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# XY-81

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XY Series  
8" two way loudspeaker

User's Manual



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# Contents

## 01 Introduction

Before you start.....	3
Installation guidelines.....	4
Features.....	4

## 02 Product overview

Product overview.....	5
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## 03 System set-up

Stand mounting.....	6
Ground stacking.....	6
Cabling and amplifier selection.....	6
Cabling.....	6
Protective DSP settings.....	6

## 04 Mounting and rigging options

Rigging hardware and accessories.....	7
Permanent installations.....	7
Attachment of the CP-XY8VC1 Vertical Flying Cradle.....	7
Attachment of the CP-XY8HC1 Horizontal Flying Cradle.....	8
Attachment of wall mount brackets.....	8
To rotate the HF waveguide.....	8

## 05 Connections

Internal connection diagram.....	9
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## 06 Additional information

Dimensions.....	10
About trademarks and registered trademarks.....	11
Specifications.....	11



## The Safety of Your Ears is in Your Hands

Get the most out of your equipment by playing it at a safe level – a level that lets the sound come through clearly without annoying blaring or distortion and, most importantly, without affecting your sensitive hearing. Sound can be deceiving. Over time, your hearing “comfort level” adapts to higher volumes of sound, so what sounds “normal” can actually be loud and harmful to your hearing. Guard against this by setting your equipment at a safe level BEFORE your hearing adapts.

### ESTABLISH A SAFE LEVEL:

- Set your volume control at a low setting.
- Slowly increase the sound until you can hear it comfortably and clearly, without distortion.
- Once you have established a comfortable sound level, set the dial and leave it there.

### BE SURE TO OBSERVE THE FOLLOWING GUIDELINES:

- Do not turn up the volume so high that you can't hear what's around you.
- Use caution or temporarily discontinue use in potentially hazardous situations.
- Do not use headphones while operating a motorised vehicle; the use of headphones may create a traffic hazard and is illegal in many areas.

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## Installation guidelines

### WARNING

- This loudspeaker must be installed by a qualified technician as it involves such tasks as selecting a location for installation, drilling holes in walls/ceiling and wiring. Have the installer carefully follow the installation instructions.
- Certain technical skills are required to install the loudspeaker. Please have the product installed by a professional.
- AlphaTheta Corporation is not responsible for any loss or damage that results from improper installation, insufficient strength of installation materials, misuse, modification or natural disasters.

The XY-81 comes with pre-inserted mounting screws. These screws can be taken out and used to attach either special mounting hardware designed for the product or commercially available mounting hardware. Make sure to attach a wire for preventing falling parts and equipment of adequate strength using screw holes not used by mounting hardware.

### WARNING

- When attaching the speakers to the wall or ceiling, you should first confirm that the wall or ceiling being used is strong enough to support their weight. If you are unsure then consult a specialist. If the speakers should fall then it could lead to serious injury, and is potentially very dangerous.
- Check to make sure that any mounting hardware used is enough to support the system, whether using special hardware designed for the system or commercially available hardware. Make sure to read the Introduction section in this manual and the instruction manual for the mounting hardware thoroughly before proceeding. Take every precaution to prevent the product and associated parts from falling as they could cause serious injury if they fell onto a person.
- Use screws suitable for ceiling material and screw mounting parts in solid locations.
- After installation, you must confirm that the speakers are safely installed. You must also periodically check them to make sure that they are still safe.
- Make sure to use mounting hardware of sufficient strength to secure the speaker in place when using non-designated hardware. The speaker could fall, causing accidents, if not properly secured.
- The fall prevention wire must be attached to a suitably strong location. The strength of the location to which the wire is attached being insufficient can lead to the speakers falling or cause accidents. The fall prevention wire and screw to attach the fall prevention wire to the ceiling or wall are not supplied with the speakers, so please purchase them separately.
- When this product is placed in an elevated place such as on a shelf, a speaker may be moved by vibrations and fall to the floor, causing an injury or accident. Take measures to prevent a speaker from sliding off a shelf, etc.
- Ensure that the floor or stage surface can withstand the weight of the system.
- Wherever possible, avoid high stacks and use ratchet straps to secure loudspeakers together. Please also remember that vibrations from subwoofer systems can shake other loudspeakers out of place, which may present a toppling hazard. The use of ratchet straps and non-slip material is recommended to prevent this.

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## Features

- Two-way full range speaker with 8" LF driver and a 1" compression driver.
- Passive crossover board features separate cooling zones to ensure safe and continuous operations in the toughest environments.
- Wide dispersion of 90 × 60 degrees, with rotatable horn for horizontal installation.
- Designed for fixed and mobile applications, with a wide array of flying options.
- Features top hats for quick set-up.
- NL4 INPUT and LINK OUT connections as standard.
- Robust enclosure made from premium multi-laminate birch plywood.
- Impact resistant textured paint finish.

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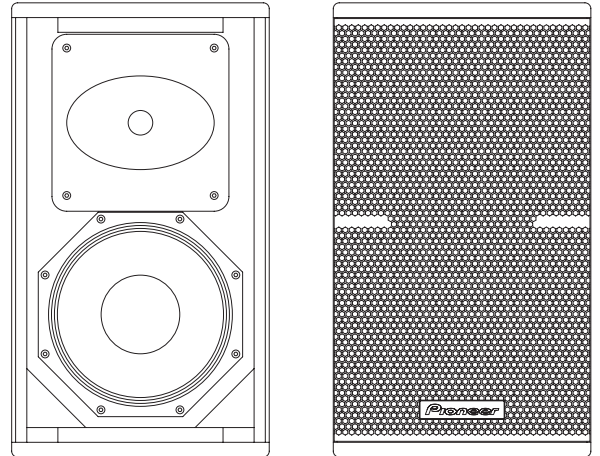
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# Product overview

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## Product overview



The XY-81 is a compact, versatile, passive loudspeaker product designed for a wide variety of compact and discreet sound reinforcement applications. It features a high-power 8" (203 mm) ferrite LF drive unit in a reflex enclosure, and a 1.7" (43 mm) diaphragm, 1" (25 mm) exit neodymium high frequency compression drive unit coupled to a 90° × 60° rotatable waveguide. These components are matched by an internal passive crossover network for unprecedented sonic quality from a completely passive enclosure.

Due to its discreet size and appearance, the XY-81 can be used in a wide variety of applications ranging from fills and delays in nightclub use to compact front of house and DJ booth monitoring duty.

No active controller or programmed EQ is required for correct operation. For demanding applications, a 70 Hz, 24 dB/octave high pass filter is recommended to increase drive unit headroom. However, this is not essential for normal operation.

➔ For details, see *Protective DSP settings* (p.6).

The XY-81 is fitted with two Neutrik SpeakON™ NL4 connectors.

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# System set-up

## WARNING

- Loudspeaker systems are potentially dangerous objects if used incorrectly. Please ensure that you read this section fully, and contact your local dealer should you be in any doubt over correct operation procedures.
- Professional loudspeaker systems are capable of producing damage-inducing sound pressure levels, and hence care should be taken when setting your system up, particularly when it comes to loudspeaker placement within a venue. Damage to the ear can result from levels above 90 dB under prolonged exposure.

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## Stand mounting

The XY-81 can be mounted from a loudspeaker stand using the integral polemount adapter for a standard 35 mm (1.4") loudspeaker stand. When mounting in this way, please consider the following:

- Ensure your stand height is locked off and the tripod legs are positioned so as to be stable.
- Check the weight loading of your stands before attempting to mount the loudspeaker.
- Do not stack a second loudspeaker on top of the stand-mounted one.
- Ensure cables are run so as to leave enough slack to enable neat wiring, and thus reduce the risk of the speaker being pulled over. Loose cables should be covered or taped down wherever possible to reduce trip hazards.
- When using poles on top of subwoofer systems, please observe similar precautions.

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## Ground stacking

- Ensure that the floor or stage surface can withstand the weight of the system.
- Wherever possible, avoid high stacks and use ratchet straps to secure loudspeakers together. Please also remember that vibrations from subwoofer systems can shake other loudspeakers out of place, which may present a toppling hazard. The use of ratchet straps and non-slip material is recommended to prevent this.

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## Cabling and amplifier selection

The XY-81 is designed to be used with professional power amplifiers providing the following power outputs:

- 700 W/channel into 8  $\Omega$

## NOTE

A small power amplifier working too hard is more likely to damage a loudspeaker than a large power amplifier working within its operating range.

It is good practice to use an amplifier equal to the programme power rating of the loudspeaker — so as to retain sufficient headroom and good dynamic range. Care should be taken during operation to avoid amplifier clipping — as this can cause serious damage to your loudspeakers. If in doubt, please contact your dealer who will be happy to assist you in correct amplifier choice and setup.

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## Cabling

The XY-81 is supplied as standard with Neutrik SpeakON™ NL4 connectors, wired pin 1+/-1-. It is recommended that the resistance of your cable be less than one tenth of the nominal system impedance. Given below are the recommended maximum cable lengths for different cross-sections and impedances.

Conductor cross sectional area	Maximum recommended cable length		
	4 $\Omega$	8 $\Omega$	16 $\Omega$
1.0 mm <sup>2</sup>	11 m	22 m	44 m
1.5 mm <sup>2</sup>	17 m	34 m	68 m
2.0 mm <sup>2</sup>	22 m	44 m	88 m
2.5 mm <sup>2</sup>	29 m	58 m	116 m
4.0 mm <sup>2</sup>	44 m	88 m	176 m
6.0 mm <sup>2</sup>	66 m	132 m	264 m

- Pins 2+/-2- on the Neutrik SpeakON™ connectors are wired together to allow link-through with 4-core cables.

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## Protective DSP settings

## WARNING

The XY-81 requires no DSP programme to function correctly. However, excessive low frequency information will cause the LF drive unit's excursion to increase, which can result in damage to your loudspeaker.

The higher you raise the cut-off frequency on a high pass filter for an XY-81, the more headroom and overall sound pressure level output there is available. For most medium-to-high level applications, we would recommend a minimum of a 70 Hz high pass filter with a 24 dB/octave slope to sufficiently protect the loudspeaker. For higher SPL applications, we would recommend raising this cut-off even higher. We would stress that the higher the cut-off frequency, the safer the loudspeaker will be.

# Mounting and rigging options

## WARNING

- The overhead suspension of loudspeakers is a very serious issue with potentially lethal consequences should anything go wrong. Rigging should only be carried out by experienced personnel following safe working practice. Should you be in any doubt whatsoever, please contact the retailer or dealer from which you purchased this product.
- When utilising any suspension method, a secondary safety feature must be used. For any suspension method, fit an M8 eyebolt to any of the rigging points. A safety steel can then be attached to this and connected to your safety point. If you are in any doubt whatsoever about how to safely suspend your loudspeakers, do not hesitate to contact the retailer or dealer from which you purchased this product.

## Rigging hardware and accessories

The XY-81 has three options for mounting and suspension, both for temporary use and for permanent, fixed installation.

The XY-81 contains nine M8 threaded fixing points around the enclosure, to enable suspension using forged shoulder eyebolts (minimum thread length 15 mm (0.6")) or the optional CP-XY8VC1 vertical or CP-XY8HC1 horizontal flying cradles. These fixings allow suspension in any orientation, with the extra point on the rear of the enclosure available for pull-back to obtain the desired rigging angle or as a secondary safety point.

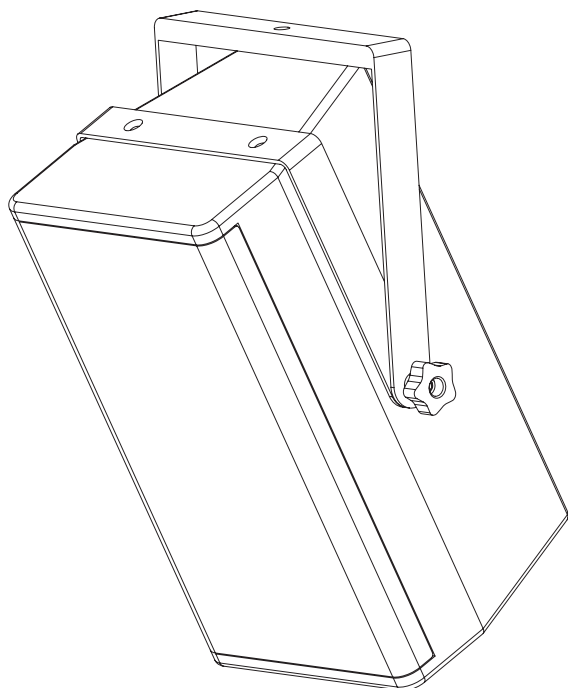
The XY-81 also has four M6 threaded fixings on the rear for use with wall mount brackets.

- With any suspension method, a second anchor point should be used as a safety feature.
- Under no circumstances should the mounting points of one enclosure be used to suspend another enclosure below it. AlphaTheta Corporation is in no way responsible for the failure of incorrectly rigged systems. This information relates specifically to the rigging techniques for the XY-81 enclosure only. If you are in any doubt about safe practices for rigging loudspeakers, please contact the retailer or dealer from which you purchased this product.

## Permanent installations

Any installation (permanent or temporary) must be securely attached to the structure of the building using chain, steel wire or web straps that are certified and load rated for the loudspeaker system. Consideration must be taken when determining the loading on the structure to include loudspeakers and rigging hardware, and the appropriate safety factor can then be decided upon. If you are in any doubt whatsoever, please contact the retailer or dealer from which you purchased this product. A reputable rigging organisation should also be able to advise on legislation regarding safety factors for suspended systems of this type.

## Attachment of the CP-XY8VC1 Vertical Flying Cradle

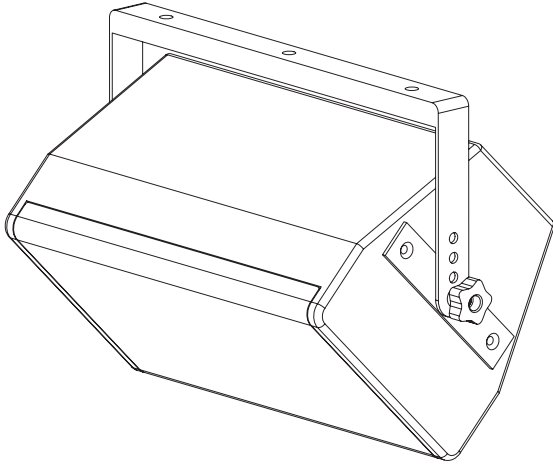


Using the supplied M8 countersunk socket head bolts, align the mounting holes in the inner yoke with the mounting points on the top or the bottom of the enclosure. Tighten the bolts to ensure a solid fit. Once the desired angle of the loudspeaker is set, tighten the knobs on the cradle to lock the position in place. The points on the top of the flying cradle can be used for permanent installations or to secure a hook clamp. Ensure that an M8 eyebolt is secured to the top point on the XY-81 enclosure to use as a secondary safety feature.

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## Attachment of the CP-XY8HC1 Horizontal Flying Cradle



Using the supplied M8 countersunk socket head bolts, align the mounting holes in the end mounts of the yoke with the mounting points on the top and the bottom of the enclosure. Tighten the bolts to ensure a solid fit. Once the desired angle of the loudspeaker is set, tighten the knobs on the cradle to lock the position in place. The points on the top of the flying cradle can be used for permanent installations or to secure a hook clamp. Ensure that an M8 eyebolt is secured to the top point on the XY-81 enclosure to use as a secondary safety feature.

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## Attachment of wall mount brackets

- Four holes (M6) for wall mount brackets are provided on the rear of the XY-81.
- Hole layout (pitch): 108 mm × 50.8 mm (4.0" × 2.0")
- Be sure to use wall mount brackets that have enough strength to be able to withstand the weight of the XY-81.

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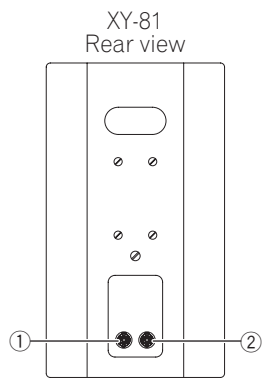
## To rotate the HF waveguide

- 1 Using a 3 mm Allen key, unscrew the four M4 screws in the top and bottom of the enclosure (2 at each end). Gently remove the grille from the front of the enclosure.
- 2 Using a 4 mm Allen key, remove the four socket-head bolts retaining the HF waveguide in place.
- 3 Lift the waveguide up and rotate to the desired position.
- 4 Reinstall the socket-head bolts and retighten. Avoid over-tightening as this may crack the waveguide.
- 5 Reinstall the grille by gently placing it in place over the front of the loudspeaker. Replace the four M4 machine screws to secure it in place.



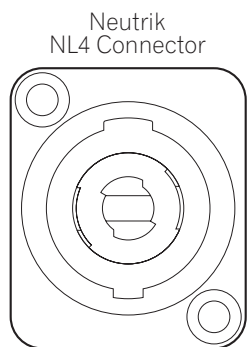
# Connections

- The INPUT and LINK connectors used are Neutrik NL4 SpeakON™ connectors.
- Refer to the internal connection diagram and make the appropriate connections as shown.

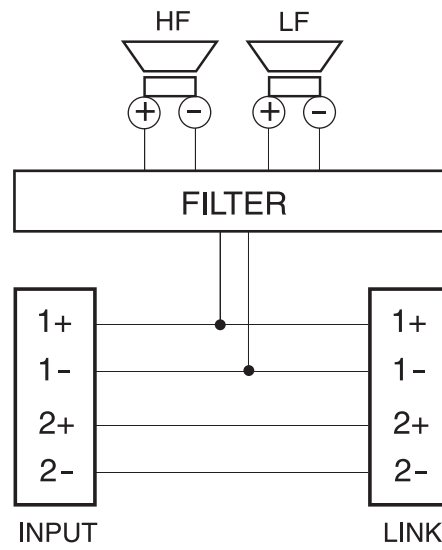


① **INPUT connector**

② **LINK connector**



## Internal connection diagram



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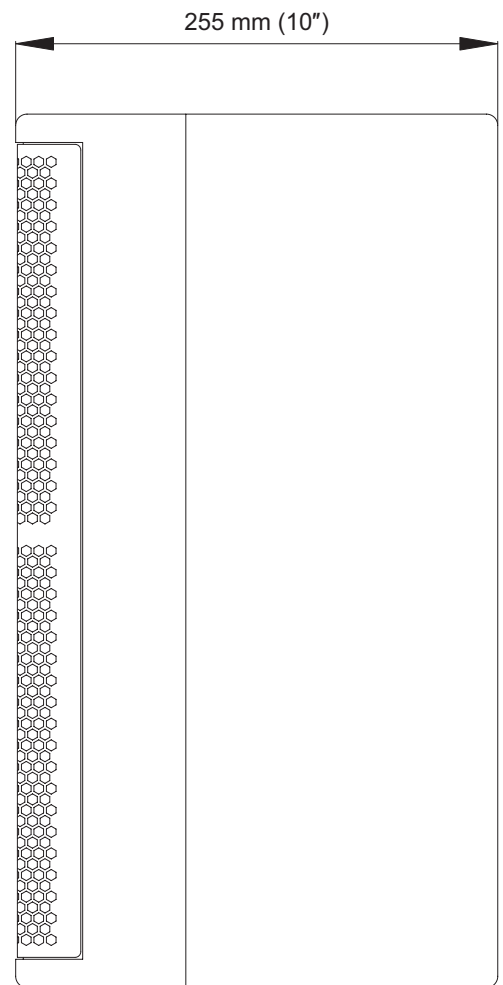
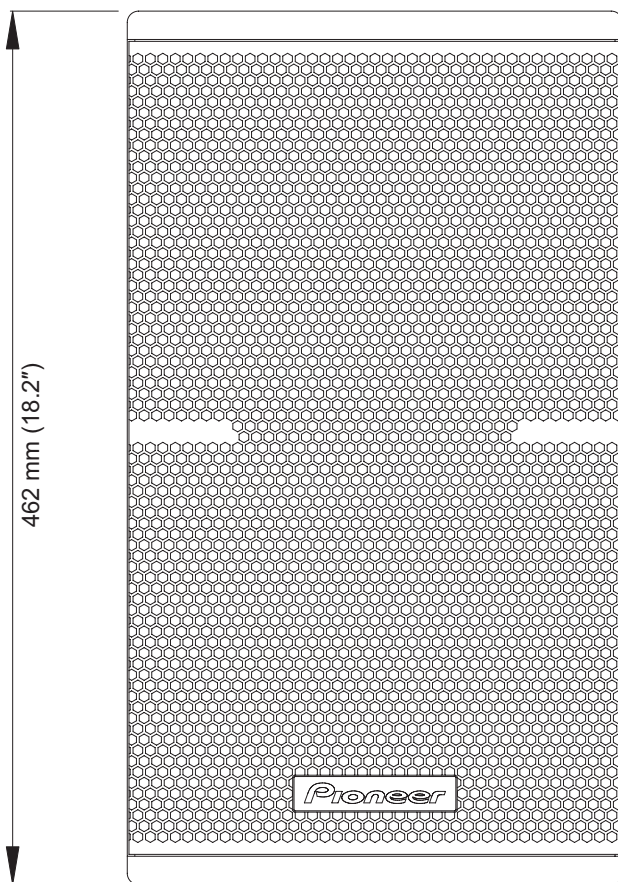
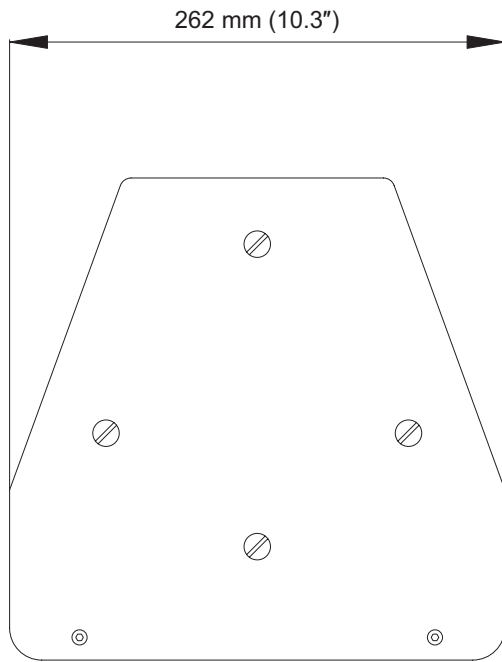
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# Additional information

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## Dimensions



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## About trademarks and registered trademarks

- Pioneer is a registered trademark of PIONEER CORPORATION.
- SpeakON is a registered trademark of Neutrik.

The names of companies and products mentioned herein are the trademarks of their respective owners.

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## Specifications

Loudspeaker Type	Two-way passive, reflex-loaded
Frequency Response	75 Hz – 20 kHz
Sensitivity (1 W/1 m)	91 dB
Nominal Impedance	8 $\Omega$
Power Handling	350 W RMS, 700 W Program
Dispersion	90 °H × 60 °V, Rotatable
Maximum SPL	116 dB cont., 122 dB peak
Driver Configuration	8" (203 mm) ferrite LF cone driver, 1" (25 mm) exit neodymium HF compression driver
Crossover	Asymmetric internal passive crossover
Connectors	2 × Neutrik SpeakON™ NL4
Dimensions (W×H×D)	262 mm × 462 mm × 255 mm / 10.3" × 18.2" × 10.0"
Weight	12.0 kg / 26.5 lbs.
Rigging and Hardware	8 × M8 threaded mounting points (4 top/4 bottom), 1 × M8 threaded mounting points on rear, 4 × M6 threaded points on rear (for wall mount bracket), 1 × flush handle on rear, 1 × 35 mm polemount socket
Grille	Hex punched steel
Enclosure	15 mm (0.6") birch plywood
Finish	Impact-resistant textured paint, XY-81: Black, XY-81-W: White

The specifications and design of this product are subject to change without notice.

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