Princeton Applied Research

Low Current Interface

The VersaSTAT-LC Low Current Interface is a plug-in, research grade option compatible with many of the Princeton Applied Research potentiostats/galvanostats, designed for the measurement of ultra-low currents with greater accuracy and resolution than the base system. With the addition of this option, the minimum current range is improved to 4 pA (80 fA with the PARSTAT 4000A) and the current resolution to 122 aA (2.5 aA with the PARSTAT 4000A).

The VersaSTAT-LC is ideal for ultra-low current applications requiring high resolution. Applications involving ultramicroelectrodes, coatings research, corrosion testing of bio-implants, and sensor development are all areas where greater current sensitivity may be needed.

This product can be purchased at any time as a plug-in option. It consists of an interface cable to connect to the potentiostat/galvanostat, a main body including the high input impedance electrometer and additional current ranges, and the cell leads. Once attached to the potentiostat/galvanostat users can execute the built in DC Calibration routine. VersaSTAT 3 users will gain access to the improved E and I Filters as well as additional bandwidth stabilization filters.

- Femtoampere accuracy and attoampere resolution for both DC and AC (EIS) measurements
- Auto-current ranging capability from 200 mA - 4 pA (0.08 pA for PARSTAT 4000A)
- Plug-in add-on for VersaSTAT and many PARSTAT Series potentiostats/galvanostats
- Expands E and I filter selection for VersaSTAT 3
- Now compatible with VersaSCAN for ultimate resolution of SECM experiments

AMETEK

Key Specifications

System Performance PARSTAT 4000/+/A	
Minimum Current Range	80 fA (8 x 10^{-14} A)
Minimum Current Resolution	2.5 aA (2.5 x 10^{-18} A)

System Performance VersaSTAT Series and PARSTAT MC 1000	
Minimum Current Range	4 pA (4 x 10^{-12} A)
Minimum Current Resolution	122 aA (122 x 10^{-18} A)

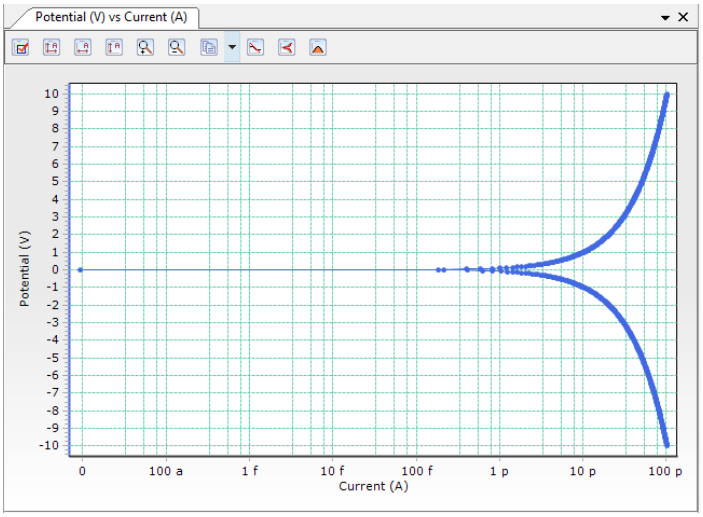
Power Amplifier	
Maximum Current	± 200 mA

Differential Electrometer	
Input Bias Current	<200 fA at 25°C
Maximum Voltage Range	± 10 V maximum
Input Voltage Differential	± 10 V
Bandwidth	700 kHz (-3 dB)
Common Mode Rejection	>60 dB @ 100 Hz, >50 dB @ 100 kHz
Input Impedance	>10^{14} Ω in parallel with <200 fF, typical

Current Measurement	
Ranges	12 decades, 200 mA to 4 pA (80 fA for PARSTAT 4000/+/A)
Accuracy (dc)	2 µ to 200 mA < 0.2% full scale
	20 nA and 200 nA ranges < 0.5% full scale
	200 pA - 4 pA ranges < 1.0% full scale ±500 fA full scale

Current Control	
Applied Current Range	± full scale per range
Applied Current Resolution	± 1/32,000 x full scale
Applied Current Accuracy	± 0.5% of range, ±0.5% of reading
Max. Current Range/Resolution	± 200 mA / 10 µA
Min. Current Range/Resolution	± 4 pA / 122 aA for VersaSTATs and PMC1000 (80 fA / 2.5 aA for PARSTAT 4000/+/A)

Specifications subject to change.



Tafel Plot using low current interface demonstrating low current measurement on a 100 GOhm (1E11) resistor

Ordering Information

Model Number	Option
VersaSTAT-LC	Low Current Interface

Princeton Applied Research | solartron analytical

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Please see our website for a complete list of our global offices and authorized agents

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