

CHEMICAL IMPEDANCE ANALYZER IM3590

Component measuring instruments



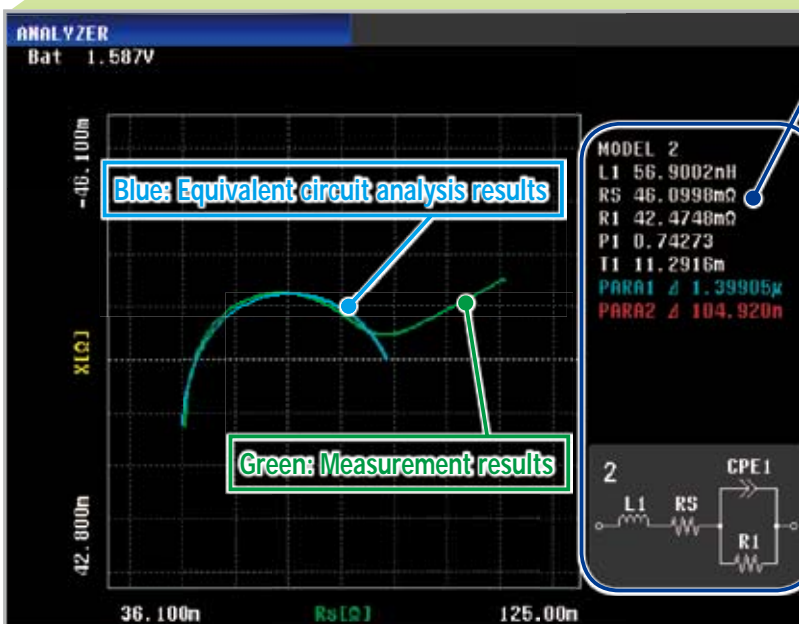
Ideal for Measuring Electrochemical Impedance



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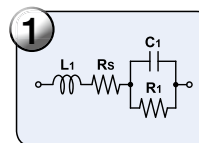
- Basic accuracy of $\pm 0.05\%$, broad measurement frequency range of 1 mHz to 200 kHz as well as DC capabilities and high-speed measurement at up to 2 ms
- Cole-Cole plot display
- Electrochemical material and component equivalent circuit analysis

Cole-Cole plot



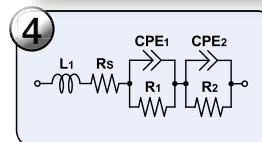
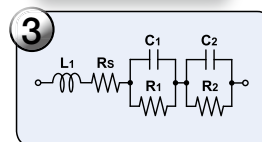
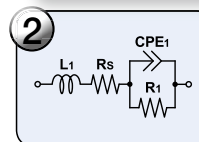
Electrochemical equivalent circuit analysis

A total of four types are provided: unipolar models (1 and 2) and bipolar (3 and 4) models.



Typical measurement parameters

- Rs** (Solution resistance)
- R1, R2** (Charge transfer resistance)
- C1, C2** (Electric double layer capacitance)
- CPE1, CPE2** (Constant Phase Element)
- L1** (Inductance)



ISO 9001
JMI-0216



ISO 14001
JQA-E-90091



HIOKI company overview, new products, environmental considerations and other information are available on our website.

Features

- Supports low-frequency measurements starting at 1 mHz

Frequencies as low as 1 mHz are needed to measure the electrochemical impedance of phenomena such as ion behavior. With an upper frequency limit of 200 kHz, Model IM3590 can also be used to measure properties such as solution resistance.

- Display a variety of graphs, including Cole-Cole plots

The IM3590 can perform frequency sweep measurement at up to 801 points and display Cole-Cole plots. It can also perform level-sweep and time-interval measurements.

- Measure 18 parameters, including dielectric constant and conductivity

In addition to Z, Y, θ , Rs (ESR), Rp, Rdc (DC resistance), X, G, B, Ls, Lp, Cs, Cp, D (tan σ), Q, and T, the IM3590 can measure the dielectric constant (ϵ) and conductivity (σ).

- Equivalent circuit analysis of electrochemical materials and components

The IM3590 provides four electrochemical component models and is capable of isolating and analyzing properties such as charge transfer resistance and electric double layer capacitance. It also provides five equivalent circuit analysis types for normal circuit elements, materials, and components.

Basic Specifications

Measurement parameters	Z, Y, θ , Rs, Rp, X, G, B, Ls, Lp, Cs, Cp, Q, D	○
	Rdc	○ (With temperature compensation function)
	Dielectric constant (ϵ), Conductivity (σ)	○
	Temperature T	○
Measurement range	100 m Ω to 100 M Ω , 10 ranges (All parameters are determined according to Z)	
Basic accuracy	$\pm 0.05\%$ rdg.	
Measurement frequency	1 mHz to 200 kHz	
Measurement signal level	5mV to 5V/2.5V*	
Measurement time	2ms	
Comparator	Two items: HI/IN/LO, ABS/%/ $\Delta\%$	
BIN measurement	10 categories each for two items	
Cable length	0m/1m/2m/4m	

*2.5 V in the low impedance high accuracy mode

Contact check	4-terminal contact check (threshold change) /HI-Z reject	
DC bias measurement	-5V to 5V	
Sweep measurement	Frequency/Level: 2 to 801 points	
X-Y display	Cole-Cole plot, Admittance circle display, Display of user-selected measurement parameters on two axes	
Equivalent circuit analysis	Electrochemical components:4 parameters Circuit elements and components:5 parameters	
Display	Color TFT 5.7-inch LCD, touch panel	
Interfaces	EXT I/O	○
	USB	○
	USB flash drive	○
	RS-232C	Option (It can be installed and changed by the user.)
	GP-IB	
LAN		

Product Configurations

CHEMICAL IMPEDANCE ANALYZER IM3590

(Accessories : Power Cord, Instruction Manual, CD-R (Communication Instruction Manual and Sample Software))








Test fixtures are not supplied with the unit.



Select an optional test fixture or probe when ordering.





Probes are constructed with a coaxial cable with 50 Ω impedance characteristics


Optional Accessories

PROBE, TEST FIXTURE

 <p>FOUR-TERMINAL PROBE L2000 DC to 5 MHz Characteristic impedance: 50 Ω * The cable length is 1 m (3.28ft).</p>	 <p>FOUR-TERMINAL PROBE 9140-10 DC to 200 kHz, Characteristic impedance: 50 Ω * The cable length is 1 m (3.28ft).</p>	 <p>FOUR-TERMINAL PROBE 9500-10 DC to 200 kHz, Characteristic impedance: 50 Ω * The cable length is 1.05 m (3.45ft).</p>	 <p>TEST FIXTURE 9261-10 DC to 5 MHz Characteristic impedance: 50 Ω * The cable length is 1 m (3.28ft).</p>	 <p>PINCHER PROBE 9143-10 DC to 5 MHz Characteristic impedance: 50 Ω * The cable length is 1 m (3.28ft).</p>	 <p>TEST FIXTURE 9262 DC to 5 MHz Direct connection type</p>	 <p>TEST FIXTURE 9263 DC to 5 MHz Direct connection type</p>
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 <p>SMD TEST FIXTURE 9677 DC to 120 MHz Direct connection type</p>	 <p>SMD TEST FIXTURE 9699 DC to 120 MHz Direct connection type</p>
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PC COMMUNICATION			
 <p>GP-IB INTERFACE Z3000</p>	 <p>RS-232C INTERFACE Z3001</p>	 <p>LAN INTERFACE Z3002</p>	 <p>GP-IB CONNECTOR CABLE 9151-02 * The cable length is 2 m (6.56ft).</p>

 <p>SHEATH TYPE TEMPERATURE PROBE 9478 Pt100, tip $\phi 2.3$ (0.09in) mm, cord length 1 m (3.28ft), water-proof structure</p>
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