- when it has to be **right**

Leica Geosystems

How to Connect Cable Locators to Zeno Mobile One

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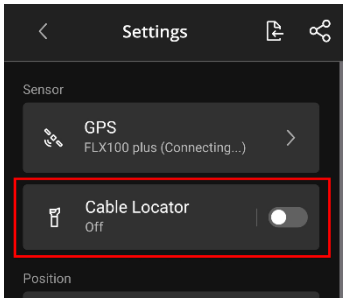
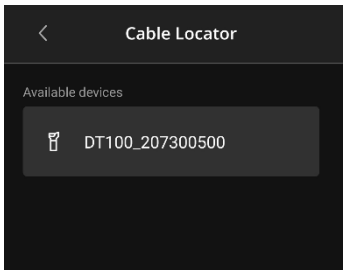
Contents

1 Introduction

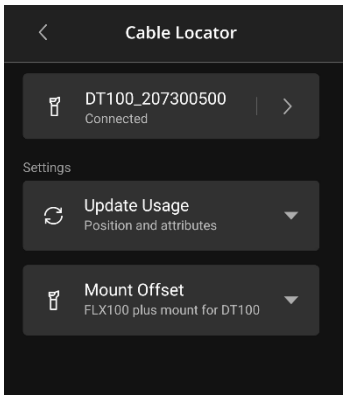
With the release of Zeno Mobile One 2.1 it is possible to connect the Leica DT100 cable locator to the app via Bluetooth. By doing so, buried assets can be easily mapped on the go. One button press on the DT100 will trigger the cable locator measurement and GPS position recording. Both will be stored in the Zeno Mobile One project.

- The DT100 can automatically transfer measurements and other metadata to pre-defined attribute fields in Zeno Mobile One.
- The Z value of a measured feature can be altered based on the depth received from the cable locator.
- The Leica FLX100 plus smart antenna can be used in conjunction with the DT100 for accurate positioning.

2 How to connect the Leica DT100 to Zeno Mobile One

Steps	Description
1.	 In any project, go to *Settings* Under the *Sensor* section, switch on *Cable Locator*. Then tap *Cable Locator*.
2.	 Tap on *No cable locator selected* to access the connection page. With your cable locator switched on, wait for it to appear in the list. Make sure the cable locator has the Bluetooth option enabled. **Note:** You can swipe down on this page to refresh the scanning of nearby cable locators.

3.



Tap on the corresponding cable locator to connect to it.

Note: Zeno Mobile One will automatically re-connect to the selected cable locator if it is switched on and within reach.

4.

In the DT100 display, a device icon appears next to the Bluetooth icon, confirming the cable locator is connected.

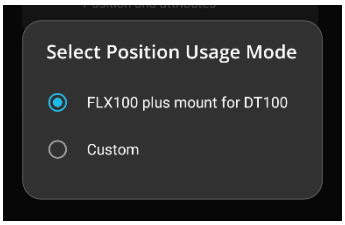
3 How to set up the FLX100 plus and the Leica DT100 with Zeno Mobile One

Steps **Description**

1.

The FLX100 plus can be mounted on the dedicated DT100 holder (art. 1008671). This mount is recommended for best results.

2.



In Zeno Mobile One settings, the option to use the FLX100 plus mount is selected by default.

3.

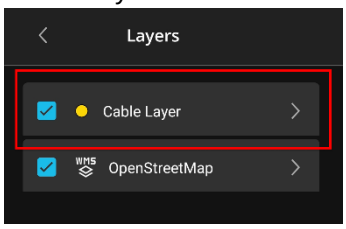
Important Note: When using a non-tilt FLX100 plus, GNSS measurements will be approximately 22cm ahead of the cable locator measurement. This is due to the horizonal offset between the FLX100 plus and the electromagnetic antenna in the DT100.
However, when using a tilt enabled FLX100 plus device, this offset will be compensated, and the GNSS measurements will be at the location of the cable locator measurement.

4 How to use the Leica DT100 with Zeno Mobile One

4.1 Preparation

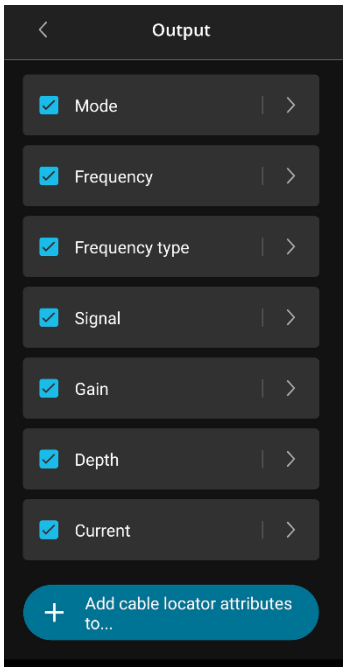
Before starting to work with the DT100 and Zeno Mobile One, layers and attributes must be prepared. This section will explain how to prepare new layers with the correct attributes.

Steps	Description
1.	Create layers in Zeno Mobile One from the *Layers* page.



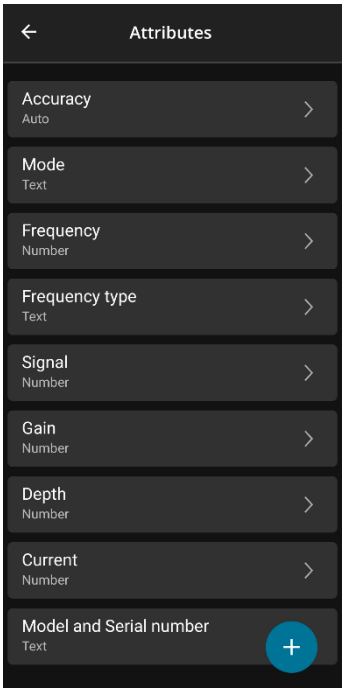
Note: Only Point layers can store cable locator attributes. Line and polygon layers will only be affected by cable locator depth readings, if the “Modify Geometry” option is ticked.

2.



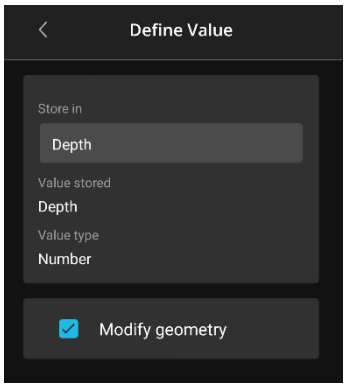
With the cable locator paired, go to *Settings* > *Cable Locator* > *Output* (i.e. chevron next to DT100 name). In the *Output* page, available attributes are listed. Tick or untick the required attributes.

3.



At the bottom of the *Output* page, tap *Add cable locator attributes to…* to add the ticked attributes to any point layer in your project.

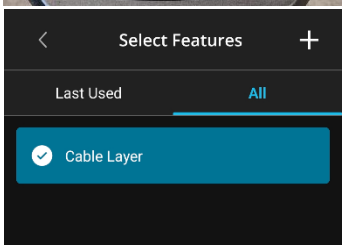
4.



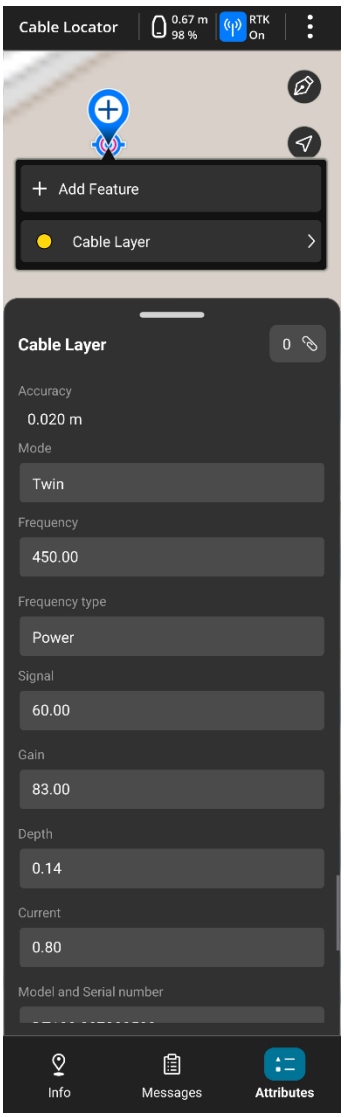
Note: Within the *Depth* attribute, the *Modify Geometry* option is available. If ticked, Zeno Mobile One will adjust the Z coordinate based on the depth read by the cable locator. This will also affect line and polygon vertices measured with cable locator.

4.2 Measuring new data

Let’s now start measuring new data with the DT100 and Zeno Mobile One.

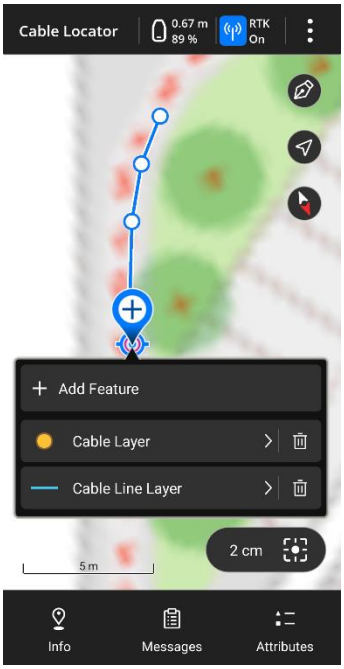
Steps	Description	
1.		Start the cable locator routine to locate cables. **Note:** Refer to DT100 documentation for more information.
2.		When ready to store a cable locator measurement, long press on the *Settings* key of the DT100. **Note:** The phone icon in the DT100 screen flashes, indicating the measurement has been sent over Bluetooth.
3.		Select the target layer for this cable locator measurement in Zeno Mobile One.

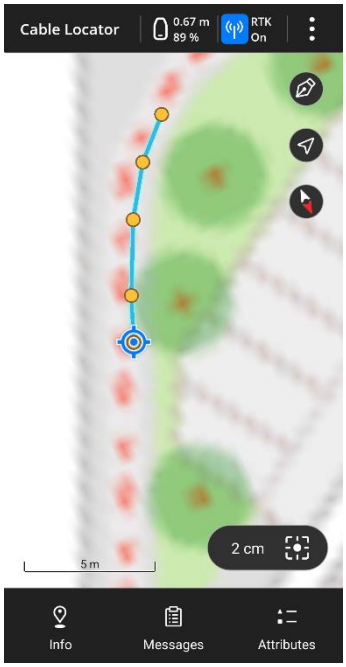
4.



The feature is created in Zeno Mobile One and its cable locator attributes are automatically populated.

5.



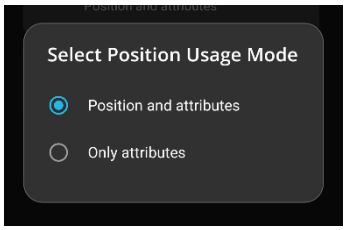
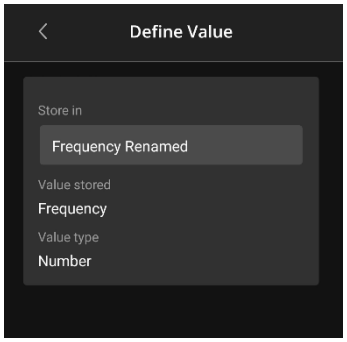


By repeating steps 1 and 2, more features can be created in the project. Any measurements after that will be stored in the same layer if features are not finalized.

Note: See Zeno Mobile One documentation to expand on this topic.

4.3 Updating existing data

It is possible to update existing data with new cable locator readings. Moreover, Zeno Mobile One can be configured to map cable locator attributes to attributes in imported layers. The below section explains how to achieve this.

Steps	Description
Updating existing data	 In the *Cable Locator* page, two measuring options are available: *Position and attributes* and *Only attributes*. When working with imported data, the former option will update the position of the active feature with a new GNSS reading as well as its attributes. In the latter, only the attributes will be updated. This means the XYZ coordinates will remain the same; ignoring the new depth reading. The Z coordinate will remain the same as the original.
Remapping attributes	 In case imported attribute names do not match the default cable locator names in Zeno Mobile One (e.g. Depth, Frequency), it is possible to remap and target the imported attributes. This can be done by going to *Settings* > *Cable Locator* > *Output*. Inspecting each attribute will reveal that the target attribute is an editable field. Changing the *Target* field to match the attribute name imported will make Zeno Mobile One populate the corresponding cable locator value in the desired attribute field. **Note:** It is important that the target field data type matches the one coming from the cable locator. For example, the target attribute for Mode must be text. If targeted to a number attribute, the value won't be stored.

5 Best practice

- Our bodies act as an obstacle for GNSS signals. Try to keep out of the way of clear sky for best results when measuring new positions with DT100 and FLX100 plus.
- Keep the cable locator as close to 90º to the ground as possible when using non-tilt compensating antennas.
- With tilt-enabled FLX100 plus, inclinations can be compensated if the tilt function is switched on. Keep in mind the higher the inclination and the deeper the cable, the further away the measured point may appear on the map with respect to your current location.