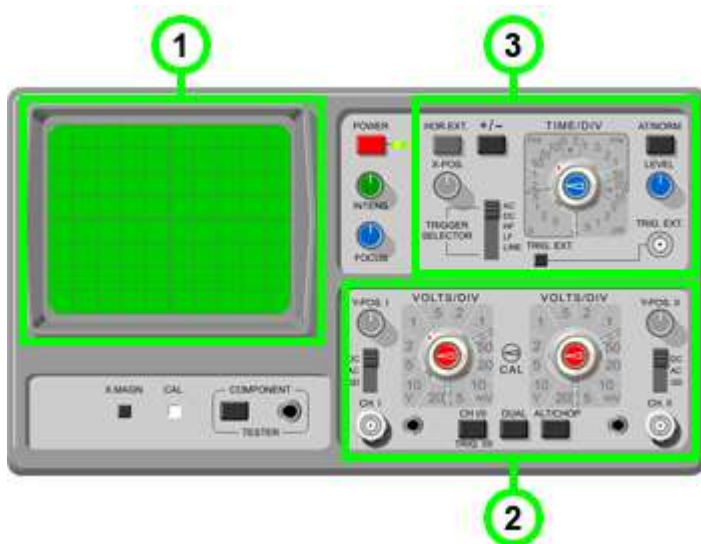


Oscilloscope Reference Sheet

Oscilloscope Overview

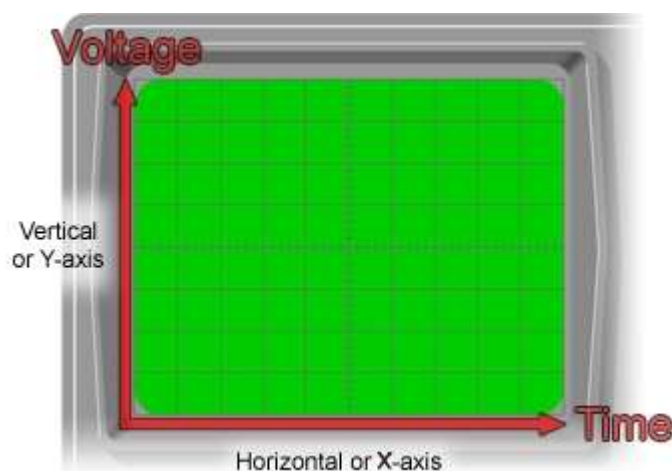


An oscilloscope displays circuit signals as waveforms.

A typical oscilloscope contains three main areas:

1. Display screen
2. Voltage controls
3. Time (timebase) controls

Display Screen



The function of an oscilloscope is to draw a graph of voltage against time. Voltage is on the vertical, or Y-axis, and time is on the horizontal, or X-axis.

The screen grid has 8 divisions (squares) on the vertical axis and 10 divisions on the horizontal axis.

The grid is used to make waveform measurements.

Voltage Controls



The voltage controls determine the vertical scale of the waveform drawn on the oscilloscope screen.

A dual channel oscilloscope can display two independent waveforms.

It has two sets of voltage controls that are known as channel 1 (CH1) and channel 2 (CH2).

Each channel has a selector switch labeled VOLTS/DIV that controls the height of the waveform to be viewed.

The other controls are mainly to do with locating each waveform (Y-POS1, Y-POS2) and selecting the channels (CH1 and/or CH2) that are to be displayed.

Time Controls



The time (timebase) controls determine the horizontal scale of the waveform drawn on the oscilloscope screen.

The main control is a selector switch, labeled TIME/DIV. This sets the time scale for both CH1 and CH2.

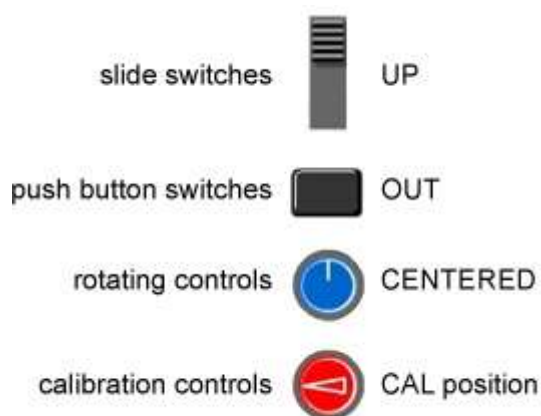
The other controls are mainly to do with triggering. Triggering will be set to automatic and, therefore, will not be explained any further.

The Oscilloscope Probe



To connect the oscilloscope to a circuit test point, use an oscilloscope (scope) probe.

Setting Up Channel 1 (CH1)



1. Before you switch on the oscilloscope, check that all the controls are in their default positions.

Typical default settings are shown in the diagram.



2. Locate the VOLTS/DIV selector switch for channel 1 (CH1). Set the switch to the specified setting.

The diagram shows the switch set to 1 (this is known as 1 V/div).



3. Locate the TIME/DIV selector switch. Set the switch to the specified setting.

The diagram shows the switch set to 1 in the section labeled 'ms' (this is known as 1 ms/div).



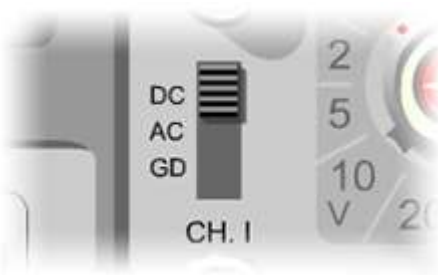
4. Locate the trigger mode (normal or automatic) button.

Ensure that this button is out, so that the oscilloscope is set to automatic triggering.



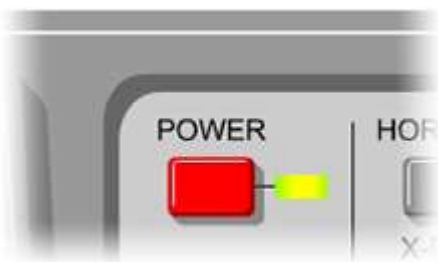
5. Locate the channel selection buttons. These need to be set so that the oscilloscope displays channel 1 only.

If your oscilloscope has CH I/II and DUAL buttons, you can do this by making sure that both buttons are in their out positions.



6. Locate the channel input slide switch (for CH1).

Set the switch to DC.



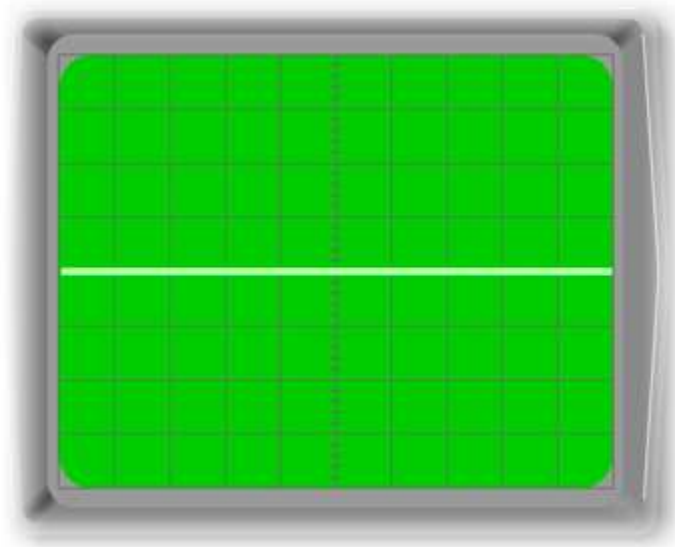
7. Locate the POWER button.

Press the button to switch the oscilloscope on. An LED may illuminate to confirm the oscilloscope is on.

After a few seconds, you should see a bright line going horizontally across the screen. This is known as a trace.



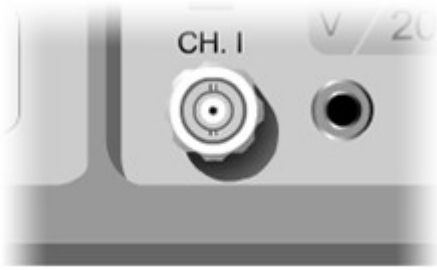
8. Locate the knob labeled Y-POS 1.



Turn the knob and position the trace in the center of the screen as shown in the diagram.



9. If the scope probe has a $\times 1 / \times 10$ switch, set this to $\times 1$.



10. On the oscilloscope, locate the channel 1 (CH1) input connector.

Connect the scope probe by pushing the probe connector onto the CH1 input connector and twisting it to the right.



11. If necessary, fit the probe hood to the scope probe body so that it can be clipped onto a test point.

The oscilloscope is now set up to show a trace on CH1.

Setting Up Channel 2 (CH2)



1. Locate the VOLTS/DIV selector switch for channel 2 (CH2). Set the switch to the specified setting.

The diagram shows the switch set to 1 V/div.



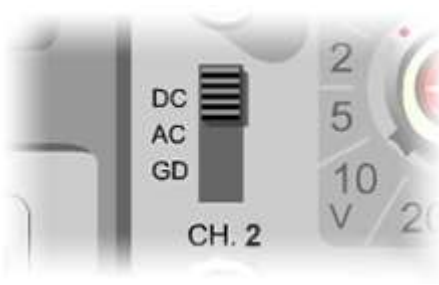
2. Locate the channel selection buttons.

The oscilloscope should already be set up to use CH1.

Press the button labeled DUAL and a second trace should appear on the screen.



3. Ensure that CH1 is still set up to be the trigger source.

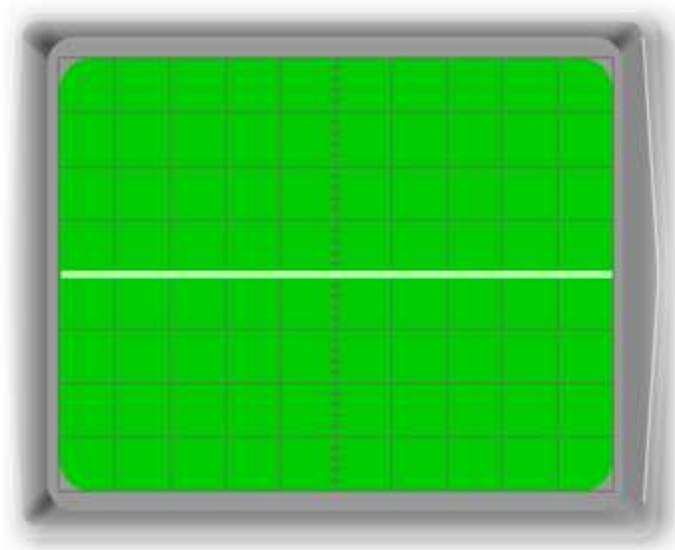


4. Locate the channel input slide switch for CH2.

Set the switch to DC.



5. Locate the knob labeled Y-POS 2.



Turn the knob and position the trace in the center of the screen as shown in the diagram.



6. Ensure that the probe hood is fitted to the main scope probe body.



7. Set the $\times 1 / \times 10$ switch on the scope probe to $\times 1$.



8. On the oscilloscope, locate the CH2 input connector.

Connect the scope probe by pushing the probe connector onto the CH2 input connector and twisting it to the right.