
Subject: Re: Measuring coils

Posted by [Wayne Parham](#) on Tue, 06 Aug 2002 19:04:36 GMT

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You can measure a coil using a signal generator and oscilloscope. You'll also need a resistor of known value, and you'll basically use it to form a voltage divider with the coil. What you'll do is to choose a frequency that makes the inductor's reactance equal to that of a resistor you've chosen. Then, using the formula for inductive reactance, you'll be able to easily find the value of your

equal to your resistor value, you'll pick frequency F that will result in this being the case. Your coil's inductance is represented by "L" in this formula, and is shown in Henries. At this frequency, the circuit doesn't form a 50% / 50% voltage divider as it would with two resistors, even if inductive reactance is equal to resistance. If you put 10v p-p across two equal-value resistors connected in series, then you would have 5v p-p across each one. But if you put a coil having "X" ohms of inductive reactance in series with a resistor having the exact same impedance of "X" ohms, each will have 70.7% of the voltage across them. This paradoxical-seeming property isn't really mysterious at all, it's simply because the voltage is developing across each part at different times. Inductive reactance is 90° out-of-phase with reactance. So set the frequency where the voltage division between the resistor and the inductor is equal, at 70.7% of the total applied voltage. At this point, inductive reactance of the coil is equal to your resistor, and so inductance can be