

The Oscilloscope

An oscilloscope is a special type of **voltmeter**.

The **displacement** of the spot can be used to find the voltage.

For example

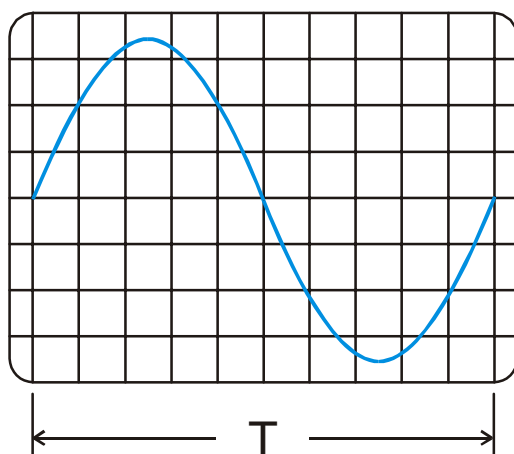
Displacement 1.8 cm

Sensitivity 5 V per cm

Voltage = $1.8 \times 5 = 9\text{V}$

Measuring Time Intervals Using an Oscilloscope

The time-base causes the spot to move at constant speed from left to right of the screen. In the example below the time-base control is set to **2ms per cm**. This means it takes 2ms for the spot to move one cm (horizontally). The diagram shows **1 “cycle”**.



The **time period, T** of the alternating voltage is

$$T = 20\text{ms} = (20/1000)\text{s}$$

The **frequency** is the number of cycles per second

$$\text{frequency} = \frac{1}{\text{time period}}$$

So, the frequency is 50 cycles per second.

We say it has a **frequency of 50 Hertz**.

The image on the oscilloscope screen is a **graph of voltage (vertical) against time (horizontal)**.