

A high power generation, low power consumption solar tracker

ABSTRACT

This paper discusses the design, programming and results of a device that achieved low power consumption. The system has dual-axes tracking controlled by a Programmable Logic Controller (PLC) using a formula which were pre-calculated using the altitude and azimuth of the sun. The designed solar tracker was tested under several weather conditions in tropical climate environments. On a clear and sunny day, the power generated from the tracker is significantly higher than the non-tracking surface unit, whilst the power consumed by motors and controller are 0.05% and 5.84%, respectively. Overall, the power consumption of the tracker is only 5.89% of the total power generated.

Keyword: Component; Photovoltaics; Solar tracking; Dual-axes