

Metrohm Hyphenated EC-Raman

Easy hyphenation,
more exploration

PEOPLE
YOU
CAN
TRUST

 **Metrohm**

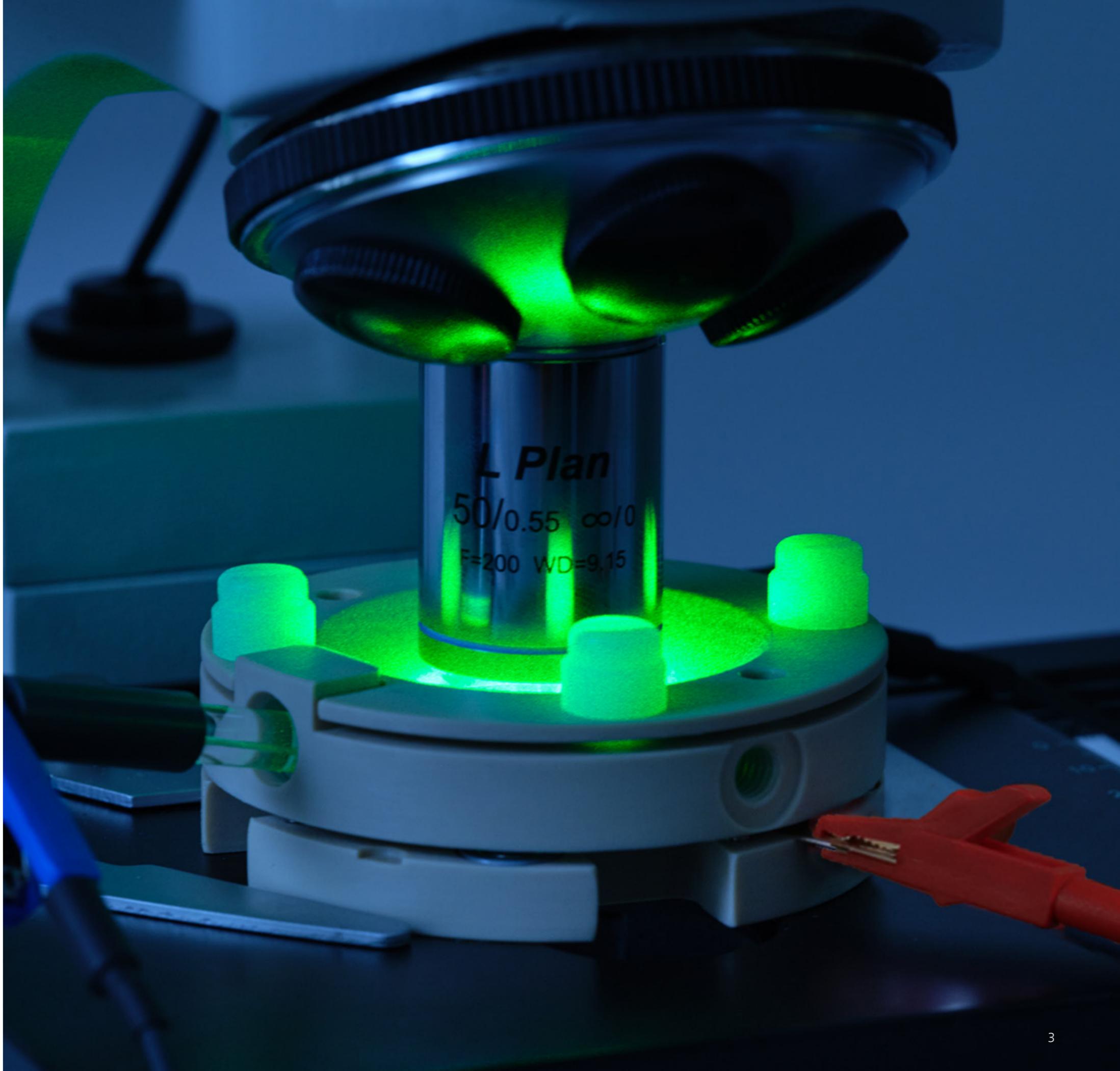
Metrohm Hyphenated EC-Raman solutions for corrosion

Combining **electrochemistry** with **Raman**, both **non-invasive** and **non-destructive** techniques, you have a **dual perspective** on **corrosion phenomena**.

Hyphenated EC-Raman synchronizes your **electrochemical measurements** with ***in situ* Raman spectra acquisition** giving you simultaneous **structural** and **functional** information about your materials when they are in action.

Metrohm offers **two packages** for **corrosion researchers** which will get you **measuring quickly**: no complicated setups, complex training or worries about synchronizing measurements.

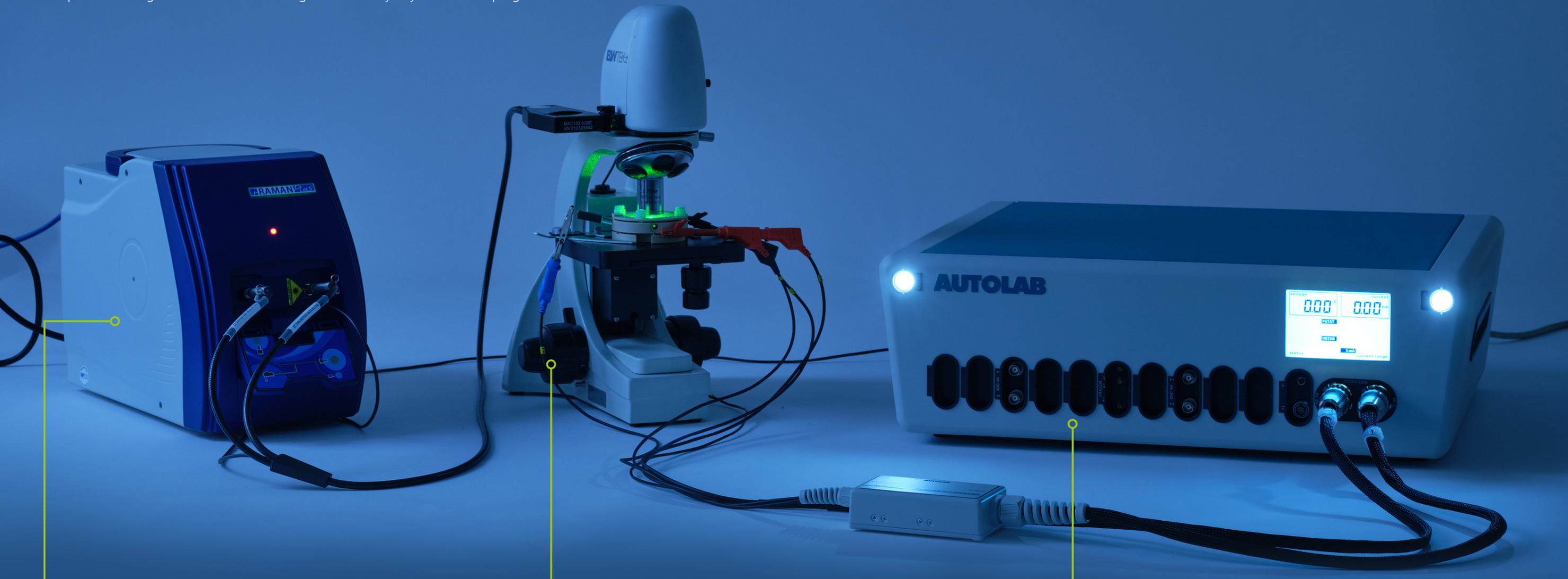
These solutions feature instrumentation from **Metrohm Autolab** and **B&W Tek** and the option to add a **customized cell** for your specific research requirements.



Metrohm EC-Raman Explorer Corrosion Solution

Includes the **Autolab Trigger cable** that synchronizes and controls spectra acquisition through the NOVA software.

The **Metrohm EC-Raman Explorer Corrosion Solution** has an upgradable potentiostat/galvanostat that can change functionality as your research progresses.



B&W Tek **i-Raman Plus 532H System** features the **unique combination** of **wide spectral coverage** and **high resolution**.

- With a **532 nm laser** for higher Raman **scattering efficiency** and the possibility to **enhance** the **signal** (SERS).
- **Small, lightweight** Raman system with **fiber-optic** sample probe for versatile measurement of different sample types.

B&W Tek **Raman Video Microsampling System (532 nm)** can **accommodate** a variety of cell sizes **up to 30 mm high**.

- A **video camera** provides **sample observation** and coaxial **LED illuminator** for **precise** laser alignment.
- Two objectives for **macro** and **micro** perspective (20x & 50x).

Autolab modular **PGSTAT302N** with an Electrochemical Impedance Spectroscopy (EIS) module included.

- A powerful **high compliance** modular potentiostat/galvanostat with current ranges from 10 nA to 1A.
- **Future-proof** your research with the ability to add up to **7 additional modules** post-installation.

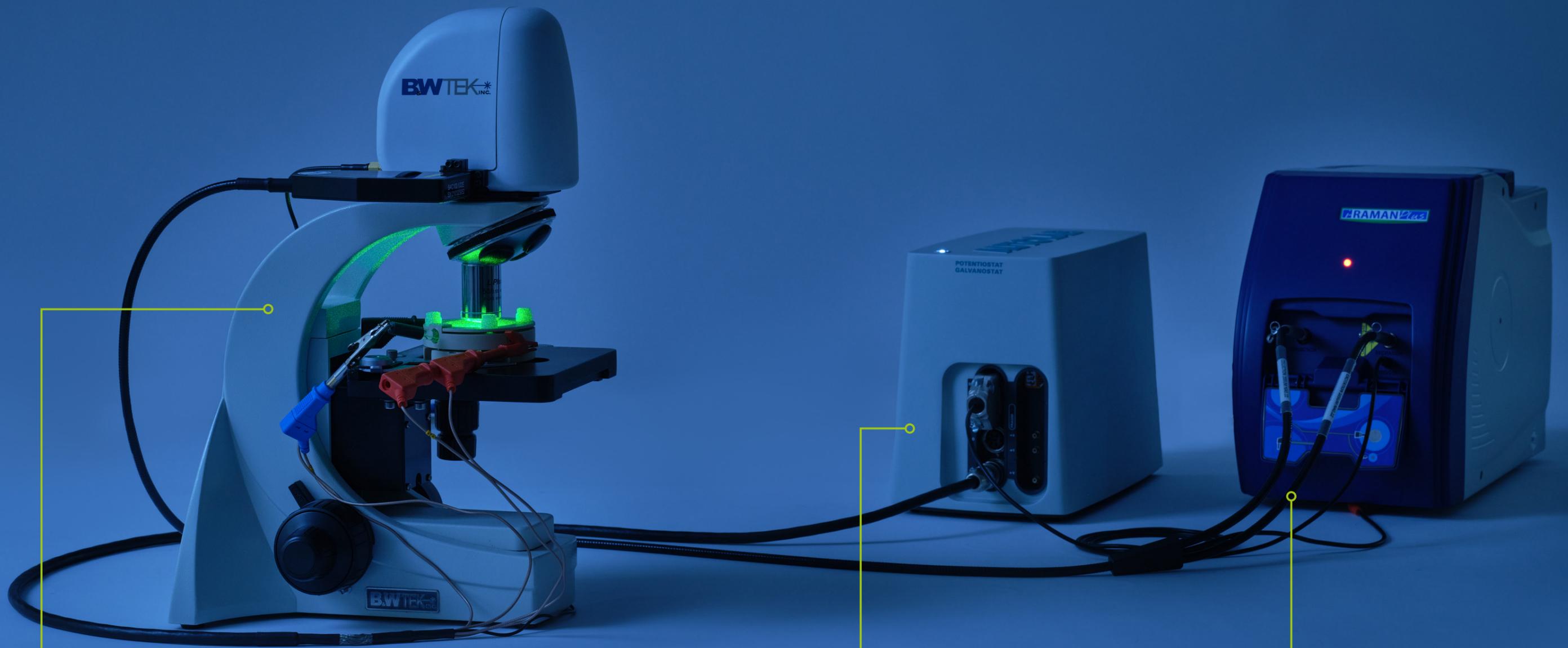
Metrohm EC-Raman Starter Corrosion Solution

The Metrohm EC-Raman Starter Corrosion Solution comes with a compact PGSTAT204 with EIS module that allows you to create the **right experimental conditions** almost anywhere with this **portable, compact solution**.

Includes the **Autolab Trigger cable** that synchronizes and controls spectra acquisition through the NOVA software.

DO YOU ALSO NEED A DEDICATED CELL?

For the Explorer or Starter Solution your local **Metrohm** sales representative can help you **create a customized sample cell** for your specific research requirements.



B&W Tek **Raman Video Microsampling System** (532 nm)

Includes a **PGSTAT204** with an **Electrochemical Impedance Spectroscopy (EIS)** module for high accuracy impedance.

B&W Tek **i-Raman Plus 532H System**



Ready-to-go when you are

HIGHLIGHTS

- Electrochemical workstation with **high accuracy EIS** included.
- Two editable **hyphenated EC-Raman procedures** for the NOVA software, as well as the BWSpec software for extended **data analysis**.
- **Ready-to-go** solution that is **simple** to use.

TECHNIQUES AND METHODS

- Electrochemical Impedance Spectroscopy (EIS)
- Electrochemical **SERS** (Surface-enhanced Raman spectroscopy)
- Linear sweep voltammetry (LSV)
- Raman Microscopy

MATERIALS

- **Organics**: coatings degradation, additive adsorption

Expand your Explorer EC-Raman Corrosion Solution with corrosion-dedicated modules such as:

- The **electrochemical noise (ECN)** module that measures localized corrosion processes on bare or coated metals.
- A **low current amplifier module (ECD)** that provides two additional current ranges (1 nA and 100 pA) with a minimum current resolution of 0.3 fA.
- Discover additional **voltage, temperature** and **pH measurements** with a **pX1000** module.

SPECIFICATIONS

PGSTAT302N with EIS module

Potential range	± 10 V
Compliance voltage	± 30V
Maximum current	± 2 A
Current ranges	10 nA to 1 A
Bandwidth	1 MHz
EIS frequency range	10 µHz - 1 MHz

PGSTAT204 with EIS module

Potential range	± 10 V
Compliance voltage	± 20V
Maximum current	± 400 mA
Current ranges	10 nA to 100 mA
Bandwidth	1 MHz
EIS frequency range	10 µHz - 1 MHz

i-Raman Plus 532H

Laser	Wavelength	532 nm excitation
	Power	30 mW nominal (at exiting probe)
	Power Control	0 to 100% (adjustable at 1% increments)
Detector	Type	High quantum efficiency CCD Array cooled at -2 °C
	Integration Time	100 ms - 30 mins
Spectrometer	Range	65 – 3400 cm ⁻¹
	Resolution	< 3.5 cm ⁻¹ @ 614 nm

BAC151, Raman Video Microsampling System - 20x objective included

Travel in Z direction	24 mm
XY Stage	Double Layer Mechanical Stage
XY Stage Size	150mm x 140mm
Travel in X/Y direction	75 mm (X), 50 mm (Y)

Video Microscope Objective, 20x

Working distance	12.0 mm
Numerical aperture (NA)	0.4

Video Microscope Objective, 50x (RML150A)

Working distance	9.15 mm
Numerical aperture (NA)	0.55



CONTACT YOUR LOCAL
METROHM SALES REPRESENTATIVE >





ORDERING INFORMATION

Instruments and Accessories

AUT302N.S	PGSTAT302N
AUT204.S	PGSTAT204
FRA32M.MAC.204.S	Electrochemical Impedance Spectroscopy (EIS) module
BWT-840000360	i-Raman Plus 532H
BWT-840000962	BAC151, Raman Video Microsampling System - 20x objective included
BWT-840000325	Video Microscope Objective - 50x (RML 150A)
BWT-840000395	BAC150B, Raman Probe Holder
3500003120	Trigger cable for PGSTAT302N Hyphenated EC-Raman Solutions
3500003130	Trigger cable for PGSTAT204 Hyphenated EC-Raman Solutions