RS232. Integration with Weight Indicator “GRAINscale”

User Manual

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Necessary Tools, Equipment and Materials

To connect weight indicator “GRAINscale” to 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

“GRAINscale” weight indicators (Pic.1) produced by Dinamica Generale (http://www.dinamicagenerale.com/grain_cart) are intended to control amount of grain loaded into the tanker in the field.

The tracking device allows to transmit the following readings:

- weight;
- operating mode.

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 this technology. 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.2).
- 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)
Connecting “GRAINscale” Weight Indicator via RS232 Interface

Connection “GRAINscale” weight indicator to the tracking device is carried out in accordance with the schemes presented in Picture 3.

**ATTENTION!** Grounds (GND) of the tracking device and weight indicator must be connected; power to the devices is served separately. RS232 contacts must be connected strictly according to the scheme – RX of the sensor to TX of the tracking device, TX of the sensor to RX of the tracking device.

Tracking device settings for weight indicator connection are carried out via Configurator:

1. connect weight indicator to the tracking device;
2. connect the tracking device to PC;
3. run Configurator program on your PC;
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(version 5 dated from August 8, 2018)

4. go to “Setting” page, tab “Track”, select dynamic structure of archive storage (Pic.4);

ATTENTION! For tracking devices Galileosky Base Block and 7.0 versions the setting of dynamic structure mode is not needed.

5. go to tab “Protocol” in Configurator, set the main packet for data transmission to the server, for this tick parameters “UserTag 0” and “UserTag 1” (Pic. 5);

6. go to tab “Digital inputs” in Configurator, select “Nothing” for parameter “RS232[0] peripheral type” (Pic.6);

7. click “Apply” button;
8. go to tab “Commands” in Configurator and run “script galileosky/grainscale” command (Pic.7);
ATTENTION! Algorithm is downloaded from the server, therefore the tracking device should have an activated SIM-card with GPRS support.

9. make sure the algorithm has been downloaded, for that go to the Device tab (Pic.8);

10. to check algorithm operating go to tab “Troubleshooting” in Configurator, tick “Algorithms” parameter and check troubleshooting messages (Pic. 9);
Monitoring software setting

After tracking device’s setting there is setting of monitoring software. If your software doesn’t support receiving information from “GRAINscale” weight indicator through 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. There is protocol description in Appendix №1.

Connecting of “GRAINscale” weight indicator 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 “GRAINscale” weight indicator.

Operating with weight indicator: the tracking device waits for data packet from the device, it receives and checks it for validity, it takes data on device weight and operating mode. If data are different from previously sent to the server, they are sent away. In case of packets absence, non-valid packets or errors in data extraction, nothing is sent 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>Signed integer weight value, transmitted by device. Measuring units correspond to defined in device settings ones. Values range: -9999 ... 99999</td>
</tr>
<tr>
<td>0xE3</td>
<td>User Tag 1</td>
<td>4</td>
<td>Device operating mode: 0x02 – normal mode; 0x40 – indicating car weight mode; 0xC0 – pre-uploading mode.</td>
</tr>
</tbody>
</table>