High Current Potentiostat / Galvanostat

Model 2550

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1 General Description

Model 2550, AMEL's high current potentiostat and galvanostat, is designed to meet the most demanding needs. Reliability and performances make this tool the perfect choice for high current electrochemical applications. AMEL has been producing excellent reliable equipment since 1959 and offers now novel features among which positive feedback control, fast transient response, automatic or manual current ranging and IR compensation. The equipment is fully controlled by the new VApeak software allowing for a complete range of electrochemical and electroanalytical techniques.

2 Metrological Properties

2.1 Counter Electrode

Voltage Output	± 16V max
Current Output	± 5,5A max
Slew Rate	0,01mV/s to 10V/s
Protection	Thermal, overload and short-circuit

2.2 Working Electrode

Current Measure	From 100nA to 10A Full Scale in 9 ranges
Current Resolution	From 100pA at 100nA Full Scale to 1mA at 10A Full Scale
Measuring Accuracy	< 1% of Full Scale in 100nA to 1µA ranges
	< 0,25% of Full Scale in 10µA to 1A ranges
	< 5% of Full Scale in 10A range

2.3 Reference Electrode

Input Impedance	> 1TΩ
Input Capacitance	< 20pF (1m cable)
Biasing Current	< 10pA at 25°C
Common Mode Rejection	> 60dB full frequency response
Voltage Range	± 10V max or ± 50V max
Input BNC	Grounded outer contact

2.4 Polarization Capability

Voltage	± 10V max
Current	± 5A max
Voltage Resolution	0,1mV
Current Resolution	100pA
Accuracy	± 0,2% & 0,1% (conversion at Full Scale)

2.5 IR Compensation

Positive Feedback Range 2Ω to 100MΩ (depending on current range)

2.6 Response Time

Potensiostatic Rise Time	< 1µs resistive load (1000Ω)
Galvanostatic Rise Time	< 17µs resistive load (1000Ω)

2.7 Meters and Interfaces

A/D Converter	16 BIT
D/A Converter	16 BIT
Temperature Meter	0 to +100°C with PT1000 probe (0,1°C resolution and ± 0,2°C accuracy)
Sampling Rate	200µs

2.8 Digital Interface

Connection	USB with full instrument control (baud rate 57600 – N – 8 – 1)
Memory	EEPROM 64kB – SRAM 32kB
Port Output	8 external accessories
I/O port	8 optional

2.9 Cell Connections

Cables	2, 3, 4 cables. BNC connector for Reference (Hi & Low) and PL258 for Working and Counter electrodes to 4mm banana connectors.

2.10 Power Supply and Dimensions

Voltage Mains	115 or 230V AC ±10% 50/60Hz
Power Consumption	120VA max
Dimensions (L x W x H)	400 x 440 x 145mm
Weight	15kg

3 Implemented Electrochemical Techniques

3.1 Detection

AD	Amperometric Detection
PD	Potentiometric Detection
DSA	Double Step Amperometry
DSV	Double Step Potentiometry
PAD	Pulsed Amperometric Detection

3.2 Voltammetric

LSV	Linear Scan Voltammetry
CYV	Cyclic Voltammetry
GLV	Galvanostatic Linear Voltammetry
GCV	Galvanostatic Cyclic Voltammetry
SWV	Square Wave Voltammetry
NPV	Normal Pulse Voltammetry
ACV	Alternating Current Voltammetry

DPV Differential Pulse Voltammetry
DNV Differential Normal Pulse Voltammetry
DAV Differential Alternate Pulse Voltammetry

$ $ Stripping

LSS Linear Scan Stripping
ACS Alternate Current Stripping
SWS Square Wave Stripping
DAS Differential Stripping
DPS Differential Pulse Stripping
DNS Differential Normal Pulse Stripping
PSA Potentiometric Stripping Analysis
CCSA Constant Current Stripping Analysis

& Spare Parts

191/GPC Grid power cable
191/USB USB cable
191/4BN4 Set of 4 CE, WE and RE cables
191/C4 Set of 4 crocodile clips for WE, RE and CE 4mm banana plugs

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