A200mk2

MANUAL

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SAFETY INSTRUCTIONS

1. Important, read all instructions – You should read all information concerning safety and operation before you use these speakers.

2. Please keep this manual – You may need it in the future.

3. Important, observe the warnings – All warnings on these speakers and in this manual should be observed by you in the interests of your own safety.

4. Please follow these instructions – All of the tips and instructions in this manual serve to optimize the operation of these speakers and enhance your listening experience.

5. Water and moisture–These speakers must not be used in wet environments, e.g. in bathrooms or next to a swimming pool, otherwise the danger of electric shock will exist.

6. Ventilation – This product must be installed in such a way,that the necessary ventilation is not impeded. For example, the equipment must not be operated on a bed, sofa, carpet or similar surface where the Black cooling fins can be covered. The equipment must not be placed in shelving or other locations that prevent a circulation of air at the rear of these speakers.

7. Heat- Please do not install these speakers near a radiator or other,similar source of heat.

8. These speakers are designed for use with an AC voltage of 115V / 60 Hz or AC230V- / 50 Hz, depending in which country you have purchased these speakers. Never attempt to operate these speakers with another power supply.

9. Power cable – Please lay your power cable in such a way that it is not a hazard for tripping over or can be damaged. In particular, be careful where cable connections and sockets are located.

10. Ensure that neither foreign objects nor liquids come into contact with or penetrate these speakers.

11. Properly qualified service personnel may only service these speakers.

12. Repairs – Never attempt to open these speakers or otherwise try and service or repair this equipment yourself unless this is described in this manual. Please leave this to properly qualified service personnel.

13. In order to avoid electric shock, never use this equipment with a power extension cable where the electrical contacts are not completely protected.

14. Ground – Please ensure that the ground and other connections to the equipment are not impeded.

15. These speakers are designed to reproduce analog audio signals. If the equipment is not operated according to these instructions, the warranty will not be applicable and the user will be exposed to danger of electric shock.

Warning: To prevent electric shock, these speakers must not be exposed to rain or moisture.

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SOUNDS RIGHT IN ROOM AND TIME

Thank you for choosing a KSdigital monitor.

For more than 20 years KS has been creating top class sound transformers, pursuing only the one aim: to reproduce sound faithfully and unaltered. KS products can be found in the control rooms of most famous opera houses like Semperoper, Alte Oper Frankfurt, Schauspiel Frankfurt, Kammerspiele Munich or in the Reichstag in Berlin etc., as well as in recording studios of top artists and producers like Steve Wonder, or a lot of german artists like Herbert Grönemeyer, Xavier Naidoo / M. Herberger and many more or are in use at broadcats and radio stations such as ZDF, SWR, SR, Hitradio FFH or many other countries like Swiss, Austria a.so. Designed according to specifications for the idea of sound neutrality the A-Series products are incorruptible tools for the evaluation of work and wonderful loudspeakers to enjoy the results of the efforts. Many innovative approaches and patented are working in KSD products

KSD-technologies and innovations that works into our speakers:

- Digital phase-compensating filters called FIRTEC™ technique
- housings, mechanical and electrical components,
- Cardioid radiation in subwoofer
- DMC™, a phase linear and time correct cone loudspeaker subdriver-sytem
- NeXT™, a new technology, which especially in the field of mastering is ear even closer to the sound and revolutionized the radiation.

Development in last consequence:

During the development of our reference monitors we have consistently focused on the timely correct transmission of audio signal well knowing:
If an impulse is correctly reproduced over time, this is equivalent to a linear frequency and phase response.

Spatial hearing and virtual concert hall

But it is precisely in these temporal contexts that the spatial information, the depth of the concert hall is to be found of the virtual stage, in short: the depth staggering. What is clear is that the pure differences in intensity between left and right stereo signal suggest a depth graduation at best, it is missing but an essential information, namely that of the time differences. Only the correct time information on the ear can convey the temporal relationships in the recording. In this respect it becomes clear why every reputable loudspeaker manufacturer strives to use the best drivers, which, due to their design, are already provide optimal transmission characteristics, so that corrections can be moderate. However in every multi-way system, the signal must be split into the individual frequency ranges - bass, mid and tweeter path including all the disadvantages mentioned above. The KSD- FIRTEC™ technology removes all impusle (phase and amplitude) false information

FEATURES OF THE A - SERIES

SPECIAL FEATURES OF DIGITAL SIGNAL PROCESSING

The digital signal processing must provide the following:

- Separate the signal components into different paths
- Equalization of the transmission behaviour of the individual components
- Overload protection function

Any intervention in the signal, such as scrossover or the equalizing the individual driver, besides the desired changes in the frequency response, also causes a change of the Impulse behaviour of the entire system. A short pulse is inevitably smeared on the time axis and produces a post-oscillation of the impulse response at the output of the equalization. In addition, the inertia of the membrane causes a further oscillation to a Impulse pulse. This together deforms a rectangle at the signal input to a little related signal shape at the output.

The FIRTEC™ technology is free from such delay distortions.

THE FIRTEC EQUALIZATION:

rather allows for processing of the delay time as well as the frequency response. The input signal is corrected directly in the time domain by convolution of the input signal with the impulse response of the equalizing filter. In contrast to analog technology, which attempts to filter elements to correct the frequency response of the signal the KSD-speakers acts directly on the input signal and corrects it to get a linearization of the frequency response in magnitude and phase.

FEATURES OF THE A - SERIES

THE SOUND RADIATION:

Just as important as a correct amplitude and phase frequency response is an exact sound radiation,in which the sound energy is radiated evenly over the frequency range. The wave guide of the tweeter and midrange driver guarantees a planar wavefront at the baffle. This ensures a uniform radiation pattern even in the crossover frequency range. guaranteed. A limiter in each path protects the components of overloading following components

WITH THE ROTATING MID-HIGH BAFFLE, THE A300 OFFERS BOTH VERTICAL AS WELL AS A HORIZONTAL INSTALLATION IS POSSIBLE.

POWER AMPLIFIER TECHNOLOGY: „KSD CLASS A" OPERATION:

Conventional PWM power amplifiers produce their greatest nonlinearities at the lowest level of gain. As a result, distortion values increase at each zero crossing of the signal. The distortion values of the KSD-PWM amplifier concept avoids this disadvantage.So work KSD speakers with the lowest distortion values.

CONCEPT OF THE CONVERTER-FREE SIGNAL CHAIN:

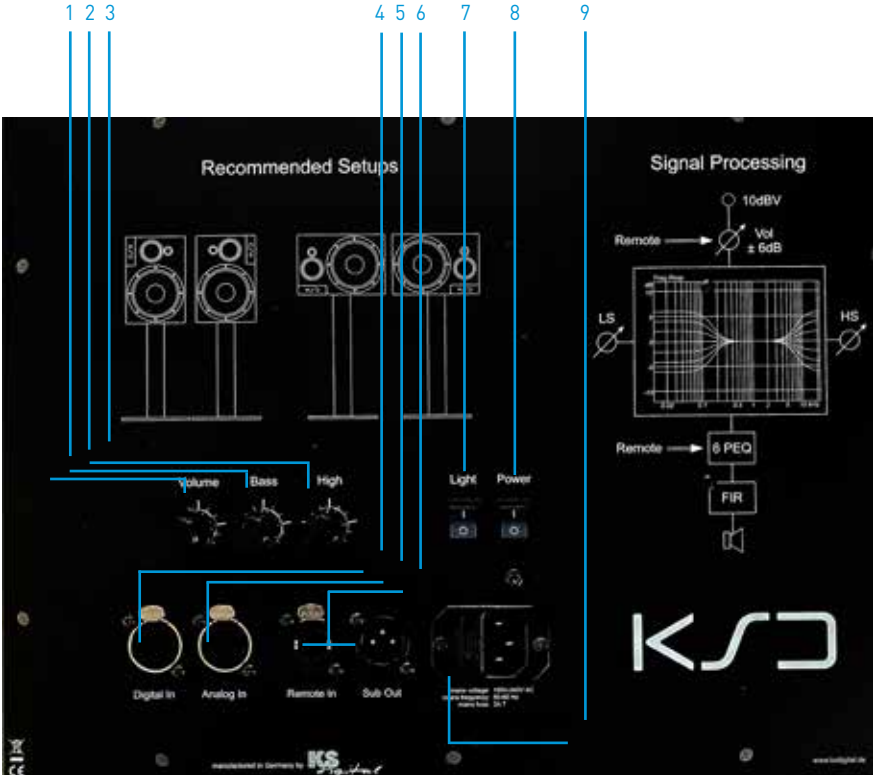
By using a digital output stage, which receives its signal without conversion directly from DSP-section a converterless playback is possible. The music signal from the workstation can directly routed to the DSP (use AES-In) and amplified by the power amplifiers without converters after equalization Converter latencies as well as signal fakes by DA convertion are avoided.

RESET:

KSD Monitors have a total of 8 user-adjustable filters. Two are located in direct access at the amp plate (high and low). Six free parametric Eqs (PEQs) are available via the optional KSD-RC remote control. A complete filter RESET can be done by turning the three rotary switches on the front to the fully left position Switch monitor of and wait 10 seconds. Than switch monitor on now, all parameters are reset. Then move the knobs to the 12 o'clock position to select the neutral position.

OPERATING ELEMENTS:

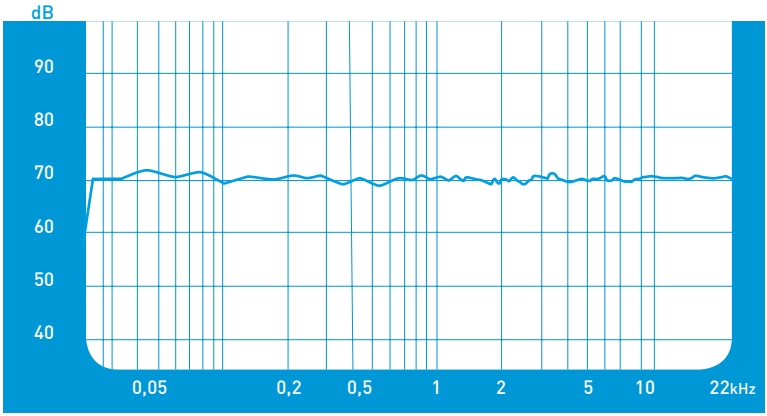
1. Gain: Inputgain +6/-10dB
2. Bass: Lowshelving +/- 12dB
3. High: Highshelving +/- 12dB
4. optional Digital input
5. analogue Input - XLR, +4dBV
6. Remote In, Subwoofer Out
7. light switch
8. power switch
9. fuse
10. 230V power socket



A200MK2

The accoustic advantages of A200:

- linear phase reproduction with minimal latency (← 5msec)
- high impulse stability due to 10" bass driver, 3" dome midrange-driver and 1" highpower radiator for highrange
- adjustable to room and setup position with 6 freely accessible filters (peak/shelving)
- analogue and digitally imput



Frequency A200mk2

TECHNICAL DETAILS

Model	**A200**
AD converter	24 bit sigma delta, 64 x oversampling
Digital IN	AES3 format , 32 – 210 KHz
Analog IN	XLR symmetric
DSP / Process	FIRTEC™ equalization, FIR crossover, limiter, 2 FIR-presets, 8 filter , patent: 19823110
Room Equalization	6 peakfilter and FIRTEC™ system equalization
Chassis	1" radiator, 3" midrange-dome, 10" bassunit
Amplifier	150W / 250 W / 250 W peak
SPL	118dB cont./123dB peak
Remote control (optional)	gain control, 6 filter remotable via KSD-RC
Frequency range	28-22000 Hz (+/6dB)
Dimensions	42 x 30 x 31 cm, 18 kg

A200MK2 + B300

The accoustic advantages of AB300 System:

- linear phase reproduction with minimal latency (← 5msec)
- high impulse stability due to 10" bass driver, 2" calotte midrange-driver and 1" highpower radiator for highrange
- adjustable to room and setup position with 5 freely accessible filters (peak/shelving)
- analogue or (optional) digitally controlled (27Bit-ADC)
- 3 x 10" bassdriver

TECHNICAL DETAILS

Model	AB300 System
AD converter	24 Bit / 192 KHz
Digital IN	AES3 format, 32 – 210 KHz
Analog IN	XLR symmetric
Process	FIRTEC™ equalization, FIR crossover, limiter, 2 FIR-presets, 8 filter
Equalization	8 peakfilter and FIRTEC™ system equalization
Chassis	1" radiator, 2" mid range dome, 3 x 10" bassdriver
5 Amplifier	> 1000 W
SPL	120dB cont.
Remote control (optional)	gain control, 6 userfilter remotable via KSD-RC
Frequency range	20-24000 Hz (+/3dB)
Dimensions	142 x 30 x 40 cm

THE OPTIMUM SPEAKER PLACEMENT - GUIDELINES FOR OPTIMAL INSTALLATION

To ensure proper stereo imaging, for the speaker placement you should consider the following points:

1. Construction of an isosceles triangle between the speakers and listener, the "stereo triangle."
2. Create balanced, symmetrical acoustic conditions for the first reflection.
3. The greatest possible proportion of the sound energy to the ear should be formed by the direct sound.
4. Select the optimal distance and space for the back wall and the sides.
5. Handle the buildup of nodes in the bass range.

Establishing the optimization of the positioning of the speaker should begin with the left and right stereo information arriving to the ears of the listener in a way that brings together these two signals so a balanced, natural sound image is perceived. The basis for creating this is symmetry. Only in the case of an acoustically symmetrical position can the listener expect an exact reproduction of the mids, a balanced distribution of the sound in the panoramic field, and an appropriate depth of space in the imaging. The reward for this "extra" information is an authentic music experience, with a visual placement of a "stage" in front of the eyes of the listener, which will not be artificially wide or unnaturally flat.

1. Construction of an isosceles triangle between both speakers and listener, the "stereo triangle."

This symmetry can be achieved most simply by placing the speakers and the listening position in the stereo triangle. The base width means the distance from speaker to speaker is identical to the distance between each speaker and the listener.

The distance from listener to left speaker = the distance from listener to the right speaker = the distance from the left speaker to the right speaker.

Therefore, the music signal from the right speaker takes just as long to reach the ear of the listener as the music signal from the left speaker. This is an important prerequisite for accurate location of each signal in a complex mix. Our hearing is extremely trained on the perception of the first wave front, meaning the initial sound from the source direct to the ears. Any small temporal offset of this wavefront between the left and right source is perceived and addressed acoustically—where the initial wavefront is heard first is where the location of the sound source is identified. Among other things, this is why the exact same distances between the listening position and the two speakers is so important.

2. Create balanced, symmetrical acoustic conditions for the first reflection.

The side reflections are essential for the stable formation of the "virtual stage" before the eyes of the listener. Ideally, there are no reflections from the side walls to add on to the direct sound. This is completely unrealistic, since most control rooms have side walls! However, if the space is big enough so that the distance to the back wall and the side walls exceeds 3 meters (10 ft), then it is called a "free field installation." This means nothing more than to position the speakers, acoustically considered, in the open space. In this case the side walls do not disturb the sound very much, and the reproduction is not significantly influenced by the character of the room. Unfortunately, very large rooms will often have excessively long reverberation, which also leads to sound distortion. A way out of this dilemma is again offered by the above-mentioned symmetry. When the reflections of the left lateral boundary are equal to the right, this no longer leads to a tilting of the sound image in one direction. So, it is important that your studio acoustics not only have a uniformly short reverberation time, but also that the same reflection conditions are represented between each studio monitor and the side wall on the left as well as the right side.

3. The greatest possible proportion of the sound energy to the ear should be formed by the direct sound.

Do not choose a listening distance that is too large, and always choose one relative to the size of the speaker. For example, a small 70cm speaker listened to at a 5m distance leads to an increased perception of the acoustics of the listening room. The dispersion of the speaker plays a major role in the determination of the optimum listening distance. A KS cylindrical wave emitter achieves more direct sound to your ears than a classic omni-directional bullet horn, and therefore a somewhat larger distance can be achieved. All KS speaker models use our exclusive D' Appolito waveguide designs, which are different than any other waveguides ever created. These disperse much more directed sound than the classic round bullet horn. It is important before any purchase to discuss these aspects with a professional, so you get the optimal speaker at the optimal listening distance!

4. Select the optimal distance and space for the back wall and the sides.

If the distance between the rear and side walls (behind or to the side from the speakers) is not infinitely far away (more than 5m (15 ft)), then the effect of these walls has to be considered. The physical basis of these considerations is the wavelength. It two waves of the same size are added in phase with each other, the result is 6dB louder. If they meet in reverse phase (180 degree phase shift), there is a complete cancellation. Side walls as well as back walls make an ideal reflecting surface for low frequencies with wavelengths from 10m (30 ft) to 3m (10 ft). All woofer drivers disperse omnidirectionally, regardless of being mounted on the front, the side, or the back of a box. The low-frequency wave will always reach directly from the monitor to the ear. At the same time, this wave is radiated to the walls and reflected from there to the ear. The wave travels a detour to the wall, in that it reaches our ears "on the rebound." The detour creates a phase shift in the wave.

An example:

A 3 meter (10 ft) long wave

a) Will be emitted directly to the ear, and

b) Reflected to the ear from a rear wall. For this example, let's say the distance of the speaker from the rear wall is 0.75 meter = 30". Now, in the ear of the listener, both waves are added, the direct one and the wave which did the detour—and the detour is 1.5 meter = 5 ft (detour: speaker to back wall = 0.75m = 30" + rear wall to the speaker = 0.75 meter = 30," so in total 1.5 meter = 5 ft). But 1.5 meter = 5 ft is exactly half the wavelength, leading to cancellation with the directly emitted wave, as seen in the graphic.

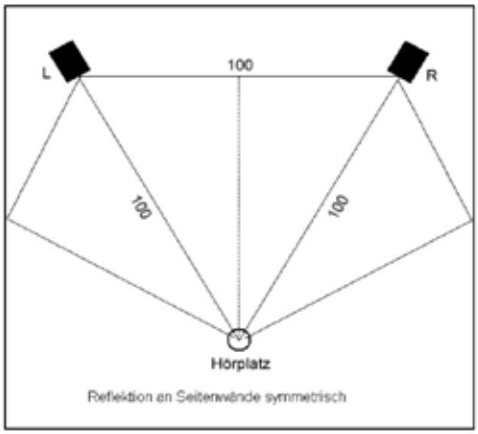
In reality, this does not lead to a complete cancellation, as the wave reflected from the rear wall is a bit dampened, and many other reflections somewhat weaken this cancellation. Nevertheless, this tone at the listening position is quieter than its neighboring tones. Things can get more extreme if the side wall is also 0.75m = 30" away, so possibly the same conditions prevail for both speakers. A simple recommendation is as follows:

The distances of the speakers from the rear wall and side wall should never be the same, and the same counts for the distance of the left speaker to the left side wall, which should be different from the right speaker to the right wall. The symmetry mentioned in #2 above relates most ideally to smaller speakers (such as the D60 or D80), as the room will be larger than the wavelengths of the high and mid frequencies being output. For low frequencies, symmetry becomes more of a problem, as there will be standing waves

that occur in the mathematically-related spots of the room (for example, the exact middle of a square room will have the most problems with standing waves). With a separate subwoofer, it can be asymmetrically placed to help with this issue, but with a sub built into the speaker, bass trapping may be necessary, as well as offsetting the speakers as explained in this section. The stereo triangle between the listener and both speakers (explained in #1 above) should still be maintained.

Low and High Shelving

As we show above, the reflected energy of the walls does matter. If the speakers are positioned anywhere in an open room, the settings of all filters should be in the "neutral line-up" which is 12 o'clock position. If the installation is close to walls (the distance from wall to speakers is under 2m = 7 ft), it leads to an increase in bass energy, which can be reduced in our speakers with the help of the Low Shelving controller. A corner installation leads to a further increase in bass energy, which can be handled by using the Low Shelf to greater extent. In the same sense, you can adjust the treble energy with the High Shelf, based on the spatial conditions of the room.



5. Handle the buildup of nodes in the bass range.

Finally, a few comments on the buildup of nodes in the listening room. Nodes are standing waves that are created because the control room forms too narrow of a shape for the emitted wavelengths in the low frequencies. Basically, there isn't much that can be done about it. You should try to build the room so that the most unpleasant consequences do not appear too intensely at the listening position. It does not matter if the back of the room has a considerable bass boost from a loud bass reflection—this is not our listening position. A good node distribution is obtained if the room nodes aren't excited in only one place. Therefore, KS has designed many speakers wherein the bass diaphragms are mounted at different heights, so the nodes become excited in a more chaotic state and are not as pronounced. The advice described under topic 4, regarding the distances from the rear and side walls, affects the node distribution and intensity favorably. One or more additional subwoofers can also significantly reduce the problem with nodes at the exact listening position, as well.

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