

AW10-LSUB-BR
Landscape Subwoofer
Installation Manual

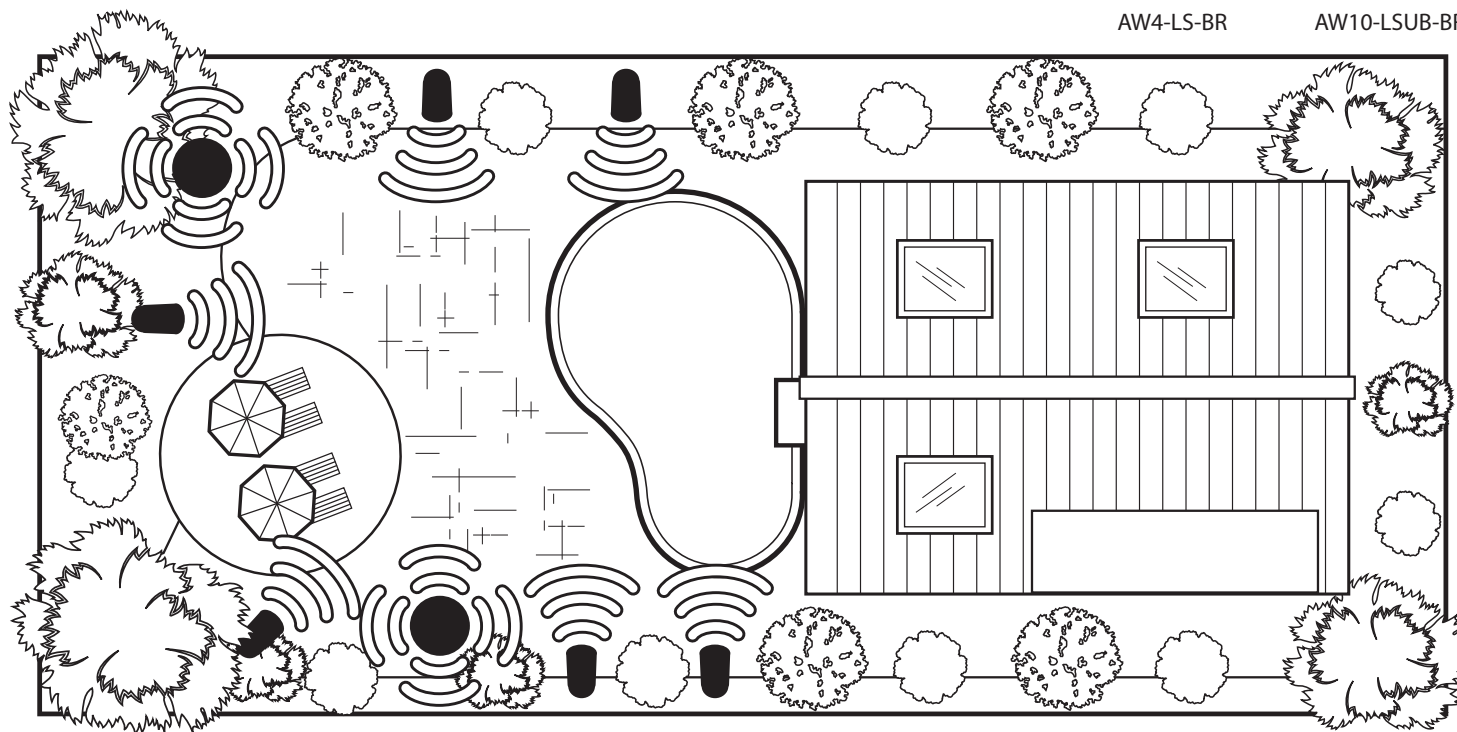
INTRODUCTION

Introduction

Thank you for selecting the AW10-LSUB-BR in-ground subwoofer from Russound.

This impressive subwoofer, designed to be installed by a professional, offers an elegant, scalable platform for providing high quality audio enhancement to any outdoor area in even the harshest environmental conditions. Specially designed to withstand both extreme heat and cold, this subwoofer works great from the humid, hot conditions of summertime in Florida to the bone-chilling cold of a Minnesota winter.

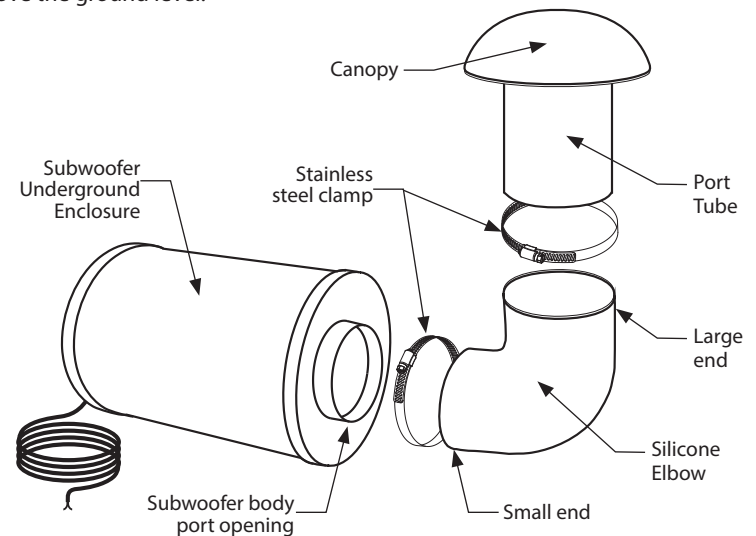
Sample landscape layout with 2 subwoofers and 6 satellite speakers



ASSEMBLING THE SUBWOOFER

- 1) Unpack the contents of the box. Use caution when lifting the subwoofer. The included carrying support rope should be utilized to help remove it from the box.
- 2) Examine the silicone elbow. Note that one end is slightly larger than the other. The smaller end attaches to the subwoofer body and the larger end attaches to the port tube.
- 3) Place a stainless steel clamp ring on each end of the silicone elbow. There are two different size clamp rings, one for the large end of the elbow, and one for the smaller end of the elbow.
- 4) Attach the small end of the silicone elbow to the subwoofer body port opening as shown.
- 5) Before tightening the clamp, determine the orientation that you would like for the port tube. The speaker wire comes out of one edge of the subwoofer and the tap setting adjustment is located near an edge of the rear panel. You can rotate the elbow so that the speaker wire connection and tap setting adjustment are best suited for your installation.
- 6) Once the orientation that you desire for the port tube is set, tighten the clamp ring using a screwdriver until the ring is fully tightened. Making a good seal is important both to prevent water penetration as well as to prevent audio issues with the subwoofer.
- 7) Attach the canopy to the large end of the silicone elbow. Make sure that the tube is fully seated and forms a 90 degree angle with the subwoofer. When the tube is properly seated in the elbow, tighten the clamp ring using a screwdriver until the ring is fully tightened. Making a good seal is important both to prevent water penetration as well as to prevent audio issues with the subwoofer.
- 8) Adjust the tap setting switch. Remove the tap setting switch cover by turning the cover counter-clockwise. Under the cover is the tap setting switch. Set the tap setting to the appropriate position. Use the 8Ω setting for installation with low impedance amplifiers or receivers. Use any of the 70v/100v settings for use with 70v/100v amplifiers. Due to the nature of 70v/100v technology, better bass performance will typically result if the subwoofer is used at 8Ω , however the AW10-LSUB-BR is designed for operation at 70v/100v.

- 9) Make your wiring connections using the included weatherproof wire nuts and, when the entire system is ready, turn on your amplifier(s). See page 6-8 for information on wiring connections.
- 10) Lower the subwoofer into the hole. Russound recommends placing a 1-2" layer of pea gravel or similar substrate at the bottom of the hole to ensure proper drainage. When placed, the subwoofer and canopy should be level. You can verify this with a bubble level.
- 11) Before covering the subwoofer and any wiring, verify the system operation and that the proper volume levels are set. It is easy to adjust the subwoofer tap setting before the subwoofer gets buried. Adjust the tap setting as necessary for the desired sound level near the subwoofer.
- 12) When the entire system is verified and tap settings throughout have been adjusted, replace the tap setting cover and hand tighten it until secure. You can now bury the subwoofer and its wiring.
- 13) Make certain that the subwoofer does not rotate out of position while you are filling the hole. Pack the dirt as you go for an even installation base.
- 14) When finished, the canopy bottom edge should be between 6" and 8" above the ground level.



INSTALLING THE SPEAKER

Choosing a location for the subwoofer

The AW10-LSUB-BR is designed to cover approximately 2,000 ft² (185.8 m²). Sound from the subwoofer will carry in all directions and this means an approximate spacing of 50' (15.2 meters) between subwoofers. One important consideration in positioning a burial subwoofer is avoiding placement near walls or building foundations. Placing a subwoofer near a wall can increase the bass by about 3dB and placing one in a corner will increase it by another 3dB. Keep in mind that if played at loud volume, this could induce unwanted vibration or sound penetration into a home or adjacent building. Locate the subwoofers near the primary outdoor listening areas, typically on the outer edges of a space, and not next to a home or building. Other considerations to keep in mind are the ease of installation at the location, and the ease of running wires to that location.

The subwoofer is made of materials designed for rugged outdoor use, and will withstand occasional hits from common landscape tools, but can be damaged if struck by lawn mowers or other motorized equipment. Placing the subwoofer near bushes, shrubs, or rock decorations may help protect it from being struck by lawn maintenance equipment.

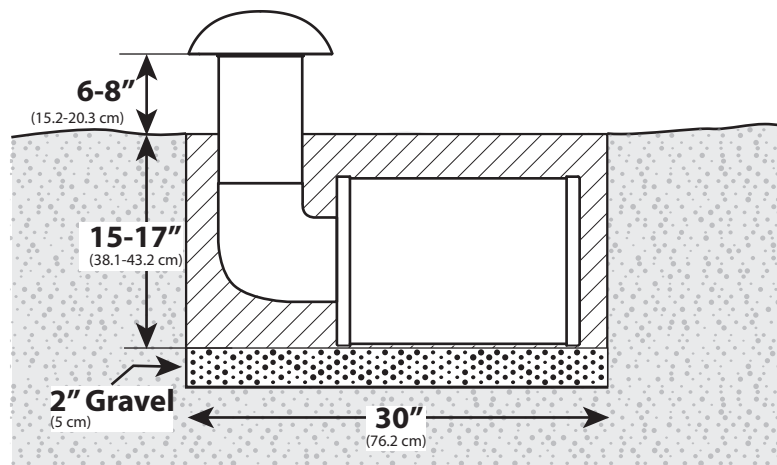
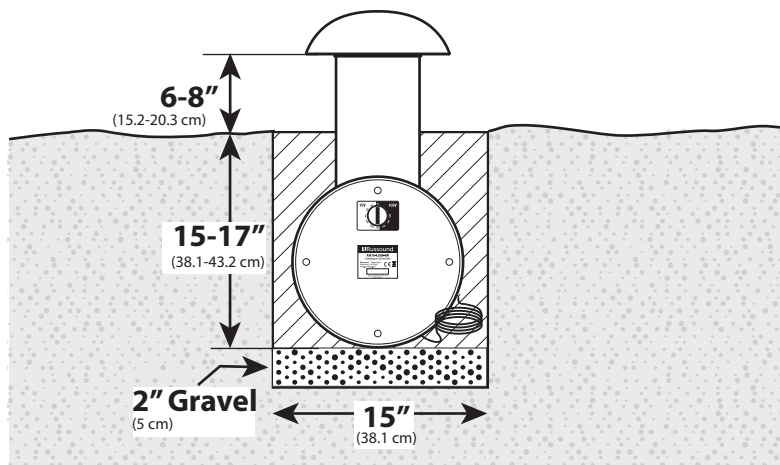
The subwoofer requires a hole size of approximately 15" Wide x 30" Long x 17-19" Deep. (38.1 x 76.2 x 43.2-48.3 cm)

Make sure that the desired location:

- 1) Has the required mounting depth.
- 2) Is not near a building wall or foundation that would allow unwanted sound noise to intrude.
- 3) Has proper drainage. Placing a subwoofer in a low-lying area that is prone to flooding can damage the subwoofer if water levels rise enough for water to enter through the underside of the port tube canopy.
- 4) Is free of any obstructions or underground utilities. In the United States, you must dial 811 (1-888-344-7233) before any digging in order for underground utilities to be marked prior to any digging.

The depth of the mounting hole will affect the finished look of the subwoofer. The subwoofer is recommended to be installed at a depth of 15-17". This will leave approximately 6-8" of the subwoofer port tube and cap above the ground after the installation.

Russound recommends adding a layer of 1-2" of pea gravel at the bottom of the hole to facilitate drainage around the base of the subwoofer. If adding gravel, make sure to dig the hole slightly deeper to accommodate the layer of gravel.



INSTALLING THE SPEAKER

Painting

The surface of the canopy and the port tube can be easily painted to match any landscape décor. It is recommended that these be painted prior to installation. Any high quality spray paint will do. Be careful not to paint the underside of the canopy as there is a mesh insect/rodent guard at the base that can become clogged and interfere with sound transmission if it is blocked. Mask this area when painting.

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.

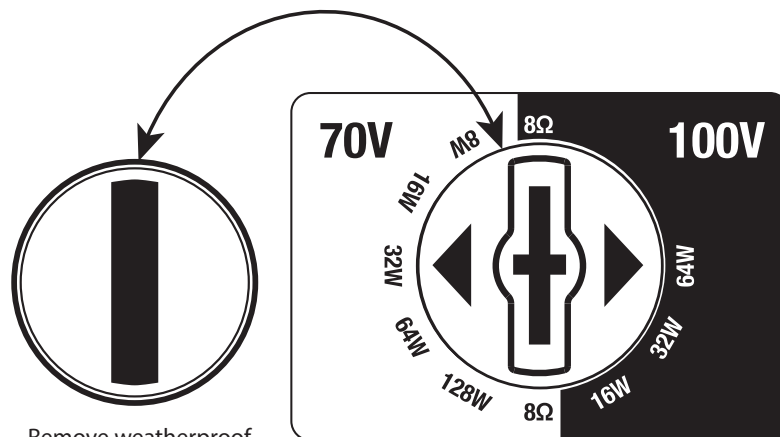
When you are ready to connect the loudspeaker wiring, make certain that you leave enough slack in the wiring to completely protect the wire after testing the system by burying it at least 6" underground or whatever minimum depth your local building code requires, or by protecting the wire in conduit. 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 the connection 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 including any subwoofers 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.



Remove weatherproof rear cap by turning it counterclockwise

Available Tap Settings:

70V - 8W, 16W, 32W, 64W, 128W

100V - 16W, 32W, 64W

8Ω Bypass

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

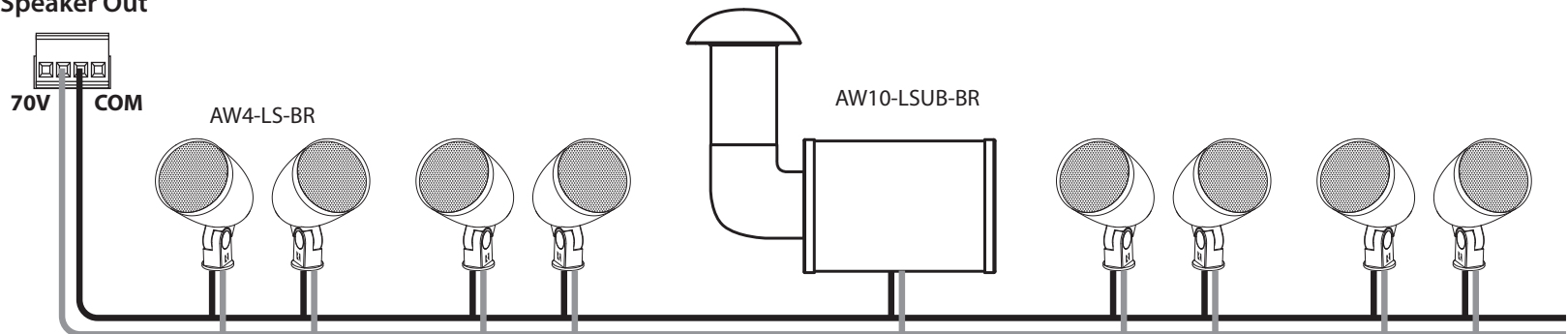
red wires (the red wire coming from the 70V/100V connection on the amplifier or the previous speaker if there was one AND the red wire going to the next speaker if there is an additional speaker) to the red positive (+) terminal and both black wires (the black wire coming from the COM connection of the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



WIRING INFO - 70V/100V OPERATION

Adjust the Tap Settings

The AW10-LSUB-BR subwoofer has the following tap settings available:

70V - 8W, 16W, 32W, 64W, 128W

100V - 16W, 32W, 64W

8Ω Bypass

The tap settings will affect the overall volume of each 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 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.

Speaker cable

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

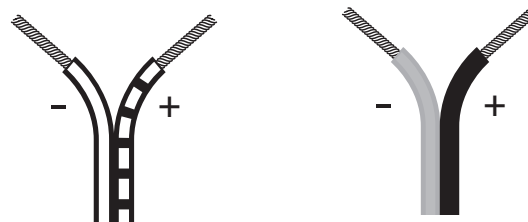
Use Russound AW series speaker cable or any reputable brand of 16 to 12 gauge multi-stranded wiring for amplifier- to-speaker connections.

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:

<u>Length</u>	<u>Minimum Gauge</u>
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.

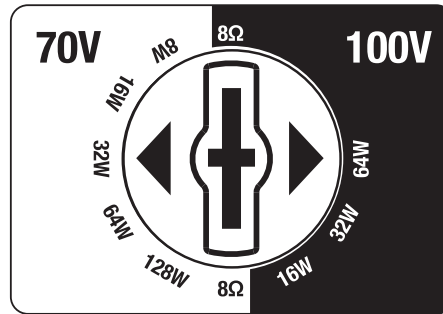


Typical usage of speaker wire conductors

WIRING INFO - 8 OHM OPERATION

Tap Setting Knob

When using the AW10-LSUB-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

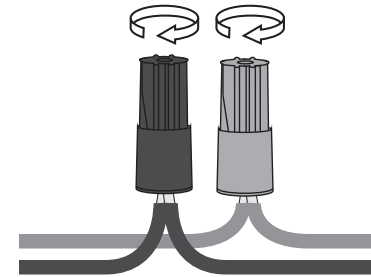
If you intend to use more than one pair of speakers at a time it's important to consider both the impedance of the speakers and the capabilities of the amplifier or receiver. Not all amplifiers or receivers can safely operate two sets of speakers at once.

Connecting the speaker

1. 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.
2. Twist the wire strands together so there are no strands separated from the bundle.
3. Connect the wires to the speaker terminals, being sure to observe proper polarity. For standard speaker cable with red and black wires, connect the red wire to the red positive (+) terminal and the black wire 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 and the black is negative. Cable with both wires the same color may have grooves, ribs, or stripes on the positive wire.

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.



TECHNICAL SPECIFICATIONS

Type: Full Bandpass Subwoofer

Woofers: 10" (254mm) PP Weatherproof Cone
(rubber surround)

Impedance: 8Ω - 70/100V

Frequency Response: 30Hz - 200Hz

SPL: 90 dB @1w/1m

Dimensions: Woofer Enclosure: 12.7" dia x 18.3"L (32.3 x 46.5cm)
Canopy: 10.8" dia (27.4)

Weight: 29 lbs (13.1 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.

WARRANTY

The Russound AW10-LSUB-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.

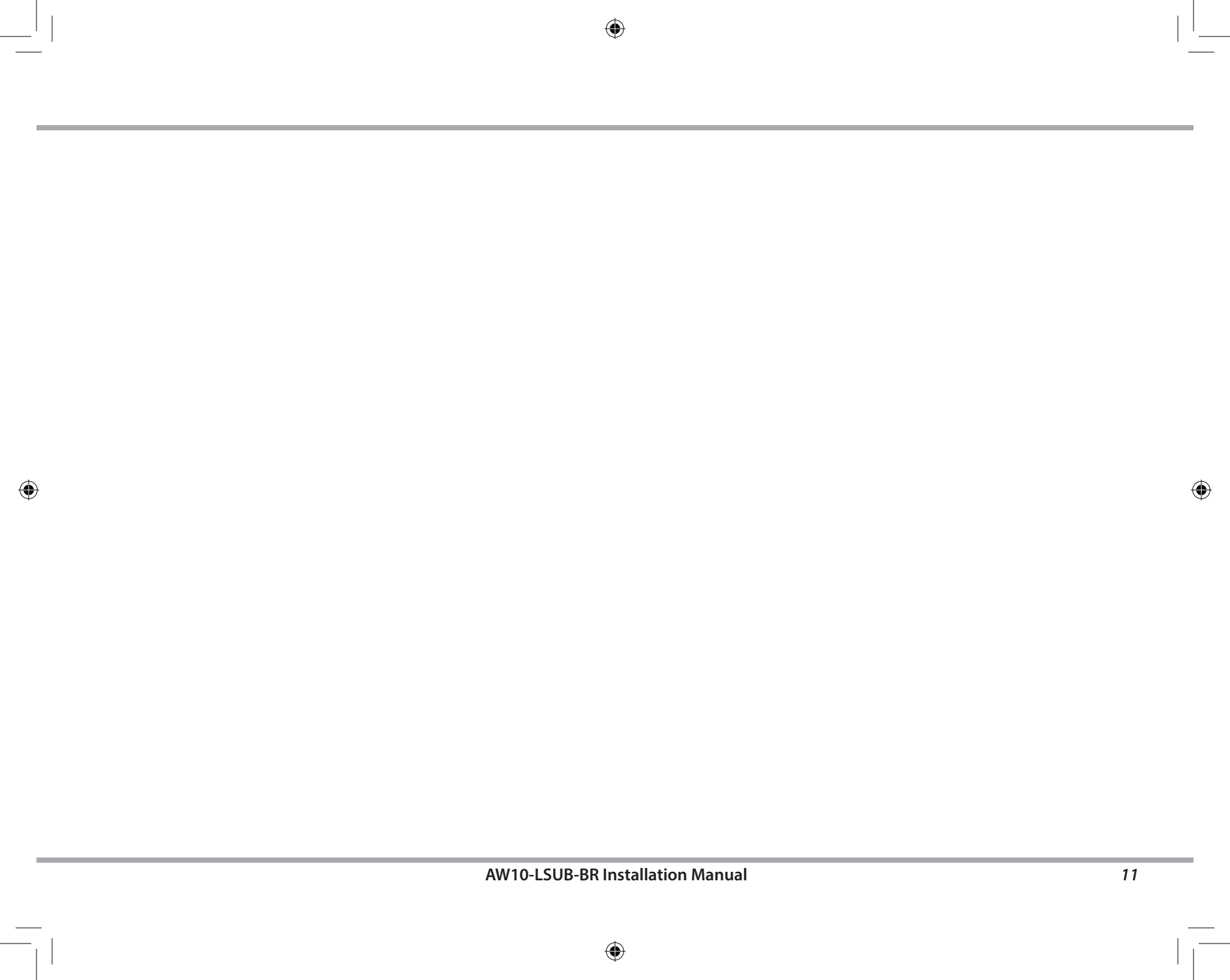
Russound sells products only through authorized Dealers and Distributors to ensure that customers obtain proper support and service. Any Russound product purchased from an unauthorized dealer or other source, including retailers, mail order sellers and online sellers will not be honored or serviced under 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.





AW10-LSUB-BR

Landscape Speaker

Installation Manual

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