SPELECRAMAN, SPELECRAMAN638, SPELECRAMAN532

SPELECRAMAN instruments are the **only fully-integrated equipments** in the market dedicated to **Raman spectroelectrochemistry**. One portable box (25 x 24 x 11 cm) integrates all components required: (Bi)potentiostat/Galvanostat (± 4 V potential range, ± 40 mA maximum measurable current), the laser (785, 638 or 532 nm) and the spectrometer, facilitating the performance of this kind of measurements to everyone.

Three options are currently available depending on the laser wavelength: SPELECRAMAN (785 nm laser, up to 3000 cm^{-1} spectrometer), SPELECRAMAN638 (638 nm laser, up to 4350 cm^{-1} spectrometer) and SPELECRAMAN532 (532 nm laser, up to 4500 cm^{-1} spectrometer).

SPELECRAMAN offers **3 instruments in only 1**: aside of spectroelectrochemical measurements, the equipment can also be independently used as a (Bi)potentiostat/Galvanostat or as Raman instrument.

SPELECRAMAN is **synonymous with synchronization**: optical and electrochemical responses are perfectly synchronized, being simultaneous but independent (non-triggered) signals.

SPELEC instruments are based on the ***operando* concept**, making accessible time-resolved spectroelectrochemistry to everyone. During each measurement, the spectra are continuously recorded, providing the monitoring of the whole electrochemical reaction.

SPELECRAMAN is controlled by **DropView SPELEC**, the only software dedicated to spectroelectrochemistry, which provides powerful functions such as:

- Accurate control of the laser power.
- Shutter control.
- Real-time panel that collects the generated spectra not only during the electrochemical measurement but continuously at any time.
- Plot of Raman intensity vs. electrochemical curves at a specified wavelength.
- Plot overlay, peak integration, smoothing, subtraction, derivative curve, baseline fitting.
- 3D plotting of curves.
- Export to .csv all synchronized data.

3 year instrument warranty
Conditions apply

GENERAL SPECIFICATIONS

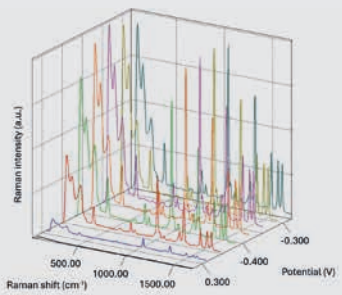
Power	5 V DC
PC interface	USB
LED indicator	Power
Dimensions	25 x 24 x 11 cm (L x W x H)
Weight	3,6 kg

ELECTROCHEMICAL SPECIFICATIONS

Operating modes	(Bi)potentiostat, galvanostat
Potential range	± 4V
Current ranges (potentiostat)	± 1 nA to ± 10 mA (8 ranges)
Maximum current	± 40 mA
Current ranges (galvanostat)	± 100 mV, ± 1 A (2 ranges)
Applied potential resolution	1 mV

OPTICAL SPECIFICATIONS

Light source	
Class	3B
Wavelength	785 ± 0.5 nm (SPELECRAMAN) 638 ± 0.5 nm (SPELECRAMAN638) 532 ± 0.5 nm (SPELECRAMAN532)
Spectral line width	< 0.1 nm (typical < 0.08 nm)
Wavelength stability range	15 to 45 °C
Optical power output	≈ 500 mW (SPELECRAMAN) ≈ 300 mW (SPELECRAMAN638) ≈ 50 mW (SPELECRAMAN532)
Output power stability	± 1%
Warm-up time	10 s from cold start; 1.5 s from warm start
Fiber connector	FC/PC
Spectrometer	
Detector	2D CCD Array, Back thinned TE Cooled
Pixels	1044x64
Raman shift	50 – 3000 cm^{-1} (SPELECRAMAN) 60 – 4350 cm^{-1} (SPELECRAMAN638) 70 – 4500 cm^{-1} (SPELECRAMAN532)
Wavelength range	787 – 1028 nm (SPELECRAMAN) 640 – 885 nm (SPELECRAMAN638) 534 – 700 nm (SPELECRAMAN532)
Optical resolution	< 4 cm^{-1} (SPELECRAMAN) < 4.5 cm^{-1} (SPELECRAMAN638 and SPELECRAMAN532)
Signal-to-noise ratio	1000:1 (at full signal)
Dynamic range	85000:1
Integration time	8 ms to 60 min
A/D resolution	18 bit
Fiber connector	SMA 905



SPELECRAMAN, SPELECRAMAN638 and SPELECRAMAN532 can be used with any kind of electrodes cells. Metrohm DropSens offers innovative cells for conventional electrodes (RAMANCELL-C) as well as for and screen-printed electrodes (RAMANCELL, TLFCL-RAMANCELL). If the spectroelectrochemical setup includes a microscope, a specific Raman cell (RAMANCELL-M) is available for these measurements.

DISCOVER THE MAIN APPLICATIONS!