

PERTRONIC INDUSTRIES LTD

FIREBITS

March 2008

Pertronic F120 Panels In Smales Farm Expansion



The Smales Farm Business Park was established on Auckland's North Shore around eleven years ago when Telstra Clear's distinctive head office was built. The latest additions are the **Sovereign** and **Q4** buildings, which share a common basement car park podium, with smoke curtains dividing the car park between the two properties. Each building is protected by its own Pertronic F120 analogue addressable fire control panel.

The evacuation system in the Sovereign building is programmed to operate four minutes after a single analogue addressable smoke detector activates, or immediately if a second smoke detector activates in the same zone during the count down period (i.e. a "double knock" system). Detectors in the ground floor crèche are programmed as a Type 5 system, with a LCD mimic display and smoke detector Local Alarm Reset function provided for staff. Vesda detectors are installed to protect the building's atrium.

The Q4 building - a mixture of office and retail space - is a Type 3 system, with analogue addressable heat detectors used throughout.



VESDA



Measuring Load On 50 Watt Amplifiers

When amplifiers are used to drive evacuation systems it is often difficult to accurately know how much capacity is used or available on the amplifier - important information in fault finding or system extensions.

For Pertronic 50W amplifiers, the table below has been developed to help provide this information. The only equipment required is a multi meter - or preferably two. As the power load from the speakers increases, so too does the DC current drawn from the amplifier's power supply. If Tone 22 is selected on the amplifier (refer to the Operating Manual), then at full load the amplifier will draw 2.5A @ 27Vdc. The full load test procedure is outlined in a data sheet available from the Pertronic web site, under 'Engineering,' with the key points summarised below:

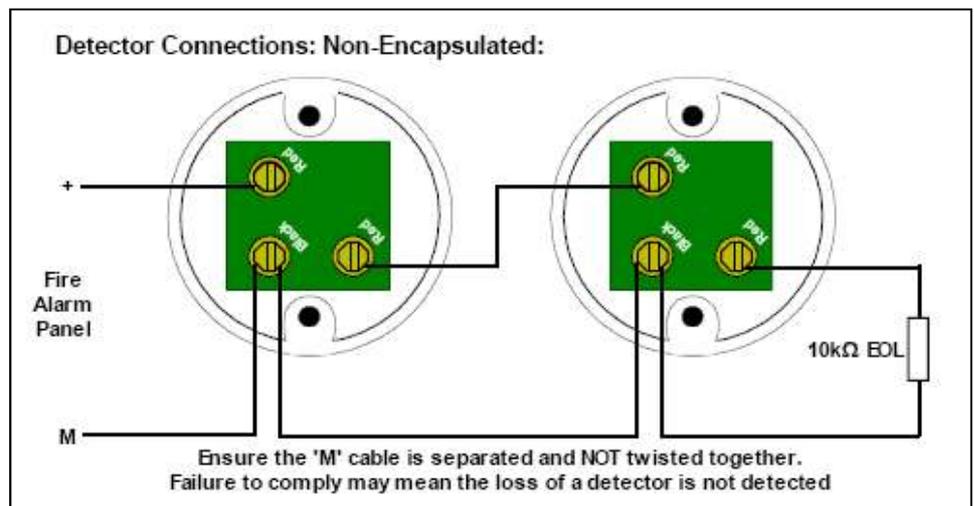
- (a) Set the evac tone to Tone 22.
- (b) Ensure only one amplifier is connected to the DC supply.
- (c) Insert a multi meter, set to amps, in series with the negative supply lead and DC supply connector.
- (d) Use a second multi meter, if available, to measure the supply voltage across the DC connector.
- (e) Operate the amplifier in Evac, and measure the DC voltage and current drawn - compare readings against the table to identify the loading on the amplifier.
- (f) Remember to reset the Evac tone to the original setting when testing is complete!

Current Drawn (use Amplifier Tone 22)	Supply Voltage	Amplifier Load (Capacity Used)	Comment
0.2A	27Vdc	2%	10kΩ EOL Only (no speakers)
0.25A	27Vdc	10%	
0.5A	27Vdc	20%	
0.75A	27Vdc	30%	
1.0A	27Vdc	40%	
1.25A	27Vdc	50%	
1.5A	27Vdc	60%	
1.75A	27Vdc	70%	
2.0A	27Vdc	80%	
2.25A	27Vdc	90%	
2.5A	27Vdc	100%	
2.75A	27Vdc	110%	Over Load
2.83A	27Vdc	113%	Over Load

Correct Installation Of Indicating Heat Detectors

The diagram below is reproduced from the Installation Note supplied in each box of Pertronic indicating heat detectors. It highlights the importance of ensuring that the black, or "M," cables are not twisted together into the brass terminals.

If one cable works loose from a terminal an open circuit is then created, and this defect will immediately be reported by the fire control panel. If the cables are twisted together and work loose from a terminal, the heat detector is then not in an operational condition, but this defect will not be detected by the fire control panel, as a complete, unbroken circuit has been maintained.



Reading Analogue Values On Pinnacle Detectors

The Pinnacle analogue addressable laser smoke detector manufactured by System Sensor has some unique reporting features built into its software. As normal analogue addressable smoke detectors (i.e. photoelectric and ionisation) become more sensitive - usually from dirt or dust - the analogue value of these devices creeps upwards and may eventually reach a point where a maintenance alarm (expressed as a 'pre-alarm' on the F100 panel display) is generated. The maintenance alarm point is set in the fire control panel's software as a percentage of the analogue value of the alarm threshold for each particular detector. If detectors are set at different sensitivity levels, they will also have different maintenance alarm levels.

Pinnacle detectors have built in "drift compensation." As a small amount of dirt or dust builds up in the detection chamber - potentially increasing the sensitivity of the detector - the detector's software applies automatic compensation to maintain the output of the detector at its standard calibrated analogue value. In this way the detector sensitivity remains constant even in the presence of environmental contamination.

However, if the degree of contamination exceeds the compensation capabilities of the detector, the system will become more sensitive with increased potential for nuisance alarms. When the detector is outside its drift compensation limits, this condition is detected by the F100 and F120 panels and a defect signal is generated to alert the fire alarm service agent.

The table below lists the out-of-range drift compensation conditions and the values displayed.

Pinnacle status	F120 value displayed	F100 value displayed
Normal- Detector does not need cleaning	Clean Air Value (PW4) = 900	Status value = 28
Drift Alert 1- Detector needs cleaning but sensitivity is not yet compromised	Clean Air Value (PW4) = 600	Status value = 18
Drift Alert 2- Detector needs cleaning urgently if set to high sensitivity (1 to 4) as the sensitivity is now compromised, with the detector becoming more sensitive if not attended to. If sensitivity is set at 5 to 9 then cleaning is required but sensitivity is not yet compromised	Clean Air Value (PW4) = 450	Status value = 14
Drift limit reached- Detector must be cleaned immediately, regardless of sensitivity setting, as sensitivity is now compromised	Clean Air Value (PW4) = 300	Status value = 9

Note that values displayed on the fire control panel's LCD screen may vary slightly. For example, on a F100 panel, Drift Alert 1 may be expressed as a value of 17 or 19 instead of 18.

New Laser Duct Detector From System Sensor

The Pinnacle detector referred to above is now available from System Sensor in a specially designed housing for duct detector applications, particularly where very early smoke detection is required in high velocity, high volume air change environments. Pinnacle achieves detection sensitivities as low as 0.02% per foot and is ideally suited for installation into telecommunications switching facilities, computer rooms, clean rooms - any sensitive areas where even small amounts of smoke can not be tolerated. The detector has a convenient twist-in, twist-out mounting to allow easy removal for quick cleaning and maintenance without having to remove the duct housing. The housing design allows Pinnacle to work correctly in air velocities ranging from 90 to 1200 metres per minute, and the unit can be fitted to round or rectangular ducts from 0.3m to 3.7m wide, with an operating temperature range of 0°C to 38°C.

For more information, please visit Pertronic Industries' web site - www.pertronic.co.nz

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Another Vesda System Installed At Scott Base

Or more precisely, near Scott Base, the facility built on Ross Island and managed by Antarctica New Zealand. A geodesic dome located approximately six kilometres from Scott Base protects Telecom's satellite dish - the vital communication link to the rest of the world. The communications and electronic equipment for the dish is located in a plywood hut in the base of the dome.



In January, a fire alarm technician enjoyed the unique experience of flying into, and staying at, Scott Base to install a Vesda Laser Plus detector inside the dome to protect the electronics in the plywood hut and a 2.2kV transformer used to power the dish and support equipment. The opportunity was also taken to test and re-commission other Vesda detectors previously installed around Scott Base to ensure all systems are functioning correctly (our thanks to Fire Security Services for the information and photos).

Maximum Protection For Historic Queenstown Courthouse

Queenstown's original courthouse was built in 1877 and is a Historic Places registered building. It now houses a café, appropriately called 'Guilty.' The building quite possibly supports the smallest analogue addressable system in New Zealand, with only two detection zones connected to a Pertronic F100A panel.

Speed of response to any fire related event was considered essential to minimise the risk of damage to the building. Analogue addressable smoke detectors are installed throughout the ground floor zone, with analogue addressable heat detectors in the kitchen, to provide occupants with precise point identification of any alarm on the fire panel's LCD display. A separate zone of heat detectors is installed throughout the ceiling space.

