

VAR8-ACU Audio Control Unit



DESCRIPTION

The VAR8-ACU is a rack mount version of the Wall Mount Intellevac ACU Audio Control Unit. The Audio Control Unit is the central point for controlling the routing of audio in a network of physically distributed Slave Nodes, either wall mount Intellevac Distributed Amplifier Units (DAU) or rack mount systems.

The Intellevac BS5839 Network uses a RS485 data ring together with three audio rings, to allow for concurrent broadcast of ALERT, EVACUATE, and Fire Microphone audio. Both the audio and data network rings are tolerant to open and short circuit faults, and operate over MICC or other fire rated cables.

The flexibility of the PA/VA fire network controlled by the ACU to include both wall mount and rack mount Slave Nodes, allied with the capacity to support up to 120 network audio zones, make the Intellevac Network the ideal PA/VA solution for large sites.

Announcements and DVA messages initiated from the ACU, or any microphone connected to it, can be broadcast to any zone across the network.

The ACU includes 4 DVA messages, 3 network audio outputs, and 8 universal Mic/Line inputs, each of which can support an ASL multi-zone Paging Microphone. A ninth audio input is provided for miscellaneous functions such as background music. Inputs 1 & 2 support Fire Microphones, which act as an All-Call override across the whole network in the event of processor failure, as required by BS5839 Pt 8.

The built-in fire alarm interfaces include 6 opto-isolated sounder circuit inputs, a RS485 serial port, and a common fault output relay. The base unit VAR8-ACU can have a built-in EF101 European Fire Interface Card, which replaces the base unit opto-isolated interfaces with 8 analogue non-isolated interfaces and 8 open collector digital outputs.

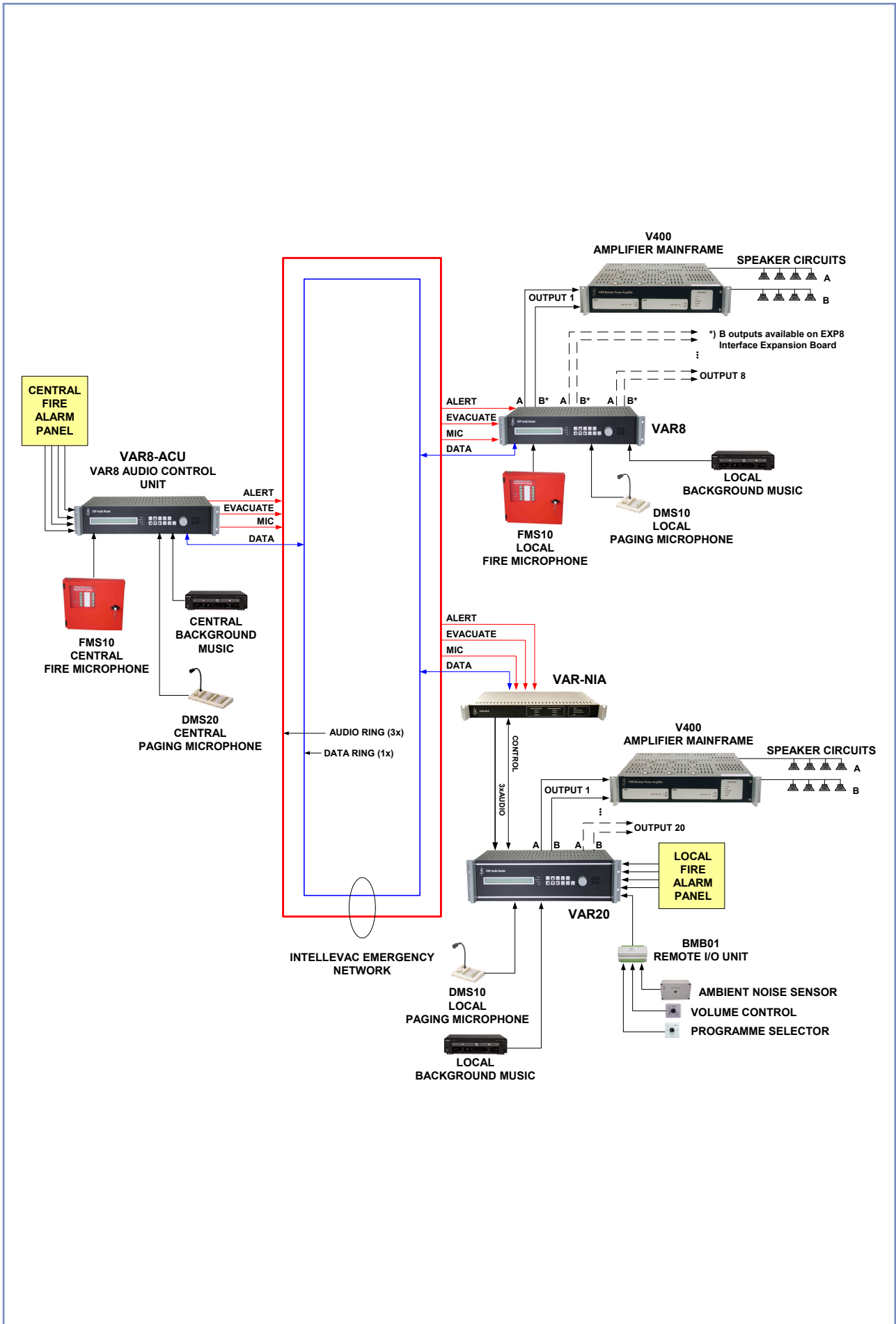
With the addition of the EXP8 Interface Expansion Board, an additional 10 opto-isolated inputs are provided.

Field connections are provided by screw-in terminals.

A serial control port gives the Router the ability to be remotely monitored and configured. The VAR8-ACU also has a front panel display and control interface that provides functions for system commissioning, fault monitoring, and audio monitoring.

For further details, and for information on other products, please visit www.asl-electronics.co.uk.

APPLICATION DIAGRAM



SPECIFICATION

General

Supply Voltage Range	18 to 40 V DC
Auxiliary DC supply for external equipment	18 to 36 V DC @ 200 mA
Fault Log	200 events
Real Time Clock (RTC)	Built-in (externally synchronisable)
Format	19-inch rack mounting frame
Field Connections	Screw-in terminals
Colour	Black with silver annotation

Audio Input

Number of Balanced Audio Inputs	8 ^{1,2}
Sensitivity and Impedance	-20 dBu (77 mV) @ $Z \geq 20 \text{ k}\Omega$
Unbalanced Audio Input	Input 9
Sensitivity and Impedance	Suits 1-2 V RMS units @ $Z \geq 5 \text{ k}\Omega$
Input Overload Margin	40 dB
Input Attenuator Range	0 to -63 dB
Equalisation	3 band plus LF Cut
Surveillance Tone	20 to 30 Hz Required Level 0 to -40 dBFS

DVA

Number of Digital Messages (DVA)	2x50-second messages 2x66-second messages
DVA Bandwidth	100 Hz to 8 kHz

Audio General

THD Input to Output	<0.1 % @1 kHz
Crosstalk	>70 dB @1 kHz
Residual Noise	<78 dBu (A)
S/N Line	>70 dB (A)
Frequency Response (Input to Output)	100 Hz to 20 kHz, -3 dB

Audio Monitoring

SPL from Loudspeaker (Sounder Mode) @ 1 m from the equipment enclosure	$\geq 50 \text{ dBA}$
Frequency Response (From Input through to Speaker)	200 Hz to 10 kHz -3 dB
Gain Range Control (Front panel rotary encoder)	0 to -63 dB

Network Audio Output

Outputs	Outputs 1 to 3
Level	+20 dBu
Graphic Equalisation	$\pm 12 \text{ dB}$ @ 125, 250, 500, 1 k, 2 k, 4 k, 8 k, 16 kHz
Surveillance Tone	10 dBu to -30 dBu 30 Hz Continuous
Gain Control Range	0 dB to -63 dB

Audio Routing

Number of Concurrent Host Routes	20 (max.)
Number of Concurrent ACU-Instigated Routes	50 (max.)
Override per Output	40 (max.)

Control Ports

Digital Inputs³

Number of Digital Inputs	10 on VAR8 20 on VAR8 fitted with EXP8
Interface	Opto-isolated with built-in resistor to suit voltages of +12 to +40 V

Analogue Inputs (on VAR8 with EFI01)⁴

Number of Analogue Inputs	8
Interface	Non-isolated analogue interfaces with internal pull-up to +5 V by 4.7 k Ω
Maximum External Fault Active-Low Input Voltage Threshold	2.5V
Monitored Analogue Contact Thresholds	
Faulty - Open Circuit:	>3.7 V
Healthy - Inactive:	2.5 V - 3.7 V
Indeterminate:	0.8 V - 2.5 V
Healthy - Active:	0.2 V - 0.8 V
Faulty - Short Circuit:	<0.2 V

Digital Outputs (on VAR8 with EFI01)⁴

Number of Digital Outputs	8
Interface	Open-collector

Others

Open Collector Drive (SPEAK NOW LED, ALL CALL LED)	100 mA
Changeover Fault Relay	1
Maximum Global Fault Relay Contact Current Rating	500 mA
RS485 Port	1
Up to 6 Remote I/O Units (BMB01)	
RS232 Port	1
For mutually exclusive use by Host PC for configuration, Intellevac Network ⁴	

¹ Inputs 1 and 2: Hardwire bypass Fire Microphone inputs. Support Fire Microphone, Zoned Fire Microphone, Paging Microphone, Single Button Microphone, or Miscellaneous Input.

² Inputs 3 to 8: Support up to 30 microphone buttons. Support Paging Microphone, Single Button Microphone, or Miscellaneous Input. Support up to 20 microphone buttons.

³ When the VAR8-ACU is fitted with an EFI01, the 10 digital inputs on the VAR8 base unit are replaced by the EFI01 analogue inputs and digital outputs.

⁴ The RS232 port is internally used for system networking. It may be temporarily disconnected from the network, and connected to a Host PC for configuration purposes.

Network

Network Audio Channels 1, 2 or 3
Standard RS485
Data Rate 38.4 kbaud
Distance between Nodes 1 km (max.)
Network Control Response Time
(Fire Alarm trigger to DVA initiation) <1 second
Fault tolerance Any single open or short circuit
can be detected and isolated

VAR8 Variants

VAR8-ACU Base Unit
standard 8x8 Audio Control Unit Router
EXP8 Interface Expansion Board
Factory fit option ordered with VAR8-ACU
EFI01 European Fire Interface Analogue Input and
Digital Output Interface Card
Factory fit option ordered with VAR8-ACU

Dimensions and Weight

Dimensions (H x W x D) 88 mm x 436 mm x 233 mm
(excl. connectors and handles)
Weight 4.5 kg

Environmental – All Variants

Temperature
(Storage and Operating) -5 °C up to +50 °C
Humidity Range 0 % to 93 % Non-condensing



This equipment is designed and manufactured to conform to the following EC standards:
EMC EN55103-1/E1, EN55103-2/E5, EN50121-4, EN50130-4, EN61000-6-3, ENV50204
Safety EN60065

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