

# K&F PASSIO



## User's Manual

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## Important Information, Please Read Before Use!

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## 1. Introduction

Thank you for your decision to buy a KLING & FREITAG product. To guarantee a trouble-free operating of the equipment and to allow your KLING & FREITAG PASSIO system to achieve its full potential please read the operating instructions carefully before use. With the purchase of a PASSIO, you have acquired a large sound system with the highest possible quality and performance capabilities. As the owner of a PASSIO loudspeaker, you now have a versatile and highly professional tool which, when operated properly, is a true pleasure to use.

### 1.1 Symbols in User's Manual



Warning



Caution



Notice



Tip

This symbol indicates the possibility of life-threatening danger and a health risk for persons. Not following these instructions may result in serious health problems including potentially fatal injuries.

This symbol indicates a possibly dangerous situation. Not following these instructions may cause minor injuries or cause property damage.

This symbol gives instructions for the proper use of the described products. Not following these instructions may cause malfunctions or property damage.

This symbol indicates notes that help you to handle the described products easier.

### 1.2 Information about this User's Manual

© Kling & Freitag GmbH, all rights reserved.

All specifications in this manual are based on information available at the time of publishing for the features and safety guidelines of the described products.

Technical specifications, measurements, weights and properties are not guaranteed.

The manufacturer reserves the right to make product alterations within legal provisions as well as changes to improve product quality.

**All persons who use the speaker system must have this guide and all further information for safe operations available to them during assembly, disassembly, and use. The speaker system may neither be set up nor used until this manual has been read, understood and kept readily available on site.**

We appreciate any input with suggestions and improvements for this manual. Please send this to us at the following address:

info@kling-freitag.de or to:

KLING & FREITAG GMBH Junkersstr.14 D-30179 Hannover.

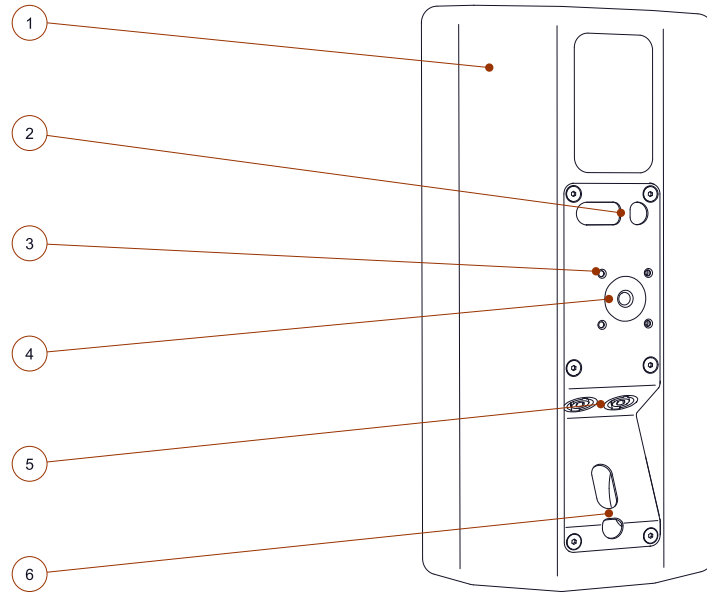
Phone +49 (0) 511 96 99 70, Fax +49 (0) 511 67 37 94.

## 2. Product Description

### 2.1 Scope of Delivery

- Speaker with integrated mount for optional fastener with Pin-Joint Adapter or Adjustable Speaker Mount.
- not\_found

### 2.2 Overview of Components



1. **Loudspeaker enclosure**, hightech moulding material (flame retardant class V0 according to UL94) with textured paint finish
2. **1st safety bar** for 5 mm chain quick link (quick link not included in purchased parts package).
3. **Locking hole** for aligning the optional accessory 'Adjustable Speaker Mount PASSIO' and 'Pin-Joint Adapter PASSIO' in 90° intervals.
4. **Mounting point K&F 'VariPoint'** for mounting the optional accessory 'Adjustable Speaker Mount PASSIO' or 'Pin-Joint Adapter PASSIO' - uses M10 bolt or the quick connector K&F 'Fixing Pin'.
5. **2 x Speakon connector** 4-pin NLT4MP (parallel)
6. **2nd safety bar** for 5 mm chain quick link (quick link not included in purchased parts package).

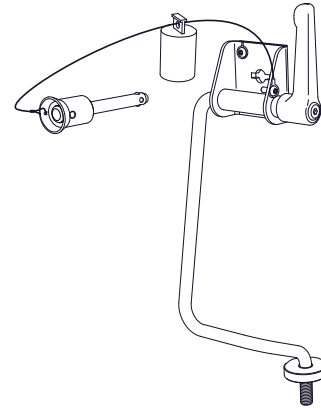
## 2.3 Accessories

### Adjustable Speaker Mount PASSIO - pin fixing

with 'Fixing Pin' and clamp lever

For quick connections using the K&F VariPoint® with the undetachable fixing pin. Can be mounted in a vertical or horizontal position without additional accessories.

Colour: black or white

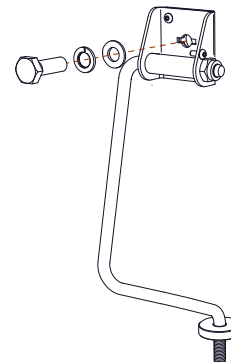


### Adjustable Speaker Mount PASSIO - screw fixing

with screw and nut M10

For use with the K&F VariPoint® using a screw M10. Can be mounted in a vertical or horizontal position.

Colour: black or white

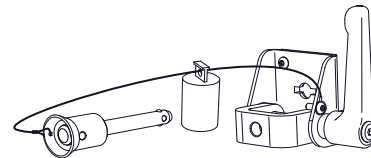


### Pin-Joint Adapter PASSIO - pin fixing

with 'Fixing Pin' and clamp lever

For quick mounting of the PASSIO on i.e. a Super Clamp or a TV-Spigot using the Fixing Pin.

Colour: black



### Pin-Joint Adapter PASSIO - screw fixing

with screw and nut M10

For direct mounting of the PASSIO to i.e. a Super Clamp or a TV-Spigot with a threaded bolt M10

Colour: black



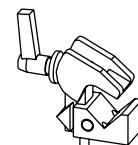
### Super Clamp

with threaded pin M10

for pipes or plates from 13 to 50 mm, for loads up to 15 kg

For use with the 'Adjustable Speaker Mount PASSIO' the additional accessory Mini TV-Spigot is required.

Colour: black



**Mini TV spigot with internal M10 thread.  
Necessary for suspending the Adjustable  
Speaker Mount with a Super Clamp!**

for use with the accessory 'Adjustable speaker  
mount PASSIO' with a 'Super Clamp'

Colour: black



**Stand-Socket M10**

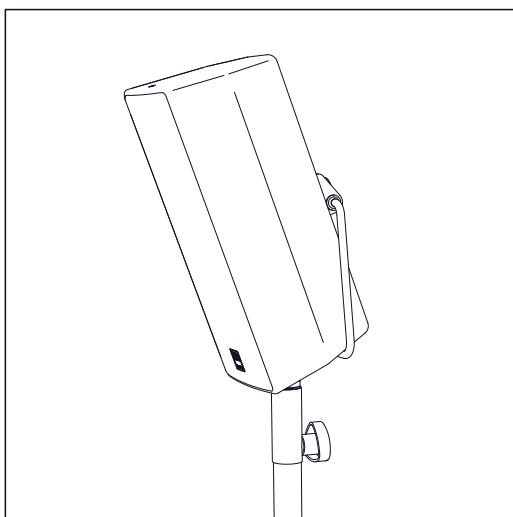
for use with the 'Adjustable Speaker Mount PAS-  
SIO' on a stand

for use with other adjustable speaker mounts a  
fixing screw M10 x 25, a washer and a lock wash-  
er in black are included.

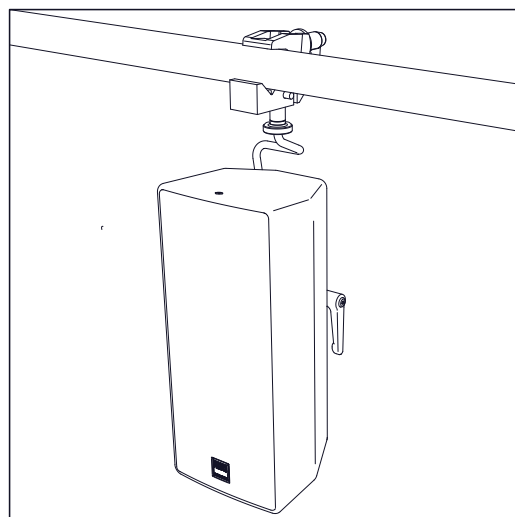
Colour: black



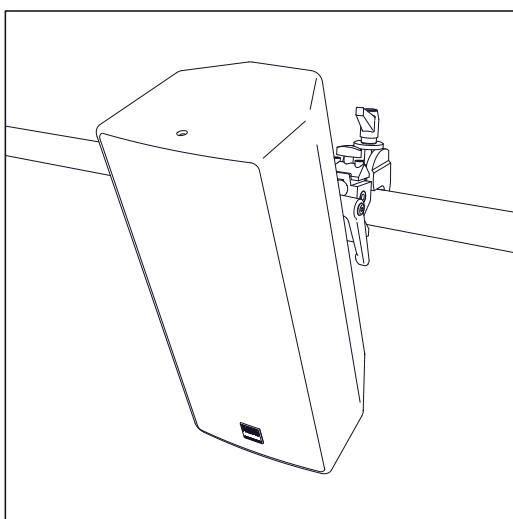
**Examples of use:**



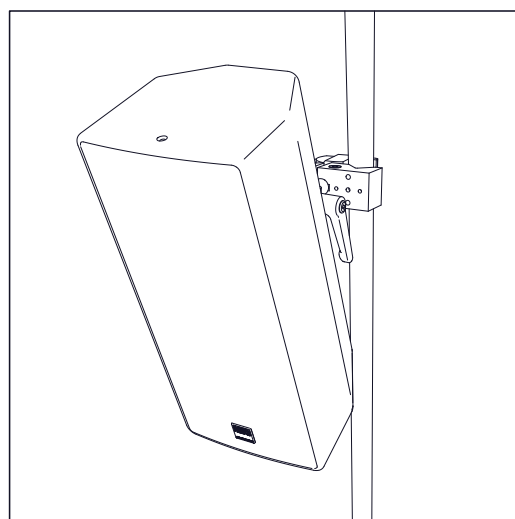
Application example Adjustable Speaker Mount  
PASSIO with stand adapter M10



Application example Adjustable Speaker Mount  
PASSIO with 'Mini TV Spigot' and 'Super Clamp'  
on a horizontal pipe



Application example Pin-Joint Adapter PASSIO  
with 'Super Clamp' on a horizontal pipe



Application example Pin-Joint Adapter PASSIO  
with 'Super Clamp' on a vertical pipe



## **2.4 Required Tools**

**For front foam replacement:** 2.5 mm Allen head wrench

### 3. Safety Instructions

#### 3.1 Mounting the Speakers / Wall and Ceiling Installation



**Warning**

not\_found

The speakers may only be mounted by qualified event technicians or personnel which are instructed by them, adequately. This also applies for wall and ceiling fixations.

The technicians responsible for assembling the speakers on site are responsible for the safe setup and use of the speakers and guarantee this.

Never use signal cables or power cords for suspending, aligning or securing the systems.

Before carrying through ceiling and wall installations, it is essential to consider the load capacity of walls, ceilings and panelling as well as the stability and type of the construction. If there is wall panelling, for example, it is then necessary to examine the solidity of the wall and use the appropriate wall plugs.

Note that the suspension points on the hall ceiling (i.e. shackles, suspension points, or chain points) must comply with the accident prevention regulation BGV C 1 (Event and Production Sites for Stage Presentations) or comparable applicable national standards, and the total load must be approved by an authorised expert.

Make sure to comply with the stipulated tightening torques.

If not otherwise stated in this manual, only original KLING & FREITAG parts may be used for mounting the speakers. The use of other parts - in particular parts by other manufacturers - is not permitted in this case.

Ensure that all installation connections comply with the applicable safety guidelines and that the size and strength are sufficient.

Ensure that all connections are secured against coming loose and that only authorized, statically tested and correctly sized supports, mounting equipment, wire ropes and chains are used.

As a basic principle, you must visually inspect all safety-relevant components of the speaker and the accessory before every use. If there are signs of wear, cracks, or deformation, then you must replace the parts immediately. The visual inspection also includes checking the screwed connections on supporting elements.

The information described here does not relieve the user of the duty to follow the given safety requirements and legal regulations.

#### 3.2 Notes for Mounting the Speakers



**Warning**

Mount the speakers securely. To avoid injury or damage, always be sure to mount the speakers securely so that they do not fall.

Please note that speakers can move as a result of vibrations. To prevent them from falling from their mounted position, they must be secured properly.

When laying out the connecting cables, make sure that nobody can trip.

#### 3.3 Preventing hearing damage



**Caution**

Avoid being too close to operating speakers. This equipment is capable of delivering sound pressure levels in excess of 90 dB/SPL, which may cause permanent hearing damage.

**Notice**

### 3.4 Protecting the Speakers / Operating Safety

In general, audio signals must not be overdriven. This may be caused by mixing consoles, equalizers, effect equipment, etc. and should be indicated on this equipment. We, therefore, recommend turning up the power amplifiers all the way and adjusting the level before the power amplifier in order to avoid overloading the input circuit. In any case, the signal must be reduced as soon as it sounds unnaturally distorted. not\_found

**Operations without K&F SystemRack:**

- To protect the speakers from being destroyed and to avoid fire hazard, they should only be operated with professional power amplifiers with a maximum rated output power of 600W@8Ω.
- If power amplifiers have power ratings lower than 300W@8Ω, then it is imperative that the amplifiers have clipping limiters. Alternately, you can also insert a clipping limiter before the amplifier.
- Power amplifiers can also be overloaded at the input circuit without the amplifier signalling the clipping, i.e. when there is not sufficient headroom in the input circuit.
- To protect the loudspeaker from mechanical damage when high SPL is required a highpassfilter of 24dB/oct. at 60Hz has to be inserted into the signal chain.

**Operations with K&F SystemRack:**

- For optimal performance and operating safety of the PASSIO speakers we recommend using the K&F SystemRack.
- When a power amplifier is overloaded at the output (clipping), then the amplifier activates a clipping warning signal.

**For damage caused by**

- overloading the speakers
- using power amplifiers with other than the recommended maximum output power

we do not assume warranty and excludes liability for possible consequential damage.

**The following signals may damage the speakers:**

- clipping power amplifiers
- permanent high-level signals with high frequency and continuous noise from feedback.
- permanently distorted high-level signals.
- noises, which occur when the amplifier is on while equipment is being connected, disconnected or switched on.

**Do not install devices in any of the following places:**

- where the devices are permanently exposed to direct sunlight.
- where the devices are exposed to high moisture or rain.
- where the devices are exposed to strong vibrations and dust.

**Avoid damage caused by the speakers' magnetic fields**

Speakers are permanently surrounded by a magnetic field, even when they are not connected. Therefore, during transport and placement of the speakers, it is important to ensure that there is a sufficient distance between the speakers and magnetic data media and computer/video monitors (except flat panels).

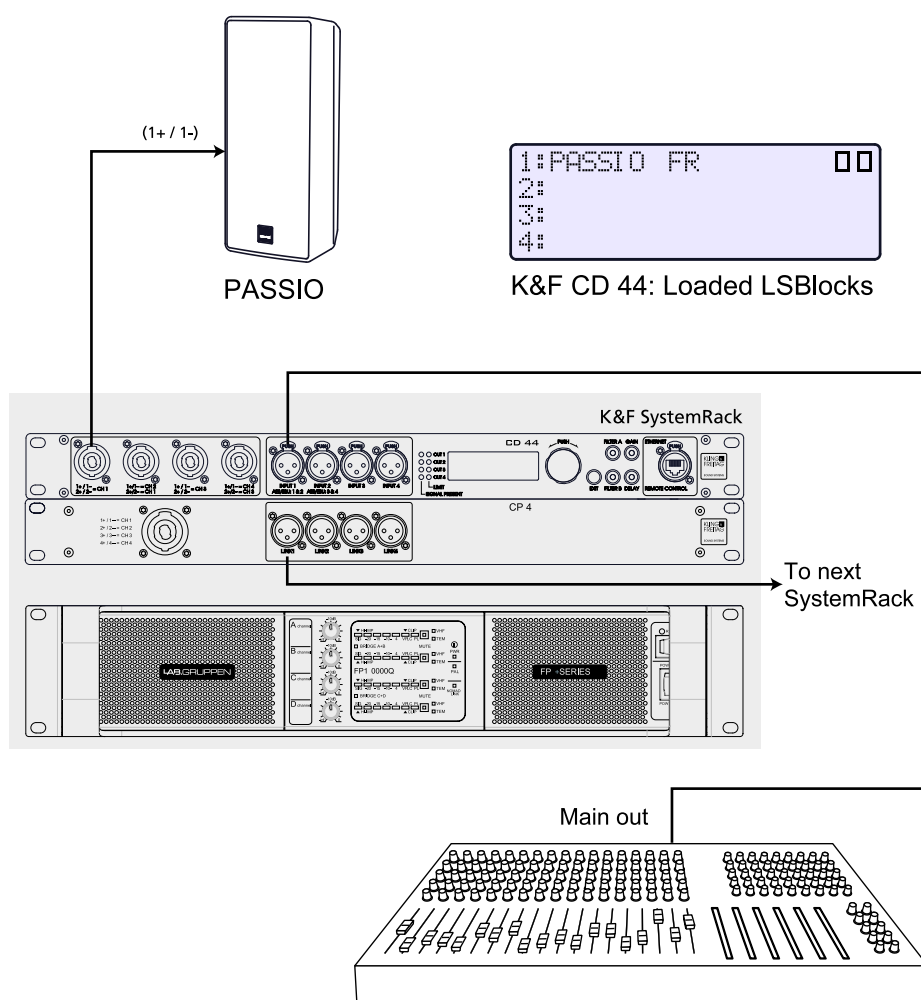
#### 4. Configuration and Connecting Diagram

#### 4.1 Use with Controller CD 44

When operating the loudspeaker with amplifiers without clipping limiter and nominal amplifier power less than 300W@8Ω requires to set a Limit Reduction of 3dB for the K&F CD 44 controller. You can find more detailed information about this option in the K&F CD 44 hardware manual.

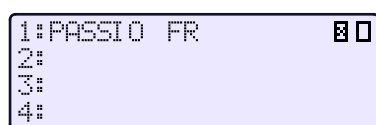
#### 4.1.1 Controller Mode 'Full-Range'

If you want to operate the speaker in fullrange mode, then select the LSBLOCK [PASSIO FR] in the CD 44 for the PASSIO.

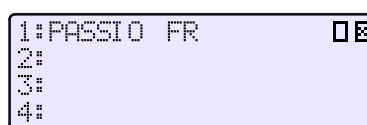


Activate the filter [Cluster] for the top speakers via Filter B if you wish to operate several tops next to one another.

If you need a higher bass level, activate the filter [BassBoost] via Filter B for the top speakers.



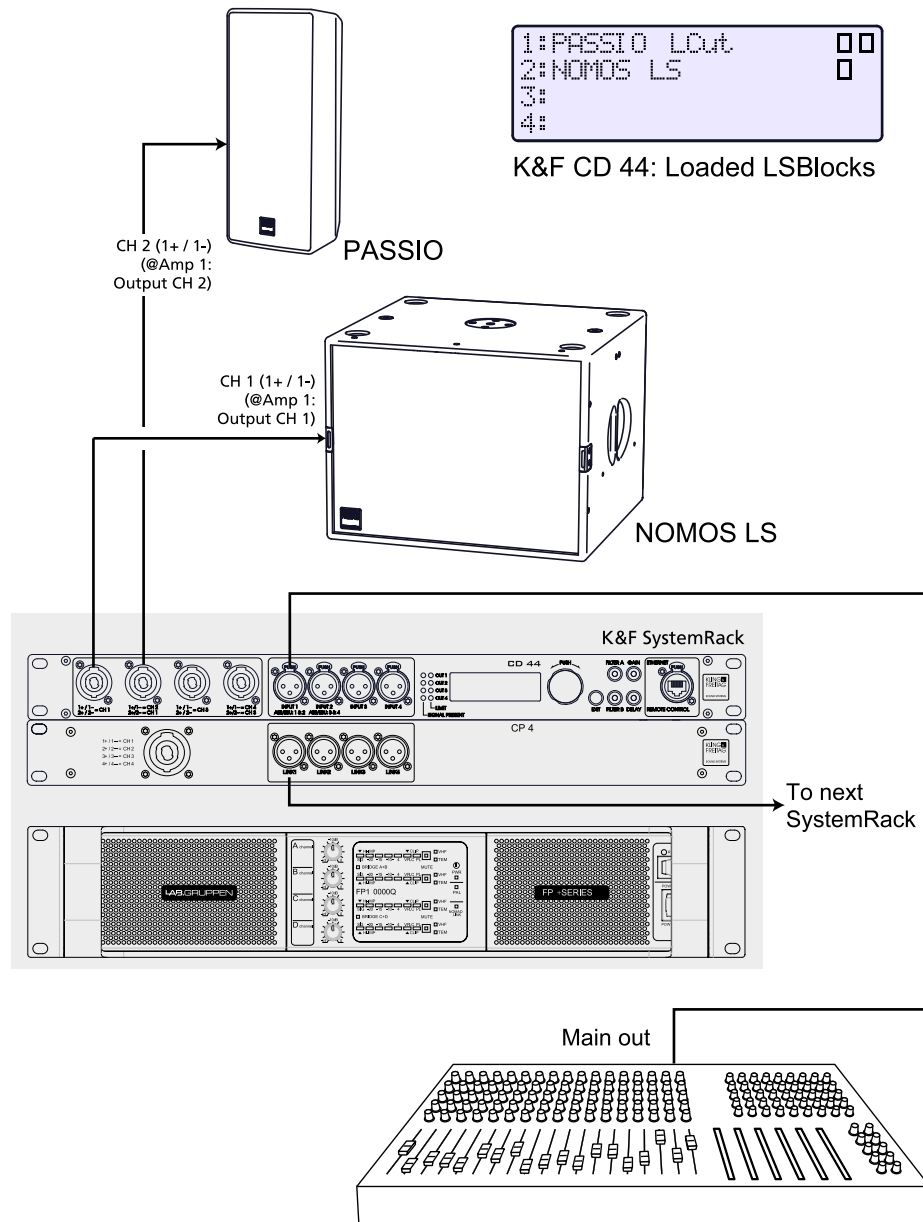
**FILTER B**



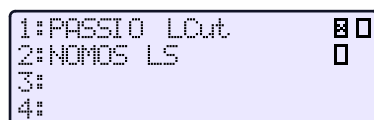
FILTER B

### 4.1.2 Operations with Controller and Subwoofer

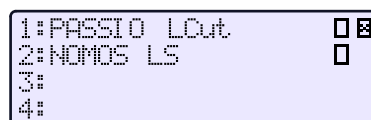
If you want to operate the PASSIO with an additional K&F subwoofer, then select the LSBlock [PASSIO LCut] in the CD 44 for the PASSIO.



Activate the filter [Cluster] for the top speakers via Filter B if you wish to operate several tops next to one another.



If you need a boost in the high frequency range (e.g. for compensating the high frequency attenuation for larger distances), activate the filter [HighBoost] via Filter B for the top speakers.



If necessary, adjust the correct level balance with the output gain of the subwoofer on the CD 44.

### 4.1.3 Controller Mode with Subwoofer in Overlap Mode

In full-range mode, the speaker PASSIO is compatible with all K&F subwoofers that are run in the 100Hz mode.

This so-called 'overlap mode' can make sense for surround uses when the tops should transmit the complete frequency spectrum and the subwoofer is used as an 'effect bass'.

In the overlap mode, the bass boost must not be switched on.



Tip

### 4.1.4 Controller Mode with Subwoofer in 1-Channel Mode

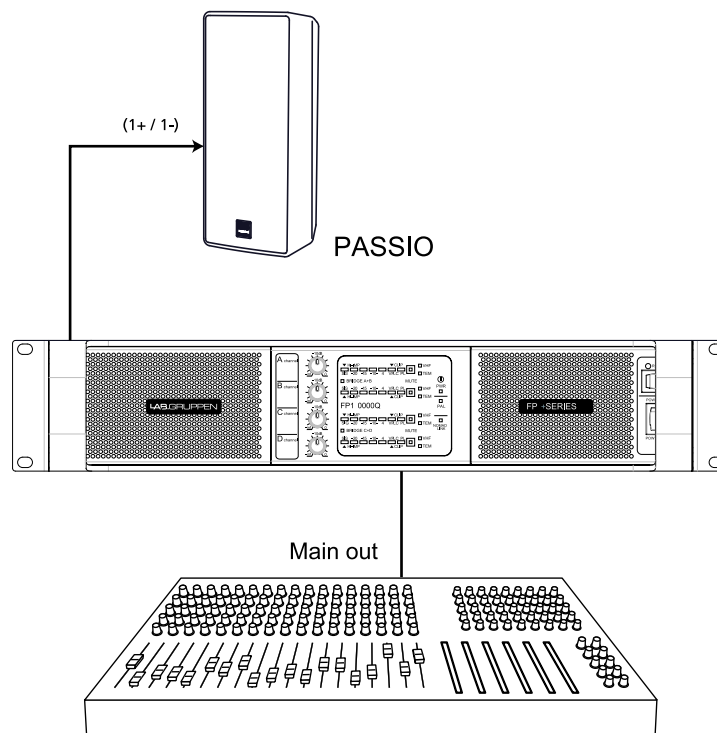
You can operate the speaker PASSIO together with several K&F subwoofers on a single controller channel. To do so, load the matching LSBlock for the speaker combination into the controller. For further information please see the user's manual of the subwoofers that are suitable for 1-channel mode, e.g. NOMOS LS.

## 4.2 Passive Mode (without Controller)

The PASSIO system is designed so that it can be operated passively without a controller directly on a power amplifier. Follow the instructions in chapter "[Protecting the Speakers / Operating Safety]" beginning on page 10.

### Notice

- For safe operation, they must only be operated with professional power amplifiers with a maximum rated output power of 600W@8Ω (equiv. 1200W@4Ω).
- If power amplifiers have power ratings lower than 300W@8Ω, then it is imperative that the amplifiers have clipping limiters. Alternately, you can also insert a clipping limiter before the amplifier.
- To protect the loudspeaker from mechanical damage when high SPL is required a highpassfilter of 24dB/oct. at 60Hz has to be inserted into the signal chain.



**Notice**

## 5. Wiring instructions

- Before connecting your PASSIO loudspeaker switch off all equipment and turn down all level controls.
- Only use high-quality speaker cables with a sufficient wire gauge. The wire gauge depends on the length of the speaker cable.  
**Minimum Wire Gauge (mm<sup>2</sup>)**  
**= Required Cable Length (m) / (2 x Speaker Impedance (Ω))**
- For connections to the power amplifier inputs, please use 2-pin shielded microphone cable (balanced) with high-quality connectors.
- Avoid ground loops.
- Please pay attention to the pin assignments shown in this manual.
- Make sure that the +/- polarity of the speakers at the amplifier is correct. When simultaneously using power amplifiers from different manufacturers, be sure to use the correct specific pin configuration. It may be necessary to modify the pin configuration on the power amplifiers or on the connectors leading to them.
- Upon completing the wiring, ensure that the connected speaker channels are working in phase. To do so, use i.e. a phase checker. A phase error can also be recognized when the connected channels are used simultaneously. During simultaneous use the bass frequencies become notably quieter or the mid-frequencies such as voices cannot be located.
- If several loudspeakers are connected, the signal can be linked through parallel from one loudspeaker to the next. Please make sure that the total impedance of the loudspeakers  $R(\Omega)$  is not lower than the minimal impedance indicated on the power amplifier.  
 **$1/R1 + 1/R2 + 1/R3 + \dots = 1/R_{total}$**

**Notice**

## 6. Operating the Speakers

- Switch off all equipment and turn down all level controls of the mixing console and the power amplifiers.
- Wire your PASSIO systems according to the instructions in this manual.
- Switch on the mixing console first, then the controller and the power amplifier. Always use the before mentioned switching order. Otherwise switching noises may damage the sound system.
- If there is interference, turn off all appliances in the reverse order and check all cable connections.
- Successively turn up the individual power amplifier channels and send a signal with low volume to the system. Check to see if the desired signals are applied to the intended speakers and make sure there is no interference.  
**With controller:** The SIGNAL LEDs of the CD 44 Controller will light up if the output level is higher than -45 dB. Your system should now be ready for operation.
- Turning down the input level controls may not always prevent distortions in the input section of the power amplifier, especially if this section has a relatively low headroom. A clipping signal may not be displayed by the clipping indicator then! To prevent signal interruptions or damages to the speakers, turn the level controls of the power amplifier to the maximum position, if possible. Set the output level of the mixing console or the controller to a level that doesn't overload the power amplifiers or decrease the limiter threshold of the controller.
- When turning off the system, the input controls for the power amplifiers should be turned down first followed by the power switches of the amplifiers. After that, the other appliances can be turned off.



## 7. Transport and Storage

The PASSIO is protected against short-term moisture. not\_found The PASSIO System is not designed for long-term use in a corrosive environment.

Make sure that the system is adequately ventilated during longer storage periods so that possible residual moisture can escape from the equipment.

Furthermore, you should ensure that the PASSIO System is protected from mechanical strain to prevent possible damage.

We recommend using suitable transport and storage cases that protects from the above-mentioned influences.

## 8. Maintenance and Care

### 8.1 Inspection Regulations



Warning

For the owner and user, it is mandatory to be aware of the safety relevance of speakers that can be flown.

Please note that the mains cables are delivered with varying connector options or with open wires (mains side), depending on the country or order number.

The PASSIO system can exhibit signs of wear over the years, i.e. from mechanical strain, transport damage, corrosion, or improper handling. If speakers are to be flown, this always means there is a high safety hazard.

As a basic principle, you must visually inspect the PASSIO System every time you suspend it and take it down. For fixed installations, you must inspect the speaker for signs of wear at regular intervals.

During these inspections, you must especially look out for deformations, cracks, dents, damage to threads, and corrosion. Mounting devices such as shackles, chains and wire ropes also have to be checked for signs of wear or deformation carefully.

not\_found PASSIO

**The inspection requirements vary depending on application and country of use. Observe the requirements that are relevant for you. If in doubt, contact local authorities.**

In many countries, regular inspection of mounting components and accessories is required. In most cases (e.g. german BGV C1), an additional annual inspection is required that must be done by a technical expert. Additionally, a detailed inspection carried through by a legally certified or official authority is required every four years.

In this context, it is very important to keep an inspection log book. In this inspection log book, the data for every used accessory is entered at the periodic inspections, making the data available at all times for possible inspections. This book should document maintenance measures and inspection intervals and contain parts lists.

## 8.2 Replacing the Front Foam

The front foam behind the front grille is held in place by an elastic band. This makes it possible for you to easily replace the damaged or soiled foam yourself.

1. Remove the grille attachment screws with a 2.5mm Allen key.
2. Remove the grille from the speaker.
3. Remove the old filter foam behind the elastic band.
4. Pull the new or cleaned filter foam behind the elastic band.
5. Fasten the grille back onto the speaker using the attachment screws.



**Tip**

In doing so, make sure that the clamping nuts on the grille mounting flaps are aligned with the drill holes in the enclosure. You can set the clamping nuts into the proper position using the Allen key before applying the screws.

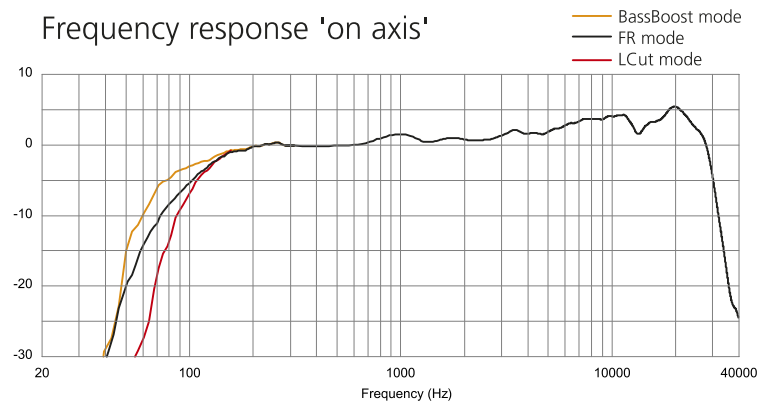
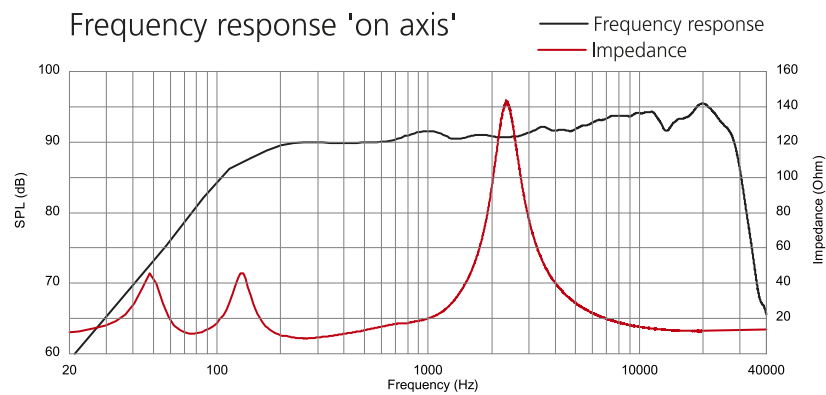
## 9. Technical Specifications [S]

<b>Design</b>	Passive 2-way bassreflex system
<b>Frequency range -10 dB</b>	75 Hz - 31 kHz
<b>Frequency range +/- 3 dB</b>	110 Hz - 28 kHz
<b>Coverage angles nominal</b>	70° x 60° (H x V)
<b>Power Handling</b>	200 W nominal <sup>1)</sup>
	400 W program <sup>2)</sup>
<b>SPL (1W / 1m)</b>	92.5 dB SPL
<b>Max. SPL (1m)</b>	121.5 dB SPL
<b>Components</b>	2 x 5" low-mid chassis
	1" Dome tweeter plus cd-horn
<b>Impedance (nominal)</b>	12 $\Omega$ , Zmin 8 $\Omega$ (200 - 350 Hz)
<b>Connectors</b>	(+1/-1) 2 x Speakon 4-pol NLT4MP IN parallel with OUT
<b>Enclosure</b>	high tech moulding synthetics with 25° and 55° monitor angles (flame retardant class V0 accord- ing to UL94), K&F VariPoint to fasten hardware, sunk-in and to the bottom faced Speakon con- nectors, 5° angle on top and bottom for incon- spicuous design, textured paint finish in black, ex- changeable front grille with black acoustic foam behind it
<b>Dimensions</b>	180 x 415 x 173 mm
<b>Weight</b>	5.2 kg
<b>Options</b>	'Special finish in RAL colours'

1) Pink noise 40 - 5000 Hz, 2 h; 2) as 1) but with 50% duty cycle

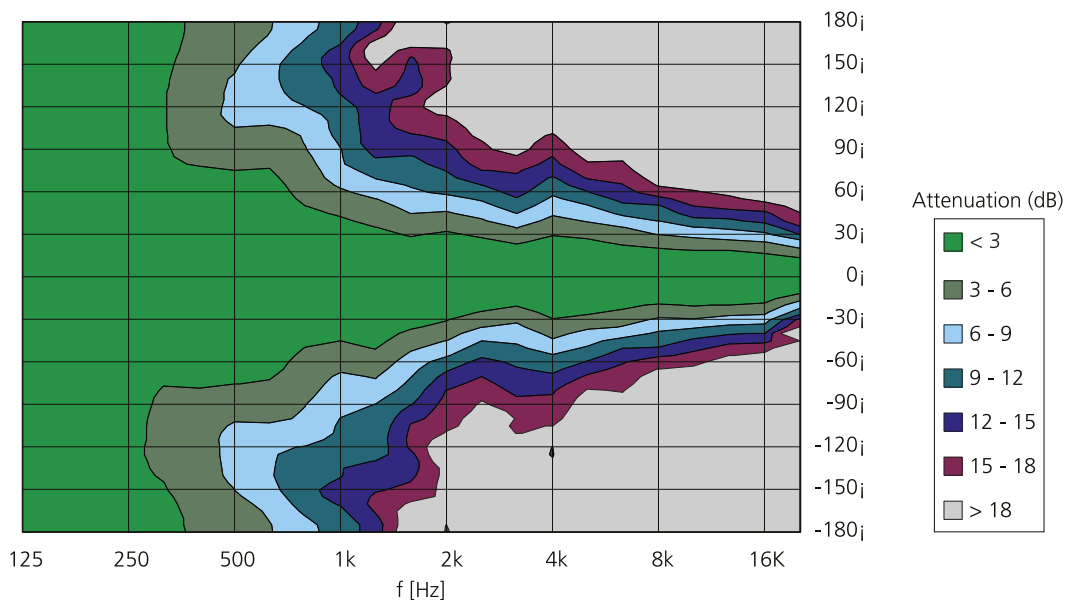
## 10. Measuring diagrams

### 10.1 Frequency range PASSIO

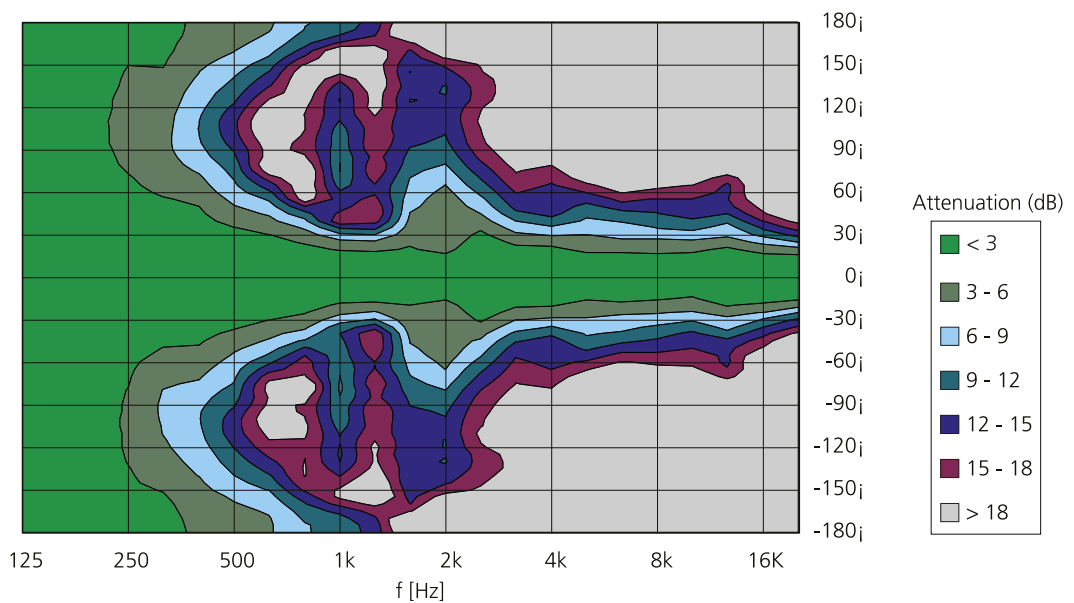


## 10.2 Coverage PASSIO

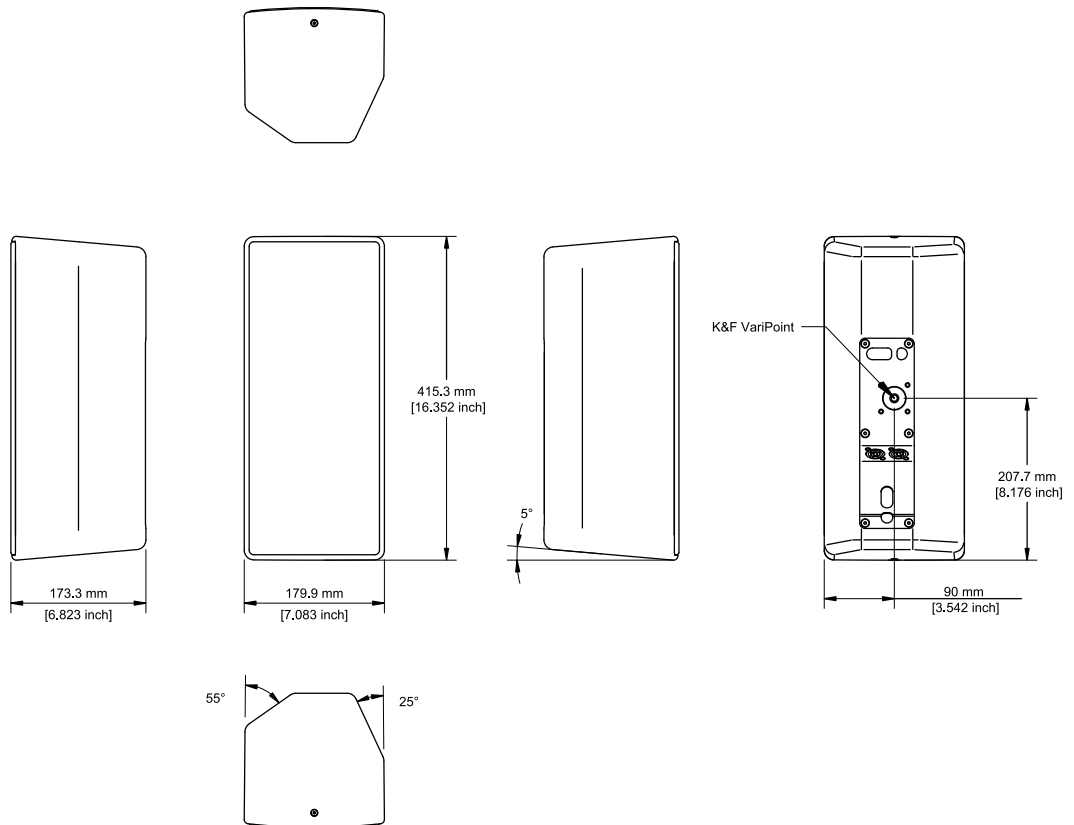
### Horizontal



### Vertical



## 11. Dimensions



## 12. Disposal

Please recycle the packaging material of the device.

### 12.1 Regulations for Disposal

#### 12.1.1 Germany

**It is not allowed to dispose of used electrical equipment as domestic waste.**

**But please do not dispose of them at official collecting points for recycling either!**

All KLING & FREITAG products are plain business-to-business (B2B) products. KLING & FREITAG products labelled with a waste bin sign have thus to be disposed of by KLING & FREITAG alone. Please call KLING & FREITAG at the number stated below if you have a KLING & FREITAG product to be disposed of. We will offer you a straightforward and professional disposal with no costs involved.

If there is no waste bin sign on one of your KLING & FREITAG products, because it has been sold before 24 March 2006, then by law the owner is in charge of the disposal. In this case we will be happy to assist and offer you proper ways of disposal.

**Telephone number to call about the disposal of used KLING & FREITAG products: +49 (0) 511-96 99 7-0**

Explanation: With the ElektroG (law relating to electrical and electronic equipment and appliances) we have complied with the EU-directive on waste electrical and electronic equipment (WEEE, 2002/96/EC).

From 03/24/2006 onwards KLING & FREITAG GmbH has thus labelled all products mentioned in the WEEE with a sign with a crossed out waste bin and a white bar below. This sign indicates that the disposal as domestic waste is prohibited and that the product has been put into circulation on 03/24/2006 at the earliest.

KLING & FREITAG GmbH has been legally registered as a manufacturer with the German registration office EAR. Our WEEE registration number is: DE64110372.

For the German Registration office EAR we have accredited that our products are soleB2B products.

#### 12.1.2 EU, Norway, Iceland, and Liechtenstein

**It is not allowed to dispose of used electrical equipment as domestic waste.**

From 08/13/2005 onwards KLING & FREITAG GmbH has thus labelled all products for EU-Member countries as well as Norway, Iceland and Liechtenstein (except Germany) mentioned in the WEEE with a sign with a crossed out waste bin and a white bar below.

This sign indicates that the disposal on domestic waste is prohibited and that the product has been put into circulation on 08/13/2005 at the earliest.

Unfortunately the European directive WEEE has been complied with implementing different national provisions of law throughout all member countries, which makes it impossible for us to offer consistent solutions for the disposal throughout Europe.

Responsible for complying with these provisions of law is the local distributor (importer) of each country.

For proper disposal of used products in accordance with these local provisions in the mentioned countries of the European Union (except Germany) please ask your local dealer or the local authorities.

#### 12.1.3 All other Countries

For proper disposal of used products in accordance with local provisions in other than the above mentioned countries please ask your local dealer or the local authorities.

