

EUROLIVE®

SERIES

User's Manual

Version 1.3 March 2002

ENGLISH

F1220

F1520

B1020

B1220

B1520

B1500X

B1800X



www.behringer.com

SAFETY PRECAUTIONS

For your own safety, as well as that of your colleagues and your audience, please:

- carefully read the following safety precautions and operating instructions prior to operation
- observe the following safety precautions and operating instructions during operation and
- store this manual in a safe place for future reference.

Thank you.

Caution! EUROLIVE speakers are not designed to be suspended!

EUROLIVE SERIES enclosures are designed exclusively for floor-mounted use. Although the enclosures will withstand rough handling over many years, they are not designed to be suspended. If suspension of the speakers is unavoidable, please be sure that suitable fixtures are mounted by qualified personnel.

Suspension of your EUROLIVE enclosures will always be at your own risk!

Check the condition of the protective corners:

EUROLIVE loudspeaker enclosures are equipped with interlocking protective corners, which allow for slip-free stacking. Damaged corners reduce the stability of speaker stacks. Please inspect them at regular intervals and **replace damaged corners immediately**.

Safe speaker installation:

- Be sure to mount your speakers on a solid, stable and level base or stand. Vibrating floors (e.g. elements/components on the stage), as well as tables, chairs or similar objects do not provide reliable support for speaker enclosures or stacks.
- Setting up your speakers at a distance from the audience area, dance floor, musicians and/or personnel will minimize the risk of accident.
- Should local conditions prevent you from following these safety precautions, please be sure to secure the speakers so that they cannot fall or be knocked over. **Always consult a P.A. or rigging expert.**

Prevention of speaker damage:

Please protect your speakers from damage due to objects or liquids entering the enclosure.

Damage and repair:

EUROLIVE enclosures must be repaired by qualified personnel if:

- objects or liquids have entered the enclosure,
- the speakers have been subject to rain or excessive moisture,
- the enclosure does not work properly or displays obvious performance deterioration or
- the enclosure has been dropped or otherwise physically damaged.

Maintenance:

Maintenance or modifications which may be carried out by the user is defined in the user's manual. Any additional maintenance/repair work should be carried out by qualified service personnel only.

FOREWORD

Dear Customer,

Welcome to the team of EUROLIVE users and thank you very much for expressing your confidence in BEHRINGER products by purchasing this P.A. loudspeaker enclosure.

It is with great pleasure that I write this letter to you. It represents the culmination of many months of hard work delivered by our engineering team to reach a very ambitious goal: to present you with an outstanding P.A. loudspeaker system that gives you maximum flexibility and performance along with unique audio qualities and a broad range of features. Designing the new EUROLIVE SERIES was a great challenge filled with responsibility, which we tackled by focusing on you, the discerning user and musician. It was also a lot of work, with night and weekend shifts. But it was fun, too. Developing a product usually brings a lot of people together, and it's a great feeling when everybody involved can be proud of what they've achieved.

It is part of our philosophy to share our gratification with you, since you're the most important member of the BEHRINGER team. With your highly competent suggestions for new products, you've contributed immensely to the development and success of our company. In return, we bring you uncompromising quality, guaranteed by the stringent BEHRINGER quality control system, as well as excellent technical and audio specifications, at an extremely favorable price. We hope that this will enable you to fully unfold your creativity without being hampered by budget constraints.

We are often asked how we manage to produce such high-grade devices at such unbelievably low prices. The answer is quite simple: it's you, our customers! Lots of satisfied customers means large sales volumes, which in turn enables us to reduce production and logistics expenses. We believe it's only fair to pass this benefit back to you—after all, your success is our success!

I would like to thank everyone who helped make the EUROLIVE SERIES project possible and successful. Each of those people made very personal contributions, from our engineers and designers to our numerous staff members and finally to you as a BEHRINGER user.

My friends, it's been worth the trouble!

Thank you very much,

A handwritten signature in black ink, appearing to read 'U. Behringer', with a long horizontal flourish extending to the right.

Uli Behringer

EUROLIVE®

Professional Loudspeaker System

- ▲ Powerful, durable P.A. loudspeaker enclosures with excellent cutting power
- ▲ Extremely high sound pressure levels for first-class sound and optimum performance
- ▲ Distortion-free reproduction of audio material
- ▲ Switchable bi-amping mode on all multi-way systems (except B1020)
- ▲ Switchable crossover on all subwoofers for optional passive or active (bi-amping) operation
- ▲ 1" titanium diaphragm on all multi-way systems for brilliant, natural high-frequency reproduction
- ▲ Specially developed BEHRINGER CD horn technology for optimal wide-angle dispersion
- ▲ Integrated HF driver protection
- ▲ Trapezoidal enclosures for perfect cluster formation
- ▲ Ultra-rugged carpet covering for efficient cabinet protection
- ▲ Rugged protective corners with stacking profile
- ▲ Recessed, ergonomically shaped die-cast handles for easy transport
- ▲ Rugged steel grilles plus acoustically transparent polyester foam for optimal speaker protection
- ▲ Die-cast socket for stand or pole mounting on all EUROLIVE systems (except F1220/F1520)
- ▲ Floor wedges allow angles of 30 or 60 degrees
- ▲ Professional Speakon® connectors on sturdy aluminum panel
- ▲ Enclosures constructed entirely of environmentally-friendly E1 MDF wood
- ▲ The EUROLIVE SERIES includes floor wedges, full-range enclosures and subwoofers
- ▲ Manufactured under the stringent BEHRINGER quality control system

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ATTENTION!



The EUROLIVE SERIES loudspeakers are capable of producing extreme volumes. Please bear in mind, that high sound pressures do not only temporarily damage your sense of hearing, but can also cause permanent damage. Be careful to select a suitable volume.

1. INTRODUCTION

With the BEHRINGER EUROLIVE, you have acquired a first-class P.A. loudspeaker system. You now own at least one component of an expandable system that gives you well-balanced, distortion-free reproduction of your audio material.

With its numerous features, the EUROLIVE SERIES represents an ideal P.A. loudspeaker system for a variety of applications, from churches and schools to clubs to larger venues. We designed the EUROLIVE SERIES to provide you with a complete range of speaker enclosures with consistent quality plus all the options you need to expand your P.A. system according to your needs, like pro-level Speakon® inputs and outputs.

The rugged enclosures ensure that your EUROLIVE speakers will withstand even the roughest handling on the road. They are made entirely of high-grade, non-polluting, formaldehyde-free E1 MDF boards with multi-glued tongue-and-groove construction. Your EUROLIVE enclosure was manufactured in compliance with BEHRINGER's stringent quality control system.

1.1 Before you begin

Your EUROLIVE speaker was carefully packed in the factory and the packaging is designed to protect the unit from rough handling. Nevertheless, we recommend that you carefully examine packaging and contents for any signs of physical damage which may have occurred during transit.

⚠️ If the unit is damaged, please do not return it to BEHRINGER, but notify your dealer and the shipping company immediately. Otherwise, claims for damage or replacement may not be granted. Shipping claims must be made by the consignee.

1.2 Connection

Use the speaker connectors on the rear of the unit to connect the EUROLIVE enclosure to your power amplifier.

⚠️ Make sure to turn down your amplifier volume before you connect the speaker(s).

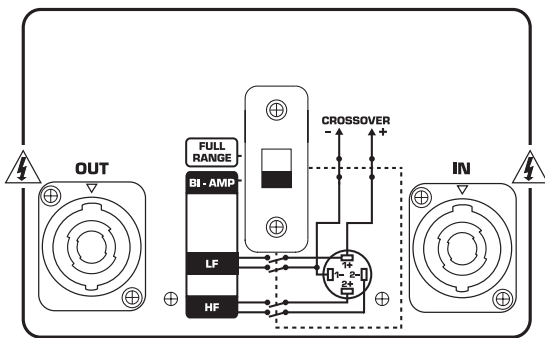


Fig. 1.1: Connector panel on multi-way systems (except B1020)

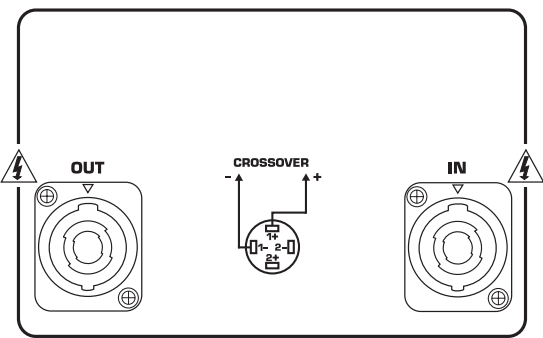


Fig. 1.2: B1020 connector panel

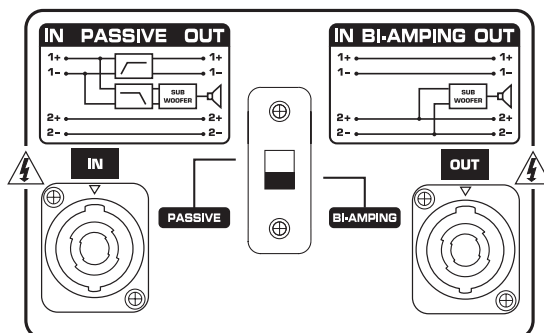


Fig. 1.3: Connector panel on subwoofers

2. OPTIMUM PERFORMANCE

The EUROLIVE SERIES was designed for use in a variety of applications. Naturally, the sound of your speaker enclosures largely depends on the acoustic properties of the environment in which it is used. The following points should help you get the most out of your EUROLIVE speaker system.

2.1 HF driver

High frequencies are a crucial part of the audio spectrum, which ensures clear sound and speech intelligibility. Whereas these frequencies are the most easily located, they are also the first to be acoustically blocked. We therefore recommend that you set up your speakers so that the HF driver is situated slightly above the heads of the audience. This will ensure not only optimal dispersion of the high-frequency content, but also considerably improved speech intelligibility and clarity.

2.2 Avoiding feedback

Always place the “front-of-house” speakers (the enclosures facing the audience) in front of the microphones. Use professional floor wedges (e.g. EUROLIVE F1220 or F1520), so that the performers on stage can hear themselves.

2.3 Avoiding feedback when using turntables (e.g. DJ applications)

Turntables often produce low-end feedback: low frequencies are fed back to the pickup arm and cartridge and reproduced again by the speakers. Common causes of low-end feedback are speakers set up too close to the turntable, rooms with a wooden floor or elements placed on the stage. In such cases, try moving the speakers away from the turntable or off the stage and placing them on a solid support. Another possibility is to mount the enclosures on stands, thus minimizing direct contact between floor and speakers.

2.4 Protecting your speakers with a low-cut filter

Low-frequency rumble or extreme low frequencies can lead to an excessive displacement of the speaker diaphragm and in turn to permanent damage. Using an equalizer or a low-cut/high-pass filter to eliminate the low frequencies below the response curve of the speaker can effectively prevent this. Most equalizers and sound enhancers provide a low-cut function (e.g. BEHRINGER ULTRA-GRAPH PRO GEQ3102).

The use of a low-cut filter in the signal path is especially recommended when using turntables and/or CD players as signal sources. CD players often produce extremely low frequencies, which can lead to excessive diaphragm displacement.

3. OPERATING MODES

With the exception of the B1020, all EUROLIVE SERIES multi-way systems can be operated in two various modes: FULL-RANGE and BI-AMPING. The subwoofers can either be operated in ACTIVE (BI-AMPING) or PASSIVE mode. Use the switch on the rear panel of the enclosure to select the appropriate mode for your application (see chapter 3.3). In both modes, the speakers are connected using the Speakon® inputs.

 **Never change the operating mode while an audio signal is present.**

3.1 FULL-RANGE operation

All EUROLIVE models are equipped with a built-in passive crossover network, which ensures a smooth transition between the individual frequency ranges in FULL-RANGE mode. This mode is particularly suitable for applications that require only a small-scale setup, such as speech applications in churches and schools, sound reinforcement in small clubs etc.

3.2 BI-AMPING operation

3.2.1 Advantages


BI-AMPING gives you a number of important advantages: lower distortion, greater flexibility of signal transmission and improved overall system performance.

3.2.2 Selecting the crossover frequency

For operation with an external crossover network such as our BEHRINGER SUPER-X PRO CX2310, please refer to chapter 6 “SPECIFICATIONS” for recommended crossover frequencies. We recommend using a slope of at least 12 dB—higher values will improve performance. A slope of 24 dB is ideal.

3.3 ACTIVE (BI-AMPING)/PASSIVE subwoofer operation

EUROLIVE SERIES subwoofers also feature an integrated crossover. Driven in passive mode, the B1500X subwoofer perfectly complements our multi-way system B1020, resulting in a compact, well-balanced and sonically accurate system. If you wish to operate your subwoofer in active mode (switch to BI-AMPING), it can be combined with virtually any of the remaining EUROLIVE multi-way systems.

 **To ensure optimal performance in combination with the B1020, the polarity of the B1500X subwoofer has been reversed (180°) in the factory. For operation with any other EUROLIVE multi-way enclosure, the loudspeaker polarity must be reversed by qualified service personnel.**

We designed the B1800X as the perfect subwoofer for the EUROLIVE multi-way enclosures B1220 and B1520. Of course, the B1800X can also be operated either in passive or active mode.

The foregoing recommendations are only intended to demonstrate the interaction of various EUROLIVE enclosures. You may, of course, combine enclosures as you like, depending on your personal preferences and applications.

3.4 Looping through subwoofer signals

All EUROLIVE SERIES subwoofers are equipped with two parallel Speakon® connectors. Pins 2-/2+ are directly connected to the loudspeaker. Pins 1-/1+ can be used to loop signals through, while the high-pass signal is present on pins 1-/1+ (output). Please refer to the instructions in chapter 4.

 **Please note that switching the EUROLIVE subwoofers to BI-AMPING mode moves the input signal of the loudspeakers to pins 2-/2+. In this case, pins 1-/1+ act as a loop-through!**

4. PIN ASSIGNMENTS

			Full-range mode	Bi-amping mode
Multi-way systems	B1020, B/F1220, B/F1520	Pins 1-/1+	Full-range input	Woofers input
		Pins 2-/2+	Loop-through	HF driver input
Subwoofers	B1500X, B1800X	Pins 1-/1+	SPEAKON IN: full-range input SPEAKON OUT: high-pass output	Loop-through
		Pins 2-/2+	Loop-through	Subwoofer input

Tab. 4.1: PIN assignments

4.1 FULL-RANGE operation

- ▲ Use the switch on the rear panel of the enclosure to select FULL-RANGE. To do this, you must first remove the frame surrounding the switch. (The frame is intended to prevent accidental switching.) Please remember to replace the frame after changing the operating mode.
- ▲ Assign the input signal to pins 1-/1+. In this mode, pins 2-/2+ act as a loop-through.

4.2 BI-AMPING operation

- ▲ Use the switch on the rear panel of the enclosure to select BI-AMP. Again, you have to remove the frame first (see chapter 4.1).
- ▲ Assign the low-frequency signal to pins 1-/1+ and the high frequency signal to pins 2-/2+ by modifying your connection cable(s).

4.3 Subwoofer (PASSIVE)

- ▲ Assign the full-range signal to input pins 1-/1+. The high-pass signal is present on output pins 1-/1+. Pins 2-/2+ act as a loop-through.

4.4 Subwoofer (ACTIVE/BI-AMPING)

- ▲ Assign the subwoofer signal to pins 2-/2+ by modifying your connection cable(s).
- ▲ Use pins 1-/1+ to loop the high-pass signal through to pins 1-/1+ of the full-range enclosure.
- ▲ In this operating mode, pins 1-/1+ are always looped through to pins 2-/2+.

5. WHAT ELSE SHOULD BE CONSIDERED?

5.1 Length and gauge of speaker cables

Low-gauge speaker cables can considerably reduce the performance of your power amps, and thus of your entire system. The longer the cable, the more crucial the gauge. As a consequence, the user tends to turn up the power amp, which in turn can lead to speaker damage. You should use at least 14-gauge cable—12-gauge is ideal. Try to avoid using cables longer than 30 m (100 ft).

5.2 Power amp performance

Choosing the right power amp can be difficult. The following rule of thumb may be helpful: the amp should provide about twice as much power as the speakers can handle. A speaker with a continuous power rating of 200 Watts should be driven by power amps with 400 Watts of output power.

5.3 Fuses

We do not recommend the use of fuses for audio applications. Speakers can be damaged by high signal peaks or high output power. Fuses can only protect the speaker against one of these, but never against both. In addition, fuses can have nonlinear resistances, which can lead to distortion and unpredictable overdriving of the speakers.

5.3.1 Protecting your system

- ▲ Exercise caution while setting levels and avoid overdriving your power amps.
- ▲ Respect the physical limits of your P.A. system.
- ▲ Use a limiter to limit the output level. Insert the limiter between the mixing console output and your power amp. Our proven compressors COMPOSER PRO MDX2200, AUTOCOM PRO MDX1400 and MULTICOM PRO MDX4400, all of which provide limiter functions, are ideal for this application. Used properly, they can eliminate overdriving of your audio signals and effectively suppress dangerous signal peaks.

 **Our crossover network SUPER-X PRO CX3400, which features independent limiters on each individual output, can also be used to protect your system.**

6. SPECIFICATIONS

SYSTEM SPECIFICATIONS		B1020	F1220/B1220	F1520/B1520	B1500X	B1800X
Type	2-way full range speaker (10" x 1")	F1220: 2-way floor monitor (12" x 1"); B1220: 2-way full range speaker (12" x 1")	F1520: 2-way floor monitor (15" x 1"); B1520: 2-way full range speaker (15" x 1")	Subwoofer (15")	Subwoofer (18")	
Frequency response	55 Hz - 18 kHz (-10 dB)	50 Hz - 18 kHz (-10 dB)	50 Hz - 18 kHz (-10 dB)	42 Hz - 250 Hz (-6 dB)	42 Hz - 250 Hz (-6 dB)	
Power rating (RMS)	150 Watts	200 Watts	200 Watts	300 Watts	400 Watts	
Power rating ¹ (pink noise)	300 Watts	400 Watts	400 Watts	600 Watts	600 Watts	
Impedance	8 Ohms	8 Ohms	8 Ohms	4 Ohms	4 Ohms	
Sound pressure level ² (1 W @ 1 m)	95 dB (Full Space)	95 dB (Full Space)	95 dB (Full Space)	97 dB	98 dB	
Dispersion	100° x 80°	90° x 40°	90° x 40° (F1520); 100° x 40° (B1520)	-	-	
Crossover frequency	2 kHz	2.5 kHz	1.8 kHz	Low pass: 175 Hz; slope 9 dB/oct. High pass: 175 Hz; slope: 12 dB/oct	Low pass: 175 Hz; slope 9 dB/oct. High pass: 175 Hz; slope: 12 dB/oct	
COMPONENTS						
HF driver	44P60A8	44P60A8	44P60A8	-	-	
Woofer	10P150A8	12P200A8	15P200A8	15P300A4	18P400A4	
PHYSICAL						
(W * H * D)	approx. 13 1/4" x 19 1/4 x 13 1/8" (338 mm x 488 mm x 333 mm)	F1220: approx. 15 11/16" x 22 5/8" x 15 1/2" (398 mm x 574 mm x 393 mm) B1220: approx. 17 5/16" x 25 5/8" x 15 11/16" (438 mm x 638 mm x 399 mm)	F1520: approx. 18 3/32" x 25 13/16" x 16 3/8" (458 mm x 655 mm x 416 mm) B1520: approx. 20 7/8" x 28" x 16 5/16" (529 mm x 711 mm x 414 mm)	approx. 20 7/8" x 28" x 16 5/16" (529 mm x 711 mm x 414 mm)	approx. 23 3/8" x 27 5/8" x 20 7/8" (595 mm x 700 mm x 530 mm)	
Weight	approx. 18 kg	F1220: approx. 21 kg B1220: approx. 23.5 kg	F1520: approx. 23 kg B1520: approx. 30 kg	approx. 30.5 kg	approx. 35.5 kg	
Mounting angle F SERIES	-	30° / 60°	30° / 60°	-	-	
BI-AMPLING MODE						
Recommended crossover frequency (external crossover network) ³	-	1.8 kHz - 3.5 kHz	1.2 kHz - 2.2 kHz	80 Hz - 150 Hz	80 Hz - 150 Hz	
Power rating/Impedance Woofer	150 Watts RMS/8 Ohms	200 Watts RMS/8 Ohms	200 Watts RMS/8 Ohms	300 Watts RMS/4 Ohms	400 Watts RMS/8 Ohms	
Power rating/Impedance HF driver	60 Watts RMS/8 Ohms (>2.2 kHz/12dB/oct)	60 Watts RMS/8 Ohms (>2.2 kHz/12dB/oct)	60 Watts RMS/8 Ohms (>2.2 kHz/12dB/oct)	-	-	

¹ Average value over bandwidth of 50 Hz - 5 kHz (multi-way systems) and 40 Hz - 250 Hz (subwoofer) according to IEC 268-5.

² Average value over bandwidth of 100 Hz - 2 kHz (multi-way systems) and 100 Hz - 250 Hz (subwoofer) according to IEC 268-5.

³ Slope: 12 - 24 dB.

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 shown.

7. WARRANTY

§ 1 WARRANTY CARD/ONLINE REGISTRATION

To be protected by the extended warranty, the buyer must complete and return the enclosed warranty card within 14 days of the date of purchase to BEHRINGER Spezielle Studiotechnik GmbH, in accordance with the conditions stipulated in § 3. Failure to return the card in due time (date as per postmark) will void any extended warranty claims. Based on the conditions herein, the buyer may also choose to use the online registration option via the Internet (www.behringer.com or www.behringer.de).

§ 2 WARRANTY

1. BEHRINGER (BEHRINGER Spezielle Studiotechnik GmbH including all BEHRINGER subsidiaries listed on the enclosed page, 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 § 3 and 4, 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.

§ 3 RETURN AUTHORIZATION NUMBER

1. To obtain warranty service, the buyer (or his authorized dealer) must call BEHRINGER (see enclosed list) 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.

§ 4 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 by BEHRINGER under the terms of this warranty will be repaired or replaced within 30 days of receipt of the product at BEHRINGER.

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, potentiometers, keys/buttons and similar parts.

4. Damages/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.
- ▲ damages/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.

§ 5 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.

§ 6 CLAIM FOR DAMAGES

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.

§ 7 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.

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

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