



## Acoustic unit with sensor and software access key

EQ044E

### Function

Intended for experimental study, physics laboratory and carrying out physics experiments on: Mechanical waves. Acoustics. Sound sources, sound, noise and physiological qualities of sound. What is sound. The frequency of a sound wave, the high-pitched sound and the low-pitched sound. Hearing intensity, physiological quality associated with sound amplitude. Difference between the auditory intensity and the sound intensity of the wave. The wave only carries energy. Undesirable sounds, industrial noise. The reverberation of sound. The echo and reverberation of sound. The reverberation time. Stationary sound waves in an open tube, resonance. Sound, a mechanical, longitudinal and three-dimensional wave. What is meant by closed sound tube and open sound tube. Sound and wave interference, the standing wave in an open tube. The fixed points of constructive interference and negative interference, the nodes and bellies of the standing wave. The speed at which sound propagates in a mechanical medium. The timbre. The auditory intensity, with an observer intervening. The bellies and nodes of the sound standing wave, listening inside the open sound tube. Determining the speed of sound in an open sound tube, Kundt tube. The positions of the bellies and nodes, indicated by cork powder, in an open tube. Stationary sound waves in a closed tube, resonance. The speed at which sound propagates in a mechanical medium. Some factors that influence the speed of sound. The bellies and nodes of the sound standing wave, listening inside the sound tube. Determining the speed of sound in a closed sound tube. The positions of the bellies and nodes, indicated by cork powder, in a closed tube. The bellies and knots indicated by cork powder. The bellies and

nodes of the standing wave inside an open tube, with sensor and software access key. Sound beats, the result of superimposed waves with a small difference in frequencies. The sound beat, constructive and destructive interference between two component waves. The sound resulting from the superposition of two sound waves. Measuring and calculating the average period and frequency of beats. The ratio between the period of the beats and each of the periods of the component waves. How the period of the beats relates to the periods of the component waves. How the frequency of the beats relates to the frequencies of the component waves. The beating phenomenon, with sensor and access key for software, etc.

## **Knowledge areas**

Physics - Math & Science Fundamentals

## **Key Experiments**

Sound sources, musical sound, noise, parameters of a sound wave, physiological qualities of sound

The reverberation of sound

Resonance in open acoustic tubes

Determining the velocity of sound in a closed acoustic tube

The antinodes and the nodes of the standing wave inside an open tube, with sensor

The audible beat

The beat phenomenon, with sensor

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