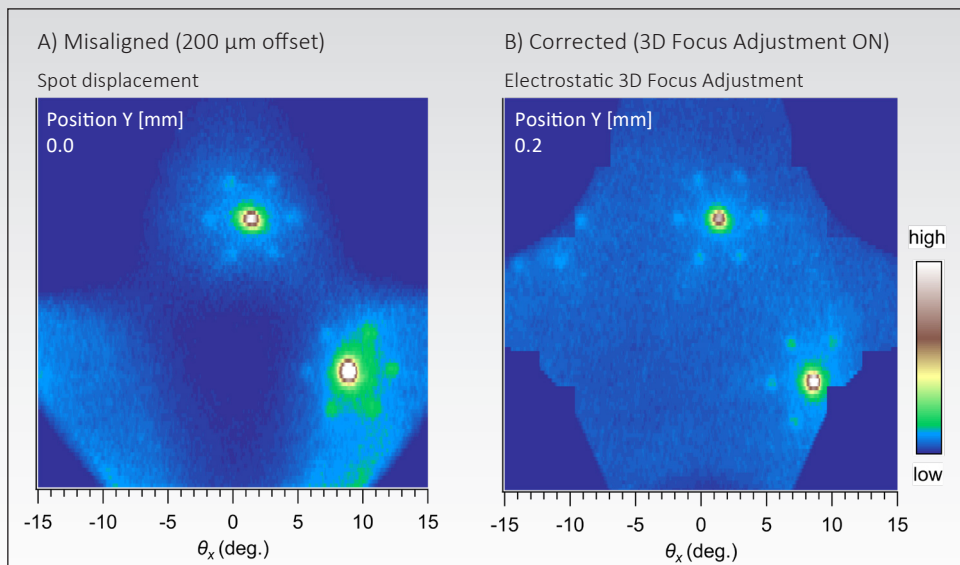
Stay focused, save time

Electrostatic 3D Focus Adjustment enables fast electronic correction without mechanical movement, restoring full angular acceptance and data integrity.

This upgrade is available for: DA30-L, DA30-L(R), DA30-L(W) and EW4000

Key Upgrade benefits:

- Electronically shift the analyser focal point to the photoemission spot (no mechanical movement required)
- Faster time to optimal alignment, improving workflow and reproducibility
- Preserve sample surface quality and effective sample lifetime by reducing repeated re-positioning
- Real-time calculated lens tables enable intuitive electronic alignment via software control



Graphene measurement with 10 µm emission spot.

A) A 200 µm misalignment causes shadowing and asymmetric signal.

B) Electrostatic 3D Focus Adjustment restores full, symmetric data by electronically aligning the focal point.

Data courtesy: Bloch beamline, MAX IV.



Deflection upgrades for DA30-L(R) & DA30-L(W)*

Added deflection mode capabilities

Electronic deflection enables angular scanning in θ_y without moving the sample, preserving measurement geometry and ensuring that the same sample area is probed throughout the experiment. This improves data consistency and enables faster, more precise measurements compared with mechanical movement.

*DA30(R), DA30-L(R), DA30-L-8000(R), DA30-L(W)

Deflection mode advantages:

- Improved k_y accuracy (resolution better than 0.1°)
- Time saving by electronic deflection
- Fixed matrix elements during scan
- Reduced manipulator requirements
- Ensures same spot for all $k//$
- Patented deflector concept
- Sequential full cone detection

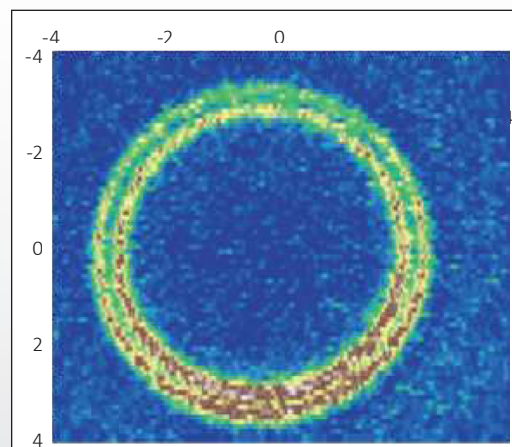


Figure 1. Fermi surface map of Au(111). Scan mode using angular mode 30. Sample was not moved and spectrum was recorded at 77 K. Measuring time: less than 1 min.

Data courtesy: Dr. Ivana Vobornik, CNS-IOM, TASC Laboratory, AREA Science Park, Trieste, Italy.



Electron Spectroscopy control and acquisition software

PEAK controls photoelectron spectra acquisition with Scienta Omicron analysers. Modern architecture improves performance, workflow, and live visualisation. Modular design and network-based API enable integration of additional equipment and external control systems.

Key benefits:

- Flexible live data visualisation
- Supports high data rates
- Improved workflow efficiency
- Network-based API for external control
- Modular architecture

GUI & data visualisation

- Browser-based GUI; multiple tabs/screens
- Main: camera raw monitor; optional spectrum monitor
- Running average for reduced noise
- Live 1D/2D slices, zoom, θ_x/θ_y scans
- Data visualisation independent of acquisition

Analyser & detector control

- Lens modes, kinetic/pass energies live
- Analyser state always visible; can turn off manually or via sequences
- Detector voltage presets for setup and high-intensity signals

Sequences

- Nested loops and spectral regions
- Store/retrieve sequences (XPS scans, surface checks)
- Remaining time and iterations displayed
- Export spectra automatically

Architecture, scripts & API

- Modular PEAK servers for each hardware component
- Custom drivers and Python scripts supported
- API for EPICS, TANGO, Python, LabView
- SDK for offline client development

Modules & upgrades

- Base module: analyser control and measurements (license included)
- Upgrade from SES: import calibration, remote install
- PEAK-ready service: analyser compatibility, HV rack, detector, Win 10 PC, hardware evaluation

Auxiliary components

- Manipulators, delay stages, other hardware supported via scripts/drivers

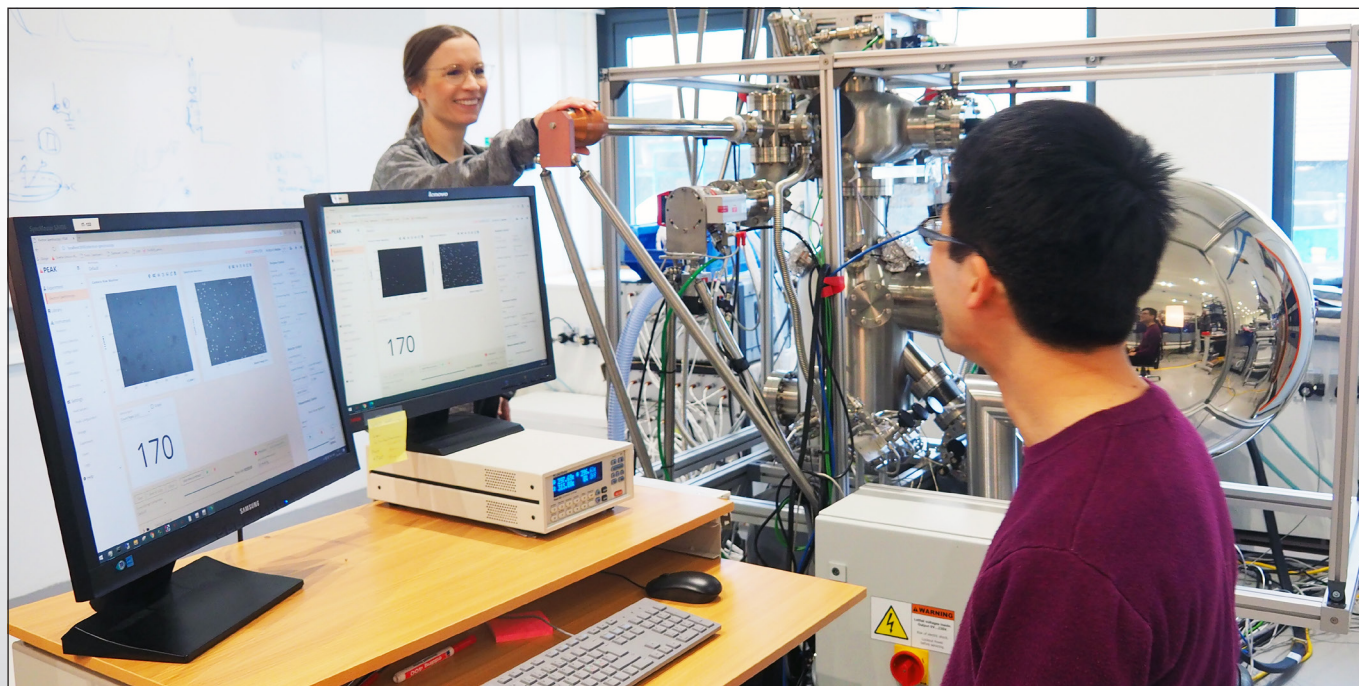


Figure 1: The ARPES Lab is a fully integrated system solution including vacuum system and bakeout capability. This system is configured to have a DA30-L with electronic deflection, narrow band width VUV5k helium ECR based lamp, preparation chamber, and 5.5-axis closed cycle 10 K manipulator. Lowest residual fields at the sample are provided by a double mu-metal shielded chamber. PEAK is used to control both analyser and manipulator and allows early and flexible visualisation of acquired data.

PEAK slit control upgrade

Optimal settings with remote control



In photoelectron spectroscopy measurements, there is always a trade-off between signal intensity and resolution. Optimising this balance is essential for acquiring high-quality spectra in the shortest possible time. For hemispherical analysers, this trade-off is defined by the selected entrance slit and pass energy. PEAK Slit Control replaces manual slit handling with a motorised, software-controlled solution, enabling fast and precise optimisation directly from the control software.

By integrating slit changes into automated measurement sequences, users can seamlessly switch between high-intensity overview scans and high-resolution measurements without manual intervention. This improves workflow efficiency, reduces experiment time, and ensures consistent measurement conditions across datasets. Slit position is automatically detected and stored with each spectrum, enabling reliable reproducibility and easier data comparison.

Key advantages:

- Remote control of analyser slit
- Optimised slit selection in automated sequences
- Reliable slit metadata stored with each spectrum
- Compatible with EW4000, HiPP-2/3, DA30-L, DFS30



One of our service engineers installing the PEAK Slit Control to an ARPES Lab. Quick installation with no need for breaking vacuum.

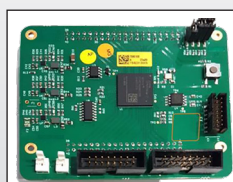
Analyser control upgrades

Get ready for the next generation of analyser control

Efficient and accurate communication between the analyser and the software is essential for achieving high-performance measurements. The latest standard for this system incorporates Ethernet-compatible hardware and software components. Upgrading these components will elevate your Analyser Control system to its highest possible performance level.

Key features of the upgraded components:

- A complete Windows 11 Solution for Analyser control
- Improved signal integrity
- Most recent SES software version
- Ethernet interface simplifies rack add-ons
- Future ready: PEAK software compatibility



Card HVC2023



Windows 11
Instrument PC



CMOS Ethernet Camera *



Ethernet Rack
Upgrade



* Enhanced Upgrade: USB 3.0

Enhance your upgrade Package with the USB 3.0 Camera Upgrade. Enjoy a frame rate that's approximately three times higher than the GigE version. This upgrade replaces the GigE version at no additional cost, with PEAK as a prerequisite

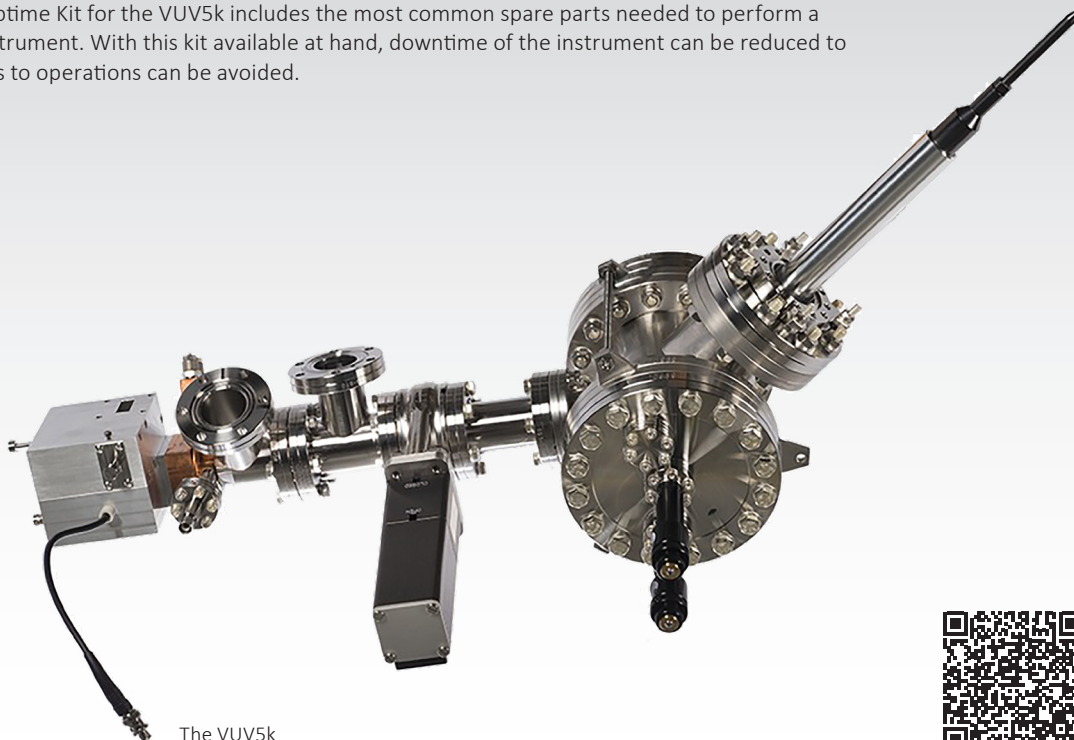
VUV5k high uptime kit

Store critical consumables on-site for rapid maintenance

The Scienta Omicron High Uptime Kit for the VUV5k includes the most common spare parts needed to perform a fast on-site repair for the instrument. With this kit available at hand, downtime of the instrument can be reduced to a minimum and interruptions to operations can be avoided.



High Uptime Kit for the VUV5k



The VUV5k



VUV5k flat rate repair

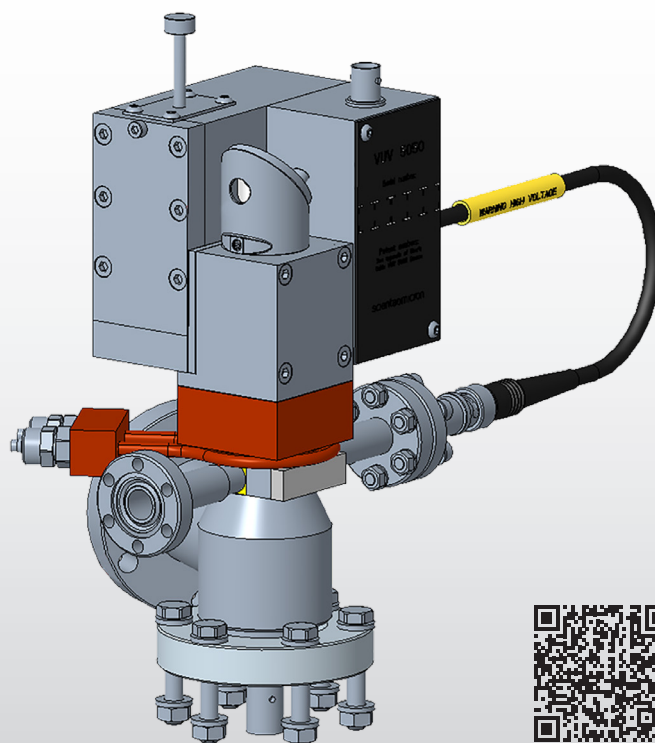
Certified maintenance and full factory test

The VUV5050 source head needs regular maintenance for optimum performance. At our Technology Centre our engineers are ready to inspect your VUV5050 in detail and go through a full factory test and tuning to make sure it is returned fully functional and in the best possible condition. All at a fixed price. A high uptime kit is included in the service and parts that are not used will be shipped together with the source as spares.

Key upgrade benefits:

- Fixed price
- Certified service by Scienta Omicron engineer
- Including parts in High Uptime kit
- Surfaces are checked and refurbished*
- Vacuum leak check
- Microwave leak check
- Full factory test
- Re-tuning of cavity*
- Test protocol
- Quick turnaround

* If needed

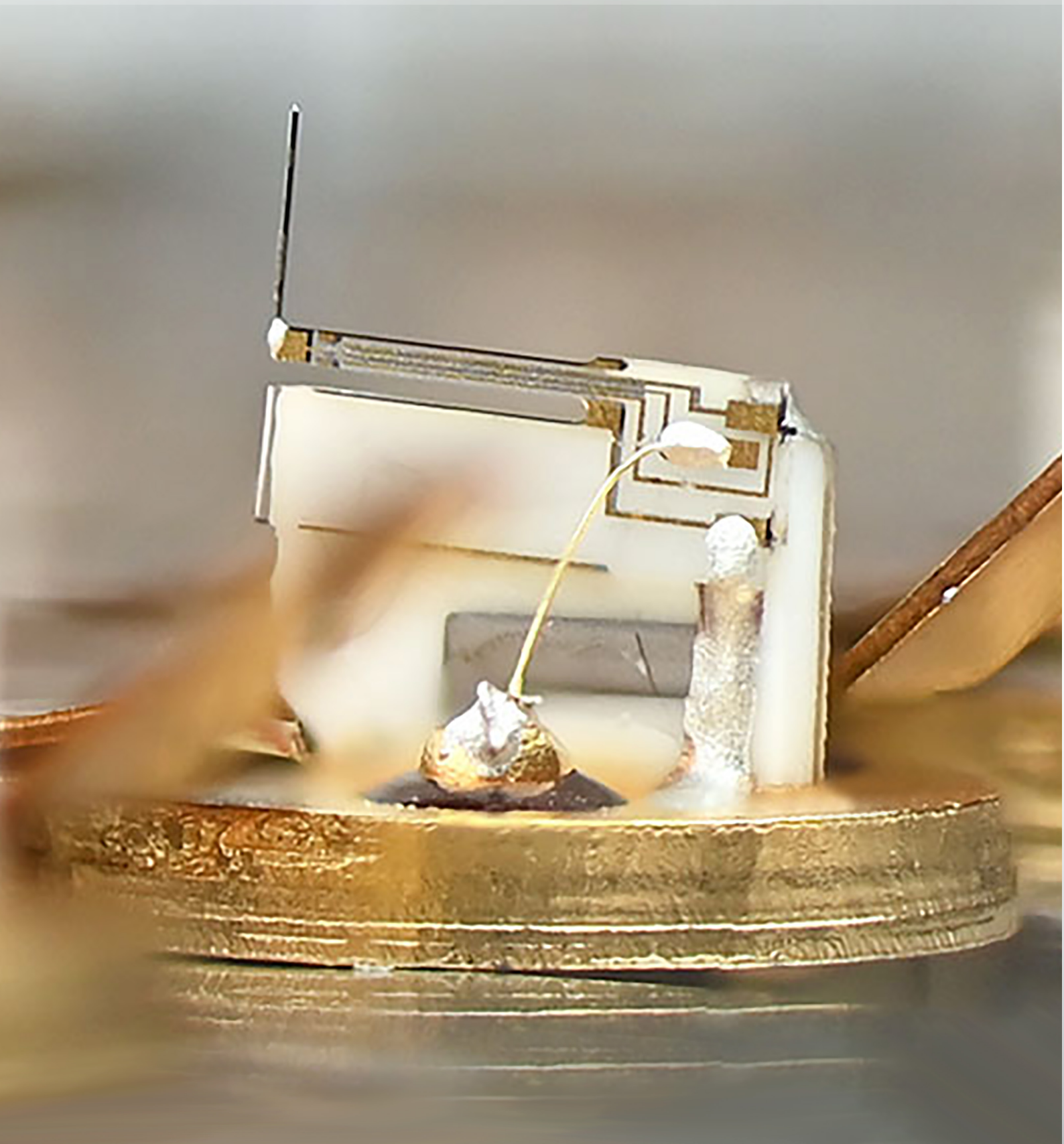


VUV5050 Source Head



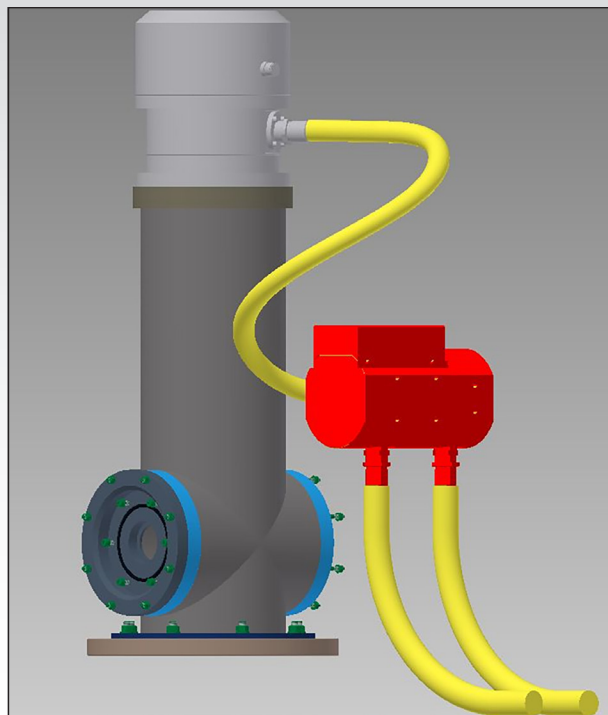
Scanning Probe Microscopy

Service & Upgrades



INFINITY cooling system maintenance

Recommended regular maintenance: Get original spare parts and specialist support



Schematic of closed cycle cooler, valve unit (red)

Caring for the instrument's sanity at customer's laboratories is part of our offering. With virtually unlimited cryogenic operating time, our INFINITY SPM is one of the leading solutions for high productivity SPMs. Nevertheless, the INFINITY's cooling system requires special care and maintenance at larger intervals, to minimize wear and avoid unplanned downtime of the system. The service package includes a system performance snapshot of the instrument prior to maintenance, typically combined with helium recharging, as well as a one-week visit by a trained service engineer and the shipment and return of replacement parts.

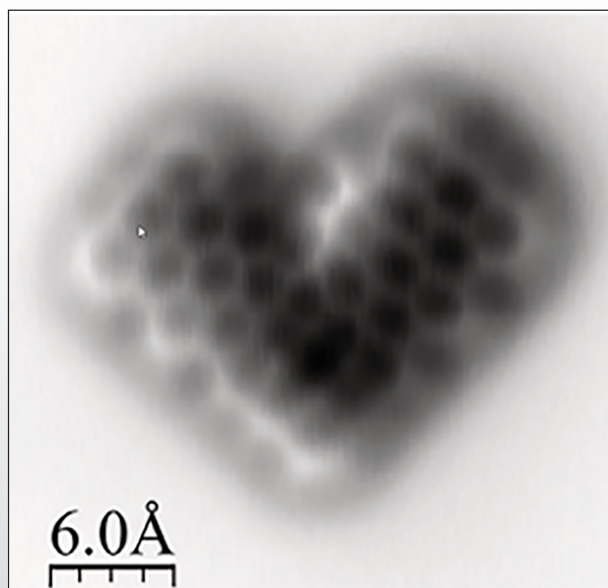
Maintenance schedule:

Day 1	System snapshot: STM stability and vibration level
Day 2	Warm-up to room temperature and cabinet preparation
Day 3	Replacement of parts, helium recharge, and cabinet reassembly
Day 4	Cool-down to base temperature
Day 5	Final system snapshot



QPlus upgrade for all TRIBUS SPM head-based instruments

AFM performance at unlimited measurement time



Constant height frequency shift image showing internal carbon skeleton of the porphyrinoid molecule adsorbed on the Au(111) surface. This measurement is the very first QPlus result with a CO terminated tip and sub-molecular resolution with a closed cycle SPM.

Data courtesy of Aix-Marseille Univ, CNRS, IM2NP, Marseille, France, (www.im2np.fr/fr/equipe-nanostructuration-nano)

QPlus upgrade at a glance:

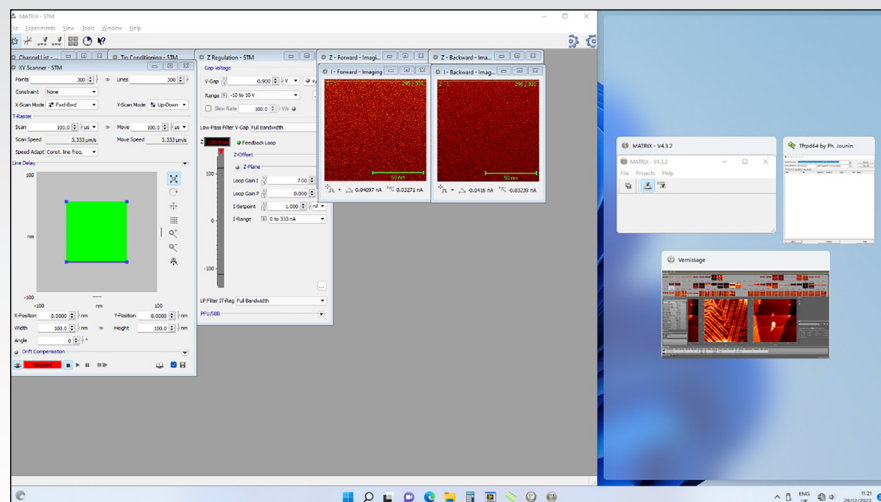
- Lowest noise and maximal flexibility by signal amplification/detection at atmospheric side
- Atomic resolution on insulating surfaces as well as on conducting materials comparable to STM imaging
- Ultimate performance using new generation QPlus sensors (included in this upgrade package) and high-quality factors
- Proven HR imaging with functionalized tips at virtually unlimited measurement time
- AFM measurements in genuine Δf feedback or constant height mode
- On-site upgrade: minimized down-time without shipping risk



MATRIX SPM Computer with Microsoft Windows 11

Keep your MATRIX SPM computer's operating system up to date

Upgrading your MATRIX system to a Windows 11-based computer will ensure compliance with general IT regulations at your institution and provide a state-of-the-art user experience with the longest available Microsoft Windows support period.



Flexible, convenient desktop setup of MATRIX 4 user interface in Microsoft Windows 11 environment.

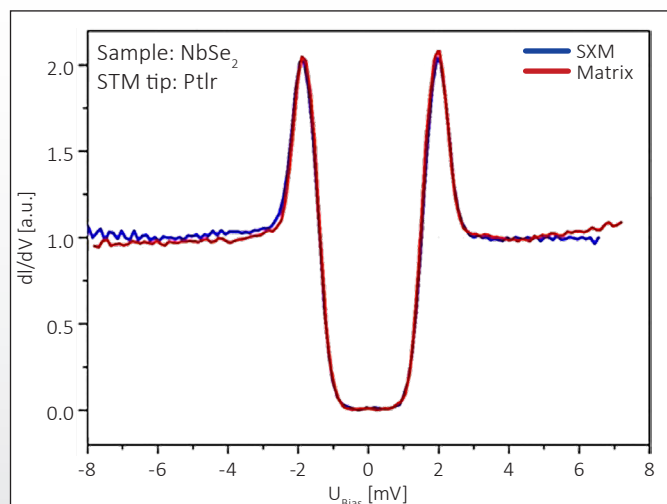
We offer two options for the upgrade:

1. Preconfigured PC with Win 11 and MATRIX SPM 4 software for users with valid MATRIX 4 license
2. Upgrade to Matrix SPM 4, 64bit software including preconfigured PC with Win 11 and license upgrade to MATRIX 4 software for users with legacy MATRIX license



HF-Filter set for POLAR, INFINITY and STREAM SPMs

Experience superior spectroscopy performance with improved signal-to-noise ratio



Superconducting energy gap acquired on NbSe₂ with POLAR 1 K fitted with HF-Filter set at T = 1.5 K.

High-frequency (HF) interference from room-temperature electronics and nearby external sources can disrupt delicate signals and compromise the clarity of spectroscopy measurements.

Our advanced HF-filters effectively eliminate this noise, enabling your microscope to deliver the most accurate data.

Upgrade components:

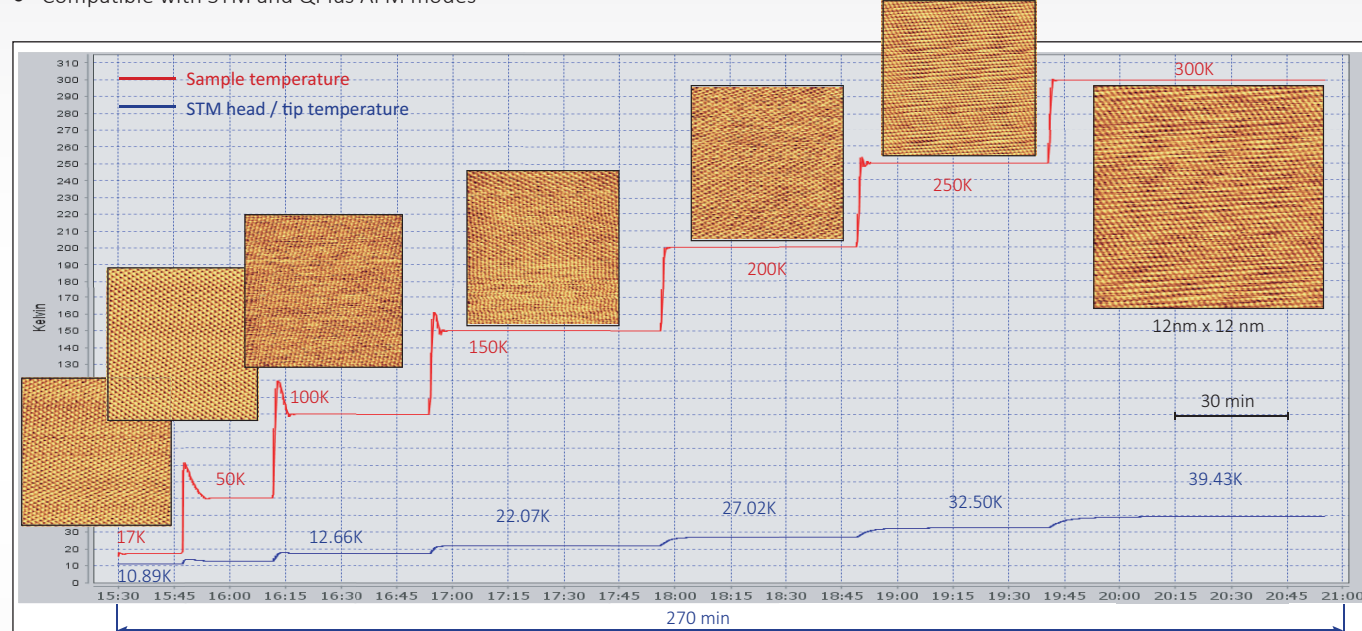
- Filter-boxes U_{Gap} and I_T
- Pi-filters for SPM and Temp lines
- BNC cable with snap ferrites
- Grounding plugs



Temperature variation package for POLAR, INFINITY and STREAM SPMs

Expand your experimental parameter space by fast temperature variation

- Work in low temperature instruments and benefit from their inherent advantages:
 - Ultimate stability at base temperature
 - Higher energy resolution in spectroscopy modes
 - Higher Q factors for tuning fork AFM (QPlus)
 - Cold probe tips allow picking up of CO-molecules for enhanced resolution
 - Inhibited diffusion of molecules on surfaces
- Run experiments with atomic resolution at arbitrary sample temperatures between base temperature and 300 K
- Compatible with STM and QPlus AFM modes
- The very low heat capacity of setup allows fast transitions between temperatures and ensures short settling times
- Local heating and precise local temperature measurement vacuum degradation provide optimal control of experimental conditions
- Highly flexible: One TVS plate with heater and temperature sensor serves for multiple sample plates
- Local heating reduces degradation of vacuum caused by heating of instrument and/or environment
- No modification of instrument required

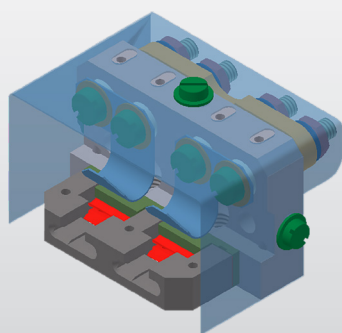


STM measurements on HOPG at different temperatures (scan size: 12nm x 12nm)
Data have been measured with INFINITY with temperature variation sample plate.



Heating stage for TRIBUS STM tips

Clean tips, consistent performance



The heating stage can accommodate up to two STM tips.
It is not suitable for the QPlus sensors.

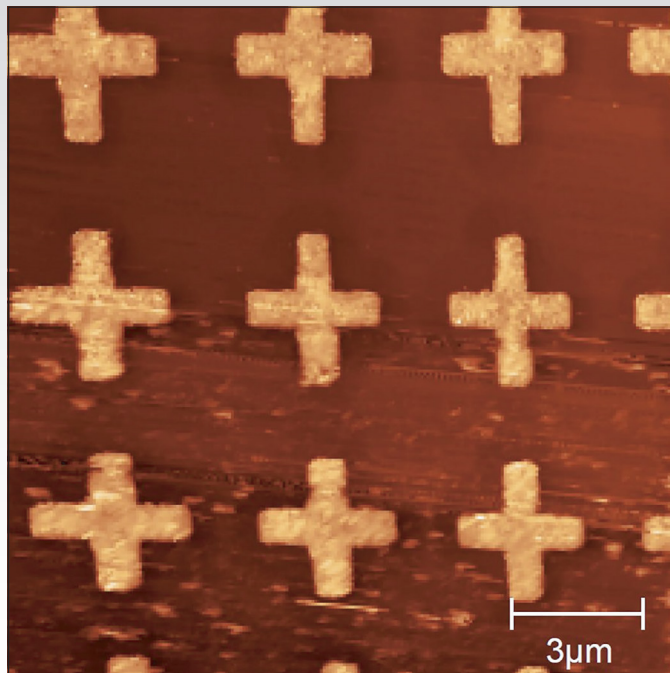
Regular tip conditioning is crucial to maintain consistent performance. Ensuring tip quality not only improves imaging and measurements accuracy but also enhances repeatability across experiments, reduces downtime, and increases overall confidence in the acquired data.

Our Heating Stage for STM tips streamlines this critical step by offering a robust solution for preparing tips that meet the demanding standards of SPM research through direct current heating. The package consists of a fully wired and tested heating stage, along with a UHV current feedthrough and the required power supply.



Extended-Range scanner for LT STM

Zoom-out from your patterned samples



Very large-scale image ($\sim 18 \times 18 \mu\text{m}^2$) taken at 77 K of metal features deposited on a silicon surface, demonstrating the extended scan range of the LT-STM scanner at low temperatures.

Distance between cross centres is $5 \mu\text{m}$.

Data courtesy of Michelle Simmons and her fabrication team at Silicon Quantum Computing Pty Ltd in Sydney, Australia

Overcome scan size limitations in UHV SPM by replacing your LT STM scanner with the new extended range scanner now available for upgrading our new SPM's.

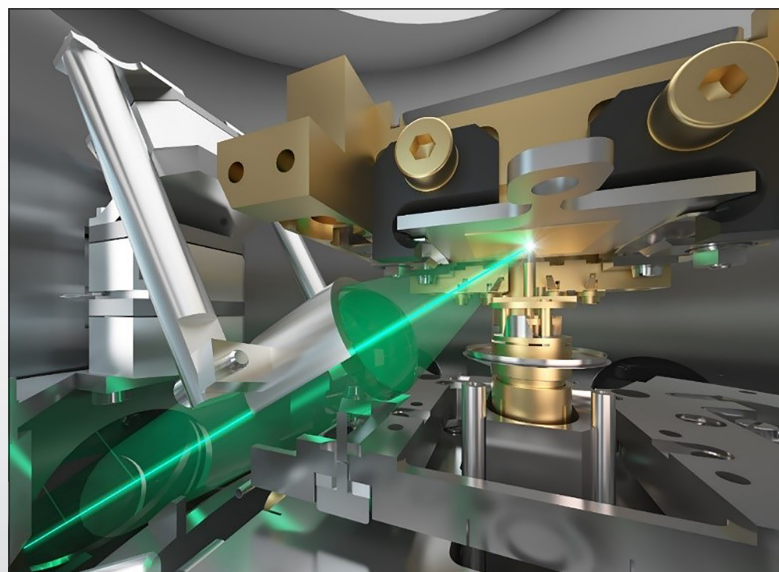
Key upgrade benefits:

- Larger scan area: Multiple-fold increase in range for survey and non-intermittent lithography
- High stability: Ensures precision at low temperatures without compromises
- Easy integration: Compatible with most current LT STM versions
- Advanced research: Ideal for large-scale mapping and defect analysis
- Optimised for low temperatures: Minimizes piezo conversion loss at low temperature



Tip Enhanced Raman Spectroscopy (TERS) option for LT STM

Enable nanoscale chemical identification with a 3D lens positioning system



The TERS option consists of a three dimensions movable lens ($3 \times 3 \times 3 \text{ mm}$). The high numerical aperture of $\text{NA}=0.39$ and the 30° angle of incidence provides a high detection efficiency.

Optical spectroscopy techniques like near-infrared, TERS or low-temperature fluorescence provide detailed information about the chemical and environmental structure on organic systems. Here, we introduce our new concept for advanced optical experiments at liquid helium temperatures and in ultra-high-vacuum environments, enabling new possibilities in materials science and surface analysis.

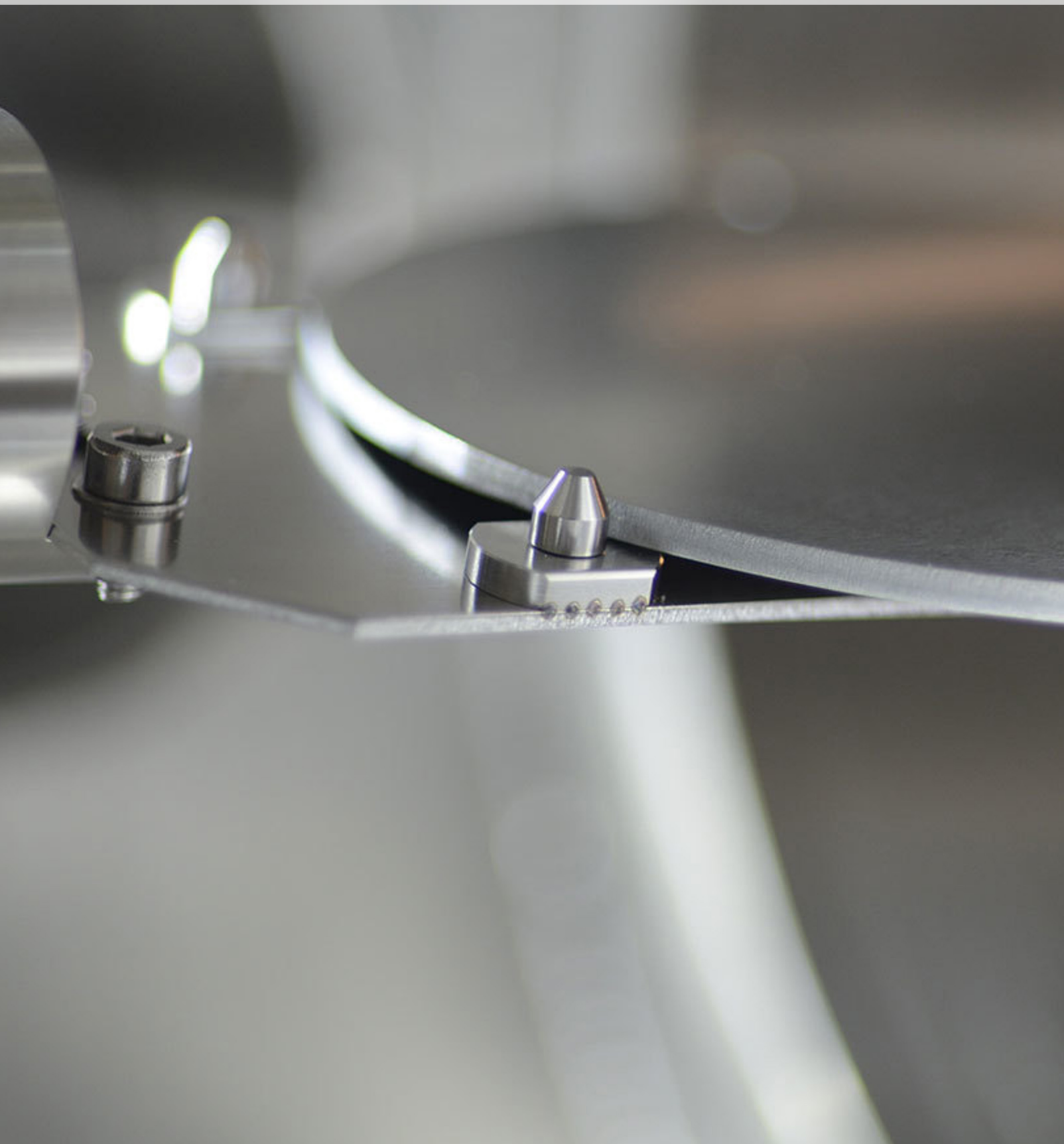
LT STM for TERS:

- Numerical aperture of 0.39
- Optimised in-situ lens adjustment
- 30° angle of incidence
- 3D movable lens system
- Lens adjustment from 4.5 K to 300 K



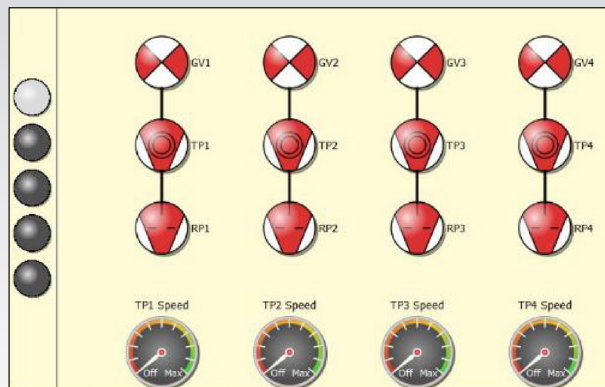
SYSTEMS

Service & Upgrades

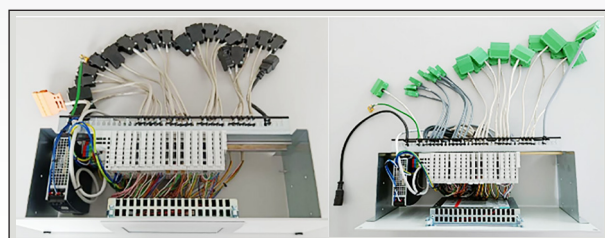


System controller - MISTRAL upgrade package

Mistral user interface for systems with mains/system controller V3 / V4 / V5



Mistral system controller touch screen device, example shown.



"The Mistral based system controller is available in two variants: Replacement for discontinued system controller SC 5 (right) and for SC 4 and older (left)

Replacing the discontinued Scienta Omicron system controller, the Mistral graphical user interface (GUI) is designed to give an advanced system overview of all valves and pump stages in one view. It provides touch screen control for all pumps and valves for an easy-to-handle UHV system. Additionally, the Mistral GUI allows for monitoring and operating a programmed system bake-out sequence.

The Mistral based system controller provides comprehensive safety management with integrated interlocks to ensure reliable and safe operation. Vacuum is kept in case of electrical breakdown while power supplies for sensitive components are turned off in case of a critical pressure drop. A service mode is available that gives extended control, e.g. to access system parameters.

The upgrade comes in a rack unit (size 3 HU) including all electronics and control logic required to replace the existing system controller. It includes a customized set of cables and adaptors prepared for easy on-site installation. Additionally, the package includes a parameter set-up specifically configured for the corresponding system.

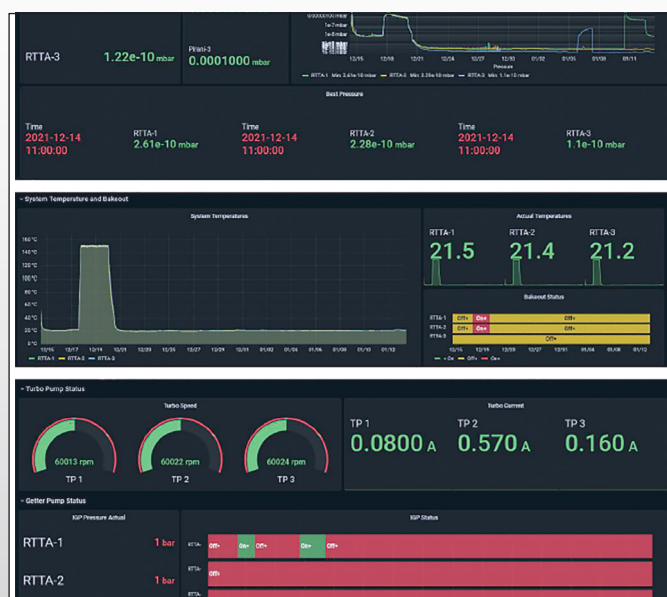


All cables and connectors are labelled for easy installation.



Data logging, visualisation and alerting upgrade: for MISTRAL control system

Easy access and visualisation of current and historic system parameters



Example of typical dashboards, visualizing system pressure, temperature, velocity of turbomolecular pumps and more.

The data logging, visualisation and alerting for the Mistral Control system give you easy access to all relevant system parameters implemented in the Mistral Control system. The data is logged, stored and graphically visualised in real-time. Alerts can be setup from several notification channels: email, discord, line, Microsoft Teams etc.

Features:

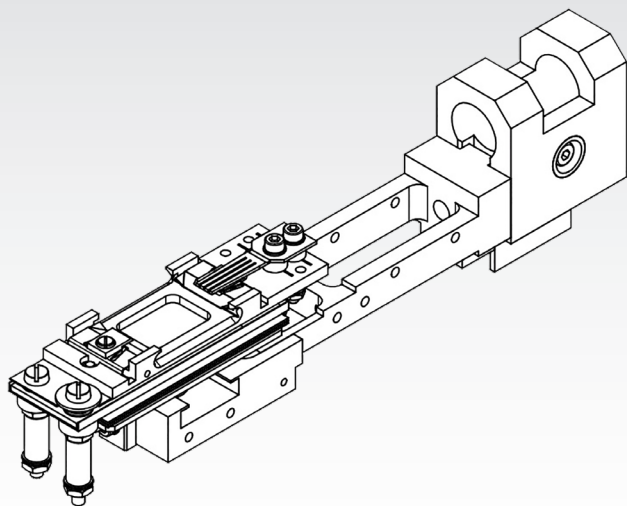
- Status monitoring
- Logging & storage
- Real-time graphical visualisation
- Pre-configuration of basic display panels
- Alerting / status alarm / notification



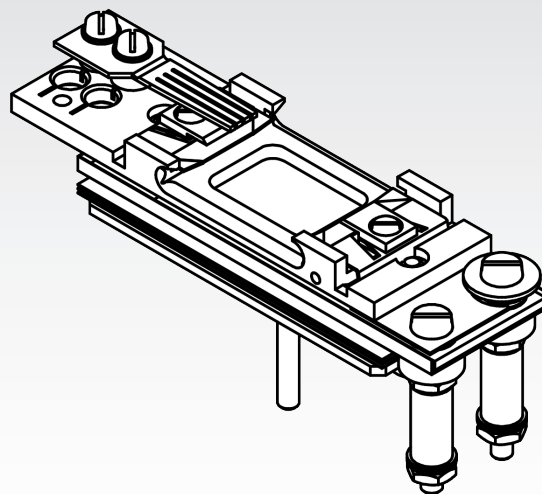
PBN sample heater upgrade package

For standard Scienta Omicron manipulators

This package is designed to upgrade the discontinued tungsten wire sample heater S7106, which was supplied with Scienta Omicron manipulators, with a resistive sample heater solution: The coplanar Porolytic Boron Nitride heater element offers great uniformity, high durability, and is easy to replace. Containing all required parts, the package comes pre-assembled for easy on-site implementation.



Typical heater stage showing PBN sample heater module in place.



PBN sample heater module.



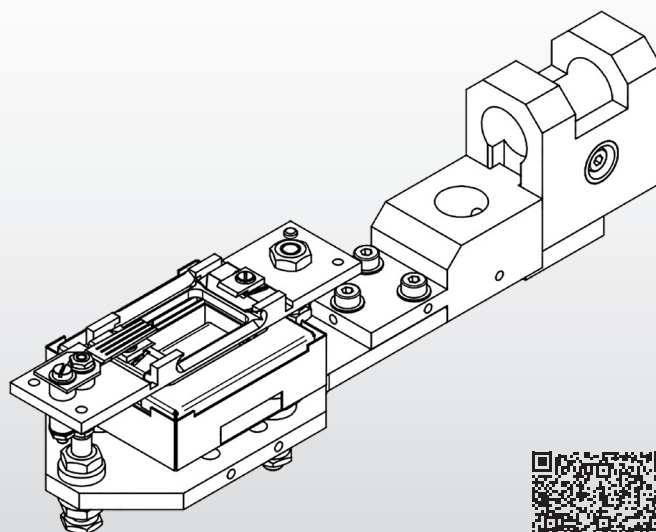
E-beam heater upgrade package - High temperature version

For standard Scienta Omicron manipulators

Scienta Omicron manipulators can easily be upgraded with a high-temperature heater stage (HTHS) for radiative (RH) or e-beam (EBH) heating to let your system benefit from higher sample temperature achievable compared to a standard PBN or e-beam heater with thoriated filament. The set up allows for either radiative or e-beam heating, continuously, with identical temperature limits. Containing all required parts, the package comes pre-assembled for easy on-site implementation.

Technical specifications:

- Tungsten filament for either radiative (250 W) or e-beam heating continuously up to 1,400 °C / 1,600 K
- Higher heating rates in EBH mode
- Sample acceptor stays on ground potential while heater filament floats on negative HV
- RH mode (250 W) for better control at low temperatures
- Molybdenum sample acceptor for application at high temperatures and
- Multi-layer Tantalum foil radiation shield for precise control of sample temperature
- Direct current heating (DH) in conjunction with SO DH sample plates
- Dual mode power supply: RH mode with PID control loop for filament current and EBH mode with PID control loop for HV



Typical heater stage showing HT/ E-beam sample heater in place.



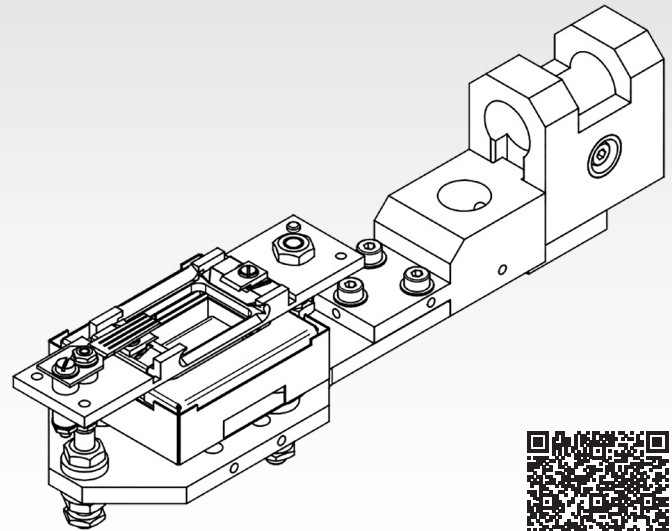
High temperature heater stage upgrade package

For standard Scienta Omicron manipulators

Scienta Omicron manipulators can easily be upgraded with a high-temperature heater stage (HTHS) to let your system benefit from higher accessible maximum sample temperatures compared to a standard pyrolytic boron nitride (PBN) heater. The HTHS allows continuous heating of samples up to 1,400 °C/1,670 K. Containing all required parts, the package comes pre-assembled for easy on-site implementation.

Technical specifications:

- Molybdenum sample acceptor for application at very high temperatures and
- Multi-layer Tantalum foil radiation shield for precise control of sample temperature
- W-Filament; max. filament power 250 W (10 A, 25 V)
- Up to 1,400 °C/1,670 K sample temperature by means of radiation
- Sample is grounded providing stable and reproducible experimental conditions, e.g. preventing energy shifts caused by sample charging
- Direct current heating (DH) in conjunction with SO's DH sample plates
- Temperature measurement with thermocouple type K.
- Standard HTHS easily upgraded to HTHS for radiative or e-beam heating



Typical heater stage showing high temperature heater in place.



UHV Gemini electronics and software upgrade

Give your UHV Gemini a second life by upgrading to the latest electronics and SEM software

Experience the future of Scanning Electron Microscopy (SEM) with our state-of-the-art upgrade solution. We offer a comprehensive upgrade that brings your existing system up to the latest technological standards.

Why upgrade?

With our UHV Gemini electronics upgrade, you not only gain improved performance and usability but also the assurance that your system is future-proof.



SpectaLEED

General information on availability of service, spare parts and repairs

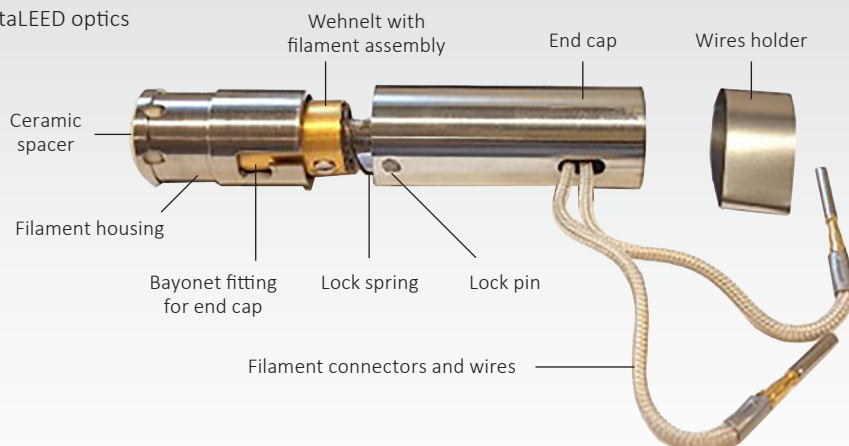
The SpectaLEED series has been discontinued and replaced by IntegraLEED.

For SpectaLEED optics built after 1989, we continue to offer:

- Spare parts and ongoing support for the Scienta Omicron SpectaLEED series
- Upgrade packages to add new features to your SpectaLEED optics

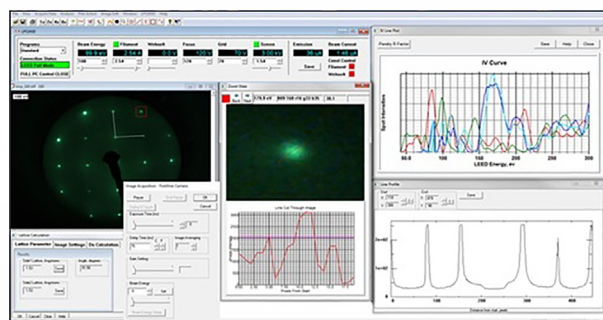
The following replacement filaments and spare parts are still available for the SpectaLEED optics:

- PN06372-S Spare LaB6 filament
- PN06391-S Spare thoriated tungsten filament
- Replacement luminescent LEED screen
- LEED screen recoating
- Grids cleaning and recoating
- Replacement LEED/ AES electronics, including new cable set
- Exchange of LEED electron gun



LEED spot analysis upgrade for SpectaLEED optics

Digital LEED control & advanced spot analysis



LEED spot analysis, typical measurement.

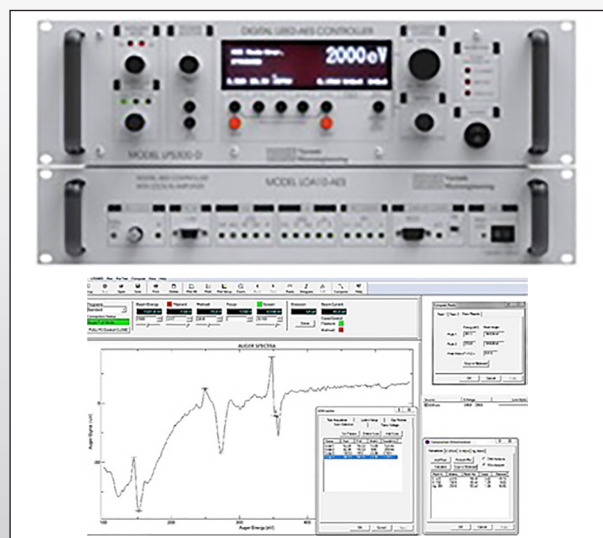
With this upgrade package the Scienta Omicron SpectaLEED optics that has been discontinued years ago, can still be upgraded with hardware and software for Low Energy Electron Diffraction (LEED) pattern analysis.

This upgrade package contains a digital LEED controller to provide a primary electron beam in the range of 0 – 750 eV kinetic energy. In combination with a 12-bit colour high-performance CMOS camera and a modern data-acquisition software package, LEED pattern analysis becomes a new feature of your SpectaLEED optics.



High sensitivity Auger Electron Spectroscopy upgrade

For Scienta Omicron SpectaLEED optics



With this upgrade package the Scienta Omicron SpectaLEED optics that was discontinued years ago, can still be upgraded with hardware and software for Low Energy Electron Diffraction (LEED) pattern analysis as well as for Auger Electron Spectroscopy (AES).

This upgrade package contains a digital LEED-AES controller to provide a primary electron beam in the range of 0 – 3 keV kinetic energy. The digital AES controller includes a lock-in amplifier and additional electronics based on an integrated band pass filter and a preamplifier for high sensitivity Auger measurements. In combination with a 12-bit colour high-performance CMOS camera and a modern data-acquisition software package, AES as well as LEED pattern analysis become new features of your SpectaLEED optics.

Top: LEED-AES controller and lock-in-amplifier
Bottom: AES measurement, typical spectrum



Sputter ion source upgrade package

For Scienta Omicron systems

This package provides a compact and easy to use extractor type ion source for sample surface cleaning. It generates an ion current of $> 70 \mu\text{A}/\text{cm}^2$ with Gaussian beam profile, typically using Argon gas.

The package contains the ion source with power supply for manual control. Additionally, an easy-to-handle gas inlet set is included, prepared for easy on-site installation. Scienta Omicron will support to define a suitable insertion length depending on the length of the considered port.

Features:

- High Ion Beam Current with Gaussian beam profile
Beam diameter and current density depend on the working distance – accessible by customised insertion length between 62.5 – 384.5 mm
- Operation with inert (Ar) and reactive gases (O_2 , H_2 , hydrocarbons with reduced lifetime)
- Long lifetime
- High stability due to special arrangement of anode and accelerating electrode



Sputter ion source with DN40CF mounting flange and DN16CF gas-inlet flange. Customized in-vacuum length.



Universal hot-filament fine-focus ion source

A high-quality upgrade from sample cleaning to depth profiling

These packages are designed to let your Scienta Omicron system benefit from a high-performance fine-focus ion source, a mandatory tool in surface science. It is typically used for the preparation of clean metal and semiconducting surfaces as well as for sensor cleaning in scanning probe microscopes. Additionally, the UHV ion source is used for depth profile analysis in XPS and AES applications as well as for charge neutralization. An advanced package providing an x-y-scan function is available, just as a standard variant for basic depth-profiling applications and sample cleaning, depending on your requirements.



UHV ion source with controller.



REMOTE SUPPORT SERVICES

Efficient technical support for your system



Remote Support Sessions

Remote support from our teams of experts

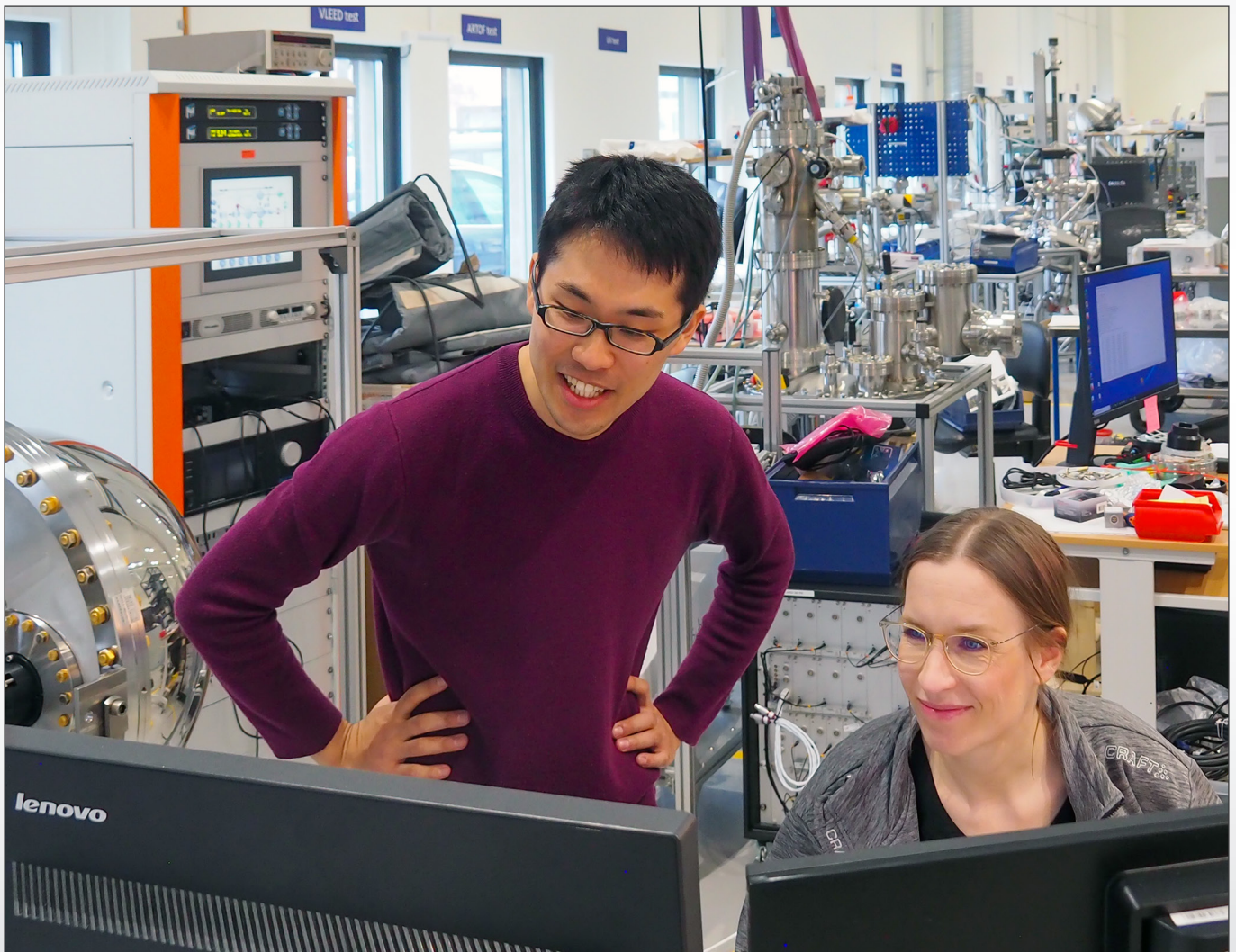
As a complement to on-site visits, our Remote Support Sessions are a great choice to keep your system operating effectively. Remote Support Sessions with our Service Engineers are a fast and cost-efficient method to get the technical advice and help your need to address issues, trouble-shoot problems or install upgrades.

Our goal is to support you, your instruments, and your research as efficiently as possible. Our large team of experienced Service Engineers are located around the world, and are available for scheduled, dedicated support sessions at a time suitable for you.

We offer a variety of support packages and solutions. Please contact your service representative for a dedicated quotation customised to your needs.

Key details:

- Available for installed systems
- Remote Support Sessions with a Service Engineer
- Available via teleconference / Teams using “Teamviewer” and screen sharing
- Phone and email support
- For troubleshooting, support or training
- Single or multi-session packages available



Real-time support from our service engineers, ensuring efficient troubleshooting and system optimisation.

Sustainability and Responsible Operation

Sustainable product design is our priority, and we believe all research should be carried out with sustainability in mind

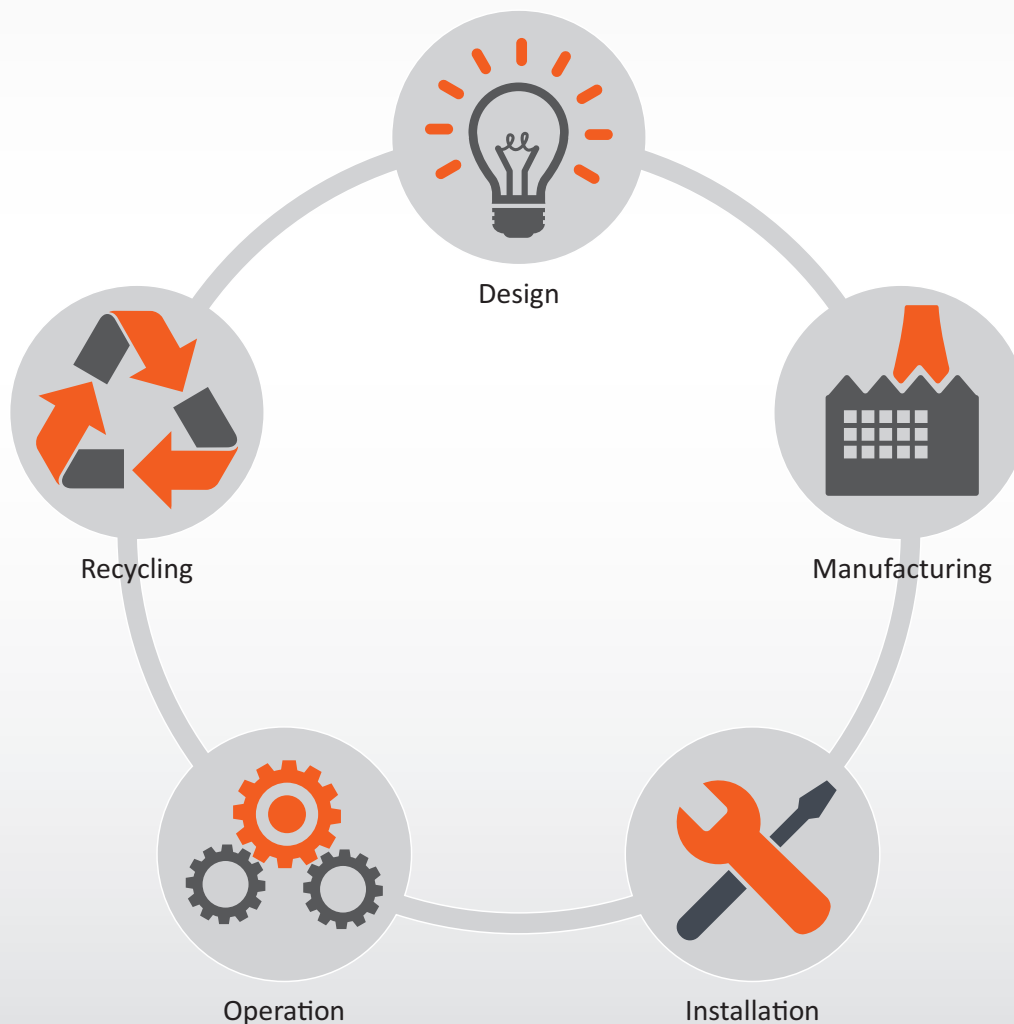
Sustainability is an integral part of how we design, maintain, and support Scienta Omicron systems. We are committed to enabling high-quality research while minimising environmental impact and supporting efficient, long-term operation.

Through thoughtful system design and service solutions, we help optimise resource usage, extend equipment lifetime, and reduce operational footprint.

Key aspects include:

- Efficient system operation supported by smart automation, minimising idle time and unnecessary resource consumption
- Durable components and modular configurations that enable longer service intervals and reduce waste
- Optimisation of system footprint and usage, helping to lower facility-related energy demands

Beyond product and service design, Scienta Omicron is a participant in the United Nations Global Compact and aligns with its principles on environmental responsibility, human rights, and sustainable development. This commitment underlines our ambition to support cutting-edge research in a responsible and sustainable way.



As a proud participant in the United Nations Global Compact, Scienta Omicron aligns with international principles on environmental responsibility, human rights, and sustainable development. Our commitment ensures that groundbreaking science can be achieved while contributing to a more sustainable future.

Here for you, worldwide
Global offices, local support



For more information or a quote, please reach out to your local service representative, or visit scientaomicron.com/ContactUs

