

## Topic Page: [photoelectric cell](#)

Definition: **photoelectric cell** from *Philip's Encyclopedia*

(photocell) Device that produces electricity when light shines on it. It used to be an electron tube with a photosensitive cathode, but nearly all modern photocells use two electrodes separated by light-sensitive semiconductor material. Photoelectric cells are used as switches (electric eyes), light detectors (burglar alarms), devices to measure light intensity (light meters), and power sources (solar cells).

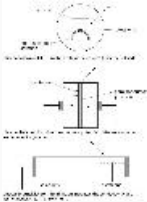


Image from:

[photocell \(or photoelectric cell\) in The Macmillan Encyclopedia](#)

Summary Article: **photoelectric cell**

From *The Columbia Encyclopedia*

or photocell, device whose electrical characteristics (e.g., current, voltage, or resistance) vary when light is incident upon it. The most common type consists of two electrodes separated by a light-sensitive semiconductor material. A battery or other voltage source connected to the electrodes sets up a current even in the absence of light; when light strikes the semiconductor section of the photocell, the current in the circuit increases by an amount proportional to the intensity of the light. In the phototube, an older type of photocell, two electrodes are enclosed in a glass tube—an anode and a light-sensitive cathode, i.e., a metal that emits electrons in accordance with the photoelectric effect. Although the phototube itself is now obsolete, the principle survives in the photomultiplier tube, which can be used to detect and amplify faint amounts of light. In this tube, electrons ejected from a photosensitive cathode by light are attracted toward and strike a positive electrode, liberating showers of secondary electrons; these are drawn to a more positive electrode, producing yet more secondary electrons—and so on, through several stages, until a large pulse of current is produced. Besides its use in measuring light intensity, a photomultiplier can be built into a television camera tube, making it sensitive enough to pick up the visual image of a star too faint to be seen by the human eye. The photovoltaic type of photoelectric cell, when exposed to light, can generate and support an electric current without being attached to any external voltage source. Such a cell usually consists of a semiconductor with two zones composed of dissimilar materials. When light shines on the semiconductor, a voltage is set up across the junction between the two zones. A phototransistor, which is a type of photovoltaic cell, can generate a small current that acts like the input current in a conventional transistor and controls a larger current in the output circuit. Photovoltaic cells are also used to make solar batteries (see solar cell). Since the current from a photocell can easily be used to operate switches or relays, it is often used in light-actuated counters, automatic door openers, and intrusion alarms. Photocells in such devices are popularly known as electric eyes.

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photoelectric cell. (2018). In P. Lagasse, & Columbia University, *The Columbia encyclopedia* (8th ed.). New York, NY: Columbia University Press. Retrieved from [https://search.credoreference.com/content/topic/photoelectric\\_cell](https://search.credoreference.com/content/topic/photoelectric_cell)

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## Chicago

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## Harvard

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