

Definition: **stroboscope (strobe)** from *The Penguin Dictionary of Science*

A flashing light whose frequency can be adjusted to make a periodic motion (such as a rotating object) appear stationary.

Summary Article: **stroboscope**

From *The Columbia Encyclopedia*

(strōb'ĕskōp), optical instrument for making a moving object appear to be slowed down or stationary. This effect is created by interrupting the observer's view so that the object is seen only at regularly spaced intervals rather than continuously. In its simplest form the stroboscope is a rotating disk; along its edge are evenly spaced holes through which the moving object is observed. If the object's motion is cyclic, the speed of the disk can be synchronized with it so that the object always appears in the same position when viewed through one of the holes. During the time that a solid area is blocking the line of sight, the persistence of vision enables the eye to retain the image previously seen, while the object moves to the same or a similar position by the time the next hole is in front of the eye. The effect is thus one of a stationary object.

If the stroboscope is not quite synchronized with the object's motion, the object will appear to move slowly either backward or forward, depending upon whether the stroboscope's rotation is too fast or too slow. For more accurate observation a flashing light (stroboscopic light) is used instead of a disk. When used in conjunction with a camera a stroboscopic light can also be used to study motion that is not cyclic, e.g., a speeding bullet; the resulting photograph shows a series of still images whose separations are proportional to the object's speed.

The stroboscope was invented and improved upon by H. E. Edgerton starting in 1931. It has various uses in scientific research, teaching, and industry, where it is used to study stresses on parts of machines while in motion.

Edgerton, H. et al., *Stopping Time: The Photographs of Harold Edgerton* (1987).

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