

MX2

2-WAY ELECTRONIC CROSSOVER

Thank you for purchasing the MX2 Electronic Crossover by Phoenix Gold. In doing so you've demonstrated a desire to own the finest in audio reproduction equipment. Properly installed, your crossover will provide years of high-quality sonic reproduction. The MX2 is a sophisticated signal processor that offers many features and has the flexibility to expand with your car audio system.

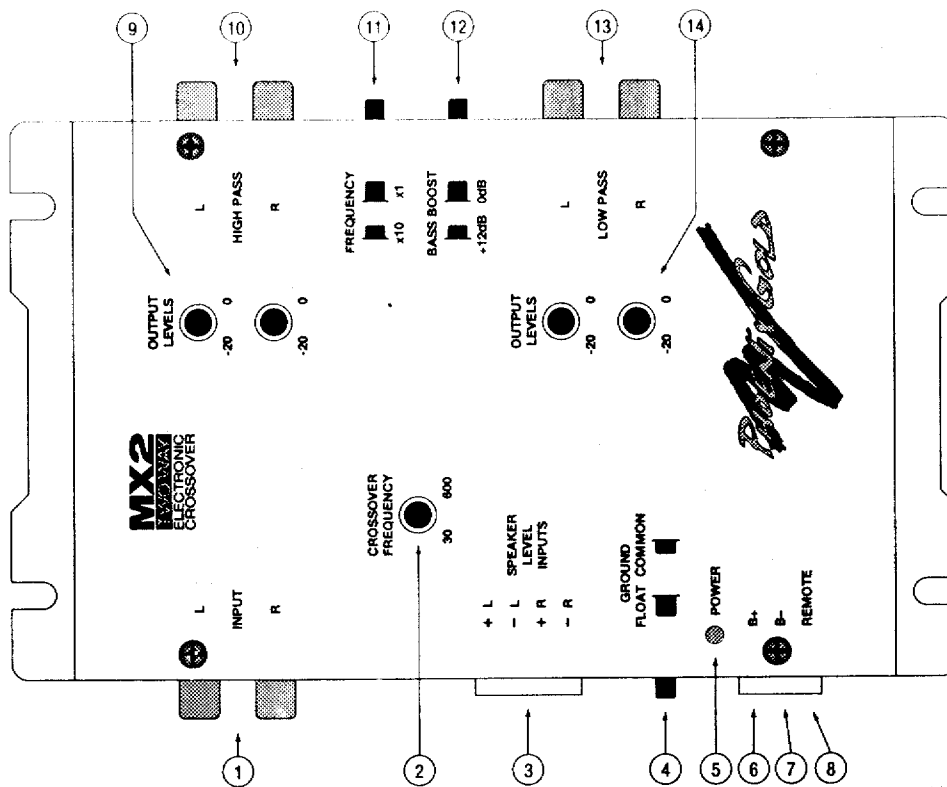
Features

- Stereo two-way adjustable crossover
- Continuously variable crossover frequency—*no R-Nets!*
- Independent Output Level controls for easy level matching
- Selectable Bass Boost on Low Pass outputs
- Switching power supply
- Isolated signal ground
- Designed and manufactured in Portland, Oregon U.S.A.

Specifications

Crossover Frequency	Continuously Variable
Crossover Frequency Ranges	30Hz to 600Hz (x1) / 300Hz to 6kHz (10x)
Crossover Slope	12dB/octave Butterworth
Bass Boost, Switch Selected	12dB @ 45Hz
Total Harmonic Distortion.....	< 0.01%
Frequency Response.....	15Hz to 30kHz +0.5/-1.5dB
Signal to Noise Ratio.....	100dB
Maximum Line Input Signal Level	8Vrms
Maximum Gain, input to High Pass output.....	0dB (unity)
Impedances	
Line Input.....	10k Ω
Speaker level input	91 Ω
Output Level Range.....	-20dB to 0dB, Referred to Input
Battery Voltage Range	10.5V to 15V
Idle Current.....	0.25A
Dimensions (inches)	1.5H x 4.12W x 6.88L

NOTE: Due to continuous improvements, specifications and designs are subject to change without notice.



CONTROLS, FUNCTIONS AND FEATURES

1. Input jacks: Connect pre-amp outputs of head unit to these jacks. Accepts up to 6 volts RMS AC input.
2. Crossover Frequency: Continuously variable and switches between a 30–600Hz crossover frequency range (x1) and a 300Hz–6kHz range (x10).
3. Speaker Level Inputs: Allows use of the speaker outputs from your head unit as the signal source. **Note: Optional 4-position plug required when using speaker level inputs.** Please order part #POPHL4.
4. Ground: Usually, the Float setting is used when your signal source is line level, and the Common setting is used when your signal source is speaker level. Use the setting that yields the lowest noise in your system.
5. Power: LED indicator lights up when the unit is operational.
6. B+: This terminal connects to the vehicle's positive 12 volt supply.
7. B–: This terminal connects to the vehicle's chassis ground.
8. Remote: This allows the MX2 to be controlled via the power on/off lead of your head unit. Connect the remote +12V or power antenna lead from your head unit to this terminal.
9. High Pass output levels: These level controls allow correct level matching of the High Pass amplifier. See level Adjustment Section.
10. High Pass output: The high pass amplifier is connected to these jacks.

- Frequency range is set by the Crossover Frequency control.
11. Frequency: Switches the range of frequencies selected by the Crossover Frequency control between 30–600Hz in the x1 position and 300Hz–6kHz in the x10 position.
 12. Bass Boost: Engages the 45Hz 12dB bass frequency boost.
 13. Low Pass output: The low pass amplifier is connected to these jacks. Frequency range is set by the Crossover Frequency control knob.
 14. Low Pass output levels: Allows correct level matching of the Low Pass amplifier. See Level Adjustment Section.

INSTALLATION PLANNING

Should you have the MX2 Professionally Installed? While physical installation is relatively easy, final level control adjustments can be quite difficult. For optimum sonic performance, we suggest that you have the MX2 adjustments done by an authorized Phoenix Gold Team Dealer.

- Always disconnect the system from the battery before attempting to make or alter any component connections.
- The MX2 is designed only for use in 12 volt negative ground electrical systems. Installing this product in an electrical system that uses a positive ground will cause serious damage.
- If this product is installed or used in any method other than those outlined in this manual, it could reduce its performance capabilities and/or void the warranty.
- Do not route audio cables and power cables together! This can produce audible engine noise in your audio system.
- Select a mounting location that is convenient and readily accessible.
- Never mount the MX2 near the engine or any heat carrying ducts because the extra heat can damage the unit.
- Use the MX2 module as a template to **mark** the mounting holes.
- Make sure the MX2 is mounted to a solid surface. This protects connections from stress and damage.

Pre-setting the system provides a necessary starting point for fine-tuning the entire audio system to complete the other necessary adjustments. Be careful: Overdriving the system could damage your audio components.

1. Preset each amplifier input gain slightly above minimum lowest volume output (usually counter clockwise, or the 2V setting).
2. Turn processor level controls to about the 3 o'clock position, or 3/4 of their rotational range.
3. Turn your head unit on.

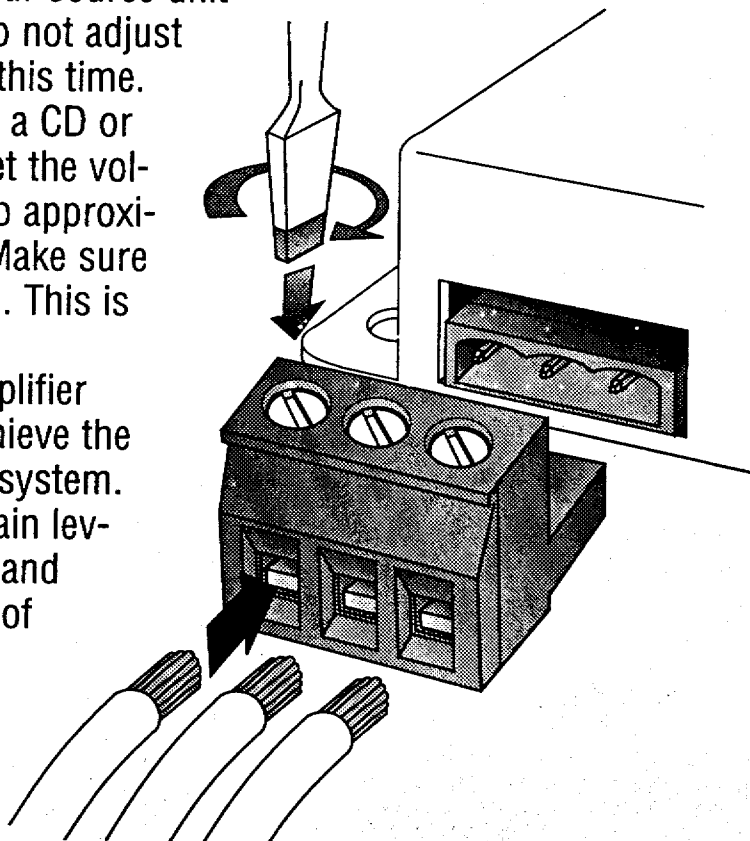
ELECTRICAL INSTALLATION

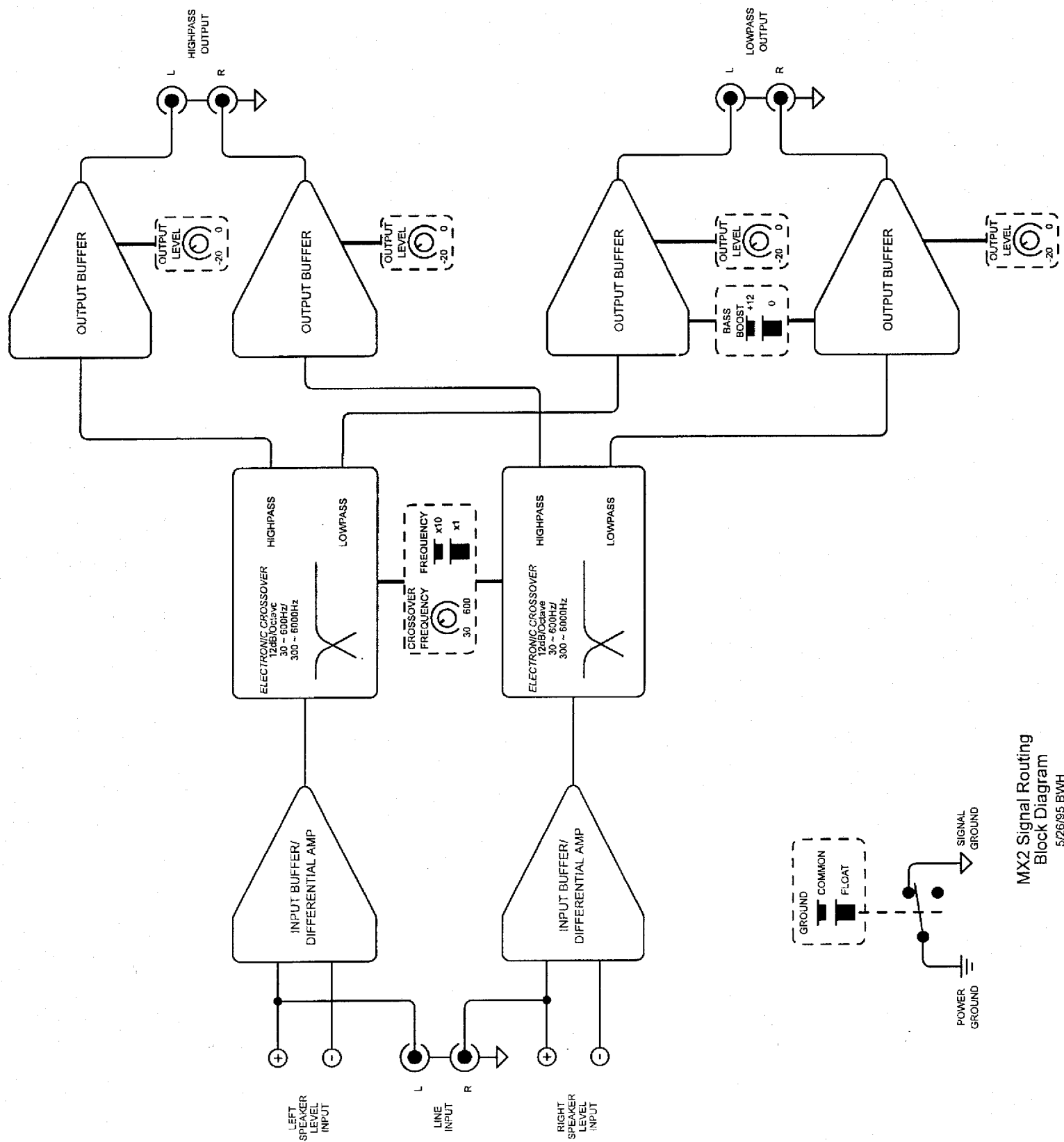
The Phoenix Gold MX2 is equipped with our exclusive removable termination connector which allows you to build a custom length wiring harness.

MX2 LEVEL CONTROLS

The trick in adjusting the various level controls in your system is to balance the output level of your head unit and the gain of the high and low pass amplifiers so that the loudest levels are achieved while keeping distortion to a minimum and maximizing the signal-to-noise ratio. The higher the output voltage of your head unit, the less boost and gain are required elsewhere in the system. The MX2 helps by balancing the levels coming from the crossover to the high and low pass amplifiers, which is necessary because the high pass band in a two way system often needs to be attenuated to match the level of the low pass band.

1. To adjust levels of the MX2, first set the tone controls, balance and fader of your source unit to their center (flat) positions. Do not adjust any other controls or outputs at this time.
2. Use a dynamic signal source like a CD or tape. Using this signal source, set the volume control on the source unit to approximately $5/8$ to $3/4$ of maximum. Make sure the music is not causing clipping. This is very important!
3. Adjust the high and low pass amplifier gain controls as necessary to achieve the desired volume levels from your system. Note, however, that setting the gain levels too high will cause distortion and degrade the signal-to-noise ratio of your system.
4. Use the output level controls on your MX2 to adjust signal levels and left/right channel balance for the high and low pass amplifiers.





MX2 Signal Routing
Block Diagram
5/26/95 BWH

DETERMINING CROSSOVER FREQUENCIES

1. To determine crossover frequencies, set tone controls to their center (flat) positions, center the balance control, and center the fader control.
2. Set the volume control on the source unit to 3/4 of maximum.
3. Evaluate the low pass crossover frequency first. 90Hz is a good frequency to start with.
4. Listen to the bass quality. If it is "boomy", adjust the crossover frequency lower. Low pass frequency settings as low as 70 Hz are common. Be sure to make the adjustments for the best sound quality.
5. Determine the crossover frequency depending on the size and location of the mid and high speakers.
6. After performing the crossover frequency adjustments in a stationary vehicle, test drive the vehicle to check for sound quality. You may have to readjust the crossover corner frequency because the road noise present inside a moving vehicle can change the way your system sounds.
7. 12dB/octave filter phase characteristics sometimes make it necessary to reverse the phase between the high pass and low pass speakers to correct frequency response dips.

STILL HAVE QUESTIONS?

If you have questions or are still a bit confused about some of the features on your MX2, don't hesitate to call our technical support department at (503) 288-2008.

We are here to help...

The logo for Phoenix Gold is written in a stylized, bold, black font. The word "PHOENIX" is on the left and "GOLD" is on the right, with a thick, black brushstroke-like line crossing through both words diagonally from the bottom left to the top right.