



Net Join IoT
Nengjia New Energy



IoT Solar Light Controller User Manual

NJ-iot402WE

Xiamen Net-Join IoT Technology Co., Ltd.

<https://light.net-join.com/>

1. Product Overview

NJ-iot402WE is an industrial-grade compact data transmission terminal (RTU – Remote Terminal Unit). It incorporates a high-performance industrial wireless module and supports hybrid 4G / Wi-Fi / Ethernet communication, enabling serial-to-network data conversion. Engineered for harsh, unattended operating environments, the device features high reliability and robust security mechanisms. It is ideally suited for applications in smart charging piles, environmental protection, smart grid, industrial automation, and related fields.

2. Core Functions and Advantages

1. Wide Voltage Input: Adaptable to 8-45V input, supporting three voltage types (12V/24V/48V) with a wide voltage range of 9-80V DC.
2. Multi-mode Communication: Supports 4G Cat.1, WiFi, and Ethernet to adapt to complex network environments.
3. Protocol Compatibility: Compatible with standard IoT protocols such as TCP/UDP/MQTT/HTTP.
4. Communication & Digital I/O Interfaces: Equipped with 2 groups of RS485, 1 group of RS232 communication interfaces, 2 channels of 3.3V digital input (DI) and 2 channels of 3.3V digital output (DO).
5. Data Security: Supports TLS/SSL symmetric and asymmetric encryption to eliminate plaintext transmission risks and prevent data eavesdropping and tampering.
6. Identity Authentication: Features SIM/USIM card slot design to ensure secure communication identity authentication.
7. Interface Protection: RS232/485 interfaces have built-in 15 KV ESD protection; power interface is equipped with reverse polarity protection and overvoltage protection.
8. Electrical Isolation: Adopts RS485 electrical isolation technology to ensure stable operation of the device and reliable data transmission.
9. Multi-platform Access: Supports active-standby dual data centers and can connect to up to 5 data centers simultaneously (such as Alibaba Cloud, Huawei Cloud, Baidu TianGong, China Mobile OneNET, etc.).
10. Third-party Compatibility: Compatible with third-party platforms supporting MQTT protocol, with strong scalability.
11. Harsh Environment Adaptation: Designed with wide temperature and wide voltage, suitable for operating environments of -40°C~85°C.

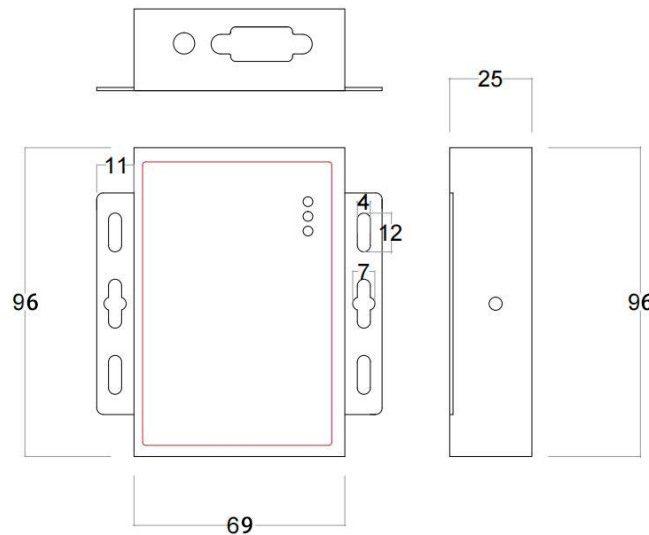
3.Product Dimensions

3.1 Product Dimension Parameters

Outer Size: L × W × H : 96mm × 69mm × 25mm

(An error of 1–2 mm may exist due to different measuring methods. Please take the actual received product as the standard.)

Net Weight: ≈0.1kg



NJ-iot402WE Dimension Drawing

3.2 Product Outline



4. Product Parameters

4.1 Product Model Table

Model No.	Battery Voltage	Supply Voltage	Applicable Region
NJ-iot402	12V/24V/48V	5-45V	China
NJ-iot402U	12V/24V/48V	5-45V	Europe, Africa and Asia
NJ-iot402G	12V/24V/48V	5-45V	Global

4.2 Technical Parameters

Parameter Name	Specification
Communication Module	4G Cat.1 module, supporting FDD-LTE/TDD-LTE/WCDMA/GSM standards; WiFi 802.11 b/g/n; Ethernet 10/100Mbps
Interface Configuration	1 group of RS232, 2 groups of RS485, 2 universal inputs (3.3V) for position detection (DI), 2 universal outputs (3.3V) for relay control (DO)
Transmission Protocol	TCP/UDP/MQTT/HTTP/HTTPS, supporting TLS 1.2/1.3 encryption
Protection Level	RS485 15KV ESD protection; power reverse polarity/over voltage protection; IP30 shell protection
Operating Environment	Temperature: -40°C~85°C, Humidity: 5%~95% (non-condensing)
Power Consumption	Standby power consumption $\leq$ 0.5W, Working power consumption $\leq$ 3W
Adaptable Voltage	12V/24V/48V three voltage inputs, 9-80V wide voltage input

5. Wiring Method



NJ-iot402WE Wiring Diagram

6. Mobile App

The Net-Join Solar IoT Controller supports access via mobile APP and PC terminal

Method 1: APP Download

① For Android Devices

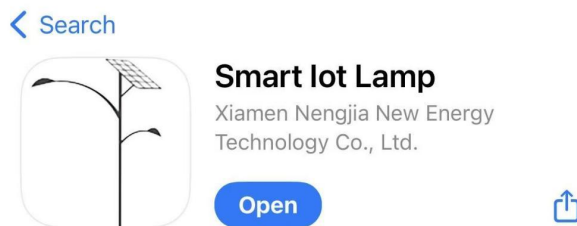
APP Download Link: <https://iot.xmnengjia.com/download/NetJoin.apk>

Or scan the QR code below:



② For iOS Devices

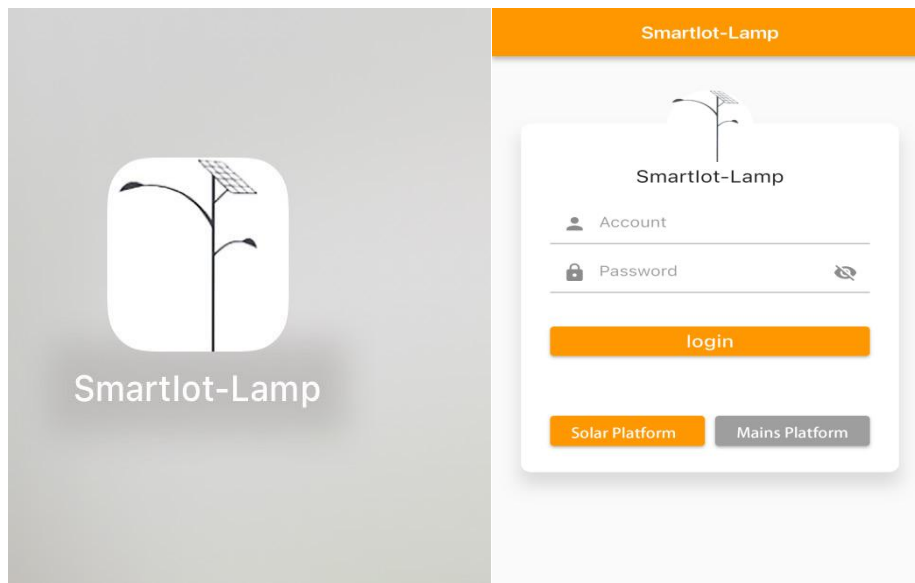
Please search for "Smart lot Lamp" in the App Store



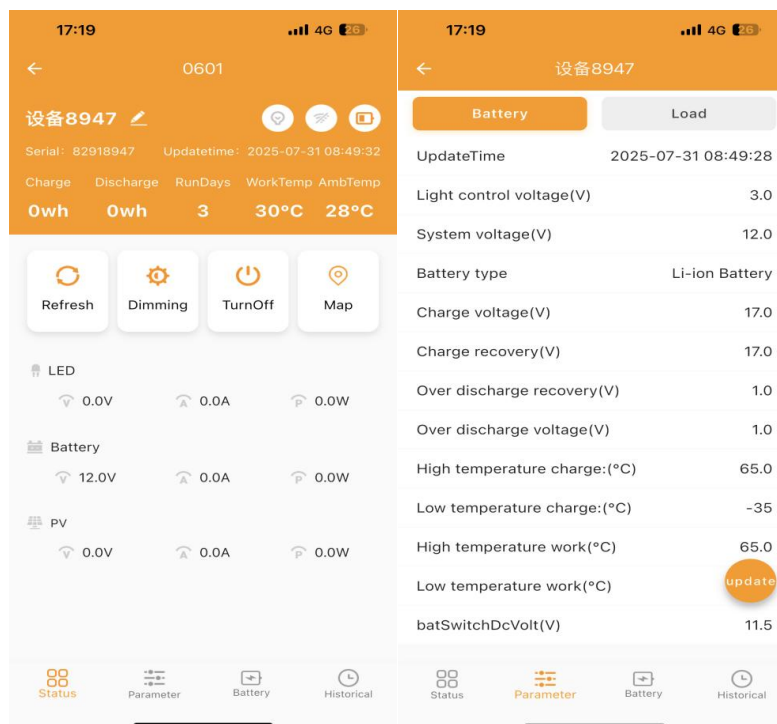
Method 2: Log in via the computer website

<https://solar.xmnengjia.com/#/login>

7.Display on App

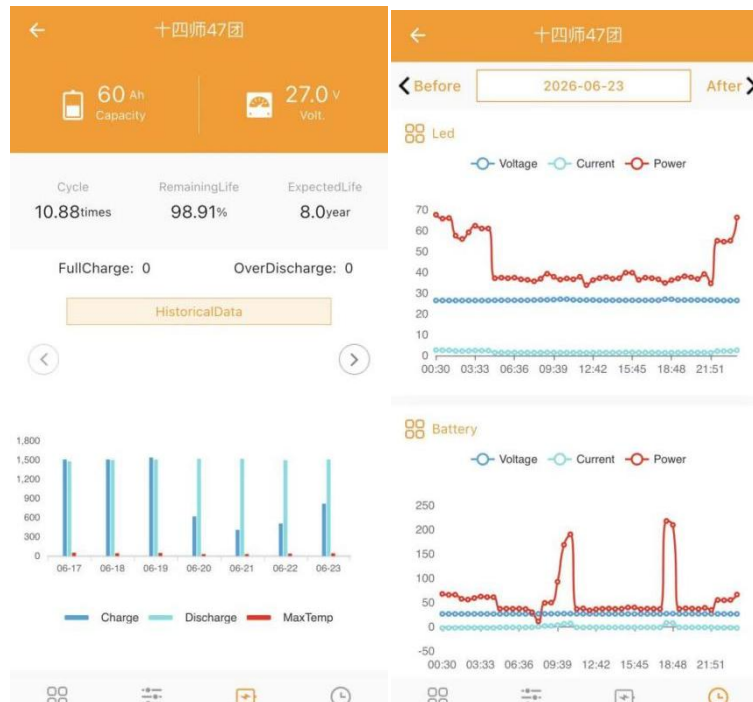


Enter account number and password, click login, enter the solar IOT system, you can see the account information and the account of the subordinate user



By clicking on a device to select a device in the device list and enter the device information interface, you can update, dim, switch, and view the map of the device.

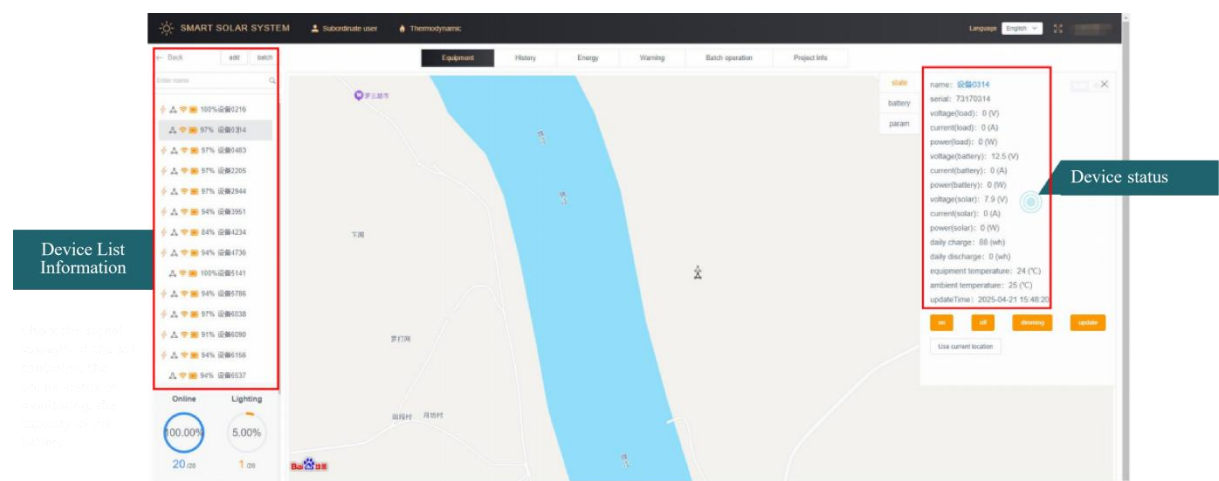
In the interface of parameters, you can send down parameters and update parameters



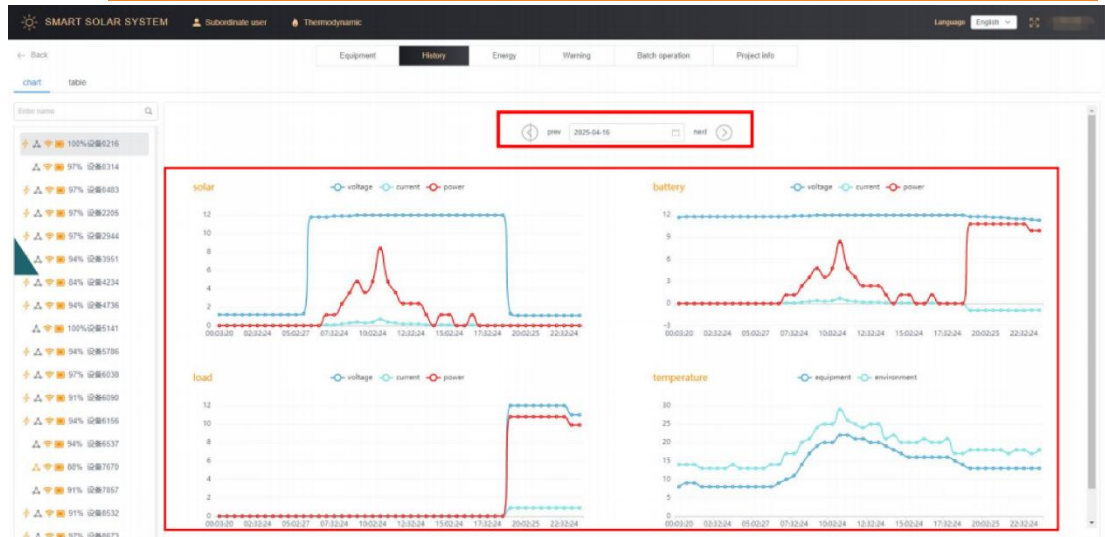
Click the battery to view the historical data of the battery, and view the corresponding historical working time, historical power generation/discharge(wh).

In the interface of historical data, you can select the device and date to view the data table graphs (voltage,current, power and temperature)of solar panels, batteries, load sand temperatures.

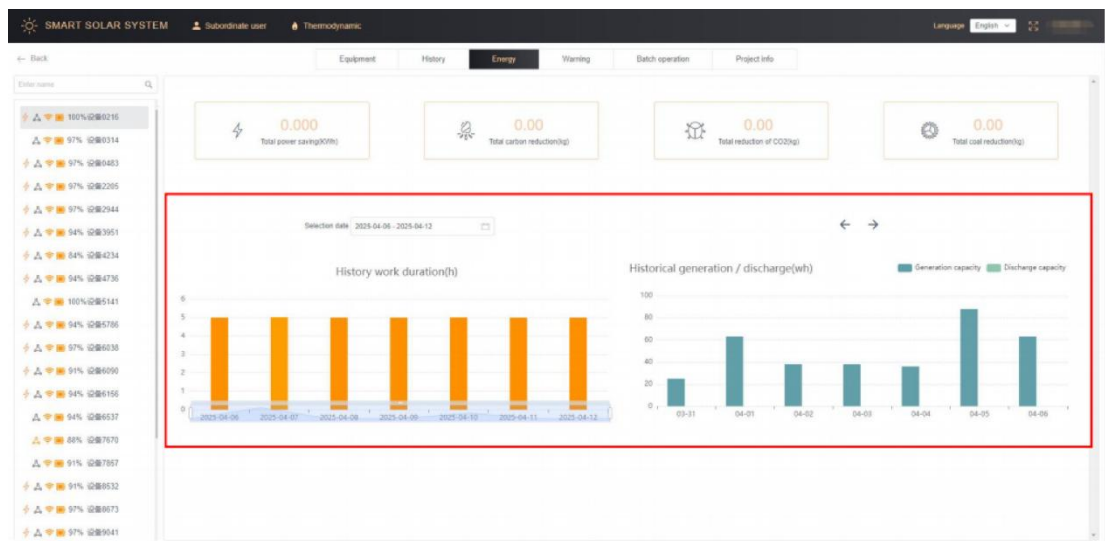
7. Display on PC side



- Check the signal strength of the IoT controller, the online status of monitoring, the capacity of the battery
- Check voltage,current, and power of loads, batteries, solar panels,equipment temperature,ambient temperature



- Historical status of the device: Select the time to view the voltage, current and power of the solar panels, batteries, loads, temperatures



- Charging and discharging conditions: View historical operating hours, historical power generation/discharge of the device

SMART SOLAR SYSTEM Subordinate user Thermodynamic Language: English

Equipment History Energy **Warning** Batch operation Project info

Back Enter name

Configuring Alarm Push

Equipment Name	Content	Status	Time	Handle
设备009	Low-voltage protection	Untreated	2025-03-15	Dismiss
设备028	Low-voltage protection	Untreated	2025-03-15	Dismiss
设备043	Low-voltage protection	Untreated	2025-03-15	Dismiss
设备073	Low-voltage protection	Untreated	2025-03-15	Dismiss
设备0216	Low-voltage protection	Untreated	2025-03-15	Dismiss
设备155	Low-voltage protection	Untreated	2025-03-15	Dismiss
设备205	Low-voltage protection	Untreated	2025-03-15	Dismiss
设备014	Low-voltage protection	Untreated	2025-03-15	Dismiss
设备080	Low-voltage protection	Untreated	2025-03-14	Dismiss
设备037	Low-voltage protection	Untreated	2025-03-14	Dismiss
设备038	Low-voltage protection	Untreated	2025-03-14	Dismiss
设备0216	Low-voltage protection	Untreated	2025-03-14	Dismiss

1 2 3 4 ... 40 12/20

- **Alarm List:** The alarm list is reported to the platform, and the alarm list is sent to the operation and maintenance personnel through the form of SMS



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