Solar trackers: rapid installation and algorithmic optimisation

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Soltec
MAKING TRACKS FOR A BRIGHTER FUTURE
INTEGRATED PLAYER ALL-IN-ONE
About us

Soltec is a Vertically Integrated PV company specialized in the manufacture and supply of single-axis solar trackers with global operations and a workforce of over 1200 people, blending experience with innovation, with already 146 active patents.

20.1+ GW
Projects Worldwide

93+ GW Pipeline

14+ GW
Development Pipeline
Innovation

BEST IN CLASS PRODUCTS AND DIFFERENTIATED SOLUTIONS

Implementing all the products and processes to each project through its R&D team thought its dedicated Patent Box:

Soltec Innovations, with
146 Active Patents

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Dual-row Horizontal Single Axis Tracker

**Long**
Up to 410', the largest dual-row system from Soltec

**Flexible by design**
Dual-row linked by rotary flex shaft and high-slope adaptation

**Smart Power**
Self-powered with dedicated panel and Full-wireless communication

**Cost-effective**
Half as many motors and tracker controllers and lean installation
Lean installation

Improving efficiency and reduce waste during the installation of solar plants.

• Cost reduction
• Increased efficiency
• Improved quality
• Reduced installation time

How?

Greater land-use options to reduce civil works

• All-terrain design
• Adapted to the landscape
• 15% N-S slope
• 15% E-W slope
• Optimized design by direct piling

Wide range of assembly and installation tolerances

To avoid waste of time in perfect alignments in plant
Lean installation

Pre-assembled rails

- Soltec Standard: Rails and reinforcement preassembled
- Option to upgrade: Preassembling also U-Bolt, washers and nuts to slide onto the torque tube and into place.

Torque tubes/piles

Color coded tubes and piles depending on profiles

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Hardware in buckets

Hardware pre-assembled and in buckets to facilitate installation
Lean installation

Coupler Assembly fasteners

Torque tubes Coupler assembly (for Sf7 and Sfone) used to be bolts + nuts

→ now carriage bolts
Lean installation

Compatibility Alternative Foundations
Lean installation

Module fixation options

• Bolts + Washer
• Rivets + Washer
• Bobtails
• Neobolts
• Arraymond Cinch (PowAR Cinch)
  • For First Solar S6 and S7: PowAR Wedge
• Vepsr Solar Clamps
Lean installation

CAB System

Our sophisticated Cable Management System (CAB) further simplifies the operational workflow, underscoring our commitment to operational excellence and cost reduction.
Smart Power

• Self-powered system with dedicated panel
• Long-life battery: up to 4 days with no sunlight
• The optimal bandwidth data
• Advanced algorithms to maximize energy production.
• Open Thread Full Wireless system
• Unique Internet of Things
• SPD protection
• TMS Monitoring System
• Distributed Control
• Self-Commissioning
Our Tech – Asset Protection

Safety Algorithms

• **Weather algorithms**
  - Wind with several perimetral anemometers
  - Snow
  - Flood sensor
  - Hail sensor

• **Electronic alerts**
  - STOP button activation
  - Communication failure
  - Low battery
  - Motor overcurrent
  - Motor undervoltage
Dy-Wind

State-of-the-art weather defense

- **Dy-wind**: Unique methodology wind study
- **Hail** algorithm defense

Soltec introduces Dy-WIND, the pinnacle in solar tracker design technology, ensuring wind is never a concern. Developed in collaboration with industry leaders RWDI and CPP WIND, this technology not only withstands wind but also features an intelligent self-stow system that automatically adjusts to the safest position during high wind events.

Moreover, Soltec's innovative Hail Algorithm dramatically reduces the risk of hail damage, which can lead to significant module replacement costs and loss of power plant production. This advanced system employs early detection through sensor-equipped stow systems and a rapid response mechanism, positioning trackers optimally to minimize impact.
Asset Protection

Hail Algorithm

Soltec’s hail algorithm aims to reduce module exposure to hail impacts with a quick activation mechanism which send the tracker to its maximum tracking angle protecting both sides of the module. In the event of a hailstorm, photovoltaic modules in their hail stow position have a lower exposed surface area than modules not moved to a specific stow position. In this case, even if hailstone impacts occurred, the energy to be dissipated would be minimal.
**Smart Tracking - TeamTrack™**

**Asymmetric Backtracking. Tracker Position Control.**

- TeamTrack™ is part of comprehensive Soltec tracker position control that avoids inter-row shading in the early and late-day hours due to terrain undulations.

- TeamTrack achieves up to 6.2% yield-gain over standard tracking.
  - Tracker Control with no blind spots
  - Yield-gain 3D modelling (various angle combinations)
  - Algorithm included in SF7 and Sfone trackers

*Soltec's TeamTrack™ Algorithms were validated by TÜV Rheinland®*
Our Tech – Energy Boost

Diffuse Booster

Diffuse Booster is one of the algorithms that make up the Soltec Team Track® extended package, increasing energy yield by 5.34% and 6.85%, depending on the latitude, during its activation time at Mediterranean and Equatorial sites under cloudy events.

5.3% Yield Gain