PERTRONIC INDUSTRIES LTD
PS1 Sounder - Installation Instructions

Overview:

The PS1 Sounders are two of a range of sounders manufactured by Pertronic Industries. The PS1 generates the 'Evacuation' and 'Alert' tones compliant to AS2220. The PS1 can also be used to generate an 'Alert' signal acceptable to NZS4512:1997 (Amendment Two) by giving an 'Evacuation' tone sweep every 15 seconds.
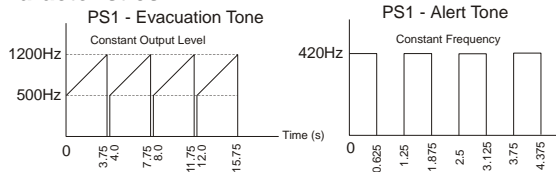
The PS1 Sounders have a maximum sound pressure level of 98dBA with a sound distribution pattern shown below. The sound level may be adjusted by a Volume control. The PS1 Sounders are normally connected to the monitored Bell or sounder circuit of a Fire Alarm Panel and are activated when the sounder circuit voltage polarity is reversed in the 'Alarm' state.

The PS1 Sounders may be mounted in a standard single-gang electrical flush-box fitting, and are supplied with a protective plastic cover for installation and building construction use.
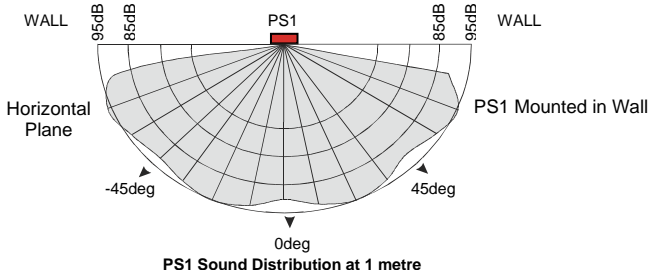
Specification:

Dimensions:	117 x 74 x 12	H x W x D mm	Depth above flush-box.
	Designed to fit into a standard electrical flush-box fitting.		
Colour Options:	Red or White.		
Sound Level Output:	Sound pressure level at 1m (peak $\pm$ 3dB)		
	Evacuation, Alert:	95dBA	(@12Vdc)
		98dBA	(@24Vdc)
Power Requirements:	BELL IN terminal (Supplied from the Bell circuit):		
	Operating Voltage 9.5Vdc to 30Vdc		
Quiescent current (Non-Alarm state)	0.2μA		(@12Vdc)
	0.4μA		(@24Vdc)
Operating current (Alarm state)	8mA average, 12mA peak		(@12Vdc)
	14mA average, 22mA peak		(@24Vdc)
Controls:	Third wire for 'Alert' / 'Evacuation' tone control		
	0V for the 'Alert' tone.		
Volume Control:	Potentiometer to adjust sound output level – range = 20dB.		

AS2220 Tone Characteristics:

PS1 - Evacuation Tone
Constant Output Level
1200Hz
500Hz
Time (s)
0   3.75 4.0   7.75 8.0   11.75 12.0   15.75

PS1 - Alert Tone
Constant Frequency
420Hz
0   0.625   1.25   1.875   2.5   3.125   3.75   4.375

Sound Pressure Distribution:

PS1 Sound Distribution at 1 metre
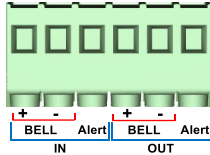
PS1 Terminal
Connector Layout

Operation:

The panel Bell circuit connects to the PS1 Sounder as shown below.

Bell terminals '+' and '-' connect to the corresponding Sounder '+' and '-' terminals.

If Bell is not active, the panel monitors the Bell circuit by applying a negative voltage to the PS1 '+' terminal. The quiescent current drawn by the PS1 under this condition is less than $0.4\mu A$.

When the panel Bell circuit is activated, the panel Bell circuit voltage reverses (applying positive voltage to the PS1 '+' terminal), sounding the PS1. The 'Evacuation' tone is generated if the 'Alert' terminal is open. If the 'Alert' terminal of the PS1 is connected to 0V (negative), the 'Alert' tone is generated instead.

Panel	PS1 Operation		
	Alert Terminal	J1	Tone Generated
Bell Inactive	Don't care	Don`t care	No tone
Bell Active	Open	Open	Evacuate
Bell Active	0v	Open	Alert
Bell Active	0v	Short	Alert
Bell Active	Open	Short	Alert

Some bell driver circuits provide a pulsed signal to the PS1 to give an alternative 'Alert' signal using the 'Evacuation' tone.
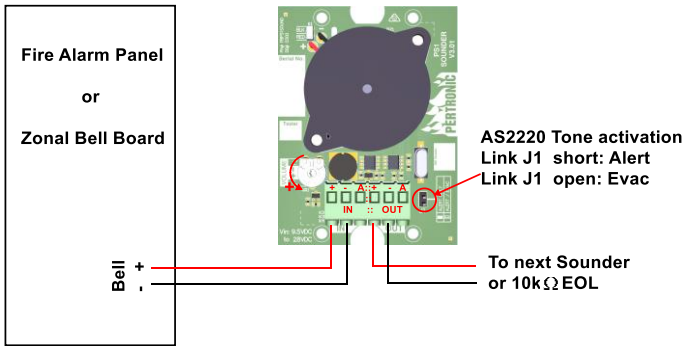
The sequence is:

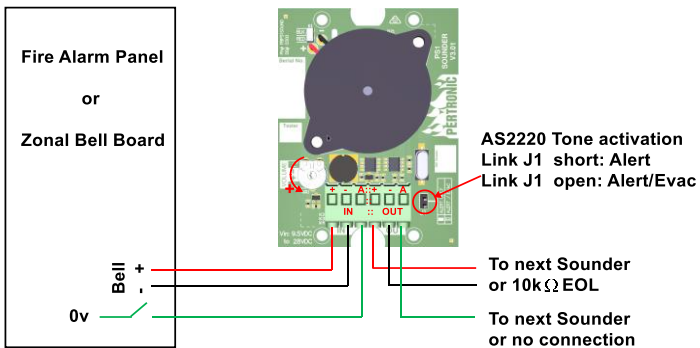|		
3.75 seconds	– Evacuation tone (one cycle)	
12 seconds	– silence	
3.75 seconds	– Evacuation tone	
12 seconds	– silence	(repeated).

This alternative 'Alert' signal complies with NZS4512:1997 (Amendment Two).

Connection Diagrams:

Basic Connection: Evacuation only on Bell Circuit reversal

PS1 Sounder V3.01

Fire Alarm Panel

or

Zonal Bell Board

**AS2220 Tone activation
Link J1 short: Alert
Link J1 open: Evac**

Bell +
-

**To next Sounder
or 10k Ω EOL**

Three-Wire Connection: Evacuation or Alert on Bell Circuit reversal

PS1 Sounder V3.01

Fire Alarm Panel

or

Zonal Bell Board

**AS2220 Tone activation
Link J1 short: Alert
Link J1 open: Alert/Evac**

Bell +
-

0v

**To next Sounder
or 10k Ω EOL**

**To next Sounder
or no connection**

Product Codes:

Description	Red	White
PS1	PS1-R	PS1-W

Document Change History:

Issue Number	Change Description	Change Note	Author
Issue 6 March 2022	New PCB v3.01,	CN3163	RJK