# X-10 *High Resolution Linear Control Room Monitor*

## FEATURES

- Self-powered
- Linear response
- Extremely low distortion
- Uniform dispersion with no comb filtering effects
- Phase aligned for near-perfect impulse response
- Full range output of 136 dB SPL peak (@ 1 meter)
- PSAC™ (Pressure Sensing Active Control - patent pending)
- Patented HF driver and wave guide
- Soffit mount or freestanding
- RMS™ (Remote Monitoring System) compatible
- X-800 subwoofer option for extended headroom

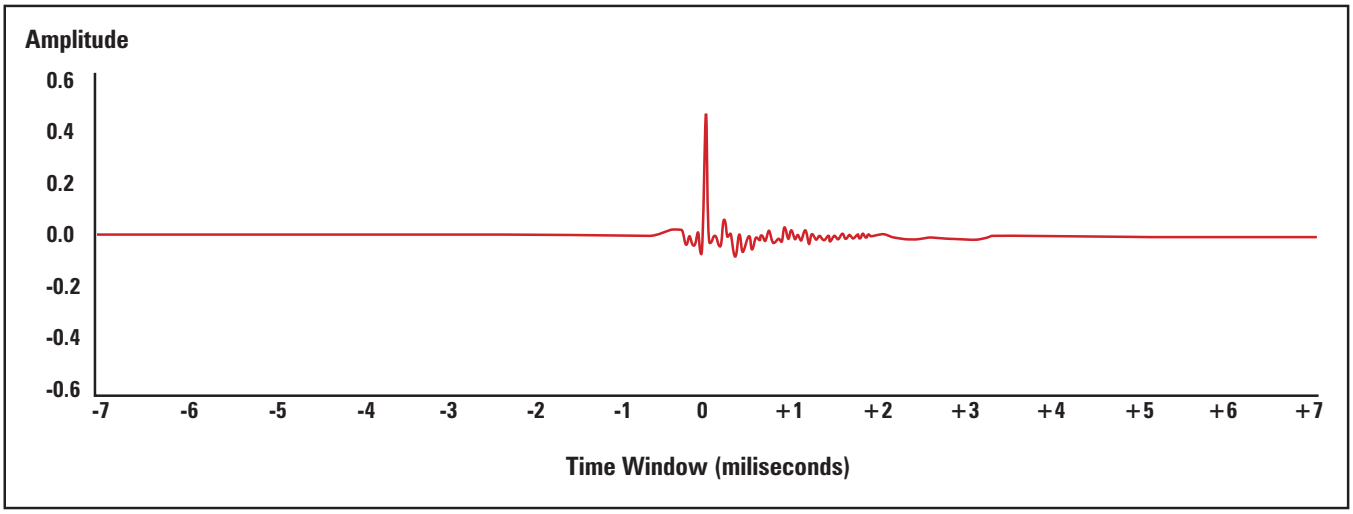
*Superior engineering for the art and science of sound.*

Meyer Sound

The Meyer Sound X-10 represents a fundamental redefinition of large format studio monitors for the emerging era of high resolution digital media. Powerful, yet relatively compact, the self-powered X-10 exhibits extremely low distortion, near-perfect impulse response and uniform dispersion across a wide listening area. Also, by employing cutting-edge control technology adapted from avionics, the X-10 demonstrates an extraordinarily linear response characteristic: the frequency response curve does not change with variations in monitoring levels. From the threshold of audibility up to full output, the X-10 provides an accurate, detailed and consistently linear representation of the input signal.

To achieve the design goals of the X-10 project, Meyer Sound engineers first confronted the tradeoffs inherent in high level reproduction of low frequencies. Recent trends in large room monitors have emphasized dual 15- or 18-inch woofers. However, when operating above 250Hz, dual woofers produce destructive comb filtering effects. But placing the LF crossover below 250Hz normally requires a three- or four-way system, which in turn introduces the inevitable phase distortion complexities of multiple crossover points.

In order to achieve an impulse response exceeding that of electrostatics and Meyer's own patented HD-1 near-field monitor, Meyer Sound engineers opted for a two-way design with a single LF driver crossing over at 500Hz. In order to produce low frequency output equivalent to dual woofer designs, Meyer first developed and manufactured a new, high output linear 15-inch driver. This robust woofer utilizes a long excursion, 4-inch diameter voice coil suspended in a high intensity (1.5 million Maxwell[1]) field generated by dual concentric rings of

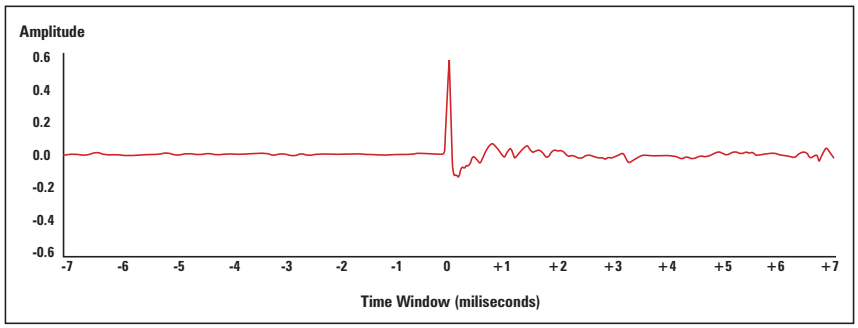



*X-10s near-perfect impulse response*

neodymium magnets. It also employs a unique suspension to maintain linear response by holding the voice coil in linear regions of the gap.

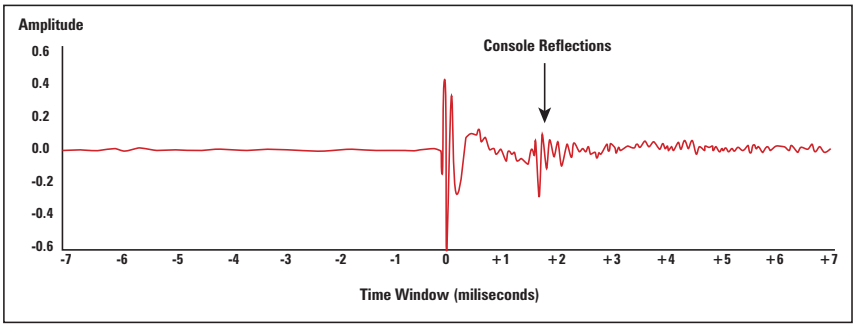
However, even this exceptionally powerful woofer could not realize the ambitious goals of the X-10 without the highly evolved technology of PSAC (Pressure Sensing Active Control) . PSAC was developed by Meyer Sound based on sophisticated feedback technology that was originally implemented in hydraulic control systems for Stealth fighter aircraft. PSAC employs a pressure sensing device, placed one inch in front of the woofer, to track momentary driver output pressure. This data feeds into the PSAC "black box" which compares it to the input signal. Using computer-modeled, high-order correction circuits unavailable a decade ago, PSAC adjusts the feedback circuit output–microsecond by microsecond–and brings the two signals into virtually perfect alignment. The result is unprecedented linearity and precise resolution of low-mid detail that is usually muddied by conventional woofers when heavy bass transients move the voice coil into non-linear regions of the gap.

The product of over two years of development in Meyer Sound's anechoic chamber, the X-10 high frequency system marks a significant achievement in the coordinated design of extremely low distortion driver and waveguide – both patented. (The X-10 system measured significantly lower distortion than all other units tested in an extensive analysis of horn/driver combinations from dozens of manufactureres.) The X-10 also lacks the characteristic "horn signature" of previous similar designs; many listeners find that the exceptionally smooth, open response compares favorably to HF systems employing soft dome tweeters. The compression driver, Meyer Sound's own 2010, features a 4-inch aluminum alloy diaphragm with optimized dome topology for higher output levels




*A typical electrostatic loudspeaker's impulse response*

[1] Maxwells are the product of gauss times area.



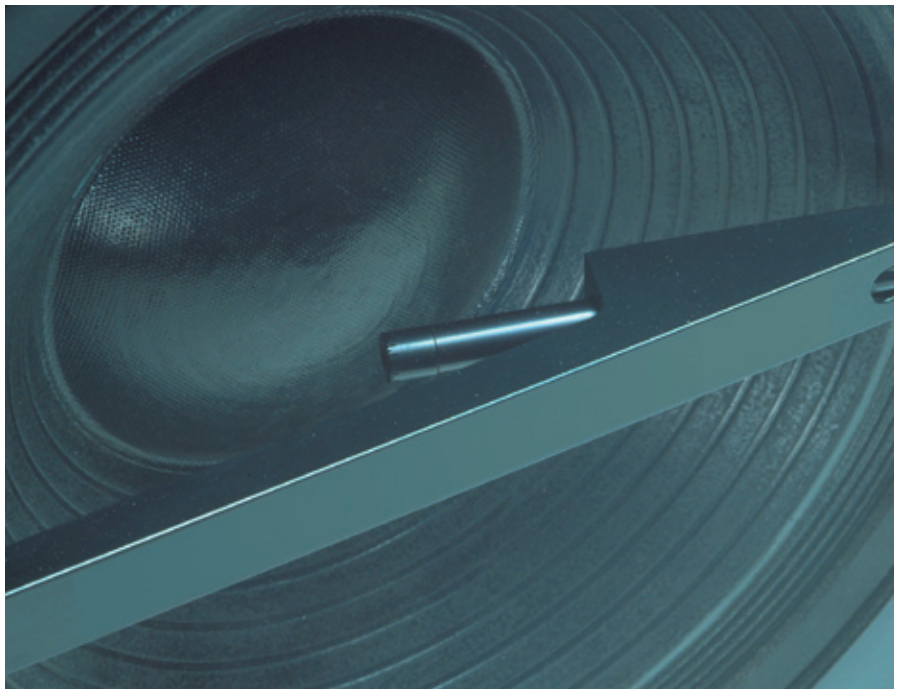

*A typical dynamic loudspeaker's impulse response*

at the upper frequency limits. Neodymium magnets generate the intense field required for extended frequency response. The patented Constant Q waveguide maintains a uniform dispersion pattern at all frequencies, with no lobing apparent even when measured at 1/12 octave resolution. The result is stable imaging with a wide "sweet spot."

Both transducers are driven by Class AB/H complementary power MOSFET amplifiers, with 620W available for the HF section and 1200W for the LF section. Class AB/H topology strikes an ideal balance between ample power reserves and sonic purity, with all devices operating as Class A below 40W nominal output. The control electronics package, refined from experience gained with the HD-1, includes an active crossover with pole-zero response correction filters and loudspeaker protection that remains completely out of circuit except when triggered by inadvertent, potentially damaging overloads.

For applications requiring very high monitoring levels coupled with extreme LF transients, the X-800 self-powered subwoofer adds extra headroom to the X-10 system. Because the X-10 is a full-range system, the X-800 is not intended to extend frequency response; rather it extends headroom by at least 5dB while still maintaining the absolute linearity of the overall system. (Unlike conventional monitors, the X-10 does not simply move into a more non-linear region when presented with peak levels beyond specified capabilities. It remains linear at all times, under all conditions.) Also, because the X-800's dual 18-inch drivers are not tightly controlled by PSAC, they retain the subtle timbral cues of traditional subwoofers–a subjective characteristic that many listeners find familiar and pleasing. The X-800 output is contained well below 250Hz, so no adverse comb filtering effects are generated by the proximity of the dual drivers.

The companion X-01 crossover module optimizes overall system phase response and offers facilities for connection of single or dual subs for either stereo or 5.1 surround operation. Crossover points are selectable at 120, 100 and 80Hz, and a single switch allows quick changeover from "pure" X-10 monitoring to sub-woofer augmentation. There is a separate .1 channel input so that the system may be switched between stereo and 5.1 operation utilizing a front panel switch. This mode switch may be remoted to the console for easy access.



All components of the X-10 monitor, including electronics and transducers, are manufactured by Meyer Sound in Berkeley, California.

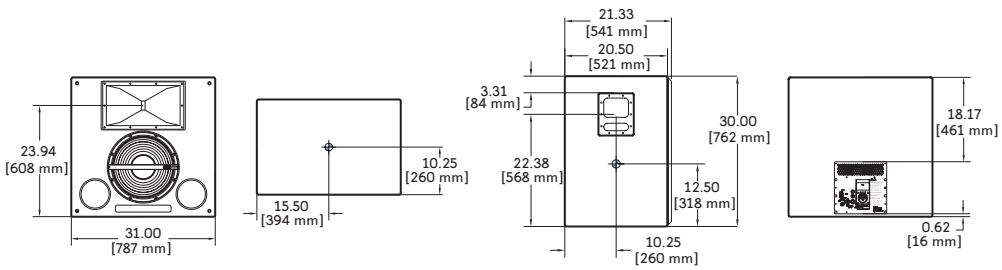
# X-10 / X-800 SPECIFICATIONS

| | | |
|---|---|---|
| **X-10 ACOUSTICAL[1] (EACH LOUDSPEAKER)** | **Operating Frequency Range** | 18 Hz - 20 kHz |
| | **Free Field** | ± 2 dB 23 Hz - 17 kHz |
| | **Phase Response** | ± 43° from 100 Hz to 18 kHz (1/24 Oct) |
| | **Maximum Peak SPL[2]** | 136 dB |
| | **Signal to Noise Ratio** | >110 |
| **CROSSOVER** | | 500 Hz- 1100 Hz, 950 Hz (equal acoustic pressure) |
| **TRANSDUCERS** | **Low Frequency** | 15-inch LFHP 4-inch voice coil ultra high linear travel |
| | **High Frequency** | 4-inch diaphragm compression driver |
| **AUDIO INPUT** | **Type** | 10 k impedance, electronically balanced |
| | **Connector** | XLR (A-3) male and female |
| | **Nominal Input Level** | +4 dBu |
| **AMPLIFIERS** | **Type** | Complementary power MOSFET output stages (audio class AB/H) |
| | **Output Power** | 1200 W rms burst low-channel, 620 W rms burst high-channel, 1820 W rms Total |
| | **THD, IM, TIM** | < .02 % |
| **AC POWER** | **Connector** | 250 V NEMA L6-20P (twistlock) inlet or IEC 309 male inlet |
| | **Automatic voltage selection** | 95-125 V AC and 208-235 V AC; 50 Hz / 60 Hz |
| | **Operational Voltage Range** | Turn on: 85 V AC; Turn off 134 V AC; 50/60 Hz<br>Turn on: 165 V AC; Turn off 264 V AC; 50/60 Hz |
| | **Max Continuous RMS Current (>10 sec)** | @115 V: 12 A @230 V: 6 A @100 V: 14 A |
| | **Max Burst RMS Current (< 1 s)** | @115 V: 23 A @230 V: 12 A @100 V: 28 A |
| | **Max Peak Current During Burst** | @115 V: 33 A @230 V: 17 A @100 V: 39 A |
| | **Soft Start Turn-on** | <12 A @ 115 V |
| **PHYSICAL** | **Dimensions** | Height: 30" (762 mm); Width: 31" (787 mm); Depth: 21.50" (521 mm) |
| | **Weight** | 187 lbs (84.82 kg), 205 lb (93 kg) shipping weight |
| | **Enclosure/Finish** | Smooth, medium gloss |
| | **Protective Grill** | Removable wood frame with cloth cover |
| **X-800 ACOUSTICAL[3]** | **Operating Frequency Range** | 16 Hz -200 Hz |
| | **Frequency Response 1/3 Oct** | ± 3 dB 25 Hz -125 Hz |
| | **Phase Response 1/3 Oct** | ± 50° 25 Hz -125 Hz |
| | **Maximum Peak SPL[2]** | 135 dB |
| | **Maximum Continuous SPL** | 125 dB |
| | **Sensitivity** | 1 Vrms in = 135 dB SPL |

**NOTES**

1. Measured Free Space at 2 meters on horn axis.
2. Measured at 1 meter from horn axis using pink noise with cabinet 1 meter above ground (Half Space)
3. Measured Free Space at 2 meters on centerline axis, 1/3 Oct.

# PHYSICAL DIMENSIONS




Front (Without Grille Frame) | Top | Side (Without Grille Frame) | Back

**Meyer Sound Laboratories has devoted itself to designing, manufacturing, and refining components that deliver superb sonic reproduction. Every part of every component is designed and built to exacting specifications and undergoes rigorous, comprehensive testing in the laboratories.**

**Research remains an integral, driving force behind all production. Meyer strives for sound quality that is predictable and neutral over an extended lifetime and across an extended range.**

**Meyer Sound reserves the right to alter any specification without notice.**

**Please visit our web site at www.meyersound.com for up-to-date information.**

**X-10 – 04.081.016.01 x1**

UL LISTED 3K59 COMMERCIAL AUDIO SYSTEM

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