

KLING &  
FREITAG

SOUND SYSTEMS

EN | | VERSION 2.3 | 04/06/22



**USER'S MANUAL**

**K&F** CA 106 PRO



# Table of Content

Chapter / Content	Page
<b>1 Introduction</b>	<b>4</b>
1.1 Icons Used	4
1.2 About this user's manual	4
1.3 Scope of Application	4
<b>2 Intended Use</b>	<b>5</b>
<b>3 Safety Instructions</b>	<b>5</b>
3.1 Notes on Upright Operation	5
3.2 Preventing Hearing Damage	5
3.3 Protecting the Speakers, Reliability	6
<b>4 Product Description</b>	<b>6</b>
4.1 Accessories	7
4.1.1 Optional Accessories	8
<b>5 Items Included</b>	<b>9</b>
5.1 Components	9
<b>6 Technical Specifications</b>	<b>10</b>
6.1 Technical Specifications	10
6.2 Dimensions	11
<b>7 Dispersion Pattern</b>	<b>12</b>
7.1 Rotate the horn	12
<b>8 Measuring Diagrams</b>	<b>14</b>
8.1 Horizontal dispersion	14
8.2 Vertical dispersion	14
8.3 On-axis frequency response	15
8.4 Frequency-dependent coverage angle	15
8.5 Directivity	15
<b>9 Wiring</b>	<b>16</b>
9.1 Pin configuration of the SpeakOn connectors	17
<b>10 Initial Operation</b>	<b>17</b>
<b>11 Operation in a Setup with K&amp;F Subwoofers</b>	<b>18</b>
<b>12 Maintenance</b>	<b>18</b>
<b>13 Transportation and Storage</b>	<b>19</b>
<b>14 Disposal</b>	<b>20</b>
14.1 Germany	20
14.2 EU, Norway, Iceland, and Liechtenstein	20
14.3 All Other Countries	20
<b>15 EC Declaration of Conformity</b>	<b>21</b>

## 1 Introduction

### 1.1 Icons Used



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 user's manual

EN | Translation of the original instructions

All KLING & FREITAG manuals are originally authored in German.

© 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.

**To ensure safe operation, all persons using the speaker system must have access to these user's manual and all other relevant material during installation. Ohne dieses gelesen, verstanden und griffbereit vor Ort zu haben, darf das Lautsprechersystem weder aufgebaut noch eingesetzt werden.**

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

Contact Us: [info@kling-freitag.de](mailto:info@kling-freitag.de)

KLING & FREITAG GMBH, Wohlenbergstr. 5, D-30179 Hannover

Phone +49 511 96 99 70, fax +49 511 67 37 94 (other countries)

### 1.3 Scope of Application

If you have purchased this product together with other accessories, the instructions of those accessories including, but not limited to, mounting-accessory instructions become part of these instructions by reference.

If the CA 106 PRO speaker is used together with accessories that restrict the use specified in here, those restrictions will apply.

## 2 Intended Use

You may operate this product on KLING & FREITAG system amplifiers or controllers as well as on linear power amplifiers with a maximum rated power of 400 W@16 ohms, a built-in clipping limiter, and a built-in or upstream subsonic filter (approx. 30 Hz, 12 dB/oct. min.).

The product and any optional accessories are suitable for indoor use (exhibition halls, event halls, etc.). Outdoor use is generally feasible if the product is adequately protected against the effects of unfavorable weather conditions, etc. This product is not designed for prolonged use in corrosive environments. Permanent outdoor operation is permitted, provided that the speaker is protected against direct weather impact. For outdoor installation, you will need to manufacture appropriate custom fastening equipment with regard to the place and purpose of use. Be sure to take outdoor effects (wind, snow loads, etc.) into account. The use of standard accessories for temporary or permanent outdoor installation is not permitted.

Use screw locks to prevent the screws attaching accessories to the speaker from loosening. Be sure to use the speaker as specified in this document only!

Any use not described in this manual is not an intended use.

## 3 Safety Instructions

### WARNING

Installation and operation must be performed by qualified event technicians or appropriately trained persons. Planning must be performed and responsibility be taken by qualified personnel only.

K&F CA 106 PRO speakers are to be flown by qualified personnel (riggers) only! Refer to the relevant accessory manuals for safety and handling instructions with regard to your installation options and further details. The manuals are available for free download on our website at [www.kling-freitag.de](http://www.kling-freitag.de).

### 3.1 Notes on Upright Operation

#### WARNING

If you use your speakers in an upright position, ensure sufficient stability. To avoid injury or damage, always be sure to mount the speakers securely so that they do not fall.

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

Mounted speaker(s) must not tilt even at an inclination angle of 15°. If necessary, ensure this by means of additional ballasting or fastenings.

Be sure to follow the relevant national specifications, norms, and safety regulations.

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

### 3.2 Preventing Hearing Damage

#### VORSICHT

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

Be sure to comply with your local noise regulations.

If possible, install the speakers in a place where nobody can stand right in front of them. If necessary, limit the maximum volume level.

### 3.3 Protecting the Speakers, Reliability

#### HINWEIS

If the CA 106 PRO speaker is driven by a linear power amplifier, make sure the following specifications are met or exceeded:

- Rated power output (max.): 400 W@16 ohms
- Built-in clipping limiter
- Built-in or upstream subsonic filter (approx. 30 Hz, 12 dB/oct. or steeper)

For optimum reliability and maximum performance, we recommend driving the K&F CA 106 PRO speakers from a K&F SystemAmp.

Never feed audio at excessive levels to the speaker. This may be caused by mixing consoles, equalizers, effect equipment, etc. and should be indicated on this equipment. Clipping at the power-amp output is typically shown by a red clipping indicator. In any case, be sure to lower the signal level once it sounds distorted.

For damage caused by overloading or use with power amplifiers other than those recommended above or with amplifiers with higher output power, KLING & FREITAG GMBH does not assume warranty and excludes liability for possible consequential damage. This may be caused by mixing consoles, equalizers, effect equipment, etc. and should be indicated on this equipment.

#### Signals that may damage the speakers include the following:

- Continuous high-volume signals at high frequencies, continuous audio feedback
- Continuously distorted signals at high levels
- Sounds occurring when connecting, disconnecting, or switching on a device on the audio system while the speaker is on

#### Never place your speakers

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

#### Damage Caused by the Speaker's Magnetic Fields

Even when not connected, loudspeakers continuously produce a magnetic field. Therefore, when transporting or placing the speaker, be sure to keep a minimum distance of about 1 meter between the speaker and magnetic disks or computer/video displays.

## 4 Product Description

The CA 106 PRO is a highly compact 2-way fullrange speaker.

It is suitable for all near-field applications including moderately distanced P.A. applications.

Thanks to the 90° × 60° rotating horn, the CA 106 PRO is also ideal for use as a stage monitor or under-balcony system.

The passive crossover is designed for operation on linear power amplifiers. Fast Recovery HF Protection is a passive protection system preventing component overload.

By using the integrated switch (changing the pin configuration from 1+/1- to 2+/2-), two loudspeaker ways can be realised with only one NL4 cable.

In addition, operating the speakers on Kling & Freitag SystemAmps not only ensures maximum reliability but also pristine audio quality.

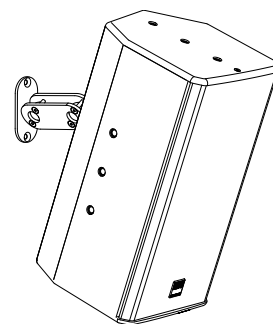
The mounting points on the enclosure are compatible with the legacy model CA 106; this means that you can continue using existing accessories. Extra center-of-gravity mounting points on the speaker's side and top panels allow for attaching optimized mounting accessories.

Compared to its predecessor, the CA 106 Pro achieves a consistently higher sound-pressure level in the application range with extended low-frequency range.

## 4.1 Accessories

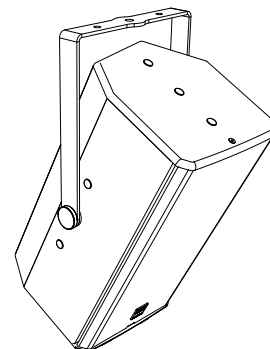
### K&F CA 106 PRO Wall Mount:

Wall and ceiling suspension at minimum wall clearance



### K&F CA 106 PRO U-type Speaker Mount:

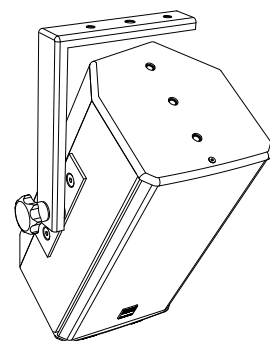
Ceiling or truss suspension or on-stand placement (requires optional stand socket)



### K&F CA 106 Adjustable Speaker Mount:

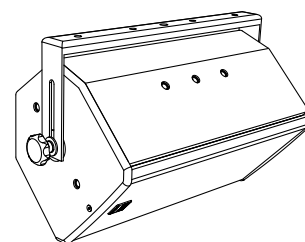
Suspension or on-stand placement (requires optional stand adapter).

Swivel range: 360°



### K&F CA 106 U-Mount Wall/Ceiling bracket:

Wall mounting (vertical), suspension (horizontal) or horizontal on-stand placement (requires optional stand adapter).



---

### 4.1.1 Optional Accessories

---

Optional accessories provide for more fastening options:

#### TV spigot 20 mm

Colour: black

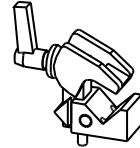


---

#### Super Clamp

for 30 – 50-mm pipes or plates, 15 kg load (max.), incl. M10 threaded pin for fastening U-Mount Wall/Ceiling brackets or adjustable speaker mounts

Colour: black



---

#### Pipe Clamp

for 30 – 50-mm pipes, 20 kg load (max.), incl. M10 threaded pin for fastening U-Mount Wall/Ceiling brackets or adjustable speaker mounts

Colors: black or aluminum



---

#### Stand socket M10

for fastening a speaker mount to a stand, incl. M10 x 25 mounting screw, washer, and spring washer (black)

Colour: black

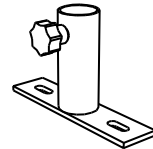


---

#### M8 stand adapter

Incl. M8 hand wheels (2 items)

Color: RAL 9005 (black) or RAL spot color



---

#### M8 x 20 eyebolt

Colour: black

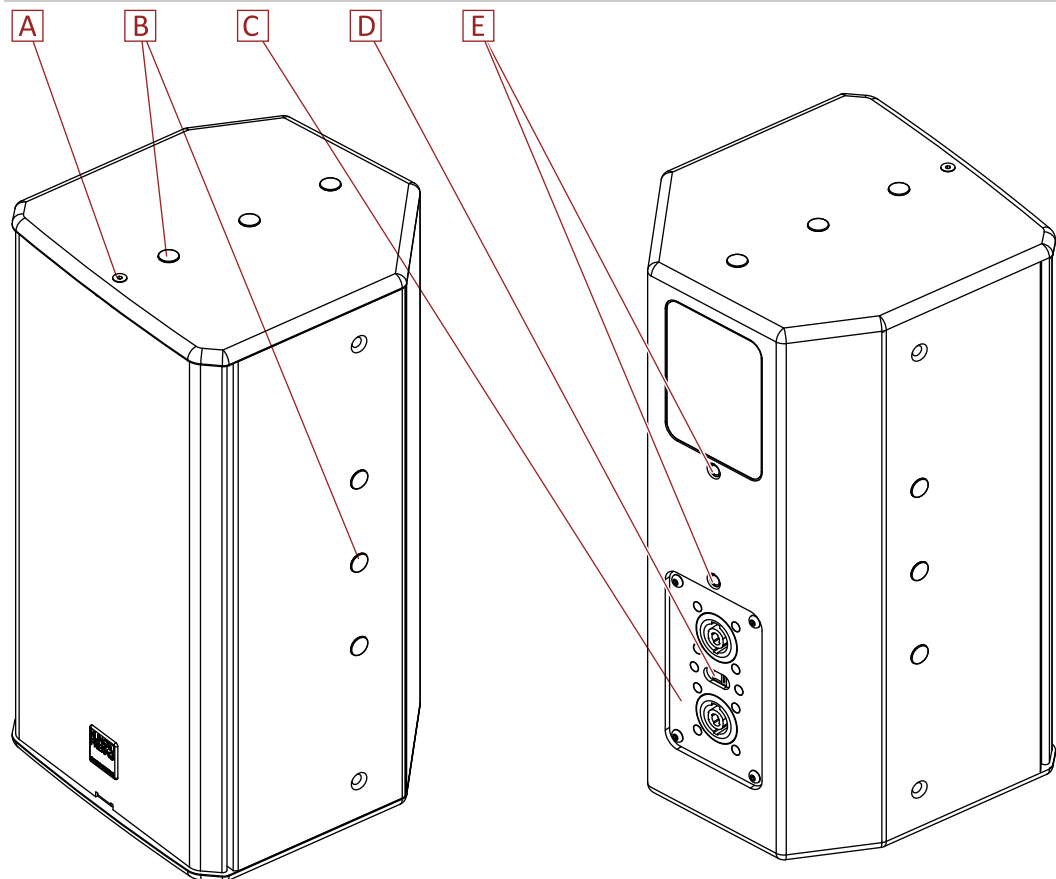




## 5 Items Included

- K&F CA 106 PRO speaker (1 item)
- 12 x plug for M8 thread
- User's manual (1 item)

### 5.1 Components



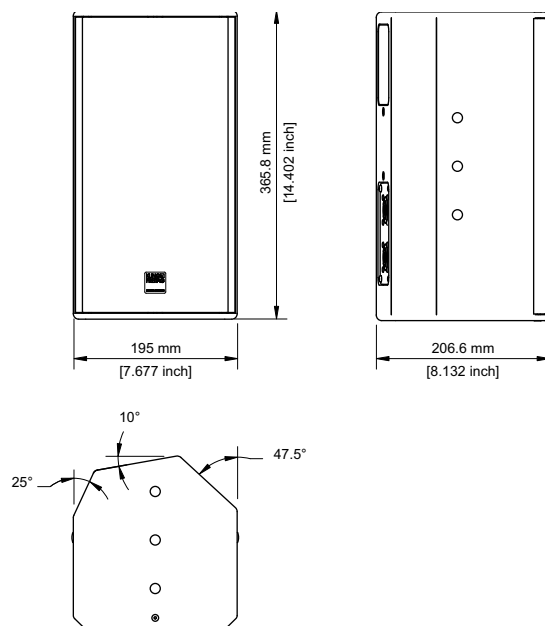
- [A]** Grille-fixing screw
- [B]** M8 mounting threads (3 items each) on base, top, and side panels for mounting accessories. Fitted with plugs before shipment.
- [C]** Connector panel with two SpeakOn ports
- [D]** Switch for selecting the loudspeaker pin configuration (1+/1- or 2+/2-)
- [E]** 2 x M6 mounting thread for K&F CA 106 PRO Wall Mount (option)

## 6 Technical Specifications

### 6.1 Technical Specifications

<b>Concept</b>	2-way passive bass-reflex system
<b>Supported amplifiers</b>	K&F PLM+ range, K&F D range Lab.gruppen IPD 2400 K&F SystemRack, K&F TOPAS Passive on linear power amplifiers
<b>Frequency range @-10 dB</b>	65 Hz – 22 kHz
<b>Frequency range @±3 dB</b>	73 Hz – 20 kHz
<b>Coverage angles nominal</b>	90° × 60° (hor. × vert.)
<b>Power handling</b>	200 watts
<b>Program load</b>	400 watts
<b>Peak load</b>	600 watts
<b>Max. SPL</b>	120 dB (SPL Peak/1 m)
<b>Components</b>	6.5" woofer 1" compression driver on rotating CD horn
<b>Nominal impedance</b>	16 Ohm
<b>Connectors</b>	2 x speakON® NL4MP IN parallel to OUT, selectable to 1+/1- or 2+/2- by using the switch
<b>Enclosure</b>	12-mm birch multiplex with heavy-duty polyurea coating in RAL 9005 (black), multi-functional enclosure with monitor and cluster angles, 12 × M8 and 2 × M6 threaded inserts, impact-proof steel grille, black powder, backed with black acoustic foam.
<b>Dimensions</b>	195 x 365 mm × 206.5 mm (W × H × D)
<b>Weight</b>	6.7 kg
<b>Color</b>	RAL 9005 (black) RAL spot color
<b>Options</b>	100V version with 50/100/150 VA toroidal transformer (8.4kg)

## 6.2 Dimensions



Refer to our website at <http://www.kling-freitag.de> for a detailed dimensional drawing.

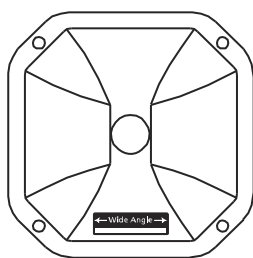
## 7 Dispersion Pattern

The CA 106 PRO speaker provides  $90^\circ \times 60^\circ$  coverage.

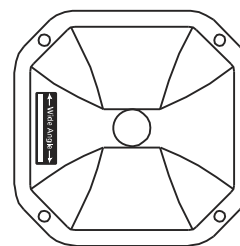
By rotating the horn, you can swap the vertical and horizontal coverage.

The table below shows how your horn radiates when placed upright:

1. To determine the coverage of your horn, direct a lit torch towards the front cover at the height of the horn.
2. You will find a silver stripe that determines the position and coverage angles of the horn.



**Coverage:**  
 $90^\circ$  (horizontal)  $\times$   $60^\circ$  (vertical)

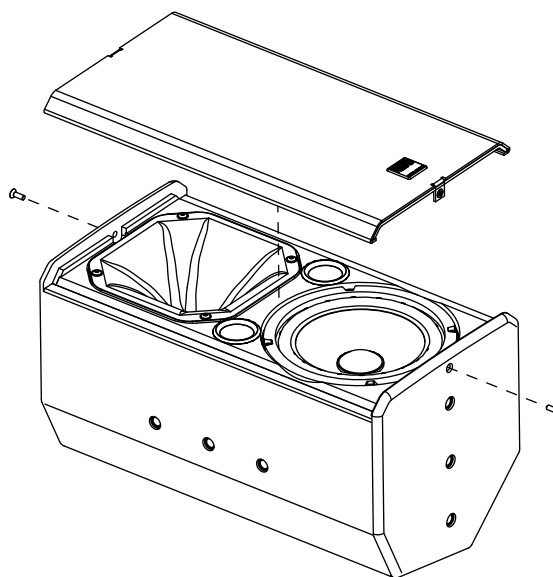


**Coverage:**  
 $60^\circ$  (horizontal)  $\times$   $90^\circ$  (vertical)

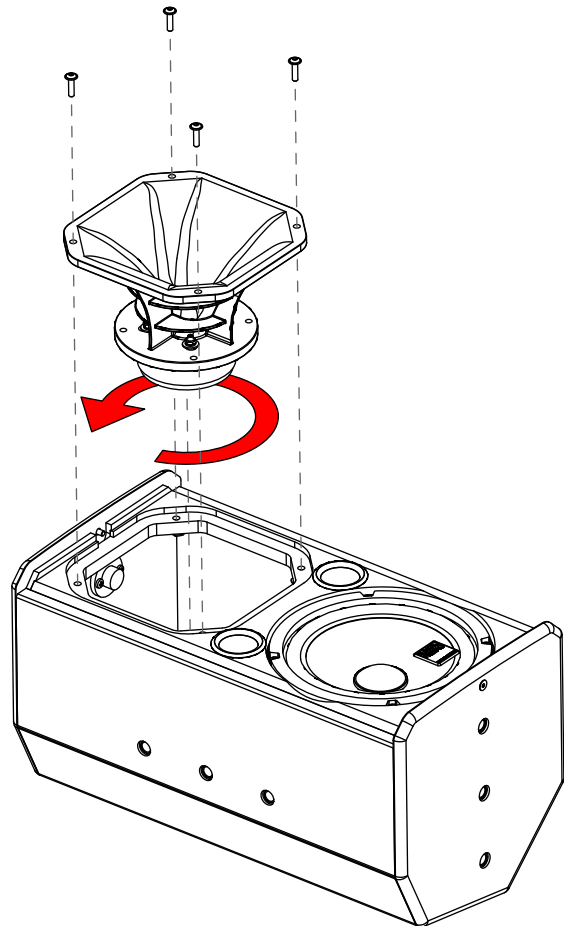
### 7.1 Rotate the horn

Required Tools
Allen key (2,5 mm)

1. Remove all cabling as necessary and carefully place the K&F CA 106 PRO speaker on its backside.
2. Loosen the two screws fixing the grille.
3. Remove the grille.



4. Loosen the four horn-fixing screws and rotate the horn by 90°.

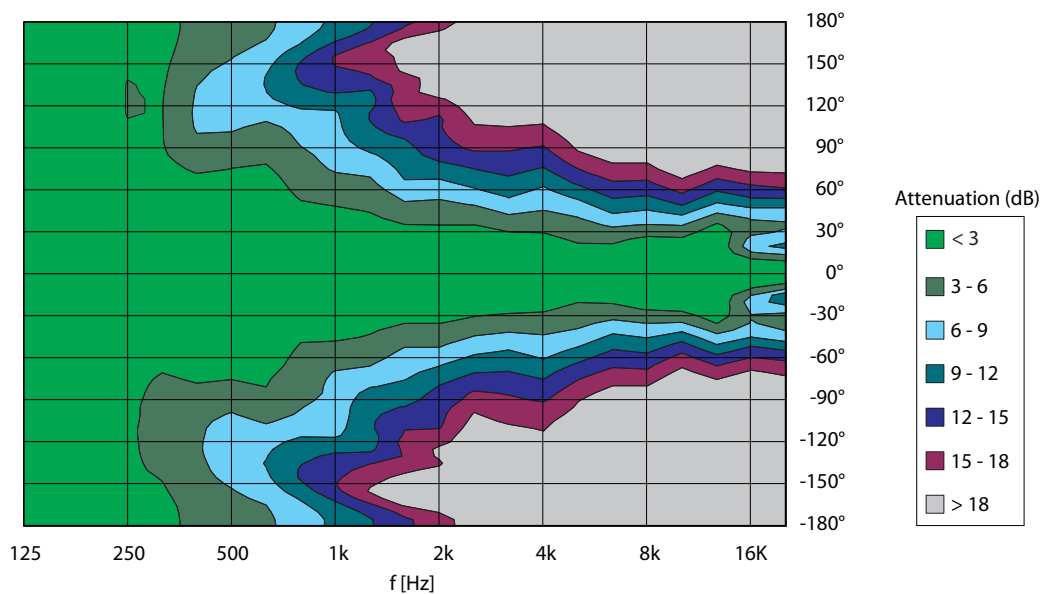
**HINWEIS**

If you rotate the horn frequently, be sure not to turn it in the same direction all the time as the connection cables may twist over time and might get disconnected from the horn contacts.

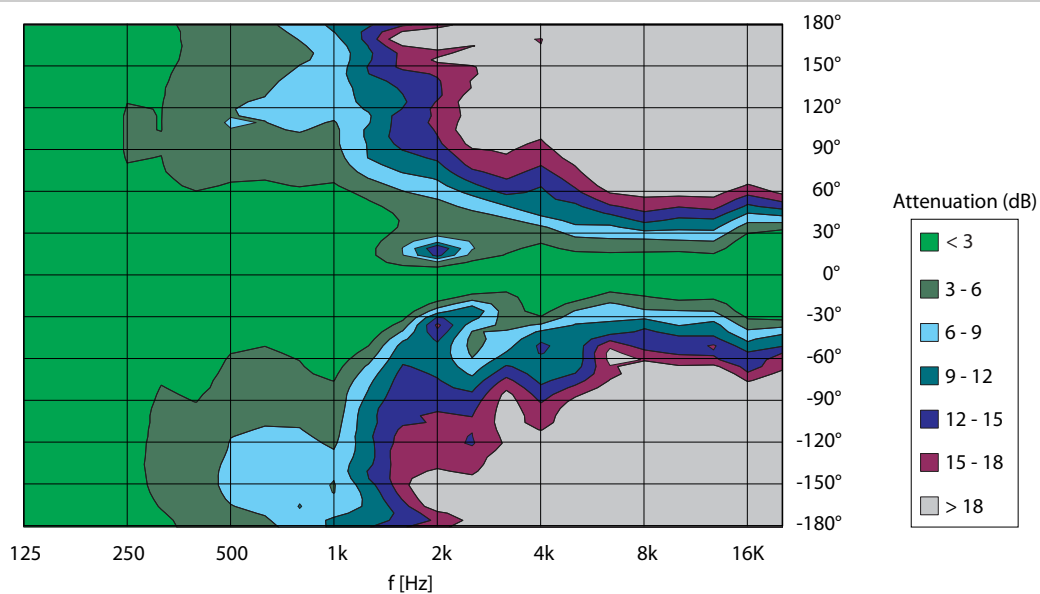
5. Screw on the horn tightly again.
6. Reattach the grille using the screws.

## 8 Measuring Diagrams

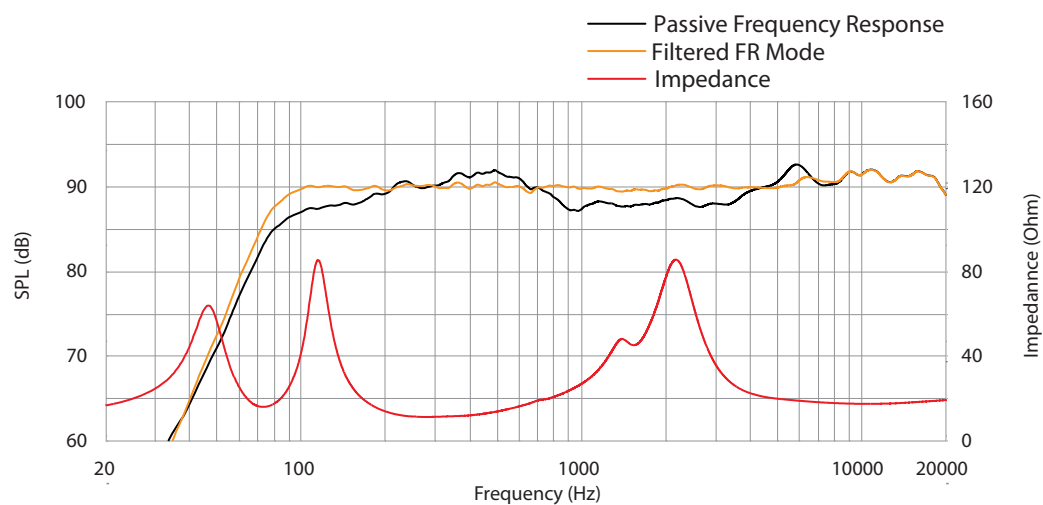
### 8.1 Horizontal dispersion



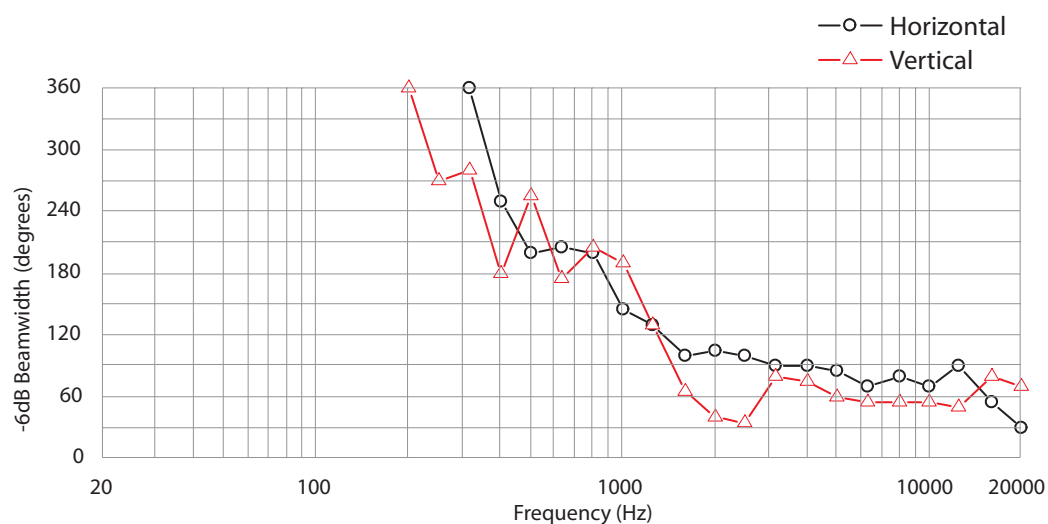
### 8.2 Vertical dispersion



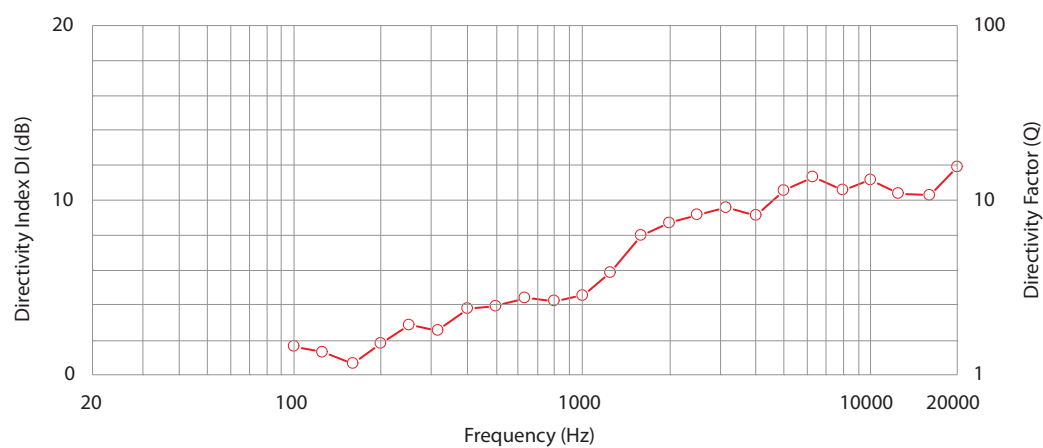
### 8.3 On-axis frequency response



### 8.4 Frequency-dependent coverage angle



### 8.5 Directivity



## 9 Wiring

### HINWEIS

- Before connecting your K&F CA 106 PRO speaker, switch off all devices and turn down all faders and encoders.
- Be sure to use high-end speaker cables with an appropriate wire gauge. Select the wire size based on the cable length.

$$\text{min. cable cross section (mm}^2\text{)} = \frac{\text{required cable length (m)}}{2 \times \text{speaker impedance (ohms)}}$$

- To connect the mixing console to the power-amp inputs, use shielded 2-pole balanced microphone cables equipped with quality connectors.
- Avoid creating ground loops.
- Be sure to follow the pinouts shown in this manual.
- Check for correct polarity of the speaker links to the power amplifier.
- Upon completing wiring, ensure that the connected speaker channels are working in phase, for example, using a phase 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.
- When connecting multiple speakers, you can daisy-chain the signal from one speaker to the next. Make sure that the total impedance of all speakers connected to an amplifier does not fall below the minimum impedance specified for the amplifier.

$$\frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3} + \dots = \frac{1}{R_{\text{(total)}}}$$

### ⚠ WARNING

Speaker-signal currents are potentially hazardous to the human body.

When the system is in use, make sure that the connectors are secured against inadvertent touch.

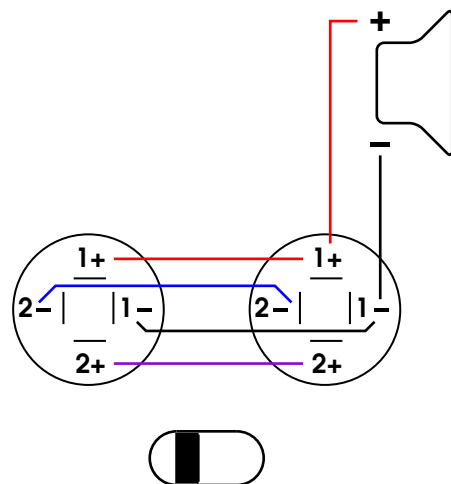


## 9.1 Pin configuration of the SpeakOn connectors

The CA 106 PRO speaker typically has two SpeakOn ports wired in parallel.

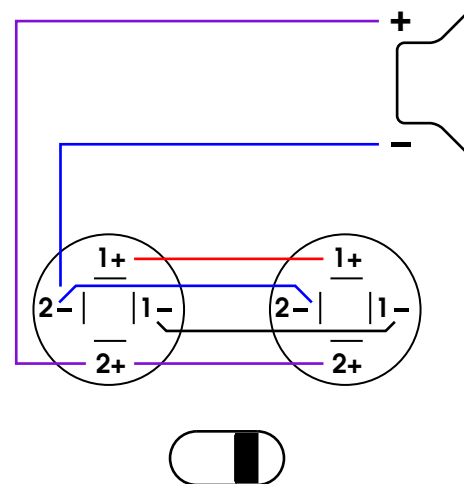
The connector panel is also equipped with a switch with which you can select the pin configuration from 1+/1- to 2+/2-. You can realize two loudspeaker ways with only one NL4 cable.

### Switch position left



CH 1 Mode

### Switch position right



CH 2 Mode

For information on how to configure custom connections such as 100V, PG glands, barrier strips, XLR connections, etc., refer to the connector panel of the speaker.

## 10 Initial Operation

### HINWEIS

- Switch off all devices and turn down all volume controls on the mixing console and the amplifiers.
- Wire your K&F CA 106 PRO systems as described in this manual.
- Be sure to switch on your console first and only then other equipment placed between the console and the power amplifiers; finally, switch on the power amplifiers. Failing to do so may result in switch-on noise that may damage your system.
- If you hear noise, turn off all devices in reverse order, then check all cable connections.
- Turn up all amplifier channels one after another and output a low-volume signal to the system. Check whether the audio is properly routed to the appropriate speaker paths. Make sure no noise is heard through those speakers.
- With amplifiers with insufficient input-stage headroom, you may not always be able to prevent distortion by reducing the power-amp volume controls. In this case, the clipping indicator may not light when clipping actually occurs! To prevent damage to the speakers, we recommend fully turning up the power-amp volume controls, then carefully turn up the volume on the mixing console or controller or reduce the limiter threshold of the controller as appropriate in order not to overload the amplifiers.
- When turning off the system, first turn down the amplifier input controls. Next, power down the amplifiers, then turn off the remaining devices.

## 11 Operation in a Setup with K&F Subwoofers

The K&F CA 106 PRO speaker was designed and developed as a midrange/tweeter system. When using it as a main sound-reinforcement system, we recommend using an additional K&F subwoofer.

We recommend using subwoofers from our K&F NOMOS or K&F PASSIO SUB ranges.

Example configurations:

- (1x) K&F CA 106 PRO  
(1x) K&F NOMOS LS2
- 1 K&F CA 106 PRO  
1 K&F PASSIO SUB 12  
or  
1 K&F PASSIO SUB 15

All setups depend on their intended use, the required beamwidth, and the on-site conditions.

## 12 Maintenance

In addition to the instructions given here, please also read carefully those in the manuals of any mounting accessories used.

- Perform a visual inspection before each installation.
- Visually inspect the entire setup every six months.
- 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.

### **WARNUNG**

#### **Risks imposed by undetected damages**

- The inspection must be carried out by a qualified expert.
- 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. Contact your retailer.
- Be sure to use self-locking screws no more than five times. Using them more often may result in screws loosening in operation. If in doubt, use new screws. Never use other types of screws.
- All repair work must be performed by Kling & Freitag after evaluation carried out by engineering.
- 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. This inspection log book shall be updated with the inspection steps, test intervals and parts lists.
- If necessary, use multifunction oil for care.

To have the acoustic foam replaced, send the grille including the foam layer to KLING & FREITAG GMBH. We will then replace the foam layer with a new one at a fixed charge and return your grille.

## **13 Transportation and Storage**

The K&F CA 106 PRO system is protected against the effects of unfavorable temporary weather conditions, etc.; despite, be sure to store, transport, and use the accessories in dry environments only. The K&F CA 106 PRO is not designed for prolonged use in corrosive environments.

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

In order to prevent damage, please make sure to avoid mechanical strains.

## 14 Disposal

Please recycle the packaging material of the device.

### 14.1 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 crossed-out garbage-can icon. Please call the below phone number when you have a KLING & FREITAG product (marked with the crossed-out 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 distributed 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 +49 511 -96 99 7 -0

Explanation: 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). Unsere WEEE-Reg.Nr. lautet: DE64110372.

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

### 14.2 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.



**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.**

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).

### 14.3 All Other Countries

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

**15 EC Declaration of Conformity****EG-Konformitätserklärung***(Declaration of EG-Conformity)***Hersteller:***(Manufacturer)*

Kling & Freitag GmbH  
Junkersstraße 14  
30179 Hannover  
Deutschland

**Bevollmächtigter  
für die Zusammenstellung der  
technischen Unterlagen:***(Authorized representative  
for the compilation of technical  
documents)*

Kling & Freitag GmbH  
Abt. Entwicklung  
Dipl. Ing. Arne Muscheites  
+49 (0)511 / 96997-50  
Deutschland

**Produkt:***(Product)*

**Lautsprechersystem  
K&F CA 106 PRO**

**Wir erklären, dass das genannte Produkt den aufgeführten Anforderungen der folgenden EG-Richtlinien, einschließlich aller anwendbaren Bestimmungen entspricht:**

*(We declare that the designated product is in conformity with the requirements imposed by the following EU directives including all applicable amendments:)*

- 2014/35/EU,  
Niederspannungsrichtlinie  
(Low Voltage Directive)
- 2011/65/EU (RoHS 2),  
Richtlinie zur Beschränkung der Verwendung bestimmter gefährlicher Stoffe in Elektro- und Elektronikgeräten  
(Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment)

Hannover, 23.10.2020

Jürgen Freitag, Geschäftsführung (CEO)

A handwritten signature in blue ink, consisting of a large, stylized 'J' and 'F'.



**THANK  
YOU** FOR  
CHOOSING  
K&F.



KLING & FREITAG GmbH

Wohlenbergstrasse 5 · D-30179 Hannover

Phone +49 (0)511 969970

[www.kling-freitag.de](http://www.kling-freitag.de) · [info@kling-freitag.de](mailto:info@kling-freitag.de)