



Proprietary of Aitek Inc

Aitek Miner Plus

Model: AMP-500-01

USER MANUAL



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1. PACKAGE CONTENT



Package Content

Quantity	Description
1	Aitek Miner Plus
1	LoRa Antenna
1	Power Adaptor
1	Mounting Bracket (attached to the Miner Plus)
2	Mounting Screw

2. PRODUCT SPECIFICATIONS

Aitek Miner Plus

Product Specifications	
CPU	Quad-core A55
RAM	2GB LPDDR4/ LPDDR4X
Flash	64GB eMMC 5.1
WIFI	802.11 b/g/n WLAN
Bluetooth	BT5.1/BLE+EDR
RF Connectivity	
Frequency Band	US915
Frequency	902-928MHz
Channel Capacity	8-channels uplink, 1-channel downlink
Work model	Half duplex
Output Power	≤1W
Connectors	
Antenna	LoRa, SMA-K
Ethernet	10/100M
Power	DC12V/1A
Button	Activate Bluetooth
SD Card slot	
Mini USB com port	
Environment & Others	
Operating Temperature	0°C to 60°C
Storage Temperature	-40°C to 85°C
Relative Humidity	20% - 90%, non-condensing
Dimensions (L*W*H)	175.9 x 148.5 x 51 mm
Color	Silver

3. INTRODUCTION

Aitek Miner Plus is a high-performing indoor IoT hotspot gateway compatible with Helium Network (www.helium.com), which combines the leading wireless LongFi protocol and Helium Blockchain technology.

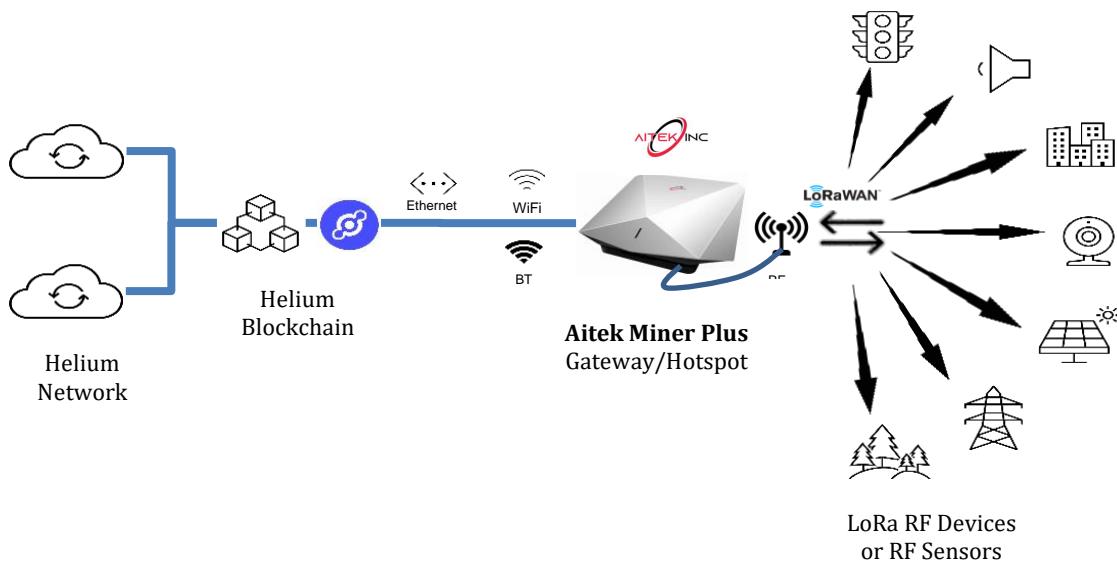
Aitek Miner Plus is compatible with all LongFi devices.

Aitek Miner Plus is designed with ECC608 crypto chip to provide secure and reliable connectivity. It meets Helium security protocol and provides trouble-free operations for end users. Additional benefits include:

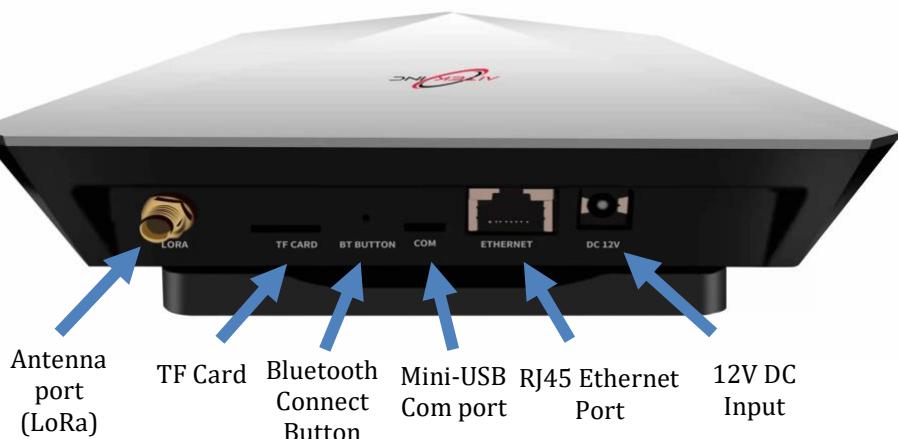
- Operates with ultra-low power consumption (5W)
- Covers more than 10 miles signal range
- Provides connectivity to thousands of LongFi end nodes within its range

4. NETWORK SYSTEMS

Aitek Miner Plus hotspot gateway integrates LongFi packets with Helium Miner. The hotspot sends the received LoRa terminal data packets to Helium Miner, then forwards them to the Console (Network Server) via the Miner. After that, pushes it to the application platform via the API interface.



5. INTERFACE DESCRIPTION



6. LED INDICATOR DESCRIPTION

The different colors of the LEDs represent different working states of the device.

Status LED Color	Indicator Status	Description
	The gateway is configured and operating normally.	The network connection is normal.
	The gateway is in standby/off-line mode	The network is not connected
	The gateway power-on initialization status	
	Bluetooth is activated, can be scanned and connected	Press BT BOTTON for 2 seconds to activate
No LED light	Power off	The device is not powered on

- * Please note: During software update, after connecting to the network, the green light may not be turned on immediately. The green light will turn on after the normal update and the hotspot is paired to the network successfully.

7. USER INSTRUCTION

7.1 Download the mobile app.

Download the app using Apple iPhone:

- Go to Apple app store button, search for Helium app.
- Download and install the Helium app
- Run the Helium app
- Continue to step 7.2



Apple app store



Helium app

Download the app using Android phone:

Go to Google Play store,

- Go to Google Play Store, search for Helium app.
- Download and install the Helium app
- Run the Helium app
- Continue to step 7.2



Google play store



Helium app

7.2 Configure network connection

7.2.1 Equipment hookup

Connect the antenna by inserting the SMA male connector to the LoRa antenna port. Turn the nut of the connector until it is fully tightened.



7.2.2 Set up distribution network – Using WiFi, Ethernet or Bluetooth

Open the Helium App from your phone, register to enter and select "Set up Hotspot".

Select Aitek Miner Plus, read the "network configuration instructions" if you haven't read it, or bypass the "network configuration instructions" by select "Skip" to follow the on-boarding step by step prompts on the app.

Once ready, power up the gateway by plugging in the power adapter AC end to an AC power outlet and plug the DC end to the DC 12V socket on the device.

After plugging in the power, the LED of the gateway turns red and then yellow.



Below steps showing three methods of pairing the Aitek's Miner Plus hotspot.
Please note, only one of the three method is needed to pair up the device.

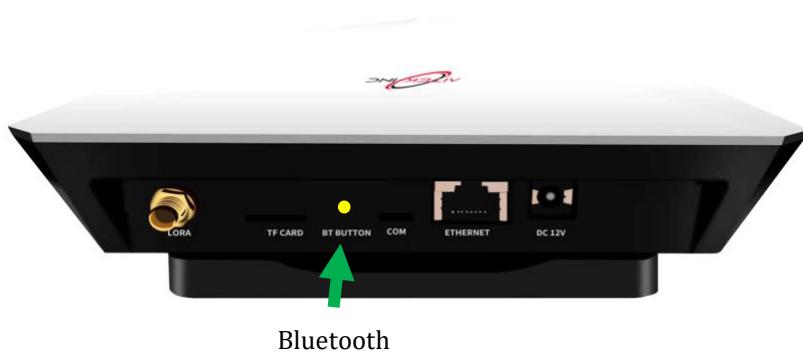
1. WiFi pairing:

If you use WiFi pairing technique, select the WiFi from the app, select the name of the WiFi router you are networking with. Enter the network password and press "next". Follow the app's step by step process. Once on-boarding is successful, the LED light will turn green.

2. Bluetooth pairing:

Insert a pin into the BT BUTTON hole and press the button for 2 seconds, then watch the LED turn blue to start Scan. After scanning the device, click to enter the next step. Follow the app's step by step process.

At this step, the network pairing is completed, LED color will change from blue to green.



Bluetooth

3. Ethernet Cable Connection

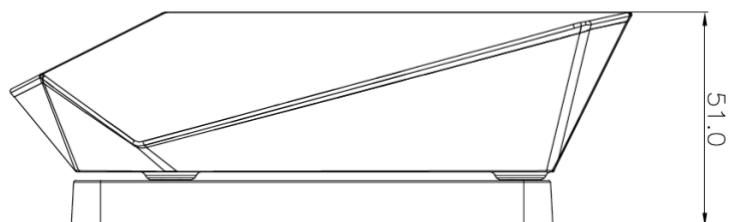
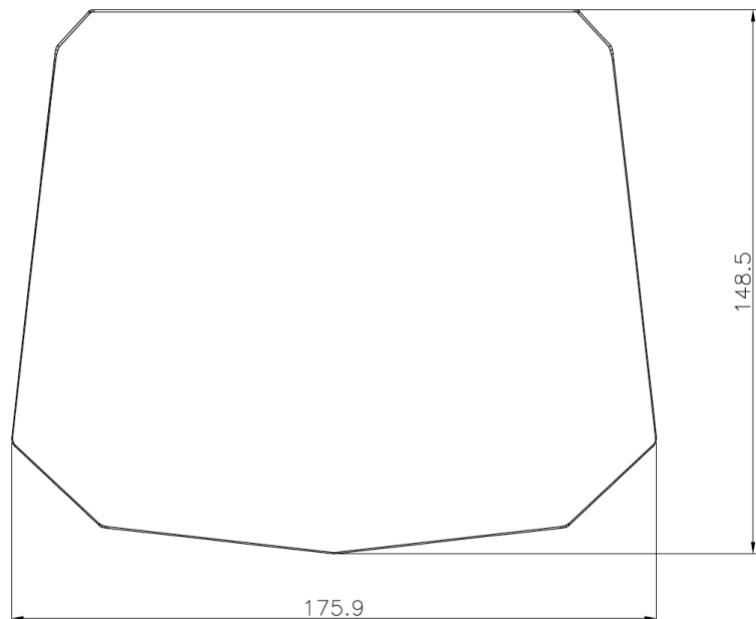
Ethernet connection requires connecting an Ethernet cable from Aitek's Miner Plus to the network router equipment (the Ethernet cable is provided by the customer). Suggest to use CAT 6 or better rated Ethernet cable when possible.

Please note that the Ethernet connection currently only supports automatic IP acquisition.

Follow the app's step by step process. Once on-boarding is successful, the LED light will turn green.

RJ45 Ethernet
Connector

8. PART SIZE (MM)



9. MOUNTING GUIDE

Aitek's Miner Plus hotspot gateway can be mounted in the following methods.

- Desktop: Place the gateway on a horizontal surface.
- Wall-mount: Hang the gateway on the wall using proper wall mounting screws to fully secure the device.

RF Antenna placement – best practice for strong signal:

- Place the antenna in an open space where possible.
- Place the antenna at highest part of the house or structure where possible.
- Antenna should have minimal blockage from building material such as concrete walls, sheet rock walls, metal beams, etc.
- Avoid obstructing the antenna with metal objects such as metal appliance, metal door, etc.
- Try to place the antenna close to a window or balcony as possible, so the antenna can provide a wider coverage.

Precautions:

- ※ The hotspot must be handled with care during installation process. Avoid shocking or dropping of the product.
- ※ The working environment of the hotspot should be in a low dust area, with good air circulation.
- ※ Avoid high humidity area where water condensation could damage the hotspot.
- ※ This hotspot is not rated for direct exposure to water.



APPENDIX – A

FCC ID: 2A5L2AMP500

Important Safety Information - Read First

Before installing, configuring, or operating any equipment, Aitek recommend user to access and read all relevant technical documentation. Aitek technical documentation can be found at Aiteks.com. Read and understand all safety instructions, cautions, and warnings in this document and the labels on the equipment.

Safety Statements

All safety instructions below should be read, understood, and applied under all relevant circumstances when working with this equipment.

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of any polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If any provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect any power cord from being walked on or pinched; particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Use only attachments/accessories specified by the manufacturer, following all relevant safety precautions for any such attachments/accessories.
12. Disconnect any outlet powered apparatus from its power source during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as a damaged power supply cord or plug, liquid being spilled or objects having fallen into the apparatus, the apparatus being exposed to rain or moisture, apparatus having been dropped, or other failure to operate normally.
14. To completely disconnect equipment from AC mains power, disconnect the power supply cord plug from the AC receptacle.
15. For applicable equipment, use the included power cord with the grounding prong intact to insure proper grounding of the device.
16. For any hardwired or fixed in-wall apparatus, carefully follow all wiring diagrams and instructions. All electrical wiring and servicing should be performed by a properly licensed electrician.



FCC Regulations

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.

This equipment has been tested and found to comply with the requirements for CLASS B digital devices, pursuant to Part 15 of FCC Rules. These requirements are designed to provide reasonable protection against harmful interference when the equipment is operated 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. If this equipment does cause harmful interference to radio or television reception (which can be confirmed by turning the equipment off and on), the user is encouraged to attempt to correct the interference using one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Ensure that the power sources for this equipment and the receiver are connected to different circuits.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Radiation Exposure Statement

This device meets the government's requirements for exposure to radio waves.

This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

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