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THREE-WAY MONITOR KH 310 A



ENGLISH

KH 310 A



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The Neumann KH 310 A

The KH 310 A is an active near-field monitor 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 A 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.

Powerful alloy
fabric dome

- ▶ Low-distortion high-frequency reproduction

Elliptical Mathematically
Modeled Dispersion™
(MMD™) waveguide

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

Two-color + dimmable
Neumann logo

- ▶ Displays operation status and activation of the extensive protection system

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

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





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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

- ▶ XLR connector and 24 dBu headroom for interfacing to any professional analog source equipment

6 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

7 Universal switched-mode power supply (100 ... 240 V)

- ▶ One version works in any country and robust to poor quality mains supply

8 Mounting hardware options

- ▶ Great flexibility for mounting cabinets in diverse locations



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► Acoustics

KH 310 A

-3 dB 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	114.2 / 120.2 dB SPL (averaged 100 Hz ... 6 kHz)
Bass Capability (max. SPL calc. in half space at 3% THD at 1 m)	111.3 dB SPL (averaged 50 ... 100 Hz)
Max. short term SPL with IEC-weighted noise (IEC 286-5) 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, > 10 k Ω
Input gain control (sensitivity)	0 dB to -15 dB
Output level with 0 dBu input signal	94, 100, 108, 114 dB SPL
CMRR	> 56 dB @ 100 Hz ... 15 kHz

► Displays and Mains Power

Displays and indicators: power on	Neumann logo "White", dimmable: 100%/60%/30%/0%
protect	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

► Mechanics

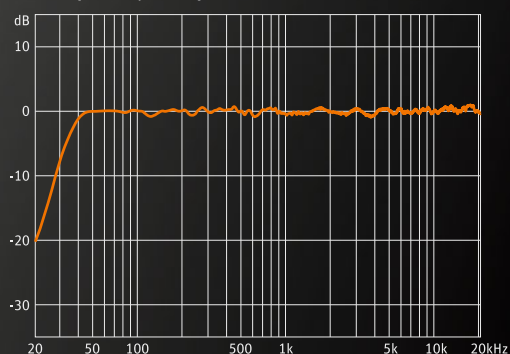
Height x width x depth, mm (inches)	253 x 383 x 292 mm (10" x 15 $\frac{1}{8}$ " x 11 $\frac{1}{2}$ ")
Internal net volume / external volume	16.2 Liter / 28.3 Liter
Weight	13.0 kg (28 lbs 11 oz)
Drivers, magnetically shielded: Woofer / Midrange / Tweeter	210 mm (8 $\frac{1}{4}$ ") / 75 mm (3") / 25 mm (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

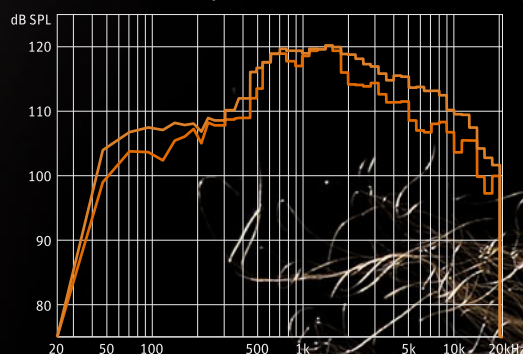
►► Additional technical information is available at www.neumann.com

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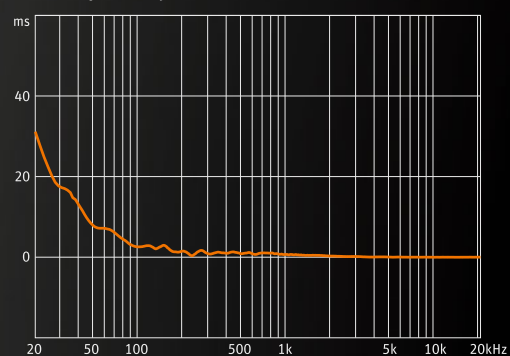
Frequency Response



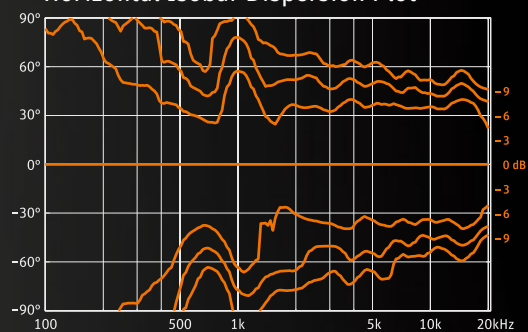
Maximum Output Level (at 1% / 3% THD)



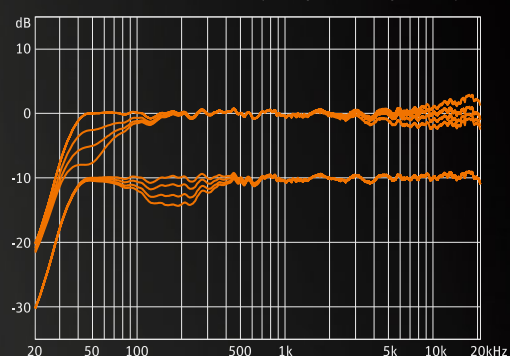
Group Delay



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 mounting.



▶ 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 A



▶ FKH 310 Flight Case for one KH 310 A



▶ 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 A + LH 25 + LH 28 or
KH 310 A + LH 41 + LH 28 or
KH 310 A + LH 41 + LH 36 + LH 28 or
KH 310 A + LH 25 + LH 48 + K&M tripod 26790 and 26795 or
KH 310 A + LH 41 + K&M tripod 26790 and 26795 or
KH 310 A + LH 25 + LH 61 + LH 48 + K&M tripod 26790 and 26795 or
KH 310 A + LH 41 + LH 36 + LH 48 + K&M tripod 26790 and 26795

Mounting on a lighting stand:

KH 310 A + LH 25 + LH 29 or
KH 310 A + LH 41 + LH 29 or
KH 310 A + LH 41 + LH 36 + LH 29

Mounting on a subwoofer:

KH 310 A + LH 25 + LH 37 + KH 870 or
KH 310 A + LH 41 + LH 37 + KH 870 or
KH 310 A + LH 41 + LH 36 + LH 37 + KH 870 or
KH 310 A + LH 25 + LH 28 + pole + KH 870 or
KH 310 A + LH 41 + LH 28 + pole + KH 870 or
KH 310 A + LH 41 + LH 36 + LH 28 + pole + KH 870

Mounting on a wall:

KH 310 A + LH 25 or
KH 310 A + LH 25 + LH 47 + LH 45

Mounting off a ceiling:

KH 310 A + LH 25 or
KH 310 A + LH 25 + LH 47 + LH 43 or
KH 310 A + LH 25 + LH 47 + LH 46

Mounting off a lighting or truss bar:

KH 310 A + LH 25 + LH 29

KH 310 A

The Neumann compact three-way tri-amplified monitor

▶ Order Info

Product	Art. Number
KH 310 A L G (Analog input, Left version, Grey)	505575
KH 310 A R G (Analog input, Right version, Grey)	505576



Recommended for KH 310 A	Art. Number
KH 810 10" subwoofer with 7.1 Bass Manager	503951
KH 870 2 x 10" subwoofer with 7.1 Bass Manager	503947



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 adaptors together to make a complete mounting solution. Detailed mechanical drawings are also available.