Service. Determination of the Driving Style

User Manual

www.galileosky.com
Contents

Necessary tools, devices and materials ........................................... 3
General information ........................................................................ 4
Determination of the driving style ...................................................... 5
Device Troubleshooting for Driving Style Determination .................. 8
APPENDIX №1. .................................................................................. 11
Necessary tools, devices and materials

1. A satellite monitoring tracking device Galileosky (hereinafter – tracking device, device) of one of the modifications. Follow the link to study a detailed manual on activation and setting of the tracking device: https://galileosky.com/podderzhka/dokumentaciya.html

General information

Galileosky tracking devices enable to fix sudden acceleration, braking, turns and bumps on rough road surface and transmit the received parameters to the monitoring server.

Depending on the monitoring software features, a user can later on make reports according to the data obtained.
Determination of the driving style

The tracking device can detect sudden acceleration, braking, turns and bumps on rough road surfaces. In order to fix the above-mentioned features and send them to a monitoring server, it is necessary to carry out the settings, that are described below. The settings are different for recent Galileosky tracking devices (Galileosky 7.0 and Base Block) and older versions (Galileosky 5.X, 2.X, 1.X), as the algorithm of acceleration determination is different.

1. Set the tracking device and its position.

In order to detect the impacts on a rough road surface, a tracking device should determine its position in space towards a vehicle. Pictures 1 and 2 show a position of the tracking devices by default.

Pic. 1
Default position of the tracking device
In case it is impossible to set the tracking device as it is shown in the pictures, but you need to determine the impacts on a rough road surface, you can apply a random setting with a subsequent adjustment of the tracking device position. In order to adjust a device’s position towards a vehicle you need to fulfill the following:

a) set the tracking device so that it is firmly attached to a vehicle body;
b) put the vehicle on a horizontal surface;
c) go to the «Commands» tab in the Configurator and type ‘shock 0’ in the Commands field, thus, the tracking device will determine its position towards the ground (Pic. 3).

- Galileosky 5.X, 2.X, 1.X tracking devices determine the direction to the ground and are ready for further use;
- Galileosky 7.0 and Base Block tracking devices require determination of direction towards and backwards. For that, take a ride on the vehicle with the installed tracking device in it. Depending on the road condition, the ride takes up to 1 hour. You can shorten the time of calibration in case of harsh driving, violent maneuvers, harsh acceleration and brake. If values, different from zero, appear in the acceleration variables, device calibration is completed (Pic. 4).
2. Fix the data transmission on the driving style

In order to send data on the driving style to the monitoring server, go to the «Protocol» tab in the Configurator and choose the option «Driving style (dynamic archive only)» (Pic. 3).

**ATTENTION!** Data on the driving style will only be saved, if you choose «dynamic archive only» option.

In order to activate a dynamic archive, you need to choose «dynamic» in the field «Archive structure mode » in the tab «Settings » -> «Track» of the Configurator (Picture 6).

**ATTENTION!** For Galileosky Base Block and 7.0 tracking devices, setting the dynamic archive structure mode is not needed.

The settings listed in points 1 and 2 can be performed by means of commands, a list of commands and their meanings are provided in Appendix №1.
Device Troubleshooting for Driving Style Determination

After setting of driving style determination, check data display on “Troubleshooting” tab. Complete the following actions:

1. go to “Troubleshooting” tab in configurator and tick “Accelerometer” parameter;
2. for the tracking devices with firmware version 229 or lower data on “Troubleshooting” tab are displayed as shown in Picture 7. Acceleration rates are displayed in mg in the following order:
   1) vertical acceleration;
   2) forward acceleration;
   3) brake acceleration;
   4) acceleration on turns.

3. for the tracking devices with firmware version 230 or higher and Galileosky Base Block and Galileosky 7 tracking devices data on “Troubleshooting” tab are displayed as shown in Picture 8. Acceleration rates are displayed in mg in the following order:
   1) Vert – vertical acceleration;
   2) acc – forward acceleration;
   3) harshbreak – brake acceleration;
   4) cornering – acceleration on turns.
3. **Make sure that monitoring software displays the data on the driving style.**

In order to check the data on the driving style in the monitoring software you need to do the following:

a) go to the tab «Messages», select a Unit and parameters for making a report:
   - Unit;
   - Time interval;
   - in the field «Message Type» select «data messages»;
   - in the field «Parameters» click «Raw data»;

b) apply «Execute» button (Picture 9);

c) make sure the tracking device transmits the data to the monitoring software (Pic. 10). The data on the driving style are displayed in the following fields:
Service. Determination of the Driving Style
(version 7 dated from November 14, 2018)

- course_accel;
- braking_accel;
- turn_accel;
- vertical_accel.

The received data can be used for making reports on driving style. Note that operating conditions of vehicles differ, that is why define threshold rates when making driving style reports by test.

The setting is completed, the tracking device is ready for use.

RSA “Galileosky”, LLC produces satellite monitoring equipment for GPS and GLONASS real time vehicles monitoring. The tracking devices determine the mobile object location recording the time and route as points with geographical coordinates and send the data to the server to be further processed and sent to the traffic controller panel.

In addition, a number of other vehicle parameters are recorded: the state of analog and discrete inputs of the tracking device and the state of digital interfaces.

The tracking devices can be used in any vehicle.
APPENDIX №1.

Commands for setting the tracking device position

Table 1. Command for determining a position of the tracking device, its impact and inclination

Command format
Shock Mode, Angle, Timeout, ShockSens

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mode</strong></td>
<td>strike determination mode:</td>
</tr>
<tr>
<td>0</td>
<td>strike determination is switched off;</td>
</tr>
<tr>
<td>1</td>
<td>strike determination is switched on, X axis is in vertical position;</td>
</tr>
<tr>
<td>2</td>
<td>strike determination is switched on, Y axis is in vertical position;</td>
</tr>
<tr>
<td>3</td>
<td>strike determination is switched on, Z axis is in vertical position;</td>
</tr>
<tr>
<td><strong>Angle</strong></td>
<td>maximum incline angle [0°-180°], value equal to 180 switches off incline</td>
</tr>
<tr>
<td></td>
<td>determination;</td>
</tr>
<tr>
<td><strong>Timeout</strong></td>
<td>maximum allowable time when incline angle is exceeded, [sec.].</td>
</tr>
<tr>
<td><strong>ShockSens</strong></td>
<td>maximum acceleration by exceed of which a strike is detected. 600 points</td>
</tr>
<tr>
<td></td>
<td>– gravitational acceleration.</td>
</tr>
</tbody>
</table>

Explanation
Switching on strike and incline determination mode.

Example
Request: Shock 3,30,5
Reply: Shock: Mode=3, MaxAngle=30, RT=5;
Table 2. Command for modifying the structure of an internal archive

Command format
FLASHARCHIVE Dynamic,SendOrder

Parameters

- **Dynamic** – whether the dynamic archive structure is used or not:
  - 0 – the dynamic archive structure is off, all possible data are saved in archive;
  - 1 – the dynamic archive structure is on, only the data selected to be transmitted to the server are saved in archive.

- **SendOrder** – order of data transmission from archive to server:
  - 0 – the data are sent deep into the archives; the most current data are sent first, then the oldest ones.
  - 1 – the data are sent in chronological order

Explanation
Archive structure setting and the setting of the data transmission order to the server

Example
Request: FLASHARCHIVE 1,1
Reply: FLASHARCHIVE: Dynamic=1, StraightSendOrder=1;

Table 3. Command for activation the transmission of the data on the driving style

Command format
MainPackBit index,value

Parameters

- **index** – tag number, which is on or off for transmission to the server
- **value** – 1 if this tag should be transmitted to the server
  - 0 if this tag should not be transmitted to the server

Explanation
Main packet configuring.

Example
Example of activation of the data transmission on the driving style
Request: MAINPACKBIT 174,1
Response: MainPack2 = 1000000000000000000000000000000000000000000000b