

# **EUROLIVE® SERIES**

---

## **User's Manual**

Version 1.0 May 2000

ENGLISH

**F1220**

**F1520**

**B1220**

**B1520**

**B1800**



[www.behringer.com](http://www.behringer.com)

# SAFETY PRECAUTIONS

EUROLIVE speaker boxes are equipped with interlocking plastic corners, which allow for slip-free stacking. However, to ensure both your own and your audience's safety, please follow the instructions given below.

## **Caution! EUROLIVE speakers are not designed to be suspended!**

EUROLIVE speakers are designed exclusively for floor-mounted use. Although the cabinets will withstand rough handling over many years, they are not designed to be suspended. If the suspension of the speakers is unavoidable please be sure that suitable fixtures are mounted by qualified personnel. **Suspension of your speakers will always be at your own risk!**

## **Check the condition of the plastic corners:**

Damaged plastic corners reduce the stability of speaker stacks. Therefore, **damaged plastic corners must be replaced.**

## **Positioning of the speakers:**

Be sure to mount your speakers on a solid and stable base. Vibrating floors (e.g. elements/components on the stage) as well as tables and chairs do not provide reliable support for speaker stacks.

## **Make sure your EUROLIVE speakers are set up properly:**

Distance your speakers from dance floors and crowds to minimize the risk of accident.

## **Safe stacking:**

If local conditions make it impossible to follow the instructions mentioned above, the speaker stacks should be secured so that they cannot be knocked over. Always consult a P.A. or rigging expert.

## **Prior to operation:**

Carefully read all safety precautions and operating instructions.

## **Storage:**

Keep all safety precautions and operating instructions for future reference.

## **Observe safety precautions:**

Please observe all safety precautions stated in the user's manual.

## **Observe operating instructions:**

Please observe all operating and application instructions.

## **Penetration of objects and/or liquids into the speaker cabinet:**

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

## **Damages and repairs:**

Speakers must be repaired by qualified personnel if:

- objects or liquids have entered the speaker cabinet,
- the speakers have been subject to rain or moisture,
- they do not work properly or show a clear performance deterioration,
- they have been dropped or if the cabinet has been damaged.

## **Maintenance:**

The maintenance work to be carried out by the user is listed in the user's manual. Any additional maintenance/repair work must be carried out by qualified 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 box.

It is one of my most pleasant tasks to write this letter to you, because it is 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 with its unique sound character and broad range of features. The task to design the new EUROLIVE SERIES certainly meant a great deal of responsibility, which we assumed by focusing on you, the discerning user and musician. It also meant a lot of work and night shifts to accomplish this goal. But it was fun, too. Developing a product usually brings a lot of people together, and what a great feeling it is when everybody who participated in such a project can be proud of what we've achieved.

It is our philosophy to share our joy with you, because you are the most important member of the BEHRINGER team. With your highly competent suggestions for new products you've greatly contributed to shaping our company and making it successful. In return, we guarantee you uncompromising quality (manufactured under the stringent BEHRINGER quality-control system) as well as excellent technical and audio properties at an extremely favorable price. All of this will enable you to fully unfold your creativity without being hampered by budget constraints.

We are often asked how we can manage to produce such high-grade devices at such unbelievably low prices. The answer is quite simple: it's you, our customers! Many satisfied customers means large sales volumes enabling us to negotiate better conditions of purchase for components etc. Isn't it only fair to pass this benefit back to you? Because we know that your success is also our success!

I would like to thank all people whose help on "Project EUROLIVE SERIES" has made it all possible. Everybody has made very personal contributions, starting from the designers of the unit to the many staff members in our company and finally to you, the user of BEHRINGER products.

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. speaker cabinets with incredible cutting power
- ▲ Extremely high sound pressure level for first-class sound and optimum performance
- ▲ Distortion-free reproduction of audio material
- ▲ Optional bi-amping or full range operation on all multi-way systems
- ▲ 1" Titanium tweeter on all multi-way systems for natural high-frequency reproduction
- ▲ BEHRINGER CD-horn technology for controlled dispersion
- ▲ Integrated tweeter protection
- ▲ Trapezoidal cabinet for perfect cluster formation
- ▲ Ultra-rugged carpet covering for efficient cabinet protection
- ▲ Plastic corners for additional protection and safe stacking
- ▲ Ergonomically shaped handles for easy transport
- ▲ Solid steel grille and polyester foam protect the speakers against moisture and mechanical damage
- ▲ All "front-of-house" models include an adapter for stand mounting
- ▲ Subwoofers with zero-backlash threaded flange M20 for installation of commercial spacer rods
- ▲ Floor monitors feature two different cabinet angles
- ▲ Durable, professional quality input/output connectors
- ▲ Cabinet constructed entirely of environmentally-friendly E1-MDF wood
- ▲ The EUROLIVE SERIES includes floor monitors, full range cabinets and subwoofers
- ▲ Manufactured under the BEHRINGER quality control

# TABLE OF CONTENTS

<b>1. INTRODUCTION</b> .....	<b>6</b>
1.1 Before you begin .....	6
1.2 Connection .....	6
<b>2. OPTIMUM PERFORMANCE</b> .....	<b>7</b>
2.1 Tweeter .....	7
2.2 How to avoid feedback .....	7
2.3 How to avoid feedback when using turntables (DJ Applications) .....	7
2.4 Speaker protection through low-cut filter .....	7
<b>3. OPERATING MODES</b> .....	<b>8</b>
3.1 FULL RANGE operation .....	8
3.2 BI-AMPING operation .....	8
3.2.1 Advantages .....	8
3.2.2 Selecting the crossover frequency .....	8
3.3 Looping through subwoofer signals .....	8
<b>4. PIN ASSIGNMENTS</b> .....	<b>8</b>
4.1 FULL RANGE Operation .....	8
4.2 BI-AMPING Operation .....	9
4.3 Subwoofer .....	9
<b>5. WHAT ELSE SHOULD BE CONSIDERED?</b> .....	<b>9</b>
5.1 Length and cross-section of speaker cables .....	9
5.2 Power amp performance .....	9
5.3 Fuses .....	9
5.3.1 How to protect your system .....	9
<b>6. SPECIFICATIONS</b> .....	<b>10</b>
<b>7. WARRANTY</b> .....	<b>11</b>

## 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 an undistorted and well balanced reproduction of your music material.

Its numerous features make the EUROLIVE SERIES the ideal P.A. loudspeaker system both for club gigs and large arenas. We designed the EUROLIVE SERIES to provide you with a consistent and complete range of speakers that gives you all the options you need to expand your P.A. system. All speakers come with pro-level inputs and outputs, so that you are fully free to expand your setup as required.

The robust cabinets ensure that your EUROLIVE speakers will withstand even rough handling on the road. They are made of high-grade and non-polluting E1-MDF boards, which are grooved, multi-glued and free of formaldehydes. Your EUROLIVE speaker 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 the packaging and its 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 to your power amplifier.

 **Make sure to mute your amplifier before you connect the speaker.**

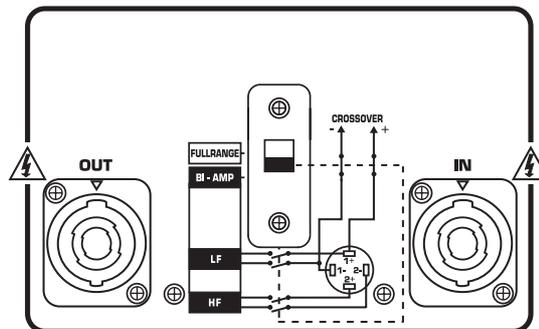


Fig. 1.1: Interface panel of multi-way system

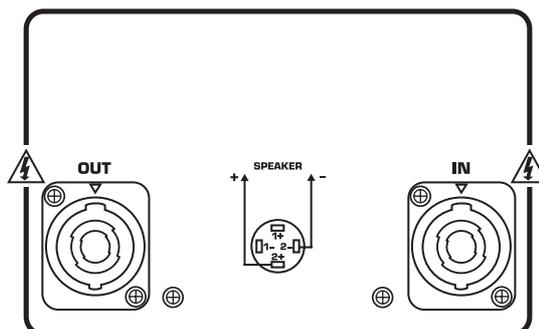


Fig. 1.2: Interface panel of subwoofer

## 2. OPTIMUM PERFORMANCE

We designed the EUROLIVE SERIES for use in a variety of applications. Naturally, the sound of your speaker box largely depends on the acoustic properties of the environment in which it is set up. The following points will give you a few hints enabling you to fully exploit all features of your EUROLIVE speaker system.

### 2.1 Tweeter

High frequencies are the very part of the audio spectrum that ensures a clear sound and speech intelligibility. Although these frequencies can be located most easily, they are also the first to be blocked acoustically. We therefore recommend that you set up your speakers so that the tweeter radiates its signals slightly above the heads of the audience. This will ensure both an optimum dispersion of the high-frequency content and a considerably improved speech intelligibility.

### 2.2 How to avoid feedback

Always place the “front-of-house” speakers (viewed from the audience) in front of the microphones. Use professional floor monitors (e.g. F1220 or F1520), so that the musicians on stage can hear themselves.

### 2.3 How to avoid feedback when using turntables (DJ Applications)

Turntables often produce feedback in the bass range: low frequencies are fed back to the pick-up arm and cartridge to be reproduced again by the speakers. The usual reasons for this effect are speakers set up too close to the turntable, rooms with a wooden floor or elements placed on the stage. In any such case it will be best to move the speakers away from the turntable or to move them off the stage and place them on a solid support. Another possibility is the use of stands, so that there is no direct contact between floor and speakers.

### 2.4 Speaker protection through low-cut filter

Please avoid situations in which rumble noise or low frequencies can lead to an excessive displacement of the speaker diaphragm. Use an equalizer to cut the bass signal below the response curve of the speaker, or use a low-cut or high-pass filter. Most equalizers and sound enhancers provide a low-cut function (e.g. our BEHRINGER ULTRA-GRAPH PRO GEQ3102).

The use of a low-cut filter in the signal path is recommended, in particular, when you are using turntables and CD players as your signal sources. CD players often produce extremely low frequencies which can lead to excessive diaphragm displacement. The only way to avoid damage is to use a high-pass or low-cut filter.

### 3. OPERATING MODES

Except for the PA SUBWOOFER all speaker systems from the EUROLIVE SERIES can be operated in two different modes: FULL RANGE and BI-AMPING. In both modes, the speakers are connected using the high-quality inputs.

 **Never change the operating mode, while an audio signal is active on the EUROLIVE.**

#### 3.1 FULL RANGE operation

Except for the subwoofer all EUROLIVE models are equipped with a built-in passive crossover network, which ensures a smooth transition between the individual frequency range in FULL RANGE mode. This mode is particularly suitable for small clubs and speech applications in churches and schools as well as for all applications that require only a small-scale setup.

#### 3.2 BI-AMPING operation

##### 3.2.1 Advantages

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

##### 3.2.2 Selecting the crossover frequency

When you use an external crossover network such as our BEHRINGER SUPER-X PRO CX3400, please note chapter 6 "Specifications", where you find some information on recommended crossover frequencies. We recommend a slope of at least 12 dB, with higher values providing for improved performance. A slope of 24 dB is ideal.

#### 3.3 Looping through subwoofer signals

All subwoofers from the EUROLIVE SERIES are equipped with two parallel high-quality connectors. PINS 2-/2+ are connected to the speaker. PINS 1-/1+ can be used to loop through signals both in FULL RANGE and BI-AMPING modes. Please follow the instructions given in chapter 4.

### 4. PIN ASSIGNMENTS

		Full Range Mode	Bi-Amping Mode
Multi-way systems	PINS 1-/1+	Full Range Input	Subwoofer Input
	PINS 2-/2+	N/C	Tweeter Input
Subwoofer	PINS 1-/1+	Loop through	-
	PINS 2-/2+	Subwoofer Input	-

*Tab. 4.1: PIN assignments*

#### 4.1 FULL RANGE Operation

- ▲ Use the selector on the rear to set the unit to FULL RANGE mode.
- ▲ Assign the output signal to PINS 1-/1+. PINS 2-/2+ are not used.

## 4.2 BI-AMPING Operation

- ▲ Use the selector on the rear to set the unit to BI-AMPING mode.
- ▲ Assign the subwoofer signal to PINS 1-/1+ and the tweeter signal to PINS 2-/2+.

## 4.3 Subwoofer

- ▲ Assign the subwoofer signal to PINS 2-/2+.
- ▲ Signal loop through: PINS 1-/1+ are arranged in parallel, so you can loop through a full range and/or high-pass signal to another full range speaker box. Connect the free connector on the subwoofer to PINS 1-/1+ on the full range speaker.

# 5. WHAT ELSE SHOULD BE CONSIDERED?

## 5.1 Length and cross-section of speaker cables

Speaker cables with too low a cross-section can considerably reduce the performance of your power amps. The longer the cables, the greater the problem. As a consequence, the user tends to “turn up” the power amp, which in turn can lead to speaker damage. You should never use cables longer than 30 m. For most applications this will not be necessary anyway. The cable cross-section should be at least 1.5 to 2.5 mm<sup>2</sup>.

## 5.2 Power amp performance

Choosing the right power amp can be difficult. Try the following rule of thumb: the amp should provide twice as much power as the speakers can handle. A speaker with a continuous power rating of 200 watts can easily be driven by power amps delivering 400 watts of output power.

## 5.3 Fuses

We do not recommend the use of fuses for audio applications. Speaker damage can be caused by high signal peaks or high output power. However, fuses can only protect the speaker against one of these, but never against both. Additionally, fuses can have nonlinear resistances which can lead to distortion and unexpected overdriving of the speakers.

### 5.3.1 How to protect your system

- ▲ Make sure that your audio signal is always set to correct levels. 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. Please consider our proven compressors BEHRINGER AUTOCOM PRO MDX1400, COMPOSER PRO MDX2200 and MULTICOM PRO MDX4400. All models can also be used as limiters. By eliminating overdriving of your audio signals you can effectively suppress disturbing signal peaks.

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

## 6. SPECIFICATIONS

SYSTEM SPECIFICATIONS	F1220/B1220	F1520/B1520	B1800
Type	F1220: 2-way floor monitor (12" + 1"); B1220: 2-way full range speaker (12" + 1")	F1520: 2-way floor monitor (15" + 1"); B1520: 2-way full range speaker (15" + 1")	Subwoofer (18")
Frequency response	50 Hz - 18 kHz (-10 dB)	50 Hz - 18 kHz (-10 dB)	42 Hz - 250 Hz (-6 dB)
Power rating (RMS)	200 Watts	200 Watts	400 Watts
Power rating <sup>1</sup> (pink noise)	400 Watts	400 Watts	600 Watts
Impedance	8 Ohms	8 Ohms	8 Ohms
Sound pressure level <sup>2</sup> (1 W @ 1 m)	95 dB (Full Space)	95 dB (Full Space)	98 dB
Dispersion	90° x 40°	90° x 40° (F1520); 100° x 40° (B1520)	-
Crossover frequency	2,5 kHz	1,8 kHz	-

COMPONENTS			
Tweeter	44P60A8	44P60A8	-
Woofer	12P200A8	15P200A8	18P400A8

PHYSICAL			
(W * H * D)	F1220: approx. 15.7" * 22.6" * 15.5" (398 mm * 574 mm * 393 mm)	F1520: approx. 18.1" * 25.8" * 16.4" (458 mm * 655 mm * 416 mm)	approx. 23.4" * 27.6" * 20.9" (595 mm * 700 mm * 530 mm)
	B1220: approx. 17.3" * 25.2" * 15.7" (438 mm * 638 mm * 399 mm)	B1520: approx. 20.9" * 28.0" * 16.3" (529 mm * 711 mm * 414 mm)	
Weight	F1220: approx. 21 kg	F1520: approx. 23,10 kg	approx. 35,50 kg
	B1220: approx. 23,25 kg	B1520: approx. 29,75 kg	
Mounting angle F SERIES	30° / 60°	30° / 60°	-

BI-AMPING MODE			
Recommended crossover frequency (external crossover network) <sup>3</sup>	1,8 kHz - 3,5 kHz	1,2 kHz - 2,2 kHz	80 Hz - 150 Hz
Power rating/Impedance Woofer	200 Watts RMS/8 Ohms	200 Watts RMS/8 Ohms	-
Power rating/Impedance Tweeter	60 Watts RMS/8 Ohms (>2,2 kHz/12dB/oct)	60 Watts RMS/8 Ohms (>2,2 kHz/12dB/oct)	-

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

<sup>2</sup> Average value over bandwidth of 100 Hz - 2 kHz (Multi-way systems) and 100 Hz - 250 Hz (subwoofer) according to IEC 268-5.

<sup>3</sup> 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](http://www.behringer.com) or [www.behringer.de](http://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 due to normal wear and tear and/or improper handling by the user, BEHRINGER shall, at its sole discretion, either repair or replace the product.
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:

- ▲ misuse, 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.

---

The information contained in this manual is subject to change without notice. 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 Spezielle Studiotechnik GmbH.

BEHRINGER, EUROLIVE, AUTOCOM, COMPOSER, SUPER-X, MULTICOM and ULTRA-GRAPH are registered trademarks.

ALL RIGHTS RESERVED. © 2000 BEHRINGER Spezielle Studiotechnik GmbH.

BEHRINGER Spezielle Studiotechnik GmbH, Hanns-Martin-Schleyer-Str. 36-38, 47877 Willich-Münchheide II, Germany

Tel. +49 (0) 21 54 / 92 06-0, Fax +49 (0) 21 54 / 92 06-30

---