



REL
ACOUSTICS LTD.



Operating Instructions for the

212/SE Sub-Bass System

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Caution Marking Explanation




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



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



Important Safety Instructions

- 1 Read all of these instructions.
 - 2 Save these instructions for future use.
 - 3 Heed all warnings.
 - 4 Follow all instructions.
 - 5 Do not use this apparatus near water.
 - 6 Clean only with automotive polish and micro fiber cloth.
 - 7 Install in accordance with the manufacturer's instructions.
 - 8 Do not install near any heat sources such as radiators, heat registers, stoves or other apparatus (including amplifiers) that produce heat.
 - 9 Do not defeat the safety purpose of the grounding-type plug. A grounding type plug has two blades and a third grounding prong. The third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
 - 10 Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
 - 11 Only use attachments/accessories specified by the manufacturer.
 - 12 Use only with a cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
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- 13 Unplug this apparatus during lightning storms or when unused for long periods of time.
 - 14 Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Warning

To reduce the risk of fire or electric shock, do not expose this apparatus to rain or moisture.

The apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on apparatus.

The mains plug is used as disconnect device. The mains plug of the apparatus should not be obstructed OR should be easily accessed during intended use. To be completely disconnected from the power input, the mains plug of the apparatus shall be disconnected from the mains.

An appliance with a protective earth terminal should be connected to a mains outlet with a protective earth connection.

Design Safety

This apparatus is supplied with a detachable mains cord. For 240V operation a 3.15/S/2, 5A/S/3, 5A/S/5 fuse is fitted in the socket, for 120V operation a 6.3A/S/2, 9A/S/3, 9A/S/5 fuse is fitted. Should the fuse need to be replaced use a similar rated fuse approved to ASTA or BSI 362 standards. Do not use without the fuse cover in place. Replacement fuse covers are available from your distributor.

Attention Explication Marquage




L'éclair avec le symbole de pointe de flèche dans un triangle équilatéral est destiné à alerter l'utilisateur de la présence de non isolée tension dangereuse à l'intérieur de l'enceinte du produit qui peut être d'une ampleur suffisante pour constituer un risque d'électrocution pour les personnes.



Le point d'exclamation dans un triangle équilatéral est destiné à alerter l'utilisateur de la présence d'instructions dans la documentation accompagnant l'appareil exploitation et de maintenance (entretien).

Informations Importantes Relatives a la Securite

- 1 Lisez attentivement ces instructions.
- 2 Conservez ces instructions.
- 3 Respectez tous les avertissements.
- 4 Suivez toutes les instructions.
- 5 Ne pas utiliser cet appareil près de l'eau.
- 6 Nettoyez seulement avec du vernis automobile et tissu microfibre.
- 7 Installer conformément aux instructions du fabricant.
- 8 Ne pas installer près de sources de chaleur telles que des radiateurs, registres de chaleur, poêles ou autres appareils (y compris les amplificateurs) qui produisent de la chaleur.
- 9 Ne pas contourner le dispositif de sécurité de la prise de terre. Une fiche de terre a deux lames et une troisième broche de mise à la terre. La troisième broche est fournie pour votre sécurité. Si la fiche fournie ne rentre pas dans votre prise, consultez un électricien pour le remplacement de la prise obsolète.
- 10 Protégez le cordon d'alimentation ne soit piétiné ou pincé, en particulier au niveau des fiches, des prises de courant, et le point de sortie de l'appareil.
- 11 Utilisez uniquement des fixations/accessoires spécifiés par le fabricant.
- 12 Utilisez seulement avec un chariot, stand, trépied, support ou table spécifié par le fabricant, ou vendu avec l'appareil. Lorsque vous utilisez un chariot, soyez prudent lorsque vous déplacez l'ensemble chariot/appareil pour éviter les blessures en cas de chute.

- 13 Débranchez cet appareil pendant un orage ou lorsqu'il est inutilisé storsm pour de longues périodes de temps.
- 14 Confiez toute réparation à un personnel qualifié. Une réparation est nécessaire lorsque l'appareil a été endommagé de quelque façon que ce cordon d'alimentation ou la fiche est endommagé, du liquide a été renversé ou des objets sont tombés dans l'appareil, l'appareil a été exposé à rail ou à l'humidité, ne fonctionne pas normalement, ou a été échappé.

Avertissement

Cet article est lourd. Pour éviter tout risque de blessure, prendre soin lors de la manipulation.

L' appareil ne doit pas être exposé à des éclaboussures et aucun objet rempli de liquide, comme des vases, ne doit être placé sur l'appareil.

Les conduites Plus est utilisé comme dispositif de déconnexion. La fiche de l'appareil ne doit pas être obstruée OU doit être facilement accessible pendant l'utilisation. Pour être complètement déconnecté de l'alimentation électrique, le cordon d'alimentation de l'appareil doit me débranché.

Un appareil avec une borne de terre doit être branché sur une prise de courant en étant relié à la terre.

Sécurité Design

Cet appareil est livré avec un cordon amovible cordon. Pour le fonctionnement d'un fusible de 220V 3.15/S/2, 5A/S/3, 5A/S/5 est montée dans la douille, pour le fonctionnement de 120V un fusible de 6.3A/S/2, 9A/S/3, 9A/S/5 est monté. Si le fusible doit être remplacé utilisation un fusible similaire approuvé pour ASTA ou BSI normes 362. Ne pas utiliser sans le couvercle de fusible en place. Les couvercles de rechange sont disponibles auprès de votre distributeur

FCC STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Welcome to the REL Family

Congratulations on your purchase of the 212/SE, a truly formidable instrument for the reproduction of exceptional low bass in very large-scale music and theater systems. 212/SE is the next significant step in REL's relentless progression towards becoming the best sounding, best-built specialty subwoofer manufacturer extant.

REL have always prided ourselves on providing seamless mating of our subwoofer designs with any brand and model of quality loudspeaker the customer chooses. This tradition continues on in 212/SE, utilizing all the design expertise REL are acknowledged for in our renowned filter technologies, as well as the truly brilliant Limitless™ electronic limiters we employ that permit extraordinary output levels to be delivered with little fear of overloading the drivers.

Where 212/SE builds a new step in REL's path is in the sheer volume and output a REL is capable of. Whilst retaining all the subtlety and delicacy of classic REL designs, 212/SE will play shatteringly loud.

This capability confers significant merit when paired with larger state of the art speakers in stereo pairs of 212/SE's (recommended as a wonderful improvement over the excellent single 212/SE set-up) and especially so in large home theaters. Here, the 212/SE delivers copious quantities of explosively fast, hard bass. Special effects delivered via LFE such as explosions by the latest movie soundtracks are delivered with visceral slam. Meanwhile, the classic REL approach of using both High Level + .1/LFE permits richly natural bass to wash through less ambitious tracks allowing for greater enjoyment of the movie experience, no matter the scale of the movie.

212/SE reaffirms REL's relentless pursuit of delivering the best and most varied offerings among subwoofer manufacturers.

Wireless Freedom with Zero Compression: Longbow™

Once our team achieved the high standards for performance our customers expect of all REL subwoofers, we turned our attention to connectivity methods. In addition to our comprehensive array of hard-wired inputs, 212/SE benefits from the finest sounding, most natural wireless system available at this time.

In order to achieve high quality wireless, the REL team found a new chipset remarkable for its speed and lack of delay. Building on this foundation our engineering team took to the task of creating Longbow™, REL's latest delivery method. Longbow™'s wireless system uses a proprietary security codec that ensures exceptional protection of the signal, while using zero digital compression—the bane of conventional wireless systems. This results in a dynamic, ultra wide-bandwidth sound with almost zero delay. Practically speaking, 212/SE equipped with Longbow™ can be connected to very high end hard-wired systems with none of the delay issues that plague garden variety wireless systems. Additionally, the REL team was able to maintain both HIGH LEVEL and .1/LFE simultaneous connectivity of REL Reference Theatre. Theatre Reference produces a FAR richer, fuller and better integrated theater sound than conventional .1-only based systems. And now, customers can have all this wirelessly if they so choose. Yet another breakthrough for REL!

All 212/SE models include REL Longbow™ receiver technology built into the amplifier. Wireless transmission requires the purchase of a separate Longbow™ transmitter. For details on how to activate this wireless connectivity, please see the REL Longbow™ transmitter manual.

212/SE, A More Complete Approach:

Many or most loudspeakers emphasize the mid-bass. This is the range from 50 to 90 Hz. We at REL believe this is an incomplete approach and that loudspeakers need to be augmented in the lowest frequencies in order to reestablish the natural balance of sound we experience effortlessly in real life.

All of our designs are true Sub-Bass Systems, meaning they are designed to reproduce very low frequencies (useful output in the 20 Hz – 50 Hz region) that are felt as well as heard. This is because we believe that music is full-range, as are sound effects on movies, and we intend for our products to reproduce all of these sounds, not just a narrow band.

Beyond 2-Channel Lies Theatre Reference:

212/SE is equipped to allow you to take full advantage of Dolby Digital AC3, DTS, MPEG 2 and any other digital sound format that includes a dedicated Low Frequency Effects (LFE) channel.

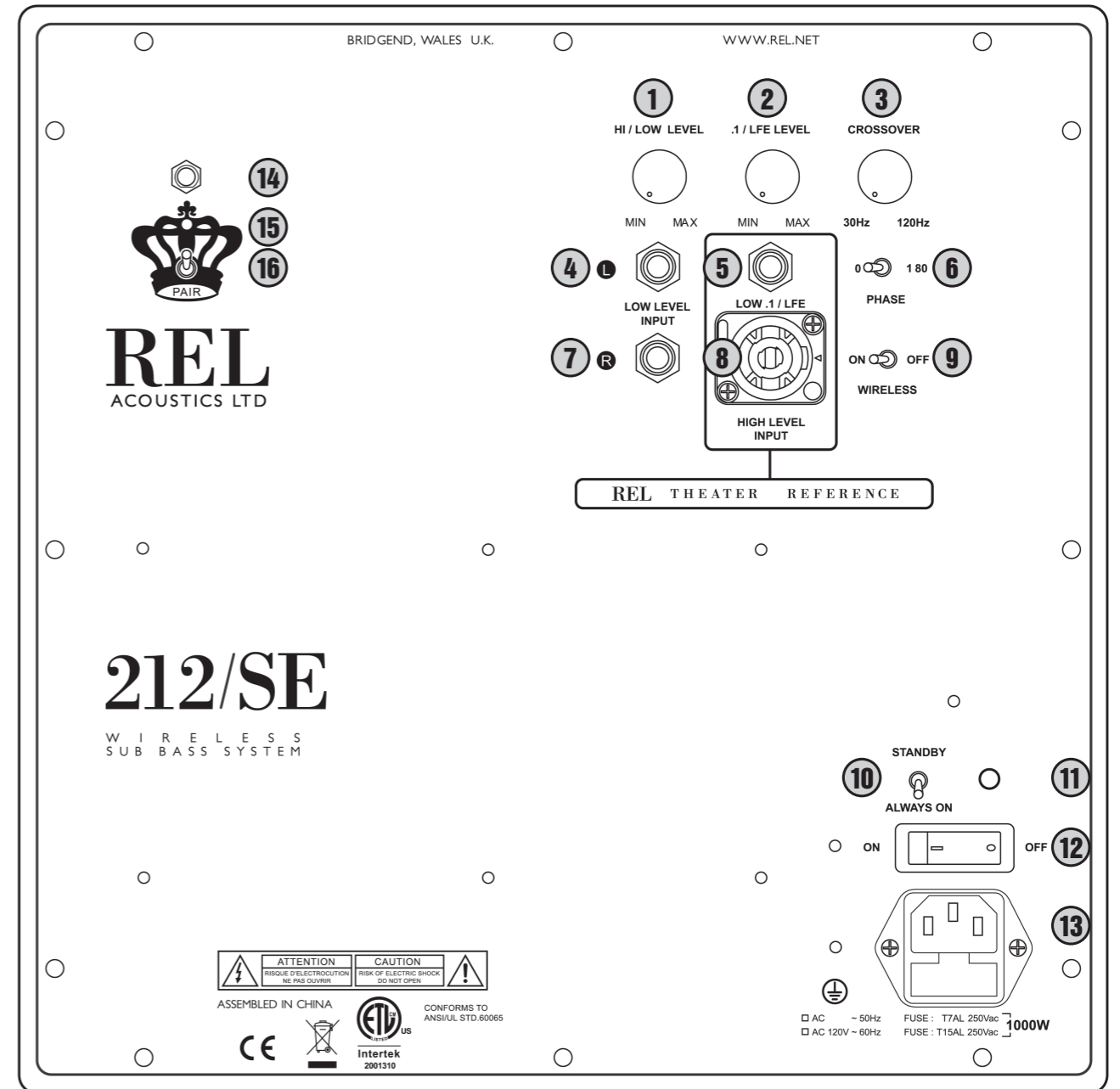
The dedicated LFE input meets the tough specification laid down for digital 3/2.1 channels, usually known as 5.1. The output is nominally flat from 35 Hz – 90 Hz. It has a dedicated input level control which enables users to set the LFE level independently of the processor. This is important because not all processors offer control over this significant parameter. The LFE channel is frequently output at 10 dB higher levels than the other channels.

The 212/SE models also have High Level (speaker level) inputs with dedicated input level control. Uniquely, both the High Level and LFE input can be used simultaneously. This means you may achieve the best possible 2-channel performance with your CDs or other music signals and instantly transform to a powerhouse with LFE when watching movies. This feature requires no switching, but instead is a seamless benefit to doing things the REL way.

This feature provides real benefit if you wish to play music in stereo mode in the purist audiophile way and also in REL Theatre Reference mode with no switching necessary. By connecting BOTH High Level and .1 concurrently and setting your processor to “Large” or “Full Range”, the best possible performance will be obtained. Consult the owner's manual of your loudspeakers or consult with your dealer before setting to Large as a few speakers cannot handle the bass that is then directed through to the main speakers.

REL 212/SE Rear Panel Connection Legend

- 1 Volume Control for HI/LOW Level input: Use to adjust output when using either HI Level or LOW Level input. Do not use both simultaneously.
- 2 Volume Control for .1/LFE Input: Use to adjust output level when using .1/LFE input from a 5.1 amplifier or processor.
- 3 Crossover: Used to select crossover frequency. Variable between 30 Hz and 120 Hz.
- 4 Low-Level Left channel Phono Input: Used to connect low-level to the output of a preamplifier, integrated amplifier or receiver. (For home cinema, use .1/LFE input).
- 5 Low-Level Right channel Phono Input: Used to connect low-level to the output of a preamplifier, integrated amplifier or receiver. (For home cinema, use .1/LFE input).
- 6 .1/LFE Phono Input: Used to connect to the .1/LFE output from a 5.1 amplifier or processor.
- 7 Phase: Used to set phase 0-180 degrees.
- 8 High-Level Neutrik® Speakon® Socket: Use to connect high-level to the main front amplifier speaker terminals.
- 9 Wireless enable switch: Used to turn on wireless receiver when connected to REL Longbow™ wireless transmitter.
- 10 Standby/ Always On Switch: Used to enable standby mode.
- 11 Power Pilot Light: Power On/Off indicator.
- 12 Power ON/OFF Switch: Use to turn unit on or off.
- 13 IEC Mains Socket: Fused mains (AC) input socket that accepts a detachable power cord.
- 14 Antenna connector: Used with REL Longbow™ wireless transmitter.
- 15 Pair Pilot Light: Indicates if unit has been paired with REL Longbow™ transmitter.
- 16 Pair Switch: Used to initiate Pair sequence with REL Longbow™ Transmitter.



Connecting Up

Always switch off your system before disconnecting any wires.

To increase the versatility of connecting up, the 212/SE models have four separate inputs. A Neutrik® Speakon® socket and three phono sockets. This is to facilitate use with both two-channel stereo systems and AV surround sound systems.

The high-level, unbalanced, dual-channel (stereo) input is via a Neutrik® Speakon® connector which is connected to the power amplifier's left and right channel speaker terminals. This has the advantage of ensuring that the REL receives exactly the same signal as the main speakers. This means that the character of the bass from the main system is carried forward into the sub-bass. This is a very important point and together with the REL's Active Bass Controller (ABC) ensures far superior system integration of the sub-bass with the main system.

The low-level input is via three separate phono jacks that connect to either the .1/LFE output of a home cinema amplifier/processor or to the left and right output of a stereo preamplifier.

HI LEVEL and .1/LFE inputs can be used simultaneously. The benefits are two-fold when used with a home cinema system. The low level input reproduces the .1/LFE channel and the high level connection underpins the main front speakers. The main front speakers should be set to the 'large' option on the processor. See "Home Cinema Applications" for more information.

Connecting to the Power Amplifier Using the Speakon® High Level Input

To engage the Neutrik® Speakon® plug, insert fully into socket and rotate clockwise until locked.

To remove the Neutrik® Speakon® plug, grip body of plug, place thumb on chrome lever, move lever backwards, rotate plug anticlockwise quarter turn and withdraw.

The high-level input is designed to accept the stereo (two-channel) signals from the speaker terminals of your receiver, integrated amplifier or basic amplifier. This has the advantage of ensuring that your subwoofer receives exactly the same signal as the main speakers, which means that the character of the bass from the main system is carried forward into the Sub-Bass System.

This is a very important point and together with REL's Natural RollOff™ circuitry, ensures far superior system integration of the Sub-Bass System with the main system.

High-Level Input: Connections should be made to the same binding post on main amplifier as the main speakers. Connect as shown above. Red to amplifier main right speaker red terminal, yellow to amplifier main left speaker red terminal and black to amplifier main speaker black terminal, right or left but not both. Plug the Neutrik® Speakon® plug into the HI LEVEL Speakon® socket.

.1 Input: This requires a phono-to-phono cable and is a dedicated true .1 channel. This circuit therefore eliminates the normal Natural RollOff™ Crossover and passes the .1 low-level signal through with only the required 120Hz fourth-order filter.

Low-Level Input: These left and right phono inputs allow for conventional connection from a preamplifier and should be used in the rare event that a high-level connection proves incompatible. Connect as shown below. Plug one end of the phono-phono cables into the LOW LEVEL INPUT left and right jacks of the REL and the other end into the left or right channel output of your preamplifier.

PHASE SWITCH – Used to set phase

Position 0 / High-Level, Low-Level or LFE: 0 degrees phase

Position 180 / High-Level, Low-Level or LFE: 180 degrees phase

PHASE SELECTION AFFECTS BOTH HIGH- AND LOW-LEVEL INPUTS

Crossover is always engaged for Hi level input. The .1/LFE signal does not pass through the crossover circuit.

REL Set-Up Made Simple

REL products are not traditional subwoofers, but true Sub-Bass Systems. A REL is designed to augment the performance of “full range” speaker systems in order to provide, in certain cases, linear response below 15 Hz. Therefore, for the moment, please set aside everything you’ve been taught about subwoofers and how they are integrated into a stereo or home cinema system. REL Sub-Bass Systems set-up and positioning differs from conventional subwoofers. A REL will take advantage of physics and room acoustics to provide deep pressurization as no traditional subwoofer can. It is important that you bring to the set-up process a willingness to do things a little differently in order to obtain these superior results. The end result of your labours will be an utterly seamless integration of true deep bass to a sound system, regardless of the main speakers’ low bass capability.

Basic set-up should take no more than ten to fifteen minutes to accomplish once connected.

Two Things Before You Begin

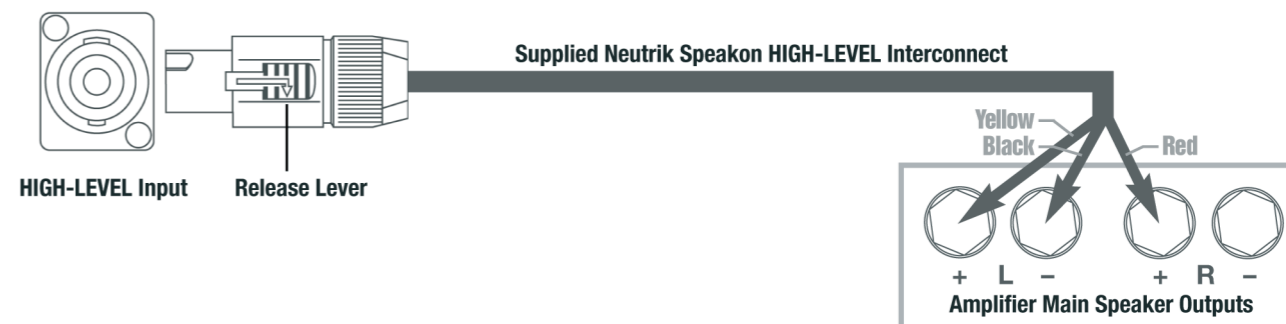
- 1 It is helpful to know that you will almost always connect the REL to the input on the rear panel labeled “HIGH LEVEL INPUT.” This connection is made using the supplied 32’ 10” (10 meters) cable, the bare leads of which connect to the speaker output terminals of the power amplifier. The easy and foolproof connection at the REL is done with a Neutrik® Speakon® connector. The purpose of connecting to the speaker output terminals is one of the unique secrets of REL’s success. By connecting to the High Level input on the REL from the amplifier, you build forward the sonic signature of your main system, including the tonal balance and timing cues of the entire electronics chain. In this way, the REL is fed the exact signal that is fed to the main speakers.
- 2 When possible, the REL should be placed in one of the corners behind the speakers. Remember, we are dealing with true LOW bass pressurization with RELs. Low bass pressurization below 40 Hz is best derived from corner placement, where the most linear and efficient low bass can be produced because the subwoofer is able to take advantage of the tangential (corner-to-corner) axis which is typically the longest axis in a room.

Connecting and Setting Up

High-level connection, using the enclosed cable with the Neutrik® Speakon® connector, is always the first choice. This connection can be made without affecting the performance of the amplifier because the REL’s amplifier input impedance is 150,000 ohms, in effect producing NO additional load on the rest of your system.

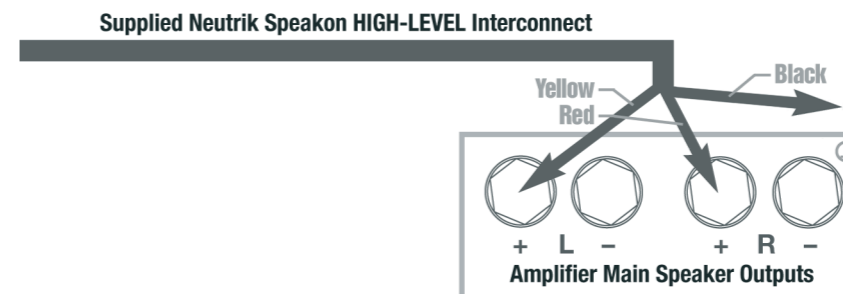
- The standard high-level hook up procedure is: attach the red wire to the amplifier’s right positive speaker output terminal; attach the yellow wire to the amplifier’s left positive speaker output terminal; attach the black wire to whichever of the amplifier’s ground output terminals is convenient; plug the Speakon® connector into the Sub-Bass System’s high-level input.

Standard High-level



- For differential (i.e. fully balanced) amplifiers using one REL, simply use the standard connecting scheme with the exception of NOT connecting the black wire to a negative speaker terminal. Instead, it should first be allowed to “float” or hang down without connection to ANY terminal. Should hum occur using this method, please try connecting to an unused RCA connector on the rear of a preamp or amplifier. Please contact your dealer should there be any questions concerning this or any other hookup procedure.

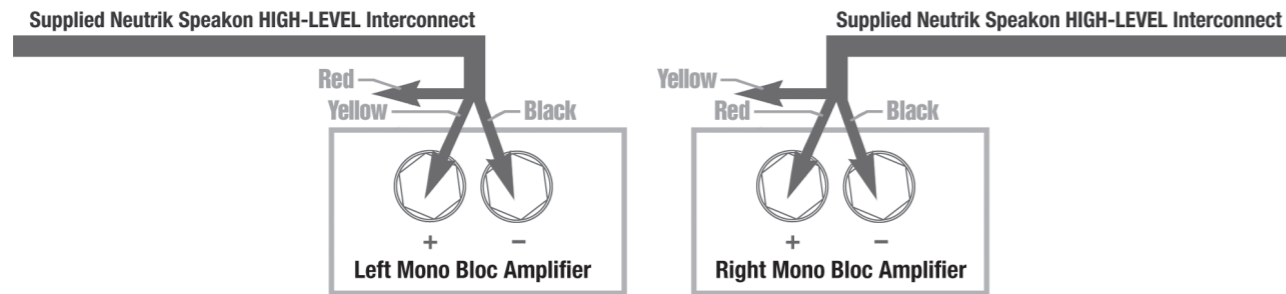
Differential (i.e. Fully Balanced)



NOTE: The 212/SE models are equipped with internal circuitry to allow seamless connection to Class-D (digital) amplifiers. If connecting to a Class-D amplifier, follow the above connection procedure for differential amplifiers.

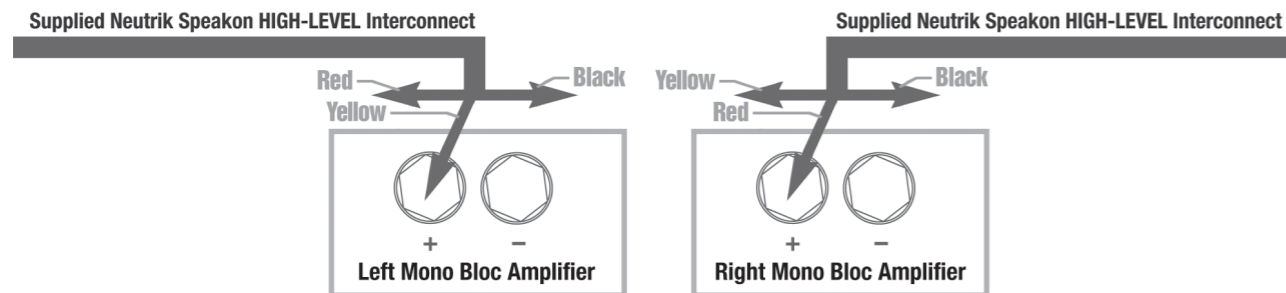
- If connecting RELs to Mono Bloc amplifiers we strongly advocate using (2) RELs, one for each amplifier. Connect the black wire of each REL to the negative speaker terminal of the corresponding amplifier channel; twist together the red and yellow wires of each REL separately and connect each pair to the positive speaker terminal of the corresponding amplifier channel. In some instances, this will result in exceptionally high gain (output) from the RELs. If it seems simply too high in gain, please remove either

Mono Bloc



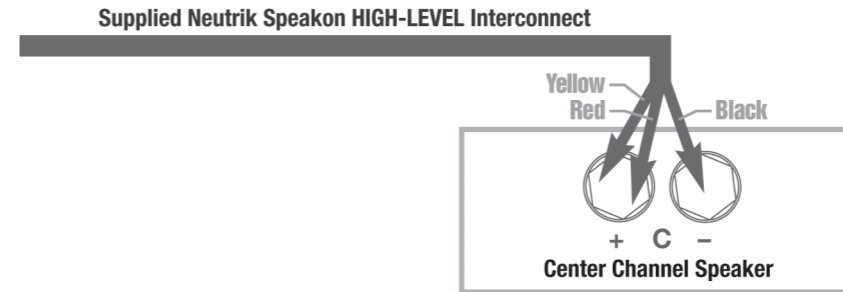
the red or yellow wire from the twisted pair. This will reduce output by half and restore a natural dynamic. If the amplifier is of balanced differential design, please follow the instructions in the section above labeled Differential Connection.

Mono Bloc Differential



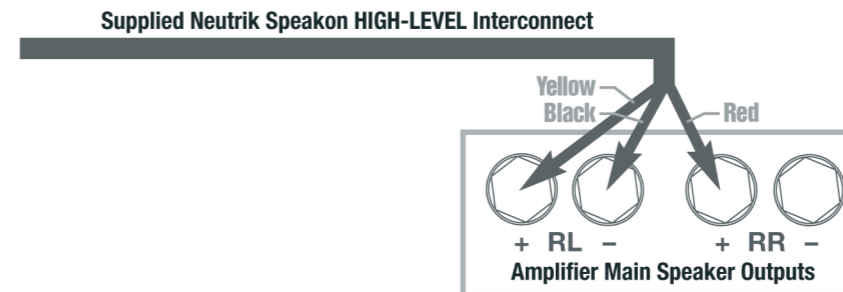
- If connecting a single REL as a dedicated center channel sub, please consider connecting to the rear of the speaker, rather than routing the REL High Level cable all the way back to the amplifier. Connect the black wire of the REL to the negative center channel speaker terminal; twist together the red and yellow wires and connect this pair to the positive center channel speaker terminal.

Dedicated Center Channel





- If connecting a REL as a dedicated rear channel sub, connect the black wire of the REL to either the left rear or right rear negative speaker terminal; connect the yellow wire to the left rear positive speaker terminal; connect the red wire to the right rear positive speaker terminal. If the amplifier is of balanced differential design, please follow the instructions in the section above labeled Differential Connection.

Dedicated Rear Channel



Low-level connection (via phono connectors) is always an option if high-level connection is not possible. When connecting to the low-level inputs in a system in which high-level connection is not possible, such as if using internally-amplified speakers, connect left and right phono cables between the LOW LEVEL INPUT jacks of the REL and the left and right channel outputs of your preamplifier.




When connecting to a home cinema system where there is a .1/LFE channel output, connect a single phono cable between the sub output of the processor/receiver and the .1/LFE input jack on the REL.

1 Positioning: The optimal position for a REL is in one of the corners behind the main speakers. This position provides 9 dB of mechanical amplification and allows for the most linear true low bass wave launch, owing to the ability to tune the REL to the longest distance in the room in order to produce the longest, therefore lowest, bass waves.

2 The Process: To begin the set-up process, choose a piece of music that has a repetitive bass line that is very low in frequency. We suggest track 4 from the soundtrack to Sneakers (Columbia CK 53146). This has a repetitive bass drum throughout that gives you plenty of time to move the woofer around, but more importantly, the venue was quite large for this recording, and therefore it has a very deep and large-scale bass signature. This type of track is perfect for the set-up process and should be played at the highest reasonable level expected for system playback.

Working with a partner, one in the listening position and one at the REL manipulating the controls, is the most effective and efficient way to set up the REL. If working alone, the initial steps in the set-up can be very effectively carried out from the location of the REL. Trying to ignore all other music in the track, listen for the bass drum and its effect on the listening room.

3 Phase Orientation: Once in the corner we need to adjust for phase. This may be the single most critical step, and because it really is quite simple, it is often over-thought. Keep in mind; the right phase is whichever position is the loudest or fullest. While playing music with true low bass, adjust the crossover to a point where the REL and the speaker are sure to share frequencies (about halfway up, or at 12 o'clock on the crossover control, or slightly higher for smaller speakers). At this point turn the HI/LOW LEVEL control up so that both the REL and speaker are roughly equal in volume and then switch, using the phase switch, from "0" to "180" phase positions. Again, whichever position is loudest or fullest is the correct position. That is, when the position is working in harmony with your main speakers, reinforcing bass, not cancelling it.



4 Placement: The next step is to determine precisely how far from the corner the sub should be placed to achieve the most efficient output, as well as the lowest frequency extension. With the REL fully into the corner, and pointing straight out along the diagonal coming out of the corner, continuing to play the music, slowly pull the REL from the corner on the diagonal, equidistant from both side and rear wall. At a certain point (sometimes a matter of only a few inches, in rare cases a foot or more) the REL will audibly go lower, play louder, and, if it truly locks on to the room and is fully pressurizing it, the air around the REL will seem to be energized, stop right there! This is the correct position from the corner for the REL.

5 Orientation: Once the position from the corner has been established, the orientation of the woofer must be determined by rotating the REL from an imagined centre point at the rear of the REL. As the REL is moved from one side to the other listen for the greatest level of output and bass linearity. In effect, the REL should be left in the position where it is playing the loudest and lowest.

6 Crossover and Level Settings: To determine the crossover point, take the volume of the REL (using the HI/LO Level control) all the way down, and put the crossover to 30 Hz. At this point, bring the REL's volume back up slowly to the point where you have achieved a subtle balance, i.e. the point at which you can hear the REL even with the main speakers playing. Now, bring the crossover point up until it is obviously too high; at this point bring it down to the appropriate lower setting. For all intents and purposes, this is the correct crossover point. Once this stage has been reached, subtle changes to volume and crossover can be accomplished to provide the last bit of complete and seamless integration. With that, set-up is complete.

Hint: *There may be a tendency to set the crossover point too high and the volume of the Sub-Bass System too low when first learning how to integrate a REL with the system, the fear being one of overwhelming the main speakers with bass. But in doing so, the resulting set-up will be lacking in bass depth and dynamics. The proper crossover point and volume setting will increase overall dynamics, allow for extended bass frequencies, and improve soundstage properties. Note, volume must be adjusted in conjunction with crossover changes. In general, when selecting a lower crossover point, more volume may need to be applied.*

Theatre Applications

For Dolby Digital AC3 or other 5.1 theatre systems, once the standard set-up for two-channel outlined above is complete, the LFE output from the processor or receiver should be connected to the .1/LFE INPUT and appropriate volume adjustments made using the .1/LFE level control. For this configuration, you must set the processor to the “large” or “full range” setting for the left and right speakers in order for the REL to receive the bass signal via the high-level cable. In this configuration, the REL provides support for both the left and right speakers for two-channel listening, and support for the LFE when movies are playing. Most processors will allow you to defeat the subwoofer output when listening in the two-channel mode. The effect of this set-up is one of greatly increased dynamics in the mid-bass range, no bass bloat, and a greater degree of space and timing from the special audio effects. For an even greater sense of space and impact, a second REL connected in parallel to the centre channel will prove to be a dramatic improvement as well. And if that is not enough fun, a rear REL, both to support the rear channel speakers as well as to evenly distribute LFE through the room, truly completes the full-range sonic picture for state-of-the-art film reproduction.

Running In

Care taken during run in will be rewarded by many years of pleasurable use. Both the electronics and the drive unit will benefit from an initial period of carefully controlled use. Possible damage may be sustained by running in the unit at too high a volume setting over an extended period. On the other hand, by taking a little care over this initial period, about 24 hours of actual use, a longer life with a higher potential eventual performance is assured.

Care and Polishing

The cabinets are best maintained by using an automobile polish made by reputable manufacturers. Our favorites are those made by Meguiars and Mother’s. If objects are to be placed upon the top, it is advisable to use a small mat to protect the surface and to avoid the risk of rattles.

Technical

The 212/SE models use an unusual method of bass loading. They are designed to operate below normal system resonance. This has been achieved without the normal form of bass boost or electronic equalization. Instead of a constantly increasing bass equalization response, we simply ensure there is sufficient amplifier gain to drive the speaker unit to its maximum excursion level at whatever the designated lowest operating frequency is, and then cut the bass at a controlled rate of 12 dB per octave above this frequency. Although this may at first seem identical to boosting the bass, it is actually quite different and ensures that the timing of transients is far improved compared to the usual bass equalization used. Bass will sound cleaner and faster.

The amplifier is fully DC coupled to avoid phase shifts and compromises in its low end performance. It is inherently stable and will retain its characteristics over very long periods of time – important in a unit designed for an exceptionally long working life. These amplifiers are designed to withstand reasonable abuse and overloads. If in doubt, please contact your dealer.

We believe that the importance of the electronics, cabinet and drivers being designed to work in harmony is paramount. This approach allows the 212/SE Sub-Bass Systems to achieve the highest possible level of fidelity.

Overload Protection

All REL Sub-Bass Systems are designed as true sub bass speakers. They are designed to reproduce those exceptionally deep notes that are felt as well as heard. This it will attempt to do at whatever volume level you set. If set too high no damage should result because the built-in electronics will limit the cone movement. This electronic control is called Set-Safe™. It constantly and instantaneously monitors the output from the power amplifier and is totally transparent in operation until required. This means it has absolutely no effect on the sound quality of your REL until an overload is detected.

Ordinarily an overload would cause the power amplifier to go into clipping with resultant loss of control over the drive unit. This can cause drive unit damage, and always sounds nasty. Set-Safe™ detects the point of incipient clipping and gently soft-clips the waveform of the signal to ensure actual clipping does not occur.

This is a necessarily simplified description of what actually happens, but in effect, Set-Safe™ controls the amplifier and ensures there is minimum risk of amplifier and driver damage caused by over-driving.

A thermal overload device is fitted to all 212/SE Sub-Bass Systems. If the unit is deliberately overdriven this device will sense the temperature rise and cut the output; recovery time is approximately five minutes. If this happens, it is a warning that the unit is being overdriven and the volume level control should be reduced to a safe level.

Although everything possible has been done to minimize risk of thermal overload failure, there can be no defense against those individuals who deliberately abuse the device. Such damage is NOT covered by warranty. Please remember your REL is there to supplement your main system, not overwhelm it!

Power Saving Efficiency:

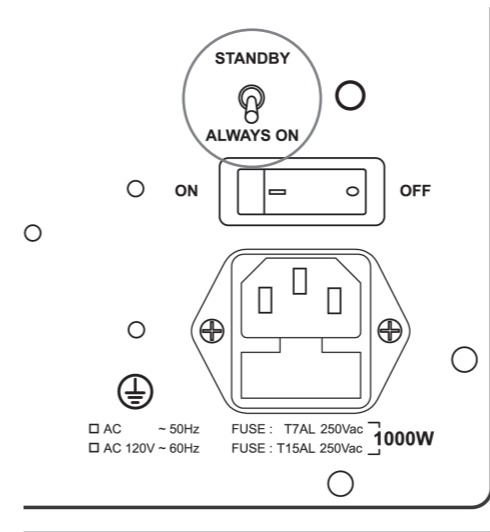
All REL sub bass system designs utilize a true On-Off switch that affords the owner the ability to turn off their unit completely, without having to unplug the A/C mains cord. When a REL sub bass system is switched off using the On-Off switch on the rear panel it draws ZERO power.

In addition to the efficient power-at-idle exhibited by all REL models, the 212/SE also features an automatic standby mode that is enabled when the power mode switch on the rear of the unit is set to the “STANDBY” position. In this mode, the input signal is constantly monitored for audio activity. If not audio information is detected over a period of 30 minutes, the unit will enter a low power standby mode in which less power is consumed. When input signal activity is detected, the unit resumes normal operation. By using the standby mode, you can ensure that there is no unnecessary power draw when the unit is not in use.

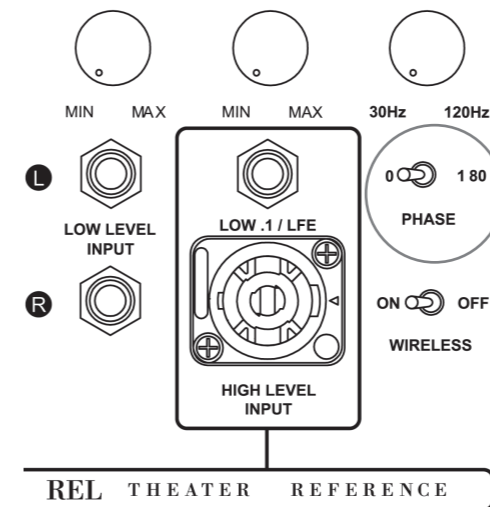
Note: *Due to variations in program material, it is impossible to produce a perfectly reliable standby circuit. Bass rich music or effects will consistently trigger our standby circuit whilst content that is low in volume and possesses little or no bass cannot be relied upon to trip the standby function.*

Alternatively, the user has the option to leave the unit in the normal operation mode at all times by selecting the “ALWAYS ON” position of the power mode switch. Leaving a REL on, produces the best sonic performance and the most reliable operation. In this mode, the unit will not enter standby regardless of whether or not there is activity at the input. Using this setting ensures that the 212/SE is ready to react instantaneously to bass transients, whether in music of movies.

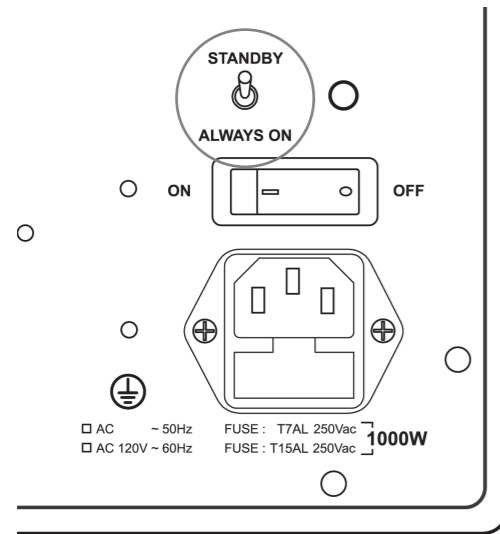
The REL 212/SE is shipped in the “ALWAYS ON” mode with the wireless receiver disabled.



During initial setup, use the REL this way. If you are using a REL Longbow™ transmitter for initial setup, the wireless switch must be enabled, please follow instructions for pairing included in the REL Longbow™ transmitter manual.



After initial setup, if you wish to employ the standby mode, simply move the power mode switch into the up position to “STANDBY”.



Model	Power Draw at Standby	Power Draw at Standby w/ wireless	Power Draw at Idle
212/SE	> 0.5 Watts	> 1 Watt	40 Watts

212/SE Specifications

Type:	Two front-firing active woofers, rear and down-firing passive radiator
Active Drive Units:	12 in., 300mm long-throw, die cast aluminium chassis
Passive Radiator Rear:	12 in., 300mm, die cast aluminum chassis
Passive Radiator Down:	12 in., 300mm
LF Response in Room:	21Hz at -6 dB
Input Connectors:	Hi Level Neutrik Speakon, Left and Right Lo Level phono, LFE phono, SMA connector for wireless antenna
Gain Control Range:	80 dB
Power Output:	1000 watts (RMS)
Phase Switch:	Yes, 0 or 180 degrees
Amplifier Type:	Next Gen II Class D
Wireless capability:	Yes – REL Longbow™ transmitter [required]. Sold separately.
Protection System	
Fully Electronic with SET-SAFE:	Yes
D.C. Fault:	Yes
Output Short:	Yes
Mains Input Voltage:	220-240 volts, 110-120 volts for certain markets
Fuses:	7 Amp semi delay 220 volts operation 15 Amp semi delay 120 volts operation
Dimensions (WHD):	Including feet and rear panel controls 17.2 x 32 x 20 in., (436 x 815.5 x 507 mm) Add 1.75in (44.5mm) in depth when using Hi Level connector
Net Weight:	122 lbs. (55.3 kg)
Shipping Weight:	TBD
Finish:	Gloss Piano Black
Supplied Accessories	
Mains Lead:	Yes
Neutrik Speakon Interconnect:	Yes (10 Meters Nominal)
Users Manual:	Yes

In the interest of product development, REL Acoustics Limited reserve the right to vary these specifications without notice