



THE COLLECTION

"As elegant as a
Swiss watch..."

As versatile as a
Swiss army knife"



Le Métier Musical

Welcome to CH Precision... Welcome to a world of music

When I started CH Precision 10-years ago, it was with the goal of not just creating the highest performance audio circuitry, but leveraging it with the flexibility of powerful, software-driven control systems and modular design, construction and application. Now, 10 years on I can proudly say that while the CH Precision 1 Series is firmly established as one of the benchmark brands in high-end audio, our new 10 Series has gone much, much further, widely recognised as defining the current state-of-the-art in audio amplification.

Stories like ours don't happen overnight. The products you will see represented in these pages have been designed and built, quite literally, from the ground up, the result of blue sky thinking and innovative concepts, years of incremental development, measurement, testing and of course, extensive listening – all with the single aim of extending the boundaries of musical reproduction. As well as innovative circuitry and proprietary technology, flexible topology and exacting engineering, we have also established a new user relationship with the audio system, from the use of graphic displays to indicate everything from unit status to operating temperature, the influence of cartridge loading to digital data and error rates, to making each and every aspect of system control accessible via the CH App. You can even pick the colour of the text used for the displays – and if one of the 7 standard options doesn't suit, you can mix your own RGB shade.

This flexible, intuitive interface, with its extraordinary degree of insight and control is indicative of our whole approach. There is no "one-size fits all" CH Precision system. Instead, our entire ethos is dedicated to making the system itself as flexible and configurable as the units themselves. The CH solution is a kit of parts, pieces that you can tailor precisely to your individual musical needs, that can grow with you and adapt to new situations and opportunities – without the expensive necessity of trading-in or swapping out the equipment you already own. We were determined to create a system that is as practical and cost effective as it is flexible – and I truly believe that we have succeeded.

But as impressive as we feel our products are, the thing that has really driven us for the last 10-years, is the desire to get closer to great performers and their greatest performances. Just as you need an excellent glass to appreciate a great wine, it takes a superb system to really reveal the depths and emotional power in great music. At CH Precision, we've never forgotten that the glass might be elegant and beautifully crafted, but it's the wine – or the performance – that matters.



Florian Cossy
CEO, CH Precision





First Principles...

Each and every CH Precision circuit is designed with a single goal – to touch the signal as little as possible. It sounds simple and in some ways it is, at least on a conceptual level. But it also means accepting that conventional approaches and accepted practice fall well short of that ideal.

Providing the shortest signal path through a product is one thing; doing the least possible damage as the signal passes is quite another.

One demands the smallest number of individual stages necessary to get the job done, with no inter-stage coupling via capacitors or transformers.

The other necessitates multiple layers of electrical and mechanical isolation to protect the signal from noise and the outside world.

Every CH Precision product starts life as a blank sheet of paper, its task analysed, the performance parameters defined and the optimum engineering solution selected. There are no preconceptions. In each case, the chosen solution might be found in the digital domain or the analog, selected for its ability to deliver the best possible results in each given situation. The result is that no CH Precision product is either wholly digital or absolutely analog. Like a suspension bridge across a ravine, the road itself might be a simple, arrow straight strip of perfectly smooth tarmac, but the structure that hangs it in space is an incredibly complex and carefully balanced web, constructed from concrete and steel, cables and fixings, that isolates that road from forces both obvious and invisible.

In the same way that building a bridge means selecting your engineering approach (wood, stone or steel; arched, cantilever or suspension) designing an audio product means defining your design path – and then taking that path to its logical extreme. By combining the best aspects of both digital and analog, we can create a whole that is greater than the sum of its parts, a circuit that is shorter and quieter, a product that is more flexible and adaptable, the end result a performance that sets new standards – musically and operationally.

It means that we can provide almost unlimited functional versatility. Take our distinctive dual-concentric control as an example: in most products a twin knob like this would offer just two functions. In a CH product it offers immediate access to at least six distinct operations. But it also controls multiple menus and options and can be programmed to select additional specific operational “shortcuts”. In fact, despite being amongst the most configurable and versatile audio products ever built, every function and option within a CH Precision D1.5, C1.2 or L1 unit can be selected or adjusted via this one control – in a range of products that also embody purist, ultra-short signal paths and set new standards for musical performance. It has never previously been possible to optimize the performance or configuration of any cutting-edge audio system to this degree. By doing the heavy lifting at the design stage, we deliver a system that takes the hard work and uncertainty out of set up – and with the addition of our comprehensive, Android-based Control App, that set-up has never been so easy.

But just as you don't cut corners when you build a suspension bridge, there are no shortcuts when it comes to rediscovering the fragile delicacy and nuance, the emotional and almost physical power of recorded music. When it comes to realizing actual (as opposed to theoretical) performance, production engineering is just as challenging as the initial design: the selection of parts must be exhaustive and construction exacting; the casework must be mechanically optimised and a perfect fit, carefully constructed to shield the delicate circuitry from unwanted physical abuse – internal or external in nature; and for us, the circuits throughout must be both complementary and fully balanced. No detail can be left to chance.

Music or Measurement?

How do we meet these often conflicting demands? Creating a short signal path that passes the signal with the lightest touch and least friction isn't as simple as it sounds.

Just as achieving a high immunity to noise demands fully balanced circuitry, signal integrity depends on wide bandwidth, DC coupling and phase coherence, while issues of coloration and tonality rule out the use of complex ICs for analog signal transfer. Our performance demands rule out the simple solutions like excessive global feedback or coupling capacitors and instead we work with discrete components to create wide bandwidth circuits that are stable, with incredibly fast slew rates and vanishingly low noise floors – and that's much more than a simple theoretical challenge. Take a look inside a CH Precision product – any CH Precision product – and it is immediately clear just how complex it is. Developing such complicated circuits while maintaining audio performance is a demanding and time-consuming task that is only possible through the use of our modular construction – an approach that breaks the circuit down into discrete blocks – and sophisticated modelling.

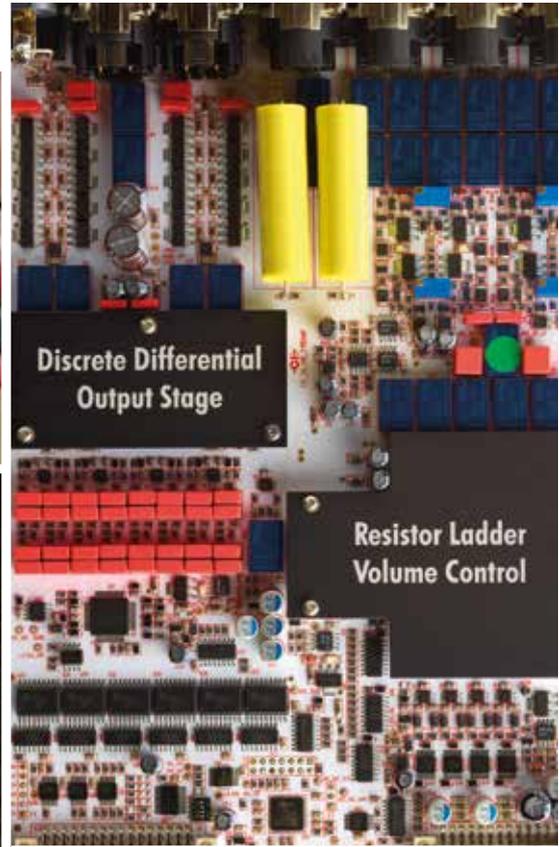
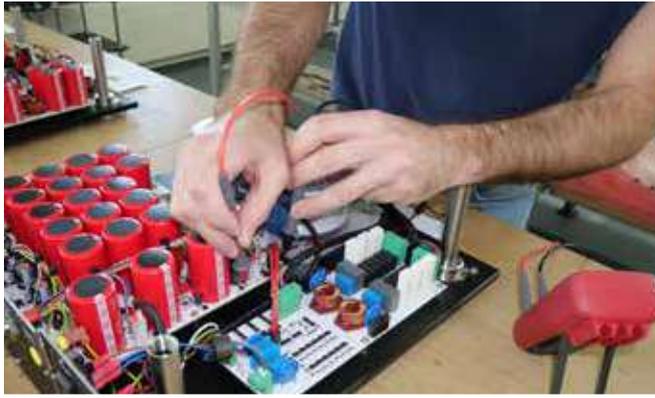
Each circuit in a CH product starts life in the virtual world where its components layout and performance can be created, modified and measured, changes to circuit topology and layout can be assessed, physical constraints can be checked. At this point of course, that "performance" is also entirely virtual, but by carefully weighing the value of the measurements generated, we can predict their impact on the final audible performance, refining and evolving circuit details, track lengths and layouts, ground planes and signal paths. Special attention is paid to signal-to-noise levels, impulse response, phase coherence and time domain integrity. Only when we are happy with our CAD model, is it finally time to build a prototype and measure it in the real world – a place where actual measurements often better the predicted ones.

It's a process that is only possible with extensive application of today's powerful CAD/CAM software and prototyping technology, modelling techniques that allow us to fine-tune the performance of each circuit and each part of that circuit, through multiple iterations and evolutions, before

embarking on the considerable cost of constructing actual parts. It's a process that allows, indeed encourages, creative thinking and innovative solutions, allows us to take risks and try cutting edge technology without the costs that normally implies. But no matter how powerful the tool, it's only as useful as the hand that guides it and this is also a process that demands considerable engineering experience and expertise, the investment of many hours of design time – which helps explain why over half our staff are directly engaged in engineering and software development.

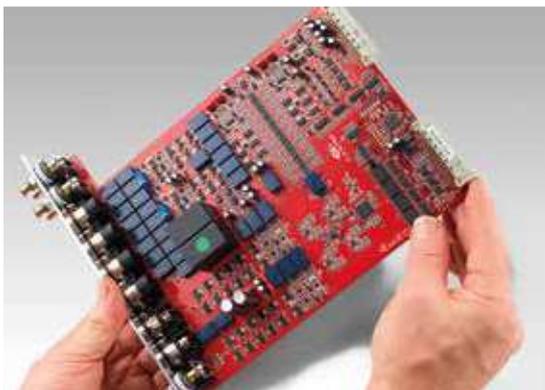
But holding a prototype circuit block in our hands is only the first step in the process of creating a new product or refining an existing one. Next, we have to listen to it, something we take even more seriously than modelling and measuring. Just as over half our staff are directly involved in product development, over half our office space is given over to a dedicated listening room, equipped with a range of different sources and loudspeakers so that we can assess the musical merits of a new design across a range of different system contexts, rather than relying on a single, familiar system. It is also a facility that provides a direct, occasionally brutal commentary on our design choices. It's not always comfortable but it is always educational, feeding into our next round of modelling, informing our design decisions and the next set of prototypes. Because, no matter how good the predicted performance and no matter how spectacular the measured performance, it is always the musical performance that matters. Finally, before that circuit becomes a product, we must surround it with the software support to monitor its performance and control its functionality – and do so without audibly impinging on the signal. Only then can that circuitry and the product that contains it join the CH Precision family.

Our ears and brain are far more sensitive and discriminating than any measurement protocol yet developed. Our object is and always has to be, to create circuits in which the technical parameters and musical sensibilities align. Only then can we create products that deliver astonishing performance, yet which can be tailored to the listener's specific needs, system and priorities, products that can grow and expand with their loftiest musical ambitions. For CH Precision, nobility lies in art without the suffering.



Discrete Differential Output Stage

Resistor Ladder Volume Control



Building Products, Building Performance, Building Systems...

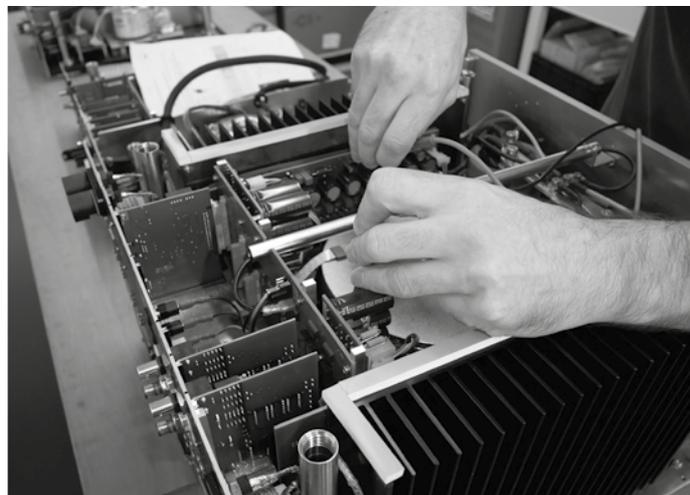
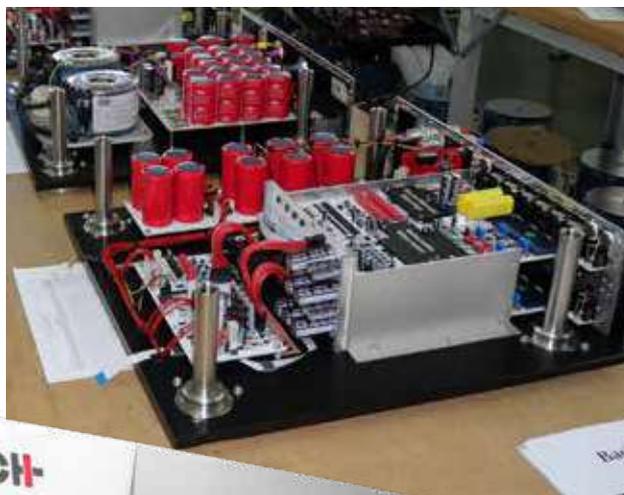


CH Precision is, first and foremost, an engineering company, incorporating extensive experience garnered in both the audio and other high-technology industries, a collective CV that features high-profile names and high-performance products. But with over half of our staff specialising in circuit design and layout, mechanical engineering or software development, our efforts are clearly focussed on design, assembly and quality control, a production model that relies on distributed manufacturing by outside partners. That's not unusual in the audio world. What is unusual is to apply this approach to products as sophisticated and performance critical as ours.

It's only possible (and we can only achieve the desired performance and consistency) because we are located at the heart of the Swiss atelier system, a network of specialist, high-quality, high-tech workshops that supply the Swiss watch, aerospace and other high-performance engineering industries. It is also a network with a remarkable reputation for the quality of its product, no matter how complex the demands or precise the tolerances required. For companies experienced in the production of the precision, micro-engineered parts of the complication that finds its way inside a high-end watch, the creation of the 'man-sized' parts and circuits that build up into an

audio product is child's play – just witness the flawless finish on the outside of a CH Precision product, devoid of fixings or unnecessary joins and contrast that with the incredible complexity of the casework's inner faces, with their precisely located rebates and hard-points that ensure that everything goes together in exactly the same way, every time.

But these are no mere sub-contractors. Key to the atelier system is the collaborative partnership between client and supplier. Take the distinctive blue-grey finish of the CH Precision products as an example. Admired but otherwise passing largely unremarked, it was the source of much indrawn breath and consternation within the industry when the product first appeared. Many, many companies had launched products with variations of this attractive finish – and quickly abandoned it in the face of issues with consistency. They found it almost impossible to find two matching face-plates to put side by side. The challenge was that much worse for CH precision, with the entire casework having to match. The solution? A co-funded project with the supplier of our metalwork to not just expand their anodising plant, but to create an entirely new method of precisely measuring the progress of the anodising process – a method based on the same circuitry developed for our





analog electronics! The result is a consistency of finish never before possible – thanks to the conditions under and the care with which the work is carried out and the ability to accurately monitor its progress.

This close collaboration also facilitates the modular nature of our circuitry and products. Under normal circumstances, the greater the number of sub-assemblies, the greater the risk of error or inconsistency, but the provision of precision built circuit blocks allows us to exploit both modularity and scalability in our designs, creating the unique quality at the heart of every CH Precision product and system, as well as allowing us to manage all final assembly, checking and QC in-house, with a small but highly trained cadre of experienced technicians. It is a manufacturing model that satisfies CH Precision's demands for consistency, quality and performance – just as it has satisfied the Swiss watch industry for so many years.

By now you'll probably have concluded that none of this comes cheap – and you'd be right. But when performance counts you can't cut corners to cut costs. Besides which, value is about a lot more than just price. It's about performance, how much performance you achieve and how long that performance lasts – and longevity is something that's hardwired into the DNA of every CH Precision product.

The modular, card-cage construction embodies the ability to define, adapt, upgrade and expand each product. Not only

can input options be specified at the time of purchase, they can be altered later if your system requirements change, or replaced if new standards, technologies or advances in circuitry emerge. The expensive chassis, audio architecture and PSU components you have invested in can constantly adapt to advances in source components, changes in speakers or the latest new encoding system: so much more efficient and cost effective than having to swap out a whole product for a newer or different model.

But it goes far further than just modularity and upgradeability. As the old adage goes, it's not what you do, it's how you do it that counts. So, when we announced a major upgrade to the M1 amplifier, the cost of that upgrade included a visit from a CH Precision accredited technician to the owner's home to install the new parts and check the revised unit in situ. It's an approach that eliminated the cost and inconvenience of having to pack and ship a heavy unit back to the manufacturer or distributor. It also eliminated the risk of loss or damage in transit and minimised system downtime, as well as allowing end-users a genuine chance to compare the performance of their original unit with their revised M1.1!

The modular construction also underpins the in-built scalability of the CH solution. What do we mean by scalability? The option to evolve a CH Precision component into dual chassis, dual mono form and even double up external power supplies for a true-mono implementation. So, in the case of our C1.2 DAC/Controller, as well as



reconfiguring inputs as your requirements change, you can also upgrade performance with an X1 external power supply to provide high-quality, low-noise, highly regulated DC to the critical audio circuits. The next step might be to take the C1.2 and turn it into a C1.2 Mono, with a single input/control chassis and an independent DAC for each channel, each built into its own separate chassis. Adding a second output card to the X1 would allow it to run both DAC channels, supplying the same superior DC feed to each. After that, you could add a T1 Time Reference clock and even go so far as to employ a dedicated X1 supply for each digital box (and even the control unit). That makes for an extravagant and complex solution, but it is one that you can achieve in multiple bite-sized steps – and without cost penalty. So owners of a C1.2 can upgrade it to full C1.2 Mono, three-chassis form for the difference in purchase price between the two.

This adaptability – to changing inputs, to evolving system demands and changing circumstances – is what gives a CH product that rarest of all audio attributes; a long working life. Whether you need a different input to accommodate a new source, to reconfigured your amplifier output stage to better suit a new speaker, you want to upgrade to dual-mono components or add additional power supplies, the unit you already own allows you to do just that. But, not only will a CH component continue to provide the performance you originally fell in love with and the facilities you demand, adapting over time to changes in its situation, it can also be kept at the cutting-edge of audio technology and sonic performance, ensuring that it (and your system)

becomes ever more musically captivating and convincing – without you ever having to exchange the core component. Our equipment is even environmentally friendly. Not only do all CH Precision products meet the consumption standards defined by environmental agencies, longer life-spans mean less replacement and recycling of electronic components, less landfill and less potentially harmful chemical waste. That makes them as long on practicality and value as they are long lived – and the more CH Precision components you have in your system, the further that performance extends and the greater those benefits become.

We realise that this isn't the way that most companies do things. We don't believe in fashionable, silver-bullet solutions or built-in obsolescence. We don't believe in expedient solutions or hidden savings. We **do** believe in selecting the best components and materials. We **do** believe in rigorous engineering and exacting standards when it comes to the manufacturing, assembly and the quality of the finished product. Above all, we **do** believe in the value we build into our products, the value they retain and the ultimate value of the satisfaction they deliver. Value can be measured in many ways and at CH Precision we take value seriously. We are quietly confident that our products offer both exceptional performance and outstanding value – in terms of the quality, longevity and experience they provide. But we don't shout about it and you don't need to take our word for it. The logic is inescapable and their performance speaks for itself.

10 SERIES



10 Series – Beyond The Horizon

“Plus ça change, plus c’est la même chose”

JEAN-BAPTISTE ALPHONSE KARR

M. Karr may have felt that the more things change, the more they stay the same, but at CH Precision, we beg to differ. In fact, in many cases, the more things look the same, the bigger the differences are...

Take our new 10 Series, outwardly so similar to the familiar 1 Series that we’ve had to take steps to differentiate them. There’s the straight profile on the front-panel, in place of our trademark curve and, for the first time, the units will be available in not just our standard blue-gray finish, but anodised champagne gold or anthracite as well. But the real differences lie behind the façade, in the circuitry, the componentry, the execution and most importantly, in the performance that results.

With 10 years of accumulated experience to apply to improving the breed, the L10 and M10 are no mere updates on existing models. The topology might be the same, as is the design DNA and the governing philosophy, but the execution is all-new, from the circuitry and circuit board layouts to the component choices, the massive power supplies to the new level of adjustability. The new 10 series offers a step-change in both musical performance and system matching.

Even though the 10 Series design process started with our proven audio circuits and power supply topologies, every aspect of the thinking behind them and their design has been re-examined. It has taken ten-years to complete the entire range of 1 Series products and in that time we have

learnt some serious lessons, gaining an enormous body of experience and additional expertise. Now we have applied every last bit of that knowledge to the 10-Series. Every circuit has been reconsidered, every circuit board has been re-laid, every component has been reassessed and where a performance advantage is to be gained, replaced. Power supply capacity, components and sophistication have all improved significantly, with dedicated external supplies now introduced as standard on all units.

At the same time, our legendary functionality and user-configurable facilities have been re-examined and updated, tangibly improving system matching and ultimate performance further still.

The benefits are measurable, with amongst other things, reductions in noise floor and phase error and a significant increase in headroom and dynamic response. But more importantly, the differences are clearly audible. As we get nearer to our performance goals, reducing distortion and noise, increasing the accuracy of our dynamic tracking and the intelligibility of the audio signal, even incremental changes become musically significant. Combine ten-years’ worth of incremental changes and that’s what delivers a step-change in performance – you have performances, living and breathing in your home.

It might look like nothing has changed – but nothing will ever be the same again.

10 Series – proven performance improved

“The CH Precision 10 Series has fundamentally changed my expectation of just how little an amplifier – any amplifier – can do. Transcending the traditional categories of tube or solid-state, high or low power, it has redefined musical performance, irrespective of partnering equipment or system context and it’s done it by doing less: doing less damage, imposing less compression, adding less noise and confusion. In doing so it gives each recording and each performer their own distinctive voice. In doing so it brings those voices to life.”

ROY GREGORY, HI-FI+ MAGAZINE

L10 Dual Chassis, Dual Monaural Line Preamplifier



“Nothing strengthens authority so much as silence.”

LEONARDO DA VINCI

When it comes to musical integrity, nothing says “walk quietly – but carry a big stick!” quite like the new L10.

When it comes to high-end electronics, there are fewer top-flight line preamplifiers than any other product category, a fact that reflects just how critical their role is to system performance – and how difficult they are to design. So, when you already build the L1, widely recognised as one of the finest line preamplifiers ever heard, how do you set about improving it?

By keeping the recipe and refining the ingredients – something that’s easily said but which has taken all of our accumulated knowledge and experience to achieve. But

achieve it we did. The L1 set a new benchmark. The L10 sets an entirely new standard for musical performance.

Any line-stage needs to be quiet, transparent and stable. It needs to be seen and not heard – at least until you remove it from your system. Then you should hear exactly what it brings to the party! It must anchor the incoming signals and deliver them onwards, propelled from a firm footing that ensures dynamic and musical authority. It must pass the source signals in your system, without limitation or disturbance, leaving no trace of itself on their passage. It must be all powerful but also invisible...

The L10 retains the fully discrete, balanced and complementary design, ultra-short signal paths and heavily regulated and filtered, multi-stage power supplies, wide-bandwidth, high slew-rate and DC coupled topology of the L1. It incorporates the same sophisticated R-2R ladder volume control, sophisticated DC detection and cancellation circuitry and software control. But while the

overall topology might seem familiar, the execution takes performance to a completely new level.

- Signal paths have been further shortened and their routing refined, to reduce induced noise and distortion.
- Every single discrete component in the signal path has been reassessed and wherever possible upgraded.
- The external power supply is a dedicated design, specific to and optimized for the L10, with increased regulation and massively increased capacity.
- Feedback topology can be user selected between local and global settings to suit musical preferences and system requirements.

The result is the most musically sophisticated line preamplifier that money can buy: A lower noise-floor, increased transparency, harmonic layers and textures (especially at low frequencies), wider dynamic range, greater dimensionality and a more natural tonal palette. But what really elevates the performance is the sheer sense of human agency, purpose and drama – from the smallest, poised musical nuance to the most shocking orchestral crescendo, the clarity of the most convoluted solo line to the drive and impact of the most powerful rock band.

Irrespective of scale or genre, whether it's a time to reflect or a time to party, the L10 will breathe life into your music, transport you to the original recording.

Being a CH Precision component, versatility, upgradability (to full four-chassis, true monaural topology) user configurable operation and a full-function control interface come as standard. Exceptional audio and musical performance comes as standard too – except that in this case, that performance is truly extraordinary.

"For their advanced capabilities, flawless build-quality, and the transcendental musical experience they provide, the CH Precision L10 and M10 are awarded our highest honor, The Absolute Sound's Overall Product of the Year Award."

ROBERT HARLEY, THE ABSOLUTE SOUND



L10 Technical Specifications

Inputs

4x Balanced XLR
2x Single-ended RCA
2x Single-ended BNC

Input Impedance

Balanced: 94k Ω or 600 Ω
Single-ended: 47k Ω or 300 Ω

Outputs

2x Balanced XLR
1x Single-ended RCA
1x Single-ended BNC

Volume control range

+18dB to -100dBu in 0.5dB steps

Bandwidth

Measurement conditions:

- Volume: 0dB (unity gain)
- 0dBu in

Bandwidth: DC to > 1MHz (-3dB)

Total Harmonic Distortion + Noise

Measurement conditions:

- Volume: 0dB (unity gain)
 - 0dBu in, 1kHz input signal
 - Local or Global feedback
 - 22Hz to 22kHz measurement window
- THD+N: < 0.0008%

Output Noise

Measurement conditions:

- Volume 0dB (unity gain)
- Local or Global feedback
- 22Hz to 22kHz measurement window
- 27 Ω input termination

Output Noise:

- -112dBu (1.8 μ VRMS Balanced outputs)
- -115dBu (1.3 μ VRMS Single-ended outputs)

Signal to Noise ratio

Signal to Noise ratio: 141 dB

Maximum input level

+26dBu (16VRMS Balanced)
+20dBu (8VRMS Single-ended)

Maximum output level

+29dBu (22VRMS Balanced)
+23dBu (11VRMS Single-ended)

Preamplifier Global vs Local Feedback Ratio

0% Global Feedback (100% Local)

or

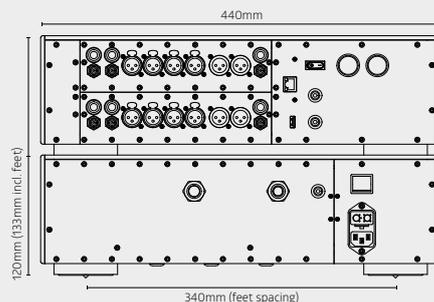
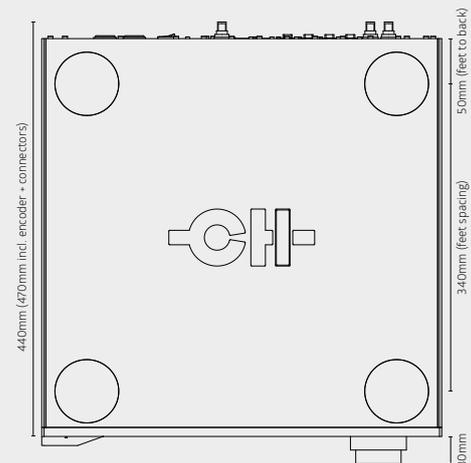
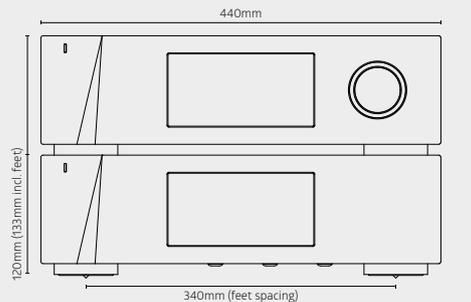
100% Global Feedback (0% Local)

Weight

L10 Power supply unit: 23kg
L10 Preamplifier unit: 20kg

Dimensions

L10 Line-Stage Preamplifier

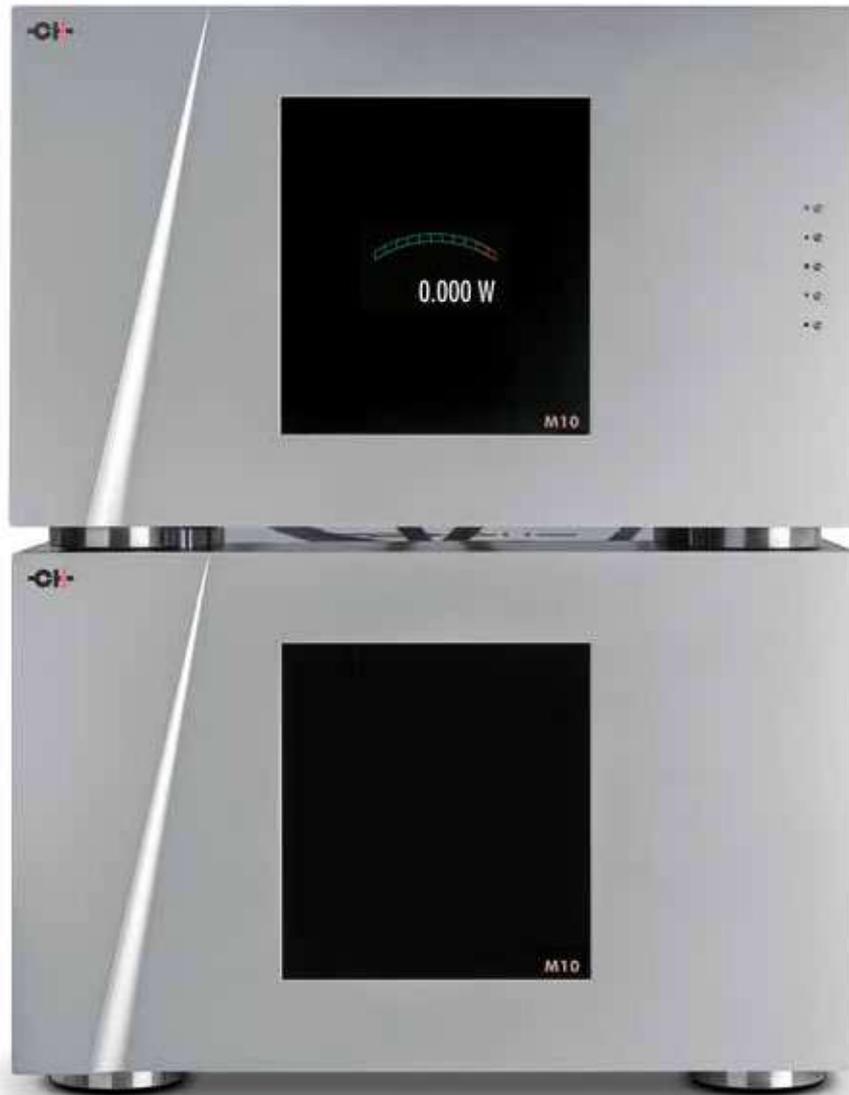




"First exposure to a product like this can be as disturbing as it is exciting, but as a wise woman once sang, 'It's a new dawn, it's a new day, it's a new life for me, and I'm feelin' good!'" is one of those times."

ROY GREGORY, HI-FI+ MAGAZINE

M10 Dual Chassis, Dual Monaural Power Amplifier



Rewriting the record books is never easy – especially when it comes to audio and musical performance. Sometimes that challenge is more than just sonic. In the case of the M10 we had to answer practical and physical demands as well.

In a few short years, our M1.1 has become a classic, setting the standard in terms of both performance and versatility. So superseding it, establishing a completely new level of musical capability was always going to demand a major effort and a complete re-think, re-examining every part down to component level. The result was a unique new input stage that significantly outperforms existing circuits, all new circuit boards, re-laid to minimise induced noise and distortion and upgraded components throughout the signal path – all contributing to a dramatic increase in low-level

resolution, transparency, natural tonality and musical flow. But at the other end of the scale, headroom is a major limitation on amplifier performance. Dynamic swings can test even the M1.1's generous 200 W/Ch rated output, so for the M10 we didn't just increase that by 50%, we doubled the power supply capacity too, creating an output stage with massive musical potential. That reservoir of power doesn't just come into play on musical climaxes. It gives the quietest passages and instruments the same stable clarity and presence you hear in real life, it precisely traces changes in level and musical density, it holds instruments separate but places them precisely within a single space. It recreates the energy and chemistry of the original performance – and when that performance reaches its climax, the M10 reproduces that too. Effortlessly!

It's when you try to put all that musical potential in a box that the physical challenges begin. Power supplies are big – and they're heavy. Building a single chassis to accommodate the M10 was certainly possible, but the resulting product would have been somewhere between difficult and impossible to move or house. That's why the M10 amplifier comes in a twin-chassis configuration. Those two outwardly similar boxes are not mono-blocs. Instead they are an amplifier stage and a separate power supply chassis. Even splitting the M10 like this, each box is a two-man lift, although they retain the M1.1's manageable dimensions and will fit into standard racks.

What the M10 also shares with the M1.1 is that amplifier's versatile topology and user configurable operating parameters. That makes the M10 four amps in one, with output configurable for stereo, bi-amp operation, high-current or high-power mono – in which mode it delivers over 1KW into an 8 Ohm load. The modular input options have been simplified and users can now adjust global feedback ratio (damping factor) in 1% steps, allowing even finer speaker and system matching.

Twice the size of the M1.1 the M10 delivers 50% more power, is just as versatile and even more configurable. With unique circuitry, improved components and more refined signal routing, it improves on the performance of the established model in every single respect. Our goal was to raise the bar. Listening to the M10, even we are surprised just how high it's been set.

"A New Era in Amplification"

"These new flagship electronics from Swiss manufacturer CH Precision are simply unprecedented in set-up flexibility, control, and adaptability to different systems."

ROBERT HARLEY, THE ABSOLUTE SOUND



M10 Technical Specifications

Nominal Input Voltage

Measurement conditions:

- Amplifier unloaded
- 22Hz to 22kHz measurement window
- THD+N < 0.01%, any feedback ratio

Balanced: 3.6VRMS

Single-ended: 1.8VRMS

Input Impedance

Balanced: 94k Ω or 600 Ω

Single-ended: 47k Ω or 300 Ω

Amplifier Gain

Stereo, Bi-Amp, Monaural: 24dB

Bridged: 30dB

Volume control range

+18dB to -100dBu in 0.5dB steps

Bandwidth

Measurement conditions:

- 8 Ω load
- 1WRMS into load (output voltage: 2.83VRMS)

Bandwidth: DC to 500kHz (-3dB), input low-pass filter OFF

Bandwidth: DC to 120kHz (-3dB), input low-pass filter ON

Maximum Output Power

Measurement conditions:

- THD+N: < 0.1 %
- Signal frequency: 1kHz

Amplifier Mode	8 Ω	4 Ω	2 Ω	1 Ω
Stereo / Bi-Amp	2x 300WRMS	2x 550WRMS	2x 900WRMS	-
Monaural	300WRMS	600WRMS	1000WRMS	1600WRMS
Bridged	1100WRMS	1700WRMS	2500WRMS	-

Total Harmonic Distortion + Noise

Measurement conditions:

- 8 Ω load
- 50WRMS into load
- 22Hz to 80kHz measurement window

Feedback Ratio	1kHz
100% Local	< 0.01%
100% Global	< 0.002%

Intermodulation Distortion

SMPTE IMD: < 0.001%

Amplifier Output Noise

Measurement conditions:

- Input terminated with 27 Ω
- 22Hz to 22kHz measurement window

Stereo, Bi-Amp, Monaural: < -95dBu (14 μ VRMS)

Bridged: < -92dBu (20 μ VRMS)

Signal to Noise ratio

Stereo, Bi-Amp, Monaural: > 132 dB

Bridged: > 135 dB

Gain Trim

0dB to -6dB in 0.5dB steps

Amplifier Global vs Local Feedback Ratio

From 0% Global Feedback (100% Local) to 100% Global Feedback (0% Local) in 1% steps

Weight

M10 Power supply unit: 78kg

M10 Amplifier unit: 53kg

“The metal is smooth as glass, exuding a sense of exquisite refinement and understated elegance rather than superficial bling.”

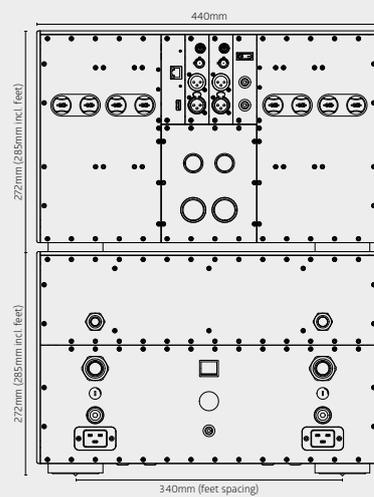
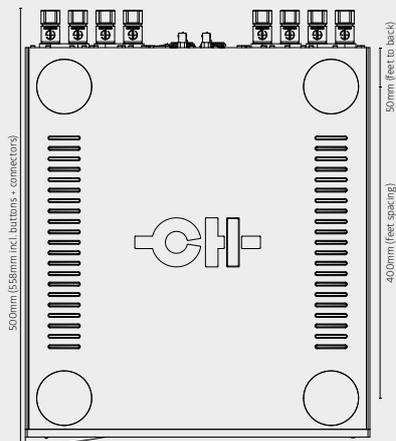
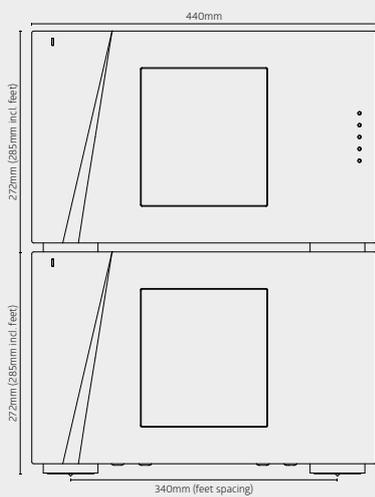
“The 10 Series is chameleon-like in its technical function, and also in its sonic character.”

ROBERT HARLEY, THE ABSOLUTE SOUND



Dimensions

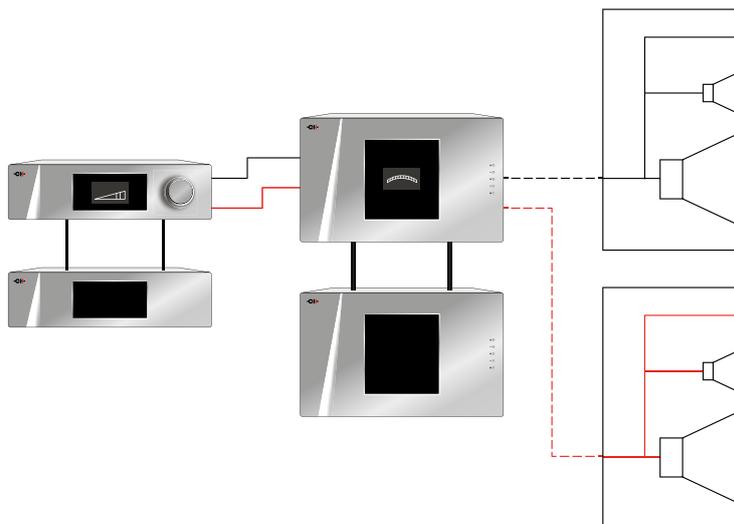
M10 Power Amplifier



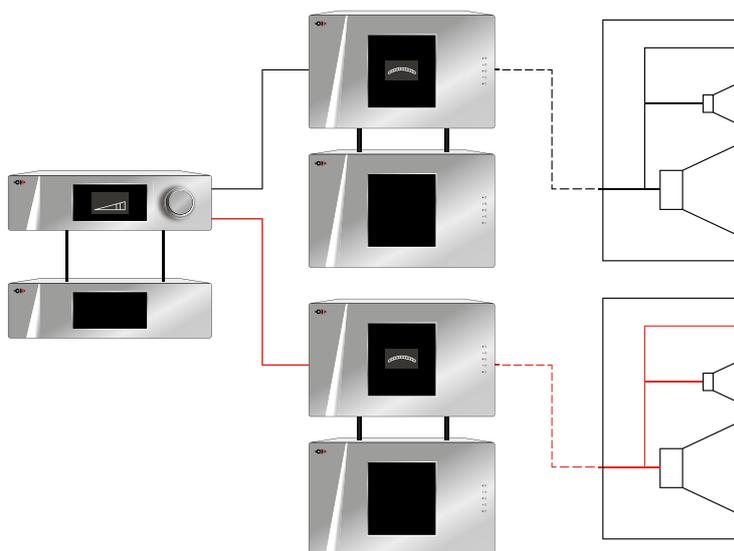
10 SERIES

Scalable System Topology

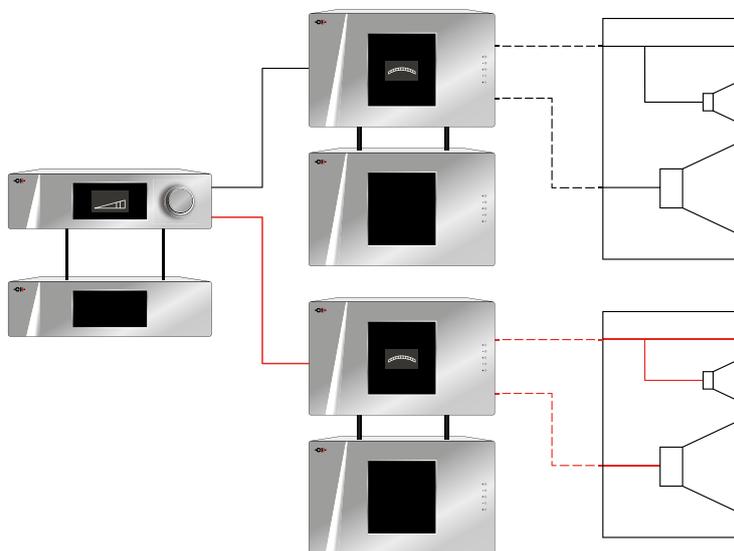
L10/M10 Stereo System



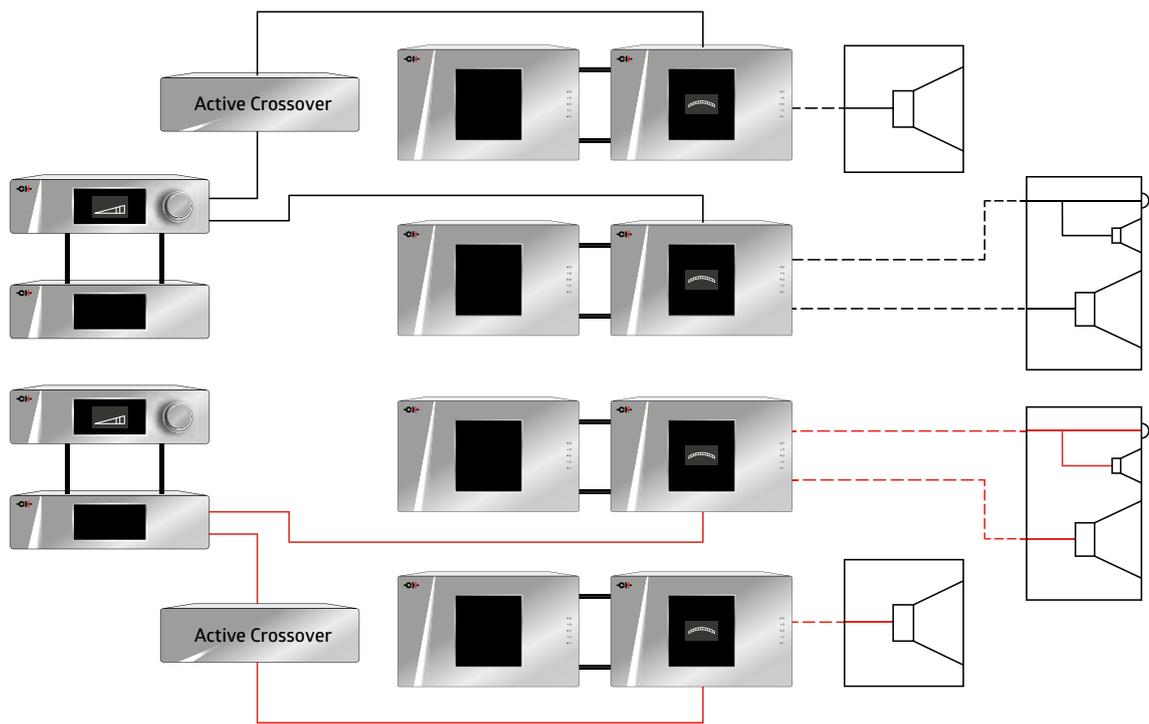
L10/M10 Mono-bloc System



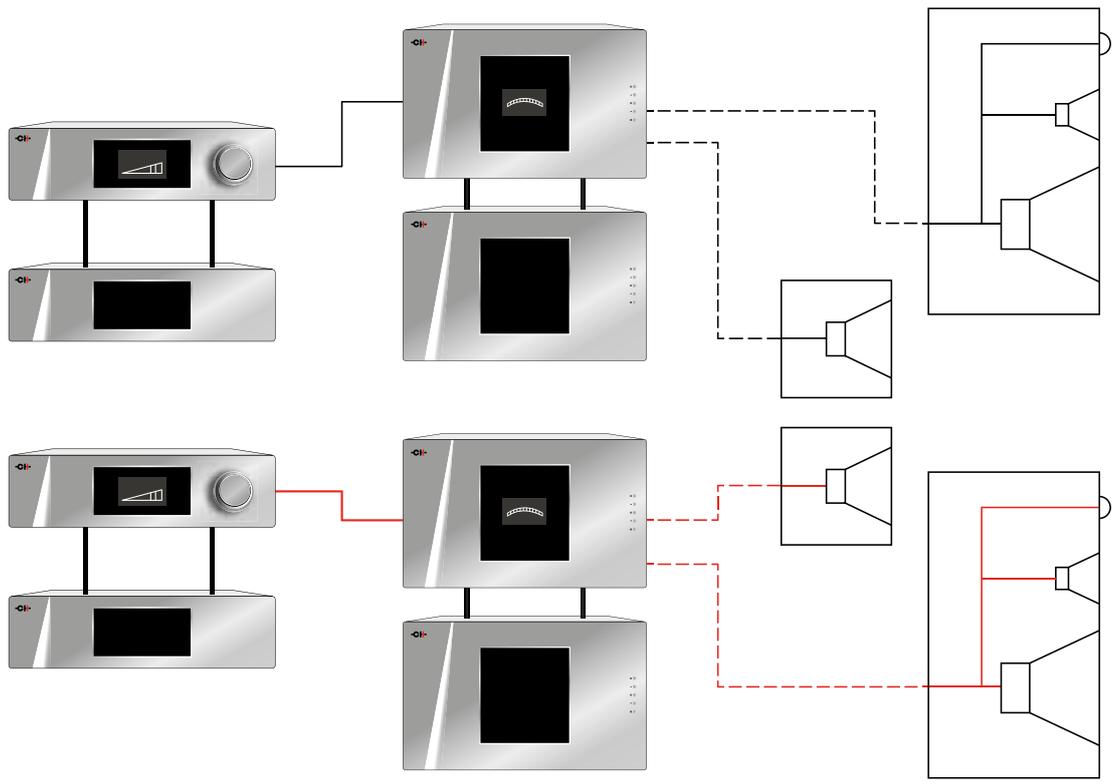
L10/M10 Bi-amped System



True Monaural L10/M10 Bi-amped Sat/Active Sub System



True Monaural L10/M10 Bi-amped Sat/Sub System





CH



CH



CH



CH





CH



0.000 W

CH



0.000 W

CH



CH



M10

1 SERIES



GH

SACD TUNE CUE
7 1:05:46
INTERNAL DT.3



GH

-7.0 dB
L1



GH

0.000 W
MT.1

1
2
3
4
5

1 Series – The Universal Benchmark

An entirely new concept...

Exacting execution...

A new performance paradigm...

When CH precision launched their first ever product, the D1 player/transport, it broke new ground, not just in performance terms, but in the way that performance was achieved. For the first time, sophisticated software was applied to the management and maintenance of ultra-short, fully balanced and complimentary, purist signal paths. With unprecedented thermal and operational stability, unprecedented performance was possible.

Combined with modular, card-cage construction and expandable product topology, the result was a range of products that was scalable and upgradable, configurable and future proof. The result was cutting-edge musical performance combined with operational versatility, flexible and adaptable configuration combined with unprecedented longevity. That's a lot of firsts and a whole set of new standards, but we were only just getting going...

What started out with digital soon spread to the analog domain, an arena in which if anything, the CH Precision approach and philosophy was even more effective, producing even greater advances in performance. Soon, our line-stage, phono-stage and power amplifiers were widely accepted as setting the standard against which other products should be judged. As one reviewer said, "One day, all amplifiers will be built this way!"

At CH Precision, we believe in more than just maximising musical enjoyment. We believe in solid engineering and product longevity too. We believe that when you invest in one (or more) of our products, that investment should be protected long-term. We believe that products should keep pace with technology and grow with your system. And we believe that you shouldn't have to pay cost penalties for that protection.

Offering a complete electronic eco-system, CH Precision has been able to create a range of products that combine state-of-the-art musical performance with astonishingly user-friendly options and operational flexibility. All too often, traditional high-end audio products make you suffer for your art, but CH Precision's unique use of complimentary technology delivers performance AND convenience without compromise, with universal solutions that can be shaped to meet any system requirement, in one box or as many as you can accommodate. Each and every 1 Series component is a standalone statement of musical intent. But each and every 1 Series component can be upgraded and expanded to grow with both your system and your musical ambitions – without cost penalty or product redundancy.

10-years in the making, CH Precision's 1 Series product line has established class-leading performance in every product category. You can enjoy that performance for years to come.

"CH Precision is a company that takes both the scalable nature and longevity of its products very seriously. This modular design and construction not only delivers top-notch musical performance, it also protects your investment. Its products may seem expensive, but when you weigh their intrinsic performance against their upgradeability, it's a no-brainer. "

LAURENT THORIN, EDITOR, VUmètre

Digital Components

D1.5 SACD/CD/Player/ Transport



Despite advances in high-resolution file-replay, the optical disc remains the reference standard for digital music replay – and the heart of any disc player is the transport mechanism. But what do you do if current mechs simply aren't up to the job? If you are CH Precision, you build your own!

The critical mechanical parts of our proprietary Mechanically Optimized Reading System (MORSe) are built entirely in-house. The carefully selected optical pick-up and motor are precisely mounted on a massive brass sled that weighs almost 1kg (2.2lbs). This highmass lowers the mechanical resonance frequency of the module several orders of magnitude below that of most other transports, while ensuring an ideal counter-weight to the torque of the spinning disc. The complete module is isolated from the rest of the chassis using four alpha-gel isolators, fine-tuned to filter vibrations all the way down to AC mains frequencies. This prevents vibrations generated by the spinning of the disc from reaching sensitive electronic boards, as well as low frequency vibrations originating in the power supply or chassis disturbing the accurate tracking of the laser mechanism.

The chassis holding this crucial sub-system is an incredibly rigid, 2 kg (4.4lbs) aluminum structure, directly coupled to the heavy base of the D1.5. This creates an ideal mechanical ground reference for the rotating parts that, along with our updated mechanical grounding system effectively eliminates mechanical interference. Built around the massive MORSe mechanism, the D1.5 is a configurable CD/SACD player/transport, the card-cage output architecture allowing owners to optimize or adapt the output topology to suit their system requirements, whether they need a player or a transport.

The digital output board (CH-Link HD, S/PDIF, AES/EBU and TosLink) is supplied as standard. The CH-Link HD connection allows digital output of high-definition material, including DSD direct to the C1.2 DAC or I1 Integrated Amplifier. In the case of MQA CD replay, the D1.5 allows users to choose

between the raw MQA (44.1kHz/16bit) output and an MQB output (88.2kHz).

It is also possible to fit a pair of dedicated, mono DAC boards, utilizing our proprietary PEtER spline filter algorithm, to create a reference player capable of SACD, CD and MQA CD replay. The optional SYNC IO clock synchronization board allows the D1.5 player/transport to be slaved with either a DAC master clock or the T1 Time Reference clock for optimum performance. Finally, the D1.5 can be further upgraded with the use of an X1 external power supply.

All replay, output and user interface functionality is accessible via the CH concentric control on the front panel, or remotely, via the CH Control App. The large AMOLED screen can be color configured to reflect different source/output formats, while the color itself and brightness can be adjusted to offer a perfect match with other units in the system. This flexibility when it comes to configuration or application, along with its ease of operation, make the D1.5 not just the highest performance but also the most adaptable, upgradable and future proof optical disc replay solution available.



Optical Reading

- Proprietary Mechanically Optimized Reading System (MORSe) high-mass transport mechanism incorporating sophisticated isolation
- Massive, ultra rigid construction: complete transport mechanism weighs almost 3kg (6.5lbs)
- Advanced mechanical grounding of transport mechanism to the D1.5 chassis for minimal mechanical interference.

Supported Formats

- Stereo SACD
- CD, including finalized CD-R/RW
- MQA CD

Possible Configurations

- Optical disc transport, factory fitted with AES/EBU (XLR), S/PDIF (RCA) and Toslink digital outputs
- Proprietary CH-Link HD, ideal high-definition capable connection to the C1.2 Digital to Analog Controller or I1 Universal Integrated Amplifier
- Reference stereo player with dual-mono balanced XLR, and single-ended RCA and 75 Ohm BNC analog outputs.

Timing & Clocking

- Ultra low jitter DCXO master clock oscillator with dedicated power supplies
- Optional SYNC-IO clock synchronization board

Optional Analog Output

- Dual mono multi-bit Delta-Sigma converters
- PEtER spline filters
- Pure class A, fully symmetrical design
- Fully discrete, ultra low noise, high slew rate, DC coupled analog output stage
- Zero global feedback

Optional Hardware

- Monaural Analog Output Boards (XLR, RCA, BNC). Sold as a pair, for Left and Right channels. Turns the D1.5 Transport into a reference stereo player.
- Clock Synchronization Board - Allows the D1.5 to receive clock synchronization from an external clock like the T1 Time Reference, the C1.2 Digital to Analog Controller, I1 Integrated Amp, or to itself become the system master clock.

“... the sound it produces is so ineffably musical I can't help but be drawn into listening to the D1.5 every time I walk past it. I just wish we had the vocabulary that matches its sublime performance.”

ALAN SIRCOM, EDITOR – HI-FIPLUS



"Like a fine Swiss watch, CH Precision's D1.5 Player/Transport gets the timing right."

JIM AUSTIN, EDITOR - STEREOPHILE

C1.2 Digital to Analog Controller



DSD
Direct Stream Digital

MQA

DXD
Digital eXtreme Definition

UPnP

ROON
ready

qobuz

TIDAL

Sometimes, what you want is exactly what you get. Take the C1.2 DAC/Controller as an example: You want a world-class DAC with leading edge digital design and cutting edge musical performance? You've got it. You want a control unit to switch multiple digital inputs and control level? You've got it. You want to accept and switch analog inputs? You can do that too. You want a product that's future proof in terms of price AND performance? The C1.2 ticks that box as well! In fact, the C1.2 is any or all of those things; you get to choose...

Normally, creating a world-class DAC could be considered a sufficient challenge on its own, but the use of modular component architecture and the power of sophisticated software control opens up opportunities as well as offering solutions: opportunities that transform the role, capabilities and versatility of the C1.2 – as well as allowing existing C1 units to be upgraded to full C1.2 standard.

Of course, it is digital conversion that lies at the heart of the C1.2. The perfect preservation of time and amplitude information is critical to reproducing musical signals stored in digital formats and we believe that the advances incorporated in the C1.2 build significantly on the solutions adopted in the C1, taking digital performance(s) to a whole new level.

Both noise and jitter are central to the design of any high-performance DAC. We have developed an entirely new MEMS-based, shunt regulated and thermally compensated clock for the C1.2, improving clock accuracy significantly (as well as providing highly developed clock-sync and external reference clock options). A four-fold increase in processing power has allowed us to further refine the proprietary CH-PeTER algorithms, introduce 32-bit fixed point processing and increase input compatibility to include all high-resolution digital formats, whether from optical or file replay sources. Our proprietary CH-Link HD interconnection allows the transfer of native DSD and MQA data in the digital domain, from the D1.5 transport to the C1.2. The AES/EBU and S/PDIF inputs accept PCM at up to 192kHz/24bit resolution,

while the HD streaming input will accept PCM data at up to 768kHz/32 bit resolution (including DSD over PCM streams) and DSD512(8x). Local regulation of the DSP and FPGA along with sophisticated power management software significantly reduces system noise floor. The DAC itself employs no fewer than four converter chips per channel, in a fully differential, dual-mono topology. The vital analog output stage is discrete, fully differential, Class-A and DC coupled. The modular input architecture ensures that the C1.2 remains future proof, able to adapt to changing digital standards or system demands.

Having created the C1.2's digital decoding core, the next step was to construct the system architecture around it. As well as the established digital input standards (AES/EBU, S/PDIF and TosLink) the provision of separate Ethernet streaming and USB input cards allows users to configure the C1.2 specifically to their system and replay requirements. Alongside the multiple digital input and clock-sync options, there is also a by-passable hybrid volume control, operating across both the analog and digital domains and an A-to-D facility, allowing the C1.2 to accept balanced or single-ended analog inputs, creating a genuine analog/digital domain control option, allowing the C1.2 to stand at the center of any system, irrespective of the source components in use.

With the vast array of user definable parameters on offer, from input offsets for both analog and digital connections, to balance, output level and absolute phase, a comprehensive, non-intrusive display is essential. This requirement led directly to the creation of our latest 800 x 480 pixel AMOLED screen, with its user-configurable content, brightness and power-down options. Users can even select a specific RGB color for the content! Although each and every setting in the C1.2 can be accessed and adjusted from the dual-concentric control on the front-panel, the CH App allows direct, remote access to every parameter from an Android tablet or smartphone, making this not only one of the most adjustable, configurable and adaptable DAC Controllers on the market – but also one of the easiest to use.

Digital Architecture And Input Compatibility

Standard Inputs

- Factory fitted with CH-Link HD, AES/EBU, S/PDIF and Toslink digital inputs.
- The CH-Link HD interface allows for synchronized transfer of high definition audio content (up to 32bit/768kHz) and DSD512 (8x), offering the ideal interconnection to the D1.5 CD/SACD Transport or other CH-Link HD equipped units.
- Standard digital inputs accept PCM to 24bit/192kHz, DSD 1bit/2.822MHz (DSD over PCM or DoP-encoded).

Optional Digital Inputs

- The C1.2 can accept up to three HD digital input boards to allow multiple digital sources to be connected.
- Ethernet audio streaming HD input board (UPnP/DLNA compatible) allows connection to local audio servers (such as Roon or NAS drives running a UPnP server) or streaming services (such as Qobuz, Tidal or webradios).
 - PCM to 24bit/384kHz (768kHz for uncompressed formats)
 - DSD 1bit/2.8224MHz (DSD64), 5.6448MHz (DSD128), 11.2896 MHz (DSD256) or 22.5792MHz (DSD512)
 - Native DSD and DoP
 - WAV, AIFF, FLAC, ALAC, AAC and MP3 formats supported in PCM
 - DSF and DFF formats supported in DSD
- Asynchronous USB audio streaming input board – PCM to 24bit/384kHz, DSD 1bit/5.6448MHz (DSD128) in DoP Mode

Digital to Analog Conversion

- Four PCM-1704 R-2R converters per channel
- Fully complementary, dual mono symmetrical circuit topology
- Discrete, dedicated, fully regulated linear power supplies for low noise and maximum channel separation

Processing

- Four independent 2.4GFLOPS DSP engines for each channel
- Proprietary CH-PETeR 32-bit fixed point, synchronous data over-sampling processing
- Direct DSD to 705.6kHz, PCM conversion
- Resolution enhancement of audio material recorded at less than 24bits
- Full MQA decoder (unfolding and rendering) at 24bit/768kHz.

Timing & Clocking

- Ultra low jitter MEMS-based, thermally compensated Master Clock with dedicated, shunt regulated power supply
- Optional Master/Slave Clock-Sync board allows synchronization with T1 10MHz Time Reference clock or other 10MHz external clocks.
- Clock-Sync board also allows synchronization with the D1.5 transport.



Analog Input Options and Functionality

Volume Control

- By-passable 0.5dB step hybrid volume control, course steps using a relay/resistor ladder, with fine steps in the digital domain, to maximise system resolution and dynamics.
- Channel balance in 0.5dB steps
- Switchable for mono (input L + input R) output.
- Switchable absolute phase

Analog Input Board

- Discrete, fully differential analog input circuit
- Balanced XLR and single-ended RCA inputs
- 6V RMS maximum input level
- Input gain is user selectable
- Up to two Analog input boards can be fitted, providing a maximum of two balanced XLR and two single-ended RCA inputs.

Analog-to-Digital conversion

- DSD 1bit/5.6448MHz (DSD128) direct conversion

Analog Output Stage

- Pure class A, fully symmetrical circuit
- Fully discrete, ultra low noise, high slew rate design
- Zero global feedback
- One pair each - balanced XLR, single-ended RCA and BNC outputs
- DC coupled
- 5.4V maximum output (balanced XLR), 2.7V maximum output (single-ended RCA/BNC)

Display

- 800 x 480 pixel, 24bit RGB AMOLED
- 7 standard, user-selectable text colors
- User definable RGB option for text color

Remote Control Options

- Infrared Remote Control handset for basic functions
- Ethernet-based Android control App

Optional Hardware

- Digital Input Board – CH-Link HD, AES/EBU, S/PDIF and Toslink
- Ethernet Network Streaming HD Input Board
- Asynchronous USB Input Board
- Clock-Sync Board
- Analog Input Board – One pair balanced XLR, one pair single-ended RCA
- Fully compatible with X1 External Power Supply
- Compatible with T1 10MHz Time Reference external clock (with Clock-Sync board)

“Neutral, exciting, fast, tons of detail, yet musical in a way that is honest to the source, not gussied up with bloom and decay trails, it is not like the audio we grew up with. This kind of sound did not exist until now. As far as I’m concerned, CH Precision is at the forefront of digital technology. They are the leader of the pack.”

MARSHALL NACK, POSITIVE-FEEDBACK



CH-

CD TOTAL
10 0:38:29
10.000 MHz D1.5

CH-

88.2 x 765.6 kHz -44.5 dB
CH-LINK HD
10.000 MHz C1.2

CH-

10.0000 MHz ~
BNC 1
INTERNAL LOW T1

CH-

OUTPUTS
ON ON
SUB LEFT SUB RIGHT
X1

C1.2 Mono Dual Monaural Digital to Analog Controller



Digital signals carry stereo information in a single data stream. That means that we cannot follow our normal approach to scalable system architecture, using independent C1.2 DAC Controllers for left and right channels, as we have to have a single input connection. Instead, to deliver improved performance we retain the C1.2 input architecture but then split the digital information into left and right channels for routing to dedicated external DACs, with a single chassis for each channel. This allows us to retain the exceptional functional flexibility of the C1.2 and the scalability of the system, while delivering a genuinely significant upgrade in performance.

Feeding the left and right channels to independent DACs allows us to provide dedicated, fully regulated power supplies for the digital processing, upsampling and decoding functions, electrically isolating these critical processes. By placing the DACs in completely separate chassis units, we achieve zero crosstalk between the two channels and prevent high-frequency contamination of the critical analog power supplies. The analog output from each DAC chassis retains the discrete, fully-complementary topology of the C1.2, but now with a dedicated power supply for each channel, further reducing noise and increasing stability. The improved performance of the output stage adds dynamic range and authority to the C1.2 Mono's musical performance, to match the added resolution and reduced error of its digital stages. The end result is the most musically natural and satisfying digital replay we have ever achieved.

Owners of existing C1.2 (C1 or C1 Mono) units wishing to upgrade them to dual-monaural, three chassis status can do so by having their existing DAC/Controller modified and

adding the separate mono DACs – without any cost penalty. The price of the complete upgrade is the same as the difference in cost between the C1.2 and C1.2 Mono. The C1.2 Mono is also compatible with X1 external power supplies, so that owners who have matched an X1 to their C1.2 can add a second output board to their power supply and use it to drive both DACs. Or of course, you can simply add dedicated X1s to both the DACs and the C1.2 controller, creating a six-box true dual-monaural system. For ultimate performance, add a T1 10MHz time Reference with its GPS facility, while a D1.5/X1 and CH-Link will provide optimum replay of material from CD/SACD and MQA discs.

Every CH Precision product conforms to our model of modular construction and scalable upgradability – but none take that concept as far, or offer the potential performance benefits enjoyed by the C1.2 Mono. It is our digital masterpiece.





T1 10MHz Time Reference



When it comes to digital systems, time counts – literally. The precise placement of data, the individual samples that constitute the musical signal, is critical to the accurate reproduction of the original signal. Any drift or error in the spacing of the samples will quickly erode the integrity of the signal, which is why designers of digital systems go to such great lengths to ensure the accuracy of the master clocks that provide a time domain reference for reading data, its transfer and decoding. This reduction in jitter has become the holy grail of digital design.

The problem is, that as soon as you have more than one box (and one master clock) in the system – for instance, if you use a transport and DAC – then the errors can increase exponentially. The easiest solution is to synchronize the two clocks, designating one as the master and slaving the other to it. That's exactly the solution provided by the Clock-Sync cards available for the CH Precision D1.5, C1.2 and I1, while the sophisticated software control incorporated into each of the units allows owners to designate master and slave according to circumstances and system topology. But what's better than syncing two or more units to a single master clock? Syncing them all to a single, superior, external reference point – a reference like the T1 Time Reference external clock.

The T1 generates a super accurate, low-jitter signal that delivers measurably lower phase noise and more accurate

transfer and conversion of digital signals. It is built around a high-frequency, 10MHz oven controlled oscillator (OCXO), its core temperature and output further stabilized by encapsulation in a mechanically isolated billet aluminum block. Why not just use one of the popular and readily available Rubidium clock modules like everybody else? Because those Rubidium modules have a limited life span – generally between six and eight years – and they contain radioactive material. At CH Precision we expect our products to have a much longer working life than that, so incorporating components with a finite life is contrary to all our beliefs – especially if those components then present a serious disposal issue.

By paying attention to the physical engineering and temperature control of our OCXO circuit, providing it with multiple buffers and a sophisticated power supply, we can match or exceed the performance of Rubidium clocks – without their associated issues. And to ensure the absolute stability of the oscillator output, you can sync the T1 to the GPS network, its satellites controlled by Caesium atomic clocks, the most stable and accurate time source known to man. Their 1Hz sync signal prevents any drift in the T1's output, not just now but for years to come, ensuring that your digital signals are (and always will be) handled as accurately and carefully as humanly possible.

“The T1 Time Reference let loose a barrage of detail beyond anything I’ve heard from digital source... But it was not a lopsided advance on the analytical front alone. It was balanced with enhanced timbre, full tone, and especially pace, rhythm and timing.”

MARSHALL NACK, POSITIVE-FEEDBACK

Outputs

- High-Frequency (10MHz), delivers superior accuracy
- Square wave: 1V or 500mV peak to peak, selectable
- Sine wave: 1V or 500mV peak to peak, selectable
- 6 outputs, 75Ω BNC coaxial
- Transformer-coupled outputs to further limit phase noise and error
- Independent control for each output

Inputs

- Optional GPS input further improves clock frequency precision to Caesium-clock level (well beyond that of Rubidium-clocks).
- 1 pulse per second (1 PPS) TTL signal for external synchronization
- Ethernet for remote control (CH Control App)
- USB for firmware upgrade

Power Supply

- Dedicated ultra low noise, three-stage, discrete regulated linear power supplies for each section
- Galvanically isolated power supplies for the OCXO, the OCXO buffer and the output buffers
- Magnetically and electrostatically shielded toroidal mains transformer

Physical Arrangements

- OCXO mounted inside a heavy aluminum block for even greater stability of critical core temperature
- Complete OCXO housing mounted on soft silicon gel for maximum damping and isolation from vibration
- Power transformer mechanically isolated to reduce internal vibration

Optional Hardware

- Unlike other CH Precision units, the T1 offers only one option – its unique GPS input.
- Instead, the T1 is itself the option, offering improved performance with all CH Precision digital components (the D1.5, C1.2 and I1 a vital part of their scalable, upgradeable topology).



I1 Universal Integrated Amplifier



The I1 integrated amplifier is possibly the most complex project that CH Precision has ever undertaken – and the most versatile product we have ever produced. Imagine the core qualities and capabilities of the C1.2 DAC Controller and A1.5 Amplifier combined in a single box. Now throw in the operational functionality of the L1 Line-stage and (optionally) the P1 Phono-stage, all combined in a single, standard CH chassis and you begin to get the picture.

The I1 is supplied in standard form equipped with four digital inputs (CH-Link HD, AES/EBU, S/PDIF and TosLink - although a second identical digital input board can be added in the spare chassis slot if you need the extra connections) one set of balanced and two pairs of single-ended analog inputs. The factory fitted Ethernet Control Board, which allows the unit to be remotely accessed, configured and controlled via the CH Control Android App, can be replaced with a full network streaming capable Ethernet input and a separate, asynchronous USB input card can be added to enable connection of computer sources for file replay. The discrete, fully-complementary analog input boards can be fitted with additional internal circuit blocks that allow owners to convert either or both of the RCA analog inputs into current sensing MC phono-inputs, complete with switchable replay EQ settings for RIAA, eRIAA, Decca, Columbia, EMI and Teldec (DGG) curves. Finally, a Clock-Sync board allows you to slave the I1 to external master clocks, or designate its internal clock as the system master. Dominating the interior of the I1 chassis, you'll find a massive 1000VA transformer, that's more than capable of supporting the 100 Watt/Channel into 8 Ohms rated output; in combination with the 100,000uF of reservoir capacitance it allows the output stage to handle awkward loudspeaker loads with ease.

How did we pack so much functionality into a single chassis? By leveraging the power of sophisticated software control, modular construction and advanced digital processing. The I1's volume control is a remarkable hybrid design, that uses an R-2R resistor ladder in the analog domain for setting course levels, with fine adjustment taking place in the digital domain, a combination that allows incredibly precise level control without eroding bit depth, resolution or dynamic range. Likewise, the I1's advanced analog-to-digital conversion stage allows us to set overall cartridge gain and replay EQ in the digital domain, providing unparalleled phono replay flexibility, accuracy and features in an integrated unit. You mean we turn the analog inputs into digital? Yes – but if you don't tell your friends they'll never know. Indeed, many listeners swear that the I1's phono-stage delivers some of the finest analog sound they've ever enjoyed! Which tells you that its digital replay is pretty impressive too...

“A (very) few integrations can match (the I1) in one area or another, but I know of nothing with a comparable combination of pedigree, versatility, footprint, expandability, upgradability, value, and world-class sonics.”

ALAN TAFFEL, THE ABSOLUTE SOUND

Digital Architecture And Input Compatibility

Standard Digital Inputs

- Factory fitted with CH-Link HD, AES/EBU, S/PDIF and Toslink digital inputs.
- The CH-Link HD interface allows for synchronized transfer of high definition audio content (up to 32bit/768kHz) and DSD, offering the ideal interconnection to the D1.5 CD/SACD Transport or other CH-Link HD equipped units.
- Standard digital inputs accept PCM to 24bit/192kHz, DSD 1bit/2.822MHz (DSD over PCM or DoP encoded)
- Ethernet Control Board (replaced by the network streaming board if ordered or retro-fitted)

Optional Digital Inputs

- The I1 can accept two digital input boards, allowing multiple digital sources to be connected. The second board can be either another HD Digital Input Board or the USB Input Board.
- HD Ethernet audio streaming input board, UPnP/DLNA compatible, allows connection to Roon or NAS drives, audio servers or internet radio.
- PCM to 24bit/384kHz
- DSD 1bit/2.8224MHz (DSD64), 5.6448MHz (DSD128) or 11.2896 MHz (DSD256)
- Native DSD and DoP
- WAV, AIFF, FLAC, ALAC, AAC and MP3 formats supported in PCM
- DSF and DFF formats supported in DSD
- Asynchronous USB audio streaming input board – PCM to 24bit/192kHz, DSD 1bit/2.8224MHz (DSD64) in DoP Mode

Digital to Analog Conversion

- Individual Multi-bit Delta-Sigma converters for each channel
- Fully complementary, dual mono symmetrical circuit topology
- Discrete dedicated, shunt topology regulated linear power supplies for low noise and maximum channel separation

Processing And Clocking

- Proprietary CH-PEtER synchronous data over-sampling processing at DXD sample rate.
- Resolution enhancement of audio material recorded at less than 24bits
- Two ultra low jitter VCXO oscillators, one per time domain.
- Optional Master/Slave Clock-Sync board allows synchronization with external clocks or when used with the D1.5 CD/SACD transport.
- Clock-Sync board also allows use of the T1 10MHz Time Reference clock.

Display

- 800 x 480 pixel, 24bit RGB AMOLED
- 7 standard, user-selectable text colors
- User definable RGB option for text color

Remote Control Options

- Infrared Remote Control handset for basic functions
- Ethernet-based Android control APP



Analog Input Options And Functionality

Volume Control

- By-passable 0.5dB step hybrid volume control, coarse steps using an R-2R resistor ladder, with fine steps in the digital domain, to maximise system resolution.
- Post volume-control balanced XLR line-level analog outputs.

Standard Analog Inputs

- Discrete, fully differential analog input circuit
- Balanced XLR and single-ended RCA inputs
- 6V RMS maximum input level
- Input gain and balance user selectable

Analog-to-Digital conversion

- DXD 24bit/384kHz direct conversion

Optional Phono-Stage

- Current-sensing MC Input for optimum signal to noise performance
- No adjustment required for cartridge loading
- User adjustable gain
- One or both RCA analog inputs can be configured as MC phono-inputs
- Switchable replay EQ – RIAA, eRIAA, Decca, Columbia, EMI, Teldec (DGG)

Amplification Stage

- Pure Class A ultra low-noise driver and Class AB output stages
- Output 2x 175W into 4Ω
- Adjustable global feedback (0 to 100% in 20% steps)
- ExactBias circuitry maintains optimum performance parameters.
- No output relay in signal path
- Custom Argento binding posts for loudspeaker connection (accept both spades and banana plugs)

Power Supply

- Shielded 1000VA power transformer
- Hyper fast soft recovery diode bridge rectifiers
- Total of 100,000uF ultra low ESR reservoir and filtering capacitors

Optional Hardware

- Digital Input HD Board - Four stereo digital inputs – CH-Link HD, AES/EBU, S/PDIF and Toslink. Up to two Digital Input boards can be fitted in the I1.
- Phono Input Board - Current-sensing phono stereo inputs, dedicated to low-impedance MC cartridges.
- HD Ethernet Audio Input Board - Enables bit-exact, ultra low jitter playback of high-resolution files over an Ethernet network. Stream music from Roon or UPnP/DNLA networks, Tidal, Qobuz and internet radios. Browse music by using the CH Control app or third-party UPnP-compatible iOS or Android app.
- USB Audio Input Board - Enables bit-exact, ultra low jitter playback of high-resolution audio files directly from a computer or a music server.
- Clock Synchronization Board - Master/slave clock synchronization board. Allows the I1 to become the system clock master or to sync from an external clock generator such as the T1.

“(With the I1) CH Precision finds a middle way, one that keeps music as attractive as possible, yet also keeps it precise, detailed, and accurate. It’s a bit of a high-wire act, and the CH Precision walks it perfectly.”

ALAN SIRCOM, HI-FI PLUS MAGAZINE

“This integrated amp challenges the sound of high-quality separates, while at the same time condensing their essence into an unbelievably compact system...”

It will drive most speakers comfortably... while offering ease of use combined with a positively mind-boggling array of functionality – most of which is actually useful!

...the (CH Precision) I1 is definitely as close to audio Nirvana as any compact audio system has transported me.”

DENNIS DAVIS – THEAUDIOBEAT.COM







Analog Components

P1 Dual Monaural Phono Stage



Thirty years ago few people predicted that, not only would we still be listening to records in the 21st Century, we'd still be pressing them too. For many listeners, the vinyl record is more than just a viable source – it's the preeminent source of recorded music.

That reflects both the inherent qualities and character of analog sound, but also the fact that record replay has significantly upped its game in the face of ever-increasing competition from high-res digital sources. These days, serious record collectors and listeners wanting the best possible sound will seek out rare original pressings, appreciate the virtues of mono (as opposed to many stereo) releases and purchase their discs, new and used, from all over the world. Likewise, the once simple process of playing those discs can achieve levels of sophistication and record-by-record optimization we never dreamed of, back when the vinyl LP was the only high-quality format.

Today's record players and tonearms offer an unprecedented range of facilities and adjustability – all designed to extract the maximum possible performance from your cartridge and the record it's playing. But if the magic in that fragile phono signal is to be preserved rather than eroded by the rest of your system, you will need a phono-stage that is just as versatile and adaptable, that can be fine tuned to the same exacting degree. Meet the CH Precision P1, a phono stage that takes those demands seriously, offering an unmatched combination of musical performance and adjustability – versatility that ensures you hear ever last expressive and emotional nuance teased from the vinyl groove.

With multiple, independently configurable inputs and with all-important parameters individually adjustable from the

CH control App, the P1 can handle up to three, permanently connected turntables or tonearms. With a combination of both current and voltage sensing inputs (along with a simple yet sophisticated set up protocol for the latter) it maximises the musical performance of any moving-coil or moving-iron cartridge, while the optional, switchable EQ facility means that collectors of early, original pressings can finally hear those discs in all their glory. Being part of the CH Precision, upgradeable/scaleable Eco-system means that the P1's already remarkable performance can be further enhanced with the external X1 power supply, or even taken all the way to the full dual-chassis, four-box configuration.

Whether you want to play a Sgt Pepper's mono pressing or a Decca SXL2000, the P1 will play it for you – and play it right. It's never been so easy to collect great records. The P1 exists to let you hear what makes those records great.

“CH Precision's P1 Phono preamplifier... is not going back to its manufacturer. The longer I used it, the more obvious it became that I couldn't part with it, even though I said I couldn't afford it.”

MICHAEL FREMER, STEREOPHILE

Moving Coil Current Inputs

- Two inputs specifically designed to deliver the best possible performance from low-output, low-resistance MC cartridges
- Gain adjustable in six discrete steps (with actual gain dependent on cartridge internal resistance)
- Current mode delivers the best signal to noise ratio possible from low output MC cartridges and eliminates the need to set individual load impedance
- Both single-ended (RCA) and balanced (XLR) inputs provided

Moving Magnet / Moving Coil Voltage Input

- Input designed for MM cartridges, MC cartridges or step-up transformers
- Ultra low noise FET-input stage
- Gain adjustable from 35dB to 70dB in 5dB steps
- Cartridge loading adjustable from 20 Ohms to 100k Ohms in over 500 steps
- Dedicated set-up record and internal loading 'wizard' shows optimum noise and loading performance on main screen
- Both single-ended (RCA) and balanced (XLR) inputs provided

Optional EQ Curves

- RIAA EQ curve factory fitted
- Optional add-on board provides EMI, Columbia, Decca and Teldec EQ curves for owners/collectors of older records or original pressings

Analog Signal Path

- All adjustable parameters and EQ curves selectable on unit or via CH control App
- Dual-mono circuitry with fully complementary output stage
- Ultra low noise, high bandwidth, high slew rate design
- Class A, discrete transistor based circuit topology
- Selectable 10 Hz 3rd order high-pass subsonic filter

Power Supply

- Ultra low noise, high accuracy, discretely regulated, linear power supplies
- Shunt regulation of each individual stage

Scalable And Upgradable

- Available in Dual Monaural (single chassis) or True Monaural (dual chassis with one channel per enclosure) form.
- Can be driven from the X1 external PSU (Dual Monaural) a dual output X1 (True Monaural) or a pair of single X1s for the ultimate four-box solution.
- Additional audio chassis or PSU units can be added at any time.

Optional Hardware

- Additional EQ Board
- Four additional playback EQ curves.
- EMI, Columbia, Decca and Teldec EQ curves, realized using custom built,
- high-grade film capacitors and tight tolerance metal film resistors.



L1

Dual Monaural Line Preamplifier



*"Nothing strengthens authority
so much as silence."*

LEONARDO DA VINCI

On the face of it, all a line-stage has to do is allow you to select between sources and set the system level. Sounds simple? Yet not only is the quality and performance of the line-stage an absolutely key factor in determining overall system performance, there are fewer contenders for state-of-the-art line-stage honors than in any other product category. Maybe designing the best possible line-stage isn't quite so simple after all...

Any great line-stage must possess transparency, ultra-low-noise performance and absolute stability. It must anchor the incoming signals and deliver them onwards, propelled from a firm footing that ensures dynamic and musical authority. It must pass the source signals in your system, without limitation or disturbance, leaving no trace of itself on their passage. Any great line-stage needs to be the next best thing to sonically and musically invisible, the hi-fi equivalent of effortlessly enacting its own audio super power.

Like all CH Precision products, the L1 uses fully discrete, balanced and complementary design, ultra-short signal paths and exactly selected components. It is fed from heavily regulated and filtered, multi-stage power supplies, is wide-bandwidth, high slew-rate and DC coupled. But in this critical application, that's not enough. It's one thing to eliminate unnecessary components from the signal path and eliminate DC offset at the inputs, but the L1 takes things much, much further than that. Completely separate left and right channel circuit boards prevent crosstalk, while a super sophisticated, software driven R-2R network for each

channel employs precision metal-film resistors and allows precise level control in 0.5dB steps with the minimum possible number of components. DC offset is monitoring and eliminating not just at the inputs but throughout the volume control ladder and at multiple points throughout the entire circuit. That makes the L1 not just one of the quietest line-stages ever built, it makes it one of the quietest in operation too.

For a company that is renowned for the flexibility and configurable nature of its products, it is ironic that one of our most musical vital components is also our least adaptable. Although the L1 line-stage has an inherently modular topology, it offers only line-level inputs and comes fully loaded as standard. But that doesn't mean that the L1 isn't scalable and upgradable, with the option to add a second chassis for true-monaural operation and one or two X1 external power supplies. Of course, the L1 is fully controllable via the CH Control App, its inputs can be labeled, you can set overall gain as well as individual input offsets and you can even select a DC blocking capacitor on any input if necessary. But at heart, in terms of signal transfer the L1 is as stripped down and purist as it can possibly be. You can hear that in its performance; you will hear it in any system that's built around an L1, whether in one, two, three or four-box form. As elegant in design as it is sophisticated in operation, as musically commanding as it is unobtrusive, the L1 brings a whole new sense to the motto, "We hide with pride!"

Modularity

- Dual Monaural (Left & Right channels in a single enclosure), 8 inputs
- True Monaural (one channel per enclosure), 8 or 16 inputs

Inputs and Outputs

- 8x line-level inputs (4x balanced XLR, 4x single-ended RCA)
- 4x pre-amplifier outputs (2prs balanced XLR, 1pr single-ended RCA, 1pr single-ended 75 Ohm BNC)

Volume Control

- 20bits R-2R ladder network
- 118dB range in 0.5dB steps, from -100dB to +18dB
- Tight tolerance high-grade metal film resistors

Analog Signal Path

- Balanced XLR, single-ended RCA & BNC inputs and outputs
- Powerful discrete output buffer to drive long interconnects and/or multiple amplifiers
- Ultra-low-noise, high-bandwidth, high-slew-rate design
- Pure class A, fully-symmetrical topology
- Fully discrete, transistor based circuitry
- Switchable absolute phase and mono settings

Power Supply

- Dedicated discrete regulated linear power supplies
- Ultra low noise, high accuracy regulation
- Shunt regulators for critical stages
- Can be powered from the X1 External Power Supply

Optional Hardware

- L1 Enclosure – The addition of a second L1 enclosure transforms the L1 into a True Monaural line pre-amplification system, with separate enclosures for each channel.
- Monaural Analog Preamplifier Board – In a True Monaural system (with two enclosures), each enclosure is able to receive an extra preamplifier board. This turns the L1 into a True Monaural Extended system, providing the preamplifier with 16 as opposed to 8 inputs, if required.



“The L1 goes calmly about its business, the anchor to which the system’s absolute spatial and temporal stability are tied, the root of its remarkably low noise floor and sudden dynamic response. In many ways it’s the understated star turn that sums up the whole system.”

ROY GREGORY, HI-FI PLUS MAGAZINE

X1 External Power Supply



When you listen to your audio system, you are quite literally listening to your AC supply. Just as the performance of a car depends on the type and quality of fuel you run it on, so your audio system's performance can be undermined by a poor quality electrical supply and, within your system, no components are more vulnerable to compromise than the digital and low-level units. This is one area of technology where size really matters – just not necessarily in the way that you might assume. The critical circuits in your audio system run on DC voltage. The level of that voltage needs to be precise and the level of residual noise it carries needs to be as low as possible. All CH Precision components contain sophisticated power supplies with extensive local DC regulation. But this is one field in which you can never put too much protection between the signal path and the noisy, RF polluted and mechanically intrusive AC supply...

The X1 External Power Supply is an ultra low noise, discrete and fully regulated linear power supply, delivering an ultra stable and super clean DC feed to other CH Precision products. It contains massive amounts of noise filtering as well as an additional stage of power supply regulation that works in conjunction with the on-board regulation built into the connected unit, in order to increase DC stability and further reduce noise to a vanishingly low level. Compatible with the D1.5 CD/SACD Transport, C1.2/C1.2 Mono DAC/Controllers, P1 Phono-Stage and L1 Line-Stage, the X1 External Power Supply will dramatically improve the already impressive performance of these products, reducing system noise floor, increasing dynamic range, resolution and speed

of response, transparency, detail and above all, musicality. Adding X1s to your system will bring intimacy, presence, tonal color and an unmistakable sense of life to your recordings – and the more X1s you add, the better it will get.

Each X1 can be configured to run either one or (with a second, optional output card) two low-level products. But the X1 is also a crucial element in CH Precision's scalable system topology, so that as you move each product towards a true dual-mono signal chassis configuration, you can use one X1 output or a dedicated X1 for each unit, delivering ultimate channel separation and musical performance.

“So yes, The CH Precision X1 does make a difference. A big one! Sadly once you try out X1 along with the P1, there is no going back”

MATEJ ISAK, MONO AND STEREO

Outputs

- Up to two units can be connected to a single X1 (with the addition of a second regulation board)

Internal Topology

- Dedicated mains filter for each transformer primary.
- Cascades external power supply regulation stage with onboard regulation for superior noise rejection.
- Two oversized power transformers dedicated to the digital and analog power supply sections of the connected unit(s) respectively.
- Allows the connected unit's mains transformer and rectifier to be powered down, reducing electrical noise and spurious mechanical interference within the audio chassis.

Component Compatibility

- Can be used to further improve the performance of the D1.5 CD/SACD Transport, C1.2/C1.2 Mono DAC/Controllers, P1 Phono-Stage and L1 Line-Stage
- Housed in the same mechanically grounded enclosure as the rest of the 1 Series units, so that it fits in perfectly with your system.

Optional Hardware

- Second DC Output Board – Any X1 can have a second, identical, fully regulated DC output fitted, allowing it to run a second connected unit.
- The X1 External Power Supply is itself a vital optional component in the CH Precision scalable upgrade path. It can be used individually as a dedicated supply, to run two separate components, to run both sides of a dual-chassis component or even as a dedicated supply for a single channel, single chassis set up.



"Adding the X1 is, quite frankly, a no-brainer. Given the price of a P1 or L1 and the difference wrought to their performance by the X1, at its relatively modest cost, it should be an automatic add-on or urgent upgrade. The drop in the noise floor that results from its use has profound musical implications, both in dynamic and expressive terms. Performers have greater presence, their playing greater agility. The soundstage expands and snaps into focus and the instruments in the orchestra, or voices singing, are better separated, both spatially and tonally, the latter a function of a wider and better-differentiated tonal palette."

ROY GREGORY, THEAUDIOBEAT.COM





M1.1 Two-channel Power Amplifier



Traditionally, power amps have always been the simplest of audio components, at least on the outside: little more than a set of inputs, a set of outputs and a power switch. Until now...

The problem is that although power amps themselves might appear simple, their job is anything but straightforward. Caught in a sandwich between the output of a line-stage or DAC and the load requirements and sensitivity of any number of different loudspeakers, they must be able to accommodate the widest range of partnering equipment and interface parameters presented to any unit in the audio system. Achieving optimum results under such varied conditions demands a capable and versatile performer – yet as we’ve already established, most power amps offer a single, brute force solution to the problems they face, instead of adopting a more sophisticated response. It’s time for a change – it’s time to meet the CH Precision M1.1, a new-paradigm in power amplification.

What sets the M1.1 apart? It goes without saying that the M1.1’s sonic and musical performance challenges the state-of-the-art, an incredibly short audio signal path executed with exacting component choices and construction, a massive power supply providing absolute stability and unfettered headroom, capable of meeting both the most delicate and most massive musical demands. But what makes the M1.1 really different is its software driven housekeeping capabilities, a non-intrusive support network that does more than just keep the amplifier unconditionally stable.

For a start, it’s not just one amplifier: it’s actually four amplifiers in one – at least in conceptual terms. The sophisticated software in the M1.1 allows the owner to configure the unit in one of four different ways. So an M1.1 is a conventional stereo amplifier but it is also a high-current mono-bloc in which the entire power supply is devoted to a

single output channel, a high-power, bridged-mode mono-bloc and a bi-amp mode stereo unit in which a single input can be differently configured for the two output channels. Differently configured? Yes, because the M1.1 allows owners to select gain and percentage of global feedback for each channel independently – which means that the amplifier can be adjusted for overall system gain and noise performance, as well as configuring the low-frequency damping and gain to match system topology.

That means that the M1.1 is both configurable to specific speaker loads and inherently upgradeable – as well as adaptable to upgrades elsewhere in the system. Change your speakers or line-stage and the amplifier you already own will adapt to deliver the best possible performance. Start with a stereo amp and it can grow into a pair of mono-blocs or a bi-amped system, all without having to replace existing units or even changing your interconnect cables. For once, the best sounding amplifier is also the sensible choice, because there’s finally an audio amplifier that’s got both finesse and brute force – but without the ignorance...

“The M1.1 power amp is simply the most musically accomplished, high-powered solid-state piece it has been my pleasure to use. I love its configurable nature and I love the idea of adding additional amps along the way.”

ROY GREGORY, THEAUDIOBEAT.COM

Physical And Conceptual Modularity

- Modular input boards to match system topology (one or two inputs as required)
- User configurable output stage can be adjusted using the user interface or control app
- Stereo and bi-amplification modes deliver 2x350W into 4Ω,
- High current mono delivers 1100W into 1Ω and bridged mode 700W into 8Ω

Analog Input Stage

- Pure class A, fully symmetrical circuit topology
- Fully discrete, ultra low noise, high slew rate design
- DC coupled with no series capacitors in the audio signal path

Analog Output Stage

- Pure class A ultra low noise driver and class AB pure follower power stage
- Patented ExactBias circuitry ensures constant bias, independent of room temperature. Constant monitoring of output power and temperature and amplifier loading.
- User configurable display will show amplifier status, power output etc
- Customized Argento internal wiring and loudspeaker binding posts (accept spades and banana plugs)

Power Supply

- 2200VA power transformer mounted on separate, mechanically isolated chassis bed to eliminate mechanical vibration
- Magnetically and electrostatically shielded transformers to reduce noise and EM interference
- Hyper fast, soft recovery diode bridge rectifiers meet dynamic demands without strain
- Total of 250,000uF custom-built, ultra low ESR reservoir and filtering capacitors

User Adjustable Global Feedback Ratio

- Ratio of Global to Local Feedback can be adjusted from 0% to 100%, in 10% steps via the user interface or control app
- Allows user optimization of amplifier/speaker interface, especially low-frequency damping relative to speaker/room interaction
- Each channel can be adjusted individually to control specific drivers/ranges in bi-amplification modes

User Adjustable Input Gain

- Input gain can be user adjusted to accommodate input signal level and overall system gain. 24dB range in 0.5dB steps
- Optimizes system noise floor and dynamic range
- Accommodates variations in loudspeaker sensitivity and room size

Light Touch Protection

- No sonically-intrusive output relay: full short-circuit protection
- Non-invasive output stage voltage, current and temperature monitoring protects your amplifier – and your speakers.

Optional Hardware

- Monaural Analog Input Board – A second Monaural Analog Input Board is required for stereo and active operations: XLR, RCA and 75 Ohm BNC inputs: Balanced pass-through for daisy-chaining amplifiers in multi-amp systems.

"The M1.1s' powerful bass grip and remarkable slam were immediately noticeable..."

MICHAEL FREMER, STEREOPHILE



A1.5 Two-channel Power Amplifier



Like its bigger brother, the M1.1 Reference power amplifier, there's a lot more to the A1.5 than meets the eye – just in a more compact and more affordable form...

Faced with exactly the same challenges as the M1.1, the A1.5 embodies the same sophisticated, modular and scalable approach. It might be (slightly) smaller than the M1.1 and around two-thirds of its weight, but it's still four amplifiers in one. It still offers the same adaptable, software controlled topology, adjustable input configuration and gain, user selectable global feedback ratio and cost-effective upgrade path. It offers exactly the same, incredibly short signal path, fully discrete, fully balanced and fully complementary circuit, built with the same carefully selected components to the same exacting standards. Even the casework, although it's shorter, has the same footprint, uses the same construction and includes the same mechanical grounding/stacking system. In fact, in every important way, the A1.5 is, quite literally, an M1.1 writ small – or, in Hollywood terms, "Honey, I shrank the amp..."

But in this case, loss of weight doesn't mean a loss of quality. The power transformer and reservoir capacitance are identical in type and design to those in the M1.1. The A1.5 inevitably delivers less power than our Reference amplifier, but with a conservatively rated output of 150 Watts/Channel, it's definitely no lightweight, performing with real dynamic range and authority – and it does it all at a considerable saving in cost. It might not match the awesome headroom capabilities of the M1.1 under the most demanding loads, or do it in the largest of large rooms, but in many systems and with many speakers you simply don't need or can't use that capacity. Combine the A1.5's impressive real-world performance and increased affordability with its adaptable, configurable topology and suddenly you have a serious slice of M1.1 performance – but in a much more manageable package.

With the same transparency, resolution and engaging, communicative musical qualities as the M1.1, the A1.5 is an incredibly capable and convincing performer, the perfect partner for a whole host of high-quality speakers. In any other range it would be the flagship model and it delivers performance to match. But what happens when the upgrade urge strikes, you can accommodate bigger speakers or you want more from your system? As impressive as a single A1.5 undoubtedly is, adding a second A1.5 to your system unleashes the monster within, because, just like the M1.1, the configurable input/output topology of the A1.5 makes it an amplifier that, once doubled up becomes considerably more than the sum of its parts. User configurable, via the front-panel buttons or the CH Control App, the A1.5 is not only a conventional stereo amplifier: it is a high-current mono-bloc; it is a high-power bridged mono-bloc and perhaps most important of all, it can be adapted for bi-amping, a single input being routed to both channels. That not only saves on the need for additional interconnects, the gain and global feedback ratio can be set independently for each channel, allowing further control over bass output and room matching. But most critically of all, vertical bi-amping maximizes dynamic range and system headroom, allowing the A1.5 to grow with your speakers' demands and your musical and system ambitions.

The A1.5 – the not so 'little' power amp that punches well above its weight!

"Looking at my listening notes now, I find the scrawled question, "Can I live without this amplifier?" It brought a whole new meaning to the phrase "music in the home."

DENNIS DAVIS, THEAUDIOBEAT.COM

Physical And Conceptual Modularity

- Modular input boards to match system topology (one or two inputs as required)
- User configurable output stage can be adjusted using the user interface or control app
- Stereo and bi-amplification modes deliver 2x 275W into 4Ω,
- High current mono delivers 700W into 1Ω and bridged mode 550W into 8Ω

Analog Input Stage

- Pure class A, fully symmetrical circuit topology
- Fully discrete, ultra low noise, high slew rate design
- DC coupled with no series capacitors in the audio signal path

Analog Output Stage

- Pure class A ultra low noise driver and class AB pure follower power stage
- ExactBias circuitry ensures constant bias, independent of room temperature
- Constant monitoring of output power and temperature
- User configurable display will show amplifier status, power output etc
- Customized Argento internal wiring and loudspeaker binding posts (accept spades and banana plugs)

Power Supply

- 1700VA power transformer mounted on separate, mechanically isolated chassis bed to eliminate mechanical vibration
- Magnetically and electrostatically shielded transformers to reduce noise and EMF interference
- Hyper fast, soft recovery diode bridge rectifiers meet dynamic demands without strain
- Twin 82,000uF custom-built, ultra low ESR reservoir and filtering capacitors

User Adjustable Global Feedback

- Ratio of Global to Local Feedback can be adjusted from 0% to 100%, in six steps (0, 10, 20, 40, 70, 100%) via the user interface or control app
- Allows user optimization of amplifier/speaker interface, especially low-frequency damping relative to speaker/room interaction
- Each channel can be adjusted individually to control specific drivers/ranges in bi-amplification modes

User Adjustable Input Gain

- Input gain can be user adjusted to accommodate input signal level and overall system gain.
- Optimizes system noise floor and dynamic range. 24dB range in 0.5dB steps
- Accommodates variations in loudspeaker sensitivity and room size

Light Touch Protection

- No sonically-intrusive output relay: protection procedures in case of output short circuit or overheating
- Non-invasive output stage voltage, current and temperature monitoring protects your amplifier – and your speakers.

Optional Hardware

- Monaural Analog Input Board - Option board needed for stereo and active applications (only buy the inputs you need): XLR, RCA and 75 Ohm BNC inputs: Balanced pass-through for daisy-chaining amplifiers in multi-amp systems.

Existing A1 amplifiers factory upgradable to full A1.5 specification.



CH-Control Android App



The complex, configurable nature of CH components means that initial set up can be a daunting prospect, involving multiple stacked menus and myriad different parameters. With a little practice, it becomes second nature – but why practice when there's a simpler, more accessible and more intuitive alternative that actually promises both superior set up and easier operation?

Meet the CH-Control App – a control application that allows users direct access to every aspect of their CH system's set up and use via any Android portable device. The software control systems used to set and monitor the operational parameters of each and every CH component offer the perfect opportunity for remote operation via a portable App.

To use the CH-Control App, all you will need is an Android device and to connect your CH components to an Ethernet network. That can be done either through the Ethernet control board fitted as standard to all CH units, or through the network streaming board that can be installed in

C1.2, C1.2 Mono or I1 units. We would always recommend using a dedicated tablet and network for your music streaming and system control requirements. But once your CH system is all hooked up, the App gives you touch screen access to every setting on every CH component, from the output topology of your amplifier to individual global feedback ratio and gain settings for each channel. Likewise, you can adjust gain in the P1, select EQ for each record or switch disc layers in the D1.5 CD/SACD player. But best of all, you can do it from the listening seat, which is of course convenient but is also a huge benefit when it comes to whole system set up or optimization for individual recordings. Either way, the CH-Control App allows you to make easier and more accurate judgements: Total control, quite literally at your fingertips.

For more information on the CH-Control App, a video is available on our Facebook page:

www.facebook.com/chprecision

CH-Control is available free from the Google Store.



“Extremely intuitive to use, (the CH-Control App) allows you direct access to volume, balance, gain settings, choice of inputs, choice of EQ curves, mute, phase polarity, mono/ stereo button, feedback setting and several other less frequently used controls... the App was a boon when it came to setting things like global feedback and input gain, settings it allowed you to adjust from the listening seat. It was also a godsend for making changes to EQ settings on the fly.”

DENNIS DAVIS, THEAUDIOBEAT.COM

The features of every CH product are accessible through the CH-Control App:-

- Built-in UPnP controller to stream dematerialized music, create playlists from your local server, audio streaming services or internet radio
- Set volume level, select sources, reverse phase, mute etc.
- Access to all the advanced set up parameters in every CH product.
- Works on a standard Ethernet network
- You can see the CH-Control App in action on our YouTube channel:
www.youtube.com/chprecision



Accessories

You can't listen to an amplifier, only a system...

The best amplifiers in the world still need to be integrated into your system, working with source components and speakers to recreate and deliver those remarkable musical events and performances. At the same time, they sit at the heart of and allow you to direct operations.

CH Precision components have always offered an unprecedented level of versatility when it comes to matching sources and meeting the drive requirements of specific loudspeakers. The 10 Series takes that user-configurable tuning capability to new heights. Owners can select feedback topology for both the line-stage preamplifier and power amps, along with everything from input gain and source naming to the content and color of the displays. The M10 power amplifier offers five user-selectable output topologies, embracing stereo, bi-amplified and mono operation, allowing you to achieve the best possible interface with your existing speakers – or adapt to changing requirements as your system evolves.

Each 10 Series component comes with a complete suite of set-up accessories, with the parts and tools to ensure optimum support, mechanical grounding and even a sophisticated stacking solution if space is limited – and every operational parameter can be set or adjusted using the CH Control App.

In designing the 10 Series we haven't just aimed to make them the best audio amplifiers available – we've worked to ensure that they deliver that performance in every system, in every situation and with every type of music. Because ultimately, whatever and wherever you choose to listen, it's the musical performances you choose that matter.





Technical Specifications

P1 Dual Monaural Phono-Stage

MC current-sensing input impedance

< 100m Ω , virtual ground

Equivalent Input Noise (EIN)

< -135dBu without X1 / < -138dBu with X1 /
1 Ω termination, gain +70dB, 22kHz BW

MM/MC voltage input impedance

Variable from 100k Ω to 20 Ω

Equivalent Input Noise (EIN)

< -130dBu without X1 / < -135dBu with X1 /
1 Ω termination, gain +70dB, 22kHz BW

Playback EQ curves accuracy

+/- 0.1dB

High pass filter

Selectable - 3rd order (-18dB per octave) 10Hz,
or by-pass

Max analog output level

8V RMS balanced

4V RMS single-ended

Frequency response

> 400kHz (RIAA equalization filter disconnected)

Total Harmonic Distortion + Noise

< 0.01%, 1kHz, output level 3V RMS, 22kHz BW

Weight

20kg

L1 Dual Monaural Line-Stage

Max analog input and output levels

16V RMS balanced

8V RMS single-ended

Input impedance

94k Ω or 600 Ω balanced

47k Ω or 300 Ω single-ended

Frequency response

DC - 1MHz

Total Harmonic Distortion + Noise

Output 3V RMS, 22kHz BW

< 0.001%, 1kHz, unity gain

Signal to Noise Ratio

Maximum output

> 136dB, unity gain

Weight

20kg

X1 External Power Supply

Digital and analog power supplies monitoring

Over- & under-voltage

Over-current

DC outputs

One or two independent output boards as specified

Weight

22kg

D1.5 CD/SACD Player/Transport

Frequency response

DC - 20kHz for CD

DC - 35kHz for SACD

Full scale analog outputs level

3.1V RMS balanced

1.55V RMS single-ended

Dynamic range

> 96dB for CD and > 120dB for SACD

Signal to Noise Ratio

> 126dB for both CD and SACD

Total Harmonic Distortion + Noise

< 0.002% for CD

< 0.0012% for SACD

Weight

22kg

C1.2 Mono Digital to Analog Controller C1.2 Digital to Analog Controller

Conversion type

R-2R, 4x PCM1704 per channel

24 bit / 705.6kHz & 768kHz

DSP processing

CH-PeTeR upsampler, synchronous, DSD to PCM

conversion and resolution enhancer

Full scale analog outputs level

5.1V RMS balanced

2.55V RMS single-ended

Signal to Noise Ratio

> 126dB

Total Harmonic Distortion + Noise

< 0.001%, full scale, 22kHz BW

Weight

20kg per unit

I1 Universal Integrated Amplifier

Max analog input level

8V RMS balanced

4V RMS single-ended

Input impedance

94k Ω or 600 Ω balanced, 47k Ω or 300 Ω single-ended

A/D conversion

DXD 24 bit / 384kHz direct conversion

Phono MC current-sensing input impedance

< 100m Ω , virtual ground

Playback EQ curves accuracy

+/- 0.01dB (software implementation)

Post volume-control analog line outputs max level

4V RMS balanced

Loudspeaker outputs

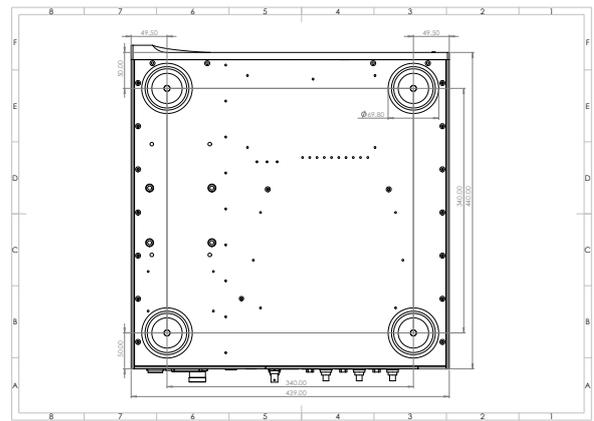
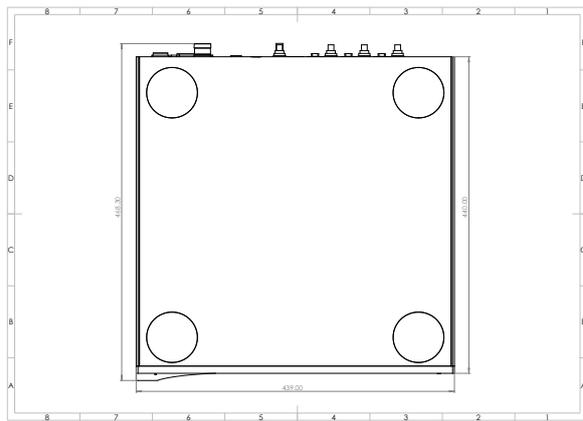
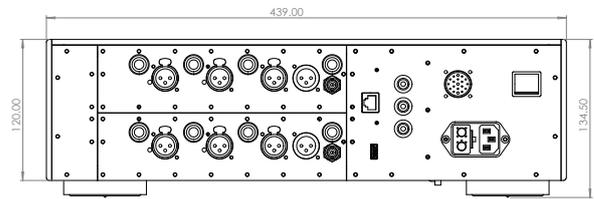
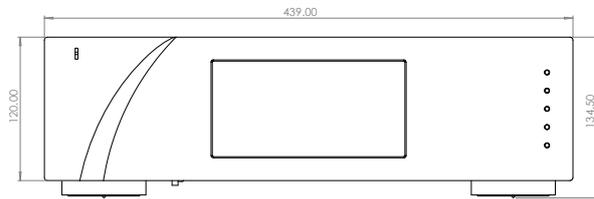
2x 100W RMS/8 Ω

2x 175W RMS/4 Ω

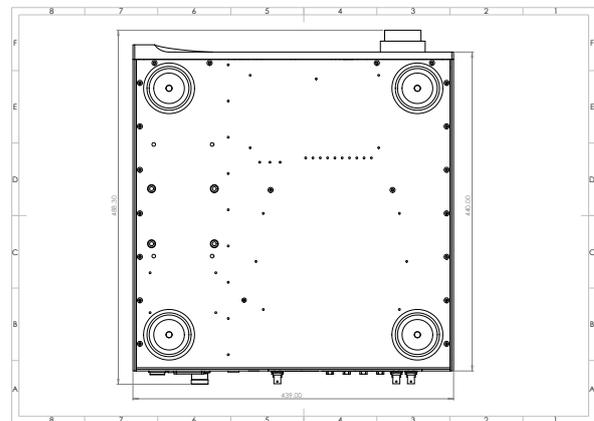
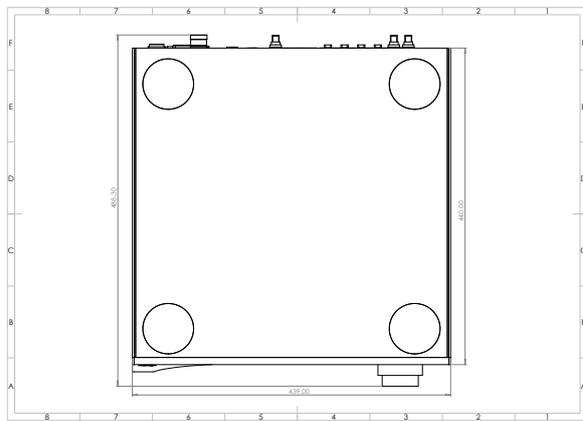
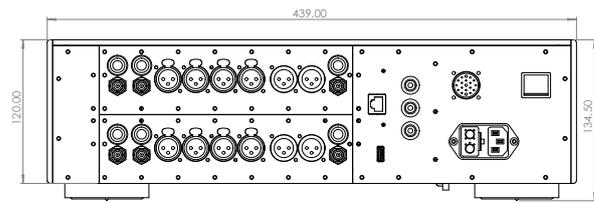
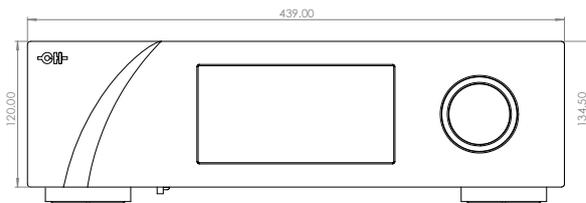
Weight

33kg

P1 Dimensions



L1 Dimensions



Technical Specifications

M1.1 Two-channel Power Amplifier

Nominal input voltage

2.5V RMS balanced
1.25V RMS single-ended

Input impedance

94k Ω balanced
47k Ω or 300 Ω single-ended

Output power

2x 200W / 8 Ω , 2x 350W / 4 Ω , 2x 600W / 2 Ω
in stereo and bi-amp modes
1x 350W / 4 Ω , 1x 600W / 2 Ω , 1x 1100W / 1 Ω
in monaural mode
1x 700W / 8 Ω , 1x 1200W / 4 Ω , 1x 1600W / 2 Ω
in bridge mode

Bandwidth

DC to 450kHz (-3dB) at 1W into an 8 Ω resistive load

Signal to Noise Ratio

> 115dB in stereo and bi-amp modes
> 118dB in bridge mode

Total Harmonic Distortion + Noise

< 0.1% (0% global feedback)
< 0.01% (100% global feedback)

Max power consumption

2200W

Weight

71kg

T1 10MHz Time Reference

Nominal frequency

10MHz, +/- 20ppb, internal mode
10MHz, +/- 1ppb maximum, GPS option locked for 1 hour

Phase noise performances

< -105dBc/Hz @ 1Hz
< -125dBc/Hz @ 10Hz
< -145dBc/Hz @ 100Hz
< -155dBc/Hz @ 1kHz
< -165dBc/Hz @ 10kHz and above

Outputs level

500mV or 1V, peak to peak, loaded with 75 Ω

Sine or Square wave

Six 75 Ω BNC outputs

External reference input level

5V TTL

50 Ω BNC input

Accepted reference input frequencies

1 PPS, 44.1kHz, 48kHz, 88.2kHz, 96kHz, 100kHz,
176.4kHz, 192kHz,

Reference input frequency deviation maximum

+/- 0.1ppm

Weight

20kg

A1.5 Two-channel Power Amplifier

Nominal input voltage

2.2V RMS balanced
1.1V RMS single-ended

Input impedance

94k Ω balanced
47k Ω or 300 Ω single-ended

Output power

2x 150W / 8 Ω , 2x 275W / 4 Ω , 2x 450W / 2 Ω
in stereo and bi-amp modes
1x 275W / 4 Ω , 1x 450W / 2 Ω , 1x 700W / 1 Ω
in monaural mode
1x 550W / 8 Ω , 1x 800W / 4 Ω , 1x 1200W / 2 Ω
in bridge mode

Bandwidth

DC to 450kHz (-3dB) at 1W into an 8 Ω resistive load

Signal to Noise Ratio

> 115dB in stereo and bi-amp modes
> 118dB in bridge mode

Total Harmonic Distortion + Noise

< 0.1% (0% global feedback)
< 0.01% (100% global feedback)

Max power consumption

1800W

Weight

47kg

SYNC-IO Board (for C1.2, C1.2 Mono, D1.5 and I1)

Clock input

BNC, 0.5Vpp to 5Vpp, 75 Ω or Hi-Z
44.1kHz, 48kHz, 88.2kHz, 96kHz, 176.4kHz, 192kHz,
352.8kHz, 384kHz, 22.5792MHz,
24.576MHz, 100kHz, 10MHz

Clock output

2x BNC, 2Vpp, 75 Ω

General

Display

800x480 pixels, 24bits color, AMOLED

Mains operation

Selectable 100V, 115, 230V AC, 47-63Hz

Standby power consumption

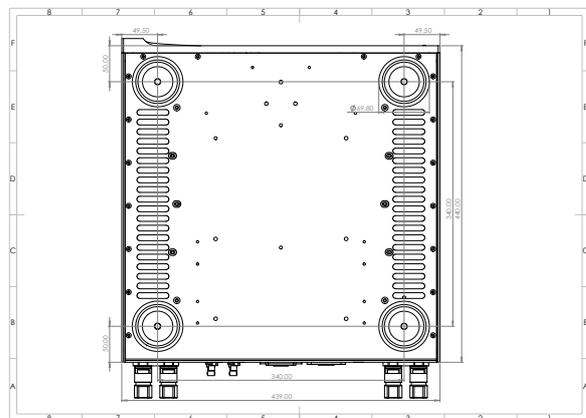
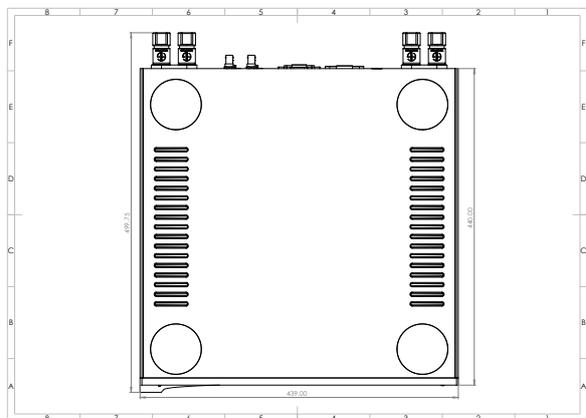
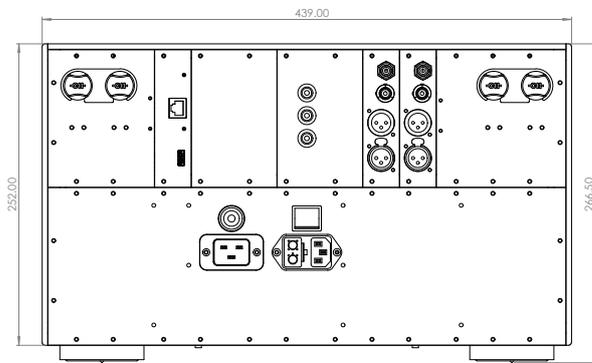
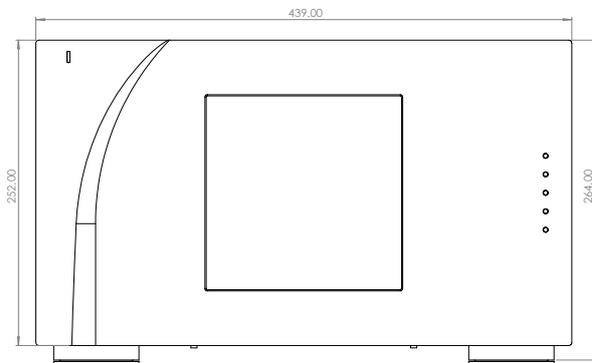
< 1W

Remote control

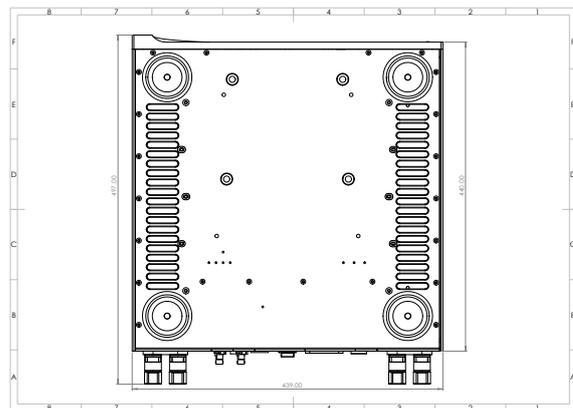
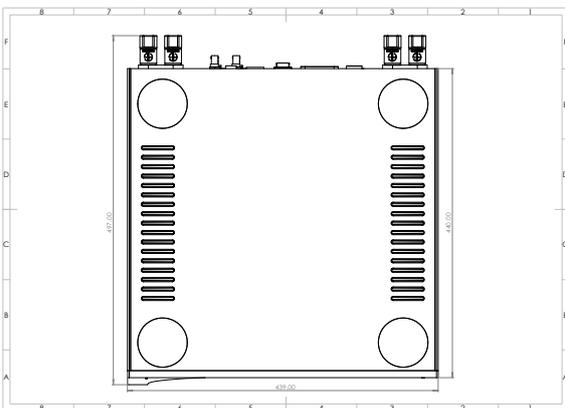
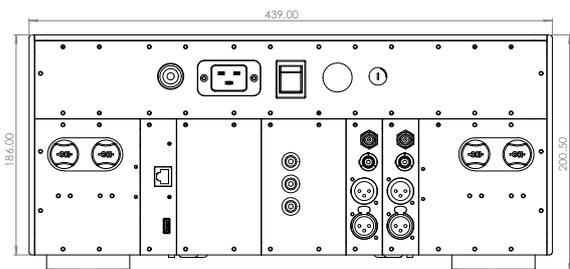
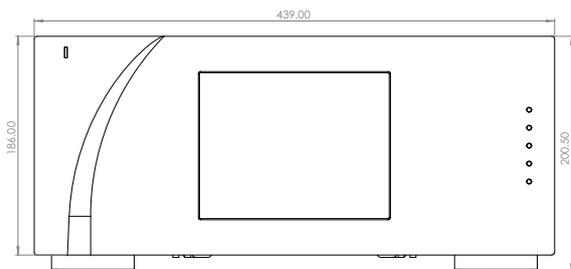
IR Remote control, RC5 codes

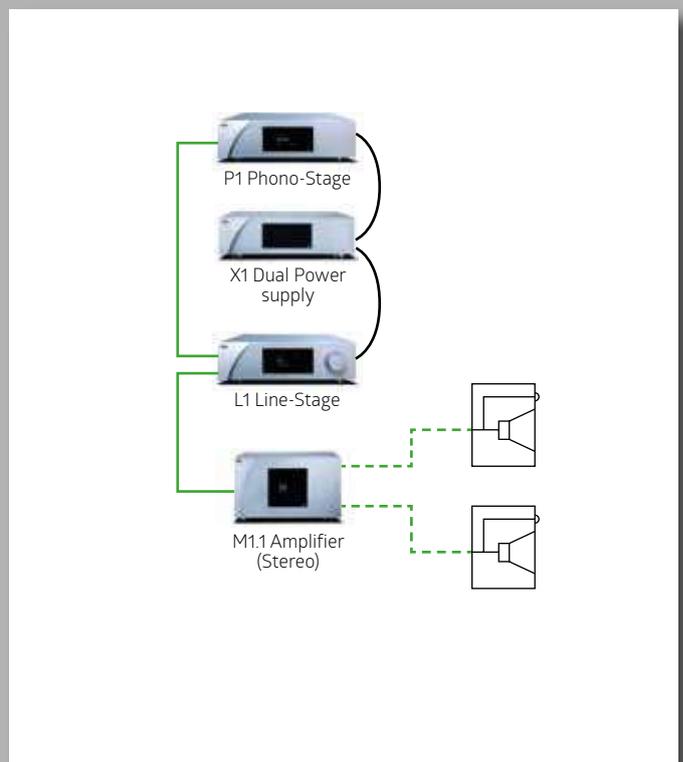
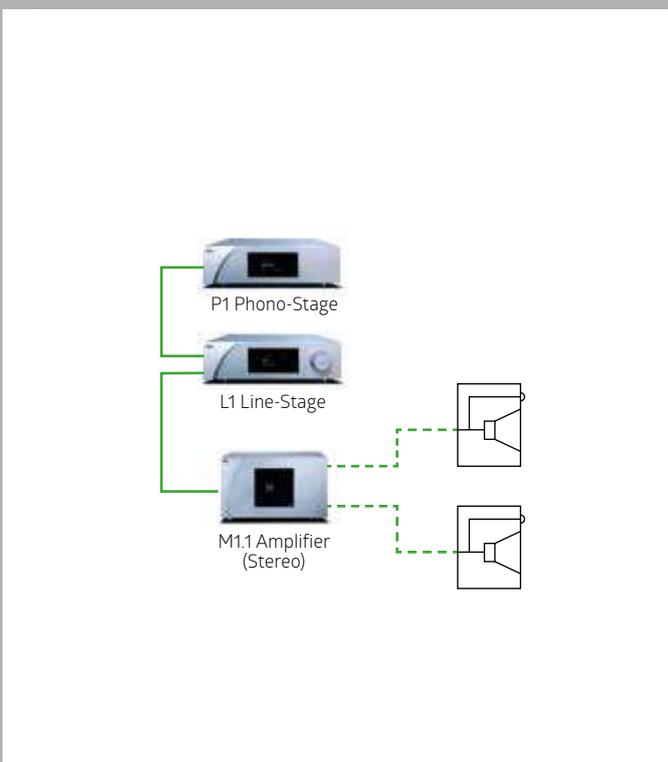
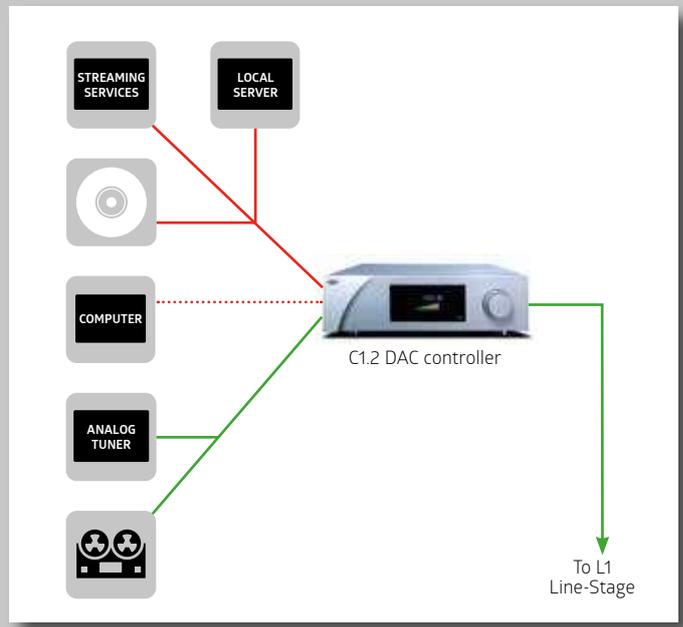
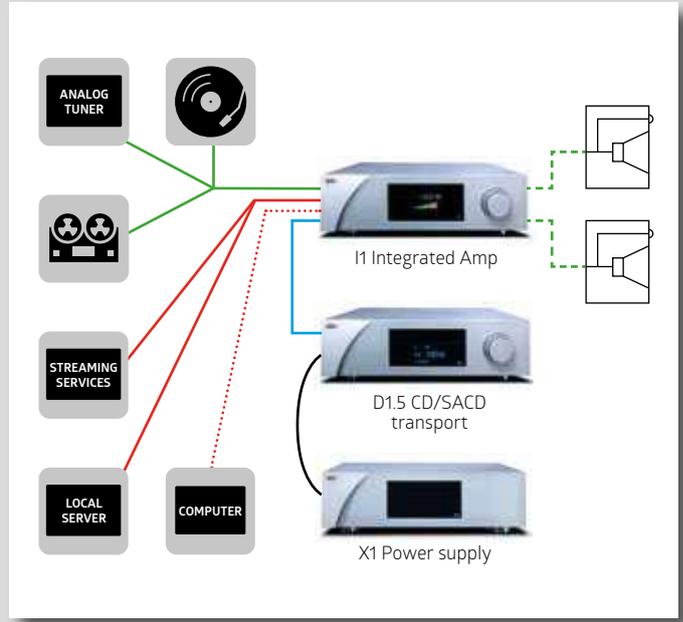
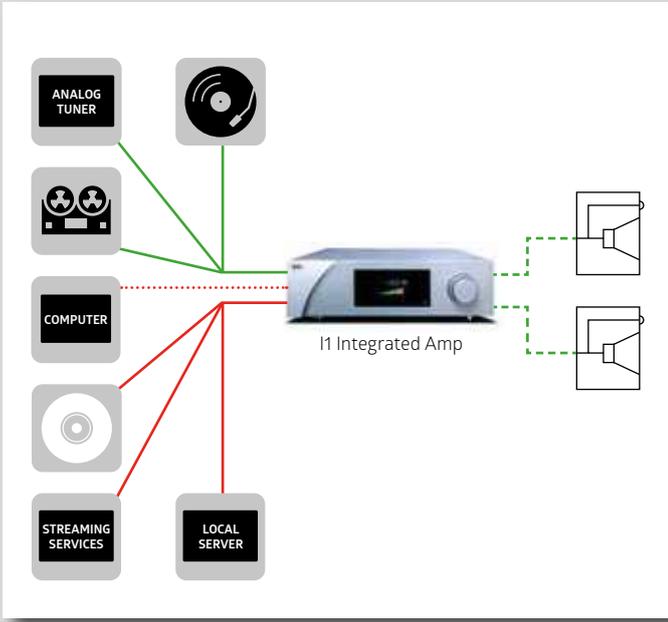
CH-Control App

M1.1 Dimensions

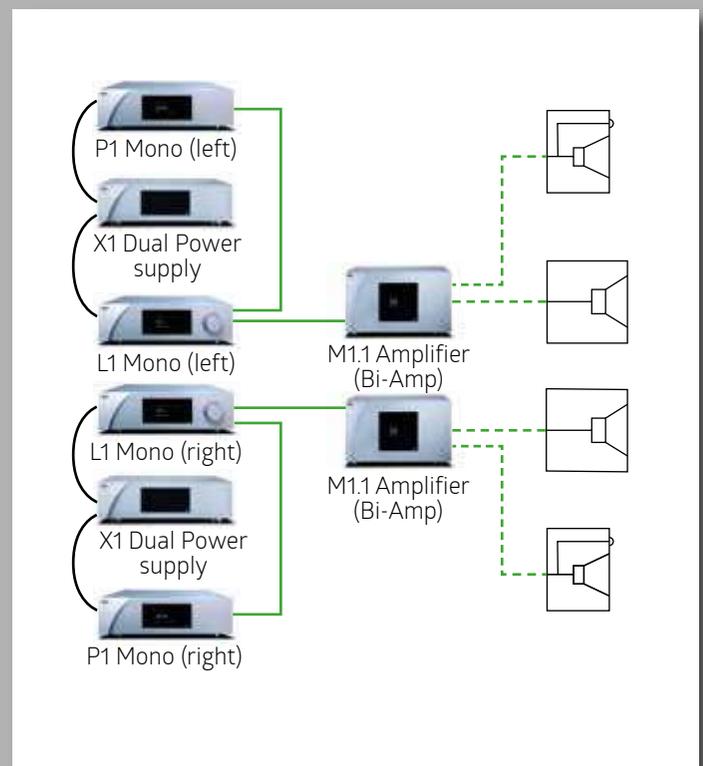
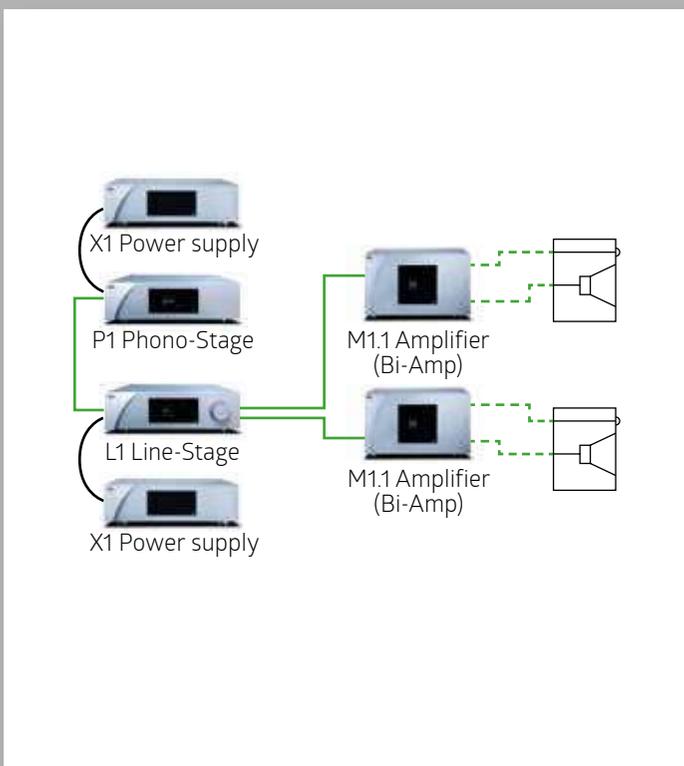
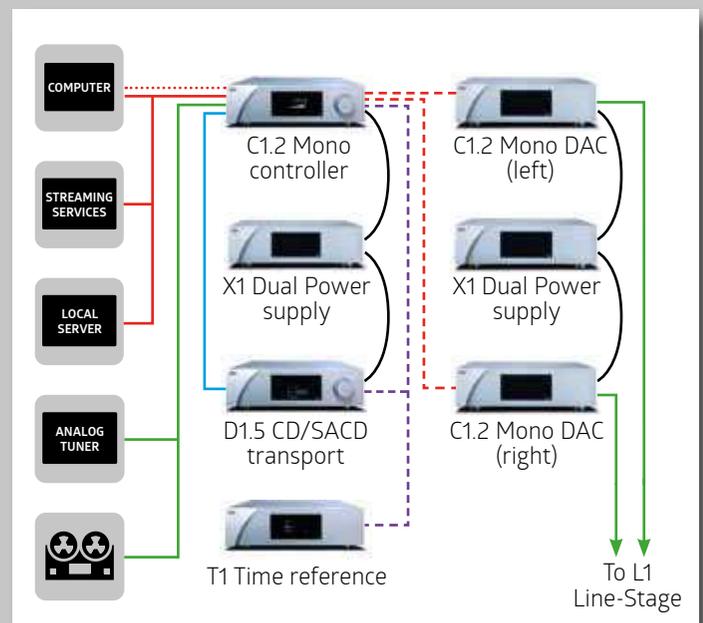
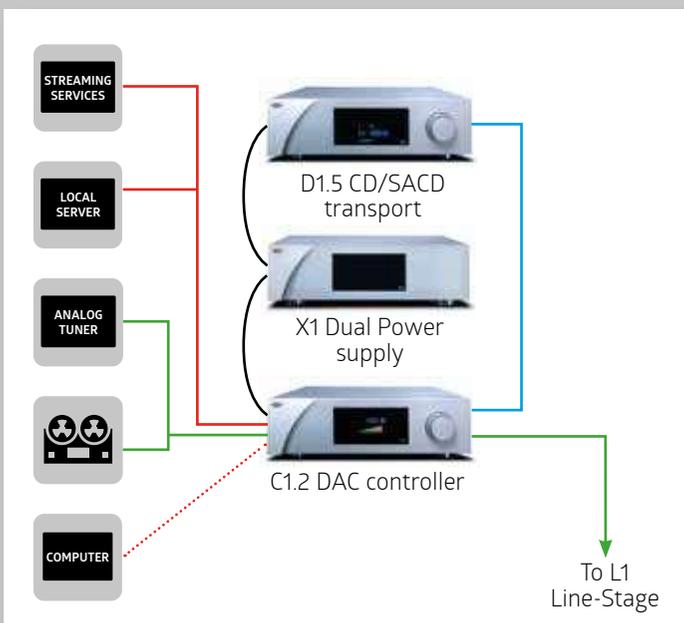
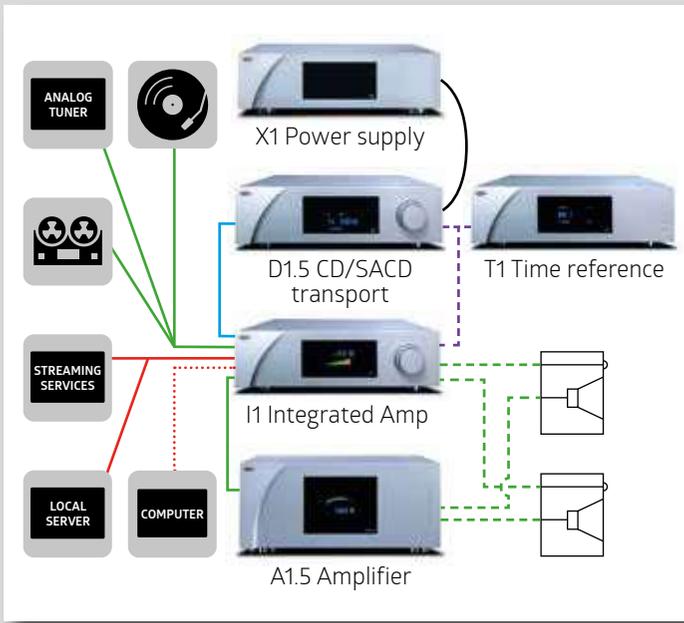


A1.5 Dimensions





CH Pre Scalable Sys



recision System Topology

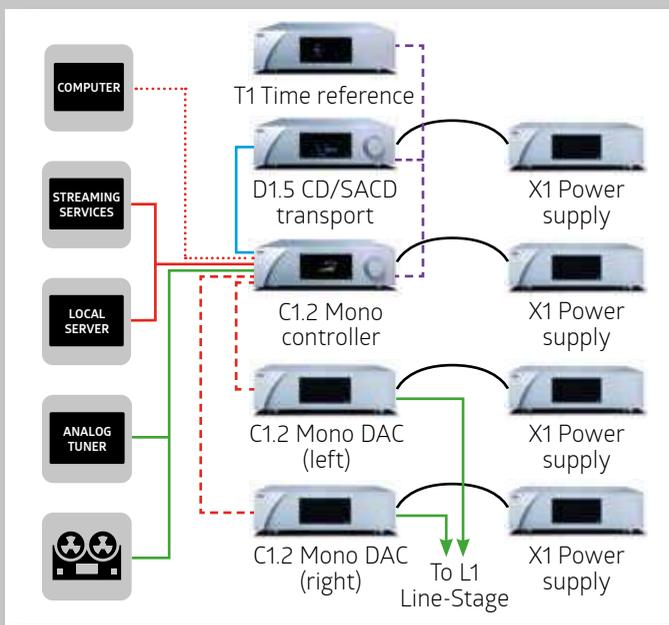


Diagram Key

- Analog interconnect
- Speaker cable
- Digital connection
- USB connection
- Mono DAC-Link
- CH-Link HD
- X1 Power-Link
- T1 clock feed



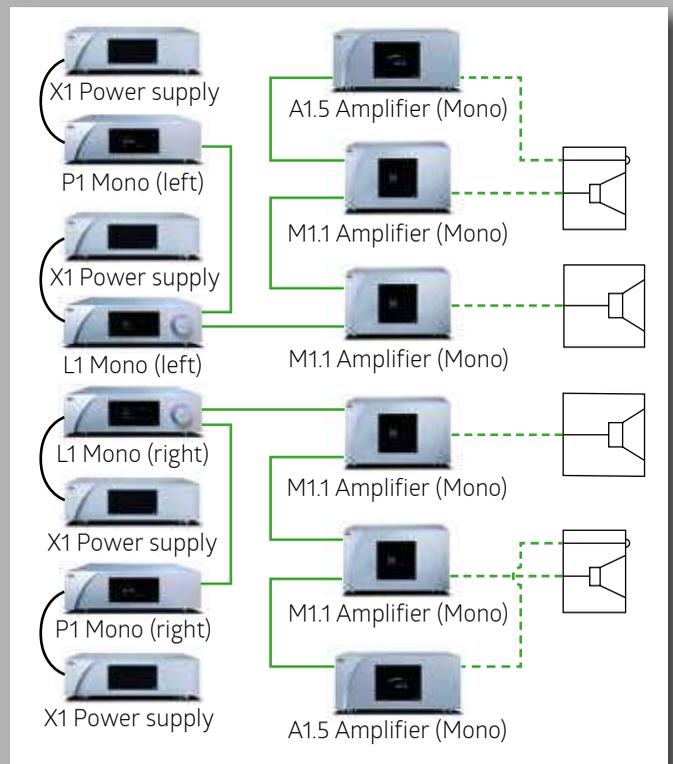
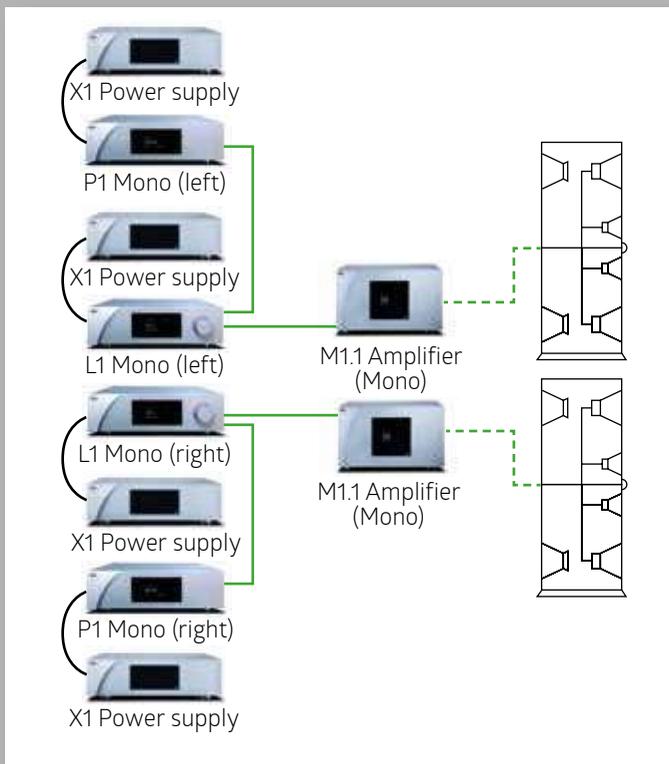
CD Player Transport



Turntable



Tape deck



*“Perfection is not attainable,
but if we chase perfection
we can catch excellence.”*

VINCE LOMBARDI, 1913-1970

*“The walls between art and
engineering exist only in our
minds.”*

THEO JANSEN



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