Pandora®
CAR SECURITY SYSTEM

OPERATION AND ASSEMBLING MANUAL VEHICLE ALARM SYSTEM PANDORA RX-175

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INTRODUCTION

We thank you for purchasing **PANDORA RX-175** car alarm system which corresponds to the modern requirements of the motor vehicle security. Please, read this manual carefully for the sake of proper installation and use.

The system is intended to signal about the attempt of unauthorized penetration inside a vehicle or any unlawful physical act in its respect. It is also equipped with a built-in system of engine start-up blocking. Furthermore, the system offers you a wide range of options to control the auxiliaries such as radio pager, lighting, electric locks of the doors and trunk, window lifters etc.

The main objective of the system is to protect the vehicle from any unauthorized encroachment upon it. That's why **PANDORA RX-175** implements the latest achievements to make it more break-in and hijack resistant. The encoding of the radio channel «Remote control – Main unit» incorporates a crypto resistant technology «KEELOQ»® owned by Microchip Technology Inc. USA. Moreover, the system uses a non-typical means of protection against code scanning and detecting. The secret code of the system control includes 729 combinations.

When buying this product make sure that the set box is complete, the system operates properly and the warranty counterfoil is filled in correctly.

The alarm system is installed stationary on the vehicle and is connected to the basic 12V wiring and the general negative outlet of the accumulator connected to the ground (mass).

The system complies with the climatic requirements U-2.1 (N-2.1) according to GOST 15150-69 standard and is intended for the use within the environment temperature range of -40 до +85 С. All the system components should be installed only inside the passenger compartment.

Water-proof protection of the main unit and remote control complies with the category IP40 according to GOST 14254-96

The system is designed and manufactured in compliance with the State Standard Requirements GOST R 41.97-99, GOST R 50789-95, GOST R 28279-89, GOST 28751-90, GOST 29157-91, GOST R 50607-93.

The alarm system* PANDORA RX-175 *is a sophisticated electronic device and is intended for professional installation only by the authorized dealers. Please make sure that the installation certificate is filled in correctly.

Due to the constant improvements in the system construction some slight alterations can take place in our product. They may be not described in this document but will not deteriorate the technical characteristics of the product.

This product is subject to mandatory certification.

For more information refer to: **www.alarmtrade.ru**

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STRUCTURAL FEATURES OF PANDORA RX-175 ALARM SYSTEM

- Separate inputs of the hood & trunk sensors with the option of polarity change.
- Airborne voltage control.
- Bi-level built-in adaptive shock sensor with the option of remote control sensitivity adjustment.
- Ability to connect additional bi-level sensor.
- «Ignition backup» function.
- 2 timer channels, one of which has a relay, built in the basic block, intended to operate the service functions (remote opening of the trunk, ignition backup, window-lifters control etc.). Impulse range: 0 sec. to 10 min.
- Programmable button «3» of the remote control intended for switching on the timer channels.
- Ability to program the system over the radio channel by means of PC (USB RMP-01 module must be available).
- Improved method of sensors scanning, which excludes false responses.
- Three-color indicator of the system mode.
- Ability to program up to 4 the 3-button remote controls.
- Indication of the quantity of the programmed remote controls

Technical support:
www.alarmtrade.ru e-mail: support@alarmtrade.ru

BASIC FEATURES OF THE SYSTEM

- Radio channel code protection against interception & scanning performed by means of the «KEELOQ» ® owned by Microchip Technology Inc. USA (page 6).
- Discrete arming/disarming channels (page 9).
- A three-steps disarming (switching of the siren, disarming, doors unlock (page 14).
- Two power outputs for turn indicators with a separate power circuit (page 40).
- «PANIC» mode (page 15).
- Emergency deactivation using personal code of 729 combinations (page 17).
- Passive arming of the system (page 11).
- System arming with a 30 seconds delay ("HANDS FREE" mode) (page12).
- Rearming after accidental disarm (page 12).
- Passive immobilizer (engine interlock 25 seconds after disarming and door unlock) (page 12).
- Alarm response in case of short-term power shut-off (page 13).
- Airborne voltage control (page 13).
- Alarm response during the doors opening (page 13).
- Alarm response during the hood opening (page 13).
- Alarm response during the trunk opening (page 13).
- Alarm response during the ignition switch-on (page 13).
- Ability to connect the door, hood & trunk sensors with negative or positive polarity (pages 37, 39).
- Bi-level built-in adaptive shock sensor with its sensitivity adjustment from remote control (pages 13, 27).
- Ability to connect additional bi-level sensor (page 29).
- System arming with the shock sensor switching-off (page 11).
- Remote deactivation of the sensor's warning level (page 10).
- System arming with a running engine (page 11).
- "IGNITION BACKUP" feature (page 17).
- Automatic doors lock/unlock during ignition switching on/off (page 15).
- Remote doors lock/unlock with ignition switched on (page 14).
- Alarm mode deactivation without system disarming (page 14).
- Ability to control the lock of any type by means of relays built in the main unit (page 29).
- Engine interlock by the relay built in the main unit (page 33).
- Alternative to use any type of interlock: NC or NO (closed/opened terminals) (pages 24, 39).
- Vehicle tracing modes: silent and with a sonic signal (page 15).
- Two timer channels one of which has a relay built in the main unit to operate service functions (remote trunk unlocking, ignition backup, window lifters control etc.). Impulse range: 0 sec. to 10 min. (page 15).
- Programmable button "3" of the remote control to switch on timer channels. (page 15, 39).
- Power output to the pager protected from a short circuit. Impulse range: 0 sec. to 10 min. (pages 16, 25, 34).
- Power output to the siren protected from a short circuit. (page 35).
- Siren confirmation signals deactivation (silent arming/disarming) (page 24)
- Three- color system indicator (page 8).
- Indication of the quantity of the memorized remote controls (page 13).
- Ability to program up to four 3-button remote control units (page 23).
- Alert messaging of the alarm operation in the owner's absence (page 14).
- Sensor activation warning after the system disarming (pages 8, 14).
- Sensor malfunction warning after the system arming (page 12).
- Bypass of the inoperative sensors during arming with consequent access to service in case of their recovery (page12).
- Operation with the vehicles having a passenger cabin's light switch-off delay (pages 12, 25).

- Remote control's battery discharge indication (page 7).
- Silent modes (pages 9-10).
- Vehicle maintenance mode (page 17).
- Passive & active «Anti Hijack» modes (page 18).
- Remote controls programming mode interruption protection (page 23).
- Ability to program the system's adjustments via radio channel by means of PC (USB RPM-01 should be available) (page 20).

DELIVERY SET

1. Main unit.....1 pcs.
2. Three-button remote control unit..... 2 pcs.
3. Main cable..... 1 pcs.
4. Trunk cable..... 1 pcs.
5. Cable with status indicator.....1 pcs.
6. Cable with «VALET» button.....1 pcs.
7. Limit switch..... 2 pcs.
8. Limit switch cable..... 2 pcs.
9. Setscrew Ø 4,2x13..... 5 pcs.
10. Plastic buckle 350- 450мм..... 1 pcs.
11. Ground terminal..... 3 pcs.
12. Brief description (a card) ..... 1 pcs.
13. Operation & assembling manual.....1 pcs.
14. Package.....1 pcs.

SPECIFICATIONS

Parameter	Description
Consumption in security mode, мА	*Not more than 20*
Main unit supply voltage, V	*9..15*
Radio channel frequency, MHz	*433,92*
Frequency deviation, MHz	*433,075MHz to 434,79 MHz*
Emission power, мWt	*Less than 10*
Operative temperature range	*–40°C to +85°C*
Remote control encoding type	*Dynamic «Keeloq» ®*
Max. peak load current , switched in output:	
- Siren, A	*3*
- Warning lights, A	*5+5*
- Interlock circuit, A	*10*
- Door locks, A	*10*
- Remote radio alert channel, timer channel №3, A	*3*
- Additional interlock / timer channel №1, A	*0,3*
- Additional interlock / timer channel №2, A	*10*
Remote control buttons qty.	*3*
Remote control operation range (depends on the battery charge level), м	*30*
Shock sensor	*Built-in, adaptive*
Dimensions:	
- Main unit, мм	*98×92×32*
- Remote control, мм	*45×39×14**
- Package, мм	*210×170×65*
Electric circuits protection:	
- Feed circuits	*Fuses*
- Output circuits	*Schematic ground fault shielding*
- Input circuits	*Schematic overload/ground fault shielding*
- Repolarisation	*Schematic repolarization shielding*
Precious metals content	*No*
Remote control feed	*A27, 12V*
Gross weight, not more than, kg	*0,79*

NOTE: Dimensions can slightly vary depending on the applied model, but without any negative affect on the declared characteristics.

TYPES OF SIGNALS

Signal name	Description
“Alarm” mode by means of siren/pager	30 sec. continuously, not more than 9 times from 1 sensor per 1 cycle. 15 sec. – 1 signal of pager (factory setting)
“Alarm” mode by means of warning lights	30 sec. At 1 Hz, not more than 9 times from 1 sensor per 1 cycle
“Panic” mode by means of siren	Continuously, permanently
“Panic” mode by means of warning lights	Continuously, at 1 Hz
“Arming” by means of siren/warning lights/pager	1 sonic signal 0,04 sec./ 1 light signal 0,4 sec. / 1 signal of pager15 sec. - (factory setting)
“Arming with a shock sensor switched of” by means of siren/ warning lights	1 sonic signal 0,04 sec./ 1 light signal 0,4 sec.
“Arming with a running engine” by means of siren/ warning lights	1 sonic signal 0,04 sec./ 1 light signal 0,4 sec.
“Disarming” by means of siren/warning lights/pager	2 sonic signals at 7 Hz/ 2 light signals at 7 Hz/ 1 signal of pager15 sec. - (factory setting)
“Sensors activation when disarming” by means of siren/warning lights	When disarming: 4 sonic signals at 7 Hz / 2 light signals - at 1 Hz
“Remote’s battery discharge” by means of warning lights when disarming	1 signal - 2 sec.
“Sensor malfunction when arming” by means of siren/warning lights	When arming - 4 sonic signals – frequency 7 Hz / 3 light signals - 1,7 Hz
“Sensor’s warning level activation” by means of siren/warning lights/pager	3 sonic signals – frequency 7 Hz / 1 light signal – 0,4 sec., 15 sec. – 1pager signal (factory setting)
“Shock sensor’s warning level deactivation” by means of siren/warning lights	1 sonic signal 0,04 sec./ 1 light signal 0,4 sec.
“Vehicle tracing” by means of siren/warning lights	1 sonic signal 0,04 sec. / 5 light signals – frequency 1 Hz

STATUS INDICATOR READINGS

- **Single short red flashes** – system armed;
- **Continuous red light** – system is getting ready for automatic arming, passive arming, «Hands free» mode activated, «Panic» mode activated;
- **By-turn blinking of red & green** – the system is disarmed but immobilizer is still active;
- **Not alight** – system discharged, immobilizer deactivated, or the system is in the technical maintenance mode (while ignition is switched on);
- **Continuous green light while ignition is on** – the system is in the technical maintenance mode;
- **Continuous (but not longer than for 20 sec.) orange light**– system is waiting for the signal from the program module via radio channel RMP-01;
- **One green flash** – activation of the timer channel either #1 or #2;
- **One orange flash** – «VALET» button is pressed;
- **Two red flashes during disarming***– alarm activated by the door unlock sensor;
- **Three red flashes during disarming***– alarm activated by the ignition switching on;
- **Two green flashes during disarming***– alarm activated by the shock sensor;
- **Three green flashes during disarming***– alarm activated by the additional sensor;
- **Two orange flashes during disarming*** – alarm activated by the hood or trunk unlock sensor;
- **Three orange flashes during disarming*** – airborne voltage has fallen below the critical level;
- **One to four orange flashes during ignition switching on** – indication of the quantity of assigned (memorized) remote controls;
- **Single green flashes** –the system is in «Anti Hijack» mode;

***Note**: These signals may be reactivated until next arming. For this purpose press button «2» of the remote control when the system is in the «Ignition switched off- system disarmed» mode.

SYSTEM CONTROL

- Distantly – via radio channel by means of remote control unit;
- With ignition key;
- With «VALET» button;
- By sensor's signals in automatic mode;
- By means of PC using USB module via radio channel RMP-01;

REMOTE CONTROL BUTTONS DESIGNATION

Button (combination)	System disarmed		System armed/ no alarm signal
	Ignition switched on	Ignition switched off	
«1»	Door locking	System arming	Vehicle tracing with sonic confirmation
«1» (1sec)		Silent arming	Vehicle tracing without sonic confirmation
«2»	Doors unlock / immobilizer deactivation (if it is switched on)	Doors unlock / immobilizer deactivation (if it is switched on). Activated sensors indication	Disarming
«2» (1sec)	Passive "Anti Hijack" mode switch on/off		Silent disarming
«3»	Timer channel №1		

Continued

Button (combination)	System disarmed		System armed / no alarm signal
	Ignition switched on	Ignition switched off	
«3» (1sec)	Timer channel №2		
«1»+«2»	“Panic”		
«1»+«2» (1sec)	Active “Anti Hijack” mode activation		
«1»+«3»	Arming with a running engine	Starting / cancel of a silent arming with a 30 sec. delay – “Hands free” mode	Shock sensor’s warning level deactivation
«1»+«3» (1sec)	Silent arming with a running engine	Starting / cancel of a silent arming with a 30 sec. delay – “Hands free” mode	Siren signals deactivation for the whole period of arming
«2»+«3»		Arming with a shock sensor deactivation	
«2»+«3» (1sec)		Silent arming with a shock sensor deactivation	
«VALET» + «2» (3 sec)	Technical maintenance mode		

In «Alarm” or “Panic» mode – press any button to mute siren without the system deactivation

REMOTE’S BATTERY REPLACEMENT

Low battery symptoms are as follows: a 2-seconds long light signal during disarming, dimming of the remote’s indicator or decreasing of its operative range.

In this case you should replace the battery in the remote control unit.

- unscrew the fastening and remove the upper part of the remote’s case;
- keeping the PCB on its place, change the battery for a new one (A27 +12V type) observing polarity;
- put the upper part of the case back on its place, check the buttons pressing and screw the fastening.

ARMING THE SYSTEM

The system can be armed either with a switched on ignition or with a switched off. With ignition switched off the system can be transferred either to the complete security mode with a control over all given sensors, or to the security mode with a shock sensor switched off. In both of these modes the system indicator blinks with a red light.

To transfer the system to the complete security mode with ignition switched on –shortly press button “1” of the remote control (continuous pressing, over 1 second, will deactivate the sonic signals of confirmation). The system will confirm the performance of command by a single flash of lights and a short signal of siren.

ARMING THE SYSTEM WITH A SHOCK SENSOR DEACTIVATION

To arm the system with a shock sensor deactivation while ignition is switched off- shortly press the buttons «2» & «3» of the remote control-(continuous pressing, over 1 second, will deactivate the sonic signals of confirmation). The system will confirm the performance of command by a single flash of lights and a short signal of siren.

ARMING THE SYSTEM WITH A RUNNING ENGINE

To arm the system with a running engine (switched on ignition) – shortly press the buttons «1» & «3» of the remote control (continuous pressing is for a silent arming). The system will confirm the performance of command by a single flash of lights and a short signal of siren. In this case the interlock system will be NOT activated and the built-in shock sensor will also be automatically deactivated in order not to allow the vehicle vibration activate the system.

PASSIVE ARMING OF THE SYSTEM

If this option is added during programming then the system will be armed 30 seconds upon the ignition is switched on; a door, hood or trunk unlocked and then locked.

«HANDS FREE» MODE

Arming with a 30 sec. delay («Hands free» mode). This mode is recommended for use when leaving the vehicle with busy hands. For this purpose, while ignition is switched on, shortly press buttons «1» & «3» of the remote control – the system will make one sonic and one light signal (continuous pressing, over 1 second, is for the silent arming) afterwards within 30 seconds it is necessary to leave the car and lock the door .On the expiry of 30 seconds the system will once again make one sonic and one light signal, whereupon the doors will be blocked by the central lock. During the period of delay the indicator continuously shines with red light. To cancel the command it is necessary to push the buttons «1» & «3» once again before expiry of a 30 seconds period – the system will make two sonic and two light signals (continuous pressing, over 1 second, is for a silent cancel). Afterwards the system indicator will be reset to previous setting.

CAUTION: Before using «Passive arming« & «Arming with a 30 seconds delay» make sure that the keys and the remote control are with you to avoid locking them inside the vehicle.

When arming, the system checks the status of the sensors allowed for operations. During response or malfunction of one of the sensors the system makes 4 sonic and light signals and then switches that sensor off. Deactivated sensor then will be rearmed 15 seconds later after recovery of its workability. Besides, during the arming the system provides the doors and engine interlock.

The system can be installed in the vehicles having the option of the passenger compartment light switch-off delay (programmable function). If this feature is activated, then during the arming the system will not respond to the door unlock sensor within 15 seconds.

REARMING THE SYSTEM

If this feature is activated, the system will be armed with doors lock on expiry of 30 seconds each time the system was disarmed with the remote control. The system won't be armed until any of the doors, hood or trunk will be open. During this period countdown the indicator of the system shines with red.

IMMOBILIZER

If within 25 seconds upon the door, hood or trunk unlock the ignition has not been switched on, then the system will automatically disables the engine (programmable function). If the ignition has been switched on and at least one door was open then the system will also interlock the engine. After the interlock activation the indicator flashes with red & green lights. To escape from the immobilizer mode- press button «2» of the remote control when ignition is switched off. The system indicator will stop by-turn blinking with red & green lights.

SCANNING PROTECTION

If the buttons of the remote control were pressed for more than 16 times beyond the control range, then the first pressing of the button within its range will be ignored by the system, but the second one (as well as all the rest) will operate in the usual manner. At this moment code matching protection function is activated and the remote controls are synchronized.

INDICATION OF THE QUANTITY OF MEMORIZED REMOTE CONTROLS

If the system is in «Disarmed» mode then during turning off and consequent turning on of the power supply the system by short sonic signals will indicate the quantity of memorized remote controls. The quantity of the remotes is also indicated by the orange flashes of indicator every time the ignition is switched on.

This function is useful in case the vehicle has been used for some time by another person, or if you have a certain doubt that the codes of the other remotes were recorded to the system's memory.

Default setting is 2 remote controls recorded to the system's memory. Total number of the remote units that can be assigned to the system is 4.

OPERATION OF THE SYSTEM IN SECURITY MODE

The main objective of the system in security mode is to control the sensors which work is allowed.

When a shock sensor's warning level is activated the system makes a precautionary triple sonic & a single light signal (except when it's armed with a running engine). At the same time the sonic signal can be canceled while system programming.

The system converts to the alarm mode:

- if the shock sensors alarm level is activated (except for security mode with a running engine);
- if the additional sensor's alarm level is activated;
- when the hood is opened;
- when the trunk is opened;
- when the door is opened;
- when the ignition is switched on (except for security mode with a running engine);
- after temporal shut-off of the main supply.

The system is equipped with a bi-level built-in adaptive shock sensor and an airborne voltage sensor.

When set to the security mode, the shock sensor monitors all changes in environment and adjusts its sensitivity from initially preinstalled in order to reduce the quantity of false triggering.

The airborne voltage sensor constantly controls the level of voltage. If the power supply failed completely, then the next switch-on will be accompanied by the alarm mode activation.

In alarm mode the light & sonic signals as well as the output of pager's transmitter are activated for 30 seconds. There is a possibility to cancel the sonic signal and deactivate pager's output during the system programming.

If in the moment of alarm activation the system was armed with a running engine, then in this case the engine is interlocked and upon alarm cessation the system switches to the mode of complete security. In other cases, upon the alarm cessation, the system returns to the previous security mode.

For the early (pre-scheduled) exit from the alarm mode and all warning signals termination it is enough to press any button of the remote control. Within next 2 seconds the system will non react to the sensors condition, waiting for the command from remote control (e.g. «disarming»).

The sensor which activation switched the system 3 times successively to alarm mode will be temporally deactivated. If the warning level of the shock sensor was activated for 3 times then the system will temporally deactivate the sensor. Deactivated sensor will be armed again 15 seconds after its operative capacity recovery. The sensor which has been activated for 9 times in total will be deactivated until the next arming (except for the warning level of the shock sensor).

To deactivate a warning level of the shock sensor press simultaneously buttons «1» & «3» of the remote control after the system arming. The system will confirm the command with one flash of the lights.

DISARMING THE SYSTEM

When the system is set to alarm mode, before disarming it is necessary to deactivate the alarm mode first by pressing any button of the remote control.

To disarm the system when it is not set to the alarm mode, shortly press button «2» of the remote control (continuous pressing, over 1 second long, will deactivate the sonic signals of confirmation).

If there was no alarm response the system will confirm the command execution by a double flash of lights and two short signals of siren. If the there was an alarm response the system will inform about it by four (instead of two) sonic and light signals.

At the same time the system will deactivate the engine interlock and will also unlock the doors (if the electric drives are connected) and it will switch on a pager output (programmable feature). Then, if the remote's battery is discharged, the system will warn about it by continuous (2 seconds long) flash of the lights.

In the moment of disarm the system once by the flashes of indicator displays the most important sensor which has been activated. Such indication can be repeated with a switched off ignition until the next system arming by the remote's button «2».

DOORS LOCKING / UNLOCKING

The system operates the door locks by locking them when arming the system. A double-step mode of doors lock/unlock is provided for the system arming & disarming (programmable feature). When disarming: the first pressing of the button «2» disarms the system without doors unlocking. The second pressing of the button «2» unlocks the doors.

When arming in a double-step mode the first pulse interlocks the doors against unlocking them from the outside and the second one from the inside.

The system is able to unlock the doors automatically after ignition switch-on and to unlock them after ignition switch-off. The doors are automatically locked 5 seconds after ignition is switched on and unlocked immediately after it's switched off (programmable feature). If any of the doors was opened after ignition has been switched on, then there will be no automatic door locking. This feature is intended to prevent the ignition keys from locking inside the compartment.

When ignition is switched on there is a possibility to unlock and lock the doors by pressing the buttons «1» & «2» respectively.

VEHICLE TRACING

Pressing of the remote's button «1» in security mode activates the vehicle search function. The system will make a single sonic and a fivefold light signal and then will return to alarm mode.

The continuous (1 second) pressing of the remote's button «1» in security mode will activate the function of a silent tracing of a vehicle; the system will make a fivefold light signal and then will return to security mode.

«PANIC» MODE

Regardless of whether the system is armed, armed with a running engine or disarmed, the simultaneous pressing of the remote's buttons «1» & «2» will activate the "Panic" function:

- the system makes continuous light and sonic alarm signals (provided that the sonic signals can be deactivated during the system programming);
- the work of engine is interlocked;

To deactivate the «Panic» function press any button of the remote control. The state of engine interlock will be reset to the previous one.

TIMER CHANNELS

The system has two valid timer channels which provide control over various service devices.

When programming the system you can choose one of the following options:

- trunk opening – switching on the electric lock;
- two-step door unlocking;
- ignition backup;
- dim light switching on during the system arming;
- window risers module control during the system arming;
- passenger compartment light switching on during the system disarming;
- ignition start-up module activation etc.

The timer channels can be controlled either automatically or by the remote's buttons.

Factory setting is as follows: a short pressing of the button «3» activates the timer channel #1, continuous pressing (over 1 second long) activates the channel #2. This setting can be changed during programming. Both channels can be programmed for activation by a single button.

The output signal duration can also be adjusted, as well as any of the channels can be switched to such a mode where one of the buttons pressing activates the channel and another one deactivates.

In automatic mode the system can activate the chosen timer channels when arming and/or disarming.

If the programmable timer channel is designated for trunk unlock, then the door lock can be operated both in «Armed» and «Disarmed» modes. When the timer channel is activated while the system is armed, the trunk's limit switch and the shock sensor are temporally deactivated. The sensors will be then reactivated 15 seconds after the trunk is locked. Any of the timer channels can be programmed to fulfill the ignition backup function. This function allows leaving the vehicle's engine running without ignition keys.

To activate:

- start the engine with ignition keys;
- press the remote's button "3" shortly or for 1 second depending on the timer channel to

which this function is assigned;

• arm the system with a running engine within a 1 minute period using buttons «1» & «3» of the remote controller. Otherwise, upon expiry of this period the engine will be stopped;

• when the engine is running the system operates according to the usual flow chart (scheme) – the vehicle's perimeter is under control and the shock sensor is deactivated to avoid false responses;

• if within the period of 20 minutes the ignition backup mode has not been deactivated then, upon expiry of this period, the engine will be stopped and the system will be switched to the complete security mode;

• when deactivating the mode of security with a running engine by the remote's button «2» the engine will still keep on running for one more minute thus, giving possibility to intercept the ignition;

• for immediate engine stoppage press the remote's button «3» shortly or for 1 second depending on the timer channel to which this function is assigned;

CAUTION: Do not start moving while in ignition backup mode. Upon exiting – make sure to insert the keys and turn them to «Ignition» position.

REMOTE RADIO ALERT CHANNEL

The system has a channel of control over the pager's radio transmitter and can generate the following control signals:

• arming the system;
• disarming the system;
• warning (response of the warning level of the shock or volume sensor);
• alarm;

The transmition of each of these signals can be allowed or prohibited during the system programming.

During the pager's signal injection the system does not control the state of the shock or volume sensor (to avoid electromagnetic influence of the pager's transmitter upon sensor).

If the pager is not in use, this channel can be used as an additional timer channel for automatic control over auxiliary external devices (when arming, disarming, warning shock sensor response, alarm).

SYSTEM CONTROL OVER A SECRET CODE

If the remote control is not available or out of order the system can be managed by means of a secret code.

During a secret code input there is a possibility to make the following operations:

- to disarm the system;
- to turn to the programmable mode, when the system is disarmed;

The system's secret code consists of three digits (from 1 to 9). To input a secret code the following operations should be done:

- press the «VALET» button to input the first digit by pressing the button with a respective number of times. Each pressing of the «VALET» button is followed by the orange light of the system's indicator. The interruption between pressings should not exceed 1 second;
- the accepting of the code's first digit will be confirmed by a red flash of indicator;
- input the second digit by pressing the «VALET» button with a corresponding number of times;
- the accepting of the code's second digit will be confirmed by a red flash of indicator;
- input the third digit by pressing the «VALET» button with a corresponding number of times;
- If the code was inserted correctly, the system will either be disarmed (indicator will show the activated zone), or will be switched to a programmable mode (in this case, within a 2 seconds period indicator will be producing a chain of green & red flashes);
- If an invalid code was inserted, then the indicator will respond by a continuous red flash and the system will return to the previous mode. The attempt of a secret code input can be repeated 5 seconds later.

TECHNICAL MAINTENANCE MODE

This mode is intended to be used when the vehicle is undergoing technical maintenance. In this mode the system is disarmed and all its functions are deactivated to provide a better maintenance. Besides, when the vehicle is left for maintenance in this mode, there's no necessity in the remote control- the scanning of its code becomes impossible.

To switch the system in the maintenance mode:

- disarm the system;
- switch the ignition on;
- press and hold the button «VALET»;
- press and hold the button «2» of the remote control;
- wait for at least 3 seconds until the indicator produces a chain of green and red flashes;
- release remote's button «2»;
- release remote's button «VALET».

The transfer to the maintenance mode will be confirmed by a green light of the indicator while the ignition is switched on. When the ignition is switched off the system's indicator will go down. To exit this mode and to enter «Disarm» mode press button «2» of the remote control unit.

«ANTI HIJACK» MODE

This mode helps protect the vehicle from the attempt of taking it in possession by force. It envisages the possibility of a phased engine interlock during the drive.

There are two types of this mode: Active and Passive. The Passive mode is used when you are behind the steering wheel and the passenger is trying to take hold of your vehicle. In this case you have to press the certain button of the remote control. Then, by the light of indicator make sure that the "Anti Hijack" mode is activated and try to leave the vehicle at the first opportunity.

The Active mode is used when the vehicle has been already hijacked, you are outside of the vehicle within the remote's active range and the remote control unit is with you.

In any case the "Anti Hijack" mode will allow the hijacker to drive off to a safe for you distance and then the alarm system will activate its sonic and light signals and interlock the engine.

Passive mode

Stage 1 (serviceability mode). The ignition should be switched on, the doors closed: when threatened by a passenger, secretly press and hold the remote's button «2» for over then 1 second period. The serviceability mode will be activated and the indicator will be producing the short single flashes of a green light.

Stage 2 (countdown). If the driver was forced to leave the vehicle, the opening of any door and consequent closing of all of them will activate a 30 seconds countdown. This time is given to enable the vehicle drive off to a safe for the owner distance. Within the countdown period the indicator will be continuously flashing with a green line.

Stage 3 (interlock warning). Upon the countdown expiry the warning signals of siren and light alarm will be activated for 30 seconds to avoid traffic emergency. On this stage the vehicle attracts attention and warns that the engine will be immediately interlocked.

Stage 4 (engine interlock and alarm mode). The engine interlock is activated; the siren & lights are signaling for 30 seconds.

Stage 5 (mode of security with remote's commands dropping). The system will pass to the security mode; however, the control by means of the remote unit will be temporally unavailable. In this case the system's security mode can be deactivated by a secret code only.

NOTE: On stage 1 the «Anti Hijack» mode can be cancelled by pressing and holding of the remote's button «2» for over than 1 second, provided that the doors are closed. In other cases deactivation of this mode is possible by means of a secret code only.

Active mode

Stage 1 (countdown). If the owner is already forced to leave the vehicle it is necessary to press and hold simultaneously the remote's buttons «1» & «2» for over than 1 second. A 30 seconds countdown is activated to enable the vehicle drive off to the safe for the owner distance. Within this period the indicator produces single continuous flashes of a green light.

Stage 2 (interlock warning). Upon the countdown expiry the warning signals of siren and light alarm will be activated for 30 seconds to avoid traffic emergency. On this stage the vehicle attracts attention and warns that the engine will be immediately interlocked.

Stage 3 (engine interlock and alarm mode). The engine interlock is activated; the siren & lights are signaling for 30 seconds.

Stage 4 (mode of security with remote's commands dropping). The system will pass to the security mode; however, the control by means of the remote unit will be temporally unavailable. In this case the system's security mode can be deactivated by a secret code only.

NOTE: This mode can be cancelled by means of a secret code only.

«Anti Hijack» mode is not a design (regular) mode of the system, so far as it envisages the complete stoppage of the engine during a drive and can lead to a breakdown. We insistently recommend not using this mode. Overall responsibility for using this mode is assumed by the vehicle owner. This mode is not recommended for some types of vehicles with automatic transmission because it can lead to its damage.

For the safety sake it is NOT RECOMMENDED to keep the keys and the remote unit in one bunch.

The default setting of «Anti Hijack» mode is «off». To use this mode set Sublevel 9.1 to «ALLOWED» state.

MANUAL PROGRAMMING OF THE SYSTEM

Some of the system's settings can be changed in the mode of programming. The system has eleven levels of programming each of them having several sublevels.

In this manual it's denoted by a combination of two digits, the first of which corresponds to the number of a level and the second one – to the number of a sublevel.

The process of programming can be described as follows:

• disarm the system, switch the ignition off;

• insert the first digit of a secret code with the «VALET» button. The input will be confirmed by a red flash of indicator;

• insert the second digit of a secret code with the «VALET» button. The input will be confirmed by a red flash of indicator;

• insert the third digit of a secret code with the «VALET» button. The correct input of a code will be confirmed by the red and green flashes of indicator, then the system will be switched to the mode of programming. If the input was incorrect then the indicator will produce a continuous red flash and the system will return to the previous state (mode). New input could be possible only 5 seconds later;

• insert the number of a desired level by the «VALET» button. The system will confirm the number by red flashes of indicator along with short signals of siren and then it will be transferred to this level. In case of the incorrect number input (bigger than 11) there will be no confirmation and after a chain of green and red flashes will turn to a standby for a new input of a desired level;

• insert the number of a desired sublevel by the «VALET» button. The system will confirm the number by green flashes of indicator along with short signals of siren and then it will be transferred to this level. In case of an invalid number input (exceeding the number of sublevels in this level), then after a chain of green and red flashes the system will be waiting for a new input of the necessary level and then sublevel;

• the indicator will display the current meaning of a chosen level by red or green light. The meaning can be changed by the remote's buttons «1» and «2». After the «VALET» button is pressed – the system will memorize the meaning and will proceed to the next level (at this moment any other sublevel number can be inserted with the «VALET» button). The new sublevel's number is also

displayed the same way – by means of green flashes of indicator. If there are no more sublevels available then this will be expressed by green and red flashes and the system will be waiting for a new level input;

• to exit to the mode of programming and settings recording it is enough to switch the

ignition on at one of the abovementioned stages.

NOTE: each pressing of the «VALET» button is followed by an orange flash of the indicator. The interval between the pressings should not exceed 1 second.

PC PROGRAMMING OF THE SYSTEM

All the system settings can be programmed via radio channel with a computer. For this purpose an RMP-01 module of programming is necessary. The module along with a program is supplied separately. Preparation includes the following stages:

- connect module to a free USB slot of a computer;
- the system detects the device and suggests setting the driver;
- install the enclosed software;
- reload the computer;
- place the computer at the range of up to 5 meters far from the vehicle equipped with the system.

System requirements for work with the RMP-01 module:

- WINDOWS 98/ME/2000/XP;
- P-I processor as minimum;
- system memory not less than 128 Mb;
- hard dick capacity not less than 50 Mb;

To program the settings:

- install the alarm system and plug it to the power supply;
- disarm the system (if it was armed);
- switch the ignition off (if it was on);
- launch the program attached to the module RMP-01 and adjust all the required parameters;
- insert the first digit of a secret code using the «VALET» button. The input will be confirmed by a red flash of the system's indicator;
- insert the second digit of a secret code using the «VALET» button. The input will be confirmed by a red flash of the system's indicator;
- insert the third digit of a secret code using the «VALET» button. The correct input will be confirmed by red and green flashes of the system's indicator. If the input was incorrect then the indicator will produce a continuous red flash. A new attempt to insert the code could be done only 5 seconds later.
- press the remote's button «2», the indicator will light with orange. The system is ready to receive the settings from computer via radio channel and it will remain in this state for no longer than 20 seconds;
- To transmit the data to the vehicle it's necessary to launch the data communications from the program. Upon receipt of the data the system will return to the mode of programming. If the data received successfully the indicator produces a chain of red and green flashes, but if failed (the data were distorted) the indicator will flash with red.
- exit the mode of programming, shortly switching off the ignition. The system is operationable now;
- if it's necessary to make some changes in system settings, first change the required settings in the program and then repeat the data communications process.

TABLE OF THE PROGRAMMABLE SETTINGS OF THE SYSTEM

Factory settings are marked with grey background.

Level name	Level and sublevel	Indicator	
		RED	GREEN
Memorizing the remote controls	1. By-turn recording (up to 4 pcs.)	See description	
Secret code entering	2. A new code input	See description	
Work of siren	3.1 Siren's signal at the warning level of sensor	PROHIBITED	ALLOWED
	3.2 Siren's signal at "Alarm" and "Panic" mode	PROHIBITED	ALLOWED
Functions of immobilizer and automatic arming	4.1 Activation of immobilizer after disarming	PROHIBITED	ALLOWED
	4.2 Automatic rearming	PROHIBITED	ALLOWED
	4.3 Passive arming	PROHIBITED	ALLOWED
	4.4 Interlock relay contacts type	NORMALLY OPEN	NORMALLY CLOSED
Work of timer channel #1	5.1 Trunk lock control over the timer channel	PROHIBITED	ALLOWED
	5.2 Ignition backup function	PROHIBITED	ALLOWED
	5.3 Activation of the channel during the arming	PROHIBITED	ALLOWED
	5.4 Activation of the channel during the disarming	PROHIBITED	ALLOWED
	5.5 Timer channel constantly "on"/"off" by remote's button "3"	PROHIBITED	ALLOWED
	5.6 Type of button "3" pressing to activate the channel	CONTINUOUS	SHORT
	5.7 Timer channel work duration (max. 10 min.)	0,8 seconds	
Work of timer channel #1	6.1 Trunk lock control over the timer channel	PROHIBITED	ALLOWED
	6.2 Ignition backup function	PROHIBITED	ALLOWED
	6.3 Activation of the channel during the arming	PROHIBITED	ALLOWED
	6.4 Activation of the channel during the disarming	PROHIBITED	ALLOWED
	6.5 Timer channel constantly "on"/"off" by remote's button "3"	PROHIBITED	ALLOWED
	6.6 Type of button "3" pressing to activate the channel	CONTINUOUS	SHORT
	6.7 Timer channel work duration (max. 10 minutes)	0,8 seconds	

Work of the distant radio alert channel (timer channel #3)	7.1 Channel activation at the warning level	PROHIBITED	ALLOWED
	7.2 Channel activation during system disarming	PROHIBITED	ALLOWED
	7.3 Channel activation during system arming	PROHIBITED	ALLOWED
	7.4 Channel activation at the alarm level	PROHIBITED	ALLOWED
	7.5 Radio alert channel work duration (max. 10 min.)	15 seconds	
Door locks control	8.1 Doors control signal duration	0,8 seconds	5 seconds
	8.2 Doors lock/unlock when ignition is on/off	PROHIBITED	ALLOWED
	8.3 Limit switch deactivation during the system arming	PROHIBITED	ALLOWED
	8.4 Doors unlock during the system disarming	PROHIBITED	ALLOWED
	8.5 Doors unlock by a double pulse	PROHIBITED	ALLOWED
	8.6 Doors lock by a double pulse	PROHIBITED	ALLOWED
	8.7 Doors limit switches deactivation delay during arming (max.10 min.)	15 seconds	
Specialty functions	9.1 “Anti Hijack” function	PROHIBITED	ALLOWED
	9.2 Factory settings reset	PROHIBITED	
Sensors polarity control	10.1 Hood sensor polarity	NEGATIVE	POSITIVE
	10.2 Doors sensor polarity	NEGATIVE	POSITIVE
	10.3 Trunk sensor polarity	NEGATIVE	POSITIVE
Shock sensor sensitivity	11.1 Warning level adjustment	See description	
	11.2 Alarm level adjustment	See description	

DESCRIPTION OF THE PROGRAMMABLE SETTINGS OF THE SYSTEM

LEVEL 1 – recording the remote controls to the system's memory.

Up to 4 remote controls can be recorded to the system's memory. When recording any quantity (up to 4) of the remote controls to the memory, the codes of the same remotes are recorded to the remaining cells, thus protecting the system from unauthorized remotes recording.

If a remote unit is lost, it is necessary to re-record the codes of the remaining units in order to delete from the memory the code of the lost one. When you enter this level and record at least one remote control, all the other remotes, recorded to the system's memory before this moment are deleted.

Enter the first level. The remotes are recorded in sequence (one by one). Press and release twice any button of the 1-st remote control. A successful recording will be confirmed by 2 orange flashes. Record the rest of remotes in the same manner. To exit this level press the button «VALET». If at least one remote control has been recorded then the indicator will produce a chain of red and green flashes. If not a single remote has been recorded the indicator will flash with red light.

LEVEL 2 - insertion of a secret code.

Secret code consists of three digits from 1 to 9 and helps control the system when remote unit is not available.

Default setting of a secret code is – «1 – 1 – 1».

CAUTION! Remember and write your code down and keep it some place else outside your vehicle. You will not be able to change the system's settings and operate it without remote control. To provide secrecy change the code's default factory setting.

A new code can be inserted after entering the first sublevel:

• indicator is not alight. Press the «VALET» button the number of times corresponding to the first digit of a secret code. Each pressing of the button is followed by an orange light of indicator. The intervals between pressings should not exceed 1 second;

• acceptance of the code's first digit will be confirmed by a red flash of indicator;

• insert the second digit by pressing the «VALET» button the required number of times;

• acceptance of the code's second digit will be confirmed by a red flash of indicator;

• insert the third digit by pressing the «VALET» button the required number of times;

• acceptance of the code's third digit will be confirmed by a chain of red and green flashes of indicator;

• insert all the three digits of a code once again.

• If you twice have inserted the code correctly the indicator will produce a 2 second long chain of red & green flashes and then a new code will be recorded to the system's memory. The system will return to the mode of programming.

• If the code you've inserted is not correct the indicator will flash with red light and the system will return to the mode of programming.

On completion of the code input the indicator goes down and the system is waiting for a new code input.

My personal secret code is: ☐ - ☐ - ☐

LEVEL 3 – working of siren.

On this level the siren can be adjusted for the work in various situations. The settings will be valid each time the system is armed.

Sublevel 3.1 – provides the work of siren when the sensors warning level is activated. Default setting is «Allowed».

Sublevel 3.2 – provides the work of siren in «Alarm» & «Panic» modes. Default setting is «Allowed».

LEVEL 4 – functions of immobilizer and automatic arming.

On this level the work of immobilizer, automatic and passive arming and type of the built-in interlock relay contacts are adjusted. The algorithm of the relay's work depends on a type of contacts.

Sublevel 4.1 – provides immobilizer activation after system disarming. Default setting is «Prohibited».

Sublevel 4.2 – provides automatic system rearming. Default setting is «Prohibited».

Sublevel 4.3 – provides passive arming of the system activation. Default setting is «Prohibited».

Sublevel 4.4 – sets the type of contacts of the built-in interlock relay: NORMALLY CLOSED / NORMALLY OPEN (N/C – N/O). Default setting is: «NORMALLY CLOSED».

LEVEL 5 – the work of timer channel #1.

When the sublevels 5.1 – 5.5 of the given level are in «Prohibited» state the timer channel could be operated by the remote's button «3» only (depending on the sublevel 5.6 settings – by short or continuous pressings). Each pressing of the button will be followed by a signal appearing on the output of the timer channel with a duration set on the sublevel 5.7.

Sublevel 5.1 – provides the trunk electric lock operation by means of the given timer channel. If the timer channel is activated in alarm mode the shock and trunk sensors are temporally switched off. The control is possible with the remote's button «3» only. If the function is allowed then it automatically prohibits the work of sublevels 5.2, 5.3, 5.4 and 5.5.

Sublevel 5.2 – provides control over the ignition backup by means of the given timer channel. Timer channel can be active only when the system is disarmed and ignition is switched on. If there is no arming with a running engine within a 30 seconds period, then the timer channel is deactivated. The control is possible with the remote's button «3» only. If the function is allowed then it automatically prohibits the work of sublevels 5.3, 5.4 and 5.5.

Sublevel 5.3 – provides automatic activation of timer channel during the system arming. Default setting is «Prohibited».

Sublevel 5.4 - provides automatic activation of timer channel during the system disarming. Default setting is «Prohibited».

Sublevel 5.5 – provides trigger switching of the timer channel with the button of remote control (one pressing activates channel for unlimited period, the second one – deactivates). When this function is allowed, the other functions of sublevels 5.3 and 5.4 are not active. The control over the timer channel is performed as usual by the remote's button «3». The default setting is «Prohibited».

Sublevel 5.6 – each pressing of the remote's button «3», either short or continuous, will be followed by activation of the timer channel #1. Default setting is «Short».

Sublevel 5.7 – sets the duration of the timer channel output switching-in. For this purpose it is necessary to enter this sublevel. The indicator is off. Press and keep on holding the «VALET» button for a period equal to the necessary timer duration, but not longer than 10

minutes (indicator will shine with orange light). During the button releasing the timer's operation period will be registered. The system will memorize it and confirm this with red and green flashes of indicator. After this the indicator goes down and the system waits for a new level number input. Default setting is 0,8 seconds (optimized for use with the trunk or door lock).

LEVEL 6 – the work of timer channel #2.

Sublevels 6.1 – 6.7 are adjusted in the same manner as 5.1 – 5.7 and have the same designation. Timer channel #2, unlike channel #1, has a built-in relay and is preset to control the trunk's lock.

LEVEL 7 – the work of a distant radio alert channel (timer channel #3).

When the sublevels 7.1 – 7.4 of the given level are in «Prohibited» state no signals will be transmitted to the distant radio alert channel.

Sublevel 7.1 – provides radio alert channel switch-on when the warning level of sensors is activated. Default setting is «Prohibited».

Sublevel 7.2 – provides this alert channel activation during the system disarming. Default setting is «Prohibited».

Sublevel 7.3 – provides this alert channel activation during the system arming. Default setting is «Prohibited».

Sublevel 7.4 – provides the channel activation in the alarm mode. Default setting is «Prohibited».

Sublevel 7.5 – sets the duration of the alert channel output operating. For this purpose it is necessary to enter this sublevel. Indicator is off. Press and keep on holding the «VALET» button for a period equal to the required work duration, but not longer than 10 minutes (indicator will shine with orange light). During the button releasing the channel's operation period will be registered. The system will memorize it and confirm this with red and green flashes of indicator. After this the indicator goes down and the system waits for a new level number input. Default setting is 15 seconds.

LEVEL 8 – door locks control.

Regardless of the sublevels settings the doors locking is performed automatically during the system arming, using the settings of sublevels 8.1, 8.7.

Sublevel 8.1 – adjustment of the locks control signal duration. There are two types of duration available: 0,8 & 5 seconds. Default setting is 0,8 seconds.

CAUTION! Incorrect choice of the pulse type and duration may cause a breakdown of a vehicle's central lock. This function should be programmed only by the authorized dealers' skilled specialists.

Sublevel 8.2 – provides automatic doors locking when the ignition is switched on and doors unlock when ignition is switched off. Default setting is «Prohibited».

Sublevel 8.3 – deactivates the door unlock sensor when arming the system. This setting is intended for the system installation in the vehicles with the passenger compartment light switch-off delay. Usually operates with the delay set in sublevel 8.7. Default setting is «Prohibited».

Sublevel 8.4 – provides doors unlock when disarming the system. Default setting is «Allowed».

Sublevel 8.5 – provides doors unlock by a double pulse. If this level is set to «Allowed»,

then the doors will be opened in two steps. With the first pressing of the remote's button "2" the main unit will produce the first pulse (to open the driver's door only); the second pressing will cause the second pulse to open the rest of the doors. The duration of each pulse will correspond to sublevel 8.1. If the sublevel 8.4 is allowed: so, when disarming the system the first pulse will be sent immediately. If the sublevel 8.2 is allowed: during ignition switch-on two pulses will be sent, thus unlocking all the doors. If this level is in "Prohibited" state then the doors could be unlocked by one pulse as usual. Default setting is "Prohibited".

Sublevel 8.6 – provides doors locking by a double pulse. If this level is in «Allowed» state, then the doors always could be locked by two consequent pulses. The duration of each pulse will correspond to sublevel 8.1. Default setting is «Prohibited».

Sublevel 8.7 – adjustment of the door unlock sensor duration during the system arming (in case the 8.3 function is allowed). For this purpose it is necessary to enter this sublevel. Indicator is off. Press and keep on holding the «VALET» button for a period equal to the required work duration, but not longer than 10 minutes (indicator will shine with orange light). During the button releasing the channel's operation period will be registered. The system will memorize it and confirm this with red and green flashes of indicator. After this the indicator goes down and the system waits for a new level number input. Default setting is 15 seconds.

LEVEL 9 – special features.

Sublevel 9.1 – provides «Anti Hijack» function activation. If this function is prohibited, neither active nor passive modes of the given function could be activated from the remote control. Default setting is «Prohibited».

Sublevel 9.2 – restoring factory settings. Default setting is «Prohibited». To restore factory settings switch to «Allowed» state, activate and then shortly deactivate the ignition and the factory settings will be restored. Before ignition is activated there's still possibility to cancel this operation. For this purpose - return to «Prohibited» state.

LEVEL 10 - sensors polarity control.

Depending on the sublevels settings the sensors will respond either to positive pole closing or to a ground fault. The hood, doors and trunk sensors' polarity can be set separately. Default polarity setting of all sensors is «Negative».

Sublevel 10.1 – hood sensor polarity setting.

Sublevel 10.2 – doors sensor polarity setting.

Sublevel 10.3 – trunk sensor polarity setting.

LEVEL 11 – shock sensor sensitivity adjustment.

Sensitivity of the preliminary and alarm levels of the built-in shock sensor can be adjusted on this level. To change sensitivity enter either sublevel 11.1 or 11.2. All in all there are 50 sensitivity levels given for each level. Indicator shines constantly, the light, depending on the chosen meaning, varies slowly from green (minimal sensitivity) to red (maximum sensitivity). One pressing of the button «1» increases and one pressing of the button «2» decreases the sensitivity on one degree. The indicator blinks once at each button pressing. Then, at maximum or minimum sensitivity level it stops responding to the remote's buttons pressings.

The sensor's sensitivity can be checked immediately without exiting the given level. The warning level activation will produce three short sonic and one light signal, while the alarm level will be expressed by one continuous sonic and light signal. At this moment the indicator will produce a green flash for warning and a red one for alarm level.

Upon pressing the «VALET» button the sensitivity will be frozen and memorized by the system. The indicator will confirm this by red and green flashes then go down and the system will proceed to the next sublevel.

Default sensitivity settings – 44 degrees for preliminary level and 26 degrees for alarm level.

Sublevel 11.1 – adjustment of a built-in shock sensor's warning level sensitivity.

Sublevel 11.2 - adjustment of a built-in shock sensor's alarm level sensitivity.

At the moment of sensitivity adjustment the main unit with a built-in shock sensor should be already installed and fixed in the vehicle. This will provide the precision of adjustment. Do not fix sensitivity at the very high level; it may cause false triggering of the system.

SAFETY REQUIREMENTS

Assembling and operation of the system should be performed in strict compliance with the given manual.

IT IS PROHIBITED to connect the system to the wiring of a vehicle of another type or a vehicle having a nominal voltage other than 12V.

IT IS PROHIBITED to exclude regular fuses when connecting the alarm system to the vehicle's electric wiring.

CAUTION! All high power circuits with external relays and other actuator devices, which are not powered from the main unit of the alarm system, must have their own feed circuit fuses.

IT IS PROHIBITED to install the alarm system with a damaged output cables.

CAUTION! All the output cables connections to the vehicle wiring should be thoroughly isolated and must exclude any possibility of a short circuit during utilization or moisture ingress to the contact.

CAUTION! All the components of the alarm system should be fixed in a proper way, thus completely excluding the parts shift or movement during the drive.

CAUTION! The system components must be installed in the places safe from any accidental mechanical damage or ingress of water or aggressive liquid of any kind.

CAUTION! This alarm system is an unattended device. Do not remove its cover! In case of a breakdown it should be repaired in specialty workshops.

INSTALATION

Read the operation & assembling manual carefully before you start installing the system. The fuses must be removed from their slots during installation. Unpack the system. Chose a place for the main unit location. This place should be hard-to-get-to by a potential hijacker. The preferable place is the one that can be accessed only by means of a special instrument. So far as the main unit is equipped with a shock sensor make sure to provide its stable response.

Install the main unit using a plastic buckle or setscrews. The antenna of the main unit which constitutes a piece of a wire 17 sm. long must be stretched at full length to provide a steady signal reception. Do not connect the antenna!

If you are going to install additional (volume) sensor then choose an optimal place for its location. The sensor fixed in this place must properly and stably respond to any penetration into the vehicle. Connect sensor's cable to the terminal X6-1 of the main unit as shown in Fig.1.

Place the system's indicator on the control panel so as to provide normal observation both in the compartment and outside the vehicle and the connect cable to the terminal X2 as shown in Fig.1.

Place the «VALET» button in easy accessible but at the same time hidden place and then connect the button's cable to the connector X4 as shown in Fig.1.

Connect the system's loops with the vehicle's wiring according to the assembling manual and taking into consideration the topology of wiring. If necessary connect the main unit with the auxiliary devices, such as: central lock, window raisers and engine start-up control unit, etc.

Fix the wiring with insulation tape trying to mask it as good as possible.

Put the fuses back in their slots.

Program the system according to the owner's requests using the system programming manual.

Do not use protective diodes when connecting external relays to the main unit.

CONNECTING ADDITIONAL (VOLUME) SENSOR

Tetra-contact terminal is intended for additional bi-level (volume) sensor connection. Functionalities of the X6-1 terminal contacts are as follow below:

1 – signal input of the alarm level (-);
2 – signal input of the warning level (-);
3 – general 0V;
4 – sensor feeding +12V.

CONNECTING THE DOOR LOCKS

The system allows controlling the door locks of various types, with different type and duration of the control signal. The following types of signal and duration can be adjusted while programming the system (Clause «Programming the system» level 7):

Single signals for opening and closing (programmed separately).
Double signals for opening and closing (programmed separately).
Duration of the signals for electric locks opening/closing – 0,8 seconds.
Duration of the signals for pneumatic locks opening/closing – 5 seconds.

Incorrectly set duration of the signal for central lock control may cause damage of its elements or parts of its circuit.

For various examples of the door locks connections see diagrams 2... 10.

Diagram of connection to the central lock with control by negative pulses

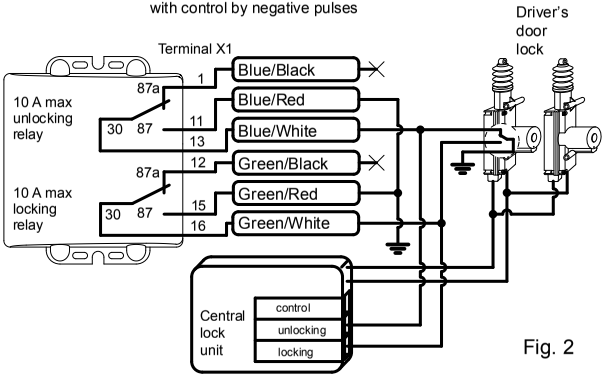


Fig. 2

Diagram of connection to the central lock with control by positive pulses

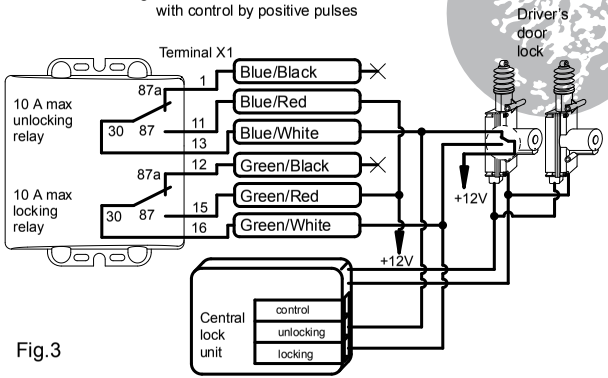
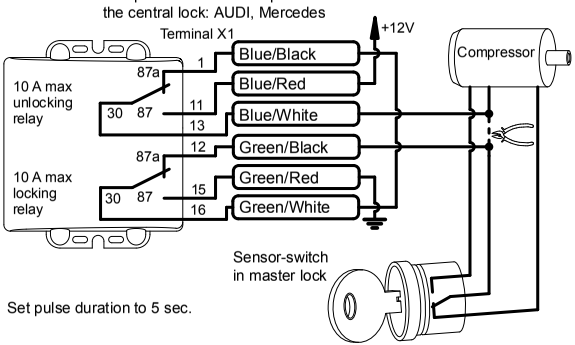


Fig.3

Diagram of connection in the vehicles with pneumoelectric compressor of the central lock: AUDI, Mercedes

Fig. 4



Set pulse duration to 5 sec.

Fig.5

Diagram of connection to the central lock controlled by positive pulses. Master-switch available in the driver's door: CHRYSLER, MERCURY SABLE

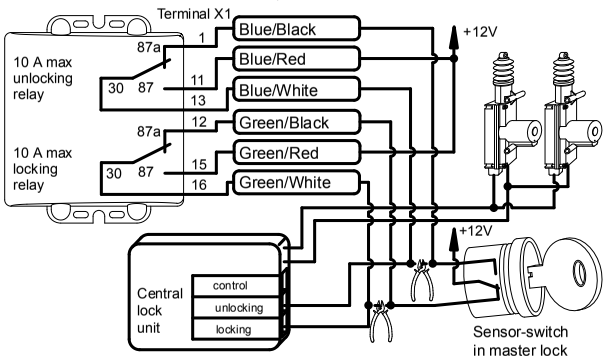


Diagram of connection to the central lock where unlocking demands negative or positive pulse and locking needs the state “open”

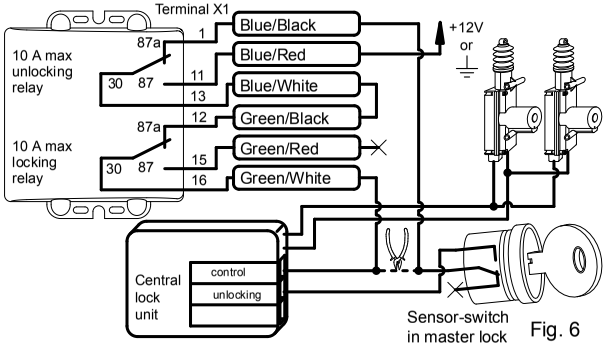


Fig. 6

Diagram of connection to the central lock where locking demands voltage of +12V, and unlocking needs +5V: FORD PROBE (MAZDA 626)

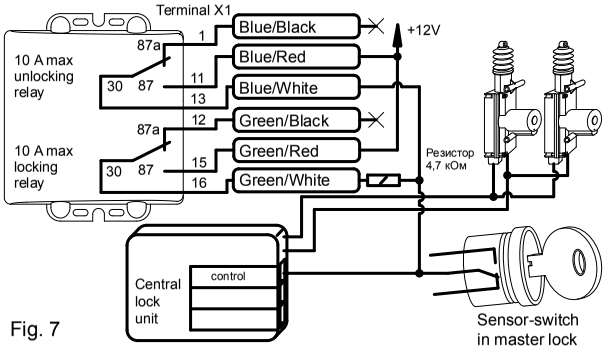


Fig. 7

Diagram of connection to the central lock where locking and unlocking demand negative control pulse: MERCEDES ML (wire from control button is on the central console)

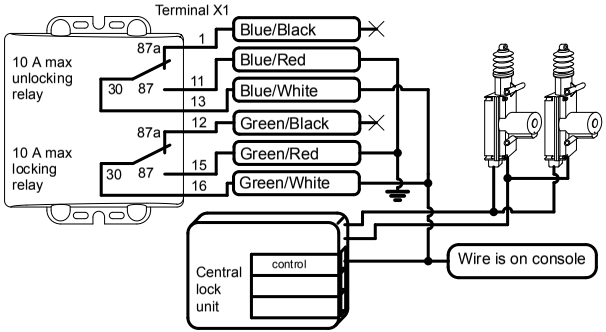


Fig. 8

Fig. 9

Diagram of connection of bi-wired door locks with polarity inversion

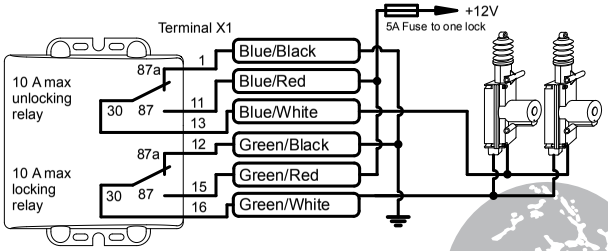


Diagram of connection of bi-wired door locks for double-step door opening

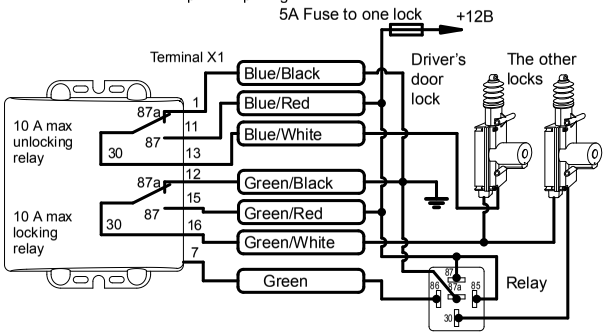


Fig. 10

Sample diagram of interlocking by normally closed relay (in programming menu factory setting of contacts type N/C)

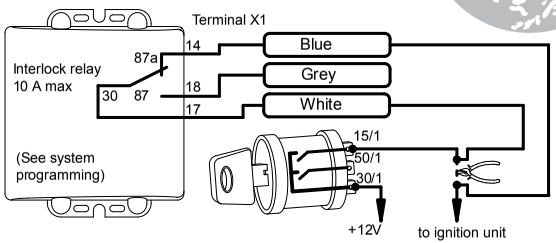


Fig. 11

Sample diagram of interlocking by normally open relay (reprogram the contacts type N/O)

Fig. 12

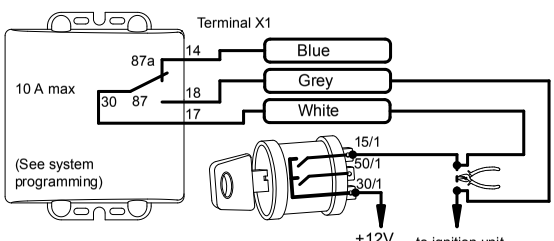
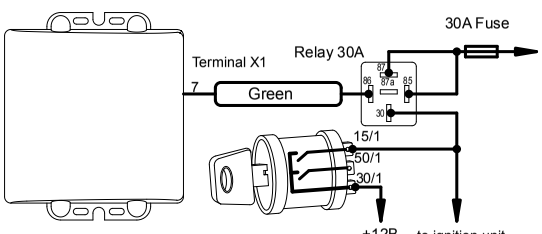


Fig. 13 Sample diagram to implement ignition backup function by means of timer channel #1 (set timer channel for this function during programming)



A two-step doors opening diagram (driver's door first – then all the other) can be implemented in two ways. If the central lock of the vehicle supports the function of control by two pulses, then the connection diagram according to the Fig. 2... 9 can be chosen while the settings of sublevels 8.5 and 8.6 should be switched to «Allowed» mode. In this case when disarming the system by the remote's button «2» only the driver's door will be opened, the rest of the doors will be opened by a second pressing of the same button. During the arming of the system all the doors will be blocked by two pulses in order not to allow their opening both from the inside and outside.

If the central lock is installed along with the system, or the already existing one doesn't support a two-step opening function, then it can be activated by means of a timer channel. The connection diagram is shown in Fig. 10. The system should be programmed as follows: sublevels 5.1 – 5.6 (6.1 – 6.6), 8.4 – 8.6 – according to the factory settings. In this case when disarming the system by the remote's button «2» only the driver's door will be opened, the rest of the doors will be opened by a short pressing of the button «3». During the system arming the doors are interlocked automatically, as usually.

INTERLOCK OUTPUTS

The main unit of the **PANDORA RX-175** alarm system is equipped with one built-in engine interlock relay. All the three contacts of relay are connected to the X1 terminal (contact 17 – relay output general, contact 14 – relay output normally closed, contact 18 – relay output normally open). This alarm system model is able to interlock engine by means of both normally closed and normally open contacts. The preferred way of interlocking is realized by choosing an appropriate diagram of connection to the vehicle wiring and setting the type of interlock (n/c or n/o) when programming the system.

Interlock by n/c contacts – during the normal vehicle operation relay contacts are always closed, they and are open in the following cases:

- The system is armed;
- The warning levels of the sensors have been activated;
- The ignition is switched on.

Interlock by n/o contacts – relay contacts are always open, and they are closed in the following cases:

- The system is disarmed;
- The ignition is switched on.

The internal relay of the main unit interlock is intended to lock the circuit of the vehicles with a current of not higher than 10A.

The interlocks are mostly installed with the following vehicle circuits:

- ignition circuit;
- starter circuit;
- gas pump electric circuits;
- sensors circuits;
- injector circuits;
- gas pump, by means of additional elecromechanical valve installation (not supplied with this set).

The typical diagrams of the engine interlock realization are shown in Fig. 11 & 12, but you have to keep in mind that the interlocks with a high break-in resistance can be done only by a non-typical approach.

Also mind that the type of interlock should not cause problems during the drive and should not decrease the vehicle's controllability. Otherwise, in case of breakdown situations the company declines all responsibility in this respect.

To feed an additional interlock relays choose such a vehicle circuits which are always capable to support the voltage of at least +12V and the mass (ground) is never disconnected.

TIMER CHANNELS

Timer channels can be used to control various executive devices of the vehicle. Timer channel #1 is withdrawn to the contact 7 of the main unit's terminal X1. Maximum current, supported by the channel, doesn't exceed 300 mA. When the channel is working there does a low voltage level exist in its output. In passive mode the output is switched off. The factory setting of this timer channel #1 is set to control the door lock with a short pressing of the remote's button "3".

Timer channel #2 is withdrawn to the terminal X5 (contact 3 – relay output general, contact 1 – relay output normally closed, contact 2 – relay output normally open). Maximum switching current of the relay doesn't exceed 10A. The factory setting of the timer channel #2 is set to control the trunk lock with a continuous pressing of the remote's button "3".

An approximate list of the devices that can be controlled by the timer channels may include the following:

- backlight (light bias);
- trunk lock;
- window raisers;
- engine start-up module;
- additional interlock;
- ignition backup control;
- etc.

Use durable external relays to connect the devices with a consumption current higher then admitted to the timer channels (not supplied with this set).

Timer channels algorithm and temporal characteristics are set during the system programming.

An approximate channels application diagrams are shown in Fig. 10, 13, 14, 15, 16.

RADIO ALERT CHANNEL

Radio alert channel is withdrawn to contact 9 of the main unit's terminal X1 and is intended for connecting power supply to the radio pager transmitter (not supplied with this set). This output is responsible for the distant alerting via radio pager. Voltage of +12V appears on the contact 9 thus switching on the transmitter of radio pager. Maximum current consumed by transmitter should not exceed 3A.

The events that may cause activation of the radio pager's transmitter are set during the system programming.

If the pager transmitter's consumption is more than 3A, then it is necessary to install an external relay (not supplied with this set). An approximate connection diagram is shown in Fig. 17. If necessary radio alert channel can be used as a timer channel #3 without control from the remote unit. For this purpose indicate its designation in the settings when programming the system.

SIREN CONNECTION

Use contact 8 of the main unit's terminal X1 to connect audio alarm. At the moment of this channel activation there is a voltage of +12V on the output. Maximum channel current is 3A. If the siren consumption is higher than the given meaning or 2 sirens are used, then they must be connected through an external relay (not supplied with this set) according to the diagram in Fig. 17.

WARNING LIGHTS CONNECTION

Use contacts 10 & 19 of the main unit's terminal X1 to connect warning lights. Maximum current of each of the channels is not higher than 5A. The channels are feeded separately from the supply of the main unit via contact 20 of the same terminal, with a fuse of 10A installed.

When installing the main unit a cable from the contact 10 of the X1 terminal is connected to the wiring of the left turn light and the contact 19 of the same terminal to the wiring of the right turn light.

If it's necessary to use the clearance light as the alarm, close the cables 10 and 19 and then connect them to the wiring of clearance light.

Sample diagram to implement ignition backup function by means of timer channel #2 (set timer channel for this function during programming)

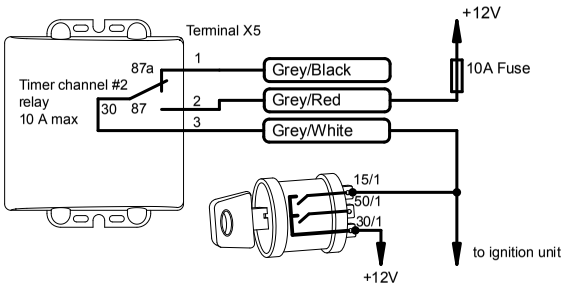


Fig. 14

Diagram of a trunk lock actuator through the timer channel #2

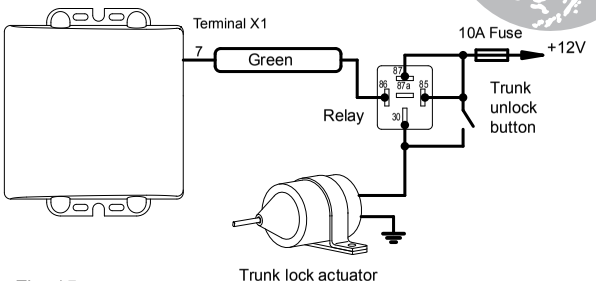


Fig. 15

Diagram of a trunk lock actuator through the timer channel #2

Fig. 16

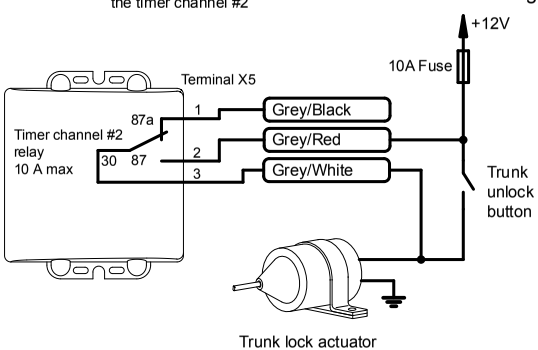
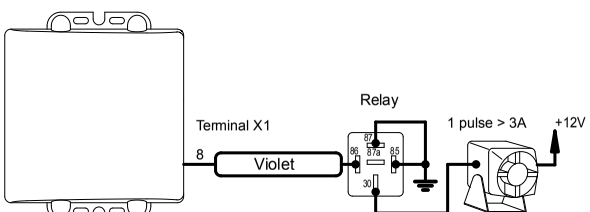


Fig. 17

Diagram of siren (pager) connection, consumption is over 3A



Pager is connected the same way to the output 9 of X1 terminal (rose)

LIMIT SWITCHES CONNECTION

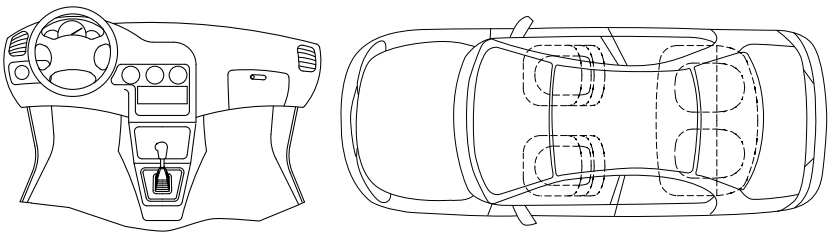
The doors limit switches are connected to the contact 4 of the main unit's terminal X1. Usually, stationary limit switches of the vehicle doors are parallel connected and the output of each switch can be connected to the main unit.

Is the vehicle is equipped with a compartment light control unit or the door switches are connected separately, then it is possible to connect the output of the compartment light to the main unit of the system. Make sure that there's always +12V on the compartment light output when the doors are open regardless of the switches position.

The main unit allows connecting the limit switches of the doors connected both to +12V and to the vehicle's mass (ground). Polarity of the switch is set during the system programming. During programming it is possible to set a delay of the limit switch arming. This is necessary for the vehicles with a delay of the passenger compartment switching on.

The hood limit switches are connected to contact 5 of the X1 terminal, and the trunk switch is connected to contact 4 of the main unit's X5 terminal. If necessary you may use the factory limit switches already installed in the vehicle by connecting them to the main unit and setting their polarity. Alternatively, you may use the limit switches supplied with the alarm system set installing them in a convenient place.

LOCATION OF THE SYSTEM MAIN UNITS



① - *Fuses*
② - *System's main unit*
③ - *Additional switches*
④ - *State indicator*
⑤ - *«VALET» button*
⑥ - *Siren*
⑦ - *Pager's transmitter*
⑧ - *Limit switches*
⑨ - *Interlocking relay*
⑩ - *Service relays*

Fill in this table upon installation. It will later help you find the elements necessary for adjustment.

CAUTION!: Keep this manual only outside the vehicle away from a potential hijacker.

ACCEPTANCE CERTIFICATE

Vehicle alarm system **PANDORA RX-175** corresponds to the technical requirements TU 4372-002-55684712-2004 and is recognized to be suitable for exploitation.

Factory # _____

Manufactured _____

Signed by the responsible

Packed by _____

Signature (personal seal)

WARANTY COUNTERFOIL

Model **PANDORA RX-175**

Factory # _____

Purchase date «____» _____ 200___

_____

ГWARANTY COUNTERFOIL

Model **PANDORA RX-175**

Factory # _____

Purchase date «____» _____ 200___

_____

TABLE OF THE SYSTEM'S PROGRAMMABLE SETTINGS

Factory settings are marked with a grey background.

Level name	Level and sublevel	Indicator	
		RED	GREEN
Memorizing the remote controls	1. By-turn recording (up to 4 pcs.)	See description	
Secret code entering	2. A new code input	See description	
Work of siren	3.1 Siren's signal at the warning level of sensor	PROHIBITED	ALLOWED
	3.2 Siren's signal at "Alarm" and "Panic" mode	PROHIBITED	ALLOWED
Functions of immobilizer and automatic arming	4.1 Activation of immobilizer after disarming	PROHIBITED	ALLOWED
	4.2 Automatic rearming	PROHIBITED	ALLOWED
	4.3 Passive arming	PROHIBITED	ALLOWED
	4.4 Interlock relay contacts type	NORMALLY OPEN	NORMALLY CLOSED
Work of timer channel #1	5.1 Trunk lock control over the timer channel	PROHIBITED	ALLOWED
	5.2 Ignition backup function	PROHIBITED	ALLOWED
	5.3 Activation of the channel during the arming	PROHIBITED	ALLOWED
	5.4 Activation of the channel during the disarming	PROHIBITED	ALLOWED
	5.5 Timer channel constantly "on"/"off" by remote's button "3"	PROHIBITED	ALLOWED
	5.6 Type of button "3" pressing to activate the channel	CONTINUOUS	SHORT
	5.7 Timer channel work duration (max. 10 min.)	0,8 seconds	
Work of timer channel #1	6.1 Trunk lock control over the timer channel	PROHIBITED	ALLOWED
	6.2 Ignition backup function	PROHIBITED	ALLOWED
	6.3 Activation of the channel during the arming	PROHIBITED	ALLOWED
	6.4 Activation of the channel during the disarming	PROHIBITED	ALLOWED
	6.5 Timer channel constantly "on"/"off" by remote's button "3"	PROHIBITED	ALLOWED
	6.6 Type of button "3" pressing to activate the channel	CONTINUOUS	SHORT
	6.7 Timer channel work duration (max. 10 minutes)	0,8 seconds	
Work of the distant radio alert channel (timer channel #3)	7.1 Channel activation at the warning level	PROHIBITED	ALLOWED
	7.2 Channel activation during system disarming	PROHIBITED	ALLOWED
	7.3 Channel activation during system arming	PROHIBITED	ALLOWED
	7.4 Channel activation at the alarm level	PROHIBITED	ALLOWED
	7.5 Radio alert channel work duration (max. 10 min.)	15 seconds	
Door locks control	8.1 Doors control signal duration	0,8 seconds	5 seconds
	8.2 Doors lock/unlock when ignition is on/off	PROHIBITED	ALLOWED
	8.3 Limit switch deactivation during the system arming	PROHIBITED	ALLOWED
	8.4 Doors unlock during the system disarming	PROHIBITED	ALLOWED
	8.5 Doors unlock by a double pulse	PROHIBITED	ALLOWED
	8.6 Doors lock by a double pulse	PROHIBITED	ALLOWED
	8.7 Doors limit switches deactivation delay during arming (max.10 min.)	15 seconds	
Specialty functions	9.1 "Anti Hijack" function	PROHIBITED	ALLOWED
	9.2 Factory settings reset	PROHIBITED	
Sensors polarity control	10.1 Hood sensor polarity	NEGATIVE	POSITIVE
	10.2 Doors sensor polarity	NEGATIVE	POSITIVE
	10.3 Trunk sensor polarity	NEGATIVE	POSITIVE
Shock sensor sensitivity	11.1 Warning level adjustment	See description	
	11.2 Alarm level adjustment	See description	

Connection diagram of **PANDORA RX-175** alarm system

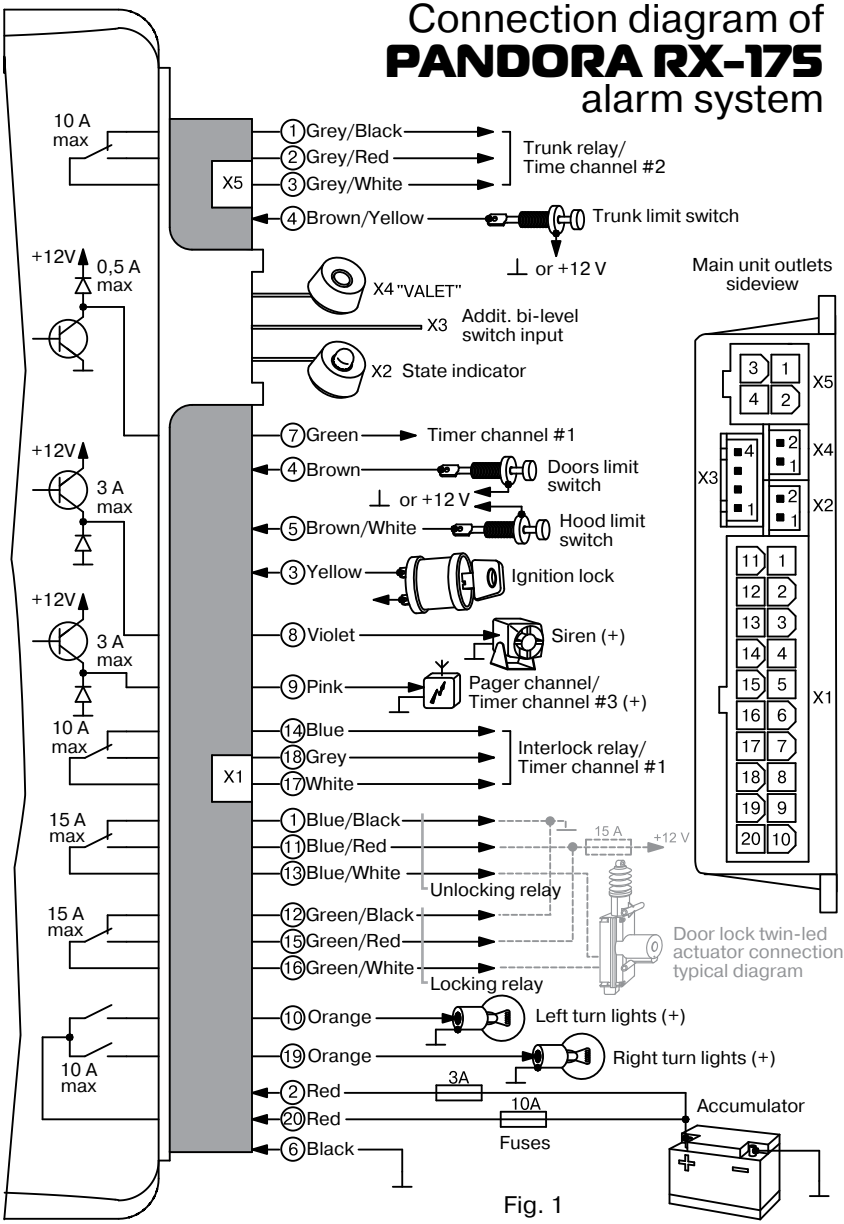


Fig. 1