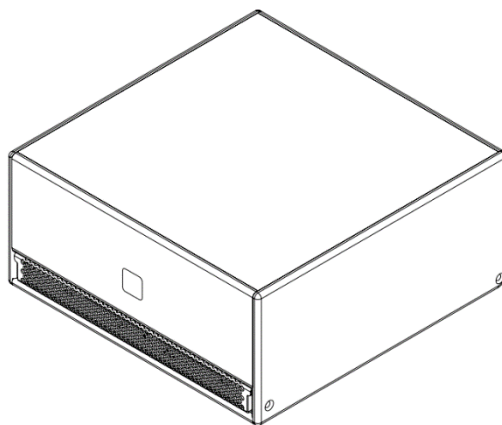


# User Manual

## SB110

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## 1. Introduction

The SB110 subwoofer is designed to extend the bass response of column loudspeakers Ray-On. It is passive, has no filter, and therefore requires filtering upstream of the amplifier

SB110 is very compact and can be positioned both horizontally and vertically for optimal visual integration.

The high-end 10-inch loudspeaker is loaded with an enclosure operating in interactive dual volume mode. It achieves a remarkably low cut-off in a small volume, while yielding sharp and dynamic sound.

The SB110 also exist in 70/100V version under the reference SB110T.

The SB110 subwoofer can be used for background and foreground music, audiovisual programs, small live, in :

- Meeting and conference rooms
- Amphitheatres
- Places of worship
- ...

## 2. Requirements and installation

We recommended that the SB110 be positioned far enough away from the audience, so that the sound coverage is uniform over the entire audience. The distance separating the SB110 from the closest listeners must be greater than the reverberation distance. Thus, practically speaking, the SB110 must be placed at least 3 meters from the closest audience members. The SB110 can be placed to the ceiling to if necessary.

In terms of maximum sound level, the SB110 is designed to be aligned Ray-On column loudspeakers. To maximize the power of the column loudspeakers, we recommend:

- As many SB110 as there are R210
- 1 SB110 for 2 R110

When several SB110 are used to deliver the same signal, theoretically 3dB efficiency and SPL may be gained by positioning them together (e.g. side by side or one on top of the other). The maximum sound level obtained with two adjacent SB110s will then be 6dB greater than that obtained with a single SB110. On the other hand, the sound coverage may be more uniform if they are distributed around the room.

The SB110T is equipped with a 100V line transformer with a power of 100W. Its maximum sound level is therefore lower than that of the SB110 (about 8dB less). The low cut-off of the transformer is 35Hz.

The SB110 can be placed horizontally on the floor, or vertically against a wall using the accessory SB110\_KMV (figure 1).

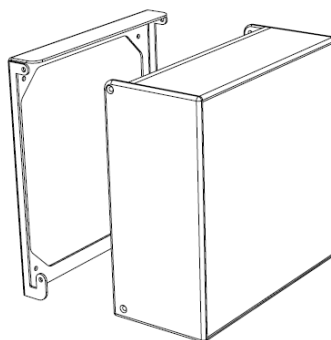


Figure 1 : Mounting the SB110 vertically with the accessory SB110\_KMV

### 3. Wiring

For SB110, use 2 x 1,5mm<sup>2</sup> cable when the distance between the amplifier and the SB110 is less than 50m: 2 x 2,5mm<sup>2</sup> for greater distances.

For SB110T, use a 2 x 0,75mm<sup>2</sup> cable (minimum).

The SB110 / SB110T connector can be used to connect several subwoofers in daisy chain configuration as shown in figure 2. This naturally presupposes that a suitable amplifier is used. Thus, for N subs connected to the amplifier a daisy chain configuration:

- In 100V mode: amplifier power  $\geq N \times 100W$
- In low impedance mode: the amplifier must withstand a load impedance of  $8/N$  Ohms and must deliver sufficient maximum power.

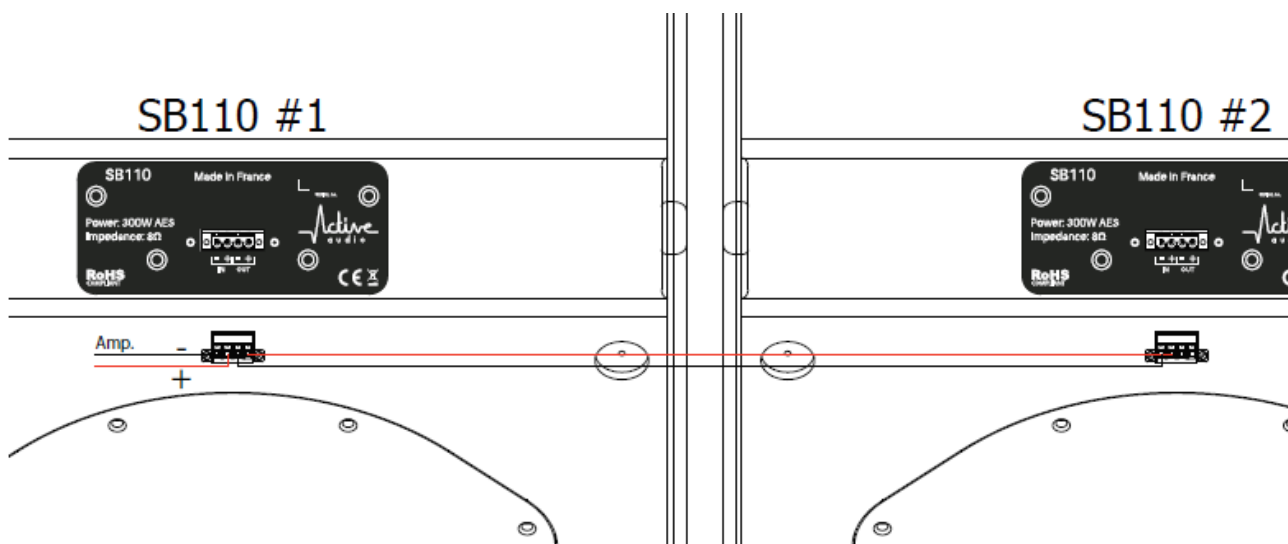


Figure 2: Connecting multiple SB110 or SB110T in a parallel configuration

## 4. Recommended equalization

Table 1 gives the recommended equalization and crossover settings for the SB110 used with Ray-On column loudspeakers. The corresponding response curves are given in figure 3.

	SB110
HPF freq (Hz)	48
HPF shape (dB/oct)	But24
LPF freq (Hz)	200
LPF shape (dB/oct)	LR48
EQ1 freq (Hz)	300
EQ1 width (Oct)	1.6
EQ1 gain (dB)	4

Tableau 1: Recommended equalization when using the SB110 with Ray-On loudspeakers

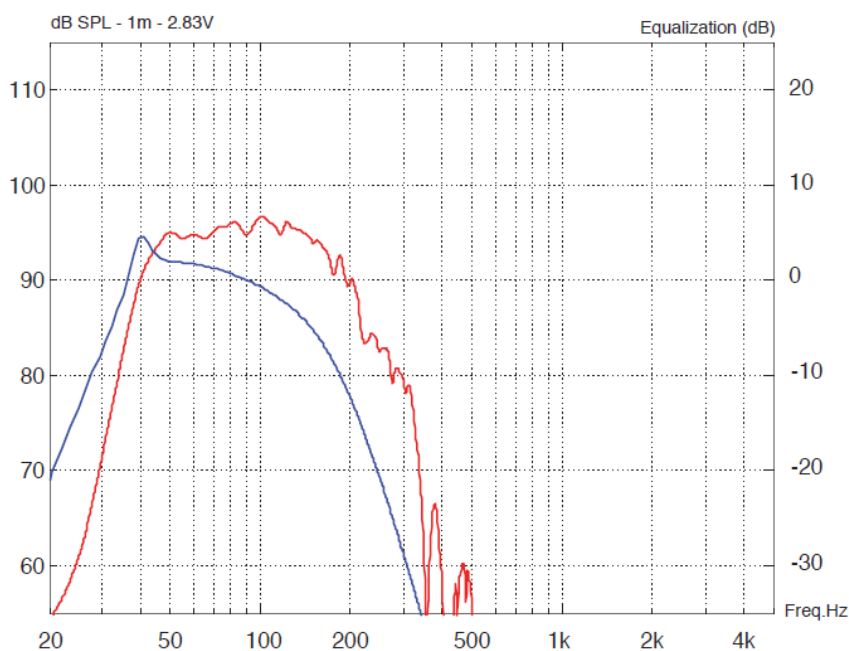


Figure 3: curves corresponding to the equalization in Table 1 (in blue, right-hand scale); response curve of the SB110 in ½ spaces with this equalization (in red, left-hand scale)

## 4.1 Excursion limitation



**High-amplitude signals with very low frequencies cause large membrane excursion. Excessive excursion causes harmonic distortion, which degrades the sound quality and causes a risk of damage to the loudspeaker.**

It is desirable to limit the amplitude of the deflections either by reducing the amplitude of the applied signal or by placing a high pass filter upstream of the amplifier, for example, a second order Butterworth at 80Hz.

## 5. Technical data

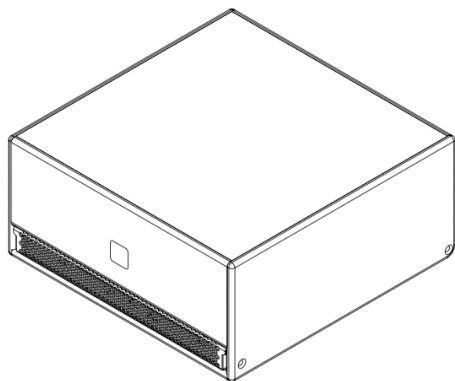
Acoustical	SB110	SB110T
Loudspeaker	10'' neodyme	
Load type	Interactive dual chamber	
Long-term power <sup>1</sup>	300W	100W
Sensitivity <sup>2</sup>	95.5dB SPL / 1W / 1m	
Low-cut frequency <sup>2</sup> High-cut frequency <sup>2</sup>	37Hz at -10dB, 43Hz at -3dB 215Hz at -10dB, 180Hz at -3dB	
Directivity	Omnidirectional	
Max continuous sound level at 1m³	119dB SPL	111dB SPL
Nominal impedance	8Ω	100Ω
Recommended amplifier	100W to 500W depending on max SPL	100V – 100W
Filtering		
Equalization and connection	5 x 2 <sup>nd</sup> order cells	
Physical		
Dimensions	440 x 440 x 200mm	
Volume	38,7 litres	
Net / shipping weight	11.0kg / 12.0kg	12.3kg / 14.1kg
Colour	White (RAL9016), Black (RAL9005) Matte finish	
Connection	Euroblock with « daisy chain » output	
Accessories		
SB110_KMV	Kit for vertical wall-mounting	

1: As per EN60268-5, with recommended EQ.

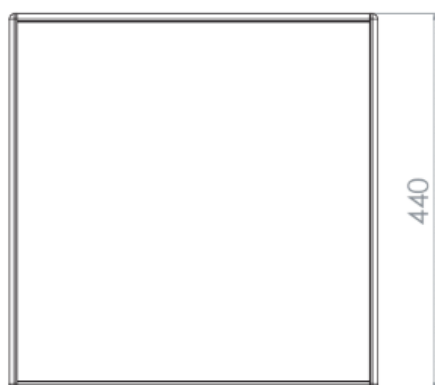
2: With continuous pink noise, crossover at 180Hz and recommended EQ.

3: Noise as per EN60268-1, voltage corresponding to the long-term power, with recommended EQ.

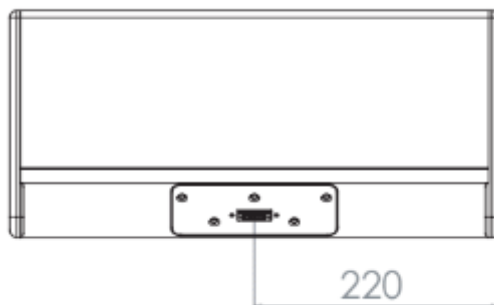
## 5.1 Mechanical drawings



General and front views



Top view



Back view

## 6. Warranty

The SB110 has a 5-year warranty, in accordance with the General Conditions of Sale. Malfunction problems must be reported to the manufacturer prior to any return.

## 7. Troubleshooting

Symptom	Possible causes	Solution
The product does not emit any sound	Connector incorrectly wired	Check the connection
	No signal is sent	Check the source and the amplifier
The sound is distorted	Excessive membrane excursion	Decrease the bass level by decreasing the gain and/or adding a high-pass filter (see above "Equalization")
Presence of unwanted vibrations	Objects are vibrating in the room due to the effect of low frequencies emitted by the SB110	Identify and secure the objects that are vibrating

## 8. Declaration of conformity



We,

ACTIVE AUDIO SAS,

8 Rue Johannes Gutenberg 44340 Bouguenais, France,

Declares under our sole responsibility that the following products

SB110, SB110T,

comply with the council directive 2004/108/CE

Assessment of compliance is based on the following standards: EN50081-1, EN61000, EN60065

Established on the 1<sup>st</sup> of June 2017

by Régis CAZIN, CEO.

[www.activeaudio.fr](http://www.activeaudio.fr)

[info@activeaudio.fr](mailto:info@activeaudio.fr)

Tel: +33 (0)2 40 46 66 64

