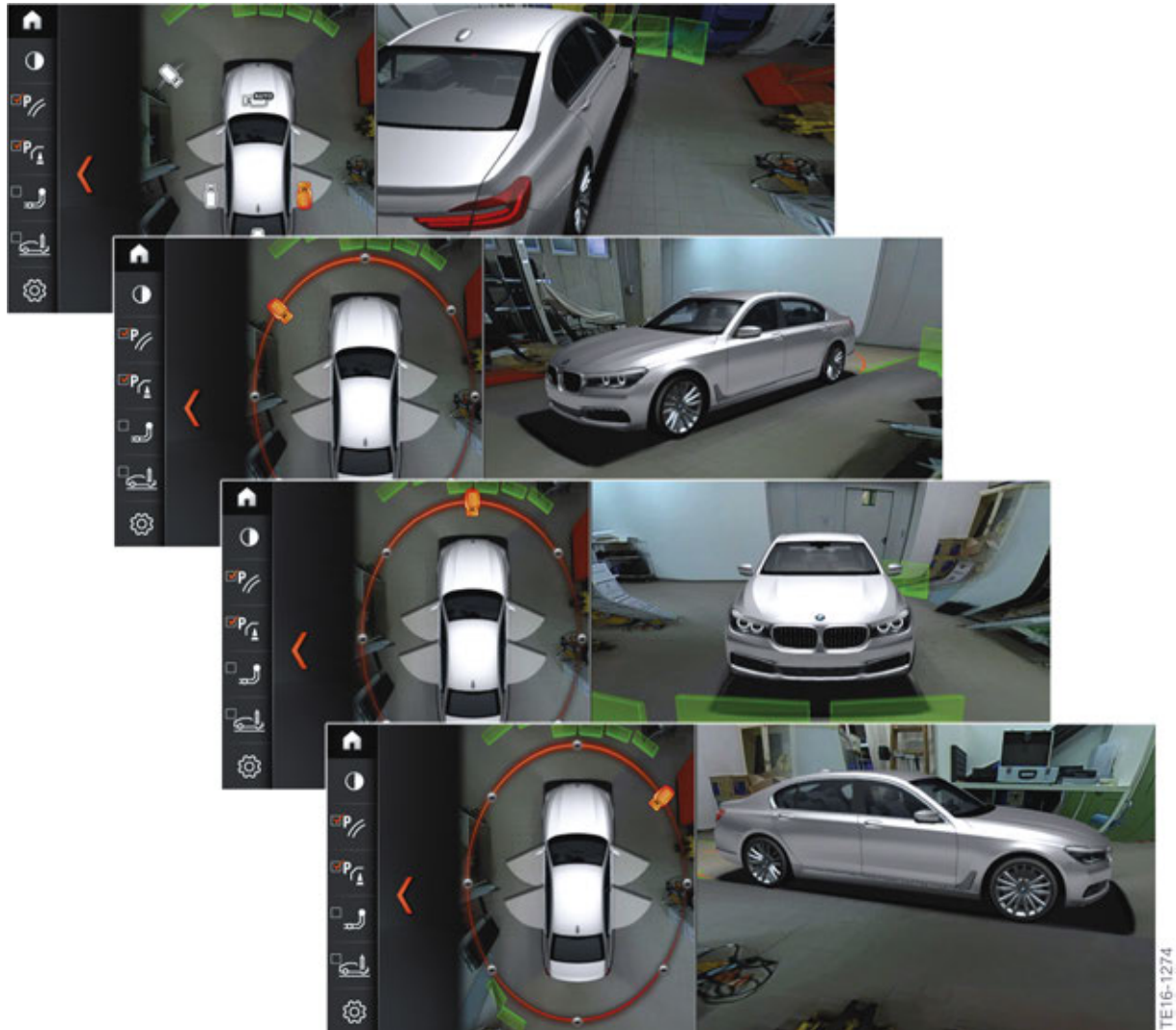


G30 Driver Assistance Systems

16. Cameras



G30 Exterior camera view (moving camera angle) on the CID

To leave this view, tilt the controller to the side, press it or touch the highlighted camera symbol via the touch screen.

If Gesture Control is being used, the gesture symbol is shown on the right half of the Central Information Display screen.



Rotating the camera view using Gesture Control

G30 Driver Assistance Systems

16. Cameras

16.2. Overview of exterior camera operating menu

Once the camera systems have been activated successfully, the driver has the option of selecting the appropriate view or camera via iDrive.



G30 Switch block with Panorama View button

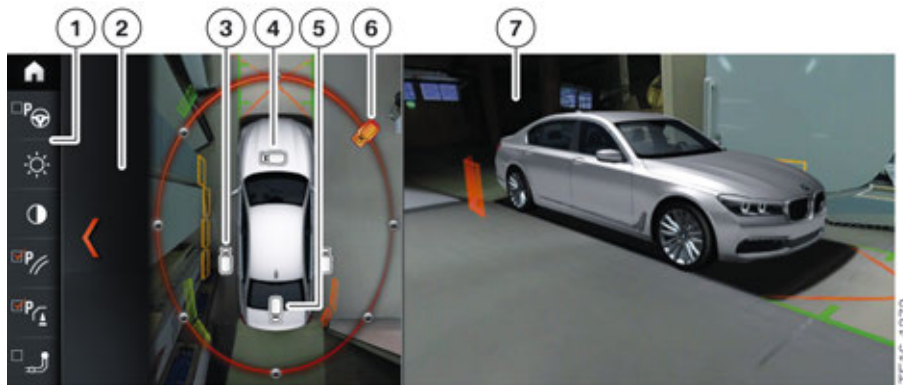
| Index | Explanation |
|-------|---------------------------|
| 1 | Parking assistance button |
| 2 | Panorama View button |

The camera systems can be activated (depending on the vehicle equipment) as follows:

- Manually by pressing the parking assistance button or the camera button (Panorama View).
- By engaging drive position "R".
- By engaging reverse gear (on vehicles with a manual gearbox).
- Automatically via the "Auto PDC" function.
- Automatically via the GPS-supported automatic activation of the Panorama View function, provided that activation points have been saved.

G30 Driver Assistance Systems

16. Cameras



G30 Exterior cameras view (camera angles) on the CID

| Index | Explanation |
|-------|------------------------|
| 1 | Toolbar |
| 2 | Selection window |
| 3 | Side view |
| 4 | Automatic camera angle |
| 5 | Rear view camera |
| 6 | Moving camera angle |
| 7 | Camera image |

Other settings and options can be found in the toolbar, depending on the vehicle equipment. Thus, for example, the driver can switch the parking assistance lines, the obstacle marking etc. on and off, or also make adjustments to the image brightness and contrast. The driver can also activate or deactivate the assistance functions here such as the car wash view, for instance.

16.3. Assistant function

The following assistance functions are available:

- Car wash view
- Side protection
- Door opening angle

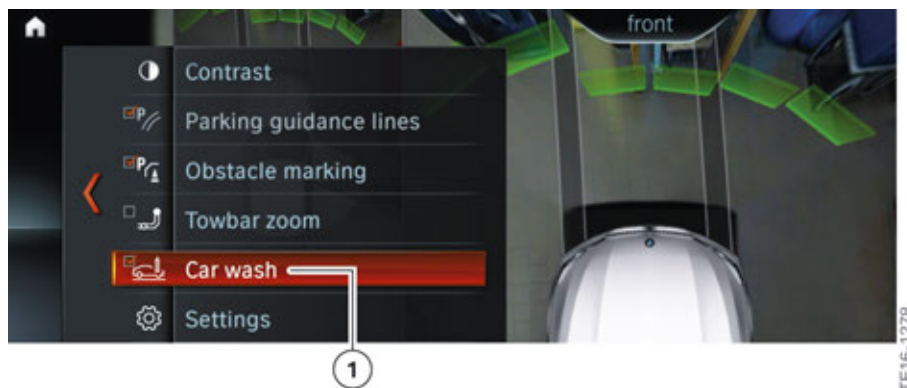
G30 Driver Assistance Systems

16. Cameras

16.3.1. Car wash view

The car wash view assists the driver when entering a car wash. When the car wash view is selected, immediately before entering the car wash, a bird's eye view is displayed on the Central Information Display. To enable the driver to align the vehicle more easily, the vehicle's tire tracks are shown on the display.

The car wash view can be activated via the iDrive in the toolbar under the "Car wash" menu item.



G30 PDC car wash view on the CID

| Index | Explanation |
|-------|-------------|
| 1 | "Car wash" |

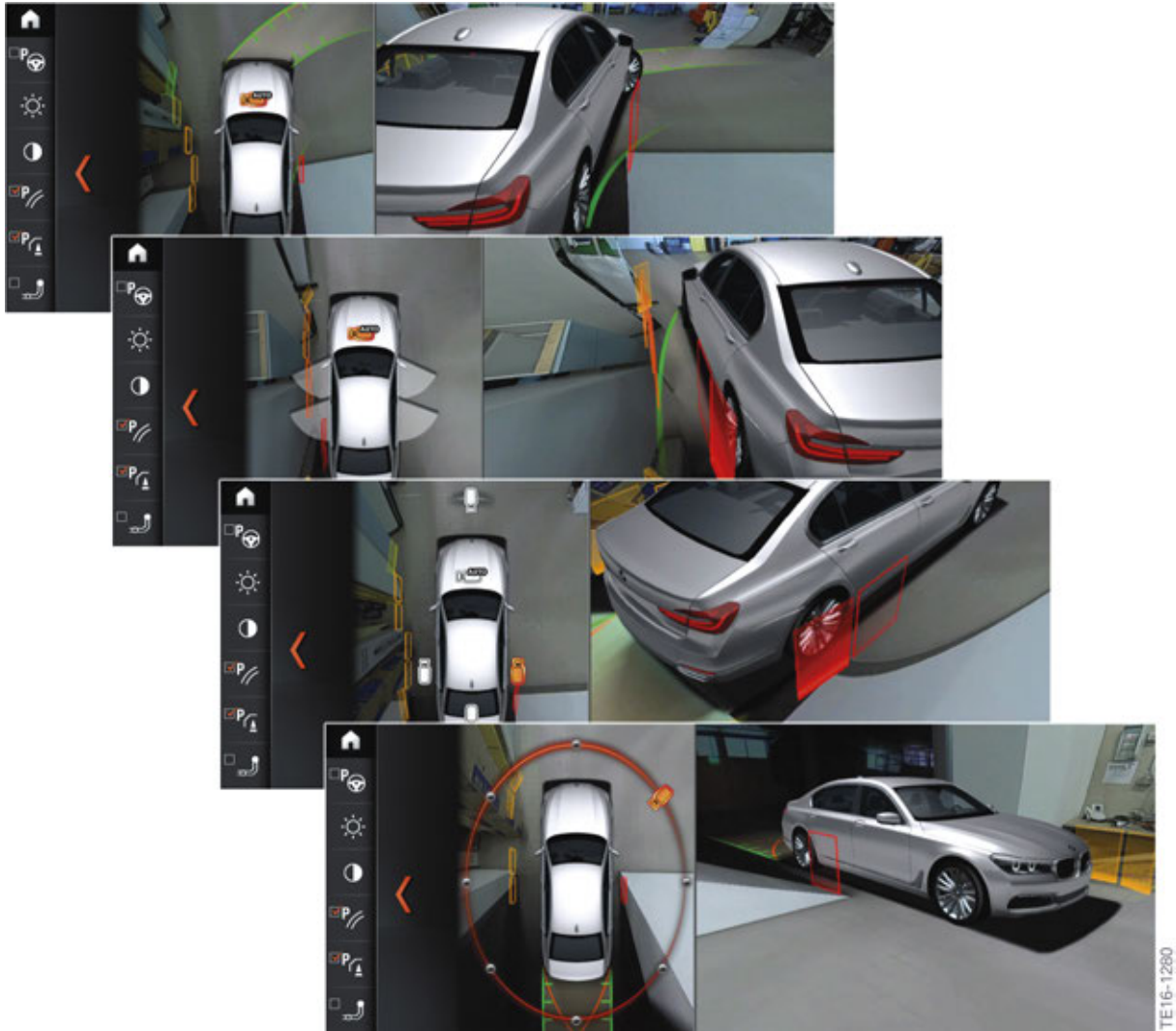
G30 Driver Assistance Systems

16. Cameras

16.3.2. Side protection

The side protection warns against obstacles at the side of the vehicle and thus supports the driver when parking and maneuvering.

To protect the sides of the vehicle from collisions with obstacles, additional obstacle markings are shown to the side of the vehicle on the Central Information Display, if necessary.



G30 Side protection view (additional obstacle markings)

More information on the operation of the side protection function can be found in section 17.4.

G30 Driver Assistance Systems

16. Cameras

16.3.3. Door opening angle

When the vehicle is stopped and the selector lever position "P" is engaged, the maximum opening angle of the doors is displayed on the Central Information Display.

If there is an obstacle near the door and it is detected by the side protection, this is marked on the Central Information Display. The obstacle marking display only points out objects in the area of the door. It is not possible for a view from the camera systems to be displayed, as the door area is simulated. Therefore, the driver is only informed that there is an object at the side of the vehicle; it is not certain that the door will definitely collide with the identified object. The driver must judge this for himself.



G30 Door opening angle view on the CID

The "Parking assistance lines" and "Obstacle marking" features already used in other BMW models can also be activated and deactivated via the iDrive in the toolbar under the relevant menu items.



The camera systems do not relieve the driver of personal responsibility for correctly judging the traffic situation. There is still a risk of an accident. The driver's driving style should be adapted to the traffic conditions. The driver should check the traffic conditions and the vehicle's surroundings by looking around and react accordingly if required.

16.4. Remote 3D View

The Remote 3D View (Remote 360°) is provided for the first time on the G30. This function allows the customer to display images of his parked vehicle on a mobile device (such as a smartphone).

The user can send a remote request to the parked vehicle through his device. The vehicle takes images of its surroundings and sends these to the device where an app generates a 3D view. The view can be adjusted by gesture, as in the vehicle.

The customer thus has the capability of viewing his vehicle's surroundings at any time.

Examples:

- What does it look like around my vehicle?
- Who or what is near my vehicle?

Remote 3D View is part of the Parking Assistant Plus optional equipment (OE 5DN).

G30 Driver Assistance Systems

16. Cameras

16.4.1. Functional principle

Surround View is a prerequisite for Remote 3D View (Remote 360°) as it includes the Top View 3D function. This means that the already familiar cameras are used.

The function is sold via the Remote Services standard equipment (6AP).

The Remote Services, standard equipment (OE 6AP), contains a number of functions that are active for the lifetime of the vehicle. Remote 3D View is, however, an exception. The function is active for 2 years following activation. The service expires after 2 years. In this event, the customer is notified by text and email 2 weeks before expiry of the Remote 3D View service.

When the service has expired, the customer has the option of activating or purchasing the function for a further two years through the ConnectedDrive Shop. Availability of the function can be extended as many times as desired via the ConnectedDrive Shop.

Application:

The customer should like to have an image of the area around his parked vehicle.



G30 Remote 3D View

- 1 He sends a request to the BMW back end via the BMW Connected App (Remote 3D View) on his smartphone.
- 2 Following verification of the data, the BMW back end passes the request on to the appropriate vehicle. The vehicle then takes four separate Surround View images using the external cameras. These are then sent in the Top Rear Side View Camera control unit to the Telematic Communication Box (TCB) and temporarily buffered.

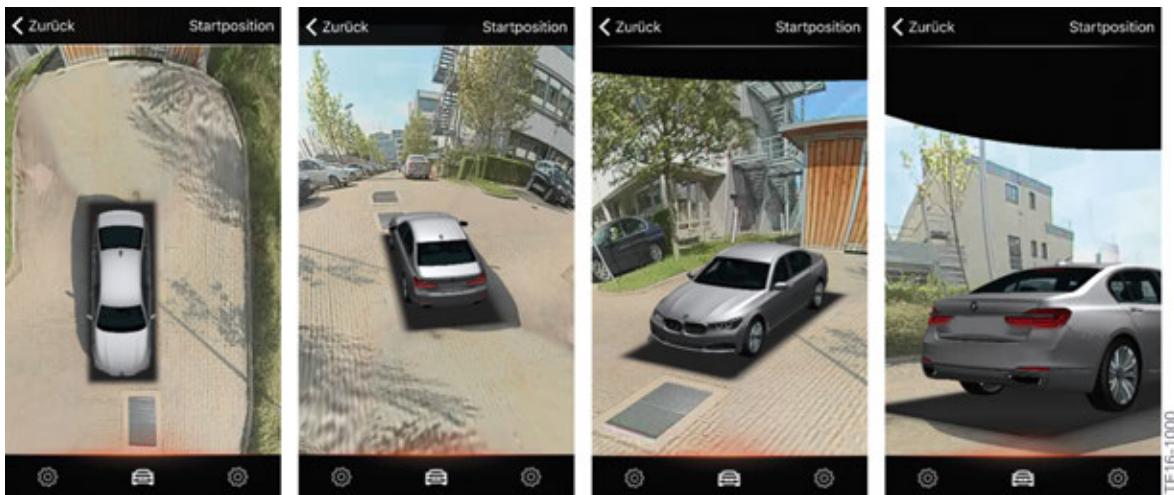
G30 Driver Assistance Systems

16. Cameras



G30 Remote 3D View: Surround view images

- 3 The images are then sent by the vehicle through the Telematic Communication Box (TCB) to the BMW back end.
- 4 The BMW back end sends the image data and a matching encryption code to the customer's smartphone. Once the data has been sent to the smartphone, it is deleted from the BMW back end. The image data received is merged to form a 360° all-round view in the smartphone.



G30 Remote 3D View: view in the smartphone

The 3D optical display appears once the smartphone has received all four images.

G30 Driver Assistance Systems

16. Cameras

Availability

The system includes a function detecting any border crossing or the country in which the vehicle is located in order to allow a country-specific release and configuration of the Remote 3D View function while at the same time taking account of local laws which might possibly prohibit the use of this function. The function may be automatically deactivated, as appropriate.

The driver also has the possibility of activating or deactivating the function itself via the iDrive (if the function is supported in the country in which the vehicle is located).

The new status is sent to the BMW back end after every change to the setting (to Remote 3D View deactivated, for example). The BMW back end stores the status permanently and releases or inhibits the function calls as appropriate on the basis of this.

16.5. System components

16.5.1. Front camera

The front camera is installed in the center between the two front ornamental grilles on the G30.



G30 Front camera

G30 Driver Assistance Systems

16. Cameras

16.5.2. Top view camera

The two are installed in the exterior mirrors on the G30.



G30 Exterior mirror camera, left

| Index | Explanation |
|-------|------------------------|
| 1 | Exterior mirror camera |

G30 Driver Assistance Systems

16. Cameras

16.5.3. Rear view camera

The rear view camera supports the driver when parking and maneuvering. The area behind the vehicle is shown on the Central Information Display. Guidance lines integrated in the image provide the driver with additional assistance with distances, the turning circle and obstacle markings, if required.

The rear view camera is located in the trunk lid handle strip.



G30 Rear view camera

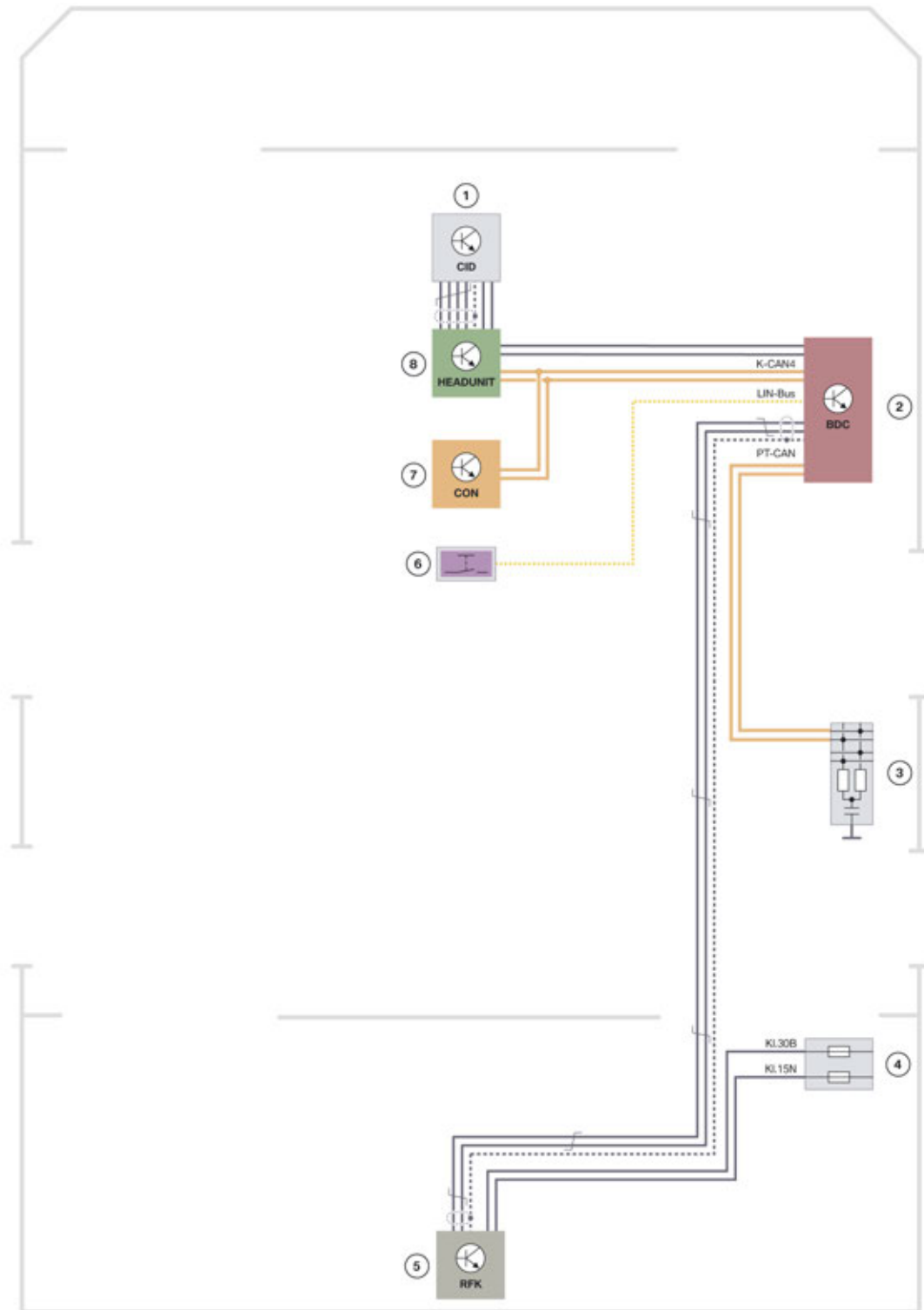
The camera has been revised and the video signals are now transmitted via Ethernet in the stand-alone variant too. The control unit remains integrated in the rear view camera (RFK), in this version.

System wiring diagram

The system wiring diagram below shows the scope of the rear view camera (RFK) optional equipment (OE 3AG).

G30 Driver Assistance Systems

16. Cameras



TE16-0531

G30 Rear view camera RFK (OE 3AG) system wiring diagram

G30 Driver Assistance Systems

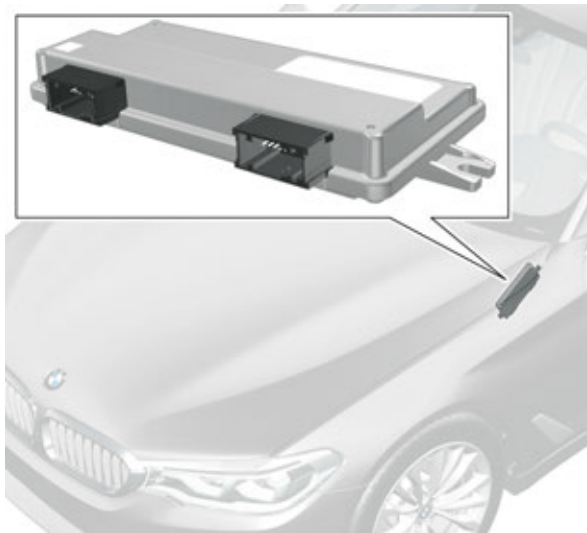
16. Cameras

| Index | Explanation |
|-------|---|
| 1 | Central Information Display (CID) |
| 2 | Body Domain Controller (BDC) |
| 3 | CAN terminator |
| 4 | Fuses in the power distribution box, rear right |
| 5 | Rear view camera (RFK) |
| 6 | Button for camera activation |
| 7 | Controller (CON) |
| 8 | Head unit |

16.5.4. TRSVC control unit

The exterior cameras record the area around the vehicle from various angles and send this information to the TRSVC control unit via Ethernet. The video signals are transmitted from the TRSVC control unit to the head unit via an Ethernet line. The head unit transmits the signals to the Central Information Display via an Automotive Pixel Link line.

The installation location of the TRSVC control unit is in the footwell on the driver's side.



G30 TRSVC control unit

G30 Driver Assistance Systems

17. Park Distance Control

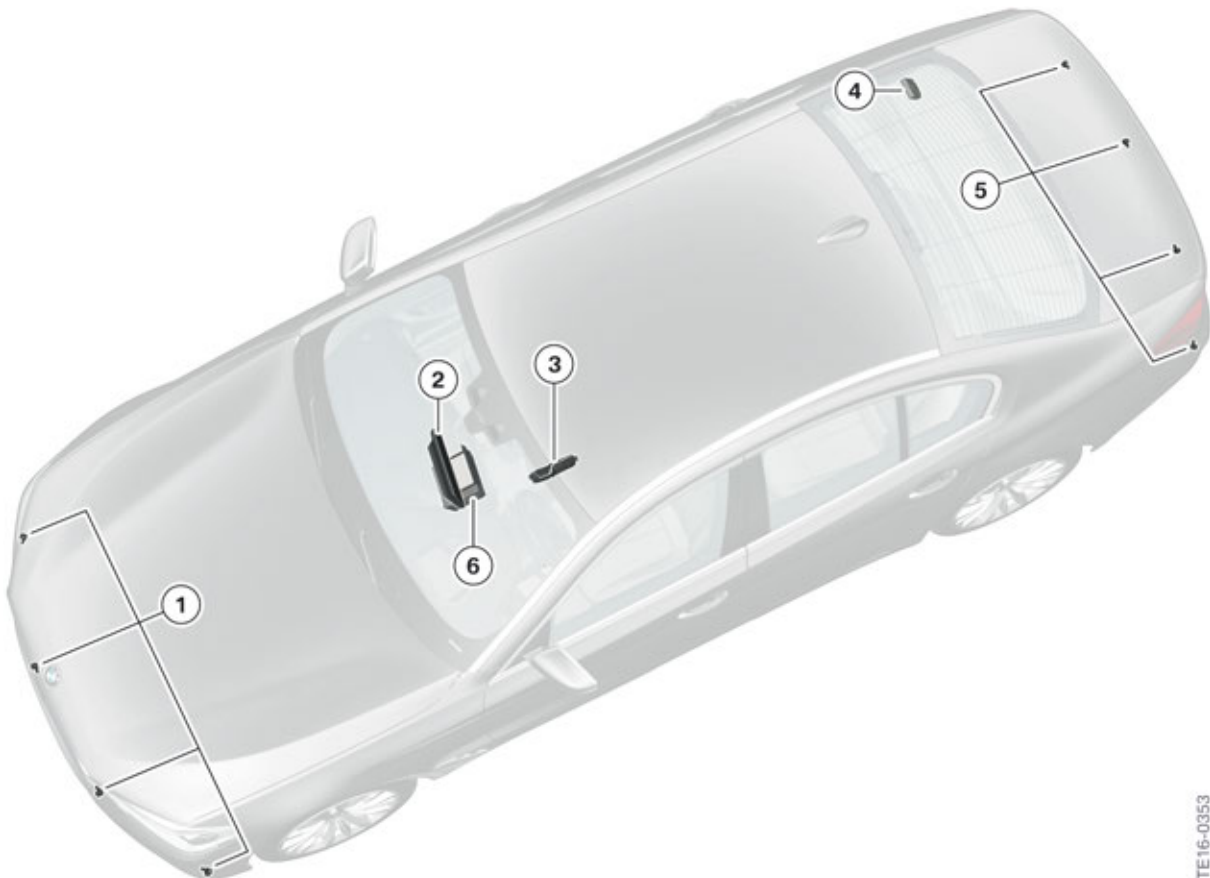
The Park Distance Control (PDC), optional equipment (OE 508), assists the driver when maneuvering in and out of a parking space. The current distance from an obstruction is indicated by acoustic signals and on a visual display.



G30 Park Distance Control PDC view in the CID

The distance from an obstruction is measured by four ultrasonic sensors in the rear bumper panel and four additional ultrasonic sensors in the front bumper panel.

17.1. System components



G30 Park Distance Control system components

G30 Driver Assistance Systems

17. Park Distance Control

| Index | Explanation |
|-------|--|
| 1 | Ultrasonic sensors for Park Distance Control, front |
| 2 | Central Information Display (CID) |
| 3 | Operating unit |
| 4 | Control unit for Parking Maneuvering Assistant (PMA) |
| 5 | Ultrasonic sensors, Park Distance Control, rear |
| 6 | Head Unit High |

Vehicles that do not have the Parking Maneuvering Assistant but do have the Park Distance Control have a separate control unit, which is recognized as the PMA control unit by diagnosis and is also referred to by this name in the bus diagram. In other words, there is no longer a difference in the naming of the PDC and PMA control unit (there are however differences in the hardware design between the control units and the software is adapted to the equipment specification).



G30 Control unit for Parking Maneuvering Assistant (PMA)

17.2. Auto PDC

On the G30, Auto PDC is activated automatically if the vehicle is approaching an object at a speed below approximately 3 mph (5 km/h) and the object is located in a collision-critical area. The Auto PDC function is available for both the front and rear of the vehicle.

The automatic switch-on function when obstacles are detected can be switched on and off via iDrive.

Further information about Auto PDC may be found in the “G12 Driver Assistance Systems” reference manual (section 16.2).

G30 Driver Assistance Systems

17. Park Distance Control

17.3. Active Park Distance Control

In G30 vehicles with the Parking Assistant, optional equipment (OE 5DM), or Parking Assistant Plus, (OE 5DN) optional equipment, the Park Distance Control function has been extended to include the Active Park Distance Control function. This automatically brakes the vehicle to a stop when it is travelling at walking speed (< approximately 4 mph (6 km/h)) if an object is detected behind the vehicle.

The Active Park Distance Control function can be switched on and off via iDrive.

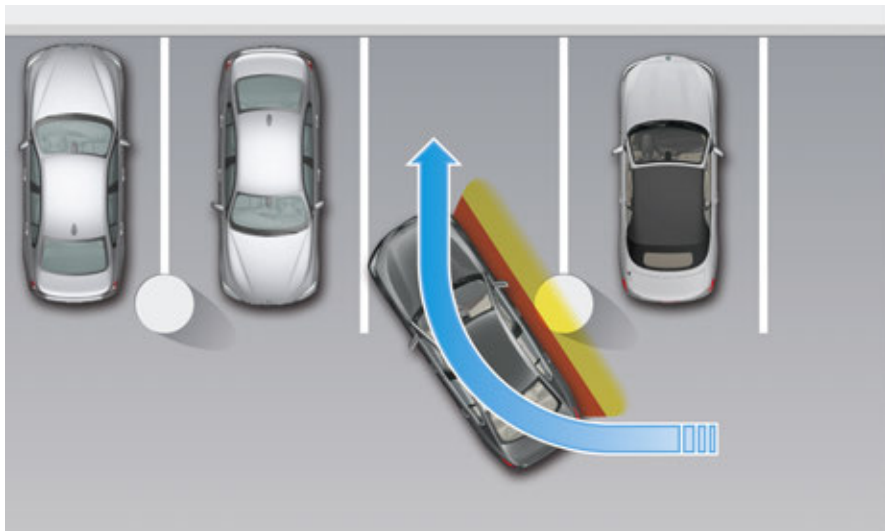


The system does not relieve the driver of personal responsibility for correctly judging the traffic situation. The driver should check the traffic conditions and the vehicle's surroundings by looking around and react accordingly if required.

Further information about the Active Park Distance Control function may be found in the “G12 Driver Assistance Systems” reference manual (section 16.3).

17.4. Side protection

The side protection warns against obstacles at the side of the vehicle and thus supports the driver when parking and maneuvering.



G30 Side protection

Vehicles with the Parking Assistant, optional equipment (OE 5DM), have side protection.

Obstacles detected by the four side ultrasonic sensors integrated in the bumpers can be displayed by the Park Distance Control system.

G30 Driver Assistance Systems

17. Park Distance Control

| Display in the Central Information Display (CID) | Meaning |
|--|--|
| Colored markings | Warning of detected obstacles |
| Grey markings | The area next to the vehicle has not yet been recorded |
| No markings | No obstacles have been detected |

17.4.1. Functional principle

Four side ultrasonic sensors, two integrated in the front bumper and two integrated in the rear bumper, measure the distance to an obstruction. Obstructions detected by the sensors are tracked along the side of the vehicle as it moves. They are shown on the Central Information Display and, in situations where a collision is imminent, an acoustic warning also sounds.



G30 Side protection view on the CID

Obstructions approaching the stationary vehicle are not taken into account, as in this case the system cannot evaluate the situation unequivocally. The prerequisite for identifying obstructions is that the (driver's) vehicle is moving.

The distance markings shown on the Central Information Display are displayed for approximately 13 seconds once the vehicle has stopped. The markings are only shown again once the vehicle starts moving.

G30 Driver Assistance Systems

17. Park Distance Control

17.5. Operation

The Park Distance Control system is enabled in the following situations:

- If drive position R reverse gear is engaged when driving readiness is switched on.
- If the parking assistance button in the switch block next to the controller is pressed when driving readiness is switched on.
- Auto PDC is activated and all conditions for automatic activation are met.



G30 switch block with parking assistance button

| Index | Explanation |
|-------|---------------------------|
| 1 | Parking assistance button |

Further information about the operating concept for Auto PDC, the Active Park Distance Control function and acoustic signal output may be found in the “G12 Driver Assistance Systems” reference manual (section 16.5.1-16.5.3).

17.6. Deactivation criteria

Similar to other BMW models, the deactivation is distance/speed-based. The switch-off is effected after a journey of approximately 164 ft (50 m) or at a speed over 6 mph (10 km/h).

If a fault develops, a Check Control message "PDC has malfunctioned. Have system checked." is displayed in the Central Information Display (CID). In addition, the detection range of the sensors is shown shaded in the Central Information Display (CID).

G30 Driver Assistance Systems

17. Park Distance Control

17.7. Limits of the system

Due to the physical limits during the ultrasonic measurement, obstructions may not be detected by the Park Distance Control system. Several examples of this are shown below:

- If the objects are thin or wedge-shaped.
- When the objects are low.
- When objects that, due to their shape, have corners and sharp edges.
- With snow.
- If the objects have a porous surface.

A warning may also be displayed although there is no obstruction in the detection range. This may be the case in the following situations:

- When it is raining heavily.
- If the sensors are heavily soiled or iced over.
- If the sensors are covered with snow.
- If the street surface is rough.
- If there are bumps, e.g. speed bumps.
- In large right-angled buildings with smooth walls, e.g. underground car parks.
- Due to heavy exhaust gas fumes.
- Due to other ultrasound sources.

To ensure the ultrasonic sensors remain fully operational, they must be kept clean and free of ice. When cleaning the sensors using a high pressure cleaner, avoid direct and sustained contact with a high-pressure water jet. Furthermore, when using high pressure cleaners, a distance of at least 1 ft (30 cm) from the sensors must be maintained.



The Park Distance Control cannot replace the driver's personal judgement of the traffic situation. Also check the traffic situation around the vehicle by looking around, otherwise there may be a risk of an accident as a result of road users or objects which lie outside the detection range of the Park Distance Control. Loud sound sources outside and inside the vehicle could drown out the PDC signal.

G30 Driver Assistance Systems

18. Cross Traffic Alert

The Cross Traffic Alert was used for the first time in the G12. This warning assists the driver when maneuvering out of a parking space and in other everyday situations where it is difficult to see the traffic, such as at blind entrances and exits.

Depending on the vehicle equipment, the Cross Traffic Alert is available in the G30 for rear or also for the front.

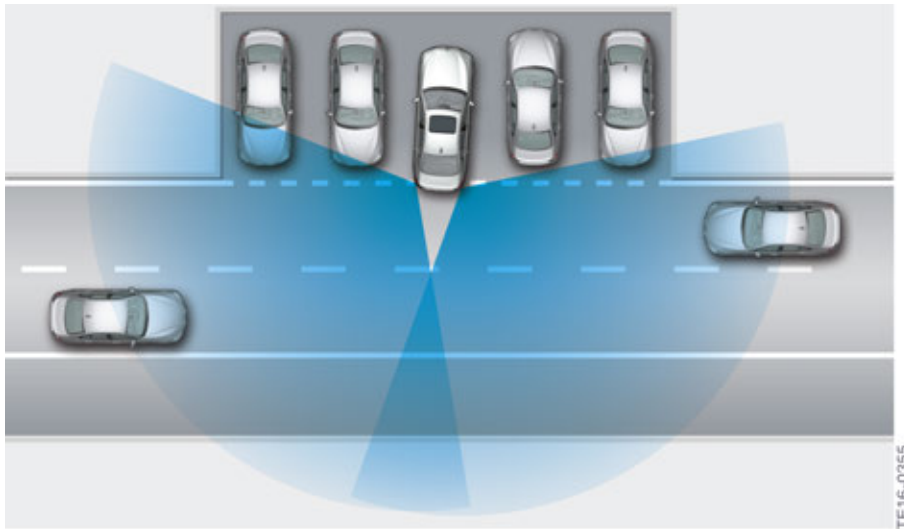
The system can detect objects that are approaching the vehicle from the side, either from the front or rear (depending on the vehicle equipment). The driver is made aware or, if necessary, warned of cross traffic by the Cross Traffic Alert when maneuvering out of a parking space or entering the cross traffic.

18.1. Functional principle

If a moving object is detected, which based on the current speed would be in the area in front of or behind the vehicle in approximately the next two seconds, a visual and acoustic warning is issued.

When a Cross Traffic Alert Rear is issued, the LED in the mirror glass is also switched on. The Blind Spot Detection signal unit is used as an indicator. The indicator is switched on in either the left or right mirror depending on the direction from which the object is approaching the vehicle.

The Cross Traffic Alert works up to a speed of approximately 4 mph (7 km/h). Another prerequisite of the function is that the side radar sensors are able to detect the road or approaching object. The radar sensors can detect objects up to a maximum of 262 ft (80 m) away from the vehicle.



G30 Cross Traffic Alert Rear: maneuvering out of a parking space

G30 Driver Assistance Systems

18. Cross Traffic Alert

18.2. Cross Traffic Alert Rear

The Cross Traffic Alert Rear assists the driver when reversing out of a parking space and warns of potential collisions with cross traffic in traffic situations where it is difficult to see obstructions.

The Cross Traffic Alert Rear is included in the Active Driving Assistant, optional equipment (OE 5AS), scope of supply.

The warning is displayed in the Park Distance Control image on the Central Information Display.

In conjunction with the rear view camera, optional equipment (OE 3AG), the Cross Traffic Alert Rear will be extended to include an additional display on the Central Information Display. The warning will be shown in the form of a red bar in the camera's video screen.

The Cross Traffic Alert Rear is enabled if the driver engages the "R" drive position or the Park Distance Control is active.

In vehicles with the Parking Assistant Plus, optional equipment (OE 5DN), the Cross Traffic Alert Rear is also enabled if Panorama View has been activated.

The Cross Traffic Alert Rear is available at speeds up to approximately 4 mph (7 km/h).

18.3. Cross Traffic Alert Front

The Cross Traffic Alert Front assists the driver when entering the cross traffic from exits and blind intersections.

The Cross Traffic Alert Front is included in the Active Driving Assistant Plus, optional equipment (OE 5AT), scope of supply. If the Cross Traffic Alert for the front of the vehicle is installed, the rear version is activated automatically.

The warning is displayed in the Park Distance Control image on the Central Information Display.

The Cross Traffic Alert Front is enabled if the Park Distance Control is active and the speed of the vehicle does not exceed approximately 4 mph (7 km/h).

In vehicles with the Parking Assistant Plus, optional equipment (OE 5DN), the Cross Traffic Alert Front is also enabled if Panorama View has been activated.

Like the Cross Traffic Alert Rear, the Cross Traffic Alert Front function is available at speeds up to approximately 4 mph (7 km/h).

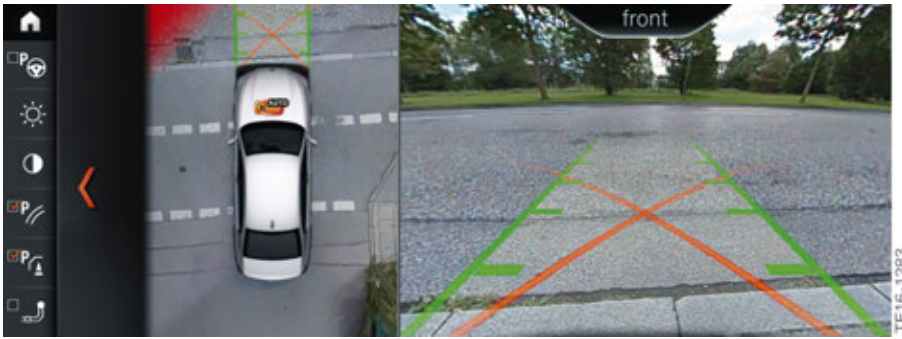
G30 Driver Assistance Systems

18. Cross Traffic Alert

18.4. Displays

Various representations in the CID are possible depending on the vehicle equipment.

The respective peripheral region in the PDC view flashes red if vehicles are detected by the sensors.



G30 Cross Traffic Alert in the PDC view

In vehicles with the Parking Assistant Plus, optional equipment (OE 5DN), the warning is shown on the Central Information Display in the PDC view image and in the front camera and rear view camera video images in the form of a red bar.

If Panorama View is activated, the Cross Traffic Alert is shown in the form of a red bar on the Central Information Display.



G30 Panorama View (Cross Traffic Alert Front)

G30 Driver Assistance Systems

18. Cross Traffic Alert



G30 Panorama View (Cross Traffic Alert Rear)

The Cross Traffic Alert is available to the driver for both the front and rear views.

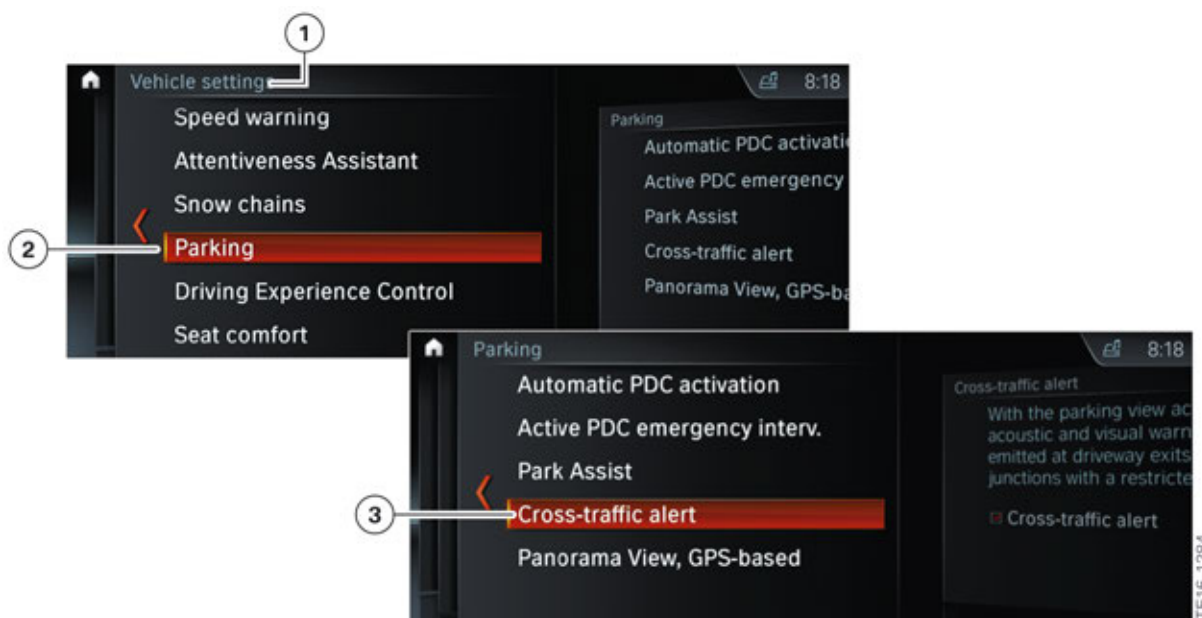
G30 Driver Assistance Systems

18. Cross Traffic Alert

18.5. Operation

Cross Traffic Alert can be switched on and off via the iDrive menu by making the following selection via the controller:

- "My Vehicle"
- "Vehicle settings"
- "Parking"
- "Cross traffic alert"



G30 Cross Traffic Alert activation on the CID

| Index | Explanation |
|-------|--|
| 1 | "Vehicle settings" |
| 2 | "Parking" |
| 3 | "Cross traffic alert" (switching the Cross Traffic Alert on and off) |

If the Cross Traffic Alert has been activated in the iDrive menu, the function is switched on automatically as soon as the Park Distance Control or Panorama View is active.

The Cross Traffic Alert is deactivated automatically in the following situations:

- If the driver's vehicle is travelling at a speed higher than walking speed (threshold value approximately 4 mph (7 km/h)).
- If the Traffic Jam Assistant is active.
- If the driver is currently parking using the Parking Maneuvering Assistant.

G30 Driver Assistance Systems

18. Cross Traffic Alert

18.6. Limits of the system

The function may be restricted in the following situations:

- If there are other objects in the field of view of the sensors that are concealing the cross traffic.
- Heavy fog, rain or snow.
- If the bumper is dirty or iced over.
- If stickers have been attached near the radar sensors on the bumper.
- If the speed of the approaching vehicle is very high.
- If crossing objects are moving very slowly.
- On sharp bends.

If a trailer socket is being used, for example to operate a trailer or bicycle carrier, the Cross Traffic Alert is not available for the area behind the vehicle.

G30 Driver Assistance Systems

19. Parking Maneuvering Assistant

The Parking Maneuvering Assistant (PMA) supports the driver in many ways. The assistant measures the size of a gap between cars and decides, based on the result, whether the gap is large enough to accommodate the vehicle. It also relieves the driver of the task of maneuvering into the space.

The Parking Maneuvering Assistant (OE 5DP) is no longer available as an individual item of optional equipment.

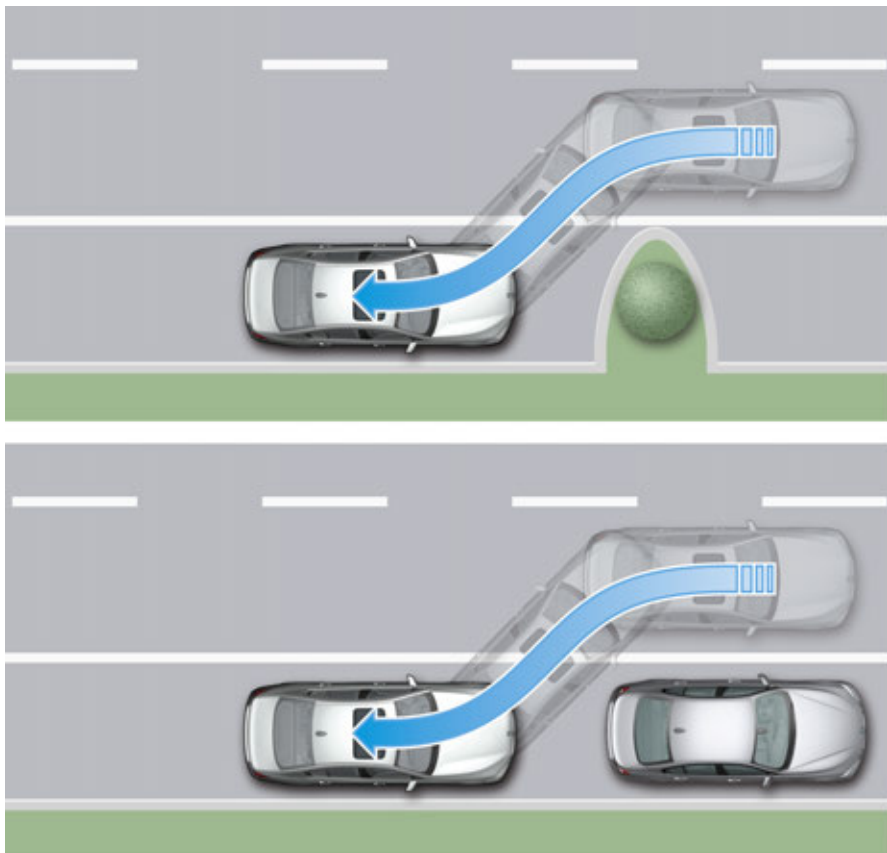
The Parking Maneuvering Assistant is included in the Parking Assistant, optional equipment (OE 5DM), in the G30.

Parking Assistant (OE 5DM) is available only in conjunction with the automatically dipping exterior mirror, optional equipment (OE 4T8).

19.1. Parallel parking/perpendicular parking

The Parking Maneuvering Assistant function facilitates maneuvering into parking spaces that are parallel (parallel parking) and perpendicular (bay parking) to the roadway.

19.1.1. Curbside parking

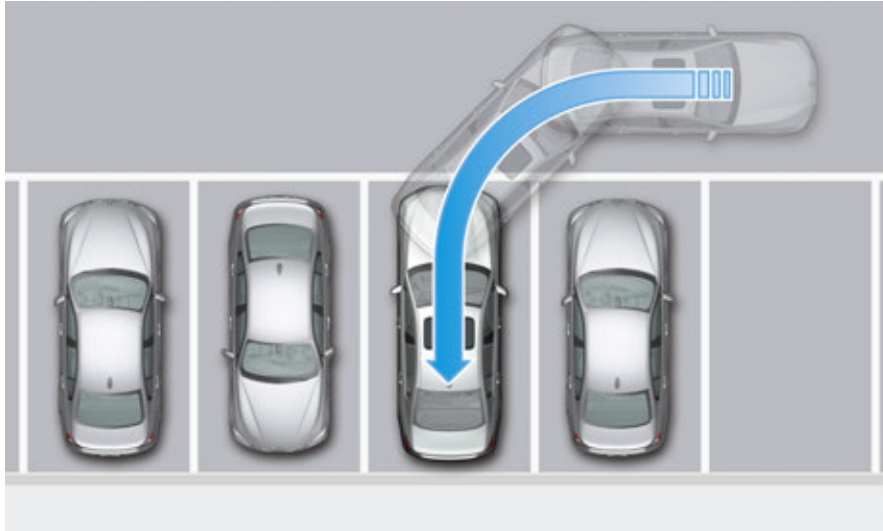


G30 Principle of curbside parking

G30 Driver Assistance Systems

19. Parking Maneuvering Assistant

19.1.2. Perpendicular parking



G30 Principle of perpendicular parking

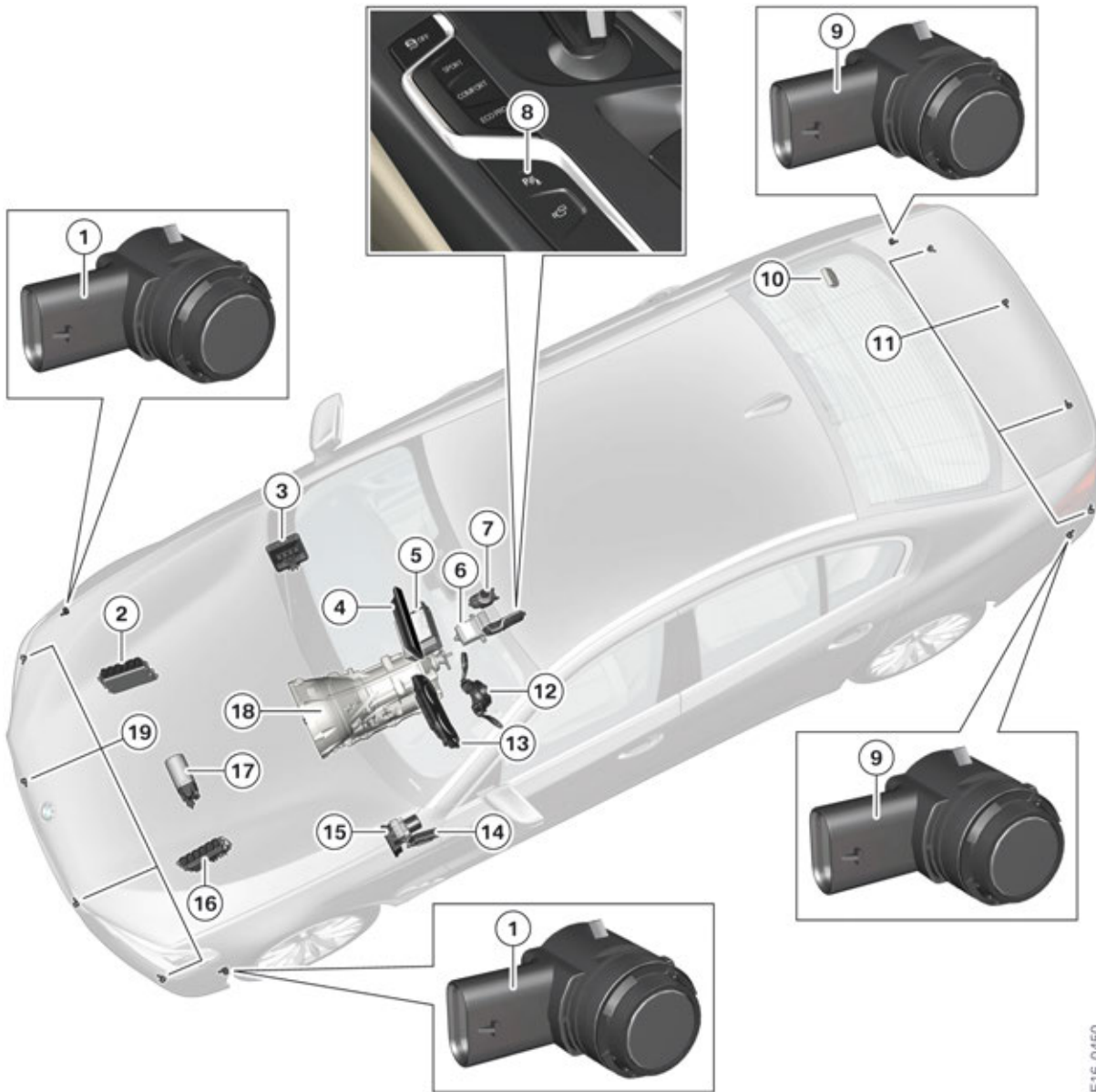
19.2. System components

Below is an overview of important sensors and operating elements:

- The parking assistance button is the central control panel for the Parking Maneuvering Assistant function (position 8).
- Two additional ultrasonic sensors in the front bumper measure parking spaces while driving (position 1).
- The distance from an obstruction is measured by four ultrasonic sensors in the rear bumper panel and four additional ultrasonic sensors in the front bumper panel (positions 11 and 19).
- Two additional ultrasonic sensors are installed in the rear bumper to precisely detect the size of a transverse parking space during the parking maneuver. The additional ultrasonic sensors measure the distance to detected objects.

G30 Driver Assistance Systems

19. Parking Maneuvering Assistant



TE16-0450

G30 Parking Maneuvering Assistant system components

| Index | Explanation |
|-------|---|
| 1 | Ultrasonic sensors of Parking Maneuvering Assistant (PMA) |
| 2 | Digital Motor Electronics (DME) |
| 3 | Body Domain Controller (BDC) |
| 4 | Central Information Display (CID) |
| 5 | Head Unit High |
| 6 | Advanced Crash Safety Module (ACSM) |
| 7 | Controller (CON) |

G30 Driver Assistance Systems

19. Parking Maneuvering Assistant

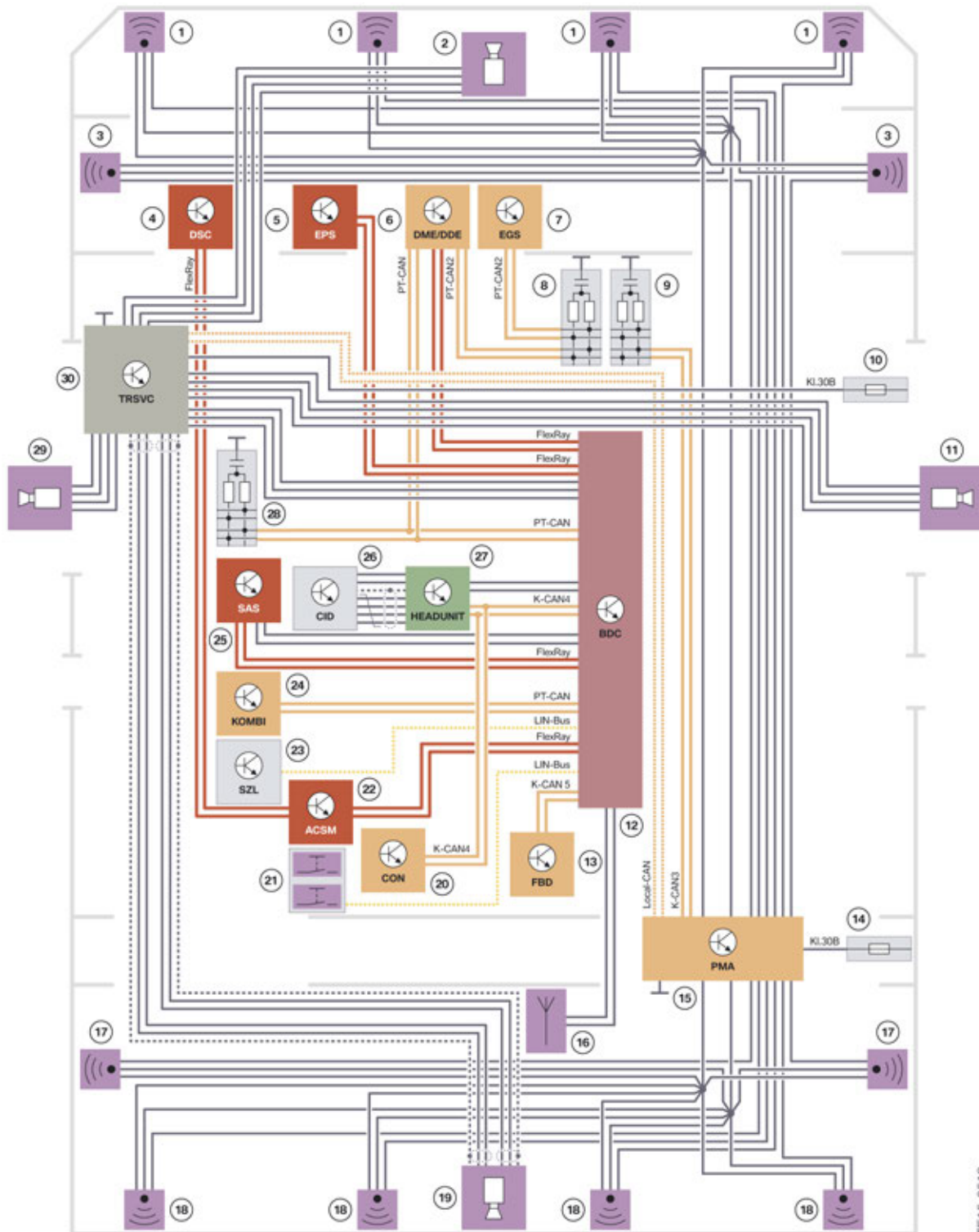
| Index | Explanation |
|-------|--|
| 8 | Parking assistance button |
| 9 | Ultrasonic sensors, Park Distance Control, rear side |
| 10 | Control unit for Parking Maneuvering Assistant (PMA) |
| 11 | Ultrasonic sensors, Park Distance Control, rear |
| 12 | Steering column switch cluster (SZL) |
| 13 | Instrument panel (KOMBI) |
| 14 | Control unit for Optional Equipment System (SAS) |
| 15 | Dynamic Stability Control (DSC) |
| 16 | Digital Engine Electronics 2 (DME2) |
| 17 | Electronic Power Steering (EPS) |
| 18 | Electronic transmission control (EGS) |
| 19 | Ultrasonic sensors for Park Distance Control, front |

19.3. System wiring diagram

The system wiring diagram on the next page shows an overview of the system components used when parking and maneuvering the vehicle. Depending on the vehicle equipment, partial scopes may also be installed.

G30 Driver Assistance Systems

19. Parking Maneuvering Assistant



TE15-0518

G30 Parking and maneuvering system wiring diagram