

OCR (A) Physics A-level

PAG 05.3 - Determining Frequency and Amplitude with an Oscilloscope

Practical Flashcards

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What does an oscilloscope trace look like for a DC supply?



What does an oscilloscope trace look like for a DC supply?

When the time base is turned on, direct currents produce a horizontal straight line at the level of the supply voltage.



If the time-base is switched off, what will the oscilloscope trace look like for a DC supply?



If the time-base is switched off, what will the oscilloscope trace look like for a DC supply?

If the time-base is switched off, a single dot will be shown on the oscilloscope screen at the height of the supply voltage.



What will an oscilloscope trace look like
for an AC supply?



What will an oscilloscope trace look like for an AC supply?

An AC supply will result in a sinusoidal waveform being displayed on the oscilloscope screen. This is because the polarity of the supply is continually oscillating with time.



If the time-base is switched off, what will the oscilloscope trace look like for an AC supply?



If the time-base is switched off, what will the oscilloscope trace look like for an AC supply?

If the time-base is switched off, an AC supply will result with in a straight vertical line forming on the oscilloscope screen.



How can you increase the number of complete wavelengths that are visible on the oscilloscope screen?



How can you increase the number of complete wavelengths that are visible on the oscilloscope screen?

The time-base can be adjusted so that the increments are larger. This will result in more wavelengths being visible.



What should you adjust if the maximum voltage isn't visible on the oscilloscope screen?



What should you adjust if the maximum voltage isn't visible on the oscilloscope screen?

The volts per division can be increased so that each increment represents a larger voltage. This will result in higher voltages becoming visible.



How can the time period of an AC supply be determined from an oscilloscope trace?



How can the time period of an AC supply be determined from an oscilloscope trace?

The time period of a waveform can be obtained by measuring the distance from the same point on two adjacent waves (such as peak to peak).

This distance can then be compared with the time base to scale it to produce the time period.



How can the frequency of an AC supply be calculated from its time period?



How can the frequency of an AC supply be calculated from its time period?

The frequency of a wave is equal to the inverse of its time period.



How can the peak to peak voltage be determined from an oscilloscope trace?



How can the peak to peak voltage be determined from an oscilloscope trace?

The peak to peak voltage can be obtained by measuring the distance from the peak of a waveform down to the trough. This should be equal to twice the wave's amplitude.



What is the amplitude of a waveform?



What is the amplitude of a waveform?

The amplitude of a waveform is the maximum displacement from the wave's equilibrium position.



How should the oscilloscope be scaled to measure a voltage with the greatest accuracy possible?



How should the oscilloscope be scaled to measure a voltage with the greatest accuracy possible?

The volts per division should be adjusted so that the waveform fills the screen, without the maximum voltage exceeding the scale.

