

Aaronia GPS-Logger Software

Users Guide

Index

GPS-Logger Software Version 2.1.2 3
System Requirements 4
Hardware Overview 5
Top view 6
Back view 7
Software Installation 8
Quickstart 9
Device calibration 11
Aaronia Gps-Logger Software - Main Screen 12
GPS-Logger Streaming Mode 17
Data Mode 21
Dialog Export for Google Earth 23
GPS Logger API documentation 25

GPS-Logger Software Version 2.1.2

This manual describes the functionality of the Aaronia GPS-Logger Software.

Please note that the software is currently still under development. It is possible that the software can crash incidental and contains some errors.
We are trying to fix these issues as soon as possible.

If you have own feature request, feel free to contact us in our forum.

System Requirements

- Windows XP or higher
- Intel Core2 or AMD Athlon 64 CPU starting at 1.5 GHz or more. A Dual- or Quadcore CPU is not required, but recommended
- Minimum of 2 GB memory
- 100 MB free diskspace (more when recording measurements to disk)
- Display resolution of at least 1200x800 (smaller resolutions will work, but can make the MCS unusable)
- Free USB port to connect GPS Logger device device.

Hardware Overview

Before you can start using your GPS-Logger, you have to charge the device. Connect the device via USB cable with your running PC. In some cases it is possible to turn the device on directly without waiting. But it depends on the power offered from the USB port. If the power of the USB port is to low for running and charging the GPS-Logger, the device will turn off after some seconds.

You need to charge the GPS-Logger device fully (until the charging LED is green) for mobile usage - no continuous operation.

Attention: Operation only without USB connection!

Top view



1 GPS - Indicator LED

- flashing red: No satellites found
- flashing yellow: Found satellites but not enough to get GPS information (Amount <=3)
- flashing green: Found satellites for GPS information (amount > 3)

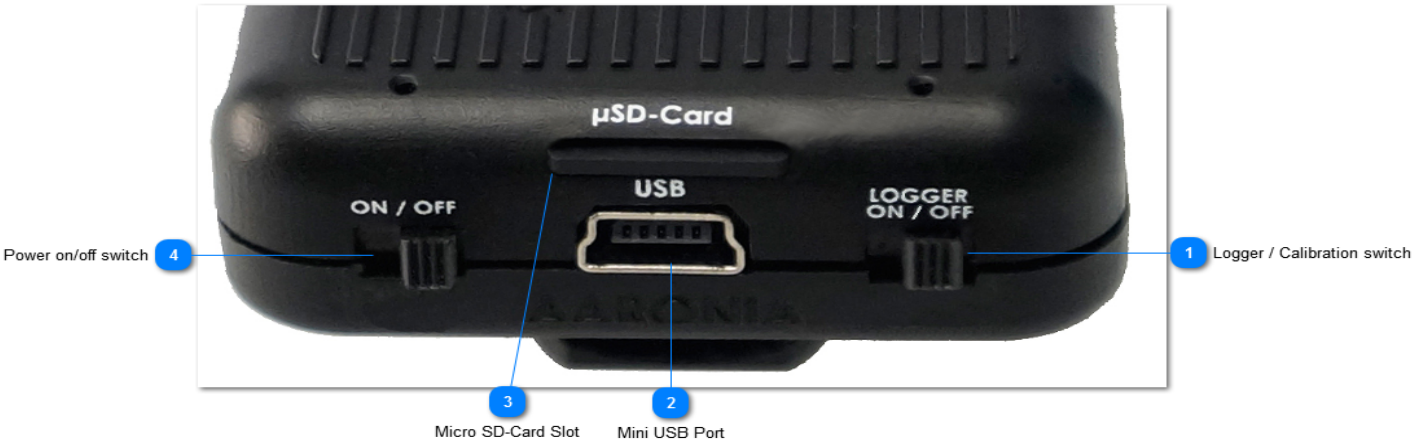
2 Power LED

- black: Power is off
- green: Power is on
- flashing green / red (slow): If logger switch is on or off, and power is turned on, the LED indicates missing micro SD card
- flashing green / red (fast): If logger switch is on and power is on, and SD card is insert into micro SD card slot, the LED indicates the calibration mode.
- flashing red: if device is powered on and the logger switch is turned on. LED shows that a recording was started. Flashing speed indicates the data rate setting.
- red: shows low battery state

3 Logger / Calibration LED

- black: Logger is off
- red or green: If power is off and usb cable is connected to the device and the pc, the LED indicates the charging state of the battery. Red, battery is charging. Green, battery is fully charged.

Back view



1 Logger / Calibration switch

The logger switch has two functions. If you turn it on before you power on the device, you'll enable the calibration mode for the internal sensors. The Power LED flashes rapidly.
If you turn it on when the device is already powered on, you'll activate the recording mode. The GPS/ Sensor data will be written to the SD card until you turn the logger off.

2 Mini USB Port

Connect the device via USB cable with your PC to use the device in streaming mode with our software.

3 Micro SD-Card Slot

Insert the micro SD card into the slot. **Please note that the device won't work without a micro SD card**. Insert / press the SD card until you hear the "click". Also press the SD card until you hear the "click" to eject it.

4 Power on/off switch

Turn device on or off.

Software Installation

Double click the executable and follow the instructions of the installer. The Installer contains the software and the driver installation.

New Versions / Updates

We publish the newest version of the software on our developer website in the main category "Application Software" - > "Windows".

Quickstart

The Software can work in two different modes. The first mode is called "Live Streaming Mode" and the second mode is called "Map Visualization Mode".

Streaming Mode:
In streaming mode you'll work with the GPS - Logger connected to a USB port to the PC. The data is sent directly to the software via USB. You can see all movements and changes of the logger in the right window of the application.
You have the possibility to record the streaming data by using the Toolbar functions. The Streaming mode also allows you to start a replay of a recorded raw data file. To start a replay, use the entry in "File" menu -> "Open Recording for Replay".

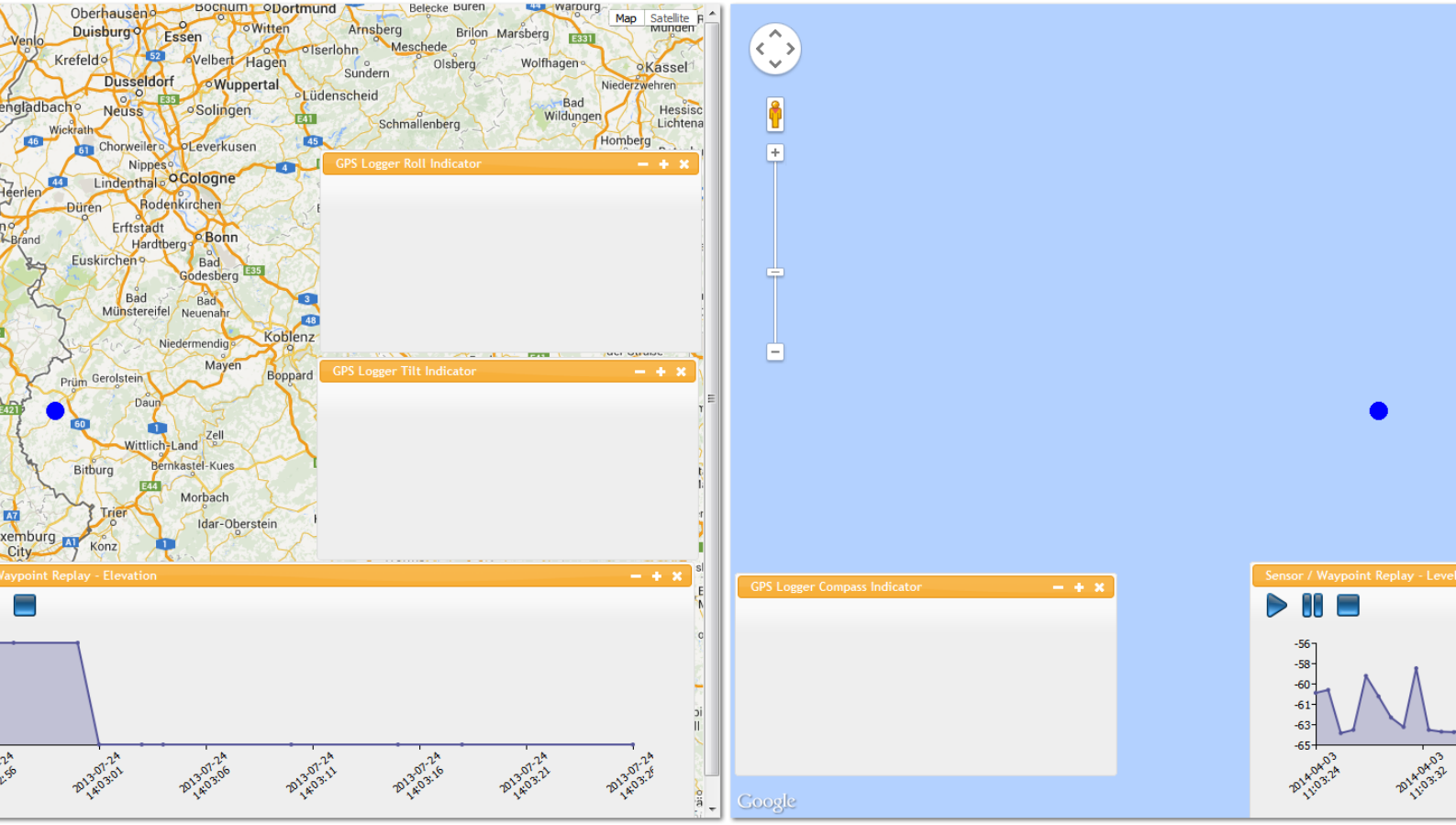
Map Visualization Mode:
Data mode is the visualization of data which are loaded from files. Use the entry in the "File" menu -> "Open Recording for Map View". You can import two types of files

1. Raw data file - copied from the SD-card of your GPS Logger device.
2. MDR file - Recording from our MCS Spectrum Analyzer software.

Differences between the file types:

1. The raw data file from the GPS Logger contains all GPS and sensor information. You can visualize the waypoints, compass, tilt, roll, and speed on the map. The diagram will show the elevation.
2. MDR file contains the GPS information and measurement information on the track. The diagram will show a maximum measurement value on a waypoint. To create the MDR file, you have to connect a SPECTRAN and GPS Logger device to our MCS software. Record the measurement in the MDR format.

Example Raw data file (left) and MDR file (right):



Copy data from GPS - Logger Micro SD card

Turn off your GPS - Logger and remove the SD crad from the SD slot. Put the micro SD card into a usable adapter (SD card or USB adapter included in delivery) and connect it with your PC. Copy the recorded file in a folder on your hard disk (import directly from SD card also works, but from hard disk is faster). Now you can load the file in the software.

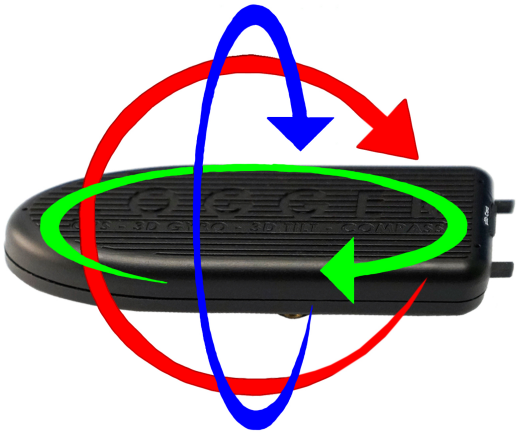
Device calibration

To calibrate the sensors of your GPS-Logger device, move the logger switch to position "ON" and turn on the device by moving the power switch to postion on. The power LED flashes fast and indictes that the calibration mode is enabled.

Move the device like shown in the picture below:

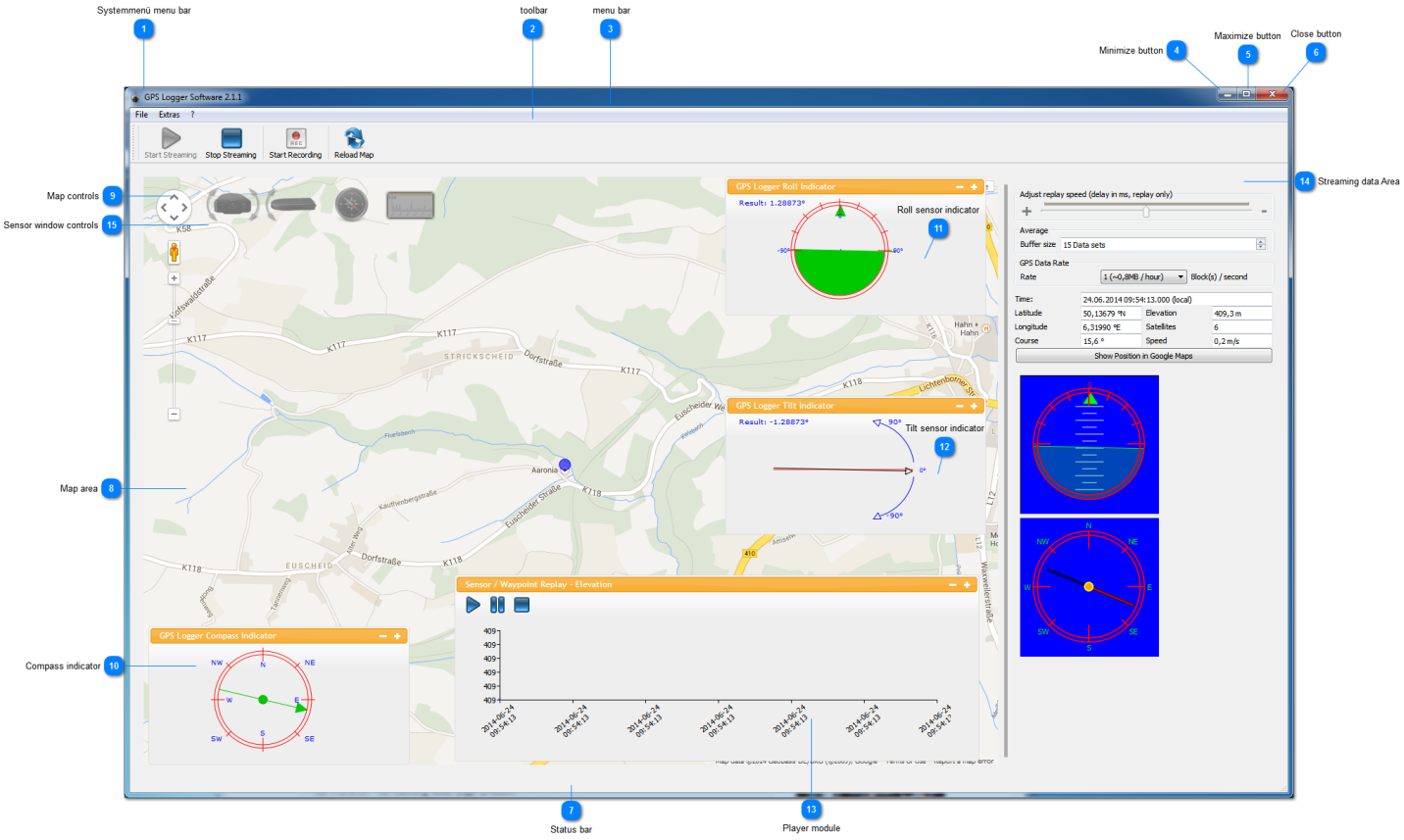


If you have trouble in using the movement above, you have also the possibility to rotate the device over all three axis to calibrate the device.



To complete the calibration, move the logger switch back to position "OFF".

Aaronia Gps-Logger Software - Main Screen



1 Systemmenü menu bar



Contains commands for changing the window.

2 toolbar



3 menu bar



4 Minimize button



Minimize window.

5 Maximize button



Maximize window.

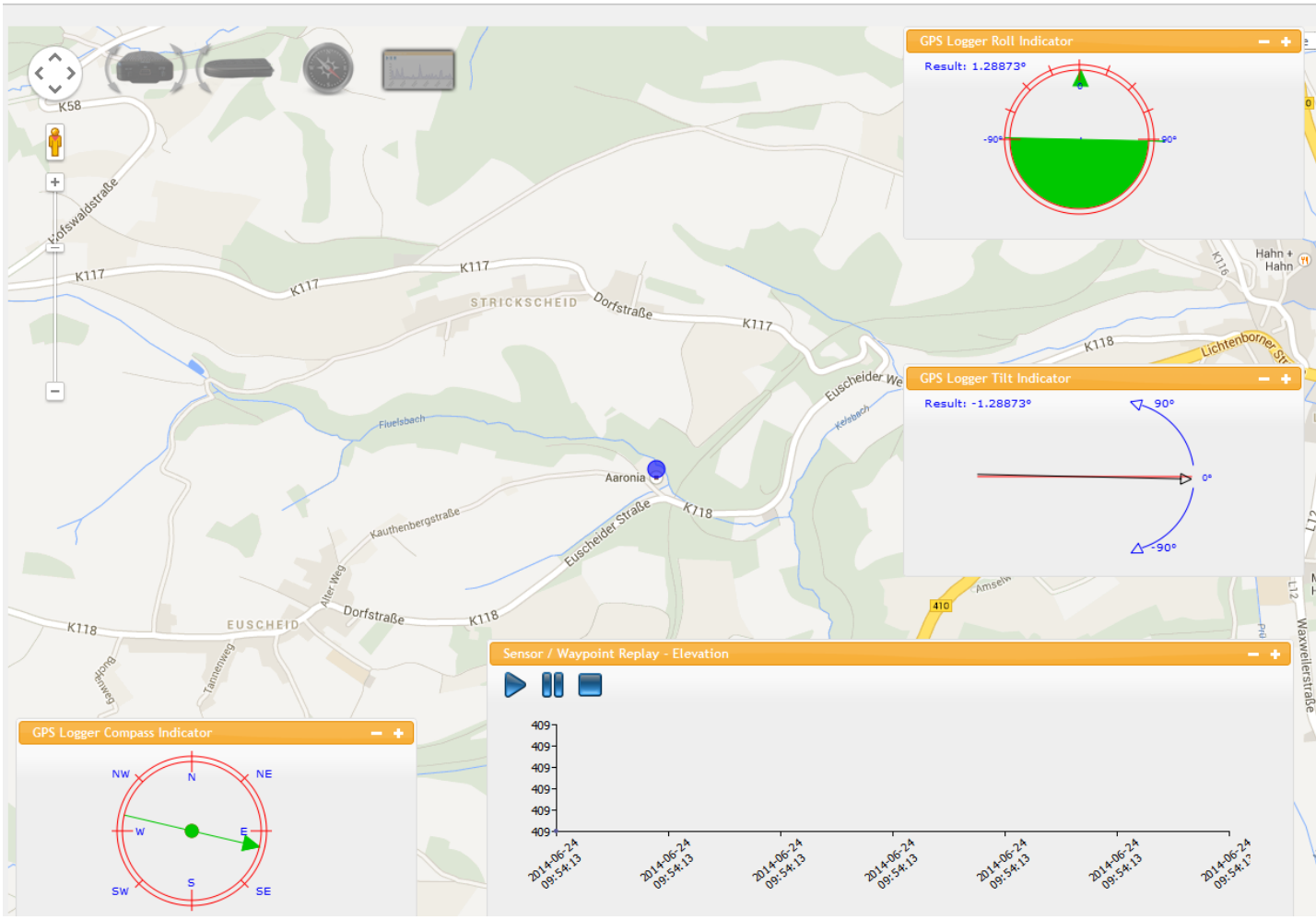
6 Close button



Close window.

7 Status bar

8 Map area

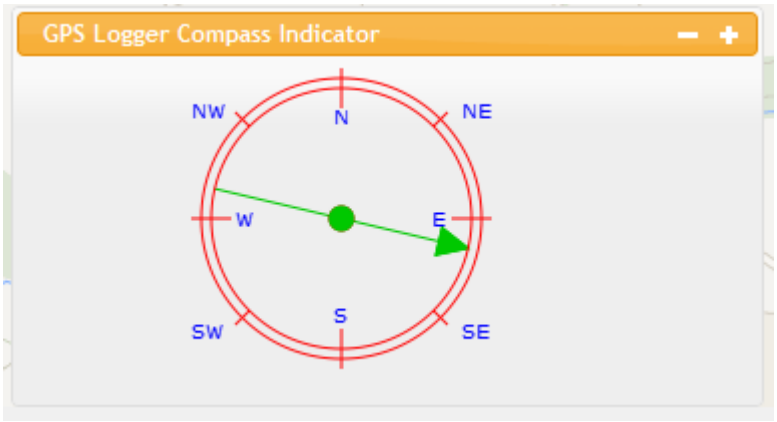


9 Map controls

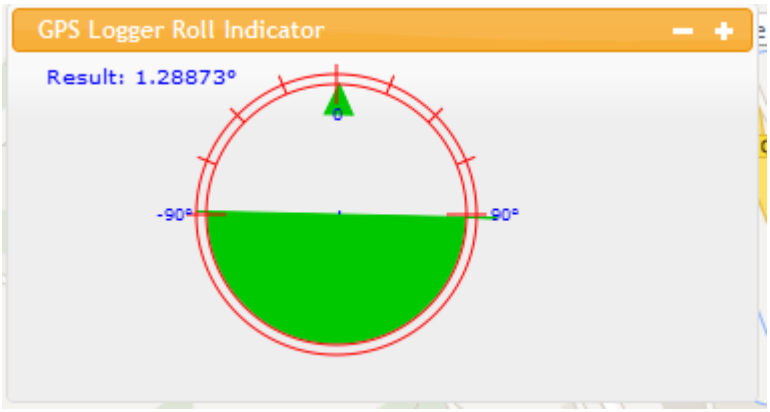


Navigation and zooming.

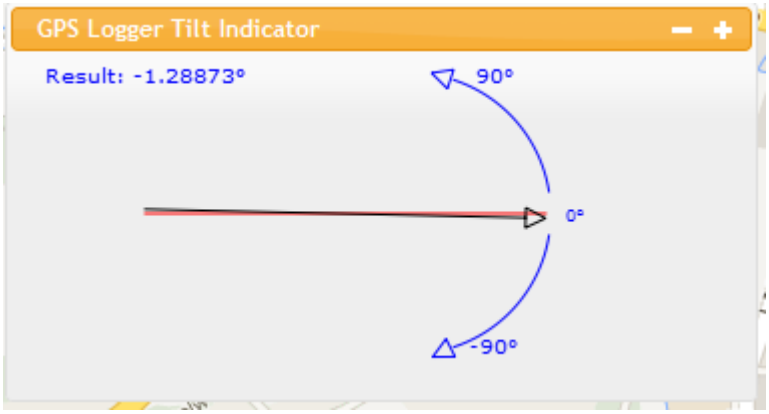
10 Compass indicator



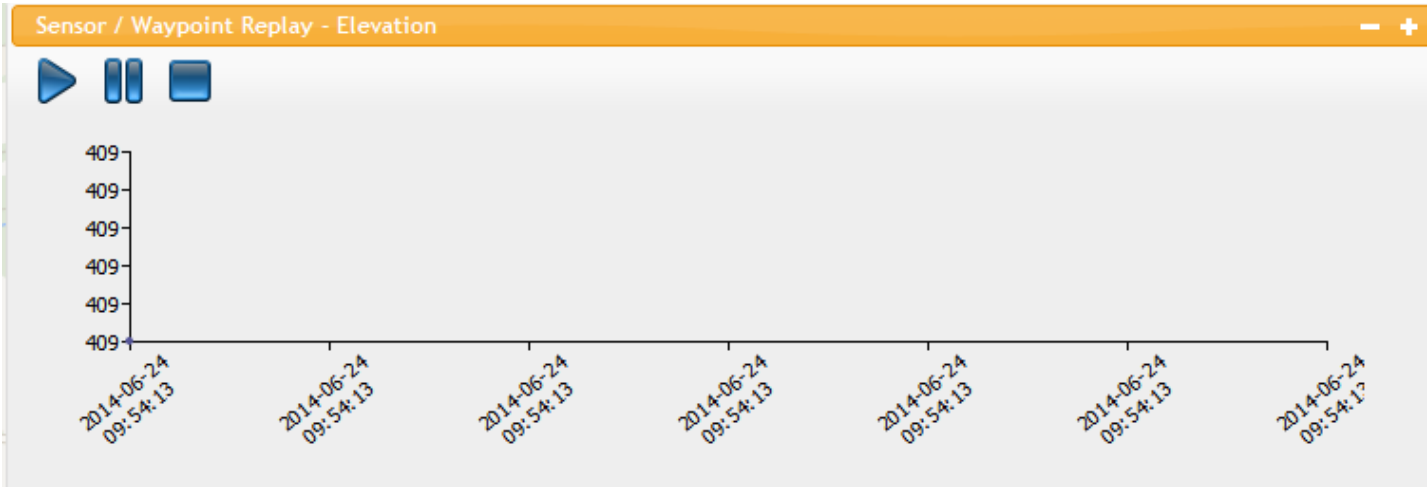
11 Roll sensor indicator



12 Tilt sensor indicator

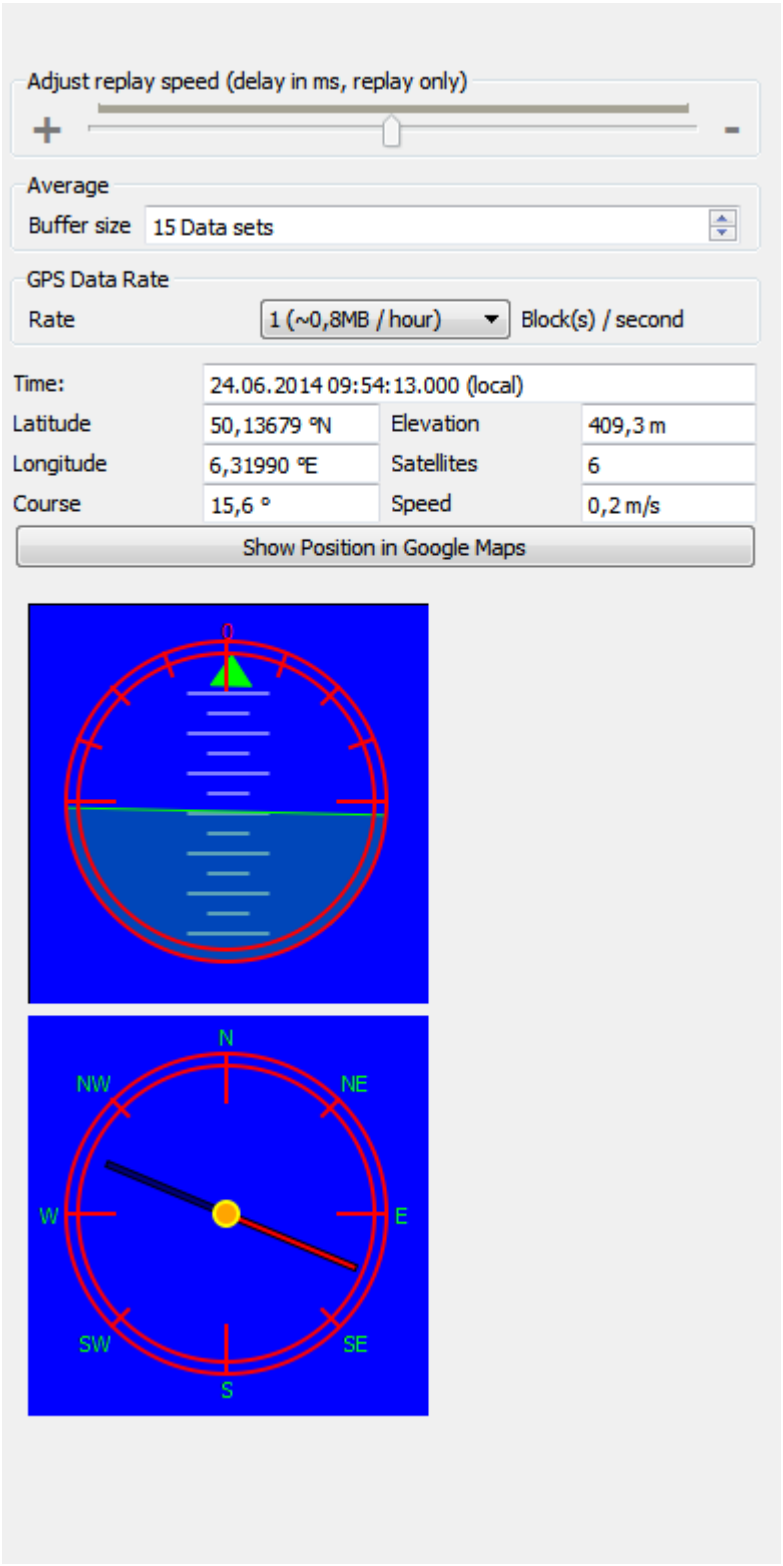


13 Player module



In this module, you can start a replay or select special points. If you select a point in this view, the point will be highlighted on the map.

14 Streaming data Area



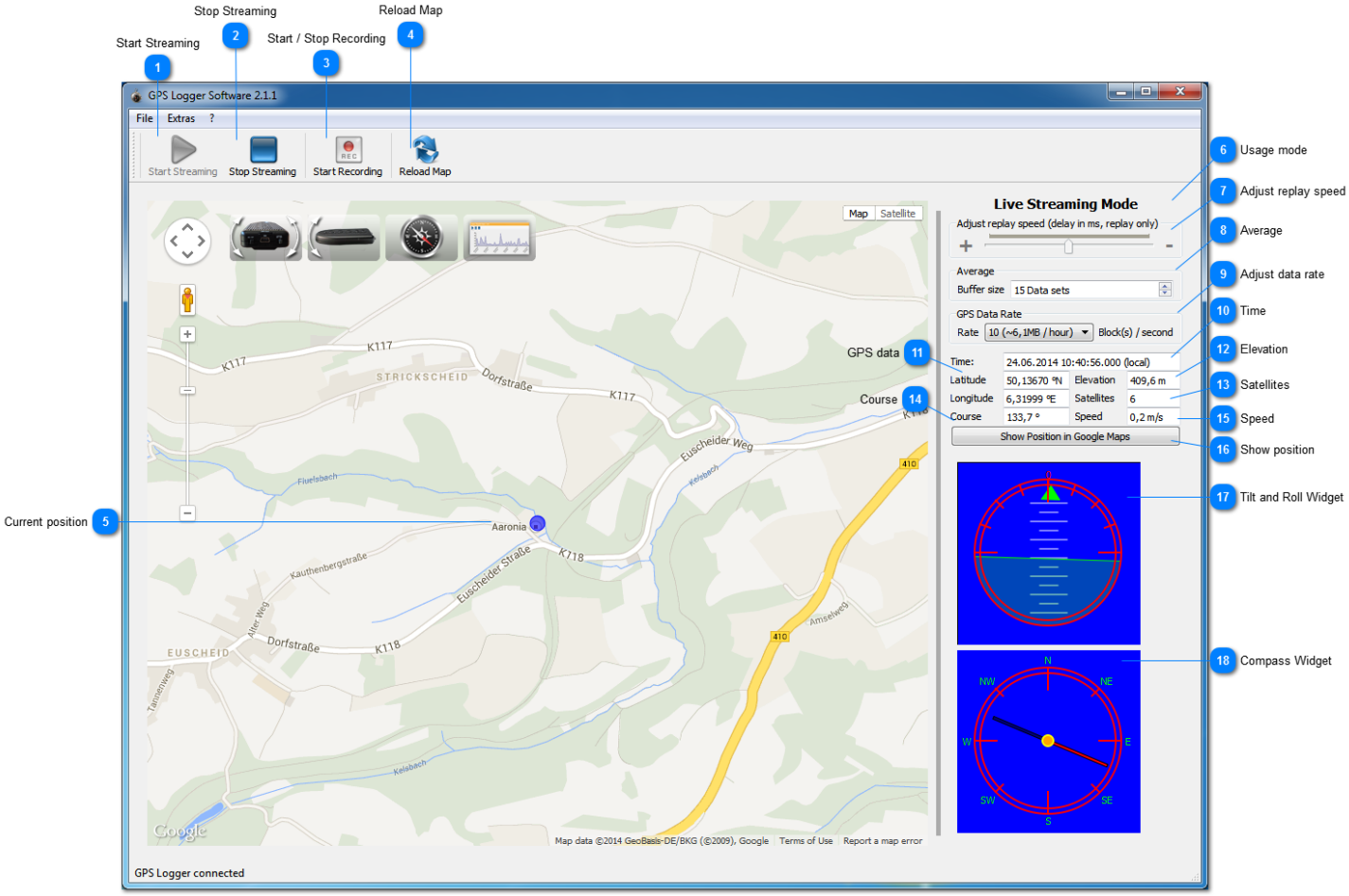
Shows the data in streaming or replay mode.

15 **Sensor window controls**

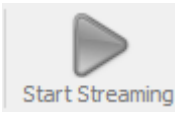


Enable or disable the windows of the sensors

GPS-Logger Streaming Mode

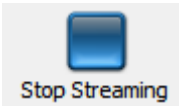


1 Start Streaming



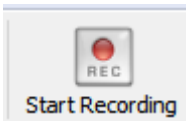
If you have already connected a device, you can press the play button to start streaming. The streaming dialog will open and you'll see all neccessary information.

2 Stop Streaming



Stops the streaming and closes the streaming dialog.

3 Start / Stop Recording



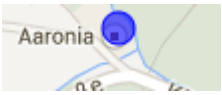
Starts or stops the recording of the data stream in the NMEA format. If activated, the duration of the recording will be shown below the button.

4 Reload Map



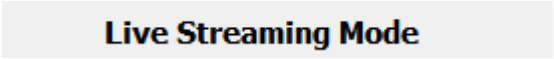
Reloads the Map in the browser window. Loaded track data will be discard.

5 Current position

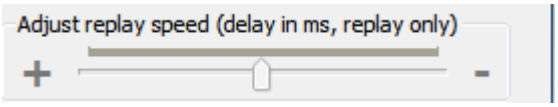


In streaming mode, the map shows the current position. The data will be refreshed every 20 seconds.

6 Usage mode

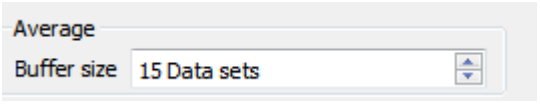


7 Adjust replay speed



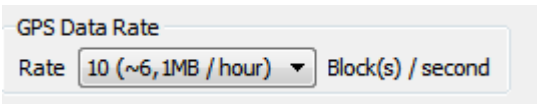
In the replay mode, here you can adjust / in- or decrease the delay between each geo data set. You can speed up or slow down the replay of your recording. This setting is only enabled in the replay mode!

8 Average



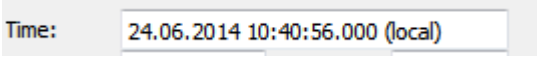
Here you can change the buffer size for averaging. The average is recommended to get a smooth movement in the graphical widgets.

9 Adjust data rate



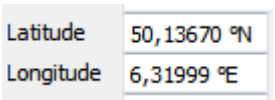
This selection box gives you the possibility to change the data rate of the GPS Logger device. It only take effect if you have connected a real GPS Logger device. The default value of the data rate is 10. Every time you connect the device to the software, this rate will be set in the device.
WARNING: A high data rate can cause problems if your computer system is to slow. The graphics and data will hang. In this case, set the data rate down to a smaller value, and restart the software and reconnect the device.

10 Time



Show the current time from GPS in local time

11 GPS data



Latitude and longitude of current position

12 Elevation



Elevation of current position

13 Satellites



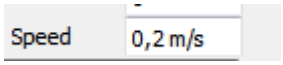
Shows amount of satellites

14 Course



Course calculated by the GPS chip. If you're on a fixed position, the course should be 0.0° degrees. In some cases of stationary usage, it is possible that the chip calculates the value from invalid values. In stationary usage, you can not compare the course value with the compass value, because the course value could be wrong. Otherwise in non stationary use, the values should be nearly the same.

15 Speed



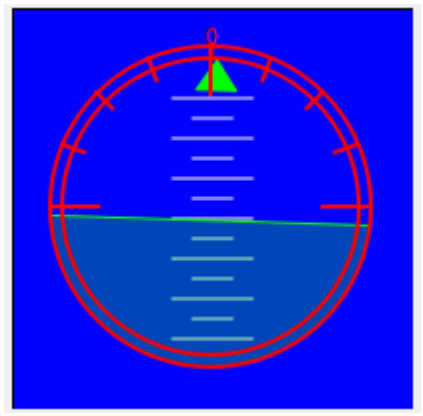
Shows current speed.

16 Show position



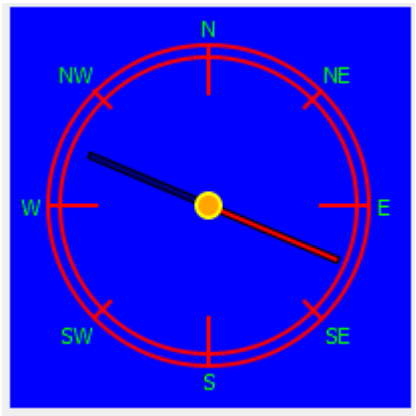
Opens your default web browser and shows Google Maps with your current position.

17 Tilt and Roll Widget



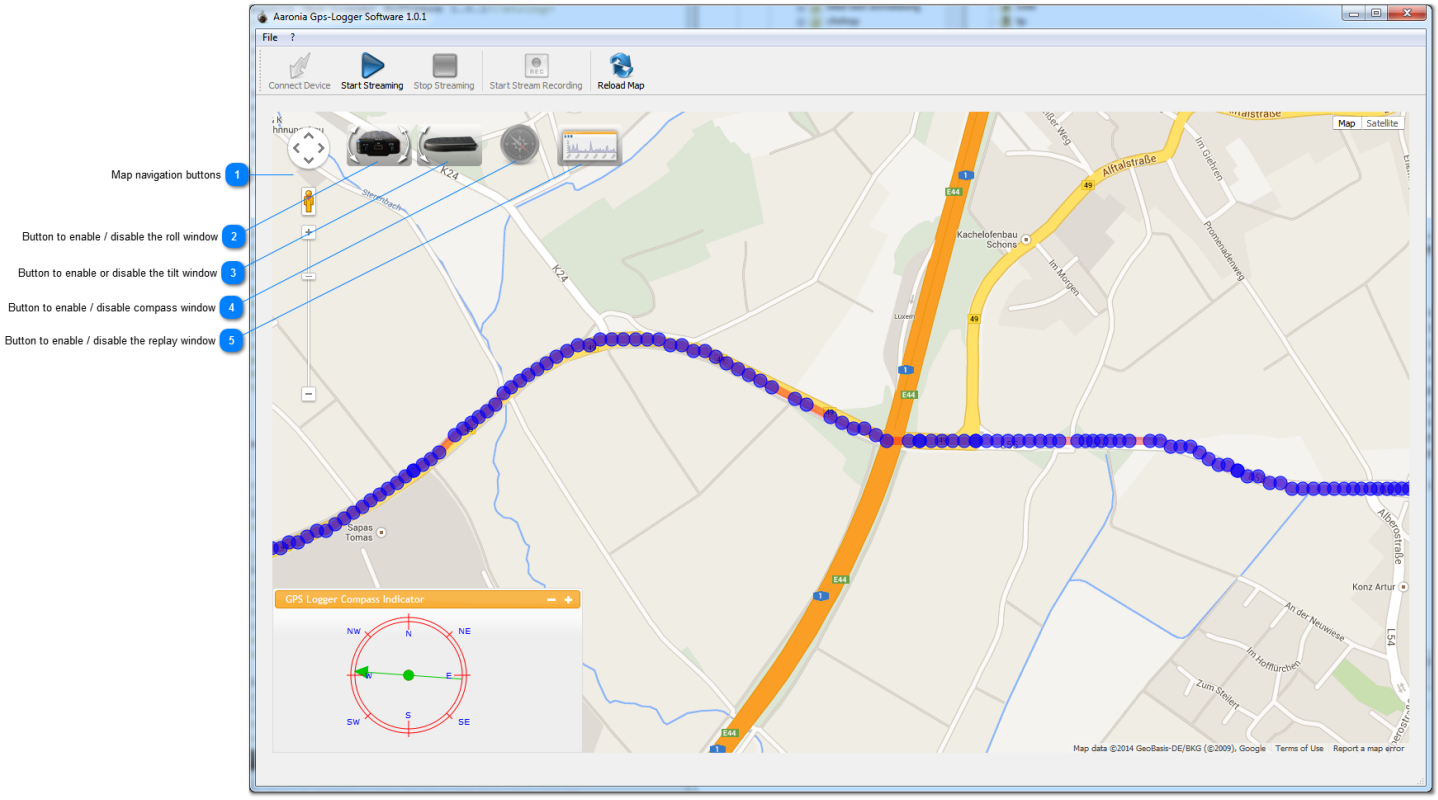
Graphical view of roll and tilt

18 Compass Widget



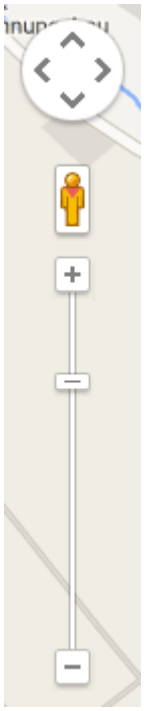
Graphical view of compass

Data Mode



Visualization of the data on the Map.

1 Map navigation buttons



Move or zoom in / out the map

2 Button to enable / disable the roll window



Click button to enable or disable the roll window.

3 Button to enable or disable the tilt window



Click button to enable or disable the tilt window.

4 Button to enable / disable compass window



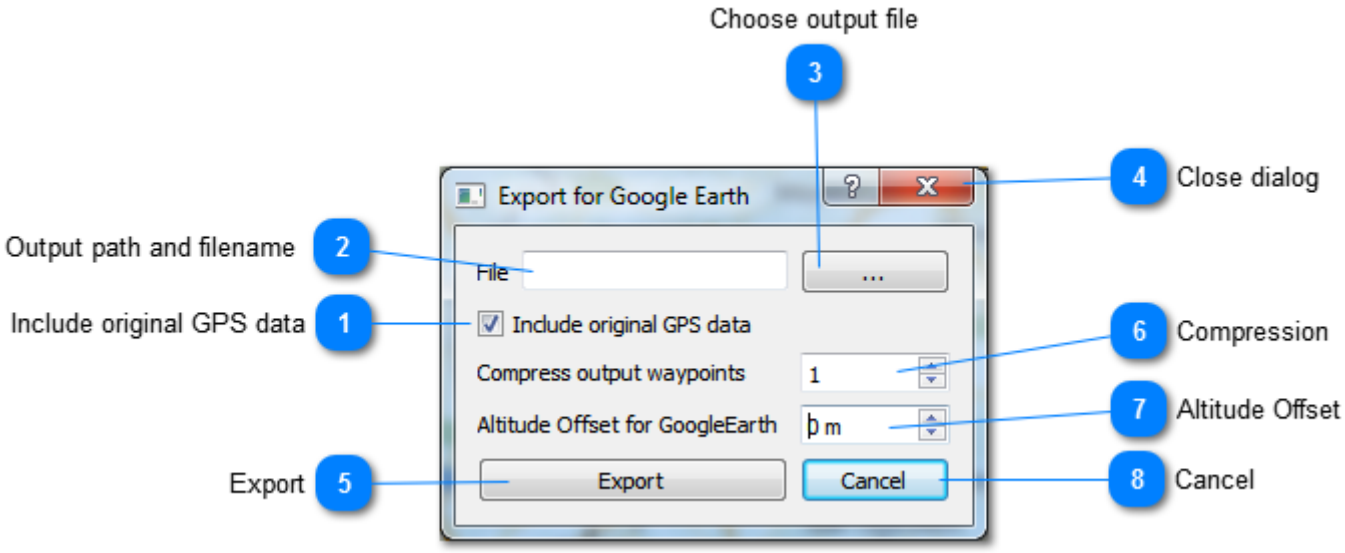
Click button to enable or disable the compass window.

5 Button to enable / disable the replay window



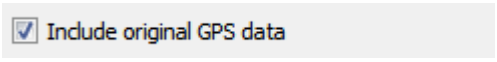
Click button to enable or disable the replay window.

Dialog Export for Google Earth



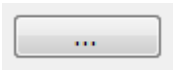
Make sure you have enabled / loaded a database record before opening the export dialog!

1 Include original GPS data



2 Output path and filename

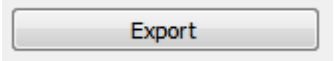
3 Choose output file



4 Close dialog

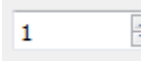


5 Export



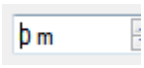
Complete the file export and close dialog.

6 Compression



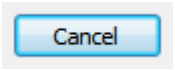
Set a value bigger than one to compress the output. This means, every point x (x equals entered value) will be irgnored if it isn't an required point.

7 **Altitude Offset**



Artificial increase of the altitude value to get a visible mark on all points in Google Earth. If value is null, it is possible that some points are located under the world texture of Google Earth.

8 **Cancel**



Close dialog.

GPS Logger API documentation

If you are interesseted in developing your own application with your logger device, we offer you the latest version of the GPS Logger Programming Guide on our developer website.
The programming guide contains all necessary information about the protocol definitions, raw data format and the available device commands.