

SPELECNIR - Spectroelectrochemical Instrument NIR



Metrohm DropSens provides you with one instrument combining Light source (VIS-NIR: 360-2500 nm Tungsten halogen), a Spectrometer (Wavelength range: 900-2200 nm) and a Bipotentiostat/Galvanostat (± 4 V DC potential range, ± 40 mA maximum measurable current).

All the components are perfectly fitted and synchronized, thus offering for the first time in the market a fully integrated spectroelectrochemical instrument where both measurements- electrochemical and optical- are accurately synchronized.

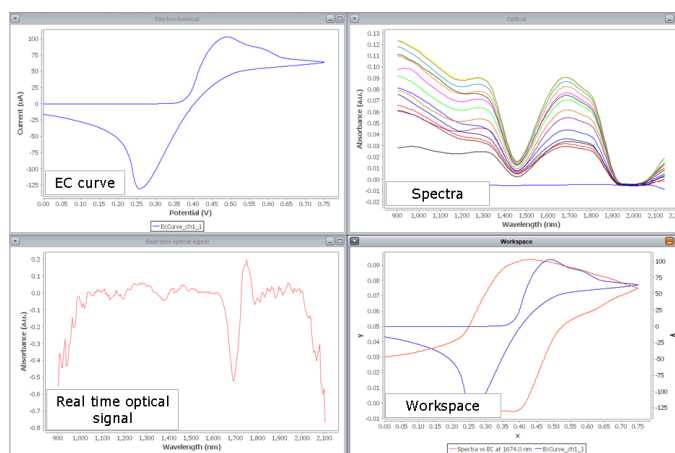
Key features

- One software: DropView Spelec for Windows
- Synchronized electrochemical signals and spectra
- Real Time spectra
- Dark and blank spectrum subtraction
- Counts, Absorbance, Transmittance and Reflectance measurements and calculations
- Automatic and manual shutter control
- Selectable integration time
- Data treatment and analysis

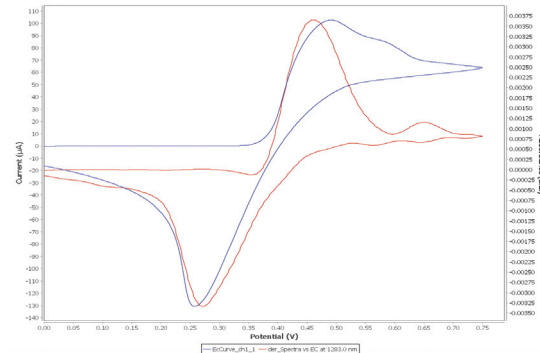
DropView SPELEC Software:

Advanced data collection and treatment

- Real time panel that collects the generated spectra during the electrochemical measurement and continuously at any time.
- Plot of Optical Spectra vs Electrochemical curves at a specified wavelength: voltabsorptogram, chronoabsorptogram, derivated ones.
- Individual Information for each spectrum and electrochemical curve.
- Selection of spectra captured within a selected EC range, spectrum associated to a specific EC point.
- Plot overlay, peak integration, smoothing (all raw data spectra).
- 3D plotting of curves, experiment film.
- Export to .csv all synchronized data.



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Workspace allows to combine in the same window electrochemical and optical data (cyclic voltammogram in blue, derivative voltabsorptogram in red).

Technical specifications

General specifications

Power	5 V DC 4A
PC interface	USB
LED indicators	Lamp Power
Dimensions	25 x 24 x 11 cm (L x W x H)
Weight	2500g

Light Source

Wavelength range	360-2500 nm Tungsten halogen
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Spectrometer

Detector	InGaAs photodiode array 256 pixels TE cooled
Wavelength range	900- 2200 nm
Integration time	1 ms to 2s
Optical resolution	≈ 17 nm FWHM
Signal to Noise Resolution	10000:1 (at 10 ms integration time)
Fiber optic connector	SMA 905

(Bi)potentiostat/Galvanostat

Operating modes	BiPotentiostat, Potentiostat, Galvanostat
DC-potential range	±4V
Maximum measurable current	±40 mA
Current ranges (potentiostat)	±1 nA to ±10 mA (8 ranges)
Applied Potential Resolution	1 mV
Measured Current Resolution	0.025 % of current range 1 pA on lowest current range
Applied Current Resolution	0.1% of current output range
Measured Potential Resolution	1 pA on lowest current range

The equipment can also be used independently as a Spectrometer or as a Bipotentiostat/Galvanostat. SPELECNIR can be used with standard cuvette holders or spectroelectrochemistry cells, but also with innovative DropSens cells and screen-printed electrodes.