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# FOCUS
# Parking sensors

Parking sensors are electronic devices integrated into the vehicle's driver assistance system, designed to **facilitate parking maneuvers** and **reduce the risk of collisions** with obstacles near the vehicle.

These sensors, typically positioned at the front and rear of the vehicle, emit **ultrasonic waves that detect the distance between the vehicle and surrounding obstacles**.

## Operation

The sensors, usually ultrasonic, emit high-frequency sound waves that bounce off surrounding objects and are then received by the sensor itself. The time it takes for the sound wave to return allows the system to calculate the distance between the vehicle and the obstacle. **The data collected is then processed by an electronic control unit**, which, through visual or audible signals, alerts the driver to the presence of obstacles and their distance.

## Communication and warning

Parking sensor systems are capable of providing different types of alerts to the driver.

The alert can be acoustic, with a series of sound pulses that increase in frequency as the vehicle approaches the obstacle, or

visual, through displays that show the real-time distance to various obstacles. In some cases, more advanced systems may integrate vibration alerts on the steering wheel or seat.

## Main components

- **Ultrasonic sensors**

  Typically installed in the front and rear bumpers, they are responsible for emitting and receiving sound waves.

- **Control unit**

  It processes the signals received from the sensors and manages communication with the driver.

- **Display or audible indicators**

  They provide the driver with clear information about the distance to detected obstacles.

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## Advantages

**Safety**
They help reduce the risk of vehicle damage and accidents during parking maneuvers.

**Ease of parking**
They make parking in tight spaces easier, improving visibility and reducing driver stress.

**Accessible technology**
Available as an option or standard in many vehicles, often with the possibility of customizing the alert modes.

## Maintenance and inspection

Parking sensors require periodic maintenance to ensure proper functioning. Cleaning the sensors and checking their correct alignment are essential tasks to maintain the system's reliability.
**In case of malfunctions**, it is important to **check the wiring and any potential damage to the sensors**.

# Common error codes

## Code P0089

### Problem with the front/right parking sensor

**Resolution**: Check the sensor for any damage or dirt. If it is clean and shows no damage, inspect the wiring or the sensor's control module.

## Code C1101

### Faulty parking sensor

**Resolution**: Check all sensors to see if they are damaged or obstructed by dirt or debris. If they are in good condition, inspect or replace the sensor or the control module.

## Code C1100

### Parking sensor not detected

**Resolution**: Check if the sensor has been disconnected or damaged. If there are no structural issues, verify proper communication with the control module.

## Code C1231

### Parking sensor not responding

**Resolution**: This error can be caused by an electronic failure, a wiring malfunction, or an issue with the control unit. Inspect the sensor's wires and connections.

## Code P0650

### Rear parking sensor failure

**Resolution**: Check the rear sensor for any damage or obstructions. It may be necessary to replace the sensor or the control module.

## Code P0401

### Parking sensor not calibrated

**Resolution**: In some cases, recalibration of the parking sensors may be necessary to ensure proper functioning. Calibration can be performed using an OBD diagnostic tool or at an authorized service center.

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# General resolutions

## Sensor cleaning

One of the most common causes of parking sensor errors is the presence of dirt or debris on the sensors themselves. Cleaning them thoroughly with a soft, dry cloth can resolve many issues.

## Wiring inspection

If the sensors are not working properly, there may be an issue with the cables connecting them to the control module. Make sure that the cables are not damaged or disconnected.

## Control module check

The module that manages the parking sensors may be faulty. OBD diagnostics can help identify if the module is not working properly.

## Sensor replacement

Make sure to use sensors that are compatible with the vehicle.

Parking sensors are essential tools for safety and convenience when performing parking maneuvers, helping to **simplify driving operations and prevent potential damage to the vehicle**.

**Relying on specialists in the field is the best solution**.


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