SNELL ACOUSTICS TYPE A/IIIi LOUDSPEAKER OWNER'S MANUAL

Congratulations on your purchase of your new Snell Acoustics loudspeakers! We feel that the A/IIIi satisfies the goal of musical realism more completely than any other loudspeaker — regardless of size, type, or price. Your investment of time to read and follow these instructions is crucial to achieve this musical realism in your home. If you should have any questions, please contact your dealer, or us, at 508-373-6114. We are always happy to be of assistance.

ROOM ACOUSTICS

Snell loudspeakers are designed to achieve a roughly 50-50 balance at the listening position between direct and reverberant sound. Their amplitude (commonly frequency) response is exceptionally accurate both on-axis and in the reverberant field. This is one of the characteristics which set the Type A/IIIi's apart from other loudspeakers in accurately re-creating a sound field; the sound of the music reproduced in 3-dimensional space with the original ambiance preserved. The ideal room acoustics to achieve this goal of a balance between on-axis and reverberant sound is a slightly live environment. You can evaluate your room's liveness by clapping your hands in several locations throughout the room. There should be a very faint echo. If there is a very obvious echo at several room locations, the room is too live. This condition can often be remedied through judicious placement of overstuffed furniture. If additional damping is required, the use of heavy drapes, or thick cloth or carpet wall hangings is effective. Panels specially designed for sound absorption may also be used, but caution is advised to avoid over-damping the room. Placement of absorbent materials is a trial and error process, but some general guidelines can be made. Echoes which occur in listening rooms are usually the result of sounds "bouncing" between opposite walls. Therefore, carpeting or ceiling treatments will be less effective in treating the room acoustics. Walk around the room while clapping your hands, and note locations which produce the most pronounced echo. Then try treating one wall directly opposite that location. It is only necessary to treat one of the opposite walls for a particular echo. Avoid placing absorbent materials directly behind the loudspeakers.

An over damped room is indicated by clapping which sounds dead and muffled instead of sharp and crisp. This is usually the result of the over-use of sound absorbent panels. Reduce the number of panels in this situation. A dead room may also be the result of large areas of heavy drapes. Try opening the drapes.

SPEAKER PLACEMENT

The location of your loudspeakers, your listening position, and their relationship will have a profound effect on the sonic results of your installation. The location where the amplitude response will be the most irregular, and should be avoided. The Type A/IIIi's should be at least 3 feet away from side walls, to avoid undesirable early reflections. Your ideal listening position should be at least 2 feet from the rear wall, and several feet from any side walls or large surfaces to your sides. The Type A/IIIi's should be one to three feet from the front wall.

It is usually necessary to locate the speakers on the longer wall of the room in order to follow the above rules. The possible exceptions would be very large rooms, or nearly square rooms.

Keeping the above rules in mind, place the speakers with their backs 20" from the front wall, and parallel to it. (The Type A/IIIi's are mirror imaged and are left-right specific. Check the labels to be sure you have them the right way.) Measure the distance from either speaker to your selected listening position (it must be exactly the same for each speaker). Adjust the distance between the speakers to be about ⅔ of the distance from either speaker to your listening position. Remember to keep the speakers several feet away from the side walls, and to

keep your listening position at least 2 feet from the rear wall. Avoid placing any large objects between the speakers, especially anything more than 3 feet tall. A clear line of sight between the listening position and the speakers is very important, and large objects between you and the speakers may degrade imaging. If you have followed these instructions, you have an excellent starting point from which to experiment with placement. Because of room acoustics, small changes in speaker placement can have pronounced effects. Try moving the speakers in small increments, both side-to-side and forward-and-backward. The closer the speakers are to the front wall, the greater the apparent bass, and the less depth (3-dimensional) reproduction. The proper distance to the front wall will result in smooth, extended bass response and superb soundfield recreation (imaging). Experimentation with set-up really pays off in improved realism.

THE REAR SUPERTWEETER

In order to achieve it's exceptionally uniform ratio of early-arrival to reverberant-field sound at the highest frequencies, a rear firing supertweeter has been employed in the Type A/IIIi's. This supertweeter operates above 10 kHz, and adds air and space without degrading the A/IIIi's unmatched on-axis accuracy. A switch on the upper section rear panel allows audible comparisons of the effect of the supertweeter.

ASSOCIATED EQUIPMENT PLACEMENT

The placement of the other components in your systems also deserves consideration. It is most important to avoid feedback between the turntable and loudspeakers. While this feedback will not be as obvious as feedback from a speaker to a microphone, it can never-the-less result in very poor sound. In general, the worst location for a turntable is between your loudspeakers. Also try to avoid any close proximity to the speakers, or placement directly in a corner (where low frequency room energy is high). Naturally the best results are obtained with the turntable in another room. If you question whether a particular location might be sonically degrading, the temporary installation of your turntable in another room may be used as a "control" for comparison. Your dealer will be helpful in answering questions about your specific turntable.

Turntables are not the only associated component worthy of placement consideration. Tube electronics may be adequately microphonic to warrant isolation from the floor, for instance. Some evidence exists to indicate solid state electronics may also benefit from isolation.

AMPLIFIER PLACEMENT

In a typical component system, the source, pre-amp, and power amp(s) are all in one location. This is not necessarily the ideal arrangement. The Type A/IIIi's (and most high quality loudspeakers) benefit from the best possible connection to the amplifier. Heavy "audiophile" speaker wire tends to be expensive, and still not perfect. An alternative is to locate the power amp(s) close to the speakers, and use long interconnects between the pre- and power-amp(s). This arrangement can result in less audible degradation, and a cost savings. It is important to restrict this method to use with pre-amps with a low output impedance, and which are capable of driving the capacitance of the interconnect cable. Your dealer or the pre-amp and wire manufacturers can help to assure compatibility.

CONNECTING THE TYPE A/IIIi's

There are several different ways to connect the A/IIIi's, depending on your specific circumstances. Please find the applicable description below.

SINGLE AMPLIFIER WITH CONVENTIONAL WIRING

Locate your jumper leads which were packed with your loudspeakers (short wires with plugs on each end). Locate the red mark on one terminal of each plug. Plug one end into the upper section jacks marked "To Woofer," making sure to keep the red mark up. Plug the other end into the lower section jacks marked "woofer Input," again keeping the red mark up. Now connect your amplifier to the speakers using the jacks marked "input 4 ohms." Be careful that both speakers are connected to the amplifier with the same "polarity." Normally, that means the red terminal would be going to the "+" or red terminal on your amplifier, and the black terminal would be going to the "-" or black terminal on your amplifier. Check to be sure that the speakers are in the correct left/right positions. The side indicated on the rear panel is as seen from the front (listening position). Do not run another set of speakers simultaneously from the same amplifier as the Type A/IIIi's.

SINGLE AMPLIFIER WITH BI-WIRING

Bi-wiring bridges the gap between the single amp/conventional wiring described above, and more expensive and complicated bi-amping described below. Simply put, bi-wiring is a set-up where the signals going from your single amplifier to the mid/high frequency sections of the speakers are sent over separate wires from the signals going to the woofer sections. To accomplish a bi-wired set up, remove the jumper cable (if it is in place) between the upper and lower sections. (For clarity, only the left channel connection will be described, the right channel procedure is identical). Connect the positive (ribbed, colored, or otherwise identified) lead of your high frequency cable to the left channel amplifier positive terminal (marked "+" or red). Connect the negative (unmarked) lead to the left channel amplifier negative terminal (marked "-" or black). Now connect the other end's positive lead to the left Type A/IIIi upper section terminal marked "input 4 ohms" (red terminal). Connect the other (negative) lead to the black terminal marked "input 4 ohms." Now connect the positive lead of your low frequency lead (ribbed or otherwise marked) to the same left channel positive ("+" or red) terminal already used for the high frequency lead. (You will end up with two cables connected to each amplifier terminal). Connect the negative lead to the left channel negative ("-" or black)terminal, which will be shared with the high frequency negative lead. At the speaker end of the low frequency cable, connect the positive low frequency cable to the red terminal labelled "woofer input" on the left channel lower section. Similarly, connect the negative low frequency cable lead to the black terminal labelled "woofer input." Repeat this procedure for the right channel, making sure all connections are very tight.

BI-AMPING WITHOUT A CROSSOVER WITH IDENTICAL AMPLIFIERS

This configuration yields even better performance than the bi-wiring described above. It results in more accurate imaging than most systems using electronic crossovers, since the left and right amplifier power supplies are totally independent. (*Most bi-amplified systems use one amp for the top, and one for the bottom. Since most amps do not exhibit perfect imaging, or spacial reproduction, this results in a compromise. Using separate left/right amps eliminates this compromise. If solid state amps are used, current demands are automatically limited outside the frequency range of the speaker section the amp's channel is connected to, since the impedance rises.*)

For clarity, we will refer to the amplifiers as amplifier A and amplifier B. Amplifier A will be used exclusively for the left speaker, and amplifier B will be used for the right speaker. Connect the pre-amplifier's left channel main output to both the left and right inputs of amplifier A. This will require "Y-adapters," unless you have 2 identical left channel outputs from your preamp. Do not bridge your amplifier! If it has a mono/stereo switch it should be set to stereo. Connect the amplifier A left channel positive (marked "+" or red) terminal to the positive speaker lead (indicated with a rib or different color). Connect the negative lead from this cable to amplifier A left channel negative terminal. Now connect the positive lead at the speaker end of this cable to the left speaker's upper section red terminal marked "input 4 ohms." Similarly, connect the negative lead to the black terminal marked "input 4 ohms." Now connect another cable's positive lead to amplifier A's right channel positive ("+" or red) terminal. Connect that cable's negative lead to amplifier A's right channel negative terminal ("-" or black). Connect the positive lead of the other end of this cable to the bottom section of the left Type A/IIIi's red terminal labelled "woofer input." Similarly, connect the negative lead of this cable to the left Type A/IIIi's black "woofer input" terminal. Repeat this procedure for amplifier B and the right channel. Make sure all connections are very tight.

BI-AMPING WITHOUT A CROSSOVER, AND WITH NON-IDENTICAL AMPLIFIERS

This configuration allows the use of amplifiers chosen specifically for their performance at either higher or lower frequencies. Tube amplifiers, noted for their "sweetness" at higher frequencies are often used for the upper frequency amp, and solid state amplifiers are often used at lower frequencies because of their superior bass performance. It is important that the amplifier with the higher input sensitivity (not power) have level controls to match its output level to the other amplifier. If it does not, suitable level controls could be installed in -line by a qualified technician. For clarity, only the left channel connections will be described. Right channel connections are identical. To set up this configuration, first connect your preamp's left channel main output to both amplifier's left channel inputs. You may accomplish this with the use of a "y-adapter," or if your preamp has 2 identical left channel main outputs, simply use them both. Connect a positive (ribbed or otherwise marked) speaker cable lead to the high frequency amplifier's left channel positive ("+" or red) terminal. Connect the cable's negative lead to the high frequency amplifier's left channel negative ("-" or black) terminal. Connect the other end of the cable's positive lead (ribbed or marked) to the Type A/IIIi's red terminal labelled "4 ohm input." Connect the negative lead to the black terminal labelled "4 ohm input." Be sure no jumpers are connected between any of the terminals on the type A/IIIi's, since that could cause amplifier damage when bi-amping. In addition, the bi-amp jacks should not be shorted or otherwise used when you are not using a Snell Acoustics electronic crossover. Now connect the positive lead from another cable to the low frequency amplifier's left channel positive ("+" or red) terminal. Connect this cable's negative lead to the low frequency amplifier's left channel negative ("-" or black) terminal. Connect the other end of this cable's positive lead to the Type A/IIIi's red terminal labelled "woofer input." Connect the negative lead to the black terminal labelled "woofer input." Check to make sure all connections are very tight. Since some amplifiers "invert" a signal (make it out of phase) you must determine if one of the amplifiers used in this configuration should be connected in reverse phase. It is best to ask the amplifier manufacturers if their amps invert phase. Otherwise, listen to music from a point about mid-way between the woofer and midrange. Then reverse the woofer lead connections. The connection which results in the greatest apparent output is the in phase connection. Be sure both channels are wired identically.

BI-AMPING WITH AN ELECTRONIC CROSSOVER

If you are using a Snell Acoustics electronic crossover, please refer to the instructions included with the crossover. If you are using an electronic crossover from another manufacturer, do not insert a shorting plug in the jacks labelled "bi-amp mode." Since other electronic crossovers are not designed specifically for the Type A/IIIi's, allow a frequency overlap of at least an octave, so that the internal crossover can work properly. This means that the high frequency section should extend down to at least 137 hz, and the low frequency section should extend up to at least 550 hz. If level controls are not available on the crossover, the amp with the highest input sensitivity should have a level control to match its output to that of the other amplifier. For clarity, directions will only be given for the left channel connections. The right channel is identical. Be sure any jumpers or shorting plugs are disconnected from the Type A/IIIi's. Connect the pre-amp's left channel main output to the electronic crossovers left channel input. Connect the crossover's left channel high frequency output to the high frequency amp's left channel input. Connect the crossover's left channel low frequency output to the low frequency amp's left channel input. Now connect a speaker cable's positive lead (identified with a ribbed edge or other mark) to the high frequency amp's left channel positive terminal ("+" or red), and the cables negative lead to the high frequency amp's left channel negative terminal. Now connect the other end's positive lead to the A/IIIi's red terminal marked "4 ohm input." Connect the negative lead to the black terminal marked "4 ohm input." Now connect the positive lead of a speaker cable to the low frequency amp's left channel positive terminal ("+" or red). Connect the negative lead to the low frequency amp's left channel negative terminal ("-" or black). Connect the positive lead on the other end of the cable to the A/IIIi's red terminal marked "woofer input." Similarly, connect the negative lead to the Type A/IIIi's black terminal marked "woofer input." Repeat for the right channel, and make sure all connections are very tight. Now balance the levels between the upper and lower frequency amplifiers. If this becomes confusing, you can use the set up described above in "Single Amplifier With Conventional Wiring" as a reference for upper/lower section level balance, taking care not to accidentally connect the output of two amplifiers together. Some amplifiers "invert" or reverse the phase of the signal at the output, as compared to the input. If you are using different upper and lower frequency amplifiers, you must determine if one or both invert. The easiest way to determine this is to ask the manufacturer or your dealer. Otherwise, listen to music from a point close to a speaker, about mid-way between the woofer and midrange. Then reverse the woofer connections. The connection which results in the greatest apparent output at this position is the acoustic "in phase" connection. Make sure both the left and right channels are connected identically.

FUSES

The Type A/IIIi tweeters are protected by a rear mounted fuse. If necessary, it should only be replaced with an identical AGC 2 fuse. If the fuse blows repeatedly, amplifier clipping or oscillation is probably indicated. When amplifiers "clip" they produce distorted signals which can damage any tweeter. This is why a higher power amp is often less destructive to a loudspeaker than a lower power amp driven into clipping. Consult your dealer or Snell Acoustics if you experience repeated fuse failures.

SPECIFICATIONS

Snell Acoustics Type A/IIIi Loudspeaker

Typical listening room amplitude response on-axis or up to 25 degrees to the inside of the listening area:
- 38 Hz to 18 KHz ± 1 dB
- 33 Hz to 20 KHz ± 1.5 dB
- 24 Hz to 26 KHz ± 3 dB

Crossover frequencies and electrical slopes:
- 275 Hz 2nd order low pass woofer filter
- 275 Hz 1st order high pass midrange filter section with impedance compensation
- 2.7 KHz 2nd order midrange low pass filter (midrange filter sections combine to form a bandpass filter)
- 2.7 KHz 3rd order tweeter high pass filter
- 10 KHz 1st order supertweeter high pass filter.

Driver complement:
- 12 inch woofer in a sealed enclosure
- 4 inch midrange
- 1 inch tweeter
- 3/4 inch supertweeter

Minimum Impedance: 4 ohms

System Sensitivity: 86 dB with pink noise at 1 meter with 1 watt input

Dimensions: 50 3/4" by 23 1/2" W by 14" D.

Shipping weight (4 Pieces): 295 lbs.

IN CASE OF DIFFICULTY

If you have a problem with your Type A/IIIi's, ask your dealer for advice, or contact us at Snell Acoustics. We are always happy to assist you.