

# Alternating Current

## 1 Oscilloscopes

$x$ -axis - Time base

$y$ -axis - Y Sensitivity

The advantage of calculating peak to peak voltage over peak voltage is that it reduces the uncertainty in calculating the peak voltage.

## 2 Alternating and direct current

AC - Alternating Current - Current continuously changes direction

DC - Direct Current - Current flows in one(same) direction

Frequency - The number of waves passing a point per second (Hz)

## 3 Root mean square

Root mean square values are used to calculate average values for alternating current that are not zero

Peak voltage =  $V_0$     Peak current =  $I_0$

$$V_{RMS} = \frac{V_0}{\sqrt{2}}$$

$$I_{RMS} = \frac{I_0}{\sqrt{2}}$$

Power,  $P = IV$

$$P_{RMS} = I_{RMS}V_{RMS} = \frac{I_0}{\sqrt{2}} \times \frac{V_0}{\sqrt{2}} = \frac{P_0}{2}$$