

Immobilizer i96 CAN

User manual

Version 5



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Please read the full actual user manual version at help.starline.ru

Please, read attentively!

Prior to operation of the security system carefully read this manual paying special attention to the sections marked  and determine whether this security system is suitable for your car, for which follow the car manufacturer's requirements and the car operation manual.

The security system is a complicated technical device implying connection to the car circuits related to engine operation.

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

Mounting, programming, maintenance, repair and disassembly-assembly of the security system shall not be carried out by persons who are not qualified specialists and have not passed training and knowledge test in safety rules.

During security system parameter programming, the set parameters shall not contradict the requirements of the car operation manual.

The user bears full responsibility for damage incurred to people, animals and assets as a result of inappropriate use of the security system or use with violations of the safety requirements specified in this manual.

The manufacturer shall not be responsible for losses and injuries caused by failure to observe the safety rules and requirements outlined in this manual.

To avoid possible misunderstanding, keep the documents enclosed to the security system at sale. Check filling-in of the warranty slip, including the date of sale and seller's stamp. If there is no sale (purchase) date, the warranty period is counted from the date of security system manufacture.

If your security system has a remote key or a wireless tag:

- do not carry the remote key or tag on the same bundle with the car keys
- always switch over the system to the service mode when handing the car over for maintenance or washing. Do not hand tags and

remote keys over to third parties to prevent unauthorized access to security functions

- do not leave remote keys or tags in areas accessible to children and animals

Safety precautions during charging of your car's storage battery

Remember that any battery charging process implies supply of voltage exceeding the rated 12 V to the storage battery and accordingly to the car circuit, which may damage the car electronic equipment and additional installed equipment in your car.

Do not use charging and starting/charging devices for storage battery charging directly on the car without disconnecting the storage battery terminals from the car circuit in the following modes:

- rapid charging by increased current («boost» or similar modes);
- various START modes intended for engine starting

Never use starting and charging devices for engine starting without a connected storage battery and with connected inoperable storage batteries (short circuits in banks, breakage of plates etc.)



Observe the technology for safe storage battery charging!

Before charging, the storage battery terminals shall be disconnected from the car circuit. After that the storage battery charging process can be started. After charging, connect the storage battery to the car circuit.

General description


- Purpose
- Plastic card
- Service button
- Tag Bluetooth Smart
 - Connection testing
- LED indication
 - Discharge of the battery

Purpose

Immobilizer **StarLine i96 CAN** is intended for anti-theft security with digital engine blocking via CAN bus (iCAN technology) and with cut of analog circuits wires. The owner is authorized in two ways:

- by means of a wireless tag or smartphone using the encrypted Bluetooth Smart protocol protected against electronic hacking.
- by PIN-code entry using the factory car buttons.



 Additional level of car security is ensured by the wireless underhood unit StarLine R6 or StarLine R4, which provide additional engine blocking and hood lock control.

Plastic card

The delivery set contains owner plastic card with the following data:

- **Code of emergency disarming** — disable engine blocking.
- **Service code** — for access to the system configuration in StarLine Master program.

Emergency security deactivation	Code of emergency security deactivation
<ol style="list-style-type: none">1. Switch on the ignition2. Press the service button the number of times equal to the first digit of the code of emergency security deactivation3. Switch off the ignition. The sound signal of digit entry confirmation will follow4. Repeat items 1-3 to enter the remaining digits5. The correct code entry will be confirmed by 3 sound signals	<input type="text"/>
	Service code
	<input type="text"/>
	<input type="text"/>



It is recommended to take along the owner's plastic card or save the emergency disarm code in the mobile phone.



ATTENTION! Do not tell emergency disarm code to anybody! Remember that a malefactor, knowing the code, may deactivate the security functions.

Service button

The service button is used to enter emergency disarm code.



ATTENTION! Be sure to request the location of the service button in your car from the installation specialist.

Bluetooth Smart Tag



The tags, included in the delivery set, are initially in the transport mode in which they are off! Pressing of the tag button in this mode will be indicated by green and red flashes of the built-in LED.



Prior to operation, press the tag button several times until the flash color changes to green.

Connection testing

Press the tag button shortly in order to check tag's connection with the main unit. If connection is established, 2 flashes of the tag LED will follow, if not — 1 flash. The flash color will correspond to the immobilizer operation mode.

LED indication



Flash color	Operation mode
	Security
	Service

Discharge of the battery

To prevent engine blocking due to a discharged battery, the immobilizer constantly checks battery capacity. The low battery charge level will be reported to the owner at ignition switch-on by **6 short bleeps**.

Replace the battery as soon as possible in case of discharge indication.



Specifications

Main unit i96 CAN

Parameter	Value
Supply voltage	6..16 V
Operating temperature range	from -40 to +85 °C
Frequency range	2400..2480 MHz
Radio exchange protocol	Bluetooth Smart
Consumption current with switched-off ignition	8 mA
Interfaces	<ul style="list-style-type: none"> • 3 CAN • 1 USB • 2 inputs from 0 to 5 V • 2 outputs of 12 V up to 500 mA

Tag Bluetooth Smart

Parameter	Value
Supply voltage	3 V
Battery type	CR2032
Rated battery life	8 months
Frequency range	2400..2480 MHz
Radio exchange protocol	Bluetooth Smart

Operation description

- Security mode
- Factory security system control
- Engine blocking
- Service mode
- «Emergency disarm» mode
- «Device registration» mode
- «Programming» mode

To drive a car, equipped with the immobilizer, you must carry along the tag for authorization. After the tag appears in the main unit's operational range, automatic data exchange via the encrypted Bluetooth Smart protocol takes place. Also a smartphone with BLE 4.2 and above can be registered as a tag.

Security mode

The owner is authorized at ignition switch-on. The authorization method can be a tag and (or) entry of the code by means of the factory car buttons.

Authorization by factory car buttons can be used in the following cases:

- for security deactivation in the tag absence. In this case, authorization by PIN-code entry shall be set as an alternative;
- for theft protection in case of tag theft or tag loss. In this case, authorization by PIN-code entry shall be set as the mandatory one.



Authorization by means of the tag is set by default.

Authorization by means of the tag

If tag is detected, the immobilizer turns to the «Disarm» mode. Successful

authorization will be confirmed by bleeps when ignition switch-on. In addition, authorization is confirmed at closing of the driver's door after remote engine starting.

If the tag is not detected due to some reasons when ignition switched-on, the immobilizer will wait for authorization, while issuing intermittent bleeps. Waiting for authorization will stop when the tag is found or ignition is switched off. In case of authorization failed the engine will be blocked at a driving attempt.

Authorization by code entry

At ignition switch-on the immobilizer will wait for entry of the owner authorization code using factory car buttons (for instance, the multimedia control buttons on the steering wheel, window raiser control buttons). The code is entered with the ignition switched-on. If the owner authorization code is not entered, then engine will be blocked at a drive attempt.

When trip is over the immobilizer goes automatically to the "Armed" mode in case of tag loss from the visibility zone or in 15 seconds after ignition switch-off, if authorization by means of factory buttons is used.

Factory security system control







Immobilizer can control factory central lock and security system if the option is supported for vehicle. Doors will be locked / unlocked and factory security armed / disarmed by pushing a tag button.

The option is configured in settings by installer (check if supported for vehicle in CAN library).


Anti-Hijack mode

Anti-hijack mode secures a driver from robbery at trip.

The mode is enabled by pushing and holding a tag button until red LED lights up red.

Tag button push	 Hold	 Release	
LED light	 		

Enable Anti-hijack mode

Tag button push	 Hold	 Release	
LED light	 		

Disable Anti-hijack mode

Depending on settings configuration Anti-hijack is activated by one of algorithms: by time interval, by distance or by engine speed.

Anti-hijack activation by time interval (by default):

- door is open for more than 1 sec after successful authorization passed. In some vehicles a brake pedal must be also pressed (clarify from your installer).
- motion sensor triggered or engine speed exceeded the set value;
- immobilizer shall start searching for a tag or waiting for authorization by factory buttons in 15 sec;
- if tag is not detected, immobilizer shall activate the warning bleeps;
- then engine will be blocked in 20 sec.

Anti-hijack activation by distance:

- door is open for more than 1 sec after successful authorization passed. In some vehicles a brake pedal must be also pressed (clarify from your installer).

- motion sensor triggered or engine speed exceeded the set value;
- immobilizer shall activate the warning bleeps at half of the set distance value;
- then immobilizer shall block engine at the set distance value (1 km by default).

Automatic central lock control on trip

The option makes automatic locking and unlocking door on a trip.

Automatic lock is made by one of the set conditions:

- at ignition On;
- at start driving and brake pedal pressing;
- at parking brake release;
- at shifting AT gear from "P" position;
- at speed over the set value.

Automatic unlock is made by one of the set conditions:

- at ignition Off;
- at shifting AT gear to "P" position;
- at engine stop;
- at ignition Off and shifting AT gear to "P" position;
- at parking brake tighten.

Hands-Free mode

Hands-Free mode is used for automatic central lock and factory security control by a tag presence.

Doors are automatically unlocked when tag is detected in visible range and locked once tag is out of the range.

If EC-1 touch sensor is installed then doors are unlocked when sensor place touched and tag is in range. Next sensor touch or tag disappear shall lock the doors.

Hands-Free disabling on a one security cycle

If a tag is still visible in detection range while parking, so Hands-Free mode can be disabled for one security cycle by one of methods:

- arming with a tag button push;
- arming with a factory keyfob.

To return to Hands-Free mode push a tag button or factory key once again.

Keyless-Go system blocking

Blocking of factory Keyless-Go system is an additional security level which prevents hijacking by original key theft or relay attack. Immobilizer temporarily disables factory keyless entry system in armed mode when tag is out of detection range.



Keyless-Go blocking option is disabled by default and can be enabled in the system configuration.

Authorization by a tag must be enabled to use Keyless-Go blocking option.

OBD-II diagnostic socket protection

Immobilizer can secure from unauthorized access to a vehicle diagnostic interface to prevent hacking a factory security (i.e. extra keys registration).

The option needs additional connections must be made to interrupt CAN bus wires in diagnostic socket loom.

The option is activated at one of conditions depending on settings:

- in Armed mode (by default);
- in all modes beside Service mode.

Engine blocking

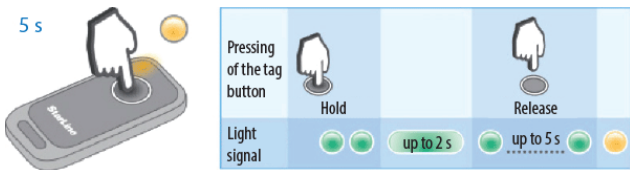
Engine is blocked with iCAN technology in the “Armed” mode. Thanks to the iCAN technology the immobilizer itself selects an event for safe engine blocking and supports of remote engine starting systems (depending on supported functions in the car CAN-bus).

Engine blocking will be active until ignition switch-off. Blocking will be activated again at the next driving attempt. If blocking is repeated 3 times, engine will be blocked until tag’s detection or immobilizer switchover to the «Emergency disarm» mode.

Service mode

Service mode temporarily deactivates security functions for the maintenance period.

Entry in and exit from the mode is performed by holding the tag button for 5 seconds. Transition to the service mode will be indicated by yellow color of the LED on the tag.



ATTENTION! ALWAYS switch over the immobilizer to the service mode when handing the car over for maintenance or washing.

Do not hand tags over to third parties to prevent unauthorized access to security functions.

Switching to Service mode by means of a service button

This method can be used when tag or paired smartphone are not in reach.

To enable service mode make following steps:

1. Make sure authorization is passed.
2. Switch ignition On.
3. Push the service button 11 times.
4. Switch ignition Off and On again.
5. Service mode entry will be confirmed by 2 bleeps.

Automatic Service mode exit

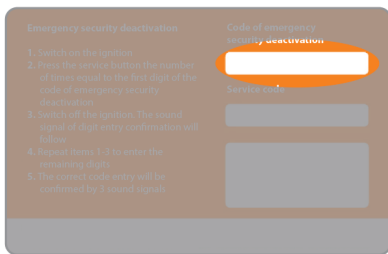
If owner forgets to exit Service mode after maintenance or carwash etc. then immobilizer can automatically exit Service mode by condition set in configuration (by speed or distance over the limit) and turn to a previous operation mode.

Automatic exit from Service mode is disabled by default and can be enabled in settings.

Service mode can be also exited by **Emergency disarming** procedure.

Emergency disarming

If tag was lost or battery is discharged, use the “Emergency disarm” mode. This mode allows driving without tag. The mode can be entered with emergency disarm code given on the owner’s plastic card.



The security functions in this mode are disabled.

The immobilizer will remind about «Emergency disarm» mode each time when ignition switch-on by a long bleep.



ATTENTION! Be sure to request the location of the service button in your car from installer.

Do as follows for immobilizer switchover to «Emergency disarm» mode:

1. Switch ignition On.

On



2. Press the service button the number of times corresponding to the first digit of emergency disarm code.

Press X times.



X – the first digit of the code of emergency security deactivation

3. Switch ignition Off. A bleep confirming the digit entry will follow.

Off



4. Repeat items 1...3 for the remaining digits.
5. If 3 short bleeps will follow, the emergency disarm code is accepted, 1 long bleep — the entered code is invalid.



If invalid disarm code is entered 5 times, the code entry will be blocked for 15 mins.

Immobilizer automatically exits the mode when tag is detected.

Example of entry of the code of emergency security deactivation 5342

	on	off	on	off	on	off
Ignition						
Press the service button		5 times		3 times		4 times
Bleeps			1 time		1 time	1 time

	on	off	on
Ignition			
Press the service button		2 times	3 times
Bleeps		1 time	

Registration of tags and smartphones

Use «Device registration» mode for registration of new tags and smartphones.



Tags and smartphones shall be registered in one cycle. At registration of new tags and smartphones all previous tags and smartphones will be deleted from memory. In total, up to 5 devices can be registered in the immobilizer.

Entry in «Device registration» mode

1. Set immobilizer to «Emergency disarm» mode. If there is connection with registered tag or smartphone — this step can be omitted.

2. Switch ignition On.



3. Press service button 7 times.



4. Switch ignition off and on.



5. 7 bleeps will follow, confirming entry in «Device registration» mode.



Tag registration

1. Remove battery from tag.



2. Press and hold the tag button and install battery. The tag LED will light up red.



3. Release the button and check presence of a series of red flashes for 10 seconds.

4. Successful registration will be confirmed by a green flash and 2 beeps. If the tag was not registered, LED will light up red.

5. Repeat items 1...3 for the remaining tags.



Smartphone registration

Register a smartphone with standard Bluetooth pairing procedure or with help of StarLine Key App. Pairing code - 000000.

Exit from device registration mode

Exit from device registration mode is performed at ignition switch-off.

Exit from «Device registration» mode will be confirmed by beeps which number is equal to the total number of registered tags and smartphones.



Change of owner authorization code

The owner authorization code is used for authorization by means of the factory car buttons.

Do as follows to change the owner authorization code:

1. Set immobilizer to «Disarm» mode.
2. Switch ignition On.
3. Press service button 5 times.

4. Switch ignition off and on.
5. 5 beeps will follow, confirming entry in «Owner authorization code change» mode.
6. Enter the owner authorization code using the factory buttons with pressing interval not more than 3 seconds. Hold the button until a confirming beep is heard.



The owner authorization code consists of a code sequence, containing from 3 to 10 pressings of factory buttons. The list of supported factory buttons for particular vehicle model can be checked at can.starline.ru.

7. In 3 seconds after the end of owner code entry, 2 short beeps of buzzer will follow.
8. Enter the owner authorization code again.
9. If the codes match, 2 short beeps will follow. Otherwise, a long beep will be heard, repeat items 6...8.
10. Switch off ignition to exit «Owner authorization code change» mode.



Write down and store the programmed owner authorization code.

The manufacturer reserves the right to modify and improve the product design and technical features without prior notice.

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