

ZX3

Zx3 Series Loudspeaker Owner's Manual



*Zx3-60
Zx3-90
Zx3-60PI
Zx3-90PI*

Live For Sound
www.electrovoice.com



Zx3

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with a dry cloth.



The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.



The asterisk within an equilateral triangle is intended to inform the user to necessary installation or removal instructions regarding equipment or hardware use relating to the system.

Zx3 Series Owner's Manual

Thank you for choosing the Electro-Voice® Zx3 series loudspeaker system. This system is the culmination of EV's experience in transducer design. Please take time to consult this manual so that you can understand all the features built into your EV system and fully utilize all its performance capabilities.

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Safety First

When setting up, installing and using the Electro-Voice® Zx3 speaker system, there are a number of precautions that you should follow:

- When Electro-Voice® Zx3 speakers are used for portable applications in which they will be positioned directly on the floor, make sure that the floor or stage is solid and secure.
- Electro-Voice® Zx3 speakers include 1-3/8 inch stand mounts to allow mounting on tripod stands. Make sure to:
 - Check the specifications of the speaker stand to be certain it is capable of supporting the weight of the speaker.
 - Check that the speaker stand is placed on a flat, stable surface and be sure to fully extend the legs of the stand. Do not try to make the stand “taller” and compromise its structural integrity.
 - Route cables and position the stand so that performers, production crew and audience members will not trip over the stand or cables and pull the speaker system over. Secure cables with wire ties or tape whenever possible.
 - Do not attempt to suspend more than one speaker on a stand designed for a single speaker
 - Unless you are confident that you can safely handle lifting the weight of the speaker onto the stand, ask another person to help you place it.
 - If you intend to hang or fly the Zx3 system, only do so safely with the correct hardware and accessories.



WARNING: Suspending any object is potentially dangerous and should only be attempted by individuals who have a thorough knowledge of the techniques and regulations of rigging objects overhead. Electro-Voice® strongly recommends that Zx3 speakers be suspended taking into account all current national, federal, state and local regulations. It is the responsibility of the installer to ensure that Zx3 speakers are safely installed in accordance with all such regulations. If Zx3 speakers are suspended, Electro-Voice® strongly recommends that the system be inspected at least once a year. If any sign of weakness or damage is detected, remedial action should be taken immediately. There are data sheets for each EV Suspension and Array Kit that should also be consulted prior to suspending speakers.



· Electro-Voice® does not recommend use of Zx3 speakers outdoors in direct exposure environments.



· Electro-Voice® Zx3 loudspeakers are easily capable of generating sound pressure levels sufficient to cause permanent hearing damage to anyone within normal coverage distance. Caution should be taken to avoid prolonged exposure to sound pressure levels exceeding 90 dB.

Zx3

Description

The Electro-Voice® Zx3 is a unique, lightweight package of pro audio performance, versatility and aesthetics. You won't find a speaker system available on the market that offers the unbelievable sound, incredible flexibility and tremendous output capability of the Zx3 anywhere near it's size and weight.

System Features - Zx3

- Full-face grille for a clean, professional look.
- DVX3121 12" woofer with 500 watts continuous power handling.
- ND2 2" voice coil, 1" exit neodymium compression driver.
- Two models: 60° x 60° or 90° x 50° coverage patterns.
- Adjustable monitor angle built into enclosure.
- Integral rigging points and inserts for multiple flying options.
- Full line of accessories for any installation.
- Passive and biamp selectable.

System Coverage - Zx3

Coverage Patterns and Applications

Zx3-60	60° x 60° coverage for long-throw and cluster applications
Zx3-90	90° x 50° for wider coverage or shorter distances

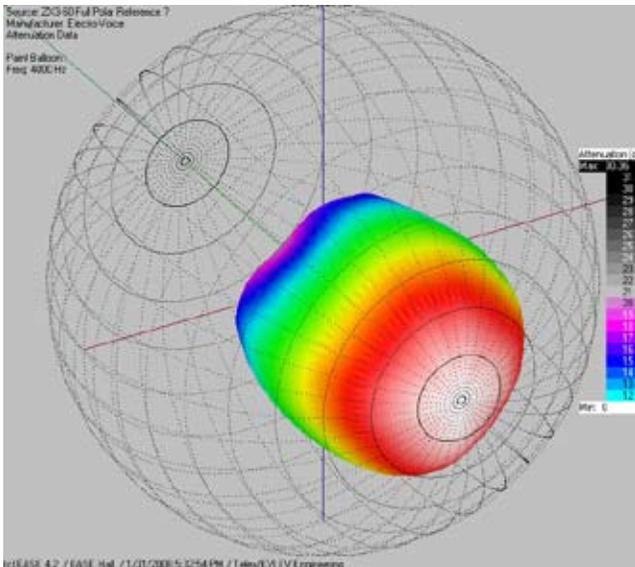


Figure 1a:
3D EASE Directivity Balloon,
Zx3-60, 60° x 60° Coverage

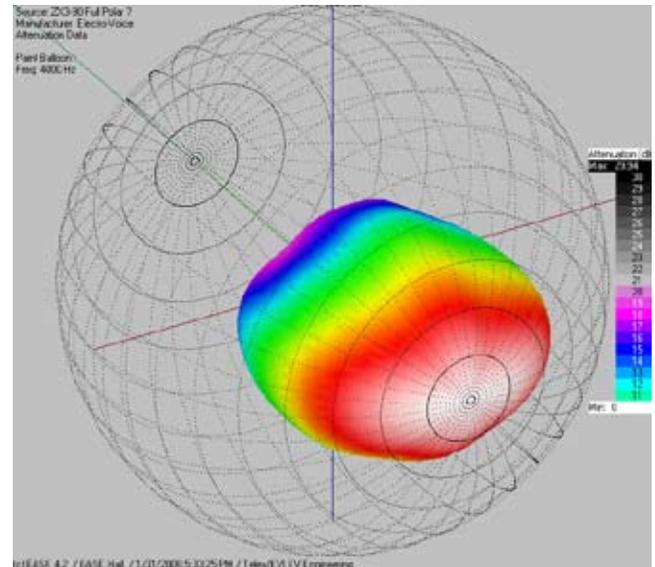


Figure 1b:
3D EASE Directivity Balloon,
Zx3-90, 90° x 50° Coverage

Suspending Zx3 Speaker Systems

Zx3 enclosures have 4 steel anchor points internally mounted on the top and bottom. Single stud fittings can be attached to these anchor plates and used as suspension points. Each of these anchor plates also has a M8 thread to accept rated forged M8 shoulder eyebolts. In addition to these points there are three additional M8 threaded points; two on the handle side, and one on the rear. These points can be used for suspending Zx3s vertically, horizontally, individually, in clusters, or to attach to EV mounting brackets. Working load limits for the Zx3 and fittings are shown in Figure 2.

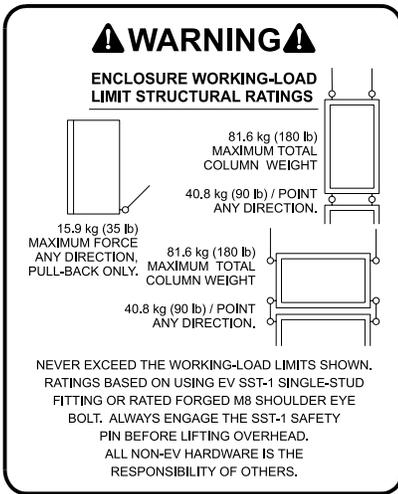


Figure 2:
 Working Load-Limit Rating
 of Zx3 Speaker System

Prior to each use, inspect the grid assembly or suspension point(s) and associated hardware for any cracks, deformations, broken welds, corrosion, missing or damaged components which could reduce the grid assembly or suspension point(s) strength. Replace any damaged hardware. Never exceed the limitations or maximum recommended load intended for grid assembly design or suspension point(s). As an added safety measure, it is suggested that the user install a second suspension point back to the grid (or building structural supports). This redundant safety point should have as little slack as possible (less than one inch is preferable). Prior to each use, inspect the loudspeaker enclosures for any cracks, deformations, missing or damaged components, which could reduce enclosure strength. Inspect the bracket assembly on the enclosures for any cracks, deformations, missing or loose screws which could reduce the flying hardware strength. Replace any loudspeaker systems that are damaged or missing hardware. Never exceed the limitations or maximum recommended load for the Zx3 systems.

Zx3 M8 Suspension Points

Metric (M8) inserts are equipped on the top and bottom of the enclosure, around the handle, and on the back of the enclosure for a total of 7 points. The inserts can be used to attach forged eyebolts or rigging brackets.

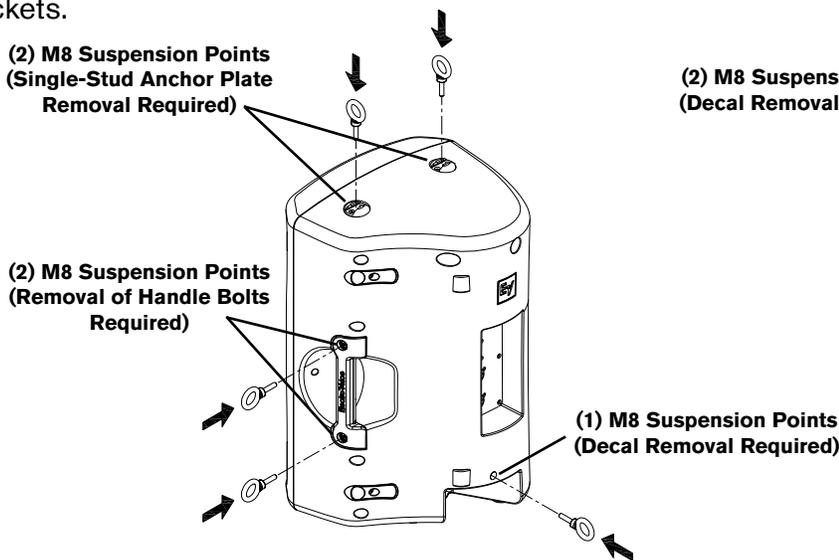


Figure 3a:
 Zx3 M8 Suspension Points
 (Top, Handle, Rear)

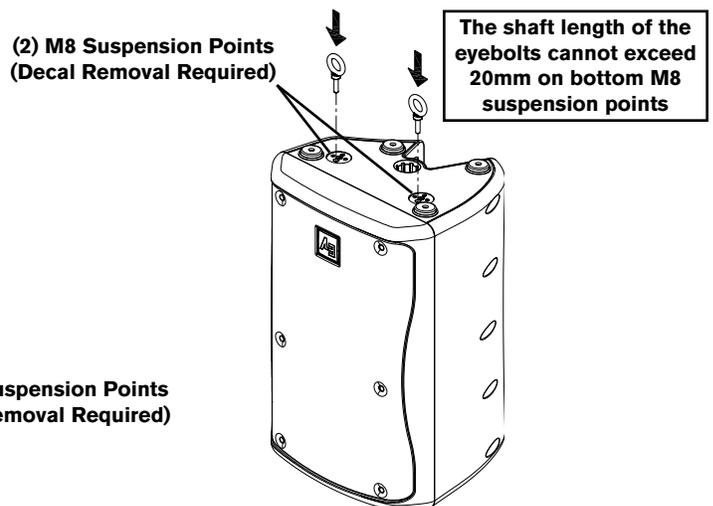


Figure 3b:
 Zx3 M8 Suspension Points
 (Bottom)

ZX3

Suspending Zx3 Speaker Systems (cont')

Suspending the Zx3 using optional Electro-Voice Single-Stud Rigging Kits

The Zx3 is shipped with two single-stud anchor plates for rigging with single-stud rigging. There are two more locations on the bottom to mount single-stud anchor plates for flying the Zx3 upside-down or horizontally. All of these locations can facilitate M8 Eyebolts if desired as well.

Figure 4:

Suspending the Zx3 Using Included Single-Stud Anchor Plates

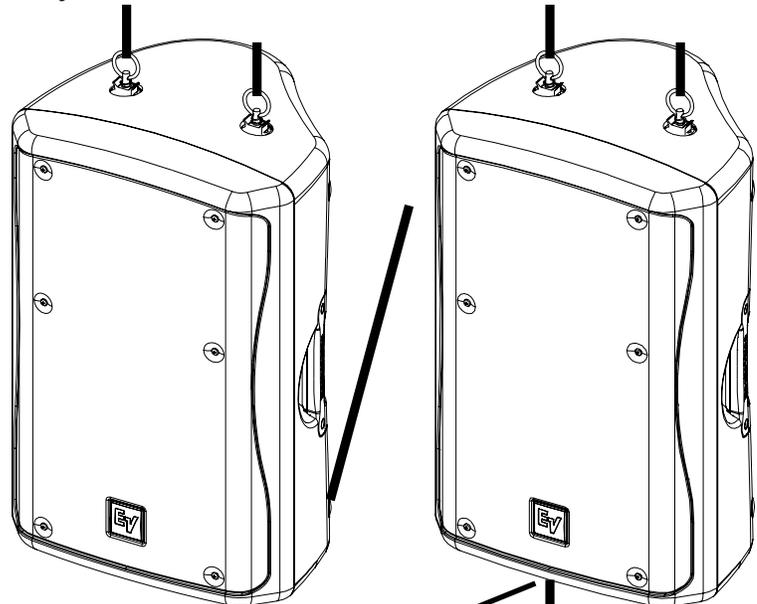
Kit Used (Left View) -

SSK-1 Single-Stud Rigging Kit (x1)

Kits Used (Right View) -

SSK-1 Single-Stud Rigging Kit (x2)

*EBK-3 Forged M8 Eyebolt Kit (x1)**



*EBK-3 on Bottom of Top Enclosure (Not Shown, See Figure 3b)



Step 1: Remove Decals

Step 2: Attach Single-Stud Anchor Plates Removed from the Top of the Enclosure or Optional RK-Z Kit (Shown) or Eyebolts (Not Shown)

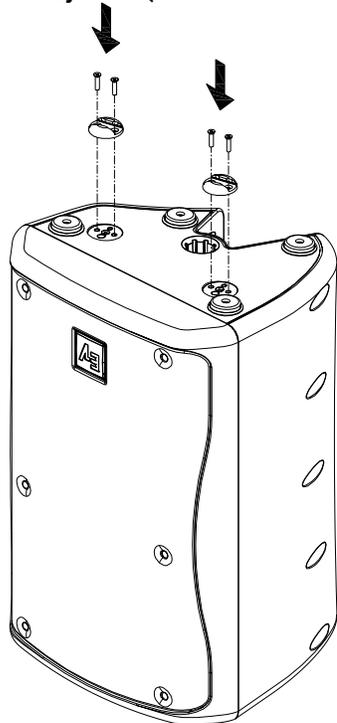
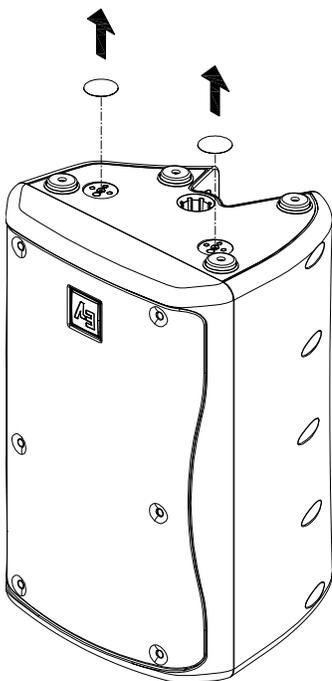


Figure 5:

Suspending the Zx3 Upside-Down Using Included Single-Stud Anchor Plates and Single-Stud Rigging Kit

Kits Used -

RK-Z Single-Stud Anchor Plate Kit (x1)

SSK-1 Single-Stud Rigging Kit (x1)

Suspending Zx3 Speaker Systems (cont')

Horizontal Suspension of the Zx3

The Zx3 is capable of being suspended horizontally from the side with the use of M8 Eyebolts.

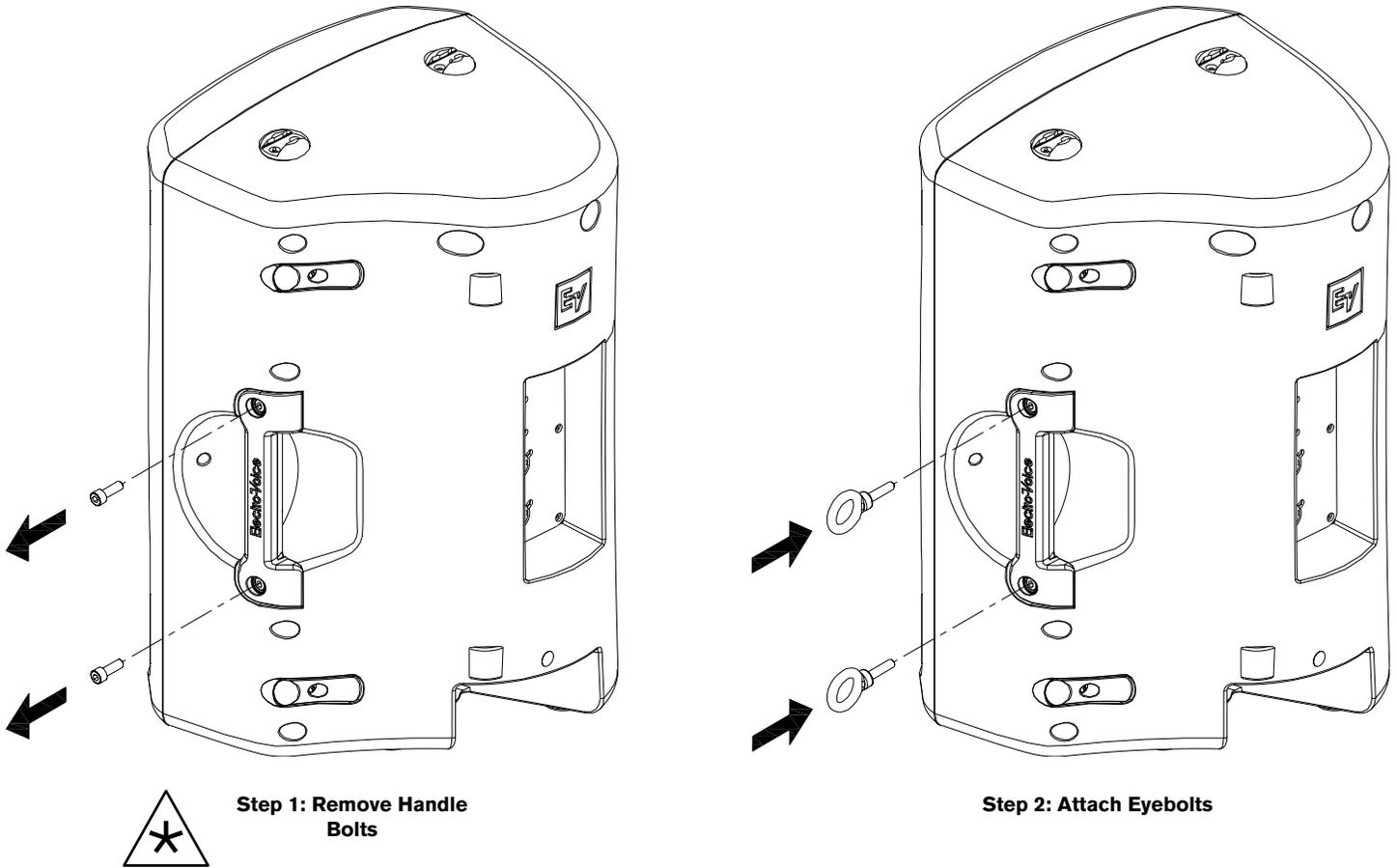
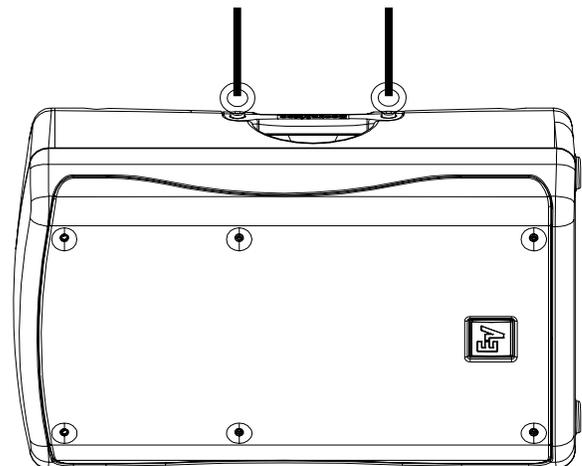


Figure 6:
Assembling Eyebolts to Handle for Horizontal Suspension
Kit Used - EBK-3 Forged M8 Eyebolt Kit (x1)

Figure 7:
Suspending the Zx3 Horizontally from Handle Using Optional Forged Eyebolt Kit
Kit Used - EBK-3 Forged M8 Eyebolt Kit (x1)



ZX3

Suspending Zx3 Speaker Systems (cont')

Suspension of the ZX3 to a Truss

The Zx3 is capable of being suspended from a truss in permanent and semi-permanent applications using the TMK-ZX3 truss mount kit. The kit allows the ZX3 to be quickly attached to a truss and rotated horizontally and vertically for the proper coverage. Please consult the TMK Series user instructions for more information.

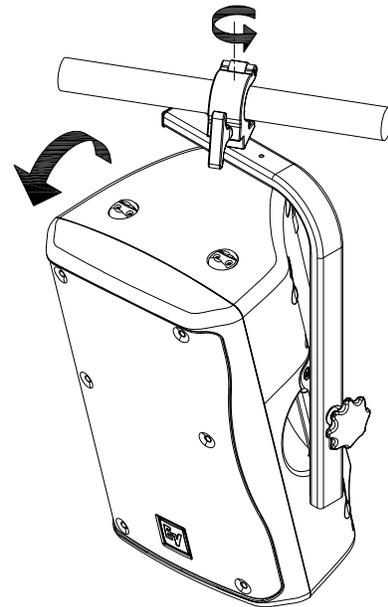


Figure 8:

Suspending the Zx3 from a Truss Using the Optional Truss Mount Kit

Kits Used -

HA-3 Handle Adaptor (x1)

VSA-1 Strong-Arm Mount (x1)

TCA-1 Truss-Clamp Adaptor (x1)

Suspension of the ZX3 to a Wall or Ceiling

The Zx3 is capable of being suspended directly from a wall or ceiling using the MB3 Wall/Ceiling Mounting Bracket. The mounting bracket attaches to the top and bottom suspension points on the ZX3, and is rotatable for proper coverage. Please consult the MB3 user instructions for more information.

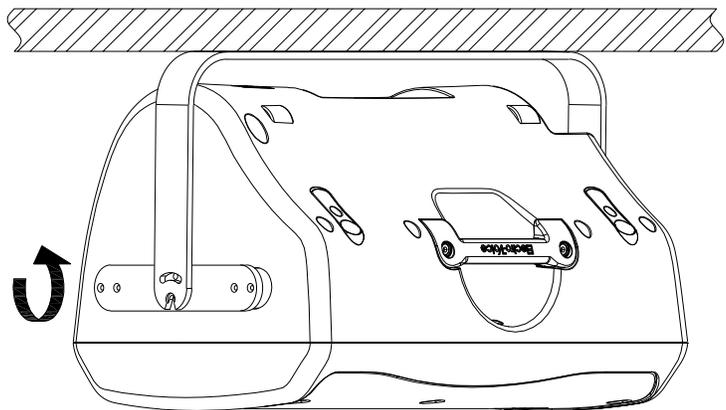
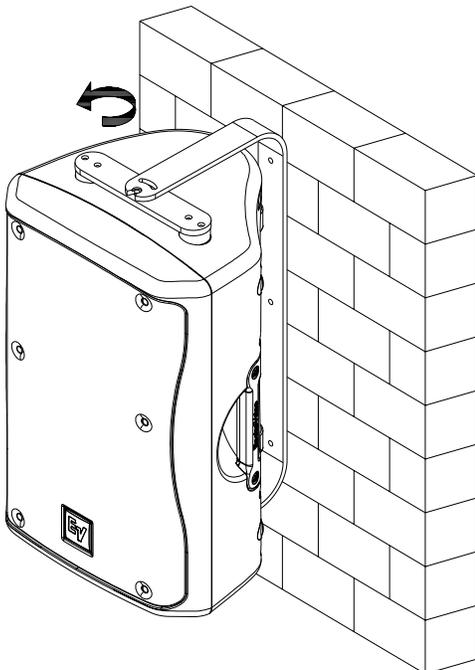


Figure 9:

Suspending the Zx3 from a Wall or Ceiling Using the Optional Wall/Ceiling Mounting Bracket

Kit Used -

MB3 Wall/Ceiling Mounting Bracket (x1)

Electro-Voice® Zx3 Owner's Manual

Suspending Zx3 Speaker Systems (cont')

Using the ZX3 in an Array

The Zx3 can be used in arrays of up to 6 loudspeakers by using the CB5 Array Bracket. The bracket can be used for both 60° or 90° splay angles. Please consult the CB5 user instructions for more information.

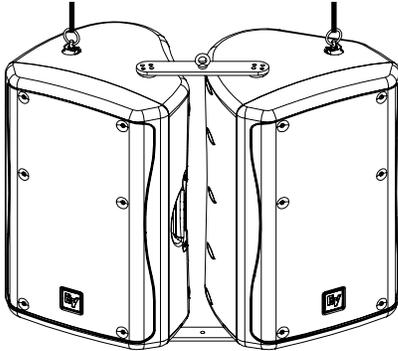


Figure 10a:

Arraying Two Zx3's Using the Optional Array Bracket Kit

Kits Used -

CB5 Array Bracket Kit (x1)
SSK-1 Single-Stud Rigging Kit (x1)

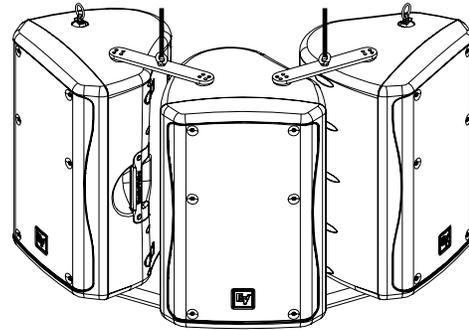


Figure 10b:

Arraying Three Zx3's Using the Optional Array Bracket Kit

Kits Used -

CB5 Array Bracket Kit (x2)

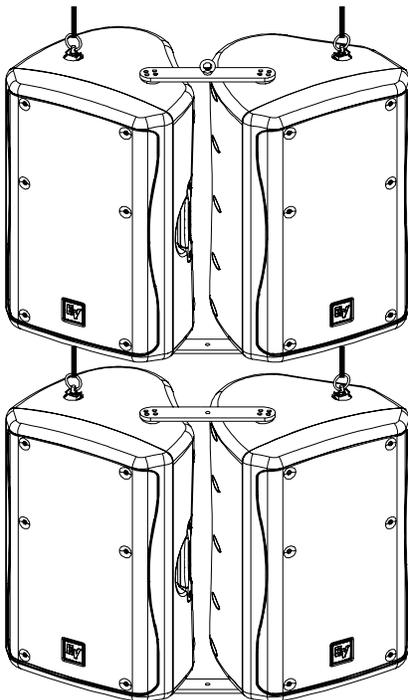


Figure 10c:

Arraying Two Zx3's Two Enclosures High Using the Optional Array Bracket Kit

Kits Used -

CB5 Array Bracket Kit (x2)
SSK-1 Single-Stud Rigging Kit (x1)
EBK-3 Forged M8 Eyebolt Kit (x1)



NOTE: Do not exceed working load limit for individual rigging points when arraying the Zx3. See Figure 2, Page 4

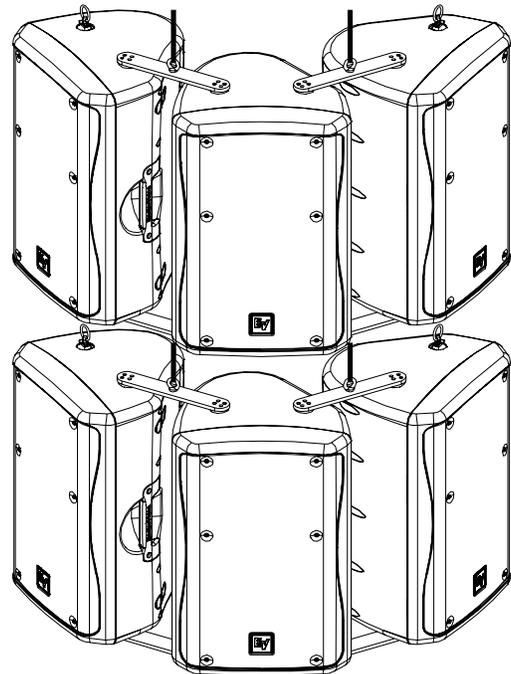


Figure 10d:

Arraying Three Zx3's Two Enclosures High Using the Optional Array Bracket Kit

Kits Used -

CB5 Array Bracket Kit (x2)
EBK-3 Forged M8 Eyebolt Kit (x1)

Zx3

Zx3 Stage Monitor Positions

Zx3 as a Monitor

By design the Zx3 is a perfect solution for stage monitors. As different stage sizes require different monitor angles, the Zx3 offers two angles without any additional accessories.



Step 1: Remove Monitor Foot Screws

Step 2: Rotate Monitor Feet 180°

Step 3: Re-Attach Monitor Feet and Screws

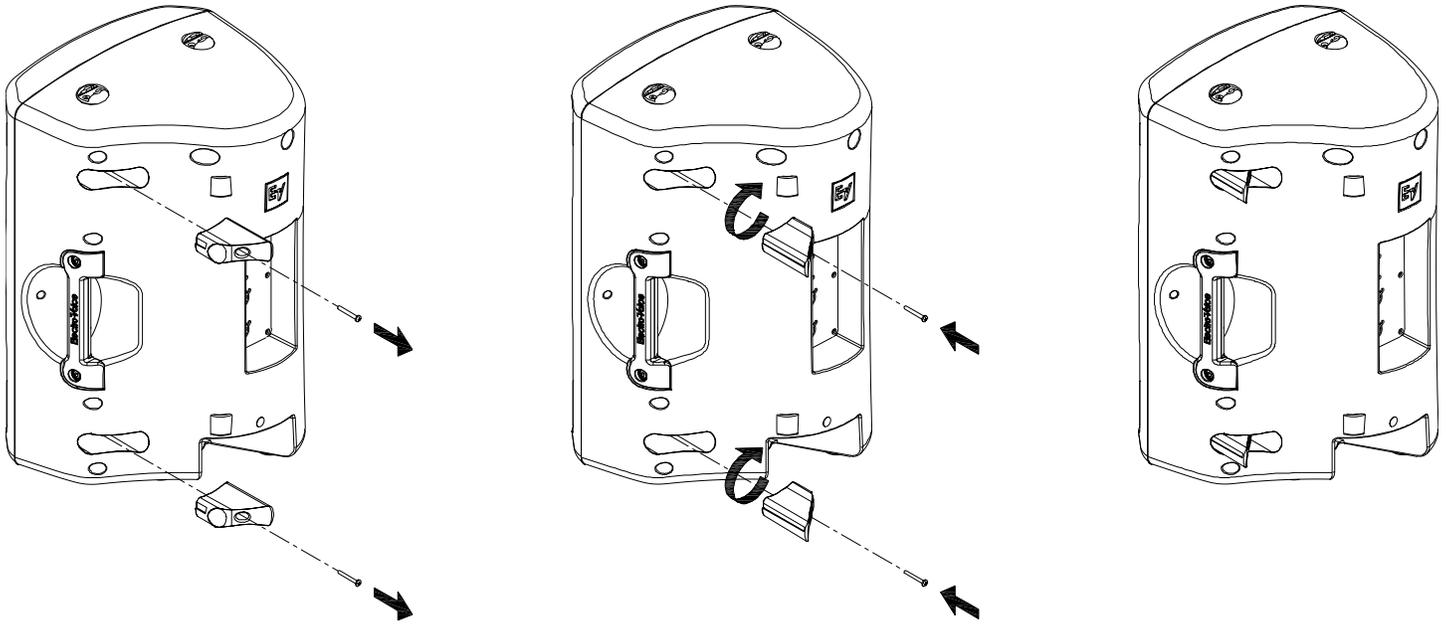


Figure 11:

Switching the Monitor Feet from the 45° to 55° Positions

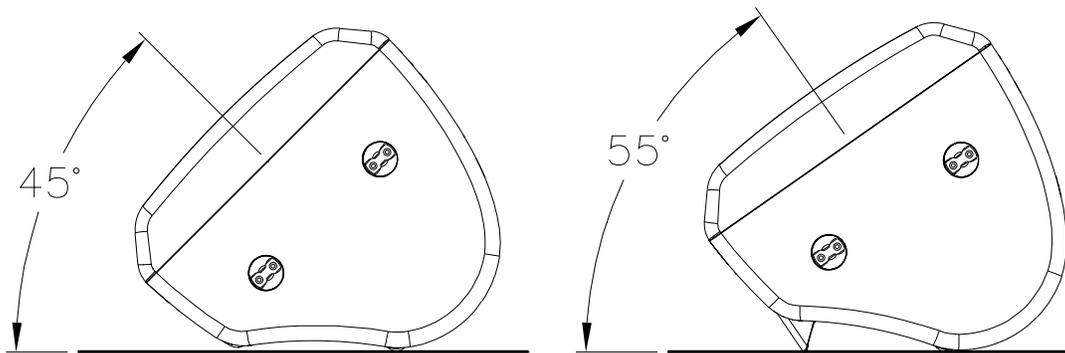


Figure 12a:

Zx3 as Monitor in 45° Position

Figure 12b:

Zx3 as Monitor in 55° Position



CAUTION: When flipped to 55° the feet protrude from the enclosure. Care should be taken when moving the enclosure, since damage to the feet or enclosure might occur if the system is dropped or slid across a rough surface. It is recommended that the feet be returned to the 45° position for transport.



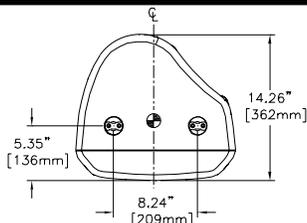
Specifications

Freq. Response¹ (-3 dB):	58 Hz - 15 kHz
Freq. Range¹ (-10 dB):	48 Hz - 20 kHz
Rec. Hipass Frequency:	50 Hz
Axial Sensitivity¹:	97 dB (1W/1m)
Max. Calculated SPL:	131 dB
Coverage (Horiz. x Vert.):	90° x 50° or 60° x 60°
Power Handling (Passive):	600W Continuous, 2400W Peak
LF Power Handling (Biamp):	500W Continuous, 2000W Peak
HF Power Handling (Biamp):	40W Continuous, 160W Peak
LF Transducer:	DVX3121, 12 in (305mm) Driver
HF Transducer:	ND2, 1 in (25.4mm) exit Neodymium Compression Driver
Crossover Frequency:	2 kHz
Nominal Impedance:	8 Ohms
Minimum Impedance:	6.2 Ohms
Connectors (Standard Version):	(2) Neutrik Speakon NL4's
Connectors (PI Versions Only):	2 Conductor SJO Cable and Gland Nut
Enclosure Material:	Polypropylene Structural Foam
Suspension:	Enclosure has locations for 4 Single-Stud Attachment Plates and 7 Forged Steel Eye-bolts - 2 on Top, 2 on Bottom, 2 on Side, and 1 on Rear of Enclosure
Grille:	Polyester Powder Coated, 16GA Galvanized Steel, with Rotatable Logo
Environmental Spec:	IEC 529 IP24 / IP44 (PI Version Only)
Dimensions (H x W x D):	613mm x 397mm x 362mm (24.14" x 15.64" x 14.26")
Net Weight:	19.8 kg (43.7 lbs)
Shipping Weight:	22.1 kg (48.6 lbs)

¹ Half Space Measurement.

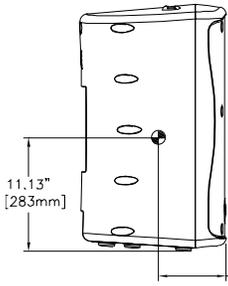
ZX3

Dimensions

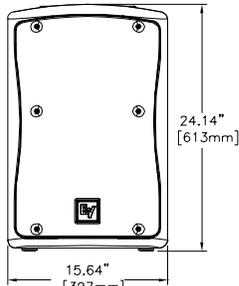


Top View

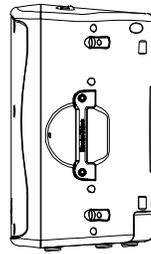
⊕ = CENTER OF GRAVITY



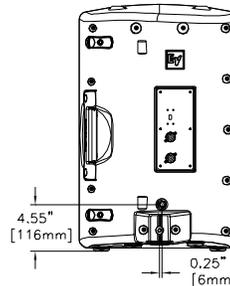
Left View



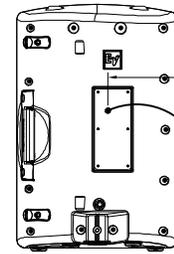
Front View



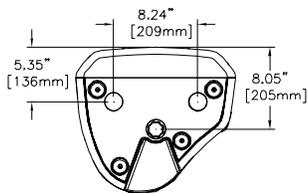
Right View



Rear View
(Standard Versions)

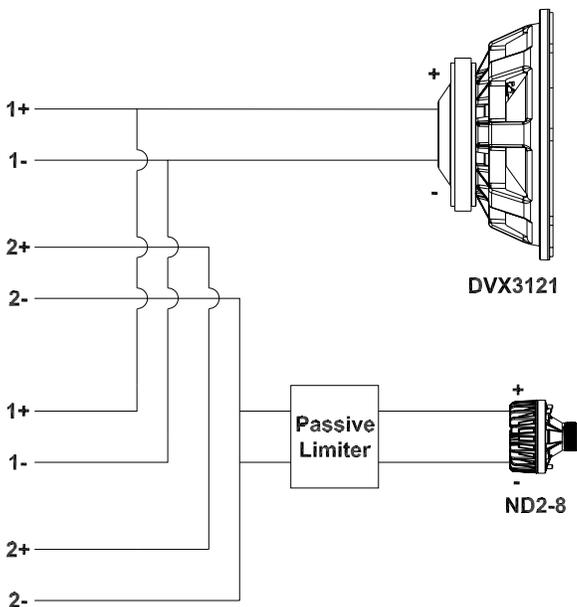


Rear View
(PI Versions Only)

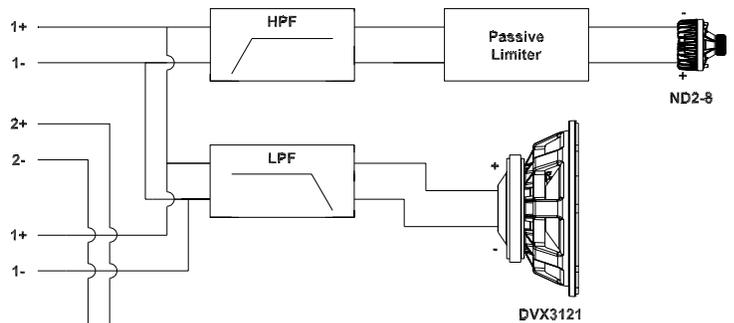


Bottom View

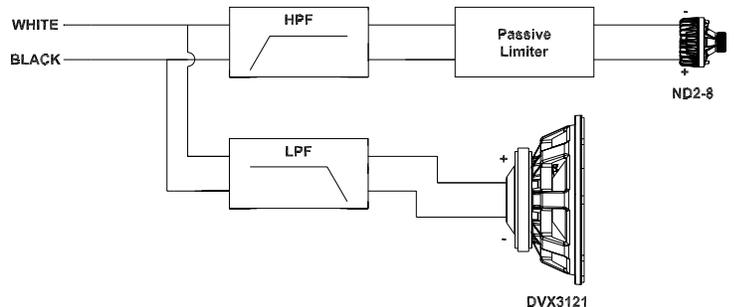
Block Diagram



Block Diagram - Biamp Mode



Block Diagram - Passive Mode



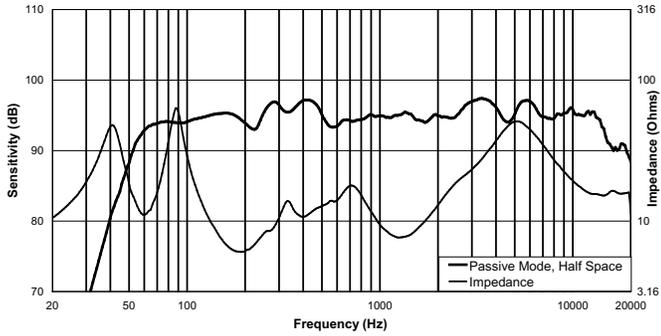
Block Diagram - PI Versions



Frequency Response Graphs

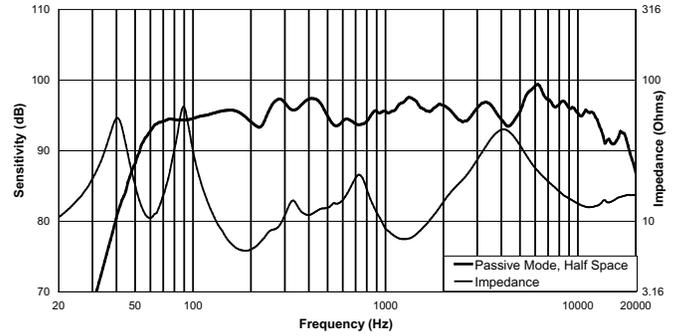
Zx3-60 Series

Frequency Response and Impedance

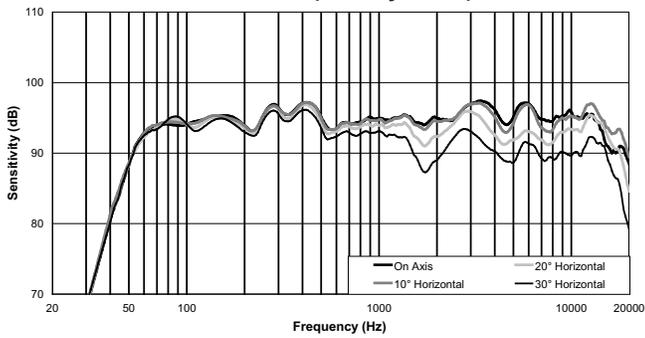


Zx3-90 Series

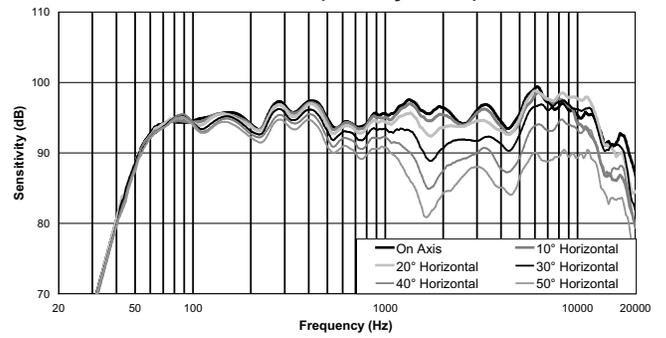
Frequency Response and Impedance



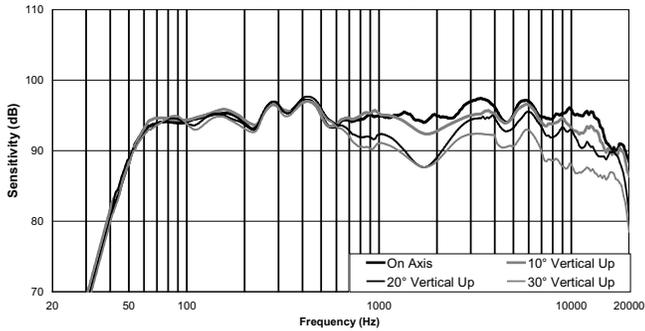
Horizontal Frequency Response



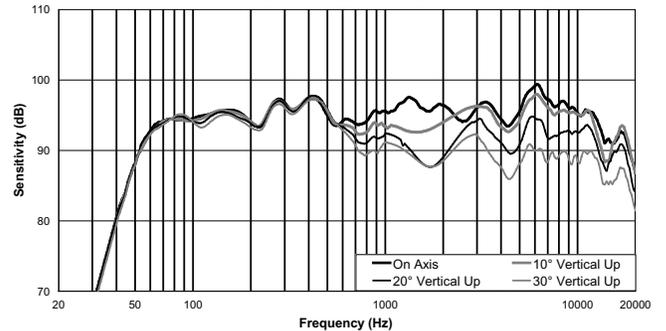
Horizontal Frequency Response



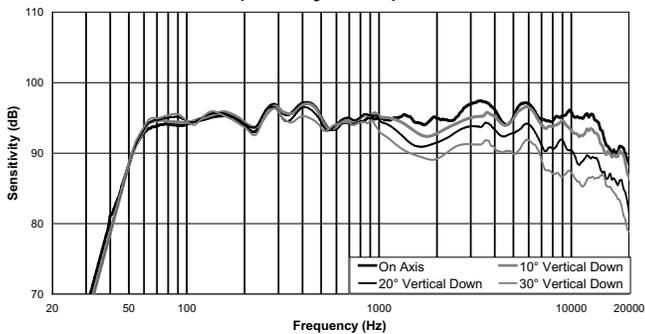
Vertical Frequency Response (Up)



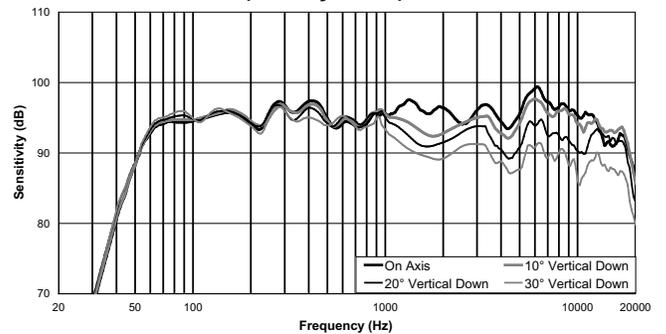
Vertical Frequency Response (Up)



Vertical Frequency Response (Down)



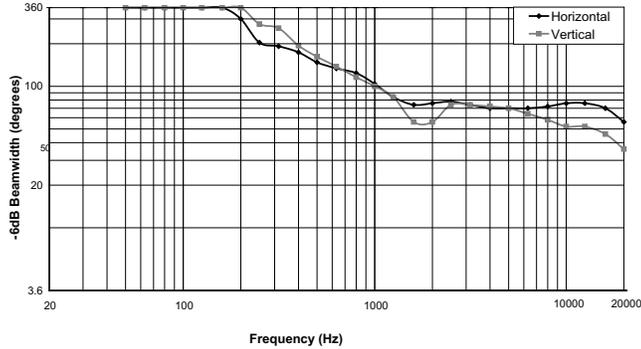
Vertical Frequency Response (Down)



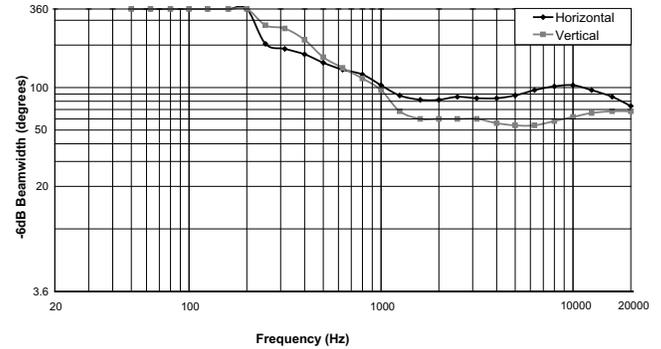


Beamwidth and Directivity Graphs

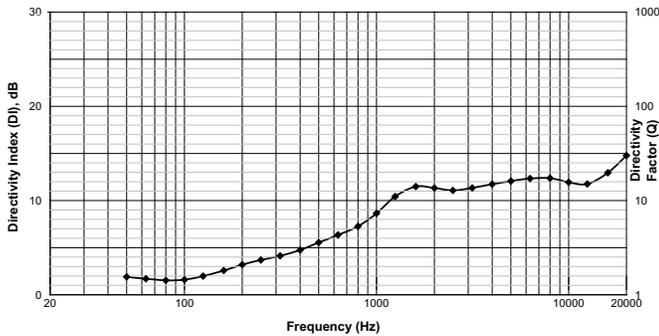
Zx3-60 Series
Beamwidth



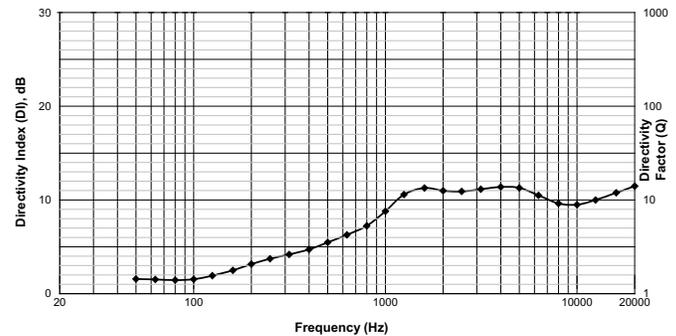
Zx3-90 Series
Beamwidth



Directivity



Directivity



Zx3 Models and Accessories Reference Table

System Model	Coverage	Finish	Weather Resistant	Part No.
Zx3-90B	90° x 50°	Black	No	PRD000117-001
Zx3-90W	90° x 50°	White	No	PRD000117-002
Zx3-60B	60° x 60°	Black	No	PRD000117-003
Zx3-60W	60° x 60°	White	No	PRD000117-004
Zx3-90PI-B	90° x 50°	Black	Yes	PRD000117-005
Zx3-90PI-W	90° x 50°	White	Yes	PRD000117-006
Zx3-60PI-B	60° x 60°	Black	Yes	PRD000117-007
Zx3-60PI-W	60° x 60°	White	Yes	PRD000117-008

Accessory Model	Description	Part No.
CB5-B	Array Bracket Kit, Black Finish	301625-001
CB5-W	Array Bracket Kit, White Finish	301625-002
MB3-B	Wall/Ceiling Mounting Bracket Kit, Black Finish	ACC000032-001
MB3-W	Wall/Ceiling Mounting Bracket Kit, White Finish	ACC000032-002
SSK-1	Single-Stud Rigging Kit (Set of 3)	301633-000
EBK-3	Forged M8 Eyebolt Kit (Set of 3)	301634-000
RK-Z	Single-Stud Anchor Plate Kit (Set of 3)	301812-000
TMK-ZX3	Truss Mount Kit, Includes VSA-1, TCA-1, and HA-3 (Black)	KIT000023-001
HDC-3	Heavy-Duty Stackable Cover, Black	ACC000031-001

Painting Zx3 Speaker Systems

Painting a Zx3 Enclosure

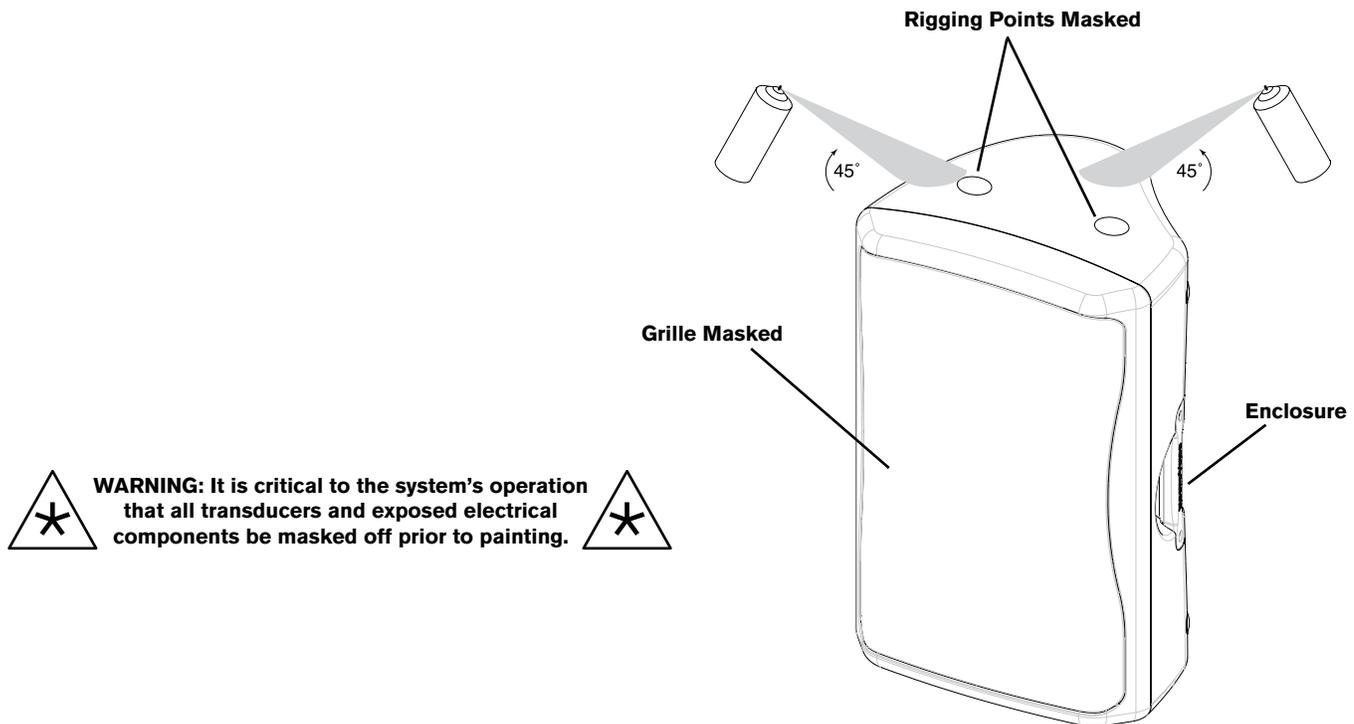
The Zx3 Loudspeaker Enclosures are made of a high performance Polypropylene material. For best paint adhesion, we recommend a “Plastic Adhesion Promoter” be applied before any paint. Sherwin Williams Plastic Adhesion Promoter UP07226 is a good example (See Telex document number LIT000066-000 for further details.) Once Plastic Adhesion Promoter is applied follow the manufacturer’s painting directions as you would normally.

Painting a Zx3 Grille

Remove grille from loudspeaker and remove the backing material & logo from grille prior to painting. Once the paint is dry, reapply the backing material and logo to the grille. Spray adhesive such as 3M Super 77 may help adhere the backing material to the grille.

Additional Precautions to be Taken

Prior to painting, be sure to take precautions not to get paint into the transducers. This can be done by masking the grille, temporarily removing the grille and masking the transducers, or by temporarily removing the grille and temporarily removing the transducers. Precautions must also be taken not to get paint into any exposed electrical components by masking them off prior to painting. It is also recommended that any exposed rigging points, warning labels, or instruction labels be masked off for ease of future operation.



WARNING: It is critical to the system’s operation that all transducers and exposed electrical components be masked off prior to painting.

Figure 13:
Painting the Zx3 Enclosure

Electro-Voice®

12000 Portland Avenue South, Burnsville, MN 55337
Phone: 952/884-4051, Fax: 952/884-0043

www.electrovoice.com

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Part Number LIT000168 Rev B

U.S.A. and Canada only. For customer orders, contact Customer Service at:
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