

Assistance systems

Comprehensive systems increase comfort and safety

Porsche supports the driver of the new Cayenne in day-to-day driving with a three-level system of parking assistance systems. The standard front and rear Park Assist provides visual and acoustic information to the driver when manoeuvring and parking. The system uses ultrasonic sensors fitted to the front and rear of the vehicle. Park Assist is optionally available with a reversing camera. This helps with manoeuvring by showing a colour camera image on the PCM screen with dynamic guide lines and distances to potential obstacles. Using four individual cameras, the Park Assist system with Surround View calculates a 360° view, which helps with parking and manoeuvring. The resolution of the camera image displayed on the PCM screen has now almost doubled, making the picture significantly sharper.

Adaptive cruise control with stop-and-go function

The Cayenne is equipped with a cruise control system with speed limiter function as standard, to help the driver regulate the car's speed and distance from other vehicles. The system can be activated between 30 and 240 km/h. The optional adaptive cruise control increases the range of functions considerably. Using a radar sensor positioned in the middle of the central air intake and the vehicle cameras, the system monitors the distance to vehicles in front and adjusts the distance automatically. It also detects vehicles crossing in front of the vehicle from other lanes. If required, the system brakes to match the speed of the vehicle in front until standstill. Wherever possible, it also uses the coasting function to reduce fuel consumption. The system offers greater driving comfort and safety, particularly in slow-moving traffic. The automatic distance control of the adaptive cruise control is available between 30 and 210 km/h.

Thanks to the stop-and-go function, the vehicle is able to pull off again automatically even after braking to a standstill. If the car is stopped for longer than three seconds, a short tap on the accelerator pedal or a restart via the control stalk is all that is needed to move off again.

The stopping distance reduction system, which is also integrated into the Cayenne, helps to prevent collisions or at least reduce the collision speed. The system provides an initial visual warning, followed by an acoustic warning if the vehicle approaches the car in front too quickly. In a further stage, the system jolts the brakes briefly. If necessary, braking initiated by the driver will be increased to full braking. If the driver does not react, the system automatically initiates emergency braking. In this case, the side windows and panoramic roof system close automatically. The seat-belt tensioners for the driver and passengers are also activated. At the same time, the system activates the hazard warning lights to warn vehicles approaching from behind.

InnoDrive as an electronic co-pilot

The new Porsche InnoDrive with adaptive cruise control is a particularly ingenious feature: Using the navigation data, it calculates the optimum acceleration and deceleration values for the next three kilometres, and activates them via the engine and the Tiptronic S as well as the brake system. In doing so, the electronic co-pilot takes corners, gradients and maximum speeds into account. It detects the current traffic situation using a radar and

video sensors and adjusts the control process accordingly. Exclusively developed by Porsche, InnoDrive improves efficiency. Vehicle functions such as coasting, trailing throttle fuel cutoff and braking interventions are controlled in a fuel-efficient manner based on the predictive navigation data.

Porsche InnoDrive also brings significant benefits in terms of comfort and dynamics. The system even recognises roundabouts, and adjusts the vehicle speed to match the circumstances ahead. When Sport mode is activated, InnoDrive switches to a more dynamic map. Using the integrated adaptive cruise control system, the radar and video sensors also monitor the distance to the traffic ahead, and permanently adjust this distance accordingly.

Anticipatory pedestrian protection

For the first time, the Cayenne is now equipped with an anticipatory pedestrian protection system as standard. The system considerably reduces the risk of collisions with pedestrians by issuing a visual and audible warning if a pedestrian or cyclist is located in the collision area. To enable this, the technology evaluates signals from the front camera. If the vehicle is moving towards a person too quickly, the brakes are applied. If the driver then also actuates the brake, the vehicle is brought to a complete stop. If the driver does not react, the system automatically initiates emergency braking.

Lane Keeping Assist including traffic sign recognition

Lane-changing manoeuvres in fast-moving traffic are one of the most frequent risks in day-to-day driving. The optional Lane Keeping Assist system monitors the car's position using a camera, and responds by providing steering support if the driver leaves the lane without indicating. Lane Keeping Assist significantly increases comfort and safety, particularly on long-distance journeys. In addition to steering assistance, a further audible and visual warning on the instrument cluster can be activated in the PCM. The system is active within a speed range of 65 to 250 km/h.

The Lane Keeping Assist system is combined with traffic sign recognition technology. Traffic sign recognition uses the same camera and detects normal speed limits, temporary speed displays, overtaking restrictions and indirect instructions, such as place-name signs. The traffic sign recognition technology is situation-dependent, and also uses other vehicle systems. If the rain sensor detects wet conditions, for example, the speed limit display system will take this into consideration and show weather-related speed limit indicators.

Lane Change Assist with Rear Turn Assist

The latest, enhanced version of the Lane Change Assist system can also be used as a complement to Lane Keeping Assist. The system uses a radar sensor to detect the distance and speed of traffic behind the car in adjacent lanes. If the speed and distance to the driver's vehicle are deemed a risk for changing lanes, a warning is shown in either the left or right exterior mirror. The system detects vehicles at a distance of up to 70 metres, and is active at a speed range of between approximately 15 and 250 km/h. A further feature of the new Cayenne is Rear Turn Assist. After approaching a junction, the Rear Turn Assist system displays an optical warning for objects nearing the vehicle in its blind spot. When pulling off with one of the indicators active, the driver is assisted by the Rear Turn Assist until reaching the activation speed of the Lane Change Assist.

Night Vision Assist with thermal imaging camera

Night Vision Assist uses an intelligent thermal imaging camera to detect people and animals when driving in the dark, and flags up their presence and position to the driver. The system operates at distances of up to 300 metres. The electronics are able to classify the relevant thermal source and to distinguish an animal from a parked motorcycle with a warm engine, for example. Night Vision Assist is deactivated in built-up areas to avoid possible false warnings such as dogs on a leash on the pavement. If the vehicle is fitted with optional LED matrix headlights, detected people or animals are illuminated in a beam of targeted light.

New LED light system with adaptive matrix headlights

Porsche has equipped the new Cayenne with cutting-edge light technology. The latest LED technology is used in the headlights and the rear lights in all models. LED main headlights are standard equipment in the Cayenne and Cayenne S; the Cayenne Turbo comes with LED headlights equipped with the Porsche Dynamic Light System. LED matrix main headlights with the Porsche Dynamic Light System Plus are the new top-of-the-range option. This system generates a beam of light from 84 individual LEDs, which work together with upstream lenses or reflectors. The system is also equipped with a camera that detects vehicles ahead, as well as oncoming traffic on the other side of the road. It uses this information to precisely control the distribution of the high beam light to prevent other road users from being dazzled. In the Cayenne, the driver always benefits from maximum illumination of the road ahead – particularly with high beam activated – without affecting other road users.

The complex headlight module is made up of several components that can be controlled in a highly flexible and independent manner based on camera data, navigation data and vehicle statuses. Thanks to the intelligent beam distribution, other functions can be integrated that significantly increase driving comfort and safety. For example, the system is capable of detecting highly reflective traffic signs and selectively masking them to reduce glare for the driver. The intelligent light system also provides a special setting for oncoming traffic. The boost function not only fades out the beam directed toward oncoming traffic in segments but also boosts the illumination of the driver's own lane. This guides the driver's eyes, thus increasing comfort and safety.