

Introduction to Photovoltaic Tracking Bracket

Can a solar tracking system improve the performance of photovoltaic modules?

The goal of this thesis was to develop a laboratory prototype of a solar tracking system, which is able to enhance the performance of the photovoltaic modules in a solar energy system.

How does a photovoltaic tracking system work?

This designed tracking system was experimentally tested using two photovoltaics. The photovoltaics are driven by a PIC microcontroller based on a tracking algorithm for economic and maximum power harvesting. The photovoltaics are arranged in the form of a triangle located opposite of each other.

How a PLC based solar tracking system compared to fixed solar panels?

The designed system showed 41.34% rise in the energy generation as compared to the fixed solar panels. Ali designed a PLC based solar tracking system for photovoltaic cells, which was rotated to gain the maximum concentration of the solar radiations.

What factors affect the energy output of photovoltaic tracking systems?

Several factors that affect the energy output of such systems include the photovoltaic material, geographical location of solar irradiances, ambient temperature and weather, angle of sun incidence, and orientation of the panel. This study reviews the principles and mechanisms of photovoltaic tracking systems to determine the best panel orientation.

Are solar trackers more efficient than fixed PV systems?

Solar trackers are designed to follow the location of the sun which results in the 10-25% more output efficiency of the PV panels. It is observed that the tracking systems are more efficient than fixed systems of same capacity. Normally fixed PV systems are fixed at the rooftop of small industries and residence.

Does MPP tracking improve the performance of photovoltaic systems?

The MPP tracking artificial neural network method obtained a relatively good transient performance, it improved the response of the photovoltaic system, reduced the time response, maximized the power point, and eliminated the fluctuations around this point. However, implementing this model using a simulation does not provide real outputs.

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