DIRECT SELECT™

Switching Systems

Installation Manual

Personal Audio • Home Audio • Car Audio

Audio Authority®

How to Install and Use
DirectSelect™ Switching Systems

Introduction

The DirectSelect™ Series of modular switches provides a simple, low cost solution for many product demonstration and display applications. Its small, tightly focussed set of features covers the essentials, avoiding complications associated with competing button-by-the-product systems. If a more comprehensive feature set is needed or if a central control panel is desired, the AccessEZ™ System offers power and flexibility for every application.

The DirectSelect™ Series is comprised of several product-specific models serving a variety of commonly encountered demonstration situations as follows:

2951   stereo mini phone jacks for personal audio sources

2952   stereo RCA jacks for line sources or powered subwoofers

2953   stereo terminal blocks for speakers

2954   stereo terminal blocks for high level sources

2955   stereo audio + video RCA jacks for A/V sources and VCRs

2956   stereo mini phone jacks for powered speakers

2957   stereo RCA + stereo terminal blocks for receivers and car amps and head units

2958   SilenTouch™ plus Master Volume Control

2959   Eight pairs of headphones plus SilenTouch™ and Master Volume Control

The DirectSelect™ Series offers a unique set of features aimed at small to mid-size demonstration systems:

• modules fit the application; add-ons are usually not required
• addressing is not required
• modules can be used alone, in groups, or in systems
• product groups are established by a simple wire cut (see page 9)
• Product Select Buttons (PSBs) are connected with small 2-conductor cable
• product deselect capability can be switched on if desired
• unique bypass capability does not use a product position
• speaker add feature allows two pairs of speakers to be played at once
• optional master volume control using the 2958 or 2959
• runs on a small, inexpensive DC wall pack or car audio power system

Modules handle 4 electronic products or 4 pairs of speakers each, except Model 2959, which can power 8 headphones each.

All modules are furnished with 4 PSBs (Product Select Buttons), a 30 inch length of system bus cable and mounting hardware. 2953, 2954 and 2957 modules also come with a 30 inch length of high level bus (product connection cables not included). To get your switching system running, you only have to add a 805-021 DC wall pack to home audio systems or a 2994 power block and an 802-314 system DC harness to car audio systems.

How the System Works

The basic principle of DirectSelect™ function is that a new selection automatically deselects the previous selection. The system bus which interconnects all DirectSelect™ modules "interlocks" multiple modules so that a new selection on module A will deselect the previous selection, even if it is on module B or C. There are two main exceptions to this principle: multiple product group systems, and the speaker add feature.

In systems with multiple product groups, two or more products must be selected at one time in order to demonstrate the system. Therefore, if you select a CD player on module A, you don't want the system to deselect the pair of speakers on module B.   Deselect uses the yellow interlock wire in the system bus, so to disable deselect between the CD player product group and the speaker product group, cut the yellow wire in the section of system bus between the groups.   Another way to establish product groups is to use a 2958 or 2959 volume control module as the system bus "hub."   A separate branch of system bus supplies each product group with power, but only allows deselect within each product group (see page 9).

The speaker add feature is only available on the 2953 speaker module. To enable speaker add, turn ON the Speaker Add dip switch on all speaker modules and power up the system. While one pair of speakers is playing, press and hold the PSB for a second pair of speakers until it is selected. Manually deselect either selected pair by pressing its PSB.
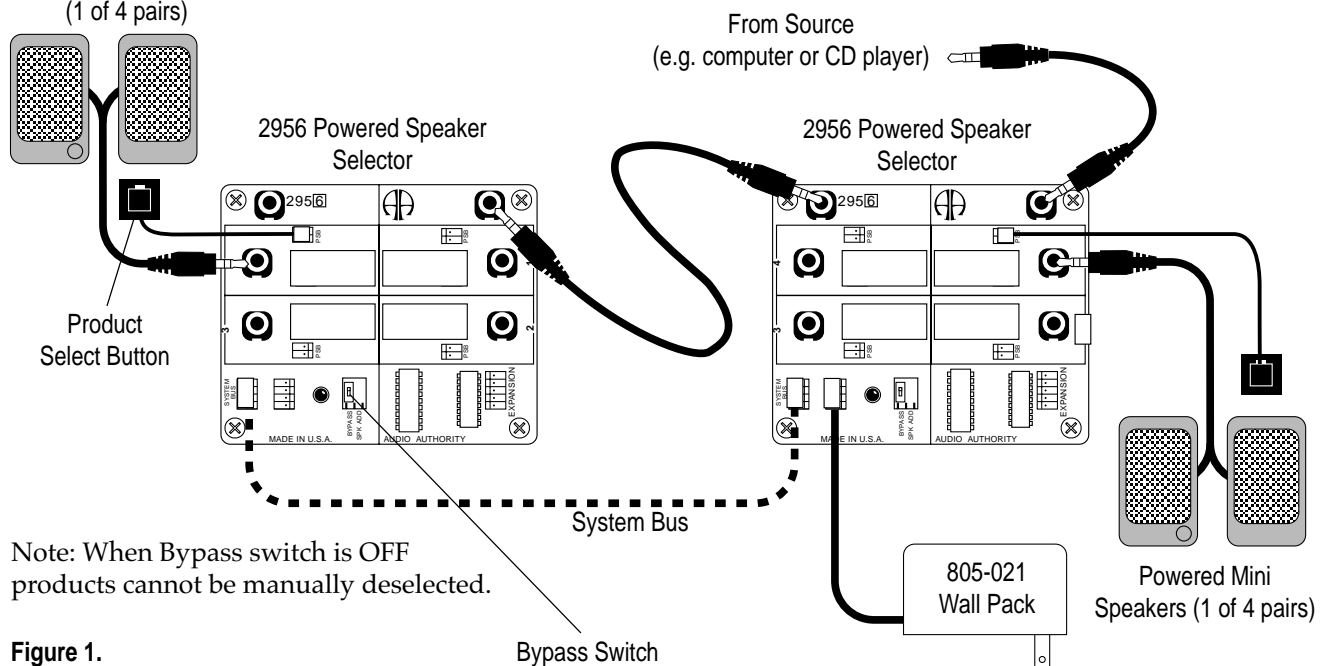
Several other features of the DirectSelect™ system are described in the following examples and in the installation tips on page 9.

Application Examples

Powered Mini Speakers

In Figure 1 a source such as a CD player or computer with a sound card is used as the sound source for demonstrating computer speakers. Two 2956s are shown bussed together. The system bus cable carries DC power plus an "interlock" signal and the 3.5mm patch cord carries audio. Interlock causes all other products to deselect when a new product is selected. The only other necessary ingredient for this system is a 805-021 wall pack for power. In this system, the Bypass (product deselect) feature is turned OFF to prevent a silent display.

Note: When Bypass switch is OFF
products cannot be manually deselected.

Figure 1.

Personal Electronics

In Figure 2, personal stereos are selected by a 2951 for play through a dedicated pair of speakers. Turn Bypass OFF so a product is always playing.
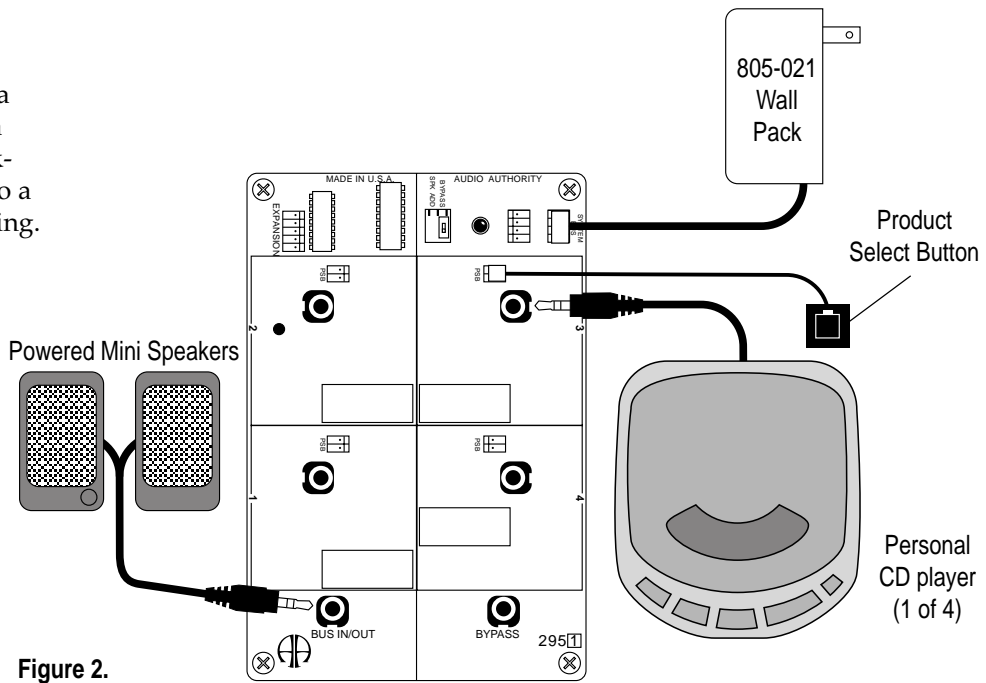
Figure 2.

You can also marry the personal stereo application with the foregoing mini speaker application to create a new switching system (Figure 3). Notice how the BUS IN/OUT ports of the two groups were connected together to allow the audio signal from personal stereos to go to the speakers. The yellow interlock wire in the System Bus is cut to isolate the two product groups from each other so that selecting a product in one group doesn't cancel the selection in the other group. Bypass is turned OFF on all modules.
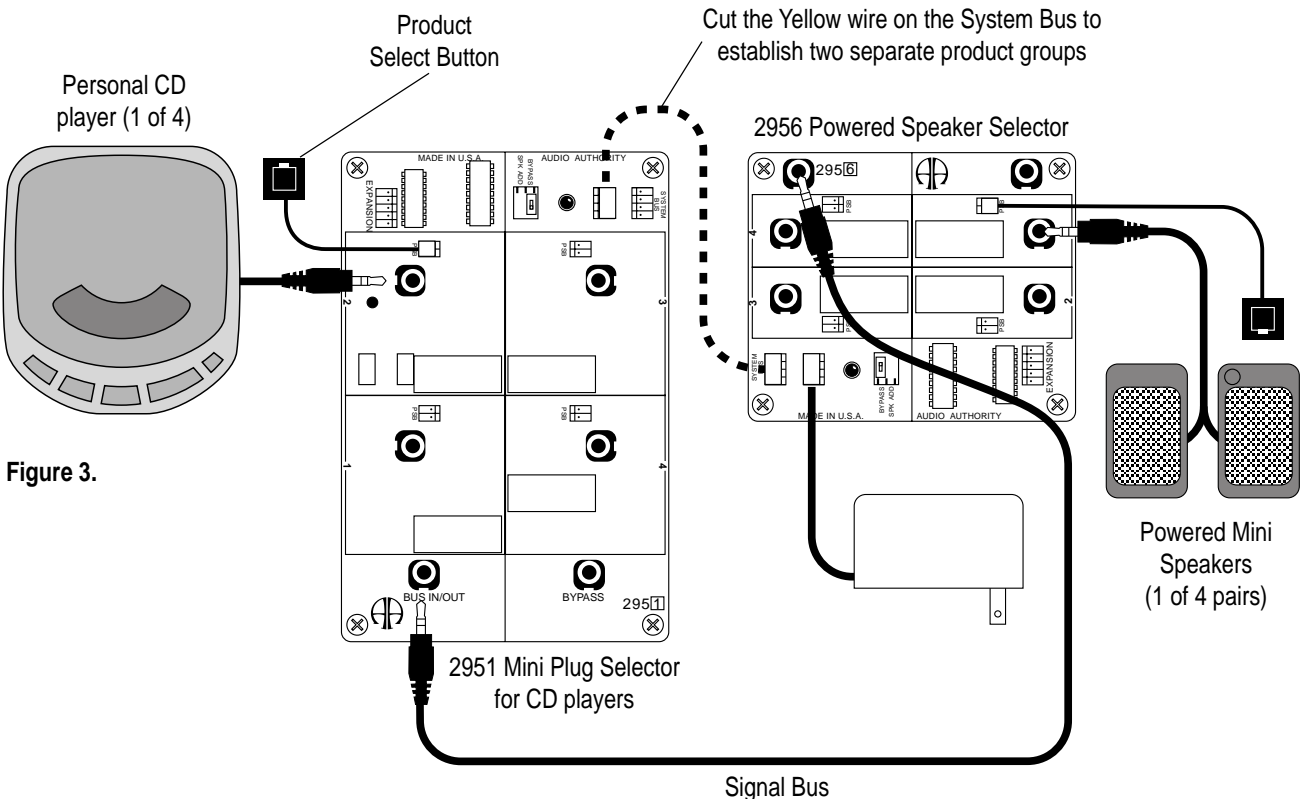
Figure 3.

Camcorders

Figure 4 is a simple but very useful application of the 2952 module. The system bus cable is used in this example to allow only one DC wall pack to serve many modules. In every case, the yellow system bus wire is cut to isolate each group of four camcorders from the other groups. Bypass is turned OFF.

For more demonstration power on camcorder displays, use the 2960 camcorder module, which offers theft protection, automatic scanning and other special features. Call Audio Authority® for more information.
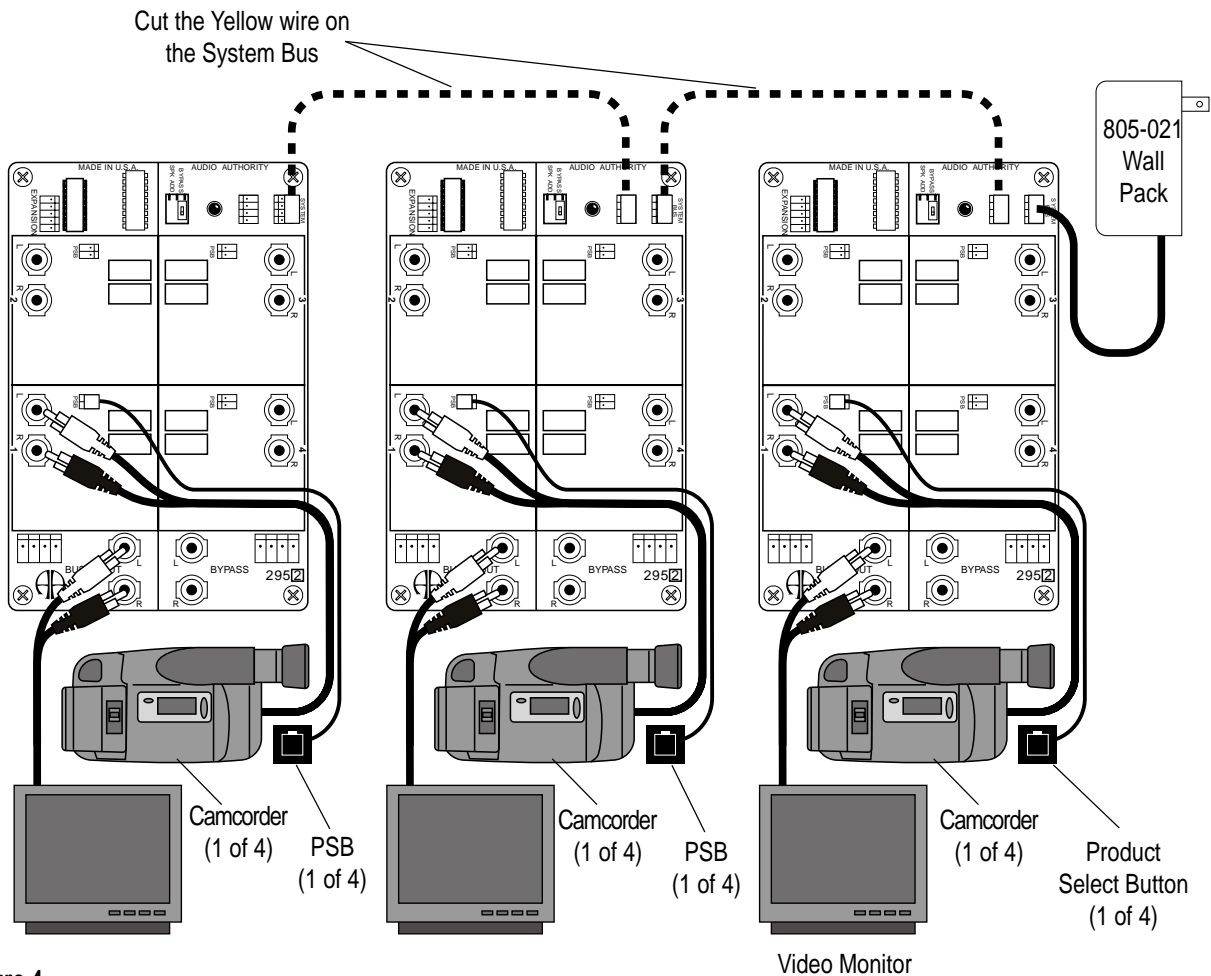
Cut the Yellow wire on
the System Bus

805-021
Wall
Pack

Camcorder
(1 of 4)

PSB
(1 of 4)

Camcorder
(1 of 4)

PSB
(1 of 4)

Camcorder
(1 of 4)

Product
Select Button
(1 of 4)

Video Monitor

Figure 4.

VCRs

This is a straightforward application of 2955s; the system bus is used only for module DC power distribution. Each 2955 Module dedicates four VCRs to one video monitor. Turn Bypass OFF.
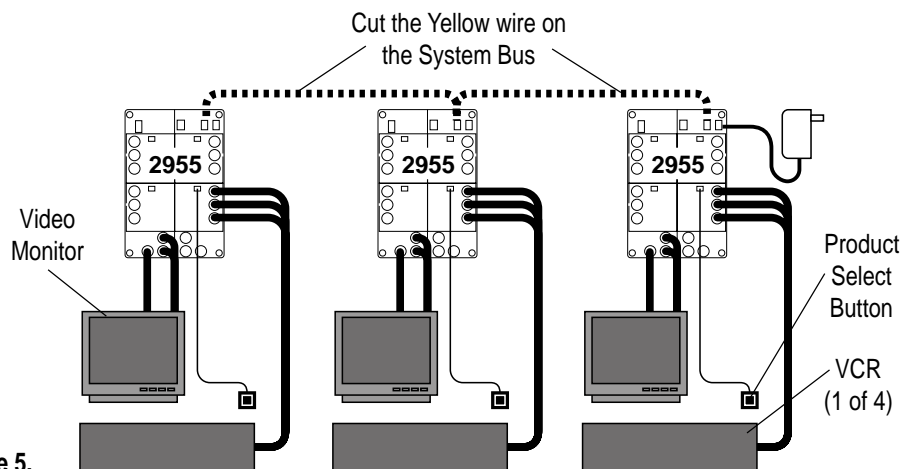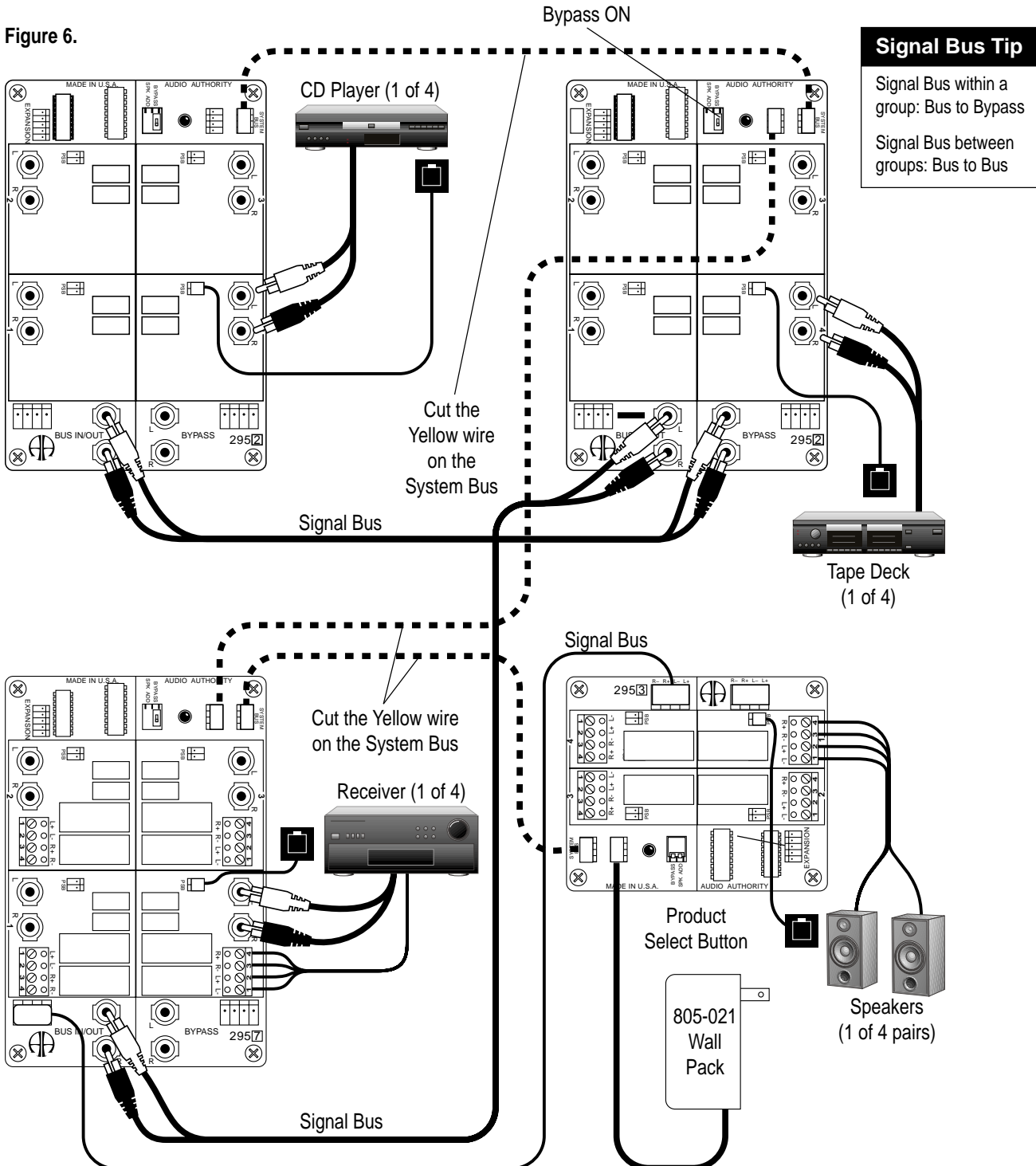
Cut the Yellow wire on
the System Bus

Video
Monitor

2955

2955

2955

Product
Select
Button

VCR
(1 of 4)

Figure 5.

Home Audio

Here's a system for demonstrating multiple CD players, tape decks, stereo receivers and speakers. The system in Figure 6 is set up to play a CD player except when a tape deck is selected. When the tape deck is deselected, all the tape decks are off and the CD player is again heard. For this reason, Bypass is turned OFF on all modules except the Tape Deck module so that the tape decks can be turned off to play the CD players. This illustrates how the vacant Bypass port of a group is used to switch in a default signal when every product in a group is deselected. As usual, the yellow system bus wire is cut between product groups.

An optional feature is the ability to record the selected CD player output on any one or all of the tape decks with the addition of an Audio Authority® Model 985 Distribution Amplifier. In this way, the recording capability of the tape decks can be compared. Call Audio Authority® for more information.

Figure 6.

Bypass ON

CD Player (1 of 4)

Signal Bus Tip

Signal Bus within a group: Bus to Bypass

Signal Bus between groups: Bus to Bus

Cut the Yellow wire on the System Bus

Signal Bus

Tape Deck (1 of 4)

Signal Bus

Cut the Yellow wire on the System Bus

Receiver (1 of 4)

Product Select Button

805-021 Wall Pack

Speakers (1 of 4 pairs)

Signal Bus

Subwoofers

A simple way to boost subwoofer sales is to add this application (Figure 7) to any existing home audio display. You can use 2952 for line-level input subs, 2953 for speaker-level subs, or 2957 to do some of each (4 subs possible per module). Turn Bypass ON to turn subwoofers on and off (deselect). When using 2953 to demonstrate subwoofers, keep the Speaker Add feature turned OFF.
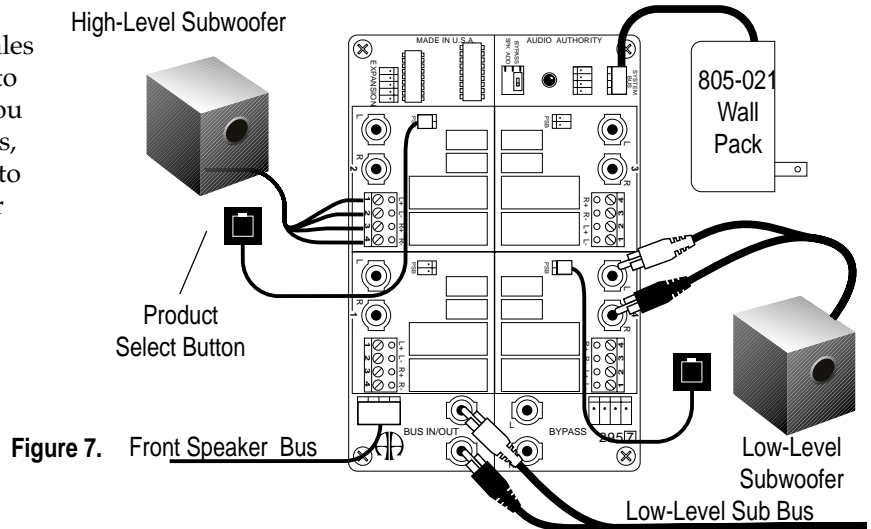
High-Level Subwoofer

805-021 Wall Pack

Product Select Button

Figure 7. Front Speaker Bus

Low-Level Subwoofer

Low-Level Sub Bus

Figure 8.

Power for 4 Head Units

Power for 4 Amplifiers

2994

2994

POWER SUPPLY

Cut yellow System Bus wire between groups

Head Units

Low-Level Signal Bus: Bus to Bus

2957

2957
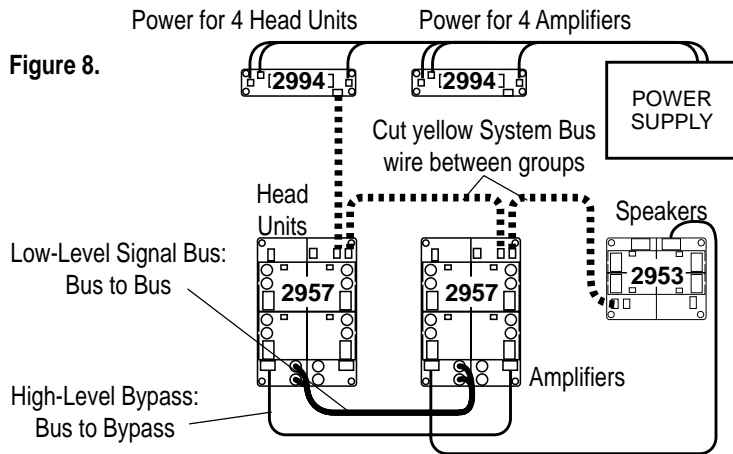
Speakers

2953

High-Level Bypass: Bus to Bypass

Amplifiers

Car Audio

The system in Figure 8 demonstrates car head units, front amps and speakers. Head units are wired for both high and low-level through 2957 modules to allow the head units to play either straight through to the speakers or through an amplifier. Bypass is activated on the 2957 amplifier modules so that all of the amps can be turned off (dese-lected), permitting the head units to drive the speakers directly via the amplifier group's Bypass port.

If desired, Speaker Add may be activated on the 2953 speaker modules to allow two pairs of speakers to play at once. To add the second pair of speakers to the first pair, press and hold the second PSB for the second pair until it is playing along with the first pair. A regular press on either of the active speaker buttons deselects that speaker pair and leaves the other pair on.

DC power from a regu-lated 13.8 volt source sufficient for the prod-ucts being demonstrated should be distributed by heavy wires to 2994 power blocks where individual products can be con-nected to receive unswitched DC power. You will find tips on car audio DC power and wiring in the Installation section of this manual.

Figure 9 shows a system for 4 EQs. It employs 920X modules for the EQs' output.
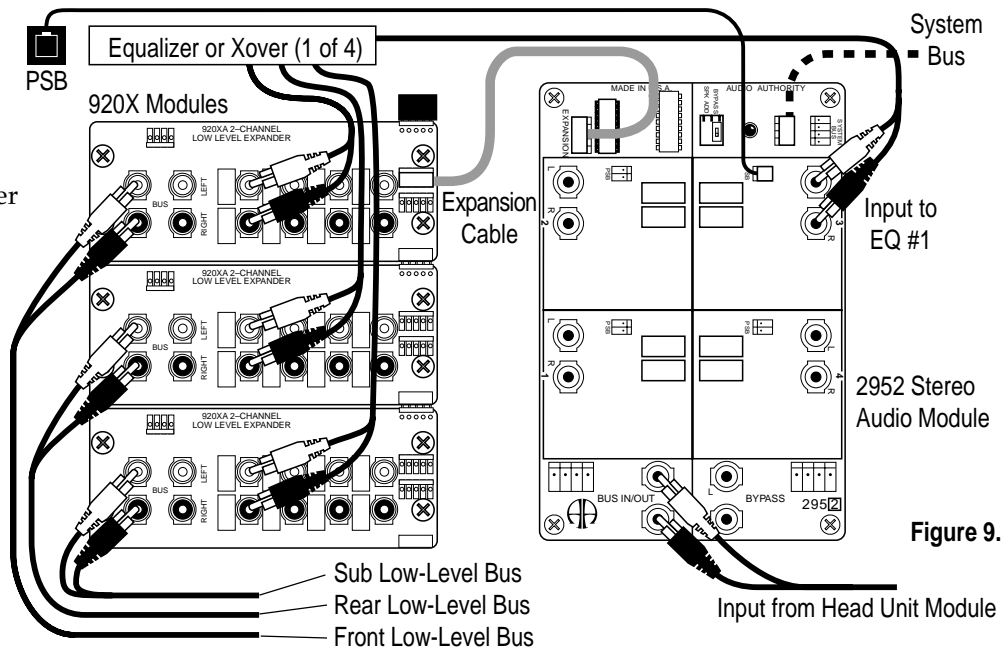
PSB

Equalizer or Xover (1 of 4)

920X Modules

System Bus

920XA 2-CHANNEL LOW LEVEL EXPANDER

920XA 2-CHANNEL LOW LEVEL EXPANDER

920XA 2-CHANNEL LOW LEVEL EXPANDER

Expansion Cable

Input to EQ #1

2952 Stereo Audio Module

BUS IN/OUT

BYPASS

2952

Figure 9.

Sub Low-Level Bus
Rear Low-Level Bus
Front Low-Level Bus

Input from Head Unit Module

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The System in Figure 10 could switch 8 head units, 8 amplifiers and 8 speaker pairs. For all buses, observe the "Bus to Bus" rule between groups, but high-level bypass is always "Bus to Bypass" between the head unit and amp groups. Cut the yellow System Bus wire between groups, but leave it intact within each group.
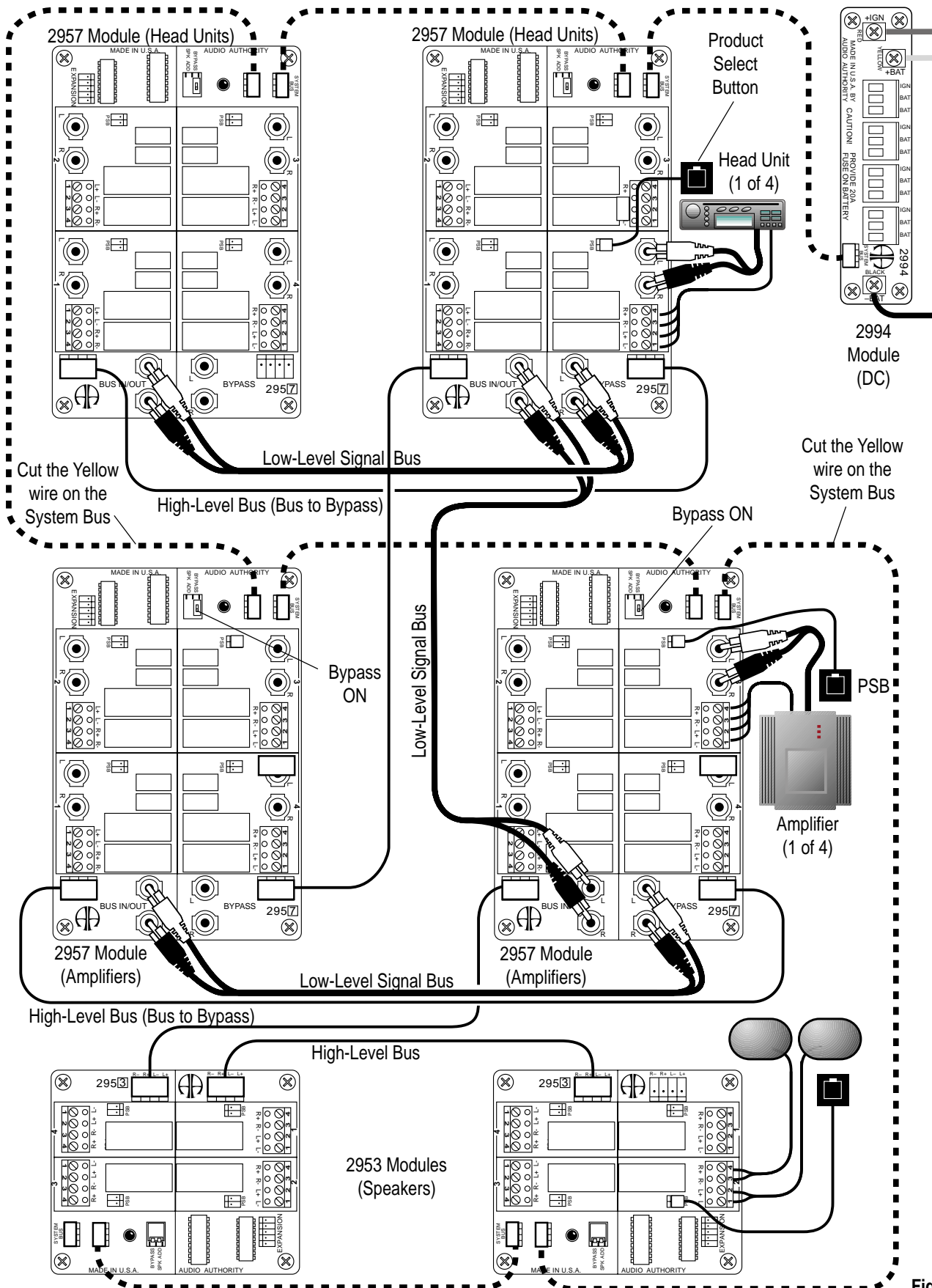

Figure 10.

SilenTouch™ and Volume Control

Any of the illustrated systems can be equipped with a master volume control by adding a 2958 module. As a bonus, the switching interval of DirectSelect™ Series modules will be muted to achieve extremely low switching noise levels. We call that muting capability SilenTouch™, which has been a hallmark of Audio Authority® switching technology for over 20 years. Connecting the modules of each of up to three product groups to the 2958 with all yellow wires intact as shown in Figure 11 activates the SilenTouch feature while logically dividing the product groups.

Signal Bus Tip

Signal Bus within a group: Bus to Bypass
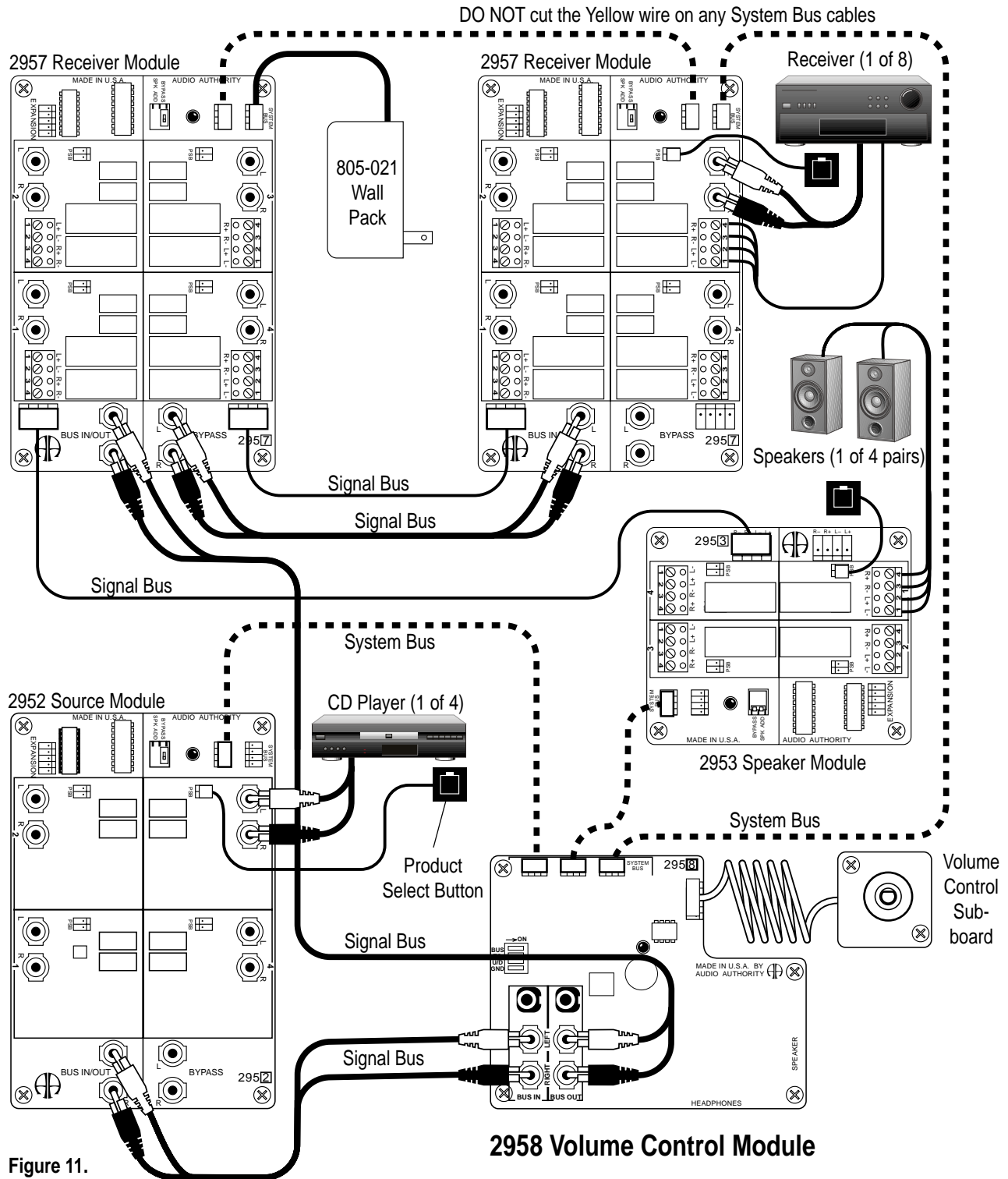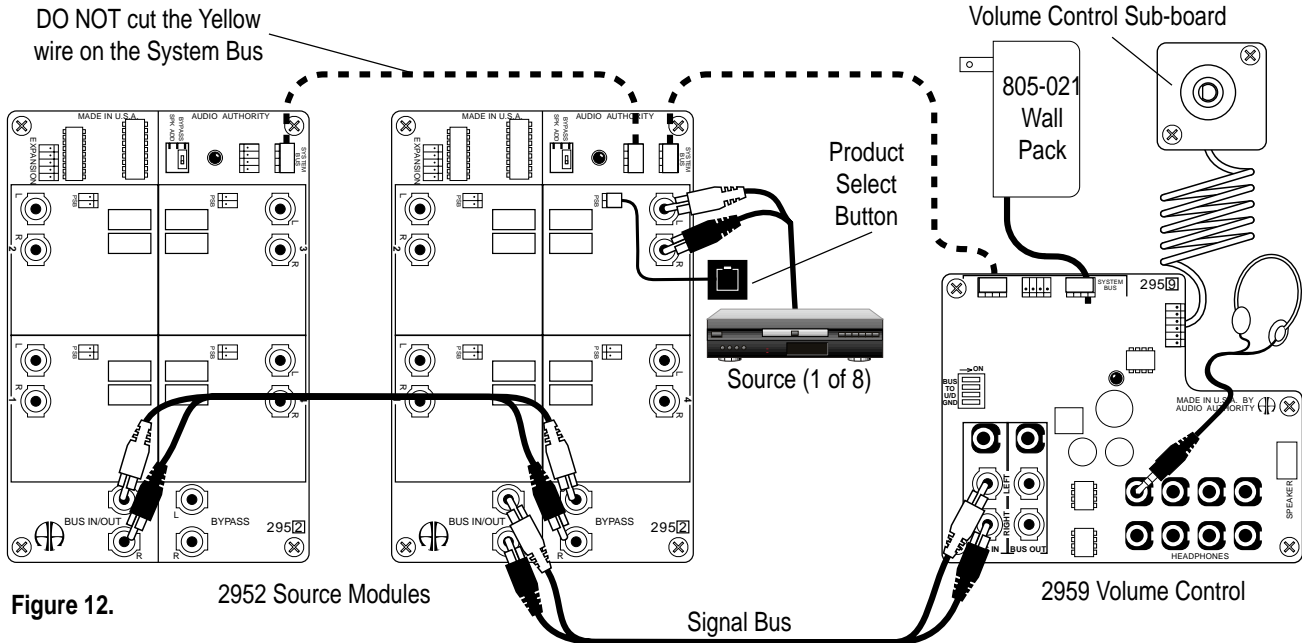
Signal Bus between groups: Bus to Bus

DO NOT cut the Yellow wire on any System Bus cables

Figure 11.

2958 Volume Control Module

Headphones

Whether demonstrating multiple headphones with a single source or using a single pair to monitor a product's output, the 2959 fits right in. Besides driving up to 8 pairs of headphones, the 2959 offers the same SilenTouch™ and master volume control facilities as the 2958.

The volume control section of 2958 and 2959 modules may be mounted directly to the back of up to 3/4 inch thick panels to allow ready access to the volume control knob, which operates a durable rotary encoder. Instructions furnished with the 2958 and 2959 explain application of these products in greater detail.

Figure 12. 2952 Source Modules — 2959 Volume Control

(diagram labels: DO NOT cut the Yellow wire on the System Bus; Volume Control Sub-board; 805-021 Wall Pack; Product Select Button; Source (1 of 8); Signal Bus)
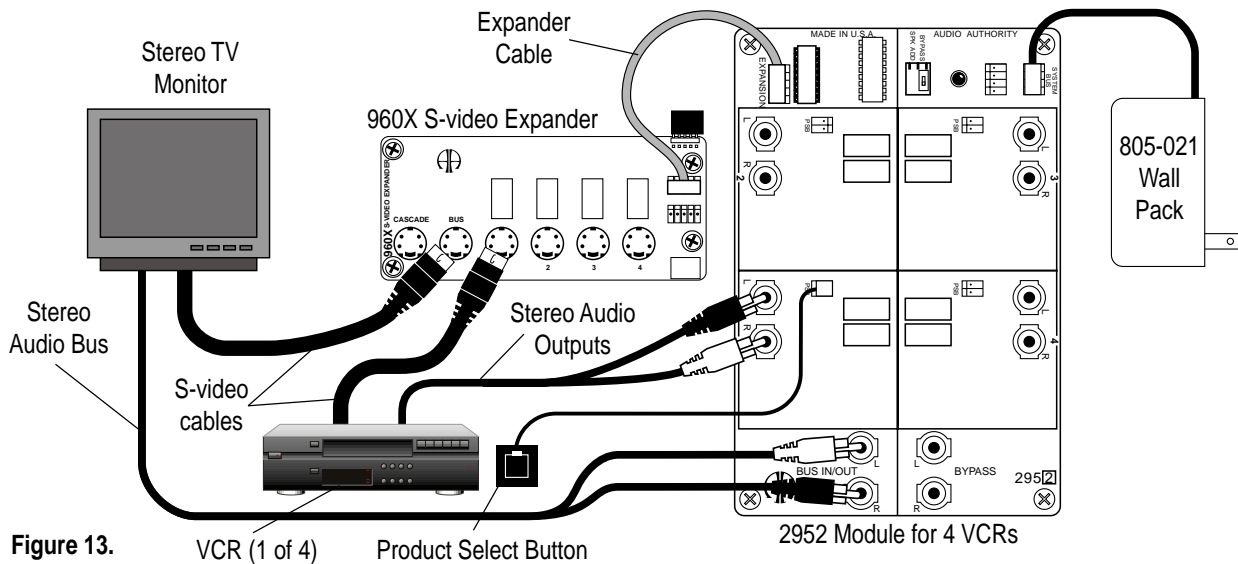
Other Switching Applications

DirectSelect™ Series modules are expandable to allow their switching capability to be increased almost without limit. Connect one or more of the expansion modules listed to a DirectSelect™ module for additional switching capability.
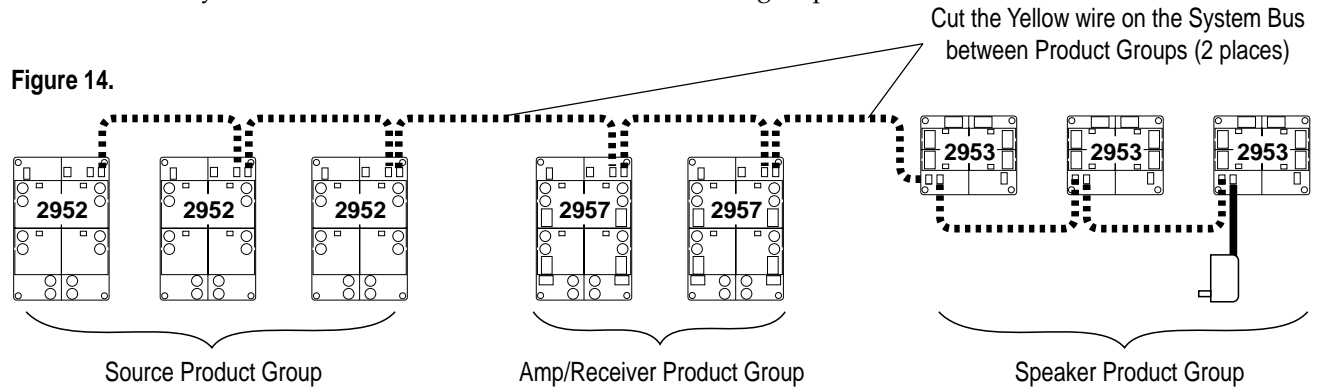
Figure 13 is an example of expanded capacity. A 2952 with a 960X expansion module switches 4 VCRs with S-video capability.

Access™ Expansion Modules	
920X	Stereo RCA jacks
933X	Stereo mini-phone jacks
940X	Stereo terminal blocks
950X	Stereo audio + video RCA jacks
960X	S-video jacks
965X	MATV F-connectors

Figure 13. VCR (1 of 4)   Product Select Button   2952 Module for 4 VCRs

(diagram labels: Stereo TV Monitor; Expander Cable; 960X S-video Expander; 805-021 Wall Pack; Stereo Audio Outputs; Stereo Audio Bus; S-video cables)
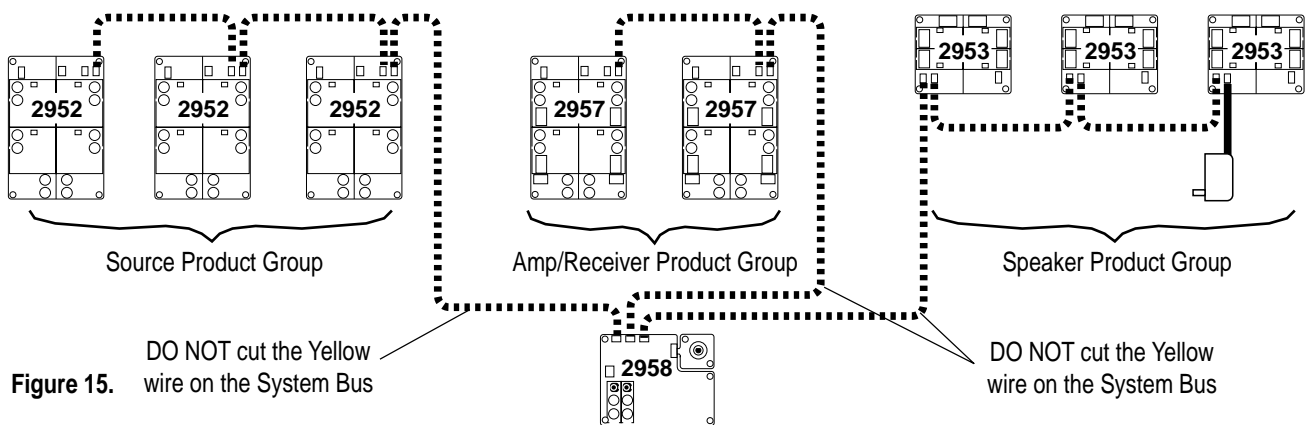
Multiple Product Groups

Any time more than one group of products is defined in a DirectSelect™ Series system and the 2958 or 2959 is not being used, the yellow wire in the system bus between product groups must be cut in order to set the boundaries of the product groups. For example, say you had three source modules such as 2952, two 2957 receiver modules, and three 2953 speaker modules, but no 2958 (Figure 14). You would run the system bus from module to module, keeping similar product modules grouped together. Then you would cut the yellow wire out of the system bus cable at the boundaries between the groups.

Figure 14.

Cut the Yellow wire on the System Bus between Product Groups (2 places)

Source Product Group   Amp/Receiver Product Group   Speaker Product Group

In systems *without* a 2958 or 2959, the rule is: **Leave the yellow wire intact between modules that should cancel one another, cut the yellow wire between modules that should not mutually cancel.**

Source Product Group   Amp/Receiver Product Group   Speaker Product Group

DO NOT cut the Yellow wire on the System Bus

Figure 15.

DO NOT cut the Yellow wire on the System Bus

When using a 2958 or 2959, don't cut any of the yellow wires, but plug each product group of modules into a different System Bus port on the 2958 or 2959. Plug the power pack or DC power input to any available System Bus header (Figure 15).

Home Audio Installation Tips

Secure DirectSelect™ series modules where they will be protected from damage, such as under a shelf. Standard audio interconnects may be used for RCA-type product hookups and bus connections. 16 or 18 gauge speaker wire is suitable for receiver outputs and speakers. For greater convenience and reliability when installing large systems replace the individual lengths of system bus cables with AccessEZ™ system bus cable (part number 802-314) and replace the standard high-level bus harnesses with Access™ speaker bus cable (part number 802-186).
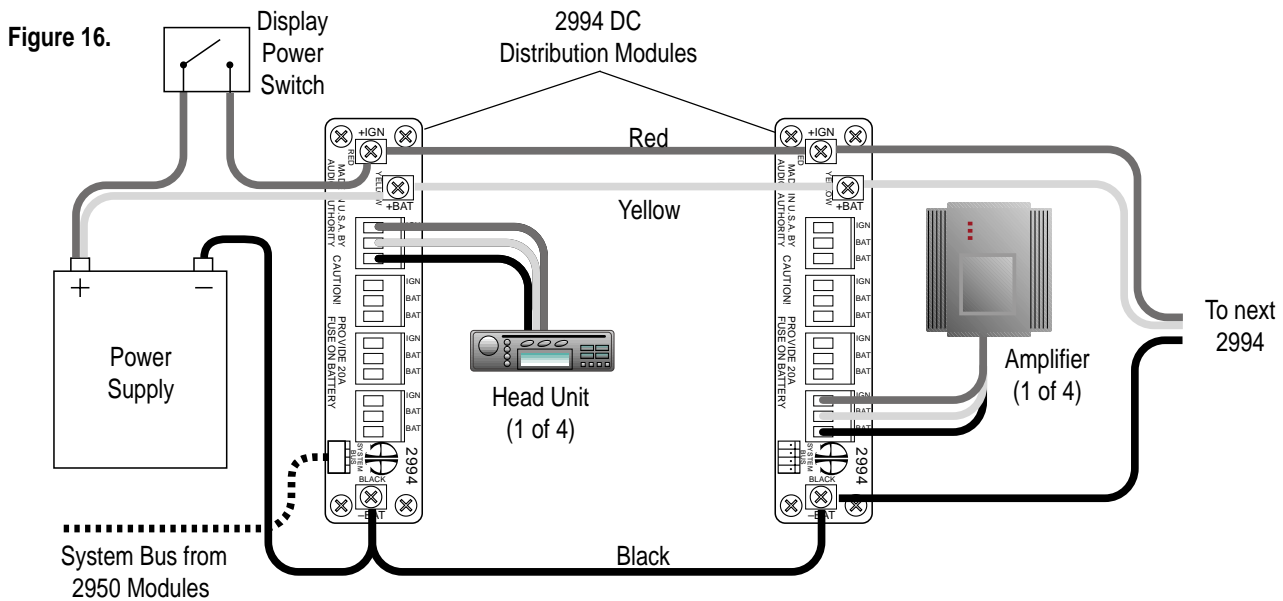
Car Audio Installation Tips

Standard audio interconnects may be used for RCA-type product hookups and bus connections. 16 and 18 gauge speaker wire is suitable for amplifier outputs and speakers. For greater convenience when installing large systems and for increased reliability, replace the standard system bus cables with AccessEZ™ system bus cable (part number 802-314) and replace the standard high-level bus harnesses with Access™ speaker bus cable (part number 802-186).

Audio Authority® offers the following power supplies to use in car audio displays. Current ratings are continuous DC output:

572-012   5 amps
572-005   10 amps
572-010   12 amps, compact design
572-013   20 amps

Contact your Audio Authority® Account Representative for information about your DirectSelect™ power supply application.

DC Distribution and Wiring

The Model 2994 offers a way to simplify car audio DC wiring. Each 2994 supplies power to four car audio head units or amplifiers; 2994s are bussed together and powered by a common power supply.

Figure 16.

Protect products and the switching system from damage by placing fuses or other overcurrent protection in DC power wiring. When using a regulated power supply, it will protect downstream wiring that is sized large enough to carry the maximum rated output current of the power supply. For instance, a 20 amp peak power supply will safely protect wiring of 12 AWG or larger. But when in doubt, use a larger wire gauge.

Always use a	AWG	Max.
wire gauge	(gauge)	Current
adequate for the	16	10
protection of the	14	15
devices present	12	20
as shown here.	10	30

If you encounter any problems installing this product, contact Audio Authority® Technical Service toll-free at 800-322-8346.

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