

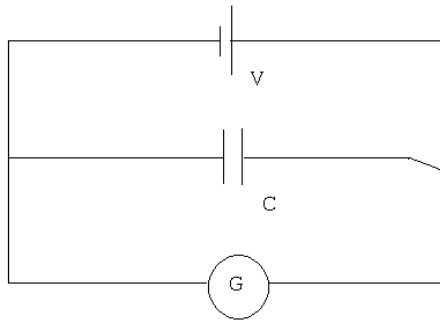
Calibration of the ballistic galvanometer

For small deflections of the ballistic galvanometer the charge passing through the galvanometer is proportional to the deflection, d , which is

$$\Delta q = kd .$$

In order to find the constant of the galvanometer, k , the known amount of charge should be used and deflection should be measured.

One can obtain the known amount of charge by discharging a capacitor of known capacitance, C , through the galvanometer. To do that, build an electric circuit shown in the figure below.



First close the key in the upper position to charge the capacitor from the power supply of the known potential difference, V . Then move the key to the low position to discharge the capacitor through the galvanometer and measure the deflection of the galvanometer, d . (Once again do it twice switching polarity and then take the average of the two readings). In this case the charge is $\Delta q = CV$, so

$$CV = kd$$

Collect several data points for different values of C and V . Think what needs to be graphed in order to find k .