

PeopleGIS Leica RTK GPS Instructions

Equipment List

- GG02 Receiver (Antenna)
- GPS Range Pole
- Zeno Tablet
- MiFi
- MiFi External Battery
- Carrying Case

1) Turning on the MiFi

Power on the MiFi. This little gadget gives your field equipment access to the Internet. The light on the side of your MiFi will blink a few times (green, purple, green, etc). Once the MiFi is connecting to your Zeno Tablet, it will start blinking. Once the MiFi is connected, but not yet plugged into the external battery, turn on the external battery and connect the devices.

2) Turning on the Zeno Tablet Computer

Turn on the Zeno Tablet by holding the power button down for 6 seconds, until the lights flash.

3) Turning on the GPS Receiver

Press the red ON/OFF button. There are three LEDs (Power, Bluetooth, and Track). The power light should light up yellow. The Bluetooth Light will be green. The Bluetooth Light will turn blue when it is connected to the tablet. The Track Light will stay off until it is receiving satellite signals.



4) Connecting the Zeno Tablet to the GPS Receiver (Zeno Connect)

Double click on the **Zeno Connect** icon on your Zeno Tablet desktop.



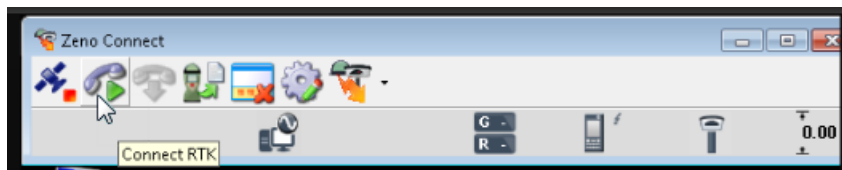
Once the Zeno Connect toolbar appears, double click on the **Keep Zeno On Top** icon on your desktop. (If Zeno Connect ever stops staying on top, you can always re run this program to keep it on top again).

Click the **Activate Antenna** button on the far left of Zeno Connect on the tablet - after a moment, the Bluetooth Light on the receiver should become blue.



5) Turning on RTK Mode

Once Zeno Connect has connected, you will see more buttons on the toolbar. The second button from the left is the **Connect RTK** button. Make sure the MiFi is on, and that you are connected to the MiFi, and then click this button.



A screen will popup, and list the following four items with either a green check, or a red X.

- A. Internet connection established
- B. RTK service connected
- C. Acquiring position
- D. Receiving realtime corrections

If all items get a check, the screen will go away, and you will be online and ready to map points. If any of the items have a Red X, please proceed as follows.

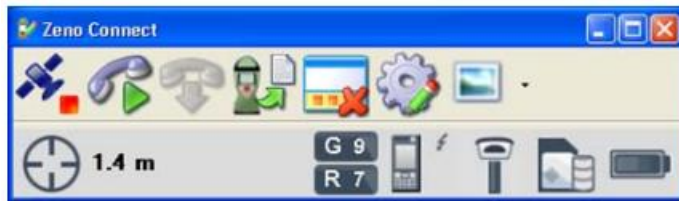
If the items (A) or (B) have a red check, please unplug and turn off the MiFi, and then turn it on again. Once you see the antenna on the MiFi screen, wait 2-3 minutes, and try again. If you have previously connected the tablet to another internet connection, you may need to reconnect the tablet to the MiFi.

If item (C) has a red check, you probably are indoors, under tree cover, or otherwise do not have a good sight of the sky. Please go outside and try again.

Item (D) should not have a red check. If it does, please call your GPS/RTK Network vendor.

6) How to recognize what mode you're in, how accurate the GPS is, and how good your connection is.

On the Zeno Connect toolbar, once you are receiving coordinates, you will see a variety of information. Some of the important symbols are described below:

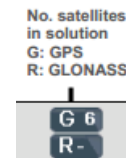


Connection Status can be found in the bottom left. It will appear as one three statuses. As the crosshairs move in, the accuracy goes up. Only map points when the cross hairs are in the third position (a point).



Accuracy is displayed next to the connection status, measured in cm or meters. You should regularly expect to see an accuracy of 2-4 cm.

The number of satellites is also displayed. The more satellites you have, the more likely you are to maintain a good fix, even near tall buildings or light tree cover. If you have trouble surveying a point, you may find that returning to that spot when there are more satellites gives a better result.



7) How to Map Outfalls

Make sure that your GPS Receiver, MiFi, and Tablet are set up. Go to your PeopleForm by using the link to your Sewer Manhole peopleform that can be found on the desktop. Make the browser full screen.

Once the form loads, you will see a map on the right, and some questions on the left. Underneath the map are three links (Find, Zoom, and Follow). Click the word **Follow**, and the map will zoom to your location and follow you around as you walk.

Go to your first outfall. Place the pole over the outfall, and center the bubble level. Wait for the status to become a crosshairs, and for the accuracy number to improve to 2-3 cm.

Tap the **Map It!** link towards the top left of the screen. This will cause the incoming GPS data to be added to your current record. Then hit Submit to save your record. You have just mapped an outfall. Move on to your next outfall.

Potential challenges:

- a) **Unable to stand over the outfall due to a parked car.** Using the GPS, survey the point on the curb perpendicular to the outfall. Measure the distance to the outfall. Record the measured offset in the comments box, and map the curb point.
- b) **Unable to get a good GPS fix (crosshairs) due to tree or building cover.** Because of how fixes are generated, you can often get a good fix, and slowly walk the GPS into a densely covered area where you could not otherwise get crosshairs.
- c) **Unable to get a good GPS fix and unable to walk GPS fix in.** If you can accurately map 3 or more points surrounding the manhole, you can pull ties or otherwise record the distances to mapped features. If you can see the feature in an aerial photo, you

can also use the Set Point tool in the top right corner of the map. Tap the Set Point tool to turn it on, then tap the map where you want to set the point.

8) Shutting off the devices

You can shut off your devices as follows:

- Zeno Tablet - This is a Windows computer. You shut it off by going to the Start Menu, clicking the Power Icon, and choosing Shut Down. Do not hibernate the device or place it into sleep mode.
- GG02 GPS Receiver - Press and hold the ON/OFF button for a moment. All lights should turn off.
- MiFi - Press and hold the power button until the light turns yellow. All icons on the screen should then go away.
- MiFi External Battery - Unplug from any devices and press the button. The lights should go off.

9) Charging your devices every night

While the equipment should have enough battery to last close to a full day of work, it will all need to be charged every night. Every night you will need to charge:

- the Zeno Tablet
- The GG02 receiver's battery
- The MiFi's external battery

To charge the Zeno Tablet, plug the tablet's charger into the port hidden behind the rubber cover on the right hand side of the device.

To charge the GG02's battery, you will need to turn off the GG02, flip it over, unlock the battery, and place the battery in the dedicated charger. Once in the charger, you will need to slide the battery to lock it into place.

To charge the MiFi's external battery you will need to plug the external battery into its charger (just a white plug with connected cable).

Additional Items

Using Built in 3G Internet/SIM card

The CS25 Tablet is equipped with a Gobi Wireless card. You can buy a SIM card and a wireless plan, plug it in, and not need the MIFI. You may experience faster speeds with a 4G Mifi.

Installing the SIM Card

Open up the metal panel on the back of the device (4 screws). There are slots for two SIM cards. One is covered by the Gobi Wireless card. Put the SIM in the slot not covered by the Gobi Wireless card. Make sure to lock the SIM card slot.

Connecting to your Built in 3G Internet



On the desktop you will see an icon labeled “OneClick Internet”

Opening this program will give you the following screen. If the Radio is off, the button in the bottom left will say “Radio On” and will not be green. If that is the case, turn it on. Once the Radio is on, click the green connect button.



Once you have connected, you should see the connected symbol. You can now close the OneClick Internet window.

Adjusting the GG02 Antenna Height

The GG02 Antenna comes with a pole with two locking heights – 1.8m and 2m. While it's easy to change the pole between heights, one must also change the height in the software, otherwise the elevations will be off.

In Zeno Connect, make sure your tablet is connected to the antenna, and is getting coordinates and corrections. The current height will display in the far bottom right of the Zeno Connect toolbar.

Click the Raw Data Logging button (an icon of a GPS unit next to a paper and a green arrow).



Enter your new Antenna Height, in meters. Click the [Occupy] button. Wait a few seconds, and click stop. Close this window.

A screenshot of the 'Raw Data Logging' dialog box. It has a blue title bar. Inside, there are three text input fields: 'Point Name:' with 'P3' entered, 'Antenna Height [m]:' with '2.0' entered, and 'Occupation Time:' which is empty. Below these fields are two buttons: 'Occupy' and 'Stop'. At the bottom, there is a 'Path' label and a text box containing the file path 'C:\Users\Jim Bosworth\Documents\Leica Geosystems\Zeno\GNSS Raw Data'. A yellow folder icon is at the end of the path box.

The new height should now display in the far bottom right of the Zeno Connect toolbar.