



Redefining Electrochemical Measurement

Specifications for Gamry Potentiostats

Gamry Potentiostats are specified conservatively, so you can be sure that your Gamry Potentiostat will meet the specifications anywhere in the world. The actual performance may be significantly better than the published specifications indicate. We measured several critical specifications of our Potentiostats and we report them below as **typical**. The **typical** specifications are representative of the actual performance of the Potentiostat but are not guaranteed.

	<u>Reference</u> <u>600</u>	<u>Reference</u> <u>3000</u>	<u>Series G</u> <u>750</u>	<u>Series G</u> <u>300</u>
Potentiostat	Yes	Yes	Yes	Yes
Galvanostat	Yes	Yes	Yes	Yes
Zero Resistance Ammeter	Yes	Yes	Yes	Yes
Cell Connections	2, 3, or 4	2, 3, or 4	2, 3, or 4	2, 3, or 4
Floating (Isolated from earth)	Yes	Yes	Yes	Yes
SYSTEM				
Max. Current	±600 mA	Hi Current : ±3 A Hi Voltage : ±1.5 A	±750 mA	±300 mA
Current Ranges	11 (60pA-600mA)	11	9 (7.5nA-750mA)	9 (3nA-300mA)
Current Ranges (with internal gain applied)	13(600 fA-600mA)	13	11 (75 pA-750mA)	11 (30 pA-300mA)
Min. Voltage Resolution	1 µV		1 µV	1 µV
Min. Current Resolution	20 nA		2.5 fA	1 fA
Max. Applied Potential	±11 V	±11 V Stack Mode: ±32 V	±8 V	±11 V
Rise Time	<250 ns	<400 ns	<2 µs	<2 µs
Noise and Ripple	<10 µV rms	<2 µV rms	<20 µV rms	<20 µV rms
Noise and Ripple (typical)	<2 µV rms		<3 µV rms	<3 µV rms
Min. Time Base	3.333 µs	3.333 µs	50 µs	50 µs
Max. Time Base	715 s		600 s	600 s
Min. Potential Step	12.5 µV		12.5 µV	12.5 µV
Analog/Digital Converter	16 bit	16 bit	16 bit	16 bit
Max. Data Points Per Experiment	262,143	262,143	262,143	262,143
EIS MEASUREMENT				
Frequency Range	10 µHz – 1 MHz	10 µHz – 1 MHz	10 µHz-300 kHz	10 µHz-300 kHz
EIS Accuracy		See Accuracy	Contour Plot	
Max AC Amplitude	2110 mV rms	2110 mV rms	3600 mV rms	3600 mV rms
Min AC Amplitude	4.03 µV rms	4.03 µV rms	55 µV rms	55 µV rms
CONTROL AMP				
Compliance Voltage	>±22 V	Hi Current : ±15 V Hi Voltage : ±32 V	>±12 V	>±20 V
Output Current	>±600 mA		>±750 mA	>±300 mA
Speed Settings	5	5	4	4
Unity Gain Bandwidth (typical)	980, 260, 40, 4, 0.4 kHz	980, 260, 40, 4, 0.4 kHz	200, 100, 40, 6 kHz	200, 100, 40, 6 kHz

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ELECTROMETER				
Input Impedance	>10 ¹⁴ Ω	>10 ¹⁴ Ω	>10 ¹² Ω	>10 ¹² Ω
Input Current	<5 pA	<10 pA	<10 pA	<10 pA
Input Current (typical)	<2 pA		<5 pA	<5 pA
Bandwidth (-3dB) (typical)	> 15 MHz	>10 MHz	>4 MHz	>4 MHz
Common Mode Rejection Ratio	>80 dB (3 Hz) >60 dB (1 MHz)	>80 dB (3 Hz) >60 dB (1 MHz)	>80 dB (3 Hz) >60 dB (100 kHz)	>80 dB (3 Hz) >60 dB (100 kHz)
APPLIED POTENTIAL				
Accuracy	± 1 mV ±0.2 % of setting	± 1 mV ±0.2 % of setting	± 2 mV ±0.2 % of setting	± 2 mV ±0.2 % of setting
Accuracy (typical)	±375 μV ± 0.04%		±375 μV ± 0.05%	±375 μV ± 0.05%
Resolution	12.5 μV, 50 μV, 200 μV/bit		12.5 μV, 50 μV, 200 μV/bit	12.5 μV, 50 μV, 200 μV/bit
Drift	<20 μV/°C	<20 μV/°C	<30 μV/°C	<30 μV/°C
Potential Scan Range	±0.4 V, ±1.6 V, ±6.4V	±0.4 V, ±1.6 V, ±6.4V	±0.4 V, ±1.6 V, ±6.4 V	±0.4 V, ±1.6 V, ±6.4 V
MEASURED POTENTIAL				
Accuracy	± 1 mV ±0.3% of reading	± 1 mV ±0.3% of reading	± 1 mV ±0.3% of reading	± 1 mV ±0.3% of reading
Accuracy (typical)	±250 μV ± 0.05%		±350 μV ± 0.03%	±350 μV ± 0.03%
Full-Scale Ranges	12 V, 3 V, 300 mV, 30 mV	32 V, 12 V, 3 V, 300 mV, 30 mV	30 V, 3 V, 300 mV, 30 mV	30 V, 3 V, 300 mV, 30 mV
Resolution	400 μV, 100 μV, 10 μV, 1 μV/bit		1 mV, 100 μV, 10 μV, 1 μV/bit	1 mV, 100 μV, 10 μV, 1 μV/bit
Offset Range	±10 V		±12V	±12 V
APPLIED CURRENT				
Accuracy	±10 pA ±0.3 % of range	±10 pA ±0.3 % of range	±10 pA ±0.3 % of range	±10 pA ±0.3 % of range
Accuracy (typical)	±3 pA ± 0.08%		±8pA ± 0.07%	±8 pA ± 0.07%
Resolution	0.0033 % full-scale/bit	0.0033% full-scale/bit	0.0033 % full scale/bit	0.0033 % full scale/bit
MEASURED CURRENT				
Accuracy	± 10 pA ±0.3% of range	± 10 pA ±0.3% of range	± 50 pA ±0.3% of range	± 50 pA ±0.3% of range
Accuracy (typical)	±3 pA ± 0.12%		±8 pA ± 0.08%	±8 pA ± 0.08%
Resolution	0.0033 % full-scale/bit	0.0033% full-scale/bit	0.0033 % full-scale/bit	0.0033 % full-scale/bit
Bandwidth (-3dB)	>10 MHz (600 mA-600 μA)		>500 kHz (750 μA-750 mA)	>500 kHz (300 μA-300 mA)
Note: Bandwidth is current range dependent	>1.5 MHz (60 μA)		>100 kHz (75μA)	>100 kHz (30μA)
	>0.15 MHz (6 μA)		>10 Hz (7.5nA)	>10 Hz (3nA)
Stability Settings	4		3	3
Post Offset Gain	1, 10, 100		0.1, 1, 10, 100	0.1, 1, 10, 100
Offset Range	±1X full-scale		±2X full-scale	±2X full-scale

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IR COMPENSATION				
Mode		Current Interrupt and Positive Feedback		
Minimum interrupt time	33 μ s	33 μ s	30 μ s	30 μ s
Maximum interrupt time	715 s	715 s	64 ms	64 ms
AUXILIARY A/D INPUT				
Range	± 3 V	± 3 V	± 3 V	± 3 V
Resolution	0.1 mV		0.1 mV	0.1 mV
Input Impedance	>100 k Ω or >10 G Ω	>100 k Ω or >10 G Ω	>25 k Ω	>25 k Ω
AUXILIARY D/A OUTPUT				
Range	0-4 V	0-4 V	± 5 V or 0-10 V	± 5 V or 0-10 V
Resolution	1 mV	1 mV	2.5 mV	2.5 mV
AUXILIARY ELECTROMETER				
Input Voltage				
Common Mode Range		\pm Compliance Voltage		
Input Resistance		>10 Gohm		
Input Current		<10 pA		
Difference Amp				
Difference Voltage		± 5 V		
CMRR				
DC to 1 kHz		>86 dB		
1 kHz to 100 kHz		>72 dB		
Channel Cross-Talk		<80 dB		
Voltage Measurement				
Nominal Voltage Range		± 5.12 V		
μ V/bit (no gain)		156.25		
μ V/bit (x100 gain)		1.5625		
WEIGHT	3 kg	6 kg	1 kg	1 kg
DIMENSIONS	9 (W) x 19 (H) x 27 (D) cm	20 (W) x 23 (H) x 30 (D) cm	2 10 x 25 cm PCI Printed Circuit Boards	2 10 x 25 cm PCI Printed Circuit Boards

