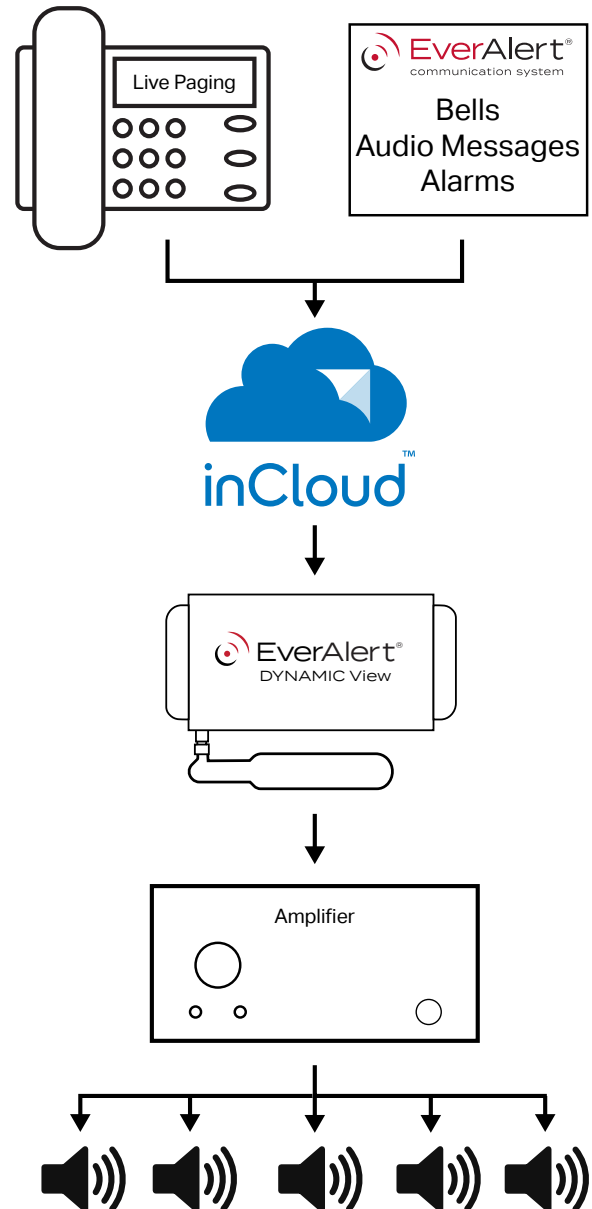


While the EverAlert system was primarily designed for audiovisual communications, its audio capabilities make it a powerful platform for issuing and managing audio communications, such as live paging, bells, prerecorded audio messages, and audible alarms, throughout your facility.

The sound functions of the Dynamic Display and Dynamic View are often adequate for these tasks in individual rooms and other small spaces, but for larger areas, outdoor locations, or places requiring greater volume, either the EverAlert Speaker or an analog amplifier may be necessary. The EverAlert Speaker is designed as an individually addressable device -- in other words, where you need the ability to communicate with a single speaker in a single location.

For locations where greater distribution of audio is necessary, such as an auditorium, lecture hall, or hallway, the better solution is to use a run of multiple speakers in conjunction with an analog amplifier, with an EverAlert Dynamic View as a head unit. This will eliminate any network latency concerns that may be present with multiple IP speakers in a single location, along with providing a more cost-effective means of expanding your audio messaging.



Speaker System Voltage

The TOA amplifiers and Lowell speakers offered by American Time support the use of both 25V and 70V infrastructure. 70V is preferred due to its better performance over a long distance; however, certain code limitations may require the use of 25V power.

The examples provided in this document will reference 70V systems, but note that 25V may still be used if necessary. **Low-impedance ("8-ohm") speakers may not be used in this system.**

Constant-Voltage Speakers

The Lowell R1810-72 speaker offered by American Time has an attached *step-down transformer* to convert the signal from the amplifier to the appropriate signal for the speaker. On the connection side of the transformer is a series of connections (called "*taps*" or "power taps") that can be used to select the peak amount of power the speaker will consume from the amplifier, which directly relates to the speaker volume, thereby allowing the volume of individual speakers to be customized.

Each speaker has five taps, each with a different wattage rating: 5W, 2W, 1W, .5W, and .25W.

Selecting the appropriate tap will depend on a variety of factors, including ambient noise in the speaker's location, speaker spacing, and ceiling height.

Ambient Noise	Ceiling Height (feet)			
	8	10	12	14
55-65 dB	.25W	.25W/.5W	1W	1W
65-75 dB	.5W	1W	2W	5W
75-85 dB	5W			
85-95 dB				

How Many Speakers?

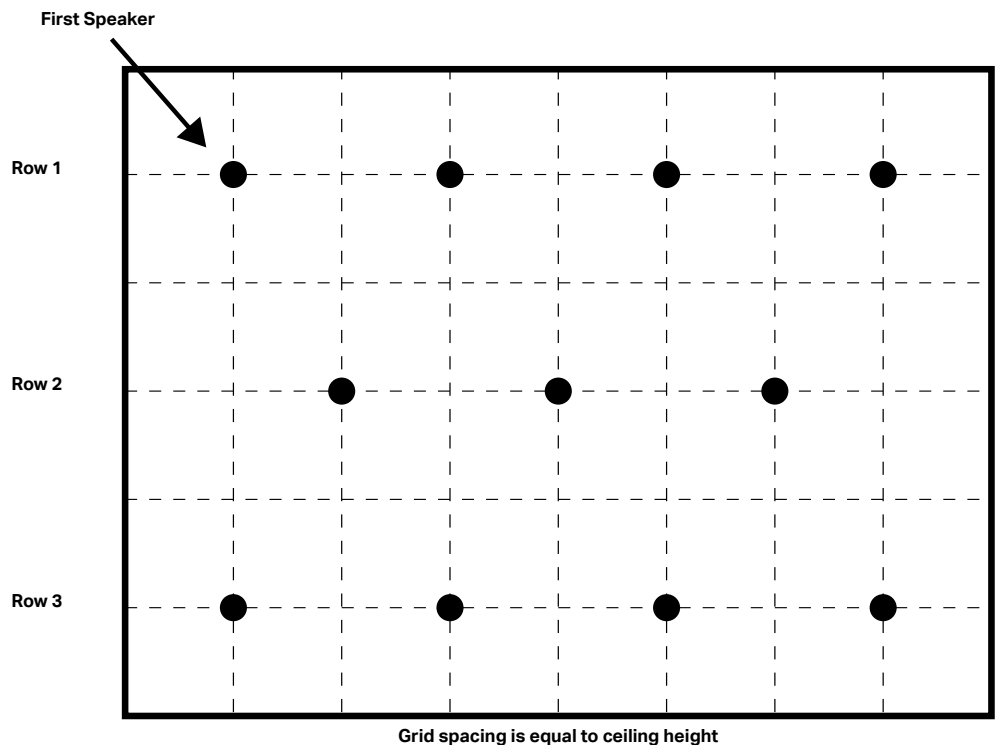
To determine how many speakers you'll need in a space, start in a corner. The first speaker should be located equidistant from each wall, approximately as far away from each wall as the ceiling is high -- in other words, if the room has 10-foot ceilings, the first speaker should be 10 feet away from each wall at the corner.

The next speaker in the row should be spaced away from the first at a distance approximately twice the height of the ceiling -- so, in our example, 20 feet from the previous speaker.

When starting a new row, the new row should be spaced the distance of the ceiling height (10 feet in our example) from the previous row, and staggered between the speakers from the preceding row. See the diagram for more detail.

Rule of Thumb:

Speaker spacing = 2 x Ceiling Height



Amplifier Power

The tap wattage will determine the number of speakers that can be powered by your amplifier. This can be calculated with a simple equation:

$$\text{Total Number of Speakers} \times \text{Tap Wattage} = \text{Minimum Amplifier Power}$$

As an example, using the above equation, a 60W amplifier could power 60 speakers tapped at 1W or 12 speakers tapped at 5W.

American Time offers a 60W (BA-260) and a 240W (BG-2240D) amplifier, both from TOA Electronics.

Wire Loss

The final step in determining your system setup is ensuring you have the proper wiring to support the length of your speaker run. Because approximately 10% of the total power is lost in the wiring, it's important to calculate this before you begin.

Estimate the length of the overall run, including the distance between the amplifier and the first speaker, then refer to the wire loss chart below. Depending on the length of the run, you may need to increase the wire gauge, split the speaker loads, or shorten the run length.

Wire Gauge	Load Power per Wire Run (Watts)						
	5	10	15	30	50	100	200
16	10,000	7000	4600	2300	1400	700	350
18	9000	4500	2800	1400	830	415	205
20	5500	2700	1800	900	540	270	135
22	3400	1700	1100	550	330	115	60
24	2100	1000	700	350	210	105	50
Maximum Wire Run Cable Length (feet)							

(Table applies to 70V systems only)

Rule of Thumb: Use 80% of the maximum amplifier rating when calculating available power to speakers.

Connecting the Dynamic View

Once your amplifier and speakers are installed, the final step is to connect your Dynamic View to the amplifier. This is done by simply connecting the 3.5mm-to-RCA cable provided with the amplifier.

The 3.5mm plug connects to the audio port on the Dynamic View. Connect the stereo RCA plugs to the terminals on the back of the amplifier. For the BG-2240D 240W amplifier, use the inputs marked "Line 2" as seen in the image on the next page.

BA-260
60W



RCA inputs

Amplifier



RCA inputs

For further assistance or information, contact American Time at 800-328-8996 or via our [contact form](#).