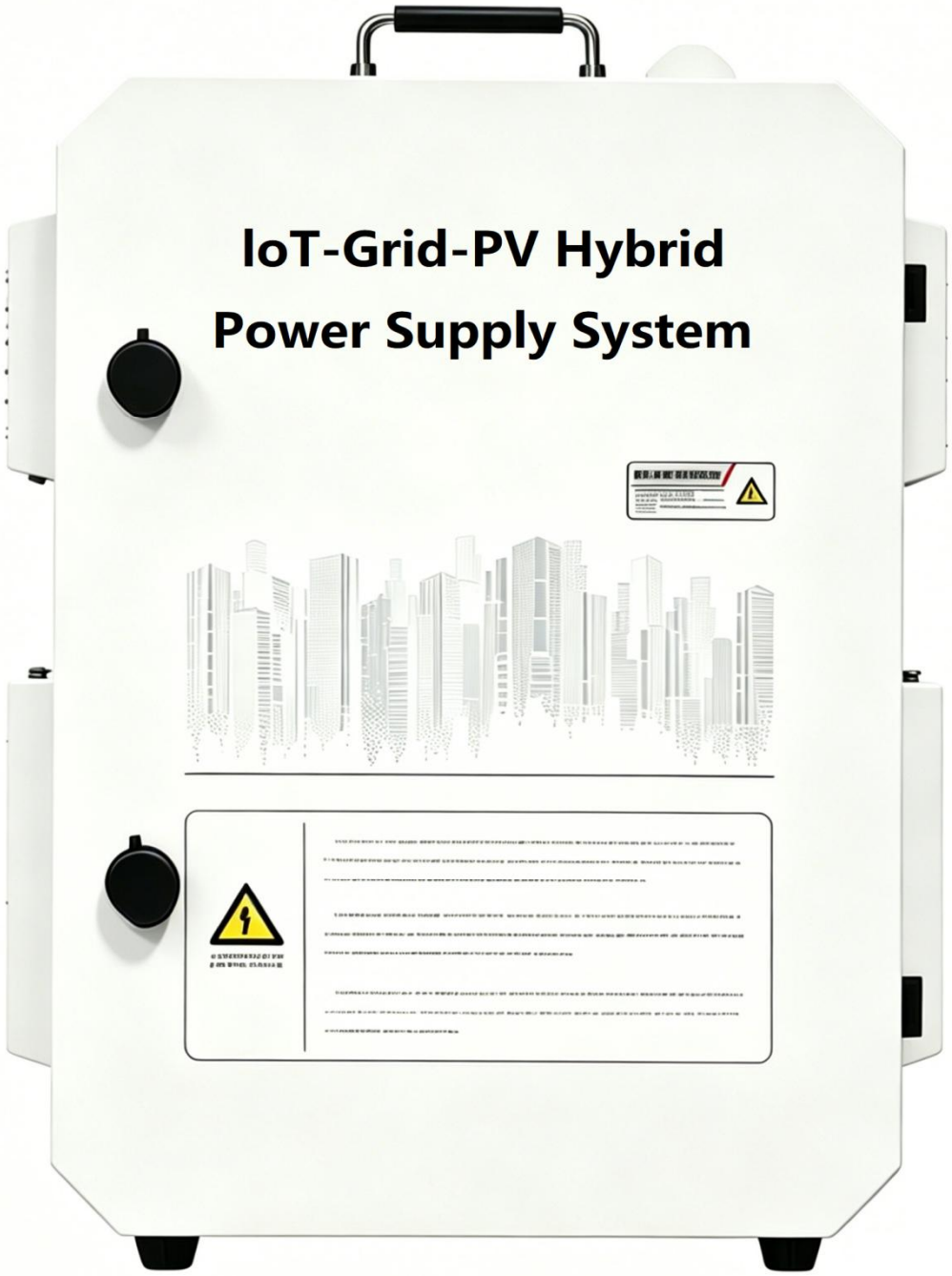
Max3326 Series IoT-Grid-PV Hybrid Power Supply System

Model: Max3326R-AC



Version: 2026-V2.1

Innovative Integration, Pioneering a New Journey for New Energy Low-Voltage Systems

Aurora JL Max3000 Series IoT Mains-Photovoltaic Complementary Power Supply System is tailor-made for the integration of network digital new energy weak current systems and stands out uniquely in the industry. As a cutting-edge multifunctional solar power supply platform, it perfectly integrates comprehensive functions, simple operation, complete hardware protection and flexible application expansion.

Integrated with a number of invention patents, the system deeply integrates solar power generation control, network data exchange, multi-protocol 48V/24V PoE power supply, and synchronous power supply with DC12V-48V DC output. Supported by advanced 4G/5G technology, it enables convenient data transmission and control between LAN and WAN, integrates terminal control devices from various industries into the power generation platform, and successfully breaks the application bottlenecks in network-free and power-free environments.

With the patented multi-functional PSE technology, 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, the patented solar charge and discharge chip supports high-efficiency MPPT charging up to 20A, which greatly improves the power generation efficiency of solar panels and lays a solid power foundation for the stable operation of the system。

Remarkable Advantages Over Traditional Products

Traditional solar products adopt a scattered combination mode, with intricate internal wiring like a spider web and disorderly external pole installations. The functions and performance of combined equipment are uneven. This not only leads to high costs, cumbersome and complex debugging processes and poor flexibility in expansion, but also brings great troubles to use and maintenance. In sharp contrast, the Max3000 Series PoE Solar Power Supply System provides a one-stop ultimate solution for integrated projects of digital new energy low-voltage systems.

Outstanding Features Leading the Industry

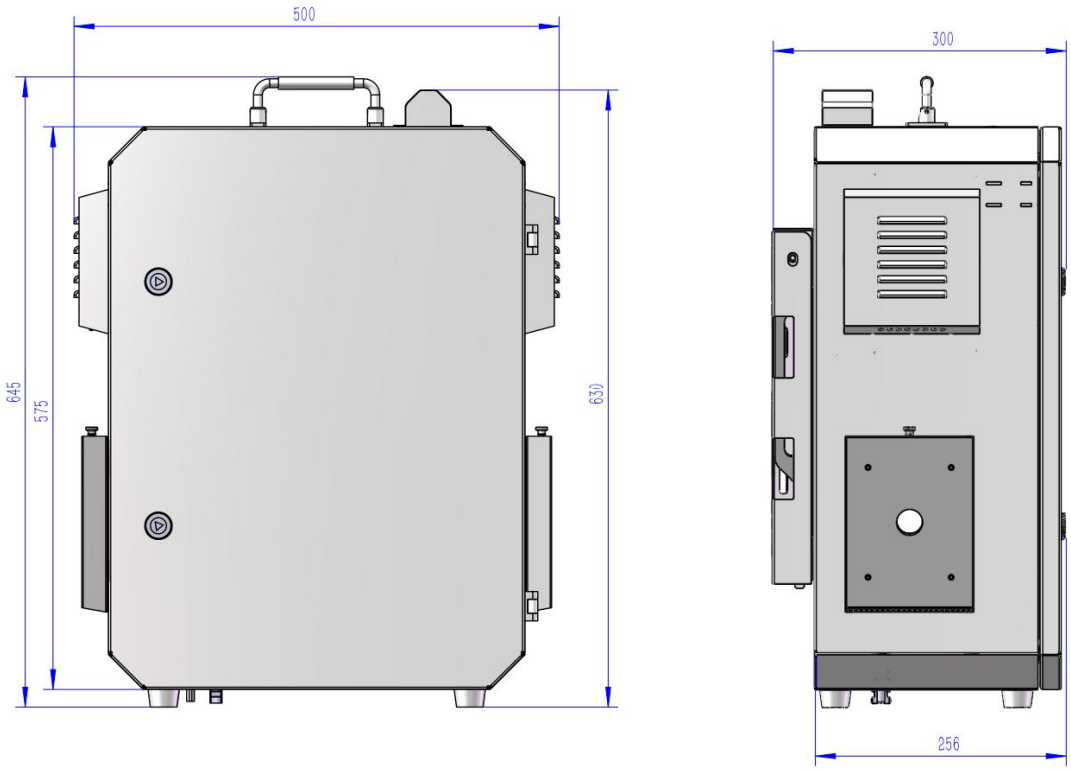
- **High Integration**: Independently developed by JGZL, the GL-Max3000 Series highly integrates MPPT charge and discharge control, multi-voltage simultaneous output with reverse connection protection, PoE power supply and data switching functions. It also supports charging in mains mode, making it a highly innovative high-tech product.

- **Diversified Power Supply**: Adopts the world's leading POE safe power supply mode (IEEE802.3af/at/bt), and is equipped with synchronous DC output at DC ports, covering DC12V–24V. It has a 12V EPS to provide uninterrupted power output for gateways/DTU/RTU, so that system status can be checked at any time, and load output can be remotely turned on and off for simple remote operation and maintenance. An internal conversion module can be added according to demand to convert DC current to AC110V–277V, fully meeting the diverse needs of simultaneous use of equipment with different voltages. The built-in dual switching control module supports automatic switching between mains priority and photovoltaic priority modes for different scenario requirements.
- **Intelligent Cloud Platform Centralized Management and Operation & Maintenance**: The built-in gateway of the system can realize remote monitoring of the operating status of the solar system on the platform, with a clear view of data such as charging voltage, current, power, battery voltage, battery SOC, load power, current power generation and cumulative power generation. It can also remotely turn on/off load output to power off and restart load equipment for simple operation and maintenance.
- **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 to ensure continuous and efficient operation of equipment.
  - **Photovoltaic Priority Mode**: Adapt to off-grid or new energy scenarios, prioritize the use of clean energy to achieve low-carbon power supply.This solution deeply integrates the "DC + AC" dual-track power supply architecture and intelligent energy management system, which not only solves the problem of voltage compatibility of multiple equipment, but also provides highly reliable and flexible power supply solutions for smart cities, industrial Internet of Things, off-grid base stations and other scenarios through automatic switching of energy strategies, helping to maximize energy efficiency and achieve green and low-carbon goals.
- **Intelligent Monitoring**: Built-in OLED LCD screen, clearly displaying status information such as charge/discharge current, voltage, load power, daily power generation, cumulative power generation, fault alarms, etc. External LED indicators on the body allow you to check the equipment status at any time without climbing and opening the box. It completely solves the problems of

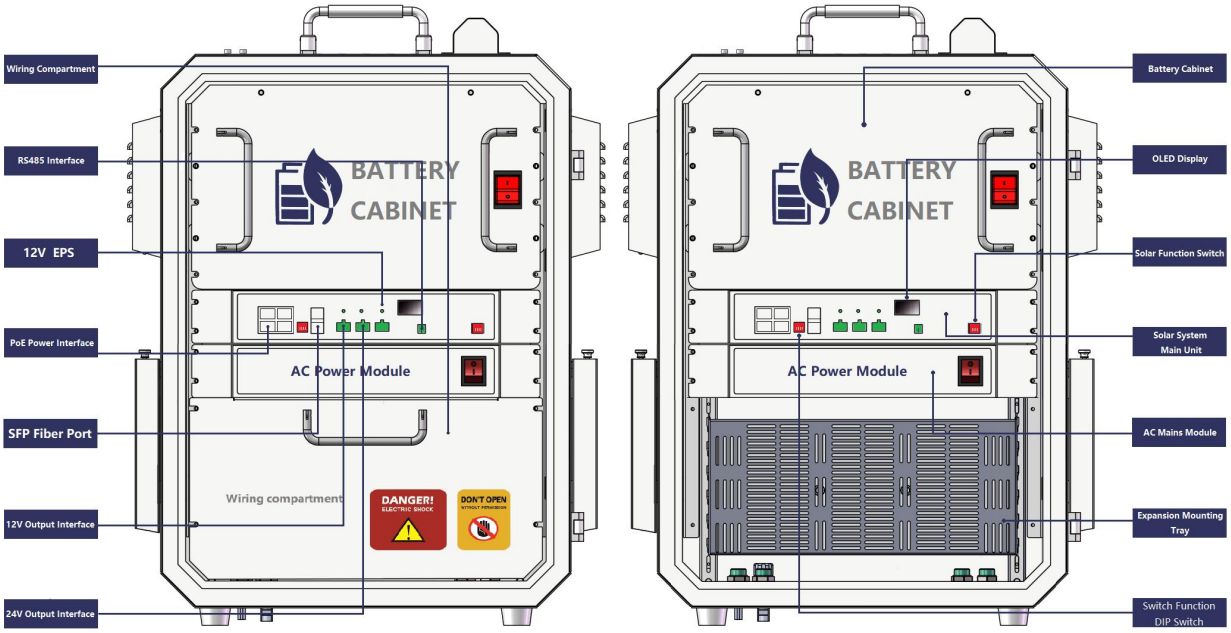
numerous accessories, disorderly wiring, difficult debugging and maintenance in traditional construction, and realizes a convenient plug-and-play operation experience.

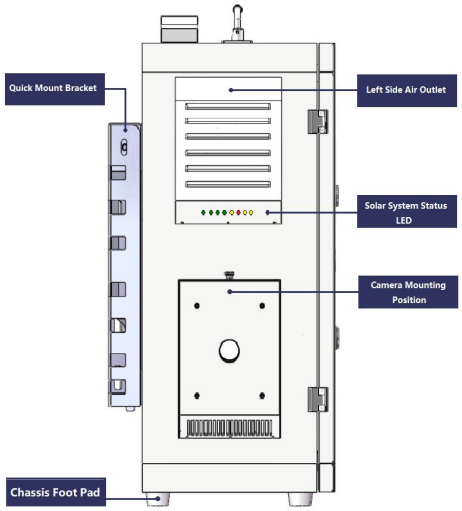
- **Reliable Protection**: Equipped with 10 comprehensive safety protection functions, covering over-charge, over-discharge, over-discharge activation, low-power repeated restart, reverse wiring, short circuit, over-current, over-voltage, overload, surge, lightning strike, over-temperature and other protections, ensuring safe and reliable operation of the system.
- **Flexible Expansion**: Adopts a modular hardware structure design, which can easily expand different types of models such as Internet of Things, AI recognition, high-definition storage, etc. The software supports Internet platform operation and mobile APP terminal use, meeting the all-round needs of equipment power supply and transmission in independent environments.
- **Wide Application**: The system is suitable for many fields such as forest fire prevention, geological disaster resistance, environmental monitoring, security systems, agricultural systems, water conservancy systems, petroleum systems, power systems, communication systems, etc., providing efficient and stable independent power supply solutions for projects.

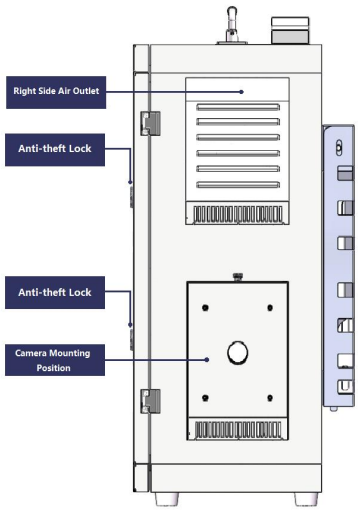
Product Structure

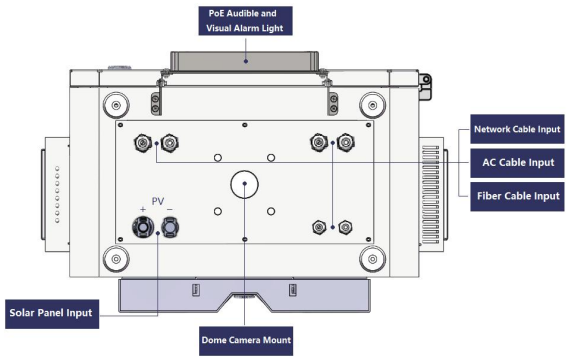


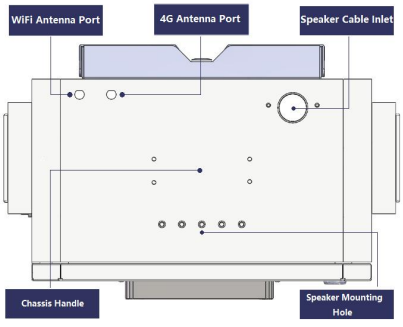
Product Features











Port Performance

- Equipped with 2 × 100/1000M Auto PoE ports; each port supports a maximum independent output of 30W with switchable 24V/48V voltage.
- Equipped with 2 × 100/1000M IEEE 802.3bt PoE ports; each port delivers a maximum independent output of 90W.
- Equipped with 2 × 1000Mbps SFP fiber ports.
- Provides 1 channel 12V 3A EPS power supply output port.
- Provides 1 channel 12V 5A power supply output port.
- Provides 1 channel 24V 5A power supply output port.
- Provides 1 group of 35A MC4 solar input ports.
- Provides 1 group of independent RJ45 1000M input network ports (connected to 4G routers/4G DTU/RTU).
- Provides 1 mains module input port: AC110V–277V AC power module input port, converted to DC36V output XT60H-F.

Equipment Installation Expansion Positions

- Provides quick-install side packages for left and right equipment, and knock-out holes for dome camera mounting brackets at the bottom.
- Provides speaker installation positions and warning sound and light installation positions.
- Equipped with built-in feeders for 4G/Wi-Fi + external SMA sockets, equipped with 4G antennas + Wi-Fi antennas to solve the problem of signal attenuation or shielding inside the box.
- Provides a convenient installation handle for easier installation.

Intelligent PoE Power Supply

- 2×100/1000 Base- TX RJ45 ports support IEEE 802.3bt high-power PoE up to 90W, suitable for powering high-power devices such as 3–9 inch infrared night vision dome cameras and public broadcasting equipment.
- 2×100/1000 Base-TX RJ45 ports support fully automatic PoE power supply. They can automatically identify and supply power to 48V standard PoE and 24V non-standard PoE powered devices, ensuring no equipment damage. Plug-and-play design meets PoE power supply requirements for various scenarios in the security industry.

- Cooperate with PD-end separators to output 5V, 12V, 24V, 48V, comprehensively solving the problem of outdoor equipment transmission and power supply.
- PoE power supply up to 150 meters, no longer restricted by power transmission distance. Load equipment can be installed in low-light environments, and solar systems can be installed in sunny places.

Charge and Discharge Performance

- Supports 300W photovoltaic panel input, constant current and constant voltage control, no downtime due to input power exceeding the design value (input above 300W still works with 300W input power).
- Charging current: 20A.
- Total load output power: 15A (total load output 180W 15A with 12V battery; load output 360W 15A with 24V battery).

Fully Automatic Mains Charging

- AC 110V–270V wide voltage input.
- It adopts DC36V 150W constant current & constant voltage output to charge the system.
- Supports mains priority charging/photovoltaic priority charging: when mains priority is selected, the mains charges the system. When the mains is powered off, the battery supplies power to the system and the charging mode switches to the photovoltaic panel. When the mains is restored, it automatically switches to the mains mode to charge the system (factory default: mains priority mode).

High-Efficiency Intelligent Charge and Discharge Technology

- Adopts real online MPPT charge and discharge technology, which can realize 100% detection and tracking efficiency of photovoltaic panels, automatically track the highest voltage and current value (maximum power), so that the system can charge the battery with the highest efficiency, and the maximum charging capacity can be increased by 25%.
- Current-limited charging: when the charging power of the photovoltaic panel is too large and the charging current exceeds the rated current, the controller automatically reduces the charging power to make it work within the rated charging current range, solving the problems of low-light power generation of multiple high-power solar panels in rainy days and large current downtime in sunny days.
- Synchronous discharge: equipped with online charge and discharge management technology, which can truly realize the hybrid output of photovoltaic panels and batteries to supply power to load equipment when light is poor. After the battery is fully charged, the one-way battery channel is opened,

and the excess energy of the solar panel is output to load equipment, slowing down the battery discharge speed and charging the system in a disguised form.

- Low-light power generation: through efficient charging algorithms, power generation can still be obtained even on cloudy days, effectively slowing down battery discharge time to achieve charging and energy storage.
- Discharge and recharge: the system discharges after the battery is fully charged at noon. When the battery discharges to 97% and the solar panel voltage meets the charging requirements, the system automatically judges to enter the charging mode again according to the algorithm.
- Full-automatic mains direct charging mode: built-in mains module charges the system.

10 Safety Protection Functions to Comprehensively Protect the Reliable Operation of the Solar System

- Automatic identification: automatically identifies batteries and equipment, no need to plug in equipment first then batteries or vice versa, realizing true plug-and-play.
- Reverse connection protection: solar panels, load output, cable positive and negative reverse connection will not burn equipment, perfectly solving the problem of accidental insertion burning equipment.
- Overcharge/over-discharge protection: equipped with 2-level PCM battery protection circuit, realizing true 2-level protection.
- Delayed charge and discharge: perform delayed charging and discharging on the system through algorithms, and start power supply when the load power consumption is reached during recharging, avoiding damage to powered equipment caused by low voltage and large current due to frequent restarts caused by wrong switching of working modes from early morning to morning.
- Battery self-activation: when the battery cannot be started due to long-term equipment storage or excessive battery discharge, the unique 0V low-voltage EMD automatic activation technology automatically matches various battery voltages for activation, restoring the battery to normal operation.
- High-temperature protection: in case of overload or high-temperature heating failure caused by battery or solar panel failure, the host will automatically power off to protect the entire system.
- Battery anti-backflow: reverse current protection (prevent the battery from backflowing to the solar panel when there is no sunlight on cloudy days or at night).

- Temperature control monitoring: built-in automatic monitoring and temperature control collection, which can adjust the fan speed to keep the internal temperature of the system balanced and stable for long-term operation.
- Adopts MPPT charging technology to ensure the battery is charged in the best working state of constant current and constant voltage, extending the service life of the battery pack.
- Supports local manual system upgrade and manual management upgrade (needs U disk tools).

OLED HD LCD Screen Accurate Display

- Adopts 0.96-inch OLED LCD screen.
- Photovoltaic panel: displays solar panel voltage and charging power.
- Battery: displays current battery voltage and battery capacity percentage.
- Load power: displays total power of power-consuming equipment.
- Load fault alarm: displays load over-current, load over-voltage, load short circuit and alarm information.
- Photovoltaic alarm: displays photovoltaic input over-voltage, NTC temperature collection fault, system over-temperature protection text information.
- Real-time statistics: displays daily power generation and cumulative power generation after charging.
- Host temperature: real-time display of host temperature (needs external connection to 4G router for observation via software on PC/mobile terminal).

External LED Status Indicators

- 8 F8 LED indicators outside the chassis prompt solar panel, host system, battery failure, charge and discharge percentage display. No need to climb and open the box, so that every working status can be seen at a glance, and the working status of the equipment can be easily understood.
- External 4G status indicator of the chassis: displays router power, 4G working status, LAN data transmission status (custom function).

IoT Cloud Platform Remote Operation and Maintenance

- Displays daily solar panel power generation statistics.
- Displays cumulative solar power generation statistics.
- Displays solar operation status: start; synchronous discharge; low-power generation; charge; discharge; activation.
- Displays solar photovoltaic panel voltage; charging current; charging power; battery voltage; battery percentage.

- Displays faults: photovoltaic over-voltage, over-current, load short circuit, NTC collection abnormality, system over-temperature.
- Real-time display of host temperature and ambient temperature.
- Remote operation and maintenance to turn on/off load.
- Supports video stream access and display, and remote video local storage on PC.
- Has the function of remotely adding and managing user role security levels, grouping and project information.

Quick Installation and Deployment Functions

- The battery in the system is detachable to reduce weight during installation.
- Quick installation design: fix the special back-hanger, then hang the system box on the quick back-hanger to realize hands-free lightweight and quick installation. Finally, install the battery into the box for use. The whole installation process can be completed independently by 1 person.
- External 4G status indicator of the chassis: displays router power, 4G working status, LAN data transmission status (custom function).

Flexible Expansion Methods (Industry Integration Customization)

- The PoE solar power supply system is a highly integrated standardized hardware platform for power supply networking with network modules, power supply modules and power control modules. It can expand solar power supply systems for various fields according to project requirements, integrate different industry equipment into this power supply system, and realize embedded NVR + hard disk storage, LTE wireless networking, IoT modules, agricultural data acquisition modules, making this system the hardware infrastructure of solar power supply systems for IoT equipment.
- Can connect different types of sensors according to internally embedded equipment: temperature, humidity, height, water level, wind speed, vibration, radar, etc.
- Upload video, audio, control, switch data of products in various industries to the network in real time for unified management (engineering project customization).

Excellent Energy Storage Materials

- Adopts 24V 135AH/126AH ternary power lithium battery pack (automotive grade), which is 1/4 the size and 1/4 the weight of lead-acid batteries in the same industry, solving the practical problems of bulkiness and space occupation during installation.
- Maintains more than 80% energy storage space after 1200 repeated charge and discharge cycles, with a service life of 5–7 years, 4 times that of lead-acid batteries, avoiding premature battery scrapping and extending service life.

- Adopts DC24V lithium battery pack to solve the huge heat generated by charge and discharge and avoid battery explosion and damage.
- Stable use within the range of low temperature 0°C and high temperature 55°C (custom heated battery packs can be used in low temperature environments).

Custom Expansion Function Modules

- Rack-mounted optical fiber expansion module (4-port terminal box) can be added according to usage requirements.
- Rack-mounted inverter expansion module (24V input AC110V–240V output, power 500W) can be added according to usage requirements.
- Poe alarm linkage sound and light warning light can be added according to usage requirements.
- Poe loudspeaker can be added according to usage requirements.

Industry Custom Development

- Provide IIC/485 docking protocol for secondary development according to industry usage requirements.
- Customize platform management, APP, mini-program, H5 according to industry usage requirements.

Equipment Stability and Reliability

- The host features low power consumption, a full aluminum alloy casing, and forced air cooling to ensure stable operation.
- The battery is certified with UN38.3 and MSDS for international maritime transport.
- The battery holds dangerous goods transport certification.
- The equipment fully complies with 3C, CE, FCC, and RoHS safety standards, ensuring safe and reliable use.

Application Environment

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

Technical Specifications

型号		GL-Max3326R-AC
Charge & Discharge Performance	Solar panel input power	300W (system limits to 300W for continuous operation without downtime when over-power input)
	Input withstand voltage	60V
	Charging current	20A
	Discharge power	15A 360W
	Charging power matching	36V solar panel charges 24V battery
	Daily power generation (sunny)	PV 300W daily power generation 1800wh
	Daily power generation (cloudy/rainy)	PV 300W daily power generation 180wh

Charging Mode	MPPT	Stage 1 (battery low): trickle charge
		Stage 2 (main): MPPT maximum efficiency charging within rated current
		Stage 3: constant voltage charge, stop when capacity reaches preset
Fiber port	SFP	2 ports of 1000Mbps
POE Ports	PoE	2 × 1000M 802.3 BT
	AUT0 PoE	2×1000M IEEE 802.3at ports, with manual 24V/48V switchable output
	PoE performance	Ports 1-2: Auto PoE, 30W per port
		Ports 3-4: BT PoE, 90W per port
	POE distance	150 meters
	POE protection	High-frequency short circuit, surge protection, over-current protection, over-voltage protection, overload protection
	POE startup	Ports power on one by one with 50ms interval
Standard Power Ports	DC12V	2P 7.62 12V5A 60W
	DC24V	2P 7.62 24V5A 120W
EPS Power Port	DC12V	2P 7.62 12V3A 36W
Panel Indicators	Uplink	Supported
	Switch power	Supported
	Downlink	Supported
Energy Storage Ports	Solar input	MC4 35A
	Battery input	XT60E-M
Data Port	RS485	2P 3.08, standard Modbus Rtu
Remote Control	Power control	Standard Modbus Rtu: turn on/off load output
Network Performance	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 rate	100M/1000M adaptive
	Supports fiber ring topology	Dual SFP ports support ring network connection, with a transmission distance of up to 120KM (external fiber module required).
Display	Material	Industrial 0.96-inch OLED
	Status	Activation, startup, low-power generation, synchronous discharge
	Measurement	Charging voltage, current, power; battery voltage, SOC; load power
	Statistics	Daily / cumulative power generation
	Alarm	PV over-voltage, system over-temperature, load short circuit, load over-current, NTC fault
Function Switches	Power switch	Supported (toggle)
	Battery type	Lead-acid, ternary lithium, LiFePO4
	Battery voltage	12V / 24V
DIP switch	AUT0 PoE	Ports 1-2: ON for 24V / OFF for 48V
	PoE Watchdog	Dip switch 3: ON to enable PoE port watchdog / OFF to disable the port watchdog
	Fiber Watchdog	Dip switch 4: ON enables the fiber port watchdog / OFF disables the fiber watchdog.
Battery	Ternary lithium	24V 135A/24V126A
	Nominal capacity	2997wh / 2797wh
	Control switch	Enable/disable battery output
	Input port	XT90E-M

	Low-temp heating	Optional, 40W, on at −5°C, off at +5°C
Accessories	Hoop	300kg tension, diameter 20cm, thickness 1mm
	DC cable	DC5521, 50cm, 0.8mm², 3 pcs
	485 cable	Parallel wire, 50cm, 0.5mm², 1 pc
	4G antenna	Internal pin, blade antenna/4G 5db, white
	Wi-Fi antenna	Internal pin, rubber antenna, dual-band 2.4G/5.8G, white
	Adapter	SMA-SMA male-female, 2 pcs
Special Scenarios	Mains charging	AC110V–270V input, DC36V 150W output
	Cloud platform	Supports remote monitoring of system status and load ON/OFF control via the cloud platform
Charge/Discharge Protection	Delayed charge/discharge	Avoid repeated startup at low power
	Battery self-activation	0V EMD for ternary/LiFePO4
	Synchronous charge/discharge	PV + battery hybrid output in weak light
	Discharge-recharge	Recharge at 97% discharge
	Reverse current protection	Prevent battery backflow to PV
	PCM	Dual PCM for overcharge/over-discharge
	Charging protection	MPPT algorithm extends battery life
	High-temp protection	Auto throttling/shutdown
	High-temp cooling	Fan above 40°C
Physical Security	Load output protection	DC short/reverse protection; PoE short protection + alarm
	PV protection	Reverse connection protection (excl. battery)
	Auto recognition	Auto match battery voltage/type
Mechanical	Mounting	Wall-mounted, pole-mounted
	Housing	Full aluminum / 201 stainless steel bracket / 304 stainless steel hoop
	Protection rating	IP55
	Product size	490（L)×300(W)×630(H)；
	Package size	580（L)×360(W)×685(H)
	Weight	Net: 28.25Kg; Gross: 31.85kg
Environment	Operating temp	−15°C ~ +55°C
	Storage temp	−30°C ~ +65°C
	Humidity	5%–95% (non-condensing)
Standards	Certifications	CE、FCC、RoHS
	Transport	UN38.3　MSDS
	Dangerous goods	Identification and Classification Report for Transport of Goods

Packaging List

	Item	Qty	Unit
Packaging List	IoT Grid-Photovoltaic Hybrid Power Supply System GL-Max3326R-AC	1	set
	4G Antenna + Wi-Fi Antenna + Adapter	1	set
	DC5521 Output Cable	3	pcs
	Hoop	3	pcs