

BZA60M

Multichannel Battery Impedance Analyzer



- **Impedance** measurement of battery, battery pack & ESS (energy storage system)
- DC voltage measurement up to **max 60V**
- Quick diagnosis of batteries
- Impedance analysis software (ZMAN)
- Cell temperature monitoring
- Expandable up to 32 channels

The **BZA60M** Multichannel Battery Impedance Analyzer is designed to measure battery impedance, dc voltage and battery temperature.

- Max. Voltage : 60V
- Impedance measurement range : 500uΩ ~ 50Ω
- Up to 32CH BZA60M run from one PC
- Application : Battery pack in power tool,
Battery pack in EV scooter,
EV battery module



Floating

With the multi-channel equipment of floating structure, the impedance can be measured at the same time. It can be measured in the state of battery module or pack with no necessity of separate disassembly.

Cell Measurement

The each channel can be controlled independently or simultaneously.

Rapid Test

As many cells can be measured at the same time, the impedance measurement time per battery can be reduced.

High Density

The detailed data density measurement, it could be used for both QC and development.

Portable

Even though it is the high-voltage equipment, it is highly portable.

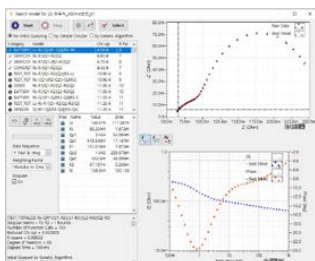
BZA60M Multichannel Battery Impedance Analyzer

Compact Size

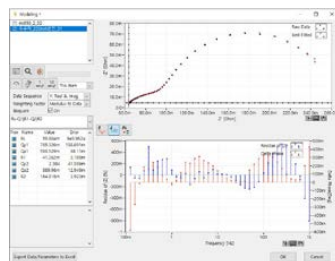
It is compact size as multi-channel system, weight is 6.6 kg(4ch). Easy USB 2.0 connection to a PC.

Impedance Analysis Software (ZMAN)

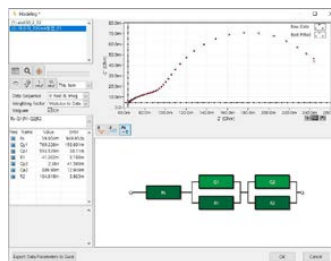
Automatic equivalent circuit searching and various impedance analysis functions are possible using ZMAN impedance analysis software.



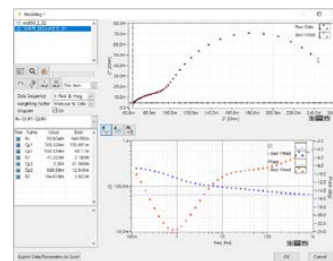
Automatic Model Searching



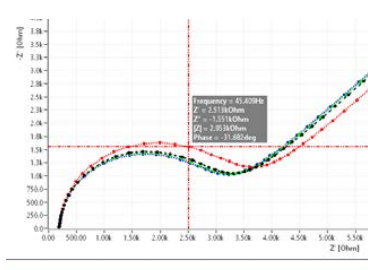
Fitting display



Modelling



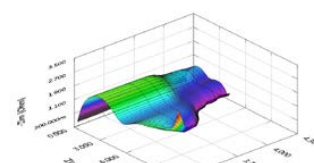
LEVM fitting



Cursor data display



Model editor & model library



3D plot

Cell Cable

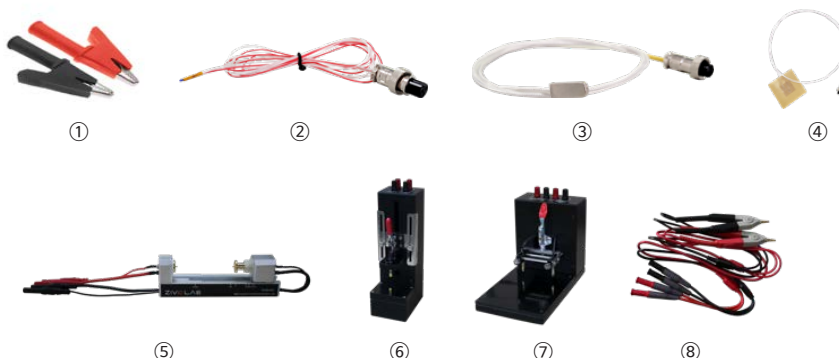
The cell cables for the BZA60M have been optimally designed for impedance testing of 60V.



Accessories

The several accessories to help you with your research. The following optional accessories are available.

- Low impedance cable
- Cell cable modification
- Small alligator clip - ①
- Pt100 Temperature sensor
 - wire type - ②
 - tablet type - ③
 - sheet type - ④
- High current cylindrical battery holder - ⑤
- 1 cell universal Jig - ⑥
- 1 cell pouch jig - ⑦
- Kelvin type small alligator clip cable (1M) - ⑧



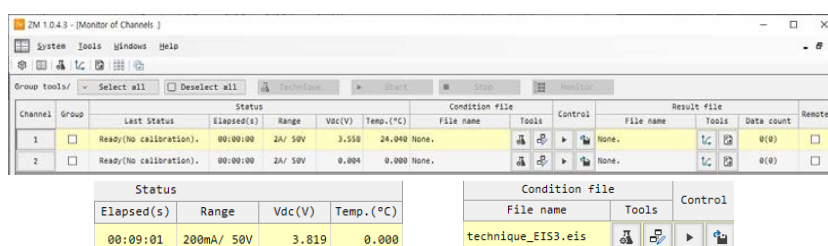
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Available Techniques

- Galvanostatic Electrochemical Impedance Spectroscopy
- Rs-psuedo Rp measurement
- High Frequency Resistance measurement (HFR)
- Eoc - Temperature monitor
- Quick galvanostatic EIS for screening
- Constant current Discharge test

Software

- Independent examination from the PC is available after the test starts.
- A various scope of parameters for the test is adjustable that are used in the test.
- Even if you lose connection of BZA and PC, if the device is powered on, the device will continue experiment. Memory can be saved after the connection recovers.
- Data is saved in the form of binary format that is compatible with the ZMAN software thus can be transformed into the text (CSV, TXT).

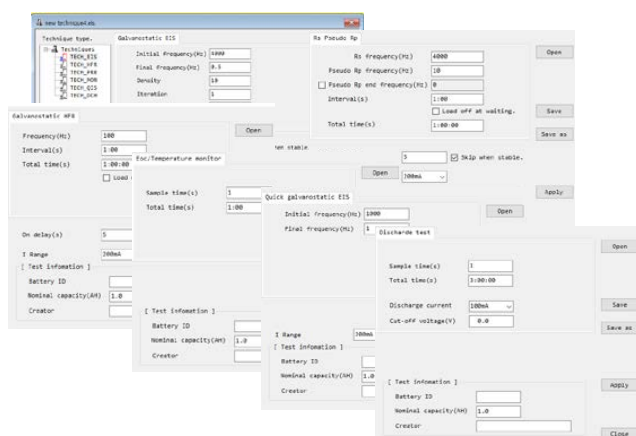


Channel	Group	Last Status	Status	Elapsed(s)	Range	Vdc(V)	Temp.(°C)	Condition file	Tools	Control	Result file	File name	Tools	Date count	Remote
1		Ready(No calibration).	Ready(No calibration).	00:00:00	2A/ 50V	3.550	24.040	None.			None.			0(0)	
2		Ready(No calibration).	Ready(No calibration).	00:00:00	2A/ 50V	0.004	0.000	None.			None.			0(0)	

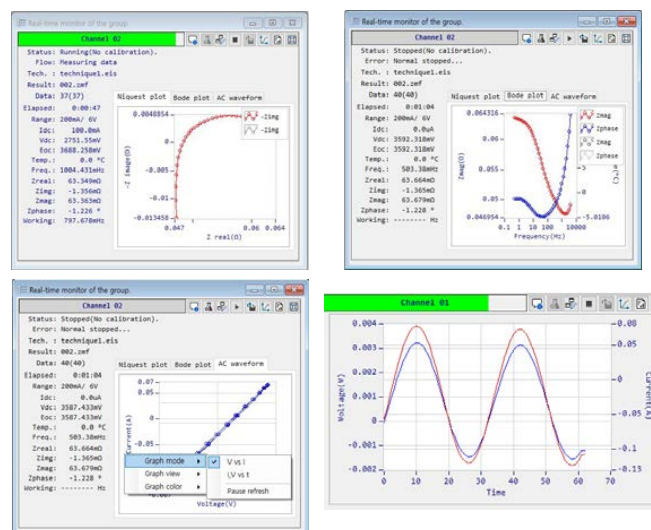
Elapsed(s)	Range	Vdc(V)	Temp.(°C)
00:09:01	200mA/ 50V	3.819	0.000

File name	Tools	Control
technique_EIS3.eis		

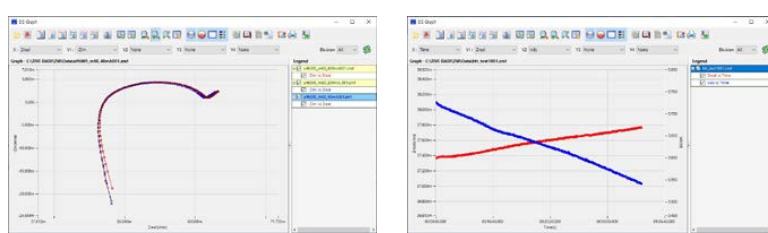
Control Screen



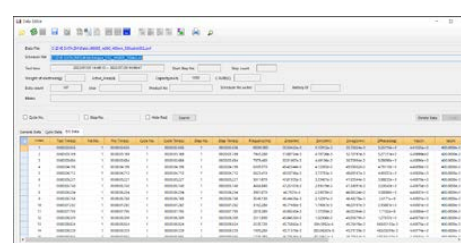
Technique selection & Parameter Input Box



Real time plot and data monitoring



Graph function



Serial No.	Time	Temp	Vdc	Current	Impedance	Phase	Frequency	...
1	00:00:00	24.040	3.550	0.004	63.3640	-1.3640	63.3640	...
2	00:00:01	24.040	3.550	0.004	63.3640	-1.3640	63.3640	...
3	00:00:02	24.040	3.550	0.004	63.3640	-1.3640	63.3640	...
4	00:00:03	24.040	3.550	0.004	63.3640	-1.3640	63.3640	...
5	00:00:04	24.040	3.550	0.004	63.3640	-1.3640	63.3640	...
6	00:00:05	24.040	3.550	0.004	63.3640	-1.3640	63.3640	...
7	00:00:06	24.040	3.550	0.004	63.3640	-1.3640	63.3640	...
8	00:00:07	24.040	3.550	0.004	63.3640	-1.3640	63.3640	...
9	00:00:08	24.040	3.550	0.004	63.3640	-1.3640	63.3640	...
10	00:00:09	24.040	3.550	0.004	63.3640	-1.3640	63.3640	...

Report function

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BZA60M Specifications

* All specifications are subject to change without notice.

Impedance Measurement

Measurement range	500uΩ ~ 50Ω
Accuracy	±1% magnitude (1mΩ - 50Ω) ±1° phase
Frequency range	0.05Hz ~ 10kHz
Current amplitude (p-p)	400uA ~ 2A

DC Voltage Measurement

ADC resolution	24 bit
Input range	60V/6V (dual range)

AC Voltage Measurement

ADC resolution	24 bit
Input range	±250mV

AC Current Measurement

ADC resolution	24 bit
Current sensing resistors	4ea (2A, 200mA, 20mA, 2mA)

Sinewave Generator

Frequency range	0.05Hz ~ 10kHz
Frequency accuracy	< 0.1%
Frequency resolution	65535/decade min 465uHz
DAC resolution	10 bit
Output gain	2ea (x1, x0.2) total 8 current ranges (2A, 400mA, 200mA, 40mA, 20mA, 4mA, 2mA, 400uA)

Temperature Measurement

Input	RTD probe (PT100)
Accuracy	Max 1°C

Communication

Interface	LAN communication
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Dimension

Size	207x234x280mm (WxDxH), 4ch/housing
Weight	6.6kg

Designed by

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