

X E N O N

AMPLIFIER MANUAL

Congratulations on purchasing one of the finest amplifiers available in the car audio marketplace today. The Xenon amplifiers were designed and engineered with the spirit of the original Phoenix Gold MS and M series to deliver bulletproof performance at any impedance while delivering unbelievable sound quality.

Cosmetics:

Exotic sports cars were used for styling inspiration. The aluminum top is a custom tooled stamped, grained, and anodized case, the two intake vents are located on top of the case allow the variable speed cooling fan(s) to push cool air through the heatsink and exhaust out the side endcaps. The end caps are not removable and are made of a proprietary rubber, unlike any other amplifier on the market today. Using the same proprietary rubber, four large rubber grommets hide all mounting and terminal connections for the ultimate in stealth installation. The extruded heat sink resides inside the bottom of the amplifier. In the center of the amplifier is a 5mm ultra bright blue LED in a custom tooled headlight bezel which compliments the Xenon trademark.

Function:

All of the Xe.Tune™ controls for the crossovers, sensitivity, and bass boost are located on the top of the amplifier. All crossovers are ultra precise Linkwitz-Riley 24dB per octave and a separate high and low pass filter is available for each set of channels. This means that any standalone Xenon amplifier can be set to bandpass by turning both crossovers on. This feature is rarely available on any other amplifier on the market today. All crossover frequency potentiometers have 41 detents or "clicks" so the end user can set the exact crossover frequency desired. For example, turn the potentiometer 12 clicks for exactly 85Hz. No more turning the potentiometer and guessing where your crossover points are. Full Range Auxiliary Outputs, LPL and RMD Ports come standard on all units.

Large direct-insert 4 gauge power terminals and 12 gauge speaker terminals are also standard. On the X200.4 and X1200.1, there is a second set of power terminals located on the opposition side of the amplifier. This allows the installer to use dual 4 gauge inputs, or use the separate input for a power capacitor.

Power Output:

All Xenon amplifiers are rated according to the new CEA-2006 standard which is identical to how we have always rated all Phoenix Gold amplifiers. For example the X1200.1 will make a MINIMUM of 1200 watts with less than 1% THD @ 14.4 Volts from 1 to 4 ohm. Each Xenon amplifier comes with its own birth certificate that will meet or exceed our printed specifications.

Xenon amplifiers are designed to handle extreme abuse and drive almost any load. With Xe.Load™ technology its very easy to choose what speakers to wire to the amplifier to get maximum power from the amplifier. It doesn't matter whether its a DVC 2 ohm, SVC 4 ohm, or three DVC 1 ohm speakers. A Xenon amplifier automatically senses the load from 1 to 4 ohm and drives it with full power every time. This makes life simple for the end customer and guarantees he will always receive full power regardless of the load.

Circuit Topology:

The Xenon series two and four channel models use the legendary Triple Darlington output stage. This is same circuitry found in our MS, M, ZPA, ZX, and Titanium amplifiers. This topology is not cheap. This is why you rarely see any car amplifiers and only high end home amplifiers using this circuitry. This provides the ultimate in sound fidelity, headroom, reliability and can drive difficult loads without problems. The Triple Darlington output stage has three levels of amplification that ramp up the energy to the speaker load. The first sub-stage is the pre-drivers, which get their signal from the voltage gain stage and increase the available current in it or "stiffen" the signal. This stiffened signal is then fed to the driver transistors where it is stiffened even more. Finally, the output of the driver transistors is fed into the output transistors where it is stiffened substantially; enough to drive the speaker load wired to the amplifier.

All monoblocks are Class D technology. One clear advantage is that Class D amplifiers are much more efficient and this allows us to make a lot more power with a lower operating temperature and ease the strain on customer's electrical system. Of course, Class D amplifiers are low pass only, but 99% of monoblocks will be used on subwoofers. The average efficiency of a Xenon Monoblock is 80% from input to output, which means only 20% of the amplifier's energy is turned into heat.

Cooling System:

We have completely reengineered the way amplifiers are thermally monitored with our Xe.Flow™ technology. First, we've added nearly 5 times the mass of heat sink relative to our very successful TCCH system used in the Titanium amplifiers. We also have bolted the transistors to the major heatsink, with minor extruded heatsink clamp down bars. This allows the transistor to have a heatsink on both sides of the device. Additionally, every model has a variable speed fan (except X400.1) located in the center of the amplifier for even more thermal dissipation. The combination of improved mass and the ability to move hot air out of the amplifier make it nearly impossible for them to engage their thermal protection.

Our competitor's amplifiers use a basic thermal protection that simply shuts the amplifier off when the heatsink reaches 90 degrees C. With the Xe.Flow technology the temperature of the amplifier is constantly monitored and its operation is optimized according to the temperature of the amplifier. For example, in the VERY RARE case that a Xenon amplifier begins to reach an unsafe temperature, the amplifier slowly reoptimizes the output of the amplifier. This adjustment in volume is very slight and the end user will most likely never hear it (less than 2dB), this puts the amplifier in an operating range that allows the amplifier to continue to play. The amplifier will monitor its own temperature and adjust its power output, so it will continue to play even on those hot days in the trunk in Texas.

Reliability:

Phoenix Gold has always been know for delivering more than what the customer expects. The Xenon line is no different, we have nearly double the number of output devices relative to the Titanium series. For example, the ultra reliable Ti500.4 was a 500 watt amplifier that used 8 output devices. We've taken that a step further with the X100.4, a 400 watt amplifier, that uses 16 of output devices, and the monstrous X200.4 uses 24 devices! This coupled with an excessive amount of bussbars, low ESR capacitors, Xe.Load and Xe.Flow technology make these amplifiers impossible to shut down at almost any load.

Sound Quality:

During the electrical design process, some of the finest parts were chosen to achieve the finest sound quality customers expect from a Phoenix Gold amplifier. Multiple small capacitors are located throughout the PCB layout. By using multiple smaller capacitors in parallel, this lowers the effective ESR of the circuit, (This is the same concept as if you were to parallel multiple subwoofers to achieve a lower impedance.) Since multiple small caps will have a lower ESR this will make them able to deliver energy much quicker than a few large caps. The end result is tighter, more accurate, and dynamic bass. The output stage on the two and four channel models are loaded with audiophile 150 Volt 15 amp Sanken output transistors. Sanken output transistors are used due to their high level of specification and amazing bandwidth of 60MHz. Each model of the amplifier design is critically listened to and evaluated by Phoenix Gold Engineering and Product staff for hours to ensure the sound quality is as close as possible to our in house master reference audio system.

Thank you again for purchasing Phoenix Gold product. We appreciate your business and desire to own the finest audio products.

MONOBLOCK SPECIFICATIONS

Frequency Response: ± 1dB from 20Hz to 300Hz
Signal to Noise Ratio: >90dB
Subsonic and Low Pass Crossovers: . . Linkwitz-Riley 24dB per octave
Low Pass Crossover Range: 30Hz to 300Hz
Subsonic Crossover Range: 5Hz to 55Hz
Bass Boost: +18 dB @ 45 Hz
Input Sensitivity: 200 millivolts to 8 volts
Lowest Recommend Load: 1 ohm

X400.1

Into 4, 2 and 1 ohm 400 x 1
Recommended Fuse Size: 40A
Power/Ground Wire Size 8 Gauge
Dimensions: 14L x 10.6W x 2.5H

X600.1

Into 4, 2 and 1 ohm 600 x 1
Recommended Fuse Size: 60A
Power/Ground Wire Size 4 Gauge
Dimensions: 18.25L x 10.6W x 2.5H

X1200.1

Into 4, 2 and 1 ohm 1200 x 1
Recommended Fuse Size: 100A
Power/Ground Wire Size 4 Gauge
Dimensions: 22L x 10.6W x 2.5H

TWO & FOUR CHANNEL SPECIFICATIONS

Frequency Response: ± 1dB from 20Hz to 20kHz
Signal to Noise Ratio: >100dB
High and Low Pass Crossovers: . . . Linkwitz-Riley 24dB per octave
Crossover Range: 40Hz to 400Hz
Bass Boost: +18 dB @ 45 Hz
Input Sensitivity: 200 millivolts to 8 volts
Lowest Recommend Load: 2 ohm bridged or 1 ohm stereo

X100.2

Into 4, 2, and 1 ohm stereo . . . 100 x 2
Into 8, 4, and 2 ohm bridged . . 200 x 1
Recommended Fuse Size: 40A
Power/Ground Wire Size 8 Gauge
Dimensions: 14L x 10.6W x 2.5H

X200.2

Into 4, 2, and 1 ohm stereo . . . 200 x 2
Into 8, 4, and 2 ohm bridged . . 400 x 1
Recommended Fuse Size: 60A
Power/Ground Wire Size 4 Gauge
Dimensions: 15.5L x 10.6W x 2.5H

X100.4

Into 4, 2 and 1 ohm stereo . . . 100 x 4
Into 8, 4 and 2 ohm bridged . . 200 x 2
Recommended Fuse Size: 80A
Power/Ground Wire Size 4 Gauge
Dimensions: 18.25L x 10.6W x 2.5H

X200.4

Into 4, 2 and 1 ohm stereo . . . 200 x 4
Into 8, 4 and 2 ohm bridged . . 400 x 2
Recommended Fuse Size: 120A
Power/Ground Wire Size 4 Gauge
Dimensions: 22L x 10.6W x 2.5H

Xe.flow™ – Efficient Cooling!

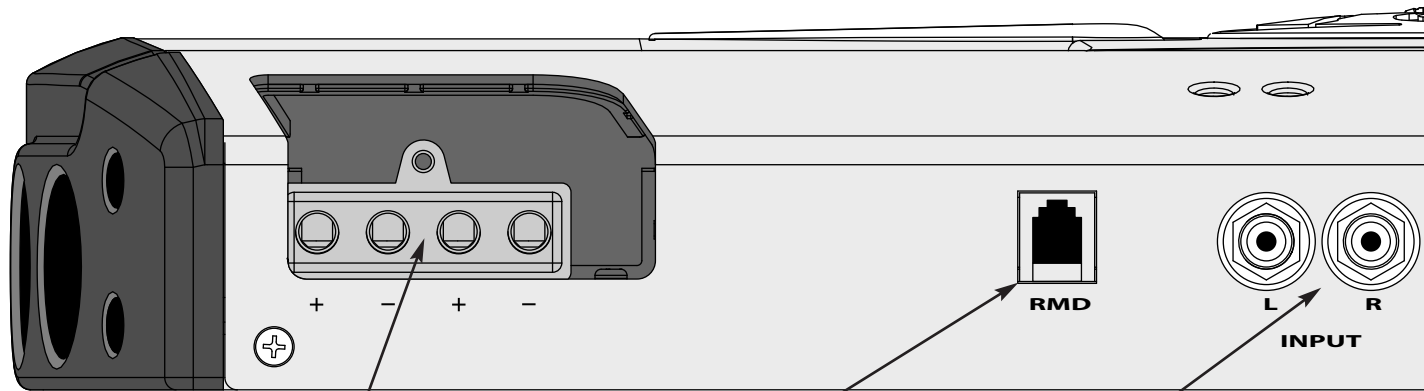
Combines traditional internal heat sink design with cold air induction via a temperature controlled variable speed fan. This provides forced cold air movement across the Xenon amplifier heatsink. In addition, a proprietary thermal feedback circuit continuously monitors the temperature of the amplifier and optimizes the amplifier's operation to guarantee the amplifier will continue to play regardless of how hard the amplifier is driven.

Xe.load™ – Max Power for All Loads!

Plug-n-Play speaker sensing optimizes amplifier to deliver full power into any load between (4ohm -1ohm). Xe.load™ makes life easy by allowing the user to get full power regardless of the impedance of his woofer or full range speakers.

Xe.tune™ – Crossover Features!

Audiophile 24dB Linkwitz-Riley crossover controls provide state of the art slope control. The Xe.tune™ detented control system allows users to perfectly adjust crossover slope every time without errors or guess work. Every Xenon amplifier has a separately defeatable continuously variable high and low pass filter for maximum processing flexibility
Now that's total control!



Speaker Outputs
 Used to connect the amplifier to speakers. The separate + and - terminals are internally wired in parallel. Minimum speaker cable size is 12 gauge. Lowest recommend impedance is 1 ohm.

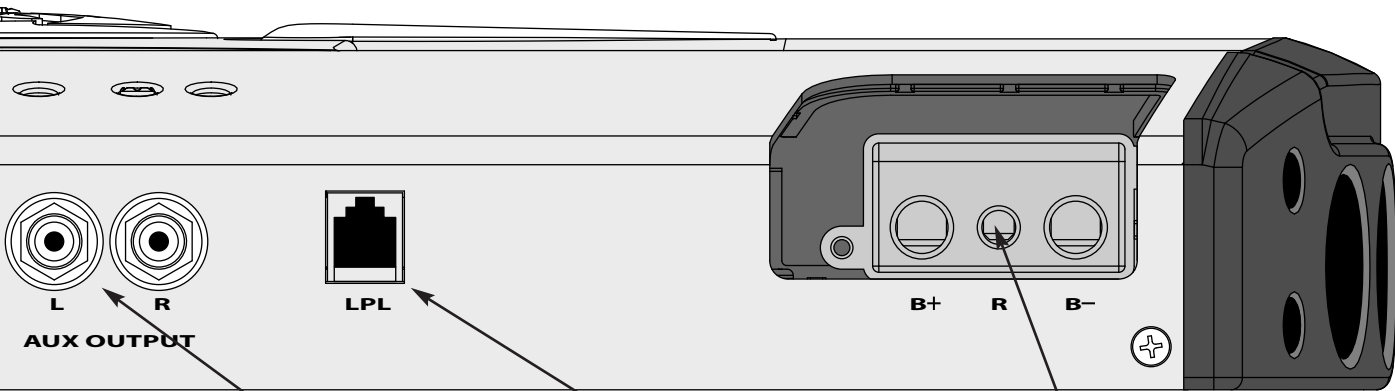
RMD
 Remote Voltage Display Input Connect the optional RMD Voltage Display to this jack.

INPUTS
 Connect preamp signal cables from the head unit to these terminals. To maximize noise rejection, we recommend using Phoenix Gold ARx.800, ARx.700, ARx.600 or ARx.500 series twisted pair interconnects.

CLICKS	SUBSONIC 5-55Hz	LOWPASS 30-300Hz
1*	<10	28
2	<10	28
3	<10	28
4	<10	28
5	<10	28
6	<10	29
7	<10	31
8	<10	33
9	10.5	36
10	11.8	40
11	13.0	45
12	14.7	50
13	16.9	57
14	20.8	68
15	25.0	81
16	27.0	93
17	28.8	100
18	30.0	105
19	31.0	111
20	32.2	116
21	33.4	122

CLICKS	SUBSONIC 5-55Hz	LOWPASS 30-300Hz
22	34.8	129
23	36.0	136
24	37.2	143
25	39.5	153
26	41.0	165
27	42.8	175
28	45.0	189
29	46.5	204
30	52.5	226
31	53.8	248
32	54.5	259
33	54.8	268
34	55.0	274
35	55.3	281
36	55.8	289
37	56.0	296
38	56.4	304
39	56.9	310
40	57.0	312
41**	57.0	313

*Full Counter-Clockwise **Full Clockwise



AUX OUTPUT
Provides a full range signal for an additional amplifier.

LPL44 PORT
This port is for connecting the optional LPL44™ Remote Lowpass Level Control knob allowing up to 20dB of volume adjustment.

B+ R B-
B+ This must be connected to the fused positive terminal (+12V) of the car's battery.
X600.1, X1200.1 = 4 Gauge
X200.2 = 8 Gauge
REMOTE This must be connected to switched +12V, usually a trigger wire coming from the head unit or ignition.
B- This must be connected to the negative terminal (-12V) of the car's battery.
X600.1, X1200.1 = 4 Gauge
X200.2 = 8 Gauge

STATUS LED
Blue LED lights to indicate the amplifier is on. The LED will blink in 1 second intervals if the amplifier goes into protection mode. This usually means the amplifier is in need of service or a grounded speaker wire is present in the system.

Used to reach maximum amplifier power with a wide variety of headunits. The amplifier is more sensitive to input signals when set to .2 and less sensitive when set to 8.

INPUT SENSITIVITY

Controls the low pass cross-over point for the speaker outputs. This eliminates high frequencies from reaching the subwoofers. The cross-over frequency is adjustable from 30Hz to 300Hz with a 24dB per octave slope. The lowpass potentiometer has 41 detents see the chart to set the exact crossover frequency desired.

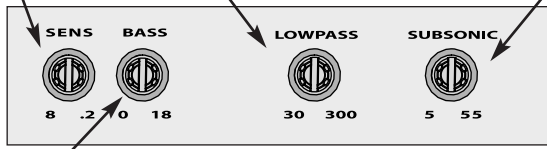
LOWPASS CROSSOVER

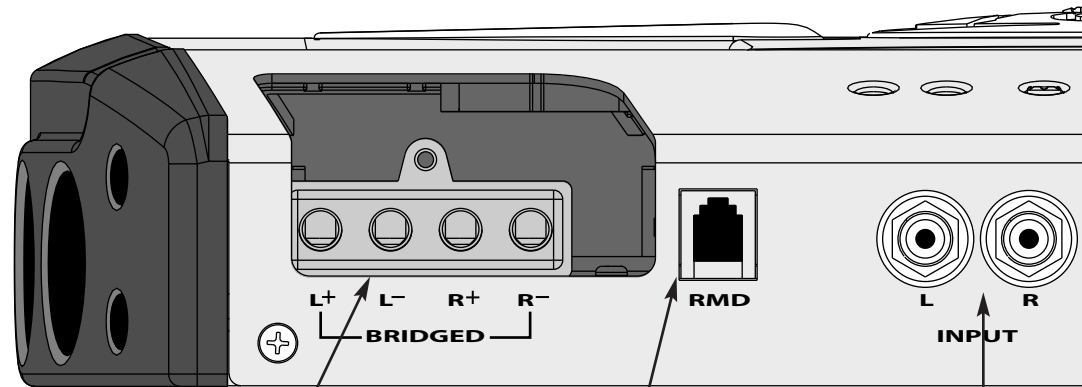
Controls the high pass cross-over point for the speaker outputs. This eliminates extreme low frequencies from reaching the subwoofers. The crossover frequency is adjustable from 5Hz to 55Hz with a 24dB per octave slope. The subsonic potentiometer has 41 detents see the chart to set the exact crossover frequency desired.

SUBSONIC FILTER

Allows for up to 18dB of boost at 45Hz for the speaker outputs when turned clockwise. It cannot affect the auxiliary outputs. Use this control sparingly. Every 3dB of boost requires double the power at 45Hz.

TWIN-T BASS EQ





Speaker Outputs

Used to connect the amplifier to speakers. Use the left + and right – terminals for bridged mode. Minimum speaker cable size is 16 gauge. Use 12 Gauge for bridged operation. Minimum impedance is 2 ohm bridged or 1 ohm stereo.

RMD

Remote Voltage Display Input Connect the optional RMD Voltage Display to this jack.

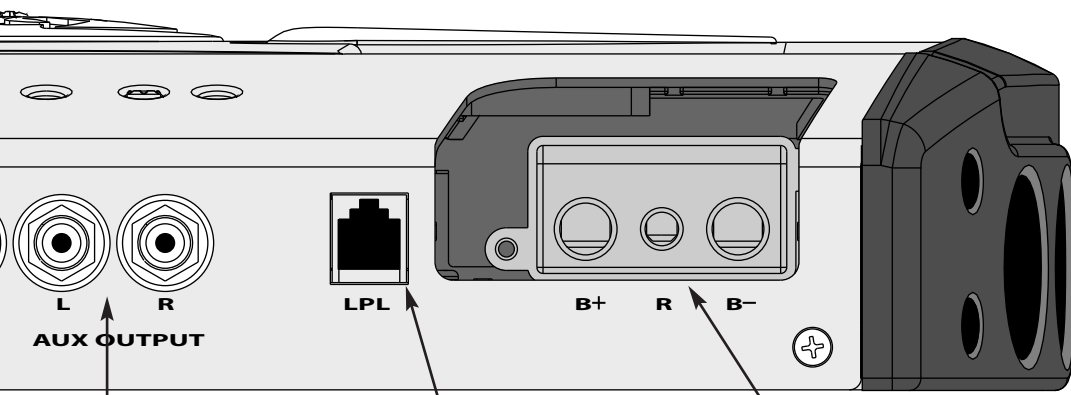
INPUTS

Connect preamp signal cables from the head unit to these terminals. To maximize noise rejection, we recommend using Phoenix Gold ARx.800, ARx.700, ARx.600 or ARx.500 series twisted pair interconnects.

CLICKS	HIGHPASS 40-400Hz	LOWPASS 40-400Hz
1*	44	44
2	44	45
3	44	45
4	44	45
5	45	45
6	46	47
7	50	51
8	54	57
9	58	63
10	63	70
11	70	79
12	78	92
13	87	105
14	99	123
15	117	142
16	137	159
17	151	166
18	160	176
19	166	180
20	172	190
21	178	197

CLICKS	HIGHPASS 40-400Hz	LOWPASS 40-400Hz
22	187	206
23	195	215
24	207	225
25	215	238
26	227	250
27	239	263
28	253	276
29	270	292
30	288	310
31	299	328
32	333	340
33	353	348
34	357	356
35	365	367
36	367	374
37	386	386
38	395	394
39	406	402
40	410	402
41**	412	402

*Full Counter-Clockwise **Full Clockwise



AUX OUTPUT
Provides a full range signal for an additional amplifier.

LPL44 PORT
This port is for connecting the optional LPL44™ Remote Lowpass Level Control knob allowing up to 20dB of volume adjustment. The LPL44 will only work when the lowpass crossover is on.

B+ R B-
B+ This must be connected to the fused positive terminal (+12V) of the car's battery.
X100.2 = 8 Gauge **X200.2** = 4 Gauge
REMOTE This must be connected to switched +12V, usually a trigger wire coming from the head unit or ignition.
B- This must be connected to the negative terminal (-12V) of the car's battery.
X100.2 = 8 Gauge **X200.2** = 4 Gauge

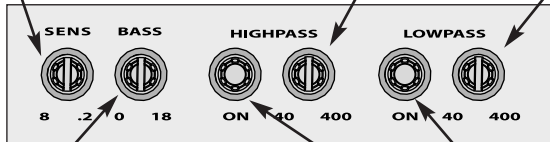
STATUS LED
Blue LED lights to indicate the amplifier is on. The LED will blink in 1 second intervals if the amplifier goes into protection mode. This usually means the amplifier is in need of service or a grounded speaker wire is present in the system.

Used to reach maximum amplifier power with a wide variety of headunits. The amplifier is more sensitive to input signals when set to .2 and less sensitive when set to 8.
INPUT SENSITIVITY

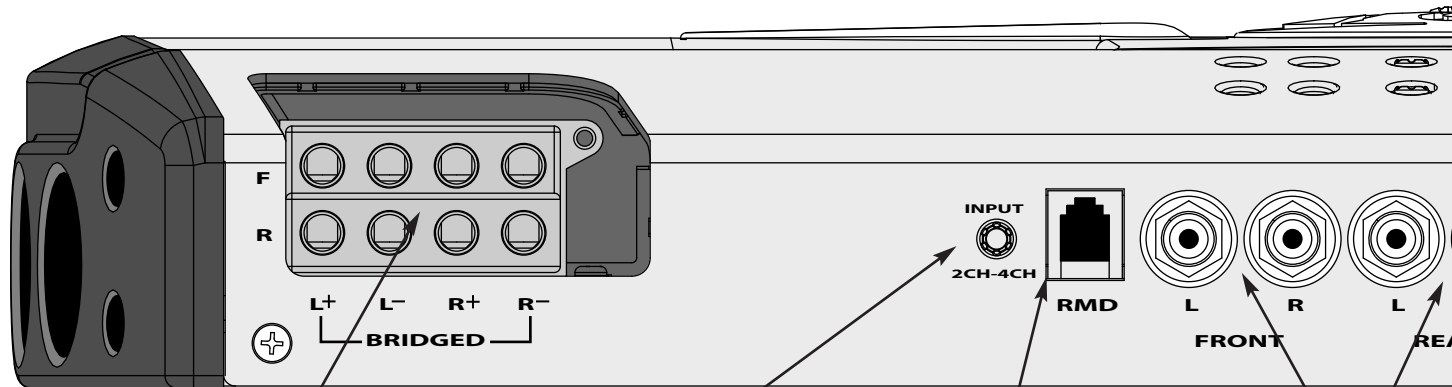
Controls the high pass crossover point for the speaker outputs. This eliminates low frequencies from reaching the speakers. The crossover frequency is adjustable from 40Hz to 400Hz with a 24dB per octave slope. The lowpass potentiometer has 41 detents see the chart to set the exact crossover frequency desired.
HIGHPASS CROSSOVER

Controls the low pass crossover point for the speaker outputs. This eliminates high frequencies from reaching the subwoofers. The crossover frequency is adjustable from 40Hz to 400Hz with a 24dB per octave slope. The lowpass potentiometer has 41 detents see the chart to set the exact crossover frequency desired.
LOWPASS CROSSOVER

TWIN-T BASS EQ
Allows for up to 18dB of boost at 45Hz for the speaker outputs when turned clockwise. It cannot affect the auxiliary outputs. Use this control sparingly. Every 3dB of boost requires double the power at 45Hz.



CROSSOVER ON
When the push button is set to IN the crossover is on. When set to the OUT position the crossover is off. Note: That the high and low pass buttons are separate and when both are set to the ON position a bandpass filter is created for that set of channels.



Speaker Outputs

Used to connect the amplifier to speakers. Use the left + and right – terminals for bridged mode. Minimum speaker cable size is 16 gauge. Use 12 Gauge for bridged operation. Minimum impedance is 2 ohm bridged or 1 ohm stereo.

**Front channels are located above rear channels*

Input

OUT: The Rear input of the amplifier is used to provide signal for the rear channels. This allows separate front and rear inputs for use with a headunit fader.

IN: A single pair of RCA's into the front input provide signal for the entire amplifier. The rear inputs gets its signal from the front input, and eliminates the need for an external Y adapter.

RMD

Remote Voltage Display Input Connect the optional RMD Voltage Display to this jack.

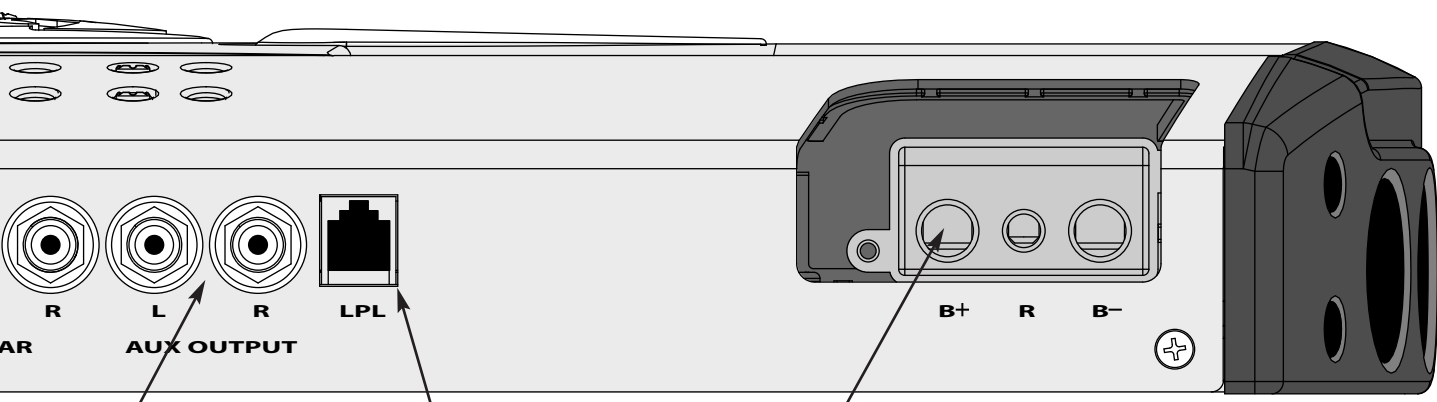
INPUTS

Connect preamp signal cables from the head unit to these terminals. To maximize noise rejection, we recommend using Phoenix Gold ARx.800, ARx.700, ARx.600 or ARx.500 series twisted pair interconnects.

CLICKS	HIGHPASS 40-400Hz	LOWPASS 40-400Hz
1*	44	44
2	44	45
3	44	45
4	44	45
5	45	45
6	46	47
7	50	51
8	54	57
9	58	63
10	63	70
11	70	79
12	78	92
13	87	105
14	99	123
15	117	142
16	137	159
17	151	166
18	160	176
19	166	180
20	172	190
21	178	197

CLICKS	HIGHPASS 40-400Hz	LOWPASS 40-400Hz
22	187	206
23	195	215
24	207	225
25	215	238
26	227	250
27	239	263
28	253	276
29	270	292
30	288	310
31	299	328
32	333	340
33	353	348
34	357	356
35	365	367
36	367	374
37	386	386
38	395	394
39	406	402
40	410	402
41**	412	402

*Full Counter-Clockwise **Full Clockwise



AUX OUTPUT
Provides a full range signal for an additional amplifier.

LPL44 PORT
This port is for connecting the optional LPL44™ Remote Lowpass Level Control knob allowing up to 20dB of volume adjustment. The LPL44 will only work when the lowpass crossover is on.

B+ R B-
B+ This must be connected to fused the positive terminal (+12V) of the car's battery.
X200.4, X100.4 = 4 Gauge
REMOTE This must be connected to switched +12V, usually a trigger wire coming from the head unit or ignition.
B- This must be connected to the negative terminal (-12V) of the car's battery.
X200.4, X100.4 = 4 Gauge

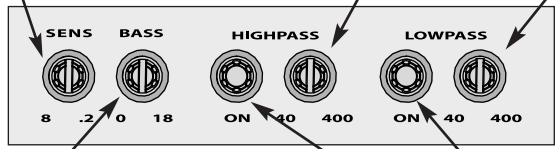
STATUS LED
Blue LED lights to indicate the amplifier is on. The LED will blink in 1 second intervals if the amplifier goes into protection mode. This usually means the amplifier is in need of service or a grounded speaker wire is present in the system.

Used to reach maximum amplifier power with a wide variety of headunits. The amplifier is more sensitive to input signals when set to .2 and less sensitive when set to 8.
INPUT SENSITIVITY

Controls the high pass crossover point for the speaker outputs. This eliminates low frequencies from reaching the speakers. The crossover frequency is adjustable from 40Hz to 400Hz with a 24dB per octave slope. The lowpass potentiometer has 41 detents see the chart to set the exact crossover frequency desired.
HIGHPASS CROSSOVER

Controls the low pass crossover point for the speaker outputs. This eliminates high frequencies from reaching the subwoofers. The crossover frequency is adjustable from 40Hz to 400Hz with a 24dB per octave slope. The lowpass potentiometer has 41 detents see the chart to set the exact crossover frequency desired.
LOWPASS CROSSOVER

Allows for up to 18dB of boost at 45Hz for the speaker outputs when turned clockwise. It cannot affect the auxiliary outputs. Use this control sparingly. Every 3dB of boost requires double the power at 45Hz.
TWIN-T BASS EQ



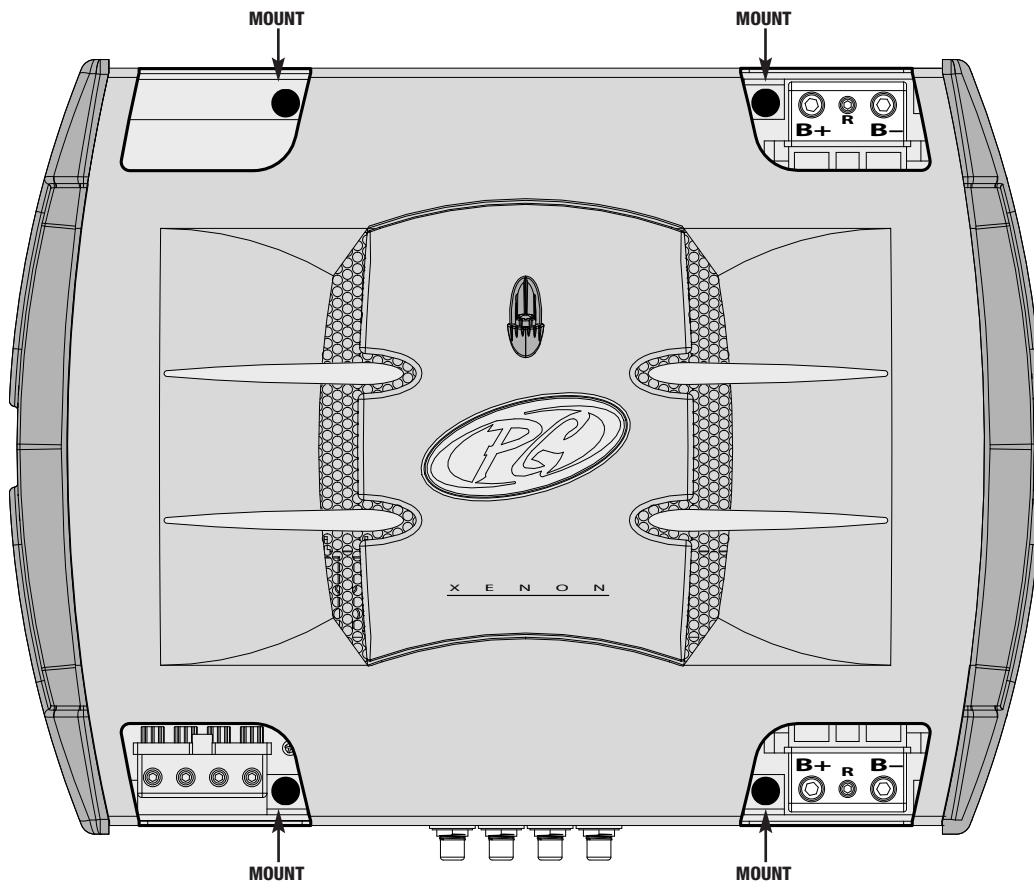
When the push button is set to IN the crossover is on. When set to the OUT position the crossover is off. Note: That the high and low pass buttons are separate and when both are set to the ON position a bandpass filter is created for that set of channels.
CROSSOVER ON

DUAL POWER CONNECTION & MOUNTING

The X200.4 and X1200.1 have dual power terminals. The power terminals are wired in parallel so one or both of the inputs can be used for a normal installation. In most applications, one 4 gauge input will supply enough current to the amplifier, but in some SPL situations the option of using dual 4 gauge inputs is available. The second terminal can also be used to wire an external capacitor to the amplifier.

***BE SURE TO NOTE THE B+ AND B- CONNECTIONS ARE CORRECT WHEN USING BOTH POWER TERMINALS.**

***DO NOT USE AUXILIARY POWER TERMINAL TO POWER AN ADDITIONAL AMPLIFIER!**



TERMINAL COVERS

1. Mount the amplifier in a secure location, and strip the wiring for the amplifier's power and speaker terminals.
2. Remove the rubber terminal covers and feed the wiring through the provided holes.
3. Insert and attach the wiring to the power and speaker terminals on the amplifier.
4. Slide the terminal cover up the wire and snap it into place on the amplifier hiding all the connections.

Note: In the rare case where the wiring doesn't fit through the terminal cover holes, simply cut a small slit into the rubber for addition space.



LIMITED WARRANTY

Phoenix Gold International, Inc. (or "Phoenix Gold") warrants its products against defects in materials and workmanship for a limited period of time. For a period of 1 year from date of original purchase, we will repair or replace the product, at our option, without charge for parts and labor. Customer must pay all parts and labor charges after the limited warranty period expires. The limited warranty period for factory refurbished products expires after ninety (90) days from date of original purchase. The warranty is extended to 2 years from date of purchase if installed by an authorized Phoenix Gold dealer. This limited warranty applies only to purchases from authorized Phoenix Gold Electronics/Speaker retailers.

This limited warranty is extended only to the original purchaser and is valid only to consumers in the United States. Consumers are required to provide a copy of the original sales invoice from an authorized Phoenix Gold dealer when making a claim against this limited warranty. This limited warranty only covers failures due to defects in materials or workmanship that occur during normal use. It does not cover failures resulting from accident, misuse, abuse, neglect, mishandling, misapplication, alteration, faulty installation, modification, service by anyone other than Phoenix Gold, or damage that is attributable to Acts of God. It does not cover costs of transportation to Phoenix Gold or damage in transit.

This warranty will become void if the serial number identification has been wholly or partially removed, altered or erased. Repair or replacement under the terms of this warranty does not extend the terms of this warranty. Should a product prove to be defective in workmanship or material, the consumer's sole remedies will be repair or replacement as provided under the terms of this warranty. Under no circumstances shall Phoenix Gold be liable for loss or damage, direct, consequential or incidental, arising out of the use of or inability to use the product. There are no express warranties other than described above.

CLEANING INFORMATION

Due to Phoenix Gold's extensive use of automotive grade rubber materials, we recommend detailing these rubber components just as you would any other parts of your car.

All rubber parts have been pretreated with Meguiar's brand rubber protectant. This ensures a rich, natural shine for your amplifier's terminal covers and endcaps. Over time if your amplifier's rubber parts become dirty or lose some of their luster, simply reapply with Meguiar's rubber protectant. This complex formula includes cleaning agents that help remove dirt and grime and replenish that lush, like new look.

To apply, simply wipe the amplifier's terminal covers and endcaps with Meguiar's rubber treatment. Then with a separate clean cloth buff the remaining treatment from the terminal covers and endcaps until a lush, natural shine is present. For a satin finish complete this cleaning process once, for a glossy finish repeat the process twice.





PHOENIX GOLD INTERNATIONAL, Inc.

9300 North Decatur
Portland, OR 97203
Tel: 503.286.9300
Fax: 503.978.3380
www.phoenixgold.com