Multiplelabs
Turnkey Laboratories Solutions

Analytical®
Technologies Limited

Electrochemical Impedance Spectroscopymeter

EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

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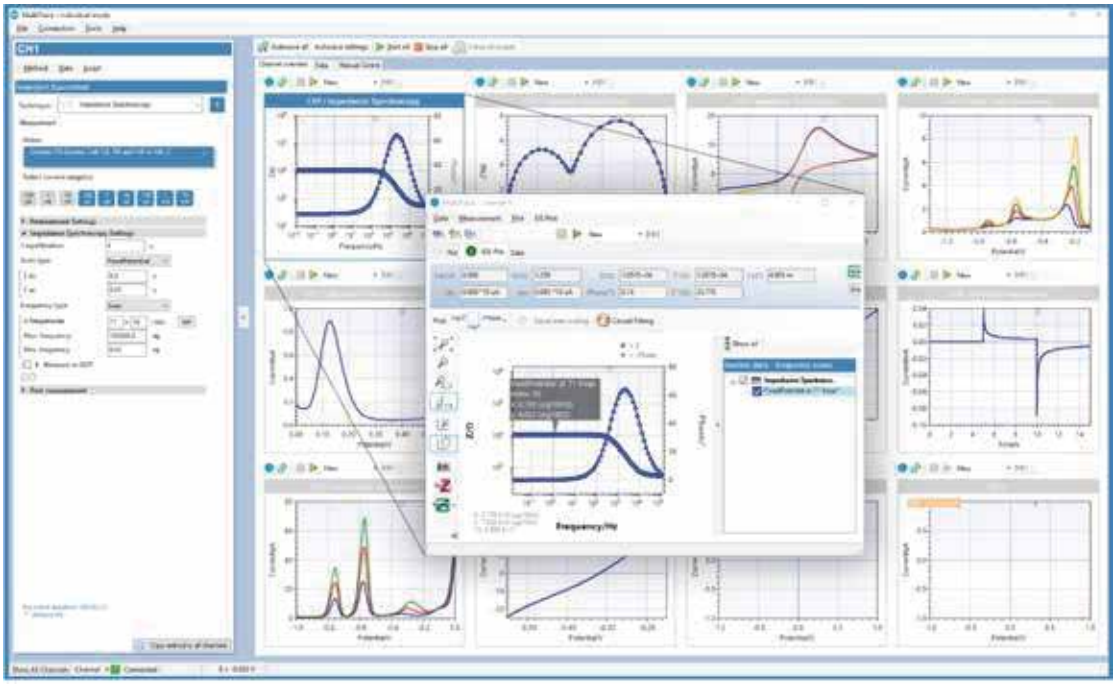
MultiTrace: Software for Windows

MultiTrace can run in two different modes:

- Individual Mode, where each channel can run a measurement or script independently from the other channels
- Simultaneous Mode, where all channels run the same measurement.

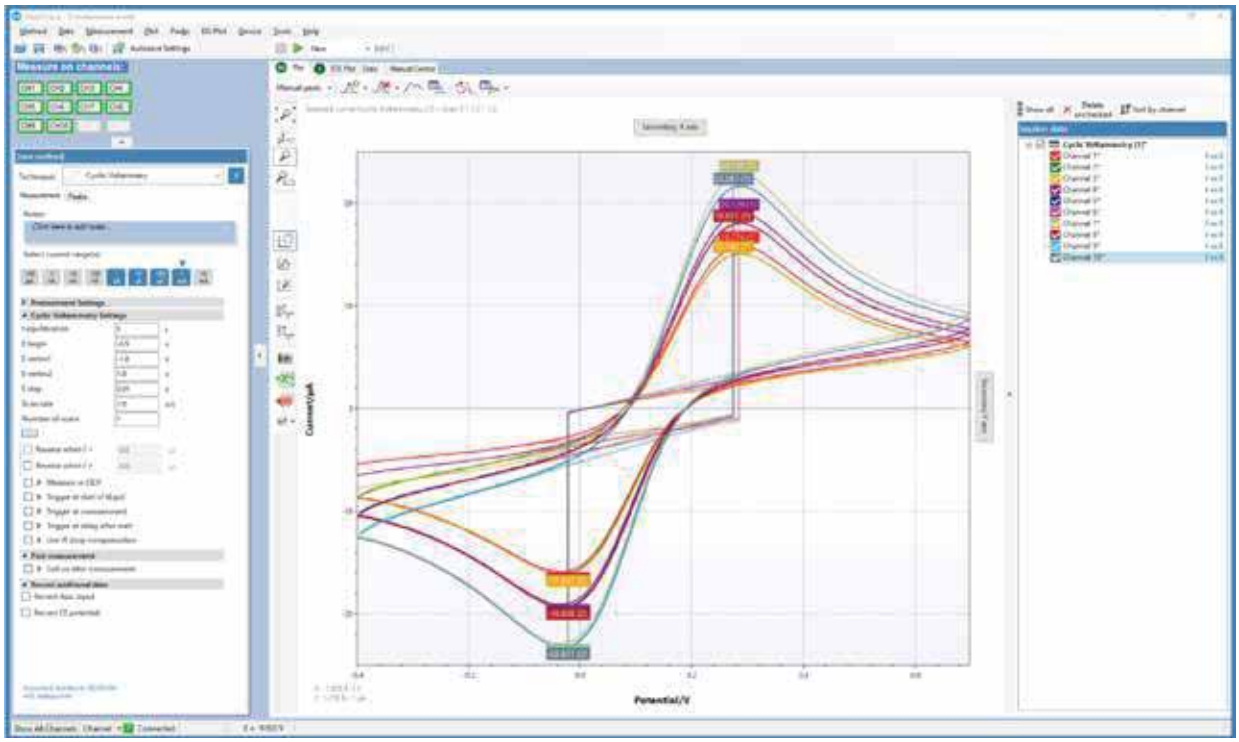
» Individual Mode

The individual mode shows an overview of all channels. Each channel can be selected separately and can run a measurement independently in parallel with the other channels. You can also run a separate script on each channel or control peripherals like a multiplexer.



» Simultaneous Mode

In the Simultaneous Mode the works with all channels running the same measurement in parallel at the same time. There is only one active method in the Method Editor which is started on all channels simultaneously upon start.



Measurement Specifications

- General pretreatment:
  Apply conditioning, deposition or initial potential for: 0 – 1600 s
- General voltammetric parameters:

Channel configuration (see page 2):	F0.05 F1.05 F2.05	F0.10 F1.10 F2.10
Potential range:	-5 V to +5 V	-10 V to +10 V
Step potential:	0.075 mV to 250 mV	0.075 mV to 250 mV
Pulse potential:	0.075 mV to 250 mV	0.075 mV to 250 mV

- Limits of some technique specific parameters:

Normal Pulse and Differential Pulse Voltammetry:	Scan rate: 0.1 mV/s (75 µV step) to 100 mV/s (5 mV step) Pulse time: 10 ms to 300 ms
Square Wave Voltammetry and AC Voltammetry:	Frequency: 1 Hz to 2000 Hz[1]
Linear Sweep and Cyclic Voltammetry:	Scan rate: 0.01 mV/s (75 µV step) to 500 V/s (10 mV step)
Pulsed Amperometric Detection:	Interval time: 50 ms to 300 s Pulse time: 1 ms to 1 s Maximum run time: 640000 s (> 7 days at 10 s interval)
Multiple Pulse Amperometric Detection:	Pulse times: 100 ms to 2 s Run time: 10 s to 100000 s Number of potential levels: 3
ChronoAmperometry, ChronoPotentiometry and Open Circuit Potentiometry:	Interval time: 0.25 ms to 300 s Maximum run time: 1000000 s (> 10 days at 300 s interval)
Multistep Amperometry Multistep Potentiometry and Mixed Mode:	Interval time: 0.25 ms to 300 s Level switching overhead time: ±80 ms Number of levels: 1 to 255 Number of cycles: 1 to 20000 Maximum run time: > 1 year
Fast Amperometry:	Interval time: 0.02 ms to 1 s Maximum run time: 30 s Maximum number of points: 65000 (4000 for interval time < 0.2 ms)

System Channel Specifications

- General

dc-potential range	Channel config	F#.05	F#.10
		±5 V	±10 V
compliance voltage	±10 V		
maximum current	±30 mA (typical)		
max. acquisition rate	150000 points/s		

- **Potentiostat (controlled potential mode)**

applied dc-potential resolution	75 µV
applied potential accuracy	≤ 0.1% ±1 mV offset
current ranges	100 pA to 10 mA (9 ranges)
current accuracy	≤ 0.1% at FSR[1]
measured current resolution	0.006% of current range (5 fA on 100 pA range)

- **Galvanostat (controlled current mode)**

current ranges	1 nA to 10 mA (8 ranges)
applied dc-current range	±6 times applied current range
applied dc-current resolution	0.005% of applied current range
measured dc-potential resolution	75 µV at ±10 V 7.5 µV at ±1 V 0.75 µV at ±0.1 V

- **FRA / Electrochemical Impedance Spectroscopymeter (impedance measurements)**

frequency range	Channel config	F1.##	F2.##
		10 µHz to 100 kHz	10 µHz to 1 MHz
ac-amplitude range	1 mV to 0.25 V rms, or 0.6 V p-p		

- **Electrometer**

electrometer amplifier input	> 1 TΩ // 10 pF
bandwidth	1 MHz

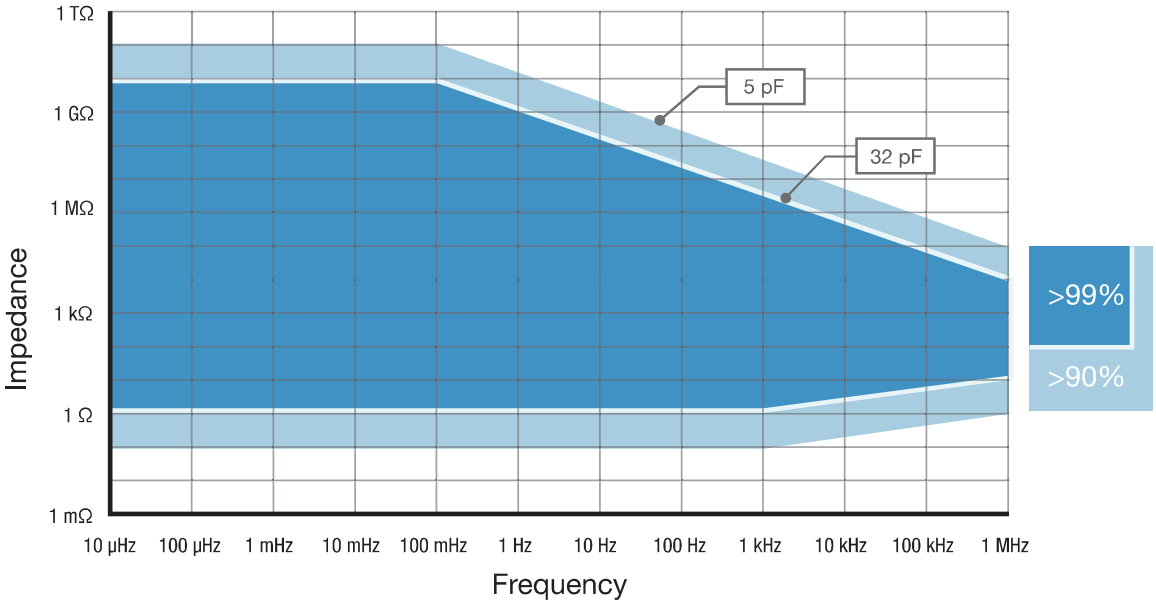
- **Other**

housing	15 x 25 x 25 cm^3
weight	+/- 4 kg
temperature range	0 ºC to + 50 ºC
power supply	external 12 V AC/DC adapter
communication	USB
internal storage space	8 GB per channel or +/- 800000 measurements incl. method info (assuming 200 data points per measurement)

- **Auxiliary port (D-Sub 15)**

analog input	±10 V, 18 bit
analog output	0-10 V, 12 bit (1 kOhm output impedance)
4 digital outputs	5 V
1 digital input	5 V
I-out and E-out	raw output of current and potential E-out ±10 V (1 kOhm output impedance) I-out ±6 V (1 kOhm output impedance)
power	5 V output (max. 150 mA)

Electrochemical Impedance Spectroscopymeter Contour Accuracy Plot



Note

The accuracy contour plot was determined under lab conditions and should be used for reference purposes. Please note that the true limits of an impedance measurement are influenced by all components in the system, e.g. cables, the environment, and the cell.

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Trainings :We also take up preventive Maintenace to reduce downtime of HPLC's Trainings.

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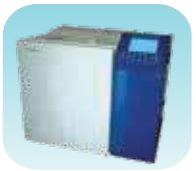


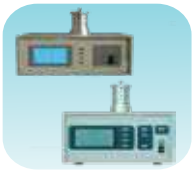
Optima Gas Chromatograph 2979 Plus

Flash Chromatograph

Atomic Absorption Spectrophotometer

Liquid Partical Counter

Optical Emission Spectrophotometer



DSC/TGA

Semi Auto Bio Chemistry Analyzer

HEMA 2062 Hematology Analyzer

Micro Plate Reader/Washer

URINOVA 2800 Urine Analyzer

Total Organic Carbon 3800

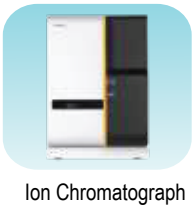
Fully Automated CLIA

NOVA-2100 Chemistry Analyzer

PCR/Gradient PCR/ RTPCR

TOC Analyzer

Laser Particle Size Analyzer



Ion Chromatograph

Water purification system

Regulatory compliances

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Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:

1.Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personallities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXIFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

Reach us @

Analytical®
Technologies Limited

HPLC Solutions | MultipleLabs | Analytical Bio-Med | Analytical Distributors | Analytical Foundation (Trust)

Corporate & Regd. Office:
Analytical House, # E67 & E68,
Ravi Park, Vasna Road, Baroda,
Gujarat 390 015. INDIA

T: +91 265 2253620
+91 265 2252839
+91 265 2252370
F: +91 265 2254395

E: info@hplctechnologies.com
info@multiplelabs.com
info@analyticalgroup.net
info@analyticalbiomed.com

W. www.analycalgroup.net
www.hplctechnologies.com
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