

frontrow™ juno



INSTALLER GUIDE

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Read

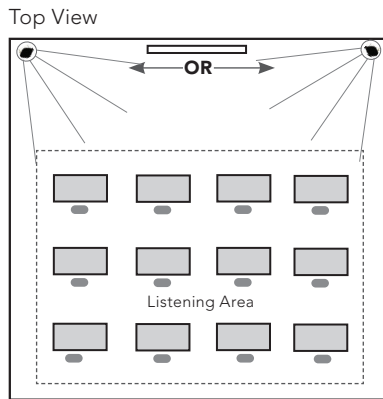
Be sure to read the helpful tip boxes found throughout this guide. Of course, if you need further assistance, you can always call us at one of the numbers found on the last page.

Before you begin

Make sure you've got everything you need to set up your FRONTROW JUNO system. By taking a few minutes to prepare, you'll help ensure the actual set-up is as quick and problem-free as possible.

Visualize your goal

When your FRONTROW JUNO system is installed, it will look something like this:



General safety precautions

- Do not install or use the receiver near water or heat sources
- Clean only with a dry cloth
- Do not block any ventilation openings
- Protect all cables from wear and damage from foot traffic, doors, and other hazards
- Use only accessories specified by FrontRow
- Refer servicing to qualified service personnel
- Wear safety goggles when using power tools
- Follow all safety guidelines when using ladders
- Observe your local building, electrical, and fire codes when installing any electrical equipment
- Use at least 18-gauge plenum speaker wire (included with system)

ITR-02 Juno Tower System Integration Guidelines

Today's modern classroom has a host of electronic devices used to support the instructional environment. Many of these devices are connected together via a personal computer that typically acts as the control point for these devices. Projectors, interactive white boards, document cameras, paging interfaces, etc, are all typically connected to a classroom PC. In addition to these major devices there are often other support devices used to make these connections.

Your new Juno Tower is another electronic device that can also be connected to your classroom PC. But unlike the other electronic devices mentioned above, the Juno Tower contains a sensitive Infrared radio receiver. To ensure that the Juno Tower is providing good performance, it is important to follow good installation practices. When the Juno Tower is connected to the classroom PC, it is now sharing a common ground reference with all the other devices connected to the PC. If one or more of the devices has a poor or noisy ground reference, its poor performance can influence other devices connected to the same reference and this includes your Juno Tower. To help ensure the best performance possible, please refer to the installation guidelines listed below:

1. Connect the Juno Tower's external power supply to a good AC mains point. Do not use extension cords and if a power strip is used, ensure that it is of good quality.
2. Do not position the Juno Tower where sunlight can directly shine on the Tower. The Tower uses infrared signals to link the transmitter to the receiver. Sunlight contains infrared energy and will reduce the system's performance.
3. Use good quality audio cables when connecting the Tower to the classroom PC. Also use the appropriate length cable.
4. The USB cable provided with your Juno System has been qualified by FrontRow and should be used to connect the Tower to the computer. If another length of cable is needed, then it must be certified for USB 2.0 or better.
5. Connect the USB cable directly to the computer. Do not connect via an External USB Hub device. Many inexpensive hubs do not use quality components or good grounding principles.
6. Avoid running the USB and audio cables connecting your Juno Tower to the computer with other cables. Noise can be present on the other cables and can couple into the cables connecting the Juno Tower to the computer.

Get your FrontRow Juno parts ready

Check the contents of your FrontRow Juno system box against the parts listed below.

Open your main component box

System Contents



ITR-02 Juno Tower
Amplifier / Receiver



ITM-02 Pendant
Microphone



Power supply



Lithium Ion
Battery



Aux-in cord



1 meter micro
USB cable



Phillips head
screwdriver



Wall mounting
screw set



AC cable



4 meter USB cable

Optional components



ISM-02
Pass-Around
Microphone



IMC-01
Microphone charger

Expansion Modules



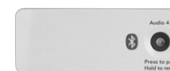
3 Channel Expansion Module



Page Override
Module



Speaker Expansion
Module



Bluetooth Audio
Receiver Module

NOTE

SAVE YOUR BOX AND PACKAGING. When transporting, always use the original packaging.

Setup and placement of the Juno Tower

Estimated time for this step: 15 minutes

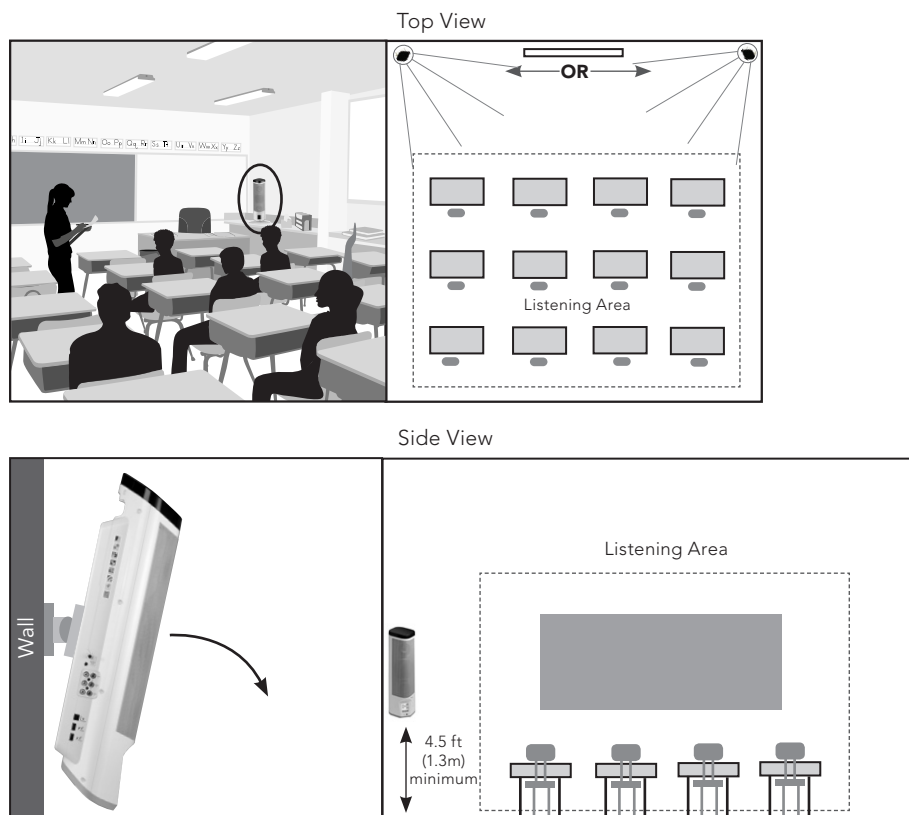
Your Juno Tower will perform best when you place it:

- Even with either the front or rear edge of the main listening area (i.e. where students sit). If the teaching computer is in the back of the room and the Teacher Edition software will be used, the Juno system can be placed in the back of the room.
and
- With the speaker facing the center of the listening area.

Choose the location that allows connection to the teaching computer (4m USB cable provided) and other audio sources (e.g. DVD player)

You can either mount the Juno Tower on a wall using a standard 100mm VESA mount (recommended) or simply place it on a table using the stand provided. In any case, the bottom edge of the Tower should be at least 4.5 feet (1.3m) from the floor.

If wall mounting, angle the tower down to point at the center of the listening area.



Tip

If you are installing any of the optional expansion modules, do that first.

- Speaker Expansion Module – Page 13
- Channel Expansion Module – Page 31
- Page Override Module – Page 33
- Bluetooth Module – Page 38

Wall mounting

With the optional Vesa Wall Mount (FrontRow part number 320-1000-110) the Juno Tower can be easily mounted to a wall.

- Verify that the supporting surface will safely support the combined load of the equipment and all attached hardware and components. Drill a pilot hole prior to installing the big wood screw (Lag Screws).

WARNING: Only mount to walls made of stone, concrete, hollow blocks, solid wood or wood supports.

- Tighten wood screws so that the wall plate is firmly attached, but do not overtighten. Overtightening can damage the screws, greatly reducing their holding power.
 - Make sure that mounting screws are anchored into the center of the stud.
1. Mount the wall attachment plate to the wall using the appropriate screw type for the wall type (i.e. concrete, masonry black, wood stud). (See Image 1)
 2. Using the screws included with your Juno Tower, attach the mounting plate to the back of the Juno Tower (See Image 2)
 3. Attach the swivel arm to the mounting plate using the short screw with nylon washer, and black tightening knob (See Image 3). **NOTE:** Make sure the square hole is on the top.
 4. Attach the swivel arm to the wall attachment using the long screw and nut (See Image 4).

Image 1

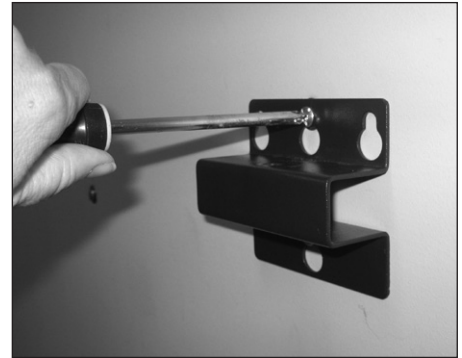


Image 2



Image 3



Image 4



Using Lesson Capture through Juno



FrontRow's superior microphone and optional lecture capture system open a world of lesson capture and sharing possibilities – without tying teachers to the computer.

- Absent students can still access the original lesson – a huge time saver
- Makes flipped classrooms possible, and allows learning at one's own pace
- Makes podcasting easy
- Students with mobile devices can get lessons on the go
- Helpful tool for keeping parents involved with reinforcing your lessons

Connect the Juno Tower to your computer

1. Using a 3.5mm to 3.5mm cable, plug the Audio Out from the Tower to the "microphone" or "line in" on your computer.
See Image 21
2. Using a 3.5mm to RCA cable, plug the "audio" or "headset" out on your computer to one of the audio in connections on the Tower. **See Image 21**

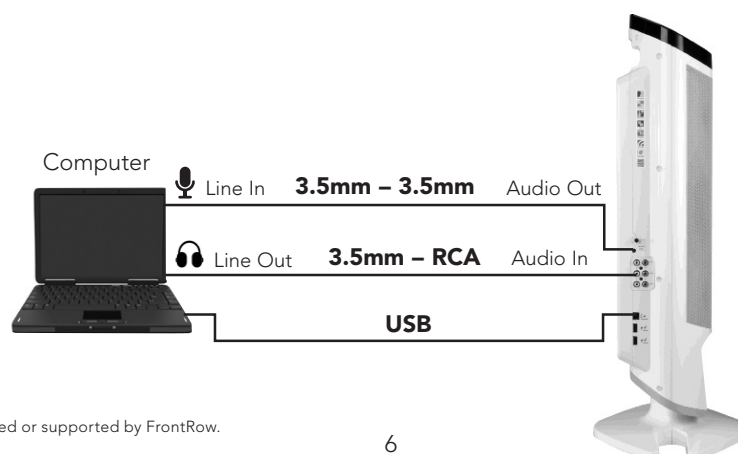
NOTE: Some computers have a single audio combination jack for both microphone and headset use. If your computer has this type of jack, you must use a headphone/microphone combo jack splitter. This adapter has a single 3.5mm male connector and two 3.5mm female connectors.

3. Using the supplied USB cable, connect the Juno Tower to your computer.
 4. Set the auxiliary output volume dial between 4 and 6.
 5. Install the Teacher Edition lesson capture software. Download from gofrontrow.com/juno under the **Downloads** section.
 6. Follow the easy on-screen configuration instructions.
 7. Using the ITM-02 Pendant Microphone, and the voice commands on page 19, begin, suspend, and finish your recording. The **Juno lecture capture system** automatically names and saves your recordings (screen and audio) to your computer's hard drive. Follow the software's guidance to help you upload it to Google Apps for Education or another host of your choice.
- NOTE:** Test the audio quality of your recording. If the volume is too low or too high, check your computer's microphone or line input volume settings and adjust.
8. Share the location of your uploaded files with your students according to the host's instructions.
 9. Students can benefit from the recordings anytime, anywhere – files are not only accessible by students using any computer but are also accessible on most portable devices including iPad™, iPhone™, iPod Touch™, and Kindle Fire™.

NOTE: To learn more about the FrontRow **Juno lecture capture system**, visit gofrontrow.com/lesson-capture.

NOTE: The use of high quality audio cables is recommended to avoid the introduction of interference to the system.

NOTE: If you are also using Juno to rebroadcast via a personal FM transmitter, you will need a splitter cable (available from FrontRow). For more information about connecting a personal FM transmitter, see the *Juno System User Guide*.



Collaborative learning using Class2Class



Class collaboration expands the reach of your lesson and introduces your class to new and exciting experiences. The Juno system ensures everyone can hear equally and participate in the learning forum.

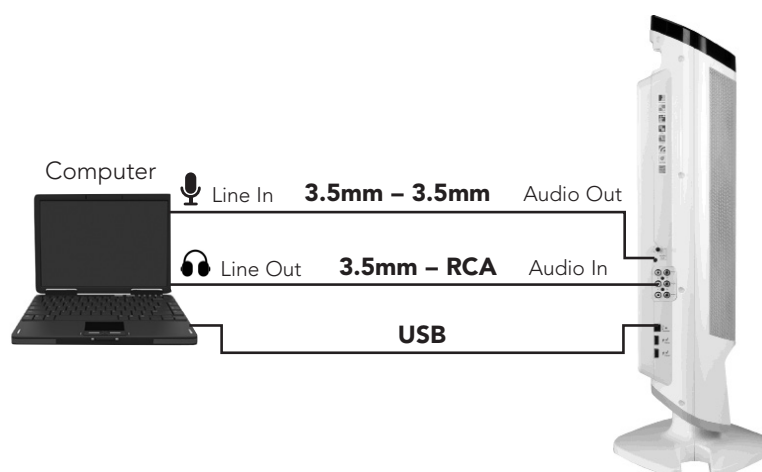
Numerous online resources such as education.skype.com provide opportunities for your classroom to participate in live educational events and projects with other classes and programs such as Skype™, Adobe® Connect™ and others* provide the medium to see and hear your collaborative classroom partners. Use the Juno Tower to ensure all students are able to effectively participate in the learning session by easily hearing the conversation as well as sharing their thoughts during the session using the optional Pass-Around Microphones. For example, FrontRow classrooms have used this technique to simultaneously connect 14 different classrooms to a live talk with an Olympic athlete, and let students communicate with a NASA Command Center during an emergency simulation.

In both classrooms:

1. Using a 3.5mm to 3.5mm cable, plug the Audio Out from the Tower to the "microphone" or "line in" on your computer. **See Image 21**
2. Using a 3.5mm to RCA cable, plug the "audio" or "headset" out on your computer to one of the audio in connections on the Tower. **See Image 21**
NOTE: Some computers have a single audio combination jack for both microphone and headset use. If your computer has this type of jack, you must use a headphone/microphone combo jack splitter. This adapter has a single 3.5mm male connector and two 3.5mm female connectors.
3. Using the supplied USB cable, connect the Juno Tower to your computer.
4. Using the optional Teacher Edition software (download from gofrontrow.com/juno under the **Downloads** section), enable the Class2Class option.
5. Install and run the communication software application (e.g., Skype™, Adobe® Connect™)
6. Connect to other classroom or collaborator using the communication software.
7. Speak into the Juno microphones; all microphone audio will be transmitted between classrooms and audible via the Tower speakers.
8. If you like, you may start a recording of the session. Note that media audio originating from the computer and audio from the remote classroom will not be recorded.
9. When finished, disable the Class2Class option to ensure that computer audio is recorded during normal recording sessions.

NOTE: To learn more about the Teacher Edition software, visit gofrontrow.com/lesson-capture.

NOTE: The use of high quality audio cables is recommended to avoid the introduction of interference to the system.



*These applications are not supplied or supported by FrontRow.

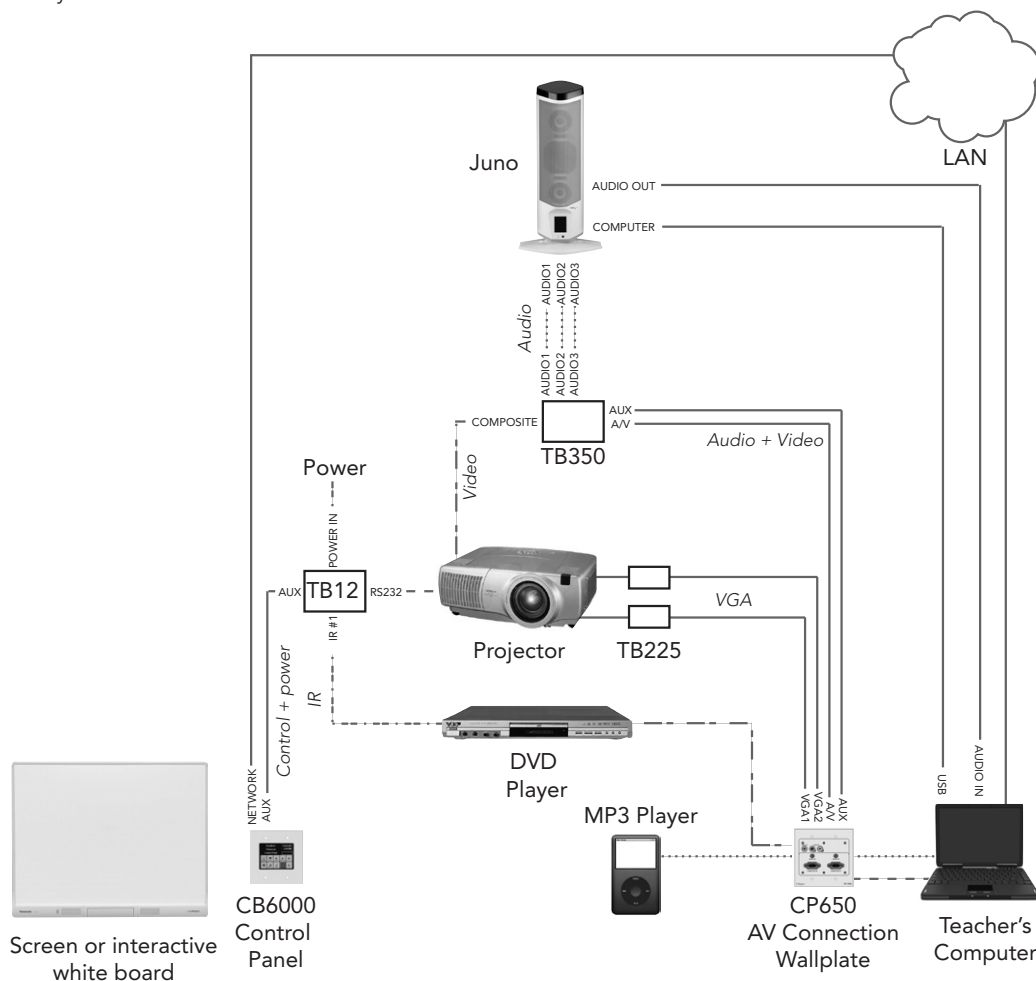
Combining your other teaching technologies

Your FrontRow Juno System can connect to other media to enhance the overall audio experience in your classroom. Ideally, these connections were made during installation; however, they can easily be made after the unit is installed using standard audio cords from your local electronics store.

Example 1

Many classrooms use a FrontRow EZRoom™ AV control system to manage projectors and other equipment online. If your classroom uses EZRoom™, you'll connect your computer audio and video into your AV wallplate and connect your Tower to the TB350 adapter via a 3.5mm cable.

NOTE: The use of high quality audio cables is recommended to avoid the introduction of interference to the system.



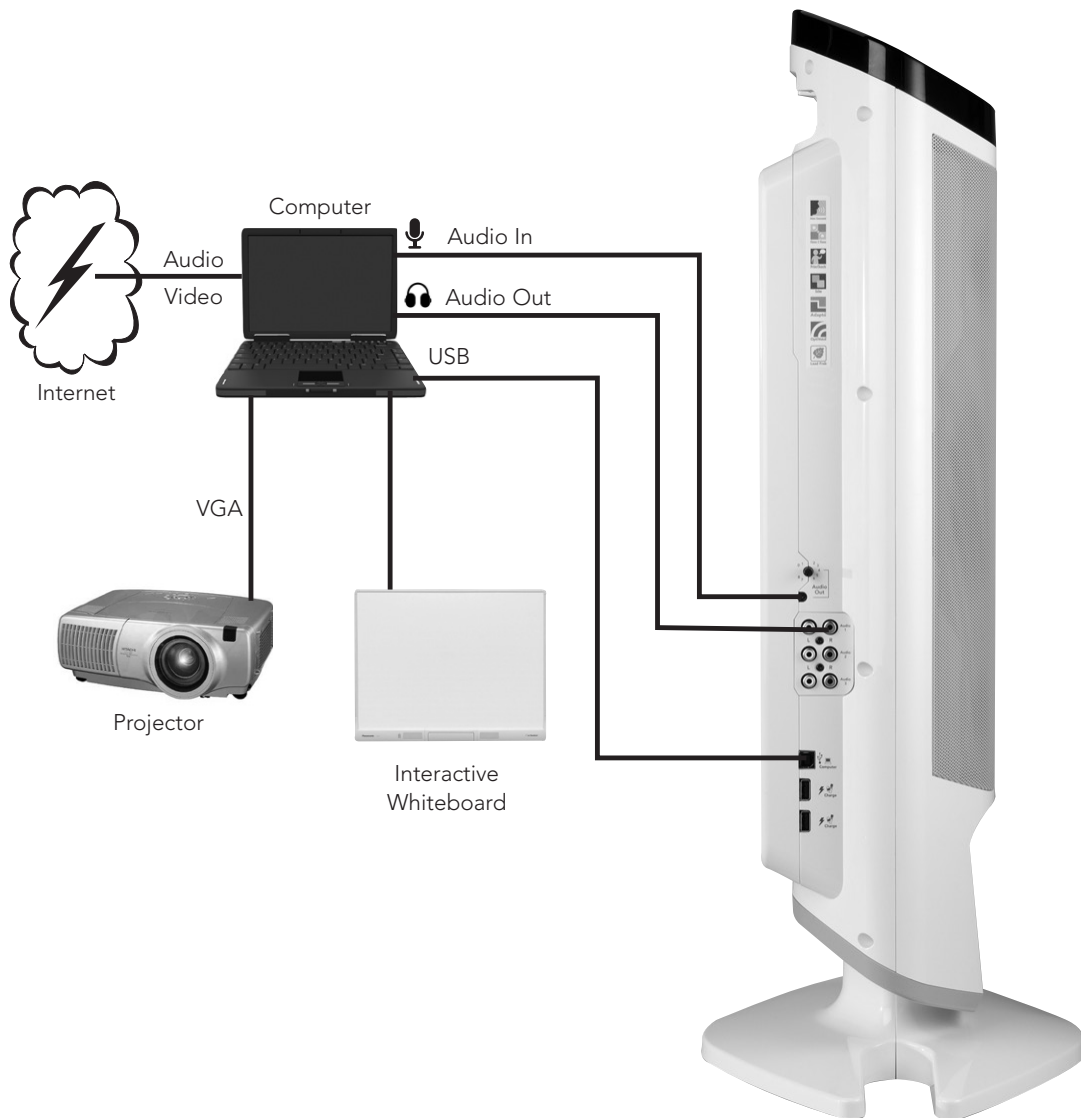
NOTE: This is a schematic illustration intended to clarify the relationship of components to each other. The location of jacks shown here may not reflect their true position on specific devices.

Cat 5 cable —————
 Serial cable - - - - -
 Audio cable
 RCA cable - - - - -
 Speaker cable - - - - -
 Sensor cable ————
 Other cable - - - - -

Example 2

If your classroom does not have an EZRoom AV Control System, you can connect your computer directly to your Juno Tower. This can be done using your computer's headphone jack connected to one of the three stereo RCA inputs.

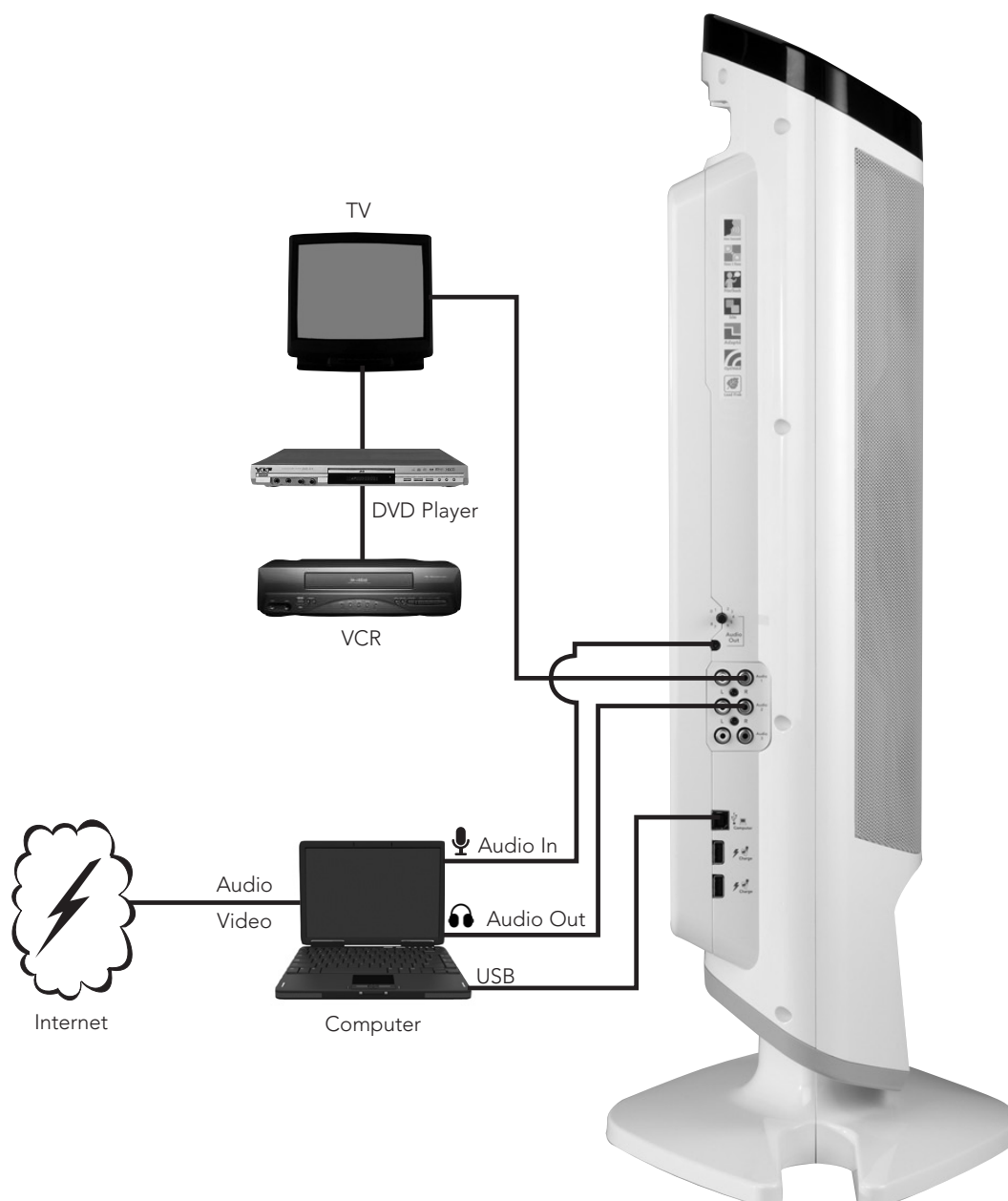
NOTE: The use of high quality audio cables is recommended to avoid the introduction of interference to the system.



Example 3

Some classrooms use the TV/DVD/VCR as stand-alone media. For these classrooms, you may need to use two auxiliary audio input connections to the Juno Tower.

NOTE: The use of high quality audio cables is recommended to avoid the introduction of interference to the system.



Example 4

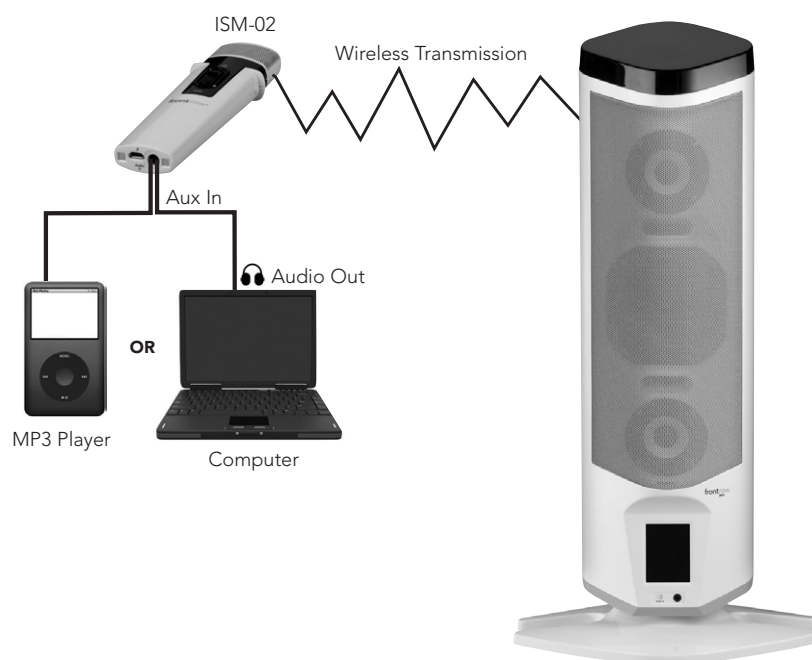
Many teachers have MP3 players, portable CD players or other devices that move around the classroom. To amplify audio from portable electronics, it may be most convenient to connect these as needed through the quick connect jack on the front of the Juno Tower. Turn the volume on the MP3 player at least 3/4 of the way up for best sound quality.

NOTE: The use of high quality audio cables is recommended to avoid the introduction of interference to the system.



Example 5

Connect either the ITM-02 Pendant or ISM-02 Pass-Around Microphone to any audio source that's too far from the Juno Tower to conveniently connect directly.



Installing speakers with your Juno system

Get yourself ready

Your Juno system is a self-contained speaker line array, but if you need additional sound coverage for large or odd shaped rooms, Juno can be expanded to be used with additional speakers. (If you are not installing speakers, proceed to page 24).

To install speakers you will need some basic tools and materials, depending on how your classroom is built:

1. What kind of walls do you have?

For drywall installations (similar to most houses) gather the following tools:

Drill	Wall anchors
Drill bits	Cable tacks/staples
Phillips #2 driver bit	Plastic cable (zip) ties
Level or ruler/tape measure	Plastic raceway with screws
Crimp pliers or scissors	Tin snips (optional)
Hammer	Ladder
Staple gun	Safety goggles

For concrete walls, assemble the following tools:

Hammer drill	Hammer
Masonry drill bits	Plastic cable (zip) ties
Phillips #2 driver bit	Plastic raceway with adhesive
Level or ruler/tape measure	Tin snips (optional)
Crimp pliers or scissors	Ladder
Concrete screws	Safety goggles

2. Are you installing ceiling speakers?

If so, you'll also need:

Keyhole saw or sabre saw or RotoZip

Electrical tape

Short length of string or twine

Install the ITR-02 Speaker Expansion Module

To connect external speakers to the Juno Tower, you will need the optional Speaker Expansion Module.

General Safety Precautions

- Disconnect all electronics from the Juno Tower during installation of this module
- Do not short wires between speakers and this module
- Do not install or use the module near water or heat sources
- Protect all cables from wear and damage from staples, foot traffic, doors, and other hazards
- Use only accessories specified by FrontRow
- Refer installation and service to qualified personnel
- Follow all safety guidelines when using ladders
- Observe all applicable building, electrical, and fire codes when installing any electrical equipment

ESD Warning



The Juno Tower and/or expansion modules can be damaged by electrostatic discharge (ESD). When handling, care must be taken so that the devices are not damaged.

Damage due to inappropriate handling is not covered by the warranty.

The following precautions must be taken when installing the expansion modules:

- Use a conductive wrist strap attached to a good earth ground.
- Always disconnect the power to the Juno from the power outlet.
- Always discharge yourself by touching the grounded bare metal surface or approved anti-static mat before picking up an ESD-sensitive electronic component.
- Use an anti-static mat to cover your work surface.

You will need the following items to install this module:

- Enough speaker wire to connect between the external speakers and the installed module. Be sure to use plenum-rated wire if it will pass through a plenum space.
- #1 Phillips and small slotted screwdriver

Installation

1. Unplug the Juno Tower from the power outlet
2. Lay the Juno Tower down on a flat surface with the back of the Tower facing up. Remove the 8 screws that attach the back panel to the case back and remove the back panel (See Image 1 & 2)
3. Locate the area on the lower PCB where the module will be installed (See Image 3)

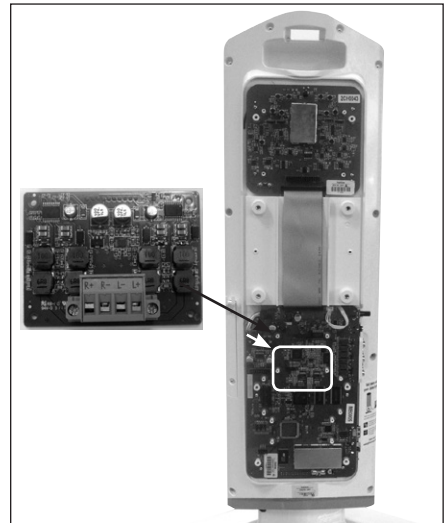
Image 1



Image 2



Image3



Installation - continued

4. Remove the module and access panel from the packaging. (See Image 4)
NOTE: Handle by edges to minimize chance of electrostatic discharge.
5. Remove terminal block from the module. (See Image 5)
6. Connect the 10 pins on the Page Override module to the 10-pin connector on the main Tower PCB. Make sure the pins are all aligned properly and that the module board is seated all the way down. (See Image 6)
7. Attach the board to the main Tower PCB using the four included screws. (See Image 7)
8. Remove the access panel cover from the back panel and replace with the Speaker Expansion module access panel. (See Image 8 & 9)
9. Replace the back panel and screws.
10. To connect speakers, see page 29.

Image 4

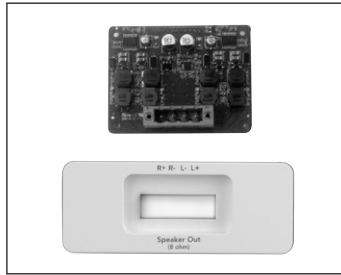


Image 5

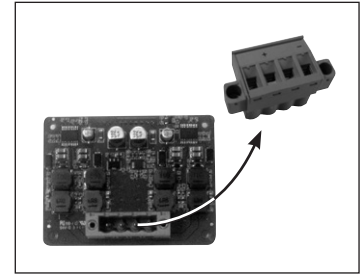


Image 6

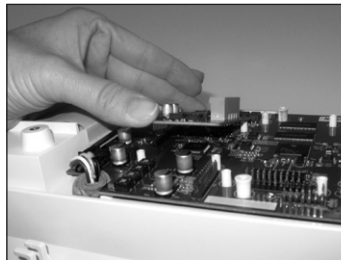


Image 7

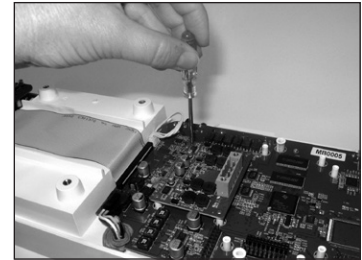


Image 8

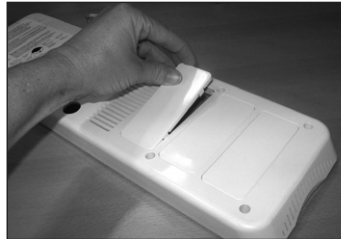


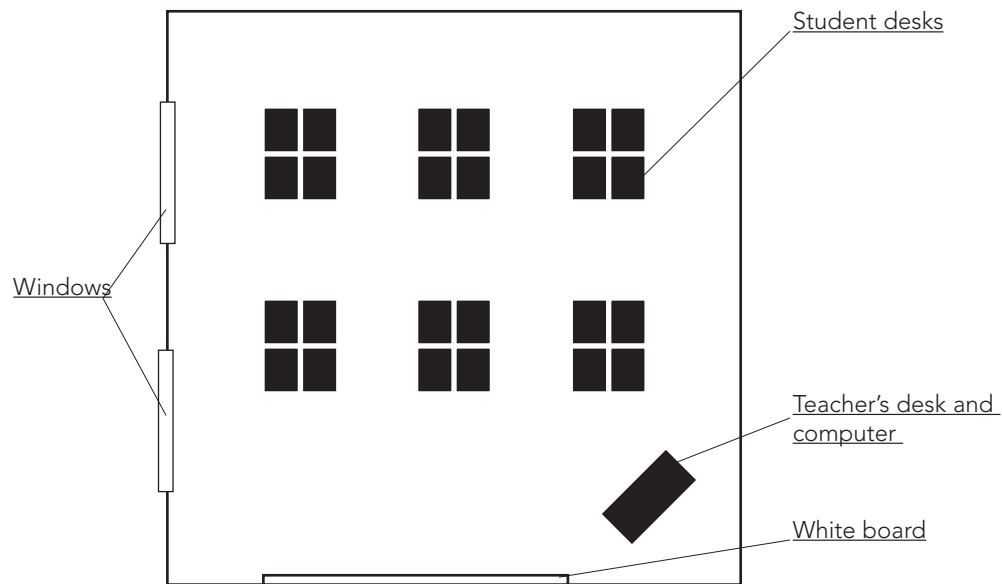
Image 9



Plan your installation (Speakers)

Estimated time for this step: 5-10 minutes

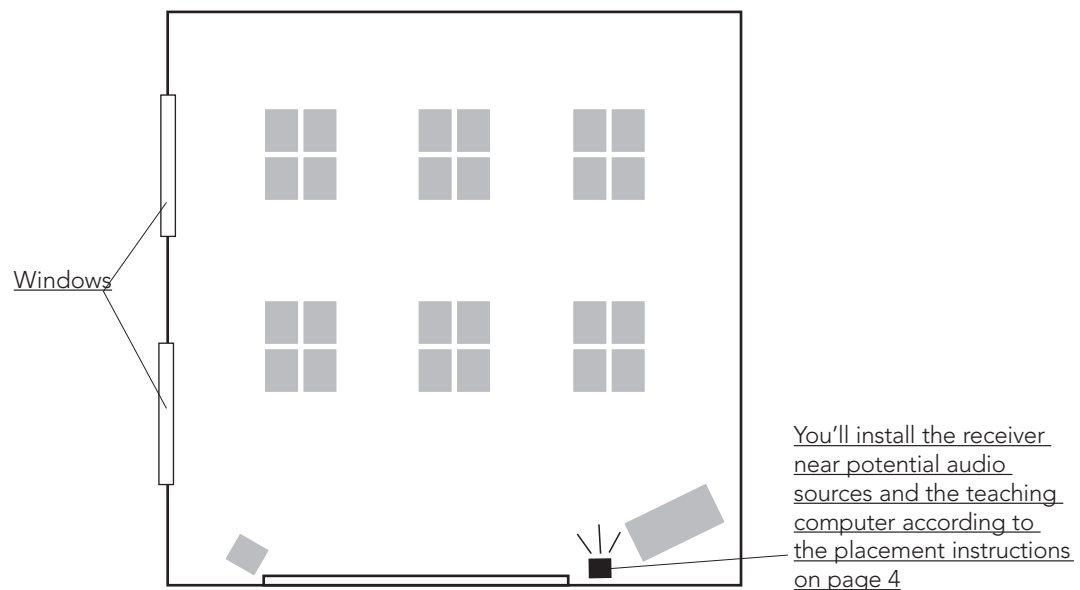
Your classroom is ready and you've organized all the parts and tools you'll need to set up your classroom amplification system. Now it's time to decide where you'll place major components. To help you decide, we'll use the following layout of a typical classroom as an example:



Top view of an example classroom

1. Decide where to put the Tower

We recommend locating the Tower near the majority of your potential audio sources — DVD player, computer, and the teaching computer. This will make it easier to connect cables, and there are probably convenient power sources near these as well. Follow system integration guidelines on page 2.



A good place for the receiver

Plan speaker placement

Proper speaker placement is critical to getting optimum benefit from any classroom amplification system. Improperly chosen or installed speakers can actually harm intelligibility, so please take the time to plan this step thoroughly.

It's useful to imagine each speaker as a flashlight, and that your goal is to light up the areas where students are sitting. Speakers should therefore be focused on the students and facing them.

Speaker symbols:



There may be cases in which you want to install more speakers than normal (e.g. the room is very large) or connect speakers in series (e.g. to save cable length). Refer to Appendix B for guidance.

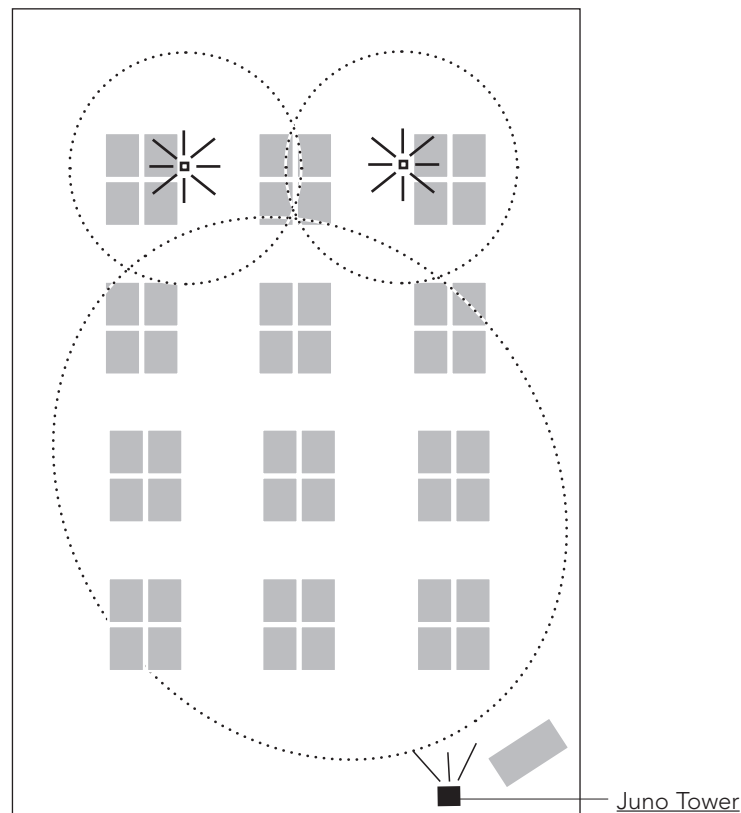
Installing ceiling speakers?

Use the following guidelines when choosing where to put your ceiling speakers:

Define the area where students are sitting — this is the area you want to cover with speakers; not the entire room.

Place the Tower where it will face the center of the listening area and will allow connection to the teaching computer and audio sources. With the help of an assistant, one of you should talk into the teacher microphone while the other is sitting in the seats closest to the Tower. Set the master volume to a comfortable level for the person seated.

Next, have one person stay at the front of the room and talk into the microphone while the other person walks to the back of the room. When the volume in the back of the room becomes low enough to notice reduced intelligibility, take note of the space. Install 2 or more speakers to cover the area not adequately covered by the Tower.



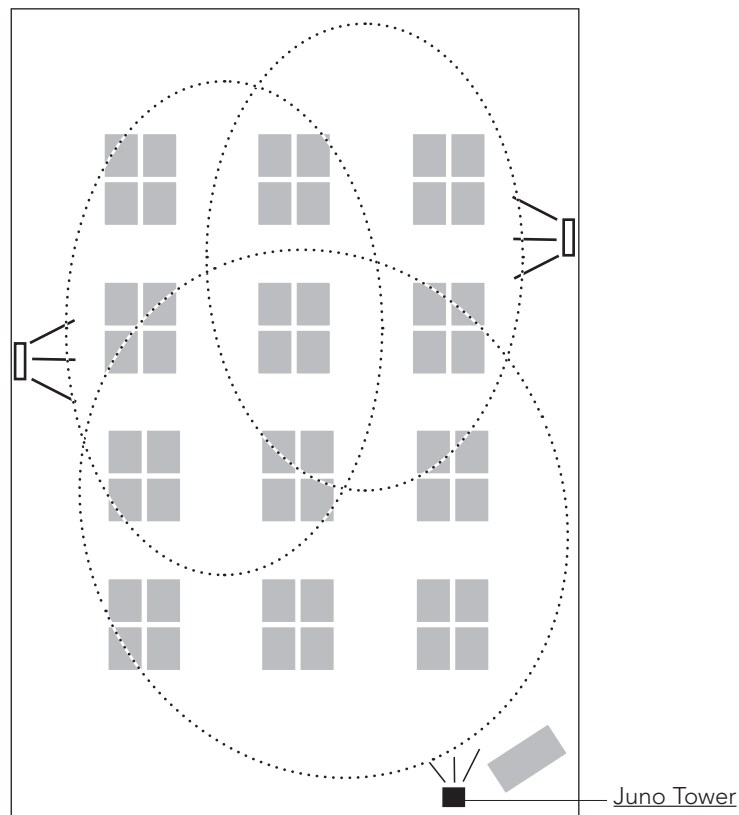
Installing IR speakers?

Use the following guidelines when choosing where to put your IR-Speakers:

- Define the area where students are sitting — this is the area you want to cover with speakers; not the entire room.
- Speakers should only be placed on the side walls of the classroom.
- Walls should have a space approximately 10in wide by 5in tall (25 x 13cm) to solidly mount the wall bracket.
- If the room has drop lighting, the speaker should be placed just below the bottom of the lights — the teacher should be able to see at least one speaker from all parts of the room.
- IR speakers have a built-in sensor. Be sure to read the general guidelines for sensor and sensor cable installation on page 24.

Place the Tower where it will face the center of the listening area and will allow connection to the teaching computer and audio sources. With the help of an assistant, one of you should talk into the teacher microphone while the other is sitting in the seats closest to the Tower. Set the master volume to a comfortable level for the person seated.

Next, have one person stay at the front of the room and talk into the microphone while the other person walks to the back of the room. When the volume in the back of the room becomes low enough to notice reduced intelligibility, take note of the space. Install 2 or more speakers to cover the area not adequately covered by the Tower.



Installing speakers

Estimated time for this step: 30 minutes

Now that your cables are in place, you're ready to install your speakers.

1. Plenum-rated listed ceiling speaker



If you're putting in ceiling speakers, do the following:

a. Take down the ceiling tiles you marked in Step 3.

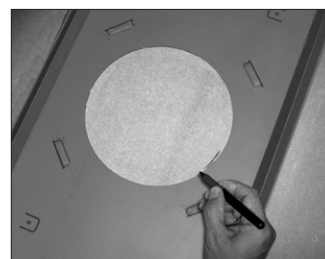
b. Cut ceiling tiles

Lay each bridge on its tile so that the ends of the bridge are flush with both edges of the tile.

Use the bridge as a template to trace a circle on the ceiling tile.

Using a keyhole saw, cut the traced circle out of the tile.

Repeat for your other speaker tiles.

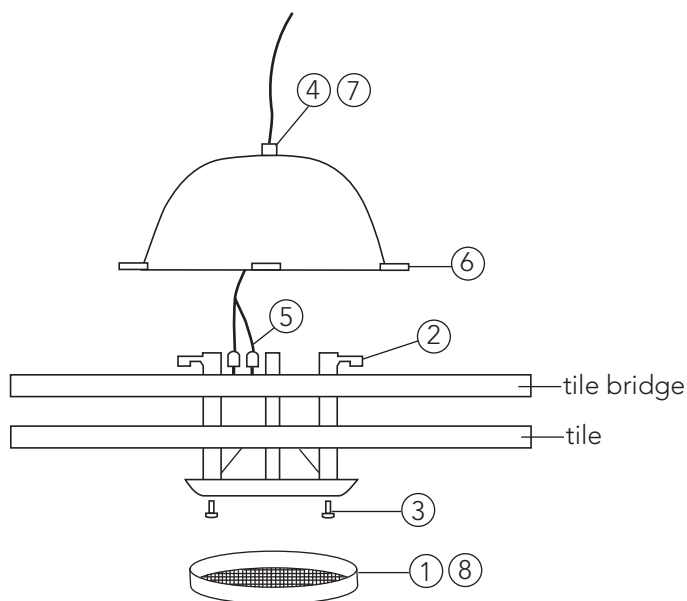


Tip

Local building codes may require a safety line attached to speaker/tile bridge assembly.

c. Assemble speakers, bridges, and tiles

1. Remove the front grill from a speaker.
Insert the back of the speaker up through the hole you've cut in the tile and then through the hole in the tile bridge. Be sure the finished side of the tile is facing downward (toward the front of the speaker) and that the ends of the tile bridge are flush with the edges of the tile.



2. Fold out the speaker support tabs.
3. Tighten the mounting screws to compress the tile bridge and tile between the mounting tabs and the speaker front. The speaker should be snug against the tile and bridge.
4. Feed speaker wire through opening at the top of the speaker back can.
5. Attach speaker wire to terminals. Be sure to match red wire to red terminal and black wire to black terminal.
6. Secure back can to tile bridge by folding clips into the four slots in the bridge.
7. Tighten wire clamp to secure speaker wire.
8. Reattach speaker front grill.

d. Replace tiles

Drop the tile/speaker assembly back into position in the tile grid by tilting it slightly, lifting it above the framework, and letting it fall into place. Be certain that the two short sides of the metal tile bridge are resting on top of the T-bar rails holding the ceiling tiles in place, and that the speaker wire is free for routing in Step 8.

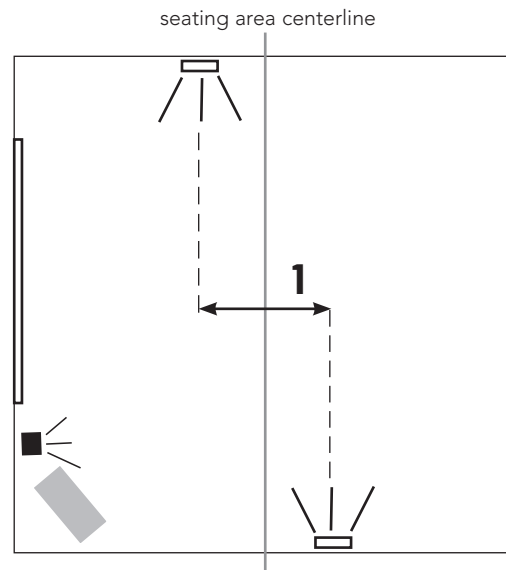
e. Speaker wires

- MINIMIZE** speaker wiring and save time by daisy-chaining in parallel left and right speakers. Running individual speaker wire from each speaker to the terminal block on the receiver is not required.
- DO NOT** coil up the excess speaker wire. Excess speaker wire should be trimmed and used for other speakers, if possible.
- AVOID** bundling sensor cables and speaker wires together (except for final run from ceiling to receiver unit). We recommend leaving at least 6 in. (15cm) between the two whenever possible.

2. IR SPEAKERS

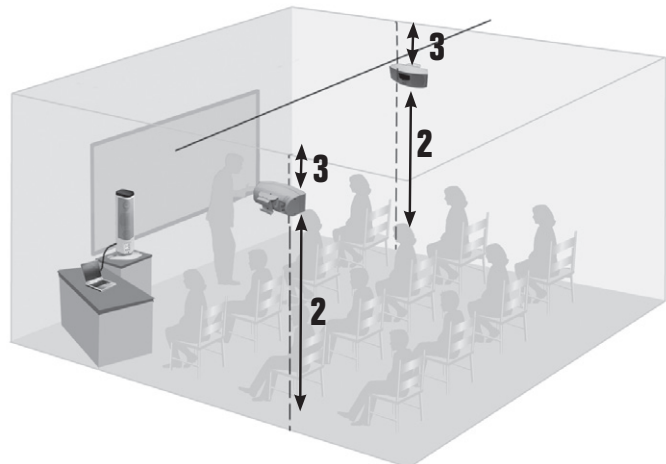
a. IMPORTANT INFORMATION

- Speakers should only be placed on the side walls of the classroom.
- Walls should have a space approximately 10in wide by 5in tall (25 x 13cm) to solidly mount the wall bracket.
- If the room has drop lighting, the speaker should be placed just below the bottom of the lights.
- **DO NOT** use a splitter or adaptor with sensor cables.
- These speakers incorporate sensors that must be visible to the teacher from all parts of the room. **DO NOT** block sensors.
- If you must alter cable length, observe the guidelines on page 24.

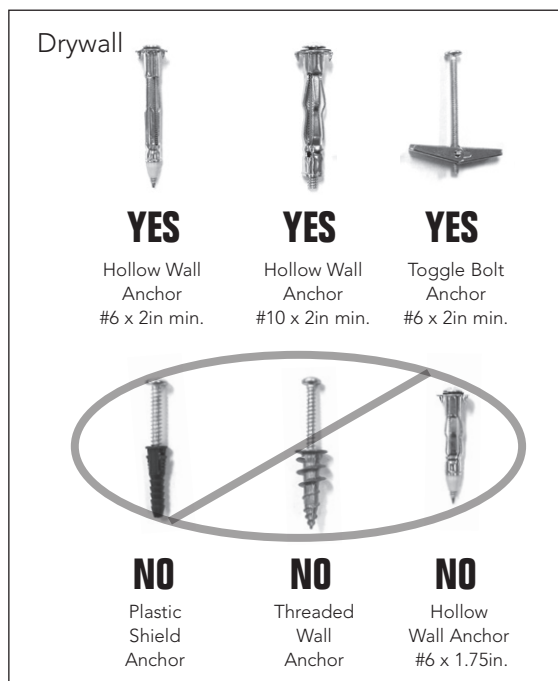


B. INSTALLATION DIMENSIONS

- 1 Speakers should be offset 3 to 6ft. (1 to 2m) from each other, CENTER TO CENTER.
NOTE: Do NOT place directly opposite each other.
- 2 Speakers should be mounted between 7.5 to 10ft (2.3 to 3m) from the floor.
- 3 Speakers should be mounted at least 5in (13cm) from the ceiling.

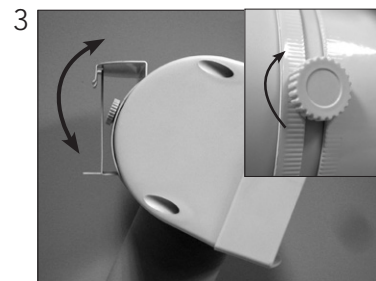
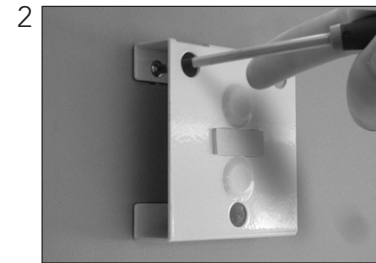
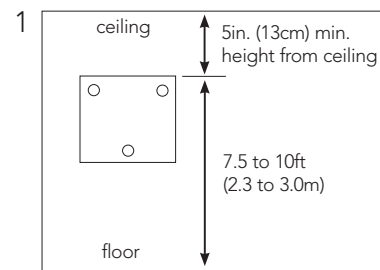


We recommend the following hardware to mount your speakers:



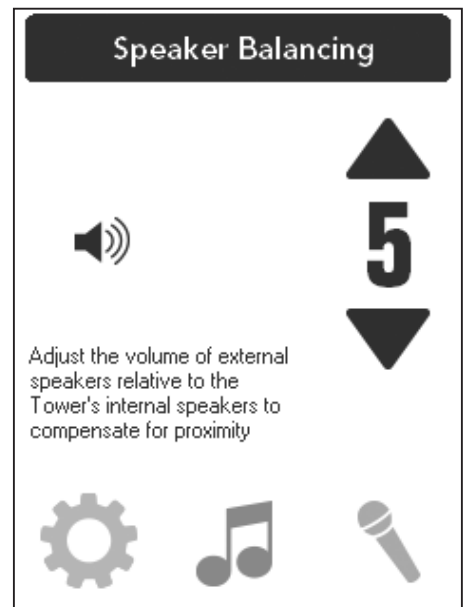
C. INSTALLATION STEPS

1. Mark drill holes using template from speaker box.
2. Mount wall plate
NOTE: Use hardware appropriate for your wall type.
3. Angle speaker so that it will point toward the center of the closest half of the classroom when mounted. Tighten knob.
4. Attach cables as shown.
5. Attach speaker to wall plate and install set screw.



Speaker balancing

After installing external speakers, use the Speaker Balancing function to adjust the balance between the Tower's internal speakers and the external speakers. Speaker balancing is found on the Tower LCD touch screen under the tools option.



Installing optional sensors

The FrontRow Juno Tower has a high sensitivity infrared sensor that is capable of covering a typical classroom, but if you need additional infrared coverage, your Tower comes with 2 sensor ports for installing ceiling, wall or IR speaker sensors. When installing additional sensors, proper placement of the sensors is critical for optimal system performance. (If you are not installing optional sensors, proceed to page 30.)

Sensor symbols:



SENSOR CABLE

The sensor cables are sensitive to electrical noise.

- **DO NOT** use a splitter with the sensor cable.
- **AVOID** routing the sensor cable next to other cables or electrical systems (e.g., other electrical conduit, Ethernet cable, video cable, fluorescent light ballast, etc.). Leave at least 6 in. (15cm) space around the sensor cable.
- Excess cable can be coiled, tied and placed safely in a plenum space. **DO NOT** place the sensor coil near other cables or electrical systems (e.g., other electrical conduit, Ethernet cable, video cable, fluorescent light ballast, etc.).
- Local regulations may require plenum-rated cable if used in a plenum space.
- FrontRow recommends using the factory-supplied sensor cables; however, if you need shorter or longer cables to meet the needs of a specific job, observe the following guidelines for best results:
 - Minimum Cable Length is 3 feet.
 - Maximum Cable Length is 100 feet.
 - The difference in cable length between the two external cables is 50 feet.

Example:

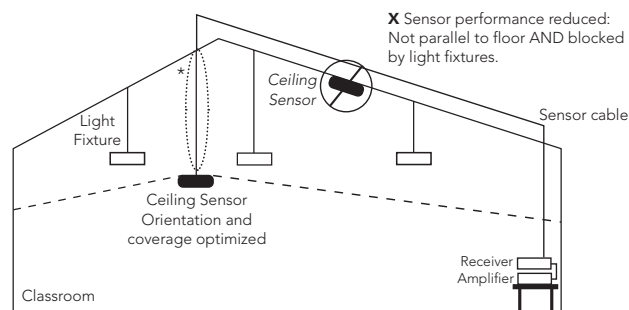
- If cable 1 is 10 feet, then cable 2 is a maximum of 60 feet.
- If cable 1 is 50 feet, then cable 2 is a maximum of 100 feet.

CAVEATS:

- Cables must be RG-59U with at least 90% shielding (double recommended) with proper connectors.
- FrontRow is not responsible for performance when non FrontRow cables are used.

Sensor Mounting

- **DO NOT** mount the ceiling sensor or wall sensors in direct sunlight as it will greatly reduce performance.
- The ceiling sensor must have a clear view of the coverage area and must be mounted parallel to the floor to function optimally (see figure). If drop lights are used in the room, wall sensors or IR speakers may be a better option. Or, a drop mount* may be used to lower the ceiling sensor.



Ceiling Sensor Installation

*drop mount not supplied by FrontRow

Interference and IR Coverage

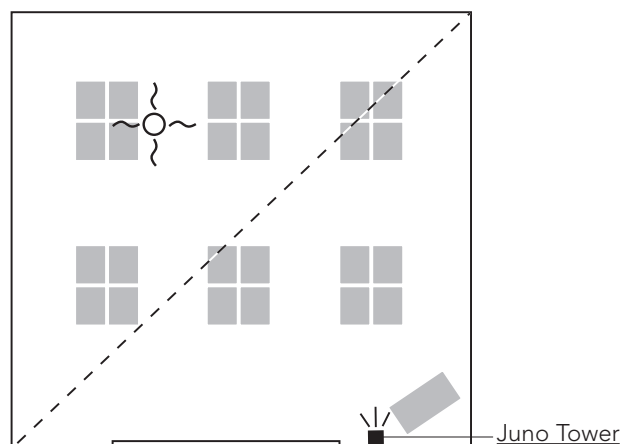
- Adjacent classrooms that use FrontRow infrared systems can interfere with each other if the rooms are separated by windows. The windows allow the infrared light to "escape" from the classroom only to be picked up by the sensors in the adjacent classroom, causing interference and "cross talk". Be sure to recommend window coverings to the greatest extent practical when using the system.
- Infrared light reflects better off of white and glossy surfaces. The ceiling sensor can be placed to help provide coverage in areas where the signal may be weak due to insufficient infrared reflection.

1. Positioning ceiling sensor

Installing one ceiling sensor

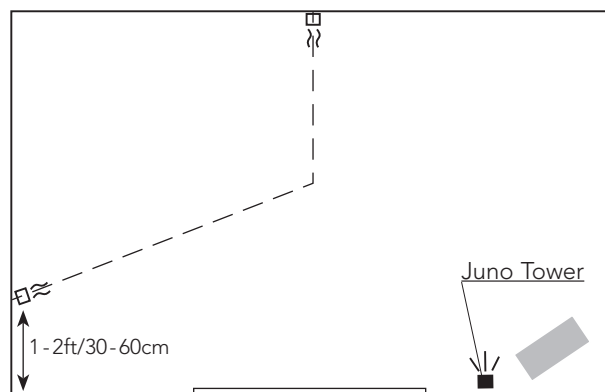
Mentally divide the room half and locate the center of the half opposite from the Juno Tower as shown.

NOTE: The sensors must be able to "see" the entire room — do not block them with projector mounts, lighting, hanging art, or other obstructions. If the teacher can see a sensor from all parts of the room, you've probably chosen a good spot.



2. Positioning wall sensors

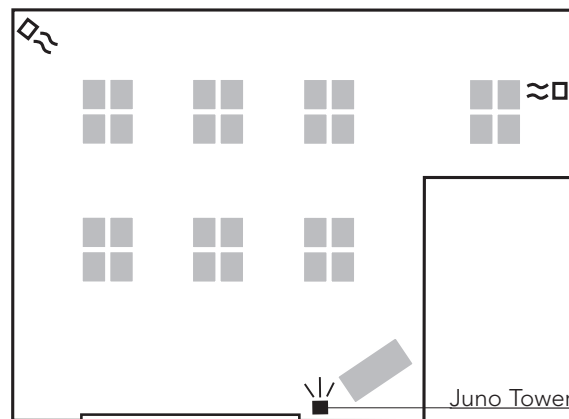
- Mentally divide a large room into 3 sections as shown.
- Use a piece of tape to mark a spot for each of the wall sensors. The spots you choose should be:
 - on a wall
 - in a position such that the teacher can see at least one sensor or the Juno Tower from all parts of the room.



wall sensor placement (larger room size)

3. Positioning wall sensors in an odd shaped room

- Mentally divide an odd-shaped room into sections as shown.
- Use a piece of tape to mark a spot for the wall sensor. The spot you choose should be:
 - on a wall
 - in a position such that the teacher can see the Juno Tower



wall sensor placement
(odd-shaped room)

Install sensors

(If you are using IR Speakers, you may be able to skip this step)

Estimated time for this step: 10 minutes

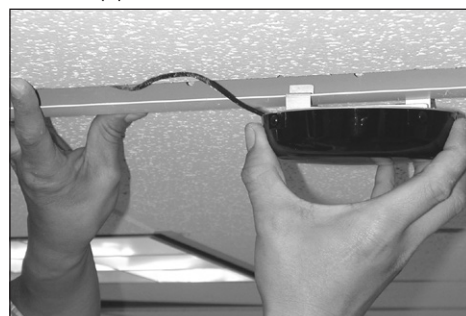
You're almost done.

1. CEILING SENSOR

a. If you're installing a ceiling sensor and have an acoustic tile ceiling (or "drop ceiling"):

1. Slide and twist the ceiling sensor bracket onto the T-bar rail until it rests on the rail or mount directly to the ceiling tile if not using the T-bar supports.
2. Attach the sensor to the cable leading to the receiver.
3. Replace the ceiling tile, making sure that the sides of the tiles prevent the sensor bracket from twisting.

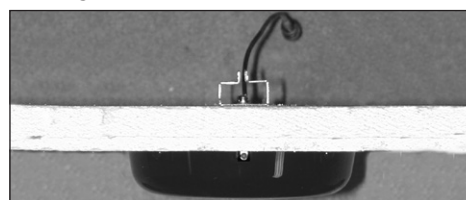
T-bar support rail



b. If you're installing a ceiling sensor and have a sheetrock ceiling:

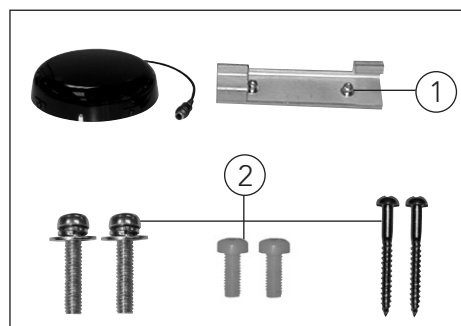
1. Mount the ceiling sensor directly to the sheetrock ceiling using the screws provided.
2. Attach the sensor to the cable leading to the receiver.

ceiling tile mount



NOTE: The ceiling sensor bracket comes pre-installed with non-metallic screws and washers to electrically isolate the sensor from the T-bar. Do not replace with metal screws as system performance may be reduced.

ceiling sensor features



① ceiling tile mount bracket

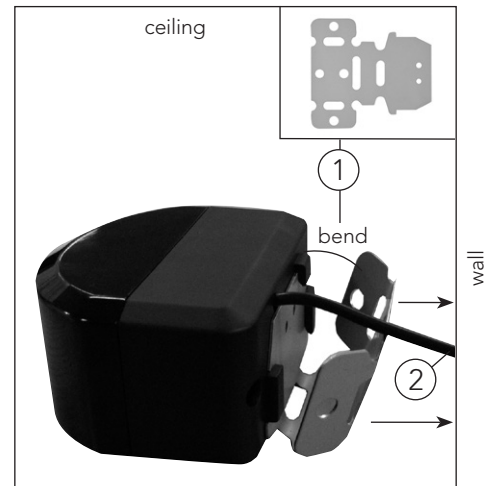
② mounting screws

2. WALL SENSOR

If you're installing wall sensors:

- a.** Bend sensor bracket so that when placed on the wall, the sensor will face the center of the section of the room it's serving.
- b.** Slide bracket onto the back of the sensor.
- c.** Attach the sensor to the cable leading to the receiver.
- d.** Press the bracket onto the wall firmly. Use mounting screws provided to secure bracket to wall.

wall sensor features



① wall sensor bracket (bent)

② sensor connector

Route and connect cables

Estimated time for this step: 45 minutes

With your receiver installed, you now have a base for routing your cables.

1. DROP-CEILING ROUTING

If you want to run cables above a drop (acoustic tile) ceiling, follow the guidelines below. (If you just want to run cables along the wall, follow the instructions under **Wall Routing** below.)

A. Remove selected ceiling tiles

Remove a ceiling tile next to each speaker to give yourself access to the cable.

Remove the ceiling tiles directly above the sensor or IR speaker locations.

Remove the ceiling tile directly above the Juno Tower

B. Prepare and route cable

Tie an object, such as a roll of electrical tape, to some twine to use as a pull line. This will help you more accurately direct the cable in the area above the ceiling.

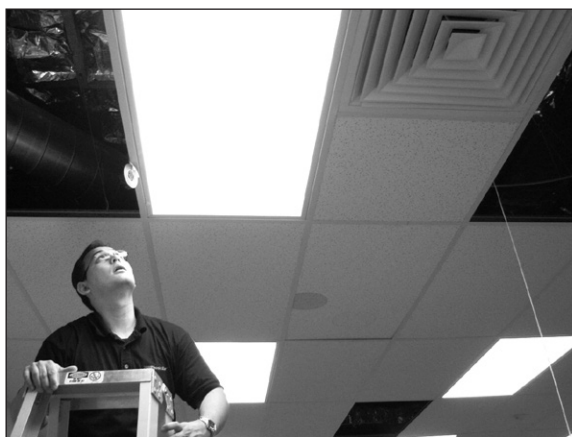
Standing on a ladder with your head and shoulders in the space next to a speaker, toss the weighted end of your twine through the ceiling space into the open tile hole above your receiver.

Connect the other end of the twine to the speaker cable. Pull cable through to the receiver.

Your goal is to have the cable entirely above the ceiling, with only the end protruding from the open space above the Tower.

Repeat these steps for the other speakers and for your sensors.

Note: If you must shorten or lengthen the sensor cable, observe the guidelines on page 24.



Tip

Can't get the pull line to the receiver in one throw?

Get the weighted end of the pull line as close to the receiver as you can. Then move your ladder under the tile where your cable stopped, remove that tile, and repeat until you've hit the mark.

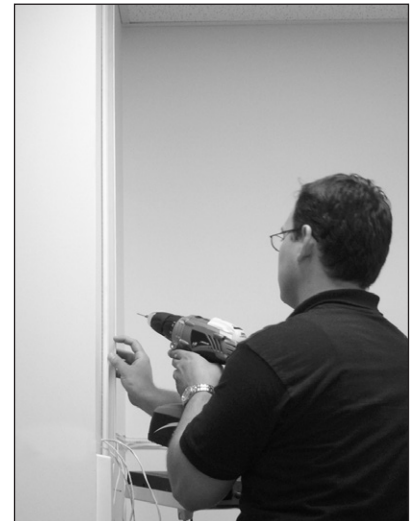
C. Install raceway

You can neatly conceal all cables running between the Tower and the ceiling space using widely-available plastic raceway.

Cut enough raceway to extend from just behind your mounted receiver to the ceiling.

Using a level or tape measure to ensure straightness, attach the raceway to the wall.

Route all speaker and sensor cables in raceway and close.



D. Support cables

Ensure cables are installed in adherence to local and national electric codes. Speaker and sensor cables should not rest on the ceiling. Lift them off the ceiling and use cable/zip ties to secure them loosely to beams, anchor bolts, or other support structures in the ceiling (do not attach them to ductwork, plumbing, or other secondary work).

2. WALL ROUTING

If you're routing cables along walls, follow these guidelines:

A. Tack cable

Starting from your speaker, begin securing speaker cable to the wall with professional cable tacks. For a neat installation, try to keep the cable as close to the ceiling as possible.

Make your way back toward the Tower.

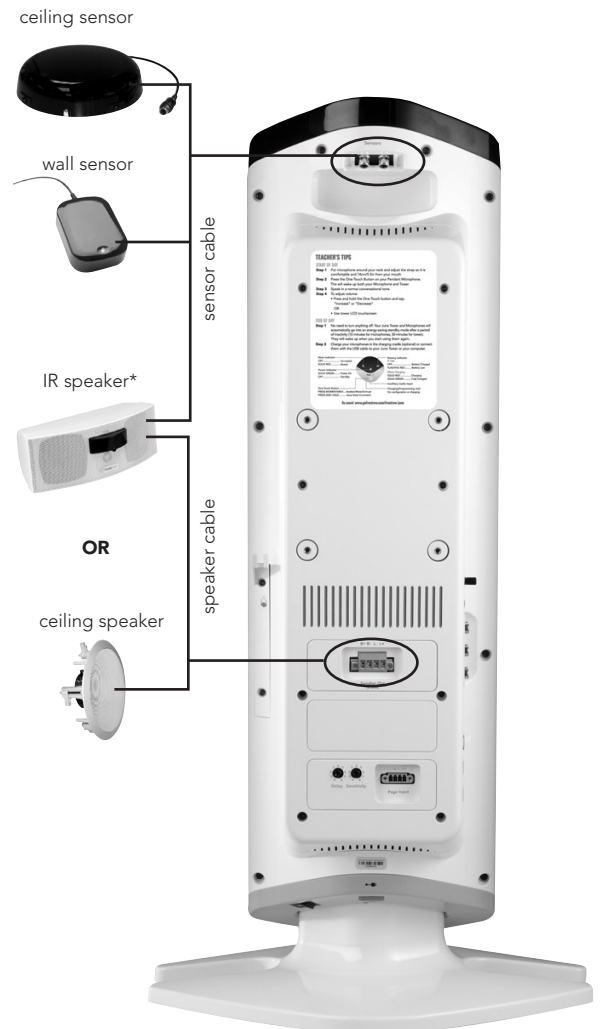
Repeat for the other speakers and sensors in the room.

3. CONNECT CABLES TO TOWER

To ensure faithful reproduction of stereo auxiliary inputs, be sure to properly match the red (+)/black (-) and left/right speaker wires to the proper receiver terminals.

When using IR speakers, remember to connect one speaker to the left channel and one to the right channel.

Connect all speaker and sensor cables as shown:

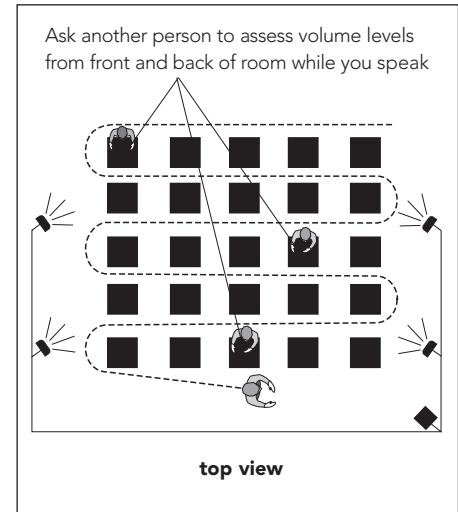


Test system

Estimated time for this step: 5 minutes

It's important to confirm that everything is working before packing up your tools. Take a few moments to test your work.

1. Use the following baseline settings to start:
 - Master volume at 18
 - All microphone volumes at 5
 - All device volumes at 15
2. Put on the microphone and turn it on.
3. Turn on the Tower.
4. Walk, talk, and listen to the sound quality (find another person to help you with this step: It's difficult to assess your own voice).
5. Try to find any areas where the receiver is not picking up your signal (see Troubleshooting if this happens).
6. Try to find any areas where you experience acoustic feedback (squealing). Turn down the volume in small increments until the feedback disappears.



NOTE: If you have installed external speakers, make sure you have balanced the Juno Tower speakers and the external speakers properly (see page 23).

Installing the ITR-02 Channel Expansion Module

General Safety Precautions

- Disconnect all electronics from the Juno Tower during installation of this module
- Do not install or use the module near water or heat sources
- Use only accessories specified by FrontRow
- Refer installation and service to qualified personnel
- Observe all applicable building, electrical, and fire codes when installing any electrical equipment

ESD Warning



The Juno Tower and/or expansion modules can be damaged by electrostatic discharge (ESD). When handling, care must be taken so that the devices are not damaged.

Damage due to inappropriate handling is not covered by the warranty.

The following precautions must be taken when installing the expansion modules:

- Use a conductive wrist strap attached to a good earth ground.
- Always disconnect the power to the Juno from the power outlet.
- Always discharge yourself by touching the grounded bare metal surface or approved anti-static mat before picking up an ESD-sensitive electronic component.
- Use an anti-static mat to cover your work surface.

You will need the following items to install this module:

- #1 Phillips screwdriver
- A FrontRow Microphone and FrontRow Microphone Settings Application for programming microphones . Download the Microphone Settings Application from gofrontrow.com/guides-resources under the Software section.

Installation

1. Unplug the Juno Tower from the power outlet
2. Lay the Juno Tower down on a flat surface with the back of the Tower facing up. Remove the 8 screws that attach the back panel to the case back and remove the back panel (See Image 1 & 2)
3. Locate the area on the upper PCB where the module will be installed (See Image 3)

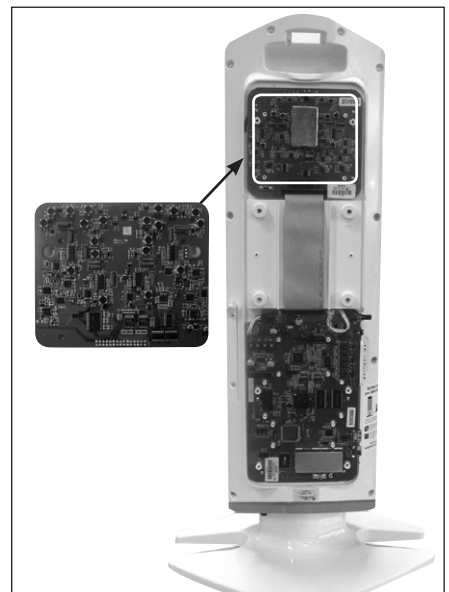
Image 1



Image 2



Image3



Installation - continued

4. Remove the module from the packaging. (See Image 4)

NOTE: Handle by edges to minimize chance of electrostatic discharge.

5. Connect the 2 pins on the Channel expansion module to the 2-pin connector and then angle the module down to connect to the 30-pin connector. Make sure the module board is seated all the way down and make sure no pins are exposed. (See Image 5)

6. Attach the module to the Tower PCB using the four included screws. (See Image 6)

7. Replace the back panel and screws.

8. Turn on the Juno Tower and verify that the module has been detected by navigating to the Microphone Volume menu on the LCD. Confirm that channels C-E are available.

9. Test with microphones using channels C through E.

See **Programming Microphones** in the *Juno User Guide*.

Image 4

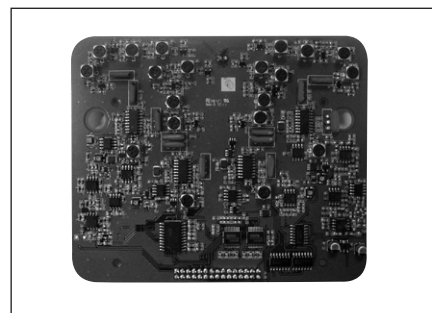


Image 5

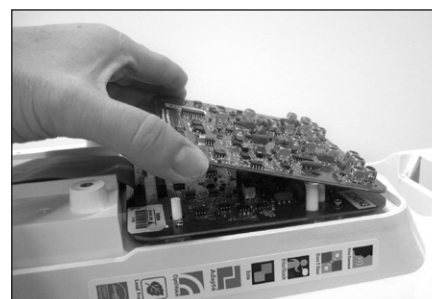
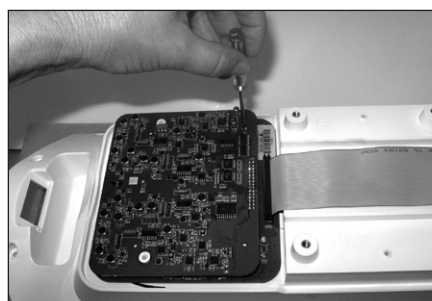


Image 6



Installing the ITR-02 Page Override Module

This module is not intended for use with UL Listed Amplifiers For Fire Protection Signaling Systems or Control Units and Accessories for Fire Alarm Systems, Emergency Paging, Mass Notification or Life Safety to NFPA National Electric Code or NFPA 72 National Fire Alarm and Signaling Code.

General Safety Precautions

- Disconnect all electronics from the Juno Tower during installation of this module.
- Do not issue pages over the PA system during installation of this module except as part of the testing and adjustment procedure.
- Do not install or use the module near water or heat sources.
- Protect all cables from wear and damage from staples, foot traffic, doors, and other hazards.
- Use only accessories specified by FrontRow.
- Refer installation and service to qualified personnel.
- Follow all safety guidelines when using ladders.
- Observe all applicable building, electrical, and fire codes when installing any electrical equipment.

ESD Warning



The Juno Tower and/or expansion modules can be damaged by electrostatic discharge (ESD). When handling, care must be taken so that the devices are not damaged.

Damage due to inappropriate handling is not covered by the warranty.

The following precautions must be taken when installing the expansion modules:

- Use a conductive wrist strap attached to a good earth ground.
- Always disconnect the power to the Juno from the power outlet.
- Always discharge yourself by touching the grounded bare metal surface or approved anti-static mat before picking up an ESD-sensitive electronic component.
- Use an anti-static mat to cover your work surface.

You will need the following to install this module:

- Access to the primary side of a 25-, 70-, or 100-volt PA speaker (the side that connects to the PA amplifier).
- Two (2) wire nuts.
- Enough wire to connect between the PA speaker and the installed module (18 AWG to 22 AWG stranded twisted pair with outer jacket recommended). Be sure to use plenum-rated wire if it will pass through a plenum space.
- #1 Phillips and small slotted screwdriver.
- An assistant who can make a PA announcement from the central office.

Install the module

1. Unplug the Juno Tower from the power outlet.
2. Lay the Juno Tower down on a flat surface with the back of the Tower facing up. Remove the 8 screws that attach the back panel to the case back and remove the back panel (See Image 1).
3. Locate the area on the lower PCB where the module will be installed (See Image 2).
4. Remove the module from the packaging (See Image 3). **NOTE:** Handle by edges to minimize chance of electrostatic discharge.

Image 1



Image 2

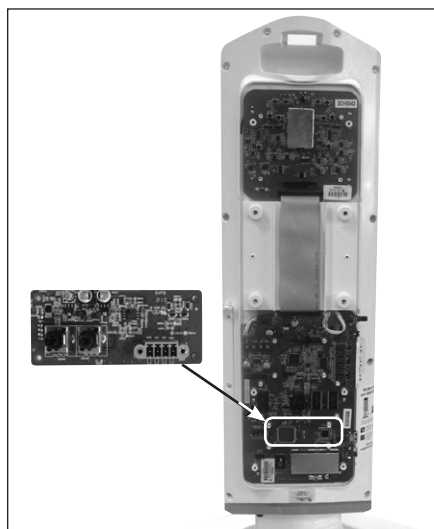
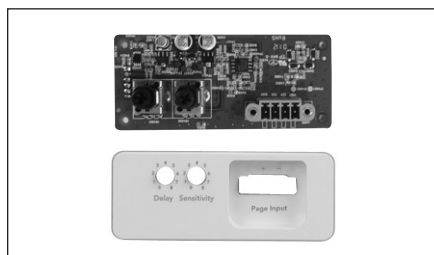


Image 3



Installation - continued

5. Remove terminal block from the module (See Image 4).
6. Connect the 6-pin connector on the Page Override module to the 6 pins on the Tower PCB. Make sure the module board is seated all the way down. Verify that the 6-pin connector and the 4 mounting holes are properly aligned. Attach the module to the Tower PCB using the four included screws (See Image 5).
7. Remove the access panel from the back panel by pressing in on the two tabs (See image 6) and replace with the Page Override module access panel (See Image 7). Then replace the back panel and screws.

Image 4

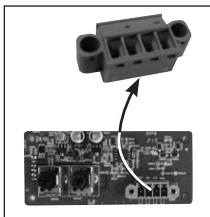


Image 5

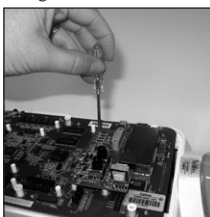


Image 6

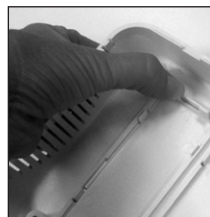


Image 7



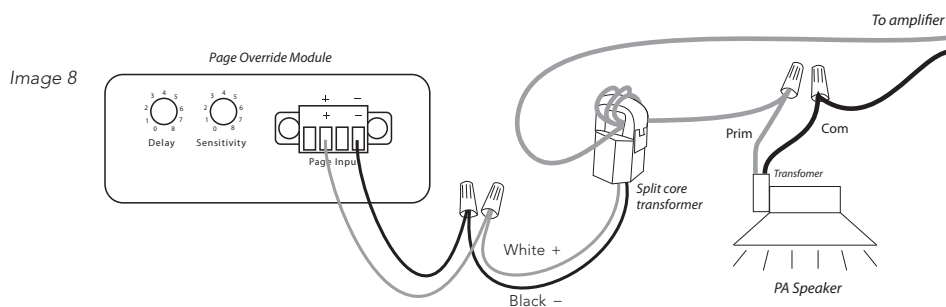
Confirm voltage of your PA system. Do not install this module unless you have a 25-, 70-, or 100-volt PA system.

1. Using wire nuts, extend the white and black wires from the split core transformer with enough 18 - 22 AWG wire to reach from the PA speaker to the installed module. Connect the white wire from the split core transformer to the "+" slot in the page input terminal and secure with the connector screw. Connect the black wire from the split core transformer to the "-" slot in the page input terminal and secure with the connector screw (See Image 8).
2. Open the split core transformer
3. Wrap the **primary** side (the side that connects to the PA amplifier) wire from the PA speaker around the split core transformer. Depending on the voltage of your PA system, follow the guide below for how many times to wrap wire around split core transformer (See Image 8).

IMPORTANT! Wrap ONLY the primary wire around the split core transformer.

- 100-volt: Wrap 1-2 times
- 70-volt: Wrap 2-3 times
- 25-volt: Wrap 3-4 times

4. Close the split core transformer



Test and Adjust

1. Reconnect the power supply to the Juno Tower and turn the power on.
2. Play music or some other continuous audio source through the Juno Tower.
3. While the music is playing, have your assistant make a long announcement over the PA system. Adjust the **sensitivity control** until you just mute the music. When your assistant's announcement stops, the music should return to full volume.
4. While the music is playing, have your assistant make several brief announcements over the PA system. Adjust the **delay control** so that the music is quickly muted when a PA announcement begins and returns after the announcement is complete. The delay range is approximately 1/2 second to 5+ seconds.

Installing the ITR-02 Communications Module

This module is not intended for use with UL Listed Amplifiers For Fire Protection Signaling Systems or Control Units and Accessories for Fire Alarm Systems, Emergency Paging, Mass Notification or Life Safety to NFPA National Electric Code or NFPA 72 National Fire Alarm and Signaling Code.

General Safety Precautions

- Disconnect all electronics from the Juno Tower during installation of this module.
- Do not install or use the module near water or heat sources.
- Protect all cables from wear and damage from staples, foot traffic, doors, and other hazards.
- Use only accessories specified by FrontRow.
- Refer installation and service to qualified personnel.
- Follow all safety guidelines when using ladders.
- Observe all applicable building, electrical, and fire codes when installing any electrical equipment.

ESD Warning



The Juno Tower and/or expansion modules can be damaged by electrostatic discharge (ESD). When handling, care must be taken so that the devices are not damaged. Damage due to inappropriate handling is not covered by the warranty.

The following precautions must be taken when installing the expansion modules:

- Use a conductive wrist strap attached to a good earth ground.
- Always disconnect the power to the Juno from the power outlet.
- Always discharge yourself by touching the grounded bare metal surface or approved anti-static mat before picking up an ESD-sensitive electronic component.
- Use an anti-static mat to cover your work surface.

You will need the following to install this module:

- **If being connected to a network:** Enough CAT5 cable to connect between the CM-Juno Communications Module installed in the back of Juno and the network connection in the room.
- **If being connected to an RS232 AV device:** Included serial cable to connect between the CM-Juno Communications Module installed in the back of Juno and the AV device (projector, display)
- Base address of network where the Juno with CM-Juno Communications Module is being installed
- A computer and CAT5 cable to set the IP address of the CM-Juno Communications Module
- #1 Phillips and small slotted screwdriver.

Check the Juno Tower firmware version

To check the firmware version, on the Tower LCD from the main screen press the settings button, then the About button. The firmware version will be displayed.

If the firmware version is lower than 1.30, you will need to update before installing the module.

1. Download the Teacher Edition software application from **gofrontrow.com/juno** under the **Downloads** section (if you do not have a license for the Teacher Edition software, you can still update the Tower firmware)
 - a. If you do not have a license when you open the application, you will see a button where you can click to update the firmware. Click the button, and then click Update from the Internet. If you do not have an internet connection, contact FrontRow.
 - b. If you have a license when you open the application a notification will appear that your Juno Tower has an update available. Click the button to update the firmware.

Install the module

1. Unplug the Juno Tower from the power outlet.
2. Lay the Juno Tower down on a flat surface with the back of the Tower facing up. Remove the 8 screws that attach the back panel to the case back and remove the back panel (See Image 1).
3. Locate the area on the lower PCB where the module will be installed (See Image 2).
4. Remove the module from the packaging (See Image 3).
5. Install jumpers on Juno main PCB. (See Images 4 and 5).
Place jumpers across pins 3 - 4 and 5 - 6 as shown in image 4.
6. Remove terminal block from the module (See Image 6).
7. Connect the 24-pins on the CM-Juno Communications Module to the 24 pin connector on the Tower PCB. Make sure the module board is seated all the way down. Verify that the 24-pins and the 4 mounting holes are properly aligned. Attach the module to the Tower PCB using the four included screws (See Image 7).
8. Remove the access panel from the back panel by pressing in on the two tabs (See Image 8). Then replace the back panel and screws (See image 9).
9. Insert the microphone element in the slot on the back of the access panel (See Image 10) and replace the access panel on the back panel by inserting the side with the single tab first, then press down on the side with the two tabs until it snaps into place (See Image 11).

Image 1

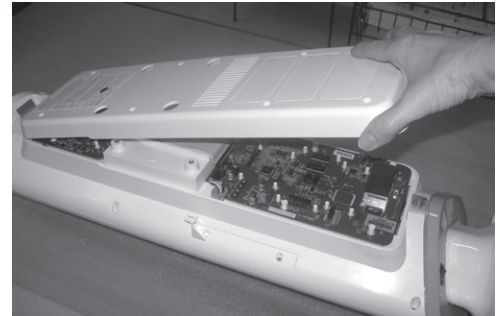


Image 2

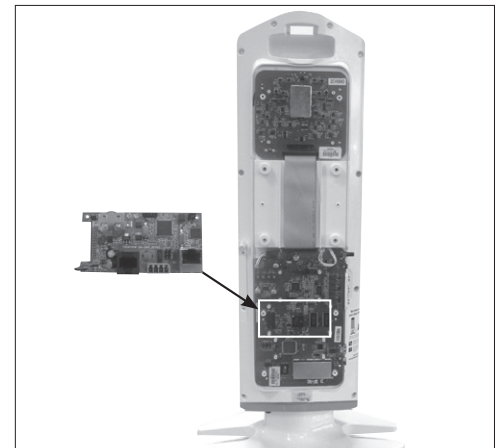


Image 3

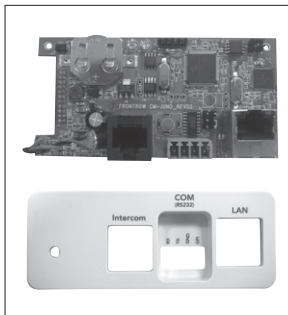


Image 4

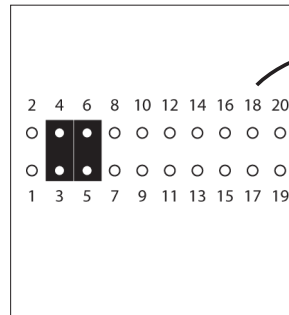


Image 5

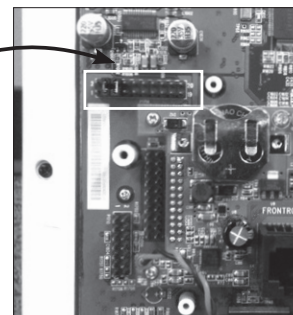


Image 6

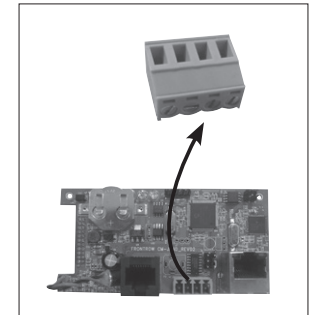


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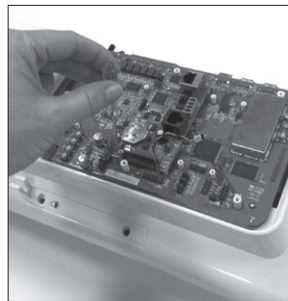


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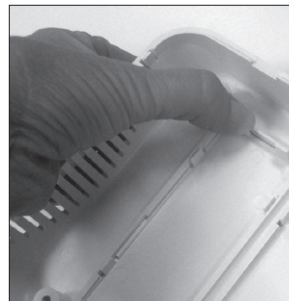
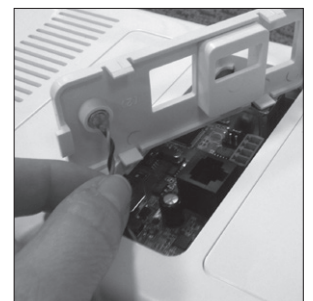


Image 9



Image 10



For configuration information, visit gofrontrow.com/juno

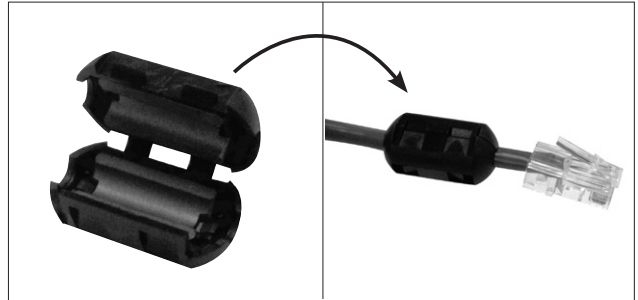
Connect Cables

1. Connect the CAT5 cable to the LAN port on the CM-Juno module (See *Image 3*). Connect the other end to the network jack. Place a clamp-on ferrite over the cable (See *Image 12*).
2. If using with an RS232 connected AV device, connect the RS232 serial cable to the module's COM port (See *Image 3*). Depending on the AV device, the white and red wires will be alternatively TX (transmit) or RX (receive). Connect the red and white wires to the appropriate terminals. Connect the black wire to GND (ground). Connect the other end of the serial cable to the AV device (projector, display).
3. If using with a FrontRow CB75 or CB85 microphone, connect it to the intercom jack on the module using an ethernet cable (See *Image 3*). Place a clamp-on ferrite over the cable (See *Image 12*).

Image 11



Image 12



Installing the Bluetooth® Audio Receiver Module

NOTE: The ITR-02 tower comes with the Bluetooth Audio Receiver Module already installed. If you have an ITR-01 tower with a blue grill you will need to follow these steps to install the Bluetooth module.

General Safety Precautions

- Disconnect all electronics from the Juno Tower during installation of this module
- Do not install or use the module near water or heat sources
- Use only accessories specified by FrontRow
- Refer installation and service to qualified personnel

ESD Warning



The Juno Tower and/or expansion modules can be damaged by electrostatic discharge (ESD). When handling, care must be taken so that the devices are not damaged. Damage due to inappropriate handling is not covered by the warranty. The following precautions must be taken when installing the expansion modules:

- Use a conductive wrist strap attached to a good earth ground.
- Always disconnect the power to the Juno from the power outlet.
- Always discharge yourself by touching the grounded bare metal surface or approved anti-static mat before picking up an ESD-sensitive electronic component.
- Use an anti-static mat to cover your work surface.

You will need the following items to install this module:

- #1 Phillips screwdriver

Installation

1. Unplug the Juno Tower from the power outlet
2. Lay the Juno Tower down on a flat surface with the back of the Tower facing up. Remove the 8 screws that attach the back panel to the case back and remove the back panel (See Images 1 & 2)
3. Locate the area on the lower circuit board where the module will be installed. (See Image 3). Note that if you already have a Juno Speaker Expansion module installed this will need to be removed. You cannot use both the Speaker Expansion and the Bluetooth module. (See Image 3)
4. Remove the Bluetooth module and plastic cover from the packaging. (See Image 4)
5. Unplug white connector from the main Tower PCB. (See Image 5)
6. Plug white connector into the connector on the Bluetooth module. (See Image 6)

Image 1



Image 2



Image 3

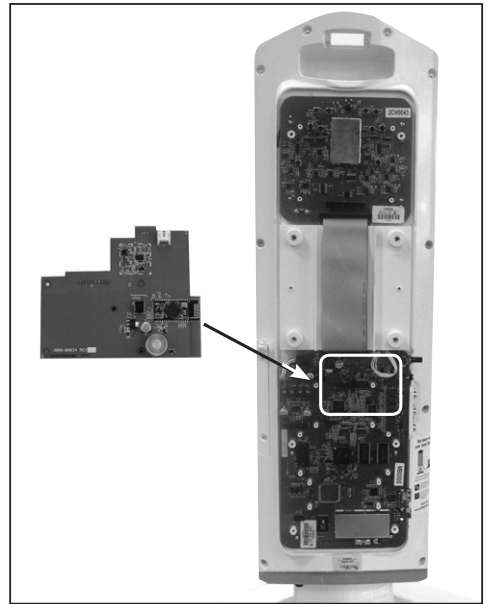


Image 4

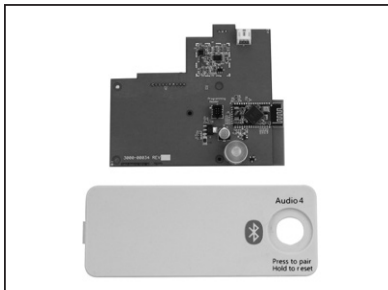


Image 5

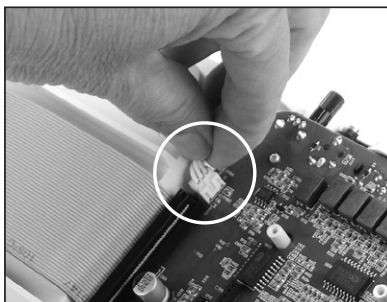
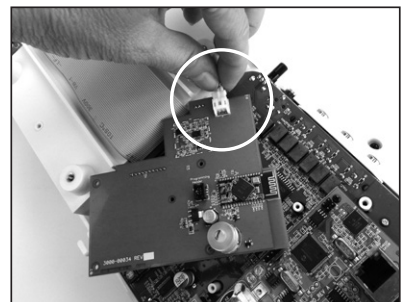


Image 6



Installation - continued

7. There is a 10-pin connector in the middle of the Bluetooth board and a 3-pin connector at the top. Gently seat the Bluetooth board onto the main board and press into place, being very careful not to bend or damage the pins.

TIP: Use the screw holes to help alignment. (See Image 7)

8. Secure the board to the main circuit board using the four included screws. (See Image 8)
9. Remove the top plastic cover from the back panel and then replace with the Bluetooth module cover. (See Image 9)

NOTE: If you have a Juno Connect module already installed, go to step 11.

10. Place the back panel back on the Juno and secure the 8 screws. (See Image 10)

Image 7

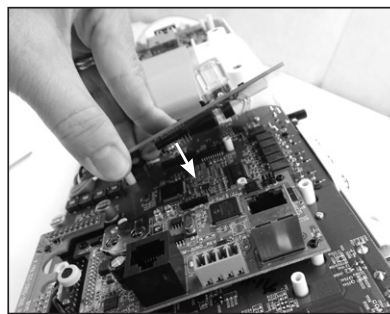


Image 8

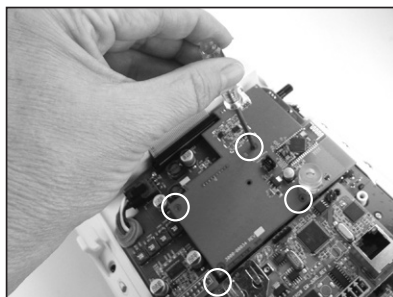


Image 9



Image 10



Perform these steps if the Juno Connect module is already installed:

11. Remove the Juno Connect module cover. (See Image 11)
12. Place the back panel back on the Juno and secure the 8 screws. (See Image 12)
13. Insert the microphone element into the slot on the back of the Juno Connect module cover, then snap it into place. (See Images 13 and 14)

Image 11



Image 12



Image 13



Image 14



Testing

To test your installation:

1. Power up the Juno.
2. Press the Bluetooth button to initiate pairing.
3. Go to your Bluetooth settings on your device and select the Juno.
4. Play some audio. Adjust levels accordingly using the Audio input 4 control from the Juno LCD.
5. Connect your device to the 3.5mm audio input on the front of the Juno and play audio. This will confirm that the Bluetooth board was connected properly.

Appendix A: Teacher's Tips

Start of Day

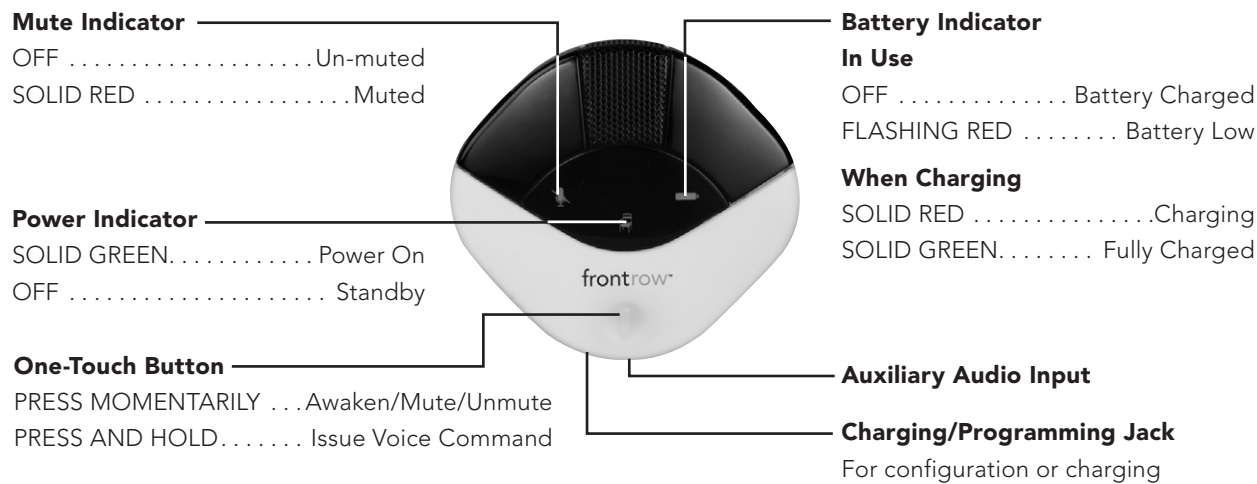
- 1. Put microphone around your neck and adjust the strap so it is comfortable and 14cm/5.5in from your mouth.
- 2. Press the One-Touch Button on your Pendant Microphone. This will wake up both your Microphone and Tower.
- 3. Speak in a normal conversational tone.
- 4. To adjust volume using voice command:
 - 1. Press and hold the One-Touch Button on the Pendant Microphone.
 - 2. Wait for Voice Command tone and Tower LCD background to turn green.
 - 3. Keeping the button pressed, say "Increase" or "Reduce".
 - 4. Wait for confirmation tone and Tower LCD background to return to white.
 - 5. Release button.

OR

Use Tower LCD touchscreen to adjust volume.

End of Day

- 1. Your Juno Tower and Microphones will automatically go into standby mode after a period of inactivity (10 minutes for microphones; 30 minutes for tower).
- 2. Charge your microphones in the charging cradle (optional) or connect them with the USB cable to your Juno Tower or your computer.

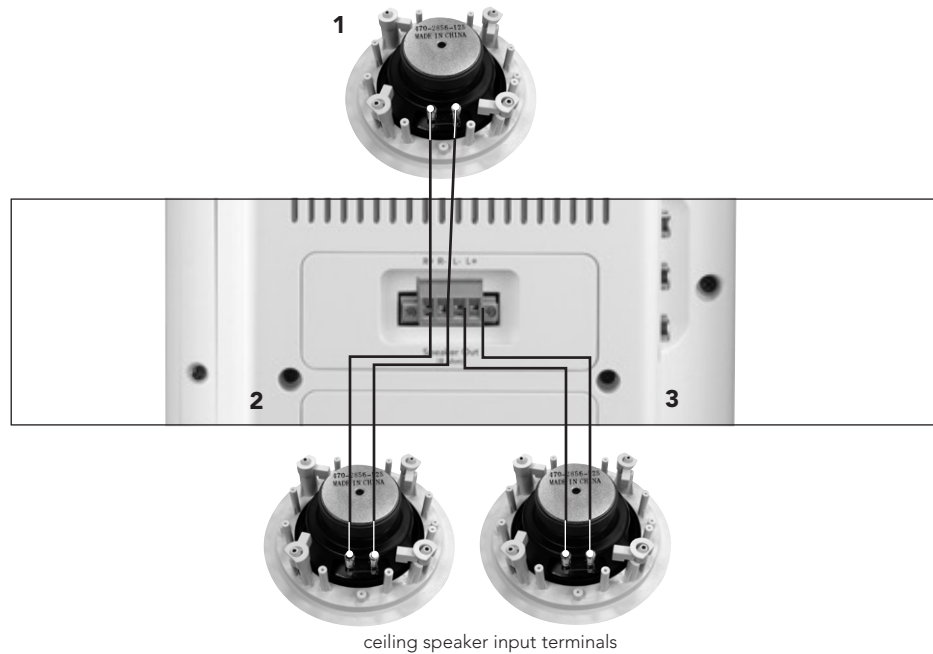


Appendix B: Special ceiling speaker connections

Using three ceiling speakers instead of four*

If your room is too small for four ceiling speakers, connect three.

Connect speaker wires to the terminals as shown below for best power and sound distribution



connection with 3-speaker connection grid

Speakers 1 and 2 should be in the larger listening area.

***Note:** Applies to 8 ohm ceiling speakers only. Use of more than two IR speakers is not possible.

Troubleshooting

Microphone will not charge from the USB jack on my computer

- Verify that you have the microphone drivers installed. To install the drivers, you will need to install the FrontRow Microphone Settings application or the Teacher Edition application. You may need to reconnect your microphone after installation.
- If using a laptop computer, verify that it is plugged into a power outlet.
- If using a computer (desktop or laptop) that is plugged into a power outlet, you may be using a low power USB jack. Try other USB jacks on the computer.

Microphone is not recognized by my computer

- Verify that you have the Juno microphone drivers installed. To install the drivers, you will need to install the FrontRow Microphone Settings application or the Teacher Edition application. You may need to reconnect your microphone after installation.

Microphone is connected to a Tower charge jack but it will not charge

- Disconnect and reconnect the microphone from the Tower.
- If the Tower is connected to a computer via a USB cable, disconnect the Tower from the computer.

All the lights are flashing on my Pendant or Pass-Around Microphone

- If all lights are flashing after attempting a firmware update, open the Microphone Settings application and connect the microphone to the computer with the USB cable. After a short time, a message will be displayed that the microphone needs to be updated. If this message is not displayed, disconnect the USB cable and remove the battery. After about 15 seconds, replace the battery and battery door and then reconnect the USB cable to the computer and microphone. The following message should now be displayed: **Click Start Update to proceed**. The microphone will have the original version of the firmware installed. After this completes, click **Check Now** to update the microphone to the current version of the firmware.

The Battery Indicator on the Pendant or Pass-Around Microphone is flashing green/red

- Make sure the unit is not excessively hot or cold.
- Remove microphone from charger for 5 minutes and then try again.
- The battery needs to be replaced

The Push-to-Talk function is not working on the Pass-Around Microphone

- Verify you are pressing on the lower section of the switch.
- Verify the battery is charged.

No signal reception (display indicates inactive channel)

- Check that the microphone is on.
- Check that the microphone is not muted (see page 28) (ITM-02 only).
- Verify that you are not blocking either the emitters on the microphone or the sensor at the top of the Juno Tower.
- If reception is interrupted when facing a certain direction, install an additional sensor in that area of the room or adjust VoiceChoice settings.
- If using more than one microphone, verify that they are not on the same channel.

Tower is not recognized by my computer

- Verify that you have the Juno Tower drivers installed. To install the drivers, you will need to install the Teacher Edition application. You may need to reconnect your Tower after installation.
- Verify the Tower is turned on.
- Verify the Tower is connected to the computer via the USB cable.
- If using a HUB or USB extension cable, verify that it is USB 2.0 compliant.
- Disconnect and reconnect the USB cable.

Tower will not 'wake up' from standby mode

- Volume level on auxiliary audio device is set too low.
- Make sure microphone is on and working correctly.

Tower won't turn on (LCD does not turn on)

- Verify that the power supply is plugged into both the receiver and a working wall outlet.
- Verify the Tower power switch is on.
- Test with another power supply.

'Dead spots' or microphone crackling/noise

- Verify that you are not blocking either the emitters on the microphone or the sensor at the top of the Juno Tower.
- If reception is interrupted or noisy when facing a certain direction, install an additional sensor in that area of the room or adjust VoiceChoice settings.
- If using more than one microphone, verify that they are not on the same channel.
- There may be "noisy" electrical wiring. Install an AC line filter.

Feedback (squealing)

- Lower the Microphone Volume control(s) on the Tower.
- Position the microphone closer to mouth.
- Verify that the Music Audio In option is not checked in the Microphone Volume screen.

Weak or no output from speaker(s)

- Increase the Master, Device or Microphone Volume control(s) on the Tower.
- Position the microphone closer to mouth.
- Verify that the microphone is on and not muted.

High- or low-pitched whine or hum coming through Tower speakers

- There may be a ground loop with the system. Install a ground loop isolator.
- There may be "noisy" electrical wiring. Install an AC line filter.

I hear static coming from the loudspeakers on the Tower.

- Make sure the guidelines on page 2 have been followed.
- Try to identify the source of the problem by disconnecting other devices from the classroom PC one at a time. Once the problem is identified, re-connect the other devices except for the suspect device and verify the performance is maintained.
- Re-connect the suspect device to a different port on the classroom PC, if possible. If connected to a USB hub, bypass if possible. Verify that the AC power connected to the suspect device is connected to a good AC mains outlet.
- Identify on the tower which connection is coupling the interference. Is it the audio connections, the USB connection, or both?
- Verify that the computer is connected to Earth Ground; does the AC power cord have 3 prongs or 2? If the power cord only has 2 prongs then adding an Earth Ground type power supply may help. Please contact Frontrow for further assistance.
- Determine if another source of IR interference may be present in the room. Possible causes are certain types of infrared motion sensors, infrared based pointing devices used for some projectors, and certain types of direct view displays (flat panel TV's, direct view smart boards).
- A cable isolation device may be required to solve the interference problem. Please contact Frontrow for further assistance.

Charging light won't come on

- Check that the charger is connected to a working power outlet.

When playing audio from an audio device such as an iPhone™ or other MP3 player, I can hear background noise through the speakers

- Your device may be emitting a low level hum that is amplified by the Juno Tower. Use a filtering cable such as a ground loop isolation transformer cable to eliminate or reduce the noise.

My voice commands are not being recognized

- Make sure there is not excessive background noise while issuing command
- Make sure the microphone is not being moved around, brushing on clothing, buttons or jewelry.
- Make sure you are following the correct sequence when issuing command.

PrioriTeach not working

- Verify that the "Music Audio In" check box in the Teacher Microphone's volume screen (see page 13) is not checked.
- Adjust the drop down level from the FrontRow Teacher Edition software application.
- Verify that PrioriTeach is turned on.
- Increase the volume level for the Pendant Microphone.



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