

SolarInnovate Energy Solutions

Solar energy on-site energy movement detection principle



Overview

This paper presents an overview of the current state of the developments in sun position sensors used in solar technologies such as photovoltaic modules, satellites, solar collectors and other applications.

How a solar position sensor can be used for tracking pv system?

A novel design of solar position sensor for tracking PV system was designed by Wang et al. The design was composed by four-quadrant light dependent resistor (LDR) sensor, differential amplifier, comparator and simple electronic circuits. This sensor measured the Sun's position using the difference of voltages by means of a comparator.

What is solar tracking direction?

Solar tracking direction The solar tracking direction is employed to sense the position of the Sun in a single direction (East-West or North-South) or two directions (East-West and North-South). Some works on the design of these sensors are summarized as follows.

How to track solar power?

The tracking of the horizontal solar axis, the vertical-axis trackers, and the dual-axis trackers. • The most efficient tracking method is the dual trackers, which increases power output by an average of 32% compared to the case where there is no tracking.

How does solar tracking system work?

The rotation of the solar panel about any axis is brought to a halt when the micro-controller detects that all sensors are receiving the same amount of sunlight. The tracking system is powered by the electrical energy generated from the solar panel. Fig. 2. Solar Tracking System Illustrated In The Block Diagram.

What are the applications of solar tracking system?

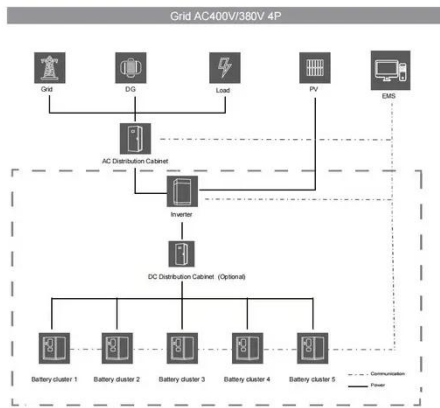
The main application of solar tracking system is to position solar photovoltaic

(PV) panels towards the Sun. Most commonly they are used with mirrors to redirect sunlight on the panels. Cross-Reference: Design and Implementation of High Efficiency Tracking System.

How does a sun sensor work in photovoltaic panels?

Yilmaz et al. proposed and tested a sun sensor for photovoltaic panels, which was composed of two photoresistors placed at 180° and separated by a thin wall, as shown in Fig. 15. This sensor detected the Sun's position based on the light intensity. When the Sun moved, the wall produced a shade in some photoresistors.

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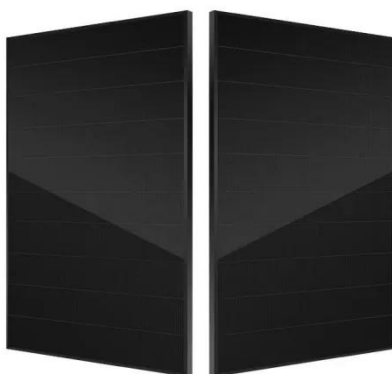


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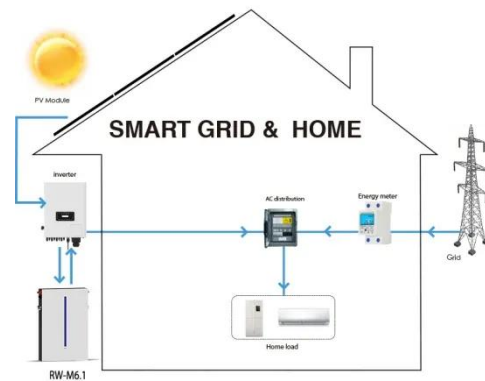


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