

MATRIX SPECIFICATIONS

All specifications are measured at 14.4 VDC (standard automotive voltage) As technology advances, AudioControl reserves the right to continuously change our specifications, like our weather.

Maximum input/output level	9.5Vrms/13V peak
Frequency response	10Hz-100kHz;±1dB
Total harmonic distortion	0.005%
Signal to Noise ratio	-110dB
Inputs/Outputs	2, 4, or 6
Input Impedance	20 K Ohms
Output impedance	50 Ohms
Output gain	- 12 dB to + 24 dB
PFM Subsonic Filter	33Hz/18 dB per octave
Power supply	Transformer isolated PWM DC/DC converter
Power draw	150mA
Recommended fuse rating	1 Amp
Size	8.5" x 6.25" x 1.15"
Weight	2.25 lbs

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This literature was conceived, designed, and written under the protective canopy of the lush, green, misty rain forest on a drizzly, gray overcast day at our home in the Pacific Northwest.

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P/N 9130580

A GUIDED TOUR OF THE MATRIX The Outside

1. Inputs: The Matrix will accept up to six channels of input signal which means it will work with source units that have six channels of output or it will accommodate three two-channel source units as in the case of multi-media. All of the inputs utilize a balanced differential input circuit, which can cancel noise that radiates into the signal path.

2. Input Level Control: These cool little knobs can increase or decrease the amount of signal sent downstream to your signal processors or amplifiers. With this control you can get up to 24 dB of gain(13 volts peak) or 12 dB of cut to maximize the amount of signal sent to your signal processors or amplifiers inputs. Before you start to crank them all of the way up, remember this: Most amplifiers can't handle input voltages over 3 volts without clipping. If in doubt, check with the amplifier manufacturer.

3. Outputs: The Matrix has six channels of low impedance output, which helps when you desire more output because you have too much input. Huh? What we mean is each pair of outputs on your Matrix has the strength and ability to drive more than just one amplifier. In fact, you can usually drive up to 7 amplifiers off of each pair of outputs, which means you have the possibility of driving 21 stereo amplifiers or even 42 mono amplifiers! Wow!

4. Power: If you see this one lighted, pat yourself on the back for properly connecting the power terminal.

5. Overload: When these lights flicker while music is playing, you're pushing the limit - nearing the redline - entering the danger zone. Try backing off on the Gain Control until it stops flickering.

MATRIX

Concert Series
Six Channel Line Driver
Owner's Enjoyment
Manual

Congratulations!

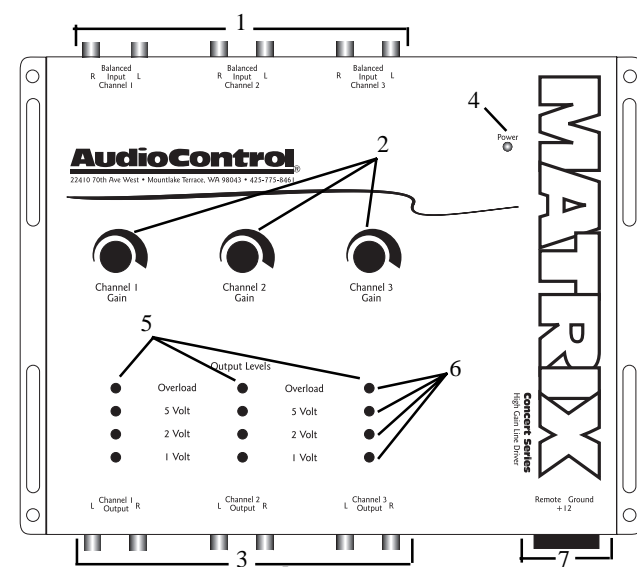
You have just purchased a high-performance autosound product; the AudioControl Matrix six channel line driver. The Matrix allows you to utilize every last bit of performance and sound quality that you've always strived for from your vehicle's sound system. So find a nice dry spot (we can't recommend any near us), take a load off and spend a few moments reviewing this Enjoyment Manual for the Matrix line driver.

Features of the Matrix:

- High signal voltage capability: 13 volts peak output
- 24 dB of gain
- Six channels of input and output
- Balanced differential inputs
- Low-impedance outputs
- PFM Subsonic filter
- Output level controls
- Ultra-low distortion, ultra-quiet operation
- Selectable ground isolation
- Optimum voltage indicator LED's

AudioControl®

making good stereo sound better®



6. 1, 2, & 5 Volt: These lights will tell you when the signal level is at 1 volt, 2 volts or 5 volts. You'll most likely want at least the 2-volt light to flicker, more if the rest of your components can handle it. Any AudioControl component that you connect after the Matrix Line Driver won't mind the 5 volt light flickering. Go ahead. Light it up!

7. Power Connector: This convenient little connector allows you to hook up all the power and turn-on wires for your Matrix Line Driver in the convenience of a well-lighted area and then plug them in by feel all at once in your trunk's cavernous darkness. Screws on top of the connector should face up. But if you put the plug in upside down, nothing will be damaged, the Matrix just will not power up

FEATURES AND HIGHLIGHTS

High-Voltage Line Driver

The Matrix is a pre-amp line driver that takes the input signal from up to three source units, increases it (up to 13 volts peak) and then delivers it downstream. No more low signal output voltages to allow noise into the rest of your performance car audio system.

Six Channel Inputs & Outputs

The Matrix was designed for ultimate pre-amp flexibility. With that in mind we have provided six channels for input and six for output! For even more flexibility, the Matrix inputs can be linked internally whereby two input channels can feed two, four, or six output channels.

Balanced Inputs

The Matrix features balanced differential input circuit that rejects noise that radiates into the signal path between the source unit and your Matrix. Even better, this circuit uses standard RCA connectors.

Anti-Oscillation Output Circuitry

Driving long lengths of cable can present a nasty capacitive load to the source that has to drive them. This capacitance can cause instabilities, which can lead to oscillations, radio interference and excessive system hiss. The Matrix's low-impedance, high-current output circuitry easily handles long cable runs without their associated problems.

Output Voltage Indicators

Setting voltage levels for optimum signal-to-noise performance can be a real pain - especially when you have to get out the old digital voltmeter and find a way to make those probes stay put while you try to read the dancing LCD display. With the Matrix's voltage indicator LED's, you can say good-bye to that headache. Just turn the Matrix gain control until your favorite light flickers and you're done!

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Outside View

The Inside

8. Balanced Input Selector: Located under the cover and behind the Input connectors are jumpers that allow you to utilize or bypass the balanced input circuitry. Although it is shipped in the balanced mode, which is best, it may be necessary to change this depending upon the configuration of the components you use. To change this, move the appropriate jumper on the 3-pin header.

9. Ground Isolation Selector: This feature allows you to change the power supply ground for different systems. When the Matrix is shipped from the factory, the selector is in the fully isolated position(which is generally the best.) Alas, not every manufacturer (or installer) devotes much time into getting their grounds right. Therefore, we have provided other ground isolation options to help if you have a ground loop noise (alternator whine) in your system. Experiment with different settings if you run into this type of problem. To change the settings, make sure you turn the system off, carefully move the black jumper from the center two pins(Isolated) and move it to either the top two pins(200 ohms) or the bottom two pins(ground).

Selectable Ground Isolation

Avoiding ground loops and grounding-related noises are of paramount importance in any installation. For this reason we have provided a flexible scheme of isolating signal grounds and power grounds.

Programmable Frequency Match (PFM) Subsonic Filter

Many car audio systems truly push the limits of their subwoofer...without really knowing it. Tuned enclosures affect the roll-off of many speakers, yet lots of source material force the speakers to play lower than expected. The net result is wasted amplifier power and damaged speakers. The AudioControl PFM (Programmable Frequency Match) filter is a programmable subsonic filter. It allows you to only let the speaker play as low as it should be playing. Because every system is different, we allow you to change the PFM roll-off frequency to whatever you choose.

The Most Important Feature Of All: Reliability.

That's right, your AudioControl Matrix comes with a full 5 year parts and labor warranty when it is installed by an authorized United States AudioControl dealer. These seasoned pros have the training and the equipment to take care of the job quickly and not leave your installation looking like some of those things in the back of the refrigerator. Keep in mind that if you or your friends who are "good with electronics" choose to install it yourselves, your Matrix still has a 1-year parts and labor warranty.

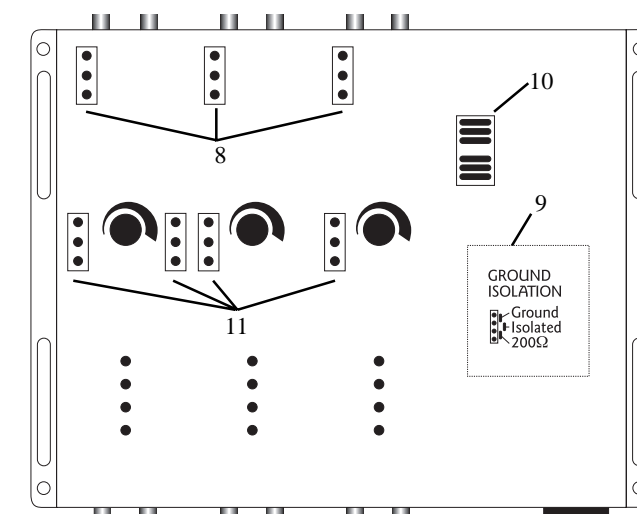
To activate your warranty, you need to FILL OUT AND SEND IN YOUR WARRANTY CARD! Also, save your invoice or sales slip as proof of purchase. Not only are these necessary for warranty purposes, they are also important if the unforeseen disappearance of your Matrix should happen while you are socializing at the local espresso and salmon bar. Insurance companies have very little imagination.

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10. PFM Subsonic Filter: This nifty little plug-in module allows you to change the low frequency output of the Channel 3 outputs of your Matrix. When you link the Channel 1 and Channel 2 inputs to Channel 3, they will also utilize the PFM filtering.

11. Input Linking: If you are running a two channel system but wish to connect to more than one amplifier, you can link the inputs from "Channel 3", to the outputs of "Channel 3", "Channel 2" and "Channel 1". Very cool! To change the signal configuration, remove the chassis top and move the jumpers to the appropriate configuration.

Inside View



Note: When removing and replacing chassis top be sure to align LED and knob holes.

Signal-To-Noise: An Up and Coming Rock Group?

Your systems signal-to-noise (S/N) ratio is the measurement between your audio signal level, which contains music, and your system's noise floor, which contains hiss, pops, buzzes, and whines. If you are listening to your buddies car audio systems and it has all of the above obnoxious sounds...even when the music is playing, we call that LOW signal-to-noise. On the other hand if you have your volume control cranked up and on quiet songs, and you hear almost ZERO background noise, that is considered a HIGH signal-to-noise ratio. Most serious sound-off competitors have high signal-to-noise ratios (at least the ones that take home the trophies).

When you talk about signal-to-noise ratios, the higher the signal, the better. Since you really can't reduce the noise floor, signal-to-noise ratio can be readily improved by raising the signal level with a component like the Matrix.

What About High Voltage Head Units?

Many car audio head unit manufacturers are starting to pull their heads out (a little pun) and realizing that they should provide head units with higher signal voltage on the outputs. Not only will this increase a system's S/N, but it will also allow you to drive your amplifiers more effectively. However, since the output voltage on a source unit will rise and fall as the volume is adjusted, low signal voltage will always be an issue.

Level Matching

Level Matching is about making sure you run just the right amount of signal into an audio component. If you send too much, you'll experience the not so joyous sound of clipping. At the same time, you want the highest possible signal levels for best signal-to-noise ratio. Since all AudioControl products are capable of high-voltage input and output, it is important that you MATCH the input voltage of your components. Most crossovers and amplifiers can handle up to about 2 volts before they clip. AudioControl signal processors can all produce at least 7.5 volts RMS, and can accept anywhere from 5 to 9 volts RMS. LED voltage indicators on many of our products make it a snap to set levels! Look at Tech Note 1006 on our website at www.audiocontrol.com for more information.

INSTALLING THE MATRIX

Up to this point everything you have read has served to educate you on the operations of the Matrix. We are sure that you are chomping at the bit to install the Matrix so we recommend you read the following sections very carefully.

Placement: Depending upon your application the Matrix should be installed in the signal path as close to your source unit as possible, but definitely before any long cable runs.

Mounting: Once you have selected a permanent mounting location, position the unit and mark the appropriate mounting holes with a felt-tip pin or scratch awl. Before doing anything else, make sure you are not about to drill a hole in a gas tank or pierce any existing wiring. Nothing ruins your day more than an expensive repair bill. Drill a small pilot hole and secure the mounting tabs of the Matrix with self tapping screws.

Electrical Connections

WARNING: Failure to disconnect the negative terminal of your battery prior to the installation of the Matrix can result in a warm tingly feeling.

Remote In: Connect a 22 to 18 gauge wire from the head-unit's remote turn-on to the "Remote" connector on Matrix.

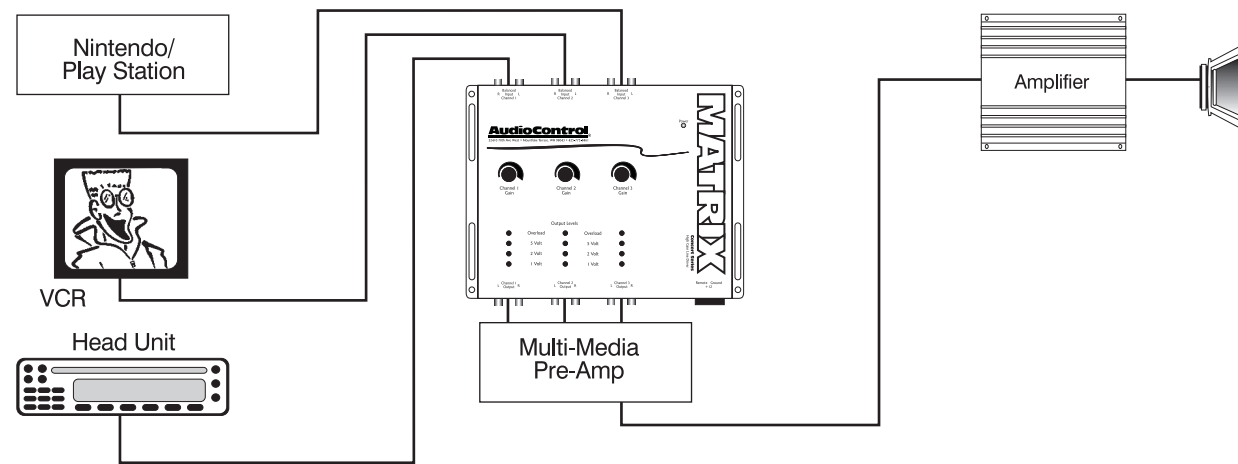
Positive (+12V) Connection: Insert an 18 gauge or larger wire into the connector labeled "+12" on the nifty connector of your Matrix. Connect it to a good constant source of 12 volts (we suggest the battery), fused at 1 amp.

Ground Connection: Use the same gauge wire as you did for the positive connector and run it from the "Ground" connector on Matrix to the negative terminal of the battery, a ground bus, or a verified ground location. The factory head unit ground is not a good ground!

When the electrical connections are complete, you may reconnect the negative terminal to your battery.

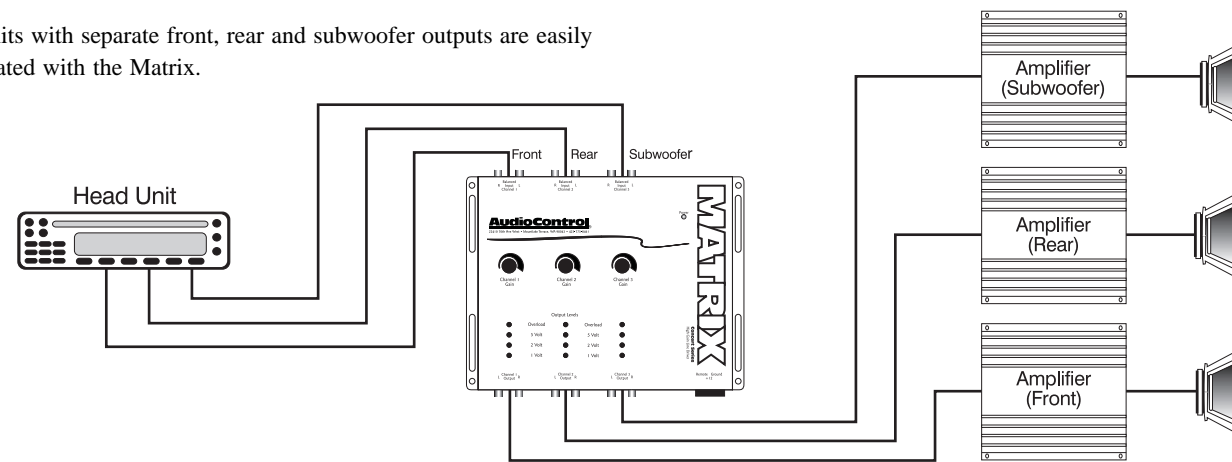
Car Theater - Level Matching

The individual gain adjustment controls of the Matrix ensures a consistent volume level when switching between different A/V sources.



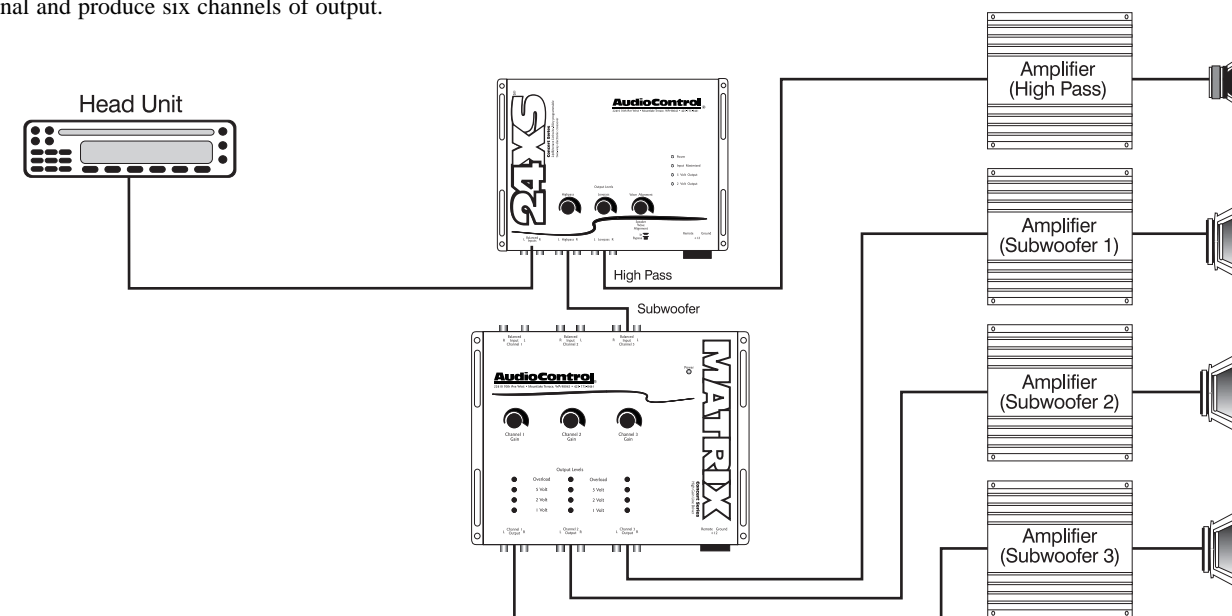
Six-channel Source Unit

Head units with separate front, rear and subwoofer outputs are easily accommodated with the Matrix.



Maximum SPL System

The input channel linking feature allows the Matrix to receive a two channel signal and produce six channels of output.



The WARRANTY

People are scared of warranties. Lots of fine print. Months of waiting around and leaving messages in some strangers voice mail. Well, fear no more, this warranty is designed to make you rave about us to your friends. It's a warranty that looks out for you and helps you resist the temptation to have your friend, "...who's good with electronics", try to repair your AudioControl product. So go ahead, read this warranty, then take a few days to enjoy your new Matrix before sending in the warranty card and comments.

"Conditional" doesn't mean anything ominous. The Federal Trade Commission tells all manufacturers to use the term to indicate that certain conditions have to be met before they'll honor the warranty. If you meet all of these conditions, we will warranty all materials and workmanship on the Matrix for one year from the date you bought it (five years if it is installed by an authorized United States AudioControl dealer). We will fix or replace it, at our option, during that time.

Here are the conditional conditions:

1. You have to fill out the warranty card and send it to us within 15 days after purchasing the Matrix.

2. You must keep your sales receipt for proof of purchase showing when and from whom the unit was bought. We're not the only ones who require this, so it's a good habit to get into with any major purchase.

3. Your Matrix must have originally been purchased from an authorized AudioControl dealer. You do not have to be the original owner, but you do need a copy of the original sales slip.

4. You cannot let anybody who isn't: (A) the AudioControl factory or (B) somebody authorized in writing by AudioControl to service your Matrix. If anyone other than (A) or (B) messes with your Matrix, that voids your warranty.

5. The warranty is also void if the serial number is altered or removed, or if the Matrix has been used improperly. Now that sounds like a big loophole, but here is all we mean by it.

Unwarranted abuse is: (A) physical damage (don't use the Matrix for a car jack); (B) improper connections (120 volts into the power jack can fry the poor thing); (C) sadistic things. This is the best mobile product we know how to build, but if you mount it to the front bumper of your car, something will go wrong.

6. If an authorized United States AudioControl dealer installs the Matrix, the warranty is five years.

Assuming you conform to 1 through 6, and it really isn't all that hard to do, we get the option of fixing your old unit or replacing it with a new one.

Legalese Section

This is the only warranty given by AudioControl. This warranty gives you specific legal rights that vary from state to state. Promises of how well your Matrix will perform are not implied by this warranty. Other than what we have covered in this warranty, we have no obligation, express or implied. Also, we will not be obligated for direct or indirect consequential damage to your system caused by hooking up the AudioControl Matrix.

Failure to send in a properly completed warranty card negates any service claims.