



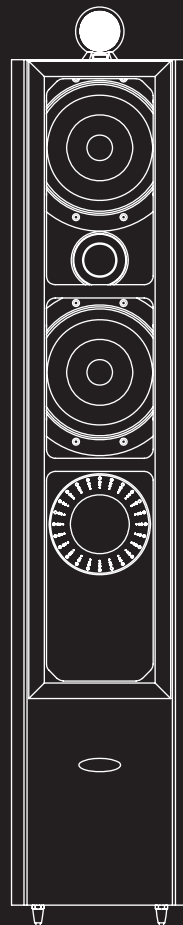
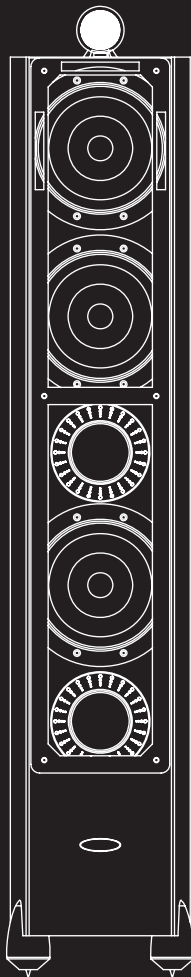
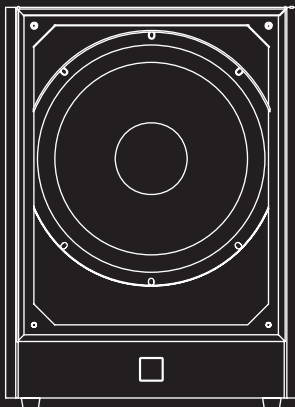
## THX Ultra 2 Certified Speakers

### OWNER'S MANUAL

**TX-T3 SE** THX Ultra2 Certified Towers

**TX-T2 SE** THX Ultra2 Certified Towers

**TX-12SUB** THX Ultra2 Certified Subwoofer





RECOMMENDED USE

All Home Theaters or Living Rooms

THX CERTIFICATION FEATURES

**Frequency Response:** Low Frequency  
Extension 25Hz at -3dB

**High Output, Low Distortion Design**

**THX Settings and Inputs Conform to THX  
Bass Management System**

THX PERFORMANCE

Capable of THX Reference Level up to  
3000 cubic feet (85 cubic meters) with four  
subwoofers.

Visit [www.thx.com](http://www.thx.com) for further technical details.



RECOMMENDED USE

All Home Theaters or Living Rooms

THX CERTIFICATION FEATURES

**Horizontal and Vertical Dispersion  
Characteristics Designed for Smooth Off  
Axis Response**

**High Output, Low Distortion Design**

**THX Bass Management System**

THX PERFORMANCE

Capable of THX Reference Level up to 12 feet  
(4 meters) viewing/listening distance

Visit [www.thx.com](http://www.thx.com) for further technical details.

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## 1. Precautions

- **Operating voltage:** Before powering the subwoofer make sure the operating voltage of the local power supply is identical to that specified for the subwoofer
- **AV amplifier:** Ensure that your AV amplifier is switched off before connecting the subwoofer
- Make sure you have connected the plus (+) and minus (-) binding posts of each speaker to the corresponding plus (+) and minus (-) terminals on the amplifier or receiver
- **Connection with AV amplifier:** Turn off the subwoofer before connecting the input signal cable to its internal amplifier
- **Binding Posts:** Make sure all binding posts are tight, especially if using bare speaker wires
  - > Contact between + and - wire strands may cause a short-circuit and potentially damage your equipment
- **Ventilation:** The product should be situated so that its location or position does not interfere with its proper ventilation. The product should not be placed in such a way that may block the ventilation openings
- **Follow instructions:** All operating and usage instructions should be followed
- **Operation:** Avoid using your AV amplifier at its power limit especially if it is a low-power design
  - > Continuous high power levels can cause distortion
  - > Amplifier clipping may cause severe damage to your speakers
  - > High-power amplifiers are preferable
- **Power:** Do not drive your new speakers with a continuous power output exceeding its maximum power rating as indicated in this instruction manual for each speaker model
- **Cables:** Use the best speaker and interconnect cables possible
- **Non-use periods:** The power cord of the subwoofer should be unplugged from the outlet when left unused for a long period of time
- **Heat:** This product should be placed away from heat sources such as radiators, stoves, or other products that produce heat
- **Humidity:** Do not place loudspeakers in dusty or humid environments
- **Sunlight:** Avoid exposure to direct sunlight

**CAUTION:** To prevent electrical shock, ensure the subwoofer's plug is fully inserted into the socket

## 2. Introduction

Congratulations on your purchase of the Crystal Acoustics THX Ultra2 Certified speakers!

Your new THX® Ultra2 Certified loudspeakers and subwoofers are designed and built to the highest standards for powerful and vivid high performance.

Crystal Acoustics home cinema systems deliver powerful, engaging, you-are-there video and a profound yet nuanced, detailed and dynamic musical presentation. Immerse yourself in an action film and be-in-the-scene while thunderous dynamics and huge soundscapes take your breath away!

### 2.1 Prior to installation

- Please unpack the system carefully as the units are heavy
- Use caution when lifting or moving to avoid injury
- Please retain the carton and all packaging materials for future use; units may be damaged during transportation if packed in non-suitable cartons
- Please observe all warnings in the instruction manual and on the unit itself and refer all questions to your Crystal Acoustics representative

### 2.2 THX Ultra2 Certified Products

THX, the trademark of THX Ltd., is the ultimate set of standards for home theater sound. It incorporates a series of patented electronic and loudspeaker specifications designed to bring the big theater experience right into your home.

THX was indeed the first standard, but Lucasfilm THX realized their specification must adjust for differently sized home entertainment environments. THX Ultra2 is the reference standard for bigger rooms, calibrated to define reference level performance in rooms of about 3000 square feet.

### 2.3 Product features

Crystal Acoustics speaker systems, optimized for a stupendous, powerful and dynamic surround sound presentation, still delivers nuanced, high performance multichannel music when required.

#### They feature:

- **Absolutely flat** frequency response
- **Easy placement:**
  - > **THX Bass Management** specifications minimize interaction between speakers and the room boundaries--i.e., walls, corners, etc.
  - > **Free Air Rotating Spherical Tweeter** avoids diffraction effects improving high frequency performance
  - > Avoids having to move the whole speaker to set the tweeters for the right balance between a big coherent soundstage and image focus
- **Electronic protection** for the tweeters
- **Wide horizontal dispersion** characteristics for wideband flat frequency response throughout the room
- **Controlled vertical dispersion** diminishes ceiling and floor reflections for superior air, sound stage, and imaging focus
- **High sound levels** and dynamics capability

- > **High sensitivity** means even a relatively low-power A/V receiver or multichannel amplifier can drive them as long as they can support multiple 4 ohm loads
- > **High power handling** means they're safe to use with powerful A/V receivers or big multichannel amplifiers
- **Dipole speakers:** THX recommend dipole surround speakers to more faithfully reproduce the surround effects of movie theaters
  - > **Wide dispersion characteristics** accurately reproduces the sound of two rows of side-mounted speakers
- **Timbre matching:** Your speakers have similar tonal characteristics because of similar or identical crossover topology, smooth frequency response, and quality drivers
- **Full magnetic shielding:** Your speakers are fully shielded for safe placement as near the TV/ video display as needed

#### **THX Ultra2 Certified Subwoofers Feature:**

- **Flat anechoic response** from 20Hz to 200Hz and accurate in-room response from 16Hz to 350Hz
- **Sturdy cabinet construction** with internal bracing
- **High quality, powerful built-in amplifiers**
- **Long throw woofers** with huge magnets for a deep and powerful bottom-end
- **Accurate bass performance** to THX standards when using four TX-12SUB subwoofers
- **Power savings** when subwoofer automatically switches to stand-by mode after 10 minutes of no input
- Power consumption is very low in stand-by
- The LED on the subwoofer's rear panel lights red for stand-by, orange for operational
- **Note:** Power should be turned off when the subwoofer is unused for long periods of time
- **Automatic power on** in stand-by when signal appears at the subwoofer's input
- Switching the subwoofer off then on again also restores it to operation

## **3. Positioning your Speakers**

Your speakers are designed for high performance multichannel sound in a variety of listening environments. They deliver powerful, engaging, you-are-there movie soundtracks, plus a nuanced, detailed and dynamic musical presentation.

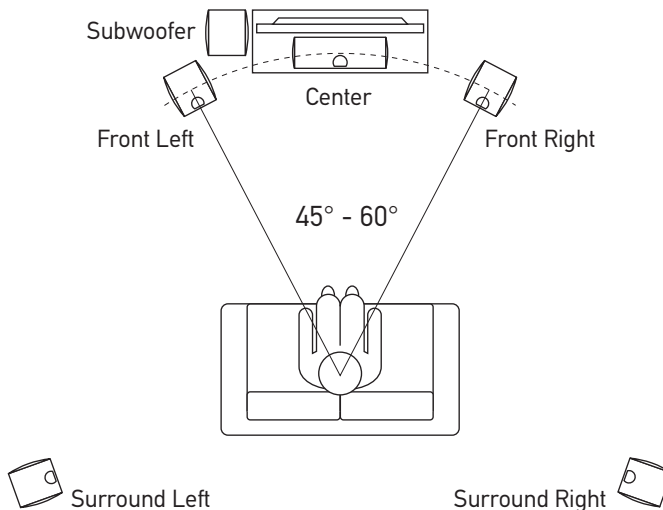
The sound field reproduced by a multi-channel audio system envelops listeners to create a very three-dimensional image. To achieve the best results follow these set-up procedures.

- Ideally, all five speakers should be equidistant from the listener and develop identical sound levels when fed identical signals
- It may not be practical for your speakers to be set equidistantly in your room, **but electronic time delay circuits** easily compensate for this and can be found in any processor or receiver's set-up menu
- We recommend positioning your TX-12SUB close to the listening position (Figure 1).  
**\*\*\*Additionally, using the Crystal Acoustics Wireless Transmitter-Receiver you can easily connect your subwoofer with the minimum of fuss and free from the clutter of speaker wires**
- Avoid positioning the subwoofer equidistantly from room boundaries like walls
- Avoid positioning it near corners where walls are not of solid construction
- Corner placement may exacerbate room resonance, resulting in boomy, muddy bass
- Further experiment with speaker positioning; place the subwoofer near your listening position

and play jazz with acoustic bass and move around the room

- Place the subwoofer where you hear the deepest, best controlled and most articulate bass frequencies
- Your TX-12SUB subwoofer is magnetically shielded to reduce the amount of stray magnetic energy emitted from the speaker's motor structure. This greatly increases flexibility when placing the unit close to video monitors, as there is very little stray magnetism. Certain types of TV are particularly sensitive to stray magnetic fields. If your TV produces distorted colours after installing your subwoofer, simply increase the distance between your TV and the subwoofer, until normal colour and operation is returned

**CAUTION! This subwoofer has electronics built into the cabinet. Do not place the cabinet next to sources of heat or near sources of excessive moisture.**



**Figure 1:** Speaker and subwoofer placement

### 3.1.1 Placement of Front Tower Speakers

Try to follow these set-up suggestions as illustrated in Figure 1. Use our online Room Acoustics Designer® ([www.crystal-acoustics.com](http://www.crystal-acoustics.com)) to find other placement suggestions.

1. Place your speakers equidistantly from your TV/projector's screen
2. Measure the distance between your left and right speakers
3. Measure the distance between the listening position and the midpoint between your left and right speakers
4. The difference in length between them should be no greater than 15%
5. Angle your speakers inwards towards the listening position and find the optimum angle for best sound
6. Adjust your speakers so that the tweeters are about ear-height at the listening position if possible
7. Move the speakers towards room boundaries (walls or corners) to reinforce low frequencies. Do the opposite to reduce lower frequencies
8. Sometimes small changes can have a big result, so it's worth experimenting
9. Do not place the speakers too far apart or a hole develops in the centre image
10. Do not place the speakers too close together or the soundstage collapses into a fuzzy mono centre-only image.

### 3.2 Placement of Center Speaker

**TV screen:** Place your center speaker directly above or below the screen depending on which is closer to ear level

**Projector screen:** Place your center behind or in front of the centre of the screen whether it is acoustically transparent or not

### 3.3 Placement of Surround Speakers

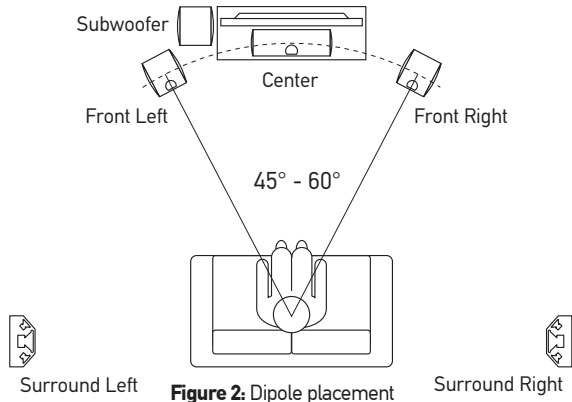
Surround speaker placement depends on the audio format (5.1,7.1, etc.) and the speakers in use. Dipoles create a diffused sound field ideal for surround effects. It's preferred for best performance from THX Select or Ultra2 Certified systems.

1. Place the surround speakers slightly behind the primary listening position
2. Adjust the speakers to fire towards each other behind the seating area

#### 3.3.1 Placement of THX Ultra2 Certified Dipole Surround Speakers

Your THX Ultra2 Certified Dipole Surround Speaker provides Movie Theater sound as immersive and dynamically impressive as THX standards can make them. A dipole speaker "paints" the walls and ceiling with sound. There's very little direct output toward the listener. The reflected sound off the room's walls and ceiling creates an inviting, enveloping, experiential soundfield, immersing you directly into the movie experience. Once you heard a properly set up system, it's hard to go back to anything else as it improves the entire experience no matter what you're watching... or listening to. The total of a speaker's radiated energy in all directions is called its power response. Your THX Ultra2 Certified Dipole Surround Speaker exhibits a THX-mandated flat power response. The total energy radiated by a speaker--to the front, above, below, behind, and to the sides--must together average a flat response. Listeners anywhere in the soundfield will enjoy surround effects





- Mount your THX Ultra2 Certified Dipole Surround Speaker on the side walls adjacent to the listening position about 2ft (66cm) above ear height
- The THX Ultra2 Certified Dipole Surround Speaker includes an invisible wall mounting system at the rear of the cabinet for on wall placement.

**\*\*ATTENTION:** Please consult a special technician for advisory on your wall specifications and mounting instructions if you are not familiar or you don't know how much weight your wall can stand.

### 3.3.2 Placement of Surround Speakers

In some cases, on-wall dipoles aren't practical because of a room's layout. Just place another pair of Crystal Acoustics Speakers behind the listening area for a unique home theater surround experience.

- Place the Surround Speakers slightly behind the primary listening position
- Adjust them to face each other behind the seating area
- Optionally, experiment by adjusting the speakers to point at an angle towards the back or side walls
- The sound reflects off the walls before reaching the listening area which simulates the L/R speaker arrays found in many movie theaters

**\*\*\*Additionally, using the Crystal Acoustics Wireless amplifiers TR-100 or TR-60 (optional) you can easily connect your surround speakers with the minimum of fuss and free from the clutter of speaker wires.**

### 3.4 Placing THX Ultra2 Certified Subwoofers

Best positioning for one TX-12SUB Subwoofer can generally be found using the following suggestions:

- Try placing the subwoofer close to the listening position
- Avoid positioning it equidistantly from room boundaries like walls

- Avoid positioning it near corners where walls are not of solid construction
- Corner placement may excite room resonance resulting in boomy, muddy bass
- Further experiment with speaker positioning; place the subwoofer near your listening position and play jazz with acoustic bass and move around the room
- Place the subwoofer where you hear the deepest, best controlled and most articulate bass frequencies.

### 3.4.1 Multiple Subwoofers

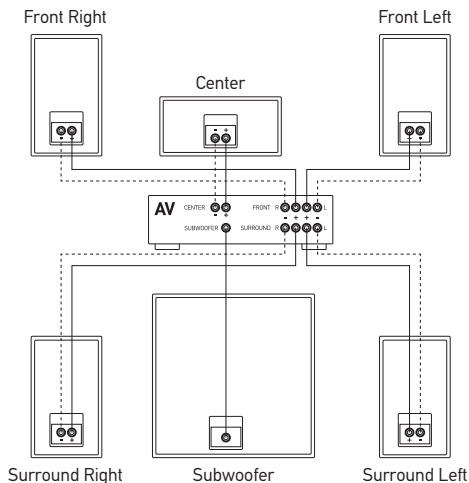
#### Two Subwoofers

- Two subwoofers drive low frequencies more uniformly throughout the room because they:
  - > Reduce resonant modes and standing waves
  - > Extend bass response
- Improves bass impact, slam, definition and control
- Delivers higher sound pressure levels and superior dynamics for movies and multichannel music
- Place each subwoofer at the midpoint of the opposing wall

#### Four Subwoofers!

- Four TX-12SUB Subwoofers deliver stupendous, earth shattering bass to your home entertainment system
- Using four TX-12SUB Subwoofers brings the system to THX Ultra2 Specification
- Really pressurizes a room and improves low-frequency extension
- Improves the power response almost everywhere in the listening area
- Place each subwoofer at the four walls' midpoint

## 4. Speakers & subwoofer connections with your AV receiver



**Figure 3:** Connections of speakers and subwoofer with receiver

**IMPORTANT: All connections must be made with the equipment switched off. Refer to your AV receiver manual before proceeding with connections.**

Connections to the speakers are made at the binding post terminals located on the rear panel of the receiver. These terminals permit a variety of connection methods.

1. **Single-wire:** Ensure the positive binding post on the speaker (marked in red) is connected to the positive output terminal of the amplifier or receiver. Similarly, the negative speaker terminal (marked in black) is connected to the negative amplifier or receiver output terminal. Incorrect connections can result in poor imaging and reduced bass output.
2. **Biwire** (not supported on all speakers): Remove the jumper links by loosening the speaker terminal caps and use a separate pair of speaker cables from the amplifier or receiver to each pair of speaker binding posts. Biwiring can improve resolution of low-level detail. Always observe correct polarity. Incorrect connections can also degrade bass, focus and imaging.

Be sure to choose the correct output terminals on your amplifier or receiver to properly connect your speakers (figure 3).

- For front left and right speakers: use the front left and right speaker output terminals on your amplifier or receiver and connect two speakers
- For centre speaker: use the centre channel speaker output terminals on your amplifier or receiver to connect your speaker
- For surround (rear) speakers: use the two surround (rear) speaker output terminals on your amplifier or receiver to connect two speakers

## 5. Installation of THX Ultra2 Certified Subwoofers

### 5.1 Inputs

Your new subwoofer is equipped with line-level (RCA Audio In) input for connection with a pre-amp, signal processor or receiver with pre-amp level outputs. Some receivers may not provide enough signal to have the unit's Auto On/Off feature operate properly. Additionally this lack of signal may cause the subwoofer to produce less output than it is capable of.

- If using a receiver with LFE out, be sure the LFE channel is sending adequate signal to the subwoofer. We recommend setting the subwoofer's level to the 9 o'clock setting (1/4 volume setting) and then adjust the LFE channel on your receiver or processor to achieve the desired bass output. \*See your receiver or processor's owner manual for more information.

### 5.2 Volume control

The volume control allows you to balance the output from the subwoofer to the main speakers/amplifier in your system. This control should be set to achieve similar output levels from both the main speakers and subwoofer when listening to music. A good starting point for the volume control is two or three levels above minimum (Volume control is not active when Var/THX switch is set at THX position)

### 5.3 Phase adjustment 0°/180°

Phase control allows you to "reverse" the phase of the subwoofer's output signal 180° to correct for

any possible mismatch and resulting cancellation between the subwoofer and your main speakers/ amplifier. To adjust, simply listen to the system with music playing then depress the phase switch from one position to the other and listen for a change in low frequency output. The correct position will have a greater amount of apparent low frequency output.

For all installations, experiment with the phase switch to determine the setting that produces the most bass. If the settings sound similar we recommend the 0° position.

## 5.4 Var / THX

Operational Mode Switch • THX or Variable positions

### THX position:

- For one TX-12SUB Subwoofer
  - > Meets all required specifications for THX Ultra2 Certification but amplifier gain is 12dB lower

### VAR (Variable) position:

The TX-12SUB operates under THX specifications except for the internal amplifier's gain. You can change the output level in Variable mode with the Volume Control knob

## 5.5 Auto On / Off

The subwoofer will turn itself on automatically when an audio signal is present. If no signal is present for approximately 10 minutes, the unit will switch to standby mode. While in standby mode your subwoofer will draw minimal power, however we suggest you turn it off or even unplug the power cord from the outlet when it is left unused for a long period of time.

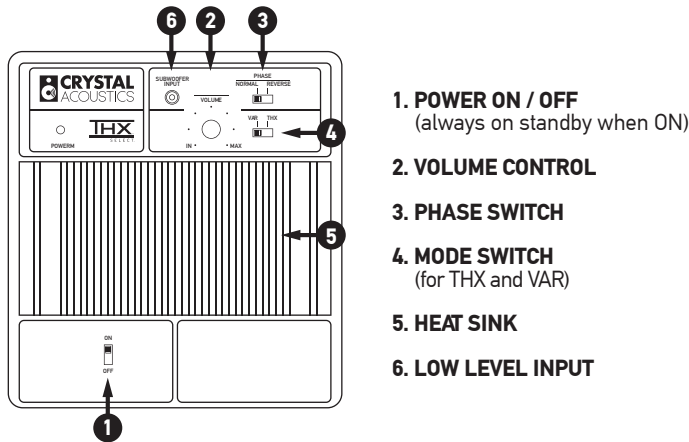


Figure 4: Subwoofer Control layout

## 5.6 THX Subwoofer installation guide

The following instructions are for THX Ultra2 Certified as well as non-certified Dolby Digital/DTS A/V receivers or surround processors.

1. Turn off your receiver or multi-channel amplifier and make sure the subwoofer is off
2. Use a high quality shielded interconnect with RCA connectors to link the subwoofer to the output of your receiver or multi-channel amplifier
3. Set the Operational Mode switch on your TX-12SUB to the THX position
4. Set the phase switch to 0° (Normal)
5. Turn on your system and the subwoofer
6. Navigate to the Speaker Setup menu of your receiver or processor to calibrate channel level and size of your front, centre and surround speakers
7. Set your main and surround speakers to "Small" on your receiver or processor
8. Set the roll off point to the following:
  - 80Hz (THX standard) for THX Ultra2 or Select loudspeakers or other speakers of bigger size
  - 120-150Hz for other small speakers (Crystal Acoustics Plasma, SmArt System and Bipolar series)
  - The higher the crossover, the better the power handling of your main speakers
9. Change the Phase Control of your THX subwoofer between 0° and 180° positions
10. Listen to music with prominent bass
11. Stay with the switch position that produces the fullest, deepest and tightest bass in your listening area
12. Use the pink noise test signal of your receiver, processor or test DVD
13. Take a seat at the main listening and viewing position
14. Use a SPL meter (C scale, slow) and calibrate the output sound level of each channel (fronts, centre, surrounds) plus your subwoofer, so that all outputs levels are equal
15. When using a single TX-12SUB subwoofer, you must increase the subwoofer output level of your receiver or processor by 12dB to get the proper bass levels to meet THX standards
16. Connection of multiple subwoofers to a receiver or processor with only one SUB/LFE output can be accomplished with Y-adapters (RCA male to two RCA female connectors)
17. Using the Crystal Acoustics Wireless Transmitter-Receiver solution you can easily connect your subwoofer with the minimum of fuss and free from the clutter of speaker wires

## 6. Troubleshooting

### 6.1 No sound from any of the speakers

- Check that receiver/amplifier is on and a source is playing
- Check all wires and connections between receiver/amplifier and speakers
- Make sure all wires are connected properly
- Make sure none of the speaker wires are frayed, cut or punctured, or touching each other
- Review proper operation of your receiver/amplifier

### 6.2 No sound coming from one speaker

- Check the "Balance" control on your receiver/amplifier
- Check all wires between receiver/amplifier and speakers
- Make sure all wires are connected properly
- Make sure none of the speaker wires are frayed, cut or punctured, or touching each other

- In Dolby® Digital or DTS® modes, make sure that the receiver/amplifier is configured so that the speaker in question is enabled
- Turn off all electronics and switch the speaker in question with one of the speakers that is working properly. Turn everything back on, and determine whether the problem has followed the speaker, or has remained in the same channel. If the problem is in the same channel, the source of the problem is most likely with your receiver/amplifier, and you should consult the owner's manual for that product for further information. If the problem has followed the speaker, consult your dealer for further assistance or contact [info@crystal-acoustics.com](mailto:info@crystal-acoustics.com)

### **6.3 The system plays at low volumes but shuts off as volume increases**

- Check all wires and connections between receiver/amplifier and speakers
- Make sure all wires are connected properly
- Make sure none of the speaker wires are frayed, cut or punctured, or touching each other
- If more than one pair of main speakers is being used, check the minimum impedance requirements of your receiver/amplifier

### **6.4 There is no sound from the surround speakers**

- Check all wires and connections between receiver/amplifier and speakers
- Make sure all wires are connected properly
- Make sure none of the speaker wires are frayed, cut or punctured, or touching each other
- Review proper operation of your receiver/amplifier and its surround sound features
- Make sure the movie or TV show you are watching is recorded in a surround sound mode. If it is not, check to see whether your receiver/amplifier has other surround modes you may use
- In Dolby® Digital or DTS® modes, make sure your receiver/amplifier is configured so that the surround speakers are enabled. When five satellites are in use, remember to configure your receiver or processor for 6.1-channel operation, and when six satellites are in use, configure your receiver or processor for 7.1-channel operation
- Review the operation of your DVD player and the jacket of your DVD to make sure that the DVD features the desired Dolby® Digital or DTS® modes, and that you have properly selected that mode using both the DVD player's menu and the DVD disc's menu

### **6.5 No sound from subwoofers**

- Make sure your subwoofer is plugged into an AC outlet
- Make sure the subwoofer Y/N option is set to Yes in your receiver or processor's speaker setup menu  
Make sure the volume control is not set to Minimum  
Make sure your subwoofer interconnect is functioning properly and replace any defective cables

### **6.6 Boomy, dull, out of focus low frequencies**

- Try moving your subwoofer away from corners or walls in small steps
- The boom results from exciting room resonances
- Small changes in position can make a big difference

### **6.7 50/60 cycle hum coming from the subwoofer**

Your THX subwoofer is reproducing ground loop hum from elsewhere in your system

- Make sure interconnect and speaker cables are routed away from AC power cords and

component power supplies to avoid induced hum

- Cross interconnects at 90 degrees to AC power cords and keep them separated by at least an inch. Also connect the power cord of your THX subwoofer and receiver/processor and multi-channel amplifier to the same AC outlet to keep the grounds all at the same potential avoiding hum

## 7. Specifications

MODEL NAME	TX – T2 SE TOWER	TX – T3 SE TOWER	TX-12SUB
INPUT POWER (Watt RMS)	150	200	200
SENSITIVITY (dB/2.83V/1m)	91	92	
IMPEDANCE (Ohm)	8	8	-
FREQUENCY RESPONSE (Hz)	35-22k	33 - 22k	16-200
SUBWOOFER			1 x 12"
WOOFER /MID	2 x 6.5"	2 x 6.5"	
MIDRANGE		1 x 6.5"	
TWEETER	1" neodymium magnet	1" neodymium magnet	
CROSSOVER TYPE	2-way	3.5-way	THX & Variable
MAXIMUM POWER (Watt)	300	400	
MINIMUM IMPEDANCE (ohm)	3.2	3.2	-
WOOFER CHAMBERS	2	3	1
BASS REFLEX PORTS	2	2	2
ELECTRONIC PROTECTION	✓	✓	
GOLD PLATED BINDING POSTS	✓	✓	✓
BIWIRE POSTS	✓	✓	
MAGNETICALLY SHIELDED	✓	✓	✓
DIMENSIONS WxHxD (mm)	200x1011x300	210x1073x340	350x471x470

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[www.crystal-acoustics.com](http://www.crystal-acoustics.com)

