ORION™
HIGH PERFORMANCE CAR AUDIO

XTR®

# XTR-X4R

## 4-WAY ELECTRONIC CROSSOVER NETWORK

proud to be LOUD!

Congratulations on your purchase of the new ORION XTR signal processor. As part of the cutting-edge XTR mobile electronics line, these products stand out as some of the most sophisticated car audio options available today. Designed and engineered for exceptional performance, these quality audio systems are built to provide years of uncompromising musical service, utilizing the latest advancements in electronic technology to deliver a superior auditory experience.

The X4R Active Crossover elevates your mobile audio experience, allowing you to enjoy the highest quality of sound. It reveals the effortless, natural, and open qualities of live performances. Unlike traditional systems that use passive crossovers, which can restrict music flow through chokes and capacitors causing distortions and bottlenecks, the X4R ensures that music flows smoothly without such hindrances.

With the ORION XTR-X4R, not only will you experience the full dynamics of bass, but you will also appreciate the subtle nuances, like fingers sliding across guitar strings. The X4R enables precise control over your audio setup, allowing you to group amplifiers and speakers into discrete units that operate in perfect harmony. It acts as the conductor of your sound system, adeptly balancing volume and assigning musical parts to specific instruments. It also delays certain sounds to ensure they align perfectly with the rest of the music, creating a seamless auditory illusion that immerses you in nothing but the music.

# ATTENTION

## FOR ANY QUESTIONS, ISSUES, RETURNS OR WARRANTY

**DO NOT** contact the retailer, we recommend that you contact our service department for any and all assistance at support@orioncaraudio.com.
We will do our best to resolve any problem in a professional and timely manner.

# TABLE OF CONTENTS



**WHAT'S IN THE BOX**

2 channel input & 4 channel output electronics crossover

Illuminated control panel

Rotary control knobs

12dB per octave crossover slope PWM power supply

Remote level controls

Front & sub/rear input mode switch

Variable low pass frequency control 50Hz-500Hz(SUB/REAR OUTPUT)

Manual on/off switch on each output channel Variable bass boost controls 0dB-12dB Stereo/mono mode control on front input

Variable high-pass frequency control 90Hz-1.1KHz(MID OUTPUT)

Variable low-pass frequency control 2KHz-8KHz(MID OUTPUT)

Band pass/ high pass selector(MID OUTPUT)

Sub & rear phase shift control 0-180

Variable high-pass frequency control 1.2KHz-14KHz(HIGH OUTPUT)

Adjustable level control on all output channels Max variable output level controls 11 volts Variable Subsonic filter control 20Hz-40Hz

**WARNING:** This product can expose you to chemicals including DEHP which is known to the State of California to cause cancer, birth defects or other reproduction harm. For more information go to **www.P65warnings.ca.gov.**

# FEATURES & SPECIFICATIONS

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1. **LEVEL CONTROL**
   - This control sets the sub/rear gain control.
2. **PHASE SWITCH**
   - Shift allows 0 degree to 180 degrees.
3. **VARIABLE HIGH-PASS FREQUENCY CONTROL**
   - By turning the selector you can choose the high-pass crossover points from 1.2KHz-14KHz.
4. **HIGH OUTPUT LEVEL CONTROL**
   - For adjusting the high output level.
5. **VARIABLE LOW-PASS FREQUENCY CONTROL**
   - By turning the selector you can choose the low-pass crossover points from 2KHz-8KHz.
6. **BAND PASS/HIGH PASS SELECTOR**
   - When this switch is in high pass mode, the low pass filter cannot be used. it can convert rear channel to band pass in tri amp system.
7. **VARIABLE HIGH-PASS FREQUENCY CONTROL**
   - By turning the selector you can choose the high-pass crossover points from 90Hz-1.1KHz.
8. **MID OUTPUT LEVEL CONTROL**
   - For adjusting the mid output level.
9. **VARIABLE LOW-PASS FREQUENCY CONTROL**
   - By turning the selector you can choose the low-pass crossover points from 50Hz-500Hz.
10. **PHASE CONTROL**
    - Shift allows 0 degree to 180 degrees.
11. **SUB/REAR OUTPUT LEVEL CONTROL**
    - For adjusting the sub/rear output level.
12. **SUBSONIC FILTER**
    - Use this control to filter out low frequency noise and rumble.
13. **BASS BOOST CONTROL**
    - This control adjusts the bass boost gain(0 to12dB)

# FEATURES & SPECIFICATIONS

**14. FLAT OUTPUT LEVEL CONTROL**

- For adjusting the flat output level.

**15. SUB/REAR/FRONT INPUT SWITCH**

- For selection of independent input or input from front RCA

**16. STEREO/MONO INPUT SWITCH**

- For selection of stereo or mono mode front inputs.

**17. SUB/REAR INPUT PORT**

- To be connected to the sub/rear outputs of the source unit.

**18. FLAT OUTPUT PORT**

- To be connected to the amplifier left/right inputs.

**19. SUB/REAR OUTPUT PORT**

- To be connected to the sub channel amplifier left/right inputs.

**20. MID OUTPUT PORT**

- To be connected to the rear channel amplifier left/right inputs.

**21. HIGH OUTPUT PORT**

- To be connected to the front channel amplifier left/right inputs.

**22. FRONT INPUT PORT**

- To be connected to the front outputs of the source unit.

**23. REMOTE CONTROL JACK**

- Plug the modular telephone style cord connected to the remote control unit into this jack

**24. POWER TERMINALS**

- Use these connectors to deliver power, ground, and remote turn-on control to the unit

# FEATURES & SPECIFICATIONS

- » **Adjustable Bass Boost:** 0-18dB.
- » **Selectable Crossover Frequency**
- ◊ ***High Pass:*** 1.2KHz-8KHz
- ◊ ***Mid High Pass:*** 90Hz-1.1KHz
- ◊ ***Mid Low Pass:*** 2KHz-8KHz
- ◊ ***Subwoofer (Low Pass):*** 50Hz-500Hz
- ◊ ***Subsonic Filter:*** 20Hz-40Hz
- » **Power Supply:** 10-16V DC, negative ground
- » **Input Impedance:** 10K Ohm
- » **S/N ratio:** more than 90dB
- » **Slope Rate:** 12dB/Octave
- » **Max Output Signal Level:** 11V
- » **Channel Separation:** 60dB
- » **Distortion:** less than 0.05%
- » **Dimensions, WxDxH:** 5.9x12. 7x 1.8 Inches | 150x322x45.5mm

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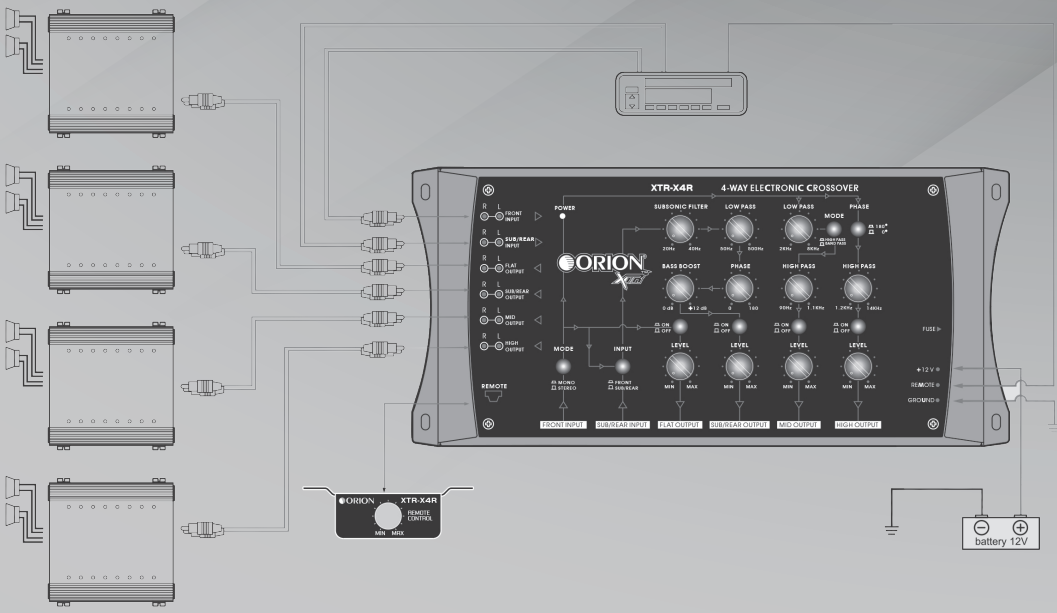
## REMOTE CONTROL UNIT

**BASS LEVEL:** THIS CONTROL SETS THE SUB/REAR LEVEL CONTROL.

# INSTALLATION




**SYSTEM ADJUSTMENT**

Preliminary Adjustments

Pre-setting the system provides a necessary starting point for fine-tuning the entire audio system to maximum performance.

**NOTE: DO NOT MOUNT CROSSOVER UNTIL THE FOLLOWING PROCEDURES HAVE BEEN COMPLETED.**

1. Preset each amplifier input gain adjustment at the amplifier to half of maximum.
2. Before turning the audio system on, preset-adjust the flat,sub/rear,mid,high output level controls.
3. Slowly turn the volume up and listen carefully for: obvious trouble in sound (distortion, no sound, no hiss, total silence). Turn the system off refer to “Trouble Shooting Guide” at this manual.

# INSTALLATION

Your new XTR Series Crossover comes fully equipped with all the necessary mounting hardware for installation. To begin, position the Crossover at your desired installation spot and use a scribe or one of the mounting screws to mark the locations of the screw holes on the mounting surface. If the surface is carpeted, it's advisable to measure the distance between the hole centers and mark them with a felt tip pen for clearer visibility.

Before you start drilling, it's crucial to check behind the mounting surface for any wires, lines, or devices that could be affected by the drilling. Once you've ensured the area is clear, drill pilot holes in the marked positions for the mounting screws. Insert the screws and tighten them securely to ensure the Crossover is firmly attached and stable.

- A red 18 gauge stranded or heavier and insulated wire should be connected to the terminal marked + 12V. Wire an in-line fuse holder on this lead as it is the 12 Volts DC wire for the system. This wire should be connected to your vehicle's battery. If a wire is run directly to the battery make sure to install an inline fuse on this wire within 12" from the battery.
- A black stranded wire of at least 18 gauge should be connected to the terminal marked Ground. This is the ground wire for the X4R and should be attached to the same ground point with the amplifiers in the system. Keeping this ground wire as short as possible improves the electrical circuit and keeps ground related noise problems to a minimum.
- An orange stranded wire of a least 20 gauge should be connected to the terminal marked Remote. This wire connects to your head unit's remote out or power antenna lead out. This wire should supply 12 Volts DC any time the radio, cd or cassette are playing. This lead must also be connected to any other components in your system that utilize a remote turn-on lead for powering up.
- Connect all line inputs and outputs using high-quality RCA-RCA cables.
- Recheck all connections before powering up.
- Set all level controls to their least sensitive positions and set all crossover controls, switches, etc. to the desired frequency or position.
- Once the system is powered up, set the volume control on the head unit to about the 2 o'clock position, and then set all the amplifiers' level controls for half output level.

# TROUBLESHOOTING

| PROBLEM | POSSIBLE CAUSE |
|---|---|
| 1. There is an audible distortion at a low volume level. | • Output levels NOT set correctly.<br>• Crossover frequencies NOT set correctly.<br>• Check for shorts on the speaker leads. |
| 2. A whining sound can be heard through the speakers when the audio system is at low volume with the engine running. The whining noise remains unchanged or seems to disappear when the volume level is increased. | • Check the red power wire. It muse be connected directly to the battery.<br>• Check the system's ground point It muse make good contact with chassis ground (bare metal).<br>• The radio and the CROSSOVER must be grounded at the same reference point. |
| 3. There is a "motor boating" type of sound when the engine is running and the audio system volume is set at a reasonably high level. | • Check the red power wire. It must be connected directly to the battery.<br>• Check the system's ground point. It must make good contact with chassis ground (bare metal). |
| 4. High squeal noise from speakers | • This is almost always caused by a poorly - grounded RCA patch cord. |

NOISE CHECK

Check the entire audio system for noise before permanently securing the CROSSOVER mounting

1. Start the engine.
2. Turn the audio system on.
3. Rev the engine and vary the VOLUME of the audio system to determine if there is any unwanted noise.

If so, turn both the audio system and the engine off. Do not secure the CROSSOVER mounting screws. Refer to the “Trouble Shooting Guide” at this manual.

4. If the audio system does not have any noise, securely tighten the CROSSOVER mounting screw and double check the wiring cables for safe placement

# WARRANTY

Orion, warrants this product against all defects in material and workmanship for a period of one (1) year from the date of original purchase provided it was purchased from an Authorized Orion Dealer.
The conditions of this warranty and the extent of the responsibility of Orion, under this warranty are as follows:

1. DATED PROOF OF PURCHASE IS REQUIRED FOR WARRANTY SERVICE OF THIS PRODUCT. Information about Orion authorized warranty service may also be obtained at www.orioncaraudio.com or by emailing Orion at support@orioncaraudio.com.
2. This warranty will become void if service is performed by anyone other than an approved Orion Warranty Service Center.
3. This warranty does not apply to any product which has been subjected to misuse, neglect or accident, or which has had the warranty seal broken, serial number altered, defaced or removed, or which has been connected, installed adjusted or repaired other than in accordance with the instructions furnished by Orion.
4. This warranty does not cover car static, electrical interference, adjustments or labor costs for the removal or reinstallation of the unit for repair.
5. The sole responsibility of Orion under this warranty shall be limited to the repair or replacement thereof, at the sole discretion of Orion.
6. If it becomes necessary to send the product or any defective part to Orion or an authorized service station, the product must be shipped in its original or equivalent carton, fully insured, with shipping charges prepaid. Orion will not assume any responsibility for any loss or damage incurred in shipping.
7. This warranty is not transferable and protects the original purchaser provided they reside and made their purchase in the United States. International consumers may contact their local retailer or distributor for warranty information.
8. ALL IMPLIED WARRANTIES, EXCEPT TO THE EXTENT PROHIBITED BY APPLICABLE LAW, SHALL HAVE NO GREATER DURATION THAN THE WARRANTY PERIOD SET FORTH ABOVE. UNDER NO CIRCUMSTANCES SHALL ORION BE LIABLE FOR ANY LOSS OR DAMAGE, DIRECT OR CONSEQUENTIAL, ARISING OUT OF THE USE OR INABILITY TO USE THE PRODUCT. BECAUSE SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS OR EXCLUSIONS OR LIMITATIONS OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.
9. THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE.
10. Should you have any difficulties with the performance of this product during warranty or with any Orion authorized service center, you may contact Orion by emailing us at support@orioncaraudio.com.

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