Owners Manual and Set-up Guide: Genesis 1.2 Dragon

Contents

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A Message from Genesis

Congratulations!

You are now the owner of the best loudspeaker system in the world. The Genesis 1.2 "Dragon" Loudspeaker System is the embodiment of our philosophy of "*absolute fidelity*®" – the ability to reproduce any musical event faithfully, with no compromise, in your home.

The G1.2 is commissioned for the most discerning music lovers in the world. Every system is custom made and personalized. It encompasses the state-of-the-art in transducer, crossover, and electronics technology and craftsmanship.

A Short History: In June 1979, Mr. Arnie Nudell, the founder of Infinity Systems and Genesis, headed a small team at Infinity™[-] that conceived and created the remarkable Infinity Reference Standard (IRS) using technologies conceived and developed since the Servo Statik 1 in 1968. The IRS soon came to be known as the world's ultimate reference system for the reproduction of music. Fourteen years later in June 1993, Nudell, in collaboration with Paul McGowan, introduced to the world the Genesis I – a new benchmark for the reference loudspeaker system. In 1999, the GI was upgraded to become the G1.1, with a longer and larger midrange ribbon, and ribbed aluminum woofers.

The current Genesis 1.2 embodies over 40 years of evolution and revolution in loudspeaker design. Every single aspect of the G1.1 was examined, down to the size and material of the washers under the heads of the screws used in the quest to improve on perfection. In the latest "Dragon" iteration, carbon fiber replaces wood veneer to bring unprecedented stiffness and vibration control to the woofer towers and wing panels.

All internal wiring in the "Dragon" has been updated to silver/Teflon mil-spec cables to deliver the utmost in transparency.

The G1.2 is the current ultimate reference for the reproduction of music. Whereas many other products might excel in one or more key

[-] Infinity™ is a trademark of Harman International, and is not associated with Genesis Advanced Technologies in any way.

areas, the G1.2 excels in every important aspect of sound reproduction :-

Spectral Coherence: The sound must be absolutely seamless, as if the lowest bass frequencies were cut from the same cloth as the highest frequencies. Despite the use of different materials and technologies – kapton planar-magnetic, mylar ribbon and solid aluminum cones, the crossover between the tweeters, midrange, and woofers cannot be discerned even by trained, experienced listeners.

Pace, Rhythm, and Timing: The G1.2 plays rock, dance music, contemporary, and Latin American as well as it does classical, jazz and female vocals. It has the speed and driving rhythm to dance to, and the timing to keep your toes tapping. Be the pace slow and deliberate, or quick and rhythmic, the musician's intention is always conveyed faithfully.

Harmonic Structure: All instruments must be readily identifiable by their harmonic content. There must be a uniformly consistent energy vs. frequency ratio throughout the entire audio spectrum with uniformly low distortion in order for this to be achieved. Tonal colors and contrast must be faithfully reproduced so that a Steinway is easily distinguished from a Bosendorfer, an Amati easily distinguished from a Stradivarius.

Macro Dynamic Capability: Sometimes characterized as "dynamic range", macro-dynamics can be best defined in musical terms – from mezzo forte (*mf* or medium-loud), to triple forte (*fff* or very loud). *Nevertheless, the G1.2 is not designed to be played LOUD which would damage the owner's hearing. It plays at realistic but not ear splitting levels (of course, ear splitting is relative!!).*

Micro Dynamic Capability: This describes the ability of a system to resolve the lowest level material with as much articulation and imaging as it does at the louder levels. The most difficult areas for loudspeaker systems to reproduce well are the extremes, i.e. the micro-dynamics from *ppp* to *p* (pianissimo to piano), and the last part of the macro-dynamics *f* to *fff* (forte to triple forte). This is most noticeable in the extraordinary amount of detail still heard during low-level listening during a quiet time at night.

Imaging and Soundstaging: A reference system must be able to recreate a deep, tall and wide soundstage with accurate imaging when reproducing recordings that contain such information. The effect is that of being able to clearly distinguish the specific locations

(left/right, forward/back, up/down) at which the instruments are playing, and to be able to hear their performance from the perspective of the venue in which it was recorded.

These concepts can be understood in a basic sense by examining the temporal coherence of a loudspeaker system. If each frequency of the audio spectrum arrives at the listener at the same time, spatial cues emanating from a performance are reproduced, i.e. sound waves bounced from the walls, floor and ceiling of the venue, attenuated in amplitude and displaced in time, can be resolved in space by two stereo channels. If a reference system can slice time “thinly enough”, and have excellent low-level resolving power, one can experience many such bounces off surfaces; all displaced correctly in time, ultimately defining the soundstage and ambience of the venue.

Low Harmonic and Intermodulation Distortion: The greatest sound pressure peaks should create almost no distortion whatever. Many loudspeakers begin to experience signal compression at loud levels. When this happens, music becomes distorted as the sounds emanating from the loudspeaker compresses. Reference systems do not exhibit these symptoms. Just as live music sounds relaxed at the loudest levels, so must the reference system.

Emotion and Intent: The hardest area to define is the human feelings of emotion and intent. The reference loudspeaker must be able to convey the emotions the musicians felt and their intent when they performed the piece of music. Happy music must be reproduced as happy, solemn pieces must be solemn. We have devised no way to measure the ability of the loudspeaker to convey emotion and intent, and it boils down to the art of the loudspeaker design to achieve this.

The net result is that the G1.2 can play all music equally well, from rock to rap, from blues through classical and jazz to zydeco, from a solo vocalist to a big band. As a reference system, there should be no music that is out of bounds.

Please read this Owners Manual and Set-up Guide to get the maximum enjoyment out of your purchase. Also, if you have access to the internet, please check back at our website often. The address is www.genesisloudspeakers.com. We will post the latest updates, tips & tricks and support for our customers. If you have any questions, please call, and we will be glad to answer to the best of our ability.

Most of all enjoy your music!

1 Set-up Guide

Now that you have your new Genesis 1.2 loudspeaker system, we realize that you can't wait to hook it up and start playing! However, this is a big, complex system. There is no "quick" set-up.

You will need at least four strong people. Be prepared to allocate 4 to 6 hours to the initial unpacking, set-up and configuration. Mentally condition yourself for hard, manual work that must also be done carefully and precisely so as not to hurt your precious new acquisition and to not hurt your backs.

1.1 Unpacking

The G1.2 system is packed in five (5) wooden shipping crates and a pallet:

- two big long crates containing a woofer tower each marked left and right;
- two smaller long crate containing two wings per shelf and a Corian panel holding the midrange ribbon and tweeters per crate, also marked left and right;
- a square flat crate with the two midrange/tweeter wing bases and the two woofer tower bases; and
- finally, a pallet with a small crate with the two midrange/tweeter crossovers, and cardboard boxes containing all the electronics and cables.

To remove the contents of all the crates, you will need at least four strong people – the Genesis 1.2 loudspeaker system weighs over 1,000kg – to move the various parts of the speakers around. We cannot be held liable for damage to either the speakers or your backs during unpacking and setting up.

First, determine *where* you will be placing the speakers. They are extremely heavy, so some forward planning will come in handy. Depending on the surface they are set on, you may find that the speakers are almost impossible to shift after setting up. Please see the next section on placement and carefully mark the places where you will set up the four columns.

The crates are designed for ease of unpacking and screws will have to be removed to gain access to the contents. The first crate to

unpack is the flat, square crate containing the bases for the woofer towers and midrange/tweeter wings. Remove the screws marked in **BLUE** and take the top off the crate. Please take a couple of minutes to read the section on placement so that the bases don't have to be moved too much later.

Remove the square woofer bases and place them where marked. The woofer bases are 63.5cm x 61cm, and you will want to place them with the shorter side facing the listener. Next, remove the wide midrange/tweeter bases and place them with the curved side facing the listener. The straight side faces the back.

Next, unpack the woofer towers and place them on their bases. To remove the woofer towers from the crates, remove all the screws marked in **BLUE** and take the lid off the woofer crate. The lid has 3 sides, and this makes it easier for the woofer towers to be tilted up and out of the crate. The easiest way to do this is to place the open end of the woofer tower crate next to the woofer base.

Each woofer tower crate is marked for left/right. By convention, the cables insert on the side of the woofer tower with the woofers firing forwards and backwards. As the woofer is a *point source* (yes, a 7-foot point source!) it would not matter sonically if the woofers were oriented to fire sideways and the cables inserting from the back.

With one person holding the woofer base so that it does not move. Two very strong men will be able to lift the top of the woofer tower and tilt it up out of the crate directly on to the woofer base. Do the same with the other woofer tower.

To unpack the midrange/tweeter wings, first remove the 3-sided lid of the midrange/tweeter wings. The screws to remove are also marked in **BLUE**. Inside the crate are 4 trays. The first tray contains the midrange/tweeter corian panel for the left wing and the grill covers for the woofer towers. The second tray contains the wing side panels.

The midrange/tweeter wings are set up by first inserting the center Corian panel into the foundation. The two wings are then placed on either side, and secured to the center panel with the supplied hex screws. A 5/32 allen key is supplied. Do the same with the right wing.

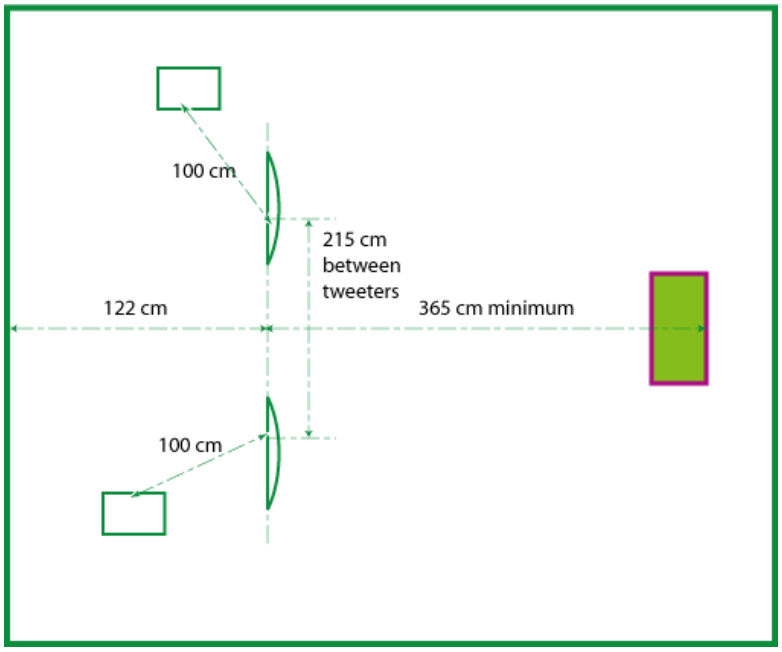
Do not try to use spikes or other third party suspension systems. The weight of the G1.2 is more than sufficient to anchor them to the floor.

1.2 Placement of the G1.2 "Dragon" Loudspeaker

The G1.2 requires a large room in order to give the speaker ample space from the walls so that it can perform at its best.

A good starting position for the midrange/tweeter panels is 122 cm from the front wall to the speakers.

You will want to sit a minimum of 450 cm away as measured from the face of the speakers to the ears. Due to the length of the line-source, a minimum distance of 365 cm is needed for driver integration.



Place the column of tweeters on the inside, and position the midrange/ tweeter panels so that the centers of the tweeters are 215 cm apart. This will mean that the edge of the midrange/tweeter wing bases are over 90 cm apart at the closest point. Next, position the woofer towers just to the outside of, and behind the mid/tweeter wings.

Having the woofers diagonally 1m behind the midrange/tweeters works well. Placing the woofer towers asymmetric in the room results in a smoother bass response than if the woofers are symmetric. We generally like the right woofer tower further outside the right wing, and the left woofer tower further behind the left wing.

If you have a much more space and a wider room, the woofer towers can be also be positioned outside the mid/tweeter wings in an arc such that the center of the woofer cone and the tweeters are equidistant from the listeners.

1.3 Servo-Controlled Bass Amplifier System

The 12-channel Genesis Servo-Controlled Bass Amplifier comes in a total of ten (10) units. It comprises:

1) Left and Right Control Modules with left and right balanced inputs and a pair of control outputs (each Control Module is built as a dual-stereo unit, but only one input is used in each). The Control Modules have a standard IEC power input.

2) Two left-channel Servo-Amplifier Modules with three 50-amp Speakon™ outputs per module and a blue PowerCon™ power input. The lower module has an acoustic suspension attached.

3) Two right-channel Servo-Amplifier Modules with three 50-amp Speakon™ outputs per module and a blue PowerCon™ power input. The lower module has an acoustic suspension attached.

4) Four 2kVA Power Transformer Modules each with a white PowerCon output and an IEC power input.

Cables and accessories included in the package are:

1) Four Power Umbilicals with a grey PowerCon™ at one end and a blue PowerCon™ at the other end

2) Four Control Interface Cables (CIC) with 7-pin Neutrik™ connectors at each end. One pair for right marked with red and one pair for the left stack marked with white.

3) Two Servo-Bass Interconnect Cables (SBI) left and right with bananas at one end and a Neutrik XLR at the other end.

4) Six power cords are also included. The user is encouraged to use their preferred brand of high-end power cables and connectors although Genesis Absolute Fidelity® Power Interface Cables are highly recommended.

In the typical configuration, the 12-channel Servo-Controlled Bass Amplifier is placed in two stacks – each stack near the woofer tower that it will drive. The Control Module is stacked on top of the two Servo-Amplifier Modules and the entire stack is on an amplifier acoustic suspension system. Two Power Transformers are stacked behind each stack.

Next, using the supplied 7-pin Control Interface Cables, link the Control Module to each Servo-Amplifier Module. Plug the included IEC power cords into the Control Modules.

1.4 Power Connections

Each amplifier module is powered by a separate external Power Transformer. By having the power transformer external to the electronics, and potential vibration or electromagnetic interference is isolated from the sensitive low-voltage electronics.

When you make the power connections, pay close attention to the way the connector works. This connector is a 20 amp twist-lock Neutrik™ PowerCon™. By looking carefully, it will be obvious as to how it works. It only goes in one way and you cannot put it in wrong. However, you can fail to put it in all the way.

Line up the alignment pins on the connectors, push the plug in, and twist it clockwise until the lock "clicks" in place to keep it there.

To remove the connector, pull the silver locking tab outwards, twist it anti-clockwise, and pull out.

Do not do this with the power on. The Neutrik™ PowerCon™ 20 amp connectors used are the best solution we have found for passing power, but they are not designed to make/break connections. Hence, it is important that they are connected/disconnected before supplying power to the Power Transformers.

Use the included Power Umbilicals to connect between the Amplifier Modules and the Power Transformers. Next, plug the included IEC power cord into the Power Transformer. Leave it unplugged from the wall outlet until you have all the rest of the connections completed.

1.5 Woofer Connections

Included with your Genesis 1.2 is a set of four large cables (with 3 channels each) used to connect the woofer towers to the Servo-Amplifier Modules. Each end of the cable is clearly marked, AMPLIFIER or SPEAKER. It does not matter which connector is attached to which input or output as long as the correct amplifier modules are used for the left and right towers. It also does not matter which SBC is used for the left or the right; however, one pair is marked with AMPLIFIER or SPEAKER in red lettering, and the other in white lettering for convenience. Use the pair with red lettering for the right channel and the pair with white lettering for the left channel.

Connect the appropriate ends to the outputs of your Servo-Amplifier Modules, and the input plate on the woofer towers. It does not matter which connector is attached to which woofer as long as the left/right channels and cable direction are correct. The most convenient configuration would be to use a single 3-channel SBC horizontally on the three outputs on each amplifier module, and to use this vertically on the inputs at the woofer towers.

For interest and reference, the connectors are numbered 1 thru 6 from left to right and top to bottom: input number 1 being the top pair of woofers, and input number 6 being the bottom pair of woofers.

The connector used for the woofer towers is similar to the PowerCon used for power connections. This unique connector is a 50 amp twist-lock Neutrik™ Speakon™. As with the PowerCon, you align the pins, insert the connector, and twist until you hear a click when the connectors lock.

At the AMPLIFIER end of the servo-bass cable, you will find a small grounding jack on a flying lead. The other end is on the chassis of the servo-bass amplifier labelled GND. These jacks are used for grounding an internal shield within the servo-bass cable to the amplifier module chassis. For the time being, leave this shield **disconnected**. The shield ground should be used only when necessary if external electro-magnetic interference encountered by the servo-bass cable causes noise or hum in the woofers.

1.6 Servo-Bass Input Connection

A pair of Servo-Bass Interconnects will be provided to deliver the musical signal to the Control Module. This is supplied with a pair of bananas at one end, and an XLR balanced male plug at the other end. The spades will be used to connect into the midrange input

binding posts of the G1.2 midrange/tweeter tower crossover box in parallel with your speaker cables.

This means that the Servo-Bass input is tapped off the output of your power amplifier at the speaker end of your speaker cables going into the G1.2 crossover box. Even if your speaker cables exhibit phase or frequency characteristics, the bass will follow the character of your speaker cables. With the Genesis Absolute Fidelity Loudspeaker Interface cables, it does not matter whether the servo-bass interconnect is connected to the binding posts at crossover box or at the power amplifier but the Servo-Bass input be taken off the midrange input on the crossover so as to ensure perfect coherence between the upper end of the bass and the lower end of the midrange.

The XLR connector contains a specially developed internal balancing circuit that enables the power amplifier to drive the balanced input of the servo amplifier. Because of the extremely high impedance (100k Ohms) of the balancing circuit, the parallel connection places absolutely zero stress on the power amplifier. *Do not use any other interconnect cable for this purpose as the high level output from your power amplifier will blow the inputs of the Control Module!*

This internal circuit allows even fully balanced power amplifiers* to be connected this way. Plug the XLR end of the SBI into the appropriate input (Left or Right) on the rear of the Control Module. The XLR end of the SBI also has a green grounding clip on a flying lead. Use this to connect to the silver tab on the XLR input connector.

Every system is different, and some systems may need this clip to be disengaged.

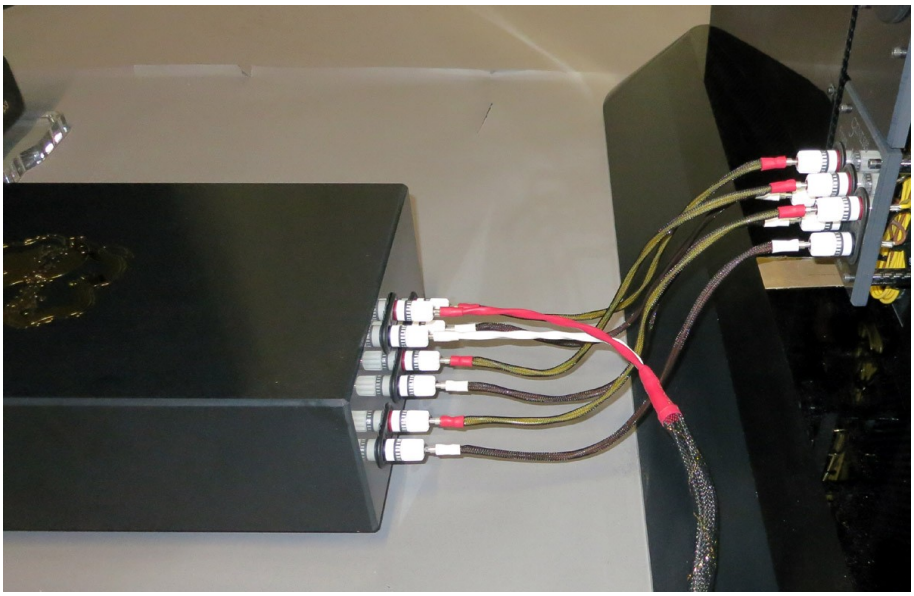
1.7 Midrange/Tweeter Connections

The midrange/tweeter wings have three pairs of inputs. These are marked (from left to right) Rear Tweeter, Midrange and Tweeter (the front tweeter). Six pairs of jumpers with banana plugs at each end are provided to connect the crossover box to the midrange/ tweeter wings. Each pair has a red and a white jumper.

The two external crossover boxes have one pair of inputs and three pairs of output connectors each. The bottom row is the outputs and

* Do NOT use this method of connection with some Class D power amplifiers that have both +ve and –ve speaker outputs floating above ground. Some of these amplifiers have as much as 36V on their speaker “ground”, and this will damage the Servo-Controlled Bass Amplifier. Please contact Genesis or your dealer if you are unsure.

they correspond to the inputs of the wings. Plug the end of the red/white jumpers into the crossover as shown.



Use the supplied Loudspeaker Interface Cable and plug the banana plugs into the inputs of the crossover module. Connect the spade end of the Loudspeaker Interface Cable to the binding posts of the power amplifier.

Finally, connect the banana plugs of the Servo-Bass Interconnect cables into the output of the power amplifier. This will provide the signal with the best coherence to the Servo-Bass Amplifier to drive the woofers.

2 Operating your G1.2

Once you have successfully connected all the parts of the system – the various interconnects in the Servo-Bass system, the speaker cables to the crossover boxes, the jumpers from the crossover to the midrange/tweeter wings, and the power umbilicals from the power transformers to the amplifier modules – then plug in the Control Module power cord into the wall power outlet. Next, plug in each of the Power Transformers into the wall outlet. And you are now ready to begin.

2.1 Servo-Bass Amplifier Remote

Your Genesis 1.2 servo-bass amplifier system is supplied with a Logitech Harmony™ remote control. This is a universal remote control that can also be programmed to control the rest of your music system. While we do not provide customer support for the programmable functions (please check www.harmonyremote.com for that) we supply it pre-programmed with the correct codes to control the Genesis servo-bass amplifier.

To do this, we have created an online profile for you.

Your UserID is Dragon15003 and Password Genesis

The challenge question is “What loudspeaker do you own?” and the answer is “Dragon”.

Please visit the Harmony Remote website for support, and to activate and configure your remote.

2.2 Bass Control Adjustments

Your servo-bass amplifier should be the last thing you turn on in your system, and the first thing you turn off. As a general rule, turn your system on starting at the source to the amplifiers, and turn it off starting at the amplifiers back to the source.

If the remote is not already set-up to control the Servo-Bass Amplifier, press the [Devices] button on the top of the remote, and select Genesis 1.2 on the screen by pressing the button next to it.

Using the remote control, turn on each stack of the Servo-Bass amplifier system by pointing the remote at the Control Module, and pressing the OK button which functions as a power toggle. The

display on the Control Module shows **on** and then shows the currently set bass gain.

When you make any adjustments, the display flashes to identify the function that is being adjusted. The input sensor of the Control Module is directional, and each channel of the Servo-Bass amplifier system can be separately controlled or both channels can be controlled together by careful aiming of the remote control.

The bass volume or gain is controlled with the Ch. + and – buttons. (The Vol + and – buttons are used for your main volume control on your preamplifier.) When you first press one of the volume control buttons, the currently-set volume will flash. The next press will move the volume up or down. Pressing and holding the Ch. + or – buttons will change the volume up or down rapidly.

The bass volume/gain has a range of 0 to 100. A volume setting of around 20 is nominal for normal sized rooms. That is a good place to start when making adjustments. In general, a lower bass volume setting is needed in smaller rooms.

Two crossover controls are provided on the Control Module that helps you tune the system into your room. The high-pass filter determines how low the woofers will play, and the low-pass filter determines how high the woofers play to. The frequency that you set these filters to will be the “knee” frequency after which the woofers will attenuate by 6dB per octave, and is not the –3dB point.

The high-pass filter and low-pass filter is set using the up/ down/ left/ right navigation ring around the OK button. Up/down adjusts the high-pass filter up and down respectively, and right/left adjusts the low-pass up and down respectively.

Initially, set the high-pass (**HI**) filter to 26Hz until the woofers and amplifiers break in (about 300 hours of play). After which it can be set to 16Hz. Next, adjust the low pass (**LO**) filter to 102Hz using the button marked "low pass" (on the remote control).

Phase is set using the programmable buttons around the display screen. Pressing the → under the screen will bring up the next menu with the phase setting. The phase should be set to zero in most instances.

In addition to the current setting, each of the Control Modules can memorize up to two additional sets of settings. To store the current settings in Memory 1, press and hold the [1] key for approximately 5 seconds or until the display flashes. To store the current settings in Memory 2, press and hold the [2] key for 5 seconds or until the display flashes.

To recall the settings in Memory 1, press the [1] key momentarily. To recall the settings in Memory 2, press the [2] key momentarily.

2.3 Servo-Controlled Bass Amplifier Protection

The servo-bass amplifier has numerous protection circuits built in to protect both the amplifier and the woofers. If you over-drive the bass woofers, the current limiter on the servo-amplifier will kick in, and you will hear clicking or thumping sounds. If that happens, turn down the volume of your system to protect your hearing and your speakers.

Until the woofers have broken in, you may find that the woofers will limit even at fairly low volumes. This is normal as the stiffness of the woofer suspension will restrict the movement of the cones.

The amplifier is designed to be current-limited to 20 amps – this is more than enough to supply over 800W transients into each pair of the woofers. However, the servo-system is not compression or dynamic limited. Hence, it is possible to play the system too loud or with too high bass gain, and damage the woofers (and possibly your ears).

Due to the extreme efficiency of the amplification modules, they deliver and draw current extremely quickly. Hence, you may find that a very loud bass drum thwack will cause your lights to dim, or the circuit breakers to trip if you do not supply enough power to your system.

A possible solution will be to install an additional 20amp circuit in your listening room for each channel of the bass. Also, the Maximum Dynamic Headroom Reservoir (developed for the Genesis Reference Amplifier) is available as an optional upgrade in some extreme situations (that we have not yet encountered in all our testing!!)

2.4 Crossover Controls

You will notice two control knobs on the crossover box. The left hand knob is a five-position switch that controls the volume of the rear tweeters. Turning this control clockwise will increase the level of the rear tweeters. Use this control if you need a bit more treble or to

increase the apparent space of the soundstage. Start with this control at the middle position (position 3).

The control on the right side is a five-position switch used to adjust midrange response and the soundstage height. Depending on your room acoustics and your amplifier, position two has the sound stage at about the middle – like the soundstage when you are seated in the stalls seats in the middle of a concert hall. Position five pushes the soundstage high, like the orchestra level seats, and position one has the lowest soundstage – like you are in the balcony seats.

3 Tuning the system

Music is the best way to begin your setup procedure. We suggest that video and movie sources be used only after you have setup the system to properly reproduce music.

We suggest that you start with a single female vocal with light instrumental accompaniment because the sound of the human voice is more easily recognizable than many instruments and is the least complex sound to deal with.

3.1 Begin with the bass level

For now, leave the low-pass filter set at 102 Hz, This control will be addressed later. Turn the volume control of the woofer amplifier up or down until the voice sounds correct. Whatever controls you use, turn them up and down only a little at a time. It is easy to turn it up or down too much.

Concentrate on the mid-bass regions (as opposed to the very low bass in your recording) to achieve a natural blend. The voice and the music accompaniment should sound as if it were cut from one cloth, not separate. The reason we use a female vocal to start is that male vocals will have very much more bass content, and the lower bass may obscure the mid-bass crossover point.

If the voice sounds “thin” or does not have enough “chest” to its sound, turn the woofers amplifier’s volume up till it does. If you find that turning the volume up creates too much low bass, you may want to lower the low-pass filter cut-of frequency to 98Hz or even lower.

The Low-pass Filter control will raise or lower the low-frequency cut-off point of the woofer. Turning the low-pass filter up to a higher number will extend the upper bass regions without affecting the low bass level. Some very large rooms may require that you set the low-

pass filter very high up to 115Hz. Do not be afraid to increase this control to give the sound more body, or reduce it if you find that there is mid-bass boominess.

Next, set the woofers using more than just a voice. Select some music that you know to have good deep bass. Using the volume control on the servo amplifier's remote control, set the woofers for a natural and powerful bass sound. Use a symphonic piece of music if you can, or use a natural double bass instrument for your guide. If there is a running bass line, each note should sound equally loud.

Try to make it sound real. You may have to return to the vocal to make sure you have not gone too far.

If, at this point, there is not enough mid-bass, turn the Low-pass frequency up, or position the main speakers closer together in order to achieve better mid-bass coupling between the main speakers. If it sounds too "fat", turn the Low-pass filter down or adjust the bass volume down.

As a rule, the bass gain and the low pass filter works in opposite directions. A higher bass volume will require a lower low pass frequency, and a higher low pass frequency will require a lower bass gain volume.

It is unfortunate that much of popular contemporary music is recorded and mastered with too loud a level, and often with the bass boosted so that they would sound better (or just louder) with mid-fi systems. When such music is used on the G1.2, you may find that the bass bloated and "fat". Do not use such music for tuning your system.

The G1.2 is capable of a bass response that is flat down to 16Hz. When music with a bass boost (or worse, a rising bass response) is played, there is the danger that the woofers will bottom and/or the current limiters will kick in.

For this reason, we have provided two additional memory setting for the control modules. We suggest that for such popular contemporary music, a much higher high-pass bass setting (up to 32Hz) be used. This will still provide significant bass energy for pop and rock music, as the lowest E-string on the electric bass guitar is 41Hz, and would still be reproduced faithfully by the G1.2.

3.2 Imaging and Soundstage

One great advantage of a true line-source is that good imaging and soundstage is a given. However, it is possible to fine-tune the system for ultimate enjoyment.

If your vocal selection is a well-recorded audiophile CD or LP with good soundstaging information, the performer should appear to come from behind the loudspeakers and be at the appropriate height for a standing person.

If the vocal appears to be larger than life, you should first check the system volume. Is it a volume that would be appropriate for someone actually singing in your room? If there is too much volume the artist will appear too big, and the opposite is true for too little volume.

If the volume is set correctly and the image is still too big, place the woofer towers closer together or closer to the midrange/ tweeter wings and re-listen. Repeat this process till you have it right. Having the woofer towers inside of the midrange/tweeter wings is rarely the correct solution. If the image is still too large, try moving the midrange/tweeter wings closer together.

If the voice is too low in height, turn the Midrange Control to the next higher position and the image of the voice will move upward slightly. However, be sure that you know that the height of the image is correctly recorded.

We have a famous audiophile recording that we used for some time to set the imaging height. Unfortunately, when we got the image height right for the singer, everybody else in the band was floating in the sky. The mystery was solved when we looked at a picture of the recording session, and noticed that the singer was looking down towards her notes, and the microphone was hung over her head. It was no wonder that when the system is correctly adjusted, it sounded like the singer was standing in a pit in relation to the rest of the instruments in the band.

If you have the speakers only 20% away from the front wall, and you are not getting enough front to back depth (the background behind the singer not appearing behind the speaker enough), pull the midrange tweeter panels away from the front wall a little bit at a time. If you do not have them pulled far enough away, you may not have enough front to back depth. If you get the speakers much beyond 1/3 of the

way into the room (or 27 ft), it is unlikely that pulling them further away will have any further effect.

Find the best compromise for your room, your tastes and your space requirements. If the speakers are too far apart you will lose the side image and if they are too close together you will have too small a center stage. We recommend you begin with the midrange/tweeter wings six to eight feet apart as measured from tweeter to tweeter. If you are not getting proper focus on the voice, you may angle the midrange panels about 5 to 10 degrees towards your seating position until you have a properly defined center image.

When properly set up, very little sound should appear to come directly from the speaker. Instead, the sound stage should extend far beyond the left and right edge of the loudspeakers and there should be tremendous front to back depth. When the recording is close-miked (when the instrument or performer is very close to the recording microphone), the music may appear to come directly from the loudspeaker. This is normal. Typically, however, the sound should appear to be detached from the loudspeakers.

A simple rule of thumb to follow is that focus will be achieved by placing the speakers closer together or toed-in. Front to back depth can be adjusted by varying the distance from the rear wall. Further, as the system “breaks-in”, the depth and width of the soundstage will increase, and so will the “smoothness” of the sound.

3.3 Phase Control

We suggested in the beginning of this section to set the bass phase to 0 degrees. Now that you have roughed the system in, you may want to experiment with different phase settings.

Using the remote control you can adjust the woofer's phase angle up or down in five-degree increments. Depending on proximity to walls, open spaces, cavities and cabinets, the gain, low-pass and phase of the left and right woofer towers may be different.

The changes are subtle and they usually affect the imaging and soundstage. Listen carefully to the positioning (in acoustic space), of the orchestral players as you change the phase control. You may notice small shifts in their apparent relationship to the other members of the orchestra. Do not expect them to actually move**.** Expect minute changes in the soundstage, the apparent width of the stage, your ability to distinguish individual players etc.

Experiment with rock and blues recording (even if you only listen to classical music). If the phase is correct, your foot will naturally tap in time to the music. If the phase is out, you may think that the drummer is having difficulty coordinating his cymbal work with his kick drum.

3.4 Further adjustments

With the woofer towers positioned in the recommended placement, behind and outside the midrange tweeter panels, low bass in the room should not be a problem. Should you have too much bass, turn the bass volume down. Too little, and the opposite will apply.

In some problematic rooms a resonance may develop at one or two frequencies that is unnatural to the music. By moving the woofer towers closer to or farther from the wall, the resonance may be reduced at the listener's position. Also, staggering the woofers, with one tower closer to the walls than the other tower, or closer to the listening couch may quickly ameliorate the bass resonance.

In extreme cases, moving the entire system so that the listening position is asymmetric in the room may solve the problem. There are no absolute rules concerning problematic rooms, so do not be afraid to experiment with your speaker placement.

Ultimately, it is all about balance. You have a number of controls at hand with which to adjust the bass response, the low-pass filter frequency, bass gain and phase. You can also move the speakers closer together (for better coupling), and also move the woofer towers closer together, or further apart, or even move them closer to a corner of the room, for far more bass.

4 The Refinement stage

After following the setup guide above, you may not be completely satisfied with the results. We share with you here some of our observations in setting up these loudspeakers.

4.1 Running-in the System

We often make the mistake of setting up a "cold" system, and then are disappointed when the system breaks in. For all Genesis loudspeakers, we recommend the use of the IsoTek Full System Enhancement and Rejuvenation Disc. This will reduce the hundreds of hours of run-in time needed to a couple of days.

You may find the need to make further adjustments at the 500 hour, 2,000 hour, and 5,000 hour marks. The G1.2 is already run in for at

least 250 hours before delivery, and it should sound pretty good straight out of its crates.

4.2 Make One Change at a Time

One rule of thumb you should always keep in mind - make one change at a time! Do not, for instance, change the position of the speakers and make an adjustment to the amplifier all at once. Make each of these changes separately and note the difference - by listening - with each adjustment, then make the next change.

Making any changes to your system may also entail a need for setting up the system again. Many changes, even something as innocuous as changing your equipment rack, can change the phase characteristics and frequency response of your system.

4.3 Defining the Soundstage

A common problem we find with many set-ups is a tendency to separate the speakers too far from each other. This gives an unnaturally stretched soundstage between the two speakers, and creates problems with focus. The key problem is a lack of soundstage information beyond the left and right sides of the speakers.

If you find that the sound is not spacious enough or you are not getting enough front to back depth, your first recourse is the rear tweeter control. Depending on the material covering the walls behind the G1.2, turning the rear tweeters up or down may improve spaciousness and depth without too much glare or sizzle.

The next thing to try is to pull the speaker away from the front wall. This is typically preferable to separating the two speakers too far, and will almost always give you better depth and soundstage information. A word of caution though: if you move the speakers too far from the front wall you may lose the focus of the image.

4.4 Appropriate Mid-bass Balance

Yet another problem is a lack of mid-bass energy. In order for the appropriate amount of mid-bass energy to be present, the speakers should be close enough together to achieve proper "coupling" of the midrange ribbon drivers at the lower frequencies. Coupling between the left and right channels is desirable in the lower frequencies from the mid-bass on down. This simply means that the left and right drivers "work together" as opposed to working independently.

With the broad wings of the Genesis 1.2, we have not found this to be a problem. However, if the tweeter-to-tweeter distance is more than 10

feet, or the gap between the two wings is more than 7 feet, you will find that the speakers lose coupling, and the mid-bass suffers.

4.5 Optimizing Deep Bass

If you find there isn't enough deep bass, your first remedy is the volume control on the woofer amplifier. This has several limitations. First, turned up too high, you may get some distortion on very low frequencies or you may overheat the amplifier.

If you like a lot of bass, it is possible to push the bass gain up, but in that case, it would be wise to also raise the high-pass crossover from 16Hz to 26Hz or even beyond to 30Hz in order to protect the woofers and to keep the bass amplifier from overheating.

Another solution is to push the woofer towers back towards the front wall or even closer to a corner. This will increase the coupling of the woofers to the room. Do this procedure in small increments (approximately one inch at a time), and return often to the recordings you have used to adjust the front to back depth and soundstage properties of your system. It is easy, yet unproductive, to go too far in one direction. If you move the woofer towers too far from the front wall you may lose low bass extension, too near and you may get too much wall reinforcement.

A problem that you could create is that you may make the mid-bass produced by the top range of the woofer out of proportion with the mid-bass produced by the bottom range of the midrange ribbon. This would tend to sound slow or thick in the mid-bass regions. When you raise the bass gain, you will want to reduce the low-pass crossover to 90Hz or further.

As a rule, the bass gain and low-pass crossover frequency works in opposite directions. At a bass gain of 18 and a low-pass frequency of 101Hz, we will have flat frequency response in the recommended room size. Smaller rooms will require a lower bass gain to achieve a flat frequency response at the same low-pass frequency.

Another good rule of thumb is to first set the volume control of the woofer towers for proper mid-bass rather than low bass. The theory is that if the mid-bass is correct, then the low bass should be very close to correct. If the mid-bass is proper and the low bass is still not right, here are some other suggestions:

In order to achieve what the speaker is capable of, we suggest you focus your efforts on a proper balance of soundstage elements that

includes information beyond the left and right sides of the speakers; front to back depth well behind the speaker, excellent focus of instruments and voices with proper vertical information and mid-bass fill. A good balance between proper low bass extension and a deep and spacious soundstage needs to be established to optimize your speaker's performance.

A Genesis loudspeaker system, correctly set up, can and should provide a soundstage that goes beyond the confines of the walls of your listening room, and yet with pinpoint focus; the speakers disappearing completely on a recording containing such information.

4.6 Room Treatment

No room is perfect. To optimize your sonic presentation it may be helpful to treat your room. Here are some guidelines:

1. **Front walls**. The G1.2 loudspeaker is a dipole and therefore there is sound coming from both the front and the back. How the front wall is treated or not treated is important. Do not use either diffusion or absorption on the front wall. The “focus lens” behind and between speakers used by some room designers is likely to be detrimental to all Genesis loudspeakers.

   Generally speaking, the Genesis loudspeakers prefer a live front wall. By these terms we mean the amount of reflection of sound. A typical wall of glass, brick, cement or drywall material is a highly reflective “live” surface.

   A heavily curtained or sound-absorbing wall would be considered a "dead wall" or a non-reflective wall. A normal thin curtain across a window causes only a small amount of absorption.

2. **Sidewalls**. Because the speaker is a dipole it is less sensitive to the sidewalls. However, as a rule of thumb, it is a good idea to keep the speaker as far away from the sidewalls as is practical. With this in mind, it may be helpful to add some damping material or diffuser panels to the point of first reflection.

   This is where the sound from the loudspeaker first hits the sidewall, then bounces to the listener. This reflection is undesirable because it is slightly delayed from the original sound. The point on the sidewall can be easily determined with the help of a second person and a mirror:

Sitting in your listening position, have an assistant hold a mirror up on the sidewall. Move the mirror until you can see the tweeters. This is the point of first reflection. A diffuser (see your dealer), an absorptive material or even a piece of furniture can help break up this point of first reflection. The best diffuser is also the most useful, a full-height rack of LPs or CDs!

3. **Rear wall.** In many cases it will be unnecessary to do anything with the wall behind your listening position. However, if due to the constraint of room size you are sitting very close to the rear wall, you may want to experiment with diffusers or absorbers behind you for best sound. Some absorption behind the listener is usually beneficial in reducing slap echos.

4.7 Mastering the Refinements of the System

Fine tuning an audio system is an art that will take time and patience. It can be one of the more rewarding learning experiences you will have in the pursuit of music and its enjoyment. Unfortunately, for the G1.2, trying to move the loudspeakers yourself is also likely to give you a hernia. Luckily, the dipole line-source is easily positioned, and your fine tuning may be confined to the settings on the servo-bass amplifier.

One of the best pieces of advice we can offer is that you take advantage of the ear's ability to identify similarities in sound. This ability is useful in fine-tuning your system because, if every recording you listen to has a similarity of sound (too much or too little of a certain frequency for instance), then you can be fairly certain that you have yet to perfect your set-up. Keep at it and remember to enjoy your music as you work on perfecting your set-up.

5 The Technology

The Genesis 1.2 comprises four columns: two midrange/tweeter "wings" and two bass towers. Each module is 7ft 3in tall (221cm), and covered in fine rare-wood veneers.

The dipole midrange/tweeter column houses a 75-inch line source ribbon midrange, and twenty-six ribbon tweeters in a line-source array. Each bass tower houses twelve 12" aluminum cone woofers, each pair of woofers servo-controlled with its own 1,000 watt bass amplifier.

The complete Genesis 1.2 system weighs in at over 2,000 lbs (900kg).

5.1 Design Philosophy: Dipolar Line Source

Nothing has changed in theoretical acoustics since Lord Rayleigh's original book on acoustics published in 1877. There are still only two proper ways for a loudspeaker to propagate sound in a room: a point source and a line source. Anything else, or everything in between, is a compromise.

John William Strutt, Lord Rayleigh (1842 – 1919)

In order for all frequencies of sound from the loudspeaker to reach the listener at exactly the same time, a coherent wave front is important - not just "time-alignment" of drivers. The ideal is either an infinitely small pulsating point or a pulsating line with a size on the order of the room dimension.

Obviously, an ideal line-source is much easier to mechanize than the ideal point source. The line-source (if large enough), can approach the ideal, and in doing so, provide sufficient radiating area for dynamically and spatially realistic sound reproduction.

The Genesis 1.2 is a near perfect line-source that is over 7 feet tall (nearly the room's entire height). A line source has no vertical dispersion at any frequency. Hence there is no sound bouncing from either the floor or the ceiling. No deleterious interference from these surfaces is created (as in virtually all other kinds of speakers).

Another advantage of the 7-foot line source is that the vertical spectral content of music is virtually the same throughout the length of the line source. Hence, the seating height does not matter with this speaker; unlike point source speakers where it is important for the ears to be aligned with the tweeter.

A third important advantage is that it attenuates at –3dB with a doubling of distance from the loudspeaker, whereas a point source attenuates at –6dB with a doubling of distance.

For example, with a sensitivity of 91dB/watt at 1m, the G1.2 is about average for large loudspeakers. At 2m, the G1.2 line source can deliver 89dB/watt, at 4m 86dB/watt, and at 8m 83dB/watt. For the equivalent point source loudspeaker, it will be 85dB/watt at 2m, 79dB/watt at 4m, and 73dB/watt at 8m.

Hence, for a minimum listening distance of 4m (about 12 ft) the line source will appear to be more than twice as loud as a point source loudspeaker. This is the great advantage that a line source loudspeaker will have over a point source loudspeaker in a large room. The larger the distance, the greater the advantage the line source loudspeaker has over the point source loudspeaker.

The fourth great advantage of the line source over the point source is that the change in loudness is much less over a small change in distance. Hence, it results in a much larger sweet spot as small side to side changes in seating position result in less of a sonic change than with the point source loudspeaker.

The G1.2 is also a dipole radiator. The midrange and tweeter drivers are mounted on a rigid Corian™ baffle with no enclosure. This has two advantages: firstly, it eliminates any enclosure or boxy colorations caused by cabinet vibrations or resonance.

Secondly, the dipole creates a cardioid pattern (like a figure-eight), which has its maximum output at the listening position and behind the speaker itself, and minimum output to the sides in the plane of the loudspeakers. This very effectively eliminates the bounce from the sidewalls. Hence, in conjunction with the line source, the G1.2 has no first reflection from the floor, ceiling or sidewalls. The net result is that there are far fewer detail-robbing room reflections from the room than other types of loudspeakers. With fewer spurious reflections to confuse your hearing, the program source emerges more clearly. Imaging is deeper, yet more focused.

This results in a loudspeaker system that is virtually room-independent. Also, because there are no phase and frequency distorting reflections created, one can be transported into the audience of the actual concert hall where the music was recorded.

5.2 The Genesis Ribbon Tweeter

Over the past two decades, reviewers in the audiophile press have often remarked that the Genesis circular ribbon tweeter is the world's best. It is a one inch circular planar ring-ribbon design crafted from an extremely thin membrane of Kapton with a photo-etched aluminum "voice coil" that is a mere 0.0005 inch thick. The entire radiating structure has less mass than the air in front of it! That is why it will accurately reproduce frequencies beyond 40k Hz.

The result of this design is a driver that has a rapid and uniform response to high frequencies, and has the speed of the best electrostatic designs without the high distortion and poor dispersion that is typically associated with them.

The Genesis 1.2 uses twenty-six of these tweeters matched to within 1dB configured as a vertical line source (twenty front-firing, and six to the rear). In addition to creating the dipole line source, the output is distributed over many drivers, with each working at very low-stress. This dramatically lowers the distortions in the high frequencies at all reasonable listening volumes.

5.3 75-inch Midrange Ribbon

We sometimes say that the midrange is a window into the mind of a composer or a singer. And indeed, the midrange is where the "magic" is in a well-recorded musical event. This is why the G1.2 loudspeaker system uses a single 75-inch ribbon per channel as a dipolar line-source to reproduce these critical frequencies.

The midrange ribbon used in the G1.2 is manufactured to Genesis' specifications. The ribbon itself is made of a very thin layer of aluminum laminated to a substrate of mylar that is 0.001inch thick. The ribbon is then suspended in the magnetic field created by over 36 feet of barium-ferrite magnets.

The result is a perfect line-source ribbon generating a continuous and perfectly coupled wave front. The benefit of this to the listener is a wide and even horizontal dispersion yielding a large and highly stable sweet spot.

As a line-source dipole, the midrange ribbon has a vertical dispersion pattern identical to that of the line array of tweeters. This insulates the listener from the room's negative effects, and enhances the sense of spaciousness and depth.

5.4 The Servo-bass Advantage

Very few loudspeakers use servo drive, either because most designers think that it is too difficult to design, too expensive, or because of the extraordinary demands a servo system makes on the amplifier and the transducer. The history of the Genesis servo-system started from the first introduced in the legendary Infinity™ Servo Statik One in 1968(!) – so we know how to design and build servo systems. The technology has been constantly updated and refined over the past 40 years.

The concept of our servo bass system is an easy one to understand: It employs an accelerometer as a sensor to constantly monitor the movement of the woofer cone and continuously compares it to the input signal. This comparison circuit instantly identifies any deviation from the input and applies a corrective signal to compensate for any deviation, resulting in the virtual elimination of the inherent distortion of the woofer.

As an example, when you have a high-impact, low-bass signal that starts and stops suddenly (for example a tympani), the inertia of the woofer cone makes it slow to start moving, and then after it has started moving, the momentum of the cone makes it continue to move after the signal has stopped. The sonic result is softness, overhang, and bloat in the bass. This results in a perceived lack of tautness and definition, and a blurring of dynamic impact.

With the servo system, the circuit senses that the woofer is not moving as fast as it should, and it instantaneously applies much more current to make it move faster. When the signal stops, it senses that the woofer continues to move when it shouldn't be moving and applies a counter-signal to stop the woofer faster and more effectively than an open loop woofer could possibly respond.

Thus, the servo-drive reduces distortion and improves transient response by making the woofer appear to be massless. Typical non-servo woofer systems have distortion levels that exceed 10% at even moderate levels. The Genesis servo bass system reduces this distortion to below one percent at almost any output level. The system also drives the woofer to constant acceleration, which makes the

frequency response of the woofer anechoically flat to the lowest frequencies.

5.5 The Woofer Tower

The Genesis 1.2 features a total of twelve horizontally-opposed 12-inch woofers per channel mounted in a 7ft 3in tall tower operating in unison to control the air mass of the listening room. This means that the surface area of the twelve cones and the large enclosure all work together in unison to produce bass output that descends evenly to below your hearing limits.

Each pair of woofers are housed in a separate chamber, and driven by a single 500W bass amplifier. The opposed woofers eliminate cabinet shake and vibration, and lower cabinet boxy colorations to vanishing levels.

The woofers used in a servo system must be strong enough to withstand the high-current approach of the servo amplifier, and yet delicate and light enough to react extremely quickly. The woofers are a uniquely designed metal-cone driver made for the Genesis servo system.

While the servo system is able to ensure that the driver works linearly as a perfect piston, it is unable to correct for distortion caused by cone wobble, bending, and break-up. Hence, the drivers were designed to minimize these non-linear distortions, allowing the servo system to achieve maximum accuracy.

Made of a cone of solid aluminum, the suspension and voice-coil have been maximized for long, distortion-free excursion so as to increase dynamic range. Our aluminum cones are a magnitude stiffer than plastic or paper cones, and virtually eliminate the problems caused by cone bending and break-up.

The lowest break-up mode (where there can be any chance of distortion at all), is at 3,600Hz – far above the 16Hz to 140Hz frequency range at which these woofers operate. Therefore, the driver is a perfect piston within the frequencies used.

5.6 Servo-controlled Amplifier/Crossover

The servo system places extraordinary demands on the amplifier because the system uses enormous amounts of current to make the woofer follow the input signal. Combined with the metal cones, this means that the amplifier used must deliver extraordinarily large amounts of clean power.

In the Genesis 1.2, the amplifier was designed as a holistic system of integrated connecting cables, woofers, custom tailored EQ network and remote controlled crossover circuitry. Two separate Servo-Amplifier Modules each with its own 2kVA Power Transformers are used per channel. This is specifically designed and tuned especially for low frequencies in order to produce floor-shaking, musical bass to power the servo woofers.

One side benefit of this powered woofer system is that almost any sized amplifier can be used to drive the mid/tweeter section of the Genesis 1.2. No longer must one choose between having an amplifier with enough power to drive the woofers, and a smaller amplifier having better spatial and tonal characters. Nevertheless, we do recommend no less than 100 watts as a minimum for the mid/tweeter sections.

5.7 The Crossover

If the servo-controlled bass amplifier is the pulsating heart of the Genesis 1.2, the crossover is the brain. In order to manage and maximize the performance of the extensive complement of transducers used in the Genesis 1.2, we've designed a hand soldered direct wired crossover utilizing the finest components available as well as several custom designed elements. This includes the first multiple-tapped copper film air-core inductor.

Each crossover is designed by computer modelling plus years of knowledge and experience. More importantly, the crossovers are designed with many, many hours of music listening, and constant refining, tuning and tweaking of the circuit. Out of this comes the "magic" that is a Genesis designed loudspeaker system.

The two crossovers are matched to closer than 0.1% between the left and right channels. This ensures perfect phase coherence and frequency response between the two channels.

Housed in a solid Corian enclosure, the crossover components are direct wired, hand-soldered, and "potted" in place with vibration-absorbing compounds to ensure the minimum interaction between the components.

The crossover can also be specified with up to three electrically separate circuits for the front tweeters, midrange and rear tweeters. This allows the G1.2 midrange/ tweeter wings to be tri-amplified. However, we stress that three *identical* amplifiers with *identical* loudspeaker cables should be used.

5.8 Corian™ Baffle, Wings and Bases

One of the great lessons learned in speaker design is the necessity of rigid enclosures and baffles. Vibrations from any surface on the speaker can not only cause frequency anomalies, but also time and phase distortion. Hence, the Genesis 1.2 employs an ultra-rigid Corian baffle on which to mount the midrange and high-frequency transducers.

The Corian baffle is then inserted tightly into a Corian base which forms the foundation for the “wings” of the midrange/tweeter module. This results in a completely inert baffle from which to launch the midrange and high-frequency soundwave.

6 Summary

The Genesis 1.2 contains the knowledge and experience of over 40 years of loudspeaker design. We believe that no other product in the market can approach the sonic realism of the Genesis 1.2.

There are no compromises in this system. It excels at spectral coherence and accurate harmonic structure. It has the greatest dynamic range of any high-end reference system. It has superb macro- and micro-dynamic qualities, unparalleled soundstaging and very low distortion. It does not limit or favor any kind of music. Listening to the Genesis 1.2 is listening to *absolute fidelity*™.

Specifications

- Frequency Response: 16Hz to 40kHz, +/- 1dB
- Sensitivity: 91 dB 1 watt 1 meter
- Controls (on bass amplifiers): Gain, Phase, low-pass, high-pass
- Controls (on crossover): Rear Tweeters (+/- 1.5 dB) Midrange (+/- 0.75 dB)
- Input Impedance: 4 ohms (nominal)
- HF Transducers (per side): 26 Genesis 1” Circular Ribbon Tweeters (20 front, 6 rear)
- Midrange Transducer (per side): Single 75” Ribbon
- LF Transducers (per side): Twelve Genesis 12” woofers with ribbed aluminum cones
- Bass Amplifier Power Rating: Six channels per side @1000 watts each
- Bass Amplifier Inputs: 1 pair XLR (balanced) for Servo-Bass Interconnect
- Dimensions:
  - Mid/Tweeter Wing: H 86” x W 52” x D 13” each
  - Crossover: H 5” x W 8” x D 13” each
  - Woofer Tower: H 86” x W 24” x D 25” each
  - Amplifier: H 13” x W 19.5” x D15” stack
  - Power Transformer: H 6” x W 10” x D 12” each
- Weight (per side total): approx. 500kg
- Finish: Carbon Fiber/Corian/HMWA