ZX1

Zx1i Series
Loudspeaker
Owner's Manual

Zx1i-90
Zx1i-100
Zx1i-100T

EV ®

Table of Contents

Model Summary

All three Zx1i models use an 8-inch high-excursion LF driver and a 1-inch exit titanium compression driver on a rotatable horn to provide high-fidelity, full-range sound over a wide coverage area. The system also features the exclusive QuickSAM™ mounting system for easy mounting and aiming.

Zx1i-90

- 90° x 50° Rotatable Horn
- Black or White Models
- Phoenix Input Connector

Zx1i-100

- 100° x 100° Horn
- Black or White Models
- Phoenix Input Connector

Zx1i-100T

- 100° x 100° Horn
- 100W Transformer with 8 ohm bypass and Automatic Saturation Compensation (ASC)*
- Black or White Models
- Phoenix Input Connector

* Automatic Saturation Compensation (ASC™) eliminates distortion and saturation at high volume levels, and an 8 ohm bypass switch adds flexibility.

Packing List: Zx1i Install

Listed and illustrated below are the parts included in each box of the Zx1i speaker.

A 1 Speaker system
B 1 QuickSAM™ assembly
C 1 *Owner's Manual*
D 1 Warranty card
E 1 SAM™ mounting tool
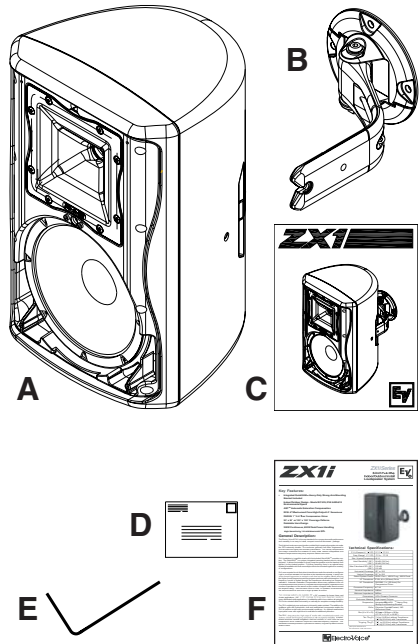**F 1 Zx1i Engineering Data Sheet**

Figure 1: Zx1i Install Packing List

Product Feature Identification

Illustrated below are the major components of the Zx1™ Series full-range speakers.

A. Sweep Adjustment Bolt (Socket Head Bolt "A")
B. Enclosure Attachment and Rotation Adjustment Bolt (Socket Head Bolt "B")
C. Dual low-frequency ports
D. Durable zinc-alloy steel grille
E. Cast aluminum Quick Strong-Arm-Mount™ (QuickSAM™)
F. 8" Woofer with weatherized treated cone
G. 1" exit EV compression driver
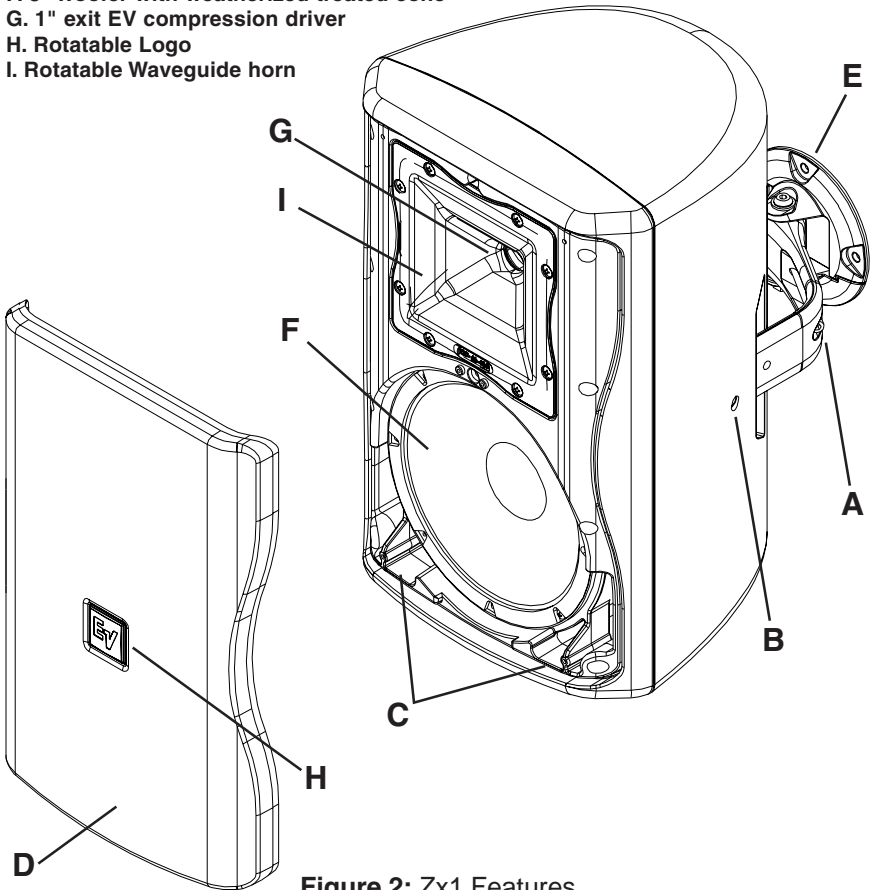**H. Rotatable Logo**
I. Rotatable Waveguide horn

Figure 2: Zx1 Features

QuickSAM™ (Strong-Arm-Mount™) System

Zx1i™s QuickSAM™ system (Strong-Arm-Mount™) excels at meeting the four important requirements for mounting speaker systems: simple, quick, versatile, and reliable. Three easy steps and you are done: Securely attach the surface bracket to the wall or ceiling, click the Zx1i™ enclosure onto the bracket, aim the enclosure and tighten both bolts.

> ⚠ **WARNING:** Bolt "B" in Figure 2 must be tightened. Failure to tighten Bolt "B" may allow the speaker to disengage from the QuickSAM™ Bracket, possibly resulting in serious injury.

Step-by-Step Installation and Wiring
Step 1: Mount the SAM™ Bracket to Mounting Surface

> ⚠ **WARNING:** It is the installer's responsibility to ensure that the mounting surface is stable and can support more than the speaker's weight!

Use only industry-accepted fasteners and mounting methods when mounting the bracket. Consult an expert if you are not sure. Read steps 2 and 3 before attaching the speaker in step 4. For standard vertical installation mount the SAM™ bracket as shown in Figure 3. For horizontal mounting configurations, mounting the bracket on the bottom side (as in Figure 4) is easiest, allowing the speaker to be mounted closer to the ceiling.
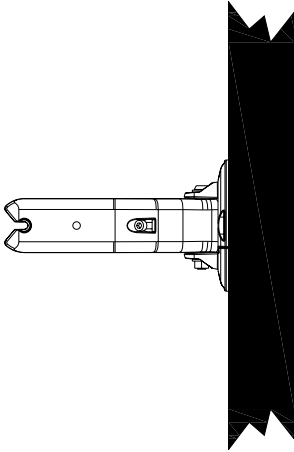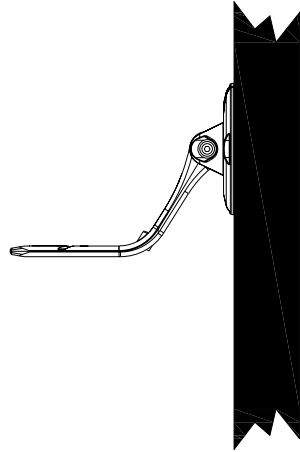
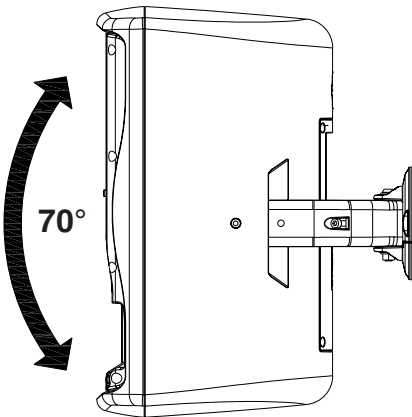**Figure 3:** Vertical Mounting   **Figure 4:** Horizontal Mounting

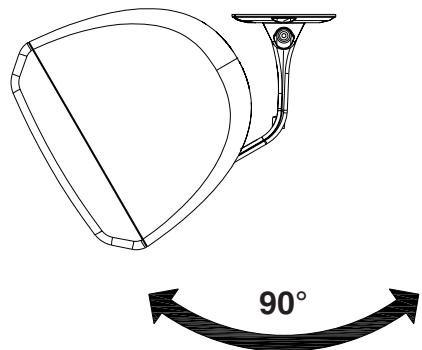**Figure 5:** 70° Rotation Range   **Figure 6:** 90° Sweep Range

Step 2: Select Voltage Tap (Zx1i-100T model only)

Before attaching the speaker to the bracket, select the proper voltage tap setting for your installation. The voltage selector switch is located at the rear of the speaker below the input terminal panel. The power taps are 100, 50, 25W and 12.5W at both 70.7V and 100V, with a 6W tap for 70.7V only. There is also an 8 ohm bypass setting. The taps are selected by a rotary switch on the back panel. A guide on the back of each speaker shows which switch positions to use for the power settings at 70V and 100V. Figure 7 below illustrates the settings.
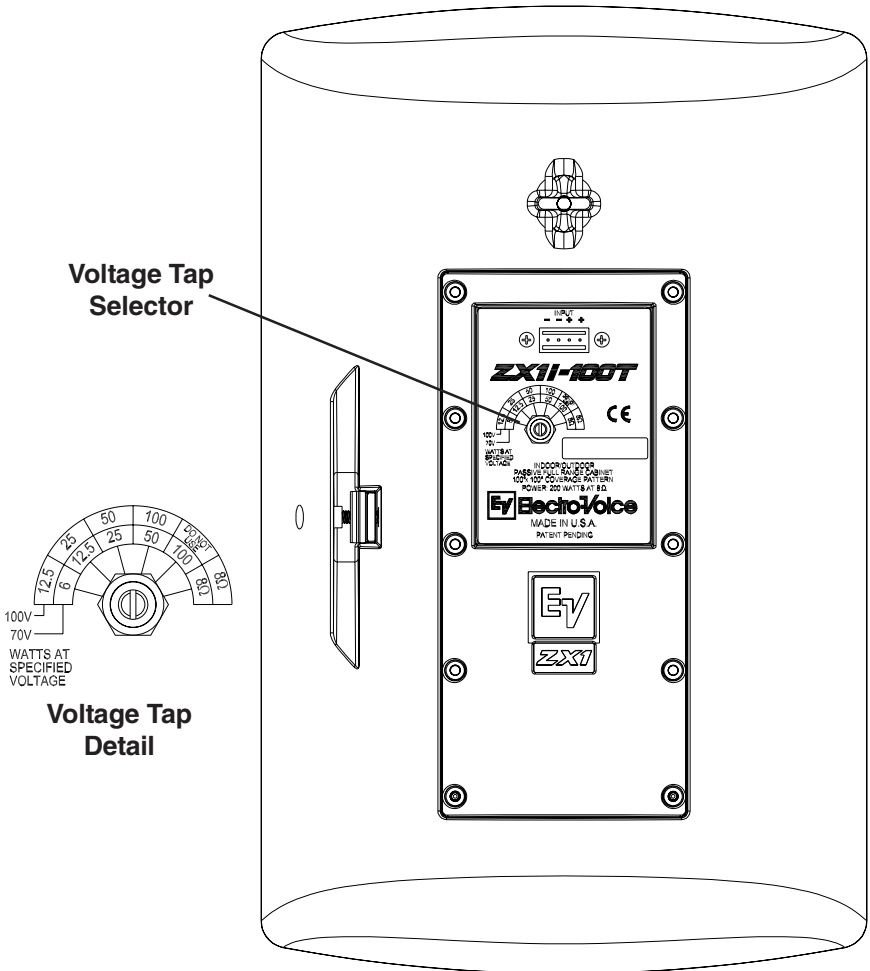

Figure 7: Voltage Tap Selector (Zx1i-100T Model Only)

Step 3: Select the horn dispersion orientation– If necessary

For the 90° x 50° horn version you may elect to rotate the horn assembly for more effective coverage depending on the orientation of the speaker cabinet in your installation. The horn is factory-installed with the 90° coverage in the horizontal plane and the 50° coverage in the vertical plane as shown in Figure 8 below.

To rotate the horn follow the steps below:

1. Remove the logo badge to expose grille mounting screws.
2. Remove the grille assembly – see illustration
3. Remove the screws holding the horn assembly in place. – see illustration
4. Rotate the horn assembly 90°.
5. Secure the horn assembly back to the baffle with the horn mounting screws.
6. Secure the grille assembly to the baffle with grille mounting screws.
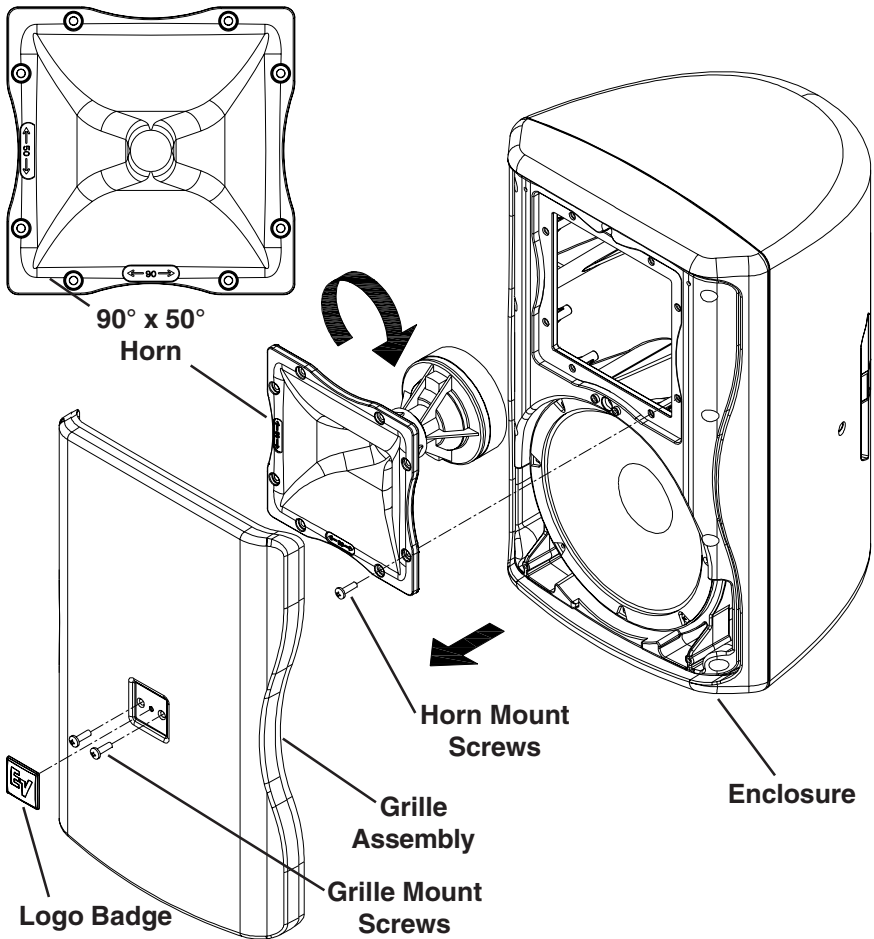7. Secure the logo badge back onto the grille.

Figure 8: Horn Rotation (90° x 50° Models Only)

Step 4: Attach the Speaker to the QuickSAM™ Bracket

After mounting the QuickSAM™ bracket (from Step 1) to the desired surface, attach the speaker to the QuickSAM™ bracket by inserting the QuickSAM™ into slot on the side of the speaker until it "clicks" in place. Using the provided mounting tool, tighten the two socket head bolts A and B enough to allow aiming, as shown in Figure 9. After selecting the proper horizontal angle, secure the sweep axis as shown by tightening bolt A. Next, select the proper vertical angle and secure the rotation axis by tightening bolt B. To tighten the recessed bolt B, insert mounting tool through hole on the side of the speaker.

> ⚠ **WARNING:** Bolt "B" is what secures the speaker to the QuickSAM™ Bracket. It is the installer's responsibility to ensure that Bolt "B" is fully tightened. Failure to tighten Bolt "B" may allow the speaker to disengage from the QuickSAM™ Bracket, possibly resulting in serious injury. Use of the Seismic restraint is highly recommended. See Step 6.
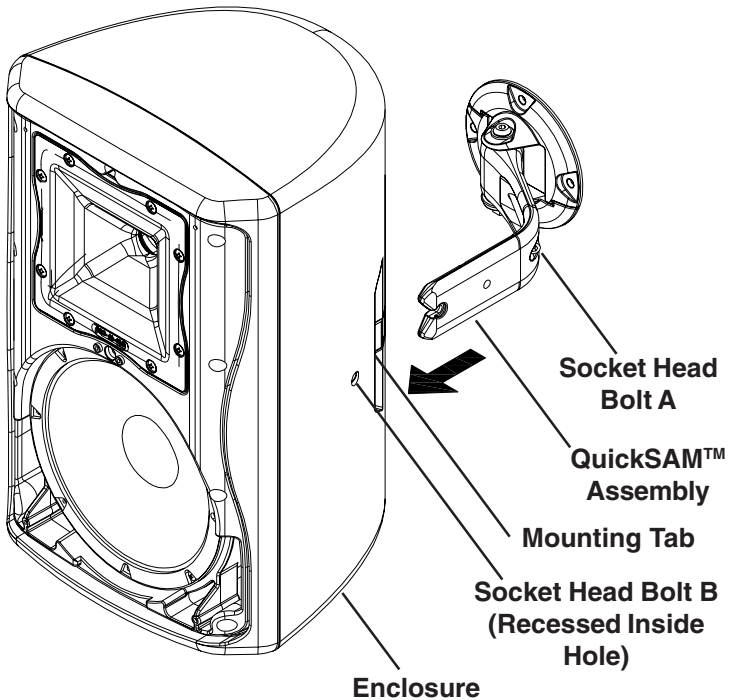

Socket Head Bolt A

QuickSAM™ Assembly

Mounting Tab

Socket Head Bolt B (Recessed Inside Hole)

Enclosure

Figure 9: Attaching Speaker to QuickSAM™ Assembly

Step 5: Wire the Speaker

Connect the wires to the speaker using the detachable 4 pole phoenix connector as illustrated in Figure 10. The 4 connections allow for convenient loop through wiring to the next speaker system wired in the system.

Step 6: Secure the Seismic Tab Connection Point

The rear of the enclosure includes an eyebolt for connection to a seismic restraint. Connect it to a properly rated hardware fitting that is securely installed independently of the SAM™ bracket. Even if your local construction code does not require the installation of secondary support, its use is highly recommended as additional security.
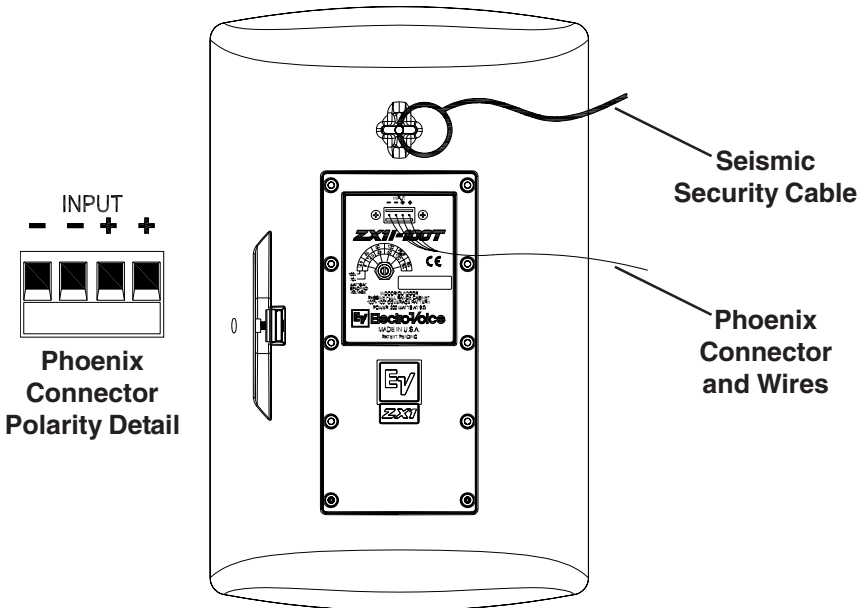
Figure 10: Wiring and Seismic Tab Connections

Step 7: Test System Operation

After all connections are made, test the complete system operation. Appendix A (page 10) contains a troubleshooting table to assist in locating many speaker-related problems.

Maintenance

Your Zx1™ system has been designed and manufactured to provide years of durability and reliable service. No routine maintenance is necessary. Units may be cleaned by wiping with a soft, damp cloth. Never use solvents or harsh cleaning agents of any kind.

Detaching the speaker from the QuickSAM™ Bracket

Loosen Bolt "B" (See Figure 9). Press in the Mounting Tab while pulling the speaker away from the mounting surface. Press in Mounting Tab either with the included mounting tool (See Figure 11) or by hand (See Figure 12).
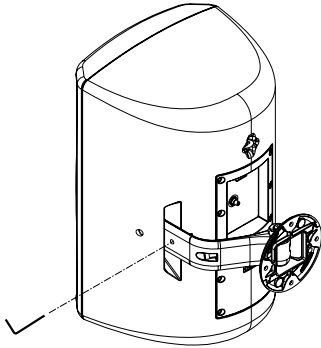
Press Here

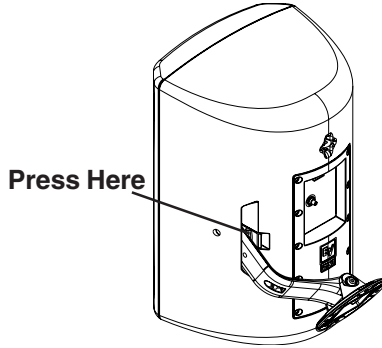**Figure 11:** Detaching Speaker from QuickSAM™ with tool

Figure 12: Detaching Speaker from QuickSAM™ by hand

Appendix A: Troubleshooting Table

Problem	Possible Cause(s)	Action
1. No Sound	Amplifier	Connect a known working test speaker to the amplifier outputs. If there is no sound, check that all the electronics are on, the signal routing is correct, the source is active, the volume is turned up, and so on. Correct/repair/replace as necessary. If there is sound, the problem is in the wiring.
	Wiring	Verify that you have connected the correct wire pairs to the amplifier. Play something at low level through the amplifier (for example, from a CD player or tuner). Connect the test speaker in parallel with the malfunctioning line. If the sound level has gone or is very weak, the line has a short in it (possibly a severe scrape, pinch, or staple puncture). If the sound level is normal, the wire is open (possibly a cut wire or a missed connection). Using the test speaker, move down the line and test each connection/junction until you find the problem and correct it. Observe proper polarity.
2. Poor Low-Frequency Response	Speakers wired out-of-polarity	When two speakers are connected out of polarity (out-of-phase), the low frequencies will cancel each other acoustically. Carefully observe the wire markings or tracers on your speaker wires. Verify that the amplifier (+) terminal is connected to the positive terminal of the phoenix connector and the amplifier (-) terminal is connected to the negative terminal of the phoenix connector (see Figure 10).
3. Intermittent output such as crackling or distortion	Faulty Connection	Check all connections at amplifier and speakers to ensure they are all clean and tight. If the problem persists, it may be in the amplifier or wiring. See Problem 1 above.
4. Constant noise such as buzzing, hissing, humming	Defective amplifier or other electronic device	If the noise is present but no program material is playing, the likely cause is the signal chain in the electronics. Evaluate each component as necessary to isolate the problem.
	Poor system grounding or ground loop	Check and correct the system grounding, as required.
If these suggestions do not solve your problem, contact your nearest Electro-Voice dealer or Electro-Voice distributor.		

Appendix B: Painting the Zx1™ Speakers

Painting Process

The Zx1™ is made of high-impact polystyrene, which accepts a wide variety of paints.

- Remove the grille and mask the baffle.
- Clean the cabinet and grille by rubbing the speaker with a lightly dampened cloth. Do not, however, use abrasives such as sandpaper or steel wool. Never use gasoline, kerosene, acetone, MEK, paint thinner, harsh detergents, or other chemicals, as these agents may cause permanent damage to the enclosure.
- After cleaning, apply latex or enamel paint. Spraying is recommended

Painting the Grille

Painting the grille requires spray painting. If the grille is rolled or brush painted, the mesh may become clogged with paint and poor sound quality may result.

Appendix C: Technical Specifications

Freq. Response[1] (-3 dB):	60 Hz - 20 kHz
Freq. Range[1] (-10 dB):	48 Hz - 20 kHz
Rec. Hipass Frequency:	40 Hz
Axial Sensitivity[1] (90°): (100°):	94 dB (1W/1m) 92 dB (1W/1m)
Max Calculated SPL (90°): (100°):	123 dB 121 dB
Horizontal Coverage:	90° or 100°
Vertical Coverage:	50° or 100°
Rated System Power:	200W Cont.[2], 400W Prog., 800W Peak
LF Transducer:	EV8L, 8 in (203mm) Driver
HF Transducer:	DH2005, 1 in. (25.4mm) Exit Compression Driver
Crossover Frequency:	1.7 kHz
Nominal Impedance:	8 Ohms
Minimum Impedance:	6 Ohms
"T" Version Wattage Taps:	70V - 6, 12.5, 25, 50, 100, 8 Ohm bypass 100V - 12.5, 25, 50, 100, 8 Ohm bypass
Connectors:	4-Pin Phoenix Connector
Enclosure Material:	High Impact Polymer
Suspension:	Integrated QuickSAM™ Heavy-Duty Strong-Arm Mounting Bracket
Grille:	Polyester Powder Coated, 18GA Galvanized Steel
Dim (H x W x D):	451mm x 282mm x 263mm (17.75" x 11.12" x 10.35")
Net Weight:	8.4 kg (18.5 lbs) without Transformer 10.4 kg (23.0 lbs) with Transformer
Shipping Weight:	10.2 kg (22.5 lbs) without Transformer 12.3 kg (27.0 lbs) with Transformer

[1] Half Space Measurement.
[2] IEC Pink Noise, 6 dB Crest Factor.

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