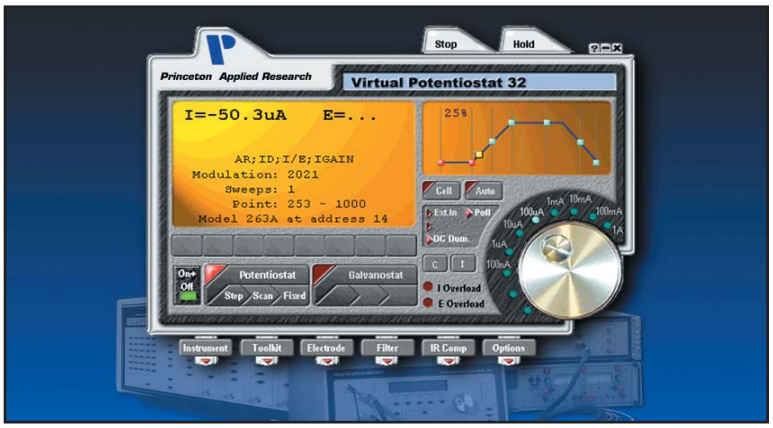
Princeton Applied Research

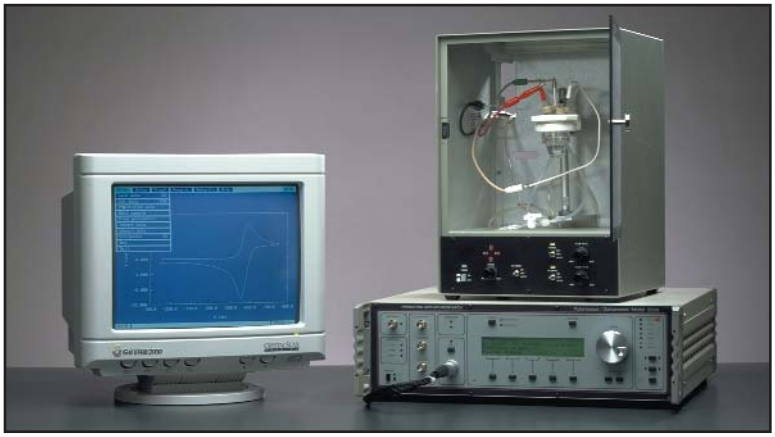
263A
Potentiostat/Galvanostat

The 263A potentiostat/galvanostat is the ideal system for many laboratories. Perfect for the budget conscious researcher who demands high performance. The 263A may be upgraded with many different options detailed within. This impressive combination of price and performance makes it a tremendous value for today's electrochemist or corrosion scientist.

- Computer Controlled Potentiostat and Galvanostat Operation
- 20 V Compliance and 200 mA Current Output
- 16 V Scan Range
- Fast Data Acquisition (30 µs)
- Optional Full Front Panel Control
- Impedance Capable
- Optional Float Capability (263A/99)
- Optional 2 A Current Module (263A/94)
- Optional Auxiliary Input (263A/98)

263A, World Class Performance. . .





With ease of use in mind, the 263A is simple to operate without extensive training. Its built-in self calibration assures you of quality data each time you use it. Instrument check-out is simple. Select the Dummy Cell, enter a voltage, click the cell on, and see that the current displayed matches the expected value (263A-2 or /90 option).

The 263A can be supplied without a front panel. The functionality of the front panel may be replaced with our ***Virtual Potentiostat***™ software that is supplied with the instrument.

A fully functional front panel is available at initial purchase or any time afterwards with the 263A/90 option. Its analog look and feel lets you start acquiring data the moment you unpack the system. The 263A gives you the best of both worlds. You decide if you want the hands-on control of the front panel or the ease of computer control, and if you can't decide... take both!

The 263A's 20 V compliance and 200 mA output capability provide the current and voltage specifications required for many applications. The 100 nA current range (full scale) gives the 263A very good sensitivity with nanoamp resolution. Under software control, you can access the 10 nA and 1 nA current ranges with resolutions as low as 2 pA!

We also incorporated the power of the 263/A91 Turbo/RAM 16 bit DAC option into every 263A. This gives the 263A 30 microsecond data acquisition capabilities, 96k of RAM, and a 16 bit DAC. The benefits are a wider scan window (±8 V instead of ±2 V, within the ±10 V hardware limit), more data storage, and faster data acquisition.

. . . Wide Variety of Options, Fully Expandable!

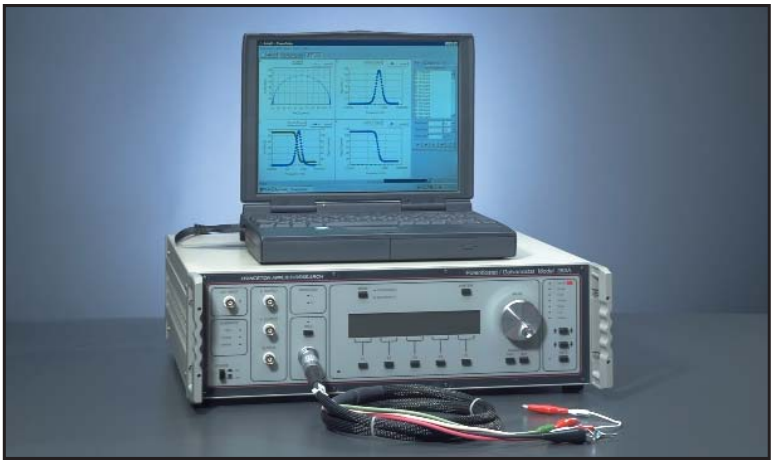
Our extensive line of applications software makes computer data acquisition and analysis a snap. Whether it is basic research, electrochemical impedance, we have the software that will make your 263A the most versatile instrument in your lab. If your needs go beyond the already feature-rich 263A base system, more than likely you can still get there with one of our numerous options.

The 263A can be coupled with either one of our extremely sensitive single sine analyzers (5210 Lock-in Amplifier or 1025 Frequency Response Detector) to perform ac impedance measurements. Our powerful new impedance software module, ***PowerSINE***™, drives this complete dc/ac system.

The 263A/94 High Current option provides a 2 A current capability, which allows researchers to experiment with largers electrodes or perform corrosion experiments that require higher currents.

The 263A/98 Auxilary Input option providesan external input to the analog-to-digital converter. This lets the researcher interface to ancillary devices such as rotating crystal analyzers, and temperature controllers. The 263A/99 Floating/Auxillary Input option allows the researcher to use the 263A for floating ground experiments. This option is useful for autoclaves and grounded working electrodes. It includes the /98 Auxillary Input option.

Princeton Applied Research... *continuing our long tradition of providing you with a diversified suite of electrochemical products to solve your application needs.*



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Specifications

Power Amplifier
- Compliance Voltage: ±20 V
- Maximum Current: ±200 mA (±2 A with 263A/94 option)
- Rise Time: <1 µs (No Load)
- Slew Rate: >1 V/µs (No Load)

System Performance
- Minimum Timebase: 30 µs
- Minimum Potential Step: 250 µV
- Noise and Ripple: <50 mV rms typical
- Minimum Current Range: 100 nA (hardware)
- Minimum Current Range: 1 nA*
- Minmum Current Resolution: 2 pA
- Drift: <50 mV/°C

iR Compensation
- Positive Feedback
  - Range: 20 MΩ to 20 Ω depending on current range
  - Resolution: 0.05% of current range
- Current Interrupt
  - 12 bit DAC Potential Error Correction
  - Total Int. Time: <50 ms – 2050 ms

Current Measurement
- Ranges: 7 decades, 100 mA to 100 nA
- Accuracy (dc) at Monitor
  - 10 µA to 100 mA: <0.4% Full Scale
  - 100 nA and 1 µA Ranges: <0.5% Full Scale, ±5 nA
- Frequency Response (small signal)
  - 1 mA Range: –3 dB at 100 kHz, 1k source impedance
  - 10 µA Range: –3 dB at >4 kHz, 100k source impedance

Computer interface
- GPIB IEEE-488 and RS232

Differential Electrometer
- Input Bias Current: <50 pA at 25°C, typ. <20 pA at 25°C
- Max Voltage Range: ±10 V
- Max Input Voltage Differential: ±10 V
- Bandwidth: –3 db @ >4 MHz
- Offset Voltage: <100 mV
- Offset Temperature Stability: <50 mV/°C
- Common Mode Rejection:
  - >70 dB at 100 Hz
  - >60 dB at 100 kHz
- Input Impedance: $>10^{12}$ Ω, in parallel with 20 pF

Potential/Current Control
- Digital/Analog Converters (DACs)
- Bias DAC
  - Resolution: 14 bits
  - Range (Potentiostat): ±8 V
  - Range (Galvanostat): ±200% of full-scale current
- Modulation DAC
  - Resolution: 16 bits
  - Range (Potentiostat): ±8 V, ±0.8 V, ±0.08 V
  - Range (Galvanostat): ±200%, ±20.00%, ±2.000%

Dimensions
- 17.5" L x 5.5" H x 18.5" D
- 35 lb (16 kg)

Power Requirements
- 90–130 V ac or 200–260 V ac, 50–60 Hz,
- 125 Watts Maximum

*This sensitivity is achieved through our proprietary application software.

Specifications subjet to change
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