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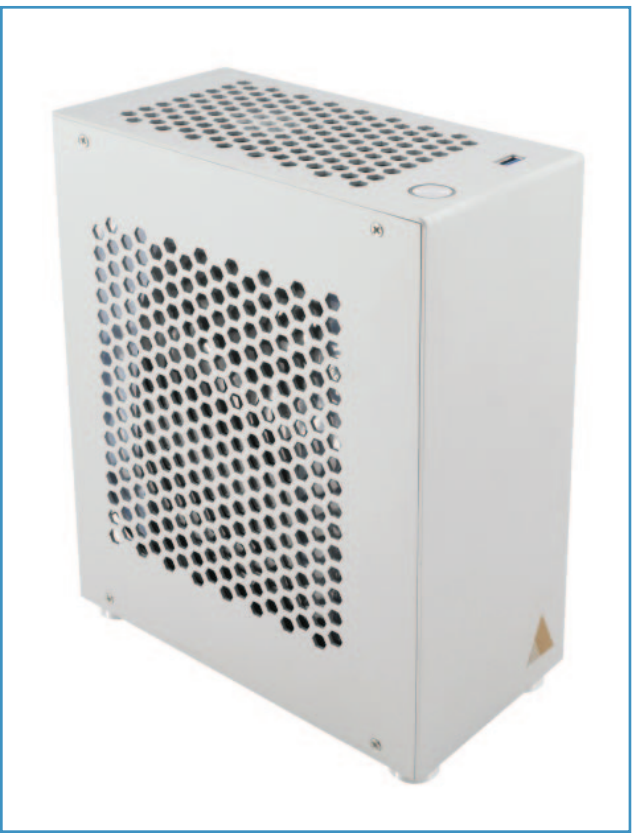
Adamson FletcherMachine

By: Colin P. Waldman

Adamson Systems Engineering, founded in 1983 by Brock Adamson, has grown from a small operation into a far-reaching supplier of professional speakers and other audio products for the professional touring and installation market. Based in Port Perry, Ontario, it has supplied gear to performance facilities, houses of worship, and festivals worldwide while supporting the Backstreet Boys, Paramore, and other prominent musical acts.

Adamson has also achieved several vital patents in key loudspeaker technologies. These innovations include sound chambers, drivers, and support rigging and cabinet designs that have set new industry standards.

Brock Adamson, the president, CEO, and head designer, envisioned a method of reproducing sound that would retain the integrity of the original waveform even at extremely high levels. His commitment to symmetry, coherency, and intelligibility has driven Adamson's success.



The traveler model is designed to make touring easier.

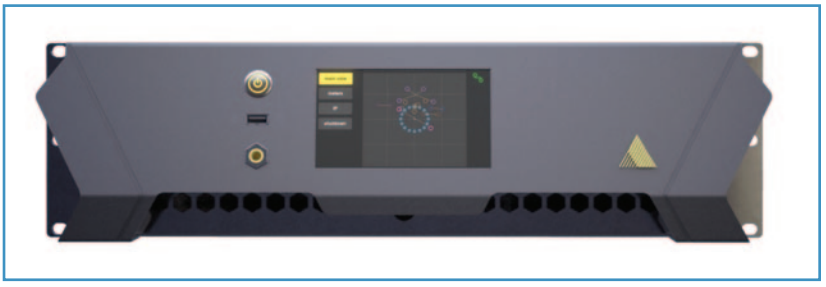
Going immersive

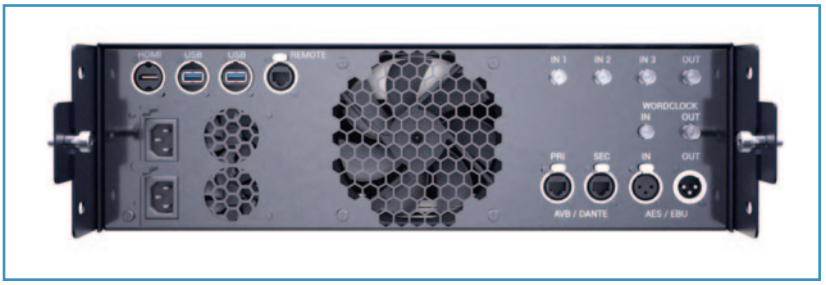
The FletcherMachine is one of Adamson's newest designs, expanding the company's reach in the professional audio market. This reference-class immersive audio rendering engine creates an acoustic space by positioning sound objects in a way that hasn't been previously imagined. Is your brain swirling with the many immersive solutions that various manufacturers have been designing? Take a deep breath.

Immersive audio is designed to envelop the audience in a three-dimensional experience, enhancing the sense of presence and immersion. Unlike traditional stereo or surround sound setups, it combines advanced spatial audio techniques and object-based sound processing to create a more realistic and dynamic auditory environment.

In a way, immersive audio defies gravity. It's not content with a stern left and right; it yearns for a notable depth. Imagine a snowflake falling from above, landing softly on your head, sending small shivers through your spine. Or a distant thunderclap, shaking the fabric of reality as it grumbles towards you with an earth-shaking beat. This isn't stereo; it's a three-dimensional symphony. Instruments dance around you, and vocals whisper secrets through the air. Close your eyes, and you will feel that nothing is still. The sound that has been composed is floating around with you.

In a live event setting, immersive audio utilizes an array of strategically positioned speakers throughout the venue to project sound around the audience and above and below them. This multidimensional soundstage allows for precise localization of audio sources, enabling sound engineers to create immersive effects, such as moving sound objects and ambient atmospheres, which interact with the audience's spatial perception.





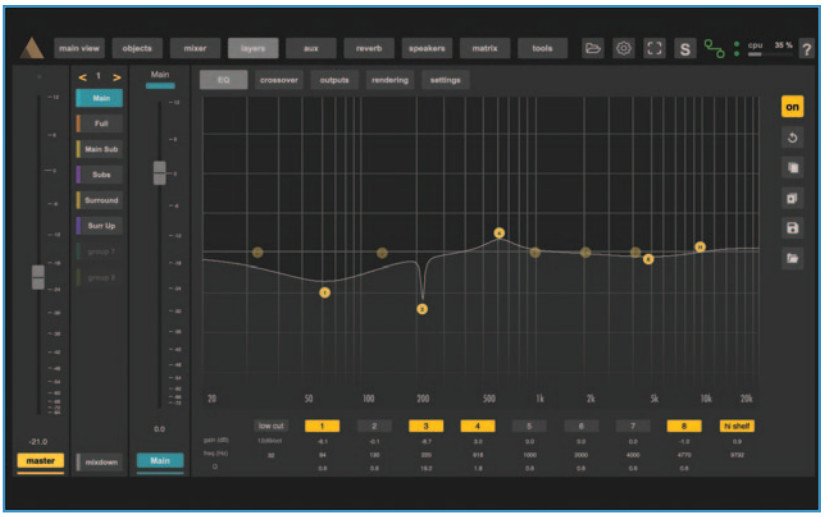
Above and below: FletcherMachine is available as a 3U 19" rack unit with 5" color touch screen, allowing for IP address change, levels control, and other quick checks.

Furthermore, immersive audio systems often incorporate real-time processing and spatial rendering algorithms to adapt the audio mix to the specific acoustics of the venue, ensuring consistent and high-quality sound reproduction regardless of the seating location. By leveraging cutting-edge audio technologies, immersive audio for live events aims to transport audiences into the heart of the performance, elevating their overall sensory experience and engagement with the event.

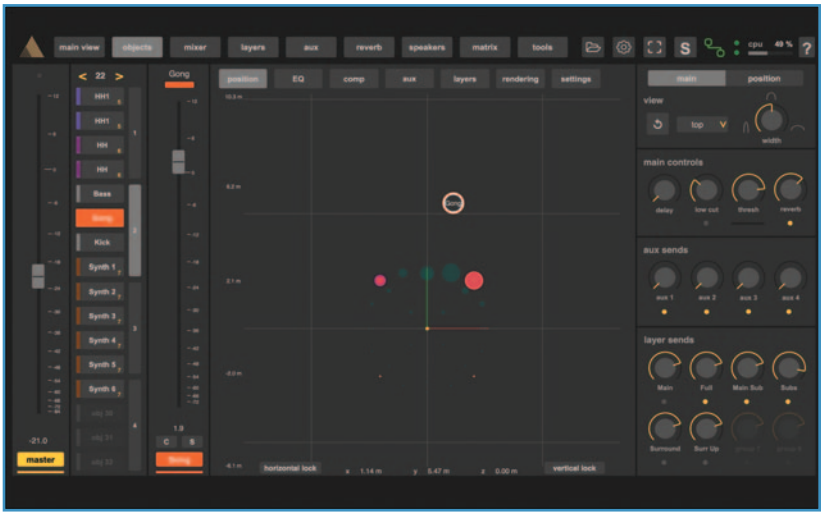
The Adamson FletcherMachine

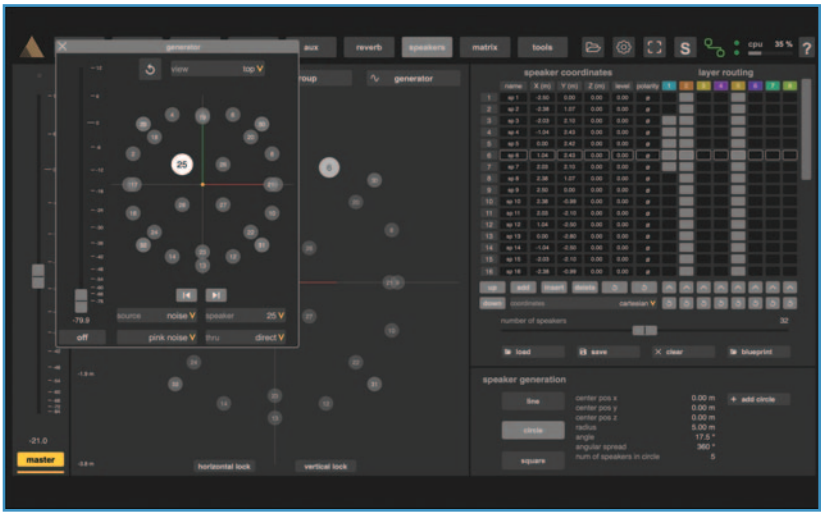
I had a chance to mess around with Adamson's free-for-educational purpose Virtual FletcherMachine, an experience that proved the product's versatility and ease of use. In the time I spent with the PC- and Mac OS-compatible software engine, a throttled version in comparison to the hardware, paired with the remote software, I saw what a game-changer for professionals in the live sound, installation, and entertainment industries the FletcherMachine stands to be. With a range of simple and super-efficient sound spatialization tools, sound engineers and artists get complete control of positioning sound objects in their acoustical spaces.

Remember, advanced spatial audio techniques help create immersive sound, and this is through the process of combining amplitude and delay differences to calculate signals sent to the loudspeakers from the object's point of view. As a result, listeners experience a wide coherent listening zone where sound objects are precisely positioned in azimuth and depth. All these acoustical elements can be controlled by a complete set of Open Sound Control and MIDI integrations. These allow the Fletcher Machine to be controlled using a dedicated plug-in on a mixing desk, real-time tracking system, or any other interface using these protocols.



Above and below: Three screenshots from the virtual edition.





Features

Whether your system is in a cathedral, a concert hall, or an otherworldly environment, the Fletcher Machine was designed to efficiently deploy an immersive landscape of your choosing, whether you are a musician or an engineer. Gone is the need for a problematic mix because the FletcherMachine's EQ and dynamic processing, with the offering of a high degree of sound source unmasking, prove there is no reason to overprocess your audio. (Creating immersive audio is an art form, and I am not one to be artistic unless you want stick figures for people and a half circle in the corner of a canvas for the sun.) When it comes to immersive effects anyone, even I, can accomplish a Picasso or Matisse with the new reverb engine installed in the FletcherMachine's core engine. Its versatility is so high that it spatializes lows. Simply put, you can create an adjustable coverage with minimal loss of impact by instantly modifying the sound and coverage of each object by spatializing its low end.

Any project can evolve, and Adamson has thought of numerous solutions to help you create the acoustical performance you desire during any speaker rearrangement. This high versatility brings a simple and coherent approach to all circumstances, from elevation speakers in domed stadiums to delay lines under balconies. The versatility continues with the ability to choose from three rendering modes. A minimum delay, in which the smallest object-to-output delay value is subtracted from all delay values, retains a relative offset and minimizes overall latency. If the time of flight from the object to the output needs to be considered, a full delay rendering is available. Lastly, engineers can choose a no delay render or distance-based amplitude panning, which creates the availability for direct routing of any object to any output.

We have already touched on the integration with a mixing desk and/or DAW, but the FletcherMachine can also communicate with all available tracking systems, with all protocols implemented. These are widely employed in the entertainment industry and use position, movement, and rotation of objects to create a range of effects through vision-based tracking. They can connect with automated lighting systems for spotlight tracking, media servers for projection mapping, and sound systems for immersive spatial audio deployment.

Hardware and software

The FletcherMachine system comprises a calculation core engine and its remote software. The Fletcher fleet includes a pair of small-form-factor Traveler Series cores, a two 3U / 19" rack design, Stage Series cores, and a free educational MacOS, Windows 10/11 operational virtual core. All core models can interact with Adamson's remote software, available on macOS and Windows platforms. The remote offers a user-friendly interface and can be seen much like a mixing desk. Remote is facilitated with a touchscreen-based interface for object positioning and a complete set of mixing functionalities for ease of use. These functionalities include object EQ, compressor, aux sends, adjustable distance attenuation, and atmospheric absorption. Also featured are the ability to easily set, synchronize, and recall individual trajectories, continuous or discrete position jitter, object grouping, and linking functions, with eight VCA-style faders and up to ten loudspeaker layers. Remote can also support loudspeaker positioning in three dimensions with blueprint import, output EQ, delay, and crossover, among others.

Adamson's two core form factors offer a range of configurations tailored to meet specific audio production requirements. A Dante or AVB/MADI interface is available to work with all hardware cores, while virtual core utilizes your I/O card. Users can achieve high-quality audio reproduction with 44, 48, 88, and 96kHz sample rates available across the board, including on virtual. Input and output capacities vary, with configurations supporting anywhere from 24 to 128 inputs and 12 to 128 outputs, ensuring scalability to suit diverse audio setups. Additionally, advanced functionalities such as reverb engines, speaker processing, and VCA-like level controllers enhance the versatility and performance of these systems. Because of its compatibility with the dedicated remote controller for MacOS, Windows 10/11, and MIDI/OSC implementation, the FletcherMachine facilitates seamless integration into professional audio workflows. Furthermore, universal 100-240VAC, 50–60Hz power supplies ensure reliable operation across different power grids for all Fletcher hardware offerings.

The Stage Series also features redundant, hot-swappable power supplies for enhanced resilience. As far as Virtual Core's limitations, you will not be able to access the high-quality impulse response engine found in the hardware cores and there are no pre/post-fader auxiliary sends available virtually. For free software, bundled with Adamson's Remote, which ran smoothly on both my MacBook and Windows Laptop, Adamson has outdone itself with its virtual offerings in the perspective of adaptability, usability, and overall artistic control of your diverse immersive canvas.

Conclusion

The Adamson Fletcher Machine transcends traditional boundaries, merging engineering precision with artistic emotion. Whether you're shaping the sound of a concert, an installation, or a theme park ride, the product is designed to empower the user to create audio magic. Overall, Adamson's dedication to symmetry, coherency, and intelligibility has made it a force to be reckoned with in the pro-audio sector.