

'GN8' – Alarm System with built-in **GSM modem** and **GPS receiver** designed for vehicles with central lock controlled by the **original remote key fob (or keyless entry system)**, CAN bus and 12V batteries, whose negative pole is connected to the vehicle body. **The CAN bus shall be compatible with the Alarm System.** Compatibility list CANDATA.xls can be found on www.kodinis.lt

The System is controlled by a factory key fob (keyless entry system) or a mobile phone. 'GN8' has up to 7 analog inputs, 2 of which with changeable polarity and up to 7 outputs, 3 of which can be configured as analog inputs, the IN1/OUT1 also can be configured as 1-wire digital data bus interface. The analog inputs allow to secure an additional car equipment (rooftop cargo carrier, trailer), to install the System into the car without a CAN bus, to install the System into the car where not complete signal set are found in the CAN bus.

1. SECURITY INFORMATION AND PLACEMENT OF SYSTEM COMPONENTS

The vehicle Alarm System must be installed inside the passenger compartment of the vehicle, in a place difficult to access in accordance with the manufacturer's supplied wiring instructions.

The manufacturer of the Alarm System recommends the following:

- a) choose a qualified vehicle alarm system installer to mount the device;
- b) **the System Unit** (see Pic. 1):
 - shall be mount in place free from moisture and other elements that could cause corrosion of the device. It should also be placed as far way as possible from any heat emitting elements in the passenger compartment and sources of electromagnetic interference (e.g. vehicle computer, fans, relay blocks);
 - avoid mounting the device directly on metal parts of vehicle to prevent the accumulation of condensation;
 - mount so that the wire connectors are going from the bottom side of the unit;
- c) **GSM antenna** shall be mount in a hidden place farther from the metal parts of the body and electrical installation, mount on the plastic element at least 5 cm from the body. Avoid sharp bends of the cable;
- d) **GPS receiver with built-in antenna** shall be mount in hidden place under non-shielding plastic interior trim where the maximum sky view, it shall be fixed to the horizontal metal surface, the top part of antenna shall be directed towards to sky. Avoid sharp bends of the cable;
- e) **avoid** placing wires next to moving or hot parts of vehicle;
- f) **use the fuses** for protection the following circuits against overload: the System Unit power circuit, the OUT6 circuit, the siren circuit, the circuits of the used outputs.



Pic. 1. Alarm System 'GN8'. The System Unit.

2. TECHNICAL PARAMETERS

1. Maximum Current Consumption in armed state	no more 20 mA
2. DC Supply Voltage	9-15 V
3. Operating temperature range	-40°C...+85°C
4. Maximum load current:	
• IN1/OUT1, OUT3, OUT4, OUT5, IN7/ OUT7	200 mA (output mode)
• IN2/OUT2	50 mA (output mode)
• OUT6	2 A
• SIREN	2 A
5. GSM modem frequency bands	900 MHz; 1800 MHz
6. Audible alarm duration	no more 30 s

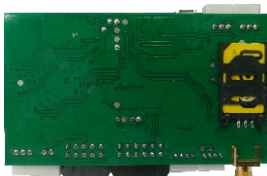
3. SEQUENCE OF SYSTEM INSTALLATION AND CONFIGURATION

1. Prepare and insert the SIM card (4).
2. Mount the Alarm System (5).
3. Select the car and configure the Alarm System by PC (6).
4. Select the direction indicator wiring diagram and connect them to the Alarm System (7).
5. Connect the additional equipment if necessary (8, 9).
6. Change the Alarm System and/or GSM/GPRS communicator settings by PC or manually if necessary (6 or 10, 12).
7. Check the System operation and fill up the installation documents (14, 15).

4. SIM CARD



Pic. 2. Opening the 'GN8' case.



Pic. 3. The installed SIM card.

SIM preparation for installation

The SIM card is prepared in any mobile phone:

1. Refill your card account.
2. Disable the PIN code requirement when phone is turned ON (if the GN8 Loader software is used for System configuration, it is available to set the System in such way, that the PIN code would be entered automatically).
3. Activate number detection.
4. Check SMS center phone number.
5. Erase all redundant information in the SIM card.
6. Make sure that the phone with this SIM card successfully calls and accepts calls, sends and receives SMS messages.

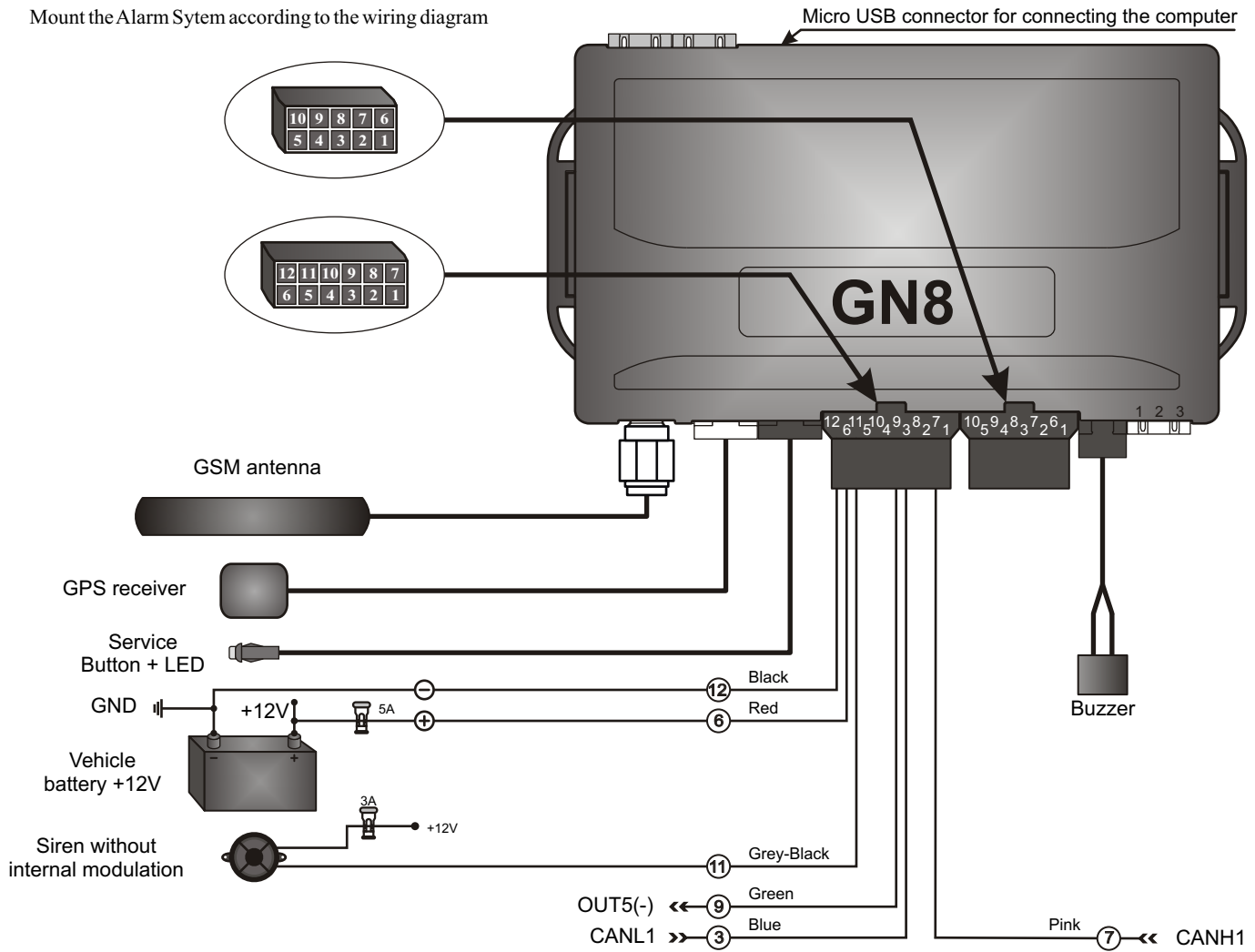
SIM card installation in the System Unit

Attention! It is forbidden to install the SIM card into the device and remove from the device without powering down the System.

Remove the cover of the System Unit. To do this release one of side locks with the tip of the screwdriver by pressing on it and bending to the body (see pic. 2). Open the case. The second lock will release itself. Unscrew the screws and remove the PCB. The SIM card holder is located on the bottom side of the board. Unfix and open the SIM card holder. Check the SIM card's and the holder's contacts. The contacts shall be clean. Use a soft cloth and a non-aggressive liquid for cleaning. Install the SIM card in the holder, close and fix the holder (see pic. 3). Place the PCB on the place and screw the screws. Place the cover on the place and fix the locks by pressing on top.

5. WIRING DIAGRAM

Mount the Alarm System according to the wiring diagram

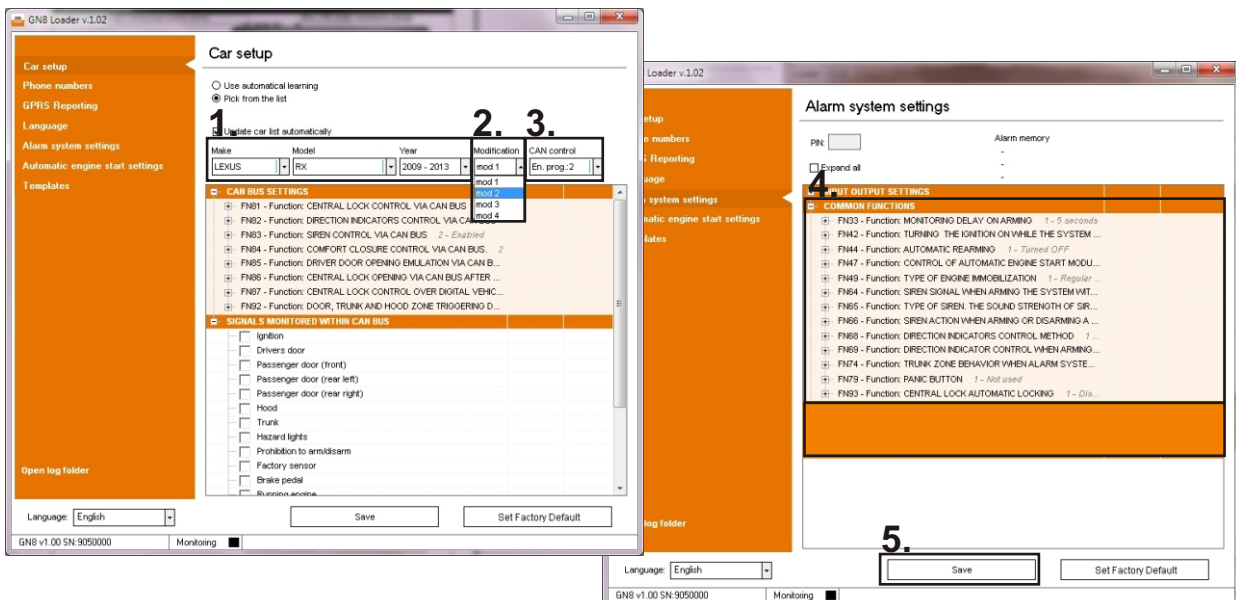


Pic. 4. Alarm System 'GN8'. Wiring diagram.

6. VEHICLE SELECTION AND ALARM SYSTEM CONFIGURATION BY COMPUTER

Launch the GN8 Loader configuration software, connect the Alarm System to PC via USB interface.

1. Select a car from the list.
2. Some cars may have several modifications of the CAN bus, select "mod 1" and test if the System is working. If not, switch to the next modification.
3. Turn ON the control via CAN bus. For some cars you can select from several control programs, select the first from the list and check if the control is working, if not working, select the next program.
4. Setup the required Alarm System settings.
5. Save the selected vehicle data and settings.



Pic. 5. GN8 Loader software windows.

7. DIRECTION INDICATORS

Select one of five ways to connect the direction indicators:

A – The control of the direction indicators via CAN bus is possible in the car. No additional connections are necessary.

B – The connecting to the Hazard Warning Button and the monitoring of the direction indicator flashes via CAN bus are possible in the car.

C – The connecting to the Hazard Warning Button, is possible in the car, however the monitoring of the direction indicator flashes via CAN bus is impossible. The analog input configured for monitoring of the direction indicator flashes is used.

D – The connecting to the Hazard Warning button is possible in the car, however the direction indicator flashes are not under monitoring (not recommended way to control the direction indicator).

E – The control of the direction indicators via CAN bus and the connecting to the Hazard Warning Button are impossible in the car. The direction indicators are controlled by switching the 12V voltage directly via external relays.

NOTE: Information about ability to control or monitor the direction indicators via CAN bus is available in the file CANDATA.xls on the manufacturer's web site: www.kodinis.lt.

A

Direction indicators are controlled via CAN bus. The simplest way – no additional connections are necessary.

B

Direction indicators are controlled by turning ON/OFF the Hazard Warning Module. The Alarm System monitors the flashes of the direction indicators via CAN bus.

C

Direction indicators are controlled by turning ON/OFF the Hazard Warning Module. The Alarm System monitors the flashes of the direction indicators via input configured for the L+ function.

D

Direction indicators are controlled by turning ON/OFF the Hazard Warning Module. The Alarm System does not control the flashes of the indicators (not recommended).

E

Direction indicators are controlled directly (via external relays). The System switches 12V voltage.

B C D

Switching ON Switching OFF

Hazard Warning Button without latching.

Switching ON Switching OFF

Hazard Warning Button with latching.

8. ASSIGNMENT OF SYSTEM UNIT CONNECTORS

Wire assignment of the 12-pin connector

Pin	Wire color	Name	Function	Setting range	Factory setting
1	White	IN11	Input - voltage detection (+/-)	FN16; SN = 2 ÷ 39	Set for door switch (SN=3). Select polarity (FN1-12; SN=1÷4).
2	Black-White	IN2/OUT2	Input - voltage detection / Output - optional device control (+)	FN52; SN = 2 ÷ 39 FN52; SN = 40 ÷ 92	Set for vital circuit cut-off by relay with NO contacts (SN=40).
3	Blue	CANL1	CAN bus interface	—	Connect to CANL1. If CAN bus is the one-wire bus – to GND.
4	Yellow	OUT6	Output - optional device control (-)	FN2-10; SN = 40 ÷ 92	Set for direction indicator control. Use an external relay.
5	Violet	IN12	Input - voltage detection (+/-)	FN17; SN = 2 ÷ 39	Set for trunk switch (SN=5). Select polarity (FN1-13; SN=1÷4).
6	Red	+12VB	Power (+)	—	Connect to the positive terminal of the vehicle battery.
7	Pink	CANH1	CAN bus interface	—	Connect to CANH1.
8	Orange	+12VR	Power (+)	—	Connect to the positive terminal of the backup battery.
9	Green	OUT5	Output - optional device control (-)	FN29; SN = 40 ÷ 92	Set for vital circuit cut-off by relay with NC contacts (SN=41).
10	Brown	IN1/OUT1	Digital data bus interface/ Input - voltage detection / Output - optional device control (-)	FN51; SN = 1 FN51; SN = 2 ÷ 39 FN51; SN = 40 ÷ 92	Reserved.
11	Grey-Black	SIREN	Siren control (-)	FN65; SN = 1 ÷ 5	Connect a siren. Set for sound level reduced by 8 times (SN=4).
12	Black	GND	Power (-)	—	Connect to the negative terminal of the vehicle battery.

Wire assignment of t 10-pin connector

Pin	Wire color	Name	Function	Setting range	Factory setting
1	Orange-White	RX(GN8)	USART interface, input	—	Connect to Bypass module for Keyless OEM immobilizer.
2	Pink-White	CANH2	CAN bus interface	—	Connect to CANH2.
3	Green-Black	LIN	LIN bus interface	—	Connect to LIN.
4	White-Yellow	IN14	Input - voltage detection (-)	FN19; SN = 2 ÷ 39	Set for hood switch (SN=4).
5	White-Red	IN13	Input - voltage detection (+)	FN18; SN = 2 ÷ 39	Set for ignition switch (SN=2).
6	Orange-Black	TX(GN8)	USART interface, output	—	Connect to Bypass module for Keyless OEM immobilizer.
7	Black-White	CANL2	CAN bus interface	—	Connect to CANL2. If CAN bus is the one-wire bus – to GND.
8	Black	GND	Power (-)	—	Connect to the negative terminal of the backup battery.
9	Brown-White	OUT3	Output - optional device control (-)	FN53; SN = 40 ÷ 92	Set up for Central Lock locking (SN=53). Use relay if needed.
10	Brown-Black	OUT4	Output - optional device control (-)	FN54; SN = 40 ÷ 92	Set up for Central Lock unlocking (SN=54). Use relay if needed.

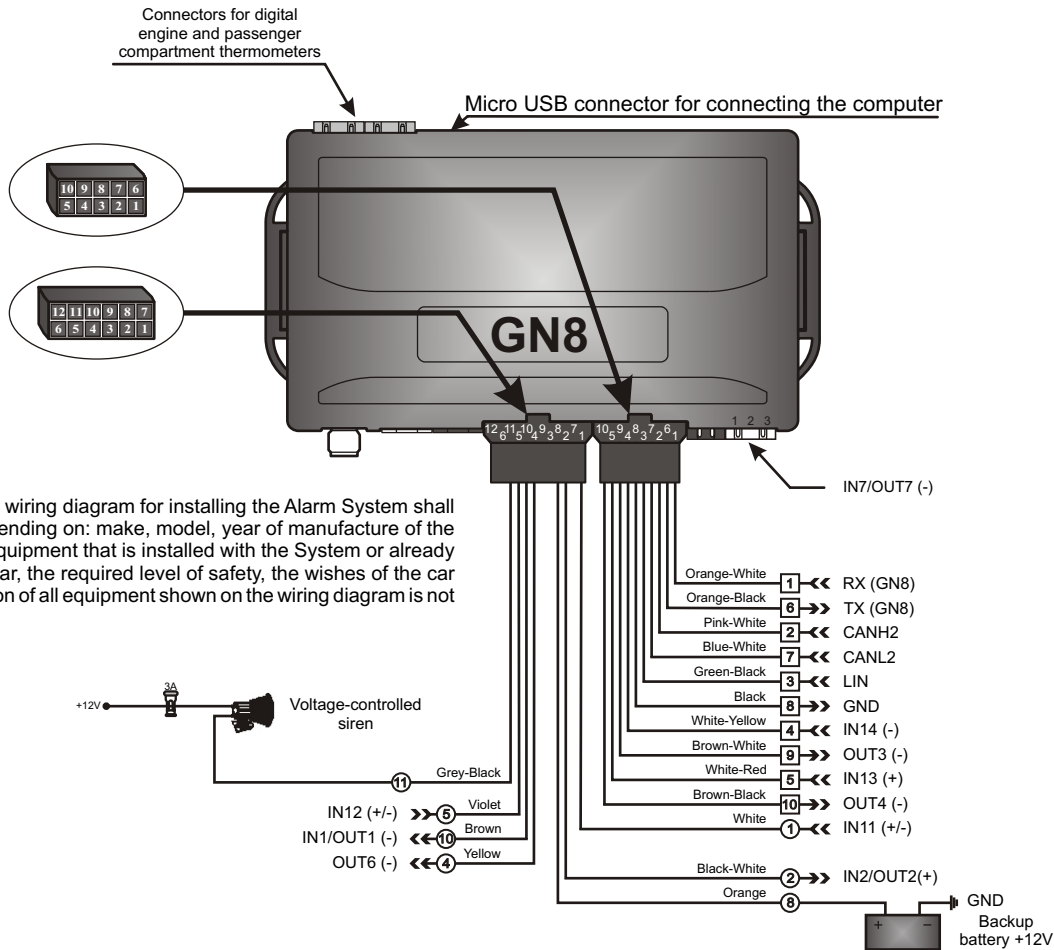
8. ASSIGNMENT OF SYSTEM UNIT CONNECTORS

Wire assignment of the 3-pin connector

Pin	Wire color	Name	Function	Setting range	Factory setting
1	—	IN7/OUT7	Input - voltage detection / Output - optional device control (-)	FN75 SN = 2 ÷ 39 FN75; SN = 40 ÷ 92	Set up for the interior motion sensor (as usual ultrasonic sensor), for motion inside passenger compartment detection (SN=7).
2	—	GND	External device powering (-)	—	Connect to the volume sensor GND pin.
3	—	+12V	External device powering (+)	—	Connect to the volume sensor +12V pin.

9. ADDITIONAL EQUIPMENT WIRING DIAGRAM

Mount the additional equipment if it is necessary.



Pic. 6. Alarm System 'GN8'. Additional equipment wiring diagram.

10. BUILT-IN GSM/GPRS COMMUNICATOR

The built-in GSM/GPRS communicator is used in the Alarm System 'GN8' unlike other systems. This solution allows to control the Alarm System and the GSM communicator, to change the Alarm System and GSM communicator settings by mobile phone.

10.1. Alarm and information messages to registered numbers.

Up to 5 telephone numbers can be assigned to the Alarm System. The System will call and report the alarm with recorded voice message and/or will send SMS to these numbers depending on the System settings. The following settings are possible for each number:

- **Mandatory call on alarm.** If the System is setup so, that would call to the several phone numbers after triggering, it will call to the number with mandatory call on alarm feature turned ON even at the case the System is received the trigger confirmation code during call to other number. If the user does not pick up the phone or picks up the phone and enters no confirmation code (0# or PIN code and #) the System will try to reach the user 3 times.
- **Call on alarm.** The System will not call this number if is received the confirmation code when called another number. If the user does not pick up the phone or picks up the phone and enters no confirmation code, the System will try to reach the user 3 times.
- **SMS on alarm.**
- **SMS on arm.**
- **SMS on disarm.**
- **Trouble SMS.**
- **Periodic test SMS,** a message with the System status is sent at specified time interval (from 1 to 4 days) at 12 o'clock in the afternoon.
- **SMS forwarding. Forwarding of the unintelligible SMS messages.**
- **SMS in SmartPhone format.** The setting is actual only for SecoLink application in smart phone with Android OS.

10.2. Calls and SMS sending to the Alarm System.

The Alarm System accepts calls receives call and SMS commands from both registered and unregistered phone numbers, however you can prohibit receiving calls and executing SMS commands from unregistered phone numbers (see SH0 command in the SMS Commands table, 9#04# command in the Voice Menu table). The Alarm System then rejects calls from unregistered phone numbers and considers the SMS messages from unregistered numbers unintelligible. The setting does not work, i.e. SMS messages and calls are received from all phone numbers if the System PIN code is entered. **If you want to transfer the command to the System with a phone call (independently of a call from a registered number or not) you need:**

10. BUILT-IN GSM/GPRS COMMUNICATOR

- **Call the Alarm System number and get the answer.**
- **Use the keypad to type the correct PIN code and press #.**
- **Enter command number (see Voice Menu table) and press #.** As soon as the key on the keypad of phone is pressed, the appropriate DTMF code goes to the System. Correction of wrongly entered symbols is senseless. **If you do not want the System to execute the command, instead of # press * (the command will be cancelled) then enter the correct command and press #.**

If you want to send a command by SMS message from an unregistered phone number, it is necessary to enter a correct PIN code at the beginning of the command. If a command is sent from a registered phone number and the setting "SMS command must be with PIN" is disabled for this number, then the command may be without a PIN code.

- **Trouble SMS** (if the battery voltage below preset value).

It is available to set the following settings for each of registered prone number:

- **SMS command must be with PIN.** If there is no correct PIN code at the beginning of the SMS message the Alarm System considers the SMS message unintelligible.
- **Control over SMS forbidden.** All SMS messages from this phone number are considered unclear, even if the SMS message with the correct PIN code. If you mistakenly forbid the control by SMS messages, use other phone for control recovering. If there is only one number in the Phonebook, two solutions are possible:
 - ✓ **The first way.** Enter the System PIN code. It will be allowed to control the System from any phone number.
 - ✓ **The second way.** Connect the System Unit to PC via USB interface. Configure the System and save the data using the GN8 Loader software.
- **Change the System status by a short call (CLIP).** When calling from this number the System does not immediately pick up the phone (it waits for about 5 seconds) and, if the call is terminated before pickup, the Alarm System will change its status to opposite. These selections are available: arm/disarm the System, start/stop the engine remotely, turn ON/OFF stand-alone engine pre-heater.

10.3. Communication with the security server (www.alarmserver.net) by GPRS. In order for the System to communicate with the security server through access to the mobile internet, it is necessary:

- Enter **APN** (Access Point Name) – provided by the mobile operator.
- Enter **User Name** – provided by the mobile operator (parameter is not mandatory).
- Enter **Password** – provided by the mobile operator (parameter is not mandatory).
- Allow communication with **the security server** (see SMS command table, SGSE command).

Communication with the security server is established depending on settings in these cases: after the Alarm System is triggered or its status is changed, after changing the car's location by 300 m or changing the direction of the ride by 45 degrees, periodically at a specified time interval. **During the communication session** (depending on the settings), **this data can be sent:** information about the Alarm System (serial number, version), events (arming, disarming, triggering), technical Alarm System information (battery voltage, temperature, GSM network signal level), vehicle location according to LBS (base station information) and GPS, vehicle tracking data, vehicle status (disarmed, armed, open zones).

10.4. Change the settings of communication over GSM network. The communication settings can be changed in 4 ways:

- by the **GN8 Loader** software – connect the System to the computer with the installed GN8 Loader configuration software via USB interface;
- by the SMS commands;
- by the Voice commands (DTMF commands, not all settings are available);
- by the **SecoLink** application installed in smartphone with **Android** or **iOS** operating system (not all settings are available).

10.5. Transmission of control commands over GSM network. The control commands can be transmitted over the GSM network in three ways: via SMS, via a call (DTMF commands, not all settings are available), using the **SECOlink** application in a smartphone with **Android** or **iOS** operating system. The same commands are available in all ways except **V** and **F**.

10.6. Configure the SIM card balance request command if the user uses the prepaid card, for example:

1234 X1 *254 (you need to check with your mobile operator the specific code value).

Notes

The Central Lock is locked/unlocked by SMS commands **A, D**, voice commands **1#, 0#** only if the **Central Lock control via CAN bus** is enabled. The installer of the Alarm System shall explain this to you so that you act accordingly and **do not arm the System without locking the Central Lock**.

The PIN code and the command shall be separated by **_** (space symbol). If the command set is sending, the commands shall be separated by **_** (space symbol) also.

SMS commands are not case sensitive ("1234 D" and "1234 d" are the same disarm command).

It is possible to add as many commands as you want, unless total message length does not exceed 160 symbols.

Commands **F** and **X1** must be send in separate SMS messages or be added at the end of command set. For example, 1234 A F 37067012345 Hello, this is a forwarded SMS.

SMS command sample:

1234 A	Arm the System, 1234 is the Alarm System PIN code.
--------	--

SMS command set sample:

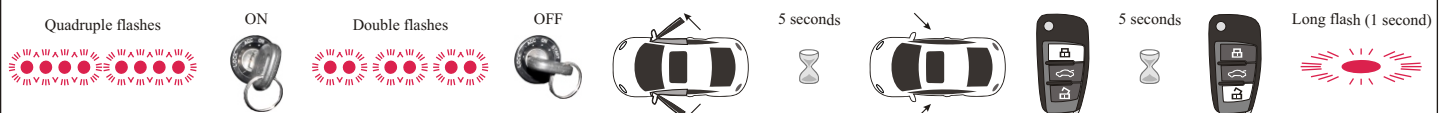
1234 SN1 37067012345 S1D1	Add phone number 37067012345 to 1st phonebook position, enable SMS on disarm to 1st number, 1234 is the Alarm System PIN code.
---------------------------	--

It is not recommended for user to change **the settings of the System functions (SF, 8#)** independently. Unexpected engine blocking can cause **an accident!**

11. AUTOMATIC VEHICLE DETECTION

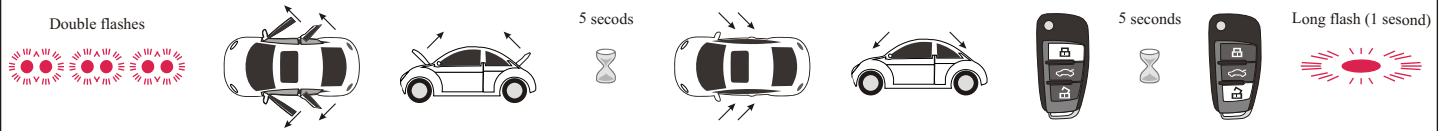
11.1. CAR DETECTION PROCEDURE

If the car was not selected manually from the list (by PC with installed GN8 Loader software, see 6), when the System is powered up, the car detection procedure is automatically activated – the System LED blinks quadruple flashes. In order for the Alarm System to identify the car in which it is installed, it is necessary to fulfill the following:



11. AUTOMATIC VEHICLE DETECTION

If the car detection procedure failed (there was no long flash of the System LED confirming the successful learning of the System), however the System detected the ignition ON and the System LED blinks double flashes, proceed as follows:



NOTES. If the Alarm System learning (automatic vehicle detection) failed:

- Repeat the procedure of automatic vehicle detection from the beginning, only this time, first turn ON the ignition and turn ON the power of the Alarm System with the ignition ON.
- Check if the CAN bus and ground wires are well connected, and whether the System is connected to the correct CAN bus.
- Update the Alarm System firmware and repeat the Alarm System learning procedure.

11.2. OTHER VEHICLE DETECTION

If the Alarm System was used in one car and later installed in another car, it is necessary to re-execute the vehicle detection procedure or select the car manually (using a computer with the installed software GN8 Loader). To start the automatic car detection procedure, follow these steps:

- enter PIN code (see 12);
- within 8 minutes after entering the PIN code enter the code 59 (FN59).

11.3. IMPORTANT TO KNOW

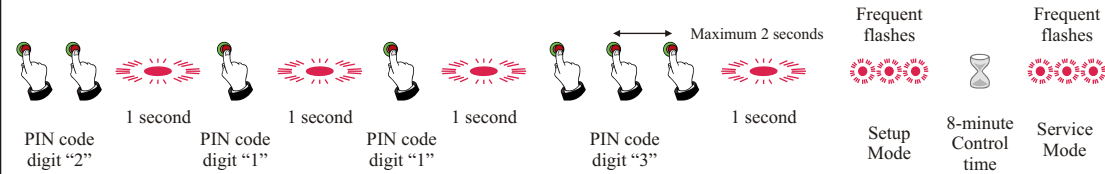
- Vehicle detection procedure can be cancelled by Service Button press. The System terminates the detection procedure and remains in Setup Mode.
- After a successful car detection procedure the System automatically goes into Normal Mode and you can start using the System immediately.

12. PIN CODE ENTERING AND MODES AFTER THE PIN IS ENTERED

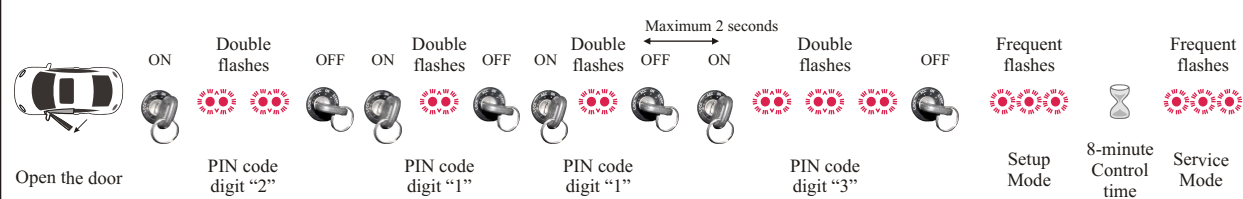
12.1. PIN CODE ENTERING

PIN – 4-digit code is required to activate the Setup Mode and the Service Mode. The System learning (automatic car detection) is carried out in Setup Mode. After entering the PIN code the System LED blinks frequent flashes. We have the 8-minute Control time for **the System learning and/or the System setting change**. It is the **Setup Mode**. If no further operations are performed, after 8 minutes the System LED further blinks frequent flashes, but the System does not react to anything. The System is in the **Service Mode**.

12.1.2. PIN CODE ENTERING BY SERVICE BUTTON (PIN CODE: 2113)



12.1.2. PIN CODE ENTERING BY IGNITION KEY (PIN CODE: 2113)



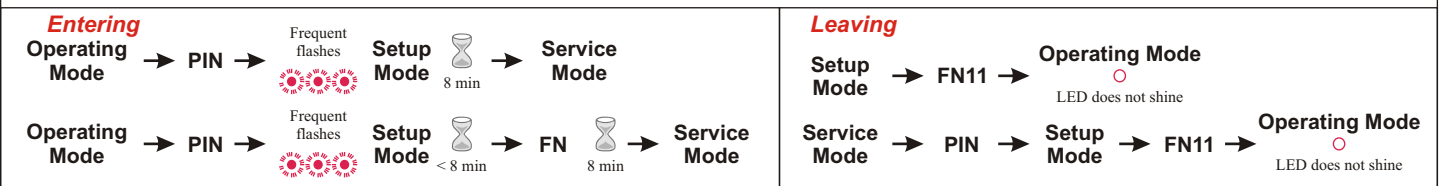
Notes:

- Interval between 2 presses of the Service Button no more than 2 seconds. Wait for confirmation flash.
- Return to working mode. If the 8-minute Control time after PIN has been entered is not elapsed, enter code 11. If the Control time is elapsed – enter PIN code and code 11.
- If a mistake has been occurred during PIN code entering by ignition key, turn OFF the ignition, close the doors and repeat the procedure from the beginning.
- If a mistake has been occurred during PIN code entering by service button, wait for LED confirmation flash, wait 2 seconds once more and repeat the procedure from the beginning.

12.2. SETUP MODE AND SERVICE MODE

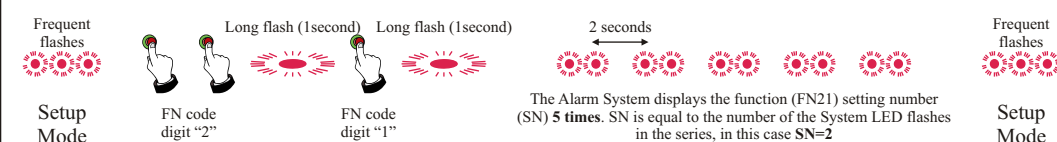
The Setup Mode is activated for 8 minutes after the PIN code is entered. The Alarm System goes into the Service Mode after the 8-minute Control time is elapsed if no FN or SN code is entered. Each FN or SN code entering extends the Control time up to 8 minutes.

Setup Mode is dedicated for manual change of the System settings. The FN and SN codes are used for manual change of the System settings. **Service Mode** is dedicated for emergency shutdown of the Alarm system (lost Remote Key Fob, discharged or failed battery, malfunction of the Alarm System, car repair).



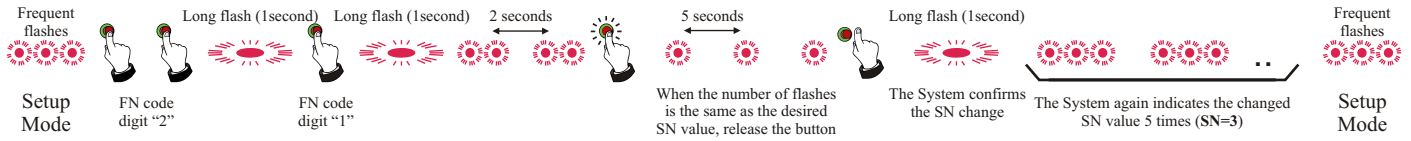
12.3. SETTING SETUP

- Enter the Setup Mode.
- Check the current setting for FN21 (for example, by Service Button).

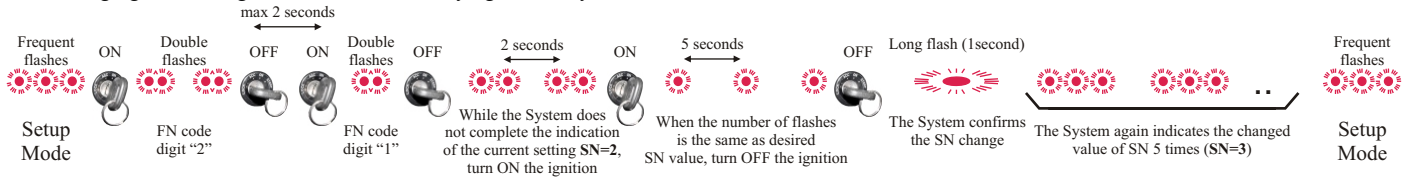


12. PIN CODE ENTERING AND MODES AFTER THE PIN IS ENTERED

3. Changing the setting for FN21 to SN=3 by Service Button.



4. Changing the setting for FN21 to SN=3 by Ignition Key.



NOTES:

- If the FN code is not entered due to an error, wait for frequent flashes of the System LED and try again.
- If the FN code is not entered because the 8-minute time for the setting change has expired, enter the Setup Mode again.
- The SN display can be cancelled by briefly pressing the Service Button or turning the ignition for a short time (if the FN code was entered with the ignition key).
- **FN31 and FN32** – adjustment / testing of sensitivity of built-in sensors. When one of these codes is entered the System displays the SN value by flashes of the System LED once. After that you can check the sensitivity of the sensor. The trigger of the sensor will be displayed by short siren signal. The sensitivity can be changed at any time while the adjustment / testing is active. After changing the SN value, it will be displayed once again and after that it will be possible to check the sensitivity. To exit this mode briefly press the Service Button or switch the ignition ON (if the FN code is entered using the Ignition Key).

12.4. AVAILABLE SYSTEM SETTINGS –FN AND SN CODES

A complete list of possible settings is given in the table of system function settings, a link to which can be found on the manufacturer's website at www.kodinis.lt.

13. THE SYSTEM TRIGGER DATA

The Alarm System saves the information about the last triggers and can indicate the trigger reasons in 2 ways:

- disarm the System, close the doors and turn ON the ignition. The System indicates the reason of the last trigger by flashes of the System LED.
- enter FN71, FN72, or FN73. The System respectively indicates the reasons of the last 3 triggers by flashes of the System LED.



The count of the System LED flashes

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Triggered built-in shock sensor	Triggered built-in tilt sensor	Triggered external ultrasonic sensor	Triggered OM sensor	Triggered Jamming sensor	Ignition was turned ON	Front left door was opened	Front right door was opened	Rear left door was opened	Rear right door was opened	Hood was opened	Trunk was opened	Door via analog input	Driver not identified	Low Main Battery	Triggered trailer sensor / switch

14. SYSTEM PIN CODE

I, undersigned qualified installer, have been informed the customer that: **SYSTEM PIN CODE IS _____ THE USER MUST CHANGE THE PIN CODE AFTER THE INSTALLATION AND DO NOT SAVE IT INSIDE THE CAR!**

15. CERTIFICATE OF INSTALLATION

I, undersigned qualified installer _____ (Name, Surname) certify that installation of

the below described vehicle alarm system has been carried out by myself pursuant to installation manual supplied by the manufacturer of the system.

Vehicle description:

Manufacturer and model: _____

Serial number: _____ Registration number: _____

Description of vehicle alarm system:

Type: 'GN8'. Model: _____ Official approval number: _____

Installation date: _____

Installing company: _____

Installer: _____

(Position, signature)

