



EPS®-LD SafePark

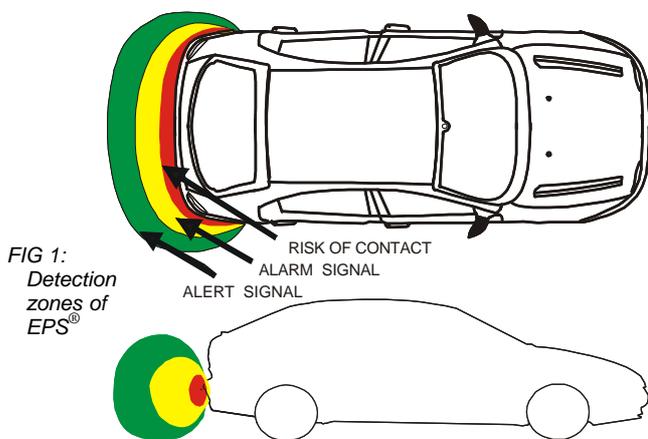
parking-aid with invisible antenna

- sensor inside the plastic bumper -
- and with audio-visual warnings
- to signal approaching obstacles -

By its **invisible antenna sensor**, which covers the whole bumper, EPS® emits electromagnetic waves of low energy to generate an **unbroken zone of protection all around the bumper** (FIG. 1). Thus EPS® is able to detect approaching obstacles, which enter into this approx. 50 cm wide zone: All kind of shapes and nearly all materials (**NOTE:** except dry "insulators" like glass, ceramics, plastic, dead wood) are signalized by **multi-grade warnings**.

Activated automatically by engaging the reverse gear (or in case of front bumper manually by a switch), EPS®-LD confirms its correct power supply by lighting the red logo (car picture) on the display. Checking at soon itself, **EPS®-LD must confirm its regular operation capability by a single tone (= OK-signal). Only after OK-signal EPS®-LD is ready to signalize obstacles.**

NOTE: By **beeping continuously at activation (= DEFECT-signal)** EPS®-LD informs that it cannot operate, because its installation must be repaired (for instance the antenna connection).



7 colored LEDs (FIG. 2) and **acoustic beeps** signalize the obstacle, when its distance to the antenna (bumper) is decreasing.

FIG 2:
7-LED display with
integrated buzzer
(mm 91 · 30 · 27)
of EPS®-LD



First, the 2 green LED light on to ALERT that the distance to the approaching obstacle is already below 40-60 cm. Simultaneously the buzzer starts beeping. **NOTE:** All cm values stated here depend on the type of obstacle, and correspond to the bumper's central zone, while on its edges these values (distances) are inferior.

Then, the 3 yellow LED light on to ALARM when the obstacle arrives in proximity of the bumper at distances of 15-30 cm, and the acoustic beeps are emitted now a little bit more rapidly.

Finally, the 2 red LED light on to signalize RISK OF CONTACT when an obstacle is very near to the bumper (0-15 cm), and the beeps are emitted now most rapidly.

IMPORTANT:

- Since EPS® assists to use the very last centimeters, **very slow and wary manoeuvring has to be implied!**
- **Water flowing down the bumper (high moisture weather or rain) can cause "false alarms"**. Thereby EPS® reduces considerably its sensibility (its range of detection), and from now on it signalizes permanently at least alert-mode.
- Without causing warning signals, you can manoeuvre with (trailer) hook haul or in parallel to a side wall, since their distances to the antenna do not decrease.
- If the street coat approaches to the antenna (braking, high speed, road's unevenness or...), warning signals can be caused.
- When manoeuvring, even if assisted by EPS®, **the driver is still obliged to inspect carefully the surroundings**, in order to prevent and not to cause any damages.

BEFORE USE, READ AND OBSERVE ALL INSTRUCTIONS.

TECHNICAL DATA

operation voltage 10.5 to 18 V
average current absorbed 50 mA
operation temperatures -40°C to +85°C

e1 02 1728
European Type-Approval



FITTING -COMPONENTS (supplied)

Antenna ribbon (A), self-adhesive, to be tightly fitted onto the inside-surface of the exterior plastic bumper sheath - covering the whole width of the car as well as its corners.



Central unit (B): in mm 59 · 34 · 16, to be fixed in the car trunk in a dry place, as close as possible to the connection to antenna-ribbon.

Display (C): to be fitted on the rearview mirror, or dashboard, or...
Antenna-flex (D), wiring (E), mastic (F), flat connector (G).

INSTALLATION

- **EPS® can only operate properly, if the antenna-sensor is tightly fixed on a well cleaned surface in an optimum position!**
- **Do not position the antenna near to metal of the car, since metal (bumper or reinforcement) close to the antenna can reduce very strongly the detection range of EPS®!**
- **EPS® only suits for plastic bumpers, but for back bumpers as well as front bumpers, whether enamelled or not.**

1. FIND A GOOD ANTENNA POSITION:

Before disassembling the bumper, **find and ascertain the optimum position for the antenna-sensor** by an **initial test**:

By adhesive tape fix outside onto the bumper any (appr. 2m long) wire, and connect it as a provisional antenna to both leads of the antenna-flex twisted together and to the central unit, which for the rest only must be connected to the display, to +12V and ground.

CRITERIA: Note that **the antenna must:-**

- **cover the whole width of the car** and its corners
- be the **outermost exterior line of the car**
- be **minimum 3 cm far from metal parts of the car structure**
- be minimum 40 cm, better **50 cm above road level**
- be minimum 20 cm, better **30 cm away from the wheels**

in order to obtain optimum detection range, to avoid reduction of the detection range by influence of metal, and to avoid false alarms by approach of road level or turning wheels.

Now test the range of EPS® by approaching your hands to your provisional antenna.

If you verify proper detection range (starting at about 50 cm), **mark the ascertained position** and course of the provisional antenna in order to fix there (on the corresponding inside-surface) later on the antenna-ribbon.

- Otherwise repeat that procedure with another antenna position.

2. BUMPER AND CENTRAL UNIT:

Disassemble the **exterior sheath of the plastic bumper**, and uncover its inside surface. Multi-layer or shock-relief materials, if existing, have to be cored or removed temporarily.

On that side, where the reversing lamp is present, and as close as possible to the end or corner of the bumper, find (or drill) an opening hole to thread through the **antenna-flex**. Inside the trunk plug its 2-pin-connector into the central unit, whereas outside twist together both its leads and pinch them into the male flat connector.

Fix the central unit inside the car close to that hole of passage, in a dry place on a cleaned surface, and by means of mastic.

3. CLEAN BUMPER'S INSIDE:

Before fitting the antenna in the position ascertained (1.), **clean and degrease thoroughly the inside surface of the bumper by using non-aggressive solvent (like alcohol).**

NOTE: Avoid aggressive solvent (like brake cleaner).

4. FIX THE ANTENNA-RIBBON:

Tightly glue the antenna-ribbon onto the cleaned inside of the exterior bumper sheath, in the position ascertained (1.), and observing the criteria listed above. Start on that corner where to connect the ribbon by its flat connector to the antenna-flex. Practise all along the ribbon's way a strong pressure. Cut off the needless rest of the ribbon.



Connect the ribbon to the antenna-flex by the flat-connector. Reinforce fastening of the ribbon, especially at its bends, ends and its connection to the flex (which requires waterproofing, too). It is advisable to cover all the zone of application of the ribbon with plastic protection primer or silicone sealant.

Put together and provisionally remount the bumper. Carefully pull the flex until it lies tight inside the bumper.

Fix perfectly the whole antenna: ribbon, flex, and central unit!

5. ELECTRICAL CONNECTIONS:

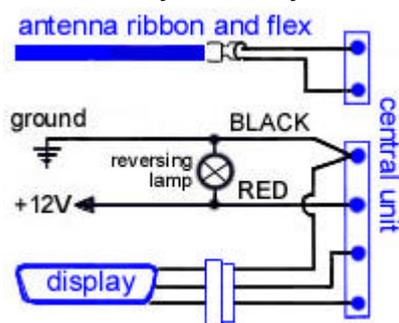
EPS® must be switched ON / OFF either by +12V or by earth.

in case of back bumper (see diagram) connect EPS® to the reversing lamp. In case of front bumper connect it by a switch to ignition-plus.

Connect the **RED wire to +12V** (diagram: ...of the reversing lamp).

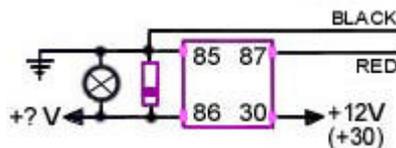
Connect the **BLACK wire to a valid ground**

Plug the 4-pin-connector to the central unit.



SPECIAL CONNECTIONS AND ADDITIONAL PARTS are required in case of special electric systems of some recent car models:

If the reversing lamp is fed by (e.g.) 3V only, a relay with low excitation threshold (and a diode stabilizing it) can be inserted in order to feed the RED wire of EPS® directly by battery-plus (+30 /+12V).



6. MOUNT THE DISPLAY:

By means of bi-adhesive tape fix the display in a place well visible during reversing manoeuvre, at the ceiling near to the windscreen or rear window, or at the 3rd stop light, or on the dashboard close to the driver's side mirror - or for example at the top of the rear mirror (FIG. 4):



Pass the appr. 4m long 3-wire-cable from the central unit to the display, using opportune passages such as plastic or rubber borders. And connect this cabling to the appr. 1m long cable of the display by using their plugs. (If need be, a prolongation-cable is available optionally.)

7. FINAL TESTS & TROUBLE SHOOTING

NOTE: As soon as EPS® is activated an acknowledgement of the surrounding of the bumper (antenna sensor) is made. During testing operation, consequently it is **very important** not to switch on EPS® while you are very close to the bumper (antenna) in order not to have false information on its operating capability.

(1.) Switch on the car key (ignition ON), and insert the back gear. (In case of antenna applied to the front bumper: Power EPS® by the manual switch.) - If power is fed correctly, the **red logo** (car picture) on the display lights on.

1. If that logo does not light on, check all connections and the power supply. - If clearly less than 12V is fed, apply SPECIAL CONNECTION using a relay (with low excitation voltage) in order to feed EPS® by 12V battery-plus (+30).

(2.) In a fraction of second the central unit performs a complete control of the system.

If EPS® can calibrate itself, the speaker inside the display emits the **OK-signal** (= one single tone). Once obtained this signal the system becomes operational.

2. If the speaker continuously repeats beeping (= **DEFECT-signal**), check all connections, especially those of the antenna.

(3.) Then, **while neither the car is moving, nor the engine is running, verify the 3 detection ranges:-** Continuously but slowly approach your hands or walk towards the antenna. At a distance of around 40 - 60 cm the first green LED should light on, and the first beeps should start. When decreasing your distance to the antenna, more and more LEDs should light on, and the beeps should sound a little bit more rapidly.

3. If the range of the first ALERT-signals is clearly smaller than 50 cm, check and enlarge the distance between antenna and car's metal, if possible,. - And if need be, fix (provisionally first) and connect in parallel a second antenna (any wire or an antenna-ribbon). Test again the resulting range, - and if it is still not satisfying, vary the distance between both antennas.

(4.) If operation of EPS® is correct up to now, **start the engine**, and verify that EPS® still is operating properly.

4. If now the power supply of EPS® seems to be missing, fix the ground connection directly to the metal body of the car.

(5.) If EPS® has operated correctly, **verify by driving carefully and slowly** that EPS® duly operates in moving car, too.

5. If slow driving causes 'senseless' beeps, verify that the antenna-sensor (including antenna-flex and central unit) is fixed tightly and far enough from road and wheels, and that nothing is moving within its reach. **NOTE:** If need be, reduce the range of the antenna by coupling it to ground by means of a resistor of about 20k to 100k Ohm.

Finally, if EPS® duly operates, remount properly the bumper.

GENERAL SECURITY DIRECTIONS FOR INSTALLATION:

- Observe the security directions of car's producer and handcraft.
- When working on the car's electrics, first - if possible - disconnect battery's minus-pole (negative) to prevent short circuit risks. **NOTE:** On account of disconnecting car's battery all transitory memories may loose their programmed data, and may require a re-programming or new input or adaptation (car- and engine-management, clocks, radios, heaters...).
- Verify electrical voltages and polarities only by digital voltmeter or diode-tester. Other test-lamps may damage or unintentionally trigger electr(on)ical components of the car.
- When drilling, take care of existing wires, tubes... and the drill's leaving
- If not well versed in car electrics, let an expert workshop install EPS®.

RECYCLING DIRECTIONS: Ensure to deposit harmful or recyclable components acc. to the regulations. In case of doubt, contact the supplier.

installed by:

date: