

RTK Survey using Stonex Base & Rover - Quick guide

The Base receiver (S980A) has the TNC antenna connection on top and example SN **S981xxxxxxxx**. Set up the tripod over the closest base station coordinates to your area of work. Centre over the Star Iron Picket (SIP) that is sticking out of the ground by 5 cm or so. Adjust the tripod legs to get the Tribrach bubble level. You can use a plumb bob to double check that you are over the centre of the SIP.

Once you have the tripod and Tribrach firmly set up. Screw in the yellow pole and put the S980 base receiver on top. Measure the height from the top of the SIP to the bottom of the S980A receiver. This is the vertical height of the base station. Make a note of this in a book for later reference.

Plug in the power cable from the Lithium-Ion battery to the S980A receiver. This will automatically turn on the receiver. Turn on the tablet and start the **CubeA App**. **Create a new job** with the correct UTM zone and map datum.

Connect to the **Base GNSS** first by tapping on **Device** shown at the bottom of the Main Screen. Tap on **Communication** and then **Search**. Select the S980A serial number from the list then tap **Connect**.

Once connected tap on **Working Mode**. It should show this receiver as the Base. Click on **Base** and then follow the prompts. You can select either **Input base Coordinates** or **Select a Point**. Just **Add coordinates** by inputting **Grid** coordinates and the **height** of the point. There is a prompt to put in the Vertical Height of the Base. Type in the height (from control point to the bottom of S980A) that you entered in the book.

Once you have entered the base coordinates and the height of Antenna press **Start** to **transmit** the data. **Ensure** that you have the **radio antenna attached** when it starts transmitting. Without the radio antenna on it will heat up the internal radio and you will also not get any radio range. With the Base transmitting go back to **Communication** and tap **Disconnect**. Now you will be able to connect to the Roving GNSS. You may have to * **press Stop and Start 1 or 2 times** * if you make changes to ensure the changes are accepted.

Setup the **Roving GNSS** on the vehicle or on the survey pole with the UHF antenna attached. Measure and write down the height from the ground to bottom of the S900A. Ie if it is on the pole it will be 2m. Then turn on the S900A receiver and then go to **Communication** and select its serial number from the list. Then tap **Connect**. In Working mode it will show up as **Rover**.

Once it is bluetooth connected, go to **Survey** at bottom of screen. Then select **Point Survey** at bottom right corner click and input the antenna height Ie 2m if on the survey pole. If it is working properly it should show **Fixed** in top middle of screen and it is getting radio updates every 1 or 2 seconds or so.

Settings for the Base and Rover GNSS receivers

Both the Base and Rover need to have **Internal Radio** selected.

Both the Base and the Rover GNSS receivers need to be on the same UHF Channel. Ie **461.000** MHz.

The Base is transmitting the **RTCM3.2** message using the **TrimMark III** or **Satel** radio protocol.

A new radio frequency can be created in Channel 8 of both units when using CubeA. Radio frequencies can also be added when using the WebUI on your computer.

Checks for quality assurance during the job.

When the Rover GNSS running near the Base; **record** a point 1 or so from the base point and check that you are getting roughly the same height that was entered for the base height. Survey the same point at the start and end of each days work. **Also survey points from the previous day's work** to compare.

Turn off the Base GNSS receiver at the end of the day. When it is turned on it will continuously transmit data on the radio. This will damage the radio if there is no UHF antenna on the S980A GNSS.