

M4110 Leakage Reactance Interface



The **M4110** Leakage Reactance Interface detects and diagnoses transformer winding problems.

The M4110 Leakage Reactance Interface enables the M4100 Automatic Insulation Analyzer to measure the short circuit impedance of transformers, a vital tool for diagnosing winding deformation.

A Reliable Indicator

Mechanical forces resulting from system condition such as overcurrent or transportation can cause displacement of the winding. Once a winding becomes distorted, its ability to withstand stress is severely limited and transformer failure is inevitable.

The M4110 Leakage Reactance test, also referred to as the short-circuit impedance test, is a reliable indicator of transformer winding deformation.

The leakage reactance within a transformer is sensitive to the geometrical changes in the leakage flux path. The leakage flux path is predominantly made up of space between the winding, space within the winding, and space between the winding and the tank wall.

The short-circuit impedance of a transformer is calculated by measuring the corresponding current of a voltage applied to the primary winding with the secondary winding short-circuit. With the secondary shorted, the current drawn by the primary is essentially the result of the leakage flux.

Features of the M4110

Assess Winding Deformation

Verifies the geometric integrity of the winding by comparing test results to nameplate providing a quantitative evaluation of the winding deformation.

Repeatability

All test results are independent of the transformer's temperature, deterioration or contamination levels

Simple to use

Simply enter the nameplate information and the M4110 will recommend a test potential and perform all of the necessary calculations.

Automated Data Analysis

The application automatically calculates any changes in impedance and reactance, based on the benchmark/nameplate values.



Comprehensive Reports

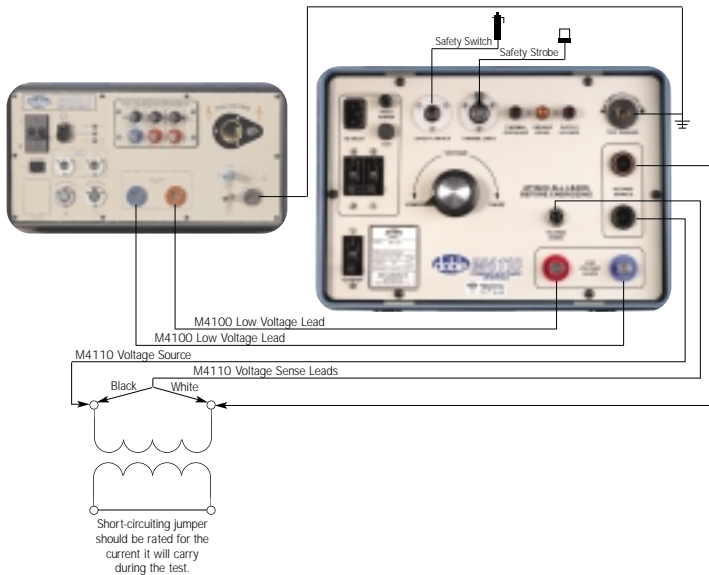
The M4110 is the only instrument providing comprehensive test results to evaluate winding conditions.

The M4110 provides you with the following tests:

- Test Voltage
- Current
- Watts
- Power Factor/Tangent Delta
- Inductance
- Resistance
- Impedance
- Reactance
- Delta Impedance
- Delta Reactance

Automated Testing and Simple Test Result Management

The M4110 provides users with automated testing, and the ability to manage the test results. The tests are saved in an XML format, providing a simple way to access and display the results. Up to ten test results can be saved on one form. Using the nameplate information, the M4110 will recommend the best test current to use. This insures reliable and accurate results.



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M4110

M4110 Technical Specifications

Impedance

Measurements:0.1 to 700 ohms

Inductance:250 uH to 1.8 H
(@ 60 Hz at less than 10% Power Factor)

Accuracy:1% of reading or +/- 10 uH

Resistance:0.1 to 700 ohms
(greater than 90% Power Factor)

Accuracy:1% of reading or +/- 10 milliohms

AC Input120 or 240 V at 10 A (50/60 Hz)

Source Output

240 V VMS Input:240 V VMS input
0-280 V VMS Output Voltage
2.6 kVA Output VA Continuous
120 V VMS Input:
0-280 VMS Output Voltage
1.2 kVA Output VA Continuous

Short time

overload current:25 A ms 4-8 minutes

Physical

Dimensions:12"H x 10"D x 13.5"W
(31 cm H x 25 cm D x 34 cm W)

Weight:35 lbs.
15.9 kg

