

## Limited Warranty

ELAN HOME SYSTEMS, L.L.C. ("ELAN") warrants the VSE Electronic Stereo Volume Control w/ Override to be free from defects in materials and workmanship for two (2) years from the date of purchase. If within the applicable warranty period above purchaser discovers such item was not as warranted above and promptly notifies ELAN writing, ELAN shall repair or replace the items at the company's option. This warranty shall not apply (a) to equipment not manufactured by ELAN, (b) to equipment which shall have been installed by other than an authorized ELAN installer, (c) to installed equipment which is not installed to ELAN's specifications, (d) to equipment which shall have been repaired or altered by others than ELAN, (e) to equipment which shall have been subjected to negligence, accident, or damage by circumstances beyond ELAN's control, including, but not limited to, lightning, flood, electrical surge, tornado, earthquake, or any other catastrophic events beyond ELAN's control, or to improper operation, maintenance or storage, or to other than normal use of service. With respect to equipment sold by, but not manufactured by ELAN, the warranty obligations of ELAN shall in all respects conform and be limited to the warranty actually extended to ELAN by its supplier. The foregoing warranties do not cover reimbursement for labor, transportation, removal, installation, or other expenses which may be incurred in connection with repair or replacement.

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**ELAN**  
 H O M E S Y S T E M S

## VSE ELECTRONIC STEREO VOLUME CONTROL W/ OVERRIDE



## TABLE OF CONTENTS

Introduction and Features .....3  
 Rough-In and Wiring Requirements .....3  
 VSE Diagrams 1 & 2 .....4  
 Impedance Match Settings .....5  
 Speaker and Amplifier Connections .....6  
 Z System Connections .....7-8  
 System6 Connections .....9  
 HD System Connections .....10-12  
 External IR Control .....13  
 RJ45 Pin-Out .....13  
 Configuring the Override Volume Level .....14  
 Operation .....14-15  
 VSE System Maximums .....15  
 Specifications .....15  
 Limited Manufacturer's Warranty .....back cover

### OPERATION (continued)

3. Controlling Volume using the VSE
  - Press the VOLUME UP or VOLUME DOWN buttons on the VSE.
  - Issue the VOLUME UP or DOWN commands from the VSE Remote.
  - Issue the Z630's VOLUME UP/DOWN IR commands.

**NOTE:** The VSE will respond to Z630 VOLUME UP/DOWN commands. These commands may be found in the Z030 remote, or in the VIA!TOOLS IR Library. Additionally, the supplied VSE Remote may be used to teach the VSE's commands to learning remotes if desired.

### MAXIMUM NUMBER OF VSEs PER ELAN SYSTEM CONTROLLER

System6		Z630		HD	
# of ZPADs	# of VSEs	# of ZPADs	# of VSEs per Z630	# of ZPADs	# of VSEs per Zone
6	12	3	9	1	4
8	9	4	6	2	1
10	6	5	3	3	0
12	0	6	0	4	0

### IMPORTANT NOTE:

If using an external power supply to power VSEs, a **regulated** +12VDC power supply, such as the **ELAN Z027**, must be used.

### Specifications

Power Rating: 35W RMS, 75W Peak Music Power per channel  
 Frequency Response: 20 - 20KHz, +/- 0.5 dB into 8 ohms  
 Total Harmonic Distortion: <1%  
 Impedance Settings: 1x, 2x, 4x, 8x  
 Speaker Load Impedances: 4, 6, or 8 ohms  
 Dynamic Range: 42 db  
 Override Current Draw: .75 mA (Logic only)  
 Sense Current Draw: 25 mA  
 Max. Current Draw: 40mA (not including Sense Input)  
 Operating Voltage: 12V DC  
 Sense Voltage: 9-12VDC  
 Override Voltage: 9-12VDC  
 Available in White, Ivory, Almond, Black, and Brown

**CONFIGURING THE OVERRIDE VOLUME LEVEL**

1. Use the VOLUME UP/DOWN buttons to find a suitable level for the Page and Doorbell Override signal.
2. Press and hold the MUTE button. While continuing to press the MUTE button, press and hold the VOLUME UP button.
3. When the POWER SENSE LED starts to blink, the OVERRIDE level has been set.

**OPERATION**

1. Turning ON the VSE (The VSE's Volume Level LEDs are OFF indicating the VSE is OFF).

There are nine ways to turn ON the VSE:

- Pressing the MUTE button on the VSE.
- Issuing the ON command from the supplied VSE Remote.
- Issuing any ELAN Source Select IR command.

**NOTE:** When the VSE is turned ON using any of the above methods, the level is restored to the last volume setting before the VSE was turned OFF.

- Pressing the VOLUME UP button on the VSE.
- Issuing the VOLUME UP command from the supplied VSE Remote.
- Issuing any ELAN VOLUME UP command.

**NOTE:** When the VSE is turned ON using any of the above methods, the level is restored to the last volume setting before the VSE was turned OFF, but no higher than the OVERRIDE volume level setting.

- Pressing the VOLUME DOWN button on the VSE.
- Issuing the VOLUME DOWN command from the supplied remote.
- Issuing any ELAN VOLUME DOWN command.

**NOTE:** When the VSE is turned ON using any of the above methods, the level is restored to the lowest audible level.

2. Turning OFF the VSE
  - Press the MUTE button on the VSE.
  - Issue the OFF command from the supplied Key Fob remote.
  - Issue any ELAN SYSTEM OFF IR command.

**INTRODUCTION**

The ELAN VSE is an electronic 12-step stereo volume control with selectable impedance match settings of 1X, 2X, 4X, and 8X. This feature enables multiple VSEs to be connected in parallel for independent control of speakers in different listening areas - while maintaining an impedance load the amplifier can safely drive. Additionally, the VSE features an IR receiver which passes IR data to source components as well as enables the volume to be controlled using an included remote.

**The PATENTED ELAN OVERRIDE FEATURE**

The VSE incorporates ELAN's patented 'override' feature, which enables ELAN Page and Doorbell audio to override the music when activated, or be heard even when the VSE is turned all the way down or in mute.

**The SENSE Feature**

The SENSE feature detects a transition in voltage. When voltage is absent, the VSE goes into Mute. The presence of voltage does not, however, un-mute the VSE. This requires a physical button press on the VSE. This allows you to turn on the system (or a zone) **without** all the VSE's in the system (or zone) turning on. In ELAN HD or S6 systems, the SENSE feature can be used for either zone-specific or system On/Off detection. In ELAN Z systems, SENSE detects system On/Off only.

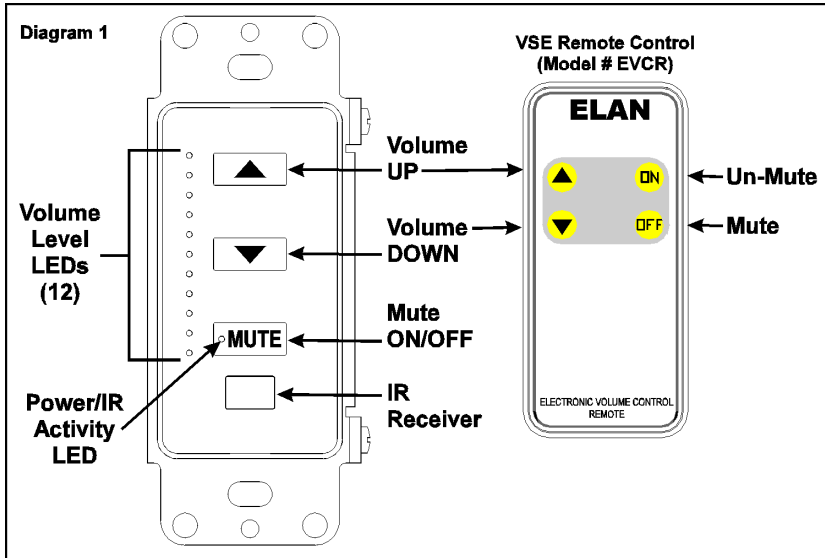
**ROUGH-IN**

The VSE fits into most 18 cu. in. single-gang boxes and P-rings. If local building codes allow, P-rings make installation easier and provide access to the full depth of the wall. Do not install the VSE in the same electrical box as 110 volt devices (i.e. light switches, dimmers, etc.). Doing so may induce hum, buzzing or other kinds of interference into the audio signal and interfere with IR transmissions.

The IR Receiver on the VSE can be flooded if it is exposed to ambient light or electromagnetic interference. Be sure to mount the VSE in a location where direct sunlight will not shine on it. If you choose not to utilize the VSE's built-in IR receiver, do not connect the RJ45 jack's pin 3 and 6 IR connections. **NOTE: The VSE is not warranted for outdoor installation.**

**WIRING FOR POWER, OVERRIDE, SENSE, and IR**

The VSE will accommodate 14 to 24 AWG speaker wire, however 16 or 18 AWG is suitable for most applications. If wire runs exceed 150ft, heavier gauge wire should be considered. Use stranded copper speaker wire for in-wall wire runs. A run of CAT5 is required between the VSE and the ELAN Controller for Power, Override, Sense, and IR.



### External IR Connections & RJ45 Pin-Out

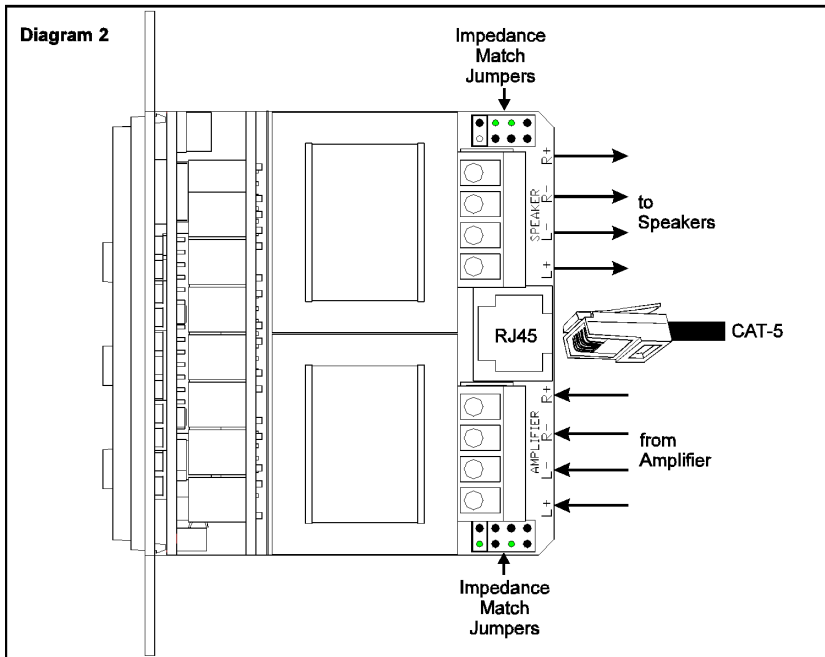
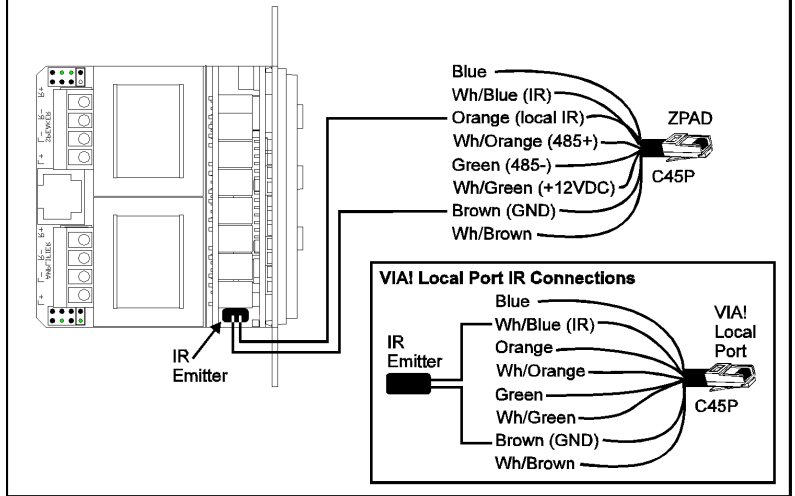
**Diagram 6.1: Remote IR Control of the VSE**

The LOCAL IR send wire from any ZPAD may be used to attach an IR emitter to the VSE.

If the VSE is 'buried' back at the head-end, the IR emitter can be placed directly over the VSE's IR window.

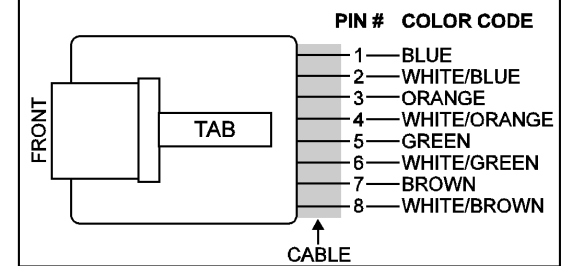
If the VSE is in a wall box, the IR emitter can be placed behind the VSE's front plate as shown below.

The Local Port on a VIA! Touch Panel may also be used to connect an IR emitter (see inset below).

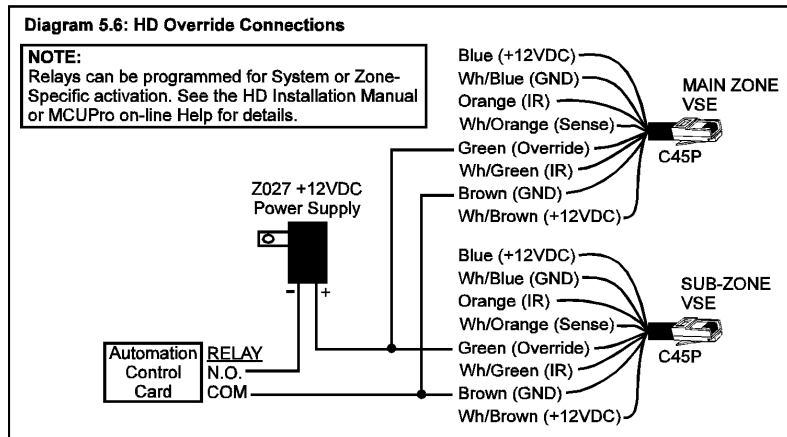
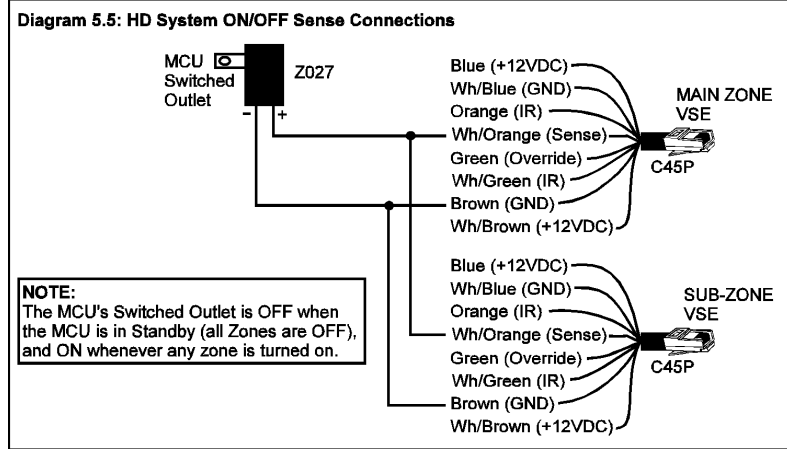


**Diagram 6.2**

### Standard ELAN RJ-45 Pin-Out



HD System Connections (continued)



IMPEDANCE MATCH SETTINGS

The VSE's impedance match settings are configured manually using the two jumpers located on the back of the volume control. Both jumpers (one for the left channel and one for the right channel) must be set to the same impedance match setting.

The following will determine the impedance match setting:

1. The impedance rating of the speakers being connected to the amplifier,
2. The number of speaker pairs being connected to the amplifier channel,
3. The minimum impedance rating of the amplifier being used.

Once all of the above have been determined, calculate the following:

$$\frac{\text{Impedance Rating of Speakers (i.e. 8 Ohms)}}{\# \text{ of speakers connected to one channel}} = \frac{\text{Total impedance load shown to the amplifier (per channel)}}{\text{to the amplifier (per channel)}}$$

$$\frac{\text{Amplifier's Min. Impedance Rating}}{\text{Total impedance load shown to the amplifier (per channel)}} = \frac{\text{Impedance Match Jumper Setting}}$$

EXAMPLE -

If the amplifier's minimum impedance rating is 8 Ohms, and you wish to connect four 8 Ohm speakers to an amplifier channel:

$$\frac{8 \text{ OHM SPEAKERS}}{4 \text{ SPEAKERS}} = \frac{2 \text{ OHMS (Total impedance load shown to the amplifier BEFORE impedance magnification is added)}}{2 \text{ OHM TOTAL IMPEDANCE SETTING}}$$

$$\frac{8 \text{ OHM AMPLIFIER}}{2 \text{ OHM TOTAL IMPEDANCE SETTING}} = 4 \times \text{JUMPER}$$

Most speakers are rated at 4, 6 or 8 Ohms. If connecting speakers of different impedances to a single amplifier, an average impedance must be determined; i.e. one pair of 4 Ohm speakers is the equivalent of two pairs of 8-ohm speakers. 6 Ohm speakers should be entered into the equation as 4 Ohm speakers.

IMPORTANT NOTES:

1. All volume controls connected to the amplifier should be impedance matching.
2. All volume controls connected to the same amp channels should be set to the same impedance match setting.
3. Never go below an amplifier's minimum impedance rating, as doing so may damage the amplifier.

- The VSE (and all other ELAN Impedance Matching Volume Controls) has a minimum output impedance rating of 4 Ohms. DO NOT connect more than 2 pairs of 8 Ohm, or one pair of 4 Ohm speakers to the output of the VSE.

**SPEAKER AND AMPLIFIER CONNECTIONS**

- Make sure that the amplifier is powered down.
- Strip back 1/4" of insulation from each conductor of speaker wire to be connected to the volume control. Twist tightly, and make sure there are no frayed ends.
- Remove the modular AMPLIFIER and SPEAKER connectors from the volume control. Connect the wires coming from the amplifier to the connector labeled AMPLIFIER. Make sure to maintain proper polarity (amplifier + to connector +, amplifier - to connector -).
- Connect the wires going to the speakers to the connector labeled SPEAKERS. Make sure to maintain proper polarity (speaker + to connector +, speaker - to connector -).
- Use an ELAN C45P pre-terminated RJ45-to-pigtail cable, or terminate your own CAT5 using the proper color code and pin-out.
- Once all wires are connected, plug the connectors back on to the volume control, making sure that the markings on the plugs match the markings on the volume control.

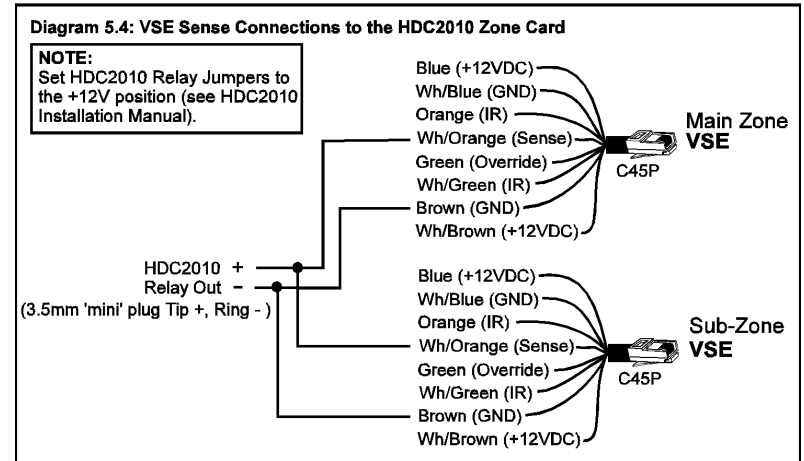
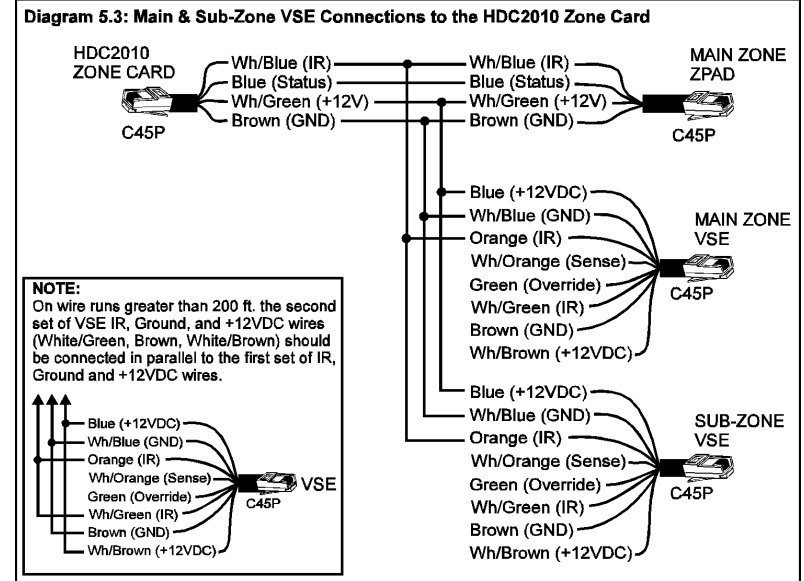
**NOTE:** BE SURE NOT TO REVERSE THE AMPLIFIER & SPEAKER CONNECTIONS

- Install the volume control in the gang box or P-Ring using the screws provided. Be careful not to stress the wires as this may cause the plugs to dislodge.

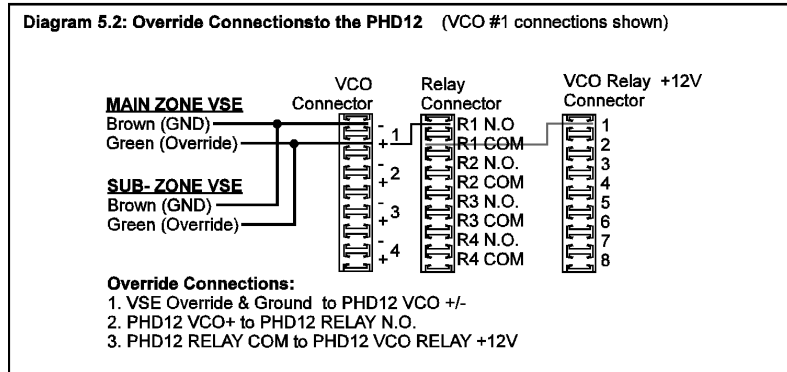
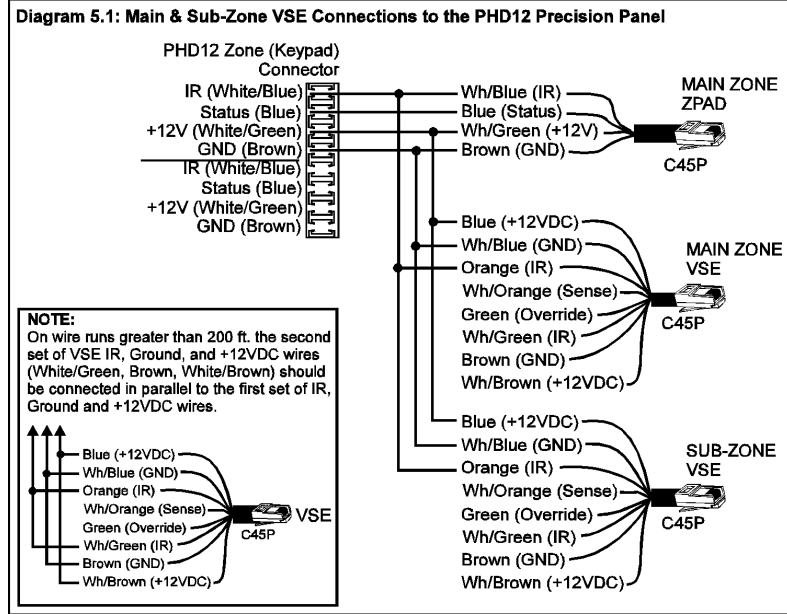
**RJ45 JACK CONNECTIONS FOR OVERRIDE, IR AND SENSE**

Refer to the wiring diagrams on the following pages for all System6, Z Series and HD Series connections.

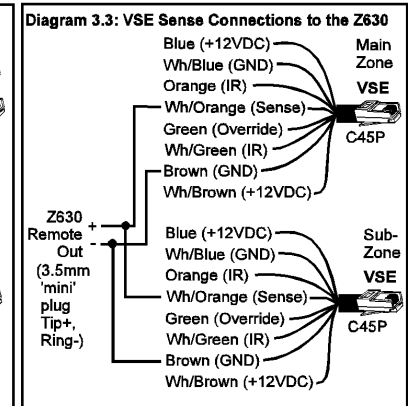
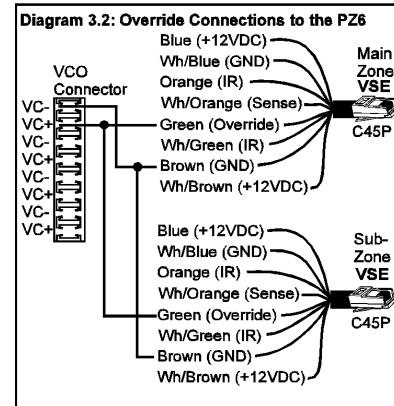
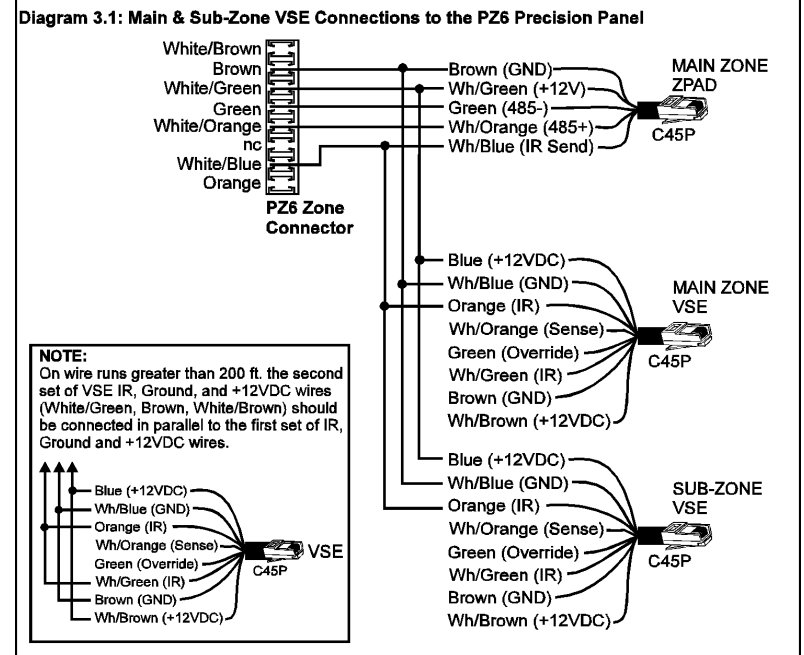
**HD System Connections (continued)**



### HD System Connections



### Z System Connections



Z System Connections (continued)

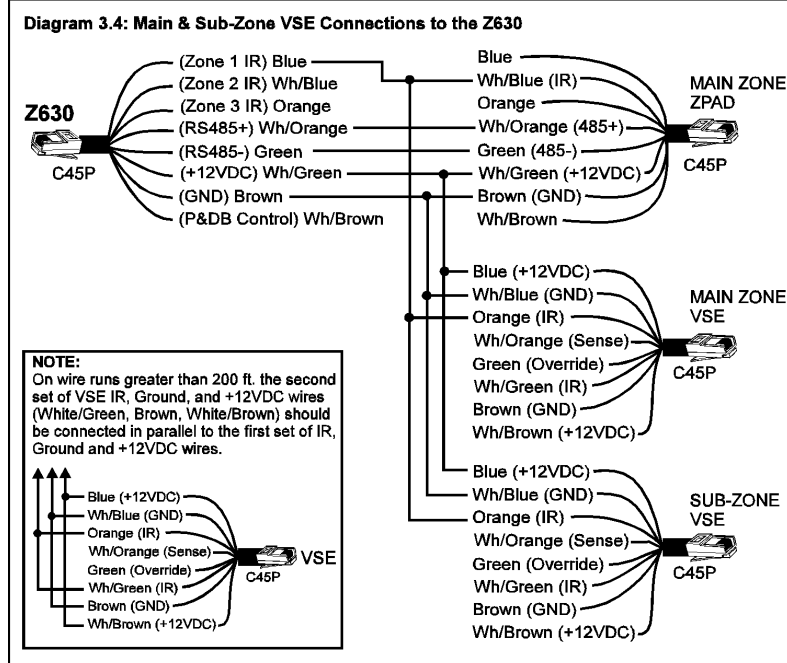
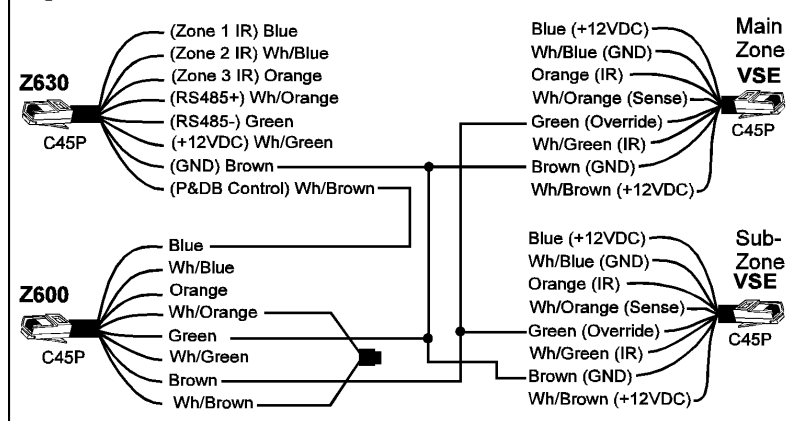


Diagram 3.5: VSE Override Connections to the Z630 and Z600



System6 Connections

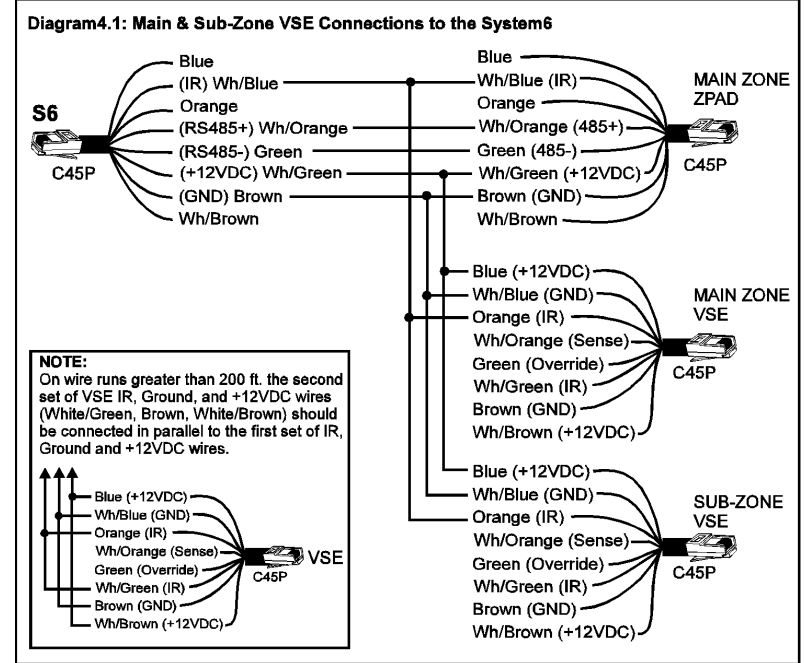


Diagram 4.2: VSE Sense Connections to the S6

