StarLine R6

wireless unit

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General

The StarLine R6 wireless unit protects your vehicle against theft by blocking an engine and prevents from intruder access to underhood compartment by means of a hood lock intelligent control.

StarLine R6 may only be used in combination with the 6th Generation StarLine security systems (X96, M96, E96, S96 etc.)

Data between the main unit of a security system and StarLine R6 are transferred via the Bluetooth Smart (BLE) protocol using a data interception protection algorithm while device registration.

Benefits of StarLine R6 underhood unit:
- waterproof housing;
- small dimensions of the unit allows to hide it in a hard to reach place of engine compartment;
- engine temperature monitoring via an external sensor supplied within the package;
- integrated motion sensor;
- hood lock and engine lockout intelligent control in case of a lost connection with the main unit of a security system.
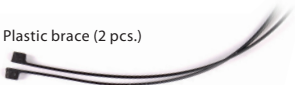
Delivery package

❶ Main unit with wires.

❷ Temperature sensor.

❸ Plastic brace (2 pcs.)

❹ Installation manual.

Specifications

Parameter	Value
Input voltage, V	8 – 18
Current consumption, mA	1,2
Insulation class	IP67
Maximum current at LOCK and UNLOCK outputs, A	12
Maximum permitted switched current via relay contacts, A	10
Operating temperature range, °C	−40 ... +85
Temperature sensor measuring range, °C	− 40 ... +150
Control pulse duration of hood control, s	0,8
Dimensions, mm	94×24×13

Operation description

Operation modes

The **StarLine R6** wireless relay unit has two operation modes:

- normal;
- standalone.

Normal mode

In normal mode **StarLine R6** communicates with the main unit and receives its control commands for engine block, hood lock, and the alarm siren. The **StarLine R6** monitors the state of the hood, ignition, engine temperature and transfers these data to the main unit.

Standalone mode

The **StarLine R6** will turn to the standalone mode in case of communication loss with the main unit for more than 30 seconds indicating this with a alarm siren signal.

The **StarLine R6** standalone mode has two submodes:

- *armed*

  StarLine R6 enters this submode, if the security system has been armed prior to the communication loss. After the alarm siren stops StarLine R6 will lock the vehicle hood.

  StarLine R6 independently controls engine blocking, hood lock, and an alarm siren.

- *disarmed*

  StarLine R6 enters this submode, if the security system has been disarmed prior to the communication loss.

  Engine blocking, hood lock and alarm siren control is not performed in this mode.

  When connection with the main unit of security system is recovered, **StarLine R6** will automatically return to the *normal operation mode.*

Engine blocking

Normal mode

In the normal operation mode **StarLine R6** blocks an engine by a command of the main unit.

Standalone mode

In the standalone mode, an engine can be blocked by either of the following events:

- *when the ignition is turned on*

  Engine will be blocked in a moment of ignition is turned on.

- *when a vehicle starts moving* (if the **IGN** wire is not connected)

  An engine will be blocked for 30 seconds after a vehicle starts moving, then the **StarLine R6** will unlock an engine until the next attempt to move the vehicle. After three attempts **StarLine R6** will block the engine until connection with security system is recovered.

Control of a hood lock

- *In the normal mode* hood lock control is made with an alarm main unit commands.
- *In the standalone mode* if the system has been armed before, the StarLine R6 will lock the hood whenever communication with the main unit is lost.

Alarm siren control

In the normal mode alarm siren control is made with an alarm main unit ommands.

In the standalone mode **StarLine R6** independently controls an alarm siren.

The **StarLine R6** turns on sound alarm in following cases:

- communication with an alarm main unit is lost (30 s long intermittent alarm siren sound);
- either of the following security zones is disturbed:
  - hood, motion sensor (30 s long continuous alarm siren sound);
  - ignition is On (continuous alarm siren sound until ignition is turned Off).

General installation requirements

StarLine R6 nderhood unit is designed for installation on vehicles with 12 V voltage.

StarLine R6 should be installed under the vehicle hood. Mount the unit in a hidden place so that it would not contact moving parts of the vehicle. Fasten the housing with plastic braces.

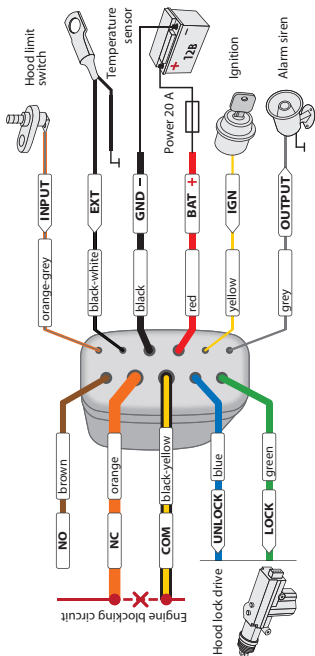### Connection of power circuits

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 corrosionpreventive compound.

In order to connect +12 V (the **BAT** wire), you will need to use regular circuits of the vehicle with constant +12 V voltage and a minimum cross section of 2 mm^2, or connect directly to the car's battery. The **BAT** wire should be connected via the fuse included in the delivery set.
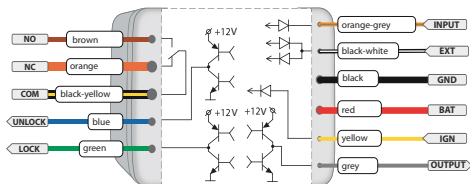
Wiring diagram
Connection diagram

Hood limit switch

Temperature sensor

Power 20 A

Ignition

Alarm siren

12a

INPUT — orange-grey

EXT — black-white

GND − — black

BAT + — red

IGN — yellow

OUTPUT — grey

NO — brown

NC — orange

COM — black-yellow

UNLOCK — blue

LOCK — green

Engine blocking circuit

Hood lock drive

Description of external outputs

Diagram of external outputs

Designation of external outputs

Marking	Assignment
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	Hood lock open pulse
LOCK	Hood lock close pulse
INPUT	Hood limit switch input (-)
OUTPUT	Output to the alarm siren (+)
EXT	Temperature sensor input

IGN wire – input for connection to the vehicle 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 an engine blocking circuit. Blocking can be performed using normally closed (**COM** and **NC**) and normally open (**COM** and **NO**) contacts. When wiring these circuits, 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 auxiliary external relay should be used.
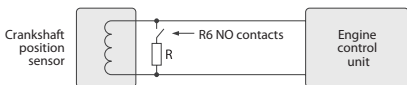
Example of using NO contacts for blocking
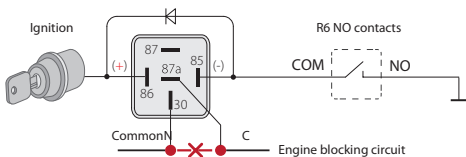
Connection of external blocking relay

UNLOCK, LOCK wires – power outputs for controlling the hood lock electrical drive. The outputs are built according to the power scheme (the maximum output current is 12 A), therefore no additional power modules are required for lock control. Whenever the hood is unlocked, a +12 V pulse is generated at the **UNLOCK** wire for 0.8 s. Whenever the hood is locked, a +12 V pulse is generated at the **LOCK** wire for 0.8 s.

Output	"Open" pulse	"Close" pulse
UNLOCK	+	–
LOCK	–	+

INPUT wire – this wire is connected to the hood limit switch, letting the system monitor the hood status

OUTPUT wire – alarm siren control output. The maximum permitted current is 2 A. Connect one of a siren wires with the **OUTPUT** wire and connect another wire with the "ground".

EXT wire – temperature sensor input. The two-wire temperature sensor should be connected to the wires **EXT** and **GND** with any polarity.

Registering the underhood unit

If a **StarLine R6** underhood unit was purchased separately from the security system, it must be registered into the main unit memory.

Registration procedure for StarLine R6 unit:

1. Switch ignition Off.

2. Disconnect the **BAT**, **OUTPUT** and **INPUT** wires from a car circuits.

3. Disarm a vehicle (refer to the security system manual) and switch StarLine security system into Device registration mode:

- turn ignition On;

- press a service (valet) button 7 times;

- then 7 button LED flashes and 7 siren sounds will follow.

4. Interconnect the **OUTPUT** and **INPUT** wires of the **StarLine R6**.

5. Connect power inputs (**BAT** and **GND** wires) to +12V and ground.

6. In 10 seconds after successful registration a security system will generate sound signal.

7. Disconnect the **BAT** wire from a car circuits, then open the **OUTPUT** and **INPUT** wires.

8. Check operation of **StarLine R6.**

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

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