Control 60 Series Pendant Speakers

Frequently Asked Questions

1. Why pendant loudspeakers?

1. **Easy to Install --** JBL Control 60 Series pendant speakers are extremely easy to install. They suspend via an included 15-foot long cable using a snap hook and included adjustable-height slide clamp.
2. **Open Architecture Ceilings --** They are an ideal solution for open architecture ceilings where you don't have a solid ceiling surface for installing a ceiling speaker, or where the ceiling is not right for a surface-mount speaker, or where you want to space the speaker down from the open-ceiling surface and/or structural beams.
3. **Closer to the Listeners --** Suspending the speaker positions the sound closer to the listeners for better direct sound quality.
4. **Below Obstructions --** In some venues, it is important to get the get the speaker down so that the sound doesn't get blocked by decorative architectural features or functional obstructions such as lighting or HVAC that may be located below the ceiling.
5. **Appearance --** Suspended speakers provide a look that is becoming popular, especially in open ceiling environments.

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6. **Height Options –** The included suspension system allows the speakers to be set at any height. This provides additional flexibility in the system design. For example, in venues with minimal budget for loudspeakers, raising the speakers covers the area with fewer units, which may be acceptable as long as the reverberation of speakers at that height is not a problem in that space. Or, you can set them lower to get them closer to the listeners (see below for more information about the advantages of this).
7. **Reverberant Spaces & Difficult Acoustics --** In highly reverberant spaces such as transit centers, hotel lobbies, and other locations with hard, reflective surfaces, a narrow-coverage speaker such as the Control 67HC/T reduces the sound splatter onto the walls and focuses the sound more directly onto the listening plane, reducing the unwanted excitation of the reverberant field. This increases the direct-to-reverberant ratio of the sound, which improves the intelligibility of speech and clarity of music.

   Another solution to difficult acoustics is to get the speakers closer to the listeners ("reducing the D1", as stated in engineering terms). Pendant speakers allow positioning the speakers at a lower height even if there is no structural support element at that height. Getting speakers closer to listeners is yet another way to increase the direct-to-reverberant ratio, improving intelligibility and clarity.
8. **High-Ceilings --** Also related to the narrow-coverage of the Control 67HC/T, in applications where the speakers are high above the listening plane such as in convention centers, transit spaces and other high-ceiling venues, narrow coverage speakers minimize the time-smear of the sound to the listeners. For best intelligibility and clarity, each listener should predominantly hear the sound from the speaker that is directly above them and not hear as much of other nearby or far-off speakers where the sound would be traveling a farther distance to get to that listener such that it would be out of time sync with the direct immediate sound. Reducing the sound that gets to the listener from those distant speakers increases speech intelligibility and improves musical clarity.

All of these are reasons to consider pendant speakers in your projects.

2. What is the difference between the various Control 60 models? In what applications would I use which Control 60 Series model?

Here are descriptions of the models and general starting-point guidelines as to when each might be used:

Control 65P/T is the most compact full-range model, and it holds its own versus larger competitive pendant speakers on output level and bass capability. Control 65P/T is good for both speech and high quality music systems. The RBI waveguide (see below) provides excellent pattern control for consistent coverage of the listening space.

This model is excellent for applications where its output level and frequency response are sufficient. It is the most economical full-range pendant speaker in the line-up, while providing wide-bandwidth and high fidelity sound quality.

Control 67P/T has larger diameter drivers and a larger enclosure than the Control 65P/T, giving it greater sound level capability, higher sensitivity, and extra bass output. It also has a larger RBI waveguide (see below) for extra pattern control. It is ideal for applications where you want maximum output, or for venues where you need extremely uniform coverage.

Control 67HC/T is a unique model in the market at anywhere near its price point. It is a narrow-coverage pendant loudspeaker.

For High Ceilings -- This model is sometimes called a "high ceiling" speaker because narrow coverage is beneficial when a speaker is mounted high in the room. The narrow coverage concentrates the sound so that it can project with clarity all the way to the floor area.

Narrow coverage is also beneficial for achieving clear intelligibility of speech and clarity of music in high-ceiling applications by reducing the time-smearing of sound that listeners hear. In a system with narrow-coverage speakers, listeners located below one speaker hear more of the speaker that is directly above them and less of the other nearby speakers. The sound from these other speakers would otherwise hit their ear in different time syncs, and hearing the same sound multiple times at different time syncs tends to sound muddy, unclear and unintelligible.

These are reasons why the narrow-coverage characteristic of Control 67HC/T provides improved sound quality in applications when the speaker is located up high in the room.

For Reverberant Spaces -- Narrow coverage speakers are very useful for spaces that have a lot of reverberation, such as large rooms with solid reflective surfaces. Not only do narrow coverage speakers direct more of the sound to the listeners, they also help to keep sound off the walls, which helps to control the reverberant field within the room.

Control 62P is an ultra-compact mid-high frequency satellite speaker which can be used by itself for speech or for mid-high frequency music applications. The Control 62P is also designed to be an excellent satellite speaker in a subwoofer-satellite system for full-bandwidth sound quality. For that purpose, two or four Control 62P speakers can be driven from the "satellite outputs" of the Control 50S/T on-wall subwoofer or Control 40CS/T in-ceiling subwoofer. (See more details below).

Control 62P can be intermixed with Control 42C in-ceiling speakers and Control 52 on-wall speakers for applications that might require multiple form-factors of speakers in the same location and where you want all the speakers to perform similarly.

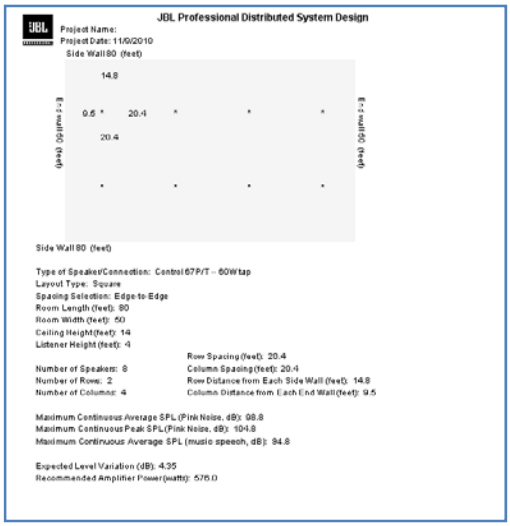
This model is ideal when you need the speaker to be as small and visually unobtrusive as possible.

3. How many speakers should I use to cover a space?

Similar to when using ceiling speakers, how many pendant speakers to use depends on the coverage angle of the particular pendant speaker, the height of the speaker, and the desired coverage density (which affects the amount of sound level variation you get from place to place within the listening space, as well as affecting the sense of richness of the sound).

It is easy to design Control 60 Series models into projects using JBL's DSD Distributed System Design software (available at no charge from the JBL Professional website: www.JBLPro.com, in Downloads, Software).

Simply enter the height that the bottom (grille) of the loudspeaker will be above the floor as the "ceiling height". DSD tells you how far to space them apart, how many speakers to use (for a rectangular space), approximately where to place them, how loud the system can get (with 10 dB of headroom), how much variation of sound level you'll get within the space from the quietest spot to the loudest spot, and the recommended amplifier power. Once you have these parameters, it is easy to set the exact speaker locations in your architectural drawings of the space.



Design data from JBL's
DSD Distributed Speaker Design Software

EASE files are posted on the www.JBLPro.com website (on each Control 60 Series model page) for doing complete floor-plan coverage modeling. In addition, 2D and 3D DXF case drawings are available for showing how the speaker will look in the space.

4. How well do Control 60 speakers cover the listening space? What does the RBI Radiation Boundary Integrator® do?

The JBL Control 60 Series speakers cover the listening space more evenly than any pendant loudspeaker on the market today. JBL's proprietary conical RBI Radiation Boundary Integrator® was adapted from the groundbreaking VERTEC® Series of line array loudspeakers. This unique patent-pending innovation combines a large diameter waveguide for the high-frequencies with low-frequency apertures. The two work in tandem to provide an unmatched level of pattern control along with a seamless coverage in the crossover region. The result is extremely consistent pattern control and even coverage of the listening space such that all listeners hear a consistently uniform flat frequency response.

In addition, the RBI results in the mid and high frequencies tapering down evenly at the edges of the speaker's coverage pattern, just as the next speaker is starting to evenly fill in that space, resulting in better sound at the overlap areas between the coverage of multiple speakers.

This level of consistent coverage from the Control 60 Series models means that EQ'ing the sound for one spot (if necessary to account for the acoustics characteristics of the room) achieves the same great sound at all locations within the room.

By comparison, with competitive speakers having inconsistent coverage every frequency tends to die off at different angle than other frequencies. Therefore, sound in every spot sounds different. The edges of those speaker's coverage pattern tend to be especially inconsistent, containing some frequencies (the wide-coverage frequencies) and not others (the frequencies that beam), resulting in adjacent speakers not combining well at the overlap between speakers. With such inconsistent speakers, EQ'ing the sound for improved sound at one location often results in the sound becoming worse at other locations.

In addition to the sound quality benefits of RBI, the uniform coverage of the Control 60 models often allows the use of fewer speakers in a system -- fewer speakers can cover a larger area while at the same time eliminating drop-out spots. That can save money in a project, both for the cost of the loudspeakers themselves and for the cost of installing and powering the loudspeakers.

Note: RBI Radiation Boundary Integrator® is incorporated into all Control 60 Series models except for the ultra-compact Control 62P.

5. Can I Use Control 60 Series Loudspeakers Outdoors?

In many cases, Control 60 Series models can be used outdoors, such as the patio areas outside of restaurants, however the installer needs to use standard cable clamps for the suspension cable – see below:

1. **Rubber Covers** – Two rubber covers for the two euro-block-type connectors are included with each speaker. These cover the connections on the top panel.
2. **MTC-PC Terminal Covers** – Optional terminal covers are available as accessories. The MTC-PC60 panel cover (for models Control 65P/T, 67P/T and 67HC/T) and MTC-PC62 panel cover (for Control 62P) can be purchased to cover and seal the terminal compartment at the top of the loudspeaker.

   Note: These covers are priced individually and sold in pairs.
3. **Construction** – The cabinet material is high-impact polystyrene, which is the same material as most of our outdoor capable surface-mount (on-wall) Control Contractor® speakers. All woofer cones are polypropylene coated and the surrounds are pure butyl rubber. All these materials are suitable for outdoor applications.

   The grille is zinc-plated painted steel. The zinc-plating protects the grille from corrosion, but it can corrode given enough time outdoors and enough exposure, and the corrosion can be accelerated in salt-air environments. The grilles have foam backings which can help to break up driving rain.

   The suspension cable is high-tensile galvanized-steel wire rope, but the Gripple-brand cable fasteners are only for dry locations, so you should use other standard cable clamps, such as Crosby–type clamps or Nico-press fittings.
4. **Wind Outdoors** – To prevent the enclosure from swaying in the wind, the speaker should be stabilized via a 3-point suspension utilizing three trim cables to the three clip points on the speaker's top bracket.

6. Are the Control 60 Series speakers UL certified?

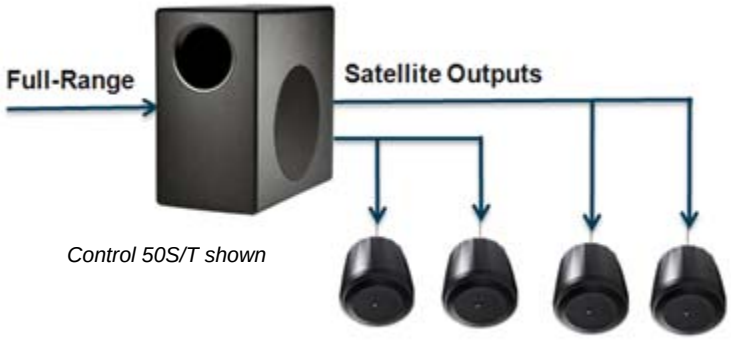
Yes, all the Control 60 models are UL1480 certified. The 70V/100V transformers are UL1876 registered. The Gripple®-brand cable fasteners have numerous certifications which are listed on the installation instruction sheet.

7. Can I Use Control 60 Series Loudspeakers in places that require enclosed terminal compartments for code compliance?

Yes, the optional MTC-PC60 and MTC-PC62 panel covers enclose the terminal compartments.

8. How do I use the Control 62P with a subwoofer as a full-range system?

The ultra-compact Control 62P can be used by itself for speech or for mid-high frequency music applications. For full-range wide bandwidth performance, the Control 62P needs to be coupled with a subwoofer. Up to four Control 62P's can be driven from a wall-mounted Control 50S/T or in-ceiling 40CS/T subwoofer to form a full-range passively crossed-over subwoofer/satellite system. Or, the satellite speakers and subwoofer can be driven by separate amplifiers and actively crossed-over elsewhere in your sound system electronics.



Control 50S/T shown

Using the Subwoofer's Built-In Crossover -- The full-range signal from the power amplifier is fed to the subwoofer and either two or four Control 62P speakers are connected to the "Satellite Out" terminals of the subwoofer. A full crossover network is built into the subwoofer. Low frequencies are produced by the subwoofer. Mid range and high frequencies are directed to the satellite speakers.

Note: These subwoofers require either two or four satellite speakers to be connected to them. They do not work with either one or three satellite speakers.

Safety -- If the Control 50S/T subwoofer is utilized with its included wall bracket, then the subwoofer must be installed on a wall, not on the ceiling. However, if you remove the included wall bracket, the four suspension points on the back panel can be utilized with Unistrut or other hardware for suspending the subwoofer or attaching in other orientations.

Note: Ensuring safe installation is the responsibility of the system designer and installer. Always utilize the secondary M6 safety attachment point per the instructions provided with the subwoofer.

Using an External Electronic Crossover -- A crossover frequency no lower than 140 Hz is recommended.

8a) Can I intermix sub-sat systems with full-range 70V (or 100V) speakers?

Yes, both the Control 50S/T surface-mount subwoofer and the Control 40CS/T in-ceiling subwoofer can be operated in 70V/100V mode or as a low-impedance (8 ohm) speaker. They have multiple 70V/100V taps just like a full-range 70V/100V speaker. Therefore, they can be driven directly from a 70V/100V distributed speaker line that could indeed have full-range speakers also attached to it. You can have full-range speakers and the subwoofer-satellite system both driven from the same 70V/100V distributed speaker line.

Regardless whether the subwoofer's tap selector is set at one of the 70V/100 taps or at the direct low-impedance (8 ohm) setting, the satellite speakers should be low-impedance (in this case, 16 ohm) speakers (ie, not 70V/100V satellite speakers).

8b) Can I intermix Control 62P speakers with in-ceiling and/or surface-mount speakers in the same subwoofer-satellite system?

Yes, the Control 62P is essentially the same speaker as the Control 52 surface-mount (on-wall) speaker and the Control 42C in-ceiling speaker. They all have similar sound character, similar frequency response, similar sensitivity, similar directivity, and similar impedance.

Therefore, you can inter-mix Control 62P, Control 52 and Control 42C speakers, even within the same subwoofer-satellite system. This is useful if you have a venue that requires different form factors of satellite speakers, such as a low-ceiling section and an open-architecture ceiling section.

9. In the past, pendant speakers have tended to look a bit … strange … and didn't fit in visually with my applications. What is different with Control 60 Series?

Customers have told us that they have felt that many of the pendant speakers that were available in the past looked a bit bizarre. They described these speakers as looking like a "a hanging eyeball", "a tiki torch", "a shower head", "a tin can on a chain", "a security camera", "a space ship", "a bee hive", and other shapes that often do not support the architectural look of the venue. And ones that don't look as strange were often described as be overly plain and not fitting the architectural stylishness of the venue. Even the brand with spirals on them can visually alias with the room, making them look like they are not hanging straight.

JBL's Control 60 Series pendant speakers were specifically designed to provide an elegant look that fits into a wide variety of decors. They are stylish, yet understated. They do not draw too much visual attention to themselves to take away from the architecture, yet they are graceful. They were designed to enhance the decor of most venues.

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