NAVTELECOM
TELEMATICS SYSTEMS

DATASHEET

GPS/GLONASS TRACKING EQUIPMENT
SIGNAL S-2613

Moscow, Russia
2022

Purpose of the System

SIGNAL S-2613 (hereinafter SIGNAL) manufactured by Navtelecom LLC, are GPS-GSM based vehicle tracking system with internal GLONASS/GPS- and GSM-antennas for vehicle monitoring.

SIGNAL system is designed for:

- vehicle monitoring: location, track, mileage, fuel consumption, engine hours;
- monitoring the temperature using wireless temperature sensors;
- emergency informing about vehicle hijacking;
- emergency informing about attacks on the driver or passengers and other accidents;
- remote control of connected devices and vehicle systems, such as a siren, engine and door lock system, etc.
- two-way communication with the vehicle driver;

You can find more detailed information about SIGNAL devices on the website www.navtelecom.ru on the Equipment tab.

Standard Delivery Kit

#	Item description	Quantity, pcs
1	SIGNAL device unit	1
2	GLONASS/GPS-antenna	1
3	GSM-antenna	1
4	Fuse 1A	2
5	Fuse holder	1
6	Microfit-14 connector with power wires	1
7	Microfit-6 connector	1
8	Microfit-4 connector	1
9	Set of 10 connection wires	1
10	Datasheet	1 (optional)
11	MiniUSB cable	1 (optional)
12	Individual package	1 (optional)

Technical Specifications

GSM/GPRS/Bluetooth	
2G modem	yes
Frequency bands	GSM 850, EGSM 900, DCS 1800, PCS 1900
IP-stacks	TCP, UDP
Transmitting power	Class 4 (2W) in GSM 850 and EGSM 900; Class 1 (1W) in DCS 1800 and PCS 1900
Max HSPA data downlink/uplink transfer, kbps	85,6
Number of SIM cards	1
SIM card holder	external with ejector (Molex), miniSIM
eSIM	no
Bluetooth	yes, v.4.0
GNSS	
Supported navigation systems	GLONASS/GPS/Beidou
Receiver type	tracking: 33, acquisition: 99
Sensitivity (in laboratory conditions)	tracking: -165 dBm cold start: -149 dBm
Time-To-First-Fix (for GPS and GLONASS systems with a signal of -130 dBm)	cold start: <29 сек warm start: 22 сек hot start: <1 сек
Accuracy (50% CEP, 24 hours in static mode, with signal levels -130 dBm), m	2.5 (horizontal position), 5 (vertical position)
Speed accuracy, m/s	0,1
Receiver update rate, Hz	1
Power Supply	
Supply voltage, V[1]	9,5…47
Overvoltage protection up to 200 V	yes
Current consumption at 12 V voltage in operating mode on average[2], mA	80
Current consumption at 12 V voltage with turned off GLONASS and GSM modules, no more than, mA	30
Maximum current consumption at 12 V voltage in operating mode with charged battery, no more than, mA	230
Reverse polarity protection	yes
Backup battery[3]	Li-Po 3,7 V, at least 800 mAh
Battery protection from recharge, full discharge, short circuit[4]	Yes
Maximum time of device operation from a fully charged battery with data transfer via GSM/UMTS channel once per minute, not less than, h	6
Full charge time of the battery, not more than, h	5
Battery of the RTC clock and the navigation module	yes
RTC keeping time and ephemerides retention time (when the power is off and the backup is discharged), at least, days	5
Battery charging with USB	yes
Inputs	
Inputs protection from power surges, V	yes
Digital inputs	4
Analog inputs	1
Analog inputs configured as digital	1

Trigger voltage of IN, more than, V	2.5 (+-0.2)
Trigger voltage of IN2, IN4, IN5, less than, V	0.8 (+-0.2)
AIN3 voltage range, V	0…31
Built-in pull-up resistor for digital inputs	yes (IN2, IN4, IN5)
Outputs	
Digital outputs	4
Maximum current, mA	500
Maximum voltage, V	48
Interfaces	
USB interface	yes
RS-485 interface	yes
RS-232 interface	No
CAN interface	No
1-Wire interface	No
Device Memory	
Memory capacity, Mb	8
Number of records in the memory (buffer type) with a packet size not less than 127 bytes	up to 51700
Period of data recording in the internal storage device, s	1 - 3600 and/or by event
MicroSD card support	no
Accelerometer	
Accelerometer with virtual shock, tilt and movement sensors	yes
Measurement range of acceleration, g	+/-16
Accelerometer accuracy in the range of +/-16g, %	0,5
Setup and Management	
USB interface for configuration, management and data transfer	yes
Configuration and management of the device with NTC Configurator program	yes
Configuration and management of the device remotely via Bluetooth with NTC Control mobile application	yes
Working with devices in DRC system	yes
OTA firmware update	yes
Automatic firmware update	yes
Configuration and management of the device via SMS and Internet channels	yes
Resending telemetry for the period to the server by SMS or Internet command	yes
Data transmission	
GSM, SMS, GPRS data transferring	yes
Optional selection of transmitted parameters to save traffic	yes
Sending information in roaming only about the current state with the following unloading of data to the server in the home network	yes
Setting the roaming priority operator list	yes
Automatic detection of operator settings based on SIM card data	yes
EGTS protocol support	yes
FLEX, FLEX 2.0, FLEX 3.0 protocols support	yes
Number of servers (IP addresses) to which data can be transmitted	3
Resending telemetry for the period to the server by SMS or Internet command	yes
User and debug logs for GSM, GPS and interfaces	yes
TCP and UDP transport protocols support	yes
Number of phone numbers for SMS notification	5

Functionality	
EcoDriving	no
Towing detection	yes
Accident detection in accordance with acceleration thresholds or Addiction Severity Index (ASI)	no
Generating and sending accident profile to the server	no
Immobilizer function using Proximity card driver identification system and 1-Wire interface	no
Energy saving mode	yes
Device operation on the timer or by the calendar	yes
Security modes	yes
GSM jammer detector	yes
GNSS jammer detector	yes
Sending SMS about speeding event	yes
Determining the engine operation time and calculating engine hours by the external voltage level	yes
Tachometer with engine speed calculation	yes
Providing LBS information from the three nearest cell towers	yes
AES128 data encryption	yes
Mileage algorithm based on terrain	yes
Selection of sensors involved in coordinate processing	yes
Setting the degree of data averaging for the fuel sensors	yes
Stopping work with fuel sensors under specified conditions (decrease in external voltage, turn off the ignition, engine shutdown)	yes
Setting output operating mode (permanent, single, periodic)	yes
Number of connected fuel sensors via RS-485 interface, no more than	6
Calibration of the fuel sensor in the device	no
MODBUS RTU protocol support	no
Operation with RFID readers Escort Radius, ADM20, Mielta and LLS-compatible	no
Output of NMEA data to the digital interface	no
CAN adapters support	no
Support of wireless headset for two-way communication with the driver	no
Bluetooth connection of up to 4 wireless fuel level sensors, ESCORT TD-BLE, TECHNOTON DUT-E, GL-TV, MECHATRONICS DOMINATOR, MIELTA FANTOM	yes
Bluetooth connection of up to 4 wireless temperature and humidity sensors ADM31/35, ESCORT TL-BLE, TZ-BT04	yes
Bluetooth connection of up to 4 wireless universal sensors TESLiOT, ESCORT TH	yes
Bluetooth connection of ADM32 wireless tilt angel sensor	no
Bluetooth connection of TECHNOTON GNOM DDE wireless axle load sensor	no
Bluetooth connection of TECHNOTON DFM wireless fuel consumption sensor	no
Bluetooth connection of ELM327 diagnostic adapter	no
Transperent mode[5]	no
Tachograph support	no
Working with driver display DV-01	no
Autoinformer function	no
Working with electronic display ITLINE and INTEGRAL	no
Speed limiting in geofences	no
Working with passenger flow counters PP-01 and Avtokonduktor	no
Camera connection support, sending pictures to server by server request	no
Working with TPMS Pressure Pro, TPMS 6-13 (from Parkmaster), B-Tag (from Bridgestone), TM508T22U and TD 18, 20, 21	no
Working with breathalyzer Alcogran AM-525	no
Generating events on wireless temperature decrease/increase	yes
Connecting microphone and speaker for hands-free communication with the driver and microphone listening	yes
Resistance and power of the connected speaker	4 ohm - 1.5 to 5 W 8 ohm - 1.0 to 3 W

Connecting buzzer to the output for incoming call notification	yes
Environmental Specifications	
Ingress Protection Rating	0 … +40
Storage temperature with battery6, °C	-40 … +85
Storage temperature without battery, °C	-20 … +60
Operating temperature with battery7, °C	-40 … +85
Operating temperature without battery, °C	0 … +50
Battery charge temperature, °C	95
Maximum operating humidity at 35 °C, %	24
External GLONASS/GPS and GSM antennas	yes
Interface for connection to computer	miniUSB
Connectors for GLONASS /GPS and GSM antennas	SMA
Interface connectors	Microfit-14, Microfit-6, Microfit-4
Housing material	ABS plastic
Tamper button	no
Dimensions with connectors, mm	105x78x20,5
Weight, kg	0,094

[1] When the maximum operating voltage is exceeded, power protection is activated. In this case, device continues to work from backup battery (if any).
[2] Working with GPRS in poor communication conditions, the peak (~10ms) consumption of the device can exceed 500 mA.
[3] 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.
[4] Battery protection function blocks the charge at low temperatures and at temperatures above +50 °C.
[5] Mode in which information received via the RS-232 and RS-485 interfaces is not processed by the device, but buffered and transmitted to the server as "yes".
[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.
[7] When working with a device with backup battery outside the temperatures in the Environmental Specifications section, it may lead to irreversible change in the properties of the Li-Po battery, decrease in capacity, current output, etc.

You can find more detailed technical information in the Operations manual for the SIGNAL device.

Warranty

The manufacturer guarantees the compliance of the SIGNAL product with the requirements of the technical specifications TU 26.30.50-002-82520404-2010 (identical to 4372-002-82520404-2010) subject to the consumer observing the storage, transportation, installation and operation rules established by the current set of 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 starts on the date of sale.

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

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

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

The manufacturing company is not liable for the possible material, moral and other damage, suffered by the owner of the SIGNAL 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 SIGNAL 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 SIGNAL product;
- modernization of the SIGNAL product.

This warranty does not cover following cases:

- defects of the SIGNAL device are caused by the violation of rules for its operation, storage or transportation;
- defects of the SIGNAL device 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;
- repair, maintenance or upgrading of the SIGNAL device was made by persons non-authorized by the manufacturer;
- defects of the SIGNAL device 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 SIGNAL product by the manufacturing company or the service center authorized by the manufacturing company;
- defects of the SIGNAL device 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;
- defects of the SIGNAL device are caused by its operation as part of a set of defective equipment.