



Operation of the Trimble GeoXH Handheld GPS

I. Scope

This procedure is used for the general operation of the Trimble GeoXH Handheld GPS including recording point locations and navigating to predetermined point locations. The GPS is setup to get real-time correction by connecting to a Michigan Spatial Reference Network (MSRN) website via cellular data plan. Locations are recorded in the UTM projection (meters). See “KBS LTER GPS Instructions” for additional field operations and when working with data files in the lab.

II. Navigating to Predetermined Locations

1. Turn on the GPS by pushing the green power button at the bottom. The GPS touchscreen can be operated using your finger or the stylus provided.
2. Before going to the field, make sure that the GPS has a good battery charge. Press and hold the power button until the power menu appears. This will show the estimated run time in hours; we will get less time since we do real-time correction.
3. Tap the Microsoft Start icon and then the “TerraSync” icon. The TerraSync software is arranged in 5 Sections (upper left dropdown menu): Status, Map, Data, Navigation and Setup. Tap “Setup” from the section dropdown menu and under “Options” tap “Connect to GNSS” You will see an icon that looks like 2 pistons hitting each other, they will stop when the GPS receiver is connected. You will then see a blinking satellite icon near the top of the screen. The number to the left of this icon shows how many satellites are transmitting to the GPS. As more satellites connect, the icon will stop blinking and the GPS will be able to receive data.
4. The External DGPS Source (cellular data plan) will usually connect when you connect to GNSS, however, if it is not connected now then tap “Setup”, “Options” and “Connect to External Source”. You can tell that the external source is not connected 1) if you get an error message, 2) if the estimated GPS error is greater than usual or 3) by tapping the cellular status icon (top).
5. The estimated error is shown near the top; cm above a 2-sided arrow. When connected to the MSRN website (via our cellular plan) we expect an error of about 10cm.
6. Tap “Data” (section menu). Tap “New” and then “Existing File”. This will bring up all preloaded files. Select the desired file and then “Open”. The names of the point locations in that file will appear in a list on the screen. Slide the scroll bar to the right if you want to see the distance in meters that you are from each point.

7. Select the first point you will be navigating to and tap “Options” and then “Set Nav Target” from the pull down menu. Tap “Data” and then “Navigation” from the pull down menu.
8. Start moving. You will see a large circle with an arrow inside. The arrow indicates the direction to which you want to walk to get to the target. You must be moving to get accurate navigation information. The distance and direction to your target is shown at the bottom of the screen.
9. When you get to within 5 meters of your target the GPS will beep a few times and a small circle indicating the position of your target will appear in the middle of the screen. Also you will see a small “x” which indicates your position and will move as you move. Continue moving toward your target until the “x” is in the middle of the circle to indicate that you have reached your target.
10. To navigate to another point (target), tap the “Nav” button then “Data” and this will again bring up your list of point locations in the file. Proceed through steps 6-8 again until you have located all necessary points. “Close” the file when finished.
11. When you are finished, tap “Setup” then “Options” and select “Disconnect from GNSS”. Tap “Exit” to close the TerraSync program.
12. When you return to the lab, plug the recharging cable into the GPS so the battery will be charged for its next use. Disconnect the GPS when a constant green light displays to show that the battery is fully charged. This will significantly increase the life of the battery.

III. Creating a New File and Collecting Data Points

1. Proceed through steps 1-5 in section II.
2. Tap “Data” then “New”. Enter a file name.
3. Choose the desired data dictionary. Use the “KBS LTER” dictionary for predefined LTER features or the “Generic” dictionary for other features. Tap Create.
4. When using the KBS LTER data dictionary, it will list feature types (such as plot corner). Select a feature and tap the “Create” at bottom of screen. If using a generic data dictionary without predefined features, select point, line or area (probably point) and then tap “Create”. You can add notes about the point.
5. Position yourself so that the GPS is over the feature and tap “Log” to start collecting GPS data for that feature.
6. As the GPS begins logging points you will hear a clicking sound and a number at the top right of the screen will increase with each logged point. A small bulls-eye icon to the left of the number will blink, indicating that data is being logged. Remain stationary until you have logged at least 30 points for your feature. Then tap “Done”. Move to your next location and repeat.
7. When you are done collecting your locations tap “Close”. This will save your file for later use.
8. When finished proceed to Steps 11-12 in Section II.

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