EXPERİMENT #3

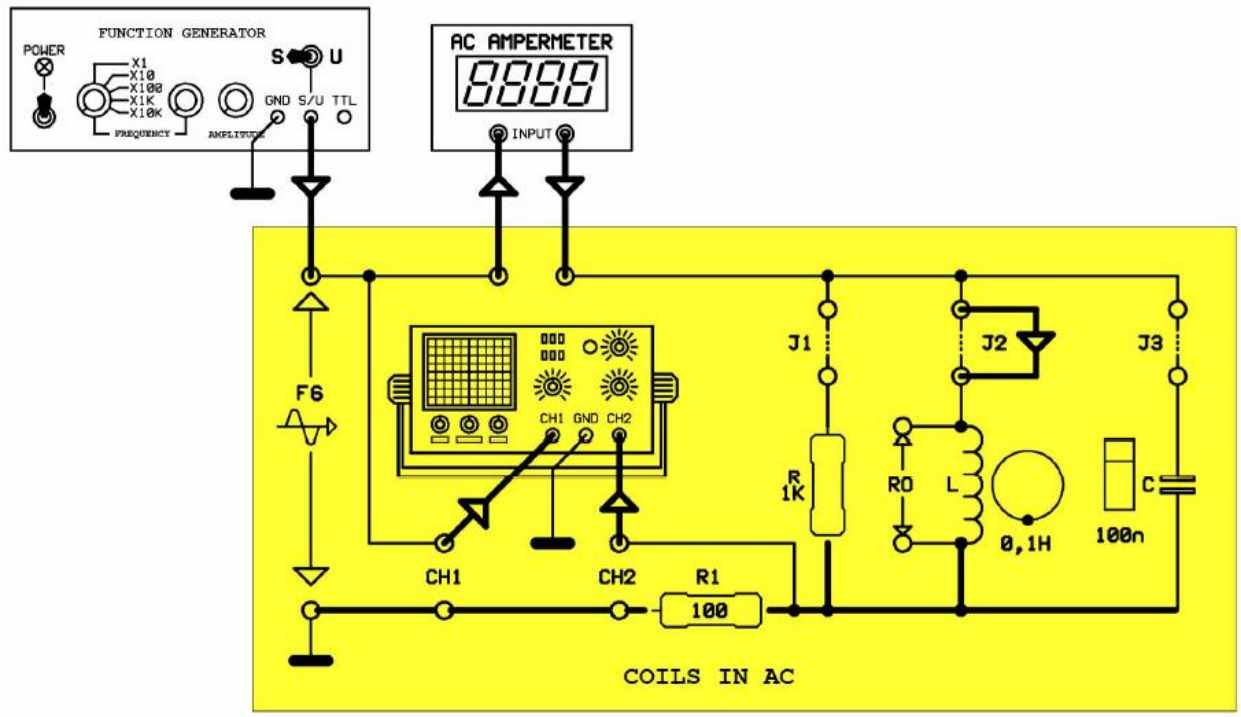
EXAMINATION OF INDUCTORS IN ALTERNATING CURRENT

REQUIRED MATERIALS:

1. Function generator
2. Oscilloscope (two channels)
3. AC Voltmeter
4. Y-0016/01AC module
5. Connection cable

EXPERIMENT:

In function generator, set a sine wave with **10 volts** peak to peak and **1Khz** frequency **Epp = 10V**, **f = 1Khz**. Replace the **Y-0016/01AC** module. Connect the circuit as in figure. Power the circuit.



EXPERIMENT OBSERVATIONS

1. Measure the internal resistance of the coil.

2. Short circuit the **J2** nodes. Now inductor is connected to the AC source. Draw the vector diagram of the circuit as seen in oscilloscope.

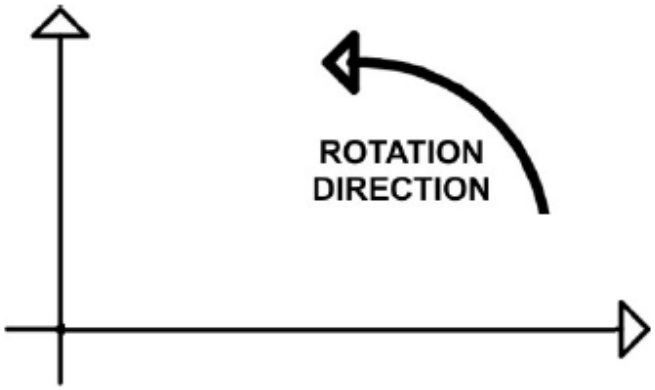
3. What is the phase angle of the circuit? Why?

4. Calculate the inductive reactance of the inductor.

5. Calculate the circuit current.

6. Short circuit the CH2 nodes. Now R1 has no effect to the circuit. Compare the calculated and the measured current. Is there a difference, why?

7. Draw the phase diagram of the circuit?



8. Calculate the apparent power, real power and reactive power in the circuit.

9. Repeat the same experiment in different voltage and frequency values.