

## **Leica Captivate GNSS: Create coordinate system – 1-point localisation**

One Point Localisation can be used to create new Coordinate Systems for use with your GPS kit. A single point defines the Coordinate System – this point must be surveyed with the GPS kit and you must know the Eastings, Northings and Orthometric Height you want to assign the point in your new Coord System.

This guide outlines the creation of local coordinate system created around coordinates of our choosing

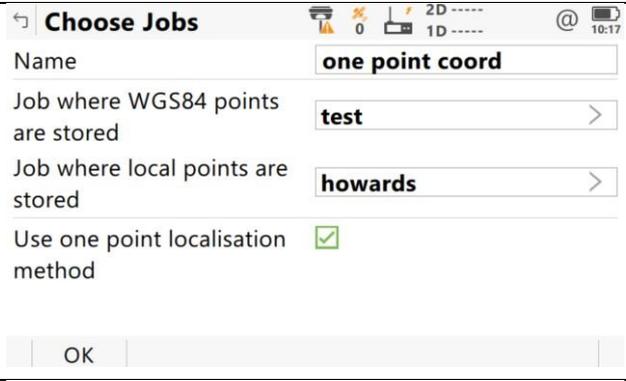
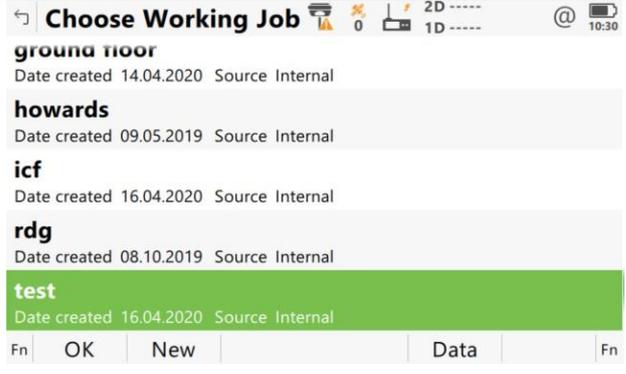
In this case an arbitrary value of 1000E, 1000N and 100Z is used. The grid is then rotated about that point to be oriented as required.

**NB:** by using local coords the geoid model cannot be used.

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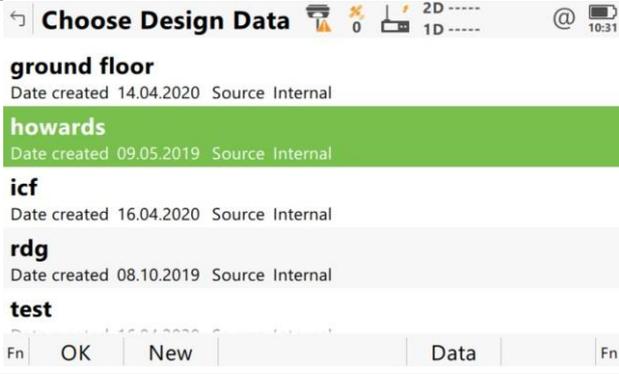
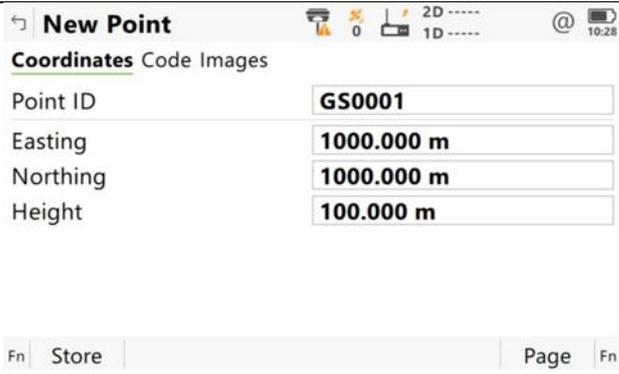
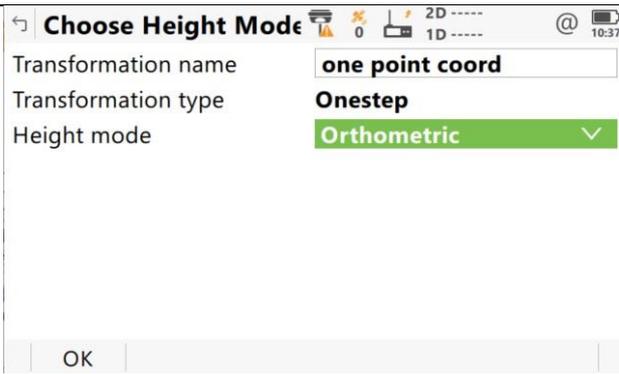
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<p><b>1</b></p>	<p><b>Local 'arbitrary' coordinate system</b></p> <p>In order to generate a new coordinate system, you first need to survey a point around which your system will be based. Create a new job and survey a point in the centre of your site.</p> <p>Then from the home screen select the 'Create coord system' action from the bottom carousel.</p>	
<p><b>2</b></p>	<p>Select the '<b>Onestep</b>' method then hit <b>OK</b>.</p>	
<p><b>3</b></p>	<p>Give your new coordinate system a name (one related to the site you are working on is useful).</p> <p>Tick the box to <b>use one-point localisation method</b></p>	
<p><b>4</b></p>	<p>Select the WGS84 job.</p> <p>The WGS84 job should be the one where your surveyed point is located. Tap on the job and select that job by clicking <b>OK</b>.</p>	

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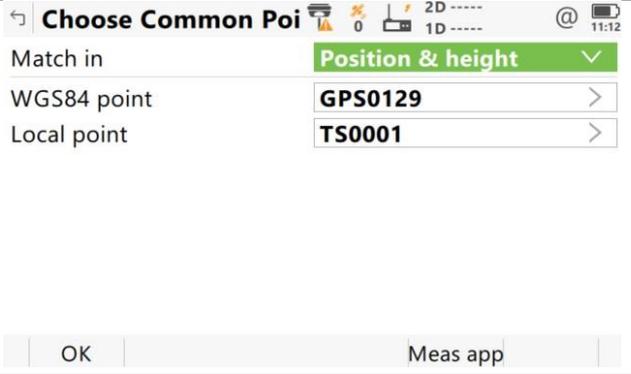
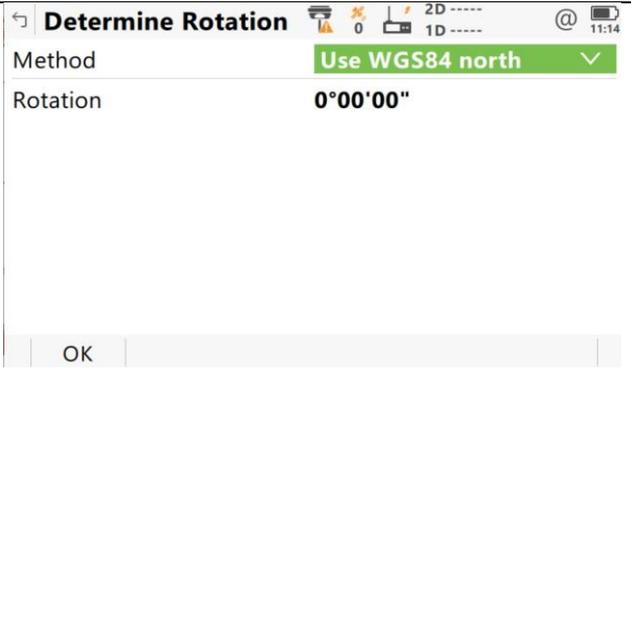
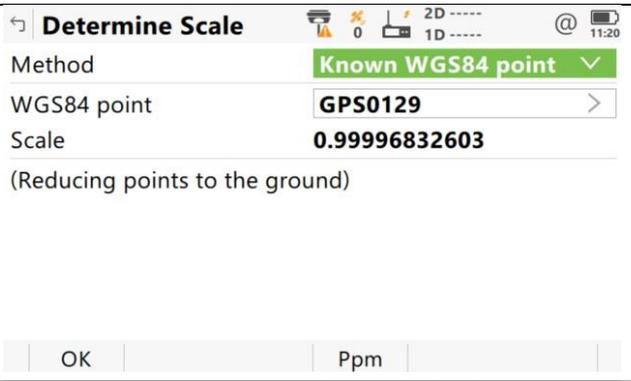
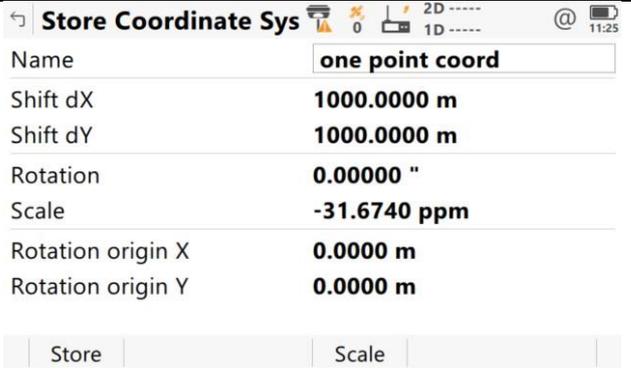
<p><b>5</b></p>	<p>The local points job should contain a point with coordinates around which your new system is based. It can be the same job as your WGS84 job.</p> <p>Tap on the dropdown and highlight the job that will contain your local coordinate.</p>	
<p><b>6</b></p>	<p>To create a new point highlight the job, select <b>Data</b> then <b>New</b>.</p> <p>Enter your coordinates then select <b>Store</b> and <b>OK</b> the Job</p> <p>This will take you back to the Choose Jobs screen. Select <b>OK</b> to move on.</p>	
<p><b>7</b></p>	<p>Select <b>Orthometric</b> as the Height Mode the select <b>OK</b></p>	
<p><b>8</b></p>	<p>Leave the Geoid model option as <b>None</b></p>	

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<p><b>9</b></p>	<p>At this point you need to select the two points you want to match.</p> <p>Select the surveyed point for the WGS84 point and your user entered point for the Local point. Then select <b>OK</b>.</p>	 <p><b>Choose Common Point</b></p> <p>Match in: <b>Position &amp; height</b></p> <p>WGS84 point: <b>GPS0129</b></p> <p>Local point: <b>TS0001</b></p> <p>OK Meas app</p>
<p><b>10</b></p>	<p>The next stage allows you to define the orientation of your new grid. There are four methods to choose from:</p> <p><b>WGS84 North:</b> site is orientated to WGS84 “true” north.</p> <p><b>User entered:</b> Rotation from WGS84 true north is specified by the user.</p> <p><b>Convergence angle:</b> Orientate to an existing grid north, eg OSGB, at the point specified.</p> <p><b>2 WGS84 points:</b> user measures two points and specifies the bearing between them</p> <p>We'll select WGS84 North then select <b>OK</b></p>	 <p><b>Determine Rotation</b></p> <p>Method: <b>Use WGS84 north</b></p> <p>Rotation: <b>0°00'00"</b></p> <p>OK</p>
<p><b>11</b></p>	<p>Then we can set the scale we use for the coordinate system.</p> <p>Choose Known WGS84 point and select the point you used as the centre of the coordinate system.</p> <p>N.B. the scale will not say 1.0. The scale displayed is true at the ellipsoid surface. At ground level the scale is 1.0</p>	 <p><b>Determine Scale</b></p> <p>Method: <b>Known WGS84 point</b></p> <p>WGS84 point: <b>GPS0129</b></p> <p>Scale: <b>0.99996832603</b></p> <p>(Reducing points to the ground)</p> <p>OK Ppm</p>
<p><b>12</b></p>	<p>This completes the coordinate system creation and a summary is displayed.</p> <p>Select <b>Store</b> to save the system and attach it to your job.</p> <p>N.B. by default the next new job you create will inherit this coordinate system.</p>	 <p><b>Store Coordinate System</b></p> <p>Name: <b>one point coord</b></p> <p>Shift dX: <b>1000.0000 m</b></p> <p>Shift dY: <b>1000.0000 m</b></p> <p>Rotation: <b>0.00000 "</b></p> <p>Scale: <b>-31.6740 ppm</b></p> <p>Rotation origin X: <b>0.0000 m</b></p> <p>Rotation origin Y: <b>0.0000 m</b></p> <p>Store Scale</p>

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