NAVTELECOM
TELEMATICS SYSTEMS

GPS/GLONASS TRACKING EQUIPMENT

SMART
S-2433, S-2435, S-2437

DATASHEET

Moscow, Russia
2022

Purpose of the System

SMART S-2433, S-2435 and S-2437 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.

More detailed information on the functional characteristics of the equipment can be obtained at www.navtelecom.ru in the Equipment section.

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-2433	S-2435	S-2437
GSM/GPRS/Bluetooth			
Frequency bands	GSM 850, EGSM 900, DCS 1800, PCS 1900		
GPRS multi-slot class	B, multislot class 12		
Transmitting power	Class 4 (2W) in GSM 850 and EGSM 900 Class 1 (1W) in DCS 1800 and PCS 1900		
Max GPRS data downlink/uplink transfer, kbps	85,6		
SIM card holder #1	external with ejector, miniSIM	external with ejector, miniSIM	external with ejector, miniSIM
SIM card holder #2	no	internal, nanoSIM	internal, nanoSIM
eSIM[1]	no	2	2
GSM jammer detector	yes	yes	yes
Bluetooth 4.0	yes	yes	yes
GNSS			
Supported navigation systems	GLONASS/GPS/Beidou		
Receiver type	tracking: 33, acquisition: 99		
Sensitivity (in laboratory conditions)	tracking: -166 dBm cold start: -148 dBm		
Time-To-First-Fix (for GPS and GLONASS systems with a signal of -130 dBm)	cold start: 29 sec warm start: 22 sec hot start: <1 sec		
Accuracy (50% CEP, 24 hours in static mode, with signal level -130 dBm), m	2.5 (horizontal position), 5 (vertical position)		
Receiver update rate, Hz	1		
GNSS jammer detector	yes		
Power Supply			
Supply voltage, V[2]	9,5...47	9,5...47	9,5...47
Current consumption at 12 V voltage in operating mode on average[3], mA	80	80	80

Current consumption at 12 V voltage with turned off GLONASS and GSM modules, no more than, mA	25	30	30
Maximum current consumption at 12 V voltage in operating mode with charged battery, no more than, mA	200	200	200
Reverse polarity protection	yes	yes	yes
Overvoltage protection up to 500 V	yes	yes	yes
Backup 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
Battery protection from recharge, full discharge, short circuit[5]	yes	yes	yes
Battery of the RTC clock and the navigation module	yes	yes	yes
RTC keeping time and ephemerides retention time (when the power is off and the backup is discharged), at least, days	5	5	5
Battery charging with USB	yes	yes	yes
Interfaces/Sensors			
Inputs protection from power surges, V	up to 350	up to 350	up to 350
Universal inputs (analog, digital, impulse, frequency)	3	3	3
Built-in pull-up resistor 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	no
CAN interface	no	1	2
1-Wire interface	yes	yes	yes
Digital outputs	2	2	2

Maximum switching current by the outputs, mA	500	500	500
Maximum switching voltage by the outputs, V	48	48	48
Accelerometer	yes	yes	yes
Measurement range of acceleration by the device, not less than, g	8	8	8
Environmental Specifications			
Ingress Protection Rating	IP54	IP54	IP54
Maximum allowable shock overload, g	24	24	24
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, °C	-20 … +60	-20 … +60	-20 … +60
Operating temperature without battery, °C	-40 … +85	-40 … +85	-40 … +85
Battery charge temperature, °C	0 … +50	0 … +50	0 … +50
Maximum operating humidity at 35 °C, %	95	95	95
Device dimensions with connectors, mm	102x57x22	102x57x22	102x57x22
Device weight, kg	0,090	0,090	0,097

[1] Optional

[2] When the maximum operating voltage is exceeded, power protection is activated. In this case, device continues to work from backup battery (if any).

[3] Working with GPRS in poor communication conditions, the peak (~10ms) consumption of the device can exceed 500 mA.

[4] Attention! Lithium polymer battery (Li-Po) is used in the device. The following rules must be observed during its operation: do not heat, keep away from heat sources, do not throw the battery into fire, do not expose to direct sunlight. Do not operate the device powered by a lithium-polymer (Li-Po) battery in conditions of high humidity, at high and low ambient temperatures. Operation is permitted under conditions specified by the manufacturer. Do not impact, deform, disassemble, close contacts.

[5] Battery protection function blocks the charge at low temperatures and at temperatures above +50 °C.

[6] When the device is stored and used outside the specified temperatures, it is recommended to turn it off and remove the battery from the device to avoid damage to the battery and to the device.

Warranty

The manufacturing company shall ensure that the SMART products meet the requirements of the technical conditions ТУ 4372-002-82520404-2010 subject to the customer complies with the rules for storage, transportation, installation and operation, established by the existing set of the operational documentation. The device enclosure has a dustproof and a dropproof execution of IP54 type according to the system of classification of the enclosure protection levels of electrical equipment from the penetration of solid objects and water.

The warranty period for the product is 3 years. The warranty for the Li-Po battery is provided separately and amounted to 1 year.

The warranty start is the date of sale.

During the warranty period, the manufacturing company undertakes to carry out a free repair of the SMART product, subject to the customer complies with the rules of transportation, storage, installation and operation.

The present guarantee is valid only upon presentation of complete, correct and legibly filled passport (showing serial number, name, date of sale of the SMART product, presence of the trade organization seal, signature of the buyer about the familiarity with the warranty terms and the operating rules) with the SMART product itself.

The manufacturing company shall not guarantee the software and the hardware compatibility of the SMART product with software and equipment not included in the delivery set, except as specified in the Operating manual.

The manufacturing company shall not be liable for the possible material, moral and other damage, suffered by the owner of the SMART product and/or the third-party as a result of the violation of requirements of the Operating manual during use, storage or transportation of the product.

Rubbing marks and other minor damages to the SMART product surfaces that do not affect its technical characteristics and that were appeared as a result of its normal use do not result in loss of the right to warranty services.

The life of the equipment with the exception of the built-in accumulator and batteries is 10 years.

The present guarantee does not apply to:

- documentation and packaging materials supplied with the SMART product;
- modernization of the SMART product.

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

- if the defects of the SMART product are caused by the violation of rules for its operation, storage or transportation;

- if the defects of the SMART product are caused by the direct or indirect effects of mechanical forces, chemical, thermal or physical effects, radiation, aggressive or neutral liquids, gases or other factors, toxic or biological environments and any other effects of artificial or natural origin of a destructive nature;
- if the repairs, maintenance or upgrading of the SMART product are made by persons, who are not authorized to do so by the manufacturing company;
- if the defects of the SMART product are caused by the force majeure circumstances which the manufacturing company could not foresee, control and prevent;
- if there are no or damaged warranty seals or stickers set up in the SMART product by the manufacturing company or the service center authorized by the manufacturing company;
- if the defects of the SMART product are caused by its joint use with an equipment or a software that are not included in the delivery set, unless otherwise specified in the Operating manual;
- if the defects of the SMART product are caused by its operation as part of a set of defective equipment.