
XY-3B

XY Series
Three way bi-amped loudspeaker

User's Manual



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Introduction

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.

Thank you for buying this product. Please read through these operating instructions so you will know how to operate your model properly. After you have finished reading the instructions, put them away in a safe place for future reference.

Before you start

- Make sure to use amplifiers with rated load impedances that match the speaker impedance for the amplifiers connected to each loudspeaker.
- Furthermore, any devices or objects easily affected by magnetism (floppy disks, magnetic cards, magnetic tape etc.) should be kept well away from the speakers. In order to prevent damage to the loudspeaker resulting from input overload, please observe the following precautions:
- If you supply amplification power to the loudspeaker excessively, the speaker could be damaged and overheating could cause a hazard.
- Only connect, turn ON or OFF the audio system or any one part (such as DJ player and Mixer) when the power to the amplifier is turned off. If any operations are performed while the amplifier is turned on, there is the possibility of damaging the treble frequency speaker unit.
- When using a graphic equaliser to emphasise loud sounds in the high-frequency range, do not use excessive amplifier volume.
- Do not try to force a low-powered amplifier to produce high sound levels as the amplifier's harmonic distortion will be increased, and you may damage the speaker.

Caution: installation

- Ensure that the floor, wall, ceiling, or stage surface can withstand the weight of the system.
- The installation technician must follow professional installation techniques to protect the loudspeaker against falling.
- When installing the speakers, make sure that the wall/ceiling is strong enough to support the speakers.
- Improper installation of the speakers could cause them to fall and cause damage or injuries to persons nearby.
- Do not attempt to stack devices together for use other than specified systems. Such devices may become unstable and tip over or fall, leading to injury. Make sure to secure each device in place using the pole mount, ratchet straps or other hardware to prevent them from tipping over or falling when stacking devices together. AlphaTheta Corporation shall accept no liability for damage or injury caused by accidents resulting from AlphaTheta Corporation products tipping over or falling due to them being insufficiently secured.
- Switch off and unplug your power amplifier and consult the instructions when connecting up components. Make sure you use the correct connecting cables.
- Keep magnetic objects such as screwdrivers or steel parts away from the tweeter and woofer speakers. Since the speakers use strong magnets, the objects may be attracted, causing injury or damaging the diaphragm.
- Do not install the loudspeaker in areas exposed to direct sunlight or near heating appliances. Such conditions may result in shrinkage of the wood materials and finish, leading to deformation of the enclosure, discolouration, or damage to the speakers. Conditions considered unpleasant by humans are detrimental to speakers as well. Providing a comfortable environment for the speakers will assist them in demonstrating their best performance. Please maintain the usage environment as follows:
 Temperature: 15 °C to 25 °C (59 °F to 77 °F)
 Relative Humidity: 35 % to 65 % (winter)
 40 % to 70 % (summer)
- Do not store speakers at temperatures outside of the rated temperature range as doing so may cause the speaker to drop in performance or become damaged. Storage temperature range: -20 °C to +55 °C (-4 °F to +131 °F)
- Do not use the product in locations subject to extreme fluctuations in temperature. Doing so could cause the product to malfunction.
- When using room air-conditioners or stoves to rapidly cool or heat room spaces, take precautions to avoid excessive dehumidification.
- Avoid placing the speaker near areas such as windows, as outside air can cause condensation to occur within the speaker.
- This loudspeaker is designed for indoor use only. To avoid electric shock hazard, do not place them outside, or in an overly humid area.

Caution: in use

- Do not use the speaker to output distorted sound for long periods of times. This can result in a fire hazard.
- Please also remember that vibrations from subwoofer systems can shake other loudspeakers out of place, which may present a toppling or falling hazard.
- Do not attempt to use the product with the XY-3B grille detached as doing so could result in damage to the product. Consult a qualified professional for assistance with removing the grille for maintenance purposes.
- If you notice anything unusual with a speaker or ceiling suspension hardware, immediately stop using it and detach it without delay.
- If you notice cracking on the speaker enclosure, immediately stop using it and detach it without delay.
- Detach speakers that are not used or cannot be used without delay.

For Europe



If you want to dispose of this product, do not mix it with general household waste. There is a separate collection system for used electronic products in accordance with legislation that requires proper treatment, recovery and recycling.

Private households in the member states of the EU, in Switzerland and Norway may return their used electronic products free of charge to designated collection facilities or to a retailer (if you purchase a similar new one).

For countries not mentioned above, please contact your local authorities for the correct method of disposal.

By doing so you will ensure that your disposed product undergoes the necessary treatment, recovery and recycling and thus prevent potential negative effects on the environment and human health.

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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

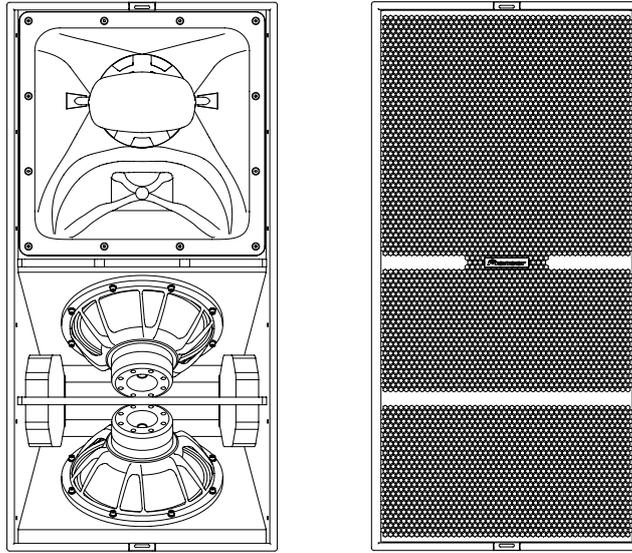
The XY-3B contains threaded fixing points. These points can be used to attach either special mounting hardware designed for the product or commercially available mounting hardware. Make sure to attach a wire for preventing falling parts and equipment of adequate strength using screw holes not used by mounting hardware.

WARNING

- 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.
- 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 stage, 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 stage, etc.
- Ensure that the floor, wall, ceiling, 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.

Product overview

Product overview



The XY-3B full range speaker is designed to deliver natural yet powerful audio at the high sound pressure level (SPL) required for large venues and outdoor events.

Features

- Moulded Bi-horn.
- X-Phase system with gold X-Phase plug.
- 8" cone driver that delivers clean and precise mid-range frequencies.
- 1" compression driver produces crystal-clear HF which, thanks to the moulded Bi-horn, seamlessly blends with the mids.
- Two 12" cone drivers create tight, chest-pumping low-mid.
- NL4 INPUT and LINK connector as standard.
- Robust enclosure made from premium birch plywood.
- Impact resistant textured paint finish.
- Wheelboard and flying hardware options available.

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.

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.

Amplifier selection

The XY-3B is designed to be used with professional power amplifiers providing the following power outputs:

LF : 2400W/channel into 4 Ω
MHF : 400W/channel into 8 Ω

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 program 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.

Cabling

The XY-3B is supplied as standard with Neutrik SpeakON™ NL4 connectors, wired pin 1+/1-(LF) and 2+/2-(MHF). 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 Ω	8 Ω	16 Ω
1.0 mm ²	11 m	22 m	44 m
1.5 mm ²	17 m	34 m	68 m
2.0 mm ²	22 m	44 m	88 m
2.5 mm ²	29 m	58 m	116 m
4.0 mm ²	44 m	88 m	176 m
6.0 mm ²	66 m	132 m	264 m

Speaker protection and Processor setting

WARNING

XY-3B requires properly adjusted signal inputs optimized for each LF and MHF. Otherwise speaker units may deteriorate even if the power is below the power handling capacity.

It is recommended to appropriately set the values of signal processing such as crossover frequency, peak limiter, delay, equalizer. Please see the document provided in the following webpage for the recommended values to appropriately use this product.
<http://pioneerproaudio.com/en/sound/resources.html>

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 a rigging equipment to any of the rigging points. A safety wire 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.
- 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.
- Be sure to provide double safety with reference to the XY-Series Installation Manual found at the following URL.
<http://pioneerproaudio.com/en/sound/resources.html>
- With any suspension method, a second anchor point should be used as safety feature.
- Do not use the double safety hoisting accessory enclosure connection together with the main hoisting accessory connection.
- After installing the speaker, never loosen any of its screws, since the speaker could fall or other accidents could occur.
- 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.
- You must confirm that the speakers are safely installed after earthquake.

Mounting and rigging XY-3B

The XY-3B has multiple options for mounting and suspension, both for temporary use and for permanent, fixed installation.

The XY-3B contains 9 of M10 threaded fixing points around the enclosure, to enable suspension using forged shoulder eyebolts or the optional flying hardware.

The nuts of the threaded fixing points are structured so that bolts cannot pass through them.

Screw the eye bolts into the nuts so that they are engaged within the range of 10 to 15 mm (0.39 to 0.59") and then tighten the nuts with a spanner while matching the direction of the eye bolts to fix them in place.

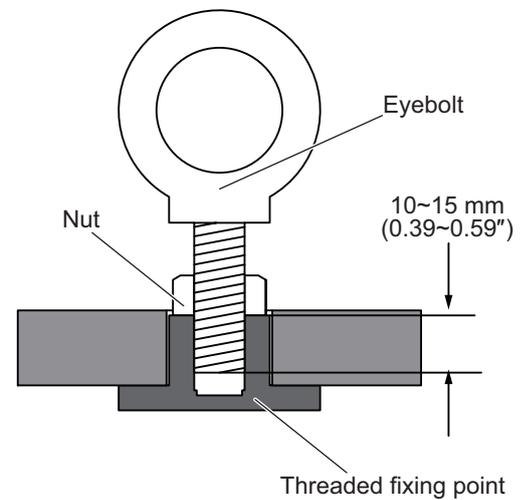
To satisfy the required strength, use eye bolts with a thread length of 30 mm.

The XY-2 can be attached to the bottom of the enclosure as a front lower loudspeaker.

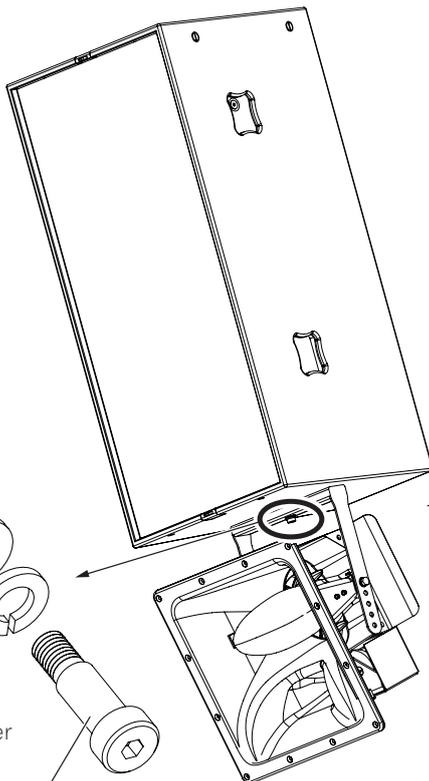
These fixings allow suspension in any orientation, with the extra point on the rear of the enclosure available for pull-back to obtain the desired rigging angle or as a secondary safety point.

In the installation, ensure tighten the bolts for the rigging hardware following torques.

M10 bolts : 15 N·m



Attachment of the XY-2 as front lower loudspeaker



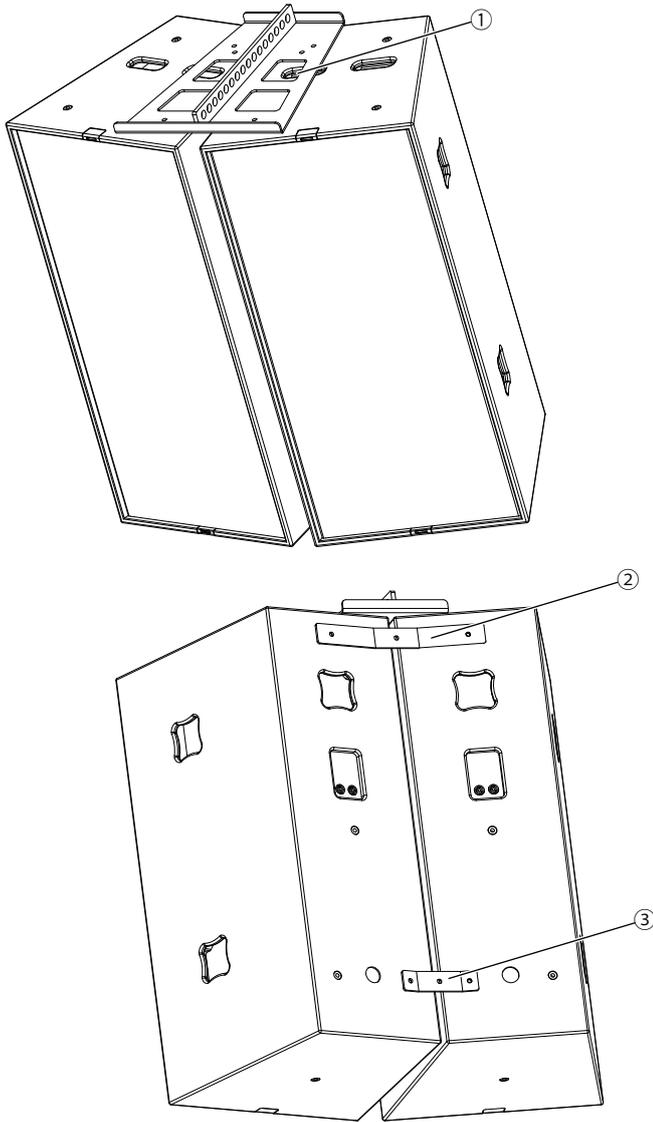
Using the dedicated screws, washer, and spring washer included with the XY-2, firmly attach it to the bottom threaded point of the XY-3B. - the flat washer should be in contact with the yoke. Tighten the bolts to ensure a solid fit. Once the desired angle of the loudspeaker is set, tighten the bolts on the yoke to lock the position in place.

WARNING

- When attaching the XY-2 to the XY-3B, do not attach it to anywhere other than the bottom of the XY-3B. Make sure to use the included bolt, washer, and spring washer.
- Do not suspend anything other than an XY-2 to the bottom of the XY-3B. Also, do not suspend two or more XY-2s.
- Excluding installation, do not loosen the XY-2 side hexagon socket head cap bolts.
- Flat washer and springwasher out of the reach of children and infants. If accidentally swallowed, contact a doctor immediately.

Special bolt for combining with XY-3B

Assembly of cluster using the CP-XY3DF1 Dual Enclosure Flying Plate set



Using the supplied M10 socket head bolts, bolt through the CP-XY3DF1 the top-plate and two rear-plate into the enclosures. Ensure that both the flat and spring washers are used - the flat washer should be in contact with the top-plate. When assembling cluster of two XY-3s using the CP-XY3DF1, XY-2s can be attached to the bottom of enclosures.

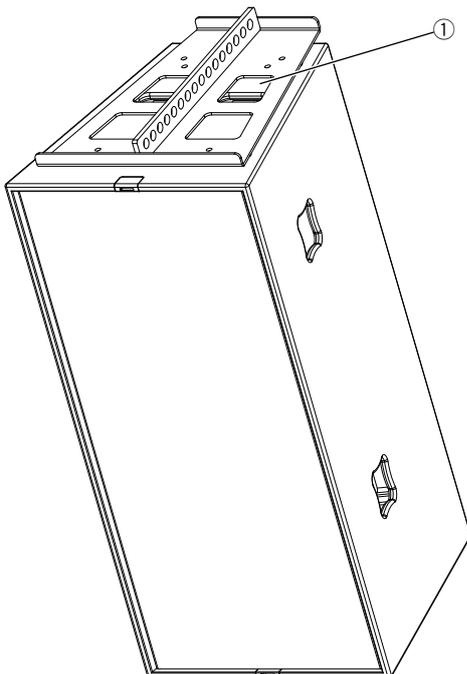
The top-plate works on the centre of gravity of the cluster. Moving the pickup point to the rear of the enclosure will add down-tilt, and moving to the front of the enclosure will apply up-tilt. For larger down-tilt angles, position the pivot on the last hole and use the point on the rear or underside as a pull-back.

WARNING

- When installing the CP-XY3DF1 with the XY-3B, make sure to tighten the bolts to the torques specified in the table below.
M10 bolts : 15 N·m
- When assembling cluster using the CP-XY3DF1, back of the enclosures must be fixed using a set of two rear plates.
- Do not attempt to use this product with components other than the specified speaker.
- Be sure to use the supplied accessory screws.
- Flat washer and spring washer out of the reach of children and infants. If accidentally swallowed, contact a doctor immediately.
- After mounting the speaker with the cradle, never loosen any of its accessory installation screws, since the speaker could fall or other accidents could occur.
- Attach a wire to a rigging point different from those for installing the CP-XY3DF1 to prevent swaying.

- ① Top-plate
- ② Rear-plate-top
- ③ Rear-plate-bottom

Attachment of the CP-XY3DF1 as Variable Angle Bracket



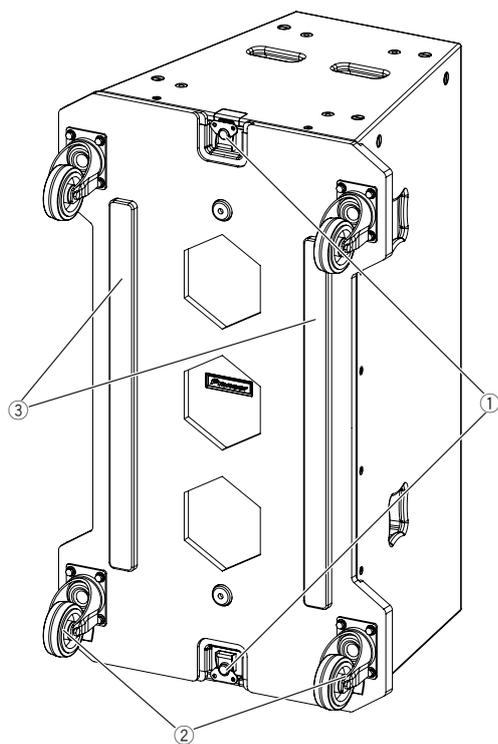
Using the supplied M10 socket head bolts, bolt through the CP-XY3DF1 the top-plate into the enclosure. Ensure that both the flat and spring washers are used - the flat washer should be in contact with the top-plate. The top-plate works on the centre of gravity of the enclosure. When hanging the XY-3 using the CP-XY3DF1, the XY-2 can be attached to the bottom of the enclosure. Moving the pickup point to the rear of the enclosure will add down-tilt, and moving to the front of the enclosure will apply up-tilt. For larger down-tilt angles, position the pivot on the last hole and use the point on the rear or underside as a pull-back.

WARNING

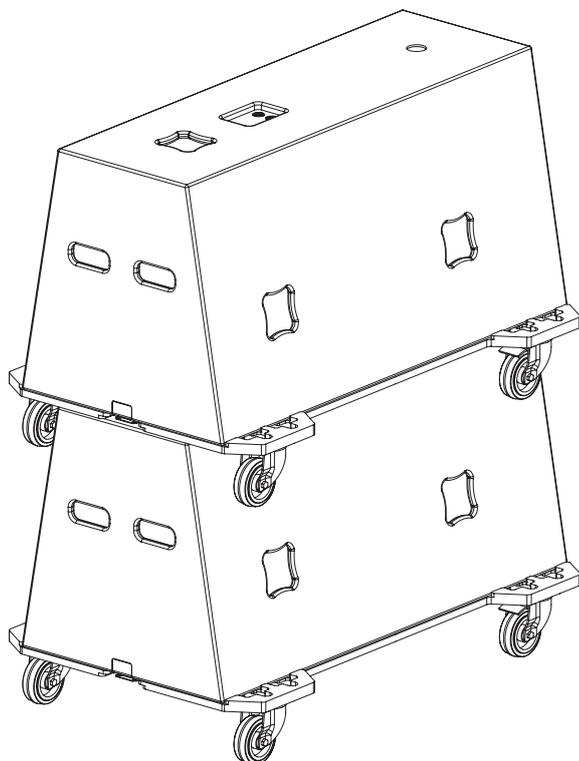
- When installing the CP-XY3DF1 with the XY-3B, make sure to tighten the bolts to the torques specified in the table below.
M10 bolts : 15 N·m
- Do not attempt to use this product with components other than the specified speaker.
- Be sure to use the supplied accessory screws.
- Flat washer and spring washer out of the reach of children and infants. If accidentally swallowed, contact a doctor immediately.
- After mounting the speaker with the cradle, never loosen any of its accessory installation screws, since the speaker could fall or other accidents could occur.
- Attach a wire to a rigging point different from those for installing the CP-XY3DF1 to prevent swaying.

- ① Top-plate

Attachment of the CP-XY3WB1 Wheel Board



- ① Butterfly latch
- ② Locking castor
- ③ Guide for stacking



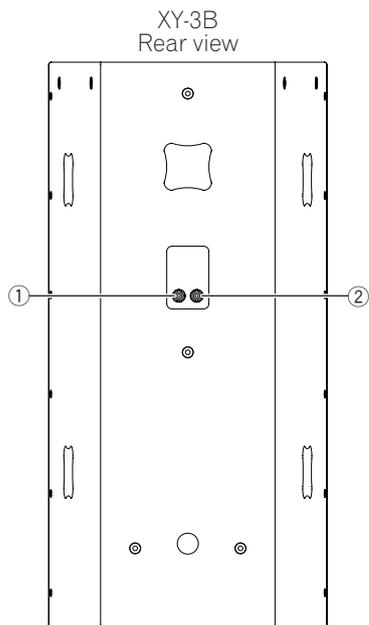
Attach the wheel board to the front of the enclosure using the butterfly latches on both sides of the wheel board.
You can use the wheel boards to stack two enclosures. Before stacking, lock the locking castor, then place the upper enclosure on top so that the wheel board guides on the underside of the upper enclosure fit firmly into the lower enclosure.

WARNING

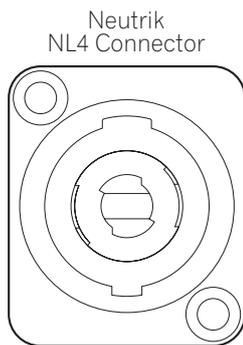
- When attaching the wheel board to the enclosure, securely tighten the butterfly latches to the brackets on the sides of the enclosure.
- When attaching the wheel board to the enclosure, be sure to attach it so that the locking castor side is on the bottom side of the enclosure.
- The work to raise up and lower down the enclosure for transportation must be performed by two or more people. Also, when raising up the enclosure after transportation, be sure to lock the locking castors.
- Be sure to lock the locking castors except during transportation. Additionally, do not place the enclosures in a sloping location.
- When stacking, do not use any other method than that specified in the user's manual. Additionally, do not stack more than three deep, stack in a sloping location, or stack any products other than the XY-3B.
- Stacking work should always be performed by two or more people.
- When stacking, apply the locking castor locks firmly. Additionally, after stacking, check that the guide on the underside of the wheel board on the upper enclosure is fit firmly into the enclosure on the underside.

Connections

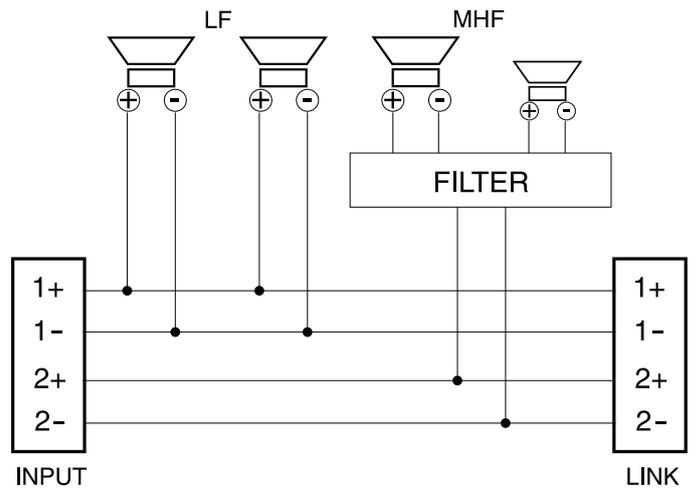
- The INPUT and LINK connectors used are Neutrik SpeakON™ NL4 connectors.
- Refer to the internal connection diagram and make the appropriate connections as shown.



- ① INPUT connector
- ② LINK connector

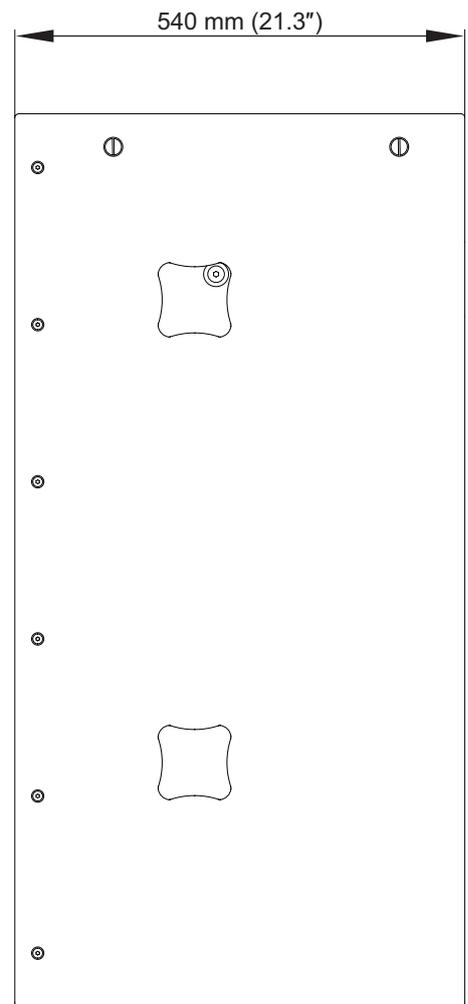
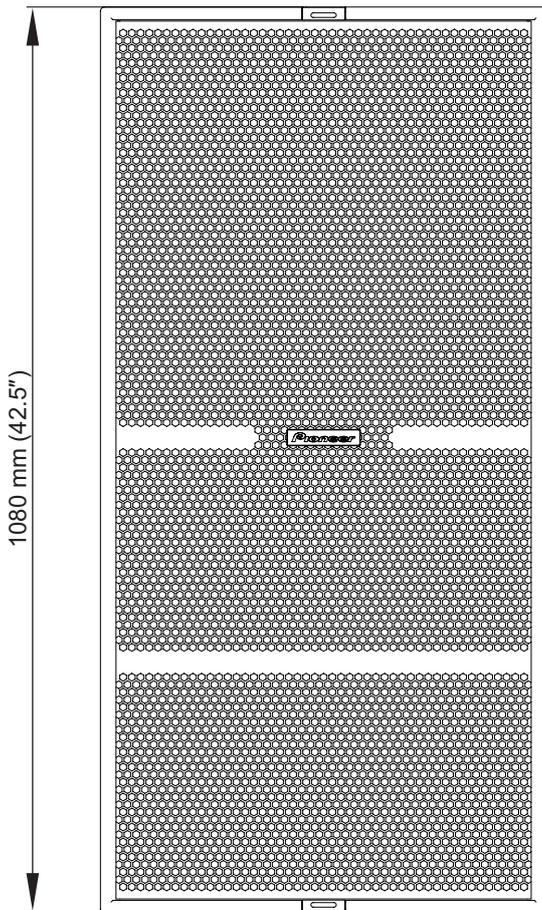
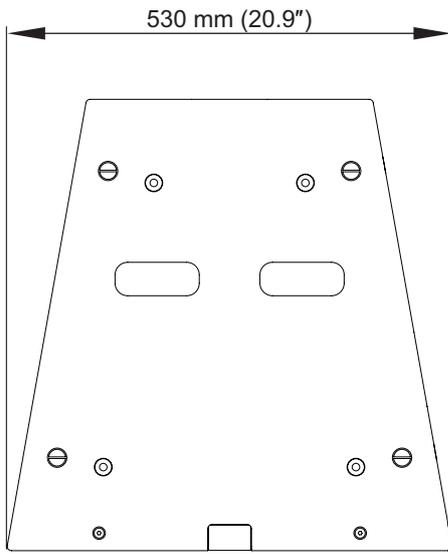


Internal connection diagram



Additional information

Dimensions



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.

Specifications

Loudspeaker Type	Three-way bi-amp loudspeaker
Frequency Response	58 Hz – 17 kHz
Sensitivity (1 W/1 m)	LF: 102 dB MHF: 107 dB
Nominal Impedance	LF: 4 Ω MHF: 8 Ω
Power Handling	LF: 1200 W RMS, 2400 W Program MHF: 200 W RMS, 400 W Program
Dispersion	50 °H x 35 °V
Maximum SPL	LF: 133 dB cont., 139 dB peak MHF: 130 dB cont., 136 dB peak
Driver Configuration	LF: 2 x 12" (305 mm) neodymium cone driver, MF: 8" (203 mm) neodymium MF cone driver, HF: 1.0" (25 mm) exit neodymium compression driver
Crossover	MHF: Asymmetric internal passive crossover
Connectors	2 x Neutrik SpeakON™ NL 4
Dimensions (W×H×D)	530 mm x 1080 mm x 540 mm / 20.7" x 42.5" x 21.3"
Weight	58.0 kg / 127.9 lbs.
Rigging and Hardware	9 x M10 threaded mounting points (4 top / 1 bottom / 4 rear) 7 x flush handles (2 top / 2 left / 2 right / 1 rear)
Grille	Hex punched steel
Enclosure	15 mm (0.6") birch plywood
Finish	Impact-resistant textured paint, XY-3B: Black, XY-3B-W: White

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

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