

Trimble Access 2018

Quick Start Guide *S5 Total Station*



Access 2018.21
3/2019

Trimble Access

Trimble Access 2018 software is the latest generation of the Trimble Access field application. The comprehensive, easy-to-use software supports your everyday survey fieldwork, including topographic surveys, staking, control points, site calibration, and 3D scanning. The intent of this manual is to give the user a better understanding of the software and to help navigate Trimble Access in an efficient manner.

Setting up the TSC7 Controller

Before we can create a job to work in or stake out a point, we must set up the **survey styles** and make sure all pertinent data is the right location.

All surveys in Trimble Access are controlled by a **survey style**. **Survey styles** define the parameters for configuring and communicating with your equipment, and for measuring and staking points. This whole set of information is stored as a template and used each time you start a survey.

The necessary **Survey Styles, Geoids, and Feature Codes (.fxl)** will be provided but must be placed in the correct location. The Trimble folder that houses all the data is hidden and difficult to find when first operating Windows 10. To change this setting. Open file explorer

- Go to **View** in the top ribbon and select it
- Select **Options** (Folder Options) to the far right in the next ribbon
- Click on **View** in the middle toggle
- Click on **Show hidden files, folders, and drives**

All data used by the Trimble Access software must be stored in the appropriate folder in the **C:\ProgramData\Trimble\Trimble Data\System Files** folder. Navigate to this location and create a shortcut to the desktop for easy access. The system files folder is where you will need to put the **Survey Styles and Geoids, and Feature Codes**.

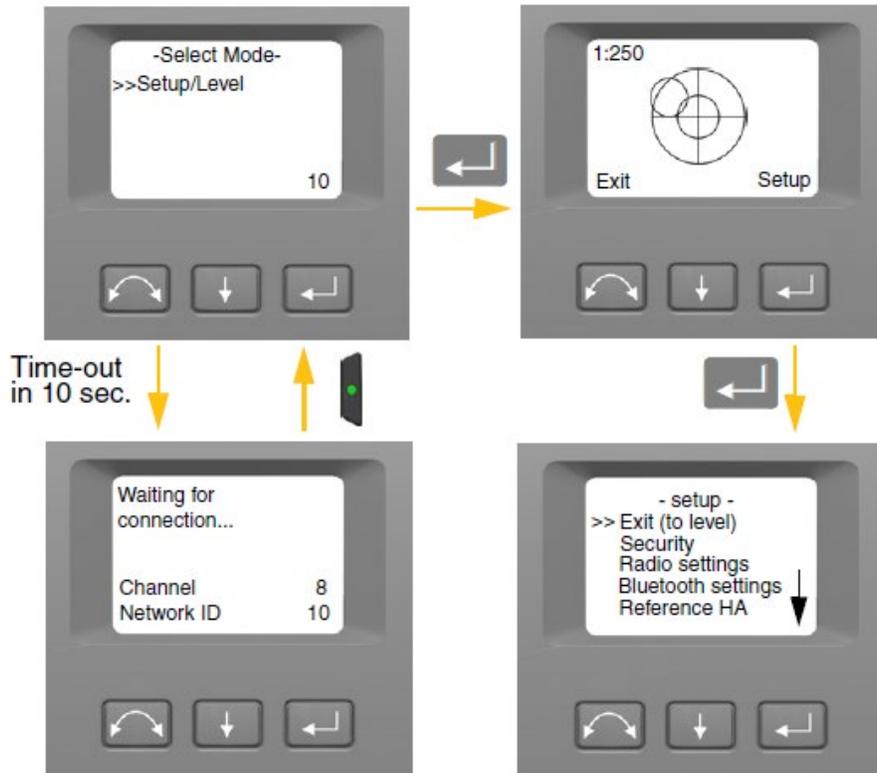
Trimble S5 Total Station

This manual describes how to setup and use the Trimble S5 Total Station. This will be a quick guide on just the basics. For more information visit https://www.trimble.com/support/support_az.aspx to view all possible downloads.

Connecting to the S5 Total Station

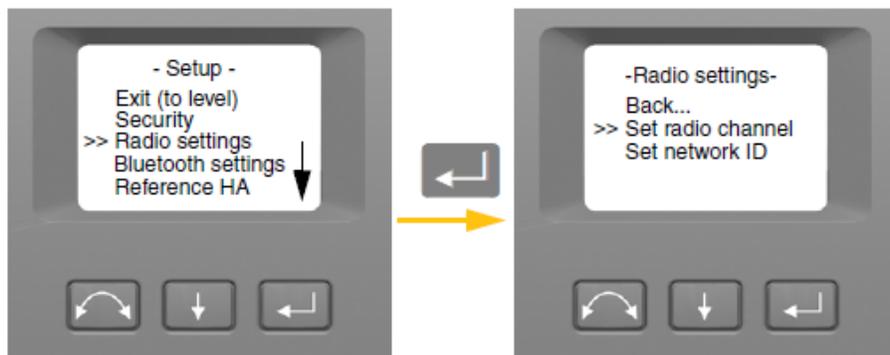
The S5 is a robotic total station that connects to the TSC7 through radio communication. When first connecting the S5, turn on the instrument and wait 10 seconds to see what **Radio Channel** and **Network ID** that particular instrument is communicating on. To change the **Radio Channel** and **Network ID** after starting the instrument, use the **Select Mode** menu in the face 2 display.

To go to *Setup/Level* press .

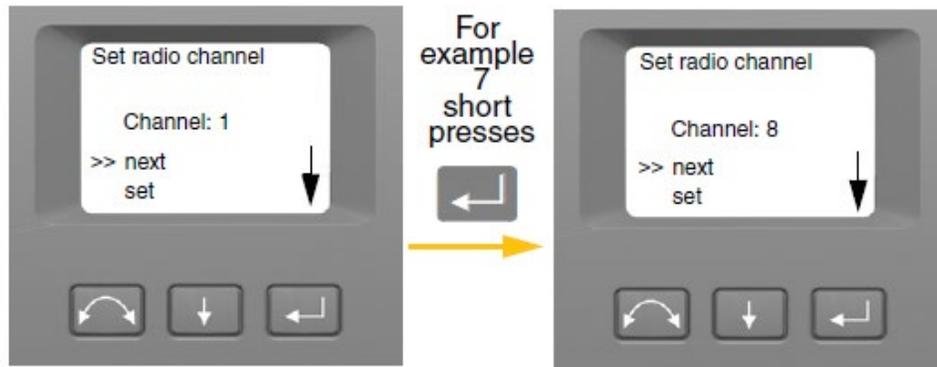


Set Radio Channel

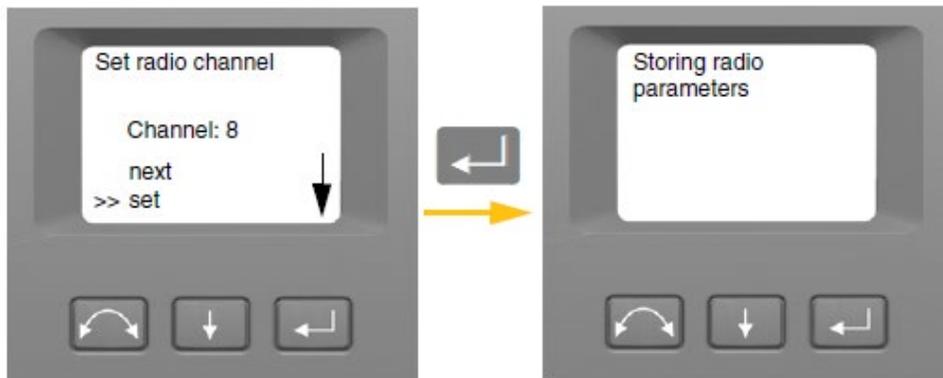
1. Press  to scroll to *Radio settings* and then press .
2. Press  to scroll to *Set radio channel* and then press .



3. To change the *radio channel* number press  to select Next and then press  to change the channel number in the display.

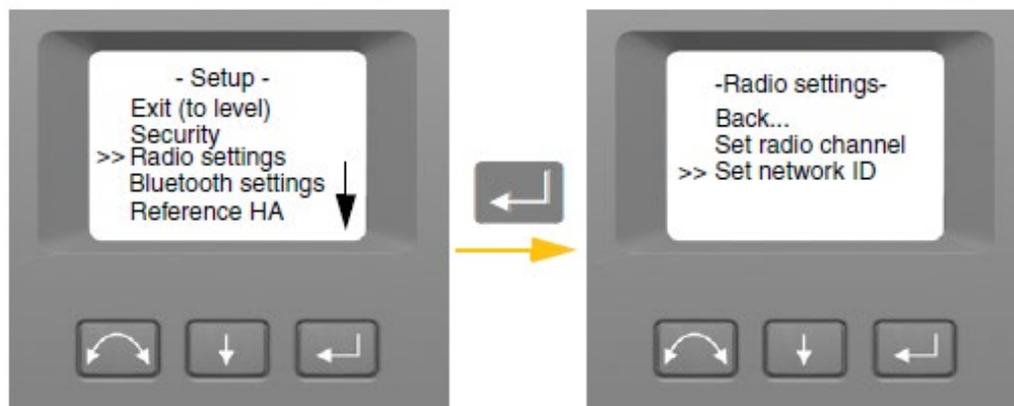


4. When you have found the channel number of your choice press  to select Set and then press  to store this channel number. You will then be returned to the *Radio Settings* menu.



Set Network ID

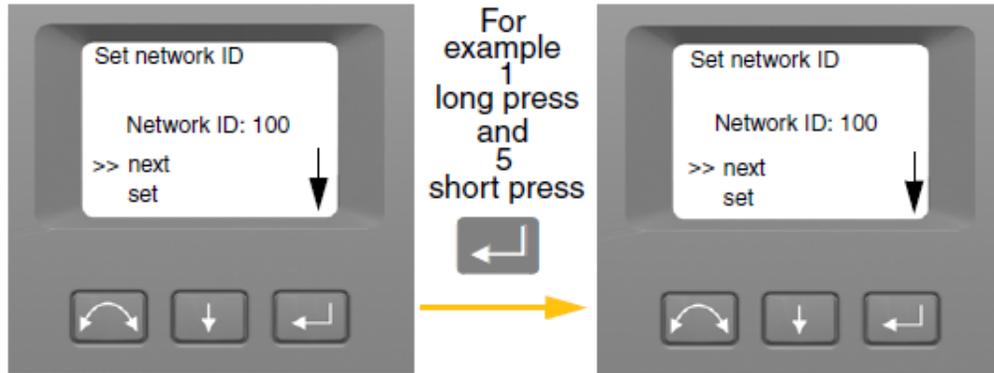
1. Press  to scroll to *Radio settings* and then press .
2. Press  to scroll to *Set network ID* and then press .



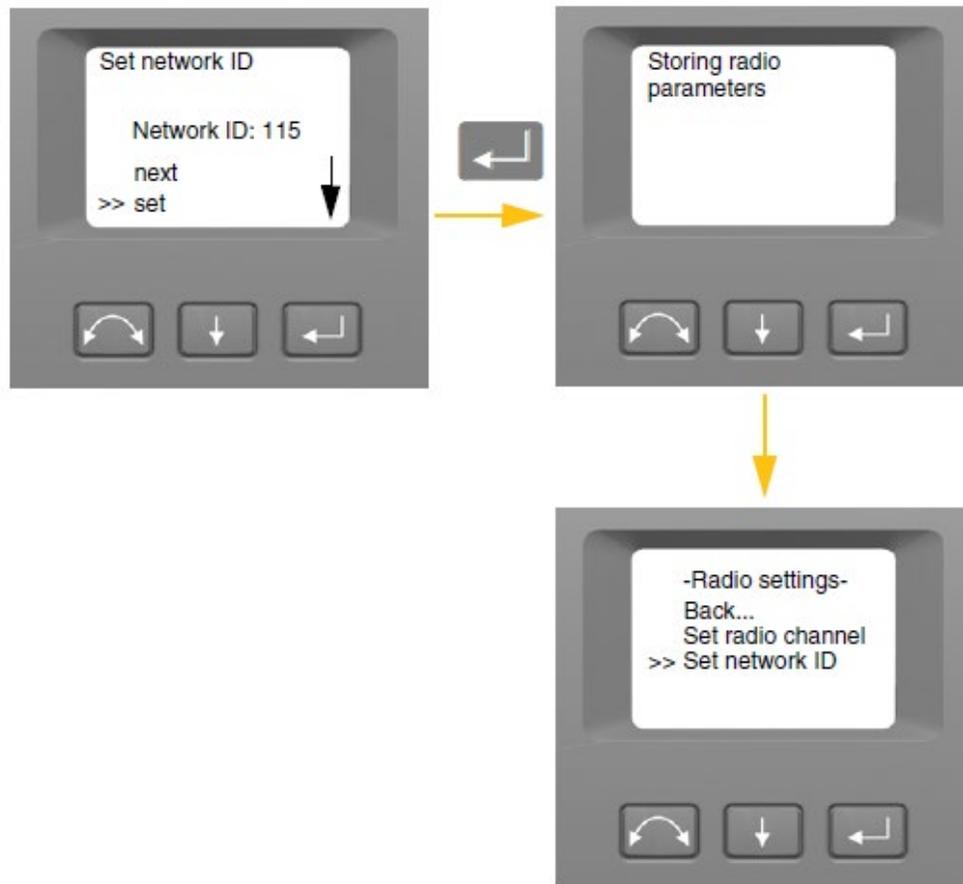
3. To change the *network ID* number press  to select Next and then press  to change the channel number in the display.

Note: A short press on the enter key will increment the network ID in increments of 1, pressing and holding the enter key, will increment the network ID in steps of 10.

Network ID ranges 0-255



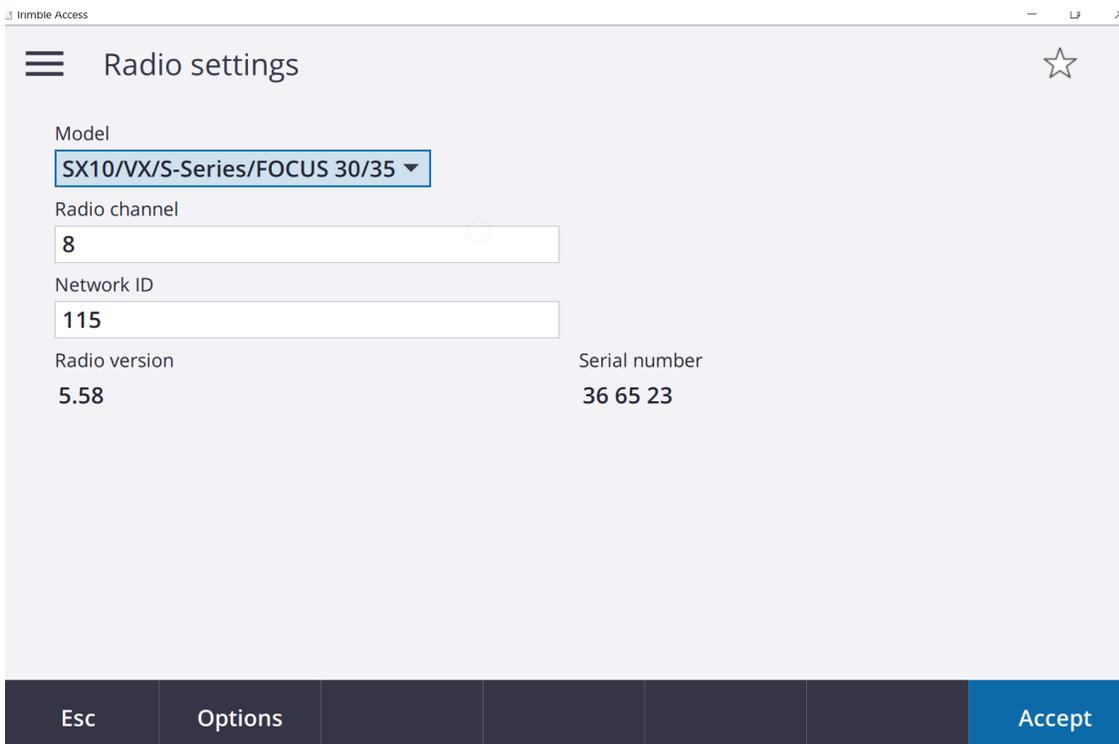
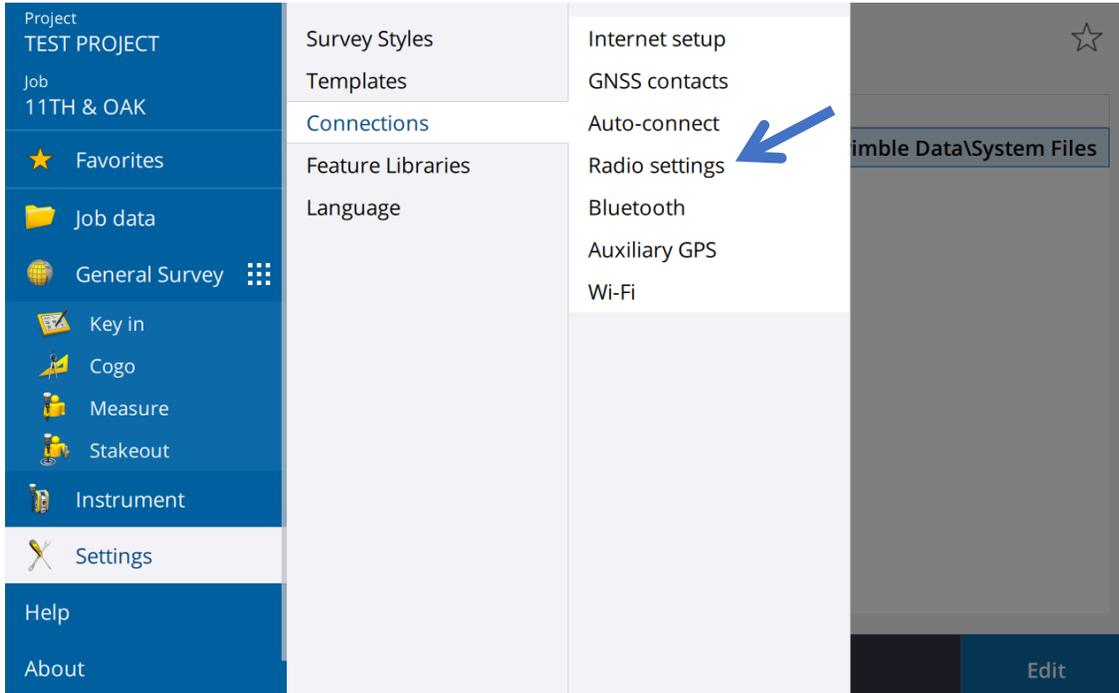
4. When you have found the *network ID* number of your choice press to select *Set* and then press to store this *network ID* number. You will then be returned to the *Radio Settings* menu.



Now connect the TSC7 to the S5 Total Station.

Start Trimble Access and tap 

1. Tap **Settings**.
2. Tap **Connections**.
3. Tap **Radio settings**.
4. Pick the correct Model int the drop-down menu. (SX10/VX/S-Series/FOCUS 30/35)



5. Enter the correct **Radio channel** and **Network ID** from the instrument.
6. Tap **Accept**.

NOTE: In the Auto-Connection tab in Connections, toggle on the VX/S-Series/FOCUS 30/35 and the GNSS. This will allow you to bypass connections and auto connect the next time you turn on the S5 and begin your station setup.

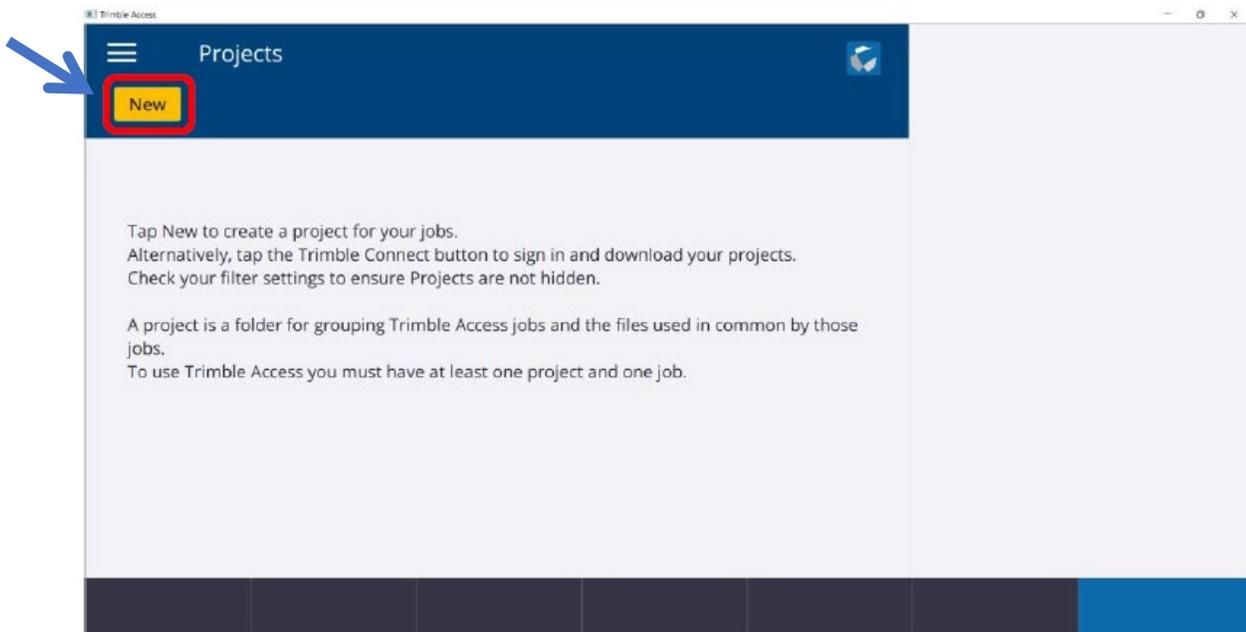
Creating a Project and Job

A **Project** organizes and stores all the job files, including control points, road or alignment RXL files, background images or surfaces, and reference files for the project.

A **Job** organizes and stores the raw data collected during a survey, and the configuration settings for the job including coordinate system, calibration, and measurement unit settings. It may contain data from several different surveys. When creating a job, you can save the settings as a template and then create subsequent jobs using the template. You must create a job before you can measure any points or make any calculations.

To create a **Project**: first open Trimble Access on the corresponding device. This will lead you to the General Survey icon and then to the Projects Menu.

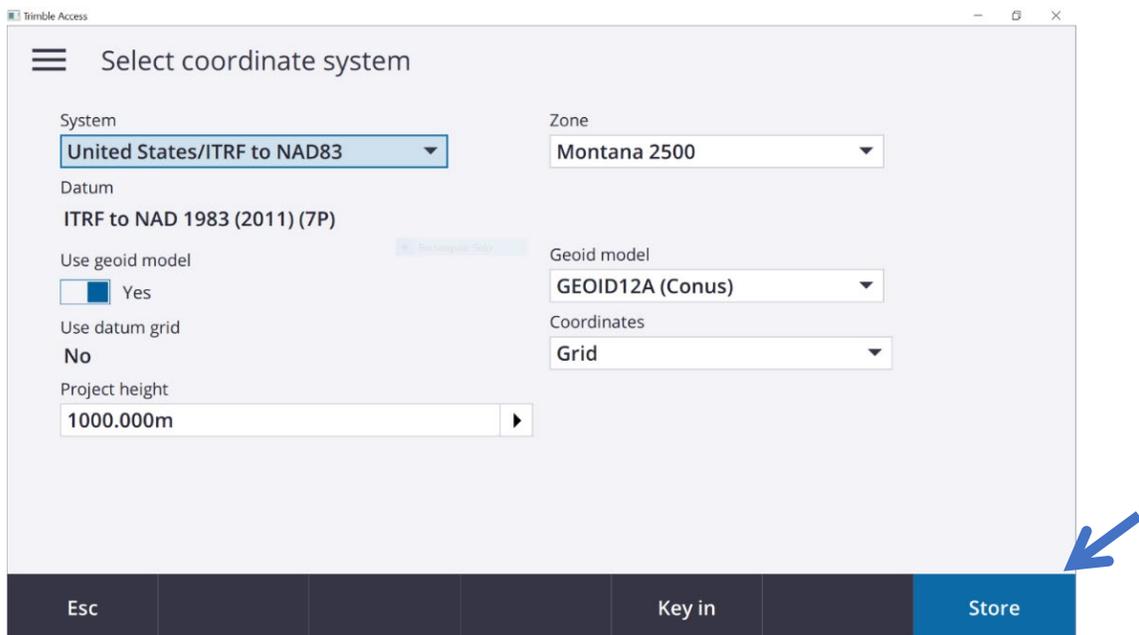
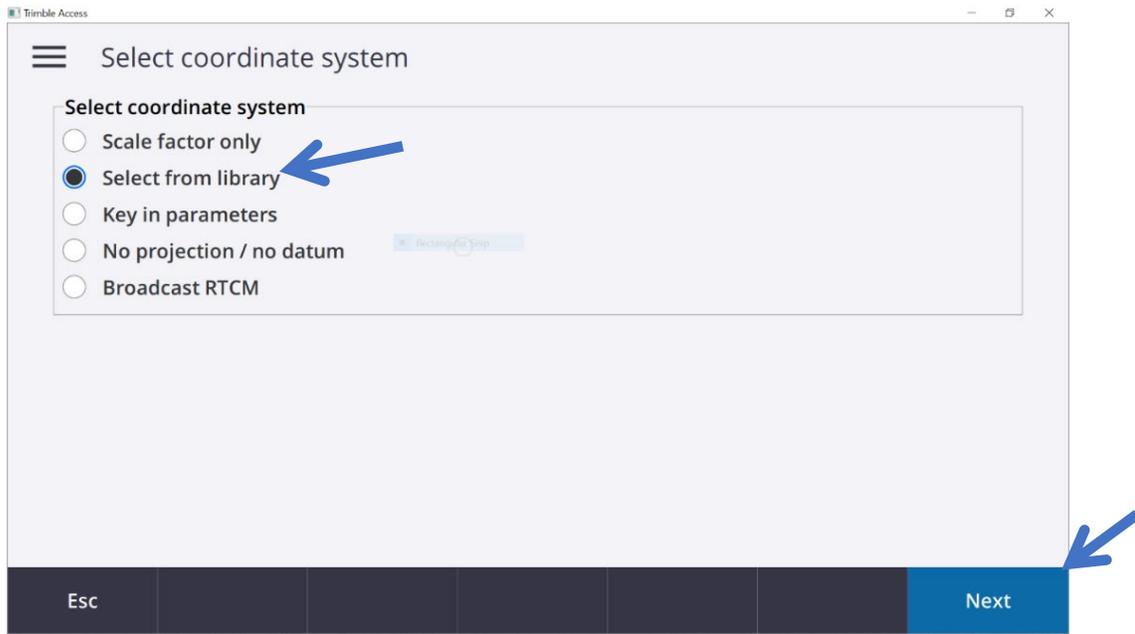
1. From the main Trimble Access Projects menu.
2. Tap **New**.



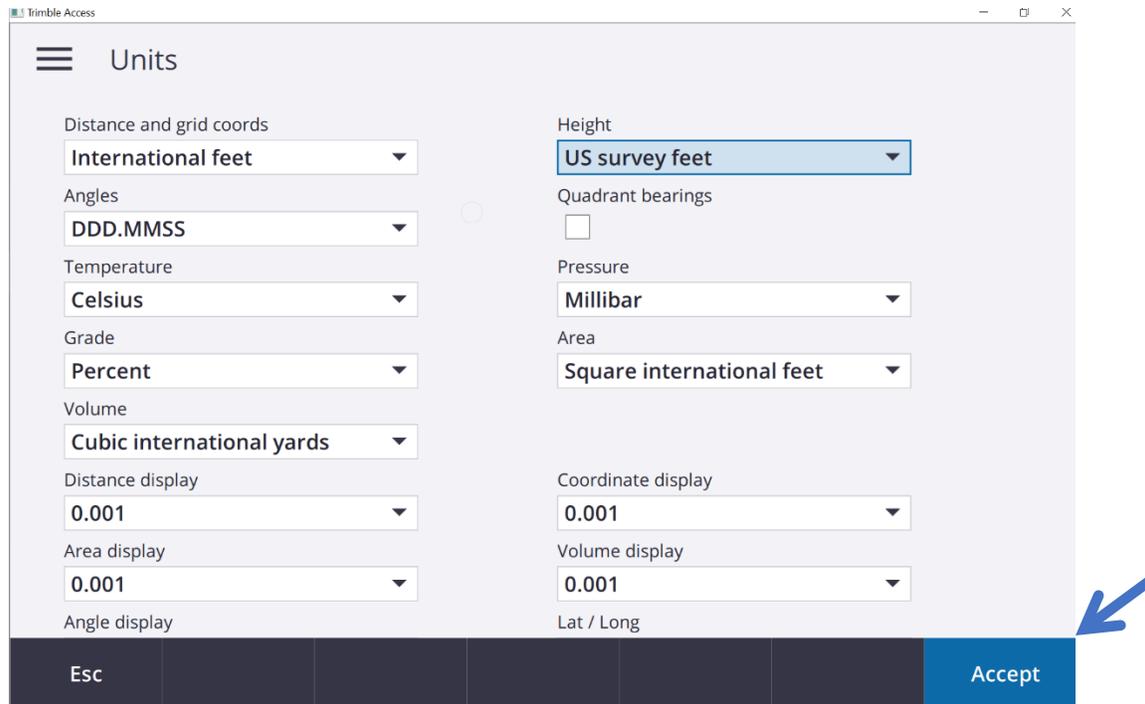
3. In the new project window you have the option to enter in additional Description, Reference, Location information, as well as a project Image to be used.

2. In the **Job name** field, enter the desired name of your Job file.
3. If creating a JOB from scratch, you will now need to define the **PROPERTIES** of the job.

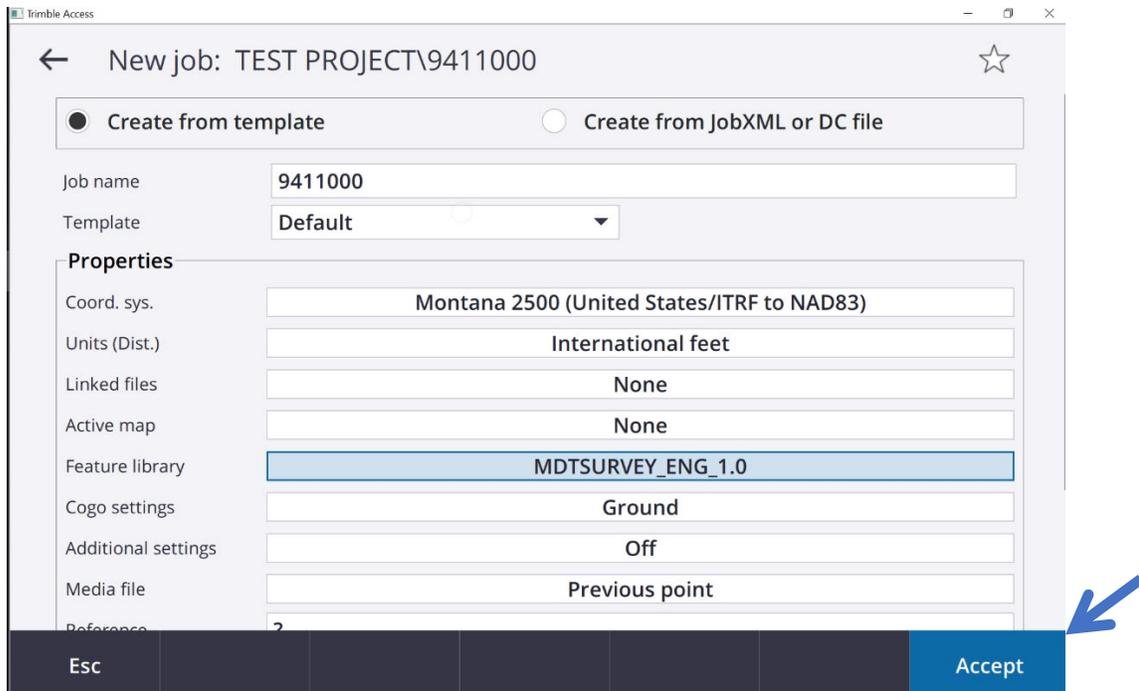
Click on the **Coord Sys**: Then select from library. This will change from job to job and the proper **Datum** and **Geoid** must be selected based on any previous work. This information is in the file. For this example I am using **Montana State Plane system (United States/ITRF to Nad 83 (2011)(7P)** and the **Geoid 12A. Grid** for coordinates and a **project height** relative to the area from an average height using the .IFT Coordinate file.



1. Click on **Units (Dist)**: and set the units to the appropriate units for the job. Then click **Store and Accept**.



2. If you have files to link to the job, for example a CSV file containing control point coordinates or another Job file, select **Linked files**. Tap **Accept**. If the linked file is modified, then the file must be deleted and relinked to show the updated information. The software then returns to the **New Job** screen.
3. **Active Map** shows the current Job's points, lines, and arcs from the current database. You can add other files to the map as layers, including RXL files, DXF files, and background image files. Features in layers can be made visible and selectable but they cannot be edited or deleted. Make sure that all linked files are on the same datum that your job is currently working in.
4. You can also select a **Feature Library** to use on a job by navigating to the correct Feature Codes and selecting.
5. Now the Project and Job files are set up and you are ready to connect to the instrument and start collecting data.

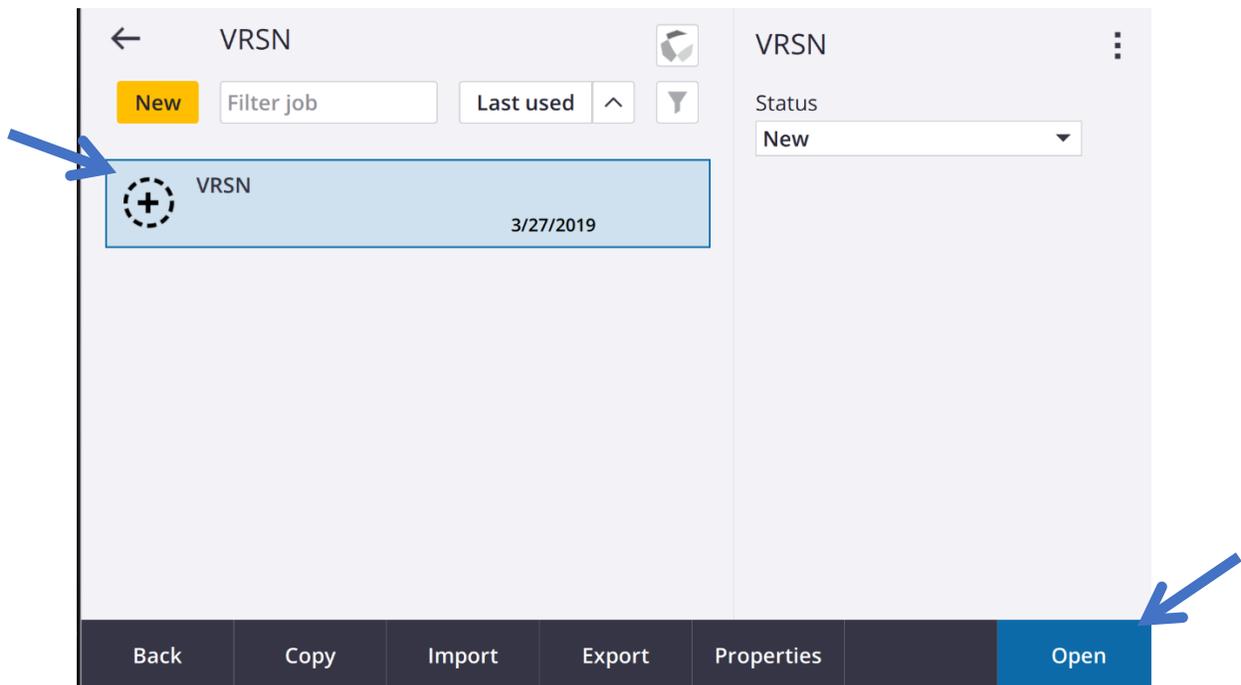
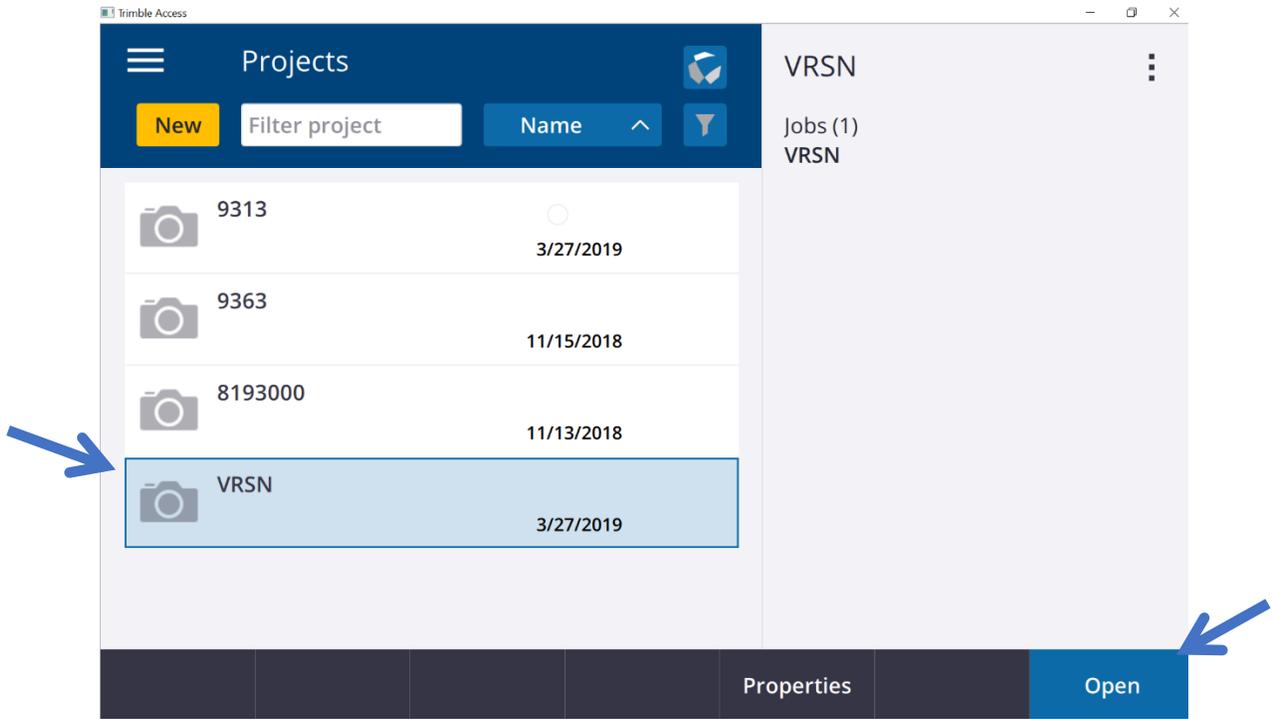


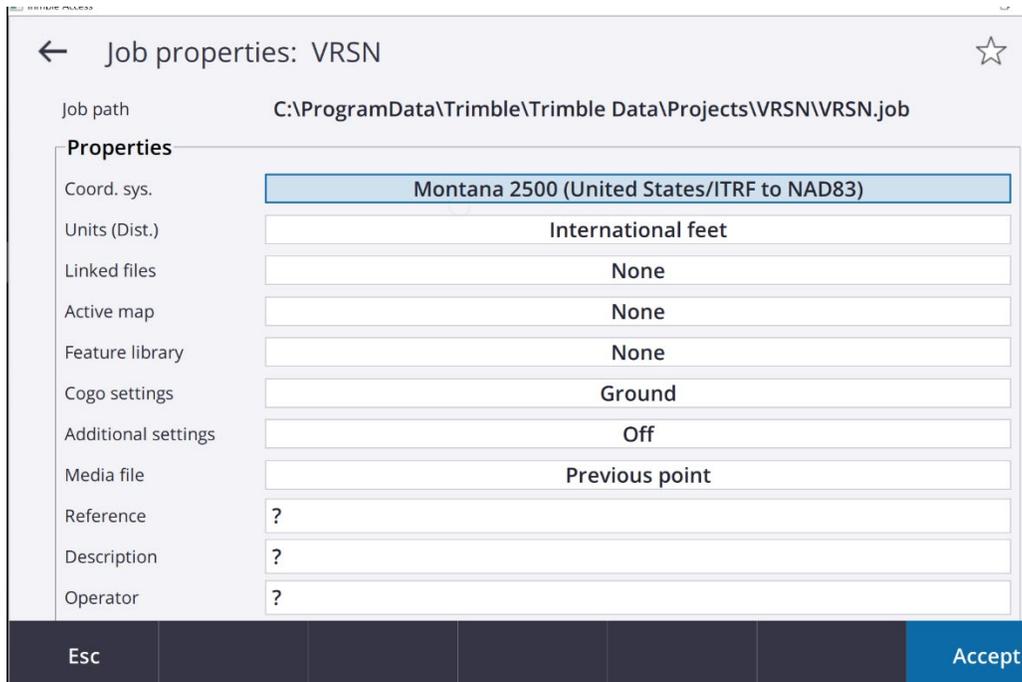
This screen shows the correct information has been entered for the project.

Creating a New Job from a TBC file

The other option to create a job is with a .JOB file exported from TBC. This way imports all the settings that were created in TBC and all of the associated control points. To open a job this way, you must first create a folder to put the .JOB file in.

1. Navigate to the correct location and create a folder with the proper job name. The location is **C:\ProgramData\Trimble\Trimble Data\Project files**.
2. From a flash drive, copy the correct .JOB file and paste it in the folder you just created.
3. Now start Trimble Access from the desktop or start menu.
4. From the main Trimble Access Project menu, click on the correct project and click **Open**
5. Now click on the correct job and click **Open**. This will import the necessary information.





NOTE: This screen shows that the correct project information was imported with the job creation. You will still need to link any associated files like the feature library to the job.

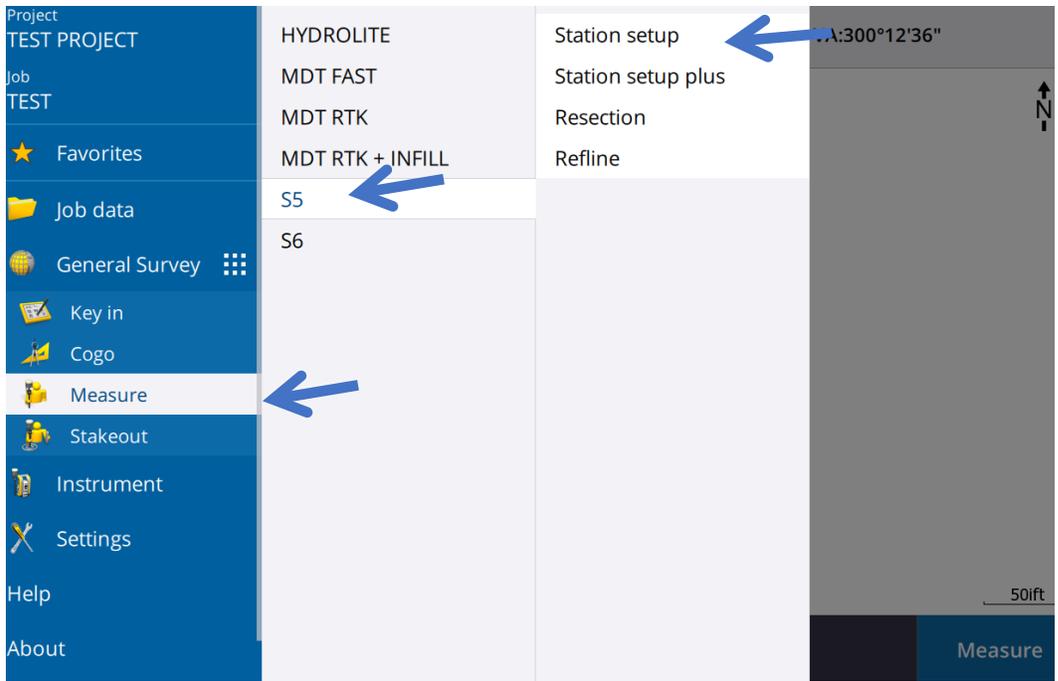
Starting a Survey

Now that we have the correct data in the systems file, started a job, and connected to the instrument, we are ready to start surveying. To do any mapping or staking, we need to use a survey style. The steps for completing measurements using a conventional instrument are:

1. Set up the instrument and position your targets at the site.
2. If it is not already connected, connect the Trimble Access software to the instrument. See above if not already connected.
3. Start the survey.
4. Complete the station setup.
5. Measure or stake out points.
6. End the survey.

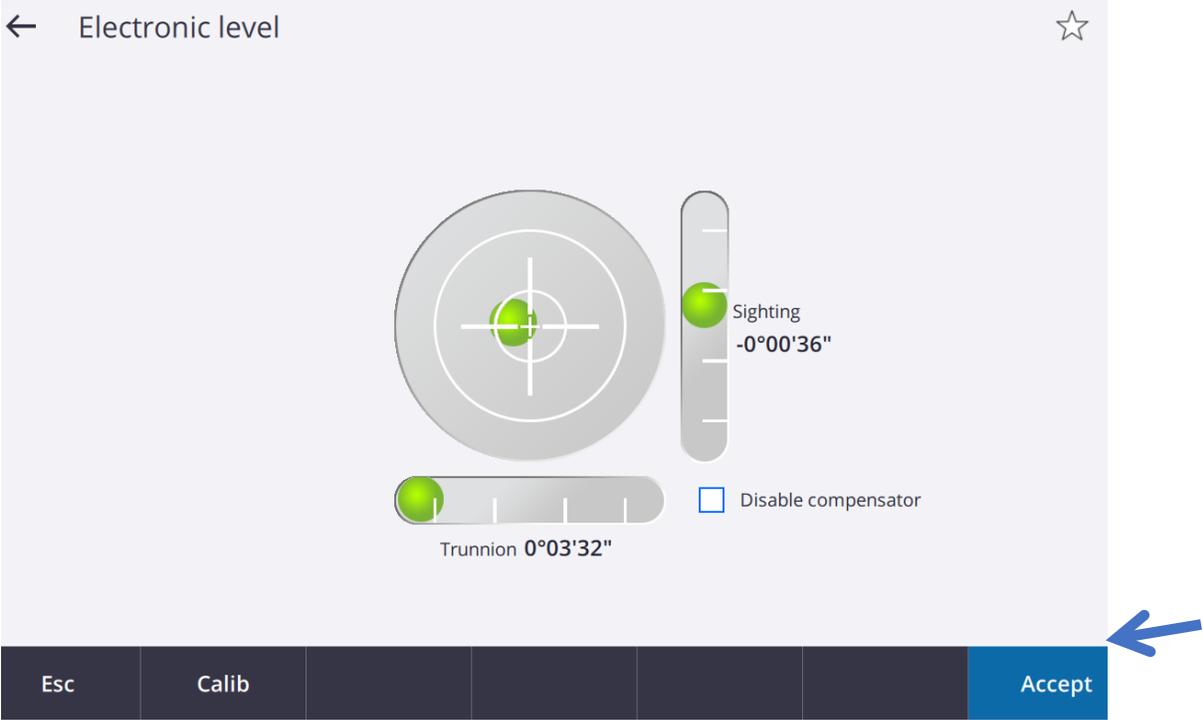
To start the survey.

1. Tap  and select **Measure/Stake Out**
2. The correct **Survey Style (S5)**
3. Station setup



NOTE: If you have set up auto connect, the S5 will connect as soon as the survey style is selected.

4. When prompted, use the **electronic level** to level the instrument. Tap **Accept**.



5. Set the **corrections** associated with the instrument. Tap **Accept**.

The screenshot displays the 'Corrections' screen in a surveying application. At the top, there is a status bar with various icons and information: a menu icon, a globe, time (7:19), date (03/26), battery levels (84% and 99%), a signal strength icon, a 'S?' icon, a '1' icon, a '+0?' icon, and coordinates (HA:238°40'43" VA:124°13'49"). Below the status bar is a blue header with the word 'Corrections'. The main content area is a form with several fields: 'Pressure (instrument)' with a value of '874.10mbar', 'Temperature' with a value of '21.1°C', 'PPM (Computed)' with a value of '38', 'Curvature correction' with a checked checkbox, 'Refraction correction' with a checked checkbox and the text 'Yes', and 'Refraction const.' with a value of '0.142'. Below these fields is a checkbox labeled 'Show corrections on startup' which is also checked. At the bottom of the screen, there is a dark blue bar with an 'Esc' button on the left and an 'Accept' button on the right.

NOTE: If the Corrections screen does not appear, tap Options and enter the correction information. Trimble Access will also convert units for you. For example, in the temperature field you could enter 70F and Access will convert to 21.1 degrees Celsius.

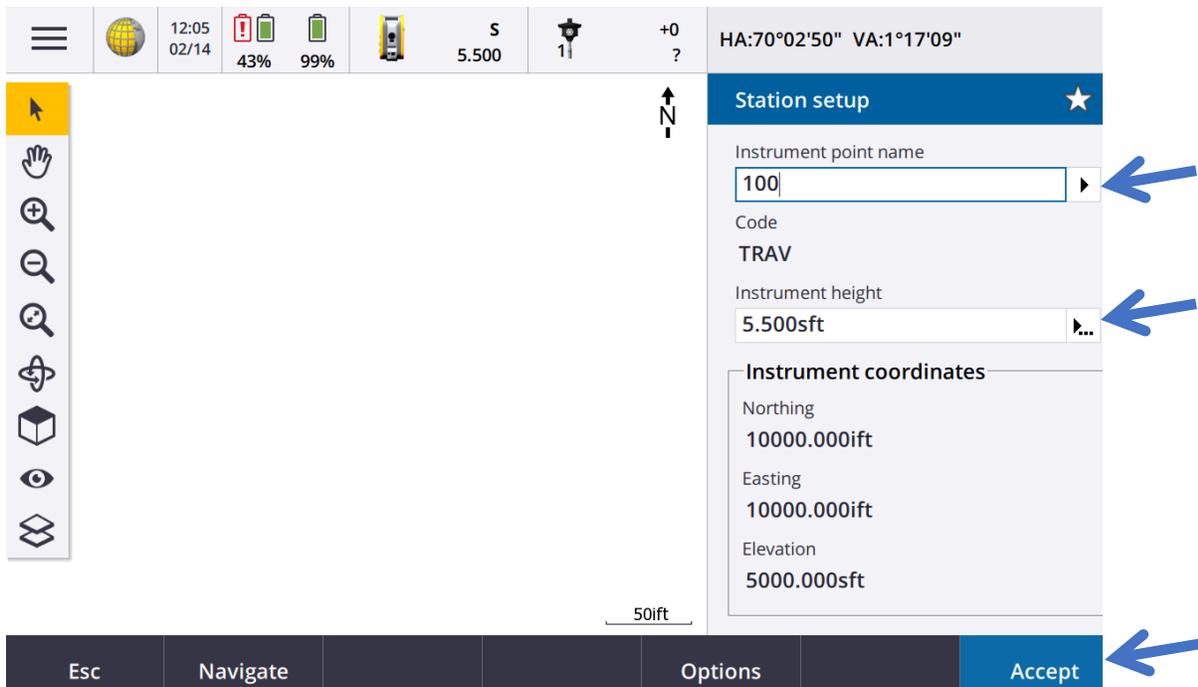
6. Complete Station Setup.
7. Measure or stake out points.

Station setup

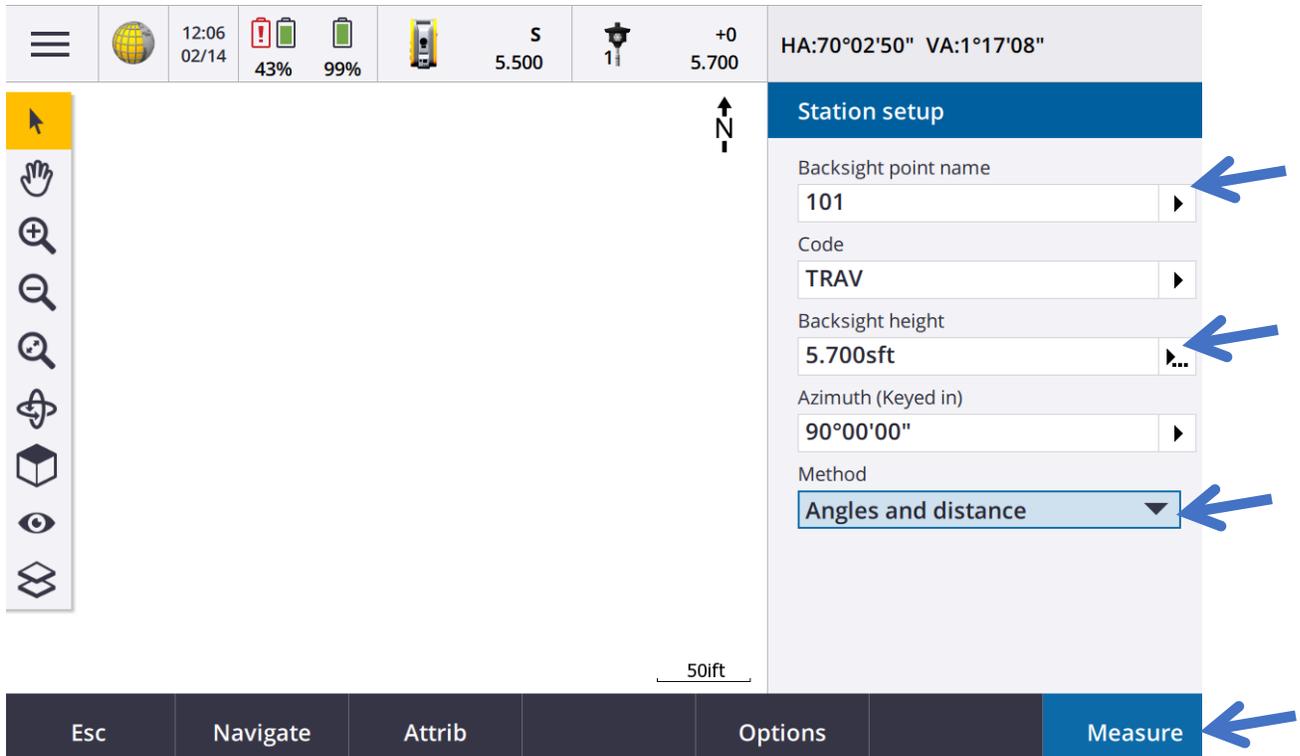
In a conventional survey, you must complete a station setup to orientate the instrument. You must have a current **station setup** before you can use the **Turn to** or **Joystick** functions to turn a servo or robotic instrument.

Select the **station setup**:

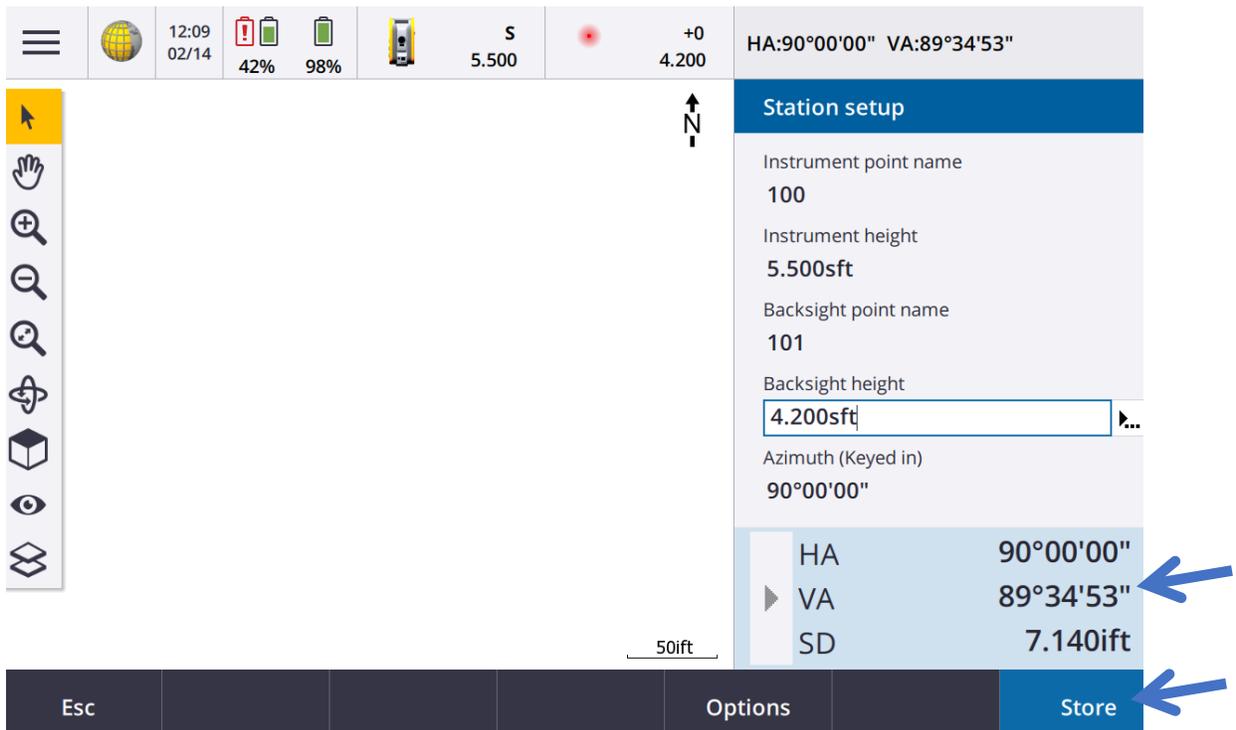
- To complete a standard **station setup** where the instrument is set up on a known point or if you are performing a traverse type survey, select **Station setup**.
 - To complete a new station setup during a conventional survey, tap  and select **Measure / New <station setup>**. To perform a different type of setup (GPS) to the current setup you must first **end the survey**.
1. Once Station Setup has been selected and the instrument is leveled over a known point, and the corrections are entered, complete the **Instrument point** name and **Instrument height**. Tap **Accept**.



2. Set up the backsight: Enter the **Backsight point name** and the **Backsight height**.
3. Select the measurement method in the **Method** field:
 - **Angles and distance** – measure horizontal and vertical angles and slope distance
 - **Averaged observations** – measure horizontal and vertical angles and slope distance for a predefined number of observations
 - **Angles only** – measure horizontal and vertical angles
 - **H. Angle only** – measure horizontal angle only
 - **Angle offset** – measure the slope distance first, the instrument can then be repointed and then measure the horizontal and vertical angles
 - **H. Angle offset** – measure the vertical angle and slope distance first, the instrument can then be repointed and then measure the horizontal angle
 - **V. Angle offset** – measure the horizontal angle and slope distance first, the instrument can then be repointed and then measure the vertical angle
 - **Distance offset** – enter the left/right, in/out or V.Dist offset from the target to the object when a point is inaccessible and then measure horizontal and vertical angles and slope distance to the offset object
4. Sight the center of the backsight target and then tap **Measure**.



NOTE: If the View before storage check box is selected in the survey style, the software shows the residuals for the station setup, which shows the difference between the known position and the observed position of the backsight point. To change the display, tap the view display button on the left of the measurement information.



5. If **Auto face 1/face 2** is enabled in the survey style or **Options** screen:
 - a. Tap **Store** to store the face 1 observation. The instrument changes face.
 - b. Sight the center of the backsight target and then tap **Measure**.
 - c. Tap **Store**.

Targets

You can configure the details of the target at any point during a conventional survey.

Target 1 and **Target DR** are already created for you. These targets can be edited but cannot be deleted. You can create up to nine non-DR targets.

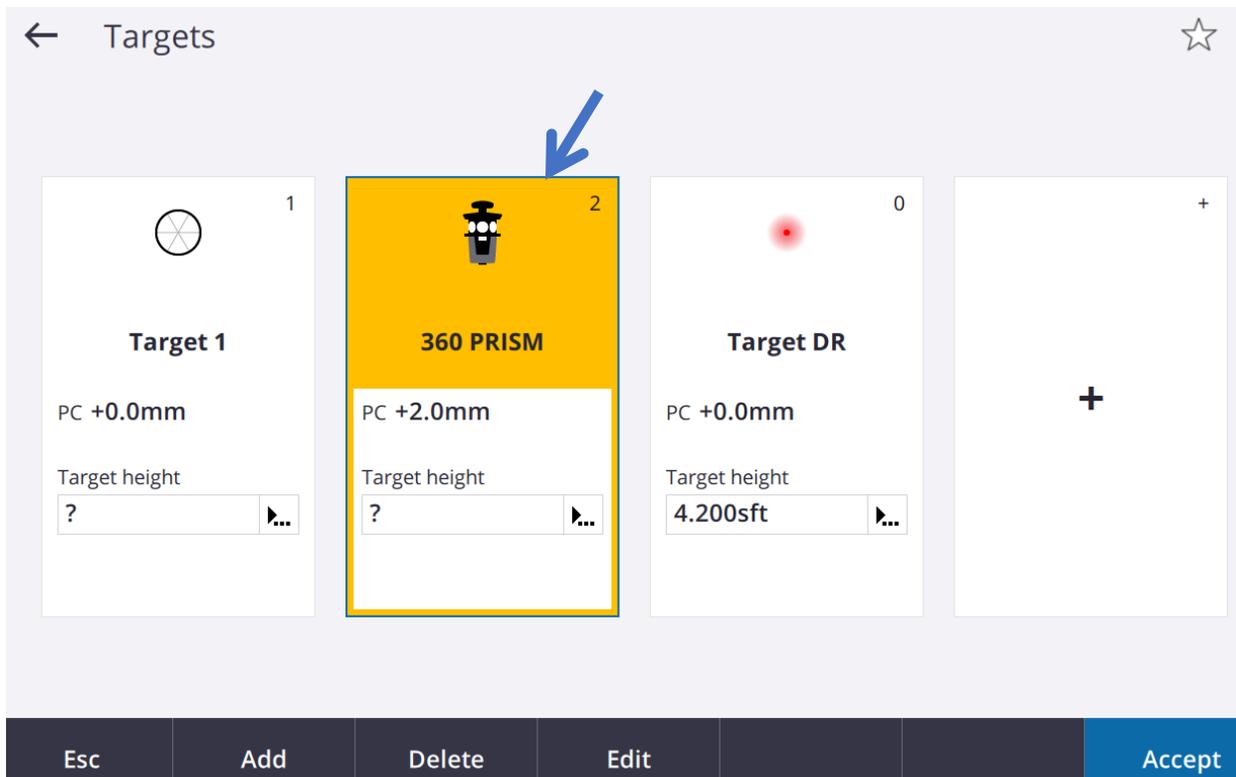
To change targets

When connected to a conventional instrument the number next to the target icon in the status bar indicates the target currently in use. To change targets, tap the target icon in the status bar or press **Ctrl + P** and then tap the target to use or press the number corresponding to the target in the Targets screen.

The screenshot displays the 'Station setup' screen of a surveying application. At the top, a status bar contains various icons and data: a menu icon, a globe, the time '12:09' and date '02/14', battery levels '42%' and '98%', a target icon with the number '5' and '5.500', a red target icon with a blue arrow pointing to it, and the number '+0' and '4.200'. Below the status bar is a vertical toolbar with icons for navigation and measurement. The main area shows 'Station setup' details: Instrument point name '100', Instrument height '5.500sft', Backsight point name '101', Backsight height '4.200sft' (with a text input field and a dropdown arrow), and Azimuth (Keyed in) '90°00'00\".

HA	90°00'00"
VA	89°34'53"
SD	7.140ift

At the bottom, there is a navigation bar with buttons for 'Esc', 'Options', and 'Store'. A scale bar labeled '50ift' is visible near the bottom right.



To change the target height

1. Tap the target icon in the status bar.
2. Tap in the **Target height** field for the target you want to edit.
3. Edit the target height and then tap **Accept**.

To add a target

1. Tap the target icon in the status bar.
2. In the **Targets** screen, tap +. The **Target properties** screen for the selected target appears.
3. Select the **Prism type**, **Target ID**, Tap **Accept**.

← Target 4

Target height
?

Prism type
VX/S Series MultiTrack

Prism constant
10.0mm

Target ID
1

Tracking mode
Semi-active

Display name
MultiTrack 1

Esc Enter

← Targets

 1 Target 1 PC +0.0mm Target height ?	 2 MULTI TRACK 1 PC +10.0mm Target height ?	 3 360 PRISM PC +2.0mm Target height ?	 0 Target DR PC +0.0mm Target height 0.000ift	+
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Esc Add Edit Accept

NOTE: If you select:

- **VX/S series MultiTrack**, select the **Tracking mode** and then set the **Target ID** to match the identification number in the **Target ID** on the robotic rover. Available modes depend on the selected target type.

Trimble MT1000 MultiTrack target

When using the Trimble MT1000 MultiTrack target, to maintain constant lock to the correct target, set the Tracking mode to:

- **Active** when operating in a highly reflective environment or on a site with many prisms.
- **Semi-active** when operating in a reflective environment and require precise elevations.

When the tracking mode is set to semi-active, the Target ID is used to track the prism, and then automatically switches to passive tracking mode when taking a standard measurement. This results in more precise vertical angle measurements.

If you do not operate in a reflective environment, set the **Tracking mode** to **Passive**. When passive tracking is used when measuring, be aware that there is a risk of nearby reflective surfaces interfering with the measurement.

- **VX/S series 360°**, select the required behavior in the Check target ID field and set the Target ID to match the identification number on the pole.

Trimble VX/S Series 360° prism or a custom prism

When using the Trimble VX/S Series 360° prism or a custom prism, set **Check target ID** to:

- **Always** when operating in a reflective environment and require precise elevations.

The target ID is constantly checked to ensure that you maintain constant horizontal lock to the correct target. The prism is used to maintain the vertical lock.

The target ID has two "on" modes; on for 60 seconds, and on continuously. When **Check target ID** is set to Always, you must set the target ID on the pole to "on continuously".

NOTE: When passive tracking is used to maintain vertical lock to the prism, you must be aware that there is a risk of nearby reflective surfaces interfering with the vertical tracking.

- **Search and measure** when operating in an environment with few reflective surfaces, but you want additional assurance when searching and measuring that the instrument is locking to the correct target.

The target ID is checked when a search is initiated and again before a measurement is made to ensure that the instrument is still locked onto the correct target. If not, the software warns you so that you can perform a new search for the correct target ID.

NOTE: The target ID must be carefully aimed towards the instrument when taking a measurement.

- **Search** when operating in an environment with few reflective surfaces, but you want additional assurance when searching that the instrument is locking to the correct target.

The target ID is checked after a search to ensure that the instrument is locked onto the correct target. If not, the software warns you so that you can perform a new search for the correct target ID.

If **Snap to target** is enabled and the instrument automatically detects the target, the instrument does not perform a search or check the target ID.

NOTE: The target ID must be carefully aimed towards the instrument when performing a search.

- **Off** when not operating in a reflective environment.

To end the survey

If a survey is running, end it before editing the current survey style or changing to a different survey style.

1. Tap  and select **Measure / End conventional survey**.
2. Tap **Yes** to confirm.
3. Turn off the controller.