Airport Enhances Safety with Automatic Failure Detection

HAGERSTOWN REGIONAL AIRPORT

Hagerstown, MD

The Challenge

- Update airport audio system with latest in technology and reliability
- Design redundant backup to ensure continuous operation
- Automatically raise and lower volume in relation to ambient noise
- Select optimal speakers for expanded airport passenger waiting area

The Solution

On average, the Hagerstown Regional Airport is responsible for 140 arrivals and departures per day and is home to 191 small aircraft based on the property. In addition, the airport receives four commercial arrivals and departures every day. Hagerstown is also honored to serve as the airfield for the President of the United States on his way to and from Camp David.

Yet no backup communication system was in place, thus, improving communication safety was at the top of airport management's list. As a result, they decided to explore the use of a dual amplifier system to solve the problem. While enhanced safety resulting from amplifier redundancy shows great concern for customer health and security, management had an additional challenge. Due to large fluctuations in ambient noise levels they needed a way to keep paging messages at an appropriate level as crowds ebb and flow through the public areas throughout the day.

In search of a solution, they sought the expertise of Larry Messer, Vice President, Commlink Systems, Hagerstown, MD. Messer recommended the installation of a Bogen Ambient Noise Sensor System (ANS501). At off peak hours, noise levels are very low. However, during active periods, ambient noise increases substantially. The Bogen Ambient Noise Sensor System (ANS501) automatically lowers the volume of pages when ambient noise levels are low and raises paging volume as ambient noise rises. As a result, excessive paging volumes don't "lift people off their seats" when noise levels are low yet provide enough volume to enable messages to be heard over the din of the crowd.

Over the years, airport management has made other improvements. For example, a main passenger waiting area was expanded and 12 Bogen Ceiling Speakers (S86T725PG8W) were installed to ensure passengers had the latest flight information before boarding.

System Components

To prevent communications failure, the Hagerstown Regional Airport managers invested in amplifier redundancy using an Automatic Failure Detector and Substitutor (AFDS2), and a pair of Gold Seal Series Public Address Amplifiers (GS250). One GS250 operates as a primary amplifier and the other serves as a backup in case the first one fails.

The Ceiling Speaker Assemblies provide the required intelligibility through a range of sound levels to help passengers hear announcements clearly. Other system components include 1 Gold Seal Series Public Address Amplifier (GS150), 1 Mixer/Pre-Amplifier (CAM2) and 2 Ambient Noise Sensor Systems (ANS501).

To connect these components, the Commlink installers wired the Automatic Failure Detector and Substitutor (AFDS2) between two GS250 amplifiers. The AFDS2 also connects with a panel monitor and an Ambient Noise Sensor (ANS501). The Mixer/Pre-Amplifier (CAM2) connects with four microphones as well as with both GS250 amplifiers. The panel monitor is wired to a third Gold Seal Series Public Address Amplifier (GS150) located in the hold room. The primary and backup GS250 amplifiers and GS150 as well as the panel monitor connect with the Ambient Noise Sensors (ANS501) — one of which is in the terminal and one is in the hold room. These ANS501 sensors, in turn, connect with existing speakers in the terminal and new Ceiling Speaker Assemblies in the hold room.

There are two new microphones in the hold room connected to the GS150 and four existing microphones in the terminal connected to both GS250 amplifiers, permitting airport personnel to move quickly to a nearby location to make an announcement.

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The Results

"The updated paging system is clear and has been working fine throughout the airport including in the screening area and office," said Phil Ridenour, Hagerstown Regional Airport Fire Chief. "Service has been good too. We received training, and have greater system reliability and that brings peace of mind," he added.

Quick and Easy Installation

For the expanded pre-boarding area, which measures 80 feet by 80 feet, the Commlink Systems crew spent about five days installing ceiling grids and 12 Bogen Ceiling Speaker Assemblies (S86T725PG8W). Pulling wires among speakers, amplifiers and the automatic noise level unit and sensor took only one day during the week. A battery backup power supply was also installed.

Product Highlights

Mixer

The Bogen Mixer (CAM2) is a 5-input mixer/pre-amplifier that allows for the use of paging microphones and telephone paging. Clipping indicators for all 5 inputs and an output level meter provide information about sound integrity. The CAM2's balanced mixer output can be switched between line level (+4 dBµ) or microphone level (-50 dBµ).

Amplifiers

Bogen designed its Gold Seal Series Public Address Amplifiers (GS150 and GS250) to provide ultra-high reliability. The series includes 5 models, with a wide range of power output from 35 to 250W. Thermal and overload protection as well as rugged and proven components contribute to long and trouble-free life. Other features include a unique 10-band dual-function equalizer for acoustic shaping or feedback control. The Graphic Equalizer enables customers to use up to 6 inputs to accommodate 4 microphones, a telephone, and an auxiliary input, for example.

Ambient Noise Sensor

The Bogen Ambient Noise Sensor System (ANS501) was designed for reliable performance in dynamic communication environments. By constantly monitoring ambient noise levels, the ANS501 ensures page announcements are always heard above crowd noise levels so airport visitors know where to go and what to do. The system includes a sensor microphone module (ANS500M) that monitors the ambient noise and a 12-volt power supply. Up to 4 microphone sensors can be used with the ANS501 to cover large areas. Installers may locate the sensor microphone up to 2000 feet away from the control unit.

Failure Detector

Bogen's Automatic Failure Detector and Substitutor (AFDS2) assures communication by substituting a backup amplifier for a main or primary amplifier if its output drops by as little as 2 decibels. The changeover is nearly instantaneous with virtually no loss of signal. This dependability enables the airport's managers to feel comfortable knowing they can rely on the communication system. The AFDS2 emits an alarm tone when a failure occurs. This alarm can be silenced by pressing the silence button; however, the LED will stay on for the duration of the malfunction.

Speakers

The Ceiling Speaker Assemblies (S86T725PGW) produce excellent audio quality for airport visitors. The speakers are popular with installers because they are easy to install. The assembly includes an 8" cone speaker, a 4W transformer, and a 13" steel grille. Volume control options vary.

Specifications

- 12 Bogen Ceiling Speaker Assemblies (S86T725PG8W)
- 2 Bogen Gold Seal Series Public Address Amplifiers, 250W (GS250)
- 1 Bogen Gold Seal Series Public Address Amplifier, 150W (GS150)
- 1 Bogen Automatic Failure Detector and Substitutor (AFDS2)
- 1 Bogen Mixer/Pre-Amplifier (CAM2)
- 2 Bogen Ambient Noise Sensor Systems (ANS501)

Key Products

S86T725PG8W
Ceiling Speaker Assemblies

Gold Seal Series
Public Address Amplifiers

Automatic Failure Detector
and Substitutor (AFDS2)

CAM2 Mixer/Pre-Amplifier

ANS501
Ambient Noise Sensor Systems

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