

THE AVAC VOICE ALARM SYSTEM



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AVAC is a new low-cost, high-quality modular voice alarm system designed to simplify the provision of a BS5839 part 8 compliant voice alarm system.

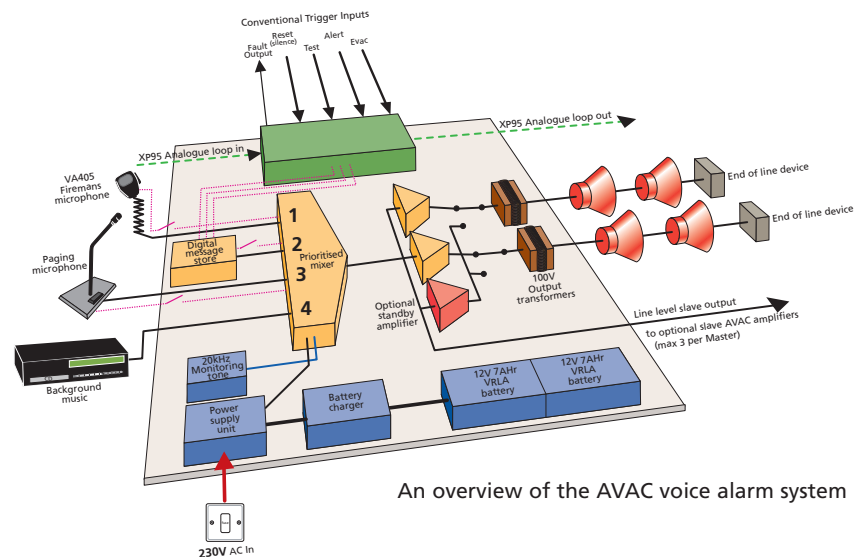
The fact that multiple AVACs (and slaves) can be connected to a fire detection system makes AVAC ideal not just for simple one zone installations but for virtually all small to medium sized applications, including phased evacuation projects.

With high quality pre-recorded digital messages, near CD-quality sound and ancillary connections for optional emergency microphones, public address and background music equipment, AVAC is particularly suited for factories, office blocks, shopping centres, hotels and leisure centres.

AVAC is suitable for category V1 and V2 systems complying with BS5839-8 (2008).

In one compact wall-mountable enclosure, the AVAC comprises:-

- A Context Plus XP95 specific interface for direct connection to a Context Plus fire alarm loop
- A straightforward fire alarm interface that can be connected to any analogue addressable fire alarm system via a series of input/output units on the loop
- A high-quality digital message store containing programmable Evacuate, Alert and Test messages
- A prioritised mixer
- Two x 60-Watt continuous average power Class D amplifiers (plus an optional standby amplifier)
- An EN54-4 compliant switch mode power supply and battery charger
- Three balanced line level inputs for the (optional) connection of an emergency microphone, paging/public address microphone(s) and a background music source
- Space for 2 x 7Ah VRLA batteries typically providing at least 24 hours standby and 30 minutes alarm running time
- A slave line level output allowing the connection of up to 26 slave AVAC amplifiers to extend loudspeaker coverage and allow greater flexibility over public address paging and background music distribution (as they have their own paging and background music inputs)



An overview of the AVAC voice alarm system

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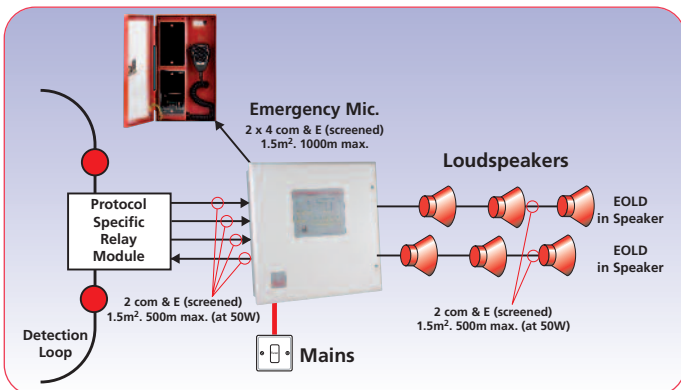
OPERATION

The principal function of AVAC is to generate clear voice messages to alert people to the presence of fire, normally under the control of a fire detection system. When AVAC receives a message trigger from the fire detection system, it responds by playing an appropriate message (Evacuate, Alert or Test) from its digital message store. This message is amplified and broadcast around the site via the system's loudspeakers. Three balanced line-level audio inputs are also provided for the connection of optional equipment such as an emergency microphone (to allow live directive announcements by the emergency services), public address paging equipment and a background music (BGM) source such as a CD player or radio tuner. The level of all four audio channels (digital message store, emergency mic., paging and BGM) can be set using four internal level controls. If multiple inputs and/or digital message triggers are active at the same time, AVAC's prioritized mixer ensures that only the most urgent audio signal is broadcast, as indicated below:-

Priority	Description
1	Emergency microphone
2	Evacuate, Alert or Test message (Evacuate overrides Alert, Alert overrides Test)
3	Paging / public address microphone(s)
4	Background music source(s)

AVAC'S FIRE ALARM INTERFACE

The host fire detection system can be connected to AVAC via three polarized, opto-isolated trigger inputs. These inputs are designed to control AVAC's digital message store and will activate when a steady voltage of 24V DC is applied to them.



All inputs are prioritized according to the type of messages they trigger. AVAC can also be connected directly to any Apollo protocol XP95, Discovery or Xplorer analogue addressable fire alarm loop via its LOOP input. When connected in this way, AVAC emulates an Apollo sounder control module and must be addressed as such. Once addressed, AVAC responds to a fire panel's commands by activating its Evacuate message when it receives a continuous sounders command and its Alert message when it receives an intermittent sounders command. It also reports any fault conditions back to the analogue loop as a general fault allowing the fire detection system to annunciate the fault location accordingly.

MONITORING

In order to comply with current life safety standards, AVAC's loudspeaker lines, PSU, batteries, emergency microphone and digital message store are all monitored for short circuits, open circuits, earth faults, discharge, disconnection and data corruption as appropriate. Non-critical inputs such as public address paging and background music are not monitored and, in the event of Mains failure, are automatically cut off to conserve battery life. This contributes to AVAC's efficient standby time - typically 24 hours (plus 30 minutes running time) using 2 x 7 Ah VRLA batteries. Provided the system is wired as recommended, an AVAC fault condition will be reported as a sounder fault on the fire detection system, with more detailed fault indication provided on the front of AVAC.

DIGITAL MESSAGE SELECTION

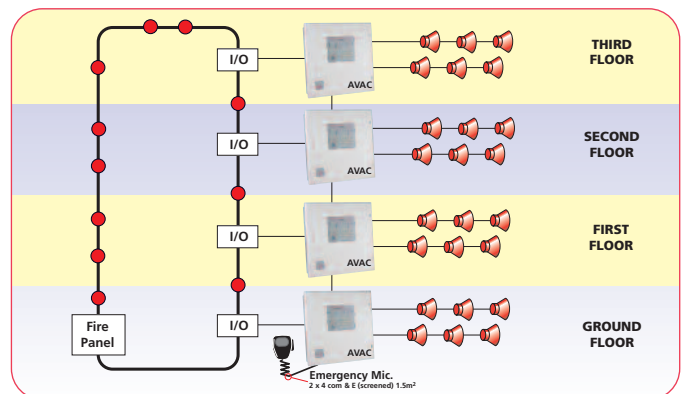
AVAC's digital messages are stored in MP3 format on a monitored, non-volatile memory card. The content of these can be adjusted to suit the application using a series of internal links. For example, the Evacuate message can be configured to state that 'a situation has arisen' or 'a fire has been reported' and to warn people - if appropriate - not to use the building's lifts.

AMPLIFIER AND LOUDSPEAKER CIRCUITS

AVAC is supplied with a minimum of two separate 60-Watt continuous average power Class D amplifiers. These are designed to drive AVAC's two loudspeaker circuits, each of which will accommodate up to 60 Watts of loudspeaker load (although 50 Watts is recommended to allow for system changes), through 100V line transformers, which step up the voltage for distribution around the site. An end-of-line device must be connected across the terminals of the last loudspeaker on each circuit and both circuits must be calibrated at commissioning using AVAC's calibrate button to ensure correct monitoring. Some AVACs feature an additional standby amplifier that will switch in if either of AVAC's regular amplifiers fail, a requirement of some life safety voice alarm specifications.

MULTIPLE AVACs AND SLAVE AMPLIFIERS

There is no limit to the number of master AVACs that can be used per system but the VA405 emergency microphone can be daisy-chained to a maximum of 26 master AVACs. For systems requiring more than one emergency microphone, up to four VA407 emergency microphones can be connected to a system. However this will reduce the number of AVAC masters that can be interlinked to 20 (for systems with two VA407s), 10 (for systems with three VA407s) and 6 (for systems with four VA407s).



To increase audio coverage in large areas, up to 26 slave AVACs can be connected to one master AVAC. Slave AVACs repeat all emergency microphone and digital message broadcasts that are made at the master. They also feature their own paging and background music inputs meaning localized paging and background music can be easily implemented, a particularly useful feature for tenanted office block applications, etc.

