ALTITUDE | OPTIMIZER

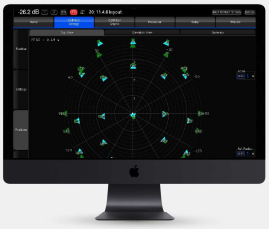
Trinnov's Unique Optimizer

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.

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



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

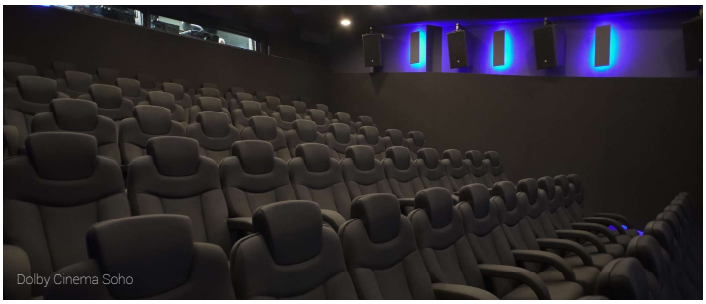
Because nothing can be left to chance, the entire signal path of the measurement is within the processor, rather than relying on external software and hardware. All measurements remain on the processor without requiring remote storage.

The Group Delay shows here the time arrival of all frequencies

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.



Dolby Cinema Soho

Widescreen Review (June 2018)

The technology that's available today with the Trinnov Altitude[32], 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.