LIANSTOR ENERGY

Product Brochure

TG-24

Solar Tracking Racking

Automatic sun tracking, eight-point damping

WZPV-SZTZ-24



TG-24 WZPV-SZTZ-24

Automatic Sun Tracking with Mechanical Protection and Connected O&M

One central slew drive controls azimuth, two rear-mounted linear actuators adjust tilt, and eight dampers cushion transient shocks. SmartTrack 3.0 coordinates automatic tracking, weather protection and O&M.

Dual-axis automatic tracking

Adjusts array orientation with solar azimuth and elevation to make fuller use of direct sunlight during the day.

High-torque azimuth drive

The central slew drive delivers 14,688 N · m in normal output, turning the entire array.

Smart weather protection

Weather warnings combined with on-site monitoring proactively adjust the stow position. Force 12 wind design with eight-point mechanical damping.

Eight-point damping

Cushions transient vibration and shock from gusts, giving mechanical protection to the racking, motors and drivetrain.

Robust load-bearing frame

Main beams, cross beams, purlins and braces share the load; the central column connects to the foundation via a flange.

Centralized monitoring and maintenance

PC, WeChat mini program and dashboard work together to view multiple devices, operate single units with authorization and track generation data.

Force 12 is the wind-resistance design grade under the specified stow position, project foundation and installation conditions.

Dual-axis tracking makes fuller use of sunlight

Astronomical calculation provides the target solar azimuth and elevation; the site controller executes slew and tilt. The module array follows the sun, extending effective collection time.



Morning tracking

Array orientation follows the solar azimuth to capture morning direct sunlight.



Continuous daytime adjustment

Azimuth and tilt act separately, adjusting the collection angle as the sun moves.



Afternoon tracking

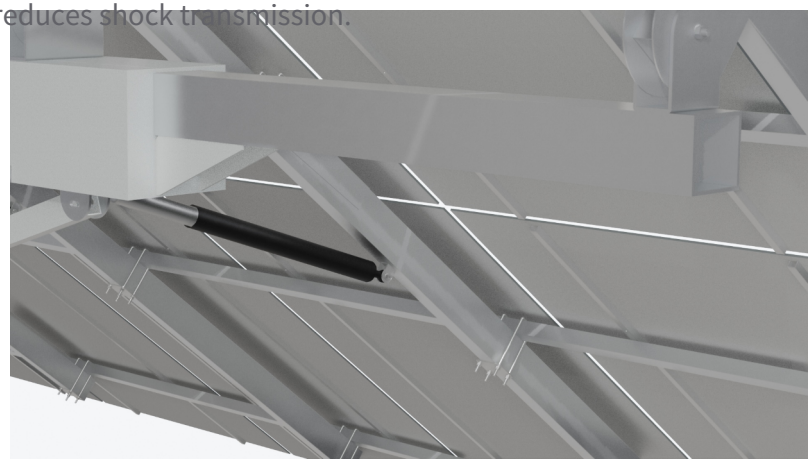
Orientation keeps adjusting, balancing daytime tracking, limits and weather protection.

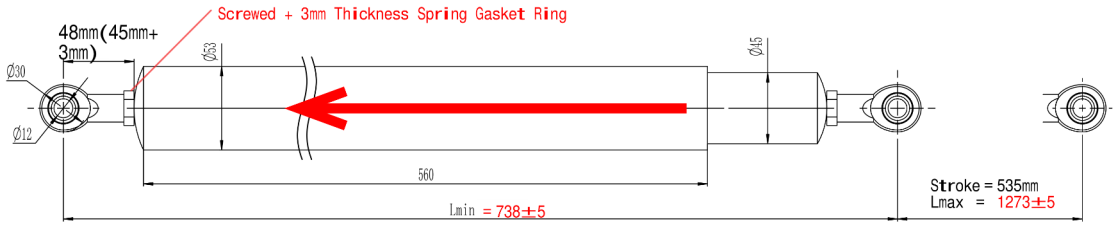
Figures show motion states of the same product. Actual generation depends on weather, modules and project configuration.

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Eight-point damping against gust shocks

Eight dampers are paired along four lateral stations. When gusts cause relative sway, the dampers generate velocity-dependent resistance that dissipates motion energy and reduces shock transmission.





S30-535QQ original dimension drawing, unit mm

8-point distributed buffering

Protects the racking structure

Cushions transient loads reaching main beams, cross beams and articulation points, reducing dynamic disturbance on load-bearing connections.

Protects motor and drivetrain

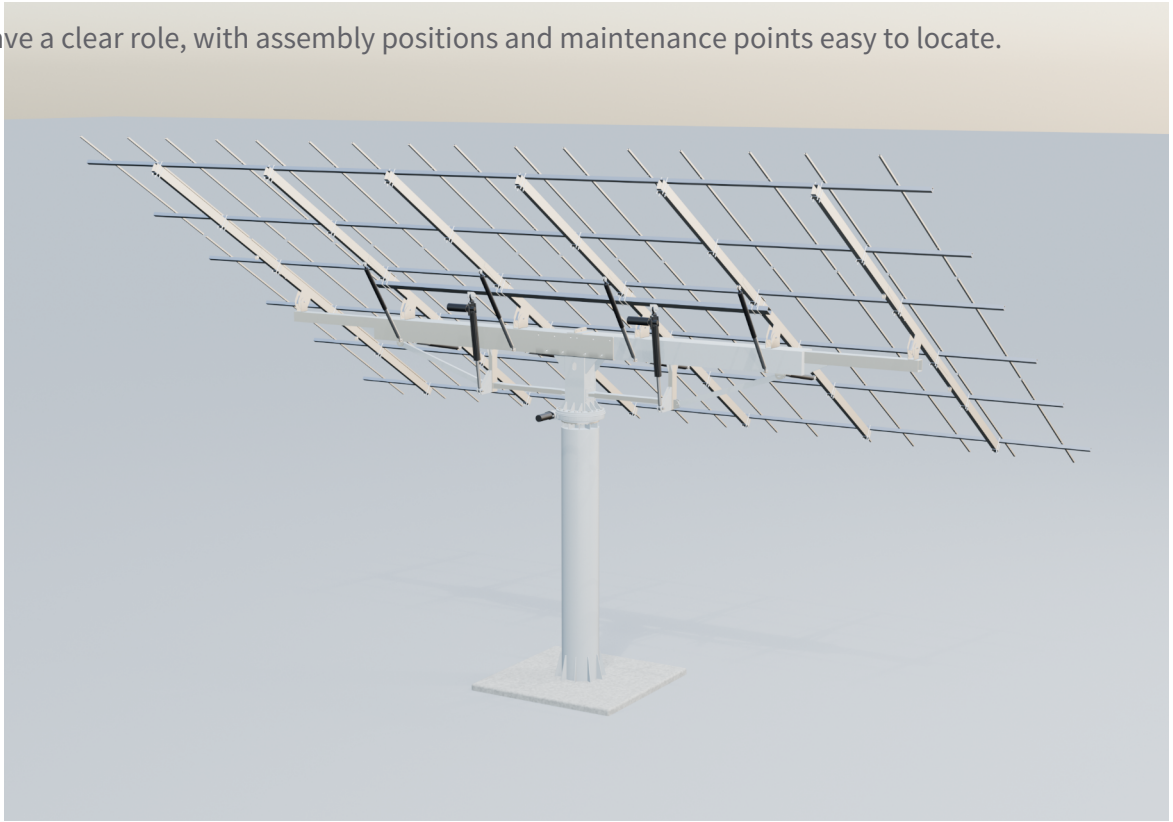
Provides mechanical buffering at load-bearing joints, helping reduce transient loads on the slew mechanism, motor and actuators.

Relative velocity m/s	Tension / compression damping force
0.020	1.0 kN
0.200	4.0 kN
0.500	7.5 kN
0.660	9.0 kN

S30-535QQ tension/compression damping force test conditions: 20-25 °C, 980 mm centre distance, test stroke >= 40 mm, tolerance ±20% per point. Damping does not replace structural or foundation load bearing.

Robust racking, built for installation and long-term operation

Main beams, cross beams, purlins and braces form the load-bearing frame; the central column ties into the foundation. Load bearing, motion and buffering each have a clear role, with assembly positions and maintenance points easy to locate.



Figures show the racking system without PV modules. The white finish is the product color.

Frame-wide load bearing

Module loads pass through purlins into main beams, cross beams and supports; braces and central stiffening enhance connection integrity.

Concentrated connections, easy installation

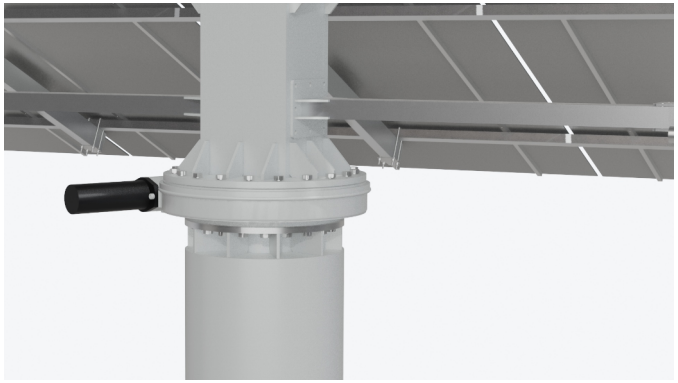
The central slew flange, rear actuator pivots and damper terminations are clearly located for staged assembly, checking and tightening.

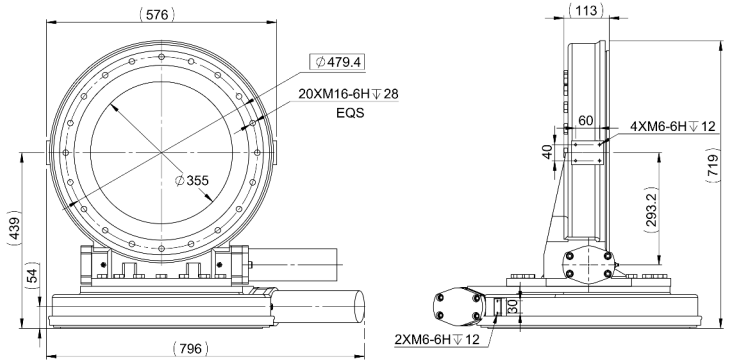
Independent parts, easy service

Drive, actuators and dampers each have their own model and connection points, simplifying fault location, wear checks and part replacement.

High torque turns the entire array

The SDE17A central slew drive handles azimuth adjustment with low speed and high torque. Power, support and flange mounting are concentrated at the central slew position for easy inspection and maintenance.





SDE17A slew drive original outline and mounting interface drawing, unit mm

14,688

N · m normal output torque

24,480

N · m maximum output torque

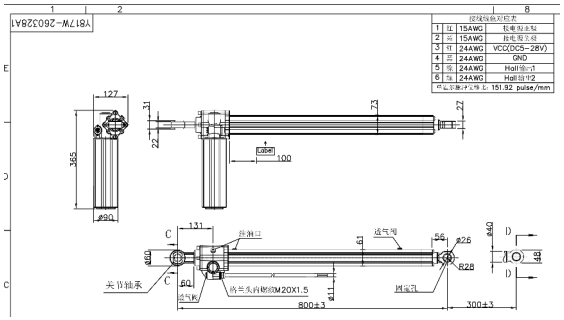
Slew drive	Drawing specification
Output speed	0.016 rpm
Gear ratio	102:1
Component accuracy	<=0.17°
Ingress protection	IP55
Operating temperature	-30 to +80 °C

SDE17A-102MHB-25MRC-1009 Rev.B component parameters. Maximum output torque is not a continuous rating; loads are checked under combined load cases.

Twin rear actuators adjust tilt

Two linear actuators are mounted on the rear side of the array and drive tilt through extension. Dual Hall feedback supplies motion data to the controller, together with angle calibration and coordinated two-rod motion.





Y817W original mounting dimensions and termination drawing, unit mm

25 kN / unit

Maximum dynamic axial load

Actuator specification	Drawing value
Stroke	300±3 mm
Min. centre distance	800±3 mm
Max. static load	50 kN (half stroke)
Power supply	24 V DC, max. 5 A
No-load speed	1.0 mm/s ±10%
Dual Hall feedback	151.92 pulse/mm per channel
Ingress protection	IP66 (inverted mounting)

HB-DJ817W, configuration drawing Y817W-260328A1. IP66 applies to inverted mounting with the full waterproof breather structure. Maximum duty cycle 10%; follow the supplied duty-cycle table.

Smart control recognizes conditions and acts

SmartTrack 3.0 combines astronomical calculation, site feedback and policy decisions. Solar angles form the tracking target, the controller executes two-axis motion, and angle, limit and status feedback verify the result.

Target calculation

Computes solar azimuth and elevation from location and time to form the target orientation.

On-site execution

The controller manages slew and dual-actuator motion, adjusting orientation with connected feedback, limits and motion permits.

Condition triggers

Organizes tracking, sleep, protection, self-check and maintenance by "if condition, then action" rules.

Feedback verification

Compares solar angle with device angle and checks limits, status and action results to support fault diagnosis and maintenance.

SmartTrack 3.0 five-layer intelligent control: sensing, data, algorithms, decisions, execution

Nine operating states: initialization, auto, manual, sleep, self-check, reset, demo, high-wind protection, fault

Controllers, sensors, policies and permissions are enabled per the delivery configuration. The dual Hall feedback coefficient is a component-level figure; unit angles require calibration.

Twelve strategies cover generation, protection and O&M

A multi-scenario policy library schedules actions by operating condition. Beyond automatic tracking, devices can arrange night sleep, weather protection, health checks and maintenance work.

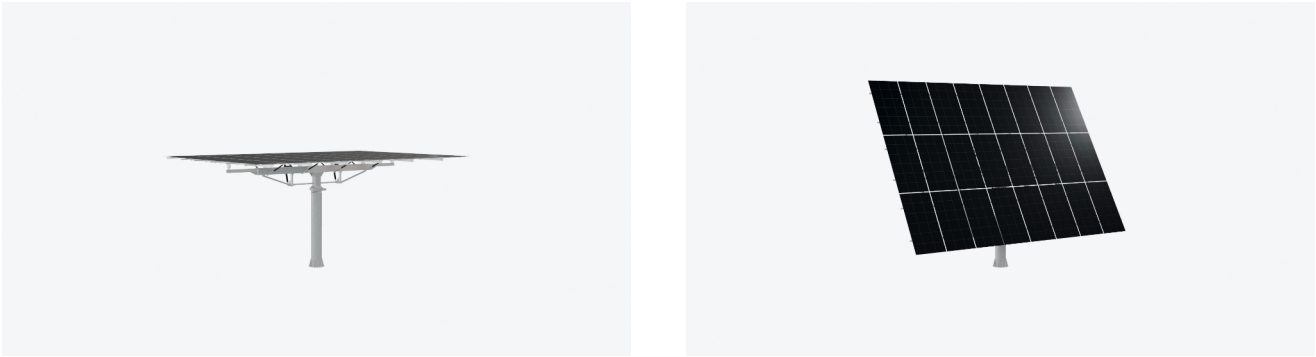
Strategy	Main function
Generation tracking	Adjusts azimuth and tilt with the sun.
Terrain avoidance	Sets operable zones from site clearance.
Night sleep	Enters the set stow position outside generation hours.
Storage coordination	Works with configured storage and energy-management interfaces.
Health self-check	Checks device status on schedule or on command.
Maintenance mode	Prepares the defined position and control state for service.

Strategy	Main function
Demo cruise	Runs a configured motion sequence for demonstration.
High-wind guard	Enters protection mode on warning or measured wind speed.
Snow response	Adjusts response position by snow risk and project settings.
Dust and cleaning aid	Arranges protection and cleaning support by dust risk.
Hail response	Enters the set protective position on warning.
Thunderstorm guard	Coordinates operation and electrical protection in thunderstorms.

Strategies are enabled by delivery version, site, hardware and service scope; trigger conditions and stow positions use project parameters.

Proactive weather protection, continuous mechanical buffering

Multi-source weather warnings and on-site monitoring identify risks early. The control system executes protective positioning, eight-point damping cushions transient loads, and the structure and foundation share the design load.



Stow positions for high-wind protection and snow response

Force 12

wind design

Warnings and monitoring trigger protective positioning, with read-back confirmation

Strong wind

Verify warnings and site wind speed, adjust the stow position and confirm in place.

Snow and hail

Apply response positions by risk and module requirements; inspect mechanism and modules before recovery.

Dust and thunderstorms

Manage operation with cleaning plans, interface sealing, grounding and surge protection.

Force 12 wind design applies under the specified stow position, project foundation and installation conditions; it does not mean continuous normal tracking in Force 12 wind.

The office sees the fleet, the site sees each unit

PC, WeChat mini program and monitoring dashboard share device data. View distribution, operating status and generation centrally, and manage single-unit operations and parameters by permission.







PC console

View fleet and unit details, manage parameters, operating status and daily/monthly/yearly generation curves.

WeChat mini program

Check units on site and compare solar and device angles; with authorization, set angles, stop, self-check and reset.

Monitoring dashboard

Aggregates device distribution, status and connected power data for daily management and campus display.

Screenshots are examples of the original platform. Voltage, current, power and generation require connected inverter or metering data; example readings are not project results.

Orderly installation, clear service positioning

Assembly proceeds in stages: column, central slew, load-bearing frame, then actuator and damper connections. After commissioning, inspections follow component models and connection points, combining mechanical checks with platform status.



Staged assembly

Flange, frame and pivot interfaces have clear roles, easing checks of orientation, connection points and motion clearance.

Component-based inspection

Inspect the slew flange and fastening, dual-actuator motion and feedback, and the eight damper rods and terminations.

Easy maintenance handover

Order and replace parts by independent model; keep device parameters, fault records and recovery results.

Installation & commissioning manual, technical datasheet and O&M manual are supplied separately. Site assembly and maintenance follow the corresponding engineering documents.

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Campus generation and digital energy display

TG-24 suits ground-mounted distributed, industrial-park and energy-display projects. Single units track automatically while the fleet is managed centrally, keeping operation and generation data easy to view.



24 module positions

3 × 8 array layout matched to the selected module size, weight, holes or clamping zone.

Module power selected per project

24 × 740 W modules form a 17.76 kWp configuration. Quotations and supply exclude PV modules.

Site and O&M planned together

Motion space, service access, foundations, electrical connection and platform management are designed as one project.

Scene is illustrative. 17.76 kWp is the DC capacity of the listed module option, not a racking capacity.

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TG-24 configuration and key specifications

Select by system configuration; order and service by component model. Full data, dimension drawings and interface conditions are given in the technical datasheet.

Item	Key configuration and specifications
System model	TG-24 / WZPV-SZTZ-24, dual-axis PV tracking system
Mechanical layout	24 module positions, 3 × 8 layout, 1 slew drive, 2 rear actuators, 8 dampers
Azimuth drive	SDE17A Rev.B, 14,688 normal / 24,480 max. N·m, 0.016 rpm
Tilt actuation	HB-DJ817W, 25 kN max. dynamic load each, stroke 300±3 mm, 24 V DC
Mechanical damping	S30-535QQ, stroke 535 mm, eight units paired on four lateral stations
Wind design	Force 12, under specified stow position, foundation and installation conditions
Smart control	SmartTrack 3.0, twelve strategies, PC + WeChat mini program + dashboard
Supply scope	Racking system excludes PV modules; electrical and platform services per the configuration list

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Full component parameters and engineering drawings are provided with the documentation.

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C Certified

L Long-lasting

E Efficient

A Affordable

N Net-positive