Leica Zeno Field for Zeno 5
Users Guide for Laser GPS Offset

Intro

Leica Zeno Field is an OEM version of ArcPad 10 and provides in addition to the well-known ArcPad™ functionality: GNSS raw data logging, easy handling of GNSS configurations (such as DGPS settings), feature accuracy management and an automated workflow between the field and office.

Functionality of rangefinder support in Zeno Field; A rangefinder can be used for offset measurements:

- Distance, bearing, inclination
- Single fixed position
- Two fixed positions

Requirements:

Leica

- Zeno 5 GPS Handheld
  - o Windows® Embedded Handheld 6.5 OS allowing simple and intuitive use

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- TruPulse 360 models

Connecting & Activating TruPulse

1. Connect TruPulse to the data collector/GPS device using the appropriate cables, null modem adapters, and gender changers, or Bluetooth communication settings.

   a. Refer to "BluetoothSetup_070914" User's Guide to connect the TruPulse Bluetooth models to the data collector/GPS device via Bluetooth.

      i. YouTube Training #1: http://www.youtube.com/watch?v=a1PXi0RUOOM

   b. In order to activate the TruPulse in Zeno Field, you first need to ensure that the TruPulse is correctly connected to your mobile device, the correct rangefinder extension is enabled, and that the rangefinder protocol and communication parameters in Zeno Field match the settings on the TruPulse. You also need to turn your TruPulse on before activating it in Zeno Field.

2. Start Zeno Field, begin a new project or open a current one. Refer to the Zeno Field manual for more details.

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Connecting & Activating TruPulse

3. Configure your TruPulse to output data using one of the rangefinder protocols supported by Zeno Field.

   a. Click on the Options icon drop down list and select "Advanced Settings…"

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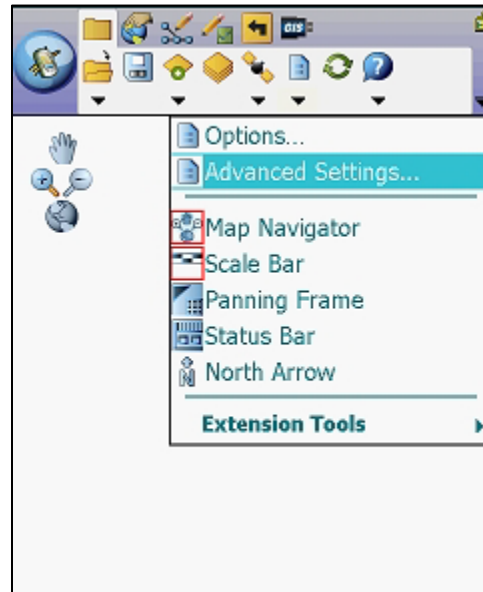
Connecting & Activating TruPulse

4. Enable the correct rangefinder extension in Zeno Field. By default, the rangefinder extensions are all disabled in Zeno Field (to conserve memory). Extensions are enabled and disabled on the Extensions tab of the Advanced Settings dialog box.

   a. You will need to choose the "LaserTech Impulse" protocol for the TruPulse & Laser Technology laser rangefinders, then press "ok"
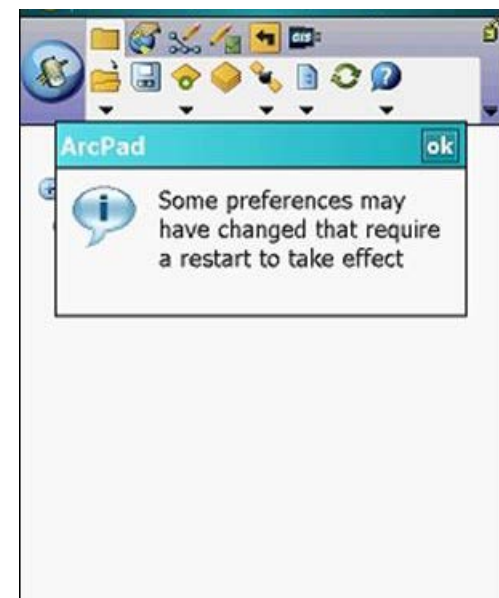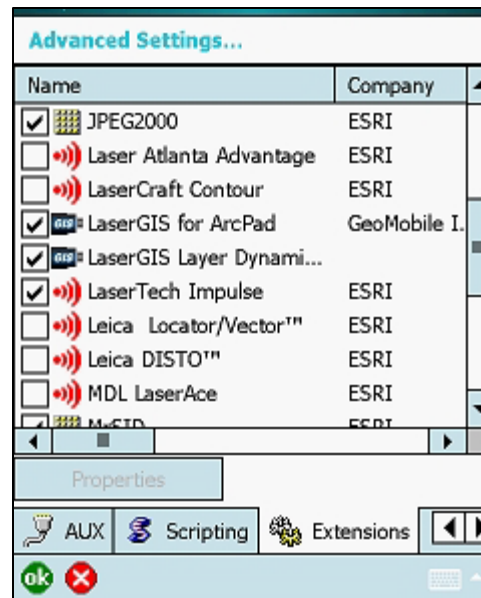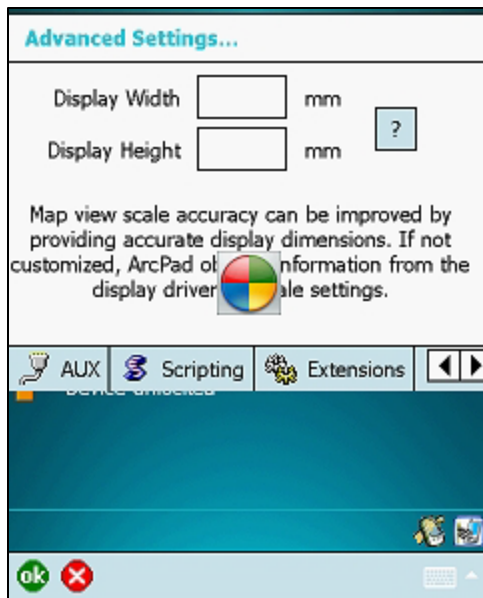
Connecting & Activating TruPulse

5. Tap the arrow to the right of the GPS Active Menu button to display the drop-down list. Select "Rangefinder Preferences".
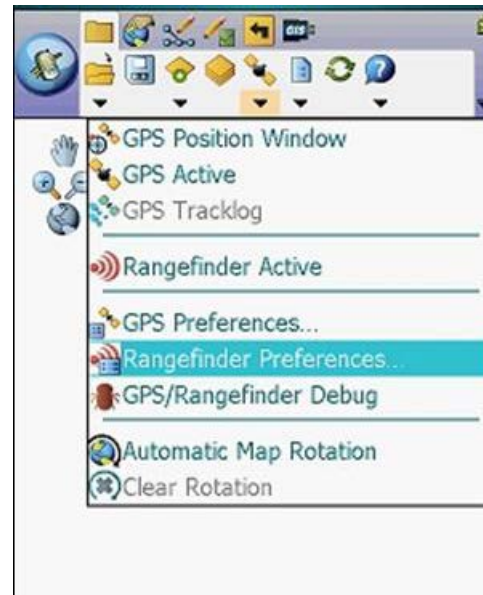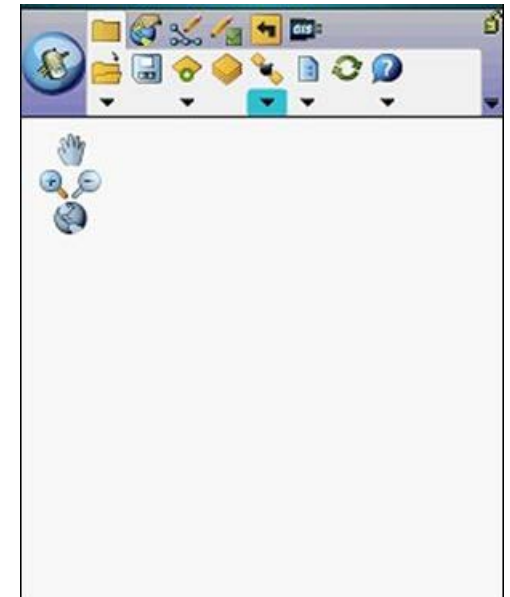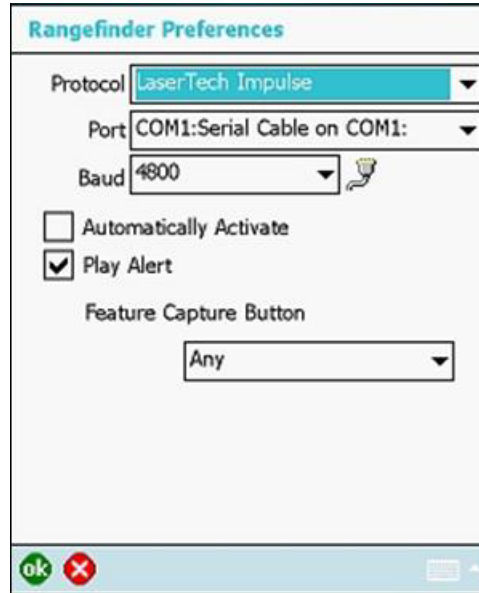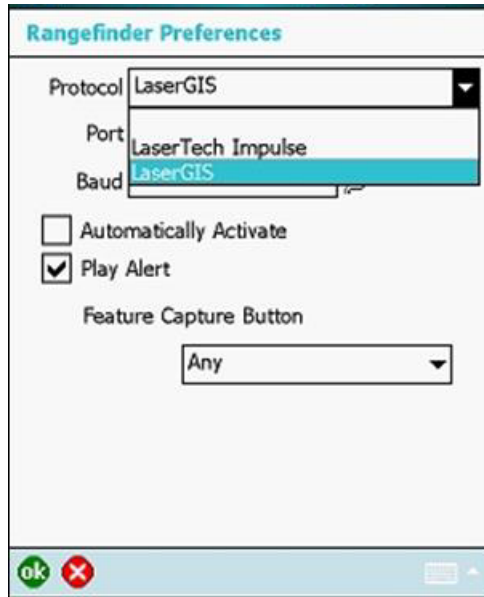
Connecting & Activating TruPulse

6. Set the TruPulse protocol and communication parameters in the Rangefinder Preferences dialog box to match the settings on the TruPulse.

    a. Protocol: Choose the protocol of your rangefinder's output: "LaserTech Impulse"

    b. Port: Choose the COM port that your TruPulse is connected to on your device.

    c. Baud: Choose the baud rate of your TruPulse's output. The default is 4800.

    d. Advanced Serial Port Parameters: Tap NO ALT TEXT to open the Advanced Serial Port Parameters dialog box to specify additional communication settings for the serial port used to connect your TruPulse. For most rangefinders, it should not be necessary to specify these additional serial communication settings.

    e. Automatically Activate: When checked, the TruPulse is automatically activated whenever an existing Zeno Field map file (.apm) with a defined projection is opened.

    f. Feature Capture Button: Choose the Feature Capture button on the rangefinder, which notifies Zeno Field to capture a vertex or point: None, Any, or Button 0 to Button 15. Choose "any".
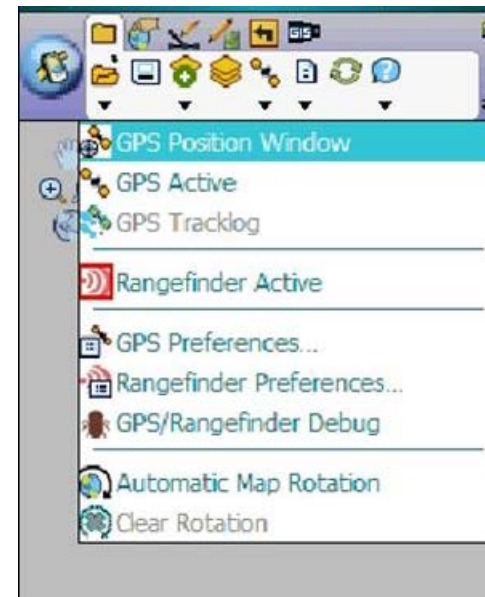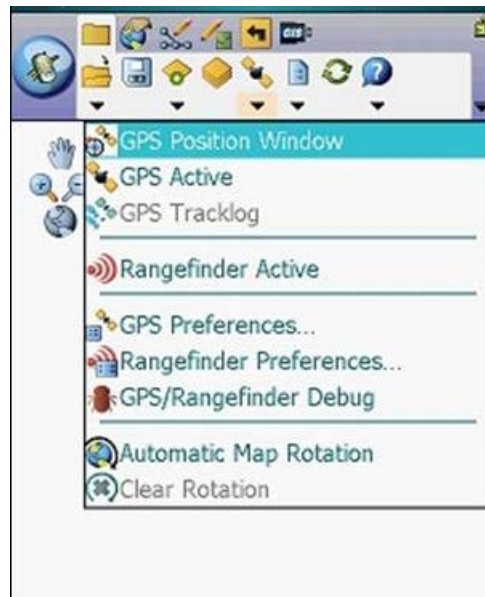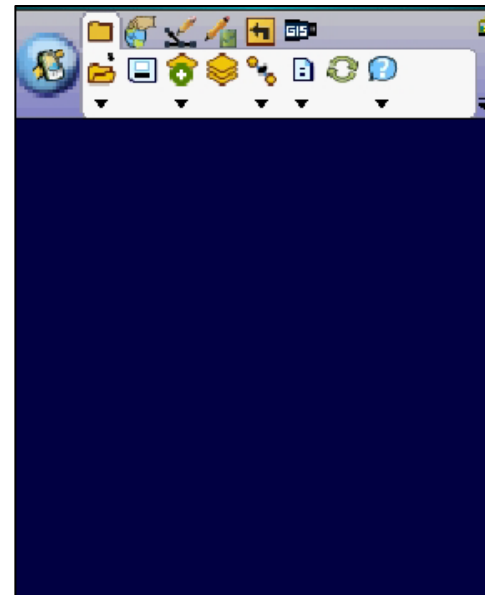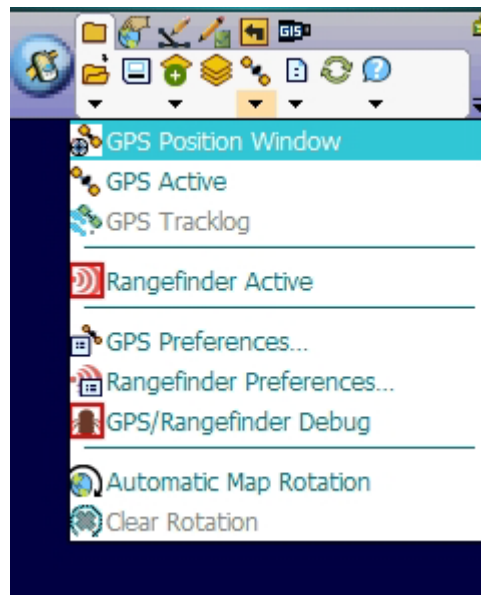
    g. Press "ok"

Connecting & Activating TruPulse

Connecting & Activating TruPulse

7. Tap the arrow to the right of the GPS Active Menu button to display the drop-down list, Tap "Rangefinder Active"

   a. The Rangefinder Active icon is highlighted with a red box when the TruPulse is active.
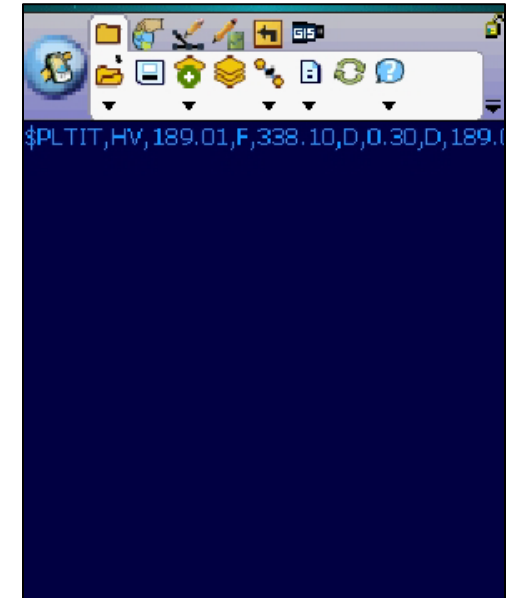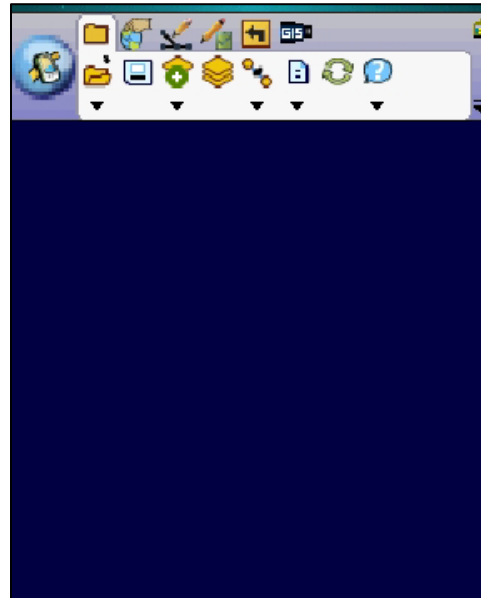

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Connecting & Activating TruPulse

8. To verify the TruPusle is connected and the serial string is downloading correctly.

    a. Tap the arrow to the right of the GPS Active Menu button to display the drop-down list, Tap "GPS/Rangefinder Debug"

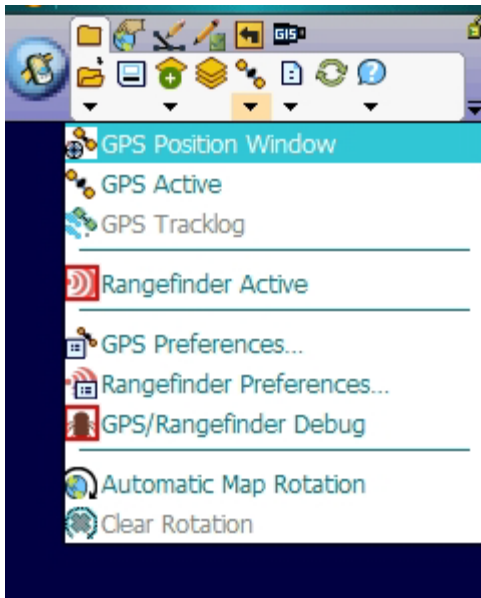   b. Once in this screen, fire the TruPulse laser to view the serial string.

Connecting & Activating TruPulse

9. To verify the TruPusle is connected and the serial string is downloading correctly.

    a. Tap the arrow to the right of the GPS Active Menu button to display the drop-down list, Tap "GPS/Rangefinder Debug"

   b. Once in this screen, fire the TruPulse laser to view the serial string.

Connecting & Activating TruPulse

10. To verify the TruPusle is connected and the serial string is downloading correctly.

    a. Tap the arrow to the right of the GPS Active Menu button to display the drop-down list, Tap "GPS/Rangefinder Debug"

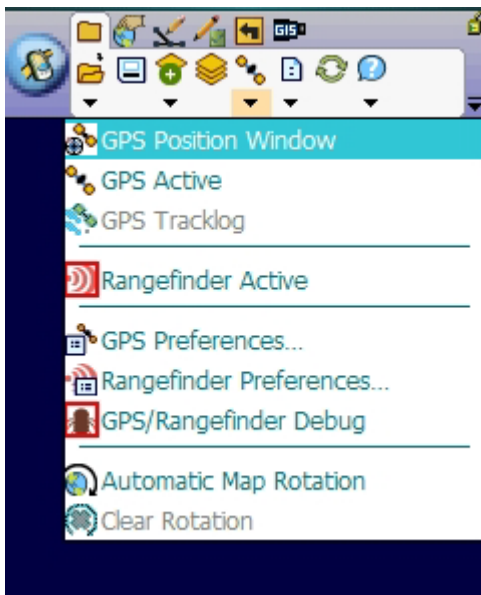   b. Once in this screen, fire the TruPulse laser to view the serial string.
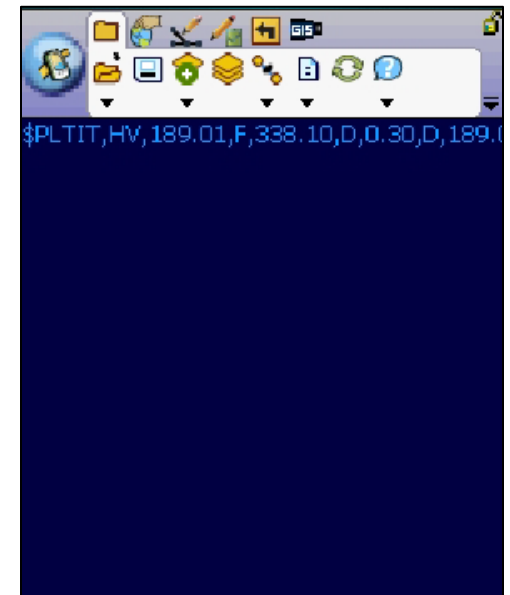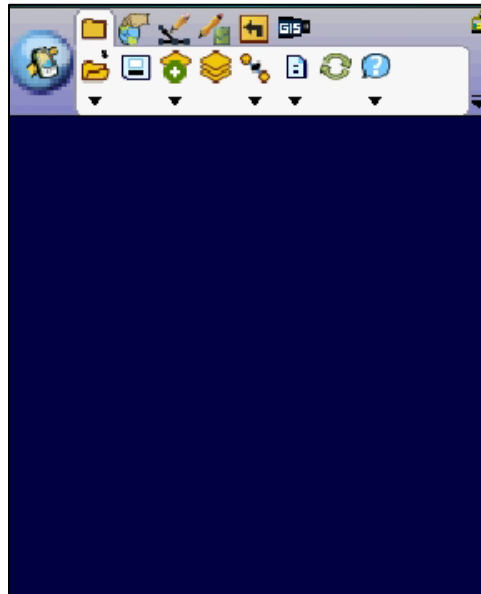
11. Once the serial string is confirmed, close window by tapping the arrow to the right of the GPS Active Menu button to display the drop-down list, tap "GPS/Rangefinder Debug" to inactivate.

Measure an Offset w/ Bearing & Distance: TruPulse 360 models

These steps describe how to capture features when you are using both a GPS and rangefinder.

Steps

1. Ensure GPS has a fix & TruPulse are activated and connected.
2. Select or make a layer to create the new offsets features
   a. Activate the Edit Toolbar; Ensure a layer is activated (editable); refer to Zeno Field User's Guide
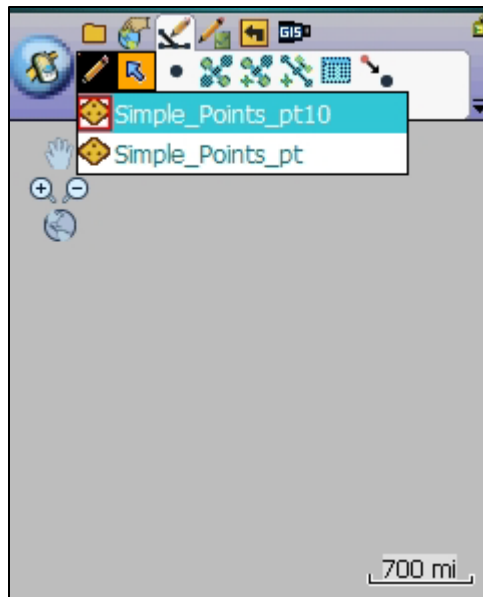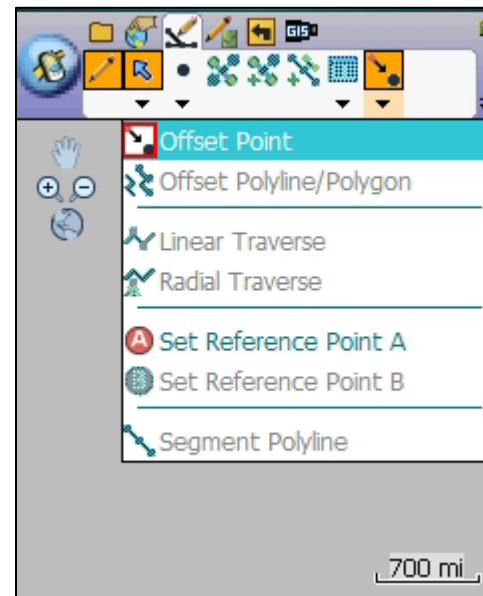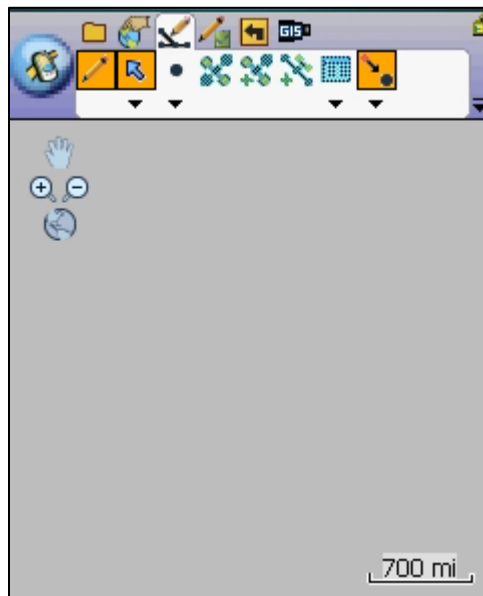
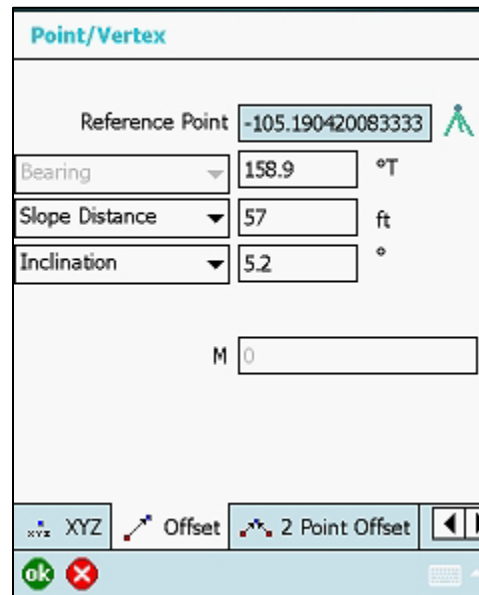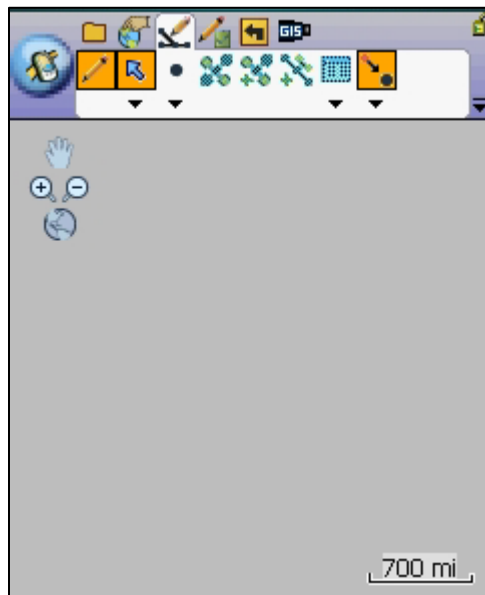# Measure an Offset w/ Bearing & Distance: TruPulse 360 models

These steps describe how to capture features when you are using both a GPS and rangefinder.

3. Tap the Offset Point icon for the drop down list
   a. The Offset Point button is only available when editing is turned on for a point layer in the Start/Stop Editing dropdown list or on the Table of Contents dialog box.
   b. For this example tap the Offset Point.

Measure an Offset w/ Bearing & Distance: TruPulse 360 models

4. Using the TruPulse eyepiece, aim at the offset target; press the fire button to take measurement, values will download into Zeno Field.
    a. As well as the distance and bearing information, the GPS coordinates at the time of capture will be sent to Zeno Field, and displayed in the Offset page of the Point/Vertex dialog.
    b. On the Offset page you can optionally change any of the values. Shoot the feature with your TruPulse again to update the bearing and distance, or tap the Survey button to display the vertex dialog for the reference point. Tap the GPS button on the Vertex dialog to capture the incoming GPS coordinates as your reference point.

Measure an Offset w/ Bearing & Distance: TruPulse 360 models

5. At this time you can review the "Options" tab. On the Options tab, you can change the offset direction from the reference point; Choose the compass North reference (True or Magnetic); Observer height and Target height values.

   a. Offset Direction:
      i. Foresight: Shooting at your target from a known reference point (CP).
      ii. Backsight: Shooting from your target to a known reference point (CP).
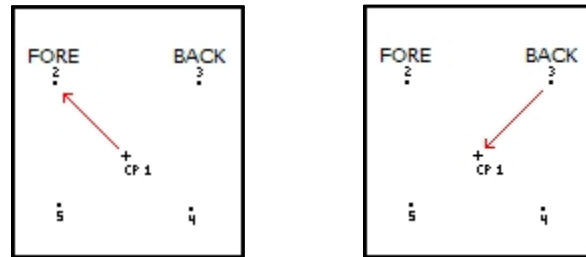
   a. North Reference: Set your bearing to be calculated from True north or Magnetic declination read from a GPS (if available).
      i. A declination value can be set on the TruPulse 360 model to reference True North(refer to manual). You will need to know the declination value for your current location when using the TruPulse.
      ii. NOTE: Ensure you do not set the declination on the TruPulse 360 and choose True North in the Point/Vertex dialog box, this will apply a double declination to your compass (bearing) values.
   b. Observer Height: Height of TruPulse in relation to a reference point at ground level.

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Measure an Offset w/ Bearing & Distance: TruPulse 360 models

c. Observer Height: Height of TruPulse in relation to a reference point at ground level.

d. Target Height: Height of target above ground.
   i. By default, the target height is 0 or unknown. If the target height is known and specified, the resulting coordinate will be the XYZ value of the feature at ground level; the target height is subtracted. If the target height is not known (value of 0), the resulting coordinate will be the XYZ value of the actual target.

Measure an Offset w/ Bearing & Distance: TruPulse 360 models

6. Tap OK.
    a. The Feature Properties dialog box is displayed with an edit form, if it exists. Enter the information for the new feature.

7. Tap OK.
    b. Your new feature is created.