

In SurvCE|PC Version 5.05 or higher you can use the RoboScan Workflow to turn your robotic total station into a simple grid scanner that can take reflectorless shots along a grid in Survey / Grid_Face

This routine has three phases:

1. Setup - Here you will define your surface.
2. Calculation - The grid and estimated points for the robot to shoot will be calculated.
3. Execution - The robot will automatically move from point to point, taking shots.

Setup Phase

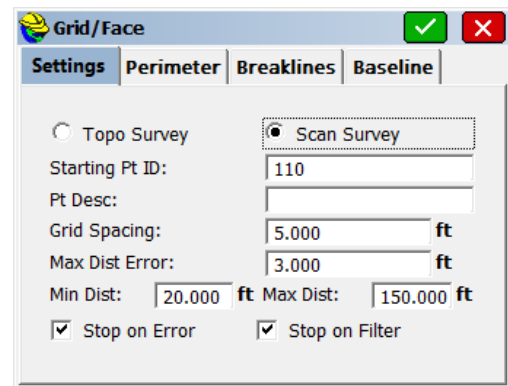
From the Survey Tab, select **6** Grid Scan.

Settings Tab:

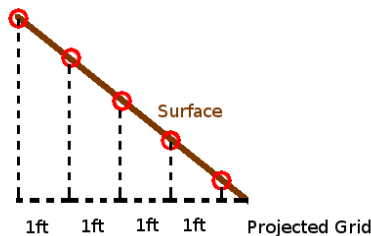
Scan Type: Determines the calculation of grid spacing.

Topo (Horz) - Typically used for scans over horizontal surfaces, where you're interested in the grid being spaced by the ground: e.g. Road

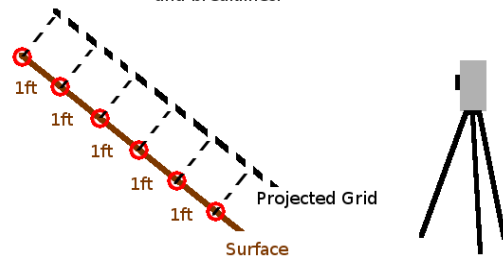
Scan (Vert) - Typically used for scans over vertical surfaces, where you are interested in having a grid evenly spaced over a best-fit flat projection of an object: e.g. Wall
See the figures below for differences between how the grid spacing is estimated over the same surface.



TOPO -- Grid spacing is determined by the distance interval along the ground.



SCAN -- Grid spacing is determined based on a best-fit plane that is defined by the perimeter points and breaklines.



The 2 Modes of RoboScan

Starting Pt. ID: Starting point id for your scan.

Pt Desc: Point description given to all points in the scan.

Grid Spacing: The distance between each grid node.

Max Dist Error: During the calculation phase, the routine estimates where each point should be, so that the robot can be turned towards it. Upon taking the reading, if the distance between the actual and estimated reading is beyond the Max Dist Error, then the routine will stop and the user can select an appropriate response. *See: Stop on Error*

Min Dist: The minimum distance reading that will be kept. *See: Stop on Filter*

Max Dist: The maximum distance reading that will be kept. *See: Stop on Filter*

Stop on Error: If an error occurs, the user will be prompted to take an action.

Stop on Filter: If a reading is outside of the filter settings, the user will be prompted to take an action.

Perimeter Tab:

Define the perimeter of your scan area in a logical, clockwise ordering.

Note: This routine allows you to select polylines from the map, however it only supports straight polylines.

Breaklines Tab:

Define any breaklines in your surface. This is necessary for two reasons:

1. While scanning, if a breakline intersects with a gridline, it will be shot before the next grid node.
2. If the selected mode is Topo, breaklines will be taken into account during the processing to find the best-fit plane for determining grid spacing.

Note: This routine allows you to select polylines from the map, however it only supports straight polylines.

Baseline Tab:

Define the origin and orientation of the of the grid that will be used for scanning.

Automatic: The longest edge of the perimeter will be considered the baseline.

Point 1 / Point 2: Point 1 will be considered the origin, and Point 2 will be considered the orientation.

Calculation Phase

Upon filling out each tab and green checking, RoboScan will perform basic checks to verify your selections and begin calculation. Be patient, this may take some time, depending on the complexity of your requested grid.

Execution Phase

Upon finishing calculation, the execution dialog will appear.

It will display: *X* / *Y* Points Taken, *Z* Points Filtered

The Start button will begin the processing of scanning.

If for any reason, a filter constraint fails, a dialog will appear giving you one of four options:

1. Accept - The reading will be kept, even though it failed the constraint.
2. Retry - The robot will attempt to take the reading again.
3. Skip - The reading will be skipped.
4. Cancel - The execution dialog will be displayed, where you can Continue or Exit.