LIANSTOR ENERGY

Technical Datasheet

TG-24

Solar Tracking Racking

Automatic sun tracking, eight-point damping

WZPV-SZTZ-24

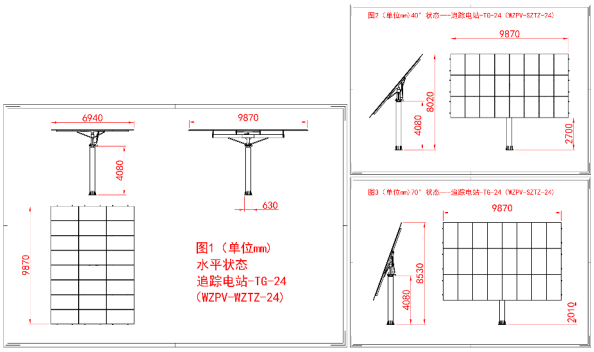


02 Structure, Outline and Posture

A single column carries the whole array; the azimuth drive rotates the entire array, two rear-mounted actuators adjust tilt, and eight dampers absorb vibration and transient shocks caused by relative motion.

Item	Specification and applicable conditions
Plan outline	6940×9870 mm Plan outline; not the effective collection area.
Horizontal support elevation	4080 mm Support elevation read from the outline drawing datum; not the highest point of the unit.
Outline drawing 40° indicative posture	Highest 8020 mm / low edge 2700 mm Indicative 40° posture in the outline drawing; not an operating limit.
Outline drawing 70° indicative posture	Highest 8530 mm / low edge 2010 mm Indicative 70° posture in the outline drawing; not an operating limit.

Structural element	Function and check points
Load-bearing frame	Main beams, cross beams, purlins and diagonal braces carry the modules together; the central stiffened support, column and base flange transfer loads to the foundation.
Motion envelope	Establish the full motion envelope from the actual modules, permitted angles and attachments; check the highest point, lowest edge, neighbouring units, buildings, vegetation and maintenance access.



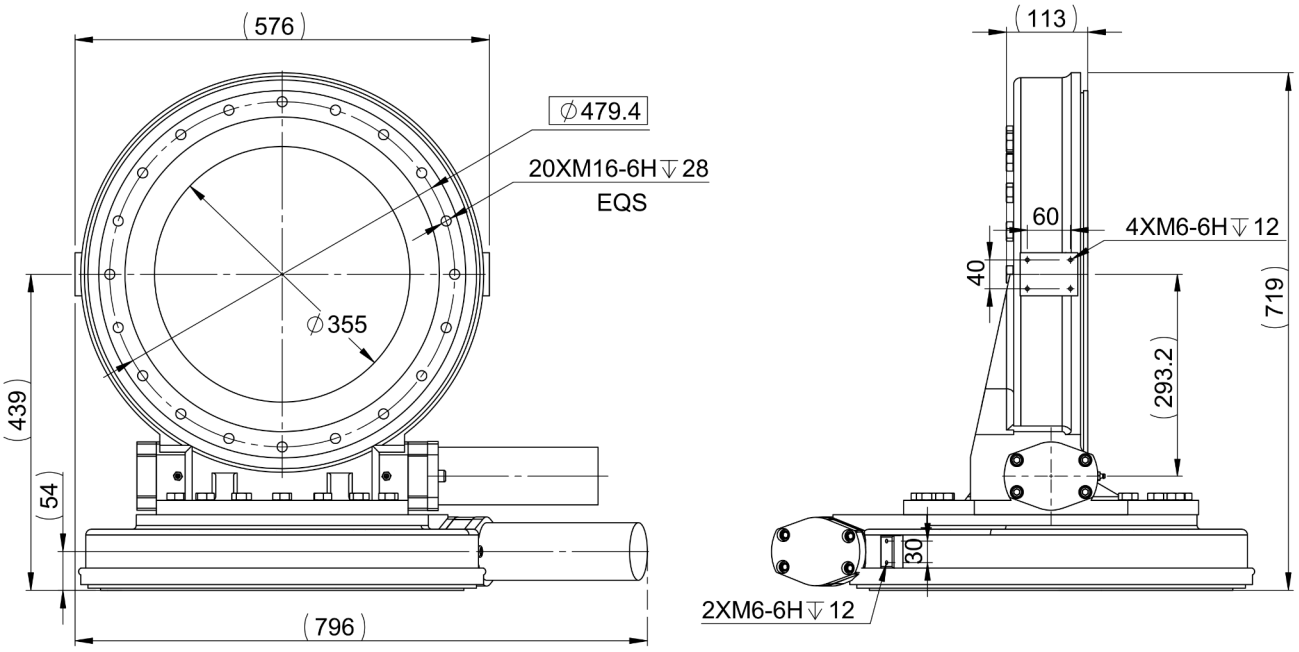
03 Azimuth Slew Drive Assembly

All values below apply to the SDE17A Rev.B slew drive component; verify force, torque, holding requirements and connection interfaces together during selection.

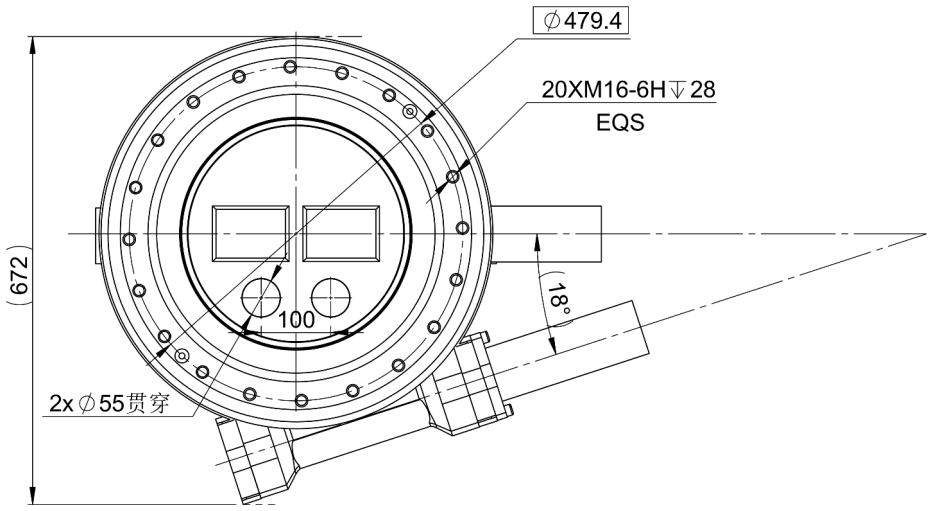
Item	Specification and applicable conditions
Slew drive model	SDE17A-102MHB-25MRC-1009 Rev.B
Drive nominal / maximum output torque	14688 / 24480 N · m Maximum output is not a continuous rating; peak duty and service conditions are confirmed in the drive selection record.
Drive output speed / reduction ratio	0.016 rpm / 102:1
Drive protection / temperature	IP55 / -30 to +80 °C
Slew drive angular accuracy	<=0.17° Supplier component figure for the slew assembly; not a whole-tracker tracking-accuracy guarantee.
Drive axial / radial maximum load	970 / 390 kN Maximum loads must be checked in combination; they cannot all be taken at full value simultaneously.
Drive overturning moment	16350 N · m
Drive component weight	228 kg Slew drive component weight; not the weight of the complete unit.

04 Slew Drive Outline and Mounting Dimensions

SDE17A-102MHB-25MRC-1009 Rev.B. Below are the front, side and top mounting interfaces from the original component drawing; dimensions in mm.



Front and side views of the slew drive; outline and flange interfaces at original drawing scale



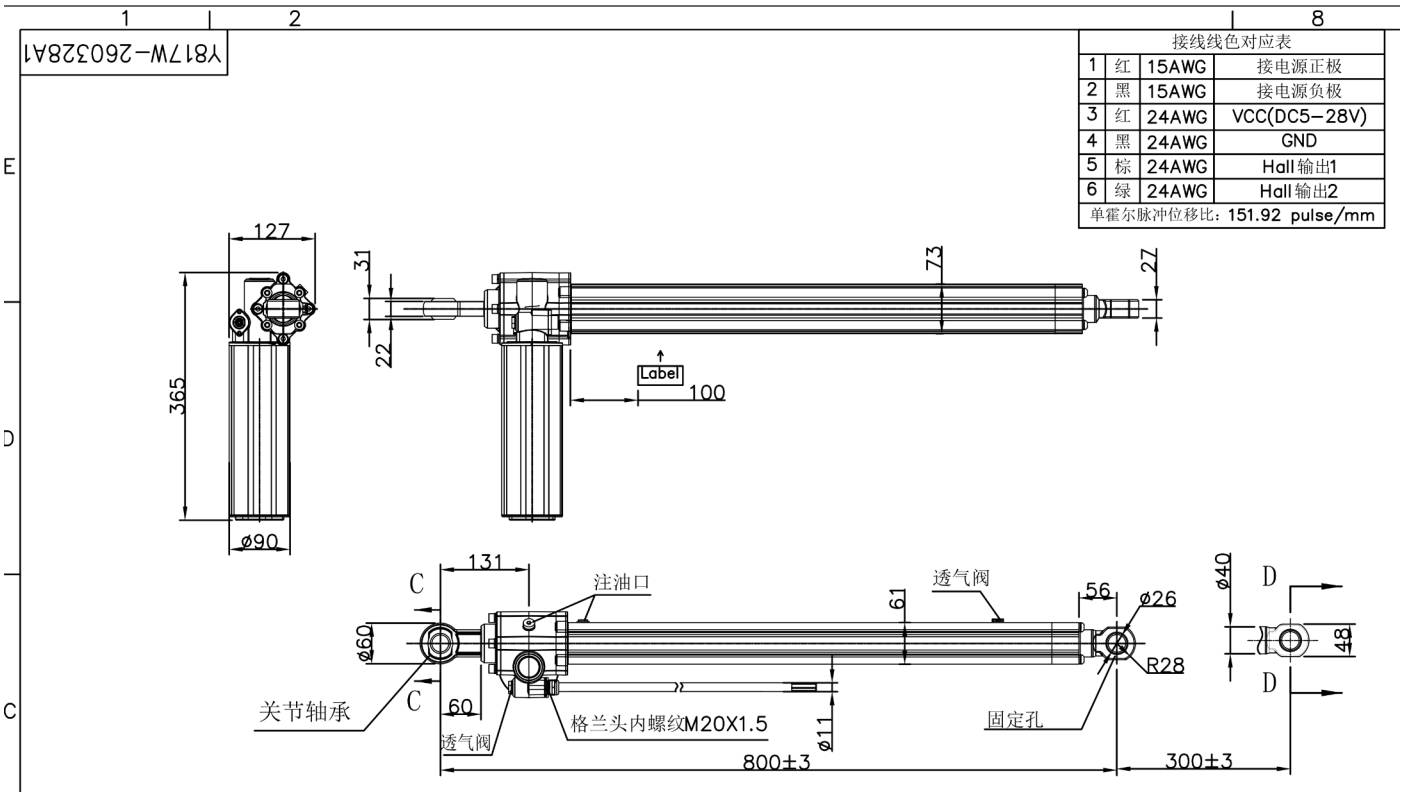
05 Gear Motor and Twin Rear Actuators

Verify power and feedback interfaces separately. The two actuators drive tilt through two hinge points on the rear of the array; actual forces and compatibility are determined jointly by the installation lever arm, loads and the control scheme.

Item	Specification and applicable conditions
Drive motor data	24 V DC; 65 W; 1.6 rpm; current <6.5 A 65 W is mechanical output power and does not replace input supply power or control-cabinet capacity; 1.6 rpm is at the motor output shaft.
Actuator component model	Y817W-260328A1 / HB-DJ817W
Actuator dynamic / static load	Maximum dynamic 25 kN / static 50 kN The 50 kN static rating applies only to a single actuator at half stroke; single-actuator figures are not multiplied into whole-tracker capacity.
Actuator stroke / minimum installation distance	300±3 mm / 800±3 mm
Actuator supply / no-load speed	24 V DC; 1.0 mm/s ±10%; maximum 5 A 1.0 mm/s ±10% is the no-load speed and cannot be used to estimate full-load return time; 5 A is not a stall-protection setting.
Actuator protection / temperature	IP66 (inverted mounting condition); -20 to +60 °C Inverted installation and a full breather valve must be specified; C3 is the corrosion protection class of the actuator component.
Actuator interface and	Ø26 front; Ø25 spherical bearing at the rear; dual Hall, 151.92 pulse/mm per channel 151.92 pulse/mm is the displacement factor of one Hall channel; actuator

06 Linear Actuator Outline, Terminations and Feedback Harness

HB-DJ817W with configuration drawing Y817W-260328A1. The original drawing also shows the installation centre distance, stroke, termination holes, lubrication point, breather valve and dual-Hall harness. Dimensions in mm.



Actuator multi-view, 800±3 mm installation centre distance and 300±3 mm stroke

07 Eight-Point Damper Set

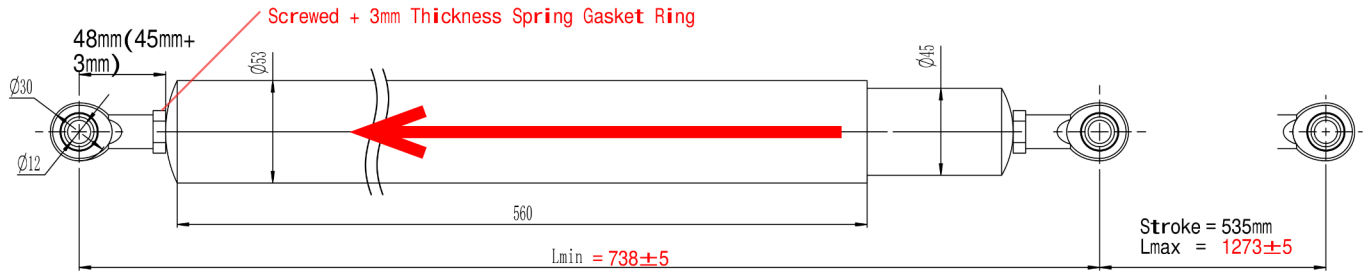
Eight S30 dampers are distributed across the load-carrying connection points, dissipating energy through relative motion and helping to reduce the dynamic loads transmitted to the structure, slew mechanism and motor drive chain.

Item	Specification and applicable conditions
S30 damper dimensions	Stroke 535 mm; Lmin 738±5 mm / Lmax 1273±5 mm Check against the matching connection version. 535 mm is the stroke; 980 mm is the transport / test centre distance and cannot replace the stroke.
Damper operating temperature	-40 to +60 °C
S30 series damper surface	Black powder-coated cylinder; hard-chrome-plated piston rod (component drawing requirement) The black cylinder and hard-chrome rod requirements still refer to the S30 component drawing and must not be extrapolated to the whole tracker coating.

Piston speed	Tension / compression damping force
0.020 m/s	1,000 N ±20%
0.200 m/s	4,000 N ±20%
0.500 m/s	7,500 N ±20%
0.660 m/s	9,000 N ±20%

08 Damper Outline, Stroke and Force-Velocity Data

S30-535QQ. Damping force varies with the relative motion speed and provides mechanical buffering in both tension and compression. Rod-end orientation, centre distance, stroke and test conditions follow the original drawing.



Outline centre distance 738±5 to 1273±5 mm, stroke 535 mm

9. Temperature:20℃ to 25℃.
Stroke for Test: 40mm Minimum.

速度(m/s)	0.020	0.200	0.500	0.660	Speed(m/s)
Pf(N)	1000N±20%	4000N±20%	7500N±20%	9000N±20%	Extension Force
Py(N)	1000N±20%	4000N±20%	7500N±20%	9000N±20%	Compression Force

09 Sun-Tracking Control, Protection and Monitoring

SmartTrack3.0 combines astronomical calculation, on-site execution and status feedback. The companion platform supports PC, WeChat mini program and monitoring-wall clients; interfaces and features are activated per the delivered configuration.

Function layer	Technical scope and delivery checks
Tracking and daily operation	Automatic sun tracking based on location and time; manual angle setting, initialisation, night sleep and recovery. Confirm latitude / longitude, time zone, zero position and permitted angles.
Maintenance and verification	Self-check, reset, maintenance and demonstration; clear faults before reset - a demonstration does not replace load acceptance.
Weather protection	Wind, snow, hail, thunderstorm, plus dust and cleaning assistance. Verify data sources, triggers, stow positions, priority, holding and recovery conditions.
On-site motion feedback	Actuator dual Hall, angle / posture and limit feedback connected per the approved I/O list; control cabinet, sensors and firmware versions itemised.
Communication and operation	4G / RS485 interfaces and the deployment network follow the delivered communication table; device selection, angle setting, stop, self-check and reset are account-permission controlled.
Monitoring and history	Device and sun angles, limits, operating status, alarms and history; voltage, current, power and energy must map to real acquisition or metering interfaces.
Configuration and permissions	Save and read back all parameters after grouped setting; device binding, roles, temporary authorisation periods and service scope form the delivery record.

10 SmartTrack3.0 Twelve Operating Strategies

Astronomical calculation forms the tracking target; the site controller executes strategies using angles, limits, status and connected environmental data. The table below is the companion strategy library.

Strategy	Main function
Generation tracking	Adjusts azimuth and tilt according to the sun position.
Terrain obstacle avoidance	Sets allowed zones from site obstacles, clearance and motion boundaries.
Night sleep	Moves to the project-set sleep posture outside generation hours.
Storage coordination	Works with the configured storage, metering and energy-management interfaces.
Health self-check	Checks device status on a schedule or on an authorised command.
Maintenance mode	Prepares the maintenance posture and control state; stops and isolates before entry.
Demonstration cruise	Runs a preset motion sequence within a limited area.
High-wind guard	Enters the specified stow position based on warnings and on-site wind speed.
Heavy-snow response	Sets posture according to snow load, accumulation and module requirements.
Dust and cleaning assistance	Arranges protection by dust risk and supports approved cleaning methods and working conditions.

11 Wind Design, Weather Protection and Operating States

Force-12 wind design applies to the specified stow position, project foundation and installation conditions.

Meteorological warnings and on-site monitoring trigger protection; the controller adjusts the posture and verifies feedback, and the eight dampers absorb transient shocks.

Weather type	Protection focus
Strong wind	Cross-check warnings with the on-site wind speed, move to the stow position and confirm arrival; hold protection while the risk persists.
Snow accumulation	Sets posture and motion permits by accumulation risk, snow load and module requirements.
Dust	Schedules interface and moving-part inspections; carries out cleaning assistance per approved procedures.
Hail	Executes the set protective posture on warning; inspects modules and connections after release.
Thunderstorm	Implements earthing, surge protection, sealing and operation management; checks electrical and feedback status before recovery.

Nine device operating states

Initialisation, automatic, manual, sleep, self-check, reset, demonstration, high-wind protection and fault. Operating states identify current device behaviour, and the strategy library organises actions under defined conditions.

Three-client monitoring and authorised operation

The PC client manages devices and parameters, the WeChat mini program supports on-site

12 Module Adaptation and Engineering Selection Inputs

24 module positions do not mean that any 24 modules will fit. Selection must verify the customer's modules, site loads, load-bearing structure and control / protection as one set of inputs.

Input category	To be submitted / confirmed by the purchaser and the engineer
Customer modules	Manufacturer, model, outline dimensions, unit weight, clamping zone, hole pattern / frame, glass mounting requirements and module installation instructions.
Structure and foundation	Site geology, ground elevation, design wind / snow and environment, foundation reactions, anchor bolts and flange, material wall thickness, connections and structural calculations.
Motion and loads	Actual azimuth / tilt range, unit weight and centre of gravity, actuator lever arms and loads, combined slew loads, full motion envelope.
Protection and environment	Operating and protective postures, wind / snow inputs, trigger and release values, behaviour on network / power loss and sensor faults, corrosion protection requirements.
Electrical and platform	Control supply capacity, I/O, PV single-line diagram, earthing protection, inverter / metering, communications, account permissions and platform services.

24 × 740 W = 17.76 kWp is only a module selection example. After any module change, re-confirm the outline, weight, clamping, installation lever arm, motion clearance and structural loads - not just the wattage.

13 Purchase List and Delivered Technical Documents

The contract annex marks every item as included / optional / customer-supplied, and the delivered documents share one version with the hardware.

Item	Minimum entries in the sign-off checklist
Tracker and actuating components	24-position module frame, central column, 1 slew assembly, 2 actuators, 8 dampers; part numbers, revisions, fasteners, coating and quantities.
Control and wiring	Actual scope of the control cabinet, power / feedback harnesses, limits and posture, weather sensors, communication modules, supply protection and earthing accessories.
Modules and generation equipment	PV modules excluded; clamps, inverters, storage, the main circuit and metering equipment are marked separately as included or customer-supplied.
Construction works	Responsible parties and engineering documents for foundations, anchor bolts, lifting, assembly, wiring, commissioning and acceptance.
Platform and services	Enabled strategies, controller / firmware, network and weather services, data sources, history retention period, account roles, training and after-sales responsibilities.

Controlled documents: approved BOM, outline and motion envelope, foundation and anchor-bolt drawings, assembly drawings, fastener table, lifting plan.
Interface documents: slew / actuator / damper component drawings, wiring diagrams, I/O list, control parameter table, protection strategy table.
Delivery records: FAT / SAT, parameter read-back, training, spare parts, open issues and

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