

Setting Up Your RTKUSA Base

01 Getting Started

What You're Setting Up

Your RTKUSA Base Station is the foundation of your accuracy. Once installed correctly, it continuously transmits correction data to improve positioning down to the centimeter level.

What's in the Box

- Multi-band GNSS Receiver
 - Survey-grade GNSS Antenna
 - Antenna Cable (~9m)
 - WiFi Antenna
 - USB-C Power Cable
 - Mounting Hardware
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02 Antenna Installation

Why This Matters

If you get this wrong, nothing else matters.

Placement Requirements

Locate a sturdy location where you can mount the antenna. You will need to make sure there are no obstructions from the horizon 360 degrees around the antenna. The peak of your roof is often an ideal location.

Mount the antenna using the included mounting pole and bracket, then connect one end of the 9m antenna cable to the antenna.

Run the other end of the antenna to the base station.

- Full 360° open sky view
- No obstructions (trees, buildings, metal structures)
- Mounted as high as possible

Best option: Roof peak or elevated mast

Prepare the Base Station

Remove the red plastic cap from the WiFi-BT input and connect the WiFi antenna.



Next, remove the red plastic cap for "GNSS+" and connect the smaller end of the antenna cable.

Next, plug in the USB-C cable and power the device with any USB charger that provides at least 1 amp.

It can take up to 7 days to get a precise point once the RTKUSA Base is installed and configured. A "FIX" will not be available until this process is complete. If you ordered your RTKUSA Base with RTK then once the fix is obtained you will receive your RTKUSA Base credentials on your RTKUSA Cloud Account.

Installation Steps

1. Mount the antenna using included hardware
2. Connect antenna cable to antenna

3. Route cable to base station

Pro Tip: Signal quality = performance.

Bad placement = bad corrections = wasted time.

03 Base Station Setup

Connect Hardware

1. Attach WiFi antenna
2. Connect GNSS antenna cable
3. Plug in USB-C power (minimum 1A)

Power On

Switch your RTKUSA Base unit to the "ON" position using the small slide switch. The left red LED (Power) will turn solid.

The right green LED (WiFi Internet) should be blinking slowly.

The middle orange LED (PPS) will be off and activated later.

The device is now in the "Access Point Mode" (AP Mode).

LED Indicators

- Red (Power): Solid
- Green (WiFi): Blinking
- Orange (Satellite Sync): Off initially

The unit is now ready for configuration.

LED	FUNCTION	STATUS
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RED	Power	SOLID: when powered
ORANGE	PPS (Pulse Per Second)	BLINKING (1s): antenna sees satellites
GREEN	WiFi / Internet (2Ghz)	BLINKING (slow): Access Point Mode, Used for configuring Internet Connection. http://192.268.4.1 BLINKING (fast): Attempting to connect to Internet via configured SSID and Password SOLID: Internet is connected.

For debugging, the USB-C can be used as a serial communication port. Note: we recommend using the provided WiFi antenna, as during testing we have seen issues with other WiFi antennas.

04 Connect to the Base Station

Step 1: Join the Network

This unit requires a 2.4Ghz WiFi network.

Please make sure that the WiFi password does not contain any special characters.

When first powered on, your RTKUSA base station will emit a WiFi network of its own called MobileCM. Using your phone, PC, or Mac, connect to your RTKUSA Base Station's WiFi. This step does not require an internet connection.

- Network Name: MobileCM
- Password: Device serial number (on back sticker)

“No Internet” message is normal.

Step 2: Open Setup Page

Once you are connected to the RTKUSA base stations' Wi-Fi network, open a web browser and navigate to the setup page.

- Go to: 192.168.4.1

NOTE: On Mac or iOS devices the following page may pop-up without having to enter the IP Address.

Step 3: Enter Network Info

Required Inputs

- SSID: Your WiFi name (must be 2.4GHz)
- Password: Your WiFi password (Please make sure that the password does not contain any special characters.)
- **Miner Key: Unique name (12-18 characters)**

Use this format for the Miner Key, rtkusaMinerLocation, it must be unique and at least 12 characters. (DO NOT USE THE MINER SN)

ex: rtkusaPrescottAZ

Save Settings

- Green LED should turn solid = success
- Blinking = failed connection

If the green light starts flashing again, the miner has not connected to WiFi. You will need to check if you did it correctly, and try again.

05 Confirm Connection

When the RTKUSA Base gets a full green light, notify RTKUSA team that it is operational. We will confirm. Send email to admin@rtkusa.com with your Miner Key as the Subject.

Access Device on Network

To access the device's web-based portal you must first identify the IP address of the device. To do this you most commonly will log into your WiFi router and look for the device in your network map.

1. Log into your router
2. Find device named: espressif
3. Note IP address (192.168.x.x)
4. Enter IP into browser

Login

Use your **Miner Key**

06 System Active

Confirmation

When setup is complete:

- Status: TRANSMITTING
- Green LED: Solid

Your base station is now sending correction data.

07 Accuracy Lock Period

What to Expect

Your base station needs time to establish a precise position.

- Estimated time: 5-7 days
- No fixed solution until complete

Why This Matters

This process enables:

- Repeatable accuracy
- Reliable RTK corrections
- Survey-grade results

Skipping this step leads to poor data.

08 Troubleshooting

WiFi Issues

- Confirm network is 2.4GHz
- Re-enter password carefully
- Avoid special characters

Reset Device

Press reset button to return to setup mode

Weak Performance

Check antenna placement:

- Must have clear sky view
- Elevation improves results

09 Signal Quality (SNR)

Acceptable Range

- Ideal: 37–45
- Below 32: Not usable

What Affects Signal

- Trees
- Buildings
- Metal structures
- Poor placement

Recommendation

Install antenna in open sky for best performance

10 What Happens Next

After Stabilization

Once your base station is fully established:

- It becomes part of a correction network
- Provides consistent high-accuracy positioning
- Improves field efficiency and reliability

Outcome

- Faster workflows
- Better deliverables
- Increased confidence in your data