

# 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,  $\mu$ -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  $\pm 4.9$  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,  $\mu$ -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.

# ROXY Exceed

## 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 $\pm 4.90$ 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)
<b>Optional</b>	
211.0035D	ROXY Exceed Potentiostat (DCC), dual channel controll (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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