

Mutual Inductance Measurements with a 4 Terminal LCR Meter

Any one of the QuadTech 4-terminal DigiBridge instruments can measure mutual inductance, the ratio of the electromotive force induced in one circuit to the rate of change of current in the second circuit. This is usually done on a transformer and is a method to determine the phase of the secondary winding or to determine which are the start and finish wires. In-phase measurements will give a positive Inductance reading. Out-of-phase measurements will yield a negative inductance reading. The same technique can be used with inductors connected in series. Figure 1 illustrates the connection of the 1693 DigiBridge to a transformer.

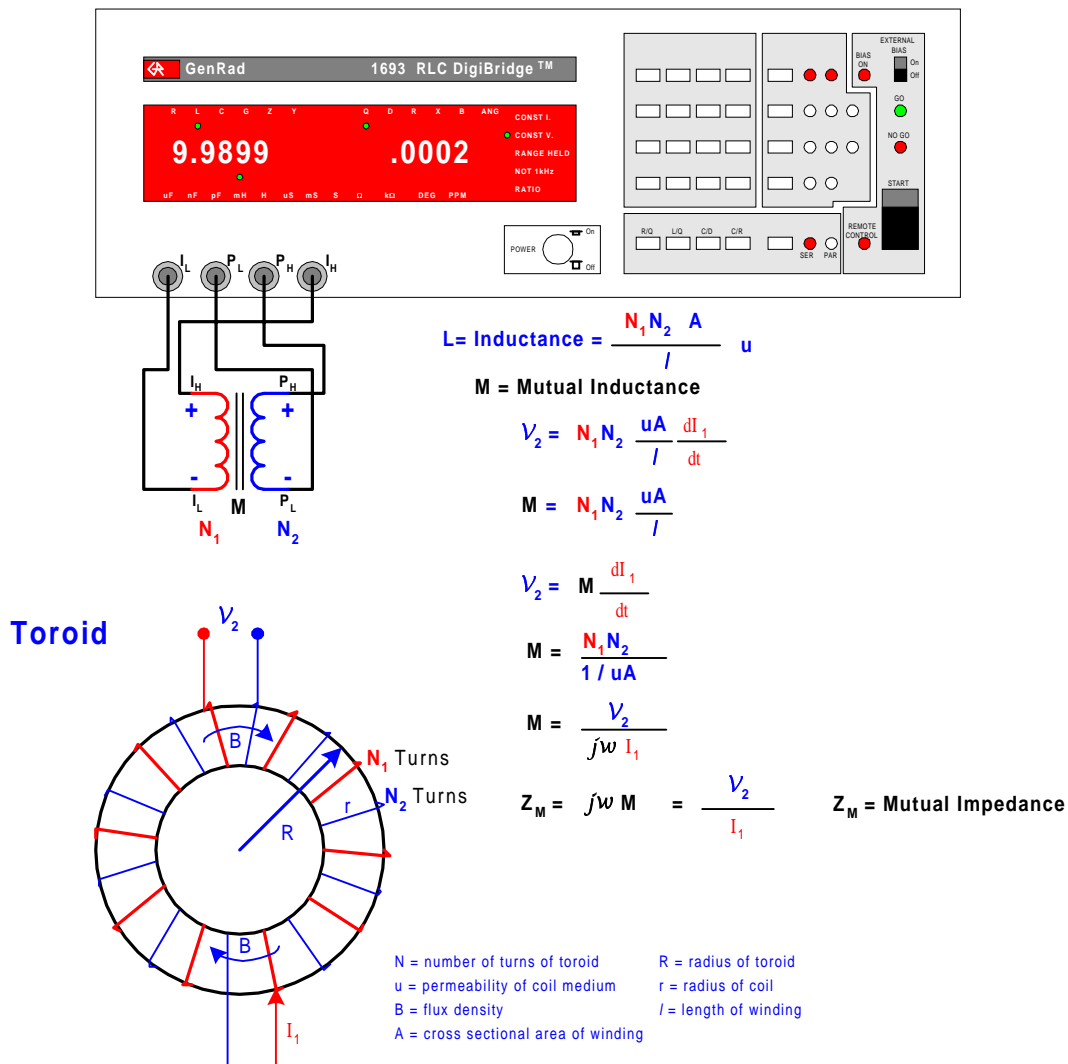
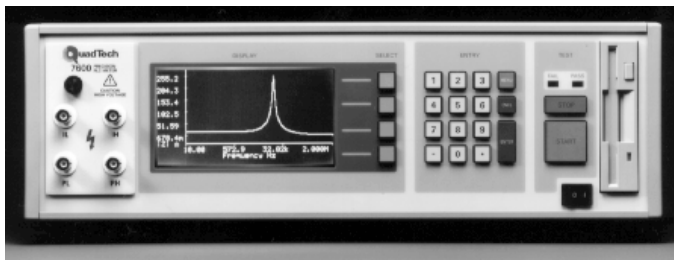


Figure 1: Measuring Mutual Inductance with the 1693 DigiBridge

For Further Information

This application note originally addressed QuadTech's Digibridge line of LCR meters yet since its publication, QuadTech has added much state-of-the-art LCR instrumentation to its passive component testing line. The 7000 Series LCR meters perform precision impedance measurements of 14 parameters over a wide frequency range. The versatile 7000 Series instruments are fully automated and user friendly making them ideal for applications in product development, incoming inspection or production line testing. QuadTech recently introduced the 1900 Series Inductance Analyzers a production oriented fully automated box whose hardware and software can be re-configured for custom applications. The instrument is also capable of DC Resistance measurements and DC Bias Current production to test devices under real operating conditions. If transformers are what your testing, QuadTech has the 2100/2200 Series Automatic Transformer Test System capable of measuring 12 different impedance parameters specific to transformer, coil, motor and relay production. The 2100/2200 Series instruments have multiple interface options to transfer and collect data or remotely operate the units. An optional scanner with variable test plates provides multiple point connection for devices with multiple leads.



7600 Precision LCR Meter



1910 Inductance Analyzer



2100 ATTS & Matrix Scanner

Figure 2: QuadTech LCR Instrumentation

For complete product specifications on the precision Digibridge line or any of QuadTech's products, visit us at <http://www.quadtech.com/resources/dataindex.html>. Do you have an application specific testing need? Call us at 1-800-253-1230 or email engineering at rroetzer@quadtech.com and we'll work with you on a custom solution.

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