

K&F GRAVIS 8



User's Manual

Translation of the original instructions

Version 3.1

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**Important Information,
Please Read Before Use!**

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1. Introduction

Thank you for purchasing a KLING & FREITAG product. To guarantee a trouble-free operating of the equipment and to allow your KLING & FREITAG GRAVIS 8 system to achieve its full potential read the user's manual carefully before use. As the owner of a GRAVIS 8 loudspeaker, you now have a versatile and highly professional tool which, when operated properly, is a true pleasure to use.

1.1 Icons Used



Warning



Caution



Notice



Tip

This icon indicates a risk of injury or death. Not following these instructions may result in serious health problems including potentially fatal injuries.

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

This icon marks instructions for proper use of the described products. Not following these instructions may cause malfunctions or damage.

This icon marks information provided for simplified use of the described products.

1.2 About this Manual

© KLING & FREITAG GmbH. All rights reserved.

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

We assume no responsibility for technical specifications, dimensions, weights, and properties.

All information in this manual is subject to change without notice.

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 these user's manual has been read, understood and kept readily available in site.

All KLING & FREITAG manuals are originally authored in German.

KLING & FREITAG spare manuals are separately available for order or can be downloaded from our website: www.kling-freitag.de.

Contact Us:

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2. Product Description

The GRAVIS 8 is a high performance all-round speaker whose two monitor angles allow for it to be used not only as a highly professional mid-high range PA speaker, but also as a versatile stage monitor. To fly the speaker, you can use the unique KLING & FREITAG 'VariPoint' Flying Points with the quick connecting 'K&F Lifting Pin', the 'K&F eyebolt' or other K&F accessoires. The model GRAVIS 8 W is equipped with a rotatable tweeter horn with a coverage angle of 85° x 55°. Its elegant design suitable for galas or TV provides for an attractive appearance on all stages, clearly setting the GRAVIS 8 apart from other PA speakers in its performance class.

2.1 Items Included

- PA-Lautsprecher with 5 x K&F 'VariPoint' and pole mount adapter for versatile, quick and save installation.
- User's Manual

2.2 Components

1. **flying and securing point K&F 'VariPoint' (5x)** for use with the 'K&F Lifting Pin', K&F eyebolt or other K&F accessories.
2. **Speaker handle with drill hole** prevents liquids from building up in the handle area.
3. **handle**
4. **speaker enclosure**
5. **SpeakOn connector (2x)** 4-pin NLT4MP (parallel)
6. **Plastic gliding foot (12x)** 4 x on the bottom, 4 x on the 35° monitor side, 4 x on the 55° monitor side
7. **front grill (not shown)** with a hexagonal hole pattern and acoustic foam behind it
8. **High frequency horn** rotatable
9. **Cabinet Flange** for using the loudspeaker on a speaker stand

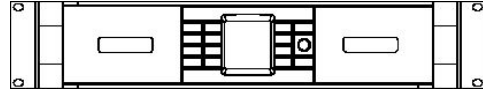
2.3 System Requirements

Lab.gruppen IPD 2400



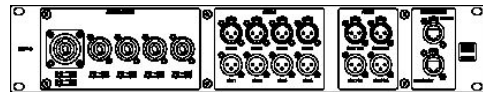
or

K&F PLM+ 20k44 (SystemAmp, ProRental)
K&F PLM+ 12k44 (SystemAmp, ProRental)



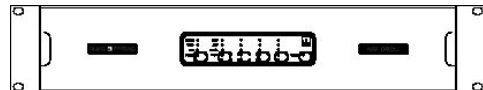
with

K&F Connector Panel CP+
Terminalpanel (optional)



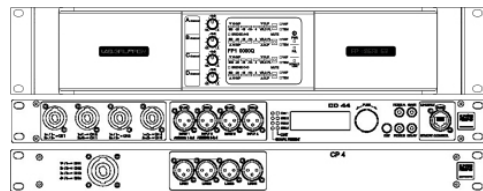
or

K&F D200:4 (SystemAmp, InstallSound)
K&F D120:4 (SystemAmp, InstallSound)
K&F D80:4 (SystemAmp, InstallSound)



or

K&F SystemRack



3. Safety Instructions

3.1 Mounting the Speakers / Wall and Ceiling Installation



Warning

Suspended loads pose a safety risk.

Only qualified technicians are permitted to perform the installation steps. Be sure to use personal protective equipment at all times.

The technicians installing the speaker on site are responsible for and guarantee safe setup and use.

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

Before installing, check the stability, strength, and materials of walls, ceilings, and boarding. For example, use suitable rawlplugs for wall panels and make sure the strength is sufficient.

Note that the suspension points on the hall ceiling (i.e. shackles, attachment points, or chain hoists) must comply with the DGUV regulations 17 and 18 or similar locally applicable accident-control standards. The maximum load must have been certified by an authorized expert.

Be sure to tighten all bolts and screws to the specified torque.

Unless otherwise stated, use only KLING & FREITAG original parts for mounting the speakers. Never use other parts (in particular, parts not made by KLING & FREITAG).

Make sure all fittings used are suitable for the task at hand and meet all relevant safety requirements.

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.

Be sure to always visually inspect all safety-related speaker and accessory components before use. If there are signs of wear, cracks, or deformation, etc., replace the affected parts immediately. Visual inspection also includes checking all screwed connections of supporting components.

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.

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

Run the cables in a way that nobody can trip over them.

3.3 Preventing Hearing Damage



Caution

Keep your distance from operating speakers. This equipment is capable of delivering sound pressure levels in excess of 90 dB SPL, which may cause permanent hearing damage.

3.4 Protecting the Speakers / Operating Safety

Notice

GRAVIS 8 speakers may only be used in combination with a K&F SystemAmp/SystemRack.

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. When a power amplifier is overloaded at the output (clipping), then the amplifier activates a clipping warning signal. In any case, the signal must be reduced as soon as it sounds unnaturally distorted.

For damage caused by

- overloading the speakers or
- using the speakers without K&F SystemAmp/SystemRack

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

The following signals may damage the speakers:

- 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.

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 always approx. 1 m between the speakers and magnetic data media and computer/video monitors.

4. Suspending the Speakers



Warning

By using the K&F 'Lifting Pin' or the M10 x 17 eyebolts available as optional accessories from Kling &Freitag, you can fly the speaker.

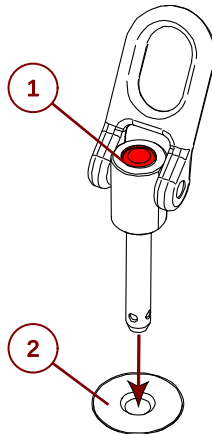
According to DGUV accident prevention regulations, a secondary safety component must be used when speakers are suspended with K&F LIFTING PINS.

This secondary safety component must allow no drop.



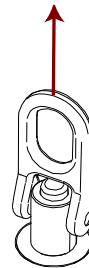
Warning

1)



Push the release button 1 and completely insert the lifting pin into the flying point 2.

2)



Let go of the release button when you have completely inserted the bolt so that the release button pops back up. Ensure that you cannot pull out the lifting pin any more.



Tip

For flying the loudspeaker or for fixing it on a wall or ceiling we recommend you to use the accessories "Adjustable Speaker Mount GRAVIS 8", "U-Mount Wall/Ceiling Bracket GRAVIS 8" or "Adjustable Wall Mount 50".

By using these accessories, you can easily adjust mounted speakers to the desired position.

Securing the Speakers (Secondary Safety Device)

The flying and securing point K&F 'VariPoint' and the eyebolt or the K&F Lifting Pin are suitable for securing a secondary safety device according to the German safety regulations BGV C1.

Note the following specifications for loads of more than 10 kg:

	wire length	wire diameter	max. falling height
Wire rope according to DIN EN 56927 (without damping element)	0.6 m / 1.0 m	5 mm	0.2 m
Wire rope according	1 m	4 mm	0.2 m

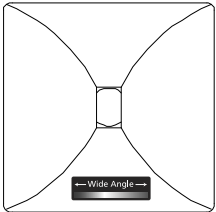
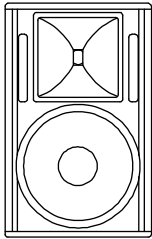
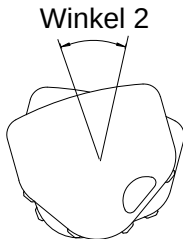
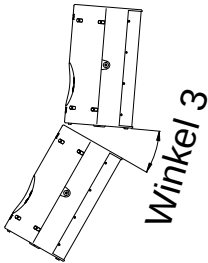
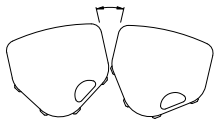
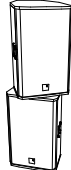
to DIN EN 56927 (without damping element)			
Major Saveking® safety wire	0.6 m / 1.0 m	3-5 mm	0.2 m

5. Arrayed Speaker (Cluster)

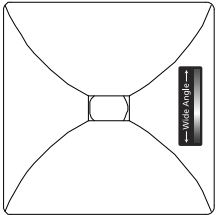
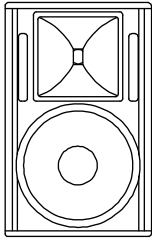
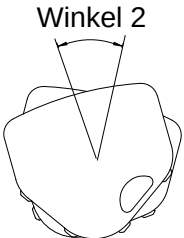
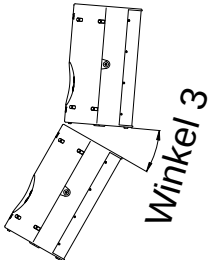
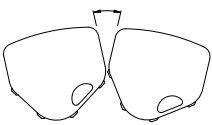
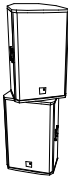
If the loudspeaker are operated through K&F system controller, we recommend to use the 'Top Low Cut' switch for this operation. So you can optimize the frequency response for this application.

When operating the systems without any K&F system controller, you should decrease the frequencies below 300 Hz for 3-4 dB.

5.1 Horn not rotated

 not rotated horn	 standing speakers	 Winkel 2	 Winkel 3
		 Winkel 1	 A smaller angle 3 results in a smaller vertical coverage angle but increases the sound power level.
Combination	Angle 1	Angle 2	Angle 3
Gravis 8W with Gravis 8W	40°	50°	20° - 30°
Application	Increasing the horizontal coverage angle, e.g. for wide audience areas	Increasing the horizontal coverage angle and sound pressure level for larger distances	

5.2 With rotated Horn

 rotated horn	 standing speakers		
			A smaller angle 3 results in a smaller vertical coverage angle but increases the sound power level.
Combination	Angle 1	Angle 2	Angle 3
Gravis 8W with Gravis 8W	20°	30°	30°
Application	Increasing the horizontal coverage angle, e.g. for wide audience areas	Increasing the horizontal coverage angle and sound pressure level for larger distances	Increasing the vertical angle, e.g. for covering balconies

6. Rotating the high frequency horn

When operating upright, the GRAVIS 8 W has a standard practice-orientated coverage characteristic of 85° x 55° (hor. x vert.). When you use it as a stage monitor, you have a good coverage into the depth of the stage and an optimal lateral sound field boundary on the stage. For special uses, the horn can also be rotated.

Required tools:

- 3 mm Allen key for loosening the front grille and horn tweeter

If you wish to rotate the horn, proceed as follows:

1. Remove the grille screws with a 3 mm Allen key and remove the front grille.
2. Remove the horn screws with a 3 mm Allen key.
3. Turn the horn by 90°.
4. Screw on the horn tightly again.
5. Mount the front grille with the 6 grille screws.

Notice

7. Wiring Instructions

- Before connecting your GRAVIS 8 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.
Min. Wire Gauge (mm²) = Req. Cable Length (m) / (2xSpeaker Impedance (Ohm))
- For connections to the power amplifier inputs, use 2-pin shielded microphone cable (balanced) with high-quality connectors.
- Avoid creating ground loops.
- Be sure to note the pinouts shown in these user's 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 wiring, ensure that the connected speaker channels are working in phase, for example, using a voltage tester. When the connected channels are used simultaneously, you can identify out-of-phase statuses by bass cancellation or mid-frequency signals (e.g. voices) that cannot be located properly.
- If several loudspeakers are connected, the signal can be linked through parallel from one loudspeaker to the next. Make sure that the total impedance of the loudspeakers $R(\text{Ohm})$ is not lower than the minimal impedance indicated on the power amplifier. $1/R_1 + 1/R_2 + 1/R_3 + \dots = 1/R_{\text{total}}$

Notice

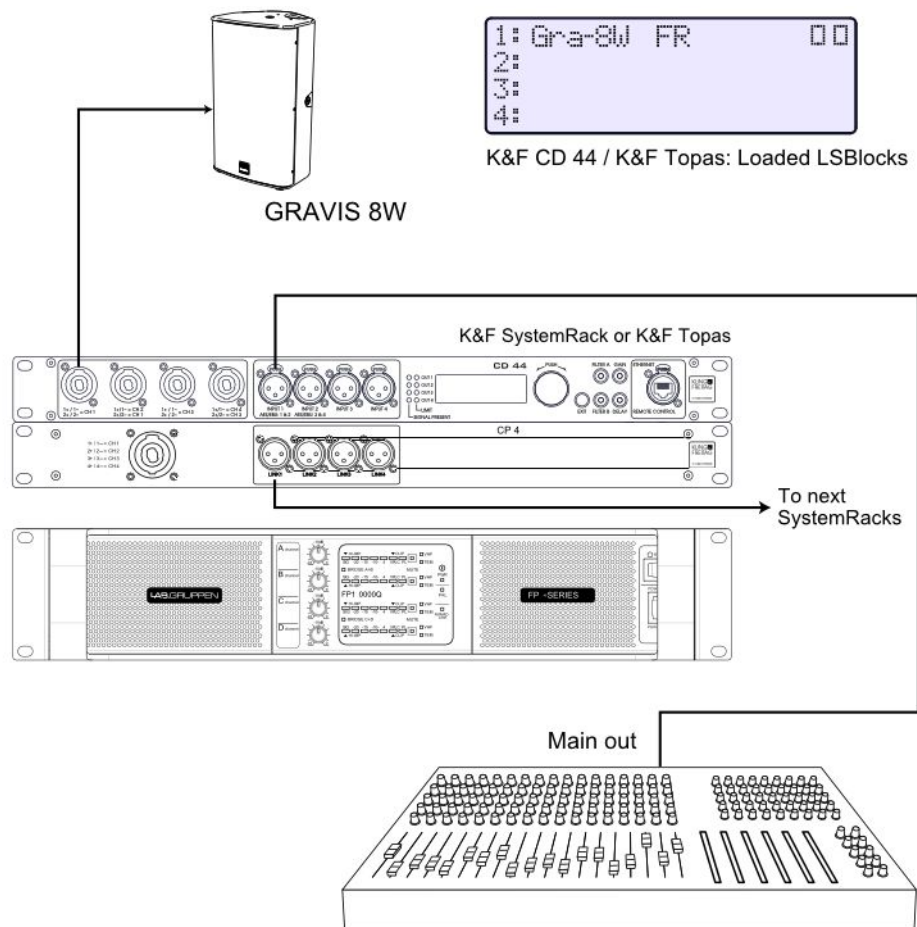
8. First-time Use

- Switch off all equipment and turn down all level controls of the mixing console and the power amplifiers.
- Wire your GRAVIS 8 systems according to the instructions in these user's 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 whether the audio is properly routed to the appropriate speakers. Make sure no noise is heard through those speakers.
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.

9. Configuration and Connecting Diagram

9.1 Controller Mode 'Full-Range'

If you want to operate/run the GRAVIS 8 in fullrangemode, select the LSBlock Gra-8 FR.



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



FILTER B

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

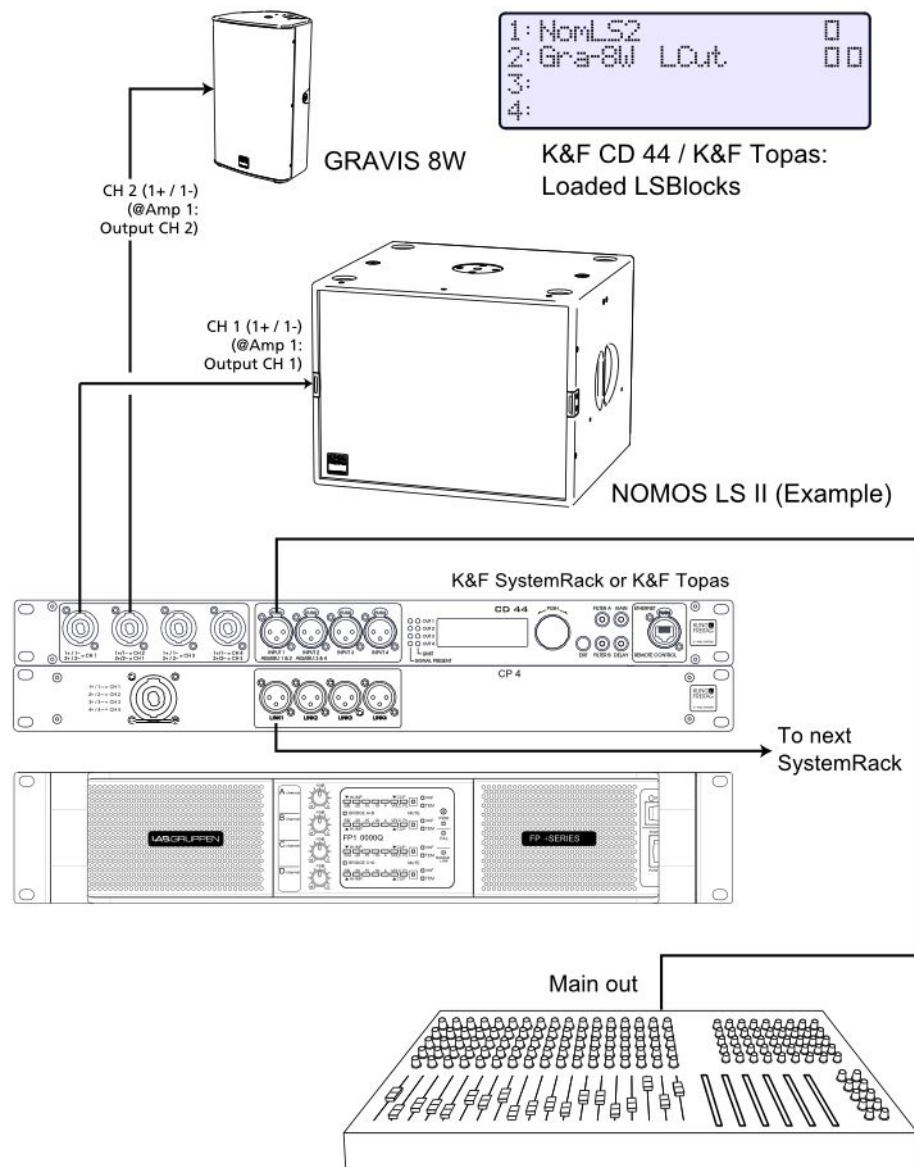


FILTER B

9.2 Operations with an additional Subwoofer

If you want to use the GRAVIS 8 with an additional K&F Subwoofer, select the LSBlock Gra-8 LCut.

The following figure shows a sample combination of a GRAVIS 8 loudspeaker with a K&F NOMOS subwoofer.



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 LoMidBoost via Filter B for the top speakers. HighBoost



FILTER B

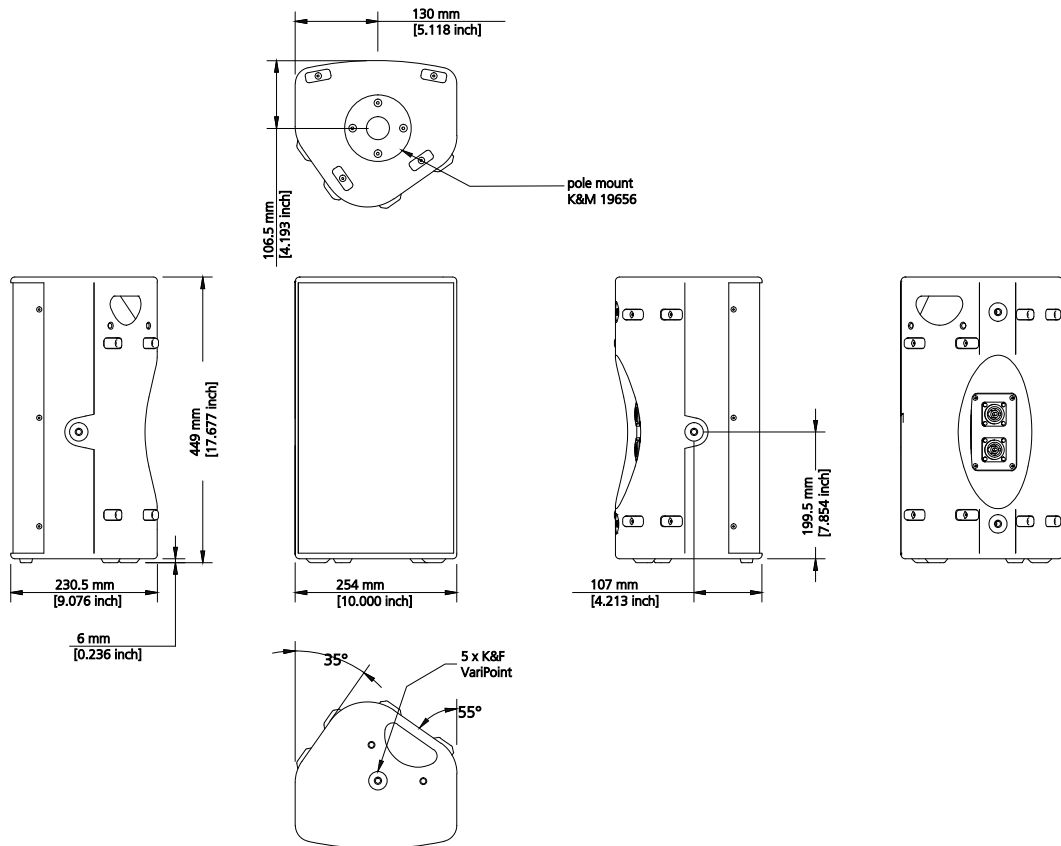


FILTER B

If necessary, adjust the correct level balance with the output gain of the subwoofer on the K&F systemamp or systemrack.

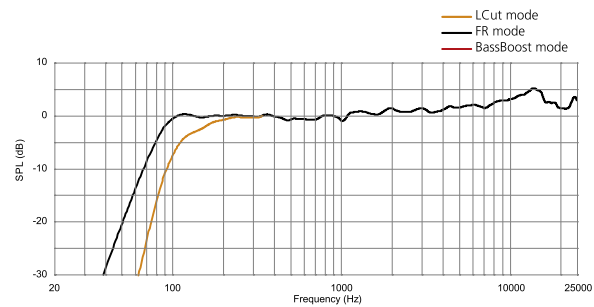
10. Dimensions

Weight: 10.1 kg



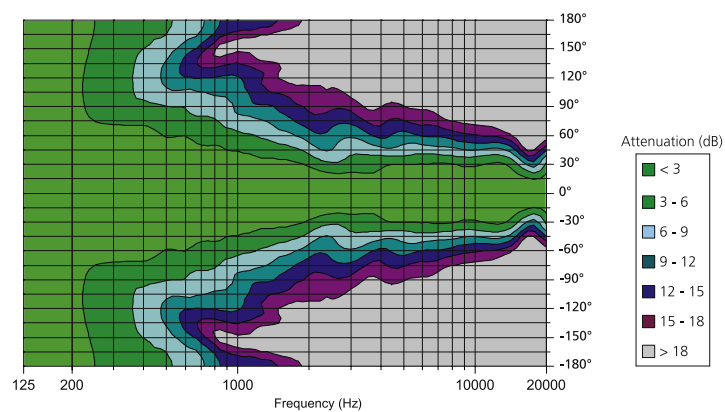
11. Measuring Diagrams

11.1 Frequency range GRAVIS 8

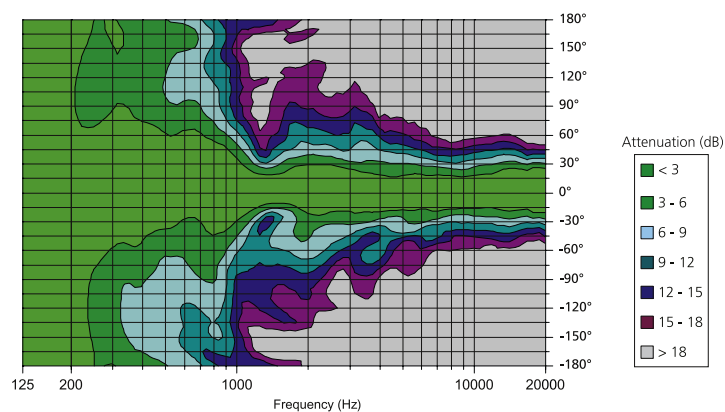


11.2 Coverage GRAVIS 8

Horizontal



Vertical



12. Technical Specifications

GRAVIS 8 W	
Concept	Passive 2-Way-bass reflex system
Operated with	K&F PLM+ Serie, K&F D-Serie, Lab.Gruppen IPD 2400, K&F SystemRack, K&F TOPAS
Frequency range @-10 dB	89 Hz – 20 kHz (LCut Mode) 65 Hz – 20 kHz (FR Mode) 62 Hz – 20 kHz (BassBoost Mode)
Frequency range @±3 dB	108 Hz – 19 kHz (LCut Mode) 80 Hz – 19 kHz (FR Mode) 70 Hz – 19 kHz (BassBoost Mode)
Coverage angle (nominal)	85° x 55° (hor. x vert.), rotatable
Nominal power handling	250 watts
program	500 watts
peak	1,000 watts
Max. SPL (1 m)	129 dB SPL
Impedance nominal	8 Ohm
loudspeaker/channel	see matrix
Components	1" compression driver with 75 mm titan membrane 8" woofer
Connection	2 x speakON® 4-pol NLT4MP (+1/-1), IN parallel zu OUT
Enclosure Design	
	15 mm Multiplex enclosure with 35° and 55° monitor angle with highly resistable Polyurea synthetic coating in black, integrated pole mount flange, ergonomic handles on top and bottom for horizontal and vertical transport, sunk-in connector panel, 5 K&F VariPoint for fast and safe suspension with Lifting Pin or eyebolt or to fasten Adjustable Speaker Mount or U-Mount Wall / Ceiling Bracket, 12 non-abrasive plastic sliding feet on the bottom and both monitor angles, ball proof steel grille with black acoustic foam behind the grille
Dimensions (H x W x D)	254 x 449 x 231 mm
Weight	10.1 kg
Color	RAL 9005 (black)
Optional	'special finish in RAL colours'

13. EC Declaration of Conformity

applicable to all products designated hereafter and distributed by KLING & FREITAG GmbH including model variants unless these products have been altered afterwards.

Loudspeaker systems:

ACCESS B5	E 90 MK II	SEQUENZA 10 N/W
ACCESS B10	LINE 212 -6/-9	SEQUENZA 10 B
ACCESS T5/T9	NOMOS LS CIN	SEQUENZA 5 W
CA 106	NOMOS LS II	SEQUENZA 5 B
CA 205 *) **)	NOMOS LT	SONA 5 **)
CA 1001	NOMOS XLC	SONA 6
CA 1201 *)	NOMOS XLS	SONA 8
CA 1215 -6/-9	NOMOS XLT	SONA SUB **)
CA 1515 -6/-9	PASSIO **)	SONS SUB II
GRAVIS 8 W	PASSIO SUB 12	SW 112
GRAVIS 12 N/W*	PASSIO SUB 15	SW 115D *)
GRAVIS 12+ N/W/XW	SCENA 15	SW 115E
GRAVIS 12+ N/W/XW AS		SW 118E
GRAVIS 15 N/W/XW		SW 212E

*) These products are discontinued.

**) These systems are not covered by the Low Voltage Directive because of the rated voltage used.

We declare that the designated product(s) are in conformity with the protection requirements imposed by the following EU directives:

Electromagnetic Compatibility (EMC) Directive	(2004/108/EC)
Low Voltage Directive	(2006/95/EC)
Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances	(VDE 0042-12:2013-02)

The operating conditions specified in these user's manual must be met accordingly.

This declaration is issued under sole responsibility of the manufacturer:

KLING & FREITAG GmbH
Junkersstr. 14 , D-30179 Hannover, Germany

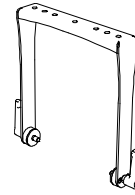


Hannover, 30th March 2015

Jürgen Freitag
(Managing Director / CEO)

14. Accessories

Adjustable Speaker Mount GRAVIS 8



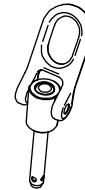
Ceiling Bracket GRAVIS 8



Adjustable Wall Mount 50



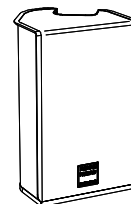
Lifting Pin



M10 x 17 Eyebolt



Protective Cover GRAVIS 8



Stand socket M10



Pipe Clamp for TV Spigot



TV Spigot 20 mm



Spigot 20 mm



15. Care and Maintenance



Warning

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

Note that the mains cable is supplied with either a connector appropriate for the place of delivery (see item number) or with open terminals (on the mains side).

The GRAVIS 8 system can exhibit signs of wear over the years, for example, from mechanical strain, transport damage, corrosion, or improper handling. Remember that flying speakers always impose a high safety risk.

Generally, perform a visual inspection of your speaker every time you suspend it or take it down. In fixed installations, check the speaker for signs of wear at regular intervals.

When performing those checks, particularly look for deformations, cracks, dents, damage to threads, and corrosion. Also check slings and lifts (e.g. shackles, chains, and steel ropes) carefully for wear and deformation.

If as a result of these checks any uncertainty should arise with regard to safety or defects are found, don't use the speaker any longer.

Inspection regulations may vary depending on application and country of use. Observe all applicable regulations; when in doubt, contact the local authorities.

Many countries require regular inspection of mounting components and accessories. An additional annual inspection is typically required to be performed by a technical expert. Moreover, a legally certified or official authority must perform a detailed inspection every four years.

Therefore, be sure to maintain an inspection log. Enter the values determined for each speaker and accessory during the periodic checks into this log. This way, relevant data are always at hand in case of inspection. The log should also document maintenance measures and inspection intervals and contain parts lists.

2. The Polyurea synthetic coating used by KLING & FREITAG is impact proof and highly resistant. We recommend using protective coverings or transport cases to help avoid damaging the paint in case of continuous mobile use, etc.
3. To replace the filter foam, send the front grille incl. foam to KLING & FREITAG GMBH. Upon payment for expenses, the grille with the new covering will be returned.

16. Transportation and Storage

The GRAVIS 8 is protected against short-term moisture. despite, be sure to store, transport, and use the accessories in dry environments only. The GRAVIS 8 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 any residual moisture can escape from the equipment.

Furthermore, you should ensure that the GRAVIS 8 System is protected from mechanical strain to prevent possible damage.

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

17. Disposal

Recycle the packaging material of the device.

17.1 Germany

Don't dispose of waste electrical equipment through household waste.

Don't deliver it to official recycling points either.

All KLING & FREITAG products are plain business-to-business (B2B) products. Therefore, KLING & FREITAG GmbH is exclusively responsible for disposing of all KLING & FREITAG waste equipment marked with a garbage-can icon. Call the below phone number when you have a KLING & FREITAG product (marked with the garbage-can icon) for disposal. We will offer you a straightforward and professional disposal at no cost.



KLING & FREITAG equipment with no such icon was sold before 24 March 2006; in that case, the owner is legally responsible for disposal. We will, however, gladly assist you by naming appropriate ways of disposal.

For further disposal information of KLING & FREITAG waste products, call +49 (0)511-96 99 7-0

Background information: The Electrical and Electronic Equipment and Appliances Act (ElektroG) is the German implementation of the European (EU) Waste Electrical and Electronic Equipment Directive (WEEE, 2002/96/EC).

Therefore, starting on 24 March 2006, KLING & FREITAG GmbH has marked all products subject to the WEEE that are distributed in Germany with an icon showing a crossed-out garbage can with a white bar below it. The icon indicates that the equipment was distributed on or after 24 March 2006 and must not be disposed of through household waste.

KLING & FREITAG GmbH is legally registered as a manufacturer with the German waste-equipment registration authority (EAR). The WEEE registration number is: DE64110372.

We substantiated towards the EAR that our products are for B2B trade only.

17.2 EU, Norway, Iceland, and Liechtenstein

Don't dispose of waste electrical equipment through household waste.

Starting on 13 August 2005, KLING & FREITAG GMBH has marked all products subject to the WEEE directive that are distributed in any member state of the European Union (except Germany), Norway, Iceland, or Liechtenstein with an icon showing a crossed-out garbage can with a white bar below it.



The icon indicates that the equipment was distributed on or after 13 August 2005 and must not be disposed of through household waste.

Unfortunately, the European WEEE directive was implemented in different national legislation in the EU member states, making it impossible to offer a consistent disposal solution throughout Europe.

The local distributor (sales partner) in the respective country is responsible for complying with the applicable legislation.

Contact your retailer or the local authorities for information on the regulations applicable in any EU member state (except Germany).

17.3 All Other Countries

Contact your retailer or the local authorities for information on the regulations applicable in any country not listed above.

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