

# Based on PLC control of solar tracking system





## Overview

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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.

How is the solar tracking process governed and controlled?

In this paper, the tracking process is governed and controlled by programmable logic controller (PLC) where two stepper motors are used to guide the motion of the solar panel in azimuth and elevation angle. The azimuth and solar altitude angles of sun were calculated at 24.3636°N, 88.6241°E (Rajshahi, Bangladesh).

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.

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.



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### PLC Based Solar Tracking System

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### PLC BASED SOLAR TRACKING SYSTEM

Apr 7, 2021 · The solar tracking system generated the data necessary for the control system to direct and move the linear motors. As mentioned earlier, there were two methods of tracking in ...

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### Automatic Solar Tracking System Using Siemens PLC

Oct 2, 2024 · 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 ...

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### PLC Based Solar Tracking System

Dec 23, 2024 · 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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### (PDF) Solar Tracking System using Delta PLC

SYSTEM REALIZATION AND EXPERIMENTATION The auto-tracking control system based on the solar cell panels was composed by PLC, ...

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### PLC based Solar Panel Tracking System with Automatic ...

Mar 13, 2018 · 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 ...

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### (PDF) An Automatic Solar Tracking System ...

Dec 23, 2018 · PV panel Length,  $l=0.1651\text{m}$  Width,  $a=0.1397\text{m}$  Thickness,  $t=0.0089\text{m}$  Programmable Logic Controller (PLC) is a special computer ...

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### PLC Based Solar Tracking System

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### Industrial automation AC500 for PLC solar systems

Mar 14, 2024 · 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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### (PDF) Solar Tracking System using Delta PLC

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



### Solar tracking control system based on PLC

A dual-axis solar tracking system with a novel and simple structure was designed and constructed, as documented in this paper. The photoelectric method was utilized to perform ...

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### (PDF) An Automatic Solar Tracking System Using

Dec 23, 2018 · PV panel Length,  $l=0.1651\text{m}$  Width,  $a=0.1397\text{m}$  Thickness,  $t=0.0089\text{m}$   
Programmable Logic Controller (PLC) is a special computer device used in industrial control ...

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### Design of Single Axis Solar Tracking System Using PLC

Aug 2, 2019 · The objective of this paper is to develop an automatic solar tracking system where solar panels will keep aligned with the Sunlight in order to maximize in harvesting solar power. ...

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