IoT PoE Solar-powered Supply System

Product Model ： Max3426

Battery Capacity: 24V 2.5kW

Specification version: V1.04

Innovation and Integration: Pioneering a New Journey in New Energy Weak Current Systems

The IoT PoE solar-powered supply system, a product tailored specifically for the integration of network digitalization and new energy weak current systems, stands out uniquely in the industry. It can be called a cutting-edge multi-functional solar power supply platform, perfectly integrating comprehensive functions, simple operation, complete hardware protection, and flexible application expansion.

Integrating a number of invention patents, the system deeply combines solar power generation control, network data exchange, multi-protocol 48V/24V PoE power supply, and synchronous power supply function of DC12V - 48V DC output. With the help of advanced 4G/5G technology, it can easily realize data information transmission and control between local area networks (LAN) and wide area networks (WAN), integrating terminal control devices from different industries onto the power generation platform, thus successfully breaking the application bottleneck in environments without network or electricity.

Relying on the multi-functional PSE technology patent, it effectively solves the power supply problems of high-power standard 48V PoE devices, conventional standard 48V PoE devices, and 24V non-standard PoE devices. Meanwhile, its patented solar charge-discharge chip can achieve efficient MPPT charging up to 20A, which greatly improves the power generation efficiency of solar panels and lays a solid electrical foundation for the stable operation of the system.

Compared with traditional systems, it boasts significant advantages.

Previous solar energy products adopted a scattered combination mode, with internal circuits as complex as a spider web and external installation poles in a disorganized state. The functions and performance of the combined devices varied greatly. This not only led to high costs, cumbersome debugging processes and difficulty in flexible expansion, but also caused great troubles in use and maintenance. In sharp contrast, the Max3000 series PoE solar-powered supply system provides a one-stop ultimate solution for digital new energy weak current system integration projects.

Exceptional Features, Leading the Industry

1.Highly Integrated: It highly integrates MPPT charge-discharge control, multi-voltage simultaneous output with anti-reverse connection power supply, PoE power supply, EPS uninterruptible backup power supply, local area network data exchange, and cloud platform remote centralized management of data streams and video streams. It can also be expanded to support mains power mode charging. It is an extremely innovative high-tech product.

2.Diversified Power Supply: Adopting the world-leading POE safe power supply mode (IEEE802.3af/at/bt), it is equipped with DC port synchronous DC output, with a voltage range covering DC12V - 24V - 36V - 48V. It can also add a built-in conversion module as needed to convert DC current to AC110V-277V, fully meeting the diverse needs of simultaneous use of devices with different voltages. The built-in dual-switch control module supports automatic switching between mains priority/photovoltaic priority modes for different scenario requirements.

3.In-depth Analysis of Intelligent Switching System:
Integrated dual-mode automatic switching control module, supporting intelligent switching between "mains priority" and "photovoltaic priority" strategies:

- Mains priority mode: Suitable for scenarios with stable urban power grids, ensuring continuous and efficient operation of equipment;
- Photovoltaic priority mode: Adapted to off-grid or new energy scenarios, giving priority to the use of clean energy to achieve low-carbon power supply.

This solution, through the in-depth integration of "DC + AC" dual-rail power supply architecture and intelligent energy management system, not only solves the problem of voltage compatibility for multiple devices, but also provides a highly reliable and flexible power supply solution for smart cities, industrial Internet of Things, off-grid base stations and other scenarios through automatic switching of energy strategies, helping to maximize energy utilization efficiency and achieve green and low-carbon goals.

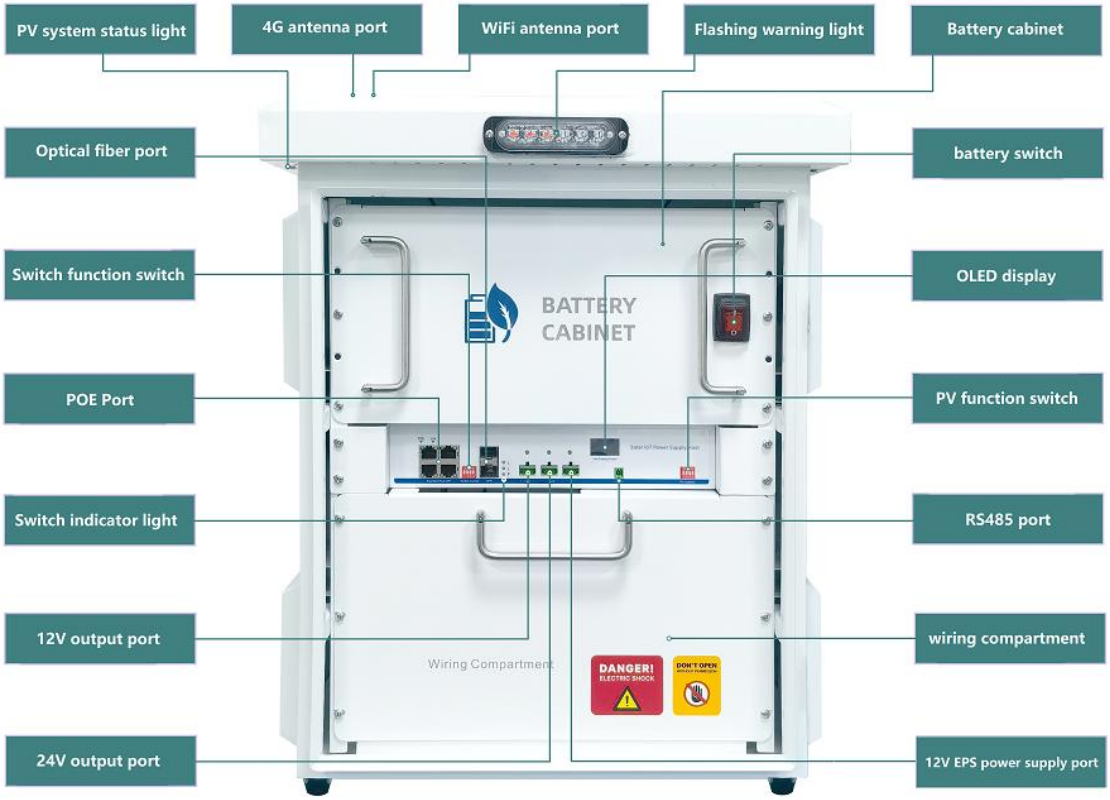
4.Intelligent Monitoring: Equipped with a built-in OLED LCD screen, it clearly displays status information such as charging/discharging current, voltage, load power, daily power generation, cumulative power generation, and fault alarms. The external LED indicators on the device allow users to check the equipment status at any time without climbing up to open the case. Real-time feedback of 4G operating status (for models with built-in 4G router) completely solves problems in traditional construction such as numerous accessories, messy wiring, and difficult debugging and maintenance, achieving a plug-and-play user experience.

5.Reliable Protection: It has 10 comprehensive safety protection functions, covering protection against overcharging, over-discharging, over-discharge activation, repeated restart due to low battery, reverse connection of lines, short circuit, overcurrent, overvoltage, overload, surge, lightning strike, overheating, etc., ensuring safe and reliable operation of the system.

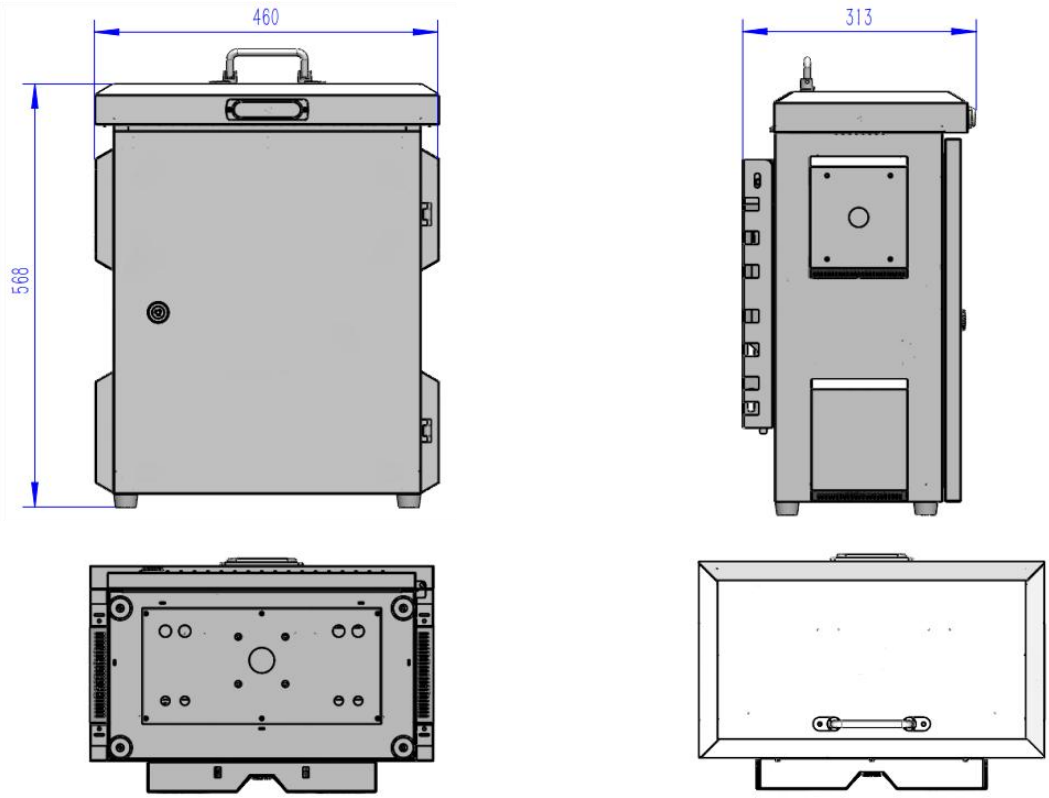
6.Flexible Expansion: Adopting a modular hardware structure design, it can easily expand into different types of models such as Internet of Things, AI recognition, and high-definition storage versions. The software supports operation on Internet platforms and mobile APP terminals, meeting the all-round needs of equipment power supply and transmission in independent environments.

7.Wide Application: The system is applicable to numerous fields such as forest fire prevention, geological disaster resistance, environmental protection supervision, security systems, agricultural systems, water conservancy systems, petroleum systems, power systems, and communication systems, providing efficient and stable independent power supply solutions for projects.

Product Structure



Product dimensions



Product Features

Port Performance:

- Provides 2 100/1000M Auto PoE power supply ports, each with an independent maximum output of 30W and switchable between 24V/48V.
- Provides 2 100/1000M 802.3BT PoE ports, each with an independent maximum output of 90W.
- Provides 2 1000Mbps SFP fiber ports.
- Provides 1 12V 5A power output port.
- Provides 1 power output port with 24V5A or 36V5A.
- Provides 1 EPS 12V3A output (to provide uninterrupted power supply for gateways and 4G routers).
- Provides 1 set of 35A MC4 solar input ports.
- Provides 1 AC110V-277V AC power module input port, converting to DC36V output (mains module needs to be purchased separately).

Intelligent PoE Power Supply

- Two 100/1000 Base-TX RJ45 ports support BT PoE high-power 90W power supply, suitable for high-power devices such as 3-9 inch infrared night vision dome cameras and public address systems.
- Two 100/1000 Base-TX RJ45 ports support fully automatic PoE power supply, automatically identifying and powering both 48V standard and 24V non-standard PoE-powered devices without risk of damage, offering plug-and-play compatibility for all security applications.
- When paired with PD-side splitters, it outputs 5V, 12V, 24V, and 48V to comprehensively solve the challenges of powering and transmitting data for outdoor equipment.
- PoE power transmission up to 150 meters eliminates distance limitations, allowing load devices to be installed in low-light environments while solar systems are positioned in sunny locations.

Charge-Discharge Performance

- Supports 300W photovoltaic panel input, with constant current and constant voltage control to prevent shutdown due to input power exceeding the designed value (if the input exceeds 300W, it still operates at 300W input power).
- Charging current: 20A
- Total load output power: 15A (when used with a 12V battery, the total load output is 180W 15A; when used with a 24V battery, the load output is 360W 15A)

Fully Automatic Mains Charging (Mains module accessories must be purchased for street lamp mode charging)

- AC 110V~270V wide voltage input.
- DC36V 150W constant current and constant voltage output.

- Mains priority or photovoltaic priority mode can be selected.

Efficient and Intelligent Charge-Discharge Technology

- Adopts true online MPPT charge-discharge technology, which can achieve 100% detection and tracking efficiency for photovoltaic panels. It automatically tracks the maximum voltage and current values (maximum power), enabling the system to charge the battery with the highest efficiency and increasing the charging capacity by up to 25%.
- Current-limiting charging: When the charging power of the photovoltaic panel is too high and the charging current exceeds the rated current, the controller will automatically reduce the charging power to keep it operating within the rated charging current range. This solves the problem of shutdown caused by high current in sunny days while ensuring that multiple high-power solar panels can still generate electricity in low light conditions on rainy days.
- Synchronous discharge: Equipped with online charge-discharge management technology, it can truly realize mixed output from photovoltaic panels and batteries to power load devices when light conditions are poor. After the battery is fully charged, it activates a one-way battery channel and diverts the excess energy from the solar panels to power the load devices, thereby slowing down the battery discharge rate and equivalently charging the system.
- Low-light power generation: With an efficient charging algorithm, it can still generate electricity even on cloudy days, effectively slowing down the battery discharge time to achieve charging and energy storage.
- Discharge and recharging: When the battery is fully charged at noon, the system starts discharging. When the battery discharges to 97% and the solar panel voltage meets the charging requirements, the system will automatically determine and re-enter the charging mode based on the algorithm.
- Fully automatic mains direct charging mode: Supports external mains modules for charging the system.
- Dual-channel power supply output: Max3426A 12V+24V; Max3426B 12V+36V;

10 Safety Protection Functions for Comprehensive Protection of Solar System Reliable Operation

- Automatic identification: It can automatically identify batteries and devices, eliminating the need to plug in devices first before batteries or vice versa. This achieves true plug-and-play functionality.
- Reverse connection protection: If the positive and negative poles of the solar panel, load output, or cables are reversely connected, the device will not be damaged. This perfectly solves the problem of device burnout caused by incorrect insertion.
- Overcharge/over-discharge protection: Equipped with a 2-level PCM battery protection circuit, achieving true 2-level protection.
- Delayed charge-discharge: The system performs delayed charging and discharging through algorithms. It starts supplying power when the load usage power is reached during recharging, avoiding damage to powered devices caused by low-voltage and high-current due to frequent restarts from incorrect working mode switching in the early morning to morning period.
- Battery self-activation: When the battery fails to start due to long-term storage of the device or excessive battery discharge, the unique 0V low-voltage EMD automatic activation technology can automatically match the voltage of various types of batteries for activation, restoring the battery to normal operation.

- High-temperature protection: In case of overload or high-temperature heating faults caused by battery or solar panel malfunctions, the main unit will automatically power off to protect the entire system.
- Battery backflow prevention: Reverse current protection (prevents battery backflow to the solar panel during cloudy days or at night when there is no sunlight).
- Temperature control monitoring: Built-in automatic temperature monitoring and collection function, which can adjust the fan speed to maintain the internal temperature balance of the system for long-term stable operation.
- MPPT charging technology is adopted to ensure that the battery is charged under the optimal constant current and constant voltage working condition, thus extending the service life of the battery pack.
- Supports local manual system upgrade and manual control of upgrades. (A USB flash drive tool is required)

OLED high-definition LCD screen with accurate display

- Adopts a 0.96-inch OLED liquid crystal display screen.
- Photovoltaic panel: Displays the voltage and charging power of the solar panel.
- Battery: Displays the current voltage of the battery and the battery capacity percentage.
- Load power: Displays the total power of power-consuming devices.
- Load fault alarm: Displays alarm information for load overcurrent, load overvoltage, and load short circuit.
- Photovoltaic alarm: Displays text information for photovoltaic input overvoltage, NTC temperature collection failure, and system over-temperature protection.
- Real-time statistics: Displays daily power generation and cumulative power generation after charging ends.
- Host temperature: It can display the host temperature in real time (requires purchasing the built-in gateway model and using the cloud platform software to monitor on the computer/mobile phone).

External LED status indicator light

- External chassis: Equipped with 8 F8-spec LED indicators to show the status of the solar panel, host system, battery faults, and charge-discharge percentage. There's no need to climb up or open the case, allowing every working state to be clearly visible at a glance, making it easy to understand the device's operating status.
- The chassis can be equipped with an external 4G status indicator: Displays the router power, 4G working status, and LAN data transmission status.

IoT cloud platform for remote operation and maintenance (requires purchasing the built-in gateway model).

- Displays daily statistics of solar panel power generation.
- Displays cumulative statistics of solar power generation.
- Displays solar operation statuses: startup; synchronous discharge; low-battery power generation; charging; discharging; activation.
- Displays solar panel voltage; charging current; charging power; battery voltage; battery percentage.
- Displays faults: photovoltaic overvoltage, overcurrent, load short circuit, NTC collection abnormality, system overheating.
- Real - time display of host temperature and ambient temperature.
- Remote operation and maintenance: enables/disables the load.
- Support for video - stream access and display, and local storage of remote videos on the PC - side.
- Supports remote addition and management of user roles, including security levels, groups, and project

information.

Local Quick Network Management + Power - supply Self - maintenance

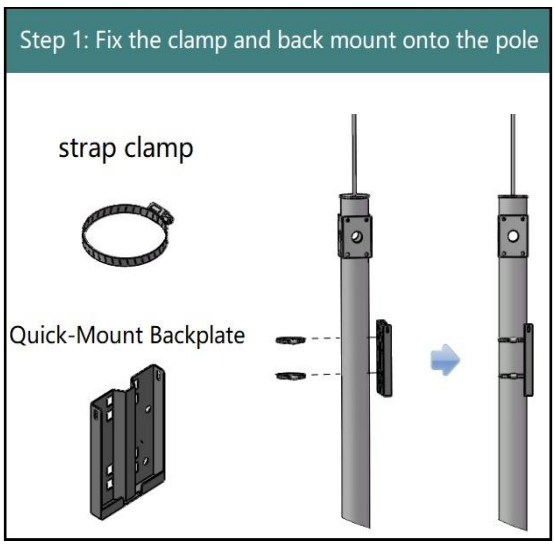
- Supports Ethernet hardware watchdog (PoE Watchdog): Automatically detects and restarts to resolve network disconnections and abnormal power supply caused by faults such as MAC address loss, network fake death, protocol mismatch, and PoE no power output, reducing system maintenance costs and increasing the uptime of equipment.
- Supports SFP fiber port hardware watchdog (Fiber Port Watchdog): Restarts and reconnects fiber data in case of network data congestion or device downtime.
- Supports SFP fiber ring network loop-through.

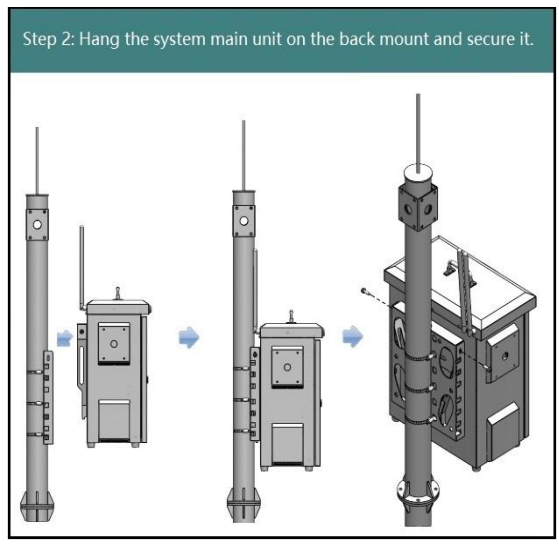
Flexible expansion methods (industry integration customization)

- The PoE solar power supply system is a standardized hardware platform for power supply and networking that highly integrates network modules, power supply modules, and power control modules. It can expand solar power supply systems used in various industries according to project requirements and integrate equipment from different industries into this power supply system. It can realize built-in NVR + hard disk storage, LTE wireless networking, IoT modules, and agricultural data collection modules, making this system a hardware infrastructure for the solar power supply system of IoT devices.
- It can connect different types of sensors based on the internally embedded devices: temperature, humidity, altitude, water level, wind speed, vibration, radar, etc.
- Real-time networking and uploading of video, audio, control, and switch 量 data from various industry products for unified management. (Customized for engineering projects)
- Customized functions such as built-in multiple battery packs and external multiple solar panels.

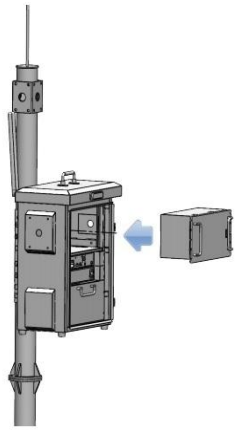
Efficient and quick installation method

The new distributed installation mode completely solves the installation problems in the photovoltaic industry. It reduces the construction time by 60%, cuts the number of construction workers by half, enables quick installation, saves expenses, and addresses the difficulties in post-sales replacement construction.

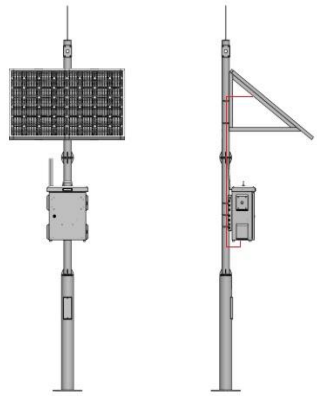




Step 3: Install the battery into the main unit, and turn on the battery switch after connecting it properly.



Step 4: Connect the photovoltaic panel, and put it into use after the installation is completed.



High-efficiency photovoltaic panels

- Adopts 36V 300W photovoltaic panels
- High-efficiency monocrystalline silicon cells with a conversion efficiency of up to 21%
- Power tolerance range: The output power is guaranteed to be within a tolerance range of -5% to +5%
- Adopts 93% high-transmittance tempered glass, which is ultra-white and low-iron
- Adopts anodized aluminum alloy frame: corrosion-resistant, wear-resistant, and high surface hardness
- The photovoltaic panel can withstand: wind load (2400 Pascal); snow load (5400 Pascal)
- Service life: 25 years, with a guaranteed output power of more than 90% for 10 years and more than 80% for 25 years
- Certified by international authoritative organizations such as IEC and TUV

Excellent energy storage materials

- Standard - equipped with 24V 2.5kWh ternary power lithium battery pack (automotive grade): Its volume and weight are both 1/4 of that of lead-acid batteries in the same industry, solving the practical problems of being bulky and space - consuming during installation (larger capacity battery packs can be ordered according to actual application needs).
- It can maintain over 80% of energy storage capacity after 1200 charge-discharge cycles, with a service life of 5-7 years, which is 4 times that of lead-acid batteries, avoiding premature battery scrapping and extending the service life.
- The DC24V lithium battery pack is adopted to reduce the huge heat generated during charging and discharging, preventing battery explosion and damage.
- Stable operation within the temperature range of -0°C to 55°C (for low-temperature environments, an external battery pack is required, and the device should be placed in a manhole for use).
- Customizable 304 stainless steel military-grade IP67 waterproof battery packs can be fully submerged in water for 7-30 days and still function normally, solving the problem of on-site inoperability and battery damage caused by floods.

Customized expansion function modules

- A rack-mounted fiber optic expansion module (4-port terminal box) can be added according to usage requirements.
- A rack-mounted inverter expansion module (24V input, AC110V-240V output, 500W power) can be added

according to usage requirements.

- A rack-mounted mains power expansion module (AC110V-277V input, DC36V output, 150W power) can be added according to usage requirements.
- A Poe alarm-linked acousto-optic warning light can be added according to usage requirements.
- A PoE public address speaker can be added according to usage requirements.

Technical indicators / Specification parameters

Model		Max3426A	Max3426B
Charge - Discharge Performance	Solar panel input power	300W (When over - power is input, the system limits the input power to 300W for continuous operation without downtime)	
	Input voltage withstand	60V	
	Charging current	20A	
	Discharging power	15A, 360W	
	Charging power matching	36V solar panel charges 24V battery	
	Daily power generation (sunny days)	PV 300W, daily power generation 1800wh	
	Daily power generation (cloudy and rainy days)	PV 300W, daily power generation 180wh	
Charging Methods	MPPT	First stage: When the battery is in a power - deficit state, trickle charging (charging with a small current rising at a uniform speed)	
		Second stage: The main stage, within the rated charging current, MPPT charging at maximum efficiency	
		Third stage: Constant voltage charging, stop charging after the capacity reaches the preset value	
Fiber Optic Communication Ports	SFP	2 x 1000M	
POE Power Supply Ports	PoE	2 x 1000M, 802.3BT	
	AUT0 PoE	2 x 1000M, 802.3AT; 24V/48V manual switching	
	PoE performance	Ports 1 - 2, AUTO POE, 30W	
		Ports 3 - 4, BT PoE, 90W	
	POE distance	150 meters	
	POE protection	High - frequency short - circuit protection, surge protection, over - current protection, over - voltage protection, overload protection	
	POE startup	Ports are powered on one by one with an interval of 50 milliseconds	
Standard Power Supply Ports	DC12V	2P 7.62, 12V 5A	2P 7.62, 12V 5A
	DC24V	2P 7.62, 24V 5A	2P 7.62, 36V 5A
Panel Indicator Lights	Fiber optic uplink	Supported	
	Network port uplink	Supported	
	Switch power	Supported	
	Switch downlink	Supported	
Energy Storage Ports	Solar input	MC4 35A	
	Battery input	XT60E - M	
Data Ports	RS485 communication port	2P 3.08, standard Modbus Rtu protocol	
Network Transmission Performance	Network protocols	IEEE802.3, IEEE802.3i, IEEE802.3u, IEEE802.3z, IEEE802.3x	
	Backplane bandwidth	56G non - blocking	
	Packet forwarding rate	40.32Mbps	
	MAC address	8K	

	Port speed	10M/100M/1000M auto - adaptation
	Fiber optic ring network	Dual SFP ports support ring network connection, transmission distance 120KM (with external fiber optic module)
Display Screen	Material	Industrial - grade 0.96 - inch OLED
	Status	Activation, startup, low - power generation, simultaneous discharging, charging, discharging, end of discharging
	Measurement	Charging voltage, charging current, charging power, battery voltage, power percentage, load power consumption
	Statistics	Daily power generation / cumulative power
	Alarm	Photovoltaic over - voltage / system over - temperature / load short - circuit / load over - current / NTC sensor failure
PV Function Switches	On/Off	Supported, toggle switch
	Battery type switch	Select battery type: lead - acid battery, ternary lithium battery, lithium iron phosphate battery
	Battery voltage switch	Select battery voltage: 12V / 24V
Switch Function Switches	AUT0 PoE	Ports 1 - 2 ON for 24V, OFF for 48V
	Network port watchdog	Toggle switch 3 ON to enable Poe network port watchdog, Off to disable
	Fiber optic watchdog	Toggle switch 4 ON to enable fiber optic network port watchdog, Off to disable
Battery	Ternary lithium battery	24V 117A
	Nominal capacity	2527wh
	Control switch	50A
	Input port	XT90E - M
Solar Panels	Input voltage	36V 300W
	Type	Monocrystalline
	Interface	MC4 35A
Fixing Accessories	Photovoltaic - specific support	11 pieces of 30 - angle steel, combined type
	Hose clamp	300 - kg load - bearing tensile force, diameter 20cm, thickness 1mm
	Monitoring pole	6 - meter combination/3.6 - meter combination (optional)
Special Application Scenarios	Utility power charging mode	Utility power module, AC110V - 270V input, DC36V output, 150W (optional)
Charge - Discharge Protection	Delayed charge - discharge	When re - entering the photovoltaic power generation mode after discharging ends, avoid repeated startup and restart of the device caused by power - on under low power, which may damage the device
	Battery self - activation	Supports 0V low - voltage EMD automatic activation technology to restore the over - discharged battery to normal operation
	Simultaneous charge - discharge	Supports the mixed output of the photovoltaic panel and the battery to power the load device when the light is weak
	Discharge - recharge	Supports the restoration of the charging mode after the battery discharges to 97%
	Reverse current protection	Prevents the battery from back - flowing to the solar panel on cloudy days or at night when there is no sunlight
	PCM	Dual PCM protection for the battery to prevent over - charging and over - discharging
	Charging protection	Uses MPPT high - efficiency charging tracking algorithm to extend the battery life
	High - temperature protection	Automatically reduces the frequency of operation in a software - balanced manner or shuts down the system to protect the host when detecting that the motherboard temperature is too high

	High - temperature heat dissipation	Immediately activates the ventilation and heat dissipation system to balance the internal temperature when the internal system temperature exceeds 40℃
Physical Connection Safety Assurance	Load output protection	DC DC output, short - circuit protection / reverse connection protection; Poe short - circuit protection, with indicator light alarm
	Solar panel protection	Prevents the solar panel from being burned due to reverse connection (does not include battery positive and negative terminal reverse connection protection)
	Fully automatic identification and startup	Gives priority to identifying the battery voltage and type, and automatically matches the solar panel voltage bidirectionally
Network Connection Safety Assurance	Network port hardware watchdog	Supports automatic network restart, maintenance - free
	Fiber optic hardware watchdog	Supports automatic fiber optic restart, maintenance - free
POE Power Supply Safety Assurance	Power supply watchdog	Supports power supply detection and automatic restart, maintenance - free
Mechanical Characteristics	Installation method	Wall - mounted, pole - mounted
	Enclosure material	Galvanized steel plate for the chassis / steel plate hanger / stainless steel hose clamp
	Enclosure protection level	IP55 protection level
	Product dimensions	460 (L)×313 (W)×568 (H)
	Packing dimensions	530 (L)×383 (W)×648 (H)
	Total weight	Net weight: 34Kg / Packing: 3.4kg (excluding the photovoltaic panel and the photovoltaic support)
Host Operating Environment	Operating temperature	- 15 to 55℃ (- 40 to + 131F)
	Storage temperature	- 30 to 65℃ (- 68 to + 199F)
	Relative humidity	5% - 95% (non - condensing)
Industry Standards	Certification	Complies with CE, FCC, RoHS safety regulations requirements

Equipment stability and reliability

- The host machine features low power consumption and a galvanized steel metal casing (all-aluminum alloy + stainless steel casings can be ordered according to the project's operating environment, suitable for various corrosive and harsh environments). It is equipped with forced air cooling to ensure stable operation of the product.
- The solar panels comply with the certification requirements of China's ISO9001 system, as well as the CE and TUV certifications of EU countries.
- The batteries meet the requirements of UN38.3 and MDS international maritime transportation certifications.
- The equipment is fully compliant with the safety regulations requirements of 3C, CE, FCC, and RoHS, ensuring safe and reliable use.

Application environments

- Security monitoring, forest fire prevention, smart agriculture, environmental protection supervision, petroleum, electric power, water conservancy, geological disaster resistance, campuses, factories, scenic spots, and various unattended environments.

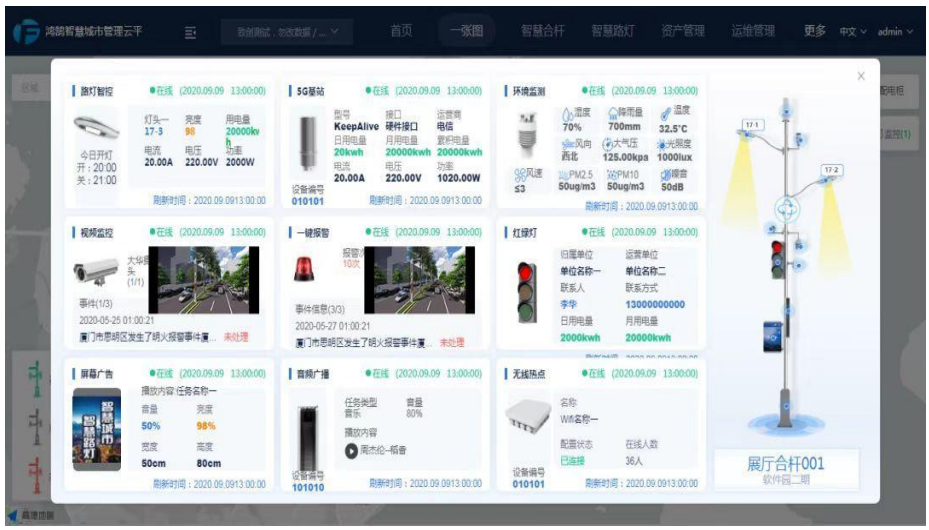
Industry-specific customized development

It adopts an open IoT architecture design, enabling in-depth interconnection with management systems across multiple industries and building an intelligent energy management ecosystem. Through standardized API interfaces and protocol conversion modules, it can seamlessly connect to our company's professional platforms such as the IoT integrated management system, intelligent photovoltaic management system, comprehensive energy efficiency management system, lighting management system, AI video surveillance system, and water conservancy

management system, achieving data intercommunication and intelligent linkage control.

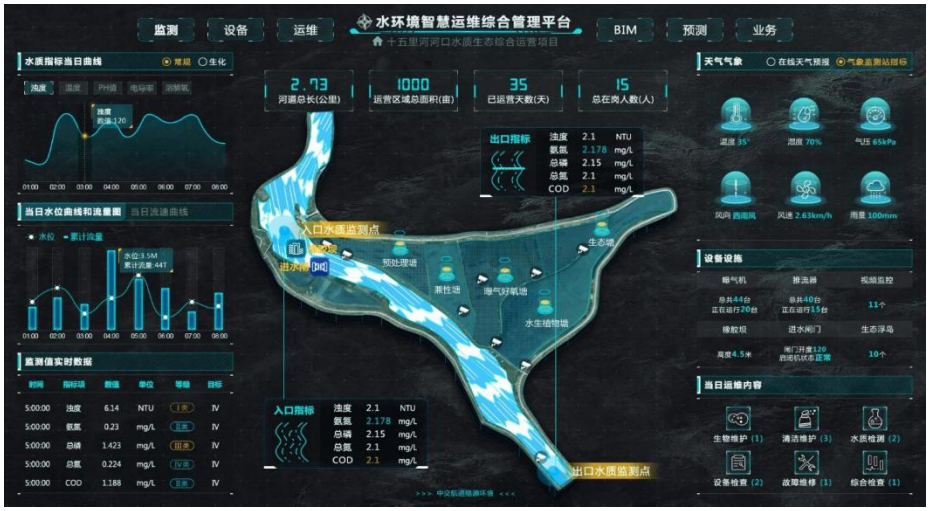
- IoT Integrated Management System / Smart Pole Integrated Management System

It includes over 100 devices and functions such as video surveillance, street lamp control, indoor lamp control, night scene control, radar speedometers, environmental detectors, emergency calls, one-key alarm, LED advertising screens, audio columns, 5G/WIFI base stations, and water level detection. Front-end devices can be deployed on smart light poles, integrated poles, outdoor columns and other equipment. The system modules have functions such as detection, control, management, AI analysis, and big data analysis. Hardware and software devices can be deployed independently or comprehensively applied as needed.



- Water Environment Smart Operation and Maintenance Integrated Management Platform

It integrates over 25 devices and functions such as multi-parameter water quality monitors, micro water quality stations, flow and water level meters, unmanned inspection boats, automatic samplers, aeration and oxygenation equipment, and ecological floating islands. Front-end devices can be deployed at key nodes such as river sections, lake reservoirs, river inlet sewage outlets, and wetland parks. The system modules have functions including real-time water quality early warning, pollution source tracing analysis, ecological restoration regulation, emergency treatment decision-making, and closed-loop management of operation and maintenance work orders. It supports data intercommunication with water conservancy dispatching systems and meteorological early warning platforms. The hardware and software can independently build small-scale water monitoring stations, and can also be connected to urban-level environmental protection supervision platforms to realize basin collaborative governance.

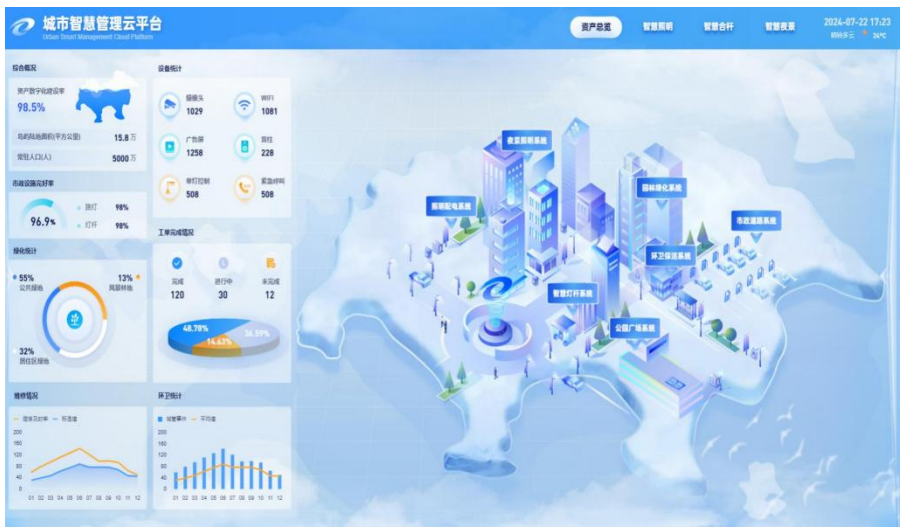


➢ Urban Underpass Integrated Management System

It includes over 20 devices and functions such as water level monitoring sensors, automatic drainage pump sets, waterlogging early warning devices, water quality detectors, emergency lighting equipment, and video inspection units. Front-end devices can be deployed in waterlogging-prone areas such as underground passages, tunnel culverts, and sunken road sections. The system modules have functions including real-time water level monitoring, automatic pump-valve linkage, waterlogging risk early warning, remote dispatching and control, drainage efficiency analysis, and operation and maintenance work orders. It supports linkage with meteorological data platforms, predicts waterlogging trends through AI algorithms, and the hardware and software devices can be independently configured into drainage units or integrated into urban flood control command systems for comprehensive application.

➢ Smart Municipal Integrated Management Platform

It covers over 30 municipal management units such as smart street lamps, garden greening sprinkler control, manhole cover monitoring, trash bin overflow detection, road waterlogging sensing, and public facility repair reporting. Devices are deployed in areas such as urban main roads, back streets and alleys, and park squares. The system modules integrate functions including equipment status monitoring, municipal asset management, automatic work order dispatch, municipal resource scheduling, and citizen service response. It supports a hierarchical management model, which can manage individual municipal facilities independently or build an urban-level management brain.



➢ Smart Lighting Integrated Management Platform

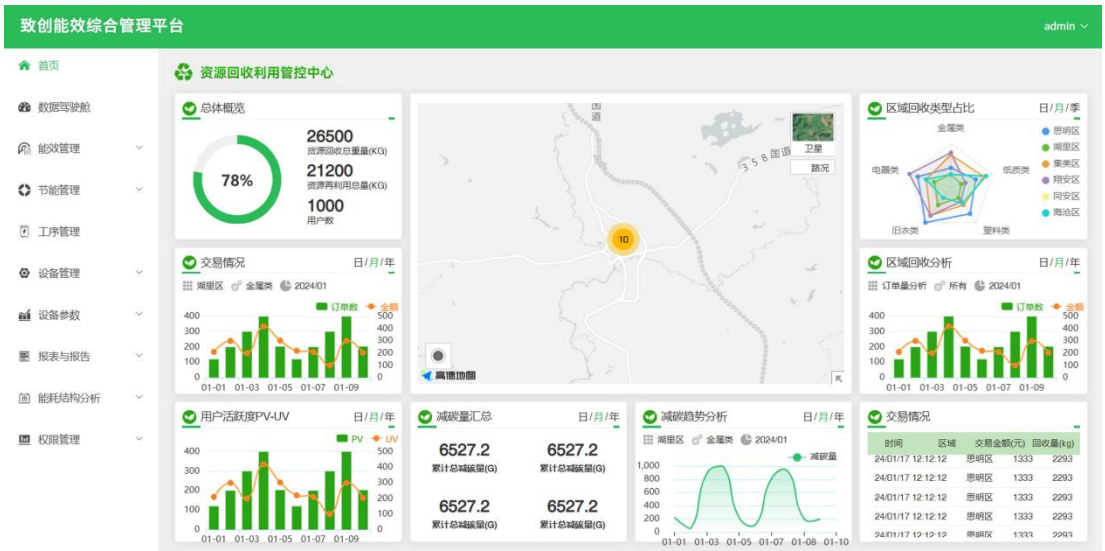
It includes two major parts: outdoor lighting and indoor lighting, covering subsystems such as municipal street lamps, solar street lamps, night scene lighting, tunnel lighting, industrial lighting (ports, mines), plant lighting, and emergency lighting. It integrates over 20 devices and functions such as smart light sources, digital power supplies, single-lamp control, illuminance detectors, dimming modules, UWB positioning, AI video recognition, radar monitoring, and human body induction sensors. The system modules have functions including remote centralized control, AI automatic dimming strategies, dynamic energy consumption monitoring, accurate fault location, lighting quality evaluation, operation and maintenance inspections, and work order management. Through AI adaptive algorithms, it realizes dynamic energy saving of "lights on when vehicles come, lights dim when vehicles leave", with a comprehensive energy saving rate of 70% in typical road sections. It supports linkage with traffic signal systems and security monitoring platforms, and can independently build a district-level lighting network or be connected to a smart city management platform to achieve cross-system collaboration.

➢ Intelligent Photovoltaic Management Platform

It integrates over 25 devices and functions such as photovoltaic inverters, photovoltaic optimizers, irradiance sensors, module temperature detection, battery health monitoring, and shadow analyzers. The equipment is suitable for deployment in scenarios such as rooftop power stations, photovoltaic carports, and solar farms. The system modules realize functions including power generation efficiency diagnosis, component-level fault location, intelligent cleaning reminders, energy storage strategy optimization, and power generation revenue prediction. The built-in AI power adjustment algorithm increases power generation in low-light environments by more than 15%. It supports off-grid/grid-connected dual-mode switching and can operate independently or be connected to the grid dispatching system to participate in peak-valley regulation.

➢ Energy Efficiency Integrated Management Platform

It includes over 28 energy efficiency devices such as smart electric meters, air conditioning centralized control terminals, elevator energy consumption monitoring, lighting circuit metering, and photovoltaic energy storage linkage. The deployment covers scenarios such as commercial buildings, industrial parks, and public buildings. The system modules have functions including three-dimensional visualization of energy consumption, equipment energy efficiency rating, automatic generation of energy-saving strategies, and carbon emission accounting. The AI algorithm dynamically adjusts air conditioning temperatures according to passenger flow, with an energy-saving rate of 25% in typical scenarios. It supports energy consumption auditing from a single device to park-level energy topology analysis. The hardware and software can either implement energy-saving renovations in separate items or build a global energy efficiency management network.



Optional Expansion Accessories

Model	Function	Specifications
Max-SDR	AC to DC	★Total output power: 150W ★Input voltage range: 110-277V ★Output voltage: 36V ★Supports mains priority/photovoltaic priority (optional)
Max-GXR	Fixing fiber	★Number of fiber ports: 4 ★Fiber port type: LC/SC (optional) ★Installation method: guide rail/rack type ★Material: galvanized steel sheet with electrostatic spraying on the surface
Max-NBR500	DC to AC	★Total output power: 500W ★Input voltage range: DC24V ★Output voltage: AC110V-277V ★LCD display ★Output ports: 2 AC panels (optional: national standard/US standard/European standard/South African standard/British standard)
Max-NBR1000	DC to AC	★Total output power: 1000W ★Input voltage range: DC24V ★Output voltage: AC110V-277V ★LCD display

		★Output ports: 2 AC panels (optional: national standard/US standard/European standard/South African standard/British standard)
Max-WG-S	IoT remote control	★Input voltage range: 6-36V input ★Video stream access: supports Hikvision, Dahua, Uniview, Tonva, Tiandy, TPlink, T 视通 (TianShitong) ★Protocol: MODBUS standard communication protocol ★Cloud platform: New Energy Aggregation Management Cloud Platform
570S-GT	POE power supply	★Maximum output power: 90W ★Output voltage range: adjustable voltage 12V/7.5A, 19V/4.75A, 24V/3.74A, 48V/1.9A ★Port rate: 100M/1G/2.5G ★Ports: 1 POE input + 1 data output ★DIN specification: compliant with IEEE802.3AF/AT/BT standards
570H	POE power supply	★Maximum output power: 15W ★Output voltage range: adjustable voltage 12V/1.2A ★Port rate: 100M ★Ports: 1 POE input + 1 data output ★DIN specification: compliant with IEEE802.3AF/AT standards

Product Order Information

Equipment Model	Equipment Information
GL-Max3426A	Standard configuration: 24V 117A battery pack + 300W 36V monocrystalline solar panel; 12V + 24V + EPS + 2BT POE + 2auto POE + 2SFP
GL-Max3426B	Standard configuration: 24V 117A battery pack + 300W 36V monocrystalline solar panel; 12V + 36V + EPS + 2BT POE + 2auto POE + 2SFP

Product Packaging List

Item Name	Quantity	Unit
IoT Poe Solar Power Supply System (GL-Max3426A; GL-Max3426B)	1	set
36V 300W Solar Panel	1	piece
Special Bracket for Solar Panel	1	set
Hoop (standard configuration from factory)	3	piece
Pipe Clamp (distributed when purchasing solar panels and solar brackets)	2	piece
Special Key	1	piece
System User Manual and Quick Installation Guide (electronic version)	1	copy
Warranty Card and Certificate of Conformity	1	copy

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