

Loudspeaker Installation

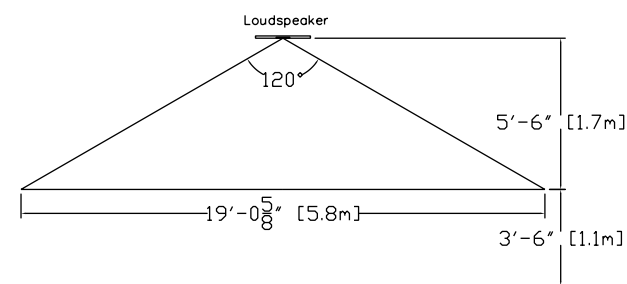
Loudspeakers should be installed and connected before powering up the system. Brackets are supplied with the loudspeakers for use with either suspended ceilings or drywall ceilings.

For each loudspeaker:

- Using the template supplied with the loudspeaker, scribe a cutout hole onto your ceiling surface, then cut out the hole. The hole will be 6.5 inches (165 mm) in diameter.
- Insert the backing hardware through the hole. For suspended ceilings, place the C-plate around the hole with the tabs placed so they will line up with the tile rails. Snap the rails into the two tabs in the C-plate and align the rails so that the ends extend over the T-channel grid on the side of the tile. Secure the rails onto the C-bracket tabs by inserting a screw through each tab into the rail. For drywall ceilings, the C-bracket can be used by itself to shore up the ceiling material and to spread out the clamping force from the tab clamps. Insert the C-plate through the cut hole and place it on the back side of the hole.
- Connect the provided plenum cable to the removable locking connector that is included with the speaker. Strip the wire about 3/16", insert the bare end of the wire into the connector and tighten the hold-down screw. Note that you will need to connect the two loudspeakers in parallel; use the Loudspeaker Wiring directions below.
- Plug the connector into the connector socket in the speaker's terminal cup; tighten the strain relief fitting and close the terminal cover.
- Insert the speaker into the ceiling until the front baffle rim touches the ceiling. Turn the attachment screws to tighten the mounting tabs as follows:
 - FIRST turn 1/2 turn counterclockwise to release the mounting tab from its guide;
 - Then, turn the screw clockwise until tight. Do not overtighten.
- Press the speaker grille into place until the front of the grille is flush with the rim. Make sure the grille is securely seated.

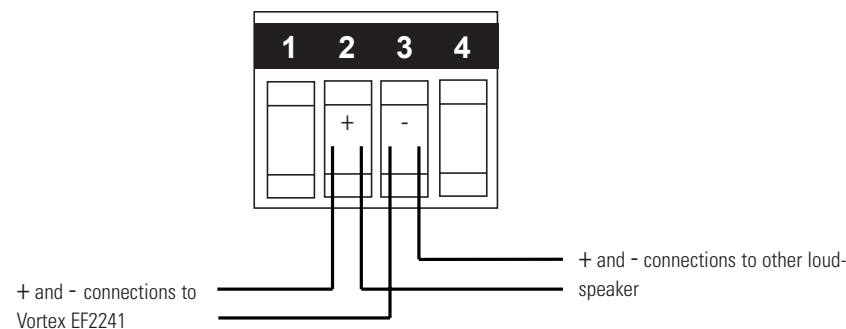
Complete loudspeaker installation instructions, with diagrams and important safety information, may be found in the manual accompanying the loudspeakers.

Each loudspeaker provides 120° coverage angle and has a sensitivity of at least 85dB SPL 1W/1m. As shown at right, assuming a 9 foot (2.7m) ceiling height and a 3.5 foot (1.1m) ear height, the loudspeaker coverage pattern is a circle with a 19 foot (5.8m) diameter (drawn from the center of the loudspeaker). A 10 foot (3m) ceiling height yields a 22 foot (6.7m) radius of coverage. Using the 10 foot (3m) ceiling height as the worst case scenario and assuming that the Vortex EF2241 amplifier is providing 1W to the loudspeaker, the listener will hear a signal with 79dB SPL.



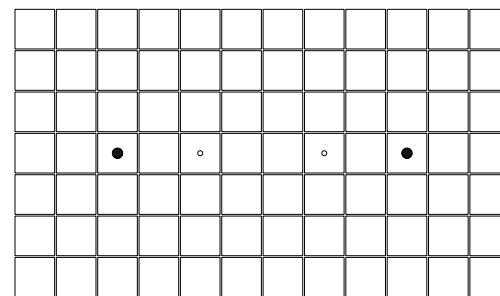
Loudspeaker Wiring

The two supplied loudspeakers must be connected in parallel to ensure correct operation. Using one of the removable terminal blocks for the loudspeakers, connect the positive (+) wire to the other loudspeaker, along with a wire from the cable running to the positive (+) terminal of the Vortex EF2241's loudspeaker connections, to position #2 on the removable block. Repeat the process for the negative (-) terminals, using position #3 on the removable block. You may optionally use the wire nuts provided with your package instead; connect the two positive (+) wires of the loudspeakers together with the positive (+) terminal of the Vortex loudspeaker connection, and repeat the process with the negative (-) wires and Vortex negative (-) terminal connection.



Loudspeaker / Microphone Placement

When microphones are installed in the ceiling, special care must be taken to locate them away from the loudspeakers. With suspended ceilings, try to place at least two ceiling tiles between loudspeakers and microphones. For drywall ceilings, try to space the microphones at least 4 feet from loudspeakers. When using ceiling microphones, it is important to maximize the direct-to-reverberant sound ratio. Keeping the diagonal talker-to-microphone distance less than 8 feet (2.4m) will generally produce acceptable ceiling microphone performance. For a 9 foot (2.7m) ceiling height, assuming the talker source is 3.5 feet (1.1m) above the floor, each ceiling microphone can cover a circular area with a 12 feet (3.7m) diameter. If the room is acoustically treated, these distances could be increased while still maintaining an acceptable direct-to-reverberant sound ratio.



Please refer to the respective User Guides for each product for detailed installation, warranty and support information.



Package 4 - Ceiling Microphones, Ceiling "Can" Style Loudspeakers

Quick Installation Guide

Vortex® EF2241 - SoundStation VTX 1000™ Package

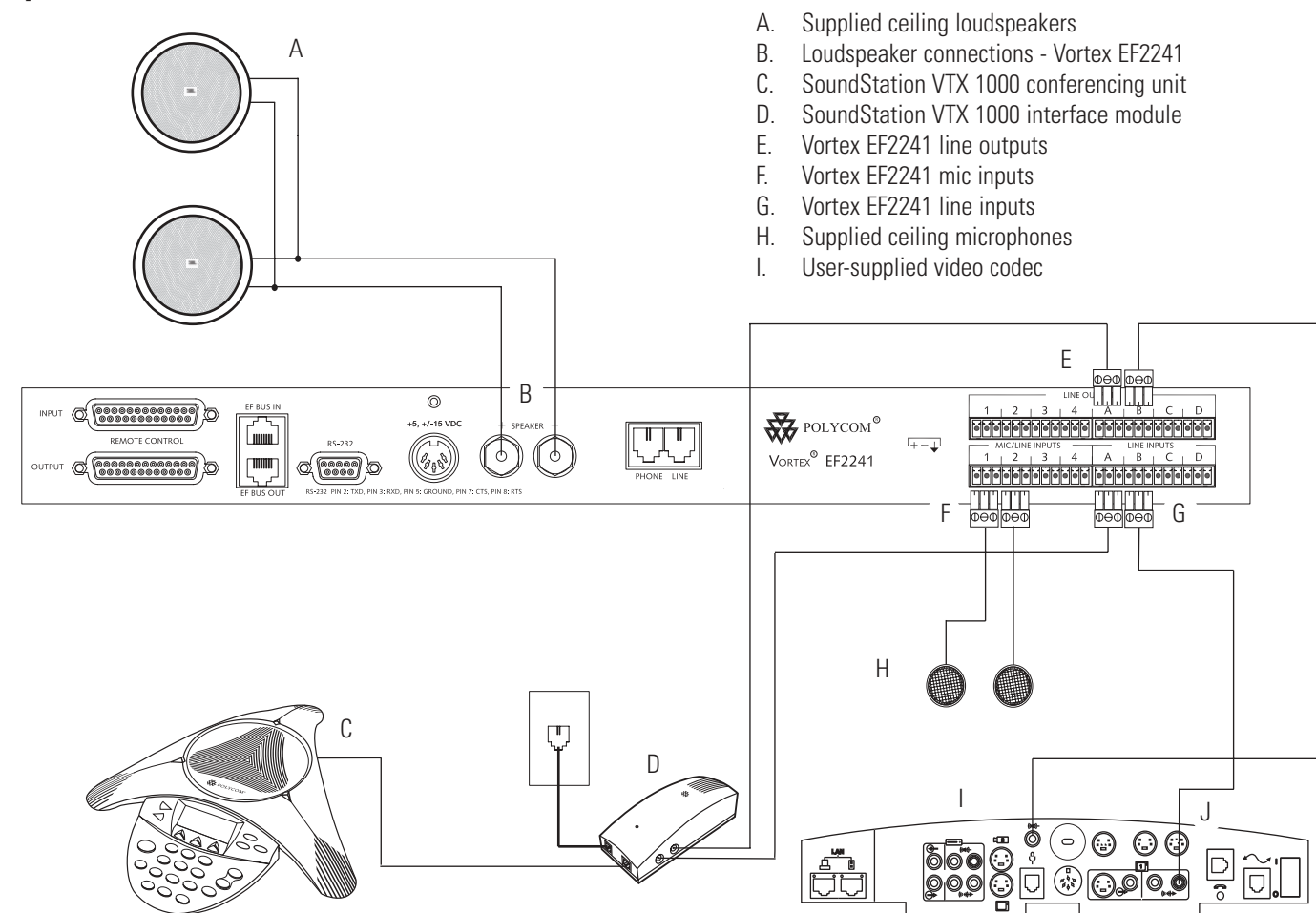
Installed Voice System with Wideband Telephone Connection, Ceiling Microphones and Ceiling Loudspeakers



Connect. Any Way You Want.

Video Voice Data Web

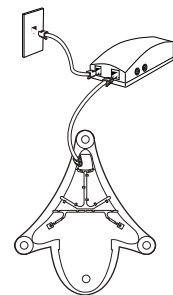
System Connections



- A. Supplied ceiling loudspeakers
- B. Loudspeaker connections - Vortex EF2241
- C. SoundStation VTX 1000 conferencing unit
- D. SoundStation VTX 1000 interface module
- E. Vortex EF2241 line outputs
- F. Vortex EF2241 mic inputs
- G. Vortex EF2241 line inputs
- H. Supplied ceiling microphones
- I. User-supplied video codec

Installation Instructions

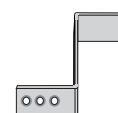
- Mount the Vortex EF2241 in a convenient location such as in a credenza, in a rollabout cart, or under the table. If you are mounting the unit under the table, use the supplied brackets, mounting hardware and template as follows:
 - Tape the template under the table, making sure you have provided at least 17" of clearance from the edges of the table to any edge of the template. This will prevent seated guests from bumping into the Vortex unit.
 - Drill 3/32" starter holes where marked on the template. You will drill two holes for each of the front brackets and one hole for the rear bracket.
 - Remove the template if desired.
 - Install the two Front "L" brackets and the Rear "Z" bracket using the provided #6 pan head screws.
 - After installing the front and rear brackets, attach one gray rubber adhesive foot to the top of the Vortex EF2241 at each of the four corners. This will keep the unit secure against the table.
 - Slide the Vortex EF2241 into the rear bracket, align the front panel mounting holes with the "L" brackets, and secure the unit using the four black 10-32 x 1/2" mounting screws provided with the Vortex.



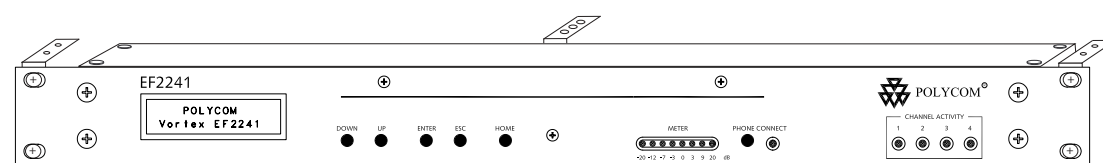
Connection of conferencing unit to interface module



L Bracket (2)



Z Bracket (1)



Under Table Mounting Configuration

Installation Instructions Cont.

- Connect the analog PSTN telephone line to the SoundStation VTX 1000 Interface Module (item D in diagram at left). Note that if you want to connect a second telephone line to the system, you can use the LINE and PHONE jacks of the Vortex EF2241. Refer to the Vortex EF2241 User Manual for more information, or see the White Paper "Interfacing Vortex and the SoundStation VTX 1000" on the Polycom website.
- Connect the Auxiliary Output of the Interface Module (item D in diagram at left) to Input A on the Vortex EF2241 (item G in diagram at left).
- Connect Output A of the Vortex EF2241 (item E in diagram at left) to the Auxiliary Input of the Interface Module (item D).
- Connect the cables for the supplied microphones (item H in diagram at left) to Mic/Line inputs 1-4 of the Vortex EF2241 (item F).
- Connect the SoundStation VTX 1000 conferencing unit to the interface module as shown (left, lower diagram).
- Install the ceiling loudspeakers as shown on the rear page of this guide. Note that the two speakers must be connected in parallel.
- Run the supplied plenum rated speaker cables and microphone cables between the desired ceiling locations and the Vortex EF2241. The cables can be run through conduit or down a corner of the wall. Connect the speaker wires in parallel to the loudspeaker terminals on the Vortex EF2241 (item B). For more information on parallel loudspeaker connection, see the rear page of this guide.
- Install the ceiling microphones, following these guidelines:
 - Install the ceiling microphones along the center line of the room, over the table or the general area where there will be participants.
 - Maintain as much separation from the ceiling loudspeakers as possible - with a minimum of two tile spaces separating the microphones and ceiling loudspeakers.
 - See the Loudspeaker and Microphone placement figure on the rear page of this guide for information on mic/loudspeaker separation.
- Connect Output B of the Vortex EF2241 (item E in diagram at left) to the external audio input of your video codec (item I).
- Connect an external audio output of your video codec (item J in diagram at left) to Line Input B of the Vortex EF2241 (item G). Note that only one channel of your video codec's external audio will be used.
- Disable the internal echo canceller in your video conferencing codec so that it does not conflict with the echo canceller in the Vortex EF2241. See your codec manual for details. For more information see the Application Note "Interfacing to Video Codecs" on the Polycom website.

For the **Polycom VSX 7000** video conferencing codec:

 - After making audio connections (use input/output 1 on the VSX 7000), power up your VSX 7000 and select SYSTEM, ADMIN SETTINGS, AUDIO SETTINGS within the video codec and select NEXT for Page 2.
 - Select the AUDIO MIXER option for the Line input that is connected to the Vortex device, and select MONITOR - FAR SITE AUDIO for the Line output. For both settings leave the LEVEL settings at 5.
 - The loudspeaker in the VSX 7000 console should also be disabled. Go to SYSTEM, ADMIN SETTINGS, AUDIO SETTINGS, and select NEXT, NEXT for page 3. Select OFF for MIDRANGE SPEAKER. Depending on the type of loudspeakers you are using, you may want to lower and/or disable the Subwoofer. Make those changes in the SUBWOOFER SPEAKER and SUBWOOFER OFFSET sections.
- Connect the Vortex EF2241 and the SoundStation VTX 1000 Interface Module to power.
- Configure the SoundStation VTX 1000 and the Vortex power-on preset per the System Configuration instructions below.

System Configuration

Your Vortex EF2241 is pre-configured for use with the Quick Install Kit components, but you will need to set the Power-On Preset. You will also need to configure the SoundStation VTX 1000 for use with the Vortex.

- To change the Vortex Power-On Preset:
 - With the Vortex EF2241 powered up, press the HOME button on the front panel to change the LCD to the SYSTEM SETTINGS menu.
 - Press ENTER to see the power on preset (PWR-ON PRESET) which has a default value of 0.
 - Press ENTER and then UP to change this number to 3, then press ENTER again to set the value.
 - Reboot the Vortex by pressing the DOWN button to reach the reboot menu, then press ENTER to reboot the device.
- To configure the SoundStation VTX 1000:
 - With the SoundStation VTX 1000 powered up, press MENU on the conferencing unit.
 - Scroll to ADMIN SETUP and press SELECT, then scroll to PHONE SYSTEM and press SELECT, then scroll to VORTEX MODE and press SELECT. Note: if your SoundStation VTX 1000 has been assigned a passcode, you will need to enter the passcode after you press the MENU button. See your SoundStation VTX 1000 User Guide for more information.
 - Select VORTEX MODE ON.
 - Select SAVE to save the configuration.

