Product Highlights 2022

PEOPLE
YOU
CAN
TRUST

Metrohm

«Analyze this»

The Metrohm blog

«Metrohm» has always meant state-of-the-art technology for the chemical laboratory. For many of you, we have also been a preferred partner to help you find solutions for specific application challenges. We would like to share the highlights of our application know-how with you, and that is why we have started blogging about …

- tips & tricks how to improve sample preparation, take care of your electrodes, and columns, become more efficient, and more
- new norms & standards and how to comply with them
- methods and their application (best practice)
- and much more

Visit our blog «Analyze this»!

Dear customer,

This little booklet gives you an overview of our product highlights in 2022. This year, we would like to draw your attention to OMNIS Client/Server in particular, the OMNIS Software version for secure and efficient collaboration in large, integrated networks.

Let us inspire you on the following pages with our solutions engineered with you and your industry's requirements in mind.

As always, your local Metrohm sales representative is happy to provide you with more detailed information, and our product and application specialists enjoy sharing their expertise with you.

OMNIS Client/Server

Secure and efficient collaboration in networks

OMNIS Client/Server is the OMNIS Software version for secure and efficient collaboration in large, integrated networks.

- License OMNIS Client/Server once and use the software's full scope of performance at up to 100 workplaces
- Control unlimited numbers of OMNIS instruments
- Latest, web-based technology for stable and reliable performance in large networks
- Lost connection to the server? Continue working seamlessly for up to 48 hours without restrictions and/or loss of data
- Simply import your user administration/active directory
- All requirements regarding data security and traceability fulfilled

Conductivity measurement / conductometric titration with the OMNIS Titrator

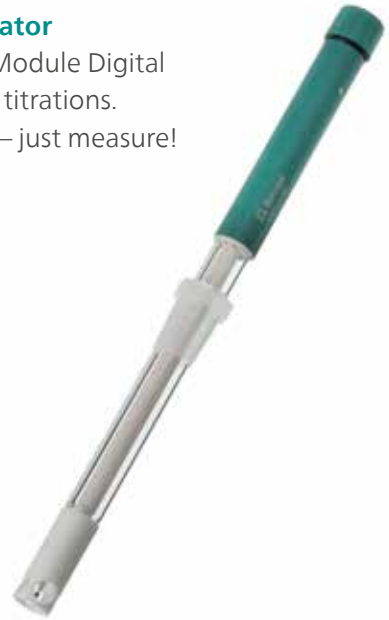
Simply insert the new Measuring Module Conductivity into your OMNIS Titrator or Titration Module and perform conductivity measurements / conductometric titrations.

- Conductivity measurement in drinking water according to AOAC Official Method 973.40, EPA 120.1, DIN/EN 27888, and ASTM D1125
- Conductometric titrations of alpha acids in hop products as per EBC 7.4
- Conductivity measurement in high-purity water or ethanol according to USP 645 and DIN EN 15938

Thermometric titration with the OMNIS Titrator

Any OMNIS Titrator with an OMNIS Measuring Module Digital can now be upgraded to perform thermometric titrations. No sensor maintenance and calibration needed – just measure!

- Petroleum products: Acid number/ TAN as per ASTM D8045 and Base number / TBN
- Sodium determination in food products and other matrices
- Sulfate and phosphate in fertilizers



Titrando meets OMNIS – integration completed!

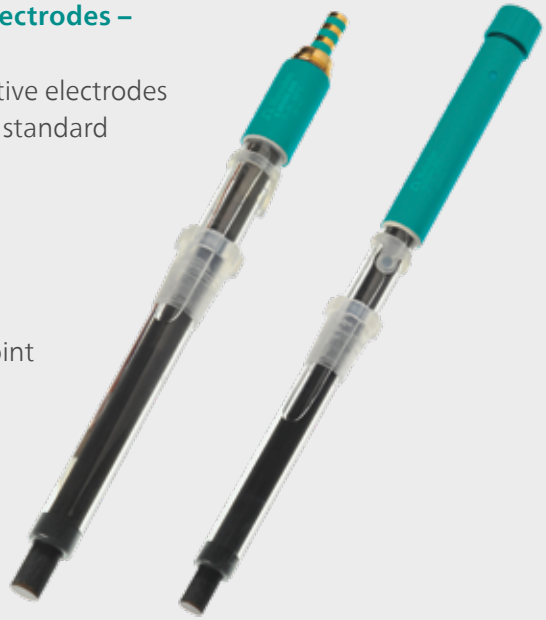
For a seamless transition from Titrando to OMNIS: The following instruments of the Titrando family of instrument can now be controlled by OMNIS Software!

- 814 USB Sample Processor
- 815 Robotic USB Sample Processor
- 846 Dosing Interface
- 851 Titrando Coulometer
- 852 Titrando Coulometer
- 855 Robotic Titrosampler
- 856 Conductivity Module
- 867 pH Module
- 874 Oven Sample Processor
- 888 Titrando
- 890 Titrando
- 901 Titrando
- 902 Titrando
- 904 Titrando
- 905 Titrando
- 906 Titrando
- 907 Titrando

Combined fluoride selective electrodes – digital and analogue

The new combined fluoride selective electrodes are ideal for direct measurement, standard addition, and titration.

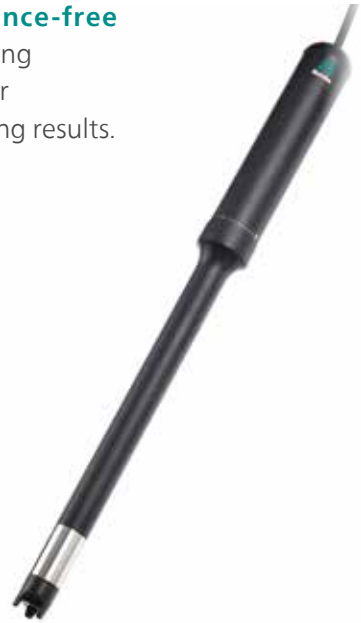
- 3-in-1: measuring electrode, reference electrode, and temperature sensor
- Easy cleaning of the ground-joint diaphragm
- More precise results due to a uniform electrolyte outflow



O_2 Lumitrode – robust, reliable, maintenance-free

The O_2 Lumitrode is an optical sensor for measuring dissolved oxygen. Active monitoring of the sensor performance guarantees always reliable measuring results.

- Robust: rugged plastic shaft with protected measuring spot (sensor cap)
- Maintenance-free
- Instrument automatically indicates when exchanging the sensor cap is due



Ion Chromatography

940 Professional IC Vario – unlimited flexibility for your applications

The Metrohm IC System with no limits to the system configuration. Modify, upgrade, and expand your instrument to your needs at any time!

- Multi-channel analysis (two, three or more channels), gradients, and multiple detector use
- Superior sensitivity for a broad variety of analytes
- Can be combined with the complete spectrum of the Metrohm Inline Sample Preparation and intelligent injection techniques, e.g., Ultrafiltration, Dialysis, Matrix Elimination, Inline Dilution, MiPT etc.

930 Compact IC Flex – the preferred solution for routine analysis

The 930 Compact IC Flex is a compact, single-channel IC system for robust routine analysis.

- Superior sensitivity for the analysis of anions, cations, carbohydrates, and other polar substances.
- Straightforward automation for high sample throughput
- Can be combined with the most important Metrohm Inline Sample Preparation and intelligent injection techniques such as Inline Dialysis, Ultrafiltration, Inline Dilution, and MiPT

Eco IC – robust and affordable ion chromatography for everyone

The Eco IC family of IC instruments makes ion chromatography affordable for every laboratory. These instruments are mostly used for water analysis and in educational contexts.

- Small footprint to save space on your lab bench
- Robust and affordable
- No language barriers: available with MagIC Net Software in 15 languages

Combustion Ion Chromatography (CIC) – combustion digestion and ion chromatography combined

Our CIC solution combines combustion modules from Analytik Jena and Trace Elemental Instruments, respectively, with an absorption module and an IC system from Metrohm.

- Fast, reliable, and simultaneous quantification of halogens and sulfur after pyrohydrolysis
- Extends the range of sample matrices for ion chromatography to include various kinds of combustible samples (solid, liquid, gaseous)
- Ideal for checking compliance with the latest standards regulating halogen concentrations (RoHS, WEEE, …)

New columns

Metrosep A Supp 18 – new possibilities with hydroxide eluents

With the new Metrosep A Supp 18 you benefit from improved separation capabilities applying hydroxide chemistry for the analysis of disinfection by-products.

- High resolution between chlorite, bromate, and chloride
- Compliant with US EPA 300.1 Parts A and B and DIN ISO 10304-4:2022-03 for determination of disinfection byproducts
- Determination of 5 haloacetic acids (HAA5), monochloroacetic acid (MCA), monobromoacetate (MBA), dichloroacetate (DCA), and more

«Our Ion Chromatographs are very robust and reliable.»

Lledó Altava, senior laboratory technician at IPROMA

Lledó Altava is a senior laboratory technician at IPROMA, a leading provider of laboratory testing, monitoring, and consulting services in Spain. Working at IPROMA's large environmental laboratory near Valencia, Lledó relies on the robust performance of her fully automated Metrohm ion chromatography systems. They are on duty 24/7 almost 365 days a year – helping IPROMA to keep its competitive edge in a highly competitive market.

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Metrohm

Near-Infrared and Raman spectroscopy

DS2500 Solid and Liquid Analyzers – QC in less than 30 seconds

From raw material inspection to product release – the quality of solids or liquids is fast and easily determined with our **compact Vis-NIR spectrometers**.

- Improved productivity with the rotational multi-sampler for unattended, serial analysis of up to 9 samples
- Smart accessories provide for intuitive user guidance and eliminate mistakes
- Productive from day 1 with precalibrated, ready-to-measure packages for petro, polyol, and polymer analysis

MIRA XTR® DS – the evolution of 785 nm handheld Raman

Our **handheld Raman spectrometer** offers the best of 785 nm excitation – low power sampling for sample preservation and long battery life, small size, and short acquisition times – all while achieving sensitive, fluorescence-free detection.

- Fluorescence rejection in a handheld 785 nm Raman system
- Patented XTR® routines activate automatically when MIRA senses a fluorescent material
- New applications include colored materials, carbon-based substances, narcotics and trace materials

New Accessories and features for MIRA

Autofocus Standoff Attachment (AFSO)

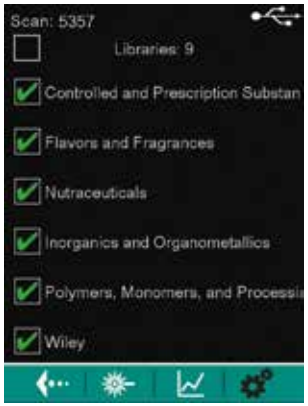
AFSO is a dedicated attachment for MIRA systems that makes safe collection of quality data from a distance available to anyone, anywhere.

- 0.3 to 2.0 meter standoff identification of chemicals, explosives, drugs, and toxic materials
- AFSO provides high optical performance within a rugged, ergonomic design
- Identify illicit substances and known hazards at a safe distance for actionable intelligence in the most sensitive situations

KnowItAll® Raman spectral library (handheld) from Wiley

Instantly identify thousand so materials in the fiel with fully automated workflows!

- Library includes more 20.000 entries in six sub-libraries
  - Controlled and Prescription Substances
  - Flavors and Fragrances
  - Nutraceuticals
  - Inorganics and Organometallics
  - Polymers, Monomers, and Processing
  - Organic Chemicals



1064 nm Raman systems from B&W Tek

Tactic ID Mobile

Economical, ergonomic 1064 nm handheld Raman spectrometer with targeted libraries for rapid, non-destructive identification of narcotics, hazardous chemicals and suspicious materials directly through transparent containers.

- Powered by B&W Tek's 1064-nm laser proven to have enhanced performance for common and fluorescent sample identification
- Onboard flashlight and camera designed to scan barcodes and include evidence photos with each scan report
- Customized libraries can be created quickly and easily on the device

Tactic ID -1064 ST

TacticID-1064 ST combines 1064-nm excitation Raman, see-through technology, and an extensive spectral library to give defense and security personnel the best fluorescence-resisting Raman to nondestructively identify material in opaque as well as transparent containers.

- See-through mode to identify samples inside packaging without compromising evidence or exposing user to potential hazards
- Touch screen and physical buttons – easily operable in Level A protective gear
- Critical component mixture analysis able to identify components and threat level within a mixed sample

PTRam – a compact Raman for process development

Follow your reaction process, formation of intermediates and products in real-time using the precise, reliable and robust PTRam.

- High-throughput optics and high QE back-thinned CCD detector giving the ability for quantitation down to 0.01%
- Lab-grade fiber optic probe sampling interface for measurement through your translucent vessel
- Self-calibrating, self-monitoring system to ensure the validity of each measurement

Electrochemistry

VIONIC powerd by INTELLO new generation potentiostat/galvanostat

VIONIC offers the highest combined specifications in one single instrument. VIONIC's **dual mode compliance voltage (maximum ±50 V)** puts you in control of your experiment. The only single instrument with **1 nA–6 A current range (standard, measured/applied)** that includes **Electrochemical Impedance Spectroscopy (EIS) with a maximum frequency of 10 MHz** and AC amplitudes up to **10 V/6 A (top)**.

- Seamless measurements for the most complete data in real-time with no gaps or missed information
- Pure signal bridge ensures a stable, noise-free signal for more accurate and precise measurements
- Untethering for computer-free measurements

Combining electrochemistry with Raman: Hyphenated EC-Raman solutions

Hyphenated EC – Raman synchronizes your electrochemical measurements with *in-situ* Raman spectra acquisition giving you simultaneous structural and functional information about your materials in action. Metrohm Autolab and B&W Tek have created specific application packages that are ready-to-go when you are. Each package comes with your choice of an Autolab potentiostat/galvanostat and B&W Tek i-Raman Plus 532H spectrometer system.

- Includes an Electrochemical Impedance Spectroscopy (EIS) module for high accuracy impedance.
- Features a unique combination of wide spectral coverage and high resolution.
- Provides two editable hyphenated Raman procedures for the NOVA software, as well as the BWSpec software for extended data analysis.
- Other application-specific instruments/accessories are included in each package

Electrochemistry

SPELEC Raman 638

The only fully integrated system to perform spectroelectrochemical Raman measurements combining in a single instrument a 638 nm laser (class 3B), a biopotentiostat, galvanostat, and a spectrometer (wavelength range 640–885 nm and Raman shift 50–4370 cm^{-1}).

- Useful for a wide range of applications thanks to the versatility of the laser wavelength
- Integrated, compact and lightweight instrument suitable for any kind of electrochemical, optical and spectroelectrochemical cell
- DropView SPELEC spectroelectrochemistry dedicated software for the synchronization of electrochemical and optical experiments

SPELEC Raman 532

An instrument for performing spectroelectrochemical Raman measurements combining in a modular setup a 532 nm laser (class 3B), a bipotentiostat, galvanostat, and a spectrometer (wavelength range 534–700 nm and Raman shift 70–4540 cm^{-1}).

- You will be able to work with any kind of system under study, particularly with carbon materials
- DropView SPELEC spectroelectrochemistry dedicated software for the synchronization of electrochemical and optical experiments

µStat-i MultiX

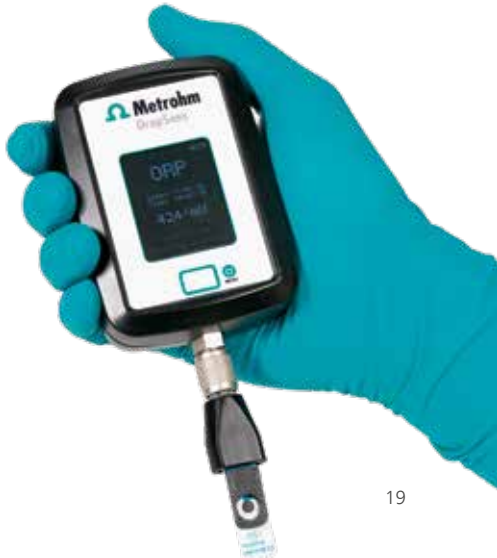
Multichannel bipotentiostat, galvanostat, and impedance analyzer (with MultiplEIS® technology) for multi-user and multi-disciplinary electrochemical research. Easily choose the appropriate configuration, work remotely, and support your work with DropView software.

- Ensure the success of your projects with a complete solution that adapts to your needs thanks to the possibility to expand the number of channels in your instrument
- Optimize your research and multiply your results by working with up to 16 independent dual channels
- Make use of the remote connection and increase the number of users (up to 16) working on the same instrument simultaneously in different applications

ORPKIT

ORP measurement kit (direct measurement of electrons in transit during oxidation-reactions) designed for reliable point-of-contact (POC) redox monitoring.

- Suitable for applications such as contamination in industrial wastewater, diagnostics in clinical laboratories, food & beverage testing, and many more
- Complete kit with a handheld electrochemical reader, a redox standard, and screen-printed electrodes



Voltammetry/CVS

884 Professional VA – flexible benchtop analyzers for trace analysis

Compact and multi-functional analyzer for the entire range of polarographic and voltammetric trace analysis of metal ions and other substances

- Broad selection of current measuring modes and calibration techniques for a wide application range
- Application examples: Trace levels of, e.g., cadmium, lead, nickel, cobalt, iron, or other transition metals in water, sea water, salts, or high-purity chemicals. Trace levels of metal species in sea water

894 Professional CVS – analyzers for Cyclic Voltammetric Stripping (CVS)

CVS instrument for the electroplating industry for large sample loads and changing applications. It is the equipment of choice for the determination of the concentration of brighteners, suppressors, or levelers in electroplating baths.

- Compact system to save bench space
- Modular design for tailor-made systems
- Manual, semiautomated, and fully automated setups available to meet your specific needs

946 Portable VA Analyzer – heavy metal analysis goes mobile

Portable voltammetric analyzer for the determination of trace levels of heavy metals in water (e.g., arsenic, mercury, zinc, lead, copper, nickel, cobalt, or iron) on site instead of in the lab.

- Portable battery-powered analyzer for on-site analyses
- Semi-disposable and disposable sensors for simple handling
- Suitable for analyses in accordance with WHO guideline values

Bi drop electrode

The Bi drop electrode is a novel, mercury-free and hence non-toxic alternative for VA analysis down to the ppt range

- Limit of detection in low µg/L and even ng/L range
- Monitoring of legal limit values in drinking water for Cd, Pb, Ni, Co, Fe
- Fits all Metrohm VA Stands, especially suitable for automated and online systems

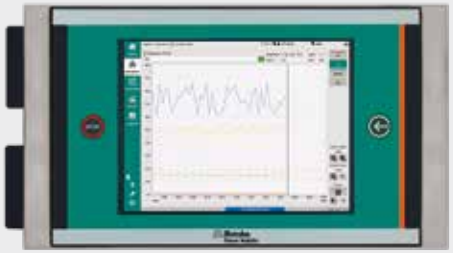
Metrohm Process Analytics

ProTrode pH sensors – enhance your process insights with inline pH measurements

- Available for the pharmaceutical and biotechnology industries (ProTrode 200 and 300) and for the chemical industry (ProTrode 250 and 350)
- Maintenance-free
- Fully compatible with the 2060 platform

2060 Human Interface – a durable and reliable process controller

- Intuitive software for sampling and analysis control with integrated touch screen
- Water and dust proof, as specified by IP65
- Variety of process communication protocols available (Modbus or Discrete I/O)



Because we care!

Discover the new Metrohm Service Agreements!

We have earned your trust, and we want you to be happy with your Metrohm system – today, tomorrow, and in the years to come. And that is precisely why we think regular service is key to a good and long-standing customer relationship. Let's talk about service now!

- See one our experts regularly to consult on your Metrohm system
- No one knows your system better than we do
- Trust in our expertise with regulatory requirements
- Enter a professional relationship with people you can trust

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