Signaling. Connection of Emergency Button
(version 3 dated April 11, 2018)

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Necessary Tools, Devices, Materials

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

1. Electrical tools.
2. Set of connecting wires with fuses.
General description of emergency buttons

Galileosky devices can process readings of discrete and analog sensors, such as: buttons, end switches, switches, and tumblers, which can act as emergency buttons (hereinafter—emergency button). Processing of discrete sensors signals is performed according to the configured in the tracking device algorithms.

Emergency button (Pic. 1) – a logical 1/0 signal supply device, which is identified by the tracking device as a trigger signal processing algorithm of the event.
Emergency Button Connection

To accept and process a signal from an emergency button it is necessary to connect it to a Galileosky device in accordance with one of the following schemes:

1. **Emergency button with positive voltage (Pic. 2)** - pressing the emergency button results in applying of positive voltage of power supply to one of the DAI of the tracking device;

2. **Emergency button with ground switching (Pic. 3)** - a positive power supply voltage is applied to one of the DAI of the tracking device through 20kOhm resistor. Pressing of the emergency button results in ground switching of this DAI.

To configure the tracking device to operate with an emergency button it is necessary to connect the device to the Configurator move to the “Settings” tab -> “Inputs/outputs” and do the settings observing the following order.
1. Set the filter type as “middle value”;
2. Set the filter length as “1”, further you may increase the length in order to exclude false responses on the input.
3. Use sliders to set discrete signal limits (in millivolts) for operating and non-operating zones. Maximum discrete signal value must correspond to maximum operating voltage value, which can be applied to the analog input. The Picture 4 shows the example of settings of Input IN0 and Input IN2 for connection schemes of Pictures 2 and 3.

You may also set the discrete signal limits by adding digital values into fields “Operating zone” and “Non-operating zone”.

4. Press “Apply” button;
5. Go to the “Settings” tab -> “Protocol” and in main packet column tick the fields “Device status” “Inputs status”, and also the field of the input to which the emergency button is connected (Pic. 5).
6. Check the correctness of the settings. State of Tracking device DAI which are set to operate with an emergency button is displayed in field “Analog inputs” in the “Device” tab of the Configurator:

- Inputs in the normal state show the current input voltage in black (in millivolts) (Pic. 6);
- Inputs in response state show the current input voltage in red (in millivolts) (Pic. 7).

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<table>
<thead>
<tr>
<th>Analog ins</th>
</tr>
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<tbody>
<tr>
<td>In 0</td>
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<tr>
<td>In 1</td>
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<tr>
<td>In 2</td>
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<td>In 3</td>
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<td>In 3</td>
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<td>In 4</td>
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</tbody>
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7. Go to the “Settings” tab --> “Signaling” and in DAI settings set the regime «alarm enabling (Emergency button)», put a tick in the relevant fields of the message type, if necessary, specify the Notification phones and enter a message in the Message field (Pic. 8).

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<table>
<thead>
<tr>
<th>Security</th>
<th>Data transmission</th>
<th>Protocol</th>
<th>Power saving</th>
<th>Track</th>
<th>Ins/Outs</th>
<th>Digital inputs</th>
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</tbody>
</table>

**Notification phones**

- Phone 1
- Phone 2
- Phone 3
- Phone 4

**Regime**

- not used
  - not used
  - enables/disables signaling
  - enables alarm in signaling mode

**Message**

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<table>
<thead>
<tr>
<th>Regime</th>
<th>Delay after response</th>
<th>Notification type</th>
<th>Message</th>
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<tr>
<td></td>
<td>0 [sec]</td>
<td>[SNS]</td>
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</tr>
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</table>
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8. If you need to adjust the response of the outputs of the tracking device on the event «Alarm», go to the “Settings” tab --> “Signaling” and complete the required settings (Pic. 9).
9. Configure the monitoring program for receiving the messages from the device and check the transmission of the signal of alarm. Picture 10 shows the type of alarm messages in «Wialon Hosting» program, they are highlighted in red.

Tracking device DAI state is transmitted to the monitoring server in field «Inputs state» (№ 17, tag 0x46 of Galileosky protocol) in form of logical 0/1 value, where 0 – signal of normal condition of input, and 1 – an input triggering signal. For connection schemes illustrated by the example:

**Input IN0**
- Normal condition is from 0 to 7000 mV, logical 0 is transmitted;
- Triggering condition is from 8000 to 33000 mV, logical 1 is transmitted;

**Input IN2**
- Normal condition is from 8000 to 33000 mV, logical 0 is transmitted;
- Triggering condition is from 0 to 7000 mV, logical 1 is transmitted;

Inputs state in indifference zone from 7000 to 8000 mV will correspond to the previous input state.

**Connection of emergency button to Galileosky device is completed; the device is ready to operate.**

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.