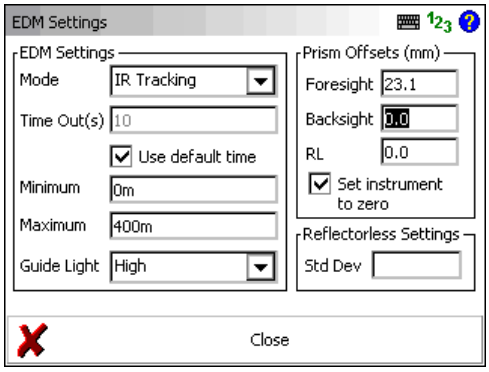
Leica RX1250 & TPS 1200 Prism Offsets

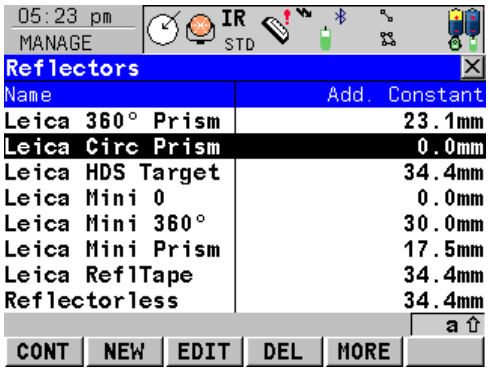
Leica Prism Offsets



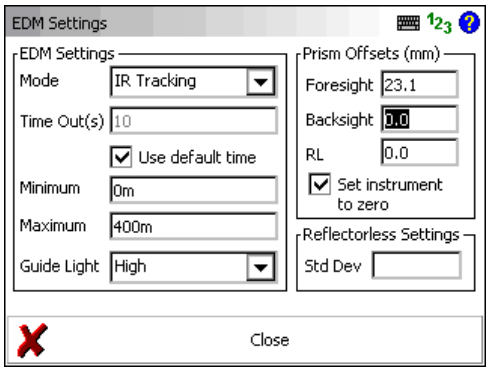
Total Station prism offsets should be handled by FieldGenius.

The recommended method is to use the "Set instrument to zero" option which can be defined in the EDM Settings screen. Turning this on forces FieldGenius to automatically set the instrument prism type to "Leica Circular Prism" whenever you trigger a non reflectorless measurement with FieldGenius. We do this because it forces the instrument to be in a zero offset mode which makes it easier to use Leica prism offsets.

When this mode is enabled, setting the prism offsets for the backsight and foresight is easy. You simply enter the offsets as they are shown in the Leica Reflectors screen.



Example: Let's assume you are using a Leica 360° Prism for your foresight shots, and have Leica Circular Prism setup on a tripod at your backsight. In FieldGenius you would define an offset of 23.1 for the foresight, and 0 for the backsight.



Non Leica Prism Offsets

When using non Leica prism offsets you will need to do some simple math to compute the correct prism constant to use with FieldGenius.

On Leica's website at http://www.leicaadvantage.com/support/TPS1200/faqs/TPS/prism.pdf you will find a document that clearly outlines how you should compute the correct prism constant when using non Leica prisms.

From the above mentioned document, Leica states the following:

*When using a non-Leica prism, always DEFINE or select the USER setting and enter the Prism Constant in **millimeters** calculated from the following equation:*

*Prism Constant (**mm**) = **APC + 34.4***

***APC** is also referred to as the **Prism Offset** and is always NEGATIVE.*

Example:

1. *Using a prism with an offset of **– 40.0mm**, the Prism Constant is computed as:*

   - 40.0 + 34.4 = - 5.6mm

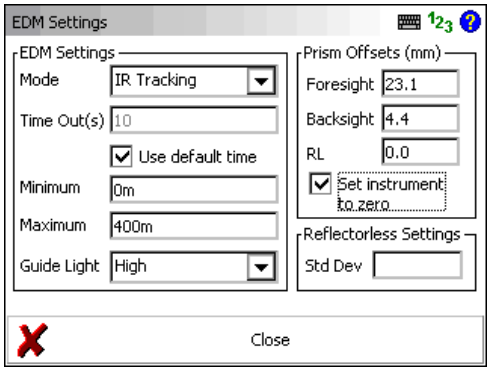
2. *Using a prism with an offset of **– 30.0mm**, the Prism Constant is computed as:*

   - 30.0 + 34.4 = + 4.4mm

3. *Using a prism with an offset of 0.0mm, the Prism Constant is computed as:*

   - 0.0 + 34.4 = +34.4mm

Here is another example. If you are using a Leica 360° prism for your foresight shots, and are using a Non-Leica Circular prism with a -30mm offset you would define the following constants in FieldGenius.



Notes:

Because we are using a Leica 360 prism, we define the constant specified by Leica.

For the Non-Leica circular prism, we computed the constant as follows:

- 30.0 + 34.4 = + 4.4mm

Reflectorless Measurements

When you trigger a reflectorless measurement FieldGenius will automatically set the prism constant on the instrument to Reflectorless.

In FieldGenius you should leave the constant field set to zero unless you know for sure there is an offset to be applied.

As soon as you trigger a measurement using a non-reflectorless mode, FieldGenius will switch the prism constant type back to circular.

Test Measurements

Testing is Mandatory!

Prism offsets can have a significant impact on the correctness of your measurements. Before you use FieldGenius for production work you must confirm that you have the correct prism constants defined for the prisms you will be using.

Once you define your prism offsets and constants always perform check measurement against known baselines, or by comparing manually measured distances to those displayed in FieldGenius.

Comparing Distances

It is important to note that when FieldGenius applies prism constants to observations, the observations displayed in FieldGenius will always be different than the measurement displayed on the instrument.

The difference in the measurements will be equal to the prism constant defined in FieldGenius

A good way to test measurements with FieldGenius is to use the Temp Measurement Mode. After a measurement is made in Temp mode, you can review the shot information by selecting the icon.