Akoustic Arts

B$_1$ directional loudspeaker

User manual V1.1

Specifications

Physical	26 x 26 x 3.2 cm - 1 kg net
Mounting	VESA FDMI MIS-D 100x100mm - M4X10 inserts
Power	100-240VAC, 50W max.
Operating conditions Temperature Humidity	Indoor use only 0 - 40°C 10 - 70% non-condensing
Analog input	3.5mm TRS mini-jack Stereo 1.4V R.M.S., 60KΩ Balanced 4V R.M.S., 40KΩ
Digital input/output	TOSLINK optical connectors S/PDIF LPCM 32-96KHz
Supplied accessories	User manual Power adapter & AC cable IR remote & battery
Optional accessories	External presence detector Wall & ceiling mounts TOSLINK optical cables Audio isolation transformer

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For indoor use only, in a dry and well ventilated space. Keep vents unobstructed. Do not open or disassemble the product or its accessories in any way. In case of accidental fall, use caution as sharp edges may have appeared. Operate exclusively with the supplied AC power adapter. Do not listen at a distance closer than 50cm. Prolonged listening at high volume levels may lead to hearing loss.

Dimensions

3.2 cm

26 cm

26 cm
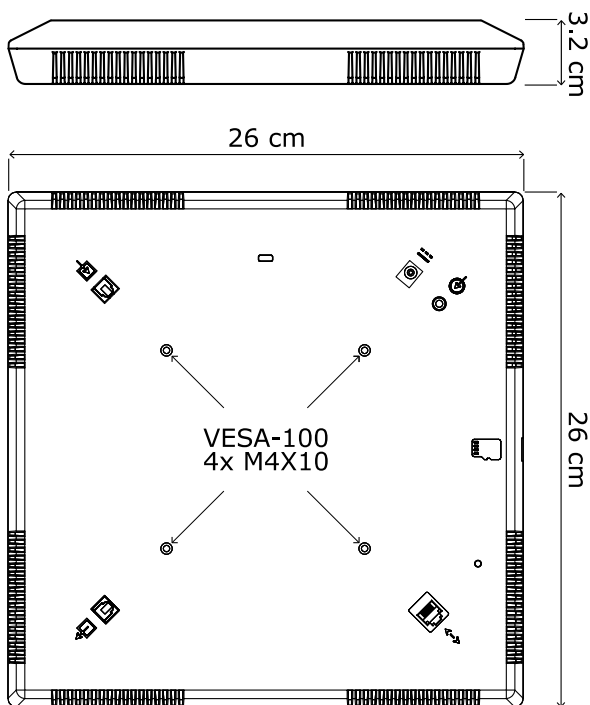
VESA-100
4x M4X10

Interfaces

- --- 24VDC power adapter input
- $\bigoplus$ 3.5mm TRS mini-jack analog audio input
- $\rightarrow$ TOSLINK S/PDIF digital audio input
- $\rightarrow$ TOSLINK S/PDIF digital audio output
- <-> RJ12 automation interface
- O Update button
- MicroSD card slot
- Security lock insert
- VESA-100 inserts for M4X10 screws

Quick setup

1. Select a suitable VESA-100 wall or ceiling mount, then install your B loudspeaker securely. See the « mounting options » section of the user manual for details.

2. Connect your analog source to the 3.5mm mini jack, or your digital source to the TOSLINK input connector. Refer to the « Audio source selection » section of the user manual for details.

3. Connect the supplied power adapter to both your B loudspeaker and the AC mains.

4. Remove the plastic tab located at the bottom of the remote and start using your B.

Warnings & errors reporting

The central indicator will blink for:

- ○ System muted, press ▮▶ to resume
- ○ User too close (<50cm)
- ○ System log warning
- ○ System temperature warning

The central indicator will flash for:

- ○ System corrupted, please update software
- ○ System log error, please contact support
- ○ System temperature shutdown

This manual is subject to change without notice.
For the latest update, please refer to our website
at www.akoustic-arts.com/products/b1.

IR remote control
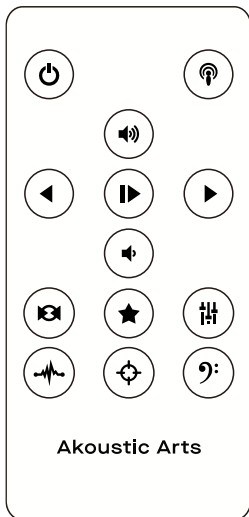
Icon	Function	Options
⏻	On / Standby	Press 2s for reset
Presence trigger		○ Off ○ 5s ○ 10s
🔊	Volume up	○○○○○○○○○○
🔈	Volume down	○○○○○○○○○
⏸▶	Play / Mute	
Input source		○ Stereo ○ S/PDIF ○ Balanced
★	Channel selection	○ Left+Right ○ Left ○ Right
Sound presets		○ Music ○ Voice ○ Loud
Test signals		○ ∅ ○ Tone ○ Noise
Sound field		○ Normal ○ Narrow ○ Wide
𝄢	Bass enhancer	○ Level I ○ Level II ○ ∅

Akoustic Arts

Audio source selection

Your B loudspeaker supports both analog and digital audio sources. Switch between inputs & options by pressing ⊠ on the remote.

Analog audio sources: 3.5mm TRS mini-jack
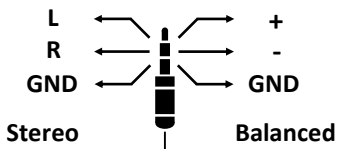
O Stereo line audio (computer, smartphone, tablet)

Set your source at maximum output volume for best performance. If excessive noise is present, consider inserting an audio isolation transformer in series with the input to break potential ground loops.

O Balanced line audio (professional equipment)

Set your source for a 4V R.M.S. nominal output.

Digital audio sources: TOSLINK optical jack

**O S/PDIF** IEC60958 Type II (TV, Display)

Only LPCM is supported, with a sampling frequency of 32 to 96 kHz. Please set your source accordingly.

Daisy-chaining loudspeakers:

When using TOSLINK, Several loudspeakers can be daisy-chained by connecting the TOSLINK output from the first loudspeaker to the next, and on. Two channels are transmitted along the chain, enabling two independant audio contents to be played back. Each B loudspeaker is configured independently, so every listening zone can be individually optimized.

Audio processing

Your B loudspeaker includes digital processing blocks, represented below, to ensure a consistently loud sound signature regardless of audio content.

Channel Selection ★	→	Sound Preset 🎚	→	Bass Enhancer 𝄢	→	Sound Field ✛
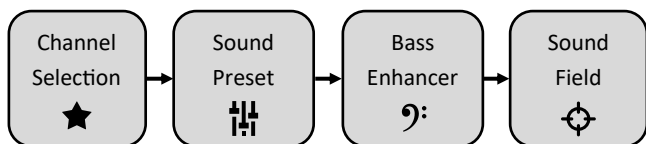
★ **Channel Selection** switches the channels of a stereo input signal to be played back:

    ○ Left+Right   ○ Left only   ○ Right only

🎚 **Sound Preset** tunes the adaptive dynamics block with the following optimisation options:

    ○ Music   ○ Voice   ○ Loud

The dynamics block can be bypassed by pressing 🎚 for 2 seconds, as this may help reduce echo in telephony and public address applications, at the cost of reduced loudness.

𝄢 **Bass enhancer** leverages harmonics generation to enhance low frequency perception. Harmonics level can be tuned depending on content:

    ○ Level I   ○ Level II   ○ Disabled

This block is disabled when the Voice preset is in use as it can reduce speech intelligibility.

✛ **Sound field** modifies the directivity pattern of your loudspeaker. Please refer to the « sound field control » section of the user manual for details.

Sound field control

Your B loudspeaker deploys innovative technologies to control the directivity of the sound beam, and match your particular environment and setup.

Switch between sound field modes by pressing ⊕ on the remote.

○ **Normal** sound field when the B loudspeaker is installed above the user, at a distance of 1 to 1.5m.

○ **Narrow** sound field when the user is located further away from the loudspeaker and requires the highest output level.

○ **Wide** sound field when a wider coverage area is desired. Sound reflections on hard surfaces are also reduced, easing integration in bright environments.
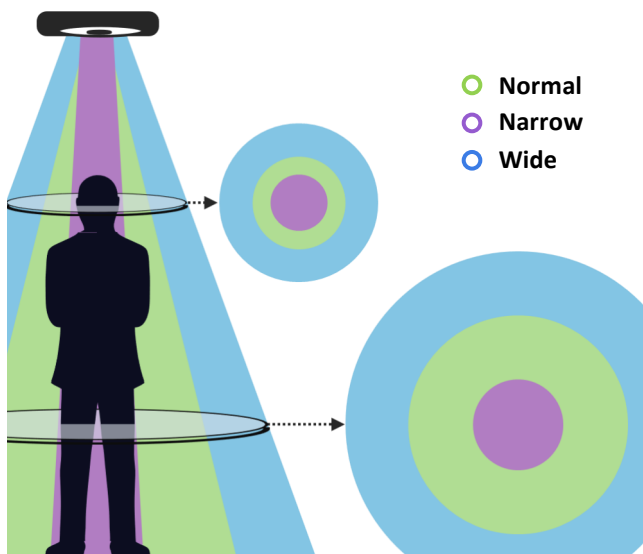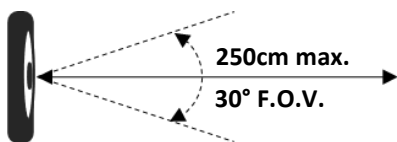

○ **Normal**
○ **Narrow**
○ **Wide**

↕	Normal	Narrow	Wide
100cm	Ø44cm	Ø22cm	Ø74cm
150cm	Ø75cm	Ø30cm	Ø120cm
200cm	Ø100cm	Ø40cm	Ø160cm

User detection & triggering

Your B loudspeaker includes a sofisticated presence detector that monitors objects located in its sound field.

250cm max.
30° F.O.V.

Safety distance detection is always enabled and ensures that the user is not located closer than 50cm to the front of the loudspeaker, otherwise sound output is reduced and the central indicator blinks ○ purple.

Presence trigger enables playback only when a user is detected in front of the loudspeaker to further minimize sound pollution in public spaces. The maximum detection distance is 2.5 meters, but may be reduced in some Lightning conditions.

A calibration process is necessary to ensure accurate detection in your particular setup. Position yourself at the desired detected location before enabling presence triggered playback using 𝍢 on the remote. The sustain parameter, time during which playback is maintained after a user has left the detection area, is programmable:

○ Always on   ○ 5s sustain   ○ 10s sustain

The calibration routine will complete in a second. The central indicator reports on detection reliability, and will flash 3 times purple ○ in case of failure. If the detector repeatedly fails to acquire the detection point, consider adding an external presence detector.

Mounting options

Your B loudspeaker is equipped with four M4-10 inserts placed on a 100mm square, compatible with VESA-100 mounts. Select a solution appropriate for your support material and desired orientation. Best results are typically achieved with the loudspeaker facing down at less than a 45° angle.

**Drill and screw
Wall & Ceiling mounts**

Clamp mounts
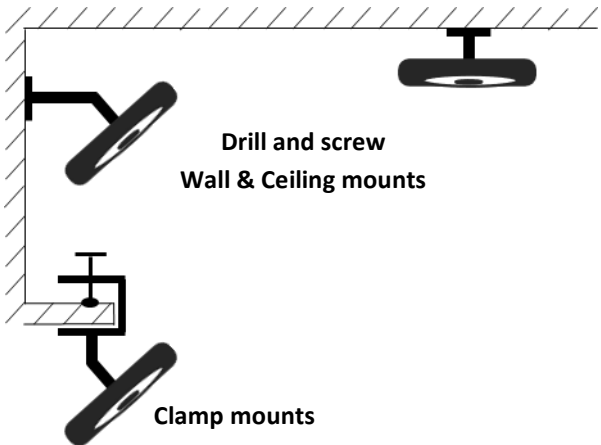
Once your mount is solidely anchored, attach your B loudspeaker using all four M4 screws. Orient the loudspeaker towards the desired listening position prior to tightening the mount in order to reduce stress on the support during positionning.

An audio signal generator is embedded in your loudspeaker to ease installation. Test signals are accessible by pressing ⌁ on the remote.

O Ø Normal O 1kHz Tone O Pink Noise

Pink noise approximates an audio signal, and can be useful to fine tune the orientation of your loudspeaker and set the appropriate sound field.

Software update

Software updates are released regularly to improve the performance and reliability of your products. They are installed using a MicroSD card.

Creating the update microSD card:
1. Make sure to format the card before use as no files should be left present. A free formatting tool is available from the SD card association website at www.sdcard.org/download/formatter. Follow the provided instructions to perform a quick format, with all options left default.

2. Download the latest software version for your loudspeaker on the corresponding support page at www.akoustic-arts.com/support. Decompress the downloaded .zip file onto the root of the card, then safely eject it from your computer.

Updating your B loudspeaker:
3. Insert the programmed card in the slot located on the side of your loudspeaker, power it up then press the update button located on the back panel for about 5s, or until the central indicator turns blue. ○

The procedure will take a few minutes to complete, during which the loudspeaker should not be turned off as it may be rendered inoperable. Once the update is complete, the loudspeaker will restart automatically. ○

If the update failed, the central indicator will flash orange. ○ Proceed with the update again.

If the failure persists, please contact our support department at support@akoustic-arts.com.