CSP121

21 inch Subcardioid Subwoofer

CARDIOID SUBWOOFERS

Overview

The CSP121 is a portable, subcardioid subwoofer module intended for a wide range of venues. It includes a single, high power 21 inch direct-radiating woofer in a compact enclosure. An M20-threaded connector plate is centered on the CSP121's top panel for use with the optional, height-adjustable SP1 Speaker Pole. This pole's M20 threaded bolt screws securely into the connector plate and is used to mount loudspeakers equipped with a 35 mm / 1.38 inch pole socket directly above the CSP121. Four vibration isolation feet prevent spurious vibrations and "walking". When stacking enclosures, the vibration isolators nest in recesses in the enclosure below.

The CSP121 incorporates Fulcrum's patent-pending *Passive Cardioid Technology*™ to overcome one of the major challenges of many loudspeakers: excessive rear LF radiation. Unlike active cardioid loudspeakers, Fulcrum's passive cardioid technology does not require an additional amplifier channel or additional transducer to achieve its impressive low frequency directional control: 10 dB of rear rejection over the subwoofer's operating range.

Fulcrum Acoustic's **TQ**™ processing is an integral part of the CSP121 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.

Performance Specifications [1]

Operating Mode
Single-amplified w/ DSP

Operating Range [2]
29 Hz to 143 Hz

Nominal Beamwidth
Subcardioid (10 dB rear rejection) within operating range

Transducers
LF: 21.0" woofer, 6.0" voice coil; neodymium magnet

Power Handling @ Nominal Impedance [3]
126 V / 2000 W @ 8 Ω

Nominal Sensitivity @ Input Voltage [4] (half / whole space)
105 dB / 99 dB @ 2.83 V

Nominal Maximum Continuous SPL (half / whole space)
144 dB / 138 dB peak
138 dB / 132 dB continuous

Equalized Sensitivity @ Input Voltage [5] (half / whole space)
99 dB / 93 dB @ 2.83 V

Equalized Maximum SPL [6] (half / whole space)
138 dB / 132 dB peak
132 dB / 126 dB continuous

Recommended Power Amplifier
2000 W to 3000 W @ 8 Ω

Physical Specifications

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

Mounting / Suspension Points
M20 threaded speaker pole mounting plate,
(6) M10 x 1.5 eye bolt angle points, (16) M6 x 1.0 caster kit points
(4) vibration isolation feet

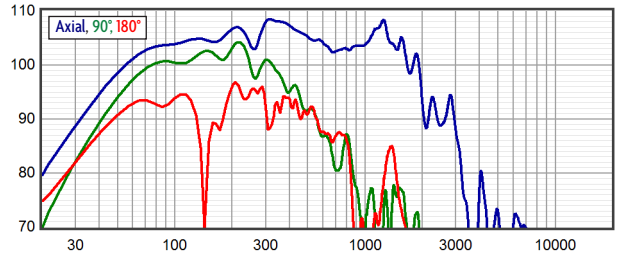
Dimensions / Weight
See page 4

Finish
Black painted enclosure w/ matte black grille

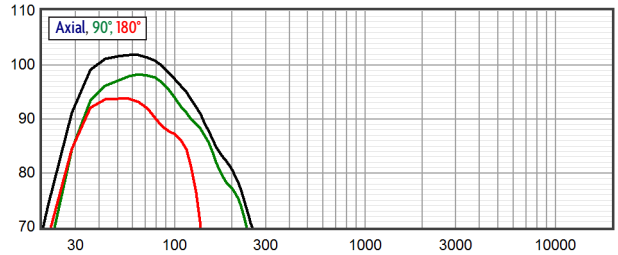
Options

CSP Caster Kit
SP1 Speaker Pole
Height-adjustable between 905 mm / 35.6 in and 1450 mm / 57.1 in

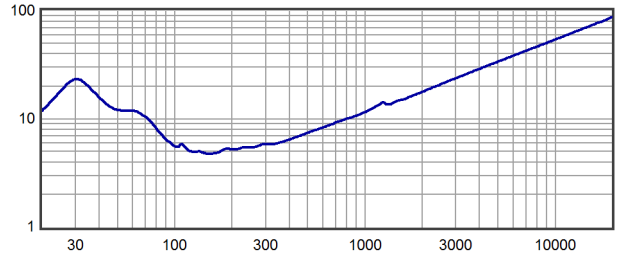
Sensitivity (dB SPL, 2.83 V @ 1 m, half space)[7, 8]



Processed Response (dB, half space)[7, 9]



Impedance (ohms)

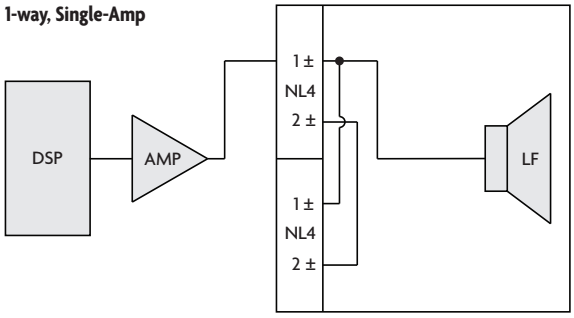


Technologies

The CSP121's subcardioid behavior is produced by a meticulously conceived acoustical circuit which balances the position of the low frequency driver, the enclosure depth and volume, and specially constructed rear-mounted ports which include a calibrated resistive element. By opting for a subcardioid pattern as opposed to a pure, hyper or super cardioid pattern, the rear rejection increases when the modules are deployed in a subwoofer array.

Connection Diagram

1-way, Single-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.*

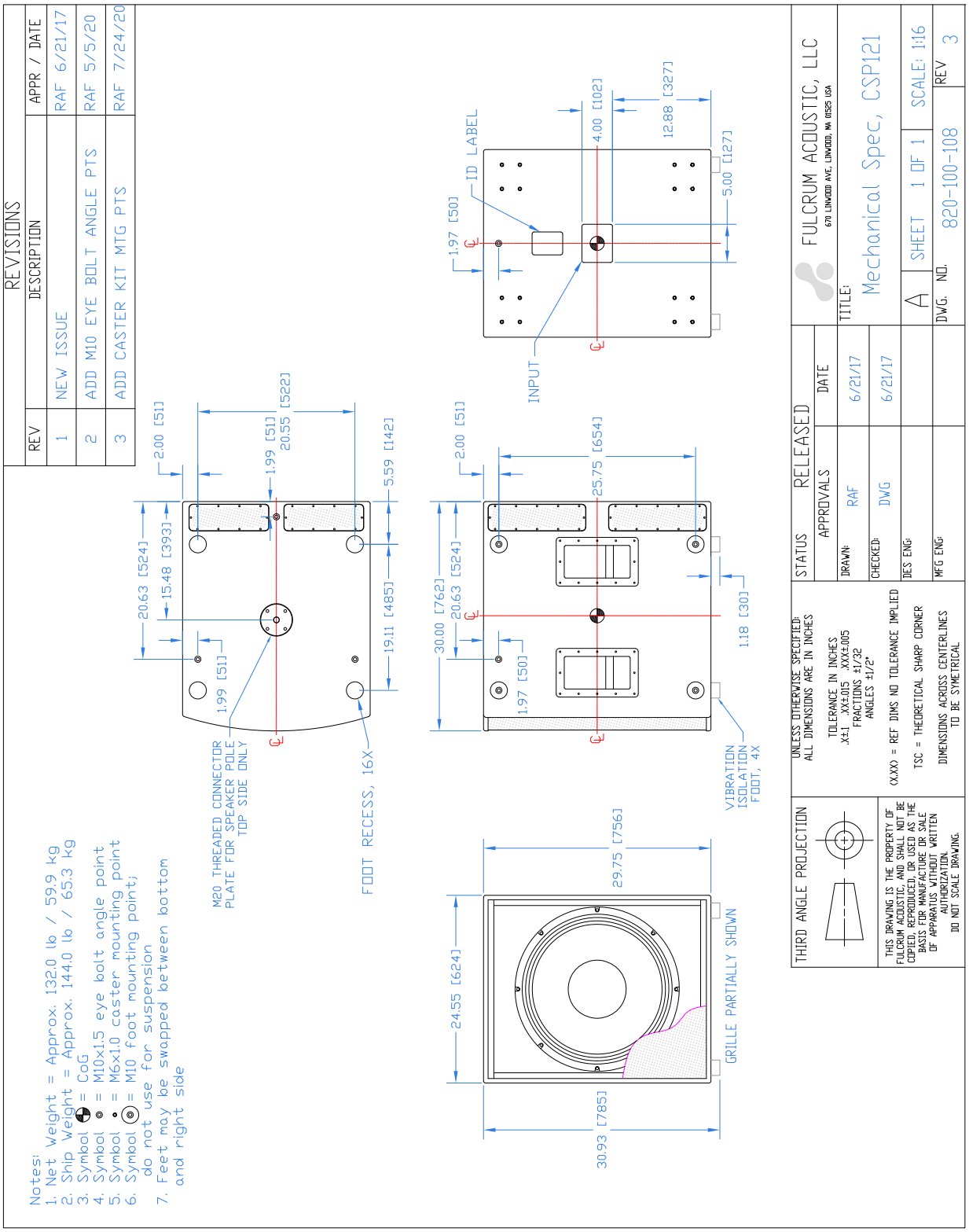
[5] **Equalized Sensitivity** *The 1-meter-referenced SPL produced when an EIA-426-B signal is applied to an equalized loudspeaker system, at a level which produces a total power of 1 watt, in sum, to the loudspeaker subsections.*

[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.*



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