

MONITOR TWO
STUDIO REFERENCE MONITOR

Reference Manual

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INTRODUCTION

Your new Alesis Monitor Two™ Studio Reference Monitors will deliver accurate mixes in near and mid-field digital and analog studio monitoring applications. The Monitor Two offers wide frequency response, accurate transient reproduction, clear musical detail and imaging and high power handling capability. These monitors were designed by experts with decades of experience in professional audio system design including the award winning Monitor One™ Studio Reference Monitors and the Alesis Matica™ Power Amplifiers.

This three-way speaker system uses proprietary 10" and 5 ¼" high power low and midrange drivers with special mineral filled polypropylene cones, a highly damped linear rubber surround and large diameter voice coils wound on high temperature Kapton formers. The 1" high frequency driver employed has a soft natural silk dome and is ferrofluid cooled. The system's crossover network uses unique asymmetrical crossover filters for excellent amplitude and phase response. Rear panel connections are made via 5-way binding posts suited to large diameter wires as well as banana plugs.

The cabinet design uses Alesis' exclusive SuperPort® speaker venting technology. Most speakers used for near and mid-field monitoring give disappointing results in their lowest frequency range. They are either sealed, which limits the amount of air the driver can move, or have an undersized vent whose function at low frequencies and high acoustic output is nullified by the effect of turbulence in the restricted port tube. The Monitor Two's large SuperPort overcomes this limitation by minimizing vent turbulence at high air velocities thereby insuring that the enclosure tuning remains stable, the acoustic output remains linear during heavy low frequency attack transients, and that the reactive load above and below box resonance seen by the driving amplifier does not dynamically shift in frequency. This all translates to tighter bass with higher definition, a signature of Alesis monitors.

The Monitor Two's 4 ohm load impedance takes advantage of today's modern professional amplifiers which are generally capable of a 1-3 dB increase in output power with 4 ohm loads over their 8 ohm ratings. The result is a similar increase in the Monitor Two's acoustic output over conventional 8 ohm monitors. This a rugged speaker system designed for serious professional use.

Covered with a non-slip rubber textured laminate for stable mounting, the Monitor Twos come in a mirror image A/B pair for symmetrical horizontal or vertical mounting.

INSTALLATION

Like any speaker system, your Monitor Twos will work best when properly positioned in a suitable acoustic environment. Achieving proper speaker placement is usually straightforward, but even with near and mid-field monitors, speaker placement and the acoustics of the listening room itself are too often overlooked and can become significant contributors to an inaccurate and uninspiring monitoring environment.

Please take a moment to read this information carefully. It will help you to get the most use and enjoyment from your new Alesis monitors.

A Little History

In the early days of studio recording, big monitor speakers were almost exclusively used. Unfortunately, they also required high powered amplifiers and expensive acoustic treatments (often poorly done) to the entire control room. Still, a well constructed big monitoring system really was impressive to listen to, a fact not overlooked by the studio owners who wanted to impress the record company executives who paid for the big studio's time.

Fortunately, recording engineers and producers eventually learned that this was not always the best way to accurately mix music because it wasn't the way most people listened to their radios, cassette and CD players. Also, big monitor systems and the costs for the required control room acoustic treatments were going through the roof (no pun intended), particularly beyond the budget limits of smaller project and home studios which were growing in numbers. A new way of accurate monitoring was needed; near and mid-field monitoring.

Near and mid-field monitors, by their definition, are intended for close-in monitoring. The idea here is to improve the direct acoustic path between the speaker and the listener by making it shorter, thereby giving less opportunity for the always present indirect (reflected) sounds to get back in and muddle things up. With near-field monitoring, the surrounding acoustic environment becomes a much less significant factor in establishing the monitor system's sound character. The same holds true for mid-field monitoring except there's a little more distance placed between the speakers and the listening position. The result can be a larger sound field along with something closer to that "big monitor sound".

A good set of monitors properly located in a reasonably non-reverberate room and powered by a 100-200 watt amplifier will yield surprisingly accurate results at budget prices. Even the big studios use smaller speakers to augment their big monitoring systems today as near and mid-field monitors have become proven tools in the recording business.

Speaker Placement

While near and mid-field monitors are more forgiving of the surrounding room acoustics, it is always prudent to optimize the listening environment whenever possible. First, the user should be aware of the effect that the size of the listening room can have on low frequency response. In general, the smaller the room, the stronger the bottom end will be, although placement within a larger room can also make a difference. This has to do with the way low frequency waves travel in closed spaces. If you find your monitor system to be either light or heavy on the bottom, try moving them around within your listening room. Also, because the Monitor Two's SuperPort™ tube is located at the rear, position the monitors at least six inches away from anything that would block it.

You should avoid locating your Monitor Twos near reflective surfaces such as glass, tile, large open walls or table tops. Still, many rooms used for recording have these surfaces, so the best way to deal with them is to place the monitors out in the room away from reflective walls, windows and sizable objects.

Even with these reflective surfaces separated from the monitoring position, typical mixing situations usually still have the top surface of the mixing board to deal with. Unfortunately, the board itself can be a major source of reflections and the additional acoustic conduction into the board can effect your monitor's amplitude and phase response. Speaker placement on the console's meter bridge provides for two clear acoustic paths between the speakers and the recording engineer. The first path is the direct one and the second is via a reflection off the mixer main control panel as shown in Figure 1 below. This kind of speaker placement more readily couples acoustic energy from the speaker's cabinet into the console's chassis. Both conditions can be reduced by placing the speakers on their own stands acoustically detached from, and slightly behind, the console as shown in Figure 2. In this location, the reflective path off the console's control panel is now blocked by the meter bridge.

Figure 1

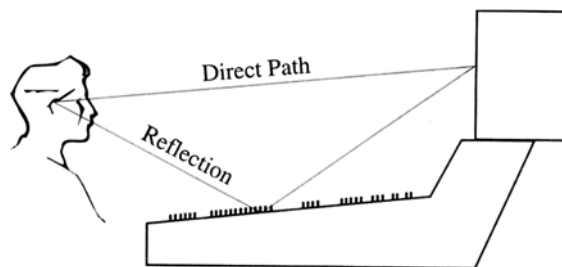
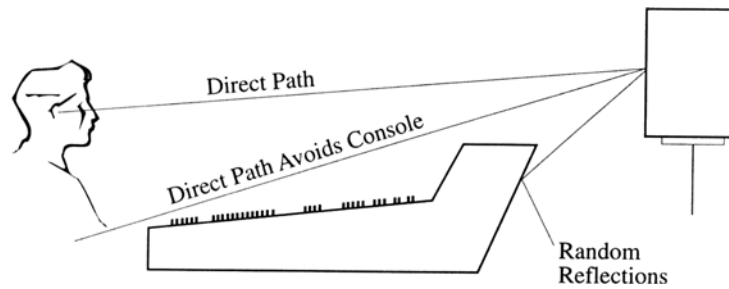


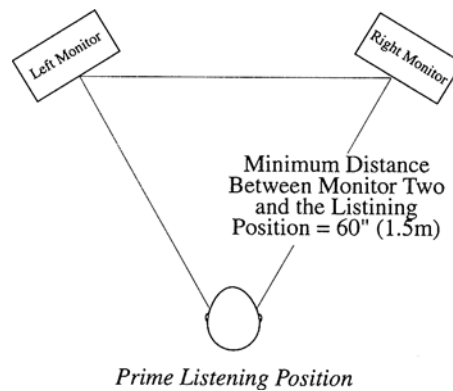
Figure 2



Careful consideration should also be given to the physical spacing between the speakers and the listening position. Alesis recommends that the distance between the speakers equal the distance between the listener and either speaker. In other words, the listener and the two speakers are at the three corners of a triangle having equal length sides. Figure 3 shows this concept.

In addition, this distance should be no less than about 60" (1.5 meter) per side to allow the acoustic signals from each cabinet's three drivers to properly combine at the listening position. Note that both speakers are turned in somewhat so that the prime listening position is directly out in front of each speaker. Applications that require monitoring by more than one engineer are accommodated by a smaller rotation of the cabinets. This will widen the prime listening position somewhat.

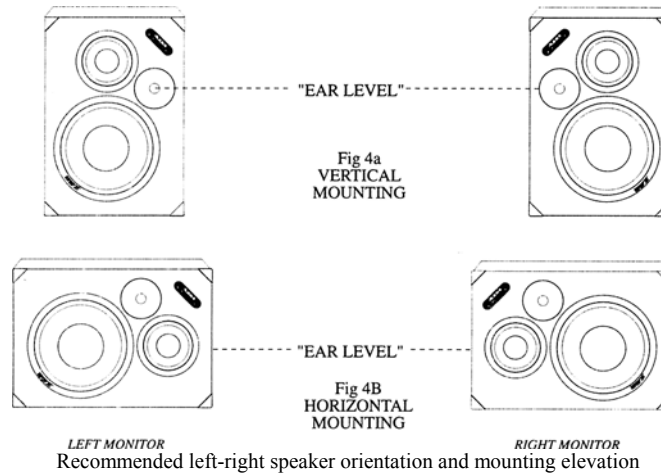
Figure 3



The speakers and listener should be at the three corners of a triangle having equal length sides

For acoustic purposes Alesis has closely grouped the Monitor Two's three drivers together which necessitates mounting the high frequency dome driver on one side of the mid/low frequency drivers. Therefore, your Monitor Twos are supplied as a pair of mirror imaged cabinets, called the A and B side. Either speaker cabinet can be oriented horizontally or vertically as long as a few simple rules are followed. For most near to mid-field monitoring applications the mounting orientations shown in Figures 4a and 4b below are recommended.

Figure 4



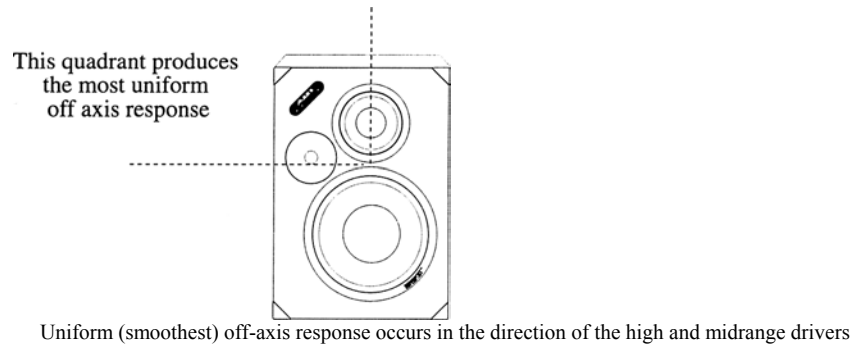
Speaker mounting elevation is important so our “ear level” recommendations are shown in Figure 4. If the speakers are mounted vertically as shown in Figure 4a, position the speakers so that your ears are level with the high frequency dome driver. This puts the low frequency driver slightly below ear level and the midrange driver slightly above. If you are mounting your speakers horizontally as in Figure 4b, the ear line should be centered on the low and mid frequency drivers. Finally, if you are unable to mount your monitors at ear level, rotate the cabinets forward or back so that the points marked “ear-level” are perpendicular to your ears.

The Monitor Two system will produce the smoothest frequency response when both speakers are perpendicular. In this three sided triangle, the listener is said to be in the speakers’ “sweet spot”. In reality, however, the listener needs to move around a bit and therefore its helpful to know how the speaker’s sound field will change with other listening positions. Therefore, our last word

concerning speaker placement is about the speaker's off axis (to the side, away from the front) amplitude and phase response.

The natural laws of physics cause all speakers having multiple drivers to exhibit some off axis response changes. This largely has to do with the way the signals from each driver combine when the distance from each driver to the listener changes as the listener moves around. Knowledge of this can be useful for obtaining the widest listening area. The sides of the Monitor Two having the most uniform off-axis response are shown in Figure 5 below:

Figure 5



By knowing which sides of the speaker produce the smoothest off-axis response, you can locate your speakers so that the widest range of normal listener body motions will keep the listener's ears in the speaker's most accurate "sweet zone". An example of this would be to allow for body movement necessary to reach the controls on a typical console or to permit more than one listener to critically monitor mixes.

The Monitor Twos are completely covered with a non-slip rubber textured laminate and feature corner protectors. If you need to move the Monitor Two cabinets or adjust their position slightly, lift them off the mounting surface first rather than attempting to slide them.

Connections

Professional grade 5-way binding posts are provided for external wiring back to the amplifier. This type of connector can accommodate bare or tinned wires, banana plugs and even spade lugs. A lot of hype and confusion exists about the type of speaker wires to use, most of it created by the wire manufacturers themselves in an effort to have a unique story to tell. While this expensive wire will not hurt the speaker's performance at all, Alesis does not subscribe to most of this hype and chooses to take an approach based on science when recommending speaker wire. Our recommendation is simple; use the shortest length of the largest diameter wire you can get. #10-14 gauge multi-stranded flexible speaker wire found at most electronics and hi-fi stores works very well. This kind of wire resembles oversized lamp cord and is very easy to work with.

Make sure your amplifier is turned OFF before making connections to it and be sure you get the + terminals of the speakers wired to the + terminals of the amplifier. If one of the speaker's polarity is miswired, the result will be loss of low frequency response and stereo imaging when the system is played.

Power and Protection

Alesis recognizes that professional speakers need to be strong to survive, so the Monitor Two uses proprietary high power drivers and oversized crossover components, choices made principally to offer the user an extended margin of safety. Therefore, an amplifier with a 100-250 watt power rating into 4 ohms, like the Alesis Matica 500, is recommend for most monitoring situations, but this can be varied up or down somewhat depending on the size of the listening room and the engineer's preference for normal working levels.

Be sure to verify that your amplifier is rated for 4 ohm speakers. Some older amplifiers are not and may fail if overloaded. Alesis is not responsible for any failures caused by the use of the wrong amplifier.

Also, there are few situations where a very high power amplifier should ever be used because of the danger of damaging the

Monitor Two. To do so is asking for trouble and may void your warranty. Finally, the use of a low power amplifier is also not recommended as it is likely to be run well into heavy clipping and distortion in an effort to get sufficient volume. This can also lead to failures of both the amplifier and the speaker, the latter if high frequency energy sufficient to damage the high frequency driver is generated.

Alesis does not suggest the use of any external speaker protection devices, but considers such devices as fuses, lamps and/or thermal breakers safe to use, so long as they do not cause failures or require modifications to the Monitor Two's construction which would void the warranty. Actually, many such devices are generally considered ineffective and can additionally alter the speaker's sound character, an undesirable trait for a studio monitor.

The best protection against speaker and hearing failure is to mix with reasonable levels.

Specifications

Drivers:	Mineral filled polypropylene cone 10" low frequency and 5" midrange drivers 1" Natural Silk dome high frequency drivers
Crossover:	1500Hz and 5kHz, asymmetrical combination of second and third order filters
Frequency Response:	35 Hz - 18 kHz, ± 3 dB
Power Handling:	150 watts program, 200 watts peak (using EIA-426A method)
Nominal Impedance:	4 ohms
Sensitivity:	90 dB SPL @ 1 watt and 1 meter on axis
Cabinet:	Rubber textured laminate over 5/8" MDF with protective comers Rear vented
Connectors:	5 way binding posts on 0.75" centers
Dimensions:	14"W x 20"H x 14"D
Weight:	34 lb. each

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