

## INSTALLATION INSTRUCTIONS & USER MANUAL

### Rear parking sensor mod. **EPS-DUAL 3.0**

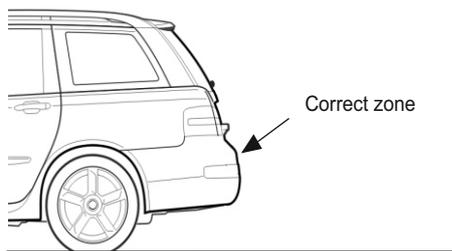
EPS-DUAL 3.0 can be installed only on rear bumper.



The system is strictly a driver assistance device and should not be relied upon as a security device or a substitute for safe driving practices.  
Use common sense when reversing and always follow recommended safe driving guidelines.

# 1

a) The installation of the antenna sensor, constituted by an aluminium adhesive ribbon, must be applied to the inner surface of the bumper. It is **of some importance** that the zone of application corresponds to the **higher part** as regards the ground but also the **most distant** from the car body. It is not advisable to install the antenna sensor too low.



Correct zone

Fig. 1

b) Disassemble the bumper.

# 2

### STARTING PROCEDURE

a) Identify on the car body the zone close to the extremity of the bumper and on the side where it is present the back-gear lamp, a possible hole of passage toward the intern of the trunk in order to carry on the data cable from the antenna sensor.

b) Through the individuated passage route the data cable inside the trunk leaving the fast-on terminal outside. (Fig. 2)



Data cable

Fig. 2

# 3

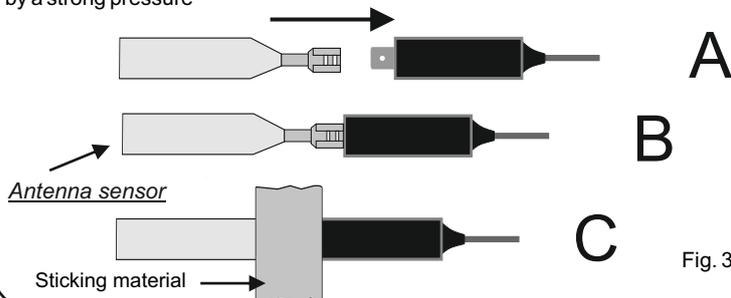
### POSITIONING OF DATA CABLE AND ANTENNA SENSOR

Thoroughly clean with alcohol or nitre solvent (be careful not to use anti-adhesive detergent) the inner surface of the bumper of the zone previously identified (see Fig. 1) on which will be applied the antenna sensor.

**A-** Connect the Data cable coming from the ECU to the antenna sensor.

**B-** Fix through its adhesive the black connection module of the data cable on the inner surface of the bumper, starting from approximately 10-15 cm away from the end of the bumper (fig. 5).

**C-** Apply a piece of sticking material on the connection and fix it on the bumper by a strong pressure



A

B

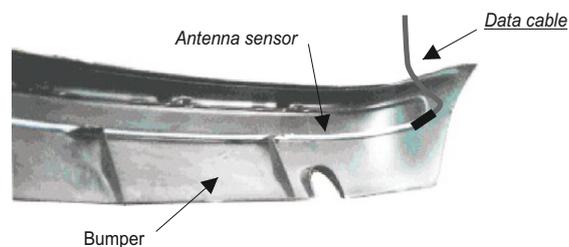
C

Fig. 3

# 4

### MOUNTING THE ANTENNA SENSOR

Start applying the adhesive aluminium tape (antenna sensor) practising a good pressure to make it well adhere to the inner surface of the bumper\*.



Antenna sensor

Data cable

Bumper

Fig.4

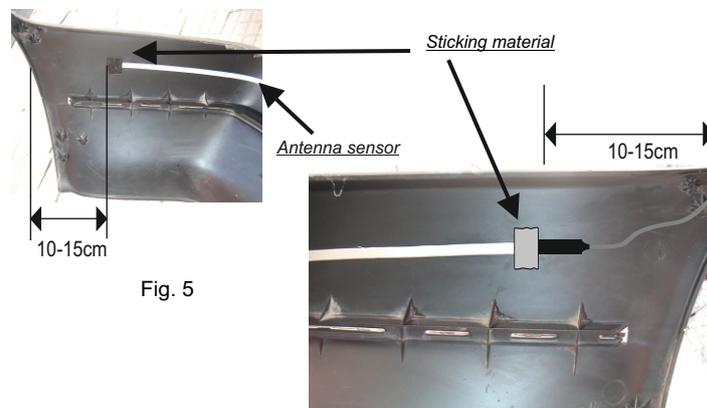
# 5

When the antenna sensor has been attached, covering the whole of the bumper from left to right, the excess length is cut off. Place a piece of the included sticking material at ends of the antenna sensor to ensure a secure fixing onto the bumper surface. It is recommended (but not essential) to cover the antenna with a black anti-rust protection paint of the same type that is applied to the underneath of a car chassis or similar to protect from the elements (do not use silicon paste or adhesive tape).

**\*NOTA:**

1) It is important to start and finish the application of the tape to about 10-15 cm from both ends of the bumper (fig.5).

2) The antenna sensor can not be applied on metal bumpers.



Sticking material

Antenna sensor

10-15cm

10-15cm

Fig. 5

If the ambient temperature is below 10 °C we recommend heating both the Sticking material and the sticking area on the bumper  
Replace the bumper and pull the data cable inside the luggage compartment in order not to leave excess cable outside.

# 6

### ELECTRICAL CONNECTIONS

a) Connect the red lead of the power cable to the positive cable that feeds the reversing lamp.

b) Connect the black lead of the power cable to the earth of the reversing lamp.

**-- IT ADVISABLE NOT TO CONNECT TO ANY OTHER POINT OF EARTH ON THE CHASSIS OF THE CAR --**

c) Insert all plug-in connectors into the proper position on the Central Unit (ECU) as in Fig. 6.

Some vehicles are equipped with a metal crash protection bar insert facing the inside surface of the bumper. When this metal surface is too close to the inner surface of the bumper where you have placed the antenna sensor, the distance signal can be reduced. To adjust the signalling distance it is sufficient to change the dip-switch positions (see schematic). Take care that the sensitivity No 1 is the lowest and the number 4 is the largest.

The sensibility that we recommend for most cars is the No. 2.

We suggest to carry out tests to determine the detection range, pointing out that increasing the sensibility where it is not necessary, can cause more false alerts.

### MOUNTING THE BUZZER

a) Mount the EPS-DUAL 3.0 speaker using its adhesive in a proper place in order to ensure a good perception of sound by the driver.

b) Connect the connector the buzzer into the proper position on the Central Unit (ECU) as in Fig. 6.

### FINAL TESTING PROCEDURE

a) Turn on the key, insert the back gear. In a fraction of second the control unit performs a check of the functionality of the system and, if everything has been done correctly, the buzzer emits an acoustic sound of "OK" (two notes in rapid succession). Once you have this signal the system becomes operational.

### Possible problems and their solutions

1. If the buzzer produces 8 consecutive fast beeps control the data cable and its connection to the control unit and that there is not a short circuit between the antenna sensor and the metal body of the car.

2. If the transducer emits an audible warning signal consisting of 2 notes (one high and one low) repeated 3 times check the connection of Data cable with antenna sensor.

# 7

b) Starting from about 1 meter away from the center of the bumper, slowly approach both hands to simulate a parking maneuver. At a distance of about 60/70 cm will be heard the first acoustic signals whose repetition rate will increase at the decreasing distance to become a fast intermittent sound and then a continuous higher frequency sound at about 10-15 cm from the bumper.

**WARNING:** For a correct simulation be careful to reset the system every time you approach.

c) If the system shows to work regularly it is possible to fix definitely the bumper.

**Note:** EPS-DUAL 3.0 starts to give the signalling **only** when the vehicle is being approached to the obstacle; a fixed object in front of the bumper, for instance the hauls hook and a bull bar or the sides walls of a car box, is not signalled and it is not bothered the normal operation of the device.

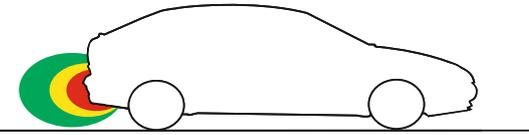
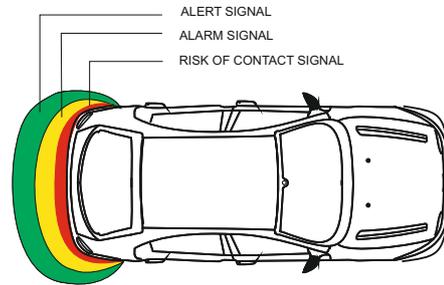


Fig. 6

# 8

## USER MANUAL

### OPERATING PRINCIPLE

EPS-DUAL 3.0 is an innovative parking sensor that uses low energy electromagnetic waves and is able to detect the approach of any kind of obstacle.

The activation of the device is obtained by the insertion of the back gear and confirmed by a signal of "OK". Once activated, the EPS-DUAL 3.0 generates around the bumper, on which is installed, a protection zone (Fig. 6).

When any obstacle present in the protection zone tends to approach the bumper you will hear a series of beeps.

### WORKING EXAMPLE

A) As soon as the EPS-DUAL 3.0 is activated the control functionality of the system is carried out in a fraction of second.

In case of anomalies the speaker emits an audible warning signal consisting of 2 notes (one high and one low) repeated 3 times. If this happens check the antenna connection to the ECU.

If the control is **OK** you hear a signal of two notes in rapid succession to confirm the proper functioning of the system.

B) When approaching an obstacle the system activates the acoustic signal at a distance between the bumper and obstacle (measured in the central area of the bumper) of about 60 / 70 cm with 3 types of sounds:

1) **an increase in sequence of "BIP" (alert)** informs the driver that an obstacle is approaching.

2) **intermittent sounds of fast repetition rate** when the obstacle comes close to the bumper at a distance between 15 and 30 cm measured on the middle of bumper (**alarm**).

3) **continuous sound at a more acute frequency (risk of contact)** when an obstacle is very close to the bumper (10-15 cm).

**Note:**

- The distances will vary depending on the size of the obstacle and correspond to the central zone of the bumper; on the lateral edges the distances is less (see Figure 6)

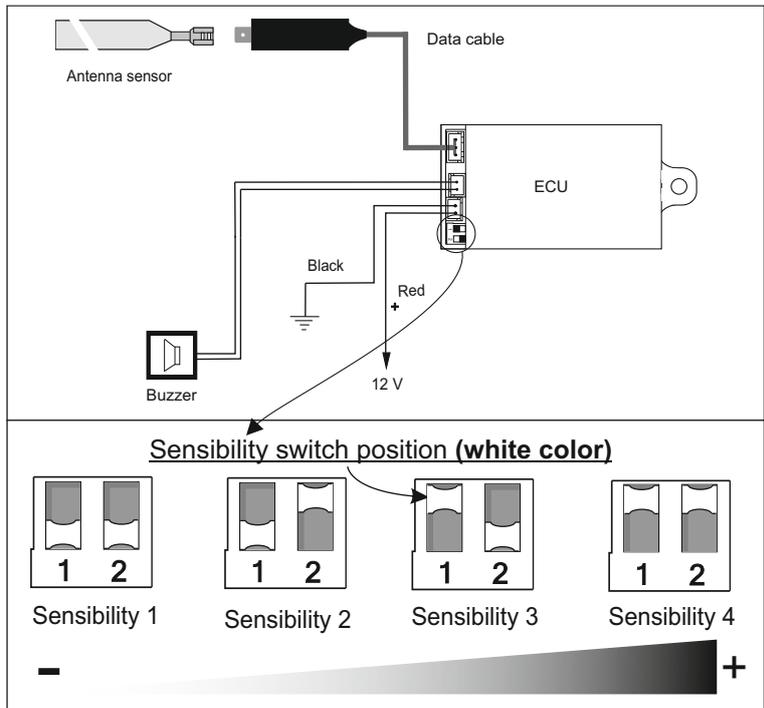
- The alert occurs only when the vehicle is approaching an obstacle, a fixed object in front of the bumper is only detected after the first movement of approach.

**WARNING**

1. In presence of rain or high moisture weather, the system reduces his sensibility automatically in order to eliminate a part of false alarms that could be given by movement of water on the bumper.

2. As soon as the system is activated an acknowledgement of the surrounding of the bumper is made. Consequently **it is very important**, during testing operation, not to switch on the system while you are very close to the central unit and antenna sensor in order not to have false information on the working capability of the system. During the test you must also take into consideration the fact that, after the first approach to the bumper, any subsequent APPROACH without first reset the system, can give false interpretations of the functionality of the sensor due to special characteristics of the EPS-DUAL 3.0 software specifically created to reduce false signalling in the rainy conditions.

3. The **ON / OFF** switch on the buzzer is **blocked** because it cannot be used in this version.



**TECHNICAL CHARACTERISTICS**

- Operating range from 9,5 to 18V
- Average current absorption 20 mA
- Operating temperature from -20 to +90 °C
- Max. Distance to begin detection 70-80 cm

