

# PERTRONIC INDUSTRIES LTD

## DATASHEET

### 20 W 24 Vdc 100 Vrms Line Amplifier (EVAC20W24V)



## Overview

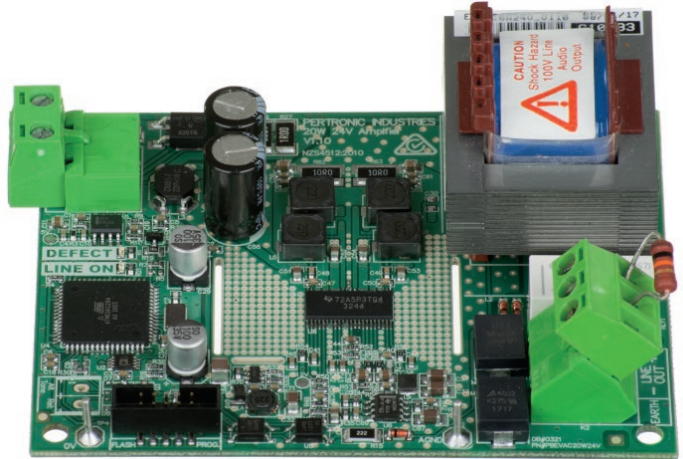
The Pertronic 20 Watt Amplifier (EVAC20W24V) is an evacuation amplifier with integral evacuation tone and message generator and fault detection system. It is designed for use in emergency warning systems with supervised 100 V Line distribution systems. The amplifier delivers up to 20 W of audio power to the 100 volt line.

The EVAC20W24V generates an evacuation tone with a voice message as specified in NZS 4512:2010.

The amplifier is controlled by the BELL output of a fire alarm panel such as the Pertronic F220, F100A or F16e.

When in standby, the 100 V line is connected to the BELL circuit. This allows the fire alarm panel to detect short or open circuit faults on the 100 V line. The BELL circuit drives a small dc current through the 100 V line, which must be terminated with a suitable end of line resistor. It is important to note that every speaker connected to the supervised 100 V line must be specially designed for emergency warning systems, with each speaker incorporating a dc blocking capacitor.

The fault monitoring system also monitors for power supply faults, overload conditions, low power output.



*Pertronic 20 W, 24 V Amplifier*

## Features

- » Generates the 'Evacuation' tone with verbal messages as specified by NZS 4512:2010
- » Designed for connection to the monitored sounder output of an F220, F100A or F16e fire alarm panel and is activated when the sounder circuit voltage polarity reverses to the 'Alarm' state
- » In the 'Normal' state, the amplifier draws practically no current (less than 0.2  $\mu$ A) and appears transparent to the fire alarm panel
- » The 100 Vrms line is internally connected to, and monitored by, the panel's Sounder circuit
- » The amplifier's 100 Vrms line is short-circuit protected and is capable of driving up to 20 W (27.4 Vdc supply) into connected PA loud speakers such as the Pertronic PSS1 and PSSB401
- » Also compatible with Pertronic F120A

## Specifications

<b>Operating Voltage</b>		19.2 to 28.8 Vdc (Reference 27.4 Vdc)
<b>Power Output</b>		20 W @ 100 Vrms line, 27.4 Vdc Supply
<b>Current</b>	<b>Quiescent</b>	0.2 $\mu$ A @ 24 Vdc
	<b>Alarm</b>	1.1 A @ 27.4 Vdc, with 20 Wrms load
<b>Dimensions</b>	<b>Board</b>	106 x 77 x 38 mm (L x W x D mm)
	<b>Mounting</b>	93 x 69 mm (L x W)
<b>Operating Temperature</b>		-10 to +50 °C
<b>Operating Environment</b>		10 to 95 % RH (non-condensing)
<b>Weight</b>		200 g
<b>Monitoring</b>		Monitored for open and short-circuit (10 k $\Omega$ , 2 W EOL resistor)
<b>Tone</b>		Evacuation tone and verbal message, compliant to NZS 4512:2010

## Operation

The Amplifier is connected to the Fire Alarm panel sounder circuit output. The Sounder (Bell) terminals '+' and '-' are connected to the corresponding '+' and '-' terminals on the amplifier.

In the 'Normal' state, the panel monitors the 100 V line EOL (10 kΩ, 2W) resistor by applying an inverted voltage to the amplifier input terminals. In this state the amplifier connects the EOL resistor to the Sounder. A 10 kΩ, 2W EOL resistor must be used across the 100 Vrms line for correct operation of the amplifier monitoring circuit.

In the 'Alarm' state, the Fire Alarm panel reverses the Sounder voltage causing the amplifier to activate and output a repeating 'Evacuation Tone, followed by a voiced Evacuation Message' onto the 100 Vrms loud speaker 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 the Defect LED ON (refer to Table 1).

Defect LED	ON LED	Defect Description
Off	Off	Amplifier inactive
Off	Steady	Amplifier active
1st flash is long	Off	Supply Voltage is out of range
2nd flash is long	Off	Input current is too high
3rd flash is long	Off	Output voltage too low, short detected

The 100 Vrms 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 (refer to Table 2).

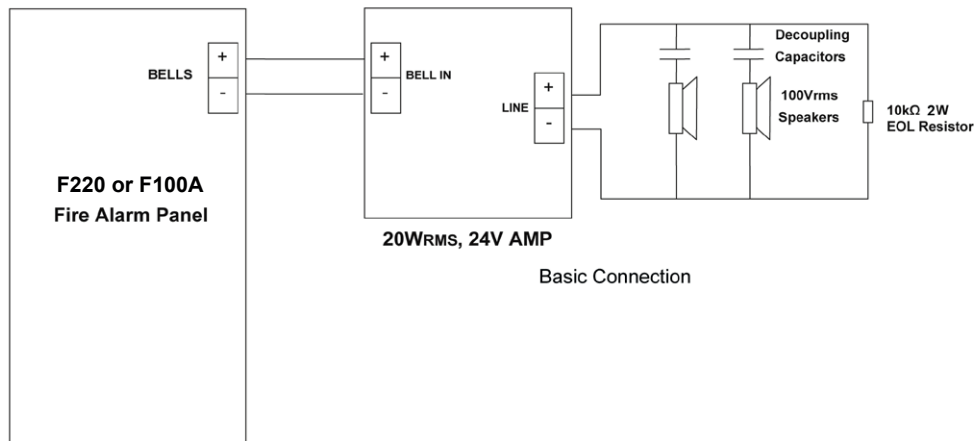
Number of Spurs	EOL Resistor Value for Each Spur
1	1 x 10 kΩ, 2 W
2	1 x 22 kΩ, 1 W on each spur
3	1 x 33 kΩ, 1 W on each spur

Capacitively-coupled 100 Vrms PA Speakers must be used with the 20 W, 24 V Amplifier. The capacitor must be bipolar and able to withstand 250 V peak line voltage. The value should be approximately 1 μF per watt of power for each speaker.

The 100 Vrms speaker wiring must be separated from ELV (Extra Low Voltage) wiring to prevent interference from cross-talk. Loading of the 100 Vrms line must not exceed 20 W.

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 or relay ratings.

## Connection Diagram



## Ordering Information & Notes

Product Code	Description
EVAC20W24V	EVAC Amplifier, 20W 24V

The information in this document must not be treated as partial or complete instructions for the design, construction, installation, commissioning, or maintenance of fire detection, fire alarm, or building evacuation systems. Fire and evacuation systems must be designed and installed by properly qualified persons, in accordance with all regulatory requirements.

Unless explicitly stated otherwise, this document provides typical specifications and nominal dimensions. Actual product performance and dimensions may vary.

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