



Achat 110M, Achat 112M, Achat 115M

Passive speaker

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18.11.2024, ID: 214529, 230510, 277965, 230512 (V4)

Table of contents

1	General information.....	5
1.1	Symbols and signal words.....	5
2	Safety instructions.....	7
3	Features.....	9
4	Installation.....	11
4.1	Tips on handling speakers.....	14
4.2	Hanging the speaker box.....	14
4.3	Mounting bracket.....	15
4.4	Aligning the horn (only Achat 112M).....	16
5	Connections.....	18
6	Technical specifications.....	20
7	Plug and connection assignment.....	32
8	Protecting the environment.....	33



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.
CAUTION!	This combination of symbol and signal word indicates a possible dangerous situation that can result in minor 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 – suspended load.
	Warning – danger zone.

2 Safety instructions

Intended use

This device is designed for sound reinforcement. 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.



WARNING!

Possible hearing damage due to operating the device at a high volume!

The device can produce volume levels that, when operated at a high volume, may cause temporary or permanent hearing impairment. Over an extended period of time, even levels that seem to be uncritical can cause hearing damage. Avoid operating the device at excessively high volumes over an extended period of time. Decrease the volume level immediately if you experience ringing in your ears or hearing impairment. If this is not possible, keep a greater distance or use adequate ear-muffs.



CAUTION!

Risk of injury due to heavy weight!

The device is heavy. Lifting and dropping it during transport and installation can cause injuries. Make sure at least two people work together when transporting and installing the device.



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!

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

Achat 110M (item no. 230510, 277965)

Special characteristics of this passive 2-way speaker:

- 10-inch neodymium woofer
- 1-inch ferrite compression tweeter driver
- Beam angle $90^{\circ} \times 60^{\circ}$
- Connection options:
 - 2 × lockable Speaker Twist (INPUT/THRU)
- Colour: Black (item no. 230510), white (item no. 277965)
- Multifunctional housing
- M10 thread
- 36 mm pole flange on the bottom
- U-bracket (optional, item no. 258813)
- Protective cover (optional, item no. 243783)

Achat 112M (item no. 230512)

Special characteristics of this passive 2-way speaker:

- 12-inch neodymium woofer
- 1.4-inch neodymium mid-level tweeter
- Beam angle $60^{\circ} \times 40^{\circ}$, rotatable horn
- Connection options:
 - 4 × lockable Speaker Twist (TOP/INPUT/THRU/BOTTOM)

- Flying tracks on top of the housing and an eye on the back for tilting. Mounting for vertical suspension optionally available.
- Black textured paint
- M10 thread
- 36 mm pole flange on the bottom
- Protective cover (optional, item no. 243017)

Agate 115M (item no. 214529)

Special characteristics of this passive 2-way speaker:

- 15-inch neodymium woofer
- 1.4-inch neodymium mid-level tweeter
- Beam angle 60° × 40°
- Connection options:
 - 4 × lockable Speaker Twist (TOP/INPUT/THRU/BOTTOM)
- Flying tracks on top of the housing and an eye on the back for tilting. Mounting for vertical suspension optionally available.
- Black textured paint
- M10 thread
- 36 mm pole flange on the bottom
- U-bracket (optional, item no. 258815)
- Protective cover (optional, item no. 249422)

4 Installation

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.



WARNING!

Risk of injury from falling speakers that were inadequately secured!

If speakers are not properly secured when mounted, they can cause severe injury and considerable damage by falling.

Always secure portable sound systems (speakers) with two independent safety devices, for example with safety cables.



WARNING!

Risk of injury due to improper installation!

Improper mounting can lead to serious injuries and significant damage to property.

When installing and operating, make sure to follow the standards and regulations that apply in your country. In Germany, this is DGUV regulation 17 "Staging and Production Facilities for the Entertainment Industry".

Ensure that speakers are only mounted by trained specialists.



CAUTION!

Risk of injury due to heavy weight!

The device is heavy. Lifting and dropping it during transport and installation can cause injuries.

Make sure at least two people work together when transporting and installing the device.

**NOTICE!****Possible property damage to adjacent devices due to magnetic fields.**

Speakers generate a static magnetic field. This magnetic field can affect other neighbouring units and in unfavourable cases damage them.

Ensure that speakers are always a sufficient distance away from sensitive equipment that may be affected by an external magnetic field.

**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.

4.1 Tips on handling speakers

We recommend you to set up the speakers in a way, that the sound signals can reach the audience unobstructedly. It will often be helpful to mount the speakers on tripods. Thus, the sound will be evenly spread with maximum range throughout the audience area.

Always use high grade cable to connect your equipment. Otherwise you won't reach maximum sound quality.

For optimum results both impedance and power handling of the speakers must match the requirements of the amplifier. Always follow the technical specifications of the speakers! The overall impedance of the connected loudspeakers must not exceed the minimum output impedance of the amp. The amps max. RMS output power should be 50 % above the power handling capacity of the connected speakers.

If you notice distortion during operation, either the amp or the speaker is overloaded. This may permanently damage the amp or the speaker. Always reduce the volume when you hear distortion.

4.2 Hanging the speaker box

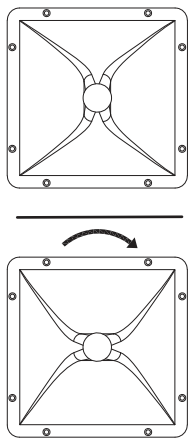
To hang the speaker box on special mounting devices (aka 'flying'), the top of the box offers built-in Aeroquip or fly tracks. In these tracks safety eyelets (double studs) can be screwed or latched. Check the secure connection of the safety eyelets with the box carefully, before you use it in 'flying mode'.

Using an additional loop on the back of the box, it is possible to tilt the box. This additional loop must not solely be in charge to secure the entire suspended weight.

4.3 Mounting bracket

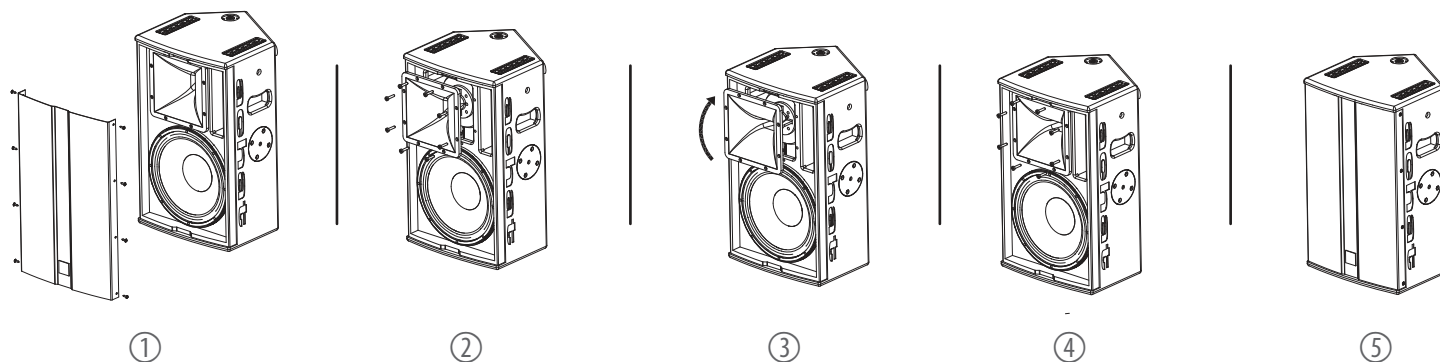
Using the optional mounting brackets (U brackets) for vertical and horizontal mounting, the speaker can stably and securely mounted to the wall, the ceiling or a pipe clamp (half coupler), and, thus, secured to trusses.

4.4 Aligning the horn (only Achat 112M)



The Achat 112M speaker (item no. 230512) has a rotatable horn speaker. By rotating the speaker, the beam angle of the high frequencies can be adapted to the respective ambient conditions. The following table shows the beam angles based on the alignment of the speaker.

Figure	Alignment	Horizontal	Vertical
Top	Standard	60°	40°
Bottom	Rotated	40°	60°

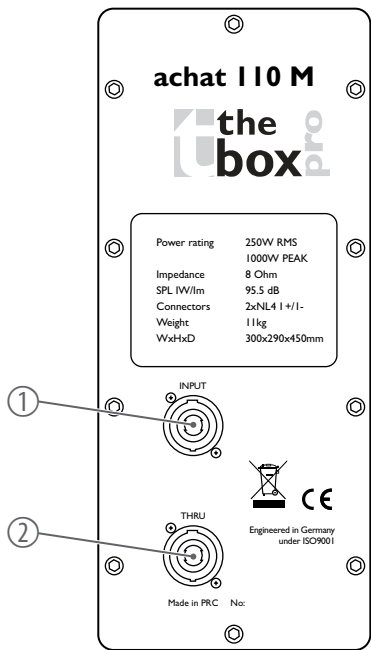


To rotate the horn speaker, proceed as follows:

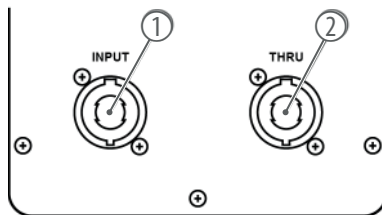
- 1.** Loosen and remove the screws of the speaker grille on both sides and remove the speaker grille.
- 2.** Loosen and remove the screws of the horn speaker.
- 3.** Rotate the horn speaker 90°.
- 4.** Secure the horn speaker with the screws.
- 5.** Insert the speaker grille correctly aligned (logo below) and secure the speaker grille with the screws.

5 Connections

Achat 110M



- | | |
|---|--|
| 1 | [INPUT] Input, designed as a lockable Speaker Twist |
| 2 | [THRU] Connection for connecting another passive speaker, designed as a lockable Speaker Twist |

Achat 112M, Achat 115M

1, 2 [INPUT/THRU] | Two Speaker Twist connections with parallel wiring on the back

Additional Speaker Twist connections are located on the top and bottom side of the housing.

Find more information about the wiring of the Speaker Twist connections on the rear panel of the housing.

6 Technical specifications

Achat 110M

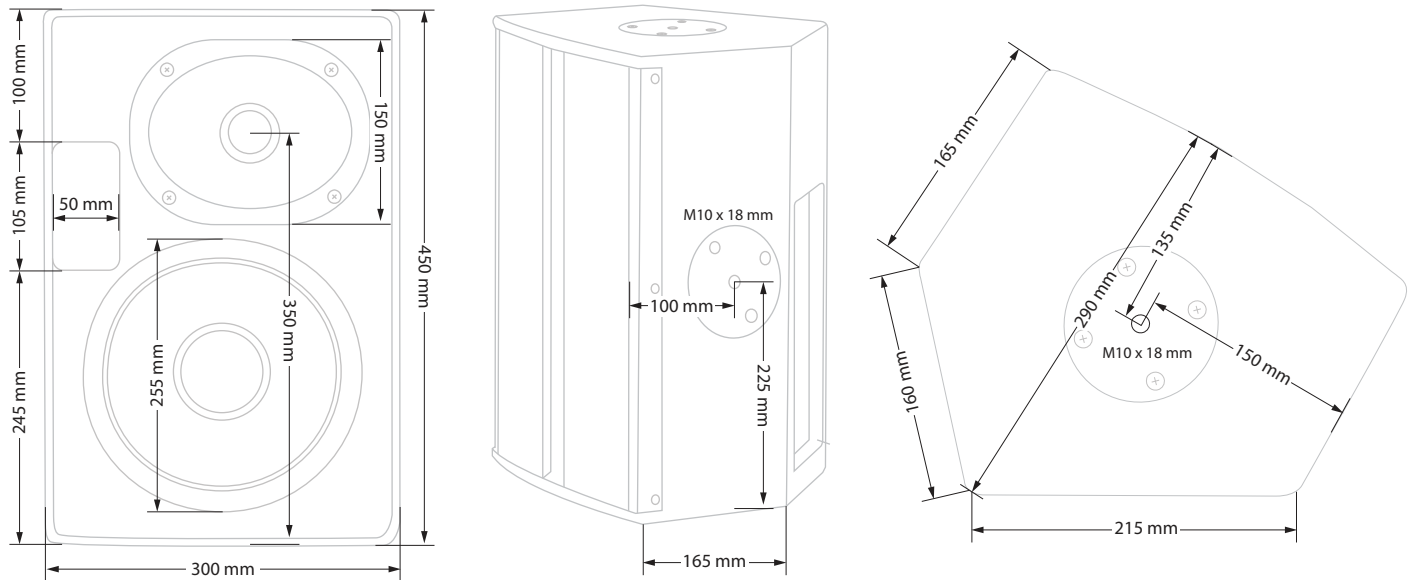
System	Passive 2-way speaker
Configuration	1 × 10-inch neodymium woofer (with 3-inch voice coil) 1 × 1-inch ferrite compression tweeter driver (with 1 3/8-inch voice coil)
Input connections	1 × Speaker Twist
Output connections	1 × Speaker Twist
Frequency range	70 Hz ... 20 kHz
Load capacity	250 W (RMS), 1000 W (peak)
Sensitivity (1 W/1 m)	96 dB SPL
Rated impedance	8 Ω
Max. sound pressure level	120 dB SPL
Max. short-term sound pressure level	126 dB SPL
Beam angle (H × V)	90° × 60°
Dimensions (W × H × D)	300 mm × 450 mm × 290 mm
Weight	11 kg

Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	20%...80% (non-condensing)

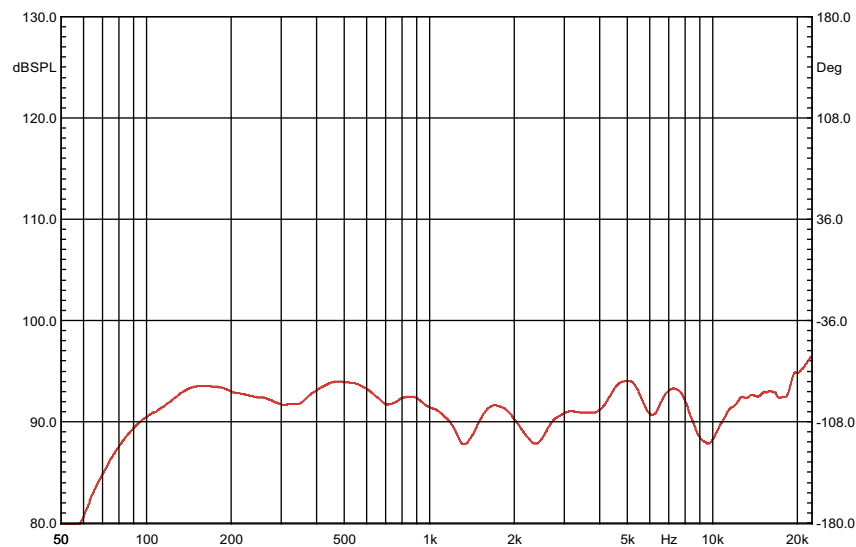
Further information

Housing	Wood
Colour	Black (item no. 230510), white (item no. 277965)
Truss-capable	M10
Monitor inclination	Yes
Ways	2-way
Stand flange	36 mm
U-bracket	Optional (item no. 258813)
Protective cover	Optional (item no. 243783)

Dimensions



Frequency response



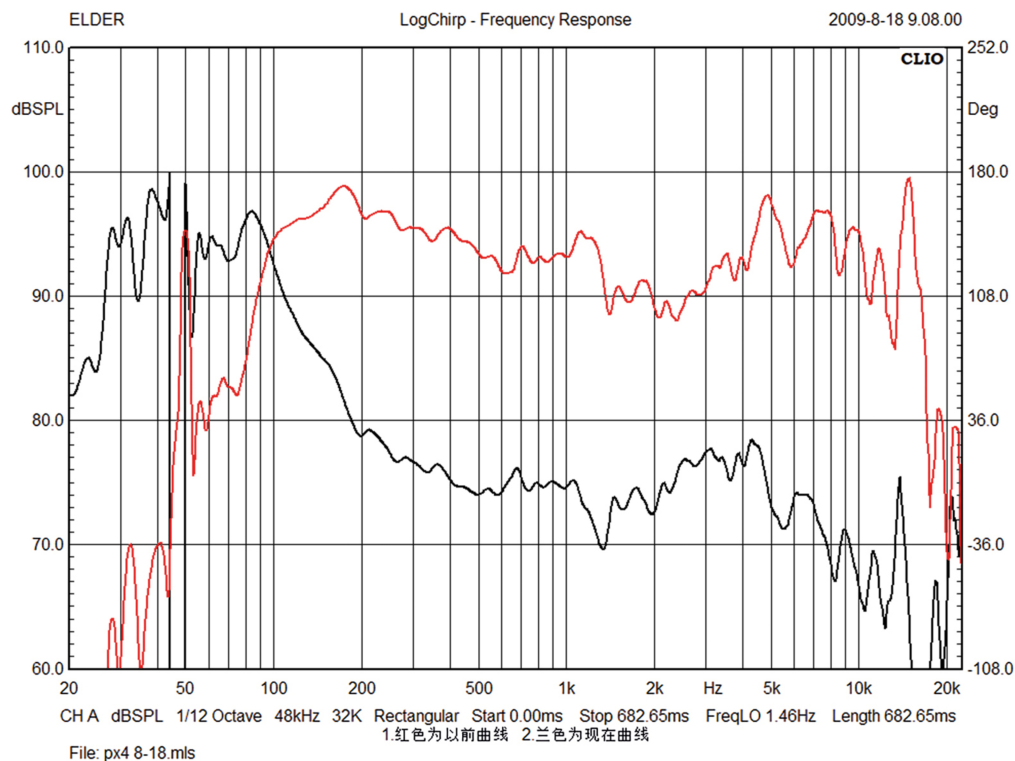
Achat 112M

System		Passive 2-way speaker
Configuration		1 × 12-inch neodymium woofer (with 3-inch voice coil) 1 × 1.4-inch neodymium mid-level tweeter (with 1.4-inch voice coil)
Input connections		2 × Speaker Twist
Output connections		2 × Speaker Twist
Frequency range		60 Hz ... 18 kHz, −3 dB
Load capacity		350 W (RMS), 1400 W (peak)
Sensitivity (1 W/1 m)		99 dB SPL
Rated impedance		8 Ω
Max. sound pressure level		124 dB SPL
Max. short-term sound pressure level		130 dB SPL
Beam angle (H × V)		60° × 40° (rotatable horn)
Dimensions (W × H × D)		360 mm × 600 mm × 365 mm
Weight		21 kg
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	20%...80% (non-condensing)

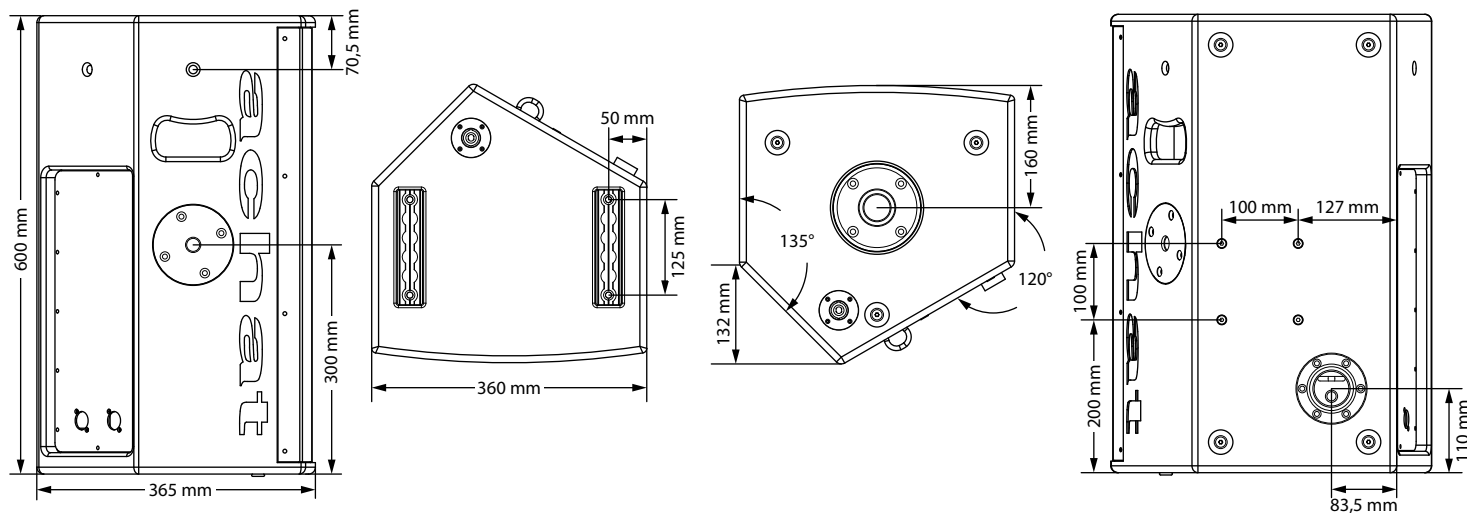
Further information

Housing	Wood
Colour	Black
Truss-capable	M10
Monitor inclination	Yes
Ways	2-way
Stand flange	36 mm
Wall mount	No
Protective cover	Optional (item no. 243017)

Frequency response



Dimensions



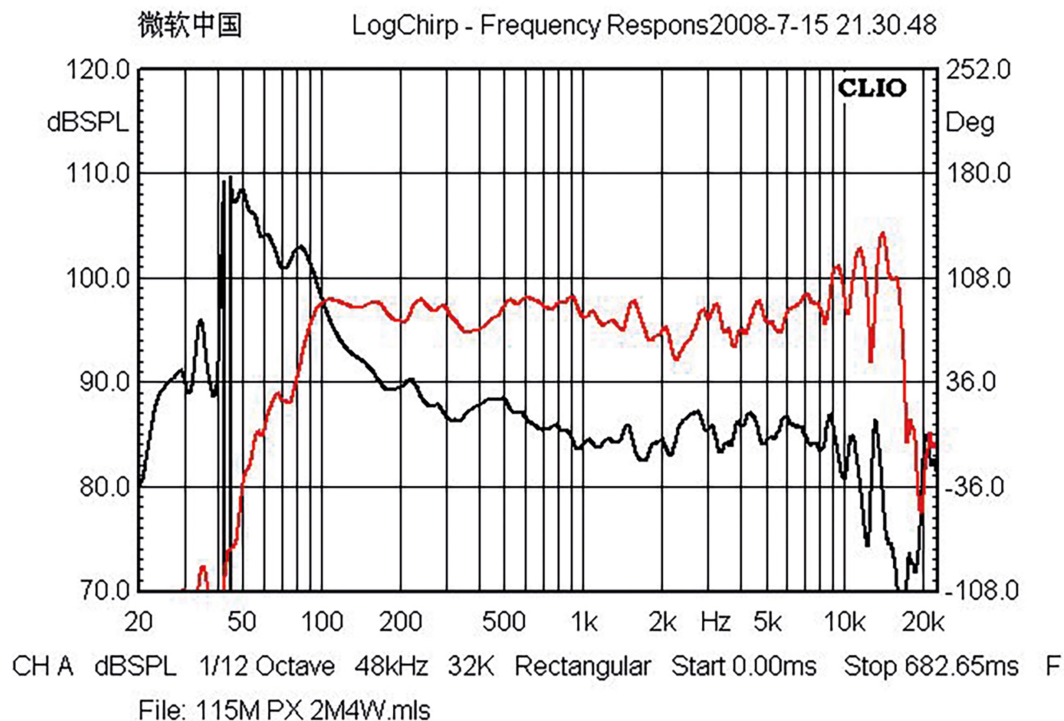
Achat 115M

System		Passive 2-way speaker
Configuration		1 × 15-inch neodymium woofer (with 4-inch voice coil) 1 × 1.4-inch neodymium mid-level tweeter (with 1.4-inch voice coil)
Input connections		2 × Speaker Twist
Output connections		2 × Speaker Twist
Frequency range		60 Hz ... 17 kHz, −3 dB
Load capacity		350 W (RMS), 1400 W (peak)
Sensitivity (1 W/1 m)		99 dB SPL
Rated impedance		8 Ω
Max. sound pressure level		124 dB SPL
Max. short-term sound pressure level		130 dB SPL
Beam angle (H × V)		60° × 40°
Dimensions (W × H × D)		436 mm × 766 mm × 438 mm
Weight		32 kg
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	20%...80% (non-condensing)

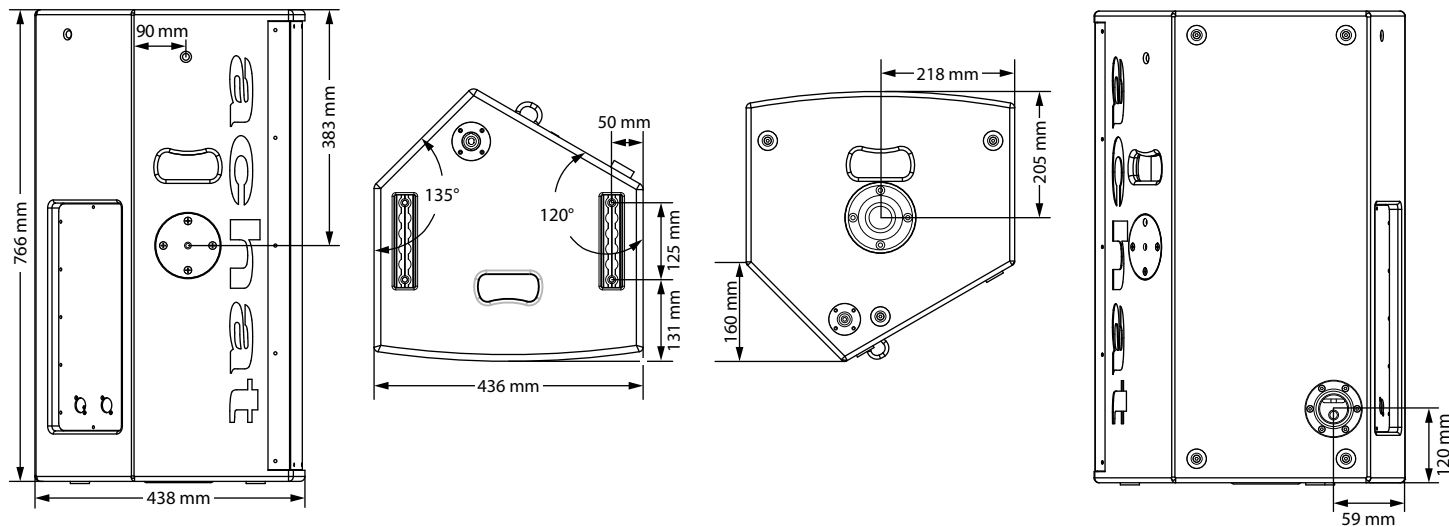
Further information

Housing	Wood
Colour	Black
Truss-capable	M10
Monitor inclination	Yes
Ways	2-way
Stand flange	36 mm
Wall mount	No
U-bracket	Optional (item no. 258815)
Protective cover	Optional (item no. 249422)

Frequency response



Dimensions



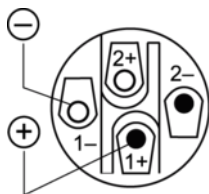
7 Plug and connection assignment

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!

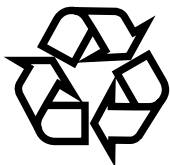
Speaker Twist connector



1+	Signal 1 (in phase)
1-	Signal 1 (out of phase)

8 Protecting the environment

Disposal of the packing material



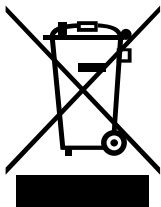
Environmentally friendly materials have been chosen for the packaging. These materials can be sent for normal recycling. Ensure that plastic bags, packaging, etc. are disposed of in the proper manner.

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 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.

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



Achat 118

Passive subwoofer

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18.12.2025, ID: 191931 (V3)

Table of contents

1	General information	5
	1.1 Symbols and signal words	5
2	Safety instructions	7
3	Features	9
4	Installation	10
	4.1 Tips on handling speakers	11
	4.2 Connection options	13
5	Technical specifications	15
6	Plug and connection assignment	19
7	Protecting the environment	20



1 General information

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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.

Signal word	Meaning
CAUTION	This combination of symbol and signal word indicates a possible dangerous situation that can result in minor 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 – danger zone.

2 Safety instructions

Intended use

This device is designed for sound reinforcement. 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.



WARNING

Possible hearing damage due to operating the device at a high volume!

The device can produce volume levels that, when operated at a high volume, may cause temporary or permanent hearing impairment. Over an extended period of time, even levels that seem to be uncritical can cause hearing damage. Avoid operating the device at excessively high volumes over an extended period of time. Decrease the volume level immediately if you experience ringing in your ears or hearing impairment. If this is not possible, keep a greater distance or use adequate ear-muffs.



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

Possible staining due to plasticiser in rubber and foam feet!

The plasticiser in the feet of this product may react with the coating of the floor, resulting in permanent dark stains after a while. If necessary, use a suitable mat or felt pads to prevent direct contact between the product's feet and the floor.

3 Features

Special features of the device:

- Passive horn-loaded subwoofer for touring applications
- 1 × 18" speaker with 4" voice coil
- Input connections:
 - 2 × Speaker Twist (1+/1–)
 - 2 × Speaker Twist (2+/2– for system wiring)
- 2 × M20 stand flange (1 × top, 1 × side)
- Fixing option for casters (optionally available, item no. 415294)
- Protective cover (optionally available, item no. 222252)
- Black textured paint

4 Installation

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.



CAUTION

Risk of injury due to heavy weight!

The device is heavy. Lifting and dropping it during transport and installation can cause injuries.

Make sure at least two people work together when transporting and installing the device.

**NOTICE****Possible property damage to adjacent devices due to magnetic fields.**

Speakers generate a static magnetic field. This magnetic field can affect other neighbouring units and in unfavourable cases damage them.

Ensure that speakers are always a sufficient distance away from sensitive equipment that may be affected by an external magnetic field.

4.1 Tips on handling speakers

You should always position the speakers so that their sound signals can reach the audience unhindered. It will often be helpful to mount the speakers on stands. This allows the sound to spread evenly and with maximum range throughout the audience area. Subwoofers, on the other hand, should be placed on the floor to ensure optimum low-frequency sound propagation.

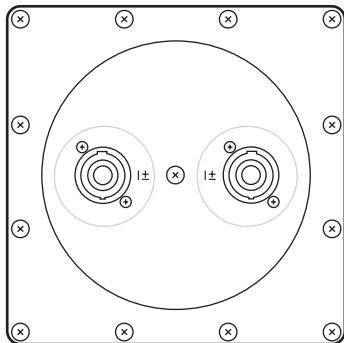
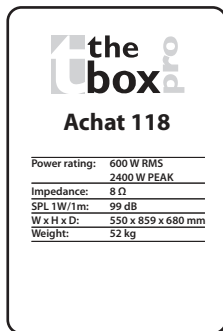
Only use high-quality cables to connect your devices. This is the only way to ensure optimum sound quality.

Make sure that the load capacity and impedance of the speakers match the requirements of the amplifier. Always check the technical data of the connected devices. The total impedance of the speakers must not be lower than the minimum output impedance of the amplifier. For safe and powerful playback, the maximum RMS output power of the amplifier should be 50% higher than the load capacity of the speakers.

If audible distortions occur during operation, either the amplifier or the speaker is overloaded. To avoid permanent damage, reduce the volume immediately.

4.2 Connection options

"Bass on 1" connection

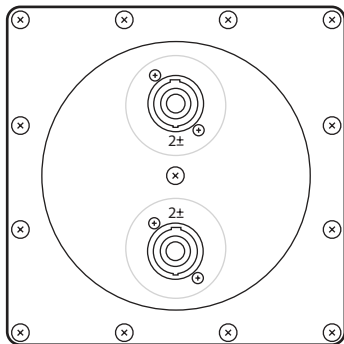
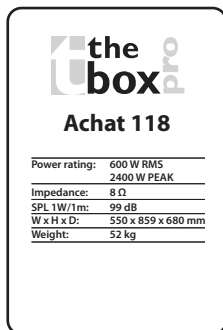


To use the connections for the "Bass on 1" wiring, rotate the cover of the connection panel so that the recesses are aligned horizontally.

With this connection variant, you can connect the bass directly to a two-wire cable (wires 1+/1–). If you use a four-wire cable, the top parts receive their signal via the 2+/ 2– wires, while the 1+/ 1– wires are connected through. The bass is connected to the 1+/1– wires and connects the 2+/ 2– wires through.

The order of the wiring of the speakers can be chosen freely. Pay attention to the minimum load impedance of the amplifier.

Achat system connection

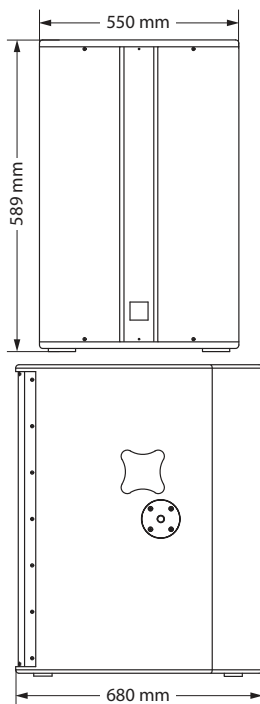


In order to use the connections for the Achat system wiring, rotate the cover of the connection panel so that the recesses are aligned vertically.

With this connection variant, you can easily carry out the cabling with a four-wire cable. The top parts receive their signal via the 1+ / 1- wires, while the 2+ / 2- wires are connected through. The bass is connected to the 2+ / 2- wires and connects the 1+ / 1- wires.

The order of the wiring of the speakers can be chosen freely. Pay attention to the minimum load impedance of the amplifier.

5 Technical specifications



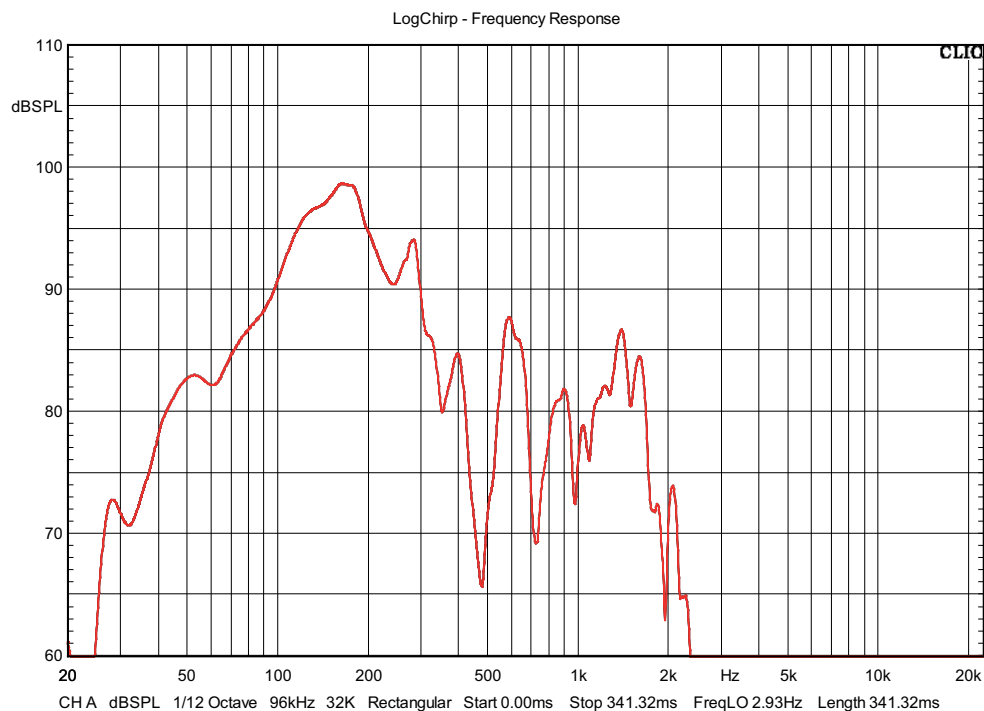
System	Passive Horn-Loaded Subwoofer	
Configuration	1 × 18" speaker with 4" voice coil	
Input connections	2 × Speaker Twist (1+/1-)	
	2 × Speaker Twist (2+/2- for system wiring)	
Frequency range	37 Hz...150 Hz, -3 dB	
Load capacity	RMS: 600 W	
	Peak: 2,400 W	
Sensitivity (1 W/1 m)	99 dB SPL	
Rated impedance	8 Ω	
Max. sound pressure level	129 dB SPL	
Max. short-term sound pressure level	135 dB SPL	
Dimensions (W × H × D)	550 mm × 859 mm × 680 mm	
Weight	52 kg	
Ambient conditions	Temperature range	0 °C...40 °C

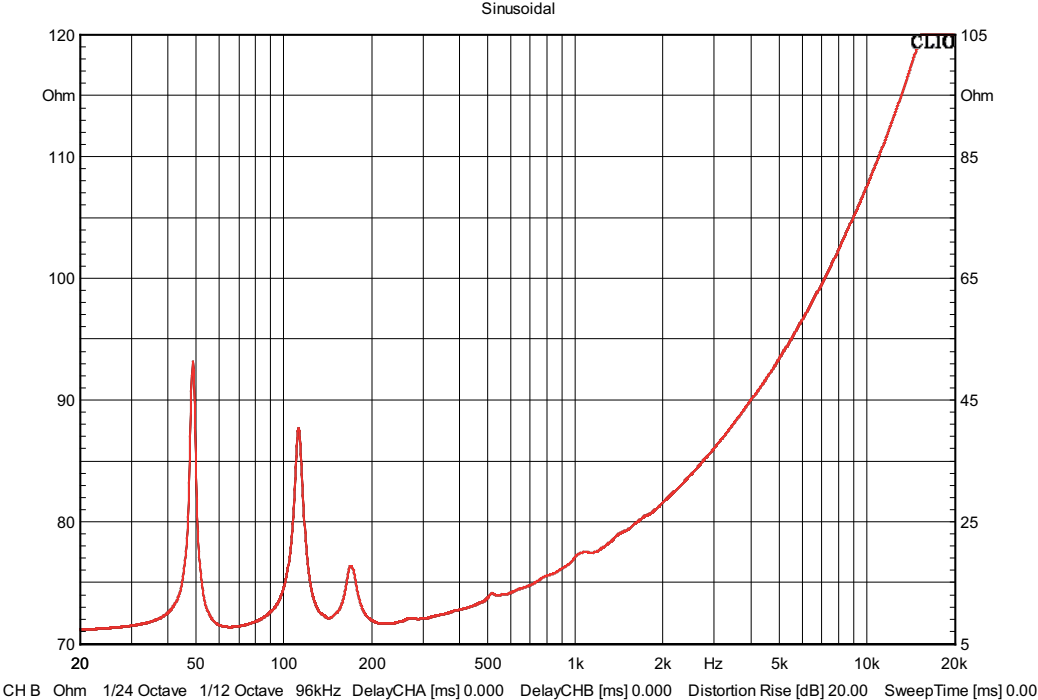
	Relative humidity	20%...80% (non-condensing)
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Further information

Housing	Wood
Design	Horn
Colour	Black
Truss-capable	No
Stand flange	M20
Casters	Optional (item no. 415294)
Protective cover	Optional (item no. 222252)

Frequency response





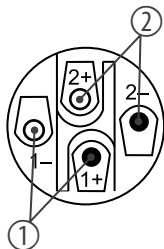
6 Plug and connection assignment

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!

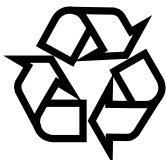
Speaker Twist chassis connector



1, +	Signal 1 (in phase)
1, -	Signal 1 (out of phase)
2, +	Signal 2 (in phase)
2, -	Signal 2 (out of phase)

7 Protecting the environment

Disposal of the packing material



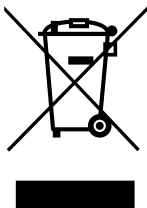
Environmentally friendly materials have been chosen for the packaging. These materials can be sent for normal recycling. Ensure that plastic bags, packaging, etc. are disposed of in the proper manner.

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 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.



DSP 204, DSP 206, DSP 408

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04.12.2023, ID: 435191, 435192, 435194 (V3)

Table of contents

1	General information.....	5
	1.1 Symbols and signal words.....	5
2	Safety instructions.....	6
3	Features.....	7
4	Installation and starting up.....	8
5	Connections and controls.....	10
6	Operating on the unit.....	12
7	Control on the computer.....	17
8	Technical specifications.....	27
9	Plug and connection assignment.....	29
10	Protecting the environment.....	30



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.
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 intended to be used for amplification, mixing and playback of signals from musical instruments and microphones. 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!

A short circuit could lead to a fire hazard and risk of death. Always use proper ready-made insulated triple-core mains cable with a safety plug. Do not modify the mains cable or the plug. In case of isolation damage, disconnect immediately the power supply and arrange repair. If in doubt, seek advice from a qualified electrician.



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.



NOTICE!

Risk of fire due to covered vents and neighbouring heat sources!

If the vents of the device are covered or the device is operated in the immediate vicinity of other heat sources, the device can overheat and burst into flames. Never cover the device or the vents. Do not install the device in the immediate vicinity of other heat sources. Never operate the device in the immediate vicinity of naked flames.



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!

Risk of fire due to installation of a wrong fuse!

Using fuses of a different type than compatible with the device may cause a fire and seriously damage the device. Only use fuses of the same type. Observe the labelling on the device casing and the information in the "Technical data" chapter.

3 Features

- Digital mixer
- Inputs:
 - DSP 204 (item no. 435191): 2 mono channels (XLR panel sockets) for signals with line level
 - DSP 206 (item no. 435192): 2 mono channels (XLR panel sockets) for signals with line level
 - DSP 408 (item no. 435194): 4 mono channels (XLR panel sockets) for signals with line level
- Outputs:
 - DSP 204 (item no. 435191): 4 mono channels (XLR panel plugs) for signals with line level
 - DSP 206 (item no. 435192): 6 mono channels (XLR panel plugs) for signals with line level
 - DSP 408 (item no. 435194): 8 mono channels (XLR panel plugs) for signals with line level
- Extensive setting options for optimal sound:
 - Parametric equalizer
 - Graphic equalizer
 - High- and low-pass filters
 - Noise gate
 - Limiter
 - Phase inversion
- USB connection for control via PC using the supplied software
- D-sub connector for remote control of the device or cascading of several devices
- Network connection for integration of the device into a local network
- Operation on the device via buttons, jog wheel and display

4 Installation and starting up

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.

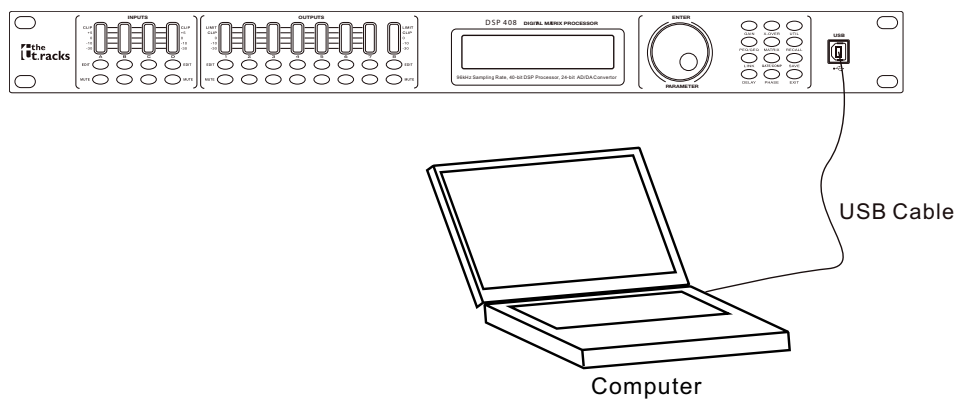
Create all connections while the device is off. Use the shortest possible high-quality cables for all connections. Take care when running the cables to prevent tripping hazards.

Rack mounting

The unit has been designed for rack mounting in a standard 19-inch rack; it occupies one rack unit.

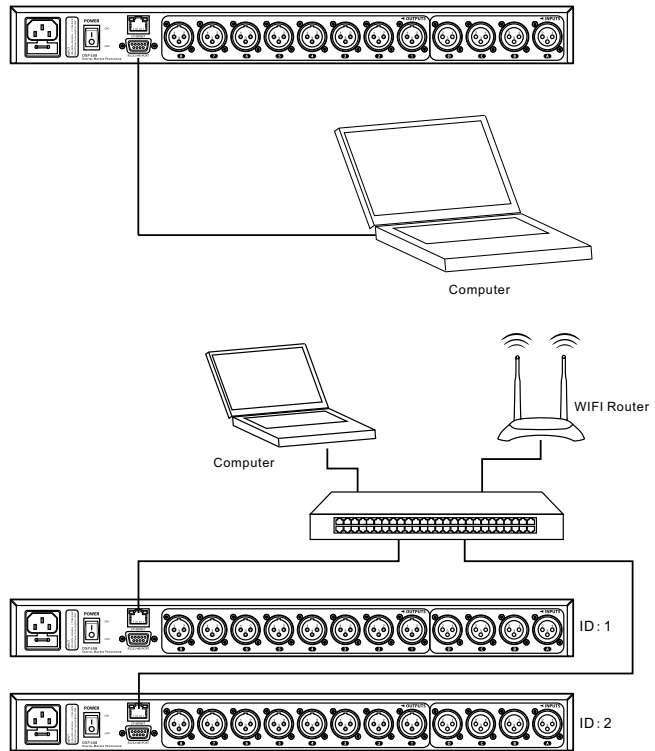
Configuration example 1

The figure schematically shows how the device can be controlled via a computer's USB port.



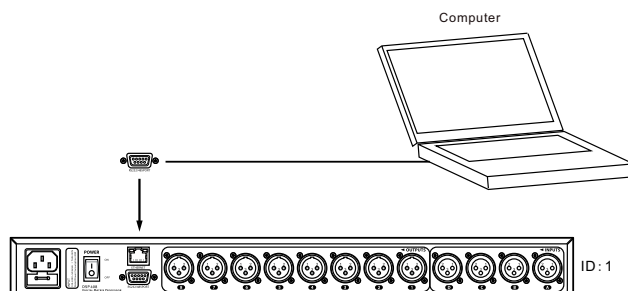
Configuration example 2

The illustrations show schematically how one device or several devices can be integrated into a local area network (LAN).



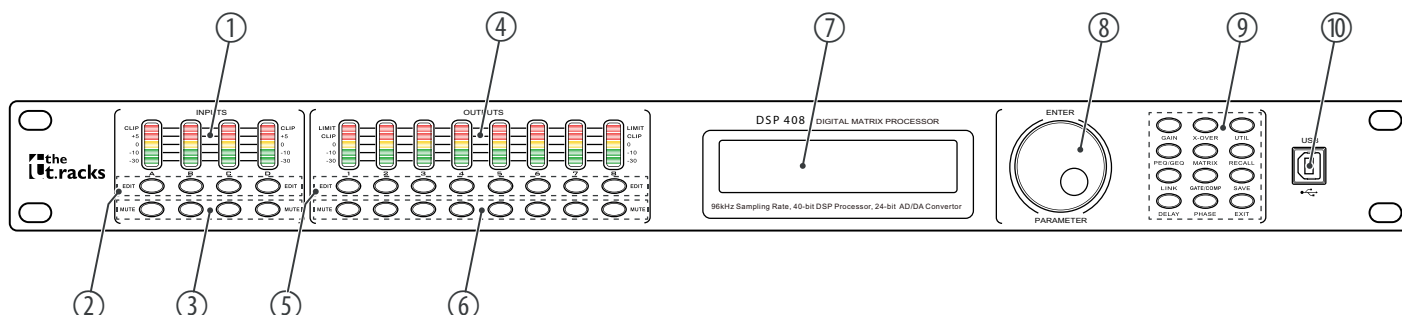
Configuration example 3

The illustrations show schematically how a device can be configured via the serial port.



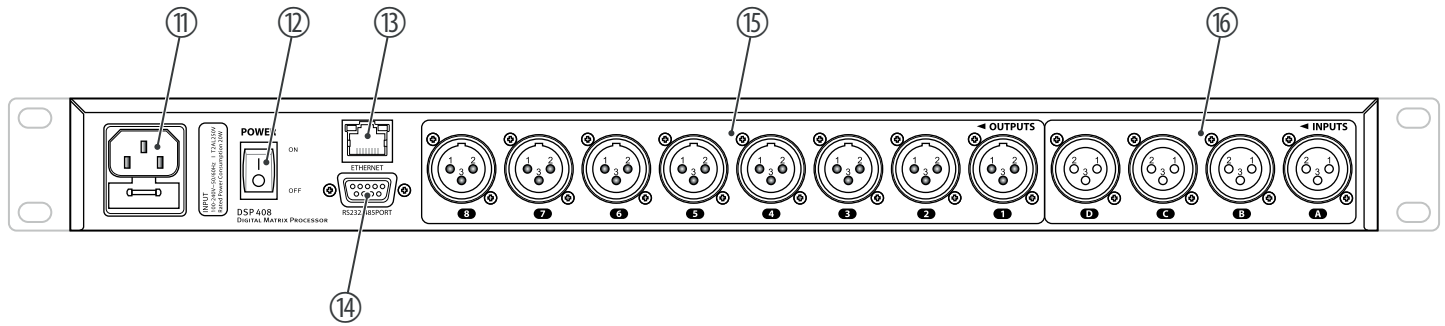
5 Connections and controls

Front panel



1	[INPUTS] Level display for the input channels. The number of channels depends on the device version. The red [CLIP] LEDs indicate overloading (clipping). In this case, the level of the input signal is too high.
2	[EDIT] Buttons for selecting Edit mode for the respective input channel. The set parameters of the selected channel appear on the display.
3	[MUTE] Buttons for muting or unmuting the respective input channel
4	[OUTPUTS] Level display for the output channels. The number of channels depends on the device version. The red [CLIP] LEDs indicate overloading (clipping). In this case, the level of the output signal is too high. The red [LIMIT] LEDs indicate that the built-in limiter has responded.
5	[EDIT] Buttons for selecting Edit mode for the respective output channel. The set parameters of the selected channel appear on the display.
6	[MUTE] Buttons for muting or unmuting the respective output channel
7	Display
8	[ENTER / PARAMETER] Jog wheel
9	Buttons for direct selection of a parameter. Use [EXIT] to exit Edit mode.
10	[USB] USB interface

Rear panel



- | | |
|----|--|
| 11 | Rubber panel plug with fuse holder for power supply |
| 12 | [POWER] Main switch. Turns the device on and off. |
| 13 | [ETHERNET] RJ45 socket as LAN connection for connection to your network |
| 14 | [RS232/485PORT] D-sub connector for remote control of the device or cascading of several devices |
| 15 | [OUTPUTS] XLR panel plugs for the output channels. The number of channels depends on the device version. |
| 16 | [INPUTS] XLR panel sockets for the input channels. The number of channels depends on the device version. |

6 Operating on the unit

Starting the device

Connect the device to the power grid and turn it on with the main switch to start operation. After a few seconds, the display indicates that a reset is in progress. The device is then ready for use. The display shows the model name and the user preset that's currently active.

The device can only be operated directly with the buttons if it is not being controlled via USB, LAN or the serial interface.

The buttons that can currently be used light up continuously, and the most previously used ones flash on and off. Buttons that cannot be used at the moment remains dark.

Default settings

1. ➤ Keep pressing *[UTIL]* until the parameter you want appears in the display.
The table below shows the available parameters and their ranges.
2. ➤ Use the jog wheel to set the desired value of the parameter. Press the jog wheel to confirm.
3. ➤ Press *[EXIT]*.

Parameter	Selection range	Meaning
'ID Number Select'	'1' ... '254'	Unique identification of the device when connected serially (in a cascade configuration). If several devices are connected serially, each of them must have a unique ID number.
'Manual IP Set'		If the device is connected to a local network, its IP address can be set individually. The initial IP address is 192 . 168 . 1 . 101.
'Unit Lock PassWord'	'0000' ... 'ZZZZ'	Four-character device password. Any combination of letters or numbers can be set. The initial password is 1234.
'Input Source Select'	'ANALOG INPUT', 'PINK NOISE', 'WHITE NOISE', 'SINE xx'	Selection of the signal source: Either the analogue inputs or the internal test tone generator. The test tone generator can produce either: pink noise, white noise or a sine wave of 20 Hz...20 kHz.
'Copy CH select'		Copies the settings from one channel to another.
'Delay Units Select'	'ms', 'm', 'ft'	Selects the unit for displaying the delay: Milliseconds, metres or feet.

User presets

All device settings can be saved in up to 20 different user presets and then recalled as needed. That way you can easily restore your settings for different rooms or stage set-ups.

Save use preset

1. ➤ Press *[SAVE]*.
⇒ The '*Store Preset*' menu opens.
2. ➤ Use the jog wheel to select a user preset between '*U01*' and '*U20*'. Press the jog wheel to confirm.
3. ➤ Using the jog wheel, enter the name of the user preset by changing the `Default Preset` standard value.
⇒ The settings are saved.
4. ➤ Press *[EXIT]*.

Call up user preset

1. ➤ Press *[RECALL]*.
⇒ The '*Load preset*' menu opens.
2. ➤ Use the jog wheel to select a user preset between '*U01*' and '*U20*' or the basic setting '*F00*'. Press the jog wheel to confirm.
⇒ The settings are loaded.

Input settings

1. ➤ Press the *[EDIT]* button assigned to the desired channel.
⇒ The settings menu for the desired channel will open. The display shows 'GAIN'.
2. ➤ In the basic state of the menu, you can set the level of the channel within a range of -60 dB...+12 dB using the jog wheel.
3. ➤ Press the respective button to set further parameters for the channel.
Use the jog wheel to set the desired value of the parameter. Press the jog wheel to confirm.

The table below shows the available parameters and their ranges.

Parameter	Button	Selection range	Meaning
'PEQ'	1 × [PEQ/GEQ]	'PEQ': '1' ... '9' 'F': '20Hz' ... '20kHz' 'Q': '0.4' ... '128' 'G': '-12dB' ... '+12dB' 'Style': 'PEAK', 'L-SHLF', 'H-SHLF', 'LP6dB', 'LP12dB', 'HP6dB', 'HP12dB', 'A-PAS1', 'A-PAS2' 'ON', 'BP'	For 9 frequency bands (numbered with the parameter 'PEQ'), the parameters of the parametric equalizer can be set individually: Centre frequency, filter quality, slope, filter type, bypass
'GEQ'	2 × [PEQ/GEQ]	'Freq': '20Hz' ... '20kHz' 'Gain': '-12dB' ... '+12dB'	Graphic equalizer parameters: The frequency range is divided into 31 fixed preset areas (numbered with the parameter 'GEQ'), which can be set separately for boost or cut.
'INLINK'	[LINK]		The settings of several input channels can be linked to each other. The number of input channels depends on the device design.
'DELAY'	[DELAY]	'0ms' ... '680ms' '0m' ... '234m' '0ft' ... '766ft'	Delay time. The units that are displayed depends on the device's default setting.
'X-OVER'	[X-OVER]	'HP': '20Hz' ... '20kHz' 'LP': '20Hz' ... '20kHz' 'BUTTER-xx' (Butterworth), 'BESSEL-xx' (Bessel), 'LINK/R-xx' (Linkwitz-Riley), 'BYPASS' (Filter switched off)	Parameters for digital high pass and low pass: Cut-off frequency, slope and filter type
'GATE'	[COMP/GATE]	'T': '-90dB' ... '-0dB' 'HT': '10' ... '999' (in milliseconds) 'AT': '1ms' ... '999ms' 'RT': '10ms' ... '3000ms'	Parameters for the noise gate: Threshold, hold, attack, release
'PHASE'	[PHASE]	'0', '180'	Inversion of phase length

Output settings

1. ➤ Press the *[EDIT]* button assigned to the desired channel.
⇒ The settings menu for the desired channel will open. The display shows 'GAIN'.
2. ➤ In the basic state of the menu, you can set the level of the channel within a range of -60 dB...+12 dB using the jog wheel.
3. ➤ Press the respective button to set further parameters for the channel.
Use the jog wheel to set the desired value of the parameter. Press the jog wheel to confirm.

The table below shows the available parameters and their ranges.

Parameter	Button	Selection range	Meaning
'PEQ'	1 × [PEQ/GEQ]	'PEQ': '1' ... '9' 'F': '20Hz' ... '20kHz' 'Q': '0.4' ... '128' 'G': '-12dB' ... '+12dB' 'Style': 'PEAK', 'L-SHLF', 'H-SHLF', 'LP6dB', 'LP12dB', 'HP6dB', 'HP12dB', 'A-PAS1', 'A-PAS2' 'ON', 'BP'	For 9 frequency bands (numbered with the parameter 'PEQ'), the parameters of the parametric equalizer can be set individually: Centre frequency, filter quality, slope, filter type, bypass
'INLINK'	[LINK]		The settings of several output channels can be linked to each other. The number of output channels depends on the device design.
'DELAY'	[DELAY]	'0ms' ... '680ms' '0m' ... '234m' '0ft' ... '766ft'	Delay time. The units that are displayed depends on the device's default setting.
'X-OVER'	[X-OVER]	'HP': '20Hz' ... '20kHz' 'LP': '20Hz' ... '20kHz' 'BUTTER-xx' (Butterworth), 'BESSEL-xx' (Bessel), 'LINK/R-xx' (Linkwitz-Riley), 'BYPASS' (Filter switched off)	Parameters for digital high pass and low pass: Cut-off frequency, slope and filter type
'MATRIX'	1 × 'MATRIX'		Selection of the assignment of the input channels to the respective output channel. Each output channel can be freely assigned to one input channel or a mix of several input channels. The selected input channels are marked with 'X'.
'MATRIX Output'	2 × 'MATRIX'	'-60dB' ... '+0dB'	One level adjustment can be set for each of the input channels assigned to the respective output channel.
'GATE'	1 × [COMP/GATE]	'T': '-90dB' ... '-0dB' 'HT': '10ms' ... '999ms' 'AT': '1ms' ... '999ms' 'RT': '10ms' ... '3000ms'	Parameters for the noise gate: Threshold, hold, attack, release

Operating on the unit

Param-eter	Button	Selection range	Meaning
'LIMIT'	2 × [COMP/ GATE]	'TH': '-90dB' ... '+20dB' 'AT': '1ms' ... '999ms' 'RT': '10ms' ... '3000ms'	Parameters for the limiter: Threshold, attack, release
'PHASE'	[PHASE]	'0', '180'	Inversion of phase length

7 Control on the computer

Installing and starting the software

1. ➤ Place the CD with the software into the CD drive of a computer with a Windows operating system and start the installation programme that matches the device you have.
2. ➤ Follow the instructions of the installation programme until it is finished.
3. ➤ Connect your computer via a USB cable to the device and switch the device on.
⇒ The operating system recognizes the newly added USB device.
4. ➤ Open the computer programme. It automatically recognized the attached device.
⇒ The 'Online' marking will appear in the upper right corner of the programme window.

Closing the software

1. ➤ Click on the 'Online' button in the programme window.
2. ➤ Close the programme window.

Parts of the programme window

All of the programme window tabs have a similar design and are grouped into the following areas:



1	Tabs for selecting a function group
2	Main menu
3	Button for the status of the connection to the computer
4	Display area
5	Control area
6	Buttons for quick access to the important presets

Main menu

Menu item	Meaning
'File'	Load user presets and save them on the computer
'Link'	Assign input and output channels
'Copy'	Copy parameter settings from one input or output channel to another
'Lock'	Change device password
'Setting ID/IP'	Change unique ID of the device in a serial configuration or IP address for integrating into a local network
'Test tone'	Setting of the internal test tone generator: Pink noise, white noise, sine wave 20 Hz...20 kHz.
'Channel name'	Rename the input and output channels
'Language'	Language selection for the programme user interface (English or Chinese)
'Help'	Display of the control code for the serial interface
'About'	Information about the programme version

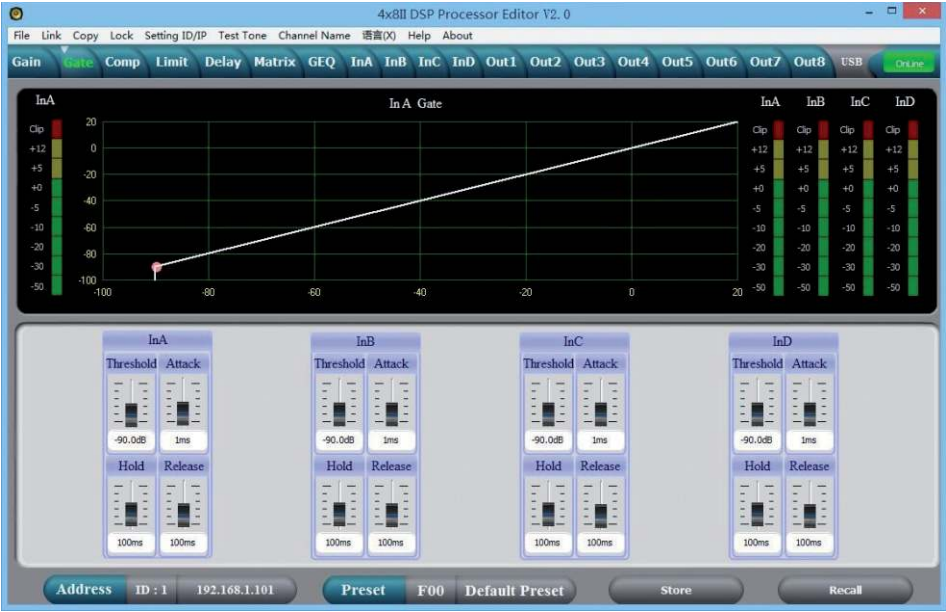
Buttons for quick access to the important presets

Range	Meaning
Address	Display of the ID of the device in a serial configuration or IP address for integrating into a local network
Preset	Display of the current user preset
Store	Save user preset
Recall	Call up user preset

“Gain” tab

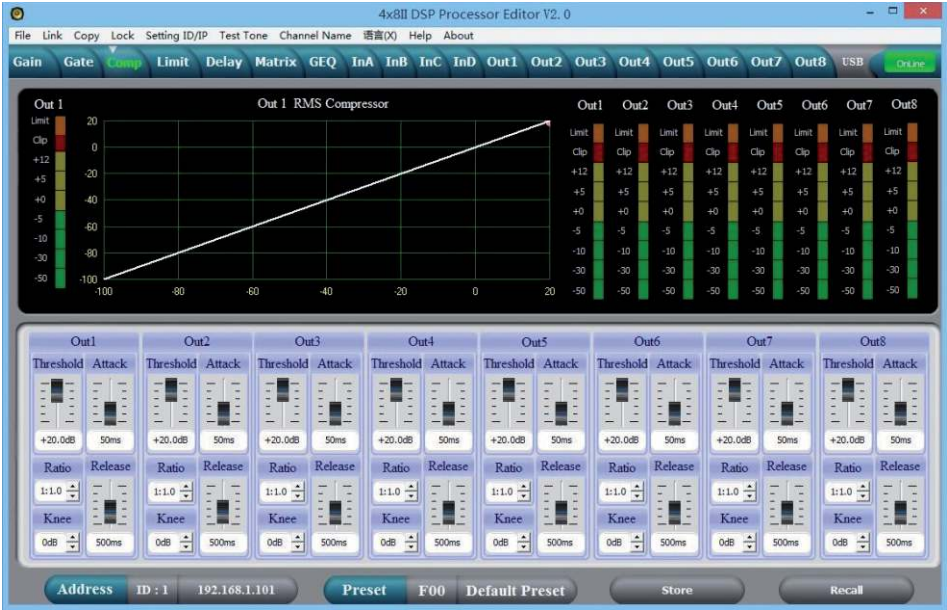
Range	Meaning
Display area	The signal curve of the input and output channels is displayed graphically. Use the 'Inx' and 'Outx' option fields to set the inputs and outputs that should be displayed.
Control area	Drag the fader with the mouse to set the limits for the input and output channels: The 'Mute' button mutes or unmutes the respective channel. The 'Normal' / 'Inverse' button inverts the phase of the respective channel by 180° if needed.

“Gate” tab



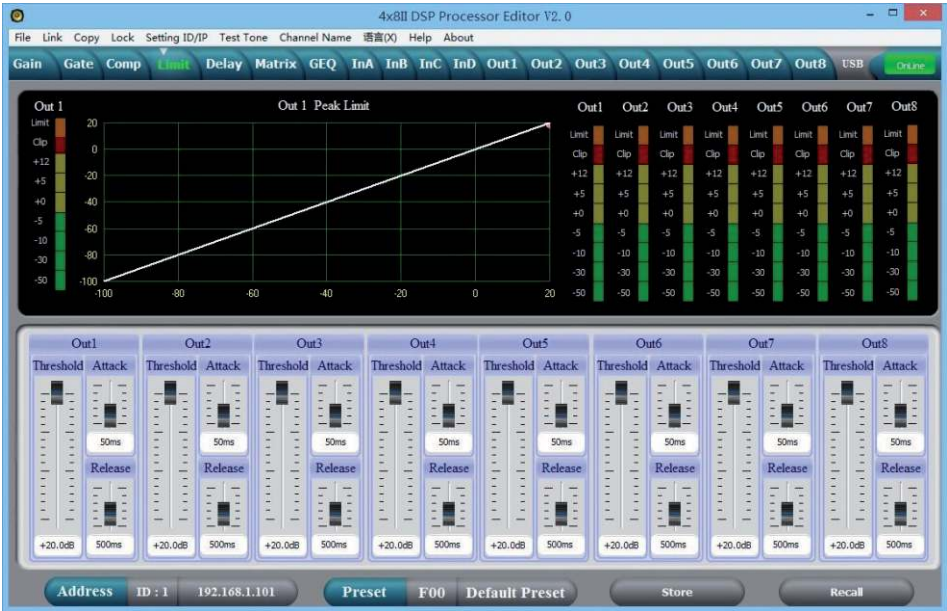
Range	Meaning
Display area	Shows the current settings of the noise gate for the respective channel, with a symbolic level indicator symbol appearing next to it for the input channels. The red dot on the curve represents the current signal.
Control area	Drag the fader with the mouse to set the noise gate parameters for all input and output channels: Threshold, hold, attack, release

“Comp” tab



Range	Meaning
Display area	Shows the current settings of the compressor function for the respective output channel, with a symbolic level indicator symbol appearing next to it for the input channels. The red dot on the curve represents the current signal.
Control area	Drag the fader with the mouse to set the compressor function parameters for all output channels: Compression, threshold, ratio, attack, release

“Limit” tab



Range	Meaning
Display area	Shows the current settings of the limiter for the respective channel, with a symbolic level indicator symbol appearing next to it for all channels.
Control area	Drag the fader with the mouse to set the limiter parameters for all input and output channels: Threshold, attack, release

“Delay” tab



Range	Meaning
Display area	Shows the set delays for all input and output channels.
Control area	Drag the fader with the mouse to set the delay for the respective channel. Press one of the buttons 'ms', 'm' or 'ft' to select the unit to use.

“Matrix” tab



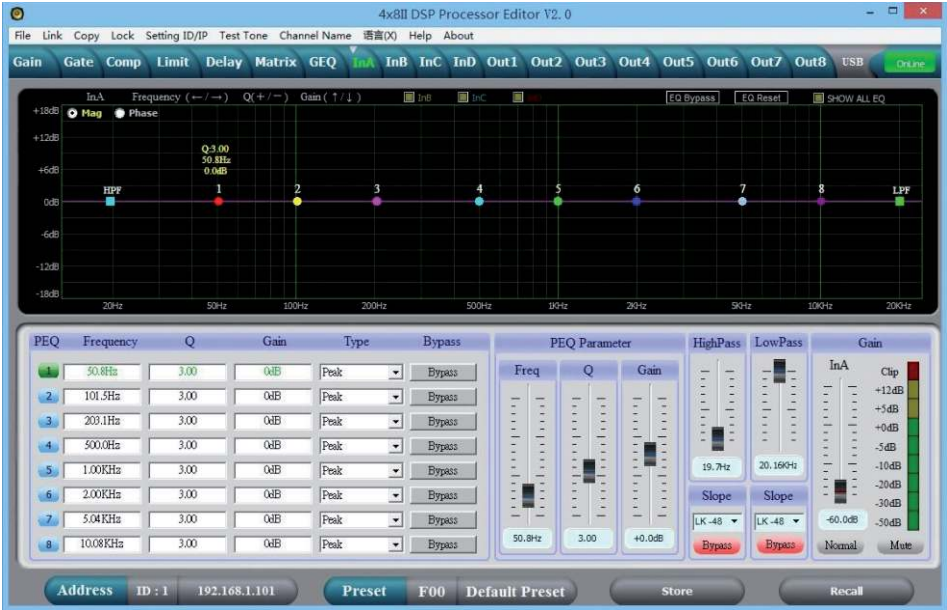
Range	Meaning
Display area	Shows the current configuration of input to output channels. Output and input channels can be renamed. Click on a function area (e.g. ‘GEQ’ or ‘DELAY’) to open the tab in which you can directly enter the corresponding parameters.
Control area	By clicking with the mouse you can connect any input channel to any output channel. Each output channel can be freely assigned to one input channel or a mix of several input channels. The input channels with a green background are assigned to the respective output channel. You can set a level adjustment for any combination of input and output channel.

“GEQ” tab



Range	Meaning
Display area	Shows the setting of the graphic equalizer for the selected input channel. Click on the ‘EQ Bypass’ button to temporarily switch off the equalizer function for this channel or on the ‘EQ Reset’ button to return the equalizer to its basic status.
Control area	Drag the fader with the mouse to set the boost or cut for each of the available frequency bands. To select a channel, click on the buttons ‘InA’ ... ‘InD’. The number of input channels depends on the device design.

“In” tab



Range	Meaning
Display area	Use the option fields ‘Mag’ and ‘PHASE’ to switch the diagram from Cartesian coordinates (level vs. frequency) to polar coordinates (angle vs. frequency). Use the option field ‘SHOW ALL EQ’ to show the parameters for all nine of the frequency bands.
Control area	You can enter the parameters of the parametric equalizer for each input channel and all nine frequency bands (numbered with ‘PEQ’) in the left part of the window directly as numerical values: Centre frequency, filter quality, slope, filter type. With the ‘Bypass’ button, the equalizer for the respective frequency band and the respective channel can be temporarily switched off. In the middle part of the window (‘PEQ Parameter’) you can set the parameters centre frequency, filter quality, and slope unit using the faders. The setting is based on the frequency band that is high-lighted green in the left part of the window. You can select the cut-off frequency and the filter type for the low pass and the high pass filter. Use the ‘Bypass’ button to temporarily switch off the filter. Drag the fader into the right part of the window using the mouse to set the level for the input channel. The ‘Mute’ button mutes or unmutes the respective channel. The ‘Normal’ / ‘Inverse’ button shifts the phase of the respective channel by 180° if needed.

“Out” tab



Range	Meaning
Display area	Use the option fields 'Mag' and 'PHASE' to switch the diagram from Cartesian coordinates (level vs. frequency) to polar coordinates (angle vs. frequency). Use the option field 'SHOW ALL EQ' to show the parameters for all nine of the frequency bands.
Control area	You can enter the parameters of the parametric equalizer for each input channel and all nine frequency bands (numbered with 'PEQ') in the left part of the window directly as numerical values: Centre frequency, filter quality, slope, filter type. With the 'Bypass' button, the equalizer for the respective frequency band and the respective channel can be temporarily switched off. In the middle part of the window ('PEQ Parameter') you can set the parameters centre frequency, filter quality, and slope unit using the faders. The setting is based on the frequency band that is high-lighted green in the left part of the window. You can select the cut-off frequency and the filter type for the low pass and the high pass filter. Use the 'Bypass' button to temporarily switch off the filter. Drag the fader into the right part of the window using the mouse to set the level for the input channel. The 'Mute' button mutes or unmutes the respective channel. The 'Normal' / 'Inverse' button shifts the phase of the respective channel by 180° if needed.

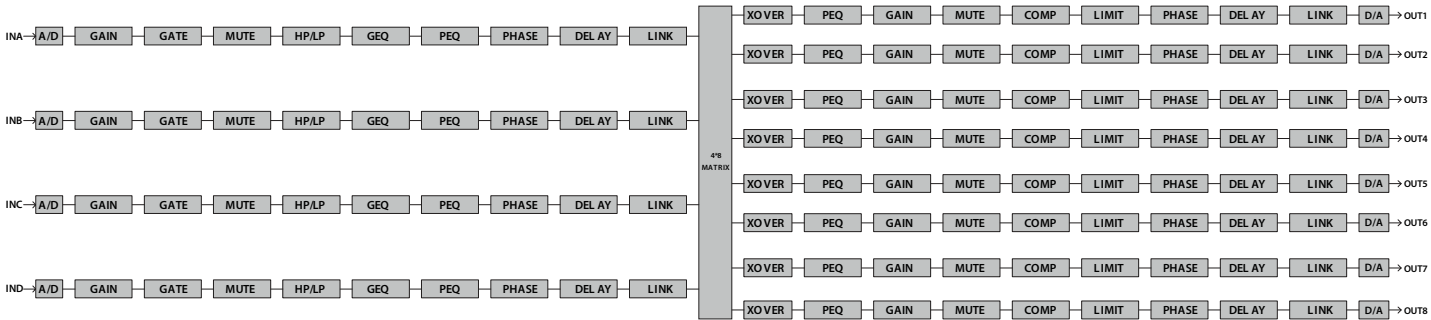
8 Technical specifications

Input connections	Power supply	Rubber panel plug C14	
	USB interface	USB-B	
	LAN	RJ45	
	Serial interface	D-sub	
	Audio signal	Type	XLR
		Level	+18 dBu (max.)
		Impedance	1 MΩ (stereo), 500 kΩ (mono)
Output connections	Audio signal	Type	XLR
		Level	+20 dBu (max.)
		Impedance	< 500 Ω
Frequency response		20 Hz ... 20 kHz	
Total harmonic distortion (THD)		< 0.005% (1 kHz, 0 dBu)	
Signal-to-noise ratio		> 115 dBu	
Crosstalk		< 100 dB	
Digital signal processing	Digital signal processor	32 bit	
	A/D-D/A converter	24 bit	
	Sampling rate	96 kHz	
Supply voltage		100 - 240 V ~ 50/60 Hz	
Power consumption		20 W	
Fuse		5 mm × 20 mm, 2 A, 250 V, slow blow	
Dimensions (W × H × D)		480 × 45 × 245 mm	
Weight		2.62 kg	
Ambient conditions		Temperature range	0 °C...40 °C
		Relative humidity	20%...80% (non-condensing)

Further information

	DSP 204 (item no. 435191)	DSP 206 (item no. 435192)	DSP 408 (item no. 435194)
2-way stereo	Yes	Yes	Yes
3-way stereo	No	Yes	Yes
Digital	Yes	Yes	Yes
Delay	Yes	Yes	Yes
EQ	Yes	Yes	Yes

Block diagram



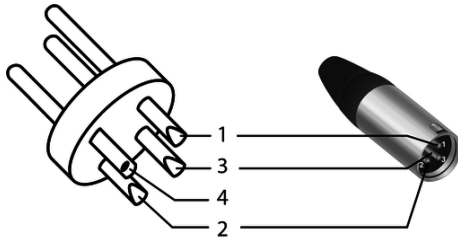
9 Plug and connection assignment

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!

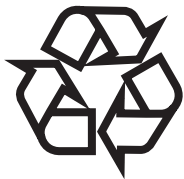
XLR plug (balanced)



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

10 Protecting the environment

Disposal of the packaging material



For the transport and protective packaging, environmentally friendly materials have been chosen that can be supplied to normal recycling.

Ensure that plastic bags, packaging, etc. are properly disposed of.

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

Disposal of your old device



This product is subject to the European Waste Electrical and Electronic Equipment Directive (WEEE) in its currently valid version. Do not dispose with your normal household waste.

Dispose of this device through an approved waste disposal firm or through your local waste facility. When discarding the device, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.



E-400, E-800, E-1200, E-1500

Power Amplifier

Thomann GmbH

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96138 Burgebrach

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Telephone: +49 (0) 9546 9223-0

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27.12.2024, ID: 173888, 173889, 460282, 460283 (V7)

Table of contents

1	General information.....	5
1.1	Symbols and signal words.....	5
2	Safety instructions.....	7
3	Features.....	10
4	Installation and startup.....	11
5	Connections and controls.....	15
6	Technical specifications.....	23
7	Plug and connection assignment.....	32
8	Cleaning.....	36
9	Protecting the environment.....	37



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 amplifies electric audio frequency signals to operate passive speakers. 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.



DANGER!

Danger to life due to electric current!

A short circuit could lead to a fire hazard and risk of death. Always use proper ready-made insulated triple-core mains cable with a safety plug. Do not modify the mains cable or the plug. In case of isolation damage, disconnect immediately the power supply and arrange repair. If in doubt, seek advice from a qualified electrician.



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!

Risk of fire due to covered vents and neighbouring heat sources!

If the vents of the device are covered or the device is operated in the immediate vicinity of other heat sources, the device can over-heat and burst into flames. Never cover the device or the vents. Do not install the device in the immediate vicinity of other heat sources. Never operate the device in the immediate vicinity of naked flames.



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 device due to high voltages!**

The device 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 device matches the local power grid before plugging in the device. Only operate the device 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 device from the power grid when storms are approaching or if the device will not be used for a longer period.

**NOTICE!****Interference with nearby electrical devices due to magnetic fields!**

The device generates strong magnetic fields that can interfere with the function of poorly shielded devices. The magnetic fields are strongest directly above and below the Power Amplifier. You should therefore never place sensitive devices such as pre-amplifiers, radio transmission systems, or tape decks directly above or below the Power Amplifier. When placing the Power Amplifier in a rack, you should place it at the bottom thereof, and place any other equipment at the top of the rack.

**NOTICE!****Risk of fire due to installation of a wrong fuse!**

Using fuses of a different type than compatible with the device may cause a fire and seriously damage the device. Only use fuses of the same type. Observe the labelling on the device casing and the information in the "Technical data" chapter.

**NOTICE!****Possible staining due to plasticiser in rubber feet!**

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

3 Features

- Shallow installation depth
- Inputs: XLR, phone jack (balanced) and cinch (only for item no. 173888)
- Outputs: Speaker Twist and terminal clamps for speakers
- Protection circuits: DC, short circuit, over-temperature protection, limiter
- Standby function, can be deactivated (only in item no. 173888 and item no. 173889)

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.



DANGER!

Risk of death from electrical current!

The output voltages of modern high-performance amplifiers may result in death or serious injury.

Never touch the bare ends of loudspeaker cables when the amplifier is on.



NOTICE!

Interference with nearby electrical devices due to magnetic fields!

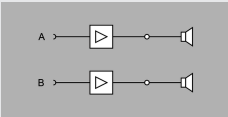
The device generates strong magnetic fields that can interfere with the function of poorly shielded devices. The magnetic fields are strongest directly above and below the Power Amplifier.

You should therefore never place sensitive devices such as pre-amplifiers, radio transmission systems, or tape decks directly above or below the Power Amplifier. When placing the Power Amplifier in a rack, you should place it at the bottom thereof, and place any other equipment at the top of the rack.

Available operating modes

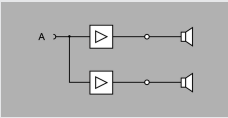
Depending on the individual application, the amplifier can be used in different operation modes:

Stereo mode



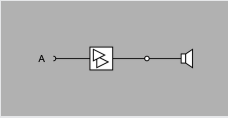
Both power amplifier channels operate independently of each other, each input (A and B) is amplified by one channel, speakers are connected to both power amplifier channels, the volume for both outputs can be controlled separately.

Parallel mode



Both power amplifier channels amplify the signal from input A, speakers are connected to both power amplifier channels, the volume control for channel A is used to control the volume.

Bridged mode



Both power amplifier channels are internally wired to provide double the output power. Only the signal from input A is amplified, speakers are only connected to the accordingly labelled output. The control for channel A controls the volume for E-400 (item no. 173888) and E-800 (item no. 173889). The controls for channel A and channel B control the volume for E-1200 (item no. 460282) and E-1500 (item no. 460283).

On each output of the amplifier, the overall impedance resulting from the individual impedances of the connected speakers must not fall below the minimum allowable impedance of the amplifier's output. If you want to connect multiple speakers to one amplifier output, note the following:

- When speakers are connected in series, the impedances add up.
- When speakers are connected in parallel, the reciprocal value of the total impedance is equal to the sum of the reciprocal values of the individual impedances.

For the example of two speakers with the same impedance, this means: In series connection, impedance is doubled. In parallel connection, it's halved.

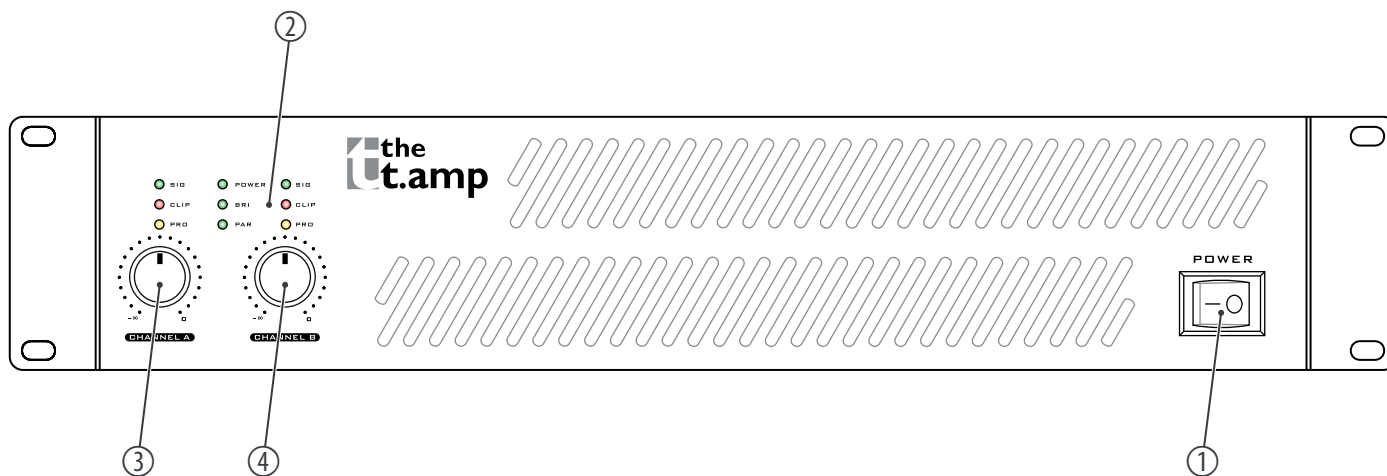
Detailed information on this topic can be found in our online guide "Speakers" (www.thomann.de).

Rack mounting

The device has been designed for rack mounting in a standard 19-inch rack; it occupies two rack units.

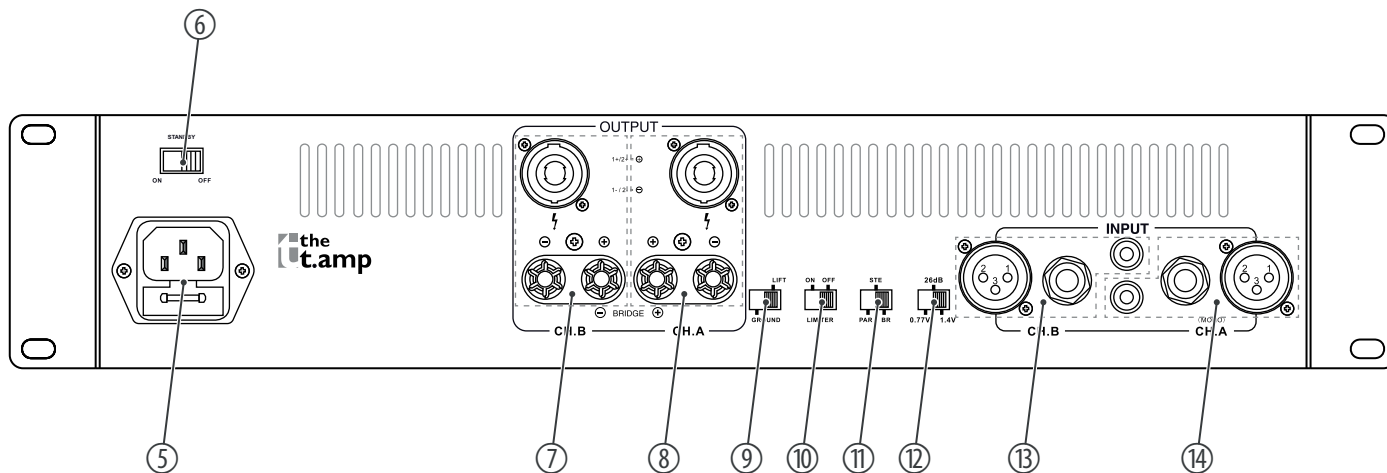
5 Connections and controls

Front



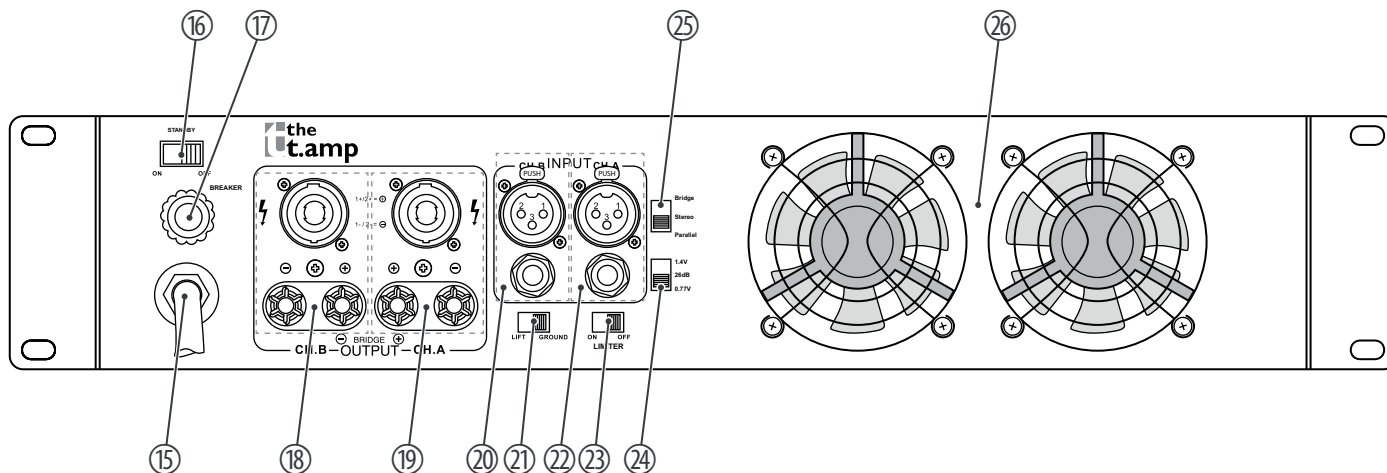
1	[POWER] Mains switch. Turns the device on and off.
2	LED panel
	[SIG] Indicates the presence of an input signal.
	[CLIP] Lights under the following conditions: ■ Channel overload Reduce in this case the volume until the LED goes out. ■ Output short circuit Turn off the device immediately, correct the short circuit and turn on the device again.
	[PRO] Lights up under the following conditions: ■ Three to five seconds after the device is switched on or off, when the device is in an unstable condition. ■ The temperature of the power amplifier blocks has reached 85°C. ■ One or more protection circuits have been triggered, or the device is faulty.
	[POWER] Lights up green when the device is on. In standby mode, the LED lights red. As soon as the unit receives a signal, it switches back to normal mode and the LED will light up green again.
	[PAR] Lights up when the device is operated in parallel mode.
	[BR] Lights up when the device is operated in bridged mode.
3, 4	[CHANNEL A], [CHANNEL B] Volume control for the respective channel

Back of the E-400



5	Rubber panel plug with fuse holder
6	<i>[ON]</i> <i>[OFF]</i> <i>[STANDBY]</i> On/off switch for the standby function. If the standby function is enabled, the device automatically switches to standby mode after fifteen minutes without any input signal.
7, 8	<i>[OUTPUT]</i> Output channel B, A ■ Speaker Twist panel plug-type connector as the speaker output (1+, 2+: positive; 1, 2: negative) ■ Screw terminals
9	<i>[GROUND]</i> <i>[LIFT]</i> Ground/lift switch. If hum is caused by a ground loop, you can use this switch to disconnect the connection between the earth pin of the device and the signal ground of the device.
10	<i>[LIMITER]</i> Limits the output level so that the maximum distortion is 5%.
11	Selector switch for the operating mode ■ <i>[PAR]</i>: Parallel mode ■ <i>[STE]</i>: Stereo mode ■ <i>[BR]</i>: Bridged mode
12	Selector switch for input sensitivity
13, 14	<i>[INPUT]</i> Input channel B, A ■ XLR panel socket ■ 6.35 mm jack socket (balanced or unbalanced) ■ Cinch socket

Back of the E-800

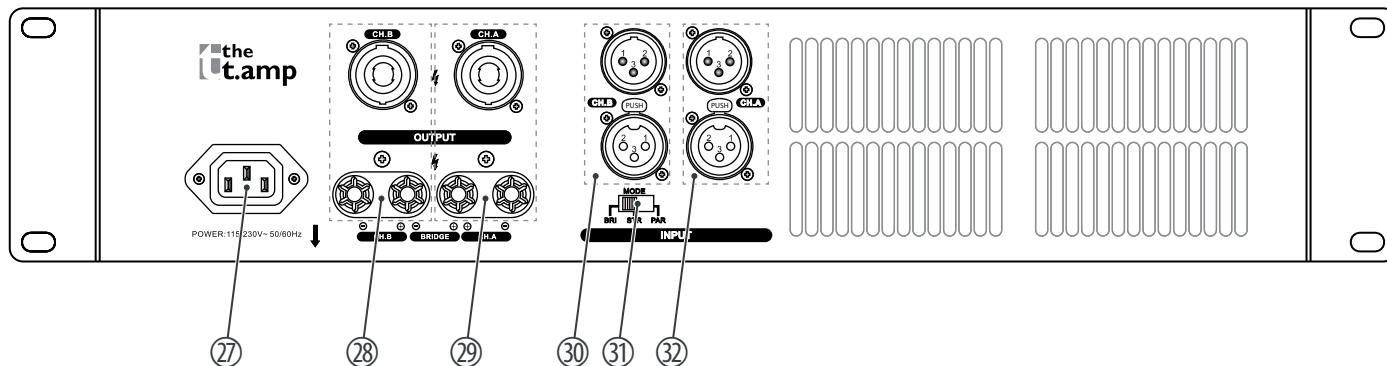


15 Power cord

16 **[ON] [OFF] [STANDBY]** On/off switch for the standby function. If the standby function is enabled, the device automatically switches to standby mode after fifteen minutes without any input signal.

17	<i>[BREAKER]</i> Resettable fuse. The fuse switches off when the power consumption of the power amplifier is too high. Once the problem is resolved, the fuse is automatically reset and the device is ready for use again. The switch can be used to force the reset.
18, 19	<i>[OUTPUT]</i> Output channel B, A ■ Speaker Twist panel plug-type connector as the speaker output (1+, 2+: positive; 1, 2: negative) ■ Screw terminals
20, 22	<i>[INPUT]</i> Input channel B, A ■ XLR panel socket ■ 6.35 mm jack socket (balanced or unbalanced)
21	<i>[GROUND]</i> <i>[LIFT]</i> Ground/lift switch. If hum is caused by a ground loop, you can use this switch to disconnect the connection between the earth pin of the device and the signal ground of the device.
23	<i>[LIMITER]</i> Limits the output level so that the maximum distortion is 5%.
24	Selector switch for input sensitivity
25	Selector switch for the operating mode ■ <i>[Parallel]</i> Parallel mode ■ <i>[Stereo]</i>: Stereo mode ■ <i>[Bridge]</i>: Bridged mode

Back of the E-1200, E-1500



27 Rubber panel plug

28, 29 [OUTPUT] | Output channel B, A

- Speaker Twist panel plug-type connector as the speaker output (1+, 2+: positive; 1, 2: negative)
- Screw terminals

30, 32	<i>[INPUT]</i> Input channel B, A ■ XLR panel plug ■ XLR panel socket
31	Selector switch for the operating mode ■ <i>[PAR]</i>: Parallel mode ■ <i>[STR]</i>: Stereo mode ■ <i>[BRI]</i>: Bridged mode

6 Technical specifications

E-400 (item no. 173888)

Amplifier class	AB		
Input connections	1 × Rubber panel plug C14		
	2 × XLR socket, 3-pin		
	2 × 6.35-mm jack socket		
	2 × cinch socket		
Input impedance	20 k Ω (balanced)		
	10 k Ω (unbalanced)		
Output connections	2 × Speaker Twist panel connector		
	4 × screw terminal		
Output power	Power @ 1 kHz, 1 % THD+N (continuous EN60268-3, peak CEA-2006, max. gain)	Continuous	Peak
	Stereo/parallel, 8 Ω :	2 × 155 W	2 × 190 W
	Stereo/parallel, 4 Ω :	2 × 310 W	2 × 360 W
	Bridged, 8 Ω :	450 W	530 W

Technical specifications

Frequency response	20 Hz...20 kHz, ± 0.1 dB	
Signal-to-noise ratio	≤ 90 dB	
Total harmonic distortion (THD)	0.01% at -3 dBu	
Damping factor (1 kHz, 8 Ω)	> 220	
Sensitivity	0.775 V / 26 dB / ... 1.4 V	
Gain	34 dB (0.77 V), 28 dB (1.4 V)	
Crosstalk at rated power @ 8 Ω , 1 kHz	-59 dB	
Maximum power consumption @ 1 kHz, 0 dBu, 230 V	900 W @ 4 Ω	
	550 W @ 8 Ω	
Inrush current	50 A, 0.3 μ s	
Supply voltage	230 V $\sim$ 50 Hz	
Fuse	DC: 5 mm $\times$ 20 mm, 12 A, 250 V, slow blow	
	AC: 5 mm $\times$ 20 mm, 8 A, 250 V, slow blow	
Dimensions (W $\times$ H $\times$ D)	482 mm $\times$ 88 mm $\times$ 317 mm	
Weight	8.6 kg	
Ambient conditions	Temperature range	0 $^{\circ}$ C...40 $^{\circ}$ C
	Relative humidity	20%...80% (non-condensing)

E-800 (item no. 173889)

Amplifier class	H, 2 stages		
Input connections	2 × XLR socket, 3-pin		
	2 × 6.35-mm jack socket		
Input impedance	20 k Ω (balanced)		
	10 k Ω (unbalanced)		
Output connections	2 × Speaker Twist panel connector		
	4 × screw terminal		
Output power	Power @ 1 kHz, 1 % THD+N (continuous EN60268-3, peak CEA-2006, max. gain)	Continuous	Peak
	Stereo/parallel, 8 Ω :	2 × 360 W	2 × 420 W
	Stereo/parallel, 4 Ω :	2 × 490 W	2 × 590 W
	Bridged, 8 Ω :	990 W	1210 W
Frequency response	20 Hz...20 kHz, ± 0.1 dB		
Signal-to-noise ratio	≤ 89 dB		
Total harmonic distortion (THD)	0.04% at -8 dBu		
Damping factor (1 kHz, 8 Ω)	> 160		

Technical specifications

Sensitivity	0.775 V / 26 dB / ... 1.4 V	
Gain	36 dB (0.77 V), 31 dB (1.4 V)	
Crosstalk at rated power @ 8 Ω , 1 kHz	-53 dB	
Maximum power consumption @ 1 kHz, 0 dBu, 230 V	1750 W @ 4 Ω	
	950 W @ 8 Ω	
Inrush current	11.4 A, 4.6 μ s	
Supply voltage	230 V $\sim$ 50 Hz	
Fuse	DC: 5 mm $\times$ 20 mm, 10 A, 250 V, slow blow	
	DC: 5 mm $\times$ 20 mm, 15 A, 250 V, slow blow	
	AC: RFMB-103-11D3N-B-A (88 series, 10 A, 250 V)	
Dimensions (W $\times$ H $\times$ D)	482 mm $\times$ 88 mm $\times$ 375 mm	
Weight	12.8 kg	
Ambient conditions	Temperature range	0 $^{\circ}$ C...40 $^{\circ}$ C
	Relative humidity	20%...80% (non-condensing)

E-1200 (item no. 460282)

Amplifier class	H		
Input connections	1 × Rubber panel plug C14		
	4 × XLR socket, 3-pin		
Input impedance	20 k Ω (balanced)		
	10 k Ω (unbalanced)		
Output connections	2 × Speaker Twist panel connector		
	4 × screw terminal		
Output power	Power @ 1 kHz, 1 % THD+N (continuous EN60268-3, peak CEA-2006, max. gain)	Continuous	Peak
	Stereo/parallel, 8 Ω :	2 × 680 W	2 × 840 W
	Stereo/parallel, 4 Ω :	2 × 990 W	2 × 1300 W
	Bridged, 8 Ω :	1980 W	2470 W
Frequency response	20 Hz...20 kHz, ± 0.1 dB		
Signal-to-noise ratio	≤ 98 dB		
Total harmonic distortion (THD)	0.03% at -7 dBu		
Damping factor (1 kHz, 8 Ω)	> 200		

Technical specifications

Sensitivity	0.77 V / 26 dB / ... 1.4 V	
Gain	41 dB	
Crosstalk at rated power @ 8 Ω , 1 kHz	-61 dB	
Maximum power consumption @ 1 kHz, 0 dBu, 230 V	3200 W @ 4 Ω	
	2000 W @ 8 Ω	
Inrush current	12 A, 4 μ s	
Supply voltage	115/230 V $\sim$ 50/60 Hz	
Fuse	DC: 5 mm $\times$ 20 mm, 10 A, 250 V, slow blow	
	DC: 5 mm $\times$ 20 mm, 20 A, 250 V, slow blow	
Dimensions (W $\times$ H $\times$ D)	482 mm $\times$ 88 mm $\times$ 362 mm	
Weight	15.3 kg	
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	20%...80% (non-condensing)

E-1500 (item no. 460283)

Amplifier class	H		
Input connections	1 × Rubber panel plug C14		
	4 × XLR socket, 3-pin		
Input impedance	20 kΩ (balanced)		
	10 kΩ (unbalanced)		
Output connections	2 × Speaker Twist panel connector		
	4 × screw terminal		
Output power	Power @ 1 kHz, 1 % THD+N (continuous EN60268-3, peak CEA-2006, max. gain)	Continuous	Peak
	Stereo/parallel, 8 Ω:	2 × 850 W	2 × 1050 W
	Stereo/parallel, 4 Ω:	2 × 1220 W	2 × 1700 W
	Bridged, 8 Ω:	2440 W	3360 W
Frequency response	20 Hz...20 kHz, ±0.1 dB		
Signal-to-noise ratio	≤ 97 dB		
Total harmonic distortion (THD)	0.04% at -7 dBu		
Damping factor (1 kHz, 8 Ω)	> 200		

Technical specifications

Sensitivity	0.77 V / 26 dB / ... 1.4 V	
Gain	41 dB	
Crosstalk at rated power @ 8 Ω , 1 kHz	-60 dB	
Maximum power consumption @ 1 kHz, 0 dBu, 230 V	4200 W @ 4 Ω	
	2500 W @ 8 Ω	
Inrush current	12 A, 4 μ s	
Supply voltage	115/230 V $\sim$ 50/60 Hz	
Fuse	DC: 5 mm $\times$ 20 mm, 12 A, 250 V, slow blow	
	DC: 5 mm $\times$ 20 mm, 25 A, 250 V, slow blow	
Dimensions (W $\times$ H $\times$ D)	482 mm $\times$ 88 mm $\times$ 362 mm	
Weight	16.0 kg	
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	20%...80% (non-condensing)

Further information

2-Ω stable	No
DSP / crossover	No
Convection cooling	No

7 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)



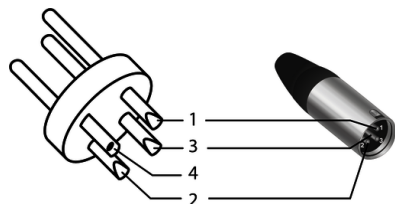
1	Signal (in phase, +)
2	Signal (out of phase, -)
3	Ground

1/4" TRS phone plug (stereo, unbalanced)



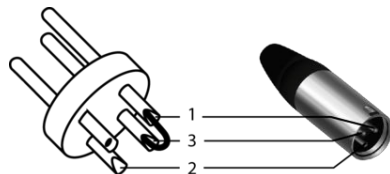
1	Signal (left)
2	Signal (right)
3	Ground

XLR plug (balanced)



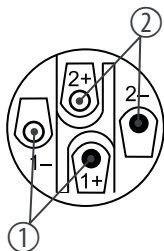
1	Ground, shielding
2	Signal (in phase, +)
3	Signal (out of phase, -)
4	Shielding on plug housing (option)

XLR plug (unbalanced)



1	Ground, shielding
2	Signal
3	Bridged to pin 1

Speaker Twist chassis connector



1, +	Signal 1 (in phase)
1, -	Signal 1 (out of phase)
2, +	Signal 2 (in phase)
2, -	Signal 2 (out of phase)

RCA connection



Drawing and table indicate the pin assignment of an RCA plug.

1	Signal
2	Ground, shielding

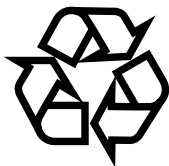
8 Cleaning

Fan grids

The fan grids of the device must be cleaned of any contamination, such as dust, etc. on a regular basis. Before cleaning, switch off the device and disconnect mains-operated devices from the mains. Only use pH-neutral, solvent-free and non-abrasive cleaning agents. Clean the unit with a slightly damp lint-free cloth.

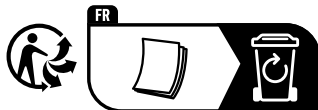
9 Protecting the environment

Disposal of the packing material



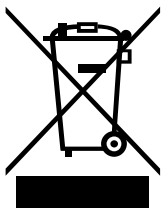
Environmentally friendly materials have been chosen for the packaging. These materials can be sent for normal recycling. Ensure that plastic bags, packaging, etc. are disposed of in the proper manner.

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 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.

