Data transmission settings for Galileosky 7.0 and Base Block tracking devices

Functional Description

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Data transmission settings for Galileosky 7.0 and Base Block tracking devices
(version 1 from September 25, 2018)

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**Necessary tools, devices, materials**

To set data transmission parameters of Galileosky tracking devices it is necessary to have:

1. A computer running Windows with the installed service software of configuration of Galileosky tracking devices-"Configurator". We recommend you to install the latest version of the software in our site https://galileosky.com/podderzhka/programmyi.html
2. Satellite monitoring tracking device Galileosky (hereinafter referred to as tracking device) versions of Base Block or 7.0.
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General Information

Galileosky tracking devices offer a range of opportunities to set the data transmission parameters (Pic. 1), they enable to set the parameters flexibly and select from different variants. These opportunities are even bigger for Galileosky Base Block and 7.0 tracking devices after firmware 19.0 release.

![Data transmission settings](image-url)

Pic. 1

Variants to set data transmission parameters
Tracker Settings for data transmission

All the data transmission settings are carried out in Configurator service software in the tab Settings -> Data transmission.

One or two SIM-cards are inserted into the tracking device. On request, instead of using the second SIM-card, a SIM-microchip can be set on the tracking device at manufacturing site. Simultaneously, only one SIM-card or one SIM-microchip can be active and registered on GSM/3G network. APN settings for SIM-cards/SIM-microchips are standard for all versions of tracking devices (Pic. 2). SIM cards are named in Configurator as SIM 0 and SIM 1 correspondingly.

As a rule, another SIM-card/SIM-microchip are set in the following cases:

- to make data transmission process more reliable in case SIM 0 fails to build connection to the server;
- to reduce the costs in data transmission sector, when SIM 0 is used in home country, and SIM 1/SIM-microchip is used in foreign countries;
- to transmit data to different servers, when SIM 0 is used for data transmission to the main server, and SIM 1/SIM-microchip is used for data transmission to the additional server.

The mentioned operation modes are possible in condition that a correct regime of SIM-card switch-over is selected.

Let's consider these regimes in detail:

1. As a rule, variants "use only SIM 0" or "use only SIM 1/SIM-chip" (Pic. 4) are used when only one SIM-card is inserted into the tracking device.
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When selecting the first variant, the only SIM-card is active, which is inserted into the SIM 0 slot; when the second variant is selected, the SIM-card in SIM 1 slot or the SIM-microchip are active.

2. Variants "switch between SIM-cards when impossible to send data" and "switch between SIM-cards when impossible to send data starting from SIM 1/SIM-chip" (Pic. 5) are used for automatic switch-over between SIM-cards (often by different operators).

SIM-cards are switched over if data transmission failed to send data to the server within 9 minutes. Switch-over mode is periodic, i.e. SIM 0 is used at first, then SIM 1/SIM-microchip is used, then again SIM 0. In the second case, this cycle starts from SIM 1 or SIM-microchip.

3. Variants "switch according to the list of mobile operator's codes" and "switch according to the list of mobile operator's codes starting from SIM1/SIM-chip" (Pic. 6) are used when the tracking device is expected to use certain operators with each SIM-card or SIM-microchip.

The tracking device allows to make a list of preferable GSM/3G-networks, priority is given to those at the beginning of the list. Every network is indicated by the country code and operator's code, up to 30 networks are supported (Pic. 7).

If the tracking device discovers that one of the specified GSM/3G-networks is available, the device switches over to the corresponding SIM-card or SIM-microchip. If a few networks are available at a time, priority is given to SIM 0 card. If the second variant of connection is chosen, SIM 1 or SIM-microchip are considered main.

If there is no opportunity to connect to one of the preferable networks, the tracking device connects to any network, but it does not start data transmission to the server; voice connection and SMS are available according to the tariff plan of the SIM-card.
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Let's consider an example of settings, shown in Picture 7, a home-country SIM is inserted into the SIM 0 slot, SIM-card of a foreign country is inserted into the SIM 1 slot. The list of operator's codes is provided for both SIM-cards.

Data transmission is organised in the following way:

- while staying in the home country (Russia), connection with the server and data transmission are carried out if GSM-module registers on cellular stations of such operators 25001 or 25002.
- If the tracker cannot register on the cellular stations of these operators, then the device starts checking connection availability for SIM 1. As there are no operators with such codes as specified for SIM 1 in the home country, that's why GSM-module starts connecting to any available network but does not initiate connection with the server.
- If the tracker discovers stations of operators 26034 or 26002, which are specified for SIM 1, then the tracking device switches over to SIM 1 and starts connection with the server.

4. By default, it is possible to set data transmission by any active SIM-card simultaneously to the primary and secondary servers. At the same time there is a possibility to set various data transmission protocols (Galileosky or EGTS) for the primary and secondary servers (Pic. 8).

The last variant "switch by timeout, primary data server is bind to SIM0, secondary server is bind to SIM1/SIM-chip" (Pic. 9), available on firmware 19 and higher, is used in case the installed SIM-card allows to transmit data on a certain server with no possibility to transmit data to the secondary server simultaneously.

In this mode, it is necessary to use a SIM-card, that has no restrictions, in the SIM 1 slot; switch timeout is specified. According to the specified timeout, the tracking device switches
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over to SIM 0 and initiates data transmission to the primary server, then it switches over to SIM 1 and transmits data to the secondary server.

ATTENTION! Starting with firmware 19, there is an opportunity to set a list of forbidden operator codes. It means that the tracker can register on cellular stations of these operators in absence of other cellular stations, but no GPRS-connection is initiated and the tracking device waits for any other available operator (Pic. 10). For example, if only Beeline operator is available, then the tracking device registers on it and can be available for calls and SMS, but the device cannot transmit data till any other operator is discovered and connection is built out.

The list of operator codes can be used with any operation mode of SIM-card switch-over.

At this point, setting data transmission mode is completed, Galileosky 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.