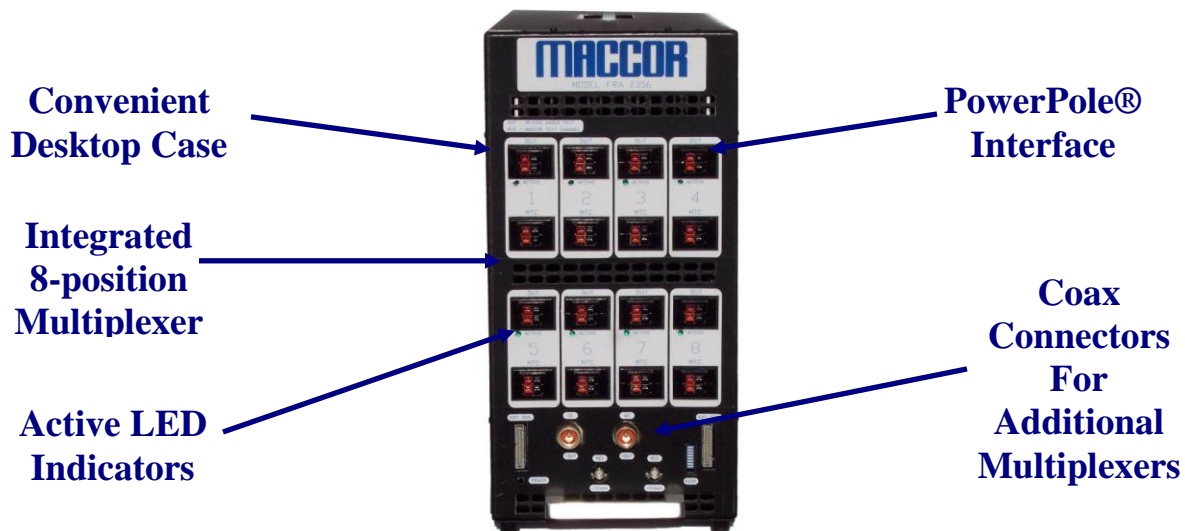




FREQUENCY RESPONSE ANALYZER

MODEL FRA-0355

The Model FRA-0355 is a powerful AC impedance measurement instrument that will quickly become one of the most valuable research tools in your laboratory. Engineered to meet the demands of today's energy storage devices, the FRA-0355 offers the lowest impedance measurements available and can handle devices up to 55 volts.

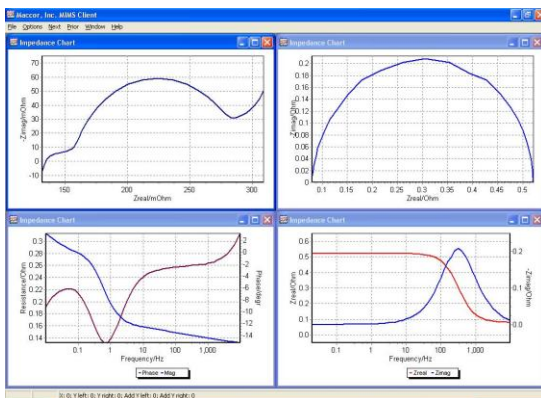


Sold as a “Turn-Key” system, the FRA comes complete with Control Data/Interface PC, Software, and Cables. Use the FRA-0355 as a “Stand-Alone” instrument or integrate it with an existing or new Windows based Maccor automated test system to provide a combined research tool capable of a wide range of experiments. These include, but are not limited to, long-term cycling, charging, discharging, pulsing, cyclic voltammetry, and differential capacity with impedance measurements programmable anytime during the test. The FRA-0355 utilizes the latest Digital Signal Processing (DSP) technology for AC Impedance evaluation of devices where low impedance measurement is essential. In both AC and DC experiments, the FRA can supply up to 3 amps of current. In addition to its high-current capability, the FRA can accurately output and measure an AC signal as low as 100 μ V peak-to-peak.

- **Built-in eight-position multiplexer**
- **Integrate this instrument with your Maccor tester**
- **Queue up to eight independent experiments**
- **Impedance measurement on up to 55 volt devices**

Standard Features and Functions

- Adaptable To A Wide Range Of Devices (i.e. batteries, battery stacks, super-capacitors, fuel cells, etc.) And Device Chemistries
- Impedance Measurement on up to 55 Volt Devices
- Easy To Set Up And Simple To Operate
- Integrated 8-Position Multiplexer
- No Manual Adjustments Or Setting Of Dials
- Set AC Signal Amplitude In Peak Value, Range Of Frequency Sweep, and Number Of Frequencies Per Decade
- Set Polarization Voltage Prior To Commencing Frequency Scans
- View Real Time Data
- Plot: Nyquist, Bode, Capacitance, Inductance, Impedance Magnitude, Phase Angle, Real Impedance, Imaginary Impedance
- Export Data For Further Analysis On Commercially Available Packages Such As *Z-Plot*



With the MIMS Client data is easily viewed graphically with different standard graphs. Several Chart types may be displayed at the same time with the ability to store the display settings as a template. Data from different devices or sweep settings may be overlaid on a single chart or viewed side-by-side.

Data from active and completed experiments can be saved in a text format common to other AC Impedance analysis software applications for further study.

Specifications

Frequency Range	1 mHz to 30 kHz
AC Impedance Range	100 μ Ohm to 200 Ohms
Impedance Accuracy	$\pm 0.1\%$ of reading or $\pm 0.00005\%$ of full-scale (whichever is larger)
AC Signal Amplitude	100 μ V to 3 V
Maximum Voltage	55 V Peak (AC + DC)
Maximum Current	3000 mA
Connection	4-Terminal Kelvin

MACCOR

Maccor, Inc

4322 S 49th W Avenue
 Contact: Mark Hulse
 Telephone: 918-630-2256
 Email: m.hulse@maccor.com

Tulsa, Oklahoma 74107 USA
 Position: V.P Sales & Marketing
 Facsimile: 918-445-1496
 Web: www.maccor.com