

Ascendo Immersive Audio: Fully active 7.1 cinema set with room correction

High addiction factor

Ascendo is one of the absolute top-class audio brands that produce loudspeaker systems with enormous technological effort and high-quality German workmanship. Under the name "Ascendo Immersive Audio", the brand also sells professional audio systems. We have put a fully active 7.1 set consisting of subwoofer SMS21, front speakers CCRM12MKII and surround speakers CCRM6MKII to the test.

In Bavaria, a small, fine company provides home theater sound of the extra class. The developers of the brand Ascendo have dedicated themselves to develop the ultimate sound experience. They produce sound systems under the label "Ascendo Immersive Audio" for amazing and exciting film sound. A comprehensive portfolio of passive and active loudspeaker systems is available from Ascendo to offer a film experience on an absolute reference level in every home cinema or living room. Here, constellations for small rooms are just as feasible as extremely extensive systems for cinemas with several 100 square meters of space.

HEIMKINO
Reference 3-2020

All systems from Ascendo Immersive Audio pursue the same goals: Precise, powerful, and deep bass reproduction, clean and differentiated voice reproduction and a coherent and realistic 3D surround sound experience with an absolute attention to detail. These challenging goals and specifications can only be achieved through meticulous development work and high-performance drivers manufactured to own stringent specifications. For reasons of quality, most components are manufactured in Germany. To maximize the control of the sound quality, Ascendo also uses a sophisticated room correction system via DSP for the active speaker systems. It allows for individual adjustment to the acoustic conditions in the cinema room. Not surprising is, that Ascendo Immersive Audio products are usually installed, calibrated, and commissioned as fully playable systems by Ascendo trained custom install specialists. Customers do usually not buy individual loudspeakers; they rather look for a turnkey solution that is optimally adapted to their requirements.

AIA active loudspeaker set

At the end of 2019, company founder and managing director Stefan Köpf offered the German magazine HEIMKINO editorial staff to install a fully active 7.1 setup in the editorial cinema for a detailed test. We could hardly resist and cleared our test cinema for an incredibly special kind of loudspeaker set. After all, space had to be created for three fully-grown front systems CCRM12MKII and four side or rear speakers CCRM6MKII. Not to mention the gigantic SMS21 subwoofer, whose 21" or 530 mm membrane is housed in a cabinet weighing 70 kg. Said and done: the editorial team, together with Ascendo's head of R&D Geoffrey Heinzl, joined forces to place and commission several pallets of professional loudspeaker systems in our 36 square meter home cinema.

Front systems CCRM12MKII

The central point of our 7.1 setup are three CCRM12MKII active loudspeakers measuring 700 x 410 x 240 mm, which are also ideally suited for wall mounting, e.g. behind the screen, thanks to the rather shallow enclosure dimensions. Like all speakers from Ascendo Immersive Audio, the CCRM12MKII's cabinets are highly braced low-resonance designs coated with a particularly scratch-resistant structural paint. Although this looks a bit like industrial charm, it does reflect the professional standards of the products.



A 12" coaxial loudspeaker with 1" horn tweeter and a 2 x 500W DSP power amplifier provide in the CCRM12MKII ultimate sound pressure and sound quality

A 12" driver and a bass reflex port can be recognized at first glance, at second look the 12" driver reveals itself as a coaxial single-point sound source with a 1" pressure chamber high-threshold driver hidden behind the acoustic transparent dust cap. This principle of true point source has immense advantages for the spatial reproduction of acoustic signals because the placement of the tweeter in the center of the bass-midrange driver means that there is no time offset at any frequency. In other common designs with discretely arranged drivers, depending on the listening position, different propagation times between high and mid-range are the rule, making a clearly defined, precise reproduction of the sound much more difficult. Ascendo has deliberately opted for technologically very sophisticated coaxial drivers to achieve maximum precision and exact spatial reproduction.

Active module

The active module used in the CCRM12MKII is not just an "off-the-shelf" amplifier, but a professionally designed two-channel power amplifier including a powerful signal processor. No less than 500 watts of power is available to both the mid-bass and the horn tweeter - more than enough of brute force, unrestricted dynamics and extreme control over the drivers used. Ascendo itself specifies a maximum possible sound pressure level of 125 dB, a value that we accept without a doubt in view of the components used. Tone of the real highlights of the CCRM12MKII and its slightly smaller sibling CCRM6MKII is the built-in DSP, which takes over the complete control of each individual loudspeaker. In addition to functions such as a digital crossover network and various protection and control circuits, the DSP ensures that the sound is reproduced correctly and at the correct time. Every single loudspeaker is controlled with Ascendo's own software.

During the installation, the system is calibrated to tame the room acoustics and reflect the customer's personal preferences. In our case, Ascendo's product specialist Geoffrey Heinzel took over this task. For this unique process, all speakers are connected via Ethernet cable to a computer via a suitable switch. Special in-house developed measurement software is used to calibrate and then transfer the parameters to the individual speakers. For the actual connection of all loudspeakers to an adequate source or AV decoder, balanced XLR inputs are used in each case, optionally unbalanced RCA cables can also be used via an adapter. In our case, the preamp outputs of a Marantz SR1713 AV receiver served as surround decoder and switching and control center, even though the level of the Ascendo system would be very much in keeping with pure High-End preamplifiers of the caliber of a Trinnov or Lexicon

Rear and side speakers

For placement to the left and right of the listening position and as a rear loudspeaker we chose the shallower CCRM6MKII. The concept and design of each CCRM6MKII is like that of the large front systems, with each CCRM6 incorporating a smaller 165mm coaxial bass/midrange driver and a 150W power amplifier for the 1" tweeter with waveguide. The quality of workmanship, DSP power and bass output stage are the same as the large front systems. The CCRM6 can handle maximum continuous levels of up to 115 dB with ease. The lower cut-off frequency is more than an acceptable 80 Hertz (60 Hertz for CCRM12). Thanks to its only 100 millimeter (4") deep housing, the CCRM6MKII are perfectly suited as universal loudspeakers for wall and ceiling mounting in complex multi-channel systems and ensure an incredibly coherent and consistent reproduction on all surround channels.

The ultimate subwoofer

If you are looking for an adequate subwoofer for a home theater setup consisting of three CCRM12MKII and four CCRM6MKII there are

exactly two answers. Either you place a total of six to eight powerful subwoofers with 18" membranes or, like us, you rely on a single copy of an SMS21 from Ascendo Immersive Audio. This exceptional subwoofer has a driver with a specially manufactured membrane with a diameter of 530 millimeters. Ascendo has followed the well-known wisdom

All Ascendo Active loudspeakers can be optimally calibrated for each listening room via Ethernet connection and special software on a PC. here in the picture the 1600W module of the SMS21

"bass reproduction can only be improved by even more cone surface area" and uses a self-developed, absolute super driver. This bass monster is driven by a gigantic NEO magnet with double gap and a quadruple voice coil. This concept allows extreme power handling and ensures a linear impedance curve of the driver. This is also necessary because the final stage of the SMS21 provides a power of up to 1600 watts, which this driver can easily convert into acoustic energy. An output level of up to 130 dB at a lower cut-off frequency under 20 Hertz, that is something someone needs to try to imitate. As already mentioned: the below 30 Hz performance of a single unit of the SMS21 is nominally equivalent to that of around four conventional subwoofers in the 18" class - respect! Of course, this mega subwoofer is also equipped with the DSP module described above for room calibration and correction, which effectively suppresses disturbing modal standing waves.

Laboratory and practice

For the Ascendo Immersive Audio 7.1 set, we are taking a different approach to the lab and publishing the performance measured in the listening room instead of individual measurement records from our acoustics lab. After all, our setup is an overall concept installed by Ascendo, which includes meticulous measurements, just as an Ascendo customer would expect. There is practically only one conclusion to the results of the measurement via RoomEQ-Wizard in our acoustically optimized test cinema: perfect! In terms of linearity as well as impulse response, the Ascendo set plays also according to the measurement chart - at the highest level. Extremely broadband and deep reaching, the set delivers an optimally balanced frequency response, where not even the slightest peaks or dips are visible due to room modes.

Admittedly, our test cinema, thanks to professionally customized Absorbers and diffusers already provide good acoustic conditions. The exceptionally good working room calibration of Ascendo (thanks again to Geoffrey!) gets the maximum out of all components. Even in less optimal listening rooms the Ascendo set should be at its best thanks to the powerful room calibration.

How does it sound?

a 1600W power amplifier and an excellent woofer with 530mm membrane provide the SMS21 with immense low frequency performance.



