



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

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

	<u>Reference 600</u>	<u>Series G 750</u>	<u>Series G 300</u>
<b>iR COMPENSATION</b>			
Mode	Current Interrupt and Positive Feedback		
Minimum interrupt time	33 $\mu$ s	30 $\mu$ s	30 $\mu$ s
Maximum interrupt time	715 s	64 ms	64 ms
<b>AUXILIARY A/D INPUT</b>			
Range	$\pm 3$ V	$\pm 3$ V	$\pm 3$ V
Resolution	0.1 mV	0.1 mV	0.1 mV
Input Impedance	>100 k $\Omega$ or 10 G $\Omega$	>25 k $\Omega$	>25 k $\Omega$
<b>AUXILIARY D/A OUTPUT</b>			
Range	0-4 V	$\pm 5$ V or 0-10 V	$\pm 5$ V or 0-10 V
Resolution	1 mV	2.5 mV	2.5 mV
<b>WEIGHT</b>			
	3 kg	1 kg	1 kg
<b>DIMENSIONS</b>			
	9 (W) x 19 (H) x 27 (D) cm	2 10 x 25 cm PCI Printed Circuit Boards	2 10 x 25 cm PCI Printed Circuit Boards

