RS232, RS485. Connection and Operation of Galileosky Photo Camera

User Manual
RS232, RS485. Connection and Operation of Galileosky Photo Camera
(version 3 dated from August 8, 2018)

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Necessary Tools, Devices, Materials

To Connect Galileosky photo camera to the 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

The camera is designed for shooting and the subsequent transfer of pictures to the monitoring server from the vehicle and (or) from stationary installation sites. The camera is to be installed together with Galileosky and Galileosky GPS/GLONASS tracking devices and can be used for:

1. Automation of technical processes.
2. Registration of a road situation.
3. Protection of stationary and mobile objects.
4. Making photo reports.
Connecting Photo Camera via RS232 Interface

The camera is connected to the Galileosky v. 5.0 tracking unit via RS232 according to the scheme presented in Picture 2.

The algorithm of connection and setting is the following:

1. Connect the contacts RXD, TXD, GND of the camera and TXD0, RXD0, GND of the tracking unit correspondingly.

   ATTENTION! Grounds (GND) of the tracking unit and the camera must be connected, RS232 contacts should be connected strictly according to the scheme: RXD of the camera to TXD0 of the tracking unit and TXD of the camera to RXD0 of the tracking unit. Power supply is provided separately.

2. Insert a microSD card into the tracking unit in order to save the pictures.

3. Set RS232[0] input of the tracking device to operate with the camera (Pic. 3):
   - go to tab Settings -> Digital Inputs and select “Galileosky photocamera” or send command RS2320 4 in the Commands tab;
   - click Apply button;
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- go to tab Device in the Configurator and reset the tracking unit by clicking button “Reset device” or in the Command tab send command “reset”.

4. Check if the tracking unit works with the camera correctly:
- go to tab Commands of Configurator service program and send command “makephoto”;
- go to tab “Troubleshooting” and tick the option “RS232[0]”.

The example of troubleshooting message for firmware up to 229 is presented below:
RS232[0].cam. Snapshot start.
RS232[0].cam. ImageSize = 28160.
RS232[0].cam. Pic/RS0/20131025/043925.jpg created successfully.
RS232[0].cam. rx pic.

- check LED of the camera – green LED on the camera blinks rarely (1 time per second) when in standby mode and quickly (up to 10 times per second) during picture recording.

5. Visually estimate the quality of the picture in the Device tab of Configurator software (Pic. 4)

Pic. 4
Picture checking in the Configurator
Connecting Galileosky Photo Camera via RS485 Interface

The camera is connected to the Galileosky v. 5.0 tracking unit via RS485 according to the scheme presented in Picture 5.

![Connection scheme of the camera to Galileosky v. 5.0 via RS485](pic.jpg)

The algorithm of connection and setting is the following:


   **ATTENTION!** Grounds (GND) of the tracking unit and the camera must be connected!
   Power supply is provided separately.

2. Insert a microSD card into the tracking unit to save pictures.
   - set RS485 input of the tracking unit to work with the camera (Pic. 6):
     - Go to the tab Settings -> Digital inputs and select "Photocamera and FLS";
     - click Apply button;

3. Make sure the tracking unit and the camera cooperate correctly:
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- go to tab Commands of Configurator and send command “makephoto”;
- go to tab Troubleshooting and tick the option “RS485”.

The example of troubleshooting message for firmware up to 229 is presented below:

RS485.cam. Retrans ok.
RS485.cam. Snapshot start.
RS485.cam. rx pic.

- check LED of the camera – green LED on the camera blinks rarely (1 time per second) when in standby mode and quickly (up to 10 times per second) during picture recording.
Setting the Parameters of Photo Camera Operating

You can set additional parameters of operation with the camera in the tab settings -> Digital inputs (Pic. 7), or by the command PhotoCfg (see the description in the Appendix 1).

1. First of all set the Recording period which is an interval of frequency with which pictures are taken and saved to the microSD card. When the value “0” is set, recording by event is carried out, in other words when the `makephoto` command is given or when signaling conditions are triggered.

2. Parameter “Recording and send period” defines an interval of frequency in which pictures are taken, saved to the microSD card and sent to the server. When the value is 120 or lower, recording is carried out by event. In order the pictures were transmitted to the server correctly, make sure the server parameters are set correctly. (Pic. 8).
3. Parameter “Recording in geofence” defines the behavior of the tracking unit on taking pictures by the camera depending on the use of Geofences.

4. Parameter “Size” allows you to set the picture resolution: 640x480 or 320x240 points. If GPRS-connection is not very good, it is recommended to set a lower resolution which would allow increase the speed of pictures transmission to the monitoring server.

5. The last parameter “Require an acknowledgment from server” defines the server behavior when receiving a picture. As the pictures are divided into parts and transmitted to the server in this way because of the big size, in case of lack of confirmation by the server and loss of one of the packets the whole picture is lost. Therefore, it is necessary to set this parameter for guaranteed transmission of the picture.

Camera captures received by the monitoring software are displayed in the column “Image” in the monitoring software (Pic. 9).
Uploading Photos from MicroSD Card

Pictures from the camera, which is connected to zero input RS232[0], are saved to the micro SD card to the catalog Pic\RS0, to the input RS232[1] – to the catalog Pic\RS1. Pictures from the camera, which is connected to input RS485, are saved to the micro SD card to the catalog Pic\RS4850. For each date there is a separate catalog created. Files names are formed by the time of shooting.

All the pictures taken by the camera and saved in microSD card can be displayed and (or) uploaded to the computer in two ways:

1. Remove the microSD card from the tracking unit, connect it to the computer and save the pictures focusing on the file catalog structure listed above;
2. Some of the images can be requested remotely through monitoring software or SMS-command. For that send command `Getphoto` with necessary parameters (see the description in Appendix 1).

Connection of Galileosky photo camera and Galileosky tracking unit 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

Photo camera operation settings

Command format

GetPhoto d,t,n

Parameters

d – photo date, format DDMMYY, where DD – day, MM – month, YY – year;
t – photo time, format HHMMSS, where HH – hours, MM – minutes, SS – seconds;
n – port number to which the camera taking photos is connected.

Explanation

Request to transmit the nearest to the given time and data photo to the server.

Example

Request: GetPhoto 050511,052030,0
Reply: Send of photo is scheduled

Command format

PhotoCfg t1,t2,mode,res,confirm

Parameters

t1 – periodical shooting interval, [sec]. Photos are saved only to the SD-card, 0 – shooting only by event;
t2 – shooting interval [sec]. Photos are saved to the SD-card and sent to the server, 0 – shooting only by event;
mode – periodical shooting in geofences:
0 – photos are taken regardless of geofences;
1 – photos are taken only inside geofences;
2 – photos are taken only outside geofences.
res – picture resolution:
0 – 640x480 points;
1 – 320x240 points.
confirm – waiting for a confirmation of a picture reception from the server:
0 – do not wait;
1 – wait.

Explanation

Settings of a periodical camera shooting, picture format and image transfer protocol.

Example

Request: PhotoCfg 5,150,0,0,0
Reply: PHOTOCFG:WrPeriod=5,SendPeriod=150,Type=0,Size=0,Confirm=0;
**Command format**

**MakePhoto**

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