



LT 7

Home Theatre Loudspeaker Set with THX® Select Certification

LT 7 Concert Set 5.1 THX Select

LT 7 Concert Set 5.1 Wireless Digital

Teufel

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Terms of warranty

Lautsprecher Teufel GmbH provides a twelve-year warranty for loudspeakers and a two-year warranty for amplifiers and electrical components, starting at the purchase date. The warranty covers all materials and time needed. The warranty does not cover devices damaged as a result of improper use or electrical/mechanical overloading. The original Teufel invoice is your proof of warranty. This warranty applies exclusively to loudspeakers, amplifiers and electronic components purchased by consumers from Teufel for private usage. The warranty does not apply to loudspeakers, amplifiers and electronic components sold to consumers through third-party dealers. For third-party products supplied together with the Teufel system, the terms of warranty of the manufacturer in question apply. When Teufel products are resold privately, the warranty may be transferred to the new owner. For this, the new owner requires the original Teufel invoice.

Returns policy

Teufel provides an eight-week right of return with a money-back guarantee.

You may only return individual components from a set if Teufel offers these components for sale separately. If you return one or more individual components from a set, this voids the discount that Teufel provides on the sale of components as a set. This means that for individually returned components from a set, you will be refunded the difference between the set price and the sum purchase price of the individual components you decide to keep, i.e., we will deduct the discount that applies to set purchases.

For further information on returns, please refer to the returns form provided with your shipment (or online at www.teufel.eu in the support section).

If you decide to return any or all of the purchased goods, please always contact us first.

Note that we can only process and accept returned goods if you have telephoned us in advance and discussed the required returns procedure.

We recommend that you hold on to the packaging of all your new Teufel products, as we only accept loudspeakers back within the initial eight-week return period if they are shipped in their ORIGINAL PACKAGING. We do not provide packaging boxes separately.

Technical specifications

All technical specifications are listed on our website at www.teufel.eu.

If you have any questions, suggestions or criticisms, please contact our service team:

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Congratulations on purchasing a Teufel LT 7 Home Theatre loudspeaker set. The LT 7 is a high-quality system that offers numerous advanced functions to calibrate the individual speakers accurately to your listening environment and preferences. This Quick Guide will help you to set up the system immediately so you can gradually experiment with its extensive configuration options. We recommend setting up the LT 7 system step by step:

Step 1: Unpacking the loudspeakers

Open the top flaps of the cardboard box, take out the Styrofoam padding, and carefully lift the loudspeaker out of the box. Next, make sure that your shipment includes all the components of the system (see Chapter 3).

Step 2: Placing the loudspeakers

We recommend using one of the following two loudspeaker placement options, which only vary in their positioning of the rear speakers (also see Chapter 5):

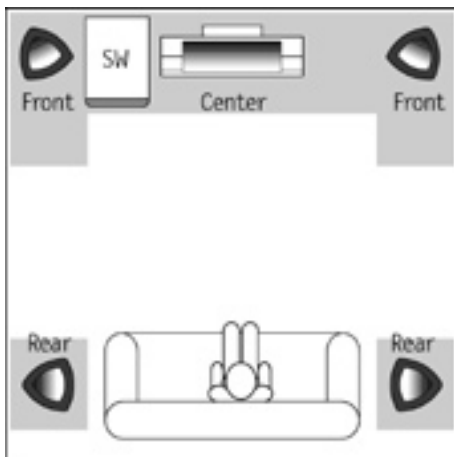


Figure: Speaker placement option A

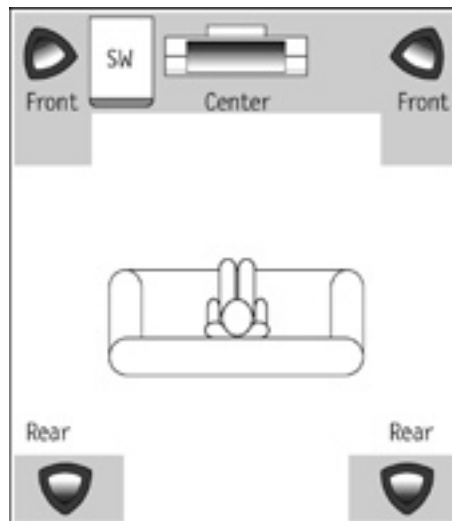


Figure: Speaker placement option B

Step 3: Connecting the loudspeakers

Next, connect the individual loudspeakers to your AV receiver/amplifier.

For all the cable connections, please refer to the diagram below (also see Chapter 6):

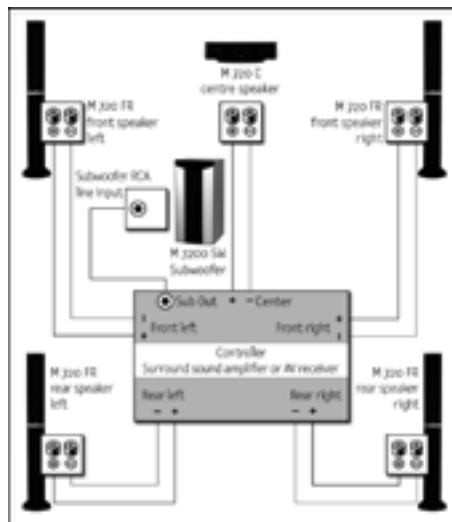


Figure: Audio connection diagram

For the wireless loudspeakers, of course, you will not need any audio cables (although you will periodically need to plug in a power cable to recharge their batteries). Instead, connect the audio signals for the wireless speakers directly to the accompanying transmitter unit. Note that the inputs on the transmitter are at line level, so you need to connect it to the AV receiver's preamp outputs (Pre Outs) rather than the speaker outputs.

Before you can commence using the wireless speakers, you need to charge up their built-in batteries by plugging them into the mains. Once the batteries are charged, you can activate the speakers by turning on the power switch and pressing the “Standby On/Off” button on the rear panel. Plug in the transmitter unit and switch it on via the front panel; the wireless connection to the speakers is established automatically (also see Chapter 7).

Step 4: Setting up the AV receiver/amplifier

In the “Speaker Setup” section of your AV receiver/amplifier, enter the following settings:

- ▶ Set the loudspeakers to “small” or “normal”; not “large”.
- ▶ Activate the subwoofer output (Sub Out “On”).
- ▶ Set the crossover frequency to “80 Hz” (also see Chapter 9).

Step 5: Setting up the subwoofer

Before you have familiarised yourself with the subwoofer’s configuration options in greater detail, we recommend running the subwoofer using the default presets.

The presets are accessed via the menu display, which is only available when the subwoofer is fully activated: Connect the mains power cable and turn on the power switch on the rear panel. Next, press the “On/Standby” button to switch the subwoofer into active mode.

The menu can only be accessed via the display and buttons on the subwoofer’s front panel. To open the menu, press the “Enter” button (also see Chapter 8).



Figure: Display and controls on the M 7200 SW

Use the “Up”, “Down”, “Enter” and “Return” buttons to navigate through the individual menu items. To load up the desired preset, navigate to the “Presets” menu. Select the preset in question and confirm your selection by pressing the “Enter” button. The “Presets” options are described in-depth in Chapter 10.

Step 6: Calibrating the speaker levels

To match up the levels of the individual LT 7 speakers, use the sound level meter supplied with the system. Proceed as follows:

Place the level meter at your main listening spot and point it directly at the front centre speaker. Start the white noise generator of your AV receiver/amplifier and successively set the individual channels to the same volume level in reference to the sound level meter. Make sure not to alter the position or direction of the sound level meter during the calibration process.

Use the Teufel sound level meter as follows:

- ▶ Remove the protective tab from the battery.
- ▶ Set the weighting to “C”—only the “C” setting is suitable for measuring the entire frequency spectrum.
- ▶ Set the response to “Slow”.
- ▶ Set the range to “70”.
- ▶ Start the white noise generator on your AV unit.
- ▶ Adjust the levels for the individual channels on the AV unit so that the sound level meter always displays 75 dB (i.e., between “+4” and “+6”).

Done!

Your LT 7 system is now fully operational. We hope you’re ready for the ride—enjoy!

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1. Safety guidelines

Please read the following safety guidelines very carefully.

Packaging materials, particularly plastic bags and foils, should be kept out of children's reach, as these can be dangerous (e.g., risk of suffocation). Never leave your children alone with electrical devices, as there is potentially always a risk of electrical shock.

In case of an emergency: Immediately disconnect the unit's power plug from the mains socket. In the following cases, please contact one of our service technicians:

- ▶ Power plug or cable is damaged
- ▶ Liquid or other foreign substances have entered the interior of the unit
- ▶ Has been directly exposed to rain or another type of liquid
- ▶ The unit is inoperative even though you have followed all the operating instructions
- ▶ The unit has been dropped or otherwise damaged

Lautsprecher Teufel is not liable for any incidents resulting from disregard for the safety guidelines.

General note: Make sure to read this operating manual carefully and in its entirety. Before plugging in the units for the first time, make sure you have complied with all relevant safety and operating instructions. Keep this operating manual in a safe place so you can refer to it at a later date if necessary.

Always: If in doubt, consult the operating manual. Make sure to comply with all instructions regarding the units' setup and ongoing operation.

Cleaning: Avoid cleaning the units with domestic cleaning agents, as these may scratch the surface. Just use a dry cloth. Before cleaning a unit, always unplug the power cable.

Humidity and sunlight: Never expose the units to humidity or moisture. Protect them from excessive humidity and do not place them in environments such as damp basements. Avoid operating the units near wet environments such as bathtubs, shower basins, hand basins, drains, swimming pools, etc. Also, avoid placing the units in areas that are permanently exposed to direct sunlight.

Placement: Never mount the units loosely in a vehicle, on an unstable surface, on a loose stand, on unsuitable furniture, or with insufficient bracing. The loudspeakers could topple and cause personal injuries, which you will be liable for. Especially when speaker cabinets are mounted on stands or placed on top of TV sets/monitors, they may topple due to external stress (cable being pulled, tripping over cable, accidental physical contact) – even if they seem to be mounted quite securely. As a result of their weight, toppling speaker cabinets can cause considerable damage, as well as becoming badly damaged themselves. The same applies to undersized or unprofessionally installed wall-mounting brackets, particularly on light walls. Always use adequately sized wall brackets for mounting loudspeakers, and ensure that the wall can withstand the stress. Never mount the units near a heat source. This could be a heater or oven, but also any other electrical device that heats up during operation (e.g., amplifier). Similarly, never place a heat source on top of the loudspeakers, such as a fan heater or candles.

Ventilation: There are several ventilation slits and openings in the unit's housing. These are designed to ensure reliable operation and protect the unit from overheating. Never block or cover the ventilation slits; do not place the unit on a soft surface such as a bed, couch, carpet, etc., as this blocks the ventilation slits in the bottom of the housing. Do not put any newspapers, tablecloths, etc., on top of the unit. Most importantly, do not cover up the heat sink of the amplifier section or expose it to direct sunlight. Conversely, you should generally not attempt to provide additional cooling to the unit yourself. This is not necessary.

Power source: Make sure to connect the subwoofer to a power source that provides the correct voltage, i.e., the voltage indicated on the type plate. If you are unsure about the voltage provided by your domestic power connection, please contact us or your local electricity provider for advice. The unit does not require earthing. When connecting to the mains power socket, always use the supplied two-pole power cable. Under no circumstances should you modify the power cable, as it must comply with the official polarity and earthing regulations. Make sure to plug the power cable only into a double-pole socket.

Cables: Lay all the cables flush with the floor and walls. Avoid any loops in your cables that could cause people to trip up. Cable loops can also cause electrical interference and degrade

the sound quality. Make sure to lay your power cables out of reach so that they are not stood on or squashed by heavy objects. If you notice any cable damage, replace the cable. Pay special attention to all plug connectors, the mains socket, and the subwoofer's connector panel. Regularly check all powered cables to and from the loudspeakers for insulation issues and breakage. If you detect a fault, immediately power down all connected units, unplug the cables and replace the defective cable.

Disuse: During prolonged periods of disuse (holidays, etc.), always unplug the subwoofer from the mains socket.

Thunderstorms: In the event of a thunderstorm, switch off and unplug the unit as soon as you can in order to avoid damage from lightning strikes.

Overloading: Never overload your wall sockets, extension cables and multiboxes, or the integrated power sockets on your electrical devices. Power overloads can cause short circuits and fires. Also avoid turning up the volume control excessively on your amplifier (higher than 3/4), particularly if you are also boosting the bass frequencies (bass control, loudness button, bass boost button, etc.).

Liquid and foreign substances: Liquids or other foreign substances should never get inside the unit, as they may interfere with exposed live parts and cause short circuits or fires. Absolutely avoid spilling any type of liquid onto the unit.

In case of a fault: Never attempt to repair the unit yourself. Always contact our support team first and discuss the fault with them. If appropriate, they may give you instructions on how to clear the fault. If this is not possible, send the unit directly to our service address.

Transport: Take utmost care when transporting the unit, and use a sack barrow if possible. Be aware that both the sack barrow and the unit can easily fall over as a result of sudden stopping or jolting (uneven ground, lurching movements, etc.).

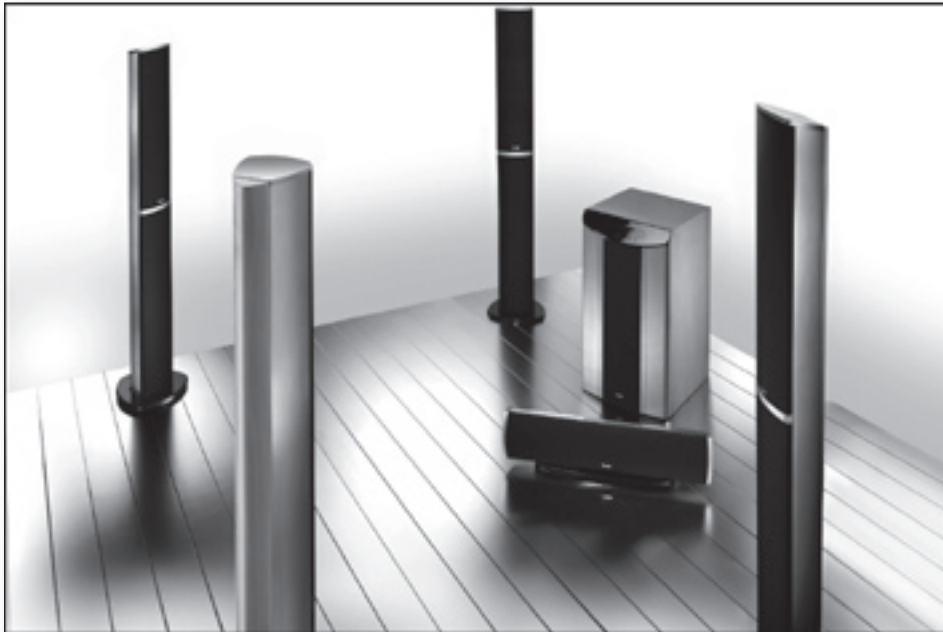
Replacement parts: During the period of warranty, Lautsprecher Teufel will supply all required replacement parts. Your warranty will not be voided as long as you use Teufel spare parts to replace any defective components.

Unusual noises: If any unusual noises occur during operation, or if the sound gets distorted, immediately turn down the amplifier volume to a level where the sound returns to normal.

Replacing the fuse: Unplug the power cable before replacing the fuse. Make sure that the replacement fuse has the same rating as the defective fuse.

Speaker volume: Excessive loudspeaker volume can cause irreversible hearing loss. The subwoofer may emit high sound pressure levels very unexpectedly when it is suddenly triggered into activity by a bass impulse ("Standby/Auto On" mode) – particularly if the unit is on full volume. As well as physical hearing loss, also watch out for psychological stress caused by excessive volume. Children and pets are particularly sensitive to noise. Always set the volume control of your audio system to a level that is appropriate to the surroundings. When the system is playing at high volume, do not stand too closely to the subwoofer and never put your ears directly up to any of the loudspeakers.

2. Introducing the LT 7 system



Dear Lautsprecher Teufel customer,

Thank you for purchasing a set of loudspeakers from Lautsprecher Teufel.

You are now the owner of a powerful and sophisticated loudspeaker system. All Teufel products are meticulously manufactured and fitted only with top-quality components. Our LT 7 loudspeaker set is designed for audio playback in rooms sized up to 50 sqm. Before using the loudspeaker set for the first time, carefully read this operating manual. Keep the manual in a safe place for later reference.

If you have any questions, feel free to contact our technicians (ph. +49 (30) 30 09 30 0), or write an e-mail using the contact form provided on our website www.teufel.eu. Please provide your order number so that we can identify your purchase

and provide the best possible support.

BEFORE you contact us with any questions, make sure to read the "Problems and solutions" section on page 36 of this operating manual. Further answers are provided on the "FAQ/Support" pages of our website: www.teufel.eu.

Please take careful note of the safety guidelines on page 6 of this operating manual. Do not start using the loudspeakers before you have read this page.

Teufel

3. Unpacking – Included components

Please make sure that you have all the components of the system!

Attention:
Hold on to the cardboard boxes for at least eight weeks (duration of the right-of-return period). Lautsprecher Teufel will ONLY refund the full purchase price if the speakers are shipped back in their ORIGINAL PACKAGING!

Unpacking

Open the top flaps of the cardboard box, take out the Styrofoam padding, and carefully lift the loudspeaker out of the box. If the speaker set is shipped with speaker grilles, attach these now. To fit the grilles into their frames, you need to bend them in very slightly – be careful when doing this so as to avoid permanently deforming them.

We recommend you hold on to all the original packaging in case you ever need to ship the speakers back to us for servicing.

Included components

The LT 7 loudspeaker set is shipped as a complete system. **Two different configurations** are available:

LT 7 THX Select Concert Set 5.1:

- ▶ 4 x M 720 FR THX Select
- ▶ 1 x M 720 C THX Select (with table mount)
- ▶ 1 x M 7200 SW Digital THX Select
- ▶ 1 x test CD
- ▶ 1 x sound level meter
- ▶ 1 x remote control (subwoofer)
- ▶ 1 x power cable
- ▶ 1 x operating manual

LT 7 Concert Set 5.1 Wireless Digital:

- ▶ 2 x M 720 FR THX Select
- ▶ 1 x M 720 C THX Select (with table mount)
- ▶ 2 x M 720 FR Wireless
- ▶ 1 x wireless transmitter unit
- ▶ 1 x power adapter (wireless transmitter unit)
- ▶ 1 x M 7200 SW Digital THX Select
- ▶ 1 x test CD
- ▶ 1 x sound level meter
- ▶ 1 x stereo cinch cable
- ▶ 3 x mains power cables
- ▶ 1 x operating manual
- ▶ 1 x remote control (subwoofer)

Accessories

As different customers have different cable requirements, our systems do not ship with any standard speaker cables. However, you can order suitable cables for the speakers and subwoofers directly from us, as well as any required mounts or stands.

All the optional accessories for the LT 7 system are described in the next chapter.

4. Accessories (optional)

Optional accessories for the Teufel LT 7 system

Teufel offers the following accessories for your LT 7 system:

Teufel banana plugs



These multi-purpose speaker connectors from Teufel are an affordable option to ensure faultless connections between your loudspeakers and amplifier/receiver. The rugged banana-design screw connector securely holds cables up to 4 mm in diameter. Low-resistance plug connections are ensured by flexible spring contacts and solid gold plating. Banana plugs are sold in pairs only, marked red and black respectively.

Note: On some AV receivers, the speaker terminals are hidden behind protective covers. You can easily remove these with a pair of pointed scissors (make sure to disconnect the mains power cable first). Yamaha is the only manufacturer with a proprietary speaker terminal design that is incompatible with the banana plug standard.

Teufel speaker cable 2 x 2.5 mm²



Highly flexible copper core (650 strands) with a transparent sleeve and polarity markings. The 2 x 2.5 sqmm cable can be used for cable distances up to 15 metres. For longer distances, we recommend the thicker 2 x 4 sqmm cable. In response to customer demand, all our cables are pre-wired for practical usage lengths between 10 and 50 metres.

Teufel speaker cable 2 x 4 mm²



Hundreds of ultra-thin, low-oxygen copper wires (protected by a thick, flexible, transparent plastic sleeve that withstands almost any stress) ensure that your audio signals are passed to the speakers cleanly and without being compromised by underdimensioned cabling. Our cables are pre-wired for practical usage lengths between 10 and 50 metres.

Teufel NF mono cinch cable



This cable is designed for connecting active subwoofers to AV receivers/amplifiers, and it is shielded against magnetic interference. A reliable connection is guaranteed by sturdy, gold-plated connectors. This cable is available in several different lengths (2.5 to 15 metres) to perfectly match your requirements.

Teufel resonance eliminators



Designed to eliminate all unwanted resonant frequencies. Made from a sophisticated high-density rubber which is also used in space travel, Teufel's high-end "Vibrapod" resonance eliminators reliably decouple even the heaviest speaker cabinets and subwoofers from vibrating wooden floors and shelves, ensuring tight, unmuddied bass frequencies at all times. Teufel's Vibrapods are the professional's choice.

Teufel voltage converter



This cable adapter is a proprietary Teufel design. It adapts the output from an amplifier's speaker terminal ([+] and [-]) to an cinch socket. With this adapter, you can connect the LT 7's transmitter unit (Concert Set 5.1 Wireless Digital) to a receiver/amplifier that doesn't provide preamp outputs, i.e., that has speaker outputs only.

Y adapter



1 x socket to 2 x connector. A Y adapter lets you feed a mono sub signal to both of the subwoofer's stereo inputs; this increases the subwoofer's volume by +3 dB.

If you require any optional accessories, you can easily order these directly from the Accessories section of our online store: www.teufel.eu

4. Accessories (optional)

If you require any optional accessories, you can easily order these directly from the Accessories section of our online store: www.teufel.eu

Teufel Accessory Bundles

Teufel Accessory Bundles
Have a look at our four Accessory Bundles—these contain a variety of speaker cables, mono cinch cables (subwoofer) and banana plugs at discounted prices. Save up to 15%!

Accessory Bundle 1

- ▶ 30-metre speaker cable, 2 x 2.5 sqmm
- ▶ 1 NF mono cinch cable, 2.5 metres
- ▶ 10 banana plugs

Accessory Bundle 2

- ▶ 30-metre speaker cable, 2 x 2.5 sqmm
- ▶ 1 NF mono cinch cable, 5 metres
- ▶ 10 banana plugs

Accessory Bundle 3

- ▶ 30-metre + 20-metre speaker cable
2 x 2.5 sqmm
- ▶ 1 NF mono cinch cable, 5 metres
- ▶ 10 banana plugs

Accessory Bundle 4

- ▶ 30-metre speaker cable, 2 x 4 sqmm
- ▶ 1 NF mono cinch cable, 2.5 metres
- ▶ 10 banana plugs



5. Speaker positions in the 5.1 configuration

General notes on speaker placement

As the LT 7 satellites are designed as floor-standing column speakers, you can place them almost anywhere you like. In order to get the best possible audio quality from your Teufel system, however, there are a number of speaker placement rules to consider; these apply particularly to home theatre use.

As a general guideline, any home theatre system should be concentrated around the viewing area, i.e., that part of the room that contains the TV/screen and the main seating spots. If at all possible, the TV/screen should be placed centrally in relation to the viewing/listening spots.

Our speaker placement suggestions, shown over the next pages, are designed for the best possible multi-channel sound reproduction in your home. In the reality of your living room, of course, there may be factors working against the suggested placements. While our recommendations represent the audio purist's optimum layout, our digital M 7200 SW subwoofer and any modern AV receiver also offer a number of options to electronically compensate for compromises in speaker placement. Always remember:

Our recommendations are not the be-all-and-end-all but a starting point. Ultimately, you will know best what works in your room, both visually and sonically. Trust your eyes – and your ears!

Centre

The centre speaker reproduces virtually all spoken sound, including most dialogue. In relation to the main listening spot, place it centrally under or above the TV/screen. If you need to position the centre speaker (M 720 C) lower than 50 cm or higher than 1.40 m, angle it horizontally towards the listening spot.

Front

The front speakers should be positioned the same way as any conventional stereo speakers – forming an equilateral triangle with the listener. In a home theatre setup, the TV/screen should be centred between left and right front speakers.

Make sure that the centre speaker and the two front speakers are positioned in a straight line, or on a slight arc with the TV/screen. (Note: The different acoustic delays that are created by diverging speaker distances can be individually compensated for with the AV receiver's "Delay" function.)

Always make sure to set up your speakers properly so they sound as good as possible.

Subwoofer

At the recommended crossover frequency of 80 Hz, the bass signal coming from the subwoofer appears to be non-directional. As a result, the subwoofer can be positioned in the room very flexibly without affecting the directionality of the other loudspeakers. The ideal position is somewhere along the axis between the two front speakers, but you should feel free to experiment with placing it anywhere you like. For practical purposes, there should be no obstructions between the front of the subwoofer (speaker cover) and the listener; this way, the infrared remote control can be used directly from the listening spot.

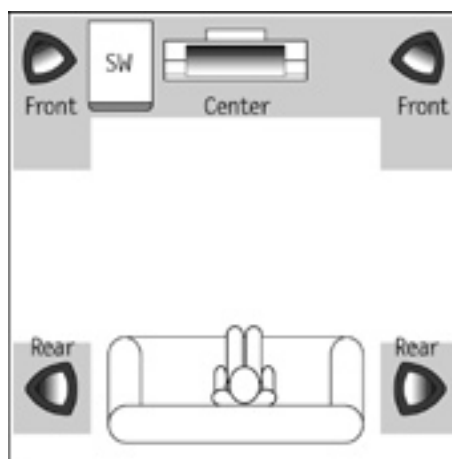
We also recommend leaving at least 15 cm of space behind, above and to the sides of the subwoofer cabinet. This will ensure an unobstructed bass response from the cabinet's rear bass reflex port, as well as sufficient cooling for the built-in amplifier.

Rear speaker placement option A

Place the rear speakers to the left and right of the listening spot. The rear speakers should be positioned at least 1.00 m away from the listener. If they are any closer, make sure that the front of the speakers is not directly pointed at the listener but into the room, angled towards the TV/screen or towards the rear wall.

Hint:

Make sure that the centre speaker and the two front speakers are positioned in a straight line, or on a slight arc with the TV/screen. If the distances between you and the speakers vary significantly, this will degrade the audio signal's spatial imaging. Make sure to align your speakers properly so they sound as good as possible.



We recommend you place the rear speakers somewhere in the grey rear area.

Figure: Speaker placement option A

5. Speaker positions in the 5.1 configuration

Rear speaker placement option B

Alternatively, you can place the rear speakers behind the listening spot, left and right respectively. The rear speakers should be positioned at least 1.00 m away from the listener. If this is not practical, make sure that the front of the speakers is not directly pointed at the listener but into the room, angled slightly towards the side walls.

We recommend you place the rear speakers somewhere in the grey rear area.

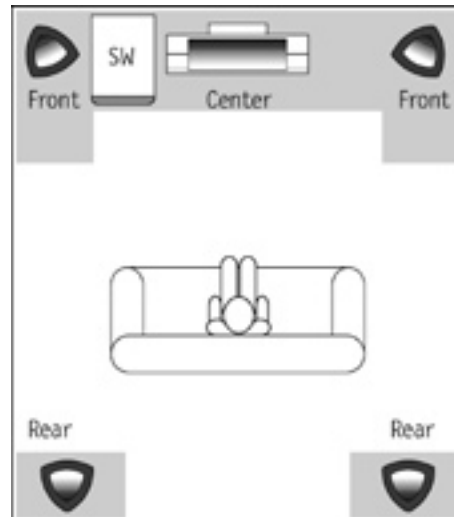


Figure: Speaker placement option B

6. Connecting the loudspeakers

You can set up your LT 7 with Active Subwoofer loudspeaker system with any standard 5.1/6.1/7.1 AV receiver or amplifier. For the subwoofer connection, use either the subwoofer's mono input ("Subwoofer Input") or stereo input ("Stereo Input"). If your AV receiver only features a mono Sub Out, you will need a Y adapter to run a stereo cable from it. Teufel offers a Y adapter as an additional accessory for this system.

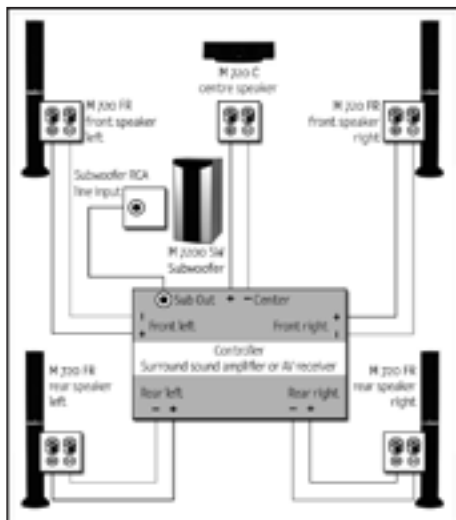


Figure: Audio connection diagram

In combination with the Stereo Output, you can also use the Stereo Input to insert the M 7200 SW THX Select subwoofer in the audio signal chain between preamp and power amp. This connection option is useful if you wish to take advantage of the M 7200 SW's built-in DSP chip to fine-tune the stereo output signal.

The cable-bound satellite speakers (M 720 FR THX Select and M 720 C THX Select) are passive and require an amplified signal. A connection panel with speaker terminals is provided on the back of each speaker.

Connect the M 720 FR column speakers to the respective channel outputs on your receiver/amplifier using audio speaker cables. We recommend using cables with a minimum core diameter of 2 x 2.5 sqmm. For longer cable distances (10 m or higher), the cable core diameter should be 2 x 4 sqmm.

The M 7200 SW THX Select subwoofer provides a range of connections and control on its rear panel. These are described below:



Figure: M 7200 SW rear panel (detail view)

1 Subwoofer Input

The M 7200 SW THX Select subwoofer provides a mono cinch input. Use this socket to directly connect the M 7200 SW THX Select to your AV receiver's Sub Out/Pre Out using a mono cinch cable.

2 Stereo Input

The subwoofer also features a Stereo Input, which can be used instead of the mono Subwoofer Input. If your AV receiver only features a mono Sub Out, you will need a Y adapter to run a stereo cable from it. If you are using the subwoofer with a conventional stereo system (2.1), connect this stereo input directly to the preamp outputs from the preamp/amplifier/receiver.

3 Stereo Output

If you are using the M 7200 SW THX Select as part of a stereo setup featuring a separate preamplifier, you can use this output to pass on the stereo source signal to the power amp for the stereo speakers. With this connection option, you can additionally configure the subwoofer's stereo output settings via the built-in DSP chip.

4 Mains power socket

Plug the mains power cable (supplied with the system) into this socket to connect the M 7200 SW THX Select subwoofer to the mains.

6. Connecting the loudspeakers

Ⓞ ON/OFF switch

Use the “O/I” switch to power up the M 7200 SW THX Select subwoofer once you have connected the mains power cable.

Please note: When you flick the switch, this may trigger a peak voltage and cause a thumping noise from the speaker.

After you switch on the subwoofer's power switch, the unit is in standby mode. To activate regular operation, press the “On/Standby” button on the remote control, or any button on the subwoofer's front panel.

7. About the M 720 FR Wireless loudspeakers

General

The M 720 FR Wireless loudspeakers are fitted with the same drivers as the M 720 FR THX Select loudspeakers, which makes them acoustically identical. This means you can freely assign the wireless column speakers to either the front or rear surround channels.

The wireless speakers are shipped with a transmitter unit to connect them to the audio setup. This transmitter converts the analog audio signal into a digital signal and sends it to the M 720 FR Wireless column speakers via a radio frequency.

The M 720 FR Wireless speakers receive the radio signal from the transmitter unit and convert it back into an analog signal. The audio signal is then amplified internally and reproduced by the loudspeakers.

Transmitter unit

The transmitter unit broadcasts its radio signals at 48 kHz/16 bit on the 2.4 GHz ISM band at a data rate of 1.5 Mbps. Within this frequency band, the system has access to a total of 38 channels with a bandwidth of 2 MHz each.

The source signal for transmission is taken from the stereo cinch inputs on the transmitter unit. A suitable signal for these inputs can be provided from the preamp outputs of a multi-channel receiver/amplifier. Simply connect the receiver's Pre Outs to the transmitter unit's cinch inputs using the supplied stereo cinch cable. If your amplifier/receiver does not feature any preamp outputs but only high level speaker outputs, you can use the signals from these after running them through voltage converter adapters (Teufel product to be purchased separately).

For the best possible signal transmission quality, position the transmitter unit in a direct line of sight with the M 720 FR Wireless speakers.

The signal can be transmitted using any one of 16 radio frequencies ("addresses"). Should the default frequency already be in use by another device, simply select any other of the 16 available frequencies. Please note that you need to set up the same radio frequency on the transmitter unit and the M 720 FR Wireless in order for them to connect.

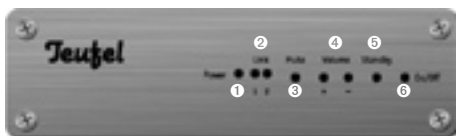


Figure: Front panel of transmitter unit

1 Power LED

This LED indicates that the transmitter unit is connected to the power supply.

2 Link LEDs

These two LEDs indicate whether a wireless connection is established with the two wireless speakers (permanently on). If either of the LEDs is flashing, the connection is in the process of being established. If either LED flashes continuously for an extended period of time, this means that the connection could not be established.

3 Mute

Press the "Mute" button to disable the audio output from the M 720 FR Wireless speakers. Press the button again to restore the previous volume setting.

4 Volume

Press the "+" and "-" buttons to increase/decrease the volume level sent to the M 720 FR Wireless speakers. By default, the volume level is set to maximum, i.e., you can initially only decrease it. The volume setting is stored when the unit is switched off, so it is the same when the unit is switched back on.

5 Standby

Press this button to remotely switch the M 720 FR Wireless speakers to standby mode. This button also switches the transmitter unit to standby mode. Press the button again to switch the transmitter back to regular operation. This also reactivates the wireless speakers.

Note: In order to facilitate the most power-saving standby mode on the M 720 FR Wireless speakers, the speaker receivers are also deactivated during standby. To check whether there is any signal coming from the transmitter unit, the speaker receivers are briefly activated every 20 seconds. After you switch the transmitter unit back to regular operation, therefore, it may take up to 20 seconds for the M 720 FR Wireless speakers to reactivate. Due to the battery drain of these regular receiver checks, we recommend running the speakers in standby mode for no longer than 2–3 days. If you want to deactivate them for a longer period, switch off the power button instead.

6 On/Off

Press this button to power down the transmitter unit completely. The wireless speakers are also powered down remotely. Note that in contrast to standby mode, you cannot reactivate the speakers remotely via the transmitter unit. Once the speakers are powered down, you need to switch them back on manually using the power switch on the rear panel.

As the speakers' built-in receivers are not periodically activated to check for a transmission signal.

7. About the M 720 FR Wireless loudspeakers

this power mode is suitable for extended breaks between operation (e.g., several weeks).

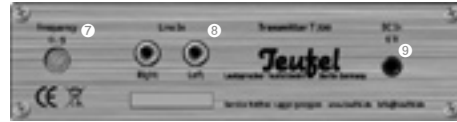


Figure: Rear panel of transmitter unit

7 Frequency

With this recessed control, you can set the radio frequency for the LT 7 Wireless set. We recommend using a small screwdriver for accessing this control. Please note that you need to set up the same radio frequency on the transmitter unit and the M 720 FR Wireless in order for them to connect.

8 Line In

Use this stereo cinch input to connect the two channels you wish to transmit to the wireless speakers—e.g., Surround Left/Surround Right. If your AV receiver/amplifier does not provide preamp outputs, we recommend that you use our proprietary Teufel voltage converters to adapt the high level signal coming from the speaker outputs.

9 DC In

Connect the power supply for the transmitter unit here to connect it to the mains power.

Setting up the wireless loudspeakers

The rear panel of the M 720 FR Wireless contains the following controls:



Figure: M 720 FR Wireless rear panel (detail view)

1 On/Off switch

Use this mains power switch to completely power down the column speakers. The batteries are disconnected from the electronics and retain their charge (aside from an unavoidable long-term low-level discharge). Before moving or transporting the wireless speakers, ALWAYS set this switch to the “Off” position to avoid damage to the electronics.

2 Standby/On/Off button

Press this button to activate the loudspeakers; press it again to deactivate them. You can also press this button to resume normal operation after you have triggered standby mode via the “Standby” button on the transmitter unit.

3 Mains power socket

Plug in the supplied power cable here to connect the speakers to the mains power and charge up the built-in batteries. You can also run the speakers permanently off the mains power connection.

4 Fuses

If you need to replace any of the fuses, please contact our technical support team first.

7. About the M 720 FR Wireless loudspeakers

The front panel of the M 720 FR Wireless contains the following controls:

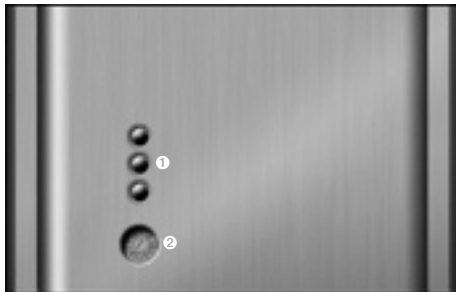


Figure: M 720 FR Wireless (detail view of front panel, speaker cover removed)

1 Status LEDs

These three LEDs indicate the different operating modes of the M 720 FR Wireless. This is what the different colours mean for each LED:

► Top LED

- Red, permanent = Mute (no connection to the transmitter)
- Red, flashing = Mute button on the transmitter is engaged
- Green, permanent = Link (Connection with transmitter has been established)
- Green, flashing = Searching for transmitter

► Middle LED

- Red = Battery is recharging

► Bottom LED

- Red = Battery nearly empty
- Orange = Battery partially charged
- Green = Battery fully charged

2 Frequency

With this recessed control, you can set the radio frequency for the M 720 FR Wireless. We recommend using a small screwdriver for accessing this control. Please note that you need to set up the same radio frequency on the transmitter unit and the M 720 FR Wireless in order for them to connect.

Range

The range of the wireless connection is 150–200 m without obstructions. Inside buildings, the effective range is usually at approx. 30 m. This figure may be significantly larger or smaller depending on the building materials. We recommend

experimenting with different placement options. If possible, position the speakers in a direct line of sight with the transmitter unit.

Battery operation

If the batteries are fully charged and the M 720 FR Wireless speakers are being used as home theatre rear speakers, they should run for at least 8–10 hours, even at a moderately high system volume. Note, however, that the exact duration of the battery charge depends on several factors:

1. Volume level
2. Type of signal (i.e., how often, how long)
3. Speaker designation (front speakers, for example, reproduce significantly higher signal levels than rear speakers)

The actual battery charge duration, therefore, may well be either longer or shorter than the average charge duration.

When fully drained, the batteries take approx. 4–5 hours to recharge. For the highest possible charge duration, we recommend recharging the batteries for as long as possible, e.g., overnight. The lead gel batteries cannot be overcharged. Also, the batteries are not affected by voltage depression (“memory effect”), i.e., you can recharge them at any time regardless of the existing charge level.

Note:

You can run the M 720 FR Wireless speakers even while they are recharging. Similarly, you can also run them off the mains power permanently. Be aware, however, that the amplifiers integrated into each M 720 FR Wireless also use the batteries as buffers for peak signal loads. If the batteries are completely drained, we recommend charging them for half an hour before running the system off the mains power in order to ensure sufficient buffering.

8. M 7200 SW – Operating controls

The M 7200 SW THX subwoofer features a user display on the front side of the cabinet. This display shows the user menu for setting up and operating the subwoofer. There are five buttons below the display for navigating through the individual menu options. The same buttons are provided on the remote control.



Figure: M 7200 SW – Display and controls

How to use the display and controls

► Display

The display consists of two lines, each of which can show up to 24 characters. The top line indicates the currently selected menu; the bottom line indicates the current setting for the menu item.


► Up/Down

Use these two buttons to select menu items and change settings. Press “Up” to increase the value of a parameter (e.g., level or frequency); press “Down” to decrease the value. When you are navigating through the menu, press “Up” to skip to the previous menu item, or “Down” to skip to the next menu item.

► Return

The menu structure of the M 7200 SW THX Select is subdivided into several layers. Press the “Return” button to navigate to the next higher menu level. If the current menu level is the first/highest level, pressing the “Return” button will exit the menu.

► Enter

The “Enter” button has two different functions: Press “Enter” to open the first menu, and to select individual submenus (i.e., to change to lower menu levels). When you are editing the menu parameters with “Up”/“Down”, press “Enter” to confirm and save the current value. The saved value is indicated by the  symbol.

► Mode Surround/Stereo

Use this button to switch the subwoofer between 2.1 (stereo) and 5.1 (surround) mode. The selected mode is indicated at the top right of the display. Please note that the “Cinch Pre Out” menu item is only used in 2.1 operation and is therefore not available in 5.1 mode. Attention: You can only switch between the operating modes when you are on the top-most menu level.

► Standby/On

Press the “Standby/On” button to either activate the subwoofer or put it in standby mode.

Note: This button is only provided on the remote control. When the subwoofer is in standby mode, you can also press any button on the front panel to activate it.



Figure: Subwoofer remote control

The buttons on the remote control have the same functions as the buttons below the display on the subwoofer's front panel. In addition, the remote control provides a “Standby/On” button.

9. Setup and configuration of the AV receiver

To take full advantage of your LT 7 System with M 7200 SW Active Subwoofer, set the satellite speakers to “small” or “normal” (not “large”) in the “Speaker Setup” section of your AV receiver. This ensures that the speakers receive the right amount of signal, and that the subwoofer and front speakers have matching volumes. Also in the receiver’s “Speaker Setup” section (Bass Management/Speaker Management), make sure the subwoofer is set to “On”. Set the crossover frequency for the LT 7 to 80 Hz.

Please note for the M 720 FR wireless loudspeakers:
Wireless transmission of audio signals results in a

very slightly delayed playback. If your AV receiver provides a delay/distance compensation option, make sure to include the additional transmission delay in your calculations. The signal delay caused by wireless transmission is 20 ms, which corresponds to 6.9 m of physical distance.

To compensate for the transmission delay, simply add a compensation value of 6.9 m to all the speaker distances except for the wireless speakers.

10. Setup and configuration of the M 7200 SW

The M 7200 SW subwoofer has a menu structure that is viewed via the display on the front panel. The buttons on the remote control and below the display are used to view the individual menu items and to control their settings.

The menu is divided into a range of submenus, each of which contains several menu items. The display always shows the current menu level in the top line and the selected menu item/setting in the bottom line.

This chapter describes how to operate the subwoofer. Chapter 11 provides detailed descriptions of all the available functions and settings. Chapter 12 contains an advanced setup and calibration guide for the subwoofer.

After startup – Setting the subwoofer’s volume level

Use the “On/Standby” button on the remote control to activate/deactivate the subwoofer. After a brief welcoming message, the subwoofer displays the following information:

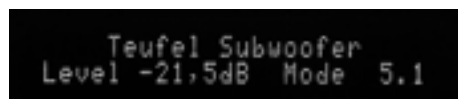


Figure: Teufel Subwoofer, Level -21.5dB

(The actual level and mode shown may vary depending on the previous settings.) Press the “Up” and “Down” buttons to increase/decrease the subwoofer volume in steps of +/- 0.5 dB.

Menu structure of the M 7200 SW

To access the M 7200 SW’s menu structure, press the “Enter” button. The display now reads:

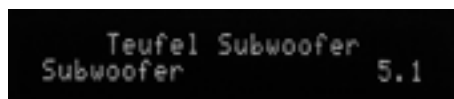


Figure: Teufel Subwoofer, Subwoofer

Use the “Up” and “Down” buttons to scroll through the individual menu items. Press “Enter” to select the currently shown menu item and/or open the indicated submenu. Conversely, press “Return” to get back to the previous menu level.

10. Setup and configuration of the M 7200 SW

Menu hierarchy of the M 7200 SW THX Select

The hierarchy of the subwoofer menu structure is depicted below:

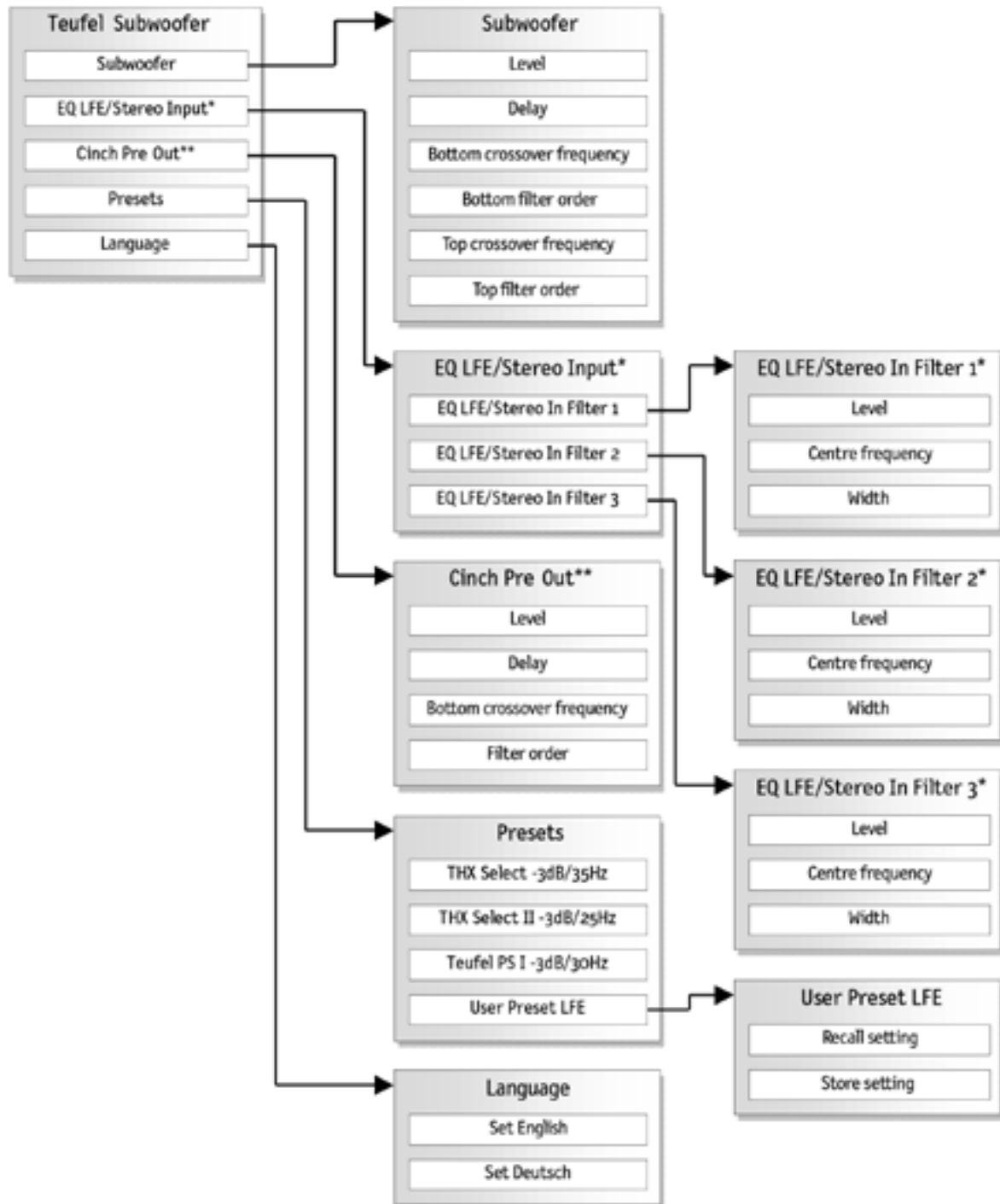


Figure: Menu structure of the M 7200 SW

* Display varies depending on the operating mode: LFE (5.1 mode)/Stereo (2.1 mode)

** Menu item is only available in 2.1 mode

10. Setup and configuration of the M 7200 SW

How to use the menu structure

To access a function associated with a menu item, you need to navigate through a range of menus and submenus using the buttons below the display. For example, if you want to load the “THX Select II -3dB/25Hz” preset, proceed as follows:

Step 1

After the subwoofer is first switched on, the display defaults to the volume level setting:

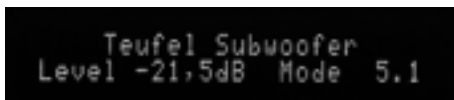


Figure: Teufel Subwoofer, Level -21.5dB Mode 5.1

Step 2

Press the “Enter” button to open the subwoofer’s configuration menu. The display now reads:

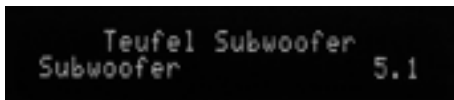


Figure: Teufel Subwoofer, Subwoofer

Step 3

Repeatedly press the “Down” or “Up” button until the display shows the “Presets” submenu:



Figure: Teufel Subwoofer, Presets

Step 4

Next, press the “Enter” button to open the “Presets” submenu. The display now changes to:

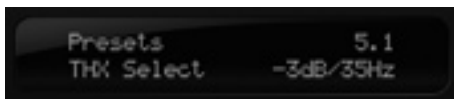


Figure: Presets, THX Select -3dB/35Hz

Step 5

Use the “Up” and “Down” buttons to navigate to the “THX Select II -3dB/25Hz” menu item. You can select the menu item as soon as it appears in the display:

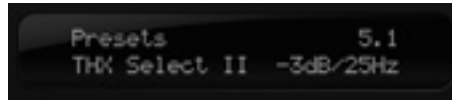



Figure: Presets – THX Select II – 3dB/25Hz

Step 6

The correct menu item is now selected. To load the THX Select preset, simply press the “Enter” button. Your selection is confirmed by the  symbol.

Step 7

To exit the menu structure after you have confirmed your preset selection, press the “Return” button. Press “Return” twice to get back to the display’s default volume level setting.

11. Advanced setup options for the M 7200 SW

The following overview describes the settings available through the subwoofer display menu in greater detail. Please be aware that this overview is directed at advanced users who already have some technical knowledge about loudspeakers and amplification. For a simple step-by-step guide on how to set up the M 7200 SW THX Select subwoofer, please refer to the Quick Guide (page 3 ff.). An advanced setup procedure that assumes a working knowledge of the functions described below is provided in Chapter 12.

Level

After you have switched on the subwoofer, the “Up” and “Down” buttons below the display function as the volume level control. The new setting takes effect immediately and the volume level is adjusted accordingly.

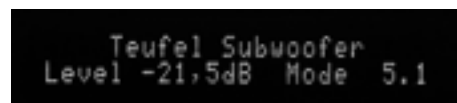


Figure: Teufel Subwoofer, Level -21.5dB

Available settings in the “Subwoofer” submenu

The “Subwoofer” submenu provides the subwoofer’s basic settings.



Figure: Subwoofer, Level

Settings available in this submenu:

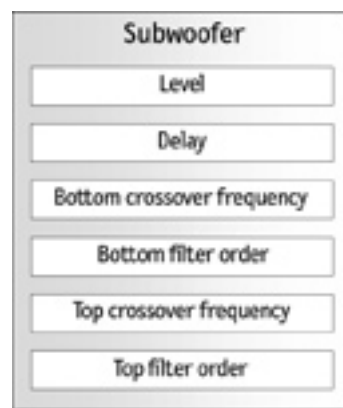


Figure: Available settings in the “Subwoofer” submenu



Figure: Level, Set -17.5dB

Setting the subwoofer’s volume level from this menu item works the same way as the default volume control after the unit is switched on. Note however that the menu entry is only applied after you press “Enter” and the \downarrow symbol appears. The level selected via the menu is saved when the subwoofer is switched off and automatically restored when it is switched back on.

Subwoofer – Delay

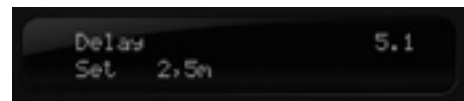


Figure: Delay, Set 2.5m

Use this setting to delay the subwoofer’s output signal.

This may be advisable if the subwoofer is placed closer to the listener than the satellite speakers.

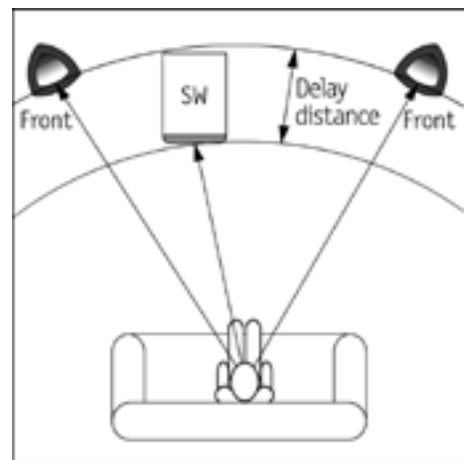


Figure: How to calculate the delay distance

Simply enter the delay value as the distance (in metres) by which the subwoofer is closer to the listener. To determine this value, subtract the distance between the listener and the subwoofer from the distance between the listener and the satellite speakers. The delay setting is applied after you press “Enter” and the \downarrow symbol appears.

Please note that digital surround receivers provide delay options for all the channels (subwoofer and satellite speakers), which means you can set up all the delay values from the same unit. The subwoofer’s delay function is most useful in conjunction with conventional stereo devices (2.1 configuration) that do not provide their own delay compensation.

11. Advanced setup options for the M 7200 SW

Subwoofer – Low-end cut-off frequency



Figure: Low-end cut-off frequency, Set 30.00Hz

Here, you can specify the low-end cut-off frequency. This is the frequency below which the subwoofer's level drops off. The frequency value denotes that point where the level is -3 dB lower than the average level. This is calculated in reference to the subwoofer's linear frequency response curve.

The function of a high-pass filter is to split the audio signal into two signals—a pass-through signal and an attenuated signal. The point of separation is defined by the cut-off frequency. The pass-through signal is not affected by the filter; this reaches down to the cut-off frequency. The attenuated signal is filtered according to the filter order (e.g., +18 dB/oct). The low-end cut-off frequency (-3 dB point) is the frequency where the level of the pass-through signal drops by 3 dB below the average level. Press "Enter". The \blacktriangledown symbol indicates that the new setting has been applied.

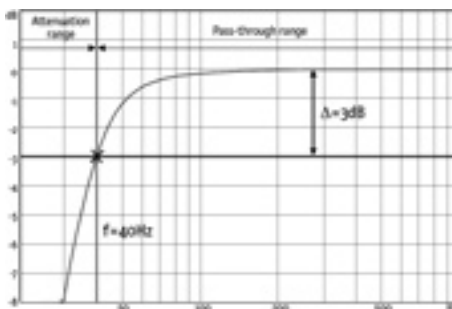


Figure: Determining the low-end frequency cut-off value (example: 40 Hz)

Subwoofer – Low-end filter order



Figure: Low-end filter order, Set 2nd order

The filter order specifies the change in level relative to the frequency, i.e., it indicates the "slope" of the

frequency curve. The low-end filter order indicates the level increase at the low end of the frequency curve. A first-order filter increases the signal level by 6 decibels per octave (dB/oct). An "octave" is the point where the frequency is doubled (octave above) or halved (octave below).

Each filter order increases the slope of the level change by +6 dB:

1 st order:	6 dB/oct
2 nd order:	12 dB/oct
3 rd order:	18 dB/oct
4 th order:	24 dB/oct

The maximum slope available is +24 dB/oct, i.e., a 4th order filter. Press "Enter". The \blacktriangledown symbol indicates that the new setting has been applied.

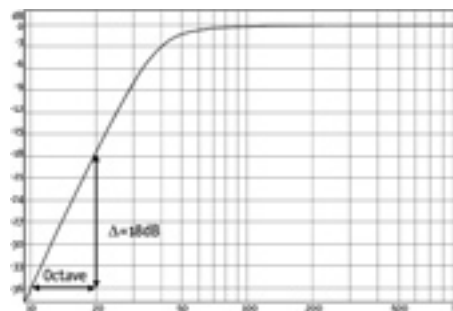


Figure: Low-end filter order (e.g., 3rd order)

Subwoofer – High-end cut-off frequency



Figure: High-end cut-off frequency, Set 84.85Hz

Similarly to the low-end cut-off frequency, the high-end cut-off frequency indicates that point in the subwoofer's frequency response where the level drops by -3 dB. This is calculated in reference to the subwoofer's linear frequency response curve. Press "Enter". The \blacktriangledown symbol indicates that the new setting has been applied.

11. Advanced setup options for the M 7200 SW

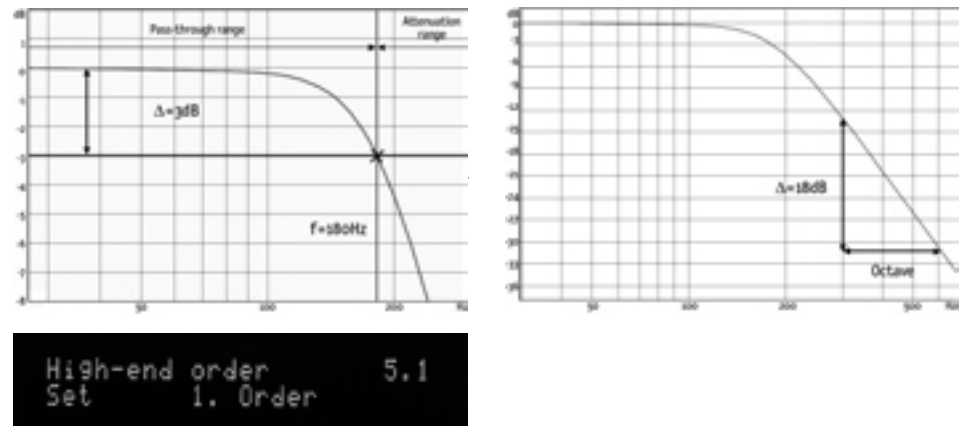


Figure: High-end filter order, Set 1st order

The filter order specifies the change in level relative to the frequency, i.e., it indicates the “slope” of the frequency curve. The high-end filter order indicates the level decrease at the high end of the frequency curve. A first-order filter decreases the signal level by 6 decibels per octave (dB/oct). An “octave” is the point where the frequency is doubled (octave above) or halved (octave below). Each filter order decreases the slope of the level change by -6 dB:

1 st order:	6 dB/oct
2 nd order:	12 dB/oct
3 rd order:	18 dB/oct
4 th order:	24 dB/oct

The maximum slope available is -24 dB/oct, i.e., a 4th order filter. Press “Enter”. The \downarrow symbol indicates that the new setting has been applied.

11. Advanced setup options for the M 7200 SW

Submenu: EQ LFE Input / EQ Stereo Input

The “EQ LFE Input/EQ Stereo Input” submenu (depending on the operating mode) provides three filters for fine-tuning the M 7200 SW. These correspond to a three-band parametric equalizer. With these filters, you can accurately calibrate the subwoofer’s frequency response to the acoustic properties of your room – and to your individual listening tastes.



Figure: EQ LFE Input, EQ LFE In Filter 1

Settings available in this submenu:

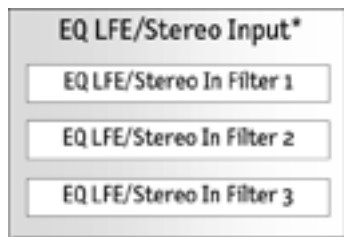


Figure: Available settings in the “EQ LFE/Stereo Input” submenu

Use the “Up” and “Down” buttons to select the individual filters and press “Enter” to access their parameters.

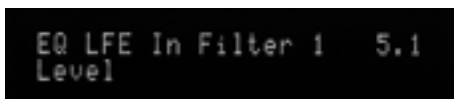


Figure: EQ LFE In Filter 1, Level

Each filter provides three parameters, which you can access with the “Up”, “Down” and “Enter” buttons.

Settings available for the filters:

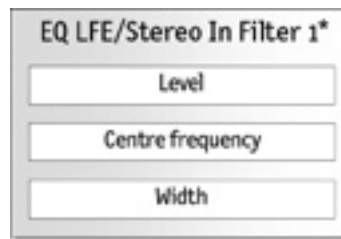


Figure: Available settings in the “EQ LFE/Stereo In Filter 1” submenu

EQ LFE/Stereo Input Filter – Level

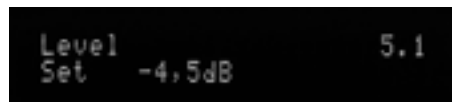


Figure: Level, Set -4.5dB

Note:

The filters are primarily designed for frequency attenuation rather than boosting, as excessive boosting quickly degrades the signal quality.

With the “Level” parameter, you can specify the equalizer’s amount of boost/attenuation in dB. Press the “Up” and “Down” buttons to select the desired level amount. Press “Enter”. The \downarrow symbol indicates that the new setting has been applied.

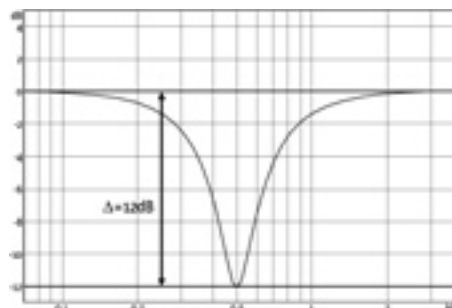


Figure: Parametric frequency attenuation (example: 12 dB)

11. Advanced setup options for the M 7200 SW

EQ LFE/Stereo Input Filter – Frequency (centre)

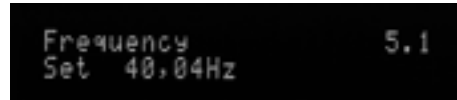


Figure: Frequency, Set 40.04 Hz

This frequency is the centre frequency of the parametric equalizer where the signal level is either boosted or attenuated. Press the “Up” and “Down” buttons to select the desired centre frequency (in Hz). Press “Enter” The \downarrow symbol indicates that the new setting has been applied.

Note:
The parametric equalizer is only effective if its centre frequency is between the low-end and high-end cut-off frequencies.

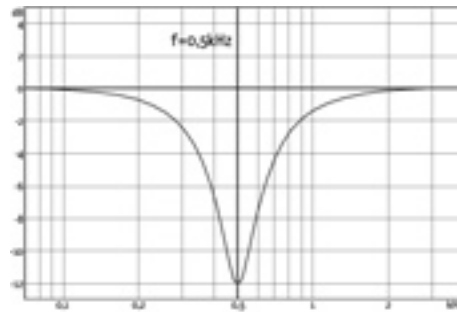


Figure: Parametric centre frequency (example: 0.5 KHz/500 Hz)

EQ LFE/Stereo Input Filter – Quality

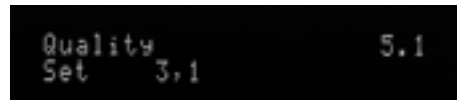


Figure: Quality, Set 3.1

The “Quality” setting is the “Q factor” or width of the parametric equalizer’s level boost/attenuation. The higher the quality factor, the narrower the bandwidth – as illustrated in the figure below (identical boost and centre frequency, two different Q values).

To change the “Quality” value, press the “Up” and “Down” buttons. Press “Enter”. The \downarrow symbol indicates that the new setting has been applied.

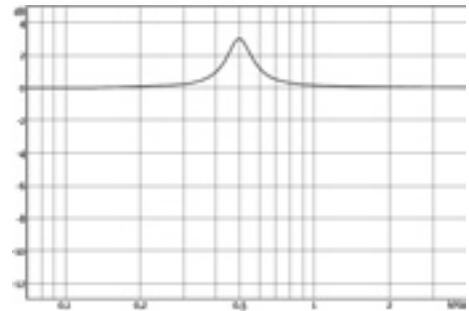


Figure: Parametric quality factor = 4.0 (level +3 dB, centre frequency = 0.5 kHz)

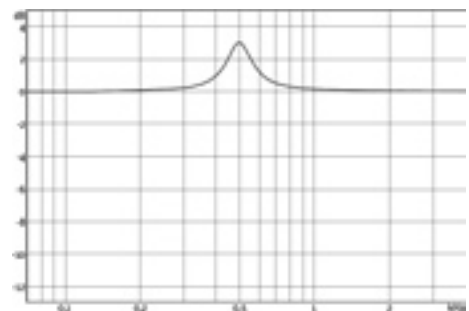


Figure: Parametric quality factor = 1.0 (level +3 dB, centre frequency = 0.5 kHz)

11. Advanced setup options for the M 7200 SW

Submenu: Cinch Pre Out

The “Cinch Pre Out” submenu is only available in 2.1 mode and is used for configuring the subwoofer’s stereo outputs. These settings affect all the audio devices connected to the preamp output of the M 7200 SW THX Select (e.g., a stereo power amp with stereo loudspeakers). The reason behind this signal path is to match the stereo system to the subwoofer. This means you can achieve the best possible frequency balance for your listening environment.

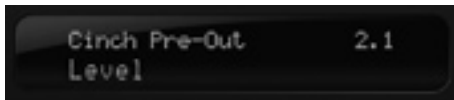


Figure: Cinch Pre Out, Level

Settings available in this submenu:

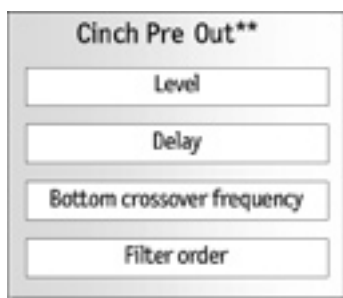


Figure: Available settings in the “Cinch Pre Out” submenu

Cinch Pre Out – Level

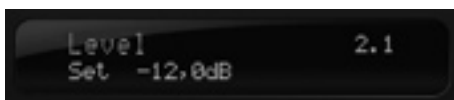


Figure: Level, Set -12.0 dB

Use the Pre Out Level to reduce the signal's volume level. “0 dB” represents the maximum level, i.e., no change. Please note that the menu entry is only applied after you press “Enter” and the ♪ symbol appears. The level set via the menu is saved when the subwoofer is switched off, and automatically restored when it is switched back on.

Cinch Pre Out – Delay

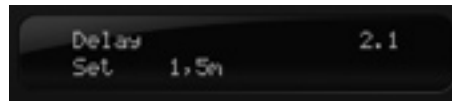


Figure: Delay, Set 1.5m

Use this setting to delay the output signal of the connected stereo speakers. This is advisable when the stereo speakers are placed closer to the listener than the subwoofer. Simply enter the delay value as the distance (in metres) by which the stereo speakers are closer to the listener. The delay setting is applied after you press “Enter” and the ♪ symbol appears.

Make sure that if the subwoofer is further away from the listener, the “Subwoofer Delay” is set to “0 m”, and conversely if it is closer to the listener, the “Cinch Pre Out Delay” is set to “0 m”.

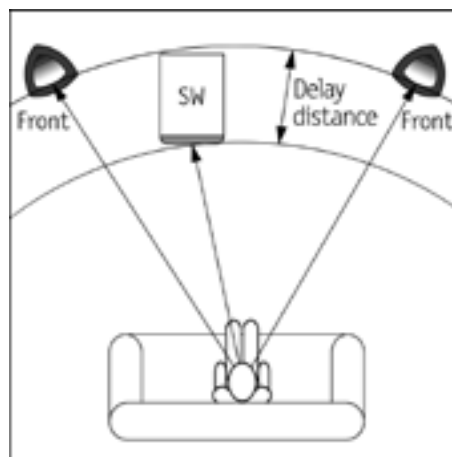


Figure: How to calculate the delay distance

11. Advanced setup options for the M 7200 SW

Cinch Pre Out – Low-end cut-off frequency



Figure: Low-end cut-off frequency, Set 75.60Hz

Here, you can specify the low-end cut-off frequency. This is the frequency below which the level drops off for the loudspeakers connected to the Stereo Output. The frequency value denotes that point where the level is -3 dB lower than the average level. This is calculated in reference to the subwoofer's linear frequency response curve.

The function of a high-pass filter is to split the audio signal into two signals – a pass-through signal and an attenuated signal. The point of separation is defined by the cut-off frequency. The pass-through signal is not affected by the filter; this reaches down to the cut-off frequency. The attenuated signal is filtered according to the filter order (e.g., +18 dB/oct). The low-end cut-off frequency (-3 dB point) is the frequency where the level of the pass-through signal drops by 3 dB below the average level.

Press "Enter". The ♩ symbol indicates that the new setting has been applied.

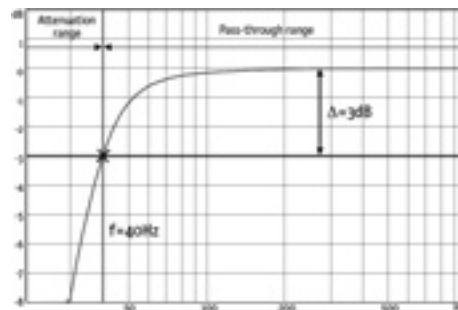


Figure: Determining the low-end frequency cut-off value (example: 40 Hz)

Cinch Pre Out – Filter order

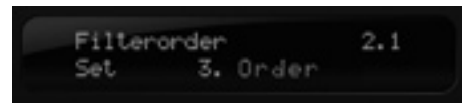


Figure: Filter order, Set 3rd order

The filter order specifies the change in level relative to the frequency, i.e., it indicates the "slope" of the frequency curve. The filter order at the Cinch Pre Out denotes the level increase at the low end of the frequency range, which is used to compensate for the measured frequency curve of the M 7200 SW THX Select subwoofer.

A first-order filter increases the signal level by 6 decibels per octave (dB/oct). An "octave" is the point where the frequency is doubled (octave above) or halved (octave below). Each filter order increases the slope of the level change by +6 dB:

- 1st order: 6 dB/oct
- 2nd order: 12 dB/oct
- 3rd order: 18 dB/oct
- 4th order: 24 dB/oct

The maximum slope available is +24 dB/oct, i.e., a 4th order filter.

Press "Enter". The ♩ symbol indicates that the new setting has been applied.

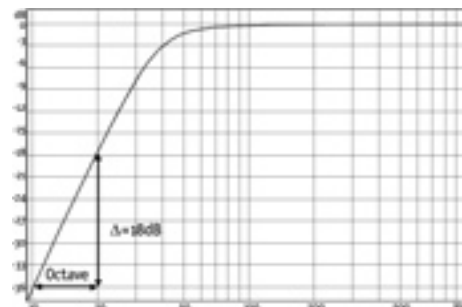


Figure: (Low-end) filter order (e.g., 3rd order)

11. Advanced setup options for the M 7200 SW

Submenu: Presets

The “Presets” submenu lets you load up the settings for a range of factory-set configurations. You can also save your own configuration in case you want to reload it at a later point. This gives you the freedom to experiment with new settings without losing the previous state.

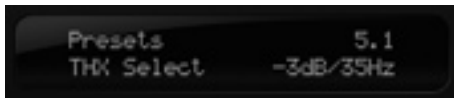


Figure: Presets, THX Select -3dB/35Hz

Settings available in this submenu:

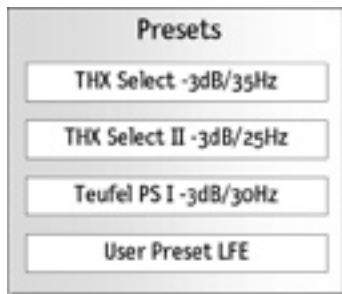


Figure: Available settings in the “Presets” submenu

Presets – THX Select – 3dB/35Hz

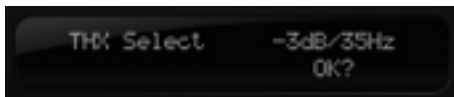


Figure: THX Select -3dB/35Hz OK?

Use this menu item to load the settings for the THX Select standard configuration. Press “Enter” The \downarrow symbol indicates that the new setting has been applied.

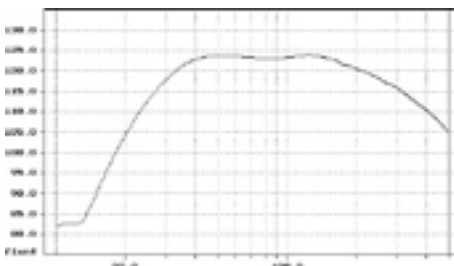


Figure: Frequency response for preset: THX Select (measured curve)

The “THX Select” preset activates the following settings:

- ▶ Low-end cut-off frequency: 35 Hz
- ▶ Low-end filter order: 4. order
- ▶ High-end cut-off frequency: 190 Hz
- ▶ High-end filter order: 2. order
- ▶ Parametric filter 1: Frequency = 40 Hz, Amount = +2 dB, Quality = 3.1
- ▶ Parametric filter 2: Frequency = 87 Hz, Amount = -8 dB, Quality = 0.5
- ▶ Parametric filter 3: -

Presets – THX Select II – 3dB/25Hz



Figure: THX Select II -3dB/25Hz OK?

Use this menu item to load the settings for the THX Select II standard configuration. Press “Enter” The \downarrow symbol indicates that the new setting has been applied.

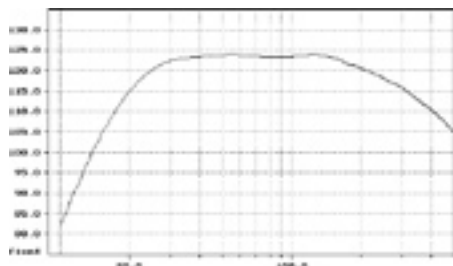


Figure: Frequency response for preset: THX Select II (measured curve)

The “THX Select II” preset activates the following settings:


- ▶ Low-end cut-off frequency: 25 Hz
- ▶ Low-end filter order: 4. order
- ▶ High-end cut-off frequency: 190 Hz
- ▶ High-end filter order: 2. order
- ▶ Parametric filter 1: Frequency = 29 Hz, Amount = +3 dB, Quality = 1.9
- ▶ Parametric filter 2: Frequency = 237 Hz, Amount = +3 dB, Quality = 1.7
- ▶ Parametric filter 3: Frequency = 85 Hz, Amount = -9 dB, Quality = 0.5

11. Advanced setup options for the M 7200 SW

Presets – Teufel PS I – 3 dB/30 Hz



Figure: Teufel PS I – 3dB/30Hz, OK?

Use this menu item to load Teufel Preset I, which combines the standard settings of the two THX Select presets. Press “Enter”. The  symbol indicates that the new setting has been applied.

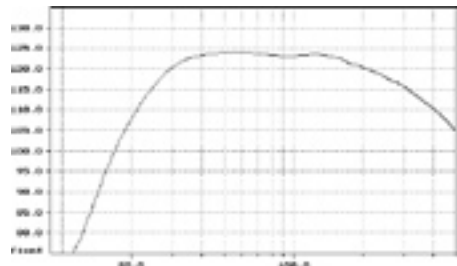


Figure: Frequency response for preset: Teufel PS I (measured curve)


The “Teufel PS I” preset activates the following settings:

- ▶ Low-end cut-off frequency: 30 Hz
- ▶ Low-end filter order: 4. order
- ▶ High-end cut-off frequency: 190 Hz
- ▶ High-end filter order: 2. order
- ▶ Parametric filter 1: Frequency = 31 Hz, Amount = +3 dB, Quality = 1.9
- ▶ Parametric filter 2: Frequency = 87 Hz, Amount = -9 dB, Quality = 0.5
- ▶ Parametric filter 3: -

Presets – User Presets LFE



Figure: User Presets LFE, Load settings

Use this menu item to load a previously saved preset. Press “Enter”. The  symbol indicates that the new setting has been applied.

Press “Up” or “Down” to access the second menu item, which lets you save the current settings as a preset.

Note that saving your new settings will overwrite the previously saved preset.

11. Advanced setup options for the M 7200 SW

Submenu: Language

Use the “Language” submenu to set the menu language of the M 7200 SW THX Select to either German or English. The menu items described in this manual refer to the English language set.

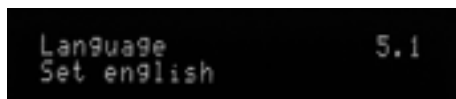


Figure: Language, Set English

Settings available in this submenu:

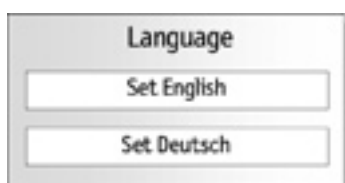


Figure: Available settings in the “Language” submenu

Language – English

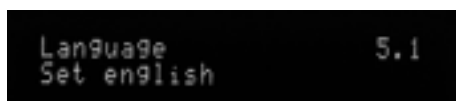


Figure: Language, Set English

Confirm the menu item with “Enter” to display the menu structure in English. The ↵ symbol indicates that the new setting has been applied.

Language – German (default setting)

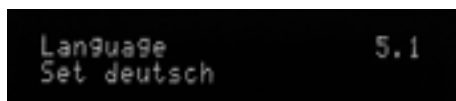


Figure: Language, Set German

Confirm the menu item with “Enter” to display the menu structure in German. The ↵ symbol indicates that the new setting has been applied.

12. Subwoofer setup procedure

The M 7200 SW's extensive setup options let you fine-tune the subwoofer very precisely to your listening environment. To calibrate your system, you will need the sound level meter and test CD shipped with the system, and a blank frequency chart (see page 35). Photocopy the chart so you can re-use it in the future.

Before you commence the calibration process, familiarise yourself thoroughly with the M 7200 SW THX Select subwoofer's controls and settings (see Chapter 11). An extensive range of options is provided to fine-tune the subwoofer to your room, so make sure to know exactly what they are before you begin using them.

About the Teufel Test CD

The CD contains a reference level track, as well as 45 further calibration tracks with a duration of 30 seconds each. Each of these tracks contains a sine wave signal at a different frequency. The first is Track 02, at a frequency of 15 Hz. The subsequent tracks are arranged as a rising series of frequencies up to 190.49 Hz, with each track being a semi-tone higher than the previous one.

The frequency spectrum was divided into semi-tones because of their musical properties. The human ear can easily differentiate between semi-tones, and the relationship between them can be applied to any part of the frequency spectrum. The mathematical relationship between the individual semi-tones is $2^{1/12}$ (i.e., 1.05946309). The test CD's frequency steps correspond to the frequency controls on the M 7200 SW THX Select subwoofer.

Once you have familiarised yourself with all the components, follow the steps described below:

Step 1: Connect the subwoofer to the corresponding Pre Out/Sub Out on your AV receiver and connect the mains power cable.

Step 2: Connect a CD/DVD player to your receiver and insert the Teufel Test CD.

Step 3: Press the "On/Standby" button to activate the subwoofer. If the CD's bass signals are already playing, the subwoofer should now be reproducing these.

Step 4: Calibrate the subwoofer's output volume using the supplied sound level meter. To do this, place the level meter at the main listening spot and point it directly at the subwoofer. Next, start

the test CD and adjust the subwoofer's volume level. Make sure never to alter the position or direction of the sound level meter during the calibration process.

Please be aware that the supplied sound level meter is a very simple device which is not as accurate as a professional signal analyzer. If you require high-precision audio signal measurement, we recommend purchasing a suitable measuring device separately.

Set up the sound level meter as follows:

- ▶ Remove the protective tab from the battery.
- ▶ Set the weighting to "C" – only the "C" setting is suitable for measuring the entire frequency spectrum.
- ▶ Set the response to "Slow".
- ▶ Set the range to "70".
- ▶ Start the test CD.

Step 5: Switch on your CD/DVD player, insert the Teufel Test CD, and play Track 01. This contains a test tone at a frequency of 100.91 Hz. Track 01 is designed as a reference track for you to calibrate the levels of the subwoofer and the meter. At the listening position, the sound level meter should be reading a level of 75 dB (75 dB is also at the centre of the y-axis on the frequency chart template). Adjust the subwoofer's level in reference to the readings from the sound level meter.

Step 6: Take the blank frequency chart and a pen and sit down in your main listening spot with the sound level meter. You are now ready to measure the frequency response curve.

Step 7: Start the testing sequence by playing the test CD and measuring the levels of the successive test frequencies. Record your measurements by plotting them on the frequency chart.

The test tones contained on the test CD correspond to the frequency values on the x-axis of the frequency chart. Track 02 (the lowest sine tone and first testing tone) starts the frequency spectrum at 15 Hz; Track 46 ends it at 190.49 Hz. For each test tone, plot the measured level as a coordinate point, and move on to the next frequency by skipping to the next track on the test CD.

Step 8: Connect the coordinate points you have plotted in the chart to produce a frequency curve. The test chart on the following page shows a sample frequency curve.

12. Subwoofer setup procedure

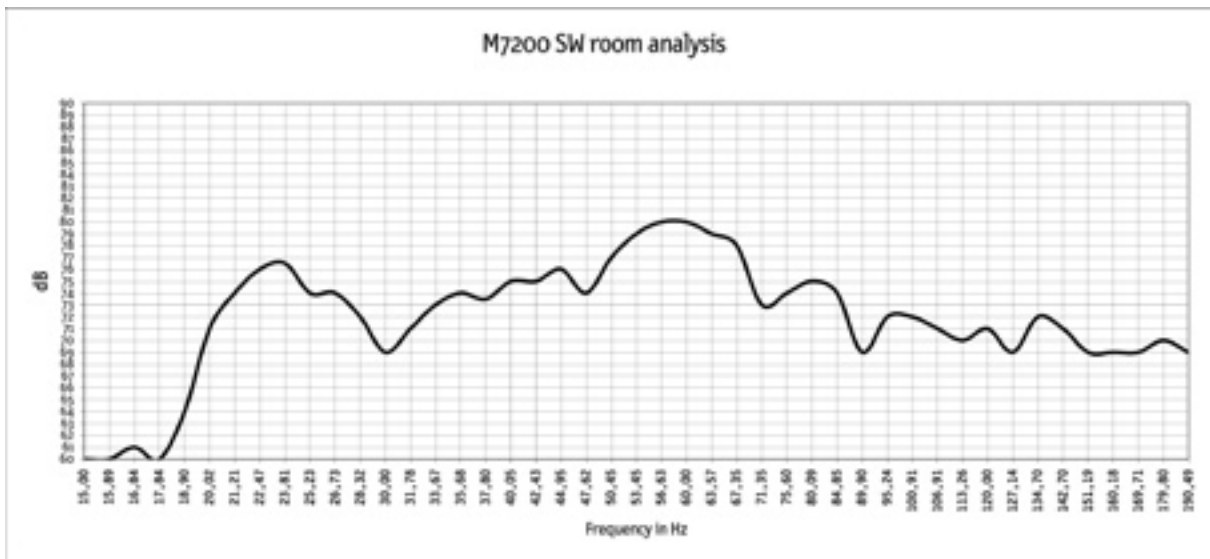


Figure: Sample measurement of an LT 7 frequency response

The sample measurement shown above illustrates how severely a room's acoustic properties can affect the linear frequency response curve of the M 7200 SW.

Step 9: Now, let's use the M 7200 SW's versatile setup options to flatten out this frequency curve. There are a few things to watch out for:

- ▶ Generally, you should only use the parametric equalizer for reducing excessive peaks in the response curve, e.g., the peak at 60 Hz in the sample chart. If you need to use the parametric equalizer to boost a section of the frequency range, make sure not to boost more than a few dB.
- ▶ Dips in the frequency curve (such as the 30 Hz dip in the sample chart) usually result from phase cancellations, which are caused by the same frequencies being produced by different speakers at different polarities. You cannot fix phase cancellations through equalization; the best remedy is to reposition the subwoofer.
- ▶ Many of the minor dips and boosts in the frequency range are directly caused by the acoustic properties of the room, and these cannot be fully eliminated unless the physical room acoustics are painstakingly matched to the speaker setup. In practice, it usually isn't feasible to attain a fully linear frequency response, so the sensible approach is to find the best-sounding compromise.

▶ Frequency peaks are generally more discernible and detracting than frequency dips. Therefore, our aim should always be to eliminate the peaks in the frequency curve rather than compensating for the dips.

▶ We recommend that you fine-tune the subwoofer's physical position and sound controls so that any extreme dips are shifted into that part of the frequency range where there is the least signal content (i.e., at the bottom end of the sub-bass region or well above the subwoofer's crossover frequency). While this doesn't fix the problem of resonant frequencies in the room, it does effectively minimise their interference.

▶ In spite of all the acoustic theory, the final judge should always be your subjective listening experience. It isn't at all unusual to opt for a non-linear frequency response curve if it pleases your ears – for example, you may enjoy a boost in the sub-bass frequencies.

▶ After you have modified the subwoofer's settings and/or physical position, run a new frequency measurement to record the updated frequency response curve.

12. Subwoofer setup procedure

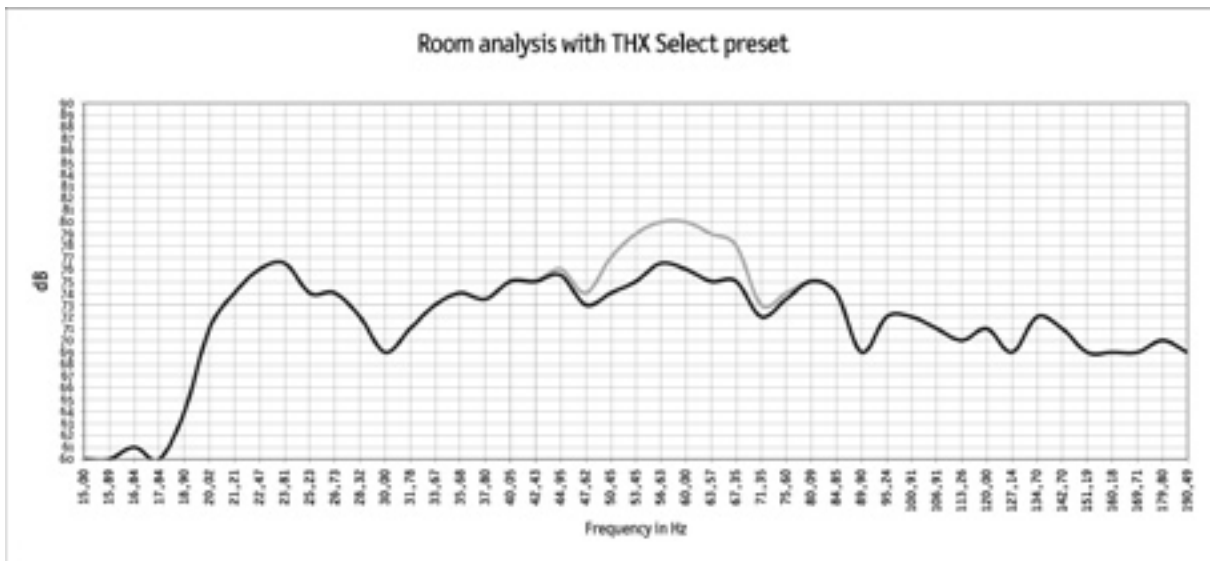


Figure: Results with equalization at 60 Hz

The chart above shows the effect of an EQ filter on the frequency response (black line). The level is reduced by -4 dB at a frequency of

60 Hz (quality: 2.1) to flatten the most pronounced deviation in the response curve.

13. Frequency chart for your own measurements

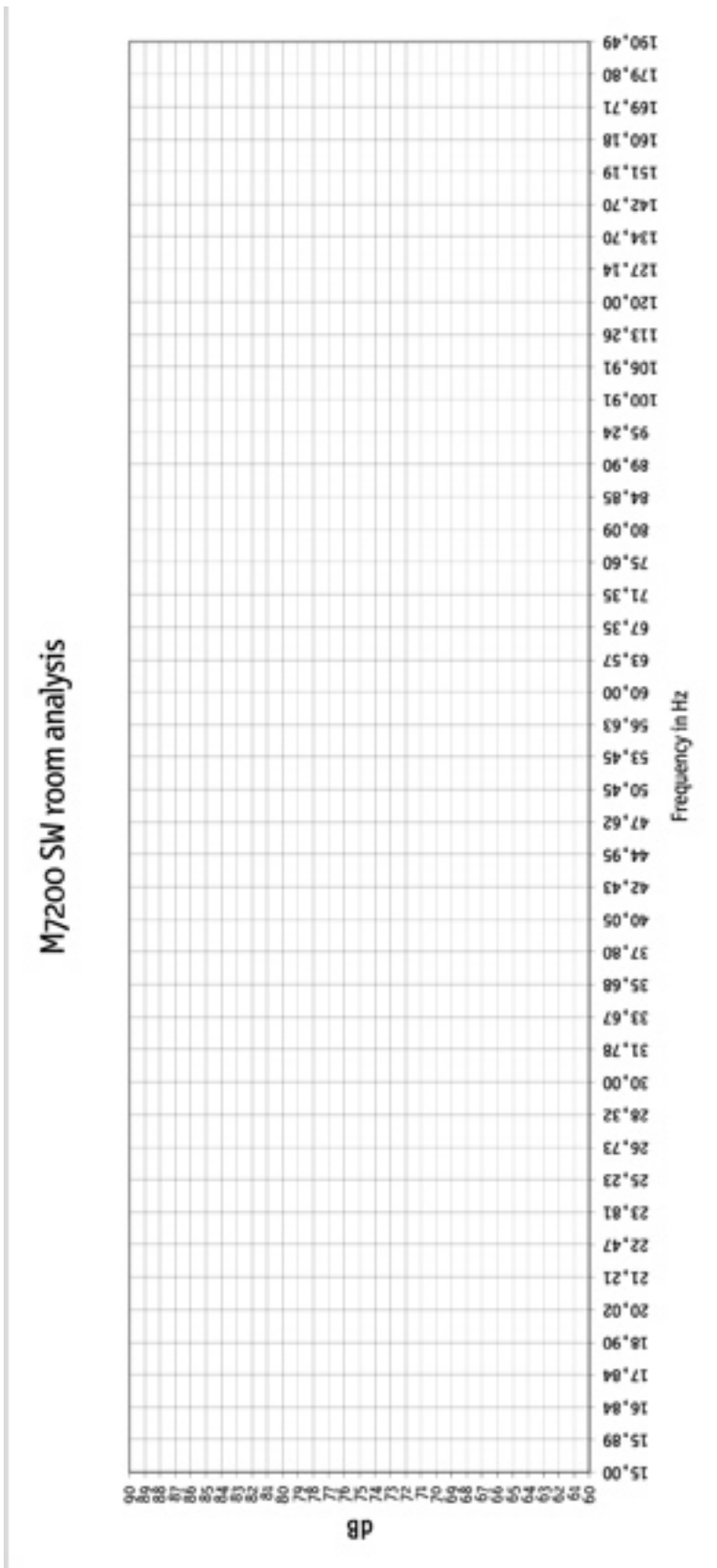


Figure: Frequency chart for your own measurements

The subwoofer is not working

If the Power LED or display of the subwoofer does not light up, replace the fuse with a fuse of equal rating.

If the Power LED lights up, set the subwoofer volume level to “Min.”, unplug the subwoofer cinch cable from the amplifier, turn up the volume slightly and touch the tip of the cinch connector with your finger. If this produces a hum or crackle, the fault is with the amplifier or the amplifier settings. If the subwoofer remains completely silent, please contact our support team.

The subwoofer is making a humming noise

Hum may be caused by any connected audio device as well as by problems with the mains power. In most cases, excessive hum is caused by one of the following:

1. The subwoofer is connected to a different electrical circuit than the other components. Make sure that all connected devices (including any computers) are powered from the same electrical circuit, i.e., the same mains socket.
2. The antenna connected to the audio system or TV has a different ground potential to the antenna socket. To test this, simply disconnect all the antenna cables from the wall socket. If this makes the hum disappear, you will need a ground breaker (available from most electronics stores). Simply insert the ground breaker between the antenna socket and the TV/receiver.
3. A line filter (to be purchased separately) can also be useful for hum removal. Note that you will need to connect all your electrical devices to the line filter. Make sure you can return the line filter for a refund if it does not produce the desired results.

4. Some types of power multiboxes are also known to produce hum. Try eliminating your multibox and plug the subwoofer's power cable directly into the mains socket.

5. If possible: Unplug the mains cable, rotate the connector plug by 180°, and plug it back into the mains socket.

6. If you have trouble locating the source of the hum, check whether the subwoofer is less noisy when you plug it into the mains connection in another room (e.g., using an extension cable). Also, try disconnecting the subwoofer's cinch cable from the receiver to see whether the hum is caused by one of the other connected audio devices.

Cleaning

Please take note of the following guidelines to protect the components and maintain the finish of your Teufel loudspeakers:

Avoid placing the speaker cabinets in direct sunlight. Avoid extreme temperature fluctuations and protect your loudspeakers against humidity. When cleaning the speaker cabinets, only use dry or moist cloths. Never use abrasive or alcohol-based cleaning products. If you need to clean a speaker membrane, do so very carefully using a dry cloth.

Teufel

If you have any questions, suggestions or criticisms, please contact our support team:

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