



# TS221

Dual 21 inch Direct-Radiating Subwoofer

*fa*PORTABLE.



## Overview

The TS221 is a portable, dual 21 inch, direct radiating subwoofer designed to provide gut churning impact and solid musicality – not just infrasonic effects. Its 6 inch voice coils, unusually rigid cones, and innovative low-turbulence ports permit an optimal tuning to be achieved in an enclosure that is light in weight and truck-pack friendly.

Eight handles and an optional face pallet facilitate transport of the enclosure. An M20-threaded connector plate is centered on the TS221'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 TS221.

Eight vibration isolation feet prevent spurious vibrations and “walking”. When stacking enclosures, the vibration isolators nest in recesses in the enclosure below. The recesses are configured so that enclosures can be rotated to create cardioid arrays. The input is mounted on a chamfer at the rear of the enclosure, allowing cable access without requiring additional space between the enclosure and a wall or stage.

The TS221 is perfectly suited for highly dynamic touring systems, live performance venues, and nightclubs. Its massive output capability matches that of two to three conventional dual 18 inch subwoofers, reducing transport costs and saving precious truck space and venue real estate.

## Performance Specifications<sup>1</sup>

### Operating Mode

Single-amplified w/ DSP

### Operating Range<sup>2</sup>

25 Hz to 154 Hz

### Nominal Beamwidth

Spherical within operating range

### Transducers

LF: 2x 21.0” woofers, 6.0” voice coil; neodymium magnet

### Power Handling @ Nominal Impedance<sup>3</sup>

126 V / 4000 W @ 4  $\Omega$  ( 2x 2000 W @ 8  $\Omega$  )

### Nominal Sensitivity @ Input Voltage<sup>4</sup> (half / whole space)

104 dB / 98 dB @ 2.00 V

### Nominal Maximum Continuous SPL (half / whole space)

146 dB / 140 dB peak  
140 dB / 134 dB continuous

### Equalized Sensitivity @ Input Voltage<sup>5</sup> (half / whole space)

102 dB / 96 dB @ 2.00 V

### Equalized Maximum SPL<sup>6</sup> (half / whole space)

144 dB / 138 dB peak  
138 dB / 132 dB continuous

### Recommended Power Amplifier

4000 W to 6000 W @ 4  $\Omega$

## Physical Specifications

### Connections

(2) Neutrik NL4 Speakon

Pin 1+/-: LF1

Pin 2+/-: LF2

### Mounting / Suspension Points

None

### Dimensions / Weight

See page 4

### Finish

Black painted enclosure w/ matte black grille

## Options

TS221 Padded Cover w/ Logo

TS221 Face Pallet

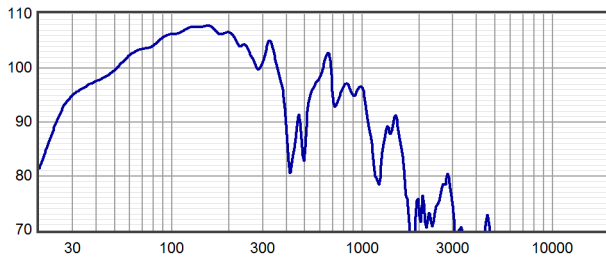
SP1 Speaker Pole

Height-adjustable between 905 mm / 35.6 in and 1450 mm / 57.1 in

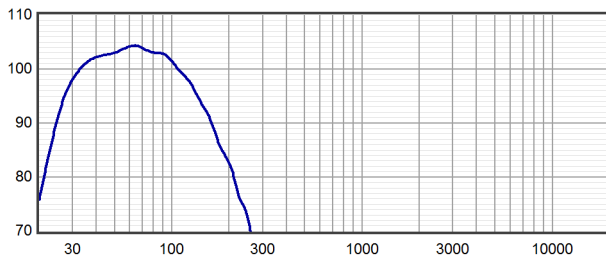


product specification

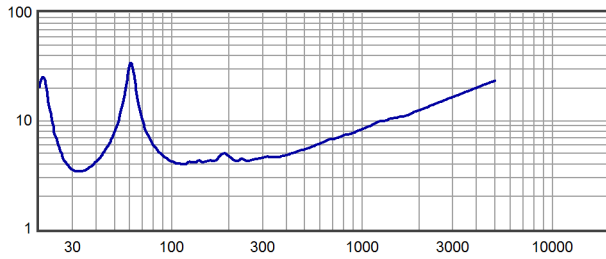
Axial Sensitivity (dB SPL, 2.00 V @ 1 m, half space)<sup>7,8</sup>



Axial Processed Response (dB, half space)<sup>7,9</sup>



Impedance (ohms)





## product specification

### Technologies

The 21 inch woofers in the TS221 have 6 inch voice coils, unusually strong cones, and a dual-spider suspension that allows 60 mm peak-to-peak excursion capability. This allows the pair of woofers to handle 4000 watts of long term power, and provides the motor strength required to operate effectively in such a small enclosure.

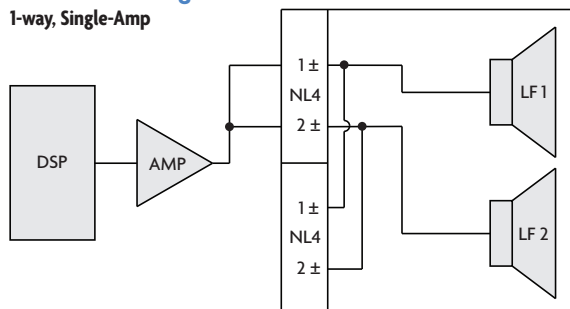
The enclosure shell is constructed of 18 mm Baltic birch plywood, while the ports are constructed of curved plywood. The port design makes use of all available frontal area, minimizes turbulence, and smoothly guides the air flow around the woofers' 20 kg magnet structures.

The specially-selected vibration isolators are much more effective than conventional loudspeaker feet. They are constructed of high-compliance neoprene for a high coefficient of friction and up to 4 mm of lateral displacement.

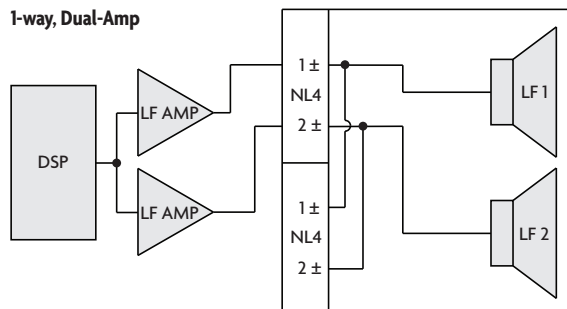
The net result is a subwoofer that provides low frequencies with a very authoritative character in a package that is significantly smaller and lighter than most competitive products.

### Connection Diagram

#### 1-way, Single-Amp



#### 1-way, Dual-Amp



### Mechanical Specification Drawings

2D and 3D DXF dimensional drawings are available for download at [www.fulcrum-acoustic.com/support](http://www.fulcrum-acoustic.com/support).

### Notes

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

<sup>2</sup> **Operating Range** The frequency range within which the processed response is within 10 dB of the average.

<sup>3</sup> **Power Handling** Based on the AES power handling of the transducers.

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

<sup>5</sup> **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.

<sup>6</sup> **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.

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

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

<sup>9</sup> **Axial Processed Response** The axial magnitude response with recommended signal processing applied.