

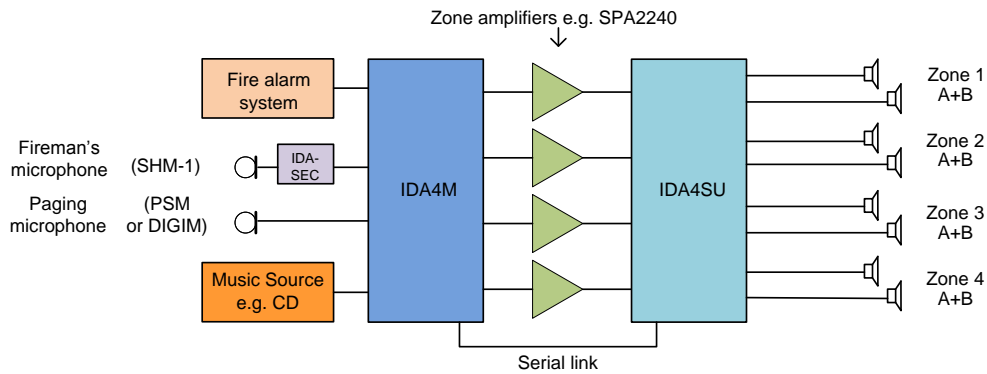
Application Example

IDA4M

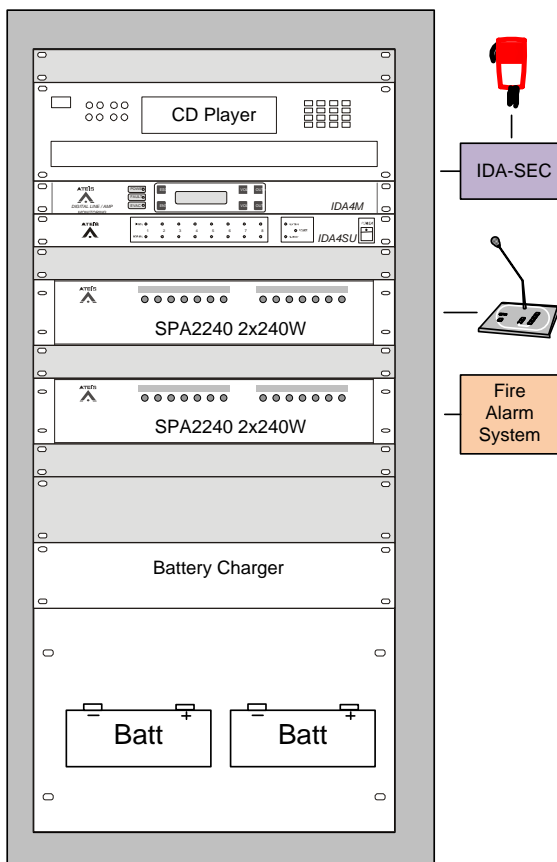


Introduction

Part of the SINAPS product range, the IDA4M and associated modules can be used to create Public Address and evacuation systems ranging from simple to very complex. This example shows the IDA4M controller in a four zone Voice Alarm configuration, compliant with EN60849 and BS5839 pt 8. This configuration could be used in a small shop or office.



Block Schematic Diagram Of Four Zone Voice Alarm System



Typical Rack Layout

System Description

The IDA4M accepts audio inputs from the microphones and CD Player and routes them to the desired zone as selected by the microphone control buttons or the IDA4M configuration. The IDA4M also contains a digital message store, which holds emergency messages that can be triggered automatically by the fire alarm system or manually from a microphone or control panel.

The SPA2240 amplifiers contain two 240 Watt amplifiers per unit. In this illustration, there are four amplifiers in total to serve the four zones. Inputs to the amplifiers are controlled by the IDA4M. Note that a spare amplifier can be connected to the system in a hot-standby configuration.

The IDA4SU unit adds compliance to BS5839 pt 8 by dividing the output of each amplifier into two loudspeaker circuits, A and B. It then monitors each circuit for fault conditions and, if such a condition arises, disconnects the faulty circuit from the system. By physically interleaving the loudspeaker circuits within the building, failure of one circuit will not result in a complete loss of audio within the zone.

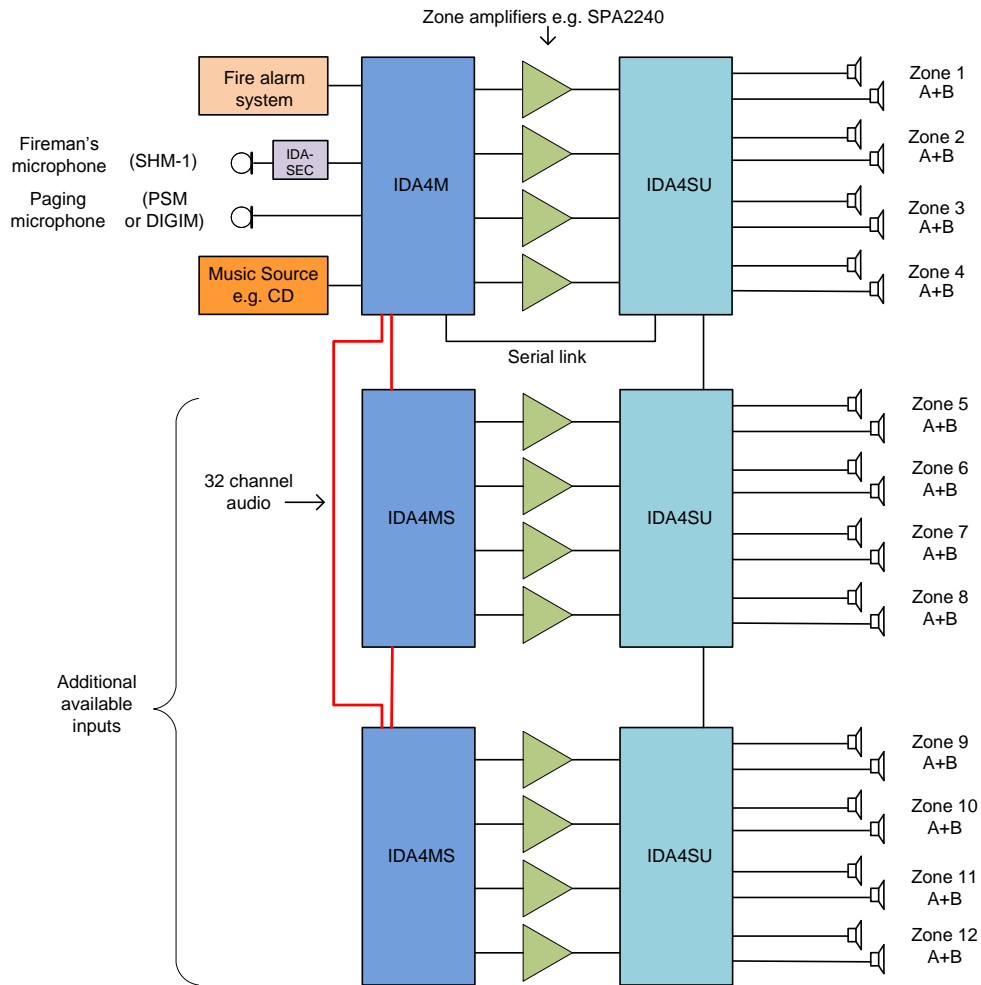
The system normally operates on mains power. A standby battery set will support the system for 24 hours in standby mode and 30 minutes under full load conditions i.e. broadcasting at full volume.

The IDA4XM variant offers the Automatic Noise Sensing feature. A noise sensing microphone connected to one of the 0dB inputs permits automatic adjustment of the broadcast audio level in response to variations in ambient noise.

Application Example IDA4M continued



For a more complex system covering more than four zones, IDA4MS slave controller units are added to the basic system. For BS5839 pt 8 compliance, an IDA4SU module must be added with each IDA4MS unit.



The diagram shows a SINAPS system expanded to twelve zones.

Additional inputs may be connected to the IDA4MS units and routed to any zone within the network. The 32 channel audio link should be implemented in screened CAT5 cable for optimum results.

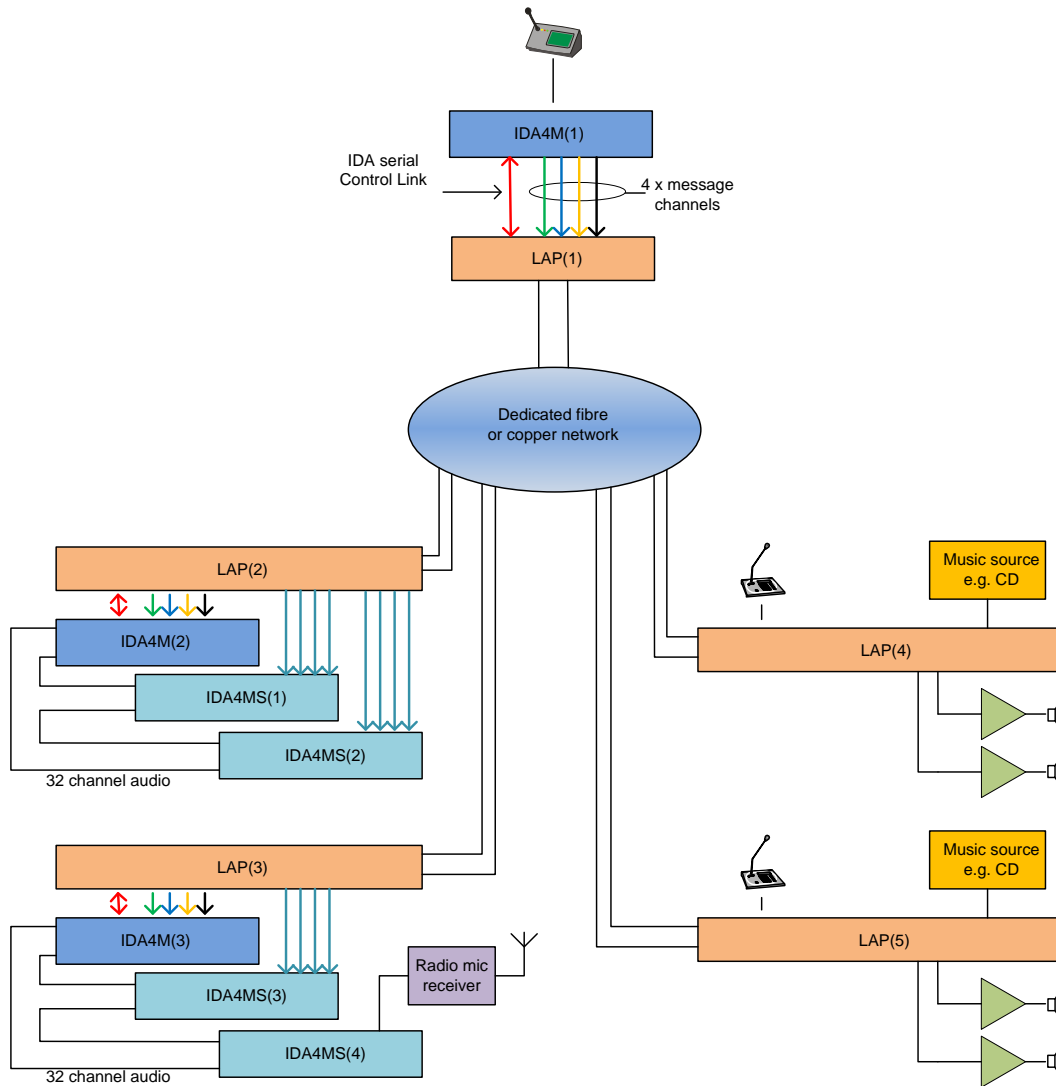
Up to 63 IDA4MS slave units may be connected to an IDA4M master, enabling systems up to 256 zones to be created.

Note that a standby amplifier can be added to each master or slave controller.

Like the IDA4XM mentioned on the previous page, the IDA4XMS features Automatic Noise Sensing (ANS).

Application Example IDA4M continued

The number of channels within a system covering a wide area may be increased by using the Linked Audio Processor (LAP) product. See separate data sheet for details of the LAP and see the next page for notes covering the diagram below.



Simplified block schematic showing SINAPS with LAP. Amplifiers are not shown for the IDA4 products.

See previous pages for applications including amplifiers and next page for notes covering the diagram above.

Application Example IDA4M continued



Please refer to the LAP data sheet for more detailed information on the product. The LAP has sixteen physical input or output channels, arranged in groups of four, depending upon the chosen configuration. Thus, the LAP is available in the following configurations.

16 inputs
12 inputs 4 outputs
8 inputs 8 outputs
4 inputs 12 outputs
16 outputs

These inputs and outputs appear on the connectors at the rear of the unit. Within the supplied configuration software, 'virtual' input and output ports are also available. Known as Net In and Net Out, these ports represent channels on the network between LAP units. Thus, to route an input on one LAP to an output on another, a physical input on the first LAP is routed to a Net Out port. At the second LAP, the signal appears on a Net In port where it can be routed to a physical output port. Using this principle, a distribution system of almost any complexity can be built.

In the diagram on the previous page, two applications are carried on a single LAP network. One application uses the IDA products to create a Public Address and evacuation system whilst the other application uses LAPs to create a paging system with background music.

Within the IDA application, IDA4M(1) is the master station, capable of broadcasting up to four simultaneous emergency message outputs, shown as coloured lines – green, blue, yellow and black. LAP(1) accepts the four inputs on its rear connectors and routes them via the network to LAP(2) and LAP(3) where they are made available to IDA4M(2) and IDA4M(3). The zones into which the emergency messages are broadcast is controlled by data from the master, IDA4M(1), passing over the serial control link (shown in red) via the LAP network.

In the local network associated with IDA4M(2), eight inputs are taken from LAP(2) into IDA4MS(1) and IDA4MS(2). These signals can be from any LAP input, anywhere on the network and could be, for example, background music sources from LAP(4) and LAP(5).

In the local network associated with IDA4M(3), four inputs are taken from LAP(3) into IDA4MS(3). Again, these signals can be from any LAP input on the network. A radio microphone input is shown at IDA4MS(4). This input can be routed to any zone served by the local network associated with IDA4M(3) but not to anywhere else on the LAP network as it is not presented as an input to LAP(3).

In the paging with background music application, LAP(4) and LAP(5) could, for example, operate independently with their own paging microphones and music sources. Alternatively, the music source on LAP(5) could be used as the source for both LAPs or, indeed, any LAP on the network as mentioned above.

The dedicated network may be implemented in copper or fibre or both and a variety of interface cards are available to facilitate any combination. Each card has two ports, one input from the previous device and one output to the next device. By connecting the output of the last device to the input of the first device, a closed, bi-directional loop is formed, which is resilient to failure in any one segment. The input and output port interfaces are available in all combinations shown below to permit a mixed medium network:

Network interface cards

Part No.	Port A (In)	Port B (Out)
LAP NET 1	RJ45	RJ45
LAP NET 2	STFibre	RJ45
LAP NET 3	STFibre	STFibre
LAP NET 4	RJ45	STFibre

Maximum operating distance is 100m per RJ45/CAT5 cable segment and 2000m per multimode fibre segment.

The network is Ethernet based and is capable of carrying 48 audio channels (32 bits, 48kHz sampling) between a maximum of 32 LAP units. Network setup is simplified due to auto-negotiation of network addresses.