

These instructions cover the installation of Wenger's Studio VAE® (Virtual Acoustic Environments) electronics package in select pre-existing practice rooms and studios where the VAE technology is desired.

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Installation Planning

The installed system will include:

- Four, dual-cavity loudspeaker boxes mounted in each corner at or near ceiling level.
- Two, 12" x 24" absorber panels containing the system microphones, mounted at eye level near the horizontal center of the two longest walls.
- One electronics processor (18" wide x 3.5" high x 11.5" deep) installed against any wall on the floor or on a customer provided shelf or cabinet.
- One freestanding/tabletop control panel connected to the processor via cable.
- Sufficient rectangular, surface-mounted plastic conduit to house all loudspeaker and microphone wiring. Horizontal runs will be installed just above the baseboard. Vertical runs will be installed in each corner and below each absorber/microphone panel.

Suggested room conditions:

- Up to 180 square feet
- Width should be no less than 65% of the length
- Minimum ceiling height: 90" (7'6")
- Maximum ceiling height: 144" (12')
- Room shape: Rectangular or square
- Ceilings higher than 10' (120") will have the corner loudspeakers installed at below ceiling level
- Corner angles: 90-degrees (wall-to-wall and ceiling-to-ceiling)
- All doors and passageways at floor level must be contained in the same wall

Rooms exceeding these values must be discussed with Wenger Applications Engineering before installation.

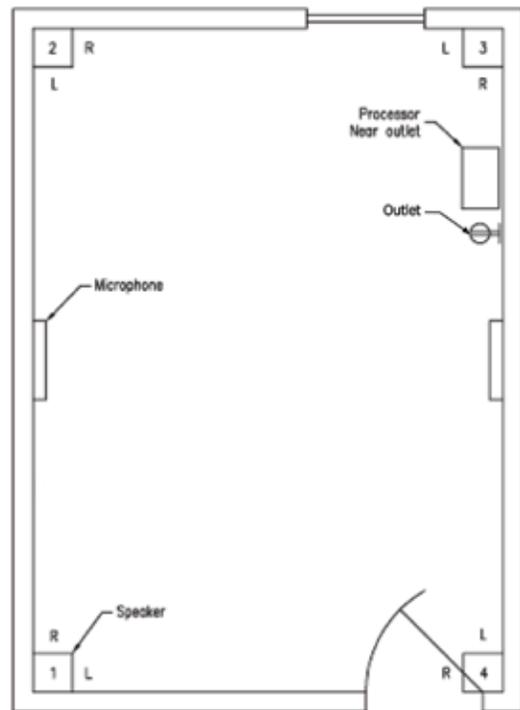


Installation Planning (continued)

Before beginning the installation, evaluate the room size, shape, trim details, door and window locations and potential installation locations for the VAE processor and control panel. Make sure that there will be enough control cable to reach from the processor to any desirable control panel location.

Plan the installation such that the wiring around the perimeter of the room does not need to cross doorway openings.

Where possible, discuss the proposed locations of these components with the owner/user of the room before proceeding.

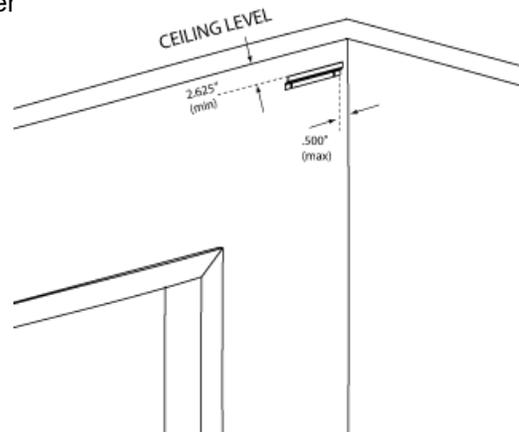


Loudspeaker Installation

Loudspeakers are to be mounted in each corner of the room near the ceiling. Loudspeakers are mounted to only one of the two adjacent walls. The mounting system allows the loudspeaker cabinet to slide up against the other wall without the need for mechanical connection.

1. Choose which of the two adjacent walls each loudspeaker is to be mounted to and select appropriate wall anchors and hardware (not included) for securely attaching the loudspeaker box mounting rail to the wall.
2. Position the mounting rail so the top of the rail is a minimum of 2.625" to the lowest point of the ceiling and a maximum of 0.5" from the corner of the wall as shown. Level the mounting rail and secure the mounting rail to the wall.

Note: If the room's ceiling height exceeds 10', install the mounting rail at a maximum of 117" above the floor.



3. Attach two loudspeaker hanger extrusions on the corresponding side of the loudspeaker box as shown using the four screws provided. Repeat for the remaining three loudspeaker boxes.



4. Press the female half of the loudspeaker grill guides into each of the eight loudspeaker box faces as shown



Loudspeaker Installation (continued)

5. Locate the four speaker cables.
(Two of them are longer than the other two.)
Determine which speakers are farthest away from the VAE processor. The longer cables will be used for those speakers.



6. Connect the four cables to the loudspeakers using their mating, 4-terminal connectors.

7. Hide the connectors in the cavities between the loudspeaker and the wall.



8. Slide the loudspeaker box over the mounting rail as shown making sure the rail and hanger extrusions are fully engaged. Continue sliding it back until the loudspeaker contacts the adjacent wall.



9. Press the male half of the loudspeaker grill guides into the back side of each of the eight loudspeaker grills as shown.



10. Install the loudspeaker grills on the loudspeakers by engaging the grill guide pairs and pressing the grill against the loudspeaker box.

Microphone Panel Installation

Microphone panels should be mounted at the horizontal center of the two longest walls. If doorways, windows or other permanent structures prevent this, contact Wenger Applications Engineering before installation.

1. Using appropriate wall anchors and hardware (not included), level and attach the two microphone mounting rails in the horizontal center of the two longest walls at an elevation of 70" to the top of the rail.

If exact horizontal centering of the panel on the wall is impractical due to obstructions, the panel may be shifted off-center by up to 2'. If the panel must be shifted off-center, shift it in the direction nearer the performer's planned location whenever possible.

2. Remove the free end of the microphone cable with the XLR connector from its storage pocket, allowing it to hang down out of the back of the panel.
3. Hang the two microphone panels on their respective mounting rails. Level the microphone panels.



VAE Processor Installation

The location selected for the VAE processor should provide adequate ventilation. The floor or a shelf or tabletop is ideal. It should not be buried in a bookshelf or cabinet where the processor's vents can be blocked by books and papers. Nothing should be stacked on top of the processor that would block its vents. The VAE processor's feet should be on a solid surface so that the bottom of the processor is elevated to allow airflow underneath the processor.

If the installation will use the optional equipment rack, mount the processor in the rack before making any connections to the processor. The exterior of this optional rack may have items stacked around it on the top bottom or sides. The front and back should remain unobstructed for ventilation.

1. Install the VAE processor power cable by plugging it into the back of the processor and then into an electrical outlet.

Where possible, the processor should be installed within reach of an electrical outlet using the power cable provided. If this is not practical, use a customer-supplied and approved (16 Ga. minimum) extension cord to complete the connection.

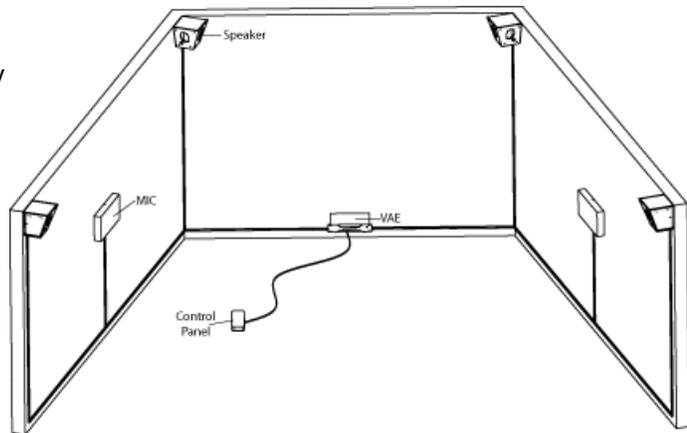


Wiring Conduit Installation

Typical installations will have vertical surface-mounted conduit sections under each corner loudspeaker and under both microphone panels. These will be interconnected by a horizontal conduit run near floor level on three or four walls of the room.

Note: The diagram shows a typical existing construction installation. However positions for the electrical conduit may vary to create a cleaner install so the following descriptions will remain somewhat generic.

For new construction it is recommended to run the mic cables through the wall via conduit, above the ceiling grid, then with all the cables down to a wall box for a clean installation.



1. Start by determining the location of the horizontal conduit run, typically just above the baseboard.
2. Choose a loudspeaker at one end of the wiring run. Use lengths of conduit as required to run vertically from the bottom of the loudspeaker to the horizontal conduit run below. The two conduit runs will be connected with an elbow. Repeat for the speaker at the opposite end of the run.



3. Continue installing the horizontal conduit runs along the walls toward the center of the room, under the microphone panels.



Wiring Conduit Installation (continued)

4. Use lengths of conduit as required to run vertically from the bottom of the two microphone panels (at the center) down to the horizontal conduit run. The two conduit runs will be connected with a tee.
5. Continue the horizontal conduit runs along the wall to the room's corners under the two remaining speakers.
6. Use lengths of conduit as required to run vertically from the bottom of the remaining loudspeakers to the horizontal conduit run. An elbow will be used to continue the horizontal run on the next wall. The two conduit runs will be connected with an elbow.
7. The vertical speaker runs will be connected at the corners by cutting a wire access hole in the side of the elbow as required.
8. Continue the horizontal conduit runs along the remaining, wall(s) leaving a 3" gap at the location of the VAE processor where the wiring will exit the conduit.

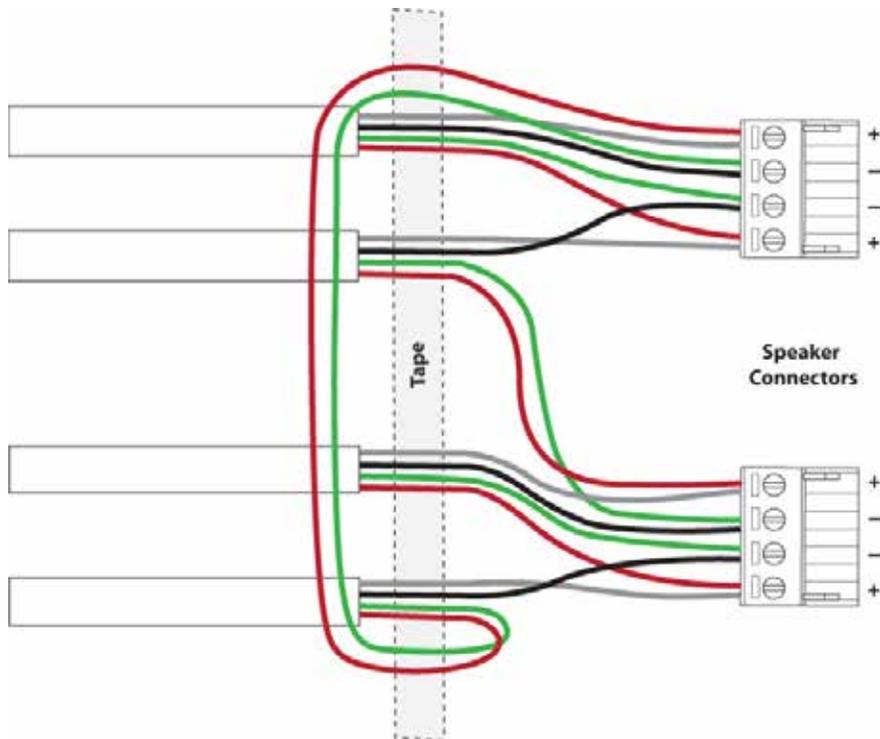


System Wiring

Install the wiring in the surface-mount conduit, connect the VAE processor and install the remaining conduit fittings.

Connect the Loudspeakers to the Processor

1. Determine the final location of the processor. Cut the four speaker cables to length at the back of the processor, leaving enough length to easily terminate the cables, dress up the cable runs and allow for limited relocation of the processor once they are connected.
2. Terminate the cables as shown. Strip back the outer cable jackets about 3" and strip 0.25" of insulation off the end of each conductor. Insert the stripped wire ends into the 4-pin connectors following the color-coding shown on the next page and tighten the setscrews.
It does not matter which loudspeaker cable connects to which connector as long as the color-coding is followed.



3. Connect the speaker cables to the VAE processor by inserting the two 4-pin connectors into the mating receptacles in the back of the processor.
It does not matter which loudspeaker cable 4-pin terminal connects to which processor output as long as the color-coding is followed.



System Wiring (continued)

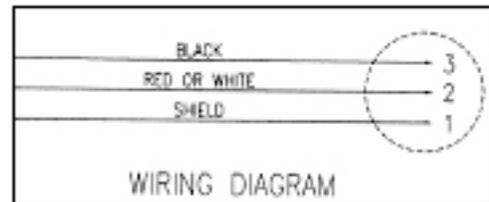
Connect the Microphone Panels to the Processor

The microphone's cable is about 10' long. If the cable is not long enough to reach the processor, an extension cable will be used. If either cable is long enough to reach the VAE processor directly, the extension cable is not required.

Where the extension cable is required:

1. Connect the microphone extension cable to the microphone cable. Wrap excess microphone cable around the microphone's (XLR) connector, bundle it with a cable tie and stow it in the storage pocket provided in the back of the microphone panel.
2. Run the extension cable(s) through the wall-mounted conduit back to the VAE processor.
3. Cut the microphone extension cable(s) to length at the back of the processor, leaving enough length to terminate the cables and allow for limited relocation of the processor once they are connected.
4. Attach the XLR connector(s) to the cable(s) following the instructions supplied by the connector manufacturer and the wiring diagram shown here. It is critical that the bare conductor from the shield be connected to Pin #1 and the black wire to Pin #3.

Zip tie the cable to the PCB through the hole located at the end of the board.



5. Connect the two microphone cables to the processor. It does not matter which cable goes to which input jack.



Finalize the Installation

1. Finalize the installation by installing wiring conduit tees, elbows and any provided conduit covers. Use cable ties as appropriate to neatly organize the wiring behind the VAE processor.
2. Place the control panel on a nearby desk, shelf or on the (optional) control panel stand if that option was selected.

Note: The User's Guide (216x010), a booklet packaged with the control panel assembly should be hand-delivered to the user or left taped to the control panel pedestal after installation. **These installation instructions (216x664 that you are reading right now) is NOT to be left on site.**



3. Connect the control cable by inserting the connector at the end of the cable into the socket labeled REMOTE KEYPAD on the back of the VAE processor. The locking tab on the connector should be positioned upward and properly engaged.



4. Install the flash memory card (connector end first) into the slot in the back of the VAE processor labeled COMPACT FLASH. It will fit into this slot in only one orientation. You will feel the contacts engage during the last 0.125" of insertion. When properly installed, only about 0.125" of the card will protrude beyond the socket.

