

IVIUM TECHNOLOGIES

Experts in Electrochemistry & Battery Testing



innovative solutions for electrochemical research

All-Round entry level potentiostat/galvanostat/ZRA

The Vertex series is our line of all-round entry level potentiostat/galvanostat/ZRA instruments. Each Vertex instrument is available with optional impedance analyser/FRA for EIS. The instruments have been specifically designed to be affordable and robust; the cell cable uses the reliable and durable Ivium standard HD15 connector and the cell connection terminals are the well known 4mm banana plugs. The 1.3m cell cable with individually shielded leads is included.

The wide range of voltage and current capability offers a solution for all applications, including educational, basic electrochemistry, high current (battery) testing, electrolyser research and development.

Each Vertex instrument is capable of all standard electrochemical techniques and includes a complete suite of Iviumsoft control and data processing software.

“ EXCELLENT
BASIC POTENTIOSTAT
THAT CAN DO ALL
ELECTROCHEMISTRY ”

“ AN
AFFORDABLE
SOLUTION FOR
EVERY
APPLICATION ”

THE VERTEX IS AVAILABLE IN MANY
POWER CONFIGURATIONS

Basic

- $\pm 100\text{mA}$ / $\pm 21\text{V}$
- $\pm 350\text{mA}$ / $\pm 13\text{V}$

High power

- $\pm 1\text{A}$ / $\pm 30\text{V}$
- $\pm 1\text{A}$ / $\pm 50\text{V}$
- $\pm 2\text{A}$ / $\pm 30\text{V}$
- $\pm 5\text{A}$ / $\pm 10\text{V}$
- $\pm 10\text{A}$ / $\pm 5\text{V}$
- $\pm 20\text{A}$ / $\pm 2\text{V}$






With peripheral I/O

- $\pm 100\text{mA}$ / $\pm 10\text{V}$
- $\pm 1\text{A}$ / $\pm 10\text{V}$

KEY SPECIFICATIONS

- WE/RE/S/CE 4-electrode configuration
- User selectable grounded/floating operation
- Data acquisition rate 300kHz
- Optional FRA/EIS 10 μHz to 250kHz/1MHz
- Peripheral analog/digital I/O
- Various modules and power boosters available



	<div>VERTEX BASIC SMALL SIZE</div> <div></div>	<div>VERTEX WITH PERIPHERAL I/O</div> <div></div>	<div>VERTEX.S</div> <div></div>	<div>VERTEX.S HIGH CURRENT</div> <div></div>																		
VERTEX OVERVIEW	Vertex.One		Vertex.C		Vertex.100mA		Vertex.1A		Vertex.30V1A		Vertex.50V1A		Vertex.30V		Vertex.5A		Vertex.10A		Vertex.20A			
	Current compliance		±100mA		±350mA		±100mA		±1A		±1A		±1A		±2A		±5A		±10A		±20A	
	Maximum output Voltage		±21V		±13V		±10V		±10V		±30V		±50V		±30V		±10V		±5V		±2V	
	Potentiostat																					
	Applied potential range		±10V; 0.08mV res.				±10V; 0.08mV res.				±10V; 0.08mV res.				±10V; 0.08mV res.				±5V; 0.08mV res.		±2V; 0.08mV res.	
	Applied potential accuracy		0.2% or 2mV				0.2% or 2mV				0.2% or 2mV				0.2% or 2mV				0.2% or 2mV			
	Current ranges		±100pA to ±100mA				±100pA to ±100mA		±100pA to ±1A		±100pA to ±1A		±100pA to ±1A		±100pA to ±10A		±100pA to ±10A		±100mA to ±10A		±100mA to ±10A	
	Measured current resolution		0.003% of CR, min. 3fA				0.003% of CR, min. 3fA				0.003% of CR, min. 3fA		0.003% of CR, min. 3fA		0.003% of CR, min. 3fA		0.003% of CR, min. 3fA		0.003% of CR, min. 3fA		0.003% of CR, min. 3μA	
	Measured current accuracy		20pA + 0.025% of FSR				20pA + 0.025% of FSR				20pA + 0.025% of FSR		20pA + 0.025% of FSR		20pA + 0.025% of FSR		20pA + 0.025% of FSR		20pA + 0.025% of FSR		20pA + 0.025% of FSR	
	Galvanostat																					
	Galvanostatic current ranges		±10nA to ±100mA				±10nA to ±100mA		±10nA to ±1A		±10nA to ±1A		±10nA to ±1A		±10nA to ±1A		±10nA to ±10A		±100mA to ±10A		±100mA to ±10A	
	Measured potential ranges		±1mV to ±10V				±1mV to ±10V				±1mV to ±10V		±1mV to ±10V		±1mV to ±10V		±1mV to ±10V		±1mV to ±10V		±1mV to ±10V	
	Measured potential resolution		0.0008% of range; min. 7nV				0.0008% of range; min. 7nV				0.0008% of range; min. 7nV		0.0008% of range; min. 7nV		0.0008% of range; min. 7nV		0.0008% of range; min. 7nV		0.0008% of range; min. 7nV		0.0008% of range; min. 7nV	
	Impedance analyser																					
	Frequency range		Optional 10μHz to 250kHz		10μHz to 1MHz		Optional 10μHz to 1MHz				Optional 10μHz to 1MHz		Optional 10μHz to 1MHz		Optional 10μHz to 1MHz		Optional 10μHz to 1MHz		Optional 10μHz to 1MHz		Optional 10μHz to 1MHz	
	Amplitude		0.15mV to 2.0V, or 0.03% to 100% of CR				0.15mV to 2.0V, or 0.03% to 100% of CR				0.15mV to 2.0V, or 0.03% to 100% of CR		0.15mV to 2.0V, or 0.03% to 100% of CR		0.15mV to 2.0V, or 0.03% to 100% of CR		0.15mV to 2.0V, or 0.03% to 100% of CR		0.15mV to 2.0V, or 0.03% to 100% of CR		0.15mV to 2.0V, or 0.03% to 100% of CR	
	Bipotentiostat																					
	Current/offset				Optional ±35mA, ±2V vs. RE or WE		Optional ±35mA, ±2V vs. RE or WE				Optional ±35mA, ±2V vs. RE or WE		Optional ±35mA, ±2V vs. RE or WE		Optional ±35mA, ±2V vs. RE or WE							
	Peripheral																					
	Analog/Digital I/O		Anin1, ±10V				2 An in; 1 An out; 1 Dig in; 3 Dig out; I/E out; AC out; Channel X/Y out				2 An in; 1 An out; 1 Dig in; 3 Dig out; I/E out; AC out; Channel X/Y out		2 An in; 1 An out; 1 Dig in; 3 Dig out; I/E out; AC out; Channel X/Y out		2 An in; 1 An out; 1 Dig in; 3 Dig out; I/E out; AC out; Channel X/Y out		2 An in; 1 An out; 1 Dig in; 3 Dig out; I/E out; AC out; Channel X/Y out		2 An in; 1 An out; 1 Dig in; 3 Dig out; I/E out; AC out; Channel X/Y out			

Handheld potentiostat/galvanostat/ZRA

The pocketSTAT is a complete electrochemical measurement instrument with the size of a smart phone. It has been specifically designed for (field) measurements such as corrosion evaluation and analytical chemistry, but suits any low current electrochemical application. The pocketSTAT is powered via USB and can be controlled from any Windows PC/tablet/laptop.

APPLICATION

- Field measurements
- Corrosion
- Coating testing
- Analysis
- Use in a glove box/fume hood



KEY SPECIFICATIONS

- USB powered
- Size: 16/22 x 6.7 x 1.9cm
- Scan range: $\pm 10V$ @ $\pm 30mA$
- FRA/EIS: 10 μ Hz to 1MHz (pocketSTAT2 only)
- Acquisition rate: up to 300,000 pnts/s
- Battery pack & Bluetooth connection available



ULTRA-LOW
CURRENT
VERSION

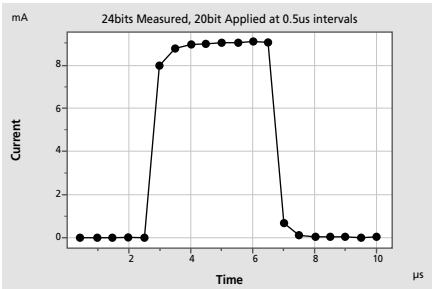
Portable USB powered
potentiostat/galvanostat/ZRA with
integrated impedance analyser

The CompactStat2 is a high end portable potentiostat that can be powered from the USB port of a laptop or PC without additional power supply. With its small footprint (<600 gram) and low power consumption, the CompactStat2 provides a truly mobile electrochemical measurement station that is ideal for use both in the lab and in the field. Its exceptionally high measurement resolution of 24bits gives it a unique level of measurement and control. Among its many applications are corrosion, analytical, nano, bio and battery/fuel cell/electrolyser testing.



24 BIT
INSTRUMENT

VERY HIGH SAMPLE RATE



- Up to 2,000,000 pts/s
- 1,000,000 samples storage

LOW NOISE AND GALVANIC ISOLATION

The CompactStat2 is electrically isolated from power lines and PC. It has superior noise immunity and is capable of determining very small signals, required in nanotechnology applications. Additionally, the instrument can be applied in situations where the sample must be disconnected from the common ground (floating).

THE COMPACTSTAT IS
AVAILABLE IN 3 POWER
CONFIGURATIONS

- $\pm 30mA$ @ $\pm 10V$
- $\pm 800mA$ @ $\pm 10V$
- $\pm 250mA$ @ $\pm 20V$



COMPACTSTAT OVERVIEW

Current compliance	±30mA	±800mA	±250mA
Maximum output Voltage	±10V	±10V	±20V
Potentiostat			
Applied potential range	(20bit) / ±10V; 0.02mV res.		
Applied potential accuracy	0.2% or 1mV		
Current ranges	±1pA to ±1A		
Measured current resolution	0.00005% of CR, min. 0.5zA		
Measured current accuracy	20fA + 0.025% of FSR		
Galvanostat			
Galvanostatic current ranges	±10pA to ±1A		
Measured potential ranges	±1mV to ±10V	±1mV to ±20V	
Measured potential resolution	0.00001% of range; min. 0.15nV		
Impedance analyser			
Frequency range	10μHz to 3MHz		
Amplitude	0.02mV to 2.0V, and 0.03% to 100% of CR		
Peripheral			
Analog/Digital I/O	2 An in; 1 An out; 1 Dig in; 3 Dig out; I/E out; AC out; Channel X/Y out		
Compatibility	All options and modules		

POCKETSTAT OVERVIEW

Electrode connections	3: WE, CE, RE (and Anin)	4: WE, CE, RE, S (and GND)	3: WE, CE, RE
Current compliance	±30mA	±30mA	±30mA
Maximum output Voltage	±10V	±10V	±10V
Potentiostat			
Applied potential range	±10V; 0.08mV res.	±10V; 0.08mV res.	
Applied potential accuracy	0.2%, or 2mV	0.2%, or 2mV	
Current ranges	±10nA to ±10mA	±100pA to ±10mA	±10pA to ±10mA
Measured current resolution	0.0005% of range; min 0.5fA	0.003% of range; min 3fA	0.003% of range; min 0.3fA
Measured current accuracy	20pA + 0.025% of FSR	20pA + 0.025% of FSR	
Galvanostat			
Galvanostatic current ranges	±10nA to ±10mA	±10nA to ±10mA	±10pA to ±10mA
Measured potential ranges	±10V	±1mV to ±10V	
Measured potential resolution	1µV	0.0008% of range, min. 7nV	
Impedance analyser			
Frequency range		10µHz to 1MHz	
Amplitude		0.15mV to 2.0V, or 0.03% to 100% of CR	
WE bias current	<20pA	<20pA	<20fA
Impedance limit		>10 ¹² Ω // 2pF	>10 ¹⁵ Ω // 0.2pF
Peripheral			
Analog input 1	±10V	±10V	
Compatibility		Various modules & multiplexers	

IviumStat2

24 BIT
INSTRUMENT

High end general purpose potentiostat/galvanostat/ZRA with integrated impedance analyser

The IviumStat2 is a high end high power potentiostat with an exceptionally high 24bit resolution. That makes the instrument well suited for applications that require a wide dynamic range. The IviumStat2 is compatible with our complete range of modules and options. Applications include research, corrosion, battery/fuel/cell/electrolyser testing, analysis, bio- and nano electrochemistry, etc.

FULL COLOR
DISPLAY WITH
REAL TIME
DATA!

EXPANDABILITY

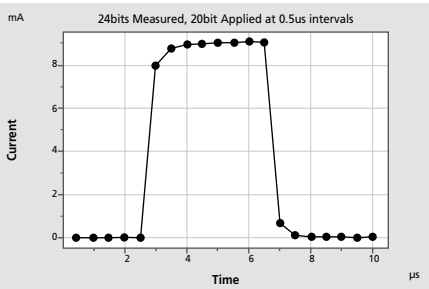
The IviumStat2 is fully compatible with all options and modules, including: integrated Bipotentiostat and True Linear Scan, the MultiWE32, Modulight, multiplexers and all current and voltage boosters.

COMPLETE SOLUTION

The IviumStat2 offers a complete package. The hardware includes a built-in high-performance Frequency Response Analyser and all the standard electrochemical techniques. Complete measurement and data processing software is included.



VERY HIGH SAMPLE RATE



- Up to 2,000,000 pts/s
- 1,000,000 samples storage

AUTOMATION

Multiple analog and digital input and output ports are available that can be used to monitor and control peripheral equipment. The software integrates this functionality.

XP

High power potentiostat/galvanostat/ZRA

The XP range of potentiostats has been specially designed for high power applications such as battery research, electrolysis and fuel cell development. It is a merger of a potentiostat and a booster in a single housing and is equipped with a full color display that shows real time measurement results.

The XP has all the advantages of both the potentiostat and the booster, such as switching through all current ranges with full resolution at low and high power, high bandwidth to facilitate impedance measurements at high power, etc. It is equipped with an EMergency Off (EMO) functionality, as well as a direct connection for a thermocouple to monitor temperature. Both are accessible directly from the front panel. The XP is capable of all standard electrochemical techniques and includes a complete suite of IviumSoft control and data processing software.

THE XP IS AVAILABLE IN 4 POWER CONFIGURATIONS

- $\pm 5A$ @ $\pm 100V$
- $\pm 10A$ @ $\pm 40V$
- $\pm 20A$ @ $\pm 20V$
- $\pm 40A$ @ $\pm 10V$

SPECIAL FEATURES

- Full color display that shows real time measurement results and graphs.
- Direct thermocouple connection.
- Integrated Current Interrupt function.
- Separate cell cables for low and high currents to ensure the best performance.
- 19inch rack mountable housing.

APPLICATION

The XP is a high power potentiostat that has been designed for applications such as:

- Battery research
- (Bio) Fuel cell measurements
- Electrolysers
- Electrodialysis



IVIUMSTAT OVERVIEW

	Standard
Current compliance	$\pm 5A$
Maximum output Voltage	$\pm 10V$
Potentiostat	
Applied potential range	$\pm 10V$; 0.02mV res. (20bit)
Applied potential accuracy	0.2% or 1mV
Current ranges	$\pm 1pA$ to $\pm 10A$
Measured current resolution	0.00005% of CR, min. 0.5zA
Measured current accuracy	20fA + 0.025% of FSR
Galvanostat	
Galvanostatic current ranges	$\pm 10pA$ to $\pm 10A$
Measured potential ranges	$\pm 1mV$ to $\pm 10V$
Measured potential resolution	0.00001% of range; min. 0.15nV
Impedance analyser	
Frequency range	10 μ Hz to 8MHz
Amplitude	0.02mV to 2.0V, or 0.03% to 100% of CR
Peripheral	
Analog/Digital I/O	2 An in; 1 An out; 1 Dig in; 3 Dig out; I/E out; AC out; Channel X/Y out
Compatibility	All options and modules



XP OVERVIEW

XP OVERVIEW		XP5	XP10	XP20	XP40
Current compliance		±5A	±10A	±20A	±40A
Maximum output Voltage		±100V	±40V	±20V	±10V
Potentiostat					
Applied potential range		±10V; 0.08mV res.	±10V; 0.08mV res.	±10V; 0.08mV res.	±10V; 0.08mV res.
Applied potential accuracy		0.2% or 2mV			
Current ranges		±100pA to ±10A			
Measured current resolution		0.003% of CR, min. 0.3pA			
Measured current accuracy		20pA + 0.025% of FSR			
Galvanostat					
Galvanostatic current ranges		±10nA to ±10A			
Measured potential ranges		±1mV to ±10V			
Measured potential resolution		0.0008% of range; min. 7nV			
Impedance analyser					
Frequency range		10μHz to 500kHz			
Amplitude (1)		0.15mV to 2.0V, or 0.03% to 100% of CR			
(2)		±5A	±10A	±20A	±20A
Peripheral					
Analog/Digital I/O		2 An in;1 An out; 1 Dig in; 3 Dig out; I/E out; AC out;Channel X/Y out			

Ivium-n-Stat

High power multi-channel potentiostat/galvanostat/ZRA with integrated impedance analyser

The Ivium-n-Stat is a state-of-the-art multi-channel potentiostat/galvanostat with integrated impedance analyser in each channel. It can be operated in grounded or in floating mode. The variety of different channels, the high sensitivity, and the separate or synchronous control of channels allow the Ivium-n-Stat to be used in a wide range of applications from research to production testing.



VARIOUS CHANNELS AVAILABLE

- $\pm 2.5A / \pm 10V$ (optional BipotentialStat)
- $\pm 5A / \pm 10V$ (optional BipotentialStat)
- $\pm 10A / \pm 5V$
- $\pm 2A / \pm 30V$
- $\pm 1A / \pm 50V$
- $\pm 20A / \pm 2V$

Dual channel dModule

- 2 x $\pm 2.5A / \pm 10V$
- 2 x $\pm 1A / \pm 20V$

Integrated EIS

All channels include integrated FRA/EIS as standard 10 μ Hz - 250kHz (Optional High Frequency upgrade to 1MHz).

Main frame

- Maximum 8 modules
- Stackable up to 64 channels
- EMO available

EXPANDABILITY

The Ivium-n-Stat main frame contains 8 slots for a maximum of 16 channels and can be stacked up to 8 frames and a maximum of 64 channels. Modules are encased for easy handling so that users can upgrade the number of channels in a simple plug and play manner. An integrated peripheral port with multiple analog and digital input and output signals is available which can be used to monitor and control peripheral equipment. The software integrates this functionality.

SIMULTANEOUS CONTROL

The IviumSoft allows control of separate channels or all channels simultaneously with synchronized start. Data can be plotted per channel or simultaneously for all channels on a single screen.



DUAL CHANNEL d-MODULES

AVAILABLE CHANNEL MODULES

Channel performance

Number of channels in module	2	2
Current compliance	$\pm 1A$	$\pm 2.5A$
Maximum output Voltage	$\pm 20V$	$\pm 10V$

Potentiostat

Applied potential range	$\pm 10V$; 0.08mV res.
Applied potential accuracy	0.2% or 2mV
Current ranges	$\pm 100pA$ to $\pm 10A$
Measured current resolution	0.003% of CR, min. 3fA
Measured current accuracy	$\pm 20pA$ + 0.025% of FSR

Galvanostat

Galvanostatic current ranges	$\pm 10nA$ to $\pm 10A$
Measured potential ranges	$\pm 1mV$ to $\pm 10V$
Measured potential resolution	0.0008% of range; min. 7nV

Impedance analyser

Frequency range	10 μ Hz to 250kHz standard; 1MHz optional
Amplitude	0.15mV to 2.0V, and 0.03% to 100% of CR

Bipotentiostat

Current/offset	
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Peripheral

Analog/Digital I/O	Anin1: $\pm 10V$
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	2x 1A / 20V	2x 2.5A / 10V
Number of channels in module	2	2
Current compliance	$\pm 1A$	$\pm 2.5A$
Maximum output Voltage	$\pm 20V$	$\pm 10V$
Applied potential range	$\pm 10V$; 0.08mV res.	
Applied potential accuracy	0.2% or 2mV	
Current ranges	$\pm 100pA$ to $\pm 10A$	
Measured current resolution	0.003% of CR, min. 3fA	
Measured current accuracy	$\pm 20pA$ + 0.025% of FSR	
Galvanostatic current ranges	$\pm 10nA$ to $\pm 10A$	
Measured potential ranges	$\pm 1mV$ to $\pm 10V$	
Measured potential resolution	0.0008% of range; min. 7nV	
Frequency range	10 μ Hz to 250kHz standard; 1MHz optional	
Amplitude	0.15mV to 2.0V, and 0.03% to 100% of CR	
Current/offset		
Analog/Digital I/O	Anin1: $\pm 10V$	

SINGLE CHANNEL s-MODULES

2.5A / 10V	5A / 10V	2A / 30V	1A / 50V	10A / 5V	20A / 2V
1	1	1	1	1	1
$\pm 2.5A$	$\pm 5A$	$\pm 2A$	$\pm 1A$	$\pm 10A$	$\pm 20A$
$\pm 10V$	$\pm 10V$	$\pm 30V$	$\pm 50V$	$\pm 5V$	$\pm 2V$
$\pm 10V$; 0.08mV res.				$\pm 5V$; 0.08mV res.	$\pm 2V$; 0.08mV res.
0.2% or 2mV					
$\pm 100pA$ to $\pm 10A$					$\pm 100mA$ to $\pm 10A$
0.003% of CR, min. 3fA					0.003% of CR, min. 3 μ A
$\pm 20pA$ + 0.025% of FSR					
$\pm 10nA$ to $\pm 10A$					$\pm 100mA$ to $\pm 10A$
$\pm 1mV$ to $\pm 10V$					
0.0008% of range; min. 7nV					
10 μ Hz to 250kHz standard; 1MHz optional					
0.15mV to 2.0V, and 0.03% to 100% of CR					
Optional, $\pm 35mA$, $\pm 2V$ vs. RE or WE					
2 An in; 1 An out; 1 Dig in; 3 Dig out; I/E out; AC out; Channel X/Y out					

Potentiostat/galvanostat with impedance analyser designed for Electrolyser application

The HE80 series is our line of potentiostat/galvanostat instruments that has been designed especially for electrolyser application. The high current compliance in combination with high voltage capability makes it possible to test larger size electrolysers as well as multi-cell stacks. The integrated impedance analyser/FRA with frequencies up to 10kHz makes in-situ EIS studies possible, both for the total stack, as well as for each cell. The dedicated design offers a capable high power instrument for an affordable price.

COMPATIBLE WITH STACKANALYSER FOR EIS AT CELL LEVEL



Current booster: stackable up to 500A



DataSecure for connection and PC-independent data storage



Cell and electrode multiplexers: up to 256 channels



Visit our website for a complete overview of our modules and functionality upgrades

Analyser • Current boosters • Multiplexers • RRDE rotator • Bipotentiostat

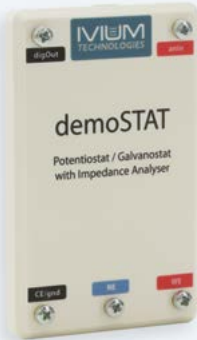
HE80 OVERVIEW

HE80 OVERVIEW	HE80	HE80-4
Current compliance	0 to +80A	±80A
Maximum output Voltage	+0.5V to +20V	±20V
Potentiostat		
Applied potential range	+0.5V to +20V, 0.15mV res.	±20V, 0.15mV res.
Applied potential accuracy	0.2%, or 2mV	
Current ranges	±10A and ±100A	
Measured current resolution	0.003% of current range, min. 0.3mA	
Measured current accuracy	0.1% of range + 0.2% of value	
Galvanostat		
Galvanostatic current ranges	+10A and +100A	±10A and ±100A
Measured potential ranges	+2mV to +20V	±2mV to ±20V
Measured potential resolution	0.0008% of potential range, min. 14nV	
Impedance analyser		
Frequency range	10µHz to 10kHz	
Amplitude	0.15mV to 2.0V, or 0.15% to 100% of current range	
Peripheral		
Analog/Digital I/O	2 An in; 1 An out; 1 Gig in, 3 Dig out; I/E out; AC out; Channel X/Y out	

demoSTAT

Smart introduction to electrochemical instrumentation

The demoStat is a small USB-powered potentiostat/galvanostat/ ZRA with integrated FRA/EIS. It can perform all conventional electrochemical techniques, including EIS. It is intended as a low-cost investment for feasibility studies and demonstration, but is also perfectly suited for training and education. It is controlled via a USB connection from any netbook, laptop or PC that is Windows operated.



Compliance: 5mA@3V (2mA@6V)
FRA/EIS: 10µHz - 100kHz
Size: 95 x 60 x 8mm



Ivium Battery testers

Why choose Ivium Technologies for your battery cycler needs?

ADVANCED TECHNOLOGY

Ivium Technologies is at the forefront of battery testing technology. We offer advanced Battery Cyclers that provide exceptional performance, accuracy, and ease of use. Our products are designed to meet the most demanding requirements of the battery testing community.

RELIABLE PERFORMANCE

Our Battery Cyclers are designed and manufactured to the highest standards, ensuring reliable performance and accuracy. Our products are used by leading institutions around the world, and we are proud of our reputation for quality and dependability.

CUSTOMISABLE SOLUTIONS

Ivium Technologies offers a range of Battery Cyclers to meet the unique needs of each customer. Whether you need a compact, portable solution or a multi-channel, high-performance system, we have a product to meet your requirements.



- Ivium offers 3 years warranty on our instruments
- IviumSoft is included for free with each potentiostat purchase



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innovative solutions for electrochemical research