

ZXA5 Series Loudspeaker

ZXA5-60, ZXA5-90

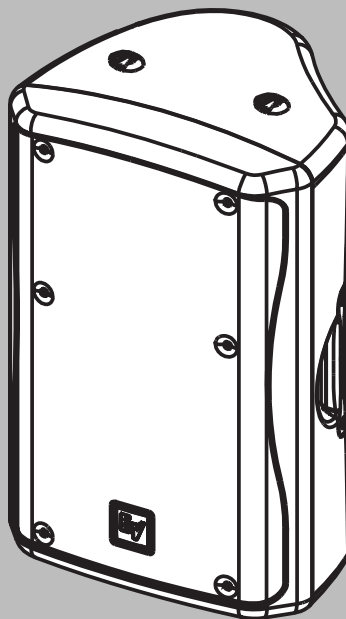


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Safety

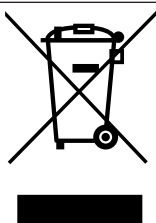
1.1

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.
7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11. Only use attachments/accessories specified by the manufacturer.
12. Unplug the apparatus during lightning storms or when unused for long periods of time.
13. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.
14. To completely disconnect AC power from this apparatus, the power supply cord must be unplugged.
15. To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture. The apparatus should not be exposed to dripping or splashing. Objects filled with liquids, such as vases should not be placed on apparatus.

**Caution!**

Do not exceed the marked rating of the AC output. If each additional unit is rated 3 A, a maximum of three units can be connected for a total of 9 A.

Old electrical and electronic equipment

This product and/or battery must be disposed of separately from household waste. Dispose such equipment according to local laws and regulations, to allow their reuse and/or recycling. This will help in conserving resources, and in protecting human health and the environment.

1.2 Important service instructions



Caution!

These servicing instructions are for use by qualified personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the Operating Instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

1. Security regulations as stated in the EN 60065 (VDE 0860 / IEC 65) and the CSA E65 - 94 have to be obeyed when servicing the appliance.
2. Use of an AC separator transformer is mandatory during maintenance while the appliance is opened, needs to be operated and is connected to the AC.
3. Switch off the power before retrofitting any extensions, changing the AC voltage or the output voltage.
4. The minimum distance between parts carrying AC voltage and any accessible metal piece (metal enclosure), respectively between the AC poles has to be 3 mm and needs to be minded at all times.
5. The minimum distance between parts carrying AC voltage and any switches or breakers that are not connected to the AC (secondary parts) has to be 6 mm and needs to be minded at all times.
6. Replacing special components that are marked in the circuit diagram using the security symbol (Note) is only permissible when using original parts.
7. Altering the circuitry without prior consent or advice is not legitimate.
8. Any work security regulations that are applicable at the location where the appliance is being serviced have to be strictly obeyed. This applies also to any regulations about the work place itself.
9. All instructions concerning the handling of MOS - circuits have to be observed.

1.3 FCC information

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

1.4 Precautions

When setting up, installing and using the Electro-Voice ZxA5 speaker system, there are a number of precautions that you should follow:

- When Electro-Voice ZxA5 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 ZxA5 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 ZxA5 system, only do so safely with the correct hardware and accessories.

	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 ZxA5 speakers be suspended taking into account all current national, federal, state and local regulations. It is the responsibility of the installer to ensure that ZxA5 speakers are safely installed in accordance with all such regulations. If ZxA5 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 Electro-Voice Suspension and Array Kit that should also be consulted prior to suspending speakers.
	Electro-Voice does not recommend use of ZxA5 speakers outdoors without protection from rain or in high moisture environments.
	Electro-Voice ZxA5 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.

**Notice!**

This is a Class A product. In a domestic environment this product may cause radio interferences in which case the user may be required to take adequate measures.

2 Description

Thank you for choosing an Electro-Voice portable loudspeaker system. Please take time to consult the manual to understand all the features built into your EV system and fully utilize its performance capabilities.

The Electro-Voice ZxA5 is one of the best-sounding powered 15-inch two-way composite loudspeakers available today, designed to provide performance that rivals much larger systems!

Most powered loudspeakers are designed with simple operation in mind, making it quick and easy to achieve good audio quality. Many products on the market - including EV - deliver this level of functionality with moderate output power amplifiers.

However, a product that truly sets EV apart from the pack is the ZxA5, a very high powered loudspeaker that provides maximum performance. This performance and power requires more skill than is required to operate a less demanding, lower-performance loudspeaker. To provide maximum performance with LF punch and high SPL, the ZxA5 does NOT have a separate protection limiter for the woofer, but the woofer amplifier does have a clip limiter. It is possible to overdrive the ZxA5 hard enough and long enough for the woofer to fail.

When the ZxA5 is driven to amplifier clip the sound quality decreases; at this point the drive level should be turned down.

Electro-Voice appreciates our loyal ZxA5 users and would like to obtain the best sonic results with long term reliability. For applications requiring heavy low-frequencies, we recommend using a suitable subwoofer with the ZXA5 operating in high pass mode (see page 6).

Installations that require the ZxA5 to run near clip regularly may consider an outboard limiter.

2.1 System features

- Integrated amplifier with 1000 W LF, 250 W HF.
- Selectable 100 Hz high pass.
- XLR and 1/4" TRS input connector.
- XLR output connector.
- PowerCon connector with slave through.
- DVX3150 15-inch LF transducer with forced air cooling.
- ND2 2-inch voice coil, 1-inch exit neodymium compression driver.
- Two models: 60° x 60° or 90° x 50° coverage patterns.
- High sensitivity, 133 dB maximum SPL.
- Adjustable monitor angle (45° or 55°).
- 3 anchor plates for single stud fittings and 10 integral suspension points.
- Full line of accessories.

2.2 System coverage

ZXA5-60

60° x 60° coverage for long-throw and cluster applications

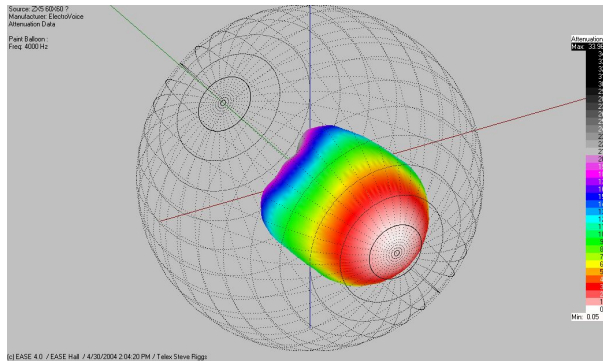


Figure 2.1: 3D EASE Directivity Balloon, ZXA5-60, 60° x 60° coverage

ZXA5-90

90° x 50° coverage for wider coverage or shorter distances

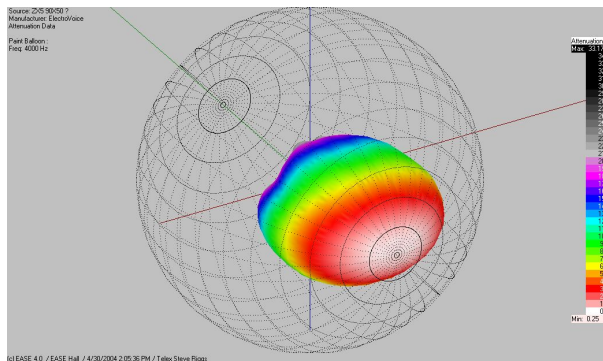


Figure 2.2: 3D EASE Directivity Balloon, ZXA5-90, 90° x 50° coverage

2.3 System setup

To get the ZxA5 into operation as quickly as possible, please observe the following steps and precautions:

- Plug the 3-terminal PowerCon AC cable into a grounded line receptacle. Extension cords can be used to lengthen the AC cable as necessary but make sure that they are 3-conductor 14 gauge or greater, and that they are properly grounded to avoid electrical hazards and extraneous noise.
- Be sure that the ZxA5 is plugged into an AC power source that is capable of supplying the correct voltage. If the line voltage drops too much, the built-in amplifiers won't be able to develop their rated power and sound quality will suffer. Under high signal conditions, the 120V ZxA5 amplifier can draw 3 - 4 amps of current (2 amps at 240V). That means that no more than (3) ZxA5 systems should be plugged into a single 15 amp electrical service. Be cautious of what else is plugged into the same electrical service line to avoid electrical problems and poor performance.



Caution!

Before turning the power on, make sure that the level controls are down to avoid transients or unexpected loud sound.

3 Amplifier controls

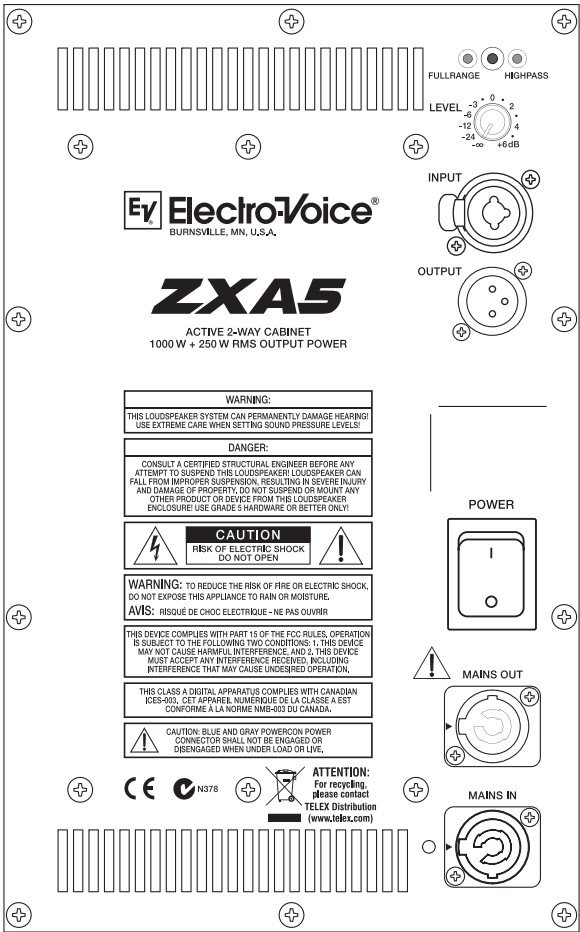

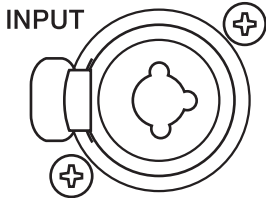


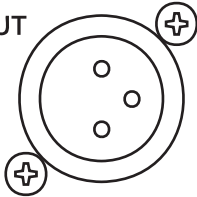

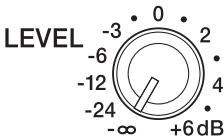
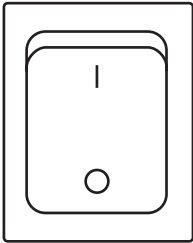
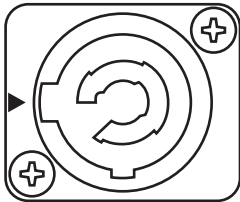
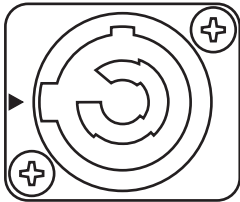
Figure 3.1: ZXA5 amplifier panel



Caution!

Before connecting or disconnecting any plugs, make sure to set the level control to its counterclockwise stop, which prevents the system and audience from contact pops and noise.

Control	Function
	<p>INPUT signal connector</p> <p>Electronically balanced inputs for the connection of high-level signal sources such as mixers, signal processors, etc. Establishing the connection is possible via a combination 1/4" TRS and XLR jack. Balanced connection is recommended to prevent noise or HF-interference.</p>

Control	Function
<p>OUTPUT</p> 	<p>OUTPUT signal connector</p> <p>Output is full bandwidth pass through.</p>
 <p>FULLRANGE HIGHPASS</p>	<p>Crossover mode switch</p> <p>Selects between 40 Hz highpass filter for Fullrange use, and 100 Hz highpass filter for use with a subwoofer. It is not recommended that you use a ZxA5 in Fullrange mode with subwoofers.</p>
<p>LEVEL</p> 	<p>LEVEL</p> <p>This control sets the output level of the ZxA5 in a range between $-\infty$ dB and +6 dB. The internal power amplifier provides a nominal input sensitivity of +6 dBu.</p>
<p>POWER</p> 	<p>POWER switch</p> <p>AC switch for switching the ZxA5's power ON or OFF. The switch lights after turning the power ON. If the switch is not lit upon turning the power on, make sure that the AC cord is correctly connected. If the AC cord is correctly connected and the AC switch does not light upon power-on, please contact your local dealer.</p>
<p>MAINS IN</p> 	<p>MAINS IN</p> <p>AC connection is established via a PowerCon connector. A 15' (5m) long AC cord with PowerCon plug is supplied.</p>
<p>MAINS OUT</p> 	<p>MAINS OUT</p> <p>The PowerCon AC out socket allows the connection of additional ZxA5 systems. To prevent AC network overload, connecting more than (3) ZxA5 systems to a single AC outlet (10 A - 16 A) is not recommended.</p>

**Caution!**

Blue and grey PowerCon power connector shall not be engaged or disengaged when under load or live.

**Caution!**

This appliance has no user-serviceable parts inside. Leave any servicing and maintenance to qualified service technicians only.

4 Installation

4.1 Suspending the loudspeakers

ZxA5 enclosures have five (5) steel anchor points internally mounted on the top, bottom, and rear. Single stud fittings are attached to these anchor plates and used as suspension points. Each of these anchor plates also has an M8 thread to accept rated forged M8 shoulder eyebolts.

In addition to these points there are five (5) additional M8 threaded points:

- Two on the handle side.
- Three on the rear.

These points can be used for suspending ZxA5s vertically, horizontally, individually, in clusters, or to attach to EV mounting brackets.

Prior to each use, do the following:

- 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).



Notice!

As an added safety measure, 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).

- 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 ZxA5 systems.

ZXA5 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 10 points. The inserts can be used to attach forged eyebolts or rigging brackets.

To use the (2) M8 suspension points **on the top** of the enclosure:

- ▶ Remove the single-stud anchor plate.

To use the (2) M8 suspension points **around the handle** of the enclosure:

- ▶ Remove the handle bolts.

To use the (2) M8 suspension points **on the upper back** of the enclosure:

- ▶ Remove the decal.

To use the (2) M8 suspension points **on the lower back** of the enclosure:

- ▶ Remove the decal and the single-stud anchor plate.

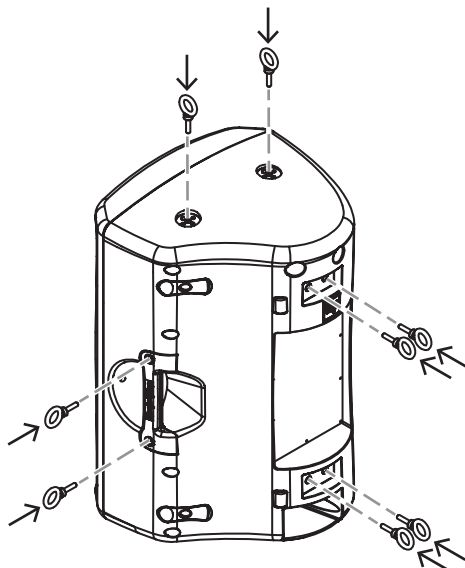


Figure 4.1: ZXA5 M8 suspension points (top, handle and rear)

To use the (2) M8 suspension points **on the bottom** of the enclosure:

- ▶ Remove the decal.

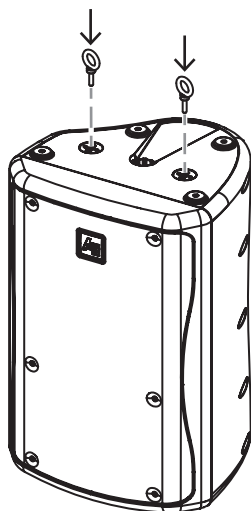


Figure 4.2: ZXA5 M8 suspension points (bottom)



Notice!

The shaft length of the eyebolts cannot exceed 20 mm on bottom M8 suspension points.

4.1.1

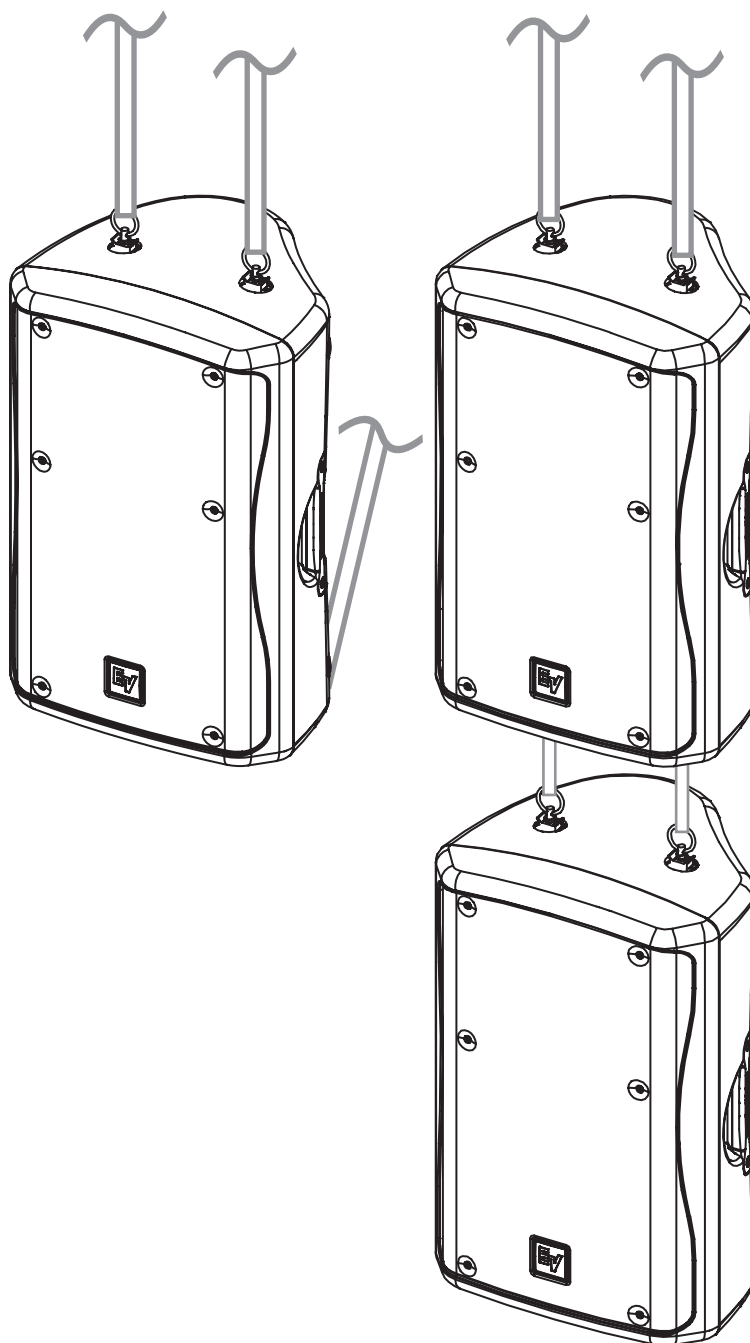
Suspending the loudspeaker using single-stud rigging kits

The ZxA5 is shipped with three 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 ZxA5 upside-down or horizontally. All of these locations can facilitate M8 Eyebolts if desired as well.

Suspending using included single-stud anchor plates

Kit used (left): SSK-1 Single-Stud Rigging Kit (x1).

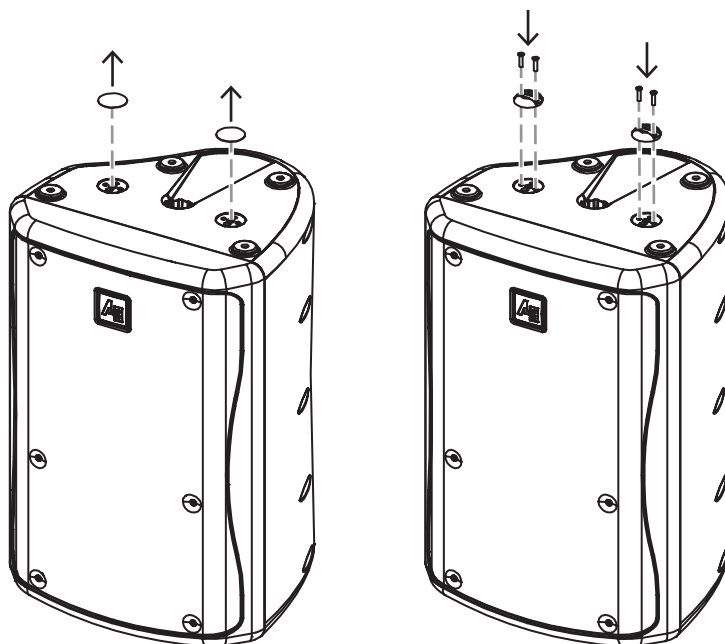
Kit used (right): SSK-1 Single-Stud Rigging Kit (x2) and EBK-3 Forged M8 Eyebolt Kit (x1).

**Notice!**

The EBK-3 Forged M8 Eyebolt Kit is placed on the bottom of top enclosure.

Suspending upside-down using included single-stud anchor plates and single-stud rigging kit

Kits used: RK-Z Single-Stud Anchor Plate Kit (x1) and SSK-1 Single-Stud Rigging Kit (x1).



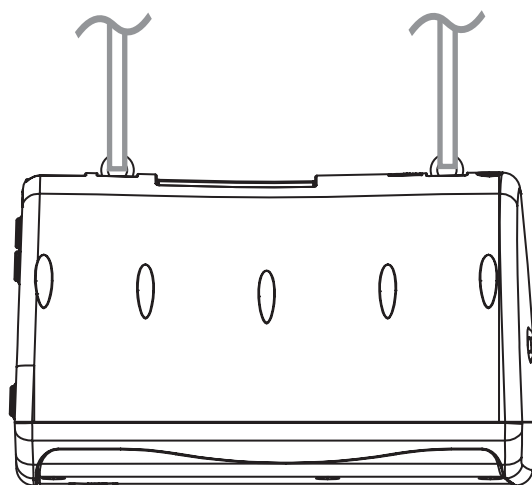
1. Remove decals.
2. Attach the single-stud anchor plates removed from the top of the enclosure or optional RK-Z Kit (shown) or eyebolts (not shown).

4.1.2**Suspending horizontally**

The ZxA5 is capable of being suspended horizontally from the side (handle) or downward from the rear with the use of M8 Eyebolts.

Suspending downward from rear

Kit used: EBK-3 Forged M8 Eyebolt Kit (x1)

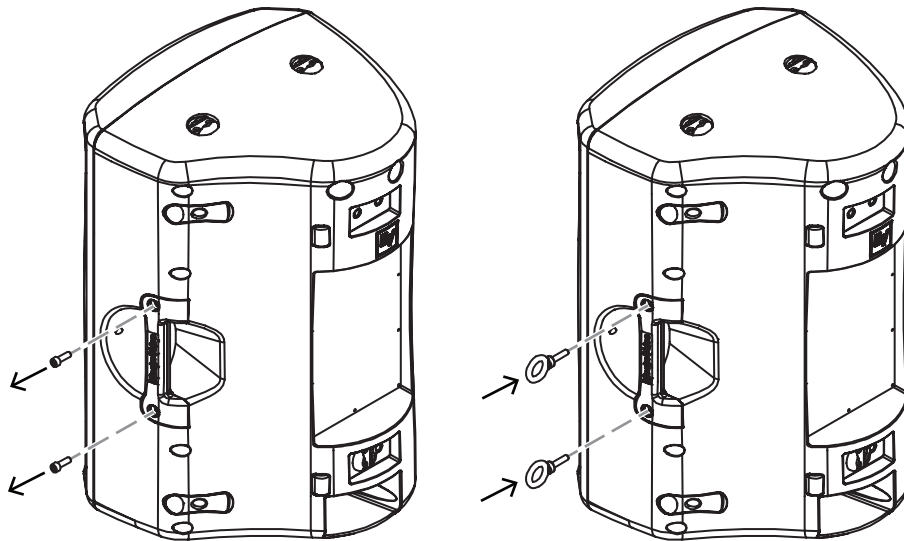


**Notice!**

When suspending from the rear M8 suspension points, it is recommended that the (2) left M8 suspension points are used on the rear of the enclosure for best weight distribution in relation to the enclosure's center of gravity.

Assembling eyebolts to handle

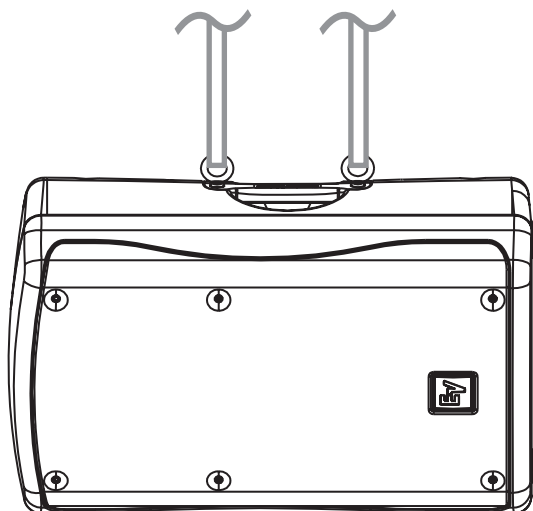
Kit used: EBK-3 Forged M8 Eyebolt Kit (x1)



1. Remove handle bolts.
2. Attach eyebolts.

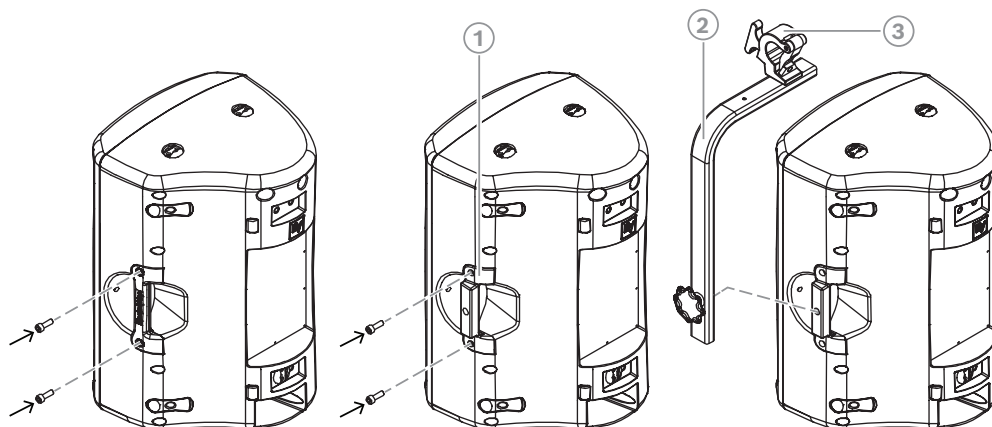
Suspending from handle

Kit used: EBK-3 Forged M8 Eyebolt Kit (x1)



Assembling the HA-5 adaptor for use with VSA-1 Strong-Arm Mount and TCA-1 Truss Clamp Adapter

Kits used: HA-5 Handle Adaptor (x1), VSA-1 Strong-Arm Mount (x1) and TCA-1 Truss-Clamp Adapter (x1)



1. Remove the handle bolts and the handle.
2. Attach the HA-5 Handle Adaptor (1) and the handle bolts.
3. Attach the VSA-1 Strong-Arm-Mount (2) and the TCA-1 Truss Clamp Adapter (3).

4.1.3

Arraying and suspending using mounting or array brackets

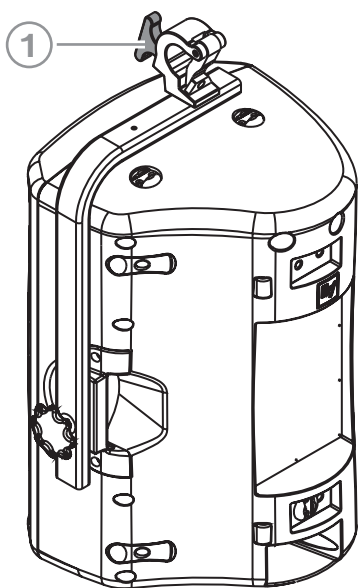


Notice!

Carefully follow the instructions in this manual and the user manual packaged with EV brackets, and always use safe rigging practices when suspending ZxA5.

Suspending vertically from handle

Kit used: HA-5 Handle Adaptor Kit (x1), VSA-1 Strong-Arm Mount (x1) and TCA-1 Truss Clamp Adapter (x1)



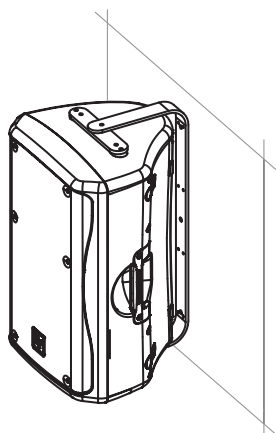
- Attach TCA-1 to truss.

**Notice!**

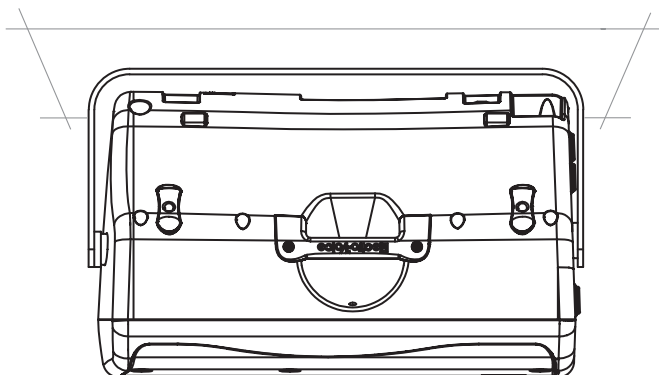
Please consult TMK Series User Instructions for additional information.

Arraying and suspending the loudspeaker

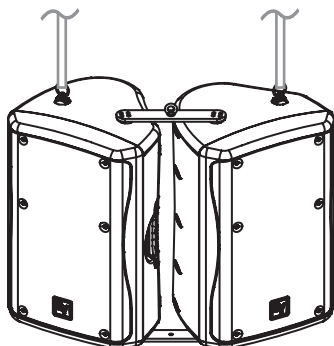
1. Kit used: MB5 Wall/Ceiling Mounting Bracket (wall configuration).



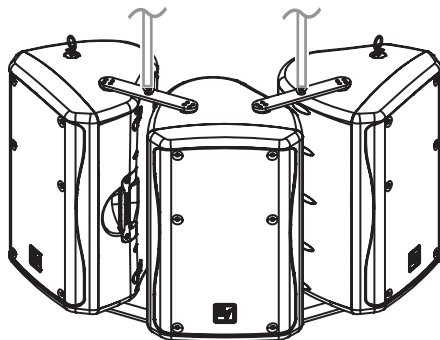
2. Kit used: MB5 Wall/Ceiling Mounting Bracket (ceiling configuration).



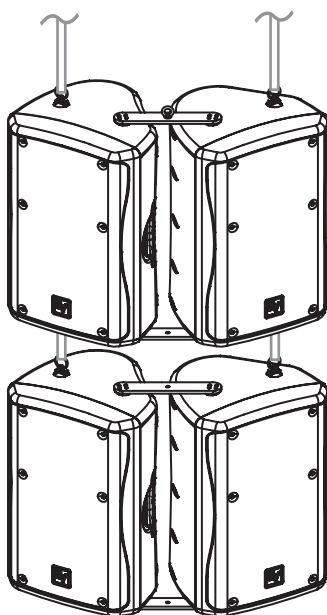
3. Kits used: CB5 Array Bracket Kit (x1) and SSK-1 Single-Stud Rigging Kit (x1).



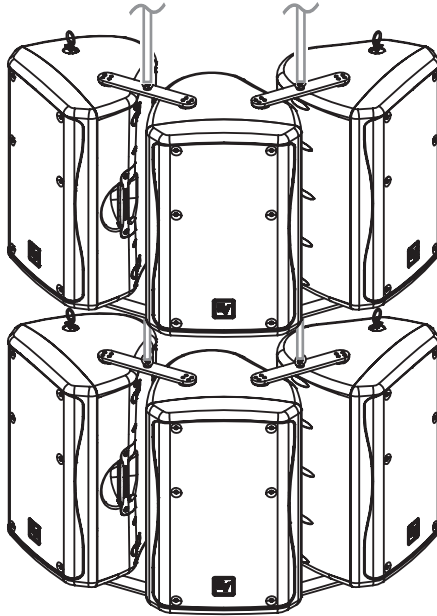
4. Kit used: CB5 Array Bracket Kit (x2).



5. Kits used: CB5 Array Bracket Kit (x2), SSK-1 Single-Stud Rigging Kit (x2) and EBK-3 Forged M8 Eyebolt Kit (x1).



6. Kits used: CB5 Array Bracket Kit (x4) and EBK-3 Forged M8 Eyebolt Kit (x1)

**Notice!**

CB5 Array Kits can be used for 60° or 90° splay angles.

**Notice!**

Do not exceed working load limit for individual rigging points when arraying the ZxA5. Refer to *Suspending the loudspeakers*, page 12.

4.2

Floor monitor

By design the ZxA5 is a perfect solution for stage monitors. As different stage sizes require different monitor angles, the ZxA5 offers two angles without any additional accessories.

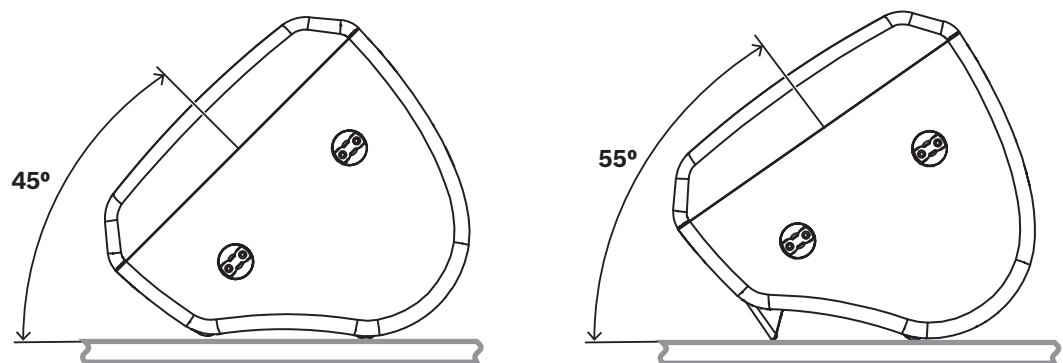
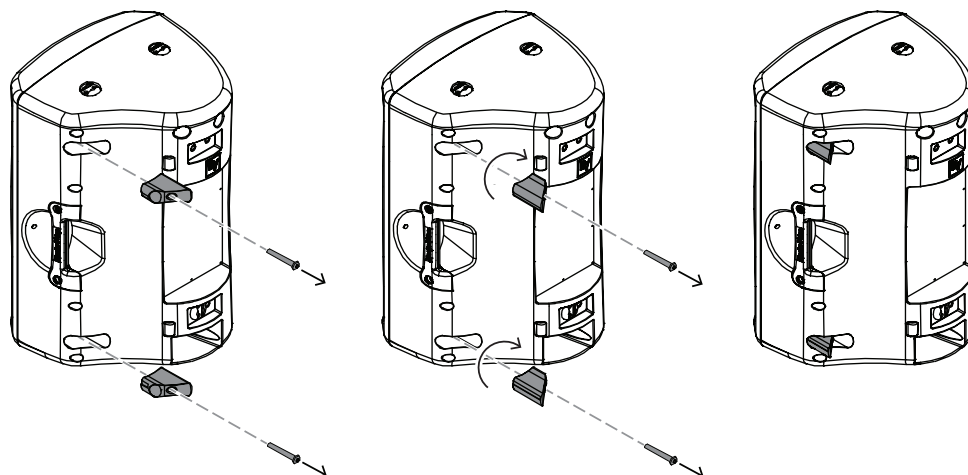


Figure 4.3: ZXA5 as monitor in 45° and in 55° position

Switching the monitor feet from the 45° to 55° positions:



1. Remove the monitor foot screws.
2. Rotate the monitor feet 180°.
3. Re-attach the monitor feet and screws.

**Caution!**

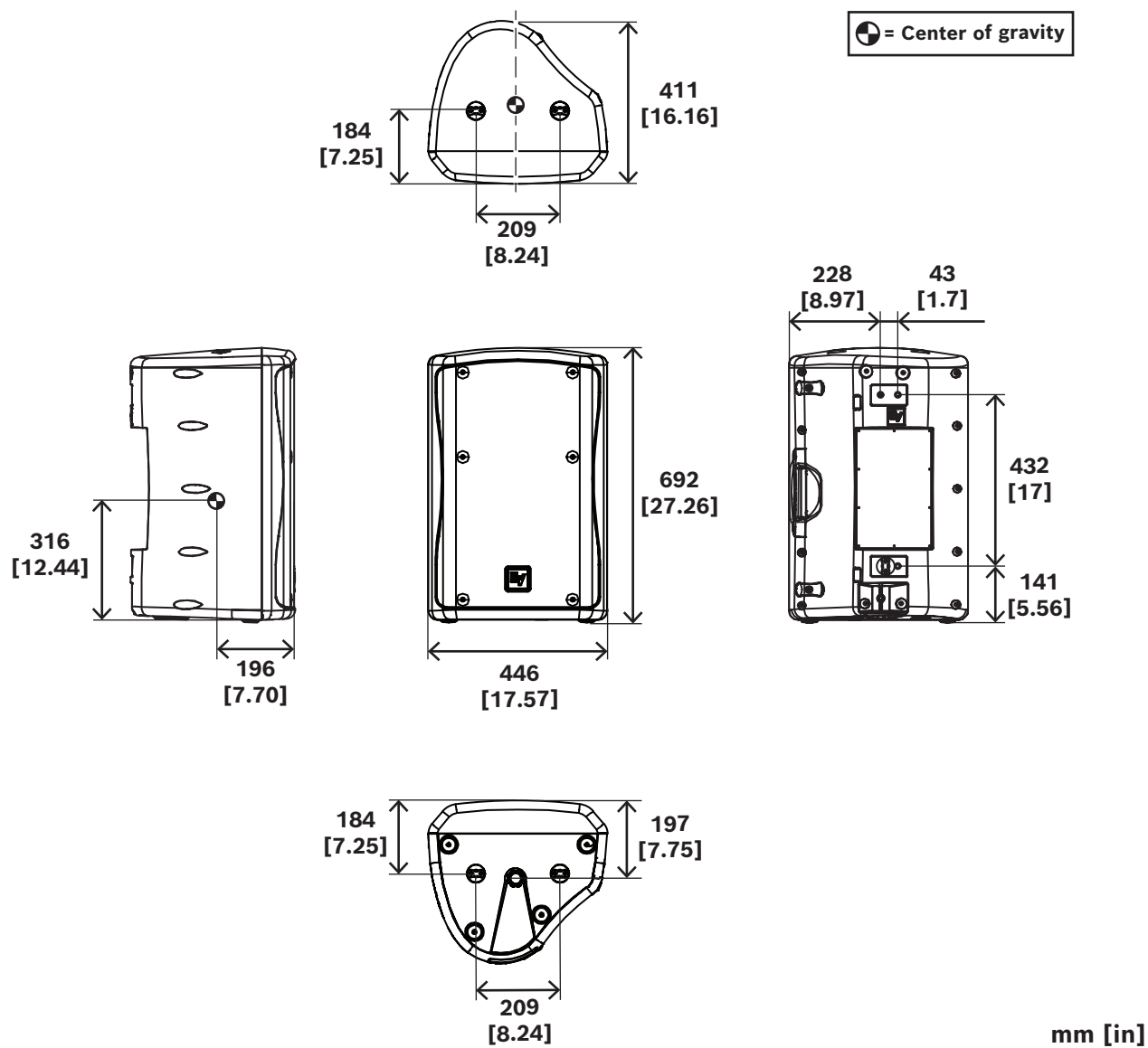
When flipped to 55° the feet protrude from the enclosure. Care should be taken when moving the enclosure, since damage to the feet or enclosure might occur if the system is dropped or slid across a rough surface. It is recommended that the feet be returned to the 45° position for transport.

5 Technical data

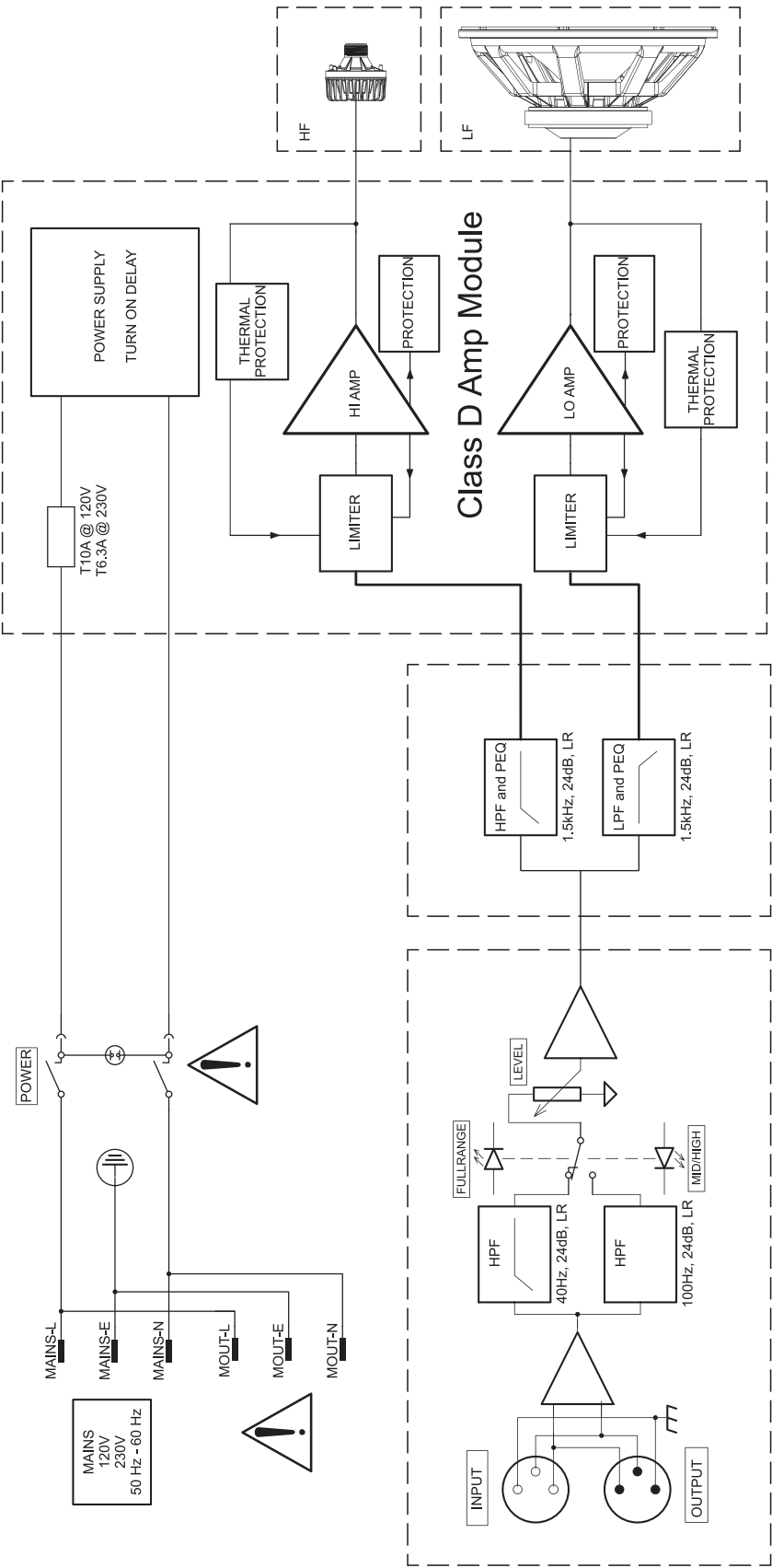
Frequency response (-3 dB) ¹ :	58 Hz - 18 kHz
Frequency range (-10 dB) ¹ :	50 Hz - 20 kHz
Max calculated SPL:	133 dB
Horizontal coverage:	90° x 60°
Vertical coverage:	50° x 60°
LF amplifier power:	1000 W RMS
HF amplifier power:	250 W RMS
LF transducer:	DVX3150, 15-inch (381 mm) driver
HF transducer:	ND2, 1-inch (25.4 mm) exit Neodymium Compression Driver
Crossover frequency:	1.5 kHz
Input connector:	XLR and 1/4" TRS combination
Output connector:	XLR
Power requirement:	110 - 130 VAC, 50 - 60 Hz 220 - 240 VAC, 50 - 60 Hz
Enclosure material:	Polypropylene structural foam
Suspension:	Enclosure has locations for 5 single-stud attachment plates and 10 forged steel eyebolts: 2 on top, 2 on bottom, 2 on side, and 4 on rear of enclosure
Grille:	Polyester powder coated, 16GA galvanized steel, with rotatable logo
Dimensions (H x W x D):	692 mm x 446 mm x 411 mm (27.26 in x 17.57 in x 16.16 in)
Net weight:	22.9 kg (50.5 lb)
Shipping weight:	26.7 kg (58.9 lb)

¹ Half space measurement.

5.1 Dimensions



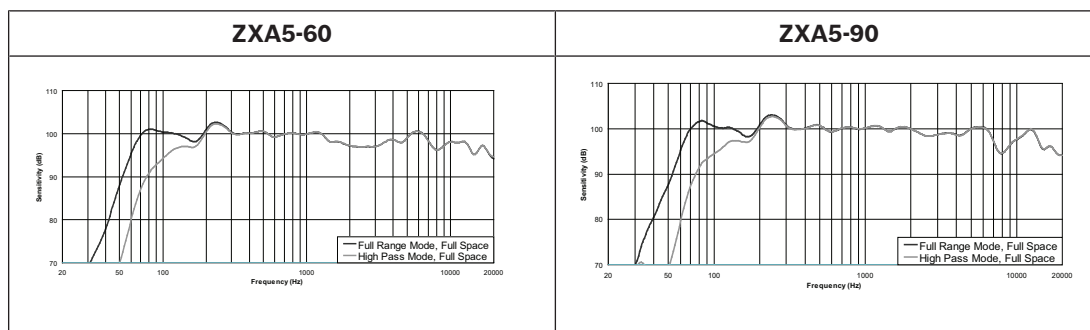
5.2 Block diagram



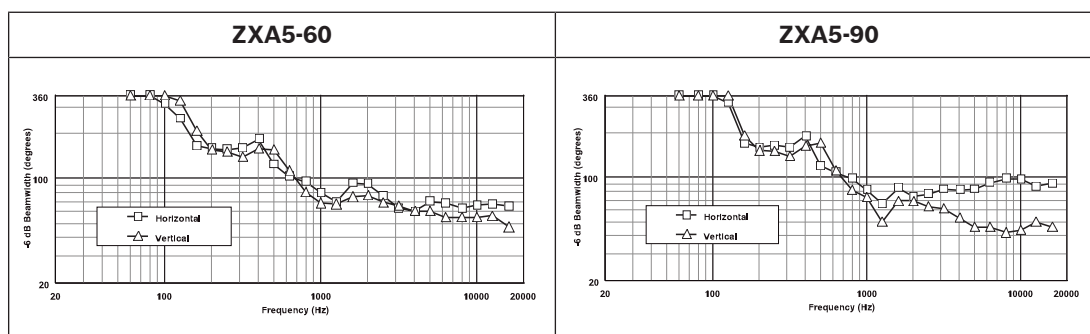
5.3

Frequency response, beamwidth and directivity

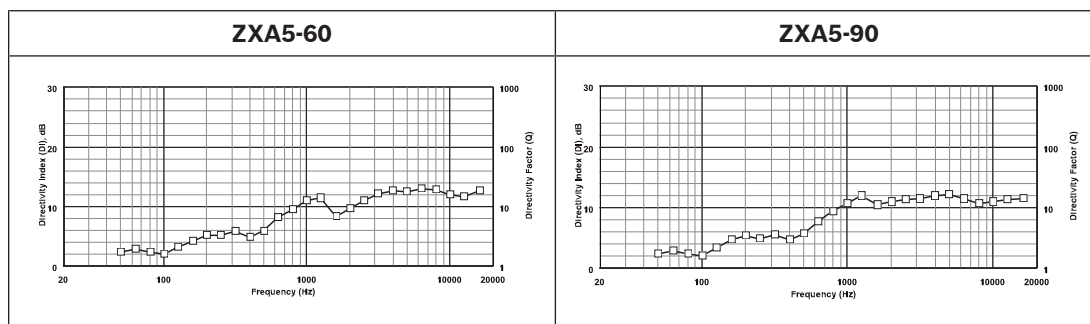
Frequency
response



Beamwidth



Directivity



5.4

ZXA5 models and accessories

System model	Coverage	Finish	Voltage	Weather resistant	Part. no.
ZxA5-90B (120V)	90° x 50°	Black	120V	No	301859-001
ZxA5-90W (120V)	90° x 50°	White	120V	No	301859-002
ZxA5-60B (120V)	60° x 60°	Black	120V	No	301859-003
ZxA5-60W (120V)	60° x 60°	White	120V	No	301859-004
ZxA5-90B (230V)	90° x 50°	Black	230V	No	301859-005
ZxA5-90W (230V)	90° x 50°	White	230V	No	301859-006
ZxA5-60B (230V)	60° x 60°	Black	230V	No	301859-007
ZxA5-60W (230V)	60° x 60°	White	230V	No	301859-008

Accessory model	Description	Part no.
CB5-B	Array Bracket Kit, Black Finish	301625-001
CB5-W	Array Bracket Kit, White Finish	301625-002
MB5-B	Wall/Ceiling Mounting Bracket Kit, Black Finish	301626-001
MB5-W	Wall/Ceiling Mounting Bracket Kit, White Finish	301626-002
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
TCA-1	Truss Clamp Adapter	ACC000012-001
VSA-1	Vertical Strong-Arm Mount	ACC000007-001
HA-5	Handle Mount Adapter	301811-001
HDC-5	Heavy-Duty Stackable Cover, Black	301813-001

6 Painting the loudspeakers



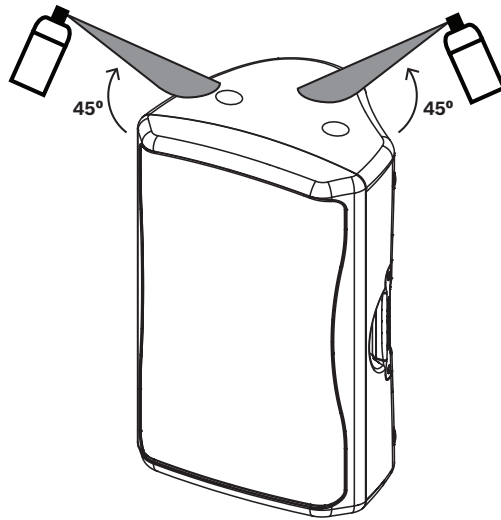
Warning!

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

Painting a ZxA5 enclosure

The ZxA5 loudspeaker enclosures are made of a high performance polypropylene material.

1. For best paint adhesion, apply a plastic adhesion promoter before any paint.
2. Once the plastic adhesion promoter is applied, follow the manufacturer's painting directions as you would normally.



Painting a ZxA5 grille

1. Remove the grille from the loudspeaker.
2. Remove the backing material and logo from the grille prior to painting.
3. Once the paint is dry, reapply the backing material and logo to the grille.
4. Apply spray adhesive such as 3M Super 77 to help adhere the backing material to the grille.

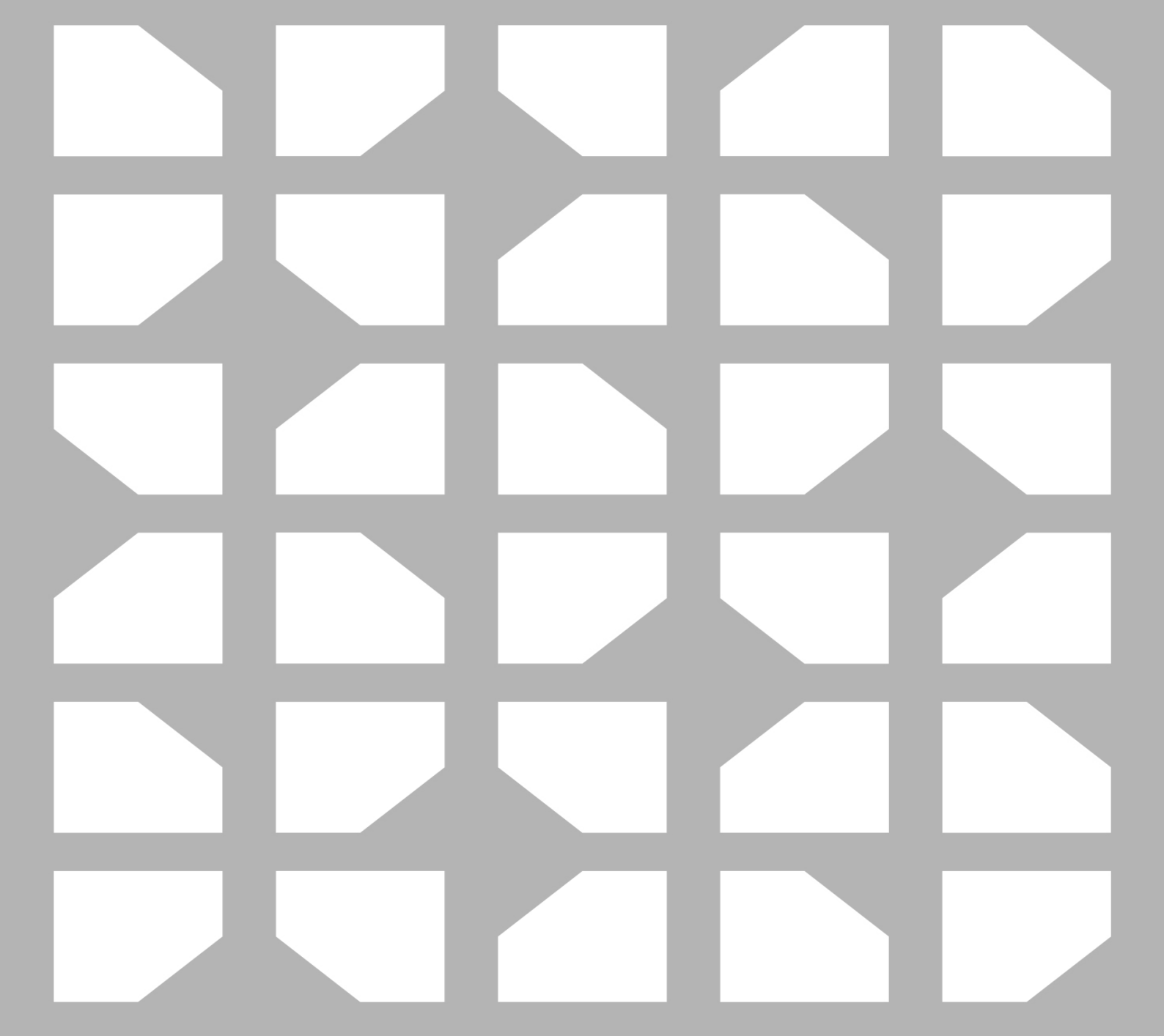
Additional precautions

To **avoid paint from entering the transducers**, follow one the options:

- Mask the grille.
- Remove the grille temporarily and mask the transducers.
- Remove the grille and the transducers temporarily.

To **avoid paint from entering exposed electrical components**:

- Mask off exposed electrical components prior to painting.
- Mask off exposed rigging points, warning labels, or instruction labels.



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