Millenium

HPA In Ear

User Manual

Headphone Amplifier

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1 General information

This document contains important instructions for the safe operation of the product. Read and follow the safety instructions and all other instructions. Keep the document for future reference. Make sure that it is available to all those using the product. If you sell the product to another user, be sure that they also receive this document.

Our products and documentation are subject to a process of continuous development. They are therefore subject to change. Please refer to the latest version of the documentation, which is ready for download under *www.thomann.de*.

1.1 Symbols and signal words

In this section you will find an overview of the meaning of symbols and signal words that are used in this document.

Signal word	Meaning
DANGER!	This combination of symbol and signal word indicates an immediate dangerous situation that will result in death or serious injury if it is not avoided.
WARNING!	This combination of symbol and signal word indicates a possible dangerous situation that can result in death or serious injury if it is not avoided.
NOTICE!	This combination of symbol and signal word indicates a possible dangerous situation that can result in material and environmental damage if it is not avoided.

Warning signs	Type of danger
	Warning – high-voltage.
	Warning – danger zone.

2 Safety instructions

Intended use

This device is used to amplify and mix the signals of audio equipment and musical instruments for the output to the connected headphones. Use the device only as described in this user manual. Any other use or use under other operating conditions is considered to be improper and may result in personal injury or property damage. No liability will be assumed for damages resulting from improper use.

This device may be used only by persons with sufficient physical, sensorial, and intellectual abilities and having corresponding knowledge and experience. Other persons may use this device only if they are supervised or instructed by a person who is responsible for their safety.

Safety

DANGER!

Risk of injury and choking hazard for children!

Children can suffocate on packaging material and small parts. Children can injure themselves when handling the device. Never allow children to play with the packaging material and the device. Always store packaging material out of the reach of babies and small children. Always dispose of packaging material properly when it is not in use. Never allow children to use the device without supervision. Keep small parts away from children and make sure that the device does not shed any small parts (such knobs) that children could play with.

DANGER!

Danger to life due to electric current!

Within the device there are areas where high voltages may be present. Never remove any covers. There are no user-serviceable parts inside. Do not use the device when covers, safety equipment or optical components are missing or damaged.

WARNING!

Possible hearing damage due to high volumes on speakers or headphones!

With speakers or headphones connected, the device can produce volume levels that may cause temporary or permanent hearing impairment. Over an extended period of time, even levels that seem to be uncritical can cause hearing damage. Do not operate the device permanently at a high volume level. Decrease the volume level immediately if you experience ringing in your ears or hearing impairment.

NOTICE!

Damage to the device if operated in unsuitable ambient conditions!

The device can be damaged if it is operated in unsuitable ambient conditions. Only operate the device indoors within the ambient conditions specified in the "Technical specifications" chapter of this user manual. Avoid operating it in environments with direct sunlight, heavy dirt and strong vibrations. Avoid operating it in environments with strong temperature fluctuations. If temperature fluctuations cannot be avoided (for example after transport in low outside temperatures), do not switch on the device immediately. Never subject the device to liquids or moisture. Never move the device to another location while it is in operation. In environments with increased dirt levels (for example due to dust, smoke, nicotine or mist): Have the device cleaned by qualified specialists at regular intervals to prevent damage due to overheating and other malfunctions.

NOTICE!

Damage to the external power supply due to high voltages!

The device is powered by an external power supply. The external power supply can be damaged if it is operated with the incorrect voltage or if high voltage peaks occur. In the worst case, excess voltages can also cause a risk of injury and fires. Make sure that the voltage specification on the external power supply matches the local power grid before plugging in the power supply. Only operate the external power supply from professionally installed mains sockets that are protected by a residual current circuit breaker (FI). Ensure that the power cord plug is easily accessible at all times if it is the only device to safely disconnect the device from the mains supply. As a precaution, disconnect the power supply from the power grid when storms are approaching or it the device will not be used for a longer period.

NOTICE!

Damage to the device due to use of unsuitable external power supplies!

If the device is operated with an unsuitable external power supply, the device can be damaged by overvoltage or incorrect polarity. If things go badly, using an unsuitable power supply can also cause a risk of injury and fire. Only use the external power supply designated for the device or an equivalent external power supply with identical parameters. If in doubt, compare the voltage specifications on the external power supply and the polarity (+/-) with the specifications in this manual and printed on the device. Voltage and polarity must always match.

NOTICE!

Risk of fire due to incorrect polarity!

Incorrectly inserted batteries may cause fires and destroy the device and the batteries. Observe the markings on the batteries and on the device. Ensure that proper polarity is observed when inserting batteries.

NOTICE!

Possible damage due to leaking batteries!

Batteries can leak and cause permanent damage to the device. Take the batteries out of the device if it is not going to be used for an extended period of time.

NOTICE!

Possible staining due to plasticiser in rubber feet!

The plasticiser contained in the rubber feet of this product may react with the coating of the floor and cause permanent dark stains after some time. If necessary, use a suitable mat or felt slide to prevent direct contact between the product's rubber feet and the floor.

3 Features

- Two balanced XLR inputs
- Much better sound than with wireless systems
- Ideal for in-ear applications
- Switching between stereo/mono mode possible
- Output power 2 × 50 mW
- Controls for volume and balance
- Robust aluminium housing with 3/8-inch thread for stand mounting
- Connection for external power adapter (power adapter included)
- Battery operation possible (9 V battery not included)

4 Installation and startup

Unpack and check carefully there is no transportation damage before using the unit. Keep the equipment packaging. To fully protect the product against vibration, dust and moisture during transportation or storage use the original packaging or your own packaging material suitable for transport or storage, respectively.

Create all connections while the device is off. Use the shortest possible high-quality cables for all connections. Take care when running the cables to prevent tripping hazards.

Stand mounting

NOTICE!

Potential property damage due to unsuitable stands!

If the device is mounted on an unsuitable stand, there is a risk that the stand will fall over and cause damage.

Only use stands whose maximum bearing capacity is at least as high as the weight of the device. Always ensure that the stand is stable.

The device has a thread on its bottom that you can use to screw it to a microphone stand.

Do not place the device on speaker boxes, because their vibration could cause the device to vibrate and fall off.

Even though the device housing is shielded against high-frequency (RF) and electromagnetic (EMI) radiation, do not operate the device near extreme RF or EMI fields.

Power supply

Use the included mains adapter to connect the device to a mains socket via the *[9-12 V]* socket.

NOTICE!

Risk of fire due to incorrect polarity!

Incorrectly inserted batteries may cause fires and destroy the device and the batteries.

Observe the markings on the batteries and on the device.

Ensure that proper polarity is observed when inserting batteries.

NOTICE!

Possible damage due to leaking batteries!

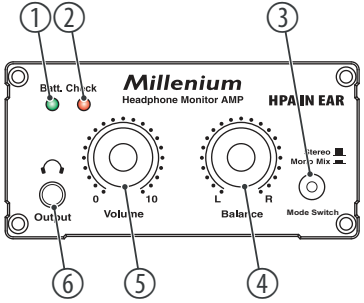
Batteries can leak and cause permanent damage to the device.

Take the batteries out of the device if it is not going to be used for an extended period of time.

For optional battery operation, open the battery compartment on the left side of the housing and insert a 9 V block battery (not included) into the battery compartment. Close the compartment.

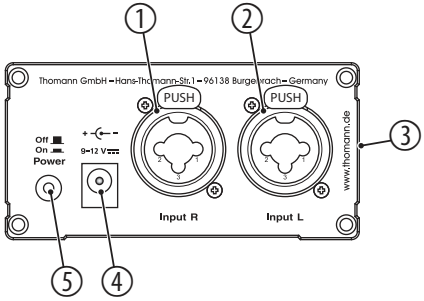
5 Connections and controls

Front



1	*[Batt. Check]* | Green LED of the battery status indicator
2	*[Batt. Check]* | Red LED of the battery status indicator
3	*[Mode switch]* | Switch for changing the operating mode
4	*[Balance]* | Balance for controlling the volume ratio of the left and right input signals.
5	*[Volume]* | Volume control for setting the output level
6	*[Output]* | Headphone output (3.5 mm jack socket, stereo)

Back



1	*[Input R]* | Balanced XLR/jack combo socket for connecting the right input signal.
2	*[Input L]* | Balanced XLR/jack combo socket for connecting the left input signal.
3	Battery compartment with cover.
4	*[9-12 V]* | Connection for the supplied power adapter
5	*[Power On/Off]* | Main switch. Turns the device on and off.

6 Functions

Checking the battery status

The two *[Batt. Check]* indicators indicate the charging state of an inserted battery. With a new battery or a newly charged rechargeable battery, only the green LED lights up. When the battery power drops below about 7.3 V after a few hours of operation, both indicators (green and red) light up. If only the red LED lights up, the battery voltage has dropped to about 6.5 V. Then the battery needs to be replaced or recharged.

"Stereo" mode

If the *[Mode Switch]* is in the *'Stereo'* position, the input signals for the right and left channels are provided on the output accordingly. You can use the *[Balance]* control to adjust the volume ratio between the left and right channels. The *[Volume]* control sets the overall volume.

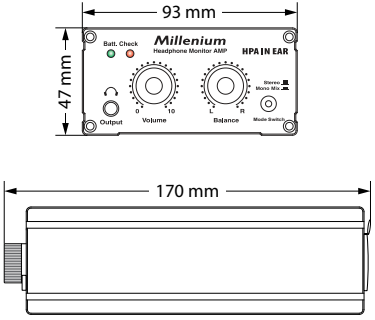
"Mono-Mix" operating mode

If the *[Mode Switch]* is in the *'Mono-Mix'* position, you can easily provide a custom monitor mix. Do this by creating, for example, a mono mix of the whole band that you feed to one of the two input channels. Feed the signal of the individual musician into the other input of the device used by him. The musician can then use the *[Balance]* control to individually adjust the volume ratio between the band mix and his own instrument signal. The *[Volume]* control sets the overall volume.

Optimising the input level

Adjust the level on the signal source supplying the device (e.g. the mixer) to about 0 ~ 3 dB in the signal peaks. Such an input signal ensures a sufficiently powerful output signal for the headphones connected to the device. In addition, it prevents abrupt increases in the headphone level in case of high signal levels that are caused by feedback, for example. The device limits the input signal at about +5 dBm.

7 Technical specifications



Input connections	Power supply	Socket for 9-V power adapter
	Audio signal	2 × XLR/6.35 mm jack sockets (balanced)
		Impedance: 15 kΩ
		Nom. Input level (balanced): +0 dBV Max. input level (balanced): +4 dBV Input level limit (balanced): +5 dB
Output connections	Headphones	1 × 3.5-mm jack socket (stereo)
		Min. load impedance: 16 Ω per channel
Frequency range	30 Hz…20 kHz (± 1 dB)	
Output power	5 0mW per channel max. (@ 20 Ω load)	
Signal-to-noise ratio	99 dB (1 kHz, –3 dBu)	
Total harmonic distortion (THD)	< 0.00002% (1 kHz, –3 dBu)	
Crosstalk	–38 dB (20 Hz…20 kHz)	
Power supply	External power adapter, 100 - 240 V ~ 50/60 Hz	

Operating voltage	9-12 V ⎓ / 100 mA, centre negative	
Battery	9V block battery	
Mounting options	Standing, stand mounting, 3/8" thread	
Dimensions (W × H × D)	93 mm × 47 mm × 170 mm	
Weight	0.45 kg	
Ambient conditions	Temperature range	0 °C…40 °C
	Relative humidity	20%…80% (non-condensing)

8 Plug and connection assignment

Introduction

This chapter will help you select the right cables and plugs to connect your valuable equipment in such a way that a perfect sound experience is ensured.

Please note these advices, because especially in 'Sound & Light' caution is indicated: Even if a plug fits into the socket, an incorrect connection may result in a destroyed power amp, a short circuit or 'just' in poor transmission quality!

Balanced and unbalanced transmission

Unbalanced transmission is mainly used in semi-professional environment and in hifi use. Instrument cables with two conductors (one core plus shielding) are typical representatives of the unbalanced transmission. One conductor is ground and shielding while the signal is transmitted through the core.

Unbalanced transmission is susceptible to electromagnetic interference, especially at low levels, such as microphone signals and when using long cables.

In a professional environment, therefore, the balanced transmission is preferred, because this enables an undisturbed transmission of signals over long distances. In addition to the conductors 'Ground' and 'Signal', in a balanced transmission a second core is added. This also transfers the signal, but phase-shifted by 180°.

Since the interference affects both cores equally, by subtracting the phase-shifted signals, the interfering signal is completely neutralized. The result is a pure signal without any noise interference.

1/4" TS phone plug (mono, unbalanced)

1	Signal
2	Ground, shielding

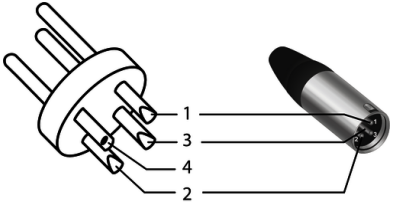
1/4" TRS phone plug (mono, balanced)

1	Signal (in phase, +)
2	Signal (out of phase, –)
3	Ground

Three-pole 1/8" mini phone jack (stereo, unbalanced)

1	Signal (left)
2	Signal (right)
3	Ground, shielding

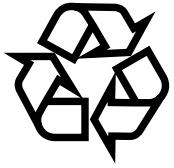
XLR plug (balanced)



1	Ground, shielding
2	Signal (in phase, +)
3	Signal (out of phase, –)
4	Shielding on plug housing (option)

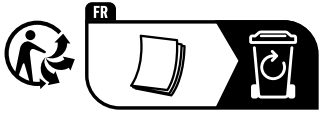
9 Protecting the environment

Disposal of the packing material



Environmentally friendly materials have been chosen for the packaging. These materials can be sent for normal recycling. Ensure that plastic bags, packaging, etc. are disposed of in the proper manner.

Do not dispose of these materials with your normal household waste, but make sure that they are collected for recycling. Please follow the instructions and markings on the packaging.



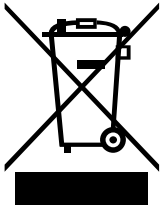
Observe the disposal note regarding documentation in France.

Disposal of batteries and rechargeable batteries

Do not dispose of batteries and rechargeable batteries with normal household waste, but in accordance with the local regulations for the disposal of hazardous waste. Use the available collection sites or contact your local waste disposal facility.

Before disposing of your old device, remove the batteries if this is possible without destroying it.

Disposal of your old device



This product is subject to the European Waste Electrical and Electronic Equipment Directive (WEEE) as amended.

Do not dispose of your old device with your normal household waste; instead, deliver it for controlled disposal by an approved waste disposal firm or through your local waste facility. If in doubt, consult your local waste management facility. You can also return the device to a retailer if they offer to take the device back for free or if they are legally obliged to do so. When disposing of the device, comply with the rules and regulations that apply in your country. You can also return your old device to Thomann GmbH at no charge. Check the current conditions on *www.thomann.de*.

Proper disposal protects the environment as well as the health of your fellow human beings. This is because the proper handling of old devices negates the potential negative effects of hazardous substances, and because it conserves resources by recycling them.

Also note that waste avoidance is a valuable contribution to environmental protection. Repairing a device or passing it on to another user is an ecologically valuable alternative to disposal. For example, use the classified ads of Thomann GmbH.

If your old device contains personal data, delete those data before disposing of it.