RS232. Integration with Digi-Star 400 and GT460 Weight Indicator

User Manual

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Necessary Tools, Devices, Materials

To connect «Digi-Star GT400/GT460» weight indicator (hereinafter - device) to Galileosky tracking device (hereinafter - tracking device), one should have:

1. Electrical tools.
2. Set of connecting wires.
3. Windows-based computer with the installed program of configuration of Galileosky tracking devices – "Configurator". It is recommended to install the latest version of the program from the site https://galileosky.com/podderzhka/programmyi.html
General Information

Digi-Star GT400 (pic. 1) and GT460 (pic. 2) weight indicators produced by Digi-Star International (http://www.digi-star.com) are intended to control the amount of grain loaded into a tanker in field conditions. The tracking device allows to record and send weight measured by the device to a 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 (Al) or sticker on the back of the device should have abbreviation (2) near IMEI (Pic.3).
- 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)
Minimal firmware version should be

- 230.5 for Galileosky v2.X, v5.X;
- 1 for Galileosky Base Block, 7.
Connection of the Device via RS232 Interface

Device connection to the tracking device is carried out in accordance with the scheme in pic. 4.

ATTENTION! Grounds (GND) of the tracking device and device must be connected. Power supply is provided to the weight indicator separately. RS232 contacts must be connected strictly according to the scheme – RX of the tachograph to TX0 (TX1) of the tracking device and TX of the tachograph to RX0 (RX1) of the tracking device.

The device has 8 contacts connector for connection with PC and other devices. Connector view is provided in picture 5:
Contacts assignment:

<table>
<thead>
<tr>
<th>Number of a contact</th>
<th>Assignment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+5 VDC</td>
</tr>
<tr>
<td>2</td>
<td>Com #1 Out (Tx) - Computer</td>
</tr>
<tr>
<td>3</td>
<td>Com #1 In (Rx) - DDL &amp; Computer</td>
</tr>
<tr>
<td>4</td>
<td>Com #2 Out (Tx) - Printer</td>
</tr>
<tr>
<td>5</td>
<td>+12 VDC</td>
</tr>
<tr>
<td>6</td>
<td>Ground – common for all communication devices</td>
</tr>
<tr>
<td>7</td>
<td>Com #2 In (Rx)</td>
</tr>
<tr>
<td>8</td>
<td>Ground</td>
</tr>
</tbody>
</table>

Pic. 5
View of communication port connector
Setting the Tracking Device

Setting of the tracking device is carried out via “Configurator” service program:

1. connect the device to the tracking device;
2. connect the tracking device to PC;
3. run “Configurator” program;
4. go to “Settings” tab -> “Track” and select a dynamic structure of archive storage (pic.6);

**ATTENTION!** Setting dynamic archive structure mode for tracking devices Base Block and 7.0 is not needed.

5. Go to “Protocol” tab and set the main packet to transmit data to the server, tick parameters “User Tag 0” and “User Tag 1” (pic. 7);

6. On tab “Settings” - > “Digital inputs” select “Nothing” in field “RS232 peripheral type” (pic. 8).

7. Click “Apply” button;
8. Go to tab “Commands” in Configurator and execute “script galileosky/digistar” command (pic. 9);
Integration with Digi-Star GT400/ GT460 Weight Indicator (version 2 dated April 4, 2018)

ATTENTION! Algorithm is downloaded from the remote server; therefore, the tracking device should have an activated SIM-card with support of data transmission via GPRS.

9. Make sure the algorithm has been downloaded, for that go to the Device tab (pic. 10);

10. To check the algorithm operation, go to tab “Troubleshooting”, tick “Algorithms” parameter and check diagnostic messages (pic. 11).
Setting the Monitoring Software

After your set up the tracking device, setting should be completed by setting up the monitoring software. If your software does not support receiving information from the device by means of Galileosky tracking device, you should individually develop and install software to the monitoring server, processing data in accordance with the protocol of exchange between the tracking device and server. The protocol description is provided in Appendix №1.

Device connection to Galileosky tracking device 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

Instruction on developing monitoring server software for operating with «Digi-Star GT400/GT460»

Device operation is the following: the tracking device waits for a data packet from the weight indicator, receives the data and checks if correct, weight data are uploaded from the packet. The algorithm reads data from Digi-Star weight sensor every 500 ms. Each 5 values are averaged out and sent to user tags. After that, user tags are reset.

Thus, scales should be loaded at least for 5 seconds, so that the tracking device could send a correct weight value to the server.

Sent data:

<table>
<thead>
<tr>
<th>Tag</th>
<th>Tag name</th>
<th>Size in bytes</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>0xE2</td>
<td>User tag 0</td>
<td>4</td>
<td>Weight integer sign value sent by the device. Units of measure correspond to the set ones in device settings. Range of values: -99999 ... 999999</td>
</tr>
<tr>
<td>0xE3</td>
<td>User tag 1</td>
<td>4</td>
<td>Weight divider sent in tag 0</td>
</tr>
</tbody>
</table>