Connection description

Before SMART tracker installation, first of all, it should be determined the type and kit of the used sensors, identification systems, control devices and other additional equipment. Moreover, it should be ascertained that all the additional equipment connected to the SMART device is fully-operable.

SMART device has internal sensitive GSM and GLONASS/GPS antennas, however, just before the device installation and additional equipment connection, it should be ascertained that the selected mobile operator provides satisfactory quality of communication.

In addition, the device should be installed in such a way as to provide maximum «visibility» of the navigation satellites in the upper hemisphere. The device should be oriented in space so that the internal GLONASS/GPS antenna is on top. That is, when the device is placed vertically, the Microfit-14 interface connector should be located below, and when horizontal, the SYS, GSM and NAV indicators should be on top.

To avoid device overheating and Li-Po battery failure (for the models of device with back-up battery), it is forbidden to install SMART tracker in places with temperature more than +60 °C, for example, near the vehicle heating system etc. It is forbidden to place the device in the sealed container without heat rejection.

It is forbidden to install the tracker in places with high humidity and in the places with risk of possible ingress of liquid or big amount of dust into the case of device.

It is also forbidden to place the device in the sealed container without heat rejection.

At connection of the equipment to the Microfit-14 harness the connector itself should not be connected to the device. Each pin of this connector has numerical reference. The function of each pin of the Microfit-14 connector is shown in the figure below.

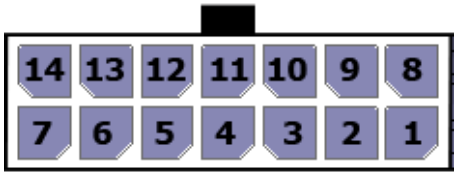
In the phase of verification of the correct connection and configuration of the SMART device, it is not recommended to connect actuators directly to the output circuits. It is more practical to do it in the final phase of verification.

Supplying of digital and analog fuel sensors should be connected through the fuses included with the sensors, directly to the power supply.

GND of all the external sensors should be combined with GND contact of SMART device.

Interface lines of fuel sensors are connected directly to the device without additional elements. Commutation should be made with disconnected power.

SMART S-2412 and S-2413 interface connector



14-pin interface connector (view over the device)

1 – Power supply (+U_G)
2 – «GND» (GND)
3 – Digital input 1 (IN1+). Positive input
4 – Digital input 2 (IN2-). Negative input
5 – Analog input 3 (AIN3)
6 – Digital output 1 (OUT1)
7 – Not connected (NC)
8 – Not connected (NC)
9 – Not connected (NC)
10 – Not connected (NC)
11 – RS-485 interface line (RS-485-(B))
12 – RS-485 interface line (RS-485+(A))
13 – Not connected (NC)
14 – Not connected (NC)

SMART S-2412, S-2413 connector pins

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
S-2412	$+U_G$	GND	IN1+	IN2-	AIN3	OUT1	NC	NC	NC	NC	RS-485B(-)	RS-485A(+)	NC	NC
S-2413	$+U_G$	GND	IN1+	IN2-	AIN3	OUT1	NC	NC	NC	NC	RS-485B(-)	RS-485A(+)	NC	NC

Power supply $+U_G$ should be connected through the fuse 1-2 A to the power supply (9,5–47 V) of the car.

Ground GND should be connected to GND of the car battery.

Digital input IN1+ is recommended to be connected to the ignition because some functions of the device depend on this signal. However, such a connection is not mandatory. This input is triggered when a voltage more than 5,5 V is supplied to it. In addition to the ignition determination notifications, it is used in coordinates processing algorithms (for example, at their averaging and on the parking) and also for controlling of internal engine hours counter. Due to the particular influence of this signal on the entire system operation, it is recommended to connect the ignition only for the intended purpose.

Digital inputs IN2-, IN4-, IN5- are triggered at a potential less than 0,7 V (i.e. at closing the contact to GND). These inputs are intended for the control of door limit switches, hood/trunk limit switches and others.

Input AIN3 can be used not as an analog input for measuring voltages in the range from 0 to 31 V, but also as a digital input that is controlled by a positive potential (triggered at a positive potential). It is possible to set the triggering and normal thresholds in volts (V). I.e. at certain values of the voltage, the input will be in a triggered state, and at others - in a normal state.

It is forbidden to apply voltage more than 50 V to the device inputs, as this can lead to device failure.

Digital output OUT1 is designed to control low-current loads up to 500 mA. At activation, a negative signal (GND) is formed on this line. External actuators with a load current more than the maximum allowed should be connected through additional switching relays. Relays type is choosing based on the requirements for the value of the switched current, voltage, and also depending on the power of the connected actuator.

At controlling the inductive load, which is relay coil, there can be reverse currents with a potential more than 200 V. Such voltage can damage the control transistor of the device output. To limit reverse current emissions, it is necessary to connect an additional diode of the 1N4007 (1A, 1000 V) type parallel to the relay coil as indicated in the connection diagram.

Digital interface RS-485 is designed for connection of fuel level sensors (up to 6 pcs). Interface line RS-485A (+) should be connected to the RS-485+ line of the sensor, usually denoted as «A», and interface line RS-485B(-) should be connected to the RS-485- line of the sensor, usually denoted as «B».