Single Axis Tracker

Lumax Energy's Single-Axis Trackers are **compatible with most commercially available PV modules**

Lumax Energy supplied **more than 500MWp of PV mounting systems** since 2017

Design

- Solar slew drive gear reduction
- Wide range of motion: 120° (±60°)
- Topographic adaptability
- String powered, dedicated PV module, or grid powered.
- Site layout adaptability
- FEM analysis
- CFD analysis
- Critically damped system
- High quality, local materials

Control system

- Robust microcontroller system with LoRa® wireless network.
- Active closed-feedback astronomical tracking control.
- Improved plant efficiency by implementing backtracking algorithm.
- Programmable weather protection, stow and night positions.
- Data and event logging for auditing and preventative maintenance.
- Integrated battery management and charging module.
- RS485 and CAN2.0 wired communications.

Operation and Maintenance

- Minimal maintenance required
- Ingress protected to IP65
- Annual review as per maintenance plan
- No lubrication required on the bushing

Installation

- Wide tolerance to improve installation ease and reduce installation time
- All connections are bolted. No on-site fabrication required
- Module mounting solutions available for all framed PV modules

Technical Specifications

Tracker Description

Tracker Type	Independent Single-Axis tracker (ISAT)
Ground Coverage Ratio	30% - 50% (*)

Drive and Motor Specifications

Drive Method	Slewing drive
Daily Energy Consumption	0.08KWh - 0.22KWh
Backup Battery Specifications	3Ah - 6.6Ah Lithium battery
Battery Management System	• Constant Current, Constant Voltage (CC/CV) battery charger module. • Temperature compensated charging algorithm to protect battery and improve lifespan. • Integrated battery capacity fuel gauge monitor.
Motor Power	126W / 24VDC

Control System Specifications

Tracking Method	• Closed-loop active tracking • Astronomical tracking algorithm • Onboard Inclinometer
Accuracy of Tracking	±1°
Tracker Controller Power Supply Options	• String powered (200Vdc – 1500Vdc) • Dedicated PV module (28Vdc – 48Vdc, ≥60W) • Mains powered (220Vac)
Communication System	LoRa® wireless, RS485 (Half duplex), CAN 2.0 wired communications.
Shadow Prevention	Customisable Backtracking (*)
Wind Protection	Protection initiates at 18m/s (*)
Night Mode	Panels return to Stow Position at night (*)
Data Logging	Interface capabilities with commercial data logging equipment

Dimensions Specifications

Tracker Table Length	Maximum of 90m (*)
PV Module Mounting Array Configurations	1 Portrait
System Voltage	1000V-1500V

Mechanical Specifications

Tracking Range	±45° to ±60° (GCR dependent)
Wind Speed Resistance	As per SANS 10160-3 (*)
Structural Materials	HDG structural steel, S355, S550, Z275
Bearing Type	Low Friction Polymer, Self-Lubricating Bushing
Foundation Types	Ramming, Pre-drilling
Topography Flexibility	Up to 15% N-S / E-W Not limited (E-W angle is recommended to be as horizontal as possible to maximize production potential)

Operation and Maintenance

Maintenance	Annual review as per schedule (or preventative maintenance from data and event logging)

Warranty

Structural / Drive and Control System	10 years / 5 years

(*) Configurable to Project requirements. Other options.

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