



# FarmTRX<sup>TM</sup>

## RTK Base Station

### Quick Start Guide

## GUIDE CONTENTS

|                                                        |    |
|--------------------------------------------------------|----|
| Before You Begin .....                                 | 3  |
| Choose an Installation Location .....                  | 4  |
| Mount the Base Station .....                           | 5  |
| Connect the LoRa Antenna (optional) .....              | 5  |
| Connect Power and Ethernet .....                       | 5  |
| Allow the Base Station to Establish Its Position ..... | 7  |
| NTRIP Correction Setup .....                           | 8  |
| Configure a GNSS Receiver .....                        | 9  |
| LoRa Radio Correction Setup .....                      | 10 |
| Confirm Correct Operations .....                       | 10 |



Thank you for purchasing the FarmTRX RTK Base Station. The RTK Base Station provides a local source of high-accuracy GNSS correction data for compatible autosteer systems, precision seeders and sprayers, and other RTK-enabled equipment.

Once installed, RTK Base Station can deliver corrections in two ways:

- **NTRIP over the internet:** Corrections are sent through the FarmTRX NTRIP caster and received by compatible equipment using an mobile data internet connection.
- **LoRa radio:** Corrections are broadcast directly from the base station to compatible nearby equipment using long-range radio.

Your RTK Base Station has been preconfigured to simplify installation and reduce the amount of technical setup required.

This Quick Start Guide takes you through the steps required to get started.

## Before You Begin

### In the box

- RTK Base Station
- Ethernet cable with RJ45 and M12-8 X-Code connectors (20 ft or 50 ft)
- PoE Injector with power supply
- Mounting bracket and fasteners
- Setup and credentials card (not shown)



### Tools required

- Screwdriver
- Cordless drill, with appropriate drill bit
- Side cutters for trimming cable ties
- Ladder or lift suitable for the installation location

### Important safety information

- Follow all applicable ladder, electrical, and working-at-height safety practices
- Do not install the base station near overhead power lines
- Use mounting hardware appropriate for the building surface
- Disconnect power before connecting or removing antennas or cables

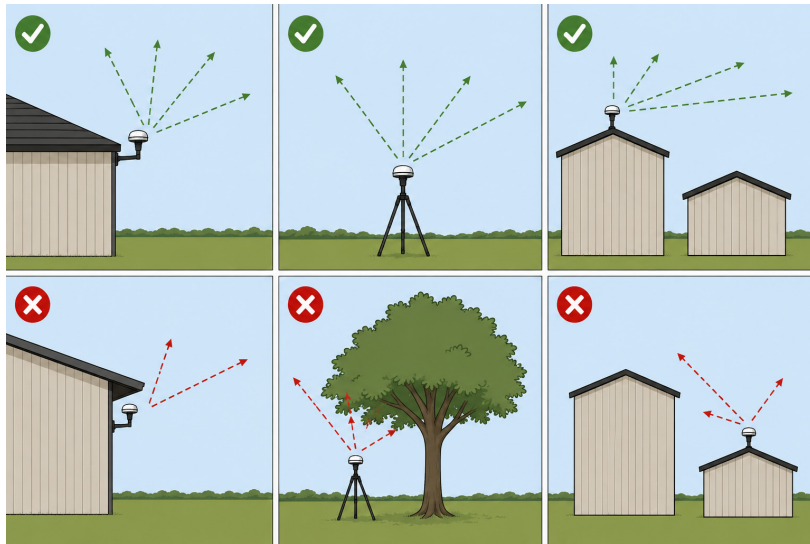
## Choose an Installation Location

RTK Base Station should be mounted in a fixed, permanent location with a clear view of approximately 120 degrees of sky. Suitable locations include:

- A roof edge or gable
- A communications tower or pole

For best performance:

- Avoid locations directly below metal roofs, overhangs, or large obstructions
- Avoid nearby trees, tall buildings, and structures that block the sky
- Select a fixed location close to an Ethernet connection or Wi-Fi network
- Ensure the mounting surface is solid and does not move or vibrate even in windy conditions



**Important:** Do not move the base station, once installed

## Mount the Base Station

- Hold the mounting bracket against the selected surface.
- Mark the mounting-holes and drill the required pilot holes.
- Secure the bracket using appropriate fasteners (depends on the material of your roof, gable, mounting pole, etc.)
- Place the RTK Base Station on the bracket, line up the three holes in the device with the slots in the bracket and secure it with the supplied screws.



## Connect the LoRa Antenna (optional)

The LoRa antenna (not included) is used when correction data will be transmitted directly to compatible equipment over local radio.

- Locate the LoRa antenna connector on the RTK Origin.
- Carefully thread the antenna onto the connector by hand.
- Tighten until secure. Do not overtighten.

## Connect Power and Ethernet

**Using the Ethernet connector for both power and internet:**

- Connect the Ethernet cable (M12-8 X-Code connector) to the RTK Base Station.
- Route the cable into the building.
- Connect the Ethernet cable (RJ45 connector) to the supplied PoE injector.
- Connect the injector to your router or internet modem.
- Connect the PoE injector's power supply to an electrical outlet.
- RTK Base Station should connect automatically. Check the Network LED to confirm that a connection has been established.

## Using the Ethernet connector for power and Wi-Fi for internet

- Connect the Ethernet cable to the RTK Origin
- Connect the other end to the supplied PoE injector and plug it into an outlet
- Allow the RTK Origin to start
- Watch the indicator LEDs on the unit
- Wait for the base station to establish satellite and network connections

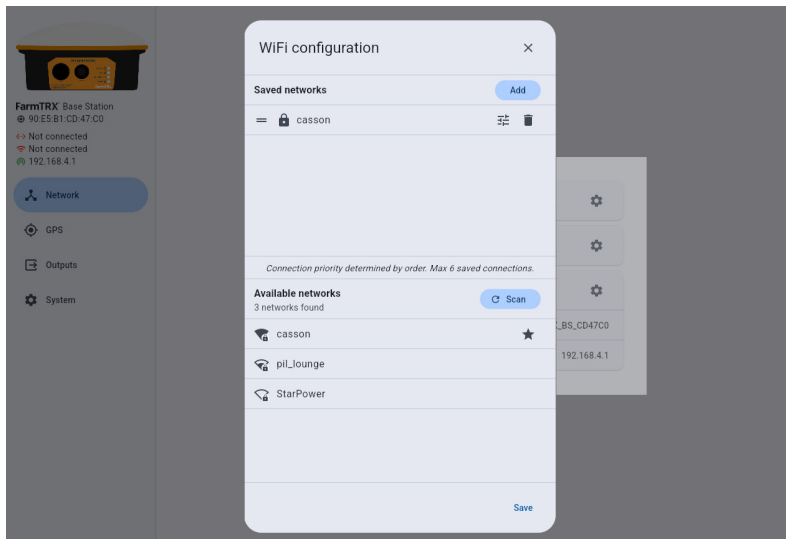


Power-over-Ethernet injector

Startup may take several minutes. Do not disconnect power while the base station is starting or installing an update.

## Connecting to Wi-Fi for internet

- Scan the Config QR code at the bottom of the RTK Origin or enter the configuration IP address in a browser (192.168.4.1)
- The configuration page is open by default; no username and password needed
- Select your farm's Wi-Fi network.
- Enter the farm Wi-Fi password.
- Save the settings.
- Wait for the Network LED to confirm a successful connection.

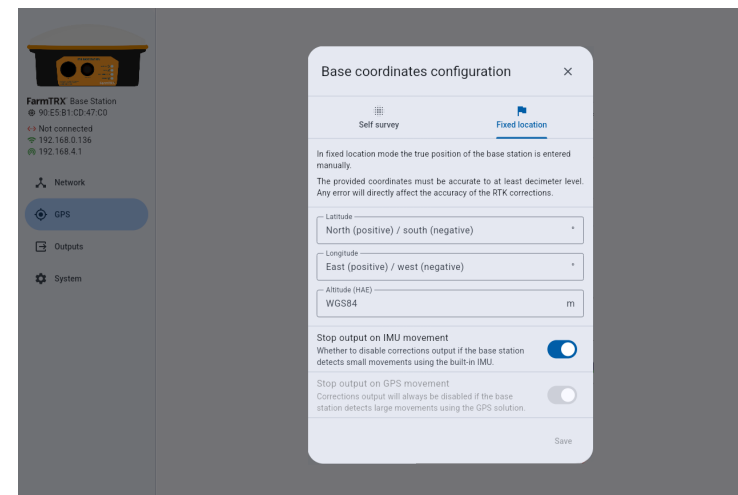
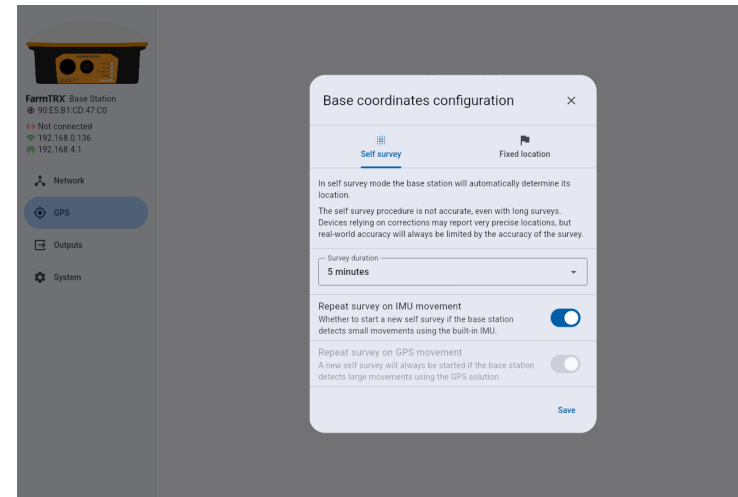


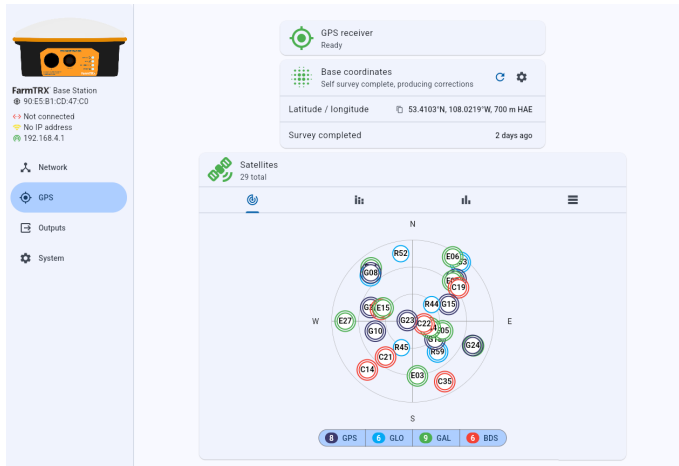
## Allow the Base Station to Establish Its Position

Allow the base station to operate continuously for at least 24 hours after installation in Self Survey mode to determine its precise location.

Once the initial survey process is complete, the status will appear in the RTK Base Station control panel.

If you know the exact Latitude/Longitude coordinates for your base station, you can enter them manually in the Fixed Location tab.



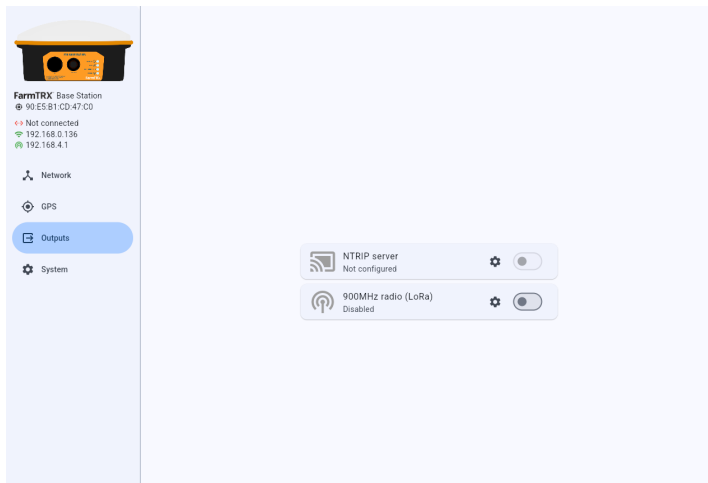


The RTK Base Station control panel allows you to view the available GPS, GLONASS, Galileo, and BDS satellites at your current location.

## NTRIP Correction Setup

NTRIP allows compatible equipment to receive corrections through an internet connection. RTK Base Station is pre-configured to send correction data to the FarmTRX NTRIP caster. Your setup card will provide the NTRIP details required by your rover.

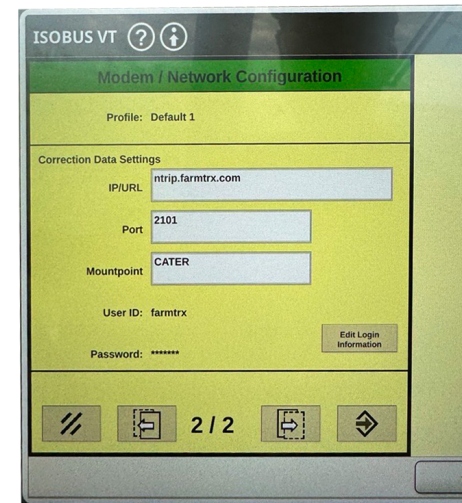
- Caster or host address
- Port
- Mount point
- Username
- Password



## Configure a GNSS Receiver

RTK-enabled GNSS receivers, or rovers, are typically installed on tractors, sprayers, seeders, combines, and other machines that require precise position data. The exact configuration menu names vary by manufacturer, but the general process is similar.

- Turn on the rover, display, or autosteer system
- Open the GNSS, GPS, RTK or correction-source settings
- Select NTRIP as the correction source
- Enter the information shown on the RTK Base Station setup card: *Host or caster address, Port, Mountpoint, Username, and Password*
- Save the configuration
- Confirm that the positioning status changes to **RTK Float** and then **RTK Fixed**, or the equivalent status used by the manufacturer



John Deere NTRIP configuration panel (1 of 2).

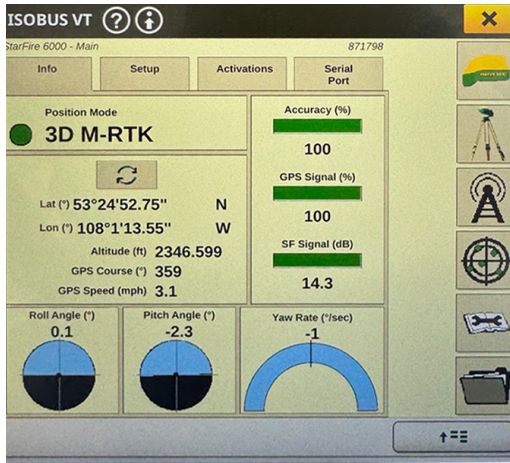
RTK Base Station uses standard protocols and is expected to work with most modern RTK-enabled systems. Compatibility and field names may vary. Consult the rover manufacturer's instructions if you cannot find the NTRIP settings.

## Typical GNSS receiver status progression

A GNSS receiver may display the following states:

- **No Fix:** The receiver has not established a usable satellite position
- **GNSS or GPS:** The receiver has a standard satellite position but is not receiving RTK corrections.
- **DGPS:** The receiver is receiving a lower-accuracy correction source.
- **RTK Float:** Corrections are being received, but the solution has not fully converged.
- **RTK Fixed:** The receiver has established a high-accuracy RTK solution.

Use the rover only for precision operations once the manufacturer's display shows an appropriate RTK status.



*John Deere NTRIP configuration panel.*

*(2 of 2)*

*Once NTRIP configuration has been completed, all the usual GPS/RTK parameters are visible to the operator.*

## LoRa Radio Correction Setup

LoRa can be used to broadcast correction data directly from the base station without sending it through the internet.

To use LoRa:

- Confirm that your LoRa antenna is connected to the RTK Base Station.
- Enable radio broadcasting in the RTK Base Station configuration interface.
- Connect the compatible LoRa receiver on the rover and turn it on.
- Configure the rover to accept corrections from the local radio input.
- Confirm that the Radio LED on the RTK Base Station indicates normal operation.
- Confirm that the rover reaches an RTK Fixed solution.

Under suitable line-of-sight conditions, local correction broadcasts may reach approximately 10 km.

## Confirm Correct Operations

Congratulations, you have successfully installed and configured the RTK Base Station.

Drive a short test pass and confirm that the guidance position remains stable before relying on the system for seeding, spraying or other precision work.

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