

ROXY Exceed

Potentiostat for EC-MS

- **Dedicated for on- and off-line EC-MS**
- **Fully programmable: DC, Scan and Pulse mode**
- **Full control of ReactorCell, μ -PrepCell, and SynthesisCell**
- **Compatible with all LC-MS systems**

The ROXY™ Exceed is a new generation Potentiostat dedicated for on- and off-line coupling of Electrochemistry with Mass Spectrometry (EC-MS). With over 130 peer reviewed scientific publications of its predecessor, the Exceed is the best choice for seamless EC-MS.

On-line Mode

In on-line mode the ROXY Exceed can be used in (a) direct infusion mode, (b) for flow injection analysis, or (c) with any type of LC-MS system, e.g., HDX-MS, top-down or bottom-up LC-MS proteomics.

Off-line Mode

In off-line mode the ROXY Exceed is mainly used for electrochemical synthesis and for the collection of electrochemically generated products.

Specifications

The Potentiostat is based on state-of-the-art electronics, has a large voltage and current range of ± 4.9 V and 1 nA - 100 mA, respectively. It supports different modes of operation, such as DC, Scan, and Pulse, assuring the highest yields, reproducibility and robustness.

DC mode: In Direct Current (DC) mode a constant potential is applied to the EC flow cell to oxidize or reduce a target compound.

Scan mode: In Scan mode a scanning or MS voltammogram is obtained by applying a voltage ramp between two potentials using a certain scan speed (in mV/s) during the sweep.

Pulse and Pulse 2: In Pulse mode the working electrode is dynamically and continuously regenerated



by a series of potential steps in a cyclic manner. Up to 5 potential steps can be programmed.

Pulse 2 mode is an extended pulse mode. It allows to program a multi-step waveform, with up to 30 time potential (t,E) coordinates.

Software

The Exceed can be controlled by using Dialogue (Antec Scientific) or Chromeleon CDS (Thermo Scientific) software.

Flow Cells

Different electrochemical flow cells are available, e.g., ReactorCell, μ -PrepCell (2.0 and SS), and SynthesisCell, to master the most demanding applications.

Applications

The ROXY Exceed is successfully used in MS proteomics, incl. HDX-MS, drug metabolism, environmental degradation of drugs and pollutants, drug stability testing and electrochemical synthesis.

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Flow cells and reaction vessels

To cover a broad range of applications e.g., from metabolite synthesis in drug metabolism, disulfide bond reductions in protein chemistry, to on-line LC/EC/MS, a variety of different flow cells and reaction vessels are available:

- **SynthesisCell** – bulk cell for synthesis of mg quantities
- **μ-PrepCell** – ultimate workhorse, 2 models: μ-PrepCell 2.0 and μ-PrepCell SS
- **ReactorCell** – basic starter cell

General Specifications ROXY Exceed

Power	110-240 VAC, 50/60 Hz, 260 VA, autosensing
Operating modes	DC, Pulse, Pulse2 and SCAN
Single channel	Full control of all Antec flow cells. Optional dual channel control (DCC)
PC control	Parametric control and data-acquisition via LAN port (USB service port)
Potential range	between ± 4.90 V in 10 mV increments
Analog output (DAC)	-1 to +1 V full scale (via 16-bit D/A converter)
LC or MS trigger	Digital I/O (HW) 2x Relay, 5x TTL outputs (CMOS 3.3V logic), 13 TTL inputs (programmable), 1x GND
Oven	height 37 cm; from 7°C above ambient to 60°C, accuracy 0.5°C, stability 0.1°C
Regulatory	CE, UL/CSA, RoHS compliant

DC mode

Ranges	1 nA - 100 mA in 1, 2, 5 increments
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PULSE mode

Range	200 nA - 100 mA in 1, 2, 5 increments
Waveform	Max 5 potential steps
Pulse times	t1: 100 ms - 2000 ms; t2, t3, t4, t5: 0 - 2000
Sampling times	20 ms – [t1 – 60] ms

PULSE2 mode

Range	200 nA - 100 mA in 1, 2, 5 increments
Waveform	Free programmable multi-step waveform with up to 30 time-potential (t, E) coordinates and max. pulse duration of 4 s. Time points in 10 ms increments.
Sampling times	Sampling interval is free programmable

SCAN mode

Range	200 nA - 100 mA in 1, 2, 5 increments
Scan rate	1 - 100 mV/s in 1, 2, 5 increments
Cycle	half, full, continuous

Rear panel

I/O connections	Mains, LAN, USB, Analog data, Valve and Digital IO connector
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Physical specifications

Dimensions	43 (D) x 22 (W) x 44 (H) cm = 16.9" (D) x 8.7" (W) x 17.3" (H)
Weight	14.4 kg (32 lbs) without flow cell

Part no	Description
211.0035	ROXY Exceed Potentiostat (w/o flow cell)
211.0073	ROXY Exceed Potentiostat for HDX (with flow cell)
Optional	
211.0035D	ROXY Exceed Potentiostat (DCC), dual channel control (w/o flow cell)



ROXY Exceed with different flow cells (from left to right):

- ReactorCell
- μ-PrepCell 2.0
- μ-PrepCell SS
- SynthesisCell



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