

Release notes

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From: Product Manager Amberg Tunnel Surveying

To: Amberg Tunnel Surveying distribution partners / customers

Amberg Tunnel 2.11.0.0
Amberg Navigator 1.8.0
Amberg Applications 6.5 (Viva) / 7.4 (Captivate)

Dear Amberg Tunnel users,

We would like to inform you that new versions of the Amberg Tunnel Surveying software products were released. Please find details about new features, changes and their benefits below.

Customers can download the latest software release from
<http://www.ambergtechnologies.ch/downloads/>.

1. Important - Updating existing version	3
1.1. Updating instructions	3
2. Amberg Tunnel – General	3
2.1. New Design data Axis Editors.....	3
2.1.1. Horizontal alignment.....	3
2.1.2. Vertical alignment	4
2.2. New language French (User Interface and Reporting)	5
2.3. New language Korean (User Interface and Reporting)	5
2.4. Additional Improvements	5
3. Amberg Tunnel – Tunnelscan module	5
3.1. New feature: LAS export.....	5
3.2. Additional Improvement	5
4. Amberg Navigator tablet	5
4.1. New task Infrastructure	5
4.1.1. Wall points stake out	6
4.1.2. Drill rig boom guidance	6
5. Amberg Applications Viva.....	7

5.1.	Support Leica Firmware 6.16.....	7
6.	Amberg Applications Captivate.....	7
6.1.	Support Leica Firmware 2.3.....	7

Manual Input:

1. Double-click on Horizontal alignment in the Project tree.
2. To insert a new element, click the Add or Split button. New row and graphic representation appears in the element table and graphic view and application focuses on the Element type field in the form. → Please note that many functions can be reached through menu items, toolbar buttons and context menu (right-click).
3. Select Element Type to set type of alignment element and edit its parameters. The following element types are supported:
 - a. Straight
 - b. Arc
 - c. Clothoid

You can use the TAB key to navigate through the form. The TAB key then takes you to the Add button and you can press Enter to repeat the process.

Whenever a new element is inserted after an existing one the start point of the new element is set to the end point of the previous element. If the proposed data is not accepted you can overwrite it. Otherwise you can focus on the parameters which are not yet defined.

If any of the parameters violates acceptable values, the conflicting fields are highlighted in red. There is a triangle with exclamation mark displayed at the element table in case of element discontinuity.

The Importing format for the horizontal alignment is still the same than known before (LandXML 1.0 & 1.1, Cremer and ASCII).

2.1.2. Vertical alignment

Manual Input:

1. Double-click on Vertical alignment in the Project tree.
2. To insert a new element, click the Add or Split button. New row and graphic representation appears in the element table and graphic view and application focuses on the Element Type field in the form.
3. Select Element Type to set the type of alignment element and edit its parameters. The following element types are supported:
 - a. Kink
 - b. Arc
 - c. Parabola

You can use the TAB key to navigate through the form. The TAB key then takes you to the Add button and you can press Enter to repeat the process. A vertical alignment must consist of at least 2 vertex points. Otherwise it is not possible to save the alignment.

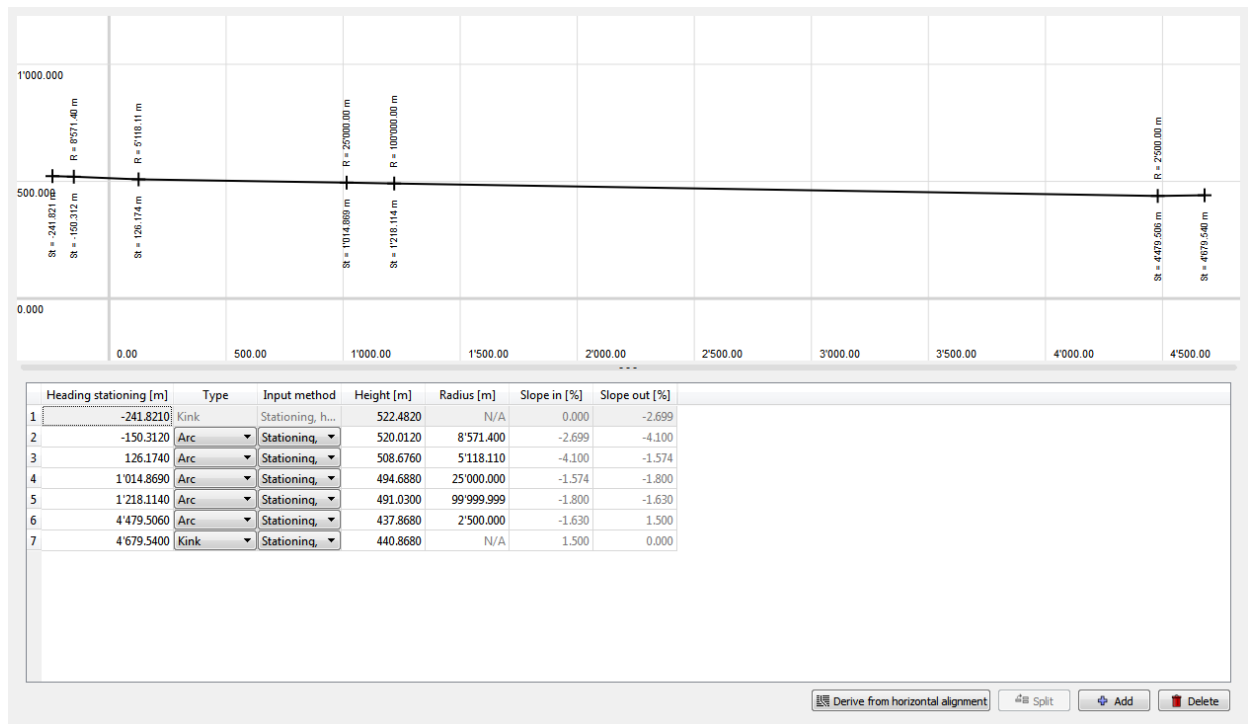


Figure 2 Vertical alignment editor

The Importing format for the horizontal alignment is still the same than known before (LandXML 1.0 & 1.1, Cremer and ASCII).

2.2. New language French (User Interface and Reporting)

With the Amberg Tunnel Release 2.11.0.0 we're supporting French language for the reports and also for the user interface.

2.3. New language Korean (User Interface and Reporting)

With the Amberg Tunnel Release 2.11.0.0 we're supporting Korean language for the reports and also for the user interface.

2.4. Additional Improvements

- Copy of multiple theoretical profiles is now possible.
- DXF export from Axis Calculator is now possible

3. Amberg Tunnel – Tunnelscan module

3.1. New feature: LAS export

With the new version of Amberg Tunnel it is now possible to export LAS format from any Tunnelscan analysis. This is especially helpful for a fast data exchange to third party products or to a BIM system.

3.2. Additional Improvement

The colour setting for the 3D view (all Tunnelscan analysis) has been improved for a better data interpretation.

4. Amberg Navigator tablet

4.1. New task Infrastructure

This task allows staking out infrastructure points on the tunnel wall. The task points are searched on the tunnel wall along the borehole axis. The infrastructure task consists of two steps: infrastructure row selection and stake out.

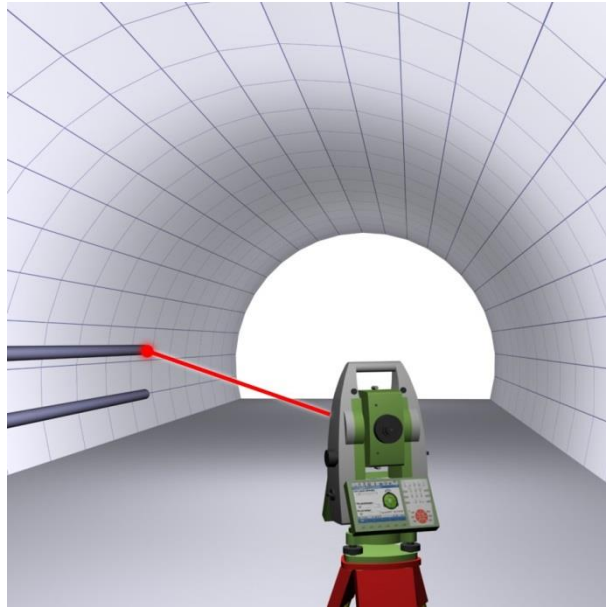


Figure 3 Infrastructure task preview image

4.1.1. Wall points stake out

To stake out the drill hole start points on the wall, select a point by pressing it in the graphics or use the previous point, Next point buttons. During the stakeout, the deviation to the design position is displayed in the top-right corner of the graphics area.

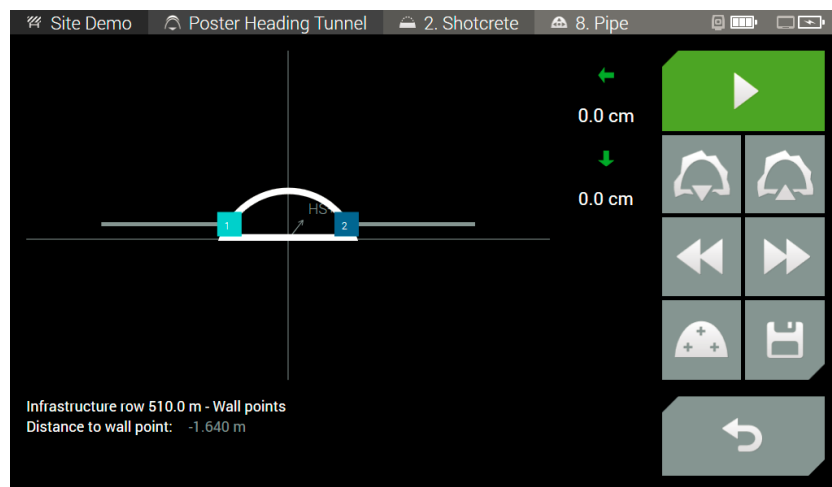


Figure 4 Wall points stake out

The stakeout page contains the following buttons:

- Measure:** Starts stakeout of the selected point.
- Previous row:** Selects the previous row of the task and starts stakeout immediately.
- Next row:** Selects the next row of the task and starts stakeout immediately.
- Previous point:** Selects the previous point of the task and starts stakeout immediately.
- Next point:** Selects the next point of the task and starts stakeout immediately.
- Boom points:** Switch to the drill rig boom guidance mode.
- Store:** Stores the last measured point.
- Back:** Finishes the stakeout and returns to the mode selection.

4.1.2. Drill rig boom guidance

To point with the instrument laser to the design position of the target on the end of the drill rig boom, select a point by pressing it in the graphics or use the Previous point, Next point buttons. To lock to the prism and start measuring it continuously, press the Start button. During the guidance, the offsets to the

design position of the currently selected pipe are constantly updated in the top-right corner of the graphics area.

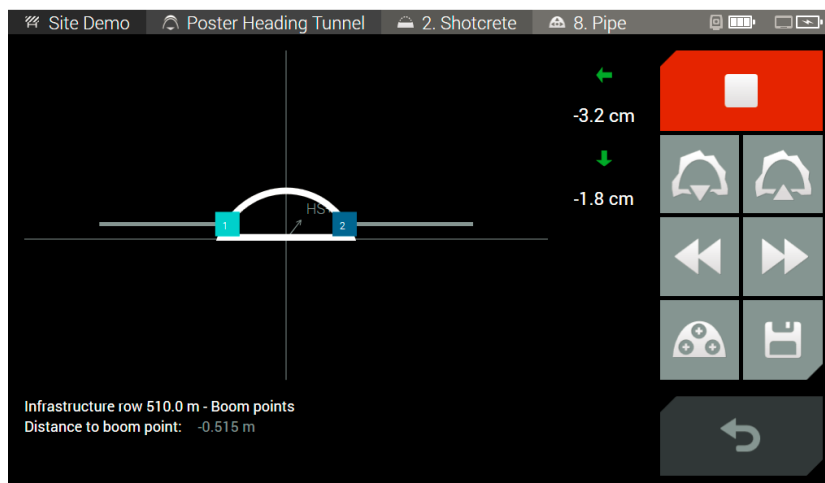


Figure 5 Drill rig boom guidance

The guidance page contains the following buttons:

- | | |
|------------------------|---|
| Start: | Starts continuous measurement of the selected point. While the measurement is in progress, it can be stopped with the Stop button in the same position. |
| Previous row: | Selects the previous row of the task and starts stakeout immediately. |
| Next row: | Selects the next row of the task and starts stakeout immediately. |
| Previous point: | Selects the previous point of the task and lets the instrument laser point to its design position. |
| Next point: | Selects the next point of the task and lets the instrument laser point to its design position. |
| Wall points: | Switch to the wall points stakeout mode. |
| Store: | Stores the last measured point. |
| Back: | Finishes the guidance and returns to the mode selection. |

5. Amberg Applications Viva

5.1. Support Leica Firmware 6.16

Amberg Applications Version 6.5 is full compatible with Leica SmartWorx Viva Firmware 6.16.

6. Amberg Applications Captivate

6.1. Support Leica Firmware 2.3

Amberg Applications Version 7.4 is full compatible with Leica Captivate Firmware 2.3

Yours sincerely,

Oliver Schneider
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Tunnel Surveying Systems