Mercedes-Benz

Press Information

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Meet the S-Class DIGITAL: "My MBUX" (Mercedes-Benz User Experience)

At home on the road – luxurious and digital

Stuttgart. Need to review a presentation on the way to the office, and discuss minor changes with your assistant on the phone? Trying to watch the latest movies, while your travel companion listens to their favorite audiobook? Mercedes-Benz provides the answer with the S-Class – systematically designing the new edition of its flagship model with the backseat passengers in mind. For example: passengers in the rear have the same extensive infotainment and comfort features as the driver and front passenger. They have access to up to three touchscreens and a variety of different control options such as the voice control assistant "Hey Mercedes".

No other innovation in recent years has so radically changed the operation of a Mercedes-Benz as MBUX (Mercedes-Benz User Experience). The second generation of this learning-capable system now has its debut in the new S-Class. The vehicle interior is even more digital and intelligent, as both the hardware and software have made great strides: brilliant displays on up to five large screens, in part with OLED technology, make control of vehicle and comfort functions even more user-friendly. The human factor is always the central consideration as the possibilities for personalization and intuitive operation have become far more extensive. This certainly applies in the rear, but also for the driver: for example, the new 3D driver display allows a spatial view at the touch of a button for the first time, providing a real three-dimensional effect without having to wear 3D glasses.

The voice assistant "Hey Mercedes" is capable of even more dialogue. Certain actions can be performed even without the activation keyword "Hey Mercedes". These include accepting a telephone call or displaying the navigation map. "Hey Mercedes" can now explain further in-car questions such as, where the first-aid kit is located, or how to connect a smartphone via Bluetooth.

Alongside the classic entry of a PIN, a new authentication method ensures a high level of security. Fingerprint, face and voice recognition are now combined. This allows access to individual settings or verification of digital payment processes from the vehicle.

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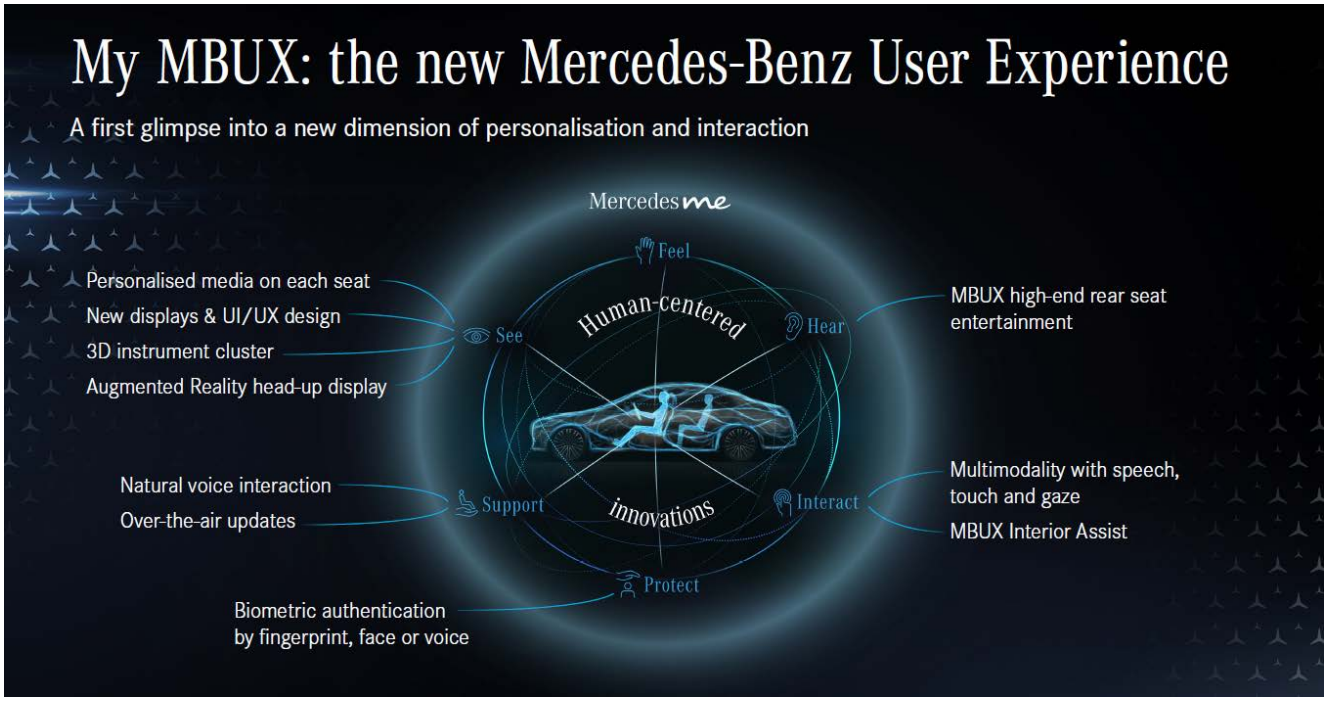
Further information on the official fuel consumption and the official specific CO_2 emissions of new passenger cars can be found in the publication "Leitfaden über den Kraftstoffverbrauch, die CO_2-Emissionen und den Stromverbrauch aller neuen Personenkraftwagenmodelle" [Guide on the fuel economy, CO_2 emissions and power consumption of all new passenger car models], which is available free of charge at all sales outlets and from Deutsche Automobil Treuhand GmbH at www.dat.de.

However, the unique feature of MBUX is its networking with a wide range of vehicle systems and sensor data. For example, the exit warning function in the S-Class now uses cameras to recognize that an occupant wants to leave the vehicle. If another road user is approaching in the blind spot, the active ambient lighting becomes part of the exit warning system and flashes red. MBUX Interior Assist can also check whether the child seat is correctly attached to the front passenger seat. The driver's attention level is also monitored, if there are signs of drowsiness, the driver is then warned by ATTENTION ASSIST.

The new S-Class can be experienced with almost all senses – seeing, feeling and hearing – while offering numerous innovations in the areas of driver assistance, protection and interaction. Here is a mind map of the key content in the first Special:



Overview of key features

Many forms of interaction and personalization from every seat:

- The latest screen technologies and MBUX for all occupants
    - Media display in portrait format as a visual highlight
    - Standardly equipped with 12.8” OLED screen technology and haptic feedback
    - The driver display allows real three-dimensional effect without having to wear 3D glasses
    - Up to three screens in the rear optionally available
    - Screen content can be quickly and easily shared with other passengers
    - Selection and amendment of navigation destinations is possible from the rear seats
- Extensive Personalization
    - By scanning a QR code with the Mercedes App, the vehicle is automatically connected to the Mercedes me account
    - Personal preferences such as a favorite radio station and preselected settings can be transferred to any seat via the personal Mercedes me profile
    - Up to seven different profiles are possible in the vehicle
    - The ambient lighting can be individually set by remote configuration, i.e. from home
    - As the profiles can now be stored in the Cloud as part of Mercedes me, they can also be used in other Mercedes-Benz vehicles with the new generation MBUX
    - Alongside entry of the Mercedes me PIN, new biometric and interconnected authentication functions ensure a high level of security. These are fingerprint, face and voice recognition.
        - The driver display is optionally available with two cameras. These can be used for facial recognition
- Simplified, intuitive operation:
    - depending on the equipment level, MBUX Interior Assist recognizes up to 20 control commands
        - New safety functions include recognition of an unattached child seat on the front passenger seat and the blind spot warning. This detects the intention to leave the vehicle by the movements of the occupant. This allows an even earlier warning of other road users and obstacles along the side of the vehicle
        - New convenience functions include prepositioning of the driver's seat and outside mirrors according to body size, and operation of the rear roller blind by glancing over the shoulder. Additionally, the sliding sunroof can also be operated by hand gestures
    - The voice assistant "Hey Mercedes" listens even more carefully with improved understanding of the occupants:
        - "Hey Mercedes" can also be controlled from the rear. Several microphones help to tell the system which seat the voice is coming from and a flashing ambient lighting identifies the current speaker
        - If the driver says "I'm tired", an activation program of ENERGIZING comfort control is started. The same sentence from the rear starts a well-being program.
        - "Hey Mercedes" explains functions ("Explore me"), and can help guide when connecting a smartphone via Bluetooth, or explains where the first-aid kit can be found
        - The activation keyword "Hey Mercedes" is no longer necessary for certain applications. An incoming call can be taken direct with "Accept call", for example
        - "Hey Mercedes" now supports 27 languages with natural language understanding (NLU). This makes natural interaction on a wide range of topics possible

        - The new Chit-Chat and knowledge domain supplies the right answer to many questions - even questions about animal noises or general knowledge can be answered
        - A dialogue with a real person can also be started.
        - Domestic systems and home appliances can also be linked to the vehicle and voice-controlled thanks to the Smart Home function
    - Head-up displays (HUD) with augmented reality (AR) content
        - When navigating, for example, animated turn-off arrows ("fishbones") are virtually projected onto the road lane. For the assistance functions, information from Active Distance Assist is shown.
- Further to the switch icons in the door panels for seat adjustments - users can also change their seating position via the display screens. Operation of comfort functions such as seat heating or massage is also possible by voice control

<u>Puristic, luxurious design as an intuitive experience:</u>

- The driver display and media display offer a comprehensive aesthetic experience
    - The appearance of the screens can be individualized with a choice of four display styles (Discreet, Sporty, Exclusive, Classic) and three modes (Navigation, Assistance, Service)
- The number of classic controls has been greatly reduced: 27 fewer hardkeys (mechanical switches) than in the preceding model
    - As an addition to touching and swiping, voice control and natural hand gestures, gaze control extends the operating options
    - However, key functions such as the lights or windscreen wipers can still be operated directly. The climate control panel is permanently at the lower edge of the display
- The user interface (UI) follows human intuition
    - MBUX Interior Assist responds to gestures and movements
    - "Hey Mercedes" responds to speech
    - In the large head-up display, relevant information is projected into the driver's field of vision at a virtual distance of approx. 33 feet (10 meters)
        - Colored augmented reality content can be integrated into this (see above)
        - As this is superimposed directly onto reality, the result is directly perceptible information that is important for the current driving situation

The major innovations in detail

Augmented reality head-up display (AR-HUD): Head-up display (HUD) with innovative variant with a particularly large image. The aperture angle of the display is 10° horizontal and 5° vertical, and the image appears virtually at a distance of 33 feet (10 meters). This display area corresponds to a monitor with a 77-inch diagonal. The AR-HUD provides a great deal of augmented reality content for driving assistance systems and navigation information. For the driver this blends into the surroundings ahead of the vehicle, and can therefore contribute to further reduced distraction. The image-forming unit (DMD, digital mirror device by Texas Instruments) consists of a high-resolution matrix of 1.3 mill. individual mirrors and a highly efficient light source. The technology is also used by projectors in movie theaters. In the S-Class it is used by Mercedes-Benz for the first time to generate images in the head-up display.

3D driver display: An impression of spatial depth is created when the eyes of a viewer perceive different perspective views of an object in the display. In this innovative auto-stereoscopic display, this is achieved by the sophisticated combination of a conventional LCD display with a special pixel structure and a controllable LCD aperture grille. What is known as a barrier mask is positioned a few millimeters in front of the LCD. It is so precisely adjusted to the head position of the viewer that the left and right eye see different pixels of the LCD. This creates the desired impression of depth. A stereo camera system is integrated into the display. This is used to precisely determine the eye position of the viewer. Thanks to methods developed by Mercedes-Benz to adapt distances and a very low-latency system configuration, the driver enjoys a wide range of free movement. The image in the driver display is continuously adjusted.

OLED technology: The abbreviation stands for Organic Light Emitting Diode. In contrast to LCD technology, an OLED display consists of several organic layers applied to a plastic substrate. In the S-Class the OLED display is located behind a glass facing, and in combination with the actuators and pressure sensors behind it, it provides a comprehensive control and display experience. Evaluation of the pressure exerted and haptic confirmation of touch commands makes extended functionalities possible. OLED panels emit light when subjected to an electric current, and unlike an LCD they do not require external background lighting. Power is only consumed where pixels light up. Among other benefits, this ensures a better black level and even stronger contrasts. When showing typical video sequences, OLED technology has an up to 30 percent lower energy consumption than LCD technology.

Voice assistant "Hey Mercedes": Conventional voice control systems in cars call for certain fixed commands from their users. Because it understands natural language, "Hey Mercedes" listens to almost every word and understands practically any sentence relating to infotainment sector and vehicle operation in 27 languages. Indirect speech is also recognized, for instance if the user says "I am cold" instead of the clear command "Set temperature in footwell to 72 degrees" in order to operate the climate control for the footwell. The voice control is also capable of learning. The system is able to tune into the user and their voice and also showcases improved understanding of non-native speakers. Additionally, the software models on the server are able to learn new buzzwords or can change use of language with time. The system no longer answers stereotypically, but varies in the dialogue output. The fundamental way the language assistant operates: the voice input is freed from background noises, compressed and transmitted. Both the head unit in the vehicle and the server evaluate the data and send a reply. The system decides which reply is the most likely, then within a few seconds the reply/reaction follows. This means that the voice assistant also answers if there is no connectivity.*

**Global release, some information may not be relevant for the U.S. market*

Further information about **Mercedes-Benz** is available at www.mercedes-benz.com. Press releases and digital services for journalists and multipliers are available on our **online platform Mercedes me media** at https://media.mercedes-benz.com/s-class and on our **Daimler Global Media Site** at media.daimler.com. You can also find out about current Mercedes-Benz Cars & Vans topics and events on our **Twitter channel @MB_Press** at www.twitter.com/MB_Press.

Mercedes-Benz AG at a glance

Mercedes-Benz AG is responsible for the global business of Mercedes-Benz Cars and Mercedes-Benz Vans with over 173,000 employees worldwide. Ola Källenius is Chairman of the Board of Management of Mercedes-Benz AG. The company focuses on the development, production and sales of passenger cars, vans and services. Furthermore, with its pioneering innovations, the company aspires to be a leader in the fields of connectivity, automated driving and alternative powertrains. The product portfolio comprises the Mercedes-Benz brand with the sub-brands Mercedes-AMG, Mercedes-Maybach and Mercedes me, as well as the smart brand and the EQ product and technology brand for electric mobility. Mercedes-Benz AG is one of the largest manufacturers of premium passenger cars. In 2019, it sold nearly 2.4 million passenger cars and more than 438,000 vans. In its two business segments, Mercedes-Benz AG is continually expanding its worldwide production network with over 40 production sites on four continents, while gearing itself to meet the requirements of electric mobility. At the same time, the company is constructing its global battery production network on three continents. Sustainable actions play a decisive role in both business segments. To the company, sustainability means creating lasting value for all stakeholders: customers, employees, investors, business partners and society as a whole. The basis for this is Daimler's sustainable business strategy. In this, the company takes responsibility for the economic, ecological and social effects of its business activities and looks at the entire value chain.