

Top of the Line Printer Picks Bogen Audio for Safety & Productivity

COLORGRAPHICS

Costa Mesa, CA

The Challenge

- Provide pages that can be heard through earplugs and 85 dBspl of ambient noise
- Automatically adjust paging volume when presses stop running
- Ensure pages are clearly intelligible despite acoustic challenges such as concrete floors and walls in large open areas
- Install the communication system according to a tight construction schedule to minimize downtime
- Provide background music in office areas

The Solution

With three California locations and another in Seattle, ColorGraphics provides quality printing service to many industries nationwide including automotive, education, electronics, entertainment, sports, financial, and healthcare. The company takes great pride in its work and while pleasing customers is essential for prospering in a competitive market, management understands that employee safety and productivity are critical for producing a quality product. To support safety and increase productivity, ColorGraphics' managers realized they needed a state-of-the-art paging system to produce intelligible pages under demanding conditions for clear, efficient communication. Based on prior positive experiences, Paul Mathews, ColorGraphics' MIS Department Manager, recommended Bogen audio components for a new communication system when the Orange County operation moved from its Tustin location into a building in Costa Mesa.

DMD Communications of Orange, California was tapped to handle the critical installation of the new system, which needed to be installed quickly while the presses and their support systems were being installed in the new building. With its concrete walls and floors and three presses generating in excess of 85 dBspl of noise when running, superior speakers and other audio components were needed to meet the safety and productivity goals. "Depending on our workload, we usually operate the presses 24 hours a day," said Pamela Graham, Facilities Manager.

Unlike some manufacturing operations in which a machine might be turned on at the beginning of a shift and run for 8 hours, a printing press runs as long as it takes to complete each order. The press is then cleaned and prepped to run the next job. As a result, the three eight-color presses are regularly turned on and off during each shift. This presents a challenge for a sound system because while the presses operate, the decibel level reaches above 85 dBspl but when the presses stop, sound levels may resemble those of an office area, 55-65 dBspl.

PRINTING PLANTS



Multi-Zone System

To meet both requirements, a Bogen Ambient Noise Sensor System (ANS501) automatically sets the sound paging level high for when the press operates and low for when it's not running. In either case, clear and intelligible pages are assured thanks to the 30-watt Bogen Horn Speakers (SPT30A) mounted in the press area.

In addition to the 30-watt Horn Speakers a variety of others were used throughout the facility, including full-range Drop-In Ceiling Speakers (CSD2X2), Foreground Speakers (FG15W), and 15-watt Horn Speakers (SPT15A). "The ceiling speakers are used for the client lounge and café, lunchroom, and shipping areas," according to Graham. "The foreground speakers are installed in the estimating, prepress, and sales areas within the office area."

Other system components include Bogen Telephone Paging Amplifiers (TPU250 and TPU60B), a Bogen Single-Zone Universal Telephone Interface (UTI1), Ambient Noise Sensor Microphone (ANS500M), and Bogen Digital Feedback Terminator (DFT120). The DFT120 ensures that there will be no acoustic feedback through the telephones when the system is working at high levels.

To enable the most efficient paging and prevent acoustic feedback through the telephones, the telephone system was connected to a Digital Feedback Terminator (DFT120) through a UTI1 Interface. The DFT120, in turn, was wired to the TPU60B Amplifier, powering both the Drop-In Ceiling Speakers (CSD2X2) and the Foreground Speakers (FG15W) in the quiet areas. An Ambient Noise Sensor System (ANS501) was also connected to the DFT120 and wired to a TPU250 Amplifier driving the 30-watt Horn Loudspeakers (SPT30A). The Ambient Noise Sensor Microphone (ANS500M) was placed between the presses.

BOGEN

Quick and Easy Install

"The challenge for us entailed coordinating audio installation with installation of presses, data communication, and electrical systems for presses and the prepress area as well as communication with our other three locations," said Graham. The task was made easier because DMD did its homework and preset speakers prior to installation.

"Since we had set the speakers to what we knew would probably work well, the time to make adjustments was minimal – only a few hours," said David Delaney, CEO of DMD Communications. "As a result, installation in the 39,000-square-foot plant took a team of two only four days working in four locations – the press area and three office areas," he explained. The installation crew mounted the SPT Horn Speakers 18 feet above the floor in the press areas. ANS-controlled horns are tapped to the highest level to provide greater sound pressure levels than the presses can generate. All headend equipment is located in the server room. "The horn speakers are evenly spaced in three rows near the presses so there's good coverage," said Delaney.

The Results

"Paging is clear and volume control is very good," said Graham. Referring to ColorGraphics managers, "I believe they chose Bogen products for their high quality, and good service support. Other suppliers' products are not equal," said Delaney. "Safety and productivity were both driving motivators to install an effective audio communications system."

Product Highlights

Speakers

To minimize installation time while assuring easy-to-understand pages, Bogen Drop-In Ceiling Speakers (CSD2X2) tapped at 1 watt each were selected for the office areas. These speakers are plenum-rated, meeting requirements of UL standard 2043 for smoke and heat release. A seismic attachment point makes them ideal for California-based applications, where building code requirements are focused on earthquake safety.

Bogen Drop-In Ceiling Speakers are designed with a non-reflective off-white finish to blend with ceiling tiles. A finely perforated grille over the entire front of the speaker adds a pleasing aesthetic appearance. The ceiling is made of 2'x4' tiles in most areas; however, where there is a mix of 2'x2' and 2'x4', the installer standardized the visible footprint of the speakers. Bogen Communications provides tile support rails for 2'x4' ceilings.

The off-white colored Foreground Speakers (FG15W) have a woofer and tweeter to provide smooth, wide frequency response, enabling employees to hear lifelike background music as well as pages. Highly efficient Bogen Horn Loudspeakers (SPT15A and SPT30A) were also used to ensure maximum intelligibility for pages in noisier areas. To further ensure clarity, DMD Communications also included a Bogen Digital Feedback Terminator (DFT120) in the audio system because telephone handsets and paging speakers sometimes create acoustical feedback loops. When this occurs, an annoying, high-pitched squeal may result. With its high sampling rate for excellent playback quality, the DFT120 terminator breaks the feedback loop.

Amplifiers

Bogen Telephone Paging Amplifiers (TPU250 and TPU60B) anchor the entire system and include a background music input with variable muting to coordinate music and paging announcements. An additional audio output provides a page-only function for application flexibility. A Bogen Single-Zone Universal Telephone Interface (UT11) was incorporated to permit office-based employees to page using their telephones. Since not everyone speaks at the same decibel level, the Automatic Level Control feature keeps loud voices from creating annoyingly loud pages so employees receive a clear, intelligible page. Background music is automatically muted during a telephone page and gradually returned following a page.

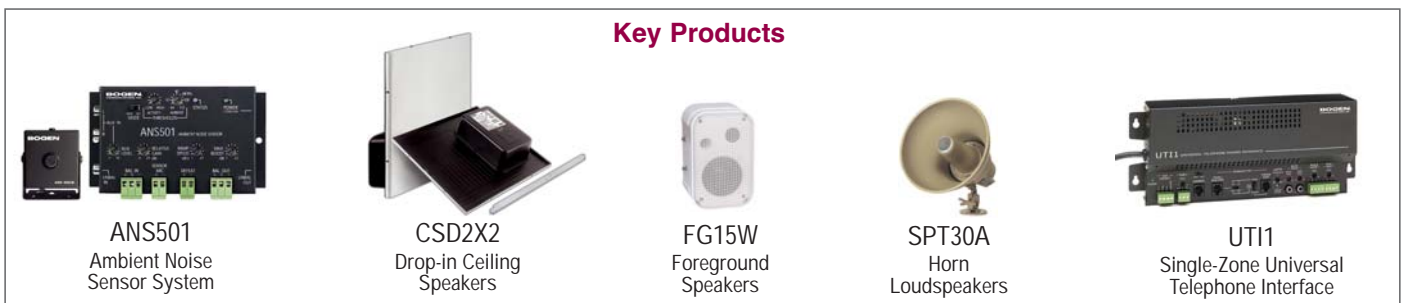
Automatic Noise Sensors

Bogen's Ambient Noise Sensor System (ANS501) automatically adjusts the level of pages and background music electronically and is ideally suited for any location where noise levels frequently rise and fall. The ANS501 is used only in the press area, which has the facility's largest fluctuation in sound levels, where it controls 30-watt horns used to cover decibel levels up to 95 dBspl.

In this particular installation, the ANS500M sensor is located 100 feet from the control unit. In other Bogen customer locations, one or more sensor microphones (ANS500M) have been located up to 2000 feet from the control unit. An adjustable ramp speed feature enables the user to adjust how quickly the page level compensates for high or low noise levels. So if there's a spike or short burst in noise levels, the system can be set to avoid a high-decibel page immediately after the noise spike.

Equipment List

- 8 Bogen Drop-In Ceiling Speakers (CSD2X2)
- 11 Bogen Foreground Speakers, 15-watt (FG15W)
- 5 Bogen Horn Loudspeakers, 15-watt (SPT15A)
- 8 Bogen Horn Loudspeakers, 30-watt (SPT30A)
- 1 Bogen Telephone Paging Amplifier, 250-watt (TPU250)
- 1 Bogen Telephone Paging Amplifier, 60-watt (TPU60B)
- 1 Bogen Single-Zone Universal Telephone Interface (UT11)
- 1 Bogen Ambient Noise Sensor System (ANS501) with 1 Bogen Sensor Microphone (ANS500M)
- 1 Bogen Digital Feedback Terminator (DFT120)



BOGEN
COMMUNICATIONS, INC.

50 Spring Street, Ramsey, NJ 07446 USA
Tel: 201-934-8500 • Fax: 201-934-9832
www.bogen.com

© 2008 Bogen Communications, Inc.
54-3020-14A 0804