

Thank you for your decision to purchase the
telematic car burglar alarm system

StarLine E90, E91 2CAN,
and let us wish you safe driving!

	Star Line Federal Support Service. Toll free			
	Russia 8-800-333-80-30	Kazakhstan 8-800-070-80-30	Ukraine 0-800-502-308	Byelorussia 8-10-8000-333-80-30



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Please, read carefully!

Before the using of the car alarm system, please, read carefully the present manual, paying the special attention to sections marked with the sign  (ATTENTION!)

and identify, whether the given car alarm system is compatible with your car, for this purpose use the car manufacturer specifications and car operating manual.

If you are not able to identify, whether the given car alarm system is suitable for installation on your car, return it to the seller within 14 days from the moment of purchase.

The car alarm system is a complex technical device to be connected to the car circuits used during the engine operation.

The car alarm system shall be installed only by specially trained qualified specialists.

The car alarm system and pendants shall not be installed, configured, serviced, repaired or disassembled and reassembled by persons who are not qualified specialists and haven't passed the industrial safety training and testing.

The configured parameters of the car alarm system shall comply with the requirements of the car operating manual.

The user bears full responsibility for the damage caused to people, animal and property as a result of use of the car alarm system for the purpose other than its intended use, or with violations of the safety requirements given in the present manual.

The manufacturer does not bear responsibility for losses and accidents caused by non-observance of safety rules and requirements, contained in the present manual.

To avoid possible misunderstandings, keep the documents attached to the car alarm system during the purchase. Check up the filled guarantee coupon, including the presence of date of sale and seal of the seller. In case of absence of the date of sale (purchase) the guarantee period starts from the moment of manufacture of the car alarm system.

Do not keep pendant of the car alarm system in the same bundle with the car keys. Do not leave the control pendants of the alarm system in places accessible to children and animals. Exclude the penetration of fluids into the pendant.

If on the pendant display an icon , warning on discharge of the pendant power element has appeared, in advance take steps to replace the power element.

We recommend to keep a spare battery in the car stored in its original package.

Mandatory safety rules for remote start of the engine

Keep in mind, that the car is a source of heightened danger. According to Section 12.8. of Traffic Regulations “Driver can leave the seat the place or leave a vehicle, if he taken the necessary steps excluding spontaneous motion of the vehicle or its use in absence of the driver”. Before the operation of the car alarm system StarLine E90, E91 please, read carefully the rules of safe use of the function of remote or automatic start of the engine given below:

1. Always park the car on open, well aired site;
2. Always set the parking brake, which shall be in an operable state and exclude any possibility of car moving;
3. When leaving the car, always set the automatic transmission control lever in a parking position, and the manual transmission control lever - in a neutral position;
4. If your car is equipped with the manual transmission, before activating the function of remote, or automatic start of the engine always perform engine pre-starting procedure "configured neutral";
5. Never give the car alarm system control pendants to children, nor to any other person without brief reading of the operating manual;
6. Before activating the function of remote or automatic starting the engine the following shall be done:
 - make sure that the car is in operable condition
 - make sure that that there is enough fuel, oil, cooling fluid etc.
 - Set the necessary parameters of operating mode of interior heater (conditioner), glass heater and other accessories,
 - Set the interior ventilation regulator in the position "air circulation", that will allow more efficiently warm up or cool air in the car.

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Introduction

StarLine E90, E91 — is a modern telematic security protection complex. The protective properties of the complex are developed per innovative technologies.



Telematics

Optional telematic module GSM-GPRS, GPS-GLONASS allows to identify the location of the car, control the protection of your car remotely



Dialogue protection

The dialogue control code with individual keys of encoding 128 bits guarantees a reliable protection against all known code-grabbers



Protection from interferences

StarLine E90, E91 confidently operates in conditions of extreme urban radiointerferences due to unique 128-channel narrow-band transceiver



Communication channel monitoring

Automatic monitoring of the communication channel ensures the verification of the pendant location in the range of the transceiver of the car alarm system



Auto start

Smart auto start allows to perform remote and automatic engine start by temperature or in the given time



Embedded 2CAN*

Ensures fast, convenient and safe installation of burglar alarm systems StarLine on modern cars equipped with CAN buses

** For the car alarm system StarLine E91 only.



3D impact and tilt sensor

Integrated digital tilt and impact sensor with a remote adjustment registers a jacking and evacuation of the car



Flexible service channels

Configured parameters of control of the emergency light alarm system, folding of mirrors, fitting the seats for owner.



Extended temperature range

StarLine E90, E91 reliably operates in severe climatic conditions at the temperature from minus 50°C up to plus 85°C due to high-quality components



Record energy efficiency

Record energy efficiency of StarLine E90, E91 due to the use of licensed progressive technologies and software solutions



Patent protection

The engineering solutions and author's design of StarLine are protected by the patents and copyright certificates

Package content

- 1, 2 - installation and operation manual;
- 3, 4 - guarantee coupon and check list;
- 5 - main pendant of feedback control and LCD display;
- 6 - central processor unit;
- 7 - main pendant power element (AAA);
- 8 - spare relay with terminal block (3 pieces);
- 9 - spare pendant;
- 10 - power unit;
- 11 - transceiver unit;
- 12 - standard immobilizer bypass unit*;
- 13 - buzzer*;



***Differences in the delivery sets of car alarm systems StarLine E90 and StarLine E91:**

Model:	2CAN module	Standard immobilizer bypass unit	Buzzer
StarLine E90	option	option	option
StarLine E91	installed in the central unit	in the delivery package	in the delivery package



- 14** - main cable with 18-pin connector;
- 15** - cable for connection of power unit and engine temperature sensor to the car alarm system unit;
- 16** - 2CAN interface connection cable;
- 17** - cable with 8-pin connector for connection of input leads of the car alarm system;
- 18** - transceiver connection cable;
- 19** - car alarm system status indication LED;
- 20** - leads of the hood limit switch;
- 21** - service button;
- 22** - engine temperature sensor;
- 23** - adapter for connection of additional sensors;
- 24** - hood limit switch, 2 self-drilling screws, earth connection terminal, diodes 1N4007.



Technical Characteristics

- Carrier frequency of control RF signal ... From 433.05 MHz up to 434.79 MHz
- Amount of control RF channels..... 128
- Maximum range of the main pendant:
 - For transmission of control instructions 8 00 m*
 - For reception of alarm signals 2000 m*
- Maximum range of additional pendant 15 m*
- Type of impact/tilt sensor Integrated three-axial accelerometer
- Operating temperature from - 50 up to + 85 °C
- DC power voltage 9 - 18 V
- Current consumed by the alarm system
in the security mode 22 mA maximum

Maximum allowable value of output current of:

- buzzer connection 2 A
- connecting the light signals 2 x 7,5 A
- central lock control 2 x 200 mA
- ignition switching-off 25 A
- accessories switching-off 25 A
- starter switching-off 25 A
- engine interlock (black and red lead of X1 connector) 200 mA
- engine interlocking (with the external relay) 30 A
- additional control channels 200 mA
- alternative control of CAN-interface** 200 mA
- Power supply
of pendant with LCD-display 1.5 V (1 element of "AAA" type)
- Power supply of additional pendant 3 V (1 element of "CR2450" type)

* The operating range of pendants can decrease depending on the place of installation of transceiver, car and owner location, RF interferences, weather conditions, voltage of the car accumulator and voltage of the pendant power element.

** For the car alarm system E91.

The car alarm system StarLine E90, E91 is permitted for use at the territory of the Russian Federation and complies with all requirements of the regulatory documents of the Russian Federation. The life expectancy of StarLine E90, E91 is 5 years provided that the product is installed and operated in compliance with the installation and operation manual.

The manufacturer reserves the right without the prior notification to modify insignificantly the design, style and completeness of the given product without deterioration of its characteristics.

Security protection and service functions of the car alarm system

Security protected zones of the car and methods of their monitoring

- Engine – interlock relay, digital radio relays StarLine R2 (option).
- Door, hood, baggage compartment, parking brake, brake pedal limit switches
- Ignition — monitoring input of ignition circuit.
- Body — two-level impact sensor, tilt sensor.
- Internal space of interior – additional sensor (option).

Security of the car alarm system

- Dialogue control code with individual encoding keys excludes smart electronic hacking.
- Licensed multi-channel narrow-band transceiver ensures the reliable operation in conditions of urban interferences.
- Memorizing of initial condition at de-energization and return to the same state at restoring power supply.
- Interruption of alarm signals without disabling of the security protection mode.
- Limitation of amount of cycles of alarm signals from sensors.
- Automatic monitoring of the communication channel.

Security and anti-theft functions of the car alarm system

- Security protection mode with audio and light alarm signals.
- Feeding alarm signals to the pendant with LCD display (main pendant).
- Noiseless enabling / disabling of the security protection mode.
- Noiseless security protection mode.
- Security protection mode with operating engine.
- Enabling / disabling of security protection without pendant.
- Automatic return to the security protection mode at casual disabling. Automatic enabling of the security protection mode.
- Immobilizer mode.
- Antirobbery mode.

- "Panic" mode.
- Configurable personal code of emergency disabling of the security protection mode.
- Engine interlock and its saving at dismantling of the car alarm system.
- Configurable 2-step disabling of engine interlock.

Self-diagnostic and indication of operating modes

- Indication of inoperable zone at enabling of the security protection mode.
- Indication of the reasons of actuation of the car alarm system by 11 zones of security protection.
- Indication of the state of the car alarm system by LED and on the pendant display.
- Indication of the fact of actuation of the car alarm system by audio signals.
- Automatic monitoring of the state of security protection sensors with switching-off of inoperable and message on their switching-off.
- LED indication of serviceability of limit switches
- Pendant with intuitive display.
- Comfortable illumination of the display.
- 3 different sound modes and vibration mode of pendant operation.
- Review of alarm history.

Service functions of the car alarm system

- Door zone bypass and delay of sensors activation before disabling of interior lighting.
- Selecting the volume level of confirmation signals of enabling / disabling of security protection.
- Remote switching-off of impact/tilt sensor and additional sensor by levels in the security protection mode.
- Remote control by the central lock
- Central lock control from the ignition lock.
- Two-step unlocking of door locks.
- Two-impulse locking of door locks.
- 6 channels of control of the additional equipment.

- Monitoring the car battery voltage.
- Separate indication of temperature in interior and under hood of the car.
- Possibility of implementation of the function "comfort".
- Function of calling from the car.
- Light alarm system of open doors.
- Turbo-timer mode
- Remote configuring of functions and pendants.
- Service mode.
- Control of illumination of the car interior.
- Mode of call from the car.
- Protection from casual pressing of the pendant buttons.
- Saving of new pendants and deleting of lost pendants from the system memory.
- Indication of current time, alarm clock, countdown timer.
- Indication of discharge of the main pendant power element.
- Possibility of share operation with GSM modules StarLine M20, M30 and StarLine M21, M31 (control of the car alarm system and monitoring of its condition through GSM channel).

Functions of engine start

- Remote engine start / continued operation / stop.
- Automatic engine start by temperature, alarm clock or periodic start every 2, 4, 6, 8..... 24 hours.
- Remote engine start in the cars with the button "start - stop".
- Selection of engine type: petrol / diesel engine.
- Selection of transmission type: automatic / manual.
- Monitoring engine operation on signals of tachosensor, generator or voltage of onboard network.
- Protection from overtwisting starter at engine start.
- Indication of the left operation time of the started engine on the pendant display.

Controlling the car alarm system using the pendants

Control pendants of the car alarm system

The system is completed by two control pendants.

Main pendant:



4-button pendant with a closed loop and liquid crystal display (LCD).

Additional pendant:



3-button pendant without display.

Main and additional pendants are equivalent by antiwiretap encryption. For transmission of control commands in both pendants the dialogue algorithm of encoding excluding smart electronic hacking is used.

Information on the state of the burglar alarm system is transmitted to the main pendant in case of:

- actuation of sensors and origin of an alarm;
- execution of commands transmitted from other pendants;
- change of operating modes and functions of the alarm system.

Meanwhile on the display the current state of the alarm system is displayed, audio and vibration signals and illumination of the display are powered up.

Besides, the pendant LCD display outputs the information on current time, switched-on alarm clock, timer, car battery voltage, engine and the car interior temperature.

In order to take the most from the features offered by the burglar alarm system, we recommend to use the main control pendant.

We recommend to use the additional pendant only at absence of the possibility to use the main pendant. The notification functions in the additional pendant are not implemented, it is intended only for transmission of the main control commands.

Duration of pressing of the pendant buttons

In this section and further the following definitions for duration and sequence of pressing of the pendant buttons are used:

- **short pressing** - one pressing of the button (or two buttons) with the duration less than 0,5 seconds;
- **long pressing** - pressing and keeping the button or two buttons until the sound of melody audio signal;
- **double pressing** - two pressings of one button within 1 second;
- **consecutive pressing** — two pressings of one or different buttons. First pressing - long (until audio signal), the second pressing - short(first, it is necessary to release the first button).

Commands of the control pendants

COMMAND	PRESS BUTTONS		CONDITIONS		
	Main pendant	Additional pendant	Ignition	Icons	Security protection
Control of security protection functions					
Enable security protection (with sound confirmation)	1 for a short period of time		disabled	anyone except for 	disabled
Disable security protection (with sound confirmation)	2 for a short period of time		disabled	anyone except for 	enabled

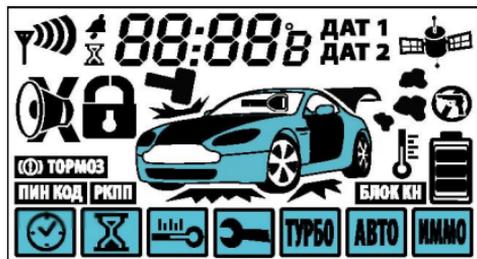
COMMAND	PRESS BUTTONS		CONDITIONS		
	Main pendant	Additional pendant	Ignition	Icons	Security protection
Disable security protection (without sound confirmation)	1 + 1 consecutive	1 double	disabled	anyone except for 	disabled
Disable security protection (without sound confirmation)	2 + 2 consecutive	2 double	disabled	anyone except for 	enabled
Enable noiseless security protection mode.	1 + 2 consecutive	-	disabled	anyone except for 	disabled
Interrupt alarm signals	2 for a short period of time		disabled	anyone except for 	enabled
Enable anti-theft mode*	1 + 3 for a long period of time up to 	1 + 2 For a long period of time up to 	enabled	anyone except for 	disabled
Disable anti-theft mode*	1 + 3 for a long period of time up to 	1 + 2 for a long period of time up to 	no matter	anyone except for 	no matter
Switching-off (-on) of the impact sensor by the levels	1 double	2 + 1 consecutive	disabled	anyone except for 	enabled
Switching-off (-on) of the additional sensor by the levels	2 double	2 + 2 consecutive	disabled	anyone except for 	enabled
Switching-off (-on) of the impact sensor by the levels	3 double	-	disabled	anyone except for 	enabled

*If the antirobbery mode is enabled by the pendant, it can be disabled by the **input of the personal code** (see page 85).

COMMAND	PRESS BUTTONS		CONDITIONS		
	Main pendant	Additional pendant	Ignition	Icons	Security protection
Activate the mode "PANIC"	1 + 3 for a long period of time up to 	1 + 2 for a long period of time up to 	disabled	anyone except for 	no matter
Engine control					
Start or continuation of engine operation for 5 minutes	1 + 3 consecutive	1 + 3 consecutive	disabled	anyone except for 	no matter
Engine stop	1+4 consecutive	1 + 2 consecutive	disabled	anyone except for 	no matter
Equipment control					
Control by additional channel No. 1	2 + 1 consecutive	3 double	no matter	any	no matter
Control by additional channel No. 2	3 + 1 consecutive	3 + 2 consecutive	no matter	any	no matter
Control by additional channel No. 4	2 + 3 consecutive	-	no matter	any	no matter
Control by additional channel No. 5	3 + 2 consecutive	-	no matter	any	no matter
Control by additional channel No. 6	4 + 2 consecutive	-	no matter	any	no matter
Regulating the sensitivity of the impact sensor	3 + 3 consecutive	-	no matter	any	disabled
Regulating the sensitivity of the tilt sensor	4 + 4 consecutive	-	no matter	any	disabled

COMMAND	PRESS BUTTONS		CONDITIONS		
	Main pendant	Additional pendant	Ignition	Icons	Security protection
Service functions					
Query for the state of the alarm system, car battery voltage car and temperature in the interior	3 for a short period of time	–	no matter	any	no matter
Search for the car and check of engine temperature	4 double	3 for a short period of time	no matter	any	no matter
Close the locks	1 for a short period of time		enabled	any	disabled
Open the locks	2 for a short period of time		enabled	any	disabled
Activation of the cursory selection of the functions	2 or 3 for a long period of time until the second audio signal	–	no matter	any	no matter
Activation of the menu of configuring of the pendant functions	4 for a long period of time until the second audio signal	–	no matter	any	no matter
Enabling of interlock of the pendant buttons	2 + 4 simultaneously	1 + 3 simultaneously	no matter	any	no matter
Disabling of interlock of the pendant buttons	1 + 4 simultaneously	2 + 3 simultaneously	no matter	any	no matter

Pendant LCD



Indication of active modes and functions

-  Mode of automatic start by the alarm clock
-  Mode of periodic start
-  Mode of automatic start by temperature
-  Service mode
-  Turbo-timer mode
-  Mode of automatic enabling of security protection
-  Immobilizer mode.
-  Interlock of the pendant buttons is enabled
-  1, 2, or 3-digit personal code is configured
-  The operation logic with manual transmission is selected

Indication of condition of the car alarm system and the car

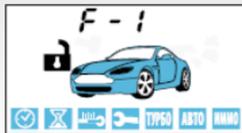
	The security protection mode with alarm audio signals is enabled
	Mode of noiseless security protection is enabled
	Door locks are closed
	Door locks are open
	Ignition is switched-off
	Door  , hood  , baggage compartment  are open
	Parking brake is not engaged (foot brake is pressed)
	Engine operates
	Antirobbery mode is enabled
	The pendant power element shall be replaced
	Engine temperature
	Any of StarLine GSM modules is connected
	Alarm clock is active
	Timer is active
	The pendant is in the zone of reception of alarm signals
	DA1 Bypass of the 1-st level of the impact sensor
	DA2 Bypass of the 1-st level of the additional sensor
	DA1 Bypass of both levels of the impact sensor
	DA2 Bypass of both levels of the additional sensor
	d4 - 1 1-st level of the impact sensor has actuated
	d4 - 2 1-st level of the additional sensor has actuated
	d4 - 1 2-nd level of the impact sensor has actuated
	d4 - 2 2-nd level of the additional sensor has actuated
	dd - 1 1-level additional sensor No. 1 has actuated
	dd - 2 1-level additional sensor No. 2 has actuated
	dH Tilt sensor has actuated

Menu of functions of the main pendant

To enter the menu of configuring of the pendant functions press and hold the button 4 until one long, and then 2 short audio signals:



pendant



The long signal, then 2 short signals will sound. On the display the indication of the first function of menu will appear. By short pressing of the buttons 1 or 4 select the necessary function:

- F - 1** - setting current date and time;
- F - 2** - setting the alarm clock time and its enabling / disabling;
- F - 3** - setting the countdown timer and its enabling / disabling;
- F - 4** - selecting the volume level of alarm audio signals and melody;
- F - 5** - enabling / disabling the label mode in pendant.

If within 8 seconds no button will be pressed, an automatic exit from the menu of configuring of the pendant functions will occur.



The exit from the menu of configuring of the pendant functions also can be performed by long pressing of the button 1 (2 short audio signals of the pendant will sound).

1

To set date and time select the function F - 1 and press the button 4 for a long period of time, until 2 short signals:





pendant

Selection of parameters (year, month, date, hours, minute) is performed by short pressing of the buttons 4 (forward) or 1 (back).

Setting of the required parameter value is performed by short pressing of the button 2 (increase) or 3 (decrease)

year: 20 11 1

month: 05. 16 2

date: 05. 16 2

hours: 15:30 3

minutes: 15:30 3

2

To set the alarm clock select the function F - 2 and press the button 4 for a long period of time, until 2 short signals:



pendant

alarm clock is switched-off: # 0FF 1

one-time operation of the alarm clock: # 1 1

periodic operation of the alarm clock: # -- 1

Selecting setup parameters of (year, month, date, hours, minute) is performed by short pressing of the buttons 4 (forward) or 1 (back).

Setting of the required parameter value is performed by short pressing of the button 2 (increase) or 3 (decrease)

year: # 20 11 2

month: # 05. 16 3

date: # 05. 16 3

hours: # 15:30 4

minutes: # 15:30 4



To switch-off a signal of the alarm clock press the pendant button 3. The signal can be switched-off also by pressing of buttons 1, 2, or 4, but in this case the signal will start again in 3 minutes (such delay of the alarm clock signal is possible 2 times).

3

To setup the countdown timer select the function F - 3 and press the button 4 for a long period of time, until 2 short signals:



pendant

Selecting the timer parameters (year, month, date, hours, minute...) is performed by short pressing of the buttons 4 (forward) or 1 (back).

timer is switched-off: 0FF0

timer is switched-on: 0n0

Setting of the required parameter value is performed by short pressing of the button 2 (increase) or button 3 (decrease).

02:00 :

02:00 :

4

To set the audio signal select the function F - 4 and press the button 4 for a long period of time, until 2 short signals:



pendant

The parameter selecting is performed by short pressing of the button 4 (forward) or 1 (back).

loud signals: rP46 :

noiseless signals: rN46 :

only vibration signal: 8U6P :

Value setting - the buttons 2 and 3 for a short period of time.

Audio signal "BUZZER": CUF 12

audio signal "PEA WHISTLE": CUF 22

5

To enable / disable the label mode select the function F - 5 and press the button 4 for a long period of time, until 2 short signals:



pendant

Pressing of the button 2:
(the label mode is disabled)

7 0 A 5

Pressing of the button 3:
(the label mode is enabled)

5 1 A 5

Setting the pendant to the label mode is required, if the car alarm system operates in SLAVE mode. See page 100 for details.



To exit from the mode of configuring the pendant functions press the button 1 for a long period of time or wait for an automatic exit in 8 seconds (without pressing the buttons).

Configuring the operating modes by cursory method



Certain operating modes of the car alarm system are enabled or disabled by the cursory method. Enabling of any of the modes is confirmed by active respective icon in the lower part of the pendant display. The configuring is possible both with the enabled security protection mode, and with disabled.

1

Press and hold the button 2 (or 3) until the moment, when two signals (first melody, then short) will sound:



pendant

after 2 signals sound, in the lower part of the screen the first left icon will be highlighted by flashing:

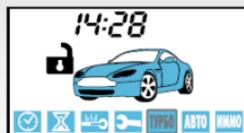


2

by short pressing the buttons 2 (left) or 3, 4 (right) move the flashing cursor to the necessary icon:



pendant



3a

to enable the selected mode press the pendant button 1:

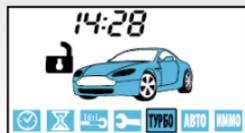


1 light signal



pendant

1 melody and 2 short signals will sound; after exit from the configuration mode an icon of the selected mode will be displayed on the display constantly (**mode is enabled**).



3b

to disable the selected mode press the pendant button 1:

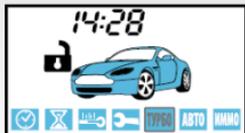


2 light signals.



pendant

1 melody and 2 short signals will sound; After exit from the configuration mode the constant displaying of the icon will be canceled (**mode is disabled**).





Exit from the configuring mode by the cursory method it is possible by long (until audio signal) pressing of the pendant button 1. If within 5 seconds no pendant button will be pressed, the exit will occur automatically.

List of modes configured by the cursory method



Mode of automatic start by the alarm clock. Allows to perform automatic engine start at the moment of the alarm clock signal (page 94).



Mode of automatic periodic start Allows with certain periodicity perform automatic engine start. The start period is configured from 2 to 24 hours with the step 2 hours (page 95).



Mode of automatic start by temperature. If the engine temperature falls below the set threshold, the engine will automatically start for warm-within the set time (page 96).



Service mode. Intended for temporary disabling fo security protection and anti-theft functions of the alarm system in case of necessity to send the car for service or repair (page 81).



Turbo-timer mode Intended for the cars with turbocharging and allows to support engine operation after ignition switching-off during some time required for decrease of the turbine rpm (page 75).



Mode of automatic enabling of security protection. The security protection is enabled automatically after ignition switching-off within 10 seconds after closing of all doors (page 34).



Immobilizer mode. In the given mode the engine is blocked automatically within 30 seconds after ignition switching-off (page 57).

Security protection and anti-theft functions of the car alarm system

Enabling of security protection with audio confirmation signals



Before enabling the security protection mode make sure that

- ignition is switched-off;
- parking brake is engaged;
- doors, hood and baggage compartment are closed.

1

Press the pendant button 1:



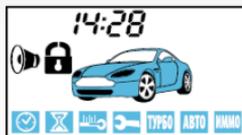
the car

1 buzzer signal;
1 light signal;
door locks will be closed;
LED indicator will flash.



pendant

1 signal will sound;
indication of the enabled
security protection mode will
appear.



If the doors, hood, baggage compartment appear to be badly closed, the parking brake is not engaged, the brake pedal is pressed or one of door limit switches, hood, baggage compartment is faulty (constantly close), the alarm system will warn about it by **4 buzzer signals and 4 light signals** (see “Self-diagnostic at enabling of the security protection mode”, page 38).

Security protection enabling without sound confirmation signals.



Before enabling the security protection mode make sure that

- ignition is switched-off;
- parking brake is engaged;
- doors, hood and baggage compartment are closed.

1

press the pendant button 1 at first for a long period of time (until audio signal), and then for a short period of time:



the car

1 light signal;
door locks will be closed;
LED indicator will flash.



pendant

1 signal will sound;
indication of the enabled security
protection mode will appear.



If the doors, hood, baggage compartment appear to be badly closed, the parking brake is not engaged, the brake pedal is pressed or one of door limit switches, hood, baggage compartment is faulty (constantly close), the alarm system will warn about it by **4 light signals** (see "Self-diagnostic at enabling of the security protection mode", page 38).

Noiseless security protection enabling



In the mode of noiseless security protection at actuation of any of security protection sensors the buzzer signals of the car are not generated. The condition "alarm" is accompanied only by light signals.

1

Press the pendant button 1 at first for a long period of time (until audio signal), then press the button 2 for a short period of time:



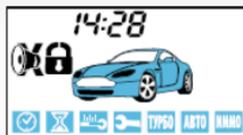
the car

1 light signal;
door locks will be closed;
LED indicator will flash.



pendant

1 signal will sound;
indication of the enabled noiseless
security protection mode will appear.



If the doors, hood, baggage compartment appear to be badly closed, the parking brake is not engaged, the brake pedal is pressed or one of door limit switches, hood, baggage compartment is faulty (constantly close), the car alarm system will warn about it by **4 light signals** (see "Self-diagnostic at enabling of the security protection mode", page 38).

Automatic enabling of the security protection



To enable the given mode activate by the cursory method (see page 28) an icon  on the pendant display.

With the closed doors switch off ignition, leave the car and close all doors:



the car

1 buzzer signal;
1 light signal.

In 10 seconds after closing all doors the security protection mode will be automatically enabled:



the car

1 buzzer signal;
1 light signal;
door locks will be closed.



pendant

1 signal will sound;
indication of the enabled security protection mode will appear.



If one of door limit switches is faulty (closed all the time), **automatic enabling of security protection will not occur** (see “Monitoring of serviceability of limit switches”, page 80). If the parking brake is not engaged, hood or baggage compartment are open, after enabling of security protection **4 buzzer signals and 4 light signals will occur**.



At active mode of automatic enabling of security protection (with highlighted icon ) **DO NOT LEAVE** keys and pendant in the car, when leaving it!

Enabling of security protection with operating engine



- Before enabling the security protection mode make sure that
- The car is in a neutral transmission (or in the PARK mode with automatic transmission);
 - hood is closed, engine operates.

1

Engage the parking brake, open the door and press the pendant button 2:

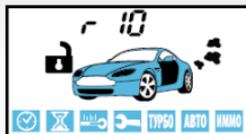


1 light signal;
LED indicator will light continuously.



pendant

melody signal will sound,
indication of the operating engine,
remained time of
engine operation
and open door will
appear.



2

Take the key away from the ignition lock, leave the car, close all doors and press the pendant button 1:



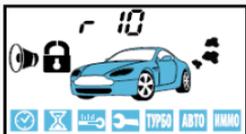
the car

1 buzzer signal;
1 light signal;
impact sensor, additional
sensor, and ignition zone
monitoring will be switched-
off;
door locks will be closed;
security protection mode will be
enabled.



pendant

1 signal will sound;
indication of operating engine and
enabled security protection mode
will appear.





If the parking brake is not engaged or hood is open, at execution of item 1 the indication of operating engine and remained time of engine operation (r10, or r20, r30, r99) on the pendant display **will not appear**.



After the expiration of the set time of engine operation, (function 2, Table No. 2) the engine will stop without disabling of the security protection mode.



If the engine operation shall be continued, press the button 1 for a long period of time (until audio signal), then press the button 3 for a short period of time. 3 light signals of the car will appear. The time of engine operation will be increased each time by 5 minutes.

Remote engine stop without disabling of the security protection mode

Press the button 1 for a long period of time (until audio signal), then press the button 4 for a short period of time



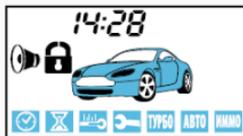
the car

3 light signals will appear; zones of ignition, impact sensor and additional sensor will be taken for the security protection; LED indicator will start flashing; engine will stop.



pendant

melody signal will sound, indication of the operating engine will disappear; indication of the enabled security protection mode will remain.



Enabling of security protection without pendant



- Before enabling the security protection mode make sure that
- ignition is switched-off;
 - parking brake is engaged;

1 Open one of the doors and switch on the ignition:



the car

- status LED indicator will start flashing.

2 Press the service button 3 times and switch off ignition:



the car

1 buzzer signal will sound, light signals will flash 1 time;
the count of 20-second interval will start, after which the security protection mode will be enabled.

3 Leave the car and close all doors:



the car

In 20 seconds after ignition switching-off the security protection mode will be automatically enabled:

1 buzzer signal will sound, light signals will flash 1 time;
door locks will be closed.



If at the moment of enabling of security protection it will appear, that the doors, hood or baggage compartment are badly closed, the parking brake is disengaged, the brake pedal is pressed or is faulty (one of door limit switches, hood, baggage compartment constantly closed), at enabling of security protection the alarm system will disable the protection for this zone. 4 buzzer signals and 4 light signals will occur.

Automatic return to the security protection mode



If the automatic return to the security protection mode (function 5, Table No. 1) is configured and within 30 seconds after security protection disabling the car door were not opened, the alarm system will automatically enable the security protection mode.

CAUTION! The locking of door locks will occur, if they are connected to the alarm system and the alternative of auto return in the security protection mode with locking of door locks (function 5, Table No. 1) is configured. The repeated activation of the security protection mode will be confirmed by 1 buzzer signal and 1 light signal. 1 pendant signal will sound. The engine will be blocked. LED indicator will start flashing, displaying, that the car is security protected. If one of limit switches, hood or baggage compartment is faulty, after enabling of security protection **4 buzzer signals and 4 light signals of the car will occur.** 1 pendant signal will sound.

Door zone bypass and delay of sensors activation



Door zone bypass and delay of sensors activation can be required for exception of faulty actuations of the car alarm system, for example, at smooth fading of interior lighting of the car or at operation of the function "comfort" (at glass raising). Depending on configuring, 5-, 30- or 60-second delay can be set (see function 3, Table No. 1).

Self-diagnostic at enabling of the security protection mode



At enabling of the security protection mode the car alarm system automatically checks all zones, which shall be taken under security protection.



the car

doors, hood or baggage compartment are badly closed;
one of door limit switches, hood, baggage compartment is faulty
(constantly closed);
parking brake is not engaged.

Enable the security protection mode by pressing of the pendant button 1:



the car

4 buzzer signals;
4 light signals;
respective zone will be temporarily excluded from the loop of security protection.



pendant

1 signal will sound;
indication of a zone, not taken under security protection will appear.



Close doors, hood, baggage compartment, engage the parking brake:



the car

respective zone will be taken under protection;
at closing of doors the locks will be repeatedly closed.



pendant

1 signal will sound;
indication of a zone, not taken under security protection will disappear.



In case of spontaneous elimination of fault at the enabled security protection mode the car alarm system at once automatically will take this zone under security protection.

Disabling of security protection with audio confirmation signals

Press the pendant button 2:



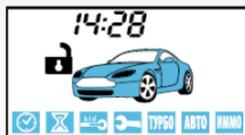
the car

2 buzzer signals will sound;
2 light signals will appear;
LED indicator will go out;
door locks will open.



pendant

2 signals will sound;
indication of disabled security
protection mode will appear.



If the mode of two-step disabling of engine interlocks is disabled (function 11, Table No. 1), the engine will be unlocked simultaneously with disabling of security protection. If the given mode is enabled, then to unlock the engine

open a door, switch on the ignition and enter the personal code (see page 85). If the code is entered correctly, 2 buzzer signals and 2 light signals will occur. The engine interlock will be disabled.



If during the security protection disabling 3 buzzer signals and 3 light signals will occur, that means that in the security protection mode the sensors have actuated (see “Self-diagnostic at disabling of the security protection mode”, page 45).

Security protection disabling without sound confirmation signals.

Press the pendant button 2 at first for a long period of time (until audio signal), and then for a short period of time:



the car

2 light signals will appear;
LED indicator will go out;
door locks will open.



pendant

2 signals will sound;
indication of disabled
security protection mode
will appear.



If the mode of two-step disabling of engine interlocks is disabled (function 11, Table No. 1), the engine will be unlocked simultaneously with disabling of security protection. If the given mode is enabled, then to unlock the engine

open a door, switch on the ignition and enter the personal code (see page 85). If the code is entered correctly, 2 buzzer signals and 2 light signals will occur. The engine interlock will be disabled.



If during the security protection disabling 3 buzzer signals and 3 light signals will occur, that means that in the security protection mode the sensors have actuated (see "Self-diagnostic at disabling of the security protection mode", page 45).

Two-step disabling of engine interlock



To activate the mode of two-step disabling of engine interlock the function 11 Table No. 1 shall be configured to alternative 2, 3, or 4. In this case after security protection disabling the engine interlock will remain enabled.

To unlock the engine after disabling of the security protection mode enter the personal code (see page 85).



the car

After entering of last digit of the personal code and switching-off of ignition **the engine interlock will be disabled.**

Disabling of interlock will be confirmed by
2 buzzer signals and
2 light signals.



Factory settings of the function 11 - alternative 1 (mode of two-step disabling of interlocks is disabled).

Disabling of security protection without pendant

1 Open the car door with the key:



the car

alarm signals will start (if the security protection mode was enabled by pendant);
4 flashes of light signals will occur (if the security protection mode was enabled without pendant).

2 Within 20 seconds switch on the ignition and enter the personal code (see page 85):



the car

After entering of last digit of the code

2 buzzer signals will sound;
light signals will flash 2 times,
security protection mode will be disabled.



If during the security protection disabling 3 buzzer signals and 3 light signals will occur, that means that in the security protection mode the sensors have actuated (see “Self-diagnostic at disabling of the security protection mode”, page 45).

Security protection mode disabling with operating engine.

- 1 Disable the security protection mode by pressing of the pendant button 2.



- 2 Enter the car and switch on the ignition with the key:



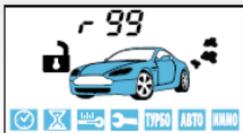
the car

engine continues operating.



pendant

indication of operating engine and disabled security protection mode is active.



- 3 Disengage the parking brake:



the car

4 light signals will appear; engine will continue operating.



pendant

4 signals will sound; indication of the disengaged parking brake and switched-on ignition will appear.



The car is ready to move.

Self-diagnostic at security protection disabling



At disabling of the security protection mode the alarm system informs about occurred sensor actuations during the security protection mode.

Disable the security protection mode by pressing of the pendant button 2.



- If the alarm signals were **interrupted from pendant**:



the car

2 buzzer signals will sound;
light signals will flash 2 times,



pendant

2 signals will sound;
if the reason of sensor actuation is not eliminated,
the zone of the actuated sensor will be displayed.



- If the alarm signals have **NOT** been interrupted from pendant:



the car

3 buzzer signals will sound;
light signals will flash 3 times.



pendant

audio signal will sound;
zones of actuated sensors will be displayed.



Alarm signals



If in the security protection mode any of security protection sensors will actuate, it will result in automatic enabling of alarm signals - buzzer signals and light signals.

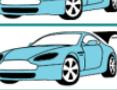
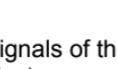
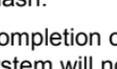
The pendant will generate alarm audio signals, and on the display the cause of actuation of the alarm system will be displayed.

During the buzzer sounding on the pendant display an icon, corresponding to the cause of actuation will flash.

Alarms are generated by cycles

Duration of one alarm cycle and maximum possible amount of cycles for the different causes of actuation of the car alarm system are given in Table below.

Alarm cause	Display indication	Duration of 1 alarm cycle	Amount of cycles at a constant signal from the sensor	Amount of cycles at multiple sensor actuations
1-st level of the impact sensor (warning)		3 sounds signals, 6 light signals	1	8
2-nd level of the impact sensor (alarm)		30 s. sound and light signals	1	8
1-st level of the additional sensor (warning)		3 sounds signals, 6 light signals	1	8
2-nd level of the additional sensor (alarm)		30 s. sound and light signals	1	8

Additional sensor No. 1 * (single-level)		30 s. sound and light signals	1	8
Additional sensor No. 2 * (single-level)		30 s. sound and light signals	1	8
Tilt sensor		30 s. sound and light signals	1	8
Doors		30 s. sound and light signals	1	not limited
Hood		30 s. sound and light signals	1	not limited
Baggage compartment		30 s. sound and light signals	1	not limited
Ignition		30 s. sound and light signals	not limited	not limited
Brake		30 s. sound and light signals	1	not limited

- 1) While light signals of the car flash, on the pendant display headlights of the car will flash.
- 2) If after the completion of the alarm cycle the cause of actuation of the car alarm system will not be eliminated (for example, the doors have remained open), the security protection of the respective zone is disabled until the moment of elimination of the reason of operation (for example, before doors closing). Meanwhile on the pendant display the indication of the cause of actuation is remained.
- 3) If the alarm signals were interrupted from the pendant, the count of amount of alarm cycles at periodically actuating sensor starts again.

**If for the function 4 (Table No. 1) the alternative 2 or 4 is selected.*

Alarm signals on the pendant display

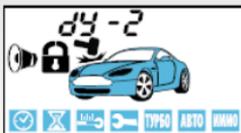
• 1-st level of the impact sensor has actuated



• 2-nd level of the impact sensor has actuated



• 1-st level of the additional sensor has actuated



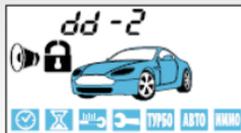
• 2-nd level of the additional sensor has actuated



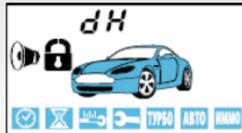
• single-level additional sensor No. 1 has actuated



• single-level additional sensor No. 2 has actuated



• tilt sensor has actuated



• doors were opened



• parking brake has been disengaged



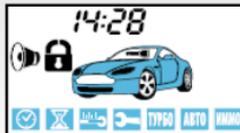
• baggage compartment has been opened



• hood has been opened



• ignition has been switched on



Interruption of alarm signals without disabling of the security protection mode



the car

Alarm signals are enabled.



pendant

Alarm signals are enabled;
zones of actuated sensors are displayed.



Press the pendant button 2:



the car

alarm signals will be stopped;
zone of the actuated sensor will be temporarily eliminated from the loop of security protection;



pendant

alarm signals will be stopped;
zone of the actuated sensor will be displayed;
security protection mode will remain enabled;



pendant

after elimination of the alarm cause
zone of the actuated sensor will not be displayed;
1 signal will sound.



Security of the car alarm system against power outage



Short-term power outage of the car alarm system (for example, reset of the battery terminal) does not result in removal from security protection. The car alarm system remembers its condition and at restoring of the power supply again appears in the same condition, when the power outage occurred (see Table of States below), the melody signal of the pendant will occur. If to the system the buzzer with independent power supply is connected, at switching-off of the terminals of the battery the buzzer will switch-on the alarm audio signals.

Condition of the system before power outage	Condition of system at restoring the power supply
Security protection mode is disabled	Security protection mode is disabled
Security protection mode is enabled	Security protection mode is enabled
Alarm mode, the cause of actuation is eliminated	Security protection mode is enabled
Alarm mode, the cause of actuation is not eliminated	Alarm mode is enabled
Immobilizer mode is enabled	Immobilizer mode is enabled
Antirobbery mode is enabled	Antirobbery mode is enabled
Service mode is enabled	Service mode is enabled

Additional sensors

As an additional sensor to the car alarm system 2-level sensors (for example, microwave MWS203), and 1-level sensors (for example, tilt sensor D10) can be connected. The sensors are connected using the cables which are supplied with the sensors.

After connection of sensors the function 4 of Table No. 1 shall be programmed according to the type of the used sensor.

Additional wireless interlocking relays

Use of digital radio relays for engine interlock StarLine R2 allows to improve essentially anti-theft functions of the car alarm system at the expense of hidden installation of radio relay in standard wiring of the car and absence any wiring connection between the central unit of the car alarm system and radio interlocking relay.

Connecting the information retrieval GSM modules

In case of necessity you can connect to your alarm system one of the information retrieval GSM modules StarLine M20, M30, M21, M31 or install embedded GSM, specially designed for StarLine car alarm system control. The use of GSM module allows to operate the car alarm system, to receive the messages on intrusion into the car, locate the car practically without the limitation of range - everywhere, where the GSM network is supported.

Transmission of the information and control instructions occurs through the communication channel GSM. The information on the alarm (actuation of security protection sensors) can be received to the phone of the owner as SMS messages or phone calls with the voice messages. The determination of the car location is performed using the identifiers of base stations (M20, M21) or GPS coordinates (M30, M31), sent in SMS messages. Sending SMS with hyperlink for passing to the map fragment with the indicating of the car location is also possible.

Anti-theft mode



To use the anti-theft mode the function 8 of Table No. 1 shall be programmed to alternative 1 or 2 (see page 109).

Enabling of anti-theft mode by the pendant



CAUTION!!!

After enabling of anti-theft mode by the pendant it **CAN'T BE** disabled by the pendant. For disabling the personal code shall be entered (see page 85).

At the switched-on ignition or with operating engine simultaneously press and hold pendant buttons 1 and 3:



the car

constant sound and light alarm signals will start;

door locks will be closed;

Depending on the state of configurable function 8 (Table No. 1) the engine will be blocked either at once, or after disengaging the manual brake (pressing the brake pedal). Within the first 30 seconds the interlock occurs by pulses, then continuously.

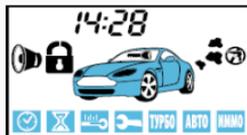


pendant

alarm signal will sound;

vibration signal will be active;

on the screen the anti-theft mode icon will appear.



Hidden enabling of anti-theft mode



The hidden enabling of anti-theft mode can be used in the situation when counteract to robbery by other ways is inconvenient or impossible. The enabling occurs at doors opening (for example, if the owner forced to leave the car), then the system actuates automatically per specific algorithm consisting of several stages.

Stage 1: Close the car doors. With operating engine or with switched-on ignition press the service button for 2 seconds.



After pressing the service button the standby mode is activated, in which the alarm system waits for opening of the doors. Any indication of enabling the standby mode is absent. The standby mode can continue during the unlimited time period. While all doors are kept closed, the alarm system does not influence in any way the car functions. When one of the doors opens, the second stage of anti-theft algorithm is automatically activated.

Stage 2: open one of the doors.



Any alarm signals at this stage are absent, interlocks are disabled. From the moment of door opening the counts of 60-second interval starts, after which the alarm signals will be activated. Having pressed the pendant button 3 it is possible to make sure that the second stage of anti-theft mode is enabled. On the display the icon of anti-theft mode will flash.

Stage 3: 60 seconds after opening doors have expired:



the car

discontinuous buzzer signals and light alarm signals will start and continue for 30 seconds.

Stage 4: 30 seconds after the beginning of discontinuous audio signals have expired:



the car

constant buzzer signals will start;
discontinuous engine interlock will be enabled at once or after disengaging of manual brake / pressing on the brake pedal (depending on the condition of the function 8, Table No. 1);
light alarm signals will continue.

Stage 5: 45 seconds after the beginning of discontinuous engine interlock have expired:



constant sound and light alarm signals will continue;
constant engine interlock will be enabled.



CAUTION!!! If you need to drop off the passengers, while the anti-theft mode is enabled, before opening the doors, disable anti-theft mode (**press the pendant button 2**). Otherwise 1 minute after opening of any door the alarm signals will start. Even if you forgot to do this, the anti-theft mode can be disabled using the pendant at the stages 1, 2 and 3 (until discontinuous engine interlock is not enabled).

Disabling of anti-theft mode



CAUTION!!! If the anti-theft mode was enabled by the pendant, it can be disabled **only** by entering the personal code:

Open the car door and enter the personal code (see page 85).

After input of last digit of the code and switching-off of ignition



the car

2 signals of the buzzer will sound.
2 light signals will appear;
door locks will open;
security protection will be disabled.



pendant

2 audio signals will occur;
icon of anti-theft mode will disappear.



CAUTION!!! If the anti-theft mode was enabled by the service button, then at the stages 1, 2 and 3 (until discontinuous engine interlock is not disabled) it can be disabled by the pendant:

Press the pendant button 2 at the switched-on ignition.



After enabling of discontinuous engine interlock the anti-theft mode can be disabled **only** by entering the personal code (see page 85).

"Panic" mode.



At activation of "panic" mode light and alarm audio signals are activated for 15 seconds. If the security protection was disabled, the security protection mode will be enabled.

With the switched-off ignition simultaneously press the pendant buttons 1 and 3 for a long period of time:



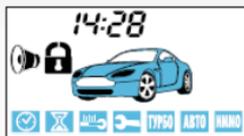
the car

sound and light alarm signals will start for 15 seconds; door locks will be closed (if they were open); security protection mode will be enabled (if security protection was disabled).



pendant

1 short signal will sound; indication of the enabled security protection mode will appear.



After 15 seconds the light and the alarm audio signals will be stopped, the security protection mode remain enabled. For interruption of alarm signals in "panic" mode press the pendant button 2. Alarm signals will be stopped. Security protection mode will remain enabled.

Immobilizer mode.

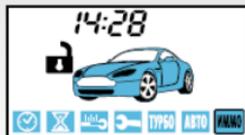


To enable the given mode the activate icon  on the pendant display (see section “Configuring the operating modes by the cursory method”, page 28).



pendant

On the pendant display the icon  will be displayed constantly:



At active immobilizer mode the engine will be blocked automatically in 30 seconds after each switching-off of ignition.

Disabling of engine interlock in immobilizer mode

Press the pendant button 2;



OR

Press the service button and hold it for 2 seconds. No later than 2 seconds after release of the button switch on the ignition.



the car

Engine interlock will be disabled.

Service functions of the car alarm system

Monitoring of the car condition, car battery voltage, interior temperature

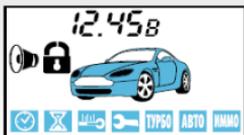


This command you can use in any mode for checking the current state of the car alarm system, car battery voltage and temperature in the car interior.

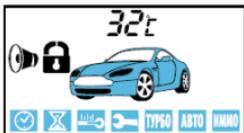
Press shortly the pendant button 3:



pendant



melody signal will sound, for a short time the value of car battery voltage will be displayed at first, then the value of the temperature in the car interior.



The interior temperature sensor is located in the car alarm system unit, therefore the temperature displayed on the pendant display, can differ from the real temperature in interior, as it depends from the place of the unit installation. Range of temperature measurement: from - 40°C up to + 70°C. If temperature falls outside the limits of this range, the indication on the pendant display will look like as it is shown on page 59.

Searching the car at the parking place and monitoring of engine temperature



This command you can use in any mode for searching the car on parking place and for monitoring of engine temperature.

Press shortly the pendant button 4:



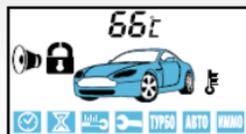
the car

The car alarm system will indicate the location of the car by six light signals; 6 buzzer signals will sound.



pendant

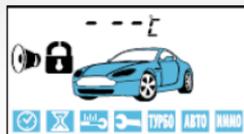
melody signal will sound, on the display the engine temperature will be displayed shortly.



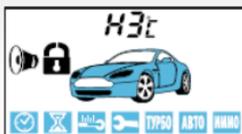
The image of the thermometer on the pendant display confirms that the system determines the engine temperature.

Alternatives of the information displaying on the pendant display:

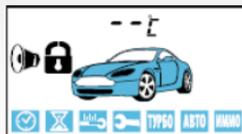
Temperature is below - 40° C



Temperature sensor is closed



Temperature is higher + 70° C



The temperature displayed on the pendant display, can differ from the real engine temperature, as far as it depends on the place of mounting of the temperature sensor.

Temporary switching-off of the impact sensor

1

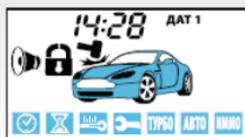
In security protection mode press two times shortly the pendant button 1. The first level of the impact sensor will be switched-off, generating warning signals:



2 light signals;
The first level of the impact sensor will be switched-off.



pendant



melody signal will sound,
The indication of temporary switching-off of the first level of the impact sensor will appear.

2

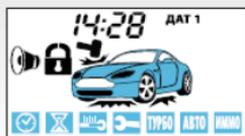
In security protection mode press two times shortly the pendant button 1. Both levels of the impact sensor will be switched-off:



3 light signals;
both levels of the impact sensor will be switched-off.



pendant



3 short signals will sound;
The indication of temporary switching-off of both levels of the impact sensor will appear.

3

In the security protection mode press two times shortly the pendant button 1.
The impact sensor will be switched-on again.



During one cycle of security protection the switching-off of the impact sensor by levels and its back switching-off is possible to be done unlimited number of times.

Temporary switching-off of the additional sensor

1

In the security protection mode press two times shortly the pendant button 2. The first level of the additional impact sensor will be switched-off with the warning signals:



2 light signals;
first level of the
additional
sensor will be
switched-off.



pendant



melody signal will sound,
The indication of temporary
switching-off of the first
level of the additional
sensor will appear.

2

In the security protection mode press two times shortly the pendant button 2. Both levels of the additional impact sensor will be switched-off:



3 light signals;
both levels of the
additional
sensor will be
switched-off.



pendant



3 short signals;
indication of temporary
switching-off of both
levels of the additional
sensor will appear.

3

In the security protection mode press two times shortly the pendant button 2. Additional sensor will be switched-on again.



i

During one cycle of security protection the switching-off of the additional sensor by levels and its back switching-off is possible to be done unlimited number of times.



If as an additional sensor two single-level sensors (function 4, Table No. 1) are connected, at switching-off by levels the first sensor will be disconnected first, then both sensors will be switched-off, and then both will be switched-on again.

Temporary switching-off of the tilt sensor

1

In the security protection mode press two times shortly the pendant button 3. The tilt sensor will be switched-off:



3 light signals will occur.



pendant



3 signals will sound;
The indication of temporary switching-off of the tilt sensor will appear.

2

In the security protection mode press two times shortly the pendant button 3. The tilt sensor will be switched-on:



1 light signal will occur.



pendant



1 signal will sound;
indication of the switched-on tilt sensor will appear.



During one cycle of security protection the switching-off and switching-on of the tilt sensor can be performed unlimited number of times.

Configuring the sensitivity of the impact sensor

The impact and tilt sensor is in the transceiver.



The maximum sensitivity of warning and alarm levels of the impact sensor has the respective value **14**. The minimum sensitivity (desensitization) has the respective value **01**. The value **0** switches off the respective level of the impact sensor.

1

At the switched off mode of security protection and switched off ignition press the button 3 first for a long time (until audio signal), and then for a short time:



3 light signals;
2 buzzer
signals.



pendant

melody signal;
indication of **warning level** of
impact sensor (factory
setting 10) appears.



2

By short pressing of the buttons 2 and 3 set the necessary level of sensitivity.



1 light signal
will occur.



pendant

melody signal;
indication of **alarm level**
impact sensor (factory
setting 05) appears.



3

To go to setting the alarm level press the button 3 at first for a long period of time (until audio signal), and then for a short period of time:



4

By short pressing of the buttons 2 and 3 set the necessary level of sensitivity.



5

To exit from the mode of configuring the sensitivity press the button 3 at first for a long period of time (until audio signal), and then for a short period of time:



3 light signals will appear;
2 buzzer signals will
sound.



pendant

melody signal will sound.

i

If after entering the impact sensor sensitivity configuration mode you will not press pendant buttons, after 15 seconds it will exit by itself the configuration mode **without saving changes**. 4 audio signals of pendant and 4 light signals of the car will occur.



CAUTION! The sensitivity of the alarm level of the impact sensor **cannot be set** higher than the sensitivity of the warning level.

Configuring the tilt sensor sensitivity

1

With the disabled security protection mode and switched off ignition press the button 4 at first for a long period of time (until audio signal), and then for a short period of time:



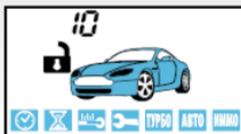


3 light signals will appear;
2 audio signals will sound.



pendant

melody signal will sound,
indication of sensitivity
adjustment mode of
the tilt sensor will
appear.



2

By short pressing of the buttons 2 and 3
set the necessary level of sensitivity.



i

The maximum sensitivity of the tilt sensor corresponds to the value 14, minimum 01. If the 0 is selected the sensor is switched off (factory setting - 10).

3

To exit from the configuration menu press
the button 4 at first for a long period of time
(until audio signal), and then for a short
period of time.



the car

3 light signals;
2 buzzer signals.



pendant

melody signal will sound.

i

If after entering the tilt sensor sensitivity configuration mode you will not press pendant buttons, after 15 seconds it will exit by itself the configuration mode **without saving changes**. 4 audio signals of pendant and 4 light signals of the car will occur.

Automatic door lock control



As additional comfort and safety functions the selecting of the four alternatives of automatic door lock control is possible at switching on/off of ignition. Control alternatives are determined by configurable function 2 (see Table No. 1 on page 108).

Alternative 1: locks
are locked at disengaging of the parking
brake or pressing the brake pedal at the
switched-on ignition;
are unlocked at ignition switching-off.

Alternative 2: locks
are locked 10 seconds after ignition
switching-on;
are unlocked at ignition switching-off.

Alternative 3: locks
are locked 10 seconds after ignition
switching-on.

Alternative 3: automatic door lock control disabled

Remote door lock control

1 Press the pendant button 1 at the switched-on ignition.



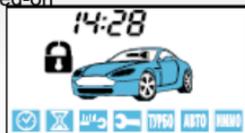
the car

door locks will be closed.



pendant

1 signal will sound;
indication of closed door
locks and switched-on
ignition will
appear.



2



the car

door locks will open.



pendant

2 signals will sound;
indication of open door
locks and
switched-on
ignition will
appear.



Control of the additional channel No. 1



Alternatives of operation of the additional channel are determined by the function 13 of Table No. 1 (see page 109). Activation of additional channel from the pendant is performed as follows:

Press the pendant button 2 for a long period of time, then press the button 1 for a short period of time:



the car

3 light signals.



pendant

3 audio signals.

Alternative 1: unlocking baggage compartment.

If the security protection is disabled:



the car

3 light signals;
lock of the baggage compartment
will open.



pendant

3 audio signals.

If the security protection is enabled:



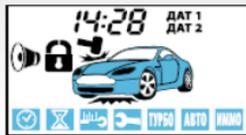
the car

3 light signals;
lock of the baggage
compartment will open.
impact sensor and
additional sensor will
be switched-off.



pendant

3 audio signals.
Indication of open
baggage
compartment and
switched-off
impact sensors.



After loading (unloading) of staff close the baggage compartment.

If the security protection mode is enabled:



the car

zone of the baggage compartment and impact sensors will be taken under security protection in 5 seconds.



pendant

1 audio signal, indication of open baggage compartment and switched-off impact sensors will disappear.



If at activation of the additional channel the baggage compartment will not open, the indication of open baggage compartment and switched-off sensors on the pendant display will not appear. In 20 seconds the zone baggage compartment will be again taken under security protection.

Alternatives 2 and 3: flexible programming.



For this alternative the method of activation (from pendant or automatically, at occurrence of various events), duration and delay of output signal can be configured. The detailed information on flexible programming see in the instruction on installation.

Alternative 4: "Latch" mode



In "latch" mode the channel is enabled and disabled from the pendant. The condition of the output changes to the opposite at each activation of the additional channel.



The type of the additional equipment connected to additional channel No. 1, is clarified during installation of the car alarm system.

Control of the additional channel No. 2



Alternatives of operation of the additional channel are determined by the programmable function 14 of Table No. 1 (see page 109).

Alternative 1:

Two-step unlocking of door locks.

Enable the security protection mode by pressing of the pendant button 2:



the car

2 buzzer signals will sound.
2 light signals will occur.
LED indicator will go out;
lock of the **driver's door** will be opened.



pendant

2 signals will sound,
indication of disabled security
protection mode will appear.

For unlocking of other doors repeatedly press the pendant button 2.



For implementation of two-step unlocking of door locks an activator of driver's door and activators of other doors shall be connected according to the diagram of two-step unlocking, given in the installation manual.

Alternatives 2 and 3: flexible programming.

For this alternative the method of activation (from pendant or automatically, at occurrence of various events), duration and delay of output signal can be configured. The detailed information on flexible programming see in the instruction on installation.

Alternative 4: "Latch" mode

In "latch" mode the channel is enabled and disabled from the pendant. The condition of the output changes to the opposite at each activation.

For activation of the additional channel No. 2 from the pendant (in case of alternatives 2, 3 or 4) press the pendant button 3 for a long period of time (until audio signal), and then press the button 1 for a short period of time:

**the car**

3 light signals.

**pendant**

3 audio signals.



The type of the additional equipment connected to additional channel No. 2, is clarified during installation of the car alarm system.

Control of the additional channel No. 3



Alternatives of operation of the additional channel are determined by the programmable function 15 (Table No. 1, page 110). The channel is used for connection of auto start, activation of the channel occurs automatically. More detailed information on the use of the additional channel No. 3 see in the installation manual.

Control of the additional channel No. 4



Alternatives of operation of the additional channel No. 4 are determined by the configurable function 12 (Table No. 1, page 109).

Alternative 1:

The channel is activated automatically for 20 s. at enabling of security protection.

Alternative 2:

flexible programming.



For this alternative the method of activation (from pendant or automatically, at occurrence of various events), duration and delay of output signal can be configured. The detailed information on flexible programming see in the instruction on installation. Press the pendant button 4 at first for a long period of time (until audio signal), then press the button 2 for a short period of time:

Alternative 3:

CL control "close"
(see installation manual).

Alternative 4:

The channel is activated automatically for 20 s. at disabling of security protection.



The type of the additional equipment connected to additional channels No. 3 and No. 4, is clarified during installation of the car alarm system.

Control of the additional channel No. 5



Alternatives of operation of the additional channel No. 5 are determined by the configurable function 19 (Table No. 1, page 109).

Alternative 1: starter interlocking.



The given alternative is intended for implementation of protective starter interlock for the period of engine operation started remotely, or automatically. Detailed information see in the installation manual.

Alternative 2: flexible programming.



In this alternative the method of activation (from the pendant or automatically by various events), the duration and delay of output signal are configured. The detailed information on flexible programming see in the instruction on installation. The channel activation from the pendant is performed similarly to alternative 4.

Alternative 3: CL control "open" (see installation manual).

Alternative 4: "Latch" mode



In "latch" mode the channel is enabled and disabled from the pendant. The condition of the output changes to the opposite at each activation of the channel.

For activation of the additional channel from the pendant press the pendant button 3 at first for a long period of time (until audio signal), then press the button 2 for a short period of time:



the car

3 light signals.



pendant

3 audio signals.

Control of the additional channel No. 6



Alternatives of operation of the additional channel No. 6 are determined by the configurable function 20 (Table No. 1, page 110).

For activation of the additional channel press the pendant button 4 at first for a long period of time (until audio signal), then press the button 2 for a short period of time:



the car

3 light signals.



pendant

3 audio signals.

Alternative 1:

fixed duration 0.8 s.

Alternatives 2 and 3: flexible programming.



For this alternative the method of activation (from pendant or automatically, at occurrence of various events), duration and delay of output signal can be configured. The detailed information on flexible programming see in the instruction on installation.

Alternative 4:

"latch" mode



In "latch" mode the channel is enabled and disabled from the pendant. The condition of the output changes to the opposite at each activation of the channel.



The type of the additional equipment connected to additional channel No. 6, is clarified during installation of the car alarm system.

Turbo-timer mode

For the cars with turbocharging the special turbo-timer mode is provisioned, which allows to support engine operation after ignition switching-off with key during some time required for decrease of the turbine rpm.



To use the turbo-timer mode the function 12 (Table No. 2) shall be configured to one of the methods of ignition support.

Activation of turbo-timer mode and configuring of operation time.

1

For activation of the turbo-timer mode place the cursor at the icon  (see page 28) and press shortly button 1:



1 light signal will occur.



pendant

1 melody signal;
The current value of turbo-timer operation time will be displayed 4 s.


2

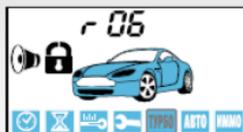
By short pressing of the button 1 select the turbo-timer operation time:



pendant



Each pressing increases the turbo-timer operation time by 1 minute.



3

Press the button 1 for a long period of time (until audio signal). Or wait for automatic (after 4 s.) saving of the selected turbo-timer operation time:



pendant

2 short signals will sound, icon  will begin to be displayed constantly, indicating the activity of the turbo-timer mode.



Enabling turbo-timer



Make sure that

- The car is in a neutral transmission (or in the PARK mode with automatic transmission);
- doors and hood are closed;
- engine operates.

1

Depending on the selected value of the function 12 (Table No. 2) the turbo-timer enabling can be performed by the following ways:

AUTOMATICALLY:

- engage the parking brake,
- switch off ignition;

BY COMMAND FROM THE PENDANT:

- engage the parking brake,
- shortly press the pendant button 2;

BY ENGAGING OF BRAKE:

- engage the parking brake;

if automatic transmission is configured:

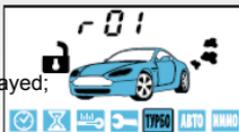


LED indicator will light continuously.



pendant

melody signal will sound, time left until the end of engine operation (r01 r06) will be displayed;



if manual transmission is configured:

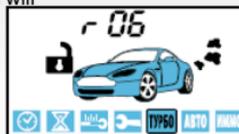


LED indicator will light continuously.



pendant

melody signal will sound, r06 will be displayed – time, after which the engine will be stopped, if the security protection mode will not be enabled.



If the manual transmission is configured, at enabling turbo-timer on the pendant display the countdown of the time of engine operation since r06, irrespective of the configured turbo-timer operation time will be displayed. If the security protection mode will not be enabled, the car alarm system will stop the engine in 6 minutes. If the security protection mode will be enabled, the pendant will start displaying the remained time of engine operation based on the configured value of turbo-timer operation time. Indication of the remained time of engine operation is updated every minute (r04, r03...).

2

If necessary to enable the protection take the key away from the ignition lock, leave the car, close all doors and enable the security protection mode by one of ways (see page 31-33):



the car

1 buzzer signal will sound;
1 light signal will occur;
monitoring of impact, tilt and additional sensors will be switched-off according to setting of the function 3 from Table No. 2. Monitoring of the ignition zone will be disabled; door locks will be closed.



pendant

audio signal will sound;
indication of operating engine and enabled security protection mode will appear.



i

After expiration of the set turbo-timer operation time (function 1, Table No. 2) the engine will stop. If the security protection mode is enabled, the zones of ignition, impact sensor and additional sensor will be taken under security protection.

Call from the car



For transmission of the call signal from the car to the pendant of the car alarm system press the button located on the transceiver unit:

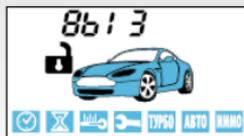


3 light signals will occur.



pendant

indication of call will appear, call signal will sound 20 seconds.



To interrupt the call signal press any pendant button.

Charge monitoring of the power element of LCD pendant

The pendant power element charge is monitored by each pressing of the pendant buttons:



pendant



at discharge of the power element down to a critical level on display the icon will appear 

In this case a power element shall be replaced.

Monitoring of serviceability of limit switches

In the car alarm system StarLine E90, E91 the possibility of monitoring of serviceability of door limit switches, hood and baggage compartment is provisioned with the disabled security protection mode. The opening of doors, hood and baggage compartment with the switched-on ignition shall be accompanied by periodic flashes of LED indicator. If no flashes of the indicator are observed, that means, that the respective limit switch is faulty (or is not connected to the car alarm system).

Serviceability of limit switches, and also the correctness of connection of the ignition circuit, can be checked using indication on the pendant.

Open the door, hood, baggage compartment, disengage manual brake and switch on the ignition. Press the pendant button 3:



pendant

on the pendant display the condition of mentioned above zones of security protection of the car alarm system will be displayed.



Consecutively inspect all zones:

- close the doors, press the button 3,
- close the hood, press the button 3,
- close the baggage compartment, press the button 3,
- engage manual brake, press the button 3,
- switch off ignition, press the button 3.

By each pressing of the button 3 on the pendant the icon of the respective zones of security protection shall disappear.

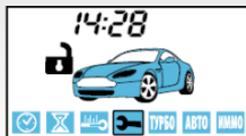
Service mode



For temporary disabling of anti-theft and security protection functions of the car alarm system, for example, during sending the car to the car repair shop, it is recommended to enable the service mode. For this purpose by the cursory method (see page 28) activate on the pendant display the icon :



pendant



in the service mode the function of remote control of door locks and control of additional channels keeps operating; saving in the memory of pendants, configuring and change of the personal code are prohibited.



Service mode **CANNOT** be activated at the enabled security protection mode.

Alarm review function



In case of alarm the information on the actuated sensor, date and time of activation remains in the memory of the car alarm system. In total up to 16 records of last alarms can be saved in the memory. They are reviewed as follows:

1

Enable interlock of the pendant buttons by simultaneous and short pressing of buttons 84 and 2 (see page 84).

2

press the pendant button 4 for a long period of time until the indication of last recorded alarm (alarm No. 1);

3

By short pressings of the button 4,
you can review the list of alarms;



4

shortly pressing the button 3, you can
review date and time of the selected alarm:



alarm No. 1
(door was opened):

... button 4...

alarm No. 16: (impact
sensor has actuated)

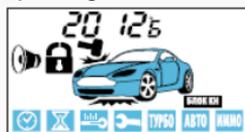


first pressing of the button 3:

first pressing of the button 3:

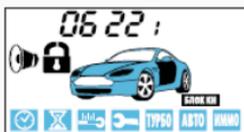


- year

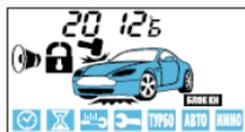


second pressing of the button 3:

second pressing of the button 3:



- month and day

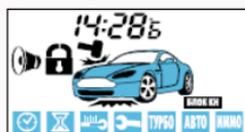


third pressing of the button 3:

third pressing of the button 3:



- alarm time



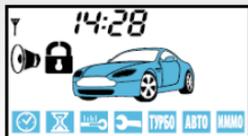
Automatic monitoring of the communication channel.



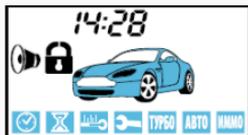
In the automatic monitoring mode after the set time intervals (3, 5 or 7 minutes) the communication channel between the central unit of the car alarm system and the pendant is checked.



pendant



If pendant is in the coverage area of signals of the central unit of the car alarm system, the display is constantly displays the icon



Leaving the coverage area is accompanied by the muffled audio signal and disappearing icon . At coming back to the coverage area the short signal will sound, icon will appear again.



The monitoring of the communication channel is performed only in the security protection mode. Alternatives of automatic monitoring of the communication channel are set by configurable function 16 (see Table No. 1 on p. 110).

Monitoring of amount of pendants, saved in the system memory

With the switched-on ignition and closed doors press the pendant button 3. Amount of flashes of LED indicator will correspond to the amount of pendants, saved in the memory of the car alarm system.

Interlock of the pendant buttons

Simultaneously shortly press pendant buttons 2 and 4:



pendant

short audio signal will sound,
icon will appear 
button interlock will be switched on.



Simultaneously and shortly press the pendant buttons 1 and 4



pendant

short audio signal will sound,
short vibration signal will occur,
icon  will disappear,
button interlock will be switched-off.



Function No. 9 - personal code of emergency disabling of the security protection mode



Personal code of emergency disabling of the security protection mode or anti-theft mode can include 1, 2 or 3 digits, each of which can have the value from 1 up to 6 inclusive. The procedure of configuring of the personal code is described in the installation manual.



When delivered (or after reset to factory settings) the personal code equals "3" (see function 9, Table No. 1 on page 109).

Algorithm of input of the personal code (emergency disabling of security protection)

Open the door with the key and leave it open:

alarm signals will start (if the security protection was activated by pendant),
4 light signals will occur (if the security protection was deactivated without pendant),
no signals occur (if the security protection mode is disabled).

1

Switch on the ignition. Press the service button so many times, which corresponds to the first digit of the code.
Switch off the ignition:

if the code is 1-digit and is entered correctly, the car alarm system will **disable** the security protection mode, 2 light signals will occur,
if the code is 2- or 3-digit, input the next digit.

2

Switch on the ignition. Press the service button so many times, which corresponds to the first digit of the code.
Switch off the ignition:

if the code is 2-digit and is entered correctly, the car alarm system will **disable** the security protection mode, 2 light signals will occur,
if the code is 3-digit, input the next digit.

3

Switch on the ignition. Press the service button so many times, which corresponds to the third digit of the code.
Switch off the ignition:

if the code is 3-digit and is entered correctly, the car alarm system will **disable** the security protection mode, 2 light signals will occur.

Saving of the pendants in the memory of the car alarm system

Pendants are saved in the memory of the car alarm system at the disabled security protection mode as follows:

1 press the service button 7 times and switch on ignition:



the car

- 7 buzzer signals confirming entering the mode of saving the radio control pendants will sound;

2 simultaneously shortly press pendant buttons 1 and 2:



the car

- 1 buzzer signal;



pendant

- 1 signal will sound;



Repeat item 2 for all pendants to be saved; To save the additional pendant a combination of buttons 1 and 2 is also used. Interval between savings shall not exceed 5 seconds. Successful saving of the next pendant is confirmed by the respective amount of buzzer and pendant signals.

3 Switch off the ignition:



the car

- 3 light signals will occur.



CAUTION! When saving the pendants in the memory of the car alarm system all earlier saved pendants will be deleted from the system memory, therefore all pendants shall be saved in one cycle of configuring (see item 2 on page 117). In total in the memory of the car alarm system maximum 4 pendants can be saved.



CAUTION! If in the system the radio relay R2 is saved, after saving the pendants the binding of the radio relay R2 with the car alarm system shall be restored. For this purpose:

- switch on and off the ignition 7 times;

Press the service button 7 times and switch on ignition: 7 signals of the buzzer will sound. Wait for 3 light signals of the car alarm system and melody signal of the pendant.

- switch off ignition.

Remote engine start



Before starting the engine by the pendant or to activate automatic start, make sure to study the features of remote engine start.

Features of remote engine start



Remote engine start **cannot be performed** in the following cases:

- ignition is switched on;
- hood is open;
- parking brake is disengaged or the brake pedal is pressed;
- engine pre-start in the cars with manual transmission (“configured neutral”) is not executed.

1. Within one start cycle the system can make 4 attempts of engine start. If the after the 4-th attempt the engine will not be started, on the pendant display (provided that it is in the coverage zone) the notice "OCT" will appear and the pendant with 4 audio signals will notify on completion of engine starting cycle. 4 light signals of the car will appear.
2. If the remotely started engine fades before the completion of the configured warm-up time, a new cycle of engine start will be initiated.
3. The function of automatic engine start by temperature can be enabled irrespective of the condition of the functions of start by the alarm clock or periodic start.

Preparation to remote start in the cars with manual transmission



For remote engine start in the cars with manual transmission the procedure “**configured neutral**” shall be performed.

“Configured neutral” is a certain sequence of steps of the driver making sure, that at remote start the engine will not start in gear.

Execution of the procedure “configured neutral”



To execute the procedure “configured neutral”

- function 12 (Table No. 2) shall be configured to one of the methods of ignition support.
- Function 15 (Table No. 2) shall be configured on one of alternatives of “completion” of “configured neutral”;
- engine shall operation.

1

Depending on the state of the function 12 (Table No. 2) to execute the procedure “configured neutral” perform the following:

Function 12 - AUTOMATIC:

- engage the parking brake,
- switch off ignition;

Function 12 - From the pendant:

- engage the parking brake,
- with the closed doors shortly press the pendant button 2;

function 12 - BY ENGAGING OF BRAKE:

- engage the parking brake;



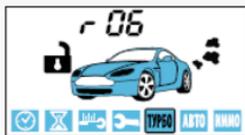
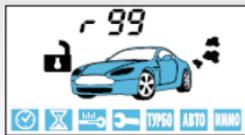
light signals will flash
3 times.
LED indicator will
light continuously.
engine operates.



pendant

melody signal will
sound, r99 will be
displayed;

if turbo-timer mode
is configured, r06
will be displayed.



It should be noted, that the pressing of the brake pedal, after execution of item 1, will result in canceling of “configured neutral”. Ignition support will be disabled.

2

Take the key away from the ignition lock.
Engine will continue operating. Leave the car

3

Depending on the function 15 (Table No. 2) the
security protection will be activated after closing
of all doors or after pressing the button 1:



If the turbo-timer mode is NOT configured:



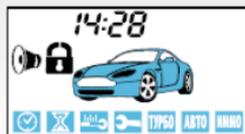
the car

1 buzzer signal;
1 light signal;
door locks will be closed;
engine will be stopped.



pendant

1 signal will sound;
indication of
the enabled
security
protection
mode.



Engine is prepared to remote start.

If the turbo-timer mode is configured:



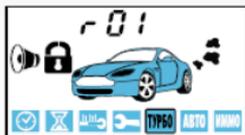
the car

1 buzzer signal will sound;
1 light signal will occur;
door locks will be closed;
engine continues operating.



pendant

indication of the operating engine,
remained time of engine operation
and open door will appear.
indication of the enabled security
protection
mode will
appear.



After the expiration of the turbo-timer operation time the engine will be stopped
without disabling of the security protection mode.
Engine is prepared to remote start.



At enabling of security protection with operating engine the conditions of “configured neutral” are also satisfied. After the engine works out the given time, it can be started by the pendant, or automatically.

Remote engine start by the pendant



Before remote start make sure that:

- hood is closed, the parking brake is engaged;
- for the cars with the manual transmission the procedure "configured neutral" is performed.
- for the cars with automatic transmission - the transmission control lever is in a position "PARK".

1

Press the pendant button 1 for a long period of time (until audio signal), then press the button 3 for a short period of time:



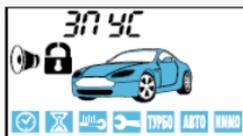
the car

1 buzzer signal will sound;
1 light signal will occur;
door locks will be closed;
engine start will occur.

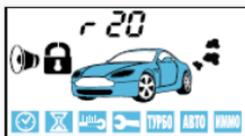


pendant

melody signal will sound,
on the display for 1 second "ZPUS" will be displayed - indication of starting cycle:



Then - indication of the operating engine, security protection enabled mode and remained engine warm-up time (r10, r20 or r30):





If the engine has not started from the first attempt, the system can make 3 starting attempts. If after 4 attempts the engine will not be started, on the pendant display with a closed loop (provided that it is in the coverage area) "OST" will be displayed. Pendant with 4 audio signals will inform on completion of attempts of engine start. 4 light signals will occur.



The remained time of engine operation is updated every minute (for example: r10, r09, r08, r07...)

1 minute before the engine warm-up completion the notice r01 will be displayed, and 2 series each containing 4 audio signals of the pendant will sound. After completion of engine warm-up time and its automatic stopping the light signals will flash 4 times. On the pendant display for a short time r00 will be displayed, 4 signals of the pendant will sound.

Remote engine stop



In case of necessity the engine started automatically or by the pendant can be stopped at any moment.

1

Press the pendant button 1 for a long period of time, then press the button 4 for a short period of time:



4 light signals will appear;
engine will stop.



pendant



melody signal will sound,
indication of the operating engine will disappear.

Remote prolongation of engine operation



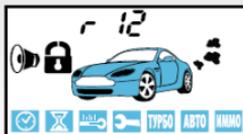
In case of necessity the time of operation of the engine started automatically or from the pendant, can be prolonged:



engine operates;



pendant



pendant displays the remained time of engine operation.

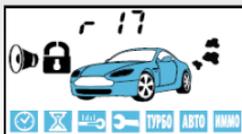
Press the pendant button 1 for a long period of time, and then press the button 3 for a short period of time:



1 light signal will occur;
engine will continue operating.



pendant



melody signal will sound;
Time remained until the end of engine operation will be increased on 5 minutes.



Engine operation can be prolonged unlimited amount of times. Maximum time, which can be set in the pendant by several attempts of prolongation - 30 minutes.

Automatic engine start



The automatic engine start is impossible, if:

- ignition is switched-off, hood is open, parking brake is disengaged, brake pedal is pressed;
- in the cars with manual transmission the procedure “configured neutral” is not executed.

Automatic engine start by the alarm clock



Before enabling of the function of automatic engine start by the pendant alarm clock make sure that:

- current time of the pendant is set correctly;
- alarm clock is set to required time of start;
- alarm clock is switched-on (the status of the alarm clock is indicated by the icon ).

to enable the function of auto start by the alarm clock locate the cursor on the icon  and press shortly the button 1 (see page 28):



1 light signal will occur.



pendant

melody signal will sound, within 5 seconds the time remained until the moment of start will be displayed; constantly displayed icons  and  mean the enabled automatic start mode by the alarm clock; after 5 seconds the indication of current time will be restored.



Automatic periodic engine start



In the mode of automatic periodic start the car alarm system after the set time interval performs engine starting and warming up. The start period can be set within the interval from 2 up to 24 hours with the step 2 hours, and the warm-up time is determined by the configurable function 2 (see Table No. 2 on page 111).

1

To enable the periodic start mode place the cursor on the icon (see page 28) and press shortly button 1:

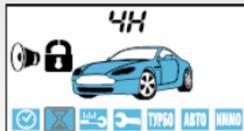


1 light signal will occur.



pendant

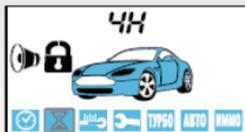
melody signal will sound; within 4 seconds the current value of the automatic start period will be displayed (for example: 4 start every 4 hours).


2

By short pressing the button 1 set the period of auto start:



pendant



.....

each pressing increases the period of auto start by 2 hours.



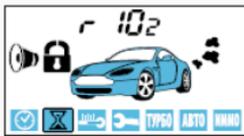
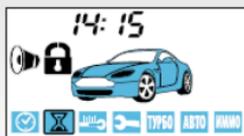
3

Press the button 1 for a long period of time (until audio signal) or wait for automatic (after 4 s.) saving of the selected period of auto start:



pendant

2 short signals will sound; icon meaning the enabled periodic auto start mode, will be displayed constantly; several seconds later an automatic engine start and warming up will be initiated. The warm-up time is determined by the configurable function 2 (see Table No. 2 on page 111). Factory setting - 10 minutes.



Automatic engine start by temperature



In the automatic start mode by temperature the alarm system performs engine start by registration by the external temperature sensor fixed on the engine, of the temperature below the configured threshold. Temperature of start can be set within the interval from -3°C up to -27°C with the step 3°C , and the engine warm-up time is determined by the function 2 (Table No. 2 on page 111). The car alarm system traces the sensor readings from the moment of enabling of the function of engine start by temperature. Minimum interval between repeated auto starts counted from the moment of the previous start not including the engine warm-up time, - 1 hour. After activation of the function of temperature start the amount of auto engine starts by temperature is not limited.

1

to enable the mode of auto start by the temperature locate the cursor on the icon  and press shortly the button 1:

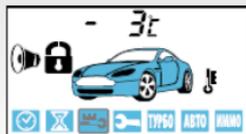


1 light signal will occur.



pendant

melody signal; within 4 seconds the current value of start temperature will be displayed.

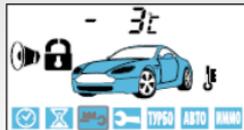


2

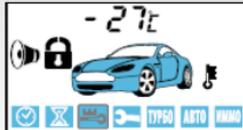
By short pressing of the button 1 set the temperature of auto start:



pendant



.....
each pressing changes the auto start temperature by 3°C.



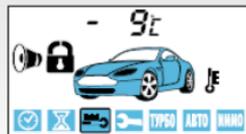
3

Press the button 1 for a long period of time (until audio signal) or wait for automatic (after 4 s.) saving of the selected auto start temperature value:



pendant

2 short signals will sound; icon  meaning the enabled mode of auto start by temperature, will be displayed constantly;



Disabling of automatic starts

To disable the auto start by the alarm clock, periodic or by the temperature, place the cursor on the icon  or  (see page 28) and press shortly button 1:

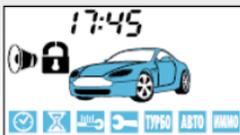


2 light signals
will occur.



pendant

melody signal will sound;
respective icon will
disappear.



Note:

- 1) the pendant in the range of the transceiver at the moment of execution of any automatic engine start is not required;
- 2) time of engine start can vary compared with the configured time of the alarm clock within 3 minutes;
- 3) function of auto start by the alarm clock is enabled for one starting cycle. For new start every time on the pendant display the icon  shall be activated (enabled);
- 4) if for the function 2 (Table No. 2 on page 111) the value "without time limitation" is selected, at any automatic start the time of engine operation will be limited by 30 minutes;
- 5) 5) if for the function 4 (Table No. 2) the value 2, 3 or 4 is selected, the engine warming will be automatically stopped at the engine temperature 50°C.

Indication of operating engine after automatic start



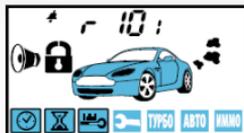
The mode of automatic start by temperature can be enabled simultaneously with the mode of start by the alarm clock or periodic start.

For convenience of identification of the mode, within an automatic start had place, the indication of engine, operating after start, has distinctions:

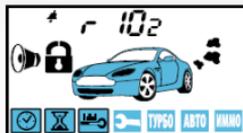


the car

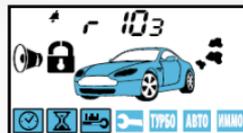
automatic start by
the alarm clock
(1):



automatic periodic
start (2):



automatic start by
temperature (3):



SLAVE mode

In the SLAVE mode all security protection and service functions of the car alarm system are saved. Both main and additional pendant after their setting in SLAVE mode save their functions of control of the car alarm system. With their help the car alarm system StarLine can be taken under security protection, removed from security protection, start the engine etc. In case of actuation of any sensor on the display of the main pendant the actuated zone will be displayed, and the alarm signal will sound. Alongside with usual control functions after setting the pendants in SLAVE mode they start to execute the label functions.

Control of the car alarm system StarLine

- With the standard pendant of the car (or in another way, provisioned by the car manufacturer).
- From mobile phone.
- Using the mobile application StarLine.
- Through WEB application www.starline-online.ru

Ways of owner authorization

- Operating mode without authorization.
- Authorization using a label (dialogue algorithm).
- Authorization by the secret button (entering the personal code).
- Authorization by the service button (entering the personal code).

Protection from theft and holdup of the car

- Engine interlock.
- Disabling the engine interlock at the label identification or entering the personal code.
- Start of the label identification procedure only at approach of the specific event (configurable).
- Anti-theft function. At attempt of theft the owner needs no to do any active steps. The car alarm system independently will block the engine in case of absence of the label in the range of radio coverage.

Advantages of SLAVE mode

- Allows to minimize the amount of pendants, necessary for control of burglar alarm system of the car.
- All service functions implemented using the standard control pendant or keyless access system are remained.

Main terms and definitions

Standard pendant – unit of control of the standard central lock of the car or standard burglar alarm system (installed by the car manufacturer).

The label - independent transceiving device, which can be identified by the car alarm system at a small distance. In the car alarm system StarLine both main and additional pendants can be used as a label. Hereinafter in the text the term "label" shall be understood as a main or additional pendant earlier set in a label mode. The information on setting the pendants in a label mode see in the installation manual.

Secret button is one of standard buttons of the car (or specially installed button), which is connected to the car alarm system StarLine and is used for authorization of the owner (the information on commissioning see in the installation manual).

Owner authorization is the procedure of identification of the owner after security protection disabling by the standard pendant. It is necessary for disabling of engine interlock. Most frequently used alternative is the owner authorization using the label. To disable the engine interlock the label shall be located in the zone of radio coverage of the car alarm system. If the car alarm system StarLine after security protection disabling will detect "own" label, the engine interlock will be disabled.

Authorization procedure start event is the event (owner action), resulting in start of authorization algorithm. One of the following 4 events can be configured:

- security protection disabling;
- door opening;
- ignition switching-on;
- pressing the secret button.

Control of the car alarm system in SLAVE mode

The control of the car alarm system StarLine in SLAVE mode is performed automatically and does not require any operations or devices, except for standard ones. At setting under the protection of the standard burglar alarm system of the car the StarLine is automatically set in the mode "security protection activated".

Enabling of security protection



Before enabling the security protection mode make sure that

- ignition is switched-off;
- parking brake is engaged;
- doors, hood and baggage compartment are closed.

Using the standard control pendant (or other standard method) set the standard burglar alarm system of the car in the mode "protection is enabled"

The car:

door locks will be closed;
light and audio signals corresponding to enabling of the security protection mode will occur*;
LED indicator of the car alarm system StarLine will start flashing.



If the doors, hood, baggage compartment will appear to be badly closed, the parking brake is not engaged, the brake pedal is pressed or , one of limit switches of the door hood, baggage compartment is faulty (constantly closed), StarLine will warn about it by **4 buzzer signals and 4 light signals**.

**Methods of light and sound indication of disabling of security protection depend on the car model and on configurations of the car alarm system StarLine.*

Disabling of security protection

Using the standard control pendant (or other standard method) set the standard burglar alarm system of the car in the mode "protection is disabled"

The car:

door locks will open;
light and audio signals corresponding to disabling of the security protection mode will occur*;
LED indicator of the car alarm system StarLine will go out.



If during security protection disabling StarLine will generate 3 buzzer signals and 3 light signals, that means, that in the security protection mode the sensors have been actuated.

Interlock disabling after security protection disabling

At removal from security protection of standard burglar alarm system the car alarm system StarLine using the embedded CAN-interface "sees", that the standard burglar alarm system is removed from the security protection and also sets in the mode "Security protection disabled". **To disable the engine interlock after removal from security protection the owner authorization is required.**

Owner authorization



The method of engine unlocking (owner authorization) is determined by the condition of the function No. 11 (see page 109).

Alternative 1:

authorization is disabled

Disabling of engine interlock occurs automatically with security protection disabling. Any additional operations are not required. The engine is ready to start at once after security protection disabling.

**Methods of light and sound indication of disabling of security protection depend on the car model and on configurations of the car alarm system StarLine.*

Alternative 2:

authorization using the label
(interlock disabling using the label)

After disabling of the security protection mode the central unit StarLine in order to unlock the engine shall "see" "own" label, which shall be within the range of steady communication with the unit. The label searching is initiated **only** by specific events:

- disabling of security protection** - label searching starts simultaneously with the removal from security protection of the standard burglar alarm system;
- door opening** - after security protection disabling by the standard pendant label search starts at the car door opening;
- the ignition switching-on** – after security protection disabling by the standard pendant the label search starts with the ignition switching-on;
- pressing the secret button** - after security protection disabling by the standard pendant the label search starts at connecting the event input (orange and dark blue lead) to "earth".

The label search start event is determined by the configurable function **No. 24**, see page 110.

At detection of the label between the central unit StarLine and the label a dialogue radio traffic is established. If the label is identified as "own", the car alarm system StarLine will disable the engine interlock.



If within 20 seconds* the label will not be found, the search will be stopped, light and alarm audio signals will occur, engine interlock will remain activated. The owner will be notified by the warning SMS-message or by the call to the mobile phone (if the car alarm system has connected GSM unit, see operating manual of GSM module).

If authorization failed (unlocking failed), the attempt can be repeated. For this purpose after completion of alarm signals repeat the authorization procedure start event: enable and disable security protection, close and open the door, switch on and off the ignition or press the secret button. The alarm signals can be interrupted by pressing of any button on the main pendant (label) StarLine.

**Time for label search can be changed using the configurable function No. 21, see page 110*

Alternative 3:

Authorization using the secret button (interlock disabling using the secret button). operation manual

When using the given alternative the event input of the car alarm system StarLine shall be connected to any standard button of the car or to the separately installed button. Methods of connection of the secret button see in the installation manual.

To unlock the engine after security protection disabling the authorization procedure shall be started, and using the **secret** button the personal code shall be entered. The input is performed similarly to that how the personal code is entered using the service button of the car alarm system StarLine (see page 85).

Alternative 4:

Authorization using the service button (interlock disabling using the service button).

To unlock the engine after security protection disabling, the personal code shall be entered using the **service** button of the car alarm system StarLine (see page 85).

CAUTION!!! In case of loss of the label or its non-operability the engine interlock always can be disabled by entering the personal code of the car alarm system using the service button (see page 85).

Anti-theft mode



The anti-theft mode is intended for security protection of the car from theft in case of armed assault at the disabled security protection mode. If in SLAVE mode the authorization **using the label** is not used, the anti-theft is enabled by a usual way, that is, by pressing of the pendant buttons or service button, see page 52. If authorization **using the label** is used, the car alarm system regularly checks the label presence in the car interior. In case of absence of the label the car alarm system automatically will interlock the engine.

For activation of the anti-theft mode the function 8 Table No. 1 shall be configured to alternative 1 or 2.

Enabling of anti-theft in SLAVE mode (alternative of the owner authorization - using the label)

With the operating engine open (or open and close) any car door. Since this moment the system will follow the certain algorithm.

Stage 1: after door opening a 60 seconds count will be started until the label search start.

Stage 2: label search (60 s.).

60 seconds after door opening the car alarm system will start to check the label presence in the car interior, LED indicator will light continuously. The check for label presence will last 60 s.

If within first 30 s. the label will not be found, a discontinuous (warning) buzzer signals and light alarm signals will occur.

If the label will not be detected during the next 30 seconds as well, the engine interlock (see further) will occur.



If the label will be detected, the anti-theft will be disabled. Alarm signals will stop, LED indicator will go out.

Stage 3: engine interlock enabling.



the car

- 120 seconds after door opening the label search will be stopped, door locks will be closed, buzzer signals become continuous.
- Engine interlock will started either at once, or by pressing the brake pedal (see function 8 from Table No. 1). 45 s. the engine will be interlocked discontinuously, then continuously.

Disabling anti-theft



At any stage the anti-theft can be disabled by entering the personal code using the service button of the car alarm system StarLine.

At Stage 2 the label search is performed. If the car alarm system will detect "own" label, the anti-theft will be disabled. Alarm signals will stop, LED indicator will go out.

CAUTION!!! At stage 3 the label search stops! To disable the anti-theft algorithm the personal code shall be entered using the service button (see page 85).

Configuring the security protection and service functions



Security protection and service functions, and also working parameters of the car alarm system can be changed using the service button and pendant.

The list of functions is given in tables of configuring. The procedure of configuring is described in detail in the installation manual of the alarm system.

We do not recommend to configure by own forces. Should such necessity occur, contact with the specialists who performed the installation of the car alarm system. Change of configuration parameters or reset to factory settings can result in engine interlock at standard start, and also in incorrect operation of the standard electrical equipment and car alarm system.

Table of configuring No. 1

Configurable function:	alternative 1	alternative 2	alternative 3	alternative 4
No. 01 - duration of door lock control impulses	0,8 / 0,8 s	3,6 / 3,6 s	double locking impulse 0,8 / 0,8 s	comfort 30 / 0,8 s
No. 02 - automatic door lock control	closing from the brake pedal / opening from ignition	closing/opening from ignition (delay 10 s.)	only closing from ignition (delay 10 s.)	disabled
No. 03 - bypass of interior lighting and delay of activation of sensors at enabling of security protection	before interior illumination switching-off (60 s max)	without delay	30 s.	5 s.
No. 04 - automatic enabling of the security protection mode and signal processing logic of the additional sensor	with locking	with locking	without locking	without locking
	2-level additional sensor	two 1-level additional sensors	2-level additional sensor	two 1-level additional sensors
No. 05 - automatic repeated security protection enabling	with locking	without locking	disabled	disabled

Configurable function:		alternative 1	alternative 2	alternative 3	alternative 4
No. 06 - operating mode of buzzer control output		buzzer control	buzzer control	horn control	horn control
No. 07 - owner authorization during remote or automatic engine start (SLAVE is enabled)		during the whole period of starting and at security protection disabling	At security protection disabling	At security protection disabling	At security protection disabling
No. 08 - interlock output function logic at enabling of antirobbery mode		At brake activation	At alarm activation	Antirobbery mode is disabled	Antirobbery mode is disabled
No. 09 - personal code of disabling of security protection and antirobbery mode		1-digit = 3 (factory code)	1-digit code	2-digit code	3-digit code
No. 10 - activation of output to engine interlock (black and red lead)		NC	NO	NC together with R2 relay	NO together with R2 relay
No. 11	two-step disabling of engine interlock (SLAVE is disabled)	disabled	by service button	by service button	by service button
	owner authorization in SLAVE mode	disabled	using label	by secret button	by service button
No. 12 - operation logic of additional channel No. 4 (yellow and dark blue lead)		20 s. at enabling of security protection	flexible programming	"close" CL control	20 s. at security protection disabling
No. 13 - operation logic of additional channel No. 1 (yellow and black lead)		0,8 s. (unlocking baggage compartment)	flexible programming		"latch" (on/off by pendant)
No. 14 - operation logic of additional channel No. 2 (yellow and red lead)		0,8 s. (2-step unlocking of door locks)	flexible programming		"latch" (on/off by pendant)

Configurable function:	alternative 1	alternative 2	alternative 3	alternative 4
No. 15 - operation logic of additional channel No. 3 (yellow and black lead)	Impulse 3 s., 2 s after engine stop	Impulse 1 s., 1 s after engine stop	active with light signals active	duplication of light signals
No. 16 - automatic monitoring of the notification channel	disabled	every 3 minutes	every 5 minutes	every 7 minutes
No. 17 - selection of door input polarity	(-)	(+)	(+)	(+)
No. 18 - GSM devices operating mode	mode 1	mode 2	mode 2	mode 2
No. 19 - operation logic of additional channel No. 5 (black and white lead)	starter interlocking	flexible programming	"open" CL control	"latch" (on/off by pendant)
No. 20 - operation logic of additional channel No. 6 (yellow and orange lead)	0.8 s.	flexible programming		"latch" (on/off by pendant)
No. 21 - event input operating mode	diesel engine start monitoring	engine start/stop	activation of additional channels and owner authorization in SLAVE mode	engine stop
No. 22 - selection of additional channel, activated through mobile application	additional channel 1	additional channel 2	additional channel 4	additional channel 5
No. 23 - operating mode of the car alarm system	SLAVE disabled	SLAVE enabled, label search 15 s	SLAVE enabled, label search 20 s	SLAVE enabled, label search 30 s
No. 24 - authorization procedure start event (SLAVE enabled)	security protection disabling	door opening	ignition switching-on	event input signal (pressing secret button)

SLAVE function settings are highlighted in orange, factory settings are highlighted in grey in the table

Configuring the parameters of engine start

Table of configuring No. 2

Function:	Alternative 1	Alternative 2	Alternative 3	Alternative 4
No. 01 - engine stopping at security protection disabling with operating engine	disabled	enabled	enabled	enabled
No. 02 - duration of engine operation after remote start	10 minutes	20 minutes	30 minutes	no limitation
No. 03 - sensor monitoring with operating engine in the security protection mode	impact, tilt sensor, additional sensor are switched-off	impact and tilt sensors are switched-on, additional sensor is switched-off	impact and tilt sensors are switched-off, additional sensor is switched-on	impact, tilt sensor, additional sensor are switched-on
No. 04 - engine stopping at warm-up up to +50°C (at remote start)	disabled	enabled	enabled	enabled
No. 05 – remote engine start mode	with enabling of the security protection mode	without enabling of the security protection mode	without enabling of the security protection mode	without enabling of the security protection mode
No. 06 - light indication after remote start	flashes	disabled	disabled	disabled
No. 07 - door locking at engine start and stop with enabled security protection mode	disabled	After successful start	after engine stop	after start and stop
No. 08 - operating logic of the output ("dark blue lead" of the power unit)	Duplication of accessories (ACC)	Duplication of ignition (IGN)	mode of the button "start - stop"	duplication of the signal "starter"
No. 09 - duration of starter motoring	0.8 s.	1.2 s.	2.0 s.	6.0 s.
No. 10 - engine type and remote start delay	petrol, delay 2 s.	diesel, delay 5 s.	diesel, delay 10 s.	diesel, delay 20 s., or until switching-off of warm-up of ignition plugs (maximum 60 s.)
No. 11 - monitoring of engine operation:	by voltage	by generator (+)	by generator (-)	by tachometry signal

Function:	Alternative 1	Alternative 2	Alternative 3	Alternative 4
No. 12 - activation of ignition support with operating engine	at ignition switching-off	by pressing the second button of pendant	by engaging of manual brake	disabled
No. 13 – bypass unit control mode	mode 1	mode 2	mode 3	mode 4
No. 14 - amount of impulses per the button "start - stop"	1 impulse	2 impulses	2 impulses	2 impulses
No. 15 - selection of the transmission type and method of execution (completion) of "configured neutral"	manual transmission, completion of "neutral" by security protection enabling	manual transmission, completion of "neutral" by door locking	manual transmission, completion of "neutral" by door locking (delay 20 s.)	Automatic transmission
No. 16 - operating logic of the output ("dark blue lead" of the power unit)	during the starter activation the output is NOT disconnected	during the starter activation the output is disconnected	during the starter activation the output is disconnected	during the starter activation the output is disconnected

Factory settings are highlighted in grey.

Power elements of the pendants and their replacement

In pendants the following power elements are used:

- in the main pendant 1 power element "AAA" 1,5 V is used;
- in the additional pendant 1 power element "CR2450" 3V is used.

The life expectancy of power elements of the pendants depends on intensity of pendant use, operating conditions, frequency of alarm annunciations, selected annunciation mode, and also from capacity of installed power element. The capacity of power elements available in the market, can differ in several times.

The average operation time of power elements can amount:

- for the main pendant with LCD display - from 2 up to 6 months;
- for the additional pendant - from 9 up to 12 months.

At discharge of power element the main pendant display will be show the icon , it means, that the power element shall be replaced.

Replacement of the power element in the main pendant

1. Open the cover of the battery compartment (having pushed it with a sharp subject in the place indicated by the arrow) and remove the old power element:



2. Place a new power element, observing its polarity. The correct position of the power element is indicated on the pendant housing under the cover. Close the pendant cover.
3. After replacement of the power element correct the current time.

Replacement of the power element in the additional pendant

1. Move the cover of the battery compartment towards the ring.
2. Remove an old power element and place a new one, observing the polarity. The correct position of the power element is indicated on the holder contact.
3. Close the pendant cover.

The manufacturer reserves the right to modify the design
and elements without the prior notification.

Manufacturer:

Scientific-production association "StarLine" Limited Liability Company
(OOO NPO StarLine)
194044, St.-Petersburg, Russia
9 Komissara Smirnova street