KVANT

OPERATING MANUAL

AUTHOR
ALARM

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General information

KVANT immobilizer is aimed to provide active protection of the car by means of blocking (breaking) electrical chains critical for the engine work. Its special feature is the technology of blocking the engine with the built-in normally closed circuit relay. Blocking is disabled by entering the PIN-code using the car standard buttons or additionally installed hidden buttons.

KVANT does not show its presence in the car till engine locking actuation. Moreover, due to its compact size the device can be installed almost anywhere in a car.

KVANT is a new smart way to protect your car!

Advantages of the system

- The small size of the device allows its hidden installation in the passenger compartment or under hood space of the car.
- The device does not show itself till engine locking actuation.
- The standard buttons in the passenger compartment and resistive touch buttons on the steering wheel are used to enter PIN-code; additional installation of hidden buttons is possible.
- Engine blocking is possible if the following events occur: Car starts moving, ignition started, automatic gearbox position is changed.
- Service mode.

OPERATION CONCEPT

Engine locking

KVANT immobilizer prevents hijacking the car by cutting off the engine or by disabling the engine start. Engine locking occurs in the following cases:

- the accelerometer fixed the car motion with the ignition «on».
- the signal «Ignition» has arrived (optionally)
- the signal «Automatic gearbox change» has arrived (this option is selected by default)

Algorithm of deactivation

Before driving the PIN-code should be entered by pressing the standard buttons in the passenger compartment of the car.

If the PIN-code has been entered correctly the system gives 2 acknowledgement signals after that you can start driving (the engine will not be locked). If the PIN-code has not been entered or has been entered incorrectly, KVANT locks the engine when you start driving or there is signal from "Ignition is on"/ "Automatic gearbox change" (see p. 16).

The activation of the system security mode is effected in 10 seconds after the ignition is off (or 2 minutes after the PIN-code was entered, and the ignition was not switched on). 3 short indication signals confirm that the security mode is activated.

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Authorization (PIN-code entering)

ATTENTION! The initial PIN-code is set by the specialists of the service centre. For security purposes before driving change the initial PIN-code for the new one and memorize it (see page 12).

Enter the PIN-code using the buttons and sequence of pressing that was saved in the system. You can enter PIN-code before or after ignition starting (both ways are allowed).

It is recommended to enter PIN-code just before you start driving. The interval between the pressing of the buttons shall not exceed 2 seconds. There is no difference between long and short button pressing.

When PIN-code is correct the system will signal twice by LED or alarm buzzer confirming successful authorization after which you can start driving.

If PIN-code is entered incorrectly confirmation signals will not fallow and the engine will be locked when you start driving. The second attempt to enter PIN-code is allowed only after 5 seconds from the failed attempt of authorisation or after turning off the ignition for 3 seconds and starting the ignition again if PIN-code was entered after the ignition was «on».

Emergency authorization

In case you have forgot saved PIN-code you may apply the emergency authorization procedure to start driving.

The emergency authorization code is indicated on the first page of this operating manual and consists of 3 digits.

To apply the emergency code switch the ignition On and immediately Off as many times as indicated by the appropriate digit of the code. The ignition switch on/off time and the pause between the second switch on/off operation should not exceed 5 seconds. Before you enter the next digit you should pause at least 5 seconds (but not more than 15 seconds) while the ignition is off.

The successful unlocking will be confirmed by the signals of LED or buzzer with the 3 seconds interval and the system will switch into the mode of the new PIN-code record for 2 minutes. We recommend you to write down the new PIN-code immediately (see p. 12), then to turn the ignition Off (not less than for 10 seconds) and turn it On again. After that you can authorize in the system with new PIN-code. If there is no possibility to write down the new PIN-code, you can start the car driving immediately after the emergency unlocking.

Service mode

The service mode is used for temporary deactivation of the anti-theft device when you give your car for the maintenance (without giving away the PIN-code and saying about the device).

The service mode activation is carried out with the ignition switched on or off (if the car identifies the button been pressed when ignition is off).

After the authorization (the current PIN-code was entered) press 10 times any button wired to the immobilizer entry. Press button not later than 2 minutes after entering the PIN-code. The interval between the pressing of the buttons shall not exceed 2 seconds. The service mode activation will be confirmed by 10 LED or buzzer signals.

The exit from the service mode is performed by entering the PIN-code. The 2 times indication signal will confirm that the service mode is deactivated.

ATTENTION! Service mode is not disabled when the power is cut off and the ignition is switched on/off. Use the emergency authorization code to turn off the service mode in case of emergency (p. 6).

After the deactivation of the service mode when you try to switch the ignition on or start the engine you will have to enter the PIN-code.

Authorization by the PIN-code after the deactivation of the service mode is not required if the ignition was switched on then switched off for less than 10 seconds, and after that switched on again (the module is in operating mode).

SYSTEM SETTINGS

PIN-code setting

ATTENTION! PIN-code setting is allowed only for a new «out of box» device or for a device with the restored factory settings (p. 15).

The procedure of PIN-code setting when KVANT is connected **under the minimum connections scheme** (p. 18) **to two standard analogue buttons** (p. 20) or **to the «inflow-free» resistor array** (p. 22):

1. Switch power off from device (red wire).
2. Connect the grey wire to the red wire.
3. Apply power +12V on the red wire. System will pass into the learning mode, the dual indication signals of the LED or the buzzer will be provided each 3 seconds.
4. Disconnect the grey wire, without removing the power from the red wire. The indication will shift to triple signal, once in 3 seconds.
5. Enter the PIN-code using the buttons connected to the device inputs. **Every click shall be followed by indication signal of LED or buzzer.** The quantity of clicks should be in the range from 2 to 9. The interval between keystrokes shall not exceed 2 seconds. There is no difference between long and short keystrokes. Buttons must be pressed firmly.
   The grey wire can be used as an extra button with the «+»potential. To do this, connect it to the power supply circuit, apply power («press the button») and turn off the power («release the button»).

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A different combination of buttons and sequence of keystrokes is allowed, e.g. if you press the button #1 twice and press the button #2 once, the system will save all the clicks in this order. When you have finished entering the PIN-code, the system will provide 3 confirmation signals of LED or buzzer, regardless the number of clicks.

6. Enter the current PIN-code once again. If the codes are matched the indication signal will be given twice. **The PIN-code will be recorded.** The indication will shift to quadruple signal, once in 3 seconds. To exit from the PIN-code setting mode press any button once. If the indication signal appears only 4 times, it means that the entered codes do not match. **The PIN-code will not be recorded.** Repeat the steps 5, 6 to set the PIN-code.

7. Disconnect the red wire from power supply circuit «+» in order to reboot the device.

8. Connect the red wire to the power supply circuit. If necessary, connect the grey wire in order to use it as an analogue button.

ATTENTION! After you have entered the PIN-code, you will not be able to enter the PIN-code setting mode using the grey wire (until all settings are reseted to the factory settings, page 15).

The procedure of PIN-code setting when KVANT is connected **to the «inflow» resistor array** (page 24):

1. Switch off power supply from the device (red wire) and disconnect car battery supply.

2. Connect the grey wire to the red wire.

3. Apply power +12V on the red and grey wires.

System will switch into the learning mode, the dual indication signals of the LED or the buzzer will be provided once in 3 seconds.

4. Disconnect the grey wire, without removing the power from the red wire. The indication will shift to triple signal once in 3 seconds.

5. Enter the PIN-code by pressing the buttons of the resistor array. **Every click shall be followed by an indication signal of LED or buzzer.** The number of keystrokes shall be in the range from 2 to 9. The interval between the keystrokes shall not exceed 2 seconds. There is no difference between long and short keystrokes. Buttons must be pressed firmly.

The grey wire can be used as an extra button with the «+»potential. To do this, connect it to the power supply circuit, apply power («press the button») and turn off the power («release the button»).

A different combination of buttons and sequence of keystrokes is allowed, e.g. if you press the button #1 twice and press the button #2 once, the system will save all the clicks in this order. When you have finished entering the PIN-code, the system will display 3 confirmation signals of LED or buzzer, regardless the number of clicks.

6. Enter the current PIN-code once again. If the codes are matched the indication signal will be given twice. The indication will shift to quadruple signal, once in 3 seconds.

7. Turn the ACC power on. The 5-fold indication signals of the LED or buzzer will follow, once in 3 seconds.

8. Repeat the PIN-code setting according to the paragraphs 5, 6. **The PIN-code will be recorded**.

If there are 4 indication signals, it means that the PIN-codes do not match and **PIN-code has not been saved**. Repeat the steps 1-8 to set PIN-code.

9. Disconnect the red wire from DC+ in order to reboot the device.
10. Connect the red wire to the power-supply circuit. If necessary, connect the grey wire in order to use it as an analogue button.

Having this procedure completed, you will be able to use the buttons on the steering wheel to enter the PIN-code, even if there is no vehicle battery voltage.

Change of PIN-code

To ensure the confidentiality the PIN-code set in the service centre shall be changed when the car-owner gets his/her car back from the service centre with KVANT anti-theft system installed. Also it is recommended to change a PIN-code if you suspect someone has watched you entering the PIN-code.

1. Turn the ignition on without starting the engine (only if the car does not recognise the clicking when the ignition is off).
2. Enter the current PIN-code to authorize. There will be 2 indication signals.
3. Enter the current PIN-code again within 2 minutes. The device will pass to the PIN-code change mode and the signal indication will be given every 3 seconds.
4. Enter the new PIN-code using the buttons connected to the device inputs. **Every pressing shall be followed by the indication signal.**

The number of pressings shall be in the range from 2 to 9. The interval between the pressings of the buttons shall not exceed 2 seconds. There is no difference between long and short pressings. Buttons must be pressed firmly.

A different combination of buttons and sequence of keystrokes is allowed, e.g. if you press the button #1 twice and press the button #2 once, the system will save all the clicks in this order. When you have finished entering the PIN-code, the system will display 3 confirmation signals of LED or buzzer, regardless the number of clicks.

5. Enter the current PIN-code once again. If the PIN-codes match than there will be 2 signals and the **PIN-code will be successfully saved**.

   If there are 4 indication signals, it means the PIN-code does not match and the PIN-code is not changed. Turn off the ignition and repeat the items 1-6.

6. Turn off the ignition (if it was switched on, see p. 1).

ATTENTION! Memorize the PIN-code or write it down after it has been changed. **Do not leave PIN-code information as well as this guide inside the car!**

Motion sensor sensitivity adjustment

The motion sensor of the immobilizer provides 5 sensitivity levels (sensitivity increases from 1 to 5, by default level 5 is activated). To change the sensitivity level, follow these instructions:

1. Switch the ignition on without starting the engine.
2. Enter the current PIN-code to authorize. There will be 2 indication signals.
3. Enter the immobilizer Setup menu (Setup menu is available within 2 minutes after the PIN-code entering). For this purpose press any of the buttons connected to the device and retain it pressed during 10 seconds. The indication LED or buzzer will give a signal once a second.
4. Press any of the connected buttons twice to enter the sensitivity control sub-menu (see p. 16). The indication LED or buzzer will give the quantity of signals, which corresponds to the value of the current sensitivity level (from 1 to 5). After that series of dual signals will be given.
5. Set a new sensitivity level by pressing the button the required number of times from 1 to 5. The value «1» corresponds to the switched off sensor, the value of «2» – to the lowest sensitivity level (response to a strong speedup), the value of «5» – to the highest sensitivity level (response to a weak acceleration). Each pressure will be the confirmed by a single signal of LED or buzzer.

   The record of a new sensitivity level will be confirmed in 3 seconds after the end of the setting with the corresponding quantity of signals of LED or buzzer (from 1 to 5). If the record is not performed, the LED or buzzer will indicate single signals with duration of 2 seconds. Turn off the ignition and repeat the steps 1-4.
6. Turn off the ignition.

Reset to factory settings

ATTENTION! When KVANT immobilizer is connected under the «feeding» scheme (p. 24) you have to complete the initial PIN-code setting procedure after the reset to factory settings (p. 9). Otherwise, when the power supply or the ignition is switched on, the LED or buzzer will indicate single signals with duration of 2 seconds.

To reset the KVANT to factory settings (including current PIN-code reset) follow the steps:
1. Switch on the ignition without starting the engine.
2. Enter the current PIN-code to authorize. There will be 2 indication signals.
3. Enter the immobilizer Setup menu. For this purpose press any of the buttons connected to the device and retain it pressed during 10 seconds. The indication LED or buzzer will give a signal once a second.
4. To reset to factory settings press any of the connected buttons 9 times (see p. 16). The indication LED or buzzer will give out 9 signals. Press the button 9 times to confirm the reset. The indication LED or buzzer will confirm the reset by the signal repeated 9 times. If the reset is not performed, the LED or buzzer will indicate single signals with the duration of 2 seconds. To reset the settings turn off the ignition and repeat the steps 1-3.
5. Turn off the ignition.

The reset to factory settings also can be done by physical connection of orange wire «Status of the service mode» to yellow-green «AT switch». When two wires are connected power should be supplied to the red wire.

KVANT Immobilizer options

The options set in default («on» or «off») are marked with grey colour in the table. The option number corresponds to the number of keystrokes to set the required state of the option.

No.	Option	off	on
1	Entering Setup menu		–
2	Motion sensor sensitivity*	1	5
3	Ignition locking	1	2
4	AT switch locking	1	2
9	Resetting		–

* setting range from 1 to 5, see p. 13 for further details

To change the option status do the following:
1. Switch on the ignition without starting the engine.
2. Enter the current PIN-code to authorize. There will be 2 indication signals.
3. Enter the immobilizer Setup menu. For this purpose press any of the buttons connected to the device and retain it pressed during 10 seconds. The indication LED or buzzer will give a signal once a second.
4. To select the option press any of the connected buttons the number of times equal to the number of the option in the table. The indication LED or the buzzer will display the signals, quantity of which corresponds to the current option value, then it will start to display signals series, which correspond to the option number.
5. Set the new option value by pressing any of the connected buttons as many times as corresponds

to the state «switched on» or «switched off» (see the digits corresponding the appropriate option in the table). For example, 5 times to set the sensitivity level «5» motion sensor or 2 times to lock on ignition. The indication signals which correspond to the new value will confirm its record into the system memory. The option state will be changed.

If option value is not changed the LED or buzzer will give single signals with duration of 2 seconds. To change the option turn off the ignition and repeat the steps 1-4.

6. Turn off the ignition.

KVANT minimum connection diagram

Ignition «+»   LED/buzzer «-»
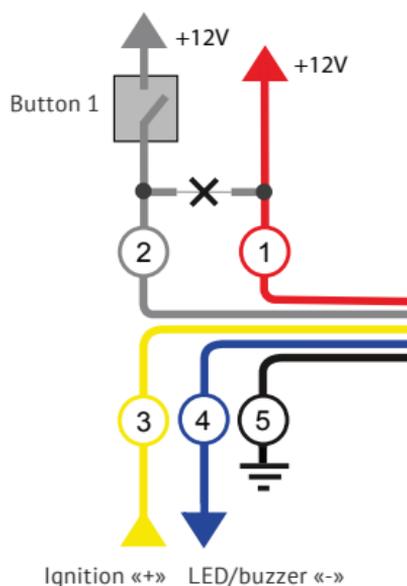
1. Red. +12V power supply.

2. Grey. For the system learning* Analogue regular button «+».

3. Yellow. Ignition «+».

4. Blue. Light-emitting diode LED/ buzzer «-».

5. Black. Ground/earth.

ATTENTION! KVANT minimum connection scheme feature is the limitation of the quantity of buttons for PIN- code setting (only 1 button) and the impossibility to block the engine by "Automatic gear box change" signal. To avoid the indicated limitation use other connection diagrams (p. 22-27).
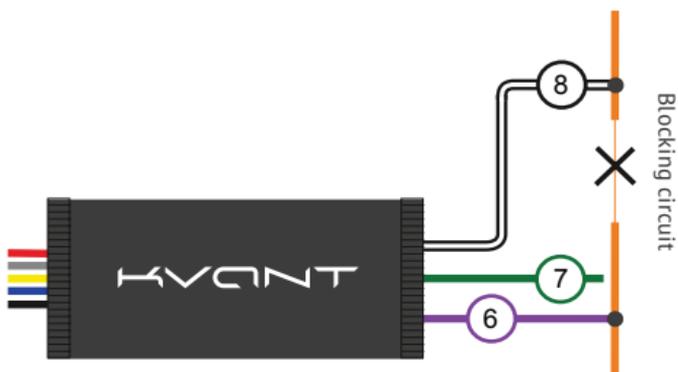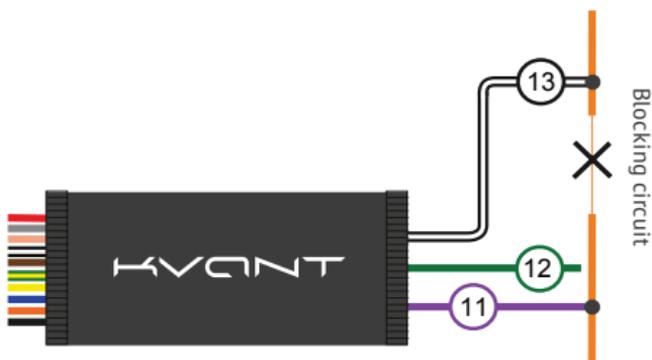
Blocking circuit

6. Purple (0,2 mm²). Normally Closed contact.

7. Green (0,2 mm²). Normally Opened contact.

8. White-black. Common wire (for circuit blocking).

* Connect the grey wire (2) to «+» in order to turn on the system learning mode
(see p. 9). Disconnect the grey wire from «+» before PIN-code setting.

KVANT wiring map
to regular analogue buttons
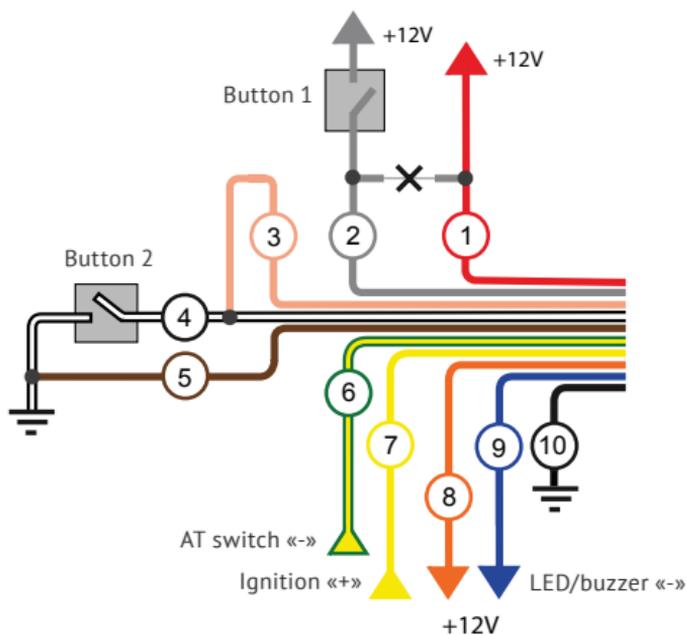
1. Red. +12V power supply.

2. Grey. For the system learning.* Analogue regular button 1 «+».

3. Pink. To the white wire (5).

4. White. Analogue regular button 2 «-».

5. Brown. Ground/earth.

6. Yellow-green. AT switch «-».

7. Yellow. Ignition «+».

8. Orange. Status of the service mode «-».

**9. Blue.** Light-emitting diode LED/buzzer «-».

10. Black. Ground/earth.

Blocking circuit

11. Purple (0,2 mm²). Normally Closed contact.

12. Green (0,2 mm²). Normally Opened contact.

13. White-black. Common wire (for circuit blocking).

* Connect the grey wire (2) to «+» in order to turn on the system learning mode (see p. 9). Disconnect the grey wire from «+» before PIN-code setting.

ΚVΩΝΤ

**KVANT wiring map
for the car «inflow-free»
resistor array***
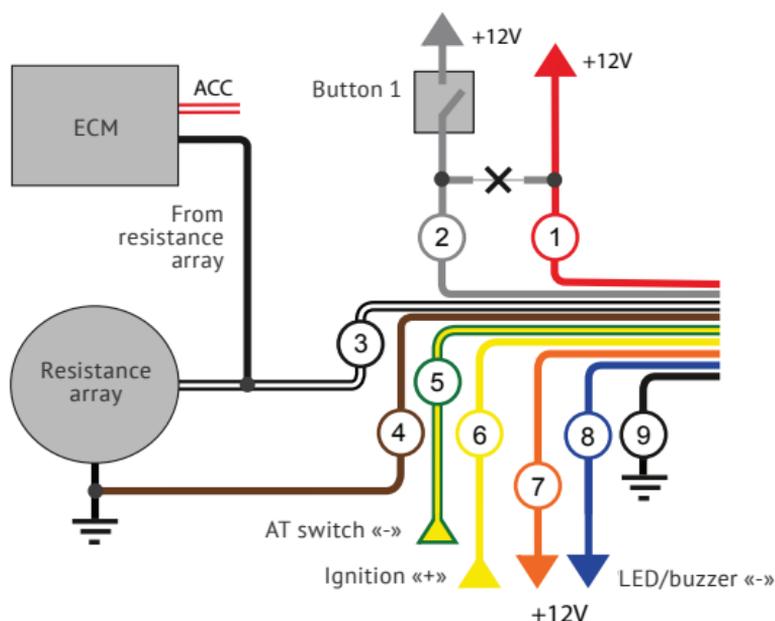
1. Red. +12V power supply.

2. Grey. For the system learning.** Additional analogue regular button «+».

3. White. Resistance array «+».

4. Brown. Resistance array «-».

5. Yellow-green. AT switch «-».

6. Yellow. Ignition «+».

7. Orange. Status of the service mode «-».

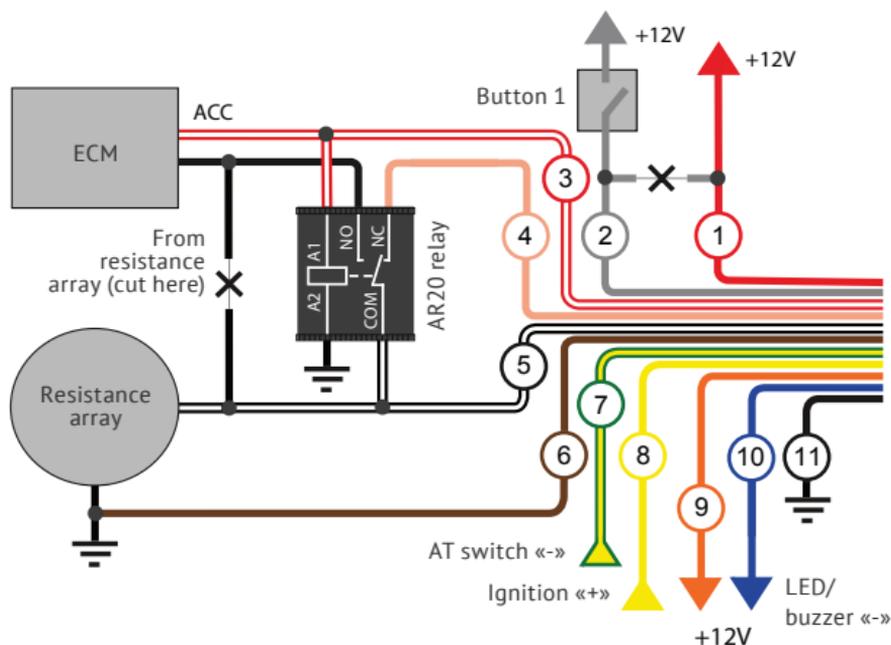**8. Blue.** Light-emitting diode LED/buzzer «-».

9. Black. Ground/earth.
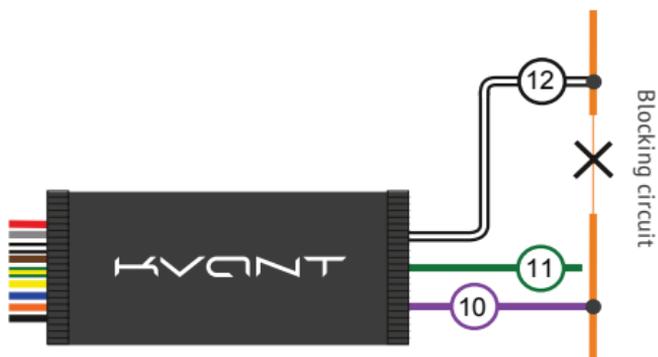
Blocking circuit

10. Purple (0,2 mm²). Normally Closed contact.

11. Green (0,2 mm²). Normally Opened contact.

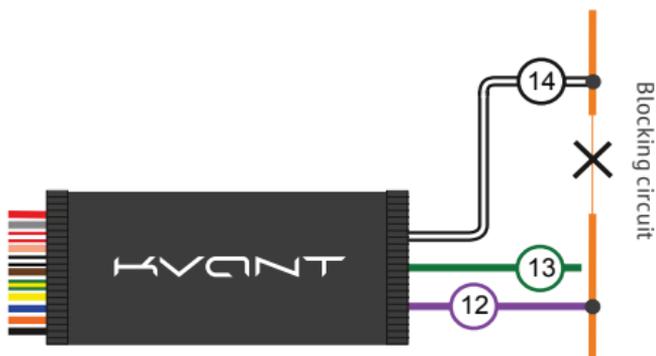**12. White-black.** Common wire (for circuit blocking).

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* «Inflow» – is the method of the device connection, when the usage of the resistor array buttons is allowed in the absence of power supply from ECM (it is a possible to use buttons on the driving wheel of the cars which turn off the resistor array power supply when the ignition is off).

** Connect the grey wire (2) to «+» in order to turn on the system learning mode (see p. 9). Disconnect the grey wire from «+» before PIN-code setting. The grey wire can be used as an extra button with the «+» potential.

**KVANT wiring map
for the car «inflow»
resistance array***

1. Red. +12V power supply.

2. Grey. For the system learning.** Additional analogue regular button «+».

3. White-red. To ECM and the lock relay.

4. Pink. To the lock relay.

5. White. Resistance array «+».

6. Brown. Resistance array «-».

7. Yellow-green. AT switch «-».

8. Yellow. Ignition «+».

9. Orange. Status of the service mode «-».

10. Blue. Light-emitting diode LED/buzzer «-».

11. Black. Ground/earth.

Blocking circuit

12. Purple (0,2 mm²). Normally Closed contact.

13. Green (0,2 mm²). Normally Opened contact.

14. White-black. Common wire (for circuit blocking).

* «Inflow» – is the method of the device connection, when the usage of the resistance array buttons is allowed in the absence of power supply from ECM (it is a possible to use buttons on the driving wheel of the cars which turn off the resistance array power supply when the ignition is off).

** Connect the grey wire (2) to «+» in order to turn on the system learning mode (p. 10). Disconnect the grey wire from «+» before PIN-code setting. The grey wire can be used as an extra button with the «+» potential.

КVΛПТ

Specifications

Operating voltage .... 9-15 V
Working temperatures range .... from -40 to +95 °C
Current of consumption
in the protection mode .... not more than 5 mA
Current of the built-in safety relay ..... not more than 2 A
Signal control current
«Service mode» .... not more than 250 mA

Contents of the set

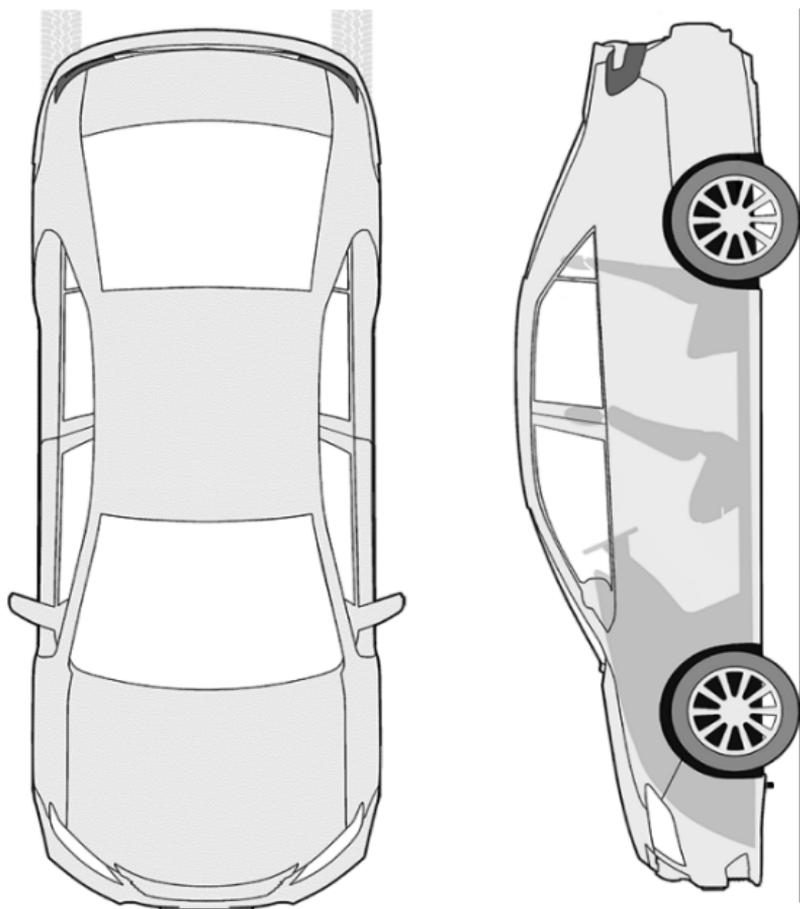|	
KVANT Immobilizer	1 pcs.
AR20 relay	1 pcs.
Buzzer	1 pcs.
Operating manual	1 pcs.
Packing	1 pcs.

ΕΗΓ Made in Russia
Manufacturer: LLC «DMA Group»
C-RU.АЛ14.B.10097

The developer and the manufacturer retain the right to make technical updates not specified in this operating manual. To learn more visit our web-site:

http://author-alarm.com

Immobilizer location

ATTENTION! Keep the PIN-code in mind or write it down after you have changed the PIN-code. **Do not leave PIN-code information as well as this operating manual inside the car!**

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WARRANTY CERTIFICATE

Warranty is 12 months from the date of the purchase. During this period technical support and maintenance are guaranteed for free. The warranty does not apply to the items with:

- mechanical damage, burnt and char pieces, components, conductive tracks etc.;
- traces of an independent repair;
- damage caused by natural hazards, fire, social factors;
- violation of the tamper-evident seal, damage or absence of a factory/trade label.

Only items in complete set and with the original packing are taken for warranty repair.

Absence of packing is regarded as noncompliance with transportation rules. The warranty does not apply to the damage incurred to another equipment operating together with this device.

Item (model) _____

Sale date _____/____/_____

The contents of delivery ___, functioning ___, absence of mechanic damage ___ are checked.

I am acquainted and agree with the condition of warranty service:

Buyer _____

Seller _____ seal

Supported Cars List App.

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