

# µStat 4000 Multi Potentiostat/Galvanostat



01

## Ref. STAT4000



**µStat 4000** with a size of only 22x20x7 cm, includes **4 channels** that can act at the same time as **4 independent potentiostats/galvanostats**; it also includes **one multichannel** that can act as a potentiostat where up to 4 working electrodes share an auxiliary and a reference electrode.

With **µStat 4000** users can perform up to **4 different electrochemical techniques at the same time**; or carry out the **study of one technique's parameter** in just one step by applying the same electrochemical technique in several channels but selecting different values for the parameter under study. These are just examples of the enormous capabilities that the instrument offers.

**µStat 4000** can be applied for **Voltammetric, Amperometric** or **Potentiometric** measurements, including **20 electroanalytical techniques**.

This multi potentiostat/galvanostat is **Li-ion Battery powered** (DC charger adaptor also compatible), and can be easily connected to a PC via USB or **through Wireless connection**.

**µStat 4000** is controlled by the powerful **software "DropView 8400"** which allows plotting of the measurements and performing the analysis of results. DropView software provides powerful functions such as experimental control, graphs or file handling, among others.

Available techniques:

### POTENTIOSTAT

#### Voltammetry

<b>LSV</b>	Linear Sweep Voltammetry
<b>CV</b>	Cyclic Voltammetry
<b>SWV</b>	Square Wave Voltammetry
<b>DPV</b>	Differential Pulse Voltammetry
<b>NPV</b>	Normal Pulse Voltammetry
<b>NDPV</b>	Differential Normal Pulse Voltammetry
<b>ACV</b>	AC Voltammetry
<b>LPR</b>	Linear Polarization Resistance

#### Amperometry

<b>AD</b>	Amperometric Detection
<b>FA</b>	Fast Amperometry ( $t_{int} < 0.1$ s)
<b>PAD</b>	Pulsed Amperometric Detection
<b>ZRA</b>	Zero Resistance Amperometry
<b>COUL</b>	Coulometric Detection

### GALVANOSTAT

<b>LSP</b>	Linear Sweep Potentiometry
<b>CP</b>	Cyclic Potentiometry
<b>PD</b>	Potentiometric Detection (galvanostatic)
<b>FP</b>	Fast Potentiometry ( $t_{int} < 0.1$ s)
<b>ZCP</b>	Zero Current Potentiometry (OCP)
<b>PSAG</b>	Potentiometric Stripping Analysis (galvanostatic)
<b>PSAF</b>	Potentiometric Stripping Analysis (faradaic)

Instrument Specifications	
Power	Li-ion Battery (6150 mAh) USB DC charger adaptor compatible (5 V, 15 W)
PC interface	Wireless connection USB
Operating modes	4x 1 Channel Potentiostat/Galvanostat 1x 4 Channel Potentiostat
DC-Potential range	±4 V
Current ranges (potentiostat)	±1 nA to ±100 mA (9 ranges)
Maximum measurable current	±80 mA
Potential ranges (galvanostat)	±100 mV, ±1 V (2 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	0.012 % of potential range
Potential Accuracy	±0.2 %
Current Accuracy	≤0.5 % of current range at 100 nA to 1 mA ≤1 % of current range at 10 mA to 100 mA
External inputs/outputs	5 Digital Input/Output pins [PIO 1, PIO 2, PIO 3, PIO 4, PIO 5] 3 Analog Inputs multiplexing PIO 1, PIO 2, PIO 3 2 Analog Outputs (configurable I-out or E-out)
Indicators	LCD display in front panel
Dimensions	22.2 cm x 20.5 cm x 7.5 cm (L x W x H)
Weight	1.6 kg

Control Specifications			
<b>General Pretreatment</b>	Conditioning stage duration:	0 – 1300 s	
	Deposition stage duration:	0 – 1300 s	
	Equilibration stage duration:	0 – 1300 s	
<b>General Parameters</b>	Begin, End, Base, Vertex potentials:	-4 V to +4 V	
	Step potential:	1 mV to 500 mV	
	Pulse potential:	1 mV to 250 mV	
	Scan rate:	1 ms up to 1.3 s per step	
<b>Specific Parameters</b>	SWV	Frequency:	1 Hz to 400 Hz
		Amplitude:	1 mV to 250 mV
	DPV, NPV, NDP	Modulation time:	1 ms to 1300 ms
		Pulse time:	1 ms to 1300 ms
	ACV	Frequency:	2 Hz to 250 Hz
		Amplitude:	5 mV to 250 mV (RMS)
	LPR	dE/dt lim:	-1 µV/s to 1000 µV/s
		tmax OCP:	5 s to 6550 s
tprecond:		0 s to 1300 s	
Chrono. Methods (AD, PD, ZCP, ZRA, COUL)	Interval time:	0.1 s to 1300 s	
	Run time:	Hours (65000 points)	
Fast Chrono. Methods (FA, FP)	Interval time:	1 ms to 1300 ms	
	Run time:	Hours (65000 points)	
PAD	Pulse time:	1 ms to 1300 ms	
	Interval time:	10 ms to 1300 ms	
	Run time:	Hours (65000 points)	
PSA	Potential limit:	±4V	

*Specifications are subject to change without previous notice*

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