



## **Advanced Driver Assistance Systems - calibration guide**

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## Foreword

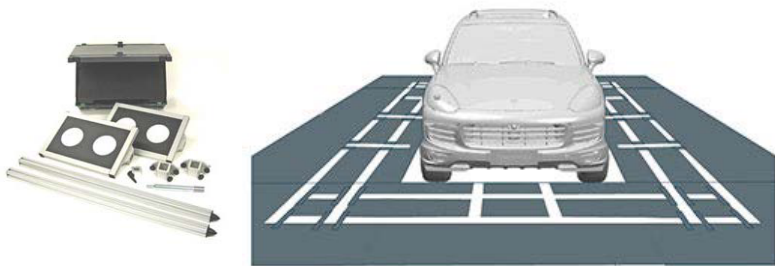
Audi vehicles are built and repair methods are continually developed/revised according to the latest findings in safety engineering. To ensure the safety of our customers and to maintain vehicle integrity it is therefore recommended that only parts identified as Genuine Audi Parts are used as replacement parts.

To ensure any Advanced Driver Assistance Systems operate as intended, providing safety benefits to the vehicle occupants and its surroundings, following repair work it is also recommended that all required systems and sensors are calibrated by an Authorised Audi Dealer.

The following pages refer to the most common currently available ADAS, these systems and requirements are constantly changing, it is therefore imperative that ElsaPro is consulted and followed as part of every vehicle repair.

## Tooling

- > Lifting platform for wheel alignment.
- > Wheel alignment computer.
- > Lane change and reverse camera calibration board.
- > Calibration device for ACC, lane assist, night vision.
- > Doppler generator for lane assist calibration
- > Calibration mats for 360° camera
- > Head up display setting tool
- > Diagnostic tester.
- > LED MATRIX headlight setting device



## Training

The following Audi face-to-face training is required to correctly calibrate the assistance systems to the manufactures specification:

- › **M2** - ODIS and Elsa Pro (3 Days)
- › **M5** - Basic electrical (3 Days)
- › **M17** - Data Bus systems (2 Days)
- › **M12** - Wheel alignment and assistance systems (3 Days)

**Total training package 11 Days**

**If calibration is carried out outside of the Audi Service Centre Network no liability can be assumed for the correct system functionality.**

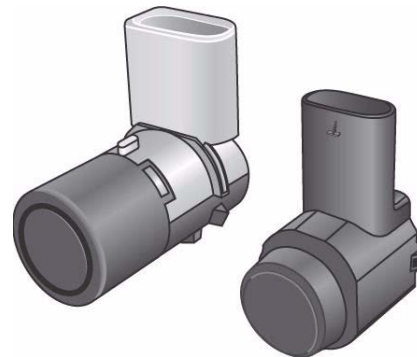


## Calibration requirements

### Parking aid sensors - No Calibration required

As well as parking assistance the sensor are also used by the ACC System and Audi Prese Sense AEB systems.

Up to 12 sensors can be fitted. The rubber damping element must be fitted and paint thickness must not exceed 150 $\mu$ .



### Rain and light sensor - No calibration required

Used for auto headlights and auto wipers function.

Silicone pad between the screen and sensor must be replaced once removed, if not the auto light and rain sensor can malfunction.



## Calibration requirements

### Front Camera for Assistance systems

The Camera is used for ACC, Audi Pre sense, Traffic sign recognition, Main beam assist or Matrix LEDs and Audi active lane assist.

Check if the vehicle is fitted with a Front Camera by a visual inspection or via a VIN request (vehicle data).

The silicone pad between the screen and sensor must be replaced once removed.

### Calibration is required:

- › If the sensor has been replaced or R+R from their original fixing position.
- › If the windscreen has been replaced or R+R from the original position.
- › If the rear axle toe setting has been changed.
- › The fault “No or incorrect basic setting / adaption” is registered in the event memory.



## Calibration requirements

### ACC Radar(s)

The ACC sensors are used for ACC, ACC with Stop and GO (traffic jam assist) and Audi Pre sense Front (AEB)

Check if the vehicle is fitted with Radar(s) by a visual inspection or VIN request (vehicle data).

Depending on vehicle model 1 or 2 sensors can be fitted, the sensors can either be fitted to the bumper cover or the front impact member.

### Calibration is required:

- › If the Radar(s) have been replaced or R+R from their original fixing position. This includes models where the Radar(s) are fitted on the front bar. If the front bar has been R+R the system will require calibration.
- › The fault “No or incorrect basic setting / adaption” is registered in the event memory.
- › Wheel alignment has been carried



ADR sender, right G259 and  
ACC control unit  
J428 (master)

Left ADR sender G258 and  
ACC control unit 2  
J850 (slave)

657\_148





## Calibration requirements

### Laser distance control

The laser sensor is used for, Cruise control in free flow of traffic, ACC stop & go including start-off monitoring, Distance indicator / distance warning, Boost function, Overtake assistance, Side assist, Overtake prevention in right lane, Traffic jam assist, Audi pre sense front (AEB), Evasion assist and Turn-off assist.

Check if the vehicle is fitted with a Laser sensor by a visual inspection or VIN request (vehicle data).

### Calibration is required:

- › If the Laser has been replaced or R+R from their original fixing position. This includes models where the Laser is fitted on the front bar. If the front bar has been R+R the system will require calibration.
- › The fault “No or incorrect basic setting / adaption” is registered in the event memory.
- › Wheel alignment has been carried out.



# Calibration requirements

## Lane Assist Radars

The sensors are used for Audi Lane Assist, Audi Pre Sense Rear and Audi Cross Traffic assist.

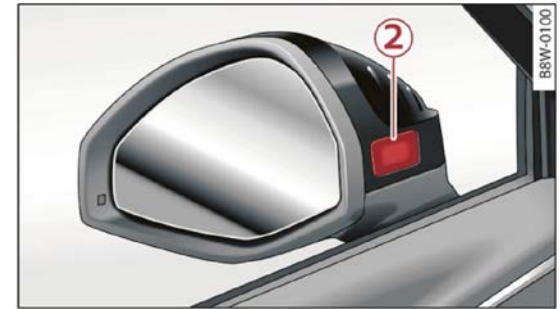
A distinctive indication that the vehicle is fitted with lane change assist are the warning lights in the exterior mirrors (2) or VIN request (vehicle data).

2 radars are fitted and could be mounted on the bumper cover or body.

No plastic repair work or filler on the bumper cover within 25cm of the sensors.  
Maximum paint thickness in the area of the sensors must be adhered to (150u)

### Calibration is required:

- › If the sensor(s) have been replaced or R+R from there original fixing position. This includes models were the sensors are fitted on the rear bar. If the rear bar has been R+R the system will require calibration.
- › If the rear bumper cover has been damaged, for instance when parking the car.
- › Wheel alignment has been carried out.
- › The fault “No or incorrect basic setting / adaption” is registered in the event memory.



## Calibration requirements

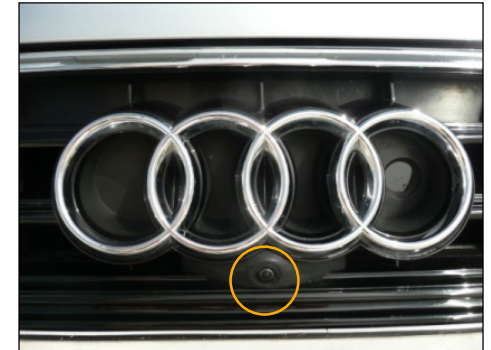
### Reverse Camera and 360° Camera(s)

The camera(s) are used for rear parking aid and 360° camera.

Check if the vehicle is fitted with a camera(s) by a visual inspection or VIN request (vehicle data) number of cameras can vary.

#### Calibration is required:

- If any camera has been removed or renewed.
- If the bumper, radiator grille or wing mirror has been removed or renewed
- The fault “No or incorrect basic setting / adaption” is registered in the event memory.

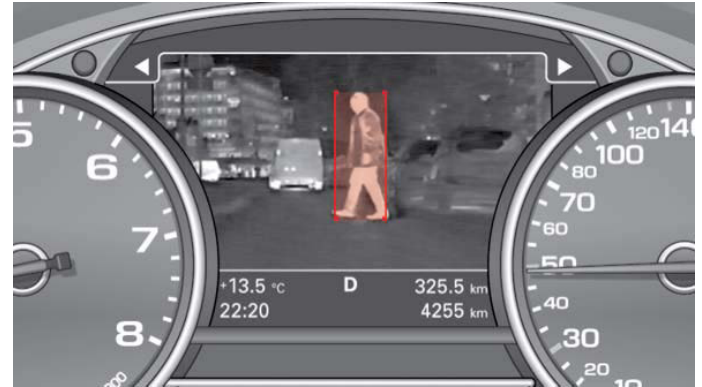


# Calibration requirements

## Infrared Camera

The camera is used for night vision and recognition of pedestrians, cyclists and animals.

Check if the vehicle is fitted with a Infrared Camera by a visual inspection or via a VIN request (vehicle data).



### Calibration is required:

- › If the camera has been removed or renewed
- › If the bumper or radiator grille has been removed or renewed
- › The fault “No or incorrect basic setting / adaption” is registered in the event memory.

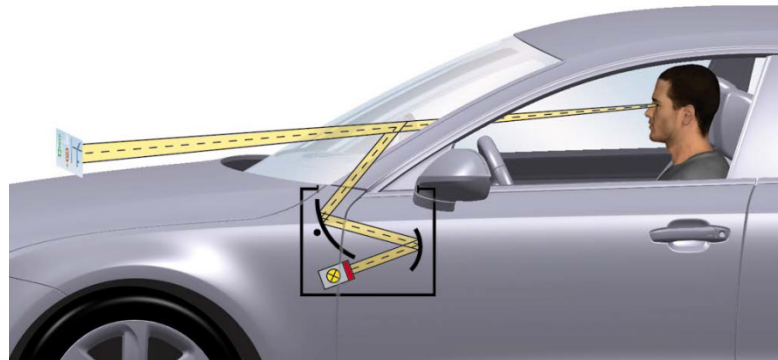


# Calibration requirements

## Head Up Display

Displays Speed, ACC setting, Navigation cues and other information depending on model.

Check if the vehicle is fitted with a Head Up Display by a visual inspection or via a VIN request (vehicle data).



### Calibration is required:

- > If the control unit for head-up display -J898- has been renewed.
- > If the windscreen has been removed and installed
- > If the event memory contains the entry “no or incorrect basic setting/adaption”.



## Calibration requirements

### LED Matrix headlights

The headlights perform the following functions, LED main beam assist, Pedestrian marker light, individual light segments to be switched on and off independently of one another.

Check if the vehicle is fitted with a LED Matrix headlights by a visual inspection or via a VIN request (vehicle data).



### Calibration is required:

- If the position of the headlights has been adjusted (i.e. if they have been removed/installed or if securing bolts have been loosened).
- If the output module for matrix headlights -A44-/-A45- has been renewed.
- If the headlight range control unit -J431- has been renewed.





**Thank You**