

# *Access*<sup>TM</sup>

## Demonstration Network

### Car Audio

### System Installation Manual





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## Orientation

This manual is provided as a framework to help you successfully install your Access System, test its operation, and then use the system to demonstrate and sell your merchandise. This manual covers the proper installation of the switching system hardware only (if your system includes a 906 Control Panel, or 903i Comparator touchscreen interface, please refer to the separate User Guide provided with your control panel for operation instructions).



**Please read and follow these instructions carefully.** If you have any difficulties during the installation, don't hesitate to call us for assistance! We are always pleased to receive customer calls. We're open Monday through Friday from 8:30 AM until 5:00 PM, Eastern Time. Also check our website for diagrams and tips: [audioauthority.com](http://audioauthority.com).

## Introduction

The Access demonstration network provides a reliable, modular solution for merchandising car audio, home theater, and hi-fi products. Recent improvements include additional channels for head units on the new Model 911, and a remote connection module for each head unit location, the Model 9A15. Other features include:

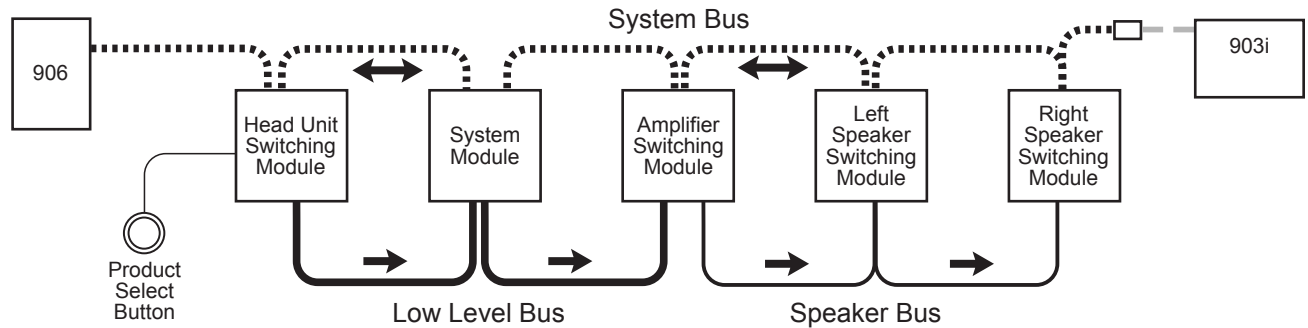
- Access offers a compact module to fit each kind of product, compared with a patchwork of printed circuit boards.
- Modules are protected by attractive and rugged steel covers.
- Expansion, when needed, is done by directly “docking” modules.
- Simplified module addressing.
- Single product group control panel for sub rooms, speaker displays, or any product category.
- Your choice of button-per-product, central control panel/third party touchscreen, or any combination of user interface.
- Sophisticated SilenTouch™ interval muting for quiet switching.
- Capacity for hundreds of products.
- Comprehensive control panels with automated demonstration features.
- Single button recall of up to 99 stored system configurations.

All of these features make it easy to design the demonstration system that fits your specific merchandising needs. Your Account Manager can assist you in selecting and configuring the appropriate Access modules to build the ideal system for you.



## What is the Access™ System?

The Access System consists of a variety of intelligent switching modules. These modules communicate with each other via the “System Bus”, allowing you to construct the exact demonstration system configuration you desire from the sources, processors/equalizers, amplifiers, speakers, and subwoofers in your display. The switching modules can be mounted near the products on display creating a “distributed switching network.” The products are connected to the modules rather than being wired to one central point. Selected product signals are then sent across the network through “buses” that interconnect the modules. A simplified view is shown below.



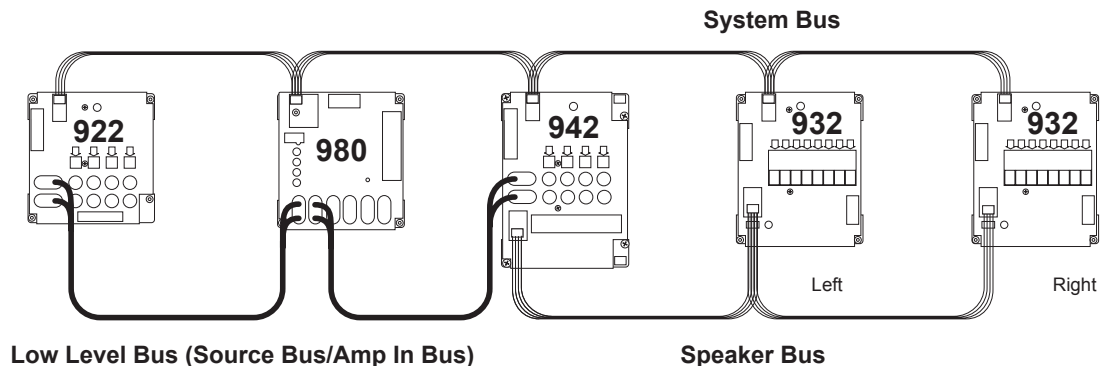
**Figure 1.** Basic overview of the Access Demonstration System

## Buses

Signals are passed between modules by “buses”, which are nothing more than cables that go from module to module to module, connecting them into functional groups within the system’s architecture.

The System Bus connects all switching and system modules, allowing them to send messages to each other, controlled by the addresses that are set by the installer. These signals instruct the modules to select the inputs/outputs of a particular product, such as a head unit or amplifier. Expander modules are not connected directly to the System Bus. Each expander receives its instruction from the main switch module to which it is attached.

Signal Buses carry audio signals, either low-level (source low-level output, for example) or high-level signals (head unit or amplifier output).



**Figure 2.** Basic bus examples in a simple demonstration system

# How the Access™ System Works

The Access System is much like a car audio system in regarding its functional parts. The basic analogy is diagramed below. When a product is selected for demonstration, signals are sent through a network of buses between switching modules to activate that particular product position.

A battery provides DC power to a vehicle; a 917X provides DC power to Access™ modules.

A steering wheel control allows selection of audio functions; a 903i controls multiple groups.

A head unit provides the vehicle's audio output; a 911 controls four sources (head units).

A vehicle's computer provides a central control point; a 980 provides control for DC power and SilenTouch™ and is essential for any Access System.

A vehicle contains front and rear, left and right speakers; each 932 with AutoDamping™ connects up to eight front or rear, left or right speakers.

A vehicle's amplifier sends high-level audio output to the speakers; each 942 switches the low-level inputs and high-level outputs of four two-channel amplifiers.

### Selecting Products in

Products can be selected products in the following v

A vehicle's subwoofer amplifier routes high power to the subwoofer; each 942/949X allows up to eight subwoofer amplifiers.

A vehicle's subwoofer receives high power output to generate earthshaking lows; each 939 accommodates eight subs and handles up to 2500 watts @ 4 ohms.

You may select

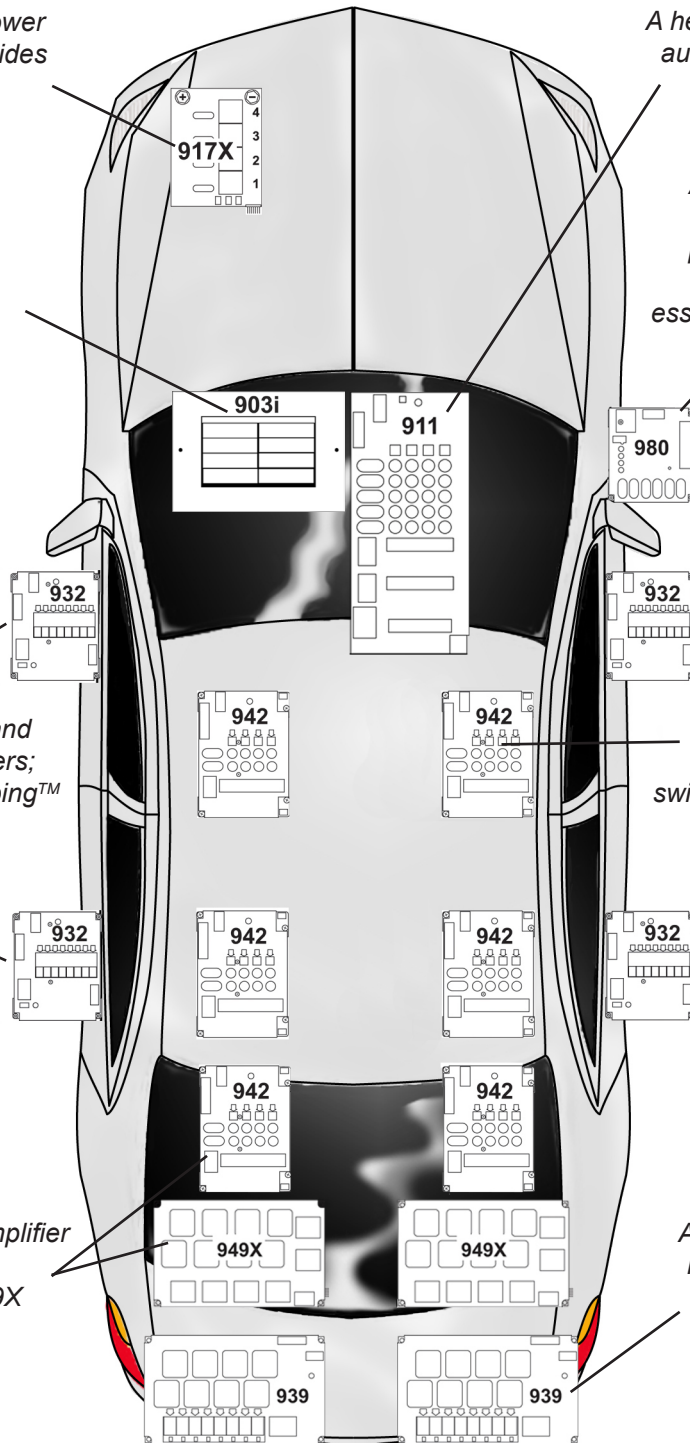
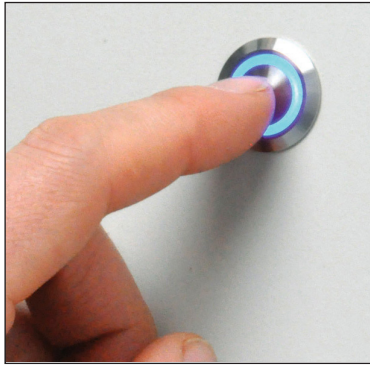


Figure 3. Automotive analogy of the Access System

## Use any method to select products...



By pressing a Product Select Button (PSB) connected to a switching module. This allows the user to build different systems of product configurations manually.



By using a 906 control panel to select products in a single group.



By using a 903i Comparator touchscreen to select products in multiple groups.



**Figure 4.** Custom Car audio display with legacy 903 control panel and expander. The 903 can be replaced with a 903i Comparator.

### Access System Components

If you have already planned your system with the assistance of your Account Manager, you may wish to skip directly to the Installation section. If you need help planning your system, call your Audio Authority® Account Manager at 800-322-8346.



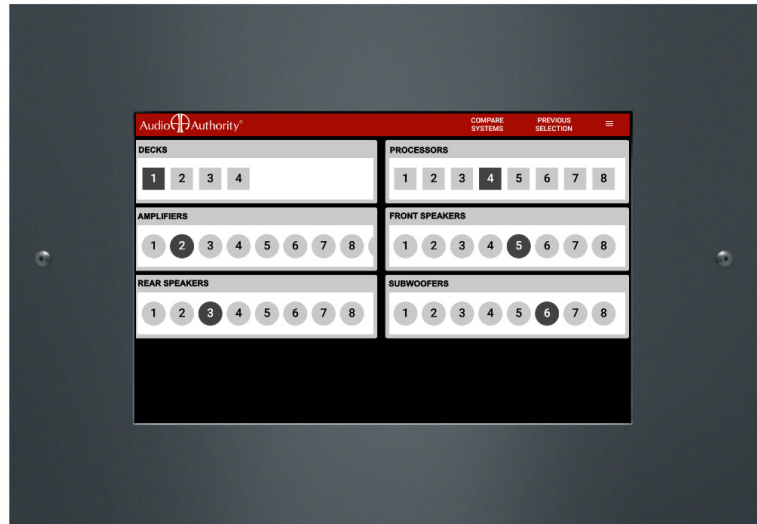
## Access™ User Interfaces

### Control Panels

#### 903i Comparator Touchscreen

The Model 903i Comparator is a 10 inch capacitive touchscreen that connects to any Access switching system, providing an easy way to select products and compare systems.

- Multiple Product Group cards
- Swipe through product icons, up to 99 products per group
- Compare Systems mode for easy A/B system comparison
- PIN protection for setup features
- Lock feature disables the comparator, unlock with PIN



**Figure 5.** The 903i Comparator with bezel. Note: when replacing a 903 with a 903i, you must use a new harness to connect the 974 to a system bus port.

#### 906 Control Panel

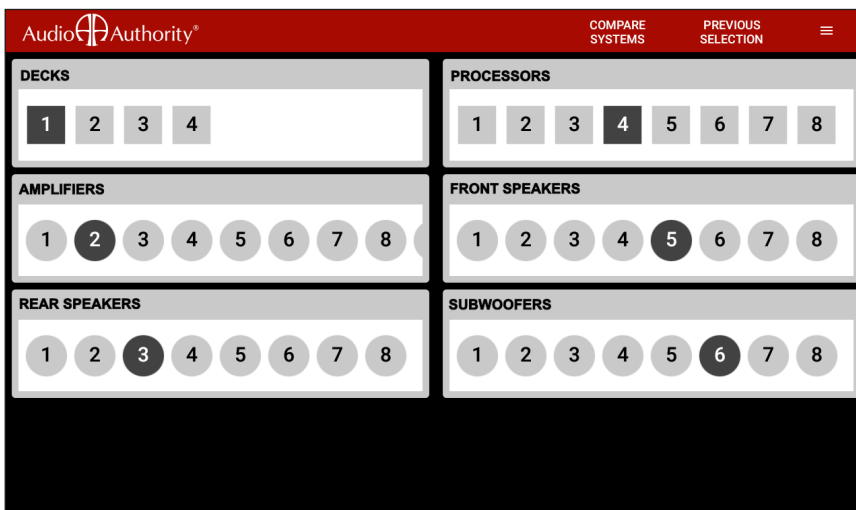
Perfect for subwoofer rooms or speaker walls, the 906 Control Panel selects products from one Product Group, using a rotary encoder knob, and displays the selected product number in the LCD window. Use the Select Previous button to make instantaneous comparisons between products. Two 906 Control Panels may be used in one system, one 906 for each Product Group.



**Figure 6.** 906 single product group control panel.

#### Product Select Buttons

A product select button is a momentary switch, usually with an LED to indicate when a product is selected. Each button has a four-conductor cable connecting the button to the switch module (See page 25 if using legacy two-conductor buttons). Audio Authority carries several button styles and colors, check with your Account Manager for colors and availability.



**Figure 8.** 903i main menu.



**Figure 7.** Stainless steel product select button with blue LED.

## Switching Modules

### 911 Head Unit Selector

Controls outputs from four source units for 4-channel high-level, 5-channel low-level operation. Provides DC power connection for each source. Also features an expander port for adding additional audio or video channels. Designed to be used with four 9A15 modules.

### 922 Low-Level Selector

Controls a pair of 2-channel low-level signals routed to or from four low-level products such as low-level sources.

### 932 Speaker Selector

Each 932 accommodates eight left OR eight right speakers (up to 500 watts). Two 932s are required for eight stereo pairs. 932 modules are mono so that each switch module may be located near the speakers it serves. Includes AutoDamping\*. Use a 939 for high current speakers and subwoofers.

### 939 High Current Speaker Selector

Accommodates eight high current speakers, usually subwoofers. Includes AutoDamping\*.

### 940 High-Level Selector

Controls 2-channel high-level signals routed to or from four high-level products. Controls two channels of four products (e.g., high-level sources). Use Model 932 or 939 for applications where AutoDamping™ is desired.

### 942 2-Channel Amplifier Selector

Switches the low-level inputs and high-level outputs of four 2-channel amplifiers (low current), or when using a 949X, the 942 controls the low-level channels of amplifiers.

### 952 OEM Processor Selector

Controls high-level inputs and low-level outputs from four OEM equalizers or processors. These units adapt OEM head units to after-market amps and speakers.

## System Module 980

Provides the central point of control for DC power, SilenTouch™, legacy 903 Control Panel, etc. The 980 is essential for any Access™ System and is typically installed in the low-level signal path just prior to any amplifier inputs.

## Expander Modules

### 9A15 Head Unit Connection Module

Head units may be connected directly to 911 modules, a Head Unit Connection module simplifies installation, and future product rotation.

### 920X Low-Level Expander Module

The 920X adds a pair of low-level channels to any switching module.

### 932X High-Level Expander Module

The 932X adds eight speaker positions to a 932 module. This module is used in systems where speakers are switched in pre-configured sets, as opposed to a mix-and-match approach.

### 940X High-Level Expander Module

Adds a pair of high-level channels to any switching module.

### 949X High Current Amplifier Expander Module

The 949X can provide high-level amplifier signal pathways for today's most powerful amplifiers. Use with Model 922 or 942. Accepts up to 6 AWG speaker wire in board-soldered terminals. (IN from previous receiver module or previous product group/OUT to next receiver module.)

*\* An exclusive technology called AutoDamping is employed to short non-selected speakers to ground, which reduces the sound absorption of unselected speakers in the display, improving room acoustics.*

## System Specific Components

### 974 RS232 to USB Interface

The 974 connects to the Access System Bus, and to the 903i Comparator via USB cable.

### 977 Digital Audio Adapters

977R converts optical digital audio signals to coax, and 977T converts coax digital audio signals to optical.

### 975 FM Distribution Amplifier

12-volt powered FM antenna booster drives all the radio antenna inputs and has direct input for one or more RF output CD changers. Use with distribution components in Kit 16 or Kit 17. Kit 16 provides 4-way taps and cables for FM distribution to sixteen head units. Kit 17 contains one 4-way tap and cables for four head units.

### 9A80 Crossover

A simple crossover which can be hidden inside the fixture, allowing two-channel low-level signal from the headunit to be split for the demonstration of front speakers, rear speakers, and subwoofers.

### 981 DC Eliminator

Small, in-line, low-level device that eliminates DC that can be present in the low-level outputs of some head units and crossovers. One required per offending product.

### 982A Low-Level Isolator

Small in-line, low-level device that eliminates ground loops common in car audio displays. One required per amplifier group (982A is not recommended with subwoofer groups).

## DC Distribution Modules

### 914X DC Power Adapter

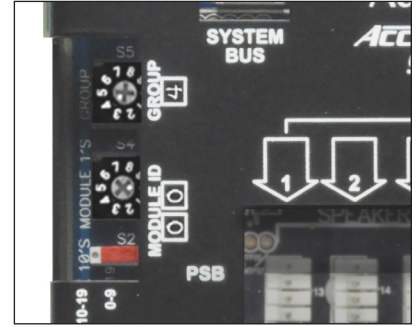
DC expander Module that provides connections to a DC power source for four car audio EQs, processors, and amplifiers rated under 500 watts. Uses resettable 10 amp circuit breaker for ignition circuit and 40 amp resettable circuit breaker for circuit from battery terminals. Use with Model 922, 942. The 914X also provides the DC connection points for 980, 911 and 952 modules.

### 917X DC Power Adapter

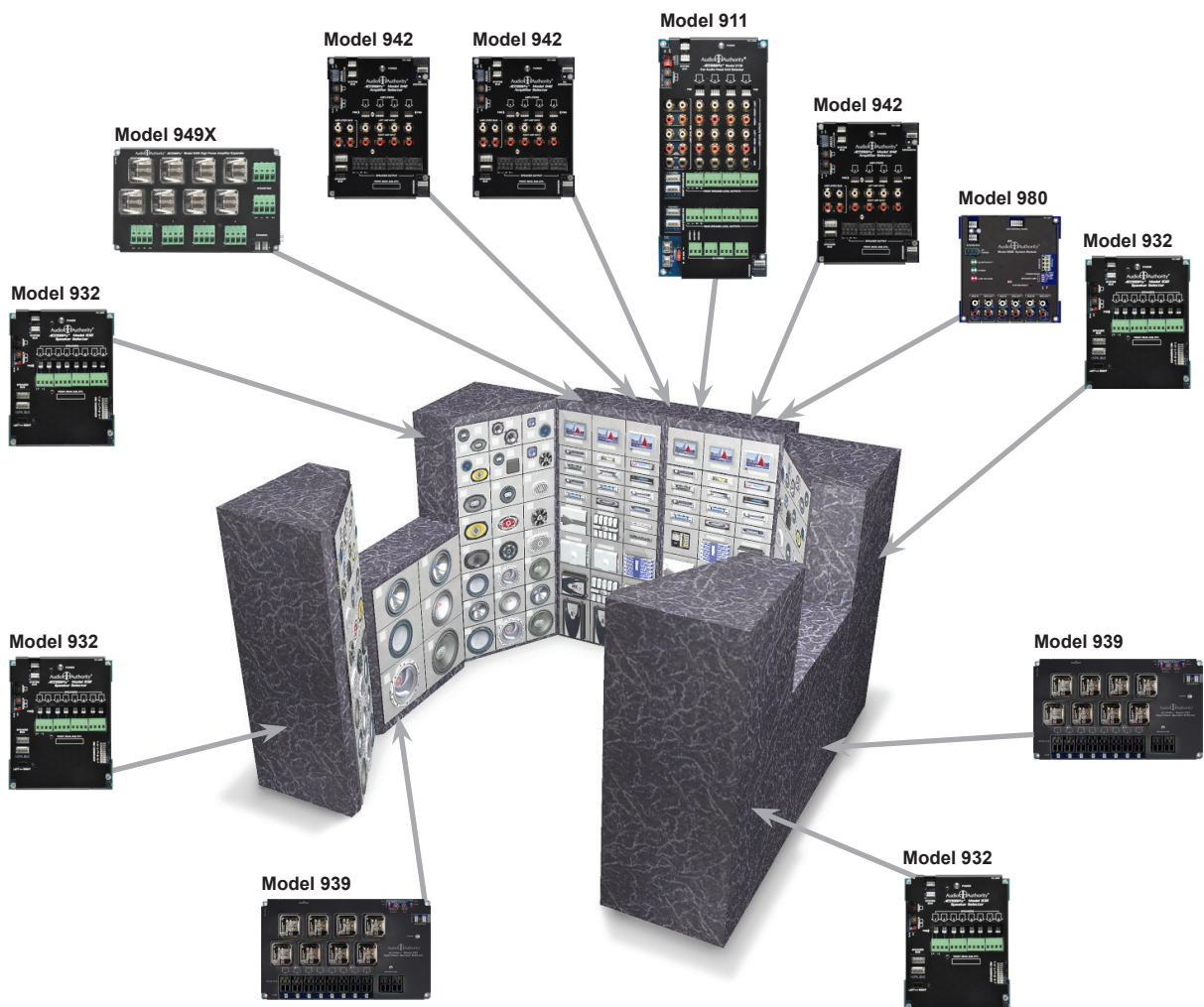
Supplies DC power to high-current car audio amplifiers in Access™ display systems. It is similar in operation to Model 914X, but with greater output current capability and built-in diagnostic lamps. Use with 922, 942 and 949X. 60 Amp fuse, accepts wire up to 6 AWG.

## Planning

Once your Account Manager has ascertained your product display switching needs and the components have been chosen, it will be time to prepare for installation. Draw a simple line diagram of how you would like your products arranged in the display fixtures. Arrange the Access Modules to follow the display plan. Keep in mind that the switching components should be grouped with the components they are switching. Access 911 modules should be in the display fixture near the head units, 942 modules near the amplifier display, 932 modules with the speakers etc. Pre-address and label all modules before beginning installation. This will greatly reduce confusion and aid in troubleshooting if the need arises (See Address and Other Settings for more information.)



Address the Access Modules before installation.



# Begin Installation



## 1. Preparation

### A. Review the design of the demonstration area

- Find the system wiring diagram from Appendix A that best serves as an example for your installation.
- Gather the owner's manuals of other products that are part of your system for reference.



999A

### B. Gather the tools and materials you will need

The list below will cover most installations.

- #1 and #2 Phillips screwdriver bits
- #1 small slotted screwdriver
- Power screwdriver (especially one with a torque clutch)
- Wire cutter/stripper
- Cable ties (4" is good)
- Drill bits for PSBs; 5/8 inch (999A), 1 1/8 inch (999), and 3/4 inch (999S)
- 7/16" nut driver or open-end wrench
- Flashlight
- 14 - 18 gauge speaker wire and high quality RCA patch cords



999

### C. Check the contents of the shipping cartons

- Use the packing list to identify the system components and determine how each component fits into your wiring plan.



999S

## 2. Address Settings

### How Module Addressing Works

Each Access module communicates with other modules via System Bus, and they identify themselves by a unique ID, or "address." Each *main switching module* (see Figure 9) has a set of switches (Figure 11 -13) for assigning its "address."

There are two parts to the address:

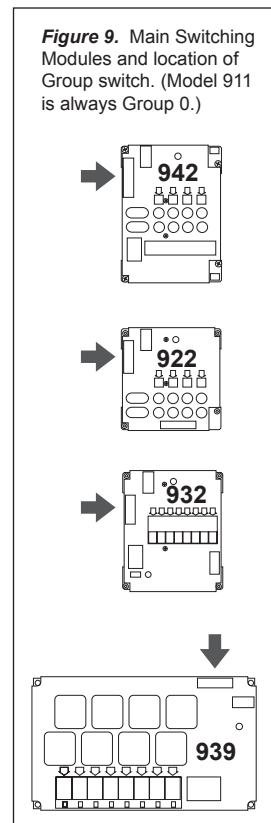
1. The *group number* is the general place a module resides in the system, like a street in a city.
2. The *module ID* is the unique number assigned to each module like individual house addresses on one street. Therefore, each module ID must be unique *within* the same product group.

### A. Number the Product Groups

1. Determine the group number. Standard group address examples are shown below. Refer to your system plan to make a product group chart for your system. Number each product group starting with Head Units (always group 0).
2. Note that the front amps and speakers have matching group numbers as do the rear amps and speakers.

Electronics Group	Speakers Group	Group #
Head Units		0
Processor/EQs		2
Front Amplifiers	Front Speakers	4
Rear Amplifiers	Rear Speakers	5
Sub Amplifiers	Subwoofers	6

Figure 9. Main Switching Modules and location of Group switch. (Model 911 is always Group 0.)





## B. Determine the Module ID settings

Number the modules in each group to put the products in the desired order in the group. Use the following table for the appropriate module ID setting for each module. The 903i Comparator Polls the Access modules that are connected to the system if Poll on Start is ON (Always) (shown in *Figure 10*). After the system is configured, touch Poll on Start and slide the button on the right to the OFF position.

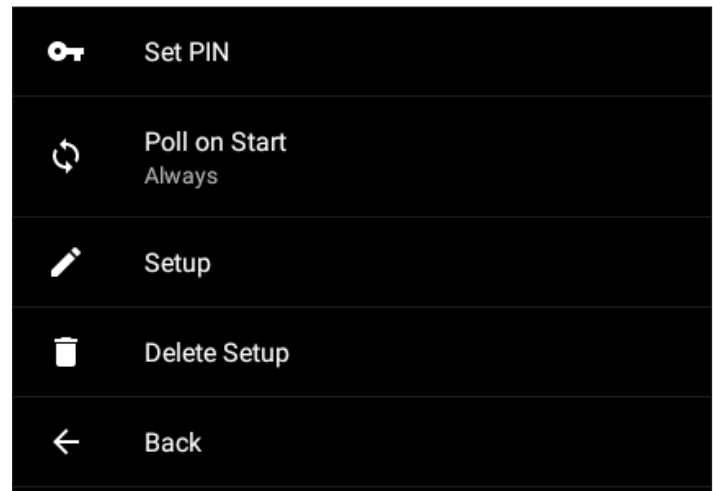


Figure 10. 903i Poll on Start (Always).

Sources, EQs and Amplifiers			
Switching Modules 911, 922, Rotary 958, 942	Addressing Sequence for Product Positions	Set the MODULE ID to:	
		Slide Switch	Rotary Switch
1st module:	1 - 4	0 - 9	0
2nd module:	5 - 8	0 - 9	1
etc...	9 - 12	0 - 9	2
	13 - 16	0 - 9	3
	17 - 20	0 - 9	4
	21 - 24	0 - 9	5
	25 - 28	0 - 9	6
	29 - 32	0 - 9	7
	33 - 36	0 - 9	8
	37 - 40	0 - 9	9
	41 - 44	10 - 19	0
	45 - 48	10 - 19	1
	49 - 52	10 - 19	2
	53 - 56	10 - 19	3
	57 - 60	10 - 19	4
	61 - 64	10 - 19	5
	65 - 68	10 - 19	6
	69 - 72	10 - 19	7
	73 - 76	10 - 19	8
	77 - 80	10 - 19	9
	81 - 84	20 - 29*	0
	85 - 88	20 - 29*	1
	89 - 92	20 - 29*	2
	93 - 96	20 - 29*	3
	97 - 99	20 - 29*	4

Speakers		
Addressing Sequence for Product Grps 932 and 939	Set the MODULE ID to:	
	Slide Switch	
1 - 8	0 - 9	0
9 - 16	0 - 9	1
17 - 24	0 - 9	2
25 - 32	0 - 9	3
33 - 40	0 - 9	4
41 - 48	0 - 9	5
49 - 56	0 - 9	6
57 - 64	0 - 9	7
65 - 72	0 - 9	8
73 - 80	0 - 9	9
81 - 88	10 - 19	0
89 - 96	10 - 19	1
97 - 99	10 - 19	2

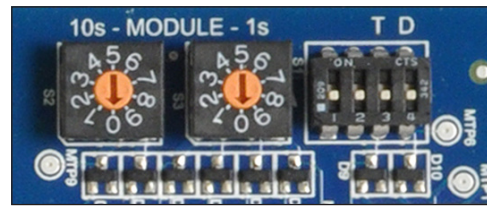
### How to Use These Tables

Read across from left to right. For the *1st module's* addressing sequence (products *one through four*) set the MODULE ID to "0 - 9" on the *slide switch*, and "0" on the *rotary switch*.

\* Contact the factory if this address is needed.

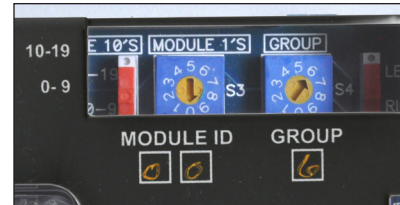
### C. Set the Address Switches.

Some group settings are made at the factory, and cannot be changed later. *Figure 11* shows the first switch module (Model 911) in the first product group (head units). It has a default address of Group #0 (there is no group switch to adjust) and the Module ID is set to #00 (this lets the system know this module is connected to the first four products in this product group). The second 911 would be addressed 01, and the third module, 02, etc. *Always start with zero, not one, for the first module in any group.*



**Figure 11.** First head unit Module with the address 0/00 (Group/Module ID).

*Figure 12* shows the address settings for the first module in the High-Power Speaker (Sub-woofers) product group. The group default is #6 and the address is set to #00.



**Figure 12.** This Model 939 would be the first and last module in group 6 (Sub-woofer Speakers).

### D. Set the Programming Switches.

#### Programming Switch Settings “S M B T D.”

Models 911, 952, 940 and 942 have a DIP switch array with small switches (see *Figure 13*). Model 911 and 952 have T and D only. The switches are set to “OFF” at the factory. The switches are defined as:

<b>S</b>	<b>M</b>	<b>B</b>	<b>T</b>	<b>D</b>
Single Stereo	Multi- Channel	Bypass	Time	Delay

“D” turns on the DC Power Delay feature and works with the Power Mode switch setting on the 980 module. Use the following chart to determine switch settings. Set the 980 “Power Mode” switch and each main module’s “D” and “T” switch using the chart below.



**Figure 13.** The first module in group 4 (Front Amps). Bypass is ON (“B” in programming switch array SMBTD).

Mode	Effect on Product Groups	Power Mode Switch on 980	Delay or “D” Switch on Main Modules
Power Conserve	1 unit ON; delayed turn-on	ON	ON
Smart Power	Up to 3 units ON; delayed turn-on	OFF	ON
Continuous Power	All units ON; no turn-on delay	OFF	OFF
<p>The “T” switch sets the amount of time delay to allow for product turn-on, if “D” is ON.</p> <ul style="list-style-type: none"> <li>• “T” OFF = 3/4 second delay for head units and low power amps.</li> <li>• “T” ON = 3 second delay for high power amps using switching power supplies.</li> </ul>			

When “D” is ON, the “T” switch should be OFF (3/4 second delay) for 911 modules, and ON for 942 modules (3 second turn-on delay for large power amps). If “D” is OFF, “T” has no effect.

Also, see “*Choosing the Power Mode for Your System*” on page 22 for more detailed information on the three different Power Mode settings available for your Access™ System.

“B” should be set to “OFF” unless you wish to BYPASS the product group associated with the module. To setup bypass for a product group, turn on the last module’s B switch and connect the audio bypass to the 4th position. When all positions in the group are de-selected, audio signals will bypass this group. Bypass is commonly used in systems where there are both low-level and high-level output signals from head units (See *Appx A, for a hookup diagram*).

“M” has special functions for multi-channel amps and should be set to OFF. Call Audio Authority Technical Support for details.

“S” is related to “M” and should remain OFF in most cases.

### Set the Left-Right Switch.

Set the Left-Right switch on every 932 and 939 to indicate its position on the right or left side of the speaker portion of your display. 932 and 939 pairs are addressed identically, but the Left-Right switch lets the control panel tell left and right modules apart. In single channel applications, as in the case of mono subwoofers, set the switch to RIGHT.

### Set the Address Switches.

Set and recheck all the address switch settings as shown on page 13 and 14.

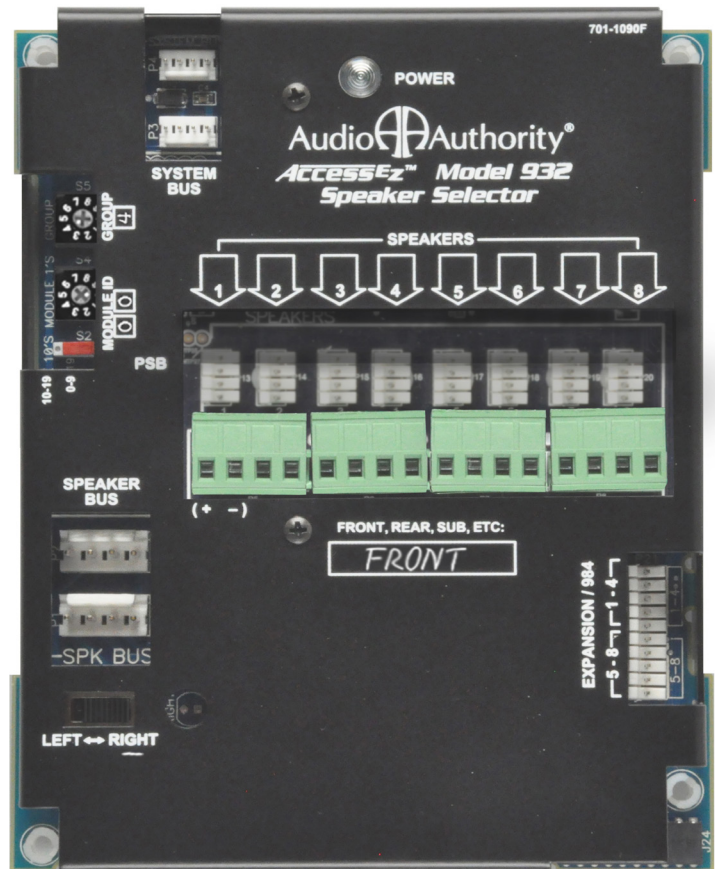
Setting the address switches is very important. All functions of the Access System depend on correct addressing of the switch modules. Please take the time to double check the labels and subsequent module addresses that you may have set.

### Speaker Limit.

The Access System is designed to allow multi-channel amps to play a set of car speakers by separating them into product groups. One six channel amplifier plays two Fronts, two Rears, and two Subwoofers. Additionally, Access allows a default of two speaker pairs to play at once in the *same* product group (e.g. two pairs in the Front Speaker product group). Some stereo amp manufacturers do not recommend playing more than one pair of speakers at a time. If customers will have access to your display, consider using the lowest Speaker Limit recommended for any amplifiers you are demonstrating. You may set the Speaker Limit to 1, 3 or 4 pairs with the switch array labeled SPEAKER LIMIT on the Model 980 (default is 2 pair).

## E. Fill Out the Identification Boxes.

Fill out the identification boxes printed on the case of main modules to reflect the address and other settings on each module (See *Figure 14*). This will help with installation and troubleshooting later.



**Figure 14.** The 932 module serving the left channel of speakers 1-8 (note the filled-in identification boxes).

### 3. Installing the System Hardware

#### A. Designate the Switching Module Locations

1. Each switching module controls either four or eight components. Create a system plan drawing to determine the location of the switching modules in the display fixture.
2. We recommend setting up the main modules on a table or bench before actually installing the modules in your fixture. Connect main modules with system bus cable, including the control panel, if used. Set address switches, connect the power supply, and check the switching modules and control panel logic.
3. Mark the location of the switching modules and any related expander modules near the center of the products they will serve. Some modules will serve four products, others will serve eight products.
4. Be sure to consider the 2 foot plug spacing if you are using factory pre-made bus cables.



#### B. Determine Other Module Locations

1. Position the 980 System Module in the signal path immediately prior to the first module(s) in your Amplifier product group(s). This position will allow you to pass signals from the output of your Head Unit or Processor/ EQ product group to the 980 Module which will then pass the low-level input signals to your Amplifier product group(s).
2. Position the 9A80 (if used) prior to the 980 in the signal path. A dedicated crossover could also be installed here, hidden inside the display.
3. Install Head Unit connection modules (9A10, 9A15). These modules are very useful for connecting head units through small openings. If your display has a "tray" for the head unit, mount the connection module at the back of each tray. Other wise mount it inside the display, within easy reach of the opening.

#### C. Mount the Modules

1. Mount the main modules first, then plug in and mount signal, and DC expander modules (*Figure 15 and 16*). Use the screws provided.
2. Connect an audio signal expander (if any) such as 920X or 949X to its respective main switching module as shown in *Figure 15*. It is critical that the signal expanders be connected to the header port on the main module labeled "EXPANSION." DO NOT plug an audio signal expander module to the header port labeled "DC EXPANSION."
3. Connect each 914X and 917X DC Expander Module to its respective main switching module and attach with screws provided. Be certain to connect DC expander modules to the header port on the main module labeled "DC EXPANSION." DO NOT plug a DC expander module to the header port labeled simply "EXPANSION."

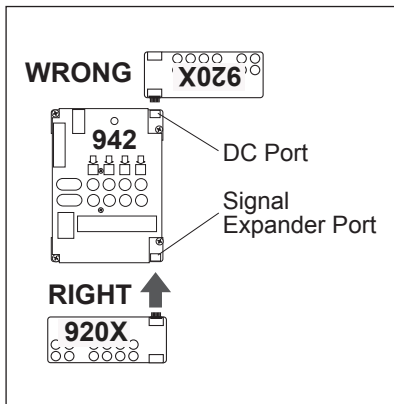


Figure 15. Audio signal expander connection

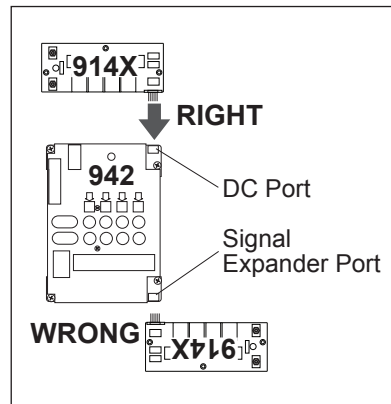


Figure 16. DC Expander connection

## 4. Installing the Bus Cables

Pre-assembled bus cables or the raw materials to make the necessary bus cables on the job site were included with your system purchase.

- Pre-assembled bus cables have connectors installed every two feet.
- If you plan to make bus cables on the job site, order the multi-conductor wire, and you'll need a special assembly tool available from Audio Authority (see table below). Be very careful to follow the assembly instructions, especially concerning wire to connector polarity. ***Incorrect bus fabrication can cause system failure and damage!***
- RCA patch cords are available in lengths from three to twenty feet, or you may use any high quality, low-capacitance RCA patch cables.

Materials for On-Site Bus Fabrication					
Cable Type	Color Code	Pre-assembled Part Number	Cable for Site Assembly	Plug for Site Assembly	Assembly Tool
System Bus	yellow/red/blue/black	802-307	871-055	916-0470	762-011
Speaker Bus	green/white/brown/gray	802-186	871-045	904-172	762-009
Low-level Bus	RCA patch cords	801-018 to 801-023	NA	NA	NA
System extension*	yellow/red/blue/black	802-323	871-055	916-0470	762-011
Speaker extension*	green/white/brown/gray	802-309	871-045	904-172	762-009
Module expander	red/grey/purple/blue/green	802-177			

\* Extension cables allow you to connect remote sections of the Access™ System, as in the case of rear speaker towers.

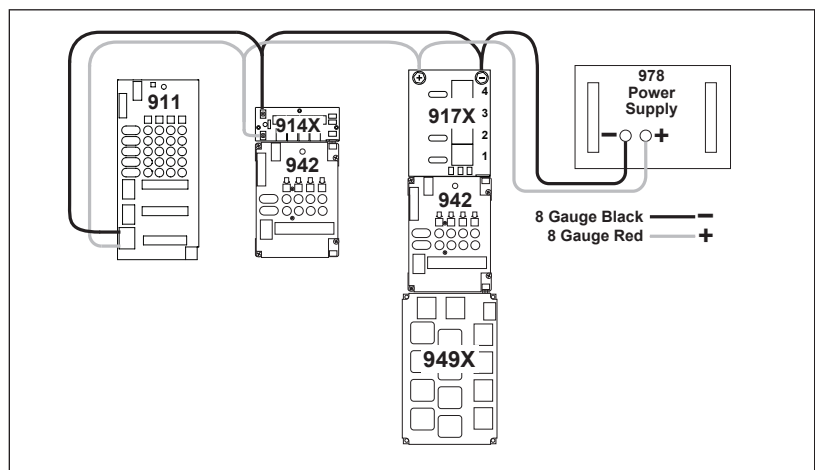
### A. Install the DC Power Distribution Cables

The 914X or 917X DC Expander Modules should already be installed and connected to electronics modules. Use the docking port unless more than one connection is required then use the 5-wire module expander cable. Check your system plan or use one of the drawings in Appendix A to determine each module's location.

- 914Xs are generally used to power Head Units and Processor/EQs. In most systems, head units are powered directly from the 911 Head Unit Switching Module. 914Xs are used to distribute DC power to amplifiers (up to 500 watts) and to provide home run DC connection points for 911 and 952.
- 917Xs are used to distribute DC power to high current amplifiers and to provide home run DC connection points for 911, 952 and 914X modules.

Run the main DC bus from the power supply to all 914X and/or 917X Expander Modules. Any 914X or 917X can then provide the connection point for 980, 911 modules (See Figure 17 and refer to Appendix A for wiring examples).

**Figure 17.** DC trunk lines connect 914X or 917X modules to each other and the power source; 911 and 980 branch from the nearest available 914X or 917X.





1. Use the provided red and black 4-gauge wires with small ring terminals on the ends. Hang on to the other included wire assemblies; they will be used to furnish DC power to your display components later.
2. Start with the 917X or 914X expander that is closest to the DC power source.
3. Connect the red and black 4-gauge wires to the large color-coded red and black, terminal posts on the 914X or 917X. Connect the red wire to "BAT+" and the black wire to "BAT-" using a 7/16" nut driver or open end wrench. Be sure to tighten the nuts snugly so that the ring terminals are well seated on the terminal posts\*. While connecting the initial run of red and black wire to the next 914X or 917X module, also connect a separate 4 gauge red and black set of wires to the 914X or 917X terminals (Figure 18) for final connection to your system's DC power supply or battery.

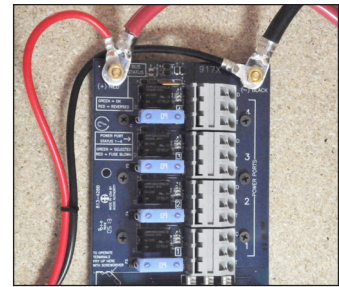


Figure 18. 917X DC Connection.

4. Now, connect the red and black wires to the next 914X or 917X in the system, making a "daisy-chain" until the last 914X or 917X is connected (Figure 20).
5. Run low-current DC to all 911 Source Modules and 914X Expander Modules.
6. Use the red and black 14 gauge wires provided with the 911. Connect the ring ends to the DC bus terminals of the nearest 914X or 917X\*.
7. Cut the red and black wires to length, terminate the ends and screw them to the terminal post on the 911 module labeled "DC Power Bus." Wire red to "+" and black to "-" and tighten the screws securely (Figure 19).

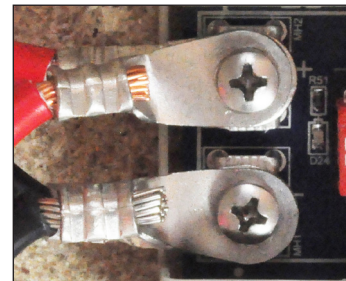


Figure 19. DC Power Bus\*.

8. Connect the pre-made power cable supplied with the 980 System Module to the terminal posts of a nearby 914X or 917X. Tighten all of the nuts on DC bus terminals until snug. DO NOT plug the other end of the power cable into the 980 at this time.
9. Once all of the DC Power cabling has been installed and secured, connect the Power Supply.
10. Make the final connections to prepare your system for initial testing.
11. It is very important to provide adequate ventilation for the power supply in your display fixture. A car audio DC power supply generates a lot of heat which must be dissipated. If the power supply will be enclosed inside your display fixture, you must provide an incoming source of cool air and an opening at the top of your display for ventilation of the heated air.
12. Connect the red and black power supply lead wires to the 914X or 917X large ring terminal on one end and small rings on the other. Connect the small ring terminal ends of the red and black leads to terminal posts of the 914X or 917X\*.
13. Install the power supply in your display fixture. Take the time to read the owner's manual that came with your power supply.

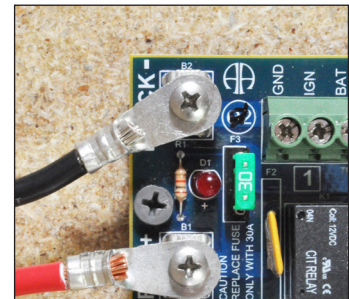


Figure 20. Tighten screws to avoid contact with metal case\*.

**WARNING: Keep all metal tools away from the power supply terminals, and all DC terminals once the system is connected and powered up.**

14. Connect the other end of the red wire from the 914X or 917X to the positive terminal of the power supply.
15. Connect the black wire to the (-) power supply terminal in the same fashion.
16. Now, plug the red and black power wire assembly you installed earlier into the 980's power socket.
17. Plug the power supply AC cord into a continuous source of 120 volt power.
18. Inspect all fuses for any that are tripped. When all Power connections have been verified, turn off Power Supply and disconnect the Power Bus from it.

**\* Note: Make sure ring terminals DO NOT contact any module case as a direct short will occur and cause damage to the system!**

## B. Install the System Bus

The system bus connects to main switching modules 911, 922, 952, 958, 942, 932, 939, 940 (*not* expanders such as the 920X, 932X, 940X, 949X, 917X, 9A80, 9A15, etc.), 906 Control Panel and the Model 974 USB adapter for the 903i Comparator.

1. Use the pre-assembled system bus cables supplied with your system or install the 4-pin plugs onto the system bus wire using the 762-011 tool. If you are making your own system bus, be sure to leave a small amount of slack in the wire between the modules and be very careful to observe correct polarity.

2. Mate one plug of the system bus cable with either of the 4-pin headers marked System Bus.

3. Connect the system bus to all modules having headers marked System Bus. The connectors are polarized, so they should only connect in one direction, but always make sure to prevent the possibility of plugging the system bus to the header backwards (See Figure 22).

4. Start at one end of your system and work toward the other end, connecting the system bus to every main module.

5. If you are using pre-assembled buses, you may use a system bus extension cable for long distances between modules, or carefully splice 18 gauge cable where needed.

6. Dual header connections are provided on all modules so you can easily extend a bus cable that is too short, or you can branch off the main run to a remote or side group of modules, if necessary.

**Note:** Since bus connectors can be both in and out, one header connection may be left open. The remaining connector may be used to create a branch from the bus (shown right).

7. Once all of the Bus cabling has been connected to all modules and secured, reapply power and inspect all main modules for flashing green LED "heartbeat." If any modules lack a heartbeat, check the system bus connection. When all System Bus connections have been verified, turn off power supply and disconnect the Power Bus from it.

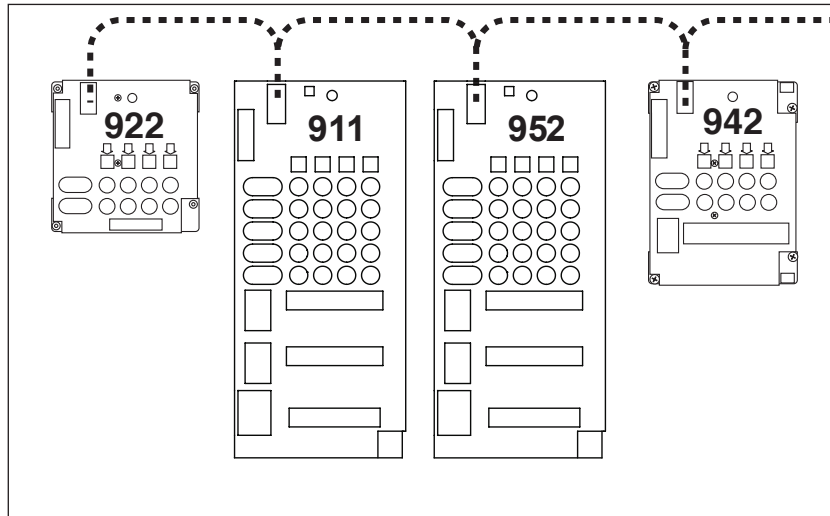


Figure 21. Connect System Bus to every Main Module.

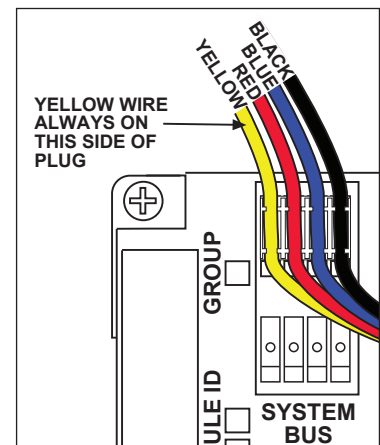


Figure 22. Observe correct System Bus polarity. It is fine to leave one header unused.

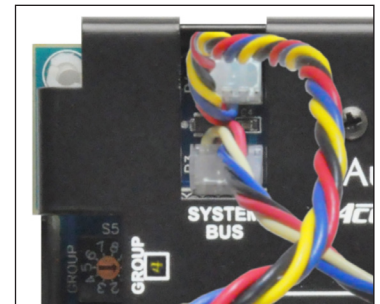


Figure 23. System Bus cable branching off.

### C. Install Speaker Bus

The procedure for running the Speaker Bus is very similar to the installation of the System Bus. The Speaker Bus will be used to send high-level signals from amp outputs to speaker modules in the system. For very small systems with no amps, the head unit group is connected directly to speaker groups via Speaker Bus.

- Connect related modules with a continuous run of bus cable.
  - Start at one end of the group and work toward the other end.
  - Run separate buses for front, rear and sub (or tweeter, mid, and sub).
1. Using the a green/white/brown/gray bus cable assembly, plug a connector of the bus into a Speaker Bus header on each 942 module in the Front Amplifier group. The connectors are polarized, so they should only connect in one direction, but always make sure to prevent the possibility of forcably plugging the system bus to the header backwards (See Figure 24).
  2. Using the same bus cable or branching off with a new section of bus cable (shown right), continue connecting all 932 modules in the Front Speaker group to the Front Speaker Bus (See Figure 26).
  3. Connect all remaining Amplifier/Speaker product groups in the same way.
  4. Extend System or Speaker Buses, if necessary, using the available extension cable assemblies.

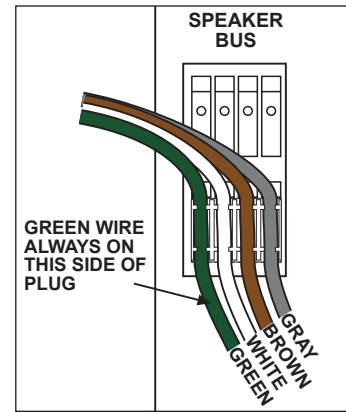


Figure 24. Speaker Bus polarity.

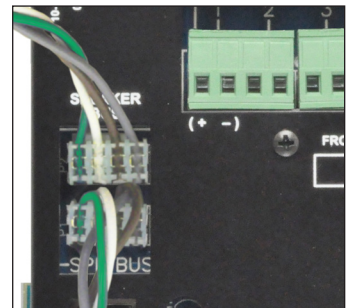


Figure 25. Speaker Bus cables branching off.

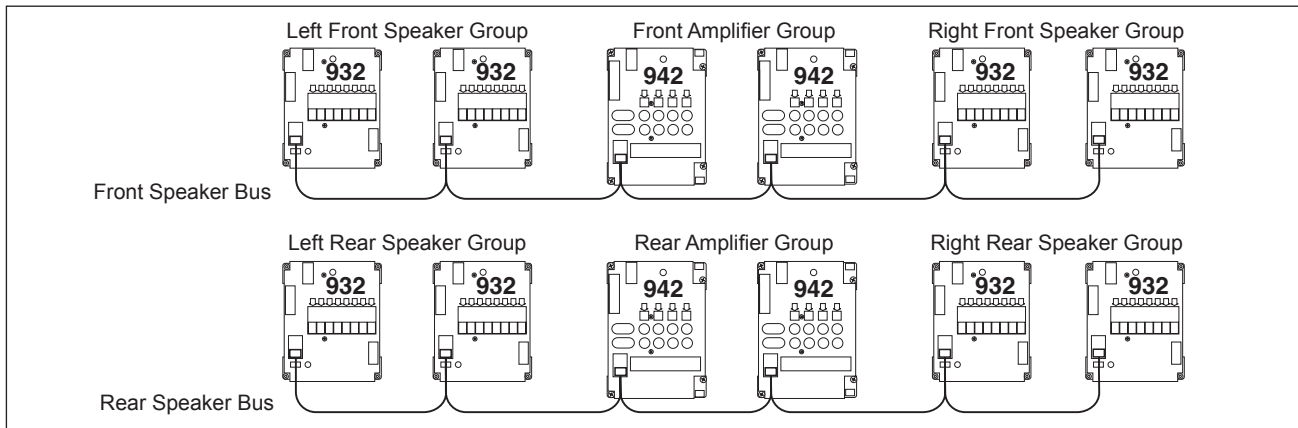


Figure 26. Speaker Bus Example.



Figure 27. Front Right Speaker Bus.



Figure 28. High-Power Speaker Bus using 12 gauge speaker cabling.



## D. Low-Level Buses

The rules are similar to those for installation of the other signal buses:

- Connect modules within a group and to corresponding groups.
- Start from a module at one end of the product group and work toward a module at the other end.
- Use only high-quality shielded RCA patch cords as Low-Level Bus; preferably gold-plated.

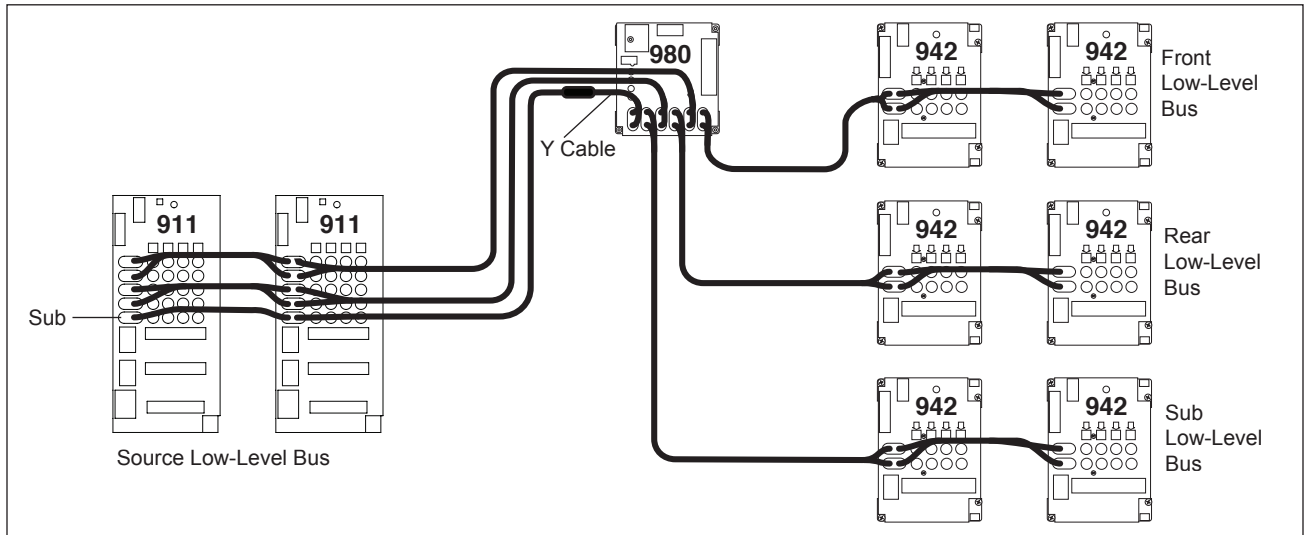


Figure 29. Low-Level Bus Illustration.

1. Using high-quality shielded RCA patch cords, connect the modules with low-level jacks (911, 922, 952, 958, 980 and 942) along with any low-level expander modules (920X).
2. Connect all modules serving each pair of low-level channels in a given group, such as source outputs (911 or 922), front amp inputs or rear amp inputs (942 or 922).
3. Connect a module from each low-level group to a module of the next low-level group in the signal path. Here are two examples:

- Low-level processors: Connect the source output bus to the processor bus input; if using a single dedicated processor to derive additional amplifier product groups, connect the source output bus directly to the input of the dedicated processor.
- Connect the 911 output bus to the 980 System Module input bus; connect the 980's output bus to the amplifier bus input. The 980 has inputs and outputs to feed processor output signals to front, rear, and sub amplifier groups (See Figure 29).
- For a system with 952 modules, see Example 3 in Appendix A.

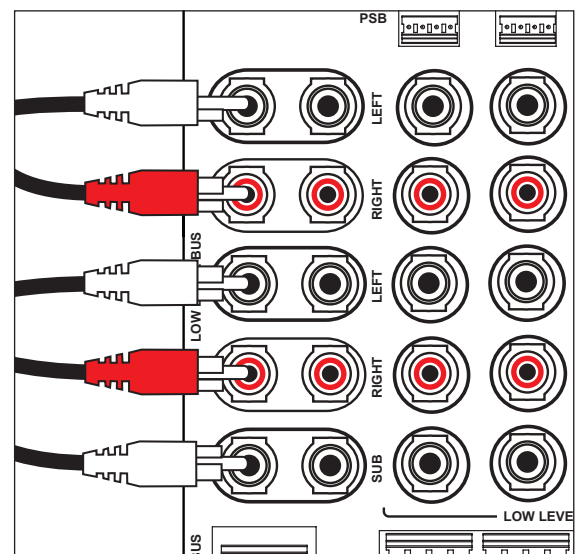


Figure 30. Model 911 Low-Level Bus connection.

## E. EQ and Amplifier Bypass

To demonstrate high powered head units without other in-line products such as processors, equalizers or amplifiers, use Speaker Bus cable to create a front and rear high-level bypass from the Source product group directly to the Speaker product group (for a hookup diagram, see page 41).

1. Hook up the Source Group's Front High-Level Bus using a green/white/brown/gray bus cable assembly. Plug a connector of the bus into each header marked Front High-Level Bus on 911 modules in the Source group.
2. Connect one end of the Front High-Level Bus to the fourth position on the last 942 module in the Front Amplifier product group (See Figure 31). Turn on the "B" switch to activate bypass on that module.
3. Connect a separate high-level bus cable into each header marked Rear Speaker-Level Bus on 911 modules.
4. Connect one end of the Rear High-Level Bus to the fourth position on the last 942 module in the Rear Amplifier product group. Turn on the "B" switch to activate bypass on that module.

To demonstrate amplifiers without inline products such as Processors or EQs, it is necessary to bypass the Processor/ EQ product group at low-level. Figure 32, shows how to route the signal from the input of the 958 past the display product connections and on to the Amplifier product group. The fourth position on the last module is reserved for bypass in product groups using a bypass.

## F. Choosing the Power Mode for Your Display

You may have determined the Power Mode setting when you completed the DIP switch settings on the main switching modules and 980 System Module earlier in the installation. Now that you have reached this point, you may wish to reconsider the Power Mode(s) you will use. For more detail see the Model 980 manual.

- The three different Power Mode settings determine how many components will be powered at any given time and whether or not there is a turn-on delay.
- Set the Power Mode by a combination of the switches on the 980 and the main switch modules.
- You may use more than one power mode within the same system, depending on the "D" switch settings on 911, 952, 958, and 942 modules.

The three Power Modes are as follows:

1. **Power Conserve** allows only one component from each electronic group to be ON at any given time. New selections have a turn-on delay of either 3/4 seconds or 3 seconds, depending on how the T switch is set on each main module.
2. **Smart Power Mode** allows up to three components in each electronic product group to be on at any given time. When a fourth component in the group is selected, the first selected component in the group powers down, and so on. If there is no new selection activity in the group within five minutes, all components in the group power down; then, a new selection cycle begins. There is a turn-on delay for each new selection (no delay for the products recently selected); the length of the delay is determined by the T switch setting on the selected component's main module.
3. **Continuous Power Mode** allows all electronic components in the display to be ON and ready for immediate selection with no delay. Since all components are ON it is extremely important to have an adequate source for DC power. Many car applications require a 100 or 200 amp supply. Choose either the Continuous Mode or the Smart Power Mode if you desire instant A/B or A/B/C comparison of components in your display.

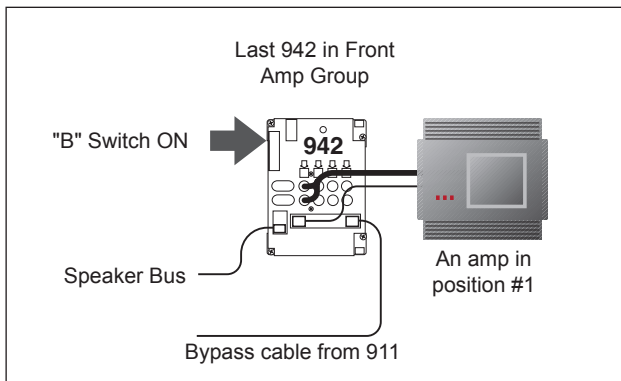


Figure 31. Amplifier Bypass configuration. No amp may be connected to position #4.

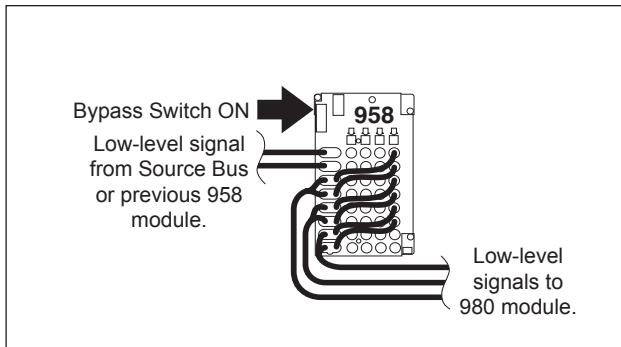


Figure 32. EQ bypass bus wiring on last 958 in the Processor/EQ group. No EQ can be connected to position #4.

Set the 980's "Power Mode" switch and each main module's "D" and "T" switch.

Mode	Effect on Product Groups	Power Mode Switch on 980	Delay or "D" Switch on Main Modules
Power Conserve	One unit ON; delayed turn-on	ON	ON
Smart Power	Up to three units ON;	OFF delayed turn-on	ON
Continuous Power	All units ON;	OFF no turn-on delay	OFF

Remember, T set to OFF = 3/4 second delay for head units, processors or small amps (Models 911, 952, 958)  
T set to ON = 3 second turn-on delay for power amps (Model 942).

### G. Setting the Parallel Speaker Limits

The Access™ System can allow multiple pairs (up to four pairs) of speakers to play in each Speaker Group, at one time, from the same amplifier. Leave the default setting at two, or use a setting of one pair per group, unless you're very confident of every amp's stability.

The factory default setting (two) allows two pairs of front speakers, two pairs of rears, and a pair of subs. If you decide to allow three or four pairs, consider that two pairs of speakers playing in parallel in the same group, the load presented to the amplifier is increased in exactly the same manner as connecting the two pairs of speakers directly to the amp's output. The amp now "sees" a lower impedance or higher load and works a little harder. Two pairs of speakers, both at 4 ohms, would present a 2 ohm load to the amp. Three pairs could present 1.7 ohms of load impedance or lower.

1. Immediately beneath the "Power Mode" switch on the 980 are three additional switches labeled "Speaker Limit" and numbered 1, 3, and 4. The switches are set to OFF at the factory.
2. To change the factory setting, turn on the limit number switch you want. Leave the other switches OFF. Example: Turning limit number 3 ON allows three pairs of speakers per group to play simultaneously.



Figure 33. 980 speaker limit switches.

## H. Install the RF Antenna Distribution System

Retail stores often have poor indoor FM reception, so it is recommended to install a roof-top antenna, and/or provide an alternative music source. These FM signals can be made available to all head units via an RF distribution system. Install an FM modulator and a 975A FM Distribution Amp.

1. Unpack items 975A FM Amplifier (*Figure 34*) and KIT17(s) (*Figure 35*). Follow the enclosed instructions completely, making sure that the coax cable used to connect the 4-way taps is not kinked or bent during the hookup process. If you need additional instructions, please contact the factory and request detailed instructions, part # 752-139.
2. Use a 7/16" open-end wrench to tighten all F-connector terminations.
3. Make certain that the F-to-Motorola cables are not allowed to touch the switching modules. The Motorola plug could cause a short if allowed to touch the modules.
4. Make sure that you have inserted the proper F-59 Termination Plug in the last 4-way tap block's "Out" position (*shown above in Figure 36*).
5. The 975A displays a solid lit LED (not "heartbeat") when the antenna is earth grounded (*shown in Figure 37*).

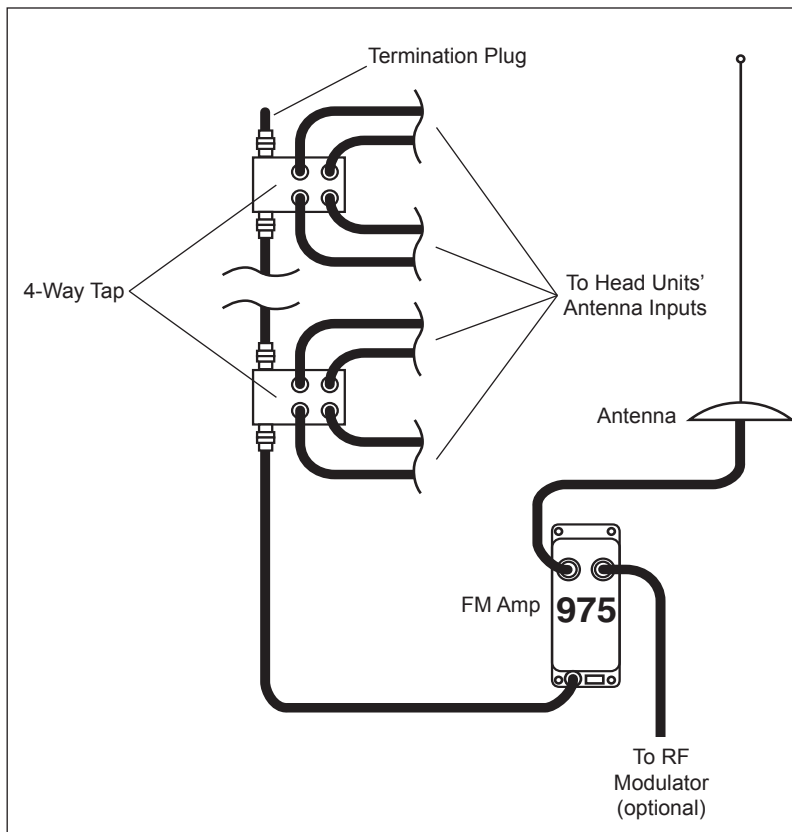


Figure 36.



Figure 34. Model 975A AM/FM Amplifier.

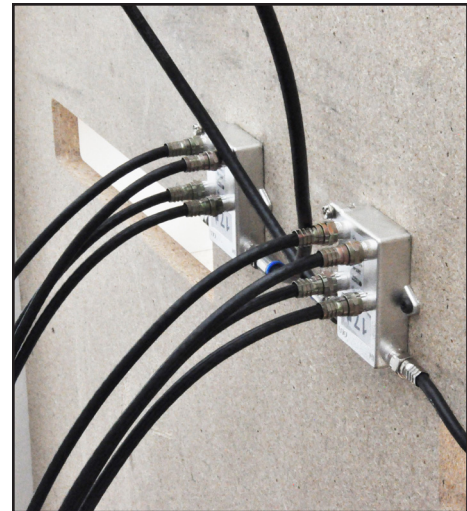


Figure 35. KIT17 installed on rear of display fixture.

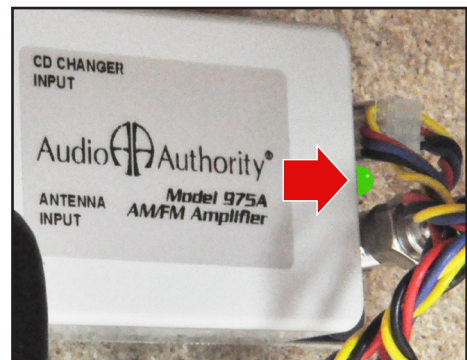


Figure 37. 975A displaying solid lit LED.

## I. Check Your Work to This Point

1. Check the Group and Module ID settings on all modules against your system plan (Figure 38).
2. Check the Expander modules in the system to insure that audio signal expanders (920X, 940X if any) are connected to the “Expander” header and that the DC expander modules (914X and 917X) are connected to the “DC Expansion” header on their main modules.
3. Check programming switches, especially the following:
  - Bypass switch is ON only where a bus has been connected to the 4th product position on the last module in a group that can be bypassed (such as processors, passive EQs, amplifiers, etc.).
  - Left–Right switch set correctly on 932 and 939 Speaker Selectors; LEFT for left speakers, RIGHT for right speakers. In special cases, like mono subwoofers, set switch on the single channel 932 or 939 to RIGHT.
4. Check signal bus routing.
  - Follow the physical path of signal buses from source group products, through intermediate product groups, out to the speaker groups.
  - Be sure to include all product groups in your inspection.
  - Include all bypass conditions; check groups that can be bypassed, such as processors and amplifiers. Make sure only the last module in the group (module with the highest Module ID setting) has the “B” or “Bypass” switch in the ON position (for a hookup diagram, see page 41).
5. Make sure the system bus and speaker bus have solid connections, with the correct polarity (Figure 39). When your system is powered up from the power supply, all the main modules should be blinking, with a “heartbeat.” If one or more modules do not show the blinking LED, check the System Bus connections.

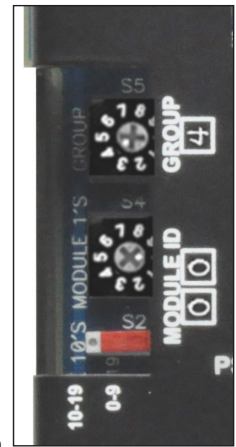


Figure 38.

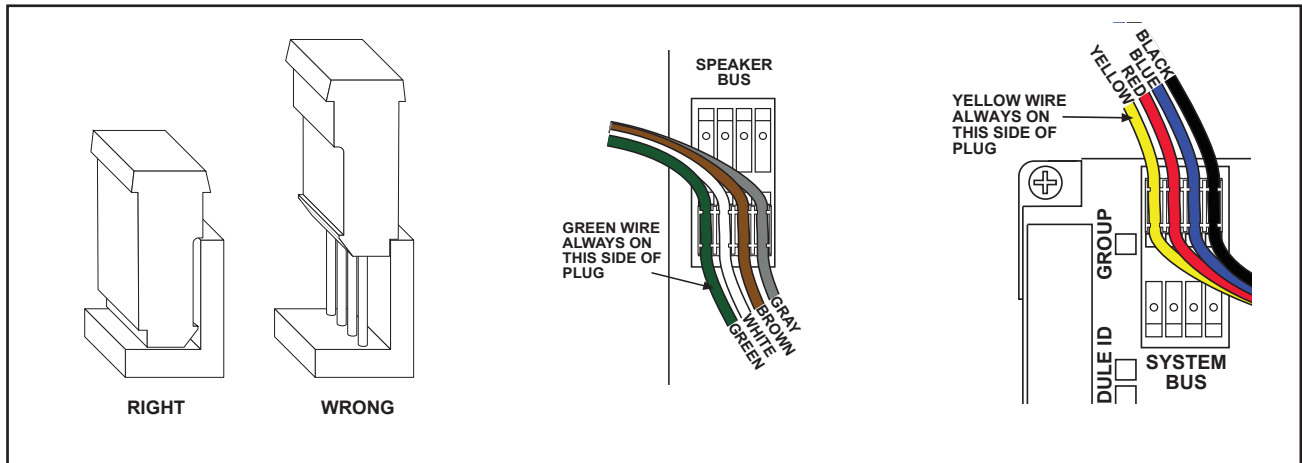


Figure 39. Observe correct polarity for all bus connections.

6. Check the DC Bus. If one or more products do not power up, and you are confident of the DC bus connections, check each fuse on 911, 914X and/or 917X module for a red, non-blinking LED close to the fuse holder on the circuit board. If the red LED is ON, replace the fuse with one of the same value.



# Installing a Control Method



## 1. Installing a 903i Control Panel

Skip this step if you do not have a 903i Comparator. If you have a 903i, it is accompanied by a separate User's Guide which you should locate for future reference.

- A. For a 903i Touchscreen, cut an opening 11.3/8" (289 mm) wide by 7.5/8" (194 mm) high. If the surface is wood, you may need to make a notch for the USB plug. Use the bezel to mark screw hole locations and drill holes for the screws.
- B. Connect the Model 974 USB to Serial Adapter system bus port to any vacant Access System Bus header. Connect the USB mini from the 974 to the 903i USB port (see Figure 40). Securely mount the Model 974. Connect Power and bottom cover.

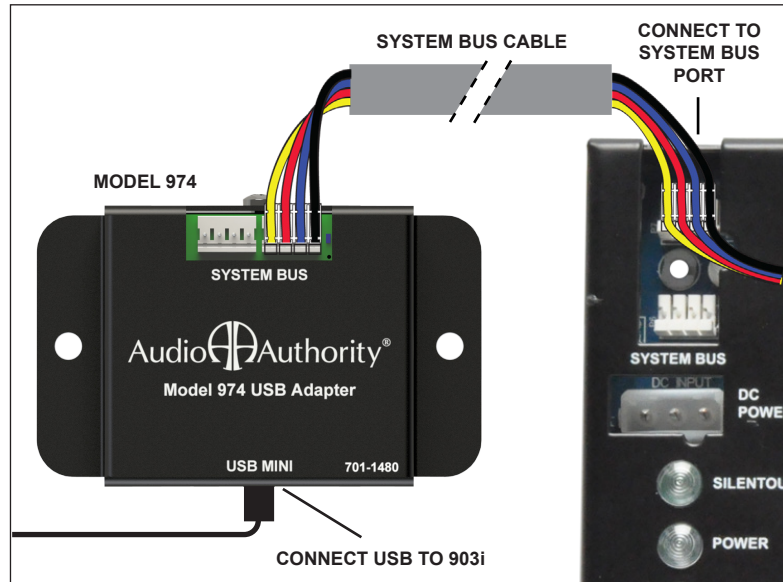
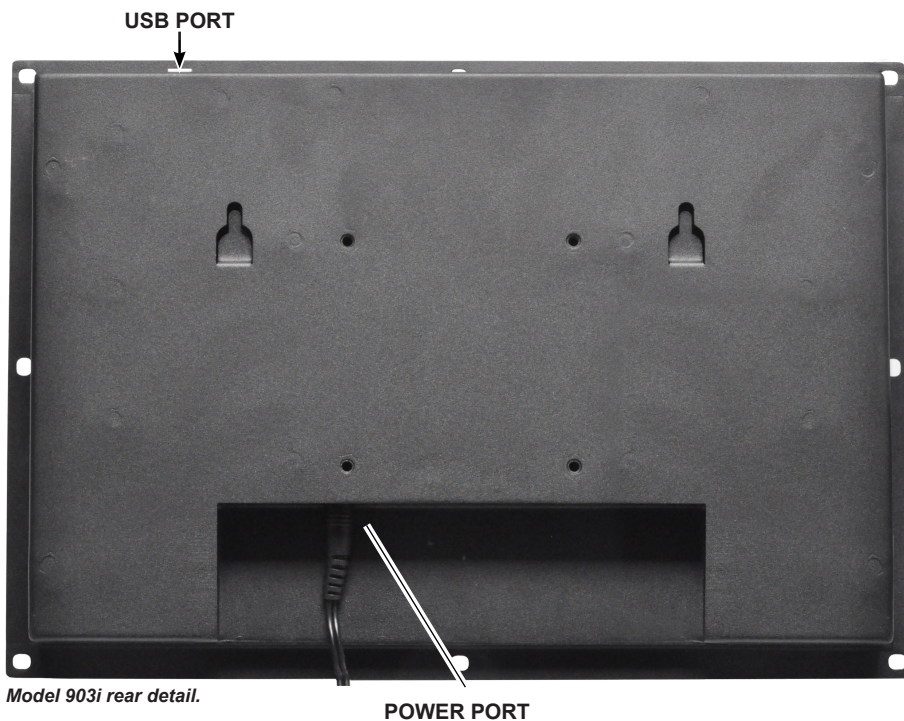


Figure 40. 903i connection diagram.



Model 903i rear detail.

# Installing a Control Method (continued)



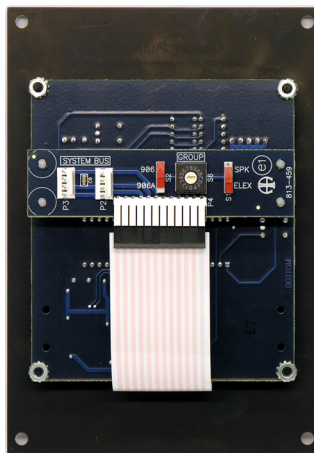
## 2. Installing a 906

Skip this step if you do not have a 906 Control Panel. If you have a 906, it is accompanied by a separate User's Guide which you should locate for future reference.

- A. For a 906 Control Panel, cut an opening 4 - 1/16" (105 mm) wide by 5 - 1/8" (130 mm) high. Use the panel to mark screw hole locations and drill 7/64" (2.5 mm) holes for the screws.
- B. Set the Configuration Switches on the 906 control panel (See 906 Switch Settings on page 28.)
- C. Mount the 906 control panel using the four screws provided. **Do not overtighten the screws.**



Model 906 Control Panel Front.



Model 906 Control Panel Rear.

## 906 Switch Settings

Switch	Function	Comments
906 / 906A	Primary/Secondary	This switch should only be in 906A mode when two 906 Control Panels are controlling the same product group.
Group	Address	Set this switch to the number of the Product Group it will control.
Spk / Elex	Speakers or Electronics	Set to Spk for controlling speaker groups, and Elex for controlling head units, eqs, and amplifiers.

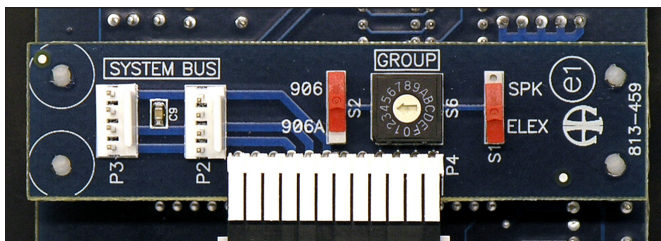
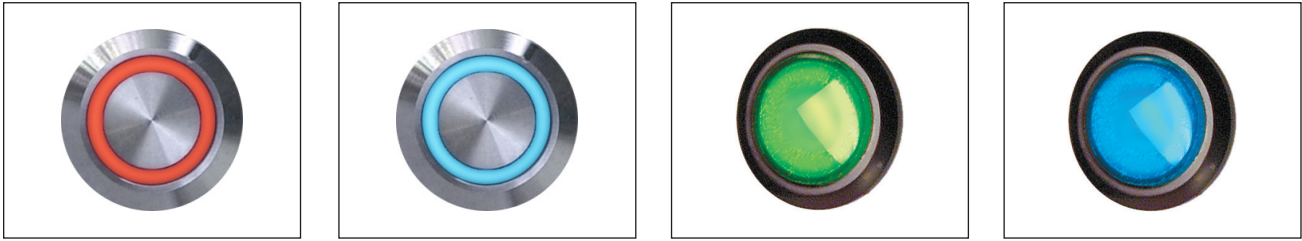


Figure 41. 906 Control Panel connections and settings detail.

### 3. Installing Product Select Buttons

You may use product select buttons (PSBs) alone, or in conjunction with a control panel.



*Product Select Buttons are available in different styles and color options, ask your project manager for details.*

A. Determine where each PSB and Indicator will be located, usually close to the product the PSB will select, and often near product information tags.

- For plastic PSBs: drill a 1 1/8" inch hole in the panel or surface. Remove the nut and feed the switch through the hole. Tighten the nut and install the white switch mechanism.
- For stainless steel PSBs: Drill a 3/4" (19 mm) hole. Maximum panel thickness is 0.5 inch (12.5 mm). Required depth is 2 inches behind front panel surface. Tighten the nut.



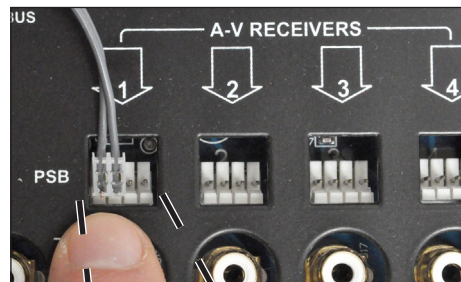
B. You may wish to leave the PSB mounted in the shelf or product panel, or install them later, after your components have been mounted.

C. Locate the switching module where the component will be connected. Each module has either 2-pin or 4-pin headers above the product connectors numbered from 1-4, or 1-8. As you install the display products, you will connect the PSBs and Indicators to these headers using the cable assembly supplied with each.

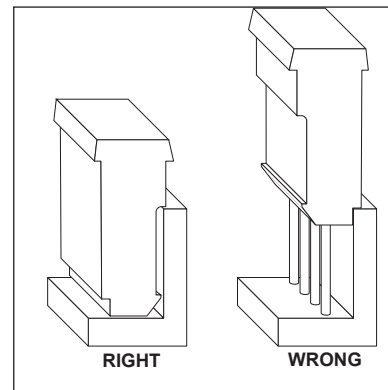
**Note:** When using 2-wire buttons on 4-pin headers, use the left pair of header pins (shown in Figure 43).



**Figure 42.** Top: Plastic BRB Button.  
Bottom: Stainless Steel Button



**Figure 43.** Be careful to maintain PSB cable polarity.



**Figure 44.**



## 4. Installing Remote Switches

It is often desirable to add “outboard” switches for remote operation of certain system management tools.

### A. Remote Power Switch.

- If your system does not include a Control Panel, you may want to turn the system on and off using a remote key switch or toggle switch.
- Use any SPST (single-pole, single-throw) switch you prefer. Low current switches will work perfectly well.
- Connect the switch between the “Power” and “Com” pins of the 980’s “Remotes” terminal block.

### B. Remote System Reset.

- There is a “System Reset” button on the 980 that enables the user to reset the system in the unlikely event that the system “hangs up”. Pressing this button will re-boot the entire system. Having a Remote Reset switch is a good idea in any system since the 980 is usually buried inside the display and would not be readily accessible if the system ever needed to be reset. You may wish to “hide” this remote switch from customer view.
- Connect a SPST switch (*Figure 46*) between the “Reset” and “COM” pins on the “Remotes” terminal block located on the 980 (*Figure 45*).
- Your system can now be “Reset” using this remote switch.

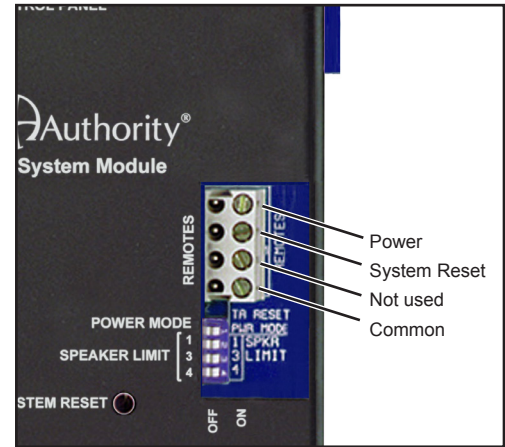


Figure 45. 980 Remotes terminal block.

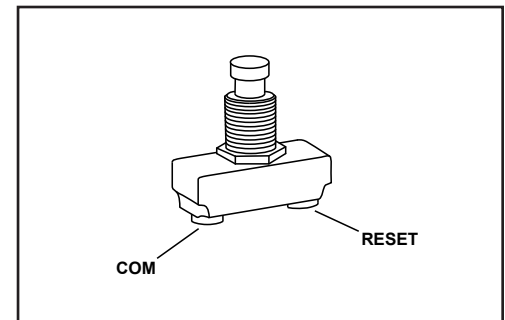


Figure 46. SPST Switch.

# Testing System Function



## 1. Normal Operation

After installation is complete, all the system's components need to be tested. Apply power to the system and observe the following signs of normal operation:

- The green SilenTouch™ LED is lit on the 980.
- The green Power LEDs on the switching modules and the 980 are slowly blinking.
- The red 980 Low Voltage LED is not lit, or very dim.
- For the moment, ignore the color of the clear LED marked "Bus Monitor" on the 980. Later, when product selections are made, you will notice that the Bus Monitor LED flickers orange. This orange flicker is normal. It merely indicates that "traffic" is present on the bus.

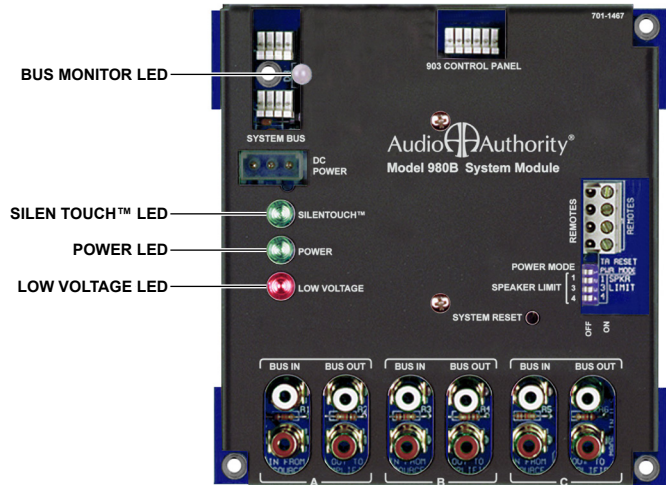


Figure 47. Model 980 System Module. 980EZ is similar.

**Note: If the Low Voltage LED is brightly lit, your system will not function. Check the output voltage of your power supply and contact Audio Authority Technical Support.**

## 2. Testing the Product Positions

Use the PSBs (product select buttons) to select each position called for in the following procedures. If your system does not include PSBs, use a screwdriver to short one set of the two outside pins of the small 4-pin PSB port at each location as shown in Figure 48 and called for in the following steps.

1. Connect a PSB to one position on a switching module belonging to each Product Group and press the button. Watch for the following signs of normal operation:
  - The test PSB lights.
  - The 980 SilenTouch™ LED blinks off momentarily.
  - The 980 Bus Monitor LED flickers orange.
  - Each product selected with the PSB is displayed in the correct Product Group Card on the 903i.
2. Deselect a selected position in any group (Press a PSB or short a PSB port).
  - The LED goes out.
  - The 903i product position deselects in the respective Product Group Card.
3. Select a speaker position, then move the PSB to the same module location on the opposite side of the speaker section of the display.
  - The PSB lights up as soon as you plug it in, showing both left and right speaker positions are selected.

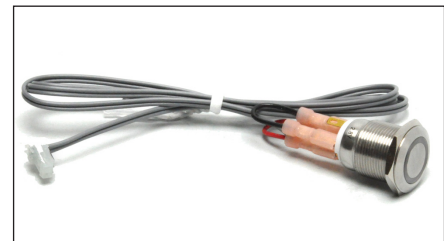


Figure 48. Stainless Steel PSB with 2-pin harness.

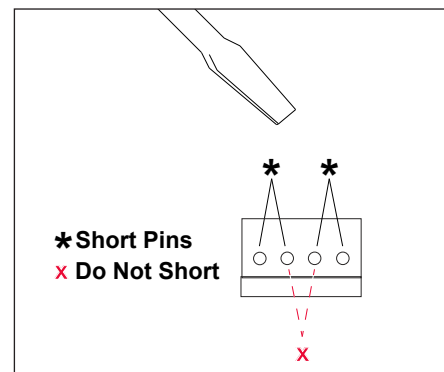


Figure 49. Test without a PSB by shorting either pair of pins.

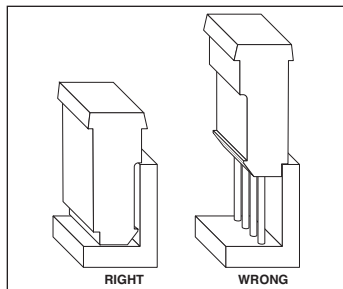
4. To select more than one speaker pair in a group, press the PSB and hold the button for at least one second.
- If the speaker limit setting on the 980 is set to 1, the PSB will not come on.
  - If the speaker limit is 2 or higher, the PSB will come on in both the first and second speaker position (factory default is 2, with 980 limit switches all in the OFF position). The 903i Product Group card will display the two selected speaker pairs.

#### 4. Installing the Product Select Buttons

Connect the plug of the PSB's cable, if PSBs are used, to the 4-pin headers on the circuit board at the corresponding product position.

A. Press the PSB into the hole (*Figure 51*) you drilled earlier in the mounting panel or display fixture and tighten the nut.

B. Plug the connector into the PSB (*Figure 52*).



**Figure 50.** Correct PSB cable polarity.



**Figure 51.** Plastic PSB button assembly.



**Figure 52.** Inserting switch into PSB.





# Demo Product Installation

It is now time to begin installing the car audio head units, EQs, amplifiers and speakers. If you've followed the instructions so far, you will soon have a working system. This section assumes that the products have been mounted onto removable panels or onto the front portion of your fixture. You will obviously need to connect the wires from the products to the switching system and DC distribution system, so you may wish to map out a plan for that process that allows easy access to the modules from the front or the rear of your display.

Utilizing good wire management practices will help avoid masses of hookup wire hanging down from products. Quality checks are recommended as you install the products to ensure a successful install and help cut down on troubleshooting time. Take your time mounting the products and be sure to save their boxes and accessories, so that you can offer your customer a new or almost new unit when you later take the product out of the display.

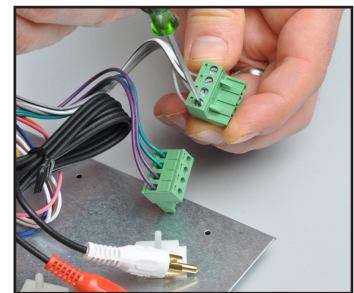
## 1. Install the First Products

Install one product in each of several groups in order to get a simple system running. For example, install a head unit, a processor (if any), a multi-channel amp, and a pair of front and rear speakers (See Appendix B for detailed hookup drawings). **Leave your power supply ON, but be careful using metal tools.**

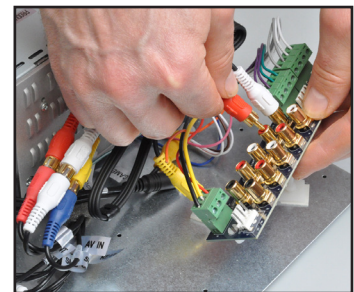
### A. Head Units

Head units may be connected directly to 911 modules, but in many cases using a Head Unit Connection module makes installation, and future product rotation, much more convenient. Models 9A10, and 9A15 are available for this purpose. This section explains installation using 9A15 modules, but use the same principles with other modules, or ignore references to 9A15 if you are connecting head units directly to the 911.

- Connect the unit's ground, battery, ignition, front and rear high-level (speaker) outputs to the terminal blocks labeled Head Unit, Front and Rear on the head unit side of the 9A15 as shown in *Figure 53*. Observe the polarity legend printed on the circuit board under the terminal plugs. Connect the 9A15's Switch Module side Front and Rear connectors to the corresponding 911 Front and Rear Speaker Level Outputs connector.
- Connect the low-level output to the 9A15 RCA jacks labeled Head Unit Front (R) and (L), Rear (R) and (L), and Sub female RCA jacks using short, high quality patch cables as shown if *Figure 54*. Connect high quality patch cables to the low-level 9A15 Switch Module female RCA jacks labeled Front (R) and (L), Rear (R) and (L), and Sub to their corresponding 911 Low Level RCA connectors.
- Connect the Head Unit connectors and RCAs to the product and mount the 9A15 to the deck tray as shown in *Figure 55*. Use stand offs to mount the 9A15 to a metal deck tray.
- Connect the 9A15 Switch Module connector from GND, BAT, and IGN to the 911 DC Power connector.
- Plug an FM antenna cable from the FM Distribution System into the unit's female antenna jack.
- Install the unit in your fixture.



**Figure 53.** Cable termination from head unit to 9A15 connecting blocks.



**Figure 54.** RCA termination from head unit to 9A15 RCA connectors.



**Figure 55.** Mounting 9A15 to deck tray.

## B. EQ/Audio Processors

Connect a processor's audio inputs and outputs to a 958 in the Processor/EQ Group. Then connect the processor/ EQ's DC power inputs to a 914X DC Expander Module.

- Connect a high quality RCA patch cable from the 958's Left and Right Input jacks to the EQ's input.
- Use additional RCA patch cables to connect a corresponding jack pair from the Left and Right Front Output to the EQ's Front output. Do the same for the EQ's Rear and Sub outputs.
- Connect the ground lead to the GND terminal.
- Connect the memory lead to the BAT terminal.
- Connect the ignition lead to the IGN terminal.
- Install the EQ in your fixture.

## C. Amplifiers

Connect an amplifier's audio signal inputs and outputs to a 942 module and DC power inputs to a 914X for low current amps or a 917X DC Expander Module for high current amps. Four DC harness assemblies are included with each 914X/917X.

1. Connect the amp's audio inputs and speaker outputs a the 942 Module.
  - Connect a high quality RCA patch cable from the same numbered 942 Left and Right Audio jacks to the unit's input.
  - Use 14 - 16 gauge speaker wire to connect the unit's Speaker outputs to a corresponding Speaker Output terminal plug.
2. Now connect the amp's DC power inputs to the 917X connected to its 942 module.
  - Connect the amp's ground lead to the Black wire in the harness.
  - Connect the amp's battery lead to the Yellow wire in the harness.
  - Connect the amp's ignition lead to the Red wire in the harness.
  - Plug the connector on the other end of the harness onto a numbered amp position on the 917X circuit board. No smoke and fire? Great!
3. Install the amp in your display fixture.

## D. Speakers

Install a pair of speakers in the Front Speaker Group.

**Note: You may wish to extend the wiring location for speakers from the 932 module to a convenient spot in each speaker cavity in your display and install two position terminal blocks.**

- Connect the left speaker to one of the two position terminal blocks on the Left 932 and the right speaker to the corresponding position on the Right 932. Wire the positive lead to (+) and the negative speaker lead to (-).
- Connect the 2-pin plug of the PSB's cable, if PSBs are used, to the 4-pin headers on the 932 circuit board at the corresponding product position. Press the PSB into the hole you drilled earlier in the mounting panel or display fixture.

**Note: One PSB will activate both left and right speakers when selected. You may wish to install a PSB on both speaker locations for easy product selection.**

- Install the speakers in the display fixture.



## 2. Test Your Initial Product Installation

A. Select the test products using PSBs or Control Panel. (See 906 or 903i manual for detailed instructions).

- On a 903i, select a product from one of the Product Group cards.
- Select the remaining test products in their respective Product Groups.

B. Adjust the product controls until you hear music. If none is heard:

- Check for source material (Satellite, MP3, CD, HD/FM tuning).
- Check your product selection numbers on the control panel or touch screen for accuracy.
- Check product connections to the switching modules.
- Make sure all products are receiving DC power.
- Check all Group, Module, and programming switch settings. Refer to the configuration on the information boxes and your system plan.

**Note: If you make any changes to the 906 switch settings, press the System Reset button on the 980 System Module or cycle power.**

- Make sure that PSBs, if present, are connected to the correct header position.
- If PSBs are not installed, plug a test PSB into the respective headers or use the header shorting method on the switching modules to make sure that the products are currently selected to play (See Figure 49 on page 30).
- Follow the signal path visually through the product hookups and system buses to make sure there are no wiring errors or RCA cables that have been pulled loose. If you still have difficulty, call Audio Authority Technical Support at 800-322-8346.

## 3. Install the Remaining Products

- Install the rest of the sources, amplifiers and speakers by groups.
- Check all connections in each product group as it is completed.

## 4. Test All Products

This section covers operation of Access™ Systems using PSBs rather than a Control Panel. For operation of systems utilizing a control panel or comparator, please see the separate User's Guide included with those control methods.

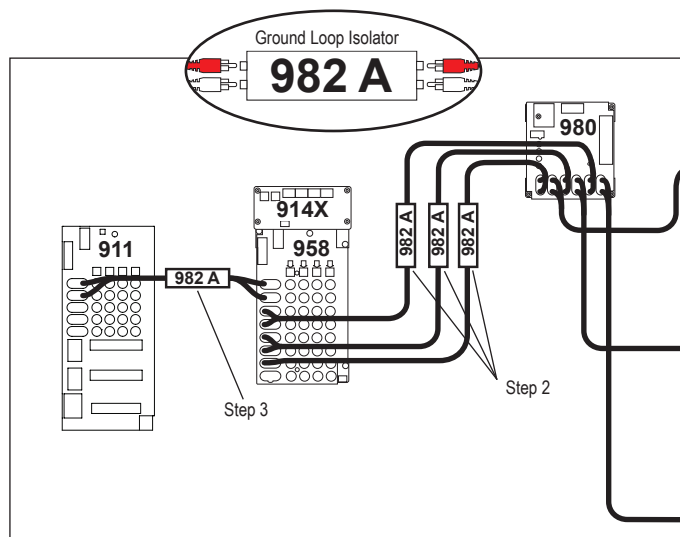
1. Make sure the system is on (check power lights on switch modules).
2. Select products to play by pressing the PSBs next to one product in each product group. The PSB lights, confirming that the product is selected.
3. Adjust product controls to get the desired audio level.
4. Select a new product in any group by pressing its PSB. The previous selection is automatically canceled. Select every product in each group to be certain all products are correctly installed.



## Troubleshooting Noise Problems

The Access car audio system topology combats unwanted noises by automatically double-grounding the inputs of both selected and deselected amplifiers, because a car audio display presents a different electrical environment than a car. Sometimes noise such as hum, transport-related noises, or switching-related popping can still occur.

1. If an undesired noise turns up in the audio of one or two products, carefully check the products themselves and their wiring for defects. If a whole group of electronics or a large part of it is affected, review the system wiring— or ask someone else to do it— to uncover anything that may have been overlooked during installation, especially in the type of shielded cables that were used.
2. If noise persists, add 982A isolators in all signal paths between the EQ group and the 980 as shown in *Figure 57*.
3. An isolator placed in-line between the head unit group and the EQ group instead of (or in addition to) those in Step 2 may improve noise performance even further.



**Figure 57.** Install 982A Ground Loop Isolators on the Front, Rear, and Sub Low-Level Bus in the signal path just before the Model 980. If noise persists, install a 982A in the signal path between the head unit group and the 958.



# User Tips

## 1. Selecting Additional Speaker Pairs with PSBs

The number of speakers per product group that can play at once is limited by the way you set the speaker limit on the 980 module. The Access™ System is capable of playing up to four pairs at once, but many amplifiers are not recommended to play more than one pair simultaneously. Read each amp's documentation to determine the setting you should use.

- To add a pair of speakers to the pair currently playing, "Long Press" the PSB (press and hold about one second) for the additional pair you wish to add until both pairs are playing.
- To turn any current speaker selection OFF, press its PSB.
- A short press on a new speaker selection cancels all previous selections.



Figure 58. 980 Speaker Limit Switches.

## 2. Deselecting Products with PSBs

Turn any currently selected product OFF by pressing its PSB. The button light goes OFF. If you deselect an in-line product, such as an EQ, that product is replaced by a direct signal path if you have installed a bypass (for more information, see "bypass" in the index).

## 3. A/B System Comparison

- A/B comparison may be performed on Control Panels. For detailed instructions, refer to the control methods User's Guide.
- When you switch a component such as a source, the Access System (configured with a 980 module) engages our exclusive SilenTouch™ circuit to mute the audio level briefly (0.15 seconds) during the switching process. This feature reduces switching noise.

# Reference

## Appendix A: Sample Systems

- Example System 1: Two-Channel System
- Example System 2: Six-Channel System
- Example System 3: Six-Channel System & OEM Head Unit

## Appendix B: Product Connections

- Head Unit Hookup
- Processor Hookup
- Model 980 System Module Hookup
- Model 9A15 Connection Module Hookup
- Amplifier Two-Channel Hookup
- Amplifier Four-Channel Hookup
- Amplifier Bridged Mono Hookup
- Left/Right Speaker Hookup

## Definition of Terms

## Access™ Warranty

## Index



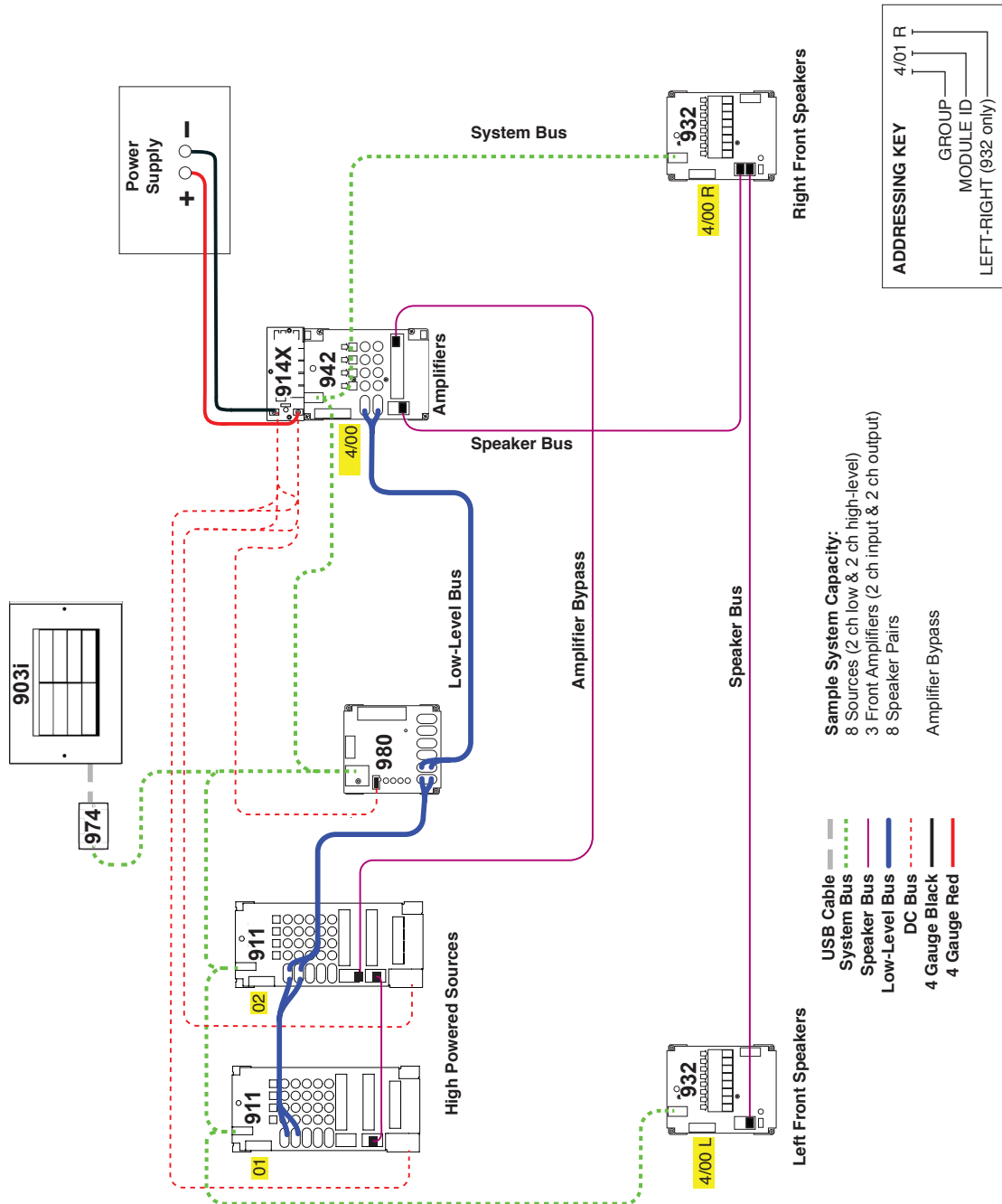
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# EXAMPLE SYSTEM 1

## TWO-CHANNEL SYSTEM

- Addressing
- System Bus
- DC Bus
- Low-Level Bus
- Speaker Bus
- Amp Bypass

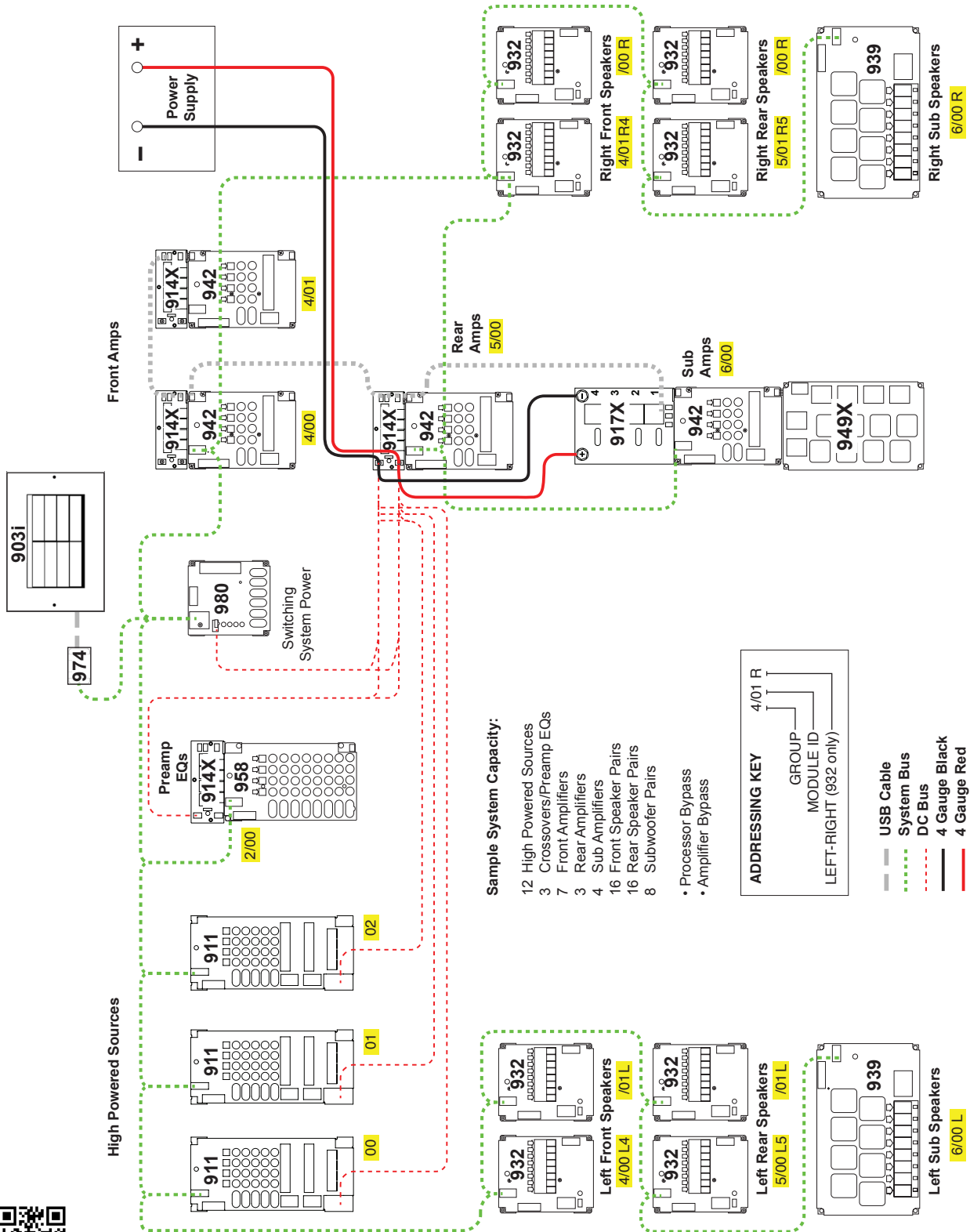


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# EXAMPLE SYSTEM 2

## SIX-CHANNEL SYSTEM

- System Bus
- DC Bus
- Addressing

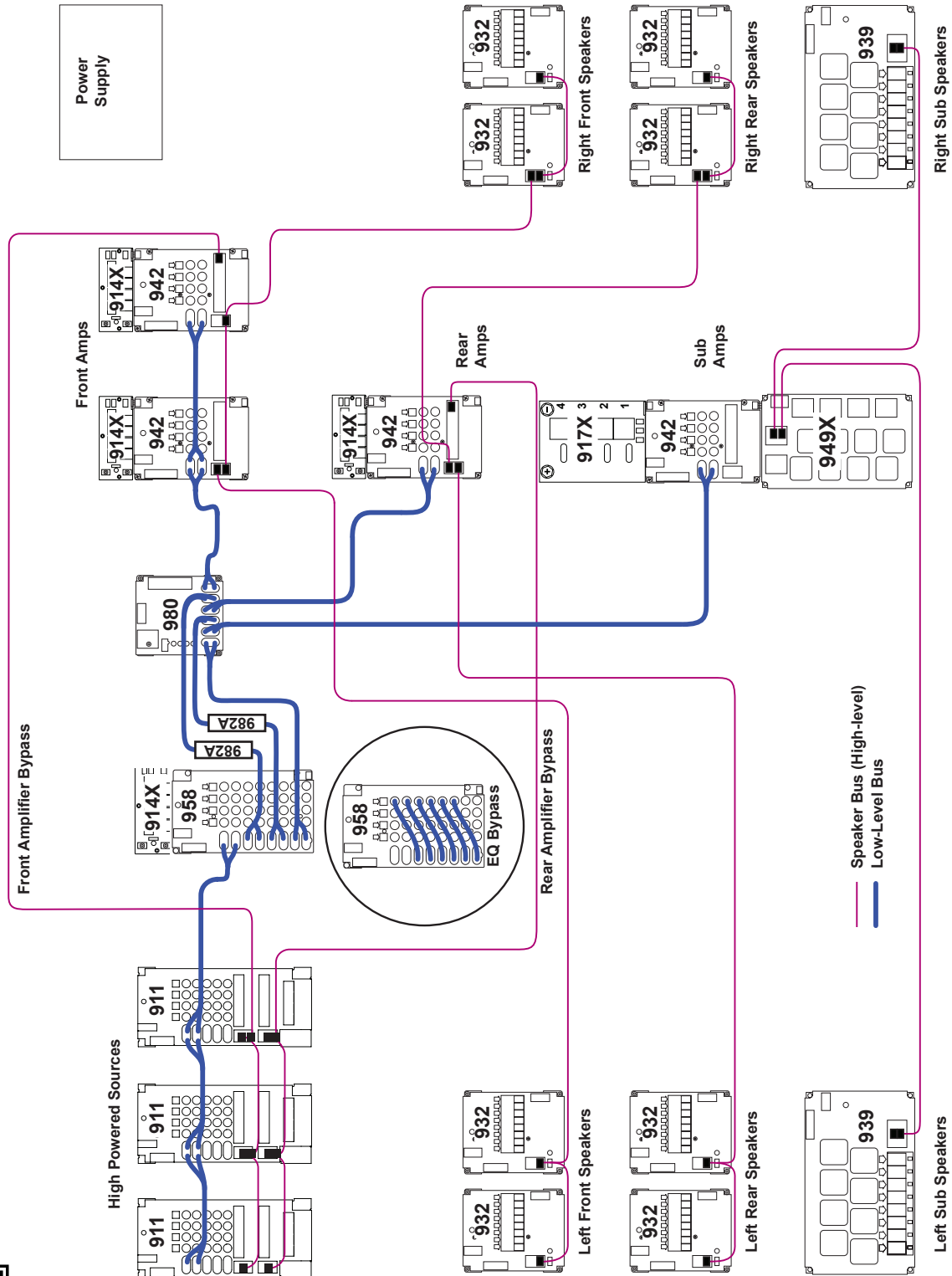


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# EXAMPLE SYSTEM 2

## SIX-CHANNEL SYSTEM

- Low-Level Bus
- Speaker Bus
- Amp Bypass
- EQ Bypass



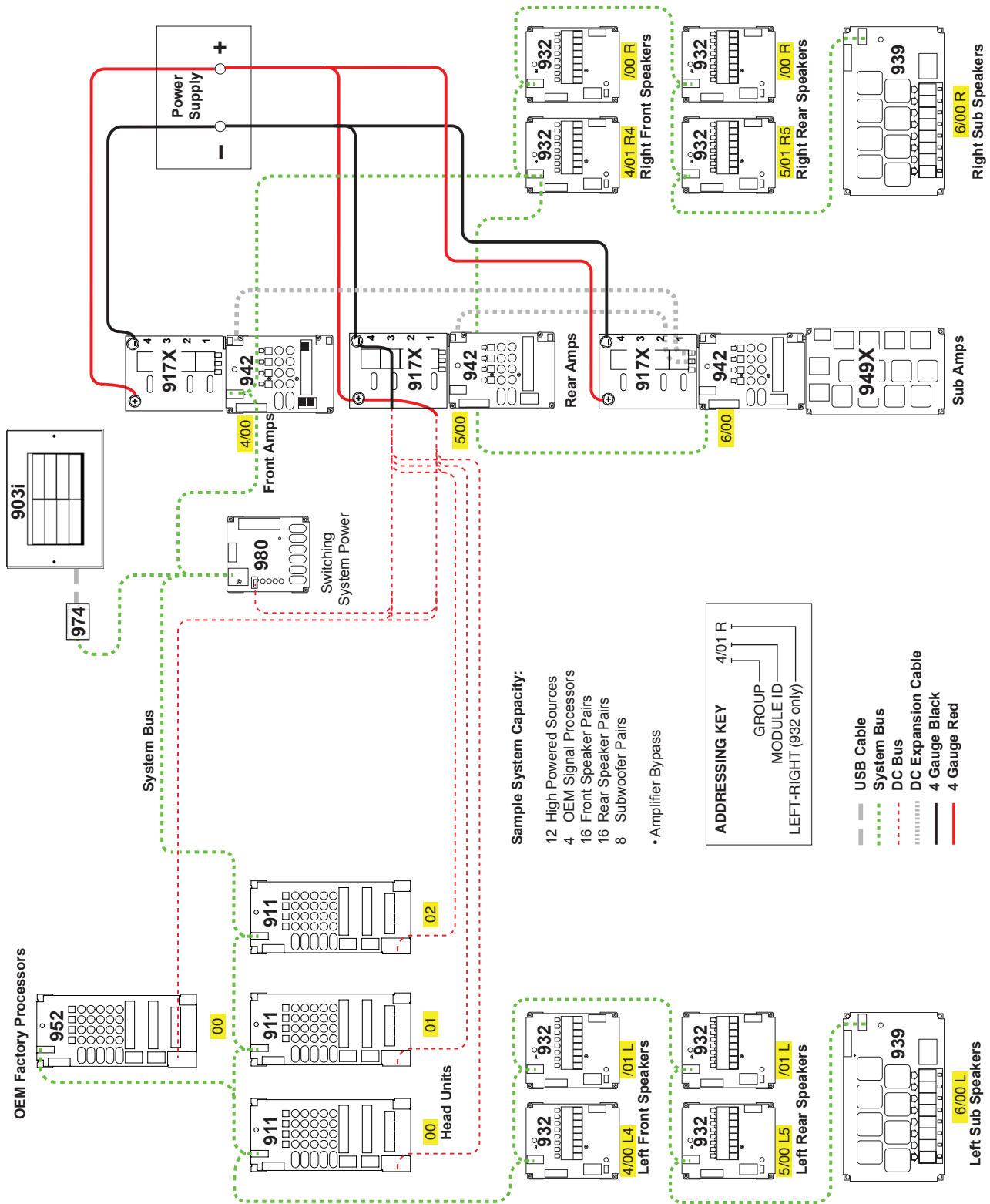
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# EXAMPLE SYSTEM 3

## SIX CHANNEL SYSTEM & OEM HEAD UNIT

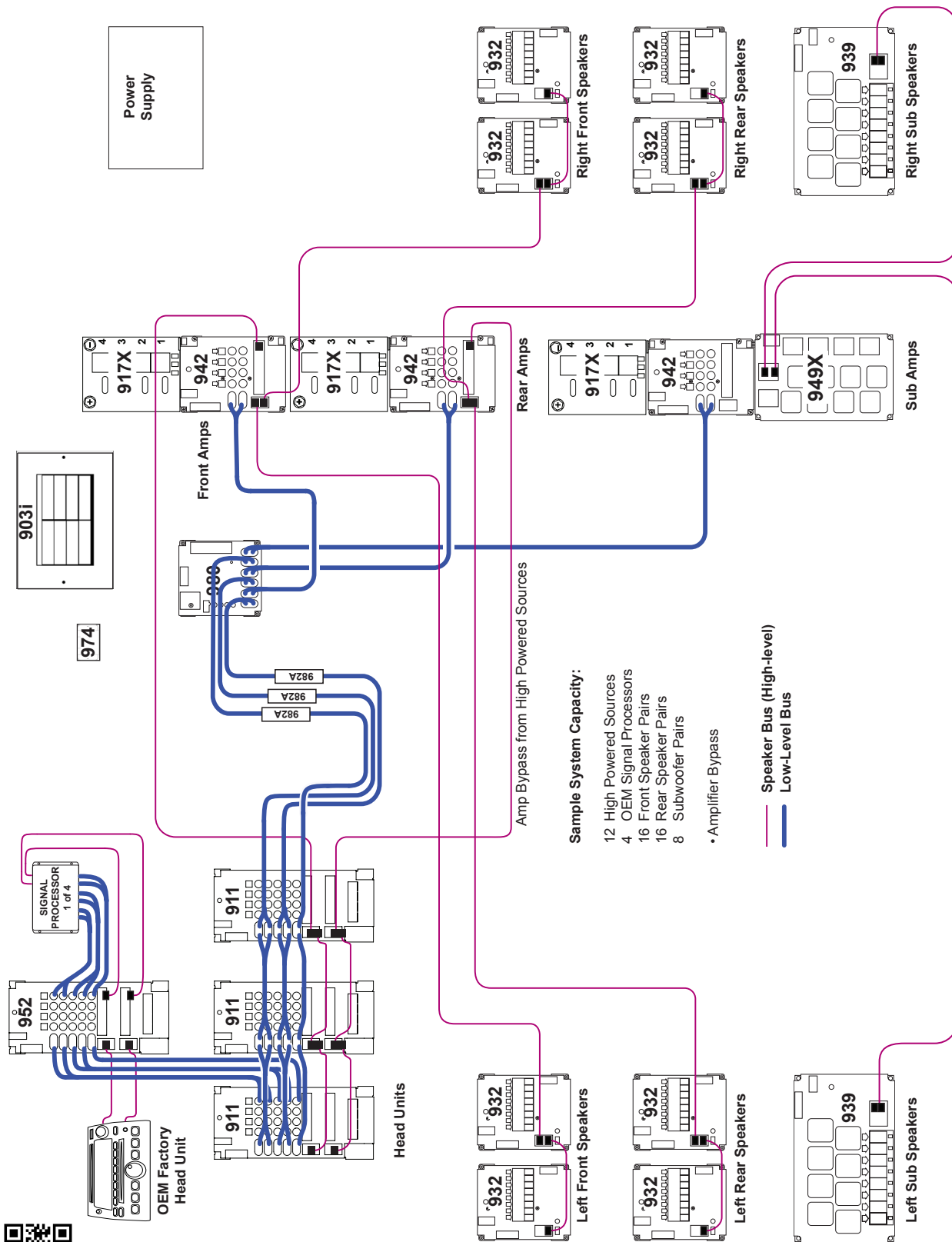
- System Bus
- DC Bus
- Addressing



# EXAMPLE SYSTEM 3

## SIX CHANNEL SYSTEM & OEM HEAD UNIT

- Low-Level Bus
- Speaker Bus
- Amp Bypass

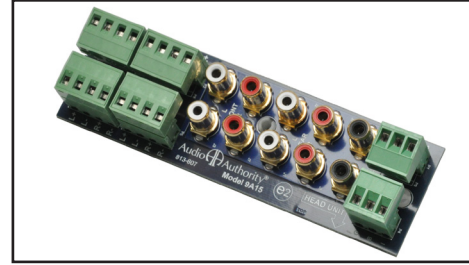


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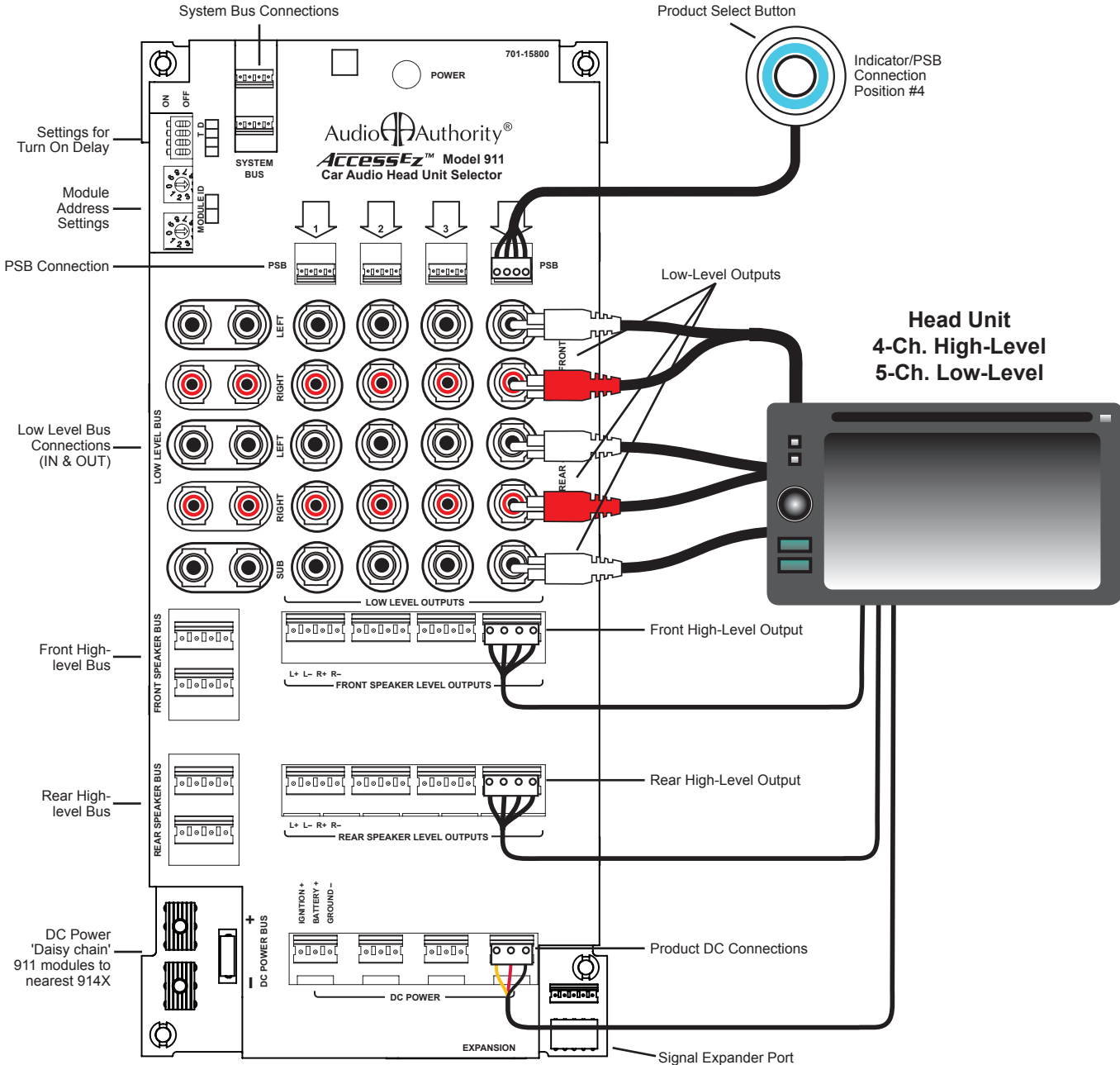
\* See Amp Share Adapter instructions (Model 993), in Appendix B.

# Model 911 Head Unit Module: 4-Channel High- 5-Channel Low-Level

Convenient source module for four car audio sources that includes DC connection. This four position module can be expanded\* with other Model 911's to provide switching for additional source units. Head Unit Connection Module may be added for easier installation (see page 47).



Optional Model 9A15 Head Unit Connection Module

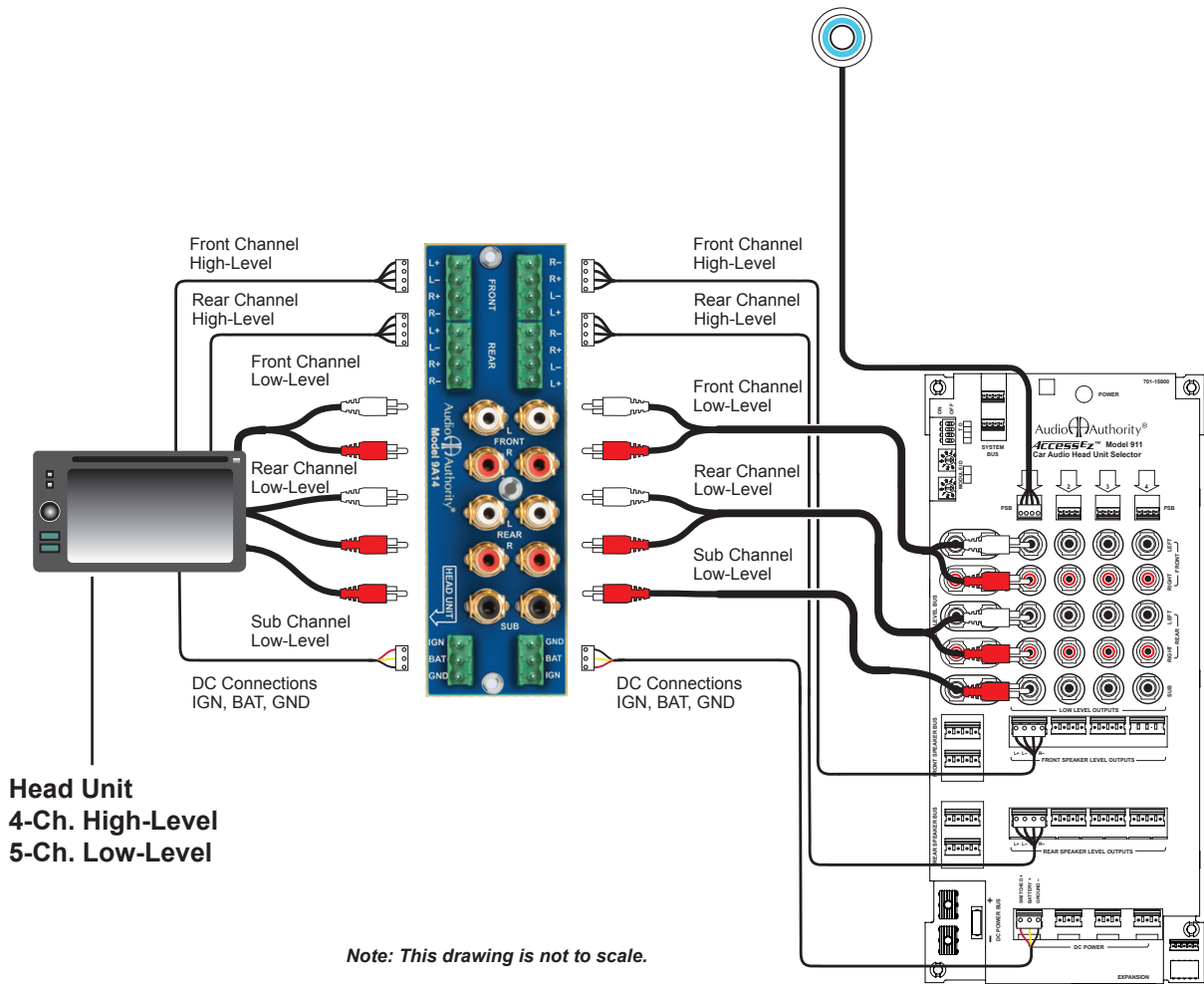


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## Model 9A15 Connection Module / 5-Channel Hookup

The Model 9A15 (9A10 and 9A15) Head Unit Connection Modules may be added for easier installation, rotation or servicing of products on display. Four Model 9A15s required per 911 (four car audio sources). It allows a quick change out of product by anyone with just a few hand tools. The Model 9A15 mounts behind the deck tray or on the inside of the fixture behind the head unit for easy access. The head unit's Front/Rear high-level outputs, Front/Rear/Subwoofer low-level outputs, and DC harness connect to the Head Unit side of the module. The Switch Module side connects to the Model 911 Head Unit Selector.



### Model 911 Head Unit Selector

See Appendix A for other system related connections such as System Bus, DC distribution, or Low-Level and High-Level Bus.

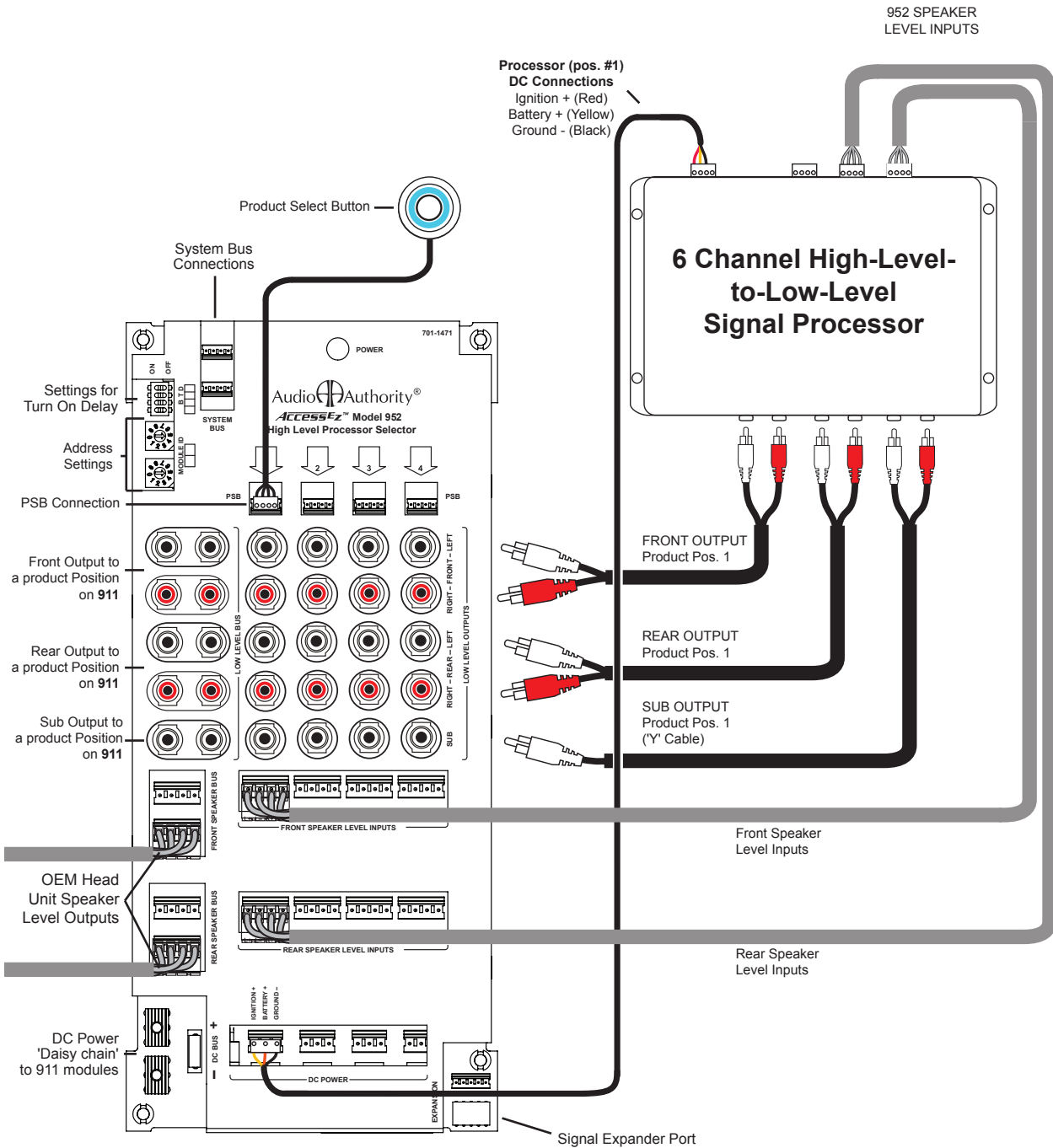


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# OEM Head Units and High-Level to Low-Level Processors

The 952 module is designed to showcase products that enhance factory OEM sound systems. The OEM head unit's high-level audio signals must be converted, via a third party processor, to low-level signals. These processors are connected to the Model 952 as shown below. The Low-Level Bus connections from the Model 952 are routed to the low-level output product connections on the Model 911 System Module.



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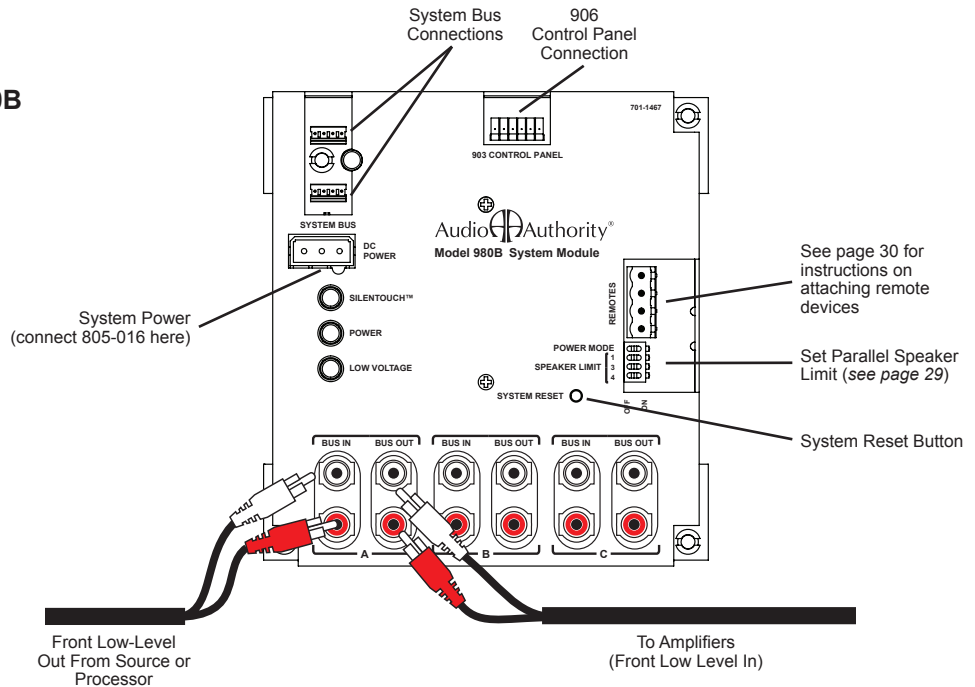
TECH TIPS



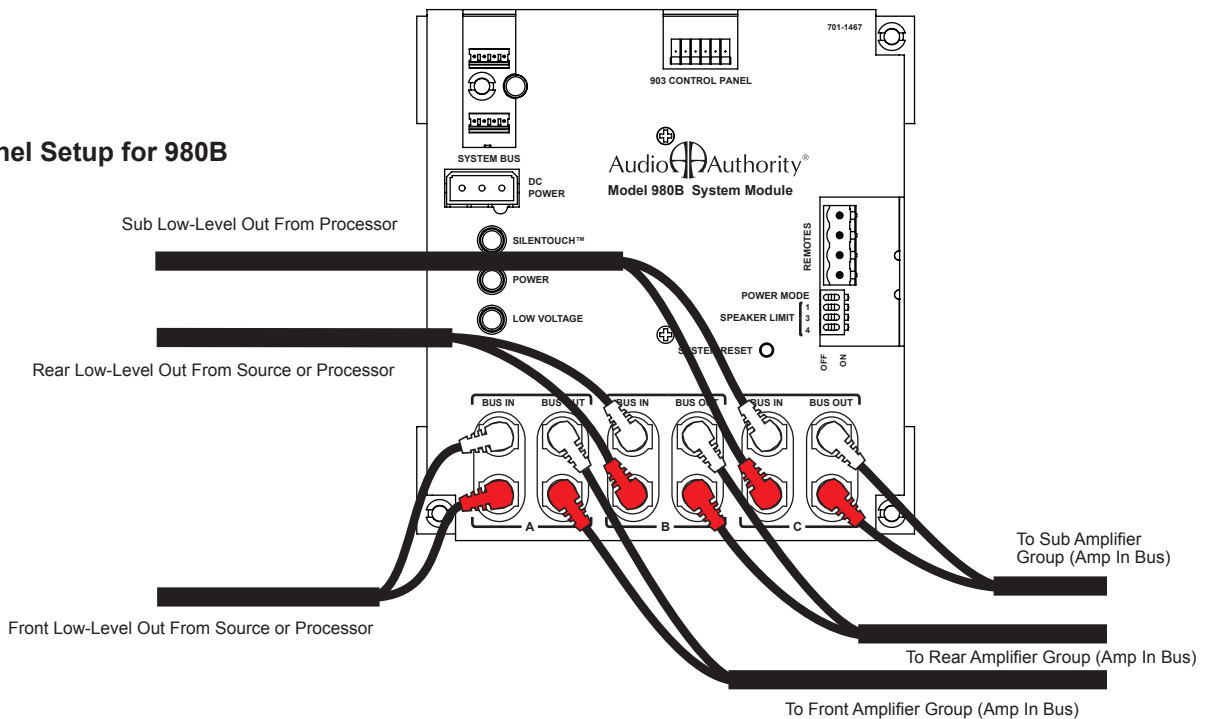
## Model 980B System Module / 2- and 6-Channel Hookup

The System Module is essential for every Access™ system. It makes no difference if selection of product is by Control Panel or by Product Select Buttons or both, therefore, always follow this diagram for proper setup. Concerning signal path, the Model 980B will be located just before the amplifier inputs (see Appendix A). In the 2-channel configuration, the Front Inputs and Front Outputs are the only connections that are used. In the 6-channel configuration, all three sets of inputs/ outputs are used. The Low-Level buses (e.g., front, rear, sub) continue separately from the 980B on to their corresponding amplifiers or amp groups.

### 2-Channel Setup for 980B



### 6-Channel Setup for 980B

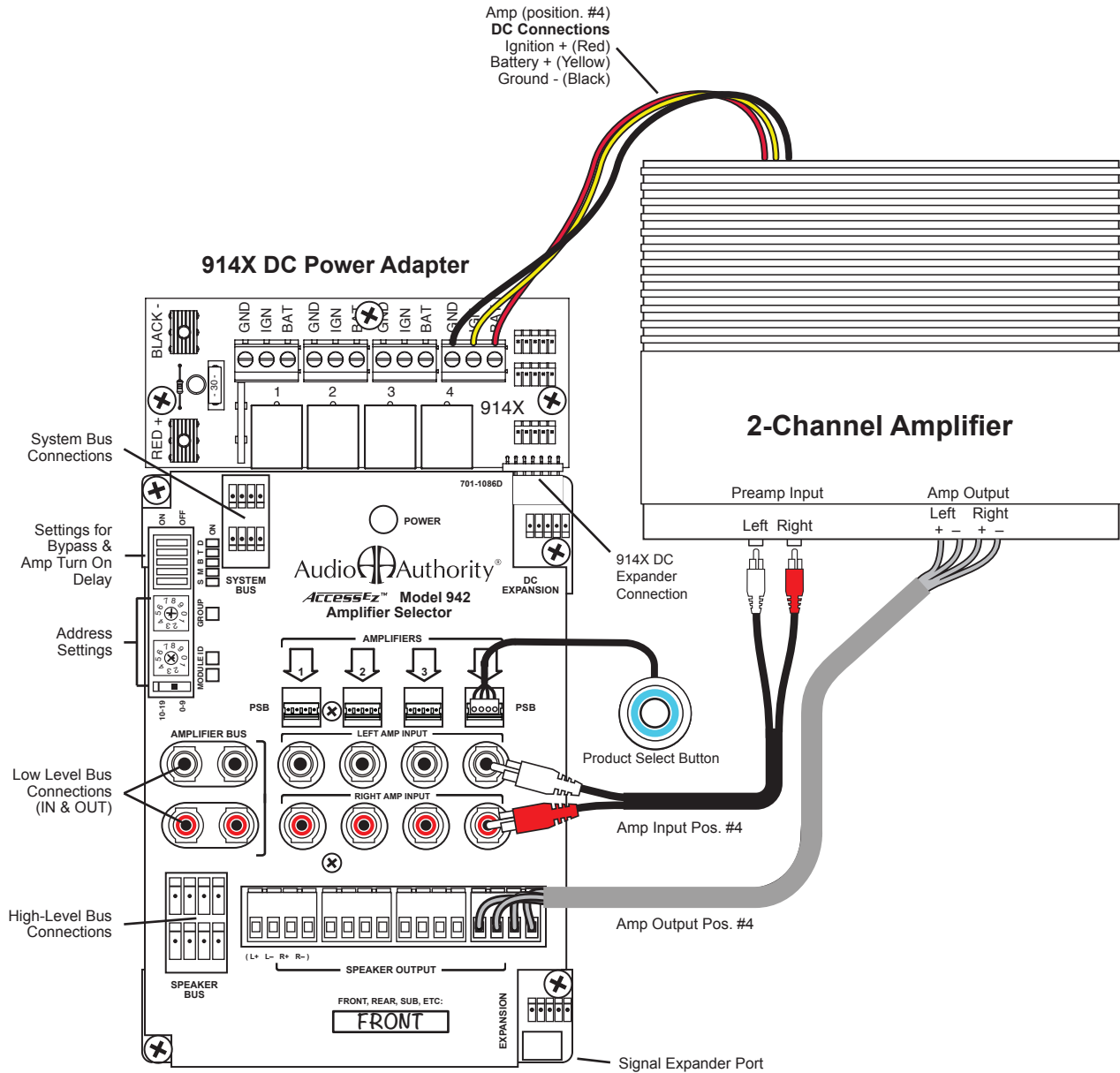


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## Amplifiers / 2-Channel Hookup

This drawing shows the basic connections for a low current 2-channel amplifier. See Appendix A for other system related connections such as System Bus, DC distribution, or Low-Level and High-Level Bus.



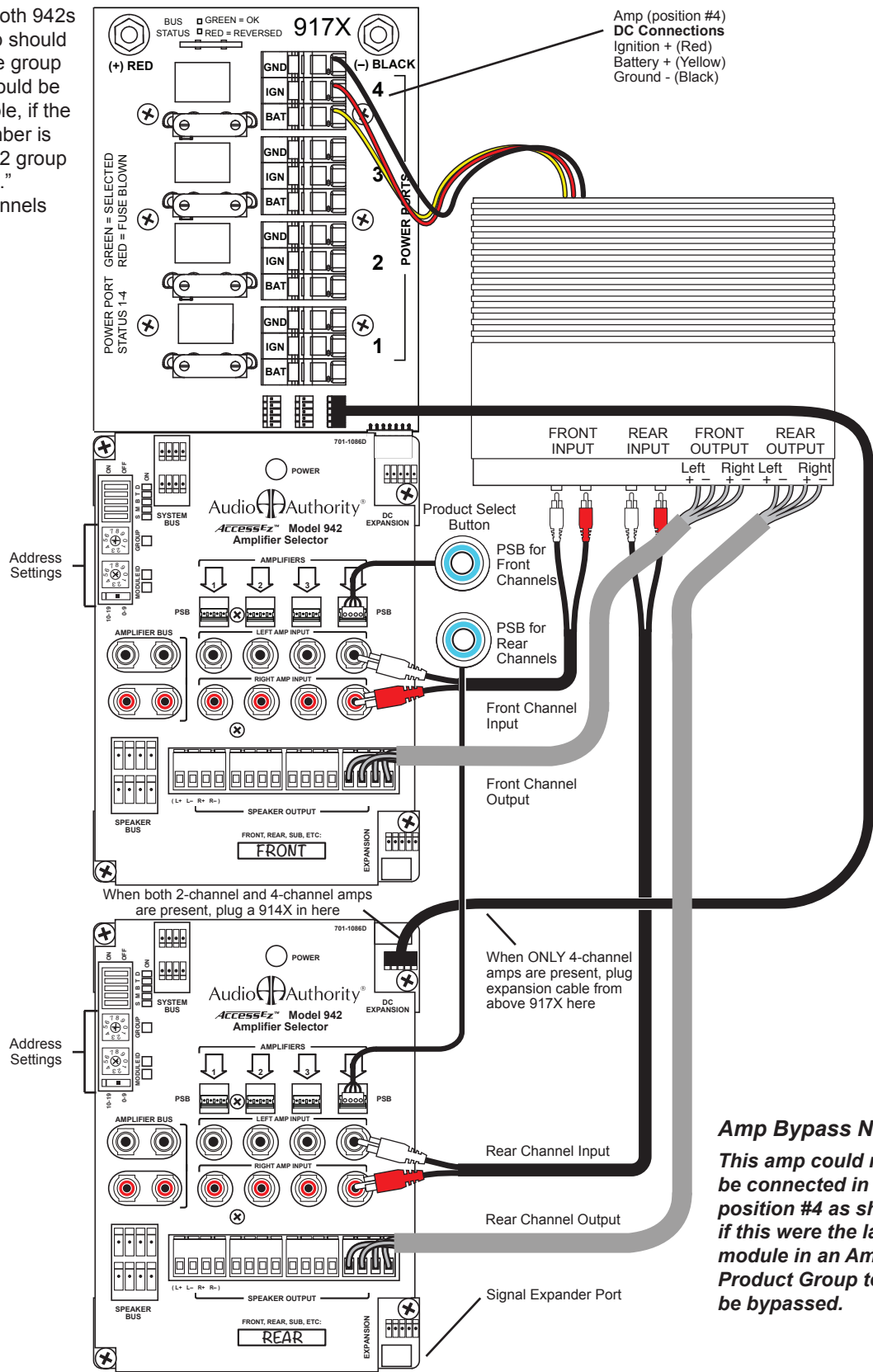
### Amp Bypass Note:

*This amp could not be connected in position #4 as shown if this were the last module in an Amplifier Product Group to be bypassed.*



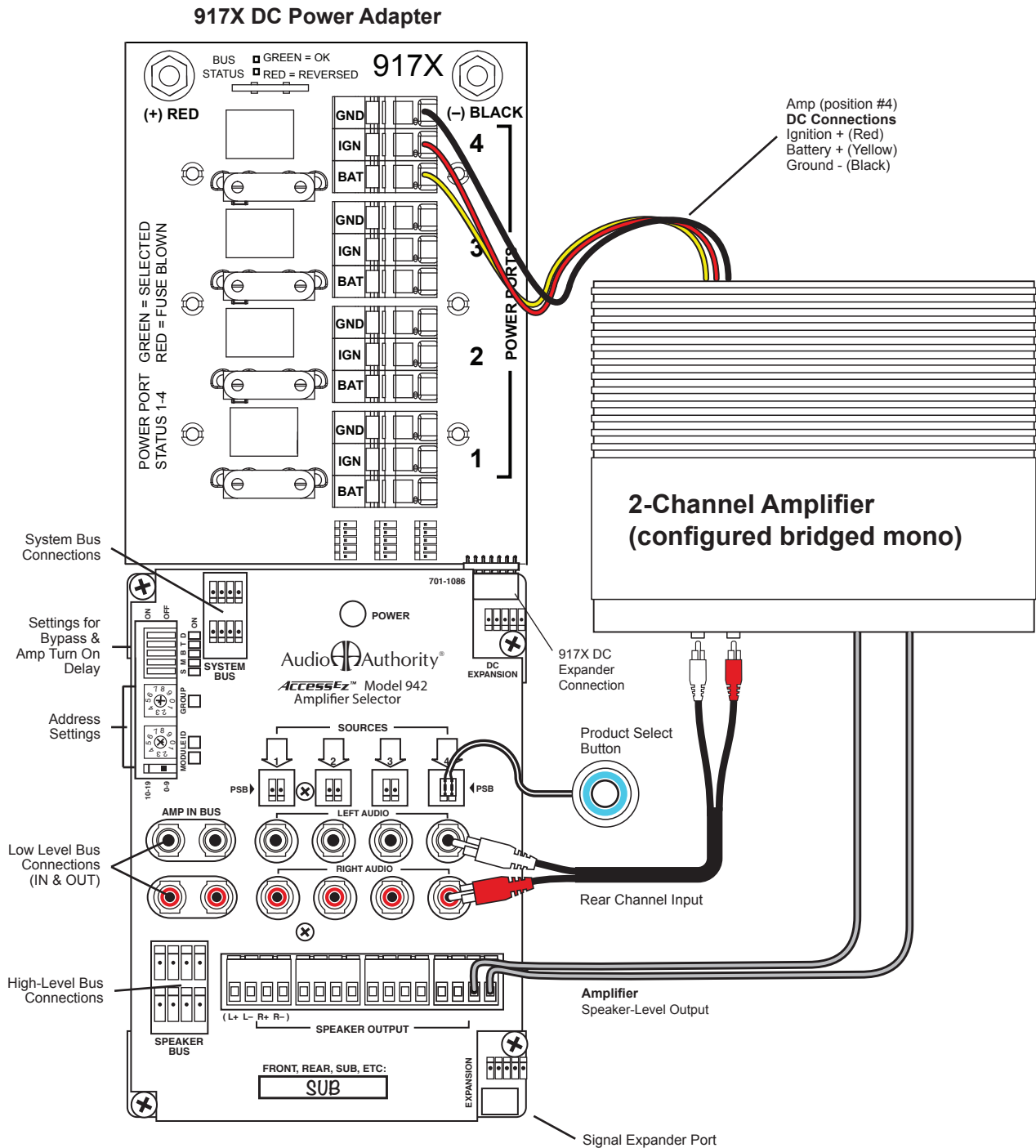
## Amplifiers / 4-Channel Hookup

The Module ID for both 942s in a 4-channel setup should be the same, but the group number for each should be different. For example, if the front 942 group number is "4," then the rear 942 group number would be "5." Front and Rear Channels of each amp can be selected separately.



## AMPLIFIERS / Bridged Mono Hookup

This drawing shows the basic connections for a 2-channel amplifier configured for bridged mono output. See Appendix A for other system related connections such as System Bus, DC distribution, or Low-Level and High-Level Bus.



### Amp Bypass Note:

*This amp could not be connected in position #4 as shown if this were the last module in an Amplifier Product Group to be bypassed.*



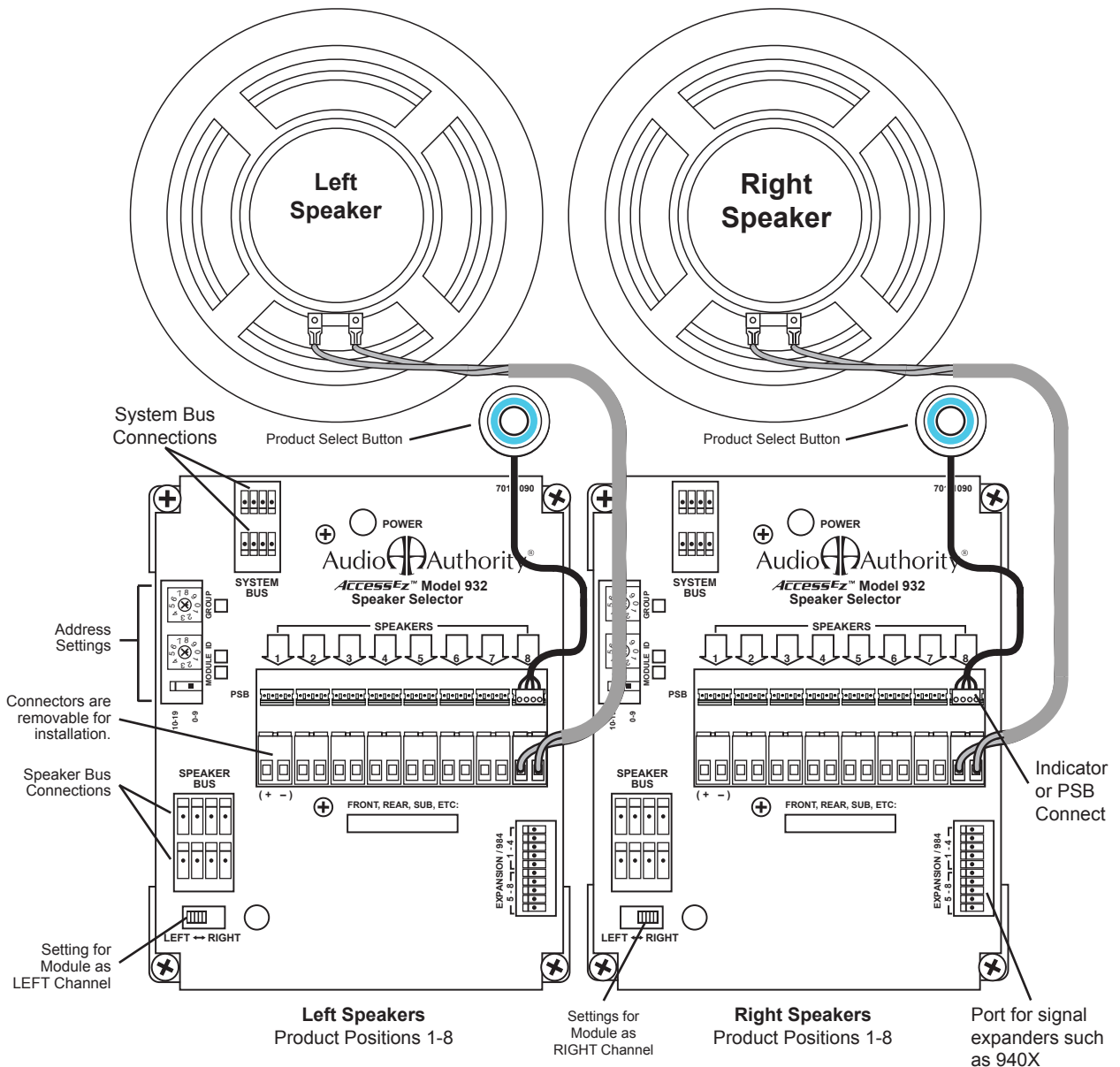
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## Left/Right and Mono Speaker Hookup

Model 932 Speaker Modules can be configured to function as left, right or mono modules. The slide switch on the left side of the module is marked LEFT and RIGHT. Position the slide switch to LEFT for left channel function and toward RIGHT for right channel or MONO function. (If used for mono operation there will not be a corresponding "L" module.)

Model 932s are unique in that they share the same GROUP Address with the amplifier group with which they operate. For example, if the front amp GROUP number is "4", then the front speaker GROUP number would also be "4". Additionally, LEFT and RIGHT modules have the same MODULE ID; here is an example: For speakers 1-8, both LEFT & RIGHT 932 modules have the address: 4/00 (GROUP=4 / MODULE ID=00). For speakers 9-16 both LEFT & RIGHT 932 modules have the address: 4/01 (GROUP=4 / MODULE ID=01) etc.



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## Definition of Terms

To successfully install your new *Access Demonstration Network*, you should familiarize yourself with the following terms:

- Address** A number that pinpoints the identity and location of a switch module within a system. The installer sets numeric switches like the ones in Figure 2 for each module which provides a unique address in the proper sequence for each component connected to the system.
- AutoDamping™** When merchandising many pairs of different speakers in a showroom, the drivers of the unselected speaker pairs become passive radiators when the currently active speaker pair is playing, absorbing much of the sound coming from the speakers being played. AutoDamping™ is a circuit in the Model 932 that electrically disconnects (shorts) speakers not being played, thereby automatically damping them as passive radiators and improving sound quality in the showroom.
- Bus** A Bus is a pathway for signals to travel from module to module; a cable connecting modules. There are three types of buses found in most Access Systems:
- **System Bus** A four wire harness (red, black, yellow, blue) connected to every *Access* module. The System Bus carries the signals that control the selection of the components and perform various housekeeping functions among the modules in the system.
  - **Speaker Bus (or High-level Bus)** A four wire harness (green, white, brown, gray) that carries speaker-level signals from source and/or amplifier modules to speaker modules.
  - **Low-level Bus** A signal bus using RCA patch cables to carry low-level audio signals between source modules and equalizer or amplifier modules.
- Bypass** A way to hear a system without a particular in-line component (EQ, Crossover, Amplifier, etc.) For example, when you wish to hear a system without the processor, the system can route the signal past the processor group and directly to the amplifiers. In this example, Position #4 on the last module in the Processor Product Group is used as the bypass location. When this position is selected, or the Product Group is deselected, the audio signal continues through the bypassed group to the next Product Group. To activate bypass, turn ON the Bypass switch only on the last module in the group.
- Control Panel** Control Panels, like the 903i or 906, add central control and display capabilities to a system. Any control panel can operate hand-in-hand with product select buttons.

<b>Module</b>	<p>A basic component of the Access™ System. There are five types of modules normally found in car audio applications:</p> <ul style="list-style-type: none"> <li>• <b>Switching Modules</b> select and connect products for demonstration and communicate with other system components through the System Bus. Examples are Models 911, 922, 932, 942 and 958.</li> <li>• <b>Expander Modules</b> add channel capacity to switching modules. Examples are Models 920X and 940X.</li> <li>• <b>System Module (Model 980)</b> performs basic control, interface and housekeeping functions within the system.</li> <li>• <b>DC Power Modules</b> distribute DC power to sources, EQs, and amps. Examples include Models 914X, 917X and 918X.</li> <li>• <b>Signal Distribution Modules</b>, such as the 975, distribute audio signals to output devices.</li> </ul>
<b>Position</b>	<p>The numbered point of connection (1-4 for electronics, or 1-8 for speakers) of a product to a switching or expander module. The product select button (PSB) must be connected to the corresponding position on the module. For example, if a component is connected to position 3, its product select button must be connected to PSB position 3. When a “bypass” is required, always use the fourth position (see “bypass”). Control Panels select positions through the System Bus, and are not connected to individual positions.</p>
<b>Product Group</b>	<p>A group of functionally similar products, such as head units, amplifiers, subwoofers, etc.</p>
<b>Product Select Button (PSB)</b>	<p>A push-button mounted at, or near the product location. Pushing this button selects the product for demonstration and lights an LED to confirm the selection.</p>
<b>System</b>	<ol style="list-style-type: none"> <li>1. A network of switching modules interconnected by buses where a control panel and/or PSBs are employed to select and thereby interconnect specific components for demonstration.</li> <li>2. A configuration of audio products or components playing together which can be stored in control panel memory and A/B compared with other “systems”.</li> </ol>
<b>SilenTouch™</b>	<p>SilenTouch mutes the sound for a brief period during the switching process to eliminate transient noises while changing from one product to the next.</p>

## **Access™ Warranty**

### **Limited Warranty**

If an Access™ product becomes defective in materials or workmanship within three years from the date of purchase, Audio Authority® Corporation guarantees to the original purchaser that it will replace the defective product at no cost. This is a limited warranty and is not applicable for products that in our sole opinion have been damaged (e.g. lightning, water, fire), altered, abused, misused, or improperly installed. Audio Authority makes no other warranties, expressed or implied, including warranties as to merchantability or fitness for a particular purpose. Additionally, there are no allowances or credits available for repair service work or installations performed by, or on behalf of, the end user.

### **Warranty Service Procedures**

Should an Audio Authority® product fail to function as designed within the warranty period, the unit will be repaired or replaced. If you suspect a product failure, please contact our Technical Support staff at 800-322-8346 or 859-233-4599, or alternatively by email at support@audioauthority.com during normal business hours. Our staff will make every effort to help you get the failed product working. Often, we are able to resolve the problem through this troubleshooting effort. When you call or write the factory, please be ready with the invoice number, product model and serial number, along with the nature of the problem. If it is determined that the product needs to be repaired or replaced, a Return Authorization Number (CR#) will be issued for return to the factory, freight prepaid. You may select one of two service options detailed below –Repair & Return, or Service-Exchange.

#### **Repair and Return**

Once the product is received at our factory, it will be repaired to full working order and returned promptly to you at no charge using Ground transport services. Other methods of shipment are available, but at your expense. If we determine the product's failure was due to circumstances other than defects in materials or workmanship (damage), the transaction will be treated as Out-of-Warranty Service and you will be contacted by Technical Support with an estimate for the repair.

#### **Service-Exchange**

You will be charged (invoiced) a security deposit equal to the normal price of the replacement product shipped using a major credit card or using open account terms, if those terms have been established. We will pay the shipping charges for exchange items using Ground transport services. Any other method of shipment will be charged to the customer. You will then be responsible to return the failed item to the factory freight prepaid along with all accessories included. Please be certain to mark the Return Authorization Number (CR#) on the outside of the carton you are returning for prompt processing. Your return must be received at the factory within Thirty (30) Days for reimbursement of the security deposit originally charged to your credit card or for a credit to be issued to your established open account. If we determine the product's failure was due to circumstances other than defects in materials or workmanship (damage), the transaction will be treated as an Out-of-Warranty Service exchange.

#### **Out of Warranty Service**

Audio Authority® products that fail after the warranty period has expired may be returned to the factory for repair at a nominal charge, if not damaged beyond the point of repair. Most Audio Authority products may be repaired by the factory at our current, published Service Fee. Additionally, we also offer a limited Field Exchange program to service out-of-warranty products.

For future reference, please record below:

Date of Purchase: \_\_\_/\_\_\_/\_\_\_

Invoice No: \_\_\_\_\_

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**ACCESS™**

- Tips
- Examples
- FAQ

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