

EXPERIMENT #4

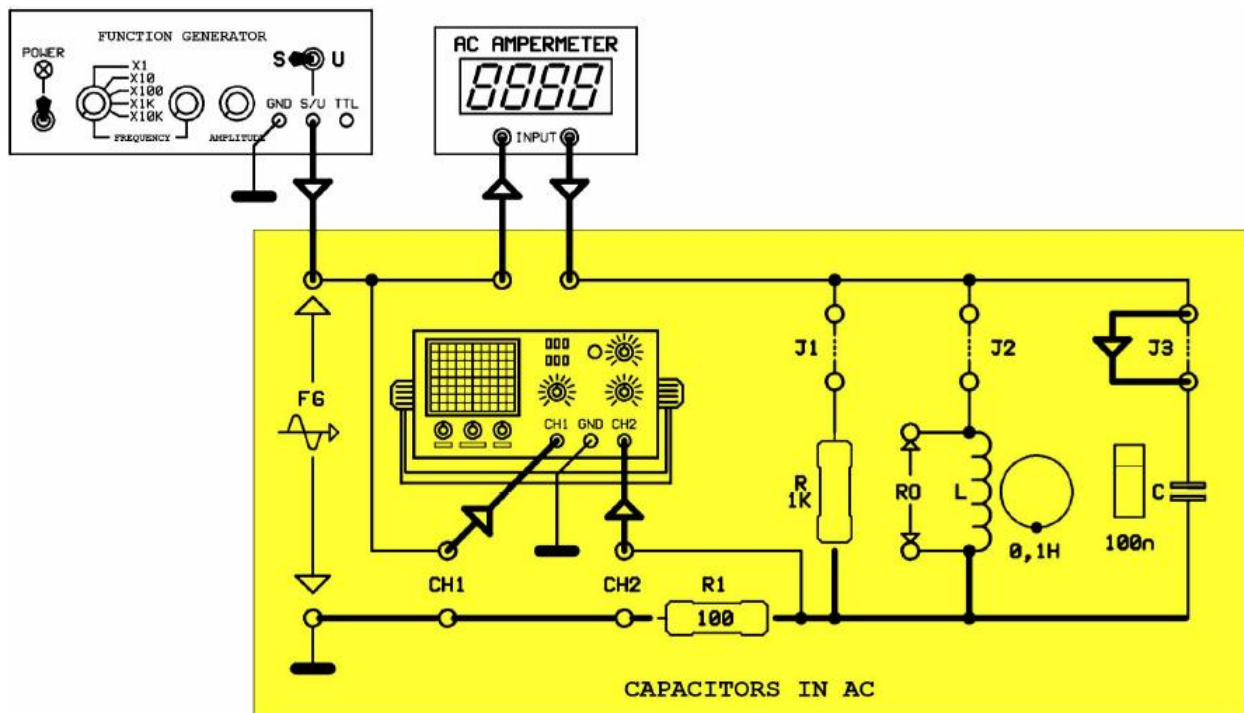
EXAMINATION OF CAPACITOR IN ALTERNATING CURRENT

REQUIRED MATERIALS:

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

EXPERIMENT:

Adjust the function generator output sinusoidal, peak to peak voltage **10** volts and the frequency to **F=1** KHz. Put the **Y-0016/01AC** module on to its place. Make the **J3** nodes short circuit. Make the circuit connections as shown in Figure. Apply the power to the circuit.



EXPERIMENT OBSERVATIONS

1. Plot the waveform of the voltages connected to the oscilloscope.



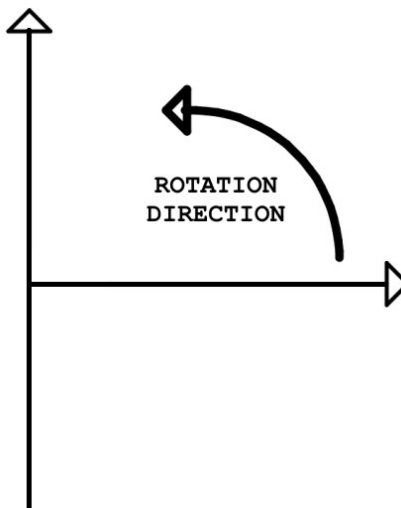
2. What is the phase angle of the circuit? Why?

3. Calculate the capacitive reactance of the capacitor.

4. Calculate the circuit current.

5. Short circuit the CH2 points. Now R1 has no effect on the circuit. Compare the current calculated and read from the ampermeter. If there is a difference explain the reason.?

6. Draw the phase diagram of the circuit?



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

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

