Collect

Please first review definitions of "Setup Profile, "Project", "Page", "Code" and "Tag" in the "Readme First" document. More detailed explanations are provided in the TRIUMPH-LS Help screens. Click its **"Help" hardware button to read a detailed explanation of each screen.** Here a brief summary for the "Collect" process is presented. "Stake" process is presented in another document.

Setup Profiles: To collect Points, Lines, Curves, and Trajectories, first in the "Setup" screen select communication and other options. Follow the Setup Wizard or use "Advanced" to directly reach parameters that you need to set. Make sure to prepare your "Favorite Codes and Tags" screens too. You can store unlimited number of global Codes and Tags in TRIUMPH-LS, and you can bring 25 of them to the Favorite Screens for easy access in the field. Favorite Codes and Tags are saved with the "Setup" profiles. You can create and save unlimited number of "Setup" profiles and recall them for different projects. "Setup profiles" and "Projects" are independent. You can select a Setup profile for different Projects. If you recall a Setup profile, Favorite Codes and Tags associated with that Setup profile would be at your fingertips. If you want to carry a Favorite Codes and Tags in a Setup profile to another Setup Profile, "Save As" the Setup under a new name, then modify it as you wish.
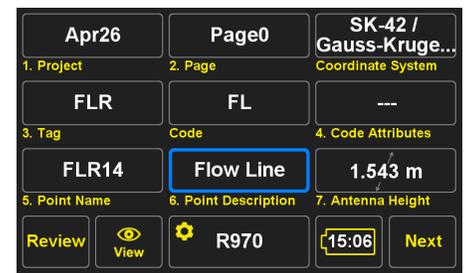
"Tags Codes and Tags", "Setup" Profile, and "Collect" are on the Home screen. When you click "Collect" you will get to it "Prepare" screen.
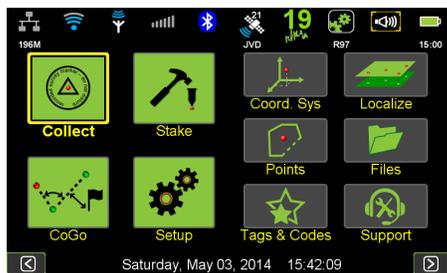
Home 1	**Home 2**	**Collect Prepare**

Collect Prepare Screen

Follow the below steps in the Collect "Prepare" screen, as they are numbered in the screen.

1. Project: Create or Select the Project and the Coordinate System for that project. Each project has 10 "Pages". Each Page can have its own coordinate system. The default coordinate system for each page is the coordinate system of the Project. You can think of a "Page" as a "sub-project". You can perform your entire project in one Page, or break it into separate Pages if it makes the project organization better. Since each page has its own coordinate system, you may want to use Pages to quickly transfer coordinates by copying or moving a point to another page with the desired coordinate system.

2. Page: Select the Page that you want to store the points in, and the Pages that you want to be shown on the map. The Show/Hide feature of Pages is another reason to use Pages. The coordinate system of the selected Page will be shown in the box to the right of the "Page" box in the Prepare screen.

3. Tag, Code: Select the Tag and the Code for the next point.

4. Code Attributes: Enter Variable Code Attributes, if any.

5. Point Name: Enter Point Name. Point name will be auto incremented by the template defined for its Tag.

6. Point Description: Enter Point Description, if any.

**7. Antenna Height:** Enter Antenna Height (Vertical or Slant).

In the bottom of the Prepare screen there are five buttons.

Review: To view and edit the points in the current Project. The Review screen will be explained later in this document.

View: To select which point attributes to be shown on the map and set screen parameters.

Battery: Shows the remaining battery time in HH:MM format. Click it to see details about the battery operation and temperature history in different parts of the unit.

Next: Will take you to the Collect "Action" screen (explained below) to collect Points, Lines, Curves, and Trajectories. The Collect Action screen can also be reached directly by the hardware button above the "-" hardware button. Pay careful attention to items in the prepare screen: Review twice and Collect once!
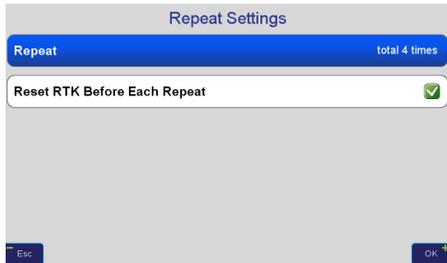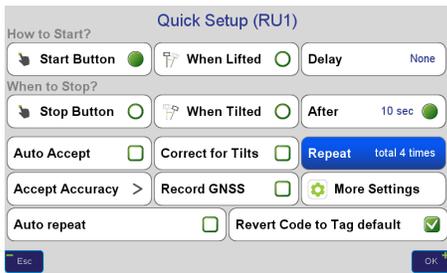
Quick Setup: The button in the bottom center is for Quick Setup. The name of the current Setup profile is shown on this button. Under the icon, letters "L", "T", and clock symbol represent "Lift", "Tilt", and "Timed" modes. Compass symbol indicates that "Tilt Compensation" is in effect. Click it to select some frequently used setup parameters as described below.

The **"Verify"** feature is a very important and innovative feature in TRIUMPH-LS. In Verify mode, TRIUMPH-LS repeats a measurement "n" number of time automatically, where "n" is the number that you select, and shows the horizontal and vertical spread of the "n" points graphically and numerically. You can view such graphs and statistics, as shown in Figure, and accept or reject the final solution. If you accept, the average of all "n" points will be recorded. **To be able to activate the Verify mode, you should set the "When to Stop?" mode to timed mode**.

TRIUMPH-LS has 6 RTK engines. In Verify setting, you can specify the minimum number of engines required to be Fixed to provide an epoch solution. This is trade-off between speed and confidence. You can set the minimum engine number to 1 and repeat 3 times. Or set minimum engine number to 2 or higher and do not repeat.

Verify mode provides three distinctive way to make sure you collect robust solutions.

1. Repeating a measurement provides better assurance. "Verify" makes this task automatic.

2. Verify has the option of "Reset RTK engines Before Each Repeat" which resets the six RTK engines and recalculates the "integer ambiguity fixes" before each repeat. A wrong ambiguity FIX may show low RMS measurement but the result may be off by decimeters or even meters. Resetting engines on each repeat and forcing it to re-calculate fixes is a great way to ensure you collect reliable solutions.

3. If you select 4 repeats, and after each repeat rotate the unit to face it about 90 degrees to one side (0, 90, 180, 270 turns) you can remove the misalignments in compass, level and pole construction.

Auto Accept: You can specify the RMS level for the final result to be accepted automatically -- do not wait for Reject/Accept.

Auto Re-Start: Will automatically re-start another collection as soon as the current one ends. It is like automatically clicking the "Start" button.

Revert Code to Tag Default: When collecting a point, you may want to change the Code associated with its Tag. This option allows you to keep the new Code for all subsequent points or revert back to the default Code after collecting that single point.

Collect Action Screen

On the top row of the Collect Action screen (from the left to right) are the following buttons:
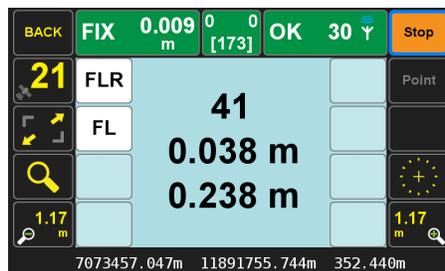
Back: Goes back to the Prepare screen.
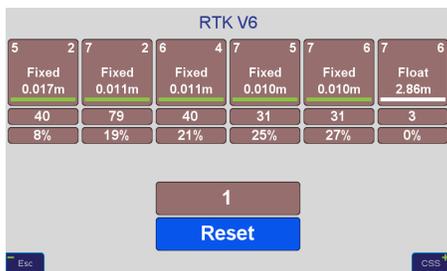
Solution Mode: Shows the solution status (Fixed, Float, Standalone, DGPS) and the RMS of the solution. Click it to see the status of the six RTK engines. The number of Fixed engines is shown below the FIX label.

Heading and tilt: Shows tilt and Heading numbers. If the coordinate of the selected page is "Global", it shows the True North heading, and if "Local", it shows the Grid Heading (shown within brackets). If "Correct for Pole Tilt" mode is selected (icon will be shown on this box), you only need to level the unit to better than 5 degrees. TRIUMPH-LS will correct for tilt by sophisticated set of tilt sensors and compass.

Communication: It shows "OK" if RTK corrections are received, or shows delay in receiving corrections. Next to that, the maximum allowable delay that has been defined in the Setup profile is shown. Up to 30 seconds of delay will not result in significant error. Click this button to get to the related Communication screen.
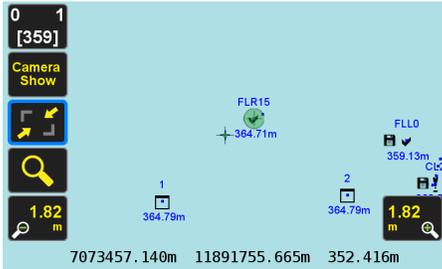
Start: to start collection

Point/Line/Curve/Trajectory: This is below the Start button. Click to select which shape you want to collect.

The **button** centers the map on the current position.

**Satellite:** Shows the number of satellites. Click to see details.

Zoom buttons are explained on line via the "Help" hardware button.

There are **8 white boxes** around the map. Hold them for three seconds and select which items to be shown on them. Click them to enter a new value for the appropriate items.

On the bottom of the screen you see the instantaneous position coordinates. When you click the Start button, data collection will start. When it is stopped (by timer, manually or by Tilt), the average of solutions is shown on the bottom, and the RMS of solutions on the center of the map. Review them and click Accept or Reject.

Full Screen: Click to get to Full Screen mode where you can also turn on the camera and measure angles.
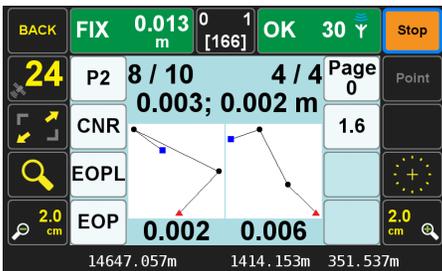
Verify Action Screen

On the center of the screen, Verify number and the total number of measurements are shown on the top. Next line shows horizontal and vertical RMS. The left graph is the horizontal plot of re-peat points. X,Y width is shown below the graph. The right graph is the vertical scatter. Vertical graph height is shown below the graph.

Review Screen

To Review or Edit a point, first you need to select that point and center it on the screen. List (select via list), Near (the nearest point), Next (next to the nearest point, and so on), and Last (the last point surveyed) buttons help you to identify and center your desired point on the map. Name and Definition of the selected point are shown on the top of the screen and its coordinate in the bottom. In this screen you can also "Add" a point.

When you identify the point that you want to review or edit, click the "View Selected" button which will take you to the Edit screen. In Edit screen distance and heading (True North or Grid North, depending on the coordinate system of the Page) from your current position to the selected point are shown graphically and numerically (on the bottom of the screen).

In Edit screen you can Resurvey the selected point, add photo or audio files to it, or Edit it.