

Handling of System 200/300 data with SKI-Pro - Antennas

SKI-Pro was designed to import System 200, 300, 500 and RINEX data. This newsletter explains how height readings and antenna offsets of System 200 and System 300 data are handled in SKI-Pro.

An Example

Imagine you were measuring with a **SR399 Internal** antenna using a tripod set-up.

In the field you would have entered a height reading and an antenna offset into the System 300 Controller. The height reading would have been the tape reading from the height hook (say **1.056m**), and the antenna offset would have been a constant value (**0.441m** for this antenna and setup).

During Raw Data Import, you can check these values in the GPS300 raw data properties dialog accessible from the Antenna tab of the **Assign / View Data** dialog.



After assigning the data to the SKI-Pro project in the **Interval Properties** for that interval, you will see that the height reading and antenna offsets appear to have different values.



Why the difference?

The Use of Antenna within System 500

For all antennas within System 500, Leica introduced a new standard Antenna Me-

chanical Reference Point (MRP), which is always at the bottom of the antenna (see chapter 2.11.1 of the **Technical Reference Manual** for further details).

All System 200/300 and 500 antennas were then calibrated against one reference antenna - the Dorne Margolin Type T antenna - which has become an industry standard. Amongst others, this has the advantage that antenna calibrations from different organizations (often found on the Internet) can also be used because they typically refer to this antenna.

The results of the calibrations of these antennas are stored in the SKI-Pro Antenna Management and on board the System 500 sensors.

Whenever data from a Leica antenna is imported, the antenna type is automatically recognised and the corresponding elements for that antenna are automatically used for all processing tasks.

The Use of Antenna within System 200 / 300

The definition of the MRP is different compared to how System 200/300 and SKI 2.3 behaved.

Within System 200/300 the Internal SR299/SR399 antenna was used as the reference antenna, due to the fact that at that time, no standard antenna such as the Dorne Margolin had established its place as an industry standard.

When measuring in the field with System 200/300, it is never known whether the data will be processed with SKI 2.3 or with SKI-Pro (or both!). When data collected with System 200/300 is imported into SKI-Pro, a correction has to be applied to account for the new Antenna Reference

Point. This is done automatically after assigning the data.

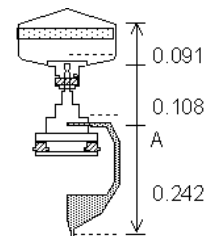
In the above example, the following happens:

The antenna is recognized as the **SR299/399 Internal**. The new **Vertical Offset** is **0.000** and the **Height Reading** has changed to **1.406m**. These changes are made due the difference in the antenna definition between System 200/300 and System 500.

The value **1.406** is calculated from:

$$1.056 + 0.441 - 0.091 = 1.406.$$

where the minus **0.091** is the correction for this antenna to move the MRP defined within System 300 to where the MRP



is defined with-in System 500. This value is the difference from the old to the new reference point.

This correction, together with the new definition of the SR299/399 Internal antenna stored in the SKI-Pro Antenna Management, leads to correct results.

Antenna height readings wrongly entered in the field can be directly corrected in the Assign dialog during import. If the data has already been imported then simply change the new height reading by the amount of the mistake.

Remember...

Corrections are automatically applied to System 200/300 antenna height readings after import into SKI-Pro to relate System 200/300 antennas to the System 500 definitions. Wrong antenna height readings can be corrected during or after import.