

Photovoltaic

Photovoltaic energy (PV) is the conversion of sunlight into electricity. It is a technology generally used outdoor with solar cell designed & optimized for the solar spectrum. Indoor photovoltaic (IPV) is adapted to artificial lighting characterized by low illumination conditions and various spectral distributions.



Key attributes & features

- Solar cell or PV, technology used to convert solar energy directly into electrical power; size from 1 to 10 cm across, electrically connected to increase power output.
- Performance of PV array, dependant upon sunlight, most current technology with 10% efficiency; semiconductors materials (c-Si, poly-Si, a-Si, CIGS...).



Applications

- Solar powered applications: roof house, wrist watches, calculators, lighted road signs etc...
- Stand alone PV power system (off-grid): pumping systems, refrigeration, lighting, battery charging stations and solar home systems in developing countries
- Power supply (partially or completely) for low power micro-electronics devices such as sensors and MEMS



Customer benefits

- Harvesting "free energy" extracted from light, with a direct conversion.
- Reduced reliance on batteries, no maintenance by changing batteries, run longer without user intervention than when powered by batteries alone.

Example of Schneider Electric HOMES sensor:

Autonomous wireless sensor powered by solar cells harvesting energy available and wasted in building and residential environment (natural & artificial lightings)

- Minimum maintenance requirement, long service lifetimes (20 years), quickly installed in any size required