

TRINNOV
AUDIO

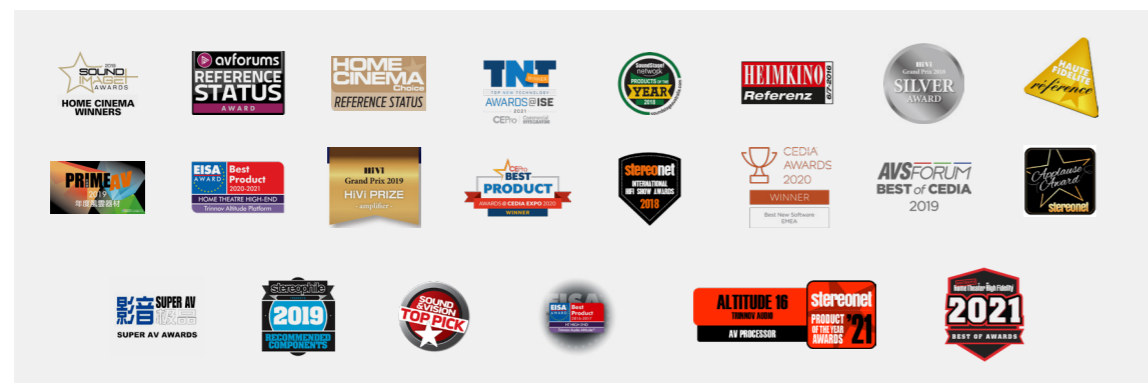
ALTITUDE | PLATFORM

REVOLUTIONARY HARDWARE PLATFORM



ALTITUDE | PLATFORM

Industry reference immersive audio processor since 2014



About Trinnov

At Trinnov, sound is in our DNA. Our founders began by researching high spatial resolution audio 20 years ago, well before today's immersive audio formats were even conceived.

Today, we're advancing audio performance in homes, studios and commercial cinemas with our world-renowned loudspeaker/room Optimizer and other proprietary technologies that are protected by over 50 international patents.

Trinnov's diverse team of over 50 passionate people across 6 time zones worldwide shares a deep commitment to audio excellence, bringing hundreds of years of audio engineering and musical experience, extending across all departments of the company.

Now represented in 55 countries, with over 8,000 high-performance installations worldwide, Trinnov is uniquely

involved in all aspects of audio production. Trinnov processors are found in the world's most advanced professional music and film studios for production, mixing, and playback; in thousands of commercial cinema screens; and in the finest residential home theater and stereo systems.

No other manufacturer has Trinnov's presence in every link of the audio chain, from content creation and distribution to playback in the cinema and the home, and no other manufacturer has Trinnov's fundamental understanding of both the theory and the application of immersive audio. Further, our unique hardware platform enables first to market solutions and virtually eliminates obsolescence, with each installation backed by industry-leading remote technical support.

Choose Trinnov, and enjoy the greatest experience in immersive audio.



ALTITUDE | PLATFORM

In 2014, Trinnov introduced its unique, innovative hardware platform, redefined the AV Processor, and challenged the very notion of obsolescence.

True innovation, upgradability, and longevity.

Unique to the industry, Trinnov has created a modern and flexible architecture where decoding, processing, and operating functions are all handled by a powerful Intel multi-core processor. Critical to this development is Trinnov's own custom operating system that hosts the software: TrinnovOS. Among the many benefits of Trinnov's unique approach is that new features for the Altitude platform can be implemented through a simple software download.



Arnaud Laborie
CEO

We leverage our unique technologies acclaimed across the entire film industry, from studios to commercial theaters, bringing to bear our leading position in 3D sound research since 2001, to produce the most advanced, innovative, powerful and scalable 3D AV Preamp/Optimizer ever manufactured.

REVOLUTIONARY HARDWARE PLATFORM - 5 YEARS OF UNDISPUTED LEADERSHIP

With roots in an immersive audio research program that began over 20 years ago, Trinnov chose to develop its own platform. Rather than locking the company into a cycle of integrating third-party, short-lifespan DSP implementations into our new hardware products, we opted for a unique path that enables true innovation, upgradeability, and longevity. Rejecting the historical multiple-DSP approach, we created a simplified, modern and flexible architecture where decoding, processing, and operating functions are all handled by a single Intel multi-core processor, utilizing a Trinnov developed Linux operating system to host the software.

The benefits of this unique approach have indeed created a paradigm shift. Traditional manufacturers seeking to incorporate the latest audio technologies into a new generation of products must wait for their third-party suppliers to make new chipsets available.

Trinnov's platform enables the integration of new technologies and new features into all existing products, with much faster delivery to market, simply through a pure software implementation.

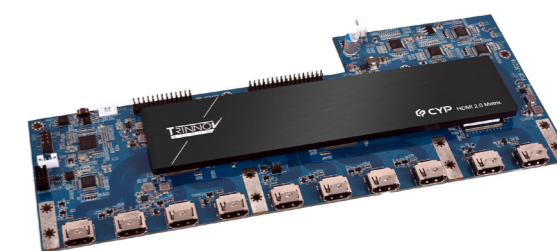


- Dolby Atmos & Auro-3D in 2015
- DTS:X in 2016
- Roon in 2017
- Improved bass management in 2018
- Calibration step-by-step guide in 2019
- DTS:X Pro in early 2020
- IMAX Enhanced in 2021
- 4 extra channels free of charge in 2021

HDMI BOARD SUPPORT

The Altitude platform's modular design ensures HDMI compatibility now and in the future. We have recently incorporated a new HDMI 2.0 board produced by our new manufacturing partner, Cypress Technology of Taiwan, into the Altitude⁶ and Altitude³² processors. Functionally, this new board is essentially identical to the previous generation HDMI board but with an additional eighth HDMI input and ARC/eARC capability.

As HDMI standards evolve in the future, new HDMI boards compatible with all Altitudes will be made available to owners interested in upgrading to the latest technologies.



Wilfried Van Baelen
Auro Technologies

The Decoder inside the Trinnov Altitude brings content back exactly the way it was intended by its creators.

ALTITUDE | PLATFORM

The industry reference since 2014

A Platform for the Future

End users can now invest in a truly sustainable AV Processor that will not become obsolete when the next audio format comes along. While, over the years, owners of other processors have had to purchase expensive hardware upgrades or scrap and replace their products, Altitude owners enjoy receiving new features and functionality through simple software updates, free of charge.



Trinnov's Unique **OBJECT VIEWER**

The Object Viewer is available on the 3D Speaker Layout and Configuration screen of the Altitude GUI. Reading the spatial information encoded on the source, the Viewer shows each sound object as a sphere overlaid on a graphic representation of the listener's room.

Each object moves or remains in a fixed position as determined by the sound mixer during the final home soundtrack mix. This screen also displays the speaker configuration of the system, with each speaker shown as a cube. A Meter function changes the color intensity of each speaker according to its sound level, with an option to hide the speakers to more easily view the objects. A Pause function allows the user to freeze the screen display for closer analysis.



Step By Step **WIZARD**

First-time users will find the Altitude Wizard an invaluable tool for setup and calibration.

This onboard software guides the installer through the entire process, step-by-step. From configuring the speaker layout, setting up the input and outputs, to the microphone setup and calibration, the Wizard greatly simplifies the process of getting the Altitude up and running.



Speaker Manufacturer **PEQ SETTINGS**

Speaker manufacturers often require electronic parametric equalization filters for specific models, typically required for bi-, tri-, or quad-amplified speakers. Altitude processors can easily import these settings, eliminating the need for calibrators to enter filter parameters manually for each speaker. Once these settings are downloaded from a USB key, they become available through an alphabetized pull-down menu located on the 3D Speaker Layout and Configuration page of the Altitude GUI. Multiple speaker manufacturers are now making these settings available for use on the Altitude platform.



Pyramid Group : The Cavern
CEDIA Award 2019 : Best home cinema level II

Low End Under Control BASS MANAGEMENT

The Bass Management solution in the Altitude gives users the most sophisticated tool available for managing low frequencies.

Complete flexibility regarding high and low pass frequencies, filter types, and filter slopes is just the beginning. The low frequency content of any channel can be fed to any combination of subwoofers. There is no limitation to the number of subwoofer channels other than the number of available outputs.

Going further, our unique multi-level bass management system is ideal for immersive systems using smaller height channel speakers. It can redirect low frequencies not just to subwoofers, but from a speaker with limited bass capability to the closest, more-capable speaker, before sending the lowest frequencies to the subs.



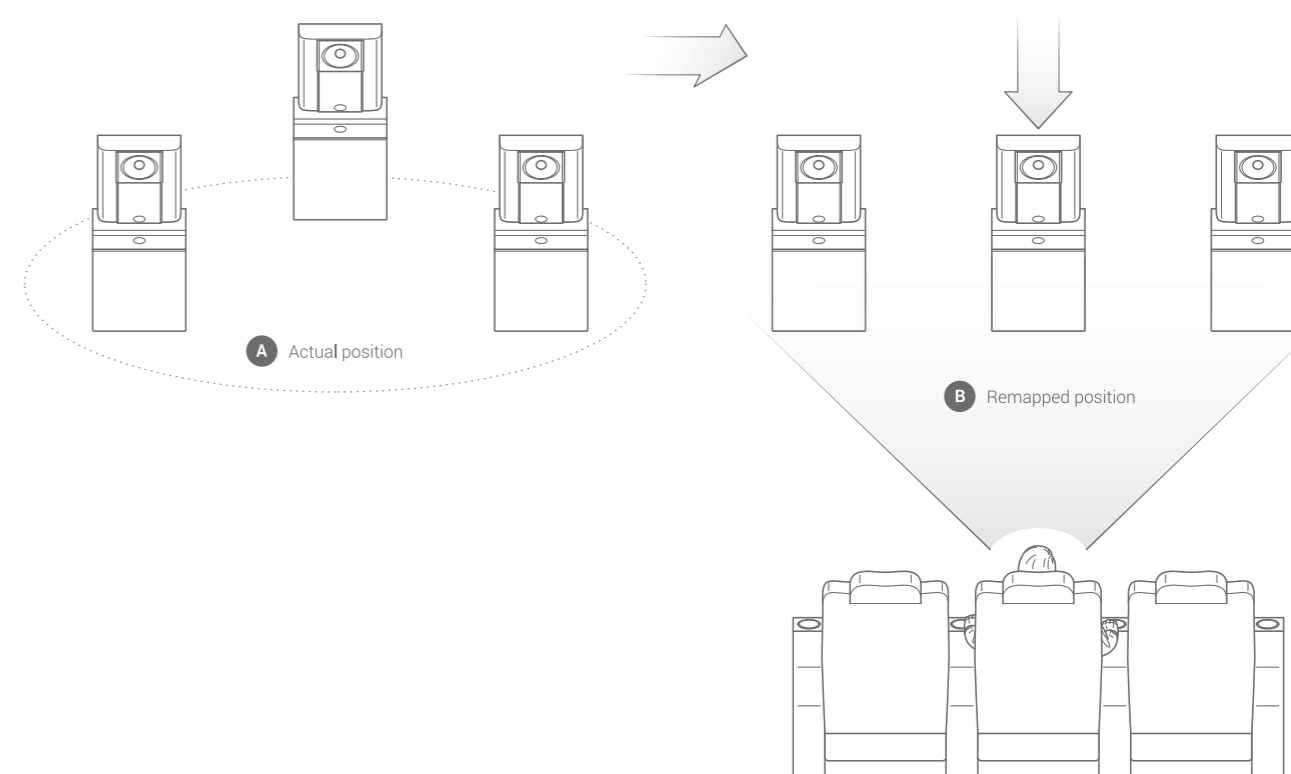
Sound Sense : Arcadian Odyssey
2019 CEDIA Global Awards Best cinema level III

Trinnov's Unique REMAPPING

In real-world rooms, we can't always place speakers where we should. And, in any case, Dolby, DTS, and Auro each have a different idea where they should go. Trinnov's exclusive, patented Remapping is the only solution.

During calibration, Trinnov's unique 3D microphone precisely maps the location of each loudspeaker in the room regarding distance, azimuth, and elevation.

When decoding a particular soundtrack, we know the intended placement of each of the various sound elements. Then Remapping, taking the reality of the room into account, 'remaps' errant sounds to the proper locations by using adjacent speakers and the principle of stereo imaging. Further, this enables one set of loudspeakers to reproduce all three immersive audio formats with spatial accuracy. Remapping ensures that listeners hear sounds where the mixers placed them, not where the loudspeakers happen to be.



IMPULSE GENERATOR FOR TIME ALIGNMENT

For advanced calibrators seeking to perform custom time alignment of individual speakers and subwoofers, a "Pulse" function can be highly valuable. By carefully listening to this signal reproduced by more than one speaker, the calibrator can adjust individual delays in increments of .1 milliseconds to align the speakers. This function can be highly useful in fine-tuning subwoofers to match the main speakers.

ALTITUDE | PLATFORM

Trinnov's Unique Expertise IN HOME CINEMA INSTALLATION

The Altitude Platform provides integrators with a unique set of features and tools for setup and calibration. Going well beyond the basic requirements, Altitude processors have a deep library of assets that are mandatory for achieving the highest level of performance in high-end immersive theaters. It all begins with the Trinnov Optimizer, the most powerful and flexible calibration system available.

Making efficient use of the calibrator's time, the Optimizer achieves successful calibrations in a short period of time, unlike systems that use a complex and lengthy measurement process that can involve many hours for a basic setup. New users are guided by an onboard Wizard that takes them through the calibration process, step by step.

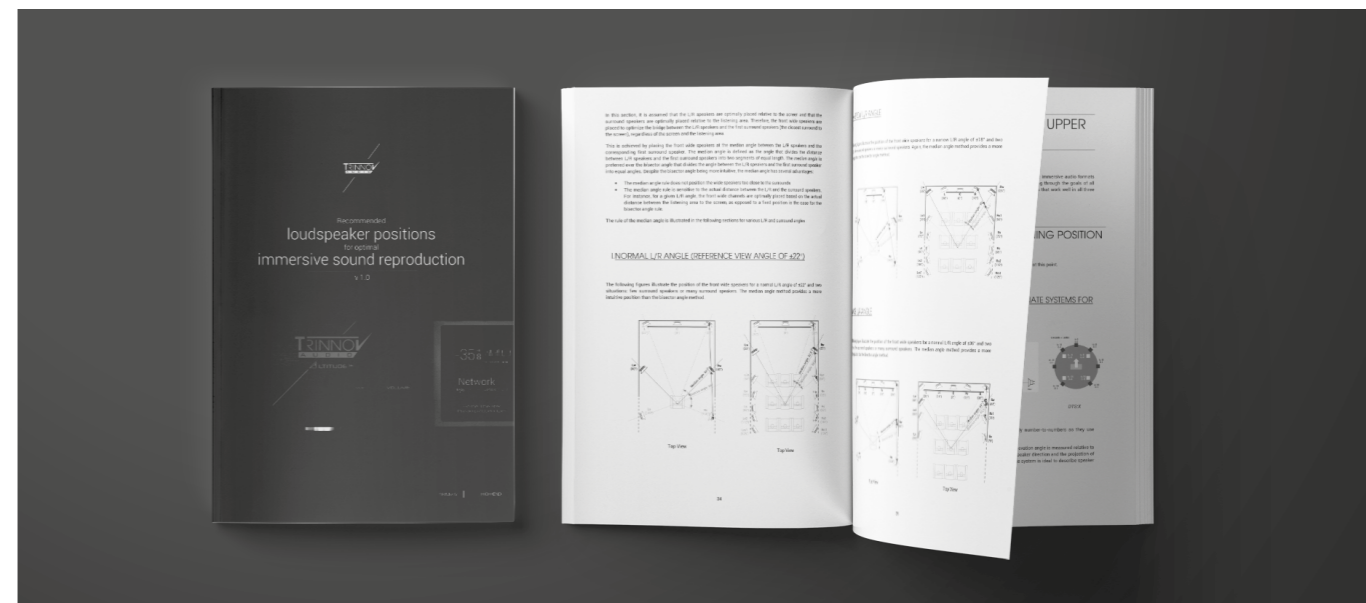
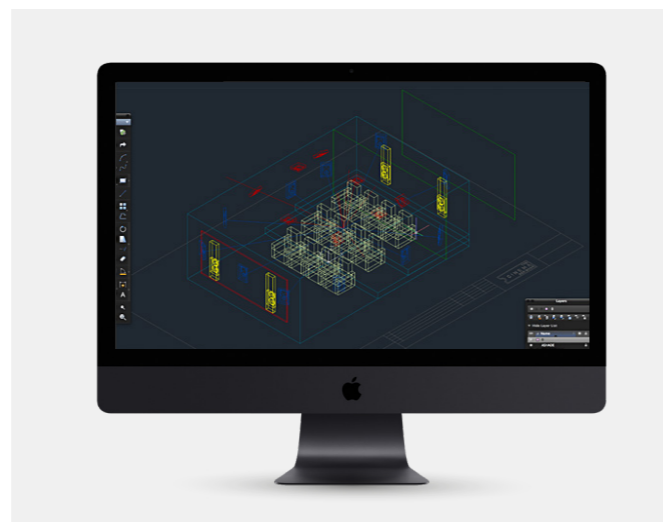
Applying its 20 years of expertise in immersive sound, Trinnov provides assistance to system designers through the first and only published speaker placement guide. Our recommendations for unified layouts that work for Dolby Atmos, DTS:X, and Auro-3D have been integrated into *The CEDIA Designer* program and are also a fundamental part of the upcoming RP22 industry standards publication.

Whether a design is simple or extremely ambitious and sophisticated, the starting point of every home theater is proper design. Theaters with multiple rows simply cannot perform optimally without the unique decoding and rendering capabilities of the Altitude platform, which enables more discretely rendered channels and, more importantly, all possible layouts.

The CEDIA DESIGNER

The CEDIA Designer is an online design tool that allows users to create technically impeccable cinema designs, support documents, and aesthetic renders, within minutes.

TCD software supports the complete line of our High-End products, letting you integrate the Altitude in the most complex speaker layouts in a matter of minutes.



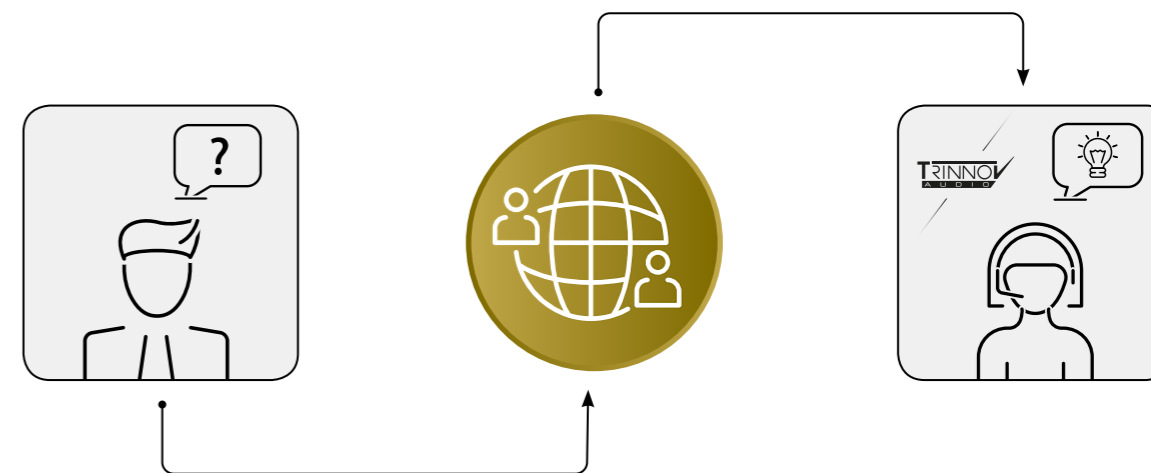
Trinnov has been collaborating for years with some of the most respected brands and integrators in the field, enabling us to work on some of the most ambitious home cinema projects of the past ten years. Through the publication of our own recommended speaker positions guide for immersive audio systems, and our recurring CEDIA classes and lectures, we continue to share our expertise with integrators and the industry.

REMOTE ACCESS

Through its Paris-based server, Trinnov enables remote access to all of its processors connected to the Internet.

Integrators can remotely access each processor they have installed, with full control of all parameters, thus eliminating the need to be on site to adjust a customer's system or to diagnose problems.

In addition, the Trinnov factory support team, based in the United States and France, and acknowledged as the best in the industry, also has remote access to provide higher-level remote assistance and troubleshooting.



ALTITUDE | OPTIMIZER

Trinnov's Unique Optimizer

Developed originally for professional audio studios, Trinnov's world-renowned loudspeaker/room Optimizer is recognized as best-in-class by users and reviewers from the professional, cinema and high-end home audio worlds.

Trinnov built its reputation by winning the trust of some of the most demanding sound engineers in broadcast, music, and post-production studios around the world. Over the years, we have introduced incremental improvements to the technology, and today the Optimizer is the only speaker and room correction system widely used throughout the production chain, from recording and post-production studios to many of the best commercial and private cinemas. It is used daily in over 2,000 studios worldwide, where content you listen to and watch every day is produced.

With many unique capabilities, the Optimizer's magic begins with Trinnov's iconic 3D Microphone. With 4 elements in a tetrahedral arrangement, this microphone captures sound in three dimensions, which the Optimizer uses to precisely locate the speakers, within 2° of azimuth and elevation, and 1 cm of distance. Exclusive to Trinnov, this microphone is factory calibrated to ±0.1 dB accuracy through an individual compensation file loaded onto the processor prior to the measurement.

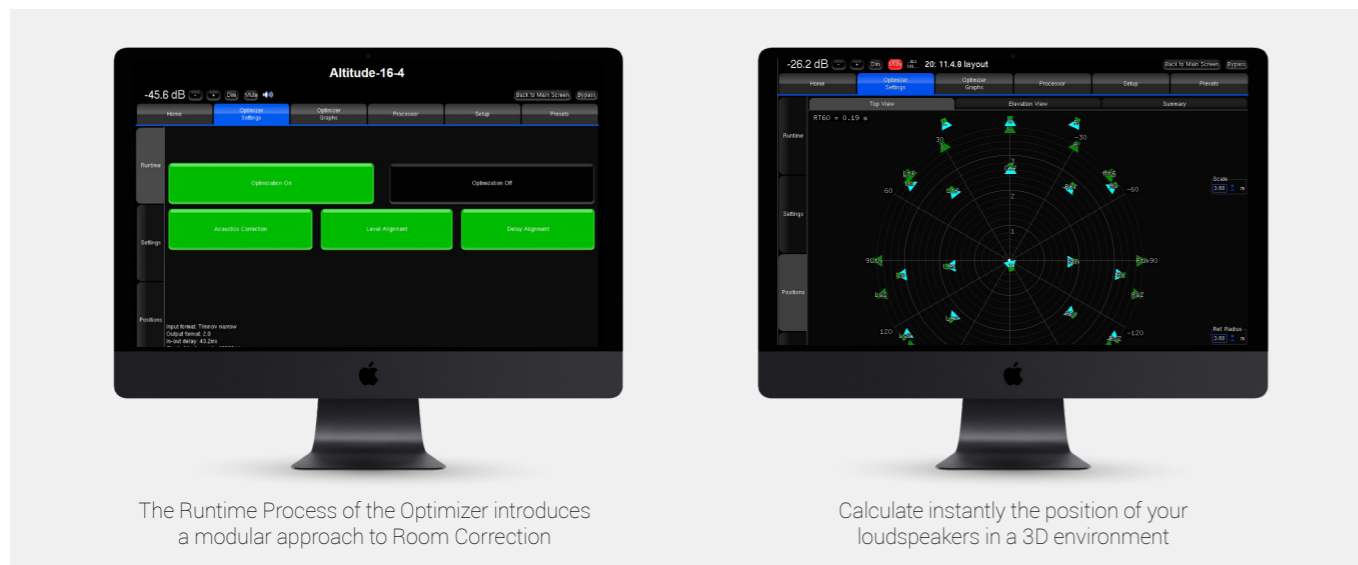
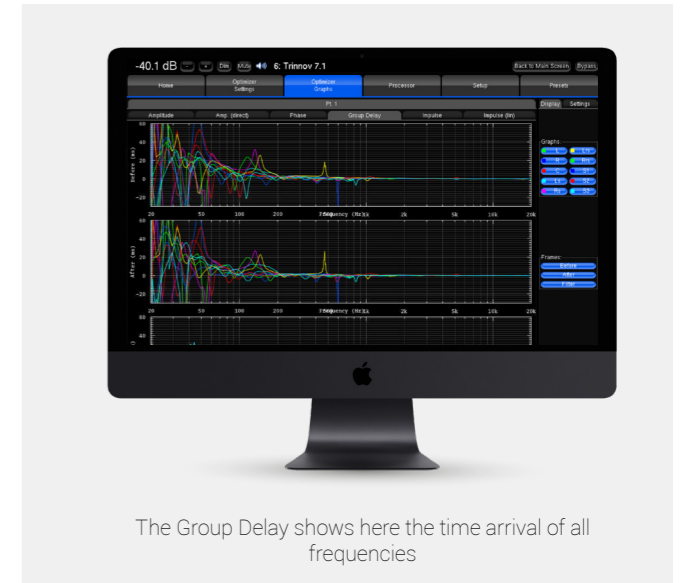


Because nothing can be left to chance, the entire signal path of the measurement is within the processor, rather than relying on external software and hardware. All measurements remain on the processor without requiring remote storage.

During each measurement, the Optimizer captures a huge amount of acoustic information and performs time/frequency analysis to better understand and characterize the behavior of the speakers in the room. Indeed, without the time domain information, frequency response alone is not enough to determine the appropriate method for properly correcting errors. For example, the Optimizer evaluates the phase response and group delay of each speaker, which gives insight as to what is happening over time. While other systems time-align just the speakers, the Optimizer recognizes that time-aligning frequencies within each speaker is critical for optimal imaging and for reproducing transients. This is where passive acoustic treatments, which we highly recommend and are mandatory for the highest level of performance, cannot help.

Of course, the Optimizer compensates for the distance and level of every speaker with extreme precision, enabling accurate time alignment of all speakers, which remains critical for immersive audio reproduction.

Once the information is processed and the corrections applied using Trinnov's proprietary algorithms, the Optimizer provides a comprehensive acoustic analysis of the room and speakers. Accessed through its flexible GUI, this information can be highly useful for analysis of the room and application of the many tools available to advanced calibrators. It can also be summed up in a PDF document once the system calibration is complete.



The Runtime Process of the Optimizer introduces a modular approach to Room Correction

Calculate instantly the position of your loudspeakers in a 3D environment

Widescreen Review (June 2018)

The technology that's available today with the Trinnov Altitude³², the ability both in the time and frequency domain to move the loudspeaker virtually by using phase, is extraordinary. It's led to theatres being built and designed achieving far greater levels of performance than would have been previously possible.

ALTITUDE 16

Bring The Immersive Experience To Your Home Cinema

The groundbreaking Altitude³² processor set the bar high, and we didn't lower it for the Altitude¹⁶. Delivering the same processing capabilities and sound quality as the Altitude³² processor, the Altitude¹⁶ makes Trinnov's best-in-class performance accessible to a wider audience whose immersive audio system requirements will not exceed 16 channels.

IMMERSIVE SOUND UNLEASHED

With capabilities exceeded only by its big brother Altitude³², the Altitude¹⁶ is fully its equal when it comes to extraordinary immersive sound decoding and playback. Our pure, uncompromised implementation of 3D Codecs, made possible through our own software, enables us to not only support 16 channels of native decoding, but more importantly to support any speaker layout, freeing system designers from artificial limitations.



Stephen Dawson
Sound+Image (Australia)

The Altitude¹⁶ is for those who want the very highest performance, and the very highest levels of adjustment to specific circumstances. Those after such heights won't be disappointed here.

NO COMPROMISE

First conceived for immersive systems utilizing up to 16 channels, our paramount goal in designing the Altitude¹⁶ was to deliver uncompromised sound quality – to no less than the standard of the Altitude³². Accordingly, the Altitude¹⁶ uses the same Trinnov OS operating system, Trinnov Optimizer software, audio processing circuitry and DACs as its big brother.

Equipped with Dolby Atmos, Auro-3D, and DTS:X Pro immersive audio decoders, the Altitude¹⁶ can now render up to 20 discrete channels of information, natively processes high-resolution 24 bit/96K audio, enables up to four-way active crossovers and presents no limitations in terms of Atmos and DTS:X channel assignments or subwoofer outputs.

+4 CHANNELS

This recent feature shows the unrivaled flexibility of the Altitude platform and increases the capacity of the processor to a total of 20 discrete channel of decoding and acoustic optimization.

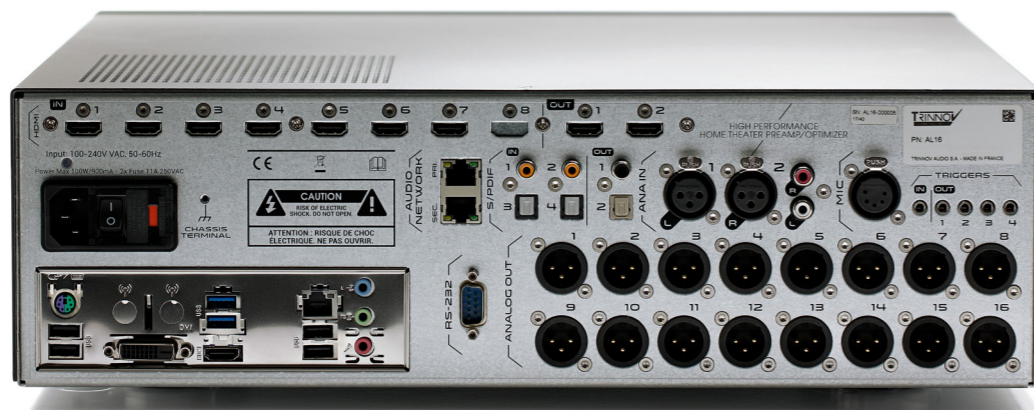
Combining the 16 analog outputs and 2x S/PDIF outputs of the processor, Trinnov unlocked the full potential of the Altitude16.

By adding S/PDIF / Analog converters to their system, Trinnov customers can add extra sub-woofers or channels to their system to increase its performance in a very cost-effective manner.



Pyramid Group : The Cavern
CEDIA Award 2019 : Best home cinema level II

ALTITUDE 16



HDMI CONNECTIVITY

- Output 1: HDMI 2.0 / HDCP 2.2
- Output 2: HDMI 2.0 / HDCP 2.2
- Inputs: 8
- Maximum Resolution: 4K UHD on all ins / outs
- Maximum Bandwidth: 18Gbps on all inputs
- Frame rates supported: 24/25/30/50/60 fps 120 fps (HD only)
- ARC / eARC: Available on Output 1
- 4K to 1080 Downscaling: Available on Output 1

HARDWARE

Processor: Intel multi core hyper threaded
 ADC Resolution / Sampling Rate: 24 bits/96 kHz
 DAC Resolution / Sampling Rate: 24 bits/192 kHz
 A/D Signal-To-Noise Ratio: 119 dB (A-Weighted)
 D/A Signal-To-Noise Ratio: 118 dB (A-Weighted)
 Reference Level: +18dBu @ 0dBFS (Balanced)
 Clock / Jitter: attenuation > 50 dB above 100Hz
 Cooling system: Custom heat sinks + additional silent fans
 Safety Components: AntiPop relays on each output

ANALOGUE AUDIO CONNECTIVITY

- Microphone input: 1x 5 Pin XLR for 3D Microphone
- Balanced inputs: 1x Stereo XLR
- Unbalanced inputs: 1x Stereo RCA
- Balanced outputs: 16x XLR
- Input Impedance: 20k Ohms / 10k Ohms

OBJECT BASED DECODING

- Dolby Atmos® Native Decoding & Up-mix:
Up to 20 discrete channels
- Auro-3D® Native Decoding & Up-mix (Automatic): Up to 13.1
- DTS:X® Pro Native Decoding & Up-mix (Neural:X):
Up to 20 discrete channels
- Speaker Layouts support: All

AUDIO PROCESSING

- Data precision: 64 bits, floating point
- Max Sampling Rate: Native, up to 96kHz

DIGITAL AUDIO CONNECTIVITY

- S/PDIF Inputs: x4 (2 optical, 2 coaxial)
- S/PDIF Outputs: x2 (1 optical, 1 coaxial)
- +4 Outputs: By combining Analog and S/PDIF outputs
- Audio Network: Dual ports (for future use)

ANALOG AUDIO CONNECTIVITY

- Microphone input: 1x 5 Pin XLR for 3D Microphone
- Balanced inputs: 1x Stereo XLR
- Unbalanced inputs: 1x Stereo RCA
- Input Impedance: 20k Ohms / 10k Ohms
- Balanced outputs: 16x XLR

WEIGHT & DIMENSIONS

- Dimensions (W x H x D) mm: 438 x 139 x 430
- Dimensions (W x H x D) inches: 17.25 x 5.5 x 17.94
- Shipping box dimensions (W x H x D) cm: 74 x 59 x 30
- Weight: 11.30kg / 24.9 lbs
- Shipping weight / volume: 18.2kg / 0.131 M3
- Rackmounting: 3U - Rack Ears Included

POWER SUPPLY

- Power requirement: 100 - 240v (auto selecting)
- Power consumption: 76W Mac
- Thermal conversion: 206 BTU/h Max
- Mains fuse: 2x 1A slow blow
- Internal PSUs: Separated supplies for Audio and Processing

WARRANTY

- Standard Warranty: 5 year
- Transferable: Yes

ALTITUDE 32

The Ultimate Experience in Immersive Audio

Peerless in performance, configurability and sound quality, the Altitude³² remains the unchallenged reference processor for Immersive home theater systems. Nothing has been left to chance: high-channel count, huge processing power and exclusive patented technologies unleash the full potential of immersive sound, enabling all formats and the widest range of speaker layouts.



In a league of its own, the Altitude³² has no peer when it comes to immersive sound decoding and playback. Our pure, uncompromised implementation of 3D Codecs, made possible through our own software, enabled us to deliver the full specifications and channel count of both Dolby Atmos and DTS:X Pro years ahead of the competition.

Altitude owners enjoy a unique feature available on no other product: the Dolby Atmos Object Viewer provides the user with a real-time view of the location and movement of sound objects in 3D space for all Atmos content.

Upgradeable by design

REVOLUTIONARY HARDWARE ARCHITECTURE

The hardware architecture of the Altitude³², unique among home theater processors, challenges the concept of obsolescence by enabling the integration of new technologies, new features, and product upgrades through a pure software implementation provided at no cost to Altitude owners. This is a truly sustainable product that gets better over time with the introduction of new features and a scalable, modular hardware design that enables easy system expansion up to the full channel counts of home Atmos and DTS:X and to a maximum of 64 processor outputs with the Altitude extension.

Its revolutionary hardware architecture runs not on the multiple sets of DSPs found on other processors but instead on a single, powerful, multicore Intel hardware platform and Trinnov's OS operating system. This enables Trinnov to bring new technologies and features to market months and years ahead of the competition.



Mutrox / Bower & Wilkins ISE 2017 Active demo

Guy Singleton
IMAGINE THIS (UK)

This is the benchmark that all other AV processors are measured against; it is the definitive reference of high-end home theatre processors.

ALTITUDE 32



OBJECT BASED DECODING (All versions)

- Dolby Atmos® Native Decoding & Up-mix: Up to 34 discrete channels
- Auro-3D® Native Decoding & Up-mix (Auromatic): Up to 13.1
- DTS:X® Pro Native Decoding & Up-mix (Neural:X): Up to 30.2
- Speaker Layouts support: All
- IMAX Enhanced: Yes

HDMI CONNECTIVITY

- Output 1: HDMI 2.0 / HDCP 2.2
- Output 2: HDMI 2.0 / HDCP 2.2
- ARC / eARC: Available on Output 1
- 4K to 1080 Downscaling: Available on Output 1
- Inputs: 8
- Maximum resolution: 4K UHD on all ins/outs
- Maximum bandwidth: 18Gbps on all inputs
- Frame rates supported: 24/25/30/50/60 fps 120 fps (HD only)

DIGITAL AUDIO CONNECTIVITY

- S/PDIF Inputs: x8 (4 optical, 4 coaxial)
- S/PDIF Outputs: x2 (1 optical, 1 coaxial)
- AES3 Inputs (XLR): x2 • AES3 Outputs (XLR): x1
- AES3 Inputs (DB25) - x8 AL32- 88, AL32-816
- AES3 Outputs (DB25) - x16 AL32-1624, AL32-1632
- AES3 Input Compliance: DCI

CHANNEL CAPABILITIES

- Max Channels: x12 (AL32-88), x20 (-816), x28 (-1624), x36 (-1632)
- Max Optimizer Channels: x12 (-88), x20 (-816), x28 (-1624), x36 (-1632)
- Max Subwoofers: x12 (-88), x20 (-816), x28 (-1624), x36 (-1632)
- Max Crossovers (2/3/4 way): 6/4/3 (-88), 10/6/5 (-816)
- Max Crossovers (2/3/4 way): 14/9/7 (-1624), 18/12/9 (-1632)
- Full Input / Output Matrix (all versions): Yes
- Configuration presets (all versions): 29

ANALOGUE AUDIO CONNECTIVITY

- Microphone input: 1x 5 Pin XLR for 3D Microphone
- Balanced inputs: 2x Stereo XLR (inserted carriage return for new line)
- Unbalanced inputs: 3x Stereo RCA, 1x 7.1 RCA
- Balanced XLR outputs: x8 (-88), x16 all other models
- Unbalanced outputs: 1x stereo RCA
- DB25 Analogue outputs: x8 (-88), x16 (-816), x24 (-1624), x32 (-1632)

CHANNEL BASED AUDIO DECODING

- Dolby: Digital®, Digital Plus®, TrueHD®
- DTS: Digital Surround®, High Res Audio®, HD Master Audio®
- PCM: Up to 24 bits / 192 KHZ
- Room: YES

AUDIO PROCESSING

- Data precision: 64 bits, floating point
- Max Sampling Rate (up to 24 channels): Native, up to 192kHz
- Max Sampling Rate (up to 32 channel with +4 option): Native, up to 96kHz
- Max Sampling Rate (above 24 channels): Native, up to 96kHz
- Max Sampling Rate (above 32 channels): Native, up to 48kHz

HARDWARE

- Processor: Intel multi core hyper threaded
- ADC Resolution / Sampling Rate: 24 bits/96 kHz
- DAC Resolution / Sampling Rate: 24 bits/192 kHz
- A/D Signal-To-Noise Ratio: 119 dB (A-Weighted)
- D/A Signal-To-Noise Ratio: 118 dB (A-Weighted)
- Reference Level: +18dBu @ 0dBFS (Balanced)
- Clock / Jitter: attenuation > 50 dB above 100Hz
- Cooling system: Custom heat sinks & silent fans
- Safety Components: AntiPop relays on each output

WARRANTY

- Standard Warranty: 5 year
- Transferable: Yes

POWER SUPPLY

- Power requirement: 240V / 110V 50 / 60Hz
- Power consumption: 132W Max
- Thermal conversion: 450 BTU/h Max
- Mains fuse: 2A Slow Blow
- Internal PSUs: Separated supplies for Audio and Processing

WEIGHT & DIMENSIONS

- Dimensions (W x H x D) mm: 442 x 165 x 445
- Dimensions (W x H x D) inches: 17.4 x 6.5 x 17.52
- Shipping box dimensions (W x H x D) cm: 74 x 59 x 30
- Weight: 14.5kg / 32 lbs
- Shipping weight / volume: 22.2kg / 0.131M3
- Rackmounting: 3.5U - Rack Ears Included

ALTITUDE^{48 EXT}



Designed with no limits in mind UP TO 48 CHANNELS

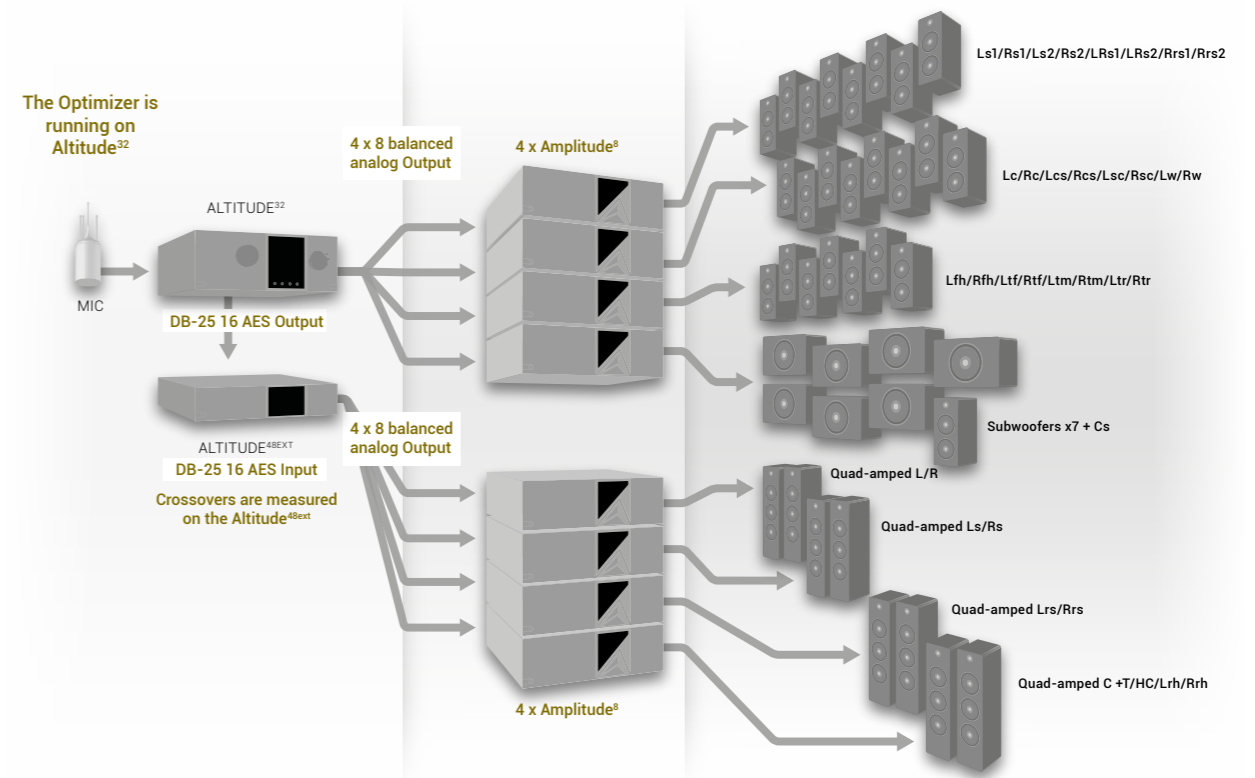
Thanks to Altitude³²'s unique hardware concept, the unmatched 36 discrete channel capability of the Altitude³² can be expanded even further. Through a software upgrade, the Altitude³² can output 48 true, discrete channels, by using its 32 analog outputs and its 16 AES outputs simultaneously.

It will allow – for the first time – users to experience the full Home Atmos experience with its 24.1.10 layout, while enabling even greater possibilities in term of bass management, multi-amping, and Remapping. However, this solution requires an AES multi-channel High-end DAC that equals the performance of the Altitude's own renowned DAC: the Trinnov Altitude^{48ext}.

Based on Trinnov's Magnitude³², the Altitude^{48ext} provides 16 channels of AES/EBU inputs and 32 channels of analog outputs, using the same DAC used in the Altitude³² to ensure perfect coherence in the ultimate playback. And the Altitude^{48ext} is not just a DAC; it is a fully capable Trinnov processor with the power to perform tasks such as calibrated crossovers, bass management, and both third-octave and FIR EQ.

Combined, an Altitude³² incorporating the 48 channel option with an Altitude^{48ext} gives users access to not only 48 discrete channels, but no fewer than 64 independently processed channels, pushing even further the boundaries of what can be achieved in the most ambitious high-end Home Theaters.

Experiment with a 24.1.10 layout FULL DOLBY ATMOS HOME EXPERIENCE



Steve Withers
Home Cinema Choice

Trinnov has been at the forefront of 3D audio since the beginning, and that shows with the Altitude16. It's the most sophisticated and flexible processor I've encountered, and while not cheap it certainly delivers the goods, creating a seamless immersive audio experience thanks to its 16-channel talents. The performance is exceptional with the best multi-channel sound I've ever heard.

The Altitude is a dream come true for the obsessive audiophile, after a month of living with the Trinnov Altitude16 I fell in love with it. "It was able to take my multipurpose space and make it sound like a fully enclosed theater. No other room-correction system I've evaluated has performed as effectively: the Trinnov Optimizer is literally in a class by itself!

David Vaughn
Sound & Vision

Kalman Rubinson
Stereophile

From the moment the music began, it became apparent that this is not just another pre-pro. Stereo sounded nice, but that ain't what we are here for: Multichannel music, as in 4.0, 5.0, or 5.1 discrete files, was simply amazing.

I often end my reviews with a simple recommendation of whether or not a product is one you should audition, because, after all, you're the one doing the buying, I'm going to suggest that you don't audition the Altitude16. You're honestly probably better off not knowing what you're missing.

Dennis Burger
Home-Theater review

Tony O'Brien
Stereonet

Trinnov's Altitude16 is a force to be reckoned with. Exhibiting a level of flexibility that I would not have thought possible, I doubt there's a system the Altitude couldn't tame and further improve. The sound quality is where the proverbial rubber hits the road, and here it shines.



Alban Amouroux
Onmag

The Trinnov Altitude16 is a unique product. First of all, its price takes it away from ordinary people. But it is also one of the rare, if not the only one, to reproduce the soundtracks as in the cinema. There is this strength, this presence and this magnitude that fill the room in a more than realistic way, without ever becoming messy or aggressive. This has nothing to do with the rendering of a classic integrated home cinema amplifier which we push the knob all the way. No, the Trinnov Altitude16 and its Optimizer is another world, a world reserved for those who know exactly what they are looking for and who will find the ultimate solution here.



Jochen Schmitt
Heimkino.de

The AV processor Altitude32 from the French manufacturer Trinnov is the ultimate machine to bring professional standards of fidelity to home theaters. Trinnov's Optimizer technology works perfectly and makes it possible to handle even the most complex systems - our new reference.

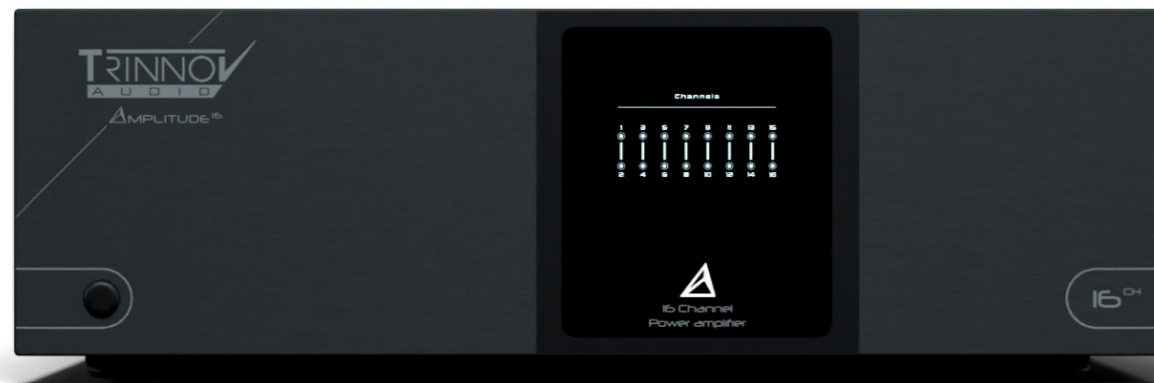
The Altitude32 is clearly the most skilled sound processor you can invest in today, and probably tomorrow. With support for all audio format, high quality of performance, components and software as well as enough channels, it feels like a safe investment. This is really the basis for something completely different than a «normal» home theater.

Jonas Olsson
Hemmabio Magazine

AMPLITUDE 16

Power Your Home Theater

Designed in partnership with ICEpower to our specification, the Amplitude¹⁶ maximizes the performance of their class D modules with a custom dual power supply and thermal dissipation design.



INTEGRATE EASILY

With analog DB25 connectivity and triggers, the Amplitude¹⁶ integrates seamlessly with our range of AV Processors. The Optional Dante board further facilitates the integration for high-channel count systems.

DESIGNED FOR IMMERSIVE SOUND

Immersive Sound Home Theaters require more amplification channels, with varying requirements within the system. The Amplitude¹⁶ is the most versatile power amplifier ever designed to address the varying needs of your home cinema.

POWER ANY SPEAKER

The Amplitude¹⁶ delivers 16 channels of power amplification and each channel can easily drive most loudspeakers. For more demanding screen channels or subwoofers, pairs of channels can be bridged to increase the power and adapt to the specific needs of your theater.

AUDIO POWER

- One Channel 8Ω: 200W - 1kHz, 0,1%< THD+N
- One Channel 4Ω: 400W - 1kHz, 0,1%< THD+N
- One Channel Bridged 8Ω: 800W - 1kHz, 0,1%< THD+N
- One Channel Bridged 4Ω: 1000W - 1kHz, 0,1%< THD+N
- Total Output Power (120 VAC):
2800W all channels driven SE or BTL
- Total Output Power (230 VAC):
3200W all channels driven SE or BTL
- Peak Power: 6080W all channels driven SE or BTL
- Gain: 16 dB single ended / 22 dB bridged

AUDIO PERFORMANCE

- THD+N Single Ended: 0.0015% - 8Ω, 5W (2dBu)
- THD+N Bridged: 0.0015% - 8Ω, 20W (8dBu)
- Frequency Response: +0/-0,6 dB 20 Hz to 20 kHz, load-independent
- Damping Factor: 2340 at 100Hz / 1820 at 1kHz / 354 at 10kHz
- Signal To Noise Ratio: 126 dB referenced to rated 1% THD output (A-Weighted)
- Crosstalk: 96 dB single ended 200W 8Ω
- Intermodulation Distorsion: Less than 0.05%

AUDIO INPUTS & OUTPUTS

- Input Connector: 2x DB25 Female, Tascam Analog Pinout
- Input Impedance: 47kΩ, each phase
- Input Sensitivity: 6.16V (+18dBu) RMS balanced in = 200W into 8Ω single ended out
- Output Connector: 1x 5 way binding post per channel

POWER SUPPLY

- Power Requirements: 2x 100/240V (auto-selecting)
- Power Consumption: 0,5W< at Standby; 125W at idle; Max 2x 2000W fully loaded
- Power Input: 2x IEC C14
- Inrush current at startup: 16A (<100ms, each inlet)
- Thermal Conversion: 683 BTU/h MAX
- Mains Fuse: 2x 10A Slow Blow
- 12V Trigger Input/Output: 5-15 VDC / 8-10 VDC, Steady State (mini-jack TS)

WEIGHT & DIMENSIONS

- Dimensions (W x H x D) mm, including rack ears:
482 x 132 x 452
- Dimensions (L x H x P) inches, including rack ears:
19" x 5 1/5" x 17 4/5"
- Shipping box dimensions (W x H x D) cm: 54 x 53 x 22
- Weight: 20.5kg / 45.3 lbs
- Shipping weight / volume: 22.4kg / 0.064 M3



AMPLITUDE 8m

Bring the Immersive experience to your home cinema

Like its big brother the Amplitude8, the Amplitude8m is designed to deliver spectacular performance in a luxury home theater but at a fraction of the price. Using the Hypex N-Core Class D output module, each of the eight channels can deliver up to 300 watts RMS at 4Ω.

Experience audiophile-grade sound reproduction in your home theater with zero background noise during the most quiet scenes of the movie. You also get the finest sound quality and realism on music and movies alike, even at high volumes.



LOWEST NOISE

The amplification stage features the industry's lowest-distortion and noise specifications, and what little noise there is remains frequency independent with a Signal to Noise Ratio : >120dB referenced to full power. The importance of this trait cannot be over-estimated in a theater that may have twenty or thirty speakers in a single room. If each of those speakers were producing even a small amount of noise, it would rapidly become noticeable and unacceptable. This scenario never arises with The Amplitude8m .

INTELLIGENT POWER

Our amplifiers use microprocessor control for turn-on delay and feature an automatic AC power recognition and configuration system. The amplifiers not only recognize whether they are hooked up to 117V or 230V nominal power, they automatically self-configure.

AUDIO POWER & GAIN

- Power Output (8Ω, 20-20kHz 0.05% THD+N): 200 Watts RMS x 8
- Power Output (4Ω, 20-20kHz 0.05% THD+N): 300 Watts RMS x 8
- Gain: 19dB (Test window 18.6 to 19.6dB, centre is 19.1dB)

AUDIO PERFORMANCE

- Frequency Response: +0, -0.5 dB, 5 Hz to 20kHz, load independent
- Damping Factor: >800 20Hz to 20kHz
- Signal to noise ratio: -120 dB referenced to rated output
- Crosstalk: < 90dB
- Intermodulation Distortion: Less than 0.05%

AUDIO INPUTS & OUTPUTS

- Input Connectors: 1x Balanced (XLR) per channel
- Input Polarity: Pin 2 +ve, Pin3 -ve (for non-inverting output)
- Input Impedance: 47 kΩ, each phase
- Output Connectors: 1x 5 way binding post per channel

POWER SUPPLY

- Power Requirement: 117V / 230V 50/60 Hz AC (auto select)
- Power Consumption: <0.5W Standby, <80W idle, <40W Sleep, Max 2kW
- Power Input: IEC C20
- Mains Fuse: 20A (117V) / 12.5A (230V) both slow blow
- 12V Trigger: 1x in, 1x out (mini-jack TS)

WEIGHT & DIMENSIONS

- Dimensions (W x H x D) mm, including rack ears: 482 x 132 x 433
- Dimensions (L x H x P) inches, including rack ears: 19" x 5 2/8" x 17"
- Shipping box dimensions (W x H x D) cm: 61 x 61 x 42
- Weight: 29.8kg / 65.5 lbs
- Shipping weight / volume: 36kg / 0.156 M3



AMPLITUDE 8

The Power of Sound

Achieving maximum performance in an Altitude32 theater requires equally proficient amplification. That is the reason we created the Amplitude8 power amplifier. Optimized to work with Trinnov processors, it integrates seamlessly with the Altitude both visually and technically, and in operation creates a powerful three-dimensional soundstage, with huge dynamic range and bass impact to equal and exceed that of the best commercial theaters.



PERFECT INTEGRATION

We perfectly matched the input level of the Amplitude8 to the output level of the Altitude32, optimizing the system's dynamic range. By doing this, we are able to decrease the background noise of the system by a highly significant 6 to 8 dB, a benefit unavailable when using other amplifiers.

Why is this so important? Immersive audio systems have a large number of speakers, and each is a potential source of background noise, especially when the system has high-sensitivity speakers. A silent background ensures that low-level sounds critical to a soundtrack will not be obscured.

AUDIO POWER

- Power Output (8Ω, 20-20kHz 0.05% THD+N): 225 Watts RMS x8
- Power Output (4Ω, 20-20kHz 0.05% THD+N): 375 Watts RMS x8
- Power Output (2Ω, 20-20kHz 0.05% THD+N): 500 Watts RMS x 8

AUDIO PERFORMANCE

- Frequency Response: +/- 0.5dB 0Hz to 20 kHz, load independent
- Damping Factor: > 6000 at 100 Hz, > 2000 20Hz to 20 kHz
- Signal to noise ratio: 125dB Referenced To Rated Output (A-Weighted)
- Crosstalk:< 85 dB

AUDIO INPUTS & OUTPUTS

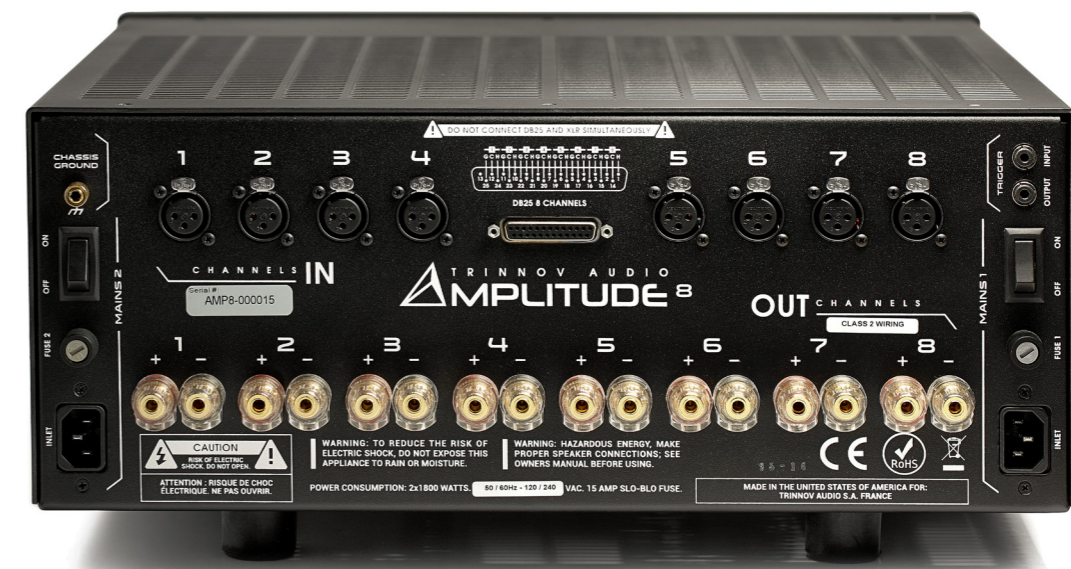
- Input Connectors: 1x Balanced (XLR) per channel
- Input Polarity: Pin 2 +ve, Pin3 -ve (for non-inverting output)
- Input Impedance: 47 kΩ, each phase
- Input Sensitivity: 6.15V (+18dBu) RMS balanced in = 225W into 8Ω out
- Output Connectors: 1x 5 way binding post per channel

POWER SUPPLY

- Power Requirement: 2x 117V / 230V 50/60 Hz AC
- Power Consumption: <1W Standby, <80W idle, Max 1,8kW x2 full load
- Mains Fuse: 15A (117V) / 8A (230V) both slow blow
- 12V Trigger: 1x in, 1x out (mini-jack TS)

WEIGHTS & DIMENSIONS

- Dimensions (W x H x D) mm: 443 x 186.5 x 502 mm
- Dimensions (W x H x D) inches: 17 3/4» x 7 11/32» x 19 3/4»
- Shipping box dimensions (W x H x D) cm: 70 x 61 x 38
- Weight: 48 Kg / 106 lbs
- Shipping weight / volume: 59kg / 0.162 M3



MILESTONES

15 Years of Immersive Audio Evolution.

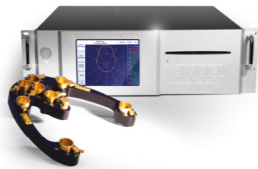
2001



FIRST RESEARCH IN 3D SOUND

Laborie, Montoya and Bruno create and test a working high-spatial resolution 3D audio recording and playback chain.

2004



FIRST PRODUCT: 5.1 RECORDING SOLUTION

Trinnov presents the Optimizer technology as a surround monitoring solution at the 118th AES Convention in Barcelona.

IOSONO AND SONIC EMOTION

First commercial application of Wave Field Synthesis (Cinema & PA). First commercial application of Object-based audio (Caruso project Europe).

2008



THE OPTIMIZER GETS ADOPTED BY THE PRO AUDIO INDUSTRY

Post-production facilities: Fox Studios (LA), Radio France (Paris) France Television, SWR, ZDF, IRT (Germany), BBC (UK), RTBF (Belgium), Radio Canada, TSI (Switzerland), NRK (Norway), ORF (Austria) Globo TV (Brazil)... Music studios: McGill University, Vienna Fine Arts Academy (Austria), Tonstudio Beusch (Switzerland)...



FIRST OEM PRODUCT. PARTNERSHIP SHERWOOD NEWCASTLE R-972

The first consumer product to incorporate the Optimizer, in a scaled-down version, received high praise from reviewers and audiophiles for its exceptional sound quality.

2012



TRINNOV MAGNITUDE

As home theaters become more sophisticated, Trinnov leads the path towards high channel count systems beyond 7.1. The Magnitude provides up to 32 channels for systems with arrays, multi-amplified speakers and multiple subwoofers.



IMMSOUND PARTNERSHIP

Spanish startup Immsound launches its object-based 3D cinema format with 30 screens, each based around a 24-channel Trinnov processor. The startup is acquired by Dolby in 2012, and its technology is incorporated into the Dolby Atmos program.

2015



TRINNOV ALTITUDE³²

With the launch of Dolby Atmos, all processors are limited to 7.1.4 channels. The Altitude³² shatters this limitation, establishing a new standard for high-end home theaters with its capability of rendering up to 32 discrete Atmos channels.



DOLBY ATMOS & AURO 3D

In 2015, at the ISE show in Amsterdam, the Altitude³² demonstrates its cutting edge capability, as the first processor able to demonstrate both the Dolby Atmos and Auro-3D formats.

2017



ALTITUDE¹⁶ & AMPLITUDE^{8M}

Trinnov technology and sound quality become available to a wider audience with the introduction of the Altitude¹⁶. With performance essentially identical to the Altitude³² but limited to 16 channels, the Altitude¹⁶ makes Trinnov performance more affordable. The Amplitude^{8M} is its ideal companion, an 8-channel power amplifier.



DTS:X / ROON

After being used by DTS as the developmental platform for DTS:X, the Altitude³² becomes the first surround preamplifier to support DTS:X. The Altitude³², Altitude¹⁶ and Amethyst are all upgraded to fully-certified Roon Endpoints, providing the best possible music streaming experience. Existing Altitude owners upgrade to Roon through a free download.

2019



TRINNOV OVATION²

Newly introduced, the next generation of cinema processors further elevates audio performance in commercial cinema installations.



DTS:X PRO IMAX ENHANCED

The Altitude³² and Altitude¹⁶ are the first processors to support DTS:X Pro, with the Altitude³² able to discretely render the full complement of 30.2 channels. A free download provides the upgrade to all existing Altitude owners. IMAX Enhanced, with capable displays, enables users to benefit from the enhancements of this dedicated software.

2000



ircam
Centre
Pompidou

THE ORIGINS

The forthcoming Trinnov founders Arnaud Laborie, Sébastien Montoya, and Remy Bruno join forces to focus on research in 3D sound.

2003



FOUNDATION OF TRINNOV

Trinnov stands for Tri-nnovation

FIRST AES PAPER

Trinnov presents the first of many scientific papers to the 114th AES Convention in Amsterdam: "A New Comprehensive Approach of Surround Sound Recording", preprint 5717.

2005



OPTIMIZER MONITORING SOLUTION

Trinnov presents the Optimizer technology as a surround monitoring solution at the 118th AES Convention in Barcelona.

AURO FORMAT 2+2+2 NHK FORMAT 22.2

At an AES workshop presented by Wilfried Van Baelen and co-organized with Trinnov's Arnaud Laborie and NHK's Kimio Hamazaki, Auro first showed their 2.2.2 format. NHK also presented a 22.2 channel proposal for their 8K UHD TV standard (super Hi-Vision).

2010



TRINNOV ST2 HiFi

At the Munich High-End show, the ST2-HiFi processor makes its debut, bringing Optimizer speaker/room technology for the first time to high-end stereo enthusiasts.



TRINNOV ST2 & MC PRO

At the 128th AES convention in London, the ST2 and MC Pro are launched, making the Optimizer available to a wider range of pro audio applications including music, radio, TV and film production and post-production.

2013



TRINNOV OVATION

Trinnov launches its highly successful digital cinema processor, taking cinema sound to a new level with Optimizer technology.

2016



TRINNOV AMPLITUDE⁸

The ideal complement to the Altitude³². Dual 4-channel amplifiers on a single chassis, the Amplitude⁸ delivers a continuous 500W at 2 ohms with all channels driven. Gain matched to Altitude processors, it provides up to 8 dB improvement in signal-to-noise and dynamic range.



JBL SYNTHESIS SDP-75

JBL Synthesis and Trinnov partner to produce the top of the line Synthesis processor. Manufactured on an OEM basis by Trinnov, the SDP-75 incorporates most of the Altitude³²'s capability, for dedicated use with systems utilizing Synthesis loudspeakers.

2018



TRINNOV MC PRO HCC

Trinnov's multichannel Optimizer and monitoring solution becomes more versatile with the addition of audio over IP through Dante, Ravenna and AES67.



ALTITUDE^{48 EXT}

Further widening the gap between the Altitude and competitive processors, the Altitude^{48ext} expands the Altitude³²'s capability to the maximum 24x.10 channels of Dolby Atmos, and as many as 48 uniquely rendered channels, even up to 64 processed channels.

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TRINNOV

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