

# Sound Shower® Operation Manual

## 1. Product Description

The Panphonics Sound Shower is a mono loudspeaker equipped with a Panphonics amplifier and Panphonics audio elements. The amplifier is designed to drive Panphonics directional audio elements at SPL levels of 90dBA. It is optimized to handle the reactive load of the Panphonics audio elements. The Sound Shower can be connected directly to a program source, preamplifier or mixing systems.

The Sound Shower is ideal for applications where a certain audio footprint is needed. The Sound Shower can create a clearly focused audio footprint with high sound clarity and intelligibility. This makes it possible to create audio spaces even in difficult acoustical environments and with minimum disturbance to surroundings.

## 2. Technical Features

- Highly directional audio with light weight and durable structure
- Multiple installation options with VESA 100 and hanging kit
- Left/Right internal signal mixing for full signal information
- Volume control with volume level memory
- 5V/100mA DC power output (via USB connector) for small portable audio players like MP3

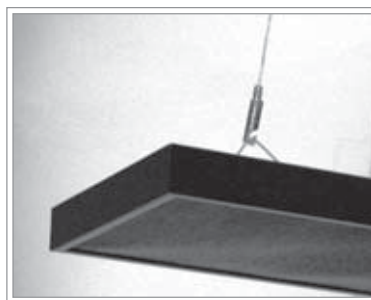
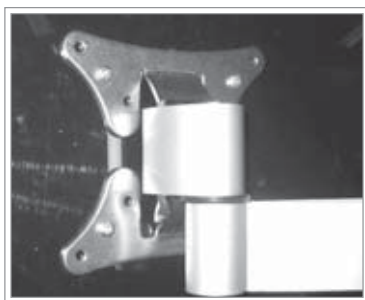
*Selectable features via Dip Switches on the back plate:*

- Input sensitivity selection
- Automatic volume level adjustment with ambient noise monitoring system
- Virtual Bass - a low audio frequency enhancement
- Input type change from normal unbalanced stereo type to differential (balanced mono)

## 3. Using the Sound Shower

### 3.1 Using the Sound Shower: Installation

Always install the loudspeaker in a professional and secure way to prevent accidental fall of the unit. Installation should be carried out by a skilled person. When positioning the speaker, be cautious with the aiming so that you reach your intended audio zone. Sound Shower is for indoor use only.



#### **Installation with AV-mounting brackets (not included):**

Panphonics recommends that the Sound Shower is installed utilizing VESA-100 compatible brackets. The Sound Shower is equipped with M4 threads in the VESA-100 pattern (100mm x 100mm) on the center of rear cover. Appropriate M4 fasteners are often supplied with the mount typically ~10 mm long, but they are also easily available from many hardware stores. Use max. 25mm long M4 fasteners.

#### **Installation with hanging wire kit (included):**

Another recommended means to install the Sound Shower is hanging it from the ceiling utilizing the included hanging kit.

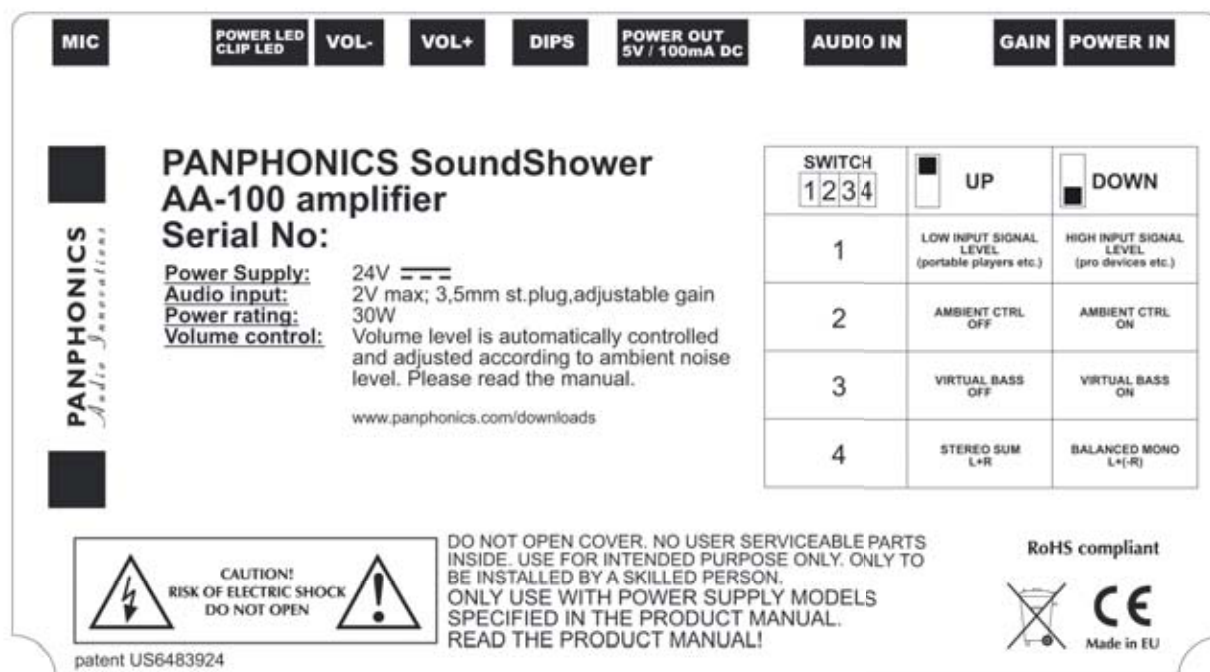
-Measure the the desired height of the speaker. Then cut two sets of required wire length from the 5 m (16.4 ft) metal wire. Twist the other end of the wire through the holes of the supplied plastic wire lock (see the picture above in middle). Then install the wire locks to ceiling to suspend the unit. For instance, on top of the low ceiling structure, around tubes etc. Then take the other end of the wire through the suspended acoustical ceiling tile etc. to the underside where the sound shower will be attached.

-Insert the metal hangers to the free ends of both wires. To insert the hanger unscrew the lock on the the hanger. First, insert the wire through the lock, then through the hanger-hook. To adjust the height of unit on wire, unscrew the lock on the hanger-hooks and press down the threads on the hanger-hook to allow moving the hanger up or down on the wire. Remember to secure by locking when correct height is adjusted. For further information or any questions, please contact Panphonics customer service.

## 3.2 Using the Sound Shower: Electrical Connections, Features and Adjustments

Items on the unit back side, left to right:

- Microphone for ambient noise measurement
- Power LED (green) and Clip LED (red)
- Volume Down - Volume Up
- Dip Switches
- 5V DC / 100mA power out (e.g. for a mp3 player)
- Audio IN (3,5mm stereo plug)
- Gain adjustment and Power in connector.



The media source is connected to the Audio IN socket with a 3,5 mm stereo jack. The source maybe any audio source with output level from 50mV to 2V. Typical sources can include devices like any portable mp3, computer, CD etc. For the best audio quality and to avoid any possible electrical disturbances, it is recommended to use a 1,5 m (5ft) long input cable at maximum. External 24V DC power source is connected to the Power In connector. Use only the power supplies provided by Panphonics Oy.

## Dip switches

Dip switches on the Sound Shower are used to:

1. select input gain setting for either a low or high level signal (attenuation -20db input sensitive)
2. turn the ambient control feature on/off
3. to turn virtual bass low frequency enhancement on/off
4. to change signal input type for differential (balanced mono). Right signal phase is inverted. Dip#4 position down for differential signal is for professional convenience with balanced source used with system installations with long signal cabling or other systems to be designed.

For most players dip#4 position up in case of unbalanced stereo signal (L+R).

feature on/off and to turn the virtual bass feature on/off.

## 5V DC/100mA output

Mp3 players and similar devices can be powered up from the USB-type connector. Remove any non-rechargeable batteries before connecting your device to the power out connector. Connector will not transmit any data and it only provides 5V of DC for the players.

## Adjusting the input gain

The input gain is adjusted when the device is taken in the use for the first time. The gain adjustment might also be needed after the change of the signal source device. Correct gain setting will give out maximum SPL without distortion. When gain is correctly set the Panphonics Sound Shower will not clip even when driven with maximum volume setting of the driving device.

To get the maximum level out of the Sound Shower without overdriving it or causing distortion to the sound, follow this procedure to set the input sensitivity of the Sound Shower to an optimum level.

1. Adjust the volume of the driving device (pre amplifier, mixing console, CD-player etc.) to its maximum setting. If it is known that some lower volume setting will be the maximum used, adjust the source to this volume setting. Use the same media that will be played after set-up.
2. Adjust the volume on the Sound Shower to the maximum by pressing the volume up button repeatedly until the volume level does not increase anymore. One press of a volume button will adjust the volume by approximately 1dB.
3. Adjust the input gain of the Sound Shower so that the clip led flashes only randomly during playback. If the clip led flashes continuously or is lit, adjust gain to a lower value. To increase gain turn the adjustment screw clockwise. Do not use excessive force.
4. If the sound is clipping and distorted even with very low gain setting, switch the input sensitivity (Dip#1) to the another position and adjust input gain again according instructions.

## **Setting desired volume level**

Set the Sound Shower to a desired volume level by pressing the VOL- and VOL+ buttons on the face plate. The buttons have to be pressed repeatedly, holding the button down will only change the volume by one step. Last adjusted volume level is memorized in the Sound Shower memory bank. The last memorized level will be recalled after power failure or disconnecting the mains power.

It is recommended to check the adjusted volume level at the front face of Sound Shower or at intended area - sound field is directional and sometimes it is hard to estimate the needed level from the back side of Sound Shower or where the actual signal source and its volume is located. Also when setting the volume level it is important to remember that sound naturally reflects from all hard surfaces. To avoid unnecessary reflections that may spread the sound adjust the volume level so that the media is easily heard and understood at the wanted area, but not a bit louder.

## **Automatic volume adjustment**

The volume level may be automatically adjusted to compensate changes in the ambient noise level. The automatic ambient noise level monitoring enables keeping the perceived volume at a desired level. When enabled the Sound Shower will monitor the ambient noise level and adjust the volume level automatically to compensate. This feature is optimized specially for advertisement type media that contains pauses with regular intervals.

### *Operation*

After the desired volume level is manually set with the volume level buttons the Sound Shower will measure the ambient noise level during the next short pause in the media and use these values to calculate a reference ambient noise level. The reference ambient noise level will be measured during a 12s period, best results are obtained when the ambient noise is static during the reference measurement period. The ambient noise reference level will be re-measured every time after the desired volume level is manually adjusted. After the reference ambient noise level has been measured the volume level will be automatically adjusted if the ambient noise level changes.

The ambient noise level is only measured when there is no media played. This is to avoid mixing the audio signal with the ambient noise. If the used media has no pauses (a short few second silences), it is advisable to stop the media for a while after setting the volume level to make sure for the Sound Shower to be able to measure the first reference ambient noise level.

In case the ambient noise level increases very quickly, the change is discarded by the Sound Shower. This is to prevent raising the volume level during announcements or other short events that suddenly raise the ambient noise level very high for a moment. If the ambient noise level stays at this higher level for over 30 measurement increments Sound Shower will interpret it as a non-temporary change and will adjust the volume accordingly.

To avoid pumping the volume level up and down rapidly, the normal volume level change is restricted to approximately 2dB at one measurement loop which corresponds to two adjustment steps (equivalent to two volume button presses).

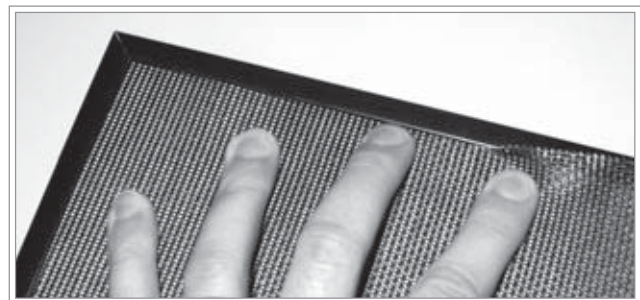


## Simplified Operation Flow and Main Program Blocks

Block 1: USER CHANGES MANUALLY DESIRED VOLUME LEVEL YES-> START NEW AMBIENT REFERENCE MEASUREMENT NO-> START MEDIA MONITORING
Block 2: NEW AMBIENT REFERENCE MEASUREMENT 1s pause in audio media for 1 measurement- > ambient noise levels in to the 8 memory bank. -> AMBIENT REFERENCE LEVEL calculated and recorded. (Average 12 seconds for 8 measurements).
Block 3: MEDIA MONITORING: IS THERE AUDIO MEDIA PLAYING? YES->no action / NO-> Start MEASUREMENT/SETTING
Block 4: MEASUREMENT & SETTING -Normal situation: ambient measurement once per second, calculate the running average of 8 measurements. Compare running average measurement level difference to recorded reference level -difference smaller than 1,5dB? -> change the volume according to dB change -difference between 1,5-4,5dB? -> adjust the volume one step of 1,5dB -difference more than 4,5dB? -> if this difference lasts more than 30 measurements, then the unit adjusts the volume faster

## 4. Sound Shower Maintenance

The Sound Shower is turned off by disconnecting mains power by removing the power supply unit from the mains socket. Notice that disconnecting the power plug from the loudspeaker does not disconnect mains power from the power supply unit.



The Panphonics Sound Shower does not need periodical maintenance. If needed the cover canvas may be changed by gently pulling the canvas out and placing a new canvas. The canvas is gently pushed under the frame. It is held in place by springs under the audio elements. If the canvas is moved during shipping or assembly it can be easily straightened out by pressing down gently with your hand holding fingers out and pulling the canvas towards the edges and back under the edge.

## 5. Trouble Shooting

- Green power led is not lit -> Check that the power unit is properly installed into a wall socket and the power plug is fully inserted into the amplifier power inlet
- No sound, power led on -> Make sure audio is playing and that the audio source is properly connected to the Sound Shower. Also check that the source is not on “mute”.
- Very weak sound -> Check also that there is no attenuation on in source.
- Check signal input type and dip switch position accordingly - usual user case is normal unbalanced stereo signal (Left and Right channel) -> dip#4 is in up-position.
- Check also input sensitivity and volume setting (press volume + repeatedly).
- Buzzing noise in sound -> Check that correct stereo plugs are used and that they are all fully inserted.

## 6. Terms of Warranty

Panphonics Oy warrants to the original purchaser that this Panphonics Oy's product (the "Product") will be free from defects in materials, design or workmanship, on the following terms and conditions: Panphonics Oy's audio elements have been tested at the place of manufacture in accordance with the quality control of Panphonics Oy. Each notice of defects in the Product will be compared to the quality control record of the said Product. This limited Warranty does not include deviations in audio performance characteristics of the Product if the performance characteristics entered into the quality control record have been correct and the purchaser cannot provide positive proof to the contrary, for example, inadequate transportation procedures. Panphonics Oy's products are sensitive to mechanical and environmental damage.

1) The period of warranty will be twelve (12) months from the date the original purchaser took possession of the Product, or should have taken possession of the Product if the receipt of the Product was delayed due to a cause attributable to the purchaser. In case the original purchaser sells or otherwise assigns the Product to a new owner/user, the period of warranty will continue unaltered until the end of the original period of warranty.

2) During the period of warranty Panphonics Oy or its authorized maintenance service will either repair the defective Product or replace it with a new Product, at Panphonics Oy's option. Panphonics Oy will return the repaired Product or deliver a new Product to the purchaser in working order. All replaced parts and equipment will become the property of Panphonics Oy.

3) This limited Warranty does include mechanical defects of the Product and significant deviations between technical data and performance characteristics of the Product.

4) The repaired or replaced Product will not be given extended or additional period of warranty.

5) This limited Warranty does not include defects caused by normal wear and tear.

An addition, this limited Warranty will not be valid if:

I The defect was due to

- a. The use of the Product either contrary to instructions or otherwise negligently;
- b. The Product being exposed to moisture, steam, extreme temperature or environment, or rapid changes in such, or corrosion or oxidation;
- c. The Product being altered, connected to another product, opened or repaired without authorization or the Product being repaired with spare parts not approved by Panphonics Oy;
- d. The Product being misused or installed incorrectly; or
- e. The Product having been in on an accident or been exposed to the elements or spilled over with food or liquid, or been affected by chemical substances or other events beyond the scope of influence of Panphonics Oy, including but without limitation to labor dispute and every other event Panphonics Oy cannot reasonably be

expected to overcome, for example fire or other natural catastrophe, war, rebellion, seizure, monetary exchange control, mandatory legislation, orders of authorities, refusal of export license, scarcity of transportation, general scarcity, restrictions in the use of power, and defects and delays of subcontractor's delivery caused by the above-mentioned causes unless the damage has been direct consequence of a defect in material or design or workmanship;

II The purchaser has not informed Panphonics Oy or its authorized maintenance service about the defect within thirty (30) days from the occurrence of the defect during the period of warranty;

III The Product has not been returned to Panphonics Oy or its authorized maintenance service within thirty (30) days from the occurrence of the defect during the period of warranty;

IV The serial number of the Product has been transferred, removed or damaged, or any number has been altered or is impossible to read;

V The defect was caused by the malfunction of an electronic appliance not provided by Panphonics Oy;

VI The defect was caused as a consequence of the Product being used with an accessory, which was not manufactured, approved or provided by Panphonics Oy, or the Product was connected to such accessory, or the Product was used for other purposes than instructed, or the Product has been connected to such electronic system, which does not operate customarily compared to the normal use of the Product;

VII The defect was caused as a consequence of an acoustic or electric overloading of the audio element.

6) In order to be able to invoke this limited Warranty, the purchaser must provide either

I Readable and unaltered original sales receipt/warranty card, which clearly sets out the name and address of the seller, the date and place of the purchase, the type of the Product and serial number, or alternatively

II Readable and unaltered original sales receipt, which brings out the same information if produced to the seller/supplier of the Product.

7) The purchaser's rights against Panphonics Oy based on defects or defective functions of the Product are limited to this limited Warranty. This limited Warranty will supersede all other oral, written, statutory (unless mandatory), contractual and other warranties and liabilities. In no event will Panphonics Oy be liable for unforeseen, incidental, consequential or indirect damages or expenses. Should the purchaser be a company or other legal person, Pan-phonics Oy will not be liable for direct damages or expenses. Unless contrary to mandatory provisions of law, the purchaser will be finally responsible for product liability.

8) Any amendment or supplement to the terms of this limited Warranty is binding on Panphonics oy only if Panphonics Oy has beforehand accepted in writing to the amendment or supplement. The defective Product must be shipped on the purchaser's expense to Panphonics Oy, Teollisuustie 13, FI-33330 Tampere, Finland.

## 7. Sound Shower Technical Description

### 7.1 Audio Properties and Electrical Properties

Maximum output sound pressure level: > 95dBA (@5kHz)

Frequency range: 250Hz - 17,4kHz (-3dB/oct.)

Power supply: external 24V DC power supply

Output plug diameter 2,1mm / 5,5mm (center +). Use only power units supplied by Panphonics Oy.

Output for external device: 5V DC / 100mA , USB A type connector

Input impedance (audio IN): 10kΩ

Input voltage (audio IN): 50mV - 2V, adjustable gain

Input (audio IN) connector: 3,5mm stereo jack, type unbalanced stereo

- input type switchable to balanced (differential mono -right channel signal phase is inverted)

Adjustable input gain

Power indicator LED (green) and audio input overdrive indicator (clip) LED (red)

Automatic volume control relative to changes in ambient noise level (can be disabled)

Virtual bass, a low frequency enhancement (can be disabled)

### 7.2 Dimensions and Colors

*Table of physical dimensions and properties*

MODEL	SIZE (L x W x H), +/- 2mm		WEIGHT		AUDIO FOOTPRINT LxW *)	
	mm	Inch	kg	lbs	m	Ft
60 x 60 (Square)	601 x 601 x 34	23.6 x 23.6 x 1.3	3	6,6	1,5 x 1,5	5 x 5
60 x 20	601 x 204 x 34	23.6 x 8.0 x 1.3	1.4	3.1	15x5 horiz.	50x15 horiz.
100 x 20	995 x 204 x 34	39.4 x 8.0 x 1.3	2.1	4.6	25x5 horiz.	80x15 horiz.
120 x 20	1195 x 204 x 34	47.0 x 8.0 x 1.3	2,7	6	1,5 x 2,0	5 x 7
180 x 20	1790 x 204 x 34	70.5 x 8.0 x 1.3	3,6	7,9	2,0 x 2,0	7 x 7
240 x 20	2385 x 204 x 34	93.9 x 8.0 x 1.3	4,8	10,6	2,5 x 2,0	8 x 7
300 x 20	2980 x 204 x 34	117.3 x 8.0 x 1.3	6	13,2	3,0 x 2,0	10 x 7

\*) audio footprint size depends on the installation height and orientation of the Sound Shower. In here the audio footprints are for vertical installations where the loudspeaker front surface is positioned downward to aim the audio output to a limited area as typically desired for example in passages, restrooms, or waiting zones. When directed horizontally to produce an audio corridor, for example from above a plasma screen there is extended audio footprint length typically from 10 to 30 meters depending the model. Audio is strongly attenuated outside this corridor.

Color: White, black or aluminium grey. Covering canvas is changeable.

Operation environment: for inside use only, max. operation conditions 30°C/86°F r.H.%60

Long term storage: in controlled stock room. During transport max.peak -20/60°C, non-condensing

### 7.2 Important Safety Information

1. Panphonics Sound Shower loudspeaker is designed to be used with supplied power source only.
2. Disconnect unit from mains voltage before making any connections.
3. Read all documentation before operating your equipment.
4. Follow all instructions.
5. Do not remove the rear cover. No user serviceable parts inside.
6. Make sure power outlets conform to the power requirements.
7. Do not operate the unit on a surface or in the environment which may impede the normal flow of air around the unit.
8. Do not use the unit near high heat or moisture producing devices. Device is for inside use only.
9. Do not drive the input with a signal level greater than that required to drive equipment to full output.
10. Do not spill water or other liquids into or on the unit.
11. EQUIPMENT SHOULD BE INSTALLED AND SERVICED BY A SKILLED PERSON ONLY.
12. The product label is located on the loudspeaker rear plate.

For further information or any questions, please contact Panphonics service:

info@panphonics.fi  
Panphonics Oy, Teollisuustie 13, 33330 Tampere, Finland  
www.panphonics.com