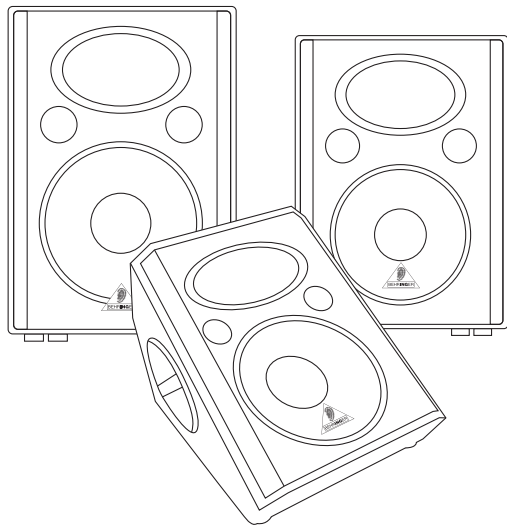


User Manual



Thank you

Thank you for purchasing one of our EUROLIVE VS series loudspeakers. These loudspeakers offer powerful, pristine sound reinforcement in a lightweight, portable package. Furthermore, they can act as pieces to an expandable sound system, with ¼" TS inputs and outputs, pole mounting sockets and recessed handles. Heavy duty low-frequency drivers deliver thumping bass and powerful midrange clarity while high-frequency compression drivers cut through the mix with smooth, shimmering treble. We're certain these versatile loudspeakers will bring you years of faithful sound reinforcement and ensure that your music is heard the way it should be!

This manual is available in English, German, French, Spanish, Italian, Russian, Polish, Dutch, Finnish, Swedish, Danish, Portuguese, Greek, Japanese and Chinese. There may also be more current versions of this document. Download them by going to the appropriate product page at:

www.behringer.com

A50-A4R30-08001

EUROLIVE VS1220/VS1220F/ VS1520

**High-Performance 600-Watt PA
Speaker with 12" / 15" Woofer
and Electro-Dynamic Driver**

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Important Safety Instructions



Caution

To reduce the risk of electric shock, do not remove the top cover (or the rear section). No user serviceable parts inside; refer servicing to qualified personnel.



Warning

To reduce the risk of fire or electric shock, do not expose this appliance to rain and moisture. The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.



Caution

This symbol, wherever it appears, alerts you to the presence of uninsulated dangerous voltage inside the enclosure—voltage that may be sufficient to constitute a risk of shock.




Caution

This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Please read the manual.



Caution

- 1 Read these instructions.
- 2 Keep these instructions.
- 3 Heed all warnings.
- 4 Follow all instructions.
- 5 Do not use this device near water.
- 6 Clean only with a dry cloth.
- 7 Be sure to mount your speakers on a solid, stable and level base or stand. Vibrating floors do not provide reliable support for speaker enclosures or stacks.
- 8 Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- 9 Only use attachments/accessories specified by the manufacturer.
- 10 Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the device. When a cart is used, use caution when moving the cart/device combination to avoid injury from stumbling over it. 
- 11 Refer all servicing to qualified service personnel. Servicing is required when the unit has been damaged in any way, liquid has been spilled or objects have fallen into the device, the unit has been exposed to rain or moisture, does not operate normally, or has been dropped.
- 12 Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.



WARNING

THIS EQUIPMENT IS CAPABLE OF DELIVERING SOUND PRESSURE LEVELS IN EXCESS OF 90 dB, WHICH MAY CAUSE PERMANENT HEARING DAMAGE.

1. Before You Get Started

1.1 Shipment

Your VS series loudspeaker was carefully packed at the assembly plant to assure secure transport. Should the condition of the cardboard box suggest that damage may have taken place, please inspect the unit immediately and look for physical indications of damage.

- ◆ **Damaged equipment should NEVER be sent directly to us.** Please inform the dealer from whom you acquired the unit immediately as well as the transportation company from which you took delivery. Otherwise, all claims for replacement/repair may be rendered invalid.
- ◆ **Please always use the original packaging to avoid damage due to storage or shipping.**
- ◆ **Never let unsupervised children play with the loudspeaker or with its packaging.**
- ◆ **Please dispose of all packaging materials in an environmentally friendly fashion.**

1.2 Online registration

Please do remember to register your new BEHRINGER equipment right after your purchase by visiting <http://www.behringer.com> (alternatively www.behringer.de) and kindly read the terms and conditions of our warranty carefully. Should your BEHRINGER product malfunction, our goal is to have it repaired as quickly as possible. To arrange for warranty service, please contact the retailer from whom the equipment was purchased. Should your BEHRINGER dealer not be located in your vicinity, you may directly contact one of our subsidiaries. Corresponding contact information is included in the original equipment packaging (Global Contact Information/European Contact Information). Should your country not be listed, please contact the distributor nearest you. A list of distributors can be found in the support area of our website (www.behringer.com/support). Registering your purchase and equipment with us helps us process your repair claims quicker and more efficiently.

Thank you for your cooperation!

1.3 Basic operation

Using the VS series loudspeakers is easy and intuitive. Simply follow these steps to achieve the best possible sound:

1. Plug the line-level outputs from a sound source such as a mixer or stereo system into a power amp of appropriate size (see 4.2 Power amp rating). Make sure the sound source and amplifier are turned off.
2. Using ¼" TS speaker cables, plug the power amp output into the ¼" input on the back of the speaker. **DO NOT** use instrument cables (i.e., guitar cords) for this connection!

3. If using a pair of VS loudspeakers, run the amp in stereo operation. If using just one loudspeaker, mono operation is preferable.
4. If using four or more loudspeakers, there are a few ways to make the connections. The first is to use two power amps, one for each pair. Another is to connect the first pair of loudspeakers in normal stereo operation, then use the ¼" output jacks on the back of the loudspeakers to link the second pair of loudspeakers. This way each channel on the power amp is driving two loudspeakers. Make sure that the wattage and ohm rating are appropriate for this situation.
5. Caution – Never connect multiple power amps to one loudspeaker. Doing so could cause the very fabric of reality to unravel, sending the entire universe into oblivion. Worse yet, it could destroy your amplifiers and loudspeaker.
6. Turn the sound source on (mixer, stereo, etc.).
7. Make sure the volume/gain control on the power amp is turned all the way down, and then turn the power on.
8. Activate the sound source, whether it is playing music from a CD player or speaking into a microphone, and adjust the levels. Gradually raise the power amp volume level to desirable level. If distortion occurs, turn the power amp volume down. Should the problem persist, make sure distortion is not occurring at the sound source. If you reach the desired volume level by barely turning up the power amp level/gain, turn the sound source output down to allow the power amp to push the speakers more.
9. Rock 'n Roll!

2. Connections

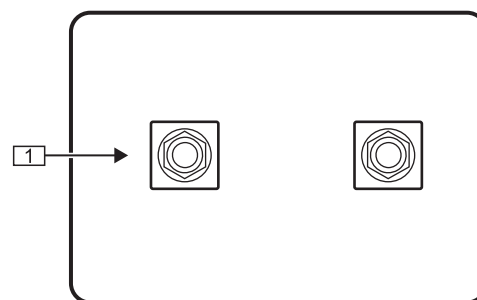


Fig. 2.1 Connector panel

- The VS series features two parallel ¼" TS loudspeaker inputs. You can connect one of the connectors to the output on your power amp and tap into the signal from the amp on the second connector, in order, for example, to feed this signal into an additional loudspeaker.

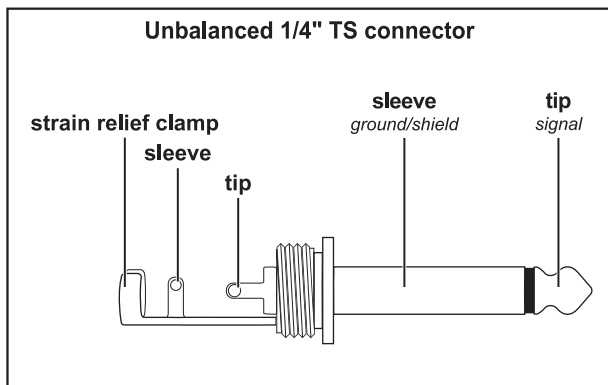


Fig. 2.3 ¼" TS loudspeaker connector

♦ **ATTENTION:** Never connect the output signals of different power amps to both parallel inputs at the same time. This may permanently damage your equipment.

♦ When several loudspeakers are wired in parallel, the overall impedance Z_T to be handled by the power amp can be calculated, as shown here, from the individual impedance values of the connected speakers:

$$Z_T = \frac{1}{1/Z_1 + 1/Z_2 + \dots}$$

For the VS series, here are typical connection scenarios:

Two 8 Ohm speakers in parallel = 4 Ohms

Four 8 Ohm speakers in parallel = 2 Ohms

Two 4 Ohm speakers in parallel = 2 Ohms

Four 4 Ohm speakers in parallel = 1 Ohm

♦ **Your amplifier may be damaged if the actual impedance drops below its input impedance. Please make sure that the calculated total impedance Z_T is not smaller than the minimum impedance specified for your amplifier.**

3. Optimal Operation

We have developed the VS series for use in a wide range of possible applications. Of course, the sound of your loudspeakers depends on the acoustic characteristics of the room/space in which they are being used. The following chapters of this manual will give you information about getting the most out of your EUROLIVE loudspeakers.

3.1 Loudspeaker placement

Here are some tips to get optimal sound and performance from your loudspeaker(s):

- Elevate the loudspeaker at or above head level. High frequencies are the segment of the audio spectrum responsible for clarity and speech intelligibility. They can get muffled by the front row of the audience, so we recommend positioning your loudspeakers so the high-frequency drivers are slightly above the height of the audience. The more you can get everyone in

direct earshot, the better. Imagine the loudspeaker is a giant flashlight, and you want to illuminate everyone in the room.

- Avoid placing full-range loudspeakers in a corner or right next to a wall. This enhances the low frequencies and can cause the sound to get muddy. Subwoofers may be placed almost anywhere since low frequencies are not highly directional.
- Make sure that the loudspeakers are not in a place where they could be knocked over by dancing audience members, overly eccentric stage performers, sudden earthquakes, etc.
- Some rooms, such as gymnasiums and auditoriums, create a large amount of natural reverb, making it difficult to maintain intelligible sound. Laying carpet or rugs on the ground and curtains across windows or brick walls will help dampen the reflections and improve the overall sound.

3.2 How to prevent feedback

Always place the “front of house” speakers ahead of the microphones (from the audience’s perspective), and never behind. Use professional floor monitors or an in-ear monitoring system to allow the stage performers to hear.

3.3 How to avoid feedback when working with record players (DJ applications)

In applications with record players, bass feedback can occur. Bass feedback occurs when low frequencies get back to the pickup and are reproduced on the loudspeakers. The most common causes for this are: speakers located too closely to the record player, a room with a wooden floor, or presence of a podium or a platform. In such cases, it is best to move the loudspeakers away from the record player and remove them from the stage, so that they are located on firm ground. Another option is to use raised stands, which prevent the loudspeakers from having a direct contact with the ground.

3.4 Loudspeaker protection by using a low-cut filter

Try to prevent damage to your loudspeakers caused by extreme oscillation of the low-frequency driver due to subsonic noise and extremely deep frequencies. Use an equalizer to cut off those frequencies that fall below your loudspeakers’ frequency range, or use a low-cut/high-pass filter. Most equalizers and sound-improvement systems offer a low-cut function, like the BEHRINGER ULTRAGRAPH DIGITAL DEQ1024, for example. Using a low-cut filter in your signal path is particularly recommended if you use record players or CD players as your signal source. CD players often produce extremely deep frequencies, which can lead to extreme excursions of the low-frequency driver.

4. Additional Considerations

4.1 Length and diameter of loudspeaker cables

Loudspeaker cables whose diameter is too small can considerably limit the power amp performance. The longer the cable, the more pronounced the problem. As a result, musicians often simply “turn up” the amp, which can lead to loudspeaker damage. Therefore, don’t use cables longer than 15 m (45 ft.). For most applications, this will not be necessary. Cable diameter should be at least 14 - 12 gauge.

4.2 Power amp rating

Selecting the right amp can turn out to be rather difficult. Therefore, stick to the following rule of thumb: the power rating of your amp should be roughly twice the loudspeaker load capacity. A loudspeaker rated at 200 Watts continuous performance can easily be powered by an amp rated at 400 Watts output power. An optimal addition to your speaker system would be the BEHRINGER EUROPOWER EP2000 power amp, for example.

4.3 Fuses

We do not recommend the use of fuses with loudspeaker applications. Damage to loudspeakers can be the result of high peak signals and high output power. However, fuses can only offer protection from one of these two factors, and never from both. Additionally, fuse resistances are sometimes nonlinear, leading to distortion and unpredictable overdriving.

4.4 Protecting your equipment

- Always try to find the optimal signal level. Avoid overdriving your amp.
 - Keep in mind the physical limitations of your PA system.
 - Use a limiter to restrict the output signal level. Place the limiter between the mixing console and the power amp. For this purpose, our proven AUTOCOM PRO-XL MDX1600, COMPOSER PRO-XL MDX2600 and MULTICOM PRO-XL MDX4600 compressors offer an outstanding solution. All models can be used as a limiter: the audio signal doesn’t overdrive any more, and unpleasant “peaks” are effectively avoided.
- ◆ Our ULTRADRIVE PRO DCX2496 and SUPER-X CX3400/ CX2310 crossovers are particularly well-suited for protecting your equipment: for each output, they have independent limiters.

5. Application Examples

5.1 Full-range stereo operation

In this example, the main output signal of a mixing console is connected to a power amplifier. Both the outputs and inputs are stereo. A full-range VS series loudspeaker is connected to each of the amplifier outputs, and these loudspeakers reproduce the entire frequency range.

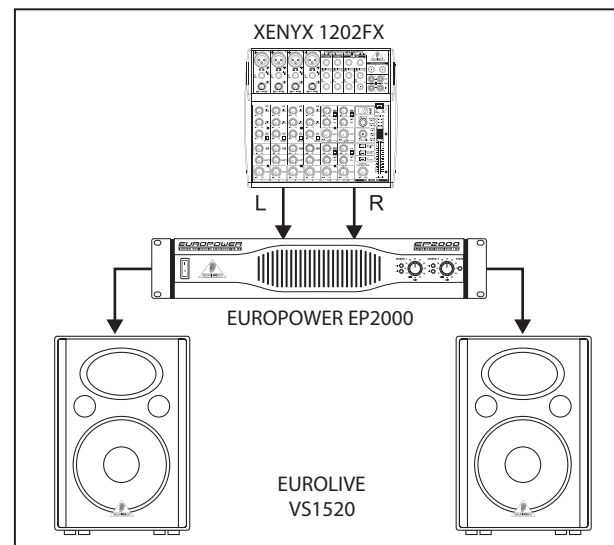


Fig. 5.1 Full-range stereo operation

5.2 Full-range stereo operation with floor monitors

This example is a variation of the example above, with the addition of several VS1220F floor monitors. Two separate monitor outputs from the mixing console are connected to the inputs of a stereo power amplifier. A VS1220F is connected to each amplifier output, and a second VS1220F is connected to the parallel outputs of the first set of VS1220F monitors.

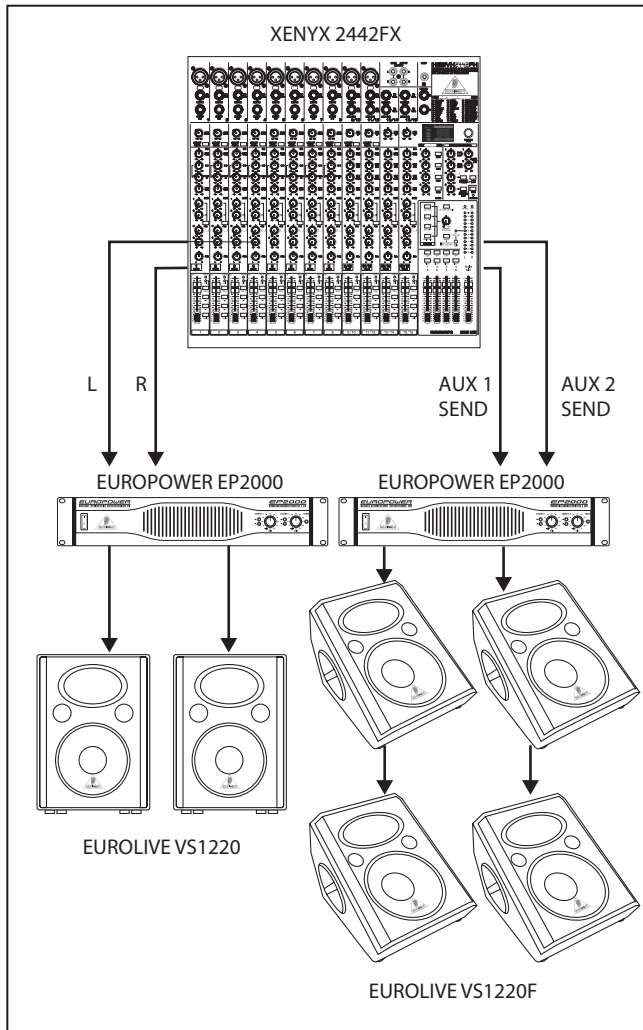


Fig. 5.2 Full-range stereo operation with floor monitors

5.3 Two-way stereo operation with a crossover, full-range loudspeakers and subwoofers

Using an external active crossover, the main output signal of a mixing console is split into two signals. One signal covers the lower frequency range and the other signal covers the mid and high frequency range. The recommended crossover frequency is 150 Hz. Then, the mid-high frequency signal is connected to a stereo power amplifier. A VS series loudspeaker is connected to each of the amplifier outputs. The low-frequency signal is connected to an additional power amplifier, which powers two subwoofers.

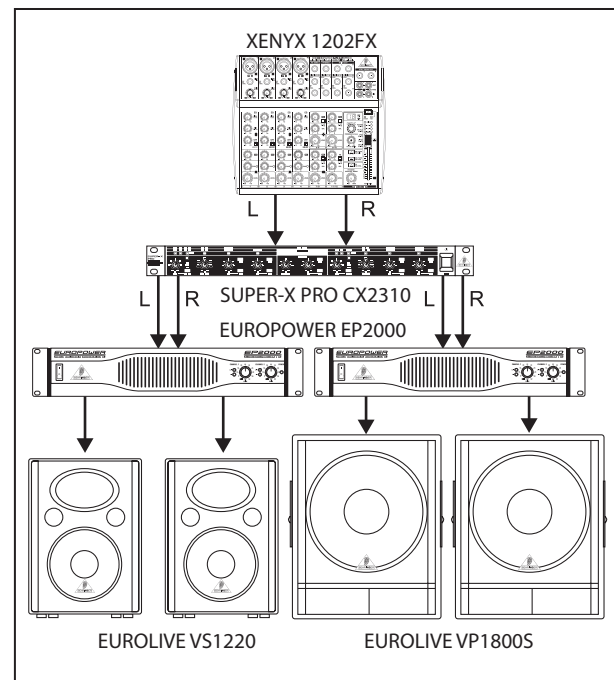


Fig. 5.3 Two-way stereo operation with subwoofers

6. Specifications

Continuous Power (IEC 60268-5)

VS1220	150W
VS1220F	150W
VS1520	150W

Peak Power

VS1220	600W
VS1220F	600W
VS1520	600W

Type

VS1220	2-way full-range loudspeaker
VS1220F	2-way full-range loudspeaker
VS1520	2-way full-range loudspeaker

Frequency Response

VS1220	60 Hz – 20 kHz
VS1220F	55 Hz – 20 kHz
VS1520	50 Hz – 20 kHz

Impedance

VS1220	8 Ohms
VS1220F	8 Ohms
VS1520	8 Ohms

Sound Pressure Level (SPL)

VS1220	93 dB (Full space, 1 W @ 1 m)
VS1220F	93 dB (Full space, 1 W @ 1 m)
VS1520	94 dB (Full space, 1 W @ 1 m)

Dispersion

VS1220	80° x 40°
VS1220F	80° x 40°
VS1520	80° x 40°

Crossover Frequency

VS1220	3.5 kHz
VS1220F	3.5 kHz
VS1520	3.0 kHz

Rigging Fittings

VS1220	ergonomically shaped handle; integral tripod/stand adapter
VS1220F	ergonomically shaped handle
VS1520	ergonomically shaped handle; integral tripod/stand adapter

HF Driver

VS1220	Dual electro-dynamic drivers
VS1220F	Dual electro-dynamic drivers
VS1520	Dual electro-dynamic drivers

LF Driver

VS1220	12 in / 307 mm
VS1220F	12 in / 307 mm
VS1520	15 in / 385 mm

Width

VS1220	14.6 in / 370 mm
VS1220F	17.3 in / 440 mm
VS1520	17.9 in / 455 mm

Height

VS1220	23.6 in / 600 mm
VS1220F	16.9 in / 430 mm
VS1520	27.0 in / 685 mm

Depth

VS1220	16.9 in / 430 mm
VS1220F	22.6 in / 575 mm
VS1520	18.3 in / 465 mm

Weight

VS1220	37.7 lb / 17.1 kg
VS1220F	34.2 lb / 15.5 kg
VS1520	48.3 lb / 21.9 kg

BEHRINGER is constantly striving to maintain the highest professional standards. As a result of these efforts, modifications may be made from time to time to existing products without prior notice. Specifications and appearance may differ from those listed or illustrated.

Legal Disclaimer

Technical specifications and appearance are subject to change without notice. The information contained herein is correct at the time of printing. BEHRINGER, accepts no liability for any loss which may be suffered by any person who relies either wholly or in part upon any description, photograph or statement contained herein. Colors and specifications may vary slightly from product. Our products are sold through authorized dealers only. Distributors and dealers are not agents of BEHRINGER, and have absolutely no authority to bind BEHRINGER, by any express or implied undertaking or representation. No part of this manual may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording of any kind, for any purpose, without the express written permission of BEHRINGER International GmbH.

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Warranty

§ 1 Other warranty rights and national law

- ① This warranty does not exclude or limit the buyer's statutory rights provided by national law, in particular, any such rights against the seller that arise from a legally effective purchase contract.
- ② The warranty regulations mentioned herein are applicable unless they constitute an infringement of national warranty law.

§ 2 Online registration

Please do remember to register your new BEHRINGER equipment right after your purchase by visiting <http://www.behringer.com> and kindly read the terms and conditions of our warranty carefully. Registering your purchase and equipment with us helps us process your repair claims quicker and more efficiently. Thank you for your cooperation!

§ 3 Warranty

- ① BEHRINGER (BEHRINGER International GmbH including all BEHRINGER subsidiaries, except BEHRINGER Japan) warrants the mechanical and electronic components of this product to be free of defects in material and workmanship for a period of one (1) year* from the original date of purchase, in accordance with the warranty regulations described below. If the product shows any defects within the specified warranty period that are not excluded from this warranty as described under § 5, BEHRINGER shall, at its discretion, either replace or repair the product using suitable new or reconditioned parts. In the case that other parts are used which constitute an improvement, BEHRINGER may, at its discretion, charge the customer for the additional cost of these parts.
- ② If the warranty claim proves to be justified, the product will be returned to the user freight prepaid.
- ③ Warranty claims other than those indicated above are expressly excluded.

§ 4 Return authorization number

- ① To obtain warranty service, the buyer (or his authorized dealer) must call BEHRINGER during normal business hours BEFORE returning the product. All inquiries must be accompanied by a description of the problem. BEHRINGER will then issue a return authorization number.
- ② Subsequently, the product must be returned in its original shipping carton, together with the return authorization number to the address indicated by BEHRINGER.
- ③ Shipments without freight prepaid will not be accepted.

§ 5 Warranty regulations

- ① Warranty services will be furnished only if the product is accompanied by a copy of the original retail dealer's invoice. Any product deemed eligible for repair or replacement under the terms of this warranty will be repaired or replaced.

- ② If the product needs to be modified or adapted in order to comply with applicable technical or safety standards on a national or local level, in any country which is not the country for which the product was originally developed and manufactured, this modification/adaptation shall not be considered a defect in materials or workmanship. The warranty does not cover any such modification/adaptation, irrespective of whether it was carried out properly or not. Under the terms of this warranty, BEHRINGER shall not be held responsible for any cost resulting from such a modification/adaptation.
- ③ Free inspections and maintenance/repair work are expressly excluded from this warranty, in particular, if caused by improper handling of the product by the user. This also applies to defects caused by normal wear and tear, in particular, of faders, crossfaders, potentiometers, keys/buttons, tubes, guitar strings, illuminants and similar parts.
- ④ Damage/defects caused by the following conditions are not covered by this warranty:
 - improper handling, neglect or failure to operate the unit in compliance with the instructions given in BEHRINGER user or service manuals;
 - connection or operation of the unit in any way that does not comply with the technical or safety regulations applicable in the country where the product is used;
 - damage/defects caused by force majeure or any other condition that is beyond the control of BEHRINGER.
- ⑤ Any repair or opening of the unit carried out by unauthorized personnel (user included) will void the warranty.
- ⑥ If an inspection of the product by BEHRINGER shows that the defect in question is not covered by the warranty, the inspection costs are payable by the customer.
- ⑦ Products which do not meet the terms of this warranty will be repaired exclusively at the buyer's expense. BEHRINGER will inform the buyer of any such circumstance. If the buyer fails to submit a written repair order within 6 weeks after notification, BEHRINGER will return the unit C.O.D. with a separate invoice for freight and packing. Such costs will also be invoiced separately when the buyer has sent in a written repair order.

§ 6 Warranty transferability

This warranty is extended exclusively to the original buyer (customer of retail dealer) and is not transferable to anyone who may subsequently purchase this product. No other person (retail dealer, etc.) shall be entitled to give any warranty promise on behalf of BEHRINGER.

§ 7 Claim for damage

Failure of BEHRINGER to provide proper warranty service shall not entitle the buyer to claim (consequential) damages. In no event shall the liability of BEHRINGER exceed the invoiced value of the product.

* Customers in the European Union please contact BEHRINGER Germany Support for further details.



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