Car alarm Z1

User´s manual
Version 1.7

Car alarm Z1

The car alarm Z1 (further Car alarm, or device) belongs to new generation of modern car security. Thank to integrated GSM module you can control your vehicle with your mobile phone.

Car alarm has a special built in sensor that triggers the alarm when the car moves or when it inclines. It reacts for example to: the towing of the car, wheels theft, or manipulation. External signal inputs can be connected to various sensor, for example to signal the intrusion into the inside area of vehicle or connection to door contacts, or any other sensor.

Car alarm is permanently checking status of the car battery and reports of voltage reduction, or battery drop. It is possible to connect backup battery, that protects alarm functions and reports alarm status at the time of unexpected voltage reduction.

Device also allows you to follow up the vehicle movement via GPS satellite system. Control unit keeps sending all information to web portal www.gpsasistent.sk. Journey logs and records can be viewed on the webserver in well-arranged form.

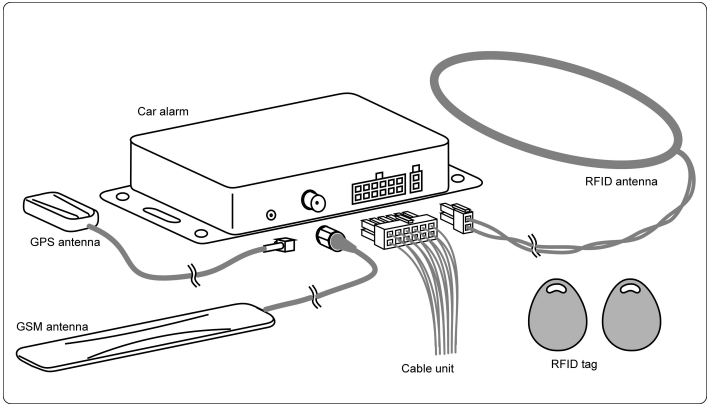
Device can be controlled by original car key in ignition, by RFID tag or by SMS.

Car alarm sends the information about vehicle intrusion or movement by SMS messages with text description and by calling to up to 4 preset telephone numbers. SMS texts includes detailed information about intrusion itself. It is possible to change text information and to adjust them to your own needs. The Internet portal www.gpsasistent.sk offers to device users access to information about the status of vehicle, and also displays all movement and individual trips on the map.

For the correct operation of the service abroad, it is necessary to have the roaming function activated on SIM card inserted in device.

Package content

Your package of Car alarm includes:
- control unit (Car alarm),
- cable unit (to connect device to the cockpit network, to connect external signalizing inputs and LED diode)
- GSM antenna
- GPS antenna
- RFID antenna
- RFID tags – 2 pieces



Device setup by mobile phone

Setup (control) of device by mobile phone can be done by sending setup SMS message to the telephone number of SIM card inserted in Car alarm.

Password

Each SMS message sent to telephone number of SIM card inserted in device must begin with access password.

PASSWORD – It is 4 characters combination of letters and numbers.
All letters of English alphabet and numbers are allowed, password is not case sensitive. It is not allowed to use other characters then numbers and letters, like space, dot, question mark etc. Factory default password is : **abcd**

Setup of own password

Notice !

Factory default password will be changed by installation company when the device is installed, and will be written into the installation report. It is

recommended to change the password again after the installation, to keep your car and your personal information safe !

Example: To change factory default password „abcd" to new password „aa22", write following SMS message and send it to the telephone number of SIM card inserted in the device:

abcd␣PWD=aa22

Setup commands

Certain functions of Car alarm can be set and controlled by commands sent by SMS messages. Each SMS must begin with valid password. After the password a space „␣ „follows, and certain setup commands, also separated by space „␣ „.
It is not necessary to put all the commands in SMS. If you do not wish to change any setting, you can exclude that certain command. If you send a command with same parameter as already is set, it does not change anything.

Important:

- Each SMS message must begin with your password,
- Different commands must be separated by one space,
- Sequence of commands is possible to change. Only commands „?", „?S", „?P" must always stand at the end of SMS message,
- It is allowed to exclude commands – in that case the former value will remain valid
- Maximum length of SMS message is 160 characters,
- At the end of SMS it is possible to write query "?" to check actual settings, „?S" to check settings of text reports, or „?P" to receive current position of vehicle.

The list of certain commands and its meaning is listed in the table below.

COMMAND	MEANING	USE
PWD=[New password]	Change password to **[new password]**	[password]␣PWD=1234
SEN=[value]	[value] defines sensibility (acceleration or vehicle inclination) that will trigger alarm. In general, the lower the value is, the higher is the sensitivity. Allowed range: **3 to 100.** Factory default value is 5. Recommended value is lower then 12.	[password]␣SEN=7
REL=[parameter]	[parameter] defines, which function is relay due to operate. Allowed parameters are: **OFF** – Relay permanently switched off **ON** – Relay permanently switched on **ALARM** – Relay is switched on for 28 seconds during alarm, if you switch-off RELAY it will disarm, too. **STATUS** – Relay switched off while alarm is arming and switched on while disarming . (It copy status of arming)	[password]␣REL=ALARM
AT=[value]	[value] specifies the **Arrival time,** that is time from turning of the ignition key till attaching RFID tags to the reader. If this time is missed, alarm triggers. Command is also used to define the delay of external alarm input nr. 2. Allowed range: **3 to 120 seconds.**	[password]␣AT=15
DT=[value]	[value] specifies **Departure time** , during that it is necessary to leave the vehicle at arming mode. Allowed range: **3 to 120 seconds.**	[password]␣DT=30
?S	Command must be placed at the end of SMS. After receiving this command Car alarm will send back actual setting of text reports.	[password]␣?S
?P	Command must be placed at the end of SMS. After receiving this command Car alarm will send back information about actual vehicle location.	[password]␣?P
?	Command must be placed at the end of SMS. After receiving this command Car alarm will send back actual setting T1 to T4, SEN, REL, AT, DT	[password]␣?
RESET=YES	Command will delete current settings and telephone numbers and will set device to default settings	[password]␣RESET=YES
WEB	After receiving this command Car alarm will send back to you access data to register at web portal www.gpsasistent.sk	[password]␣WEB

Example: *To set sensibility of inclination detector write and send following SMS message:*

abcd␣SEN=5

Finding out current Car alarm settings

To find out the current settings of Car alarm the question mark is used.

?

The question mark is considered an independent command, therefore it must be separated by space. It does not change any setting. If you want to use it, you have to put it at the end of SMS message. After sending SMS message containing the question mark car alarm will answer by SMS message with actual settings.

Example: *If you do not wish to change these settings, only to check them, you can send an SMS message with following text to the SIM card in your car alarm :*

abcd␣?

You will receive an answer from car alarm:

abcd␣T1=+421903111111␣T2=#␣T3=#␣T4=#␣SEN=5␣REL=OFF␣AT=15␣DT=30␣(RFID)

The easy and convenient way to change settings of your device is that you re-write the received SMS message the way you would like to have the settings set and you send the SMS message back to the telephone number of SIM card inserted in your car alarm.

Notice that the way of arming **(RFID)** is in brackets. The reason is not to activate RFID reading mode.

If you wish to program the disarming by RFID tag again, remove brackets before sending this SMS and send it in this form:

abcd␣T1=+421903111111␣T2=#␣T3=#␣T4=#␣SEN=5␣REL=OFF␣AT=15␣DT=30␣RFID

Setup of telephone numbers

COMMAND	MEANING	USAGE
T1=[telephone number]	[telephone number] determines to which number Car alarm will call and send alarm SMS messages. It is possible to enter maximum 4 cell phone numbers.	[password]␣ T1=+421903111111
T2=[telephone number]		[password]␣ T2=+421903222222
T3=[telephone number]		[password]␣ T3=+421903333333
T4=[telephone number]		[password]␣ T4=+421903444444

Notice !

- **Length of each telephone number (T1 to T4) is at the most 15 numbers,**
- **If you do not wish to use any of telephone numbers, or if you want to delete it, put symbol # instead of it,**
- **Enter telephone numbers in international form (+421.....), instead of 0903111111 it is necessary to enter also country code +421903111111.**

Example: *To set one telephone number, to which the device will send alarm SMS messages, and to leave out the other three numbers, set and send the SMS message :*

abcd␣T1=+421903111111␣T2=#␣T3=#␣T4=#

Finding out current settings of text reports

To find out current settings of Car alarm text reports, send the question mark together with the letter S.

?S – Is used same way as independent question mark without letter. After sending SMS message, which contains question mark followed by letter S, your Car alarm will answer to you by SMS message with actual settings of certain text reports.

Example: *If you wish to check setting of text reports, you can send SMS message with text:*

abcd␣?S

You will receive an answer from your Car alarm in this form:

abcd␣S0=Car alarm Z1#␣S1=Vehicle stolen#␣S2=battery low#␣S3=battery OK#␣S4=ext. Alarm 1#␣S5=ext. Alarm 2#␣S6=backup battery#

In case, that you want to change standard preset text, you can re-write received message and send it back to the telephone number of SIM card inserted in your device.

Setup of text reports

COMMAND	MEANING	USAGE
S0=[text string]#	[text string] is name of Car alarm	[password]␣S0= Car alarm Z1 #
S1=[text string]#	[text string] is description of alarm report from motion detector of vehicle	[password]␣S1=Vehicle stolen#
S2=[[text string]#	[text string] is description of battery drop	[password]␣S2=battery low#
S3=[[text string]#	[text string] is report about power supply renewal	[password]␣S3=battery OK#
S4=[[text string]#	[text string] is description of alarm message from **external input nr. 1,** which is active permanently	[password]␣S4=ext. ALARM 1#
S5=[[text string]#	[text string] is description of alarm message from **external input nr. 2,** which is active only when alarm is armed	[password]␣S5=ext. ALARM 2#
S6=[text string]#	[text string] is report of operation with backup battery	[password]␣S6=backup battery#

Notice !

- **Allowed length of any text (S0 to S6) is max. 19 characters, incl. space, comma, etc.,**
- **Each text (S0 to S6) must end with character # (grid).**

Example: *To change the name of Car alarm or text report of battery drop, write an SMS message in following form and send it to the phone number of SIM card inserted in your device :*

abcd␣S0=Car alarm Z1#␣S2=battery low#

Texts S1, S3, S4, S5, S6, as well as other settings keep unchanged in this case.

Setup of control method

Arming and disarming Car alarm is possible in three ways:

a) **Control by ignition key (Set by command KEY)**

Turning on ignition key in ignition box to position 1 deactivates Car alarm (switches it off from arming). After switching off the engine and taking out the ignition key the departure time begins, it is set for 30 seconds, and is indicated by slow blinking of red LED diode. After departure time expires arming activates, it is indicated by short flashes of red LED diode.

b) **Control by RFID tag (Set by command RFID)**

Turning on ignition key in ignition box to position 1 activates RFID reader, which is installed close to ignition box. By attaching programmed RFID tag to RFID reader is Car alarm disarmed (switched off). Sound signal (beep) confirms this together with double blink of LED diode. After switching off the engine and taking out the ignition key the departure time begins, it is set for 30 seconds, and is indicated by slow blinking of red LED diode. After departure time expires arming activates, it is indicated by short flashes of red LED diode.

c) **Direct setup (Using commands ARM, DISARM)**

Car alarm arming is possible to activate and deactivate also by sending the SMS message containing the command ARM for activating and DISARM for deactivating. SMS message has to be sent to telephone number of SIM card installed in Car alarm device.

COMMAND	MEANING
KEY	Turning on ignition key in ignition box to position 1 Car alarm is deactivated. (switched off). Switching of the engine and taking out the ignition key activates Car alarm (switches on for arming)..
RFID	Disarming is done by RFID tag. In case that at least one RFID tag is stored in memory of Car alarm , after receiving this command, this mode will be activated without reading of new tags . If none tag is stored in alarm memory, reading of RFID tags activates.
RFIDN	Disarming is to be done by RFID tag. After receiving this command reading of RFID tags activates.
ARM	Arming permanently switched on.
DISARM	Arming permanently switched off.

Notice !

- To set method of arming and disarming, it is possible to use only one from allowed commands in one message **KEY / RFID / RFIDN / ARM / DISARM** .

Example: *To set the control method write and send SMS message:*

abcd␣KEY

RFID setup

When Car alarm receives SMS message with command **RFIDN**, it activates reading mode. Subsequently, it is necessary to attach RFID tags to RFID reader.
Reading of new tags must be done within 1 minute. Each reading of tag is signalized by beep. It is possible to store maximum 4 tags. End of reading is signalized by double beep. It is recommended to repeat this setting in case of loss of the tag, for security reasons.

NOTICE !

Each command RFIDN deletes the list of all previously defined tags.

Command **RFID** is used only for activation of disarming mode via RFID tag. If at least one tag is defined, beeps of built in buzzer sounds, together with LED diode blink. The number of them indicates the number of RFID tags stored in memory of Car alarm. In case that none RFID tag is defined, reading activates (like if command RFIDN would be set)

NOTICE !

- **After arming is set, the departure time is activated, standardly set for 30 seconds (possible to change this setting). After this time is over, double beep sounds, which indicates arming activation, while detection of inclination is activated after next 15 seconds.**
- **If disarming, while RFID mode is set, it is necessary - after inserting the key in ignition box and turning to position 1 – to attach RFID tag to reader within 15 seconds, otherwise alarm turns on. (Interval of 15 seconds can be set for longer).**

Reporting alarm status

Alarm status can be triggered by following means:

• **internal detector of motion / inclination**
sensor of motion and inclination is a part of device, and in case of move or inclination detection it trigers alarm

• **external signal inputs**
•External signal inputs can be connected to door contacts, (circuit protection), to sensors of glass break, or to any other sensor. Car alarm has two external inputs. They react to connecting to negative pole (ground) of supply. On cable harness, there are following colors of conductors used fro external inputs:

•**white – yellow external alarm input 1** - active permanently
•**white – blue external alarm input 2** - active only when arming switched on, this input is also delayed, that means alarm will be generated after arrival time is over (see setting of PC). It means, that if you disarm before this time is over, there will be no alarm

Additional info:

- when arming is switched on and external horn is set (REL=ALARM) the horn will be active maximum 10 times from alarm trigger ,
- after total number of 10 alarms is reached within one arming, other alarms from external input 2 will not be registered ; external alarm 1 as well as other motion detector will continue triggering alarms (sending SMS and calling), external alarm, registered at input 1 while arming switched off does not activate external horn (with setting REL=ALARM).
- at REL=ALARM relay signalize by sound beep arming - 2x short beep and disarming – 1x short beep

When arming is activated, alarm can be triggered by:

1.Car movement in any direction
2.Activation of external input nr. 1 (connecting to negative pole (ground) of supply)
3.Activation of external input nr. 2 (connecting to negative pole (ground) of supply)

When arming is deactivated, alarm can be evoked by:

4.Activation of external input nr. 1 (connecting to negative pole (ground) of supply)

When Car alarm gets to alarm status, it sends SMS messages to all numbers assigned to Car alarm. SMS messages contain name of Car alarm, type of incident, which triggered alarm, GPS coordinates and actual speed, text description of location (if available) and length of last passed journey.
Subsequently the device will try to call to preset telephone numbers. It it necessary to answer this call – in case that you do not answer, or refuse it, it is considered as unsuccessful call, and device will repeat the call. Maximum number of calls to one number is 3. If you answer the call, Car alarm itself will cancel the connection and will not call anymore.

If alarm continues, meaning car is still moving, SMS messages with actual GPS locality of vehicle will be sent to the phone number that answered alarm call. Device keeps sending them in interval of 5 minutes. In roaming the number limited to 3 SMS messages. Information about actual location of vehicle will be received after sending following SMS message to the phone number of the SIM card installed in your device:

abcd␣?P

Indication by LED diode

Red LED diode indicating status of alarm is a part of device.

Indication LED	Interval of indication	Status
Switched off	-	Deactivated Car alarm
Short flash	4 seconds off, 0,125 second on	Activated Car alarm
Flashing slowly	1 second on 1 second off	Only by deactivated Car alarm: Signalization of SIM locked by operator (only when Car alarm is deactivated) or signalization of departure time
Flashing fast	0,125 second on 0,125 second off	After Car alarm deactivation after alarm status, after accepting command RFID or RFIDN it indicates reading mode during 1 minute
Shining	permanently	Alarm status

Relay usage

Relay can be used for:

- connection of external siren, horn, lights etc (REL = ALARM)
- connection of immobilizer (disconnection of electric circuits which allow

starting the vehicle) , (REL=STATUS)
•usage for other purpose with possibility to control via SMS message (REL=OFF) or (REL=ON)

Contacts of relay are conducted on cable harness. Relay is switched on for period of 28 seconds from ALARM status.

Automatic control of car battery

Auto alarm is standardly powered from storage battery. Each voltage reduction of main battery, and recovery of voltage back to normal value is indicated by SMS message with defined text reports.

It is possible to add backup battery to device, it is not included, but you can buy it from Car alarm dealers.

Localization of vehicle

Car alarm includes GPS receiver, which is used to find out the location of vehicle. Information about actual location of vehicle will be sent to you after you send following SMS to the telephone number of your device:

abcd ?P

Answer will be in form:

	Always	**If available GPS coordinates**	**If vehicle is moving**			**If is in database**
Car alarm Z1	**MOVE**	**48^12.1234, 16^58.1234**	**60 km/h**	**(SW)**	**5.7 km**	**Triblavina**
Device name	Actual status	<quadratic> ^ <minutes>.<tenth of minute> north. w., <quadratic>^ <minutes>.<tenth of minute> east. l.	Motion speed	Motion direction	Last driven distance	Location

Localization information and individual alarm statuses of Car alarm are sent to server. You can get them, after logging to the account created at Car alarm portal.

Remarks to device installation

Before you insert SIM card into device, make sure that protection by PIN code is deactivated and that data services are activated on your SIM card.

Device should not be installed in the area, where it would be exposed to high temperatures (for example under the first level of cockpit, which can be heated by sun).

To ensure an unauthorized manipulation with Car alarm it is useful to connect external alarm input nr.1 (24-hours input) as protection of cockpit cover or other area, in which alarm is installed.

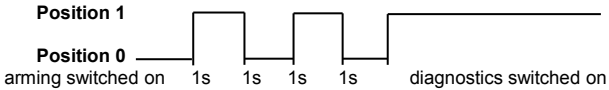
Diagnostics

Diagnostics mode is activated by ignition box (through input marked as „KEY“ or input „15“). It is allowed to get into diagnostics mode after two minutes from connection of device to power supply.

- Starting position for test mode is key in ignition box **in position 0** (input KEY is without supply) and together with that **arming must be activated**
- Test mode starts by following method , while it is important to **keep time intervals :**

1**.** Turn the key in ignition box t**o position 1** and wait **1 second**
2. Turn the key **back to position 0** and wait **1 second**
3. Repeat points **1.** and **2.**
4. At last turn the key to **position 1** and leave it in that position

Graphic presentation of sequence:



- **Double beep** sounds, that indicates entry to diagnostics mode. Together with that due to security reasons **adequate alarm** generates. (If you have telephone numbers for alarm reports preset, Car alarm will send SMS messages and will try to call).
- During this mode will actual **tests** be **cyclic indicated** (reported) currently by diode flashing and buzzer beep according to table (see chapter Signalization in diagnostic mode).
- Diagnostic mode is left by **returning the key back to position 0** (disconnecting supply from „KEY“)

Signalization in diagnostic mode

After starting up the diagnostic mode Car alarm will start to check certain functions and together with that report results of these tests. Signalization is formed of four groups of synchronized consecutive flashes and beeps. At the beginning all tests are active, that is why all four groups will be signalized. Certain groups are separated by longer pause. End of signalization for certain group test is considered a correct result.

Table of report groups :

Group number	Number of flashes / beeps	Meaning of group	Note
1	1x	Diagnostic mode proceed	Will be indicated until switch off KEY
2	2x	Test of data connection with server	After successful testing data transmission signalization of this group switches off
3	3x	Test of GPS localization	After reading GPS coordinates signalization of this group switches off
4	4x	Test of RFID reading device	After reading of any RFID tag signalization of this group switches of. This means, that it is necessary to attach RFID tag to reading device.

If all tests run through correctly, only group one will stay cyclic signalized, which means that Car alarm is still in diagnostic mode.
If another group, except group one, is signalized after a longer period (approx. 1 minute), it means that the test in that group found an error. In that case it necessary to check this :

For group 2

a) Check, if correct SIM card is inserted in device,
b) It is necessary that following services are available on your SIM card:
- voice calls,
- SMS messages,
- data services (GPRS),
c) Check connection of GSM antenna to device

For group 3

a) Check if GPS antenna is turned to the sky by correct side (upper),
b) Make sure, that GPS antenna is not covered by metallic material
c) Check connection of GPS antenna to device .

For group 4

a) Attach any RFID tag to reading device,
b) Check connection of RFID antenna to device.

Note: If you are not using RFID tag, consider reports of group 4 consider irrelevant.

Manufacturer´s notice:

1. User´s manual describes functions of Car alarm. Your installation company will familiarize you with the way of use, and will answer your questions. If necessary, contact the manufacturer.

Manufacturer
ZADAKO, spol. s r.o., Veternicova 17, 841 05 Bratislava
Tel.: +421 2 64531086, Fax: +421 2 64531084
www.zadako.sk