



SPELEC, SPELEC1050

SPELEC is the only **fully-integrated equipment** in the market dedicated to **UV-VIS 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), deuterium and halogen lamps as light source and the spectrometer (200-900 nm SPELEC, 350–1050 nm SPELEC1050), facilitating the performance of this kind of measurements to everyone.

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

SPELEC 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.

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

- Shutter lamp control (automatic dark and reference spectra).
- Real-time panel that collects the generated spectra not only during the electrochemical measurement but continuously at any time.
- Spectroscopic measurements shown in counts, absorbance, transmittance or reflectance during the electrochemical process.
- Plot of optical spectra vs. electrochemical curves at a specified wavelength (voltabsorptogram, chronoabsorptogram or derivated curves).
- Plot overlay, peak integration, smoothing, subtraction, derivative curve, baseline fitting.
- 3D plotting of curves.
- Export to .csv all synchronized data.

GENERAL SPECIFICATIONS

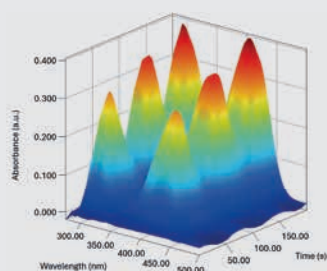
Power	12 V DC
PC interface	USB
LED indicator	Power
Dimensions	25 x 24 x 11 cm (L x W x H)
Weight	2,7 kg

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	
Lamps	Deuterium and halogen (can be switched on/off independently)
Wavelength range	200-400 nm (deuterium) / 400-1100 nm (tungsten lamp)
Stability	≤ 1 · 10 ⁻³ AU
Drift	≤ 0.25 %/h
Warm-up time	≈ 8 min
Numerical aperture	≈ 0.245 (deuterium lamp) / ≈ 0.057 (tungsten lamp)
Lifetime	≥ 1000 hours at 240 nm (50 % intensity loss) (deuterium lamp) ≥ 2000 hours (tungsten lamp)
Fiber connector	SMA 905
Spectrometer	
Detector	Linear silicon CCD array
Pixels	2048
Pixel size	14 µm x 200 µm
Pixel well depth	≈ 62,500 electrons
Fiber connector	SMA 905
Wavelength range	200-900 nm (SPELEC) 350-1050 nm (SPELEC1050)
Optical resolution	≈ 0.3-10.0 nm FWHM
Signal-to-noise ratio	250:1 (at full signal)
A/D resolution	16 bits
Dark noise	50 RMS counts
Dynamic range	2 x 10 ⁸ (system); 1300:1 for a single acquisition
Integration time	1 ms to 65 s
Stray light	< 0.05 % at 600 nm; < 0.10% at 435 nm



SPELEC and SPELEC1050 can be used with any kind of electrodes cells. Metrohm DropSens offers innovative cells for conventional electrodes (REFLECELL-C) as well as for and screen-printed electrodes (REFLECELL, TRANSCCELL, TLFL-REFLECELL).

DISCOVER THE MAIN APPLICATIONS!

