AccessEz™

Demonstration Network

Home Audio and Video
System Installation Manual

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Orientation

INTRODUCTION

The AccessEZ™ series of demonstration system modules provides a plug-in solution for hi-fi, video and car audio switching systems in retail display environments. This second generation of the highly capable, industry-acclaimed Access™ System modules offers many new features and benefits:

- AccessEZ™ offers 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.
- Gold jacks and terminals are clearly and specifically labeled.
- Expansion, when needed, is done by directly "stacking" modules.
- Module addressing is simplified.
- New switching capabilities include digital audio (coax and optical) and component video.
- Master stereo volume controls offer level presets.
- Graphical control panels invite user interaction.

All these new AccessEZ™ features are added to the existing capabilities of the Access™ System which include:

- Your choice of button-per-product, central control panel, IR remote, 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 EZ to design the demonstration system that fits your specific merchandising needs. Your Account Manager and our Application Engineering staff can assist you in selecting and configuring the appropriate AccessEZ™ modules to build the ideal system for you.

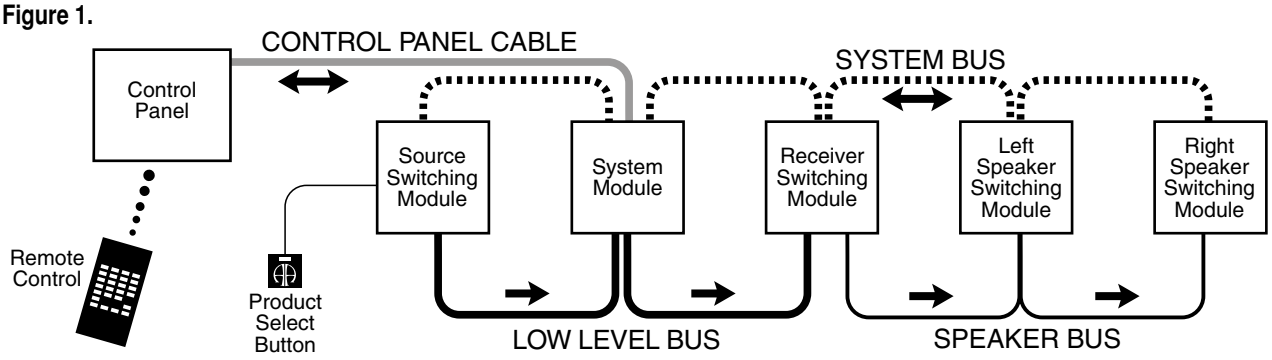
This Manual is provided as a framework to help you successfully install your Access™ System, test its operation, and then use the system to demonstrate and sell your merchandise. This manual covers the proper installation of the switching system hardware only (if your system includes a 902, 903, 906 or 4904 Control Panel, 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. You may also want to check our website for diagrams and tips: http://www.audioauthority.com.

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, receiver/amplifiers, speakers, subwoofers and video monitors in your display. The switching modules are located near the actual 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.



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 shown here for each module which provides a unique address in the proper sequence for each component connected to the system.

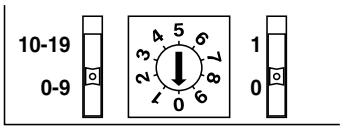


Figure 2. This example shows an address setting of 0/0 0. Typically this would represent the first module (components 1 through 4) in the Source Product Group.

AutoDamping™ AutoDamping improves the performance of speakers in the showroom. The drivers inside 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 AccessEZ™ Systems:

- **System Bus** A four wire harness (red, black, yellow, blue) connected to every AccessEZ™ module that 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 amplifier outputs between receiver and speaker modules.
- **Low-level Bus** A signal bus using RCA patch cables to carry audio and video signals between source modules, receiver modules, and video distribution amps.

Bypass A way to hear a system without a particular in-line component. Mainly used in car audio, bypass in home audio is generally used for systems set up for record-capable tape decks, or separate subwoofer/satellite speaker switching (see Appendix B). Position 4 on the last module in the Product Group to be bypassed is used as the bypass signal input. When this position is selected, the audio signal continues through the bypassed group to the next Product Group.

Control Panel Control Panels, like the 4904, 906, 902 903, or even a PC touchscreen add central control and display capabilities to a system.

Module A basic component of the AccessEZ™ System. There are three types of modules normally found in home entertainment applications:

- **Switching Modules** select and connect products for demonstration and communicate with other system components through the System Bus. Examples are Models 922, 932, 947 and 955.
- **Expander Modules** add channel capacity to switching modules, for example Models 920X, 950X, and 960X.
- **System Modules** perform basic control, interface and housekeeping functions within the system. Examples include Models 980 and 988.

Position The numbered point of connection (1-4 for electronics, or 1-8 for speakers) of a product to a switching or expander module. If used, the Product Select Button (PSB) must be connected to the corresponding position. 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. Control Panels may also select positions.

Product Group A group of functionally similar products, such as sources, receiver/amplifiers, subwoofers, etc.

Product Select Button (PSB) A push-button mounted at, or near the product location, usually on a shelf. Pushing this button selects the product for demonstration and lights an LED to confirm the selection.

System A network of switching modules interconnected by buses in which a control panel or PSBs are usually used to select and thereby interconnect specific components for demonstration.

SilenTouch™ SilenTouch mutes the sound for a brief period during the switching process to eliminate transient noises while changing from one product to the next.

TheftAlert™ A special circuit that senses ground continuity of the products connected to the switching modules. If an alarm device is connected to the system, it will sound if a product is disconnected from the system without authorization. TheftAlert™ is an optional feature available through your Audio Authority® Account Manager. TheftAlert™ may also be added after your initial purchase at a later date. A special transformer is required for the feature to work and is provided per your request. You then will need to install it in the proper position on the switch modules.

HOW THE ACCESS™ SYSTEM WORKS

When a product is selected for demonstration, signals are sent through a network of buses between switching modules to activate that particular product position.

Selecting Products in the Access™ System

Products can be selected in a system in different ways that can be combined into a single system, if desired. You may select products in the following ways:

- 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 Control Panel, if the system is so equipped. Control Panel use is covered in detail in a separate manual that accompanies the Control Panel.
- By issuing commands with the 905 IR Remote Control, which is included with the 902 Control Panel and available with the 903. One 905 remote is recommended per salesperson.
- By using a computer (PC). A PC can select preset product configurations, display information on the selected products, and download new selection parameters through a modem and phone lines.
- A combination of these methods.

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 unit, such as a source or receiver. 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), high level signals (amplifier output), or video signals.

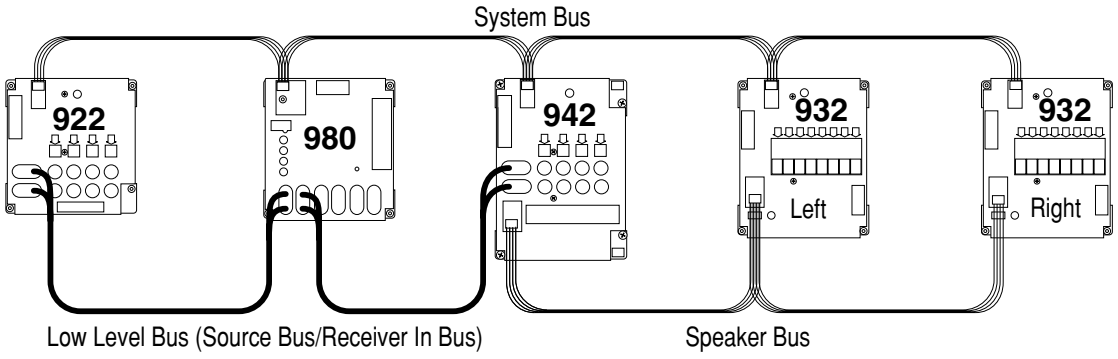


Figure 3. Basic bus examples in a stereo demonstration system

ACCESS SYSTEM COMPONENTS

This section explains the function of each Access™ System component. Turn to Appendix C for detailed illustrations. If you have further questions, contact your Audio Authority Account Manager or Technical Service by calling 800/322-8346.

Control Panels

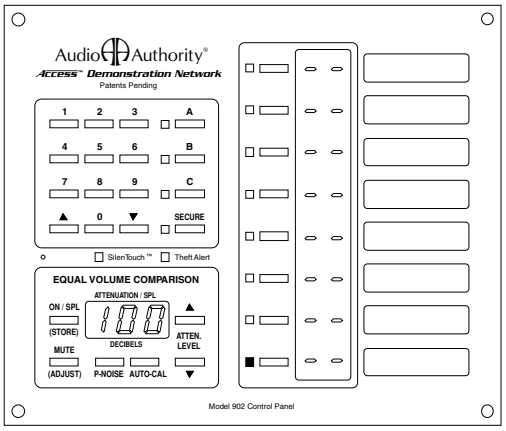
902 Full-Featured Control Panel

Includes one 987 Equal Volume Comparison (EVC) module, one microphone with 25 ft. cord, and one 905 IR Remote Control. Because the remote control serves such an essential function in a demonstration, one remote control is recommended for each sales person.

Features include:

- Displays selected products, even when they are selected using product select buttons or by remote control. Displays diagnostic information for troubleshooting the system.
- Removable Product Group insert labels can be changed to indicate the functions of the LED displays. A set of labels is included with the control panel.
- If not assigned as an active Product Group, the control panel's last Product Group can store up to 99 pre-configured systems for immediate recall.
- Speakers with varying input sensitivities can be equalized to play at matching volumes by attenuating the output level of the source. The AutoCal™ program can run automatically or calibration values can be directly written into the system's memory.
- Optional TheftAlert™ circuit can be armed to sound an alarm should products on display be disconnected without authorization.
- The control panel or any specific product group can be "locked out" from unauthorized user input.
- Auto SPL controls the maximum volume level of the currently selected system. The maximum is 120 dB.

Model 902 Front Panel



Model 903 Front Panel

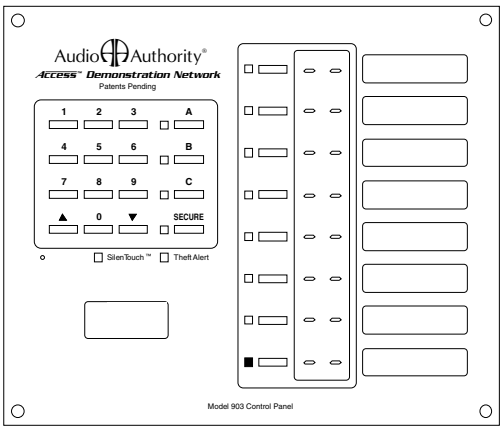


Figure 4. Either control panel can be operated via remote control.

903 Control Panel

Similar to the 902 Control Panel, but does not include the 987 EVC module, so Equal Volume Comparison and Auto SPL are not possible. The 905 IR Remote will operate the 903 Control Panel but is not included and must be purchased separately. The 902 has all the other functions of the 903.

904 Control Panel Product Group Expander

Adds eight additional product groups to your 902 or 903 control panel. Up to 32 unique product groups can exist in an Access™ System.

904V Product Group Expander/Volume Control

Adds four additional product groups to your control panel and provides a master volume control.

905 IR Remote

Full function Infrared Remote Control for 902 and 903 Control Panels.

906 Simple Control Panel

Single Product Group Control Panel, ideal for applications such as DVD displays, speaker walls, or home theater package switching systems. Simply turn the knob to select products.

988CP3, and 988CP0 Volume Control Panels

Provides master volume and mode controls to Access™ ProLogic and stereo demonstration systems. 988CP3 modes include Theater Sound, TV Sound, and Add a Subwoofer. 988CP0 is a Master Volume Control Module with no mode controls.

4904 Control Panel

A user-friendly graphical control panel with LCD panel and master volume control. Four different 88-key layouts are possible, each with an attractive, unique graphic overlay. Refer to the 4904 User's Guide for more information.

Switching Modules

These modules are the main backbone of an AccessEZ switching system. They are connected togeter via System Bus over which they communicate with eachother and the control panel (if used).

Sources

Model 922

Stereo Source Selector controls four 2-channel audio sources.

Model 954

Component Video/Digital Audio Source Selector controls four sources. Use either digital audio format (coax or optical). Bus connections are directional (IN from previous source module/OUT to next source module or to next product group).

Model 955

A/V Source Selector controls four audio/video sources, including digital audio (coax) and AC-3/RF as well as composite video. Bus connections are directional (IN from previous source module/OUT to next source module or to next product group).

Receivers

Model 942

Amplifier Selector controls four stereo amplifiers or receivers. One module accommodates both low-level inputs and high-level outputs.

Model 947

A/V Receiver Selector controls four ProLogic or Digital Audio receivers. One module accommodates low-level and Digital Audio inputs and front/center/surround high-level outputs, as well as video in/out for on-screen programming; also low-level Subwoofer output. Bus connections are directional (IN from previous receiver module or previous product group/OUT to next receiver module).

Speakers

Model 932

Speaker Selector controls one channel (e.g. left or right) of eight speakers. Two 932 modules are required for eight stereo pairs. Use one 932 for center speakers or speaker level subwoofers.

Model 934

Powered Speaker Selector controls both channels (left and right) of eight speaker pairs. Use one 934 for computer multimedia speakers or powered speaker packages.

Model 940

High-Level Selector controls two channels of four speakers, but does not offer SilenTouch™ or AutoDamping™. Use Model 932 for applications where SilenTouch™ and AutoDamping™ are desired.

Signal Distribution Amplifiers

Model 985EZ

Single composite video and stereo analog audio feed to eight video monitors, expandable to distribute source signal to 100 monitors.

Model 985SV

S-Video and stereo analog audio to eight video monitors; expandable.

Model 985DTV

Component video (Y Pb Pr), digital audio (coaxial RCA jacks) to four video monitors; expandable.

Model 985U

Component video (Y Pb Pr), composite video, digital audio (coaxial RCA jacks) and stereo analog audio to four video monitors; expandable.

System Modules

Model 980

System Module performs vital tasks within the Access™ System such as SilenTouch™, TheftAlert™, and interface with 902 or 903 Control Panel.

Model 988

Volume Control Module is a master volume control and mode control unit (see description of 988CP3). It is capable of SilenTouch and provides an interface for 4900 Series graphical control panels. A 988 may replace a 980 in many situations.

System Specific Components

These modules provide extra capabilities, and are not required for many systems. Most are circuit board products with no cover.

970 RS232 Serial interface/PC Interface

Allows PC interface to send commands to the Access™ System.

971 Infrared Interface

Controls A/V players and receivers (requires custom programming).

977 Digital Audio Adapters

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

984 Speaker EQ Injector

Triggers in-line speaker equalizer for particular speaker (e.g., Bose 901).

986 Video AutoPatcher

Automatic video bypass to prevent blank TV screen when a non-GUI receiver is selected.

986A Audio/Video AutoPatcher

Autoselects house A/V source when audio signal is absent or when a blue screen is detected.

987 EVC Audio Level Module

Adds 4 channels of Equal Volume Comparison and SPL AutoLimiting to the 902 Control Panel (one 987 is shipped with each 902). Includes steel cover.

989 Control Panel Enclosure

Used to house 902 and 903 Access™ Control Panels.

990 External Infrared Receiver

Ceiling mount, omnidirectional IR Receiver used to extend the 905 Remote Transmitter's range for greater coverage area.

994/995 Product Select Button/Indicator (PSB)

994 is a square PSB with 1 meter cable; 995 has 2.5 meter cable.

9990 ZipSwitch™ Product Select Button/Indicator

A round, low profile, membrane PSB which can be adhered to any flat surface.

999 Round Backlit Product Select Button (PSB)

A large round backlit PSB, 1.4 in. diameter including bezel. Various colors available.

996/997 Product Indicator (LED)

996 is an LED product indicator with a 1 meter cable; the 997 has a 2.5 meter cable.

Expander Modules

Expander modules add channels to main switch modules. They are circuit board products with no steel case.

920X Low-Level Expander

2-channel low-level expander used to add channels to a main switch module.

932X Speaker-Level Expander

8 speaker expander used to add a channel to Model 932.

940X High-Level Expander

2-channel high-level expander used to add channels to a main switch module.

950X Video/Stereo Audio Expander

3-channel expander adds Video/Stereo channels to a switch module.

960X S-Video Expander

Adds S-Video interface to a main switch module.

962X Data Port Expander

Adds RJ-11 jacks to a main switch module for data transfer over phone lines.

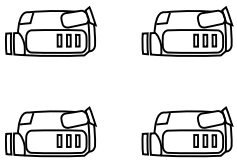
965X MATV Expander

Switches 4 cable or antenna sources to a TV's RF input (not to a video monitor).

PLANNING YOUR SYSTEM

The Access™ System is versatile and can be installed and wired in different ways, including the wrong way. Your Account Manager can help you choose the modules that will best suit your needs. If at any time you wish to change your merchandising approach, Access™ can be re-configured and additional modules can be installed to accommodate a different setup.

Find the section below which describes the range of products you plan to demonstrate. Turn to the page number indicated to find the basic switching configuration for each application. To find instructions on adding Product Select Buttons and/or a Control Panel, see "Adding Control Interfaces" on page 21.



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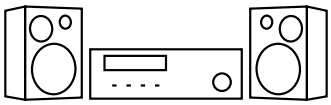
Single Product Group Display

Only one type of product is displayed with a dedicated input or output device for all of them. Many applications are possible: camcorders, VCRs, shelf speakers, powered mini-speakers, headphones, etc.



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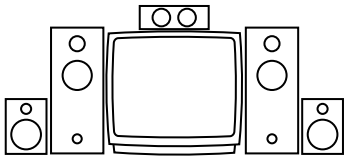
Stereo

A 2 channel display including several sources, receivers, and stereo speakers.



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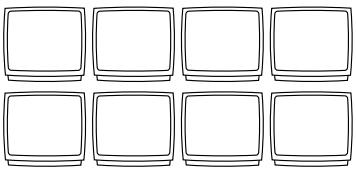
Home Theater

Audio/video surround sound, Pro Logic® DTS®, or Dolby Digital® system with multiple sources, receivers, video monitors and speakers in the same switching system. Front, rear, center speakers and usually subwoofers can be selected.



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Audio/Video Distribution

A dedicated A/V source such as a DVD player or satellite receiver's output is distributed to multiple video monitors.

SINGLE PRODUCT GROUP SWITCHING SYSTEM

Individual Access Modules

Most products can be switched with a single AccessEZ™ module and a 980 System Module. You can use Product Select Buttons (PSBs) next to each product or a 906 Single Product Group Control Panel. If you want to expand your demonstrations to multiple sources, receivers and speakers, Access™ can be expanded by adding the necessary switching modules. This section provides a general overview of system layouts; for detailed hookup instructions, see page 22.

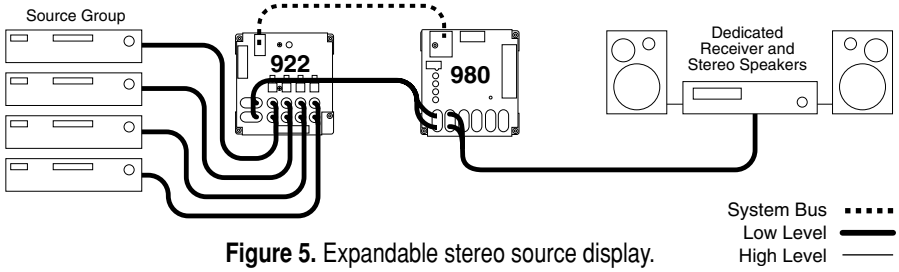


Figure 5. Expandable stereo source display.

Audio Sources

Use a 922 module for every 4 CD players, MiniDisc players, or tape decks you plan to include in your switching system (Figure 5). Connect each source to a 922, and connect the system bus and low level bus from the 922 module to the "BUS IN" jacks on the 980 module. Connect an RCA patch cord from the low level "BUS OUT" jacks on the 980 to the CD input of your dedicated receiver and add a pair of speakers to complete the display. To add more sources, add 922 modules. For example, to add 16 sources, connect system bus and low level bus from the first 922 to four more 922 modules.

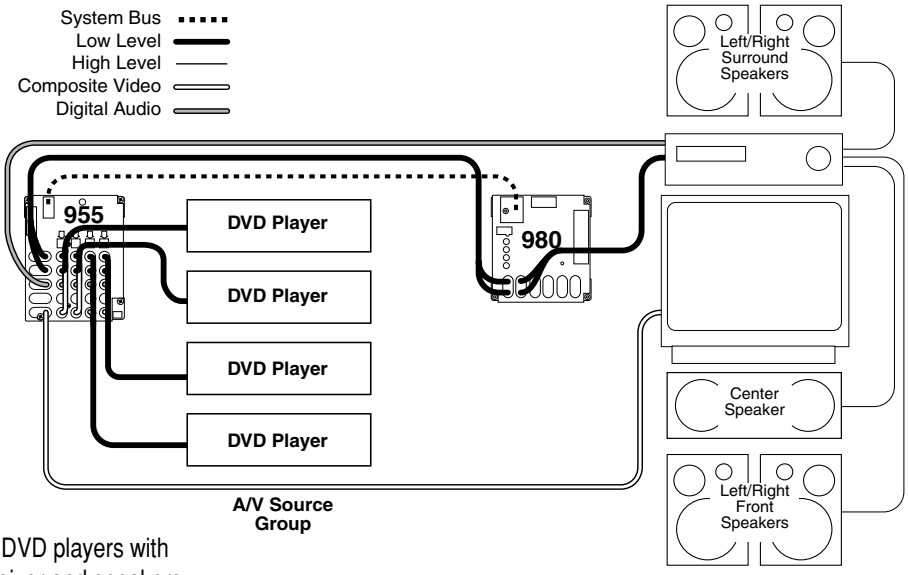


Figure 6. Four DVD players with dedicated TV, receiver and speakers.

Analog Audio/Video Sources

Use a 955 module for every four camcorders, VCRs, DVDs, DSSs or LDPs you plan to demonstrate. If you need component video and digital audio, use Model 954. The 980 module is installed in the analog audio path just before the audio inputs to the amplifier (either a TV monitor, or dedicated receiver). The video bus connects to the TV. ***Never connect a video cable to the 980!*** To add sources to your display, add 955 modules. For example, to add 16 sources, add four 955 modules. Connect all modules with system bus, and all 955 modules with audio/video bus. Be sure to follow signal flow when connecting bus jacks labeled IN/OUT. Do not loop any digital audio cables through the 980 module (Figure 6). For digital audio and/or component video sources, see Appendix A.

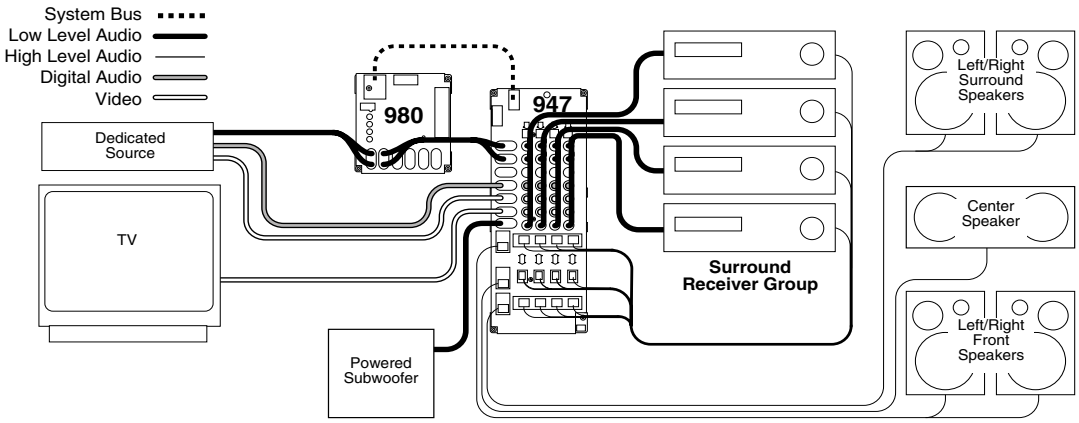


Figure 7. Four surround receivers with dedicated source, TV and speakers.

Surround Receivers

Use one 947 module for the input/output for every 4 receivers (Figure 7). The analog audio bus connects the dedicated source to the 980 module, and from there it links all the 947 modules in the receiver group. Be sure you properly connect the bus according to signal flow. The digital audio bus comes directly from the dedicated source to the 947 module's IN jacks. Connect all main modules with system bus and speaker bus (for more detail, find "bus cable installation" in the index). To add receivers, just add switching modules. For example, to add 16 receivers to a surround switching system, add four 947 modules.

Stereo Receivers

Use one 942 module for the input/output for every 4 stereo receivers (not shown). The low level bus connects the dedicated source to the 980 module, and from there it links all the 942 modules in the receiver group. Connect all main modules with system bus and speaker bus (for more detail, find "bus cable installation" in the index). To add receivers, just add switching modules. For example, to add 16 receivers to a 2 channel switching system, add four 942 modules.

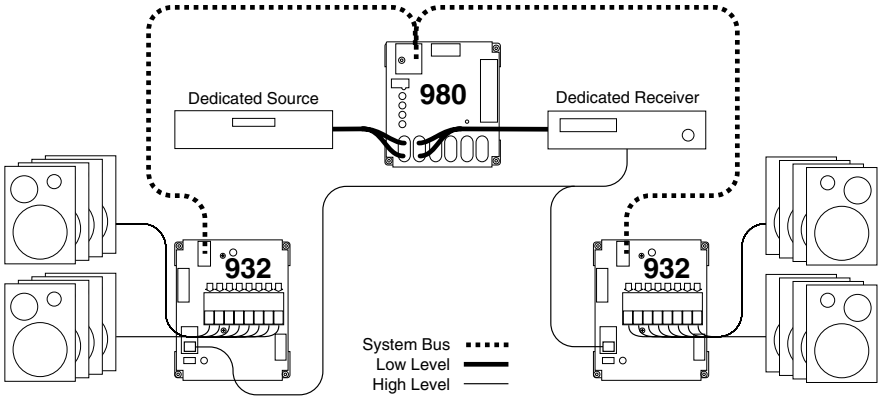


Figure 8. All modules are connected by system bus.

Speakers

The 932 Speaker Selector lets you place switching modules close to the merchandise, dramatically reducing wiring runs. Each 932 handles up to eight speakers in one channel (Figure 8). For every eight speaker pairs, use two 932 modules, one for the left speakers and one for the right. Install the 980 module between the source and the receiver in the low level bus as shown. Connect the 980 and all 932 modules with system bus. To add speakers, add 932 modules. For example, to add 16 speaker pairs, add two left 932s and two right 932s. To demonstrate four or fewer speaker pairs, use a 940 module and a 980 module.

STEREO SWITCHING SYSTEM

Designing Your Own Application

Home audio demonstration systems can be designed in different ways. This section explains the *basic* switching configurations for a 2 channel display including several Sources, Receivers, and Stereo Speakers. The architecture of Access™ makes it possible to design a system which fits your needs exactly. Your Account Manager can help you choose the modules and user interfaces that will best suit your needs and product mix. If you wish to change your merchandising approach in the future, Access™ can be rewired and additional modules can be installed to accommodate a different configuration.

Organize Your Products

When planning the installation, think of each component type you wish to display as belonging to a particular family or *group*, and where each component might reside in the signal path, for a typical home stereo system. Generally the Product Groups fall into these categories: Sources, Receivers, and Full Range Speakers. Only one product can be selected from each Source and Receiver Product Group at a time. If you need to be able to use two Sources at once, as you would in the case of tape decks capable of recording from the CD players, separate CD Player and Tape Deck Product Groups would be necessary. (The second Source Product Group must have a bypass installed. See bypass in the Index.) The Access™ system does allow up to four pairs of speakers to play at once in parallel, but you can limit that number by setting the Speaker Limit Switch on the 980 System Module. Note: some receivers are not recommended to play more than one pair.

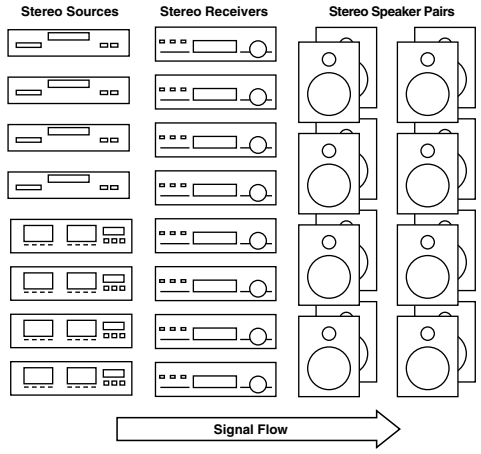


Figure 9. An example of basic Product Groups and their order in the signal path (left to right).

List the Switching Modules

Figure 10 shows the modules needed to switch each type of product in this example display. Each electronics module supports 4 products, and each speaker module supports 8 speakers. To switch 8 speaker *pairs*, use one 932 module for the right, and one for the left. The Access™ System's architecture was designed for up to 16 unique speaker groups, with a capacity within each group for 99 pairs of speakers. If you plan to use a 4904 Control Panel, you should stay within the capacity of your chosen key layout.

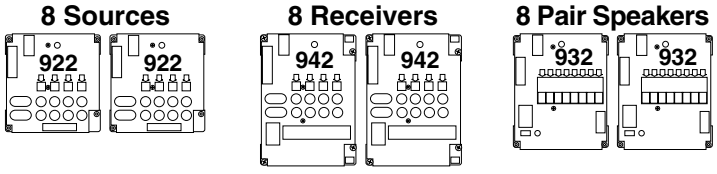


Figure 10. Switching modules needed for this example stereo switching system.

Some of the unique speaker group possibilities are:

Front Speakers	Full Range Speakers	Stereo Subwoofers
Rear Speakers	Side Fill Speakers	Mono Subwoofers

Put the System Together

The only other essential module is the Model 980 "System Module" which controls certain functions of the Access™ System. A 980 System Module is shown installed in the signal path between the Source Group and the Receiver Group. By connecting the modules with bus cables (see page 26 for instructions) you now have a working switching system.

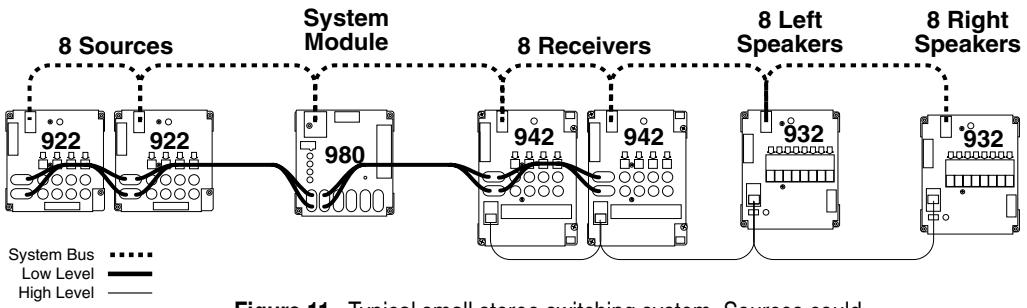


Figure 11. Typical small stereo switching system. Sources could include CD Players and/or playback-only Tape Decks.

How to Add Product Capacity

Simply add enough modules to accommodate the number of additional products you plan to demonstrate. Instead of 8 sources and 8 pairs of stereo speakers, the example in Figure 12 can switch 12 sources and 16 pairs of speakers. If you plan to use a 902 or 903 Control Panel, you can demonstrate up to 99 products in each of 8 Product Groups. The 4904 Control Panel's capacity is limited according to the key layout you choose.

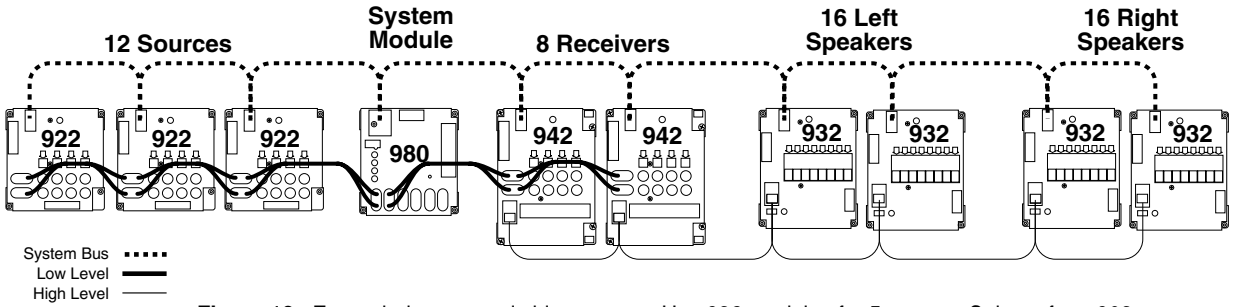


Figure 12. Expanded stereo switching system. Use 932 modules for 5 or more Subwoofers. 903 Control Panel connects to the 980 module. For 902 Control Panel connections, see Appendix A.

Bass Modules

Multi-speaker packages or "bass module" packages are referred to here as un-powered sets of speakers which are switched essentially the same as pairs of conventional speakers. They belong in the same Product Group as the other full range stereo speakers. A bass module with a pair of satellite speakers would be connected to the 932 switching modules on each side, and the satellite speakers would be connected to their bass module.

HOME THEATER SWITCHING SYSTEM

Designing Your Own Application

Home theater demonstration systems can be designed in different ways. This section explains the *basic* switching configurations for a 6 channel display including several digital sources, ProLogic and Dolby Digital receivers, surround speakers and subwoofers. Your Account Manager can help you choose the modules and user interfaces that will best suit your needs and product mix. If you wish to change your merchandising approach in the future, Access™ can be rewired and additional modules can be installed to accommodate a different configuration.

Organize Your Products

When planning the installation, think of each component type you wish to display as belonging to a particular family or "group," and where those components might reside in the signal path, for a typical home theater system. Generally home theater Product Groups fall into these categories: A/V Sources, Digital Receivers, Center, Front and Surround Speakers, generally with a Subwoofer. Only

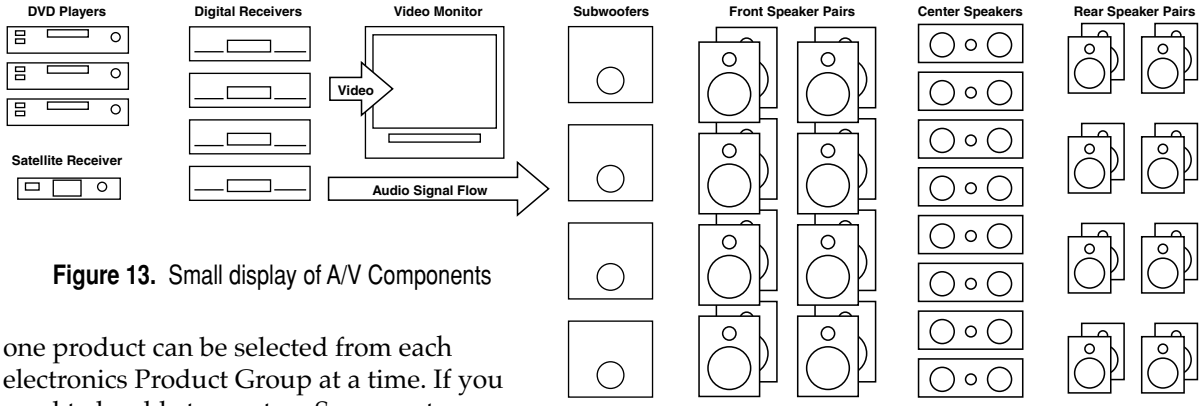


Figure 13. Small display of A/V Components

one product can be selected from each electronics Product Group at a time. If you need to be able to use two Sources at once, as you would in the case of VCRs capable of recording from the DVD players, a separate VCR Product Group would be necessary. (The second Source Product Group must have a BYPASS installed. See bypass in the Index.) The default number of speaker pairs in the same Product Group allowed to play at once is 2. Use the Speaker Limit switch on the 980 to change this number. Note: some receivers are not recommended to play more than one pair.

List the Switching Modules

Figure 13 shows an assortment of home theater products you may wish to demonstrate. Figure 14 shows the modules needed to switch each type of product in this example system. The Source Group may include DVDs, DSS and laserdisc players and VCRs. Each electronics module supports 4 products, and each speaker module supports 8 individual speakers. To switch 8 speaker *pairs*, you need two 932 modules: one for the right and one for the left. For small systems, you can use one 940 module for 4 stereo pairs. 932 modules are better for 5 or more speaker pairs because they will automatically short the unselected pairs to prevent them from vibrating sympathetically with the

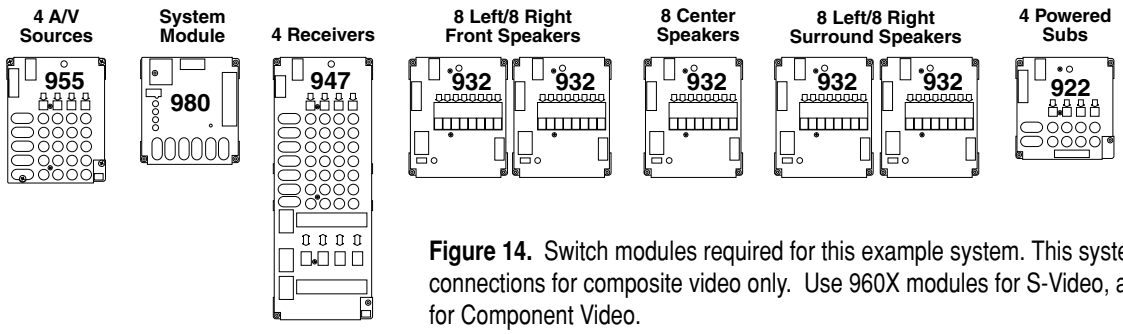


Figure 14. Switch modules required for this example system. This system has connections for composite video only. Use 960X modules for S-Video, and 954 modules for Component Video.

selected pair (AutoDamping™). The EVC feature (Equal Volume Comparison) of the 902 control panel will only work using 932 modules for the front speakers.

The Access™ System's architecture was designed for a maximum of 16 unique speaker groups, with a capacity within each group for 99 pairs of speakers. Some of the unique speaker group possibilities are:

Front Speakers	Full Range Speakers	Stereo Subwoofers
Rear Speakers	Side Fill Speakers	Mono Subwoofers

Put the System Together

The only other essential module is the "System Module." It controls certain functions of the Access™ System, such as SilenTouch™ and provides a place to connect a control panel and power supply. A 980 System Module is shown installed in the signal path between the Source Group and the Receiver Group. By connecting the modules with bus cables (explained in the definition of terms section) you now have a working switching system.

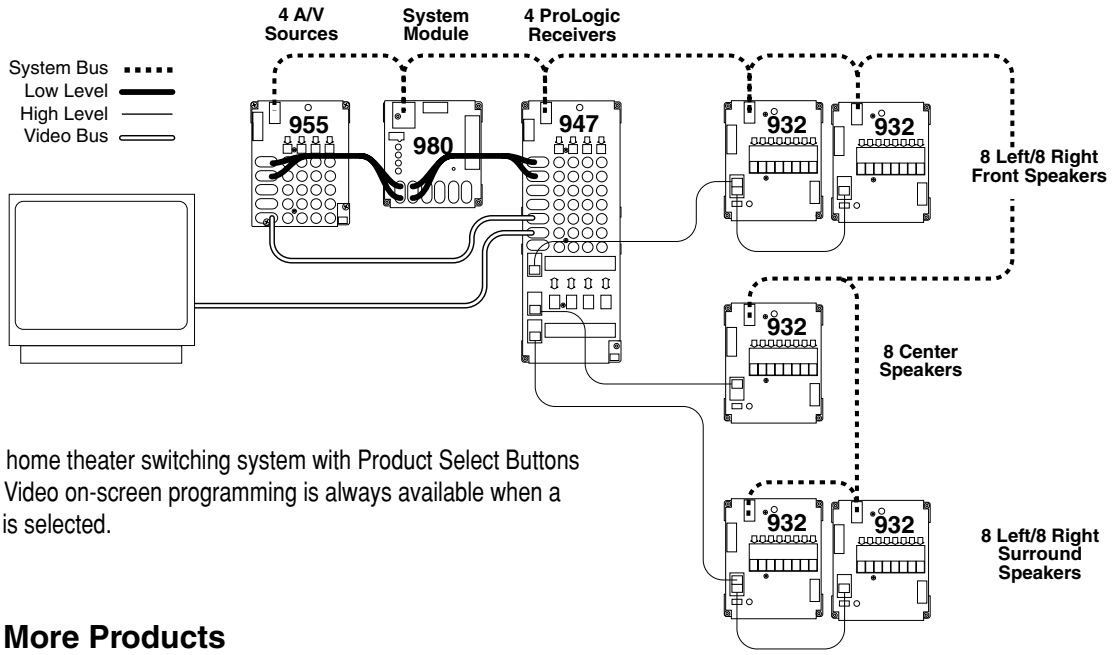


Figure 15. Small home theater switching system with Product Select Buttons by each product. Video on-screen programming is always available when a capable receiver is selected.

Add More Products

Simply add enough modules to accommodate the number of additional products you plan to demonstrate. Instead of 4 A/V Sources, the example in Figure 16 can demonstrate 8 Sources. If you plan to use a 902 or 903 Control Panel, you can demonstrate up to 99 products in each of 8 Product Groups. The 4904 Control Panel's capacity is limited according to the key layout you choose.

Add More Video Monitors

Use 985 Video Distribution Amplifiers; each 985 can serve 8 monitors. The 985 can be connected directly to the 955 from the Source Group, or if video on-screen programming is desired, loop the video bus from the Source Group through the Receiver Group, and then connect it to the 985. Figure 16 shows this example system now capable of demonstrating 8 TV monitors. The 986 Video Auto-Patcher can distribute video signal only to up to 3 monitors.

Subwoofer Switching Options

Powered subs can be wired low-level in systems where all receivers have a low-level "SUB OUT" jack, or they can be wired high-level, tapping into the full range signal for the front speakers. Call Audio Authority® for more information on wiring high-level subwoofers. Low-level mono or stereo subwoofers can be switched using the 922 module. For mono subwoofers, use only one channel (left is shown) or use a Y-adapter cable to provide signal to both channels, reducing hookup errors.

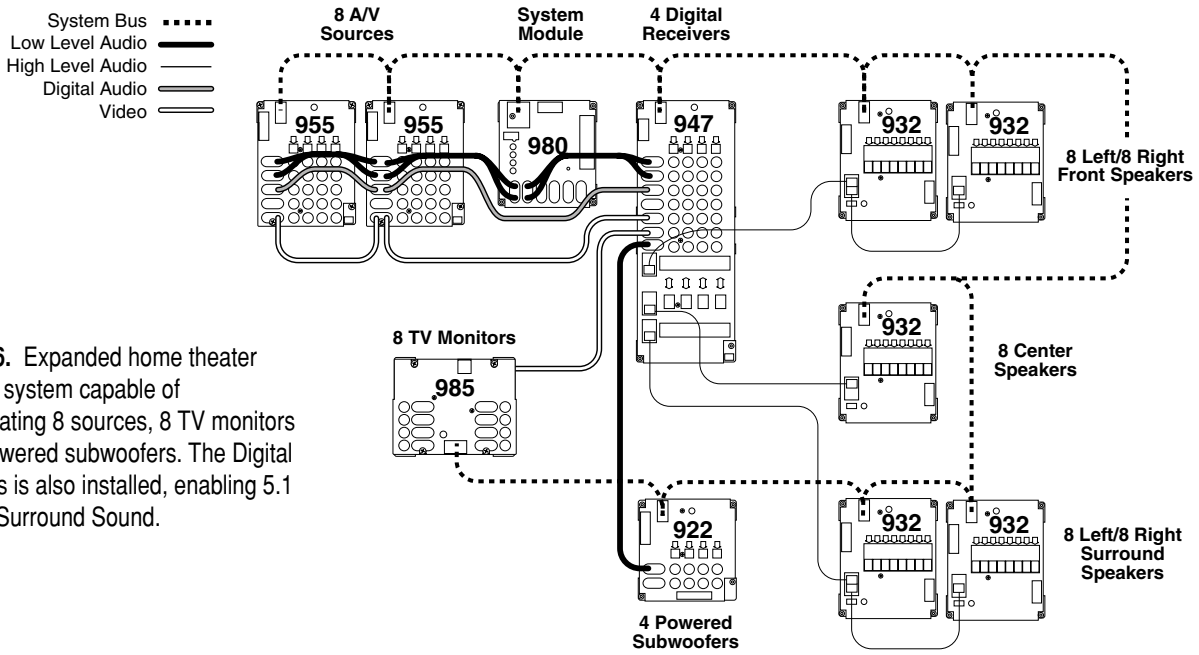


Figure 16. Expanded home theater switching system capable of demonstrating 8 sources, 8 TV monitors and 4 powered subwoofers. The Digital Audio Bus is also installed, enabling 5.1 Channel Surround Sound.

Add a Control Panel

This system would have Product Select Buttons by each product, but with the addition of a control panel, products could be selected on it directly, or via infrared remote control. The control panel would be connected to the 980 System Module as shown in the section called Adding Control Interfaces" on page 21.

Video Noise and Ground Loop

A diagonal black bar or ghost image on monitor screens may indicate a ground loop. Refer to the following section on Video Distribution.

VIDEO DISTRIBUTION SYSTEM

There are several ways to install an Access™ video distribution system. This section explains basic configurations for a Video Monitor or HDTV display including multiple TVs with a dedicated source. Refer to Appendix A for example systems. If you wish to demonstrate the audio signal from separate receivers and speakers instead of the TV's internal speakers, see the previous section on Home Theater Switching. Your Account Manager can help you choose the modules that will suit your needs the best. If at any time you wish to change your merchandising approach, your video distribution system can be connected to an integrated switching system.

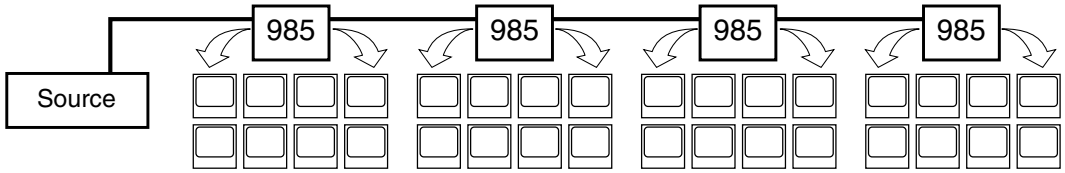
The 985 Audio/Video Distribution Amplifiers

The five Model 985 versions are self contained distribution amplifiers, each of which is capable of distributing audio and video signal to 4 or 8 video displays or VCR inputs. The table below defines their capabilities. Multiple 985s of the same model can be linked together to support up to 100 monitors. The Audio/Video Bus connects the modules via the bus connections on the sides of each module. Products are connected to the sets of color-coded RCA jacks. See Appendix A for example hookup diagrams.

Model Number	Video Connections	Audio Connections	Number of Monitors
985EZ	Composite	Left/Right Analog	8
985SV	S-Video	Left/Right Analog	8
985BNC	BNC jacks	Left/Right Analog	8
985DTV	Component Y Pb Pr	Digital	4
985U	Component and Composite	Digital and Analog	4

Figure 17.

Figure 18. Basic Video Distribution System using Model 985EZ or 985SV.



A Simple TV Monitor Display

If you want to demonstrate 32 composite TV monitors, for example, you would need four 985EZ modules to distribute a single source's signal to all of them. The audio/video signal begins at the source outputs which are then connected to the first 985 at the bus terminals. If you wish to use multiple sources, a 955 module can be used to switch them. Use the audio/video bus to connect the 955 with the first 985. For hookup diagrams and other types of video distribution systems, see Appendix A.

Video Noise and Ground Loop

A diagonal black bar or ghost image on monitor screens may indicate a ground loop. Ground loops occur when two or more shielded cables connect two products. A problem combination usually involves RCA patch cords and the master antenna system. A ground loop problem may be difficult to isolate, but these suggestions (right) can help reduce your risk or fix an existing problem.

Suggestions

- Eliminate long video cable runs between A/V Sources, Receivers and Monitors.
- Use a 75:300 ohm matching transformer on antenna inputs.
- Install a ground loop breaker (such as those sold by Xantech) on antenna inputs.
- Divide Monitor Group into smaller sections each serviced by a separate 985 Distribution Amp.

ADDING CONTROL INTERFACES

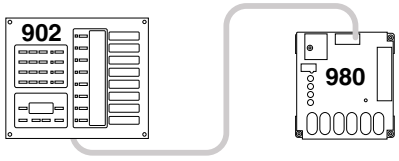
One Interface or a Combination of Interfaces

Your system may be operated by PSBs alone, or you can use a control panel, or both. Your Audio Authority® Account Manager can help you choose the user interface combination that best suits your needs. Call 800/322-8346.

Figure 19.

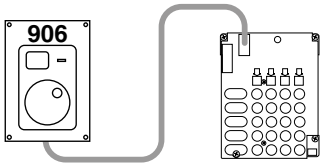
902 and 903 Control Panels with IR Remote

These full featured control panels both work with an IR remote. To add a 902 or 903 to your system, simply plug the Control Panel cable into your System Module as shown.



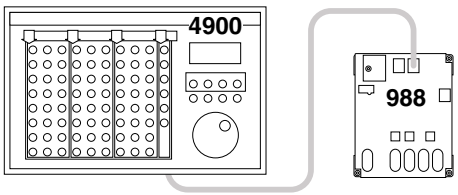
906 Control Panels

This single product group control panel plugs into the system bus port on any AccessEZ switch module. Set the address switches to match the address of the target product group's switch modules.



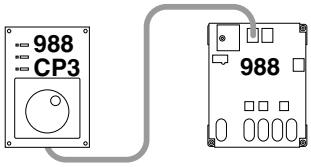
4900 Series Control Panels

A graphical control panel designed for self-service environments, this versatile interface features four different keyboard maps, and a master volume control. To add the 4904 Control Panel to your system, simply plug the Control Panel cable into your System Module as shown. Remember to plan your system's capacity with one of the key layouts in mind, or custom programming is available.



Volume Control Panels

Designed for use with a 902 or 903 Control Panel, or as a stand alone master volume and/or mode control. Plug the Control Panel cable into your 988 System Module as shown. Use the 904V with a 902 or 903 Control Panel; substitute the 988 module included for your existing 980 (if present).



INSTALLATION

1. Preparation

Follow these steps carefully:

- Review the design of the demonstration area, and make sure the display shelving is correct for your installation.

- Look at the supplied system wiring diagram, or choose one from this manual to serve as an example. Examples are in Appendix A: Sample Systems.

- Gather the owner's manuals of other products that are part of your system for reference during the installation.

- Gather the tools and materials you will need.
  You will need at least the following:
  - #2 Phillips screwdriver bits
  - 1/8" straight (flat head) screwdriver
  - Power screwdriver (especially one with a torque clutch)
  - Wire cutter/stripper
  - Cable ties (4 inch are fine)
  - 7/64 inch and 3/4 inch drill bits
  - 7/16 inch nut driver or open-end wrench
  - Flashlight
  - 14-18 gauge speaker wire
  - High quality, low capacitance RCA patch cords (such as those available from Audio Authority®)

- Check the contents of the shipping cartons. If your system is not pre-installed, use the packing list and your wiring diagram to determine how each component fits into your wiring plan. Refer to the "Access System Components" section to help identify the various items.

2. Addressing

A. Number the Product Groups.

Each main switching module has a set of switches for assigning the unique ID or address of that module. First, determine the portion of the address called the Product Group number. Refer to your system plan to make a chart like the one below. Start with a Source Group if there is one; otherwise, start with the first Product Group in the audio signal path to be switched. (TV monitors are not "switched" so they are not assigned a Product Group number.)

Figure 20.

Electronics Product Group	Speaker Product Group	Product Group Number	902/903 Control Panel Display
Sources	-	0	1
Processors	-	2	2
Receivers	-	4	3
-	Front Speakers	4	4
-	Center Speakers	5	5
-	Surround Speakers	6	6
-	Subwoofers	7	7

Each group has a higher number than the previous group in the signal path. Some numbers may be skipped if necessary. Note that the receivers and *front* speakers always have matching group numbers. This determines how the 902 Control Panel, if used, handles display layout and Volume Com-

pensation of the products in these Product Groups. Figure 21 shows how the 902/903 Control Panel would arrange these Product Groups on its Product Group display windows.

Be sure to set the receivers to the same Product Group number as the front speakers.

B. Determine the Module ID settings.

Number the modules in each Product Group to organize the products to the desired order within the Group. Each unique Group can contain up to 99 products.

See Figure 22 for the correct Module ID setting for each module.

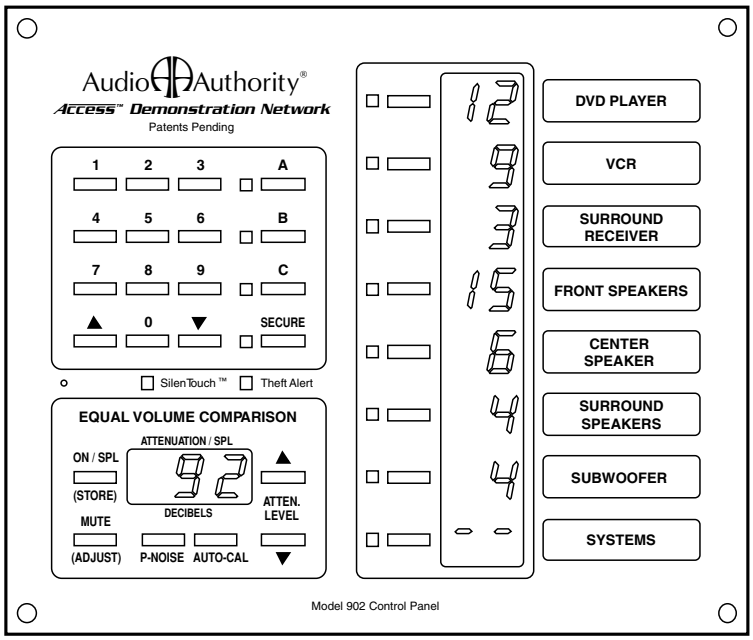


Figure 21. This is how Product Groups appear on the 902 Control Panel. The display shows which product in each group is selected.

Figure 22.

Sources, EQs and Receivers

Switching Modules (922, 954, 955, 942 and 947)	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 932, 934 Speaker Positions	Set the MODULE ID to: Slide Switch	Rotary 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

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.

Remember, begin with Group 0/ 00 for the first module in the Source Group, and the next module is 0/01. The example in Figure 22 shows the address settings for the eleventh module in the Source Product Group (sources 40 - 44). The Group switch is set to "0" and the Module ID is set to "11. " If the Receiver Product Group is next, the first module will have an address setting of 4/00, so the first module in the Front Speaker Product Group would be 4/00 as well. For an example system showing addressing, see Appendix A.

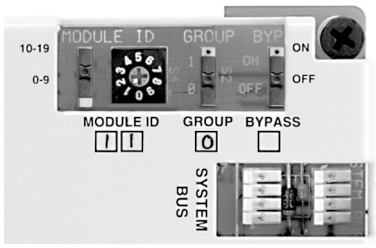


Figure 23. Source Module set to 0/11. Later, you will fill in the blank boxes with the settings for each address switch as shown.

D. Set the Programming Switches.

Determine the settings for any remaining switches on each module.

Bypass

The BYPASS switch should be set to OFF unless you wish to bypass the Source Group. Recordable tape decks or VCRs are examples of Source Groups that might be bypassed. The Product Group will be bypassed when all the products in that group are unselected. **The "bypass module" is always the last module in the Product Group** (only the bypass module should have the BYPASS switch ON.) For more on bypass, see the index.

S M B T D

The 942 Amplifier Selector has an array of five switches used exclusively for Car Audio Demonstration. All of these switches should be OFF in a home audio demonstration system.

Left – Right

The 932 Speaker Selector has a Left – Right switch in the lower left-hand corner. For Left speakers, switch it to the "left," for Right, to the "right." For speakers such as mono centers or mono subwoofers, the switch should be set to the "right" position.

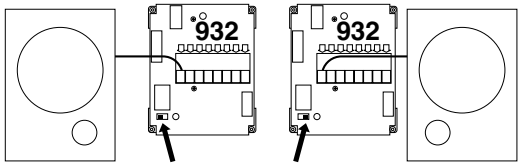


Figure 24. Left and Right Speaker Modules.

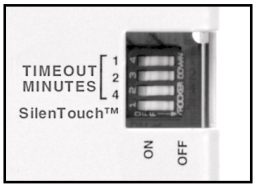


Figure 25. 988 Switches.

Timeout Minutes

The Model 988 can monitor system activity and restore system volume to a standby level during idle periods. This time period is called "Timeout" and is counted from the last Master Volume control change or Access™ System command such as product selection. Set the 988 "Timeout" DIP switches to total the desired timeout period. For example, if you turn on switches 1 and 2, your system will timeout after 3 minutes. If you do not wish to use the Timeout feature, leave the three Timeout switches turned OFF.

SilenTouch™

The Model 988 can administer SilenTouch™ in systems with no 980 module. If both modules are present in a system, turn the 988's SilenTouch™ switch OFF (the bottom switch on the 4-switch array).

Speaker Limit

The Access™ System is designed to play a set of surround speakers by separating them into Product Groups. One receiver plays a Center, two Fronts, two Surrounds, and a Subwoofer. 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 receiver manufacturers do not recommend playing more than one pair of speakers at a time. Surround receivers have different recommended speaker limits. If customers will have access to your display, consider using the lowest speaker limit recommended by any receivers 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. If your system has a Model 988 instead of a Model 980, the speaker limit is set at two.

E. Fill Out the Labels.

Check all switch settings against your addressing plan or system drawing. Each module has blank boxes printed on the metal case. After you have established your switch settings, use this space to record the correct settings. Fill in the outlined arrows with the actual product numbers to be switched by this module as shown in Figure 26. This process will help with maintenance and troubleshooting later.

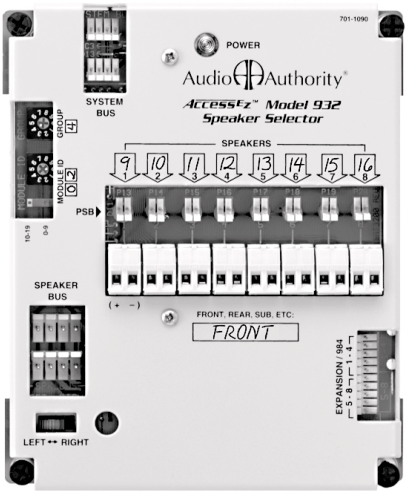


Figure 26. A Model 932 Speaker Selector, set to Group 4, Module 2, (Front Speaker Group, products 9-16). This is the LEFT module.

3. Install the System Hardware

A. Designate the Switching Module Locations

Determine the location for each switching module. Each module controls either four or eight products.

- Follow your system plan design to determine the location of the switching modules in the display fixture. If you are using bus cables provided by Audio Authority®, you may wish to connect all the modules that share the system bus with system bus cable, power up the system on a bench or table, and check the switching modules and control panel logic before actually installing the modules in your fixture.
- Mark the location of the switch modules near the center of the products they will serve. Modules will serve 4 electronic components, or 8 speakers.
- Be sure to consider the two foot plug spacing if you are using pre-made factory bus cables.

B. Determine Other Module Locations

In the following installation steps, ignore any references to modules that are not part of your system.

- Position the 980 (and/or 988) System Module in the signal path immediately prior to the first module(s) in your Receiver Product Group. This position will allow you to feed analog audio signals from the output of your Source Product Group to the System Module which will then feed the low-level input signal to your Receiver Product Group. Do not feed video or digital audio signals through the 980 module.
- If your system has a Model 902 Control Panel, you also received a model 987 EVC Control Module. The 987 Module should be positioned near the 980 System Module. When connected, the 980 will receive signal from the 987 Module and send low-level input signals to your Receiver Product Group. There is a hook up diagram on page 4 of the "User's Guide" manual for the 902 Control Panel.
- If your system has a 986 or 986A Video AutoPatcher, mount it in a convenient place for all necessary connections (refer to the 986 manual, your system diagram, or Appendix A).
- If your system includes a 971 Infrared module, make sure the infrared LED is pointing toward the IR reciever on the component it is to control.

C. Mount the Modules

- Use the screws provided with each module.
- Connect any audio signal expander ("X" module) to its respective main switching module by plugging it directly into the bottom of the main module as shown. If you encounter difficulty with this procedure, call the factory. It is critical that any signal expander modules be connected to a header port on the main module labeled "Expand" or "Expansion."

Do not plug an audio signal expander module to the header port labeled "DC EXPANSION" on the top of 922, 940 or 942 modules (see Figure 27).

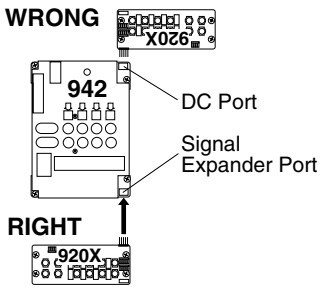


Figure 27. Signal expanders should only be plugged into header ports labeled EXPANSION and never into DC EXPANSION ports.

4. Install 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 every two feet (RCA patch cords are available in lengths from three to twenty feet). If you plan to make your bus cables on the job site, you'll need connectors and the special bus assembly tool.

If you are making your own bus cables, be very careful to follow the assembly instructions, especially concerning wire to connector polarity. Incorrect bus fabrication can cause system failure and damage!

Several types of bus cables are available for specific purposes:

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	EX2, EX1	SGRCA	762-006
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

* The System and Speaker Bus extension cables allow you to join remote sections of the Access™ System with the main electronic component section of your display, as in the case of surround speaker modules in a home theater display fixture.

Any RCA patch cords are suitable for the low level bus or component connections; however, we highly recommend that you use our special low-capacitance RCA patch cables for optimum system performance and reliability, especially when longer cable runs are necessary.

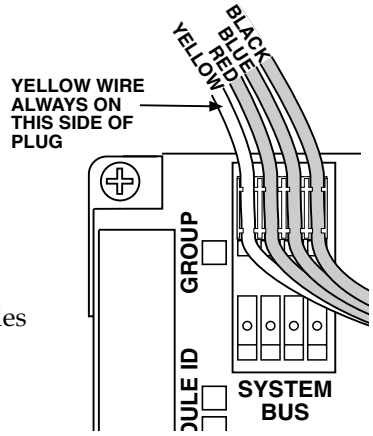


Figure 28. Observe correct System Bus polarity. It is fine to leave one header unused.

A. Install the System Bus

The System Bus allows all of the Access™ components to communicate among themselves, and with the control panel. You may use either header in the location labeled SYSTEM BUS. Do not connect System Bus to any expander modules such as the 920X, 940X or 960X. Be careful to observe the correct polarity as shown in Figure 28.

1. Either use pre-assembled bus cables, or assemble bus with cable and 4-pin plugs (part number 916-0470) using the special assembly 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 assemble the connectors with the wires in the correct order.

2. Starting at one end of your system, mate one plug of the system bus cable with either of the 4-pin headers in the location marked SYSTEM BUS on each module as shown in Figure 29. If one cable is not long enough, or if you want to make a branch from your cable run, you may begin another run by plugging it into the vacant System Bus header. Otherwise, that header may be left vacant.

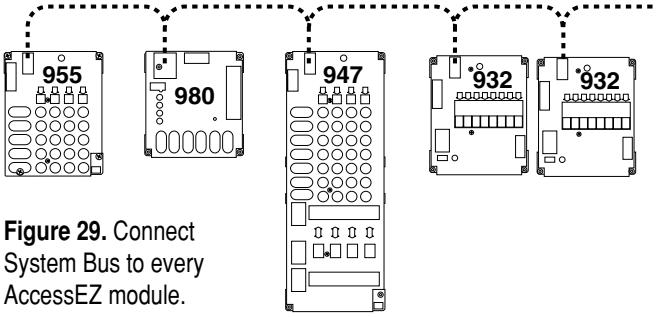


Figure 29. Connect System Bus to every AccessEZ module.

3. If you are using pre-assembled buses, you may use a system bus extension cable for long distances between modules, or carefully splice 22 gauge cable where needed.

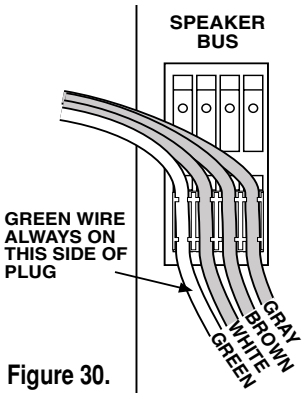


Figure 30.

B. Install the Speaker Bus

The Speaker Bus will be used to send high level signals from receiver outputs to other high level modules in the system. It is a green/white/brown/gray cable.

- Be careful to maintain correct polarity as shown in Figure 30.

- Install the Speaker Bus in the same way you installed the System Bus. For stereo switching systems, plug a 4-pin Speaker Bus connector into a header marked SPEAKER BUS on every 942 module.

- For surround sound switching systems, make three individual buses: Front, Center, and Rear Speaker Bus. Begin at one end of your Receiver Product Group, and plug the first Speaker Bus into a header marked FRONT SPEAKER BUS on each 947 module. Plug the next Speaker Bus into a CENTER SPEAKER BUS connector on each 947, and the last bus into the SURROUND SPEAKER BUS headers in the same way.

- Now connect the Speaker Bus (or Buses) from the Receiver Product Group to the Speaker Product Group (or Groups for surround sound systems). Plug one end of the FRONT SPEAKER BUS into a 942 or 947 module, then plug a Speaker Bus connector into a header marked SPEAKER BUS on every 932 module in the Front Speaker Product Group. If it is more convenient, connect one channel (e.g., LEFT) with one run of bus cable, and the other side with a separate run of cable. Continue in the same way with the Center and the Surround Speaker Product Groups.

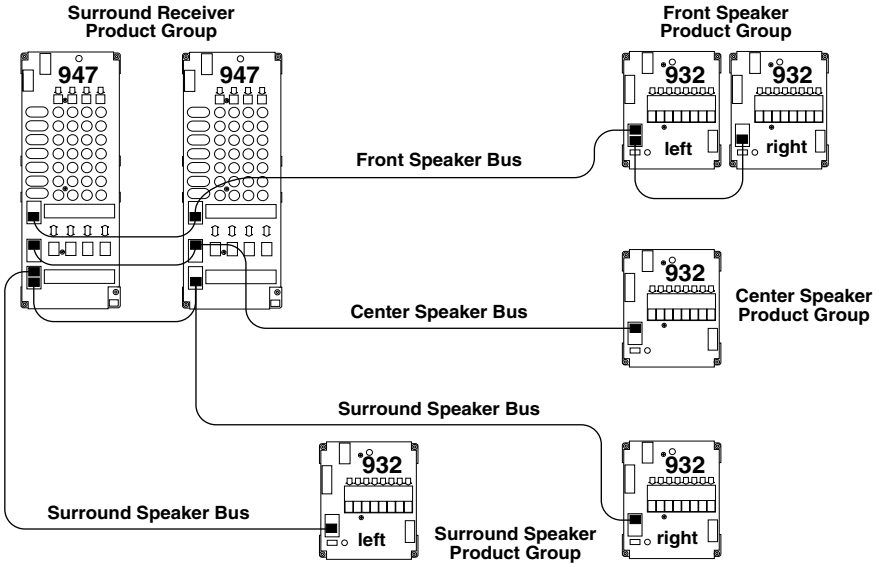


Figure 31. Speaker Bus in a surround sound system. Note that any 4-wire Speaker Bus can be branched off of any 4-wire SPEAKER BUS connector in its Product Group.

C. Install the Low-Level Buses

- The Low-Level buses carry signals from the Source Product Group to the Receiver Product Group via RCA patch cables. Be sure to observe IN/OUT bus wiring on 954, 955 and 947 modules.

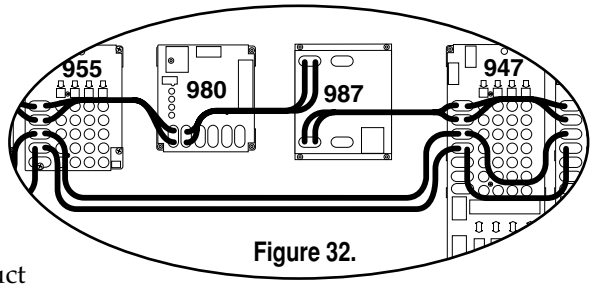


Figure 32.

- The Left and Right Audio Bus begins in the Source Product Group, and continues through the BUS IN and BUS OUT jacks of the 980EZ (or the 988 module) and then on through the Receiver Product Group. If a 902 Control Panel is present, the 987 EVC module fits into the audio bus right after the 980 System Module (Figure 32).

- The Digital Audio Buses follow the same route, but DO NOT loop through the 980 and/or 988 module. Connect them directly from the DIGITAL AUDIO bus OUT jacks on the 954 or 955 modules to DIGITAL AUDIO bus IN jacks on the 947 modules.

- Composite Video Bus connects to the yellow COMPOSITE VIDEO jacks on the 955 module, and the COMPOSITE VIDEO INPUT jacks on the 947's RCVR IN BUS. Then it starts back through the Receiver Product Group from the RCVR OUT BUS jacks (COMPOSITE VIDEO OUTPUT) and on to the TV monitor (see Figure 34).

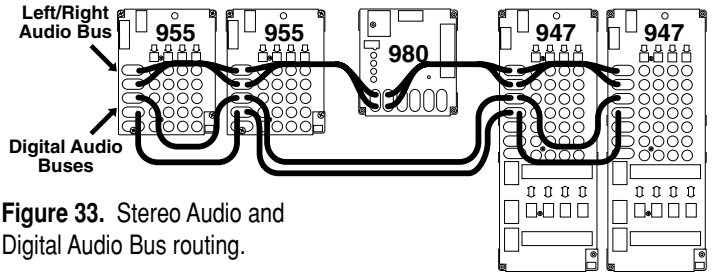


Figure 33. Stereo Audio and Digital Audio Bus routing.

- The Subwoofer Output Bus is connected from one 947 to the next, and finally ends up at the Subwoofer Product Group.

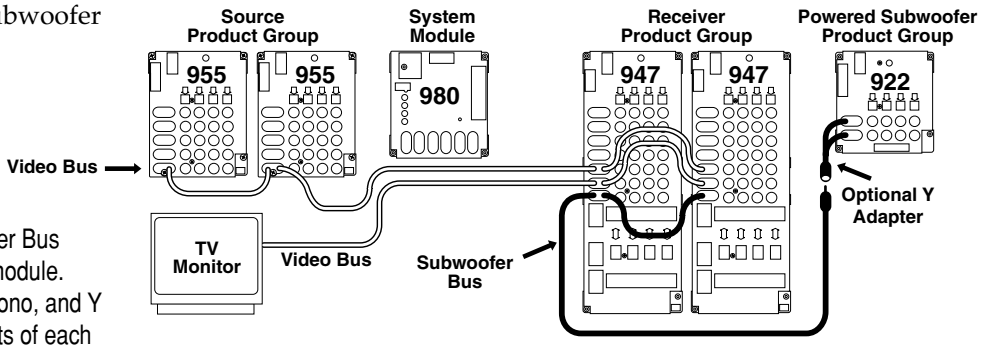


Figure 34. Video Bus from Sources loops through Receiver Product Group and back out to TV monitor. Subwoofer Bus shown with Y adapter at switch module. Subwoofers can also be wired mono, and Y adapters applied only to the inputs of each stereo subwoofer.

D. Video Distribution System

The Audio Authority Distribution Amplifiers are easy to install. They are automatically terminated, so the last module in a "chain" should have nothing connected to the "bus out" jacks. They draw little power and may be continuously connected to AC power. Some other rules are as follows:

- Each module should be permanently mounted as close as possible to the products it feeds, and within reach of an AC power outlet, unless powered by System Bus.

- If any jacks are unused, leave them vacant. Do not plug in any open-ended cables or shorting plugs.

- If not connected to an Access System, use only the 805-021 power supply. One 805-021 can power up to four 985 modules (connect them with System Bus cable). If part of an Access™ System, simply connect the System Bus to the header labeled DC POWER on each video distribution amp.

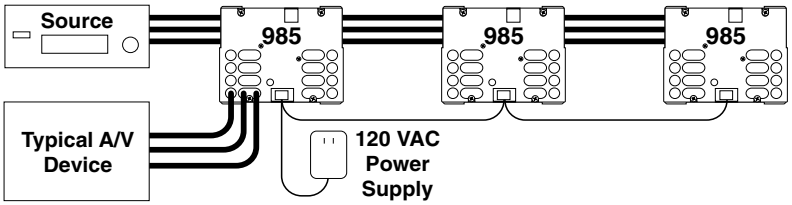
- Use high quality, low-capacitance cable such as Audio Authority® Excellerator® cables, and use matched sets of high-quality 75 ohm coaxial cables for component video bus and product connection.

- Connect each of the four or eight outputs to one product's input only. Do not use "Y" adapters.

- If you hear audio noise such as hum or buzz, flip the GROUND switch to the other position.

- Audio and video outputs may be connected to different equipment if needed. For example, the video outputs could feed video monitors while the audio outputs feed surround receiver(s).

Figure 35.



E. RF Antenna Distribution System

If your system plan included provisions for an Antenna Distribution System unpack items KIT20 and KIT21 and locate the installation instructions.

- Follow the instructions completely, making sure that the coax cable used to connect the 4-way taps is not kinked or bent during the hookup process. Avoid bundling or tying any of the coax with any Access™ bus cables, especially the low-level bus.
- If you need additional instructions, please contact the factory and ask that we send you installation instructions for our FM Distribution Kits (part number 752-139).
- Use a 7/16 inch open-end wrench to tighten all F-connector terminations.
- After installing the F-to-F cables, take special care to avoid any accidental contact between the metal F connectors and any of the switching modules in your system.
- Carefully check your installation to be certain that you have inserted the proper F-59 Termination Plugs in the FM Filter's "TV" input and in the last 4-way Tap Block's "OUT" position.
- Check to insure that the FM amplifier's "FM Trap" switch is in the "OUT/OFF" position.

5. Check your work to this point

Before continuing any further, double check the following:

- Check the Group and Module ID settings on all modules. Your Group numbers should follow a similar pattern to the example in Figure 36. Make sure the Module ID settings are in consecutive order in each Product Group, beginning with zero, not skipping any numbers.
- Check any Expander Modules in the system to insure that audio signal expanders are connected to the EXPANSION header on their main modules, and *not* a DC EXPANSION header.

Product Group	Group #
Sources	0
Processors	2
Receivers	4
Front speakers	4
Center speakers	5
Rear speakers	6
Subwoofers	7

Figure 36. Example Group numbering scheme.

- Check programming switches, especially the Left-Right switch. 932 modules on the left side of your display should be switched to LEFT, and on the right side, RIGHT. For mono center channel speakers or mono high-level subwoofers, set the switch to RIGHT.
- Check signal bus routing. Follow the physical path of signal buses from source group products, through intermediate product groups, and out to the speakers and TV monitor(s). ***Check Bus IN/OUT wiring on 954, 955 and 947 modules.***
- Check the System Bus and Speaker Buses for correct polarity, and make sure the plug is engaged with all four pins on each header and in the correct direction as shown in Figure 37.

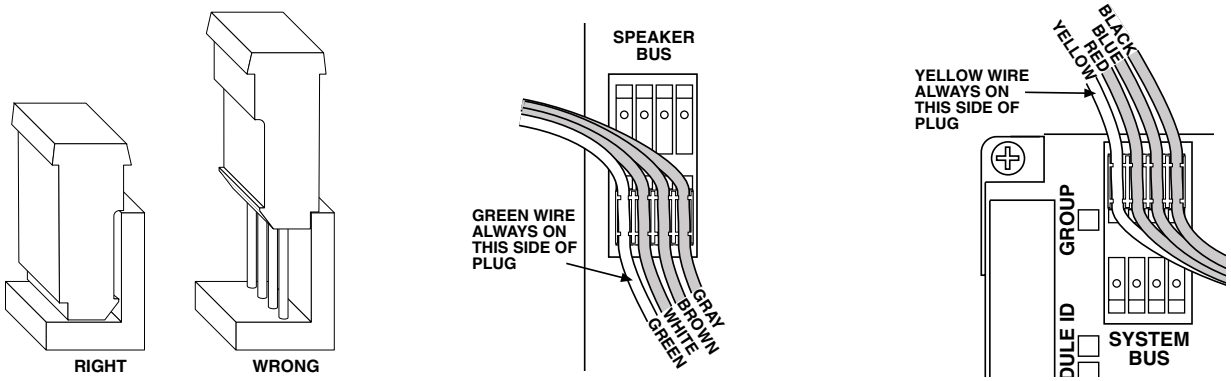


Figure 37. Check buses for polarity and solid connection.

INSTALL USER INTERFACES

Skip to Installing PSBs if your system uses Product Select Buttons only. If you have a 902, 903, 906, 988, or 4904 Control Panel, there is a separate User's Guide accompanying each unit that you should locate for future reference.

1. Installing 902 and 903 Control Panels

A. Cut an opening for the Control Panel if you wish to flush mount it in your display. You can also use a 989 Enclosure Kit to house your Control Panel which can be shelf-mounted in your display.

- For the 902 or 903 Control Panels, cut an opening 7" (178 mm) wide by 5⅛" (130 mm) high. If you are mounting control panel expanders as well, refer to "Control Panel and Expander Cutout Sizes."
- Use the panel to mark screw hole locations and drill 7/64" (2.5 mm) holes for the screws. You will still need access to the rear of the 902, so do not mount it permanently at this time.
- Insert the appropriate slide-in Product Group labels provided with your control panel into the Product Group display widows to identify each component group on the panel. Consult page 6 of your User's Guide for more information on Product Group labeling.

B. If you have a 902 Control Panel, locate the 987 EVC Module that came with the 902. You should have already installed the 987 near the 980 System Module. Connect the 902 to the 987 using the ribbon cable provided. **DO NOT** connect the 902 to your system when the system is powered!

C. Using the 10 foot cable supplied, plug the 902 or 903 into the 980 System Module header marked 902/903.

- The 987 should already have RCA cables connecting it in the signal path coming out of the 980 that feeds the receiver input buses (see Appendix A, Sample 1).

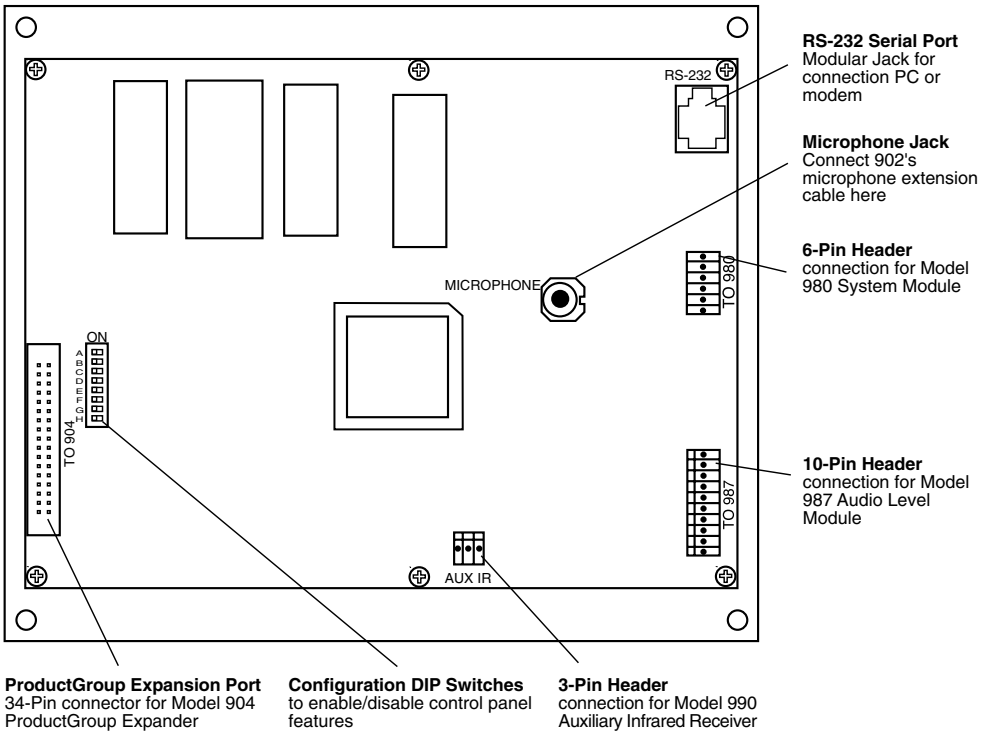


Figure 38. Rear view of 902 Control Panel. For simplicity, only larger component parts are depicted.

Control Panel and Expander Cutout Sizes

All panel openings are 5-⅛" (130 mm) high. The following table shows the correct cutout widths (All expanders are the same width.)

Panel Units	*Cutout Width*
902 or 903	7" (178 mm)
906 or 988 only	4 3/16" (285 mm)
902/903 + 1 expander	11 3/16" (285 mm)
902/903 + 2 expanders	15⅜" (390 mm)
902/903 + 3 expanders	18 9/16" (495 mm)

- Hang the 902's calibration microphone about seven to eight feet from the floor at the center of the listening area. The mike can be flush-mounted in ceiling tile, if desired, but calibration accuracy may suffer. The mike is an omni-directional electret condenser microphone.

- Plug the calibration microphone into the Microphone jack located on the rear of the 902, using the extension cable provided, if necessary.

- If your system includes a model 990 Remote Infrared Receiver, mount the 990 to the ceiling in the display area and connect the 990 to the header on the rear of the 902 labeled AUX IR. The 990's IR receiver network is omnidirectional, and once installed and programmed, defeats the IR receiver port on the 902/903 Control Panel.

Note: Both the 902 and 903 Control Panels can be remotely controlled using a 905 IR Remote. A single 905 remote is packaged with he 902, but must be ordered separately for the 903.

D. Set the Programming Switches on the 902/903.

Use the following chart to set the 8 programming switches located on the rear of the 902/903 Control Panels.

Switch	*Function*	*Comments*
A	Keyboard Click	Turn ON for audible key feedback or "beep"
B	Demo-Mode	Leave OFF. Use only when Control Panel is not connected to a system as a "Training Mode"
C	Systems	ON makes the last (eighth) Product Group capable of storing 99 component systems*
D	Future Use	Spare, leave OFF
E	Previous Selection	OFF= "C" key is third flash memory key
		ON= "C" key is toggle between current selection and previous selection
F	902/903	OFF = 902; ON = 903
G	Internal IR	Turn Off when using 990 Remote IR Receiver
H	Auxiliary IR	Turn ON when using 990 Remote IR Receiver

* If a 904 or 904V Product Group Expander is installed, the last Product Group on the Expander is used for "Systems" in stead of the last Product Group on the 902/903.

E. If you have a Control Panel Expander such as a Model 988CP0/CP3, 904 or 904V for use with your 902 or 903 Control Panel:

- Cut an opening 11¾ (285 mm) wide by 5⅛" (130 mm) high to accommodate both the Control Panel and the Expander panel. (If you have more than two units to mount together, see "Control Panel and Expander Cutout Sizes."
- Insert the slide-in Product Group labels provided with your control panel into the Product Group display windows (904 and 904V only).
- Connect the ribbon cable to the matching header on the rear of the 902 or 903 labeled "TO 904" (904 and 904V only).
- Connect the data cable to the 988 CP header on the 988 module (988CP0, 988CP3 and 904V only).

F. Mount the 902 or 903 in the opening together with any control panel expanders. Be careful not to overtighten the mounting screws – the acrylic panel may crack under excessive pressure.

2. Installing 906 Control Panels

The 906 can be mounted in a cabinet, wall or flat counter top, or you can also use a 989 Enclosure Kit to house your 906 Control Panel for shelf-mounted applications.

A. Cut a 4-¼" tall by 3-¾" wide opening for the 906 Control Panel if you wish to flush mount it in your display. Use the panel to mark screw hole locations and drill 7/64" (2.5 mm) holes for the screws. You will still need access to the rear of the 906, so do not mount it permanently yet.

C. Set the GROUP rotary switch on the back of the 906 to match the product group number of the group it is to control. Set the slide switch to ELEX unless the 906 will be connected to speaker switching modules.

D. Connect the system bus to the System Bus port at the bottom of the rear panel, insert the 906 into the cutout, and use the included screws to secure it. Do not overtighten the screws or the panel may crack.

3. Installing 4904 Control Panels

The 4904 can be mounted in a wall or flat counter top, but it is best mounted at an angle in a pedestal or other surface in the center of the sound stage of your demonstration area.

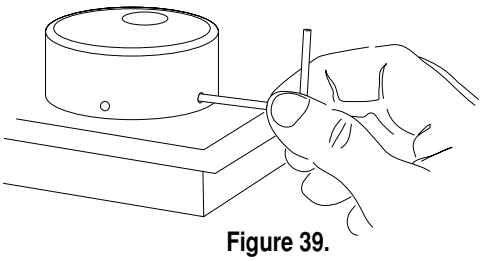


Figure 39.

A. Loading or replacing the graphic overlay.

- When installing a new or replacement panel graphic, unplug the system cable from the back of the 4904. Remove the rotary encoder knob by loosening its 2 setscrews using the supplied 5/64" hex key.
- Loosen the 2 slotted set screws and remove the 1 Phillips screw from the back of the case as illustrated. Pull off the right-hand end frame.
- Pull the clear overlay and the paper graphic clear of the rotary encoder shaft and pull them out of the frame toward the right. Put the new panel graphic together with the clear overlay and slip the two under the top and bottom edges of the frame. Slide them to clear the rotary encoder shaft, press them flat against the keyboard and then slide them under

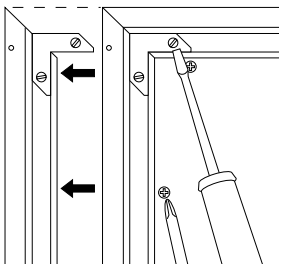


Figure 40.

the left end frame. Replace the right end frame and rotary encoder knob, reversing the steps described above. Press the right end frame inward while tightening the screws for a tight corner fit.

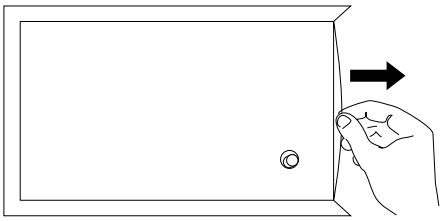


Figure 41.

B. Installing the Control Panel

- Cut a hole 7¾ by 12¼ in the surface of the counter or pedestal where you want to mount the 4904.
- Connect the 25 foot data cable from the port in the back of the 4904 to the 4900 CP port on the 988 module. Mount the module with the screws provided.
- In Access™ Systems using the 980 System Module, leave the 988 SilenTouch™ DIP switch turned OFF; the 980 will perform SilenTouch™ functions. If the 980 module is absent, turn the 988 SilenTouch™ DIP switch ON (see the section on programming switches).

4. Installing Product Select Buttons (PSBs) and Product Indicators

Audio Authority offers several types of PSBs. This section describes installation of our standard square PSB, Model 994. If you are installing Model 999 or Model 9990, use the instructions packed with those PSBs. Your system plan may specify using Product Select Buttons (PSBs), and/or Product Indicators (LEDs) in conjunction with a control panel. Some system users prefer to use PSBs as the only method of product selection and do not have a control panel as part of their demonstration system. In either case, if you have PSBs and/or LEDs, install them as follows:

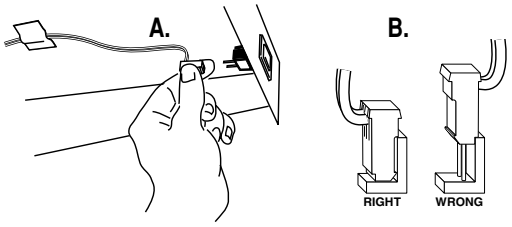


Figure 42. Observe correct PSB polarity.

A. Determine where each PSB and LED will be located. Most users prefer to locate PSBs close to the actual product the PSB will select. PSBs are often placed near product information tags or signs that describe the products on display. Indicators are also normally placed close to the components to identify the products currently selected.

- For standard square PSBs: drill a small pilot hole in the panel or surface where each PSB or LED will be located. Now, drill a ¾" (19 mm) hole; be precise, a sloppy hole won't work.
- For LEDs: drill a small pilot hole in the panel or surface where each LED will be located. Now, drill a 5/16" (8 mm) hole; be precise, a sloppy hole won't work.
- Disconnect the cable from the PSB or LED, and take note of the plug polarity. Carefully insert the PSB or LED in the hole and check the fit. Plug in the PSB cable so that the cable exits the plug on top for PSBs as shown in Figure 42A. If an LED or PSB does not light up when testing the system later, simply reverse the polarity of the plug.

Note: metal shelving must be punched to accept PSBs. If that is not possible, consider using our surface mount ZipSwich PSB.

B. Find the switching module where the component will be connected. Each module has either 4 or 8 two-pin headers on the circuit board marked with arrows numbered from 1 - 4, (or 1 - 8; see page 50). Connect the PSBs or LEDs to these headers using the cable assembly supplied with each. Figure 42B shows the correct plug position.

5. Connect Accessories to the 980 System Module

In systems without a control panel, it is usually desirable to add "outboard" switches for remote operation of certain system management tools.

A. Install a remote power switch.

- Although the switching system should usually remain powered continuously, you may want to be able to turn the system on and off using a remote key switch or toggle switch. If 902 equipped, use the Secure 0 command to turn system ON/OFF, not a remote 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.

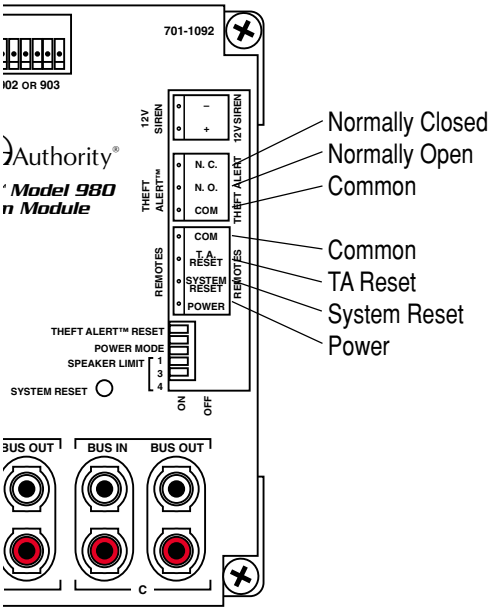


Figure 43. Headers available to connect remote power switch, a remote TheftAlert reset, and an alarm or siren for TheftAlert.

B. Installing the TheftAlert™ Security System. TheftAlert is an optional feature of the Access™ System that provides a merchandise sentinel or security system for the products on display. TheftAlert can sound an alarm in the event that products are removed from the display without prior authorization. It is an optional feature available at the time of your initial purchase, or you can install it later at no charge.

Once TheftAlert is armed, a special monitoring circuit continually looks to see that all products connected to the system maintain continuity to ground. If products are disconnected without prior entry of an authorization code, then TheftAlert senses the loss of continuity in the system and triggers an external alarm (not included). No additional circuitry or buffers are ever in the audio signal path with TheftAlert.

- TheftAlert can send output to many types of warning devices, such as sirens, buzzers, lamps, and so on. Connect a 12 volt DC siren or other device, drawing less than 1 amp, to the (+) and (–) 12V SIREN terminal block on the 980's circuit board.
- If you wish to connect TheftAlert to an existing alarm or security system's control box use the relay contacts of the TheftAlert terminal block on the 980's circuit board. There are 3 pins to consider in this type connection:

COM = Common Ground
NO = Normally Open Contacts
NC = Normally Closed Contacts

- Do not exceed a 1 Amp, 120 volt AC load on these relay contacts.

TheftAlert can be turned on and off with a 902 or 903 Control Panel; however, TheftAlert can be reset, when the alarm or siren is triggered, with a remote switch regardless of whether or not your system has a control panel. Many users who have a control panel prefer a separate reset switch as an addition to the control panel's reset function.

- Connect a SPST (single-pole, single-throw) switch between the TA RESET and COM pins on the REMOTES terminal block located on the 980.
- To activate the TheftAlert™ circuit, with or without a control panel, turn OFF the TheftAlert RESET switch on the 980 module.
- If you have a 902 or 903 Control Panel, consult your User's Guide for information on TheftAlert™ Secure Commands.

6. Testing Network Function

The final component in your switching system is the 3 amp power supply. Connect the red/black cable to the Model 980, and plug it in to an AC wall outlet. After installation is complete, all the system's components need to be tested. Apply power to the system if you have not already done so.

A. 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 LED on each switching module and on the 980 are slowly blinking.
- The red LOW VOLTAGE LED on the 980 is not lit, or very dim.
- The red TheftAlert™ LED on the 980 is not lit.
- Ignore the color of the 980's clear LED marked BUS MONITOR for the present. Later, when product selections are made, you will notice that the BUS MONITOR LED flickers and is an orange color. This orange flicker is normal. It merely indicates that "traffic" is present on the system bus.

B. 902/903 Test Sequence. Test the Control Panel (if your system does not have a 902 or 903 Control Panel, skip to step "C" and ignore other references to control panels). Reboot the system (press SECURE, 88, SECURE) and observe the following test results on the Control Panel. If you encounter any problems, keep a note pad handy to record results as they are reported in the Control Panel windows.

1. All display segments and indicators on the control panel are lit briefly (lamp test).
2. The EVC window at the left of the panel displays software version (e.g., 3.3).
3. System Bus Test. If the word "bUS" flashes in the EVC window, it indicates a problem with a system bus cable or switching module. To find the faulty cable or module, use this process of elimination: unplug portions of the yellow-red-blue-black system bus cable to isolate them from the 980 module, then press any key on the control panel. If "bUS" still appears on the EVC window, plug the cable back in and try a different cable. If "bUS" disappears from the EVC window, you have isolated the module or bus cable that is faulty. Call Audio Authority® Tech Service at 800-322-8346 for assistance with parts replacement.
4. After the bus test, the diagnostic program scans the active range of module addresses in every Product Group. You will observe these module addresses counting up in the EVC window as the product group number is displayed in each group's Product Group window.

    - If the numeric displays begin flashing at any time during the module scan, two or more modules have the same address. Duplicate addresses are disallowed because the control panel is unable to tell two identically addressed modules apart. Note the last group number displayed in the Product Group windows and the module number displayed in the EVC window and try to find two modules that both have this address. For example, if the control panel is flashing, the EVC window displays 042, and the third Product Group window shows S1, you would look for two speaker modules (932) with the same address of "Group 4, Module 02, Right." Remember that pairs of speaker modules must have the same Group and Module ID address, but must be identified LEFT and RIGHT to avoid a duplication (see page 24).

Note: In 902/903 Control Panels, E refers to Electronics switching modules and S refers to Speaker switching modules.

- If the erroneous address stays in the windows too short a time to catch, press SECURE, 88, SECURE to reboot the system and repeat the test.

- As each new group number appears in a PG window, the EVC window counts up the number of modules in that group that can be recognized. Write down the highest number reported in the EVC window and the Group number with it. For each group, compare the reported module number with a physical count of the modules. For example, your system has four "E Group 0" modules, six "E Group 4" modules, and three pairs of "S Group 4" modules. The top PG window displays "E0" as EVC scans up to 4 (good), the second PG window displays "E4" as EVC scans up to 5 (bad), and the third PG window displays "S4" as EVC scans up to 3 (good). In this case you would look for a mis-addressed, unplugged, or faulty E4 module (Electronics Group 4).

- If the module count in a group does not match the number of modules you actually have, look for disconnected or mis-addressed modules. Also check for gaps in the series of module addresses of that group. For example, 0, 1, 2, 4, 5 is not allowed and will be reported as 3 modules; in this case, the modules addressed 4 and 5 must be corrected to 3 and 4, respectively.

C. 4904 Control Panel test sequence: press each product key in turn on the 4904. At each selection, the panel lamp should light and the corresponding product should play. If any wired products fail to respond, check addressing of the switching module(s) they reside on, using the charts on page 22 and 23. When you press a button for which there is no switching module connected to the system, the 4904 reverts to the previous selection.

D. 906 Test Sequence: connect the 906 to the system bus and power up the system. When the system first boots up, the 906 displays the "product type" (E for electronics or S for speakers) and product group number, reflecting the switch settings on the rear panel. (Example: "E2"= Electronics Group Number 2.) Next the display reads, "Po" which indicates that the 906 is polling the system to see how many modules it can detect. After polling, it displays "– –" which indicates that no products are selected.

E. Test 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), find the extra PSB supplied with the 980 and plug the PSB into one of the small 2-pin PSB headers at each location called for in the following steps.

1. Connect the test 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.

    - The product position number that the test PSB is connected to is displayed on the Control Panel.

    - Each product selected with the PSB is displayed in the correct Product Group window on the 902 or 903.

2. Press a lighted PSB in any group (if your system has PSBs installed).

    - The LED goes out.

    - The 902, 903 or 906 displays double dashes (– –) in the respective product group window.

3. Select a speaker position using the test PSB, 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.

4. Attach the test PSB to a second speaker in a group, press 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 902, 903 or 906 displays the two speaker positions alternately in the speaker's Product Group window.

Questions or Problems? Contact the Factory at 800-322-8346 (800-32-AUDIO).

COMPONENT HOOKUP

It is now time to begin installing the audio/video components. If you've followed the instructions so far, you will have a working system in short order. It may be a good idea to map out a wiring plan for the audio and video components before you begin connecting them to the switching system and to AC power. Make sure you will have access to the switching modules from either the front or rear of your fixture shelving.

Usually, it works out best to mount the components to be located at the bottom of your display first, and work towards the top of the display so you can avoid masses of hookup wire hanging down from above. Remember that the position of each component on the shelf should match the number you wish the control panel to display. For instance, in Figure 44 the component in the display is on the bottom shelf, so it should be connected to the set of jacks on the switching module for component number 4. The Control Panel will now display "04" when this component is selected.

Be sure to save the boxes and accessories so that you can offer your customer a new or almost new unit when you later take the component out of the display.

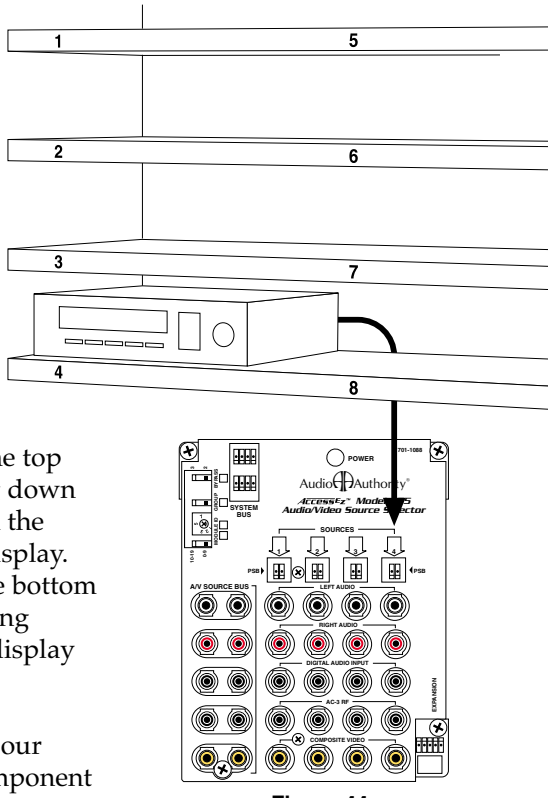


Figure 44.

1. Install the First Products.

Install one product in each group in order to get a simple system running. For example, install a source, a receiver, a pair of front speakers and a TV monitor (in A/V systems). Leave your power source on but be careful using metal tools. If your system does not include PSBs, ignore any references to PSBs.

A. Connect a source to an AC power outlet and its low-level audio or A/V outputs to a product position on the 922, 954 or 955 module (see Appendix B for hookup diagram).

    - Connect the source unit to the product position on a 922, 954 or 955 Source Selector.

    - Connect the low-level output to the red (R) and white (L) female RCA jacks, and connect video output to the yellow RCA jacks using short, high quality patch cables.

- Connect any Digital Audio or AC-3 RF outputs if you plan to demonstrate them.
- Connect the two-pin plug of the PSB's cable (if PSBs are used and are not already hooked up) to the small two-pin header next to the arrow with the number corresponding to the source you are connecting.
- Plug a VHF/UHF lead (if used) into the VCR's female antenna input jack.
- Install the unit in your shelving or cabinet.

B. Connect a receiver to AC power. Then connect the receiver's audio inputs and speaker outputs to the 947 or 942 Receiver Selector (see Appendix B for hookup diagram).

- Connect the receiver to the Left and Right Audio jacks and/or any others which are appropriate using a short, high quality RCA patch cable.
- Use 14 or 16 gauge speaker wire to connect the unit's speaker outputs to the corresponding terminal plug (front, center, surround). If you are switching subwoofers with low level, use RCA patch cords to connect the Subwoofer output from the receiver to the 947.
- If you plan to use video on-screen programming, connect the patch cables from the VIDEO IN and VIDEO OUT jacks on the receiver to the appropriate jacks on the 947.
- Plug an FM antenna cable from the FM Distribution System (if used) into the receiver's female antenna input jack.
- Install the unit in your shelving or cabinet.

C. Install a pair of speakers in the Front Speaker Group.

- Connect the left Speaker to one of the 2-position terminal blocks on the Left 932 module, and the right speaker to the corresponding position on the Right 932. Wire the positive speaker lead to (+) and the negative lead to (–).
- Connect the two-pin plug of the PSB's cable, if PSBs are used, to the small 2-pin headers on the 932 at the corresponding product position. Press the PSB into the ¾ inch hole you drilled earlier in the shelving or cabinets.

Note: One PSB will activate both left and right speakers when selected. You may also wish to install a 996 or 997 Product Indicator at the corresponding speaker location for easy product selection verification. Product Indicators are merely LEDs; they connect to any switching module in exactly the same manner as PSBs.

- Install the speakers in the shelving or cabinets.

2. Test Your Initial Product Installation

A. Use PSBs, or the control panel, depending on your system's equipment.

- On a 902 or 903, press the first key at the top of the column of 8 Product Group keys. The control panel's red LED comes on.
- Enter the number of the first product in the Source Group using the numeric pad. The product Group Display blinks while receiving your input.
- The Product Group Display stops blinking after two seconds and the selected product comes on.
- Enter the numbers of 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 (disc, tape, FM tuning, etc.).
- Check 955 and 947 audio bus to make sure it is consistent with IN/OUT signal flow.
- Check your product selection numbers on the control panel for accuracy.
- Check product connections to the switching modules.
- Make sure all products are receiving AC power and are turned ON.
- Check all Group and Module ID settings, and programming switch settings. Refer to the configuration on the module labels and your system plan.

C. Important: If you make any changes to any module's switch settings, press the System Reset button or recycle the system power on the 980 system module. In systems with 902 or 903 Control Panels, you can also press "Secure 88 Secure" on the control panel to reset the system. This enables the modules to recognize the new settings.

- Make sure that PSBs, if present, are connected to the correct header position.
- If PSBs are not installed, plug the test PSB that came with the 980 System Module into the respective headers on the switching modules to make sure that the products are currently selected to play.
- Follow the signal path visually through the product hookups and system buses to make sure there are no wiring errors.
- If you are still experiencing difficulties, call Audio Authority® Technical Service at 800-322-8346.

3. Install the Remaining Products

- Install the rest of the sources, receivers and speakers by groups, working from the bottom of the display toward the top (for electronic products).
- Check all members of the Product Group as each is completed.

4. Test Product Selection using PSBs

This section covers operation of Access™ Systems using PSBs rather than a Control Panel. For operation of systems utilizing a 902, 903, 906 or 4904 Control Panel, please see the separate User's Guide included with those products.

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 hooked up.

DEMONSTRATION FEATURES

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 4 pairs at once, but many receivers are not recommended to play more than one pair simultaneously. Read your product's documentation to determine the setting you should use.

- To add a pair of speakers to the pair currently playing, press and hold (about 1 second) the PSB of 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.

2. Deselecting Products with PSBs

- Turn any currently selected product OFF by pressing its PSB. The green LED goes out.
- 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 the 902/903 control panels, on the 905 IR Remote, on the 906 control panel, or on the 4904 Control Panel. For complete instructions, refer to the Control Panel User's Guide.
- When you switch a component such as a source, the Access™ System engages our exclusive SilenTouch™ circuit to mute the audio level briefly (0.15 seconds) during the switching process. This feature quiets all switching noise.

4. TheftAlert™ Protection

- TheftAlert™ protects display products from unauthorized removal. When tripped by unauthorized product removal, TheftAlert™ produces an alarm though the external device chosen by your system installer. This feature is optional, and is available through your Audio Authority® Account Manager. TheftAlert may also be added after your initial purchase. A special transformer is required for the feature, and the upgrade is at no charge. TheftAlert may also be applied to any electroinic products using RCA jacks, with the 2961 TheftAlert module, even when switch modules are not used.
- Each switching module monitors the presence of its four products. 932 Speaker Selectors DO NOT have this feature.
- You can control the TheftAlert functions via remote key switch, if installed, or from a Control Panel (if so equipped). 902 and 903 Control Panels have an "arm" and "disarm" key sequence for TheftAlert. See your Control Panel's User's Guide for more information.
- Set the switch in the OFF position to disarm TheftAlert while making product changes or to cancel an alarm. Set the switch in the ON position to arm TheftAlert.

REFERENCE

Appendix A: Sample Systems

Integrated Systems

Single Product Group Systems

Audio/Video Distribution Systems

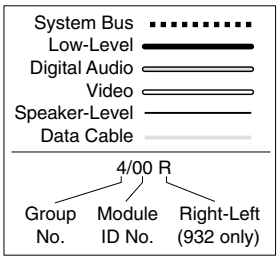
Appendix B: Product Connection Diagrams

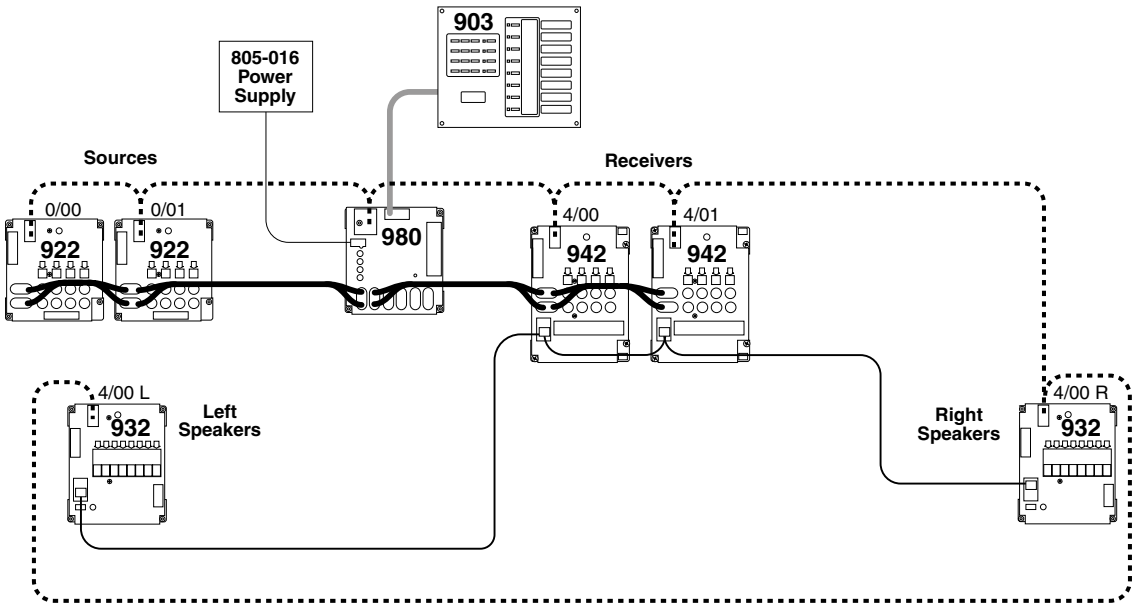
APPENDIX A: SAMPLE SYSTEMS

These samples can help you in addressing and laying out your system as well as installing the buses and products. Pick a sample that is similar to your overall system and then ignore any parts that are not applicable. For example, if your system does not have a control panel, you can still use a sample system layout for comparison. If your system is stereo only, the connections and addressing scheme is very similar. There are also many drawings available showing unique product hookups and configurations. If you have any questions, or simply want to verify your system plans or product hookups, don't hesitate to call us at 800-322-8346 (800-32-AUDIO).

Sample Home Audio System

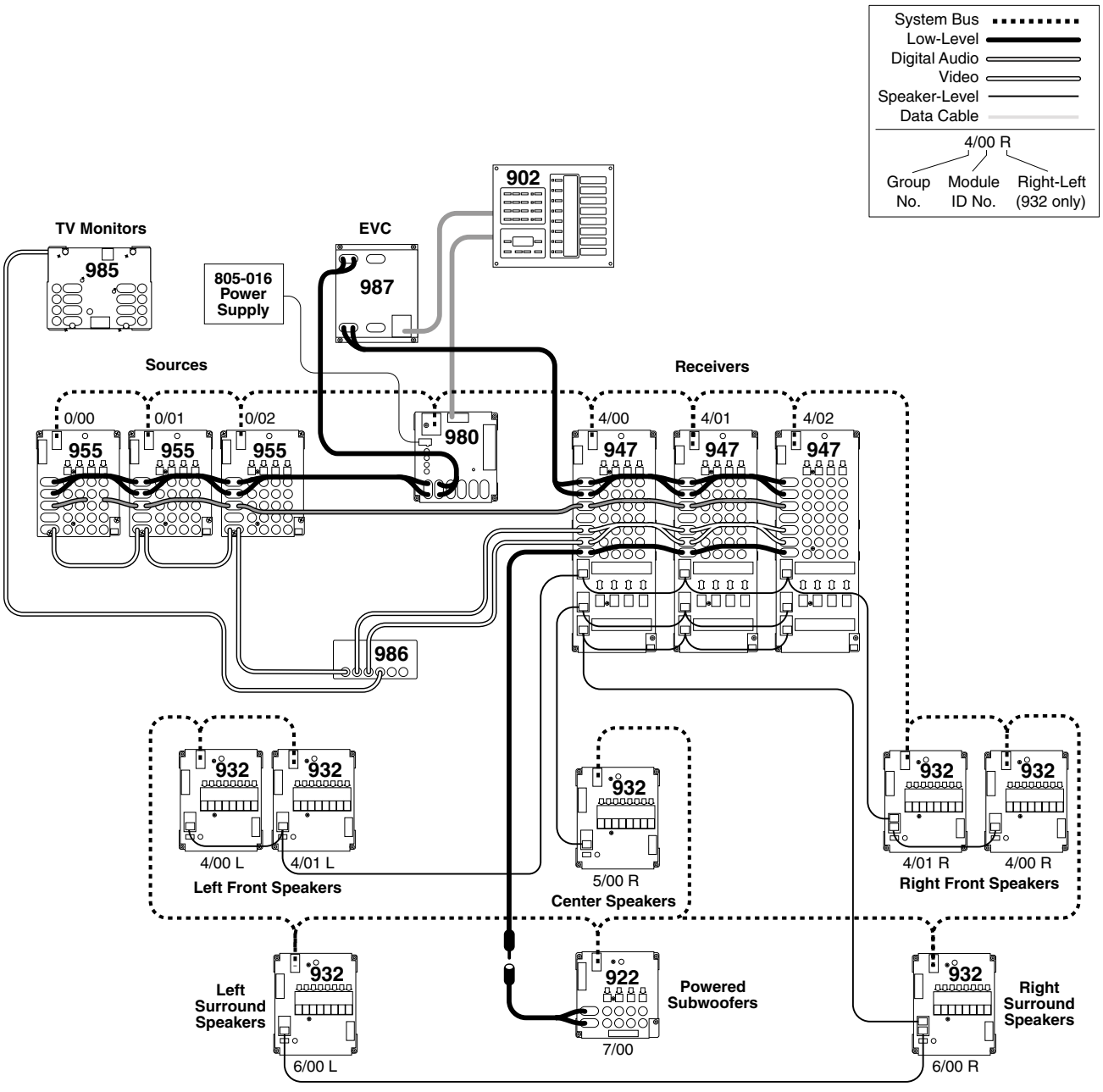
- 903 Control Panel (or 902); PSBs are optional (not shown).
- 8 Stereo Sources.
- 8 Stereo Receivers with left/right audio input.
- 1 Speaker Group.





Sample Home Theater System

- 902 Control Panel (or 903); PSBs are optional (not shown).
- 12 Surround A/V Sources including digital audio output.
- 12 Surround A/V Receivers with digital audio input, low level sub out, and graphical user interface.
- 4 Speaker Groups: 16 Front pairs, 8 Center speakers, 8 Surround pairs, and 4 Powered Subwoofers.
- Capable of distributing A/V signals to 8 stereo monitors.
- Model 987 EVC module installed.
- Model 986 Video AutoPatcher installed.



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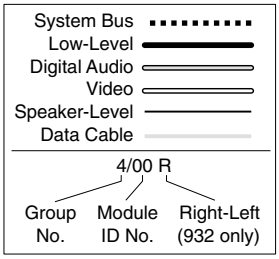
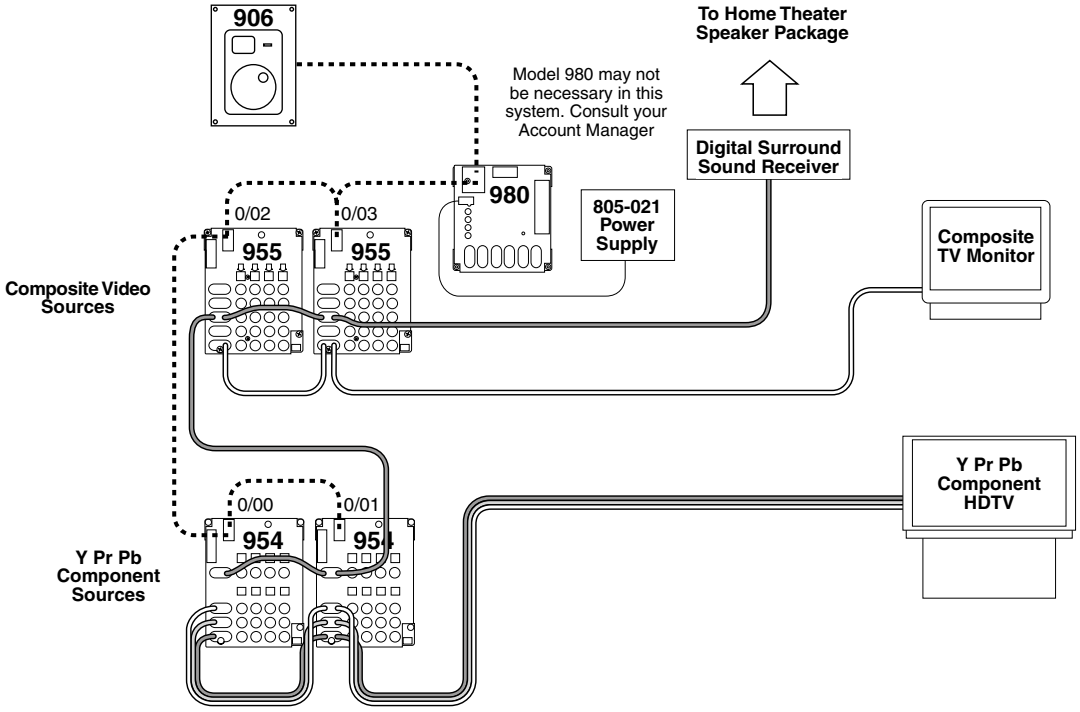
Phone: 859/233-4599 Fax: 859/233-4510 Hookup drawings and FAQ **http://www.audioauthority.com**

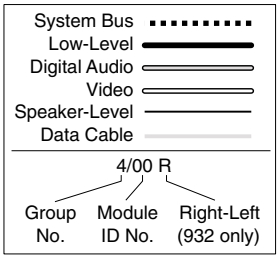
Sample A/V Source System



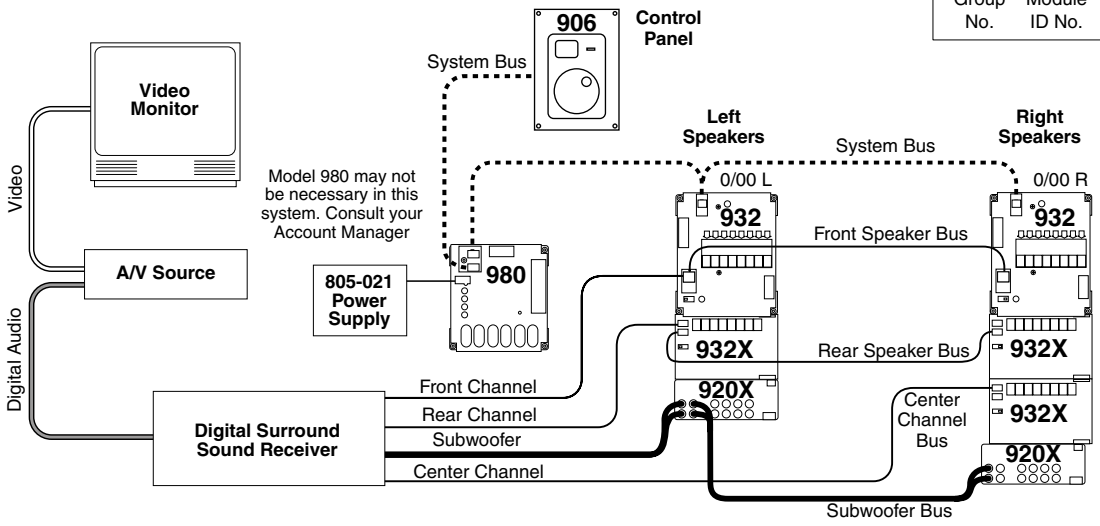
- 906 Control Panel. PSBs are optional (not shown).
- 8 Composite Video Sources.
- 8 Y Pb Pr Component Video Sources.
- Dedicated home theater receiver and speaker package for audio output.



Sample Home Theater Speaker Package System

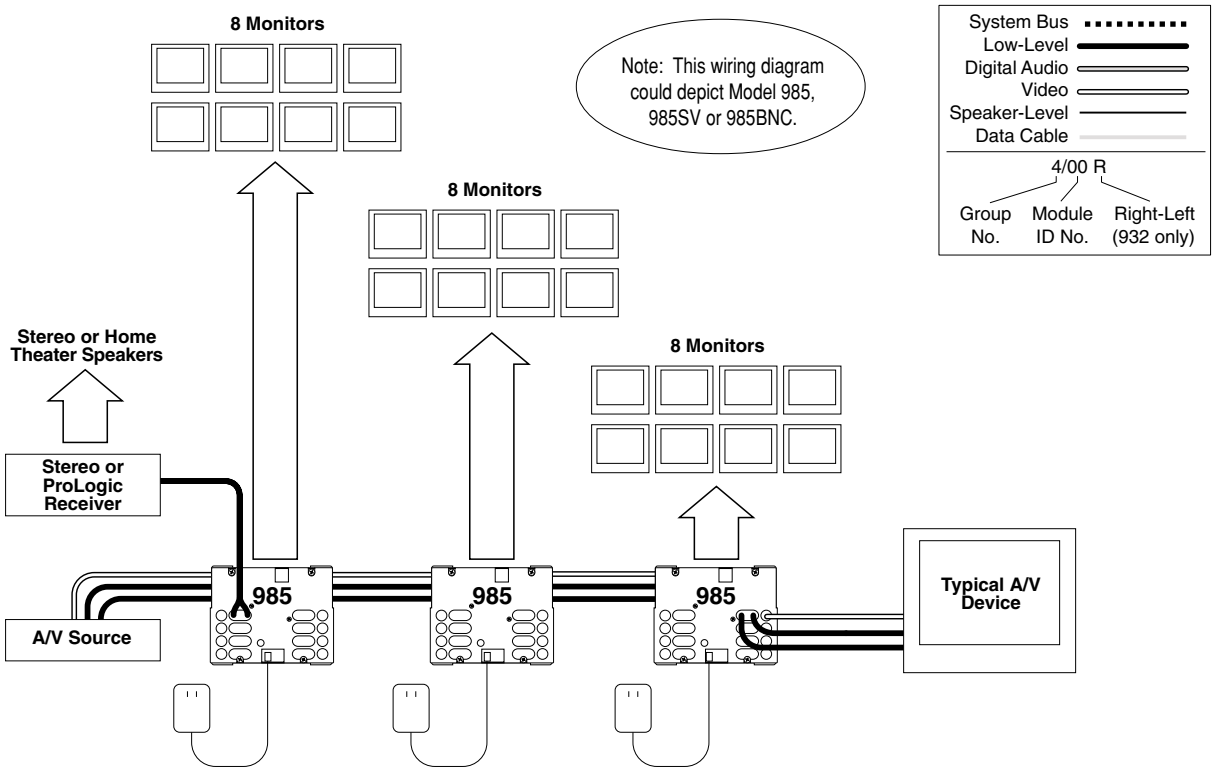


- 906 Control Panel. PSBs are optional (not shown).
- Dedicated A/V Source with digital audio output and Surround Receiver.
- 8 Speaker Packages including Front, Center, Rear and Sub channels.
- Dedicated Video Monitor.



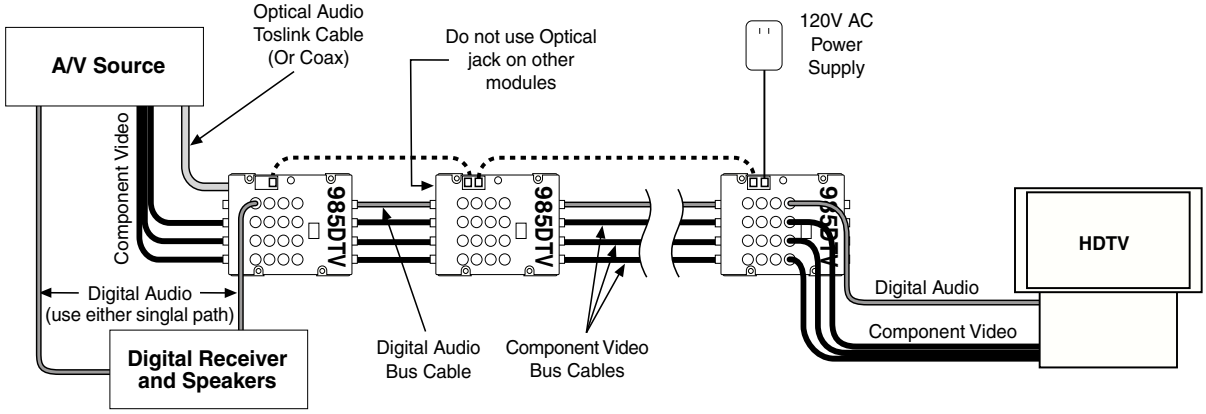
Sample Composite Video Distribution System

- Dedicated Source with composite video and left/right audio output.
- 12 Televisions or Video Monitors with or without Stereo Audio inputs.
- Audio can be connected to the TV monitors, and/or drive a dedicated receiver and speaker package.
- Each 985 can be powered by a 805-021 wall pack (shown) or up to eight 985s may be connected together with System Bus and powered by a 805-016 power supply.



Sample Component (Y Pb Pr) Video and Digital Audio Distribution System

- Dedicated Source with either optical or coaxial digital audio output. (To use a VGA Source, convert VGA to component video using Model 9A60 Converter.)
- 12 HDTV sets with or without digital audio input jacks.
- Audio can be connected to the TV monitors, and/or drive a dedicated receiver and speaker package. In multi-room applications, several receiver/speaker packages may be desirable.



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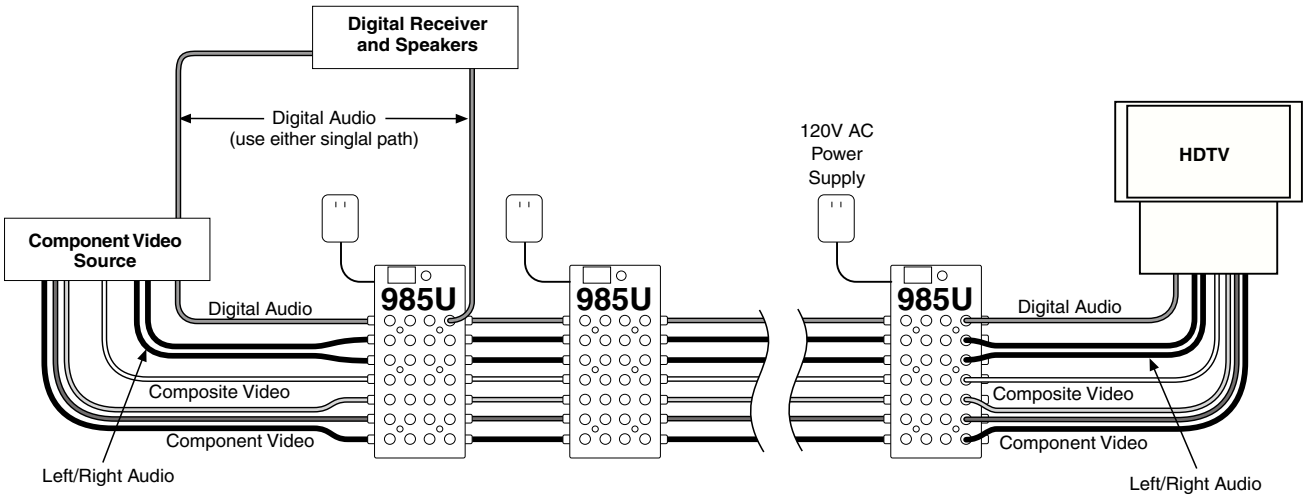
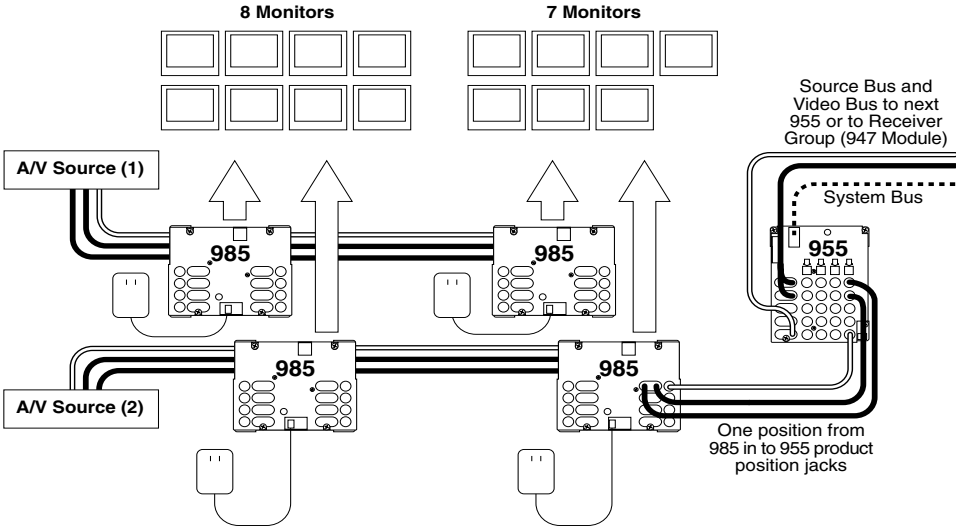
Sample Multi-Mode Signal Distribution System

- One Source unit drives all types of input on the 985U.
- Both Composite and Component Video can be connected to the TV monitors.
- Audio can be connected to the TV monitors, and/or drive a dedicated receiver and speaker package. In multi-room applications, several receiver/speaker packages may be desirable.



Sample Multiple-Signal Distribution System

- Two Source units provide greater choice of demonstration material.
- Each video monitor's multiple inputs are used to switch the signal.
- Each A/V source requires a separate set of 985 modules.
- To switch from Satellite TV to DVD for a home theater demonstration, push the "A/V 2" button on the TV monitor.
- An output from a 985 could connect to a 955 module in an integrated display, just as the other media players do. The video signal could be routed through the Receiver Group and to a final 985 if desired.

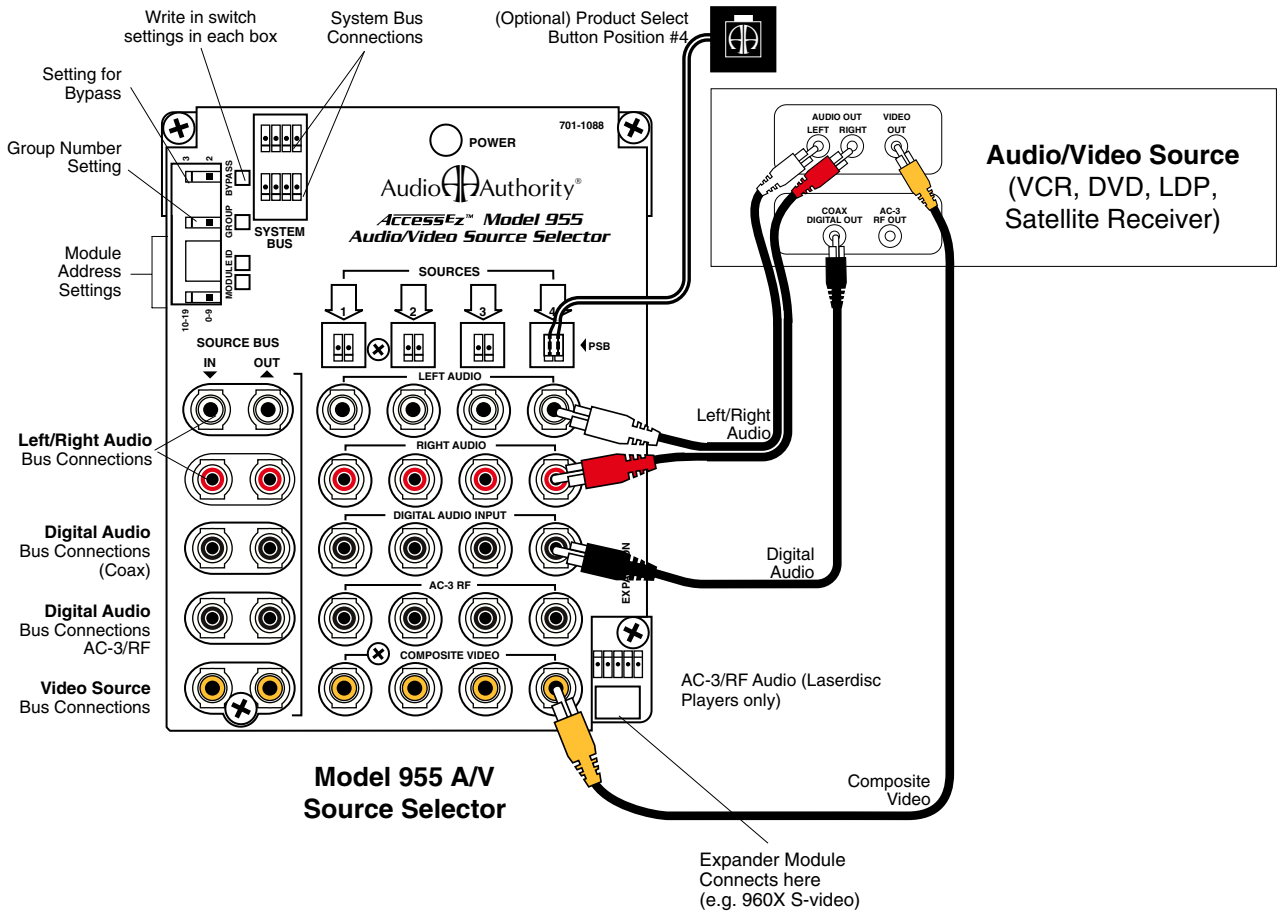


APPENDIX B: PRODUCT CONNECTION DIAGRAMS

The examples in the following pages focus on the basic connections for specific home audio and video products. In some cases, other variations are possible, and other drawings are available from your Audio Authority® Account Manager.

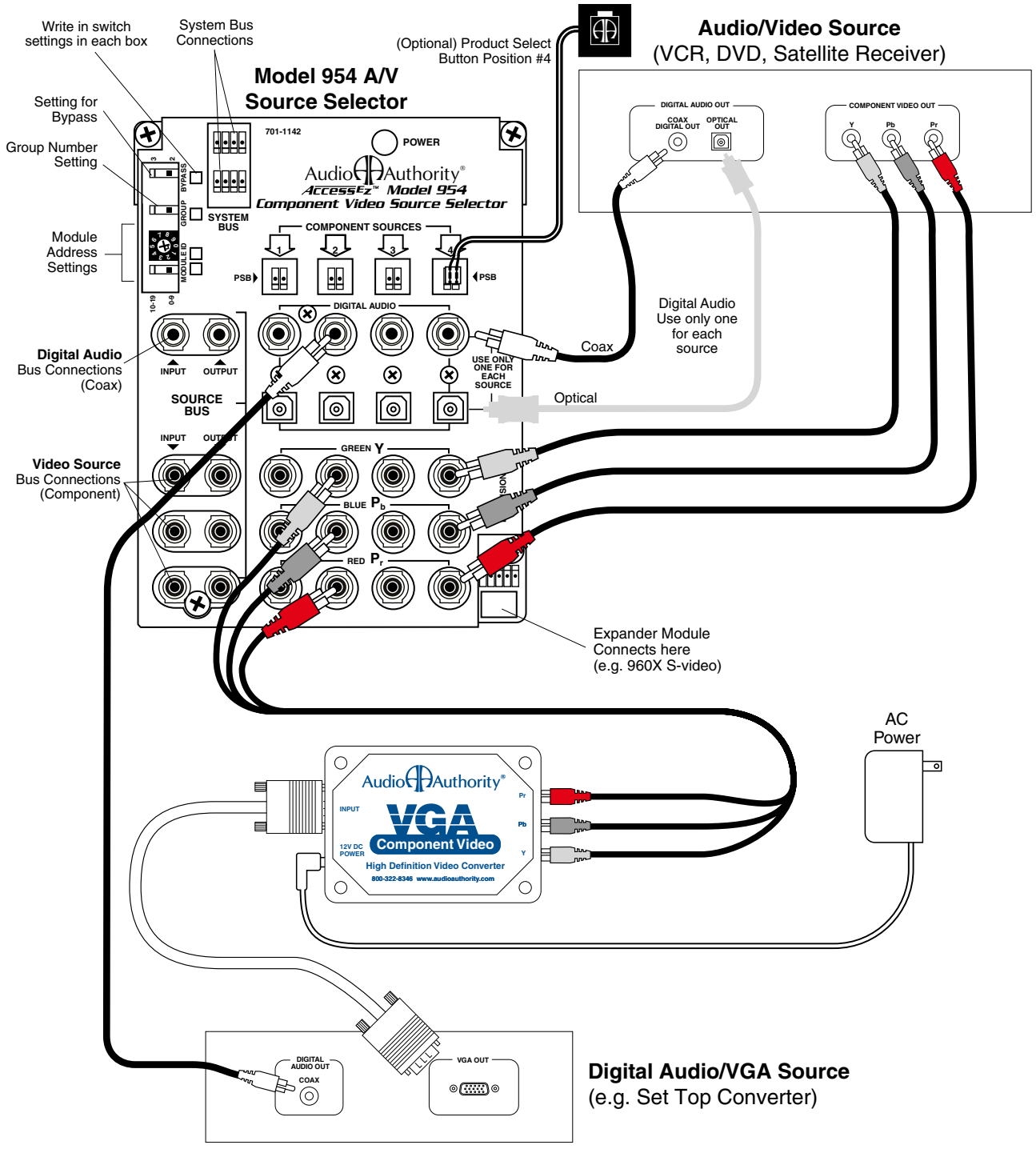
Audio Video Source

This layout shows an A/V source switched with the 955 module. For sources with S-Video outputs, use the 960X expander (see Appendix Drawing for S-video). Most sources will use only one digital audio output. (AC-3/RF is only used for LDPs). There is no optical digital connection on the 955, use a coax output from digital audio sources, or use the 977R Optical to Coax Adapter. Instructions for other types of Surround or Dolby Digital configurations are available if needed. Contact your Account Manager at the phone number below.



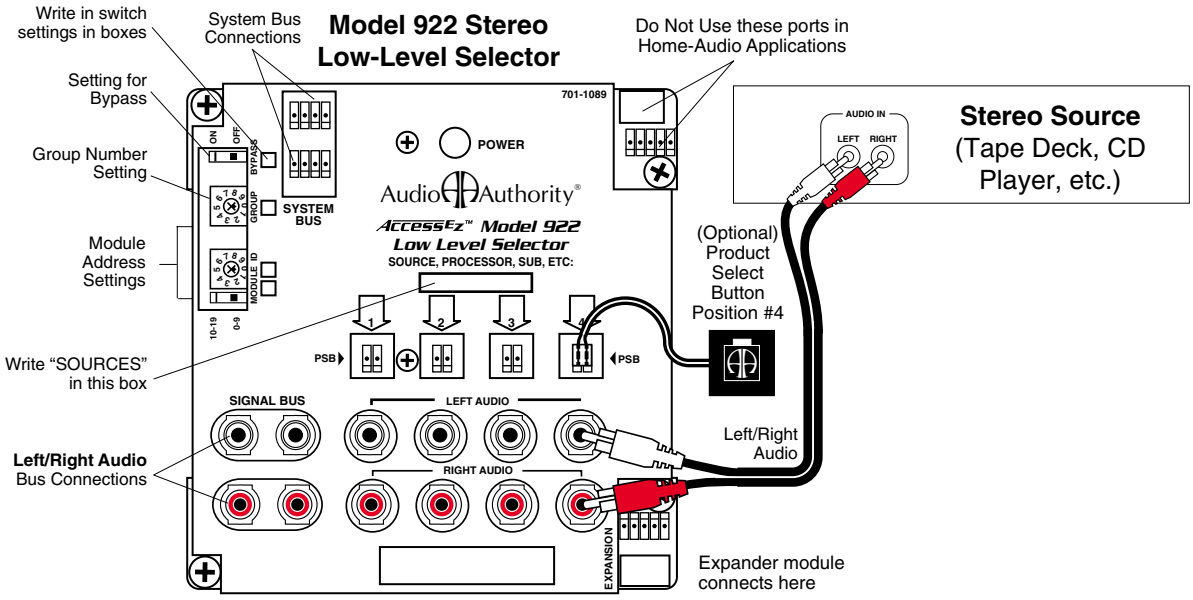
Component Video or VGA Source

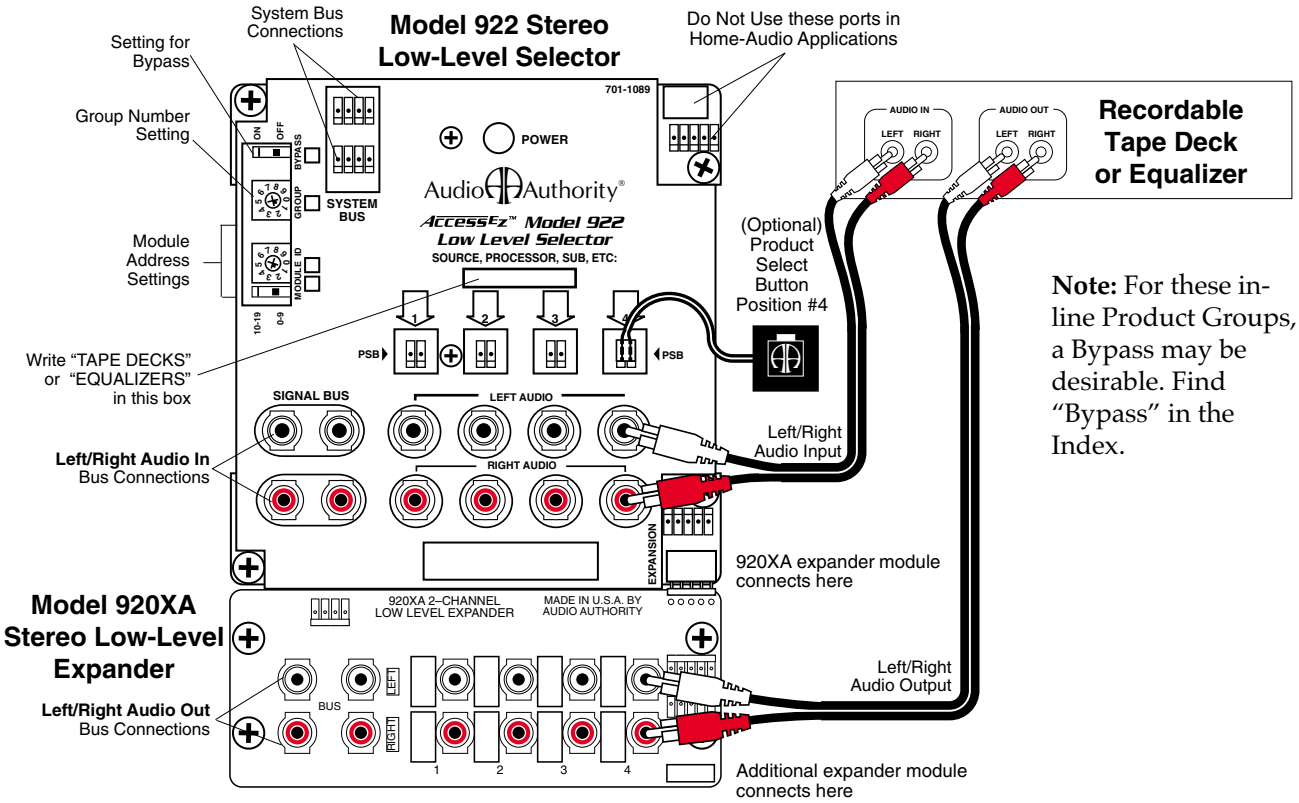
This layout shows a component video/digital audio source switched with the 954 module. For sources with VGA outputs, use Model 9A60 VGA to Component Video Converter. Model 954 and 955 may be used in the same product group, sharing the digital audio bus (see Appendix A). Use only one digital audio output for each source, either optical or coax.



Stereo Sources and Tape Loop or Equalizers

The top drawing shows a stereo source switched with the 922 module. For A/V sources, use the Model 955. For instructions regarding low-level subwoofers, see the appendix drawing for Subwoofers. The lower drawing shows either recordable Tape Deck Product Groups or Equalizer Product Groups. Instructions for other types of stereo groups are available if needed. Contact your Account Manager at the phone number below.



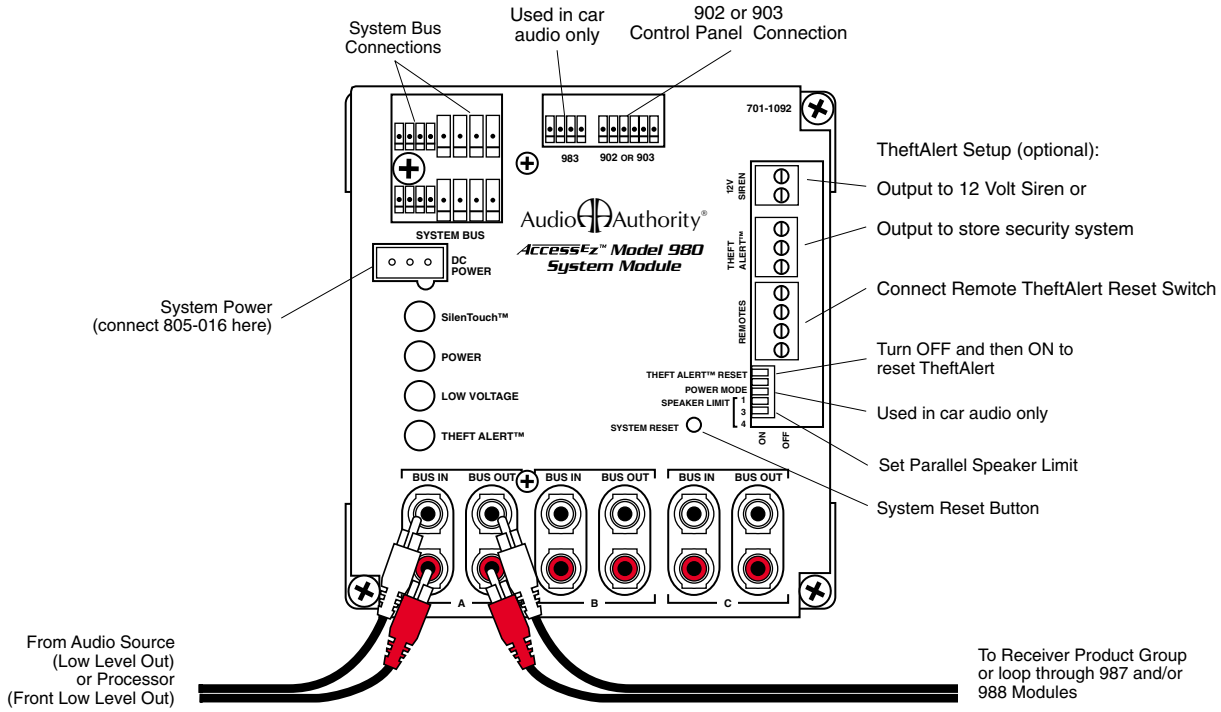


Note: For these in-line Product Groups, a Bypass may be desirable. Find "Bypass" in the Index.

Model 980 System Module

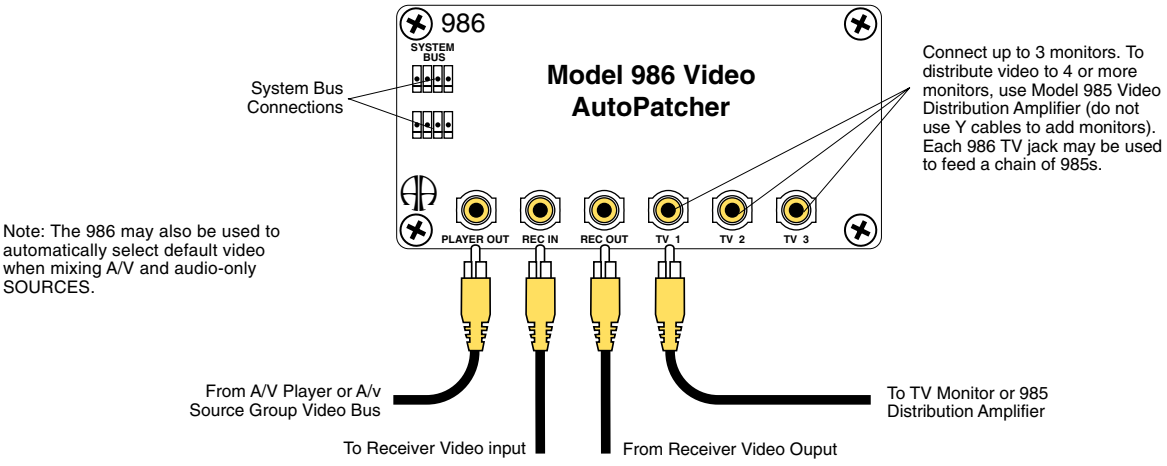
In addition to SilenTouch™, the 980 performs several other system functions, and provides a connection point for Control Panels and system power. To connect a 4904 Control Panel, install a Model 988 Volume Control Module. In systems using the 988 Volume Control Module, you may omit the 980 unless you need TheftAlert™ or a parallel speaker limit other than two.

Concerning signal path, the Model 980 will be located just before the Receiver Product Group in the Left/Right Audio Bus. Do not connect any digital audio or video cables to the 980. If a 987 or 988 module is present in a system with a 980, they will be placed between the 980 and the Receiver Product Group. In this configuration, the Front Inputs and Front Outputs are the only Low-Level connections that are used.



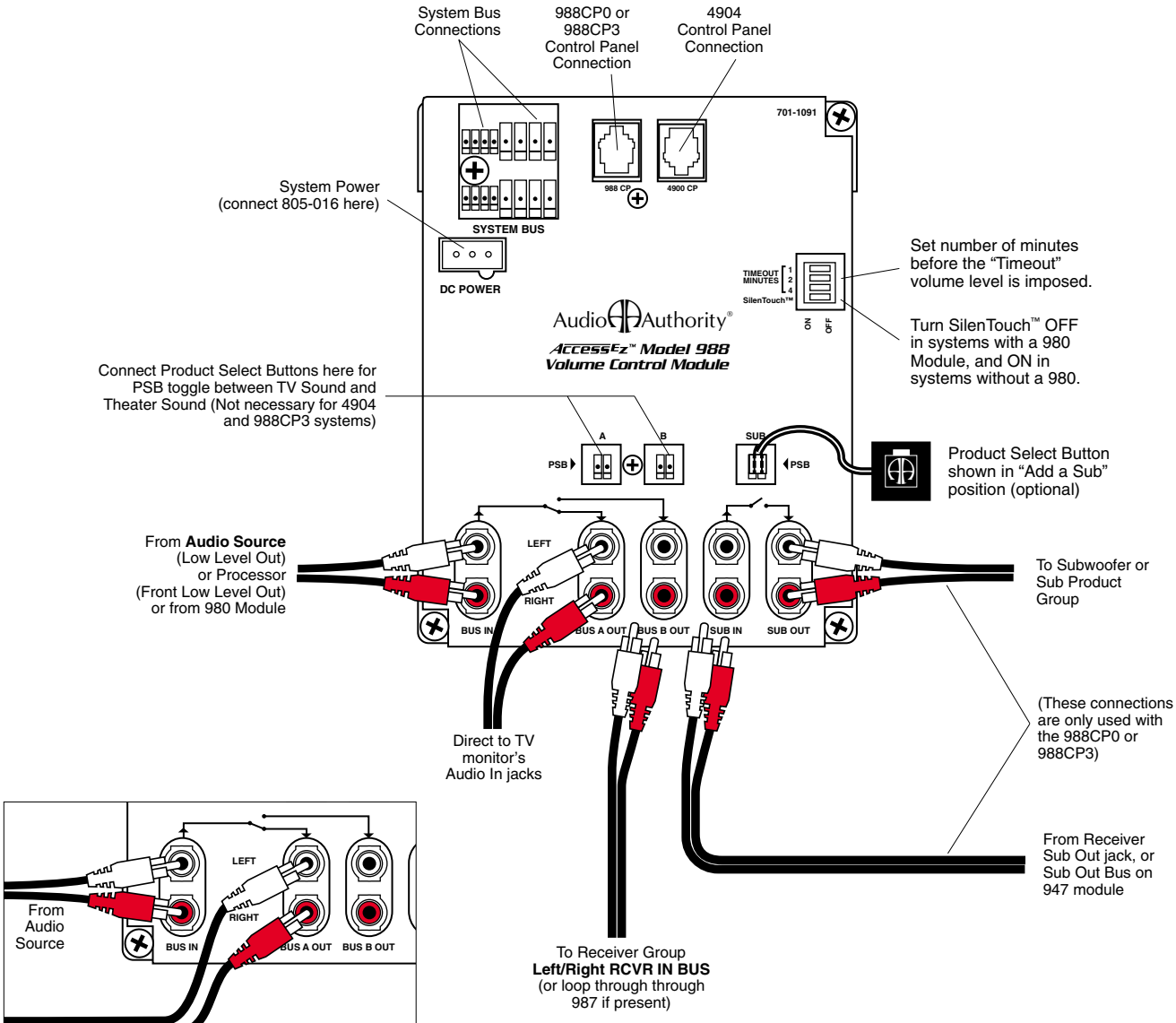
Model 986 Video AutoPatcher

Senses non-GUI receivers and routes source video signals directly to the monitor. Connect in the video signal path between the Source Group and the Receiver Group, and connect up to 3 TV monitors. Each TV monitor output is also capable of providing video signal for 985 Distribution Amplifiers.



Model 988 Volume Control Module

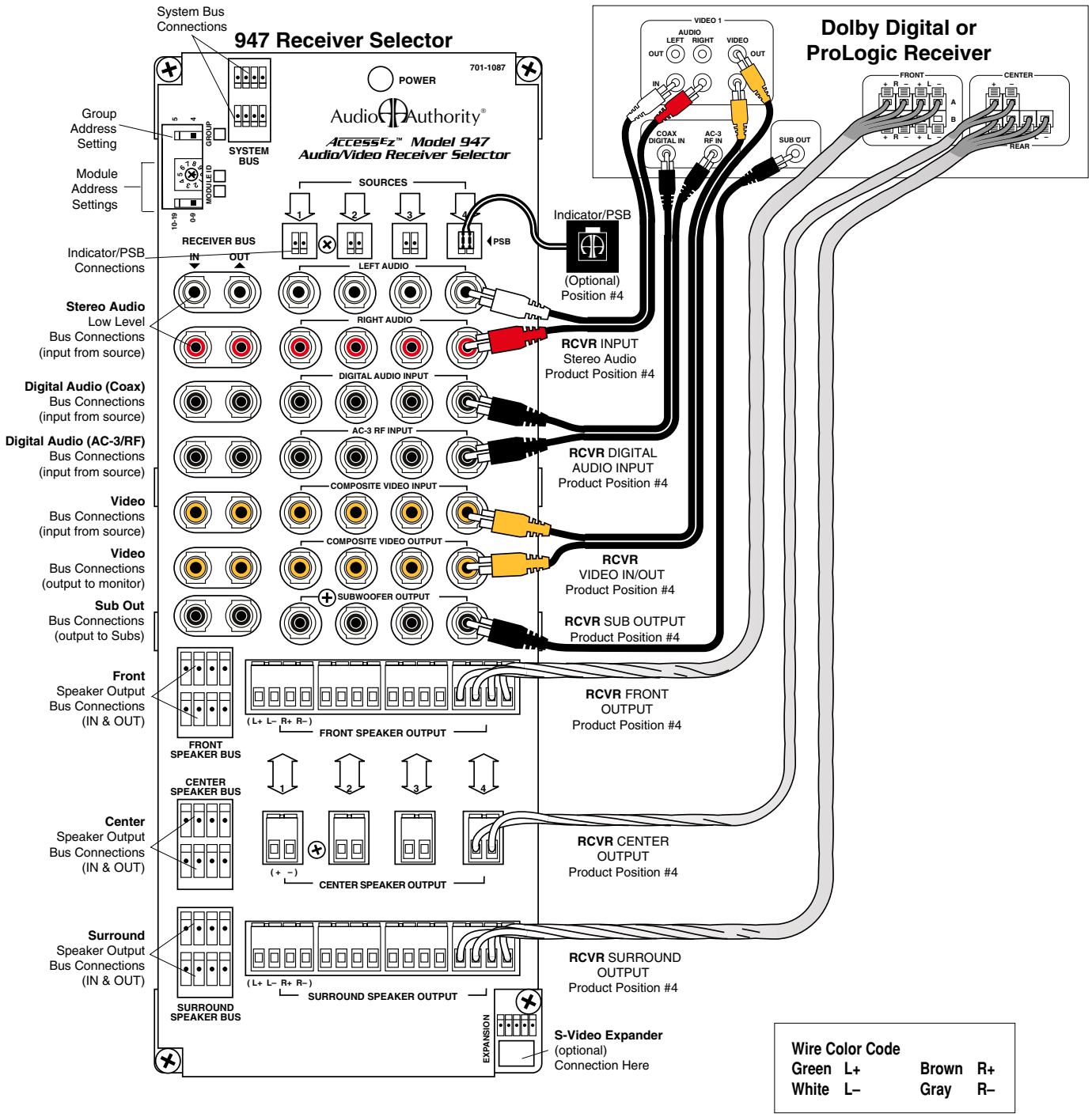
BUS IN and BUS A OUT are the only low-level connections that are necessary for volume control and SilenTouch functions (see detail, lower left). To toggle between TV Sound and Theater Sound, connect BUS A OUT to the TV monitor, and BUS B OUT to the receiver or Receiver Group. The SUB IN and SUB OUT jacks allow the 988CP0 988CP3 to "Add a Sub." PSBs are used only with 988CP0 systems. Concerning signal path, the Model 988 should be located just before the Receiver Product Group in the Left/Right Audio Bus. Do not connect any digital audio or video cables to the 988. If a 987 module is present in a system with a 988, it will be placed between the 988 and the Receiver Product Group. The 988 module can perform SilenTouch™ in systems without a Model 980, and provides a connection point for 4904, 988CP0 and 988CP3 Control Panels, and system power. To connect a 902 or 903 Control Panel, install a Model 980 system module.



DETAIL
Volume Control setup when the 988 Audio Bus is not connected to the TV monitor (no TV/Theater sound toggle).

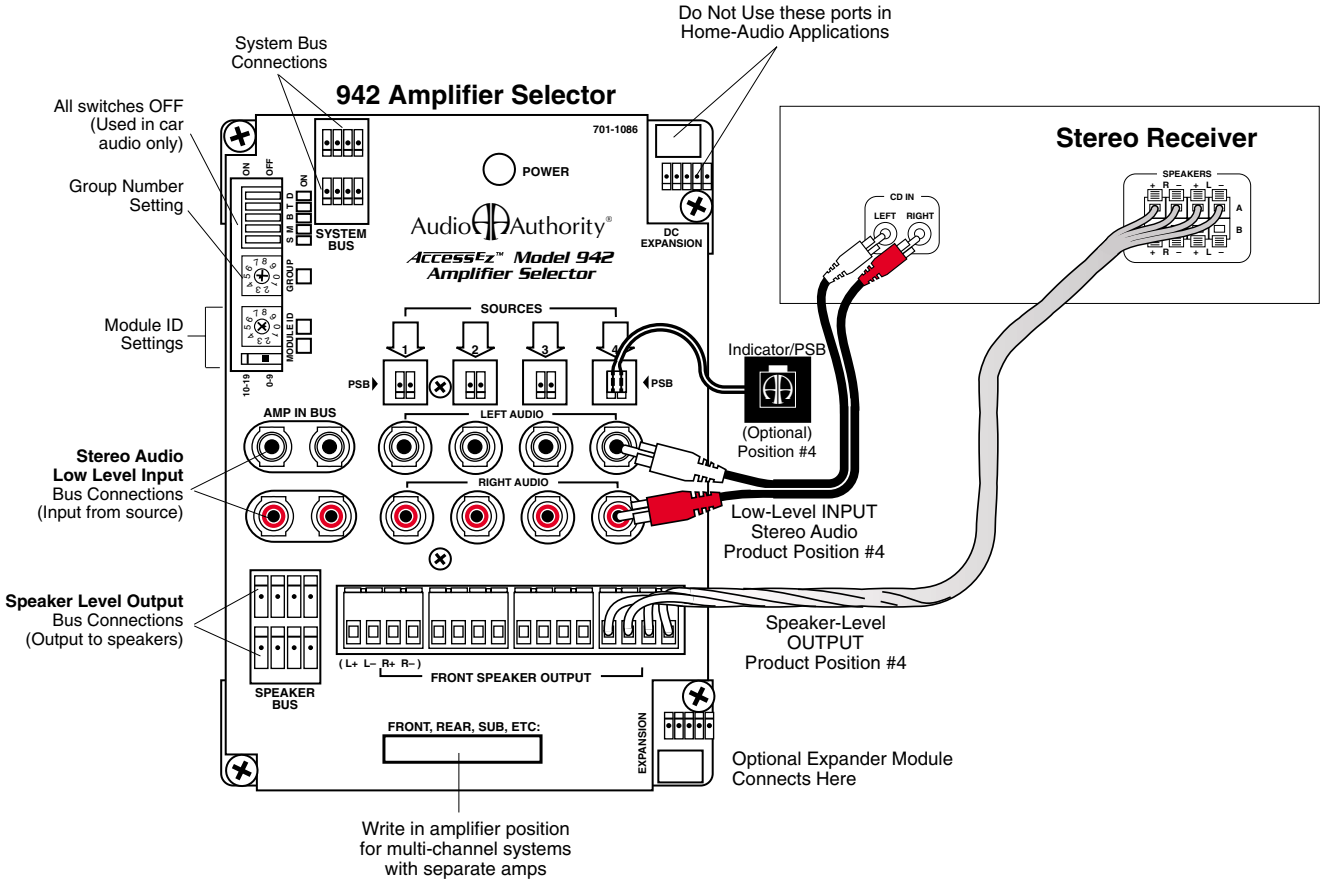
5.1 Channel Surround or ProLogic Receiver

This diagram shows connections to receivers with video on-screen programmability, digital audio inputs, and a low-level sub out jack. If a receiver does not have some of the features shown, simply leave those jacks or terminals vacant on the 947. Always connect the A/V cables to the VCR 1 or Video 1 jacks on the receiver. To prevent a blank screen when switching from a GUI reciver to a non-GUI receiver, you should install a 986 Video AutoPatcher in your system. There is no optical digital connection on the 947 – use the coax input on digital audio receivers, or use Model 977T Coax to Optical Adapter. Instructions for other types of surround sound configurations are available if needed. Contact your Audio Authority® at the phone number below.



Stereo Receiver

This diagram shows connections to two-channel receivers or amplifiers. To demonstrate receivers with more than two channels, see the drawing for Dolby Digital and ProLogic Receivers. Instructions for other types of two-channel receiver or amplifier configurations are available if needed. Contact your Account Manager at the phone number below.



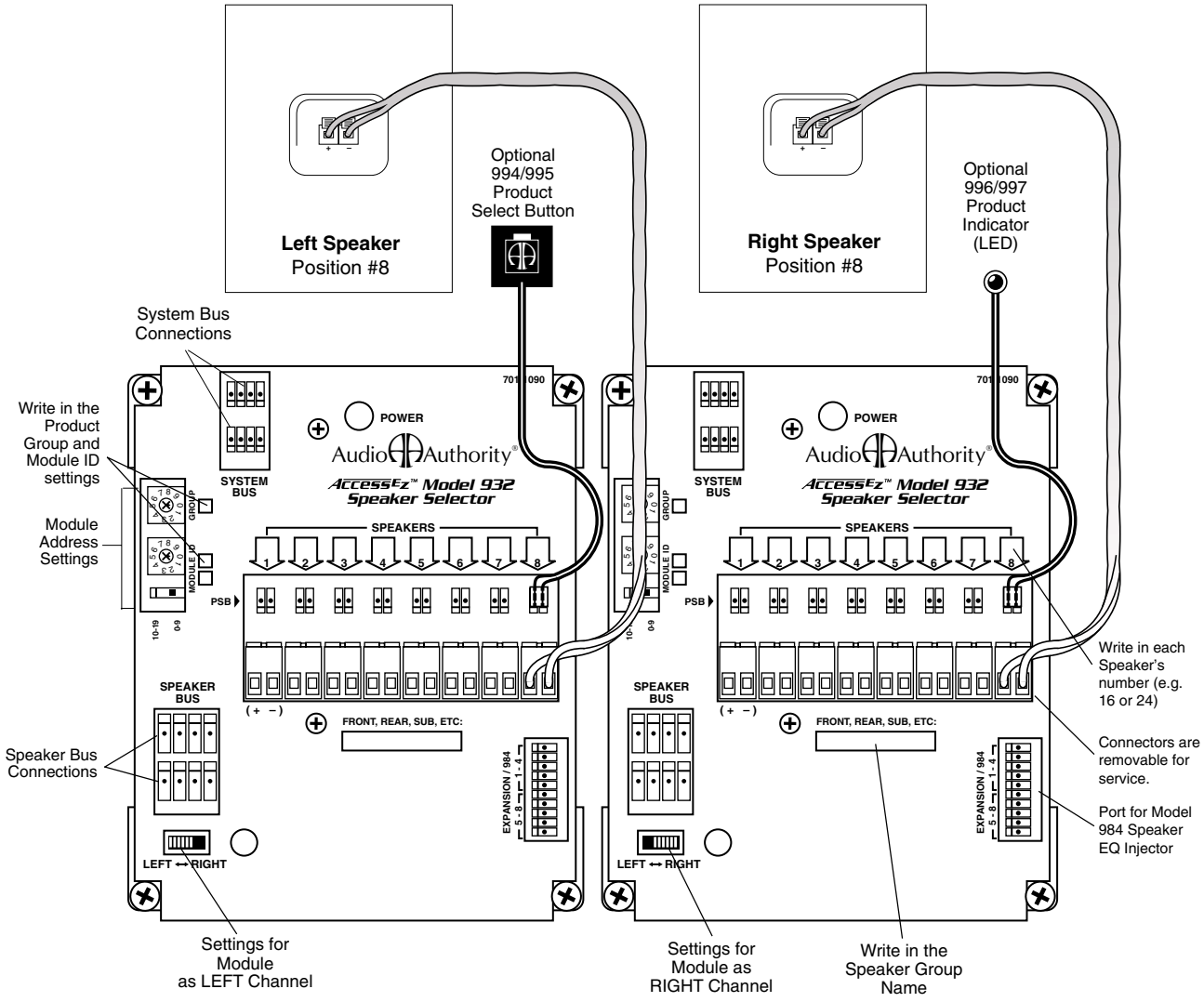
Wire Color Code			
Green	L+	Brown	R+
White	L–	Gray	R–

Left & Right Speakers

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

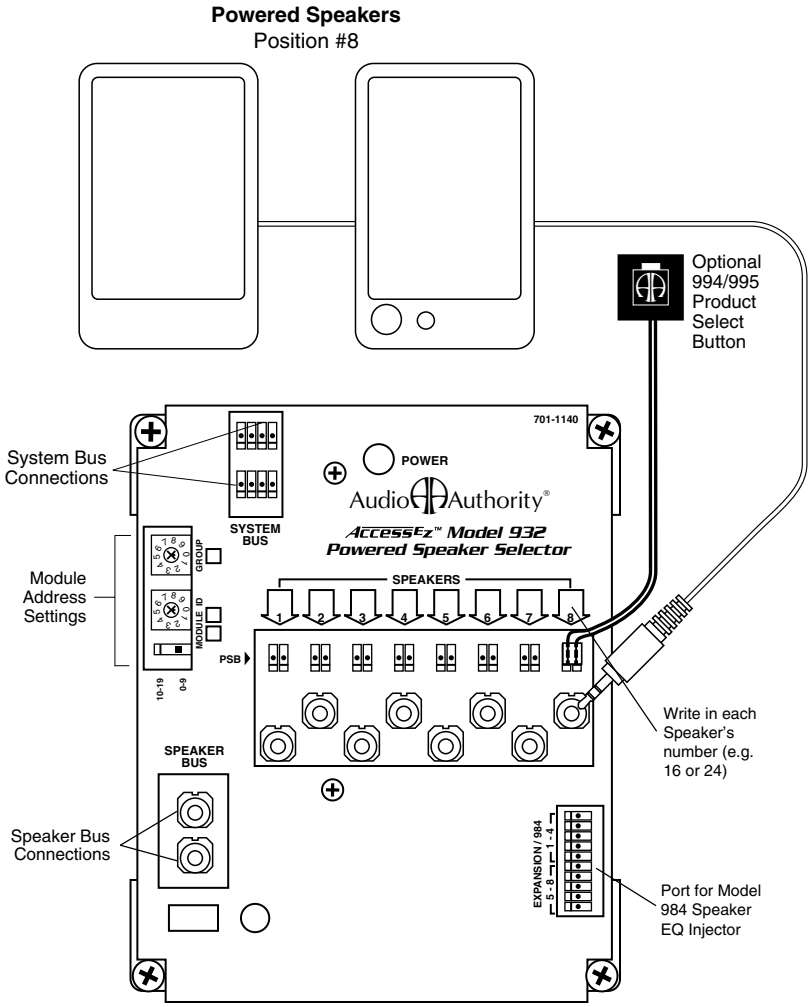
932 modules in the Front Speaker Product Group are unique in the fact that they share the same GROUP Address with the receiver group. For example, if the Receiver Product Group number is "4", then the Front Speaker Group number would also be "4". All other speaker groups should have a higher GROUP address.

LEFT and RIGHT modules have the same Module ID (e.g. for front speakers 1-8 both LEFT & RIGHT modules would be addressed: MODULE ID= “0-9” on the slide switch, and “0” on the rotary switch; GROUP= 4.
The next module pair for front speakers 9-16 both LEFT & RIGHT modules would be addressed: MODULE ID= “0-9” on the slide switch, and “1” on the rotary switch; GROUP= 4, etc.)



Powered Speakers

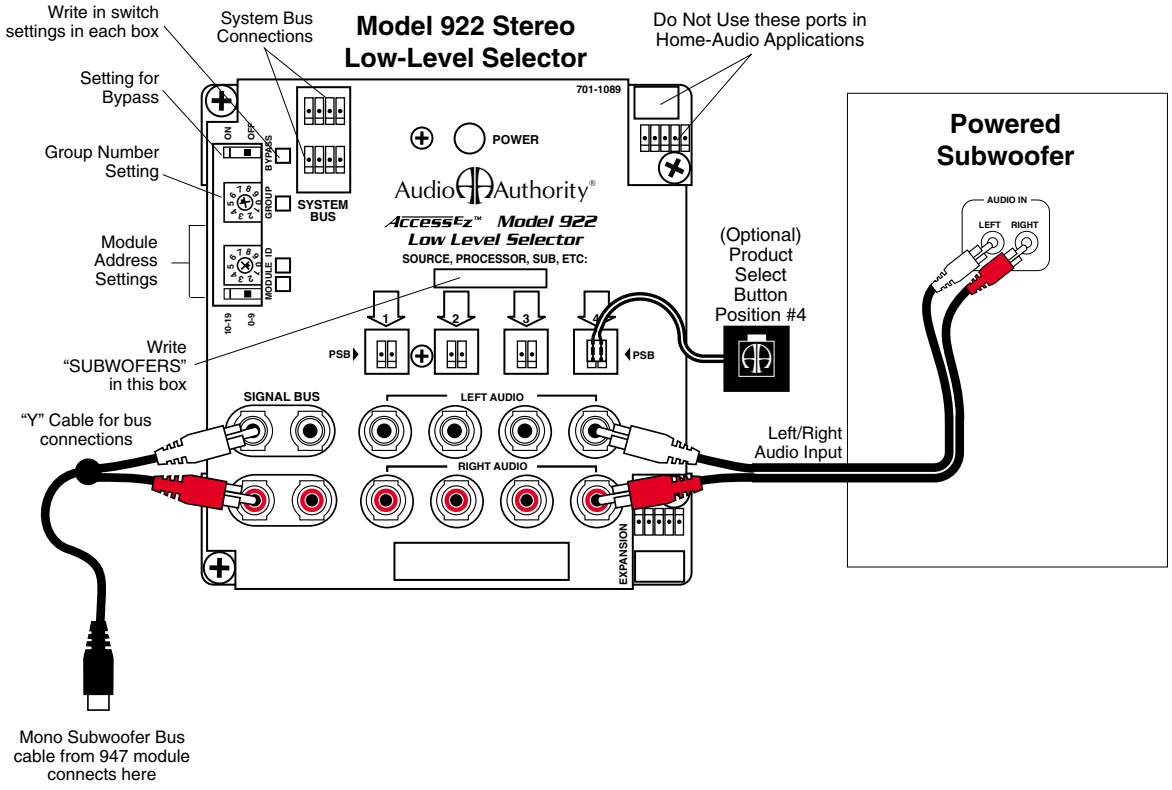
Model 934 Speaker Selectors are stereo modules. 934 modules share the same GROUP Address with the receiver group (if present). For example, if the Receiver Product Group number is "4", then the Speaker Group number would also be "4".



934 Powered Speaker Selector

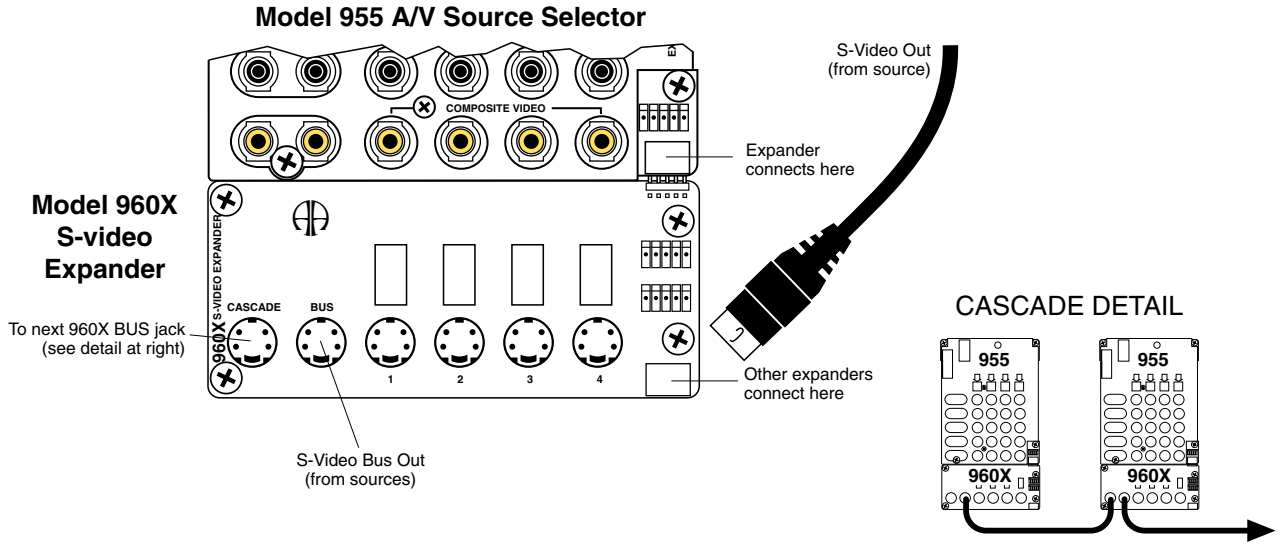
Low-Level Subwoofers

This drawing shows a powered subwoofer switched by a 922 Low-Level Selector. The GROUP address should be higher than the highest speaker GROUP address. The mono subwoofer bus cable connects to the stereo jacks with a "Y" adapter. Instructions for other types of subwoofer configurations are available if needed. Contact our Sales department at the phone number below.



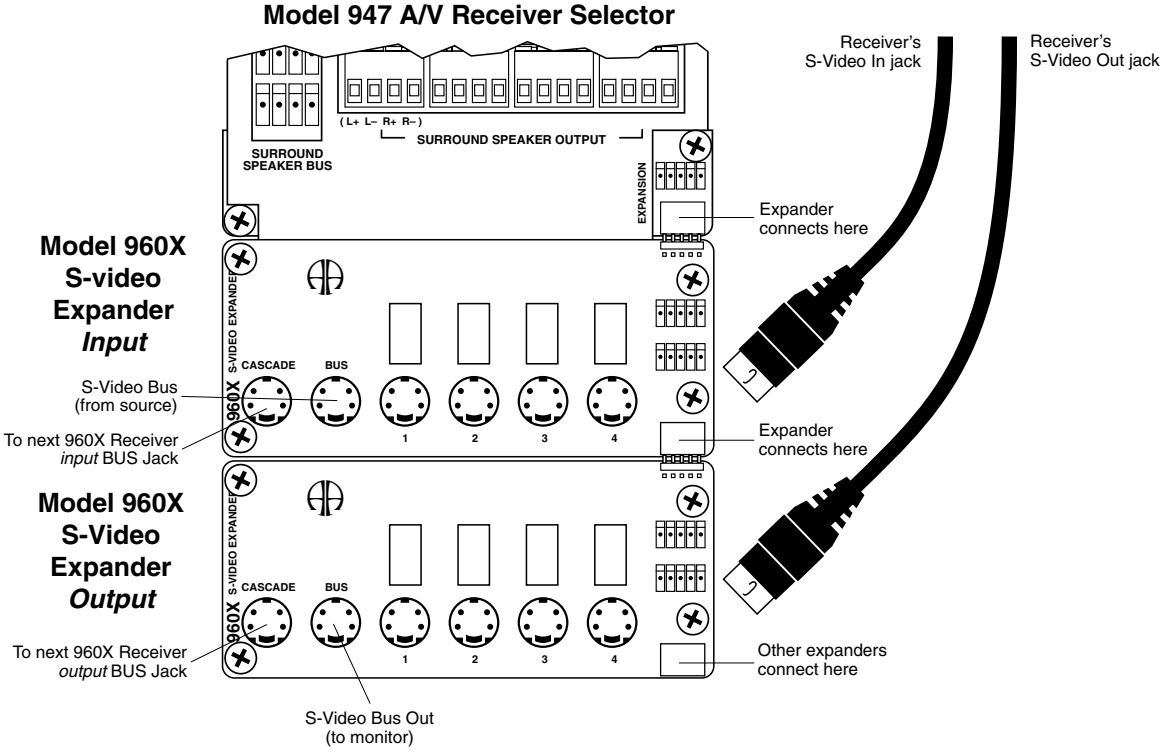
S-Video Source

This drawing shows a 958 A/V Source Selector with a 960X S-Video expander attached. Simply slide the expander up into the main module and mount with screws provided. Instructions for other types of module configurations are available if needed. Contact your Account Manager at the phone number below.



S-Video Receiver

This drawing shows a 947 Receiver Selector with two 960X S-Video expanders attached. One is for input, the other for output, so do not connect them with a bus cable. Simply slide the top expander up into the main module then slide the bottom expander into the top expander. More information is available if needed. Contact your Account Manager at the phone number below.



ACCESS™ WARRANTY

Limited Warranty

Should any Access™ product become defective in materials or workmanship within 5 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 warranty is not applicable for products which, in our opinion, have been damaged, altered, abused, misused, or improperly installed.

Warranty Service Procedures

If you suspect a product defect, contact the Audio Authority® Technical Service Department by calling 800-322-8346 or 859-233-4599 for assistance in verifying the problem. If a defect is found, a replacement product will be shipped immediately, prepaid via Common Ground Transport Carrier, on a defect-exchange basis and a Return Authorization number will be issued for the defective product. At the time of shipment, the replacement product is invoiced to the customer, secured via a bank card, and later credited in full upon inspection of the defective product. A bank card sales draft is executed for the cost of the replacement product and held for 14 days to allow the customer time to return the defective product. If the defective product is not received within 14 days, the bank card sales draft is deposited. All returns for credit must be freight prepaid.

Alternatively, if the customer has previously established open account terms, the invoice amount can be charged to the customer's account and later cleared with a corresponding credit memo upon receipt and inspection of the defective product. Similarly, the defect-exchange transaction may be handled by COD, in which case Audio Authority® will issue a refund check upon inspection of the defective return.

Alternate methods of return shipping (UPS Red, Federal Express, DHL, etc.) are available, but at the customer's expense.

Defects Within the First 30 Days

Replacements for products found defective within the first 30 days from date of sale, will be shipped via overnight courier, freight paid by Audio Authority.®

Out of Warranty Service

Products not within the terms of the Access™ Warranty may be returned to our factory, freight prepaid, for repair at a labor rate of $35/hour* (1 hour minimum) plus parts and return freight. Repairs are normally shipped within 2 working days via Common Ground Transport Carrier unless requested otherwise. Payment for repairs is made via bank card or COD unless other arrangements are requested and approved.

Alternatively, out-of-warranty repairs may be accomplished on a defect exchange basis. The customer will be invoiced, per the terms above, at the current dealer cost for the replacement product. When the defective product is returned and inspected, a partial refund or credit will be issued based on its condition and the repair costs.

For future reference, please record below:

Date of Purchase: ___/___/___ Invoice No: _____

* Price subject to change.

Index

Model Number

A

B

C

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