Meyer Sound ULTRA-X80 Point Source Loudspeaker

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The Meyer Sound ULTRA-X80 provides a range of ultra features in a compact package. It represents an advancement in the company's point source loudspeaker technology, drawing on the acoustic lineage of the ULTRA family, including the ULTRA-X40 and ULTRA-X20, as well as technology from the PANTHER large-format linear line array loudspeaker.

The ULTRA-X80 stands as the most powerful member of the ULTRA family. Its expanded likeness to past Meyer Sound systems allows for deployment across various applications, including stadiums, arenas, theatres, houses of worship, music venues, performing arts centers, corporate AV settings, and high-performance spatial applications. The ULTRA-X80 allows for analog and Milan connectivity as standard and is part of a comprehensive range of Milan-equipped loudspeakers that take advantage of Meyer Sound's Nebra integrated software platform.

Acoustic specifications

The ULTRA-X80 delivers high-fidelity audio across a broad spectrum, featuring an operating frequency range of 55Hz – 18kHz, ±6dB. This ensures full-bodied sound reproduction, capturing the deep lows and crystal-clear highs required for diverse audio applications. Its horizontal coverage stands at 95°, allowing for wide sound dispersion, while its vertical coverage is 40°, providing focused sound projection.

In terms of sound output, the ULTRA-X80 features an AES75 maximum linear sound level of 122dBZ, 140 dBZpk, and 119.6dBA. These measurements were taken in a free field at 4m using a Class 2 sound level meter, adhering to IEC 61672 and ANSI S1.4 standards. The values are scaled to a 1m distance from the loudspeaker, under conditions where it reproduces Music-Noise with less than 2dB of compression for at least one hour, at an ambient temperature of 40° Celsius, or 104° Fahrenheit. Music-Noise, used for testing, is a full bandwidth signal (10Hz – 22.5kHz) that closely represents typical program material, featuring a constant instantaneous peak level in octave bands and a full bandwidth peak-to-RMS ratio of 18dB.

For applications requiring more targeted sound, the ULTRA-X82 variant offers a tighter 50°-by-40° dispersion pattern; it delivers a total linear peak output of 141dB SPL. Loudspeaker system predictions for coverage and sound levels can be found in Meyer Sound's MAPP 3D system design and prediction tool.

Design and components

The ULTRA-X80 showcases a concentric driver design, central to its ability to deliver precise and powerful sound. It couples two 12" neodymium-magnet cone drivers to a rotatable 95°-by-40° waveguide, ensuring smooth response across

The ULTRA-X80 delivers high-fidelity audio across a broad spectrum, featuring an operating frequency range of 55Hz –18kHz, ±6dB. Opposite: The unit's dimensions are laid out in this drawing.
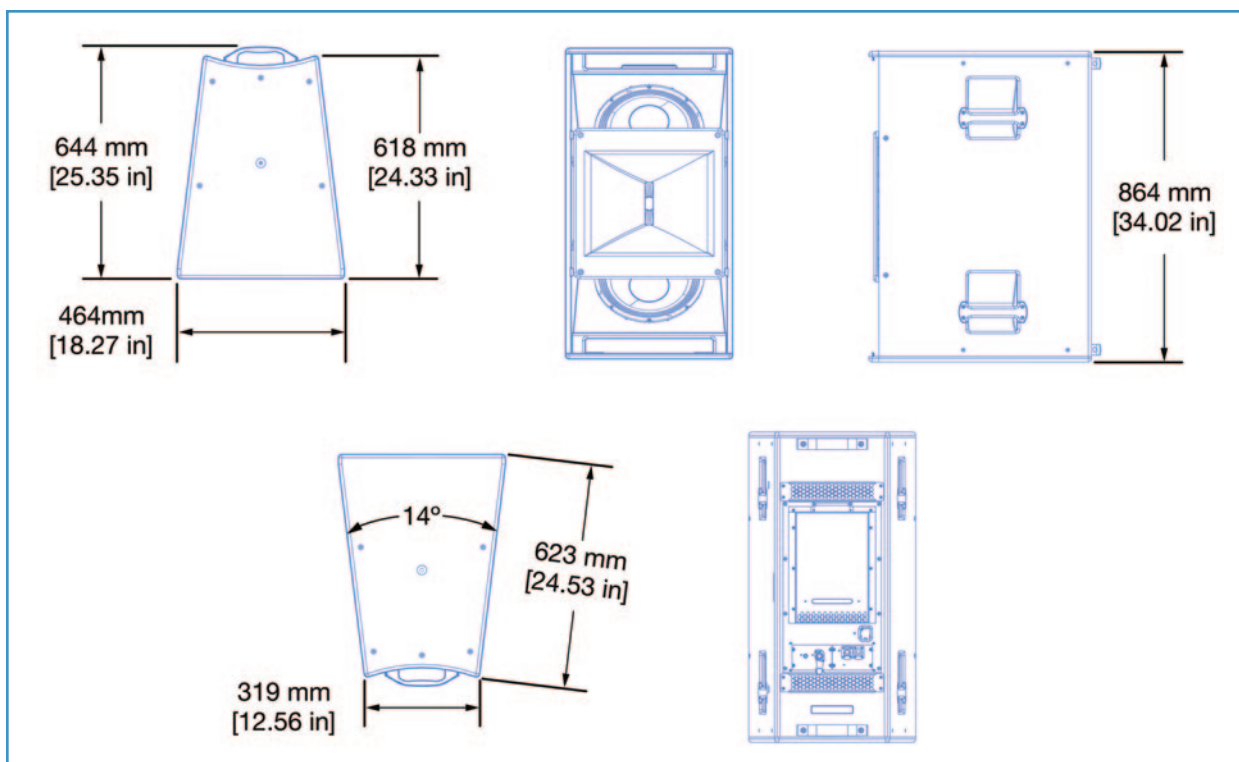
the speaker's range and exceptional directional control. A 4" high-frequency compression driver complements this configuration. The speaker uses Meyer Sound's ultralight Class D amplifier technology to deliver a total linear peak output of 140dB SPL, while the ULTRA-X82 achieves a total linear peak output of 141dB SPL. Despite its robust capabilities, the cabinet weighs just 138lb. The enclosure is constructed from premium multi-ply birch and is finished with a slightly textured black coating. For added durability, an outdoor temporary (OT) version includes additional treatment of the cabinet wood. This rating ensures the loudspeaker is protected against dust and water ingress, making it suitable for outdoor use under temporary conditions. The loudspeaker features a protective grille made of powder-coated, stamped steel. The OT version also incorporates stainless steel mesh behind the grille for enhanced protection.

Connectivity and monitoring
The ULTRA-X80 and ULTRA-X82 come standard with comprehensive connectivity options, including analog and digital format Milan connectivity. The analog audio input utilizes a Neutrik XLR three-pin TOP (True Outdoor Protection) female input with a male loop output. To achieve the maximum peak SPL across the loudspeaker's operating bandwidth, the source must be capable of producing +24dBU into 600. For digital audio, the loudspeaker is equipped with a Neutrik etherCON TOP (True Outdoor Protection) connector, supporting AVB- and Milan-certified digital formats. Furthermore, loudspeaker telemetry is transmitted via the

Ethernet port, allowing for real-time monitoring and adjustments through software.

Power and safety
The ULTRA-X80 is engineered with a strong emphasis on power efficiency and safety. It features an IEC Ingress Protection Rating (IP Rating), with the Outdoor Temporary (OT) version specifically designed to meet IP55 standards when used with cables that are terminated with Neutrik TOP connectors.

For its power connection, the ULTRA-X80 utilizes a Neutrik powerCON TRUE1 TOP connector, further enhancing safety and operational stability. The loudspeaker is designed to operate within a range of 200—240V AC, at either 50 or 60Hz, making it adaptable to various international power standards.

In terms of power consumption, the ULTRA-X80 is designed to be efficient while still delivering high performance: It has a maximum long-term continuous power consumption (over 10 seconds) of 900W, a burst power consumption (under one second) of 2,400W, and an idle power consumption of just 55W.

Self-powered loudspeakers incorporate amplification and undergo rigorous testing by Underwriters Laboratories and other international organizations. This ensures they operate safely and guard against the risk of fire, electric shock, and inadequate structural design. Meyer Sound-powered products are certified by FCC, UL, CSA, CE, and CEE.

Rigging and accessories

The ULTRA-X80 is designed for flexible and secure rigging, featuring M8-1.25mm accessory attachment points. These attachment points are strategically placed with six on the bottom and six on top of the loudspeaker, providing multiple options for various orientations.

Available accessories include the MUB-T1 U BRACKET, specifically designed for the ULTRA-X80 and X82 models, complete with M8 hardware for secure attachment, and the MY-T1 YOKE, designed for a single ULTRA-X80/82 loudspeaker. This also includes M8 hardware to ensure a secure installation.

Advantages of self-powered loudspeakers

Meyer Sound has been designing and deploying self-powered loudspeaker technology since 1995, offering numerous benefits over traditional passive systems. Their advantages include ease of deployment as system setup is streamlined due to fewer components and cables, eliminating the need to match speakers to amplifiers or calibrate gain and crossover settings. Self-powered systems also offer predictable and reliable operation because the internal amplification is closely matched to the drivers, ensuring consistent sound. Built-in protection circuitry enhances reliability without compromising signal quality.

Furthermore, self-powered loudspeakers provide a better frequency and phase response through sophisticated processing and active crossovers that deliver optimal response curves and eliminate phase issues. This results in unparalleled clarity. Precision-matched internal amplifiers deliver optimal power for a cleaner sound, and short internal cables reduce distortion and signal loss. The design also ensures tighter transients, as short internal cables allow amplifiers to more effectively dampen driver mechanical motion, enhancing sonic accuracy. Finally, certified safety is a key advantage, as self-powered loudspeakers undergo rigorous testing to ensure safe operation and protect against fire, electric shock, and inadequate structural design.

Software and system design

Meyer Sound provides sophisticated software and system design tools to ensure optimal performance and integration of the ULTRA-X80 in various environments. These include the MAPP 3D software application for macOS and Windows as a tool for sound system design. Key aspects of MAPP 3D include acoustic prediction; 3D modeling, which allows for detailed visualization of complex models; measurement of off-axis response; and comparison of performance across different venue sections. MAPP 3D utilizes Music-Noise to predict headroom and linear peak SPL with music, ensuring consistent response at any output level.

The software offers a suite of sophisticated design tools, including a built-in drawing program and a collection of design objects representing traditional stage shapes, and supports the import of CAD and SketchUp files, enhancing the precision of designs. The software ensures accuracy in system design through 3D loudspeaker performance data, based on more than 65,000 three-dimensional measurement points taken in Meyer Sound's anechoic chamber. Predictions are accurate across a full frequency bandwidth, extending as low as 12.5Hz. MAPP 3D integrates system design, prediction, optimization, and control into a streamlined workflow, thanks to seamless integration with Meyer's Galileo GALAXY Network Platform and Compass control software.

The ULTRA-X80 leverages Nebra, the integrated software platform for connectivity and monitoring. It provides a standard workspace for hosting multiple tools used with Meyer Sound products. This Mac and Windows-based platform allows monitoring the company's networked systems and managing connections in Milan AVB networks. Nebra monitors all available data points from connected devices and operates as a stand-alone solution for Milan-based devices. It employs sensor fusion technology to manage and display multiple information sources in one platform, combining data from multiple sensors to produce robust, actionable information. The platform features an icon-based, graphic display that allows users to view all Milan connections and the status of individual devices in one place. A "traffic light" icon indicates whether the system is performing as expected, with critical system alerts appearing as banners. Nebra enables comprehensive connectivity and monitoring functions for Meyer Sound PANTHER loudspeakers, the GALAXY Network Platform, Milan-certified AVB switches, and other Milan-certified devices. These software and system design tools greatly enhance the ease of use of the ULTRA-X80, making it suitable for a wide range of applications.

Conclusion

The Meyer Sound ULTRA-X80 is a powerful point source loudspeaker that integrates advanced technology and design. Its features, combined with the company's software and system design tools, make it a valuable solution for many applications.

The ULTRA-X80 is designed for diverse applications; its sibling, the ULTRA-X82, provides even greater flexibility for targeted use cases. The ULTRA-X80 benefits from the advantages of Meyer Sound's self-powered approach, including simplified setup, predictable and reliable operation, superior frequency and phase response, clarity, and certified safety. 🔊