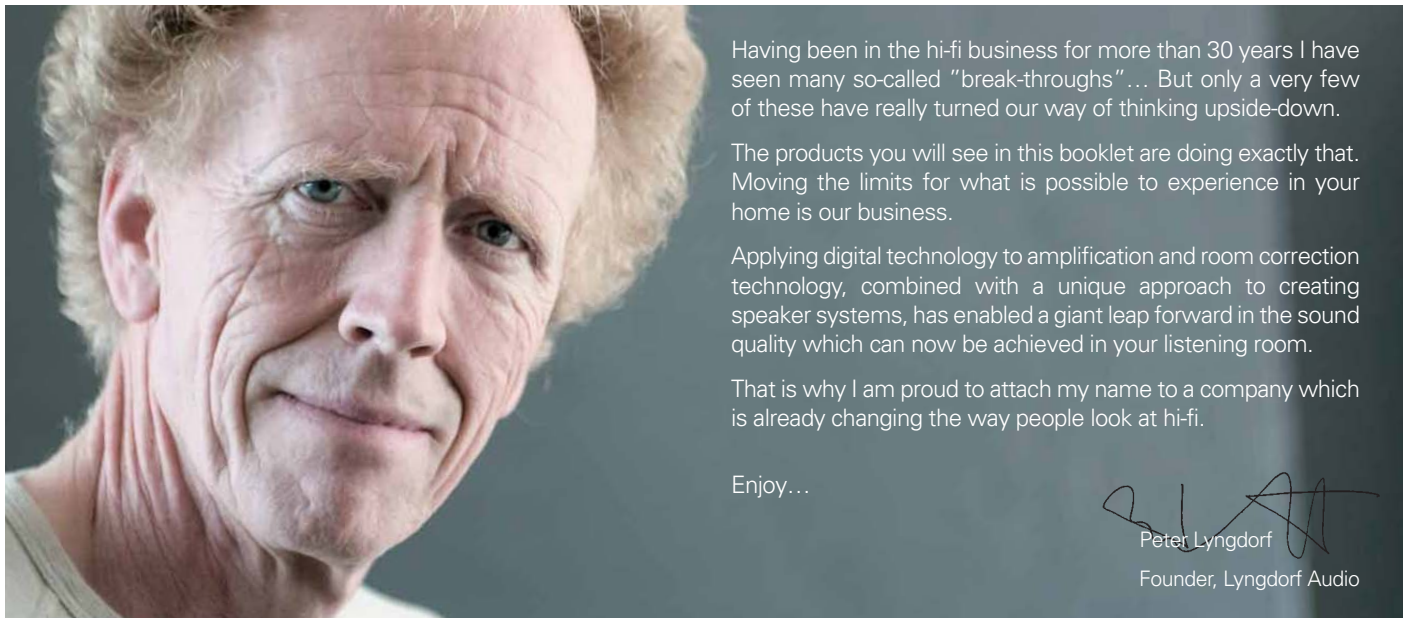
Lyngdorf Audio

2006/07

LYNGDORF



Having been in the hi-fi business for more than 30 years I have seen many so-called "break-throughs"… But only a very few of these have really turned our way of thinking upside-down.

The products you will see in this booklet are doing exactly that. Moving the limits for what is possible to experience in your home is our business.

Applying digital technology to amplification and room correction technology, combined with a unique approach to creating speaker systems, has enabled a giant leap forward in the sound quality which can now be achieved in your listening room.

That is why I am proud to attach my name to a company which is already changing the way people look at hi-fi.

Enjoy…

Peter Lyngdorf

Founder, Lyngdorf Audio

Peter Lyngdorf
…on the Company

"In 1996 I started a technology project which in 1998 led to the launch of the world's first fully digital amplifier. This was seen as a revolution within hi-fi, and led to the establishing of TacT Audio ApS. Since then TacT Audio has been recognized as the leading company within digital amplification and room correction.

Now the time has come to move on.

Lyngdorf Audio is the natural successor to TacT Audio ApS, and generates the same high level of innovation. We will continue developing even more ground-breaking products within the digital domain, thanks to an increased level of investment in the company.

Already the largest R&D department within Scandinavian hi-end, the best engineers in the business are working hard to maintain our position at the forefront of technology."

Jes Mosgaard
…on Research & Development

"All the new products and technologies we develop have to meet two 'cornerstones': Scaleability & Flexibility.

Building your hi-fi system with Lyngdorf Audio components provides you with a greater than usual flexibility in application. The same product can be used in different set-ups. And you can join in at any level, while confident in the knowledge that you can enhance and re-arrange your system. This means that your product will never be outdated, and will remain state-of-the-art for many years.

And of course we are constantly researching ways of optimizing our existing products. That's why we every so often release new firmware with added functionality for our products as time goes on.

When you invest in a Lyngdorf Audio product you are investing in the future. And the future is digital."

Michael Nielsen
…on Sales & Service

"Ask anybody in the industry what Lyngdorf is best known for and you'll usually hear two things: World class performance… but at a very reasonable price.

The performance of our products is crucial, and we take it seriously. That's why we are often on the winning team when the medals are handed out for 'Best Sound of The Show' when presenting our products around the world.

But don't take our word for it…

Your Lyngdorf Audio dealer is an expert on our products, and is your link to professional advice, installation, and after sales service. At the moment we are expanding our global dealer network, but fear not… we will never compromise the standards a Lyngdorf Audio dealer has to meet.

Lyngdorf Audio believes in service… it begins with our dealers."

LYNGDORF

Millennium Mk IV

True Digital Amplifier

The Millennium was the world's first fully digital amplifier, released in its first incarnation back in 1998. In concept it was completely different from any other power amplification principle in the market. Over the years it has amazed everybody with its high fidelity and completely open sound.

A Revolution in Hi-Fi

Inventor, Lars Risbo, approached Peter Lyngdorf, not only with a brilliant idea: To make a D/A converter which would be powerful enough to drive speakers without any amplification. He also presented a theoretical solution which would work.

The Millennium took the world by storm. No 'amplifier' has ever before received such universal acclaim. Not just because it was the first fully digital amplifier ever produced - it also amazed people with a completely different sound than any other amplifier. In the eyes of many people this was enough to secure its position as best amplifier in the world.

The Mark IV is ready…

However, the revolution did not stop – in 2004 the Mk III upgrade offering a new high end modulator and DSP section became available, again lifting performance. Now Lyngdorf Audio is proud to introduce the Mk IV version of the Millennium.

This features a revised construction which ensures increased power handling. Years of experience with and research into digital amplification has made possible careful optimization by utilizing the latest components.

The sound from the Millennium is unconstrained and has a speed and sense of freedom found in no other amplifier. The non-feedback design and incredible dynamic range of the Millennium creates a musical experience where silence is felt the way it should be: Completely 'black' silence enhancing musical details.

The power conversion principle has been developed especially for the Millennium. The Equibit technology is brought to life by a dedicated digital signal processor (DSP) which translates the PCM-encoded digital signal into PWM pulse trains. These are then amplified in the fast switching low-loss H-bridge.

Heavy Stuff

The mechanical construction of the Millennium is in a league of its own, and the design is what first attracts the eye. Performance and simplicity are the words that come to mind when looking at this product.

From the heavy precision-machined front panel to the unique volume wheel based on precision bearings, this is premium craftsmanship of a high order. All details have been attended to, from the well-protected input section to using the best possible components in the output filter.

Compromise? You won't find it here...

Millennium ADC

Analog/Digital Converter

Ever since the launch of the Millennium the world has been waiting for a worthy companion for it, one that could accept input from analog sources. The waiting has come to an end, with the launch of the finest A/D converter on the market – equipped with performance no other product can meet, and an optional RIAA section of equally high potential.

Finally…

When the Millennium was launched it came equipped with a link for an A/D converter. Today that link comes into its own, thanks to the launch of the new Millennium ADC... the highest performing audio Analog to Digital Converter on the market.

The Millennium ADC is equipped with the finest technology available, and the designers were given a completely free rein, with no cost constraints in their search for the highest possible performance. We began by optimizing and filtering our preferred Holmgren-based Toroidal power supply, engineering local low-noise supplies for all active components.

This paved the way for the finest converter technology yet seen in a dual-mono design.

Dual-Mono Design

Equipped with not just one, but two of the best audio converters (running in dual-mono mode) combined with a front end featuring balanced high-performance, low-noise op-amps the converter section is capable of achieving a dynamic range in excess of 124dBA. Thanks to the special harmonic balancing compensation the harmonic distortion is lower than 0.0015% at full scale.

Optional RIAA section

The Millennium ADC can be equipped with a high performing RIAA input section.

This can be set up via the user interface to meet all possible loads from most known pick-ups. Furthermore, the

Millennium ADC offers new de-emphasis curve compensation possibilities as the DSP section is capable of filtering the input with 8 different de-emphasis curves. So, if a particular recording from, say, 1964, uses a special de-emphasis compensation curve this can be called up and used for this specific record ensuring low noise as well as frequency correct playback.

Furthermore, the set-up for some Ortofon cartridges have been pre-loaded in the Millennium ADC. This makes set-up very easy and also offers a specific frequency compensation curve for each cartridge.

Overall, the Millennium ADC is an advanced and extremely versatile product which can be employed in many different set-ups.

TDAI 2200

True Digital Amplifier Integrated

The TDAI 2200 is a second-generation, fully digital amplifier from Lyngdorf Audio based on the experience gained during the design of the new Millennium platform. The TDAI 2200 is much more than an amplifier, however: it is a complete digital signal processing control center for designing advanced audio systems based around active loudspeakers.

All-in-one

Designed to be part of the Lyngdorf Audio family the actual size of the product may deceive you. In its compact case the TDAI 2200 features a highly efficient amplifier which can drive difficult loads without any problems. Also integrated within is a native DSP section which can be controlled by Lyngdorf Audio DSP software. Equalization and correction possibilities for speaker position and delay, combined with extreme versatility with regard to processing, make this amplifier an obvious choice for the critical audiophile.

This product replaces simultaneously a D/A converter, a pre-amplifier and a power amplifier, requiring only a CD transport as a source. This amplifier is full of remarkable features like a power supply which can be regulated to attenuate the signal with the volume control setting. This can be compared to an engine transmission in a car where the engine operates at its maximum performance at any speed by changing gear.

Jitter? Not around here…

The TDAI 2200 has been designed with the utmost care regarding internal noise in the digital and mixed signal sections. Special low-noise design techniques have been utilized, reducing digital interference in the product, and giving better working conditions for critical parts such as modulators and converters which are sensitive to noise. Jitter minimisation is also addressed in the system with a well-designed low phase noise clock system close to the critical Equibit modulator is heart of the system.

The whole thing is packed in a precision-machined compact cabinet – smaller than the Millennium - but with the unique eye-catching volume wheel still used as an easy, user-friendly way of controlling the TDAI 2200. The densely-packed construction of this high-power

amplifier can only be achieved because of the low losses in the entire design. If overloaded or in any way misused the amplifier will protect itself, courtesy of an intelligent fast-acting protection system which constantly monitors temperature, output current and other key parameters.

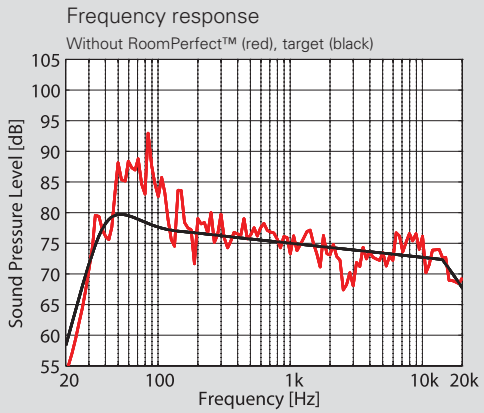
Versatile

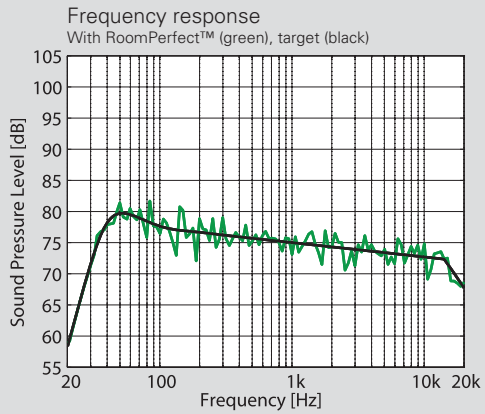
The TDAI 2200 can be equipped with a state-of-the-art A/D conversion module with 3 unbalanced + 1 balanced inputs. This extends the amplifier from being just a digital control center, and allows it to interface with analog sources. The converter is built to outperform noise levels of most analog sources. Listening to the analog output from a Lyngdorf CD-1 through the A/D converter leaves you asking the question... which is which? This gives an idea of the performance level of the Lyngdorf TDAI 2200.

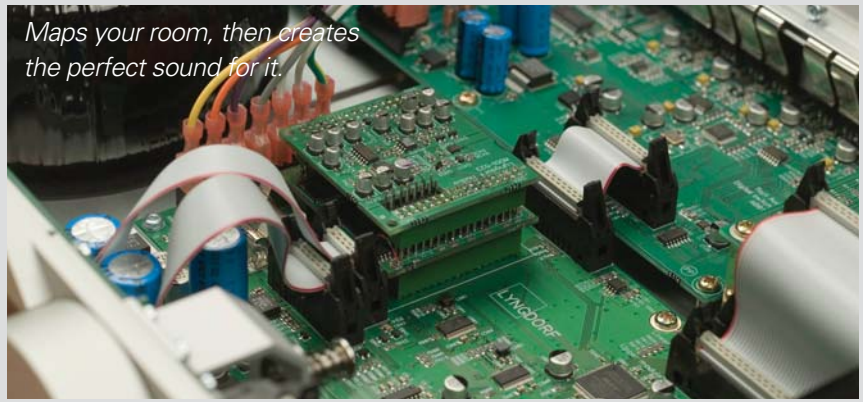
We think it's probably the world's most versatile hi-fi product.

RoomPerfect™

Room Correction Module for TDAI 2200







So you have a nice system, but…

The quality of your CD player, amplifier and speakers is only half of the story.

The actual performance of a speaker is known to be highly dependent on the acoustics of your listening room and your listening and speaker positions. Speaker manufacturers try to allow for this fact by making compromises in the optimization of speaker timbre so that the perceived sound will be acceptable under a number of different conditions.

Even when making this compromise the manufacturer cannot ensure that the customer will always experience the intended quality. It often occurs that an expensive loudspeaker which performs very well in the shop, will perform badly, or at least disappointingly, when placed in a different environment and/or different position.

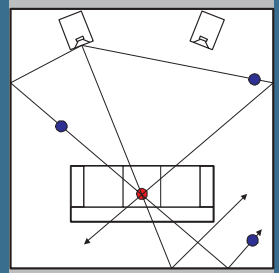
Beginning to Understand

Most existing room correction systems use a single measurement at a desired listening position or at best at a number of positions around the listening position(s), i.e. a listening area. However, this only begins to take into account the parameters that are crucial to the sound experience. One single measurement is 1-dimensional, however the sound-field in your listening room is 3-dimensional!

The unique RoomPerfect™ room correction system, developed and patented by Lyngdorf Audio, overcomes this problem by measuring both at the listening position(s) and at a number of "room positions" scattered across the listening room.

The measurement at the listening position(s) holds information about the listener's access to the sound-field and the room positions hold information about the 3-dimensional sound-field in the entire listening room.

Acoustic reflections measured by RoomPerfect



Blue spots = Room Positions
Red spot = Listening Position

The RoomPerfect™ system is capable of combining the information about the listening position(s) with the information about the sound-field in a wholly new and innovative way, ensuring that you achieve perfect sound, irrespective of your listening room, speaker position and listening position. The vast amount of information gathered about the sound-field even allows you to enjoy the benefits of room correction in any position throughout the room.

Operation made Simple

The RoomPerfect™ system is very advanced, but easy to use. When initiating the calibration procedure you will automatically be guided through the process of setting up the supplied measurement microphone - first at your listening position(s) and then at minimum three "room positions" randomly selected in your listening room. Then the system will automatically calculate the needed correction, and you are ready to enjoy your favorite music.

This is all made possible by the unique target response calculator, which - in a fully automated process - takes the following speaker characteristics into account: upper and lower cut-off frequencies, sensitivity and directivity index.

Rediscover your favourite music
- now at a much higher level of fidelity!

RoomPerfect

Lyngdorf Audio

On the Forefront of Technology

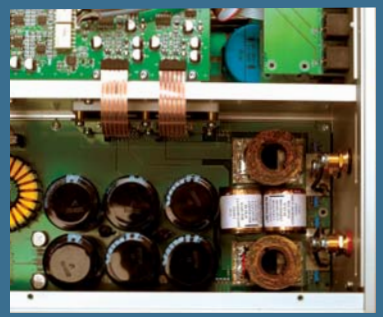
The design roots of Lyngdorf Audio reach back to a time well before the founding of the company. The people involved in R&D have a strong and proud history of making some of the world's finest amplifiers and speakers. And with the growing number of engineers we have in-house that tradition is set to continue to scale even greater heights.

What is Digital Amplification?

One of our core competencies is digital amplification. But what does digital amplification have to offer compared to conventional amplification? First off all the refined technologies we have developed for our amplifiers allow for very high output power in compact cabinets. But most important benefit is amazing sound quality, completely free of compression along with the incredible dynamic range common to a Lyngdorf Audio design.

New Way of Thinking

The Millennium was the first fully digital amplifier in the world. A new PCM-PWM conversion technique was only one of the remarkable inventions in the design. Another was the controllable switched DC-DC supply needed for a non-feedback, fully digital amplifier. In the Millennium the rail of the amplifier can be controlled from 3V to more than 60V at full output. This means that at low and moderate levels the voltage control is used as volume control leaving the full dynamic range of the digital signal intact. This technology will also suppress any noise and harmonic distortion to a non-detectable level.



The non-feedback design and the frequency independent impedance of the output stage ensure low harmonic distortion. Most importantly this is completely flat over the audible frequency range, and is a critical factor in the the human ear's perception of wideband sources. Lyngdorf Audio will keep striving for a natural sound with as linear a behaviour as possible with regard to distortion, frequency response and jitter performance.

The Facts

An often overlooked issue in high end audio is the importance of good noise-immune design techniques. Lyngdorf Audio products operate in environments filled with critical noise generators around us, and the cost going into decoupling and filtering of inputs and outputs is not evident in product specifications. But in real life a noise-immune design often distinguishes itself by working in all environments with less dependence on cables and interconnects.

We believe in building complete audio systems that address the critical points of reproducing audio in living rooms. With our low jitter, linear designs, and advanced 2+2 configuration speaker systems we already have a major headstart. With our latest major breakthrough, the RoomPerfect™ technology, we are again breaking new ground by taking away the uncertainties in room correction. Our technology identifies speakers and environments before deciding automatically on target curves and 'do's and don'ts' in the room. RoomPerfect™ is a revolution, the first technology ever that guarantees to give you an undistorted listening experience in your room.

SDAI 2175

Semi Digital Amplifier Integrated

By incorporating analog audio circuitry in combination with digital control this integrated amplifier offers very high performance and, at the same time, amazing value for money.

A Serious Contender

The SDAI 2175 gives users the same sonic advantages as the SDA 2175 with an open and natural sound. This is made possible by the numerous technical refinements throughout the amplifier, and without sacrificing any performance in the input section. The inputs are selected through the highest quality low-loss relays with double gold-plated contacts – relays are of a quality used in the highest performing measuring equipment and ensure complete isolation between inputs and a loss-less selection of sources.

For ease of use all inputs can be named in the display to reflect the actual source connected. Furthermore the inputs can be programmed with varying sensitivities to match different sources.

The volume is controlled by a high-precision, digitally-controlled analog attenuator, allowing 0.1 dB steps over a 100dB range as with other fully digital Lyngdorf Audio products. The balance between channels can be programmed to reflect different left-to-right speaker sensitivities. That balance can be maintained from the highest levels all the way down to absolute silence.

Clean Signal Path

Even though the SDAI 2175 is an advanced design the signal path is kept as short and uncompromised as possible. There are no relays or fuses in the power output stage - all start, stop and protection handling within the amplifier is implemented by means of patented current monitoring techniques.

Works with any Product

All functionality can be controlled from the front panel via the intuitive user interface, or can be operated from a distance by the remote control. As a third alternative the SDAI 2175 can also be controlled by a TDA 2200 or even from Lyngdorf Audio PC Software (AmpCom) if used in a media server-based system. The SDAI 2175 can also trigger external amplifiers to power them on/off together with itself.

Combined with the SDA 2175 the SDAI 2175 form a strong basis for bi-amping a larger speaker from the volume controlled pre-out, available as either balanced or unbalanced.

Impressing everybody from the critical reviewer to the audio enthusiast the SDAI 2175 has already become a winner all over the world.

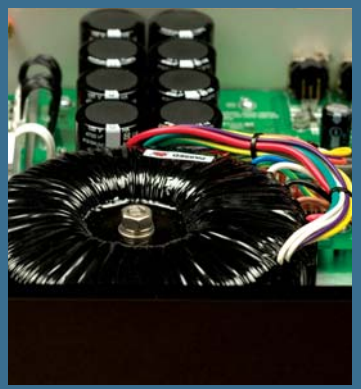
SDA 2175

Semi Digital Amplifier

The SDA 2175 is a high-performance semi digital amplifier designed without compromise. It acts as a controllable slave amplifier in Lyngdorf Audio active speaker systems or as a power amplifier for external pre-amplifiers.

Not your regular Class D amplifier

The output stage uses Pulse Width Modulation with a patented switch speed optimization technology. This ensures a low natural distortion, and an unmatchable performance is achieved by using less feedback than other Class D amplifiers.



Careful and sensitive design touches can be seen throughout the amplifier: it starts at the mains input with a low-noise Holmgren Toroidal transformer with power supply feed-forward compensation, suppressing the variations in the output rather than relying on feedback-based error correction as in conventional amplifiers. This technique originates from the design of the Millennium, but can also be used in semi digital amplifiers.

Low Noise Floor

The SDA 2175 employs a fully-balanced topology. If the switchable input is driven from a balanced source the signal is kept balanced all the way through the amplifier to the PWM conversion stage. This guarantees a remarkable performance with a signal-to-noise ratio superior to any other Class D amplifier in the market.

In the critical output stage only the highest quality components have been used, e.g. polypropylene capacitors and linear ferrite material in the output filter. Combined with other techniques this means the SDA 2175 benefits from low and frequency-independent distortion. Consequently wideband musical instruments can be reproduced without any added harmonics – any source will be recreated to sound the way it was recorded.

Build Quality

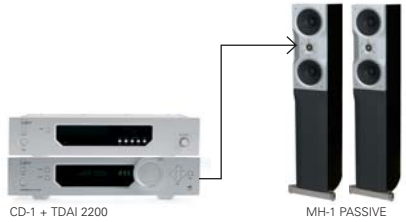
The entire amplifier is well-packed in a solid aluminium chassis featuring extremely good build quality. Aluminum is non-magnetic,

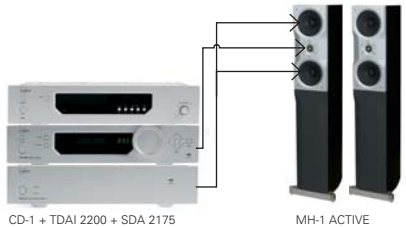
but is still capable of shielding against high frequency RF interference. Even the bolt holding the mains transformer is made from non-magnetic stainless steel. Not only does this construction please the eye – it also acts as a rigid and vibration-free environment for the electronics.

The SDA 2175 is the natural choice when driving a 2+2 active speaker configuration.

Lyngdorf Audio

Setting Up your Speakers





The Problem

When loudspeakers are placed in a room the distances between the loudspeakers and the side and back walls have a huge influence on the sound. That's because the listener hears reflections from the walls as well as the sound coming directly from the loudspeaker.

However, the path length of the reflected sound is obviously longer than the path length of direct sound from the loudspeaker to the listener. Now, imagine a situation where the difference between these two path lengths happens to be half a wavelength; two waves differing by half a wavelength will cancel each other out.

If the loudspeaker is placed in such a way that the difference between the direct and the reflected path length is, for example, 0.5m/1½ft (half of the wavelength at 350Hz) then the listener will hear a large dip around 350 Hz. At other locations where the difference in path length is one full wavelength (1m/3ft at 350Hz) the sound pressure level will be dramatically increased.

From this one example it is easy to see that placing speakers in any normal room will create areas and frequencies where the sound level will be too high or too low. This effect is especially pronounced in the lower frequency range.

The Solution for Lower Frequencies

Where lower frequencies are concerned a possible solution is to place the loudspeakers in the corners of the room since the path lengths of the direct and the reflected signals are then approximately the same. Three advantages can be listed immediately:

1. The problem of varying sound pressure areas in the listening room is cancelled or at least seriously reduced.
2. Impulse response at low frequencies is improved because the direct signal and reflections reach the listener at the same time.
3. Much less energy is required for bass reproduction because the walls and the floor guide the moving air in the same direction – towards the listening position. This is also the reason why placing speakers in this position normally gives too much bass; most loudspeakers are designed for placement away from the walls.

The Solution for Mid and High Frequencies

Placing mid/high frequency loudspeakers in a corner often has serious drawbacks. Unlike low frequencies, higher frequencies actually need reflections, especially from side walls, for correct stereo imaging. Secondly, placing the entire loudspeaker in the corners of the living room may make it difficult to find a good listening position, i.e. being able to sit at the corner of an imaginary equilateral triangle. It therefore makes sense to separate the woofers from the mid/high frequency drivers.

Traditionally, separating the woofer from the rest of the loudspeaker creates some challenges when it comes to achieving the desired seamless integration of the two frequency ranges. Due to the greater distance between the woofer and the listener there is a delay in the bass compared to the mid/highs. You would experience a considerable higher sound pressure level in the bass compared to the mid/highs. This would cause audible impulse, phase and balance problems.

Lyngdorf Audio's Solution for the Entire Frequency Range

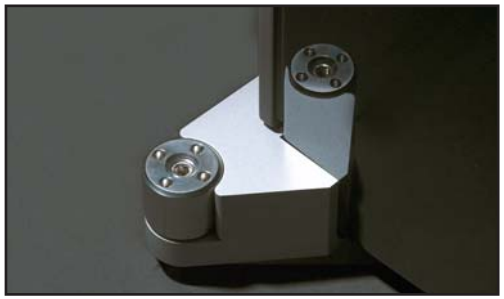
Thanks to the advanced signal processing capabilities of the Lyngdorf TDAI 2200 it is perfectly possible to physically separate the bass and the mid/high driver sections, creating what we refer to as a 2+2 system. The advantages are:

1. The bass level from the corner-placed woofer can be reduced and equalized exactly to match the mid and high frequencies.
2. The electrical signal to the mid/high unit can be delayed to achieve a simultaneous arrival of the sound from woofer and mid/high at the listening position.

The overall effect is a dramatic improvement in both frequency and impulse response.

MH-1 Mk II

LOUDSPEAKER FOR ACTIVE OR PASSIVE CONFIGURATION



The MH-1 Mk II is an upgraded version of the successful MH-1 which was designed for active speaker system operation. The new Mk II version can also be used as a passive speaker thanks to its newly developed crossover.

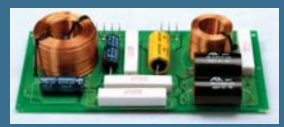
Solid Construction

The MH-1 cabinet deliberately has no parallel side-walls, thereby practically eliminating standing waves. A revised cabinet construction has increased the rigidity of the structure by improving placement of the internal bracings. The front baffle which holds the drivers is carved out of a single 30mm block of aluminium. This makes it extremely inert and heavy enough to withstand the forces exerted by the drivers. The cabinet is craftsman-manufactured in a beautiful piano-gloss finish, comprising no less than 10 layers of lacquer, each polished to a deep, black, glossy finish.

The drivers are selected quality items using the best Danish speaker technologies available. The woofers are 6½" drivers with the patented SD-2 Dynamic Linear magnet system and use the much admired 'Sliced Cone' principle for controlling break-up modes. The tweeter is the patented flagship-type, Dual-Ring Radiator, renowned for an extremely fast physical response. This enables the MH-1 to match the open sound from all Lyngdorf Audio amplifiers.

New Crossover

Supplied with every speaker is a new crossover network which turns the speaker into a passive device, suitable for coupling with the SDAI 2175 or any other amplifier. However, by re-arranging the connections on the crossover it is possible to switch configuration in order for the MH-1 to be used in an active set-up with the Millennium or the TDA 2200. Switching between active and passive configuration requires no tools and can be done very rapidly.



The new passive crossover network is engineered according to an old Danish design philosophy – the simpler, the better! Designed to be as efficient as possible and reducing loss of signal to an absolute minimum is completely in line with the design practice of Lyngdorf Audio switching amplifiers.

Using the minimum of components allows a subtle crossover response to be formed, granting optimum phase coherence in the critical crossover region.

This ensures perfect sound, both when listening on-axis as well as off-axis. This is important to the power response and consequently the perception of warmth in the speakers.

Versatility

The MH-1 can be used as a stand-alone full range speaker – and as previously mentioned in an active or passive set-up.
Furthermore it works perfectly in a 2+2 set-up – e.g. together with the W210 corner woofers.
So, no matter where you prefer to begin or end your speaker set-up the MH-1 is a safe investment.
One of the most open-sounding speakers on the market, this is truly a noble piece of audio art which will form a perfect partnership with any Lyngdorf Audio amplifier.

W210

Corner Woofer

A dedicated corner woofer designed for 2+2 configuration systems. This is not your regular subwoofer, but a product which has been engineered to overcome fundamental problems when placing speakers in a room. This will complement the MH-1 - or any other speaker for that matter…

No, it is *not* a subwoofer

The W210 might look like a subwoofer – but it is far from being that. With its precision, dynamics and incredible speed it is a corner woofer specifically designed to work in active 2+2 configuration systems. It is designed to load optimally to the room, blending in to a discreet position, and offering new possibilities in speaker arrangement and design. The W210 is designed to be placed in the front corners of your room making it possible to design active 2+2 systems e.g. with the MH-1s or smaller satellite speaker systems.

Conventional subwoofers are designed with heavy diaphragms, large magnet systems, and very poor efficiency due to the heavy moving systems. Moving masses in modern subwoofers can easily exceed several hundred grams. The W210 is designed in a completely different manner with a high speed lightweight driver granting a frequency response which is linear way up into the midrange area.

The Way to do it

In spite of the lightweight design, punch and power are delivered with a precision which cannot be obtained from a normal speaker system. This is only possible because of the way these speakers load the corners of the room. At the lower octaves any system will deliver a high gain thus reducing the need for power, equal to increased efficiency.

Placing the W210 in a 2+2 configuration ensures coherent arrival of the direct sound and the first critical reflections from the floor, side and front walls. Compared to the traditionally delayed arrival of several low frequency reflections within the first milliseconds of dynamic signals, there is no delay in the way the pressure builds up from a drum kick. The W210 can free up the dynamics in your system in several ways. Actually the W210 is rarely fed with more than 5 watts, even when playing really loud. And in this case, really loud also means very clean.

The W210 must be operated by means of the crossover and equalization controls present in the fully digital amplifier DSP sections – do so and a stunning experience awaits you with crossover frequencies up to 4-600Hz possible, freeing up the power handling of the main speakers. The RoomPerfect™ module will of course also control the W210 in majestic fashion.

With its piano finish the W210 blends in perfectly in any environment, - a demonstration of a 2+2 system is a must.

CD-1

CD Player / Transport

The CD-1 is a combined CD player/transport designed to incorporate the very best design techniques and components possible.

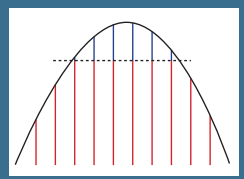
Knowledge Applied

The CD-1 is designed with the benefit of all the experience we gained from designing our fully digital amplification products. Low-noise design techniques have been applied in order to carefully upsample the digital output of the audio drive. This has been done using state-of-the-art sample rate converters so the digital output can be delivered in 24-bit resolution, at a sample rate of up to 192 kHz with extremely low jitter levels.

The analog section – just as with the digital – is upsampled in a parallel process to 96 kHz. The D/A converter section (also used in the Millennium) drives a high quality, single-ended and fully balanced output stage. External upsampling has two beneficial effects: Firstly, changing the sample rate to the optimum operating point of the D/A converter ensures the best sonic performance. Secondly, resampling the output of the CD drive to a low-noise clock helps suppress the level of jitter artefacts in the analogue output signal to an absolute minimum.

ICC™ (Intersample Clipping Correction)

Modern CDs are often recorded at excessively high levels



meaning that you can experience periods with several consecutive 'maximum' samples, signifying clipping of the original signal. Clipped digital signals affect the performance of a D/A converter dramatically - no matter how excellent its specifications the conversion process will suffer to such a degree that the resulting output simply sounds bad. With the aid of ICC™ Lyngdorf Audio upsamples and improves the dynamic range to reconstruct the clipped signal in the digital domain before conversion. This allows a seamless conversion process resulting in a considerably smoother and more musical sound.

Combined Transport & Player

The CD-1 can be turned into a transport-only device by switching off all analogue sections. This is very useful when it used with a fully digital amplifier, or when the user only requires the digital output.

Any CD player benefits from a solid mechanical construction so the CD-1 has been built as if it was a heavy amplifier. A thick aluminium chassis frame, with a heavy, machined front panel and vibration-damped lid, give it a tank-like construction. As with all Lyngdorf Audio amplifiers the power supply is designed with Holmgren Toroidal transformers and linear regulators placed local to all critical processes.

Lyngdorf Audio

Specifications

	Output power, 1kHz, 0.1% THD+N		Nominal load impedance	Frequency response		Output impedance	Output impedance	THD+N, A-wgt.				S/N ratio, A wgt.	Dynamic range	Channel separation	Peak output current
	8 Ohms	4 Ohms		-3dB, 8 Ohms	20-20k Hz, 8 Ohms	20-1k Hz	20k Hz	8 Ohms	4 Ohms	8 Ohms	4 Ohms	Ref. 200W/8 Ohms	Ref. 200W/8 Ohms	1KHz, 200 W/8 Ohms	
Millennium MkIV	2*150 W	2*300 W	4 - 8 Ohms	0.3 - 33k Hz	-0dB/+0.2dB	0.020 Ohms	0.2 Ohms	0.01% @1W	0.015% @1W	0.06% @100W	0.02% @300W	113dB	140dB	100dB	±50A
TDAI 2200	2*200 W	2*375 W	4 - 8 Ohms	0.3 - 33k Hz	-0dB/+0.2dB	0.035 Ohms	0.4 Ohms	0.015% @1W	0.02% @1 W	0.008% @100 W	0.07% @375 W	107dB	133dB	90dB	±40A
SDA 2175	2*200 W	2*375W	4 - 8 Ohms	0.3 – 33k Hz	-0dB/+0.2dB	0.035 Ohms	0.4 Ohms	0.004% @1W	0.006% @1 W	0.01% @100 W	0.07% @275 W	117dB		84dB	±40A
SDAI 2175	2*200 W	2*375W	4 - 8 Ohms	0.3-33k Hz	-0dB/+0.2dB	0.035 Ohms	0.4 Ohms	0.004% @1W	0.006% @1 W	0.01% @100 W	0.07% @275 W	113dB		84dB	±40A

	0db analog output level	Selectable sample rates on digital outputs:		Frequency response L/R		Balanced analog output impedance		THD + N, A wgt.		Crosstalk		S/N ratio: THD + N, A wgt ('infinite zero' track)	Dynamic Range: THD + N, A wgt (out-put -60 dBFS 1k Hz)		Digital outputs:
		16 bits	24 bits	20 - 20K Hz						125 – 16K Hz					
CD-1	3.8 Vrms	44.1kHz	48 / 96 / 192 kHz	+/- 0.02dB		50 Ohms		0.00018 %		-114 dB		115 dB	100 dB		AES, SPDIF, Toslink

	Selectable sample rates	Input impedance		Input Sensitivity (for full scale output)		Frequency response : - 3dB		Frequency linerarity L/R: 20 - 20k Hz		THD + N, A wgt. (0dBFS)		S/N ratio: THD + N, A wgt (input - 60dBFS 1kHz)			
	24 bits	Analog input	Phono input	Analog input	Phono input	Analog input	Phono input	Analog input	Phono input	Analog input	Phono input	Analog input	Phono input		
Millennium ADC	48, 96, 192 kHz	10kOhms	20, 100, 200, 47k Ohms	100mV - 4,4V	390uV - 180mV	<10 - 45k Hz	<10 - 39 kHz	-0dB/+0.07dB	-0dB/+0.02dB	0.0014%	0.0015%	124dB	80 -122dB		

	High frequency driver	Woofer/midrange driver	Crossover frequency	Frequency response	Sensitivity (2.83V/1m)	Nominal Impedance	Maximum SPL								
MH-1	1 1/4" ring radiator	2 x 6.5"	x.xkHz	35 - 60k Hz	92dB	4Ohms	118dB								
W210		2 x 10"		16 - 3,500Hz	96dB	8Ohms	118dB								

	Mains voltage range		Power consumption				Width	Depth	Height	Net weight	Shipping weight				
	115V version	230V version	Standby mode	On mode, no output	2*37.5 W/4 Ohms	2*300 W/4 Ohms		Incl. loudspeaker connectors	Including feet						
Millennium MkIV	100-120V AC, 50–60Hz	200-240V AC, 50-60Hz	3W	30 W	110 W	800 W	450 mm	445 mm	145 mm	25.4 kg	30.0 kg				
TDAI 2200	100-120V AC, 50–60Hz	200-240V AC, 50-60Hz	1.5W	40 W	116 W	820 W	450 mm	440 mm	100 mm	14.5 Kg	19 kg (22 w. RoomPerfect)				
SDA 2175	100-120V AC, 50–60Hz	200-240V AC, 50-60Hz	1.5W	30 W	116 W	820 W	450 mm	355 mm	100 mm	13 kg	15.7 kg				
SDAI 2175	100-120V AC, 50–60Hz	200-240V AC, 50-60Hz	1.5W	35 W	116 W	820 W	450 mm	355 mm	100 mm	13 kg	16 kg				

	Mains voltage range		Power consumption				Width	Depth	Height	Net weight	Shipping weight				
	Set to 115V	Set to 230V	Stand by mode	On mode				Incl. connectors	Including feet						
CD-1	100-120V AC, 50–60Hz	200-240V AC, 50-60Hz	2.5W	20W			450 mm	355 mm (incl skip knob)	100 mm	6.9 kg	9.9 kg				
Millennium ADC	100-120V AC, 50–60Hz	200-240V AC, 50-60Hz	1,5W	50W			450 mm	430 mm	145 mm	12.9 k	17.2 kg				

					Placement	Finish	Width	Depth	Height	Net weight	Shipping weight				
MH-1					Floor	Black Piano	206 mm	385 mm	1205 mm	45.0 kg	55.0 kg				
W210					Corner	Black Piano	420 mm	560 mm	550 mm	34.0 kg	45.0 kg				

Millennium

Millennium ADC

SDA 2175

CD-1

TDA 2200

SDAI 2175

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