

Pandora would like to thank you for choosing our DXL-0090L service and security system

Pandora is a brand of Russian Experimental Engineering Factory, a full production cycle electronics R&D facility. We design and produce car service-security systems for more than 10 years and have reached a considerable success on domestic markets – biggest security system markets in the world. Our systems are made to withstand severe weather conditions and criminal situation of northern Eurasia.

Pandora DXL-0090L is a premium car service-security system, built for cars with on-board voltage of 12V. It is a complex engineering solution which includes car security system, telemetry, remote and automatic engine start and various service options, all accessible via RF control remote that can replace your factory remote. This system is designed to be all-in-one car service and security solution and requires no additional modules: it includes algorithmic keyless bypass that works with many popular car models. For even more convenience, it allows remote control over Webasto or Eberspaecher preheaters – and even sequential use for automatic engine start.



WARNING!
IT IS STRONGLY ADVISED TO HAVE PROFESSIONAL CAR MECHANIC INSTALLING THE SYSTEM. CERTIFIED INSTALLERS ARE RARE OUTSIDE RUSSIA, BUT ANY CAR ELECTRONICS INSTALLER SHOULD BE ABLE TO INSTALL PANDORA DXL-0090L USING INSTALLATION SCHEME IN THIS MANUAL AND ALARMSTUDIO SOFTWARE. MOST FEATURES ARE HIGHLY DEPENDENT ON COMPETENT INSTALLATION. OUR SYSTEMS ARE THOROUGHLY TESTED FOR QUALITY, SO IF A FEATURE FAILS TO PRODUCE EXPECTED RESULTS, MOST LIKELY THE PROBLEM IS IN IMPROPER INSTALLATION.

It is essential for systems functioning that you read and understand instructions in this manual. Note that all radio devices are subject to interference, which could affect proper performance.

This device has limited external factors resistance. It should not be subjected to water beyond occasional splatter, or operated in temperatures outside -40 to +80 °C range.

IMPORTANT! Note that this manual describes remote and manual functions for the most part. Functionality of the system is vast and would require a book-sized manual to fully describe. Instead we use a handy software named AlarmStudio that functions as both programming tool and an extended installation & functionality manual. It requires Windows and can be downloaded at pandorainfo.com

Product is in conformity with Electromagnetic Compatibility
Directive EMC 2004/108/EC and R&TTE Directive 1999/5/EC



Table of contents

System features	4
System set	5
Control remotes	6
LED indicator signals	7
Quick access functions of the main control remote	7
Icons of remote	8
Arming procedure	10
Disarming procedure	10
Control over system in case of emergency	11
Unlocking the trunk	12
Locking/unlocking doors when the engine is running	12
Car search function	13
Delayed arming (Hands Free mode)	13
PANIC mode	14
Remote and automatic engine start	14
System settings menu	17
Engine preheater	19
Timer channels	19
Car status control	21
Event history	21
Automatic engine start	22
Wiring diagram	24
Wiring description	27
Shock sensor settings	30
Motion sensor settings	31
Tilt sensor settings	32
Siren signal settings	32
Sound notification settings	33
Radio channel control settings	34
Maintenance/valet mode	35
Time settings	35
Alarm settings	36
Checking the number of recorded remotes	36
Replacing a battery in the remote	36

Changing the factory preset service PIN-code	37
Changing core settings	38
Siren sounds and turn light signals	44
Meaning of indicator LED colors	44
Glossary of terms	45
Warranty obligations	46
Installation certificate	47
Acceptance certificate	48
Warranty card	48

System features

2-way LCD remote

- Arming and disarming security system using separate buttons.
- Controls status of 10 independent security zones.
- Vibrating alert.
- 16 notification ringtones.
- OLED-display
- Vibration confirmation of the button press.
- AAA battery (1,5V) (not shipped with the system).
- Battery level indicator.
- Current time indication.
- Time synchronizes with the base unit for exact time stamp in the event history.
- Engine* and interior temperature, voltage and fuel level indication.
- Prompt remote access to the settings of shock sensor.
- Prompt remote access to the settings of motion sensor.
- View event history with time and event stamps.
- Automatic control of RF coverage zone.

Base unit

- Dialog coding of control commands sent at a frequency of 868 MHz.
- Individual 128-bit encryption key.
- Event history with exact time stamps is stored in the base unit and is transferred to the remote when it is in range.
- Can be complemented with BM-103/105 single-wire digital block relay.
- Built-in integral accelerometer for determining motion and shocks with adaptive processing algorithm and sensitivity controls via the remote.
- Monitoring of on-board voltage.
- Separate inputs for hood and trunk sensors.
- Advanced processing of sensor data, eliminating false alarm possibilities.
- Precision measurement of interior and engine* temperature, displayed on the remote.
- Sequential unlocking of the doors.
- Arming when the engine is running.
- Automatic arming.
- Registers delay for interior lighting when arming.
- Software updates via built-in micro-USB socket.

* Engine temperature indication is available only if temperature sensor is connected. The sensor availability depends on the system set.

Car security zones

Pandora DXL-0090L service-security system guards following independent zones with corresponding zone notifications on the remote and recording alarms into the event history:

- car doors perimeter (separate for every door)
- front hood triggers
- trunk triggers
- ignition trigger
- brake pedal button
- triggering of the shock sensor (warning level)*
- triggering of the shock sensor (alarm level)
- triggering of the motion sensor
- triggering of the tilt sensor
- critically low on-board voltage

All* alarm events are recorded into system's non-volatile memory with coordinates, date and exact time the event happened. Event history can be read using a remote.

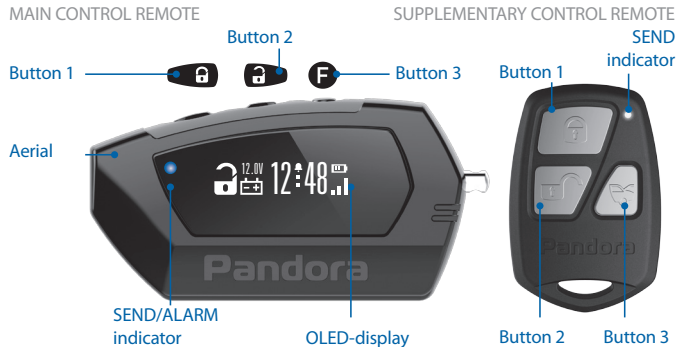
System set

1. Base unit	1
2. Main control remote with LCD	1
3. Plastic card with personal PIN-code	1
4. Supplementary control remote without LCD	1
5. Main cable	1
6. Cable with three-colored light indicator	1
7. Cable with VALET button	1
8. LIN interface wire	1
9. Fastening kit	1
10. User installation manual with wiring diagram	1
11. Relay automatic start module	1
12. Temperature sensor	1
13. Packaging	1

Manufacturer reserves the right to change set and construction of the product to improve its technological and operational parameters without notification.

* Triggering of the warning level of shock sensor is not saved in the event history.

Control remotes



Two-way remote is the main mean of control over the system.

For easily distinguishable notifications the remote uses 16 ringtones. Each ringtone matches particular event.

Remote has flashing LED indicators for additional information.

The remote is fully operational when shipped. To switch the remote on, press and hold **F** button for 3 seconds. **'REMOTE ON'** ringtone will play. Pressing and holding this button again for 3 seconds will cause the remote to switch off.



WARNING!

ALL CONTROL COMMANDS ARE TRANSMITTED VIA RADIO CHANNEL, FOR MAXIMUM EFFECTIVENESS AND RANGE IT IS RECOMMENDED NOT TO SHIELD AERIAL AREA (SEE PICTURE) WITH FINGERS WHEN USING A REMOTE.



WARNING!

REMOTE IS A UNIFIED CONTROL DEVICE. REMOTE CONTROL FUNCTIONS DEPEND ON SECURITY SYSTEM MODEL.

LED indicator signals








Green Send indicator










- Flashes occasionally if there is a connection.
- Goes dark when there is no connection.

Red Alarm indicator

- Flashes frequently if there is any notification.
- Flashes occasionally when there is no connection.

Quick access functions of the main control remote

	System disarmed		System armed (no alarm events)
	Engine is running	Engine is stopped	
 (short press)	Lock doors without arming	Arming with sound confirmation	Search mode – car will flash turn signals and sound horn for 5 seconds
 (1 sec.)		Arming without sound confirmation	Search mode – car will flash turn signals without any sounds for 5 seconds
 (2 sec.)	Switch on ignition support		
 (3 sec.)	Switch on programmed neutral		Remote engine start
 (short press)	Unlock doors	Unlock doors	Disarming with sound confirmation
 (1 sec.)		Unlock doors	Disarming without sound confirmation
 (>2 sec.)	Switch off ignition support		Switch off ignition when turbo timer, remote or automatic engine start is active
F (short press)	Switch on LCD lighting (available only on the remote with LCD)		

 (1 sec.)	Unlock trunk (CH1)		
 (2 sec.)	Switch on/off timer channel (CH2)		
 (3 sec.)	Switch on/off remote (available only on the remote with LCD)		
 +  (short press)	PANIC mode		
 +  (short press)	Arming when the engine is running with sound confirmation	Arming in 30 seconds (Hands Free mode) with sound notification	
 +  (1 sec.)	Arming when the engine is running without sound confirmation	Arming in 30 seconds (Hands Free mode) without sound notification	

Icons of remote



◀ Flashing when command sending

12:48

◀ Numeric indicator. Displays current time



◀ Security mode status



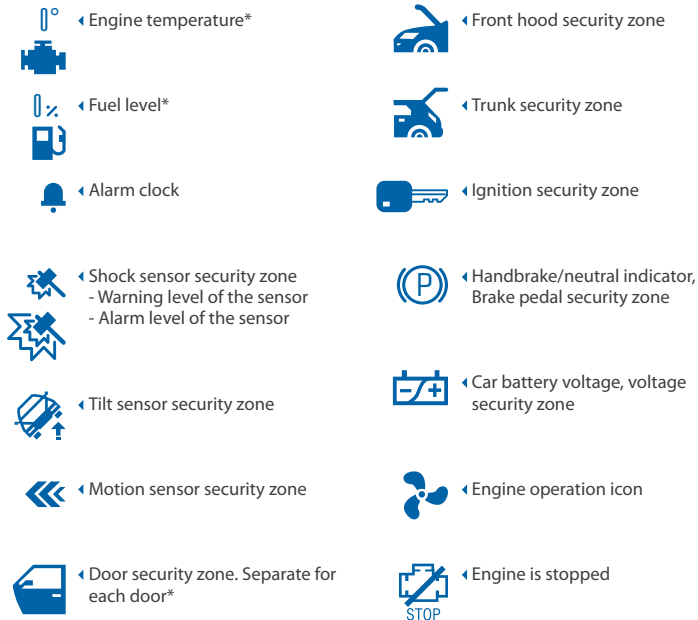
12.0V ◀ Battery voltage



◀ Remote battery level





12° ◀ Interior temperature

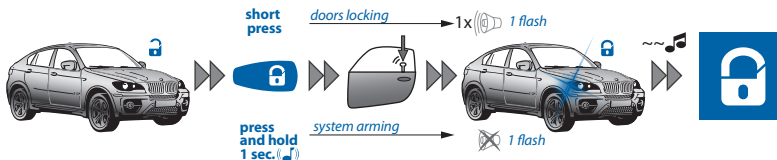


*Separate display indication of doors, original alarm status, fuel level depend on information in CAN-bus digital protocol of specific car.

Arming procedure

Arming the system allows monitoring of all security zones, locks the doors and blocks the engine.

To arm the system when the engine is stopped, shortly press  button on the remote. The siren will sound and turn signals will flash once. The remote will play 'ARMING' ringtone and security mode status icon (the lock) will change to: 

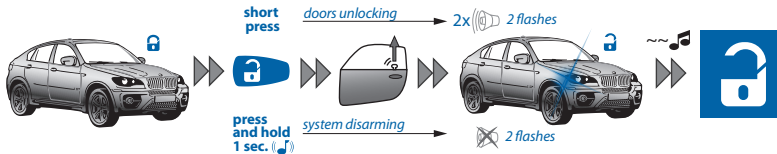




For arming without sound confirmation press  for more than 1 second.


If when arming doors, hood or trunk were open, the siren will sound 4 short signals instead of 1, turn signals will flash 4 times, remote will play 'WARNING!' ringtone (after 'ARMING' ringtone) and will show troubled zone. This zone sensor will be disabled at that moment. Sensor will be armed again in 15 seconds after the zone was set right.

For emergency arming when engine is running, press and hold VALET button for 3 seconds until the system confirms with red LED indicator flash. A car will be armed in 30 seconds.

Disarming procedure



To disarm the system, shortly press  button on the remote. You will hear 2 short siren sounds and will see 2 flashes of turn signals. The remote will play 'DISARMING' ringtone and security mode status icon will change to: 

For disarming without sound confirmation press  button for more than 1 second.

If there were new alarming events during the time system was armed, siren will sound 4 times, and turn signals will flash 4 times, the remote will sound 'WARNING!' ringtone (after 'DISARMING' ringtone) and will indicate zones triggered. All recent alarm events can be viewed in the event history.

Control over system in case of emergency

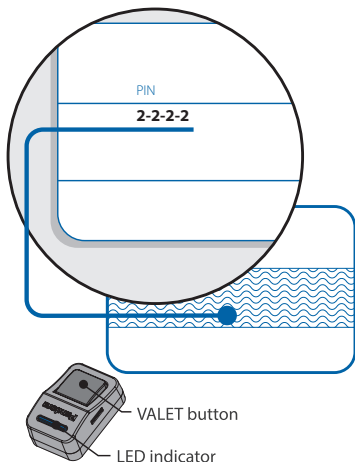
In case you cannot disarm the system using a remote or tag, owner's individual PIN-code can be used.

Individual PIN-code is written on the owner's plastic card under protective layer. Erase the protective layer and use **VALET** button to input the PIN-code.

1. Using **VALET** button, input the first digit of the code (press the button a number of times, equal to the first digit; pauses between presses should not exceed 1 second). The system will confirm with red LED indicator flash.

2. Similarly input second, third and fourth digit. Every input will be confirmed with red LED flash.

3. The system will confirm correct PIN-code with red and green flashes of LED indicator. If the input was incorrect, it will be indicated with long red flash. New input can be attempted in 5 seconds.



WARNING!
MAKE SURE THAT PROTECTIVE LAYER ON THE OWNER'S PLASTIC CARD IS INTACT AFTER THE SYSTEM INSTALLATION.



WARNING!
CAREFULLY REMOVE THE PROTECTIVE LAYER, DO NOT USE SHARP OBJECTS TO AVOID DAMAGING OF HIDDEN INFORMATION UNDER A PROTECTIVE LAYER.

4. If the system was armed, it will be disarmed after entering correct PIN-code.

Unlocking the trunk





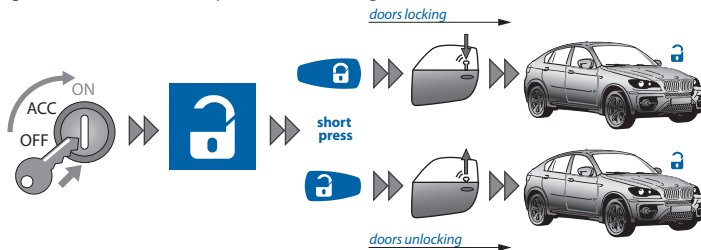
To independently unlock the trunk, no matter if the system is armed or not, press **F** button and hold it for 1 second.

If the system is armed when this action is performed, the trunk will be disarmed, shock and supplementary sensors of the trunk will be disabled. All the other security zones will remain armed.

If the trunk was not opened in 15 seconds after using 'unlock trunk' command, the system will lock it again, enable sensors and arm trunk security zone. This will be indicated with 1 flash of turn signals.

Locking/unlocking doors when the engine is running

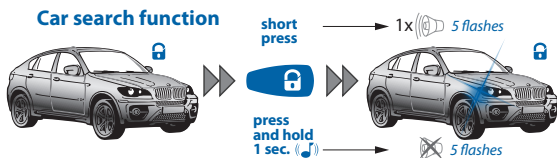
The system controls doors locking when the engine is running. To lock doors, shortly press  arming button, to unlock doors, press  disarming button.



There is an automatic movement lock mode that will lock the doors at the car movement and will unlock them when the ignition is being switched off. Immediately after the ignition is switched off, doors will be unlocked.

When using doors locking mode at the car's movement start, the system will fix car moving and perform doors locking (it depends on motion sensor sensitivity settings).

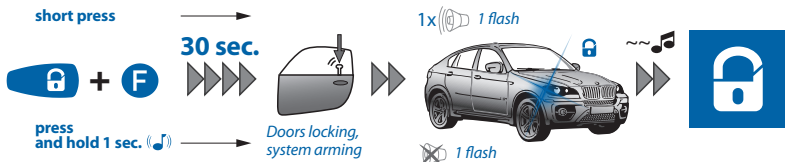
When using doors locking mode when the ignition is being switched on, in no less than 5 seconds after the ignition was switched on, the doors will be locked automatically. If any door was opened after the ignition had been switched on, automatic locking will be disabled to prevent locking the keys inside the car.



To easily find your car on a massive parking, shortly press when the car is armed. The system will sound the siren and flash turn signals 5 times in a row.

To search for car without sound confirmation, press and hold button for more than 1 second.

Delayed arming (Hands Free mode)

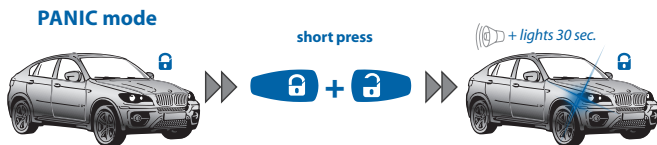


If when leaving the car you cannot arm it using a remote (you have your hands full), you can use **delayed arming**.

To activate this mode, shortly press **Ⓛ** and **F** simultaneously. LED indicator will turn red, the system will lock doors and will arm in 30 seconds, the siren will sound and turn signals will flash once, indicating that the mode is triggered.

To activate this mode without sound confirmation, press and hold both **Ⓛ** and **F** for 1 second until the sound and vibration signal.

To cancel delayed arming when it is triggered, simply press **Ⓛ**.



If your car or you are in danger and you want to draw attention to your car, you can use **PANIC mode**. In this mode the siren will sound and turn signals will flash repeatedly for 30 seconds. To trigger PANIC mode, press **Ⓛ** and **Ⓛ** simultaneously. To switch it off, press either **Ⓛ** or **Ⓛ**.

Remote and automatic engine start

The system allows for **remote engine start** using remote engine start command or **automatic engine start** using preconfigured automatic engine start function. Remote start can be used to heat engine and interior, charge battery or to cool the interior with air conditioning.

Remote and automatic start can only be used when the system is armed.

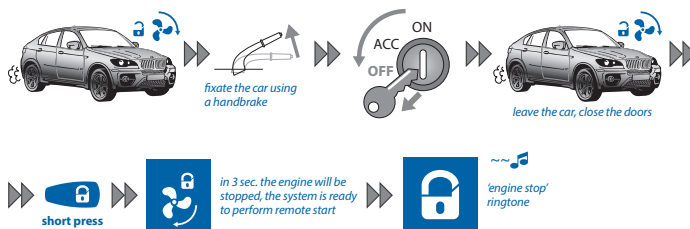
If the car has manual transmission, remote or automatic start will only occur if **programmed neutral procedure** was followed when the car was arming.

Remote and automatic engine start on automatic transmission cars will only occur, if transmission selector lever was left in a 'P' position.





When using remote and automatic engine start functions, make sure that the car is secured with handbrake or some other means of fixing the car on a parking position.

While system is in remote and automatic start mode, it keeps performing all security functions save for shock sensor, which will have lower sensitivity during engine start and for a short time after while algorithm adjusts to the new normal. To compensate, motion sensor sensitivity, responsiveness and range will be increased. If any security zone will be triggered, the engine will be immediately stopped and alarm mode will be entered. Herewith all immobilizer functions will be activated.




Programmable neutral procedure (for cars with manual transmission)



If you are planning to use remote and automatic engine start on a car with manual transmission, before arming you will need to perform following actions:



1. While the engine is running, fixate the car with the handbrake and put manual transmission lever (shift-stick) to the neutral position. Programmable neutral procedure will be switched on automatically (it depends on the system settings), press and hold  button for 3 seconds to switch on this program.
2. Turn the key in the ignition lock to the **OFF** position (**the engine should still be running**) and take it out of the lock.
3. Leave the car, close the doors.
4. Press  button to arm the car and lock the doors. On LCD remote the engine operation icon  will be spinning and security mode status icon  will light.
5. The engine will be stopped. Now the system is ready to perform remote and automatic engine start.

Remote engine start


If the system is prepared for remote start, to execute it, press and hold  for 3 seconds. Sound signal will confirm the command, LCD will show flashing engine operation icon  signifying preparation to the engine start. In a few seconds the engine will be started, the remote will play 'ENGINE START' ringtone and show spinning engine operation icon .

Engine operation duration depends on system settings – either heating time or threshold temperature for engine stop.



To remotely stop the engine while it performs heating, press and hold  for 2 or more seconds. The engine will be immediately stopped and it will be confirmed by remote playing 'ENGINE STOP' ringtone and engine operation icon  fading.



The remote will give notification 1 minute before designated engine stop:  icon will flash and 'ENGINE STOP IN 1 MINUTE' ringtone will play every 10 seconds. If the engine was started using remote or automatic start, remote engine start command will extend its operation period by 10 minutes.

This procedure can be repeated multiple times.

System settings menu

Enter the main menu with **F** button short press. To switch between menu sections, shortly press **F** button.

F entering settings menu



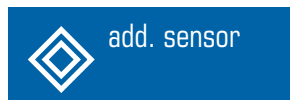
Control over engine preheater

F



Remote and automatic engine start adjusting

F



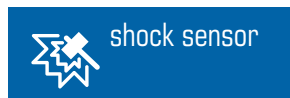
Additional sensor adjusting*

F



Control over timer channels

F



Shock sensor adjusting

F



Control over car status,
view event history

F



Motion sensor adjusting

F





Tilt sensor adjusting



Maintenance mode of the car



Siren signals adjusting



Time setting



Sound notifications of the remote



Alarm clock setting



Radio channel control



Alarm clock time adjusting



Antihijack mode*






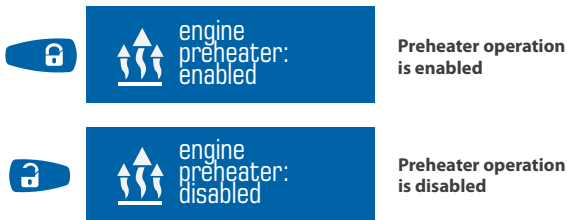
F Exit settings menu

To exit menu, press and hold **F** button for 1 second

* The function is not available in this model

Engine preheater

To switch on engine preheater, select **Engine preheater** menu and shortly press  button. To switch off preheater, shortly press  button. If preheater monitoring is connected and enabled, LCD will display  icon during engine preheater operation.




Timer channels

Timer channels (see glossary) can be used to implement additional functions and to control external devices. Timer channels can be adjusted via special piece of software – **Pandora AlarmStudio**.

AlarmStudio can be downloaded from the official company web-site pandorainfo.com

To enter **Timer channels** menu, shortly press  button. The following presses of  button will cause switching between channels.

To activate/deactivate the channel, shortly press  button.

To exit menu, press and hold  button for 1 second.

1	2	3
4	5	6
7	8	9

channel
controls



1

channel 1
disabled



1

channel 1
enabled



2

channel 2
disabled



2

channel 2
enabled



3

channel 3
disabled



3

channel 3
enabled



4

channel 4
disabled





4

channel 4
enabled




Car status control



To receive information about engine, interior temperature, battery voltage and fuel level, select **System controls** menu and shortly press  button. To exit menu, press and hold  button for 1 second.

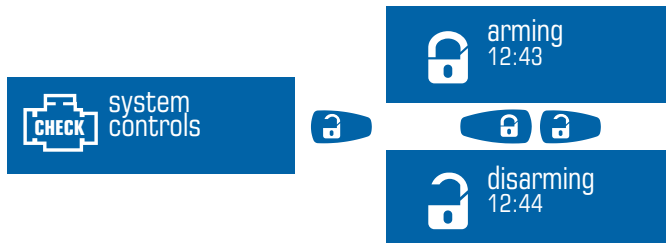


NOTE: Engine start via temperature is available only if temperature sensor is connected. The sensor availability depends on the system set. Fuel level will only be shown if it can be read from CAN-bus or if there is additional connection.

Event history





To view event history in the system's memory, select **System controls** menu, then shortly press  button.



Navigate several last events using  (forward) and  (back). Events are displayed by showing time of the event and flashing corresponding trigger zone indicators.



Automatic engine start

The system allows setting up modes of automatic engine start and stop. Synchronized real-time clock on the remote and base unit and other autonomous system settings allow many engine start options without needing to have the remote in command radio range.

Automatic start and engine work conditions programming is done using LCD remote. Shortly press  button to enter **Remote start settings** menu. Shortly press  button to switch between menu sublevels. Sub-level values are changed using  and .

When changing settings are done, the values should be saved. To do this, proceed to Send settings sublevel by pressing of  button and press  button to save new settings. Changes will be sent to the base unit, it will be confirmed with double sound signal of the remote.

To exit menu, press and hold  button for 1 second.

NOTE: If you have not saved new settings, remote and automatic engine start settings will remain the same as before.

NOTE: Engine start via temperature is available only if temperature sensor is connected. The sensor availability depends on the system set.



WARNING!
ONLY ENABLE REMOTE START IF YOUR LOCAL LEGISLATION ALLOWS DRIVERLESS CARS TO HAVE WORKING ENGINE.

 remote
start settings



F

 start
by time:
enabled



 start
by time:
disabled

F

 start time:
07:30

hours



minutes

F

 start by
temperature:
enabled



 start by
temperature:
disabled

F

 start
temperature:
- 20°

increase



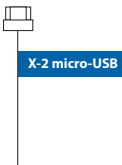
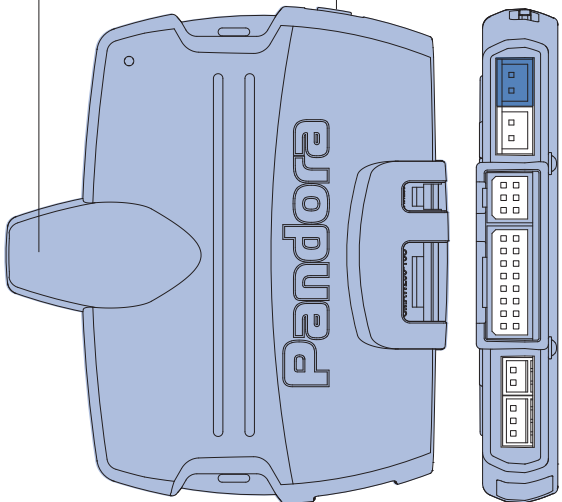
decrease

F



WARNING!
Do not accidentally
shield the antenna!

VALET
BUTTON



X-7 Keyless bypass

1	Green	IN
2	White	
3	Black	IN

X-6 LED indicator

X-5 Relay module

1	Blue
2	Orange
3	Brown
4	Green
5	Yellow
6	Red

X-4 Main socket

1	White
2	Red/Black
3	Orange/White
4	Yellow/White
5	Grey
6	Green
7	Blue/White
8	Black
9	Blue
10	Brown/White
11	Orange/Black
12	Yellow/Black
13	Blue/Black
14	Yellow
15	Purple
16	Red

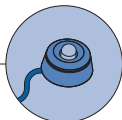
X-3 Temperature sensor

Pandora

MODEL: DXL-0090L

IMMO-KEY1

IMMO-KEY2



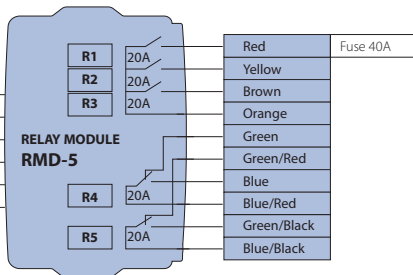
LED INDICATOR

Module

Engine	(-)	OUT-7 • ENGINE BLOCK
Ignition	(-)	OUT-6 • ACCESSORIES
Ignition	(-)	OUT-9 • IGNITION
Ignition	(-)	OUT-8 • KEYLESS BYPASS
Starter	(-)	OUT-10 • STARTER
Power	+ 12V	POWER +12V

Socket

Item	3...100V min 8Hz	TACHOMETER
Black	(-) 200mA	OUT-5/INP-7 • OPEN TRUNK
White		CAN1-HIGH
White	(-) 150mA	CAN2-HIGH • OPEN DOORS
White	(-)	INP-2 • DOOR TRIGGERS
White	(-) 200mA	OUT-3 • TO TURN SIGNALS
White	(+)	INP-5 • BRAKES/FUEL CONTROL
Black	(-)	GROUND
White	(-)	INP-4 • HANDBRAKE/NEUTRAL
White	(-)	INP-3 • HOOD PIN
Black		CAN1-LOW
Black	(-) 150mA	CAN2-LOW • LOCK DOORS
Black	(-) 200mA	OUT-1/INP-1 • TRUNK TRIGGER
White	(+)	INP-6 • TO IGNITION SWITCH
White	(+) 2A	OUT-11 • SIREN
White	(+) Fuse 3A	POWER +12V



WARNING!!!

Total current relay R1 + R2 + R3 should not exceed 40A!

WARNING!!!

For proper installation a connected laptop with AlarmStudio software is required. Switch the system to programming mode (see page 39) and select your car model in AlarmStudio for detailed installation instructions. AlarmStudio can be downloaded from pandorainfo.com

* See 'System set' on page 5

X-1 Engine Preheater

1	White	LIN OUT
2	Black	LIN IN



TEMPERATURE SENSOR DS-1820*

 work
duration:
20 min

F

increase



decrease

 daily
start:
enabled

F



 daily
start:
disabled

 stop by
temperature:
enabled

F



 stop by
temperature:
disabled

 stop
temperature:
80°

F

increase



decrease

 send
settings



set selected modes

F

return to the beginning of the settings

Wiring description

X-4 socket (main)

Wire 1 (White) (tachometer input) It is analog input that should be connected to wire of tachometer or signal wire of injector, a wire with stable impulses of any polarity that correspond with motor shaft rotation frequency.

Wire 2 (Red-black) (OUT-5/INP-7) Factory setting is 'Open trunk'. Negative output of additional channel with maximum load capacity 200mA. This output is multipurpose, it can operate in accordance with selected logic.

Wire 3 (Orange-white) ('CAN-High') It connects to appropriate CAN-High wire of the car.

Wire 4 (Yellow-white) (OUT-4) Factory setting is 'Open central lock'. A negative impulse of 0,8 seconds is formed on the wire to open central lock. Negative output of additional channel with maximum load capacity 200mA. This output is multipurpose, it can operate in accordance with selected logic.

Wire 5 (Grey) (INP-2) Factory setting is 'Door switches'. This wire connects to a wire that becomes grounded when the door opens. This input is multipurpose, it can operate in accordance with selected logic.

Wire 6 (Green) (OUT-3) Factory setting is 'Control turn indicators'. This wire connects to the hazard flashers button. Negative output of additional channel with maximum load capacity 200mA. This output is multipurpose, it can operate in accordance with selected logic.

Wire 7 (Blue-white) (INP-5) Factory setting is 'Brake On/Off switch'. This wire connects to the brake pedal button where 12V voltage appears when the pedal is pressed (stop lights wire). Brake pedal signal is one of the system's security zones. This input is multipurpose, it can operate in accordance with selected logic.

Wire 8 (Black) (ground) It should be connected to the car body in a grounding spot. This wire should be connected FIRST during installation.

Wire 9 (Blue) (INP-4) Factory setting is 'Neutral/Handbrake'. This wire connects to appropriate wire

of the car (preferably handbrake button). This input is multipurpose, it can operate in accordance with selected logic.

Wire 10 (Brown-white) (INP-3) Factory setting is 'Front hood limit switch'. This wire connects to appropriate wire that becomes grounded when the front hood opens. This input is multipurpose, it can operate in accordance with selected logic.

Wire 11 (Orange-black) ('CAN-Low') It connects to appropriate CAN-Low wire of the car.

Wire 12 (Yellow-black) (OUT-2) Factory setting is 'Close central lock'. A negative impulse of 0,8 seconds is formed on the wire to close central lock. Negative output of additional channel with maximum load capacity 200mA. This output is multipurpose, it can operate in accordance with selected logic.

Wire 13 (Blue-black) (OUT-1/INP-1) Factory setting is 'Trunk limit switch'. This wire connects to appropriate wire that becomes grounded when trunk opens. This output is multipurpose, it can operate as input or output in accordance with selected logic.

Wire 14 (Yellow) (INP-6) Factory setting is 'Ignition'. This wire connects to ignition switch or to appropriate wire where 12V voltage appears when ignition is enabled and doesn't disappear until the moment ignition is disabled. This input is multipurpose, it can operate in accordance with selected logic.

Wire 15 (Purple) ('siren') It connects to siren control wire (+) (maximum load current is 2A). This channel is multipurpose, it can operate as input or output in accordance with selected logic.

Wire 16 (Red) ('Power supply' 12V) It should be connected to reliable conductor with constant voltage of 12V.

X-5 socket (start relay module)

Wire 1 (Blue) (OUT-7) Factory setting is 'N.O. blocking'. The channel is used to control blocking relay with normally open logic (it becomes grounded when switching on the ignition and security system is not armed). A negative output of additional channel with maximum load capacity 200mA. This output is multipurpose, it can operate as input or output in accordance with selected logic.

Wire 2 (Orange) (OUT-6) Factory setting is 'Accessories'. The channel is used to control accessories. If 'Car with START/STOP button' setting is enabled, the channel will control brake pedal during remote or automatic engine start. A negative output of additional channel with maximum load capacity 200mA. This output is multipurpose, it can operate as input or output in accordance with selected logic.

Wire 3 (Brown) (OUT-9) Factory setting is 'Ignition'. This output is used to switch on ignition. It allows for automatic engine start, turbo timer, ignition support and connecting to ignition in the break. If 'Car with START/STOP button' setting is enabled, the channel will operate in impulse mode to control the button. A negative output of additional channel with maximum load capacity 200mA. This output is multipurpose, it can operate as input or output in accordance with selected logic.

Wire 4 (Green) (OUT-8) Factory setting is 'Bypass'. Output activates during remote or automatic engine start. A negative output of additional channel with maximum load capacity 200mA. This output is multipurpose, it can operate as input or output in accordance with selected logic.

Wire 5 (Yellow) (OUT-10) Factory setting is 'Starter'. This output is used to switch on starter of the car. A negative output of additional channel with maximum load capacity 200mA. This output is multipurpose, it can operate as input or output in accordance with selected logic.

Wire 6 (Red) It is relay module power supply 12V.





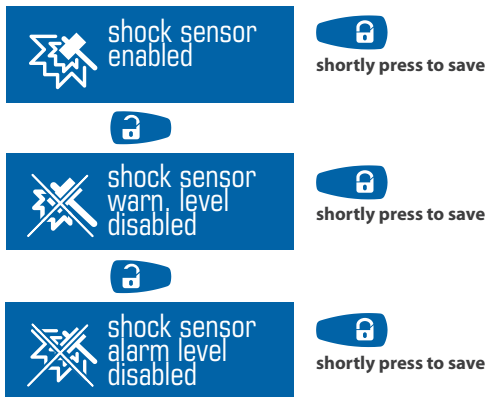
WARNING!
STARTER SHOULD NOT BE REASSIGNED TO THE OTHER OUTPUT.






[X-7 socket \(keyless bypass\)](#)


This socket is intended for keyless bypass of original immobilizer (connects according to installation map). To adjust this socket, use AlarmStudio program. The base unit should be disconnected from the power supply after adjusting.

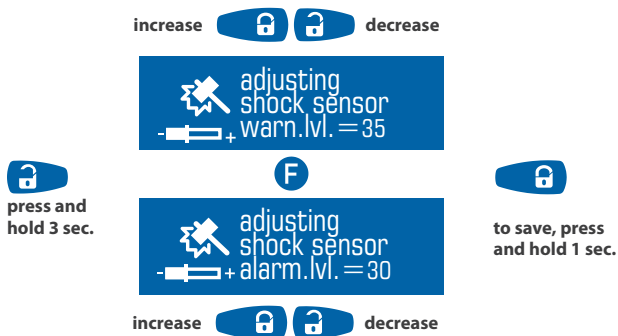
Shock sensor settings

Shock sensor can be disabled, controlled and its sensitivity can be set. For prompt remote adjusting of shock sensitivity control, select **Shock sensor** menu. Short presses of  button will cause switching between menu levels. To save new settings of shock sensitivity control, shortly press  button.








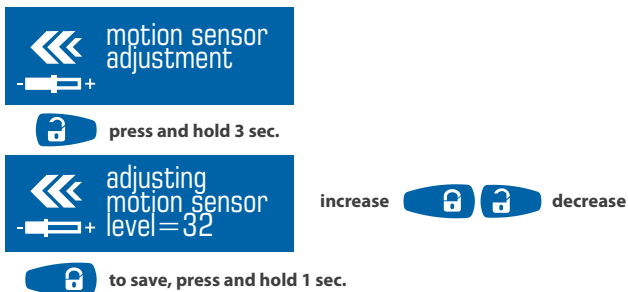
To enter **Shock sensor warning/alarm level** menu, press and hold  button until 3 sound signals. Short presses of  button will cause switching between menu sublevels. Sublevel sensitivity can be set with short presses of  and  buttons. To save new settings of sensor, press and hold  button for 1 second.

To exit menu, press and hold  button for 1 second.








Motion sensor settings

For prompt remote adjusting of motion sensor, select **Motion sensor adjustment** menu, press and hold  button until 3 sound signals. Sublevel sensitivity can be set with short presses of  and  buttons. To save new settings of sensor, press and hold  button for 1 second. To exit menu, press and hold  button for 1 second.




Tilt sensor settings

For prompt remote adjusting of tilt sensor, select **Tilt sensor adjustment** menu, press and hold  button for 3 seconds. Sublevel sensitivity can be set with short presses of  and  buttons. To save new settings of sensor, press and hold  button for 1 second.

To exit menu, press and hold  button for 1 second.



 press and hold 3 sec.



increase   decrease

 to save, press and hold 1 sec.

Siren signal settings

To configure siren sounds, select **Siren settings** menu. Select one of three siren sound options using  button.

To save new settings, shortly press  button. To exit menu, press and hold  button for 1 second.



all sound signals are disabled



warning signals are disabled




warning and alarm signals are disabled




shortly press to save

Sound notification settings

This function disables all sound signals of the remote, this mode does not apply to alarm clock and main zones triggering. LED indication and vibration remain enabled.

To set one of two notification options, select **Sounds** menu. Short presses of  button will cause switching between menu settings. This mode does not require to save.

To exit menu, press and hold  button for 1 second.





sound signals are enabled



sound signals are disabled

Radio channel control settings

There are 3 options to notify when the owner is not in radio coverage zone. Select **Connection lost** menu, short presses of  button will cause switching between menu settings. This mode does not require to save.

To exit menu, press and hold  button for 1 second.



'Connection lost' sound notification





alarm signal




all notifications are disabled

Maintenance/valet mode

It is recommended to put system into maintenance mode before handing it to the car service or valet parking. When this mode is switched on, security system stops interfering with built-in electronics and disables all functions to ease maintenance or parking. Moreover, you will not have to leave the remote to the valet or the mechanic. Disabling valet mode is not possible without using the remote. This feature is implemented to prevent recording additional remotes during maintenance without the owner knowing.

To activate maintenance mode while the engine is running, select **Valet mode** and shortly press  button. The system will confirm enabled maintenance mode with green flash of LED indicator when engine is running. To exit this mode, select **Valet mode** and shortly press  button.

To exit menu, press and hold  button for 1 second.







maintenance/valet mode is enabled



maintenance/valet mode is disabled

Time settings

To set up time, select **Time** menu with  button presses. With short presses of  set hours, with short presses of  set minutes.

This mode does not require to save. To exit menu, press and hold  button for 1 second.





hours



minutes

Alarm settings

To set up the alarm clock, select **Alarm clock** menu. Enable alarm with  short button press or disable it with  short button press.



Setting of alarm is similar to clock setting.




Checking the number of recorded remotes

Number of recorded remotes can be checked every time the ignition is switched on when disarmed. Number of orange LED flashes will indicate the number of recorded remotes.

Number of recorded remotes can also be checked by taking off and putting back on battery terminal. The system will sound the siren several times, equal to the number of recorded remotes.

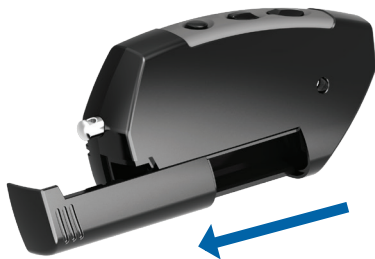
Replacing a battery in the remote

If high quality batteries are used, service-security system remote can function up to 4 months without needing a replacement. Battery needs to be replaced if the remote is not turning on or the  icon has only one bar left and starts flashing.

To replace the battery:

- move battery cover lock in the direction shown with arrow;
- take the battery out and place a new one on its place;

- the remote is ready for use (switch it on by pressing and holding **F** for 3 seconds).



It is recommended to keep an extra AAA battery in the car.

Changing the factory preset service PIN-code

To improve the protection of the system, we recommend you to change service PIN-code.

1. Disarm the system, switch off the ignition.
2. Using VALET button, input service PIN-code. Factory preset PIN-code is **1-1-1-1**.
3. Using VALET button, input the first digit of the service code (press the button a number of times, equal to the first digit; pauses between presses should not exceed 1 second). The system will confirm entering of the first digit with red LED indicator flash.
4. Similarly input second, third and fourth digit. Every input will be confirmed with red LED flash.
5. The system will confirm correct PIN-code with red and green LED flashes and proceed to the programming mode. If the input was incorrect, it will be indicated with long red flash and the system will proceed to previous mode. New input can be attempted after 5 seconds.
6. To proceed to setting service PIN-code press VALET button twice. The system will confirm with

double siren signal and double LED red flashes.

- LED indicator is not lit. Press VALET button a number of times, equal to the first digit. LED will flash orange for every press. Pauses between presses should not exceed 1 second;
- the system will confirm input of the first digit with red LED flash;
- similarly input other digits of PIN-code;
- the system will confirm with red and green LED flashes;
- input PIN-code again;
- if the double input of new service PIN-code was correct, the system will confirm it with LED indicator red and green flashes, new code will be recorded, the system will enter programming mode;
- if the input was incorrect, it will be indicated with red flash and the system will enter programming mode.

When you finished inputting PIN-code, LED indicator will be faded and the system will wait for new level input.

Changing core settings

Changing core settings via computer

The system allows programming all settings and updating software of the base unit via the interface micro-USB cable or via radio channel using a computer. It does not matter, whether base unit is installed into a vehicle or not. Software reads the current setting and allows changing them. If base unit has not yet been installed in the vehicle, it should be powered via micro-USB cable while programming. To program using a computer connected via cable, you need a standard micro-USB cable, a computer with Windows and a special piece of software – Pandora AlarmStudio.

In preparation to the programming, following stages should be followed:

- connect micro-USB cable to any free USB socket of the computer;
- start Pandora AlarmStudio (can be downloaded from the web-site);
- enter the programming settings mode by entering the service PIN-code on the base unit using VALET button. Factory preset PIN-code is **1-1-1-1**.

Entering programming menu, PIN-code input:

1. Disarm the system, switch off the ignition.
2. Connect the base unit of the system to a computer via micro-USB cable (X-2 socket).
3. Using VALET button, input service PIN-code. Factory preset PIN-code is **1-1-1-1**.
4. Using VALET button, input the first digit of the service code (press the button a number of times, equal to the first digit; pauses between presses should not exceed 1 second). The system will confirm entering of the first digit with red LED indicator flash.
5. Similarly input second, third and fourth digit. Every input will be confirmed with red LED flash.
6. The system will confirm correct PIN-code with red and green LED flashes and proceed to the programming mode. If the input was incorrect, it will be indicated with long red flash and the system will proceed to previous mode. New input can be attempted after 5 seconds.

Changing core settings using VALET button

Using VALET button, input the desired level number (press the button a number of times, equal to this number; pauses between presses should not exceed 1 second).

The system will confirm correct input with red LED flashes and short siren signals and proceed to the desired level. If the input was incorrect, the system will not confirm input and will await a new level input after a series of green and red flashes.

To exit programming mode and save the settings, switch on the ignition at any stage of programming (except stages that require you to switch on ignition during programming process).

Level 1 – Recording remotes into the system's memory

Enter the first level of programming. Remotes are recorded (paired) one by one. To pair the remote, press three buttons simultaneously (on the remote) and hold them for 1 second (until a short beep for the LCD remote; until the LED fades for the additional remote), then release the buttons. If the recording was successful, LCD remote will emit 2 short beeps and the base unit will emit 1 beep, after that you can move to recording the next remote. The pause between recordings of remotes should not exceed 20 seconds.

To finish the recording of the remote units into the system, VALET button should be pressed again, the status LED will produce series of red and green flashes; then switch on and off the ignition to leave the programming mode.

Level 2 – Changing the factory preset service PIN-code

• Indicator LED is not lit. Press VALET button the number of times equal to the first digit of the security code. Each pressing of VALET button is followed by orange flash of the indicator. The interval between presses should not exceed 1 second.

- The input will be confirmed by red flash of indicator.
- Enter the other numbers in the same manner.
- The fourth number input will be confirmed by series of red and green LED indicator flashes.
- Enter all four numbers again.
- If you were able to correctly enter code twice, the indicator will produce series of red and green flashes and a new PIN-code will be recorded, the system will return to the programming mode.
- In case of the incorrect code input the indicator will flash red and the system will return to the programming mode.

After the input is complete, the indicator goes out, the system awaits a new programming level input.

Level 3 – Recording the idle speed to the system's memory

At this programming level the idle turns speed of the engine is recorded (into non-volatile memory). Upon entering this level you need to switch the ignition on and start the engine (it should be warmed-up and the idle speed should match a normal rate for the pre-heated engine). Wait until the stable idle speed is reached (it takes about 30 seconds). Then press VALET button once. Successful recording of the idle speed will be confirmed with 1 beep. The ignition should be switched off after recording. While on this programming level, you can start and stop the engine many times – it will only be exited on VALET button press.

Level 4 – Resetting to factory settings

To reset to the factory settings, you need to enter fourth programming level, then press and hold VALET button for 3 seconds until siren sound. Once VALET button is released, the status indicator will confirm a successful reset to factory settings with a long red flash.

Level 11 – Programming validator code of immobilizer (Pin to Drive)

1. Select the button to set the secret validator code of immobilizer.

To do this, enter level 11 of programming and press the selected button (e.g. wheel ‘volume up’ button), LED indicator will confirm input with orange flashes. If there are no orange flashes when any button is pressed, then this button is not recognized by the system, select a different button. After the button was chosen, press VALET button. Security system will memorize the last pressed button (which was pressed before VALET button) as a button to enter PIN-code of immobilizer and will await input of the first digit of PIN-code.

2. Program the immobilizer deactivation PIN-code.

Enter the first digit by pressing the previously selected button (pause between pressing must be no more than 1 second). The base unit will confirm entering with red flash of LED indicator.

Input the second (third, fourth) digit by pressing the previously selected button. The base unit will confirm entering with red flash of LED indicator.

Input the required number of digits (up to 4) and then press VALET button. The system will confirm receiving of the secret validator code with long red flash of LED indicator and will expect for confirmation of PIN-code.

3. Confirm the immobilizer deactivation PIN-code.

Input PIN-code again similarly to the programming procedure and press VALET button. The system will confirm correct PIN-code with red and green flashes of LED indicator and will memorize PIN-code, then will proceed to the programming mode awaiting level input. Incorrect confirmation is indicated with long red flash of LED indicator, after that the system will return to a programming mode.



Level 12 – Calibrating of fuel level

Fuel level definition is performed with connecting of **INP-5 input**, factory setting is ‘**brake pedal trigger**’. Setting is performed via Pandora AlarmStudio. ‘**Use INP-5 to control fuel level**’ item should be enabled in the settings, the factory setting (input setting) should be changed.

Level	Assigning
12	0%
12.1	10%
12.2	20%
12.3	30%
12.4	40%
12.5	50%
12.6	60%
12.7	70%
12.8	80%
12.9	90%
12.10	100%
12.11	Reset all calibration values
12.12	Exit programming mode

To define the current fuel level, calibration should be performed at least by two points. In some cases fuel level calibration should be performed by all specified points (for more exact definition).

Enter level 12 of programming, LED indicator will be lit red. Select desired sub-level. To adjust zero value, switch on the ignition and save the setting.

The total number of sublevels are 12 (listed in the table). Enter the number of the desired sublevel by pressing VALET button (press button the number of times equal to the inputting digit; pauses between presses should not exceed 1 second). Run the engine no less than in 1 minute, then press VALET button – the data will be sent to the base unit. To save, press  button, pressing of  button will be canceled the calibration.

To exit the programming mode, enter sublevel 12 or press VALET button more than 12 times.

To reset all calibration values, proceed to sublevel 11 (do not switch off the ignition).

Reset confirmation is performed by pressing of  button, exit without confirmation and exit the menu are performed by pressing VALET button.

Level 17 – Setting up keyless bypass of built-in immobilizer

This level enters programming mode to teach algorithmic keyless bypass of built-in immobilizer. LED indicator will be lit green when on this level. If system installation was performed correctly on successful engine start using a key, LED indicator will flash green and siren will emit a short signal. To save and finish, press VALET button. Now the system should be able to simulate key for remote starts. For more in-depth instructions, use AlarmStudio.

Siren sounds and turn light signals

Signal name	Signal description
Alarm mode, PANIC mode	Incessant sound and light signals for 30 seconds
Arming	1 sound and 1 light signals
Disarming	2 sound and 2 light signals
'Sensors triggered' signal when disarming	4 sound and 4 light signals
'Sensor malfunction' signal when arming	4 sound and 4 light signals
Sensor warning level triggered	3 sound and 1 light signals
Car search	5 sound and 5 light signals

Meaning of indicator LED colors

Indicator status	Meaning
Short red flashes	The system is armed
Lit red	The system is preparing for automatic arming
Orange flash	Confirms VALET button press
Orange flashes	Confirms a number of recorded remotes (when switching on ignition)
Red and green flashes	PIN-code confirmed
Faded	The system is disarmed

Glossary of terms

AlarmStudio – an installation helper software that is to be installed on a Windows PC (preferably, laptop). AlarmStudio allows changing any parameters in the system and provides installation tips for particular cars. Easy to use and intuitive, AlarmStudio is required for in-depth and highly customized installation. Installation without AlarmStudio, although entirely possible, may be incomplete and lacking in functionality.

Base Unit – it is a small box that acts as a 'brain' of the system. It contains a printed circuit board, sensors and supplementary devices like 3D accelerometer and sockets for connecting it to car systems. Powerful processor unit and ingenious algorithms allow for hundreds of programmable parameters, accessible via AlarmStudio (and via VALET button for some).

Car alarm system – a set of third-party electronic devices that are installed in a car body and connected to its electric and data networks in order to provide enhanced security.

Car service-security system – same as car alarm system but with more service options, e.g. telemetry, remote engine start, various control options.

Channel – a name we use in our service-security systems to indicated a combined position and function of particular output socket and corresponding wiring.

Original security system – a built-in security system that is present on some car models. You can set up particular logic of interaction between this system and ours – control over it.

Telemetry – in car service-security systems is a combined capability to gather, process and convey to user various data regarding the car – temperatures, voltages, fuel level, sensor data, etc.

Timer channel – a term we use in our service-security systems to name channels that activate additional options or accessories (e.g. seat heating, light path, additional block relays). Any channel (output) can be set as timer channel, that can be activated from the remote, or incorporated into scheduled and sequential routines. To assign timer channels, use AlarmStudio.

Warranty obligations

Manufacturer guarantees correct operation of the service-security system if exploitation, installation, storage and transportation conditions described in this manual were met.

The system should only be used according to installation scheme and user manuals.

The system is meant to be installed by the professional car electronics installers. We recognize that outside Russia the system can be installed by amateurs – those installations are still a subject of limited warranty. The installer should fill in installation certificate that is included in this manual.

Parts malfunctioning during warranty period on the fault of the manufacturer should be repaired or replaced by the installation center of the manufacturer or by certified service center. List of certified service centers outside Russia can be found on pandorainfo.com

The user loses the right for warranty services in the following cases:

- when warranty period expires;
- if exploitation, installation, storage or transportation conditions were not met;
- if there is mechanical damage of the external parts of the system after it is sold. This includes: fire damage, consequential damage in case of car accident, aggressive liquids and water seeping damage, damage caused by improper use;
 - if the damage was caused with incorrect settings and parameter adjustment;
 - if system devices are replaced with any devices that are not recommended by the manufacturer;
 - if manufacturer sealing is broken;
 - if there is no properly filled warranty card and installation certificate.

Warranty period is 3 years since the moment of purchase, but no more than 3,5 (three and a half) years since the moment of production.

This warranty does not include batteries of the remotes, as they have their own service life time.

Maintenances and repairs of the system with expired warranty period are carried out at the expense of the user on a separate contract between the user and the installer/service center.

Transportation rules

Products should be transported in the original packaging by any means of transport as long as they are protected from mechanical damage and precipitation.

Packaged products should be stored on racks in piles of 6 or less boxes, in enclosed, dry, heated rooms (no less than 1m from heating) which exclude possible interaction with moisture, oil products and damaging environmental factors.

Installation certificate

I, the undersigned _____
Position, name

professional installer, certify that installation of the service-security system, specified below, was carried out by me in accordance with manuals and schemes provided by the manufacturer.

Car specifications:

Car model _____

Type _____

ID number (VIN) _____

Registration number _____

Security system specifications:

Model Pandora DXL-0090L

Serial number _____

Service center name, full address and installer's stamp _____

Signature _____ / _____ /

Signator

Work accepted _____ / _____ /

Signator

Date « ____ » _____ 20 ____ y

Acceptance certificate

Pandora DXL-0090L is in conformity with Electromagnetic Compatibility Directive EMC 2004/108/EC and R&TTE Directive 1999/5/EC

Serial number _____

Date of production _____

Responsible person's signature

(stamp)

Packager _____

Signature (personal stamp)

Warranty card

Model Pandora DXL-0090L

Serial number _____

Date of purchase « ____ » _____ 20__y

Seller's (installer's) stamp

Seller's signature _____