

XO-Series Crossovers



XO-Series Crossovers

OPERATING MANUAL AND USER GUIDE

XO-204 • XO-206 • XO-204X • XO-206X



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IMPORTANT WARNINGS & SAFETY INSTRUCTIONS

1. **READ ALL INSTRUCTIONS** – carefully and become familiar with the features and functions of these products before operating them.
2. **RETAIN THESE INSTRUCTIONS** – for future reference.
3. **COMPLY WITH ALL WARNINGS** – All warnings and instructions for this product should be adhered to.
4. **USE WITH AMPLIFIERS** – In order to avoid damage to drivers and other equipment, it is advisable to establish and follow a routine for powering up and powering down a sound system. With all system components connected, turn on source equipment (mixers, signal processors, record and playback units, etc.) **BEFORE** powering up amplifiers. Transient voltages from powering up source equipment can damage speakers if amplifiers are already turned on. Make sure that amplifier volumes are set to their minimum settings and power up any system amplifiers **LAST**. It is recommended that all system components be allowed to stabilize for several seconds before any source signals are introduced or level setting adjustments are made. Similarly, when shutting systems down, turn all amplifiers off first, before powering down any other system components.
5. **SERVICE** – There are no user serviceable parts inside this product. Users should not attempt to service this product. Warranty nullification could result if this is attempted.

INTRODUCTION

The Wharfedale Pro XO-Series Crossovers are the result of many years of experience in the use, design and manufacture of professional sound reinforcement products. We take great pride in engineering and building every Wharfedale Pro product and wish to thank you for entrusting us with your sound.

From the time Gilbert Briggs built his first loudspeaker in 1932, to the present, Wharfedale Professional products have maintained the same standard of quality in components, workmanship and performance. Wharfedale are one of a few present day manufacturers that design, engineer and build all of their own electronics.

Please take a few minutes to read this manual completely in order to ensure that you get the most out of your system.

ABOUT THE XO-Series CROSSOVERS

The XO-Series consists of 4 models: XO-204, XO-204X, XO-206 & XO-206X, all of which are high quality active analogue crossovers.

The XO-204 provides 2 individual outputs suitable for bi-amp application whilst the XO-206 has 3 individual outputs and is suitable for tri-amp application. The XO-204X & XO-206X models feature all inputs and outputs in balanced XLR format whilst the XO-204 & XO-206 models feature all inputs and outputs in balanced/unbalanced TRS format. A Mono Sub output enables you to incorporate a mono subwoofer into your stereo system with ease.

The XO-Series employ analogue circuitry throughout with 24dB / octave Linkwitz Reilly filters. All models are true stereo units with 2 channels and global controls to retain the stereo imaging of the programme material.

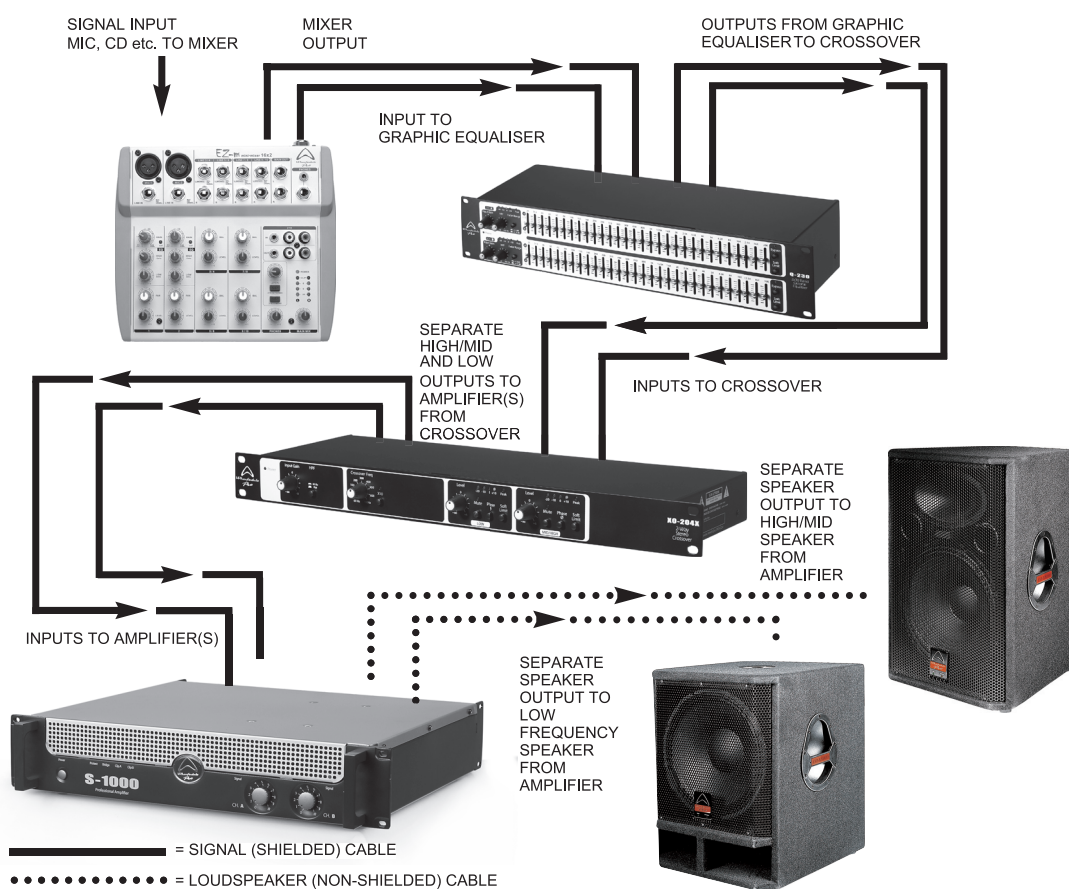
The XO-Series crossovers are accurate, high quality, frequency dividing networks, allowing you to tailor your system to make it sound great. With low distortion and flexible features, these crossovers are the right tools to bring to the show.

The XO-Series has many user-friendly features. These easy to adjust and use features include: variable input gain and frequency select controls, Subwoofer output, balanced and unbalanced input and output connectors, phase switch, mute switch, and a soft limit switch.

FEATURES

- Simplified one control setup for both channels
- Professional 24dB/oct, Linkwitz Reilly filters
- Switchable 40Hz 12dB/oct HPF
- Four LED output level meters plus input clip indicator
- Independent phase switching of outputs
- Output mute switches with LED indicator
- Individual output level controls range from $-\infty$ dB to +6dB
- Mono Sum Subwoofer output
- Input gain variable between $-\infty$ and +6dB
- Balanced TRS Jack or XLR Inputs and Outputs
- 1U, 19" Rack mount chassis

BLOCK DIAGRAM



SETTING UP

The XO-Series Crossovers are easy to install and operate.

Before plugging in the XO-Series Crossovers, or any electrical audio device, be sure that the power switch is in the off position, the volume control is all the way down (at 0 level) and all audio connections are made.

After power-up you will need to set up the system, setting the crossover frequencies. Avoid distortion (overdriving the input) as it can damage your system, both instantly and in the long term.

CONNECTIONS / WIRING

Connecting XO-Series Crossovers to your system is straightforward. You simply plug in your cables from the output of the mixer to the input of the crossover; then from the crossover output to the next component in your system, usually an amplifier. Always use good quality microphone (2 conductor + shield) cable. After you plug in the components, you must adjust the crossover frequencies and their relative levels to produce the best sound.

TUNING THE ROOM/CROSSOVER ADJUSTMENTS

The XO-Series crossovers are great tools for improving the accuracy and efficiency of your sound reinforcement rig.

A continuously variable frequency crossover is a valuable tool for anyone serious about getting the best possible sound out of every venue.

Proceed through the following steps to help adjust the settings to suit your equipment and venue:

- Find the recommended crossover points as stated by the manufacturer of your speakers (Usually stated in the manual)
- Adjust the crossover points on the XO-Series crossover to match the recommendations from your speaker manufacturer
- Next you will need to determine the correct levels for each of the individual outputs, this is most effective using RTA but you can get a reasonable result by using your ears and judgement, much like mixing a band live.
- Check the input meters on your amplifiers for overloading, it is also good practice to constantly review any other meters throughout your signal path to ensure correct gain structure and optimum sound quality
- The next step is setting the volume levels on your power amplifiers. As correct gain structure has been applied it is not uncommon to set the amplifier lower than usual, this is due to the strong signal that correct gain structuring creates.
- Always constantly watch over all of the meters in your signal chain, they will make you aware of the quality of signal throughout the chain. Always remember that a low signal level will produce a weaker, noisier end product and an overloaded signal at any stage of the signal path can cause damage to your speakers.

To fine tune your rig takes lots of practice and patience, when fine tuning the crossover points by ear always remember that what may sound good to your ears may not be ideal for the components in your speakers. Keeping the crossover point close to the recommended frequency will help to ensure the long term reliability of your speakers.

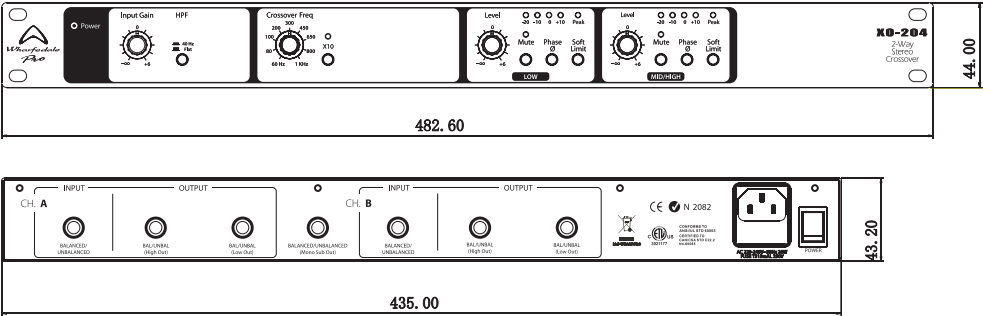
SPECIFICATIONS

	XO204	XO206
INPUT/ OUTPUT		
Connectors:	1/4" TRS (pin 2 hot)	1/4" TRS (pin 2 hot)
Input Impedance:	Balanced 20k ohm, unbalanced 10kohm	Balanced 20k ohm, unbalanced 10k ohm
Max Input Level:	+20dBu balanced or unbalanced	+20dBu balanced or unbalanced
Output Impedance:	Balanced/Unbalanced 100ohm	Balanced/Unbalanced 100ohm
Max Output Level:	+21dBu balanced/unbalanced into	+21dBu balanced/unbalanced
Subwoofer Output	1/4" TRS (pin 2 hot)	1/4" TRS (pin 2 hot)
SYSTEM PERFORMANCE		
Frequency Range	60Hz-10kHz	60Hz -10kHz
Frequency Response:	<10Hz to >40kHz, +2/-3dB	<10Hz to >40kHz, +2/-3dB
HUM AND NOISE	-95dB	-95dB
Signal-to-Noise:	90 dB	90 dB
THD + Noise:	<0.004%	<0.004%
Interchannel Crosstalk:	<-80dB, 20Hz to 20kHz	<-80dB, 20Hz to 20kHz
POWER SUPPLY		
Operating Voltage:	100VAC 50/60Hz, 120VAC 60Hz,	100VAC 50/60Hz, 120VAC 60Hz,
Power consumption:	230VAC 50/60Hz	230VAC 50/60Hz
Mains Connection:	12W	16W
DIMENSIONS/WEIGHT		
Dimension:	482.6x 173 x 44mm	482.6x 173 x 44mm
Weight	2.92 kg	2.97 kg

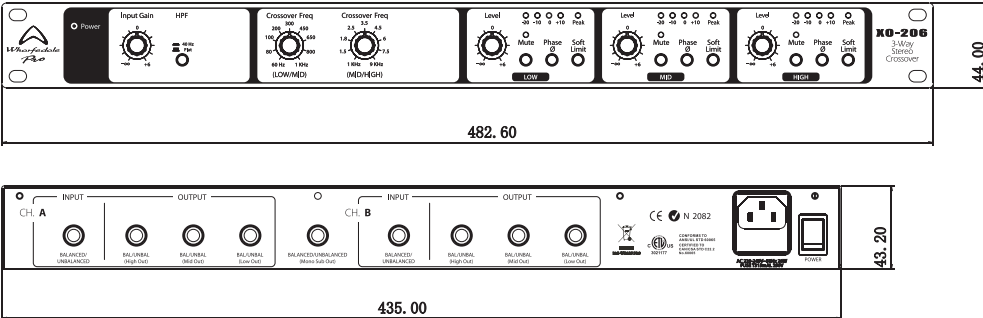
	XO-204X	XO-206X
INPUT/ OUTPUT		
Connectors:	XLR (pin 2 hot)	XLR (pin 2 hot)
Input Impedance:	Balanced 20k ohm, unbalanced 10k ohm	Balanced 20k ohm, unbalanced 10k ohm
Max Input Level:	+20dBu balanced or unbalanced	+20dBu balanced or unbalanced
Output Impedance:	Balanced/Unbalanced 100ohm	Balanced/Unbalanced 100ohm
Max Output Level:	+21dBu balanced/unbalanced into	+21dBu balanced/unbalanced
Subwoofer Output	XLR (pin 2 hot)	XLR (pin 2 hot)
SYSTEM PERFORMANCE		
Frequency Range	60Hz-10kHz	60Hz -10kHz
Frequency Response:	<10Hz to >40kHz, +2/-3dB	<10Hz to >40kHz, +2/-3dB
HUM AND NOISE	-95dB	-95dB
Signal-to-Noise:	90 dB	90 dB
THD + Noise:	<0.004%	<0.004%
Interchannel Crosstalk:	<-80dB, 20Hz to 20kHz	<-80dB, 20Hz to 20kHz
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Operating Voltage:	100VAC 50/60Hz, 120VAC 60Hz,	100VAC 50/60Hz, 120VAC 60Hz,
Power consumption:	230VAC 50/60Hz	230VAC 50/60Hz
Mains Connection:	12W	16W
DIMENSIONS/WEIGHT		
Dimension:	482.6x 173 x 44mm	482.6x 173 x 44mm
Weight	2.92 kg	2.97 kg

Dimensional Drawings

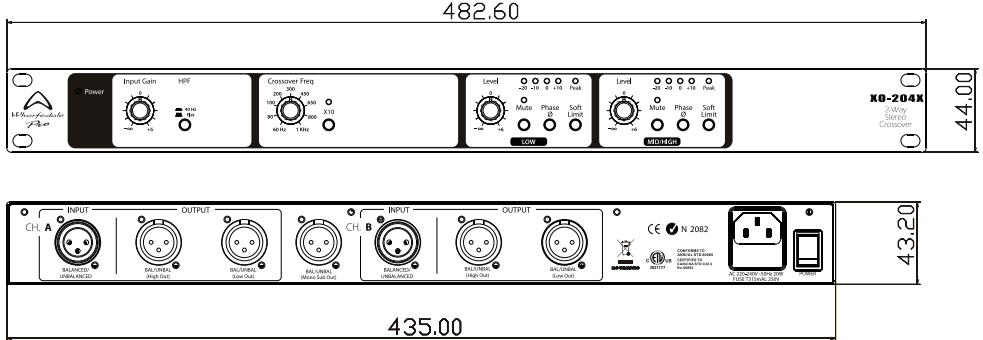
XO-204



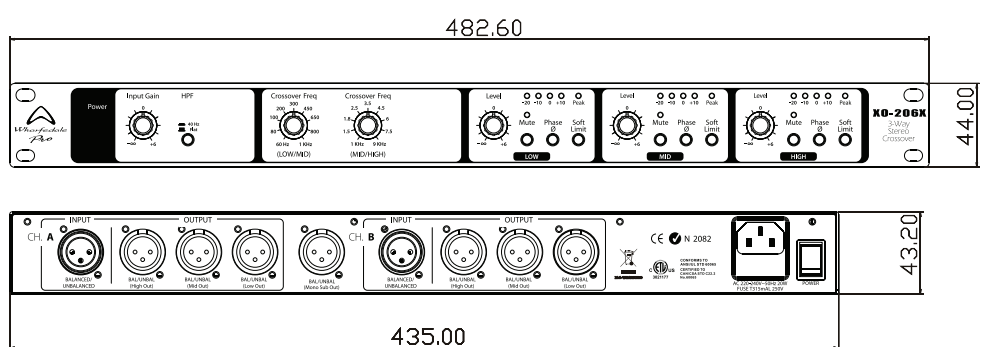
XO-206



XO-204X



XO-206X





WHARFEDALE PRO LIMITED WARRANTY

Wharfedale Pro products are warranted of manufacturing or material defects for a period of one year from the original date of purchase. In the event of malfunction, contact your authorized Wharfedale Pro dealer or distributor for information.

*Be aware that warranty details may differ from country to country. Contact your dealers or distributor for information. These terms do not infringe your statutory rights.





Wharfedale Professional

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