

4.4.11-00 Resistance, phase shift and power in AC circuits



What you can learn about ...

- Impedance
- Phase shift
- Phasor diagram
- Capacitance
- Self-inductance

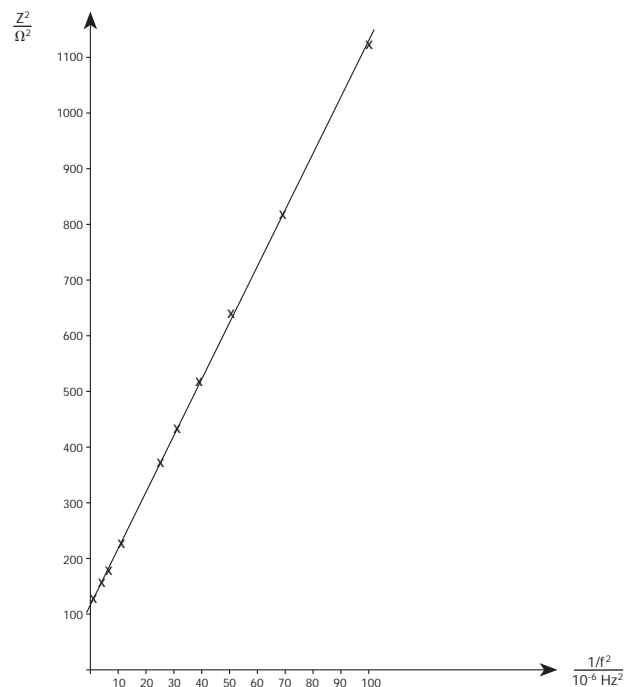
Principle:

Series circuits containing self-inductances or capacitances and ohmic resistances are investigated as a function of frequency. Measuring the electrical magnitudes with a work or power measurement instrument, real power or apparent power can be displayed directly.

What you need:

Work and power meter	13715.93	1
Power frequency generator, 1 MHz	13650.93	1
Coil, 300 turns	06513.01	1
Connection box	06030.23	1
Electrolyte capacitors non-polarised, G1, 47 μF	39105.45	1
Carbon resistor 10 Ohm, 1W, G1	39104.01	1
Connecting cable, 4 mm plug, 32 A, black, $l = 50$ cm	07361.05	4

Complete Equipment Set, Manual on CD-ROM included
Resistance, phase shift and power
in AC circuits P2441100



Capacitor and resistor in series, Z^2 as a function of $1/f^2$.

Tasks:

1. Series circuit of self-inductance and resistor (real coil)
 - Investigation of impedance and phase shift as a function of frequency
 - Investigation of the relation between real power and current intensity
2. Series circuit of capacitor and resistor
 - Determination of self-inductance and ohmic resistance
 - Investigation of impedance and phase shift as a function of frequency
 - Investigation of the relation between real power and current intensity
- Investigation of the relation between real power and current intensity
- Determination of capacitance and ohmic resistance