

# User Guide: PointPerfect RTK-SSR Receiver (Internet or L-band)

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## Overview



With [RTK-SSR Receiver with PointPerfect \(Internet or L-Band\)](#), you will be able to enjoy plug-and-play centimeter accuracy in Europe and continental North America from any area with cellphone coverage or satellite view. Just plug power, wait a few minutes and enjoy centimeter precision.

## Package

You got your new [RTK-SSR Receiver with PointPerfect \(Internet or L-Band\)](#)? Follow the instruction manual to start.

Remember all the component parts of this professional kit:

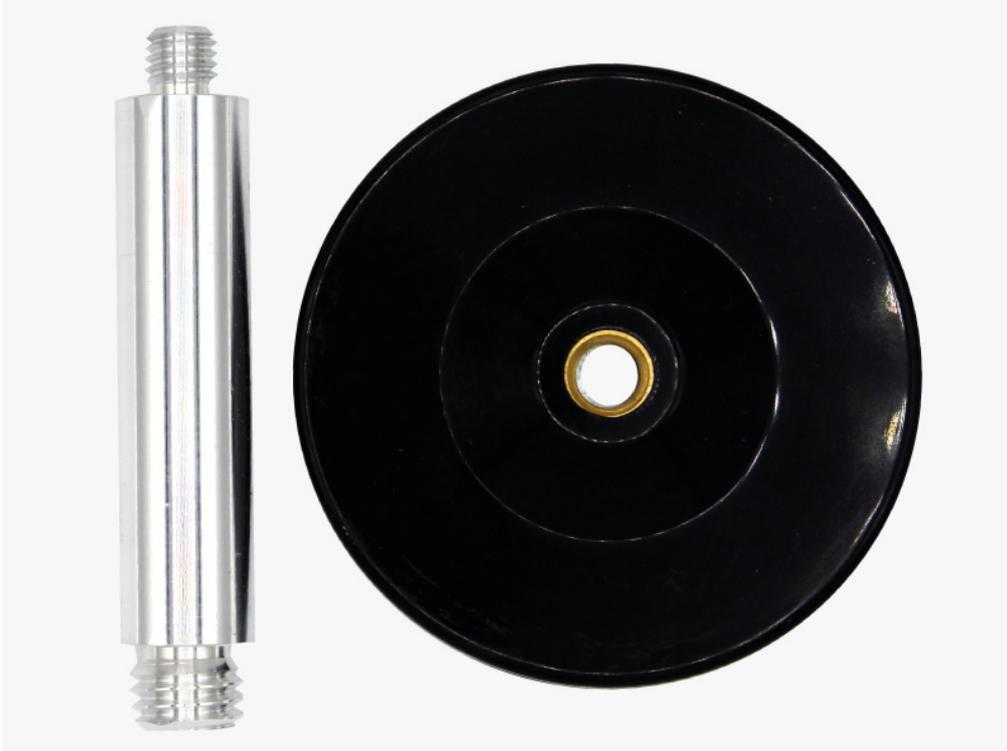
- [simpleRTK2B Pro](#) powered by ZED-F9P RTK receiver with [L-Band Point Perfect correction receiver](#) or [4G NTRIP Master](#) + 1 SIM Card with 1 year unlimited service inside a plastic case
- 1 year subscription to L-Band or Internet PointPerfect correction service
- [Calibrated Survey GNSS Tripleband + L-band antenna \(IP67\)](#) or [Survey GNSS Multiband antenna \(IP66\)](#)
- [Magnetic stand for survey GNSS Multiband antenna](#)
- 1 USB – type C cable

The kit is pre-configured to send NMEA over JST-GH connector and USB at the same time.

## Unboxing

For building [RTK-SSR Receiver with PointPerfect \(Internet or L-Band\)](#), there is no need for special tools nor nothing of the sort, by hand will be enough. Follow our installation manual.

1. Take your Magnetic Stand for Survey GNSS Antenna and screw the stand together.





2. Add antenna on top of the stand turning it delicately to the right until it stops.



3. Connect the TNC-K end of the cable to the Survey antenna.



4. Connect the TNC-K to SMA cable to the SMA connector of the receiver.



5. Connect the USB cable to the USB port of your receiver.



6. Place antenna in a place with open sky view or near the window for testing functionality.
7. Now power your receiver. Just connect your receiver to your laptop or PC via USB.



8. If you own an **Internet** version of RTK-SSR Receiver with PointPerfect, skip this step. If you own an **L-Band** version, you will need to store a credential file (\*.JSON) on your receiver. We sent you the credentials file by e-mail.

- [Download](#) and open u-center (make sure you use v22.05 or newer).
- Go to the menu bar to **Receiver->Connection** and select the correct **COM** port.
- Go to **Receiver-> MQTT Client... >** and select \*.JSON file.
- Check **Subscribe to key topic**, uncheck the rest of the options.
- Click **OK**.
- If you want to check that your key has been stored, you can go to **View->Messages**  
**View->UBX-RXM-SPARTNKEY** and you should see some data there.

9. The first ever power up might take up to 5 minutes to start getting RTK. This is because there's a one-time automatic activation. You should start seeing RTK after 1-2 minutes.

10. And that's it! Now you can enjoy 2-4 centimeter CEP accuracy in all the coverage area!

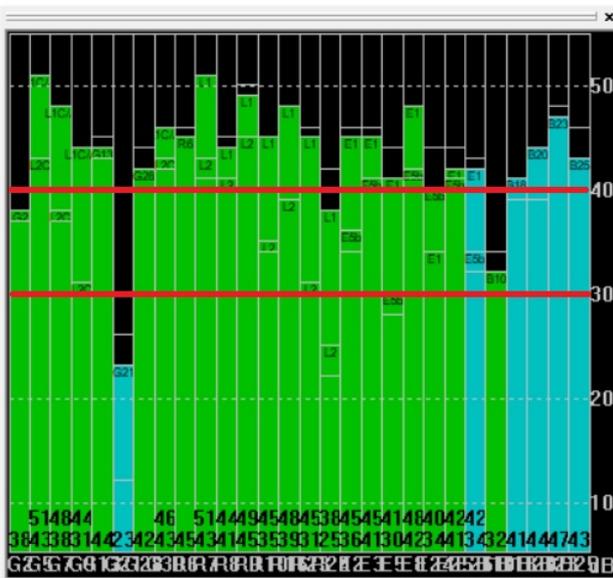
**(Optional) How to check RTK status with Windows PC?**

If you only have one COM port in your PC, u-center will connect automatically to your kit and you will start seeing data on the screen right away. If it doesn't, go to the menu bar to **Receiver->Connection** and select the right **COM** port. If you selected the right COM port, you should immediately start seeing data displayed on your screen.

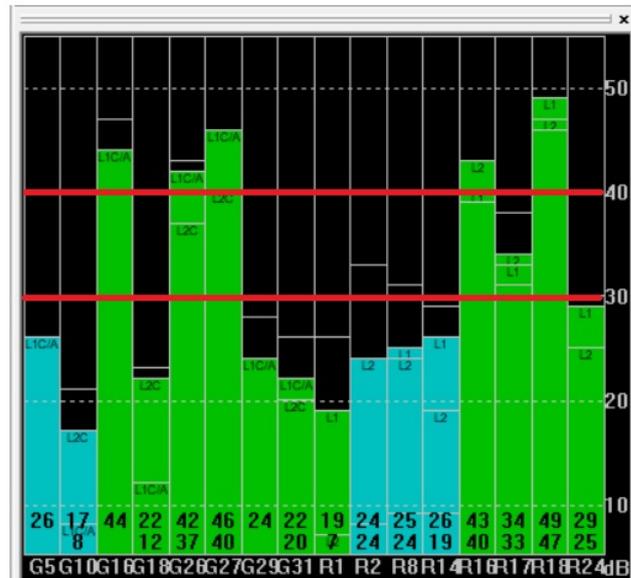
Let's now do a couple of checks together.

In order to achieve RTK, we need good GNSS signals:

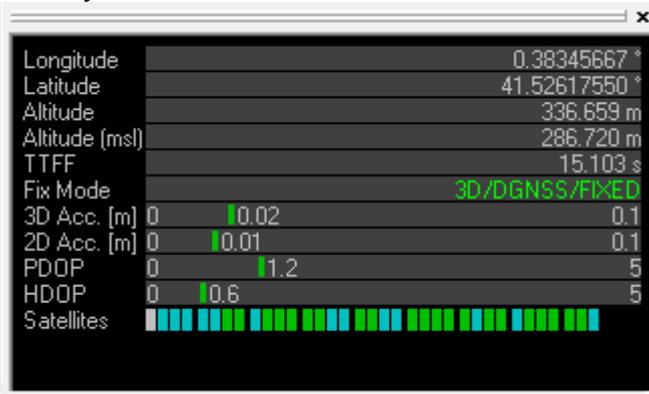
**Good GPS/GNSS antenna installation:**  
More than 10 satellites over 40dB, a few over 50dB



**Bad GPS/GNSS antenna installation:**  
Less than 10 satellites over 40dB, most under 30dB



If you don't find this diagram or you closed it by accident, you can reopen it going at the menu bar to **View->Docking Windows->Satellite Level**. Once you are confident that the signal levels are good enough, just wait to see RTK FIX and enjoy ? If you don't know how to install the GPS/GNSS antenna better, have a look at our [simpleANT2B GNSS antenna installation guide](#). A second interesting window is the Data window, that you should find at the top right, otherwise at the menu bar go to **View-> Docking Windows-> Data**. It will show you information like GPS FIX and accuracy estimate.



## **How to connect RTK receiver to the computer / PC?**

Once you have your RTK Receiver connected to the PC via USB, you can follow simple steps, which we discribed in the video quick guide:

[To view the video, visit the page](#)

## How to connect to your smartphone?

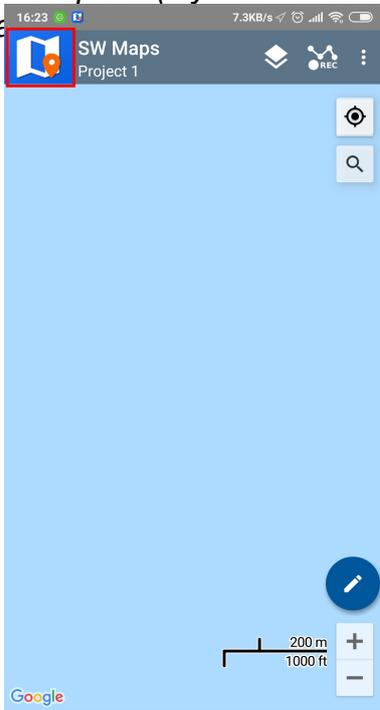
This hookup guide will show you how to use your Android device with [RTK-SSR Receiver with PointPerfect \(Internet or L-Band\)](#).

1. Make sure your device supports USB OTG capabilities and your Android language is set to English, since some users reported compatibility problems with other languages.
2. Connect receiver to your your Android device. You will need additional [USB on-the-go \(OTG\) cable](#) (not included) to do that.
3. Place your antenna in a location with **good view of the sky**, or near a window for testing the functionality.
4. Download compatible software/app which you prefer to use from Google Play and install it in your device. We prepared step-by-step instructions how to use [RTK-SSR Receiver with PointPerfect \(Internet or L-Band\)](#) with several software/app:
  - o [SW Maps – GIS & Data Collector](#). Use this [link to download the app](#) from Google Play and install it in your smartphone
  - o [Other app](#). The list of compatible software/app you can find [here](#).

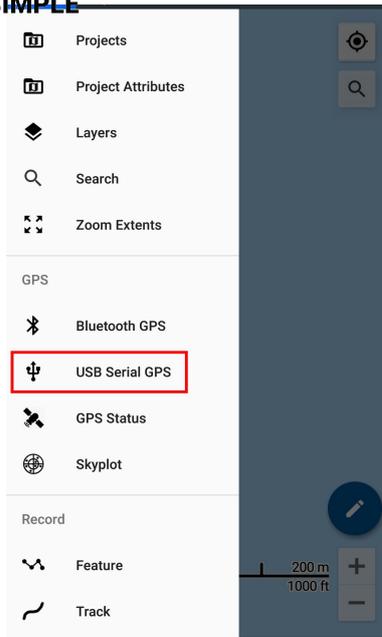
## How to use PointPerfect RTK-SSR Receiver (Internet or L-band) with SW Maps?

*The best option (if your device supports it) since you can power and communicate with it at the same time.*

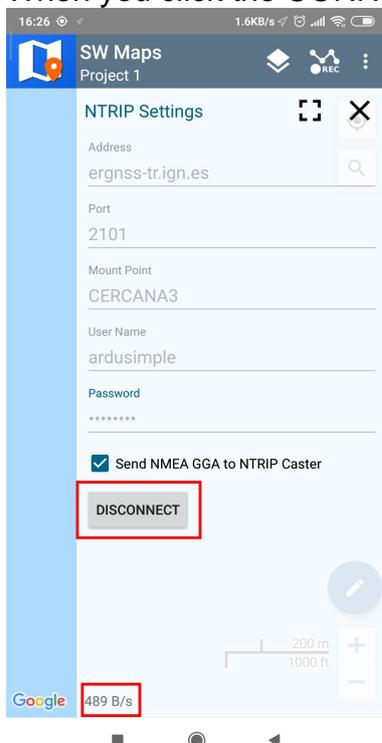
5. Give permissions (first time only).
6. Tap the menu icon to show the app menu.



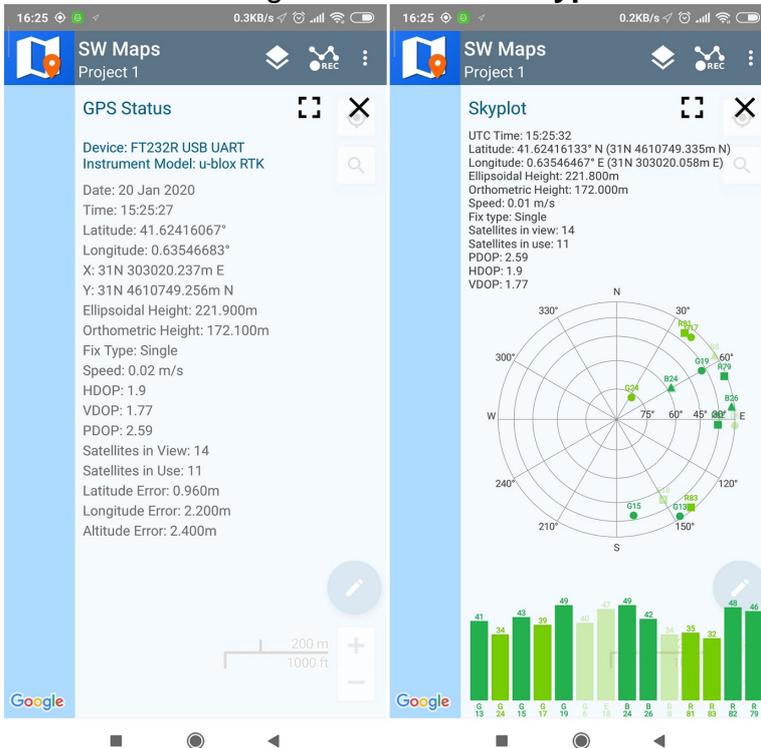
7.



8. Under **Devices**, you should see **FT232R USB UART**. Set **BaudRate** to **115200** bps.
9. Set **Instrument Model** to **u-blox RTK**.
10. Click **CONNECT** button.
11. When you click the **CONNECT** button, grant permissions (if asked).



12. You can see some details of your ArduSimple receiver by going to the SW Maps menu and selecting **GPS Status** or **Skyplot**.



13. On the main screen, you can click the button  to make the app center the map in your receiver location. The location pin icon will change its color depending on the fix status. Additionally, you have the option to adjust the map layer, include points, or export



recorded locations, among other features.

14. You can get used to the SW Maps app by exploring its various options. If you prefer a guide, you can access the [User Manual here](#).

## How to use PointPerfect RTK-SSR Receiver (Internet or L-band) with any other software?

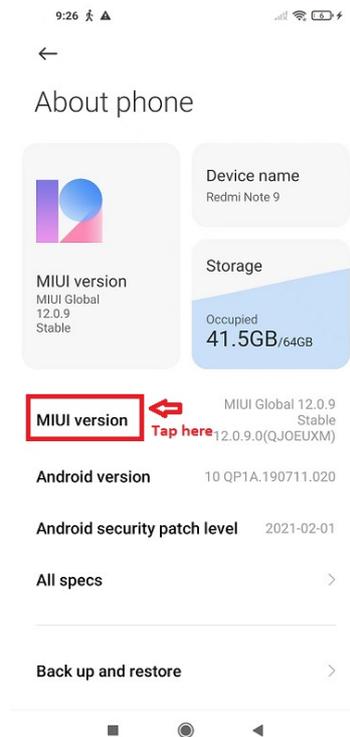
If you need to use kit with any other software, we will explain how to configure ArduSimple RTK receivers to be used as Mock location for Android smartphones/tablets in order to get centimeter position accuracy.

If you are not familiar with the term, mock location means that you cheat your Android device to use an external GNSS receiver as if it was its own internal one. This has the advantage that any GPS/GNSS app that works with your Android device can benefit of centimeter level accuracy. Follow the integration guide to start.

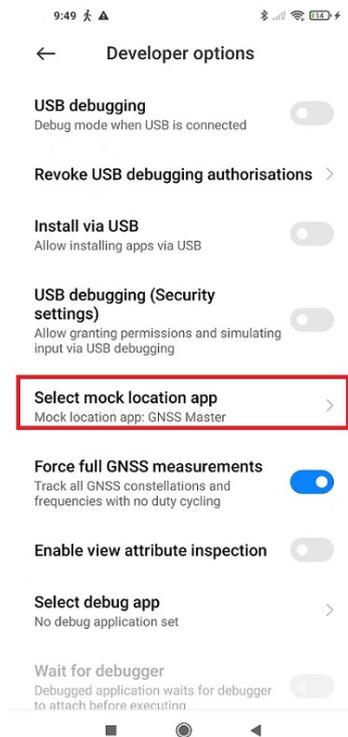
## Firstly, install GNSS Master app and enable mock location in your Android Device.

*This step only needs to be done once.*

1. Install [GNSS Master app](#) on your Android device from the [Google Play Store](#). When you first open the app, you will be asked to allow certain permissions to GNSS Master.
  - Location Permission
  - Display NotificationsOnce you accept the permissions, the page will load, showing the current status of the app. We will configure it later.
2. To enable mock locations in Android we will need to get Developer permissions. The procedure may vary slightly between different Android versions and smartphone models (you can Google your **“Smartphone model + enable mock location”** if you can't find the exact options).
3. On Android 4.1 and lower, the **Developer options** screen is available by default. On Android 4.2 and higher, you must enable this screen. To enable developer options, tap the **Build Number, MIUI version or similar** option 7 times.

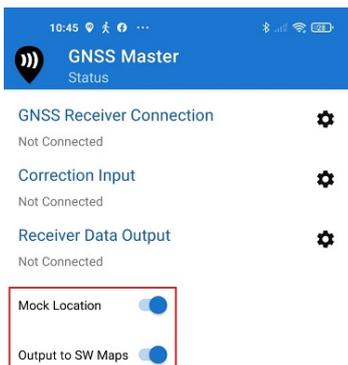


4. You can find this option in one of the following locations, depending on your Android version:
  - **Settings → About Phone → Build Number**
  - **Settings → System → About Phone → Build Number**
5. Once you have access to Developer options, you can go to **Settings → Additional Settings** and at the bottom you will find Developer options. In this big list, tap **Select mock location app** and select **GNSS Master** from the list.

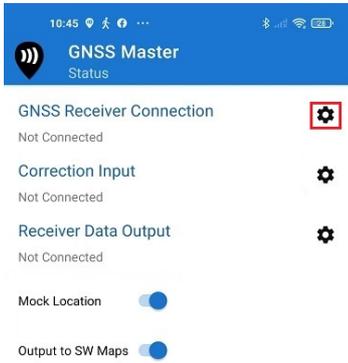


## Secondly, connect to your receiver.

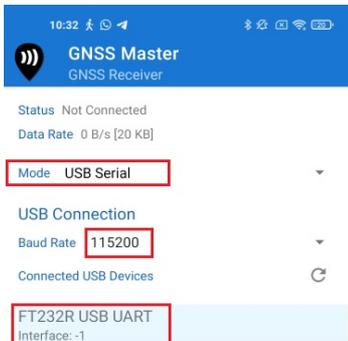
6. Connect the GNSS antenna to your device, in a location with good view of the sky, or near a window for testing the functionality.
7. Connect RTK receiver with your Android device with [USB OTG cable](#).
8. Open GNSS Master app. Check Mock Location and Output to SW Maps.



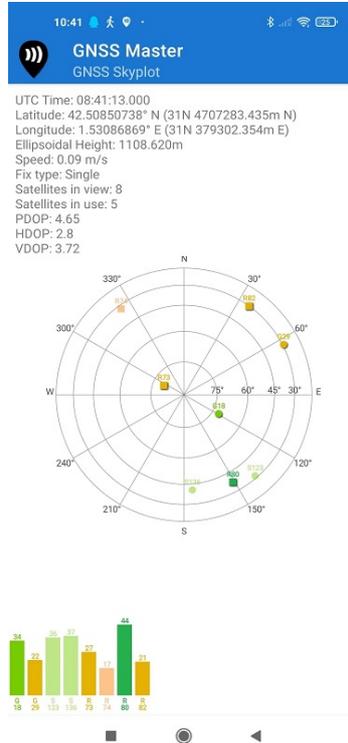
9. Click the gear icon on the right side of **GNSS Receiver Connection** to enter the setup menu.



10. Choose **USB Serial** at Mode. Set **Baud Rate** to 115200 bps. At **Connected USB Device**, it will automatically recognize your receiver with name \*\*\*\*\* **USB UART**.



11. Press **CONNECT**.
12. Go back to main menu. Now you should see in GNSS Receiver Connection it says Connected and with data transfer. You can check your location and available satellites in Skyplot.



13. Open your favourite GPS/GNSS application and use it as usual. You will be using the external RTK GNSS receiver instead of the smartphone/tablet internal GPS receiver.
14. We have tested this functionality with many apps, you can find them in this [link](#). If you test it in other apps, you can send us an email at [info@ardusimple.com](mailto:info@ardusimple.com) and we will add it to the list.  
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## **Related tutorials**

- [Mock location with USB OTG](#)
- [How to configure your simpleRTK2B receiver on your Android smartphone via GNSS master?](#)
- [How to export your survey work from your Android device to QGIS and AutoCAD](#)
- [How to use custom geoid for orthometric height measurements in Android with Mapit GIS or Mapit Spatial](#)
- [Ellipsoidal, orthometric and geoid height 101](#)
- [How to use ArduSimple products with SW Maps on Android smartphones/tablets](#)

## How to reset the kit to Factory settings?

The kit is pre-configured to send NMEA over JST-GH connector and USB at the same time. If you want to reset the kit to factory settings, follow the steps:

1. Connect the receiver with your computer or laptop via the USB.
2. Run u-blox u-center (you can download it [here](#)) and connect to the proper COM port.
3. Download configuration file:
  - o [AS\\_ZED-F9P\\_Lband\\_00.txt](#) if you have an L-Band option of [RTK-SSR Receiver with PointPerfect](#).
  - o [simpleRTK2B\\_FW132\\_Rover\\_1Hz\\_4G-SSR-00.txt](#) if you have an Internet option of [RTK-SSR Receiver with PointPerfect](#).
4. In u-center **Open Tools->Receiver Configuration**, pick your file that you download on step 6 and click **Transfer File->GNSS** button.
5. Once the configuration is done, go to **Receiver->Action->Save Config** to save the configuration of the RTK receiver.

## Accessories

Here you can find affordable accessories for [RTK-SSR Receiver with PointPerfect \(Internet or L-Band\)](#).



Cables  
[USB-C on-the-go \(OTG\) with external USB-C power supply](#)



[Made in Europe](#)  
Accessories  
[Waterproof Transport Case IP67](#)

## **EU Conformity & RoHS Certificates**

[Here you will find a summary of the EU Conformity Certificates of all our products.](#)