

www.alpriority.com

AL PRIORITY®

User Guide

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Important Safety Instructions

READ BEFORE OPERATING

This product was designed and manufactured to meet strict quality and safety standards. There are, however, some installation and operation precautions which you should be particularly aware of. Therefore read, keep and follow these guidelines during installation and use:

- Take special care while installing the sensor head. Damaging the cable or the factory installed connector on the cable may cause malfunction and will void warranty.
- While the sensor is water resistant and intended to be installed on the outside of the vehicle, the control box and it's connections must be made and kept in a dry area, preferably the passenger cabin. Warranty will be deemed invalid if failures are caused by improper installation.
- Do not plug more than five outer sensors into the control box. **Do not plug any third party equipment into any of the sockets in the control box, unless it is allowed by this user guide or listed on our official website. Do not plug any part of the AL Priority into third party equipment. Doing so may cause fire or damage to the unit and voids warranty.**
- AL Priority is compatible with AL G9 sensors, but is not to be mixed with any other older AL components. Doing so would cause characteristic failure of the unit and voids warranty.
- It will take time to get acquainted with the range of the parking sensor, which can vary from 0 to 3 meters, from your car to the obstruction. Therefore rely on your personal judgment.
- AL Priority can NOT detect glass or other transparent objects.
- While driving, especially in winter months, dirt and filth can accumulate on the outer sensor lens, which can affect the sensor's performance. Wipe the lens periodically with a dry or moist cloth. Do not use cleaning solvents other than water.
- Laser signals emitted from AL Priority can cause interference to other laser equipment. If such case is detected by the system it will reset within a few seconds.
- If the vehicle where AL system is being installed to is already using another AL laser system (for instance laser cruiser control, or similar) in some cases it is possible that those two systems could interfere with each other. Check with your AL supplier if optional Noise filtering sensors are available, intended for instalment into LCC equipped cars.
- Use of laser products may be regulated by your local laws. Check your local laws before using this product.

Special caution

AL Priority laser sensor emits an invisible laser beam that can be harmful to sight. Never, under any circumstances look at the sensor while it is operating.

Safety and Conformity

Electromagnetic compatibility

The AL Priority is fully in conformity with the requirements of Council Directive 2004/108/EC Electromagnetic Compatibility (EMC), based on the full compliance of the product with the following European/International Standards:

Emissions: EN 61000-6-3 (IEC 61000-6-3)

Immunity: EN 61000-6-1 (IEC 61000-6-1)

The labeling of the AL Priority which is affixed on the Outer Sensor and the Control Box housing meets the requirements of the guideline 2004/108/EC:



The AL Priority is fully in conformity with the requirements of Automotive EMC Directive 2004/104/EC amended by directives 2005/49/EC, 2005/83/EC, 2006/28/EC, 2009/19/EC and duly approved and homologated by The Slovenian Roads Agency. Type -approval number is: e26*2009/19*1058*00

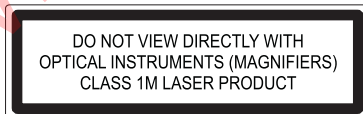
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Laser safety

The AL Priority is tested and classified as Class 1M laser product in accordance to European and International Eye safety regulations EN 60825-1 and IEC 60825-1.

Definition: Class 1M-laser products are safe under reasonably foreseeable conditions of operation, but may be hazardous if the user employs optics within the beam.

An Outer Sensor unit of the AL Priority system is labeled in accordance to regulations:



For products delivered into the United States the following clause applies:

Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.

RoHS: The AL Priority is compliant with the requirements of RoHS Directive.

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1. Introduction

Thank you for purchasing AL PRIORITY, successor to the Worlds' first multipurpose car parking sensor designed for your driving comfort. This product was developed and manufactured in our ISO 9001 certified factory in Croatia (EU) ensuring top quality of the product.

AL PRIORITY comprises parts fabricated to military standards and was designed to keep you and your vehicle safe by enabling effortless parking and greater confidence while driving. As opposed to classic infra-red sensors that use light emitting diodes AL PRIORITY is equipped with a laser diode that is used in military range-finders and police speed detectors, the power of which is one hundred times greater than that of a LED diode. In addition, it incorporates our patented laser technology that is a significant improvement in the industry, ensuring higher precision, extreme resistance to temperature changes and foreign light interferences, specifically Sun rays.

AL PRIORITY works on the 905 nm light frequency. It constantly emits laser signals and recognizes them when reflected from an obstacle, consequently warning the user. Thanks to the advanced program code the system will discriminate between laser signals coming from other laser sources.

AL PRIORITY is not just a parking sensor. Special sensor version is available that incorporate LED illumination intended to be used as fog lights (this option may be unavailable in your country, check with your local dealer). AL Priority is compatible with specific 3rd party radar sensors (in some countries radar use may be regulated by law, check availability with your local dealer).

AL PRIORITY is Industry's First laser sensor with user internet USB flash drive upgrades. The USB flash drive is also used to transfer custom system setup from the PC Priority setup application. Alternatively the Control set keyboard will enable you to set-up the system to your priorities directly in the vehicle.

Intellectual property within AL Priority is protected with registered and pending patents and designs, such as but not limited to: HR P20040769, HR PK20060340, DE202008018045U1, ZAP/2010/8418, US 8,309,926, AU2008355569, EP2277060, CA2723286, and others. All Rights Reserved.

AL, ALP and AL PRIORITY are trademarks or registered trademarks in the US, EU and other countries: US4123648, HR Z20091753, AU1423337, EM1073712, US 4280659, HR Z20120201, AUS 153306, ...

AL PRIORITY Improvements

AL PRIORITY comes with the smallest sensor in its performance class. Superior laser detection is achieved by carefully designed hardware and firmware of the reception system, based on our patent protected invention. During design of the system our top priority was maintaining perfect functionality and ultimate performance in all conditions, fighting interferences caused by the Sun and foreign laser sources, increasing resistance to temperature changes and electromagnetic noise.

While the sensor is smaller, the control box has grown, offering new functions and add ons. The system can consist of up to five outer sensors with front and rear sensor discrimination.

AL PRIORITY is the first product in the industry that boasts upgradable firmware and custom set up using a USB flash drive.

The latest hardware revision brings more advancements:

- ✓ Dual Processor Design running at over 100 MHz
- ✓ new smaller sensor gives an even higher level of laser coverage (+20%)
- ✓ still holds the widest protection angle (up to $\pm 15^{\circ}H \pm 15^{\circ}V$)
- ✓ introduces the innovative rear&side sensor cable exit

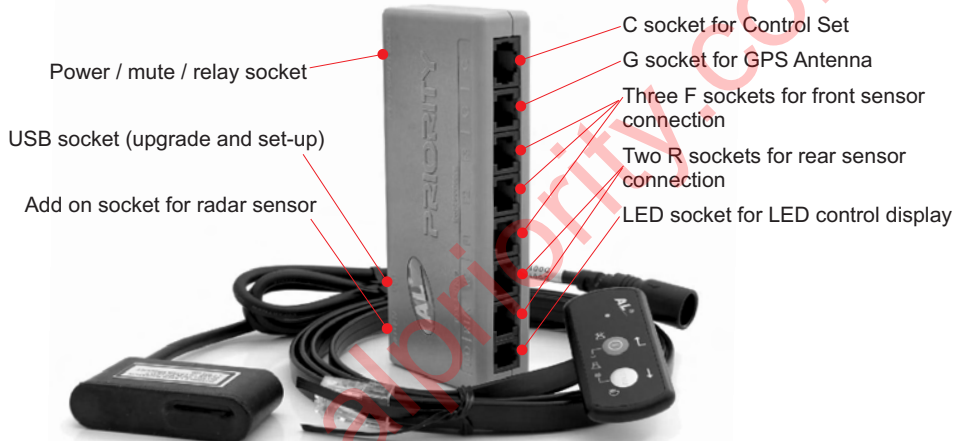
AL Priority brings Industry's First:

- ★ user friendly internet upgrades and USB flash drive set up
- ★ USB flash drive Theft protection Key
- ★ 5 sensor connection with front and rear sensor discrimination
- ★ Noise filtering sensor for factory LCC equipped cars (optional)
- ★ advanced self-test function detects disconnection or malfunction
- ★ compatibility with specific third party devices.

2. Main parts of the Product

Control Box

The central part and the brain unit of the AL PRIORITY. It includes a Dual processor, an upgradeable flash memory, a complex power supply unit and the following sockets:



Outer Sensor

Incorporates emitting and detection circuits: includes one emission and four reception diodes.

As this unit is installed on the outside of the vehicle, it is specially protected from water and mechanical damage. The product set can consist of one to five outer sensors.

Control Set

It should be connected to the C socket of the Control Box. It includes these controls:

- multi-color light diode
- power/ enter/ PDC mute key
- menu/ next/ fog lights on key
- inbuild speaker*.

*Hi-Fi Control Set includes an audio plug for external speaker connection.

3. Installation

To obtain the best performance of your AL Priority and insure long service life, seek a professional installer to mount the product. To begin installation follow these steps and refer to the Installation diagram.

OUTER SENSOR

Can be mounted between the front grill partitions or above the rear bumper. Take care not to damage the cable or the factory installed connector on the cable during installation (cutting the cable or removing the factory installed connector voids warranty and may cause malfunction).

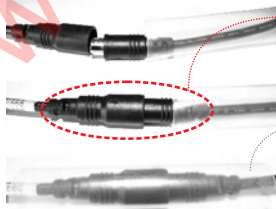
- ① Check if the cable is long enough to reach the desired position. The Priority sensor cable (1 meter) is to be connected with a connecting cable (4 meters), giving a total of 5 meters in cable length. Longer reach can be achieved with an Extension cable (2,5 meter; Optional).



OPTION: 2,5 m Extension cable



To achieve maximum water resistance use a heat shrink tube (included) on the connector. Use a strong heater for the tube to shrink and conform to connector size. The tube can be torn apart when the sensor requires disconnection.



arrow to arrow

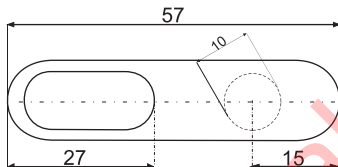
Heat shrink tube provides total humidity protection. We strongly advise you to use it.

- ② Attach the sensor using double-sided adhesive tape and a mounting bracket to a position that offers a clear front (back) view.

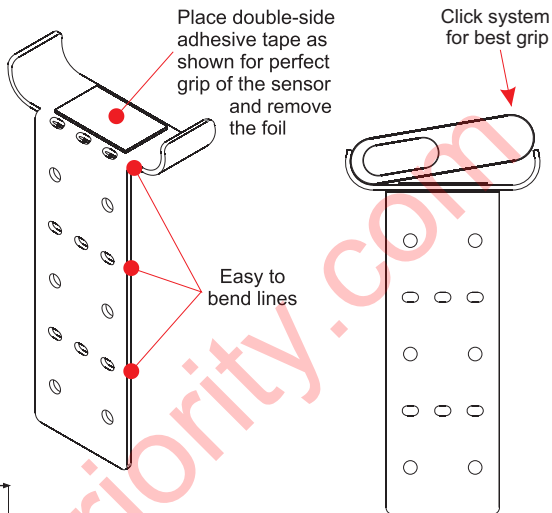
The mounting bracket can be bent as needed.

Fix the bracket with the screws (supplied).

Make sure the sensor is installed firmly in order to absorb vibrations that occur while driving, especially if mounted on a motorbike.



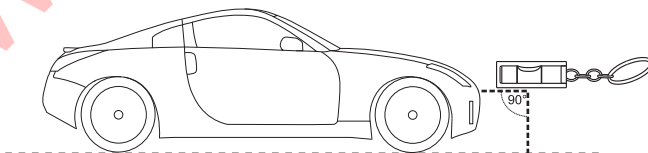
Sensor measurements in mm



If installing sensors behind flat surfaces (plastic bumpers, dense grills) it will be necessary to drill holes through which the sensor will have an unobstructed view of the road. A circle and an ellipse on the sketch of the sensor lens represent the area where receiving and emitting diodes are positioned.

These marks must be clear of obstruction while the rest of the lens can be covered if needed.

- ③ Make sure the sensor is levelled (use a level to check).



CONTROL BOX

The Control Box is to be mounted in the interior of the vehicle at the place of your choice and it should not be exposed to water.

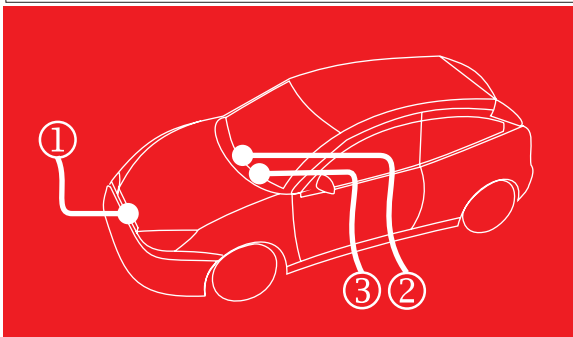
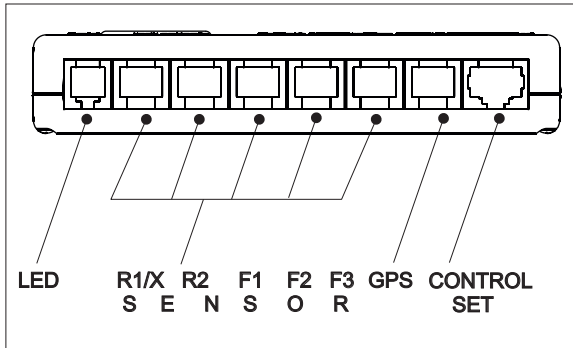
To avoid the possibility of draining your car battery by accidentally leaving your AL system on for a prolonged period of time, use the following connection method:

- * Locate access to the power supply of the vehicle (+12 V)
- * Connect the BLACK Control Box wire to the car chassis or to the negative ground power supply wire of your vehicle's system
- * Connect the RED Control Box wire to the SWITCHED positive power supply wire usually found in the car radio power supply.
- * Insure that the wires are properly locked and preferably wrap them with insulation tape afterwards.
- * Connect the blue car radio mute wire to the corresponding audio mute input on the car radio, if it has one.
- * After the control box is connected to the power supply, connect the sensor into a sensor socket. If there is more than 1 sensor connect them all, front sensors to sockets marked with F, and rear sensors to socket marked with R. Socket R1/X is intended for a regular sensor or for a Noise filtering sensor (*optional*) for users that have a laser cruise control system in their vehicle. The Noise filtering sensor will filter the signal coming from the laser cruise control emitter and enable your AL Priority system to work without being interfered with.

2A fuse is factory installed inside the Control Box but if required additional fuses can be installed externally in the wiring.

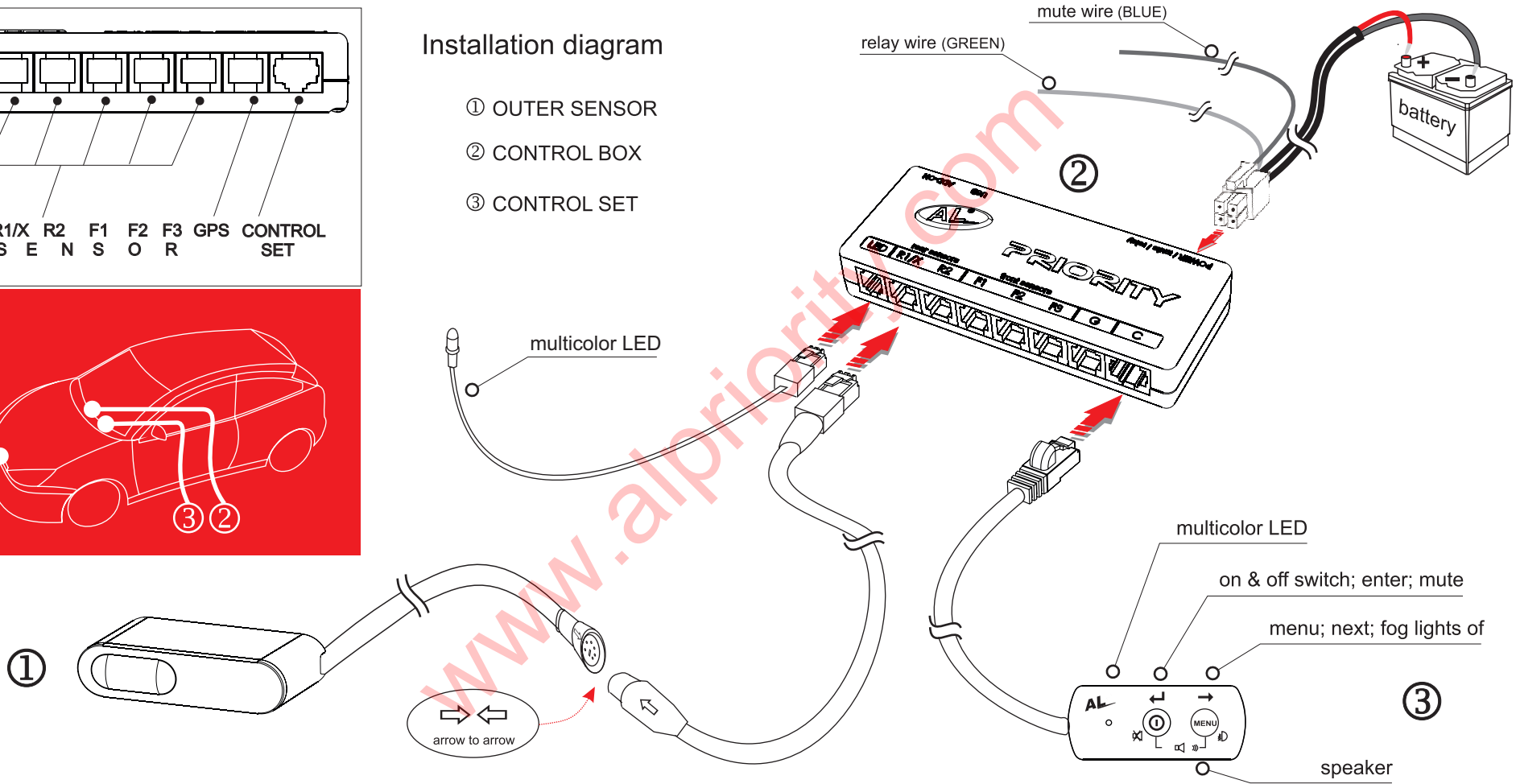
CONTROL SET, LED & USB CABLE

- * Define where to install the Control Set in the vehicle interior while keeping in mind that the control buttons should be close at hand and that the multi-color light diode should be in sight. You can install a separate multi-color LED for easier visibility, in which case the control set needs not be visible. Use a LED holder supplied with the installation accessories when installing a multi-color LED diode.
- * Connect the C connector to the C socket of the Control Box.
- * Connect the USB cable to the USB socket of the Control Box. The USB plug on the other end of the cable should be close at hand so you can easily connect the USB memory drive to the system, when needed.



Installation diagram

- ① OUTER SENSOR
- ② CONTROL BOX
- ③ CONTROL SET



4. Usage


Long press on the power button of the control set. The activation is followed by an intermittent sound and alternating red and green flashing diode lights. While operating the green light will flash once every second. On every activation the system runs a self-test: if the Control set has not been connected properly or has a malfunction the system will turn off; if the sensor(s) or other critical port(s) are not found or are malfunctioning the red diode will light up accompanied by a warning tone during operation. If an obstacle is detected your AL system will warn you with red diode flashes and audible signals that will become more rapid as the sensor gets closer to the obstacle. More on operation modes and audio-visual signals can be found on page 14.


AL PRIORITY has several user selectable operating modes which are set to optimal default values but can be modified by the user at any time during operation. Following custom operating mode set, the new mode will remain permanently written in the memory of the processor. Several additional features are also available in the programming menu.

Note that while inside the menu regular working functions of the system are suspended. System will exit menu or each submenu after 5 seconds of inactivity.


If you are using a Hi-Fi Control Set with exterior speaker, instead of the beep sounds you will hear descriptive information about these MENU settings.

4.1. LEARN TO USE CONTROL KEYS

 long press for Power ON/OFF /
short press when inside menu for ENTER /
short press while driving to mute parking

 long press to enter menu /
short press when inside menu for NEXT /
short press while driving for Fog lights on/off.

4.1.1 Speaker mute

Short press of  button while the system is operating will switch the speaker off and further parking sensor warnings will be given with red flashing lights only.

This setting lasts until you push the same button; the setting is kept in the system memory even after restarting.

4.1.2 Fog lights on/off ()

Short press of **MENU** button while the system is operating will turn the fog lights on or off if the system has the special AL light sensors connected. Fog light activation will be signaled by a green LED flash and a sound, while deactivation of the fog light will be signaled with a sound only.

4.2. Audio volume set-up (Purple MENU)

At the same time long press **1** and **MENU** buttons. The LED will turn purple. Pressing **1** will lower the volume, while pressing **MENU** will increase the volume.

4.3 MAIN MENU MODES AND FEATURES (Yellow Menu)

4.3.1 Parking distance control range - PDC (DEFAULT: LEVEL 3)

Before using it in driving conditions the parking sensor range should be tested by a piece of paper or another object. A warning tone will be heard, accompanied by the red flashing light as you bring the paper or object closer to the sensor. If needed, the detection range (which can vary from 0 to 3 meters) can be adjusted to eight different levels. Use the following sequence for reprogramming:

- Long press **MENU** button to enter menu. The LED will turn yellow, the color of the main menu.
- Press **MENU** once (1) and then press **1**. The LED will turn white, the color of the PDC submenu.
- Press **MENU** once for shortest, twice for short, ... eight times for longest range detection.
- Then press **1**.
- Selected setting is signalled by that number of white LED blinks and beeps from the speaker.

4.3.2 Silent power-up (DEFAULT: OFF) ()

During activation, only the LED indicator lights will flash without sounds. Use the following sequence to activate/deactivate this mode:

- Long press **MENU** button to enter menu. The LED will turn yellow, the color of the main menu.
- Press **MENU** two (2) times and then press **1**.
- Reprogramming will be signalled by a green blinking LED and three beeps from the speaker if this mode is turned ON, or a red LED light with long beep if this mode is turned OFF.

4.3.3 LED Dark mode (DEFAULT: OFF)

To prevent the green light from flashing every second during operation, you can activate the LED Dark mode. The green light will stop flashing 10 seconds after the power-up if this mode is activated.

Long press  button to enter menu. The LED will turn yellow, the color of the main menu.


Press  three (3) times and then press .

Reprogramming will be signalled by a green blinking LED and three beeps from the speaker if this mode is turned ON, or a red LED light with long beep if this mode is turned OFF.

4.3.4 Show firmware version

Firmware version consists of three digits (x.y.z). To check which firmware version the system is running follow the next sequence:

Long press  button to enter menu. The LED will turn yellow, the color of the main menu.

Press  four (4) times and then press .

The number of red LED blinks and beeps from the speaker signals the first digit;

The number of white LED blinks and beeps from the speaker signals the second digit;

The number of blue LED blinks and beeps from the speaker signals the third digit.

4.3.5 Restore factory default settings and memorize number of installed sensors

Did you forget which features you programmed into your system? Use this simple programming sequence to restore factory default settings:

Long press  button to enter menu. The LED will turn yellow, the color of the main menu.

Press  five (5) times and then press .

The system will restore settings and restart.

Automatic sensor check

While restoring factory default settings the unit will count and memorize the number of sensors connected to the system as well as their positions. On each subsequent power-up during the self-test process the unit will check if all memorized sensors are present and operational. If one or more are disconnected or not operational you will be warned by a constant red LED light and short beeps during first 5 seconds of operation.

NOTE: In order to memorize any change initiate this setting after installation of every new sensor.

4.3.6 Manual sensor check

To manually check the number of sensors connected and operating in the system use the following programming sequence:.

Long press **MENU** button to enter menu. The LED will turn yellow, the color of the main menu.

Press **MENU** six (6) times and then press **1** .

The system will execute and the number of sensors that are found connected will be shown by the number of green LED blinks and beeps from the speaker.

4.4. Additional features

4.4.1 System Set-up and Upgrade using a USB flash drive

The system can be set up to your preferred options with the USB disk.

Install AL set-up application on your computer and run it.

Connect any USB memory drive and choose your preferred set-up. Save it to the USB drive by clicking on Save icon.

Plug the USB drive into the USB connector of the AL Priority Control Box. AL system will read the saved file on the USB drive and reprogram to your saved preference.

In case a new firmware edition is released the AL Priority system can upgrade it's firmware with a USB drive (download the new firmware to the USB drive on the internet and upgrade your AL Priority system by plugging it into the Control Box). Check for availability on our website www.alpriority.com.

4.4.2 Theft Protection USB Key (once activated it can not be turned off)

Once this feature is initiated, the system will not work unless a USB memory drive with your unique key is plugged into the USB socket. To create your USB Key, plug any USB memory drive into the USB socket of the Control Box (for easier handling use with the supplied USB extension cable).

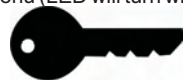
Long press **MENU** button. Press **NEXT** 7 times and enter Service code menu (LED will turn white).

Press **NEXT** 8 times then **ENTER**. Wait for sound sequence to finish.

Press **NEXT** 4 times then **ENTER**. Wait for sound sequence to finish.

Press **NEXT** 8 times then **ENTER**. LED will blink blue and your Key is stored onto the USB drive.

Please make a back-up file of your key on your PC, because if you lose this key you will not be able to power-ON your system.



5. Specifications

Dimensions:

Outer Sensor (LxHxW)

30x14x57 mm (1.18 x 0.55 x 2.24 in)

Cable length: 1 m + 4 m (16.4 ft)

Control Box (LxHxW)

100x22x50 mm (4.8 x 0.86 x 1.97 in)

Power supply cable: 1 m (3.3 ft)

Control Set (L)

56x27x6 mm (2.2 x 1.06 x 0.24 in)

Cable: 0,8 m (2.6 ft)

Weight:

Outer Sensor + cable

57 g + 160 g (0.13 lb + 0.35 lb)

Control Box + cable

93 g + 40 g (0.29 lb)

Working temperature:

-20 °C to +60 °C (-4 °F to 140 °F)

Power supply:

Operational power supply

10 V to 17 V

Current consumption

1500 mA, max.

Speaker loudness:

93 dB min SPL@10cm

Laser class:

1M

Laser wavelength:

905 nm

Specifications are subject to change without notice.

6. Operation description

LED & sound signals:

POWER-UP SEQUENCE

On each power up there is a 3 second long sequence of beeps and green and red LED flashes while the system performs a self-test and sensors are counted and checked.

LED flashing green

Normal operation, LED flashes green every second

LED flashing red + beep

Obstacle found

ERRORS:*

LED constant red + 1 beep:

Error 1; low voltage, check vehicle power supply

LED constant red + 2 beeps

Error 2; cables unplugged or defective sensor

LED constant red + 3 beeps

Error 3; Defective sensor, service required. Unplug all sensors, then connect one by one to find the faulty one. Remove it and contact support.

LED constant red + 4 beeps

Error 4; Control Box defective, service required. Contact support.

LED constant red + 5 beeps

Error 5; Control Box defective, service required. Unplug the power cord from the Control box and contact support.

LED constant red + 6 beeps

Error 6; Control Box defective, service required. Contact support.

LED constant red + 7 beeps

Error 7; Error during firmware update procedure - try again!

LED constant red + 8 beeps

Error 8; Error during firmware update procedure - try again!

LED constant red + 9 beeps

Error 9; Control Box defective, service required. Contact support.

LED constant red + beeps during first 5 seconds of operation

Automatic sensor check has failed, Restore defaults&memorize setup if any change to sensor setup occurred or check for defective sensor.

Should your AL system start to behave differently than what you are used to, before concluding that it might be malfunctioning, reset to factory defaults and check again.

*If you are using a Hi-Fi Control Set with an exterior speaker, instead of error and warning tones you will hear descriptive information for each specific error.