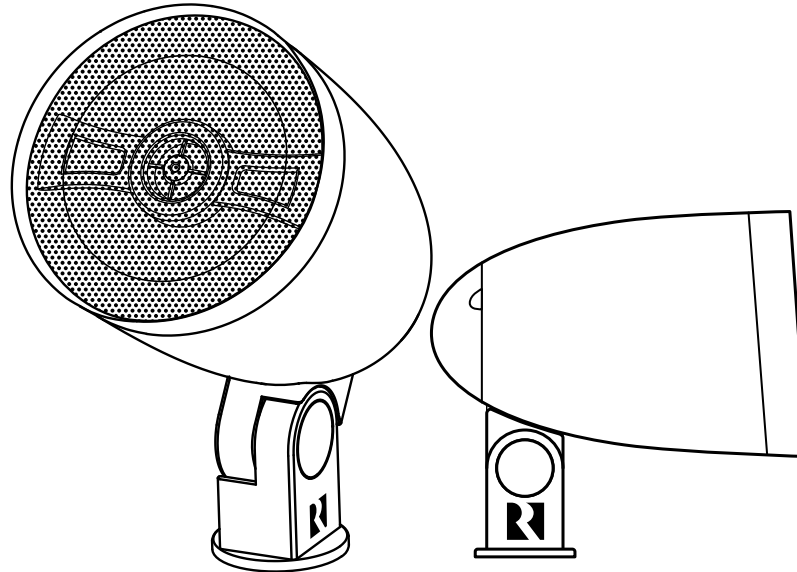


# Russound®



## **AW4-LS-BR** **Landscape Speaker** Installation Manual

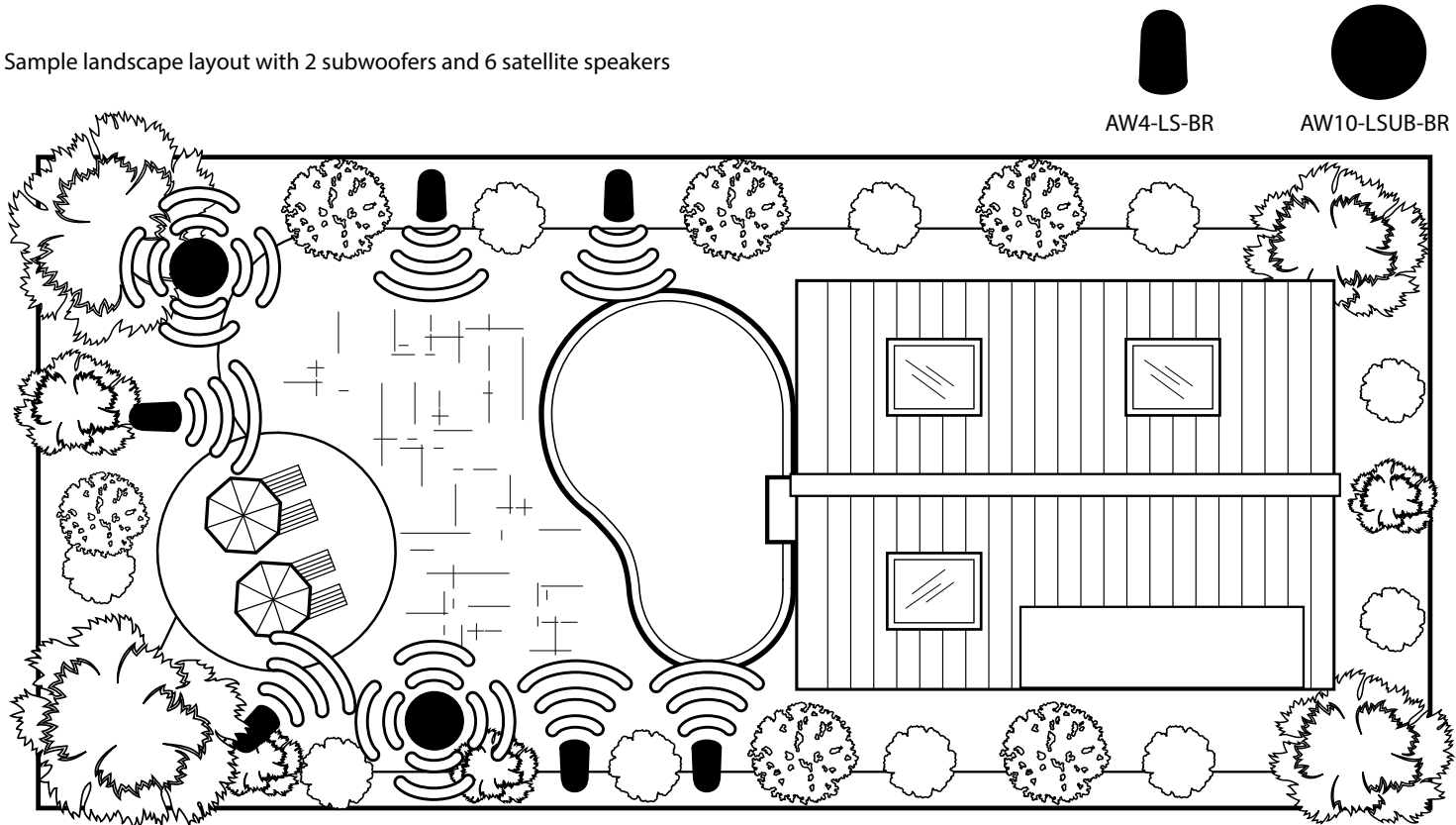
# INTRODUCTION

## Introduction

Thank you for selecting the AW4-LS-BR landscape speaker from Russound.

This advanced loudspeaker offers an elegant, scalable platform for providing high quality audio to any outdoor area in even the harshest environmental conditions. Specially designed to withstand both extreme heat and cold, the speakers work great from the humid, hot conditions of summertime in Florida to the bone-chilling cold of a Minnesota winter.

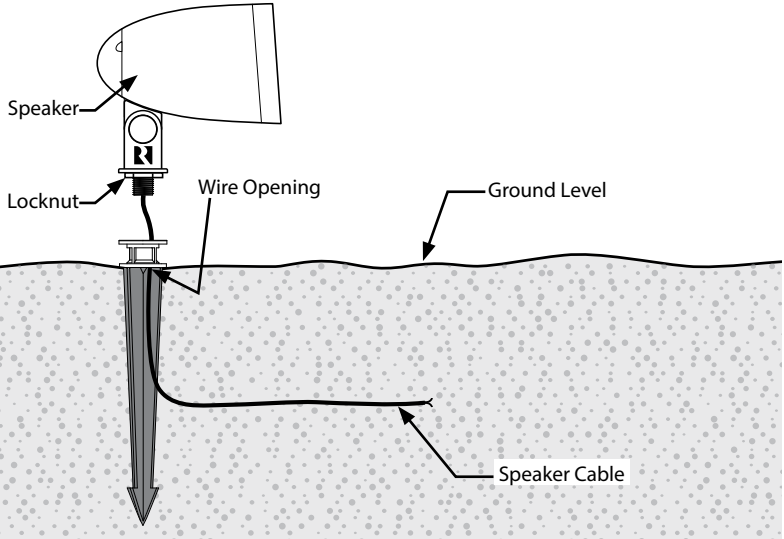
Sample landscape layout with 2 subwoofers and 6 satellite speakers



# INSTALLING THE SPEAKER

## Stake mount (included)

- 1) Determine the appropriate mounting position, making sure that it is not near any buried utility, water, irrigation, or other lines/connections.
- 2) Using a rubber mallet or sledge, pound the stake into the ground leaving enough clearance for the wire opening to be accessed.
- 3) Pass the speaker cable through the top of the stake and let it exit through the wire opening.
- 4) Pound the stake the remaining distance needed into the ground, leaving the top threaded section above ground level.
- 5) Attach the loudspeaker to the stake and turn the speaker clockwise until it is securely mounted and facing the correct direction for your installation. The speaker wire should be able to turn freely through the wire opening so that it doesn't twist excessively. Leaving some twists in the speaker wire is okay.
- 6) Turn the locknut so that it tightens against the stake, fixing the loudspeaker in the correct orientation.



## Surface Mount, Tree Mount, or other Options

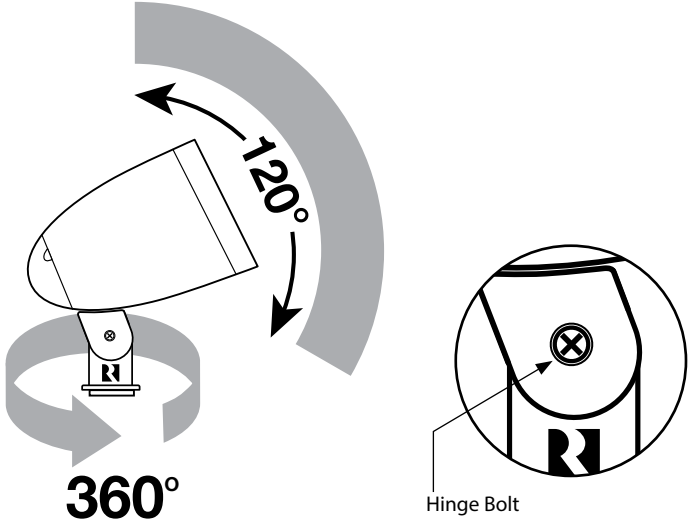
The AW4-LS-BR speaker uses a standard 1/2" NPS thread so that it will work with common landscape lighting mounting accessories such as those by Hadco®.

Philips Hadco Surface Mount Accessory, Model: **MC1A**

Philips Hadco Tree Mount Accessory, Model: **TM1H**

## Angle Adjustment

Once the speaker has been oriented to the proper direction, the angle of the speaker can be adjusted by loosening the hinge bolt adjusting the angle of the speaker, and then tightening the hinge bolt, locking the speaker into the desired angle.



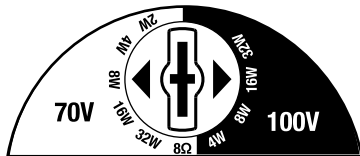
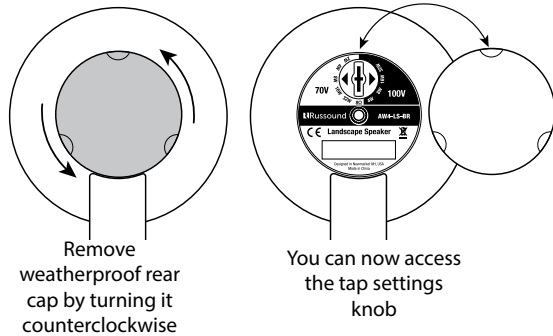
# INSTALLING THE SPEAKER

## Weep Hole

The AW4-LS-BR includes a weep hole at the bottom edge of the front of the speaker for water drainage. This allows the speaker to be installed at a steeper angle than most competitive landscape loudspeaker models. An angle of up to 60° above the ground surface can safely be achieved with the Russound AW4-LS-BR speaker while still allowing any water to drain from the speaker housing properly. The AW4-LS-BR is fully weatherproof, so water will not cause any damage. However, should a large amount of water accumulate and then freeze and expand, this might cause damage to the speaker that would not be covered by the warranty. For this reason, never install the speakers directly upwards towards the sky as water would collect and pool at the top of the speaker.

## Wiring Connections

Note: Before connecting any wires, make certain that the tap setting switch (located by unscrewing the rear cover cap from the speaker) is set to either a 70v/100v position for 70v/100v systems or to the 8Ω position when used with a standard low impedance amplifier or receiver.



When you are ready to connect the loudspeaker wiring, make certain that you leave enough slack in the wiring to completely protect the wire when buried at least 6" underground or whatever minimum depth your local building code requires, or by protecting the wire in conduit. Leaving a wire exposed can lead to inadvertent damage during lawn mowing or trimming. Keeping the wire properly protected is essential to preventing unwanted service calls in the future.

While maintaining the proper polarity of the wires, twist the wire leads together and insert them into the enclosed waterproof wire nuts. Tighten the nuts securely and then test all speakers in the system before burying the wire, closing any junction boxes, or filling any wire trenchwork.

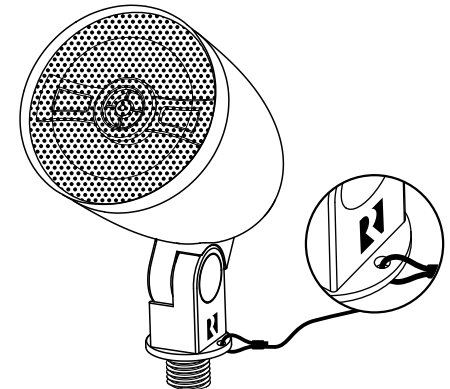
## Adjusting the tap setting (volume level)

When used as a 70v/100v speaker, the tap setting should be adjusted for each speaker in the system. Keep in mind that the total wattage number of all speakers connected to the same amplifier should not exceed the amplifier's power rating, always leaving 20% of power as headroom.

When you have finished adjusting the tap settings, make sure to securely re-attach the rear cap of the speaker and hand-tighten it. All of the interior components are weatherproof, but a loose cap may become dislodged in storms or windy environments over time.

## Security Wire Attachment

The base of the AW4-LS-BR speaker includes a 5mm hole for mounting a security wire (not included). This is for installations where extra security for your valuable loudspeakers may be needed, such as in a commercial setting like an outdoor seating area at a restaurant, or by a pool or patio area at a hotel.



## WIRING INFO - 70V/100V OPERATION

### Speaker cable

Wiring speakers for 70V/100V systems is simple and easy. A single run of 2-conductor, stranded wire is run to every speaker location leaving a small loop (2-3 feet is usually more than sufficient depending on the speakers and their mounting type) at each speaker location. You can place additional loops for future expansion or for making speaker location changes if needed.

**Note:** This is very different from typical low-impedance wiring used for

residential audio installations where a dedicated run of wire goes from each speaker back to the amplifier/receiver. 70V/100V wiring uses much less wire and the wire used can be a much higher gauge (thinner wire) even though it is used in a longer run.

Here is a chart showing some of the differences possible among wire lengths for both low impedance (4Ω-8Ω) and high impedance (70V/100V) systems:

Speaker Cable Length for Various Gauges at Low and High Impedance									
AWG	Power Loss in Cable (% Loss & dB Loss)								
	4 Ohm Speakers			8 Ohm Speakers			70V Speakers		
	11%	21%	50%	11%	21%	50%	11%	21%	50%
	0.5 dB	1 dB	3 dB	0.5 dB	1 dB	3 dB	0.5 dB	1 dB	3 dB
<b>6</b>	277'	571'	1930'	554'	1141'	3859'	2.6mi	5.3mi	18mi
	84m	174m	588m	169m	348m	1.2km	4.14km	8.5km	29km
<b>8</b>	174'	359'	1214'	349'	718'	2428'	1.6 mi	3.4 mi	11.3 mi
	53m	109m	370m	106m	219m	740m	2.6km	5.5km	18.1km
<b>10</b>	110'	226'	764'	219'	452'	1528'	1mile	2mi	7mi
	33.5m	69m	233m	67m	138m	466m	1.6km	3.4km	11.4km
<b>12</b>	69'	142'	480'	138'	284'	959'	3376'	1.3 mi	4.5mi
	21m	43m	146m	42m	87m	292m	1km	2.1km	7.2km
<b>14</b>	43'	89'	302'	87'	179'	604'	2127'	4380'	2.8mi
	13m	27m	92m	27m	55m	184m	648m	1.3km	4.5km
<b>16</b>	27'	55'	185'	53'	110'	371'	1305'	2687'	1.7mi
	8m	17m	56m	16m	38m	113m	398m	819m	2.8km
<b>18</b>	17'	35'	117'	34'	69'	234'	823'	1694'	1mi
	5m	11m	36m	10m	21m	71m	251m	516m	1.75km
<b>20</b>	11'	22'	74'	21'	44'	147'	518'	1068'	3610'
	3m	7m	23m	6m	13m	45m	158m	331m	1.1km
<b>22</b>	7'	13'	46'	13'	27'	91'	321'	661'	2234'
	2m	4m	14m	4m	8m	28m	98m	201m	681m
<b>24</b>	4'	9'	29'	8'	17'	57'	202'	417'	1409'
	1m	3m	9m	2m	5m	17m	62m	127m	429m

## WIRING INFO - 70V/100V OPERATION

### Important

Because outdoor loudspeakers often have buried speaker cable, please make certain to fully test an entire system and make sure that all wiring, speakers, volume level, etc. meets your desired needs before filling in any trenching or covering any speaker cable or wiring connections.

**Note:** Unlike traditional residential audio, 70V/100V systems are typically run in mono sound so that only a single two-conductor wire run is necessary for the speakers. If you want to use multiple wire runs for zoning speakers or other purposes, each 2-conductor wire needs to be independently run back to its own amplifier or amplifier terminals if using a multi-channel amplifier.

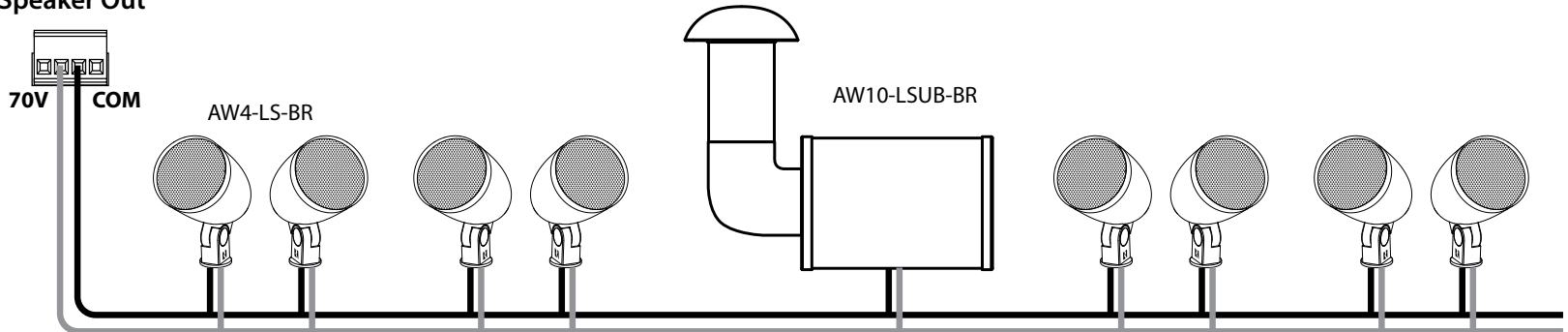
1. At each speaker location, cut the loop of wire at the speaker location
2. Strip 1 to 2 inches (2.5 to 5 cm) off the end of the cable jacket. Then strip ½-inch (1.3 cm) of insulation off each wire.
3. Twist the wire strands together so there are no strands separated from the bundle.
4. Connect the wires to the speaker terminals, being sure to observe proper polarity. For standard speaker cable with red and black wires, connect both

red wires (the red wire coming from the 70V/100V connection on the amplifier or the previous speaker if there was one AND the red wire going to the next speaker if there is an additional speaker) to the red positive (+) terminal and both black wires (the black wire coming from the COM connection of the 70V/100V amplifier or the previous speaker if there was one AND the black wire going to the next speaker if there is an additional speaker) to the black negative (-) terminal.

**Note:** Some speaker cables may have other ways of designating polarity. Cable with a clear jacket has a copper-colored wire for positive and a silver-colored wire for negative. In a cable with white and black wires, the white is positive (70V or 100V) and the black is negative (COM). Cable with both wires the same color may have grooves, ribs, or stripes on the positive wire to identify it.

5. Check to make sure there are no stray strands of wire outside the terminals. If there are, remove the wire, twist the strands together, and reconnect the wire to the terminal.
6. At the final loudspeaker, the only wires connected will be the ones coming from the previous loudspeaker (or from the amplifier if there is only one speaker in the system).

### Amplifier Speaker Out



### *Adjust the Tap Settings*

The AW4-LS-BR speaker has the following tap settings available:

70V - 2W, 4W, 8W, 16W, 32W

100V - 4W, 8W, 16W, 32W

8Ω Bypass

The tap settings will affect the overall volume of the loudspeaker in the system. When designing a 70V/100V system, care must be taken not to exceed the power rating of the amplifier or dangerous clipping may occur. Clipping is the most common cause of damage to loudspeakers and should be avoided at all times. The standard rule is to design a system that leaves 20% of the amplifier's rated power as a reserve. For example, with a 300-watt amplifier, speakers should never be set with taps that total higher than 240-watts. The amplifiers total load is determined by adding the wattage of each speaker. When thicker wire or exceptionally long wire runs are used, there is an additional component of current loss due to the cable that can become significant and must be considered in the calculation. For our example with a 300-watt amplifier, here are the approximate number of speakers that could be used if each speaker used the following tap settings:

Example: 300-Watt Amplifier (saving 20% for overhead, means 240 usable watts maximum)

Tap Settings and maximum number of speakers (depending on wire gauge and length)

2W: Max of 120 speakers

4W: Max of 60 speakers

8W: Max of 30 speakers

16W: Max of 15 speakers

32W: Max of 7-8 speakers

For a 70V/100V system, most installations are designed to blanket an area using more loudspeakers at a lower tap setting rather than using fewer speakers at a higher tap settings. This is done to avoid hot spots where very loud sound is heard in certain areas and less in others. It is much more common for 70V speakers to be set at their lowest tap setting than at their highest, but each installation may require adjustments due to the application or environment.

You can adjust the tap setting at any time by turning the tap setting knob to the new position, but make sure not to exceed the amplifier's total available wattage when doing so.

# WIRING INFO - 8 OHM OPERATION

## Speaker cable

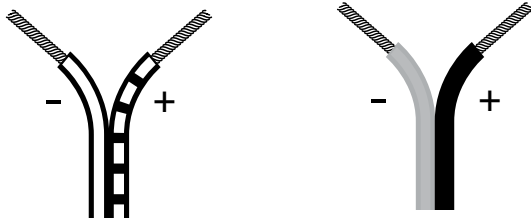
The amount of wire needed varies with speaker placement. Label speaker wires with left, right, and location.

Use Russound AW series speaker cable or any reputable brand of 16 to 12 gauge multi-stranded wiring for amplifier- to-speaker connections.

Wire is measured in gauges: the greater the number, the smaller the wire. The gauge of wire needed is determined by the distance between the amplifier/receiver and the speakers. The longer the run, the heavier the gauge needed. Use the following chart as a guide:

Length	Minimum Gauge
0' to 100'	16
50' to 150'	14
100' to 200'	12

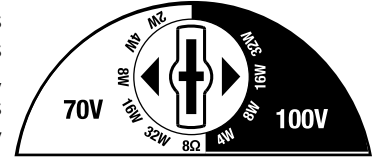
The standard colors on the terminals are red Positive (+) and black Negative (-). If the wire has transparent insulation, one conductor will be copper-colored (+) and the other silver-colored (-). If the wire has an opaque insulation, the conductors are differentiated by a series of ribs or grooves, a stripe, or dotted line on one conductor. Use and mark these as the Positive (+) conductor.



Typical usage of speaker wire conductors

## Tap Setting Knob

When using the AW4-LS-BR speakers with a low impedance system (such as with a 4Ω or 8Ω amplifier or receiver), make sure that the tap setting switch is set to the 8Ω position. This is the only appropriate setting when using the speaker with a low impedance amplifier.



## Prewiring

Run a separate 2-conductor stranded copper speaker cable of at least 16 AWG (1.5 mm) from the amplifier to each speaker.

When running a speaker cable parallel to an AC power cable, keep them at least 12 inches (30 cm) apart to minimize electromagnetic interference. If the speaker cables must cross AC wiring, cross them at right angles.

Leave about 2 feet (0.6 m) of cable at each end for connecting to the speakers and amplifier. Label the cables so you will know which cable connects to each keypad or amplifier output channel.

- Avoid running speaker wires close to house electrical wiring for any distance. If you have to run them parallel, leave two feet between the wiring. Speaker wires should cross AC lines at a 90° angle.
- The entire path between speakers and amplifier should be clear and unobstructed. Confirm the placement for the wall port close to the intended location of the amplifier or receiver.
- Label speaker wires at each end with left and right and location.

## Impedance matching for amplifiers and speakers

If you intend to use more than one pair of speakers at a time it's important to consider both the impedance of the speakers and the capabilities of the amplifier or receiver. Not all amplifiers or receivers can safely operate two sets of speakers at once.



### *Connecting the speaker*

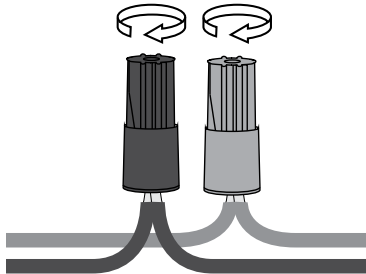
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4. Check to make sure there are no stray strands of wire outside the terminals. If there are, remove the wire, twist the strands together, and reconnect the wire to the terminal.



**Description:** 2-Way Landscape Speaker

**Woofers:** 4" (102mm) PP Weatherproof Cone  
(rubber surround)

**Tweeter:** 3/4" (19mm) Marine Grade PEI Dome

**Impedance:** 8Ω - 70/100V

**Frequency Response:** 80Hz - 20kHz

**Recommended Power:** 20~100W RMS

**SPL:** 87dB @1w/1m

**Dimensions:** 5"dia x 7.6"L x 7.7H" (without stake)  
(12.7 x 19.3 x 19.6cm)

**Unit Weight:** 3.6 lbs. (1.65 kg)



## Speaker care

These sealed construction speakers are made of durable materials that need very little care. Occasionally wipe them with a soft, damp cloth. Do not use any harsh detergents, chemical solvents, or abrasive materials on your speakers, and do not spray water or other liquids into the grilles.

The Russound AW4-LS-BR Speaker is guaranteed against all defects in materials and workmanship for five (5) years from the date of purchase. During this period, Russound will replace any defective parts and correct any defect in workmanship without charge for either parts or labor.

For this warranty to apply, the unit must be installed and used according to its written instructions. If service is necessary, it must be performed by Russound. The unit must be returned to Russound at the owner's expense and with prior written permission. Accidental damage and shipping damage are not considered defects, nor is damage resulting from abuse or from servicing by an agency or person not specifically authorized in writing by Russound.

This Warranty does not cover:

- Damage caused by abuse, accident, misuse, negligence, or improper installation or operation
- Power surges and lightning strikes
- Normal wear and maintenance
- Products that have been altered or modified
- Any product whose identifying number, decal, serial number, etc. has been altered, defaced or removed.

Russound sells products only through authorized Dealers and Distributors to ensure that customers obtain proper support and service. Any Russound product purchased from an unauthorized dealer or other source, including retailers, mail order sellers and online sellers will not be honored or serviced under existing Russound warranty policy. Any sale of products by an unauthorized source or other manner not authorized by Russound shall void the warranty on the applicable product.

Damage to or destruction of components due to application of excessive power voids the warranty on those parts. In these cases, repairs will be made on the basis of the retail value of the parts and labor. To return for repairs, the unit must be shipped to Russound at the owner's expense, along with a note explaining the nature of service required. Be sure to pack the unit in a corrugated container with at least three (3) inches of resilient material to protect the unit from damage in transit.

Before returning a unit for repair, call Russound at (603) 659-5170 for a Return Authorization number. Write this number on the shipping label and ship to:

### Russound

ATTN: Service

1 Forbes Road

Newmarket, NH 03857

Due to continual efforts to improve product quality as new technology and techniques become available, Russound/FMP, Inc. reserves the right to revise system specifications without notice.





# **AW4-LS-BR**

## **Landscape Speaker**

### **Installation Manual**

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Russound, Inc.  
1 Forbes Road, Newmarket, NH 03857  
tel 603.659.5170  
email: [tech@russound.com](mailto:tech@russound.com) [www.russound.com](http://www.russound.com)

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