EDGE SA-1

&

EDGE SUBWOOFERS

MANUAL

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XTZ Values

Our basic philosophy is to recreate a balanced and natural sound with an optimum relation between price, performance and quality. This enables you to listen to your favorite music or movie with full joy and experience the sound like it was intended by the producer.

Our concept:

- Extensive development for advanced products
- Cost-effective manufacturing and sales strategy
- Meticulous quality controls
- Reduction of intermediaries

XTZ Group AB
Gamla Nissastigen 17
31441 Torup
Sweden

Phone: +46(0)345-20049
Email: support@xtzsound.se
Web: www.xtzsound.eu / www.xtz.se

Important Safety Instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this apparatus near water.
6. Clean only with dry cloth.
7. Do not block any ventilation openings. 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. This apparatus was evaluated for use in an operating ambient temperature of 45 °C.
10. Do not defeat the safety purpose of the grounding type plug. The grounding 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.
11. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
12. Only use attachments/accessories specified by the manufacturer.

13. Use only with 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.
14. Unplug this apparatus during lightning storms or when unused for long periods of time.
15. 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.
16. The appliance coupler is used as the disconnect device and shall remain readily operable.

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

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

WARNING! This apparatus shall be connected to a MAINS socket outlet with a protective earthing connection.

DANGER! No user serviceable parts inside. Service is to be performed only by XTZ.

See markings on the product.

The lightning flash with arrowhead symbol 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 and maintenance (servicing) instructions in the literature accompanying the product.

Introduction

We would like to thank you for buying this XTZ product. The electrical design of the subwoofer amplifier offers the ultimate in sound reproduction. In order to utilize your new device in the best possible way, please read this manual carefully before using the product for the first time. It often takes some effort and patience to make a HiFi system sound its best . If you don't have any previous experience from this kind of installations, please feel free to contact our free of charge support and we will help you. (See Support on the last page of this manual)

Safety instructions

Switch the amplifier off before connecting to your sound source. Make sure that the signal cables have a strong connection to the signal source.

Make sure that the electronics are not exposed to direct sunlight or strong artificial light. Listening at high sound pressure levels over a longer period of time may harm your hearing. To avoid hearing damage do not listen to high sound levels over a longer period of time.

Prior to installation

Please unpack the system carefully. Use caution when lifting or moving to avoid damage and/or injury. Save the carton and packaging for future use. Packing this unit in any other carton may result in damage when shipping that is not covered by the warranty.

AC power (220V / 115V)

Select appropriate AC power source for subwoofer. Do NOT plug the power cord of the subwoofer into the switched outlet of a receiver, or other piece of equipment. The power cord should be plugged directly into an AC outlet.

The unit itself recognizes the prevailing voltage so you don‘t need to adjust it to your local voltage level. In standby mode the amplifier consumes less than 0.2W (EU mains).

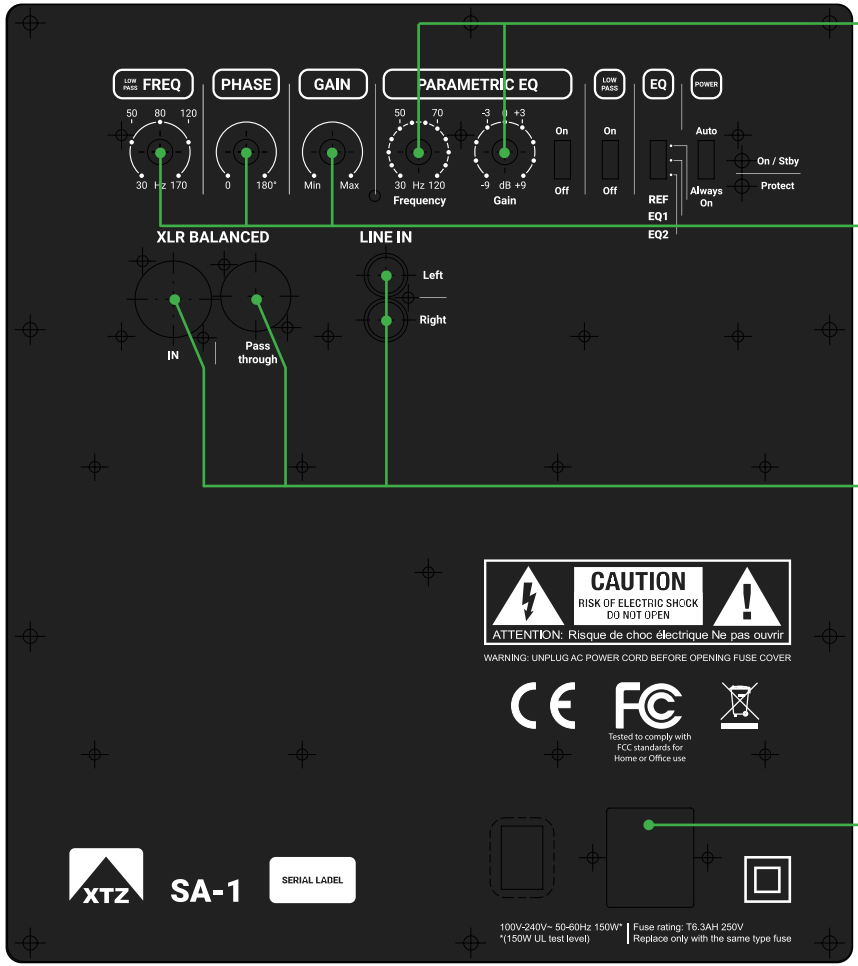
Placement

Allow adequate ventilation. Do not place it in an enclosed position such a bookcase or cabinet that may impede the air-flow and cause vibrations.

Cleaning the product

Switch off all components of your system when cleaning any of the components. Clean surfaces with a soft dry cloth only.

Connections & controls



ADVANCED CONTROLS (PARAMETRIC EQUALIZER)

- PEQ FREQUENCY — Target frequency for filter effect.
- PEQ GAIN — Controlling the level of cut or boost (-9 to +9 dB).
- PEQ ON/OFF — Select between Active(On) or Bypass(Off) mode.

MAIN CONTROLS

- FREQUENCY — Select the subwoofers upper frequency limit.
- PHASE — Correct the phase between your main speakers and subwoofer/-s.
- GAIN — Calibrate the subwoofers output volume.

INPUTS

- RCA LEFT — RCA input for the **Left** channel. (Left & Right channels are a sum).
- RCA RIGHT — RCA input for the **Right** channel.
- XLR IN — Balanced input.
- XLR PASS THROUGH — Signal pass through from balanced input.

POWER INPUT

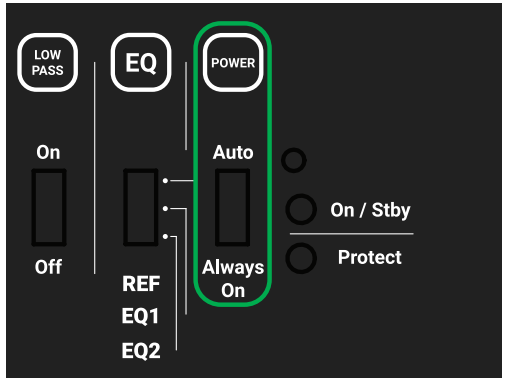
- AC POWER INLET — AC Power input and FUSE compartment.
- FUSE — Do only replace with “T4AH 250V” rated fuse.
- POWER SWITCH — Main power switch (toggle).

LINE IN L & R	LFE & Unbalanced RCA inputs for left and right channel. Choose the left one when using LFE signal. The left and right inputs are a sum, providing bass for both channels.
XLR BALANCED IN	This is a balanced version of the LFE signal
XLR BALANCED Pass Through	This works as a pass through for the XLR balanced signal, this makes it possible to connect several subs with one signal from the source.
FREQ	This control allows you to adjust the upper limit of the subwoofer's frequency response from 30 to 170 Hz. The subwoofer's output level will be reduced above the frequency this control is set to. You should set the crossover frequency to obtain a smooth and seamless transition from the subwoofer to the main speakers in your system. If your main speakers are smaller units with limited low frequency output, start with a higher frequency (such as 100-150 Hz). With larger speakers that have greater low frequency output, you might start with this control set lower (such as 60-100 Hz). (4th order LPF, 24dB/oct.)
PHASE	This control allows you to alter the phase of the subwoofer's output signal , 0° - 180° to correct for a possible mismatch and resulting cancellation between the subwoofer and your main speakers/amplifier. To adjust, listen to the system with music playing and tune between 0° and 180° and listen for a change in mid-bass output. The correct position will have a higher amount of apparent mid-bass output.
GAIN	This control allows you to adjust the output level of the subwoofer to match the main speakers in your system. For most home theater receivers & surround sound processors, set the gain control to a 9 o'clock position. For music systems, start with the gain control at a low setting and proceed slowly from there until the levels match. The use of test tones (from a receiver/processor's built in calibration function or test disc) and SPL meter are suggested for proper level matching of all speakers.

Low Pass	The low pass filter cuts away high frequencies at a certain point and over, the frequency point is set by the crossover variable. We recommend that when using LFE signal to turn the low pass filter off, as most receivers are handling filters internally.
EQ	This switch allows you to choose between the three different EQ settings. REF, EQ1 & EQ 2 are explained in the “EQ” section, found on page 12.
PARAMETRIC EQ On / Off	At the “**On**” position the PEQ filter is active. At the “**Off**” position the PEQ filter is bypassed and does not influence the signal in any way. More info is found in the "PEQ" section, found at page 15.
PARAMETRIC EQ Frequency	The frequency potentiometer allows the user to fine trim the frequency area that need to be tuned.
PARAMETRIC EQ Gain	The gain potentiometer allows the user to adjust the boost or decrease of the targeted frequency.

Power AUTO/Always ON

With this function in the “AUTO” position, your subwoofer can be safely left with the main power switch on continuously. The subwoofer will turn itself on automatically when an audio signal is present. If no signal is present for approximately **13 minutes**, the unit will switch to standby mode (indicated by red power LED color). While in standby mode, your subwoofer will only need minimal power. This function can be disabled by setting this switch to the “OFF” position.



LED Indicators

LED	Color	Function
On/Stby	GREEN RED	The unit is turned on and working normal In standby mode, waiting for signal to power on.
Protect	RED	In protect mode*

* In the unlikely event that an over-current or over-temperature situation should occur, the Protection LED will turn on and the amplifier will be in protect mode. Turn the Amplifier off with the main power switch, and let it rest for 10 min before you turn it back on. If the same issue occurs again, please contact XTZ personnel.

Power Switch

The master power switch is located on the lower half of the unit. This rocker style switch is the main on/off for the unit. This switch should be set to position 1 (up) for on, and 0 (down) for off. If the unit is to be left unused for an extended period of time (e.g. when you are away on vacation), the master power switch should be turned off, or the main power cord disconnected.

Sound Adjustments (EQ, Port Tuning, PEQ)

EQ

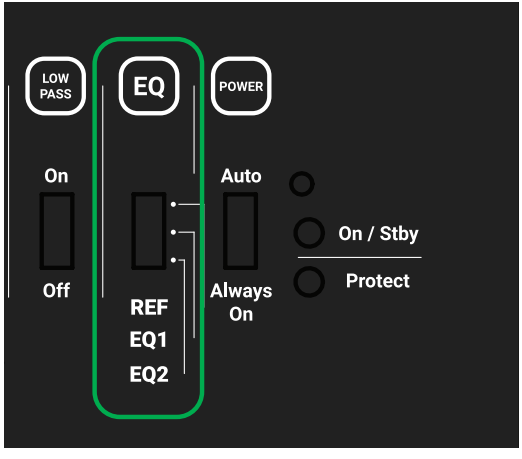
This control allows you to adjust characteristics of the subwoofer to match the room and speakers in your system. EQ “equalization” aims to get as even frequency response as possible in your sound system.

The subwoofer has a switch marked with “EQ”, this allows you to choose between three different EQ “Characteristics” settings.

- **REF** Gives a extended frequency response for the deepest bass, however the lower frequencies can be over represented and “muddy”, depending of the room geometrics, placement of the sub and listening position. (Reverberation)

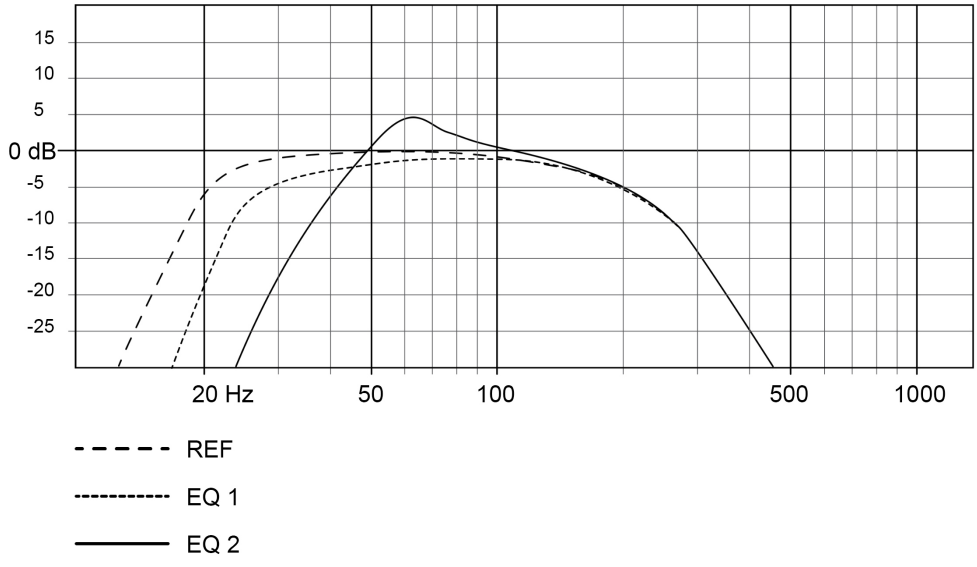
- **EQ1** Is a direct countermeasure to the “muddy” bass problem of over represented low bass/room gain, by lowering the bass extension, the bass will be more controlled.

- **EQ2** Stores more energy a bit higher in the frequency, recognized as a more punchy fast bass

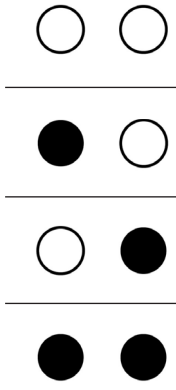


EQ cont.

The picture below shows the effects of the different EQ settings. (These curves illustrates the frequency response of a anechoic room, have in mind that the frequency response will change depending of the room and placement of the subwoofer and listing position. E.g. A setup in a regular room with the EQ 2 could have a total frequency response that extends much lower than represented in the graph below due to room gain.



Port Tuning



The icons above represent closed and open ports from a front view.

White = Open
Black = Closed

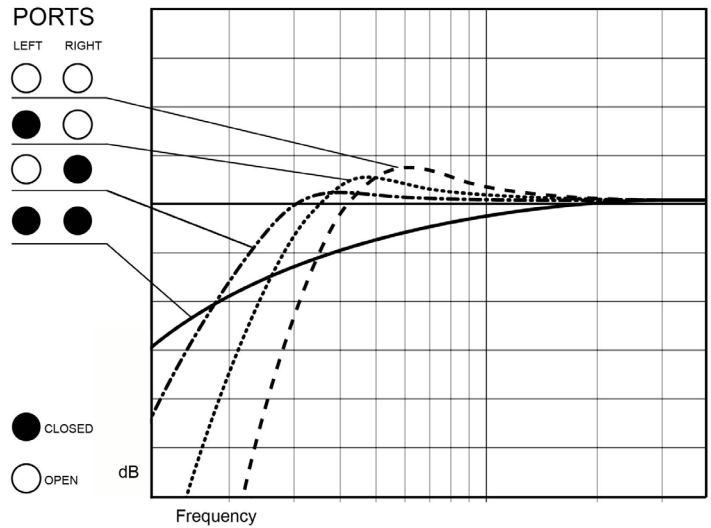
As a part of XTZ room tuning concept, our subwoofers are often supplied with two ports and foam plugs. By using the supplied foam plugs in the bass reflex ports, you can alter the lower boundary frequency of the subwoofer. This makes it possible to alter the sound characteristics of the subwoofer. The picture below shows four settings:

Tuning - High freq.
With no plugs in the ports the subwoofer will provide a “quick” and “punchy” bass character. It has increased output higher up in frequency.

Tuning - Mid freq.
If the left port is blocked and the right port is open, this will provide a bass with an increased output in the mid region.

Tuning - Low freq.
If the right port is blocked and the left port is open, this will provide a deep bass with an increased output in the lower frequencies.

Closed
With both ports blocked this closed box will provide a dry and controlled bass character.



Parametric EQ (PEQ)	The SA-1 subwoofer amplifier has a built in parametric equalizer. A parametric equalizer (PEQ) is an adjustable filter and a very powerful tool where the user can target and compensate for issues with room modes and nodes that are unique for every listening area. To use this function in the best way, we recommend using a measuring equipment like the “XTZ Room Analyzer II Pro” to see how the listening area is performing. Start by Real Time Analysis (RTA) measuring (at ear height) a couple of different places in your listening spot, to see if a certain frequency range have a repeating pattern e.g. a “dip” or “peak”. Set the PEQ to On, then set the gain to either +9 or -9 to see what frequency is targeted. Trim the frequency to the correct spot and adjust the gain to balance out a dip or a peak.
On / Off	At the “**On**” position the PEQ filter is active (If it does not show in the measurement, Check that the Gain potentiometer is set to a value greater or lesser than 0dB) At the “**Off**” position the PEQ filter is bypassed and doest not influence the signal in any way.
Parametric EQ Frequency	The frequency potentiometer allows the user to target the frequency area that need to be tuned.
Parametric EQ Gain	The gain potentiometer allows the user to adjust the boost or decrease of the targeted frequency.

Installation

Cables - RCA unbalanced

When installing your new subwoofer using unbalanced RCA connections, you should use high quality shielded coaxial cables. Poor quality cables may pickup interference and result in hum or noise. Keep the length of cable as short as possible and route all input signal cables away from power cables to reduce the potential of induced noise.

Cables - XLR

When using balanced XLR connections, be certain to use a high quality cable that maintains proper connections to each pin, the pins are often marked with numbers. If an XLR cable that is improperly wired is used, subwoofer performance may be degraded and you may experience increased noise and/or hum. Due to various design differences between different brands & types of equipment (e.g. different ground methods for power supplies and signal reference) and long cables required in some installations, there is a potential for any product to pickup noise via the connections and/or connected equipment (via ground loops). If you have audible hum/buzz after completing your subwoofer connections, you may need to modify your equipment's cables, routing, or connection methods (power line connections and/or signal cables).

Placement

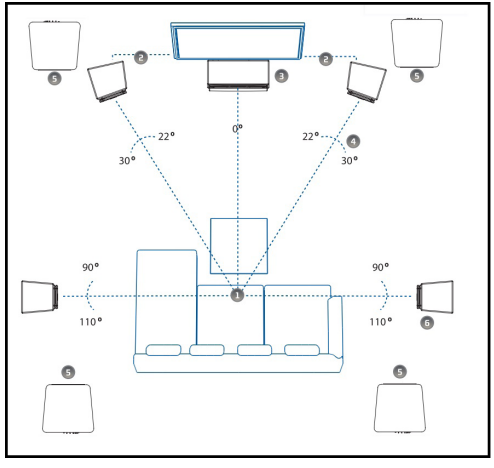
While true subwoofers operate at extremely low frequencies which are primarily omni-directional, keep in mind that frequency response and output level can be dramatically influenced by where you place the subwoofer within the room. Placing the subwoofer in the wrong location may degrade sound quality, limit low frequency response and reduce maximum output level, substantially reducing your overall listening pleasure. Many rooms often end up with non-optimal placement, depending on the size and location of the furnishings within your room, and if the possibility to reposition them exists or not. Finding the optimal location usually requires some experimentation to determine what sounds best in your room, from your listening position. We suggest you read the general guidelines below and setup the subwoofer in one of the suggested locations.

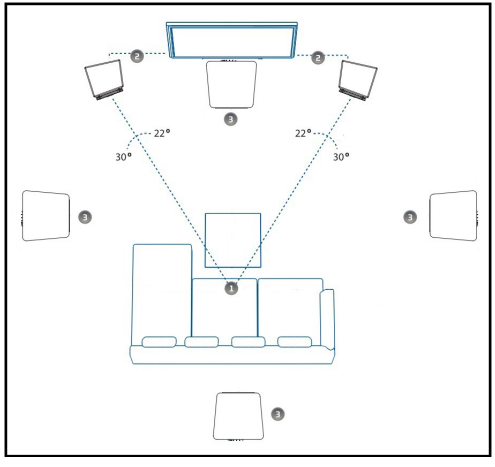
Proceed to listen to the loudspeakers multiple times, trying a few different locations before settling on the final location. To do this, perform basic setup and listen to a familiar music track or movie scene. Then move the loudspeakers to an alternate location & repeat listening to the same music track or movie scene. If you have a test CD and SPL meter or preferably a measurement system such as Room Analyzer II Pro, performing a basic frequency response test can help you determine which location provides the best frequency response.

General guidelines

In most rooms, the optimum location for your subwoofer is in the closest solid front corner or somewhere along the front wall in line with your front speaker.
This location typically offers optimal energy coupling with the room, front-speakers and the deepest low frequency extension, with the best high impact bass. Try to avoid location for a subwoofer that is far away from walls or near the center of your room. When using a pair of subwoofers in stereo, it is preferable to place each subwoofer by the satellite of the same channel, see figure below to the left. If you want a more flat frequency response and the bass evenly distributed over a larger area of listening positions, then four subwoofers one in each corner is a terrific option.

The figure below to the right shows alternative subwoofer placement options with subwoofer/- placed at the midpoint of the wall. This can be used for one subwoofer with the subwoofer placed in the front, for two subwoofers with the subwoofer placed at the front and back and for four subwoofers with the subwoofers placed in the mid point of each wall.





Connections

All connections for the subwoofer are located on the rear of the unit. Whether you choose the LFE (Low Frequency Effects) coaxial, Left & Right coaxial or XLR-input, the subwoofer is auto selecting the one input where there is signal.

Multiple subwoofers

When connecting multiple subwoofers, it is recommended to use the XLR pass through to the next subwoofer. The pass through is a signal split the XLR input. It is also possible to use the RCA signal connections,however you will need to use “Y” cables (signal splitters) to route your amplifier/receiver/processor output to each woofer if it does not have multiple “SUBWOOFER” output jacks or L & R variable signal output.

Connections (Noise issues)

To ensure a safe management of the amplifier and speakers, always only connect and disconnect signal cables and speaker cables when the amplifier is shut off with the main switch on the back side. Always use signal and speaker cables as short as possible and of good quality. Long signal cables of poor quality works as antennas, and might in some cases create noise. Always connect using the correct phase, from the plus (+) pole on the amplifier to the plus (+) pole on the loudspeaker and respectively for the minus (-) pole.
Earth ground is often used to reduce noise from electrical interference from outside the casing, however in some cases several electrical devices which are connected to the same grounding grid can create loops that pick up interference i.e. ground loops. There are a couple of ways to fix this problem:

- Use the same power strip / power outlet for the interfering equipment.
- Use short as possible signal cables of high quality to minimize resistance and impedance.

Default subwoofer settings

Home Cinema System

In this case, the bass management is performed by the AV Receiver or another external device. We recommend the following subwoofer settings (please use any of the Line In inputs or the XLR Balanced input.)

Crossover	170 Hz
Phase	0°
Gain	9 o'clock
EQ	REF (may be adjusted later)
Parametric EQ	Off
Power-mode	AUTO or ALWAYS ON
Bass port	Left port open and right closed, more options are available on page 14.

Music System

In this case, the bass management is performed by the subwoofer. We recommend the following subwoofer settings (please use any/both of the Line In inputs or the XLR Balanced input.)

Crossover	Choose a crossover frequency depending on the lower limit frequency of your speakers. If you use small speakers, 100-150 Hz is reasonable. If your speakers are large, use 60-100 Hz.
Phase	Set the phase in a way that offers the loudest bass in combination with your other speakers at your listening position.
Gain	Choose a volume level that fits to the other speakers of your system.
EQ	REF (may be adjusted later)
Parametric EQ	Off
Power-mode	AUTO or ALWAYS ON
Bass port	Left port open and right closed, more options are available on page 14.

Calibration

Introduction

For optimal performance, you should calibrate your system to ensure proper level matching between all speakers and the proper setting of all controls (including crossover frequency, phase, and any channel delays your receiver/processor may offer). This procedure will vary depending on system configuration and the information below is provided as a basic guide to assist you. Refer to the owner's manual for your receiver/processor for information on performing the steps required to enter their setup mode and adjust any applicable settings.

After all connections have been made, turn on the AC power to your system, starting with the first piece of source equipment in the signal chain (such as a CD or DVD player), then power on any dedicated equalizer, then power on your receiver/processor/amplifier(s), and last but not least, power on the subwoofer-/s. You will need to enter your receiver's/processor's setup mode and adjust any applicable speaker settings to properly match your system configuration

Receiver/Processor With Automated Setup & Calibration Function

After you have verified all speakers are connected and you have measured distances of each to the listening position, perform the auto-setup routine on your receiver/processor (if available). Many newer home theater receivers/processors combine a measurement microphone and an automated setup routine to assist you with proper setting of speaker levels, crossover frequency, speaker delay and phase. Consult the owner's manual for your receiver/processor for further instructions on how to perform the setup routine. After the auto-setup routine is complete, verify the final settings the receiver/processor selected to ensure there are no erroneous settings (e.g. the settings should match your system configuration). Some settings to verify may include:

- Number of speakers (e.g. 7.1 or 5.1 system, etc.)
- Type/size of speakers (e.g. small or large front/surround and subwoofer set to yes/on)
- Crossover point should be similar for identical speakers (e.g. if your system using 3 of the same speakers for all front channels, verify the receiver/processor selected the same crossover point for all these channels)
- Crossover frequency should be selected. We recommend 80Hz for the satellite speakers to start with. Higher or lower crossover point may yield better results in your system depending on your speaker setup
- Note: some receivers do not have an adjustable frequency, instead there is only a choice of "small" or "large". In this case, we recommend choosing "small".
- Gain settings for each channel should be reasonably close (e.g. if the speakers are placed at even distances, the gain setting for each channel should typically be within a couple dB from channel to channel). If the receiver/processor gain trim setting for the subwoofer channel is a large value (e.g. +12 or -12dB) you may need to increase or decrease the subwoofer's volume to achieve a better match.

- Low subwoofer gain/trim settings (on your receiver/processor) effect the operation of the “AUTO ON/OFF” signal sensing circuit. If your receiver/processor gain is set to a low values (e.g. attenuating the signal -6dB or more) this reduces the signal available to properly “turn on” the subwoofer when using the “AUTO ON/OFF” feature. If your subwoofer turns off unexpectedly when watching movies at low volumes, you may wish to increase the receiver’s/processor’s subwoofer gain trim, and manually reduce the volume using the subwoofer’s “VOLUME” control to maintain proper balance.
- Polarity/phase; This should be adjusted for smoothest frequency response near the crossover point.
- EQ settings; if your receiver/processor allows you to see the EQ settings for each channel, verify that it is not adding any extra “limiter”, or “HPF” to the subwoofer channel, and that it is not adding a high level of boost (e.g. >+3dB) or cut (e.g. -10db).

NOTE:
In some installations, automated room eq algorithms may make undesired changes to the subwoofer signal settings trying to obtain what they believe is the best room response curve. In some systems these changes have been known to degrade the overall sound quality of the subwoofer. If using a receiver/processor with automated room EQ- function, we advise you listen to the system first with the EQ disabled, then again with the EQ enabled, to determine if the changes are beneficial.

Receiver/Pre-amp Without Automated Setup

Older receivers and/or music preamps may not provide an automated setup function. With these systems, optimal calibration usually requires some type of test equipment be utilized to provide test tones and take measurements to properly calibrate your system. Some equipment you may use for this includes:

- One of our measurement systems Room Analyzer II / II Pro. They are excellent tools to use when optimizing and setting up subwoofer/-s or other speakers in a system.
- Test signal source; pink noise and/or sine wave of various frequencies (CD, DVD, your receiver/pre-amp, or external measurement equipment)
- SPL meter
- RTA or other frequency response measurement tool (optional)
- Start with a quiet room free of excess background noise (e.g. people talking, kids playing, dogs barking, etc.).
- Verify that subwoofer control settings match illustrations for your type of system configuration
- Set any receiver/pre-amp speaker settings to an appropriate starting point (e.g. crossover). We recommend 80Hz crossover as a good starting point.
- Start playing a test signal with energy in the subwoofer crossover region (e.g. full bandwidth pink noise) through all speaker as you measured from the first speaker

- While observing an SPL meter (or listening to the mid-bass level), have an assistant adjust the “PHASE” switch between 0° and 180° and observe any change in mid-bass level near the crossover frequency. Set the control to the position with the highest/loudest amount of bass.
- Play a test signal (e.g. pink noise) through only 1 speaker at a time. If using your receiver, you may need to enter it’s setup mode to perform this function.
- Place an SPL meter in your typical listening position, approximately at ear height (use of a tripod may be required), and set to “C” weighting and “Slow” response (if those settings are available)
- Adjust volume to a modest level -typically 75-85dB (loud enough to clearly hear, but not excessively loud)
- Adjust controls as necessary to play the same test tone through each speaker and subwoofer/-s in the system, 1 speaker at a time.
- Adjust the individual channel gain/trim of your equipment to obtain the same SPL reading from each

NOTE

A home theater receiver may walk you through portions of this procedure. Follow any instructions from your receiver’s owner’s manual as applicable to your system setup. Once finished, listen to some familiar music and movie tracks. Minor adjustment of the levels may be desired. Do not be afraid to experiment with adjustments and try different EQ settings to find what may improve the sound in your system and room the best!

Volume, phase and crossover frequency (also placement of listening position and placement of the sub) are depending on each other, if one of these parameters is change the other are also changed. I.e. if the crossover frequency is changed it also influences the volume and phase, so they need to be compensated for this effect. In a room there is never any absolute correct phase over the whole frequency range, phase needs to be set to arrange the best result over the whole frequency range.

There are limitations on how well the bass management works in a receiver/processor. The settings for the subwoofer/-s might need to be adjusted manually either on the subwoofer/-s OR preferably in the receiver/processor. For some cases when having only one “SUBWOOFER” output jack and multiple subwoofers and the subwoofers are not placed symmetrically in the room (e.g. having an opening on one side of the room) you might need to apply different settings for the “PHASE”, “VOLUME” and EQ setting on the subwoofers. There is also the option to use one of our measurement systems Room Analyzer II / II Pro. They are excellent tools when optimizing and setting up subwoofer/-s or other speakers in a system. Do not be afraid to experiment with slight adjustments to find what may improve the sound in your system and room the best way.

Do not hesitate to contact us at info@xtz.se for questions about settings. We are happy to assist you in optimizing your system!

Practice of sound / Installation and placement tips

The following points contains common information on loudspeaker placement and installation. These are general rules, so there are exceptions.

How do i achieve the best sound?

No matter how good the equipment is, in the wrong listening environment it will inevitably sound bad. There are some basic rules concerning a proper loudspeaker installation:

Reflections

Carpets, curtains and soft furniture absorb mid range and high frequency sounds, and this is normally preferable. Big empty areas, on the contrary, reflect the sound which might lead to a blurry and unprecise sound. Apart from coloring the sound, also the perspective of the sound will deteriorate. Reflections in the room can roughly be compared to the reflections that cause ghost pictures on a TV screen.

Amplification of bass frequencies

A loudspeaker that is placed near a wall, ceiling or floor will amplify lower frequencies in a sometimes not desirable way (since it may lead to an indistinct sound reproduction). This amplification becomes even more obvious if the loudspeaker is placed near a corner. Thus, for a sound as clear as possible, the loudspeaker should be placed at least 30 cm (about 12 inch) away from the wall.
Some constructions are designed to be placed close to a wall.

Furniture

Be aware that furniture may vibrate creating bad sound at loud bass levels.

Room dimension

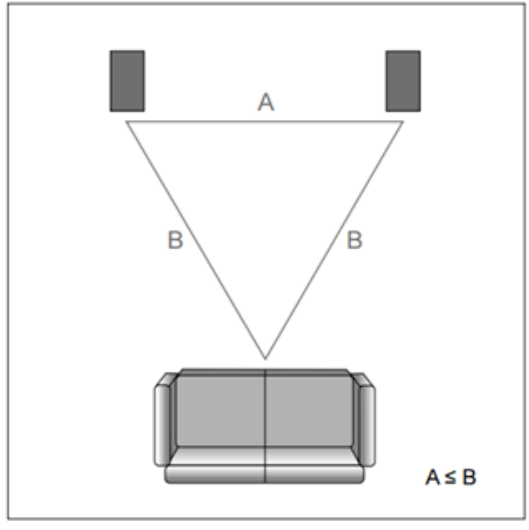
Quadratic rooms or rooms where the length is exactly twice as long as the width should be avoided, since they may create unwanted resonances.

Cables

Try to keep the cables as short as possible. By its electrical parameters, a long cable will have a bigger influence on the sound than a short one. It may also work as an antenna picking up various signals that may become a constant noise. Make sure that all connections are clean and free from oxidation. All connections should be mechanically stable, both power, signal and loudspeaker cables. Signal cables should be separated from other cables.

Speaker Placement

To achieve the best results the front speakers should be placed symmetrically in front of the listener. The distance between the front speakers should be about 80% of the distance to the listener. In other words, the recommended angle between the front speakers is 45°.



Finally

Please remember that good sound is a matter of taste, so you have to experiment to obtain your favorite one. We wish you best of pleasure.

Protection circuitry

Your new subwoofer is equipped with special protection circuitry to provide maximum performance with greatest reliability.

The protection circuitry prevents overheating and operates constantly without being audible. In some extreme situations (e.g. sustained high output levels in warm environments), the unit may shut down momentarily. This indicates operation of the thermal or over-current protection circuitry. If this should happen, turn the Amplifier off with the main power switch, and let it rest for 10 min before you turn it back on. If the same issue occurs again, please contact XTZ personnel.

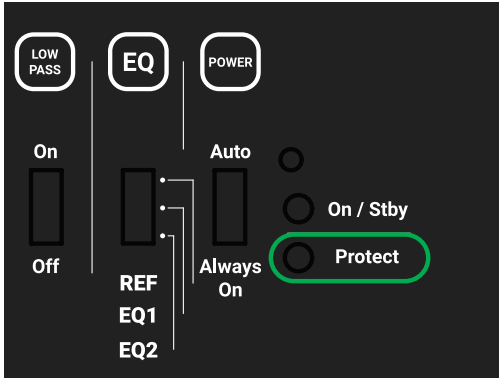
Warning!

WARNING: There is no protection circuit for longterm excessive volume use for some parts in the amplifier and speaker driver, in this case critical components may break due to sheer exhaustion.
Note: If clear audible distortion appears at high volumes, it is recommended to lower the volume.

LED Indicator

LED	Color	Function
Protect	RED	In protect mode*

* In the unlikely event that an over-current or over-temperature situation should occur, the Protection LED will turn on and the amplifier will be in protect mode. Turn the Amplifier off with the main power switch, and let it rest for 10 min before you turn it back on. If the same issue occurs again, please contact XTZ personnel.



Technical Specifications

EDGE **SA-1**

Amplification type	ICEpower® - triple loop feedback CLASS D
Power	1 x 700 W (1% THD, 4 Ω)
Max output voltage / current	76Vp / 30Ap
Minimum load	2.5 Ω
Nominal voltage gain	27.4 dB
Distortion	0.0008% THD+N (100 Hz, 50 W, 4 Ω) | 0.02% THD+N (100 Hz, 600 W, 4 Ω)
Damping factor	>1500 (8 Ω, 20 - 500 Hz)
Dynamic range	117 dB S/N, (A-weighted at 700 W, 4 Ω)
Standby power consumption	0.17 W
Idle power consumption	22 W
Auto on trigger level	6 mV
Standby mode timer	~ 13 min
Inputs	XLR Balanced & RCA Unbalanced Connections
Input impedance	23 kΩ
Output impedance	6 mΩ

Troubleshooting and service

If you should experience a problem with the operation of your subwoofer, please check all of the following before seeking service. Following is a simple troubleshooting guide to assist you.

NOTE

1. Verify unit is plugged in and that the power outlet used supplies the proper AC voltage & current.

2. Is the power switch on?

3. Has the external fuse blown? Unplug the power cord from the amplifier, then use a small screwdriver to remove the fuse holder cartridge (located below the cord connection), and inspect fuse for damage. If blown, replace with the same type & value fuse.

4. Is the auto turn on/off properly set for the inputs used?

5. Is the subwoofer receiving an input signal from your source equipment?

6. Have all controls on the subwoofer (volume, crossover, phase, etc.) been properly set?

7. Is the volume control properly set to match source signal level?

8. If the subwoofer has been running at high levels for an extended period of time, one of the protection circuits may be engaged;

- Does the built-in amplifier panel feel extremely hot (located on the rear of the cabinet)?
- Is your AC power line circuit sufficiently rated to supply adequate VA required for full amp output? If your power line is not capable of supplying enough energy, the maximum output power will be reduced & distortion may become audible.

9. If the protection circuitry is active, the unit may cycle on and off until operating parameters return to normal. Under more serious conditions, the unit may shut off completely. Normal operation should return upon cooling, but depending on the type of fault condition you may be required to turn the main power switch off for several minutes and then back on again to reset the unit.

NOTE cont.

10. If the unit exhibits a drastic change in output sound, after you check the items above you may wish to perform the steps below to assist in troubleshooting by verifying the proper operation of both amplifier module and driver;

- Turn on your audio equipment, except for the subwoofer's main power switch, which should remain "OFF"
- Prepare to play a 20 to 30Hz sine wave (test tone) from your CD/DVD test disc, smart-phone, computer, or other signal source (note: if you do not have this type of test signal, contact customer service or your place of purchase for assistance)
- Adjust the volume of your equipment & the subwoofer to a medium-high volume level
- Start playing the test signal
- Prepare to carefully listen to the subwoofer's low frequency output (make sure the room is quiet)
- Turn the subwoofer main power switch "ON"
- After a couple of seconds, you should hear amplifier & driver start playing in a loud, somewhat uncontrolled fashion, with extra harmonics (warmer fuller sound that normal)
- Turn down the volume or stop the test signal after a few seconds
  The above process helps determine if both amps & drivers are functional. If there is no change from the 2nd amplifier and driver powering up, repeat the test. If you are still unable to hear the 2nd driver and amp power up, further troubleshooting by a qualified technician may be required.

Notes

XTZ Group AB

Gamla Nissastigen 17

31441 Torup

Sweden

Phone: +46(0)345-20049

Email: support@xtzsound.se

Web: www.xtzsound.eu / www.xtz.se