XL

Horn-Loaded Coaxial Loudspeaker

prophile™ SERIES

Overview

The Prophile™ XL is a bi-amplified, high efficiency, coaxial loudspeaker that packs two folded low frequency horns into an unusually low profile enclosure. The XL's dual 12 inch low frequency transducers were selected to provide the ultimate in mid bass impact, and the coaxially-mounted, large format compression driver's 90° x 45° horn allows coverage to be directed just where it is needed. The horizontally-oriented enclosure has a clean and elegant external appearance, and may be mounted close to ceilings, in front of balcony fascias, or suspended in free air with minimal effect on sight lines.

Fulcrum Acoustic's **TQ**™ processing is an integral part of the XL design. Sound, innovative acoustical design combined with state of the art digital processing leads to exceptional clarity and precise transient response, even at very high sound pressure levels. The required digital signal processing can be provided by one of many supported platforms.

The XL is an excellent option any time visceral impact, extremely high SPL, and defined coverage is needed from a package 66 centimeters tall. In addition, its coaxial design gives it the ability to provide a stable, high fidelity image at close range. This makes it the perfect choice for the main dance floors of high energy nightclubs, and to serve as the house system in performance venues requiring rock-and-roll levels from low-profile mains.

Performance Specifications[1]

Operating Mode
Bi-amplified w/ DSP

Operating Range[2]
62 Hz to 20 kHz

Nominal Beamwidth
90° x 45°

Transducers
LF: 2x 12.0" neodymium magnet cone woofers, 4.0" voice coil
HF: 4.0" titanium diaphragm, neodymium magnet compression driver

Power Handling @ Nominal Impedance[3]
LF: 80 V / 1600 W @ 4 Ω
HF: 40 V / 200 W @ 8 Ω

Nominal Sensitivity @ Input Voltage[4] (whole space)
LF: 104 dB @ 2.00 V
HF: 108 dB @ 2.83 V

Nominal Maximum SPL (peak / continuous)
LF: 142 dB / 136 dB
HF: 137 dB / 131 dB

Equalized Sensitivity @ 1 W[5]
102 dB

Equalized Maximum SPL[6] (peak / continuous)
141 dB / 135 dB

Recommended Power Amplifiers
LF: 1600 W to 3200 W @ 4 Ω
HF: 200 W to 400 W @ 8 Ω

Physical Specifications

Connections
(2) Neutrik NL4 Speakon
Pin 1+/-: LF
Pin 2+/-: HF

Mounting / Suspension Points
(12) M10 eye bolt angle points, (2) M10 pull back points

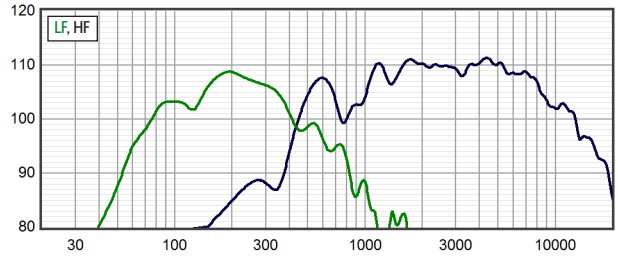
Dimensions / Weight
See page 5

Finish
Black painted enclosure w/ gloss black grille, or
White painted enclosure w/ semi-gloss white grille

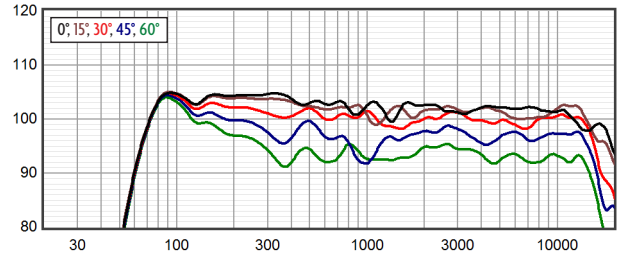
Options

Terminal strip input, Custom color finish,
Weather-resistant (WR) enclosure

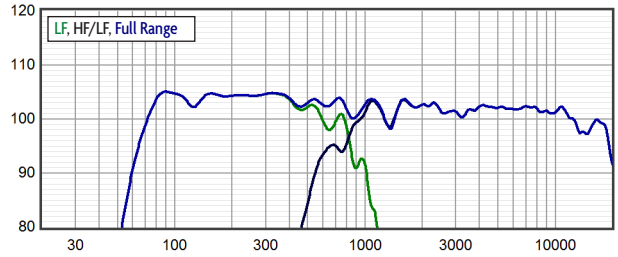
Axial Sensitivity (dB SPL, LF 2.00 V / HF 2.83 V @ 1 m)[7, 8]



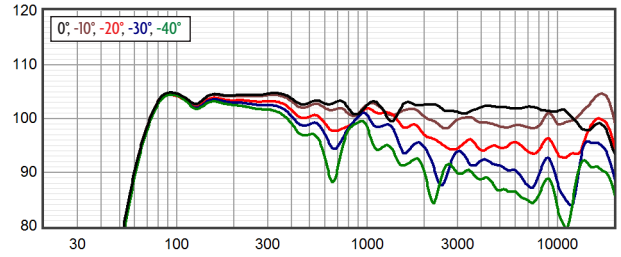
Horizontal Off Axis Response[7, 11]



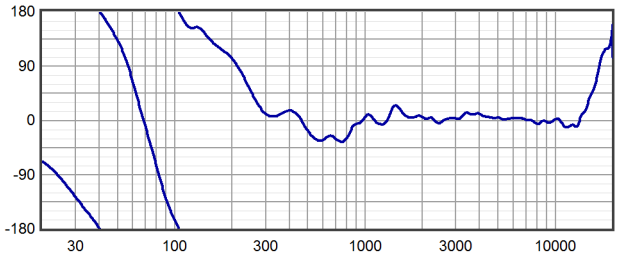
Axial Processed Response (dB)[7, 9]



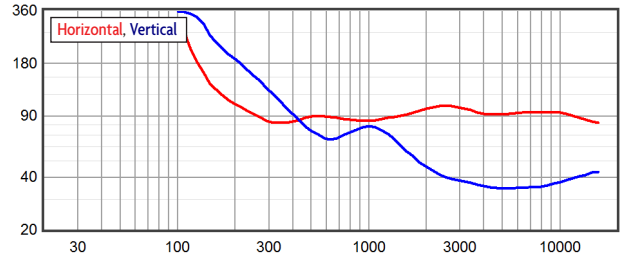
Vertical Off Axis Response[7, 11]



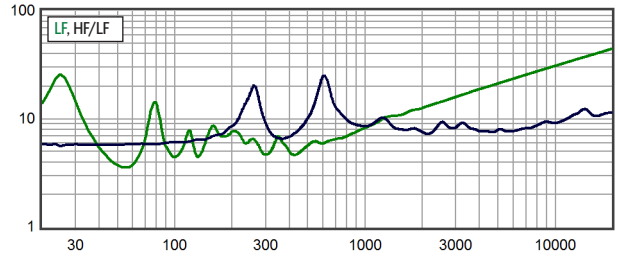
Axial Processed Phase Response (degrees)[7, 10]



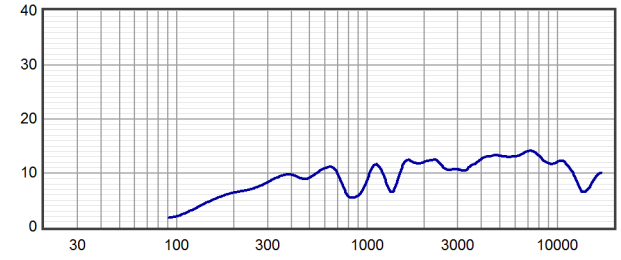
Beamwidth[7, 12]



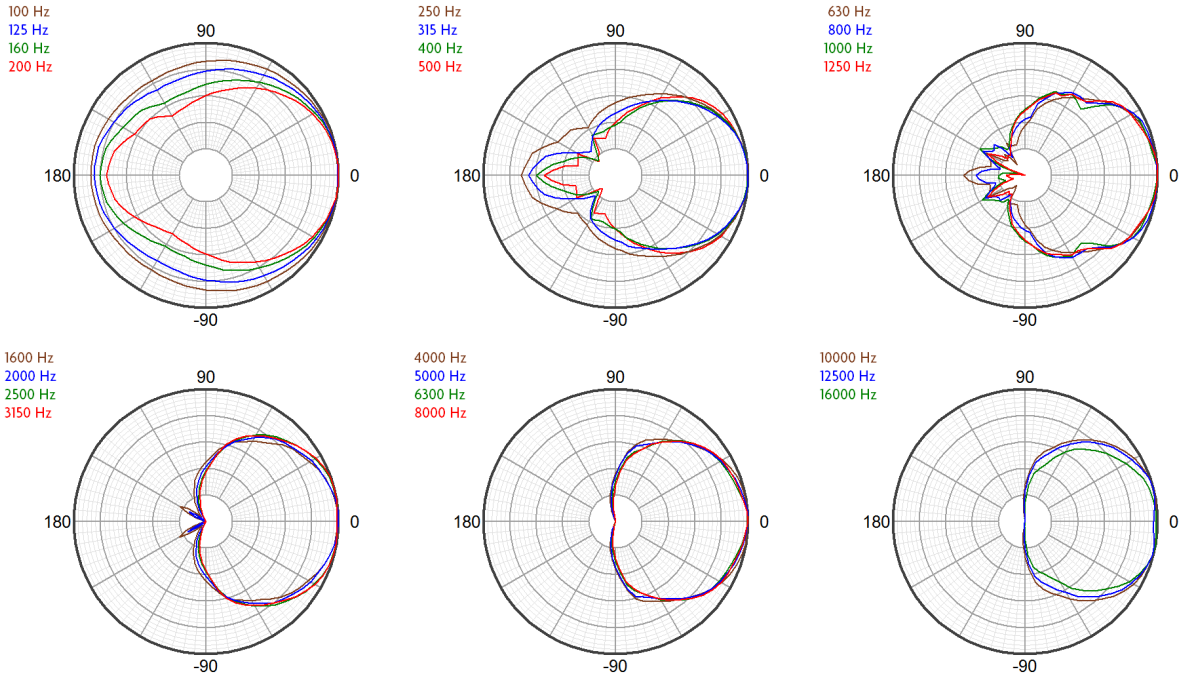
Impedance (ohms)



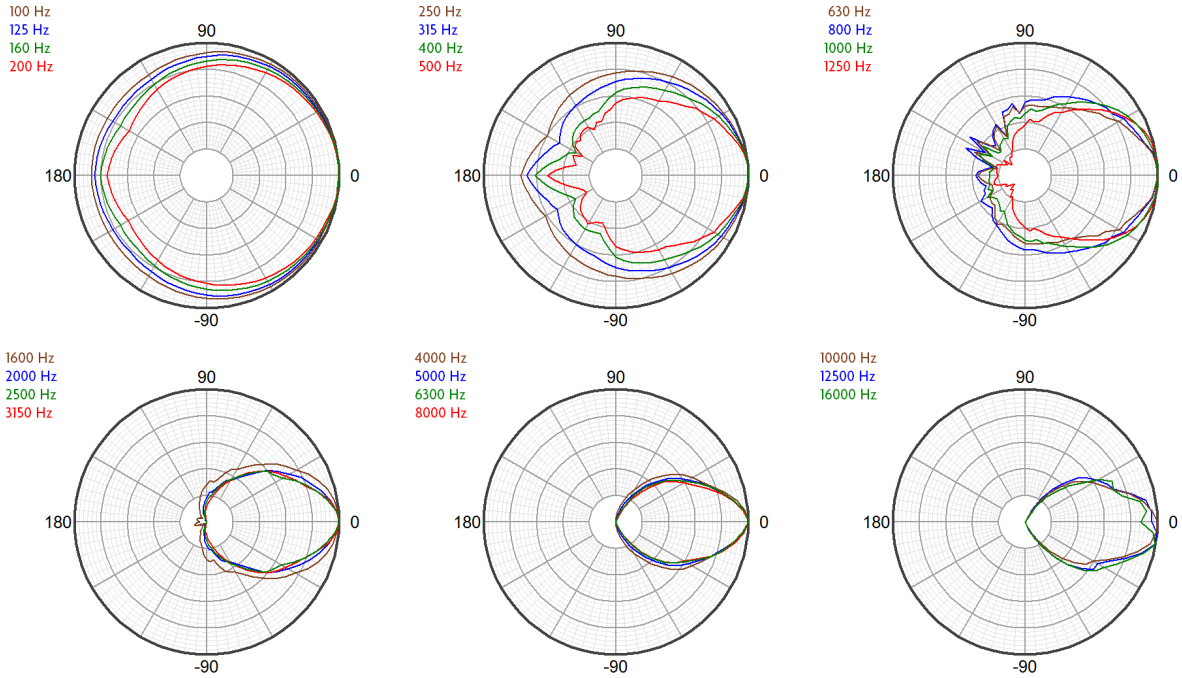
Directivity Index (dB)[13]



Horizontal Polar Response (30 dB Scale, 6 dB per Major Division)



Vertical Polar Response (30 dB Scale, 6 dB per Major Division)



Variant

For concealed installations, the Prophile XLS provides the same technologies and feature set as the XL, but in a slightly more compact, flat-front enclosure. This allows the XLS to be positioned in small recesses, while maintaining line of sight through an architectural grille.

Technologies

The Prophile XL represents a modern, digital-signal-processing-aware update to the traditional coaxial loudspeaker concept. The well-known benefits of the coaxial approach have been realized without the familiar shortcomings of historical designs. Fulcrum Acoustic's Temporal Equalization™ (TQ™) digital signal processing eliminates midrange colorations and high frequency harshness while producing a smooth, seamless coverage pattern through the crossover range.

The ventilated horn technology used in the XL represents one of Fulcrum Acoustic's first ground-breaking innovations. This technology allows the entire frequency range from 65 Hz to 1 kHz to be covered by a pair of specially designed, neodymium 12 inch transducers. Each 12 inch woofer drives its own, independent folded bass horn.

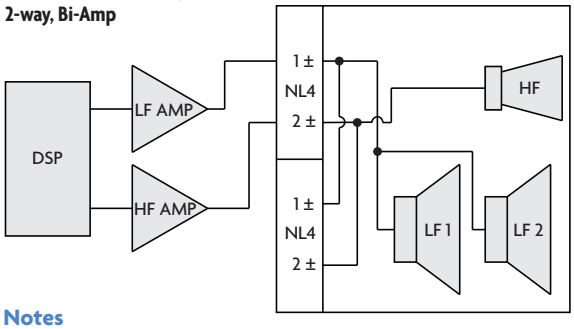
The two horns have been miniaturized in the horizontal plane to allow midrange frequencies to negotiate three bends, after which the wave fronts enter a pattern-control horn bell that establishes a well-behaved 90° x 45° beam. Rear chamber vents extend the response to 65 Hz, reduce excursion, and provide the cooling required for long-term reliability.

The XL includes a coaxially-mounted, 4 inch diaphragm compression driver. The large diaphragm area permits the compression driver to operate below 1 kHz and overlap the low frequency horn response. This allows the high frequency horn to smooth the polar response of the low frequency section in the frequency range where the horn would otherwise cause shadowing. It also allows the compression driver to produce extreme sound pressure levels with a uniquely effortless sonic character.

The net result is a loudspeaker with maximized low-midrange efficiency, accurate pattern control, and a seamless character with no impact-robbing crossovers in the critical 80 Hz to 800 Hz decade – traits that are unprecedented in an enclosure this small.

Connection Diagram

2-way, Bi-Amp



Mechanical Specification Drawings

2D and 3D DXF dimensional drawings are available for download at www.fulcrum-acoustic.com/support .

Notes

[1] **Performance Specifications** *All acoustic specifications rounded to nearest whole number. External DSP with Fulcrum Acoustic-provided settings is required to achieve the specified performance.*

[2] **Operating Range** *The frequency range within which the processed response is within 10 dB of the average.*

[3] **Power Handling** *Based on the AES power handling of the transducers.*

[4] **Nominal Sensitivity** *The 1-meter-referenced SPL produced by a 1 watt band limited pink noise signal, with no processing applied.*

[5] **Equalized Sensitivity** *The 1-meter-referenced SPL produced when an EIA-426-B signal is applied to an equalized loudspeaker system, at a level which produces a total power of 1 watt, in sum, to the loudspeaker subsections.*

[6] **Equalized Maximum SPL** *The 1-meter-referenced SPL produced when an EIA-426-B signal is applied to an equalized loudspeaker system, at a level which drives at least one subsection to its rated power.*

[7] **Resolution** *All response graphs are subjected to 1/6 octave cepstral smoothing with a gaussian weighting function.*

[8] **Axial Sensitivity** *The SPL plotted against frequency for a 1 watt swept sine wave, referenced to 1 m with no signal processing.*

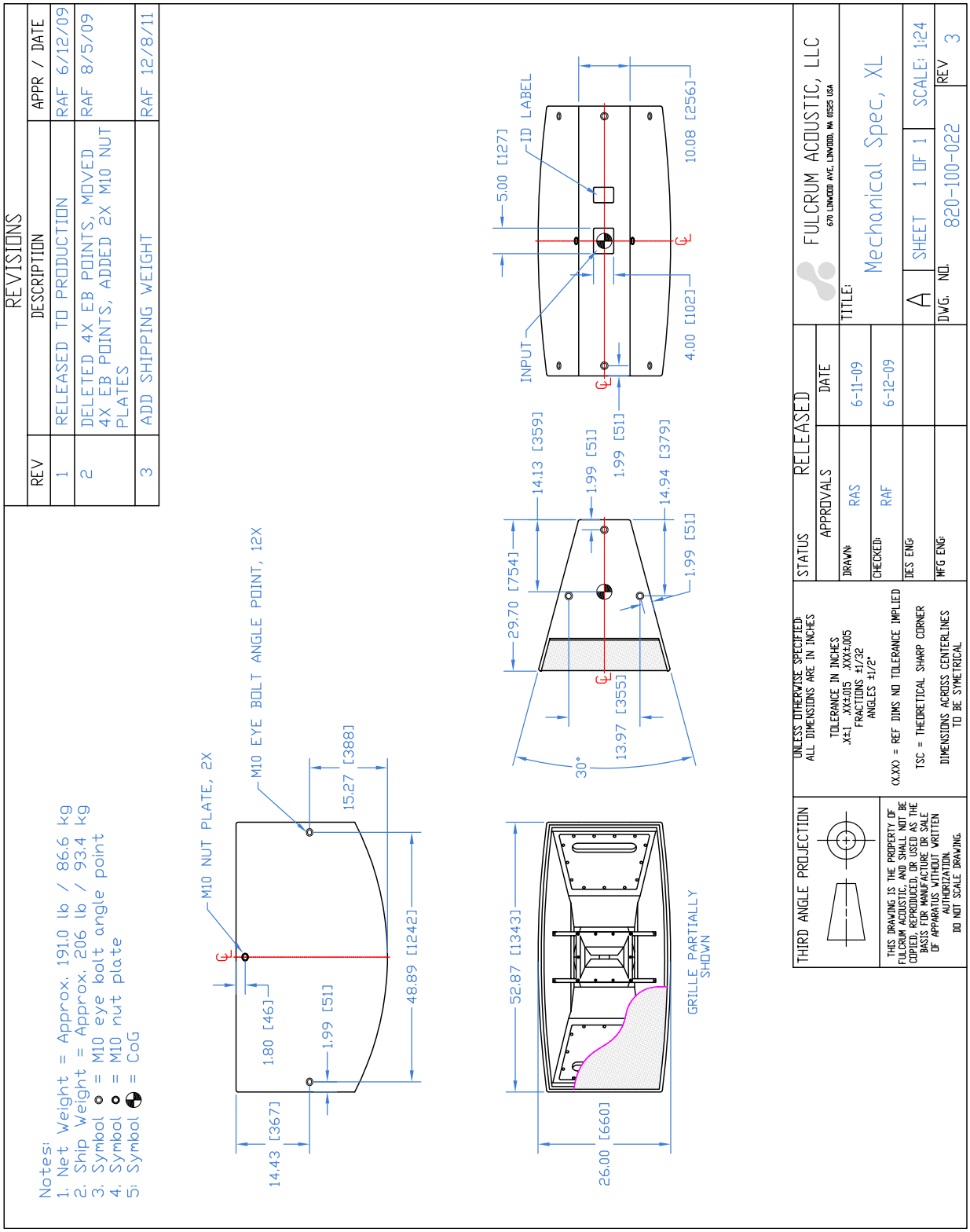
[9] **Axial Processed Response** *The axial magnitude response with recommended signal processing applied.*

[10] **Axial Processed Phase Response** *The axial phase response with recommended signal processing applied, and latency removed.*

[11] **Horizontal / Vertical Off Axis Responses** *The magnitude response at various angles off axis, with recommended signal proceessing applied.*

[12] **Beamwidth** *The angle between the -6 dB points in a loudspeaker's polar response.*

[13] **Directivity Index (D_I)** *The ratio of the on-axis sound pressure squared to the spherical average of the sound pressure squared at a particular frequency expressed in dB. To convert the directivity index to directivity factor (Q) use the formula* $10^{D_I/10}$.



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