

Voice Evacuator designed and manufactured for Zeta Alarm Systems



New fire regulations require that public buildings have not only a fire alarm but also a means of providing voice announcements throughout the building to assist with evacuating the building in an efficient manner. There are two standard messages: *Alert*, which indicates that there is an emergency situation, wait for instructions, and *Evacuate*, which indicates that you should leave the building now. These allow for phased evacuation of a large building without overloading the escape routes and causing panic. In addition, a local microphone allows fire staff to make their own announcements over the same speaker system.

On this project we were responsible for designing and manufacturing the electronics and software. The enclosure itself was designed by Zeta Alarm Systems to fit in with the other products in their range.

Older systems used speech synthesis chips to store the audio messages, or telephony-grade compression; in either case the resulting sound quality is poor. We chose to use the newer high capacity flash memory chips to store real recorded speech in digital form with good playback quality.

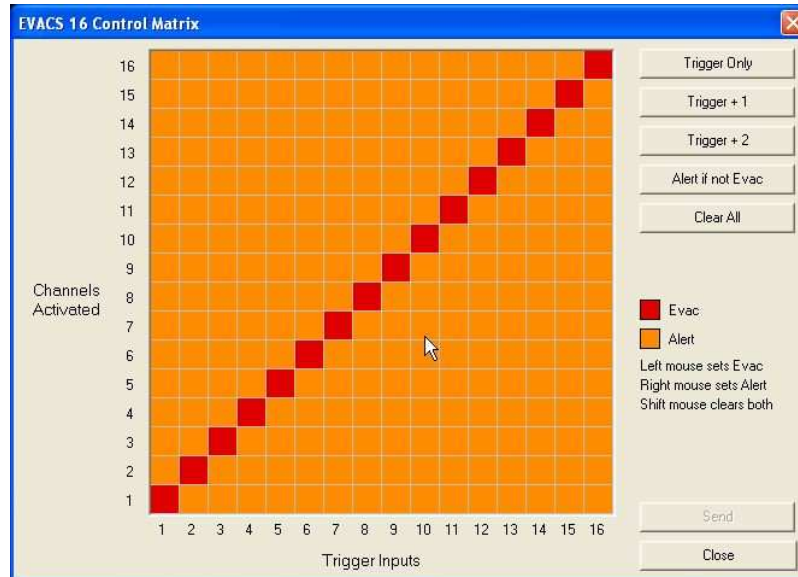
The 2 audio signals have to be generate simultaneously and then routed to 16 power amplifiers, so that any output channel can play one or other of the messages, or neither, with user-programmable volume to suit the size of the area being covered by that set of speakers.

In order to send the audio over large distances we used 100V line drivers, and developed a system for monitoring the speaker lines continuously when not in use to ensure that they remain unbroken and ready for use in an emergency.

We also developed a PC program to upload the audio messages and announcement tones to the device, as well as to configure the unit for operation on site. Communication uses a USB interface, so the software can be run on a laptop computer or netbook. Auto-detection of the connected device removes the need for program setup.



To assist with evacuating a multi-storey building, each floor can have a separate trigger input to generate the evacuation message. We developed a control matrix method such that when one floor is evacuated the adjacent floors will automatically be sent the alert message to prepare them to leave soon afterwards. This can be set up by the installer using the PC software to suit the layout of the building.



The electronics are now in full production at LS Design, shipping to Zeta Alarm Systems for final assembly and test before being dispatched to their customers worldwide.

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