



# TS215ac

Self Powered Dual 15 inch Direct-Radiating Subwoofer

*fa*PORTABLE.



## Overview

The TS215ac is a portable, dual 15 inch, direct radiating subwoofer that is designed to provide impressive low frequency impact and solid musicality. Its 4.5 inch voice coils, strong neodymium magnets, and innovative low-turbulence ports permit an optimal tuning to be achieved in an enclosure that is unusually small for a dual 15 inch subwoofer.

Eight handles and an optional face pallet facilitate transport of the enclosure. An M20-threaded connector plate is centered on the TS215ac's top panel for use with the optional, height-adjustable SPI 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 TS215ac. Four 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.

Four back panel selectable presets optimize the response for either normal, cardioid, or user-defined configurations. A full complement of input filters and delay, as well as signal levels and amplifier status, may be accessed via Ethernet, using **Armonia Pro Audio Suite™** control software. In addition, a pre-output EQ stage is available for programming custom presets. These presets may be saved and later recalled using the back panel Preset Select button or software.

The TS215ac's transducers are powered by two 1600 watt amplifier channels, designed and manufactured in Italy by Powersoft. The amplifier incorporates state-of-the-art Class-D technology with Power Factor Correction to produce extremely high efficiency, low noise, and low intermodulation distortion in a compact and lightweight package.

The TS215ac's massive output capability rivals that of many conventional dual 18 inch subwoofers, while its compact size reduces transport costs and saves precious truck space and venue real estate. The combination of high performance, labor saving portability, and aesthetic appeal represents an ideal solution for nightclub PA, drum/side fill monitoring, corporate A/V, theatrical productions, and more.

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

### Operating Mode

Single-amplified w/ DSP

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

30 Hz to 154 Hz

### Nominal Beamwidth

Spherical within operating range

### Transducers

LF: 2x 15.0" woofers, 4.5" voice coil; neodymium magnet

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

77 V / 3000 W @ 2 Ω (2x 1500 W @ 4 Ω)

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

102 dB / 96 dB @ 1.41 V

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

143 dB / 137 dB peak  
137 dB / 131 dB continuous

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

99 dB / 93 dB @ 1.41 V

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

140 dB / 134 dB peak  
134 dB / 128 dB continuous

## Physical Specifications

### Mounting / Suspension Points

None

### Dimensions / Weight

See page 5

### Finish

Black painted enclosure w/ matte black grille

## Options

TS215 Padded Cover w/ Logo

TS215 Face Pallet

SPI Speaker Pole

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



## product specification

### Audio Input

#### Connectors

Analog In: Female XLR  
Analog Out: Male XLR  
AES3 In: Female XLR  
Ethernet / AESOP: 2x 8P8C (RJ45)

#### Analog Input Wiring

Pin 1: Chassis  
Pin 2: Signal +  
Pin 3: Signal -

#### Input Impedance

10 k $\Omega$  balanced to ground

#### Input Sensitivity

1.5 Vrms / 6.0 dBu

#### Maximum Input Voltage

6.3 Vrms / 18.2 dBu

#### Controls

Preset Select: 1 thru 4, press and hold 3 sec to access 5 thru 8  
Input Select: Analog, AES3 A, AES3 B, AES3 A+B  
Input EQ: In / Out  
Input Volume: Full clockwise = nominal gain

#### LED Indicators

Ready, signal, temp, limit, protect, selected preset,  
selected input, input EQ in

### Digital Signal Processing

#### DSP Encoding

24 bit / 48 kHz

#### DSP Latency

Analog Input: 3.52 ms

#### Input Processing (software accessible)

Three layers raised cosine parametric or graphic EQ  
Filter Types: Peaking, asymmetrical, low and high shelf, low and high pass  
Delay: 2 seconds  
Gain  
Polarity  
Mute

#### Pre-Output Processing (software accessible)

Sixteen bands parametric EQ  
Filter Types: Peaking, low and high shelf, low and high pass, band pass, band stop, all pass  
Delay: 2 seconds  
Gain  
Mute

### Amplifier

#### Type

Two-channel Class D

#### Output Power

EIAJ test, 1 kHz, 1% THD: 2x 1600 W @ 4  $\Omega$   
Maximum Output Voltage: 2x 150 V peak

#### Frequency Response

10 Hz to 25 kHz,  $\pm 3$  dB, for 1 W @ 4  $\Omega$

#### S/N Ratio

> 115 dBA, 20 Hz to 20 kHz

#### Crosstalk Separation

> 71 dB @ 1 kHz

#### Slew Rate

50 V / microsecond @ 8  $\Omega$ , input filter bypassed

#### Damping Factor

> 10000 @ 100 Hz

#### Distortion

THD+N: < 0.05% from 0.1 W to full power (typically < 0.02%)  
SMPTE IMD: < 0.05% from 0.1 W to full power (typically < 0.02%)  
DIM100 IMD: < 0.05% from 0.1 W to full power (typically < 0.02%)

#### Efficiency

> 75% (typical)

#### Cooling

Temperature-controlled variable speed internal fan

#### Maximum Operating Ambient Temperature

40° C

#### Protection Systems

Over-temp power limiting, thermal shutdown, short-circuit,  
overload output protection

### AC Mains

#### Connections

Mains In: Neutrik powerCON NAC3MPA  
Mains Out: Neutrik powerCON NAC3MPB

#### Mains Voltage

100 to 240 V~, 50/60 Hz with PFC

#### Current Draw (1/8 max output power)

5.2 to 2.6 A

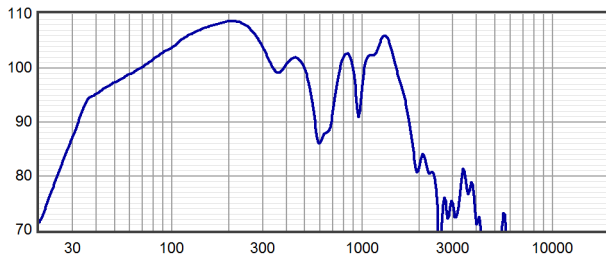
#### Thermal Emission (1/8 power @ 4 $\Omega$ )

297 BTU/h 75 kcal/h

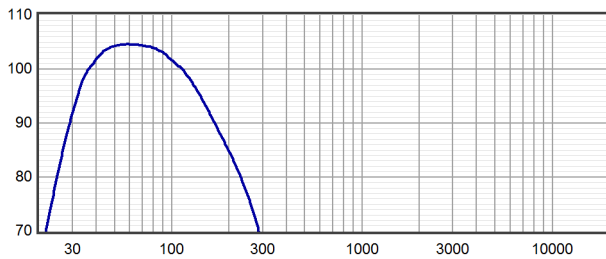


product specification

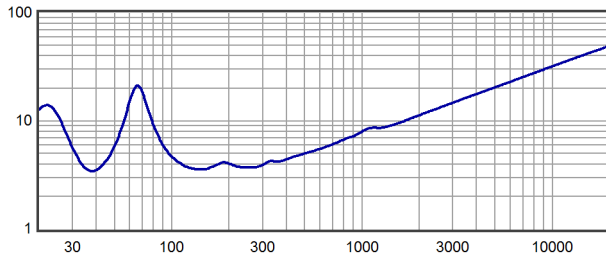
Axial Sensitivity (dB SPL, 1.41 V @ 1 m, half space)<sup>7,8</sup>



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



Impedance (ohms)





### Technologies

The 15 inch woofers in the TS215ac have 4.5 inch voice coils, unusually strong neodymium magnet structures, and dual silicone impregnated spiders for high excursion and long term stability. This allows the pair of woofers to handle 3000 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 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' magnet structures.

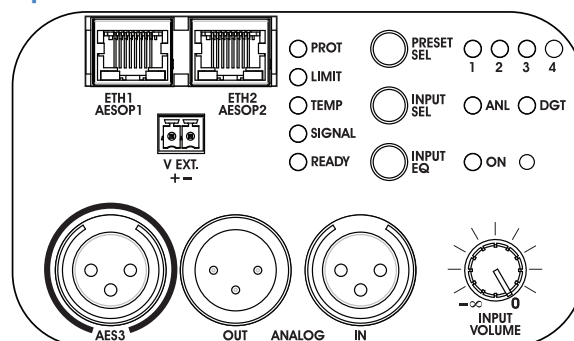
The specially-selected vibration isolators are much more effective than conventional loudspeaker feet. They are constructed of high-compliance neoprene for a high coefficient of friction and up to 4 mm of lateral displacement.

The net result is a subwoofer that provides low frequencies with a very authoritative character in a package that is less than half the size of most competitive products.

### 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).

### Input Panel



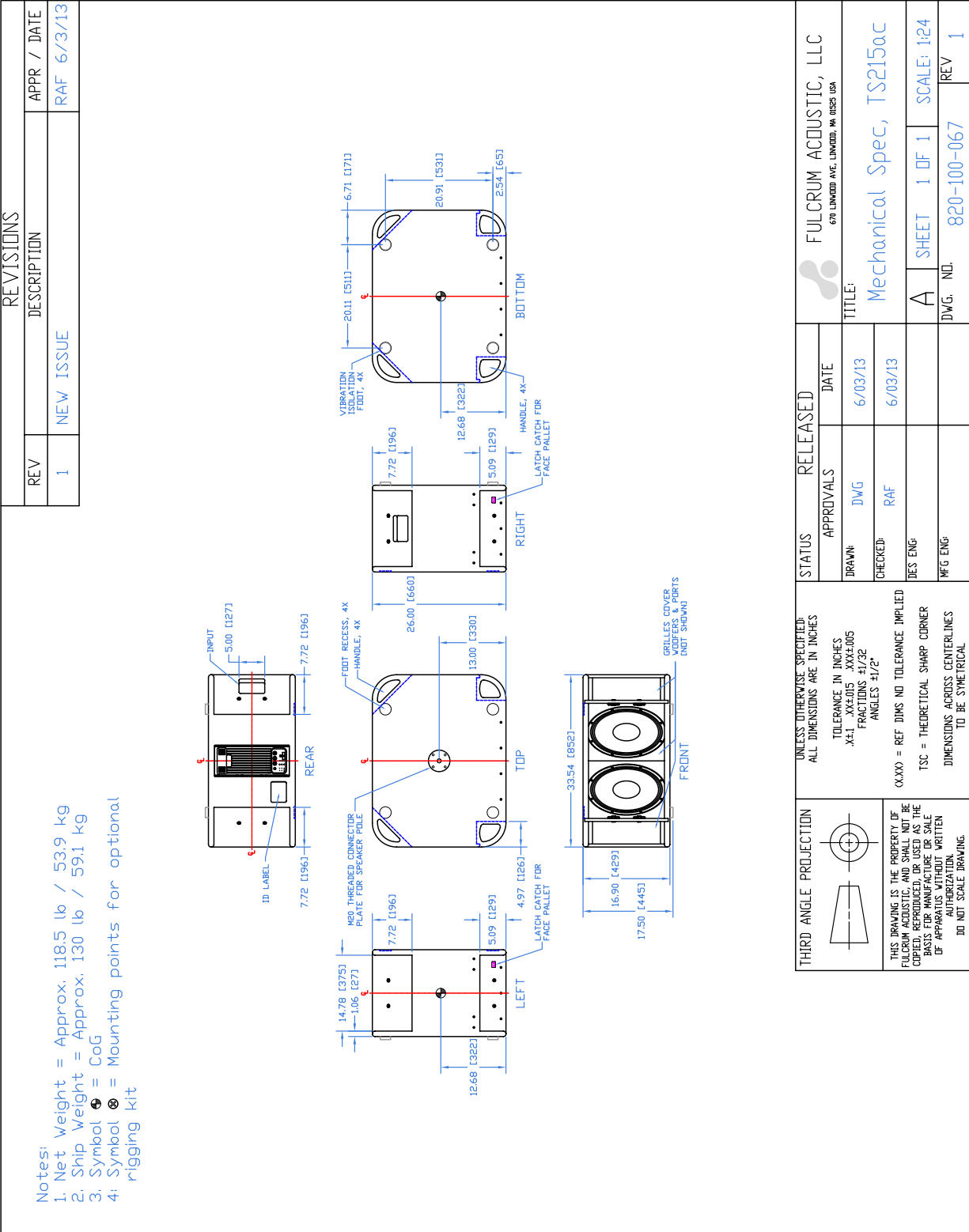
### TS215ac Presets

Preset 1	Normal
Preset 2	Cardioid - Front
Preset 3	Cardioid - Rear
Preset 4	No LPF - Use w/ External DSP

Presets 5-8 user-programmable in **Armonia Pro Audio Suite™** control software. Press and hold rear panel Preset Select button 3 seconds to access these presets.

### 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.



Drawing is reduced. Do not scale.