NAVTELECOM
TELEMATICS SYSTEMS

GPS/GLONASS TRACKING EQUIPMENT

SMART

S-4533 E, S-4533 SA, S-4535 E, S-4535 SA, S-4537 E, S-4537 SA

DATASHEET

Moscow
2024

Purpose of the System

SMART S-4533x*, S-4535x* и S-4537x* devices (hereinafter SMART), manufactured by Navtelecom LLC, are GPS-GSM based vehicle tracking system with internal GLONASS/GPS- and GSM-antennas for vehicle monitoring.

SMART system is designed for:

- vehicle monitoring: location, track, mileage, fuel consumption, engine hours;
- driving style determination (EcoDriving);
- accident detection in accordance with acceleration thresholds or Addiction Severity Index (ASI);
- emergency informing about vehicle hijacking;
- emergency informing about attacks on the driver or passengers and other accidents;
- processing and transmitting of data to the server from devices such as tachograph, tire pressure monitoring system, CAN bus adapter, refrigerator controller, RFID tag reader;
- monitoring the temperature using temperature sensors;
- remote control of connected devices and vehicle systems, such as a siren, engine and door lock system, etc.

The "x" in the model identifier denotes the intended geographical region.

Devices with **E modification** are equipped with a communication module incorporating LTE frequency bands configured for optimal performance in cellular networks across Russia and European countries.
Devices with **SA modification** are equipped with a communication module incorporating LTE frequency bands configured for optimal performance in cellular networks across South American countries.
The equipment is also compatible with operation in other regions, provided that the cellular network frequency bands are aligned with the transmitter's operating frequencies.

For detailed specifications and functional characteristics, please refer to the "Equipment" section on the website at www.navtelecom.ru

Standard Delivery Kit

№	Name	Number of pieces
1	SMART device unit	1
2	Microfit-14 connector with power wires	1
3	Set of 5 connection wires	1
4	Fuse 1A (only for S-2435 and S-2437)	1
5	Fuse holder (only for S-2435 and S-2437)	1
6	Datasheet	1 (optional)
7	MiniUSB cabel	1 (optional)
8	Individual package	1 (optional)

Technical Specifications

			S-4533x*	S-4535x*	S-4537x*
GSM/GPRS/Bluetooth					
Frequency Bands	LTE-FDD	**E**	B1/B3/B5/B7/B8/B20		
		SA	B1/B2/B3/B4/B5/B7/B8/B28/B66		
	LTE-TDD	**E**	-		
		SA	-		
	GSM (2G)	**E**	900/1800MHz		
		SA	850/900/1800/1900MHz		
Category			CAT1		
IP Stack Protocols			TCP, UDP		
Transmitter Power			GSM/GPRS power class: - EGSM900: 4 (33dBm±2dB) - DCS1800: 1 (30dBm±2dB) EDGE power class: - EGSM900: E2 (27dBm±3dB) - DCS1800: E1 (26dBm+3dB/-4dB) LTE power class: 3 (23dBm±2.7dB)		

Maximum Data Transmission/Reception Speed (LTE), Mbps	5 / 10		
Maximum Data Transmission/Reception Speed (GPRS/EDGE), Kbps	236,8 / 236,8		
SIM Card Holder 1	external with ejector, miniSIM	external with ejector, miniSIM	external with ejector, miniSIM
SIM Card Holder 2	internal, nanoSIM	internal, nanoSIM	internal, nanoSIM
SIM chip[1]	2	2	2
GSM Jamming Detector	yes	yes	yes
Bluetooth	yes, v5.0	yes, v5.0	yes, v.5.0
GNSS			
Supported Navigation Systems	GLONASS/GPS/Beidou		
Operating Frequency Range of the System	GPS: L1 (1563,42–1587,42 MHz) GLONASS: L1 (1598,0625–1605,375)		
Number of Channels	tracking: 33, acquisition: 99		
Sensitivity (in Laboratory Conditions)	tracking: -165 dBm cold start: -148 dBm		
Time-To-First-Fix (for GPS and GLONASS systems at -130 dBm signal)	cold start: 35 sec warm start: 30 sec hot start: <1 sec		
Positioning Accuracy (50% CEP, 24 hours in static mode, at -130 dBm signal):	2.5 (horizontal), 5 (vertical)		
Receiver Update Rate, Hz	1		
GNSS Jamming Detector	yes		
Power Supply			
Operating Voltage, V[2]	9,5...47	9,5...47	9,5...47
Average Current Consumption at 12 V in Operating Mode[3], mA	80	80	80
Current Consumption at 12 V with GLONASS and GSM Modules Disabled, Maximum, mA	25	30	30
Maximum Current Consumption at 12 V in Operating Mode while Charging Built-in Battery, Maximum, mA	300	300	300
Reverse Polarity Protection	yes	yes	yes

Protection Against Extended Overvoltage up to 200 V	yes	yes	yes
Built-in Battery[4]	Li-Po 3,7 V, at least 800 mAh	Li-Po 3,7 V, at least 800 mAh	Li-Po 3,7 V, at least 800 mAh
Built-in Battery Protection Against Overcharging, Deep Discharge, and Short Circuit[5]	yes	yes	yes
Backup Power Supply for RTC Clock and Navigation Module	yes	yes	yes
Time to Maintain RTC Clock and Ephemeris in Navigation Module (with Power Off and Built-in Battery Discharged), Minimum, Days	5	5	5
Charging of Built-in Battery via USB	yes	yes	yes
Interfaces/Sensors			
Input Surge Voltage Protection, V	up to 200	up to 200	up to 200
Universal Inputs (Analog, Digital, Impulse, Frequency)	3	3	3
Built-in Pull-up for Digital , Impulse or Frequency Inputs	yes	yes	yes
Analog Inputs Voltage Range, V	0 – 31	0 – 31	0 – 31
Impulse Inputs Voltage Range, Hz	1 – 3000	1 – 3000	1 – 3000
USB interface	yes	yes	yes
RS-485 Interface	yes	yes	yes
RS-232 Interface	yes	yes	yes
CAN Interface	0	1	2
1-Wire Interface	yes	yes	yes
Digital Outputs	2	2	2
Maximum Switching Current for Outputs, mA	500	500	500
Maximum Switching Voltage for Outputs, V	48	48	48
Accelerometer	yes	yes	yes
Measured Acceleration Range, g	+/-24	+/-24	+/-24

Measurement Accuracy of Acceleration in the Range of +/-24g, Maximum %	0,5	0,5	0,5
Calibration of the Accelerometer	yes	yes	yes
Device Memory			
Memory Capacity, MB	16	16	16
Average Number of Records in Memory (Ring Buffer Type) with Data Packet Size Less Than 127 Bytes	100000	100000	100000
Data Recording Period in Memory, s:	1 — 3600 and/or on Event Trigger	1 — 3600 and/or on Event Trigger	1 — 3600 and/or on Event Trigger
Operational Characteristics			
Storage Temperature with Battery[6], °C	0 … +40	0 … +40	0 … +40
Storage Temperature without Battery, °C	-40 … +85	-40 … +85	-40 … +85
Operating Temperature with Battery[7], °C	-20 … +60	-20 … +60	-20 … +60
Operating Temperature without Battery, °C	-40 … +85	-40 … +85	-40 … +85
Charging Temperature for Battery, °C	0 … +50	0 … +50	0 … +50
Maximum Allowable Humidity at 35°C, %	95	95	95
Maximum Allowable Shock Overload, g	24	24	24
Device Design Features			
Built-in GLONASS/GPS and GSM Antennas	yes	yes	yes
Connector for Computer Connection	miniUSB	miniUSB	miniUSB
Interface Connector	Microfit-14	Microfit-14	Microfit-14
Housing Material	ABS plastic	ABS plastic	ABS plastic
Enclosure Protection Rating	IP54	IP54	IP54
Dimensions of the Device with Connectors, mm	102x57x22	102x57x22	102x57x22
Device Weight, kg	0,091	0,098	0,099

The manufacturer reserves the right to change the product specifications for the purpose of improvement without prior notice.

[1] *Optional.*

[2] If the maximum operating voltage is exceeded, the power protection will activate. The device will continue to operate, but power will be supplied from the built-in battery, if available.
[3] When operating via GPRS in poor signal conditions, the peak (~1 ms) consumption of the device may exceed 500 mA.
[4] Attention! This device uses a Li-Po rechargeable battery. When using it, the following rules must be observed: do not heat, keep away from heat sources, do not throw the battery into fire, do not expose to direct sunlight. The device powered by a lithium-polymer (Li-Po) battery should not be used in high humidity conditions or at high and low ambient temperatures. Operation is allowed under conditions established by the manufacturer. Do not expose to impacts, do not deform, do not disassemble, and do not short-circuit the contacts.
[5] Protection against battery charging in case of overheating or overcooling.
[6] When storing the device outside the specified temperature ranges, it is recommended to disconnect and remove the built-in battery to avoid damage to the battery and the device. The battery should be stored separately in a charged state at a temperature of 0 … +40°C.
[7] Operating the device outside the specified temperature ranges may lead to irreversible changes in the properties of the built-in Li-Po battery, including reduced capacity, discharge rate, etc.

Warranty

The manufacturer guarantees that the SMART device meets the requirements of the technical specifications TU 26.30.50-002-82520404-2010 (identical to 4372-002-82520404-2010) provided the consumer adheres to the rules for storage, transportation, installation, and operation established in the current set of operational documentation. The device housing has a dust and splash-proof design rated IP54 according to the classification system for degrees of protection of electrical equipment against the ingress of solid objects and water.

The warranty period for the product is 3 years. The warranty for the built-in battery and backup battery is provided separately and lasts for 1 year.

The warranty obligations commence on the date of sale.

During the warranty period, the manufacturer is obliged to replace the defective SMART device with a new one if the defect is not caused by a violation of operating conditions due to user error.

The manufacturer does not guarantee software and hardware compatibility of the SMART device with software and equipment not included in the delivery package, except in cases explicitly stated in the User Manual.

The manufacturer is not liable for any losses, damages, or other negative consequences arising from incorrect or improper connection of the equipment to the onboard circuits or CAN bus of the vehicle, as well as from improper storage, installation, adjustment, or operation of the equipment.

Scratches and other minor surface damages to the SMART device that do not affect its technical characteristics and arise from normal use do not lead to the loss of warranty service rights.

The service life of the equipment, excluding the backup battery, is 10 years.

This warranty does not cover:

- documentation and packaging materials supplied with the SMART device;
- upgrading of the SMART device.

The right to warranty service is forfeited in the following cases:

- if defects in the SMART device are caused by violations of its operating, storage, or transportation rules;
- if defects in the SMART device are caused by direct or indirect mechanical forces, chemical, thermal, or physical effects, radiation, aggressive or neutral liquids, gases, or other factors, toxic or biological environments, or any other destructive influences of artificial or natural origin;
- if repairs, maintenance, or upgrades of the SMART device are carried out by individuals not authorized by the manufacturer;
- if defects in the SMART device are caused by unforeseen circumstances that the manufacturer could not anticipate, control, or prevent;
- if warranty seals or stickers installed on the SMART device by the manufacturer or an authorized service center are missing or tampered with;
- if defects in the SMART device are caused by its combined use with equipment or software not included in the delivery package, unless otherwise stated in the Operations Manual;
- if defects in the SMART device are caused by its operation as part of a set of defective equipment.