LIANSTOR ENERGY

Technical Datasheet

SZGZ-X

Solar Tracking Racking

Dual-axis sun tracking keeps the whole array facing the sun

WZPV-SZGZ-X

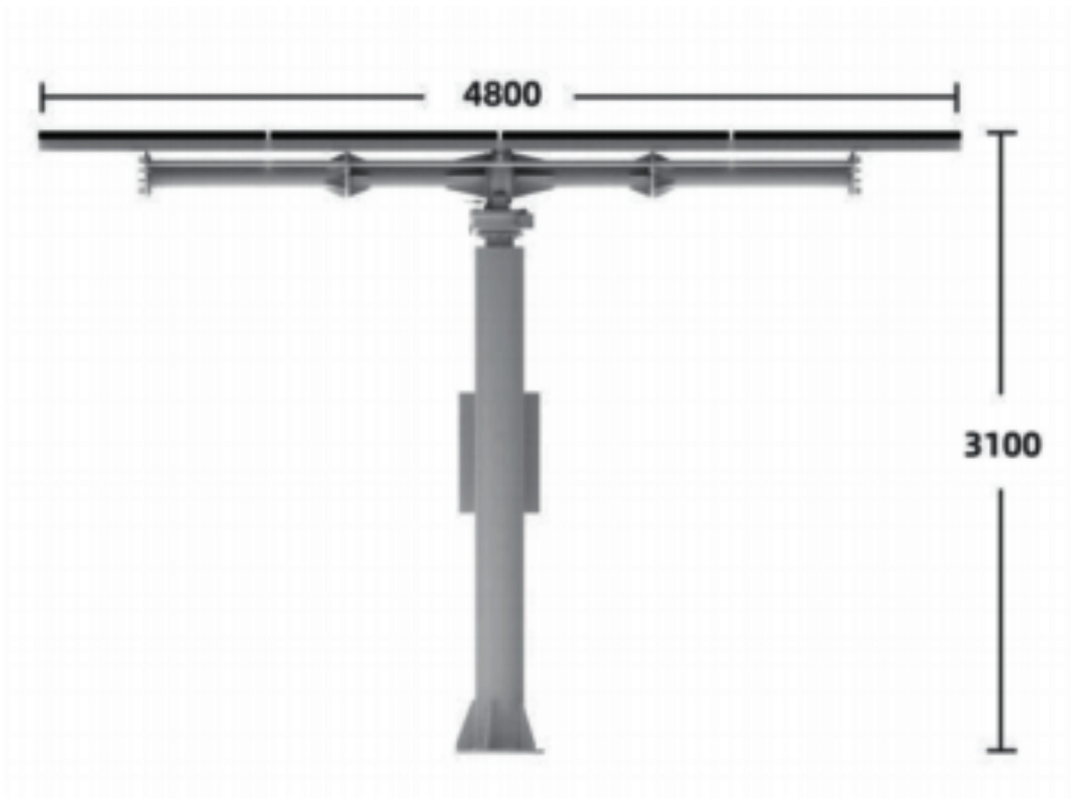


Array and Mechanical Configuration

Item	Content
Standard model	WZPV-SZGZ-X; X is the module quantity; 8-16 positions configurable.
Reference outline 1	4.8 × 4.6 × 3.1 m (L × W × H).
Reference outline 2 / 3	4.7 × 4.6 × 3.4 m / 4.7 × 9.3 × 3.9 m.
Column height	2.1 m or 2.6 m; outline-to-quantity mapping per the mechanical drawing.
Azimuth / tilt range	Specification table 0-240° / 0-85°; actual software limits follow the delivered version.
Tracking accuracy	Scheme nominal ±0.5°.
Drive and control supply	2 DC motors; control / auxiliary circuits 220 VAC / 24 VDC.

Reference outlines do not directly correspond to a specific module quantity; motion clearance must be calculated from the final general assembly drawing and the actual modules.

Reference Outline and Motion Space



Reference dimension drawing

The source dimension drawing marks a 4800 mm span and 3100 mm height.

Corresponding configuration

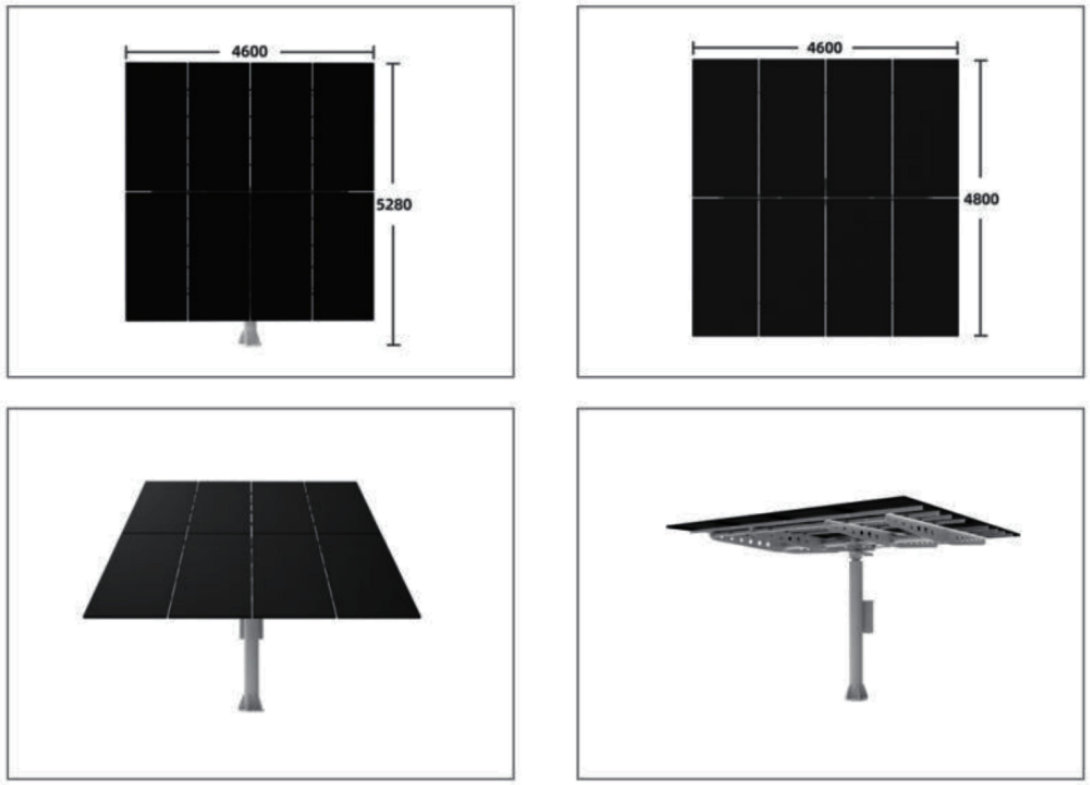
Other outlines and column heights are listed on the previous page.

Full motion space

Check tilting, rotation, cable and maintenance clearances together with selection.

The source dimension drawing corresponds to a reference configuration and cannot serve as a universal construction drawing for all X quantities.

Eight-Position Reference Array and Posture Views



Module arrangement

Four columns, two rows, eight positions in total; this page is a reference configuration.

Plan and postures

The source drawing marks 4600 mm width, 4800 mm length and a 5280 mm dimension in the vertical posture.

Selection check

Verify the whole motion envelope against the actual module size, tilt angle and column height.

Unit: mm. This drawing does not replace the approved general assembly and foundation construction drawings for other quantities.

Companion DC Gear Motors

Item	Content
Motor type / quantity	DC gear motors / 2 for the dual axes; specific component models listed in the BOM.
Voltage / rated power	24 VDC / 91 W.
Rated torque / gear ratio	120 N · m / 736:1.
Protection / ambient temperature	IP65 / -40 to 80 °C.
Lubrication and self-locking	Maintenance-free lifetime lubrication; self-locking on power loss.
Motor nominal life / noise	>= 50000 h / < 55 dB; applicable conditions and guarantees per the component documents.

91 W, 120 N · m and 736:1 are motor component figures - not system output, power consumption or load capacity ratings.

PV Module Reference Option

Item	Content
Reference module	ZNSHINE N-type SMBB monocrystalline module, 650 W.
Conversion efficiency	22.95%, a module-level figure.
Open-circuit voltage / short-circuit current	49.8 V / 16.04 A.
Operating temperature / NMOT	-40 to 85 °C / 44 °C ± 2 °C.
Degradation and power retention	Original module option nominal first-year degradation <= 0.4%; 30-year power >= 84.8%.
Quantity and power example	8 × 650 W = 5.2 kWp; 16 × 650 W = 10.4 kWp, mounting examples only.
Mechanical matching	Module size, mass, clamping zone and cable positions confirmed together with the racking interfaces.

Racking supply excludes modules. Module power warranty, degradation basis and guarantee conditions are defined by the actual module manufacturer's documents and the contract.

Inverter Reference Parameters

Item	Content
AC rated / max. output	3000 W / 3300 W; maximum apparent power 3300 VA.
AC interface	220 V, 50 Hz; max. 14.3 A; total harmonic distortion < 3%.
DC input voltage	Max. 500 V; MPPT 50-450 V; start-up 50 V; rated 360 V.
Per-MPPT input capability	Max. input 12.5 A; max. short-circuit 15.6 A.
Conversion efficiency / night consumption	Up to 97.6%; China-weighted 97.2%; night < 1 W.
Environment and protection	-25 to 60 °C; humidity 0-100%; altitude <= 4000 m; IP65.
Outline and cooling	295 × 230 × 113 mm, 5.8 kg; non-isolated, natural convection.

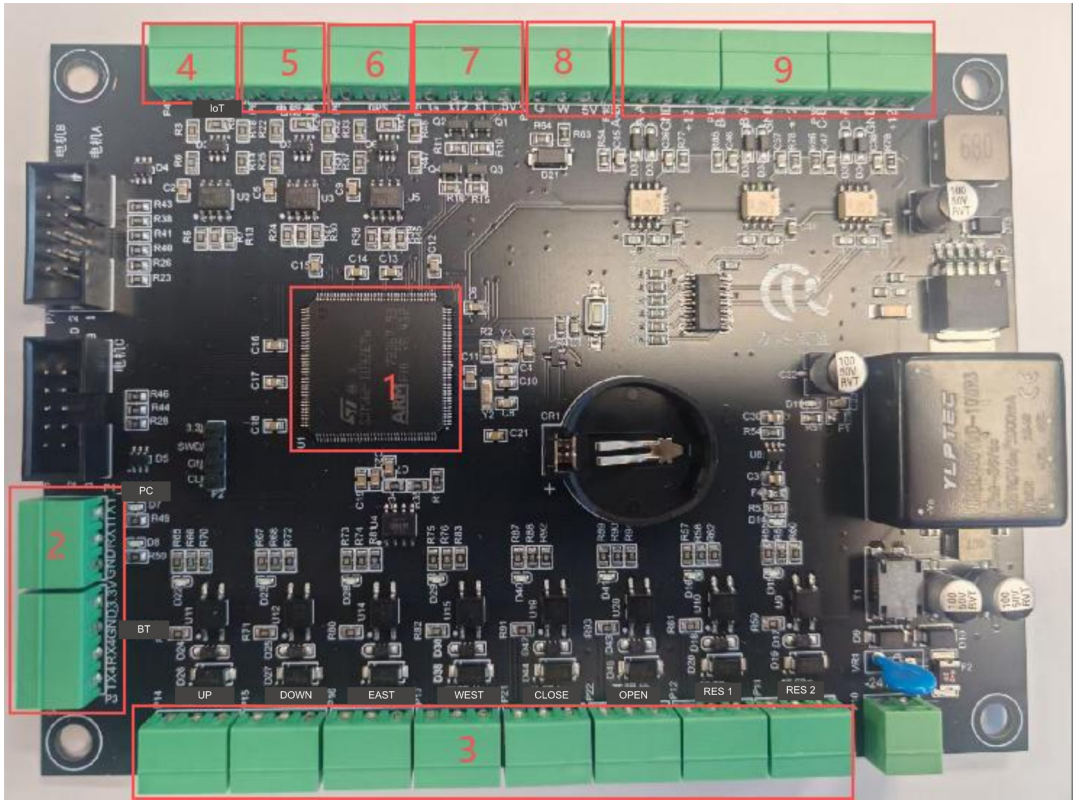
This older reference combination cannot be used directly for construction: the 650 W module's 16.04 A short-circuit current already exceeds this table's 15.6 A. Re-select or approve the electrical configuration and verify MPPT input current.

Controller and Site Interfaces

Item	Content
Control core	STM32F103ZET6; 72 MHz; 512 KB Flash, 64 KB SRAM.
Motion control	Azimuth and tilt execute separately; position feedback, counting and calibration manage motion.
Limit inputs	Dual-axis up/down and left/right end-point inputs, mapped to the actual harness and control definitions.
Position and time	GPS coordinates and time inputs for solar position calculation.
Weather inputs	Configured sensors such as wind speed feed the protection strategy.
Communication and commissioning	Distributed I/O, RS485 and companion networking / commissioning interfaces; terminals per the control board documents.
Electrical metering and expansion	With companion metering connected, read voltage, current and power; expansions such as lighting follow the configuration.

Feedback interfaces and board-side supply follow this unit's wiring diagram; they cannot be inferred from similar-series components.

Identifying the Control Board and Its Interfaces



Main control and commissioning

The main controller runs the logic; the commissioning port is for configuration, diagnostics and authorized upgrades.

Motion and protection

Feedback, limit and wind-speed interfaces serve dual-axis operation and protection.

Networking and metering

IoT, GPS, metering and expansion interfaces connect to their corresponding devices.

The identification figure is for recognizing functional areas. Port voltages, pins and wire order follow this unit's wiring diagram; general-board ports do not imply additional mechanical axes.

Control Board Drawing Numbers and Interface Functions (1/2)

Drawing no.	Function and use
1 | Main control chip	STM32F103ZET6, handling control logic, data and peripheral communication.
2 | Commissioning interface	Local configuration, fault diagnosis and authorized upgrades; wire order per board documents.
3 | Limit interface	Connects axis end-point signals; the general board's expansion ports do not imply a third mechanical axis.
4 | IoT interface	Connects the networking module to upload status and receive authorized commands.
5 | Metering interface	Connects the companion metering module to read electrical data.
6 | GPS interface	Connects position and time information for solar position calculation.
7 | Lighting interface	Controls lighting and other external loads per the configuration.

Drawing numbers correspond to the previous page's control board identification figure. Supply, pins, wire order and rated loads follow this unit's wiring diagram - never wire directly from a function name.

Control Board Drawing Numbers and Interface Functions (2/2)

Drawing no.	Function and use
8 | Wind-speed interface	Connects the local wind-speed signal for the weather protection strategy.
9 | Hall interface	Collects motor motion pulses; counting and calibration manage position.

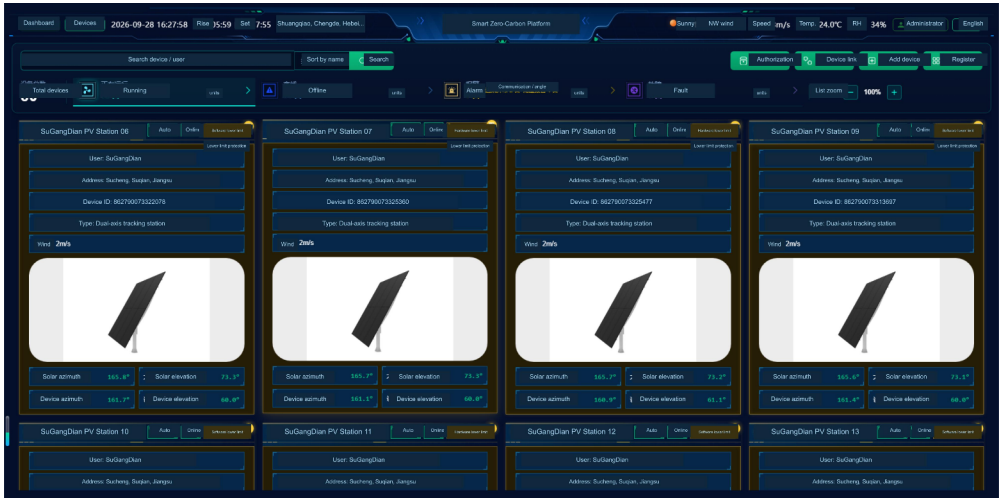
Drawing numbers correspond to the previous page's control board identification figure. Supply, pins, wire order and rated loads follow this unit's wiring diagram - never wire directly from a function name.

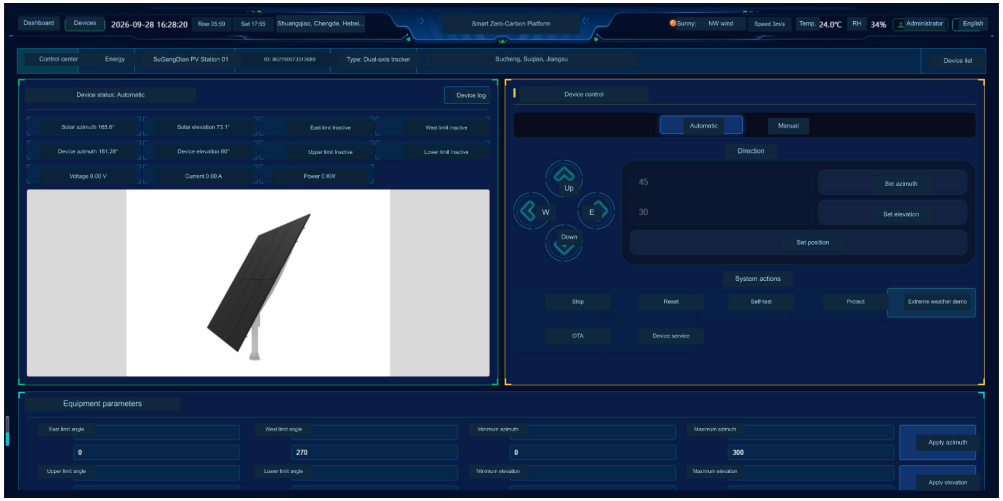
Smart Control and Monitoring Functions

Item	Content
Control structure	SmartTrack 3.0's five layers - sensing, data, algorithms, decisions, execution - work together.
Automatic operation	Solar position calculation, azimuth / tilt tracking, night parking and sleep.
Protection and checks	Weather protection, device self-check, maintenance and controlled demo functions.
View devices	PC / mini program show online and operating status, solar and device angles and limits.
Authorized commands	Angle setting, stop, reset, self-check, protection and version-supported maintenance operations.
Operating and anomaly records	Records operation, anomalies and electrical data using networking and metering.
Permissions and settings	Enabled per the delivered software and account permissions; site configurations are saved and read back.

Interface angles and electrical values are examples - not motion ranges, generation figures or test reports.

Platform Status Page and Authorized Control





View status

View angles, limits, operating and connectivity status.

Execute commands

Authorized angle setting, stop, reset and self-check.

Read electrical data

Voltage, current and power come from matched metering equipment.

The original interfaces are functional examples; example data and parameters are not this project's settings; commands are enabled per software version and permissions.

Environment, Transport and Mass Configuration

Item	Content
System environment	-25 to 60 °C; humidity 0-85%; system IP54.
Companion motor protection	IP65; used separately from the system IP54.
Altitude limit	Reference inverter up to 4000 m; the whole scheme must account for the electrical equipment.
Reference configuration mass	Approx. 680 kg net, approx. 750 kg packaged; net includes 8 modules.
Bare racking mass	Per the BOM and actual packing documents for that module quantity; never reuse the mass including modules.
Weather and foundation	Stow postures, thresholds, foundation and anchors are determined by the site and final structural design.
Anti-corrosion and service	Surface treatment, enclosure sealing and maintenance conditions defined per the environment.

Handling follows this batch's mass, centre of gravity and lifting-point plan. Without an approved drawing, never start from a generic foundation example.

What Orders and Engineering Documents Must State Clearly

Item	Content
Module configuration	Racking excludes modules; quantity, size, mass, mounting interfaces and clamping requirements.
Mechanical configuration	Column height, frame, dual-axis drive models, connectors and tightening requirements.
Electrical configuration	Strings, inverter, supply, grounding, protection and metering equipment; voltage and current of the 650 W reference modules must be recalculated.
Control configuration	Control board, feedback interfaces, firmware, software limits, protection thresholds and platform permissions.
Installation documents	Foundation, anchors, lifting, temporary supports, full motion clearance and acceptance requirements.
After-sales documents	As-built BOM, spares, warranty scope, maintenance plan and authorized software package.

At the reference 49.8 V, 12 / 16 modules in full series give approx. 597.6 / 796.8 V open-circuit - already above the older reference inverter's 500 V; actual design also requires a low-temperature correction. LIANSTOR Energy | sales@lianstor.com | lianstor.com

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