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User Manual

Active Speaker

Table of contents

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 – high-voltage.
	Warning – suspended load.

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.

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!

Risk of death from electrical current!

A short circuit can cause fires and loss of life. Always use properly insulated, tripe-core mains cable. Do not modify the mains cable. If the insulation is damaged, immediately switch off the power supply and have it repaired. If in doubt, contact a qualified electrician.

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!

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 by exceeding the maximum current!

The device can supply power to other devices of identical design and connected in series. If too many devices are connected, the maximum permitted power consumption can be exceeded, which can cause the device to overheat and burst into flames. Only connect devices of identical design to the device. When deciding how many devices you can connect in series, make sure that the maximum output current specified on the device and in the "Technical specifications" chapter of the user manual is not exceeded. Only use power cords with a cable cross-section designed for the required current intensity when connecting the devices in series.

!

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). As a precaution, disconnect the device from the power grid when storms are approaching or it the device will not be used for a longer period.

3   Features

Special features of the device:

- Active line array element featuring 2 × 1.4-inch tweeters with titanium diaphragm and 2 × 10-inch woofers with 2.5-inch aluminium voice coil
- 2800-W-RMS D-class amplifier
- XLR in and output
- Lockable in and output socket (Power Twist) for power supply
- Frequency response: 75 Hz … 18 kHz
- Beam angle (H × V): 110° × 10°
- Maximum sound pressure level: 131 dB
- Internal Digital Signal Processor (DSP) with four presets
- Network connection for connecting to a notebook/PC using only the CanBus converter (item no. 440591 the box pro USB2CAN CanBus Converter) and Pronet software (free download from *www.thomann.de*).
- Mounting in truss-mounted or stacked line arrays possible with optionally available accessory
- Birch plywood housing with waterproof 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.

> **WARNING!**
> **Risk of injury from falling devices that were inadequately secured!**
>
> If devices are not properly secured during assembly, they can cause severe injury and considerable damage by falling.
>
> When installing and operating, make sure to follow the standards and regulations that apply in your country.
>
> Always secure the device with a secondary safety attachment, such as a safety cable or a safety chain.

> **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 deceed 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   Mounting

Overview

Due to its mechanical structure, the device can either be set up or suspended individually, or grouped into line arrays of variable size. The devices can be joined together using the built-in fasteners without any additional parts. For easy, flexible and secure mounting, the truss frame (item no. 313502) is available as an optional accessory. This section shows how easy the mounting process is.

Connecting the devices to each other

A locking pin is affixed on the front left and right of the device, which you can use for a stable connection with the device mounted immediately above it. There is a fold-out vertical latch on the back of the device. This latch fits into the U-rail of the device mounted below, which has a series of numbered bores. Attach the latch of the upper device to the U-rail of the device below it with a locking pin. You can set the necessary angle of inclination by choosing the corresponding bore. The figure and table show the mechanical parts on the back of the device and their functions.
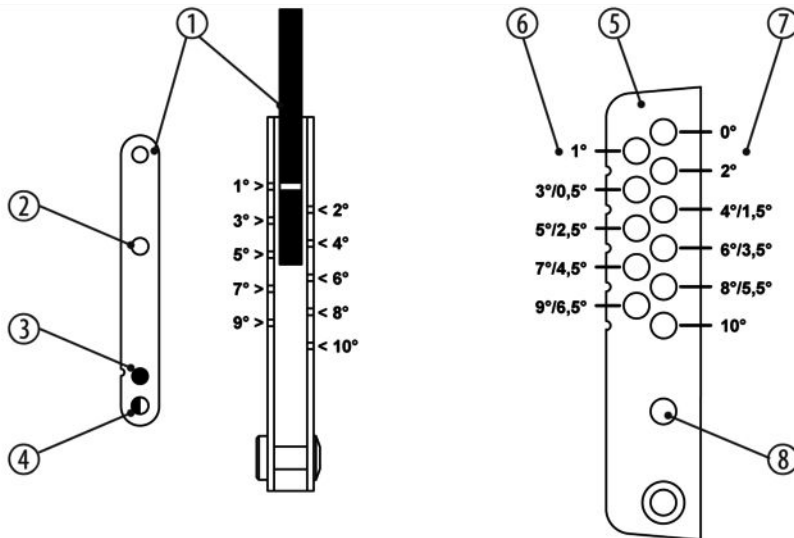
1	Vertical latch of the device mounted above (longitudinal and lateral view).
2	Securing bore in the vertical latch. Use this bore if the vertical latch of the device is not folded down, so for individual installation or for the lowest device in a system.
3	Bore for angular steps of 1°.
4	Bore for angular steps of 0.5°.
5	U-rail of the device (side view).
6	Spacer bores for odd-numbered angles.
7	Spacer bores for even-numbered angles.
8	Use this bore of the U-rail if the vertical latch of the device is not folded down, so for individual installation or for the lowest device in a system.

Truss frame
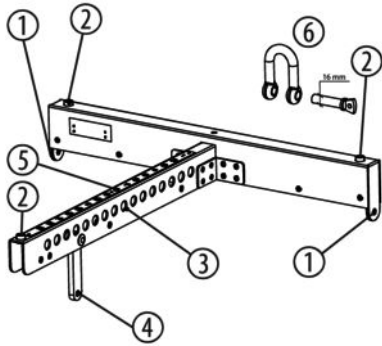
|	
1	Bores for locking pin.
2	Thread (M10) for attaching standard screw feet for stack mounting.
3	Spacer bores.
4	Vertical latch, suitable for the U-rail of the devices.
5	Numbering of the spacer bores.
6	16-mm shackle, available as optional accessory (item no. 323399).

Mounting a system for truss operation
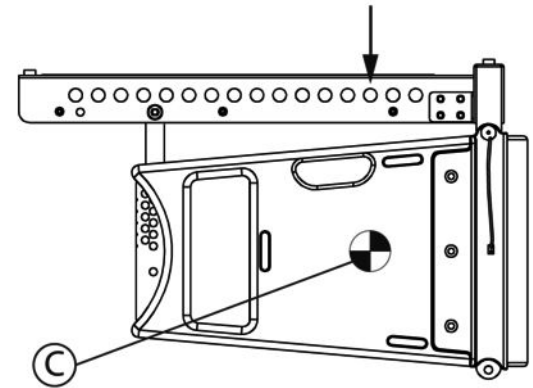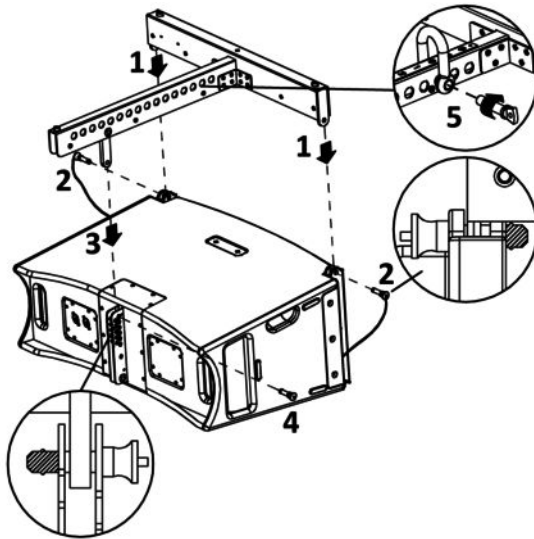
1. ▶ Attach the truss frame on the left and right of the front of the uppermost device.

2. ▶ Secure the truss frame with the locking pins that are attached to the uppermost device.

3. ▶ Position the vertical latch of the truss frame in the U-rail of the uppermost device.

4. ▶ Secure the latch to the U-rail in the correct position with a locking pin.

5. ▶ For truss mounting, mount a shackle on the truss frame. It must be located directly above the centre of gravity of the entire system. In the figure, the centre of gravity is marked with "C", the arrow shows the correct position of the U-shackle for this installation situation.

Mounting a device for floor installation

The truss frame can also be used as a framework for positioning a device on the floor. In this case, turn the device 180° so it is upside down and attach it to the truss frame in the same way as for truss mounting. Then turn the whole thing over and put the rubber feet of the truss frame on the ground.

Mounting multiple devices in a system
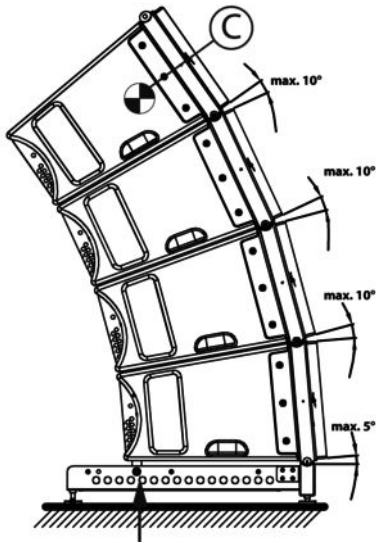
Usually, several devices are installed in a line array to form an arc. The figure alongside shows an example of how four elements can be combined into a system that stands on the ground (ground stack). In the figure, the centre of gravity is marked with "C".
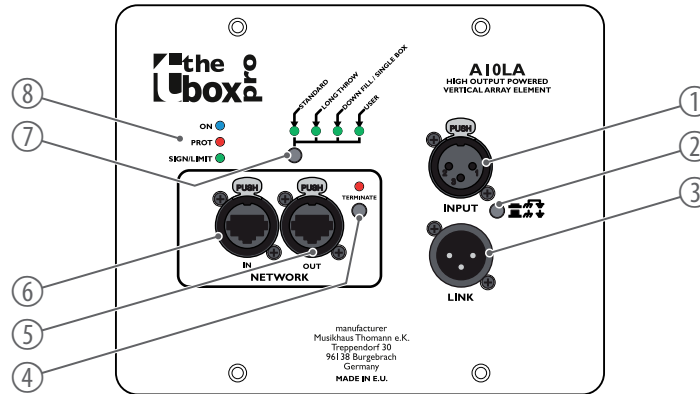
In a ground stack, no more than four elements with maximum angulation may be used.

In truss mounting, the shackle must be attached precisely above the centre of gravity of the entire system.

5 Connections and controls

Back left

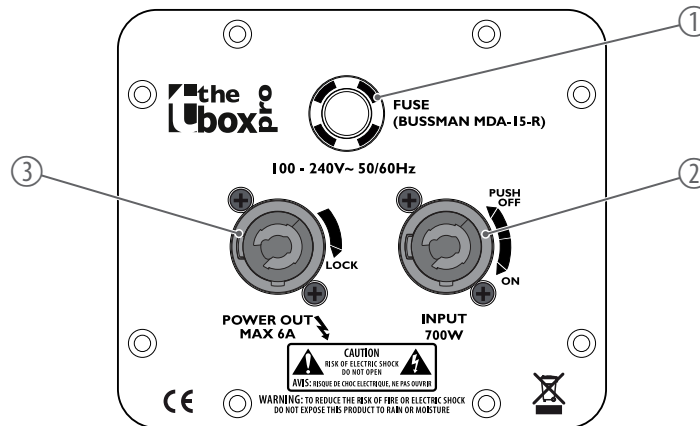|	
1	*[INPUT]*	Audio signal input with lockable XLR panel socket. The socket is electronically perfectly symmetrical wired to achieve an optimal signal-to-noise ratio and a sufficient power reserve, including A/D conversion.
2	*[GND LIFT]* pushbutton	If hum is caused by a ground loop, you can use this switch to disconnect the connection between the earth pin of the device and the signal ground of the device. Switching only has an effect if balanced connection cables are in use.
3	*[LINK]*	Audio signal output with XLR panel plug for connecting other line array elements or speakers to which the input signal is transferred.
4	*[TERMINATE]* pushbutton	If the devices of a line arrays are networked together, the last device must be terminated with the built-in load resistance. Press the *[TERMINATE]* pushbutton to do so. The LED above lights up.
5, 6	*[NETWORK IN/OUT]* RJ45 CAT5 connectors for establishing a network connection with the CanBus Converter (item no. 440591), to the Pronet software and to the line array elements.

7 Preset button

This button has two functions:

- If kept pressed while the device is turned on, the ID assignment is made. The internal digital signal processor (DSP) assigns a new ID to the device for the remote control within the Pronet network. Each device must have a unique ID so that it can be represented in the Pronet network. If you assign a new ID, all devices with already assigned IDs must be turned on and connected to the Pronet network.
- If the device is already on, pressing the button selects the DSP preset. The selected preset is indicated by the corresponding LED.
  - *[STANDARD]* | This setting is suitable for vertical truss-mounted line arrays, which consist of four to eight devices, or for the middle area of a larger truss-mounted array. It can also be used for stacked arrays.
  - *[LONG THROW]* | This setting can be used in arrays with more than six or eight devices and be loaded to the top or the top two devices in order to achieve a more balanced distribution of sound pressure, especially if these devices are aimed at distant targets or the upper galleries of a large house.
  - *[DOWN FILL / SINGLE BOX]* | This setting, which provides a much smoother frequency response, can be loaded to the lower (usually one or two) devices of a large truss-mounted array to achieve a pleasant sound for the audience near the stage. This setting is also very useful if the device is used alone at the front of very large stages.
  - *[USER]* | This LED lights up while the user setting is loaded. This setting corresponds to user memory slot no. 1 on the DSP. In the delivery state, the user setting is identical to the *[STANDARD]* setting. If you want to change it, you must connect the device to a notebook/PC using the CanBus converter, edit the parameters using the Pronet software, and save the setting to user memory slot 1.

8 *[SIGN/LIMIT]* LED | This LED lights up green when an input signal is present. This LED lights red when the internal output signal is limited (due to excessive input signal level!).

[PROT] LED | This LED lights up red when the protection circuit of the amplifier module responds due to an internal error and the amplifier is therefore muted. This LED lights red when the internal output signal is limited (due to excessive input signal level!).

[ON] LED | This LED lights up green when the device is on and the supply voltage is present.

Back right

1	External fuse connection
2	*[INPUT]*	Blue lockable input socket (Power Twist). To turn the device on, plug the power cord or the connector cable from another device into this socket and turn the plug clockwise to the *[ON]* position. To turn off the device, pull the locking lever on the plug backwards and turn the plug anti-clockwise to the *[PUSH OFF]* position.
3	*[POWER OUT]*	Grey lockable output socket (Power Twist). This output is looped through from the blue *[INPUT]* socket. The power supply for additional elements can be connected here via their blue *[INPUT]* sockets. A maximum of four line array elements can be connected.

6   Starting up

Switching on

After you have made all the required connections, turn on the audio system.

It is recommended to provide one switch for turning on the entire audio system and to always leave the plugs (Power Twist) connected to the sockets of the individual elements. With this simple trick you can extend the life of the connectors.

DSP preset

Select the desired DSP preset (**STANDARD**, **LONG THROW**, **DOWN FILL/SINGLE BOX** or **USER**).

7 Networking and remote control

Network capability

Using the network sockets on the back of the device, the individual devices of the entire audio system can be networked and controlled remotely via a notebook/PC.

Pronet

The communication protocol used in the Pronet network is CanBus.

USB2CAND

All you need to build such a network is the free Thomann Pronet software, which you can download from the Thomann Cyberstore, the CanBus Converter (item no. 440591) available from Thomann and a notebook/PC. An installation manual and a user manual are included in the free software download.
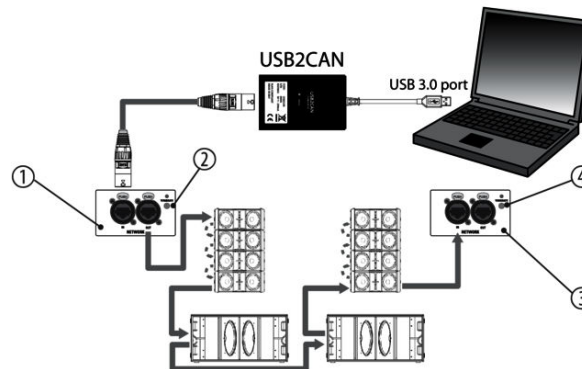
1	Network sockets on the back of the first device.
2	*[TERMINATE]* pushbutton must not be pressed.
	The LED above it is off.
3	Network sockets on the back of the last device.
4	*[TERMINATE]* pushbutton must be pressed.
	The LED above it is on.

Network setup and termination

The individual devices must be linked in linear fashion via RJ45 CAT5 cables. The start and end of the network bus must be terminated. The beginning is terminated by the CanBus converter. At the end, the *[TERMINATE]* switch on the back of the last device must be pressed to enable the built-in terminating resistor for termination. The *[TERMINATE]* switch on all devices between the CanBus converter and the last device may not be pressed.

ID assignment

Each device in a Pronet network must have a unique identifier or ID. By default, the USB2CAND converter has the ID 0. Any other device can only have an ID equal to or higher than 1. There must be no devices with the same ID in the network. The ID is assigned automatically when a device connected to the network is turned on for the first time.

Proceed as follows to assign a unique ID to all devices in the Pronet network:

1. ▶ Turn off all devices.

2. ▶ Connect them with the RJ45 CAT5 cables in the required order.

3. ▶ Press the *[TERMINATE]* switch on the back of the last device.

4. ▶ Turn on the first device while holding down its *[PRESET]* button on the back.

5. ▶ Leave the first device turned on and repeat step 4 for all other devices until the last device is turned on.

To add a new device, you just need to repeat step 4. Each device keeps its ID even when turned off, as the ID is stored in the internal memory of the device. The ID is only deleted or reassigned by explicit allocation as described above. Find more detailed information and instructions in the user manual supplied with the Pronet software.

8 Technical specifications

Configuration	2 × 1.4-inch tweeters with titanium diaphragm and 2 × 10-inch woofers with 2.5" aluminium voice coil	
Input connections	Power supply	1 × lockable input socket (Power Twist)
	Audio signal	1 × XLR panel socket, 3-pin (balanced)
	Network connection	1 × RJ45-CAT5 input socket
Input impedance	20 kΩ	
Input sensitivity	+4 dBu / 1.25 V	
Output connections	Power supply for further devices	1 × lockable output socket (Power Twist)
		Output current, max.: 6 A
	Audio signal	1 × XLR panel socket, 3-pin (balanced)
	Network connection	1 × RJ45-CAT5 input socket
Output power	2 × 1400 W (RMS)	
Frequency range	75 Hz…18 kHz, ± 3 dB	
Beam angle	10° × 110°	
Sound pressure level (SPL), max.	131 dB	

Power consumption	700 W (nominal)	
	1700 W (maximum)	
Supply voltage	100 - 240 V ∼ 50/60 Hz	
Dimensions (W × H × D)	746 mm × 341 mm × 530 mm	
Weight	40 kg	
Ambient conditions	Temperature range	0 °C…40 °C
	Relative humidity	20%…80% (non-condensing)

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!

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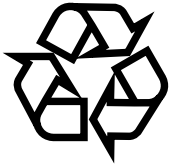
XLR plug (balanced)
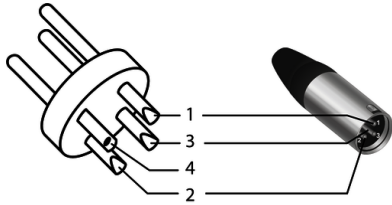
| 1	Ground, shielding
2	Signal (in phase, +)
3	Signal (out of phase, –)
4	Shielding on plug housing (option)

10 Protecting the environment

Disposal of the 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.
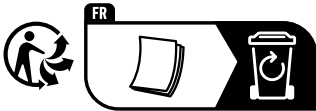
Observe the disposal note regarding documentation in France.

Disposal of your old device
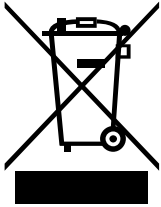
This product is subject to the European Waste Electrical and Electronic Equipment Directive (WEEE) as amended.

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.

Notes

A 10 LA
Active Speaker