

ZAHNER ZENNIUM pro

General	
Overall bandwidth	DC - 10 MHz
ADC resolution	32 bit
Harmonic reject*	> 60 dB @ ½ full scale
Potentiostat modes	potentiostatic, galvanostatic, pseudo-galvanostatic, rest potential, off
Cell connection	2-, 3-, 4-terminal kelvin
Ground reference	grounded, floating
Extension slots	5
PC interface	USB 2.0
Dimensions	364 x 160 x 376 mm
Weight	11.4 kg
Accessories	2 cell cable sets, USB cable, power cord, manual
Power supply	100/115/230VAC, 50/60Hz
Ambient temperature	+10 °C to +30 °C
Ambient humidity	< 60% without derating

Frequency generator & analyzer	
Frequency range	10 µHz to 8 MHz
Accuracy*	< 0.0025%
Resolution	0.0025%, 10000 steps/decade

Output potentiostatic		
Controlled voltage	$\pm 5\text{ V}$ $\pm 15\text{ V}$	
Resolution	2.5 nV 7.5 nV	5 V range 15 V range
Accuracy*	$\pm 100\ \mu\text{V} \pm 10\ \text{ppm}$ of reading $\pm 500\ \mu\text{V} \pm 10\ \text{ppm}$ of reading	5 V range 15 V range
Integral Nonlinearity*	typ. 2 ppm, max. 4 ppm typ. 6 ppm, max. 12 ppm	5 V range 15 V range
Compliance voltage	$\pm 14\text{ V}$ $\pm 28\text{ V}$	Low compliance voltage mode High compliance voltage mode
AC amplitude	0 to 2 V, 18 bit resolution 0 to 6 V, 18 bit resolution	5 V range 15 V range
Bandwidth	10 MHz @ 33 Ω load	
IR compensation	auto AC impedance technique range 0 to 10 M Ω resolution 0.012%	
Small signal rise time	150 ns to 200 μs in 5 steps	automatic selection
Slew rate*	15 MV/s	
Phase shift*	10° @ 500 kHz	

Output galvanostatic		
Controlled current	$\pm 3\text{ A}$	
Current range	$\pm 1\text{ nA}$ to $\pm 3\text{ A}$ in 12 steps	Main
Resolution	32 bit, $\pm 0.2\ \text{ppb}$ of FS	
Accuracy*	0.02 % of FS \pm 0.05 % of reading 0.1 % of FS \pm 0.2 % of reading	$\geq 1\ \mu\text{A}$ to 100 mA < 1 μA or > 100 mA

Input		
Maximum input voltage	$\pm 5.5\text{ V}$ $\pm 16\text{ V}$	5 V range 15 V range
Voltage resolution	2.5 nV 7.5 nV	5 V range 15 V range
Voltage accuracy*	$\pm 50\text{ }\mu\text{V} \pm 5\text{ ppm}$ of reading $\pm 100\text{ }\mu\text{V} \pm 10\text{ ppm}$ of reading	5 V range 15 V range
Current resolution	$\pm 5\text{ nA}$ (32 Bit)	Main / HiZ Probe
Current accuracy*	$\pm 0.02\%$ of FS $\pm 0.2\%$ of FS $\pm 0.2\%$ of FS $\pm 0.5\%$ of reading, $\pm 125\text{ fA}$	1 μA ... 100 mA 100 mA ... 3 A 1 nA ... 1 μA < 1 nA (HiZ Probe)
Input impedance*	> 10 T Ω $\pm 5\text{ pF}$ (typical) > 1000 T Ω $\pm 1\text{ pF}$ (typical)	Main HiZ Probe
Input leakage current*	< $\pm 200\text{ fA}$ typ. < $\pm 2\text{ pA}$ max. $\pm 10\text{ fA}$ typ.	HiZ Probe
Impedance range*	1 m Ω to 10 G Ω / 2% 100 m Ω to 10 M Ω / 0.2% 100 m Ω to 100 G Ω / 2% 10 $\mu\Omega$ to 1 G Ω / 2% 1 m Ω to 10 M Ω / 0.2%	Main HiZ Gal
Common mode rejection*	> 86 dB @ 10 μHz to 100 kHz > 66 dB @ 100 kHz to 8 MHz	
Input channel phase-tracking accuracy*	$\pm 0.05^\circ$ @ 10 μHz to 100 kHz $\pm 0.125^\circ$ @ 100 kHz to 8 MHz	
Equivalent effective input noise*	1 $\mu\text{V rms}$ / 100 fA rms @ 1 mHz to 10 Hz 10 $\mu\text{V rms}$ / 15 fA rms @ 1 mHz to 10 Hz	Main HiZ Probe