ARC AUDIO

DXE

DIGITAL CROSSOVER EQUALIZER

MANUAL AND USER GUIDE

DXE

DIGITAL HYBRID EQ/CROSSOVER

- FULLY BALANCED SIGNAL FROM HEAD UNIT TO CONTROL UNIT.
- GREEN DOT MATRIX DISPLAY REMOTE CONTROLLER.
- DUAL INPUT.
- 5 BAND PARAMETRIC EQ.
- MICROPROCESSOR CONTROLLED.
- 12/24 DB HIGH PASS CROSSOVER.
- 3 STEREO PLUS SUMMED SUB AND CENTER OUTPUTS.
- 12/24/48 DB SUB CROSSOVER.

DXE Manual

Table of Contents

Introduction

Welcome to the Arc Audio family of performance signal processors. A blend of Arc Audio's lengthy experience in performance car audio design combined with the legendary engineering skills of Robert Zeff and the staff at Nikola Engineering. You are now the proud owner of the long anticipated DXE, A unique combination of the highest quality analog EQ-crossover and precision digital control we call **Digital Hybrid**. Whether you are a competitor or simply enjoy faithfully reproduced music, you will definitely appreciate how the DXE makes your system sound.

This component isn't the easiest to understand and use. It requires a good understanding of audio and the terms and language used to describe it. You don't have to be a genius but a bit of experience and common sense will go a long way.

This manual is written in two parts **Installation** and **Configuration/Tuning**. Before you begin find and complete the "System Configuration Worksheet" (make a bunch of copies) included in this manual. Carefully design your system and decide on your basic crossover points. This will give you a good starting point and a reference to return to when you begin final tuning. If at any point you begin to feel overwhelmed, return to your local Arc Audio dealer and let the trained professionals install or tune it for you.

Active 4 Way

This example is loaded into Preset 4

HP
Tweeters
High Pass
12db/24db
2500Hz - 5000Hz
Front

X3
Mid
Band Pass
High 2500Hz - 5000Hz
Low 250Hz - 400Hz
Front

X2
Mid Bass
Band Pass
High 250Hz - 400Hz
Low 55Hz - 150Hz
Front

Sub
12db/24db/48db
50Hz - 100Hz
Front
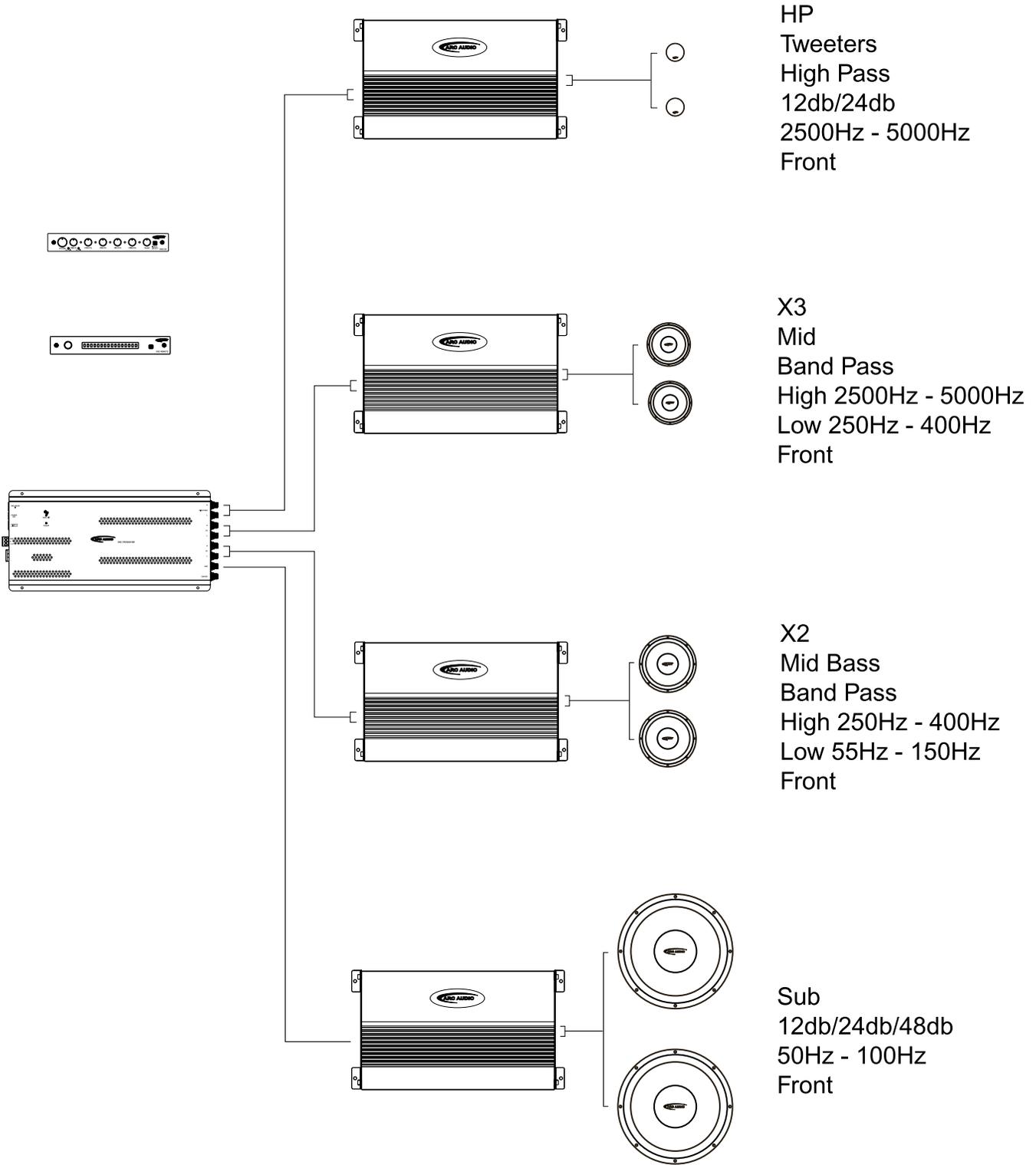
Active & Passive 4 Way W/Rear Fill

This example is loaded into Preset 5

HP
Tweeters
High Pass
12db/24db
250Hz - 500Hz
Front

X3
Mid/Mid Bass
Band Pass
High 250Hz - 500Hz
Low 55Hz - 120Hz
Front

X2
Rear Fill
Componant or Coax
High Pass
115Hz - 200Hz
Rear

Rear Fill Optional

Sub
12db/24db/48db
50Hz - 100Hz
Front+Rear
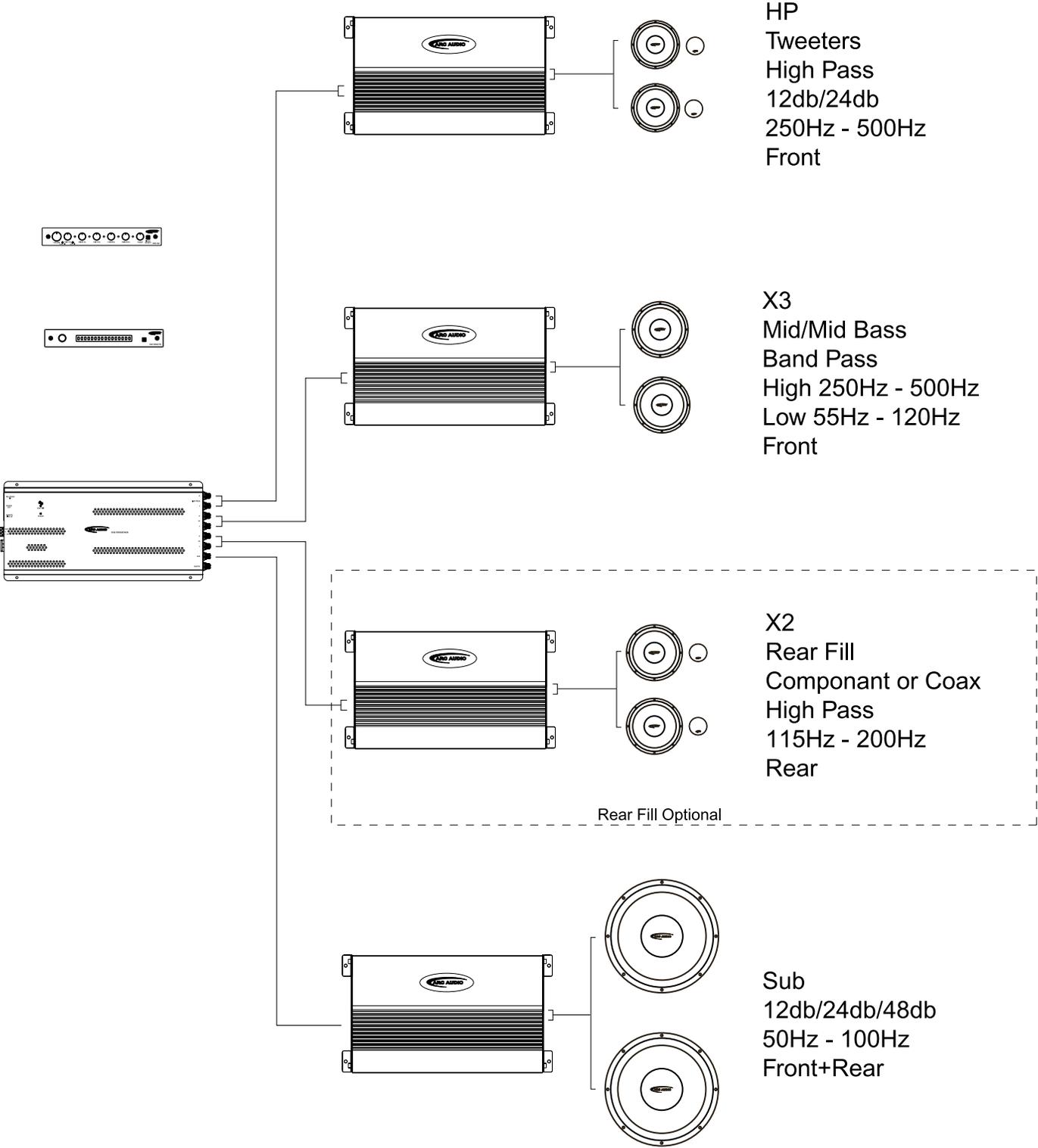
Configuration and Tuning

High Pass Crossover

>12dB/24dB pre octave.
>16Hz – 7100Hz
>12dB/24dB Per Octave Stereo

Crossover Frequency

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Frequency Menu.

>Tap the Select button until you reach the HP: (High Pass) Frequency.

>>Turn the knob either direction to raise or lower the Frequency.

Crossover Slope Adjustments

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Range Menu.

>Tap the Select button until you reach the HP Slope:

>>Turn the knob either direction to select 12dB or 24dB.

High Range Option

For Very High Frequency crossover points;

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Range Menu.

>Tap the Select button until you reach the HP Range:

>Turn the knob either direction to Select High (167Hz – 7100Hz) or Low (16Hz – 710Hz.

Gain Adjustments

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Gain Menu.

>Tap the Select button until you reach the HP Level:

>>Turn the knob either direction to increase or decrease the Gain.

Source Assignment

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Source Menu.

>Tap the Select button until you reach the HP SRC:

>>Turn the knob either direction to set the High Pass as Front or Rear.

Crossover 3 (X3)

High Pass = 167Hz-7100Hz
Low Pass = 167Hz-7011Hz
Band Pass High=167Hz-7100Hz
Band Pass Low= 16Hz-710Hz
12dB per Octave

Crossover Mode

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Range Menu.

Tap the Select button until you reach the X3 Mode:

Turn the knob either direction to Select; HIGH, LOW, BAND or FULL

Crossover Frequency

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Frequency Menu.

Tap the Select button until you reach the X3 HP: (High Pass) or X3 LP: (Low Pass)
Frequency.

Turn the knob either direction to raise or lower the Frequency.

Note: In High Pass or Low Pass the Band Pass frequency option will not be available for adjustment.

Band Pass Mode Frequency Adjustment

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Frequency Menu.

Tap the Select button until you reach the X3 Hi :

Turn the knob either direction to raise or lower the Frequency.

Note: This will adjust the point this crossover begins to filter out the High Frequencies.

Tap the Select button until you reach the X3 Low:

Turn the knob either direction to raise or lower the Frequency.

Note: This will adjust the point this crossover begins to filter out the Low Frequencies.

Gain Adjustments

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Gain Menu.

Tap the Select button until you reach the X3 Level:

Turn the knob either direction to increase or decrease the Gain.

Source Assignment

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Source Menu.

Tap the Select button until you reach the X3 SRC:

Turn the knob either direction to set the High Pass as Front or Rear.

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Crossover 2 (X2)

High Pass = 115Hz-4900Hz
Low Pass = 115Hz-4900Hz
Band Pass Low= 16Hz-710Hz
Band Pass High=115Hz-4900Hz
12dB per Octave

Crossover Mode;

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Range Menu.

Tap the Select button until you reach the X2 Mode:

Turn the knob either direction to Select; HIGH, LOW, BAND or FULL

Crossover Frequency

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Frequency Menu.

Tap the Select button until you reach the X2 HP: (High Pass) or X2 LP: (Low Pass)
Frequency.

Turn the knob either direction to raise or lower the Frequency.

Note: In High Pass or Low Pass the Band Pass frequency option will not be available for adjustment.

Band Pass Mode Frequency Adjustment

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Frequency Menu.

Tap the Select button until you reach the X2 Hi:

Turn the knob either direction to raise or lower the Frequency.

Note: This will adjust the point this crossover begins to filter out the High Frequencies.

Tap the Select button until you reach the X2 Low:

Turn the knob either direction to raise or lower the Frequency.

Note: This will adjust the point this crossover begins to filter out the Low Frequencies.

Gain Adjustments

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Gain Menu.

Tap the Select button until you reach the X2 Level:

Turn the knob either direction to increase or decrease the Gain.

Source Assignment

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Source Menu.

Tap the Select button until you reach the X2 SRC:

Turn the knob either direction to set the High Pass as Front or Rear.

The DXE Menus

Sub Crossover

12dB/24dB/48dB mono
4Hz – 152Hz

Crossover Frequency

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Frequency Menu.

Tap the Select button until you reach the Sub: (Subwoofer) Frequency.

Turn the knob either direction to raise or lower the Frequency.

Crossover Slope Adjustments

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Range Menu.

Tap the Select button until you reach the Sub Slope:

Turn the knob either direction to select 12dB, 24dB, 48dB or Full.

Adjustable Phase

To reverse the Phase of the Sub Output;

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Range Menu.

Tap the Select button until you reach the Sub Phase:

Turn the knob either direction to Select 0 or 180.

Gain Adjustments

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Gain Menu.

Tap the Select button until you reach the Sub Level:

Turn the knob either direction to increase or decrease the Gain.

Source Assignment

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the Source Menu.

Tap the Select button until you reach the Sub:

Turn the knob either direction to set the Sub output as Front, Rear or Front+ Rear.

Note: Front+ Rear *is non-fading but you will notice a slight lose of output as you fade. This is to compensate for the lose of output when the front or rear speakers are turned down.*

To Change the Presets,

The DXE has six memory presets. With six different system configurations, almost anything is possible.

Hold the Select button for 2 seconds to advance to the next menu. Repeat this step until you get to the `Presets` menu.

Turn the knob either direction to select the `Preset` you wish.

Tap the Select button to Recall the setting saved in this `Preset.`

Note: No need to save your settings before you e xit. They will be saved automatically

Personal Options Menu

Hold down the select button while you turn the unit on.

Use the knob to select from the following options.
```
Splash Screen
Credits
VER. 1.00
Factory Defaults
```

To Change the (Welcome) `Splash Screen`

Hold down the select button while you turn the unit on.

Use the knob to move between letters.

When you have the letter you wish to change highlighted push the button to select it.

Turn the knob up or down to change the letter.

Push the knob to set the new letter in place

Use the knob to move to the next letter.

When you are finished push and hold the button for 2 seconds to return to the Crossover menus.

Factory Default

In the event that the unit should stop responding to commands or b ecome unstable you can reset the processor by using the `Factory Defaults` command.

Software Version Information

This menu provides the Software version and date coding information. This information may be necessary to receive service.

The DXE Menus

```
1:  Freq Menu                          The Frequency Menu adjusts all the
     1:  Sub:  65.4 Hz                 crossover points that are available in
     2:  X2 HP 0115 Hz                 the current configuration.
     3:  X2 (HP)
     4:  X3 Hi:  3508 Hz               In this example X2 is in high pass so
     5:  X3 Low:  0075 Hz              the Low frequency is not displayed.
     6:  HP:  3508 Hz RH


2:  Gain Menu                          All output gains are adjusted here.
     X2 Level:    -04dB                The Sub Level has a +10db boost.
     X3 Level:    -00dB                All the remaining output level range
     Ctr level:  -90dB                 from –90dB to –00dB.
     Sub Level:  +10dB
     HP Level:    -00dB


3:  Range menu                         In the Range Menu you select
     X2 Mode:  High                    crossover types and slopes. You can
     X3 Mode:  Band                    also change the sub phase 0 or 180.
     Sub Slope:  24dB
     HP Slope:  24dB
     Sub Phase:  0
     HP Range:  High


4:  Source menu                        Select Front or Rear output. This
     X2 SRC:  REAR                     sets the fader control from the EQ.
     X3 SRC:  FRONT                    Only the Sub channel has the
     SUB FRONT+REAR                    Front + Rear option.
     HP SRC:  FRONT


5:  Preset: 2                          To change to a new preset turn the
                                       rotate the knob to bring up the preset
                                       you wish to use then just tap the
                                       button once.

                                       When the menu changes the old
                                       settings will be saved automatically.
```

Specifications

Max input level	8 volts RMS
Input sensitivity	8V (0 dB), 2V (10 dB), 700mV(20 dB)
Max output level	10 volts RMS
Input impedance	47.5 K ohm
Minimum output impedance	600 ohms
Harmonic distortion + Noise	< .005
Frequency response	+-.2dB
Separation At 1 KHz "A" weighted	> 78 dB
Signal to Noise "A" weighted	> 108 dB
5 Filters with +-15 dB at	20Hz-50Hz with Q of 2
	50Hz-100Hz with Q of 1.4
	100Hz-1Khz wit Q of 1.1
	1KHz-10KHz with Q of 1.1
	10KHz-20KHz with Q of 1.1
Current requirements.	1.2 amps

LIMITED WARRANTY

Before shipping this product back for service call for a Return Authorization number. This number must be clearly marked on the outside of the box.

Terms & Conditions: **ARC Audio** **warranties the unit to be free of any material defects or defects in workmanship for a period of one year and will repair or replace at our discretion; this unit or any part thereof only if it proves to be defective as a result of normal use. In order to receive warranty service on this product, the owner must promptly register by filling in and mailing the Warranty Registration Card.**

Our obligation under this warranty is limited to repairing only the defective components of the unit thereof when it is returned, shipping prepaid, to ARC Audio.

This warranty is to be considered void if the unit has been tampered with, connected contrary to the installation instructions in the owner's manual, altered, damaged by improper input voltages or polarity, defaced, or treated in a negligent manner.

All returns must be sent freight prepaid, along with $10.00 to cover return shipping and handling.

Out of warranty service is available after the warranty expires. Cost of repair is based on current repair labor rates, plus the cost of shipping and handling. When returning for repair, pack the unit securely and send prepaid and insured to the address below. ARC Audio is not responsible for damage incurred during shipping.

For warranty and non-warranty repairs, send to:

ARC Audio
4719 Green Leaf Cr. #4
Modesto CA, 95356

WWW.Arcaudio.com

Features:

1. Fully balanced signal from EQ unit to Crossover.
2. Green dot matrix display remote controller for setting output levels, crossover range and configuration of control unit.
3. Front-Rear fader.
4. Back lit knobs (Blue).
5. Dual input.
6. Five filters with adjustable center frequency.
7. Selectable input gain.
8. Microprocessor controlled.
9. 12/24 high pass output.
10. Two 12 dB band pass crossovers.
11. Full range summed center channel.
12. Summed Sub out with 10 dB of gain (bass Boost).
13. Sub Crossover has 12,24,48 dB and full options. 0 or 180 phase switch on sub out.
14. High pass, Sub, Bandpass 1&2 are addressable to front or rear Fader outputs.
15. Low noise NE5532 IC's
16. Digitally controlled potentiometers and analog switches.

Parametric Equalization Controls:
The DXE includes a fully adjustable parametric equalizer. With a parametric EQ you can select a center frequency, and apply the appropriate amount of boost or cut.

Digital-Hybrid Four-way Crossover:
With digital control, the four-way electronic crossover in the DXE easily configures to optimize almost any audio system. By simply pressing a few buttons, you can select almost any crossover frequency imaginable. This state-of-the-art crossover offers the greatest flexibility available in an analog crossover.

Non-volatile memories: The DXE has the ability to allow the user to set and store up to six different crossover profiles in individual memory locations. This memory is completely non-volatile, meaning you will never loose your setting even if the unit is disconnected from power for a prolonged period of time.

INSTALLATION INFORMATION

1. The DXE needs to be installed in the signal path between your source unit and your external amplifier(s).

2. Physically mount the DXE in a location that keeps it clean, cool, and dry. Don't mount it under a cup holder or in a storage box were it will be covered with the stuff that always seems to collect in our cars.

3. Hook up +12 volt power, ground, and remote turn-on. Make sure the ground is perfectly clean and tight. Remove all the paint and under coat before you screw it down.

4. Install the Crossover controller. This is optional. It can be temporarily installed for tuning and then remove it when you're complete.

5. Install the EQ Section into the dashboard or some other convenient location. Don't fix it permanently into place until your gains have been set.

6. Adjust the "Input Level" control on your DXE to match the source unit's output. With the head unit volume at about 75% of max, move the gain switch from 0dB to +6 dB. Look at the input clip light on the front of the EQ. It should NOT be on. It may flash occasionally. If it doesn't flash, move the gains to +12dB. Unless you have a very low output head unit the clip light will surely be flashing now. If it is move back to +6dB or +0dB.

7. Adjust the "Output Level" controls in the gain menu to match with your amplifier inputs. The system may already be very loud. It is not uncommon to use more gain on some amps. This is to compensate for the differences in speaker efficiency. Note: You will want to turn the gains on your amplifiers DOWN to maximize your systems performance.

8. Complete the "System Design Worksheet" This will be you greatest asset during system tuning

9. Enter your system setting from the worksheet. These are just a starting point. For convenience the example systems shown in this manual have been pre-loaded into the crossover. If you find one that suits your needs simply load the required preset and begin final tuning.

10. Now the fun begins with the display close by start tweaking. It's amazing how much a tiny adjustment to your crossover frequency can change your system.

11. If at some point you feel you're going nuts or can't hear any difference you have become fatigued. Just stop, your setting will automatically be saved to memory.

The Connections and Controls

The Front Panel

5. **Master Volume Level Control:** DXE has the ability to control the volume of your system including both inputs. This offers you control over sources like DVD players that do not have a volume control.

6. **Preamp Clip Indicator:** This LED light indicates that you are supplying the DXE its maximum amount of signal voltage. If the LED indicator never comes on, don't assume that it is not working (since LED's rarely break) but you might consider giving it a bit more input.

7. **EQ Clip Indicator:** This convenient LED indicates when the equalizer of your DXE is clipping or distorting. The usual cause of this is having the Input Level turned up too high or you have boosted too many frequencies on your equalizer.

8. **EQ Controls:** The small hole adjusts the frequency center. This really allows you to dial in your system. Think of it as having each EQ control built custom for your car.

9. **Fader**: The fader of the DXE can be assigned by the crossover to control any of the outputs. The Sub out can be assigned to Front, Rear or Front + Rear. This feature allows you to fade front or back without losing bass.

10. **Input Select:** Select between input A or B. CD Player, Video system, Game console, Etc.
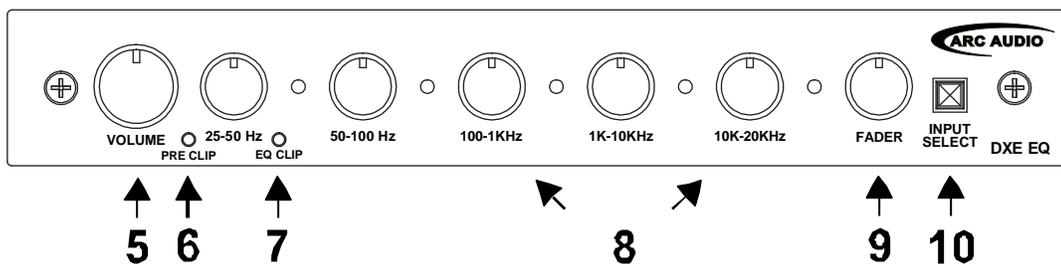
Back Panel

1. **Inputs:** The DXE has two RCA inputs that need to get their audio signals from the source units (CD Player and Video system). If your source unit has multiple outputs (like a front, rear, and/or subwoofer) you should only connect the front or rear outputs to your DXE.

2. **Input Levels:** These switches allow you to maximize the signal level from your source unit that goes into your DXE to achieve maximum signal to noise. Keep in mind, that despite what the literature says, most aftermarket source units produce a relatively low voltage signal when it comes to playing music at normal levels.

3. **Balanced Outputs:** This balanced line connector should be connected to the DXE crossover module, be careful to plug it into the right spot.

4. **Power Connection:** This connector looks like a Telephone cable. Well it is, but this removes the power supply from the EQ and moves it into the crossover were there is room to shield it properly. As a result you get much lower noise and no chance of ground loop.
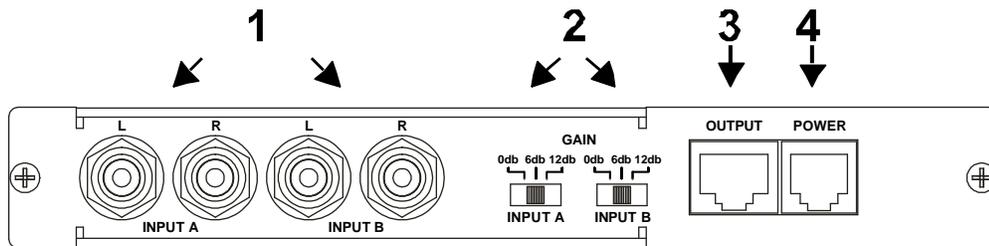
The Crossover Display

1. **The Plug:** This is a 10-pin flat wire cable. Do Not mistake it for the 8 pin Balanced Line cable. It won't work.

2. **The Knob:** This is a rotary encoder. All adjustments to the crossover are made here. It doesn't have a stop. It will keep turning until your fingers get tired.

3. **16 Character Display:** All your crossover information is displayed here. The menus are designed to be simple to understand but with only 16 characters to work with we had to abbreviate.

4. **Menu Select Button:** Use this Button to switch between menus and selections. Holding the button down for 2 seconds will switch to the next menu group. A quick push tap will select a new menu item.

1

2   **3**   **4**
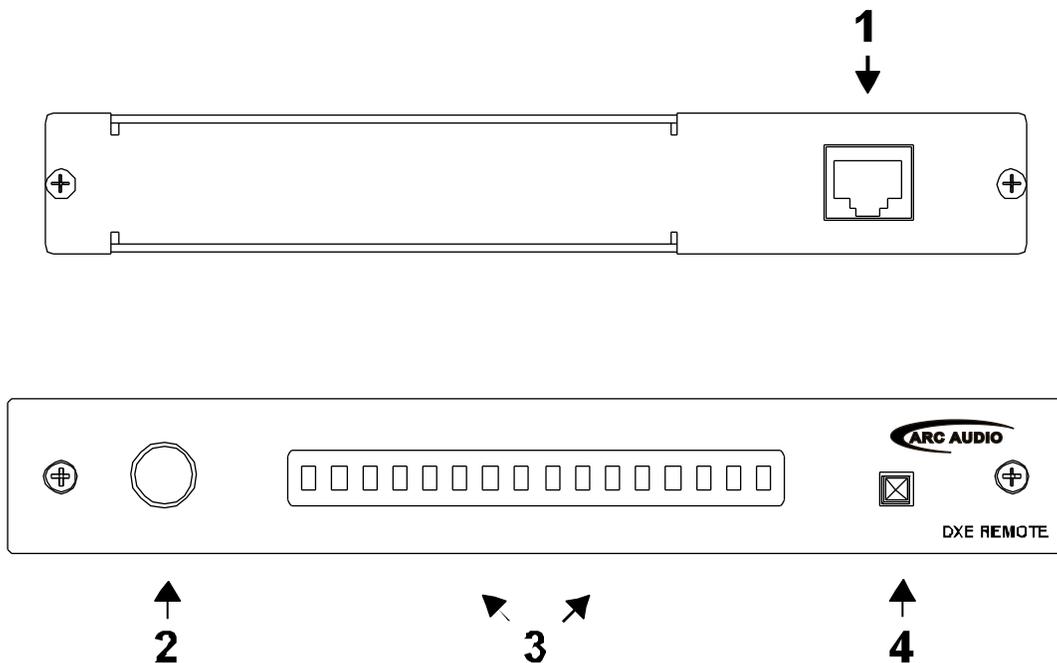
DXE Crossover

1. **Balanced Input:** This balanced line connector should be connected to the DXE Equalizer, Be careful to plug it into the right spot. This cable will plug into the remote display port but this is a bad thing. Don't try it.

2. **Power Out:** This powers the EQ Section. If you are not getting any lights on your EQ check this connection.

3. **Remote Display:** This is a 10-pin flat wire cable. Do not mistake it for the 8 pin Balanced Line cable. It won't work.

4. **Power Connection:** Ground, Remote turn and 12 volt positive are connected at this plug. Do your self a favor. Wire the plug outside the car. This will save you a lot of trouble if the crossover is located in a hard to reach area.

5. **Fuse:** You should never replace this fuse with anything other then the recommended 3 amp fuse.

6. **High Pass Crossover Output:** This is a selectable 12dB/24dB Stereo crossover adjustable from 16Hz – 7100Hz

7. **Crossover 3:** X3 is a 12dB stereo crossover selectable as High Pass, Low Pass, Band Pass or Full Range, Fully adjustable to 7100Hz.

8. **Crossover 2:** X3 is a 12dB stereo crossover selectable as High Pass, Low Pass, Band Pass or Full Range, Fully adjustable to 4900Hz.

9. **Sub Crossover:** The Subwoofer crossover is selectable 12dB/24dB/24dB. Output is in Mono.

10. **Center Channel Output:** The center channel is an unprocessed mono (L+R) output. It has an adjustable level.
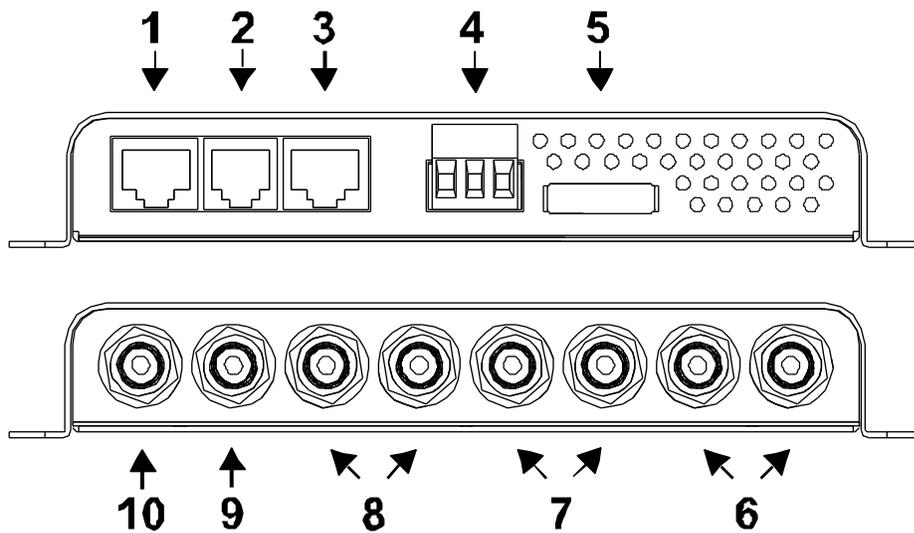
Active 2 Way W/Rear Fill

This example is loaded into Preset 2

HP
High Pass
Component or Coax
12db/24db
55Hz - 200Hz
Front

X2
Rear Fill
Component or Coax
High Pass
115Hz - 200Hz
Rear

Rear Fill Optional

Sub
12db/24db/48db
50Hz - 100Hz
Front+Rear
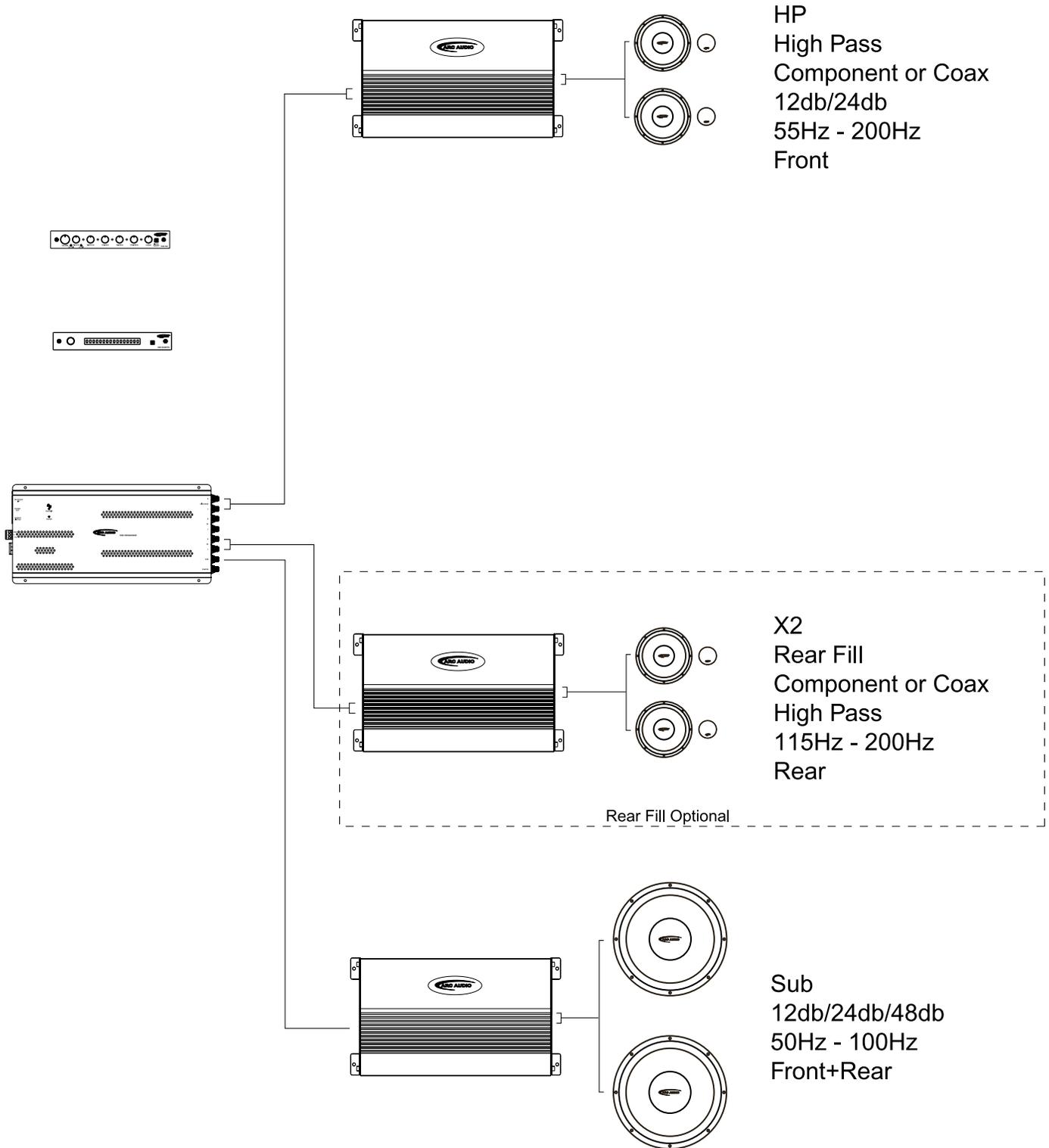
Active 3 Way W/Rear Fill

This example is loaded into Preset 3

HP
Tweeters
High Pass
12db/24db
2500Hz - 5000Hz
Front

X3
Mid/Mid Bass
Band Pass
High 2500Hz - 5000Hz
Low 55Hz - 120Hz
Front

X2
Rear Fill
Componant or Coax
High Pass
115Hz - 200Hz
Rear

Rear Fill Optional

Sub
12db/24db/48db
50Hz - 100Hz
Front+Rear