



## User's Manual

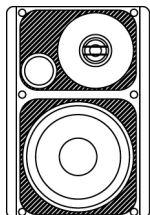


**Important Information,  
Please Read before Use!**

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## CS 5



We would like to thank you that you have decided to use a Kling & Freitag product! Before commencing, we would like to ask you to read this manual carefully to guarantee an undisturbed operation and for your Kling & Freitag – Loudspeaker System to develop its full capacity.

With the purchase of the CS 5 , you have acquired a loudspeaker of highest quality and performance.

As the owner of a CS 5-system, you now have a multi-functional and professional tool, which - if operated correctly - will give you a lot of joy.

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## User Manual Symbols

The following symbols serve to better orientate the user through the installation and assembly instructions, as well as advice in relation to safety regulations:



**This symbol gives advice on the possible dangers caused by improper use during assembly and/or service.**

**Here you can find information about applications, assembly, operations and the setting up of the described products.**

## Information about this User Manual

User Manual CS 5 Version 1.0 02/2001

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All specifications, relating to the described products and to the safety procedures given, which appear in this manual are based on the information that was available at the time of going to press.

Technical specifications, dimensions, weights and properties do not represent guaranteed qualities.

The manufacturer reserves the right to make alterations and modifications within the framework of legal provisions, as well as changes aimed at improving product quality.

**Please keep these instructions safely, so that you can use them for future reference!**

We are looking forward to receive your ideas and suggestions for the further improvement of this manual. We would like to ask you to send them to us at the following address:

info@kling-freitag.de or:

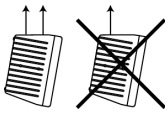
KLING & FREITAG GMBH Junkersstr.14 D-30179 Hannover Phone +49 (0) 511 - 96 99 70 Fax +49 (0) 511 - 67 37 94

## 1. General Advice for Using Loudspeakers



### Erection of the Loudspeakers

To ensure that the loudspeakers do not topple or fall and cause damage or injury, please always take care to mount the loudspeakers securely.



At all times hang up the speakers on at least 2 of the 6 threads available. The same goes for the lifting and setting up of the speakers.

Do not hang more than three loudspeakers on top of each other without using special Kling & Freitag installation fittings.

Please check whether the installation connections comply with applicable safety guidelines and if they are of an adequate size or strength. You will find information about this in our Installation Fittings User Manual.

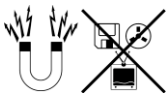
For both mobile and fixed installations, please use only assembly fittings provided by Kling & Freitag. Make sure to observe the installation instructions and safety notes shown in the Installation Fittings User Manual.

Assembly fittings and loudspeakers should undergo regular visual checks. At any sign of wear, fittings should be replaced immediately. Furthermore, all screwed connections should be checked regularly.



### Do not Install Loudspeakers in any of the Following Places:

- Where the speakers are permanently subjected to direct sunlight (with the exception of the 'All Weather' versions, which have been specially developed for outdoor usage).
- Where the loudspeakers are subjected to dampness (with the exception of the 'All Weather' and 'Outdoor' versions, provided the latter are not subjected to direct weather conditions).
- Where the loudspeakers are subjected to strong vibrations and dust.



### Damage Caused by Magnetic Fields of the Loudspeakers

Loudspeakers are surrounded by a permanent magnetic field even when they are not connected up. Therefore, please take care especially during transport and installation that a distance of 1m away from magnetic data carriers and computer/video monitors is kept.

### Protection of the Loudspeakers

For the selection of Power Amplifiers, it should be made sure that their dimensions are sufficient. Power Amplifiers which have a too low power output can cause damages to the loudspeakers through their overload (clipping).

Power Amplifiers should never be overloaded. Especially for Power Amplifiers with a nominal power higher than that of the loudspeaker, overload may cause damages to the loudspeakers.

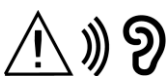
### The following Signals may damage the Loudspeakers

- Permanent high-pitched signals with high frequency and continuous tone through feedback.
- Permanently distorted signals with high power.
- Noises that occur when an appliance is disconnected or switched on while the amplifier is on.

### Advice on Protection Circuits

The CS 5 is equipped with protection circuits for the 1" tweeter as well as the crossover, which interrupt the signal flow in the case of extreme overload. If the loudspeaker switches off, decrease the volume and after a few seconds the loudspeaker will automatically switch itself on again.

### Avoid Ear Damage



Please do not risk damaging your ears, by staying too close to operating speakers even if you feel that the volume is low enough.

## 2. Wiring and Pinning

### Wiring:

If you use two or more speakers, please observe the correct +/- polarity of the loudspeakers at the amplifiers in order to guarantee an even-phased and therefore balanced sound.

We recommend you use the supplied Kling & Freitag connection cables. In order to avoid loss of performance, wire gauges should be of at least 2.5mm<sup>2</sup>, and longer cables should have an even greater diameter. An acceptable wire gauge can be calculated using the following formula:

$$\text{Recommended Wire Gauge (mm}^2\text{)} = \frac{\text{Length of Cable Necessary (m)}}{2 \times \text{Loudspeaker Impedance } (\Omega)}$$

### Pinning:

The loudspeaker is equipped with a spring terminal. Red = + ; black = -

If several loudspeakers are connected, the signal can be linked through 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.

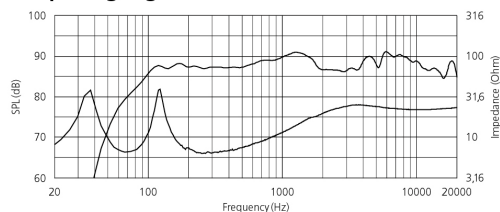
$$(1/R_1 + 1/R_2 + 1/R_3 + \dots = 1/R_{\text{Total}})$$

## 9. CS 5 Specifications

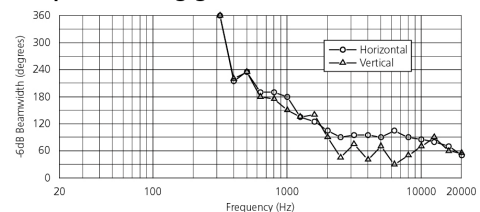
### Technical Specifications CS 5

Principle	2-way passive system, bassreflex tuning
Frequency response -10 dB	60 Hz - 20 kHz
Frequency response $\pm 3$ dB	82 Hz - 20 kHz
Nominal coverage angles	90° x 60° (hor. x vert.)
Directivity index (DI)	8 (+2/-2) 1,2 kHz - 13 kHz
Power handling (nom.)	50 Watts
Sensitivity 1 W/1 m	88 dB
Max SPL	112 dB (SPL peak/1 m)
Components	5" woofer
	Polycarbon dome tweeter with phase correction plug
	<b>5" speaker is magnetic shielded</b>
Impedance	8 $\Omega$
Connectors	Spring terminal
Enclosure	A.BS. Trapezoidal enclosure in black or white
	6 x M6 thread insert, compatible with
	multiple mounting accessories.
	Removable front frame with black or grey fabric-covering
	on synthetic front grille .
Dimensions	163 x 238 x 160 mm (W x H x D)
Weight	2,6kg
Weight 100 Volt Version	8,2kg
Options	100 Volt version, symetrec input integrated power amp
	mounting and flying hardware,

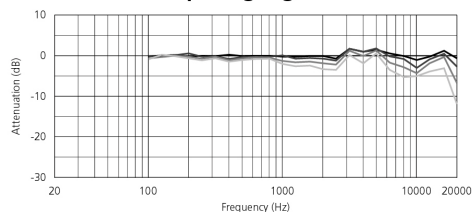
Frequenzgang "on axis"



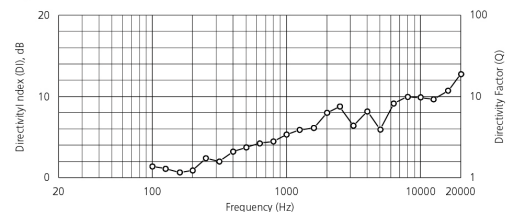
Frequenzabhängiger Abstrahlwinkel



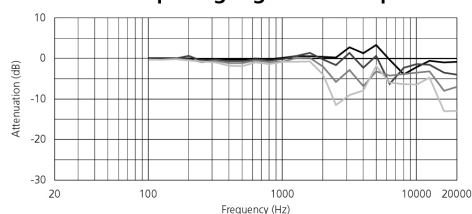
Horizontaler Frequenzgang "off axis"



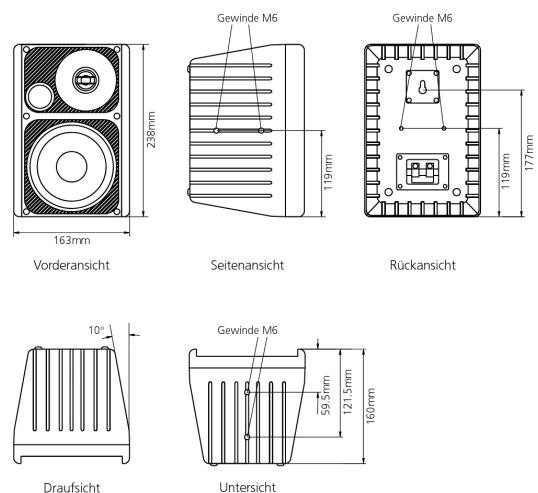
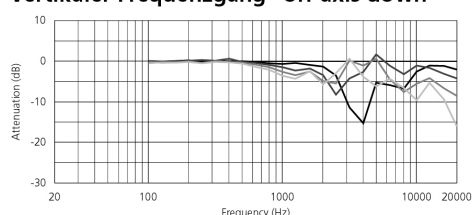
Q-Index



Vertikaler Frequenzgang "off axis up"



Vertikaler Frequenzgang "off axis down"



Alle Messungen unter Freifeldbedingungen. Frequenzgangdiagramme 1/5 Okt. geglättet, Abstrahl- und Polardaten 1/3 Okt. geglättet. Technische Änderungen, die der Verbesserung der Produkte dienen, behalten wir uns vor. Irrtümer vorbehalten. Subject to change without notice.