Contents

Necessary Tools, Equipment and Materials ......................................................... 3
General Information .......................................................................................... 4
Connecting Devices to the Tracker ..................................................................... 5
Tracking Device Settings ...................................................................................... 6
Monitoring software setting for receiving messages from devices ............... 8
Appendix №1 ........................................................................................................ 9
Necessary Tools, Equipment and Materials

To connect Galileosky tracking device (hereinafter – tracking device), you should have:

1. Electrical-installation tools.
2. A set of connecting wire.
3. A computer with Windows-based operating system and an installed configuration program for Galileosky tracking devices— «Configurator 4.0» or a more advanced version. It is recommended to install the last version from the site https://galileosky.com/podderzhka/programmyi.html
**General Information**

Galileosky tracking devices (hereinafter – tracking device) with RS485 interface have functionality of operating with devices by Eurosens Delta protocol.

Fuel-flow sensors used for installing into cars, ships, diesel-generator sets, etc., operate by this protocol.

Galileosky tracking device allows to record and send devices parameters to monitoring software.

**ATTENTION!** Such functionality is implemented in the tracking devices by means of Easy logic technology (https://galileosky.com/products/easylogic.html). It is necessary to use tracking devices with support of Easy Logic. You can find out whether the tracking device supports Easy Logic or not in the following ways:

- in tracking device’s specification there should be abbreviation (AI) or sticker on the back of the device should have abbreviation (2) near IMEI (Pic.1).
- send Hardversion command to the tracking device, if you receive numbers different from zero after comma in response, algorithms are supported (example of reply: HARDVERSION=21,8243)

To work with Eurosens Delta minimal firmware version for Galileosky v.5.X, v.4.0 tracking devices should be 229 or higher. Galileosky Base Block and 7.0 can cooperate with Eurosens Delta with any firmware version installed.
Connecting Devices to the Tracker

Devices are connected to the tracking device via RS485 interface in accordance with the schemes shown in Picture 2.

**ATTENTION!** Grounds (GND) of the tracking device and the device must be connected! Power supply is provided separately.
Tracking Device Settings

Tracking device setting is carried out via Configurator service program in the following order:

1. Install a SIM-card with GPRS data transmission and receiving support into the tracking device;
2. Connect the tracking device to PC via mini-USB and run “Configurator” software;
3. Go to tab “Commands” in Configurator, run "script galileosky/DeltaRS" command and wait for confirmation by the tracking device (Pic.3);

   ![Command](pic3.png)

   **ATTENTION!** Algorithm is downloaded from the server, that is why a SIM-card with established GPRS-connection should be installed in the tracking device.

4. Go to Device tab and check the Easy Logic parameter and make sure it includes information on the algorithm (Pic. 4);

   ![Checking of algorithm downloading](pic4.png)

5. Go to tab “Settings” -> “Track” and select “Dynamic” in “Archive structure mode” (Pic.5);
ATTENTION! For tracking devices Galileosky Base Block and 7.0 versions the setting of dynamic structure mode is not needed.

6. Go to tab “Settings” -> “Protocol” and tick “User array” of the main packet (Pic.6);

7. Apply settings by clicking “Apply” button.
Monitoring software setting for receiving messages from devices

Galileosky tracking devices allow to transmit to monitoring software the following parameters:

- status of device operating;
- fuel volume from the moment of device activation;
- current flow speed;
- fuel volume of chamber from the moment of device activation;
- current speed of chamber flow;
- temperature of chamber;
- fuel volume of by-pass chamber (by-pass is a fuel line through which unused fuel dumps back to a fuel tank) from the moment of device activation;
- current speed of by-pass chamber flow;
- temperature of by-pass chamber.

Up to 4 devices with addresses from 1 to 4 can be connected to the tracking device. Data is regularly transmitted to the monitoring server. In case of “interference” state, extra point is saved.

In order monitoring software displayed the above mentioned parameters, it is needed to implement parsing data transmitted in “User array” tag of Galileosky protocol in monitoring software. Data structure and description are given in Appendix №1.

Connecting devices to Galileosky tracking devices by Eurosens Delta protocol 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.
Data structure and description

Display of device parameters

Device data are saved and transmitted in “User array” tag of Galileosky protocol;

The first array byte keeps data type and is equal to 0x07.

Array is divided into 4 groups; each of them has received data from the corresponding device.

Size of data, kept in one group, is:

- 1 byte, if there was an error at the moment of receiving data;
- 27 bytes, if data exchange was correct.

Maximum array size is $1 + 4 \times 27 = 109$ bytes, if all 4 devices responded without errors, minimum size is $1 + 4 \times 1 = 5$ bytes.

Format of kept data (bytes order – little-endian) for one group:

<table>
<thead>
<tr>
<th>Field №</th>
<th>Size in bytes</th>
<th>Description</th>
</tr>
</thead>
</table>
| 1       | 1            | Status of device and connection:  
          |              | 0 – no response from device;  
          |              | In other cases depending on bits values (0 – not active, 1 – active):  
          |              | bit 0 – current mode: no load operation;  
          |              | bit 1 – current mode: nominal conditions;  
          |              | bit 2 – current mode: reload;  
          |              | bit 3 – current mode: wire wrap connection;  
          |              | bit 4 – current mode: negative;  
          |              | bit 5 – interference;  
          |              | bits 6 and 7 are not used. |
| 2       | 4            | Fuel volume from the moment of activating 0.01 l sensor (signed integer 32 bits) |
| 3       | 4            | Current flow speed 0.1 l/h. (signed integer 32 bits) |
| 4       | 4            | Fuel volume of chamber from the moment of activating 0.01 l sensor  
<pre><code>      |              | (signed integer 32 bits) |
</code></pre>
<p>| 5       | 4            | Current speed of chamber flow 0.1 l/h. (signed integer 32 bits) |</p>
<table>
<thead>
<tr>
<th>Field №</th>
<th>Size in bytes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>1</td>
<td>Temperature of chamber in °C (signed integer byte, 8 bits)</td>
</tr>
<tr>
<td>7</td>
<td>4</td>
<td>fuel volume of by-pass chamber from the moment of activating 0.01 l sensor (signed integer 32 bits)</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>current speed of by-pass chamber flow in 0.1 l/h. (signed integer 32 bits)</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>Temperature of by-pass chamber in °C (signed integer byte, 8 bits)</td>
</tr>
</tbody>
</table>