RM28

Dual 8 inch Coaxial Reference Monitor

reference MONITOR

Overview

The RM28 is a 3-way coaxial reference monitor that provides the accuracy, pristine imaging and precise transient response required of all professional studio monitors, but with the high output capability demanded by high-energy genres. Its 90° x 60° coaxial transducer may be rotated 90° to provide optimal coverage in a vertical orientation as a main monitor, or in horizontal orientation to present a low profile over the meter bridge. The RM28 is available both in the standard studio version, which is designed to sit on a meter bridge or speaker stands, and in an installation version which includes multiple M10 and M6 threaded points for 3rd party mounting/suspension hardware.

Fulcrum Acoustic's **TQ**™ processing is an integral part of the RM28 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. Presets optimized for either vertical or horizontal enclosure orientations are available for many supported DSP platforms.

The coaxial and low frequency transducers are mounted in independent, asymmetrical chambers designed to minimize standing waves. In addition, the internal volume and porting are optimized for extended low frequency response. This combination results in a highly articulate low mid transient response and surprisingly visceral low frequency extension. The absence of a grille and its supporting structures reduces reflections and diffraction, which contributes to the RM28's spacious, well defined image and open sound stage.

The RM28 is primarily intended for use as a near or mid-field monitor in recording studios and A/V production suites; but it is also an ideal choice for cinemas, museum exhibit spaces, multimedia presentation facilities, boardrooms, and high end home theaters: any environment in which pristine audio quality is desired and a protective grille is not necessary.

Performance Specifications[1]

Operating Mode

Bi-amplified w/ DSP

Operating Range [2]

37 Hz to 23 kHz

Nominal Beamwidth (rotatable)

90° x 60°

Transducers

LF: 8.0" ceramic magnet woofer, 2.0" voice coil
HF/LF: Coaxial 1.7" titanium diaphragm compression driver; 8.0" woofer, 2.0" voice coil; single neodymium magnet

Power Handling @ Nominal Impedance [3]

LF: 63 V / 250 W @ 16 Ω
HF/LF: 69 V / 300 W @ 16 Ω

Nominal Sensitivity @ Input Voltage [4] (whole space)

LF: 96 dB @ 4.00 V
HF/LF: 95 dB @ 4.00 V

Nominal Maximum Continuous SPL

LF: 120 dB
HF/LF: 120 dB

Equalized Sensitivity @ Input Voltage [5]

91 dB @ 4.00 V

Equalized Maximum SPL [6] (peak / continuous)

124 dB / 118 dB

Physical Specifications

Connections

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

Mounting / Suspension Points

Studio Version: None
Installation Version:
(2) M10 x 1.5 yoke points, (2) M10 x 1.5 pull back points,
(4) M6 x 1.0 pan/tilt mount points

Dimensions / Weight

See page 5

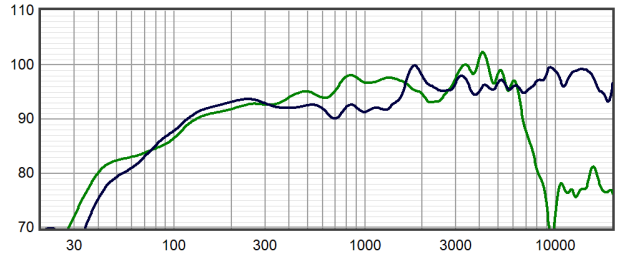
Finish

Black or white painted enclosure

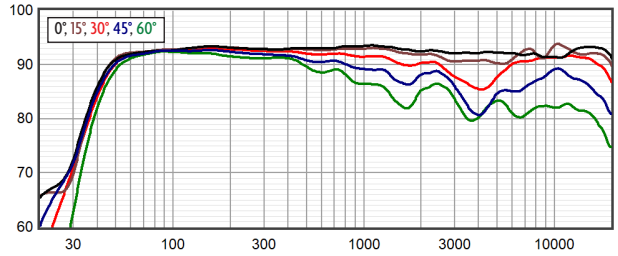
Options

Custom color finish

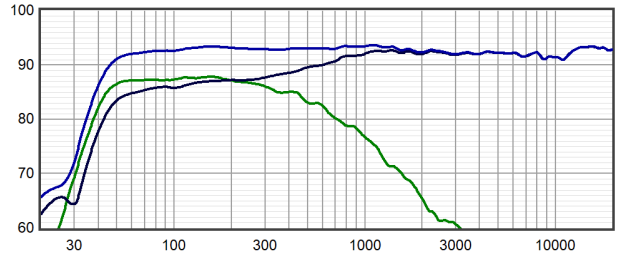
Axial Sensitivity (dB SPL, 4.00 V @ 1 m)[7, 8]



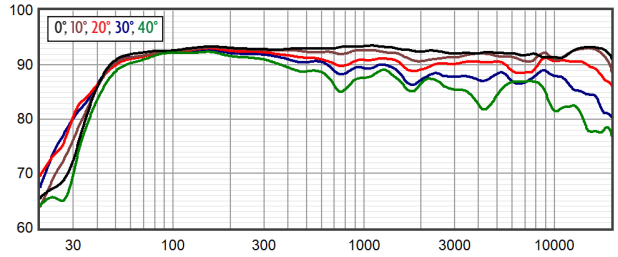
Horizontal Off Axis Response[7, 11]



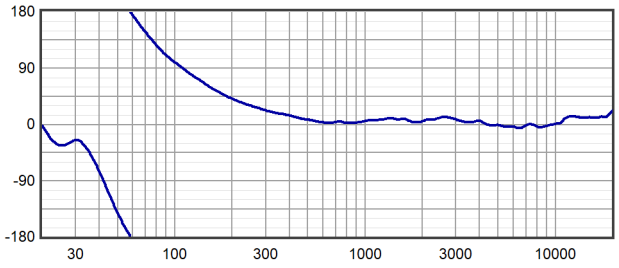
Axial Processed Response (dB)[7, 9]



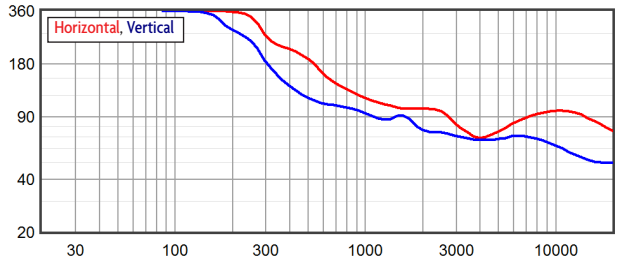
Vertical Off Axis Response[7, 11]



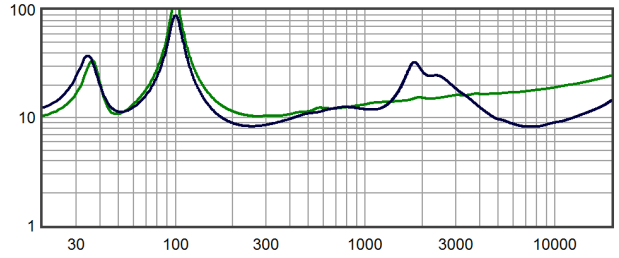
Axial Processed Phase Response (degrees)[7, 10]



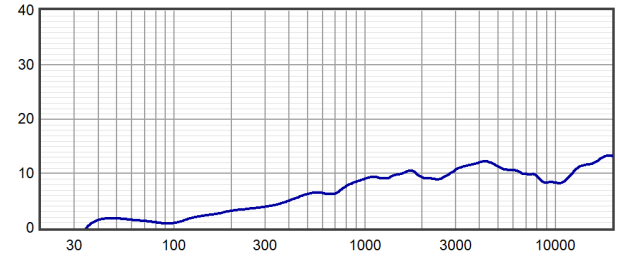
Beamwidth[7, 12]



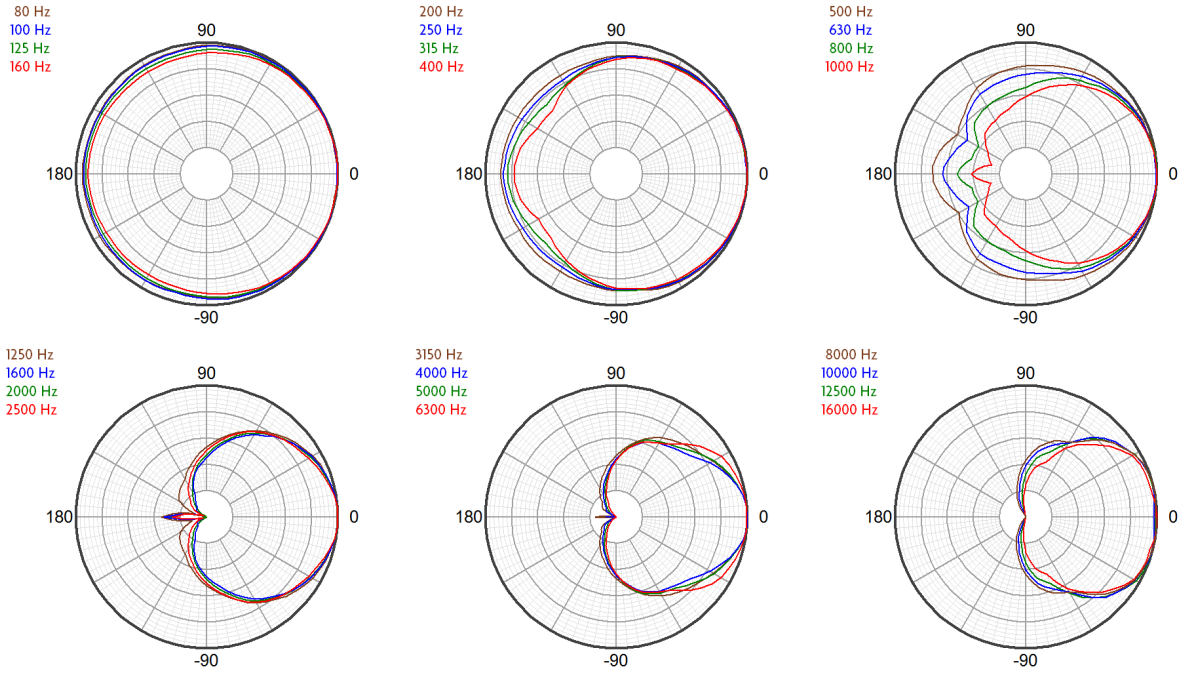
Impedance (ohms)



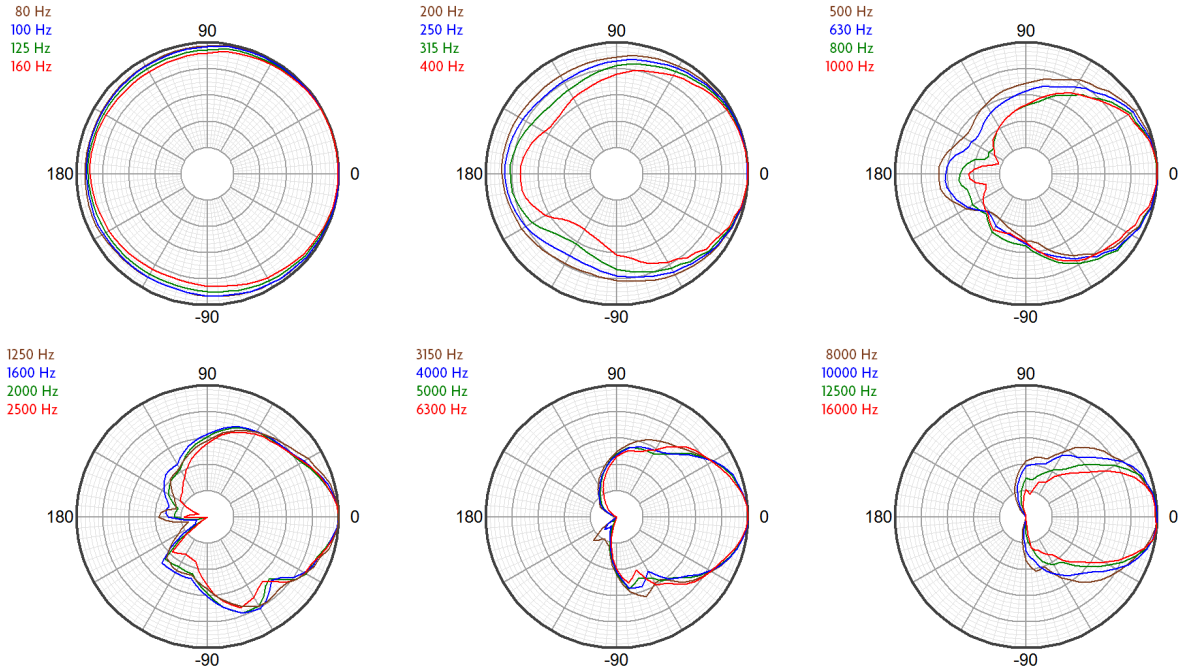
Directivity Index (dB)[13]



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



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



Technologies

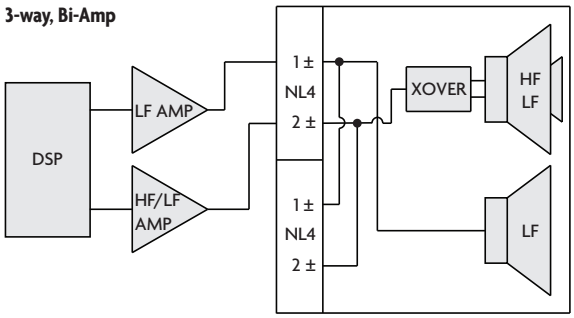
The RM series represents a modern digital-signal-processing-aware update to the traditional horn-loaded coaxial monitor concept. The well-known benefits of the coaxial approach have been realized without the familiar shortcomings of historical designs. Fulcrum Acoustic's **Temporal Equalization™ (TQ™)** digital signal processing techniques provide precise transient response and accurate voicing, while ensuring smooth, seamless coverage through the crossover range.

The coaxial transducer in the RM28 includes a 1.75 inch (44 mm) diaphragm compression driver that operates to a relatively low frequency. 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. The coaxial woofer's large radiating surface works in conjunction with the HF horn to improve directional control at the bottom of the horn's operating range, increasing directional control beyond what can be accomplished by the horn alone.

The two low frequency devices both operate down to the lowest frequencies, resulting in mutual coupling that provides unusually high efficiency and impact in the critical 80 Hz to 500 Hz range.

Connection Diagram

3-way, Bi-Amp



Mechanical Specification Drawings

2D and 3D DWG 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.*

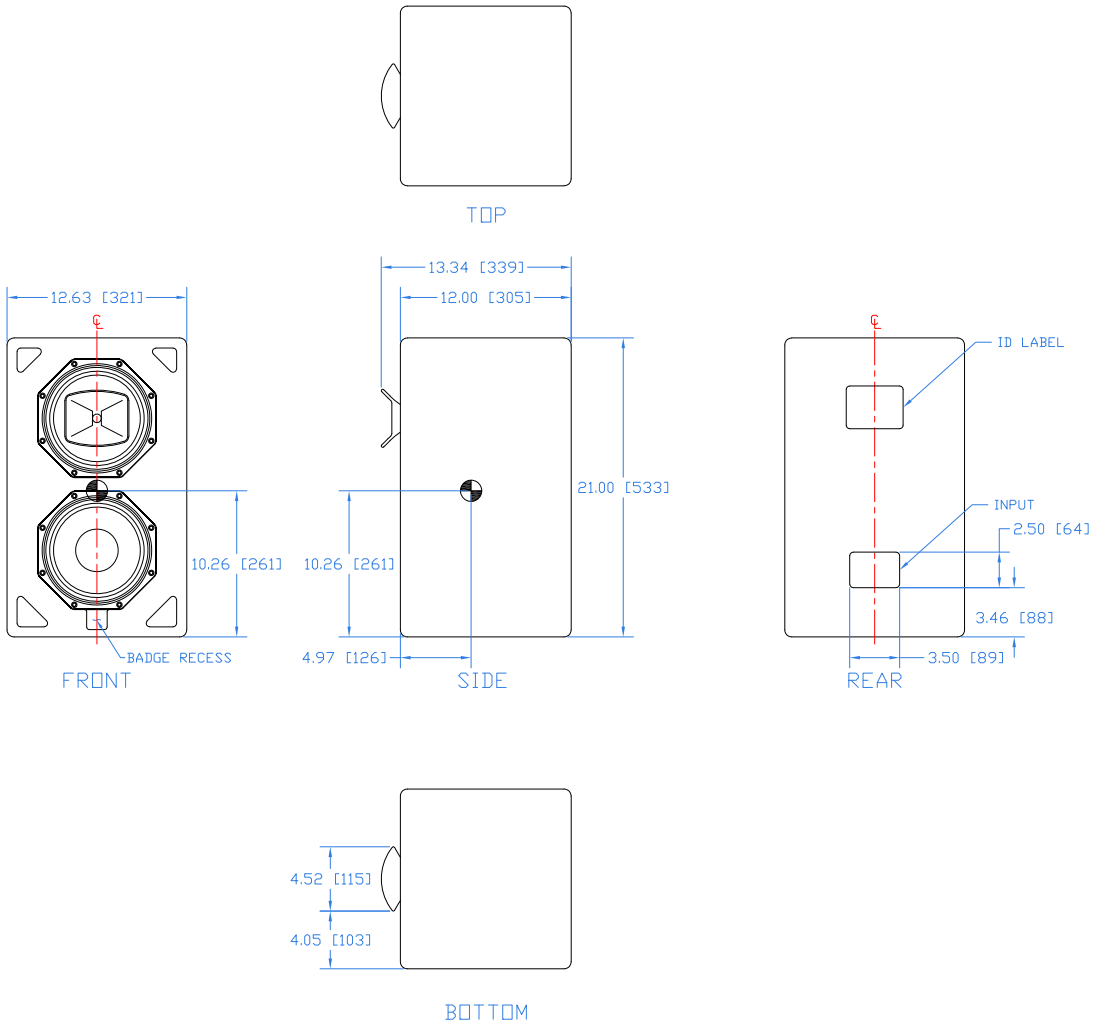
[11] **Horizontal / Vertical Off Axis Responses** *The magnitude response at various angles off axis, with recommended signal proceessing applied.*

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

[13] **Directivity Index (Di)** *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* $10^{Di/10}$.

REV	DESCRIPTION	APPR / DATE
1	NEW ISSUE	RAF 1/6/2021

Notes:
1. Net Weight = Approx. 36.0 lb / 16.3 kg
2. Ship Weight = Approx. 43.0 lb / 19.5 kg
3. Symbol ⊕ = CoG



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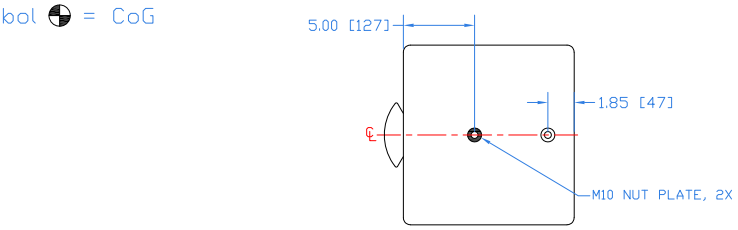
3. Symbol ◎ = M10x1.5 eye bolt angle point
3. Symbol ◉ = M10x1.5 nut plate
4. Symbol ⊕ = M6x1.0 riv nut for third party pan/tilt mounts
5. Symbol ◓ = CoG



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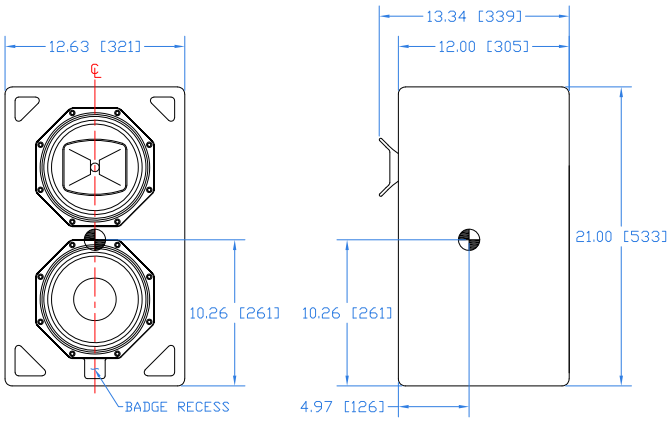

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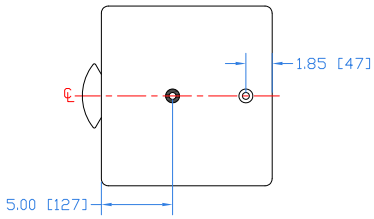

BOTTOM

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