

LEAD CAPACITANCE

The units sine wave excitation current allows for tolerance of large lead capacitance across the sensor or to ground.

**MAXIMUM SENSOR CAPACITANCE
FOR LINEAR OPERATION**

RANGE	MAXIMUM CAPACITANCE
2m Ω -200 Ω	5 μ F
2K Ω	.5 μ F
20K Ω	.5 μ F
200K Ω	.05 μ F
2M Ω	.005 μ F

Resistance errors will occur at these large capacitance values due to the capacitive dissipation constant paralleling the sensor resistor. Typically film capacitors have parallel resistance of from 100X_c to 1000X_c.
X_c = Capacitive reactance at 15.9 Hz.

For best performance keep line to chassis and line to line capacitance to less than .01 μ f on the 2m Ω through 200K Ω ranges, and .001 μ f on the 2M Ω range.

SUPERCONDUCTING SAMPLE MUTUAL INDUCTANCE MEASUREMENTS

Superconducting and other samples can be measured inside a user built mutual inductance transformer. The transformer should consist of a single primary and two secondary windings. The secondary windings are stacked one on top the other with modest space in between and well inside the longer primary. All windings share a common central axis. The LR-700's current excitation leads directly drive the primary. The secondaries, electrically connected in series opposition, directly drive the voltage input leads.

Placing a sample inside one of the secondaries will generate an in-phase and quadrature mutual inductance signal that can be measured by the LR-700.

Thus the user measures samples in terms of χ' and χ'' allowing characterization of bulk and thin film superconductors.

The R-set = R (and X-set = X) features of the LR-700 allow for fast initialization of the set-up. Data can be then taken in the ΔR and ΔX or 10 ΔR and 10 ΔX modes.

PHYSICAL SIZES

Dimensions: 19 inch rack mountable.

7 inches (178mm) high, 17 inches (432mm) wide and 17 inches (432mm) deep.

Net weight: 30 lbs (14 kg).

Gross Weight: 36 lbs (17 kg).

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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