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JBL CBT 200LA-1 Line Array Column Loudspeaker

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The product set up for an outdoor application

Column arrays have been around since steam-powered sound, though now they are making a resurgence in a big way. Long the staple of community centers, school gymnasiums, and meeting halls, advancements in driver design and electronics have led to the age-old column array finding its way into more upscale applications.

Columns were indeed the first line arrays and, operationally speaking, have many practical things to offer, having preceded the large-scale systems that have become so popular in concert touring as well as installations.

The concept of a line array, first presented in 1957 by Harry F. Olson, is well-known by now. Initially, they were noted for the ability to provide well-defined vertical coverage and intelligibility for vocals. Contemporary variants have incorporated greater numbers of drivers, which provide for better pattern control in frequencies below the vocal region, as well as better bass response. And that brings us to JBL Professional's CBT 200LA-1.

The name—JBL CBT 200LA-1 200cm Tall Constant Beamwidth Technology Line Array Column Speaker—is almost as long as the speaker is tall: 200cm (or almost

6.5'). What's not in the name is the quantity of drivers. The CBT 200 is loaded with 32 (count 'em, 32!) 50mm (2") full-range drivers.

The system features what JBL calls asymmetrical progressive-gradient vertical coverage, which provides a more consistent front-to-back coverage in the listening area. Interestingly, this is a passive system that requires external amplification, and there are aspects of adjustability of the coverage.

Two halves make a whole

The CBT 200LA-1 is shipped in a large carton with two modules, a coupler plate, and a swivel-and-tilt wall-mount bracket. Optional accessories include a terminal panel cover, flush-mount low-profile wall-mount bracket, and a stand mount for 35mm heavy-duty speaker stands. The speaker stand mounts were provided with the review system, since I could not install it on any walls in my house or place of employment. The system is designed to operate with both modules coupled together. On the back are M6 threaded inserts the length of the enclosure. The coupler plate attaches to the bottom four inserts of the top module and the top four of the bottom module. (Got that?)

The coupler plate includes additional M6 points for attachment of the wall-mounting brackets. Due to the length of the assembled system, unless you use the optional low-profile wall-mount (which attaches near the top and bottom of the system), the mounting hardware must be attached to the coupler plate. The wall bracket allows left and right swivel of $\pm 80^\circ$ as well as up and down tilt of $\pm 10^\circ$.

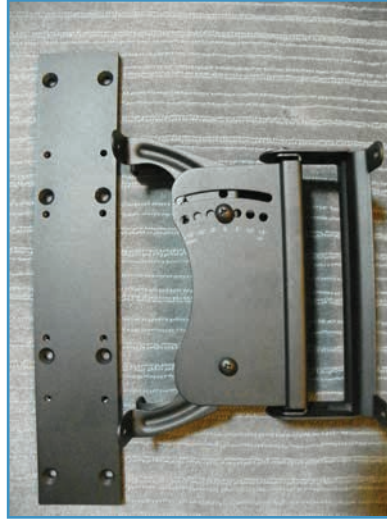
Assembly was fairly straightforward (JBL includes a pretty detailed hard-copy assembly and bracket installation guide) and can easily be accomplished by one person, though you just need something to lean the enclosure against to help keep the speaker face-down (since the front grille is rounded) while you attach the coupler plate to the backs of the two modules.

Correct orientation of the modules must be observed when assembling the two halves. It appears as if the top-most module is positioned upside-down when the system is assembled properly. Once assembled, the switches for adjusting coverage parameters will be located on the top left side of the top module and the bottom right side of the bottom module; the JBL logo on the back of the top module will be upside-down.

The switches are screwdriver-actuated, with the top of the switch flush with the surface of the enclosure to prevent accidental breakage or adjustment. A nice attention to detail



JBL CBT 200LA-1 with pole mount hardware



The coupler plate and swivel-tilt wall bracket



Speaker module orientation with coupler plate and swivel-tilt wall bracket

is seen in the six adhesive covers for the adjustment switches to be applied once the system is installed and set.

Boy, is it tall!

At first glance, it looks like the CBT 200LA-1 is just two CBT100s bolted together. Nothing could be further from the truth—although, given the orientation of the switches and some of the detailing molded into the enclosures, it looks like utilizing the same tooling saved some expense.

The CBT 200LA-1 is driven directly from an external amplifier; no additional processing or control is necessary. What makes this unique, however, is the adjustable coverage pattern: broad mode, narrow mode, and asymmetrical progressive-gradient mode. In broad mode, vertical coverage is 30°; narrow mode coverage is 15°; and asymmetrical progressive-gradient mode is 22° (with the topmost module set for maximum throw and the bottom module set for a shorter throw with wider vertical coverage). Average horizontal coverage is 150°.

The enclosure is constructed of fiberglass-reinforced ABS with a painted aluminum grille. Available colors are black and white. The loudspeaker is suitable for installation indoors or out. Connections are via a screw-down terminal strip accepting #6, #8, or #10 lugs or up to 12 AWC bare wire. While these are designed for fixed-install applications and connecting the amp to the loudspeaker modules is simple and straightforward, it seems that there could be a more elegant solution to powering both modules, since they are designed to operate together. However, it does provide the flexibility of powering each of the modules off separate channels of amplification, should you choose.

Constant beamwidth technology

I would have liked to download the CBT calculator software to see how it works. It's free from JBL's website; however, it's only available for PCs, and I'm on a Mac. The CBT cal-

culator includes parameters for the CBT 200LA-1 and is used for helping to determine the vertical coverage, including down-angle settings and various switch settings. The software provides the capability to have a number of listening planes as well as the capability to place up to six listening microphones and see what the frequency response will be at each spot.

I first set up the speaker inside a room with measurements of approximately 30' x 30', with a ceiling height of about 20', some acoustical treatment, and a small portable stage. As anticipated, the CBT 200LA-1 handles vocal information with ease, and it also works well with light music, although it could stand a subwoofer. Typically, loudspeaker manufacturers have provided two sets of frequency specifications in their documentation: frequency range and frequency response. For the CBT 200LA-1, respectively, we have (-10dB) 80Hz – 20 kHz and (±3dB) 130Hz – 18kHz. You definitely notice the lack of low-end information with rock or other types of bass-heavy music. JBL doesn't specifically suggest a companion sub in the CBT 200LA-1 literature, but I'm sure there's one in the company's arsenal that would work if you plan to use the system in a predominantly musical application. Bear in mind, however, that since low frequencies are inherently omnidirectional, adding a sub will negate some of the directional characteristics of the CBT 200, which, by the way, are excellent. The horizontal coverage was very wide, as stated in the specs, and very well-defined. There is a definite change in the sound once you get to the edges of the coverage. Though not really steerable, the coverage is adjustable, which should work for most of the situations the CBT will find itself in.

Go play outside

The speakers are designed to be utilized either indoors or outdoors. The enclosure is inherently weather-resistant (with UV-treated glass-filled ABS): All external screws are stainless

steel; the grilles are fabricated from aluminum and have a backing to break up driving rain; the drivers are treated; the switches are triple-sealed; the terminals are nickel-plated and stainless steel; and the MTC-PC2 terminal panel cover helps to protect the connections. Put it all together, and you have a speaker that is IP-55 rated per IEC 529 and is UV-, moisture-, and 200-hour salt-spray-resistant.

Since the strength of a line array is the ability to project sound a good distance, I took the system outside for a spin. I ran a variety of source material through it, ranging from spoken voice to music to pink noise. As mentioned, there is a high degree of adjustability via the switches mounted on each module. Each set of switches includes 70V/100V transformer type with taps for 120W, 60W, 30W, 15W (for 70V only), and eight ohms; music or speech setting; and vertical coverage setting.

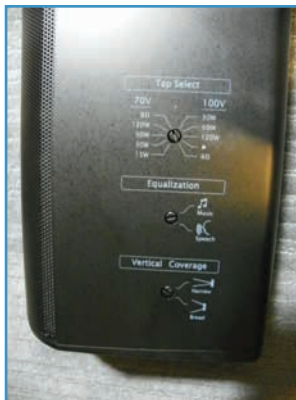
Another degree of adjustability is available by turning down the bottom module, either by setting it to a lower tap setting (if running at 70V) or, if set at eight ohms, by using a separate amp channel for the bottom module and simply turning it down slightly. This way, the proportion of near to far SPL is adjustable.

I started out listening with speech (though I had it in music mode). Speech mode adds a slight rise in the frequency response (from about 1,000Hz up to about 10,000Hz). To my ears, both speech and music were fine in music mode, but music could get a little edgy in speech mode.

With the speakers in the asymmetrical progressive-gradient mode, I was able to get about 150' away with good level and intelligibility and still maintain reasonable levels up close. With both speakers on the narrow setting, I was getting a good reflection back from the building about 100 yards away. (I'm sure the people outside of the building appreciated the music far more than the pink noise). I used the pink noise to check the horizontal coverage.

It's important to determine what settings will be required for a particular application prior to installation. Given the placement of the switches, if the system is permanently installed, it could be difficult to access them to adjust to program type. If you plan to use it in a portable situation, keep in mind that even though the system is only 33lb and relatively easy to lug around, it is 6.5' tall, and it doesn't have any handles, so moving through doorways and mounting on stands can take a bit of maneuvering.

Overall, I was very pleased with the sound of the system. The adjustability of the system is an added bonus. The flexibility of the JBL CBT 200LA-1 makes it ideal as the house system for many auditoriums and meeting spaces, including houses of worship. 🎧



Transformer tap select, voicing select, and coverage select switches