January 22, 2003

**TO:  ALL HEALTH CARE DISTRIBUTORS – U.S., CANADA & EXPORT**

**SUBJECT:  REVISED - RESPONDER® 4000 OVERHEAD PAGING INTERFACE**

This Application Note has been revised to include the programming of an audio station on the Domeless Controller in the database, and to add a resistor in the wiring of the amplifier to the Domeless Controller to eliminate Trouble message for the non-existent audio station that is programmed. We have reprinted the entire Application Note with changes, for simplicity.

**APPLICATION:**

Interface a Responder 4000 Nurse Call System to an Overhead Paging System for audio paging into corridors distributed speakers.

**OPERATION:**

A Nurse Console Model R4K4020 is programmed to put a single audio station connected to an Audio Domeless Controller station Model DCA200 into a group page called "Overhead Page". The DCA200 station speaker output is used to drive a user supplied Volume Control Pot wired to the input amplifier of an Overhead Paging System. The Console Operator selects the "Overhead Page" button, and using the console PTT button or Handset, makes a page announcement into the corridor speakers.
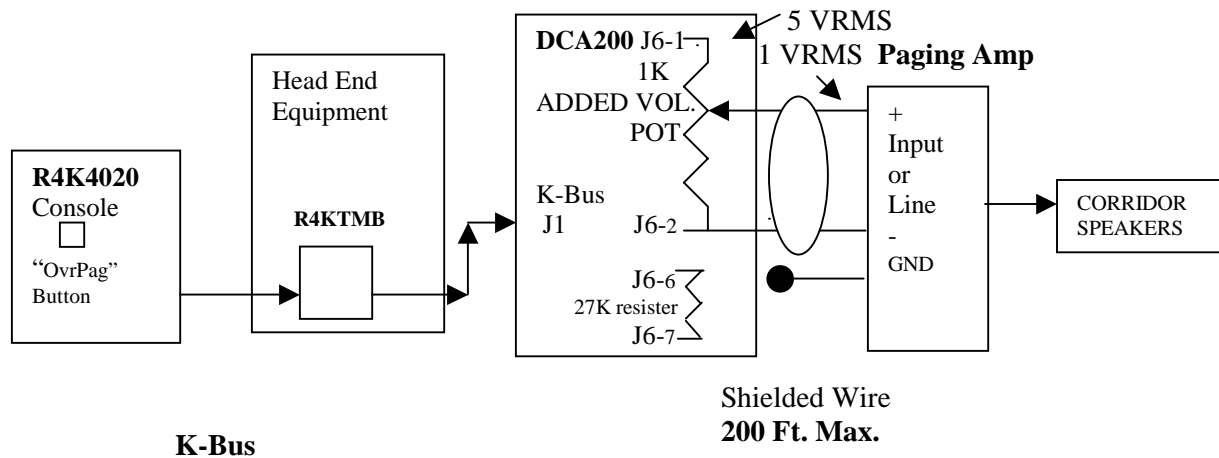
**WIRING:**

Locate the Model DCA200 within 200 feet of the Overhead Paging System Amplifier/Preamp input. Mechanically mount a 1K $\Omega$ Volume Control Pot in the DCA200 back box and wire it across the DCA200 Speaker output [Connector J6 (separate right 2 pins of 1st station connector) - Pins 1 & 2 (where White/Blue & Blue/White wires would go)]. Attach a single (1) pair shielded wire from the center arm and bottom of the pot (shield open at this end). Connect the other end to the Overhead Paging System Amplifier input (see diagram below) [arm of pot to +, bottom of pot to –, input pin or terminal, and shield to Ground]. Use the shortest analog audio line as possible to reduce possible environment electrical noise. Also connect a 27K $\Omega$ resistor between Connector J6 Pins 6 & 7. This mimics a station on the port to eliminate Trouble messages.

The Paging Amplifier should have an input sensitivity of 0.7 – 1.0 Volts RMS at 20K Ω input Impedance. Alternatively, the Paging System could be a Preamp/Power Amp which has a Line Input which should also have an input sensitivity of 0.7 – 1.0 Volt RMS at 600 Ω Input Impedance. The shielded wire should be routed away from AC Power lines that may introduce hum and only connected to ground at one end (preferable at the power amplifier) to prevent a ground loop.



## PROGRAMMING:

Set the dipswitch of the DCA200 to the required unique K-bus address. Program the DCA200 to the NIM with the appropriate K-bus address. Program an audio station to Port 1 of the DCA200. Use a R4K12A or R4KSS station. Using the Responder 4000 Configuration Program set up one of the assignable, Console buttons as a group page button with only the R4K12A or R4KSS on this DCA200 as the single station in the group. Name the button as required - such as "Overhead Page" → "OvrPg" or "OvrPag" (6 char limit).

## TESTING & ADJUSTMENTS:

With the Responder 4000 system operational, pick up the console handset on the console, push the "OvrPag" group page key and speak into the handset. A second technician should adjust the 1K Ω Volume Control Pot for adequate Page Audio level from the corridor speakers. If using a Preamp or integrated power amplifier (with mic preamps and power amp in the same chassis) that includes a Line input with level control, that input volume control will also need to be adjusted.