RS232. Connection and Setting up of Drum Rotation Sensor DZ300

User Manual

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Necessary Tools, Devices and Materials

To connect the Galileosky tracking device (hereinafter – the tracking device) one should have:

1. Electrical tools.
2. Windows-based computer with the installed program of configuration of Galileosky tracking devices – “Configurator”. You can download the latest version of it here https://galileosky.com/podderzhka/programmyi.html
3. Installation kit of the drum rotation sensor DZ300 manufactured by DingTek.
General Information

Galileosky tracking devices (hereinafter – tracking devices) have a function that enables to work with the system that controls a direction and frequency of drum rotation of a concrete mixer. The data are transmitted to the device by magnetic sensor DZ300 manufactured by DigiTek. Acceptable range of measuring drum rotation is from 0 to 120 rotations per minute.

ATTENTION! It is necessary to install the sensor to the car correctly. The main rules for installation are the following:

− the sensor should be connected so that its axis would be directed to the rotating part of the drum; (Pic. 2).
− fix the magnetic label on the drum’s rotating part;
− put the sensor in such a position so that during the drum rotating the magnetic label went along the surface of the sensor strictly from A to B or vice versa, otherwise the sensor will work incorrectly.

ATTENTION! The discussed function is implemented in the tracking devices by means of Easy Logic technology. It is necessary that we should use the tracking devices that are supported with Easy Logic (https://galileosky.com/products/easylogic.html).

There are two ways of how to determine the capability of the tracking devices to be programmed with Easy Logic:

− in the specification of a tracking device there should be abbreviation (AI) or in the label, on the lowest part of the tracking device, there should be number 2 next to IMEI (Pic. 3).
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(version 4 dated from August 9, 2018)

- Send command <Hardversion>, if in the response the numbers after the comma are different from zero, the tracking device can be worked with programming with algorithms (for example, response: HARDVERSION=21,8243)

The needed version of the firmware should be not less than 229.15 for versions 5.X, 1.X, 2.X for Galileosky and 12.10 for Base Block.

Pic. 3
Identifying the capability of programming with the help of a sticker
Connection DZ300 sensor

Connection DZ300 sensor to the Galileosky v.1.x and v.2.x tracking devices is carried out in accordance with the scheme presented in picture 4 of this manual.

Connection DZ300 sensor to the Galileosky v.5.x tracking devices is carried out in accordance with the scheme presented in picture 5 of this manual.

Connection DZ300 sensor to the Galileosky Base Block is carried out in accordance with the scheme presented in picture 6 of this manual.

ATTENTION! Grounds (GND) of the tracking device and DZ300 sensor must be connected, RS232 contacts must be connected strictly in accordance with the scheme RX DZ300 sensor - TXD(0) tracking device and TX sensor of DZ300 - RXD(0) tracking device. Power to the DZ300 sensor is provided separately.

Functions of the sensor outputs:
- Red wire - power +12-24 V
- Black wire – ground
- Green wire - RS232 Tx
- Yellow wire – RS232 Rx
- Blue wire – signal of contraclockwise rotation
- White wire – signal of clockwise rotation

![Scheme of installing DZ300 sensor (versions v.1.x and v.2.x)](image-url)
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Pic. 5
Scheme of installing DZ300 sensor (version v.5.x)

Pic. 6
Scheme of installing DZ300 sensor (Base Block)
Set up of the tracking device to work with DZ300 sensor

Set up of the tracking device for connection DZ300 rotation sensor is performed by means of Configurator:

1. Install DZ300 rotation sensor to the tracking device;
2. Connect the tracking device to the PC and launch Configurator;
3. Go to the tab “Settings” -> “Track” and select “Dynamic” parameter in the “Archive structure mode” (Pic. 7);

**ATTENTION!** For Base Block and Galileosky v7.0 tracking devices the setting of archive structure mode is not needed.

4. Go to the tab “Settings” -> “Protocol” and tick the options in the lines “UserTag 0” – “UserTag 3” (Pic. 8);
5. Go to the tab “Settings” -> “Digital inputs” and select “Nothing” for the parameter “RS232[0] peripheral type” (Pic. 9);

6. Record the settings in the tracking device clicking “Apply” button.

7. Go to the tab “Commands” and enter command “script galileosky/DZ300” (Pic. 10);

ATTENTION! The algorithm is downloaded from the server, that is why it is necessary that a working, GPRS supported SIM-card should be installed in the tracking device.
8. Go to the tab “Troubleshooting”, tick “data transmission” and wait till the algorithms are installed by the tracking device: «GPRS.c.7gis.ru.Script download. Complete» (Pic. 11).
Setting the Monitoring Software

Data transmission about drum rotation of a concrete mixer to the monitoring software is carried out in accordance with Galileosky protocol and does not require extra adaptation. Data from DZ300 rotation sensor are transmitted in user tags “User tag 0 – User tag 3”. The information from the sensor is encoded in user tags in the following way:

- User Tag 0 – rotation speed RPM (rotation per minute).
- User Tag 1 – rotation direction (1 is equal to A=>B, 2 is equal to B=>A).
- User Tag 2 – a mistake in reading the data from the sensor.
- User Tag 3 – the number of the first byte, which was not transmitted from the sensor.

The meaning of mistake codes, that can be received in User Tag 2:

- 0 – no mistakes.
- 3 – lack of symbols in the message from the sensor.
- 4 – wrong title of the message from the sensor.
- 5 – wrong command of the response.
- 6 – wrong crc sum. Data are damaged.
- 7 – wrong data (extra symbols and so on).

Launch the monitoring software and make sure the data are transmitted from the sensor to the software (Pic. 12).

In case of necessity create rotation sensors and sensors of rotation direction in accordance with the recommendations of the monitoring software manufacturer (Pic. 13).
The connection of DZ300 sensor to the 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.