

EXPERIMENT #2

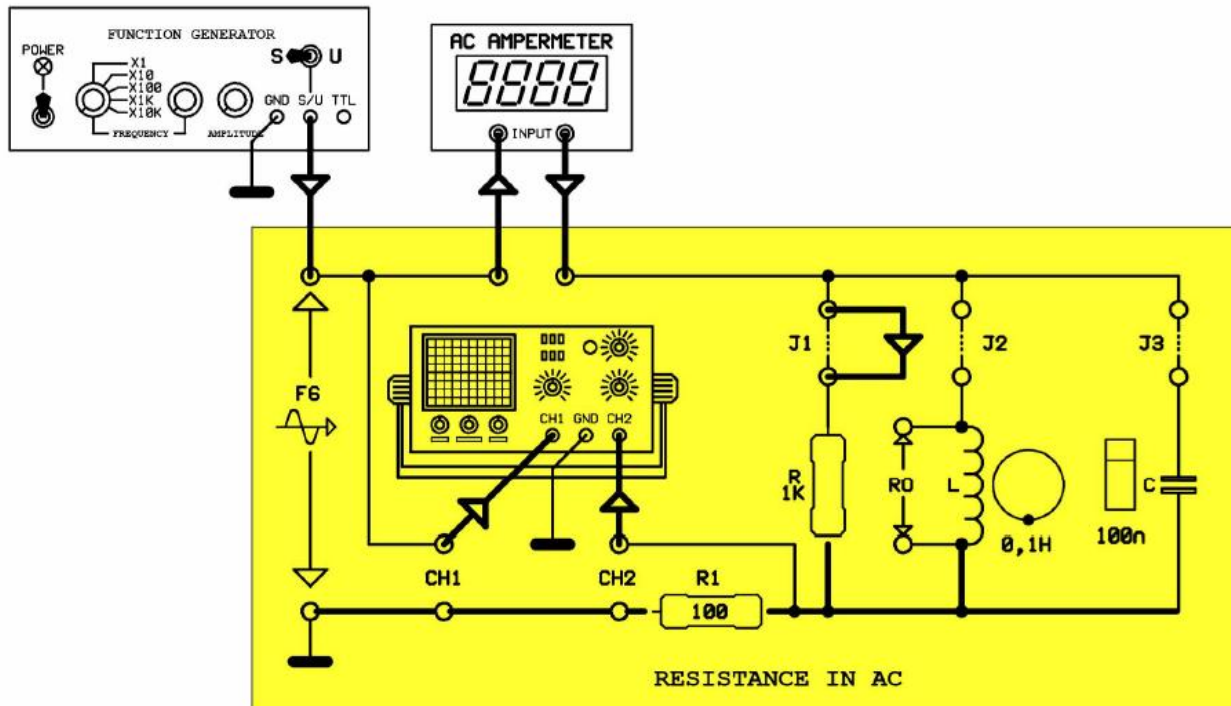
EXAMINATION OF RESISTANCES IN ALTERNATING CURRENT

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 **$E_{pp} = 10V$** , **$f = 1Khz$** . Replace the **Y-0016/01AC** module. Short circuit the **J1** nodes. Connect the circuit as in figure. Power the circuit.



EXPERIMENT OBSERVATIONS

1. Plot the waveform of the voltages connected to ch1 and ch2 of the oscilloscope.

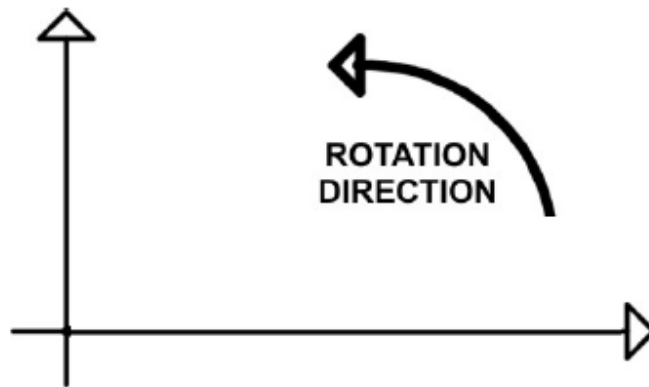


2. What is the phase angle of the circuit? Why?

3. Calculate the current of the circuit. (Take $R_1 = 0$).

4. Short circuit **CH2**. In this case **R1** is omitted from the circuit. Is the value measured by ammeter equal to the value that we calculated?

5. Draw the phase diagram of the circuit?



6. Change the frequency of the circuit between 250 Hz to 750 Hz. Write down the changes in phase angle, amplitudes of voltage and current. Summarize the result.

7. What is the power consumed at the resistance "R".