

IP67 Outdoor Solar LoRa Node Controller



Highlights

- Easy to connect with multiple wired sensors through GPIO/RS232/RS485 interfaces
- Long transmission distance up to 10km with line of sight
- IP67-rated case and M12 connectors
- Solar powered and built-in battery
- Compliant with standard LoRaWAN gateways and network servers

Feature-rich Sensor Hub for Connecting Sensors

PLANET LN502 is an advanced outdoor solar-powered LoRa node controller designed for efficient data acquisition from various sensors. It features versatile I/O interfaces, including digital inputs, digital outputs, and serial ports, ensuring seamless deployment and maintenance of LoRaWAN networks. For user convenience, the LN502 can be quickly configured via a wired USB connection. Ideal for outdoor applications, it supports multiple power options, including solar power, a built-in battery, or an external DC power supply (9–48V). Additionally, its IP67-rated enclosure and M12 connectors provide robust protection against water, dust, and harsh environmental conditions.

LoRaWAN-based Controller with Rich Industrial Interfaces

The LN502 is LoRaWAN-compatible and comes with built-in multiple industrial interfaces to connect to all types of sensors, meters and other appliances. It also bridges Modbus data between serial and Ethernet network via LoRaWAN. The LN502 supports LoRaWAN class A, B and C protocols and is compatible with standard LoRaWAN gateways including PLANET LCG-300 series.

- RS232
- RS485
- 2 x Digital Input
- 2 x Digital Output
- 3.3V and 5V DC output

The LN502 is ideal for large-scale IoT application deployments, such as projects for building automation, smart metering, HVAC system, etc. with multiple interfaces. PLANET LN502 can perfectly help retrofit legacy assets for IoT enablement.

2 x Digital Input

2 x Digital Output

9~48VDC Power IN



1 x RS232

1 x RS485

3.3V/5VDC Power OUT

LoRa and LoRaWAN Wireless Technology

LoRa or long range is a physical proprietary radio communication technique. It is based on spread spectrum modulation techniques derived from chirp spread spectrum (CSS) technology. LoRa is a long range, low power wireless platform that has become the de facto wireless platform of Internet of Things (IoT). LoRaWAN defines the communication protocol and system architecture. The LN502, supporting Modbus protocol and serial communication, is ideal for LoRa-enabled devices in the IoT system.

Multiple LoRa Frequency Bands

The LN502 supports the following license-free sub-gigahertz radio frequency bands,

- EU868 (863 to 870 MHz) in Europe
- AU915/AS923-1 (915 to 928 MHz) in South America
- US915 (902 to 928 MHz) in North America
- IN865 (865 to 867 MHz) in India
- AS923 (915 to 928 MHz) in Asia
- KR920 (920 to 923 MHz) in South Korea
- RU864 (864 to 870 MHz)

Applications

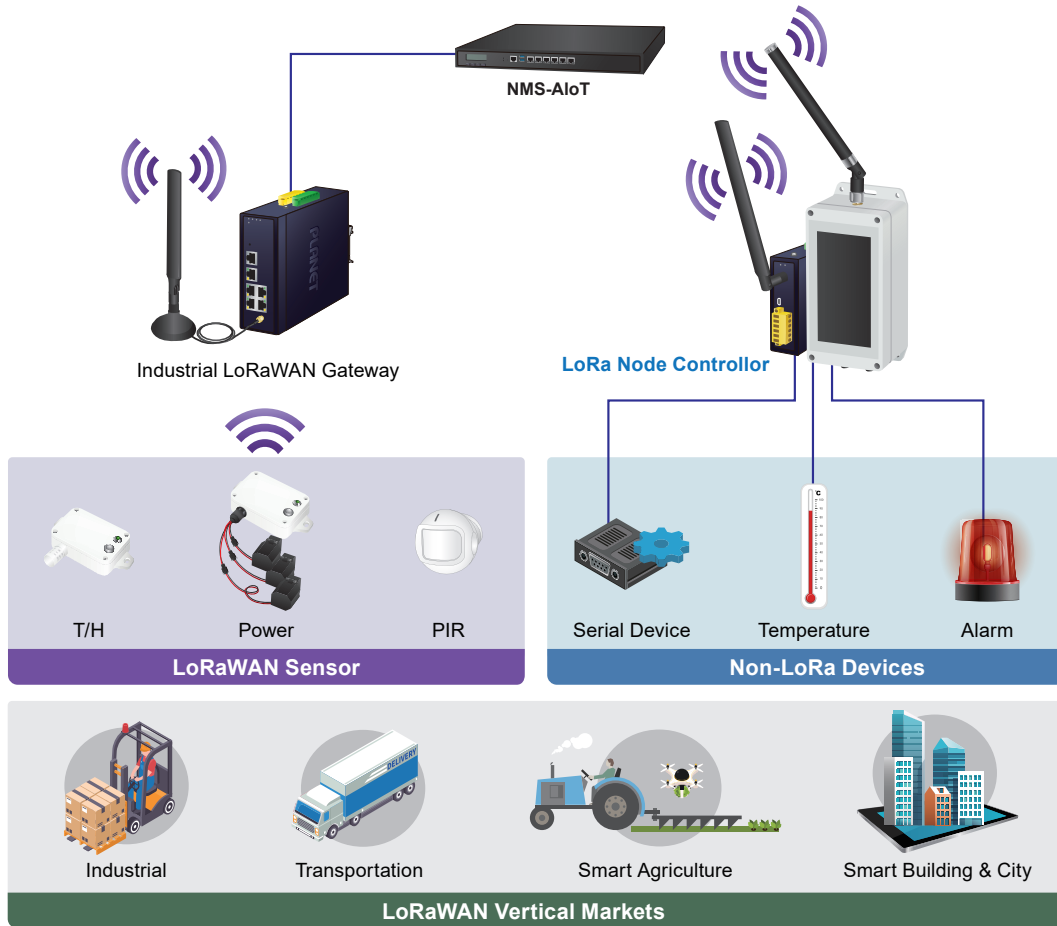
LoRa Communication Solution

PLANET LN502 is a versatile IoT solution that supports both LoRa and LoRaWAN technologies. It integrates digital inputs, digital outputs, RS232/RS485 (Modbus), and USB interfaces, making it ideal for connecting traditional Modbus sensors and embedded devices such as temperature sensors and security systems. By converting wired connections into wireless LoRa networks, it eliminates the limitations of wired infrastructure and enables reliable long-distance data transmission. Designed for outdoor and industrial use, the LN502 features an IP67-rated enclosure and multiple power options, including solar power, rechargeable batteries, and 9–48 VDC input. When paired with an LCG-series LoRa gateway, it seamlessly transmits data to the Network Server for centralized management, improving operational efficiency.



Overall, the LN502 is a reliable and efficient solution for managing LoRa networks and controlling embedded devices, making it an essential tool for businesses and organizations looking to streamline their IoT operations.

LoRa Communication Solution



Specifications

| | | |
|------------------------------|---|---|
| Product | LN502 | |
| Wireless Transmission | | |
| Technology | LoRaWAN | |
| Antenna | 1 × 50 Ω SMA Connector (Center Pin: SMA Female) | |
| Frequency | IN865, EU868, RU864, US915, AU915, KR920, AS923 | |
| Tx Power | 16dBm(868)/20dBm(915) | |
| Sensitivity | -148dBm | |
| Work Mode | OTAA/ABP Class A/B/C | |
| Data Interfaces | | |
| Interface Type | 2 x M12 A-Coded Male | |
| IO | Ports | 2 × GPIO |
| | Work Mode | Digital input, digital output |
| Serial Port | Ports | 1 × RS232 or RS485 (Switchable) |
| | Baud Rate | 600~115200 bps |
| | Protocol | Transparent (RS232), Modbus RTU (RS485) |
| Power Output | Ports | 1 × 3.3 V, 1 × 5 V |
| | Power Time | Continuous |

| Interface Definition | | | |
|--------------------------|---|-------------------|--------|
| PINOUT (J3) | 1 | Digital Output 1 | Black |
| | 2 | Digital Input 1 | White |
| | 3 | Digital Input 0 | Red |
| | 4 | 9 – 48V DC in (+) | Orange |
| | 5 | GND | Yellow |
| | 6 | 9 – 48V DC in (-) | Green |
| | 7 | Digital Output 0 | Blue |
| | 8 | GND | Purple |
| PINOUT (J4) | 1 | 5V DC out | Black |
| | 2 | 3.3V DC out | White |
| | 3 | RS232 Tx | Red |
| | 4 | RS232 Rx | Orange |
| | 5 | GND | Yellow |
| | 6 | RS485 A | Green |
| | 7 | RS485 B | Blue |
| | 8 | GND | Purple |
| Others | | | |
| Configuration Port | 1 × Micro USB | | |
| LED Indicators | System status through varied lighting modes | | |
| Built-in Sensor | Temperature sensor | | |
| Physical Characteristics | | | |
| Operating Temperature | -10°C to +65°C | | |
| Ingress Protection | IP67 | | |
| Dimensions (W x D x H) | 88.04 x 55.2 x 194.95 mm | | |
| Weight | 375g | | |
| Power Supply | Solar powered with 2 x 18650 Rechargeable Battery backup 9-48 VDC External Power | | |
| Installation | Wall mounting | | |
| Standards Conformance | | | |
| Regulatory Compliance | CE, FCC | | |

Ordering Information

| | |
|-------|---|
| LN502 | IP67 Outdoor Solar LoRa Node Controller (RS232, RS485, DI and DO, EU868/US915 Sub 1G) |
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Related Products

| | |
|-------------|--|
| LCG-300 | Industrial LoRaWAN Gateway with 5-Port 10/100/1000T |
| LCG-300W | Industrial LoRaWAN Wireless Gateway with 5-Port 10/100/1000T |
| LCG-300-NR | Industrial LoRaWAN + 5G NR Cellular Gateway with 5-Port 10/100/1000T |
| LCG-350W-NR | Industrial Outdoor LoRaWAN 5G NR Cellular Gateway |
| LN1130 | Industrial IP30 LoRa Node Controller (Modbus RS232, RS485, EU868/US915 Sub 1G) |
| LN1140 | Industrial IP30 LoRa Node Controller (2 DI, 2 DO, EU868/US915 Sub 1G) |