# SPEEDWOOFER 12S

## Owner's Manual


Intoxicating bass awaits you

# Welcome. Glad to have you aboard!

Your new Speedwoofer 12S is a result of several years of development. Our goal was to have a subwoofer capable of reproducing every bass frequency present in any music or movie and to do it with complete clarity. We also wanted to stay true to our heritage and offer you, our customer, greater performance per dollar than any other 12" subwoofer on the market.

Proper setup is important to get the most out of your Speedwoofer. We invite you to follow the suggestions here, but please contact us for help if you wish to ensure your new Speedwoofer reaches its full potential.

We sincerely hope that you will enjoy listening and feeling what your new Speedwoofer adds to your audio/visual system.

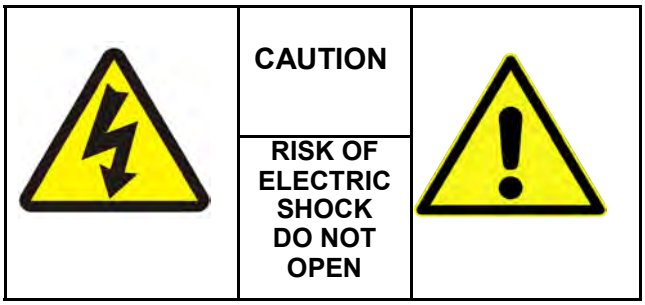
# Now, let's show you what your new Speedwoofer can do…

# Table Of Contents



**Note: Any mistakes in this manual were intentionally placed to test your alertness.**

# IMPORTANT SAFETY INSTRUCTIONS
## READ THIS SECTION CAREFULLY BEFORE PROCEEDING!




The lightning flash with arrowhead, within an equilateral triangle, is intended to alert the user to the presence of uninsulated “dangerous voltage” within the product’s enclosure that may be of sufficient magnitude to constitute a risk of electrical shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating maintenance (servicing) instructions in the literature accompanying the appliance.

**CAUTION:** To reduce the risk of electric shock, do not remove the cover (or back). No user serviceable parts inside. Please refer all servicing to licensed service technicians.

**WARNING:** To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture. Objects filled with liquids, such as vases, should not be placed on this appliance.

**CAUTION:** To prevent electric shock, match the wide blade of the AC power plug to the wide slot of the wall plug and insert it fully.

**WARNING:** This device generates a fair amount of heat. Do not place near a heat source or in spaces that can restrict ventilation.

**CAUTION:** For continued protection against risk of fire, replace the fuse only with the same amperage and voltage type. Refer replacement to qualified service personnel.

**Cleaning** – Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp, soft cloth for cleaning.

**Water and Moisture** – Do not use this product near water. For example, near a bath tub, wash bowl, kitchen sink, or laundry tub; in a wet basement; or near a swimming pool, etc.

**Accessories** – Only use attachments or accessories specified by the manufacturer. Do not place this product on an unstable cart, stand, tripod, racket or table. The product may fall, causing serious injury and damage to the product. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.

**Ventilation** – Slots and openings into the cabinet are provided for ventilation and to ensure reliable operation of the product and to protect it from overheating, and these openings must not be blocked or covered. The openings should never be blocked by placing the product on a bed, sofa, or other similar surface. This product should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided or the manufacturer’s instructions have been adhered to.

**Power Sources** – This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your home, consult the manufacturer or local power company.

**Grounding and Polarization** – This product may be equipped with a polarized alternating-current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature. If you are unable to insert the plug fully into the outlet, try reversing the plug. If the plug should still fail to fit, contact your electrician to replace your obsolete outlet. Do not defeat the safety purpose of the polarized plug.

**Power-Cord Protection** – Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the product.

**Lightning** – For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet.

**Damage Requiring Service** – Unplug this product from the wall outlet and refer servicing to qualified personnel under the following conditions:

- When the power cord or plug is damaged;
- If liquid has been spilled, or product is exposed to rain or water or it objects have fallen onto the product;
- If the product does not operate normally.
- If the product has been dropped or damaged in any way;

**Replacement Parts** – Use only replacement parts specified by the manufacturer.. Unauthorized substitutions may result in fire, electric shock, or other hazards.

**Heat** – The product should be used away from heat sources such as radiators, heat registers, stoves, or other heat-producing products.

**WARNING**: The 110V~ to 240V~ voltage selector must be set to the correct local voltage with the proper Fuse installed.

**Plastic Bags** – Be sure to keep all plastic bags away from infants and small children to prevent the risk of choking or suffocation.

# Some Facts About Your New Speedwoofer 12S

The new Speedwoofer 12S joins the RSL subwoofer family as a "big brother" to our award-winning Speedwoofer 10S. Designing a larger version of the Speedwoofer 10S may sound easy, but it presented several challenges. The most difficult part was for this new larger subwoofer to equal the speed, articulation, and definition that our Speedwoofer 10S was famous for. To achieve this, a completely new amplifier and woofer that could displace as much air as a typical 15" sub while being as articulate and accurate as a 10". Perfecting this new design was no small task.

We developed, engineered, and optimized a unique combination of features for the 12S Speedwoofer, not found in any other subwoofer available today.

The 12" Woofer:

- A heavy-duty die-cast aluminum frame to provide the highest strength and rigidity available. This Aluminum frame is "non-ferrous" and does not interfere with the motor magnetics found in "ferrous" steel frames.
- Dual, mirrored, "non-cupped", linear spiders are uniquely glued, screwed and clamped together to assure perfect alignment, reliability and linearity of motion even at extreme excursion.
- FEA optimized motor structure with high-grade dual-stacked material, bumped backplate, extended pole-piece, and multi-function extruded aluminum heat-sink/shorting ring.
- Heat-sink/Shorting ring reduces an linearizes inductance. This coupled with its optimal positioning helps to "wick-away" the heat generated by the voice coil to provide ideal heat transfer path.
- 65mm multi-layer ultra-high temperature copper voice coil with aluminum former and spun-laced Nomex collar to handle virtually any sustained or dynamic signal.
- Kevlar™ fiber-reinforced paper pulp cone with full aluminum dust cap provides a rigid, "pistonic" motion while allowing internal, typically trapped heat to radiate through the aluminum dustcap.
- Klippel™ verified design ensuring ideal magnetic, mechanical, and controlled linear transducer behavior.

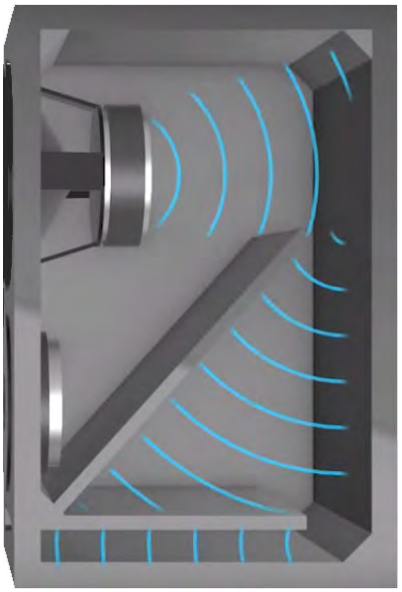
The 500W RMS DSP Amplifier:

- Proprietary, patent-pending amplifier HSS™ (Heat-Sink/Shield) reduces operating temperature while providing improved thermal convection.
- DSP provides precision control of crossover, phase, low-pass, high-pass and EQ mode to allow for ideal integration into any system and/or environment.
- Over-sized components with thermal, voltage, and current ratings well-above the power threshold needed, provides significant performance headroom creating a more efficient and robust design.
- Half-bridge design with high power FET devices whose current capacity is more than double of peak demand to allow for greater peak power while insuring long-term reliability.
- External USB power port offers convenient power source for choice of optional external wireless audio receiver.

And of course, like our Speedwoofer 10SMKII, your new 12S features our patented Compression Guide Technology that gives you the bass output of a ported subwoofer with better accuracy than most sealed designs.

The result of all of this is a fast, accurate subwoofer with a flat frequency response down to 16Hz that reproduces all the bass you likely encounter when enjoying your favorite movie or music. When properly set up, your 12S should blend seamlessly into your listening environment or system.

Standard Enclosure



Compression Guide Enclosure

# Compression Guide Technology - A Little History

Part of the Speedwoofer 12S accurate bass response is due to our exclusive Compression Guide Technology. A number of years ago, we noticed that almost all speakers (including early RSLs) suffered from a problem. It was an awareness that the sound of bass over speakers was quite different from bass at a live performance. When you'd hear bass live, you would hear various details in the bass as well as feel the impact.

For example, with a bass guitar, you can hear the pick of the string along with the bass note. With a kick drum, you could hear the rap of the mallet against the skin of the drum and your body could feel the impact. However, with conventional speakers, all you'd hear was an ill-defined boom. Back then, the only speakers that seemed to get it right were the big, bulky and expensive transmission-line systems.

We needed to know why there was a disparity between live bass and that reproduced by speakers. After some research, it became apparent that the problem was due to the way the woofer was tuned in the enclosure. As was the case then just as it is now, two tuning methods were used by most speaker companies. In one case the cabinet was completely sealed. This method is called acoustic suspension or air suspension. In the other method, the cabinet had a calculated opening called a vent or port. The length, width and height of the port was designed to reinforce bass at the lowest frequencies.

The problem with both of these methods is that they rely on system resonance to properly load the woofer. System resonance acts like a spring, in that once a note stops, the woofer cone wants to continue vibrating. This results in what we call woofer overhang and results in muddy bass. After realizing the problem, we spent years attempting to lessen the effects of system resonance. Eventually, we found the solution and the results were spectacular. We call it Compression Guide and it was a method of dividing the insides of the speaker enclosure into areas of compression and expansion. As the sound wave passed through these areas, the effects of resonance were greatly reduced.

We discovered that Compression Guide also paid huge dividends in the midrange as well. Bookshelf speakers tuned by Compression Guide exhibited much cleaner and transparent sound with both vocals and music. In comparison, other bookshelf speakers sounded "boxy". It also helped the speakers to image more accurately.

# Before You Dig In!

We know the temptation is great to tear into the carton, unpack you new sub and fire it up. If that urge seems overwhelming, then go right ahead. It's unlikely that you'll hurt anything. However, subwoofers do need a bit of fine tuning in order to experience their full capabilities. The goal of this thrilling, action-packed owner's manual is to help you enjoy the full performance of your new Speedwoofer.

Many of you (and us as well) don't like having to suffer through owners manuals. Most manuals try to answer all the questions, except the one you may have. We've tried to make this manual as easy to read as possible and even helpful at times. However, if you already have enough knowledge about subwoofers and you know not to do the dumb things warned about in the safety pages, be our guest and start enjoying your Speedwoofer 12S. Please refer to the included Quickstart guide that came with your Speedwoofer.

Since we don't know your particular audio setup, whether it's home theater or stereo, we've tried to cover all the bases. So feel free to skip around and only read what's of interest.

# First Steps

- Be careful when using sharp objects to open boxes. The insertion of a long and/or sharp object such as a blade can damage the components inside. Use of chainsaws, machetes, power tools, explosives, light sabers, and most kitchenware is not recommended. If in doubt, ask mommy to help you.
- Please take a moment to inspect your subwoofer for damage. If you find any damage that you did not specifically request, please contact us or the shipping company immediately and take photos of the box and subwoofer. All components have been inspected when leaving our factory; however damage can occur during shipping.
- If possible, we recommend saving all packaging, including boxes, as a convenient means of re-packaging for moving or for sending your subwoofer in for service (in the unlikely event it needs it).
- You will need either an RCA cable (preferred), Speaker Wire or the optional wireless kit to connect the subwoofer. If you purchase an RCA cable, you do not need to buy an expensive one. Subwoofers reproduce a narrow band of frequencies, typically 15-200 Hz. Do not allow some slick , fast-talking, know-it-all salesperson to convince you to spend a lot on this cable. Just purchase a cable that is well-constructed and has good shielding to reduce interference.

# More Than You Probably Want to Know About Room Acoustics

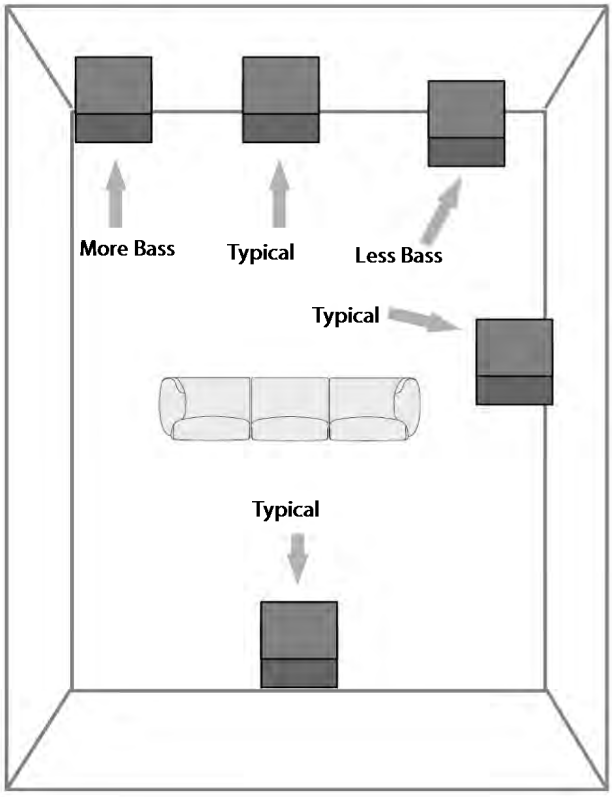
The acoustical characteristics of your listening room has a major effect on sound quality. This is so important, it bears repeating (so feel free to re-read the first sentence). If your room has good acoustical qualities, even mediocre speakers can sound pretty good. In turn, if your room has poor acoustics, high-end speakers can sound lacking. Acoustical qualities are determined by the dimensions of your room and the amount of sound-absorbing materials present.

Because this manual covers the installation of your new subwoofer, we will concern ourselves with how your room's acoustics affect bass. Bass distribution is strictly determined by a room's dimensions. A room with evenly distributed bass will deliver the same volume of bass in different seating positions. Obviously, you can't do a heck of a lot about the dimensions of your room. Don't worry; few rooms are close to perfect. You can however maximize the evenness of bass distribution by properly positioning your subwoofer (if you have that flexibility) and or using multiple subwoofers.

While virtually all of today's Audio/Video receivers and processors include microphones and room correction circuitry that can help to smooth bass frequency response, they will not correct for bass distribution problems.

# Positioning Your Subwoofer

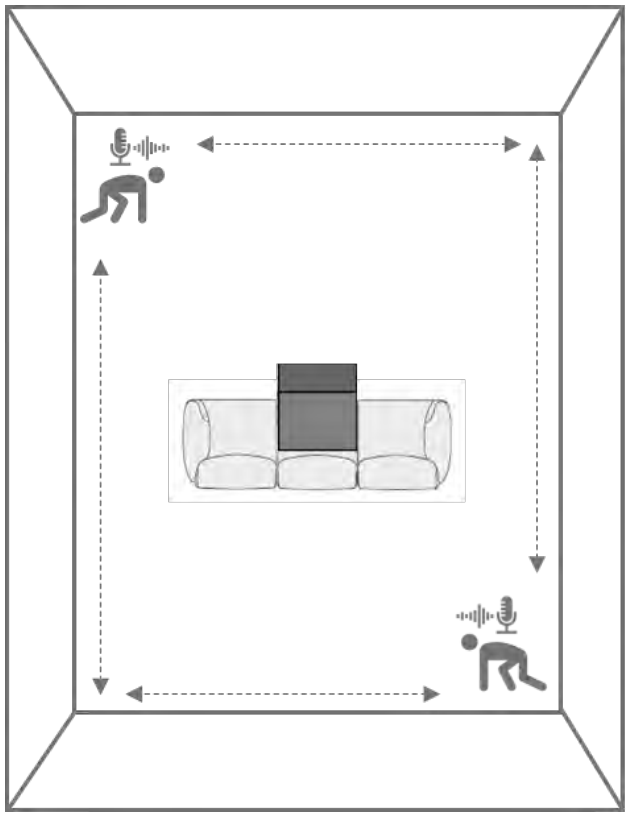
The position of the Speedwoofer in your room has a tremendous effect on the results it provides. There is a wealth of information online and in forums and review sites regarding subwoofer placement. If you have the flexibility to place your Speedwoofer in different positions, we suggest doing some experimentation to determine the best spot. Hopefully, the furniture sliders we include with your Speedwoofer will make moving it easier. The goal is to get an even volume of bass in your various listening positions. Here is some basic and by no means complete information about subwoofer positioning...




- Bass distribution in a particular room is determined by the dimensions of the room. Every room has locations of peaks (where bass is increased) and nulls (where bass is substantially decreased). If your seating position is in a peak, the amount of bass can be reduced through equalization. However, if your seating position is in a null, bass cannot be significantly increased (attempting to do so can waste amplifier power).
- Placing a subwoofer near a wall will increase the volume of bass. Always allow a few inches between the wall and your subwoofer. This is necessary for airflow to the amplifier and for airflow emanating from the rear port or vent.
- Placing a subwoofer in a corner will further increase its output.
- If you wish to decrease bass output, move your Speedwoofer away from any wall surfaces.

# Positioning your Speedwoofer - Continued

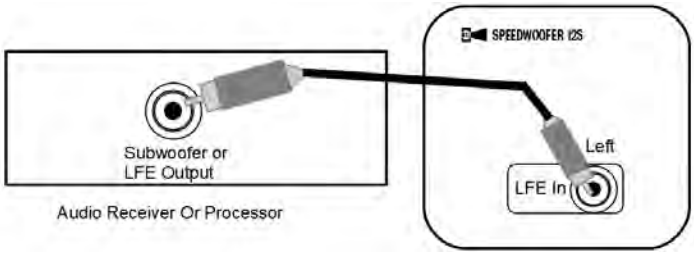
Here is a very simplified representation of one method commonly used to determine subwoofer position. It's known as the subwoofer crawl. Connect your subwoofer and temporarily place it in your listening position (on the sofa, etc.). Then, while playing some music with a constant bass track or pink noise, crawl around the perimeter of your room and find the spot where the bass seems to have the best quality and quantity (don't let anybody see you, otherwise you'll have some explaining to do). Then, place the subwoofer in the spot where you have heard the best bass. You can repeat this for different listening positions and see if you can find the best subwoofer position that accommodates the most listening positions.



For those of you who are more technically oriented, there are measurement programs and programmable equalization devices such as REW and miniDSP™ that allow for much more precise fine tuning of the subwoofer to your room. There are also tutorials on YouTube that describe how to use them. However, in most situations, the auto set-up and room correction features of most A/V receivers and processors do a good job of setting up the subwoofers.

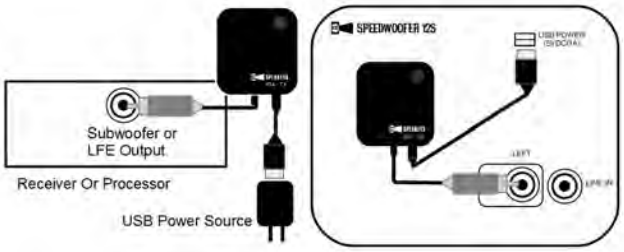
# Connecting your Speedwoofer

We've provided many ways to connect your new Speedwoofer. In this manual, we provide some examples. There are also other ways to connect your Speedwoofer. Of course, you're always welcome to contact us for help. The Quick Start guide included with your Speedwoofer also has detailed diagrams.



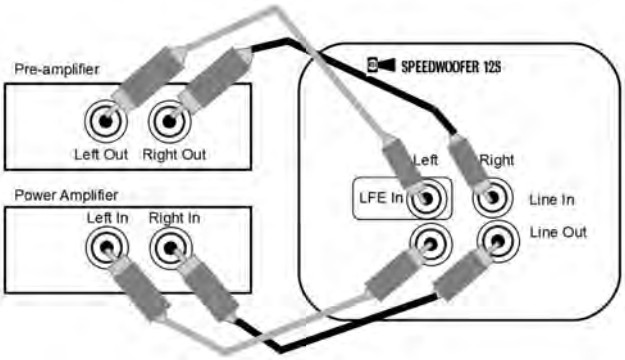

**Connecting an A/V receiver, processor, or amplifier with a subwoofer output**

This is the easiest way to connect your Speedwoofer to an A/V receiver or processor with a subwoofer output. Most of them will control the crossover. In this case, you will bypass the Speedwoofer's internal crossover (see the reference section).



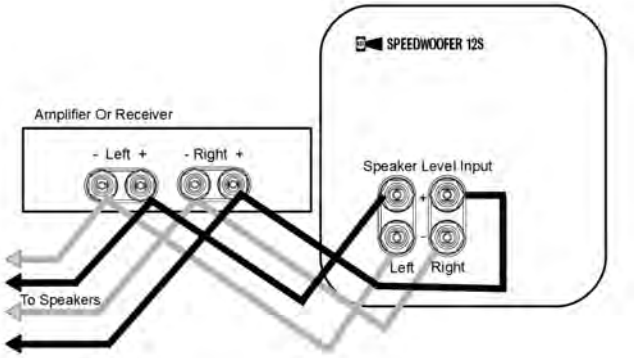

**Connecting wirelessly with the optional wireless kit**

If you're unable to run an RCA cable in your room, fear not. You can purchase an optional wireless kit. It consists of a transmitter that connects to your A/V receiver, processor or amplifier. This kit offers similar audio quality to a wired connection. See the installation instructions included with the kit.



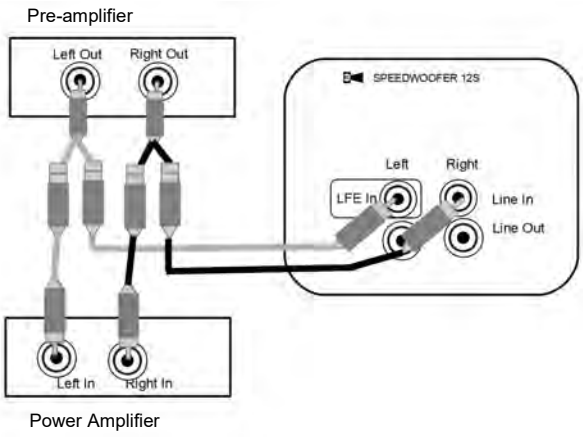

**Connection from a preamplifier or amplifier with preamplifier outputs**

The above is for audio pre-amplifiers or integrated amplifiers with stereo pre-amplifier outputs. Your Speedwoofer is inserted between your pre-amp and power amp. The Speedwoofer can prevent bass frequencies from getting to your amp and to the other speakers, protecting them from damage. This high-pass filter can also be bypassed.

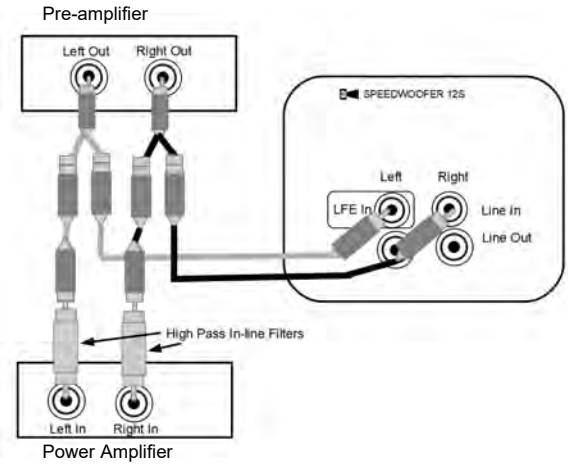



**Connection from an amplifier with speaker outputs only**

Some amplifiers don't have pre-amplifier or subwoofer outputs. Just feed the Speedwoofer with a second set of speaker wires as shown above. In some cases, this could result in ground loop hum. If that occurs, connect a ground wire from your amplifier to the Speedwoofer's ground terminal.




**Connection from a preamplifier or amplifier with preamplifier outputs using Y connectors (splitters)**



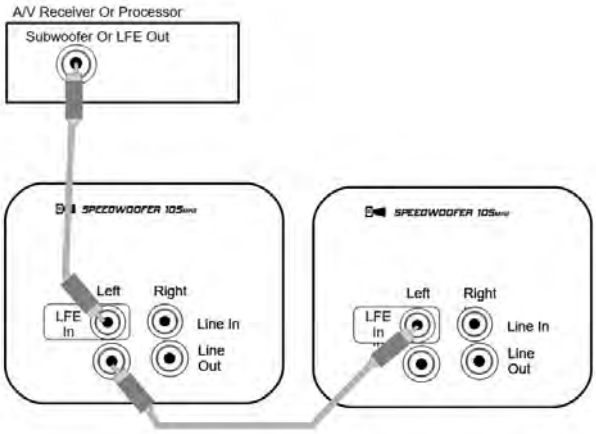

**Connection from a preamplifier or amplifier with preamplifier outputs using Y connectors (splitters). Inline high-pass filters are added to protect the satellite speakers from getting too much bass.**

In this method, you also will need two pairs of RCA cables, however the lengths on one may be shorter. You will also need two Y Adapters (splitters) that split the audio into two RCA connections. Connect a Y adapter to the left pre-amplifier output and the other Y adapter to the right pre-amplifier output. Then connect one pair of cables from the left and right pre-amplifier outputs to the Speedwoofer's left and right line inputs. The other pair of cables connect from the left and right pre-amplifier's outputs to the power amplifier's left and right inputs. Please see the diagram above. As in the first method, the Speedwoofer's internal crossover is used to control the bass reproduction of the subwoofer. Set the crossover frequency control to the desired crossover frequency. The diagram above (right side) shows that 2 inline RCA high-pass filters can be added to reduce the bass going to your other speakers to help protect them from damage. If you use the connection method at the top left of this page, you can use the Speedwoofer's built-in high-pass filters to protect your speakers. These high-pass filters can also be bypassed.

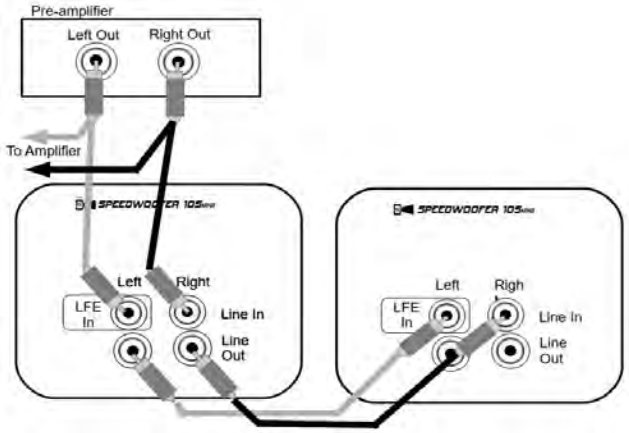
# Multiple Speedwoofers

It's easy to connect 2 or more Speedwoofers (your neighbors will wish it was harder). If your audio source (receiver or amplifier doesn't have dual subwoofer outputs), simply connect an RCA cable from the first Speedwoofer's Line Out to the second Speedwoofer's Line In (a single cable for home theater or a stereo cable for 2 channel stereo). Now, both subwoofers will play when the first Speedwoofer receives a signal. Please make sure the "High Pass" knob is set to "Bypass" so the 2nd subwoofer is not filtered, unless you specifically intend to do this.

If you've purchased the optional wireless connection kit, you can pair (connect) up to four Speedwoofers to a single transmitter. Please see the instructions that are included with the wireless connection kit.

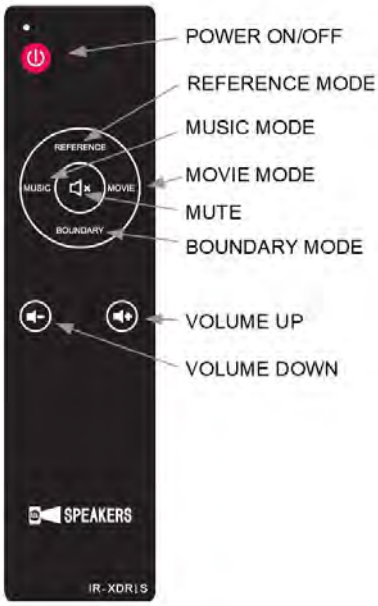



Connecting Two Subs - A/V Receiver Or Processor




Connecting Two Subs - Stereo

# Controlling your Speedwoofer by remote is not being lazy




Why should you have to get up, walk over to your Speedwoofer and possibly block others' views just to change the volume or DSP mode? We think you'll love this handy remote. See the description of the controls on the left. We recommend using the remote to control the volume of the subwoofer.

Just point the remote in the general direction of the Speedwoofer's digital display. When you adjust the volume, you'll see the LEDs light up (the number of LEDs indicates the relative volume level). After a few seconds the display will turn off. The LED display will also briefly indicate the chosen DSP sound mode.

If it is difficult to point the remote at the Speedwoofer, you can purchase a commonly available infrared sensor and plug it into the back of your Speedwoofer. Then, you can locate the sensor in a different location.

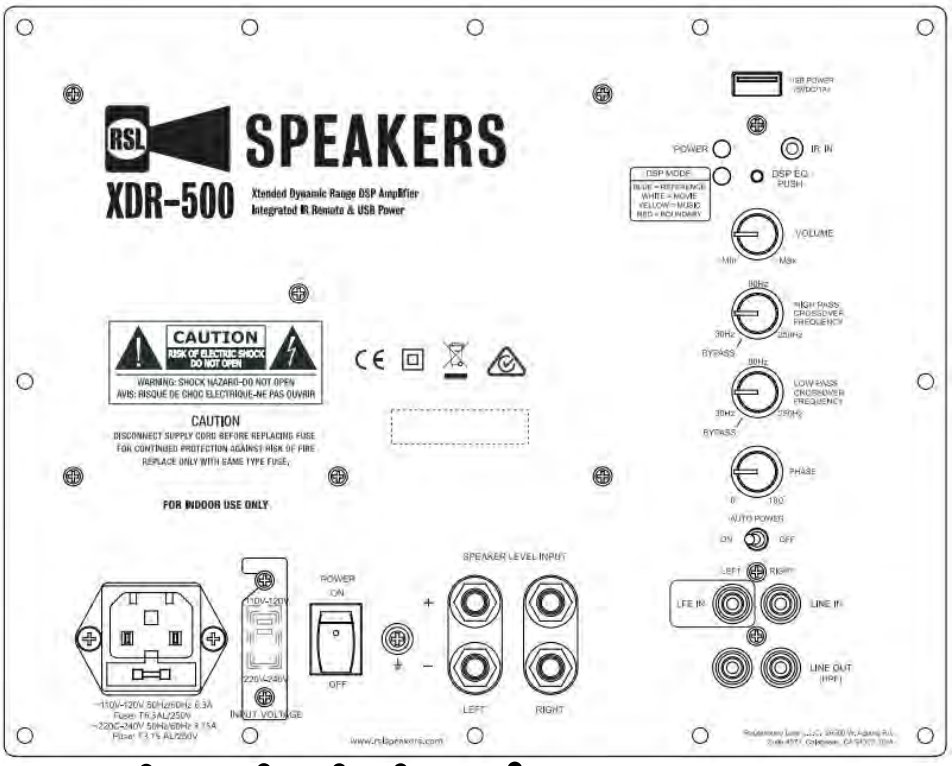
# Dialing in your Speedwoofer

Here are some basic settings to get you started:

**Volume Control** = 12 O'clock (straight up)
**High-Pass Crossover** = Bypass
**Low-Pass Crossover** = Bypass (for home theater) or 80Hz (for stereo)
**Phase Control** = $0^0$
**Auto On** = On *(Note: IR Remote Power/Standby button overrides signal sense auto-power function if pressed. You will need to use the IR remote button again to turn on if you turned it off via the remote. If you wish to once again use the signal sense (Auto-power), you will need to completely power off via the Main power switch. Wait until the Power LED goes out completely before powering back on. This will reset the override function of the remote.)*

The next section (Reference section) provides the details of all the functions and controls on your Speedwoofer. Adjusting these may or may not be needed depending on your particular setup. Remember, just because we include a feature, it doesn't mean you have to use it. After you chosen some basic settings, then run the auto setup (room calibration) if your equipment has it. Of course, you can always contact us.

# Reference Section: We give you total control




- USB Power (For optional Wireless Receiver)
- IR Input (For external wired IR control)
- DSP Mode Select
- Volume (Rotary Encoder)
- High-Pass (Adjusts Line Output)
- Low-Pass
- Phase (Continuously Variable)
- Auto-Power (Enable=Standby/Eco-power)
- Line Input (Left/LFE Mono or Stereo RCA)
- Line Output (Variable High-pass Stereo RCA)
- Speaker Level Inputs (5-way speaker terminals)
- Chassis Ground Terminal (Reduce potential ground loop noise )
- Main Power Switch (Recommended to Power-OFF if not used for extended period of time)
- AC Mains Voltage Selector Switch (Must be set for your country's AC voltage—Default 110VAC)
  NOTE: FUSE MUST BE CHANGED IF USING A DIFFERENT VOLTAGE!
- 2-prong Power Cord Socket (IEC style with integrated Fuse compartment)

As you can see from the previous page, the Speedwoofer 12S has a lot of controls and functions. If you're new to subwoofers, don't be intimidated by all of these controls. Again, just because we include them, it doesn't mean you have to use them. **Here is a brief explanation of what they do:**

**USB Power Source** - If you've purchased a wireless kit, the USB socket can be used to power the AR4-RX wireless receiver. Note: The AR4-RX audio output will need to connect the 12S Amplifier RCA line input.

**Power Indicator** - When the LED is red, the Speedwoofer is in standby mode. After receiving a signal, the LED turns blue and your subwoofer is in operation mode. No light means the sub isn't receiving power. Re-check the power switch and AC power connection. For standby to function, the auto power switch must be set to on.

**Infrared Sensor Connection** - A commonly available infrared sensor can plug into the back of your Speedwoofer. You can locate the sensor in a different location. This allows you to aim the remote at the sensor instead of the Speedwoofer.

**DSP Mode Settings** - The Speedwoofer 12S gives you four DSP sound modes to choose from. You can choose the sound mode by continually pressing the DSP MODE SELECTOR SWITCH or by the included remote. When choosing a sound mode, the DSP MODE INDICATOR LED changes color and stays on for a few seconds to indicate the DSP mode selected. Then the LED will turn off.

**Reference Mode (Blue LED)** - This is the most neutral mode with minimal equalization. It is a good place to start.

**Movie Mode (White LED)** - The frequency range in movies most responsible for impact and dynamics receives a slight increase and is often used when listening at lower levels.

**Music Mode (Yellow LED)** - The frequency range most responsible for impact in music receives a slight increase. The lowest frequency range responsible for turntable rumble and acoustical feedback is reduced.

**Boundary Mode (Red LED)** - The very low frequencies that are likely to penetrate beyond the boundary of your room and disturb those in other rooms is reduced.

**Volume** - Controls the volume of bass output. Generally, the volume will be controlled by the included infrared remote. The volume control on the Speedwoofer can be used for fine adjustments. Note that once the Speedwoofer has reached maximum power output, continuing to turn up the volume control will not increase the volume.

**High-Pass Crossover Frequency Bypass Switch** - Now that you have a subwoofer providing a prodigious amount of bass, you can reduce the bass sent to other speakers. In some cases it can extend their life as well as providing more headroom for your stereo amplifier. See the diagram on page ten for hookup. This control lets you adjust how much bass to cut when the signal goes to the line outs. Rotating this knob fully counter-clockwise until it clicks defeats the filter and the original signal from the Line Ins is passed through to the Line Outs unaltered.

**Low-Pass Crossover Frequency Bypass Switch** - Normally, an A/V receiver or processor performs the crossover function to limit how much high frequency information is sent to the subwoofer. In this case, the knob will be rotated fully counter-clockwise until it clicks, which will defeat the crossover. In stereo installations where your other components do not perform the crossover function, you will use this function on your Speedwoofer. Rotate the knob clockwise to choose the correct crossover frequency. We recommend experimenting to determine the best sound.

**Phase** - Allows you to adjust the wavefront of the bass through the subwoofer, which can help the subwoofer blend perfectly with the rest of your system. The bass should sound like it's coming from your front speakers instead of a separate subwoofer. The standard setting is 0 degrees, but feel free to experiment.

**Auto Power** - In the Auto Power On position, the Speedwoofer will remain in standby mode until it receives an audio signal. The power indicator will change from red to blue and the Speedwoofer is in operation mode. In the Auto Power Off position, the Speedwoofer will always stay in operation mode, which will not harm the subwoofer.

**Right and Left Line In/LFE In** - LFE stands for low frequency effects. For home theater, use a single RCA cable from the receiver's subwoofer or LFE out to the Speedwoofer's LFE In. For a 2 channel system, use a stereo pair of RCA cables to the Speedwoofer's Line In Left and Right inputs.

**Line Out** - For a 2 channel system, this can feed the signal back to your stereo amplifier for the other speakers. The Line Outs can also be used to connect an additional Speedwoofer. See the section on Multiple Speedwoofers.

**Speaker Level In** - This connection is used in stereo systems with amplifiers that do not have pre-amplifier or subwoofer outputs. In this case, you'll connect one set of speaker wires to your Speedwoofer and another stereo set to your main speakers. Use the Speedwoofer's internal crossover.

**Ground Terminal** - If you experience ground-loop hum when using SPEAKER LEVEL IN, it is the result of differences in the ground characteristics between different audio equipment. This is not the fault of the subwoofer. Fortunately, this is easy to fix. Connect a length of wire from your audio amplifier's ground to the Speedwoofer amplifier's ground. If your audio amplifier does not have a ground lug, then loosen a screw around the perimeter of the chassis. Wrap the stripped end of the wire around the screw and re-tighten. The hum should vanish.

**Input Voltage - Fuse** - Is Normally set for use in the U.S. and Canada at 110-120 Volts**. If your country's voltage is 230-240 Volts, you must change this setting before using the Speedwoofer. You must also change the fuse to a 2.5 amp fuse. The fuse location is just below the AC receptacle on the back of the subwoofer. FAILURE TO DO THIS WILL VOID YOUR WARRANTY.**

**Main Power Switch - Auto Power Switch** - The power switch will normally be left on. When switched on, and the auto/on switch is set to on, your Speedwoofer will be in standby mode (red light) until it receives an audio signal and then it will turn blue. With no signal, it will return to standby mode after approximately 20 minutes. When the auto power switch is set to off, the Speedwoofer will always stay in operation mode (but consumes very little power, even at this setting). When connecting and disconnecting cables to the Speedwoofer, make sure the main power switch is off.

# A Discussion About Maximum Bass Output

When it comes to movies, the latest digital recording formats allow movie producers to incorporate an enormous amount of bass into their soundtracks. As a matter of fact, some movies produce bass that is more intense than larger-sized home theater subwoofers can handle. That is why virtually all modern subwoofers contain circuits that protect the subwoofer and its amplifier by limiting the maximum power that can be produced.

The amount of bass your system can produce is determined by several factors. For some, the bass produced by a single quality subwoofer like our Speedwoofer 12S is more than plenty. Many of our customers report that they can't turn up their subwoofer nearly all the way without upsetting other members of their family. However for some, any amount of bass is never enough. It isn't our position to dictate how much bass is appropriate.

Another important factor is positioning. Depending on the position of the subwoofer, there will be peaks (where bass is more intense) and nulls (where bass is diminished). If you position the subwoofer so your listening position is in a null, you will not get adequate bass regardless of the size of your subwoofer or its volume setting. So, if you have the flexibility, spend some time determining the best position for your Speedwoofer.

If you have a very large listening room or simply desire more bass capability, we recommend considering a second subwoofer. This can add 6db of increased bass output, which is huge. This will allow both subwoofers to operate more efficiently with increased headroom for those explosive bass moments in movies.

# Some Installation Tips

Most modern A/V receivers and processors include some type of auto setup and room correction. During the setup process, they will ask you to adjust the volume control on the subwoofer to a certain volume. In most situations, you do not have to follow this instruction exactly. Your goal should be to have the subwoofer's volume control as close to the vertical or 12 O'clock position as possible. This will give you the most flexibility to adjust the subwoofer's output up or down depending on what you're listening to.

The goal of a properly setup subwoofer is to produce accurate, controlled bass without sacrificing the teeth chattering impact some enjoy. The most common mistake people make is setting the subwoofer to play too loudly. The subwoofer should always blend seamlessly with your other speakers rather than being intrusive.

Your Speedwoofer should be more than capable of providing an abundance of clean, powerful bass. In addition, the RSL Speedwoofer 12S contains circuitry that helps prevent distortion when played at excessively loud volumes. However, **all subwoofers can be played loud enough to be overdriven regardless of size, power, or price resulting in audible clipping (a form of distortion).** In the unlikely event that you desire more bass, try placing your Speedwoofer in a corner or just add another subwoofer!

The RSL Speedwoofer 12S has high quality, built-in protection circuitry, although no protection circuitry is foolproof. It's best to prevent the subwoofer from being over-driven in the first place. Here are a couple of indications of trouble to watch out for. If these occur, reduce your subwoofer's volume.

- Noise that doesn't sound natural. In movie scenes or music with heavy bass, listen for any noise that doesn't sound like it should be there. In some cases this can sound like a rattling or a very muddy rumble.
- Clipping. A good indication of clipping is if your subwoofer sounds excessively sloppy; as if it is flopping back and forth. This will produce some pretty ugly sounds. The RSL Speedwoofer 12S uses high quality protection designed to keep clipping to a minimum.

If you're not sure if your subwoofer is being overdriven, remove the grill and look at the woofer itself. See if it appears as if it's moving back-and-forth excessively. The woofer should always move with tight, controlled precision. If you suspect the woofer's movement is excessive, try reducing your subwoofer's volume until it appears to move appropriately.

# Care And Maintenance

- Clean your subwoofer using a soft, moist cloth (Windex or water is recommended), preferably microfiber or lint-free cloth. Do not put your subwoofer in the washing machine.
- Be very gentle when cleaning the front of your subwoofer, trying not to put pressure on the woofer.
- Be careful with liquids or beverages near your Speedwoofer. It does not play better when wet. Don't place flowers or plants that require watering on top of the subwoofer. Watering your Speedwoofer will not make it grow.
- Please keep your Speedwoofer away from direct sunlight and heat sources or extremely cold temperatures.
- If you operate the subwoofer with the grill off, please make sure that the woofer does not come in contact with anything as it can be damaged.
- Wires can loosen over time. Periodically make sure all connections to the Speedwoofer are tight. If a wire loosens and touches other wires, your system could be damaged.
- Your Speedwoofer may not be used as a flotation device.

# Troubleshooting (For any issue you may call or email us. We'll be happy to help)

**No Sound from Your subwoofer. Power indicator not lit.**
Check to confirm that your subwoofer's power switch is set to the "on" position and that the power cord has not been damaged and is securely plugged into the wall outlet. Verify that the wall outlet is powered.

Check the RSL Speedwoofer's removable fuse. It is located below the AC socket on the amplifier.

**Accessing the fuse. Make sure the Speedwoofer is unplugged from the AC.**
To access the fuse, insert a flat-head screwdriver in the horizontal slot located on the power cord socket, just below where the cord plugs in. Gently pry the fuse housing open until it detaches. Extract the housing from the power cord socket, remove the fuse and inspect it. If the wire inside the cylinder is severed, displays a gap or looks burned, the fuse is bad and needs to be replaced. Replace with a fuse of exactly the same value. The value is indicated below the power socket. If the new fuse blows, your subwoofer requires service. Please contact us.

The Speedwoofer has internal circuit protection that could be tripped. If you suspect this, turn down the subwoofer's volume and turn off the power. Wait 5 minutes before turning it on.

**Ground loop hum or noise.**
Although a seldom occurrence, this can happen when speaker level inputs are used. It's not the fault of the subwoofer, but is caused by differences in the ground characteristics between different audio equipment. Fortunately, this is easy to fix. There are two methods. Connect a piece of wire from your audio amplifier's ground to the subwoofer amplifier's chassis. If your audio amplifier does not have a ground lug, then loosen a screw around the perimeter of the chassis. Wrap the stripped end of the wire around the screw and re-tighten. Then, connect the other end to the amplifier's ground screw. The hum should vanish.

As an alternative, if your amplifier has an unused RCA input, you can connect a single RCA cable to either the left or right amplifier's input jack and the other end to the subwoofer's RCA line out jack. This effectively connects the grounds of the two units together eliminating the hum.

**Subwoofer will not go into standby mode.**
First, make sure the auto power switch is set to on. In the operation mode, the Speedwoofer's power consumption is only slightly higher than in standby and the longevity of your Speedwoofer will not be affected.

*NOTE: The IR Remote Power/Standby button overrides signal sense auto-power function if pressed. You will need to use the IR remote button again to turn on if you turned it off via the remote. If you wish to once again use the signal sense (Auto-power), you will need to completely power off via the Main power switch. Wait until the Power LED goes out completely before powering back on. This will reset the override function of the remote.*

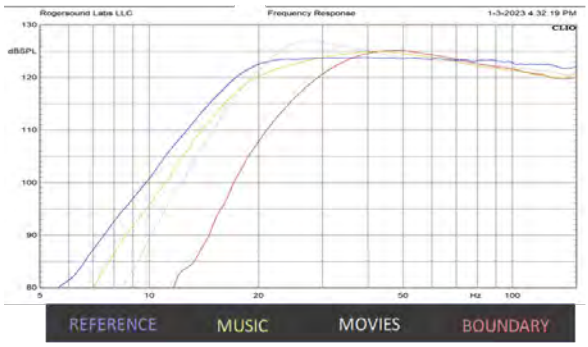
Additionally, if you are using a wired connection and the Speedwoofer stays in operation mode, it could be caused by noise in either your AC or audio lines. Sometimes this noise will not be audible, but will be enough to keep the Speedwoofer in operation mode. Again, the normal power consumption is only slightly higher than standby mode and the longevity will not be affected.

# Specifications

## (Your Speedwoofer 12S can really do these things)

**Overall Frequency Response:**

- Reference Mode (anechoic):
  16 Hz-200 Hz ± 3db




**Woofer:**

- 12" 500+ watt rated woofer
- 4 ohm nominal Impedance
- Proprietary RSL Die-cast aluminum frame with dual spider integration
- Klippel optimized linear magnet motor and matched suspension
- High-Excursion FEA optimized design motor structure
- Integral VC Heat Sink/Inductance Control Cylinder
- 1008 low-carbon steel motor parts (T-yoke and field plate)
- Premium grade dual-stacked ceramic magnets
- Ultra-high Temp (>200° C), Multi-layer Copper Voice Coil
- Dual-mirrored, High yield fatigue-resistant Nomex™ spiders
- Integrated Dual Spider spacer clamp ring
- Kevlar™ reinforced paper cone with full anodized aluminum dust cap
- High durability NBR surround
- High duty cycle periodically stitched flexible tinsel lead wire with strain relief features

**Enclosure:**

- Scratch and fingerprint resistant textured matte finish
- Front multi-segment LED display/IR Sensor (Volume, Mute, & DSP MODE) Display sleeps after ~10 sec. of inactivity
- Rear-vented Compression Guide™ tuning with turbulent free slot port
- Internal structural bracing (Side to side, front to back, and top cross-bracing)
- ¾" thick MDF panels with dado reinforced joints plus corner bracing
- Laminated 1" front woofer baffle
- Internally optimized damping
- Removable cloth grille

**XDR™ Series Amplifier**

- IR Remote Control (Power Toggle, Volume +-, Mute, DSP Mode direct select (Reference, Music, Movies, Boundary)
- External 3.5mm IR input for wiring external IR sensor (eye)
- 500 watts RMS < 1% THD
- 1550 watts peak
- Patent Pending HSS™ Heat Sink/Shield Technology for greater thermal efficiency and capacity
- DSP Modes – Reference, Music, Movies, Boundary (Rear LED indicator matches front display)
- Integrated double-precision 56-bit, 50 MIPS DSP processor
- Intelligent class D topology, >85% Efficiency
- Signal to noise ratio: >85dB
- Auto-ON Threshold: 3mV
- Auto-OFF: ~20 minutes (no signal)
- Stand-by power consumption: ~1 watt
- Power Input: Selectable 110/230VAC 50-60Hz switch
- Low EMI design, CE & C-Tick compliant
- Gold-plated RCA Line level inputs and RCA High-pass signal outputs
- Speaker level inputs (Gold-plated, 5-way binding posts)
- Chassis ground screw
- USB Power port, easily connect external AR-4 2.4GHz wireless audio receiver
- Low Pass Crossover Frequency: 30-250 Hz variable (with integrated bypass switch)
- Low Pass Crossover Slope: 24 dB/oct.
- High Pass RCA Output Crossover: 30-250 Hz variable (with integrated bypass switch)
- High Pass RCA Output Crossover Slope: 24 dB/oct.
- Phase Control: 0 to 180° continuously variable
- Power Input: 115V, 60Hz; 230V, 50/60Hz AC
- Fuse: 115V (T6.3AL/250V) - 230V (T3.15AL/250V)
- Feet: Includes 4 rubber feet
- Dimensions with Feet: H: 22 ¼" W: 18 7/8" D: 22 1/8"
- Weight: 82 lbs.
- Shipping Dimensions: H: 29" W: 25" D: 29"
- Shipped Weight: ~105 lbs.

# Peace Of Mind Warranty

We've gone to great lengths to build a subwoofer that will serve you well for many years. However, in the unlikely event it breaks and it's our fault, we'll fix it for free. The 12S woofer is warrantied for 5 years and the electronics are warrantied for 3 years.

We have designed the Speedwoofer to have its parts easily replaced by the user, requiring only a Phillips screwdriver and minimal technical knowledge. We may offer this solution to you in order to save you the expense and hassle of sending your subwoofer to us.

## Here is the Fine Print (sorry, our lawyer made us do this):

RSL warranties your Speedwoofer's woofer and cabinet for a period of 5 years from the date of purchase. We warranty the subwoofer's amplifier for a period of 2 years from the date of purchase. Our products are warrantied to be free of defects in original materials and workmanship. Our warranties apply to the original purchaser. To obtain warranty service, please help us out with the following:

1. Be able to furnish a copy of your sales invoice. However, if you can't find it, we'll do our best to fire up the computer and look it up for you.
2. The serial numbers must be intact and match those on your sales invoice.
3. Return authorization must first be obtained by contacting us before sending your subwoofer to us. It must be properly packed (please do not use Styrofoam peanuts or shredded paper, it makes a mess we have to clean up).

Our speakers were designed for residential stereo or home theater use and must be used in this manner. They were not specifically designed for public address, musical instrument amplification, or other commercial or high intensity applications such as county fairs or as foghorns on ships. Such use is not covered under warranty.

Speakers returned under the terms of the warranty will be repaired or replaced at our option. We will pay for shipping the repaired product back to you if you live in the Continental U.S. You are responsible for prepaying the shipping to us. Speakers that have been abused, operated improperly, improperly packed, tampered with, insulted or opened (without our prior permission) will not be repaired under warranty. This warranty does not cover damage caused by the use of faulty or improper audio/video components.

This is the total warranty. There are no other warranties, expressed or implied. No responsibility is assumed for any incidental or consequential damages. This warranty gives you specific legal rights, and you may have other rights which vary from state to state. Are you still awake?

If you require service, please contact us at sales@rslspeakers.com or by phone (805)905-5485.

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