



PXE-H660

Audio Processor *OWNER'S MANUAL*





WARNING

It is dangerous and illegal for the driver to watch the TV/Video while driving the vehicle. The driver may be distracted from looking ahead and an accident could occur.

Caution

- Read this manual thoroughly before starting installation and operation. You will find a number of Safety Warnings in this manual to tell you about things that could hurt you or other people if you were to ignore the Warnings. We cannot be responsible for problems resulting from failure to observe the Warnings in this manual.
- This manual uses a symbol to show how to use this product safely and to avoid harm to yourself and others and damage to your property. Here is what this symbol means. Understanding it is important for reading the Manual.
- Meaning of Symbol:



WARNING

This symbol means there is something that could cause serious injury or death to you or other people.

DO NOT DISASSEMBLE OR ALTER

Attempts to disassemble or alter this product can lead to accidental fires or electrical shock.

KEEP SMALL ARTICLES OUT OF THE REACH OF CHILDREN

Keep small articles (wire-ties, etc.) out of reach of children. If swallowed, consult a physician immediately.

USE ONLY IN CARS WITH A 12 VOLT NEGATIVE GROUND

Use only in cars with a 12 volt negative (-) ground electrical system. (Check with your dealer if you are not sure.) Failure to do so may result in fire, etc.

BEFORE WIRING, DISCONNECT THE CABLE FROM THE NEGATIVE BATTERY TERMINAL

Before doing any electrical wiring, disconnect the cable from the negative (-) terminal of the battery. Failure to do so may result in electric shock or injury due to electrical shorts.

KEEP ELECTRICAL CABLES TOGETHER TO AVOID OPERATING HAZARDS

Dress the wiring to keep them from interfering with the operation of the steering wheel, gear lever, brake pedals, etc.

DO NOT CUT AWAY INSULATION FROM ANY WIRE TO POWER OTHER EQUIPMENT

Tapping power from wiring to supply voltage to another piece of equipment could exceed the current carrying capacity of that wire. This could result in fire or electric shock.

DO NOT INSTALL IN LOCATIONS WHICH MIGHT HINDER VEHICLE OPERATION

Do not install in locations which might create hazards for the vehicle occupants or hinder vehicle operation (such as the steering wheel or gear shift) by obstructing forward vision or hampering movement etc.

DO NOT DAMAGE PIPES OR WIRING WHEN DRILLING HOLES

When drilling holes in the chassis for installation, take precautions so as not to contact, damage or obstruct pipes, tanks or electrical wiring. Failure to take such precautions may result in fire.

DO NOT USE NUTS OR BOLTS IN THE BRAKE SYSTEM FOR INSTALLATION OR GROUND CONNECTIONS

Never use safety-related parts such as bolts or nuts in the steering or brake systems or tanks to make wiring installations or ground connections. Using such parts could disable control of the vehicle and cause fire etc.

HALT USE IMMEDIATELY IF A PROBLEM APPEARS

When problems appear, stop using the system immediately and contact the dealer from whom you purchased the equipment. Some problems which may warrant immediate attention include a lack of sound, noxious odors or smoke being emitted from the unit, or foreign objects dropped inside the unit.

DO NOT OPERATE THE EQUIPMENT OR LOOK AT THE SCREEN WHILE DRIVING

Do not change settings while driving. If operation requiring a prolonged view of the display is required, stop the vehicle in a safe location before attempting operation.

HAVE THE WIRING AND INSTALLATION DONE BY EXPERTS

The wiring and installation of this unit requires special technical skill and experience. To ensure safety, always contact the dealer where you purchased this unit to have the work done.

DO NOT INSTALL IN LOCATIONS WITH HIGH MOISTURE OR DUST

Avoid installing the unit in locations with high incidence of moisture or dust. Moisture or dust that penetrates into this unit may cause smoke or fire.

MAKE THE CORRECT CONNECTIONS

Failure to make the correct connections can cause fire or accident to occur.

ARRANGE THE WIRING SO IT IS NOT CRIMPED OR PINCHED

Route the cables and wiring so as not to be crimped by moving parts like seat rails or to make contact with sharp spots which could damage the wiring.

DO NOT RAISE THE VOLUME EXCESSIVELY

Keep the volume at a level where you can still hear outside noises while driving. Driving while unable to hear outside sounds could cause an accident.



CAUTION

This symbol means important instructions. Failure to heed them can result in injury or material property damage.

Temperature

Be sure the temperature inside the vehicle is between +60°C (+140°F) and –10°C (+14°F) before turning your unit on.

Fuse Replacement

When replacing the fuse(s), the replacement must be of the same amperage as shown on the fuse holder. If the fuse(s) blows more than once, carefully check all electrical connections for shorted circuitry. Also have your vehicle's voltage regulator checked.

Maintenance

If you have problems, do not attempt to repair the unit yourself. Return it to your Alpine dealer or the nearest Alpine Service Station for servicing.

Installation Location

Make sure the PXE-H660 will not be exposed to:

- Direct sun and heat
- High humidity
- Excessive dust
- Excessive vibrations

CONTENTS

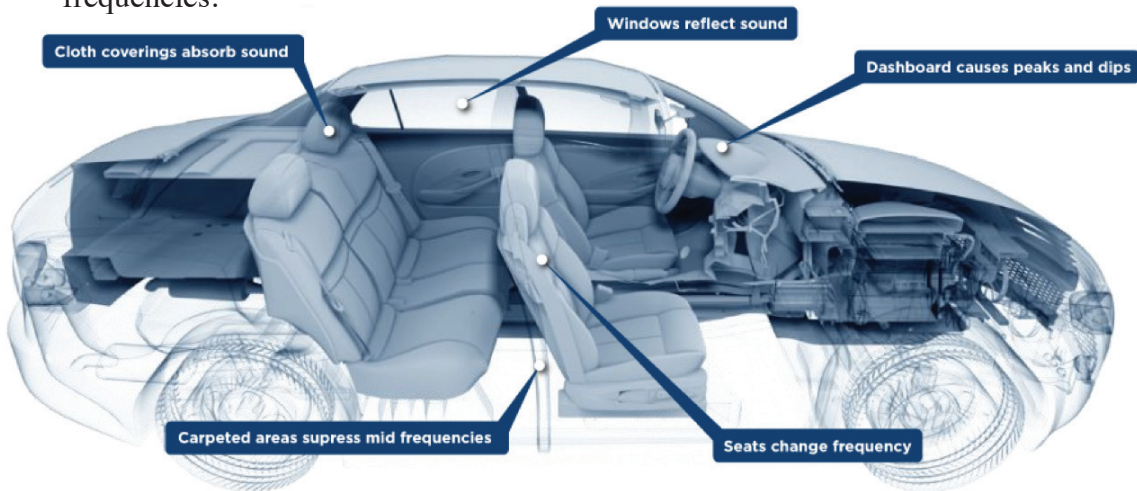
Warnings	2
Features/Description	5
Input Level Adjustment	7
SETUP CD - Contents	7
Remote Control	8
Main Chassis	9
Wiring/Connections	10
Before Setup	11
Setup Procedure	12
Setup Procedure Video	21
Demo Mode	22
Parametric Equalizer	23
Parametric Equalizer Video	28
Crossover Settings	29
Crossover Settings Video	34
Time Correction	35
Time Correction Video	40
Mounting.....	41
Adjustments and Ranges	42
Specifications	43
Typical System Diagrams	44

FEATURES/DESCRIPTION

The Alpine PXE-H660 is a versatile processor that takes an OK sounding factory system turns it into a high-end, audiophile system. The PXE-H660 utilizes advanced sound tuning of the factory equipment to correct the acoustical problems inherent in any vehicle. It's equipped with Alpine's Imprint technology. Using AntEQ™ to remove any factory pre-equalization, Audyssey MultEQ® flattens the frequency reponse inside the vehicle's interior and adjusts the overall reponse to a pre-selected target curve.

Once sound levels are balanced, and the system is tuned for optimum response, the addition of Alpine amplifiers and speakers give significant improvement over your factory hardware. Additional amps for tweeters and subwoofers provide a quality, bi-amped system extending the system's response far beyond what a normal factory system is capable of. It's easy to upgrade from factory to Alpine!

The automotive cabin is a minefield of audio disruptions. The car's cabin is made from materials that reflect and absorb sound. This causes peaks and clips in music reproduction. For instance, windows reflect and amplify high frequencies. Leather covered surfaces like the seats and dash also reflect and change certain frequencies. Also, carpeted areas in the cabin absorb and suppress mid frequencies.



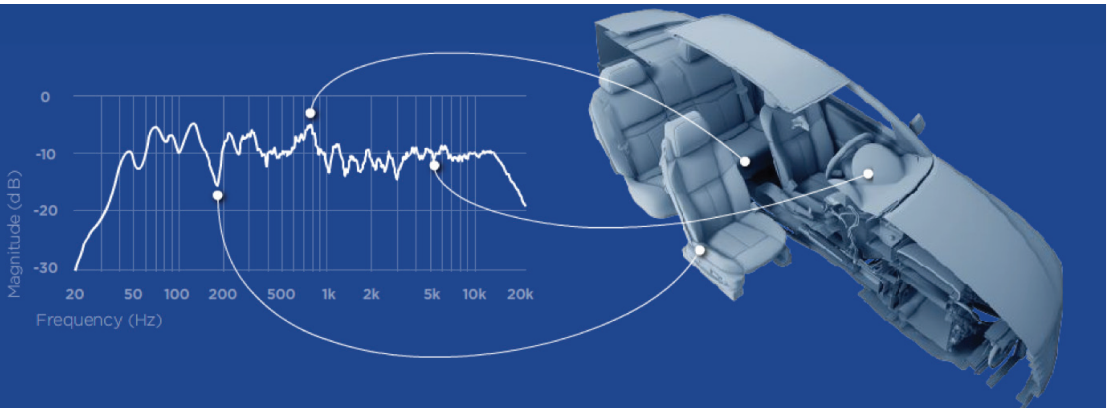
WARNING

It is dangerous and illegal for the driver to watch TV/Video while driving any vehicle. The driver may be distracted from looking ahead and an accident could occur.

FEATURES/DESCRIPTION

Features:

- AntEQ™ and MultEQ® (Imprint technology)
- AUX Input (Audio)
- 5-Channel Factory Head Unit Input (Speaker or Line Level)
- 6.1 Channel Analog Line Level Outputs (Front 1/2, Rear, Subwoofer)
- 3 Custom Parametric EQ Bands
- Crossover: Front 1/2 HP, Front 2 LP, Rear HP, Sub LP
- 7-Channel Time Correction
- Source-Tone Memory
- 2 User Presets
- IR Remote Control for Source, Sub Level, Muting, Bal/Fad and User Presets



Above is a typical loudspeaker response, measured from one seat in a vehicle. As is typical, the response will have several peaks and dips at various frequencies. These are caused by the sound from the speakers interacting with the seats, console and windows of the car's cabin. When the interactions "add" to the frequency, you get a rise. When they "cancel" the frequency, you get a dip.

INPUT LEVEL ADJUSTMENT

The overall sound quality of the PXE-H660 is determined by the adjustments made by the Digital Signal Processor. The accuracy of these adjustments are directly affected by the input to the processor. Therefore, it is very important that the output from the factory radio be properly set so the PXE-H660 receives the correct audio level (not so high that it's distorted and not so low that it's noisy). This ensures that the DSP chip in the unit can see every detail of the audio signal. This important step is done during the initial stages of the Set Up sequence.

The input to the PXE-H660 is equipped with an auto-ranging circuit. This keeps the DSP input at a constant level for better noise immunity and signal processing. It is suggested that the factory head unit volume level be set for the maximum undistorted level. To determine the factory system's maximum undistorted volume level, play a well-produced, dynamic music track through the system and turn up the volume until distortion is heard. Back the volume down to the maximum undistorted level. Remember this volume setting, as you will need to keep the factory radio at this setting during steps 5-9 of the setup procedure. Other functions such as factory EQ settings or position settings must also be turned off. Balance and Fader positions must be centered.

SETUP CD - Contents

Imprint Setup Disc

1. Autorange Setup

This track is used with auto ranging to set input levels

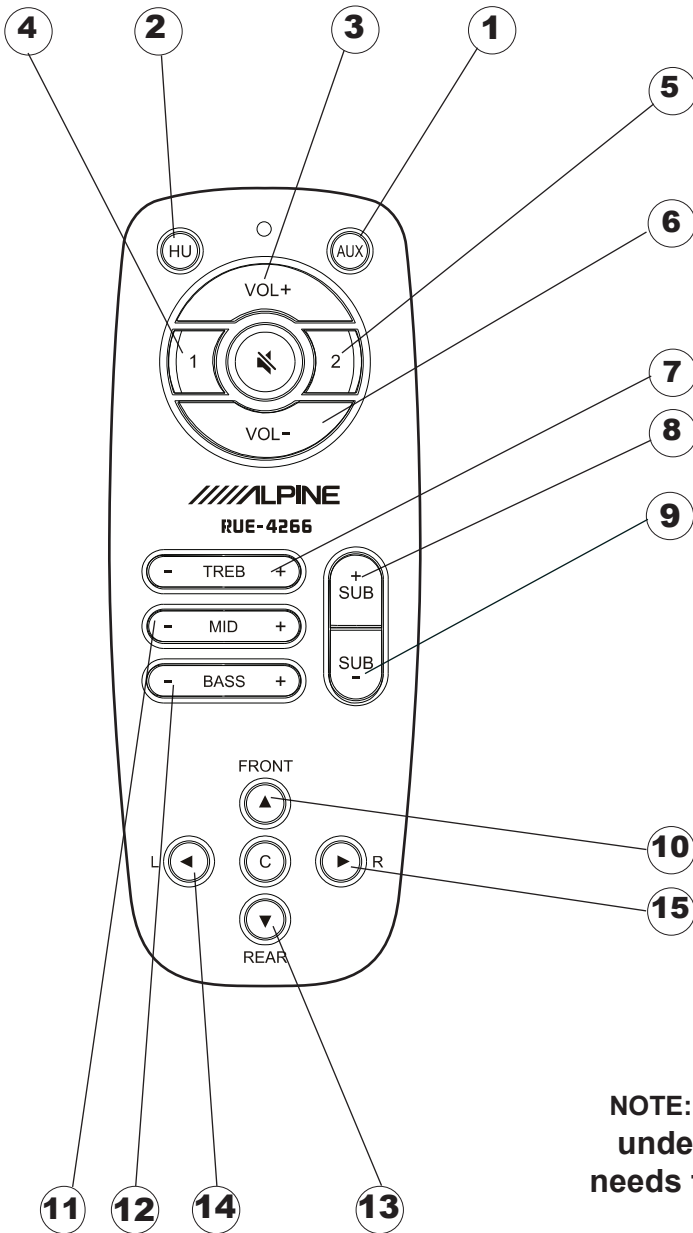
2. AntEQ™ Calibration

This track is used with AntEQ™ for factory pre-equalization removal


3. Pink Noise

This track is used by the installer to make coarse adjustments to amplifier levels.

REMOTE CONTROL



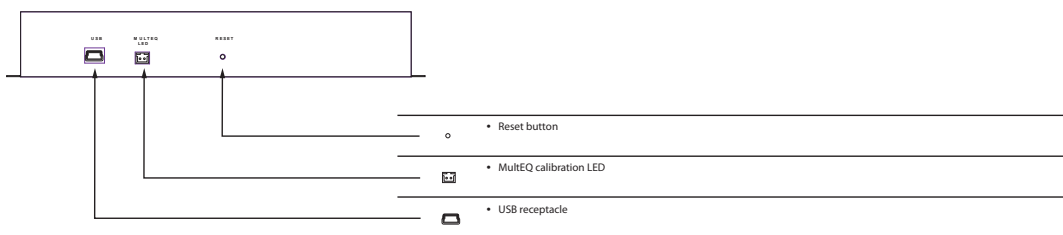
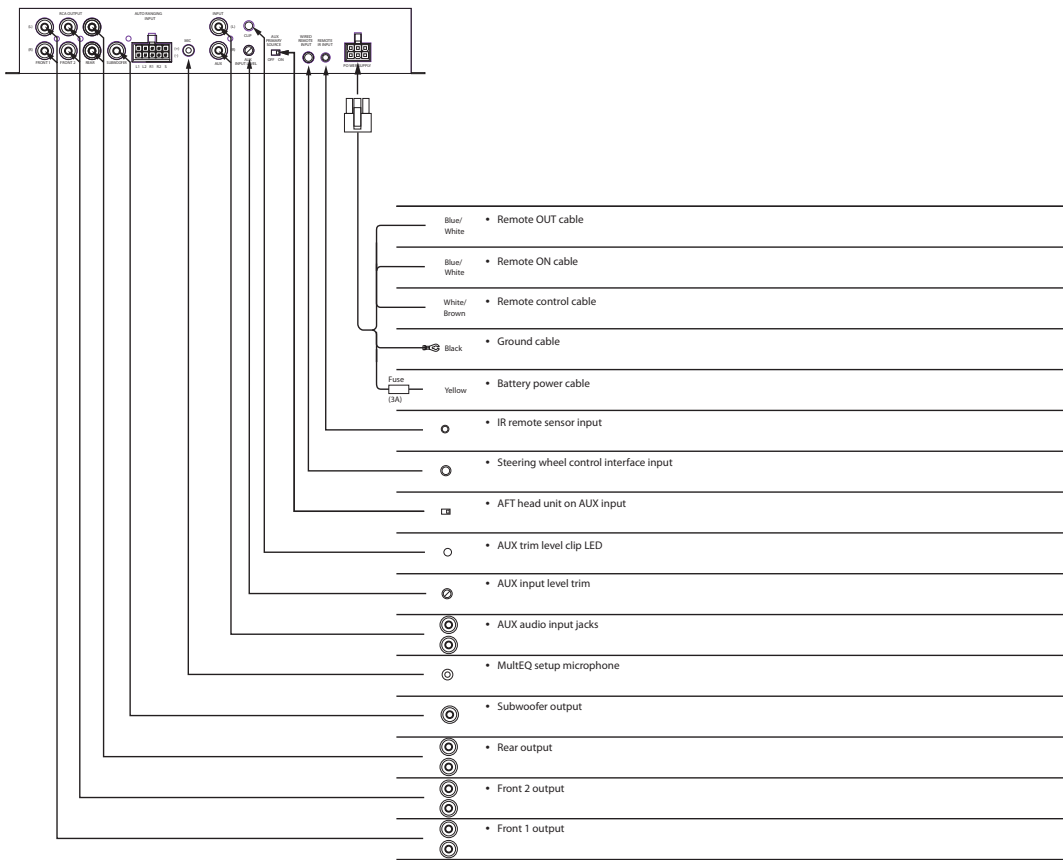
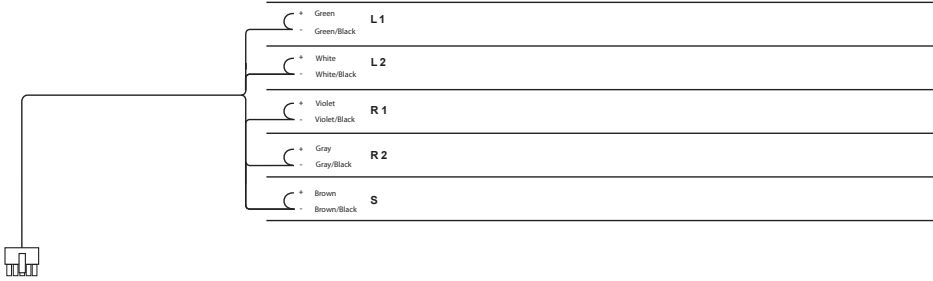
Remote Function Call-outs

- 1 AUX Source Select
- 2 Factory H/U Select
- 3 Volume UP
- 4 User Preset 1
- 5 User Preset 2
- 6 Volume DN
- 7 Treble EQ UP/DN
- 8 Subwoofer UP
- 9 Subwoofer DN
- 10 Fader Front
- 11 Midrange EQ UP/DN
- 12 Bass EQ UP/DN
- 13 Fader Rear (CANCEL)
- 14 Balance Left (CLEAR)
- 15 Balance Right (DONE)
-  Mute
- C Center (BAL, FAD, Treble EQ, Midrange EQ, Bass EQ, MEASURE)

NOTE: There is an insulator tab under the remote battery that needs to be removed before use.

MAIN CHASSIS

Auto-Ranging Inputs



WIRING/CONNECTIONS

Front Panel Chassis

- 1 **USB Port** - USB cable required for PC setup (PC software on included Imprint Setup CD)
- 2 **MULTEQ LED** - Output for included LED; EQ Status indicator during setup
- 3 **RESET** - Press & Release button for: Factory Reset, or Redo MultEQ™ setup (see page 20)

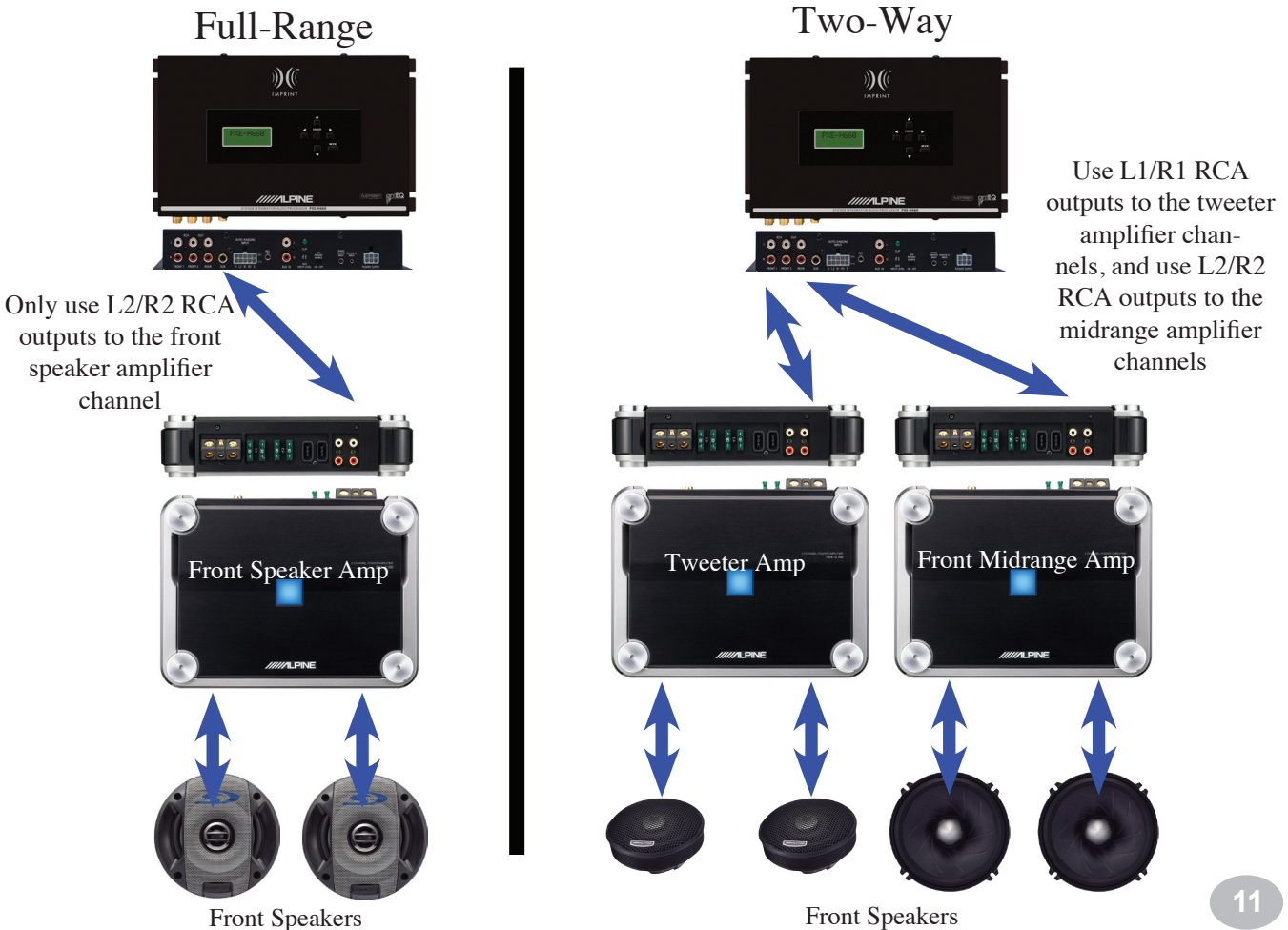
Rear Panel Chassis

- 4 **POWER SUPPLY** Harness (6-Pin)
 - Ground (BLK)
Connect this lead to a good chassis ground on the vehicle. Make sure the connection is made to bare metal and is securely fastened using a sheet metal screw.
 - Battery (YEL)
This is a constant +12V for the main unit. It will remain powered even when the Ignition key position is OFF. It draws minimal current to maintain processor memory.
 - Remote OUT (BLU/WHT)
This output can turn on external amplifiers. The signal supplies 12 volts PXE-H660 is on.
 - Remote ON (BLU/WHT)
If the OEM head unit is not turning on the EQ using the AUTO RANGING INPUT, use this wire. Connect this wire to the 'Auto Turn On' lead of the Factory head unit or a switched 12 VDC source (Ignition).
 - Remote Control (WHT/BRN)
This input provides a means by which an external source, connected to AUX, is controlled.
 - 5 **REMOTE IR INPUT** (2.5mm mini-jack) - Input for external remote eye (included)
 - 6 **WIRED REMOTE INPUT** (3.5mm mini-jack) - Input for steering wheel control (factory option); Note: Using this input disables the factory head unit steering wheel controls.
 - 7 **AUX PRIMARY SOURCE** - Turn this switch ON, if a factory radio source is not being used. This accommodates an aftermarket radio using the AUX INPUT.
 - 8 **CLIP** - This LED is ON whenever the AUX source is over the input limit. During MultEQ Calibration, this LED indicates MIC Input clipping.
 - 9 **AUX INPUT LEVEL** - Use this trimmer control to adjust the AUX INPUT below clipping.
 - 10 **AUX INPUT** - Use this input for an auxiliary source or an aftermarket head unit with line outputs.
 - 11 **MIC** - 3.5mm jack for included microphone.
 - 12 **AUTO RANGING INPUT** - Use this input for the factory head unit. This input is 'auto ranging' to handle a wide range of factory head unit outputs. It will accept speaker or line level outputs. It has 5 input pairs for Front, Rear, and Subwoofer.
 - 13 **RCA OUTPUT** - 2 Front L/R Pairs, 1 Rear L/R Pair, 1 Subwoofer Mono
 - Front L1/R1 For Factory High-pass Output
 - Front L2/R2 For Factory Low-pass Output (or Fullrange Output)
 - Rear L/R For Factory Rear, Full Range Output
 - Subwoofer For Factory Subwoofer Output
- Note:** OUTPUT: For full-range only, use outputs FRONT L2/R2
INPUT: If there is a L/R pair of full range outputs available from the factory system (FRONT or REAR) these should be used first and connected to inputs L2/R2 on the PXE-H660. If the factory 2-way output must be used, connect Tweeter Left to L1, Woofer Left to L2, Tweeter Right to R1, and Woofer Right to R2.

BEFORE SETUP

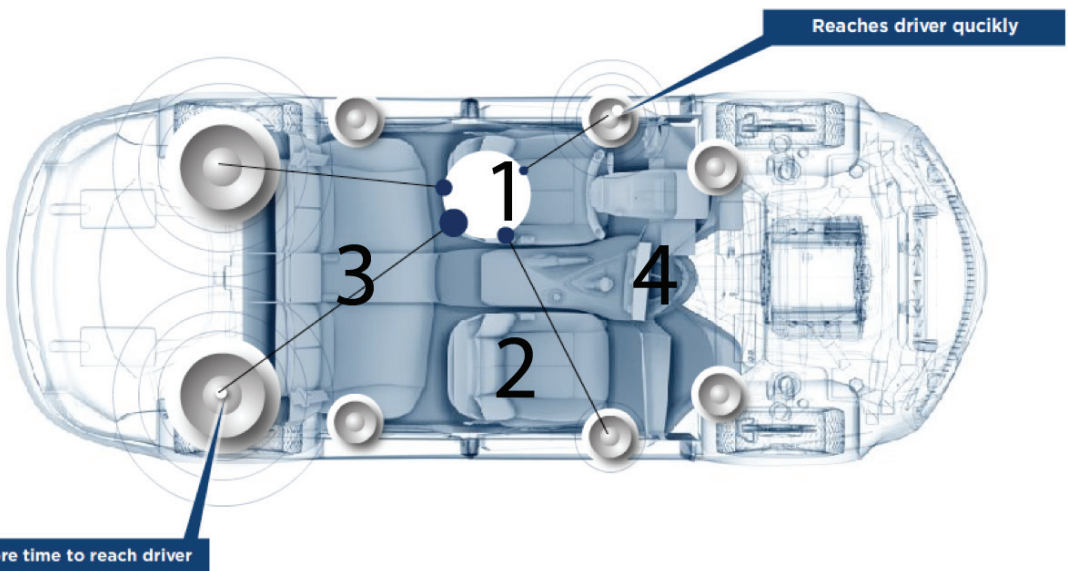
The following guidelines will ensure a smooth and accurate setup procedure. Have the MultEQ CD, microphone and MultEQ LED available and take a note of the conditions below as they are needed in the next section.

1. The PXE-H660 has the ability to drive a full-range or two-way front speaker output system configuration. In the case of a two-way system (bi-amping a set of components), make sure the tweeter amplifier channels go to the L1/R1 RCA outputs and the midrange amplifier channels go to the L2/R2 RCA outputs. At this time, set the crossover point for the high-pass speakers. Use the manufacturer recommended tweeter high-pass crossover frequency point (5 kHz by default). The mid-bass low-pass cut-off is determined by tweeter high-pass. If there is a subwoofer in the system, the low pass cut-off will be set automatically by MultEQ. In the case of a full-range system, the front speaker amplifier channels must connect to the FRONT L2/R2 outputs only.



BEFORE SETUP

2. The PXE-H660's included microphone must be placed in four different positions inside the car, allowing the unit to automatically optimize the system's sound quality. A microphone stand or camera tripod can be used to hold the microphone in position. MIC position 1 should be taken at the driver's seat, as close to the driver's normal head position as possible. MIC position 2 should be taken at the passenger's seat, as close to the passenger's normal head position as possible. MIC position 3 should be taken at the rear center of the vehicle. If the vehicle doesn't have a rear seat it should be as far back as possible in the middle. MIC position 4 should be taken at the middle of the front dash. The diagram below shows the four microphone positions inside the car.
3. PRESET 1 settings are derived from MIC position 1 and PRESET 2 settings are derived from MIC position 2. This means PRESET 1 will be optimized for the driver and PRESET 2 will be optimized for the passenger.



SETUP PROCEDURE

1. TURN ON Vehicle Ignition Switch
2. TURN ON Factory Radio Power and insert the MultEQ Setup CD. If properly connected, the Factory Radio Power should automatically turn ON the PXE-H660. If the unit displays "ALPINE PXE-H660" on the display, press and hold the "reset" button for at least 6 seconds to reset the PXE-H660 to its factory settings (refer to Page 20 for detailed reset procedure). The unit will show "START SETUP PRESS ENTER" on the display after the reset procedure is performed. It will also show that message if it's the first time the PXE-H660 is being used.

SETUP PROCEDURE

3. PREPARE vehicle for calibration-

Make sure the MultEQ LED and microphone are connected. The MultEQ LED illuminates a steady Green when LED and Microphone are properly connected.

The microphone should be placed in position 1 as shown in the diagram above.

The MultEQ LED blinks once per second during normal operation. If there is an error it will blink rapidly. When the PXE-H660 is busy it will go solid. The MultEQ LED will not light up if the PXE-H660 is off or in a normal run mode.

4. "START SETUP PRESS ENTER"

This is displayed when the PXE-H660 is Powered UP for the first time (or after a 'FACTORY RESET' is performed). Press "ENTER" to initiate SETUP sequence.



5. "MAX H/U VOLUME PRESS ENTER"

Head unit controls such as TONE, EQ or other special processing must be turned OFF. Set BALANCE and FADER controls to their center position. Make sure that the volume control on the factory head unit is set to the maximum undistorted volume as determined on page 7, then press "ENTER" to continue.

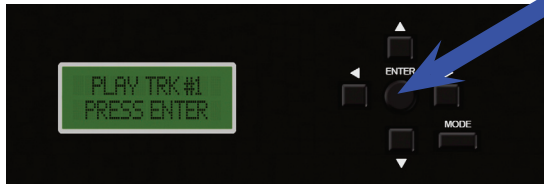


SETUP PROCEDURE

- "AMP INPUT CENTER GAIN" -
Set the amplifier gains for the mids and highs at one-half. Set the subwoofer gain to one-quarter.
Press "ENTER" to continue.



- "PLAY TRK #1 PRESS ENTER"
Play track 1, "Aurorange Setup," of the Setup CD loaded in Step 2 above.
Press "ENTER" to continue.



"ERROR! CHECK VOL & INPUTS"

If the PXE-H660 displays this error display on the LCD the MultEQ LED will blink quickly. Troubleshoot the system by making sure that there are no incorrect connections at the inputs and the right wires in the vehicle were connected to. Also this could be due to not having the volume turned up to the maximum undistorted level as stated in step 5. Press the "ENTER" button on the remote once the issue has been corrected. The MultEQ LED blinks slowly again.



SETUP PROCEDURE

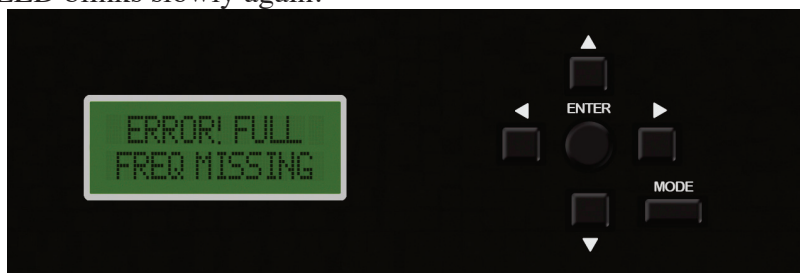
8. "PLAY TRK #2 PRESS ENTER"

Move the track forward to track 2, "AntEq™ Calibration," and play it. Press "ENTER" to continue.



"ERROR! FULL FREQ MISSING"

If the PXE-H660 displays this error display on the LCD the MultEQ LED will blink quickly. This error is generated if the PXE-H660 is not receiving the full audible frequency range from the factory audio system. Troubleshoot the system by making sure that the correct wires in the vehicle have been used and nothing came disconnected. Press the "ENTER" button on the remote once the issue has been corrected. The MultEQ LED blinks slowly again.



9. "2-WAY OFF PRESS ENTER"

The default 'OFF' assumes only a single, fullrange Front Output (Front L2/R2). If the FRONT Output is configured as a 2-Way system, use the ▼ or ▲ button to change the value in the HPF field. Refer to page 11 to determine if your system has a 2-Way output.

Press "ENTER" to continue.

WARNING: Output of the PXE-H660 will not be muted after this point. Turn the factory radio volume down.



SETUP PROCEDURE

10. "SUB AMP DOWN PRESS ENTER" -

Make sure the level of the subwoofer amplifier is turned down to 1/4 gain. You may adjust the subwoofer gain after the Imprint process is complete.

Press "ENTER" to continue.



"LAPTOP SETUP MODE"

If you wish to use a PC for the remainder of the setup process, plug the PC into the PXE-H660's USB input and launch the IMPRINT setup program included with this unit. "LAPTOP SETUP MODE" will be displayed. Follow the instructions on the PC application to set up the PXE-H660. If you do not wish to use a laptop make sure there is nothing plugged into the USB port and move on to the next step.



SETUP PROCEDURE

11. "REM CONTROL PRESS C"

At this point, the PXE-H660 has optimized the input from the factory sound system. Next, the unit will use the included microphone to automatically tune the aftermarket sound system. Point the remote control at the PXE-H660's external remote eye. There is an insulator tab under the remote battery that needs to be removed before use. Press "C" on the remote control to continue.



12. "PUT MIC POS 1 PRESS C "

Prepare to run the calibration test. Position the Mic in location 1 and exit the vehicle. Close all windows, doors, and the trunk. The car must be a noise free environment. Outside noises will negatively affect the tuning process and may generate an error code. Point the remote control at the PXE-H660's external remote eye. Press "C" on the remote control to continue. The MultEQ LED will be illuminated steady green while measuring position 1. When the MultEQ LED starts to blink slowly again, Position 1 measurement is complete; continue to the next step.



SETUP PROCEDURE

13. "ERROR! CABIN NOISE-NO MIC" - Speaker detection Error

If the PXE-H660 displays this error display on the LCD and the MultEQ LED will blink quickly. Troubleshoot the system by making sure that nothing has become disconnected or turned off and the MIC is plugged in. Also make sure the vehicle is in a noise free environment. Excessive background noise can cause issues with the process.

Press the "C" button on the remote once the issue has been corrected. The MultEQ LED blinks slowly again. Repeat Step 12 above.



14. "PUT MIC POS2 PRESS C"

Reposition the microphone to the secondary position in the vehicle. When ready, exit the vehicle. Press "C" on the remote control to continue. The MultEQ LED will be illuminated steady green while measuring position 2. When the MultEQ LED starts to blink slowly again, Position 2 measurement is complete; continue to the MultEQ™ next step.



SETUP PROCEDURE

16. "PUT MIC POS3 PRESS C"

Reposition the microphone to position 3 in the vehicle. When ready, exit the vehicle. Press "C" on the remote control to continue. The MultEQ LED will be illuminated steady green while measuring position 3. When the MultEQ LED starts to blink slowly again, Position 3 measurement is complete; continue to the next step.



Continue this process for the 4th MIC position. Four calibrated positions are required for proper MultEQ response.



SETUP PROCEDURE

17. "SUB AMP UP PRESS ENTER"

This is a reminder to turn the subwoofer amplifier gain back up (from step 10) once all the measurements have been taken. It is recommended to listen to the system to determine the proper subwoofer amplifier gain level.

Press "ENTER" to continue.



18. Done

After completing the 4 MIC positions, MultEQ setup will be complete. Unplug and remove the microphone from the car.

Press "ENTER" to continue.



NOTE:

To repeat setup process follow these steps:

1) Press and hold RESET button for at least 3 seconds but less than 6 seconds.

This resets MultEQ settings (calibration of MultEQ must be redone after reset).

2) Press and hold the RESET button for at least 6 seconds or more.



This resets all settings, restoring the unit to factory default settings (All setup steps need to be redone after reset).

SETUP PROCEDURE VIDEO

Click to watch setup video. Be sure the computers Adobe Acrobat Reader and Flash player programs are up to date. If you are using a Mac be sure to use the Adobe Reader and not the Preview program. Adobe Reader can be downloaded for free at www.adobe.com.



DEMO MODE

Demo Mode Overview

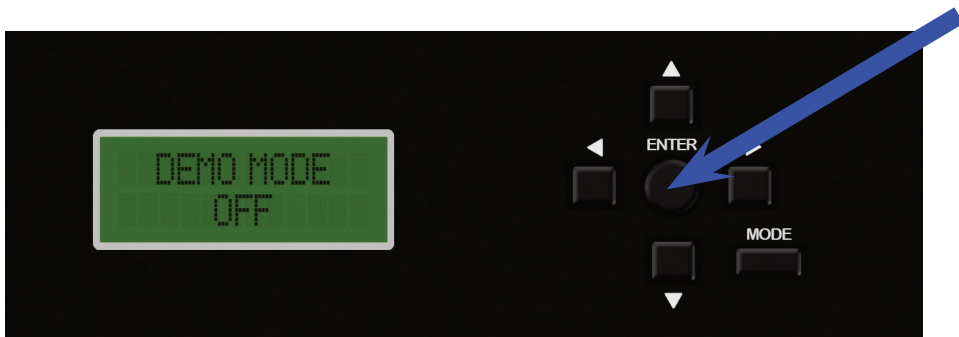
- Demo mode will allow the user to audition MultEQ ON and OFF with the press of a single button on the remote control.

Demo Mode

- Press the MODE button once on the PXE-H660 to reach the Demo mode screen on the LCD. Press the "ENTER" button once to enter the Demo mode. At this time, "DEMO MODE ON" appears in the display. Press the Fader "REAR" button to turn OFF MultEQ/AntEQ™, while pressing the Fader "FRONT" button turns MultEQ/AntEQ ON.



- While in the Demo mode, all remote controller buttons are locked out except: Volume UP, Volume DOWN, HU and AUX source switch buttons, and MUTE (if AUX PRIMARY SOURCE switch is ON then HU source switch button is also locked out).
- Press the "ENTER" button again to turn off the Demo mode and resume normal operation. At this time, "DEMO MODE OFF" appears in the display.



OPTIONAL SETTINGS

Introduction

The PXE-H660's automatic setup process is now complete. If you wish to further tune the system's sound quality, follow the steps below. Each output of the PXE-H660 has a 3-Band, parametric equalizer, up to 10 ms of time correction and customizable crossover points for High-pass, Low-pass and Subwoofer.

Follow the procedures below to customize the Parametric EQ, Time Delay and Crossover. Use the same procedure described below, for each of the channels being modified. Pressing "ENTER" gets you into the program screen mode, allowing changes to current values. Use "SAVE SETTINGS" to permanently store these changes into non-volatile memory.

PARAMETRIC EQUALIZER

The Equalizer uses 3 Bands for each of the 7 channels to customize the tone of the music. Each Source Input to the PXE-H660 has its own EQ. Each of the Bands (Bass, Mid and Treble) is adjusted in a similar manner. The following steps use the Bass Band as an example. Use the same steps to make changes to the Mid and Treble Bands as well.

Equalizer

1. Press MODE twice to enter Custom tuning.



2. Press ► to get "PRESET 1" in the display.



PARAMETRIC EQUALIZER

- Use the ▼ or ▲ buttons to choose between PRESET 1, PRESET 2, CUSTOM EQ AUX, and CUSTOM EQ HU. PRESET 1 refers to the Primary Mic position. PRESET 2 refers to the Secondary position. In this example CUSTOM EQ H/U is selected.



- Press ► to show the EQ bands.



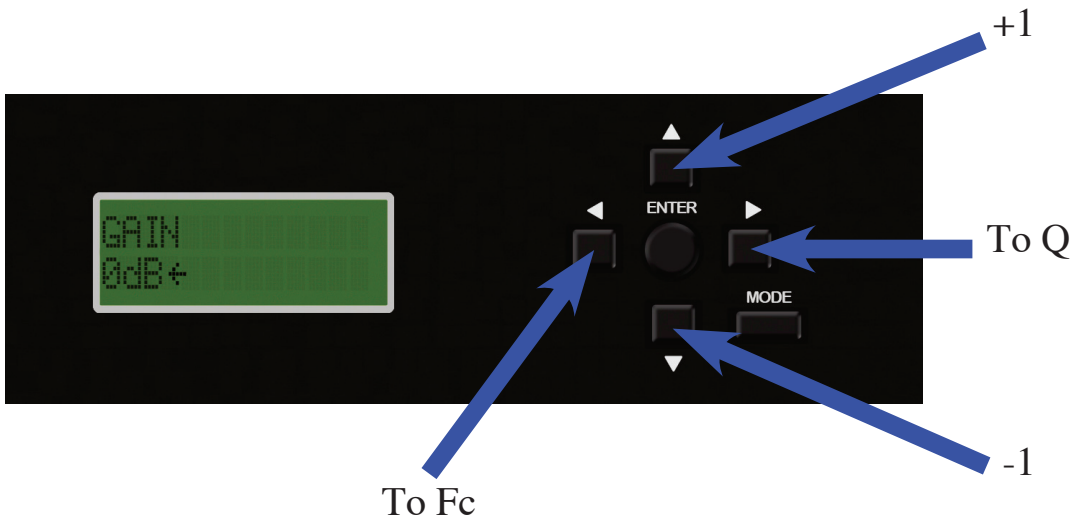
- In this example the BASS will be adjusted. Adjusting the MID or TREB is very similar. Substitute "MID" or "TREB" for "BASS" and perform the same procedure mentioned below for "BASS."

PARAMETRIC EQUALIZER

6. Select the EQ Band to adjust.
 - a) Use the ▼ or ▲ button to scroll through the BASS, MID, and TREB selections. In this example BASS is selected.
 - b) Once the Band has been selected, Press "ENTER" to begin making the adjustments.



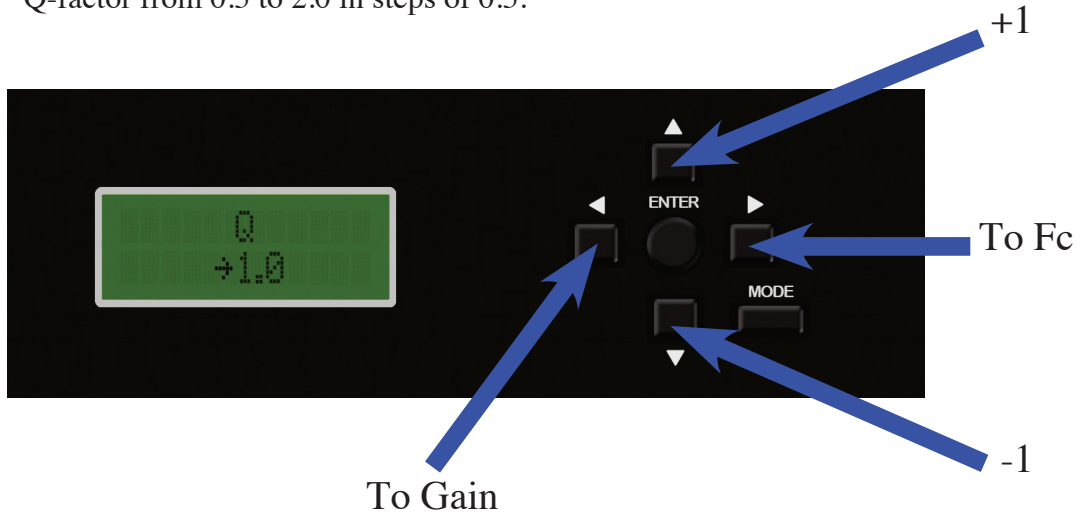
7. Modify 3 different EQ parameters: LEVEL, Q, and Fc. Use the ► or ◀ buttons to choose the parameter to modify. Use the ▼ or ▲ buttons to change the parameter.
 - a) **GAIN** is adjustable from -6 dB to +6 dB using the ▼ or ▲ buttons. This adjustment will effectively lower by 25% or increase by 400%, the output at the center frequency. The LEVEL changes in 1 dB steps.



PARAMETRIC EQUALIZER

b) **Q (Q-factor)** is adjustable from 0.5 (wide band) to 2.0 (narrow band).

The Q determines how much the frequencies below and above the center frequency are affected by the LEVEL adjustment in 'a.' Use the ▼ or ▲ buttons to choose a Q-factor from 0.5 to 2.0 in steps of 0.5.



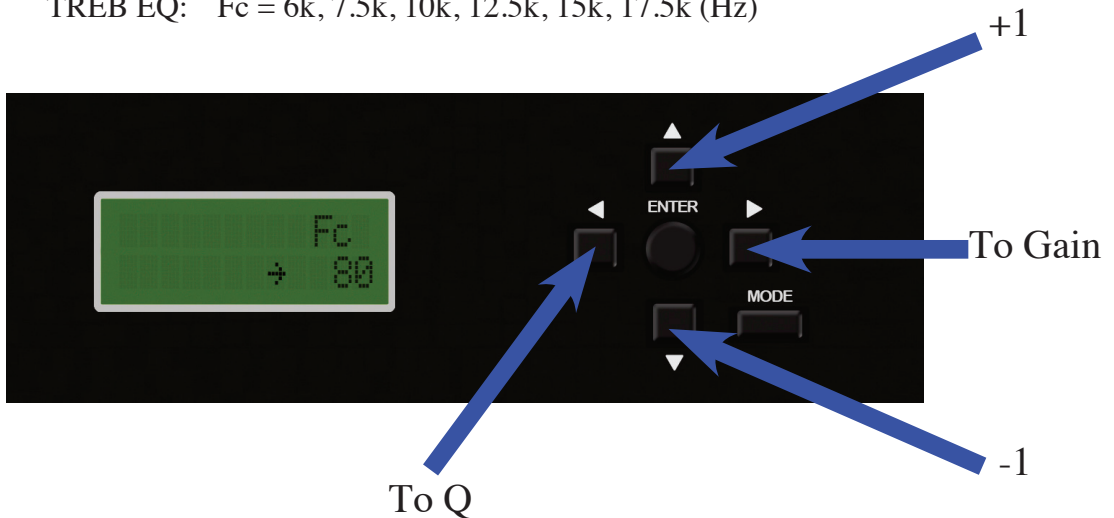
c) **Fc (center Frequency)** is adjustable from 30 to 150 Hz.

This is the point of maximum effect for the EQ LEVEL adjustment. All frequencies above and below Fc are affected to a lesser degree, depending on the Q setting. The frequencies are selectable using the ▼ or ▲ buttons. They vary for each band and are listed below.

BASS EQ: Fc = 30, 40, 50, 60, 80, 100, 125, 150 (Hz)

MID EQ: Fc = 500, 750, 1k, 1.5k, 2k, 3k, 4k, 5k (Hz)

TREB EQ: Fc = 6k, 7.5k, 10k, 12.5k, 15k, 17.5k (Hz)



PARAMETRIC EQUALIZER

- d) Upon completing the adjustment, press the MODE button to exit the menu. Use the ▼ or ▲ button to scroll to "SAVE SETTINGS" to store changes into non-volatile memory. This will keep the settings safe in case +12V constant is removed from the PXE-H660. Press ENTER to continue with the save.



OR

Return To Main Menu



PARAMETRIC EQUALIZER VIDEO

Click to watch setup video. Be sure the computers Adobe Acrobat Reader and Flash player programs are up to date. If you are using a Mac be sure to use the Adobe Reader and not the Preview program. Adobe Reader can be downloaded for free at www.adobe.com.



CROSSOVER SETTINGS

The system's crossovers are set by the PXE-H660 during its automatic setup process. The PXE-H660 also allows custom cut-off points for the high-pass and low-pass filters of the Front and Rear speakers and the Subwoofer. This is especially useful when the factory speakers have been upgraded to handle a much wider audio bandwidth. It can also be used to reduce the bandwidth on the OEM speakers for less distortion.

Crossover

1. Press MODE twice to enter Custom Tuning mode.



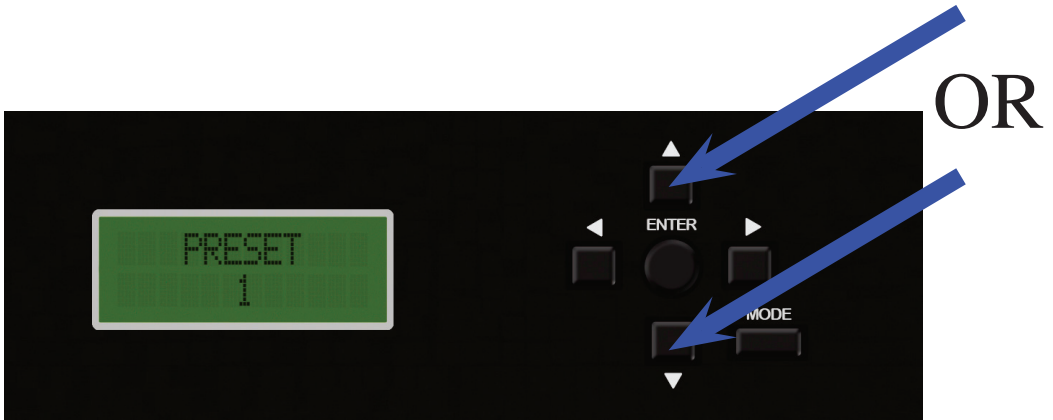
»

2. Navigate to the right with the ► button.



CROSSOVER SETTINGS

3. With "PRESET 1" in the display, use the ▼ or ▲ buttons to choose the MIC position to modify. PRESET 1 refers to the Primary Mic position. PRESET 2 refers to the Secondary position. Please note that CUSTOM EQ AUX and CUSTOM EQ HU do not offer crossover menus. Choose either PRESET 1 or PRESET 2. In this example PRESET 1 is selected.

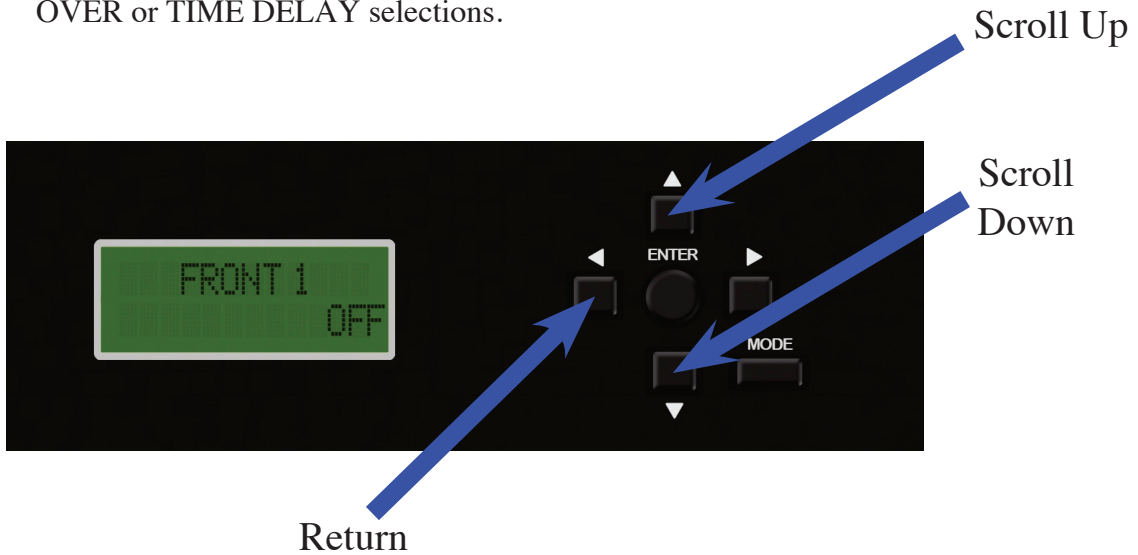


4. Upon deciding which MIC position to select, use the ► button to move to the next selection mode. In this menu CROSSOVER or TIME DELAY can be selected by using the ▼ or ▲ buttons. For this example, the CROSSOVER settings will be used. Press the ► button.



CROSSOVER SETTINGS

5. FRONT 1 is displayed. Use the ▼ or ▲ button to choose a channel. In this example FRONT 2 is used. The following FRONT 2 adjustment procedures will be similar in nature to adjustments for the other channels. To make adjustments to the other channels just substitute FRONT 1, REAR, or SUBWOOFER, for FRONT 2. The procedure is the same with only the parameters slightly different, as shown at the end of this section. User can also use the ◀ button to return to the previous level with CROSS-OVER or TIME DELAY selections.

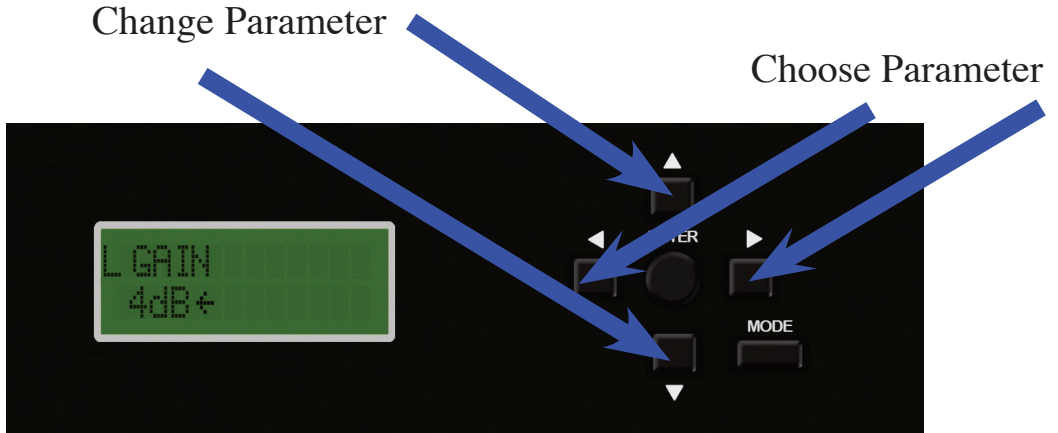


6. Once the channel has been selected, Press ENTER to begin making the adjustment.



CROSSOVER SETTINGS

- Modify 3 different Crossover parameters: L GAIN, R GAIN, and Fc (cut-off Frequency). Use the ► or ◀ buttons to choose the parameter to modify. Use the ▼ or ▲ buttons to change the parameter.



- L GAIN and R GAIN are adjustable from -15 dB to +15 dB using the ▼ or ▲ buttons.

This adjustment changes the LEVEL in 1 dB steps. The range for this parameter remains the same for ALL Channels in ALL modes.

- The Fc adjustment depends on the output mode. The ▼ or ▲ buttons select the frequency.

The frequency range of FRONT 2 changes based on the FRONT 1 configuration. Once FRONT 1 is activated (Fc selected), FRONT 2 changes from a High-pass crossover to a Band-pass crossover. This is to accommodate the 2-way output mode. The Fc changes as follows:

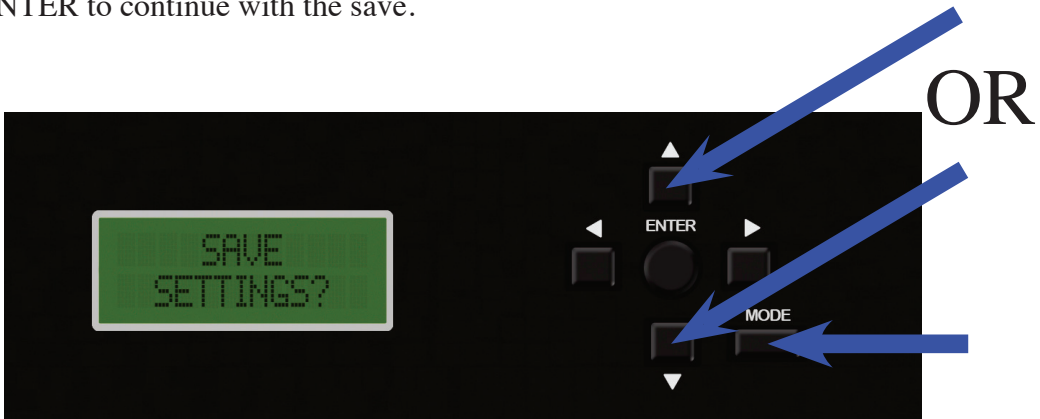
Output Mode	FRONT 1	FRONT 2	REAR	SUB
2 or 4 CH, w/wo Sub	NA	HPF: 40 - 200 Hz @ -12 dB/oct	HPF: 40 - 200 Hz @ -12 dB/oct	LPF: 40 - 200 Hz; -12/-24 dB/oct
2-Way, 4-CH, 6-CH; w/wo Sub	HPF: 40 - 200 Hz @ -12 dB/oct	HPF: 200 - 5k Hz @ -12 dB/oct; LPF: 40 - 200 Hz @ -12 dB/oct	HPF: 40 - 200 Hz @ -12 dB/oct	LPF: 40 - 200 Hz; -12/-24 dB/oct

CROSSOVER SETTINGS

- c) For the Subwoofer Channel, a third parameter is available. Use the the ▼ or ▲ buttons to toggle between the 12 dB/oct or 24 dB/oct crossover slopes.
- d) Upon completing the adjustment, press ENTER to exit back to the "CROSSOVER" sub-menu.



- e) When CROSSOVER adjustments are complete, press the MODE button to exit the menu and get back to the CUSTOM TUNING screen. Use the ▼ or ▲ button to scroll to "SAVE SETTINGS" to store changes into non-volatile memory. This will keep the settings safe in case +12V constant is removed from the PXE-H660. Press ENTER to continue with the save.



CROSSOVER SETTINGS VIDEO

Click to watch setup video. Be sure the computers Adobe Acrobat Reader and Flash player programs are up to date. If you are using a Mac be sure to use the Adobe Reader and not the Preview program. Adobe Reader can be downloaded for free at www.adobe.com.

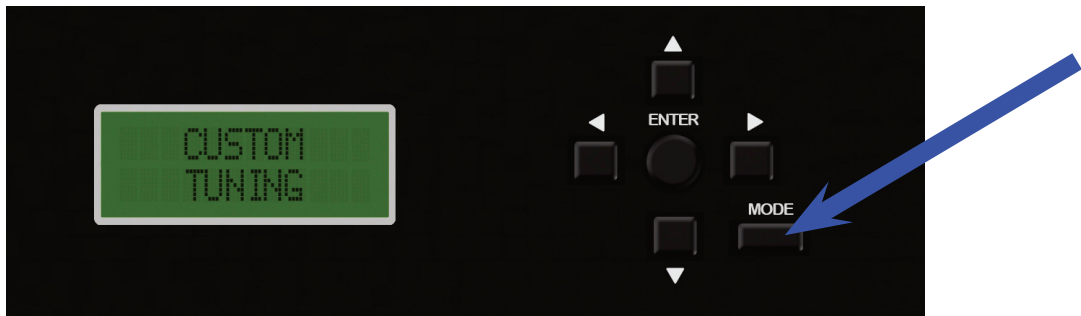


TIME CORRECTION

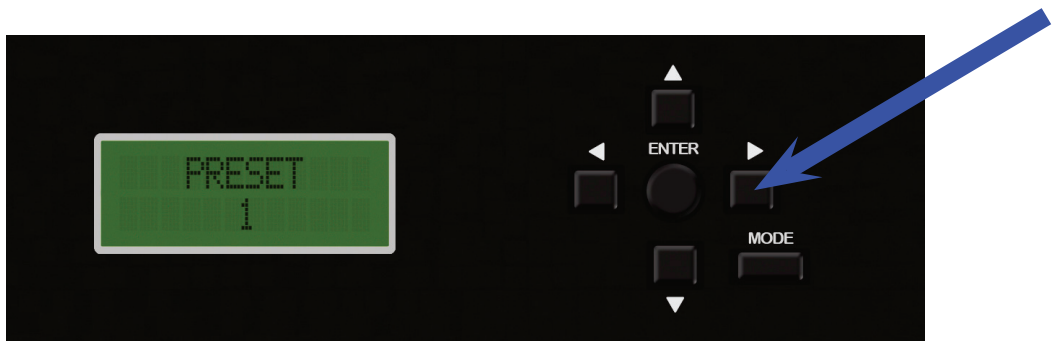
MultEQ determines the default delay during initial Setup. However, there may be times when the delay needs to be tweaked or temporarily modified. Be advised, any changes made causes deviation from the MultEQ default specs and no longer conforms to its ideal sound stage. All channels have delays adjustable from 0 to 10ms in 0.1ms steps.

Time Delay

1. Press MODE twice to enter Custom Tuning mode.

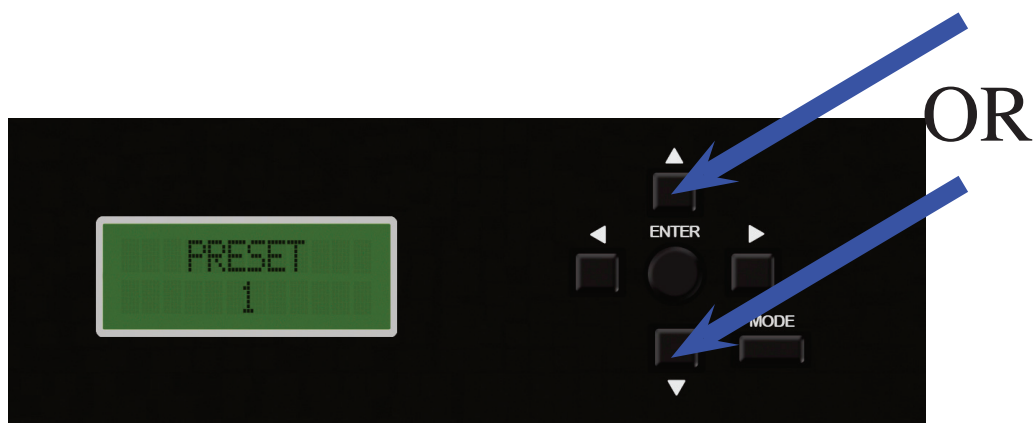


2. Press ► to get "PRESET 1" in the display.

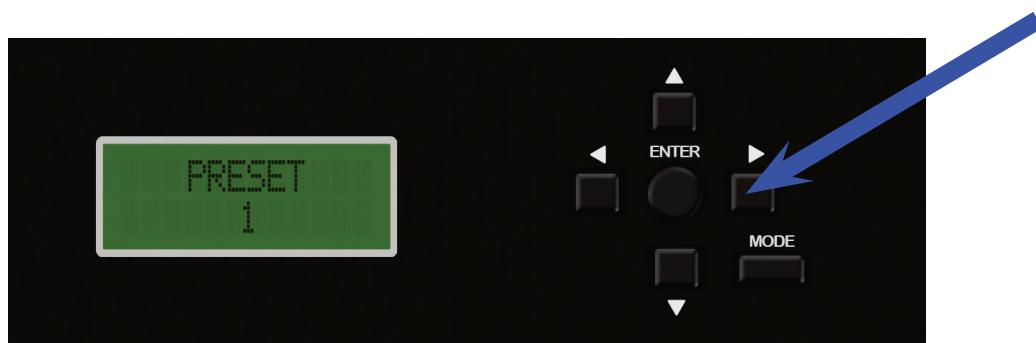


TIME CORRECTION

- Use the ▼ or ▲ buttons to choose between PRESET 1, PRESET 2, CUSTOM EQ AUX, and CUSTOM EQ HU. PRESET 1 refers to the Primary Mic position. PRESET 2 refers to the Secondary position. In this example PRESET 1 is selected.



- PRESET 1 refers to the Primary Mic position. PRESET 2 refers to the Secondary position.
 - Upon making the Mic Position selection, use the ► button to move to the next selection mode.
- * Use the ◀ button to return to the PRESET selection mode.



TIME CORRECTION

c) Use the ▼ or ▲ buttons to choose TIME DELAY.



d) Press the ► button to move to the Channel selection mode.



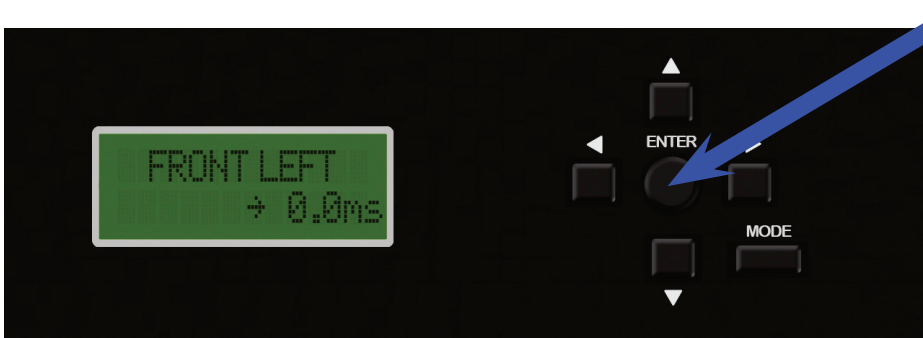
e) Use the ▼ or ▲ buttons to select a Channel to modify (FRONT LEFT, FRONT RIGHT, REAR LEFT, REAR RIGHT, SUBWOOFER). Use the ◀ button to return to the PRESET selection mode.



TIME CORRECTION

4. Time Correction

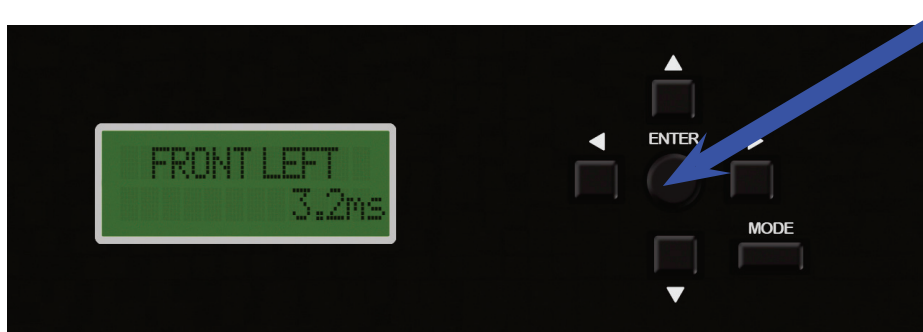
- a) With the desired channel selected, press ENTER. An arrow will appear indicating the parameter can be adjusted.



- b) Use the ▼ or ▲ buttons to change the delay (from 0 to 10ms) for each channel.

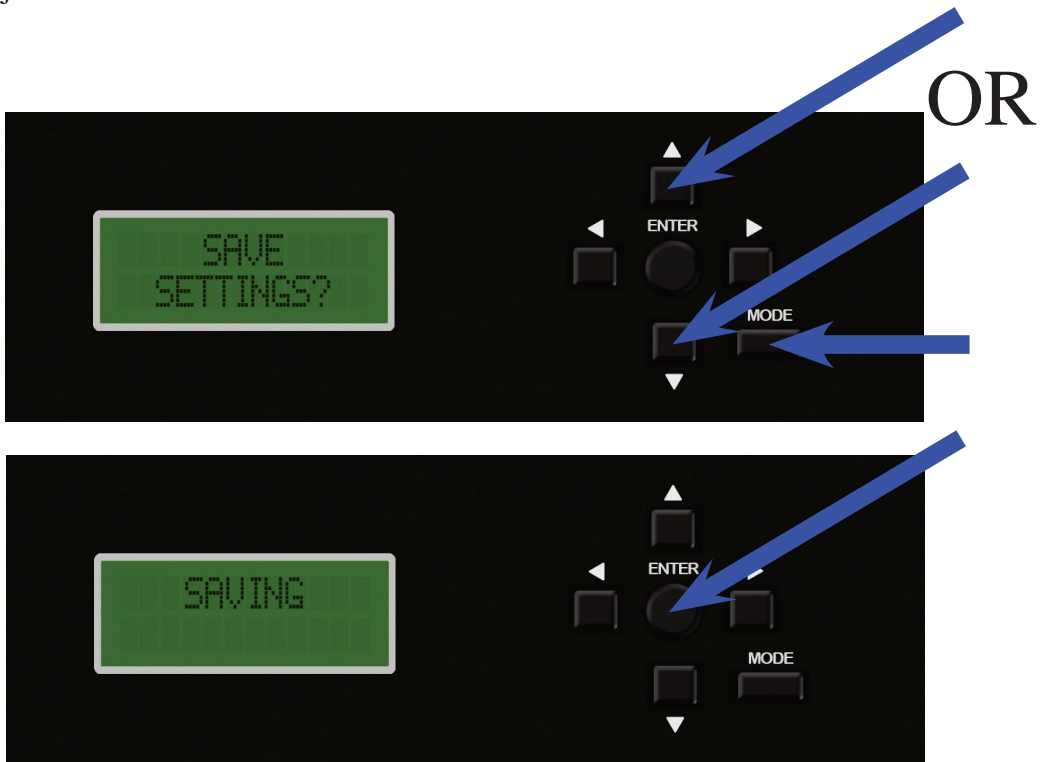


- c) Upon completing the adjustment, press ENTER. The arrow will disappear to, indicating the parameter can no longer be changed.



TIME CORRECTION

- d) Upon completing the adjustment, press the MODE button twice to exit the menu. Use the ▼ or ▲ button to scroll to "SAVE SETTINGS" to store changes into non-volatile memory. This will keep the settings safe in case +12V constant is removed from the PXE-H660. Press ENTER to continue with the save. The MODE button can be used at any point, to return to the previous sub-menu. to make additional adjustments.

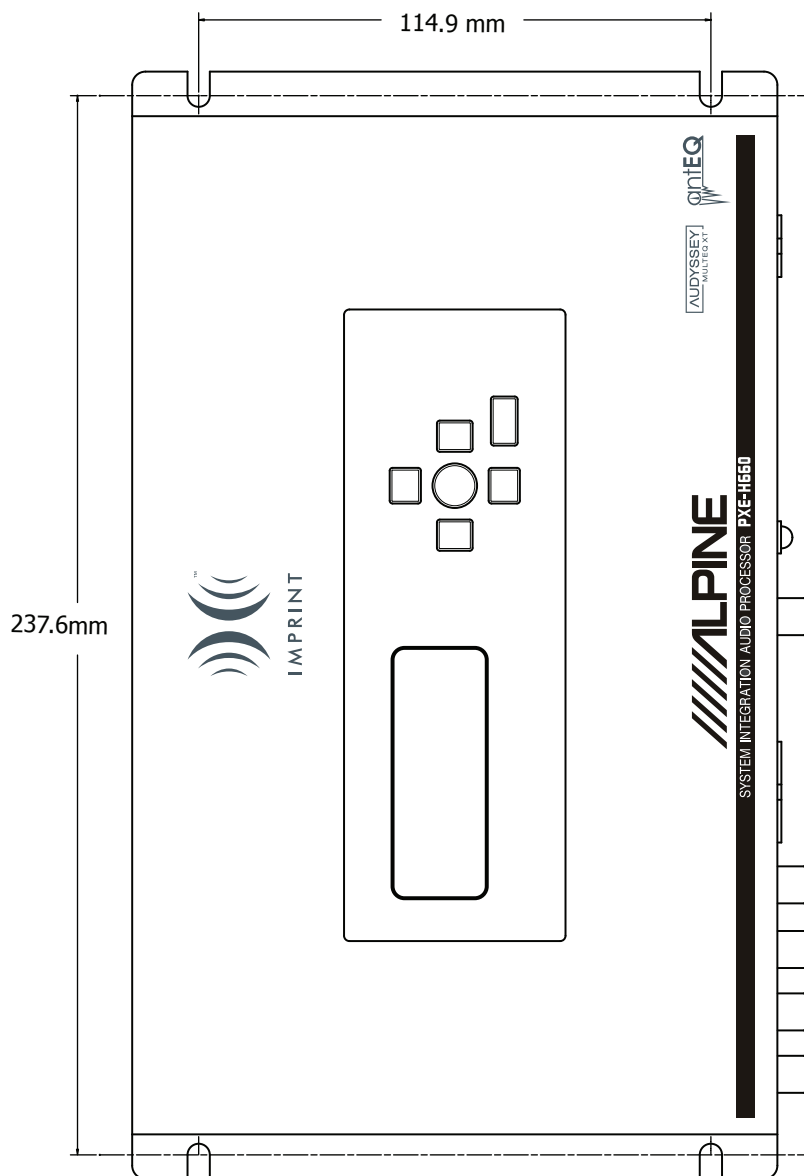


TIME CORRECTION VIDEO

Click to watch setup video. Be sure the computers Adobe Acrobat Reader and Flash player programs are up to date. If you are using a Mac be sure to use the Adobe Reader and not the Preview program. Adobe Reader can be downloaded for free at www.adobe.com.



MOUNTING



ADJUSTMENTS & RANGES

3 Band Parametric

Q	0.5 to 2 (0.5 steps)
Level	-6 to +6 dB (1 dB steps)
Bass Frequency	Fc = 30, 40, 50, 60, 80, 100, 125, 150 Hz
Mid.....	Fc = 0.5, 0.75, 1.0, 1.5, 2.0, 3.0, 4.0, 5.0 kHz
Treble	Fc = 5, 6, 7.5, 10, 12.5, 15, 17.5 kHz

Digital Crossovers 2-Way

High Pass (@ -12 dB/oct)

F1	200, 220, 250, 280, 315, 360, 400, 450, 500, 560, 630, 710, 800, 900, 1k
.....	1.2k, 1.4k, 1.6k, 1.8k, 2k, 2.2k, 2.5k, 2.8k, 3.2k, 3.6k, 4k, 4.5k, 5k Hz
F2 ...	40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200 Hz
R.....	40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200 Hz

Low Pass (@ -12 dB/oct)

F2	200, 220, 250, 280, 315, 360, 400, 450, 500, 560, 630, 710, 800, 900, 1k
.....	1.2k, 1.4k, 1.6k, 1.8k, 2k, 2.2k, 2.5k, 2.8k, 3.2k, 3.6k, 4k, 4.5k, 5k Hz

..... Normal (Full Range)

High Pass (@ -12 dB/oct)

F2 ...	40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200 Hz
R.....	40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200 Hz

Subwoofer (@ -12/-24 dB/oct)

.....	40, 50, 60, 70, 80, 90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200 Hz
-------	--

General

User Memory	2 Presets
PC Control Interface	USB
Pre-amp Control	Volume/Balance/Fader/Sub Level
Source Select	HU (Factory)/AUX
Remote Turn-on	Automatic Input Signal Sensing
Turn-off Delay	30 seconds after power off

SPECIFICATIONS

Main Unit

Factory Radio Input	4.1 Channel Input (Line or Differential Input)
BTL	0.2 - 30 Vrms
Line	0.2 - 4.0 Vrms
Auxilliary Input	1
Normal	0.2 - 2.0 V rms
AFT = ON	0.4 - 4.0 V rms
Output	6.1 Channel Line Outputs
Impedance	<600Ω
Voltage	4.0 Vrms
THD (all Channels)	< 0.1% @ 1 kHz
Separation	> 60 dB
SNR ('A' weighted)	> 80 dB
General	
Power Requirement	12.0 VDC (11 –16 VDC allowable)
Idle Current (sleep)	< 5 mA
Operating Temperature	: +14 °F to +140 °F (-10 °C to + 60 °C)
Dimensions (W x D x H)	
Main Unit (chassis only)	252 x 38 x 149 mm (10 x 1-1/2 x 5-7/8 in.)
Weight	1.0 kg/35.3 oz.

Accessories

RUE-4266 Remote Control	x 1
Power Supply Connector	x 1
Speaker Input Connector	x 1
Microphone	x 1
IR Remote Sensor	x 1
Battery, 3V (CR2025)	x 1
Owner's Manual	x 1
Imprint Setup CD	x 1

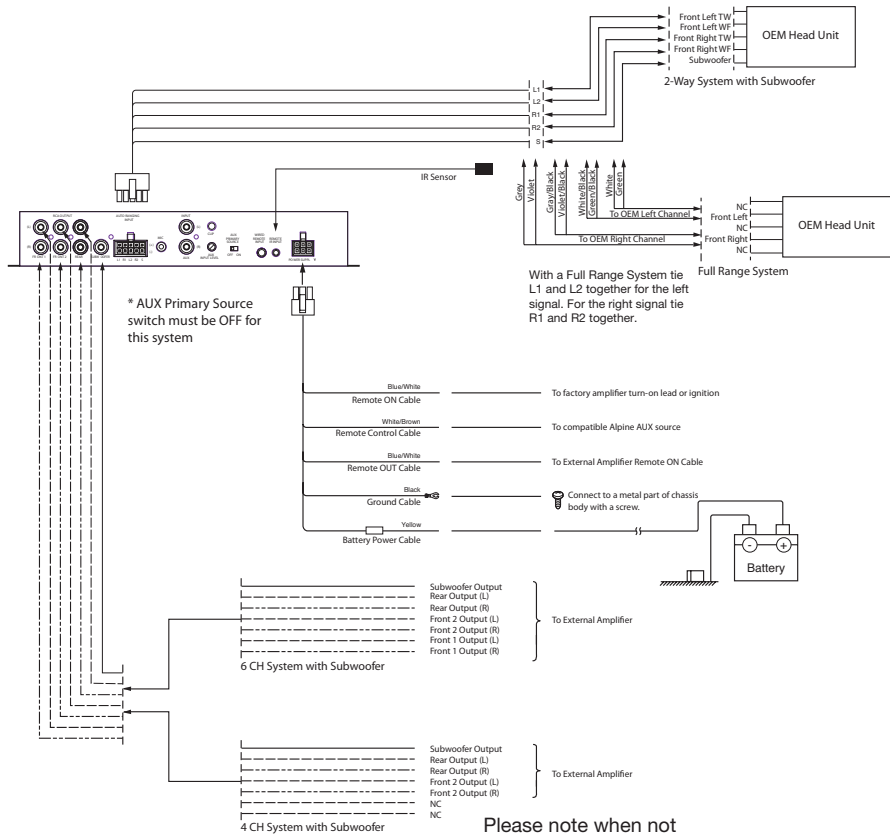
NOTES:

Due to continuous product improvements, specifications and design are subject to change without notice.

AntEQ™ and MultEQ® are registered trademarks.

TYPICAL SYSTEM DIAGRAMS

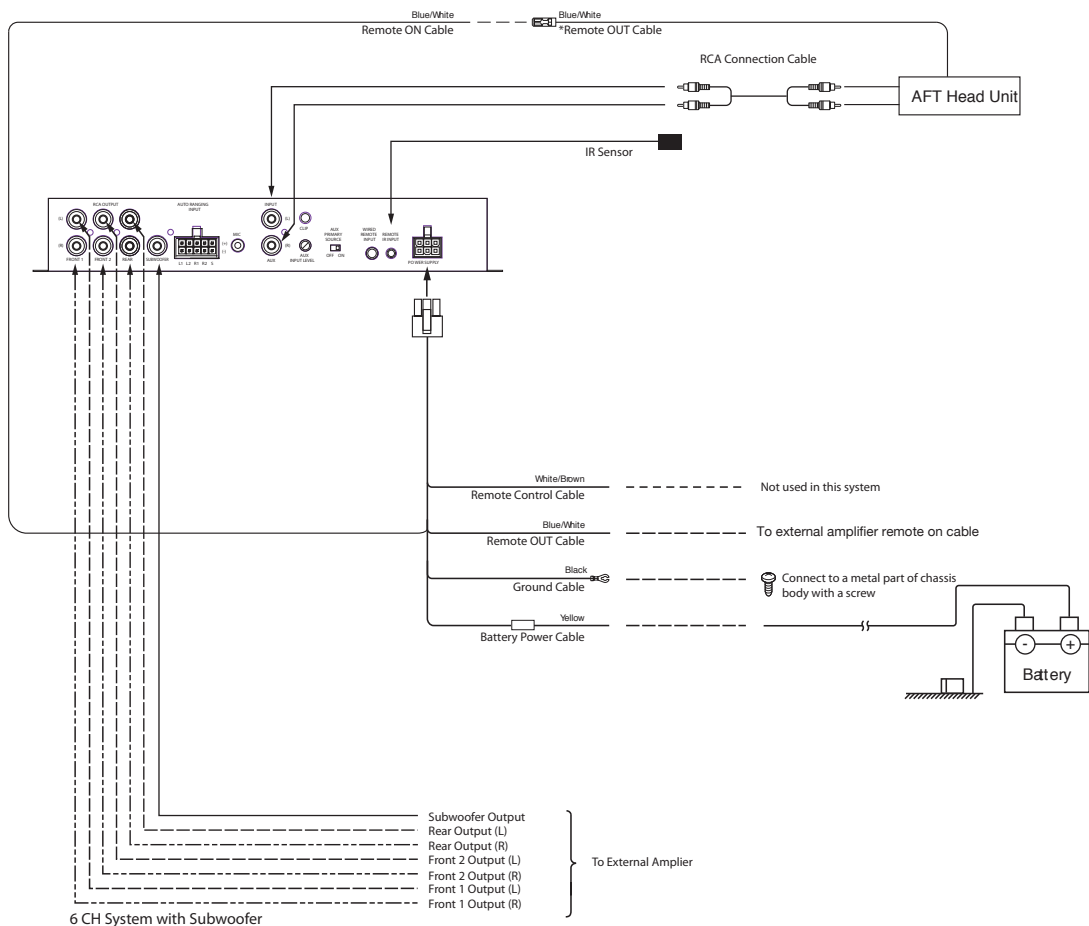
Typical OEM System



Please note when not bi-amping the front speakers, FRONT 2 is the set of outputs you use to go to the RCA inputs of the amp for mids & highs.

TYPICAL SYSTEM DIAGRAMS

Typical Aftermarket System



* AUX Primary Source switch must be ON for this system

LIMITED WARRANTY

ALPINE ELECTRONICS OF AMERICA, INC. AND ALPINE OF CANADA INC. ("Alpine"), are dedicated to quality craftsmanship and are pleased to offer this Warranty. We suggest that you read it thoroughly. Should you have any questions, please contact your Dealer or contact Alpine at one of the telephone numbers listed below.

● PRODUCTS COVERED:

This Warranty covers Car Audio Products and Related Accessories ("the product"). Products purchased in the Canada are covered only in the Canada. Products purchased in the U.S.A. are covered only in the U.S.A.

● LENGTH OF WARRANTY:

This Warranty is in effect for one year from the date of the first consumer purchase.

● WHO IS COVERED:

This Warranty only covers the original purchaser of the product, who must reside in the United States, Puerto Rico or Canada.

● WHAT IS COVERED:

This Warranty covers defects in materials or workmanship (parts and labor) in the product.

● WHAT IS NOT COVERED:

This Warranty does not cover the following:

- ① Damage occurring during shipment of the product to Alpine for repair (claims must be presented to the carrier).
- ② Damage caused by accident or abuse, including burned voice coils caused by over-driving the speaker (amplifier level is turned up and driven into distortion or clipping). Speaker mechanical failure (e.g. punctures, tears or rips). Cracked or damaged LCD panels. Dropped or damaged hard drives.
- ③ Damage caused by negligence, misuse, improper operation or failure to follow instructions contained in the Owner's manual.
- ④ Damage caused by act of God, including without limitation, earthquake, fire, flood, storms or other acts of nature. Any cost or expense related to the removal or reinstallation of the product.
- ⑤ Service performed by an unauthorized person, company or association.
- ⑥ Any product which has the serial number defaced, altered or removed.
- ⑦ Any product which has been adjusted, altered or modified without Alpine's consent.
- ⑧ Any product not distributed by Alpine within the United States, Puerto Rico or Canada.
- ⑨ Any product not purchased from an Authorized Alpine Dealer.

● HOW TO OBTAIN WARRANTY SERVICE:

- ① You are responsible for delivery of the product to an Authorized Alpine Service Center or Alpine for repair and for payment of any initial shipping charges. Alpine will, at its option, repair or replace the product with a new or reconditioned product without charge. If the repairs are covered by the warranty, and if the product was shipped to an Authorized Alpine Service Center or Alpine, Alpine will pay the return shipping charges.
- ② You should provide a detailed description of the problem(s) for which service is required.

- ③ You must supply proof of your purchase of the product.

- ④ You must package the product securely to avoid damage during shipment. To prevent lost packages it is recommended to use a carrier that provides a tracking service.

● HOW WE LIMIT IMPLIED WARRANTIES:

ANY IMPLIED WARRANTIES INCLUDING FITNESS FOR USE AND MERCHANTABILITY ARE LIMITED IN DURATION TO THE PERIOD OF THE EXPRESS WARRANTY SET FORTH ABOVE AND NO PERSON IS AUTHORIZED TO ASSUME FOR ALPINE ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF THE PRODUCT.

● HOW WE EXCLUDE CERTAIN DAMAGES:

ALPINE EXPRESSLY DISCLAIMS LIABILITY FOR INCIDENTAL AND CONSEQUENTIAL DAMAGES CAUSED BY THE PRODUCT. THE TERM "INCIDENTAL DAMAGES" REFERS TO EXPENSES OF TRANSPORTING THE PRODUCT TO THE ALPINE SERVICE CENTER, LOSS OF THE ORIGINAL PURCHASER'S TIME, LOSS OF THE USE OF THE PRODUCT, BUS FARES, CAR RENTALS OR OTHERS COSTS RELATING TO THE CARE AND CUSTODY OF THE PRODUCT. THE TERM "CONSEQUENTIAL DAMAGES" REFERS TO THE COST OF REPAIRING OR REPLACING OTHER PROPERTY WHICH IS DAMAGED WHEN THIS PRODUCT DOES NOT WORK PROPERLY. THE REMEDIES PROVIDED UNDER THIS WARRANTY ARE EXCLUSIVE AND IN LIEU OF ALL OTHERS.

● HOW STATE/PROVINCIAL LAW RELATES TO THE WARRANTY:

This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state and province to province. In addition, some states/provinces do not allow limitations on how long an implied warranty lasts, and some do not allow the exclusion or limitation of incidental or consequential damages. Accordingly, limitations as to these matters contained herein may not apply to you.

● IN CANADA ONLY:

This Warranty is not valid unless your Alpine car audio product has been installed in your vehicle by an Authorized Installation Center, and this warranty stamped upon installation by the installation center.

● HOW TO CONTACT CUSTOMER SERVICE:

Should the product require service, please call the following number for your nearest Authorized Alpine Service Center.

CAR AUDIO	1-800-ALPINE-1 (1-800-257-4631)
NAVIGATION	1-888-NAV-HELP (1-888-628-4357)

Or visit our website at: <http://www.alpine-usa.com>

ALPINE ELECTRONICS OF AMERICA, INC., 19145 Gramercy Place, Torrance, California 90501, U.S.A.

ALPINE ELECTRONICS OF CANADA, INC., 777 Supertest Road, Toronto, Ontario M3J 2M9, Canada

Do not send products to these addresses.

Call the toll free telephone number or visit the website to locate a service center.



ALPINE ELECTRONICS, INC.
Tokyo office; 1-1-8 Nishi Gotanda,
Shinagawa-ku, Tokyo 141-8501, Japan
Tel.: (03) 3494-1101

ALPINE ELECTRONICS OF AMERICA, INC.
19145 Gramercy Place, Torrance,
California 90501, U.S.A.
Tel.: 1-800-ALPINE1 (1-800-257-4631)
1-888-NAV-HELP (1-888-628-4357)

ALPINE ELECTRONICS OF CANADA, INC.
Suite 203, 7300 Warden Ave. Markham, Ontario
L3R 9Z6, Canada
Tel.: 1-800-ALPINE1 (1-800-257-4631)

ALPINE ELECTRONICS OF AUSTRALIA PTY. LTD.
6-8 Fiveways Boulevard Keysborough Victoria 3173,
Australia
Tel.: (03) 9769-0000

ALPINE ELECTRONICS GmbH
Kreuzerkamp 7-11 40878 Ratingen, Germany
Tel.: 02102-45 50

ALPINE ITALIA S.p.A.
Via C.Colombo 8, 20090 Trezzano
Sul Naviglio MI, Italy
Tel.: 02-48 47 81

ALPINE ELECTRONICS FRANCE S.A.R.L.
98, Rue De La Belle Etoile, Z.I. Paris Nord II B.P.50016
F-95945, Roissy, Charles De Gaulle Cedex, France
Tel.: 01-48 63 89 89

ALPINE ELECTRONICS OF U.K., LTD.
13 Tanners Drive, Blakelands,
Milton keynes MK14 5BU, U.K.
Tel.: 01908-61 15 56

ALPINE ELECTRONICS DE ESPAÑA, S.A.
Portal De Gamarra 36, Pabollón 32
01013 Vitoria(Alava)-Apdo. 133, Spain
Tel.: 34-45-283588