



RCC MK2 Subwoofer Installation Guide

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This guide describes the process for installing Artison RCC Subwoofer Series products including:

- RCC 1000 Sub Amp [RCC1000-SA]
- Sub 160V2 (Pre Construction) [RCC160-MK2-PC]
- In-Wall Sub 320V2 (Pre Construction) [RCC320-MK2-PC]
- In-Wall Sub 320V2 (Retrofit) [RCC320-MK2-R]
- Grille for Dual 320 Subs (Pre Construction) [RCC640-MK2-PCG]

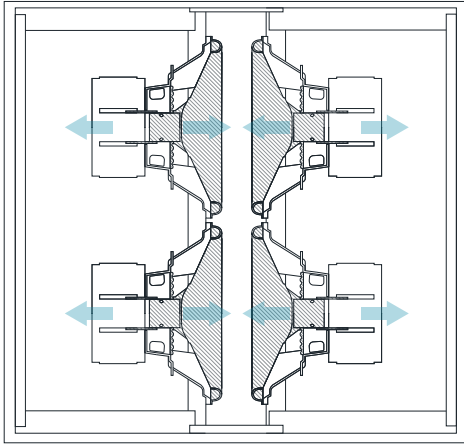


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1. Product Overview

The RCC MK2 Series incorporates Reactance Cancelling Configuration (RCC) technology, which eliminates resonance in all Artison subwoofers. Equal and opposite drivers counteract any vibration.



These subwoofers use a pair of 4" x 6" drivers in the smaller design (RCC160-MK2-PC) and 2 pairs of 4" x 6" drivers in the larger designs (RCC320-MK2-PC and RCC320-MK2-R)

1.1. RCC160-MK2-PC

Box Contents

- | | |
|--|---|
| (2) RCC160 MK2 Subwoofer [RCC160-MK2-PC] | (2) Perforated Grilles [071-1282-xx] |
| (8) L-Shaped Mounting Brackets [071-1272-xx] | (2) HVAC Vent Grilles [071-1286-xx] |
| (16) M6x8mm Bracket Screws [039-0553-xx] | (2) Micro Aperture 4 Grilles Adapters [071-1274-xx] |
| (16) M6x15mm Bracket Screws [039-0549-xx] | (2) Micro Aperture Round Grille [168-0275-xx] |
| (8) M6 Eye-hooks [039-0556-xx] | (2) Micro Aperture Square Grille [168-0276-xx] |
| (16) 3 mm Grille Spacers [074-0992-xx] | (1) Product Insert [009-1967-xx] |
| (8) M4x25mm Spacer Screws [039-0581-xx] | (1) Installation Guide [this document] |

Specifications

Environmental				
Temperature	32° to 104° F (0° to 40° C)			
Humidity	10% to 90% Relative Humidity (non-condensing)			
Dimensions and Weights without Brackets				
	Height	Width	Depth	Weight
RCC160-MK2-PC	8.19 inch (20.80 cm)	13.94 inch (35.40 cm)	4.16 inch (10.57 cm)	14 lb (6.4 kg)
Shipping	19.21 inch (48.79 cm)	19.65 inch (49.91 cm)	7.92 inch (20.12 cm)	28.9 lb (13.11 kg)
Compliance				
Ingress Protection	IP65 rated			
RoHS	Compliant			

1.2. RCC320-MK2-PC/RCC320-MK2-R

Box Contents RCC320-MK2-PC (Pre Construction)

(1) RCC320 MK2 Subwoofer [RCC320-MK2-PC]	(4) M6 Eye-hooks [039-0556-xx]
(8) L-Shaped Mounting Brackets [071-1272-xx]	(1) Perforated Grille [071-1287-xx]
(8) M6x8mm Bracket Screws [039-0553-xx]	(1) HVAC Grille [071-1286]
(8) M6x15mm Bracket Screws [039-0549-xx]	(1) Product insert [009-1967-xx]
(16) 3mm Grille Spacers [074-0992-xx]	(1) Installation Guide [this document]

Specifications

Environmental				
Temperature	32° to 104° F (0° to 40° C)			
Humidity	10% to 90% Relative Humidity (non-condensing)			
Dimensions and Weights without Brackets				
	Height	Width	Depth	Weight
RCC320-MK2-PC	13.46 inch (34.19 cm)	13.94 inch (35.41 cm)	3.5 inch (8.90 cm)	22 lb (10 kg)
Shipping	16.54 inch (42.01 cm)	17.04 inch (43.28 cm)	4.16 inch (10.57 cm)	25.2 lb (11.4 kg)
Compliance				
Ingress Protection	IP65 rated			
RoHS	Compliant			

Box Contents RCC320-MK2-R (Retrofit)

(1) RCC320 MK2 Subwoofer [RCC320-MK2-R]
(1) Wall Cut-out Template
(1) Retrofit Perforated Grille [071-1288-xx]
(1) Product insert [009-1967-xx]
(1) Installation Guide [this document]

Specifications

Environmental				
Temperature	32° to 104° F (0° to 40° C)			
Humidity	10% to 90% Relative Humidity (non-condensing)			
Dimensions and Weights				
	Height	Width	Depth	Weight
RCC320-MK2-R	13.4 inch (34.04 cm)	14.2 inch (36.07 cm)	3.8 inch (9.65 cm)	22 lb (10 kg)
Shipping	18.51 inch (47.02 cm)	19.41 inch (49.30 cm)	8.15 inch (20.70 cm)	25.2 lb (11.4 kg)
Compliance				
Ingress Protection	IP65 rated			
RoHS	Compliant			

1.3. RCC640-MK2-PCG

Box Contents RCC640-MK2-PCG (Pre Construction)

- (1) Perforated Grille [071-1297-xx]
- (2) 3mm Connector Plate [071-1303-xx]

Specifications




Environmental				
Temperature	32° to 104° F (0° to 40° C)			
Humidity	10% to 90% Relative Humidity (non-condensing)			
Dimensions and Weights				
	Height	Width	Depth	Weight
Shipping	6.25 inch (15.88 cm)	33.25 inch (84.46 cm)	6.25 inch (15.88 cm)	2.65 lb (1.20 kg)
Compliance				
RoHS	Compliant			

1.4. RCC1000-SA

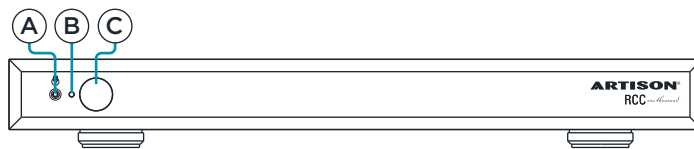
Box Contents

- (1) RCC 1000 Sub Amp for MK2 (RCC1000-SA)
- (1) IR Remote
- (2) Rack-Mount Ears
- (4) STF4x6mm Bracket Screws
- (4) STF4x10mm Bracket Screws
- (1) Power Cord
- (1) Product insert [009-1967-xx]
- (1) Installation Guide [this document]

Specifications

Environmental				
Temperature	32° to 104° F (0° to 40° C)			
Humidity	10% to 90% Relative Humidity (non-condensing)			
Dimensions and Weights				
	Height	Width	Depth	Weight
RCC1000-SA	1.75 inch (4.45 cm)	16.73 inch (42.50 cm) (without mounting ears)*	13.0 inch (33.02 cm)	11.13 lb (5.05 kg)
Shipping	6.25 inch (15.87 cm)	21.0 inch (53.34 cm)	16.5 inch (41.91 cm)	14.45 lb (6.55 kg)
Power				
Input Power	110/230 AC Volts, Auto-Sensing Supply			
Idle Power Consumption	33.1W @ 110V 36.3W @ 230V			
Max Power Consumption	854W @ 110V 823W @ 230V			
Compliance				
Safety and Emissions	TÜV SÜD 	CE 	WEEE 	
RoHS	Compliant			
*Note: width is 19.0 inch (48.26 cm) with mounting ears.				

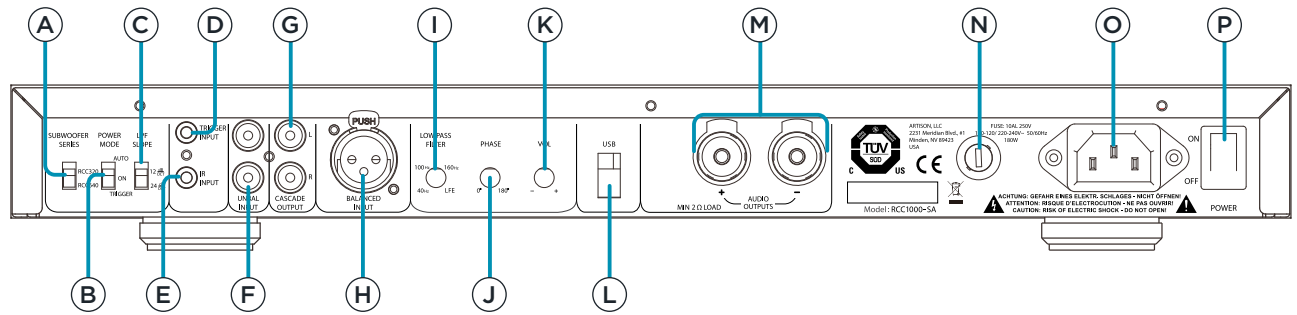
Front Panel



A Standby Button	This button will toggle between Standby Mode and ON
B Status LED	<p>The LED in the GAIN control will indicate the following:</p> <p>Red - Standby</p> <p>Blue - On using Music EQ, the Music EQ setting provides a full range of deep musical bass to enhance the listening experience. Subsonic Filter is 20 Hz.</p> <p>Red & Blue - On using Movie EQ, the Movie EQ setting adds more volume and upper bass to help recreate the true movie theater experience. Subsonic Filter is 35 Hz.</p>



Rear Panel



A	Subwoofer Series	Selector switch: RCC320 - Used for RCC160 and RCC320 subwoofers. RCC640 - Used for RCC640 subwoofer.
B	Power Mode	The front panel button is operates Standby function. AUTO - On with Signal Sense, without signal it will stay on for ≈30 minutes. NOTE: The front panel button will not be operable in this mode. ON - Always On. TRIGGER - On with a 12 Volt Trigger. NOTE: The front panel button will not be operable in this mode.
C	LPF Slope	Select either: 12 dB/Octave - Acoustic Suspension (Sealed) Artison Front Channels 24 dB/Octave - Bass Reflex (Ported) Artison Front Channels.
D	Trigger Input	3.5 mm input to utilize the 12 volt trigger wire from your other equipment, the polarity on the connector can be either way.
E	IR Input	3.5 mm input to control the RCC1000-SA via an IR control system.
F	Unbalanced Input	L/R RCA audio input
G	Cascade Output	L/R RCA audio output used to connect an additional amplifier
H	Balanced Input	Balanced female XLR input
I	Low Pass Filter	Low Pass Filter is the crossover frequency setting. The unit comes from the factory with the 80Hz setting that is recommended for use with Artison Front Channels.
J	Phase	The phase of the subwoofer can be adjusted to fine tune the signal coincidence of the subwoofer and the lower frequencies of your LCR Speakers. The unit comes from the factory set at 0°. Adjust the phase, listening for an increase in mid bass in the crossover region. A pink-noise generator or an RTA (Real-time Analyzer) can further analyze your installation.
K	Volume	The position of this knob controls the overall gain (volume) of the subwoofer.
L	USB	Used for firmware update only.
M	Audio Output	Speaker Binding Post connection. All connected subs should be wired in parallel. Supports up to eight (four pair) of RCC160-MK2, or four RCC320-MK2.
N	Fuse	10AL 250V
O	Power Input	110 - 230 AC Volts 50/60Hz, Auto-Sensing Supply
P	Power Switch	Toggles the power rails on and off.

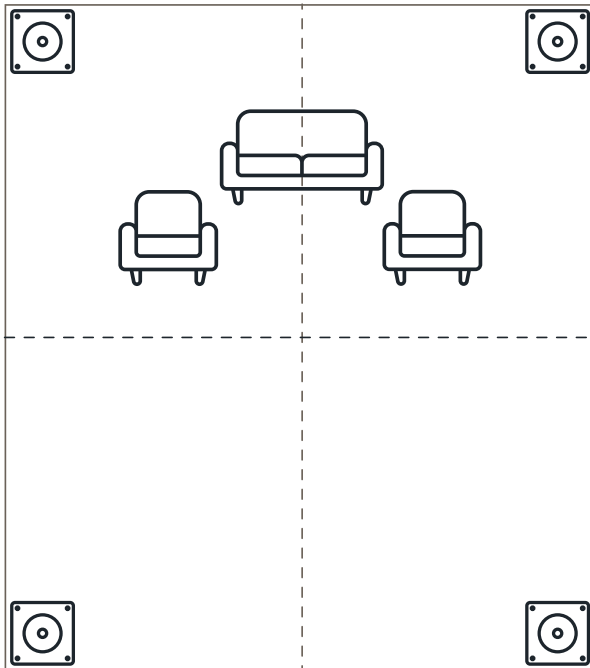
2. Subwoofer Placement

When setting up a distributed bass system, the two primary objectives are system efficiency, and uniformity of sound pressure level (SPL) throughout the operating band. The subsections below describe several options for subwoofer placement and some of the benefits of each method. More information can be obtained on the [Savant Customer Community](#) or by contacting a Savant Sales Engineer.

2.1. Corner Placement (4 Subs - Best)

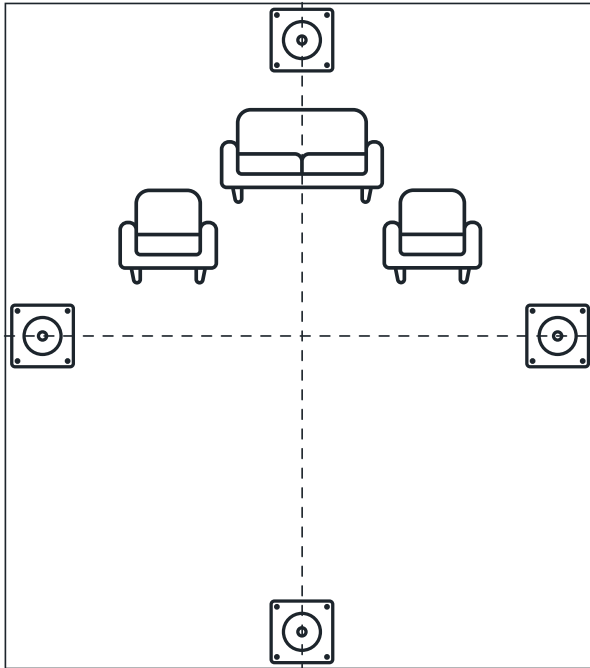
When using four subwoofers, the ideal locations for them in a rectangular room are the corners of the room. Assuming all subwoofers are identical, this placement will achieve up to 9dB - 12dB of increased output when compared to a single-corner loaded subwoofer. Placing the subwoofers in all four corners will reduce standing waves through destructive interference and provide almost as uniform and consistent frequency response as the mid-wall solution.

Used in conjunction with global equalization, this option provides good seat-to-seat uniformity with a huge advantage in efficiency; resulting in higher performance from a given size subwoofer compared to other placement options.



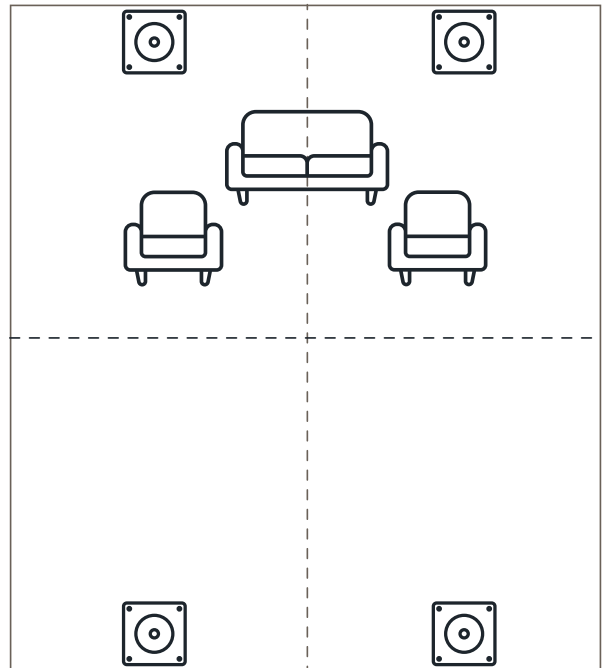
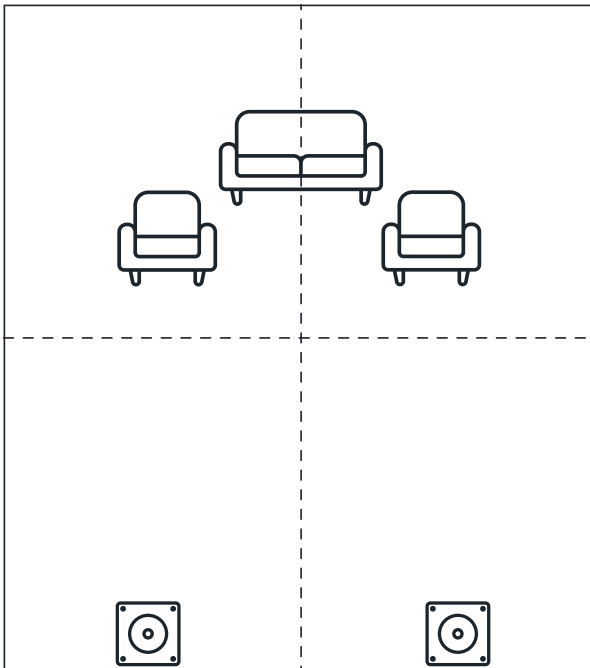
2.2. Mid-Wall Placement (4 Subs - Better)

Enhanced bass performance can also be achieved by placing four subwoofers mid-wall in the room.



2.3. 1/4 Corner Placement (2 or 4 Subs - Good)

Two subwoofers placed against the front wall at 1/4 the room width in from each side can also provide excellent bass response. The results can be enhanced by adding two additional subs with similar placement against the back wall. This four subwoofer 1/4 wall placement is a common choice for home theater architecture, and can deliver frequency response and bass gain comparable to 4-corner placement.



3. Installation

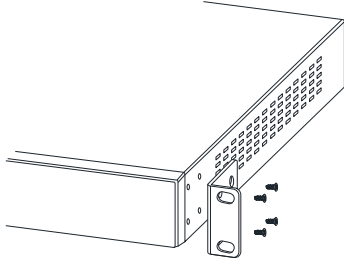
Refer to the subsections below for step-by-step installation instructions for each RCC Series product.

3.1. RCC1000-SA

The RCC1000-SA can be mounted in a 1U rack style enclosure, and is compatible with all standard 19-inch National Electrical Manufacturers Association (NEMA) rack mounts.

Follow the steps below to install the mounting brackets:

1. Remove the feet from the bottom of the device.
2. Align the mounting bracket with the threaded holes on the side of the unit, as shown below.



3. Secure with the included Bracket Screws.

⚠ IMPORTANT: Use STF4x6 bracket screws with mounting bracket closest to the front panel. Use STF4x10 bracket screws for the mounting bracket closest to the rear.

4. Repeat steps 1 and 2 for the other side of the device.

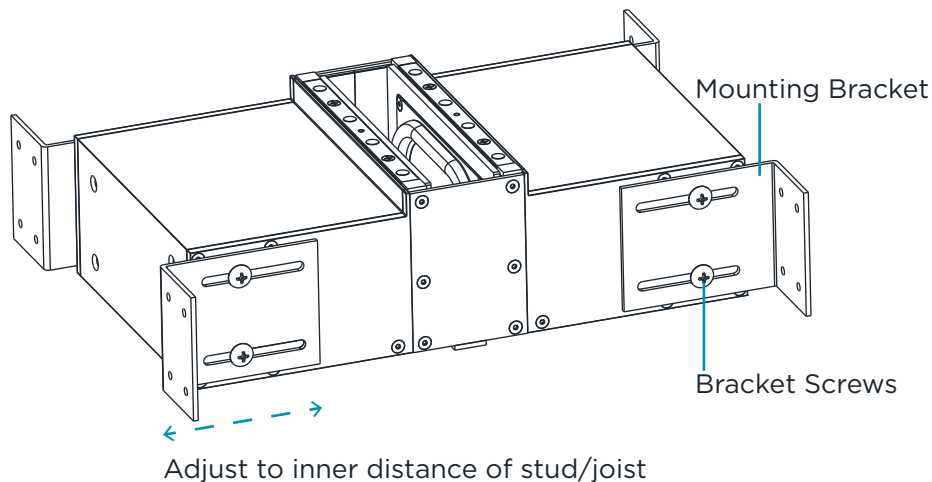
3.2. RCC MK2 Subs (Pre-Construction)

The RCC MK2 Subs are designed to be installed into a 2 x 4 stud wall with a minimum of 16" on center spacing before the drywall is applied to the stud wall. The subwoofer is not impacted by cabinet orientation and can be used either vertically or horizontally. When selecting a location, as a general rule a single subwoofer should be placed near the same wall where the front channels are located, approximately 1/3 of the way in. When using multiple subwoofers, refer to the Subwoofer Placement section above for details on different methods and their benefits.

In-wall Installation

All modules ship with a Pre-construction Paint/Debris Shield in place. **DO NOT REMOVE** this shield until after the room painting is completed and the environment is free of dust. The subwoofer can be installed with the slot opening horizontally or vertically.

1. Align and attach the 4 L-Shaped Mounting Brackets to the tapped holes in the aluminum sides of the cabinet. Screws should not be fully tightened at this stage.



2. Adjust the brackets to span the width of the inner distance of the stud bay, and tighten the screws.
3. Attach the brackets to the studs.
4. Attach grille spacers as needed to account for the thickness of the wallboard in use.

⚠ IMPORTANT! Do not use the longer M4x23 screws unless there are three (3) or more spacers in place. With fewer than three spacers, the longer screws will puncture the driver.

In-cabinetry Installation

All modules ship with a Pre-construction Paint/Debris Shield in place. **DO NOT REMOVE** this shield until after the room painting is completed and the environment is free of dust. Subwoofer modules can be installed concealed inside a piece of furniture or cabinetry. Unit should be placed facing down or out, to direct energy into the room through base of cabinet or through venting in baseboard, etc.

Dimensions for the hole cut-out are 342 x 78 mm (13.5" x 3.1"). Note that the thickness of the cabinet wall must be at least be 0.5" if the grille will to be visible.

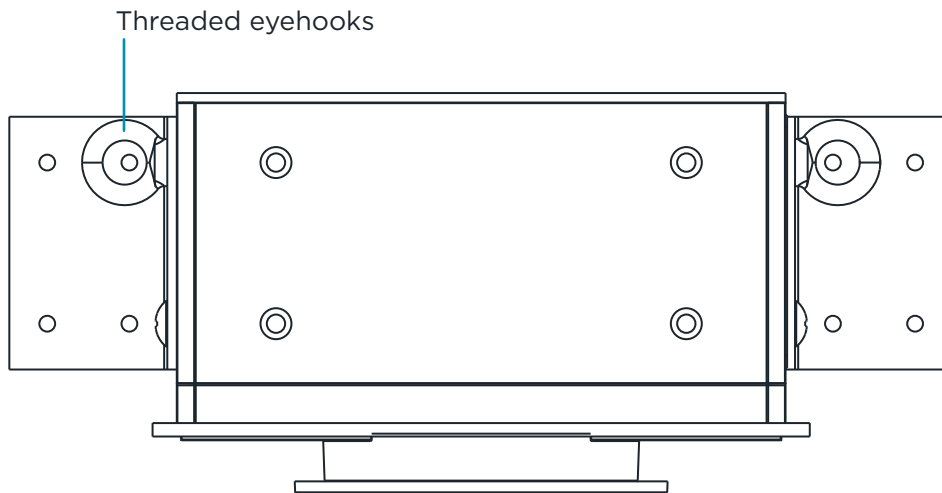
When venting the output of the subwoofer through a built-in cabinet's baseboard, ensure that the following requirements are met:

- Allow for a minimum of 50 sq in of total open area in the baseboard. If less open area is provided the subwoofer will be restricted and may cause noise through the vent.
- Rounded corners will also minimize air noise.
- The subwoofer is not affected by variations in shape or number of vents, as long as the minimum total open area is maintained.

In-ceiling Installation

Subwoofer modules can be installed in ceiling joist bays. Minimum distance between studs must accommodate the module dimensions of 342 mm (13.4") x 354 mm (13.9").

Gripple®-Type Suspension Systems - The included threaded eyehooks allow for suspended system installations using commonly available Gripple® hanging hardware (not included).



⚠ IMPORTANT! Refer to the manufacturers' carrying capacity for the Gripple® Fasteners used and ensure that the limit is not exceeded.

⚠ CAUTION! Gripple type installation must be done by a qualified person(s) using safe rigging standards. Use equipment only in accordance with the manufacture's instructions.

In-furniture Installation

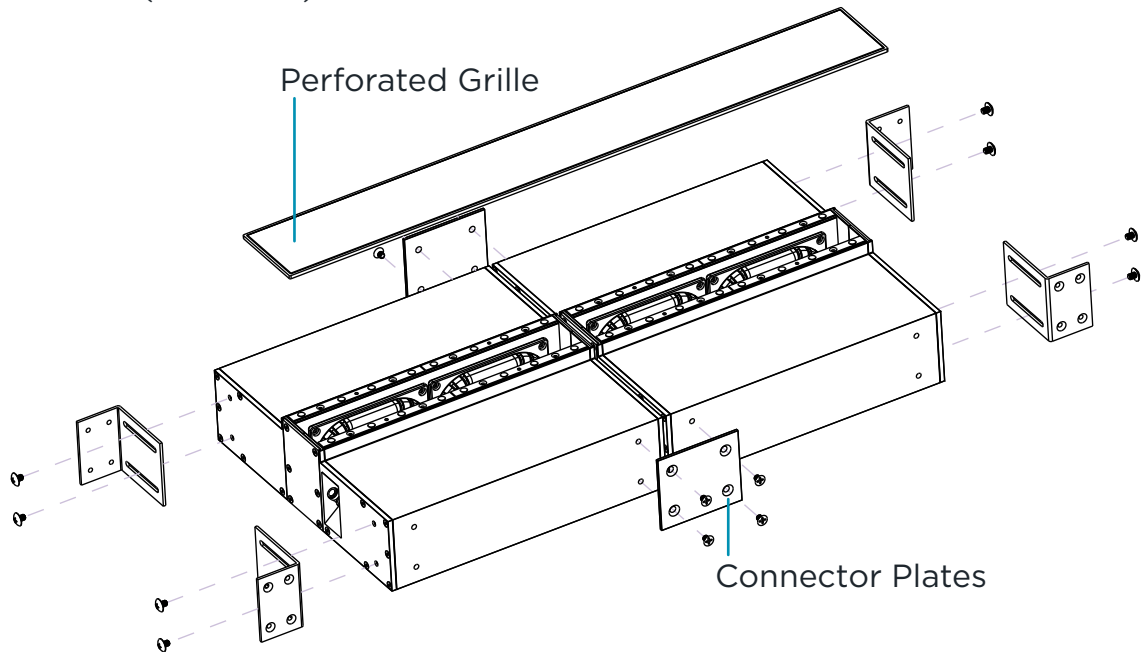
Due to the module's thin form factor, the unit can also be hidden underneath or behind furniture. Minimum clearance height is 127 mm (5.0").

3.3. RCC640-MK2-PCG (Grille for Dual RCC320 Subwoofers)

The RCC640 MK2 Grille for Dual RCC320 Subwoofers provides all of the necessary hardware to create an RCC640-type subwoofer by coupling two RCC 320 MK2 preconstruction subwoofers (RCC320-MK2-PC, sold separately).

The optimum orientation is vertical installation with placement between stud bays.

1. Align the two RCC320 subwoofers.
2. Attach the two RCC320 MK2 preconstruction subwoofers using the connecting plates.
3. Add the mounting brackets included with the RCC MK2 subwoofers.
4. Attach the assembled subwoofer unit to stud bays using the appropriate screws for the specific installation (not included).



3.4. RCC MK2 Subs (Retrofit)

The RCC320-MK2-R was designed to be installed into a 2 x 4 stud wall with a minimum of 16" on center spacing. The subwoofer module is not impacted by cabinet orientation and can be used either vertically or horizontally.

The minimum mounting depth for the RCC320-MK2-R is 97.5 mm (3.8"), i.e. a 2x4 stud is 3.5" deep, plus 1 layer of 0.5" or 0.625" thick drywall. The maximum drywall thickness the RCC320-MK2-R can dog clamp is 41 mm (1.6").

1. Use a stud finder to check the stud locations, and select the wall location.
2. Make a small exploratory hole first to be sure that no piping, wall studs, or electrical wires will interfere with the placement of the module.
3. Use the provided Cut-out Template to mark the desired wall location.
4. The cut out dimensions are 344 mm (13.6") H x 363 mm (14.3") W.
5. Using 2 conductor speaker wire, run between the subwoofer amplifier and the subwoofer module. Use the chosen wire gauge based on the length of the run. See the [Wire Gauge - 8 Ohm System](#) section below.
6. Once the hole is cut and test fitted with the module, connect the bare speaker wire ends to the spring loaded binding posts. Position the terminal cup to face toward the source of the speaker wire, as tight spacing makes management of wire behind the module extremely difficult.
7. Install the RCC320-MK2-R into the cut-out made in the wall and carefully tighten the four dog leg clamps on the RCC320-MK2-R using a #2 Philips Head. If using an electric screwdriver, be sure to use a low to medium torque setting.
8. The grille for the RCC320-MK2-R is held in place by magnets. Simply position the grille over the front of the module.

3.5. Painting the Grille & Trim

- The Grille and Trim Ring can be painted separately from the rest of the subwoofer module.
- Be sure to carefully remove the thin fabric scrim cloth from the interior of the grille. The scrim is not to be painted. Replace scrim cloth after painting is completely dry. If the scrim does not adhere to the grille, use a spray adhesive to reattach.
- DO NOT get paint on the speaker baffle or speakers. Paint can damage these components which will VOID the Warranty.

3.6. Wire Gauge - 8 Ohm System

In an 8-ohm system the total wire resistance should be less than 10% of the speaker impedance. The speakers are nominally 8 ohms impedance, so total wire resistance should be no more than 0.8 ohms.

Extra resistance from the wire will have a very negative affect on the sound quality of the subwoofer. The sound can be less dynamic, definition of bass frequencies can be reduced, and in extreme cases, the high frequencies can be attenuated. Amplifier power is also wasted in the wire, reducing the maximum output level of the system.

Refer to the following chart when deciding on the appropriate wire gauge:

	50 ft (15 m)	100 ft (30 m)	150 ft (45 m)	200 ft (60 m)	250 ft (76 m)	300 ft (91 m)
20 Gauge	0.86 ohms	1.73 ohms	2.59 ohms	3.45 ohms	4.32 ohms	5.18 ohms
18 Gauge	0.65 ohms	1.30 ohms	1.94 ohms	2.59 ohms	3.24 ohms	3.89 ohms
16 Gauge	0.43 ohms	0.84 ohms	1.28 ohms	1.71 ohms	2.14 ohms	2.56 ohms
14 Gauge	0.27 ohms	0.54 ohms	0.81 ohms	1.08 ohms	1.35 ohms	1.62 ohms
12 Gauge	0.17 ohms	0.34 ohms	0.51 ohms	0.68 ohms	0.85 ohms	1.02 ohms

3.7. Wiring Subwoofers in Parallel

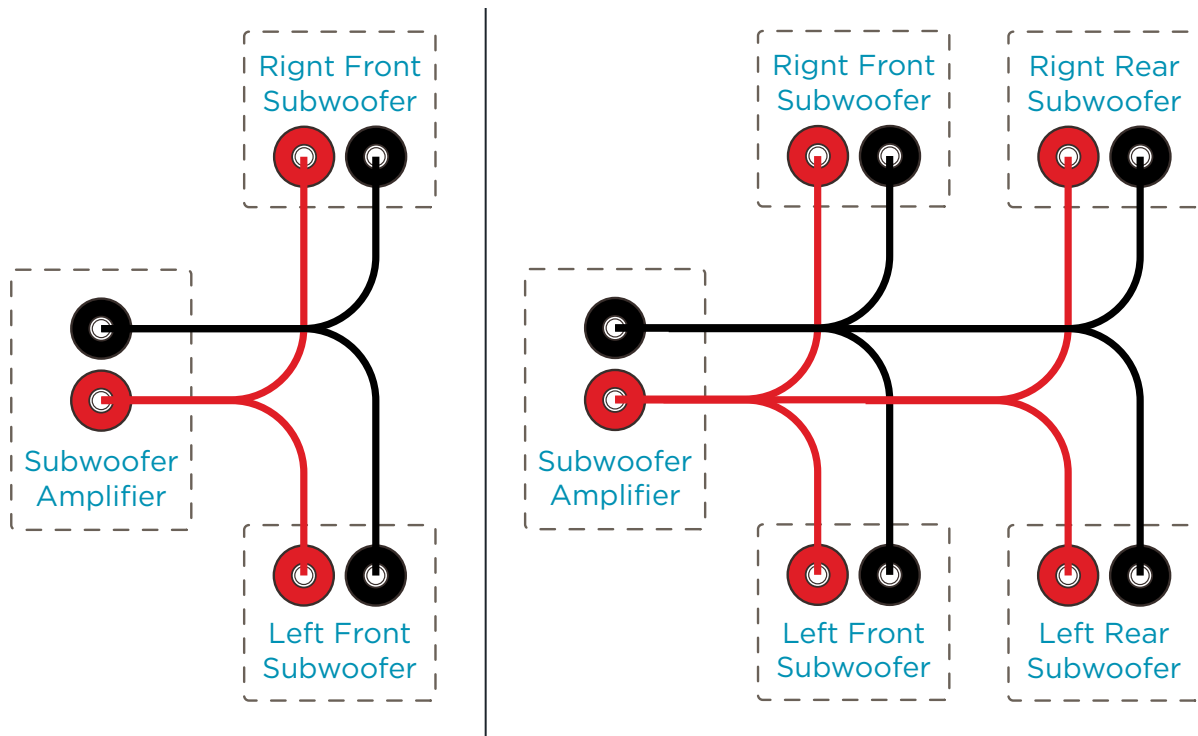
Parallel wiring means that the connection ends of each device are connected to the same things — plus to plus, and minus to minus. Using multiple RCC MK2 subwoofers can be connected in parallel to one RCC1000-SA amplifier in this way.

The RCC1000-SA Subwoofer amplifier has the ability to drive multiple RCC MK2 subwoofers for a truly distributed bass system, with all subwoofers wired in parallel back to a single output of the RCC1000-SA amplifier. See the list below for the maximum number of subwoofers that can be driven by a single RCC1000-SA amplifier.

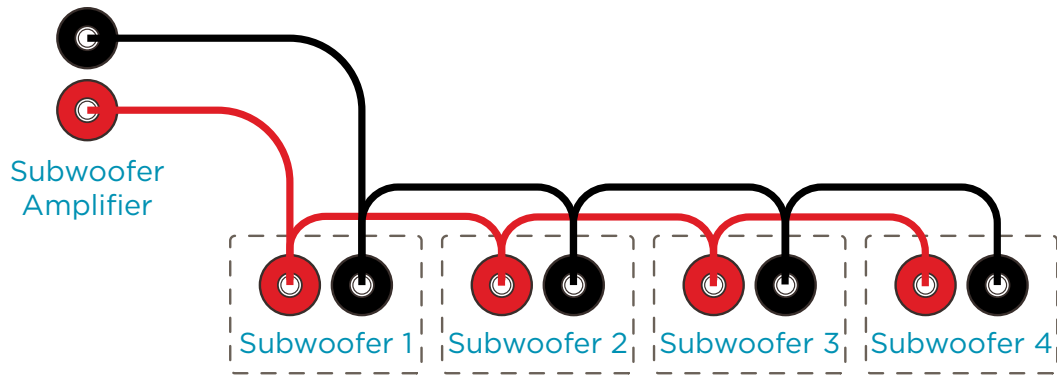
- 4 - RCC160-MK2-PC pairs (8 Subs)
- 4 - RCC320-MK2-xx (4 Subs)
- 2 - RCC640-xx (2 Subs)

⚠ IMPORTANT! Because of DSP changes, mixing MK2 subwoofers with the earlier generation on a single amplifier is not recommended.

Best practice wiring is to have all subwoofers with a direct wire back to the amplifier. The wiring examples below shows two/four subwoofers with direct wiring.



Subwoofers can be daisy chained together. Below is an example of how this is wired.



The example below shows a combination of the two wiring methods.

