Notes on Use of the Oscilloscope

A. Observe the three laws of electronics:
   1. Plug it in.
   2. Turn it on.
   3. Connect the wires.

B. Adjust the oscilloscope settings to match the signal you want
   Observe:

1. Vertical sensitivity

   You need to anticipate the size (voltage amplitude) of your signal. When in doubt start with the least sensitive setting (that is, highest volts/div setting) and then increase the sensitivity.

2. Seconds per division (time settings for the horizontal sweep)

   Again, you need to anticipate the time-dependence of your signal. For example, if you anticipate seeing a 1 kHz square wave, you should use a seconds/div setting of about 1 msec, the period of the square wave.

3. Trigger settings (to synchronize the horizontal sweep to your signal)

   Generally you want to synchronize the oscilloscope’s horizontal sweep to your signal, assuming that your signal is periodic. You must select several options;

   Trigger source: What is the source of the signal, not necessarily the one you want to display, to which the oscilloscope should synchronize?

   Trigger slope: Should the oscilloscope synchronize to a positive-going or negative-going part of the synchronizing signal?

   Trigger level: At what voltage level of the synchronizing signal do you want the sweep to start? If in doubt, start near zero.

   Trigger coupling: AC or DC. This setting interacts with the Trigger Level setting. In the AC setting the oscilloscope ignores any steady (DC) part of the synchronizing signal. In the DC setting, the oscilloscope looks at the overall voltage level (both AC and DC).

   NORM vs. AUTO: In the AUTO setting, the oscilloscope generates an internal sweep synchronizing signal if there is no signal at the Trigger Source you have set. This setting is particularly useful when first setting up the oscilloscope and you are not sure of the signal characteristics.