

## Connection description

Before installing the SMART system, it is essential to determine the type and composition of the sensors, identification systems, control devices, and other auxiliary equipment to be used. Additionally, it is necessary to ensure that all auxiliary equipment connected to the SMART device is functioning properly.

The SMART device has built-in sensitive GSM and GLONASS/GPS antennas. However, prior to installation and equipment connection, it is important to verify that the selected cellular operator provides satisfactory signal quality at the intended installation location.

Furthermore, the device should be installed in a way that ensures maximum visibility of navigation satellites in the upper hemisphere. The device must be oriented so that the built-in GLONASS/GPS antenna is facing upward. This means that when the device is mounted vertically, the Microfit-14 interface connector should be at the bottom, and when mounted horizontally, the SYS, GSM, and NAV indicators should be facing upward.

### **Warning!**

*To avoid overheating of the device and failure of the Li-Po battery, it is strictly prohibited to install the SMART tracker in areas where the ambient temperature exceeds +60 °C, such as near heating systems or similar sources. It is also prohibited to place the device in a sealed container without proper heat dissipation.*

*The tracker must not be installed in areas with high humidity or in locations where there is a risk of liquid ingress or excessive dust accumulation inside the enclosure.*

When connecting device to the Microfit-14 connector harness, the connector itself must not be plugged into the device. Each contact of this connector is numerically labeled. The pin assignment of the Microfit-14 system connector is shown in the diagram below.

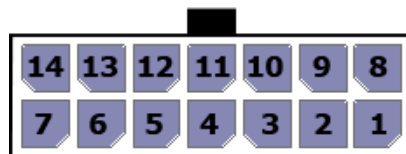
During the stage of verifying correct connections and device settings, it is not recommended to connect actuator circuits directly to the outputs. This should be done at the final stage of system testing.

The power supply to digital and analog fuel sensors must be connected through fuses (included with the sensors) directly to the power source.

The power ground ("–") of all external sensors must be connected to the SMART device's ground ("–") at contact "G"..

The interface lines of the fuel sensors are connected directly to the device without additional components. All wiring must be performed with the power disconnected.

### **SMART S-453x interface connector**



14-pin interface connector (view from the device)

- 1 – Power supply (+U<sub>G</sub>)
- 2 – GND
- 3 – Universal input 1 (UIN1)
- 4 – Universal input 2 (UIN2)
- 5 – Universal input 3 (UIN3)
- 6 – Digital output (OUT1)
- 7 – Digital output (OUT2)
- 8 – CAN interface line (CAN H) in S-4533 and S-4535 / CAN interface line (CAN H<sub>1</sub>) in S-4537
- 9 – CAN interface line (CAN L) в S-4533 and S-4535 / CAN interface line (CAN L<sub>1</sub>) in S-4537
- 10 – 1-Wire interface (iBUT)
- 11 – RS-485 interface line (RS-485B(-))
- 12 – RS-485 interface line (RS-485A(+))
- 13 – RS-232 interface line (RS-232RX) in S-4533 and S-4535 / CAN interface line (CAN H<sub>2</sub>) in S-4537
- 14 – RS-232 interface line (RS-232TX) in S-4533 and S-4535 / CAN interface line (CAN L<sub>2</sub>) in S-4537

## SMART S-453x connector pins

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>S-4533</b>	+U <sub>G</sub>	GND	UIN1	UIN2	UIN3	O1	O2	NC	NC	iBUT	RS-485B(-)	RS-485A(+)	RS-232RX	RS-232TX
<b>S-4535</b>	+U <sub>G</sub>	GND	UIN1	UIN2	UIN3	O1	O2	CAN H	CAN L	iBUT	RS-485B(-)	RS-485A(+)	RS-232RX	RS-232TX
<b>S-4537</b>	+U <sub>G</sub>	GND	UIN1	UIN2	UIN3	O1	O2	CAN H <sub>1</sub>	CAN L <sub>1</sub>	iBUT	RS-485B(-)	RS-485A(+)	CAN H <sub>2</sub>	CAN L <sub>2</sub>

**The main power supply +U<sub>G</sub>** must be connected through an external fuse.

«**Ground**» **GND** must be connected to the vehicle's chassis ground.

**The universal inputs UIN1, UIN2, and UIN3** can be configured as digital, analog, counter, or frequency inputs. This allows connection of a wide range of sensors, such as frequency-type fuel level sensors (from 1 Hz to 3000 Hz), analog fuel level sensors (with voltage from 0 V to 31 V), pulse fuel flow sensors, push buttons, or switches.

### ***Warning!***

*Applying more than 50 V to the universal inputs is strictly prohibited, as it may result in device failure.*

**The outputs OUT1 and OUT2** are open collector type and are intended for controlling low-current loads up to 500 mA. When activated, these lines output a negative signal (ground). If external actuators with a load current exceeding the maximum allowable value are used, additional switching relays must be employed. The type of relay should be selected based on the required switching current and voltage, as well as the power of the connected actuator.

### ***Warning!***

*When controlling an inductive load, such as a relay coil, reverse currents with a potential exceeding 200 V may occur. Such voltage spikes can damage the output line's control transistor. To suppress these reverse current spikes, an additional diode (e.g., 1N4007, 1A, 1000 V) must be connected in parallel with the relay coil, as shown in the connection example.*

**1-Wire interface (iBUT)** is used for connecting Touch Memory keypads, Proximity card readers, and digital temperature sensors.

**RS-232 digital interface** is intended for connecting various devices that transmit and receive data via this interface, such as fuel level sensors (FLS), CAN-bus adapters, tachographs, RFID readers, MODBUS devices, and others.

**RS-485 digital interface** is intended for connecting various devices that transmit and receive data via this interface, such as fuel level sensors (up to 16 units), CAN-bus adapters, tachographs, RFID readers, MODBUS devices, and others.

**CAN** interface is used for connecting to the vehicle's CAN bus.

### ***Warning!***

*When using both CAN interfaces of the SMART S-4537 device, the following connection order must be strictly observed:*

- *the primary CAN bus must be connected using the CAN H1 and CAN L1 contacts;*
- *the secondary CAN bus must be connected using the CAN H2 and CAN L2 contacts.*

### ***Warning!***

*The manufacturer is not liable for any losses, damages, or other negative consequences resulting from improper or incorrect connection of the equipment to the vehicle's electrical circuits or CAN bus, as well as from improper storage, installation, setup, configuration, or operation of the equipment.*