E Sun Electronics Panther X2 HNT Miner Helium Hotspot User Guide

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E Sun Electronics Panther X2 HNT Miner Helium Hotspot

Product description

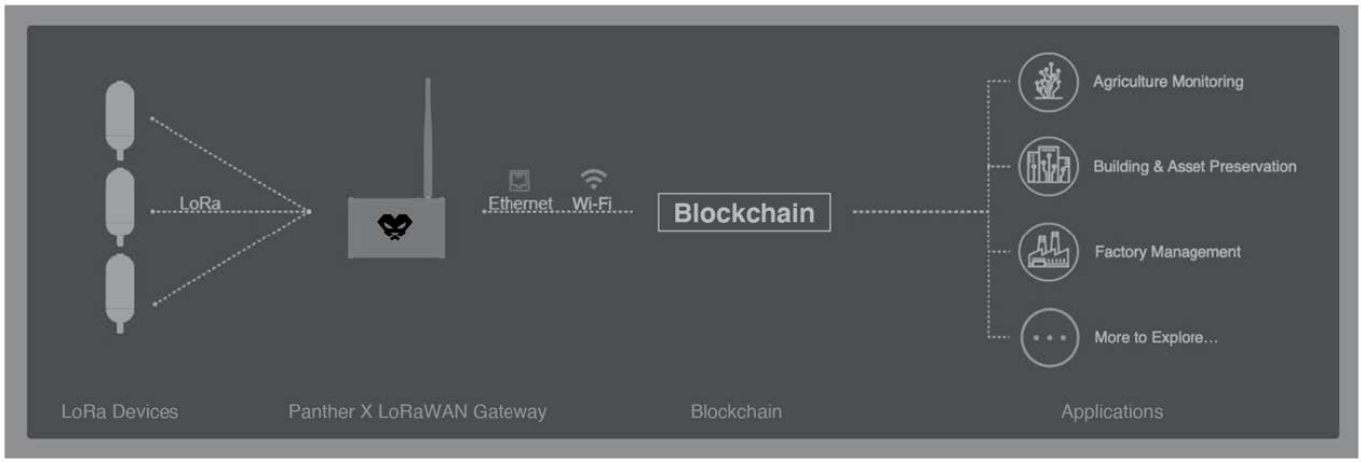
Since E-Sun Electronics Limited launched the Panther X1 Hotspot, the product has been a big success and welcomed by most users. As E-Sun Electronics Limited focuses on building a series of high-quality products in the Internet of Things field in the next ten years, the team has been committed to continuously advancing the research and development and iteration of Panther X series products and launching a new Panther X2 Hotspot.

Panther X2 has a 4-core high-performance processor with 22nm advanced technology, ultra-low power consumption and ultra-long-distance IoT hotspot gateway. In addition, as an information converter for the LoRa communication protocol, Panther X2 helps communicate between network servers and end nodes.

Panther X2, featuring a signal coverage of around 10-20 km, runs at an ultra-low-power and can connect to over 2,000 LoRaWAN end nodes within its range. It is susceptible, safe, reliable, and easy to interact with and can be used for environmental monitoring, asset tracking, smart agriculture, and other long-range ultra-low-power IoT applications.

Architecture

Panther X2 sends and receives LoRa frames, modulates/demodulates signals, processes LoRa frames and higher-level protocol-related tasks, and eventually transmits data to the LoRaWAN server via Ethernet or WiFi.



Solution

About LoRa

LoRa is a revolutionary RF physical-layer modulation technique that provides long-range wireless connectivity, excellent power supply efficiency, extremely high receiver sensitivity, full spread spectrum and secure, encrypted transmission. It is operated on free industrial, scientific and medical (ISM) radio bands with 863-870 MHz frequency spectrum and its subsets reserved for Europe, the Middle East, Africa and India, and 902-928 MHz for the Americas and Asia-Pacific countries/regions. The ISM band primarily used in China is 470-510MHz.

About LoRaWAN

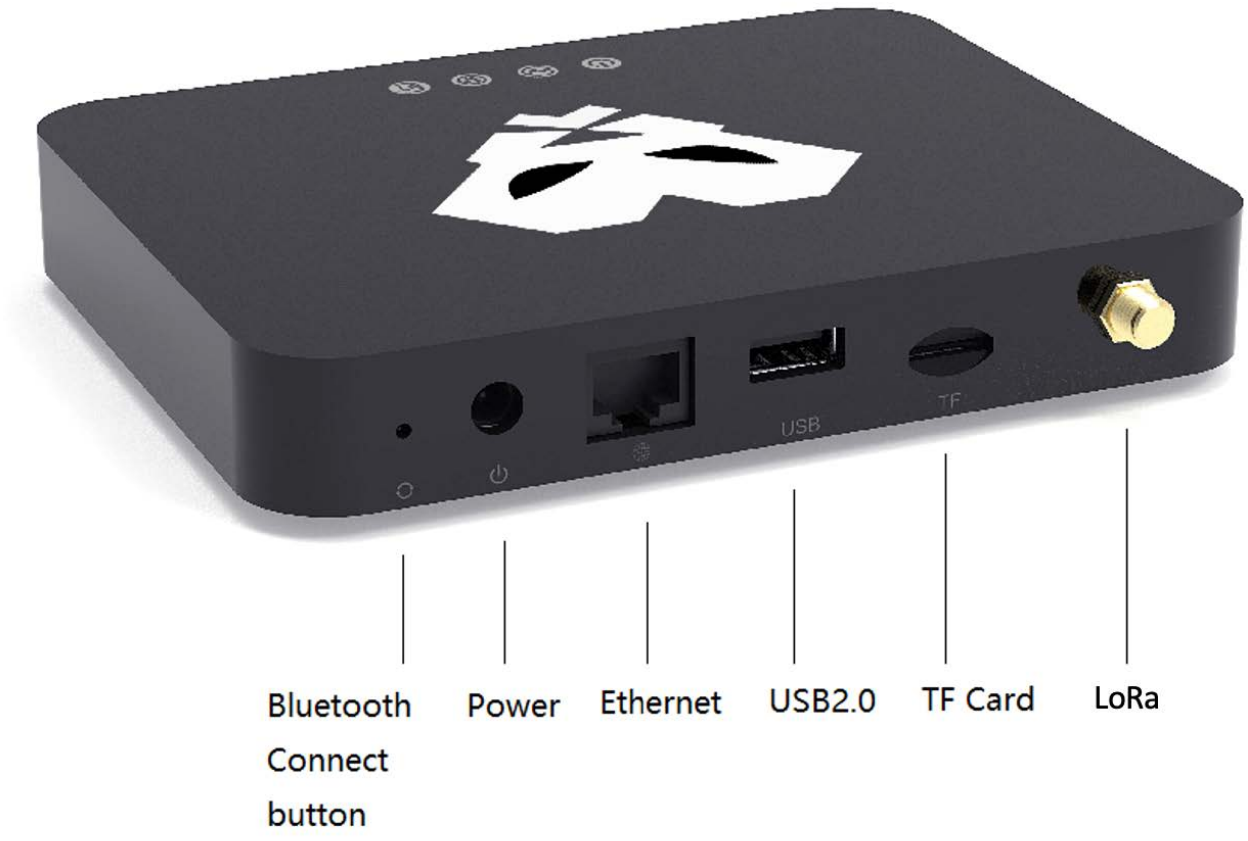
LoRaWAN is a Media Access Control (MAC) layer protocol developed by the LoRa Alliance, serving as a supplement to the physical layer implementation of LoRa. It draws support from an established ecosystem of LoRaWAN-compatible devices, which can be obtained from multiple suppliers and is accredited by the LoRa Alliance for Device Interoperability.

LoRaWAN defines the network's communication protocol and system architecture, while the LoRa physical layer enables the long-range communication link. As a result, the protocol and network architecture have the most influence in determining the battery lifetime of a node, the network capacity, the quality of service, the security, and the variety of applications served by the network.

Advantages

1. **High performance configuration:** Powered by the latest RK3566 quad-core Cortex-A55 1.8GHz processor; Semtech LoRa chip; 4Gmemory; 32GB EMMC and 64GB TF card;
2. **Secure and trustworthy:** With a built-in ECC encryption chip, Panther X2 promises highly secure authentication and reliable connection;
3. **Comprehensive Coverage:** Featuring enhanced 3dBi antennas, Panther X2 offers broader and more stable network coverage
4. **More extensive storage:** 4GB DDR with faster-running speed and shorter response time, built-in 32GB EMMC and 64GB TF card;
5. **Easy set-up:** Easy steps to set up Panther X2;
6. **Hotspot Placement:** Easier management and configuration of multiple hotspots;
7. **Customization:** Background configuration of data to enhance device efficiency.

Connectors

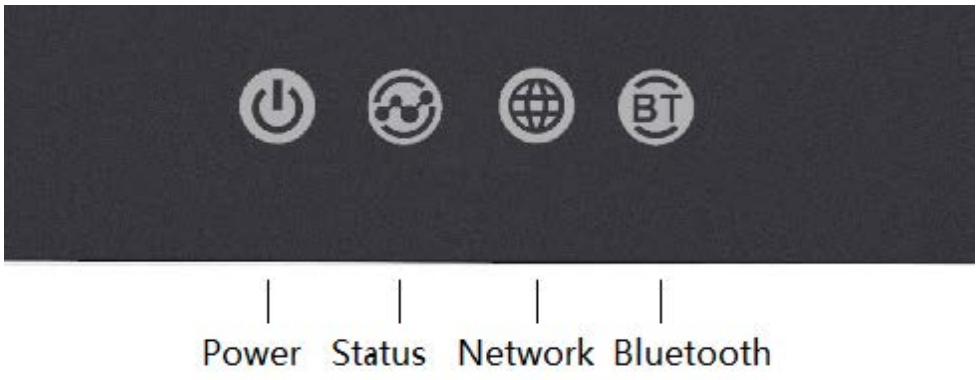


Product specifications

Hardware Specification	
CPU	● Quad-core Cortex-A55 up to 1.8GHz
Memory	● DDR 4GB
Storage	● eMMC 32GB+ TF Card 64GB
LoRa Channel Plan	● AS923/US915/EU868/CN470
Wi-Fi radio	● 2.4GHz 1Tx/1Rx 802.11 b/g/n ● Built-in antenna

BLE radio	● 2.4GHz BLE 5.2 ● Built-in antenna
Crypto chip	● Microchip ATECC608A
LAN interface	● RJ45 1Gbps x 1
TF	● External TF card slot ● Supports SDXC or higher speed
USB	● External USB-A 2.0 connector ● Reserved for future use
LEDs	● Single-colored LED indicator (green) x 4 ■ Power ■ Status ■ Network ■ Bluetooth
Button	● Push-button (GPIO)
Environment	● Temp. operating -10°C ~ +40°C ambient ● Storage -20°C ~ +70°C ambient ● Humidity operating 5%RH ~ 95%RH (non-condensed relative humidity) ● Altitude operating 0 ~ 3000 Meters
IP ratings	● IP42 (plastic enclosure)
Power	● DC jack ● DC12V 1~1.5A

Lights



Dimensions

140x110x24 mm

Box contents:

- 1 Panther X2 Hotspot Gateway
- 1 LoRa antenna
- 1 Power adapter
- 1 User guide
- 1 Pin tool

FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

RF Exposure Information
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

Documents / Resources

	E Sun Electronics Panther X2 HNT Miner Helium Hotspot [pdf] User Guide PANTHERX2, 2A3OG-PANTHERX2, 2A3OGPANTHERX2, Panther X2 HNT Miner Helium Hot spot, HNT Miner Helium Hotspot, Hotspot