

## INSTALLATION NOTE

### PSB SOUNDER (SOUNDER BASE)

#### Overview:

The **PSB** Sounder is one of a range of sounders manufactured by Pertronic Industries. The **PSB** generates the evacuation tone as specified by AS2220. The **PSB** can also be used to generate an alert signal acceptable to NZS4512:1997 by giving an evacuation tone sweep every 15.5 seconds.

The **PSB** has a maximum sound pressure level of 95dBA with a sound distribution pattern as shown below.

The **PSB** is connected to an analogue addressable loop through the base connections, and internally to the LED drive output of the analogue addressable detector. The **PSB** will sound the alert or evacuation tone (depending on whether the MJ1 link is in or out; refer to Table 1) when the detector is in alarm.

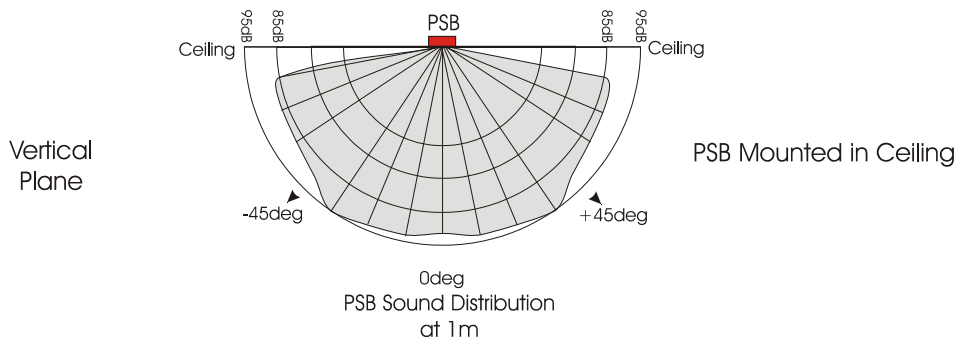
The **PSB** may also be connected to the panel bells or other bell driver output. When the bell circuit is reversed (while the detector is normal), the evacuation tone will be sounded.

The **PSB** is mounted by recessing it into the ceiling. A mounting ring is available for surface mounted applications.

#### Specification:

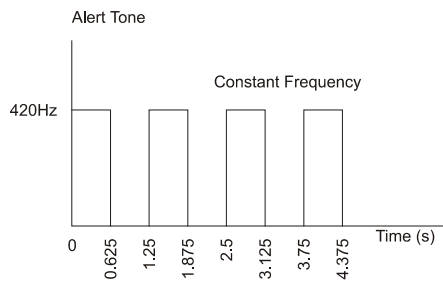
|                     |  |  |
|---------------------|--|--|
| Dimensions:         | When recessed:   |  |
|                     | Height below ceiling   | 31mm (including B501 base)   |
|                     | Height above ceiling   | 35mm   |
|                     | With surface mounted extension cover                                 | 66mm   |
|                     | Diameter of mounting flange  | 122mm  |
|                     | Surface mounted extension cover                                      | 35mm height  |
| Colour:             | Beige.   |  |
| Sound Level Output: | Sound pressure level at 1m ( $\pm 3$ dB)                             | Alert, Evacuation: 87dBA (15V)<br>95dBA (24V)                                    |
| Power Requirements: | <b>ANALOGUE LOOP</b> connection only:                                |  |
|                     | Operating Voltage  | 15V to 30Vdc   |
|                     | Quiescent current (non alarm)  | 1.5mA (24V) ( <b>ANALOGUE LOOP</b> )   |
|                     | Operating current (alarm state)                                      | 8mA average, 12mA peak (15V)<br>25mA average, 32mA peak (24V).                   |
|                     | <b>BELL DRIVER</b> connected (with <b>ANALOGUE LOOP</b> ):           |  |
|                     | Quiescent current (non alarm)  | 1.2mA (24V) ( <b>ANALOGUE LOOP</b> )<br>0.2 $\mu$ A (24V) ( <b>BELL DRIVER</b> ) |
|                     | Operating current (alarm state)                                      | 10mA average, 12mA peak (15V)<br>13mA average, 25mA peak (24V).                  |
|                     | Note: Operating current sourced from the Bells when Bells activated. |  |

#### Sound Pressure Distribution (24V):

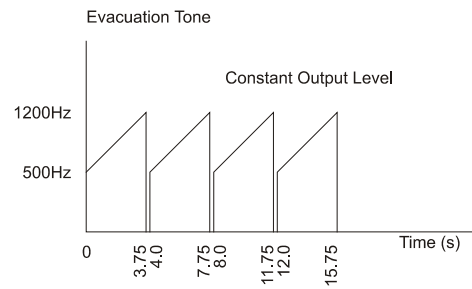


AS2220 tone characteristics:

**Alert tone**



**Evacuation tone**



**Operation:**

The **PSB** may be powered from the loop (without an external supply) for applications requiring local activation of sounders only. Groups of up to 5 sounder bases may be connected together so that all the sounders in the group are activated when at least one of the detectors within the group goes into alarm.

The **PSB** may also be powered from the panel bells or other bell driver for applications requiring global activation of sounders. The external bell circuit voltage is applied in reverse for monitoring purposes and to supply power for local activation of the sounders. When a global warning is required, the bell voltage is applied with correct polarity, activating all the sounders connected to the bell circuit.

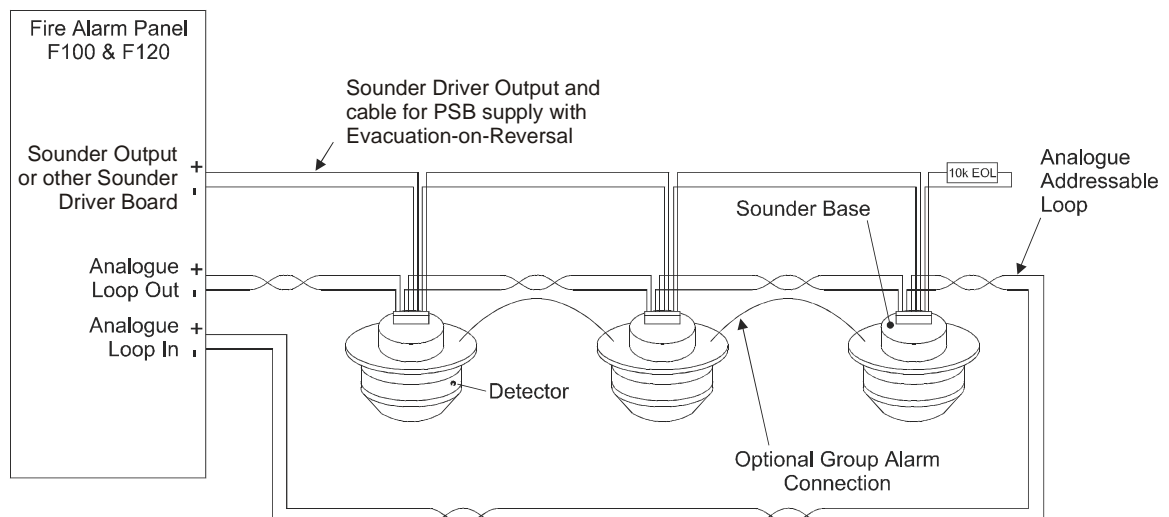
Some bell driver circuits can provide a pulsed signal to the **PSB** to give an alternative alert signal using the evacuation tone.

- The sequence is:
- 3.5 seconds – evacuation tone (one cycle)
  - 12 seconds – silence
  - 3.5 seconds – evacuation tone
  - 12 seconds – silence, (repeated).

This alternative alert signal complies with NZS4512:1997.

Group activation of sounders is achieved by connecting a common wire to terminal 3 of each of the of the detector bases in the group to each other. A maximum of 5 detectors may be connected together to form a group. If any detector in the group goes into alarm, the sounders of all the grouped sounder bases are activated.

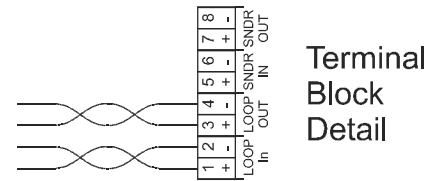
**Figure 1 General Loop Sounder Connection**



## Local Activation

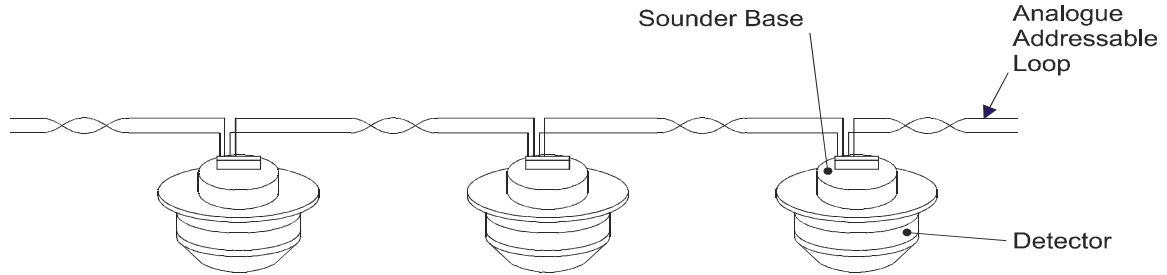
Figure 2 shows how the sounder bases are connected for local activation.

In this arrangement, the sounder associated with the detector on the base is activated (alert or evacuation tone; refer to Table 1) when the detector goes into alarm.



Note: Earlier versions (non AS2220) require links from Loop to Sounder terminals to provide power to the sounder.

**Figure 2 Loop Powered Sounder Bases**



## Combined Local and Global Activation

Figure 3 illustrates the connection method for externally powered Sounder Bases. As well as being connected to the loop, the PSB is connected to the panel bells or to a zonal bell driver board also. The terminals marked '+' and '-' of the **Apartment Sounders** connector of the Sounder Driver Board are connected to the '+' and '-' terminals respectively of **SNDR IN** and **SNDR OUT** of the Sounder Base terminal block.

Power is applied with reverse polarity to the Sounder Base when the system is normal. (Supply +ve is connected to terminals 6 and 8, and supply -ve is connected to terminals 5 and 7 of **SNDR IN** and **SNDR OUT** of the terminal block).

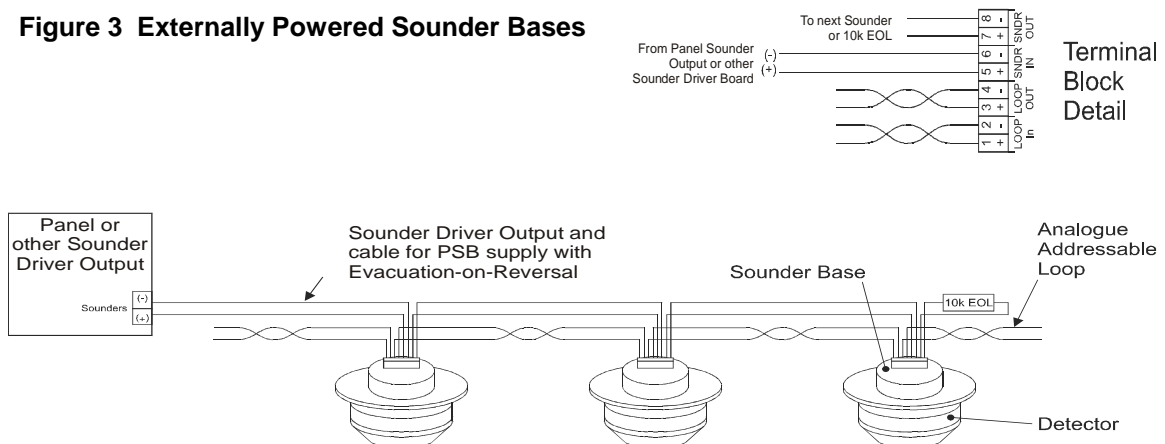
If the polarity of the supply is changed so that supply +ve is connected to the **SNDR IN** and **SNDR OUT** '+' terminals, and the supply -ve to the **SNDR IN** and **SNDR OUT** '-' terminals, all Sounder Bases will activate their sounders. This provides global evacuation.

A 10k ohm end of line resistor is required at the end of the external supply line for monitoring purposes.

**Table 1 Tone generation modes (For software versions 1.08 and above)**

| <b>MJ1 Link out</b>      | <b>Sounder inactive</b> | <b>Sounder active</b> | <b>MJ1 Link in</b>       | <b>Sounder inactive</b> | <b>Sounder active</b> |
|--------------------------|-------------------------|-----------------------|--------------------------|-------------------------|-----------------------|
| <b>Detector active</b>   | Evacuation Tone         | Evacuation Tone       | <b>Detector active</b>   | Alert Tone              | Evacuation Tone       |
| <b>Detector inactive</b> | No Action               | Evacuation Tone       | <b>Detector inactive</b> | No Action               | Evacuation Tone       |

**Figure 3 Externally Powered Sounder Bases**



## Group Connection of Sounder Bases

Group activation of sounders is achieved by connecting a common wire to terminal 3 of each of the of the detector bases in the group to each other. A maximum of 5 detectors may be connected together to form a group. If any detector in the group goes into alarm, the sounders of all the grouped sounder bases are activated.

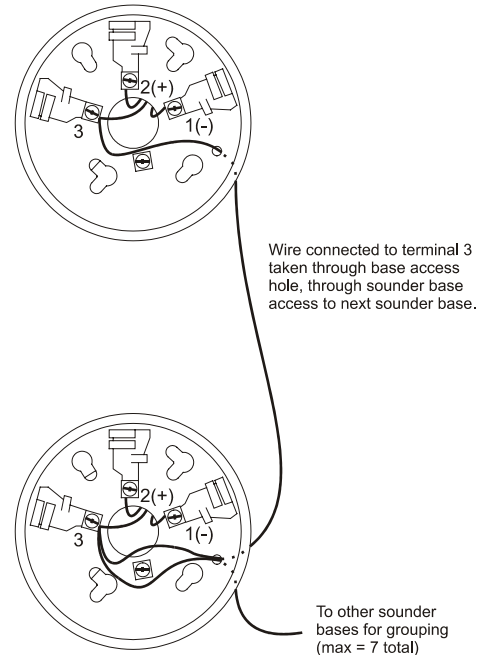
The terminal block at the top of the Sounder Base does not have a terminal for group connection, so this must be done by directly connecting terminal 3 of each Sounder Base together.

**Figure 4 Group Connection**

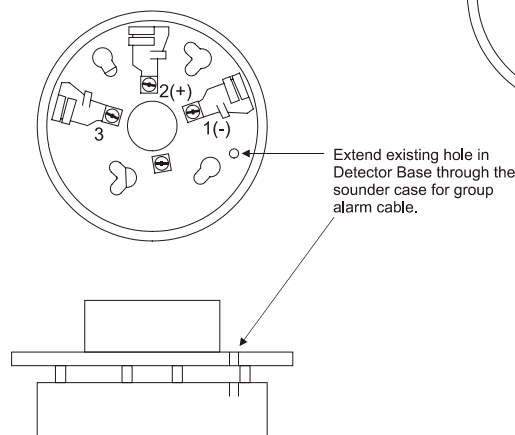
The group wiring is normally taken between Sounder Bases above the ceiling, requiring the cable to be routed from the Detector base through the sounder base assembly into the roof.

The B501 base has an access hole near terminal 1 of the base. The group cable may be taken through that (refer to figure 4), then through an access hole that must be drilled in the sounder housing immediately above the base access hole (see figure 5).

Group wiring may be implemented for loop or external supplied configurations.



**Figure 5 Sounder Housing Access Hole**



## Mixing Sounder Types:

PS2 sounders may be connected to a group of PSB sounders so that the detector alarm can be broadcast in near locations where there are no sounder bases.

Because of electrical loading, there are limitations to the number and type of sounder that may be connected together. These limits are shown in the table:

**Limits to the number of PS2s that may be connected to groups of PSBs**

|                                       |        |        |        |        |        |
|---------------------------------------|--------|--------|--------|--------|--------|
| <b>Up to</b>                          | 5 PS2s | 4 PS2s | 2 PS2s | 2 PS2s | 2 PS2s |
| <b>May be connected to a group of</b> | 1 PSB  | 2 PSBs | 3 PSBs | 4 PSBs | 5 PSBs |

The PS2s will not sound synchronously with the PSBs.