We would like to thank you for choosing
the motoimmobilizer

# StarLine V66

and wish you many pleasant
and safe drives!

Revision No. 3
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# Content

# General description

The **StarLine V66** motoimmobilizer is intended for protection against motor vehicle theft by way of engine blocking. Owner authorization is performed by authorization of the wireless tag or mobile telephone of the owner supporting data transmission via the Bluetooth Smart protocol (BLE). The motoimmobilizer has sound and light indication to notify the owner and other people of security zone violation. The immobilizer is controlled with the tag or StarLine mobile application.

**ATTENTION!** The tags, included in the immobilizer 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 a 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.

# Specifications

| Parameter | Main unit | Tag |
|---|---|---|
| Frequency range of control radio signals, MHz | 2400...2480 | |
| Type of control code | Bluetooth Smart with key exchange via the Diffie-Hellman protocol | |
| Supply voltage, V | 8...18 | 2.0...3.3 |
| Consumed current in security mode, maximum, mA | 2.5 | – |
| Maximum current load via relay contacts, A | 10 | – |
| Maximum current load at lights outputs, A | 12 | – |
| Operating temperature range, °C | -40...+105 | -20...+70 |
| Battery type | – | CR2032 |
| Battery life time, months | – | 8 |
| Overall dimensions, mm | 94 × 24 × 13 | 53 × 26 × 7 |

# General mounting requirements

The **StarLine V66** motoimmobilizer is intended for installation on motor vehicles with the onboard voltage of +12 V.

Prior to mounting, check operability of the motorcycle circuits, to which the immobilizer will be connected, as well as absence of indication of motorcycle standard equipment errors. Mounting shall be performed in compliance with the connection diagram.

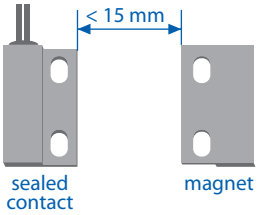
The immobilizer should be placed in a hidden hard-to-reach area, for instance, under the motorcycle fuel tank. The alarm siren should be placed as far as possible from heat and moisture sources. Direct the siren downwards so as to avoid water accumulation.

The wires should be laid as far as possible from electric interference sources: ignition coil, high-voltage wires etc. Wires shall not touch the moving parts of the motorcycle – pedals, moving parts of the steering gear etc. For correct operation of the immobilizer, all the additionally installed external relays should be bypassed using diodes.

## Magnetic contact installation

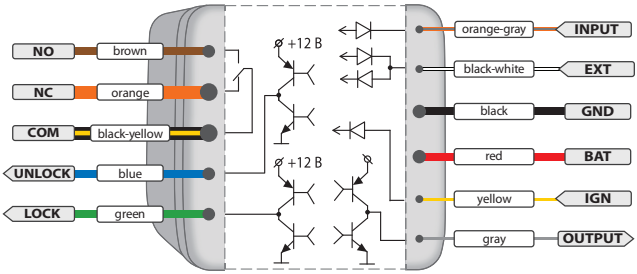
The magnetic contact is intended for tracing of the motorcycle trunk state.

Fasten the sensor in the trunk, for instance, using self-tapping screws. When installing the sensor, place the magnet near the sealed contact as shown in the figure. When the trunk is opened, distance between the magnet and sealed contact shall increase, so that alarm in the security mode is activated. Connect one of the sensor wires with the **INPUT** wire, and connect the second wire with the motorcycle ground.



# Description of external outputs

## Diagram of external outputs




## Designation of external outputs

| Marking | Explanation |
|---|---|
| **GND** | Ground (–) |
| **BAT** | Power (+) |
| **IGN** | Ignition (+) |
| **NO** | Normally open contact of relay (NO) |
| **NC** | Normally closed contact of relay (NC) |
| **COM** | Common relay contact |
| **UNLOCK** | Light signal control (+) |
| **LOCK** | Light signal control (+) |
| | "Alarm" status output (–) |
| **INPUT** | Limit switch input (–) |
| **OUTPUT** | Output to the siren (+) |
| **EXT** | "Event" input (activation/deactivation) (+/–) |

## Connection of power circuits

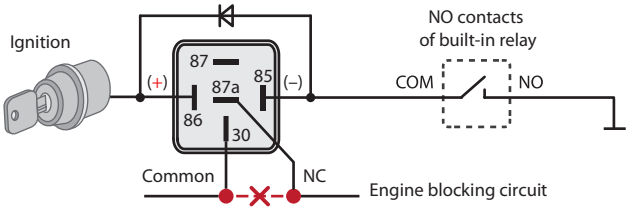
Power supply is connected using two wires: +12 V (**BAT** wire) and "ground" (**GND** wire).

First of all, connect the "ground" wire. For connection to the "ground" use the "ground" bolt or nut. At that, crimp the terminal on the wire for the corresponding fastener diameter. The "ground" wire shall not be connected to the body by means of a self-tapping screw. The connection point should be treated with corrosion-preventive compound.

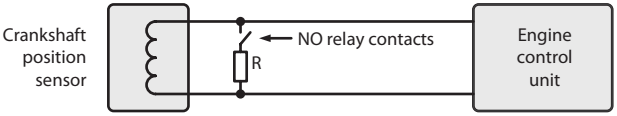
For the +12 V connection (**BAT** wire) use the motorcycle standard circuits with non-switched off voltage of +12 V, with cross-section not less than 2 mm2, or connect directly to the battery box. The **BAT** wire should be connected via the fuse included in the delivery set.

**IGN wire** – input of connection to motorcycle ignition. The **IGN** wire shall have the potential of +12 V during ignition switch-on and engine operation.

**NO, NC, COM wires** – outputs of the built-in electromechanical relay, are connected to the engine blocking circuit. Blocking can be performed using both normally closed (**COM** and **NC**) and normally open (**COM** and **NO**) contact pairs. When wiring this circuit, it is necessary to observe the length and cross-section of wires used for switching, because switched current can be significant. If current in the blocked circuit exceeds 10 A, an additional external relay should be used.




***Connection of external blocking relay***



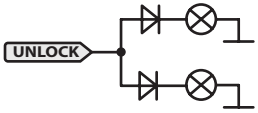

***Example of use NO contacts for blocking***

**LOCK, UNLOCK wires** – power outputs of motor vehicle light signal control. The maximum permissible current is 12 A.

**ATTENTION!** In some cases it is necessary to decouple the "IGN" terminal of the turn relay by means of an additional diode (not less than 7 A).

The **LOCK** wire can be programmed as an "Alarm" status output and be used for connection of external devices (for instance, GSM-module). When the security zone is violated and the alarm is on, "ground" appears during this time at the **LOCK** output.

If the **LOCK** output is used as the "Alarm" status output, both light signals are connected to the **UNLOCK** drive via diodes.



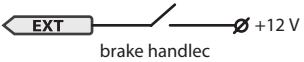

***Connection of light signals to the UNLOCK output***

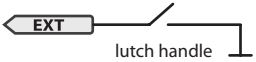
**INPUT wire** – is connected to the trunk magnetic contact, included in the set. Due to this the motoimmobilizer can trace the trunk state.

**OUTPUT wire** – alarm siren control output. The maximum permissible current is 2 A. Connect the red wire of the siren with the **OUTPUT** wire, and connect the black wire with the motorcycle "ground".

**EXT wire** – the "Event" input is intended for security activation/deactivation. The **EXT** input is connected to the limit switch of the clutch handle, brake handle, motorcycle footstep or to a separately installed button.

The operation logic of motorcycle limit switches may vary, therefore it is possible to select input operation mode. For instance, if connection is made to a switch with NO (normally open) contacts, the NO input mode should be selected. And vice verse, if a limit switch is NC (normally closed) contacts – the NC input mode.



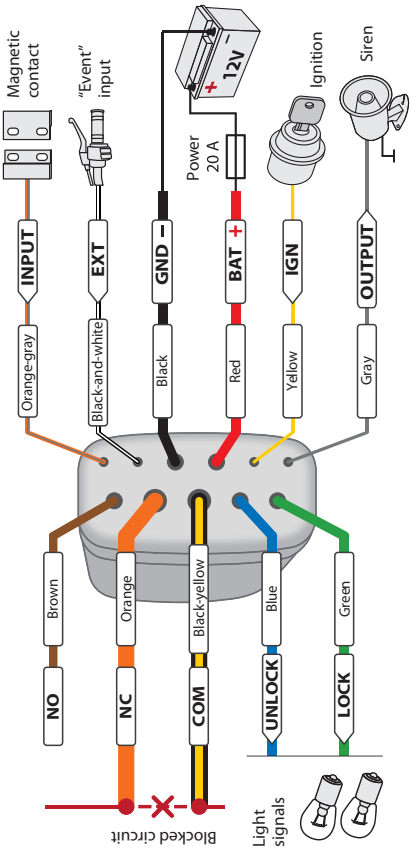




The standard connection diagrams of the **EXT** input are given in section "Wiring diagrams".

The recommended connection is the motorcycle clutch handle.

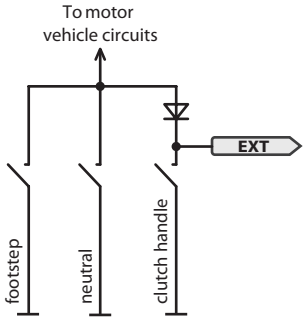
# Wiring diagrams

## Connection diagram of StarLine V66

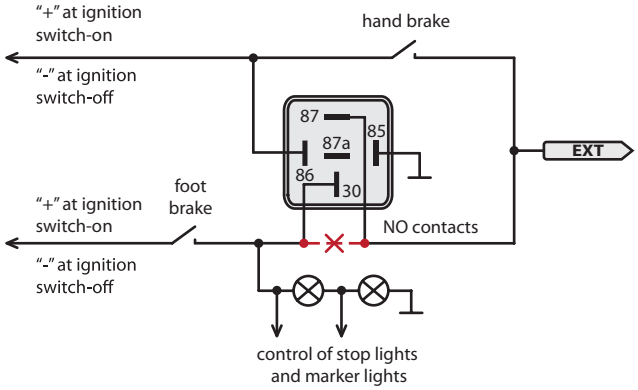



The device is manufactured with textual or color marking of wires.

## Standard connection diagrams of EXT input




***Connection to clutch***




***Connection to hand brake***

For this connection diagram, the **EXT** input should be set as a positive normally open one.

# Telematic setting

Convenient and quick setting of the motoimmobilizer is performed by means of wireless setting using the “StarLine Master” application, available for download on the website **www.starline.ru**

Wireless setting will require the BLE-programmer StarLine. The telematic setting manual is given in section “Help” of the application during programmer connection via USB.

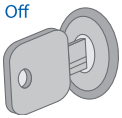
# Motoimmobilizer programming using a tag

The “Parameter programming” mode is intended for setting of immobilizer parameters. Entry the “Parameter programming” mode is possible only from the “Security off” mode.

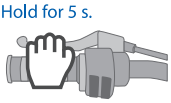
## Entry the “Parameter programming” mode

Do as follows to enter the mode:

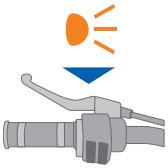
1) Switch off the ignition.




2) Hold the clutch* (brake) handle for 5 seconds.




3) A flash of light signals will follow. Release the clutch handle.



4) Press the clutch shortly 5 times.


5) Switch on the ignition. 5 confirming sound signals will follow. The tag LED will light up green.


Exit from the “Parameter programming” mode is performed by ignition switch-off.

## Motoimmobilizer parameter setting

For parameter setting, set the immobilizer to the "Parameter programming" mode.

The programming mode is given in table for convenient use. Menu navigation is performed using the tag button.

The number in the "Parameter" column corresponds to the number of tag pressings while the green LED is illuminated. The number in the "Value" column corresponds to the number of tag pressings while the red LED is illuminated.

<table>
<tr><th>Parameter</th><th>Value</th><th>Description</th><th>Note</th></tr>
<tr><td rowspan="2">1</td><td colspan="2">Change of the security deactivation code</td><td rowspan="2">Allows for changing of the code for emergency security deactivation</td></tr>
<tr><td>1...9,<br>1...9,<br>1...9,<br>1...9</td><td>Entry of new code</td></tr>
<tr><td rowspan="2">2</td><td colspan="2">Reset of settings to default values</td><td rowspan="2">Allows for recovering all defaults settings according to the programming table</td></tr>
<tr><td>1</td><td>Settings reset</td></tr>
<tr><td rowspan="3">3</td><td colspan="2">Shock sensor sensitivity (warning level)</td><td rowspan="3">Allows for adjusting shock sensor sensitivity</td></tr>
<tr><td>1...10</td><td>1 – low sensitivity<br>...<br>10 – high sensitivity</td></tr>
<tr><td colspan="2">8 – default</td></tr>
<tr><td rowspan="3">4</td><td colspan="2">Shock sensor sensitivity (alarm level)</td><td rowspan="3">Allows for adjusting shock sensor sensitivity</td></tr>
<tr><td>1...10</td><td>1 – low sensitivity<br>...<br>10 – high sensitivity</td></tr>
<tr><td colspan="2">4 – default</td></tr>
</table>

** Programmed by the installation specialist during mounting*

| Parameter | Value | Description | Note |
|---|---|---|---|
| 5 | Tilt sensor sensitivity | | Allows for adjusting tilt sensor sensitivity |
| | 1...10 | 1 – low sensitivity<br>...<br>10 – high sensitivity | |
| | 4 – default | | |
| 6 | Movement sensor sensitivity | | Allows for adjusting movement sensor sensitivity |
| | 1...10 | 1 – low sensitivity<br>...<br>10 – high sensitivity | |
| | 4 – default | | |
| 7 | Method of security mode switchover | | Allows for selecting security activation/deactivation method |
| | 1 | Via the "Event" input or by means of tag (smartphone) button | |
| | 2 | Only by means of tag (smartphone) button | |
| | 1 – default | | |
| 8 | Tag coverage range | | Allows for adjusting tag authorization range |
| | 1...10 | 1 – near<br>...<br>10 – far | |
| | 8 – default | | |
| 9 | Smartphone coverage range | | Allows for adjusting smartphone authorization range |
| | 1...10 | 1 – near<br>...<br>10 – far | |
| | 8 – default | | |
| 10 | Sound signal at security activation/deactivation | | Allows for sound signal switch-off at security activation/deactivation |
| | 1 | No | |
| | 2 | Yes | |
| | 2 – default | | |

| Parameter | Value | Description | Note |
|---|---|---|---|
| 11 | Volume level of alarm siren | | Allows for siren volume control at alarm activation |
| | 1...10 | 1 – low<br>...<br>10 – loud | |
| | 10 – default | | |
| 12 | Volume level of sound confirmation signals | | Allows for setting of volume level of sound confirmation signals |
| | 1...10 | 1 – no sound, only light signals<br>2 – low<br>...<br>10 – loud | |
| | 3 – default | | |
| 13 | Setting of security activation input (EXT) | | Allows for setting of EXT input operation algorithm |
| | 1 | negative, NO | |
| | 2 | negative, NC | |
| | 3 | positive, NO | |
| | 4 | positive, NC | |
| | 1 – default | | |
| 14 | Assignment of LOCK output | | Allows for setting of LOCK output operation algorithm |
| | 1 | light signal control | |
| | 2 | negative output of “Alarm” signal | |
| | 3 | output of “Alarm” signal (“+”/“-”) for M17 within V67 | |
| | 1 – default | | |
| 15 | Selection of trunk sensor connection | | Allows for selecting an option of trunk connection |
| | 1 | NO to “ground” | |
| | 2 | NC to “ground” | |
| | 2 – default | | |

| Parameter | Value | Description | Note |
|---|---|---|---|
| 16 | Siren control method | | Allows for selecting the siren sounding method |
| | 1 | continuous signal | |
| | 2 | intermittent signal | |
| | 1 – default | | |
| 17 | Automatic security activation | | Allows for setting of automatic security activation (in 30 seconds after ignition switch-off and tag disappearance). |
| | 1 | off | |
| | 2 | on | |
| | 2 – default | | |

## Example of setting of shock sensor alarm level sensitivity

To change shock sensor sensitivity level to 5, switch over the immobilizer to the "Parameter programming" mode and perform the following actions:

1) Make sure the tag LED is illuminated green and press the button 3 times.

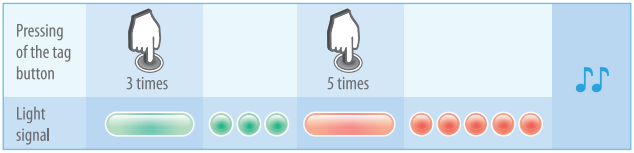

2) After the end of illumination, 3 short green flashes will follow. The LED color will change to red.

3) Press the tag button 5 times for sensitivity level setting.


4) After the end of illumination, 5 short red flashes will follow.

5) Successful setting of sensitivity level will be confirmed by 2 sound signals. If the input value is inadmissible, 4 sound signals will follow.

Example of changing of shock sensor sensitivity level to 5:



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

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