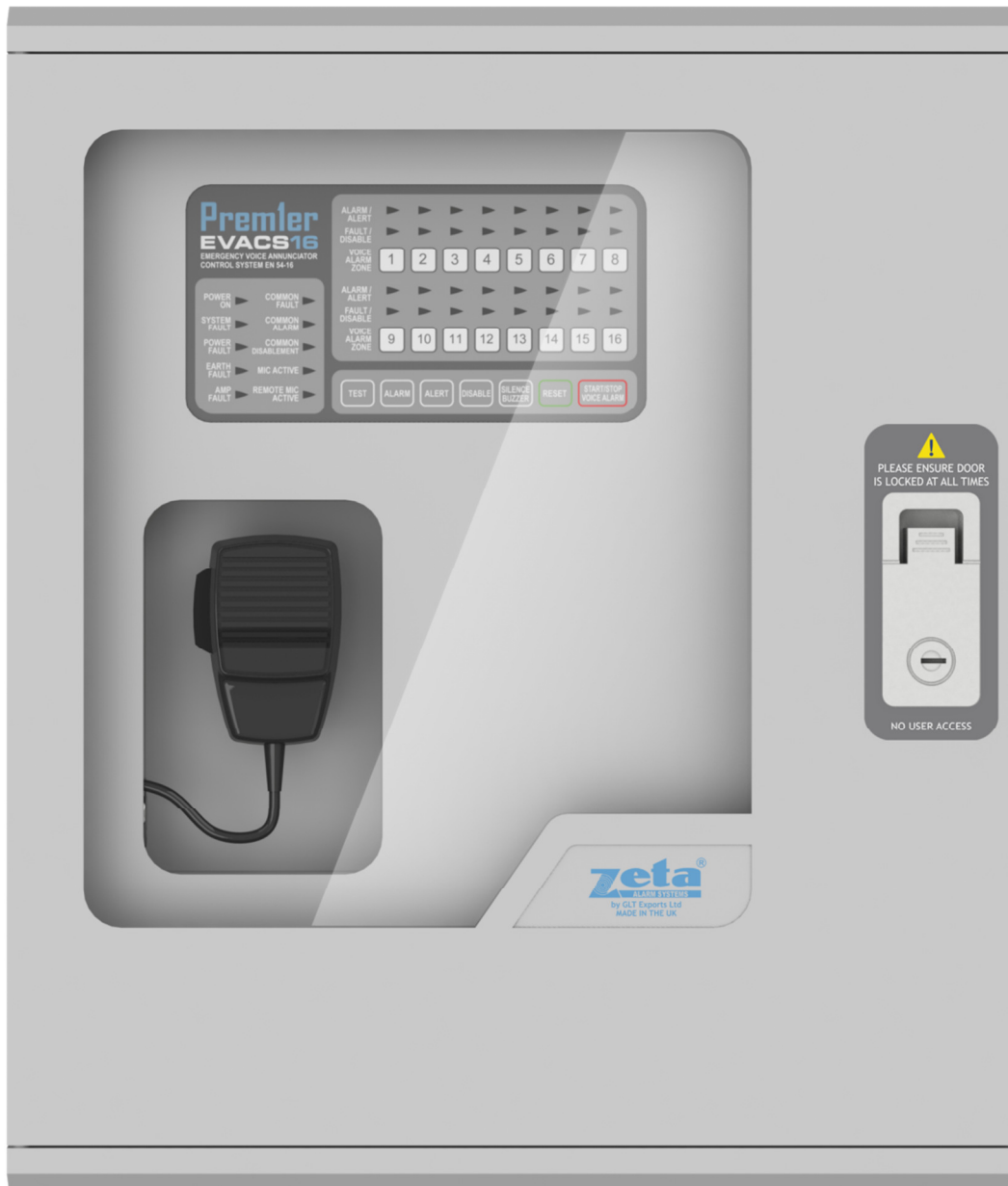


# PREMIER EVACS 1-16



## INSTALLATION MANUAL

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## Summary

The Premier EVACS 1-16 Voice evacuation control panel has been designed and developed as a standalone system that will compliment any Zeta Fire Detection System.

The control panel is a modular design, allowing up to 16 channels, units, to be networked via RS485.

Each unit has 30 watts output divided to 2 sub-channels. Also 2x24v outputs are provided to drive alarm systems where needed.

The Premier EVACS 1-16 configuration software lets you easily customise and program the panels features including: volume control, trigger matrix, microphone configuration, as well as downloading of bespoke alert and evacuate messages of up to a minute long each.

The pre-recorded message can be initiated via the built-in keypad, via the remote trigger inputs or via the loop interface. The remote trigger inputs and the loop interface allow the EVACS 1-16 messages to be triggered by the outputs of a fire alarm control panel / Control & Indicating Equipment (CIE).

It has an emergency (or fireman's) microphone which can be used to broadcast live messages; each panel can be individually configured to broadcast microphone messages either locally or system-wide.

## Safety information & use of this manual

**WARNING:** *Read this section completely before operating this equipment.*

## Installation information

**THIS VOICE ALARM CONTROL & INDICATING EQUIPMENT (VACIE) IS CLASS-1 EQUIPMENT AND MUST BE EARTHED.**

This equipment must be installed and maintained by a qualified and technically experienced person.

This VACIE must be wired to a fused spur rated at 5A. It must **NOT** be connected via a removable plug, or be connected through an RCD device.

*Prior to commencing installation of the control panel, ensure that adequate precautions are taken to prevent damage to the sensitive electronic components on the display board and the control board due to electrostatic discharge. If anti-static equipment (such as an anti-static wrist strap) is not available, you should discharge any static electricity you may have accumulated by touching a convenient earthed object such as an unpainted copper radiator pipe. You should repeat the process at regular intervals during the installation process, especially if you are required to walk over carpets.*

The panel must be located in a clean, dry position, which is not subject to excessive shock or vibration and at least 2 metres away from pager systems or any other radio transmitting equipment.

**The only items which are designed to be removed from the enclosure are the cable connectors. Ensure that all electrical power is removed from the equipment before removing, inserting or connecting cables to these connectors.**

## Battery information

This VACIE uses 2 x 12V Sealed Lead Acid (SLA) batteries with a capacity in the range of 7.2Ah to 17Ah.

### CAUTION:

RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO BATTERY MANUFACTURERS INSTRUCTIONS.

### IMPORTANT NOTES ON BATTERIES:

**DANGER:** Batteries are electrically live at all times. **NEVER short circuit the battery terminals.**

**WARNING:** Batteries are often heavy. Take great care when lifting and transporting batteries.

**DANGER:** Do NOT attempt to remove the battery lid or tamper with the internal workings of the battery. Electrolyte is a highly corrosive substance, and presents significant danger to yourself and to anything else it touches. In case of accidental skin or eye contact, flush the affected area with plenty of clean, fresh water and seek immediate medical attention. Valve Regulated Lead Acid (VRLA) batteries are “low maintenance”, requiring no electrolyte top-up or measurement of specific gravity.

## Product disposal at the end of its working life

Like all electronic equipment, at the end of its working life this unit should not be disposed of in a refuse bin. It should be taken to a local reprocessing site as per the guidelines of the WEEE directive, for correct disposal.

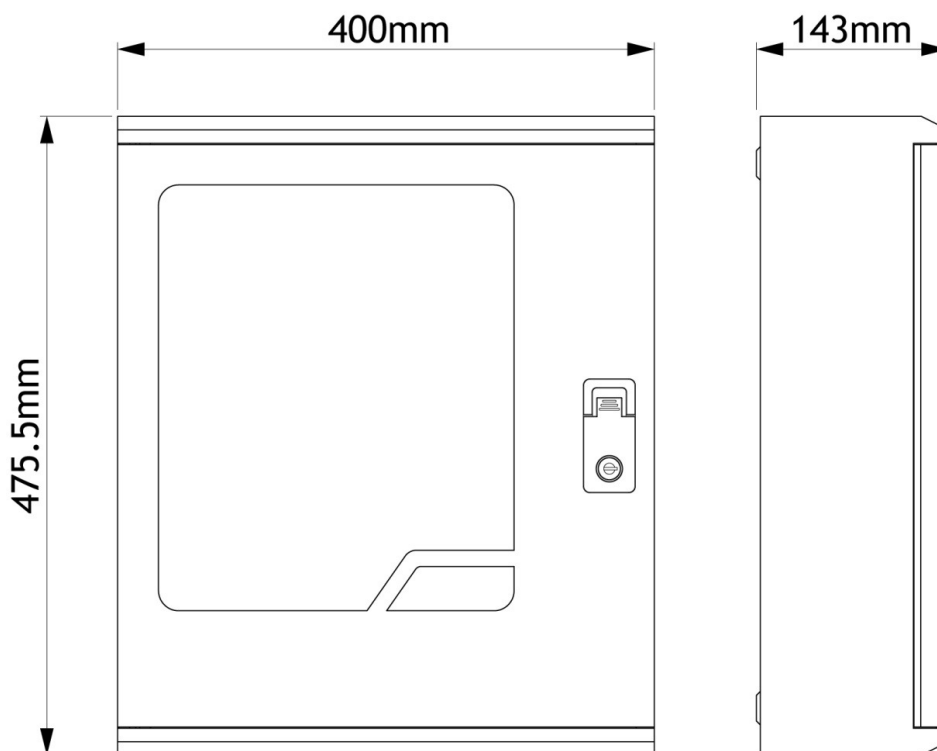


## Locating the Voice Alarm panel

The control panel should be installed in accordance with the following recommendations:-

- The panel should be close to the main entrance of the building, so that it can be viewed by any fire-fighting personnel entering the building.
- It should be fitted to a sturdy wall that will not flex unnecessarily.
- It should be mounted at eye level, in order for it to be viewed without need of a ladder.
- It should be installed in a dry, weatherproof place, away from direct sunlight.
- It should be easily accessible, so that the responsible person can perform their regular fire alarm checks.

## Fixing the back box to the wall



Plan view of enclosure. Side view for surface installation.  
(Dimensions: mm)

Fix the enclosure to the wall using the four mounting holes provided.

Check the build & condition of the wall to decide a suitable screw fixing.

The mounting holes are designed for No 8 roundhead or countersunk woodscrews (or similar).

Remove any debris from the enclosure.

## Recommended cable types and their limitations

**All wiring must be installed to meet BS5839: Pt1: 2002 + A2:2008 and BS 7671:2008 (IEE Wiring Regulations) standards. Other National standards of fire alarm system installation should be adhered to where applicable.**

Screened cables should be used throughout the installation to help shield the Panel from outside interference and ensure EMC compatibility.

The two categories of cable according to BS5839: Pt1: 2002 + A2:2008, Clause 26 "Fire Detection and Alarm Systems for Buildings (Code of Practice for System Design, Installation and Servicing)" are:

Standard fire resisting cable – to PH30 classification of EN 50200 (including the 30 min survival time of Annex E)

Enhanced fire resisting cable – to PH120 classification of EN 50200 (including the 120 min survival time of BS 8434-2)

(Note that all cables should be at least 1mm<sup>2</sup> cross section)

On the Premier EVACS 1-16 Panel the general recommendation would be to use standard fire resistant cable, such as GLT Exports Fire Defence Cable, Firetuff™, FP200 or an equivalent. These cables are screened, and will provide good EMC shielding when properly grounded at the panel. Certain system specifications may demand the use of a particular type of cable and due regard should be paid to this fact.

Depending on the environment, the cables may need mechanical protection (such as a conduit).

## Mains wiring recommendations

The Mains supply to the VACIE is fixed wiring, using **Fire resisting** 3-core cable (Between 1 mm<sup>2</sup> and 2.5mm<sup>2</sup>), fed from an isolating double pole switch fused spur, and fused at 5A. **IT SHOULD NOT BE CONNECTED THROUGH AN RCD.** This should be secure from unauthorised operation and be marked 'FIRE ALARM: DO NOT SWITCH OFF'. The supply must be exclusive to the Fire Panel. **MAKE SURE ANY SPARE ENTRY HOLES ARE COVERED WITH THE GROMMETS PROVIDED**



## Mounting the voice evacuation panel

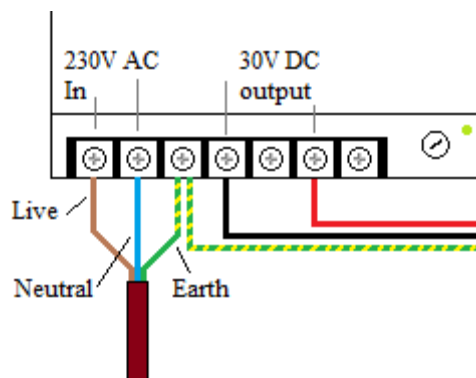
The Premier EVACS 1-16 comes with many cable entry holes. If another entry hole is required, it is strongly recommended that the panel door is removed to avoid accidental damage. Also the PCB assemblies should be removed and stored in a safe place. This would also help while fixing the back box to the wall.

## Planning cable entry

The figure below shows the location of the cable entries to facilitate planning of wiring to be brought to the panel.

If a cable-entry push-out is removed, fill the hole with a brass cable gland. If any knockout is removed, but subsequently not used, it should be covered up using a 20mm blanking grommet.

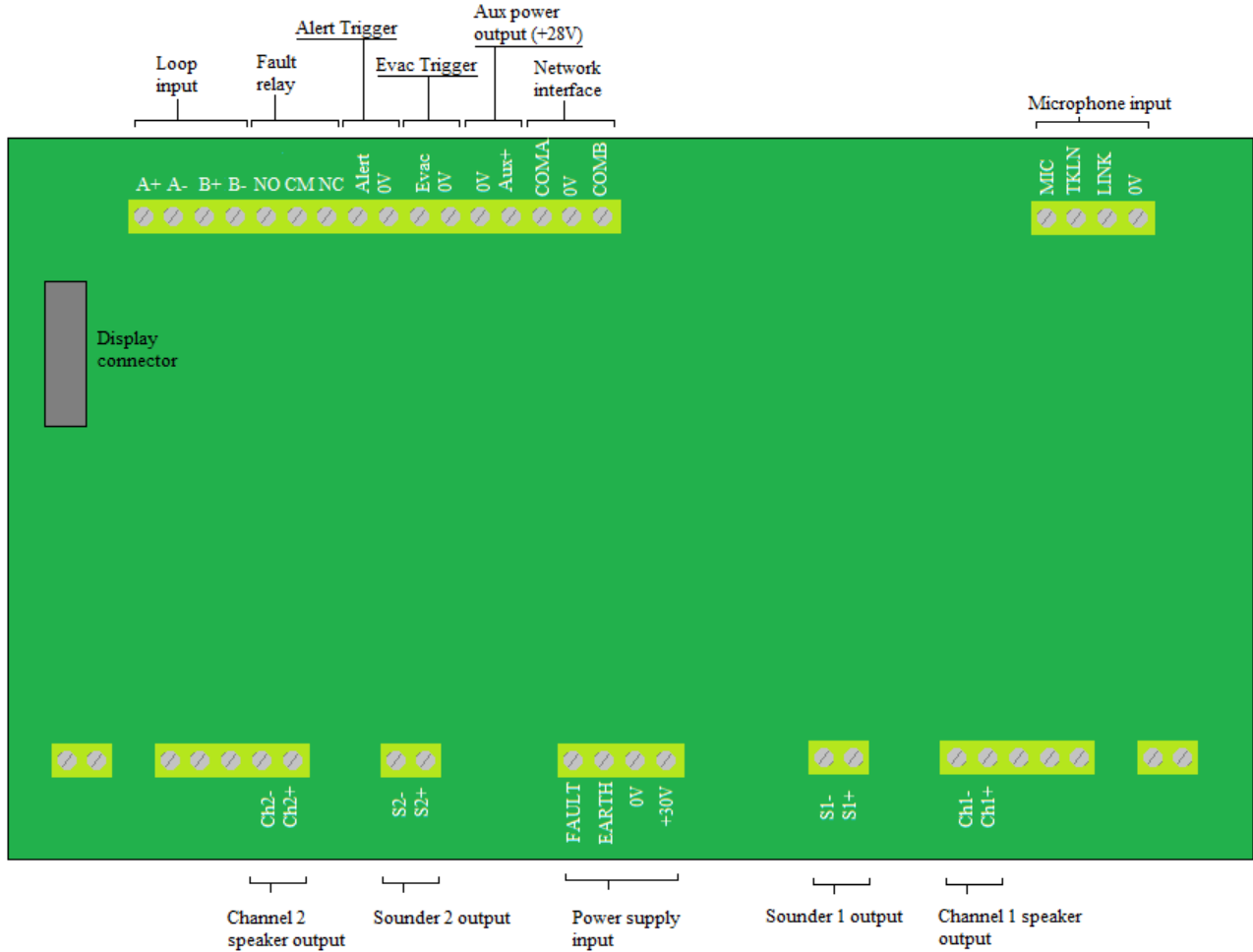
The 230V AC Mains cable must be fed into the enclosure via one of the cable entries at the top right corner of the back box. This cable must be connected to the mains terminals of the power supply, which are marked L, N,  $\perp$  (Live, Neutral, Earth)



Take care not to damage the VACIE during installation.

## Wiring the PCB

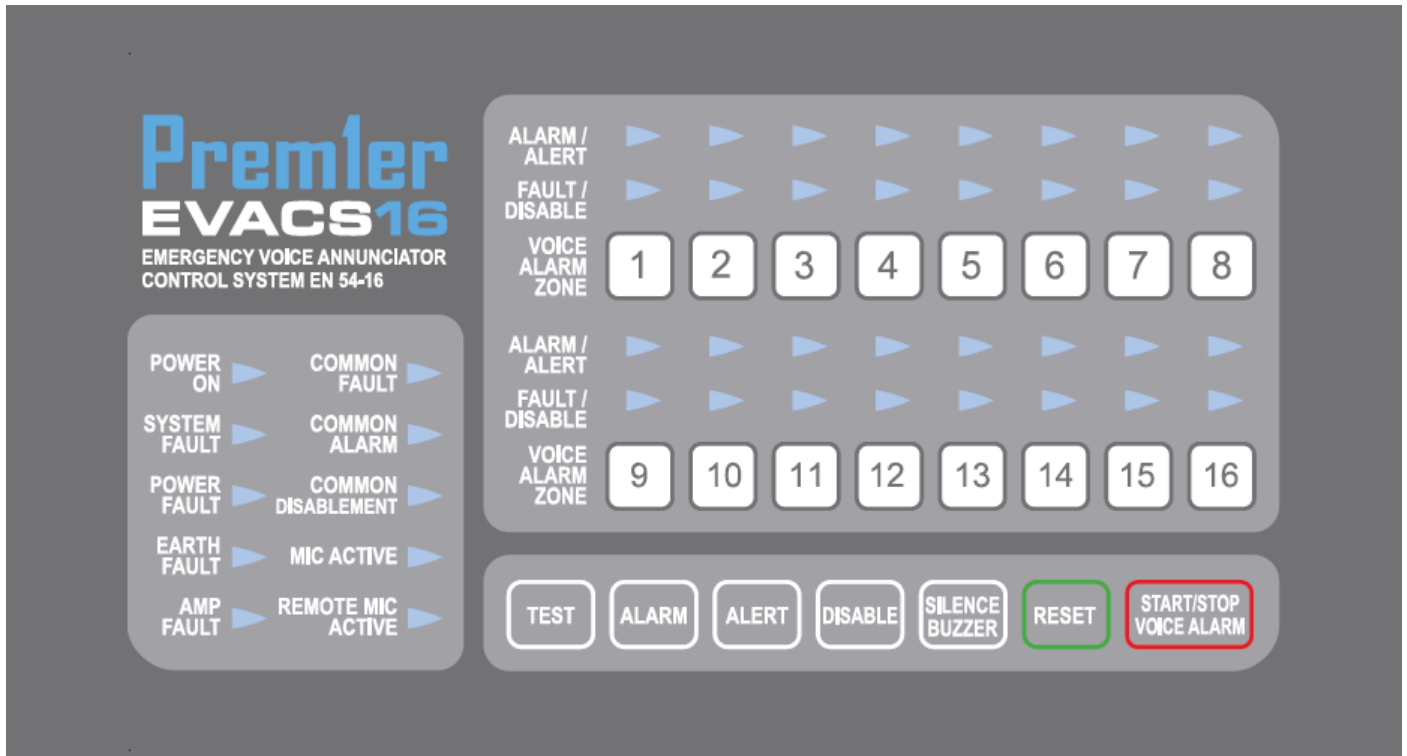
The following connectors are available on the PCB:



Connection	Description
Display	Connect to display PCB of the EVACS 1-16
Loop input	Allows connection to an analogue control panel such as the Premier Quatro
Fault relay	Connection to the fault relay, this is normally energised when the system is functioning correctly.
Alert	Trigger input for the Alert signal
Evacuate	Trigger input for the Evacuate signal
Aux	Auxiliary power output
Network	Network connection to other EVACS 1-16 panels
Microphone input	Connects to the panels microphone
Channel 1 / 2 speaker output	Speaker output
Sounder 1 / 2 output	Conventional sounder output

## Display & Controls

Here is the fascia for the Premier EVACS 1-16.



## Display

The Premier EVACS1-16 has the following LED indicators:-

LED	COLOUR	DESCRIPTION
POWER ON	GREEN	The system has mains and/or battery backup present. The panel showing this LED only is the normal condition.
SYSTEM FAULT	YELLOW	The system has developed a serious problem Contact your local dealer.
POWER FAULT	YELLOW	The systems power supply is reporting a problem.
EARTH FAULT	YELLOW	The system has detected a wiring fault shorting to earth.
AMP FAULT	YELLOW	There is a problem with one of the systems amplifiers.
COMMON FAULT	YELLOW	There is a fault on the system. Check specific LED for further information.
COMMON ALARM	RED	The system is playing the pre-recorded alert message.
DISABLEMENT	YELLOW	A zone has been disabled.
MIC ACTIVE	RED	The panels' live emergency microphone is being used to broadcast a message.
REMOTE MIC ACTIVE	RED	A remote microphone is being used to broadcast a message.
ALARM/ALERT ZONE 1-16	RED	The indicated zone(s) are playing the alarm or alert message (as indicated by the common alarm/alert LEDs).
FAULT/DISABLE ZONE 1-16	YELLOW	The indicated zone(s) have a fault, or are in the disabled condition.

### Controls

The Premier EVACS 1-16 has the following controls:-

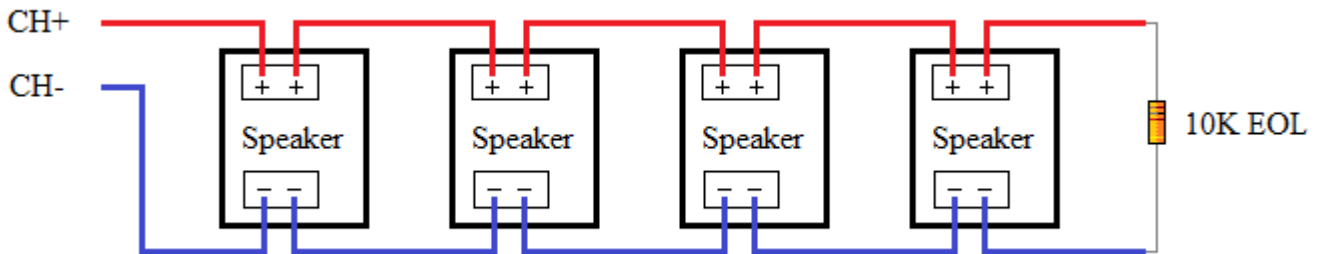
LABEL	USE
TEST	LED and buzzer test
ALARM	Used to initiate manual playback of the Evac / Alarm Message
ALERT	Used to initiate manual playback of the Alert Message
DISABLE	Used to disable one or more of the speaker channels
SILENCE	Used to silence the panels fault buzzer
RESET	Used to reset the system from the voice alarm condition
STOP / START	Used to Manually start playback of a selected message, or to stop an existing message.
1 - 16	Select buttons for channels 1 to 16

### Speaker circuits

The EVACS 1-16 has two 667Ω speaker outputs running at 100v nominal allowing up to 30W RMS output per channel

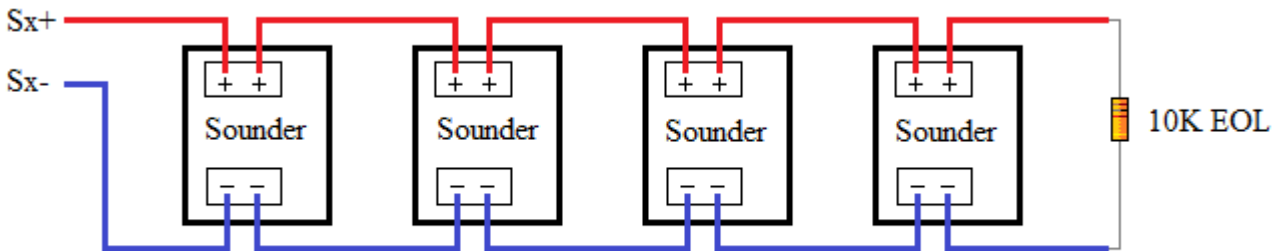
Wiring the speakers

The premier EVACS II checks for line integrity by using a 10K End of Line resistor on each speaker circuit, which should be connected to the last speaker on the circuit. The end-of-line resistor should be rated at 1W or higher



### Sounder circuits

The EVACS 1-16 has two sounder outputs that activate alongside the speaker outputs; they are each rated at 500mA at 28V DC (nominal) and are over-current protected by a self-resetting fuse. The sounder circuits are monitored and require a 10K End of line resistor rated at 1/8w or higher.



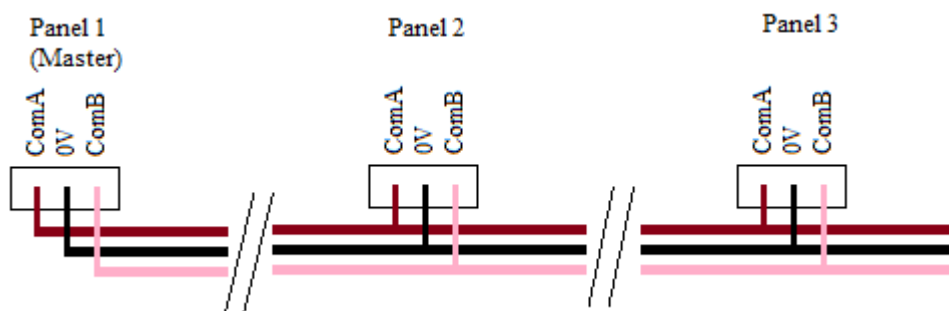
## Networking the panel

The EVACS 1-16 allows up to 16 panels to be connected over RS485 network interface, with each panel, or module, acting as a 2-channel zone. Individual panels or zones can then be controlled by the master panel.

The network address can be set using switches 1-4 of the DIP switch located on the amplifier board. The master panel or a panel which is not part of a network must be set an address of 1.

Address	SW1	SW2	SW3	SW4
1 (Master, or stand-alone panel)	OFF	OFF	OFF	OFF
2	OFF	OFF	OFF	ON
3	OFF	OFF	ON	OFF
4	OFF	OFF	ON	ON
5	OFF	ON	OFF	OFF
6	OFF	ON	OFF	ON
7	OFF	ON	ON	OFF
8	OFF	ON	ON	ON
9	ON	OFF	OFF	OFF
10	ON	OFF	OFF	ON
11	ON	OFF	ON	OFF
12	ON	OFF	ON	ON
13	ON	ON	OFF	OFF
14	ON	ON	OFF	ON
15	ON	ON	ON	OFF
16	ON	ON	ON	ON

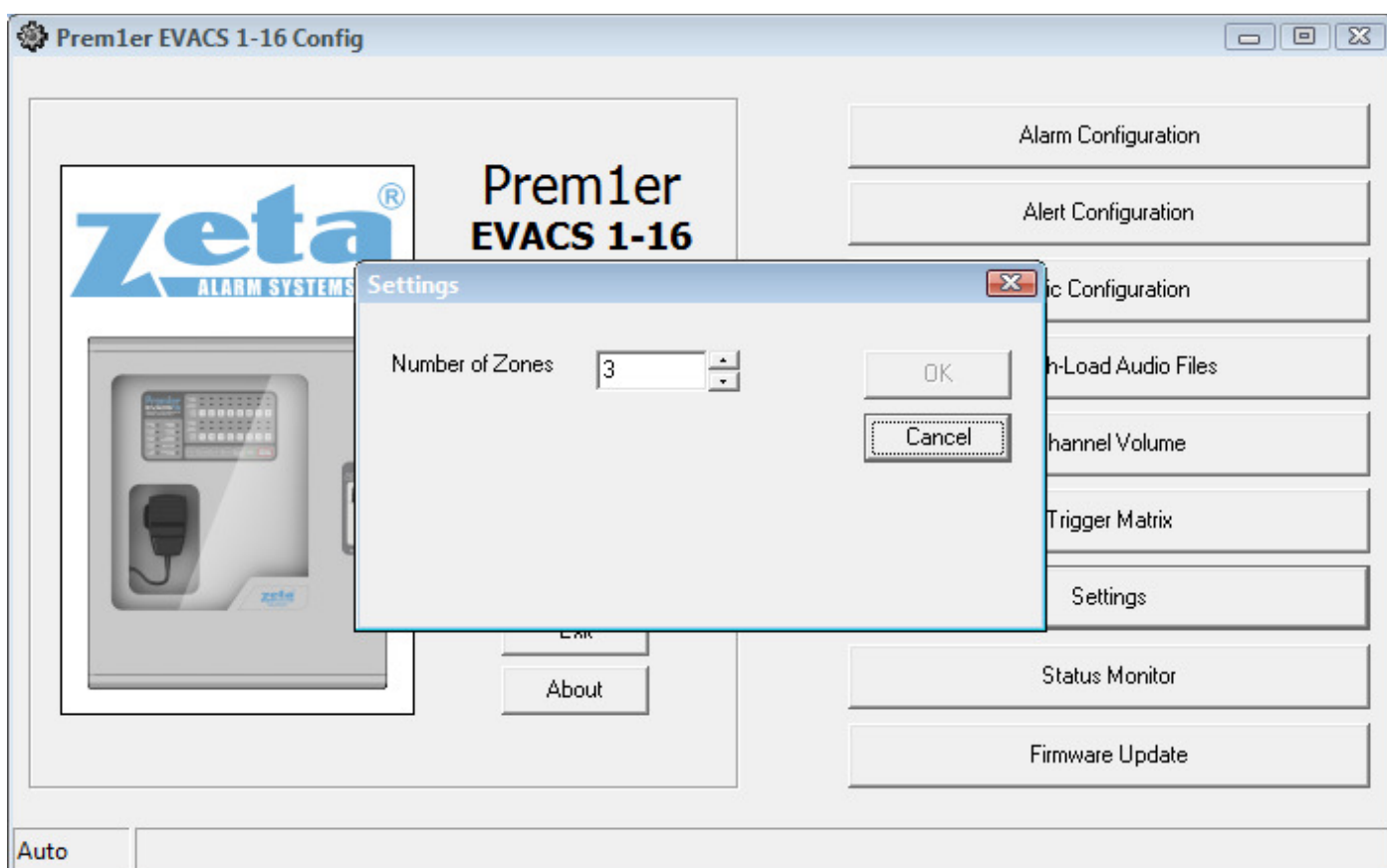
The network connection terminals are labelled COMA, 0V and COMB. Each should be wired to the corresponding terminal of the next panel on the network. The panels themselves do not need to be wired in any particular order with regard to the address used.



The master panel must be configured with the number of zones on the network (that is, the number of EVACS 1-16 panels, including the master panel). This is done with the EVACS 1-16 configuration software via the USB link.

To set the number of zones, connect the PC to the EVACS 1-16 panel via a suitable USB cable and run the EVACS 1-16 configuration software. Note that the panel must be powered on.

In the configuration software, select settings, select the desired number of zones and click OK.



The panel should now be configured with the correct number of zones.

SWITCH	ON	OFF	Notes
SW5	RESERVED	RESERVED	RESERVED – SET TO 'OFF'
SW6	RESERVED	RESERVED	RESERVED – SET TO 'OFF'
SW7	Master Alarm	Local Alarm	
SW8	Local microphone	Broadcast microphone	

## Connecting the EVACS 1-16 to an analogue addressable panel

The EVACS 1-16 allows connection to an analogue addressable panel via the loop interface. In a network of multiple EVACS 1-16 panels, the CIE must be connected to the master panel.

The EVACS 1-16 utilises the Fyreye MKII protocol and must be connected to a panel running the MKII software.

Switch	Address value
SW1	+128
SW2	+64
SW3	+32
SW4	+16
SW5	+8
SW6	+4
SW7	+2
SW8	+1

The device address of the EVACS 1-16 is set by the 8-way dip switch located on the display PCB, the address is set in binary notation, with switch 1 being the most significant bit (MSB) and switch 8 being the least significant bit (LSB). Refer to the table on the left for a list of each switch value, or the tables on the following pages for a quick reference of all addresses. Note that address 0 is reserved and should not be used.

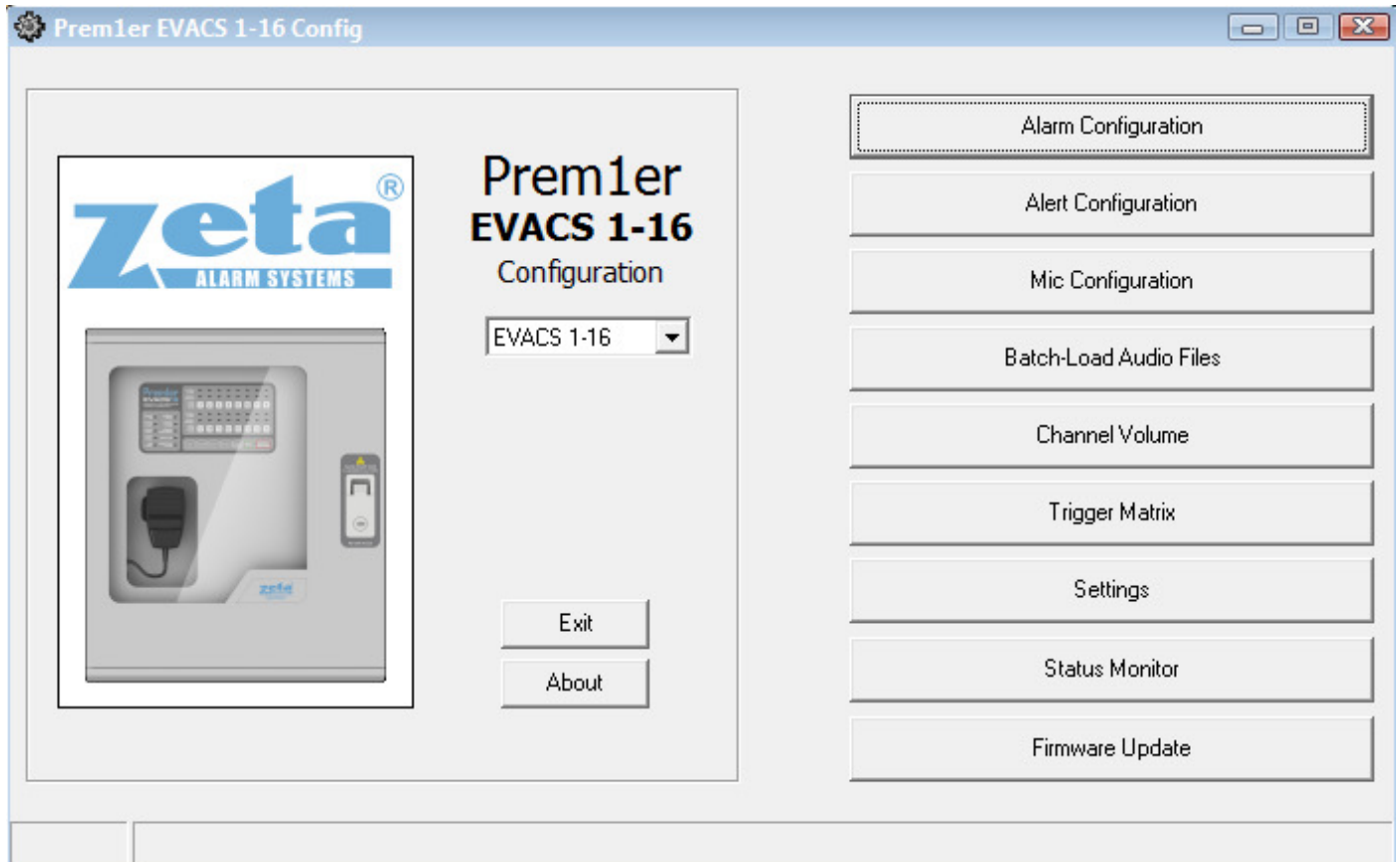




## Configuring the Voice Messages, and Trigger Inputs

The EVACS 1-16 panel can be configured using the EVACS software. To configure the software the panel must be powered on and plugged into the PC running the software using a suitable USB connector.

For the EVACS 1-16 the drop-down list box in the centre of the dialogue should be set to EVACS 1-16.



For networked EVACS 1-16 panels, most settings are only available to the panel configured as master.

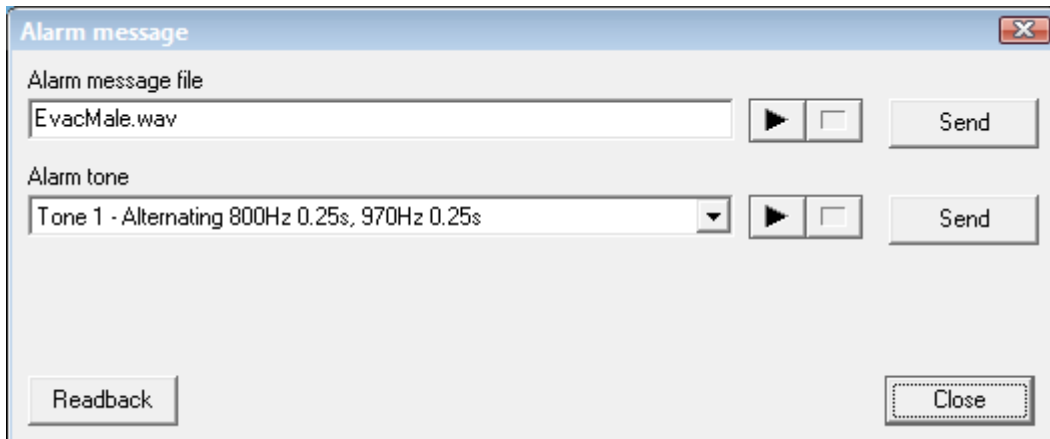
On the Premier EVACS 1-16, alert and evacuation messages can be uploaded from a PC running the configuration software. The messages cannot be recorded direct to the panel due to the microphones limited dynamic range, which would result in poor quality pre-recorded messages.

Any suitable Audio file can be uploaded. The file format is \*.wav format, 16-bit, 1 channel (mono), uncompressed 16,000 samples/sec (256kbps) with a maximum length of 55 seconds

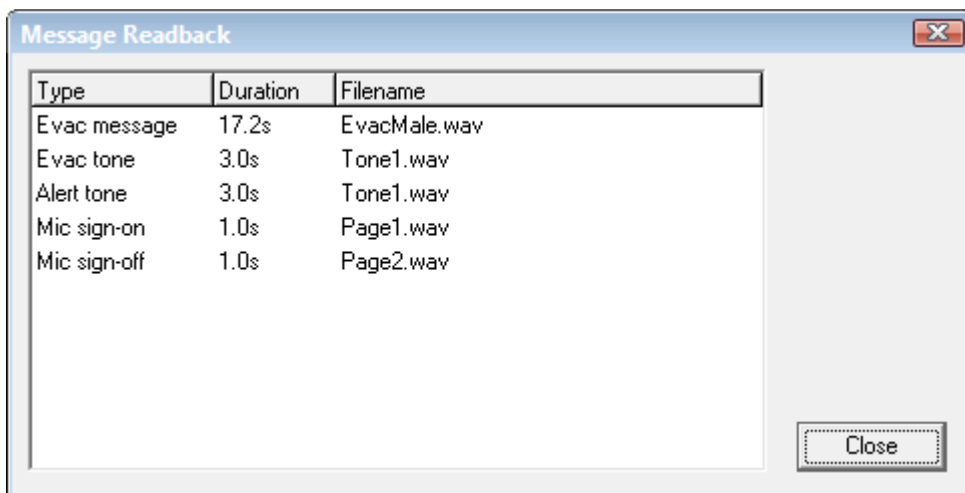
A custom message can be recorded on a PC or in a sound studio if the best sound clarity is required. Alternatively, you can use one of the sample messages provided with the PC Configuration Software.

## Alarm Configuration

The alarm configuration dialogue allows the user to upload a custom alarm message, it also allows the user to set the alarm tone used, which is a short tone intended to grab people’s attention before the alarm messages is played.

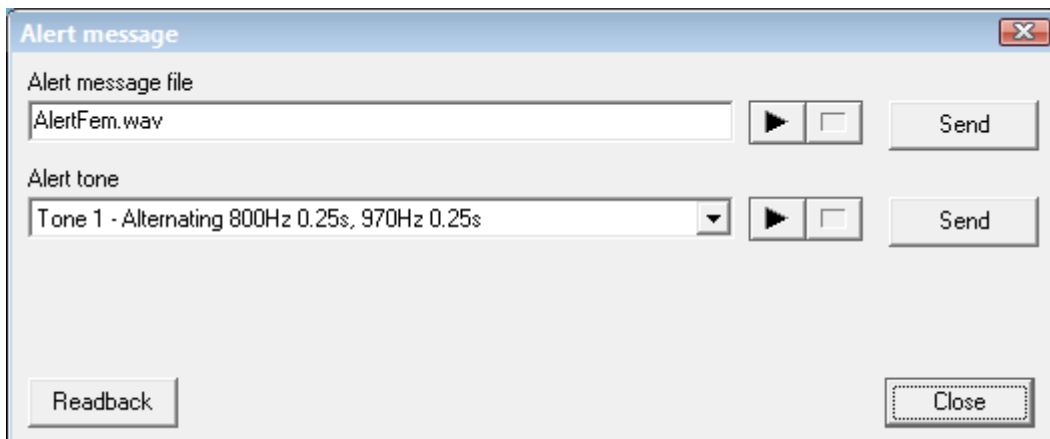


The Readback button on this dialog, as well as the other audio-file configuration dialogs will read the audio file configuration from the EVACS 1-16 and display it on screen:



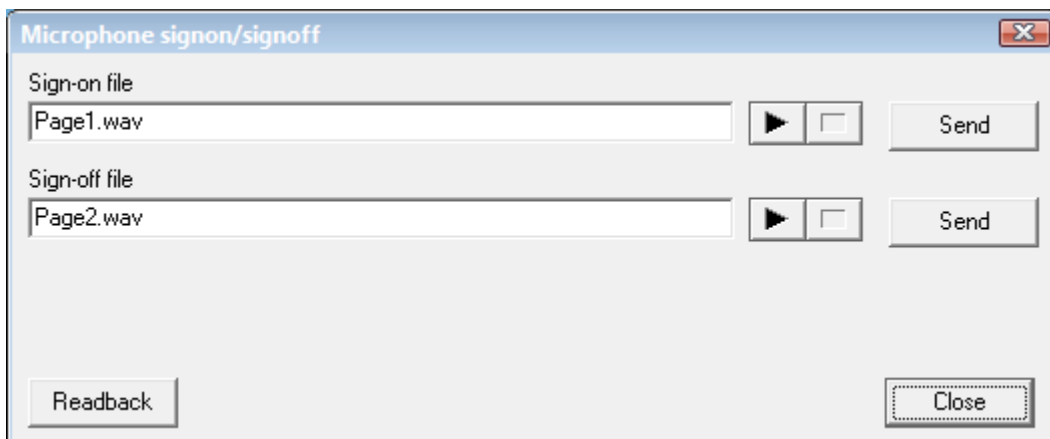
### Alert Configuration

This dialog allows the setting of the Alert message and pre-alert tone.



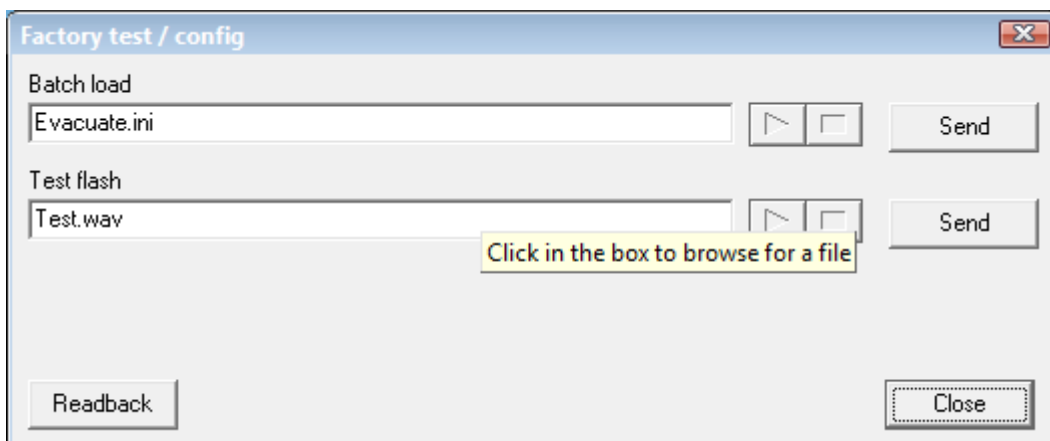
### Microphone Configuration

The microphone signon/signoff dialog allows the customisation of the sign-on and sign-off tones, these are short tones or custom announcements that are played when the microphone is activated and de-activated respectively.



### Batch-Load Audio Files

A batch-load option is available for the convenience of vendors who may work on multiple EVACS 1-16 systems utilising the same custom set of audio files.



An example configuration file might look like this:

---

```
[Alert]
Message=C:\Program Files\Zeta Alarms\Messages\AlertFem.wav
Tone=7
[Evac]
Message=C:\Program Files\Zeta Alarms\Messages\EvacMale.wav
Tone=1
[Mic]
Signon=C:\Program Files\Zeta Alarms\Page\Page1.wav
Signoff=C:\Program Files\Zeta Alarms\Page\Page2.wav
[Comms]
Port=COM3
```

---

[Alert] section: Specifies the message and tone to be played for zones in the ALERT status

[Evac] section: Specifies the message and tone to be played for zones in the EVACUATE status

[Mic] section: Specifies the audio files to be played for the sign-on and sign-off for the microphone

[Comms] section: specifies the communications parameters. The communications port the EVACS 1-16 panel is detected on should be displayed in the lower left of the EVACS software main screen.

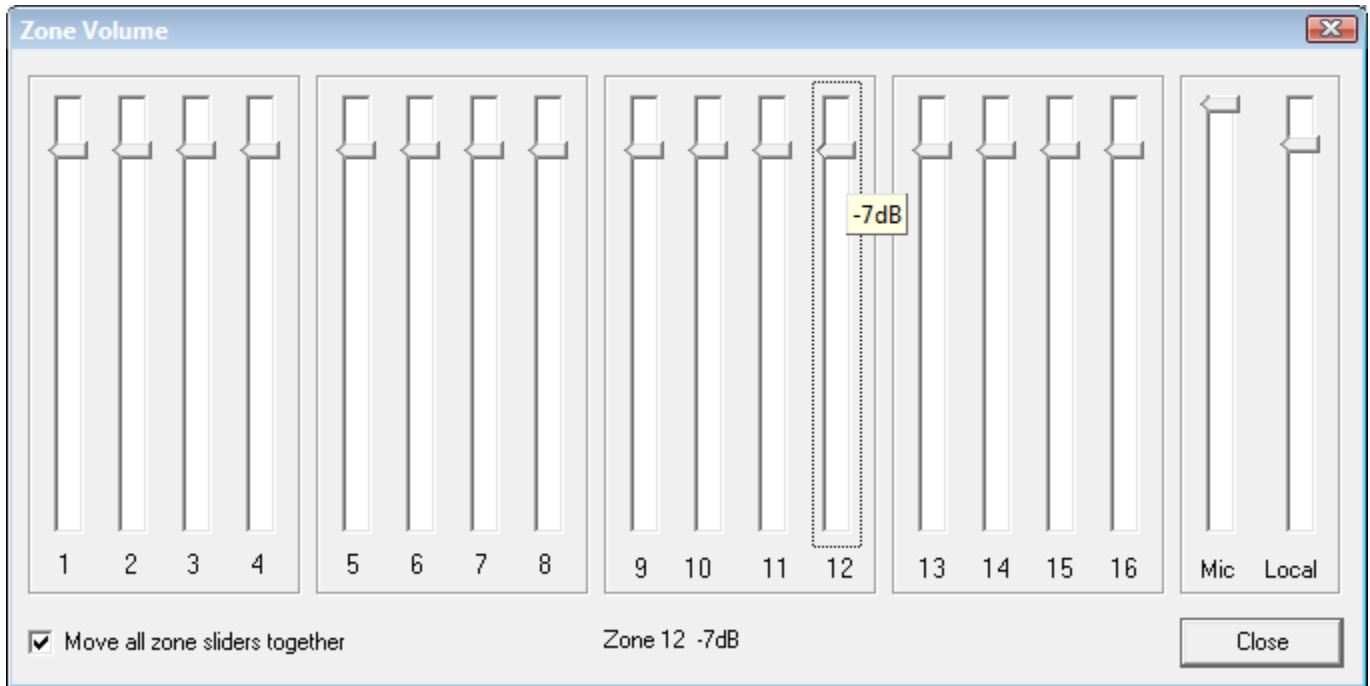
**List of available tones**

Tone	Type	Primary (f1) / start frequency (Hz)	Secondary (f2) / end frequency (Hz)	Sweep duration (mS)	On Period or f1 time (mS)	Off period or f2 time (mS)
1	Alternating	800	970	--	250	250
2	Sweep	800	970	140	--	--
3	Sweep	800	970	1000	--	--
4	Intermittent	970	--	--	250	1000
5	Continuous	970	--	--	--	--
6	Sweep	800	970	20	--	--
7	Intermittent	970	--	--	500	500
8	Alternating	554	440	--	100	400
9	Sweep	500	1200	300	--	--
10	Intermittent	420	--	--	600	600
11	Sweep	2400	2850	140	--	--
12	Continuous	660	--	--	--	--
13	Alternating	554	440	--	500	500
14	Intermittent	2850	--	--	500	500
15	Sweep	1200	500	1000	--	--
16	Continuous	2850	--	--	--	--

Note: All times are in milliseconds (mS), where 1000mS = 1 second.

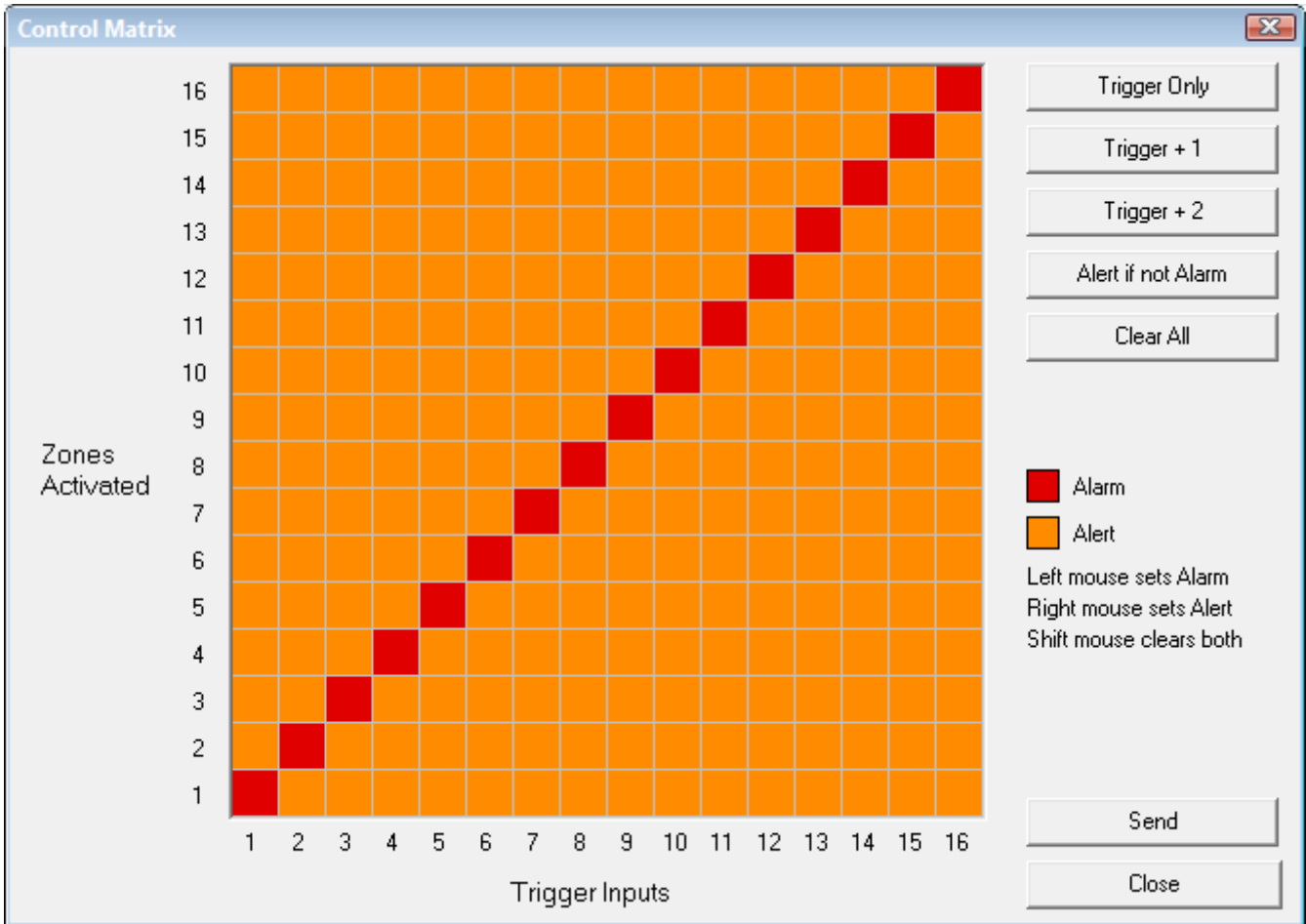
## Channel Volume

This provides a volume control interface to set the output volume of each zone.



### Trigger Matrix

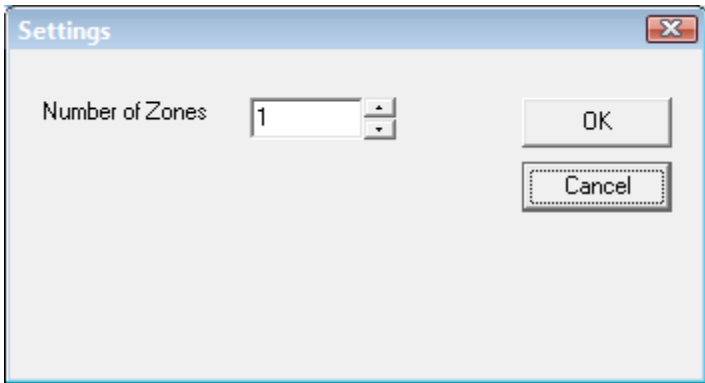
The trigger matrix tells the panel what to do in the event that the alarm is triggered in a particular zone via the alarm trigger input.



In this example the zone activated will go into alarm, whilst all other zones will go into alert; however it is possible to set a variety of configurations using this interface. When you are happy with the configuration, be sure to click on the [Send] button to upload the trigger matrix to the panel.

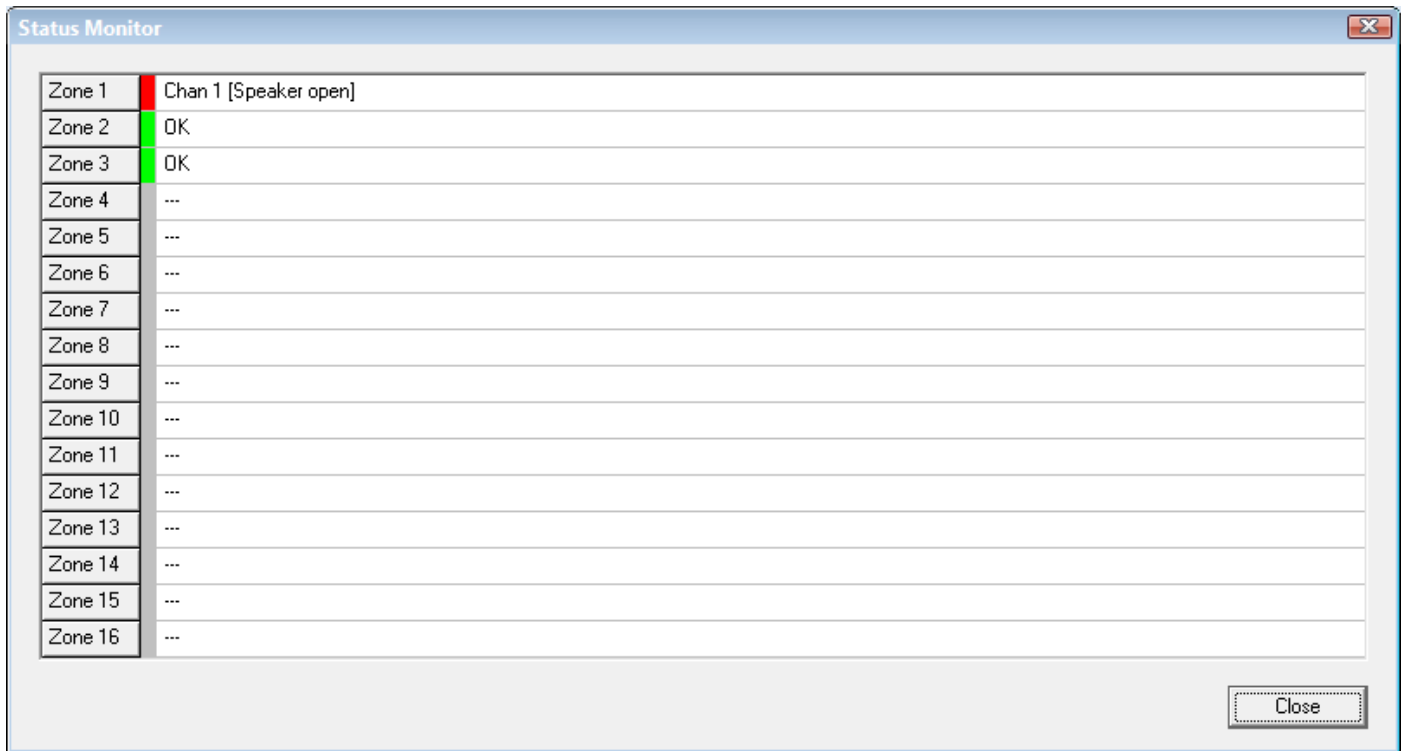
### Settings

From here you can set the number of zones configured on a network. Select '1' for a standalone system. Each EVACS 1-16 connected to the network is counted as one zone.



## Status Monitor

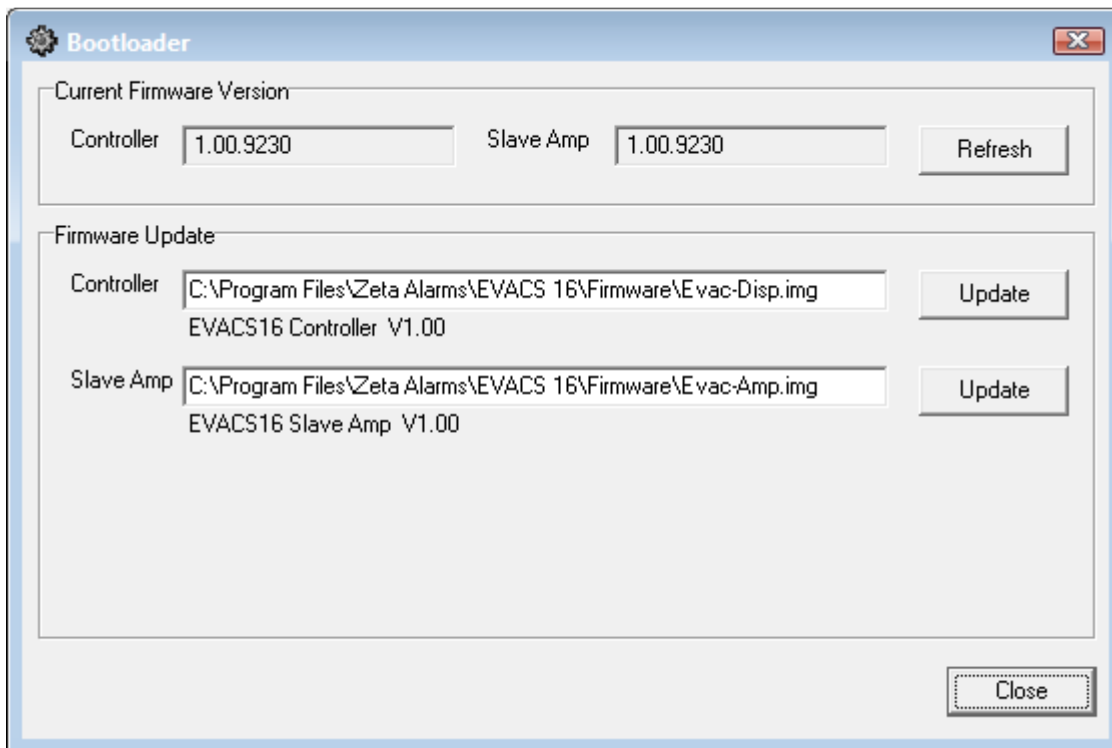
This displays the status of all nodes on the network, and reports any errors that may be present.



## Firmware Update

Shows the version of the currently loaded firmware, and provides a utility to update the firmware image:

**WARNING: firmware updates should NOT be attempted unless under the specific instruction of the manufacturer. An incorrect firmware update may cause the panel to operate outside its design and conformity specifications, and may even cause permanent damage to the panel.**





## Methods of Operating the Premier EVACS 1-16

The Premier EVACS 1-16 can operate in any one of the following ways:-

### 1. LIVE BROADCAST

The microphone is used to broadcast information about the alarm, and the responsible person would direct occupants what to do next. The Microphone broadcasts to all non-disabled channels.

### 2. PRE-RECORDED MESSAGE (MANUAL)

The Operator can select to play the pre recorded Evacuation or alert message to individual zones. The message(s) are only played to the selected zones.

### 3. PRE-RECORDED MESSAGE (AUTOMATIC)

Some or all of the Premier EVACS 1-16's remote trigger inputs will be connected to I/O units in a fire panel. The panel will operate the I/O relays to link the relevant trigger to OV. There are inputs for Evac on all zones, Alert on all zones, and an individual input for each zone, which can be configured via the PC Software. Sample configurations are:-

Play evac / alarm on selected zone

Play evac / alarm on selected zone, and alert on all other zones

Play evac / alarm on selected zone, and alert on floor above & floor below

As shown above, the number of zones operated will depend on the configuration of the remote inputs.

## Resetting from a Voice Alarm Condition

The EVACS 1-16 can be reset in various ways, depending on how the Voice alarm condition was initiated.

If the microphone is used for a live broadcast, simply releasing the microphone will return the EVACS 1-16 to its normal condition.

If a pre-recorded message was started manually, it will need to be reset from the Voice Alarm Panel. Press Start/Stop to stop playing the message, then press reset to return the EVACS 1-16 to its normal condition.

If a pre-recorded message was started automatically by a fire alarm panel, resetting the fire alarm panel will reset the Voice alarm panel automatically. Alternatively, the message can be stopped by pressing Stop/Start on the Voice alarm Panel. (Note if reset is then pressed, and the triggering signal is still active, the EVACS 1-16 will return to the voice alarm condition.)

## Fault display & fault-finding

The Premier EVACS 1-16 panel monitor for the following faults:-

- Power Supply Fault
- Speaker Channel open-circuit wiring fault
- Speaker Channel short-circuit wiring fault
- Earth Fault
- Amplifier Fault
- System Fault

The Premier EVACS 1-16 Voice Alarm panel also has a General Fault LED that will light when any fault is present.

Most of these faults will need to be checked by an engineer.

All faults in the Premier EVACS 1-16 are NON-LATCHING. IE they cannot be reset with the reset button. They will clear automatically when the fault has been fixed.

## Fault Finding

### Power Supply fault

A power supply fault is indicative of one or more of the following faults: -

#### Loss of Mains power

- Check that 230V AC is present at the mains terminal block
- Check mains fuse
- Check charger fuse FS1.

#### Loss of Battery power

- Check that 2 X 12V batteries are fitted in series to give 24V backup
- Check battery fuse
- Check that battery connections are secure.
- Check that the batteries are not over 5 years old

#### Loss of Charger

The Power supply will monitor the charger circuit. In the rare event of a component failure that affects the charger, the PSU will bring up a fault.

#### Loss of Battery Capacity

The Power supply will monitor the Battery condition. If it detects a high internal resistance, which usually means a loss of capacity in the battery, it will bring up a fault.

## **Speaker Circuit Fault**

A Speaker Circuit Fault is indicative of one or more of the following faults:-

### **Speaker Circuit Open Circuit fault.**

Check that there are no breaks in the cable, and that all screw connections are secure.

As a panel check, disconnect the circuit indicating the fault, and press the calibrate button. If the fault clears, the panel is working correctly.

### **Speaker Circuit Short Circuit Fault**

Check that all speakers are fitted the correct way round.

Check than no other devices have been connected to the speaker circuit.

Check for shorts to the cable screen.

As a panel check, disconnect the circuit indicating the fault, and press the calibrate button. If the fault clears, the panel is working correctly.

### **Speaker Failure**

Because the Premier EVACS 1-16 monitors the speaker circuits for a change in impedance, the system can usually detect a broken speaker. For example a broken wire to the drive cone will not affect the speaker line's continuity, but it will affect its impedance.

Presently, the only way to check for this is by verifying sound output at each speaker on the speaker circuit reporting the fault.

### **Earth Fault**

The Premier EVACS 1-16 monitors it's cabling for short circuits to earth. In the event of an earth fault, disconnect the speaker circuits one at a time to locate the one giving a problem.

### **Amp Fault**

The Premier EVACS 1-16 monitors Amplifiers for correct operation. If one of its power amplifiers reports a fault, the EVACS 1-16 will report it. Try resetting the panel to clear the fault. If the fault persists, contact your dealer.

### **System Fault**

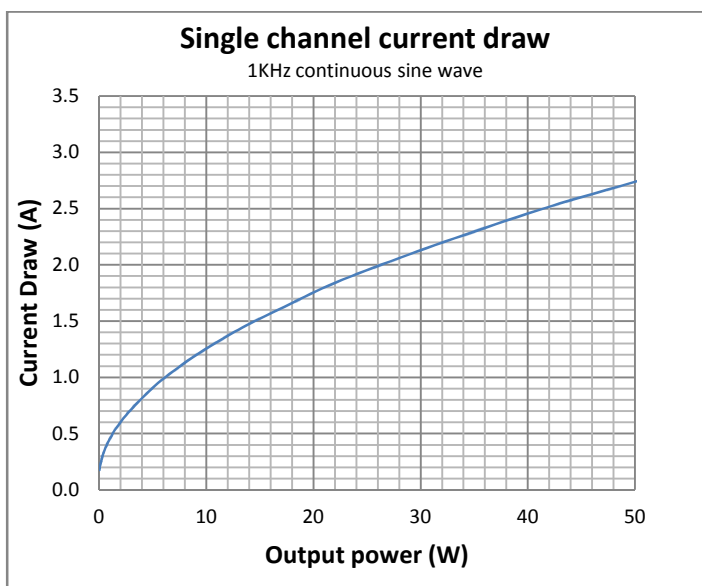
The Premier EVACS 1-16 monitors its internal software for correct operation. If it detects a possible problem, the EVACS 1-16 will report it. Try resetting the panel to clear the fault. If the fault persists, contact your dealer.

## Battery calculation

As a general rule the battery selected as a backup power source for the panel should be calculated to provide at least 24 hours of standby power, plus 30 minutes power in the alarm condition plus a 25% reserve to account for battery life degradation, environmental factors or unexpected power drains.

When calculating the backup power requirements for the audio system it is important to note that the relationship between output power, volume and power drain is non-linear, and may differ depending on the message store used.

The following graph shows the typical current drawn by a single audio channel based on the output power



**Standby current** will consist of the quiescent current draw of the panel, plus the current draw of any equipment connected to the aux power output.

**Alarm current** will consist of: the alarm current of the panel **plus** the current draw of any equipment **plus** the current draw by the audio amplifiers

Consider a system consisting of:

- 1x 12W speaker system
- 1x 8W speaker system
- 100mA equipment draw on Aux power
- 300mA equipment draw on Aux power during alarm
- 480mA sounder channel 1
- 360mA sounder channel 2

- The system must remain on standby for 24 hours
- The system must also be able to handle the alarm condition for a minimum of 1 hour

Referring to the audio output power graph –

The 12W speaker system will have a maximum current draw of about 1.4A

The 8W speaker system will have a maximum current draw of about 1.1A

<b>Standby requirements</b>				
Quiescent current	0.06A			
Auxiliary equipment	0.1A			
<b>Total standby current</b>	<b>0.16A</b>	x standby time of:	24h =	3.84 Ah <sup>(1)</sup>
<b>Alarm requirements</b>				
System current	0.5 A			
Auxiliary equipment	0.3 A			
Sounder circuit 1	0.48 A			
Sounder circuit 2	0.36 A			
Audio channel 1	1.4 A			
Audio channel 2	1.1 A			
<b>Total Alarm current</b>	<b>4.14 A</b>	x alarm time of:	1 h =	4.14 Ah <sup>(2)</sup>
<b>Total capacity requirements</b>				
Sum of <sup>(1)</sup> and <sup>(2)</sup>	= <sup>(1)</sup>	3.84 Ah + <sup>(2)</sup>	4.14 Ah =	7.98 Ah <sup>(3)</sup>
Minimum battery capacity	= <sup>(3)</sup>	7.98 Ah	x 1.25 =	9.975 Ah

The next battery capacity upwards from this is 12Ah, which would be suitable for this installation.

## Battery calculation worksheet

This worksheet can be filled out to calculate the batteries size required for a given installation.

Standby requirements				
Quiescent current		A		
Auxiliary equipment		A		
<b>Total standby current</b>		<b>A</b>	x standby time of:	h = Ah <sup>(1)</sup>
Alarm requirements				
System current		A		
Auxiliary equipment		A		
Sounder circuit 1		A		
Sounder circuit 2		A		
Audio channel 1		A		
Audio channel 2		A		
<b>Total Alarm current</b>		<b>A</b>	x alarm time of:	h = Ah <sup>(2)</sup>
Total capacity requirements				
Sum of <sup>(1)</sup> and <sup>(2)</sup>	=	<sup>(1)</sup> Ah	+	<sup>(2)</sup> Ah = Ah <sup>(3)</sup>
Minimum battery capacity	=	<sup>(3)</sup> Ah	x 1.25	= Ah

When selecting the correct battery, choose a battery with a higher capacity than the calculated minimum.

## Audio Power

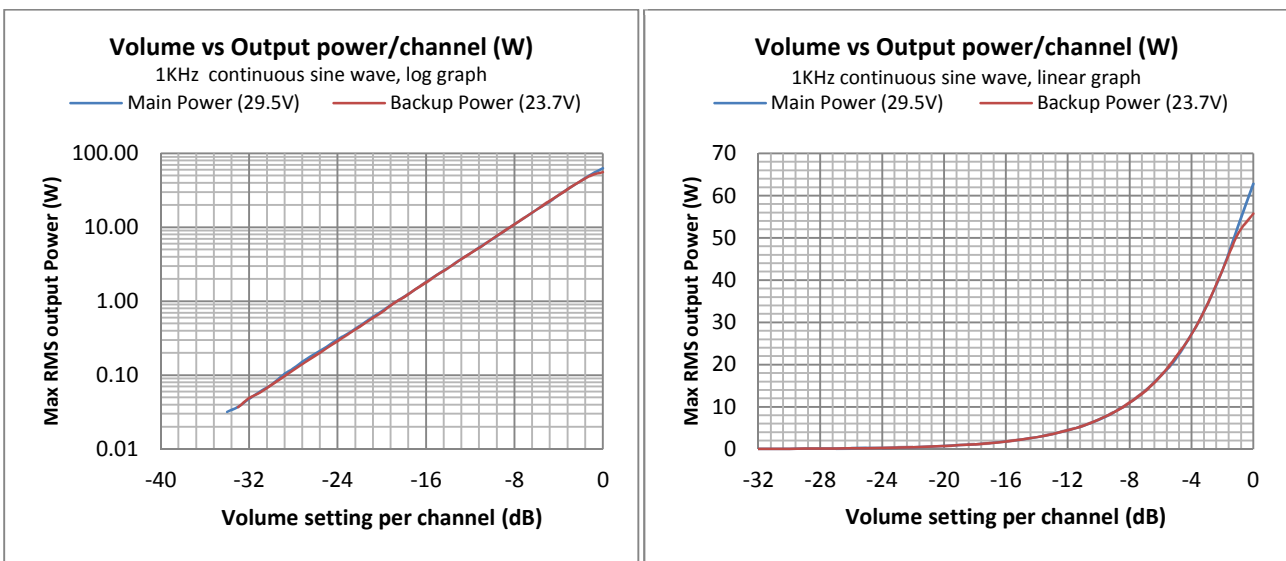
The following graphs demonstrate typical performance characteristics for the Evacs 1-16.

The test panel was configured in standalone mode and audio output was set as a 1 KHz sine wave with each speaker output played into a 575Ω impedance load (1230Ω resistive, 110nF capacitive).

Test measurements are intended as a guide only as actual power throughput will differ depending on the audio played, and may push the system beyond its recommended operating parameters.

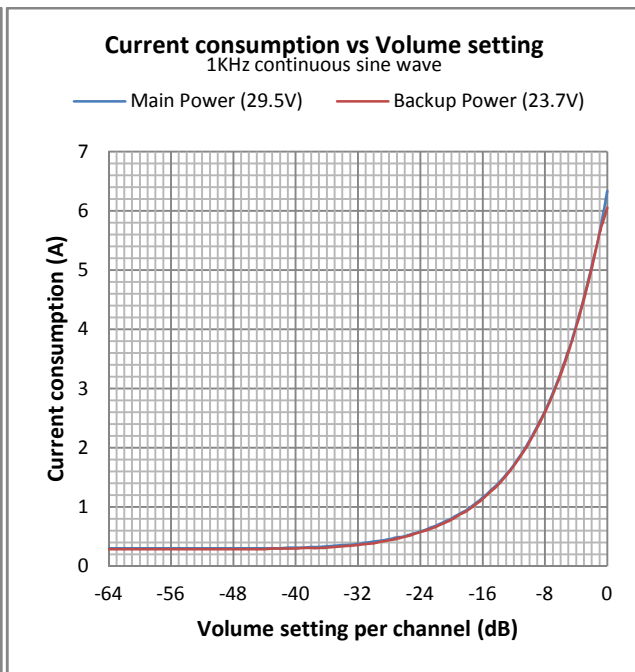
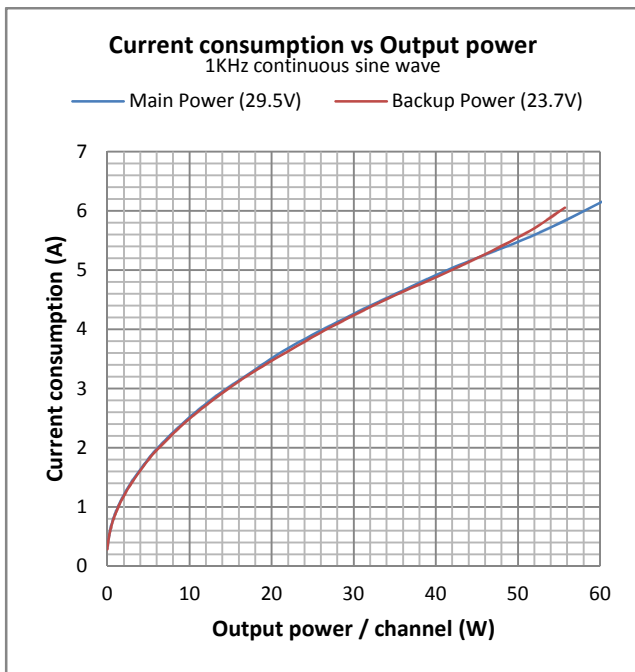
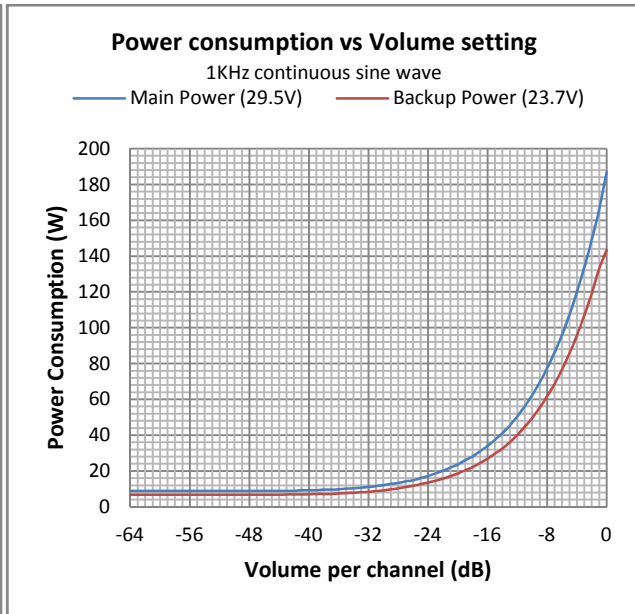
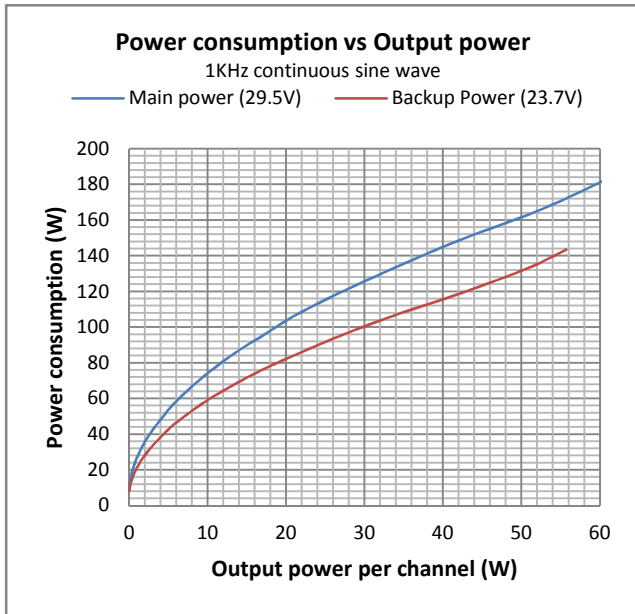
## Volume controls

Please note that maximum output of the unit is indicative only and that setting the unit beyond the maximum recommended ratings may degrade audio performance. Actual output power will vary depending on the speaker system installed.



## Power consumption

These graphs show typical power consumption characteristics from both a main power source and a backup power source. The power consumption data includes a small overhead of roughly 300mA drawn by the system.





## Specifications

### Electrical Specifications

ELECTRICAL DESCRIPTION	VALUE
MAINS VOLTAGE	100-120V AC / 200-240V AC $\pm$ 10% @ 50/60Hz
MAINS CURRENT	8.0A MAX
SYSTEM VOLTAGE	29.5V NOMINAL $\pm$ 10%
QUIESCIENT CURRENT DRAW	60mA
ALARM CONDITION CURRENT DRAW	500mA
MAX SYSTEM CURRENT DRAW	7.8A
MAX SYSTEM POWER DRAW	255W
BATTERY SPECIFICATION	24V DC (2X 7.2AH, 12V SLA BATTERY)
CHARGER SIZE	24V, 7.2Ah – 17Ah
SPEAKER LINE VOLTAGE	100V NOMINAL
MINIMUM SPEAKER IMPEDANCE	600 $\Omega$ @ 1KHz
MINIMUM RESISTIVE LOAD	1260 $\Omega$
MAXIMUM CAPACITIVE LOAD	110nF
OUTPUT PER CHANNEL	MAX 30W
TOTAL OUTPUT	MAX 60W
ALARM OUTPUT	2 x 500mA 28V DC
FAULT OUTPUT	1X RELAY SELV NORMALLY ENERGISED
PANEL INPUTS	1X ALERT 1X EVACUATE

DESCRIPTION	VALUE
DIMENSIONS (h x w x d)	475.5 x 400 x 143mm
WEIGHT	7.1Kg
TOP CABLE ENTRIES	28
BOTTOM CABLE ENTRIES	6

FUSE NO	DESCRIPTION	RATING
FS1	AMPLIFIER PROTECTION FUSE (CH1)	3.15A time delay 5x20mm ceramic
FS2	AMPLIFIER PROTECTION FUSE (CH2)	3.15A time delay 5x20mm ceramic
--	SOUNDER OUTPUT PROTECTION (S1)	500mA self-resetting PTC fuse
--	SOUNDER OUTPUT PROTECTION (S1)	500mA self-resetting PTC fuse
--	AUX POWER PROTECTION	500mA self-resetting PTC fuse