

## NORTH CANBERRA HOSPITAL EMERGENCY DEPARTMENT PA SYSTEM UPGRADE



### PROJECT OVERVIEW

Amber Technology partnered with Audio Tech to deliver a critical upgrade to the public address (PA) system within the Emergency Department at North Canberra Hospital. The project focused on improving speech intelligibility and reliability in a high-pressure clinical environment, where clear communication is essential for staff coordination and patient safety.

The existing PA system was no longer meeting operational requirements, with ongoing issues around feedback, echo and poor audio clarity. The brief called for a robust solution that could eliminate these issues while integrating seamlessly into the hospital's existing infrastructure and daily operations.

### INITIAL PROJECT REQUIREMENT

The hospital's Emergency Department was operating with an ageing PA system based around a Redback PA amplifier, six boundary microphones mounted on wall switches, and approximately 18 in-ceiling speakers. Over time, the system had developed significant performance issues.

Multiple microphone locations were prone to feedback, and announcements were often difficult to understand across large sections of the department. While overall volume levels were sufficient, the clarity and consistency of audio were poor, creating frustration for staff and reducing the effectiveness of emergency announcements.

The requirement was to replace the existing PA system with a solution that delivered clear, intelligible speech and eliminated feedback issues, without disrupting day-to-day hospital operations.

### PROJECT OBJECTIVES

The primary objectives for the upgrade were:

- Eliminate feedback and echo from wall-mounted microphone points
- Improve overall speech intelligibility across all connect zones
- Deliver a reliable, easy-to-use system suitable for a clinical emergency environment
- Minimise disruption to hospital operations during installation.

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### SOLUTION AND PRODUCT SELECTION

Amber Technology specified a **Zenitel-based PA and intercom solution**, integrating intercom stations with relay-controlled audio routing to eliminate feedback and ensure clear communication throughout the Emergency Department.

The final design included:

- **1 Zenitel CRM-V2 IP intercom master station**, strategically located throughout the Emergency Department
- **8 x TCIS-2 intercoms** paired over the network with a **Zenitel TKIS-2 VoIP intercom interface module**, converting IP audio streams into line-level signals
- Line-level audio routed into **Australian Monitor HS250v2 mixer amplifiers**, each driving a distributed 100V speaker system
- **Australian Monitor QF6CS in-ceiling loudspeakers**, providing even coverage across the facility

To maintain clear audio and prevent feedback particularly in zones where intercoms are installed near speakers the local speaker lines were routed through the onboard relay contacts of the corresponding TKIS modules. This allows each intercom to automatically mute its associated speakers when active, ensuring intelligible communication without acoustic interference.

Zenitel was selected for its proven performance in mission-critical environments such as healthcare, where reliability, speech clarity, and feedback suppression are essential. Australian Monitor amplifiers and speakers were chosen for their high-quality audio reproduction and flexibility in distributed PA environments.

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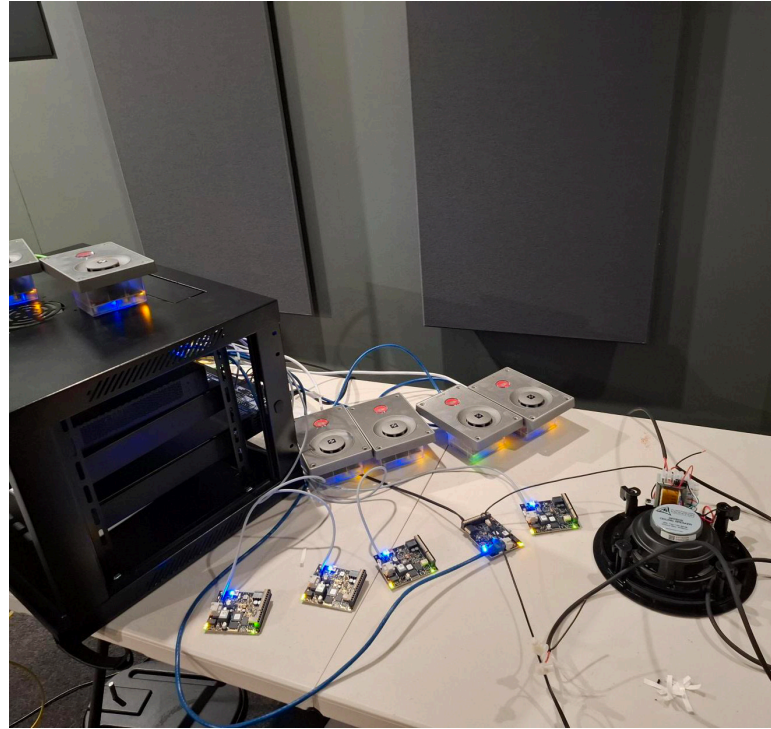
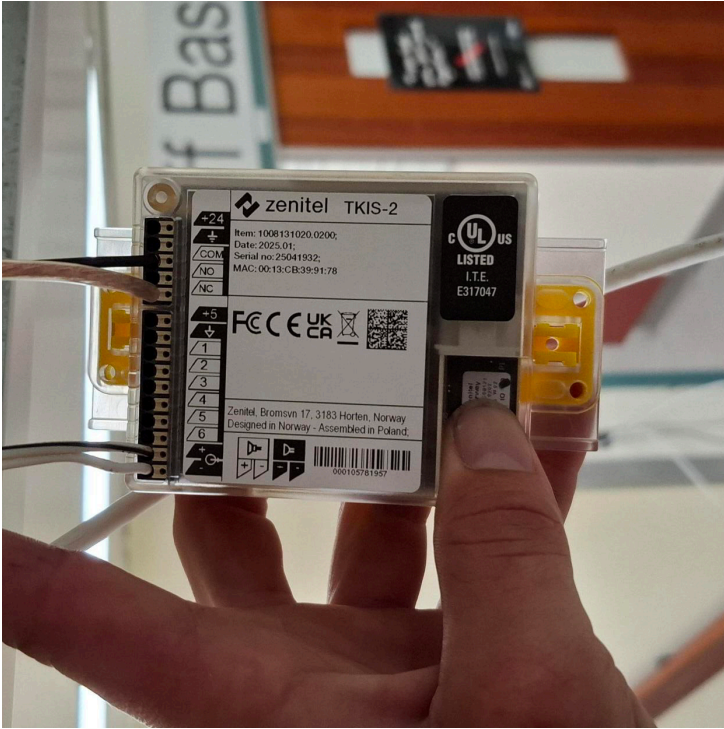


CRM-V2 Master Intercom



TCIS-2 Intercom

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### INSTALLATION CHALLENGES

The installation presented unique logistical challenges due to the nature of the Emergency Department environment. Access to certain rooms and areas was restricted during operational hours, requiring careful coordination with hospital staff.

Audio Tech worked efficiently within tight access windows, completing works quickly and precisely to ensure minimal disruption to clinical operations. Flexibility and planning were key to navigating these constraints while maintaining installation quality and safety standards.

### RESULTS AND OUTCOMES

The upgraded PA system has delivered a clear improvement in day-to-day operation for the Emergency Department. Hospital staff reported immediate satisfaction with:

- The clarity and consistency of announcements
- The elimination of feedback and echo
- The professional design and ease of use of the new system

### TECHNOLOGY SOLUTION

#### Zenitel Public Address & Intercom Solution

- **TCIS-2 Intercom Stations & the CRM-V2 master station**, providing reliable, high-quality voice communication at each key point within the Emergency Department
- **TKIS-2 VoIP Intercom Interface Modules** – converting IP audio streams to line-level signals, with onboard relay contacts to mute local speakers and prevent feedback

#### Australian Monitor Audio System

- **HS250v2 Mixer Amplifiers** – distributing audio to multiple zones with precise level control
- **QF6CS In-Ceiling Loudspeakers** – delivering clear, consistent sound coverage throughout the facility

This combination of Zenitel and Australian Monitor products created a PA system that is robust, intelligible, and perfectly suited to the operational demands of a hospital emergency department.

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