
Plc-based solar energy automatic tracking system

How automatic solar tracking system is implemented using Delta plc?

In this paper, automatic solar tracking system is implemented using DELTA PLC which tracks the sun more effectively with its simple and precise control structure in all environmental conditions. The automatic solar tracker maneuvers solar panel towards the sun to extract maximum energy during the day time.

What is a solar tracking system?

This is the true position of the sun as seen from an observer on the surface of the earth. From fig. A solar tracking system refers to a system which is able to track the movement of the sun throughout the day for maximum energy efficiency and have it at a perpendicular angle to the plane of the solar panel.

Why should you use Siemens plc for automatic solar tracking?

CPU and the programming tools allow users to design autonomous industrial processes and solve automation problems. Based on this specific application and its user-friendly programming tool and troubleshooting solutions, Siemens' PLC hardware and software were found to be the right fit for the automatic solar tracking application in this project.

What is solar tracker control architecture?

SIMATIC S7-1200 Solar Tracker Control Architecture (Tang, 2014) This process is conducted through the solar tracking and the calculation of the alignment for single axis tracking libraries, depending on whether the system is single or dual axis. The Siemens SPA (Solar Position Algorithm) calculates the azimuth and zenith.

Abstract- The capability of photovoltaic (PV) panel to generate energy approximately follows the intensity of the sunlight on the panel. A dual-axis solar ...

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The auto-tracking control system based on the solar cell panels was composed by PLC, sensors and signal processing units, photovoltaic modules, electromagnetic and the ...

The PLC-based control system provides a reliable and automated approach to solar tracking, offering benefits such as improved energy efficiency, reduced reliance on fixed-tilt ...

inverter for the photovoltaic systems tracking system was used, 220V (AC) could be taken directly from the photovoltaic inverter power. Fig. 4: Power Supply Unit PLC

control and monitoring ...

Precision control of solar tracking systems ABB has developed solutions based on programmable logic controller (PLC) that enables collectors, mirrors and panels to capture ...

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The designed tracking system consists of a software based tracking method as shown in Fig 3. The main components of the designed system consist of Three-axis movement ...

1. INTRODUCTION The Conventional solar panel, fixed with a certain angle, limits there area of exposure from sun due to rotation of Earth. In pursuing to get the maximum ...

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