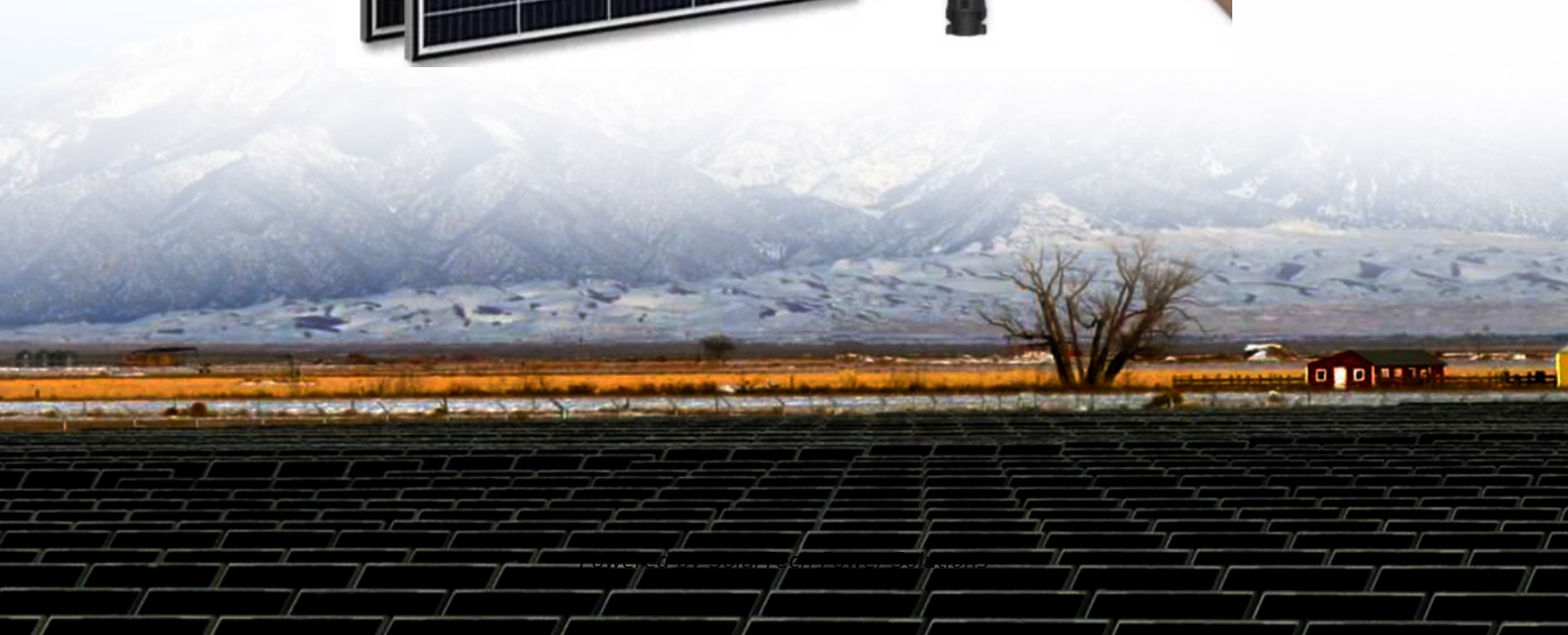


Imported solar automatic sun tracking system



Overview

How do automatic solar tracking systems work?

This paper describes an automatic sun tracking system, based on two stepper motors, and moving solar panel. To gain more energy from the sun, the active surface of the solar cells should be perpendicular to solar radiation, which means that the panel must follow the path of the sun all the time.

What is an automatic Solar Tracking System (STS)?

An automatic solar tracking system (STS) is an emerging technology that rotates a solar panel or solar concentrator to various positions throughout the day by monitoring the current position and path of the sun.

Are automatic solar trackers effective?

Currently, research into automatic solar trackers is on the rise, as solar energy is abundant in nature, but its use in a highly efficient way is still lacking. This paper provides a detailed literature review and highlights some key advancements and challenges associated with state-of-the-art automatic solar tracking systems.

How does a single axis solar tracker work?

By monitoring the sun's movement, solar panels can maintain a perpendicular angle with the sun's rays, maximizing the energy captured. Depending on the design and location, single-axis solar trackers can maximize the generation of energy by up to 25% compared with fixed-tilt solar systems.

Does a Sun tracker improve solar energy production?

Results indicate the sun tracker improves total PV system energy production by 12–20 %, with maximum enhancement during clear sky days, particularly in the day's concluding hours.

How does a sun tracking device work?

The sun tracking device, which is powered by a 12 V battery, uses a DC motor. Experimental tests evaluated system performance, measuring output power in various weather conditions clear sky, partially clear sky, and cloudy sky and calculating daily average energy production.

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