# Requirements

## SIM Card Requirements (prior to start)

- In most cases the customer is responsible for providing the right SIM cards if the vendor has not already provided it.
- Each tracking unit requires one post-paid VOICE SIM card with SMS and GPRS (with data package. 3G Data SIM cards are NOT required!
- GPRS is used to transmit the data of each vehicle **with approx. 10 - 50 MB GPRS data volume per month** depending on usage of the vehicle and how the operator counts the data volume.
- SMS must be enabled and is used to check the function of the box in the emergency case and to do remote configuration changes. SMS is also used to make emergency pulls in the case of a stolen asset
- The post-paid SIM card is highly recommended to avoid lost cars signals just because of a missing prepaid balance.
- It is highly recommended that you subscribe to a data package depending on your GSM operator.
- As a standard you should de-activate data-roaming for your SIM cards. You can enable data-roaming later on if needed. Please take into consideration that without data roaming packages there will be high costs.
- You must DEACTIVATE the PIN-CODE prior to inserting the SIM-cards into a tracking unit. You must also double-check that the SIM card is activated (GPRS, SMS) and that the bills are paid so that it can work. If needed, insert the SIM card into a mobile phone for testing whether you can send and receive SMS or whether you can connect via GPRS to mobile internet.
- You must communicate the name of the operator and the list of GSM numbers to HTS for the installation.
- Only for new countries / operators we will ask for the GPRS connection data (APN, APN user name, APN password) and the Mobile Network Code (or Operator Code). Your operator will provide you with this information.
- Wrong, inactive, unpaid SIM cards can prevent the devices from sending any data. The reasons for this can only be found by the owner of the SIM card but not by the provider of the software.
- We take no responsibility for SIM cards!
- Expected costs are estimated on max. 50 MB per month
- Further countries can be added upon request. If your operator or country is not shown above, the customer is responsible for providing the correct settings so that the GPS Devices can be pre-configured prior to shipment to the customer!

## Supported Browsers

Due to many different browsers we cannot guarantee that the software works with all browsers or older or latest browser versions.

There can be problems with functions that we can't resolve immediately or at all. Please contact your provider for a list of recommended browsers or if you encounter any problems.

We cannot guarantee that the HTTPS secure connection is working with every browser.

## Used map data

The provider cannot guarantee the availability and accuracy of the map data. The standard map is OpenStreetMaps. The addresses and street names are coded via openstreetmaps from the GPS coordinates. Openstreetmaps.org is a public domain adress service, and anyone can add or change streetnames to openstreetmaps.org.

Additional maps (e. g. BING Maps or GOOGLE maps) can be optionally added as a paid option if needed. There is not going to be a contract with the map provider, if this happens. If needed, the licence agreements are provided by the user. Additional mapping providers such as Google can be shown, but it is mandatory part of our standard deliveries and the customer is liable to enter in any license agreement with such mapping providers if requests.

# Effects of different GPS Tracking Devices

- Please read through this chapter very carefully. Our GPS devices are always delivered with a standard configuration. Special configurations can differ by each customer and can't always be documented.
- The software can only work as intended, when the devices are installed correctly.
- Not all of the functions in the software are supported by all our different devices.
- There are can also be functions of the devices which are not supported by our software.
- Also there are functions for devices which are not standardized or only optional.
- The settings differ from device to device
- Control the device for its accuracy to avoid longer times of errors
- Tolerances: modern GPS devices are very correct, say position, date and time, kilometres and speed; but there can also be errors. (e. g. wrong GPS signal
- Please note that this device is only delivering the exact time point of the GPS position (not in between the positions) and that can differ from the reality.
- Please note that in very rare cases there are GPS „jumps" in the history. They can cause inaccurate positions and wrong speeds. With exceptions, these errors can be analysed in the historic raw data files.

# Energy-Mode (Real time and sleep mode)

| Mode | While driving: active sending mode (near real-time) | Sleep Mode (while waiting) |
|---|---|---|
| Requirement | Real-time sending box configuration<br><br>Ignition ON (requires connection of ignition signal to digital input)<br><br>Powered by permanent power<br><br>and/or wake-up of acceleration sensor by movement | Sleep Mode activated in box configuration<br><br>Ignition OFF (requires connection of ignition signal to digital input)<br><br>Powered by permanent power<br><br>No movement for more than 5-10 minutes |
| Effects | When driving: acquisition of GPS Tracking Position every 50 meters AND every 30° change in direction AND data sending every 30 seconds.<br><br>Speed will be measured with every data point (but not between the points.<br><br>Data will be delivered within short time periods (1-2 up to 5 minutes) if GPRS is available (see below). | When waiting: acquisition of GPS Tracking Position every 10 minutes AND data sending every 30 seconds AND going into sleep-mode.<br><br>Even when in sleep mode in very unlikely events the power consumption could deplete your battery. This is no failure of the software. Consult with your workshop to find a solution for your vehicle. |
| Consequences | Fast update of new data<br><br>Very precise tracks | The sleep mode safes your vehicle battery and reduces the amount of data. |

# Status of the GSM-GPRS connection

| Mode | Active GPRS | No GPRS | Roaming network |
|---|---|---|---|
| Requirement | Good GSM signal<br><br>No distortion of GSM antenna or device<br><br>Active SIM card | Bad GSM signal or outside of coverage area<br><br>Distortion of bad position of antenna / device<br><br>In-active SIM card | Foreign country<br><br>SIM card must be activated for roaming |
| Effects | | | |

| | Data will be transferred within 1-2 minutes time delay | Data will be stored on the device and transferred later. | As a standard, boxes will NOT send data while in roaming. They will store the data and send when back in the home network |
|---|---|---|---|
| **Consequences** | Near real-time position | Data is sent later on. Data storage is limited to 7500 to 15000 positions, so very old data will be deleted on the box. | Cheaper than roaming.<br><br>In roaming higher data roaming costs will occur. |

## Status of the GPS connection (HDOP-value)

| Mode | No GPS-Fix | Bad GPS-Fix | Good GPS-Fix |
|---|---|---|---|
| **Requirement** | Inside buildings, under bridges, tunnels<br><br>Wrong position of GPS antenna or antenna broken<br><br>After device-startup | Near to buildings<br><br>Bad position of GPS antenna<br><br>Too less satellites | Good view to the sky<br><br>Un-covert GPS antenna |
| **HDOP Values** | HDOP > 8<br><br>HDOP value is not available, HDOP warning is shown in software | HDOP between 1.5 and 8<br><br>HDOP value is not being sent, HDOP warning is shown in software | HDOP between 0.5 and 1.5<br><br>HDOP Value very  accurate |
| **Effect** | No current position<br><br>No additional information | Current position could be in-accurate<br><br>Data is sent<br><br>No additional information | Current accurate position<br><br>Data is sent<br><br>Driving distance (second-by-second odometer), speed, etc. |
| **Consequences** | Track will be shown as "straight line" | Track will be precise, but the driving distance and speed will not be accurate | Track is precise<br><br>Driving distance is precise<br><br>Speed is precise |

No GPS-Fix or bad GPS fixes can be influenced by external factors. This can't be guaranteed by the operator, also, **this is not an error of the software**, if the accuracy of the devices are influenced by these factors.

## Status of the Ignition (ON/OFF)

| Mode | Ignition ON | Ignition OFF | No Ignition connected |
|---|---|---|---|
| **Requirement** | Ignition connected with digital input according InstallationManual | Ignition connected with digital input according InstallationManual | |
| **Effect** | Trip is started | Trip is finished | Movement data |
| **Consequences** | Start of trip in logbook | End of trip in logbook, start of waiting time | No accurate measurement of start and end of logbook |

## Importance of the ignition for the software

If the box is only connected to the power via ignition plus, the timestamps are shown with a bad or no GPS fix. (30 seconds up to 4 minutes).

If the box has no ignition signal on the digital input, there can't be any entries of waiting times with ignition ON and the device can't differ between it, the logbook will be empty if this is the case!

## Definition for waiting-time, idle-time with ignition ON and driving time

Tracking-devices with ignition ON:

- If ignition ON= vehicle is driving

  - If ignition ON and there is no speed (less than 7 km/h*)= idle time with ignition ON
  - * the km/h between 0 and 7 have been chosen, because otherwise, many tracking devices wouldn't even recognize such slow idle times.

- If ignition OFF= STOP (waiting time)

Tracking-devices without ignition:

- If odometer* (driven time since the last data-package)= 0, waiting time (with ignition OFF).
The odometer data is calculated either by the software or sent with the data-packages

- There is no idle-time with ignition ON

- If odometer = 0 > driving time

Certain tracking devices have no ignition input (e.g. mobile battery tracker). They send data when the device is moving. Short movements below 10 meter are set to 0 to show stops. Else the device would always detect small movement even if you are stopped.

# Conditions for using the Logbook

The legal requirements for using and accepting a logbook differ from country to country. There is no guarantee that your financial authorities accept our logbook just because we call it a „logbook". The term as such is no guarantee. Normally our logbooks are very precise. But external factors (GPS jumps, problems with ignition, no GPS fix) can affect the logbook. Please check your logbook from time to time.

# Distances and Logbooks

Most modern tracking devices calculate the distances very precisely. But due to external factors (buildings, garages, tunnels) or bad position of the GPS antenna or GPS sleep mode there could be straight trip lines and consequently missing trip data and wrong distance calculations.

# Odometer deviations

Due to external factors (tunnels, tires, GPS) we cannot guarantee the accuracy in comparison to the odometer of the vehicle. This is why we recommend that you calibrate the odometer in the software periodically (e.g. every 6 to 12 months).

# Speed Calculation

It's possible, that short distances with an average speed are shown wrong, in this case the box would send a higher speed. It's mathematically reasoned and can't be corrected via our Software. In this case the Software handles it this way:

- If the average speed is higher than the max. speed, the average speed becomes the max. speed value.
- If the duration is 0 (very short entries) the average speed is considered 0.

# Report Requirements

- Reports are stored according a data storage time and deleted automatically. You are responsible as a user for the filing and saving of your companies data. We suggest that you control your data backups and files at least every week. Since we are not responsible for your data backups and filing.
- The data in different reports don't necessarily match each other. Rounding or different calculations could be the reason.

# Showing Diagrams

Due to the amount of data it could be that your browser crashes when you want to do too big graphical charts.

## Server side Alerts

Most alerts are triggered on the server. They only work if the tracking devices work and can send their data via GPRS (GSM network) to the server. The Server must be online (internet connection) and you should get the email or sms in time. Due to the involvement of many different (external) networks we can never guarantee that all emails or alerts are triggered in time.

## Data Loss and Storage

Even when we act with highest care there is always a remaining risk of loss of data or incomplete data. Always take care for local data backups or save your most important data to other storages as well. Loss of data can always happen.

## Requirements for Using a Navigation Device

1. Only selected tracking devices support a connection with a navigation device.
2. Requires a compatible Garmin navigation device, we can provide you with a list of devices
3. Requires a special FMI cable
4. The Garmin device must be installed properly in the car (with permanent power)
5. The software must be enabled to support navigation.
6. The sleep mode on the tracking device must be de-activated and "Navi connected" must be set in the asset configuration

## Requirements for smartphone applications

- Downloading, installing and using smartphone apps are handled by the user. There is no guarantee that all features will work with all smartphone modells.
- The support for individual smartphone users is not included.
- There might be additional charges for downloading and using apps and mapping data