POWER QUALITY RESOURCE

How to measure inductance of a three-phase reactor

The basic equation that defines the inductance relation is shown using the accompanying schematic:

Inductance in Henrys = VM(1-3)/AM(1-3) x 2 x Π X 60 Hertz

The test setup consists of a variable high current 3 phase 60 hertz supply with meters for voltage and current connected as shown. The test reactor is connected in wye.

Adjust the current to be within the reactor's fundamental current range. The qualification tests should be done at reactor fundamental amps. Be sure to supply at least 50% of the reactor current rating so that the reactor core is active; a RL-03503 is designed to produce 1.2 mH +/- 10% inductance at 35 amps. A 17 amp test could be enough to determine approximate inductance. Apply the measured voltage and currents into the above equation to determine the inductance of each leg of the reactor.

At 35 amps a voltage of 15.8 would be measured across each coil. *Factory qualification test*

At 17 amps a voltage of 7.7 would be measured across each coil.

Calculation results using above equation equal 1.2 mH for the 35 amp test is +/- 10%.