



**Communications Model Lines, Innovation and Technology**

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**PRESS INFORMATION**

**The Audi e-tron**

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**The equipment, data and prices specified in this document refer to the model range offered in Germany. Subject to change without notice; errors and omissions excepted.**



Condensed information

## **Electrifyingly fun to drive: the Audi e-tron**

**The brand with the four rings presents its first fully electric series-production model, the Audi e-tron. The full-size SUV combines sportiness and everyday usability. Its two electric motors together with electric all-wheel drive provide for awesome performance and agile handling. The large high-voltage battery lays the foundation for a range of more than 400 kilometers (248.5 mi) in the WLTP driving cycle. In combination with a comprehensive range of charging options for home and on the move, customers can enjoy fully electric driving without having to compromise.**

The Audi e-tron is an electric SUV for sport, family and leisure. It is 4,901 millimeters (16.1 ft) long, 1,935 millimeters (6.3 ft) wide and 1,616 millimeters (5.3 ft) high. It offers the spaciousness and comfort of one of the brand's typical full-size models. With a wheelbase of 2,928 millimeters (9.6 ft), the Audi e-tron has ample space for five occupants along with their bags. The total luggage capacity is 660 liters (23.3 cu ft), equipping the electric SUV for major tours.

### **Powerful performance on any terrain: drive and dynamic handling system**

Efficiency, performance and quiet tranquility – the Audi e-tron exemplifies the driving experience of a new technological era. Two electric motors drive the electric SUV powerfully, free of emissions, and almost silently, with a system output of up to 300 kW and 664 Nm (489.7 lb-ft) of torque. The maximum drive torque is available within fractions of a second and provides enormous pulling power. The Audi e-tron completes the standard sprint in 5.7 seconds. Top speed is an electronically-limited 200 km/h (124.3 mph).

A new quattro generation – electric all-wheel drive – provides for superlative traction and handling on any terrain and in any weather conditions. It ensures the continuous and fully variable regulation of the ideal distribution of drive torque between the two axles – within a fraction of a second. In most cases, the electric SUV tends to use its rear electric motor to achieve the highest efficiency. If the driver demands more power than it can supply, the electric all-wheel drive redistributes torque as required to the front axle. This also happens predictively even before slip occurs in icy conditions or when cornering fast, or if the car understeers or oversteers. The dynamic talents of the Audi e-tron are especially apparent at low coefficients of friction, such as on snow.

A key factor for the sporty character and outstanding transverse dynamics is the low and central position at which the drive components are installed. The battery system is optimally matched to the dimensions of the Audi e-tron and is located between the axles in the form of a flat, broad block beneath the passenger compartment. The center of gravity of the Audi e-tron is thus on a level similar to that of a sedan. Axle load distribution is perfectly balanced at almost 50:50.



With Audi drive select, the driver can vary the characteristics of the Audi e-tron between seven profiles depending on the driving situation, road conditions or personal preferences. The system also influences the standard air suspension with adaptive dampers. As a result, there is a vast difference between smooth rolling comfort and sporty, stable handling. The air springs adjust individually to the road conditions depending on the speed and the driver's preferences, varying the ride height by as much as 76 millimeters (*3.0 in*). Especially on long journeys, a lower ride height improves aerodynamics, thus increasing the range.

### **High efficiency: recuperation, aerodynamics and thermal management**

The Audi e-tron covers more than 400 kilometers (*248.5 mi*) on a single charge in the WLTP test cycle. This value is due primarily to the innovative recuperation system, which accounts for up to 30 percent of the electric SUV's range. The electric SUV can recover energy in two ways: by means of coasting recuperation when the driver releases the accelerator, or by means of braking recuperation when the brake pedal is depressed. In both cases, the electric motors function as a generator and convert the kinetic energy of the Audi e-tron into electric energy. At up to 0.3 g of deceleration, the electric SUV recuperates solely via the electric motors. This is the case well over 90 percent of the time. The wheel brakes are involved only when the driver decelerates by more than 0.3 g using the brake pedal. They respond extremely quickly, thanks to a new electrohydraulic actuation concept. Audi is the first manufacturer worldwide to use this concept in a series production vehicle with electric drive. When braking from 100 km/h (*62.1 mph*), for example, the Audi e-tron can recuperate electric power with a maximum of 300 Nm (*221.3 lb-ft*) and 220 kW. That corresponds to more than 70 percent of its operating energy input. No other series production model can achieve such a value. The electrohydraulically integrated brake control system decides as a function of the driving situation whether the SUV uses the electric motor, wheel brake or a combination of the two for recuperation – with this taking place individually at each axle. The transition between electric and hydraulic braking is smooth and homogeneous, so the driver does not even notice it. Brake forces remain constant.

Another key factor for the high efficiency of the Audi e-tron is the sophisticated aerodynamics. One highlight of this concept are the optional virtual exterior mirrors – a worldwide first in a series production model. Integrated into each of the mirror supports is a small camera, whose images are displayed on high-contrast OLED displays inside the vehicle. Other aerodynamic solutions go about their business hidden from view, such as the air suspension and the fully lined underbody with the aluminum plate to protect the high-voltage battery. These reduce drag, as does the adjustable cooling air intake. It includes channels for cooling the front brakes and serves as a switching point for the complex thermal management system with the standard heat pump. Benefits of the thermal management system include unwavering high performance even under high load, long battery life and fast DC recharging. With the virtual exterior mirrors, the Audi e-tron achieves a drag coefficient of 0.27 – a top mark in the SUV segment. With a typical use profile, this value provides for a range advantage of approximately 35 kilometers (*21.7 mi*) per battery charge versus a comparable, conventionally powered vehicle.



### **Intelligent solutions for home and on the move: the charging concepts**

The large high-voltage battery in the Audi e-tron can store up to 95 kWh of energy and is thus the foundation for the long range. There is generally no need to stop at charging stations during everyday driving. On long trips, such as when going on vacation, customers can use fast charging stations to charge with direct current (DC) at up to 150 kW – a first for series-production automobiles. This means that the Audi e-tron is all set for the next long-distance stretch of a journey in approximately half an hour. The electric SUV can also be recharged with alternating current (AC) at up to 11 kW; recharging with 22 kW is available as an option. A proprietary Audi charging service provides e-tron customers with easy access to roughly 80 percent of the public charging stations in Europe. Whether AC or DC, 11 kW or 150 kW – a single card is all customers need to start the process. The procedure will become even more convenient with the function Plug & Charge, which will follow in 2019: The car self-authorizes at the charging station and activates it.

Audi offers various solutions for charging in the garage at home: The standard mobile charging system can be used with either a 230 volt household outlet or a 400 volt three-phase outlet. The optional “connect” charging system doubles the charging power to as much as 22 kW. In conjunction with a home energy management system, it offers intelligent functions such as charging when electricity is less expensive or with solar power if there is a photovoltaic system on the roof. Audi customers can control all charging processes as well as pre-entry climate control via their smartphone with the myAudi app.

### **Electrification visualized: exterior and interior**

The Audi e-tron reflects the fundamental formal idiom of Audi design – translated into the electric age by new, stylistically defining details. Typically for one of the brand’s SUV models, the Audi e-tron bears the octagonal-design Singleframe grille with vertical struts. Its corpus is largely enclosed and presented in platinum gray – identifying it as a fully electric model. At the lower edge of the Matrix LED headlights, four horizontal struts create the e-tron-specific signature in the daytime running lights. For the first time this is integrated directly into the headlights. The expressive design of the sill area with the black inserts visualizes the location of the battery and thus the energy center of the Audi e-tron. At the rear, slats in the wide diffuser call attention to the omission of exhaust pipes. The e-tron logo on the charging flap and optionally the brake calipers stand out in the high-voltage signal color orange.

Colorful accents such as these are also available for the spacious, airy interior, whose design embodies performance, intelligence and lightness. The large arc, into which the optional virtual exterior mirrors are harmoniously integrated, stretches across the expansive instrument panel to the sculpted door trims, taking in-car digitalization to a whole new level. The center tunnel console rests on open sidewalls. Seeming to float above it is the hand rest with integrated shifter, which the driver operates with thumb and forefinger. Lightness and performance are fused into one.



The entire driver's area has a driver bias, and the two large MMI touch response displays are angled in the driver's direction. They replace nearly every conventional switch and control. Many functions can also be controlled via the natural voice control system as well as the Amazon voice-activated assistant Alexa. With the standard Audi virtual cockpit, the driver can choose between two views that clearly present all information in the form of sharp, high-resolution graphics. The optional Audi virtual cockpit plus offers a third screen that highlights the electric drive system. The comprehensive comfort features paired with high-quality materials and fine workmanship make electric mobility a premium experience.

### **Top-caliber connectivity: infotainment and assist systems**

In the German market, the Audi e-tron comes standard with the high-end media center MMI navigation plus. It supports the LTE Advanced data transmission standard with integrated Wi-Fi hotspot for the passengers' mobile devices. The navigation system makes intelligent destination suggestions based on previous routes, ideally supplemented by the e-tron route planner. This displays the suitable route with the required charging points. Besides the traffic situation, the computation also considers the battery's charge level. The projected arrival time includes any required charging time.

Numerous assist systems make the drive even more relaxing, including the standard efficiency assist. With predictive tips in the Audi virtual cockpit and automatic recuperation, it helps the driver to drive economically. The system uses radar sensors, camera images, navigation data and Car-to-X information to detect the traffic environment and the route. In combination with the adaptive cruise assist, the efficiency assist can also brake and accelerate the electric SUV predictively. Backing the assist systems is the central driver assistance controller, which continuously computes an exact model of the environment. The required data is obtained – depending on the selected options – from up to five radar sensors, six cameras, twelve ultrasound sensors and the laser scanner.

The Audi e-tron will be the brand's first model to allow customers to add certain functions online whenever the need for them arises. This will be possible from mid-2019 onwards. For example, the LED headlights can be upgraded to matrix LED headlights with intelligently controlled high beams, and assist systems or infotainment extras such as DAB+ digital radio and the Audi smartphone interface can be added.

### **Initial deliveries: Early 2019**

The Audi e-tron is being built in the CO<sub>2</sub>-neutral plant in Brussels and will be arriving in European dealerships in early 2019. The starting price of the electric SUV in Germany is 79,900 euros. In certain markets, customers who have already reserved their car can choose the exclusive "Audi e-tron edition one," a special model in a limited edition of 2,600 featuring special design details and a particularly generous equipment package.



Facts and figures

## The Audi e-tron

### Exterior design and body

- 4.90 meters (*16.1 ft*) long, 1.94 meters (*6.4 ft*) wide, 1.62 meters (*5.3 ft*) tall, 2.93-meter (*9.6 ft*) wheelbase
- Distinctive SUV design with wrap-around shoulder line, flat roof, brawny D-pillars and underbody protection
- New, e-tron-specific details: light gray Singleframe grille, expressive sill area, diffuser with no exhaust pipes, logo and brake calipers optionally in orange
- Horizontal e-tron light signature integrated into the headlights; wide light strip at the rear
- High-voltage battery with framework structure, encircling frame and floor plate for strong collision protection
- Body with high percentage of aluminum and ultra-high-strength steel in the occupant cell
- Unladen weight: 2,490 kilograms (*5,489.5 lb*)

### Aerodynamics and aeroacoustics

- Sophisticated aerodynamics: [virtual exterior mirrors](#), [controllable cool-air intake](#) with brake cooling ducts, fully lined underbody, air curtains, flow-optimized wheels and low rolling resistance tires, long roof edge spoiler
- Drag coefficient with conventional exterior mirrors 0.28; with optional virtual exterior mirrors 0.27 – a top mark in the SUV segment
- Very low wind and intrusive noise for a novel, quiet driving experience
- Use of absorbing and insulating materials for high acoustic comfort

### Drive system and suspension

- One electric motor at the front and rear axles; total system output up to 300 kW and 664 Nm (*489.7 lb-ft*) of torque
- Start-off performance on par with a sports car, acceleration from 0 to 100 km/h (*62.1 mph*) in 5.7 seconds (in boost), top speed 200 km/h (*124.3 mph*)
- [Electric all-wheel drive](#) with lightning-fast control and [wheel-selective torque control](#); highly networked drive and brake control
- Variable and thus particularly efficient recuperation concept with energy recovery when coasting and during braking; three levels selectable by driver
- Range per battery charge of over 400 kilometers (*248.5 mi*) in the WLTP cycle
- Sporty base character thanks to low and central installation position of the battery
- [Audi drive select](#) dynamic handling system with seven profiles; electronic stabilization control with sport and off-road mode plus deactivation function



- [Innovative wheel brake system](#) with compact central unit and rapid pressure development through electric powered displacement piston; brake pedal simulator makes pressure development and relief imperceptible to driver
- [Progressive steering](#) and [adaptive air suspension](#) standard; body ride height adjustable by 76 millimeters (*3.0 in*)

### **Battery and charging technology**

- 95 kWh of energy, 396 volts nominal voltage, weight approx. 700 kilograms (*1,543.2 lb*)
- Dimensions: 2.28 x 1.63 x 0.34 meters (*7.5 x 5.3 x 1.1 ft*), 36 cell modules, each with twelve pouch cells in two layers
- Indirect cooling system of aluminum sections separate from cell space
- Powerful thermal management system with four circuits and [heat pump](#)
- Charging on the move: with [direct current](#) and up to 150 kW of power or with [alternating current](#) and 11 or 22 kW (with optional second integrated charger)
- Service for Audi customers: one card activates roughly 80 percent of all charging points in Europe; from 2019 Plug & Charge for automatic authentication at the charging station
- Charging at home standard with up to 11 kW, optional up to 22 kW; intelligent additional functions such as use of own photovoltaic system in combination with a home energy management system
- [myAudi app](#) for remote management charging and pre-entry climate control via smartphone

### **Spaciousness and interior**

- Generously spacious: room for five persons, 600 liters (*21.2 cu ft*) of luggage capacity in base configuration, up to 1,725 (*60.9 cu ft*) with rear seats folded down; stowage compartment under the front hatch with 60 liters (*2.1 cu ft*) volume
- Comprehensive comfort and convenience equipment (option): Seats with ventilation and massage function, [air quality package](#), contour/ambient lighting package, [Audi connect key](#) and [personalization](#)
- Interior design with elegant, reduced design language
- Encircling wraparound, driver-oriented driver's area, sculptural center tunnel with hand rest including gear switch that appears to float
- Carefully selected colors and materials, including open-pored ash

### **Controls and displays**

- [MMI touch response](#) displays with diagonals of 8.6 and 10.1 inches and haptic feedback
- Optional [virtual exterior mirrors](#) with touch displays as new technology experience
- Natural speech voice control with onboard and cloud search; additionally with Amazon voice-activated assistant Alexa
- [Audi virtual cockpit](#) standard, optionally as plus version with third view and optional [head-up display](#)



## **Infotainment and assist systems**

- MMI navigation plus standard, data transmission at LTE speed, [Wi-Fi hotspot](#)
- [Audi connect](#) with many online services, including flexible [e-tron route planner](#)
- Starting in mid-2019, various lighting, assist and infotainment features can be booked online after purchase of the car
- Optional [Bang & Olufsen premium sound system with 3D sound](#) up front
- Driver assistance systems for long distances, city and parking, including [adaptive cruise assist](#) (option) and [efficiency assist](#) (standard)
- [Central driver assistance controller](#) for processing of sensor data

## **Strategy and production**

- Audi e-tron – the first fully electric series production model from the brand with the four rings
- By 2025 one electrified variant in each Audi core car line, whether fully electric or as plug-in hybrid; Audi e-tron Sportback to follow in 2019; 2020 an electric-powered compact model; from 2020 production of the Audi e-tron GT at the Böllinger Höfen outside Neckarsulm
- In 2025 every third Audi delivered should be electrified, that is 800,000 automobiles
- New services centered on the Audi e-tron: Involvement with Ionity for the establishment of a long-distance fast charging network in Europe; e-tron Charging Service for card access to roughly 80 percent of all public charging stations in Europe; starting in mid-2019, some vehicle functions can be flexibly booked on demand
- Production at CO<sub>2</sub>-neutral Brussels site: Audi wants to have all production sites CO<sub>2</sub> neutral by 2030
- Electric axle drives for the Audi e-tron produced at Audi Hungaria in Győr, in the world's largest engine plant
- Own battery assembly facility at the Brussels plant; competence center in Gaimersheim at the Ingolstadt site





The car in detail

## **Audi e-tron: the four rings electrified**

**The brand with the four rings presents its first fully electric series-production model, the Audi e-tron. From 0 to 100 km/h (62.1 mph) in 5.7 seconds, a range of over 400 kilometers (248.5 mi) in the WLTP driving cycle, zero local emissions – the full-size SUV is powerful, efficient, sporty and practical for everyday driving. Its two electric motors produce up to 300 kW and combine with the electric all-wheel drive to deliver optimum performance on any terrain. A comprehensive range of charging options for at home and on the go make electric driving convenient and effortless.**

The Audi e-tron is an electric SUV for sport, family and leisure. It combines the practical requirements for an automobile with the comfort of the full-size class and the efficiency of an electric drive system. At the same time it offers the premium experience that is expected from the brand with the four rings, with additional innovative highlights. For the first time in a volume-production car, virtual exterior mirrors are available as an option in the Audi e-tron. They not only provide a new technology experience, but also many practical benefits in terms of comfort and safety. Another first available from mid-2019 is the ability to flexibly add additional functions even after purchasing your Audi e-tron, taking in-car digitalization to a whole new level. Initial deliveries of the Audi e-tron are planned for early 2019. The starting price in Germany for the extensively equipped electric SUV is 79,900 euros.

### **Drive system and suspension**

Efficiency, performance and quiet tranquility – the Audi e-tron offers the driving experience of a new technological era. Two electric motors drive the electric SUV powerfully, free of emissions, and almost silently, with a system output of up to 300 kW. Its high-voltage battery stores 95 kWh of energy to provide a range of over 400 kilometers (248.5 mi) in the WLTP cycle. The Audi e-tron is thus predestined for long distances. The new electric all-wheel drive system combined with cutting-edge suspension solutions provide for optimal traction and handling in all driving situations and any weather.

#### **Powerful performance: the electric motors**

The Audi e-tron offers driving pleasure in a new dimension. With 265 kW and 561 Nm (413.8 lb-ft) of torque, the two electric motors accelerate the electric SUV from zero to 100 km/h (62.1 mph) in 6.6 seconds – with no hesitation and virtually silently. The [asynchronous motors](#) can deliver this peak performance for up to 60 seconds. This way, they allow the vehicle to accelerate from a standstill to the electronically limited top speed of 200 km/h (124.3 mph) several times consecutively without output losses.



The start-off performance, for example at a traffic light, is comparable to that of a sports car. The maximum drive torque is available within fractions of a second and provides enormous pulling power. The front electric motor, which is positioned parallel to the axle for the purpose of optimum packaging, achieves a peak output of 125 kW at 247 Nm (*182.2 lb-ft*) of torque. The rear, coaxially positioned motor reaches an output of 140 kW with a torque of 314 Nm (*231.6 lb-ft*). Two-stage planetary gearboxes with one gear range transfer the forces to the axles via the differentials.

Asynchronous motors can increase their output for a short period of time. By shifting from drive range D to S and fully depressing the right-hand pedal, the driver can activate boost mode. It is available for eight seconds. Here, the drive produces 300 kW of system output and 664 Nm (*489.7 lb-ft*) of torque. The Audi e-tron then sprints from 0 to 100 km/h (*62.1 mph*) in 5.7 seconds. The forces are distributed as follows between the electric motor at the front axle and the one at the rear axle: 135 kW of boost output with 309 Nm (*227.9 lb-ft*) of torque at the front, 165 kW with 355 Nm (*261.8 lb-ft*) at the rear.

The two asynchronous machines of the Audi e-tron offer major design advantages. They do not produce any electrically induced drag losses in the deenergized condition, which makes them highly efficient. Not only are they lightweight due to the aluminum rotor, they require little maintenance and are particularly robust.

### **Transformers: the power electronics**

Every motor in the Audi e-tron is supplied and controlled by its own [power electronics](#) module, which works together closely and extremely dynamically with the drive control unit. All requests come together in the drive control unit – from the accelerator pedal, the brakes, or the electric all-wheel drive. The power electronics modules read in sensor data 10,000 times per second and output current values for the electric motors. This results in the optimum use of output during dynamic vehicle operation in particular. Some functions, such as vibration damping and the slip control functions, are integrated into the power electronics directly. This enables the deceleration-free translation of interventions and improves, for example, the vehicle's ability to accelerate on icy roads significantly.

The two structurally identical power electronics modules are positioned on the housings of the electric motors and are integrated into the thermal management system of the drive system. They take up little space, and each weighs only eight kilograms (*17.6 lb*); this is also thanks to their aluminum housing. The pulse width modulating inverter, its central component, converts the [direct current](#) from the battery into [three-phase current](#). When the electric motors operate as a generator during recuperation, the pulse width modulating inverter converts the generated three-phase current into direct current and feeds it back to the battery.



### **High traction in any terrain: electric all-wheel drive**

In the Audi e-tron, the brand with the four rings introduces a new quattro generation as standard: [electric all-wheel drive](#). It ensures the continuous and fully variable regulation of the ideal distribution of drive torque between the two axles – within a fraction of a second. The electric SUV thus offers optimum traction in all weather conditions and on any type of surface. Its talents really shine on low-friction surfaces such as a snow.

In most cases, the Audi e-tron mainly uses its rear electric motor in order to achieve the highest efficiency. For reasons of efficiency, the drive torque is generally distributed with a rear-axle bias. If the driver demands more power than the rear electric motor can supply, the electric all-wheel drive redistributes torque as required to the front axle. This also happens predictively even before slip occurs in icy conditions or when cornering fast, or if the car understeers or oversteers. It takes just around 30 milliseconds from the system detecting the driving situation and the torque from the electric motors kicking in – much faster than with conventional quattro technology. The reason is that with the electric all-wheel drive a mechanical clutch is not engaged but electricity is simply distributed. And that is almost instantaneous with absolute precision. So even with sudden changes in the coefficients of friction and extreme driving situations the full quattro performance is guaranteed.

The key to the electric all-wheel drive is the intelligent networking of numerous control systems. The [central control unit for the chassis](#) integrates both the handling controller of the quattro drive and the [wheel-selective torque control](#) for the first time. If understeer is detected during sporty driving, it gently brakes the inside wheels, which are under a reduced load, thus directing the drive force to the outside. The car turns into the curve and precisely follows the steering angle. Furthermore, an innovative [traction control](#) provides high traction and stability. Wheel slip is controlled directly at the [power electronics](#) of the electric motors, 50 times faster than before and even more precisely matched to the driving situation. For the driver, this is particularly noticeable in combination with the four-stage Electronic Stabilization Control (ESC). It offers a sport and offroad program in addition to normal mode, and can also be switched off entirely. The driver can thus increase performance in certain situations and choose to extent to which the ESC helps to stabilize the vehicle.

### **Standard: Audi drive select and air suspension**

In addition, the characteristics of the Audi e-tron can also be adapted to various types of terrain using the standard dynamic handling system. Whether relaxed cruising, dynamic cornering or excursions off the beaten track, the driver can choose between seven profiles depending on the driving situation, road conditions or personal requirements: *auto, comfort, dynamic, efficiency, individual, allroad* and *offroad*.



Besides the drive system characteristic and steering boost, [Audi drive select](#) also influences the standard [adaptive air suspension](#) with controlled dampers. As a result, there is a vast difference between smooth rolling comfort and sporty, stable handling. The air suspension with damper control is integrated into the [electronic chassis platform](#) and Audi drive select management. The central control unit for the chassis individually controls the shock absorbers at each wheel at millisecond intervals – according to the road condition, driving style and the mode set by the driver in the Audi drive select dynamic handling system. In *auto* mode this is very balanced. With the *comfort* setting, the shock absorbers are controlled so that they provide relaxed motoring even on poor roads.

The pneumatic springs adjust individually to the road conditions depending on the speed and the driver's preferences, varying the ride height by as much as 76 millimeters (*3.0 in*) starting from the basic setting of 172 millimeters (*6.8 in*). On the highway, the body is lowered by as much as 26 millimeters (*1.0 in*), which improves stability and the aerodynamics, thus facilitating a long range. In *offroad* mode, it increases ground clearance by 35 millimeters (*1.4 in*). If the driver also activates the "Lift" function in [Audi drive select](#), the body is raised an additional 15 millimeters (*0.6 in*). In conjunction with the front angle of approach of 18.2 degrees and the rear angle of approach of 24.4 degrees with the offroad setting, the Audi e-tron is well prepared to tackle gentle offroad terrain. The ramp angle of the electric SUV is 16.8 degrees in this configuration.

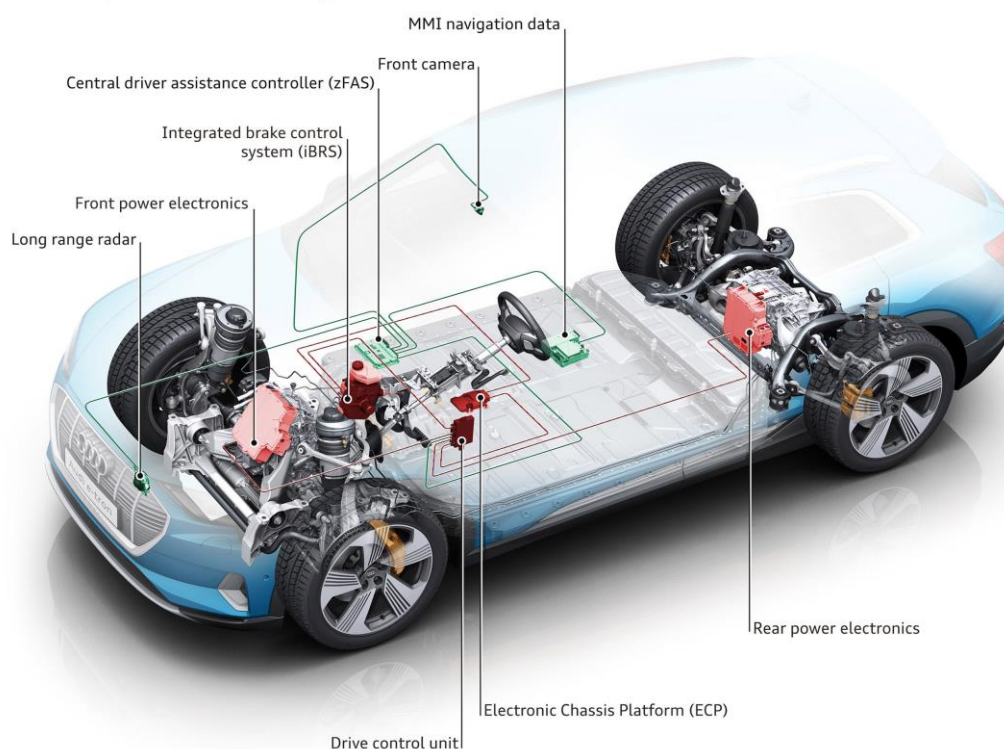
### **Sporty, precise handling: transverse dynamics, axles, steering**

A key factor for the sporty character and outstanding transverse dynamics is the low and central position at which the drive components are installed. The high-voltage battery system is optimally matched to the dimensions of the Audi e-tron and is located between the axles in the form of a flat, broad block beneath the passenger compartment. The center of gravity of the Audi e-tron is thus on a level similar to that of a sedan. Axle load distribution is perfectly balanced at almost 50:50.

The front and rear suspensions of the electric SUV are five-link designs. This axle principle enables optimal absorption of transverse and longitudinal forces. Its mounts are sportily rigid in a transverse direction and supple and soft longitudinally. All of which substantially improves comfort coupled with enhanced driving dynamics. Audi wraps the aerodynamically optimized 19-inch wheels with 255/55 tires that boast low rolling resistance without compromising handling or braking performance. As an option, Audi also supplies aerodynamically optimized 20-inch wheels with 255/50 tires and 21-inch wheels with 265/45 tires.

The standard [progressive steering](#) adjusts its generally directly configured ratio to the steering angle. It becomes more direct with increasing steering angle, which provides handling advantages when maneuvering and in tight curves. The car can be moved agilely and precisely with little steering effort. The Audi e-tron steers into the bend spontaneously without understeer and remains neutral for a long time even at high speeds. All the while it feels astonishingly light-footed. Steering boost is increased at low speeds for easier maneuverability.

Network of the chassis, brake and drive control system



### **From freewheeling to a one-pedal feeling: electric deceleration**

The intelligent recuperation concept is also tightly integrated into the Audi e-tron's electronic management system. It is the most innovative system on the market and accounts for up to 30 percent of the range. The electric SUV can recover energy in two ways: by means of coasting recuperation when the driver releases the accelerator, or by means of braking recuperation when the brake pedal is depressed. In both cases, the electric motors function as a generator and convert the kinetic energy of the Audi e-tron into electric energy. Up to 0.3 g, the SUV recuperates energy solely via the electric motors, without using the conventional brake – that covers well over 90 percent of all deceleration. So, energy is returned to the battery in practically all normal braking maneuvers.



The internally ventilated, 18-inch wheel brakes do not come into play until the driver uses the brake pedal to decelerate with more than 0.3 g. The electric SUV decides whether to decelerate using the electric motor, the wheel brake, or a combination of the two depending on the driving situation – with this taking place individually at each axle. In case of a brake application at a speed of 100 km/h (*62.1 mph*), for example, the Audi e-tron can recuperate with a maximum of 220 kW of electric power; that corresponds to more than 70 percent of its operating energy input. No other series production model can achieve such a value.

The driver can select the degree of energy recovery in three stages using paddles on the steering wheel. In the lowest setting, the Audi e-tron coasts with no additional drag torque when the driver releases the accelerator pedal. The Audi e-tron continues to roll forward. No electricity flows to or from the electric motor while the vehicle is moving. In level 1 (balanced – minimal deceleration) and level 2 (strong – high deceleration), the electric motors generate regenerative brake torque and produce electricity. The electric SUV reduces the speed noticeably – the driver can decelerate and accelerate using just the accelerator pedal. This creates the one-pedal feeling. There is no need to use the brake pedal in this case.

In addition to manually adjusting the [recuperation](#) level with the steering wheel paddles, the driver can also select automatic mode in the MMI. The [predictive efficiency assist](#) then regulates the deceleration as needed and predictively, for example in relation to the route or vehicles in front. The driver can adapt the deceleration effect by selecting the desired recuperation level via the shift paddles. It remains active until the driver operates the accelerator pedal again.

#### **Instant pressure buildup: the electrohydraulic brake system**

Audi is the first manufacturer worldwide to use the [electrohydraulically integrated brake control system](#) technology in a series production vehicle with electric drive. The compact module weighs less than six kilograms (*13.2 lb*) and is thus 30 percent lighter than a conventional brake system.

Powerful 18-inch brakes work on the large wheels – with six-piston fixed calipers at the front and single-piston floating calipers at the rear. Optionally they stand out brightly with their e-tron-specific finish in the high-voltage signal color orange. At the front the internally ventilated disks have a diameter of 375 millimeters (*14.8 in*) and 350 millimeters (*13.8 in*) at the rear. They are used when the driver presses the brake pedal so hard that deceleration exceeds 0.3 g; otherwise, the Audi e-tron decelerates through recuperation via the two electric motors. The controller computes the required amount of braking power within milliseconds. If the recuperation torque is not sufficient, a displacement piston in the brake hydraulics generates additional pressure. Put into motion by an electric spindle drive, it pushes brake fluid into the brake lines and generates brake force through the conventional friction brake in addition.



The transition between electric and hydraulic braking is smooth and homogeneous, so the driver does not even notice it; the brake forces remain constant. Using a pressure-resistant element, a second piston generates the familiar pedal feeling for the driver's foot. Thanks to this brake pedal simulator, the driver is not affected by what is happening in the hydraulics. In the case of ABS braking, pressure buildup and reduction are not noticeable in the pedal in the form of irritating hard pulsations. Even at a very slow speed, such as during maneuvering, the Audi e-tron decelerates via the wheel brakes because this is more efficient than electric braking in this case. Otherwise, the electric motor would have to use valuable battery current to decelerate actively at low rotational speeds.

The new electrohydraulic actuation allows the brake control system to build up brake pressure for the wheel brakes with great precision and roughly twice as fast as a conventional system. This enables a larger air gap, i.e. a greater distance between the brake pad and brake disk, to be set. This minimizes possible friction and heat generation and contributes actively to the long range of the Audi e-tron. When automated emergency braking is performed, there are only 150 milliseconds – ever so slightly more than a blink of the eye – between the initiation of the brake application and the presence of maximum brake pressure between the pads and disks. Thanks to this rapid pressure buildup, the electrohydraulically integrated brake control system shortens the braking distance by up to 20 percent compared with a conventional brake system.

The wheel brakes are seldom needed in normal operation, which has a positive effect on wear. The Audi e-tron is equipped with a brake cleaning function that helps the steel disks to remain free of oxidation as far as possible. During deceleration, it automatically uses the friction brake instead of [recuperation](#) at specific intervals. This way, the system is always in optimum operating condition.

### **Improving perception: technologically futuristic sound**

The Audi e-tron with its electric drive lends a whole new feeling to mobility. Especially when driving in the city, it radiates an almost perfect sense of calm. The only sounds are from its tires and the gentle hum of the electric motors. In certain countries in North America and Asia, an artificial driving sound is superimposed on electric cars at low speed to satisfy legal requirements. Depending on the country, it must be clearly audible up to 32 or 20 km/h (*19.9/12.4 mph*) and gradually fades as speed increases. In the Audi e-tron, a small controller generates a technically futuristic sound that is played back through a loudspeaker in the right wheel arch to alert others to the car's presence. When the car reverses, the sound level increases so it is clearly perceptible at the rear.



## Battery and charging technology

With its first fully electric series production model, Audi has transformed from a classic automobile manufacturer to a system supplier for mobility. Thanks to a comprehensive range of charging options with intelligent solutions for home and on the move, customers can enjoy fully electric driving without having to compromise.

### 95 kWh of energy: the high-voltage battery system

The powerful lithium-ion battery in the Audi e-tron provides for a range of more than 400 kilometers (*248.5 mi*) in the WLTP driving cycle. The battery operates with a nominal voltage of 396 volts and stores 95 kWh of energy. The battery system in the Audi e-tron is located beneath the cabin and is 2.28 meters (*7.5 ft*) long, 1.63 meters (*5.3 ft*) wide and 34 centimeters (*13.4 in*) high. It comprises a total of 36 cell modules in square aluminum housings, each of which is roughly the size of a shoe box. They are arranged on two levels, known as “floors” – a longer lower floor and a shorter upper one. The cell modules in the Audi e-tron can reproducibly discharge and charge electricity over a broad temperature and charge status window. They can be densely packed to achieve a very high output and energy density in the volume available. At market launch, each module is equipped with twelve pouch cells having a flexible outer skin of aluminum-coated polymer. In the future, Audi will use both technically equivalent prismatic cells in its modular concept, also in terms of a multiple supplier strategy.

An indirect cooling system distinct from the cell space ensures the high-performance operation of the battery over the long term. It is made of flat, extruded aluminum sections uniformly divided into tiny chambers. Heat is exchanged between the cells and the cooling system beneath them via a thermally conductive gel pressed beneath each cell module. In what is a particularly efficient solution, the gel evenly transfers the waste heat to the coolant via the battery housing.

The battery and all key parameters, such as charge status, power output and thermal management, are managed by the external battery management controller (BMC). This is located in the occupant cell on the right A-pillar of the Audi e-tron. The BMC communicates with both the controllers of the electric motors and the cell module controllers (CMC), each of which monitors the currents, voltage and temperature of the modules. The battery junction box (BJB), into which the high-voltage relays and fuses are integrated, is the electrical interface to the vehicle. Enclosed in a die-cast aluminum housing, it is located in the front section of the battery system. Data exchange between the BMC, the CMCs and the BJB is via a separate bus system.





### **Standard with 11 kW, optionally with 22 kW: charging at home**

The Audi e-tron will typically be recharged most often at home. And each charging cycle costs the owner just a few seconds of time, i.e. the time required to connect and disconnect the charging cable. In most cases, the electric SUV is charged overnight and then sets off the next morning with a fully charged battery and a range of more than 400 kilometers (248.5 mi) according to the WLTP test cycle.

Audi offers various solutions for charging at home. If desired, an electrician referred by the local Audi dealer will check the power supply in the garage and install the suitable technology. The standard compact mobile charging system can be used in two ways – with a charging power of up to 2.3 kW when connected to a 230 volt household outlet, and with up to 11 kW when connected to a 400 volt [three-phase](#) outlet. In the latter case, the battery can be fully recharged in roughly eight and a half hours. The optional connect charging system doubles the charging power to as much as 22 kW. This requires a second charger on board the Audi e-tron, which will be available from 2019. The connect system comprises a control unit with a 5-inch touch display and a wall mount. It enables customers to view their individual charging statistics and charging progress in the myAudi portal and the myAudi app.

Together with a home energy management system, the connect charging system offers intelligent functions. In this case, the Audi e-tron can be charged with the maximum power available with consideration of other consumers in the household to avoid overloading the electrical system. Customers can also define their own personal priorities, such as charging when electricity is less expensive. If the home is equipped with a photovoltaic system, the car can be charged preferentially using the electricity generated by the system, and charging even considers forecast phases of sunshine.

### **Remote control via app: charging and heating/cooling**

The [myAudi app](#) provides for convenient operation with smartphone from the couch. With it, customers can also plan, remotely control and monitor charging processes and the pre-entry climate control of the Audi e-tron. They can set a departure time, for example, so that the electric SUV is charged and/or heated/cooled at the desired time.

Customers can even choose for the first time to heat or cool certain zones in the car. On cold winter days, for example, they can turn on the seat heating, heated steering wheel or the heated rear window using their smartphone. The app also displays charging and driving data. Communication with the car is via the integrated LTE module, which is standard equipment in the Audi e-tron.



### **At up to 150 kW: charging on the move**

Thanks to the long range of more than 400 kilometers (*248.5 mi*), there generally is no need to stop at a charging station during everyday driving. This is not the case for longer trips, however, such as when going on vacation. In these situations, the Audi e-tron can recharge with up to 150 kW DC at fast charging stations meeting the European Combined Charging System (CCS) standard – a first for a series-production automobile. This means that the electric SUV is all set for the next long-distance stretch of a journey in approximately half an hour. It is all made possible by the sophisticated thermal management of the lithium-ion battery, which allows charging at up to 150 kW. Plans call for the Ionity network to include 400 such high-power charging (HPC) stations installed at 120-kilometer (*74.6 mi*) intervals along European highways and main transportation corridors by 2020. The Volkswagen Group including Audi and Porsche, the BMW Group, Daimler AG and the Ford Motor Company are jointly promoting the expansion of the HPC network. Additional compatible HPC charging points are also being installed in Europe outside of this joint venture.

In addition to [direct current](#), the electric SUV can also be charged on the move with [alternating current](#) at AC chargers, with up to 11 kW as standard and at 22 kW with the optional second on-board charger. The car is connected to the charging station using the standard mode 3 charging cable. Roughly 95 percent of all existing charging points in Europe currently conform to this standard.

From market launch Audi will offer a proprietary charging service for its customers – the Audi e-tron Charging Service. It provides convenient access to roughly 80 percent of all charging stations in Europe, corresponding to well over 70,000 public charging points in 16 EU countries. Whether [AC](#) or [DC charging](#), 11 kW or 150 kW – a single card is all customers need to start the charging process. Data transfer is based on RFID (Radio Frequency Identification) radio technology. Many charging stations can also be activated by scanning a QR code with a smartphone. To use the service, customers have to register one time on the myAudi portal and conclude a contract. Billing is automatic via the user account. No physical means of payment is used. Customers can use the myAudi portal to view their current charging history at any time, review their latest bills and manage their contract. Independent of this, customers can also use charging stations that are not included in the e-tron Charging Service portfolio. In these cases the customers settle directly with the respective provider.

From 2019 onward, charging will be even more convenient for Audi customers. This is when the Plug & Charge function will be introduced. It enables the Audi e-tron to authenticate itself at charging stations via state-of-the-art cryptographic procedures, after which it is authorized – the card will no longer be necessary. This requires a valid charging contract with the e-tron Charging Service. All Audi e-tron models rolling off the assembly line from mid-2019 will support this function as standard.

### **In the spotlight: the charging process**

Each Audi e-tron charging process begins with a little show: At the push of a button, the motorized charging flap in the driver-side fender opens toward the front to reveal the connector illuminated by a white LED. Next to it is a second LED that indicates the status. A pulsing green light, for example, means charging is active; a steady green light means charging is complete.

When the plug is disconnected, the charging flap closes automatically within five seconds. Together with the optional second charger, Audi provides an additional connector on the passenger side for AC charging.



### **Important performance factor: thermal management**

The effective thermal management system in the Audi e-tron guarantees fast DC charging with up to 150 kW, long battery life and reproducible road performance even under heavy load. For the customer, this means high performance at all times.

The thermal management system of the Audi e-tron comprises four circuits that can be connected in various ways as required. It cools the electric motors including their rotors, the [power electronics](#) and the charger. It also cools and warms both the interior and the high-voltage battery. The rotors, which reach up to 13,300 revolutions per minute during real vehicle operation, consist of magnetically conductive electrical sheets and lightweight, high-purity aluminum. Coolant flows through the inside of the shafts to ensure that the temperature does not exceed 180 degrees Celsius. The stators and end shields of the electric motors are also water-cooled. The gearboxes mounted on the end shields benefit indirectly from this solution. Effective cooling posed new challenges for the developers, particularly with the coaxially arranged electric motor at the rear axle. The solution is to supply the coolant via a double-wall pipe and its ceramic seal on the electric motor rotor.

22 liters (*5.8 US gal*) of coolant circulate around the 40 meters (*131.2 ft*) of cooling pipes in the Audi e-tron. Being the hottest components in the powertrain, the electric motors provide the thermal management system with a large quantity of heat. The standard [heat pump](#) uses their waste heat – up to 3 kW of actual power losses are efficiently used for heating and air conditioning the interior. Depending on the outside temperature, that can boost the Audi e-tron's range by up to ten percent in customer operation.



The thermal management system also ensures that the battery is kept within its optimal efficiency range of 25 to 35 degrees Celsius in all situations, from a cold start in winter to fast highway driving on hot summer days. This also contributes to the long service life. During DC charging with 150 kW, which is possible for the first time ever in a series production automobile with the Audi e-tron, cold coolant dissipates the heat produced as a result of electrical resistance. If the battery is still cold when charging in winter, it is heated with warm coolant.

## **Exterior design and aerodynamics**

The Audi e-tron reflects the fundamental formal idiom of Audi design and translates it for the electric age. Style-defining details indicative of the new drive technology include the distinctive sill area, the specific daytime running light signature and the lack of exhaust pipes. The optional virtual exterior mirrors – a worldwide first in a series production model – are both a visual and aerodynamic highlight.

### **Electrification visualized: the exterior**

Typically for one of the brand's SUV models, the Audi e-tron bears the octagonal-design Singleframe grille with vertical struts. Its corpus is largely enclosed and presented in platinum gray – identifying it as a purely electric model. At the lower edge of the Matrix LED headlights, four horizontal struts create the e-tron-specific signature in the daytime running lights. For the first time this is integrated directly into the headlights – another exclusive design feature for the all-electric drive system. Light is used as a core design feature. Each [Matrix LED headlight](#) includes 55 light-emitting diodes, ten of which are for the high beam. They illuminate the road dynamically and precisely while excluding other road users from the cone of light. The front and rear indicators are dynamic.

Particularly eye-catching are the [virtual exterior mirrors](#) available as an option for the Audi e-tron. Incorporated into the hexagonal end of their flat supports is a small camera with a resolution of 1280 x 1080 pixels. Image brightness is adjusted for the ambient conditions, such as when driving through a tunnel. Each support also incorporates an LED indicator and optionally a TopView camera. Inside the Audi e-tron, the images from the virtual exterior mirrors appear on OLED displays in the transition between the instrument panel and door.



The wrap-around shoulder line is the defining design element in the side view. It extends from the headlights, along the flanks, to the rear lights, giving the Audi e-tron a low visual center of gravity. The roof stretches low across the muscular body, which with its brawny D-pillars and the underbody protection boasts clear SUV attributes. The quattro blisters over the wheels hint at the electric all-wheel drive. The sill area is also boldly contoured. With the black inserts on the door trim, it visualizes the location of the battery and thus the energy center of the Audi e-tron.





At the sculpted rear end, the long roof edge spoiler and the wide diffuser emphasize the horizontal and thus the sporty character of the electric-powered SUV. A light strip – a typical feature of Audi’s top models – connects the LED rear lights. With their horizontal emphasis and segmented appearance, the tail lights echo the graphics of the daytime running lights. Horizontal lamellas to both sides of the diffuser spotlight the lack of tailpipes and reiterate that the Audi e-tron is powered solely by electricity.

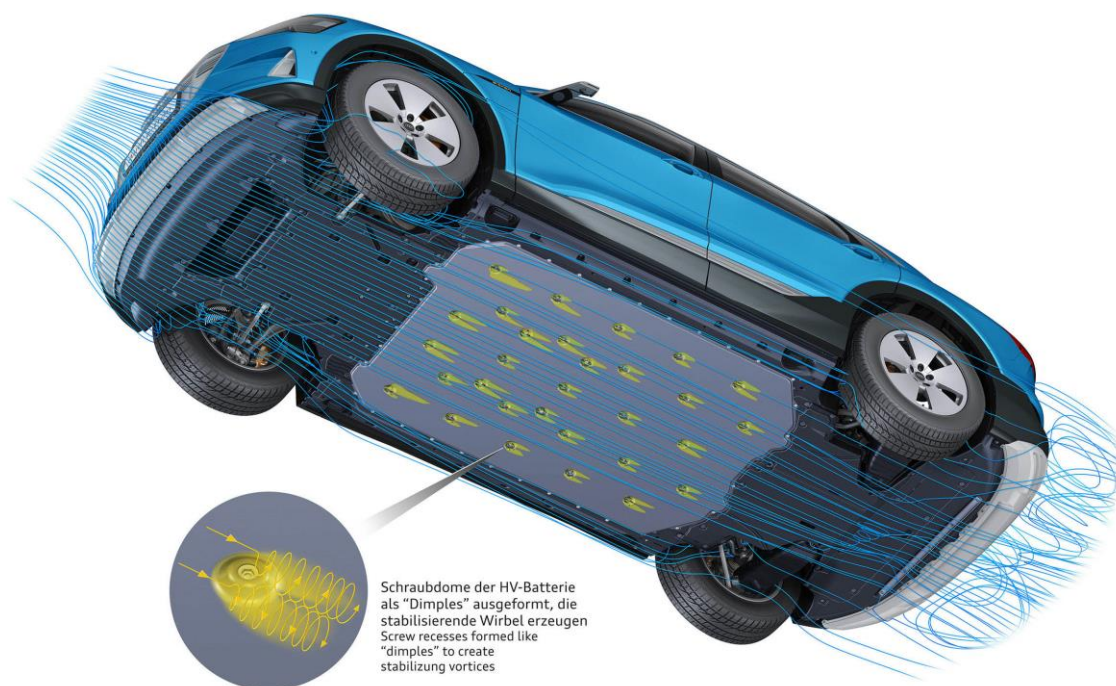
At market launch the electric SUV will be available in a choice of ten colors, including the exclusive shade Antigua blue. The e-tron logo on the electric charging flap and optionally the brake calipers stand out in the high-voltage signal color orange. The wheel arch trims and sills are finished in anthracite as standard to underscore the off-road look. The underbody protection, diffuser and the inserts in the sill area are painted black. In the optional advanced line with 20-inch tires, the attachments are either finished in a contrasting gray or the body color. The underbody projection and diffuser sport a matt silver tone. The black styling package is also available as an option.

#### **Decisive aerodynamics: drag**

With an electric car, weight influences energy consumption far less than in the case of a car with a combustion engine. In town it is generally efficient because it can recover a large part of the energy, which it uses to accelerate, when rolling up to the next red light. The situation is totally different on long journeys, however, where the Audi e-tron is perfectly at home: From speeds of around 70 km/h (*43.5 mph*), rolling resistance and inertia here take second place to aerodynamic drag irrespective of the type of car. The energy required to overcome that drag is lost. This is why the engineers were so focused on the aerodynamics during the development of the Audi e-tron. Some solutions are visible at a glance, such as the virtual exterior mirrors and the aero bezels on the rear window. Others go about their business out of sight. Thanks to these solutions, the drag coefficient for the Audi e-tron is almost 0.07 less than for a comparable, conventionally powered vehicle. With a typical usage profile, this increases the range by around 35 kilometers (*21.7 mi*) per battery charge in the WLTP cycle. To achieve the same result simply by cutting weight, the engineers would have had to shed a half a metric ton (*1,102.3 lb*).

With conventional exterior mirrors, the Audi e-tron achieves a drag coefficient of 0.28. With the optional [virtual exterior mirrors](#) this value is 0.27 – a top mark in the SUV segment. Compared to the standard mirrors, the camera mirrors reduce the vehicle width by 15 centimeters (*5.9 in*) and, thanks to their new shape, not only reduce drag, but also noticeably cut the already low wind noise.

Another key aerodynamic factor is the fully lined underbody of the Audi e-tron. Its primary component is the aluminum plate beneath the high-voltage battery. Its bolting points come with bowl-shaped indentations, similar to the dimples on a golf ball. They make the air flow much better than a totally flat surface. The electric motors on the axles and the wheel suspension are covered with paneling made from pressed fiber-fleece material, which at the same time absorbs noise. Ahead of the front wheels, wheel spoilers mounted on the underbody use air baffles to reduce irritating swirl in the wheel arches. These baffles specifically channel the airflow past the wheels. The transverse links on the rear axle of the Audi e-tron are located under separate paneling. A variable diffuser below the rear skirt ensures that the accelerated air returns to ambient speed and creates as little swirl as possible.



The standard [adaptive air suspension](#) also contributes to the low drag coefficient. From speeds of 120 km/h (*74.6 mph*), it lowers the body of the Audi e-tron by as much as 26 millimeters (*1.0 in*) from the normal height of 172 millimeters (*6.8 in*). As a result, the rectangle that the tires represent for the airflow and opposes the slipstream partially disappears into the wheel arch. This measure also improves handling.



Helping to lower drag at the front of the car is the [controllable cool-air intake](#) – a frame behind the Singleframe with two electrically operated louvers. When shut, the air in this area flows with virtually no swirl. As soon as the drivetrain components need cooling or the air conditioning condenser requires ventilation, the top louver opens first and then both louvers. When the hydraulic wheel brakes are subject to high loads, the controllable cool-air intake opens and releases two ducts which channel the cooling air into the front wheel arches to the brakes.

The side air inlets at the front of the Audi e-tron incorporate additional ducts, which are clearly visible from outside, to the wheel arches. They channel the airstream so that it flows past the outside of the standard aerodynamically optimized 19-inch wheels. Their design is flatter than with conventional wheels, thus reducing the aerodynamic drag. The 255/55 tires are optimized for low rolling resistance, and their flanks are aerodynamically designed – the lettering is recessed rather than raised.

## **Body and passive safety**

Aeroacoustics is a major strength of all Audi models. The Audi e-tron raises this level even further and, as such, offers outstanding long-distance comfort. The body, which was specifically optimized in terms of vibration and acoustic comfort, provides the necessary foundation. At the same time, it together with the high-voltage battery provide for a high level of safety and rigidity.

### **Aluminum and steel: hybrid construction body**

As is typical of the brand, the body of the Audi e-tron is a hybrid construction of aluminum and steel. If the housing of the high-voltage battery is included, aluminum comprises 40 percent of the body. The remaining 60 percent breaks down into 17 percent hot-shaped steel and 43 percent cold-shaped steel. The Audi e-tron has an unladen weight of 2,490 kilograms (*5,489.5 lb*), which is typical for an electric SUV.

All attachments, such as the doors, front hood and rear tailgate as well as the rear floor pan are made of aluminum. The crossbars in the engine compartment as well as the cross-members behind the front and rear bumpers are aluminum sections, whereas the strut domes are made of cast aluminum. Key components made of hot-shaped and thus ultra-high-strength steel – the A- and B-pillars, roof members, center tunnel, interior sills, floor cross-members and rear longitudinal members – comprise the strong backbone of the occupant cell. In a head-on collision, the three stress planes in the front end absorb the forces.

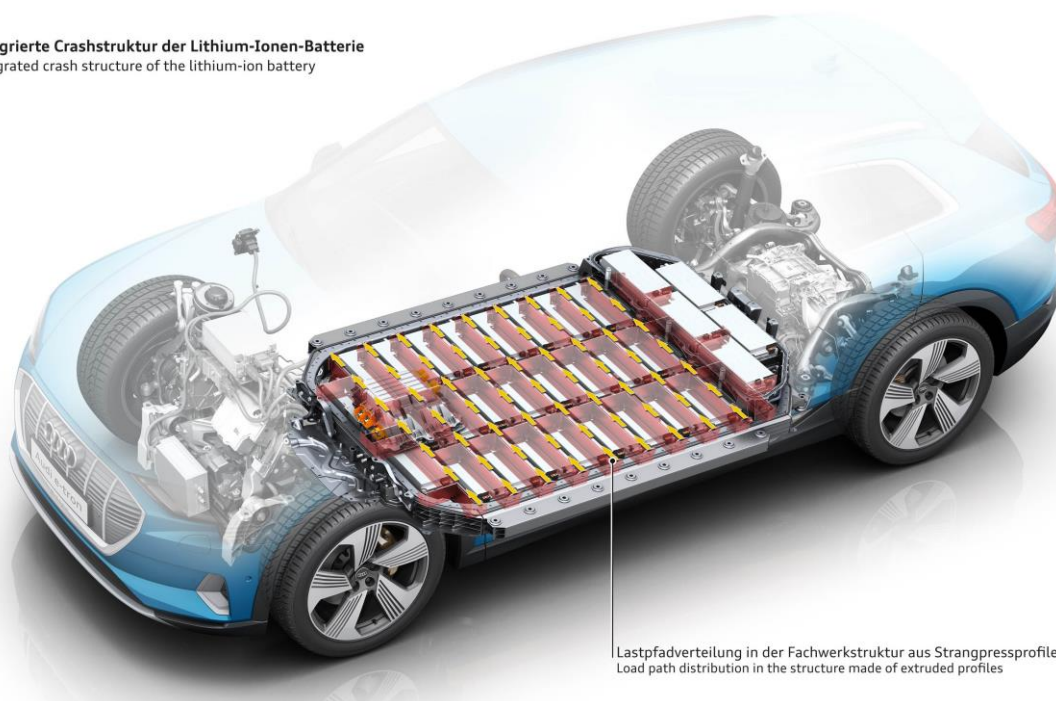


### **Safety and rigidity: high-voltage battery and body as a composite unit**

Sophisticated measures have been taken to protect the high-voltage battery of the Audi e-tron. A strong enclosing frame of cast aluminum nodes and extruded sections, plus an aluminum plate 3.5 millimeters (*0.1 in*) thick protect against damage from stone impacts or curbs. Inside, a framework-like aluminum structure reinforces the battery system. Also comprised of extruded sections, it holds the cell modules like a typewriter.

Including the housing with its sophisticated crash structures comprising 47 percent extruded aluminum sections, 36 percent aluminum sheet and 17 percent die cast aluminum parts, the battery system weighs around 700 kilograms (*1,543.2 lb*). It is bolted to the body structure of the Audi e-tron at 35 points. This increases its torsional rigidity by 27 percent and contributes to the high level of the safety of the Audi e-tron, as does the cooling system bonded to the outside of the battery housing. Compared to a conventional SUV, the Audi e-tron offers 45 percent higher torsional rigidity, a key parameter for precise handling and acoustic comfort.

**Integrierte Crashstruktur der Lithium-Ionen-Batterie**  
Integrated crash structure of the lithium-ion battery



**Lastpfadverteilung in der Fachwerkstruktur aus Strangpressprofilen**  
Load path distribution in the structure made of extruded profiles

### **Relaxed atmosphere: aeroacoustics and soundproofing**

Another great strength of the e-tron body is the high vibrational and acoustic comfort. Those areas where forces are channeled into the body, particularly the connection of the axles, play an important role: Due to their high local rigidity they are resistant to excitations from the assemblies and the road.



Absorbing and insulating materials are used in the Audi e-tron to effectively reduce solid-borne and airborne sound. Design-related openings and cavities within the body are sealed and filled systematically. Textile fabric and microfiber fleeces line the wheel arches to absorb noise. Relevant areas are also coated with a special material, thus reducing the vibration of the metal sheets. On the firewall, a complex multilayer structure dampens the sound penetration from the front-end to the interior. In the rear-end too, this kind of design of the new vehicle architecture with additional rear-axle drive is also taken into account. Furthermore, the electric motors are enclosed in noise-reducing capsules. Even the underbody paneling is designed accordingly. In the interior, specifically configured components, such as foam-backed carpets, ensure minimal noise in the Audi e-tron.

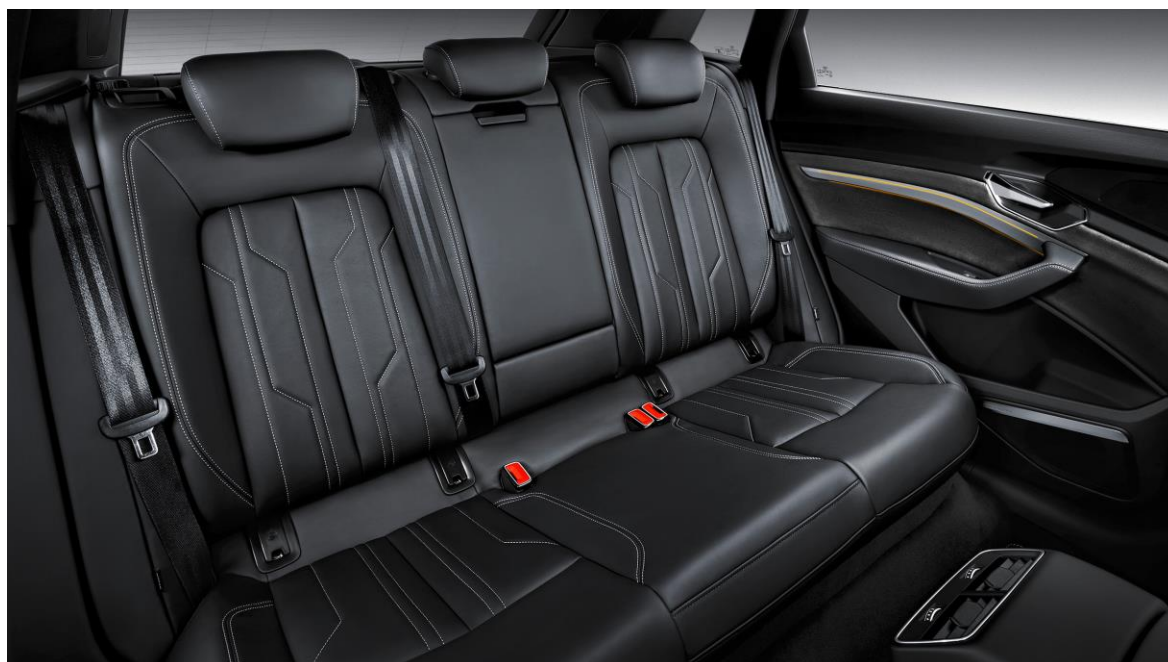
The second important factor for the relaxed atmosphere on board the Audi e-tron is the advanced aeroacoustics. As a rule, wind noise becomes the overriding component in any car from a speed of 85 km/h (*52.8 mph*). With the Audi e-tron, however, it remains very low and barely reaches the occupants thanks to intensive finishing touches on door seals, exterior mirrors and water-catching strips. The passengers can talk to each other comfortably even at high speeds. The windshield comes standard with double glazing. Audi also offers acoustic glazing for the side windows as an option.

## **Spaciousness and interior**

The Audi e-tron combines the practical requirements for an automobile with the comfort of the full-size class and the efficiency of an electric drive system. At the same time it offers the premium experience that is expected from the brand with the four rings, with additional innovative highlights. Its interior is an elegant lounge – sophisticated and spacious. e-tron-specific details make it clear that the Audi e-tron is powered solely by electricity.

### **Room on board: 2.93-meter wheelbase and up to 1,725 liters cargo space**

The Audi e-tron is an electric SUV for sport, family and leisure. It is 4,901 millimeters (*16.1 ft*) long, 1,935 millimeters (*6.3 ft*) wide and 1,616 millimeters (*5.3 ft*) high. It offers the spaciousness and comfort of one of the brand's typical full-size models. With a wheelbase of 2,928 millimeters (*9.6 ft*), the Audi e-tron has ample space for five occupants along with their bags. Interior length, head room in front and rear as well as knee room in the second seat row are top-class in the full-size SUV segment. In the rear, a flat plateau – instead of the center tunnel usually found in conventional models – creates additional space.



Luggage capacity is 660 liters (*23.3 cu ft*), equipping the electric SUV for major tours. The practical storage compartment beneath the front hatch accounts for 60 liters (*2.1 cu ft*) thereof. This accommodates the vehicle tool kit and mobile charger cable. With the rear seat backs folded down, the Audi e-tron has up to 1,725 liters (*60.9 cu ft*) of luggage space. The standard power tailgate provides for easy loading; foot gesture control is available as an option. The optionally available trailer tow hitch increases the Audi e-tron's versatility, for example as a sport and leisure vehicle. With it, the electric SUV can tow a trailer load of 1,800 kilograms (*3,968.3 lb*). It can also be used for mounting a cycle carrier, for example.

### **Sophisticated and comfortable: electric mobility as a premium experience**

As well as the car's spaciousness, its standard of comfort and convenience is what you would expect from a typical full-size model of the brand. The panoramic glass sunroof keeps the interior even lighter and intensifies the impression of airiness and space. As an alternative to the standard two-zone automatic air conditioning, Audi also offers four-zone automatic air conditioning and the [air quality package](#). The latter maintains first-class air quality by means of an ionizer and aromatization, the intensity of which can be adjusted over several levels. It fills the interior with either a summer or winter fragrance – the former with a Mediterranean note reminiscent of sea air, the latter with a pine note and similar to a breath of mountain air. The air quality sensor also detects harmful gases and activates recirculated air mode as necessary.

The three-stage ventilation ensures pleasant seating comfort even as the outside temperatures soar. Ventilation is already available for the standard seats – the perforated leather on the seat features a host of details. The top-of-the-line option comes in the shape of customized contour seats with their numerous adjustment functions. Besides pneumatic seat and lumbar support adjustment they also come with a massage function as an option. Ten pneumatic cushions relax the back muscles in seven selectable programs and three intensities. As such, they help ensure the well-being of everyone, particularly on long journeys.

In the dark the optional ambient lighting package with its white LED lights effectively brings the interior to life. It softly illuminates surfaces such as doors and the instrument panel, making them appear to float. The contour/ambient lighting package with 30 adjustable colors provides a further upgrade. It also precisely traces the elemental lines of the interior. With this option, the e-tron logo with its unique graphic extending over the entire width of the passenger side is backlit. A standard feature is the welcome sound that plays when the engine is started to signal that you have entered a luxury lounge.

#### **Progressive elegance: the interior**

The interior of the Audi e-tron stands for performance, intelligence and lightness – attributes that are manifested in an array of details. Design and technology are fused into one. A generous arc, the wraparound, envelops the cascading instrument panel with pronounced horizontal lines as far round as the sculptural door trims. It harmoniously integrates the hood above the [Audi virtual cockpit](#), whose sleek display stands visually free in space, as well as the displays of the optional [virtual exterior mirrors](#). These mirrors are used for the first time in a volume-production automobile in the Audi e-tron, taking in-car digitalization to a whole new level.





The driver's area has a strong driver bias, and the two [MMI touch response](#) displays are angled in the driver's direction. When off, the upper one of these blends almost invisibly into the large black-panel surface. In clear contrast, the lower display is incorporated into the broad center console. Options include the multifunction buttons on its edge and the control element for the lighting functions in black-panel design with touch response technology. Both touch displays present all images and information on a black background. Generally the graphical user interfaces have been deliberately reduced and clearly structured so that the information can be assimilated quickly. All pictograms are precisely dimensioned, a few subtly animated.

Open sidewalls imbue the center tunnel console with the character of a slender, lightweight sculpture. In addition to a stowage compartment, it also incorporates cup holders as well as the optional [Audi phone box](#). This layout combines lightness with functionality. The leather-covered hand rest appears to float above the console. It incorporates the shifter and the function for the electronic parking brake. The driver shifts by tapping with his or her thumb and forefinger. The mode selected – R, N, P, D or S – is displayed visually. Shifting gears becomes a brand-new experience.

#### **From sporty to elegant: the interiors**

In every interior line, the Audi e-tron features carefully coordinated upholstery materials, colors and inlays. The electric SUV satisfies the highest quality standards with respect to workmanship and the choice of materials. The choice of seat upholstery begins with cloth and extends from there to Milano leather tanned without the use of chromium and elegant Valcona leather with a very fine and pleasantly warm surface. Even the base model is available with optional sport seats and the customized contour seats, which offer power and pneumatic adjustments. Their stitching pattern is reminiscent of electric circuits; contrasting stitching provides accents. The instrument panel is covered in leather as standard and has gray polymer inlays. Three open-pored wood veneers are available as options, including grained ash that is exclusive to the Audi e-tron.

The S line interior comes standard with more strongly contoured sport seats in a leather/Alcantara combination, with S sport seats available as an option. Both have an extendible thigh support and power lumbar support. The S sport seats add integrated head restraints plus a rhombus pattern and embossing in the backrests. Inlays in dark, matt brushed aluminum, a sport leather steering wheel and illuminated door sill trims with S logos emphasize the sporty styling.

The elegant interior design selection is available in different color combinations. The standard seats are covered in leather/artificial leather. Perforated Valcona leather in flint gray covers the optional customized contour seats. Contrasting stitching and piping in orange stand out brightly here – taking their cue from the high-voltage electrical system. The inlays are made of open-pored sycamore. The Audi design selection also includes a twin-spoke leather steering wheel, control buttons in black panel design, illuminated door sill trims and the contour/ambient lighting package.

All terms in blue in the text are explained in detail in the technology lexicon at [www.audi-mediacyenter.com/en/technology-lexicon](http://www.audi-mediacyenter.com/en/technology-lexicon).



## Controls and displays

The Audi e-tron comes standard with a fully digital control and display concept. It represents the next step in a systematic evolutionary process. It began in 2014 with the introduction of the Audi virtual cockpit in the TT. A brand new control concept followed last year in the fourth-generation Audi A8. With its two MMI touch response displays, it offers the same operating logic that customers are familiar with from their smartphones, complemented by haptic and acoustic feedback. The Audi e-tron opens this digital control window a bit farther with the virtual exterior mirrors.

### **World premiere in a volume-production automobile: virtual exterior mirrors**

For the first time in a volume-production automobile, virtual exterior mirrors are available as an option in the Audi e-tron. They not only provide a new technology experience, but also many practical benefits in terms of comfort and safety. Integrated into the hexagonal end of their flat supports is a small camera, whose images are digitally processed and displayed on high-contrast, 1,280 x 800-pixel OLED displays in the transition between the instrument panel and the door. They blend harmoniously into the driver's area's wraparound concept. The 7-inch displays come with automatic brightness adjustment and proximity sensors. If the driver moves their finger toward the surface of the touch display, symbols are activated with which the driver can reposition the image. A switching function allows the driver to use their display to also adjust the virtual passenger-side mirror.

Thanks to the sophisticated image processing, the displays provide a significantly better image than a conventional mirror in certain situations, such as in direct sunlight. The mirrors adjust automatically to three driving situations: highway, turning and parking. On the highway, the field of vision is reduced so that the driver can better estimate speeds when driving fast – other vehicles then appear larger in the display. If the driver signals an intention to turn or change lanes by indicating, the indicator view extends the image detail on the relevant side. This reduces the blind spot. The field of vision is extended downward when maneuvering and parking. The display visualizes the turn signal as a green contour on its outer frame and also displays notifications from the [Audi side assist](#) lane-change assistant and the [exit warning](#).

### **Haptic feedback: the MMI touch response operating concept**

Like all Audi full-size models, the Audi e-tron features the [MMI touch response](#) operating system. Its two large, high-resolution displays – the upper one with a diagonal of 10.1 inches and the lower one 8.6 inches – take the place of almost all conventional switches and controls. Operation is swift and reliable: When the finger activates a function, it triggers a tactile and acoustic click by way of confirmation.



In the upper display, the driver controls the infotainment, telephony, navigation and special e-tron settings – where they can activate a charging timer or specify the type of recuperation or function of the efficiency assist for example. The lower display is used for text input and management of comfort functions and the climate control system. The driver's wrist can rest comfortably on the rest above the center tunnel console. The menu structure is intuitively logical and flat like on a smartphone, including freely configurable favorites and start screens. When the driver enters a term via the [free text search](#) function, the system already begins making suggestions after the first few letters are entered. Information on destinations and media is either stored on board or delivered from the cloud at LTE speed.

### **Attentive and understanding: natural voice control and Amazon Alexa**

In addition to operation by the two touch displays, the driver can activate a host of functions using [natural language voice control](#). The system understands freely worded commands and search queries. The dialog manager asks questions if necessary, allows corrections, offers choices and also defers to the speaker when interrupted.

Furthermore, the Amazon voice-activated assistant Alexa is making its Audi debut here. Drivers can use Alexa to get news, weather information and current sports scores. They can also order groceries or add items to their to-do list. Alexa streams music and audio books via Amazon Music and Audible, and provides access to a wide choice of Alexa skills. The Smart Home control system can be used to lock doors in the house, adjust the lights and close the garage door directly from inside the car – all with a short voice command or a question. Audi has seamlessly integrated the Amazon voice service into the MMI system of the Audi e-tron. Drivers don't need an app on their smartphone to use it, nor do they have to pair their phone with the car. All they have to do is link the car to their Amazon account. They can then activate the service via the onboard voice control system.

### **Full HD resolution: Audi virtual cockpit**

The digital display and operating concept in the Audi e-tron is rounded off by the standard [Audi virtual cockpit](#). Its display benefits from the very high resolution of 1,920 x 720 pixels – full HD – and new e-tron-specific graphics. These visualize every key aspect of electric driving, from charging power to range. The driver can choose between two display modes via the multifunction steering wheel. In the classic view, the powermeter and speedometer are presented as large dials; in the infotainment mode, they appear smaller and the focus is on the navigation map. Customers who select the optional Audi virtual cockpit plus can call up an additional view that puts the powermeter right in the center. The [head-up display](#) complements the displays as an option. It projects key information directly onto the windshield so that it appears to float roughly 2.3 meters (7.5 ft) in front of the driver.



## Infotainment and assist systems

The Audi e-tron offers comprehensive infotainment and is very well connected. Numerous assist systems support the driver and enhance comfort, as do the optional and flexibly bookable equipment and functions. For the first time, Audi customers can add functions as needed even after purchasing their Audi e-tron.

### **All the information you need: navigation and Audi connect**

On the German market, the Audi e-tron is supplied with MMI navigation plus as standard. The top-end media center supports the high-speed data transmission standard LTE Advanced with integrated [Wi-Fi hotspot](#) for the passengers' mobile devices. The navigation system makes intelligent destination suggestions based on previous journeys. The route is calculated both on board in the car and online on the servers of the map and navigation provider [HERE](#), using real-time data for the overall traffic situation.

The online services from [Audi connect](#) complement navigation ideally. They are divided into two large packages: Audi connect navigation and infotainment and [Audi connect safety & service](#) including e-tron vehicle control. The latter includes such services as the vehicle status report. This enables the owner to call up information about the charge status and range using the [myAudi app](#). Trip data can be accessed the same way, and the service can also be used to manage charging and pre-heating and cooling. Drivers can also lock and unlock their Audi e-tron remotely and localize where the car is parked.

The Audi connect portfolio also includes traffic information online, point-of-interest search and navigation with Google Earth. High-resolution satellite images and detailed 3D models of many major European cities enhance the map and make orientation easier. The charging stations service shows all charging stations in the area or at the destination, sorted by distance. With appropriately connected charging stations, information about availability, the connection type and payment details are also displayed. Further connect services are online media streaming, online news and Twitter and e-mail inbox access. Depending on a station's signal strength, the hybrid radio automatically switches between FM, DAB and the online stream to ensure optimum reception at all times.

Audi connect navigation and infotainment also includes the [Car-to-X](#) services. The Audi e-tron uses the fleet's swarm intelligence as part of these functions. Suitably equipped vehicles report moving into and out of parking spaces so that forecasts on vacant roadside parking spaces appear in many towns and cities. The cars from the swarm also warn each other of hazardous spots such as fog or black ice, and report current speed limits.





### **Clever routing: the e-tron route planner**

Another element of Audi connect is the [e-tron route planner](#). The customer can use it either in the in-car MMI system or in the [myAudi app](#). In both cases they are shown the appropriate route with the required charging points. Besides the traffic situation, the computation also considers the battery's charge level. The projected arrival time includes any required charging time. The e-tron route planner includes DC charging stations along with most AC charging stations throughout Europe.

While driving, detailed information about the remaining range is displayed in the [Audi virtual cockpit](#) and in the top MMI display. The driver receives staged warnings if this drops below 100 and 50 kilometers (*62.1 and 31.1 mi*), respectively, and the closest charging station is displayed. In addition, the driver can select range mode in the MMI system to maximize the remaining range. This restricts the top speed to 90 km/h (*55.9 mph*), adjusts the settings for comfort functions such as heating/cooling or turns off seat heating.

Charging planning is continuously updated to the prevailing conditions. For example, an alternative suggestion is made if a targeted DC quick-charging station can no longer be reached. While actively charging, the battery's current charge status and the remaining charging time is shown on both the in-car display and in the myAudi app. Customers can also opt to receive push notifications as soon as they can continue their journey.

### **Extremely convenient: access and personalization**

The optional [Audi connect key](#) provides digital access to the Audi e-tron. It enables the driver and four other authorized users to unlock, lock and activate the electric SUV using an Android smartphone. Their preferred settings can be saved in up to seven different user profiles. [Personalization](#) covers up to 400 parameters, from the driver seat position and the preferred air conditioning settings to navigation destinations previously used and favorite media. The Audi e-tron identifies the individual user from the key signal as soon as he unlocks the car and activates the right profile for him.

### **New offering: flexible booking of additional features**

Digitalization reaches a whole new level in the Audi e-tron. The Audi e-tron will be the first model from the brand with the four rings to give its customers scope for adding certain functions in the areas of light, driver assistance systems and infotainment – on demand and at any time. This will be possible from mid-2019 onwards. Even after they have taken delivery of it, the customer can now continually customize it to their individual requirements. Every function can be obtained for varying periods – monthly, annually or permanently. Functions are booked conveniently via the car's MMI system, the myAudi app or the myAudi service portal, and paid for easily and securely via AudiPay.



In the lighting package, customers can upgrade the LED headlights to Matrix LED headlights with intelligent high-beam control. The package also includes other functions such as dynamic turn signals, daytime running lights with e-tron signature, and lighting scenarios that are activated when the SUV is opened and closed. Under assistance systems, there is initially park assist as an add-on option. The infotainment package comprises DAB+ digital radio and the Audi smartphone interface.

### **Sound experience: telephony and sound system**

To ensure full enjoyment of media, all components in the Audi e-tron that can emit electromagnetic fields and thus cause interference have been exhaustively shielded and/or suppressed. The [Audi phone box](#) makes using the phone very convenient. It connects the smartphone to the car antenna and charges it inductively. Voice-over-LTE helps to connect faster and makes it possible to use high-speed data transfer and high-resolution online voice telephony (HD Voice) at the same time. The Audi e-tron comes standard with two USB ports for playing back music from an MP3 player or smartphone through the car's loudspeakers. Two additional ports in the rear are available as an option. The [Audi smartphone interface](#) links customers' iOS and Android cell phones and places their Apple Car Play or Android Auto environment on the MMI display. A digital radio tuner, a TV tuner and a DVD player round out the infotainment program.

The optional [Bang & Olufsen Premium Sound System with 3D sound](#) up front lends the Audi e-tron additional acoustic quality. A small speaker in each A-pillar reproduces the spatial dimension of height; the windshield reflects the sound they emit. The music unfolds exactly how it was recorded – without any artificial effects. Behind this technology is an algorithm that Audi developed in collaboration with the Fraunhofer Institute in Erlangen. It takes stereo or 5.1 recordings, computes the information for the third dimension and conditions it for the 3D loudspeakers.

At the heart of the Bang & Olufsen Premium Sound System is a highly efficient amplifier. It drives 16 loudspeakers with 705 watts. Some of them, for instance the 3D loudspeakers in the A-pillars and the surround loudspeakers in the D-pillars, feature neodymium magnets, which are very light and consequently produce minimal distortion. All of which creates an airy, highly resolved sound. The bass loudspeakers in the front doors are located in a separate housing; the surrounding paneling is thus excited less which, in turn, reduces resonance. That improves the sound quality and reduces the sound propagation outside the vehicle. The decoupling of the loudspeaker also provides a precise, voluminous bass.



### **Convenient support: the driver assistance systems**

Whether parking, in the city or on long journeys, the Audi e-tron makes life easier for its driver in many situations. Besides the [turn assist](#) and the [collision avoidance assist](#), the Tour assist package includes the [adaptive cruise assist](#) as its central element. It manages longitudinal and lateral guidance across the entire speed range and supports the driver with accelerating, braking, maintaining speed, keeping distance and in traffic jam situations. The system detects lane markings, roadside structures, vehicles in adjacent lanes and vehicles driving ahead. In construction zones, the Audi e-tron automatically adapts its speed to the traffic situation, taking into account the speed limit. If the lane is too narrow to allow side-by-side driving, adaptive cruise assist enables offset driving through narrow stretches.

Adaptive cruise assist works closely together with the standard efficiency assist. Thanks to the interplay between these two systems, the Audi e-tron predictively slows down and accelerates based on its evaluation of sensor and navigation data, traffic signs and Car-to-X information. It considers road users ahead and reduces speed before curves and entering towns, while turning and in roundabouts. This helps to increase range. The driving style adopted by the electric SUV as a result of this interplay is based on the settings in the Audi drive select system, taking advantage of the potential offered by recuperation. The driver can intervene at any time by activating their preferred recuperation level via the shift paddles or overriding the systems by actively accelerating and braking.

If the adaptive cruise assist is not active, the [efficiency assist](#) uses predictive tips and automatic recuperation to help drivers drive economically. The system uses radar sensors, camera images and navigation data to detect the traffic environment and the route. The driver is shown corresponding information in the Audi virtual cockpit and the optional head-up display as soon as it would be sensible to take the foot off the right-hand pedal. If the driver has selected the automatic recuperation setting in the MMI, the information and automatic recuperation interact to form a convenient overall system. The system determines the ideal deceleration for the particular situation and recuperates energy in a way that is optimally adapted to the events.

With the City assist package, features including the [crossing assist](#), [cross traffic assist rear](#) as well as [lane change](#) and [exit warning](#) provide for safety. [Audi pre sense 360°](#) – the combination of [Audi pre sense front](#), [rear](#) and [side](#) – is also on board. This system detects collision hazards within system limits and initiates targeted protective measures, from full braking to tensioning of the seat belts.



Some assist systems are bundled in special packages, others are available separately. Among the latter are the [night vision assist](#) and the [360 degree cameras](#). These provide multiple views to facilitate centimeter-precision maneuvering, show crossing traffic and give a detailed view of the wheels. Its highlight is the 3D view with freely selectable perspective. [Park assist](#) eases the parking process. It steers the Audi e-tron independently into parallel parking and perpendicular parking spaces – forwards or backwards. The driver only has to accelerate and brake.

Backing the assist systems in the Audi e-tron is the [central driver assistance controller](#), which comes as standard and continuously computes an exact model of the environment. The required data is obtained – depending on the selected options – from up to five radar sensors, six cameras, twelve ultrasound sensors and the laser scanner.

## Market launch and production

### Special edition: “Audi e-tron edition one”

The Audi e-tron will debut on the European market in early 2019. The base price in Germany is 79,900 euros. For customers who have already reserved their car, there is the exclusive offer in certain markets of the “Audi e-tron edition one” special model in a limited edition of 2,600, in the paint finish Antigua blue. It includes special exterior details such as the virtual exterior mirrors, aluminum-look attachments, 21-inch wheels, orange brake calipers and an e-tron badge in the same color on the charging flap. The illuminated door sill trims project a logo with the model designation onto the ground. Other equipment features include sport seats, the Bang & Olufsen Premium Sound System with 3D sound up front, the Tour assist package and Matrix LED headlights.

### Photovoltaics and biogas: CO<sub>2</sub>-neutral production in Brussels

Production of the Audi e-tron at the plant in Brussels, Belgium, is CO<sub>2</sub>-neutral. The inspection and certification organization Vinçotte has certified the Audi Brussels location as such. The plant has sourced green electricity since 2012 and owns the largest photovoltaic system in the region. Each year, over 3,000 MWh of energy are generated on a rooftop area of 37,000 m<sup>2</sup> (398,264.7 sq ft) – enough to fully charge some 33,000 Audi e-tron models. The company thus avoids CO<sub>2</sub> emissions totaling 17,000 metric tons.

Audi Brussels also reduces emissions by procuring biogas certificates for the site’s heat supply. The plant covers more than 95 percent of its energy requirement with renewable energies, which reduces CO<sub>2</sub> emissions by as much as 40,000 metric tons per year overall. Carbon credit projects for climate compensation bring the environmental balance sheet to zero.