

# Electromagnetic Car Parking Sensor

Model: U-301

## User Manual



### WORKING PRINCIPLE

Magnetic Parking Sensor is a unique parking aid enabling close-to-bumper maneuvering. By its antenna-sensor, which covers the whole bumper, it emits low-intensity electromagnetic waves - thus generating all around this bumper an unbroken (electrostatic) zone of protection.

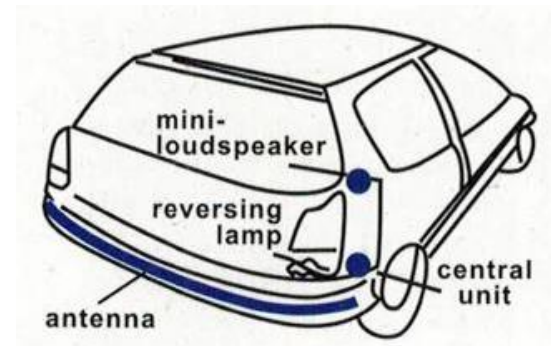
According to the distance between antenna and obstacle, it signals by its 3-grade warning sequence such obstacles, which enter into this unbroken zone and absorb its field energy.

### EASY AND FAST FITTING

Electrically, just connect EPS to reversing lamp power supply of the vehicle.

### AND FITTING-COMPONENTS

- **Central unit (A):** To be fixed inside the car in a dry place, close to the antenna connection.
- **Loudspeaker (B):** Round or Gourd shape, in driver's cab.
- **Antenna**, here included in the **self-adhesive bumper protection strip (C)**, 1.9m long, with welded antenna-wire (D) and 1 Stickers (E): To be fitted on the plastic bumper, finally covering the car's whole width and its corners.



### FUNCTIONS

Since EPS assists to use the very last centimeters, slow and wary maneuvering has to be implied! Switched on by engaging the reverse gear.

EPS tries to calibrate itself and reports its status by a special signal:

- **Wait-signal:** If a single beep sounds, you must briefly wait for the next signal, that it cannot operate, and its installation must be checked and repaired.
- **Defect-signal:** With a sequence of alternating high and deep tones EP informs
- **OK-signal:** 3 different tones indicate that EPS is ready for operation now!

Only after *OK-signal* EPS is ready to signalize obstacles. All kind of shapes and nearly all materials (NOTE: except "insulators" like plastics, dry wood, glass...) are signalized, as long as their small distance to the antenna is going on to be reduced. Material characteristics and approach speed determine how and at which distance the obstacle will be signalized. Only very slow approach allows to make use of the very last centimeters.

In case of slow approach the 3-grade warnings are emitted:

- *PRE-ALARM* (1): single beeps of medium pitch warn that the distance is already below 50 - 60 cm. If the distance goes on decreasing, these beeps are emitted a little bit more rapidly.
- *STOP-ALARM* (2): a high sound which will be extended in case of further approach, warns that the distance is already below 10-20 cm. and demands: STOP
- *CONTACT-ALARM* (3): the deep sound demands implicitly to BRAKE INSTANTLY. STOP AT SOON.

In case of fast approach a sequence of high beeps (= *RISK-ALARM*)

calls to brake at soon (only rare, after brief pause, slow maneuvering can go on with utmost care), or calls to increase caution, since water flows close to the antenna.

- NOTE:

- EPS thereby re-adjusts itself. Now *PRE-ALARM* warnings are not emitted any more, but the ranges of *STOP-* and *CONTACT-ALARM* are enlarged a bit.
- *RISK-ALARM* can be emitted at any time, even instead of *CONTACT-ALARM*.
- In presence of (rain-) water on the bumper, the *RISK-ALARM* can be emitted once too, in order to minimize emission of further signals caused by water.

- Only very slow maneuvering (the last centimeters in "snail's pace") enables EPS to signalize an approach up to the final centimeters of the bumper's brim.
- Without causing warning signals, you can maneuver with (trailer) hook haul or in parallel to a side wall, since their distances to the antenna do not decrease.
- Shock absorbers' dumping (when road's unevenness, braking, high speed, etc...)
- When maneuvering, even if assisted by EPS, drivers are still obliged to inspect carefully the surroundings, in order to prevent and not to cause any damages.

## **INSTALLATION**

EPS only suits for plastic bumpers (back).

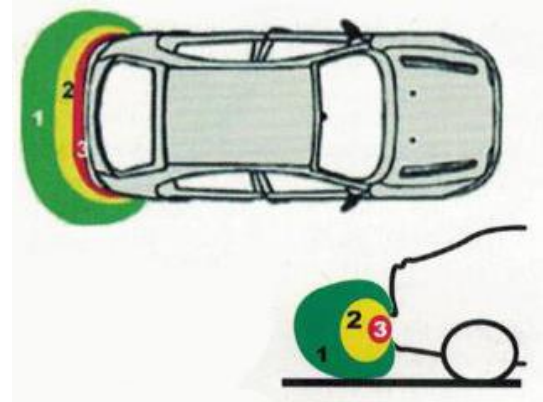
Metal close to antenna can (strongly) reduce the EPS detection range.

Magnetic or electro-magnetic fields can disturb the operation of EPS detection range!

1. First, fix outside on the bumper a wire (~2m) by adhesive tape, connect it as antenna. (Connect loudspeaker and 12V, too.) Now test EPS by approaching the hands. If you verify proper detection ranges (about 50 cm), the antenna can be installed in this position. (Otherwise test in another position.)

NOTE:

- Antenna must cover car's whole width, and car's corners, too.
- Antenna must be minimum 40 cm, better 50 cm above road level.
- Antenna must be minimum 20 cm, better 30 cm away from the wheels.
- Antenna must be minimum 3 cm far from car's metal parts.



2. Find an opening (e.g. ventilation) to put the antenna-wire into the car's inside. By means of a tube-aid (flexible tube or little rod) thread the antenna-wire into the car's inside.  
Now lay the strip against the bumper. Shorten the strip to the length required. When occasion arises, mark the proper course of the PVC-strip.
3. By using non-aggressive solvent (like alcohol) clean and degrease thoroughly the bumper's surface, onto which PVC-strip will be fitted.
4. NOTE: When sticking-on, temperature shall not be below 18°C. (Hair dryer). NOTE: Avoid fitting the PVC strip onto metal parts.
  - i) Gradually remove the (adhesive parts) paper from the strip, and fit the strip starting at the end with the welded wire. Complete it with the 2 terminals.
  - ii) Press down tightly the PVC strip with your hands (and a cloth).  
NOTE: Avoid washing your car during the first three days after the installation.
5. Central unit to be fastened inside the car in a dry place, close to the antenna connection. Keep plug accessible.

Shorten antenna-wire to the length required.

Stabilize it (plastic tube). Connect it by flat- or pinch-connector to the antenna-flex (shorten that one, too, and twist together both leads).

Loudspeaker to be fixed inside driver's cabin.

Car's electrics: EPS must be connected the reversing lamp RED wire to +12V (e.g. reversing lamp, resp. +15), BLACK to a valid ground.

