

## General Guide for Installation

- Install the device as far as possible from metal parts and wiring harnesses.
  - For better receiving of GPS-GLONASS signals direct the upper part of the device casing to the windshield minding metal obstacles.
  - Recommendation: connect device supply directly to the OBD-II connector wires where pin 16 is +12B, pin 4 is GND (common).
  - Analog output AN commutates at GND. It is used to start some heaters using an analogous signal and to connect status LED located in the button from the package.
  - Auxiliary output OUT commutates at GND. It is used to connect a coolant pump or the interior's heater via a power relay. It is switched on with the delay (see SMS-command TIME2) after the heater is switched on. It is switched off with the delay (see SMS-command TIME3) after the heater is switched off.
  - If you need to implement additional options of remote control of output OUT (for example, to block engine remotely) activate setting SEPAROUT1. It switches the output mode into manual control mode (SMS-commands: ACTIVATE / DEACTIVATE).
- In this mode setting KEEPOUT1 activates option to save and to subsequently restore of output OUT state when the module's power supply is switched off and then switched on, respectively.

Please indicate the place of ALTOX module's location in the vehicle for possible maintenance:

Authorized Service:  
Installation Date:



## Operational Manual

# ALTOX GSM-4 GPS

## General Information

Dear buyers of ALTOX equipment!

We thank you for purchasing a new ALTOX GSM-4 GPS device. This device will provide you with great options to control your autonomous starting parking heater.

You need a SIM card for your ALTOX device. It is recommended to use special plans for M2M equipment.

## Use

Using ALTOX system you can control your starting parking heater remotely using a phone. ALTOX GSM-4 GPS device is equipped with in-built GPS-GLONASS module which allows controlling the vehicle's location via a text message (SMS), ALTOX HEATER mobile Internet app and via ALTOX SERVER 2.0 monitoring system in the real-time mode (TRACKING1 setting).

## Control and Programming

You can start using your ALTOX module right after you have saved authorized phone numbers in settings (3 cells: NUM1 / NUM2 / NUM3).

Saving of the first caller's phone number into cell NUM1 follows up automatically (cell NUM1 should be empty).

To save other phone numbers use a text message instruction NUMX:+YYYYYYY, where X is a number from 1 to 3, and +YYYYYYY is a phone number.

To clear the cell send NUMX instruction without specifying a phone number.

There are the following control options:

- Outgoing voice call and DTMF commands;
- Outgoing text messages (SMS instructions);
- Mobile applications Thermo Call, HeaterRC or others;
- Direct control via a button in the car's interior;
- Via web interface of the mobile Internet app <http://altox.ru/app>

## Управление исходящим вызовом

Call the phone number of the SIM card installed in the GSM module. The phone number you are using to make a call should already be saved in the device (see text messages SMS-commands). If the call is made using a number that has not been saved in the ALTOX module, the connection with the device will end without receiving a response signal. The working status of the heater will not change.

If this setting is not active (CALL0), the call is dropped after a certain number of ringing tones.

- 1 ringing tone - the heater switches on,
- 2 ringing tones - the heater switches off.

## SMS Status Messages:

HEATER ON 30min

GSM (0-31): 28

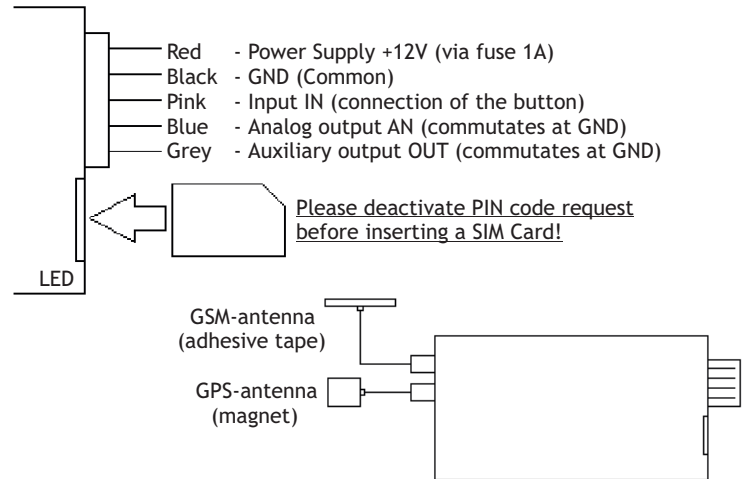
Voltage: 12.8V

Output: off

- heater status and time until switching off
- GSM receive signal level (not less than 10)
- car-system voltage
- auxiliary output OUT status

## Specifications

Parameter	Value
Power Supply Voltage	10V - 28V
Standby Current	less than 35mA
Max Current for Auxiliary Output Terminals	150mA
Operating Temperature	from -40 to +80 °C



## LED status (in SIM card slot)

Solid - request to SIM card, searching for network connection

Slow blinking (once every 2 seconds) - waiting mode

Fast blinking (5 times every second) - establishing of GPRS/RING/SMS/USSD

## Installing a Button to Switch on the Module

Make a Ø8mm hole in the plug or in another easily accessible for a driver place. The button is connected in accordance with the color of the main connector wires (key: Input IN - +12V, LED: output AN - resistor - +12V).

Note: if a non-latching button (FIXKEY1 setting) is used to switch heater on heater will not be switched off automatically after time specified in TIME1.

Internet Settings	Command
APN Access Point (ask your mobile provider)	APN1:internet
APN User Name (ask your mobile provider)	APN2:login
APN Password (ask your mobile provider)	APN3:password
Internet-application server's IP address	SERVER1:X.X.X.X
Internet-application server's port	SERVER2:XXX
Number of attempts to establish GPRS before reconnect	COUNT1:3
Number of attempts to establish TCP before reconnect	COUNT2:2
Ping frequency in home network, 1-99 sec	PING1:30
Ping frequency in roaming, 0-99 sec (0-OFF)	PING2:30
Tracking mode (committing routes to the system)	TRACKING1 /0

**Note:** after the setting of the APN point, ALTOX module will switch into GPRS mode. Internet traffic amounts to less than 3MB/month without rounding off (TRACKING0), in TRACKING1 mode - less than 30MB/month.

Settings for the TRACKING1 mode	Command
Switching threshold moving/parking, km/h	TMOTION:10
Transmission frequency in motion (0-50km/h), 1-99sec	FREQ1:5
Transmission frequency in motion (50-100km/h), 1-99s	FREQ2:10
Transmission frequency in motion (>100 km/h), 1-99sec	FREQ3:15
Transmission frequency when parked, 0-9999sec (0-OFF)	FREQ4:60
Transmission frequency in motion (roaming), 0-999sec	ROAM1:90
Transmission frequency when parked (roaming), 0-9999s	ROAM2:600

#### Text SMS with General Settings:

T30,0,0 F0 - TIME1/2/3, FIXKEY0  
 P0 S0 K0 - PULSEOUT:0, SEPAROUT0, KEEPOUT0  
 S1:w0,v11.0 - SMSF1, SMSW0, SMSV:11.0  
 C1 P"" - CALL1, PASS: (up to 4 characters)  
 N1""/N2""/N3"" - NUM1, NUM2, NUM3 - phone numbers cells  
 B\*\*100#:10;5:1 - BAL:\*100#, BTIMER1:10, BTIMER2:5, TRANSLIT1

#### Text SMS with ID and Internet Settings:

ID:12345678901234 - Unique Device Identificator  
 S"XXX.X.X.X","XXX" - SERVER1:XXX.X.X.X, SERVER2:XXX  
 G"apn","user","pass" - APN1:apn, APN2:user, APN3:pass  
 C3,2 P30,30, T0:10 - COUNT1/2, PING1/2, TRACKING0, TMOTION:10  
 F5,10,15,60 R90,90 - FREQ1/2/3/4, ROAM1/2

#### Text SMS with GSM Stations Data:

The text message contains 7 cells with data: N, MCC, MNC, LAC and CID.  
 N - number of cell from 0 to 6 (if a cell is empty, all fields have value 0),  
 MCC - country code, MNC - network code, LAC - local area code, CID - cell ID.  
 LAC and CID fields values are displayed in hexadecimal notation.

After the response module for a voice call, you should enter a DTMF-command by pressing a relevant tone button:

- Switching the autonomous heater ON/OFF - press 1.
- Request account balance - press 2.
- Request heater status - press 3.

After a minute the connection is dropped automatically.

The parking heater will be ON for the specified in settings time period (TIME1), and additionally LED on the button installed in the car will be activated.

### Control via Button

The standard ALTOX equipment also includes a button (it is installed if required in the car's interior). This button controls the heater and indicates its current working status.

### Control via Internet

This option allows controlling the heater in the real-time mode via Internet-app ALTOX HEATER (<http://altox.ru/app>) using your phone's or tablet's browser. Detailed recommendations on setting up the Internet-app and switching the module to the GPRS mode can be found in the document «Description of ALTOX HEATER Internet-application».

Attention! If you decide not to use the option of controlling the heater via Internet after switching the module into the GPRS mode, you should switch the GPRS mode off by sending a text message command «APN1:».

### Control via SMS

Send a SMS-command to the phone number associated with the SIM card installed in the module. Text message commands can be sent from any phone number. If the password is set (PASS setting), then before entering any command, you should include its value with no spaces (for example, «1111START», where 1111 is password, START is an command).

Heater Control	Command
Switch the heater ON (operation time from TIME1)	START
Switch the heater ON for a time period of XXmin (10-120)	START:XX
Switch OFF the heater	STOP
Request a text message (SMS) with the heater status	STATUS

When setting SEPAROUT1 is activated, the auxiliary output OUT is switched into a manual control mode (to implement additional options).

Auxiliary Output Control	Command
Switch ON only the auxiliary output OUT	ACTIVATE
Switch OFF only the auxiliary output OUT	DEACTIVATE

To request the account balance of the SIM card (by number from the BAL setting) use SMS command «USSD». If you need to request data for another phone number, add it in the command: «USSD:\*XXX#».

Additional commands	Command
Send USSD-request *XXX# using the module's SIM card	USSD:*XXX#
Send text message XXX from SIM card's number to NNN	SMS:NNN:XXX
Request GSM stations data (MCC,MNC,LAC,CID)	GSMINFO

**Note:** MCC, MNC, LAC and CID data allow to determine the location of the vehicle on the map (using Google, Yandex services, etc.).

LAC and CID fields values are displayed in hexadecimal notation.

## Settings

You can enter several settings simultaneously, dividing them by commas. If the password is set (PASS:XXXX), then before entering any instruction, you should include its value with no spaces (XXXXSETTINGS1).

General Settings Commands	Command
Request a text message (SMS) with general settings	SETTINGS1
Request a text message (SMS) with Internet settings	SETTINGS2
Restore to factory default settings	SETDEFAULT

1) To change the default operation time of the heater use text message command TIME1:XX, where XX is operation time from 10 to 120 minutes.

2) When using the auxiliary output OUT as a controlling signal for the car's interior ventilation, set the delay time for switching on of OUT after the heater's start using setting TIME2:XX, where XX is a value from 1 to 20 minutes.

3) When using the auxiliary output OUT as a controlling signal for the coolant pump, set the delay time for switching off of OUT after the heater's stop using setting TIME3:XX, where XX is a value from 1 to 9 minutes.

4) To change the mode of auxiliary output OUT into the pulse mode use setting PULSEOUT:XXX, where XXX is the value for the impulse duration from 1 to 999 seconds.

To change back to the normal mode set the value to 0 («PULSEOUT:0»).

5) To switch auxiliary output OUT to the manual mode use command SEPAROUT1. In this mode the control of the auxiliary output is carried out using text message commands ACTIVATE and DEACTIVATE.

6) ) In the SEPAROUT1 mode after setting KEEPOUT1 is activated, the module saves and then restores the state of OUT when the power supply is switched off and subsequently switched on.

Technical Settings	Command
Default operating time of heater, 10-120 min	TIME1:30
Delay before switching on of OUT, 1-20 min	TIME2:0
Delay before switching off of OUT, 1-9 min	TIME3:0
Type of button: latching / non-latching	FIXKEY1 /0
Pulse mode for OUT, 0-OFF (0-999 sec)	PULSEOUT:0
Manual control of OUT (on/off)	SEPAROUT1 /0
Restoring of the state for OUT after power supply	KEEPOUT1 /0

1) By default, the module uses the option of forwarding all incoming SMS that are not commands to the last phone number registered in the module or entered into cells NUM1/2/3.

To deactivate this option use commands SMSFO.

2) To switch on the automated sending of status text messages when the heater's status has been changed, send SMS command SMSW1.

3) In the waiting mode, when the parking heater is switched off, ALTOX module controls car system voltage. When the voltage drops below the predefined value XX (SMSV:XX setting), the system will send an alarm SMS text message to the first authorized phone number entered into settings (NUM1/2/3). The next alarm SMS text message about the voltage drop will be sent in 3 hours.

4) CALLO setting switches the module into the mode of dropping incoming calls which allows saving money.

5) NUM1/2/3 commands set up authorized phone numbers. Phone numbers should be entered in the international format.

6) BTIMER1:N allows receiving an automated SMS with account balance information every N days. To switch off this option send a SMS command with value 0 («BTIMER1:0»).

User Settings	Command
Forwarding of incoming SMS (to switch off use SMSFO)	SMSF1 /0
SMS status when the heater's status changes	SMSW1 /0
SMS about car system voltage drop	SMSV1 /0
CALL1 - response incoming call, CALLO - dropping call	CALL1 /0
Setting the password before entering SMS-commands	PASS:XXXX
Save the phone number into cell NUM1	NUM1:+YYYYYYY
Save the phone number into cell NUM2	NUM2:+YYYYYYY
Save the phone number into cell NUM3	NUM3:+YYYYYYY
Save USSD number for account balance requests	BAL:*XXX#
Timer for sending SMS with balance, 0-99 days (0-OFF)	BTIMER1:10
Timer for sending balance into application, 1-9 hours	BTIMER2:5
Transliteration of cyrillic characters	TRANSLIT1 /0