Connecting Fuel Level Sensors to UMKa300 (301) tracker via RS-485, RS-232, in analog and frequency modes

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Enter these parameters to register on Wialon:
1. Identifier – IMEI 0000000000000000 (EXAMPLE)
2. Server IP address: 193.193.165.165
3. Port: 21336 (UMKa300), 21510 (UMKa301)

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1.1 Connecting FLS via RS-485

Up to seven LSS Fuel Level Sensors (FLS) can be simultaneously connected to the tracker via PS-485 interface.

In Figure 1, find an example of FLS connection. The resistance at the end of the bus is installed to match the impedance and is equal to 120 Ω. For the RS-485 bus, the recommended cable type is a "twisted pair".

RS-485 bus stubs should be as short as possible to match bus impedance. In order to prevent bus collisions, assign each device a unique address in advance.
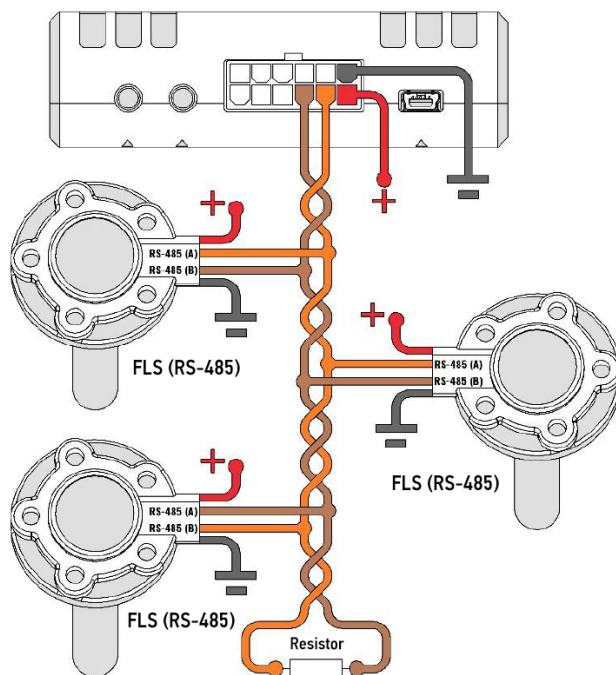

Figure 1 –Connecting via RS-485 interface

![warning] **Attention!** While working with fuel level sensors, one must strictly adhere to the requirements of the relevant maintenance manuals.

1.2 Connecting FLS via RS-232

The corresponding outputs are designed in the tracker for connecting a device via the RS-232 interface. Thus, one more FLS can be connected to the tracker. In Figure 2, find an example of the device connection via RS-232. FLS's RxD should be connected to the tracker's TxD, and TxD to RxD. The interface supports FLS connection utilizing LLS protocol.

![warning] **Attention!** RS-232 support is optional and should be specified when ordering the product from the manufacturer. Modification R.

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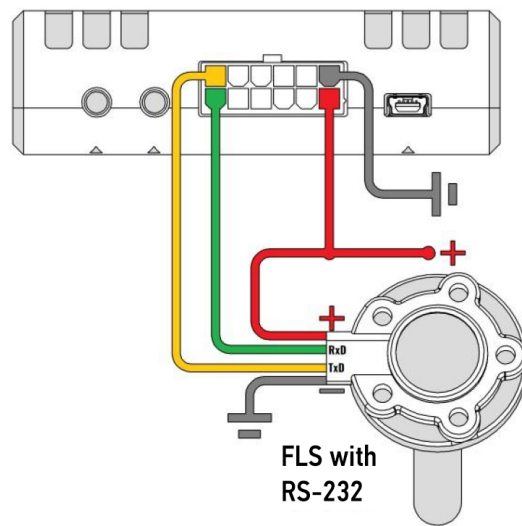E-mail: info@glonasssoft.ru   www.glonasssoft.ru

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Figure 2 – Connecting via RS-232interface

1.3 Connecting FLS in analog mode

The analog input of the tracker is used for monitoring vehicle parameters by utilizing analog data (from an analog fuel level sensor, an analog thermometer, etc.). The tracker has two channels for measuring external voltages (AIN0 и AIN1).

It is possible to connect up to two additional sensors in analog mode. When connecting FLS in analog mode, comply with the diagram in Figure 3.
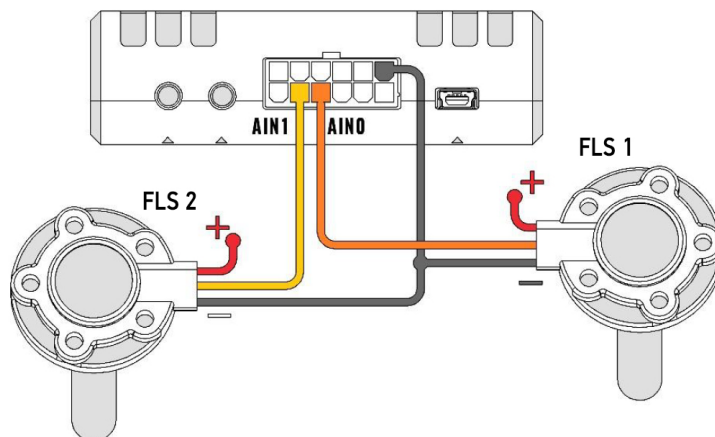

Figure 3 – Connecting FLS in analog mode

1.4 Connecting FLS in frequency mode

FLS can also be connected via the tracker's digital outputs. The tracker has two digital channels (DIN0 и DIN1) for measuring in frequency mode. It is possible to connect up to two additional FLSs.

When connecting FLS in frequency mode, comply with the diagram in Figure 4.
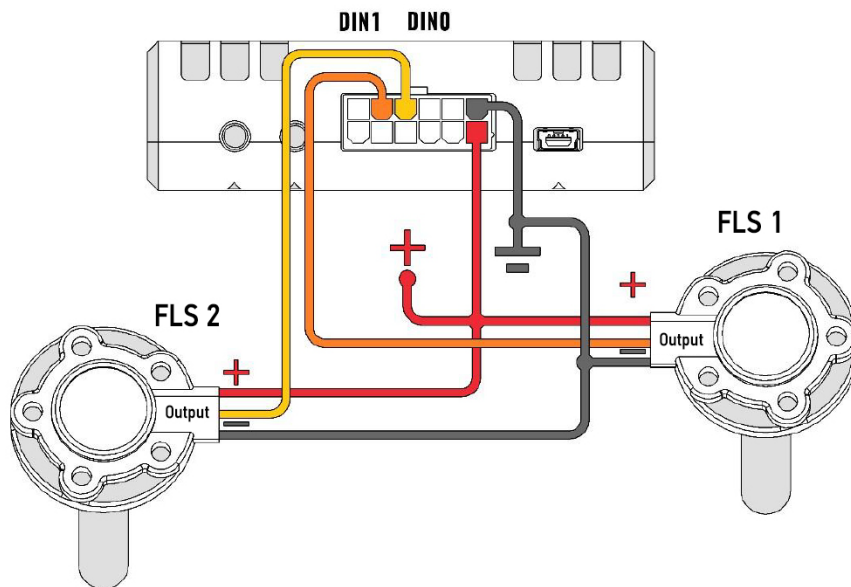
Figure 4 – Connecting FLS in frequency mode

After you have finished connecting, configure input modes in the configurator (see "Inputs/Outputs" tab).

2. Configuring FLS using UMKa3xx configurator

Before you start configuring FLS via UMKa3xx configurator:
1) Open the configurator; connect the tracker to PC.
2) Power the tracker on.
3) Wait for the tracker to boot, and, if necessary, update it up to the latest available version.
4) Start configuring FLS.
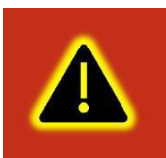
Attention! It is possible to connect the tracker to PC for configuring without the main power supply. When the tracker is connected this way, there is no voltage on GSM modem and positioning data is not transmitted.

2.1 "Interfaces" tab

In order to connect RS-485 or RS-232 devices to the tracker, use the "Interfaces" tab (Figure 5). If the RS-232 interface does not come with your tracker, the "RS-232" field will not be available for editing.

In this tab, you can select the type of a device connected to one or another interface (e.g., FLS, CAN-log and others). In order to do so, select the mode you need in the "Mode" dropdown menu, and specify the interface operating speed in the "Speed" dropdown menu.

Attention! Use the "Transparent mode" option group to establish direct connection to the tracker device or module via the console or third-party utilities using the tracker as a USB-RS232/485 adapter:

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"Transparent mode" makes it possible to use the following options of the UMKa3xx tracker:
- "Source" option – for selecting the required interface (from a dropdown menu).
- "Speed" option – for specifying the interface operating speed (selected from a dropdown menu).
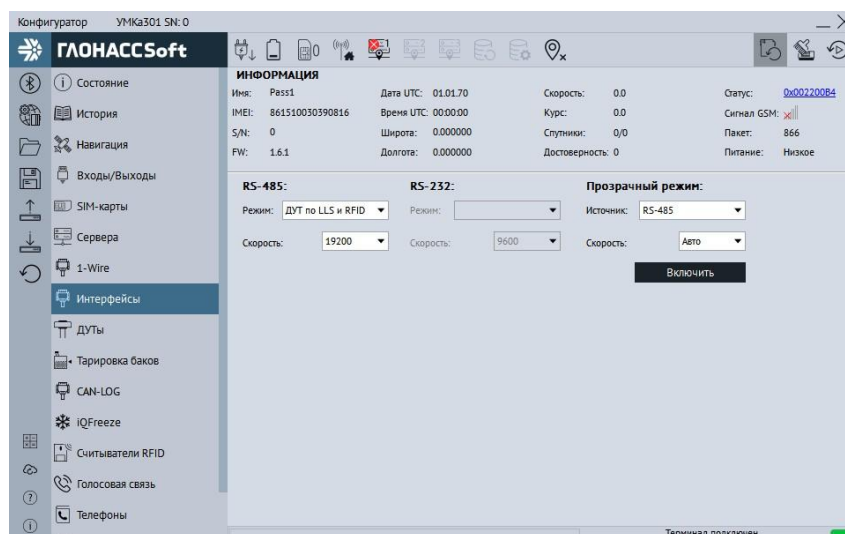

Figure 5 – "Interfaces" tab

Attention! In the "Transparent mode", the tracker does not respond to commands but relays them to the interface. In order to exit the "Transparent mode", disconnect the tracker from the USB port.

2.2 "FLSs" tab

In order to configure and obtain the data from the fuel level sensors with RS-485 interface, use "FLSs" tab (Figure 6), assigning addresses to each of the sensors in the corresponding field in advance.

To assign the addresses in the tracker, it takes only to enter them in "RS-485 FLS addresses setting" field and then write the configuration into the tracker. The configurator automatically displays the connected sensors and the parameters they show.
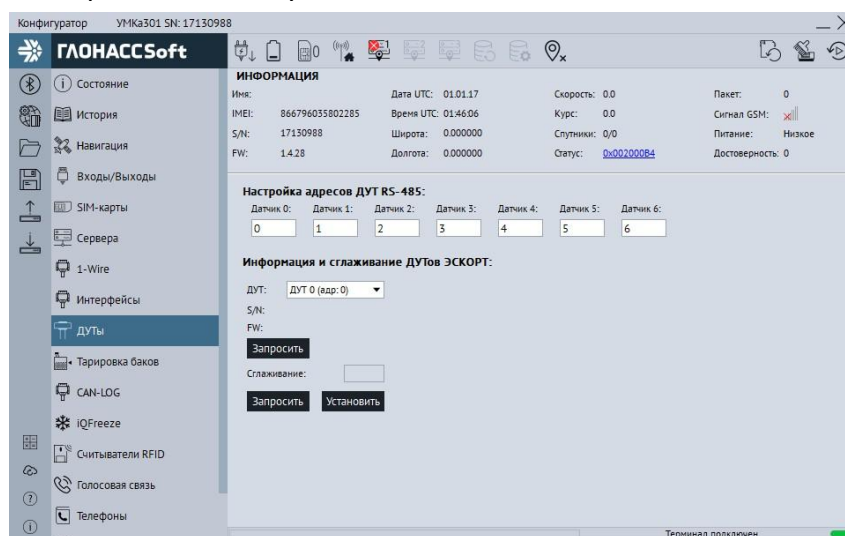

Figure 6 – "FLSs" tab

Attention! Attention! Beforehand, switch one of the available interfaces into the "FLS via LLS" mode in the "Interfaces" tab, set the "Speed" option to "19200" and write the configuration into the tracker.

2.3 "Inputs/Outputs" tab

The "Inputs/Outputs" tab (Figure 7) is used for configuring FLS connection via the analog AIN0 and AIN1, and digital DIN0 and DIN1inputs. The levels of the logical high and logical low of analog inputs are set within the range of 0 to 40000 mV. The level of the logical low cannot be higher than the level of the logical high.
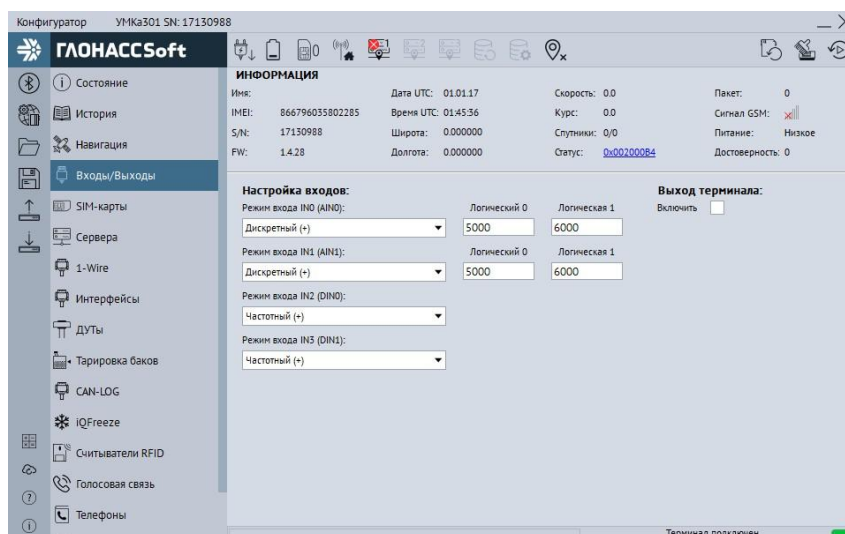

Figure 7 – "Inputs/Outputs" tab