

## Arbin EIS Integration



### Product Highlights

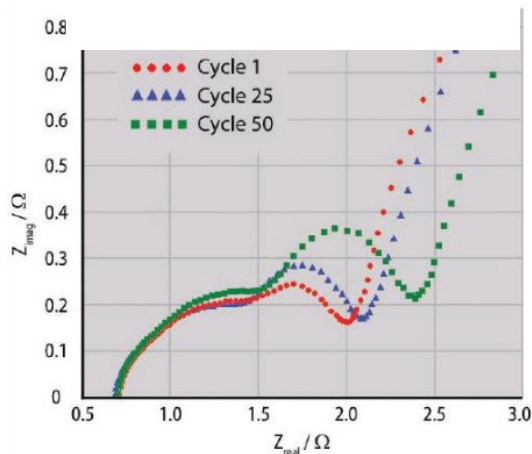
- Frequency range of 10 $\mu$ Hz to 2MHz
- Integrated with Arbin cycler, the frequency range is 10 $\mu$ Hz to 100kHz
- EIS data is integrated with Arbin data
- Fully maximize duty-cycle of EIS workstation and multi-channel Arbin tester
- No change in connection is necessary
- EIS integration available on Arbin LBT, MSTAT, & HSP systems
- Each EIS unit can be multiplexed across up to 32 Arbin channels

Workstations with EIS capabilities typically cost significantly more per channel than traditional testing systems. In many cases, this forces researchers operating under limited budgets to sacrifice desired capabilities and performance for affordability.

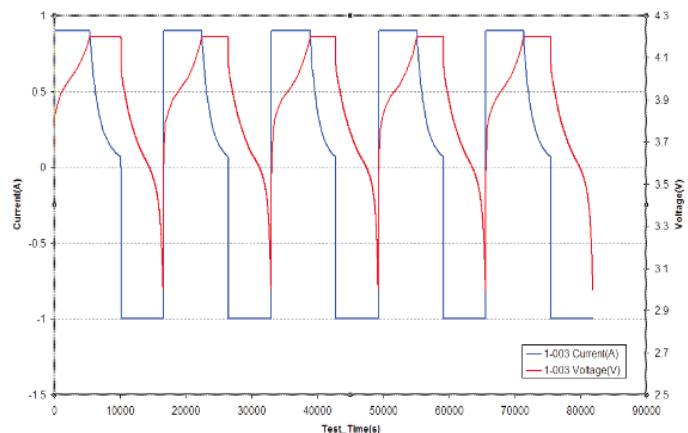
To solve this problem and bring a new dimension of value to our customers, Arbin has introduced a new EIS board that can be easily integrated with your cycler for lower frequency needs. Arbin also has an integrated EIS solution that combines the multi-channel, high-precision battery test performance of Arbin with advanced EIS capability for higher frequencies. These solutions share up to 32 Arbin channels (through multiplexing) with a single EIS unit to maximize the duty cycle of both instruments. No change in connection is necessary.

Arbin's EIS integration solutions are designed to support researchers with full or half-cell battery characterization, or any other electrochemical device. The equipment offers charge/discharge testing, PITT, GITT, and more along with EIS measurements.

Nyquist Plot



First 5 CC-CV Cycles



## Compatible Models

### Model- Lower than 10 kHz

**Arbin EIS 20P**

Galvanostat

*Recommended for all Arbin LBT, MSTAT, and HSP testers.*

Capable of Performing EIS 0.01 Hz-10 kHz, 4 mHz resolution  
 1A AC Current Output (peak)  
 0-20V Load Voltage Range  
 1m Ohm-1k Ohm Measurable Load Range  
 Mod Accuracy: +/- 1% at  $Z_{mod} > 5m\Omega$  and Frequency  $< 5kHz$ , +/- 10% at other condition  
 Phase Accuracy: +/- 2 degree

**Arbin EIS 40P**

Galvanostat

*Recommended for all Arbin LBT, MSTAT, and HSP testers.*

Capable of Performing EIS 0.01Hz-10kHz, 4mHz resolution  
 0.5A AC Current Output (peak)  
 0-40V Load Voltage Range  
 1m Ohm-1k Ohm Measurable Load Range  
 Mod Accuracy: +/- 1% at  $Z_{mod} > 5m\Omega$  and Frequency  $< 5kHz$ , +/- 10% at other condition  
 Phase Accuracy: +/- 2 degree

### Model- From 10 $\mu$ Hz up to 2 MHz

**Gamry 1010E**

Potentiostat / Galvanostat / ZRA

*Recommended for all Arbin LBT, MSTAT, and HSP testers.*

Capable of performing EIS from 10  $\mu$ Hz to 2 MHz  
 Max frequency of 100 kHz when integrating with Arbin cycler\*  
 $\pm 12V$  Maximum Applied Potential  
 $\pm 1A$  Maximum Current:  
 9 Current Ranges

**Gamry 5000E**

Potentiostat / Galvanostat / ZRA

*Recommended for Arbin LBT Cell- HC testers.*

Capable of performing EIS from 10  $\mu$ Hz to 1 MHz  
 Max frequency of 100 kHz when integrating with Arbin cycler\*  
 $\pm 6V$  Maximum Applied Potential  
 $\pm 5A$  Maximum Current  
 6 Current Ranges

**Gamry 5000P**

Galvanostat

*Recommended for Arbin LBT Cell- HC testers.*

Capable of performing EIS from 10  $\mu$ Hz to 20 kHz  
 Max frequency of 100 kHz when integrating with Arbin cycler\*  
 $\pm 6V$  Maximum Applied Potential  
 $\pm 5A$  Maximum Current  
 6 Current Ranges

**Gamry Ref 3000**

Potentiostat / Galvanostat / ZRA

*Recommended for Arbin LBT 25V Module testers.*

Capable of performing EIS from 10  $\mu$ Hz to 1 MHz  
 Max frequency of 100 kHz when integrating with Arbin cycler\*  
 $\pm 32V$  Maximum Applied Potential  
 $\pm 3 A$  (or  $\pm 1.5 A @ 32V$ ) Maximum Current  
 11 Current Ranges

\*Contour plot accuracies are available upon request.

**NOTE:** If your team plans to purchase an EIS unit at a later date, please notify Arbin Instruments of the EIS model to confirm compatibility prior to ordering your system. This will allow us to ensure compatibility, properly test, and integrate with the appropriate system.