

# PERTRONIC INDUSTRIES LTD

## F4 20W AMPLIFIER INSTALLATION NOTE



### Overview:

The F4-20W Amplifier is one of a range of Amplifiers manufactured by Pertronic Industries.

The F4-20W generates the evacuation tone and verbal message as specified by NZS4512:2003.

The F4-20W has a monitored 100Vrms output that can provide up to 20W of power (13.7V supply) to connected PA loud speakers. The output is short-circuit protected.

The F4-20W is designed for connection to the monitored sounder output of an F4 panel, and is activated when the sounder circuit voltage polarity is changed to the 'Alarm' state.

In the 'Normal' state, the amplifier 100Vrms line is internally connected to the F4 sounder circuit. The amplifier draws minimal current (less than 0.2uA), and appears transparent to the panel. If there is a wiring fault on the 100Vrms line, or between the amplifier and the F4 bell circuit, the F4 signals a 'Defect'.

### Specifications:

Targeted Panel:	F4 : Four Zone Circuit Conventional Panel.
Board Dimensions:	97mm x 74mm. Height = 35mm from bottom side of PCB.
Mounting Dimensions:	83mm x 57mm (compatible with existing mounting plate)
Operating Voltage:	10.5-14Vdc, nominal 13.7Vdc
Operating Current:	2.0A @ 13Vdc nominal with 20Wrms load
Power Output:	13.7Vdc Supply: 20Wrms @ 100V line at nominal voltage 10.5Vdc Supply: 15Wrms @ 100V line at nominal voltage
Tone:	Evacuation tone and verbal message, compliant to NZS4512:2003 (refer Fig 1).
Monitoring:	10K 1W EOL resistor

### NZS4512:2003 Tone Characteristics:

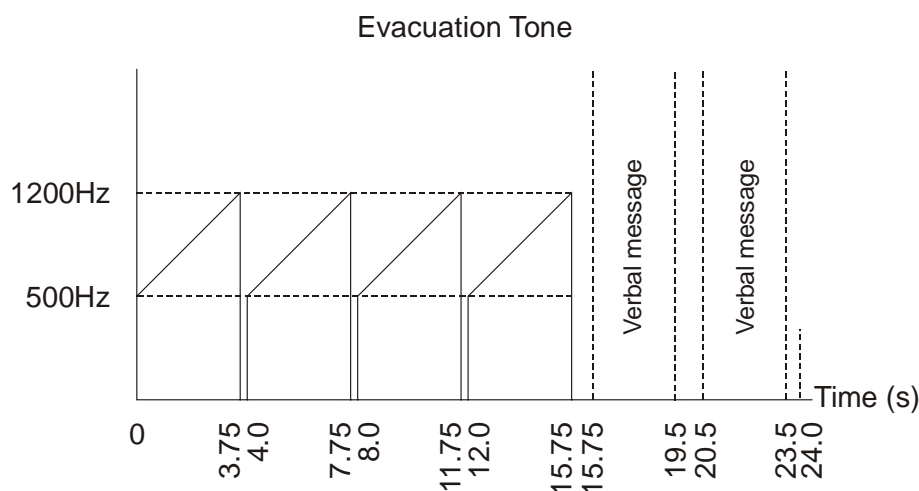


Fig 1.



### Operation:

The Amplifier is connected to the F4 panel sounder circuit output as shown in the connection diagrams. Sounder terminals '+' and '-' are connected to the corresponding '+' and '-' terminals on the amplifier.

In the 'Normal' state, the F4 monitors the 100V line 10K 1W EOL resistor by applying an inverted voltage to the amplifier input terminals. In this state the amplifier connects the 10K 1W EOL line resistor to the sounder input. A 10K 1W EOL resistor must be used across the 100Vrms line for correct operation of the amplifier monitoring circuit.

In the 'Alarm' state, the F4 panel reverses the bell voltage causing the amplifier to activate and output a repeating 'Evacuation Tone followed by a voiced Evacuation Message' onto the 100Vrms loudspeaker circuit. The amplifier is NOT monitored during the 'Alarm' state.

If the amplifier output is overloaded, or the supply voltage becomes 'Off-Normal', the amplifier will signal a defect by turning on the Defect/Fault LED (refer Table 1).

**Table 1. LED Decoding**

Fault LED	ON LED	Defect Description
Off	Off	Amplifier inactive
Off	Steady	Amplifier active
Steady	Flashing	Supply Voltage below 10V or above 15V
Flashing	Steady	Amplifier output is overloaded

The 100Vrms Line may have a maximum of three spurs. For these configurations an EOL resistor of the appropriate value must be installed at the end of each spur. (See Table 2).

**Table 2. Spurs**

NUMBER OF SPURS	EOL RESISTOR VALUE FOR EACH SPUR
1	1 x 10K 1W
2	1 x 22K 1W on each spur
3	1 x 33K 1W on each spur

Capacitively-coupled 100Vrms PA Speakers must be used with the F4-20W Amplifier. The capacitor must be bipolar and able to withstand 250V peak line voltage. The value should be around 1uF per watt of power for each speaker.

100Vrms speaker wiring must be separated from ELV (Extra Low Voltage) wiring.

Loading of the 100Vrms line must not exceed 20W.

An excessive load will cause the Amplifier to current limit and shutdown. The symptoms for this may be interruptions in the audio output and two or more amplifiers broadcasting out of synchronization.

Loading of the bell output must not exceed the maximum fuse (F4 Panel Bell Circuit Fuse 1 = 5A) or relay (20W F4 Amplifier Line Relay maximum contact current = 3A) rating.

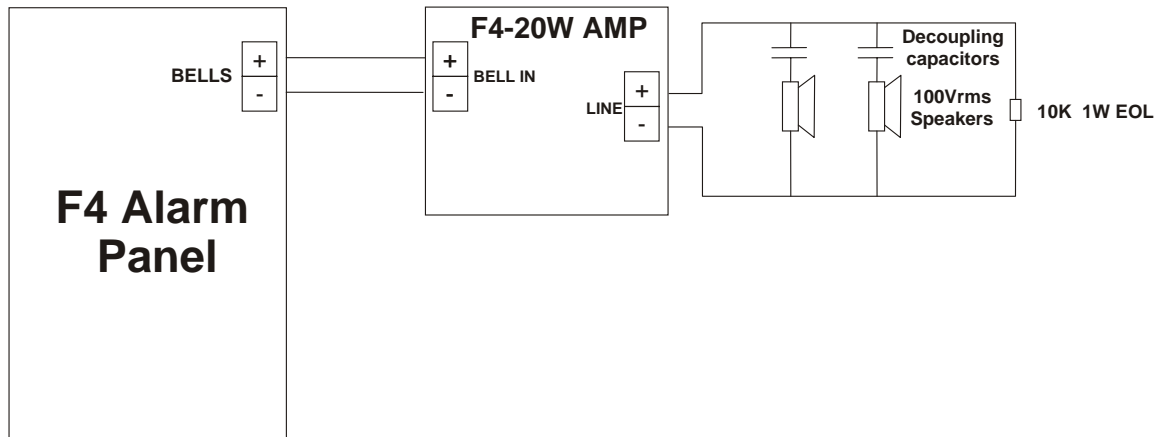
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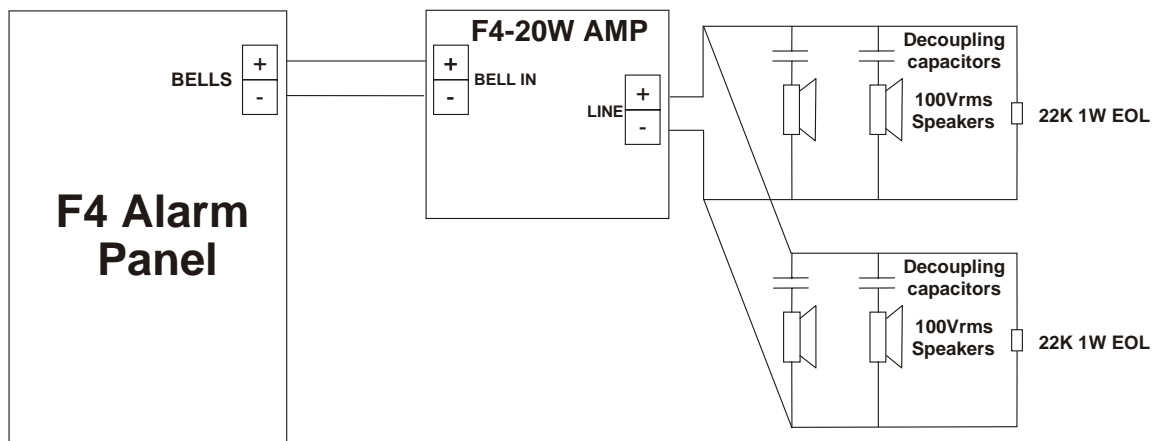


### Connection Diagrams:

#### Basic Connection Diagram



#### Spurred-Speaker Wiring Connection



#### Circuit Board Layout

