

This procedure is valid if two benchmarks have been established but no GPS-derived coordinates or elevations are associated with them.

**EQUIPMENT SET-UP**

1. Install and plumb tripod over first benchmark. Place the total station atop the tripod and partially thread the tripod bolt into the tribrach. Use the optical scope on the tribrach to target the benchmark. Next, use the three adjustment screws and the bubble to level the tribrach. (If desired, you may detach optical tribrach from total station base, plumb and level the tribrach, and then reattach the total station to the tribrach.) (Note: any movement during the leveling process could shift the target.) Finally, tighten the tripod-mounting bolt until firm. Recheck the plumb and the level of the device.
2. Install module batteries into power pack harness. Hang the power pack on one of the tripod legs. Hang and place TSC2 (controller) in the bracket on one of the other tripod legs. Plug the 4-pin end of each cable into one side of the power pack (do not force any wire connections). Plug remaining four-pin end into the total station. Plug 9-pin wire end into the controller port. Again, check target and level to plumb the device.
3. Power on the TSC2 and open "Survey Controller" program. When the program is open, the total station will power on (as noticed by beeps and clicking noises). The screen will change to an electronic display of the level bubble; adjust level and plumb if necessary. When the electronic display is satisfactory (typically below 30" on both values), press **Accept**.
4. After the machine stops spinning, a screen will appear asking for local site conditions. Tap **Enter** after each edit, then tap **Accept**. Another screen shows a large display of horizontal and vertical azimuths. Tap **Esc**, and the Survey Controller main menu appears.
5. Thread the prism target onto the rangepole, and flip the small switch to "ON". Check that the two green LED lights are blinking on the light board, and then adjust the height of the rangepole to the desired value. Plumb the rangepole over the second benchmark.

**CONFIGURING THE TOTAL STATION**

1. From the Survey Controller main menu, tap **Files / New Job**. A screen will ask for project name, coordinate settings and so on. Fill in the necessary information (*Scale Factor=1.0*), and tap **Accept**. (Alternatively, choose **Open Job** to work with an existing file.) Return to Survey Controller main menu.
2. Tap **Survey / 5600 3600 / Station Setup**. A screen will once again appear asking for local site conditions--- tap **Accept** (or edit values as needed). The software will then require orientation information, like station position/height and backsight position/height. Tap the menu icon to the right of station point name; tap **Key-in**, and assign a name, assumed coordinates, and elevation values (with units!) for station point. Then, measure the height of the total station from the benchmark to either of two asterisk shapes on the side of the unit, and key this value for station height.
3. Tap the menu icon to the right of backsight point name; tap **Key-in**, and assign a name and an azimuth for the backsight point. Then, key in the height of the rangepole for backsight height (include units).
4. Turn the scope on the total station toward the prism. The total station will snap to the target while announcing *Target Locked*. Tap **Measure**. A new screen provides slope distance and azimuth between the benchmarks; if this is acceptable, tap **Enter**. The main menu will reappear, and the unit will announce *Station Setup Completed*.

**BEGINNING / ENDING SURVEY WORK**

1. From Survey Controller main menu, tap **Survey**, and then choose whatever data collection procedure is required.
2. When finished, tap **Survey / End Conventional Survey**. Let the software power down the total station.