v 1.00

ANDROID APPLICATION

# DashDrive


User Manual

MECHATRONICS

v 1.00

# Android application DashDrive

## USER MANUAL

CONTENTS

# 1 About DashDrive

Android application DashDrive performs the following functions:

- connects to GPS trackers via Bluetooth wireless interface to receive instant telematic data;
- saves and stores telematic dataset in the local database (DB) of Android device and recalculates data according to the formula;
- sends the saved telematic data to GPS tracking platform if Internet connection is available;
- displays telematics data on a virtual dashboard that is flexibly configured.

Thus, Android application DashDrive displays instant sensor values, CAN bus data and other telematic data to the driver, informs in case values exceed the set limits.

In addition, DashDrive can collect telematic data and send it to the server via Wi-Fi connection.

You can run DashDrive on any Android-based devices: smartphones, tablets, DVRs, etc. (fig.1.1).

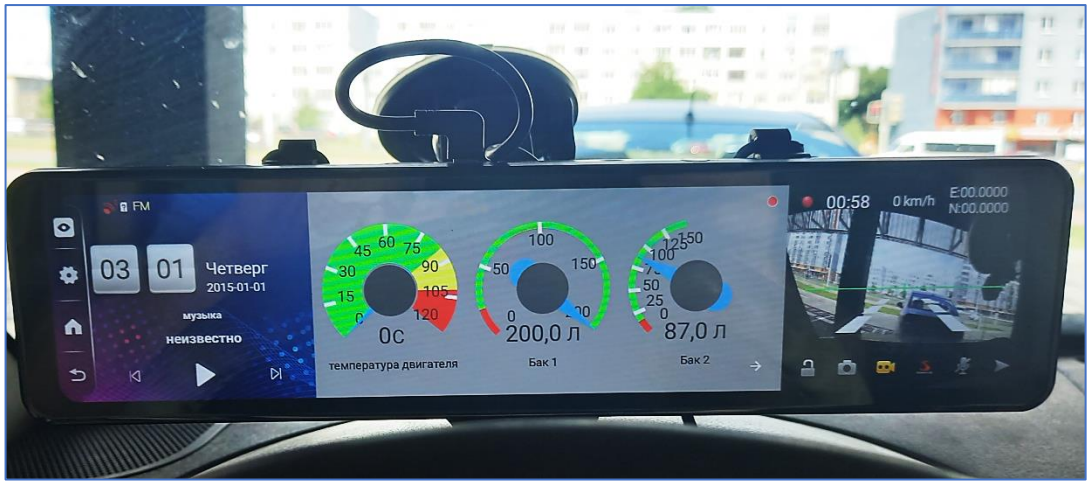


fig.1.1. Dashdrive app running on a car DVR

# 2 DashDrive installation

## 2.1 Hardware requirements

To use DashDrive application, you need a device with the Android operating system (versions from 6.0 to 12.0) and a Bluetooth module that supports connection via the “Serial port” profile.

DashDrive app for auto-launch is installed as the main app of the Android device (launcher). Therefore, it is necessary to take into account the specifics of the selected device. For example, on DVRs the existing main application can perform the video recording function, and when the main application is replaced with DashDrive, this functional will be disabled.

It is recommended to use a split-screen DVR in such case (fig.1.1).

## 2.2 License installation

1) Install DIS-DM app. It is a database and a license manager.
2) Install DashDrive app.
3) During the first launch Dashdrive app will offer to get an application license (fig.2.1). Click **“Register”**.

Each app from Mechatronics, when launched for the first time, offers to generate the key for license activation.

Generated keys are marked with a green icon (fig.2.2).

4) Tick DashDrive app.
5) Enter the phone number of the contact person from your side (Not phone number or SIM-card number of Android device ) and click **“Send”**.

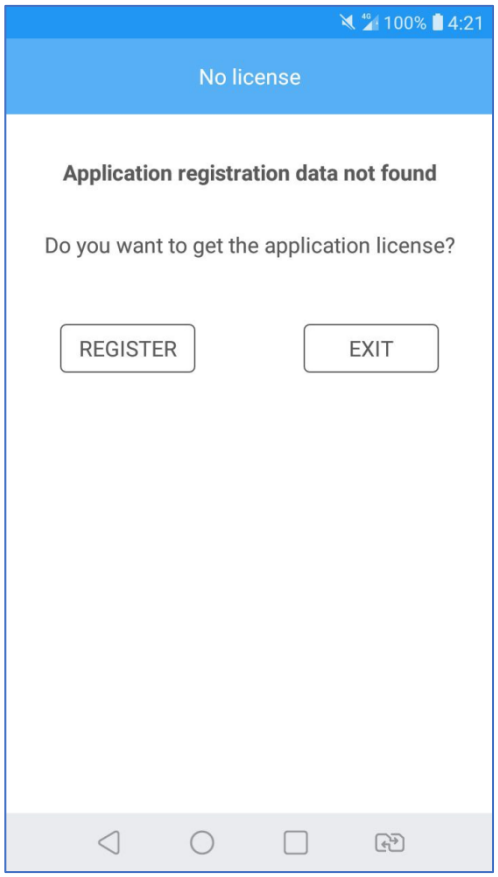


fig.2.1. License key generation request

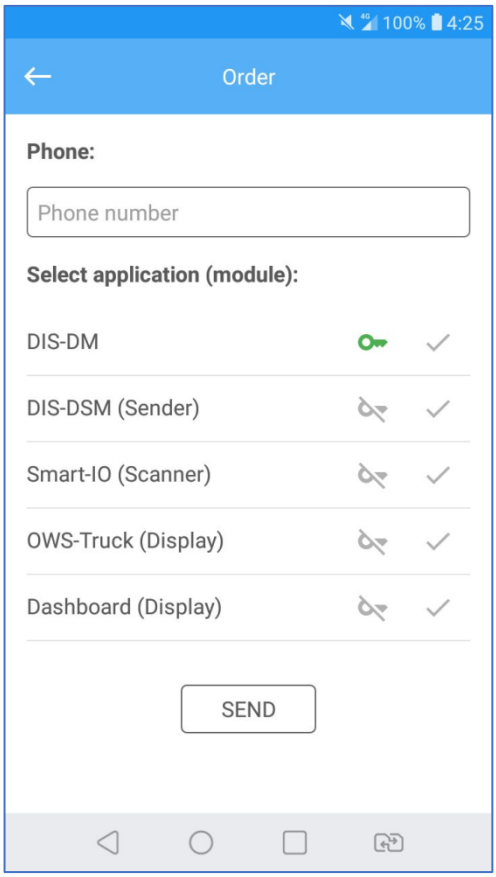


fig.2.2. Generated key marked by green icon

Mechatronics' support registers the keys after payment checkup. After license authorization DIS-DM looks as given in fig.2.3.

Green icon « $ » means that licenses have been authorized and the apps can operate on the device.

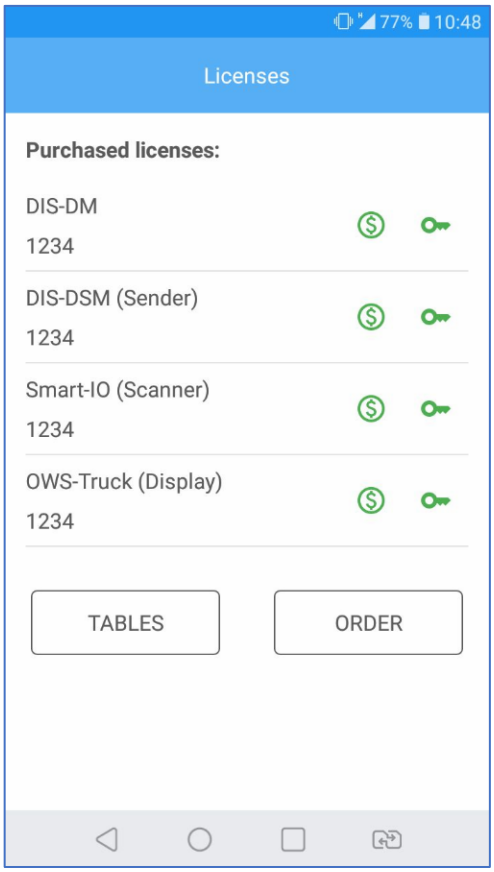


fig.2.3. DIS-DM app with purchased licenses

During the first launch of DashDrive app, even after a successful registration, there may appear a license error. In this case, you need to click the button **“Update”**, and the license error will no longer appear.

# 3 DATA READING SETUP

## 3.1 CONNECTION WITH GPS TRACKER

During the first launch of application an empty dashboard screen appears (fig.3.1).


fig.3.1. Empty dashboard

1) Click the white arrow in the bottom-right corner and open the main menu (fig.3.2).

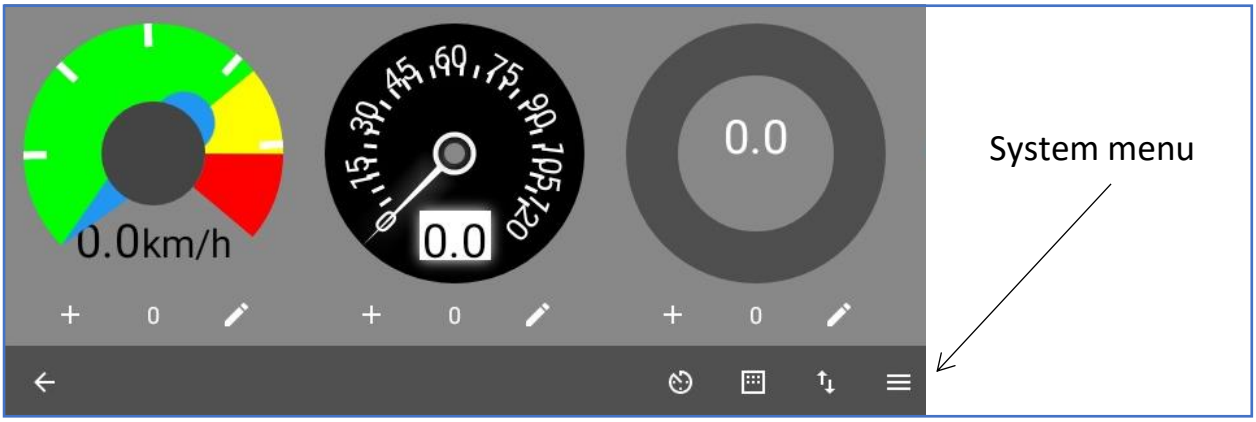


fig.3.2. Main menu of DashDrive

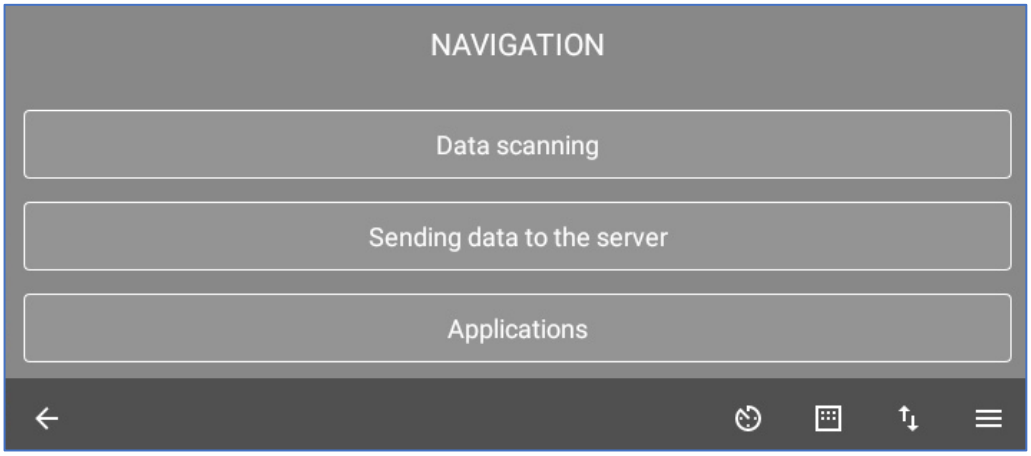


fig.3.3. System menu of DashDrive

2) In the main menu click the right button to enter the system menu (fig.3.3).
3) Enter «Data scanning – Device search» menu and find GPS trackers nearby with Bluetooth ON (fig.3.4).

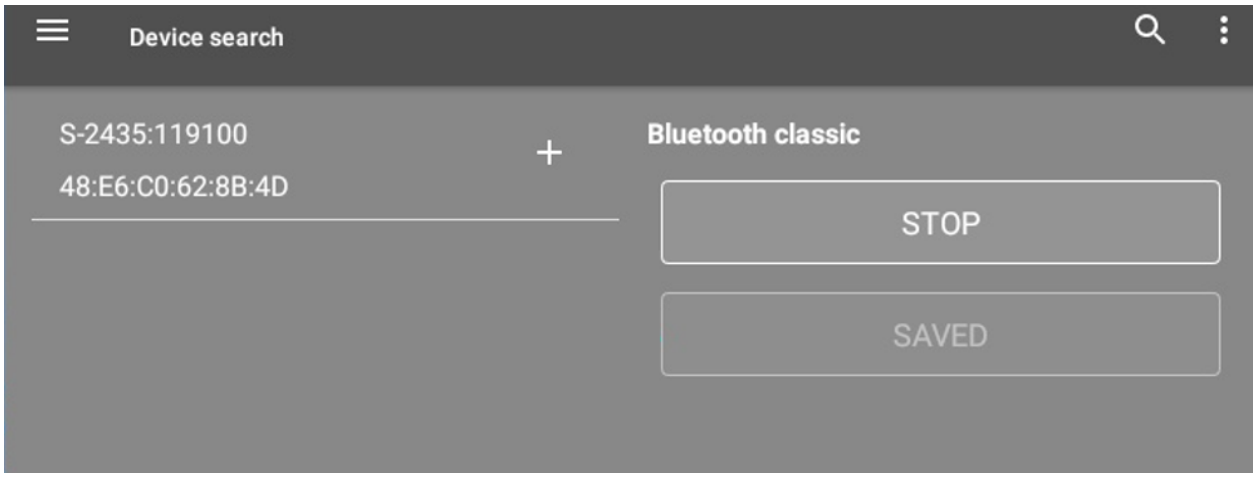


fig.3.4. Bluetooth device search

4) App will display the found Bluetooth-devices. Click **"+"** to add a GPS tracker (fig.3.5).

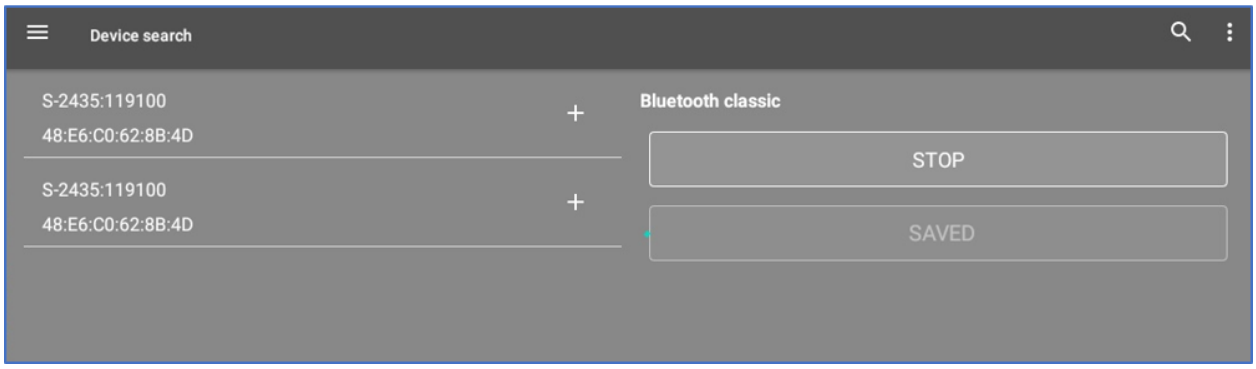


fig.3.5. Found GPS trackers

5) After adding the device return to main scanner page.
6) Select the device type (Teltonika or Smart (for Navtelecom GPS trackers) (fig.3.6).

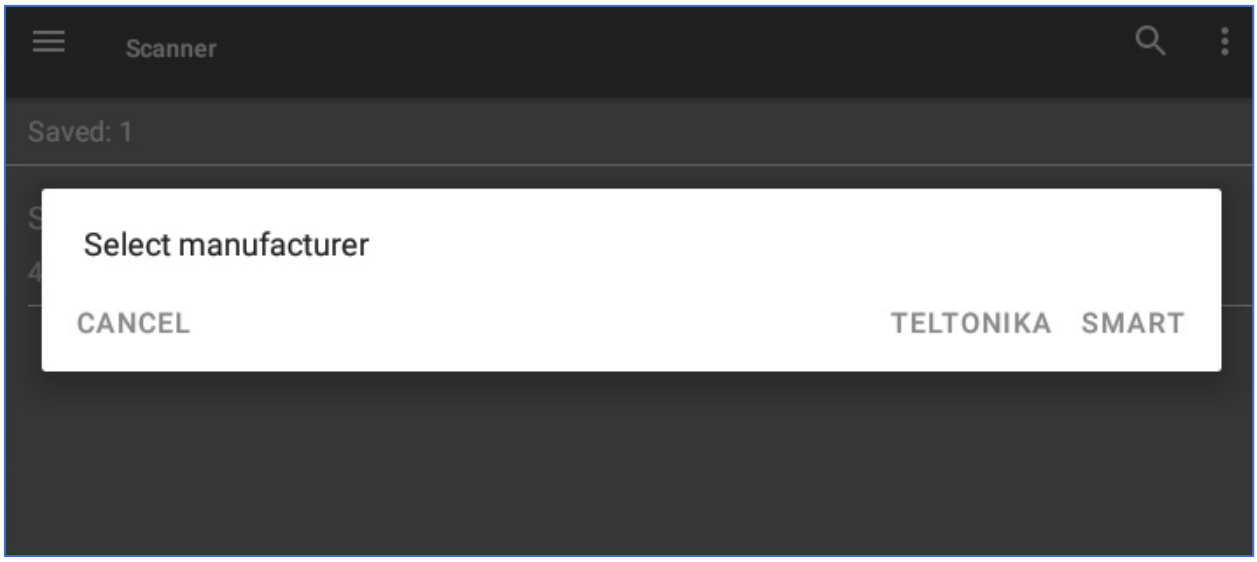


fig.3.6. Selecting device type

7) Go to the menu “Parameters” (fig.3.7). Here is a full list of potentially available data in Teltonika or Flex (Navtelecom) data protocol.

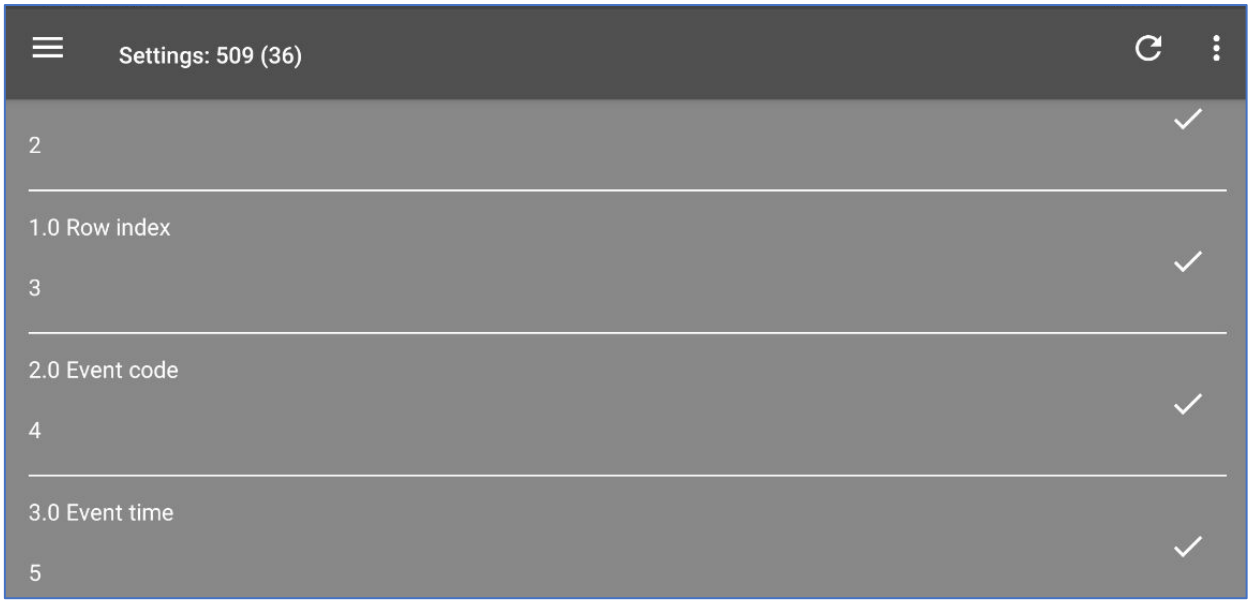


fig.3.7. Menu “Parameters”

In the header you can see the total number of possible parameters – 509, and the number of parameters to be read and saved – 36.

The selected parameters are marked with a green tick (fig.3.8).

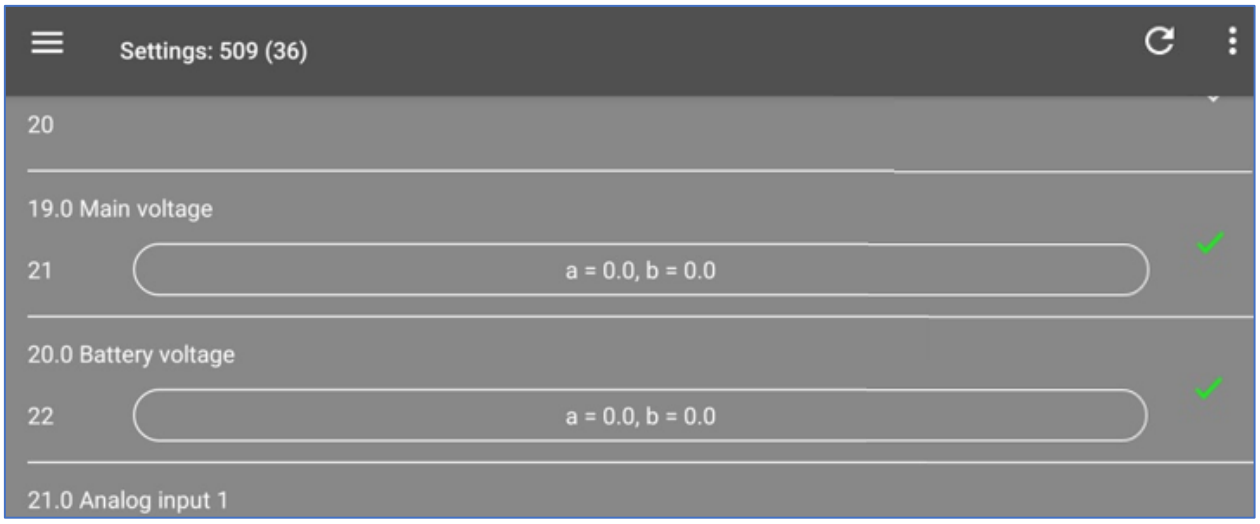


fig.3.8. Selected parameters

By clicking the sign “ ⋮ ” in the top-right corner, you open the “All parameters” menu, where you can set pre-formed lists of parameters (fig.3.9), e.g.: all parameters of Navtelecom device, all CAN parameters, etc.

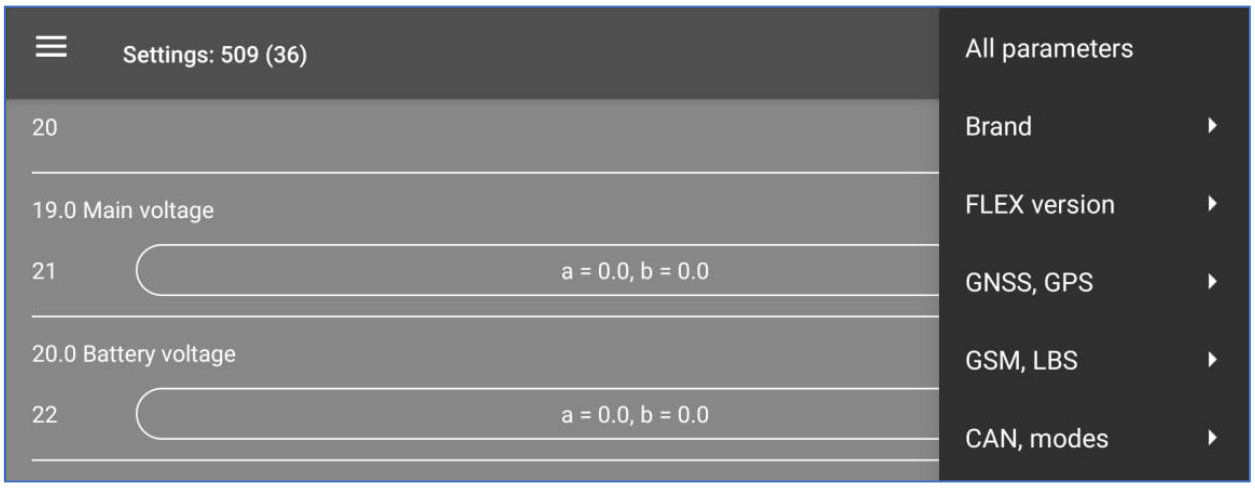


fig.3.9. Parameter list

If selected parameters have a digital value, you can set the formula for their recalculation. Thus, the recalculated value will be saved in the database and displayed on the dashboard (fig.3.10).

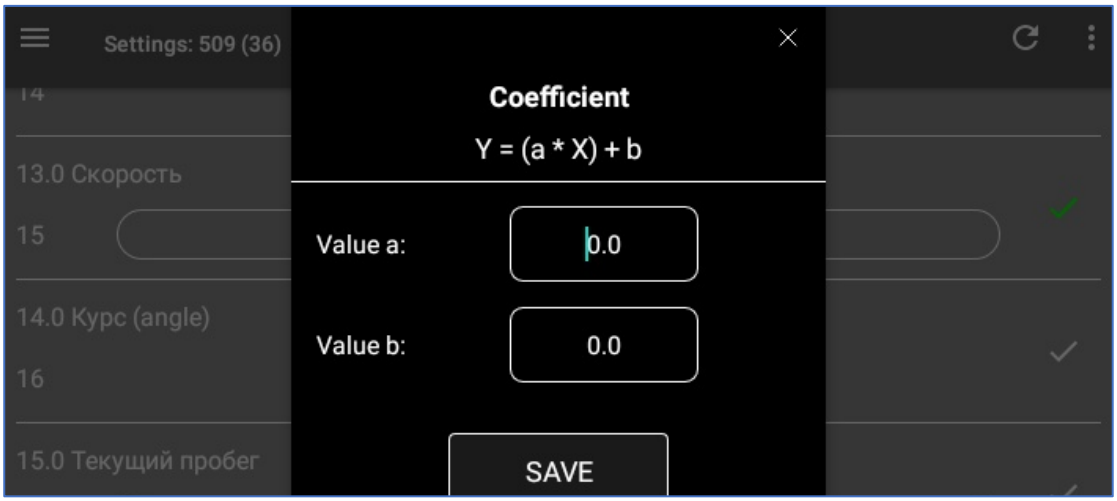


fig.3.10. Setting up the formula

8) In the menu “Request period” set the request interval to GPS tracker (fig.3.11).

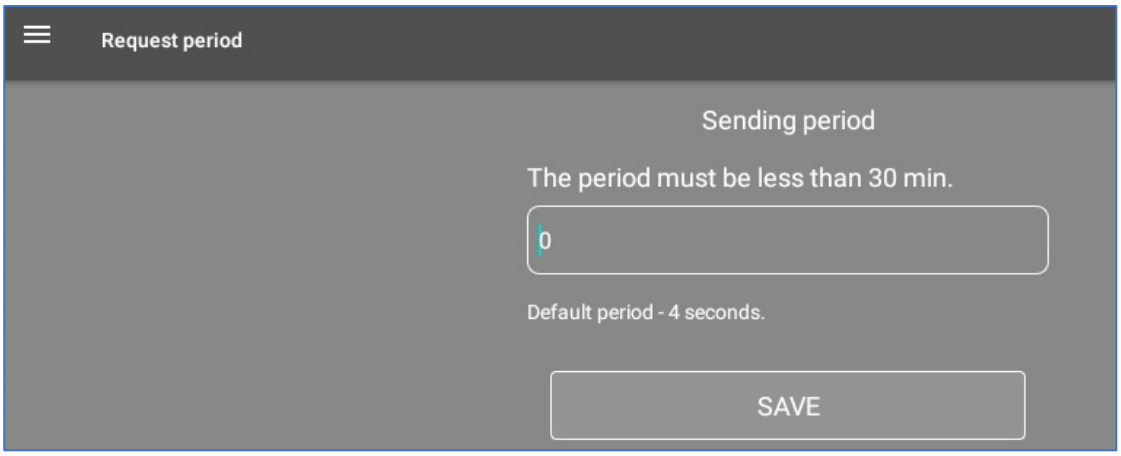


fig.3.11. Request period menu

The speed of Bluetooth channel may fail to provide extremely frequent data updates due to a large amount of data coming from GPS tracker. In this case, “freezing” of the dashboard indicators might occur.

Possible solutions:

- reduce the size of GPS tracker telematic package by disabling the sending of unused data, **OR**
- reduce the amount of data stored in the database by removing the “tick” mark from the unused parameters, **OR**
- increase the request period.

This setting matters only when working with Navtelecom terminals. Teltonika terminals send telematic packets with their own interval, which depends on the size of the data packet.

9) After choosing the list of parameters click **«START»** button to read data (fig.3.12). After successful connection two columns appear: the identifiers (according to Appendix 1) and their values.

When connecting to a monitoring terminal for the first time, it may be necessary to pair with the device. In this case, DashDrive screen will show the message with a pairing code and an offer to accept it.

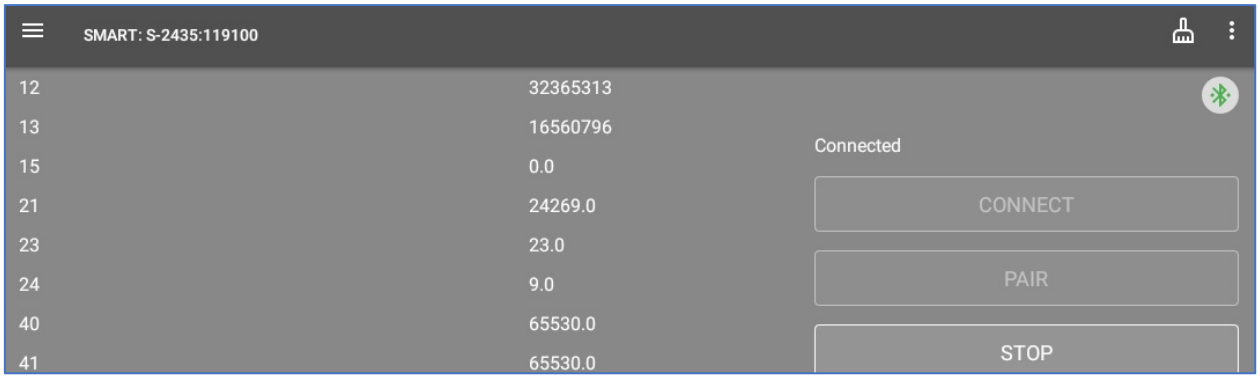


fig.3.12. Connection screen

## 3.2 SENDING DATA TO GPS TRACKING PLATFORM

To set up the data sending feature (fig.3.13):

1) open the server menu;
2) fill in the fields “IP/port”;
3) enter device unique ID for identification on server side (you can assign any unique ID, not necessarily IMEI of Android device);
4) set the data sending interval (in seconds).

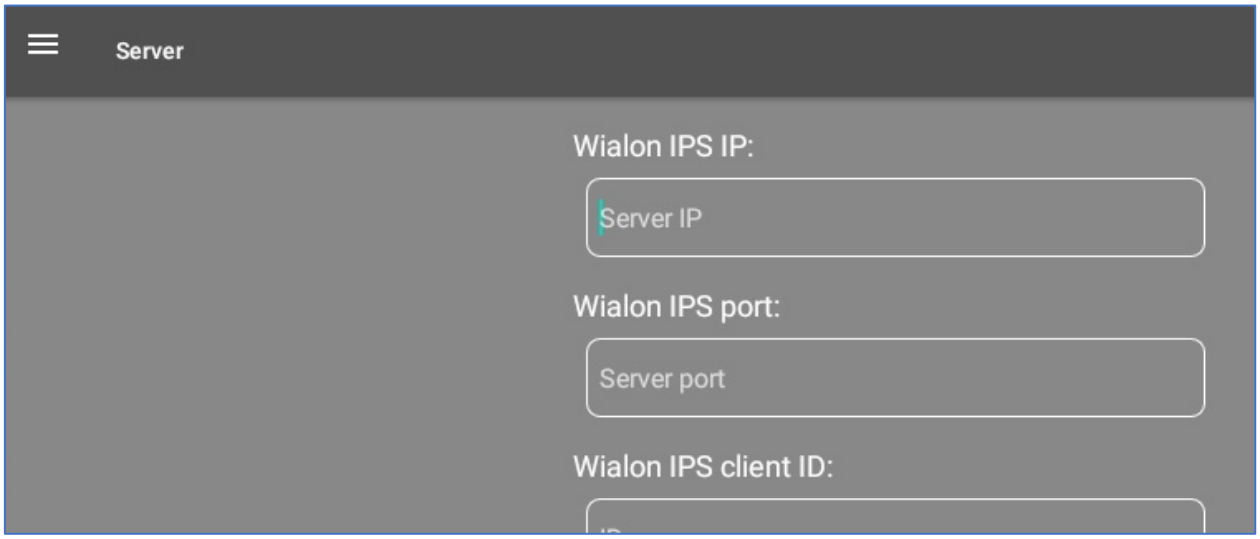


fig.3.13. Data sending setup

To transfer data to the server, any Internet connection is used (via a built-in SIM card, Wi-Fi).

If there is no connection, the data is stored in the device’s local database.

# 4 DASHBOARD SETTINGS

## 4.1 ADDING INDICATOR

To add an indicator to the dashboard panel:

- enter the menu by clicking on the arrow in the bottom-right corner of the dashboard;
- in the main menu, select the desired type of indicator from the gallery and click "+" under the indicator (fig.4.1).


fig.4.1. Selecting the type of indicator

In the gallery you can see the number of indicators of each type (fig.4.2).


fig.4.2. Number of indicators

## 4.2 ENTERING INDICATOR EDITOR

Click the icon “ ” under the necessary indicator type in the gallery (fig.4.2) to open the list of these indicators with control icons (fig.4.3)

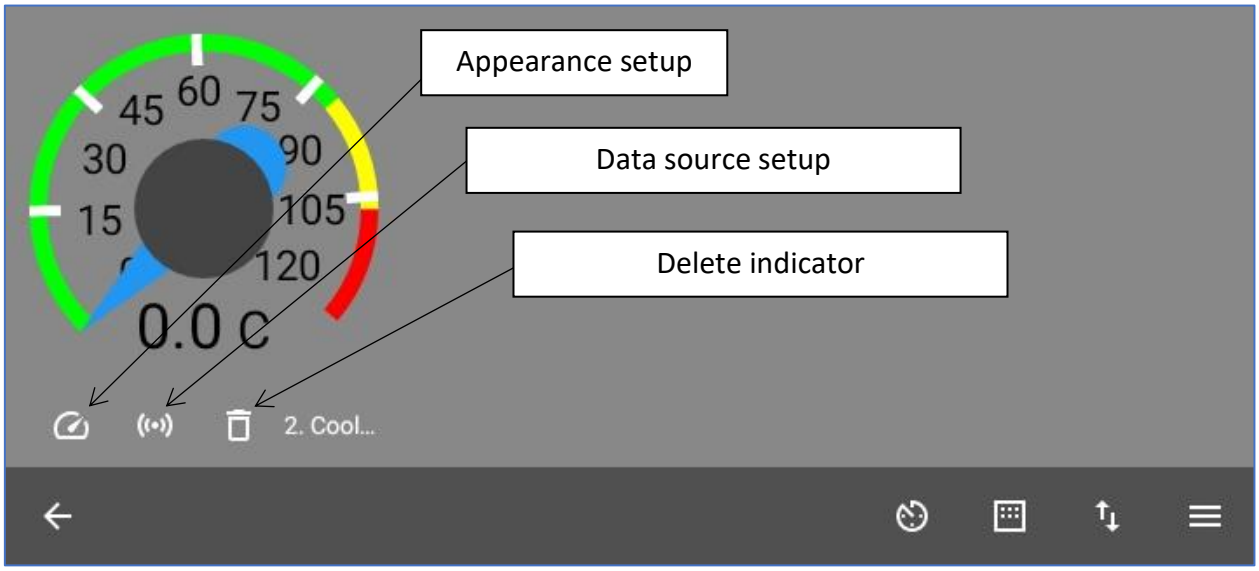


fig.4.3. Control icons

## 4.3 APPEARANCE SETUP

After entering the indicator appearance settings, you can see a vertical menu (fig.4.4) which contains various groups of settings.

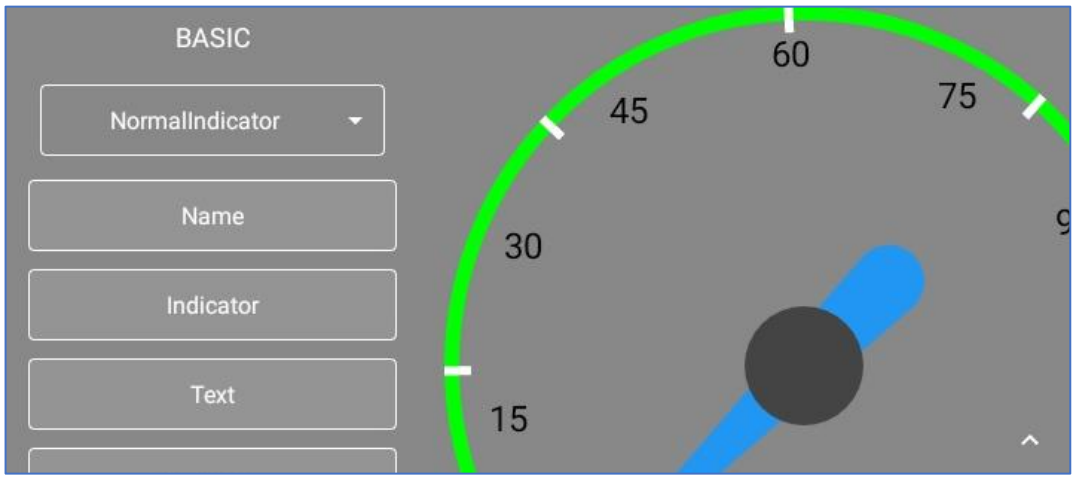


fig.4.4. Vertical appearance menu

Listbox allows you to set up the subtype of a particular indicator (fig.4.5):

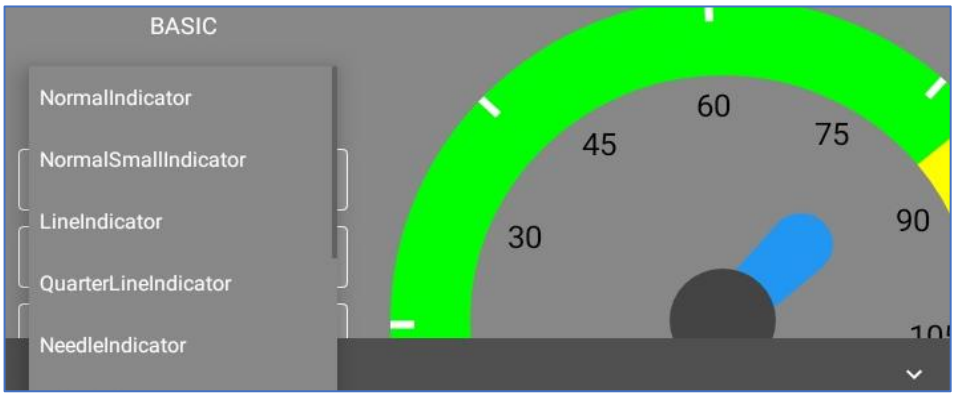


fig.4.5. Choosing the subtype of indicator

- **Group of settings** "**Name**" allows setting up the name of indicator displayed on the dashboard(fig.4.6).

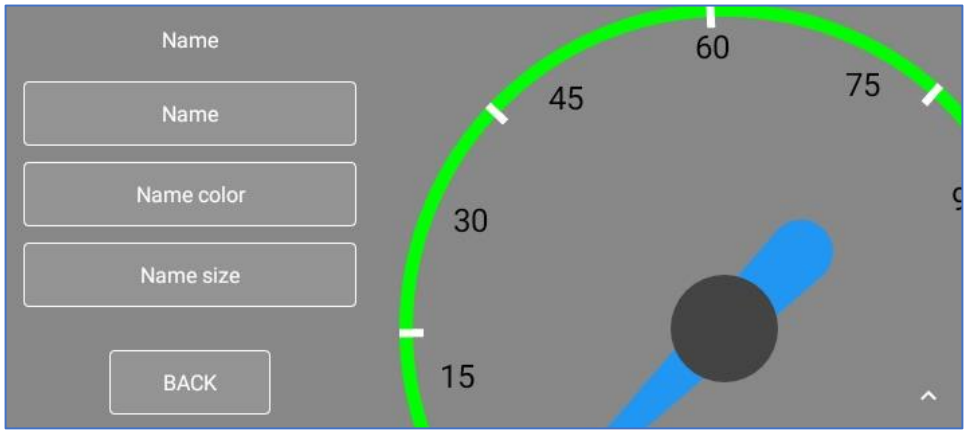


fig.4.6. Group of settings "Name"

- **Group of settings "Indicator"** is used to set up the indicator appearance (fig.4.7).

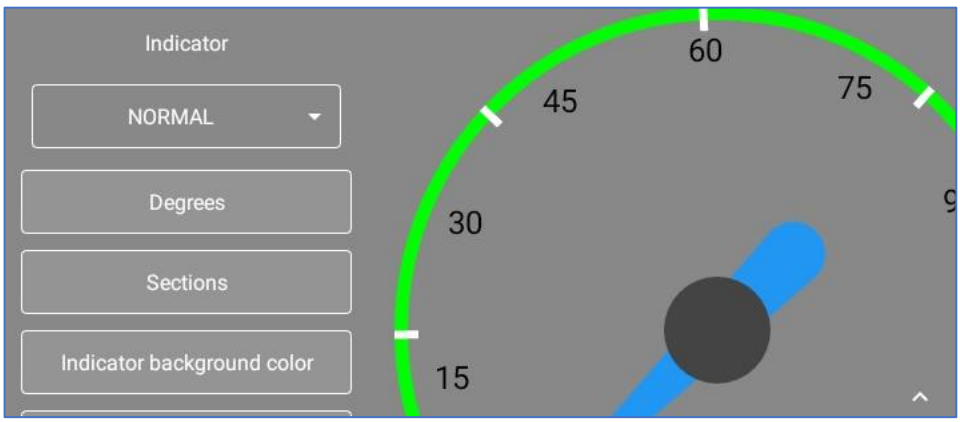


fig.4.7. Group of settings "Indicator"

You can set the orientation of the indicator: it can be angular or horizontal, but with the arrow pointing down (fig.4.8).

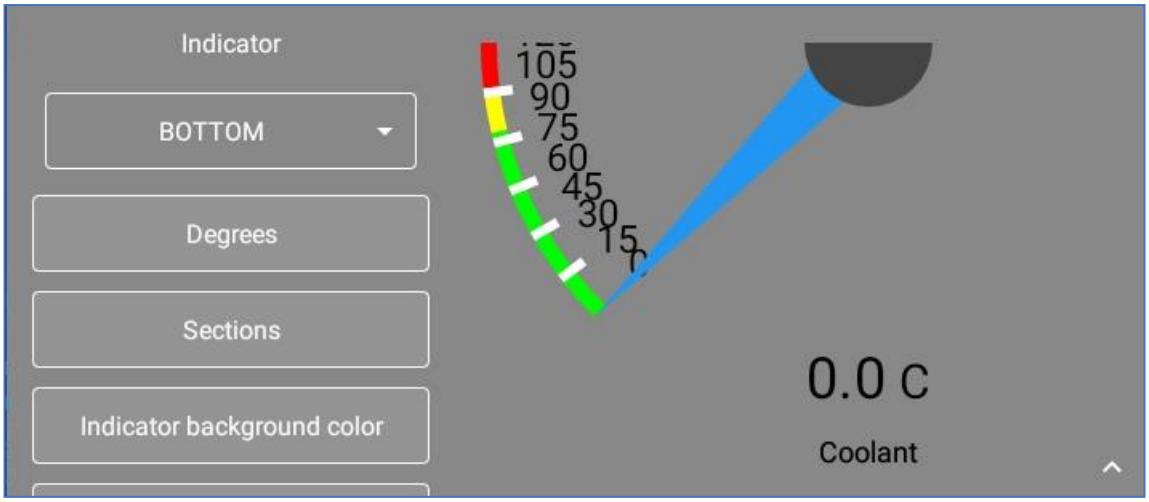


fig.4.8. Orientation settings – Bottom instead of Normal

You can set the scale range in degrees (fig.4.9).


fig.4.9. Scale settings

- **Group of settings "Sections"** allows you to create a multi-colored scale depending on the values. To do this, set the section boundaries in per cent of the maximum value (fig.4.10 and fig.4.11).

  Each section can be assigned its own thickness and colour (fig.4.12).

  In the "Indicator" menu you can set the colours and sizes of the background, arrow and central circle.

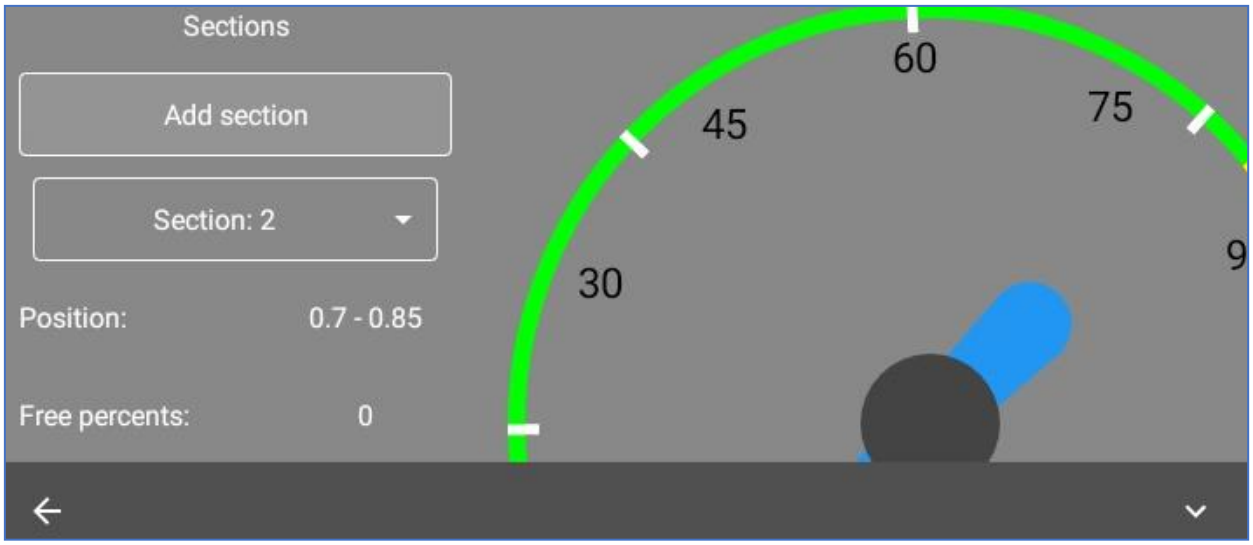


fig.4.10. Group of settings “Section”

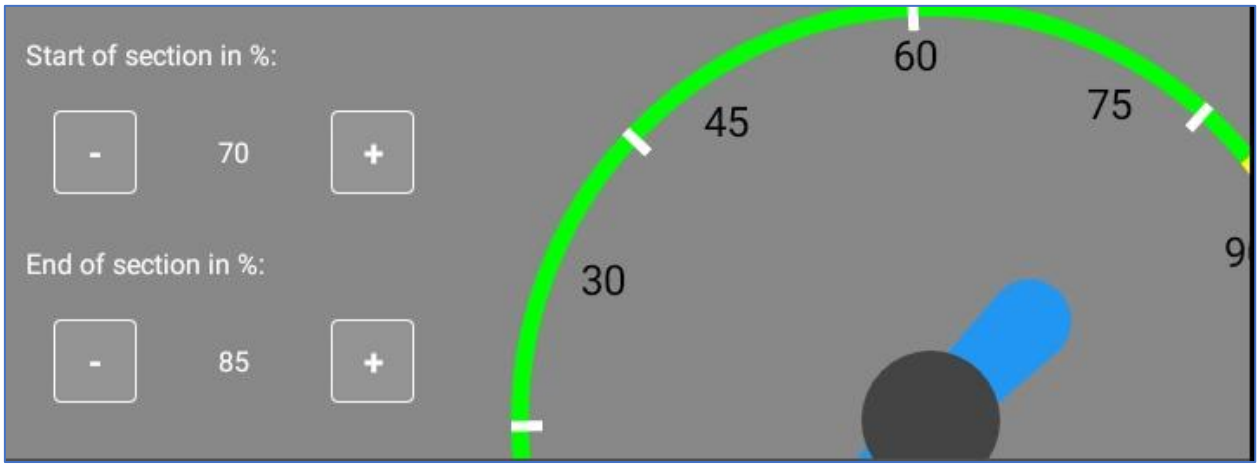


fig.4.11. Section settings

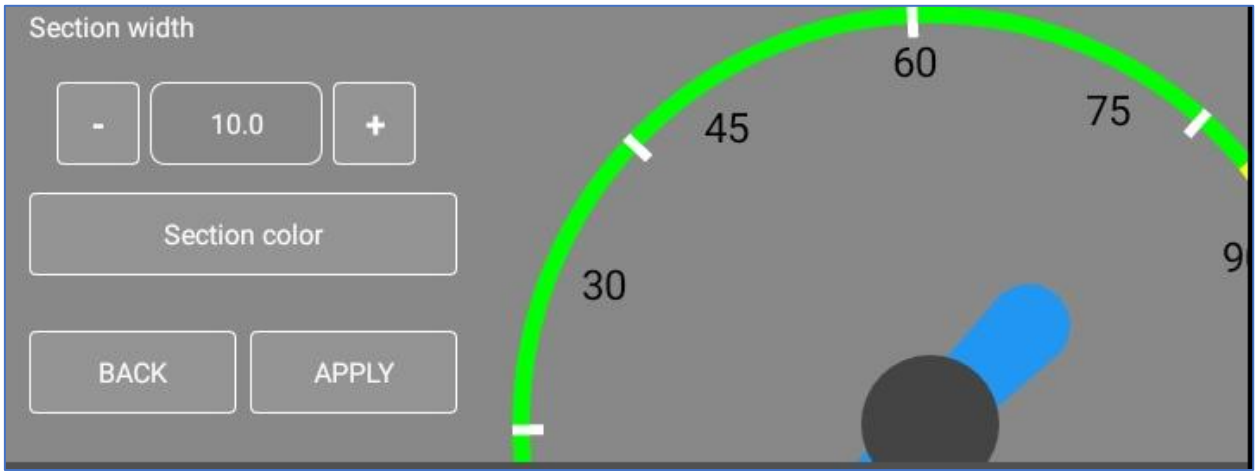


fig.4.12. Section settings

- **Group of settings "Text"** contains the information related to the ticks and value captions on the scale(fig.4.13).

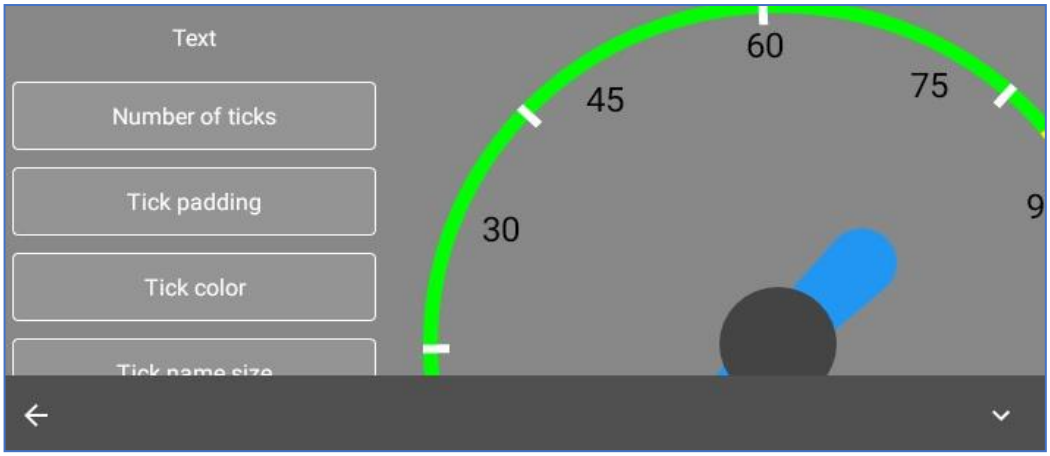


fig.4.13. Group of settings "Text"

You can set the font size and color for the numerical value of the parameter and its measurement units (fig.4.14), as well as the position of caption (fig.4.15).

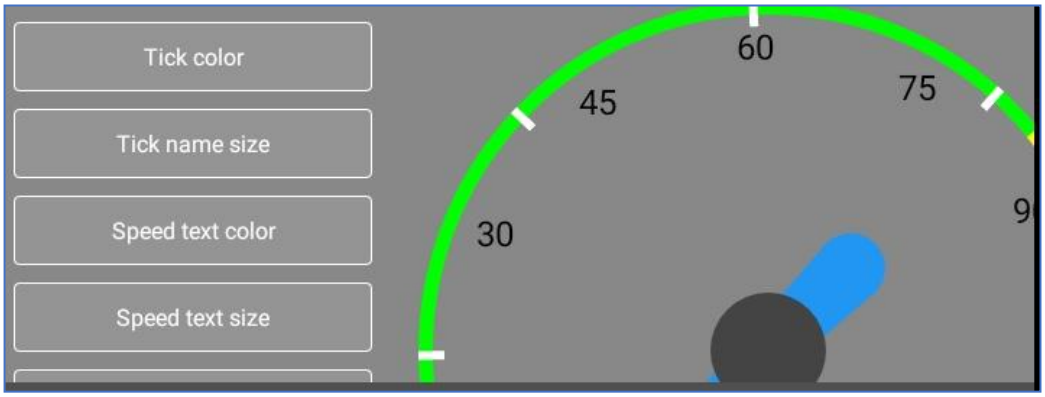


fig.4.14. Group of settings "Text"

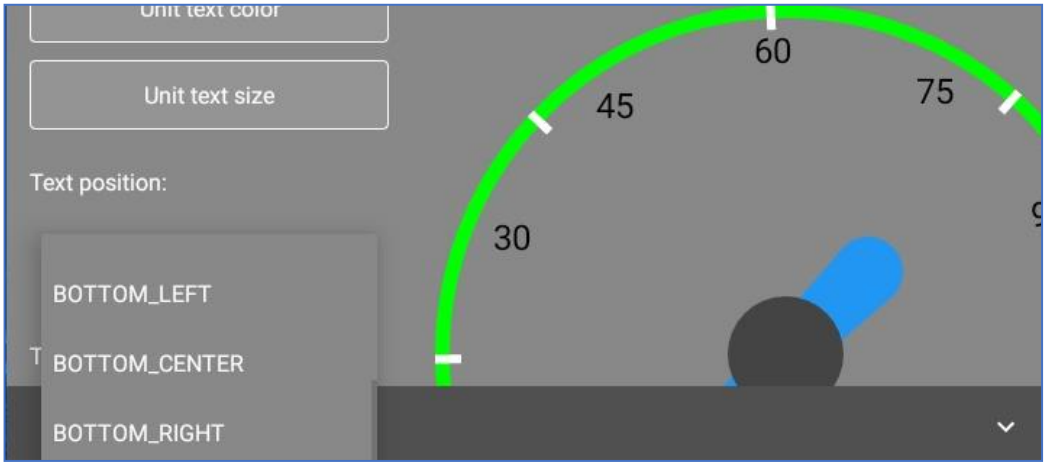


fig.4.15. Group of settings "Text"

- **Group of settings "Divisions"** contains the information related to scale divisions. The divisions are evenly spaced on the specified angular size of the indicator (fig.4.16).

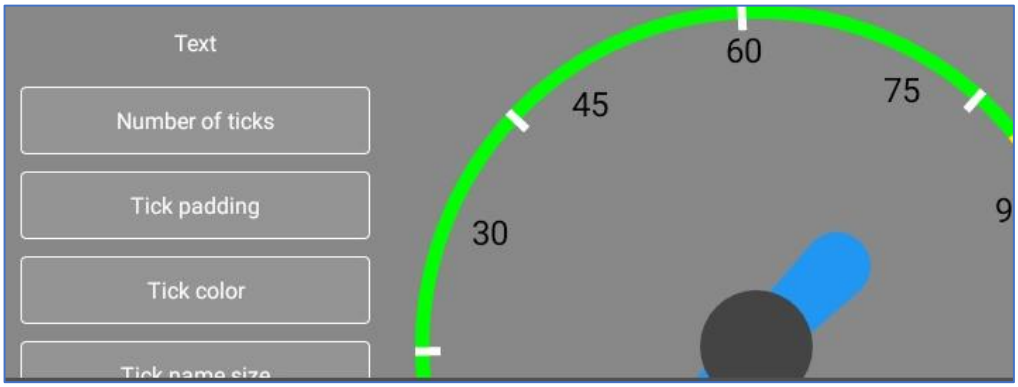


fig.4.16. Group of settings "Divisions"

You can set the size, position of divisions, and their style (fig.4.17).

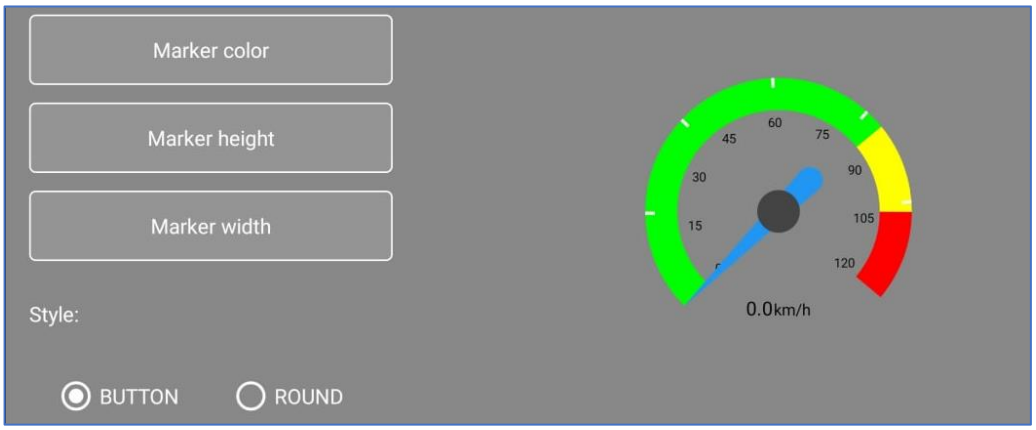


fig.4.17. Group of settings "Divisions"

- **Minimum and maximum values** set the scale range, divided into the specified number of parts (fig.4.18).


fig.4.18. Setting up the maximum value

- **Background** setting changes the background colour (fig.4.19).

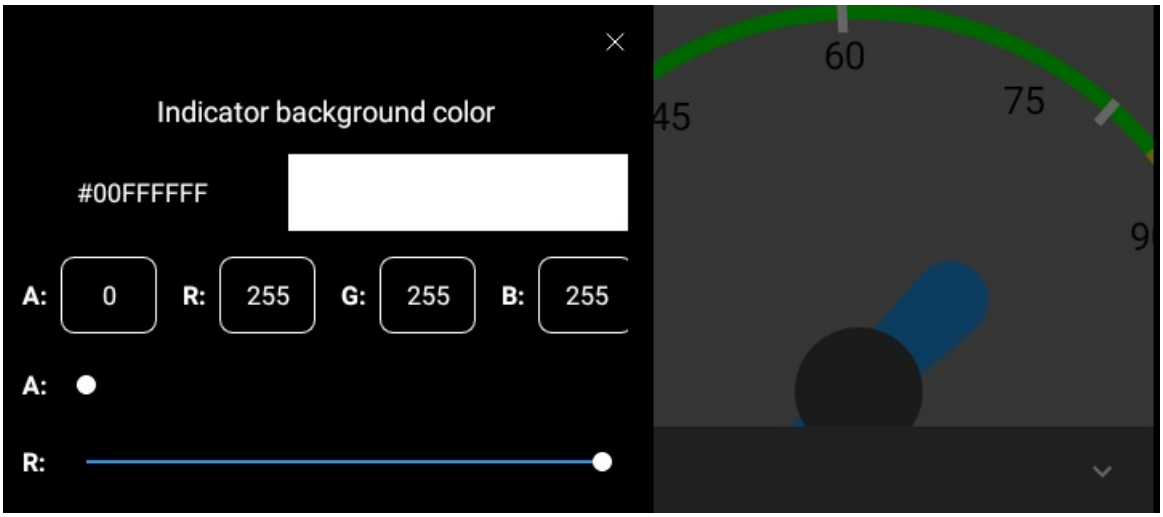


fig.4.19. Background colour setup

- **Other settings.**

You can convert values on a scale from absolute values to the ones in per cent. The button **"Simulate"** allows you to see how the indicator works at various simulated values (fig.4.20).

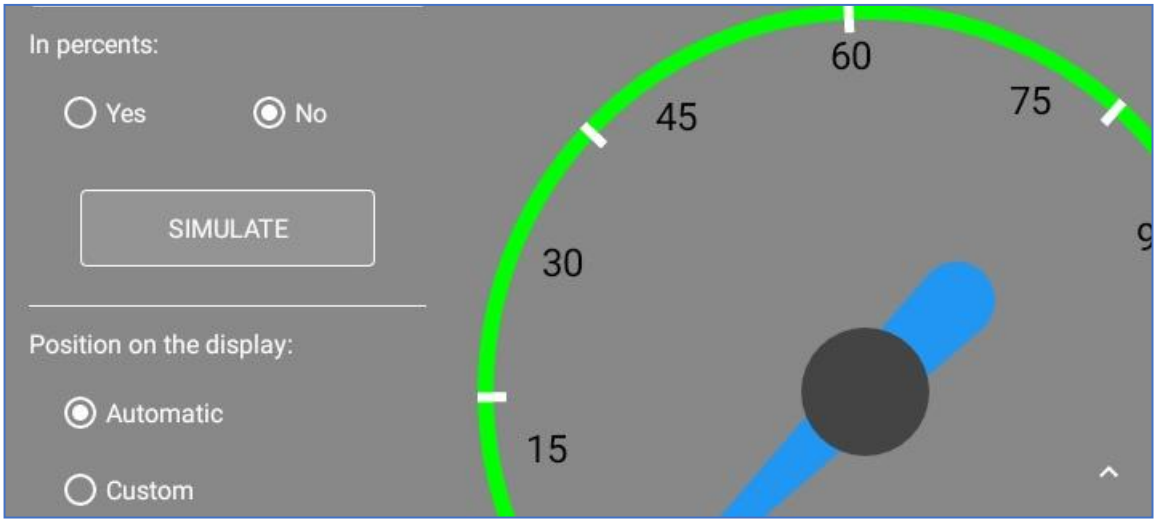


fig.4.20. "Simulation" button

The indicator position on the dashboard can be either automatic, or user-defined. Set the parameter "Layer" to make one indicator lie upon the other (fig.4.21).

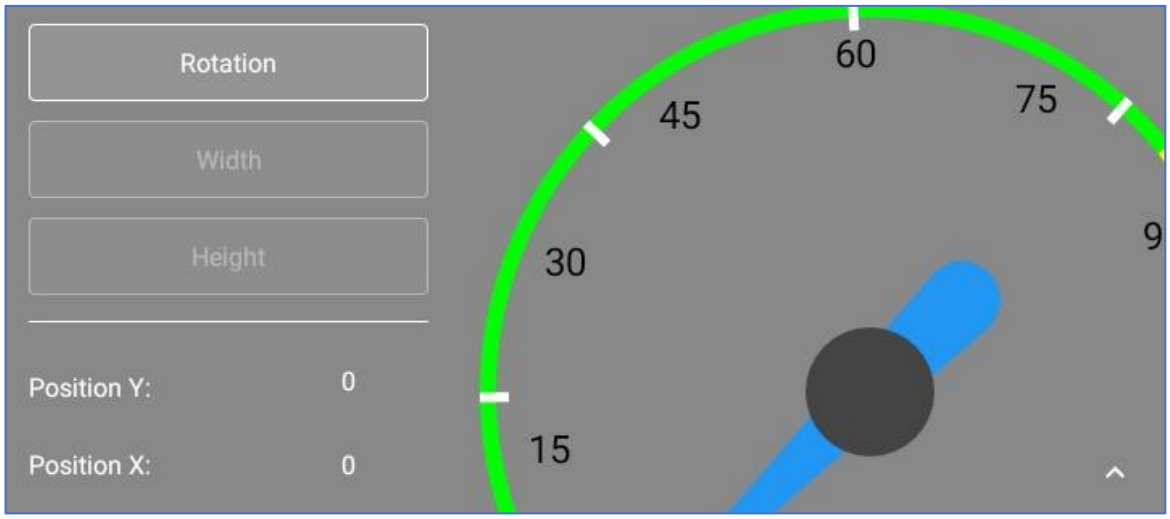


fig.4.21. “Layer” parameter

# 5 CONNECTION WITH DATA SOURCES

After creating an indicator, you need to link it to data sources by clicking on the icon under the indicator (fig.5.1). The list of possible parameters appears.

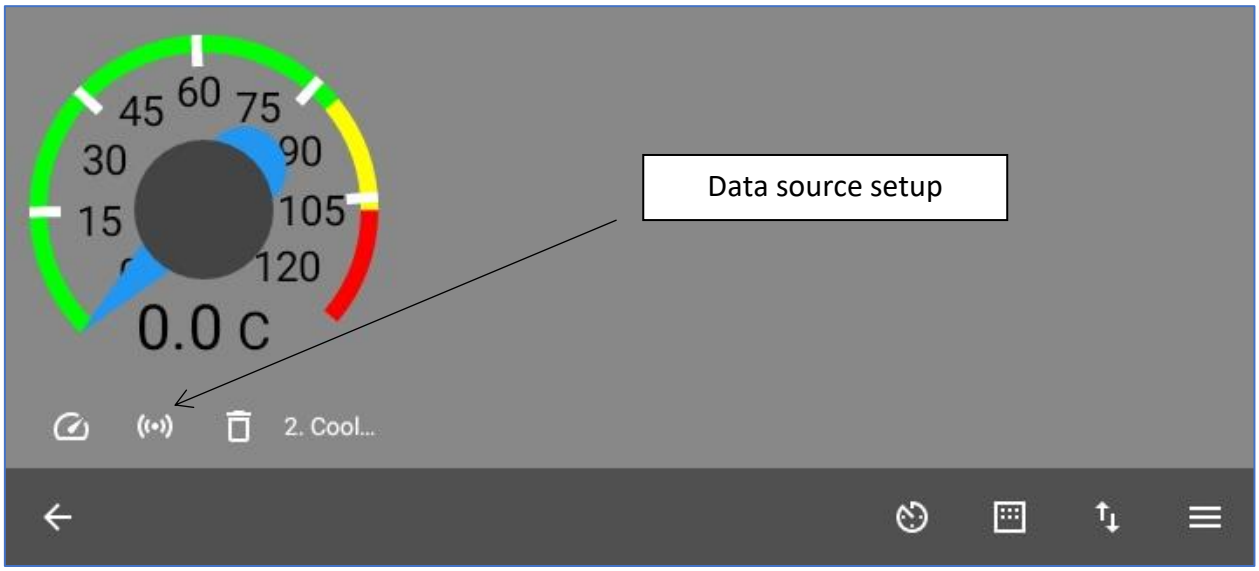


fig.5.1. Data source setup

Active parameters (received from GPS tracker and stored in the database) will be marked with a green indicator. To associate an indicator with a data source, just select one of the active options. Its name will be displayed on the right, and the mark of the active parameter will turn green (fig.5.2).


fig.5.2. Active parameters

# 6 GLOBAL SETTINGS

## 6.1 DASHBOARD UPDATE INTERVAL

You can set up the dashboard update interval using “clock” icon in the main menu. (fig. 6.1).

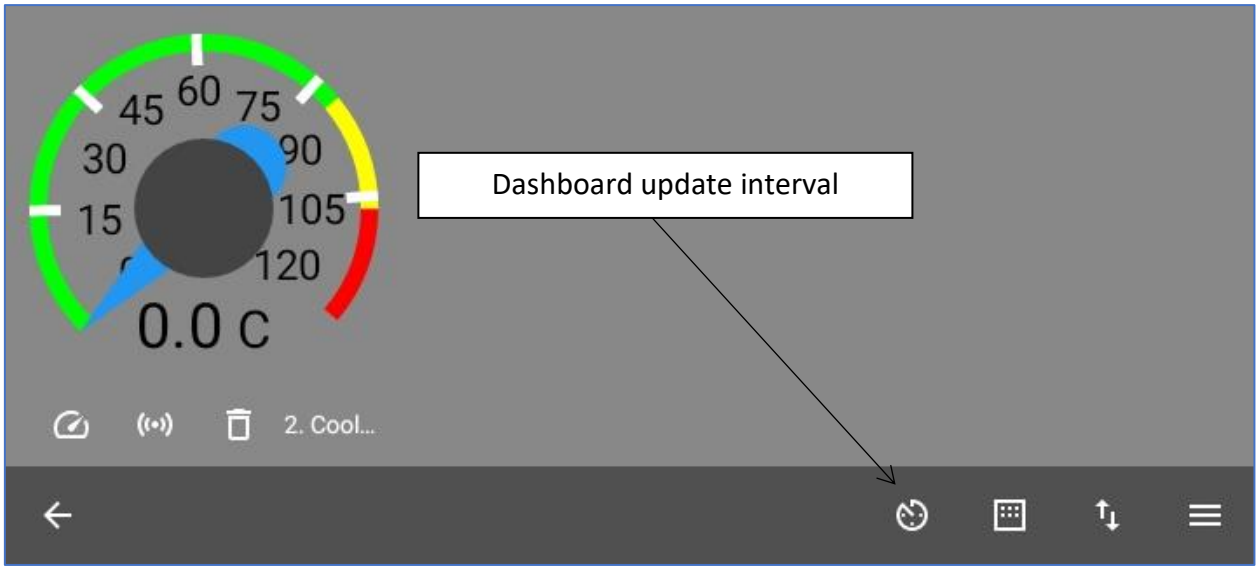


fig. 6.1. Setting up dashboard update interval

It is recommended to set the update interval longer than the period of data requests from the GPS tracker (fig. 6.2). Otherwise, there will be no new data to update. Besides, more frequent queries to the database can slow down the data reading from the GPS tracker and lead to the “freezing” of dashboard indicators.

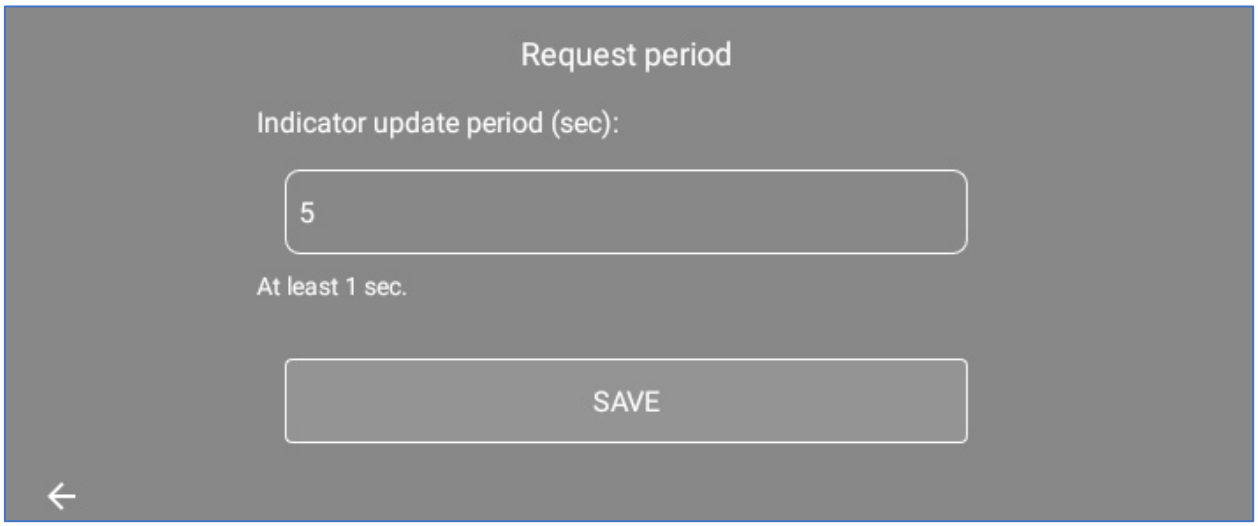


fig. 6.2. Dashboard update interval

## 6.2 INDENTS BETWEEN INDICATORS

If necessary, you can change the automatic indents between indicators in the corresponding section (fig. 6.3).

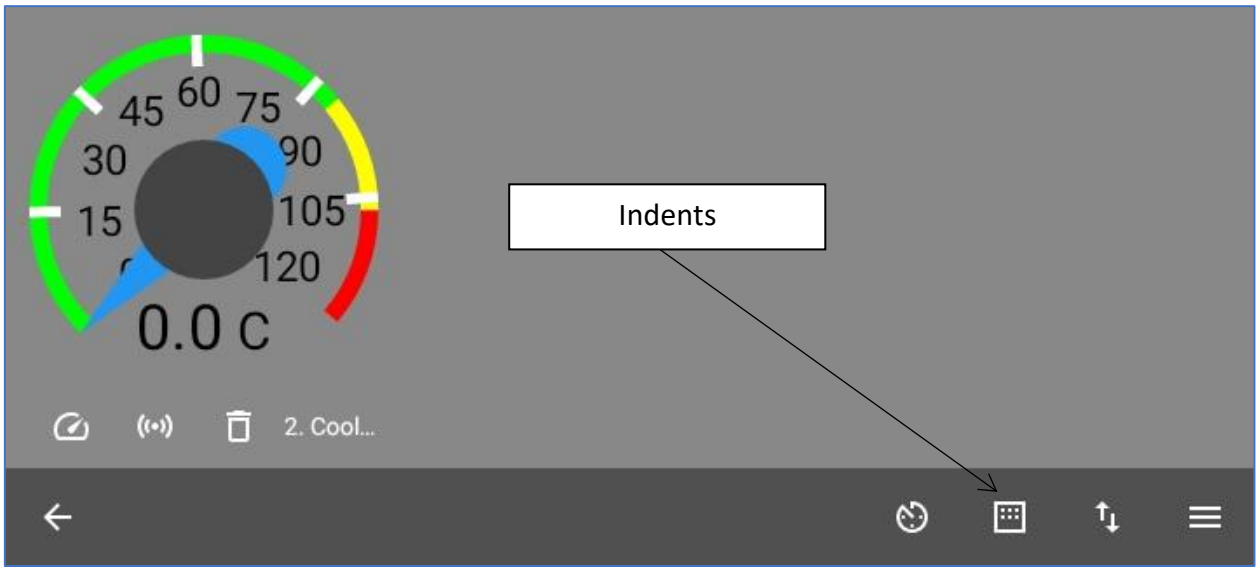


fig. 6.3. Setting up the indents

- Select one of the available indents. The selected indent becomes green (fig. 6.4).

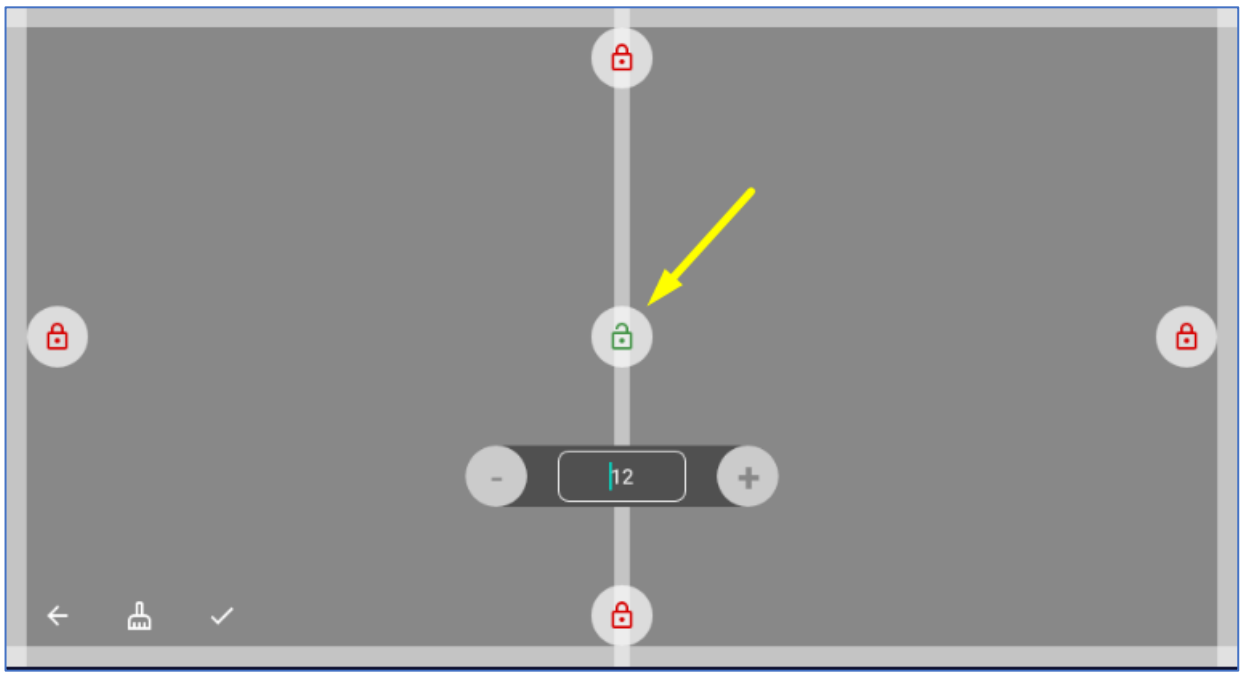


fig. 6.4. Selecting the indent

- Use the buttons **«+» и «-»** to change the indent values.
- To reset all indents to standard sizes, use the button « (Clean)» (fig. 6.5).

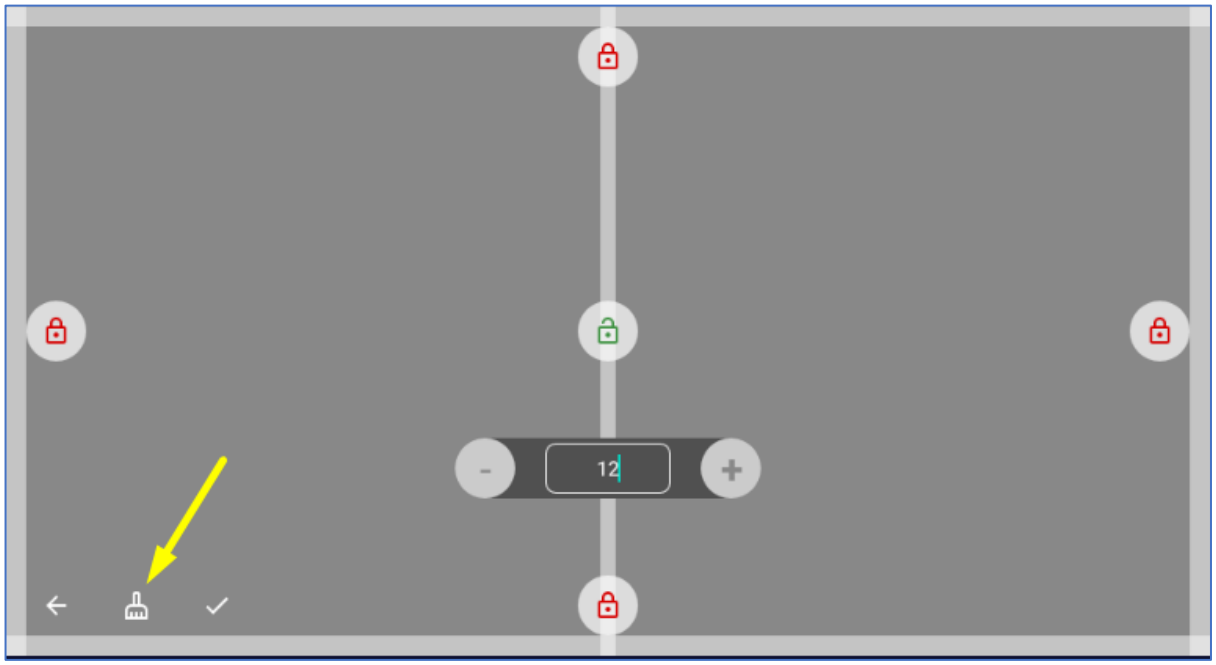


fig. 6.5. Changing the indents

## 6.3 IMPORT/EXPORT OF DASHBOARD SETTINGS

You can import or export dashboard settings in Import/export menu (fig. 6.6 and fig. 6.7).

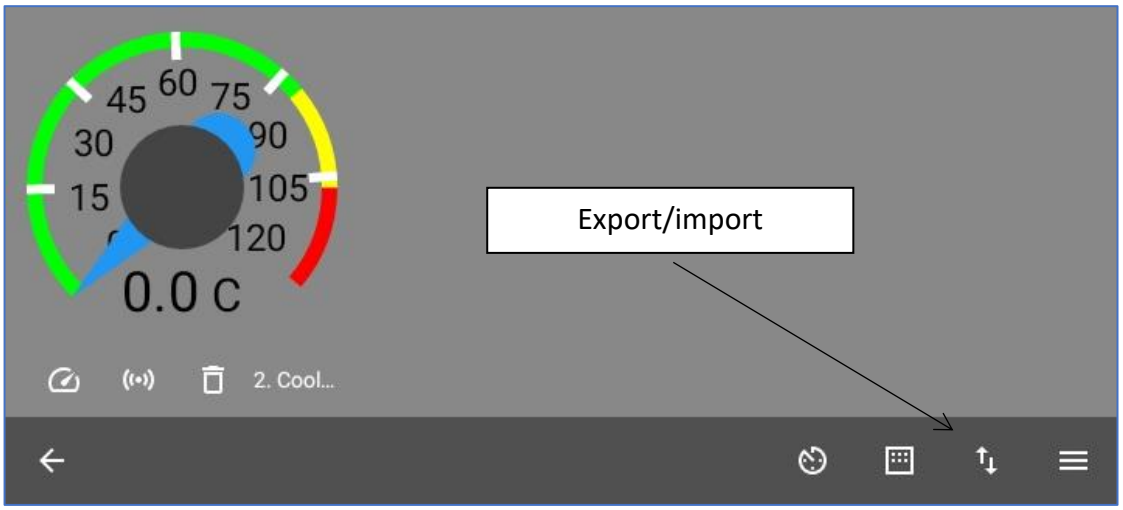


fig. 6.6. Export/import icon

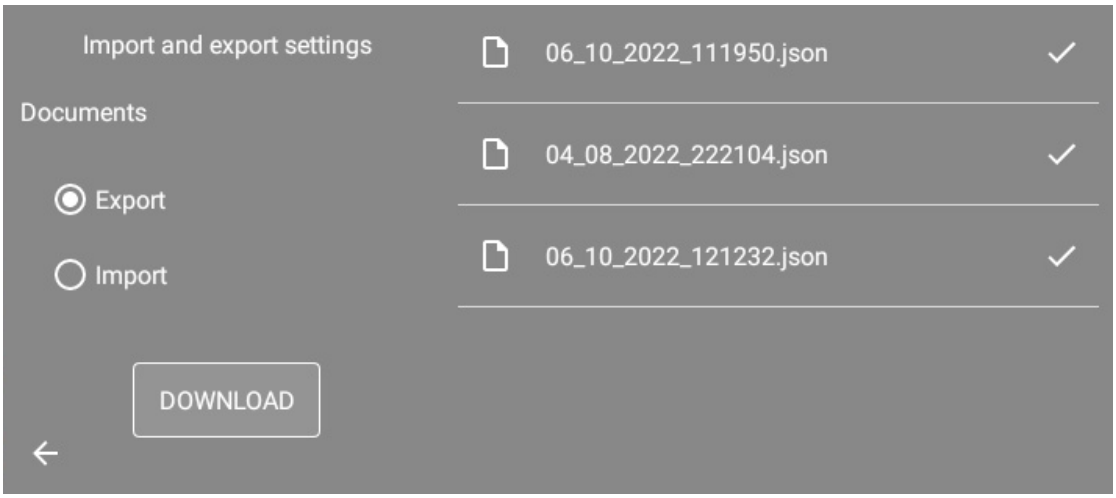


fig. 6.7. Export/import menu

Export procedure generates a **.json**-file, saved in **MXTConfig** folder, which is stored in **«Documents»** folder of Android-device.

Import of dashboard configuration is performed by loading the saved **.json**-file from **«Downloads»** folder of Android device.

To load the previously saved configuration, copy the **.json**-file into **«Downloads»** folder.

## 6.4 DASHDRIVE AUTORUN

After DashDrive installation you need to make it the Main Android app via Android settings menu:

**Settings – Apps & notifications – Advanced - Default apps – Home app** – choose **DashDrive** (fig. 6.8 – fig. 6.11).

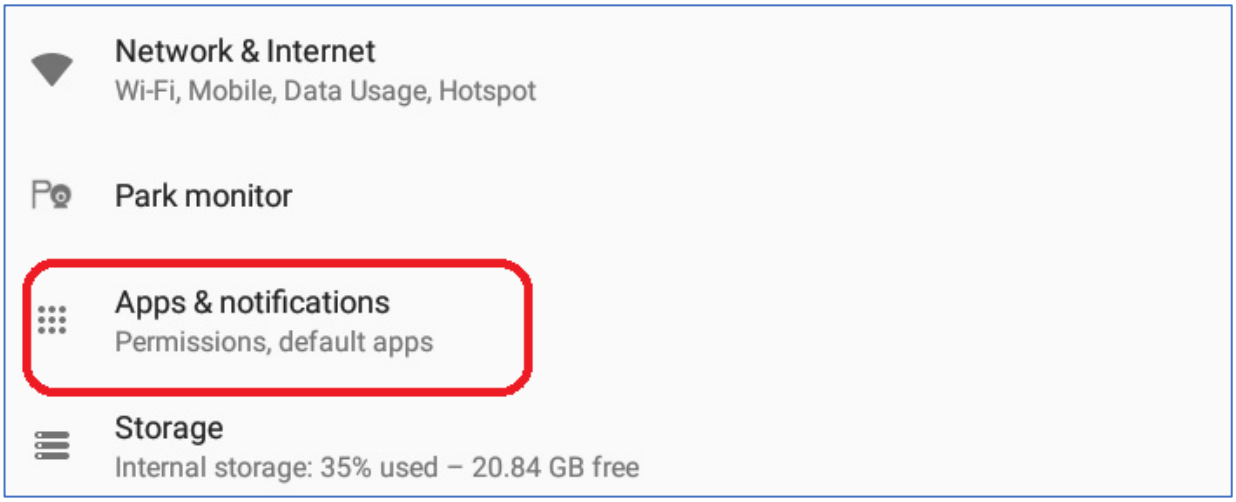


fig. 6.8. Making DashDrive the Main app

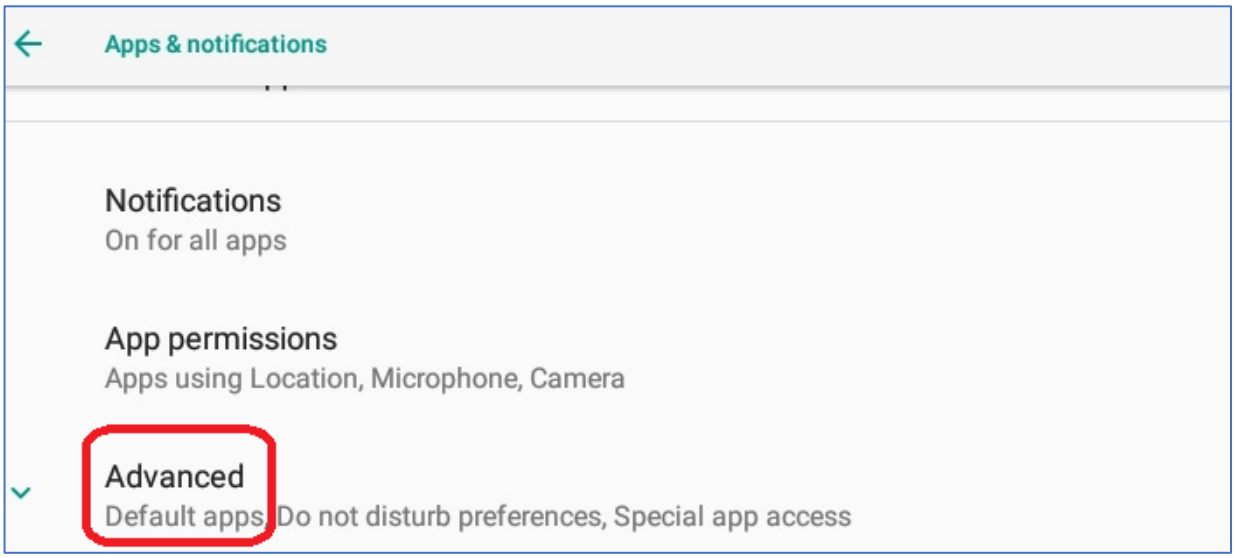


fig. 6.9. Making DashDrive the Main app

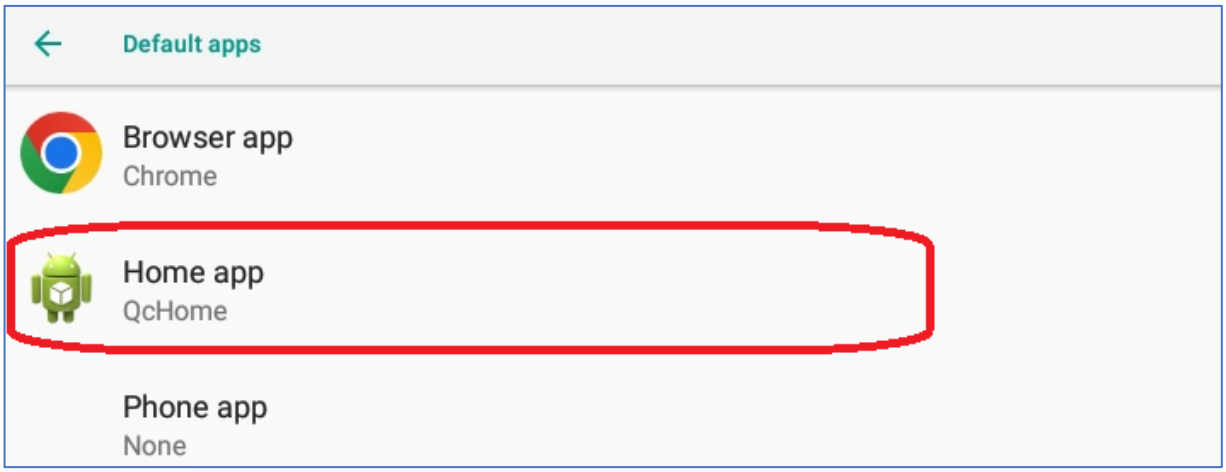


fig. 6.10. Making DashDrive the Main app

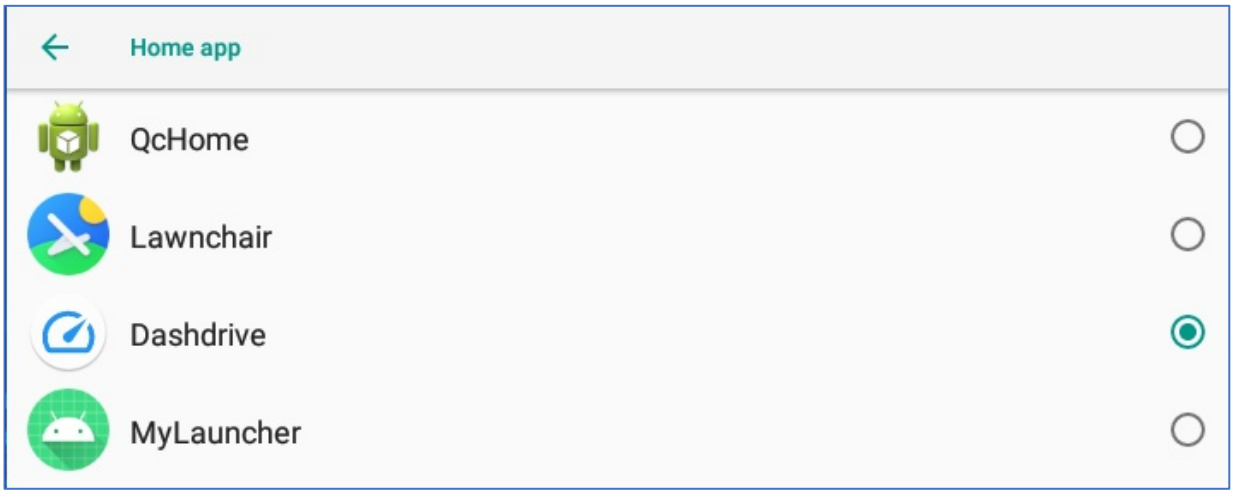


fig. 6.11. Making DashDrive the Main app

The “home” button on an Android device launches the main app, therefore standard features and apps of the Android system may be unavailable.

If you need to run any other app, but Dashdrive, open DashDrive system menu and select **«Applications»** – **«Settings»** (fig. 6.12 and fig.6.13).

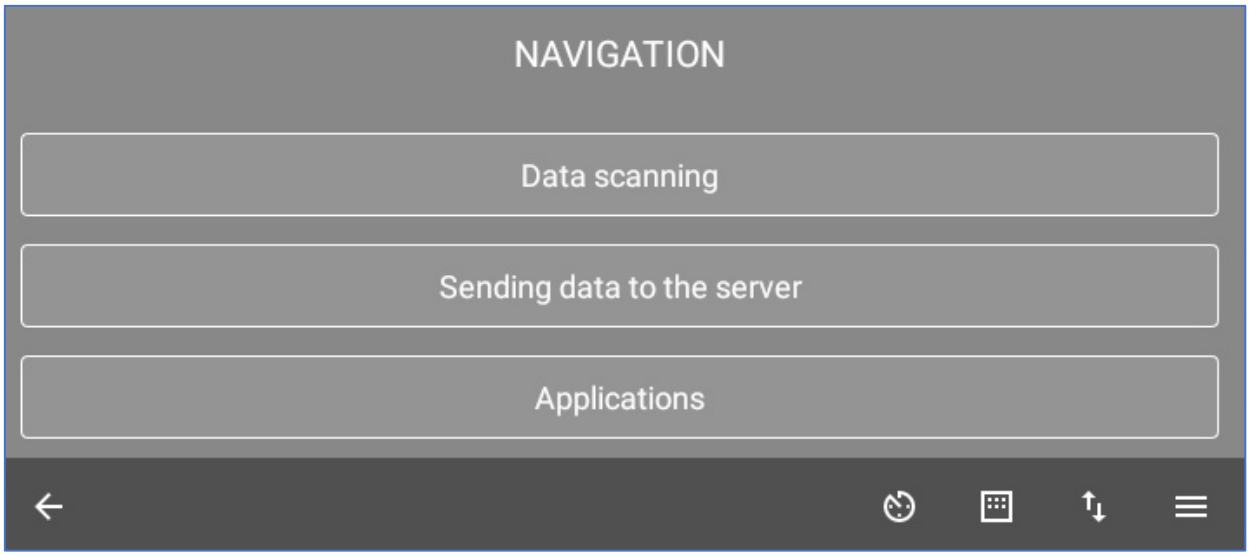


fig. 6.12. DashDrive system menu: “Applications”

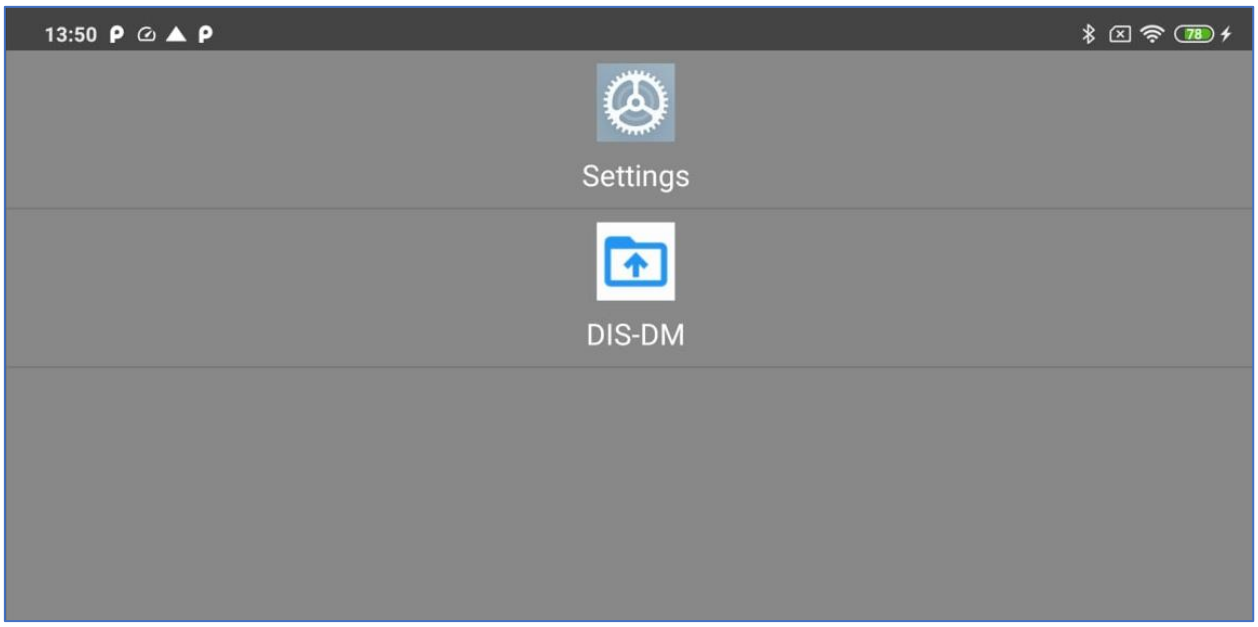


fig.6.13. Click «Settings» to enter Android system menu

Thus, you can get into the Android system settings and disable the use of DashDrive as the main application.

# 7 ADDITIONAL INFORMATION

## 7.1 TECHNICAL SUPPORT


+37525-691-87-76


+37525-691-87-76


support@mechatronics.by

## 7.2 CONTACTS

JSC Mechatronics
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Vileyka, 222416
Belarus
t: +375 (1771) 33011
f: +375 (1771) 24190
E-mail: office@mechatronics.by
www.mechatronics.by/en

## APPENDIX 1. LIST OF READABLE PARAMETERS

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 1 | | 3 | Flex | IMEI |
| 2 | | 2 | Flex | FLEX version |
| 3 | | 1 | Flex | Row index |
| 4 | | 1 | Flex | Event code |
| 5 | Timestamp | 1 | Flex, teltonika | Event time |
| 6 | | 1 | Flex | device_status |
| 7 | | 1 | Flex | functional_module1 |
| 8 | | 1 | Flex | functional_module2 |
| 9 | 21 | 1 | Flex, teltonika | GSM level |
| 10 | | 1 | Flex | gps_status |
| 11 | | 1 | Flex | last_time_valid |
| 12 | Latitude | 2 | Flex, teltonika | Last latitude |
| 13 | Longitude | 2 | Flex, teltonika | Last longitude |
| 14 | Altitude | 1 | Flex, teltonika | Last altitude |
| 15 | 24 | 2 | Flex, teltonika | Speed |
| 16 | Angle | 1 | Flex, teltonika | Course, angle |
| 17 | 16 | 2 | Flex, teltonika | Mileage |
| 18 | 199 | 2 | Flex, teltonika | Last mileage |
| 19 | | 1 | Flex | seconds |
| 20 | | 1 | Flex | seconds_mileage |
| 21 | 66 | 2 | Flex, teltonika | Main voltage |
| 22 | 67 | 2 | Flex, teltonika | Battery voltage |
| 23 | 9 | 2 | Flex, teltonika | Analog input 1 |
| 24 | 6 | 2 | Flex, teltonika | analog_input2 |
| 25 | | 2 | Flex | analog_input3 |
| 26 | | 2 | Flex | analog_input4 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 27 | | 2 | Flex | analog_input5 |
| 28 | | 2 | Flex | analog_input6 |
| 29 | | 2 | Flex | analog_input7 |
| 30 | | 2 | Flex | analog_input8 |
| 31 | 1 | 1 | Flex, teltonika | Discrete sensors №1 |
| 32 | | 1 | Flex | discrete_sensors2 |
| 33 | 179 | 1 | Flex, teltonika | Outputs №1 |
| 34 | | 1 | Flex | Outputs №2 |
| 35 | 4 | 2 | Flex, teltonika | Impulses counter 1 |
| 36 | 5 | 2 | Flex, teltonika | Impulses counter 2 |
| 37 | | 2 | Flex | afs_frequency1 |
| 38 | | 2 | Flex | afs_frequency2 |
| 39 | | 2 | Flex | engine_hours |
| 40 | 201 | 2 | Flex, teltonika | RS-485 Fuel level 1 |
| 41 | 203 | 2 | Flex, teltonika | RS-485 Fuel level 2 |
| 42 | 210 | 2 | Flex, teltonika | RS-485 Fuel level 3 |
| 43 | 212 | 2 | Flex, teltonika | RS-485 Fuel level 4 |
| 44 | 214 | 2 | Flex, teltonika | RS-485 Fuel level 5 |
| 45 | | 2 | Flex | rs485_fuel6 |
| 46 | | 2 | Flex | rs232_fuel |
| 47 | 72 | 2 | Flex, teltonika | Temperature 1 |
| 48 | 73 | 2 | Flex, teltonika | temperature2 |
| 49 | 74 | 2 | Flex, teltonika | temperature3 |
| 50 | 75 | 2 | Flex, teltonika | temperature4 |
| 51 | | 2 | Flex | temperature5 |
| 52 | | 2 | Flex | temperature6 |
| 53 | | 2 | Flex | temperature7 |
| 54 | | 2 | Flex | temperature8 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 55 | 48 | 2 | Flex, teltonika | fuel_level_can |
| 56 | 83 | 2 | Flex, teltonika | CAN. Fuel Consumed |
| 57 | 36 | 2 | Flex, teltonika | Engine RPM |
| 58 | 32 | 2 | Flex, teltonika | CAN. Coolant temperature |
| 59 | 87 | 2 | Flex, teltonika | Total mileage |
| 60 | 118 | 2 | Flex, teltonika | Axle load 1 |
| 61 | 119 | 2 | Flex, teltonika | Axle load 2 |
| 62 | 120 | 2 | Flex, teltonika | Axle load 3 |
| 63 | 121 | 2 | Flex, teltonika | Axle load 4 |
| 64 | 122 | 2 | Flex, teltonika | Axle load 5 |
| 65 | 41 | 2 | Flex, teltonika | gas_pedal_can |
| 66 | | 2 | Flex | brake_pedal_can |
| 67 | 31 | 2 | Flex, teltonika | CAN. Engine load |
| 68 | | 2 | Flex | diesel_filter_level |
| 69 | 102 | 2 | Flex, teltonika | full_engine_time |
| 70 | | 2 | Flex | km_to service |
| 71 | 37 | 2 | Flex, teltonika | CAN. Vehicle speed |
| 72 | | 0 | Flex | Satellites |
| 73 | | 1 | Flex | GLONASS |
| 74 | SatInUse | 1 | Flex, teltonika | GPS |
| 75 | | 1 | Flex | Galileo |
| 76 | | 1 | Flex | Compass |
| 77 | | 1 | Flex | Beidou |
| 78 | | 1 | Flex | Doris |
| 79 | | 1 | Flex | sat_irnss |
| 80 | | 1 | Flex | sat_qzss |
| 81 | | 1 | Flex | HDOP, PDOP |
| 82 | 182 | 2 | Flex, teltonika | SNSS HDOP |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 83 | 181 | 2 | Flex, teltonika | GNSS PDOP |
| 84 | 69 | 1 | Flex, teltonika | GNSS status |
| 85 | | 1 | Flex | gnss_geolocation |
| 86 | | 2 | Flex | gnss_latitude |
| 87 | | 2 | Flex | gnss_longitude |
| 88 | | 2 | Flex | gnss_altitude |
| 89 | | 1 | Flex | gnss_course |
| 90 | | 2 | Flex | gnss_speed |
| 91 | | 1 | Flex | info_lbs |
| 92 | 205 | 1 | Flex, teltonika | Current LBS ID |
| 93 | 206 | 1 | Flex, teltonika | GSM area code |
| 94 | | 1 | Flex | current_lbs_mcc |
| 95 | | 1 | Flex | current_lbs_mnc |
| 96 | | 1 | Flex | current_lbs_dbm |
| 97 | | 1 | Flex | neighbor_lbs1_id |
| 98 | | 1 | Flex | neighbor_lbs1_lac |
| 99 | | 1 | Flex | neighbor_lbs1_mcc |
| 100 | | 1 | Flex | neighbor_lbs1_mnc |
| 101 | | 1 | Flex | neighbor_lbs1_dbm |
| 102 | | 1 | Flex | neighbor_lbs2_id |
| 103 | | 1 | Flex | neighbor_lbs2_lac |
| 104 | | 1 | Flex | neighbor_lbs2_mcc |
| 105 | | 1 | Flex | current_lbs2_mnc |
| 106 | | 1 | Flex | neighbor_lbs2_dbm |
| 107 | | 1 | Flex | last_time_lbs |
| 108 | 202 | 2 | Flex, teltonika | RS-485 Temperature 1 |
| 109 | 204 | 2 | Flex, teltonika | RS-485 Temperature 2 |
| 110 | 211 | 2 | Flex, teltonika | RS-485 Temperature 3 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 111 | 213 | 2 | Flex, teltonika | RS-485 Temperature 4 |
| 112 | 215 | 2 | Flex, teltonika | RS-485 Temperature 5 |
| 113 | | 2 | Flex | rs485_temp6 |
| 114 | | 2 | Flex | rs485_7 |
| 115 | | 2 | Flex | rs485_fuel7 |
| 116 | | 2 | Flex | rs485_temp7 |
| 117 | | 2 | Flex | rs485_8 |
| 118 | | 2 | Flex | rs485_fuel8 |
| 119 | | 2 | Flex | rs485_temp8 |
| 120 | | 2 | Flex | rs485_9 |
| 121 | | 2 | Flex | rs485_fuel9 |
| 122 | | 2 | Flex | rs485_temp9 |
| 123 | | 2 | Flex | rs485_10 |
| 124 | | 2 | Flex | rs485_fuel10 |
| 125 | | 2 | Flex | rs485_temp10 |
| 126 | | 2 | Flex | rs485_11 |
| 127 | | 2 | Flex | rs485_fuel11 |
| 128 | | 2 | Flex | rs485_temp11 |
| 129 | | 2 | Flex | rs485_12 |
| 130 | | 2 | Flex | rs485_fuel12 |
| 131 | | 2 | Flex | rs485_temp12 |
| 132 | | 2 | Flex | rs485_13 |
| 133 | | 2 | Flex | rs485_fuel13 |
| 134 | | 2 | Flex | rs485_temp13 |
| 135 | | 2 | Flex | rs485_14 |
| 136 | | 2 | Flex | rs485_fuel14 |
| 137 | | 2 | Flex | rs485_temp14 |
| 138 | | 2 | Flex | rs485_15 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 139 | | 2 | Flex | rs485_fuel15 |
| 140 | | 2 | Flex | rs485_temp15 |
| 141 | | 2 | Flex | rs485_16 |
| 142 | | 2 | Flex | rs485_fuel16 |
| 143 | | 2 | Flex | rs485_temp16 |
| 144 | | 2 | Flex | tires2 |
| 145 | | 1 | Flex | tire_num1 |
| 146 | | 2 | Flex | tire_pressure1 |
| 147 | | 2 | Flex | tire_temp1 |
| 148 | | 1 | Flex | tire_num2 |
| 149 | | 2 | Flex | tire_pressure2 |
| 150 | | 2 | Flex | tire_temp2 |
| 151 | | 1 | Flex | tires4 |
| 152 | | 1 | Flex | tire_num3 |
| 153 | | 2 | Flex | tire_pressure3 |
| 154 | | 2 | Flex | tire_temp3 |
| 155 | | 1 | Flex | tire_num4 |
| 156 | | 2 | Flex | tire_pressure4 |
| 157 | | 2 | Flex | tire_temp4 |
| 158 | | 1 | Flex | tire_num5 |
| 159 | | 2 | Flex | tire_pressure5 |
| 160 | | 2 | Flex | tire_temp5 |
| 161 | | 1 | Flex | tire_num6 |
| 162 | | 2 | Flex | tire_pressure6 |
| 163 | | 2 | Flex | tire_temp6 |
| 164 | | 1 | Flex | tires8 |
| 165 | | 1 | Flex | tire_num7 |
| 166 | | 2 | Flex | tire_pressure7 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 167 | | 2 | Flex | tire_temp7 |
| 168 | | 1 | Flex | tire_num8 |
| 169 | | 2 | Flex | tire_pressure8 |
| 170 | | 2 | Flex | tire_temp8 |
| 171 | | 1 | Flex | tire_num9 |
| 172 | | 2 | Flex | tire_pressure9 |
| 173 | | 2 | Flex | tire_temp9 |
| 174 | | 1 | Flex | tire_num10 |
| 175 | | 2 | Flex | tire_pressure10 |
| 176 | | 2 | Flex | tire_temp10 |
| 177 | | 1 | Flex | tire_num11 |
| 178 | | 2 | Flex | tire_pressure11 |
| 179 | | 2 | Flex | tire_temp11 |
| 180 | | 1 | Flex | tire_num12 |
| 181 | | 2 | Flex | tire_pressure12 |
| 182 | | 2 | Flex | tire_temp12 |
| 183 | | 1 | Flex | tire_num13 |
| 184 | | 2 | Flex | tire_pressure13 |
| 185 | | 2 | Flex | tire_temp13 |
| 186 | | 1 | Flex | tire_num14 |
| 187 | | 2 | Flex | tire_pressure14 |
| 188 | | 2 | Flex | tire_temp14 |
| 189 | | 1 | Flex | tires16 |
| 190 | | 1 | Flex | tire_num15 |
| 191 | | 2 | Flex | tire_pressure15 |
| 192 | | 2 | Flex | tire_temp15 |
| 193 | | 1 | Flex | tire_num16 |
| 194 | | 2 | Flex | tire_pressure16 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 195 | | 2 | Flex | tire_temp16 |
| 196 | | 1 | Flex | tire_num17 |
| 197 | | 2 | Flex | tire_pressure17 |
| 198 | | 2 | Flex | tire_temp17 |
| 199 | | 1 | Flex | tire_num18 |
| 200 | | 2 | Flex | tire_pressure18 |
| 201 | | 2 | Flex | tire_temp18 |
| 202 | | 1 | Flex | tire_num19 |
| 203 | | 2 | Flex | tire_pressure19 |
| 204 | | 2 | Flex | tire_temp19 |
| 205 | | 1 | Flex | tire_num20 |
| 206 | | 2 | Flex | tire_pressure20 |
| 207 | | 2 | Flex | tire_temp20 |
| 208 | | 1 | Flex | tire_num21 |
| 209 | | 2 | Flex | tire_pressure21 |
| 210 | | 2 | Flex | tire_temp21 |
| 211 | | 1 | Flex | tire_num22 |
| 212 | | 2 | Flex | tire_pressure22 |
| 213 | | 2 | Flex | tire_temp22 |
| 214 | | 1 | Flex | tire_num23 |
| 215 | | 2 | Flex | tire_pressure23 |
| 216 | | 2 | Flex | tire_temp23 |
| 217 | | 1 | Flex | tire_num24 |
| 218 | | 2 | Flex | tire_pressure24 |
| 219 | | 2 | Flex | tire_temp24 |
| 220 | | 1 | Flex | tire_num25 |
| 221 | | 2 | Flex | tire_pressure25 |
| 222 | | 2 | Flex | tire_temp25 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 223 | | 1 | Flex | tire_num26 |
| 224 | | 2 | Flex | tire_pressure26 |
| 225 | | 2 | Flex | tire_temp26 |
| 226 | | 1 | Flex | tire_num27 |
| 227 | | 2 | Flex | tire_pressure27 |
| 228 | | 2 | Flex | tire_temp27 |
| 229 | | 1 | Flex | tire_num28 |
| 230 | | 2 | Flex | tire_pressure28 |
| 231 | | 2 | Flex | tire_temp28 |
| 232 | | 1 | Flex | tire_num29 |
| 233 | | 2 | Flex | tire_pressure29 |
| 234 | | 2 | Flex | tire_temp29 |
| 235 | | 1 | Flex | tire_num30 |
| 236 | | 2 | Flex | tire_pressure30 |
| 237 | | 2 | Flex | tire_temp30 |
| 238 | | 1 | Flex | tachograph |
| 239 | | 1 | Flex | tacho_status |
| 240 | | 1 | Flex | tacho_flags |
| 241 | | 2 | Flex | tacho_speed |
| 242 | | 2 | Flex | tacho_mileage |
| 243 | | 2 | Flex | tacho_time |
| 244 | | 1 | Flex | driver_status |
| 245 | | 1 | Flex | message_id |
| 246 | | 1 | Flex | time_increment |
| 247 | | 2 | Flex | acceleration |
| 248 | 17 | 2 | Flex, teltonika | acceleration_axles_x |
| 249 | 18 | 2 | Flex, teltonika | acceleration_axles_y |
| 250 | 19 | 2 | Flex, teltonika | acceleration_axles_z |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 251 | | 1 | Flex | eco_limit |
| 252 | | 2 | Flex | eco_driving |
| 253 | | 2 | Flex | eco_positive_accel |
| 254 | | 2 | Flex | eco_negative_accel |
| 255 | | 2 | Flex | eco_lateral_accel |
| 256 | | 1 | Flex | passengers1 |
| 257 | | 1 | Flex | passengers2 |
| 258 | | 1 | Flex | passengers3 |
| 259 | | 1 | Flex | passengers4 |
| 260 | | 1 | Flex | passengers5 |
| 261 | | 1 | Flex | passengers6 |
| 262 | | 1 | Flex | passengers7 |
| 263 | | 1 | Flex | passengers8 |
| 264 | | 1 | Flex | Informer status |
| 265 | | 1 | Flex | informer_geozone |
| 266 | | 1 | Flex | last_stop_id |
| 267 | | 1 | Flex | route_id |
| 268 | | 1 | Flex | camera_status |
| 269 | | 1 | Flex | device_status2 |
| 270 | | 1 | Flex | modules_status |
| 271 | | 1 | Flex | connection_status |
| 272 | | 1 | Flex | discret3 |
| 273 | | 2 | Flex | impulses3 |
| 274 | | 2 | Flex | impulses4 |
| 275 | | 2 | Flex | impulses5 |
| 276 | | 2 | Flex | impulses6 |
| 277 | | 2 | Flex | impulses7 |
| 278 | | 2 | Flex | impulses8 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 279 | | 2 | Flex | freq_analog3 |
| 280 | | 2 | Flex | freq_analog4 |
| 281 | | 2 | Flex | freq_analog5 |
| 282 | | 2 | Flex | freq_analog6 |
| 283 | | 2 | Flex | freq_analog7 |
| 284 | | 2 | Flex | freq_analog8 |
| 285 | | 1 | Flex | virtual_status |
| 286 | | 2 | Flex | tilt_angle_in |
| 287 | | 2 | Flex | tilt_internal |
| 288 | | 2 | Flex | pitch_angle |
| 289 | | 2 | Flex | roll_angle |
| 290 | | 2 | Flex | tilt_external |
| 291 | | 2 | Flex | tilt_angle_x |
| 292 | | 2 | Flex | tilt_angle_y |
| 293 | | 2 | Flex | tilt_angle_z |
| 294 | | 2 | Flex | eco_max_accel |
| 295 | | 2 | Flex | eco_max_speed |
| 296 | | 2 | Flex | eco_speed_status |
| 297 | | 2 | Flex | accel_status |
| 298 | | 2 | Flex | accel_threshold1 |
| 299 | | 2 | Flex | accel_threshold2 |
| 300 | | 2 | Flex | accel_threshold3 |
| 301 | | 2 | Flex | freq_rs485_1 |
| 302 | | 2 | Flex | freq_rs485_2 |
| 303 | | 2 | Flex | freq_rs485_3 |
| 304 | | 2 | Flex | freq_rs485_4 |
| 305 | | 2 | Flex | freq_rs485_5 |
| 306 | | 2 | Flex | freq_rs485_6 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 307 | | 2 | Flex | freq_rs485_7 |
| 308 | | 2 | Flex | freq_rs485_8 |
| 309 | | 2 | Flex | freq_rs485_9 |
| 310 | | 2 | Flex | freq_rs485_10 |
| 311 | | 2 | Flex | freq_rs485_11 |
| 312 | | 2 | Flex | freq_rs485_12 |
| 313 | | 2 | Flex | freq_rs485_13 |
| 314 | | 2 | Flex | freq_rs485_14 |
| 315 | | 2 | Flex | freq_rs485_15 |
| 316 | | 2 | Flex | freq_rs485_16 |
| 317 | 25 | 2 | Flex, teltonika | Sensor temperature 1 |
| 318 | 26 | 2 | Flex, teltonika | Sensor temperature 2 |
| 319 | 27 | 2 | Flex, teltonika | Sensor temperature 3 |
| 320 | 28 | 2 | Flex, teltonika | Sensor temperature 4 |
| 321 | 86 | 2 | Flex, teltonika | Humidity 1 |
| 322 | 104 | 2 | Flex, teltonika | Humidity 2 |
| 323 | 106 | 2 | Flex, teltonika | Humidity 3 |
| 324 | 108 | 2 | Flex, teltonika | Humidity 4 |
| 325 | | 1 | Flex | fuel_sensor |
| 326 | | 1 | Flex | fuel_sensor_faults |
| 327 | 12 | 2 | Flex, teltonika | Fuel used |
| 328 | | 2 | Flex | trip_fuel_consumption |
| 329 | 13 | 2 | Flex, teltonika | Fuel rate |
| 330 | | 2 | Flex | sum_fuel_volume |
| 331 | | 2 | Flex | chamber_current_consumption |
| 332 | | 2 | Flex | chamber_temp |
| 333 | | 2 | Flex | total_chamber_volume |
| 334 | | 2 | Flex | current_flow_chamber |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 335 | | 2 | Flex | return_chamber_temp |
| 336 | | 1 | Flex | refrigerator |
| 337 | | 1 | Flex | refrigerator_type |
| 338 | | 1 | Flex | refrigerator_status |
| 339 | | 2 | Flex | section_temp1 |
| 340 | | 2 | Flex | section_temp2 |
| 341 | | 2 | Flex | section_temp3 |
| 342 | | 2 | Flex | temp_set1 |
| 343 | | 2 | Flex | temp_set2 |
| 344 | | 2 | Flex | temp_set3 |
| 345 | | 2 | Flex | air_temp |
| 346 | | 2 | Flex | coolant_temp |
| 347 | | 2 | Flex | battery_voltage_r |
| 348 | | 2 | Flex | battery_amperage |
| 349 | | 2 | Flex | engine_hours_r |
| 350 | | 2 | Flex | engine_hours_grid |
| 351 | | 1 | Flex | r_errors1 |
| 352 | | 1 | Flex | r_num_errors |
| 353 | | 1 | Flex | r_code_error1 |
| 354 | | 1 | Flex | r_errors2 |
| 355 | | 1 | Flex | r_code_error2 |
| 356 | | 1 | Flex | r_code_error3 |
| 357 | | 1 | Flex | r_errors3 |
| 358 | | 1 | Flex | r_code_error4 |
| 359 | | 1 | Flex | r_code_error5 |
| 360 | | 1 | Flex | r_code_error6 |
| 361 | | 1 | Flex | r_engine_status |
| 362 | | 1 | Flex | r_mode |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 363 | | 1 | Flex | r_engine |
| 364 | | 1 | Flex | r_compressor |
| 365 | | 1 | Flex | geo_zone_info |
| 366 | | 1 | Flex | security_can |
| 367 | | 1 | Flex | security_events_can |
| 368 | | 1 | Flex | accidents_can |
| 369 | | 1 | Flex | defects_can |
| 370 | | 1 | Flex | defects_lamps |
| 371 | | 1 | Flex | defects_code |
| 372 | | 1 | Flex | u_engine_hours1 |
| 373 | | 1 | Flex | u_engine_hours2 |
| 374 | | 2 | Flex | u_parameter1 |
| 375 | | 2 | Flex | u_parameter2 |
| 376 | | 2 | Flex | u_parameter3 |
| 377 | | 2 | Flex | u_parameter4 |
| 378 | | 2 | Flex | u_parameter5 |
| 379 | | 2 | Flex | u_parameter6 |
| 380 | | 2 | Flex | u_parameter7 |
| 381 | | 2 | Flex | u_parameter8 |
| 382 | | 2 | Flex | u_parameter9 |
| 383 | | 2 | Flex | u_parameter10 |
| 384 | | 2 | Flex | u_parameter11 |
| 385 | | 2 | Flex | u_parameter12 |
| 386 | | 2 | Flex | u_parameter13 |
| 387 | | 2 | Flex | u_parameter14 |
| 388 | | 2 | Flex | u_parameter15 |
| 389 | | 2 | Flex | u_parameter16 |
| 390 | | 2 | Flex | u_parameter_1 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 391 | | 2 | Flex | u_parameter_2 |
| 392 | | 2 | Flex | u_parameter_3 |
| 393 | | 2 | Flex | u_parameter_4 |
| 394 | | 2 | Flex | u_parameter_5 |
| 395 | | 2 | Flex | u_parameter_6 |
| 396 | | 2 | Flex | u_parameter_7 |
| 397 | | 2 | Flex | u_parameter_8 |
| 398 | | 2 | Flex | u_parameter_9 |
| 399 | | 2 | Flex | u_parameter_10 |
| 400 | | 2 | Flex | u_parameter_11 |
| 401 | | 2 | Flex | u_parameter_12 |
| 402 | | 2 | Flex | u_parameter_13 |
| 403 | | 2 | Flex | u_parameter_14 |
| 404 | | 2 | Flex | u_parameter_15 |
| 405 | | 2 | Flex | parameter_1 |
| 406 | | 2 | Flex | parameter_2 |
| 407 | | 2 | Flex | parameter_3 |
| 408 | | 2 | Flex | parameter_4 |
| 409 | | 2 | Flex | parameter_5 |
| 410 | | 2 | Flex | parameter_6 |
| 411 | | 2 | Flex | parameter_7 |
| 412 | | 2 | Flex | parameter_8 |
| 413 | | 2 | Flex | parameter_9 |
| 414 | | 2 | Flex | parameter_10 |
| 415 | | 2 | Flex | parameter_11 |
| 416 | | 2 | Flex | parameter_12 |
| 417 | | 2 | Flex | parameter_13 |
| 418 | | 2 | Flex | parameter_14 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 419 | | 2 | Flex | parameter_15 |
| 420 | | 2 | Flex | parameter_b8_1 |
| 421 | | 2 | Flex | parameter_b8_2 |
| 422 | | 2 | Flex | parameter_b8_3 |
| 487 | Priority | 1 | teltonika | Priority |
| 488 | GPS Fix | 1 | teltonika | GPS Fix |
| 489 | Event AVL ID | 1 | teltonika | Event AVL ID |
| 490 | 160 | 1 | teltonika | DTC Faults |
| 491 | 115 | 2 | teltonika | Engine temperature |
| 492 | 114 | 2 | teltonika | Engine load |
| 493 | 107 | 2 | teltonika | Fuel Consumed (counted) |
| 494 | 105 | 2 | teltonika | Total Mileage (counted) |
| 495 | 103 | 2 | teltonika | Engine Worktime (counted) |
| 496 | 85 | 2 | teltonika | Engine RPM |
| 497 | 84 | 2 | teltonika | Fuel level |
| 498 | 82 | 2 | teltonika | Accelerator Pedal Position |
| 499 | 81 | 2 | teltonika | Vehicle speed 2 |
| 500 | 239 | 1 | teltonika | Ignition |
| 501 | 240 | 1 | teltonika | Movement |
| 502 | 80 | 1 | teltonika | Data mode |
| 503 | 200 | 1 | teltonika | Sleep mode |
| 504 | 68 | 2 | teltonika | Battery current |
| 505 | 11 | 3 | teltonika | ICCID1 |
| 506 | 76 | 3 | teltonika | Dallas ID 1 |
| 507 | 77 | 3 | teltonika | Dallas ID 2 |
| 508 | 79 | 3 | teltonika | Dallas ID 3 |
| 509 | 71 | 3 | teltonika | Dallas ID 4 |
| 510 | 78 | 3 | teltonika | iButton |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 511 | 207 | 3 | teltonika | RFID |
| 512 | 30 | 1 | teltonika | Number of DTC |
| 513 | 33 | 2 | teltonika | Short Fuel Trim |
| 514 | 34 | 2 | teltonika | Fuel pressure |
| 515 | 35 | 2 | teltonika | Intake MAP |
| 516 | 38 | 2 | teltonika | Timing Advance |
| 517 | 39 | 2 | teltonika | Intake Air Temperature |
| 518 | 40 | 2 | teltonika | MAF |
| 519 | 42 | 2 | teltonika | Run Time Since Engine Start |
| 520 | 43 | 2 | teltonika | Distance Traveled MIL On |
| 521 | 44 | 2 | teltonika | Relative Fuel Rail Pressure |
| 522 | 45 | 2 | teltonika | Direct Fuel Rail Pressure |
| 523 | 46 | 2 | teltonika | Commanded EGR |
| 524 | 47 | 1 | teltonika | EGR Error |
| 525 | 49 | 2 | teltonika | Distance Since Codes Clear |
| 526 | 50 | 2 | teltonika | Barometric Pressure |
| 527 | 51 | 2 | teltonika | Control Module Voltage |
| 528 | 52 | 2 | teltonika | Absolute Load Value |
| 529 | 53 | 2 | teltonika | Ambient Air Temperature |
| 530 | 54 | 2 | teltonika | Time Run With MIL On |
| 531 | 55 | 2 | teltonika | Time Since Codes Cleared |
| 532 | 56 | 2 | teltonika | Absolute Fuel Rail Pressure |
| 533 | 57 | 2 | teltonika | Hybrid battery pack life |
| 534 | 58 | 2 | teltonika | Engine Oil Temperature |
| 535 | 59 | 2 | teltonika | Fuel Injection Timing |
| 536 | 60 | 2 | teltonika | OBD2 Fuel Rate |
| 537 | 90 | 1 | teltonika | Door status |
| 538 | 110 | 2 | teltonika | Fuel rate |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 539 | 111 | 2 | teltonika | AdBlue Level |
| 540 | 112 | 2 | teltonika | AdBlue Level 2 |
| 541 | 151 | 2 | teltonika | Battery Temperature |
| 542 | 152 | 2 | teltonika | Battery Level |
| 543 | 155 | 1 | teltonika | Geofence zone 01 |
| 544 | 156 | 1 | teltonika | Geofence zone 02 |
| 545 | 157 | 1 | teltonika | Geofence zone 03 |
| 546 | 158 | 1 | teltonika | Geofence zone 04 |
| 547 | 159 | 1 | teltonika | Geofence zone 05 |
| 548 | 61 | 1 | teltonika | Geofence zone 06 |
| 549 | 62 | 1 | teltonika | Geofence zone 07 |
| 550 | 63 | 1 | teltonika | Geofence zone 08 |
| 551 | 64 | 1 | teltonika | Geofence zone 09 |
| 552 | 65 | 1 | teltonika | Geofence zone 10 |
| 553 | 70 | 1 | teltonika | Geofence zone 11 |
| 554 | 88 | 1 | teltonika | Geofence zone 12 |
| 555 | 91 | 1 | teltonika | Geofence zone 13 |
| 556 | 92 | 1 | teltonika | Geofence zone 14 |
| 557 | 93 | 1 | teltonika | Geofence zone 15 |
| 558 | 94 | 1 | teltonika | Geofence zone 16 |
| 559 | 95 | 1 | teltonika | Geofence zone 17 |
| 560 | 96 | 1 | teltonika | Geofence zone 18 |
| 561 | 97 | 1 | teltonika | Geofence zone 19 |
| 562 | 98 | 1 | teltonika | Geofence zone 20 |
| 563 | 99 | 1 | teltonika | Geofence zone 21 |
| 564 | 153 | 1 | teltonika | Geofence zone 22 |
| 565 | 154 | 1 | teltonika | Geofence zone 23 |
| 566 | 190 | 1 | teltonika | Geofence zone 24 |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 567 | 191 | 1 | teltonika | Geofence zone 25 |
| 568 | 192 | 1 | teltonika | Geofence zone 26 |
| 569 | 193 | 1 | teltonika | Geofence zone 27 |
| 570 | 194 | 1 | teltonika | Geofence zone 28 |
| 571 | 195 | 1 | teltonika | Geofence zone 29 |
| 572 | 196 | 1 | teltonika | Geofence zone 30 |
| 573 | 197 | 1 | teltonika | Geofence zone 31 |
| 574 | 198 | 1 | teltonika | Geofence zone 32 |
| 575 | 208 | 1 | teltonika | Geofence zone 33 |
| 576 | 209 | 1 | teltonika | Geofence zone 34 |
| 577 | 216 | 1 | teltonika | Geofence zone 35 |
| 578 | 217 | 1 | teltonika | Geofence zone 36 |
| 579 | 218 | 1 | teltonika | Geofence zone 37 |
| 580 | 219 | 1 | teltonika | Geofence zone 38 |
| 581 | 220 | 1 | teltonika | Geofence zone 39 |
| 582 | 221 | 1 | teltonika | Geofence zone 40 |
| 583 | 222 | 1 | teltonika | Geofence zone 41 |
| 584 | 223 | 1 | teltonika | Geofence zone 42 |
| 585 | 224 | 1 | teltonika | Geofence zone 43 |
| 586 | 225 | 1 | teltonika | Geofence zone 44 |
| 587 | 226 | 1 | teltonika | Geofence zone 45 |
| 588 | 227 | 1 | teltonika | Geofence zone 46 |
| 589 | 228 | 1 | teltonika | Geofence zone 47 |
| 590 | 229 | 1 | teltonika | Geofence zone 48 |
| 591 | 230 | 1 | teltonika | Geofence zone 49 |
| 592 | 231 | 1 | teltonika | Geofence zone 50 |
| 593 | 175 | 1 | teltonika | Auto Geofence |
| 594 | 250 | 1 | teltonika | Trip |

| id | Teltonika IO (AVL ID) | Data type* | Protocol | Description |
|---|---|---|---|---|
| 595 | 255 | 1 | teltonika | Over Speeding |
| 596 | 251 | 1 | teltonika | Idling |
| 597 | 253 | 1 | teltonika | Green driving type |
| 598 | 246 | 1 | teltonika | Towing |
| 599 | 252 | 1 | teltonika | Unplug |
| 600 | 247 | 1 | teltonika | Crash detection |
| 601 | 248 | 1 | teltonika | Immobilizer |
| 602 | 254 | 1 | teltonika | Green driving value |
| 603 | 249 | 1 | teltonika | Jamming |
| 604 | 14 | 3 | teltonika | ICCID2 |
| 605 | 243 | 1 | teltonika | Green driving event duration |
| 606 | 236 | 1 | teltonika | Alarm |
| 607 | 242 | 1 | teltonika | ManDown |
| 608 | 245 | 3 | teltonika | Gyroscope axis |
| 609 | 244 | 1 | teltonika | DIN2/AIN2 spec event |

*

1 – Integer value

2 – Real value

3 – Text string

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