NEUMANN.BERLIN

THREE-WAY MONITOR KH 310

ENGLISH

KH 310

NEUMANN.BERLIN

The Neumann KH 310

The KH 310 is an active near-field monitor with various input options (analog and digital) for demanding applications in the areas of music production, broadcasting, post-production, mixing and mastering. It is also excellently suited for use as a front loudspeaker in medium-sized surround systems, or as a rear loudspeaker for larger multi-channel systems.

The drivers, all developed by Neumann, have been adapted to one another using acoustic simulations and an extensive series of measurements. A long-throw bass driver ensures low distortion even at high sound pressure levels.

The mid-frequencies essential for speech and vocals are reproduced with exceptional precision by a dedicated mid-range driver. High frequencies are handled by an alloy fabric dome in an elliptical Mathematically Modeled Dispersion™ (MMD) waveguide. The result is a transparent reproduction with a wide usable listening area while minimizing reflections in the vertical plane.

Thanks to a sealed cabinet and acoustic controls for bass, low-mid and high frequencies, the KH 310 is also a problem-solver for acoustically challenging spaces such as smaller project and post-production studios and OB vans.

Compact sealed horizontally-oriented cabinet (magnetically shielded)

Easy to install into tight spaces, no standing wave resonances, fastest bass transient response, reduced acoustical and visual obstruction of main monitors and live room.

1

Powerful alloy fabric dome

- Low-distortion high-frequency reproduction

2

Elliptical Mathematically Modeled Dispersion™ (MMD™) waveguide

- Smoother off-axis response
- More forgiving of diverse acoustical environments

3

Two-color + dimmable Neumann logo

- Displays operation status and activation of the extensive protection system and digital delay settings/digital signal errors in the D version

4

Midrange driver

- Dedicated driver reproduces important midrange frequencies and reduces Doppler effect which reduces intermodulation distortion
- New lightweight dome driver design with neodymium magnet has very high sensitivity which reduces distortion

5

Long throw bass driver

- Low distortions at high sound levels

Composite sandwich cone

- Damping of break-up modes

Ribbed surround

- Reduces radial standing waves

!

More features:

Wide horizontal dispersion

- Freedom of movement across the mixing console

Narrow vertical dispersion

- Reduces reflections off the mixing console

One-piece front panel with no discontinuities

- Reduced diffraction and smoother frequency response

Production consistency

- Any KH 310 is "pair matched" to any other KH 310
- Pinpoint localization of reproduced signals

A VERSION

D VERSION

1
4-position bass, low-mid and treble acoustical controls
▸ More control in diverse acoustical environments

2
Wide range input gain and output level controls
▸ Easier interfacing with signal sources and highest achievable signal-noise ratio

3
Display dimmer
▸ For low lighting level conditions or behind the screen applications

4
Ground lift
▸ Reduced buzzes in electrically noisy environments and overcomes ground loops

5
XLR analog input

6
Lipsync delay (0 ... 10/12 frames)
▸ To align audio and video signals

Time-of-flight delay (0 ... 400 ms)
▸ To compensate for listening distance differences

7
Signal select
▸ Analog, Digital A, Digital B, Digital A+B (all available with and without delay)

8
Digital XLR and BNC inputs and buffered BNC output / 24 bit, 192 kHz, AES3 and S/P-DIF
▸ Compatible with commonly used digital signals

9
Universal switched-mode power supply (100 ... 240 V)
▸ One version works in any country and robust to poor quality mains supply

10
Mounting hardware options
▸ Great flexibility for mounting cabinets in diverse locations

11
Robust and reliable electronic design
▸ Powerful 210 + 90 + 90 Wpk amplifiers give an excellent transient response

▸ Large efficient heatsink

▸ Independent thermo limiters for woofer, midrange and tweeter to protect the voice coils. Woofer soft clip and excursion limiters

NEUMANN.BERLIN

Acoustics

	KH 310 A	KH 310 D
Free field frequency response	34 Hz ... 21 kHz, ± 3 dB	
Pass band free field frequency response	36 Hz ... 20 kHz, ± 2 dB	
Self-generated noise (with controls set to 100 dB SPL and 0 dB)	< 20 dB(A) at 10 cm	
Total harmonic distortion < 0.5 % at 95 dB SPL at 1 m	> 85 Hz	
Max. SPL in full space / calc. in half space at 3% THD at 1 m	110.3 / 116.3 dB SPL (averaged 100 Hz ... 6 kHz)	
Bass Capability (max. SPL calc. in half space at 3% THD at 1 m)	104.5 dB SPL (averaged 50 ... 100 Hz)	
Max. short term SPL with IEC-weighted noise (IEC 60286-5) at 1 m, in typical listening conditions	113 dB(C) SPL	
Max. short term SPL with music material at 2.3 m, in typical listening conditions (pair)	100 dB(C) SPL (full range) 107 dB(C) SPL (with subwoofer)	
Max. long term SPL with pink noise at 2.3 m, in typical listening conditions (single/pair)	93 / 99 dB(C) SPL (full range) 94 / 100 dB(C) SPL (with subwoofer)	

Electronics

Bass / Midrange / Treble Class AB amplifiers, cont. (peak) output power*	150 W (210 W) / 70 W (90 W) / 70 W (90 W)
Controller design	analog, active
Crossover frequencies	650 Hz, 2 kHz
Crossover slope	24 dB/oct., 4th order
Equalization: Bass / Low-Mid / High	0; –2.5; –5; –7.5 dB / 0; –1.5; –3; –4.5 dB / +1; 0; –1; –2 dB
Protection circuitry	Excursion and Peak Limiter: Low; Thermo Limiter: Low, Mid, High
Infrasonic filter frequency; slope	15 Hz; 6 dB/oct.

Analog Input

Impedance, electrically balanced	XLR, > 13 kHz
Input gain control (sensitivity) at 1 m for a 0 dBu input	0 dB to –15 dB
Output level control	94, 100, 108, 114 dB SPL
CMRR	> 56 dB @ 100 Hz ... 15 kHz

Digital Input/Output

Format XLR / BNC	–	AES3 / AES3 and S/P-DIF
Impedance XLR (balanced) / BNC (unbalanced)	–	110 Ω / 75 Ω
Input switching	–	Analog, Digital A, Digital B, Digital A+B (all available with and without delay)
Digital converter: resolution, design	–	16 ... 24-bit DAC, ΔΣ
sampling rate	–	32 ... 192 kHz
Digital sensitivity / D-A dynamic range	–	–18 dBFS / 120 dB
Audio-Video/lip sync and Time-of-Flight delay range	–	0 ... 409.5 ms
Audio-Video/lip sync max. frames	–	0 ... 10.2 (40 ms) frames 0 ... 12.3 (33 ms) frames
Resolution: time/distance	–	0.1 ms / 3.4 cm (1 3/8")
Latency D-A (A-D-A)	–	0.22 - 1.85 ms (0.54 ms)

Displays and Mains Power

Displays and indicators: power on	Neumann logo "White", dimmable: 100%/60%/30%/0%	
limit/clip	Neumann logo "Red", dimmable: 100%/60%/30%	
Mains Power Supply: voltage; frequency	100 - 240 V~; 50 - 60 Hz	
Power consumption: Idle / Full output	24 W / 300 W	30 W / 300 W

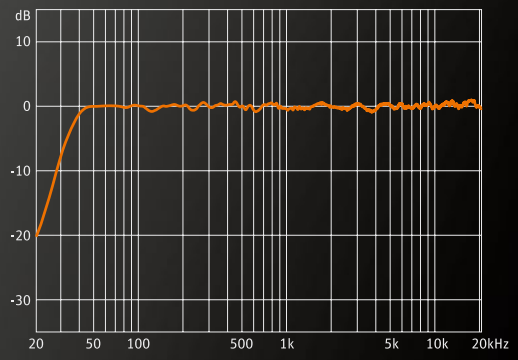
Mechanics

Height x width x depth, mm (inches)	253 x 383 x 292 mm (10" x 15 1/8" x 11 1/2")	
Internal net volume / external volume	16.2 liters / 28.3 liters	
Weight	13.0 kg	13.1 kg
Drivers, magnetically shielded: Woofer / Midrange / Tweeter	210 mm (8 1/4") / 75 mm (3") / 25 mm (1")	
Mounting points	2 x M8 on side panels, depth from outside of cabinet 25 mm (1"). Rear panel screws for attaching LH 41 base plate. Rear panel brackets.	
Cabinet surface finish, color: custom	Painted, Anthracite (RAL 7021)	

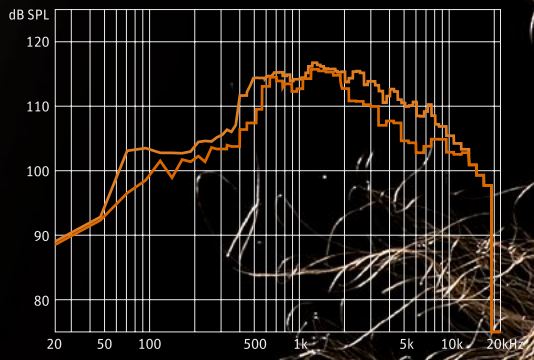
* THD+N <0.1% with limiter deactivated

Additional technical information is available at www.neumann.com

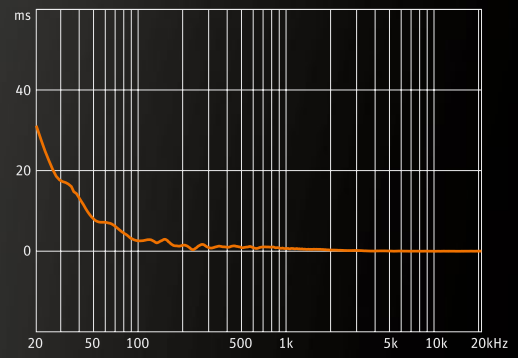
Frequency Response



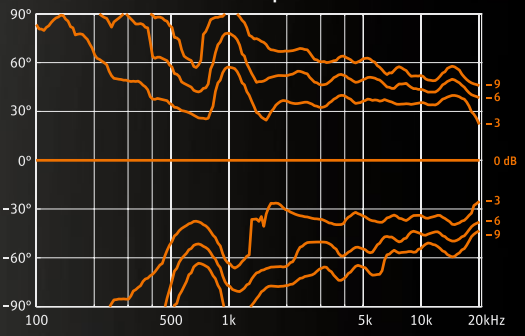
Maximum Output Level (at 1% / 3% THD)



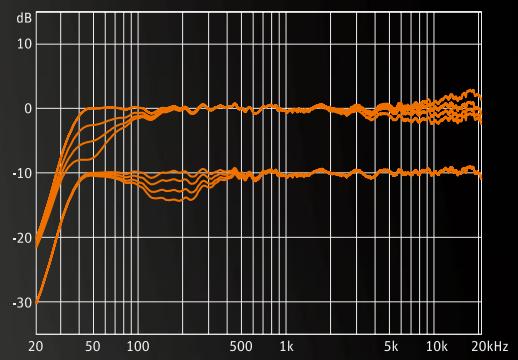
Group Delay



Horizontal Isobar Dispersion Plot



Acoustical Controls (Bass/Low-Mid/Treble)



Accessories

As a full service provider, Neumann offers an extensive range of accessories:

LH 28 Tripod Stand Adaptor for mounting on standard 35 mm (1 3/8") diameter tripods.

LH 29 TV-spigot for mounting onto a standard TV spigot.

LH 25 Mounting Bracket for wall, ceiling fastening, and loudspeaker stands.

LH 43 Surface Mounting Plate
Used to spread the weight of a ceiling mounted loudspeaker.

LH 45 Wall Bracket 'L' shaped adaptor for wall mouting.

LH 46 Adjustable Ceiling Drop Adaptor to vertically position a loudspeaker suspended off a ceiling.

LH 47 Mounting Adaptor
for ceiling and wall mounting.

LH 48 Tripod Adaptor Plate (115 mm) to mount on König & Meyer tripods No. 26790 and No. 26795.

LH 36 Tilting Adapter up to 18°.

LH 37 Subwoofer Adaptor for mounting onto a subwoofer with top panel flange.

LH 41 Base Plate to fit the loudspeaker onto a tripod stand with or without an LH 36.

To aid transportation, storage and protection of the loudspeaker:

BKH 310 Soft Carry Bag
for one KH 310

FKH 310 Flight Case
for one KH 310

GKH 310 Metal Grille
to protect the drivers

The mounting hardware can be used in different combinations to locate the loudspeaker in many places:

Mounting on a floor stand:	KH 310 + LH 25 + LH 28 or KH 310 + LH 41 + LH 28 or KH 310 + LH 41 + LH 36 + LH 28 or KH 310 + LH 25 + LH 48 + K&M tripod 26795 or KH 310 + LH 41 + K&M tripod 26795 or KH 310 + LH 25 + LH 61 + LH 48 + K&M tripod 26795 or KH 310 + LH 41 + LH 36 + LH 48 + K&M tripod 26795
Mounting on a lighting stand:	KH 310 + LH 25 + LH 29 or KH 310 + LH 41 + LH 29 or KH 310 + LH 41 + LH 36 + LH 29
Mounting on a subwoofer:	KH 310 + LH 25 + LH 37 + KH 870 or KH 310 + LH 41 + LH 37 + KH 870 or KH 310 + LH 41 + LH 36 + LH 37 + KH 870 or KH 310 + LH 25 + LH 28 + pole + KH 870 or KH 310 + LH 41 + LH 28 + pole + KH 870 or KH 310 + LH 41 + LH 36 + LH 28 + pole + KH 870
Mounting on a wall:	KH 310 + LH 25 or KH 310 + LH 25 + LH 43 or KH 310 + LH 25 + LH 47 + LH 45
Mounting off a ceiling:	KH 310 + LH 25 or KH 310 + LH 25 + LH 43 or KH 310 + LH 25 + LH 47 + LH 43 or KH 310 + LH 25 + LH 47 + LH 46
Mounting off a lighting or truss bar:	KH 310 + LH 25 + LH 29

Order Info

Product	Art. Number
KH 310 A L G Analog input, Left version	505575
KH 310 A R G Analog input, Right version	505576
KH 310 A L G CCC Analog input, Left version, CCC certified	505577
KH 310 A R G CCC Analog input, Right version, CCC certified	505578
KH 310 D L G A/D input, delay feature, Left version	505995
KH 310 D R G A/D input, delay feature, Right version	505996
KH 310 D L G CCC A/D input, delay feature, Left version, CCC certified	505997
KH 310 D R G CCC A/D input, delay feature, Right version, CCC certified	505998

Recommended for KH 310	Art. Number
KH 810 G 10“ subwoofer with 7.1 Bass Manager	503951
KH 810 G CCC 10“ subwoofer with 7.1 Bass Manager, CCC certified	505545
KH 870 G 2 x 10“ subwoofer with 7.1 Bass Manager	503947
KH 870 G CCC 2 x 10“ subwoofer with 7.1 Bass Manager, CCC certified	505566

Please refer to the website www.neumann.com for additional technical information. Furthermore, look for the extensive range of accessories that turn individual products into a complete monitoring system. In particular, look for the “Hardware Mounting Matrix” which shows how to connect the various LH brackets and adapters together to make a complete mounting solution. Detailed mechanical drawings are also available.

Georg Neumann GmbH • Germany • Tel +49 (0)30 / 417 724-0 · Fax -50 · sales@neumann.com · www.neumann.com
Errors excepted, subject to changes • Printed in Germany • Publ. 07/2014 543138/A03