PERTRONIC INDUSTRIES LTD

FIREBITS

APRIL 2014

Major Fire Detection Upgrade at Dunedin Hospital

Established in 1851, Dunedin Hospital is a 388 bed facility employing over 3,000 staff to serve the Otago and central Otago regions. The hospital is also a University teaching hospital, with close links to the University of Otago as well as the Otago Polytechnic Schools of Nursing, Midwifery and Health Sciences - the hospital's connection with the Dunedin Medical School dates back to 1877.

Last year the Southern District Health Board decided to upgrade the fire control and monitoring equipment in the hospital's Ward Block building and Tansley Electrical Ltd were tasked with the design and build for this project. The building has a substantial floor area and this, coupled with the high analogue addressable detector count per level, led to the decision to install a Pertronic F100A analogue control panel on ten of the building's twelve floors and to network the panels together, making the system modular for maintenance purposes yet still able to operate as one combined alarm system. As an extra precaution each fire panel has a Fire Service monitoring connection. A Pertronic F120A analogue control panel was added to this fire panel network on the ground floor, to act as the interfacing panel between the F100A panels and the networked EWIS system, in addition to supporting the Fire Service mimic. A Pertronic FireMap® graphics system was also installed and developed, running on a virtual server.

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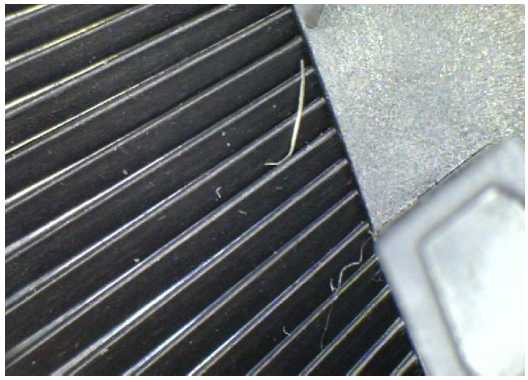
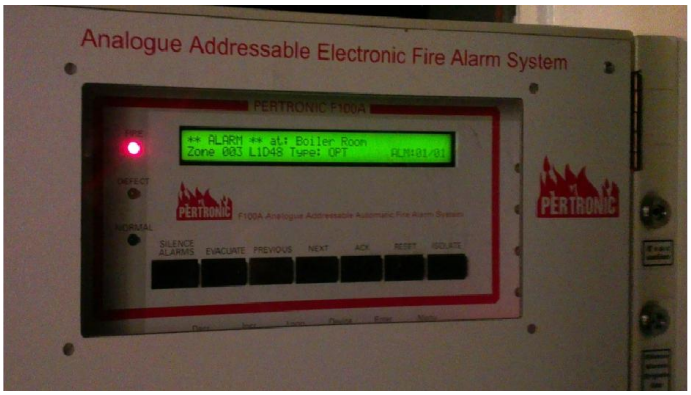
Fire Alarm Activations at Pertronic Head Office

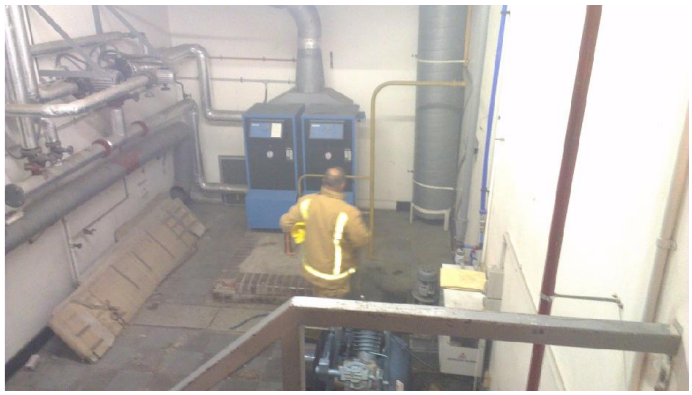
Being a fire alarm equipment manufacturer in no way makes our company immune from fire alarms - both real and otherwise - as highlighted by two recent events.



The first event - a false (or nuisance) alarm - occurred at 7.05 am one Monday. The analogue addressable smoke detector that went into alarm was taken down and opened up. Two thin fibres (pictured, right) were found inside the detection chamber and one or both would have caused the alarm. How they got there is unclear and why, at that time of the day, they caused a false alarm is also unclear. Possibly a door being opened or closed and the subsequent vibration or air movement may have been enough to disturb the fibres and cause the detector to go into alarm.

The second event could have been quite damaging for the company. At 1 am on another Monday the building's fire alarm system called the Fire Service. An air compressor in the basement had failed to cut off when the air tank was up to pressure and it then ran in continuous mode. The compressor became extremely hot and overheated oil filled the basement with blue smoke. Smoke escaped under the basement door and up the stairwell where a smoke detector at the top of the stairwell triggered an alarm. In addition to the zone indication on the Fire Service mimic, the device details and location shown on the F100A analogue panel's LCD display provided additional information on the location of the activated device. No damage done, fortunately, but it was a valuable reminder of the importance of brigade connected fire alarm systems.





Pertronic Expansion Into Malaysia

Pertronic Industries recently appointed a distributor in Malaysia and one of their first projects with Pertronic equipment was the Sunshine Bertam Mall, located in the highly urbanised and industrialised area of Penang. Covering a 2.43ha area, the mall includes a 4645 square metre hypermarket and a 657 seat Mega Cineplex, in addition to a diverse range of retail outlets.

Two Pertronic F120A analogue panels (compliant to AS4428.1) are networked together to protect the complex. The fire panels supervise a staged evacuation system, with a 'double knock' operation programmed for smoke detectors in the food court area to minimise false alarms. The panels also monitor an extensive sprinkler system as well as a large number of fire shutters, with an additional interface to a giant cooling fan, which has become a focal point in the Cineplex entrance.

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 the manual available from the Pertronic web site, under 'Engineering,' although key points are 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

Avoid Damage to Fire Panel Components

As part of the company's ISO quality system, faulty products returned to our factory are closely monitored and reviewed. Regular items on the faulty product returns list are fire panels' power supplies, with the most common fault being swarf inside them shorting out components. The swarf is usually generated when mounting holes or cable entry holes are drilled in the cabinet. The same issue also occurs with fire panel masterboards becoming contaminated with swarf, causing similar damage which is often uneconomic to repair. Fire alarm technicians are urged to ensure power supplies and all boards inside panels are adequately covered or protected (or even removed) when carrying out any drilling or metal work inside the cabinets.

Smoke Obscuration Reference Table for Fire Engineers

When working on fire engineering calculations it is often difficult for engineers to find information on smoke obscuration values expressed in the right format - these values are often represented as a % per meter, or % per foot, or optical density, and so on. Pertronic have calculated and published an Obscuration Table, showing these values and others, as illustrated in the extract below:

Light transmission %	Obscuration % per metre	Obscuration % per foot	Optical Density per metre	Optical Density per foot	dB Attenuation per metre	dB Attenuation per foot
90.00	6.68	2.09	0.03	0.009	0.3	0.09

The Obscuration Table can be accessed at www.pertronic.co.nz, under 'documentation'- we trust it is useful.

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David Percy Receives Second IPENZ Award

New Zealand's Institution of Professional Engineers (IPENZ) held its "Fellows and Achievers" awards dinner in Christchurch during March. This function is held annually to recognise IPENZ Members' technical achievements, their contribution to the advancement of the profession and commitment to the Institution.

At the same awards function in 2010 David Percy, Pertronic Industries' founder and managing director, was inducted as a Fellow of the Institution. At this year's function David received further recognition by receiving the IPENZ Supreme Technical Award in the Information, Communication, Electrical and Electronic Technology category.

The award and citation were presented to David by Derrick Adams, IPENZ President, and Sulo Shanmuganathan, representing Opus, the Awards sponsor. The citation reads:

David Percy has had a distinguished career in engineering, with the majority of his career devoted to the building of an export business based on innovative automatic fire detection equipment. He personally undertook much of the early fire alarm system development work that led to the creation of the advanced analogue systems with reduced false alarms. Since then, his role has evolved to managing an engineering team that has successfully expanded the original concept into sophisticated digital technologies.

Under his leadership the company has created leading edge technology solutions for automatic fire detection. His company has also evolved custom manufacturing processes to fabricate the units sold to international as well as local markets. The competitive advantage his company enjoys through its innovation has created a significant export opportunity for a high value, niche, manufactured, New Zealand-engineered product.

David is a well respected member of the fire safety engineering community and has been an active participant on New Zealand Standards committees. It is fitting that this award in 2014 recognises the technical expertise and entrepreneurial spirit of David Percy.

After receiving the award David commented that, while he was singled out for the honour, it was "genuine recognition of the commitment and contribution of every person in the company, and I am extremely grateful to them, as I am to our customers here and overseas for their ongoing support."

Dunedin Hospital Upgrade (continued from page 1)

In addition to FireMap providing fast, accurate, graphical information on any alarm event to key response staff, the graphics system is also used by maintenance contractors to help identify and locate system defects.

The staged evacuation switching of the EWIS system is supervised through programming in the F120A fire panel, rather than embedded in the EWIS' software, providing greater flexibility for any changes the hospital may require to their different evacuation scenarios.