![WonATech]

BZA1000
High Voltage Battery Impedance Analyser

- Impedance measurement of battery, battery pack, & ESS(energy storage system)
- DC voltage measurement up to 1000V
- Quick diagnosis of batteries
- Battery lifetime estimation
- LAN interface with PC
- ZMAN impedance analysis software
- Cell temperature monitoring

Electrochemical impedance spectroscopy (EIS) is a widely used experimental technique to gain a deeper insight into the electrochemical processes of batteries. EIS cannot only provide detailed kinetic information, but can also be used to monitor changes in battery properties. EIS is a very sensitive technique, and offers a useful information about battery systems such as :

· Battery lifetime
· Battery temperature
· Internal defect

The BZA1000 Battery Impedance Analyzer, which covers a broad range of battery test functions ranging from DC voltage (up to 1000V) and impedance test (500uΩ ~ 50Ω), is an ideal test tool for performance testing of individual stationary batteries, battery banks and ESS(Energy Storage Systems).

The BZA1000 is designed to measure battery impedance, dc voltage and battery temperature. There are several technique available such as galvanostatic EIS, HFR, Rs-psuedoRp measurement, Voltage-Temperature monitor etc. This shows real time information including related plot formats.
With galvnostatic EIS, Nyquist plot and Bode plot is provided in real time. And HighFrequencyResistance (Cs-Cp vs time and Zre-Vdc vs. time plot) and Rs-psuedo Rp measurement (Cs-Cp vs time and Rs-psuedoRp vs time pot) is proviced. With these kind of informations, it is easy to see changes in the R_s and R_{ct} values that correlate to the battery's state of health(SoH) and state of charge(SOC), allowing user to evaluate battery performance.

EIS data from BZA1000 can be analyzed with ZMAN impedance analysis software by automatic model searching and automatic fitting. Proper model library for user's batteries can be grouped to minimize the analysis time.

The user-friendly interface, compact design and rugged construction ensure optimal performance, test results and reliability.

CATIII 1000Volt cell cable with standard 300Volt alligator clip
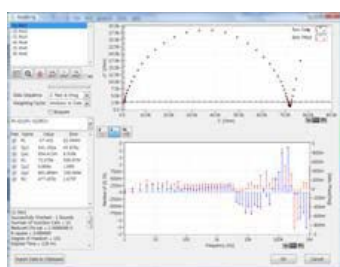
The BZA1000 Battery Impedance Analyzer consists of BZA1000 main body, high voltage cell cable with 300V alligator clip, power adapter and LAN cable.
The following optional accessories are available.

- Large(Mid) size alligator clip (1000V)
- Low impedance cable
- Cell cable modification
- Kelvin type small alligator clip cable (1meter)
- Kelvin type medium alligator clip cable (1meter)
- Pt100 Temperature sensor
- High current clindrial battery holder
- 1 cell Universal Jig
- 1 cell pouch jig
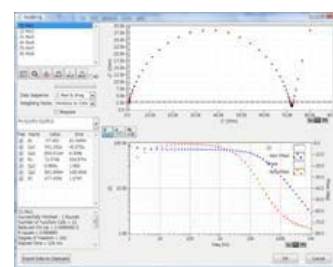

ZMAN™
2.5
Created by ZIVE LAB
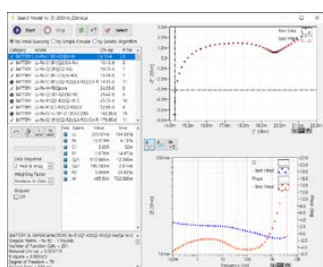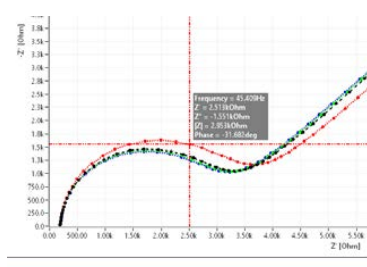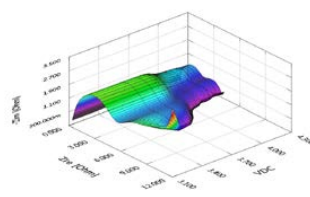

Automatic Model Searching

Fitting display
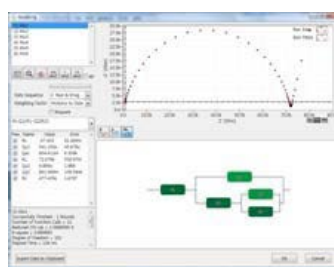
Modelling

LEVM fitting

Cursor data display

Model editor & model library

3D plot
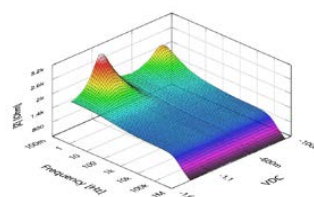
Control Screen

- Mutichannel operation under mixing configuration with different model is available
- Real-time monitoring of current/voltage range, measured voltage value, and measured temperature value regardless of a test is started. (data are not logged.)
- Displaying schedule file and data file name,
- Schedule file selection/modification
- Start/Stop operation
- Channel nick name display
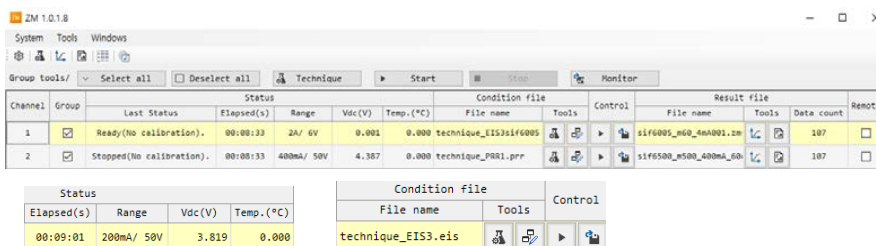
## Technique selection & Parameter Input Box
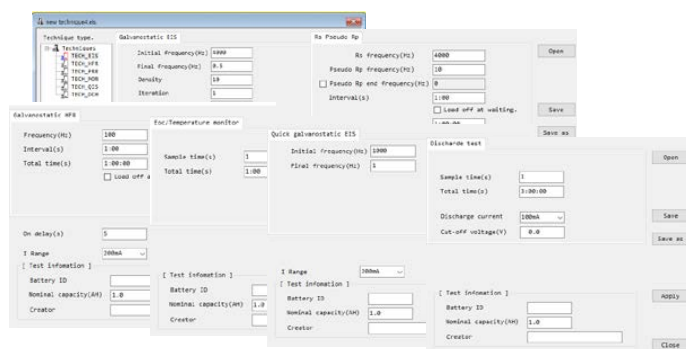
Technique menu

- Galvanostatic Electrochemical Impedance Spectroscopy
  - Bias & amplitude value is determined by current range setting
  - Parameters: Frequency range, data density, iteration
- Rs-psuedo Rp measurement
  - Rs frequency, psuedo Rp frequency setting,
  - Interval & Total time setting
- High frequency resistance measurement(HFR)
  - HFR frequency setting
  - Interval & Total time setting
- Eoc - Temperature monitor
- Quick galvanostatic EIS for screening
- Constant current Discharge test

Real time plot and data monitoring

- Lissajous plot/ current, voltage vs. time for AC waveform
- Galvanostatic EIS (Quick galvanostatic EIS)
  - Nyquist plot / Bode Plot
- Rs-psuedo Rp/ HFR both
  - Cs, Cp vs time graph
- Zre, Vdc vs time graph (HFR)
- Rs-psuedo Rp vs time graph (Rs-psuedo Rp measurement)
- Vdc, Temperature vs time graph (Discharge test)
- Eoc, Temperature vs time graph (Eoc_temp monitor)
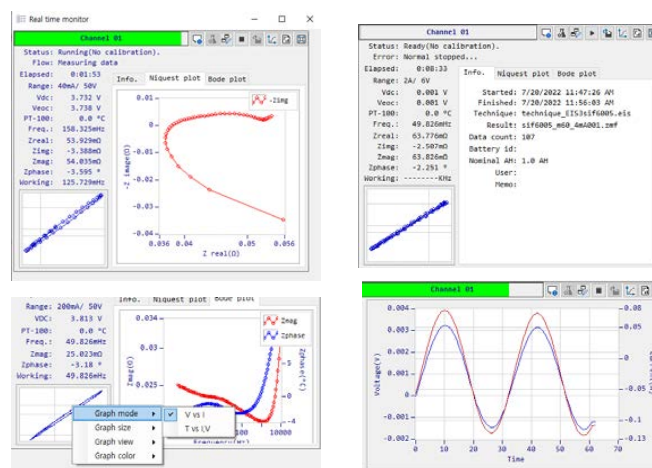
Graph function

- Short cut icon for Nyquist, Bode, Rs-Cs vs frequency, Cs-Cp vs time, Zre-Vdc vs time, Vdc-T vs time
- Universal axis graphic. (User selectable parameters for each axis)
- Excel, ascii format conversion on graph
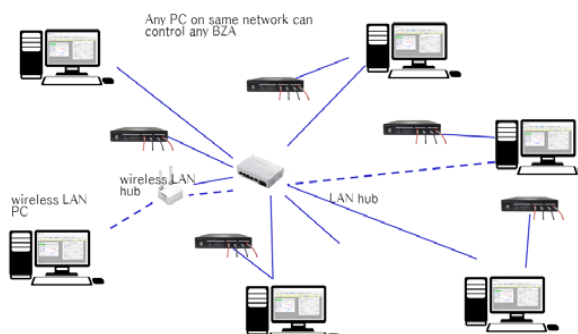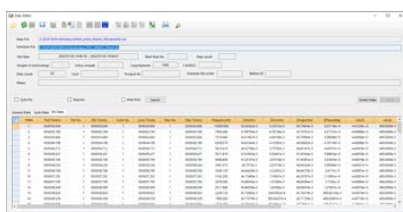- Max 20 plots overlay
- Zoom, Move, Cursor display
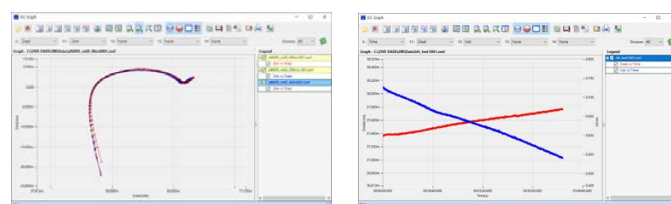
Nyquist plot   Zre, Vdc vs time graph

Report function

- Data editing
- File conversion to ascii format or Excel format
- Data filtering

◉ Specifications

Impedance Measurement

Measurement range	500uΩ ~ 50Ω
Accuracy	±1% magnitude (1mΩ - 50Ω) ±1° phase
Frequency range	0.05Hz ~ 4kHz
Current amplitude (p-p)	400uA ~ 2A

DC Voltage Measurement

ADC resolution	24 bit
Input range	1000V/100V (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 ~ 4KHz
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
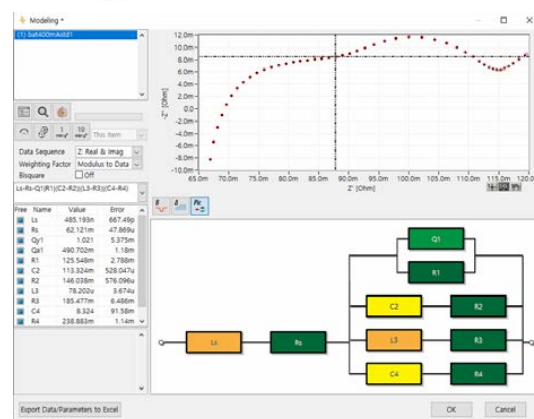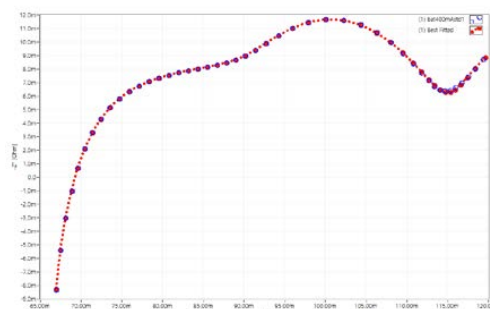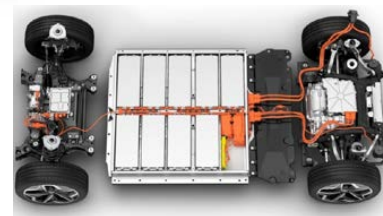
Input	RTD probe (PT100)
Accuracy	Max 1°C

Communication

Interface	LAN communication

General

Size	300mm x 60mm x 300mm (WxHxD)

All specifications are subject to change without notice.

Local Distributor