ETLOC
SECURITY

INSTALLATION MANUAL

ETLOC-50 ONLINE
Installation manual

Online monitoring system

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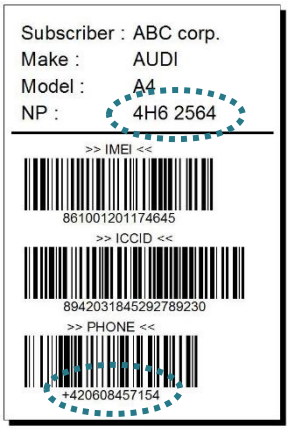
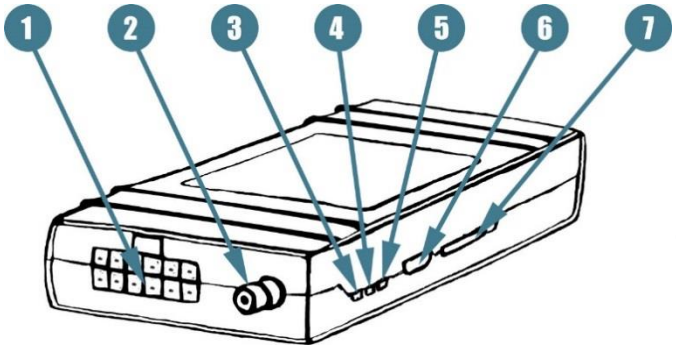
I. Introduction – basic information

The vehicle unit ETLOC-50 ONLINE already contains an activated SIM card. Each unit is always paired with a specific vehicle - you can find the information label with the license plate of the vehicle on the box.



Information label

Note:
Do not remove the SIM card from the vehicle unit!

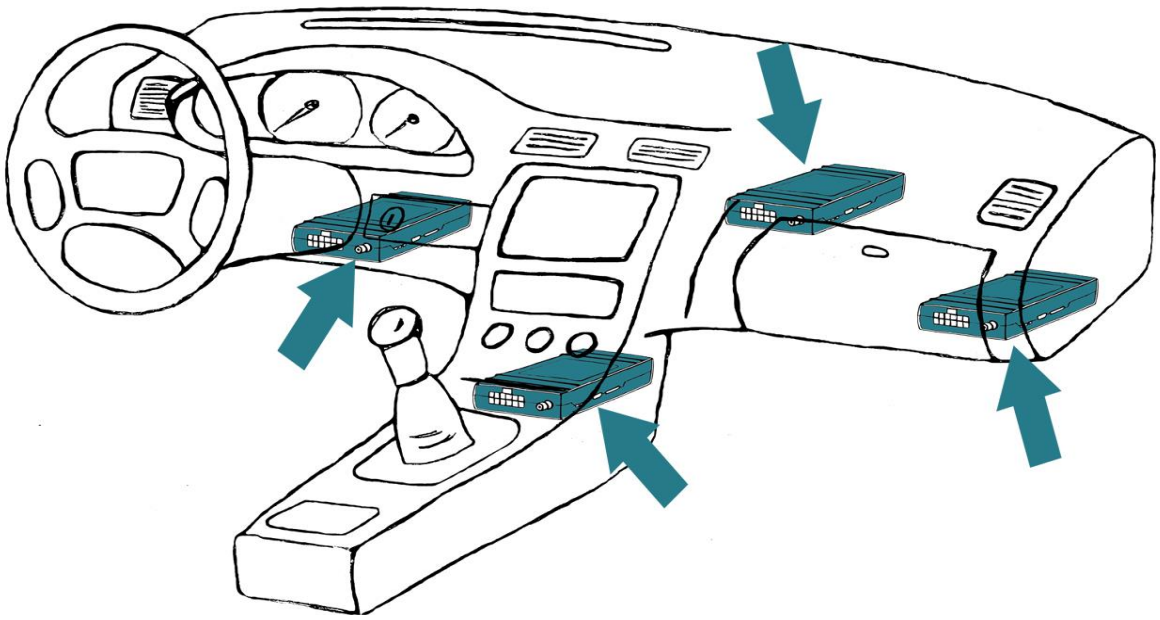


Description of the unit ETLOC-50 ONLINE
1 ..... wiring harness connector
2 ..... SMB connector of GPS antenna
3 ..... green LED – GPS status
4 ..... orange LED – for service purposes only
5 ..... red LED – GSM status
6 ..... USB connector
7 ..... MicroSIM card holder

II. Installation into a vehicle

1. Placement of the vehicle unit

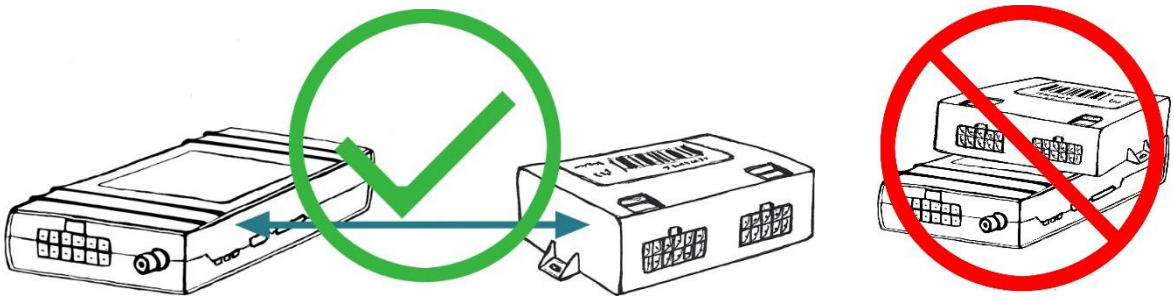
Pay special attention to selection of a suitable place for installing the unit. We recommend using the free space under the vehicle dashboard.



Examples of suitable places for installing the vehicle unit.

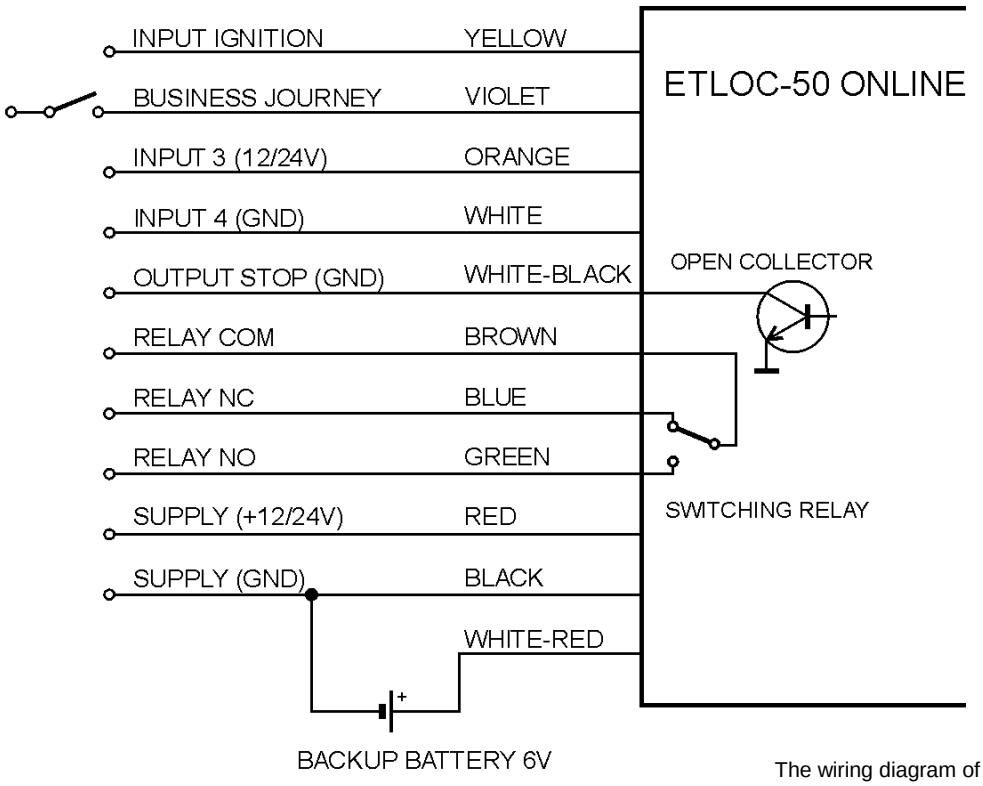
IMPORTANT

The vehicle unit must not be placed in close proximity to **solid metal structures** (the vehicle unit has an integrated GSM antenna) or in close proximity to other devices with **increased electromagnetic radiation** (e.g. control units, electric motors, power relays, servo-drives etc.).



2. Connecting the wiring harness

While connecting wires to the vehicle wiring, the wiring harness has to be disconnected from the vehicle unit.
Basic installation is done via three wires (black, red and yellow).
Other wires are used for specific features of the vehicle unit.



The wiring diagram of the unit ETLOC-50 ONLINE

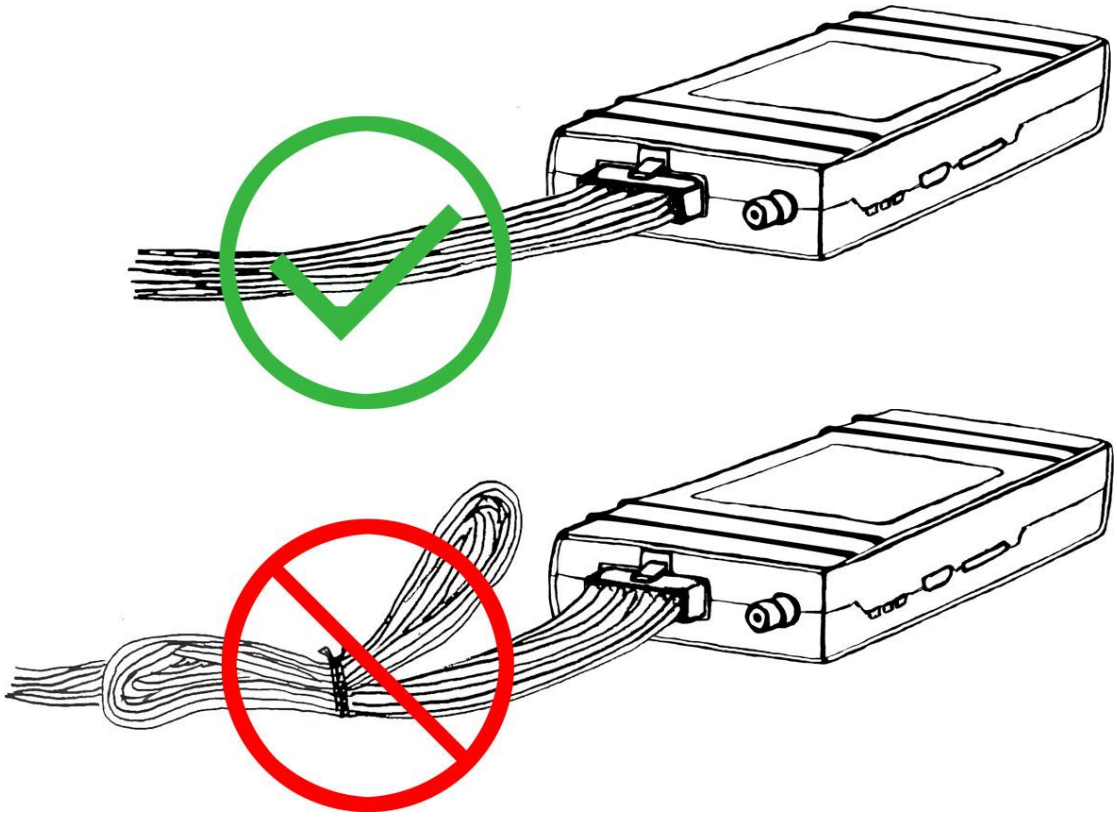
IMPORTANT

The vehicle unit has to be connected via the red wire to a **constant power supply without a current limit**. Protect this connection by a **5A fuse**.

Grounding (black wire) must be done in the **shortest possible distance** from the car battery's negative pole.

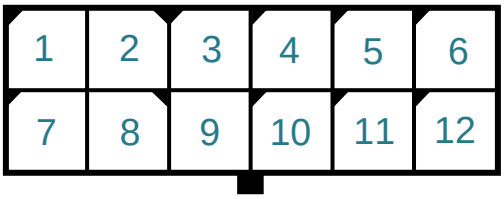
When the **engine is running there must always be** a voltage +12/24V on the **IGNITION input** (yellow wire).

Individual **wires** of the wiring harness **must be shortened** to the absolutely necessary length. **Cut the unused wires at the connector** and **insulate** their ends.



Description of the vehicle unit ETLOC-50 ONLINE connector

Pin 1	2 x black	a) vehicle GND b) backup accumulator GND
Pin 2	Yellow	IGNITION input (activation +12/24V)
Pin 3	White-green	Not connected
Pin 4	White-black	STOP output (activation GND)
Pin 5	Blue	Switching relay – closed contact (NC)
Pin 6	Brown	Switching relay – common contact (COM)
Pin 7	Red	Main power supply +12/24V
Pin 8	Purple	BUSINESS JOURNEY input (switch)
Pin 9	White	Input 4 (activation GND)
Pin 10	Orange	Input 3 (activation +12/24V)
Pin 11	White-red	+ 6V backup accumulator
Pin 12	Green	Switching relay – opened contact (NO)



View of the vehicle unit's connector

2.1 Input IGNITION (connection of this input is mandatory)

Input IGNITION is used to monitor a running engine of a vehicle.

IMPORTANT

When the **engine is running there must always be** a voltage +12/24V on the input.

Input IGNITION **can be connected to any circuit** in the vehicle, **which is active only when the engine is running**.

2.2 Input BUSINESS JOURNEY

Via the switch connected to this input the driver sets the type of journey (closed switch indicates business journey, open switch indicates private journey).
Place the switch in an easily accessible and clear space from the driver's perspective (e.g. a vehicle dashboard) in a pre-drilled hole. Connect the switch between vehicle frame (GND) and purple wire.

IMPORTANT

In case the journey switch will **not be used in the vehicle** it is necessary, for permanent identification of business journeys in the system, to **ground the purple wire**.

Grounding of the purple wire must be done in the **shortest possible distance** from the negative pole of the car battery.

2.3 Input 3

Input 3 is used as an independent information input, which monitors status or activities of a particular device within the vehicle (e.g. alarm activation, switching of a cooling device, usage of a beacon or warning lights, SOS button activation, working position of a plow, opening the lid of a tank, opening of a cargo space etc.).

Orange wire - input 3 is activated by a voltage +12/24V. Voltage impulses shorter than 0.8 second are not being detected.

Note:
In an online monitoring system environment a user can define what reaction shall be executed upon information input 3 activation.
There are two options, which can be combined:

a) *send an "information SMS" to a predefined tel. numbers upon input 3 activation*
b) *in a logbook (on map background) mark part of route for which the input 3 was active*

2.4 Input 4

Input 4 is used as an independent information input, which monitors status or activities of a particular device within the vehicle (e.g. alarm activation, switching of a cooling device, usage of a beacon or warning lights, SOS button activation, working position of a plow, opening the lid of a tank, opening of a cargo space etc.).

White wire – input 4 is activated by grounding (GND). Impulses shorter than 0.8 second are not being detected.

Note:
In an online monitoring system environment a user can define what reaction shall be executed upon information input 4 activation.
There are two options, which can be combined:

a) *send an "information SMS" to a predefined tel. numbers upon input 4 activation*
b) *in a logbook (on map background) mark part of route for which the input 4 was active*

2.5 Output SWITCHING RELAY

The relay is used for example for controlling external heating, sirens, warning lights etc. (maximum relay load is 5A 12/24V DC).

Note:
In case you would like to control devices with higher current load use an auxiliary relay which has appropriate technical parameters.

The relay can be controlled only via SMS commands (see user manual).

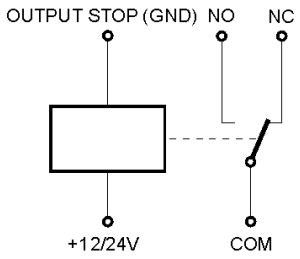
2.6 Output STOP

It is an independent output, specially designed to safely stop vehicle's engine. The output is only activated when the vehicle stops - reduces speed to 0 km/h. (e.g. at the intersection).

White-black wire - the output in a form of an open collector (max output load 36V/350mA).

Note:
With the STOP output an external relay can be controlled, performing appropriate action within the vehicle (e.g. interrupts fuel injection pump power supply).

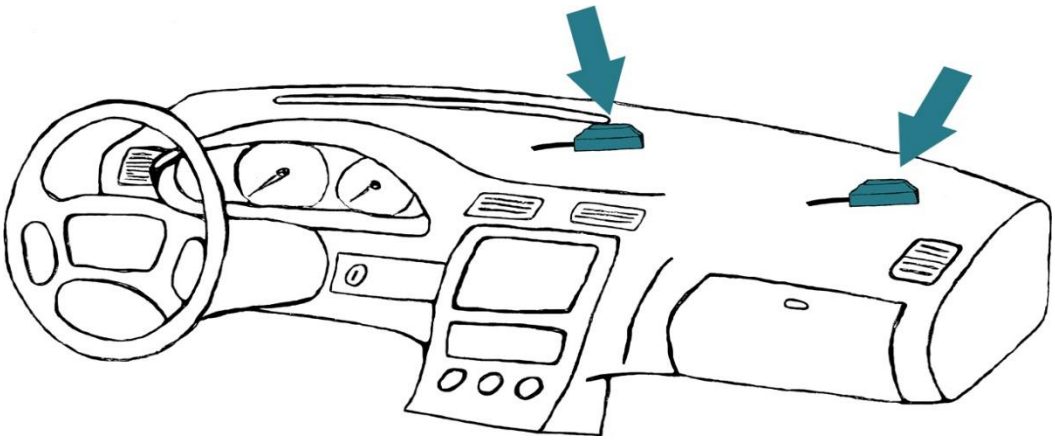
The STOP function can be activated/deactivated only via a SMS command (see user manual).



Connection of an external relay to the STOP output

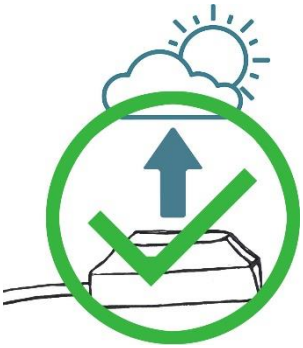
3. Mounting the GPS antenna

Pay very close attention to the selection of a suitable place for installation of the GPS antenna. The location and orientation of the GPS antenna has a major impact on the accuracy of vehicle positioning. A suitable location for the GPS antenna is directly underneath the dashboard.

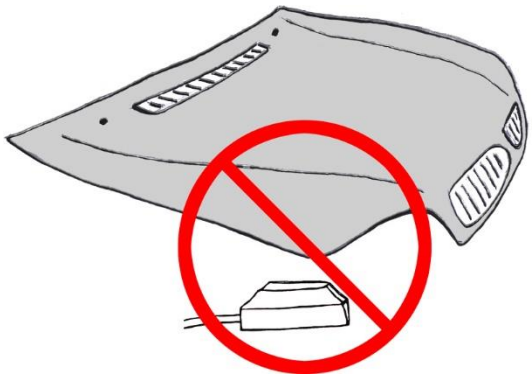


IMPORTANT

Ensure **horizontal position** of the GPS antenna and its correct **orientation**.



GPS antenna should not be placed under or in close proximity to **solid metal structures** or in close proximity to other **GPS devices and antennas**.



Firmly fix the GPS antenna (e.g. double sided adhesive tape) to make sure it will not change its position during operation.

Note:
In case the vehicle is equipped with a metallized windshield (a heated windshield is not a problem for GPS signal reception) it is necessary to place the GPS antenna, for example, into the side mirror, front plastic bumper or other location where its view to the sky will not be obstructed.

4. Activation of the vehicle unit

a) Attach a GPS antenna's SMB connector and wiring harness connector to the vehicle unit (**after attaching of the cable harness the vehicle unit does not activate yet - it is still turned off**).

b) **Start the vehicle** and wait for approx. 2 minutes (during this time the unit initializes). LEDs on the vehicle unit indicates its current state.

Red LED – indicates GSM status	
LED is blinking 1 x per second	The unit is connecting to GSM network
LED is blinking 1 x per 3 seconds	The unit is connected to GSM network
LED is blinknig 3 x per second	The device is connected to GSM and GPRS
LED is not blinking	The unit is switched off
Green LED – indicates GPS status	
LED is blinking 1 x per second	The unit is trying to receive GPS data
LED is blinking 1 x per 3 seconds	The unit is receiving actual GPS data
LED is not blinking	GPS module is switched off

c) From your mobile phone send a SMS with command **state** to a telephone number of the vehicle unit (written on an information label). You will receive a SMS reply with information about the installed vehicle unit's current state.

state

STATE:
IMEI 866104028872547 1
INPUTS 1/0/0/0 2
SWITCH 0 3
STOP 1/0 4
CBAT 12,6V 5
BBAT 6,4V 6
CHARGE 0 7
GSM 28 8
GPRS I60s/1 9
GPS 1/1/5 10

Note: 0 – no/off, 1 – yes/on

1. IMEI – a unique identification number of a vehicle unit
2. Inputs state
   IGNITION / BUSINESS JOURNEY / Input 3 / Input 4
3. Switching relay state
4. STOP function state
   Function STOP activation / Execution of STOP output
5. Car battery voltage
6. Backup battery voltage
7. Charging of the backup battery
8. GSM signal power
9. GPRS state
   Period of data sending / Data network connection
10. GPS module state
    Module turned ON / Current position / Number of visible satellites

d) Turn off the vehicle's ignition and resend the SMS with **state** command. In received SMS check if the input IGNITION is not active (INPUTS **0**/0/0/0).

IMPORTANT

After **turning the vehicle's ignition off wait approx. 5 minutes** and check if the vehicle unit is still being powered (red LED must be blinking). With this procedure you will verify that the circuit, chosen for supplying power to the vehicle unit, is not time-restricted and does not cause a shutdown of the vehicle unit – **perform this test with disconnected backup battery**.

5. Connecting the backup battery (optional accessory)

The backup battery allows localization of the vehicle even with the car battery disconnected. The backup battery is connected through a wiring harness - **white-red** (+6V) and **black** (GND) wire with **FASTON connector**.

Note:
Charging of the backup battery is managed automatically and occurs only when the engine is running.

The lifespan of the backup battery is 3 years and after this period it should be replaced.

6. Mounting of the individual components

Firmly fix the vehicle unit, backup battery and wiring harness in the designated place under the dashboard. For the fixing use double-sided adhesive tape and plastic cable tie.

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