



The Model 363 is a low-cost Potentiostat /Galvanostat designed to accurately control the potential or current of a working electrode in an electrochemical cell. The Model 363 offers complete flexibility in potential and current control to satisfy the diverse needs of experimenters working in the fields of:

- **Corrosion Research**
- **Electrochemical Research**
- **Electro-Organic Synthesis**
- Battery and Fuel Cell Development
- **Electroplated Thickness Measurements**

Many of these experiments require precise control and measurement of the potential and current for days or even weeks. Since it would be impractical to use a research potentiostat for such experiments, the Model 363 is the best choice for these applications. The Model 363 features a current capability of 1 ampere with a compliance voltage of ± 30 volts. The potential can be controlled within a range of ± 9.999 V with 1 mV resolution. In controlled potential mode, the cell current can be measured with an accuracy of better than 0.4% of the Current Range that is set on the front panel. The accuracy of the applied current in galvanostatic mode is also better than 0.4% of full scale. Positive feedback IR compensation is provided.

Careful consideration of electronic design features has resulted in extremely stable potentiostatic control. The Model 363 can be used with confidence with high-resistance electrolytes, high-resistance working electrodes (such as painted or coated metal samples for corrosion studies), and working electrodes with a large area.

For applications involving single, repetitive, or cyclic scans, the Model 363 incorporates a front-panel connector that accepts externally applied waveforms.

Specifications

Potentiostat

Control Amp Output Voltage (with 30 Ω load): >±30 V Maximum Output Current (with 1 Ω load): 1 A Rise Time (10 to 90%, 1 V step):

10 kΩ Resistive Load: <10 μs
1 Ω Resistive Load: <15 μs
Drift with Time: <200 μV/week
Drift with Temperature: <30 μV/°C
+200 ppm of Initial Potential setting per °C
Noise & Ripple (1 Hz to 3 kHz): <200 μV rms
Line Voltage Sensitivity (±10% charge in line): <200 μV
Stability with Capacitive Loads: Stable with reference electrode impedance <30 kΩ
Control Amp Slew Rate: >25 V/μs

Electrometer

Cell Voltage: $\pm 10 \text{ V}$ Input Resistance: $>2 \times 10^{10} \Omega$ Frequence Response (-3 dB, 1 k Ω source): >1 MHzDrift with Time: $<200 \ \mu\text{V/week}$ Drift with Temperature: $<30 \ \mu\text{V/}^{\circ}\text{C}$

Current Measurement and Galvanostat

Accuracy: Better than 0.4% of full scale Drift with Temperature: <0.01% of full scale/week Drift with Time: <0.1% of full scale/week Noise and Ripple: <200 μV rms Current Measurement Rise Time (100 μA pk-pk step; 10 to 90%): <20 μs

Dimensions

Size: 43.2 cm W x 19 cm H x 38.1 cm D (17" W x 7.5" H x 15" D)

Control Functions

INITIAL POTENTIAL/CURRENT: Thumbwheel switch adjustable to ± 9.999 V; readable to ± 0.001 V and accurate to ± 3 mV plus 0.5% of the thumbwheel setting. This control is also used in galvanostatic mode to set the controlled current. The value of the controlled current is established by multiplying the thumbwheel switch setting by the Current Range.

AC: Power on/off switch.

EXTERNAL INPUT: BNC connector accepts externally supplied waveforms such as ramps, triangles, sinusoids, etc.

METER: Allows convenient visual reading of cell current or cell potential. Displays open-circuit potential when cell is OFF.

MODE: Constant potential (potentiostatic) or constant current (galvanostatic) mode of operation is selected by this pushbutton.

CELL: Controls application of constant potential or current to the external cell.

METER PUSHBUTTON: Selects cell current or cell potential display on the meter. Both potential and current can be displayed in either potentiostatic or galvanostatic modes.

EXTERNAL CELL CABLE CONNECTION

OVERLOAD: Indicates current/potential overload.

CURRENT RANGE: 1 μ A to 1 A in decade sequence. A two-fold over range is allowed for all ranges except the 1 A range.

POTENTIAL MONITOR: Output is potential of the reference with respect to the working electrode. Provides open-circuit potential when cell is OFF.

CURRENT MONITOR: Output voltage proportional to the cell current is provided at this terminal. Full-scale current corresponds to 1 V.

Positive feedback IR controls are not shown.

Specifications subject to change 021703



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