



HARNESSING THE POWER OF THE SUN

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Solar Tracker is a device that is designed to harness the maximum amount of Solar Energy from the Sun, by orienting or aligning the payload towards the sun. Apart from being used to focus the arrays of photovoltaic (PV) solar cells directly to the sun, they are also used for focussing mirrors, reflectors or lenses that are used for concentrated solar power units.

- Through the day, the sun keeps changing its angle constantly. These trackers help the PV arrays, mirrors, reflectors and other devices track the sun, and minimise the angle of incidence by ensuring that the sun's rays fall in a more or less perpendicular angle
- These devices use energy generated from the solar power plant itself, to continually orient the solar device towards the sun, however, this energy input is more than offset by the increased efficiency gained through the use of the tracker
- Trackers help in producing more energy as the Solar Panels or Mirrors (CSP) will be fully exposed to sunlight
- Tracker performs the tilting and turning operation by following the sun movements using Astrological Predictions
- The tracking system helps in collecting energy from the sun for the longest period of the day ensuring the most accurate alignment to the sun, which shifts with the season
- Tracking System includes Galvanised Steel structures with motors, actuators or hydraulics along with PLC driven Micro Controller

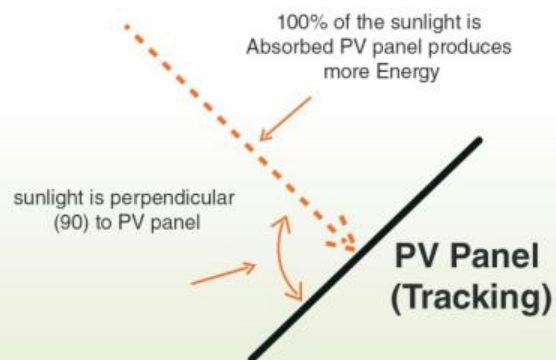
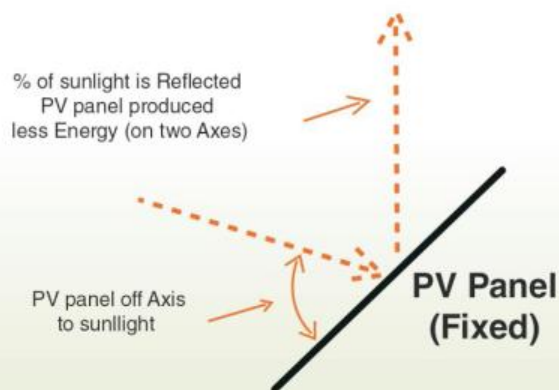


How Solar Trackers work?

- The strategy of tracking is based on the location (latitude and longitude) of the array and date/time data and location data.
- This data, which can be established within a microprocessor at the time of installation, includes a clock, along with a well-chosen solar position algorithm, and can determine the position of the sun, even if it is obscured by clouds or other obstacles.
- This helps the array to be positioned accurately regardless of weather, so when the sun comes out, the array will already be correctly positioned.
- A tracking device can help a solar cell to take advantage of the early morning sunlight.
- The tracker then slowly moves the panel throughout the day, following the sun to gain maximum exposure to the sun.
- A tracker (dual axis) based solar system can enhance generation by 15% to 35% as compared to a fixed tilt solar system.



The Tracking Advantage

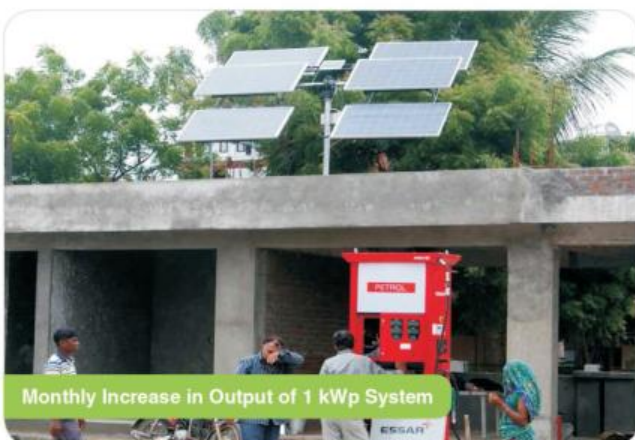
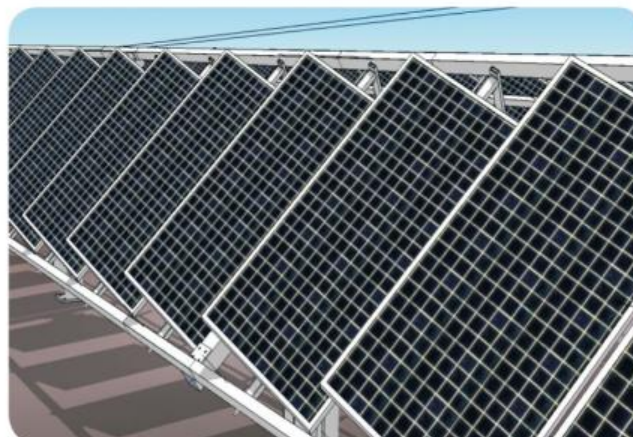


Types of Solar Tracking Systems

- Single Axis Tracking System
- Dual Axis Tracking System

A **single axis system** is most commonly used for most standard PV Power Plant. Single axis solar trackers rotate in one direction moving back and forth. These types of trackers usually have simple levers which can be used to tilt the panels depending on the season, so that it can harness the maximum energy from the sun.

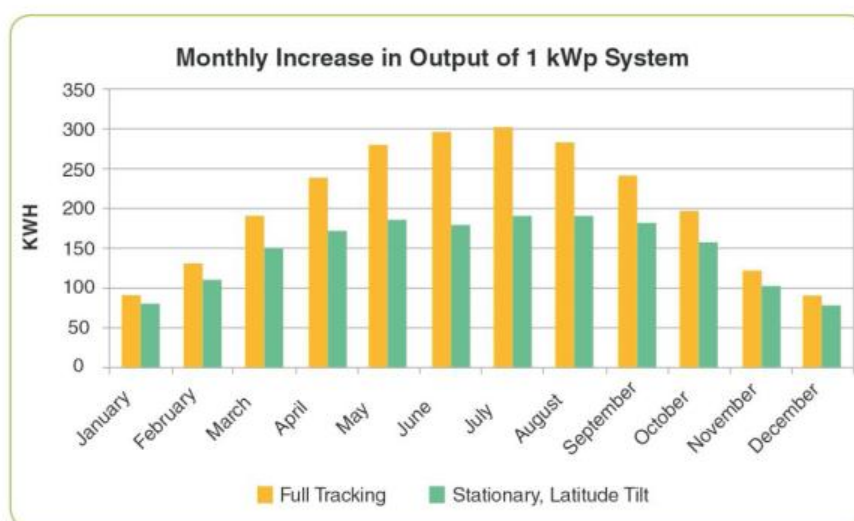
This is the type of tracking system apt for **residential solar arrays**, as well as many smaller commercial arrays. As compared to Dual Axis Trackers, single axis trackers allow much lesser exposure to the sun's rays, their main advantage lies in the price as compared to Dual Axis Tracking Systems.



Dual axis systems are typically used in concentrated solar power systems as well as Solar Photovoltaic Power Systems, where it becomes necessary to completely orient the mirrors or solar modules towards the sun to ensure maximum generation.

Dual axis systems - as indicative of the same - move in two directions, on both the horizontal and the vertical axis making complete use of the sun's rays for the entire day.

With a Dual Axis Tracking System more energy can be generated from a given land area, as compared to Fixed tilt installation or Single Axis.





- Ravin with its vast experience of EHV projects also specialises in setting up of large size utility scale Solar PV Plants.
- Ravin provides its customers a comprehensive service package which encompasses system design, design and selection of components and compatible accessories, supply of quality materials, installation, testing, commissioning and finally ensuring full safety and reliability of the installation.
- Ravin's designs and projects team consists of highly qualified and experienced engineers and project managers, who assist with all aspects of design, structural optimisation and project implementation, regardless of the project size, to scale production and delivery to meet customers' needs.
- Ravin offers end-to-end customised solutions of Mega Watt-sized Solar PV Plants.

Roof Top Solar PV Projects

- Ravin helps you to get the best out of the unused open spaces.
- Any rooftop can be converted into a power plant with Ravin Roof Top Solar PV installations, which are clean & simple.
- As far as the roofs are in good condition, Roof Top Solar PV Systems can be installed on any roof, which will help in harnessing the ever abundant energy of the sun into electricity.
- Ravin has expertise in installing various types of Roof Top Solar Installations, these can be systems mounted on your Sloping Roofs, Solar Tiles, Systems with Single / Dual Axis Tracking.





Ravin Offers Smart Solar Water Pumping Systems for Society, Building and Agriculture.

Features

Built in Automatic Tracking Mechanism to maximize system output.

Clean and efficient.

Fully Unattended Automated Operation.

No Electricity / fuel Costs.

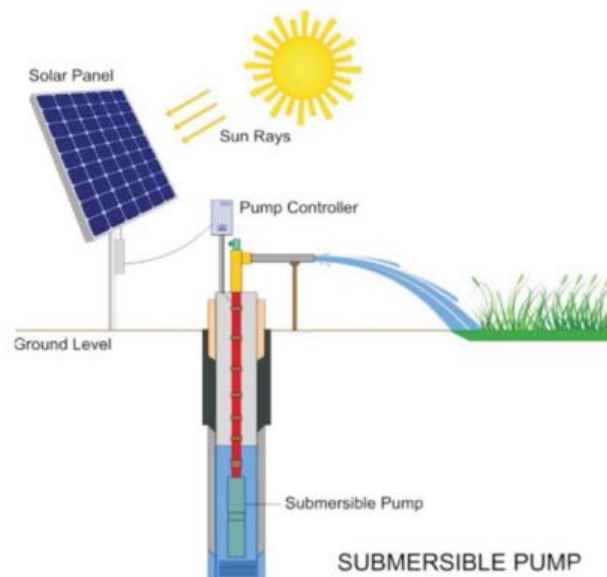
Easy Installation on Roof / On ground

Long Life over 20 years.

Low Maintenance.

Solutions upto 200 meters water Head.

Pump Capacity from 0.74 Hp to 24.8 Hp



Water Output (Ltrs / Day) at Deep Well Submersible Pumping System

SPV Capacity	2.7 kWp	3 kWp	4.8 kWp
Maximum Dynamic Head in meters	25	70	70
Total Head in meters	20	50	50
Water Output in Ltrs/Day	1,35,000	57,000	90,000

Our Solar Offerings:



Dual and Single Axis trackers:

Ravin offers both Single Axis and Dual Axis Trackers, that help enhance the generation through solar by 15% to 35%.*

*Actual Output Depends on Site Mateo data.

High Concentrated Photovoltaic (HCPV) Systems & Combo of Solar Thermal & PV Solar Power System :

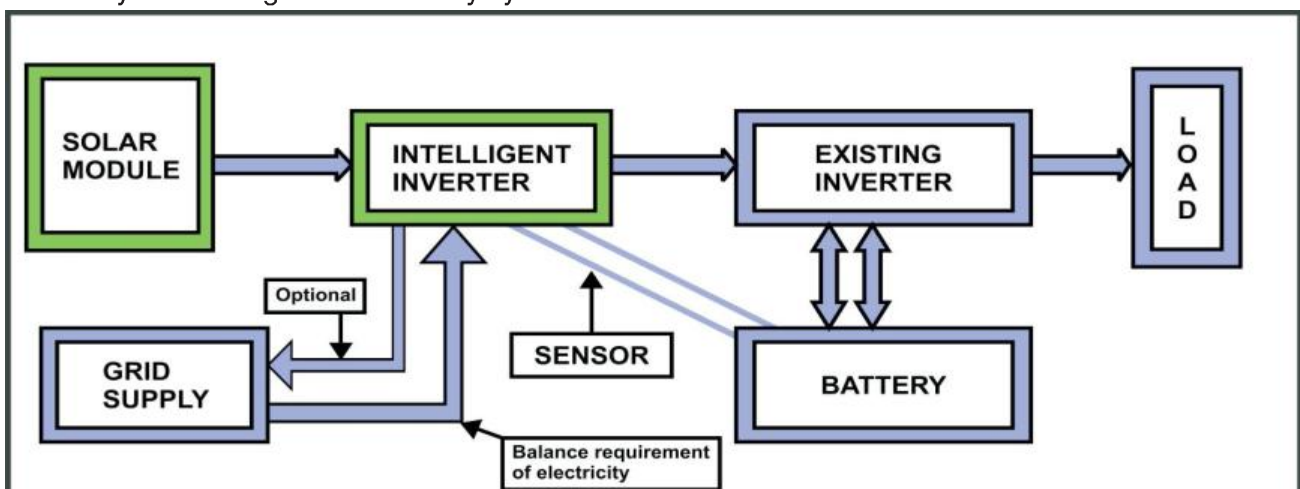
Improves ON SUN efficiencies to the tune of 33% increasing the energy output of the systems



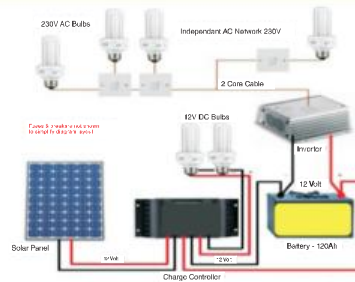
Solar PV Tiles : Solar PV Tiles are designed to look like conventional roof tiles, but they are integrated with Solar PV Cells in them. They do not require any special structures to be mounted and can be fixed directly on the roof in place of a tile.

Intelligent Switching System :

Convert your existing inverter battery system into state of art Solar Plant



Our Solar Offerings:



Solar Home Lighting Systems

Solar Chargers



SC - 6001



SC - 25



SC - 18



SL - 09



SL - 08



LED

Solar LED Lantern , LED Torch & LED Lights

