



Mobile Entertainment

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LOGIC7 Premium Audio System



The Professional LOGIC7 HiFi system used in the [new 7 Series](#) features a 13-speaker 420-watt premium audio system.



NEW! Also available in the [new 6 Series](#).

LOGIC7 is well known in stationary professional and semi-professional applications, but BMW's LOGIC7 HiFi system is the first sound system in the world to offer the [surround sound](#) LOGIC7 concept in a car.

LOGIC7 is a special digital audio signal processor able to optimize two-channel stereo signals and multi-channel multi-media signals. The BMW 7 Series iDrive Controller and Control Display performs all functions and provides all settings for LOGIC7.

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Here's how it works:

Until recently, high-end audio systems have been based on the stereo principle; the original sound is recorded on two separate channels, corresponding to human hearing. To reproduce this sound as authentically as possible in a car, the two channels are then played back by different systems having at least two loudspeakers.

To perfect the stereophonic principle, sound specialists have developed elaborate surround recording and reproduction systems.

The high-end audio systems used in automobiles thus far have been 5.1 units featuring:

- two main loudspeakers at the left and right of the car
- a central loudspeaker between the two rows of seats
- two surround loudspeakers at the rear left and right
- a central woofer

These 5.1 systems provide excellent reproduction of stereo sound sources, although the playback of analog recordings or modern film sound is less than optimum.

The LOGIC7 system in the new BMW 7 Series is able to convert both analog and digital stereo recordings into surround sound signals.

First, the system subdivides each stereo signal received into seven individual signals processed specifically for the car and its interior conditions.

Then, to generate the best possible surround effect, LOGIC7 uses the surround data in each stereo signal to create two sound dimensions:

1. the place where the sound was originally created, and
2. the acoustic environment or space where it is played back.

To ensure optimum reproduction quality, the system uses the proven 5.1 concept, but adds two virtual side channels, creating the **7.1 surround sound** concept.

Now, with LOGIC7 surround sound, passengers in the new 7 Series can enjoy both music originally recorded in analog mode, surround-coded recordings, and the specially mixed sound of DVD films.

The Professional LOGIC7 HiFi system has the following loudspeaker units:

- A 100-mm conical midrange as the central speaker in the middle of the instrument panel.
- Six 100-mm conical midrange speakers in the four doors and in the rear parcel shelf.
- Two 210-mm central woofers beneath the front seats.

BMW was the first auto manufacturer to place woofers beneath the front seats.

The LOGIC7 system uses high-performance woofers with 28 mm of lift and a Neodym-constructed drive. The woofers are connected acoustically to the side-sills, using these hollow cavities to full advantage. This location is well suited to enhance the quality of the sound system. This solution also ensures woofer sound with very low distortion and a symmetric spread of the low-frequency sound energy within the passenger full advantage. This lo

The two woofers have a 1.1" stroke and are acoustically connected to the hollow frame rails. The door side sills are the speakers' resonating acoustic chambers, providing 20 liters of volume per side.

The 7.1 channel playback matrix is stereo compatible and allows all two-channel material to play in full, multichannel surround. To ensure tonal accuracy in the high frequency range, tweeter dome profiles are modeled for maximum dispersion while eliminating coloration caused by "break-up" modes.



LOGIC7 technology has the ability to clearly place musical instruments, sound effects, and dialog within recorded or broadcasted music at

different depths and panning within the listening space. Each of the seven LOGIC7 channels are full bandwidth and uniquely reproduce decorrelated stereo information from front to back, regenerating the broad spectrum of frequencies in the desired locations.

Unlike other forms of surround processing, the LOGIC7 system doesn't add false reverbs to the material, so it can create a soundstage inside the vehicle's cabin.

Finally, the system does not take up any space in the luggage compartment.

Other high-tech audio/video features included in the new 7 Series are voice command and a navigation system with an improved user interface:

The **voice command system** is activated by pressing a button on the steering wheel. The system provides clear audio prompts to access and control 270 phone, navigation, stereo and notepad functions. Best of all, you never have to move your eyes from the road or your hands from the wheel.

The **navigation system** has a second set of directions on a screen in the center of the tachometer dial, eliminating the need for sideways glances, allowing the driver to concentrate fully on the road.

