ZAHNER ZENNIUM

electrochemical workstation

REvolution

in Compact Electrochemical Workstations

NEW

ZENNIUM

High Performance at an Affordable Price
Reliable Zahner-Quality "Made in Germany"

- EIS Frequency Range 10 µHz - 2 MHz
- Controlled Current ±2.0 A
- Controlled Voltage ±4 V, ±12 V
- Compliance Voltage ±14 V
- Operating Modes POT/GAL/OC/ZRA/FRA
- Floating / Grounded Switchable

ZAHNER ZENNIUM

specifications

General

Overall Bandwidth	DC - 2.5 MHz
ADC Resolution	3 ADCs @ 18 bit
Harmonic Reject	> 60 dB @ ½ full scale
Potentiostat Modes	Potentiostatic, galvanostatic, pseudo-galvanostatic, rest potential, off, ZRA, FRA
Cell Connection	2-, 3-, 4-terminal Kelvin
Floating / Grounded	Switchable
Chassis	Ground
PC interface	USB
Dimensions / Weight	255 x 160 x 385 mm / 8 kg
Accessories	cell cable set, USB-cable, power cord, manual
Power supply	230/115/100 V, 50/60 Hz
Ambient temperature, humidity	+15° C to +35° C, < 50 % without derating

Frequency Generator & Analyzer

Frequency Range	10 µHz to 2 MHz
Accuracy	< 0.0025%
Resolution	0.0025%, 10.000 steps/decade

Output Potentiostatic

Full Scale Voltage		±4 V,	±12 V	
Resolution		125 µV,	375 µV	
Accuracy		±500 µV ±0.025 % of set value,	±2 mV ±0.025 % of set value	
Temperature Stability		better 20 µV/°C		
Compliance Voltage		±14 V (Main) / ±120 V (with CVB120)		
AC-Amplitude		1 mV to 1 V (Main) / 1 mV to 25 V (with CVB120)		
Bandwidth		2 MHz @ 33 Ω load		
IR Compensation	Method	Auto AC Impedance Technique		
	Range	0 to 10 MΩ		
	Resolution	0.012%		
Small Signal Rise Time		250 ns to 200 µs in 5 steps, automatic selection by automatic stability control		
Slew Rate		15 MV/s		
Phase Shift		10° @ 250 kHz		

Output Galvanostatic

Full Scale Current Ranges	Main	±100 nA to ±2.0 A in 10 Steps, resolution 0.0031 % (16 Bit) of range, lowest full scale range ±100 nA, resolution 12.5 pA
	HiZ	±1 nA to ±0.5 A in 12 steps, resolution 0.0031% (16 Bit) of range, lowest full scale range ±1 nA, resolution 125 fA
Accuracy **	Main	±0.1% of set value @ > |2 µA| to |100 mA|
		±1% of set value @ |1 nA| to |2 µA| or > |100 mA|
		±1% of set value, ±20 pA @ <|1 nA|
	HiZ	±1% of set value, ±250 fA @ <|1 nA|

Input

Full Scale Potential Ranges		±1, ±2, ±4, ±12 V
Potential Resolution DC *		0.0008 % / 32 µV (4 V range)
		0.0008 % / 100 µV (12 V range)
Potential Resolution AC *		16 nV
Potential Accuracy DC **		±0.025 % of reading ±0.25 mV (4 V range)
		±0.025 % of reading ±1 mV (12 V range)
Offset Temperature Stability		< 10 µV/°C
Full Scale Current Ranges *	Main	±100 pA to ±2.0 A in 33 ranges, automatic range selection
	HiZ	±1 pA to ±0.5 A in 35 ranges, automatic range selection
Current Accuracy DC **	Main	±0.05 % of reading @ >| 2 µA| to |100 mA|
		±0.5 % of reading @ < |2 µA| or > |100 mA|
		±0.5 % of reading, ±10 pA @ < |1 nA|
	HiZ	±0.5 % of reading, ±125 fA @ < |1 nA|
Input Bias Current **	Main	|±1 pA| (typ.) / |±5 pA| (max.)
	HiZ	|±10 fA| (typ.) / |±50 fA| (max.)
Current Resolution DC *		2.5 pA (Main) / 25 fA (HiZ)
Current Resolution AC *		1.6 fA (Main) / 16 aA (HiZ)
Input Impedance	Main	10 TΩ // ±5 pF (typ.)
	HiZ	1000 TΩ // ±1 pF (typ.)
Impedance Range		100 mΩ to 10 MΩ / ±0.2 %
	Potentiostatic	1 mΩ to 1 GΩ / ±2 %
	Galvanostatic	30 µΩ to 1 GΩ / ±2 %
	HiZ	100 mΩ to 100 GΩ / ±3 %
Common Mode Rejection		> 86 dB @ 10 µHz to 100 kHz
		> 66 dB @ 100 kHz to 2 MHz
Input Channel Phase-Tracking Accuracy		±0.1° @ 10 µHz to 100 kHz
		±0.25° @ 100 kHz to 2 MHz
Equiv. Effective Input Noise	Main	2 µV rms / 200 fA rms @ 1 mHz to 10 Hz
	HiZ	20 µV rms / 30 fA rms @ 1 mHz to 10 Hz

* Guaranteed by design. For details refer to http://www.zahner.de application note “how to read specifications”.

** In the first 6 months after factory calibration, after 20 min. of warm-up.

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specifications