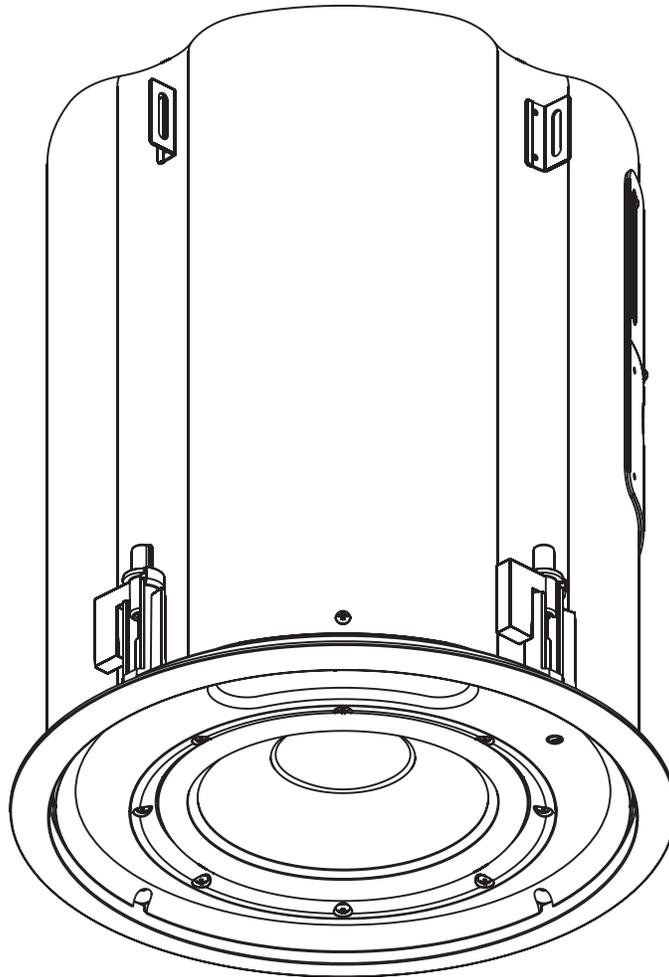


AcousticDesign (AD)

QSC®

User Manual

Model: AD-C81Tw



TD-000264-00-E



EXPLANATION OF SYMBOLS

The term "WARNING!" indicates instructions regarding personal safety. If the instructions are not followed the result may be bodily injury or death.

The term "CAUTION!" indicates instructions regarding possible damage to physical equipment. If these instructions are not followed, it may result in damage to the equipment that may not be covered under the warranty.

The term "IMPORTANT!" indicates instructions or information that are vital to the successful completion of the procedure.

The term "NOTE" is used to indicate additional useful information.



The intent of the lightning flash with arrowhead symbol in a triangle is to alert the user to the presence of un-insulated "dangerous" voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to humans.



The intent of the exclamation point within a triangle is to alert the user to the presence of important safety, and operating and maintenance instructions in this manual.



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 install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
8. Only use attachments/accessories specified by the manufacturer.
9. 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.
10. Do not use this apparatus in or near water or liquids.
11. Adhere to all applicable, local codes.
12. Consult a licensed, professional engineer when any doubt or questions arise regarding a physical equipment installation.

WARNING!: Before placing, installing, rigging, or suspending any speaker product, inspect all hardware, suspension, cabinets, transducers, brackets and associated equipment for damage. Any missing, corroded, deformed or non-load rated component could significantly reduce the strength of the installation, placement, or array. Any such condition severely reduces the safety of the installation and should be immediately corrected. Use only hardware which is rated for the loading conditions of the installation and any possible short-term unexpected overloading. Never exceed the rating of the hardware or equipment. Consult a licensed, professional engineer when any doubt or questions arise regarding a physical equipment installation.

Maintenance and Repair

Advance technology, e.g., the use of modern materials and powerful electronics, requires specially adapted maintenance and repair methods. To avoid a danger of subsequent damage to the apparatus, injuries to persons and/or the creation of additional safety hazards, all maintenance or repair work on the apparatus should be performed only by a QSC authorized service station or an authorized QSC International Distributor. QSC is not responsible for any injury, harm or related damages arising from any failure of the customer, owner or user of the apparatus to facilitate those repairs.

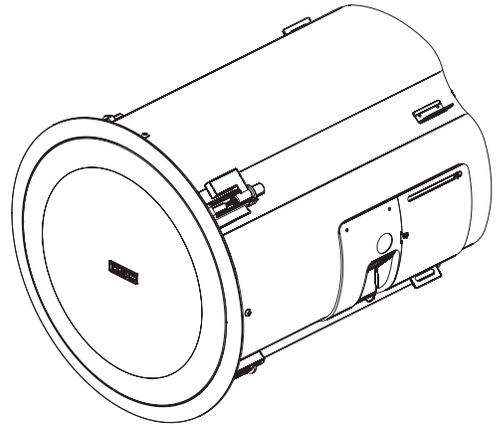
Warranty

For a copy of the QSC Limited Warranty, visit the QSC Audio Products website at www.qsc.com

Introduction

Congratulations and thank you for your ceiling loudspeaker purchase. The AD-C81Tw model offers excellent acoustic performance in an easy-to-install and attractive package. Please review these instructions carefully and follow the recommendations. Consult a licensed installation professional if you are uncertain about any mounting issues.

The AD-C81Tw models feature a 8" low frequency (LF) driver in a ported enclosure. The AD-C81Tw is equipped with an audio transformer suitable for 70V and 100V distributed systems, as well as a tap-selector switch which can bypass the transformer for 8 ohm applications. The AD-C81Tw also includes a bypassable 120Hz low pass filter.



— Figure 1 —

What's Included

- Loudspeaker cabinet
- Protective grill assembly
- two Support brackets for suspended ceiling installations
- C-ring bracket for suspended ceilings and other ceiling reinforcing applications
- Self-tapping screws (M 4.2 X 1.4 X 10 mm) for securing the C-ring-to-support brackets
- Grill clip used for clipping the plastic grill retaining lines together
- Euro style connector assembly for connecting signal and daisy-chaining
- Paint shield
- Grille cloth

Installation Options

The AcousticDesign in-ceiling loudspeakers can be mounted in suspended ceilings, as well as non-suspended types. We recommend an installation professional be consulted for safety assurance, quality installation, and optimum acoustic performance.

For suspended ceiling applications, the suspended ceiling support brackets must be used with the C-ring bracket. The suspended ceiling support brackets are designed to accommodate 24" or 600 mm t-channel grid spacing. The brackets do not attach to the t-channel; the angled "V" bend sits over the t-channel and will catch the t-channel in the event of a tile failure or fall-out.

For other ceiling types, the C-ring bracket can be used to reinforce the mounting surface. If the ceiling is suitably strong, the loudspeaker can be secured in the cutout hole without additional reinforcement.

Audio connections are made directly to the ceramic terminal block or by using terminal block type connectors. Two sets of terminals are provided; one set for the signal connection and another for pass-through (or daisy chain) connection to other loudspeakers on the same distribution circuit.

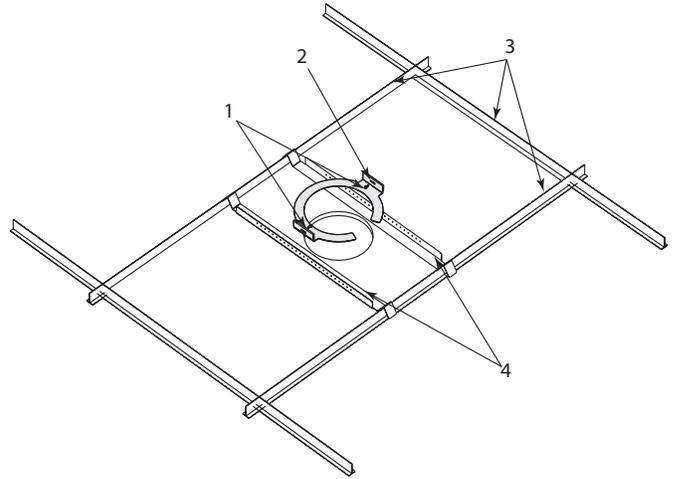
Two safety features are provided, an enclosure-retaining safety tab and a grill-retaining safety tether. The enclosure tab is a metal tab near or on top of the enclosure suitable for securing the loudspeaker to building framing; this provides maximum safety in the event the ceiling structure fails for any reason. The grill's safety tether prevents the grill from falling in the event it should vibrate loose.

Hardware Nomenclature

Refer to — Figure 2 —

Suspended Ceiling

1. Screws
2. C-ring
3. Existing support
4. Support brackets



— Figure 2 —

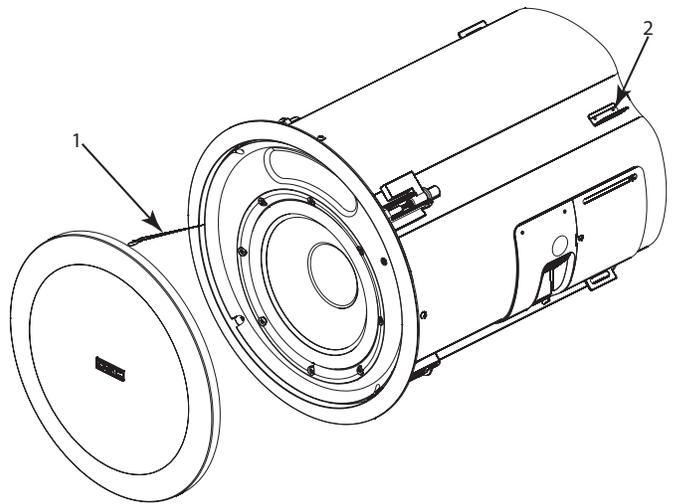
Refer to — Figure 3 —

1. Grill Safety Clip

The cabinet and the grill both have a small loop of plastic line. The grill's loop has a clip attached. Using the grill clip, attach the grill to the cabinet's loop. This will help prevent the grill from falling should it become detached.

2. Secondary Support Tab

Loudspeakers can potentially generate substantial vibration. In addition to ensuring all hardware is properly installed and secured, you must use the secondary support tab on the enclosure to secure the loudspeaker to an appropriate structural support. This will minimize the chance of the loudspeaker falling from the ceiling in the event the primary mount fails. Any cable or wire used as a secondary support line must be strong enough to support several times the weight of the loudspeaker. Do not use rope, string, twine or other textile-based line in the secondary support system as it is easily cut or burned. The secondary support attachment point and any fasteners used on the building's structure must also be strong enough to support several times the weight of the loudspeaker.

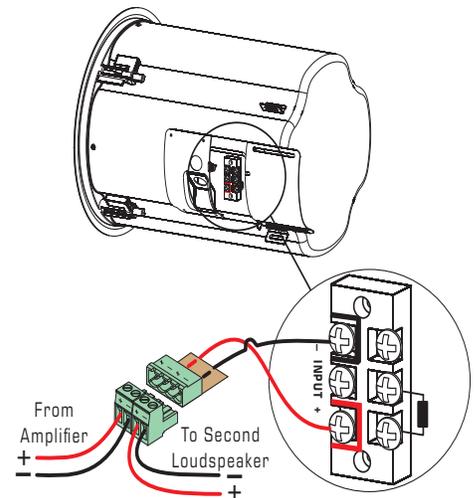


— Figure 3 —

Refer to — Figure 4 —

Connections

Connect signal wires either directly to ceramic terminal block noting correct polarity or to the supplied plastic terminal block assembly. When using the plastic terminal assembly, connect the four pin receptacle to the ceramic block observing polarity. Connect the signal wires to the screw terminals of one of the two pin plugs observing correct polarity. The other two pin plug can then be used as pass through to daisy chain the signal to another speaker or it can be left unused.

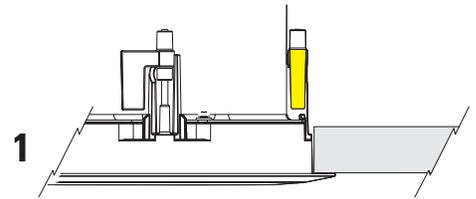


— Figure 4 —

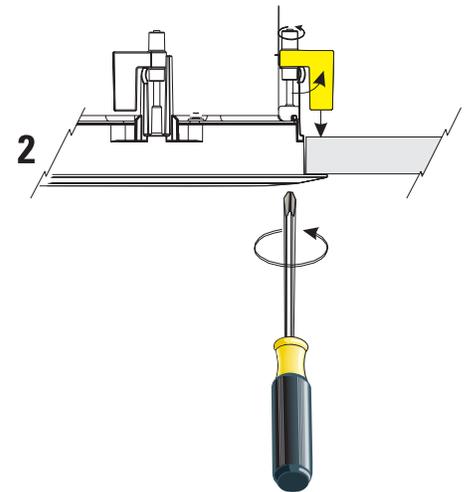
Mounting Clamps

The mounting clamps are part of the assembly for simple use. Do not install the grill until clamps have been tightened and any adjustments made.

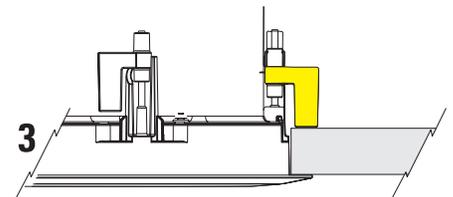
1. Before inserting the cabinet into the mounting cutout, make sure the clamps are folded in against the cabinet.



2. After the cabinet is installed into the mounting cutout, tighten each clamp's screw using a #2 Phillips screwdriver



3. The clamp rotates 90° and is then pulled tight by the screw.



— Figure 5 —

Recommendations and Important Information

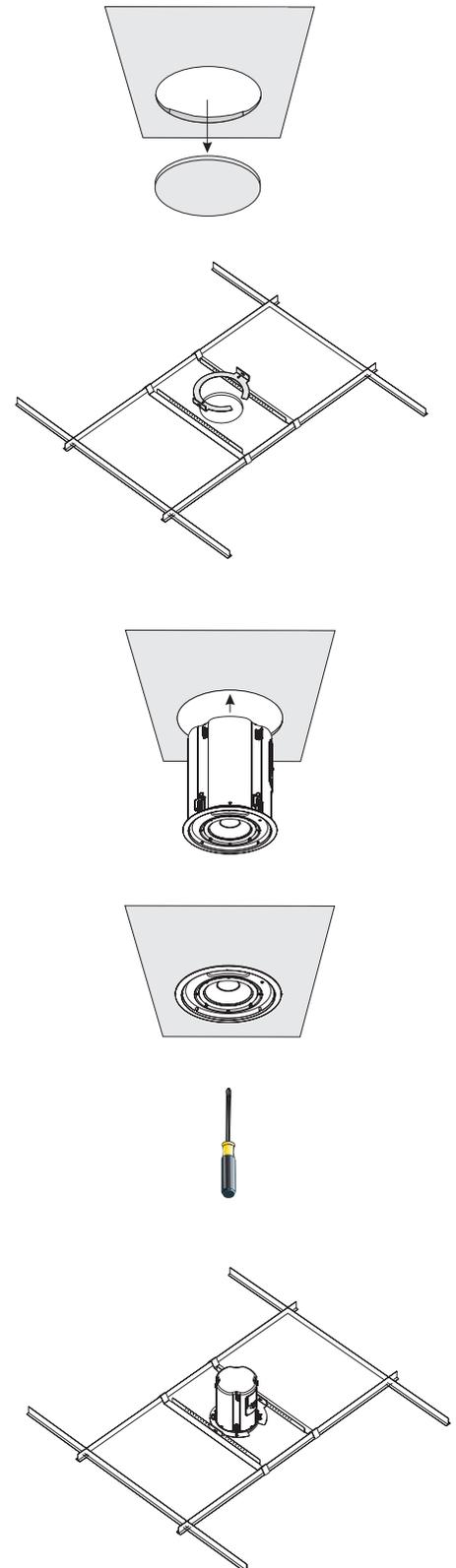
Grill removal: The grill can be removed by carefully prying around its outer edge or inserting a small, metal pin or hook into the grill's openings and pulling evenly around its perimeter.

If rattles or buzzing is heard during operation, it may be necessary to put vibration dampening material between the support rails and the ceiling tiles and/or t-channels.

The support rails have holes along their usable length to attach the C-ring bracket. This allows for the cutout to be placed in many positions along the ceiling tile width.

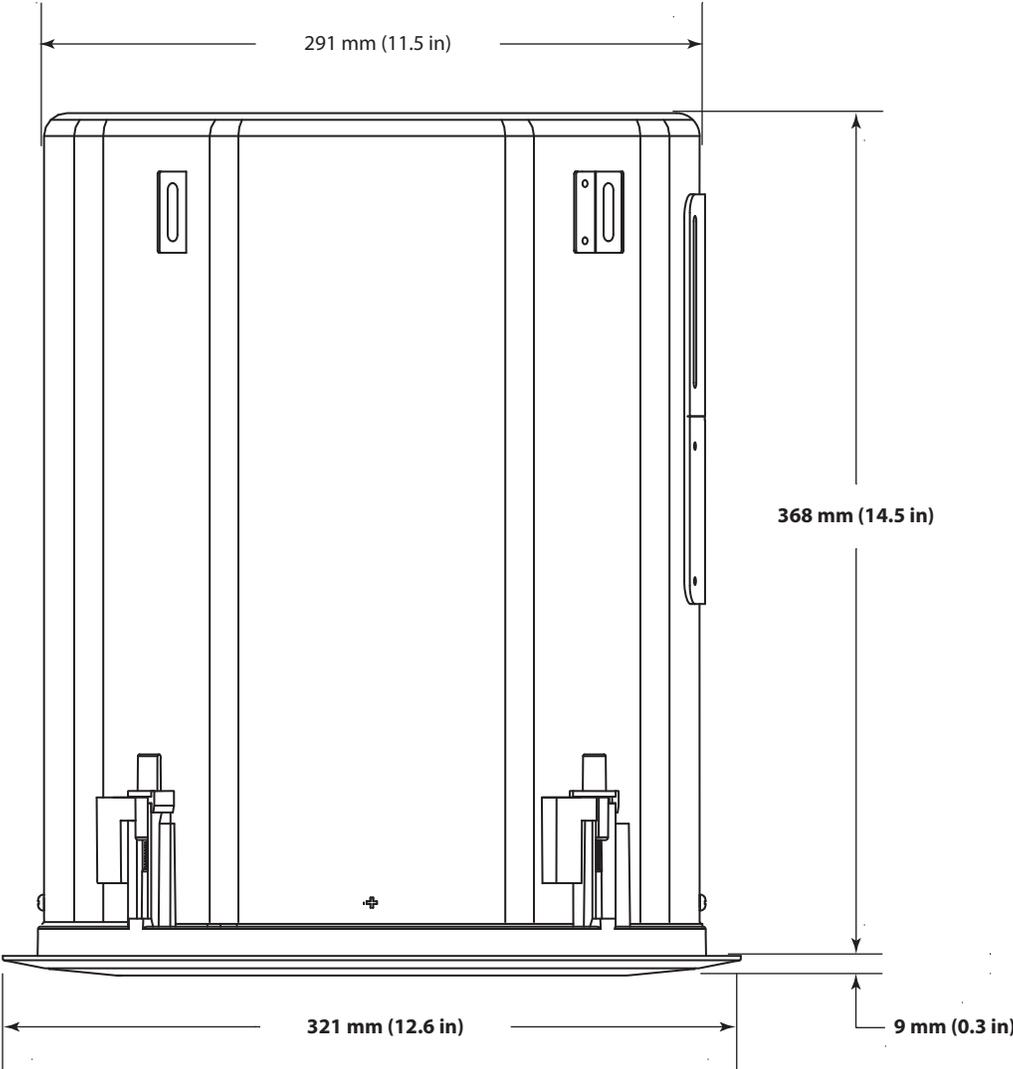
Installation Procedure

1. Using the included C-ring or the dimensions provided, trace a cutout pattern onto the ceiling surface.
2. Cut the mounting hole. Use a sharp tool to avoid stressing or cracking the mounting surface.
3. Pull the wires through the hole.
4. Pass the two suspended ceiling support brackets through the hole and place as shown in the illustration. Make sure the part of the bracket that is flat against the tile is toward the hole. If installing in a non-suspended ceiling application, these brackets are not required.
5. Pass the C-ring bracket through the hole. Slide the cutout slot into the hole first, and then rotate the bracket so it passes through the hole. Be sure the wires pass through the ring.
6. Position the support brackets, and secure the C-ring bracket to each of the support brackets using the screws provided. If installing in a non-suspended ceiling application, skip this step.
7. Loosen the connection cover plate retaining screw and swing the cover open. Install an fitting into the hole provided on the cover plate.
8. Temporarily support the enclosure so the wires may be passed through the enclosure top with enough slack to prepare and terminate the wires.
9. Locate the terminal block connectors included with the loudspeaker. Loosen the wire retaining screws fully.
10. Strip the wire ends approximately 10 mm (0.4") and insert each wire into its proper connector position. Tighten the wire retaining screws fully.
11. Rotate the connection cover plate closed, making sure not to stress the connections or pinch the wires. Tighten the cover plate's retaining screw.
12. Adjust the wiring at the entry point, if necessary, and properly secure fitting. This prevents wire stress and strain from pulling the connections/connectors loose.
13. Attach a safety cable (secondary support cable) from the enclosure's attachment tab to an appropriate support point. This cable and the attachment points must be strong enough to support many times the weight of the loudspeaker in the event the primary mounting system fails.
14. Insert the enclosure into the ceiling cutout, making sure any brackets used remain properly positioned. Tighten the loudspeaker's mounting clamp screws.
15. Set the tap selector switch to the desired position. 70V systems, all four positions may be used. Do not use highest tap setting with 100V systems. 8 ohm systems, set selector to 8 ohm position.
16. If desired set the 120 Hz low pass filter to the "In" position. This will allow only frequencies below 120 Hz to reach the loudspeaker. If the switch is in the "out" position, all frequencies in the input signal will reach the loudspeaker. If the AD-C81Tw is being used with the low-pass filter set to "out" it is recommended that the input signal be filtered before it enters the loudspeaker.
17. Make sure all tests and adjustments are complete before installing the grills. Locate the loudspeaker's grill. The cabinet and the grill both have a small loop of plastic line. Using the clip on the grill's line, attach the grill's safety loop to the cabinet's loop. Carefully work the grill into its retaining slot and press firmly into place. Work the grill in slowly and evenly to avoid damage. Make sure all tests and adjustments are complete before installing the grills.



— Figure 6 —

Dimensions



— Figure 7 —

Specifications

AD-C81Tw

Frequency Response ¹ :	50- 200 kHz (-3 dB), 25- 200 Hz (-10 dB)
Maximum Output ² :	112 dB SPL continuous RMS output Calculated 118 dB SPL peak output
Transducers:	LF: 203 mm (8"), 19 mm (0.75") voice coil;
Nominal Coverage:	180° conical (average 2.5 kHz - 10 kHz)
Impedance (ohms):	8.0 nom./ 8.3 min. @ 42 Hz.
Power Rating ³ :	RMS (IEC 100 hours): 100 W RMS (100 W) Recommended amp power: 200 watts RMS, maximum
Sensitivity:	92.0 dB, 1 W, 1 meter, flush mounted (2 pi)
Bass Loading:	Ported, tuned to 42 Hz
Optional Processing:	125 Hz. low-pass >12 dB/octave crossover.
Dimensions:	See — Figure 7
Net Weight:	AD-C81Tw: 9.1 kg (20.0 lb.)
Enclosure:	Corrosion-resistant power coated steel enclosure with injection-molded plastic baffle. Press on metal grille
Mounting System:	Captive, integral mounting clamps. Insert enclosure into cutout, and tighten. Suspended ceiling C-ring and support bars included.
Connectors:	Ceramic block connector inputs and terminal block "through" connectors (rated for 400 W max).
Controls:	Transformer "tap" selector/ bypass (8 ohm) switch, Settings: 7.5, 15, 30, 60 W (15, 30, 60 W for 100 V) and 8 ohms. Averaged over 50 Hz - 20 kHz bandwidth (60 W tap). Transformer Distortion less than .01% THD above 100 Hz, 0.2% @ 50 Hz (30 W tap). Bandwidth: 40 - 20 kHz (-1 dB, all taps).
Agency Listings:	CE, UL 1480 (commercial/professional use, outdoor damp), UL 2043 (air handling spaces).

Specification Notes:

Specifications are subject to change without notice.

¹ All frequency ranges specified refer to measured half-space response (2 pi).

² Calculated maximum peak SPL at 1 m, half-space, speaker operating at rated rms power pink noise input, 50 Hz to 20 kHz.

³ Maximum input power tested in accordance with IEC recommendations; 50 Hz to 20 kHz band limiting, 6 dB signal crest factor.



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