MTZ-35

35 MHz Impedance Analyzer

Advanced and Complete solution for electrical characterization of materials

Unique features

- 10 µHz - 35 MHz frequency range
- Compensation for residual impedances
- Data acquisition and equivalent circuit modeling
- Automatic control via MT-Lab software
- Intelligent temperature management

BioLogic
Science Instruments

APPLICATIONS

- Ceramics
- Solid oxides
- Polymers
- Rubbers
- Dielectrics
- Composites
- Solar/photovoltaic cells
- Semiconductors
- Biological cells
- Liquids
- Electronic components

MTZ-35

Redefining value

in impedance analyzers.

This easy-to-use impedance analyzer, delivered with its high performance software **MT-Lab**, is the new standard for impedance measurements.

A global leader in scientific instrumentation for materials science and engineering, Bio-Logic proposes an integrated solution for electrical characterization of materials. The solution includes the **MTZ-35** impedance analyzer, temperature and control units and simple holders. Combining our world class design and manufacturing with the latest measurement technology on the market today, the **MTZ-35** system is the value choice without sacrificing performance.

A modern materials science lab faces challenging measurements each day, and impedance spectroscopy is a primary tool in materials research that helps characterize the physical properties and/or chemical interactions of the materials under investigation.

The Bio-Logic **MTZ-35** impedance analyzer has the specifications and features required to address the broad scope of applications in the materials research field. With a wide frequency range (10 µHz - 35 MHz) and superior accuracy (0.1% amplitude, 0.05% phase) the **MTZ-35** impedance analyzer tackles the most difficult tasks in materials science today.

Exploring new frontiers of impedance testing with a wide frequency range impedance analyzer and a full range of ancillary equipment.

MEASUREMENT RANGES

Frequency	10 µHz to 35 MHz
Inductance	10 nH to 10 kH
Capacitance	1 pF to 1000 µF
Resistance	1 mΩ to 500 MΩ

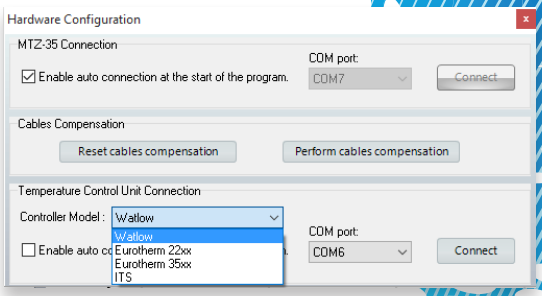
ANCILLARY EQUIPMENT

- High Temperature Furnace (HTF-1100)
- Intermediate Temperature System (ITS)
- High Temperature Sample Holder (HTSH-1100)
- Controlled Environment Sample Holder (CESH)
- High Temperature Conductivity Cell (HTCC)

MT-Lab®, complete and powerful interface

MT-Lab is an intuitive software used for the control of MTZ-35. It also allows the control of many temperature control units:

- High temperature furnace (HTF-1100)
- Intermediate Temperature System (ITS)
- Temperature control systems using Eurotherm 22xx and 35xx series controllers



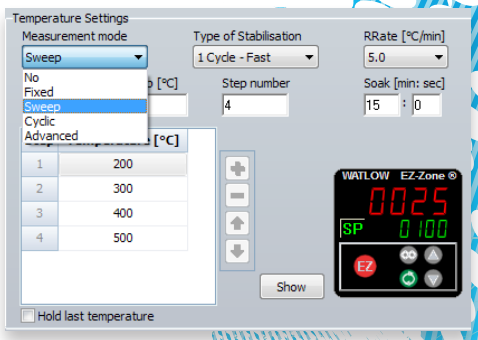
Open circuit / Short circuit Compensation

MT-Lab software is provided with a compensation protocol for the compensation of residual impedance due to cell cables and test fixtures.

Temperature management

Temperature Control management

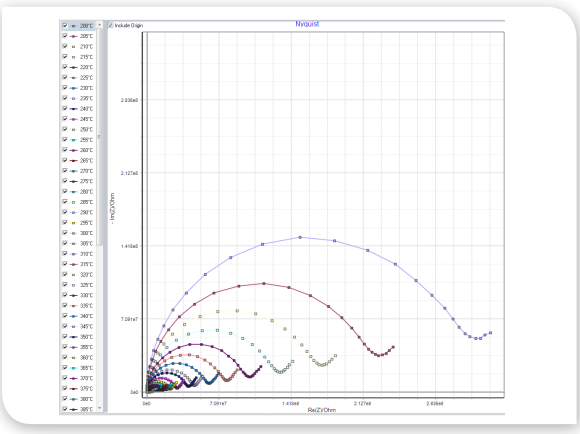
Five control temperature modes are available with MT-Lab. The software offers a wide range of heating rates and two temperature stabilization modes (fast and precise) based on closed-loop temperature regulation. Temperature control is optimized. Setpoint temperatures are reachable and adjustable without overshoot.

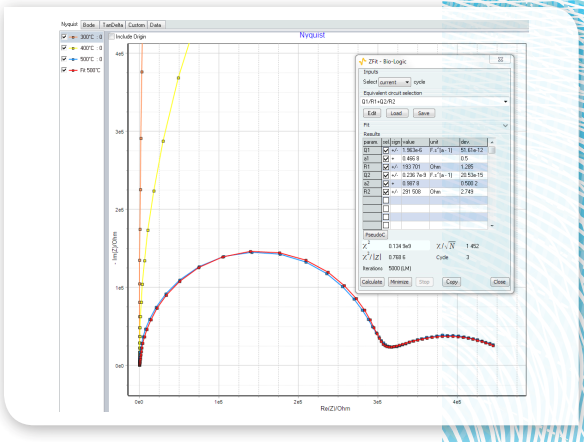


MT-Lab graphics

A complete graphic package

MT-Lab is a very easy to use software. The setting and the graph are displayable on one screen view. The software includes numerous graphic tools and advanced tools for equivalent circuit modeling (Z Fit). Users can build their own circuit model using a range of 13 electrical elements (R,C,L, Q, La, W, Wd,M,Ma,Mg, G,Ga).





Specifications

MTZ-35

Cell connection

Operating mode	impedance measurement
Measuring configuration	2,3 and 4 wire
Input BNC	grounded BNC

Generator

Frequency range	10 µHz to 35 MHz	
Accuracy	±0.05% of the desired frequency	
Gain accuracy	0.1% + 0.001/kHz 1% + 0.04% /kHz	f <1 MHz 1 MHz <f <35 MHz
Phase accuracy	0.02° < 10 kHz 0.05° + 0.0001°/ kHz	f <10 kHz 10 kHz <f <35 MHz
Voltage range AC	±100 µV to ±10 V peak to peak	
Voltage range DC	±100 µV to ±10 V	
Input range	10 V, 3 V, 1 V, 300 mV, 100 mV, 30 mV, 10 mV, 3 mV, 1 mV peak to peak	
Resolution	16 bit	

Measurement Ranges

Inductance	10 nH to 10 kH
Capacitance	1 pF to 1000 µF
Resistance	1 mΩ to 500 MΩ
Basic accuracy	0.1%

Output

Output voltage	0 V to 5 V peak
Output impedance	50 Ω
Output resolution	50 µV to 5 mV level
Output bias	±5 V

General

Computer interface	USB2.0
Mains voltage	115 V/230 V ranges (±10%)
Power consumption	30 VA max
Size & weight	530 x 525 x 184 mm (L x W x H), 12 kg

Temperature Control Unit	Operating Temp.	Features	Catalog n°
HTF-1100	RT to 1100 °C	Heating rate adjustable K-type thermocouple	**097-110**
In-plane ITS	-35 to 150 °C	Temperature accuracy: 0.3 °C PT1000 probes	**097-140/11**
Through-plane ITS	-35 to 150 °C		**097-140/12**

Sample Holders		Operating Temp.	Features	Compatibility	Catalog n°
HTSH-1100	D=25 mm	RT to 1100°C	Quartz tube for controlled atmosphere Leak-tight up to 2 bar relative K-type thermocouple	HTF-1100 Tubular furnaces	**097-133/S**
	D=12 mm				**097-132/S**
	D=06 mm				**097-131/S**
	D=03 mm				**097-130/S**
CESH	In-plane	-40 to 150 °C	Leak-tight up to 2 bar relative	ITS Other temperature units	**097-150/1**
	Through-plane				**097-150/2**
HTCC	Platinized (x10)	-50 to 180 °C	Cell factor: K = 1 +/- 5% cm^{-1} volume: 0.5 - 1.0 mL	MCS 10	**098-10/10**
	Non-platinized (x10)				**098-10/11**

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