Johnson Controls

Fire Detection Product Catalogue

Australia – Issue 7

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Contents

Vigilant is now Zettler
with the same reliable solutions

The Zettler range has been built around MZX technology, which provides some of the most advanced fire detection capabilities available.

Developed from integrating many years of product innovation through research and development across Europe, the MZX technology platform has provided some of the best sensing technologies for more than 100 years, and has been a great contributor to early detection and minimising false alarms. Our products have been designed for easy and flexible engineering, configuration and installation.

This has resulted in the Zettler® range being one of the most resilient, reliable and serviceable systems available, with the broadest level of global standards compliance and certifications. Our experts have developed a new series of sounders, visual alarm devices (VADs), and visual indication devices (VIDs). Using our cutting-edge, in-house testing centres, our engineers have performed rigorous, accurate situational testing programmes with a special focus on AS/ISO 7240 part 23 requirements to enable them to enhance the performance of our new product range.

This, combined with our expert knowledge in fire detection technology and systems, has meant that we now offer a range of superior devices. These are among the most advanced available and meet all the current standards and requirements, making the system suitable for the most critical and sensitive environments.

The evolution from Vigilant to Zettler

As part of our ongoing commitment to innovation and quality, we are proud to announce that Vigilant is evolving into Zettler. This transition represents the next step in our journey, aligning our rich heritage under a unified brand name. While the name is changing, the products, quality and reliability you have come to trust remain exactly the same.

The evolution to Zettler reflects our dedication to staying ahead in fire detection technology, ensuring that our systems continue to provide the highest level of protection for all environments.

Introduction

Welcome to the seventh edition of the Johnson Controls Fire Detection Product Catalogue for Australia.

We aim to make our product range as comprehensive as possible to ensure you never need to go anywhere else. To meet this goal, our product specialists, with your help, have selected the most appropriate, cost-effective product range available. Only those products that meet the highest quality criteria have been included.

Our National Distribution Centre, located in Sydney, is one of the largest fire and security product distribution centres in Australia. Our goal is same-day dispatch for orders received before 2 p.m.

Our warranty and service returns policy is located towards the back of this catalogue – look for Warranty Procedure on page 189 for your reference.

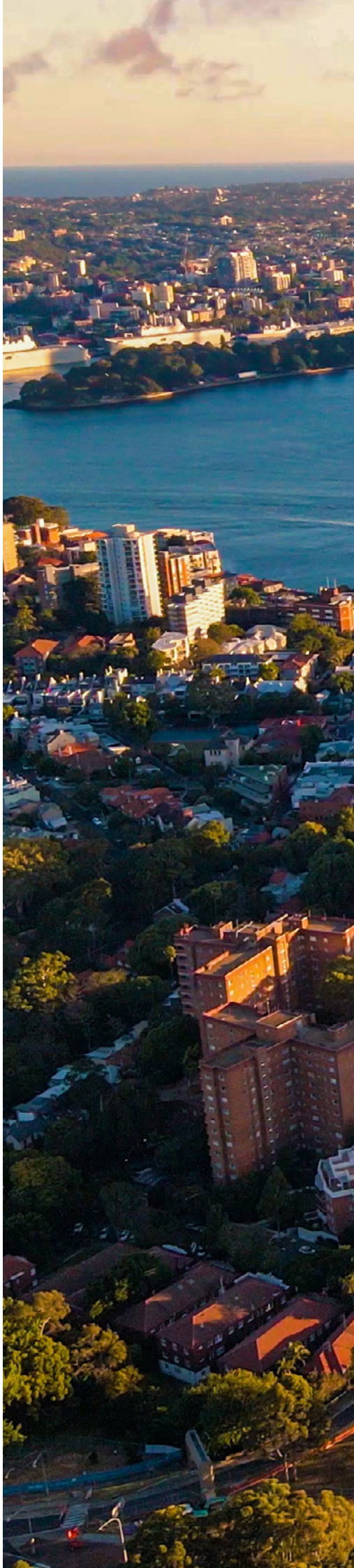
We recognise that your business is highly dependant on reliable products. All our Johnson Controls manufactured products are backed by a 24-month warranty. For parts to be replaced under a valid warranty, a purchase order and return authorisation is required. Please contact Customer Service (see below) for warranty assistance.

Customer Service

Johnson Controls Customer Service
Telephone: 1300 725 688
Fax: 1300 720 733
Email: fdp.customerservice.anz@jci.com

Technical Services

Johnson Controls Technical Services
Telephone: 1300 552 559




Platinum

Addressable fire indicator panels

MX1 Fire Alarm System

MX1 15U

The Vigilant MX1 is an innovative, multiple-loop, analogue addressable fire indicator panel that can be connected to a network and features the latest technology. It complies with AS 7240.2, AS 7240.4, AS 4428.3 and the functional requirements of AS 4428.10 and AS 4428.7. Its support for MX TECHNOLOGY fuzzy-logic detection algorithms and powerful control functions makes it suitable for a wide range of fire protection applications, including those in hazardous areas.

Features

- Single MX DIGITAL Loop supporting up to 250 MX devices
- Add up to seven optional MX DIGITAL loop cards for a total of 2,000 MX devices in BTO (built to order) and 15U panels
- Network up to 250 MX1[1] panels over fibre, copper or ethernet
- MX DIGITAL multi-sensor analogue addressable detector technology
- Field-proven fire detection algorithms
- Bi-directional IR communication with 850 Series Gen6 detectors
- Clear alarm messages on four-line LCD
- Compact zone LED display
- High-level EWIS interface
- Up to 126 AS 1668 fan controls
- Profiles simplify programming of complex detection and logic functions
- Day/Night modes for alarm sensitivity adjustment and output logic functions
- Powerful, field-programmable logic equations, functions, timers
- Pseudo points controlled by logic equations for enhanced control options
- Built-in clock/ calendar with automatic daylight saving adjustment
- Comprehensive test facilities including automatic self-test and fast commissioning test mode
- High capacity integral 5A power supply in 8U and 15U panels. Large 14A PSUs in BTOs
- Remote MZX1 PSU F1197
- 19in. Rack Cabinet
- 8U, 15U, 28U and 40U sizes.
- Earth fault supervision
- Fuse supervision
- Windows-based programming tools

1. With MX1 as the main FIP, a network of up 250 panels (MX1/MX4428/F3200) can be connected on the same system.

MX1 8U

MX1 panels are supplied as BTO in 28U or 40U sized panels or off the shelf in smaller 15U and 8U cabinets. MX1 utilises MX VIRTUAL multi-sensor analogue addressable detectors with dual sensors (photoelectric and heat, or CO and heat) to allow the best detection mode for a situation to be easily selected.

Detection modes may include: smoke/ CO detection only, heat-enhanced smoke/ CO detection only, smoke/ CO plus heat detection, heat-enhanced smoke/ CO plus heat detection or heat detection only. Heat detection can be either fixed-temperature or combined fixed temperature and rate-of-rise. For specific applications, single-sensor MX analogue addressable ionisation and photoelectric smoke detectors, high sensitivity smoke detectors (VESDA), heat-only detectors and flame detectors are also available.

The MX DIGITAL communications protocol used on the detection loop is designed to provide high reliability and fault resistance, with operation possible over many cable types. This often permits system upgrades using existing cable. The loop configuration ensures that communication continues in the event of an open-loop circuit fault.

In the case of a short circuit, up to 100 short circuit isolator detector bases or modules may be fitted around the loop, to limit the effect of the fault to the devices between isolators.

MX1 is now available as a custom-built gas controlpanel. Contact your local Johnson Controls Fire Detection representative for information.

MX1 Remote Fire Brigade Panel

SPECIFICATIONS		
	15U CABINET	8U CABINET
Material	Mild steel	–
Finish	Powder-coated Titania, ripple	
Dimensions (H x W x D)	750 x 550 x 211 (mm)	440 x 550 x 211 (mm)
Weight	25kg	17kg
Ingress Protection	IP30	IP30
MX1 REMOTE FIRE BRIGADE PANEL (FP0991)		
Material	Mild steel	
Finish	Powder-coated Cream Wrinkle	
Dimensions (H x W x D)	220 x 380 x 56 (mm, surface-mounted)	
	220 x 380 x 21 (mm, flush-mounted)	
Weight	3.8kg	
Ingress Protection	IP30	
PART NUMBER		
FZXX	MX1 BTO	
FZB000B	MX1, single loop, 14A PSU, 3U/4U blanks, 40U glass door, left hinge	
FZS000B	MX1, single loop, 14A PSU, 3U/4U blanks, 28U glass door, left hinge	
FP1164	15U single-zone addressable gas control panel	
FP0927	MX1 15U 3U ASE bracket	
FP0928	MX1 15U 3U WA/cube ASE bkt	
FP1040	MX1 8U 3U blank	
FP1030	MX1 15U empty cabinet c/w window	
FP0950	MX1 loop card kit	
FP1002	LED display ext. kit (incl. LM0291 and LM0339)	
FP0991	MX1 Remote Fire Brigade Panel	
FP0996	MX1 4U 19in. rack-mounting Remote Fire Brigade Panel	
FP1031	MX1 15U, empty cabinet, blank door, titania	
FP1121	T-Gen2 3U grade 3 user interface, incl. T-Gen 60A and mic	
FP1056	MX1 3U 12-way as 1668 fan control module	
FP1057	MX1 two-way as 1668 control	
LM0076	Programming cable DB9F-DB9F null modem	
ME0457	4U door 5xFP1002 LED display Brd	
FA2515	Door lock catch/switch bracket	

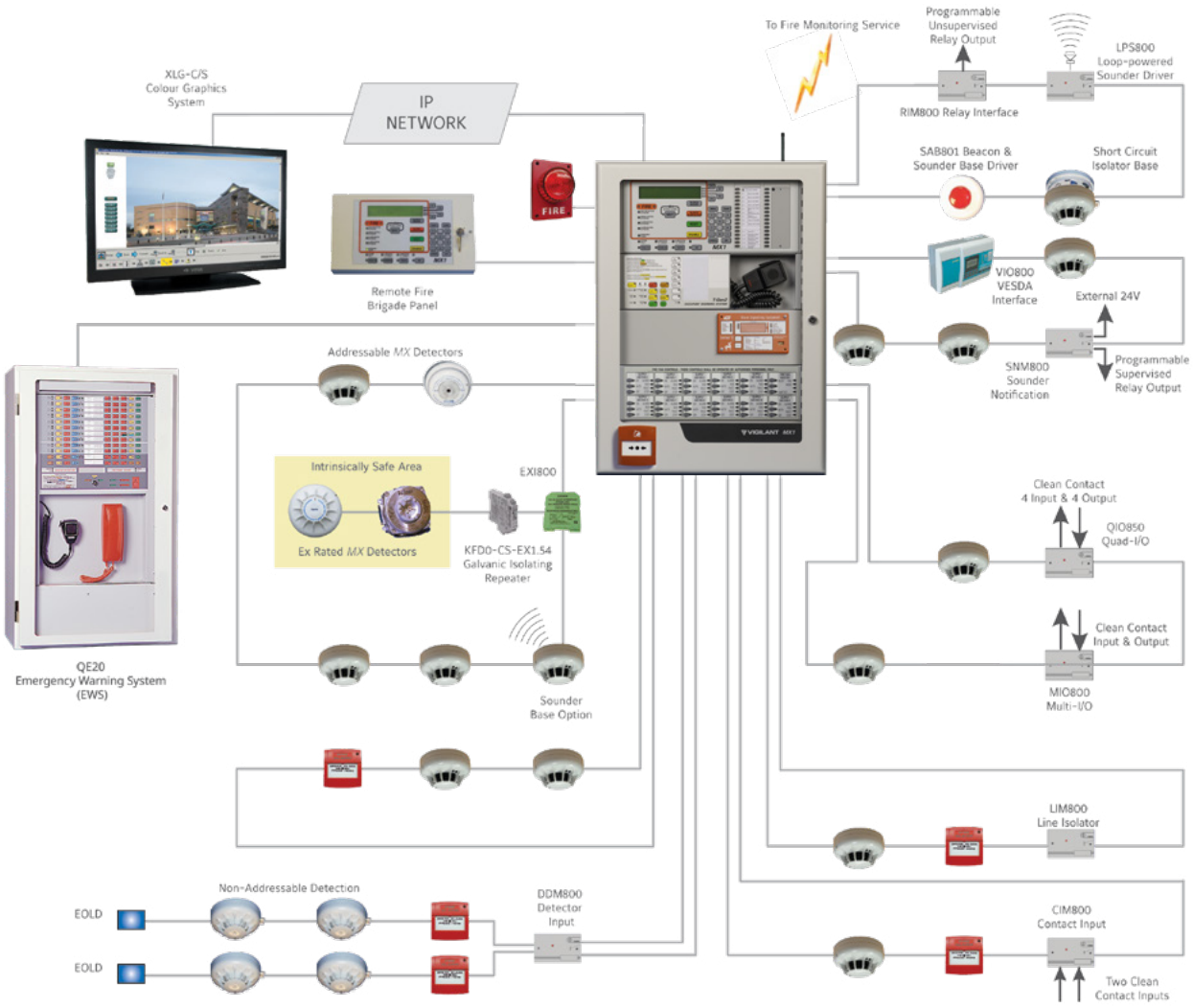
LED displays – refer to page 64.
Spares – refer to page 125.

Australian Standard

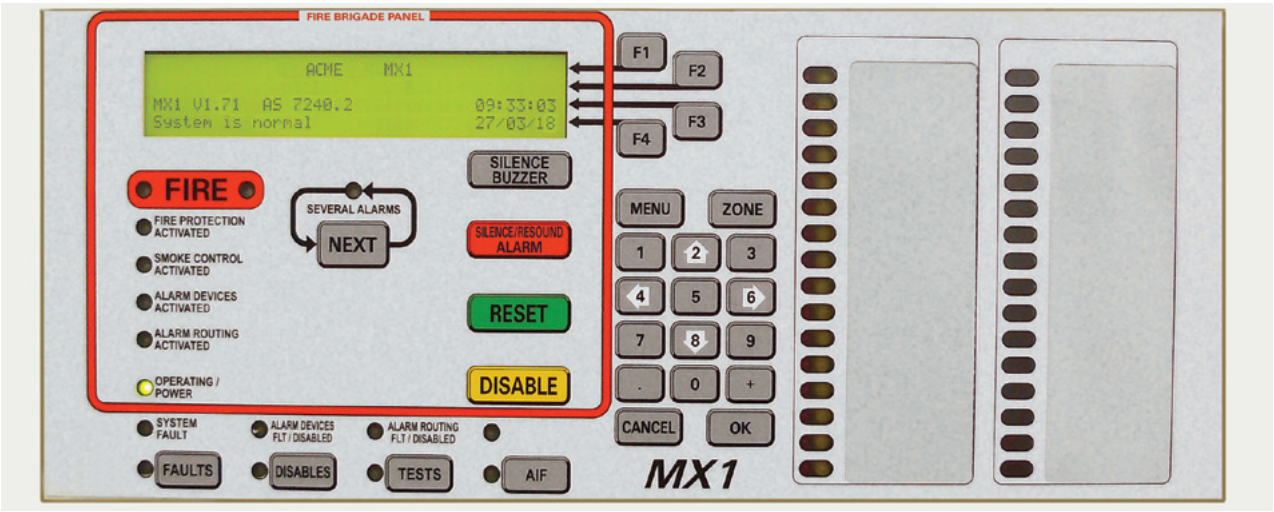
MX1 is certified:

- AS 7240.2
- AS 7240.4 Fire detection and alarm systems
- AS 4428.3 Fire detection, warning, control and intercom systems – Control and indicating equipment – Fire brigade panel
- AS 4428.10 Fire detection, warning – Control and
- intercom systems – Alarm investigation
- ActivFire Listed: afp-2320

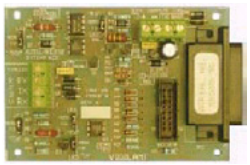
MX1 panel networking and accessories



MX1 system diagram



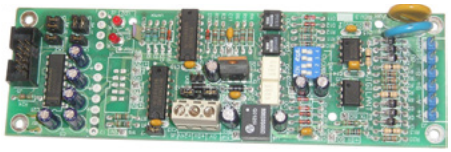
MX1 control panel layout



RZDU to RS-232 Interface Board

The RZDU to RS232 interface is a small printed circuit board that converts Remote Zone Display Unit serial communications from a fire indicator panel into RS232 compatible signals. This module is required for an IO-NET Controller to receive information from an F3200/MX4428/F4000/MX1 fire alarm panel. The RRM must be used on ADRs with software versions V1.01 or greater, to provide RRM-present monitoring.

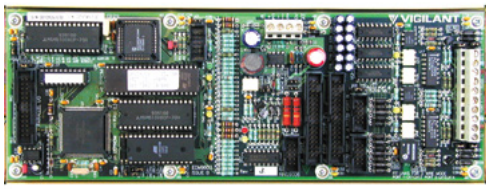
SPECIFICATIONS	
Operating voltage	17-30VDC
Operating current	5mA
Dimensions (H x W x D)	270 x 93 x 25 (mm)
Weight	100g
PART NUMBER	
	PCB 1904-100 RZDU/RS232 I/F includes LM0061 FRC



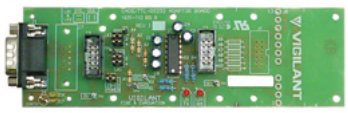
RS485 Network Interface

RS232 to RS485 PCB 1901-139-2 (RS232 to RS485 – external power) is used to convert between RS485 and RS232 level signals. Because RS485 links can be much longer than RS232, the PA0712 can be used to transmit serial data over long cables between devices that have RS232 serial ports (e.g., between the F4000 printer port and the printer). It can also be used to interface a PC with the RS485 network. Loom LM0065, a 500mm long cable with both RS232 DB9 socket and plug fitted, must be ordered separately.

SPECIFICATIONS			
	PA0711	**PA0712**	**PA0773**
Operating voltage	Ext. 24V	8.5-30VDC	–
Quiescent current	RX only 24V	24mA	26mA
	RX only 5V	2mA	26mA
	TX act. 24V	50mA	75mA
	TX act. 5V	25mA	75mA
Relative humidity	10-95% (non-cond.)		
Ambient temperature	-5°C to 75°C		
FPANZ Listed	VF/636		
Dimensions	130mm x 50mm	156mm x 50mm	156mm x 50mm
PART NUMBER			
KT0411	RS232 to RS485 (ext. power)		



FP0771 Ring NET Upgrade Kit



PA0868 CMOS/TTL RS232 I/F PCB

I-HUB Intelligent Network Hub

The I-HUB performs bridging and routing functions for devices on the Vigilant Panel-Link network, supporting ring, multi-drop and point-to-point networks. It can assist in reducing congestion on large networks by using its filtering and 'routing' capabilities. The I-HUB has five network ports; which allow the I-HUB to be connected to a network of devices or to a single device. Messages received on one port can be routed to any or all of the other ports. Ports 1 and 2 are two- or four-wire RS485 or fibre, Ports 3 and 4 are RS232. Port 5 is a TTL-level serial port.

I-HUB ordering codes

- FP0770 1931-102, NDU to Ring NET upgrade kit. Includes PA0839 mounted on deeper backplate, LM0152, LM0065, mounting hardware
- FP0771 MX4428/F3200, Ring NET upgrade kit. Includes PA0839 on bracket, LM0151, LM0152, LM0065. Please note, an F3200 may require an IC0358 to be fitted to U13
- PA0839 PCBA, ECM9603 Panel-Link I-HUB. Includes I-HUB PCB, software, LM0065
- KT0144 PMB/TPI RS485 support module kit. Includes PA0712, LM0084, mounting hardware
- PA0773 PCB 1901-139-3, RS485 board, TTL
- PA0868 PCB 1931-110, CMOS RS232 interface
- PA0878 PCB 1931-118, CMOS/TTL signal splitter
- LM0572 Loom 1901-303, I-HUB to OSD139. Includes a zener diode, dropping resistor for PSU
- LM0065 10-way FRC connector to DB9M and DB9F (ribbon cable – supplied with I-HUB)
- LM0076 DB9F to DB9F 'null modem' cable
- LM0084 10-way FRC to 10-way FRC 0.35m
- LM0091 10-way FRC to 10-way FRC 0.5m
- LM0151 10-way FRC to Molex crossover cable, (Port 5 to MX4428 Molex 'modem' connector)
- LM0152 10-way FRC to 10-way FRC special crossover cable (Port 5 to MX4428/F3200 10-way network connector)
- LM0160 10-way FRC to 10-way FRC 1m
- LT0229 I-HUB User's Manual
- SF0202 Software, Panel-Link I-HUB V1.14 EPROM

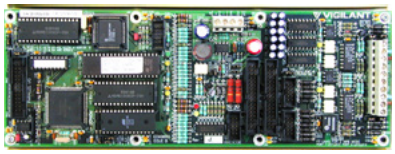
SPECIFICATIONS	
Operating voltage	9.6-28VDC
Operating current	140mA (9.6V) to 85mA (28V)
Ambient temperature	-5°C to 45°C
Relative humidity	0-95% (non-cond.)
Dimensions (L x W x H)	265 x 95 x 25 (mm)
Weight	0.25kg
ActivFire Listed	afp-2320
FPANZ Listed	VF/634

OSD139 Fibre Optic Modem

The OSD139HS Asynchronous RS232 Transceivers can interconnect one RS232 data channel over 3km of multimode fibre (OSD139HS) or over 40km of single-mode fibre (OSD139HSL). These can provide complete end-to-end isolation of a full duplex asynchronous data transmission at up to 120kbps.

The OSD139HS are high performance fibre optic modems capable of linking asynchronous RS232 data over several kilometres at speeds ranging from DC to 120kbps. Recommended for I-HUB Ring network applications.

SPECIFICATIONS	
Optical wavelength	850nm (nom., HS) 1,310nm (nom., HSL)
Optical connector	ST
Ambient temperature	-20°C to 75°C
Relative humidity	0-95% (non-cond.)
Dimensions (H x W x D)	15 x 44 x 80 (mm)
Weight	200g
PART NUMBER	
OSD139HS	HS Multi-Mode Fibre Optic Modem
OSD139HSL	HS Single-Mode Fibre Optic Modem
FP1032	OSD139 Fibre Optic Modem mounting kit, x2



Panel-Link ModbusBridge (PMB)

The Panel-Link ModbusBridge(PMB) is designed to translate data from Vigilant fire alarm systems on a Panel-Link network to a Modbus communication line. The PMB not only monitors the Panel-Link network, but also provides a means of direct control over the fire systems. The PMB database contains data on the states and conditions of fire panels, as well as zone and point information. A primary Modbus can access this data by polling the relevant addresses of the PMB and can write to holding registers sending network variables and issuing commands to panels on the Panel-Link network. The PMB also has 16 I/O ports which can be read and written to by the primary Modbus. Two of these pins can be programmed as a sounder output if a fault develops in the Modbus system, and an isolate input which can locally isolate the PMB sounder driver.

SPECIFICATIONS	
Operating voltage	9.6-28VDC
Operating current	135mA (9.6V) to 85mA (28V)
Ambient temperature	-5°C to 45°C
Relative humidity	0-95% (non-cond.)
Dimensions (L x W x H)	PCB: 265 x 95 x 25 (mm) Box: 450 x 280 x 80 (mm)
Weight	PCB: 0.25kg Box: 2kg
Battery capacity	6.5Ah (box)
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	57 x 48 x 13 (mm)
ActivFire Listed	afp-2320
FPANZ Listed	VF/634
Remote indicator	E500 Mk2 Series

PART NUMBER	
FP0699	PMB c/w PSU in box
PA0639	PMB PCB incl. mounting hardware and FA2083
SF0165	PMB software V1.24 EPROM
KT0144	PMB RS485 module kit
PA0790	PCB ECM9603 I/O board
LT0202	PMB user manual

Panel-Link Internet Protocol Bridge (PIB)

The PIB is a device for interfacing a single Vigilant Panel-Link device on to a 10BaseT Ethernet network to allow networking with other PIBs and Panel-Link devices. IP Networking is utilised for the internet, PC networks and industrial networks. IP connection equipment for almost any type of media is readily available.

The PIB is especially applicable to large or wide-spread sites. It is also useful where it is not possible or economic to install physical cabling. The PIB can be used to connect to an Ethernet network (dedicated, or shared) or a variety of other physical media (e.g., fibre optic) via third-party switches or media convertors. A redundant ring of single-mode or multi-mode fibre can easily be configured using the switches listed.

One PIB is normally used at each panel; however to connect multiple panels, an I-HUB must be used between the PIB and the panels.

The PIB is self-configuring for many situations. It also has filtering and routing capabilities for larger network optimisation. Configuration and diagnostics are performed from a standard PC web browser anywhere on the network.

The PIB also provides remote across-network access to the diagnostic port of any panel directly connected to a PIB. It is supplied complete with Ethernet, an MX4428 serial port and I-HUB/panel FRC network port looms.

For more information on IP networking, refer to page 16.

SPECIFICATIONS	
Operating voltage	15-28VDC[1] or 10-14VDC[2]
Operating current	60mA (excluding LEDs)
Dimensions (L x W x H)	192 x 120 x 30 (mm)
ActivFire Listed	afp-2320
FPANZ Listed	VF/634
PART NUMBER	
FP0986	Panel-Link Internet Protocol Bridge (PIB)
SU0319	MOXA five-port Ethernet switch (2 multi-mode fibre)
SU0325	MOXA five-port Ethernet switch EDS-405A
SU0326	MOXA eight-port Ethernet switch EDS-408A
LT0519	PIB user manual
LT0536	IP networking for fire application and design manual

Network LED Display Unit (NLDU)

The Vigilant Network LED Display Unit connects to a Panel-Link network to perform a variety of functions. A single NLDU may simultaneously perform any or all of: event printing, LED display, RZDU output and bridge functions. Typical NLDU applications are:

- Site-wide network mimic panel (up to 528 LED sets)
- Repeat LED indications at a remote network panel
- Event printing of selected event types from selected network panels
- IO-NET Interface for networked panels

SPECIFICATIONS	
Operating voltage	24VDC
Operating current	150mA (excluding LEDs)

PART NUMBER	
FP0695	NLDU board set 1942-6 includes PA0804, PA0703, and PA0773 mounting hardware
FP0696	NLDU, packaged, 1942-5, incl. slimline surface-mounted cabinet, PA0804, PA0703 and PA0773 mounting hardware
PA0804	PCB 1931-84-1, Ctrlr Net/NDU, no S/W
PA0703	PCB 1901-139-3, RS485, CMOS, FRC
SF0145	NLDU software V2.03
LT0188	NLDU user manual

I-HUB Ring Networking

The I-HUB is a part of the family of products that connect to the Vigilant Panel-Link network. The I-HUB performs bridging and routing functions for the Panel-Link network. The I-HUB supports ring, multi-drop and point-to-point networks. Deploying an I-HUB in a ring can add extra levels of redundancy and service protection otherwise not possible in conventional Panel-Link networks.

The I-HUB can be used in a number of different applications. The following diagrams illustrate some of the possible I-HUB uses. Please note that these are a small overview of what can be achieved using the I-HUB and do not represent detailed implementations. Duplicated channel operation is a standard feature of the Panel-Link network and in certain conditions is a requirement to meet fire installation standards. Refer to the appropriate standard, AS1670.1 for Australia, NZS4512 for New Zealand.

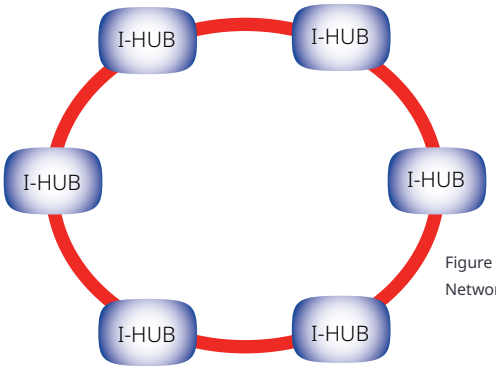


Figure 1:
Network ring example.

The ring method shown in Figure 1 provides a level of redundancy not found in other kinds of network topology. This configuration, with an I-HUB incorporated in each panel, is one way of providing the two separate paths required by AS1670.1 section 2.6.1 (c) and NZS4512:2003 402.2 (o).

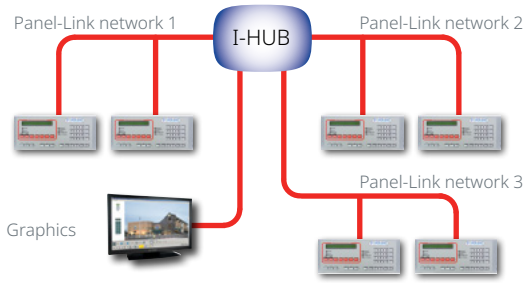


Figure 2: Joining multiple networks.

The I-HUB can be used to connect two to four Panel-Link networks together to accommodate a greater physical length as shown in Figure 2.

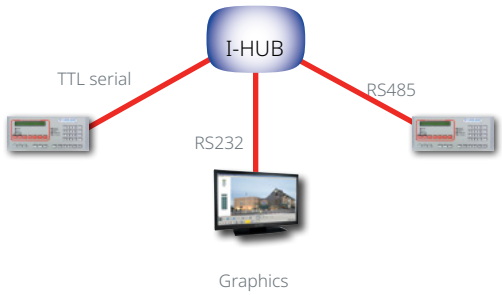


Figure 3: Networking different media.

The I-HUB can be used to interconnect two or more networks that use different media or signalling speeds.

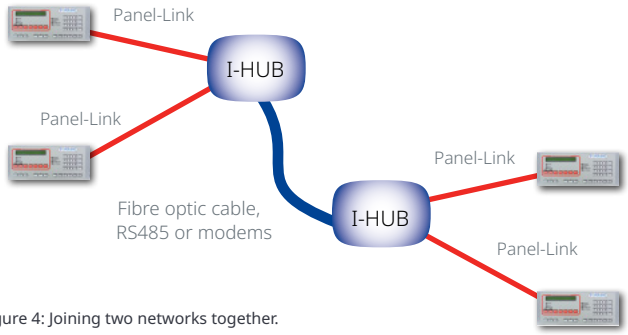


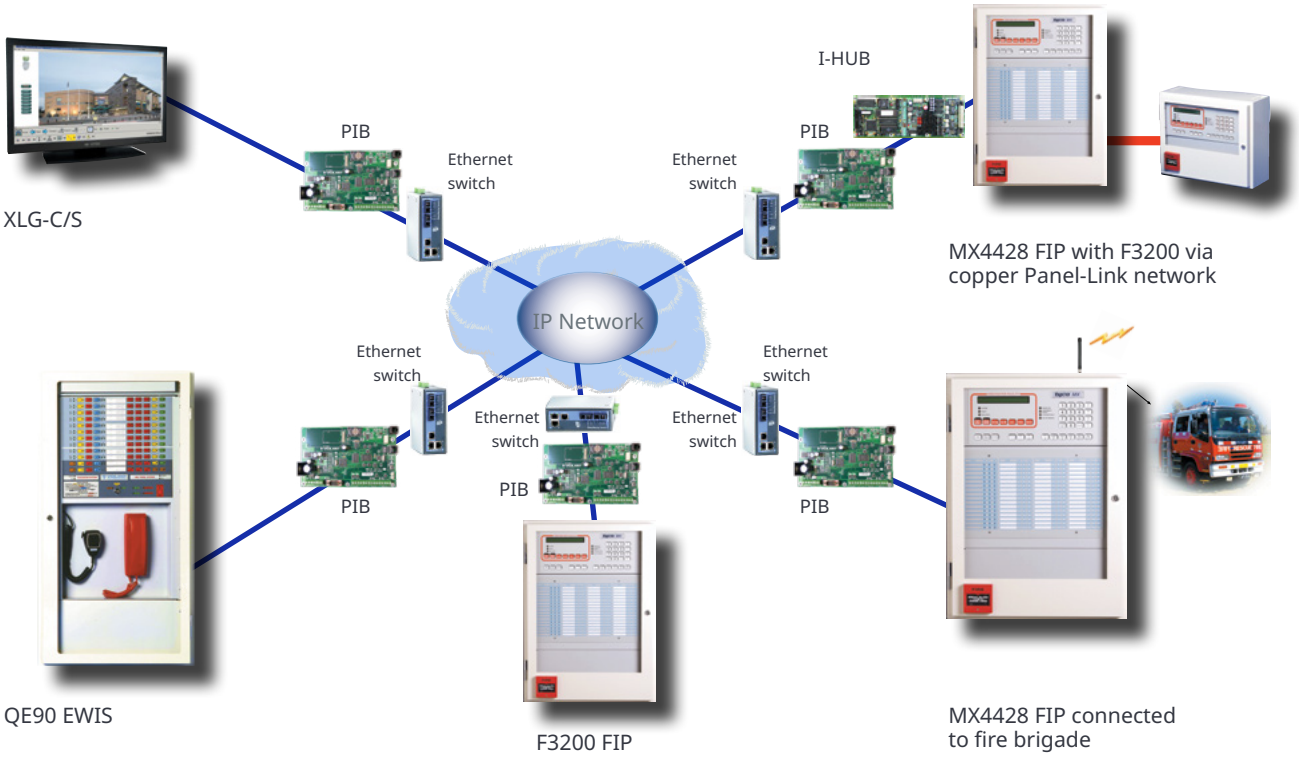
Figure 4: Joining two networks together.

Two I-HUBs can be used to connect two distant Panel-Link networks together using fibre optic cables, modems or a customer supplied network (WAN).

With large systems, care must be taken to minimise the number of messages that are passed through an I-HUB so as to avoid overloading any part of the network. For slow data links such as one using 1,200 baud modems, the absolute minimum number of messages should be passed across it.

With the exception of a ring setup, network designs that result in more than one path to any one device must be avoided.

PART NUMBER	
FP0770	NDU to ring network upgrade kit
FP0771	F3200/MX4428 ring network upgrade kit
PA0839	PCB ECM9603 Panel-Link I-HUB
KT0144	PMB/TPI RS485 support module kit
PA0773	PCB RS485 TTL
PA0868	PCB CMOS RS232 interface
PA0878	PCB CMOS/TTL signal splitter
PA0880	PCB DB25 to 10-way FRC adaptor
LM0572	Loom, I-HUB to OSD139 fibre optic modem
LM0076	ECM programming cable, DB9F-DB9F null modem
OSD139HS	HS multi-mode fibre optic modem
OSD139HSL	HS single-mode fibre optic modem
FP1032	OSD139 fibre optic modem mounting kit x2



Vigilant IP Networking

Vigilant IP (Internet Protocol) Networking opens up a world of previously unimaginable possibilities, particularly for large, remote, and difficult sites. It is now both possible and easy for fire systems to be networked across large distances (such as within, or even between, cities) to network on a large site using a customer's own network without installing new dedicated cables.

IP networking is often the most cost-effective method of networking between panels providing remote diagnostics and programming for many panels from a single point on the site, or even from off-site. This applies particularly when long distances are involved, or where special media must be used (i.e., media other than copper wire). IP networking can use an existing customer's network (where standards compliance is not required for the networking), or alternatively a dedicated, potentially standards-compliant IP network can be installed for the fire system.

Note: As yet, the IP networking equipment described in this guide is not listed. If a connection to the internet can be provided, remote diagnostic access could be obtained from virtually anywhere in the world.

The Vigilant IP solution uses a PIB (Panel-Link IP Bridge) to connect between a Vigilant Panel-Link device and the IP network. Additional Ethernet switches and Ethernet extenders allow operation over fibre optic cable or long cable distances.

Features

- Uses an industry-standard interface (Ethernet) and standard protocols
- Can use a wide variety of physical media
- Provides remote access to panel diagnostics and programming, as well as providing networking
- Web access is provided via panel serial port
- Many ‘channels’ can be multiplexed over the same cable
- IP networking can be used for subsections of a Panel-Link network
- The interface is specially designed for Panel-Link and Vigilant products

Benefits

- Supports a wide variety of third-party interfaces
- Provides a cost-effective solution for short and long distance communication, i.e., can use fibre-optics to eliminate susceptibility to EMC (electrical interference) and can use wireless transmission systems where physical access is difficult
- Diagnostics and programming of a whole network can be done from a single point on site, or potentially from off-site
- Uses standard web browser for remote diagnostics. No special software (such as a terminal emulator) needs to be installed.
  This is particularly useful when using a customer’s network
- The same network can be used for a fire and EWIS network, colour graphics client/server network, etc.
- Existing installations can be upgraded to IP networking in stages, or can use mixed systems
- Avoids a large number of compromises that result if an IP interface was used

MX TECHNOLOGY analogue addressable detectors

850PC Multi-Sensor Carbon Monoxide, Smoke and Heat Detector

For life protection and when the environmental conditions are challenging, the 850PC combined heat/smoke/CO fire detector provides the ultimate in detector performance and false alarm rejection. Outputs from multiple sensors are combined to accurately determine the presence of fire. Applications include residential, industrial, retail, transport hubs, and healthcare. Its false alarm rejection properties make it the ideal choice for hotel bedrooms where steam from bathrooms is a common source of false alarms.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	370µA (typ.)
Ambient temperature	-10°C to +55°C
Relative humidity	15-90% (non-cond.)
Dimensions (ø x H)	109mm x 43mm
Weight	94g
ActivFire Listed	afp-2929
FPANZ Listed	VF/367
PART NUMBER	**516.850.054,E**

850PH Multi-Sensor Smoke and Heat Detector

With its ability to detect a wide range of fires from flaming to smouldering types, the 850PH combined smoke and heat multi-sensor detector is the preferred choice for a range of applications, including industrial, retail and office environments. It can operate in a number of approved modes and sensitivities that can be dynamically selected to suit different environmental conditions. The heat sensor monitors rate-of-rise and fixed temperature and has been tested as a fire detector in its own right.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	330µA (typ.)
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (ø x H)	109mm x 43mm
Weight	76g
ActivFire Listed	afp-2930
FPANZ Listed	VF/363
PART NUMBER	**516.850.051.E**

850P Smoke Detector

The 850P is a state-of-the-art smoke detector using a photoelectric sensor, which, in conjunction with the MX fire alarm panel, suits most fire detection applications. The 850P incorporates a unique ‘mousehole’ design optical chamber with superior signal-to-noise ratio, providing high resilience to dust and dirt, which means reduced service costs. In addition, a unique chamber cover actually draws slow-moving smoke into the chamber to provide a more responsive detector. A stainless steel insect screen is used on the 850P to provide a high degree of immunity to small insects.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	330µA (typ.)
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (ø x H)	109mm x 43mm
Weight	76g
ActivFire Listed	afp-2928
FPANZ Listed	VF/362
PART NUMBER	**516.850.052.E**

850PC Multi-Sensor Carbon Monoxide, Smoke and Heat Detector

For life protection and when the environmental conditions are challenging, the 850PC combined heat/smoke/CO fire detector provides the ultimate in detector performance and false alarm rejection. Outputs from multiple sensors are combined to accurately determine the presence of fire. Applications include residential, industrial, retail, transport hubs, and healthcare. Its false alarm rejection properties make it the ideal choice for hotel bedrooms where steam from bathrooms is a common source of false alarms.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	370µA (typ.)
Ambient temperature	-10°C to 55°C
Relative humidity	15-90% (non-cond.)
Dimensions (ø x H)	109mm x 43mm
Weight	94g
ActivFire Listed	afp-2929
FPANZ Listed	VF/367
PART NUMBER	**516.850.054,E**

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Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	330µA (typ.)
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (ø x H)	109mm x 43mm
Weight	76g
ActivFire Listed	afp-2930
FPANZ Listed	VF/363
PART NUMBER	**516.850.051.E**

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Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	330µA (typ.)
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (ø x H)	109mm x 43mm
Weight	76g
ActivFire Listed	afp-2928
FPANZ Listed	VF/362
PART NUMBER	**516.850.052.E**

850H Heat Detector

The 850H is a flexible, cost-effective addressable heat detector with most of the features of MX VIRTUAL detectors. The 850H reports the temperature to the MX fire alarm panel, which allows various detection modes. The 850H uses a high-quality thermistor with very low thermal mass. This allows the detector to function as a heat detector, as well as providing a fast and accurate temperature display.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	290µA (typ.)
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (ø x H)	109mm x 43mm
Weight	81g
ActivFire Listed	afp-2927
FPANZ Listed	VF/218
PART NUMBER	**516.850.053.E**

801F Flame Detector

The 801F point-type flame detector presents a cost-effective solution to providing alarm- and nuisance-free flame detection for indoor applications. The 801F is a full featured solar blind flame detector for indoor use and boasts a high degree of false alarm immunity.
The 801F is designed for direct connection to the MX digital loop, employing the same universal detector base or functional base as the 850 series fire detectors.
An Intrinsically Safe version is also available.
Use with MX1.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	300µA (typ.)
Range[1]	0.4m² n-heptane at 50m
Field of view	100°
Ambient temperature	-20°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (ø x H)	109mm x 22mm
Weight	110g
Not ActivFire Listed	
FPANZ Listed	VF/354
PART NUMBER	**516.800.006**

1. Distance measured on axis.

D51MX Duct Sampling Unit

The D51MX consists of a D51 duct sampling housing fitted with a 4B base wired to suit an MX analogue addressable 850P/814P or 850PH/814PH photoelectric smoke detector. When fitted with the detector, the DSU is designed to sample air in air conditioning ducts and pass the air through the smoke detector. The D51MX is fitted on the outside of the duct to be sampled, allowing easy access for detector servicing and replacement of the dust filters. To cater for most duct sizes, a sampling tube extension is available in 3m lengths. The Vigilant E500 Mk2 Series Remote Indicators can be used for remote indication of an alarm.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	275µA (typ.)
Alarm current	10mA with LED on
Duct pressure[1]	-1.15kPa to 3kPa
Duct air velocity for alarm at 8%Obs/m[1]	1m/s, 2m/s, 4m/s and 8m/s
Sampling tube length	160mm (min.)
Maximum duct width	1.8m
Remote indicator	E500 Mk2 Series
Dimensions	
Base and cover (L x W x H)	278 x 190 x 113 (mm)
Sampling tube pitch	122mm
Duct holes required	ø 24mm x two places
Ambient temperature	-10°C to 55°C
Relative humidity	10-95% (non-cond.)
ActivFire Listed[2]	afp-1496
PART NUMBER	
D51MX	Duct Sampling Unit
D51L	Baffle, box of 10
D51F	Filter, box of 10
D51T3	3M sampling tube
D51K100	Sampling tube end cap, pk of 10

1. AS 1603.13-1998 test. 2. Listed with 814PH.

MCP820 Addressable Call Point

The MCP820 Addressable Call Point is suitable for indoor applications. As supplied, it is suitable for flush mounting. A surface-mounted back box is available separately. The MCP820 is designed to monitor and signal the condition of the switch contact that is operated by breaking a frangible, plastic-coated glass element (flexible plastic option available). Any change in the status of the switch is immediately communicated to Control and Indicating Equipment (CIE). The MCP820 has an integral short-circuit isolator for protecting the addressable loop wiring.
Use with MX1 and MX4428.

The CP820 is an alternative MX addressable call point that does not have an integral short circuit isolator.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	275µA (max.)
Alarm current	2.8mA (max. LED on)
Indoor applications only	
Relative humidity	10-95% (non-cond.)
Ambient temperature	-25°C to 70°C
Dimensions (H x W x D)	87 x 87 x 52 (mm)
Weight	170g
Ingress Protection	IP24D
ActivFire Listed	afp-1503 (CP820)
	afp-2874 (MCP820)
PART NUMBER	
CP820	CP820 only
514.800.611	MCP820 only
SU0632	Back box
515.001.025	Spare glass, pk of five

MCP830 Addressable Waterproof Call Point

The MCP830 addressable surface-mounted manual call point has an Ingress Protection rating of IP67, making it suitable for outdoor applications. It is designed to monitor and signal the condition of the switch contact that is operated by breaking a plastic-coated, frangible glass element (flexible plastic option available). Any change in the status of the switch is immediately communicated to Control and Indicating Equipment (CIE). The MCP830 has an integral short-circuit isolator for protecting the addressable loop wiring. Note MCP830 does not have a formal UV exposure rating. Installation in full sun should be avoided.

The CP830 is an alternative IP67 MX addressable call point which does not have an integral short circuit isolator. Use with MX1 and MX4428.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	275µA (max.)
Alarm current	2.8mA (max. LED on)
Indoor applications only	
Relative humidity	10-95% (non-cond.)
Ambient temperature	-25°C to 70°C
Dimensions (H x W x D)	93 x 98 x 73 (mm)
Weight	240g
Ingress Protection	IP67
ActivFire Listed	afp-2798 (CP830)
	afp-2875 (MCP830)
PART NUMBER	
514.800.604.Y	CP830 and back box
514.800.612	MCP830 and back box
515.001.119	Spare glass, pk of five

850EMT MX Engineering Management Tool

The 850EMT is used to program the address into MX addressable devices. When used with Vigilant MX1 systems, the 850EMT can also remotely interrogate, address and test 850 Series detectors via a two-way infrared link. It also displays information and performs tests on devices. It has a backlit, colour LCD touchscreen and four 'softkeys' – ESC, OK, Up and Down. Power for the 850EMT is derived from six AA size NiMH rechargeable batteries. It may be run from an unregulated +12VDC input, i.e., car power outlet or 110/230VAC mains adaptor, both of which will recharge the batteries as well.

The 850EMTK service tool kit consists of the following:

- 850EMT MX Engineering Management Tool
- Ancillary programming lead and spare pins
- Six rechargeable AA NiMH batteries
- 240VAC adaptor, plus lead
- 12VDC car adaptor
- Hard carry case

Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Batteries	6 x AA NiMH
Battery operating time	~15hrs
Ambient temperature	0°C to 50°C
Relative humidity	10-90% (non-cond.)
Weight[1]	600g incl. batteries
Dimensions (H x W x D)	50 x 210 x 125 (mm)
Weight	240g
Ingress Protection	IP67
ActivFire Listed	afp-2798 (CP830)
	afp-2875 (MCP830)

PART NUMBER	
850EMTK	Service tool kit
516.800.922	Ancillary lead
516.800.923	Carry case and acc. (345 x 310 x 85 (mm))
516.800.924	Spare pins for ancillary lead

1. For 850EMT unit only.

MX Address Flags

The 800 Series detectors incorporate a feature that automatically transfers the address flag to the detector base when the detector is plugged into the base. On removal of the detector, the address flag remains on the ceiling, helping to ensure that detectors are not accidentally returned to the wrong detector base following service routines. Address flags are supplied in packs of 100. Labels are provided on sheets of 250 in four colours to enable quick identification between different loops.

PART NUMBER	
516.800.915	MX Address Flags, pk of 100
516.800.931	Address flag label loop A in white
516.800.932	Address flag label loop B in yellow
516.800.933	Address flag label loop C in purple
516.800.934	Address flag label loop D in green

Standard detector bases

4B Universal Base

The 4B Universal Base contains no electronics and is suitable for indoor applications of the 614 Series conventional (non-addressable) and 814 and 850 Series analogue addressable detectors.

It provides excellent space for cable access and terminations. It features remote LED connections and an anti-tamper facility. The 4B base is designed to snap-fit into the ceiling tile adaptor, or screw-fix to the ceiling in the traditional manner.

The 4B-6A Adaptor covers ceiling marks revealed when changing from an existing 5in. or 6in. base. The Euro Mount Adaptor is a shallow (20mm deep) back box for surface mounting applications.

When (suitable) detectors are installed in damp or dirty environments, the 4B-DHM Deckhead Mounting provides an IP55 seal between the mount and the detector base.
Use with MX4428.

SPECIFICATIONS	
Operating temperature	-25°C to 75°C
Relative humidity	10-95% (non-cond.)
Dimensions (ø x H)	109mm x 25mm
Weight	64g
Indoor applications only	
Dimensions (H x W x D)	50 x 210 x 125 (mm)
Weight	240g
Ingress Protection	IP67
ActivFire Listed	afp-2798 (CP830)
	afp-2875 (MCP830)
PART NUMBER	
517.050.041	4B Universal Base
517.050.052	Euro Mount Adaptor
517.050.056	4B-6A 4in. to 6in. adaptor
517.050.051	4B-DHM Deckhead Mounting Kit

4B-C Continuity Base

The 4B-C Continuity Base is used for most installations involving 850 Series detectors, as it allows the detector's in-built short circuit isolation function to be in-circuit when the detector is fitted, and ensures continuity is maintained when the detector is removed.
Use with MX1 and 4100ESi.

SPECIFICATIONS	
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (ø x H)	109mm x 25mm
Weight	64g
Indoor applications only	
ActivFire Listed with MX detectors	
PART NUMBER	**517.050.042**

1. Maximum number of devices between 5BI bases is limited to 40 for AS 1670.1-2004 systems.

Functional detector bases

800 Series Functional Detector Bases supplement the standard universal detector base, providing sounder, relay, and loop isolation functions for the range of MX CIE. Changes to a building can be adapted to by retrofitting sounders and relays to existing points. Refer to page 119, warning system ancillaries.

4B-I Isolator Base

The 4B-I Isolator Base serves as both a base for an 814 or 850 Series MX detector and a protection device against loop short circuits, monitoring the voltage on the MX addressable loop. When a short circuit is detected, the 4B-I isolates the affected section while allowing the rest of the addressable loop to function normally. If a detector fitted to the 4B-I exhibits a short circuit, the 4B-I will isolate both sides of the loop from the faulty device without affecting any other device on the loop. An amber LED indicator on the rim of the base illuminates whenever the short circuit isolator is activated. The 4B-I can accommodate one of the MX detectors, or serve as a base for an 814RB.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage	20-40VDC
Quiescent current	80µA (max.)
Tripped current	3.5mA (max.)
IB units between 4B-I bases	100 (max.)[1]
Indoor applications only	
Ambient temperature	10-95% (non-cond.)
Relative humidity	240g
ActivFire Listed with MX detectors	
FPANZ Listed	VF/650
PART NUMBER	**517.050.043**

1. Maximum number of devices between 4BI bases is limited to 40 for AS 1670.1-2004 systems.

Addressable AS7240 visual alarm detector bases

P80AVB and P81AVB Addressable Sounder VAD Bases

Sounders are considered as the most important of all the alarm devices. It is a mandatory requirement that sounders are used as an integral part of the fire detection and alarm system. Visual alarm detectors (VADs) are used to supplement sounders, providing an effective means of alerting and evacuating occupants of the building, as part of its fire safety strategy.

The P80AVB and P81AVB are indoor addressable sounder bases with a VAD specifically for use with the MX addressable detectors. The P81AVB includes a higher intensity visual indication for more coverage compared to the P80AVB.

Each has an address so they can be monitored and controlled from the fire alarm control panel, which is independent of the detector fitted to the base. The power and communications for the sounder, VAD and detector are provided by the two-wire MX digital loop. This helps to reduce installation costs as no additional wiring is required. AS7240-23 now provides clarity by standardising requirements, test methods and performance criteria of VADs and ensures all device parameters are measured in a uniform manner throughout Australia.

Main requirements from AS7240-23

- The coverage volume (i.e., volume within which required illumination is achieved) must be stated on the product or supporting documentation
- The VAD should meet the requirement for coverage volume of at least one of the following categories: W (Wall), C (Ceiling), O (Open Class)
- Required illumination of 0.4Lx on a surface perpendicular to the direction of the light emitted from the VAD
- Rate of flash should be stated between 0.5Hz and 2Hz
- The devices must be classifed as Type A, indoor and Type B, outdoor

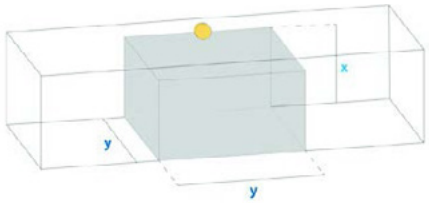
Features:

- A compact and discrete solution
- VAD approved to AS7240-23, P80AVB standard intensity and P81AVB high intensity flash
- Shorter light pulse for faster response
- Optimised system design for lowest power requirements and lowest cost of installation
- Triple light source
- One point of installation for detector, sounder and visual indicator with no additional wiring
- Independent addressable control of the sounder and beacon
- Built-in line isolator
- Select the tone, volume and flash rate using panel configuration software
- 15 selectable tones. Allows users to select the tone with which they are most familiar
- Realistic conventional bell tone
- Two selectable volumes
- Two selectable flash rates
- Different tones can be used for fire alarm and class change
- VADs and sounders are synchronised over each MX loop
- A locking pin supplied with the base prevents the unauthorised removal of the detector
- Provides an AS7240-23 approved upgrade path

PART NUMBER	
576.080.006	P80AVB Addressable Sounder VAD Base
576.080.014	P81AVB Addressable Sounder VAD Base (high intensity)
557.080.001	B-CAP blanking cap for sounder/VAD
557.080.002	A-CON conduit adaptor for sounder/ VID/VAD bases - white

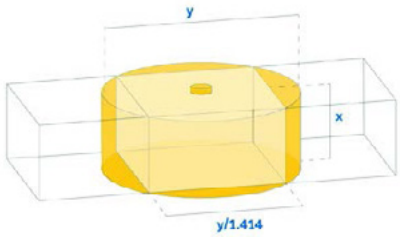
SPECIFICATIONS		
	P80AVB	P81AVB
Coverage volume code	C-3-8	C-3-15
Devices per loop	~86[1]	~54[1]
Flash rate	0.5Hz/1Hz	0.5Hz/1Hz
Dimensions (ø x H)	135mm x 45mm	135mm x 45mm
Sound output at 1m	~90dBA	~90dBA
Body colour	Clear	Clear
Flash colour	White	White
Ingress Protection	IP21C	IP21C
Australian Standard	AS7240-3, 23, 17	AS7240-3, 23, 17

Wall category



Coverage volume code

W – (x) - (y)
W = wall-mounted
x = maximum mounting height
y = length and width in metres of the cubic volume covered (to a minimum level of 0.4Lx) when the device is mounted to the wall at a height of x



Ceiling category

Coverage volume code:

C – (x) - (y)
C = wall-mounted
x = maximum mounting height
y = diameter in metres of the cylindrical volume covered (to a minimum level of 0.4Lx) when the device is mounted to the ceiling at a height of x

P80SB Addressable Sounder Base

Sounders are considered the most important of all the alarm devices. It is a mandatory requirement that sounders are used as an integral part of the fire detection and alarm system. The P80SB is an indoor addressable sounder base specifically for use with the MX addressable detectors. The base incorporates a sounder that carries its own address. It can be monitored and controlled from the fire alarm control panel, which is independent of the detector fitted to the base. Both power and communications for the sounder and detector are provided by the two-wire digital loop. This helps to reduce installation costs as no additional wiring is required.

Features:

- A compact and discrete solution
- One point of installation for detector and sounder
- Independent addressable control of the sounder
- Built-in line isolator
- 15 selectable tones. Allows users to select the tone with which they are most familiar
- Two selectable volumes

PART NUMBER	
576.080.002	P80SB Addressable Base Sounder
557.080.001	B-CAP blanking cap for sounder/VAD bases in white

SPECIFICATIONS	
	P80SB
Devices per loop	~231[1]
Flash rate	N/A
Dimensions (ø x H)	114mm x 45mm
Sound output at 1m	~90dBA
Body colour	White
Flash colour	N/A
Ingress Protection	IP21C
Australian Standard	AS7240-3, 17

1. Sounder at high volume, 1A loop.
2. Beacon at 0.5Hz with sounder at high volume, 1A loop. Loop quantities are for guidance only and should be

80DSB Detector Sounder Base

The 80DSB is an indoor detector base specifcally for use with the MX addressable detectors. The base incorporates a sounder that is activated directly by the detector plugged into the base.

Features:

- A compact and discrete solution
- One point of installation for detector and sounder with no additional wiring
- Low power with up to 175 sounders on a single loop
- Simple to select the tone and volume using switches
- No special training or tools needed
- Nine selectable tones
- Four selectable volumes
- A locking pin supplied with the base prevents the unauthorised removal of the detector
- Replaces legacy 802SB and it is compatible with 800 Series detectors. Can be used for service and repair or as part of a planned upgrade path

PART NUMBER	
576.080.001	80DSB Detector Base Sounder
557.080.001	B-CAP blanking cap for sounder/VAD bases in white
557.080.002	A-CON conduit adaptor for sounder/ VAD bases in white

SPECIFICATIONS	
	P80SB
Devices per loop	~250[1]
Dimensions (ø x H)	114mm x 45mm
Sound output at 1m	~90dBA
Body colour	White
Ingress Protection	IP21C
Australian Standard	AS7240-3

1. Sounder at high volume, 1A loop. Loop quantities are for guidance only and should be verified with the loop calculator.

AS7240 visual alarm devices

P80AVW and P80AVR Addressable Wall Sounder VADs

Sounders are considered the most important of all the alarm devices. It is a mandatory requirement that sounders are used as an integral part of the fire detection and alarm system.

VADs are used to supplement sounders, providing an effective means of alerting occupants of the building, as part of its fire safety strategy.

The P80AV range of compact addressable wall sounders with a VAD includes two models with the same low-current and high-output specifcation; red and white body indoor models.

Main requirements from AS7240-23

- The coverage volume (i.e., volume within which required illumination is achieved) must be stated on the product or supporting documentation
- The VAD should meet the requirement for coverage volume of at least one of the following categories: W (Wall), C (Ceiling), O (Open Class)
- Required illumination of 0.4Lx on a surface perpendicular to the direction of the light emitted from the VAD
- Rate of flash should be stated between 0.5Hz and 2Hz

Features:

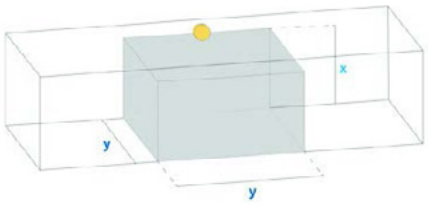
- A compact and unobtrusive sounder solution
- Shorter light pulse for faster response
- Can be semi-flush or surface-mounted, including a choice of shallow or deep back box
- Power and data from MX loop. No additional wiring or power supplies required
- Built-in line isolator
- 16 selectable tones
- Realistic conventional bell tone
- Two selectable volumes
- Two selectable flash rates
- Select the tone, volume and flash rate using panel configuration software
- Independent addressable control of sounder/beacon
- Different tones available for fire alarm and class change
- Aesthatically pleasing wall-mounted option
- A locking pin/screw supplied

PART NUMBER	
576.080.007	P80AVW Addressable Wall Sounder VAD in white
576.080.008	P80AVR Addressable Wall Sounder VAD in red
557.080.007	S-BOXR shallow surface back box for wall sounder/VAD in red
557.080.008	S-BOXW shallow surface back box for wall sounder/VAD in white
557.080.010	A-BOX flush back box adaptor for in-door wall sounder/VAD
557.080.011	D-BOXR deep surface back box for wall sounder/VAD in red
557.080.012	D-BOXW deep surface back box for wall sounder/VAD in white

SPECIFICATIONS		
	P80AVW	**P80AVR**
Coverage volume code	W-2.4-7.5	W-2.4-7.5
Devices per loop	~73[1]	~73[1]
Flash rate	0.5Hz/1Hz	0.5Hz/1Hz
Dimensions (ø x H)	89 x 135 x 40 (mm) without back box	89 x 135 x 40 (mm) without back box
Sound output at 1m	~100dBA	~100dBA
Body colour	White	Clear
Flash colour	White	White
Ingress Protection	IP21C	IP21C
Australian Standard	AS7240-3, 23, 17	AS7240-3, 23, 17

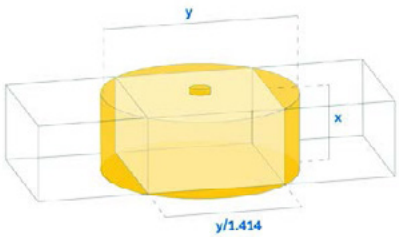
1. Full intensity VAD with sounder at high volume, 1A loop. Loop quantities are for guidance only and should be verified with the loop calculator.

Wall category



Coverage volume code:

W – (x) - (y)
W = wall-mounted
x = maximum mounting height
y = length and width in metres of the cubic volume covered (to a minimum level of 0.4Lx) when the device is mounted to the wall at a height of x

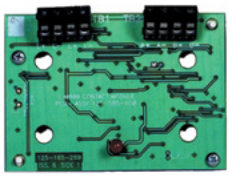


Ceiling category

Coverage volume code:

C – (x) - (y)
C = wall-mounted
x = maximum mounting height
y = diameter in metres of the cylindrical volume covered (to a minimum level of 0.4Lx) when the device is mounted to the ceiling at a height of x

MX TECHNOLOGY analogue addressable modules



CIM800 Contact Input Module

The CIM800 Contact Input Module monitors and supervises two circuits of voltage-free contacts, such as outputs from extinguishing systems, ventilation controls, fire door controls, sprinkler flow switches, non-indicating hard contact detectors, etc. The LED illuminates when any input goes into alarm and can be programmed to blink when polled by the CIE.

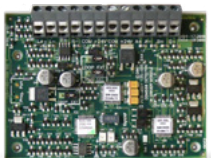
The CIM800 can be configured to monitor:

- Two circuits of multiple normally open contacts; with short circuit alarm
- Two circuits of multiple normally closed contacts with open circuit alarm
- Two circuits with a single normally open contact closing for alarm; with short circuit fault. (Requires a resistor in series with the alarm contact and special CIE programming)

The two circuits may be recognised as a single point (MX4428) or two separate points (MX1). Refer to the specific MX fire alarm panel specification.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage[1]	20-40VDC
Quiescent current	275µA (max.)
Alarm current	2.8mA (max. LED on)
Circuit resistance	10 ohms (max.)
ELD resistor	200 ohms (supplied)
Alarm resistor	100 ohms (s/c fault)
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
ActivFire Listed	VF/640
PART NUMBER	**CIM800**

1. MX addressable loop voltage.



DDM800 Universal Fire & Gas Detector Module

The DDM800 detector module is designed to monitor and signal alarms from

- One or two conventional two-wire circuits
- One or two 4-20mA sensors (MX4428 only)

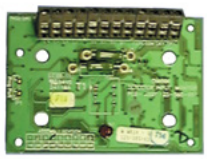
The DDM800 may be used to connect two circuits of conventional 20V detectors and interface them with an MX addressable fire alarm system.

The DDM800 can be loop-powered and use the Vigilant 614 Series detectors, or use an external 24VDC supply, allowing a wide range of detectors to be used – and be electrically isolated from the MX loop.

In 4-20mA mode, the DDM800 can support a single 4-20mA source on each circuit, operating in either current-sink or current-source mode.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage[1]	20-40VDC
Quiescent current	1.5mA (LV. mode)
Loop alarm current	2.8mA (max.)
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Detector load	3mA (max. per input)
Detector ELD	4k7 ohms
External supply[2]	21.9-29VDC
External current/circuit	10mA (plus det. load)
External alarm current[3]	52mA
Dimensions (H x W x D)	61 x 84 x 25 (mm)
ActivFire Listed	VF/666
PART NUMBER	**577.800.006**

1. MX addressable loop voltage
2. Voltage restrictions for some detectors
3. External supply alarm/short circuit.



DIM800 Detector Input Module

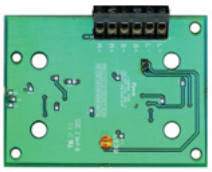
The DIM800 Detector Input Module interfaces two collective detector circuits onto the MX addressable loop.

Each circuit can support 3mA of detector quiescent current and requires a 4k7 ohm end-of-line resistor. The two circuits may be recognised as a single point (MX4428) or two separate points (MX1). Refer to the corresponding MX fire alarm panel specification.

Unused circuits must be terminated with an ELD resistor. The DIM800 requires a suitably rated and separately protected external 24V supply to power the detector circuits.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage[1]	20-40VDC
Quiescent current	280µA (max.)
Loop alarm current	2.8mA (max.)
Ambient Temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Detector load	3mA (max. per input)
Detector ELD	4k7 ohms
External supply[2]	20-28.7VDC
External current/circuit	7.5mA (normal)
External alarm current[3]	30-50mA
Dimensions (H x W x D)	61 x 84 x 25 (mm)
FPANZ Listed	VF/643
PART NUMBER	**DIM800**

1. MX addressable loop voltage.
2. Voltage restrictions for some detectors.
3. External supply alarm/short circuit.



LIM800 Line Isolator Module

The LIM800 Line Isolator Module is designed to be used on the MX addressable controller loop circuits. It monitors the line condition and, when detecting a short circuit, will isolate the affected section, allowing the rest of the addressing circuit to function normally.

The purpose of the LIM800 Line Isolator Module is to ensure that, on a looped addressable system, no short circuit fault can disable more detection devices than would be lost on a conventional, non-addressable fire circuit.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage[1]	20-40VDC
Current loading	80µA max. (normal)
Input current	3.5mA max. (tripped)
Maximum series resistance[2]	0.25 ohms
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	61 x 84 x 25 (mm)
ActivFire Listed	afp-3170
FPANZ Listed	VF/657
PART NUMBER	**545.800.004**

1. MX addressable loop voltage.
2. Isolator normal.

MIM800/MIM801 Mini Input Modules

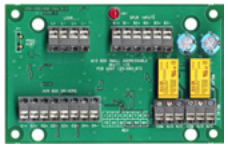
The MIM800 Mini Input Module monitors a voltage-free contact and transmits its state to the CIE. It can be programmed to monitor either normally open (default) or normally closed contacts. The MIMs can be programmed to monitor:

- One circuit of multiple normally open contacts, with short circuit alarm
- One circuit of multiple normally closed contacts, with open circuit alarm
- One circuit with a single normally open contact, closing for alarm, with fault detection for short circuit

The MIM801 is also available; it is optimised for normally closed applications and can generate an interrupt (only used when a fast response is required) on an open circuit. The MIM800 can operate an E500 Mk2 Series Remote Indicator. The input wiring must be as short as possible (less than 1m) and located well away from all electrical noise sources.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage[1]	20-40VDC
Quiescent current	275µA (typ.)
Alarm current	2.8mA (max. LED on)
Circuit resistance	10 ohms (max.)
ELD resistor	200 ohms (supplied)
Alarm resistor	100 ohms (s/c fault)
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	57 x 48 x 13 (mm)
ActivFire Listed	afp-3165 (MIM800)
FPANZ Listed	VF/641 (MIM800) VF/645 (MIM801)
Remote indicator	E500 Mk2 Series
PART NUMBER	
MIM800	MIM800 (Aus/NZ)
FP0837	MIM801 (NZ)

1. MX addressable loop voltage.



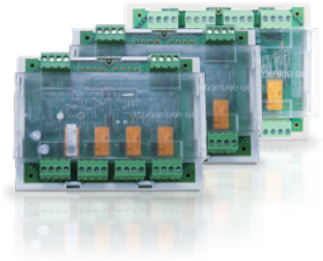
MIO800 Multi-Input Output Module

The MIO800 Multi-Input Output Module allows multiple input and output connections to be made between external equipment and the MX DIGITAL loop. Three inputs and two outputs are provided. Each input and output can be programmed independently to provide customised functionality.

An IP55 rated D800 style housing can be used as the standard enclosure, with the option of a DIN-rail mounting kit for in-cabinet installation.
Use with MX1 and 4100ESi.

SPECIFICATIONS	
Operating voltage[1]	20-40VDC
Quiescent current	480µA (max.)
Alarm current	3mA (max. LED on)
Relay contact	2A at 24VDC (max.)
Ambient temperature	-25 to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	72 x 110 x 18 (mm)
ActivFire Listed	afp-3166
FPANZ Listed	VF/655
PART NUMBER	
555.800.065	MIO800 (Aus)
MIO800	MIO800 (NZ)

1. MX addressable loop voltage.



QIO850/QMO850/QRM850 Quad I/O Modules

The MX Quad Ancillary Modules form a versatile new range of multiple input and output modules for use with MX TECHNOLOGY systems[1].

QIO850 Quad I/O Module provides four monitored inputs and four relay outputs

QMO850 Quad Monitored Output Module provides four monitored outputs

QRM850 Quad Relay Output Module provides four relay outputs

The modules are ideal for applications such as:

- AS 1668 fan control interfaces
- Plant or security outputs, or when large numbers of inputs and/or outputs are required.

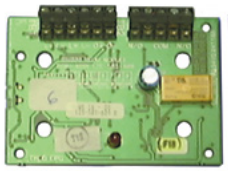
Use with MX1.

Features

- Built-in MX loop short-circuit isolator with fault indication at the MX1 CIE[1] when operated
- IR link for programming by 850EMT
- Selectable interrupt operation to speed up response
- Enclosed in protective plastic housing, with an optional IP66 enclosure available for applications in challenging environments
- Top-hat DIN rail mounting
- LED indication of each output state
- 24V/48V link selectable auxiliary supply for outputs
- Supervision of auxiliary supply for presence
- Fault indication of stuck relay contacts, e.g., not operating when switched on

SPECIFICATIONS			
	QIO850	QMO850	QRM850
MX loop voltage	–	20-40VDC	–
Quiescent current	0.58mA	1.2mA	0.58mA
Alarm current	3.6mA	4.2mA	3.6mA
Relay output	–	2A at 30VDC	–
Aux. voltage input	–	20-55VDC	–
Input states	Short circuit	–	–
	Alarm	–	–
	Normal	–	–
	Open circuit	–	–
Input EOL	3k3 ohms	–	–
Dimensions (H x W x D)	134 x 103 x 49 (mm)		
Weight	232g		
Ambient temperature	–25°C to 70°C		
Storage temperature	–40°C to 80°C		
Relative humidity	10-95% (non-cond.)		
ActivFire Listed	afp-3174	afp-3177	afp-3175
FPANZ Listed	VF/669	VF/668	VF/670
PART NUMBER			
Modules	555.800.071	555.800.070	555.800.073
IP66 enclosure	557.201.410	557.201.410	557.201.410

1. The MX Quad Ancillary Modules are not supported by the MX4428 CIE.

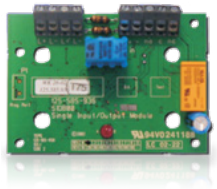


RIM800 Relay Interface Module

The RIM800 Relay Interface Module provides one volt-free changeover contact that is not supervised. The relay is controlled by a command sent from the CIE via the addressable loop and may be used to signal a state to other systems (security systems, for example) or to energise loads such as door holders. The relay operation is determined by the CIE programming. The RIM800 has a red LED, which may be configured to indicate relay activation and CIE polling. Note that the RIM800 cannot be used to switch mains voltage directly.
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage[1]	29-40VDC
Quiescent current	285µA (max.)
Alarm current	2.8mA (max. LED on)
Relay contact	2A at 30VDC (max.)
Ambient temperature	25°C to 70°C
Relative humidity	10-95% (non-cond.)
Ambient temperature	-25°C to 70°C
Dimensions (H x W x D)	61 x 84 x 25 (mm)
ActivFire Listed	afp-3167
FPANZ Listed	VF/642
Remote indicator	E500 Mk2 Series
PART NUMBER	**RIM800**

1. MX addressable loop voltage.



SIO800 Single Input/Output Module

The SIO800 Single Input/Output Module is an MX addressable module that provides one clean contact input and a voltage-free changeover relay output. The input supports normally open or normally closed contacts and short/open circuit faults — depending on the input mode selected by the CIE. The relay is controlled by a command sent from the CIE via the MX addressable loop. The LED illuminates when the input goes into alarm, and can also be programmed to blink when polled by the CIE. The MX1 CIE supports the following modes for the input circuit:

- Normally open contact, closing for alarm, with open circuit fault
- Normally open contact, closing for alarm, with short and open circuit fault
- Normally closed contact, opening for alarm, with short circuit fault
- Normally closed contact, opening for alarm, with short and open circuit fault

Use with MX1.

SPECIFICATIONS	
Operating voltage[1]	20-40VDC
Quiescent current	300µA (max.)
Alarm current	3mA (max. LED on)
Circuit resistance	50 ohms
Relay contact rating	2A at 24VDC (max.)
EOL resistor	3k3 ohms
Alarm resistor	680 ohms
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	61 x 84 x 25 (mm)
ActivFire Listed	afp-3168
FPANZ Listed	VF/671
CIE compatibility	MX1-Au, MX1-NZ
PART NUMBER	**555.800.063**

1. MX addressable loop voltage.

SNM800 Sounder Notification Module

The SNM800 Sounder Notification Module can be used to switch an external power source to sounders, extinguishing devices or other auxiliary equipment. The output is activated in response to a command from the CIE. The wiring to the controlled devices can be supervised for open and short circuit fault conditions and the external power source for the devices can be supervised. Each output device sounders, etc. must have a suitable diode wired in series (if not already contained in the device) so that the whole line is supervised up to the end-of-line device (27K resistor).
Use with MX1, MX4428 and 4100ESi.

SPECIFICATIONS	
Operating voltage[1]	20-40VDC
Quiescent current	450µA (max.)
Alarm current	3mA (max. LED on)
Output current	2A at 30VDC (max.)
Output ELD	27K ohms, 0.5W
External 24V supply	18-28VDC
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	61 x 84 x 25 (mm)
ActivFire Listed	afp-3169
FPANZ Listed	VF/644
PART NUMBER	**SNM800**

1. MX addressable loop voltage.

MX module housings

A variety of housings are available to fit the MX ancillaries. The standard sized modules (CIM800/DIM800/DDM800/LIM800/LPS800/RIM800/SIO800/SMN800) are mechanically compatible with all options. The MX range of addressable modules can be fitted to a double gang back box or an empty responder box. The double gang back boxes are availble in PC/ABS or aluminium. The responder box is galvanised mild steel and is supplied pre-drilled for up to four MX modules, with 16 PCB standoffs.

For MX1 installations, the MX1 loop card mounting bracket (FP1027) provides mounting for two standard MX modules or one large MX module (MIO800).

K2142 Double Gang Back Box

K2142 Double Gang Back Box

M520 MX Module Cover incl. PCB cover and screws.

517.035.015 QFB/2 Flush Mount Back Box

D800 IP55 Enclosure

By using the FP1062 or FP1063 mounting brackets, up to 16 DDM800 (32 circuits) or (at a squeeze) 24x DDM800 (48 circuits) can be fitted into a 15U MX1 (with no gear plate mounted loop cards or T-GEN 50 fitted).

SPECIFICATIONS		
	K2142	**M520**
Dimensions (H x W x D)	85 x 146 x 38 (mm)	87 x 148 x 14 (mm)
Material	PC/ABS	PC/ABS
PART NUMBER		
	557.201.401	517.035.007

SPECIFICATIONS		
	K2214	**QFB/2**
Dimensions (H x W x D)	86 x 146 x 40 (mm)	85 x 146 x 38 (mm)
Material	Aluminium	PC/ABS
PART NUMBER		
	517.035.011	517.035.015

The D800 Ancillary Housing provides an IP55 rated enclosure for all MX modules. It incorporates a window to view the module LED.

SPECIFICATIONS	
	K2214
Dimensions (H x W x D)	140 x 120 x 70 (mm)
Material	PC/ABS
Ingress Protection	IP55
PART NUMBER	
	557.201.401

FP0529 Empty Responder Box showing 2 standard MX modules fitted. The recommended module mounting combinations are:

- Four standard modules (CIM800/DIM800/DDM800/LIM800/LPS800/RIM800)
- or two large modules (MIO800)
- or two standard modules and one large module
- or one responder (ADR/MPR/MXP)

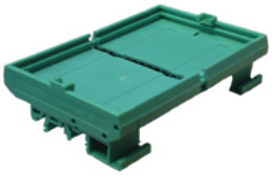
Hardware included

- 16 HW0130 plastic PCB standoffs
- Two HW0168 1in. body plugs, fitted to box
- Four HW0310 M3 x 10mm hex nylon barrel nuts
- One LB0283 FP4000 responder wiring label
- One LB0296 F4000 ADR wiring label
- One LB0370 F4000 MPR wiring and configuration label
- One LB0568 F4000 MXP wiring label
- Eight SC0172 M3 x 6mm pan-head Phillips screws
- 0401 instructions

SPECIFICATIONS	
Dimensions (H x W x D)	240 x 185 x 53 (mm)
Material	1.2mm galvanised steel
PART NUMBER	
FP0529	Empty Responder Box
FP1027	MX1 loop card bracket
FP1062	MX1 module brackets, pk of four
FP1063	MX1 DDM800 brackets, pk of four

547.004.002 DIN Rail Mounting Bracket

DIN Rail Mounting Bracket shown with RIM800 (not included)



DIN Rail Mounting Kit

DIN Rail Mounting Bracket and accessories

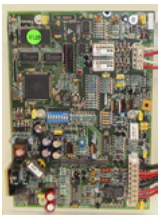
The DIN Rail Mounting Bracket can be used to mount standard sized MX Ancillary Modules (61mm x 84mm) onto a standard 35mm DIN Rail by simply clipping the PCB onto four pre-fitted plastic pillars. The MX1 Loop Card/Module Bracket provides an alternative module mounting facility for in-cabinet MX1 installations.

SPECIFICATIONS	
Dimensions (H x W x D)	78 x 113 x 31 (mm)
Material	PC/ABS
PART NUMBER	**557.201.303**

DIN Rail Mounting Kit for MIO800 (not included), shown fitted on DIN rail (not included).

PART NUMBER	
547.004.002	DIN Rail Mounting Bracket
FP1027	MX1 loop card/two module brackets
FP1062	MX1 loop card/four module brackets

MX4428 parts



FP0755 ADR-M, 1901-198 4mA 15V MCP

MXP supports MX addressable device technology

The MXP has two major functions:

- To provide an interface to an MX4428 responder (communications/power) loop, via which data gathered by the MXP may be transferred to the MX4428 primary for display, annunciation, and processing as appropriate.
- To provide an interface to the MX analogue loop. Data retrieved from the MX devices connected to the analogue loop is processed to determine the Alarm/ Normal/Fault status of each device, and this data is passed on to the MX4428 primary via the MX4428 loop interface. The analogue loop interface also allows outputs to be sent to those devices that support them, to initiate MX device tests, activate relays and more.

The MXP is one printed circuit board PCB; 1901-213. The MX Responder supports up to 200 MX multi-sensor virtual detectors photoelectric and heat, carbon monoxide and heat, ionisation only, heat only and a range of functional bases, addressable callpoints, input modules, and output modules.

SPECIFICATIONS	
Dimensions (H x W x D)	240 x 180 x 50 (mm) (PCB only)
PART NUMBER	
FP0824	MXP Responder in box
PA0893	Printed circuit board assembly (PCBA), 1901-213 MX4428Responder
LT0273	MX4428 MXP Technical/ English manual

ADR-M supports 15V manual call point and non-addressable detector range

The FP0755 version of ADR supports the 15V MCP, the 614 Series detectors and all the other detectors from earlier versions of ADR, along with some new programmable circuit types.

The ADR-M and its updated software replaces the existing ADRs for standard production and can be purchased under part numbers listed. The existing ADR part numbers will still be available in low quantities for service replacements and upgrades. Please note, the new ADR-M software **MUST NOT** be installed in any existing 2.5mA or 4mA ADR PCBs as it will not work properly.

The PA0844 version of ADR-M is used as a retrofit. Existing detector circuits use a resistor ELD in the range of 1k5 to 3k3 ohms (restrictions apply) and Intrinsically Safe applications. The Intrinsically Safe Active ELDs (EOL002ZEx) are no longer available for the standard ADR-M and the replacement units (EOL002B) are not Intrinsically Safe.

The module must be set for passive ELD (SW2 off). As there are no R2 resistors fitted, these do not need to be cut.

PART NUMBER	
FP0755	ADR-M 1901-198 4mA 15V MCP in box
FP0574	ADR 2 CCT Flameguard C/W RRM
PA0815	PCB 1901-198 ADR-M 4mA 15V MCP
PA0844	PCB 1901-200 ADR-M 2.5mA 3k3 EOL
SF0212	Software ADR-M V2.21 OTP
FP0529	Empty ADR box

Responder Relay Module (RRM)

The Responder Relay Module (RRM) is an optional add-on board for an ADR. When added to the responder, the combination is referred to as an Advanced Relay Responder (ARR). The RRM provides four relay outputs, which may be individually configured as supervised or not.

The RRM provides a limited 24V current output (100mA), which may be used to power external equipment, as long as it is wired through NO relay contacts.

PART NUMBER	
PA0453	PCBA 1901-15 RRM

XLG-Client/Server (XLG-C/S) Colour Graphics

Using a combination of symbols, floor plans, pictures and text, XLG-Client/Server (XLG-C/S) can display the precise location of a fire alarm event and give detailed emergency response instructions. Communications can be established with floor wardens via EWIS WIP phones to co-ordinate evacuation procedures. A detailed map of the affected area can be printed automatically for use by emergency response personnel. Prompt response to a fire emergency, with the correct action, provides the opportunity to greatly improve safety and reduce financial loss.

Multiple XLG-Client terminals can be connected on the same network for redundancy or ease of operation. Individual user access levels allow maintenance/ engineer's functions for performing higher level network investigations and configuration changes, as well as limited lower-level operator functions. XLG-C/S is able to annunciate and control both fire and EWIS/occupant warning systems.

Operation

When the status of a device on the network changes, the screen displays the type and location of the event. The operator can then navigate to a more detailed view of the zone or device.

From the XLG-C/S screen (with the appropriate password access) the operator has the ability to:

- Acknowledge alarms
- Silencesounders and turn off visual indicators
- Perform a system reset

Route arrows showing the recommended access path for the fire brigade can be displayed on alarm events screens. Custom alarm and fault messages can be added to provide operator dispatch assistance. Location-specific information, such as hazardous material storage and lists of people to notify, can be automatically or selectively displayed.

Features

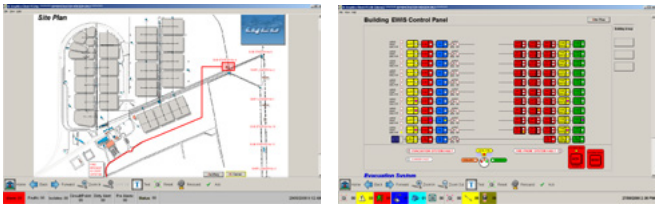
- Monitors all events on fire and EWIS networks using graphics and text
- Automated graphic display and printing of latest fire event locations
- Simple and effective graphic interface
  - Custom alarm and fault messages guide an operator through dispatch response
- Extensive history logging
  - Full and extensive event log of the entire fire and evacuation graphics system
  - Rapid event filtering for easy event location
  - Printing of event log, graphics screens and fire system reports
- Multiple XLG terminals on a network can perform redundant operation or specific functions
- Easy site configuration
  - Point-and-click device positioning and configuration
- Supports common graphics file formats
  - Importing of CAD drawing files, metafiles, image files and scanned media
- Centralised security and service administration
  - Multiple operator levels with password control
- One-off configuration for all terminals
- Vigilant Panel-Link network support
  - Enables monitoring and control of fire alarm and evacuation/occupant warning networks
  - Integrates numerous fire indicator panels (FIPs); conventional and analogue addressable
  - F3200 and MX1 via IP networking (requires Vigilant PIB)
- Supports a variety of fire detection systems
  - Vigilant MX1, MX4248, F3200, QE90, QE20
  - Simplex® 4100 range
  - MINERVA MX
- Graphical diagnostic tools identify status of fire network nodes
  - PC environment monitor

Screens

Graphics screens can provide easily recognisable site plan and floor plan information. The level of detail can be customised for the specific facility to easily and accurately direct the operator to the immediate area of interest. Optional icons can be added to identify the exact device of interest, and may be used to directly navigate to other predetermined screens for more detail.

In addition to screen text or graphical information, the operator can be presented with specific messages that provide emergency response information and directions. These messages can be easily edited to suit local requirements.

XLG-Client screens



Multiple network integration

XLG-C/S supports extensive fire network integration and interconnection. Multiple networks as well as conventional FIPs can be monitored and controlled by XLG-C/S.

Each fire network or standalone FIP connected to the Panel-Link network interfaces to the XLG-Server using a suitable communications device, such as the Protocol Translation Module (PTM), I-HUB or PIB, depending on the network configuration. EWIS networks interface to the XLG-Server using a SECP/VDU interface. Each XLG-Client terminal communicates with the XLG-Server using IP networking.

Operation on Panel-Link network

- Vigilant Panel-Link Network
  - Multidropped RS485 connections or IP via various media
  - Up to 64 networked devices multidropped depending on required functionality
  - Multidropped cable length <1,200m shielded twisted pair
  - Galvanic isolation between panels and network
  - High noise immunity
  - Reduced earth loop problems
  - I-HUBs used to extend copper network (ring configuration)
  - Link integrity function supervises XLG-C/S network

Hardware requirements

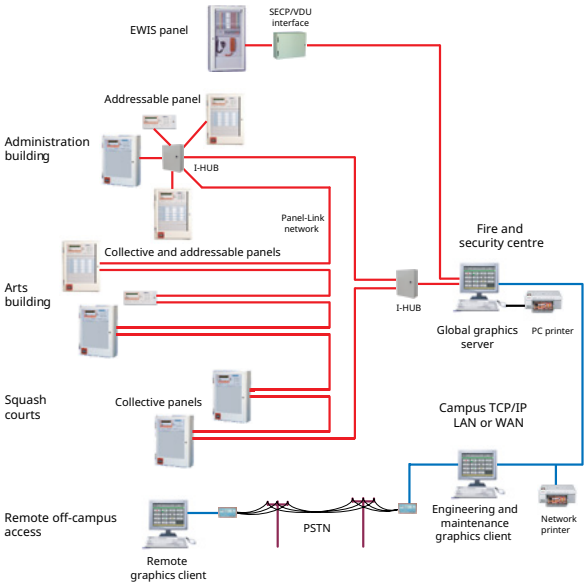
1. Fire panels on the Panel-Link network connect to the XLG-Server using the PTM, I-HUB or PIB interface. EWIS panels are connected using the SECP/VDU interface. The XLG-Server requires a serial comms port for each interface.

2. The XLG-Server must have a free USB port.

Software requirements

1. Windows 7 32-bit or 64-bit operating system

PART NUMBER	
CG0002-CS	XLG-C/S software and dongle
CG0002-CLIENT	XLG-C/S client-only software
FP0697	SCP/VDU interface



Simplex 4100ESi system overview

Over a century of leadership in fire protection

Long-term infrastructure assets, like shopping centres, hospitals, road tunnels, educational institutions and industrial facilities, need protection systems that can be easily updated. It's important to maintain compliance with changing standards and community expectations without having to replace entire systems due to obsolescence.

Products designed for life

The Simplex philosophy of backward and forward compatibility ensures that the products available today will be compatible with more advanced products yet to come. And today's products are compatible with Simplex products installed years ago. This philosophy lowers overall lifecycle costs and means that Simplex systems can always be easily expanded and converted with the latest technology or to comply with changes in the Australian Standards.

The Simplex 4100ESi incorporates a high specification, technologically advanced and unique touchscreen. Managing fire safety is simpler than it's ever been. From a single screen, and at the touch of your fingers, you can:

- View and monitor all fault points, supervisory points and Pri2 alarms
- Disable and enable points and zones
- Conduct alarm tests on points and zones
- Access level changes
- View and upload previous alarm and fault logs
- Print and upload reports
- Inspect – and respond to – service diagnostics

Once you've programmed the panel on a PC, everything is accessible from the panel itself – where and when you need it.

The Simplex 4100ESi is not only compatible with its existing TrueAlarm detectors, but is also the ideal match for two-way infrared-enabled MX fire detectors.

Together, the Simplex 4100ESi and MX detectors provide:

- More addressable loop powered devices, including sounders
- Even greater immunity to nuisance alarms
- Isolators in every detector head
- Improved system redundancy
- Reduced installation time – no need for an isolator every 40 devices
- Ability to use modern commissioning tools, including the 850EMT infrared tool
- Compliance to the latest AS 7240 standards

Non-proprietary

Simplex is a non-proprietary product, so our sytems can be serviced, installed and programmed by any company that has completed our training course. This gives you great flexibility when choosing your service provider. Simplex only allows trained and licensed companies to access our programs, ensuring only qualified personnel are modifying these important life-safety systems.

Training courses are run several times a year in each state of Australia.

The new Simplex 4100ESi is here.

4100ESi Analogue Addressable Fire Indicator Panel

At a glance

- This user-friendly panel conforms to the latest Australian Standards (AS7240.2), offering you peace of mind
- Better capacity and greater connectivity from the 2,000-point addressable device capacity – ideal for facilities of any size
- Connect up to 99 panels on a single network ring – up to 3,500m apart in copper, or a stunning 25,000m apart in single mode fibre
- Generous 10A power supply reduces the need for extra power supplies or battery boxes
- Intuitive, intelligent, easy-to-read and navigate, interactive 26cm touchscreen InfoAlarm+ display
- Regularly updated e-manuals, accessible on any internet-connected device
- Easier installation and upgrades the backward compatible Simplex 4100ESi uses intuitive Windows-style programming software
- Programming templates for common functions (including 1668 controls, day/night sensing, alarm acknowledgement, delay and investigation)
- Enjoy your freedom of choice to select any trained service company to service Simplex fire detection products
- Available off the shelf with expansion box options and a further three sizes on demand

The 4100ESi is manufactured on a built-to-order basis in custom configurations to match the specific needs of each site. It is also available ex-stock in 4100ES-S1 single-loop (expandable) configuration. The 4100ESi, like all 4100 systems, includes many backwards-compatibility features to minimise the risk of obsolescence. This includes full compatibility with existing Simplex 4120 networks.

The Simplex 4100ESi is an analogue addressable fire alarm system that provides extensive and powerful features to satisfy a wide variety of applications and site requirements. On-site programmability allows mapping logic for inputs and outputs, custom labelling, and later revisions. Detector and control-point expansion is available up to 2,000 points. For quantities exceeding this, multiple panels can be networked together to form a 4120 network system.

ActivFire Listed

- afp-395 (4100)
- afp-1165 (4100/4120)
- afp-1682 (4100ES/4100U)
- afp-3027 (4100ESi)

For a comprehensive list of spares, refer to page 183.

4100ESi Analogue Addressable Fire Indicator Panel

The Simplex 4100ESi is a cost-competitive, out-of-the-box analogue addressable system that is based on the established power and flexibility of the Simplex 4100 series of products.

The entry-level Simplex 4100ESi is supplied configured as a single-loop, analogue addressable fire alarm system providing a low-cost solution for smaller sites requiring addressable fire alarm technology.

For typical applications, such as nursing homes, offices, factories and small shopping centres, the 250-device capacity is ideally sized. Where additional capacity is required, the Simplex 4100ES-S1 can be expanded to cater for medium-sized installations, such as a university campus or an industrial site.

Features

- Easy expansion with up to two MX addressable loops, programmable on-site with 250 devices per loop
- Wide range of addressable devices – detectors, sounder bases, input/output modules
- Supports on-site upload and download of panel program
- Optional AS 1668 four-way rotary or four-way modules
- 9A system power supply (SPS) module includes built-in IDNet addressable loop driver and 80Ah battery charger. Battery capacity 40Ah in standard cabinet
- Supports remote serial LCD annunciators
- Networkable into large systems using optional RS485 or fibre optic network media cards
- Optional RS232 interfaces for High Level Interface for BMS, VESDA, QE90, BACnet and PC annunciators and remote printers
- Four operator access levels
- 1,200-event historical log (separate alarm/fault logs)
- Walk test and individual point disconnect/disable
- Programmable alarm verification, output logic control, alarm thresholds, network operation and annunciation
- SafeLINC Internet Interface Card available for remote access via client LAN
- 19in. rack cabinet 1,050 x 575 x 350 (mm; H x W x D) Packaged: 1,130 x 630 x 350 (mm; H x W x D); 30kg
- Part number: 4100-FP1045

4100ESi Operator Interface

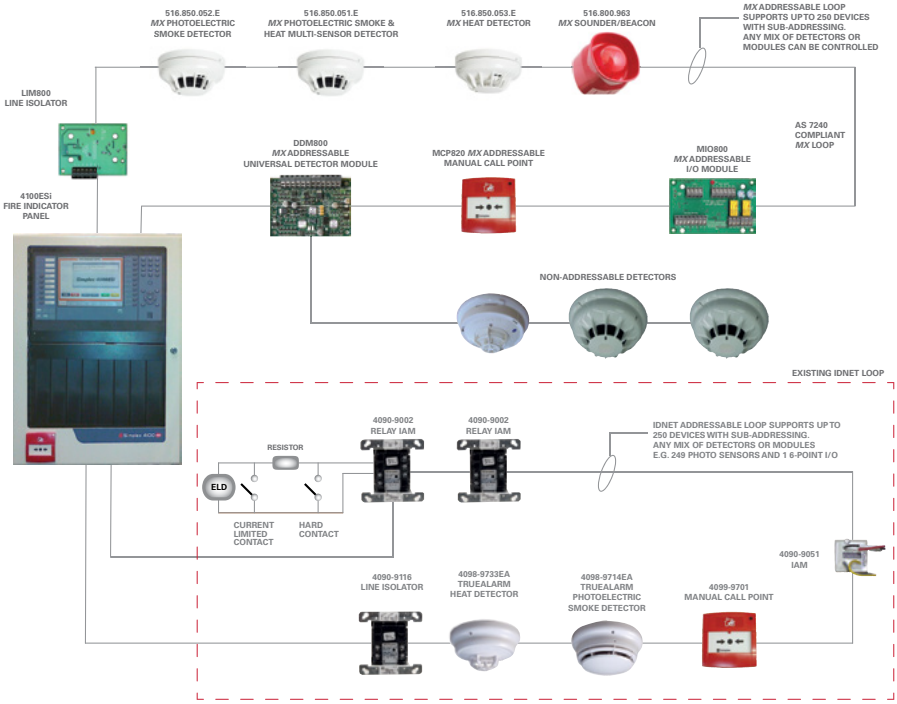
Configurable

The Simplex 4100ESi is a panel fully compliant to AS7240.2. The 4100ESi is an analogue addressable fire alarm system that has a class-leading, large, colour touchscreen display compliant to AS4428.3 2010, which can control up to 500 zones. When configured as a network display unit (NDU) it can control up to 1,000 zones. The 4100ESi will be available off the shelf as a 15U compact panel, with 8U expansion boxes for small- to medium-sized projects, or as a built-to-order (BTO) panel for larger projects.

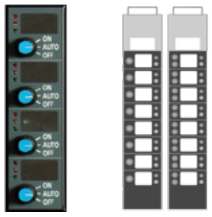
The 4100ESi uses MX detector technology, incorporating an isolator in each detector head. Up to 30 addressable loops (max. 2,000 points) can be run from one panel, each loop can drive 250 points, plus sub-points, and will support a range of loop-powered devices, including sounders.

The 4100ESi can be configured as a standalone panel, network node or data gathering panel (DGP) and can distribute its hardware, such as the MX loop, using low-cost transponders.

4100ESi typical system diagram



The 4100ESi can be equipped with 2 types of fan controls: non-networkable, rotary-type controls or networkable, push-button controls. Each 4100ESi CPU is capable of managing up to 300 fans.



4100ESi 1668 control options

Non-networkable 1668 controls

4100-ME0456 four-way, rotary-switch controls with on, auto and off labels. Optional fire, auto and non-fire labels are available for damper controls. CCustomisable fan-identification labels are also available. LED also flashes to indicate alarm conditions.

Networkable 1668 fan controls

The 4100-1287AU fan module is an ideal solution to provide duplicate controls or redundancy during emergency situations. Each module can manage four 1668 controls and indications and contains:

- Manual start, manual stop and auto push-buttons and corresponding red LEDs to show manual activation
- Red LED for the fan-running status
- Red LED for duct smoke alarm
- Yellow LED for the fault status
- Green LED for the fan-stopped state
- Customisable slide-in labelling for each of the push-buttons and LEDs

Addressable loop card – MX

MX Digital Loop Card for 4100ESi

The 4100-6077AU MX Digital Loop Card provides a 4100ESi panel with an interface to an MX TECHNOLOGY analogue addressable loop. The card supports a wide range of the MX addressable detectors, modules and sounder bases. Up to 250 devices can be connected, on up to 2km of cable.

- Connect up to 250 MX addressable devices, with up to 500mA of current per MX loop
- Up to 30 4100-6077 MX Digital Loop Cards (total 2,000 points) per 4100ESi fire alarm control panel
- Device LEDs for alarm activation are selectable per loop with up to five, 10, 20 or 30 to be activated simultaneously. LED blink on poll is also selectable per loop
- On-board diagnostic LEDs indicate module status for installation and service convenience
- Electrically isolated MX loop
- Earth fault monitoring of MX loop
- Mounts in a an 8U, 15U or built-to-order panels
- ActivFire listed to AS 7240.2-2004

MX loop communications provide:

- Compatibility with many types of existing cable for convenient retrofit with typical cable lengths up to 2km

With a 4100-6077AU MX Digital Loop Card:

- Information communicated to the control panel is analysed using the MX Fastlogic algorithm
- The MX Fastlogic algorithm is considered an expert algorithm that uses real fire data as a basis for the alarm decision
- WALKTEST system testing with automatic self resetting is available for silent mode testing

MX peripherals provide:

- Soft addressing of devices using the 850EMT programming tool
- Remote programming of detectors via two-way IR link
- Device address may be changed at the front panel

Compatible addressable devices include:

- Smoke detector, heat detector, combination smoke/heat detector and triple sensor smoke/CO/heat detector
- Detectors include short circuit isolator when used with 4B-C Continuity Base
- Sounder bases with loop-powered sounder
- Single, dual, and multiple I/O modules
- Relay and signal output modules
- Indoor and outdoor call points
- Loop-powered dual Monitor ZAM
- Separate short circuit Loop Isolator Module

Simplex 4100ESi detectors and modules

Simplex 4100ESi uses MX loop technolgy with Generation 6 MX detectors

MX GEN 6 DETECTORS	
516.850.051.E	850PH MX addressable photoelectric and heat detector with isolator
516.850.052.E	850P MX addressable photoelectric detector with isolator
516.850.053.E	850H MX addressable heat detector with isolator
516.850.054.E	850PC MX addressable CO, photoelectric and heat sensor with isolator
GENERATION 6 MX BASES	
517.050.041	4B detector base
517.050.042	4B-C continuity base
517.050.043	4B-I isolator base
517.050.052	4B-EM 4in. European mount back box
517.050.051	4B-DHM 4in. deck-head mount
MX ADDRESSABLE MODULES AND MCPS	
MIM800	Mini input module
CIM800	Contact input module
DIM800	Detector input module
RIM800	Relay output module
SNM800	MX sounder module
514.800.611	MCP820 MX Addressable MCP with isolator, no back box (AS1670.1 requires additional flap SU0615)
514.800.612	MCP830 MX IP67 Addressable MCP with isolator and back box (AS1670.1 requires additional flap SU0615)
SU0615	Transparent hinged cover to suit KAC manual call points
545.800.004	LIM800 line isolator module
555.800.065	MIO800 multi input output module
577.800.006	Dual detector module DDM800

Simplex 4100 network systems

Features

- Fast network speed – typically four-second response time
- Full site control from one location
- Communicates along remote fire alarm control panel locations, defined as network nodes
- Initiates Alarm Silence, Acknowledge and Reset
- Displays status of selected circuit points, point lists and network nodes
- Investigates specific point status details
- Declares system alarm from control panels
- Network nodes include:
  - 4100 Series Fire Alarm Control Panels
  - 4100 Series Network Processing Units (NDU), Network Display Units (2500NDU) and MINIPLEX and Universal Transponders (UT)
  - 4190 Series TrueSite Workstation
- Retrofit into existing 4100 systems

Maximum distances for networks

- Single pair of 24 AWG telephone wire – 3,500m between network panels
- Single core multi-mode fibre optic cable up to 5,000m between panels
- Single core single-mode fibre media up to 25km between panels
- Signal is regenerated at each panel before re-transmission
- Four-second network response time
- TrueAlarm sensor operation
  - Read status of TrueAlarm analogue detection sensors at multiple locations
  - Remote or local sensitivity selection
- Style 7 or Style 4 wired communications:-
  - Single wire pair between nodes
  - Up to 3.5km between nodes with 1mm^2 twisted shielded wire
- Optional fibre optic communications
- Full network communication supervision
  - Network level diagnostics
  - LED status indications on interface board
- Set host function accesses remote node data
- Remote dial-in modem for off-site data access
- Optional TCP/IP communications
- T+ over copper or single-multi-mode fibre optic cable
- Up to 99 panels on one network ring

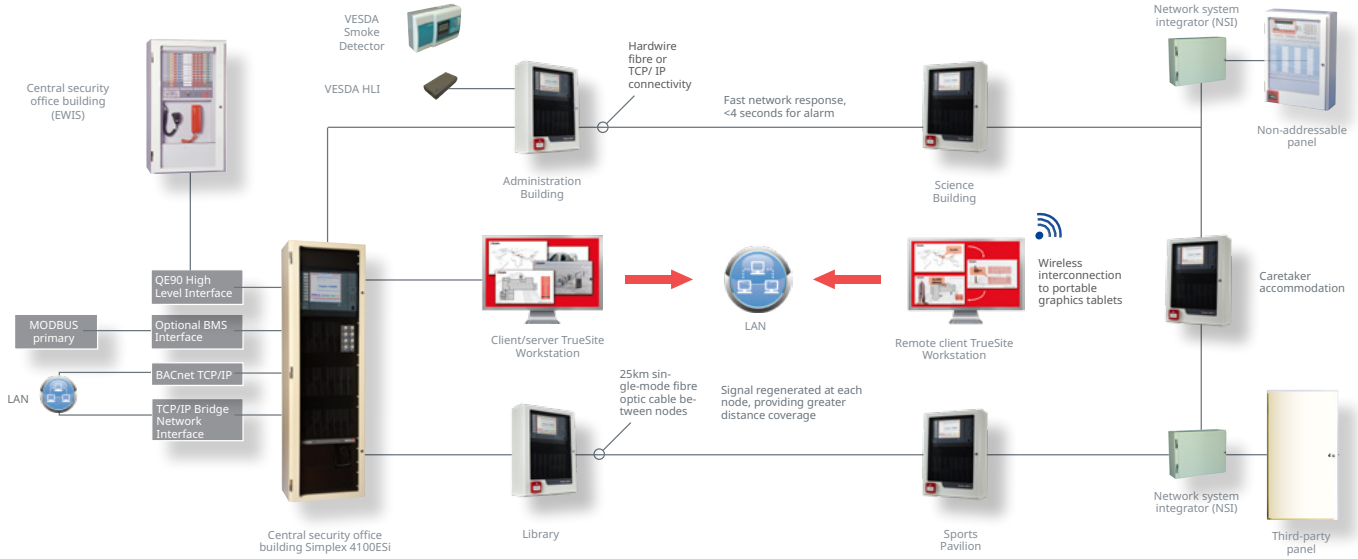
ES NET	
190-9833	ES Net External NIC, 120/240VAC, platinum cabinet
4190-6051	Ethernet switch only, eight-wiredEthernet connections, (requires 4190-6053 240VAC power adaptor)
4190-6053	Ethernet switch, 240VAC adaptor, 1.8m cord
4190-6010	LAN suppressor assembly
4100-6310	4100ES ES Net NIC, flat style
4100-6309	ES Net NIC dual-channel, multi-mode fibre media card
4100-6308	dual-channel, single-mode fibre media card
4100-6307	ES Net NIC dual-channel, DSL (copper media card)
4100-6306	ES Net NIC dual-channel Ethernet media card

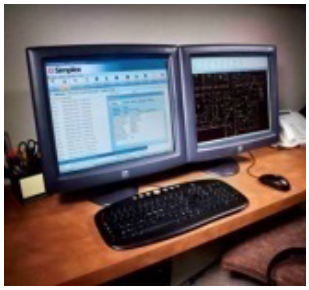
4100ES NETWORK CARDS	
4100-6078	Modular Network Card (requires two media cards)
4100-0142	Wired Media Card RS485 including Ferrites
4100-9863	TCP/IP Physical Bridge Card
4100-6120	Fibre optic modem, left port assembly
4100-6121	Fibre optic modem, right port assembly
4100-6301/2	Duplex Single-Mode Fibre Media Card
4100-6303/4	Duplex Multi-Mode Fibre Left Media Card

The Fibre Optic Modem is used to simplify field wiring and increase transmission distances by converting system copper-wired interfaces to fibre optic connections. A modem pair replaces copper wiring between any two points including, node-to-node, node-to-transponder, and transponder-to-transponder. The modem is invisible to the connected equipment, and does not need to be programmed in as part of the job (except for power supply current calculations). The modem combines the input signals so they can be communicated over one fibre in both directions. In general, the modem installation is accomplished by simply connecting the wires that would normally be routed between cabinets to the modem.

Flexible network communications

Campus-style network with multiple connectivity options





TrueSite Workstation Network

When it comes to managing the wide array of information that drives a large fire alarm network, the TrueSite system stands out for its power, flexibility and ease of use. A PC-based graphical command centre that runs Microsoft Windows, the TrueSite Workstation can seamlessly accept and process information from literally thousands of detectors, notification appliances and other network devices.

The system's power is evident in its ability to:

- Monitor and control up to 100,000 devices
- Support seven network loops and as many as 686 panels
- Monitor any brand of control panel using agency-listed digital alarm communicatiors
- Store historical data for up to 1,000,000 events
- Graphically display information and events on a campuswide site map and individual building floor plans

What can TrueSite do for you?

- Strengthen protection of life and property through centralised life-safety information management
- Help accelerate emergency response and control training costs with intuitive graphical interface and event-specific operator instructions
- Improve operational efficiency through quick access to information and customisable menus
- Protect your investment and prepare for the future with forward-backward compatibility

TrueSite Workstations provide annunciation, status display, and control for Simplex Fire Alarm Networks using a PC-based graphical interface with a high resolution colour display. Response buttons with realistic icons provide control switches specific to the operation being performed. Multiple workstations can be installed on the same network for redundancy or to route (vector) point-type annunciation to the appropriate workstation depending on type, location, or other criteria.

A separate TrueSite Workstation can also be dedicated as a maintenance terminal for performing higher level network operations.

With touchscreen monitors, the operator touches the screen area in alarm (or uses the mouse) to access a more detailed view of the alarmed zone or device. With the proper password access, the operator has the abillity to acknowledge alarm conditions, activiate signal silence and perform system reset directly from the workstation screens.

PART NUMBER	
4190-8603	TSW software package
4190-5050	TSW server software
4190-5061	TSW feature code for remote client with restricted feature set
4109-5062	TSW feature code for remote client with password-protected feature set
4190-DELL	Single-network server/client PC
4190-7041	Commark industrial 2+ network loop PC
4190-9829	IMS and TrueSite wired network card (PCI slot)
4190-9822	IMS and TrueSite wired media card – RS485
4190-9823	Dual core, multi-mode fibre media module
4190-5067	TSW mobile client feature code suits Apple and Android devices (see note 9)
4190-6301/2	Duplex single-mode fibre media card
4190-6303/4	Duplex multi-mode fibre left media card
ES NET PARTS DESCRIPTION	
4190-9833	ES NET external NIC, 120/240VAC, platinum cabinet
4190-6051	Ethernet switch only, eight wired Ethernet connections (requires 4190-6053 240VAC power adaptor)
4190-6053	Ethernet switch, 240 VAC adaptor, 1.8m cord

Mobile Client

The TrueSite Mobile Client brings the features and functionality of the TrueSite Workstation to your Apple® or Android™ mobile device or tablet. Available from iTunes® and Google Play™, the TrueSite Mobile Client helps you access and monitor your facility's TrueSite Workstation remotely, giving you the flexibility to view system information and diagnostics wherever you are.

Features

- Connect an unlimited number of Mobile Clients to your TrueSite Workstation with the purchase of one client license
- Monitor up to 686 nodes on seven network loops
- Display of Fire Alarm and Priority 2 Alarm conditions
- Display of Supervisory, Service and Trouble conditions
- Secure internet connectivity
- System control operations: Alarm Silence, System Reset, Audio Control

Legacy addressable loop card interfaces – IDNet

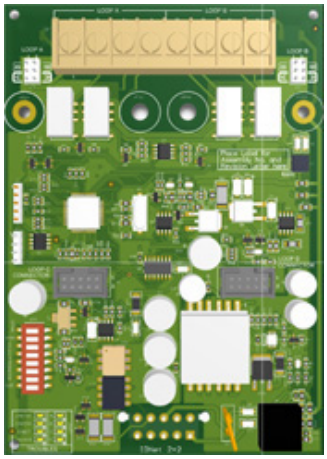
IDNet2 Module

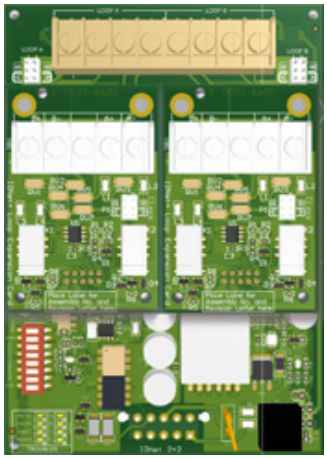
IDNet technology can be incorporated into the 4100ESi to communicate with legacy IDNet devices.

Features

- The IDNet2 card has four built-in loop isolators, each with its own set of terminals. These can be wired to provide two loops of IDNet devices. Wiring faults on one loop will not affect any of the other loops.
- Removes the need for panel-mounted isolators at the start and end of loops
- The loop wiring is electrically isolated from the panel's 24V supply. Improved noise immunity eliminates the need for shielded and twisted wire in most applications.
- Collectively, up to 246 compatible external devices can be connected to the IDNet2 card. These devices generally do not need to be arranged in any special order, and can be any IDNet or IDNet-compatible MAPNET device. Addresses 247-250 are reserved for the in-built loop isolators
- IDNet2 is a PDI format card, occupying one card position. It is 100mm wide and 127mm high
- On-board fault indicators for each loop output
- Earth fault detection diagnostics test each output
- Duplicate Device Detection and Weak Answer Detection
- Diagnostics to assist in locating devices installed incorrectly

SPECIFICATIONS	
Input voltage	24VDC (CIE supplied)
Loop voltage	Nom.: 31VDC Max.: 36VDC
Loop current	500mA max.
Input current	
Module only devices (per device)	75mA (Q); 115mA (A)
	0.8mA (Q); 1mA alarm
Data input from CIE	RS232 ASCII
Data output	BACnet IP
Operating temperature	0°C to 45°C
Relative humidity	10-93% (non-cond.)
Dimensions (H x W)	127mm x 100mm
PART NUMBER	**4100-3109AUK**





IDNet2+2 Module

The IDNet2+2 is an enhanced IDNet2 loop card suitable for use in Simplex 4100ESi and 4100U systems. It has built-in addressable short circuit isolators which can be configured to provide up to four isolated loops or eight spur circuits.

The IDNet2 and IDNet2+2 cards supercede the previous 4100-3101AU and 4100-3107AU.

SPECIFICATIONS	
Input voltage	24VDC (CIE supplied)
Loop voltage	Nom.: 31VDC Max.: 36VDC
Loop current	500mA (max.)
Input current	
Module only devices (per device)	75mA (Q); 115mA (A)
	0.8mA (Q); 1mA alarm
Data input from CIE	RS232 ASCII
Data output	BACnet IP
Operating temperature	0°C to 45°C
Relative humidity	10-93% (non-cond.)
Dimensions (H x W)	127mm x 100mm
PART NUMBER	**4100-3110AUK**

4100-3204 2A DPDT
Relay PDI Card with
Feedback Inputs

4100-5129
Ferrite Bead

FZ9028 3U WA/Cube ASE
Bracket and Loom

Expansion modules

A comprehensive range of expansion modules are available for the 4100ESi Fire Alarm Panel. These can be used for interfacing addressable or conventional (non-addressable) detectors, adding controls, annunciators, networking or high-level communications to MODBUS or VESDA systems. Expansion modules come in two form factors: Legacy (for older panels) or PDI for newer systems. The 4100ESi can accommodate both types of modules. Some of these are listed below.

four-way and eight-way relay cards are available for use in Simplex 4100ESi and 4100U systems. Each is a PDI ‘flat’ format card, occupying a single position.

Features

- Fits directly in 4100ESi/4100U expansion bay. Does not require a motherboard
- The 4100-3204 provides four independent relays, each providing two sets of clean changeover contacts rated at 2A and fused at 3A
- The 4100-3204 also has four unsupervised feedback inputs (on/off detection only)
- All fuses are standard 20 x 5mm cartridge type
- All terminals have 2.5 mm sq. wiring capacity
- Both cards have individual LEDs to show relay operation

4100-5013 8 Zone Relay Card (single height, single width PDI)

T-GEN 60 on FP1119 Bracket in PDI Expansion Bay with FP1118 Brackets and Splitter Modules

Features

Provides eight inputs/outputs. Each input/output can be configured for either:

- Conventional detector circuit operation supporting a range of fire detectors with different EOL values (3k3, 2k2, 2k0) or 6k8 with clean-contact devices only
- Clean-contact relay output with a choice of normally closed or normally open contacts. The contacts are rated at 2A 30Vdc.

EXPANSION MODULES	
4100-6078	Network Card (requires two media modules)
4100-6056	Wired Media Module (use two cards as required; mount on Network Card)
4100-6301/2	Duplex Single-Mode Fibre Media Card
4100-6303/4	Duplex Multi-Mode Fibre Left Media Card
4100-9863	TCP/IP Bridge Card (not AS 7240)
4100-6046V	VESDA HLI card
4100-6046	Dual RS232 HLI card
4100-3204	Four 2A DPDT Relay PDI Card with Feedback Inputs
4100-5013	8 Zone Relay Card
4100-3024K	24 Point I/O Relay Card and 4100-0302
4100-5116	AS7240 approved XSIG card, three-way PDI format
4100-1266	Three-way expansion NAC card for 4100-5116au signal card
4100-0302K	24 Point I/O Module (exp. cabinet)
4100-4321K	6 Supervised Relay/Signal (exp. cabinet)
4100-6069	BACNet Interface Card (exp. cabinet)
557.202.508	4100 MODBUS I/F RS485 CCU3
557.202.509	4100 MODBUS I/F Ethernet CCU3
4100-1288/1289	64/64 LED Switch Controller
4100-1277	8 Red and Yellow LED Module
4100-1280	8 Push-Button 8 Red LED Module
4100-1284	8/16 Push-Button Red-Green LED Module
4100-1282	8/16 Push-Button Red-Yellow LED Module
4100-1281	8 Push-Button 8 Yellow LED Module
4100-1287AU	Networkable Fan Control Module – four sets of push-button fan/damper controls
4100-ME0456	Four AS1668 Fan Controls
4100-KT0549K	7U 8-Slot LED Door Empty
BRIGADE KITS	
4100-ME0512K	Cube/WA ASE bracket, plus mic. mounting
4100-ME0513K	Centaur ASE bracket, plus mic. mounting
FP1093	NT Brigade 6U door for mounting NTFAST radio
TONE GENERATOR (BOWS)	
FP1115	T-Gen 60 60W Amplifier
FP1116	T-Gen 120 120W Amplifier
FP1119	T-Gen2 PDI Bay, bracket only
ME0490	T-GEN 50 Dynamic Mic. and lead
4100-1043K	T3 Strobe Driver Module mounted on Legacy bracket
REMOTE ANNUNCIATOR	
4603-9101	Serial LCD Annunciator (not Brigade use)
FP1048	Remote Fire Brigade panel
MX DIGITAL LOOP CARD	
4100-6077AUK	MX Digital Loop Card for 4100ESi (double-height PDI card)
ME0516	MX Digital Loop Card bracket
COMPATIBLE PERIPHERALS	
516.850.054.E	50PC CO/Heat/Smoke Detector
516.850.053.E	850H Heat Detector
516.850.052.E	850P Photoelectric Smoke Detector
576.080.002	P80SB Addressable Base Sounder
576.080.001	80DSB Detector Sounder Base
516.850.051.E	80DSB Detector Sounder Base
517.050.042	4B-C Continuity Base
E5xx	E500Mk2 Series Remote LED Ind.
514.800.611	MCP820 MX Manual Call Point

514.800.612	IP67 MCP830 MX Manual Call Point
ADDRESSABLE INTERFACE MODULES	
MIM800	Mini-Input Module
CIM800	Contact Input Module
RIM800	Relay Interface Module
SNM800	Sounder Notification Module
DIM800	Detector Input Module
577.800.006	DDM800 Dual Detector Module
545.800.004	LIM800 Line Isolator Module
517.035.007	M520 Addressable Module Cover
517.035.010	K2142 Double-Gang Back Box M520
555.800.065	MIO800 Multiple Input/Output Mod
557.201.401	D800 Ancillary Housing for MIO800
16.018.014K	VIO800 VESDA Interface
DEVICE ACCESSORIES AND SERVICE TOOLS	
850EMTK	850EMT Programming Tool Kit
516.800.917	800RT Sensor Head Removal Tool
516.800.922	Spare ancillary programming lead
516.800.923	Accessory Kit; carrying case, strap, 12V automobile adaptor
516.800.924	Pk of 10 spare pins for ancillary lead cabinets
4100-FP1045	15U 4100ESi 10A PSU, one MX Loop, one 8-Slot Display Door
4100-FP1046	8U Exp. Cabinet window, Titania, PDI only one 7U Display Door
4100-FP1086	8U Exp. Cabinet, blank door, Titania, suit PDI or Legacy cards
FP1029	8U battery box, Titania
4100-FP1087	15U Exp. Cabinet, blank door, Titania, 10A PSU
4100-FP1088	15U Exp. Cabinet, window, Titania, 15U Gear Plate, two 8-Slot Display Doors

Remote Unit Interface

The 4100ESi Series Remote Unit Interface (RUI) provides a cost-effective alternative to networking.

It involves running a cable loop from the 4100ESi control panel to remote InfoAlarm+, control panels, LCD annunciators and remote transponder units (RTU) where 4100ESi secondary cards are located.

Using RUI communications may reduce cabling, installation and labour costs, can reduce the required size of the main FIP and enables larger distances to be covered.

All secondary interface cards such as MX Loop Card, relays, 24 I/O, eight-zone monitor and six-signal card can be fitted to RTUs. RUI communications are received by the transponder interface module and translated into the same internal communications format that is used in the host control panel.

Remotely located modules open up new possibilities by utilising RUI communications, the RTUs can remotely provide the same initiating and notification functions that occur at the host control panel without requiring multiple long-distance wiring runs.

RUI communications can be wired in Style 4 or Style 7 redundant loop configurations up to 760m.

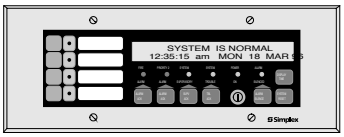
Up to 31 nodes can be connected to the Remote Unit Interface loop.

AS 4428.3 Fire Brigade Panel features an operator interface with InfoAlarm+ display that automatically jumps to the Alarm screen when alarms are detected.

Full zone control and status indications include enable/disable functions for up to 500 zones. A numeric keypad provides for point category and point selection. There are six programmable control keys/LEDs to use for one-touch disabling or enabling of output zones like General Alarm, Bell/Strobe, Alarm Devices and Door Holders.

Multiple tabs are used to view and control Alarms,

Priority2 Alarms, Monitor, Faults, Disable, Force Alarm (testing), and Service Diagnostics.

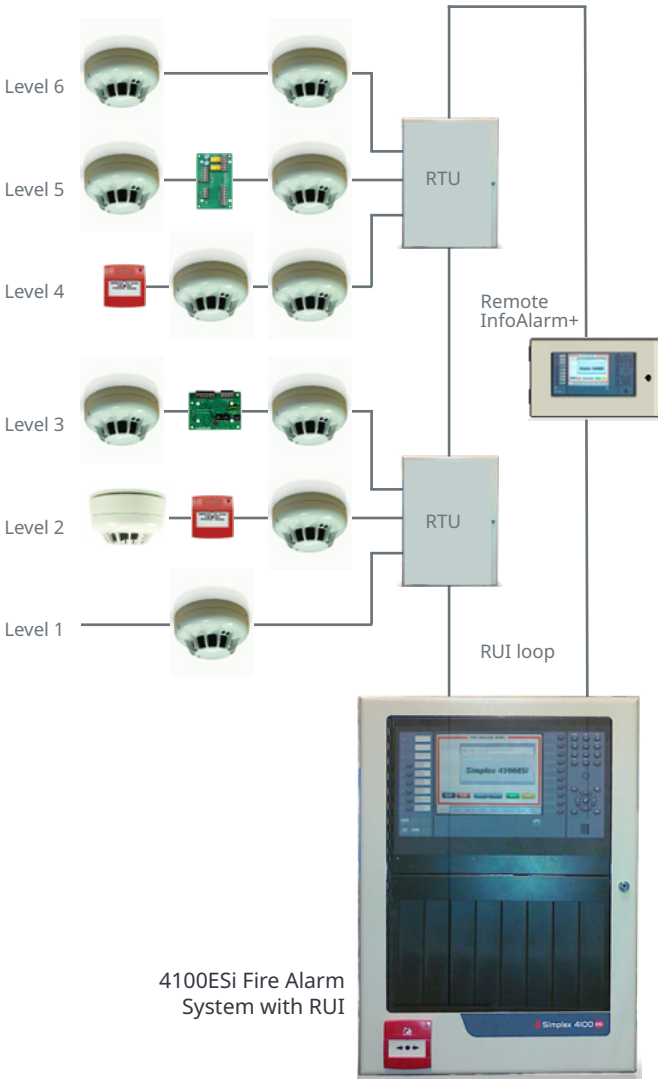


4603-9101 Serial LCD Annunciator

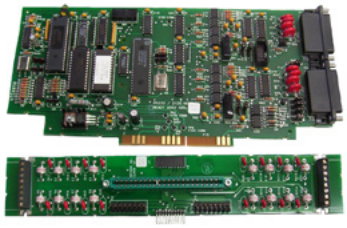
The Simplex 4603-9101 LCD Annunciator provides remote annunciation and control using an 80 character, back-lit, alphanumeric, LCD readout. Information is presented in clear, descriptive English and includes: point status (alarm, trouble, etc.), alarm type (smoke detector, manual station, etc.), number of system alarms, supervisory conditions, and troubles, and a custom location label.

Communications require a single twisted, shielded pair that supports other styles of Simplex serial annunciators on the same wire pair. Alarm, Supervisory, and Trouble conditions are also indicated by dedicated LEDs and a tone-alert. Each condition has a dedicated push-button switch that silences the tone-alert but leaves the LED on until all conditions in that category are restored to normal. Switch operation is either globally or individually acknowledgeable, determined by the control panel operation. Repeated operation of the appropriate switch will scroll the LCD display showing activity in the sequence of occurrence. The tone-alert also sounds to indicate the operation of any of the push-button switches.

SPECIFICATIONS	
Operating voltage	24VDC, loop-supplied
Operating current	170 mA
Operating temperature	0°C to 49°C
Relative humidity	10-90% (non-cond.)
Standard trim	Steel, painted beige
Optional trim	Brushed aluminium, 4603-9111
Trim dimensions (H x W)	114mm x 300mm



4100ESi Fire Alarm System with RUI



4100-0154K Motherboard (lower – fitted to the 4100ES FIP) and Interface Module (upper – fitted into the Motherboard)

VESDA® High Level Interface

Simplex/VESDA High Level Interface (HLI) allows Simplex addressable fire detection panels to gather and process status information from VESDA LaserPLUS and LaserSCANNER high sensitivity air aspiration smoke detection systems. Hardware requirements include an Intelligent Interface Module installed in the fire alarm control panel and an HLI Module installed in the VESDA smoke detection equipment.

The combination of VESDA smoke detection and the extensive features of the Simplex addressable panel allows mission-critical and high-value facilities to be equipped with a low smoke level detection system that can provide very early warning of the presence of incipient fire conditions.

SPECIFICATIONS	
Operating voltage	18-32VDC[1]
Current	132mA
Communications	RS-232, 9,600 baud, 6m (max.)
Space (4100/4120)	Pluggable module requires 51mm int. rack width
Space (4020) (W x H)	Flat module: 133mm x 267mm
Relative humidity	10-95% (non-cond.)
Ambient temperature	0°C to 49°C
Weight	81g
PART NUMBER	
4100-0154K	4100 Panel Mount Module
VHX-0400	VESDA mounted module (current: 70mA)

1 MAPNET II addressable loop voltage.

Legacy TrueAlarm addressable detectors

4098-9714EA TrueAlarm Photoelectric Smoke

The 4098-9714EA Photoelectric smoke detector contains a state-of-the-art sensing chamber and analogue communication electronics. Used in conjunction with the Simplex 4100 panel, the 9714E has a high degree of false alarm immunity thanks to advanced algorithms.

The detector mounts on the 4098-9789 addressable base or 4098-9794 sounder base. An optional remote LED can also be fitted.

SPECIFICATIONS	
Operating voltage	24-40VDC[1]
Quiescent current (max.)	100µA
Alarm current-relay active	24mA
External output drive (max.)	5mA
Relative humidity	10-95% (non-cond.)
Ambient temperature	-9°C to 50°C
Air velocity	0 to 610m/min
Sensitivity	4-6% Obs/m
ActivFire Listed (MAPNET)	afp-1225
PART NUMBER	**4098-9714EA**

1. MAPNET II or IDNet auto select with data.

4098-9717EA TrueAlarm Ionisation Smoke

Note that this device is shown for historical reference only. **It is no longer available.**

The 4098-9717EA ionisation detectors use a single radioactive source with an outer sampling chamber and an inner reference chamber to provide stable operation under changes in environmental conditions, eg., temperature and humidity. Smoke and invisible combustion gases can freely penetrate the outer chamber. The air in both chambers is ionised by a small radioactive source causing a very small current to flow in the circuit. The presence of combustion particles causes a change in the voltage ratio between chambers, which is measured by the electronics in the base and digitally transmitted to the CIE for processing.

SPECIFICATIONS	
Operating voltage	24-40VDC[1]
Quiescent current (max.)	400µA
Alarm current-relay active	24mA at 24V
External output device (max.)	5mA
Relative humidity	10-95% (non-cond.)
Ambient temperature	0°C to 50°C
Air velocity	0 to 610m/min
Sensitivity	0.4 MIC X nom.
Source	Americium241
ActivFire Listed	afp-1246
PART NUMBER	**4098-9717EA**

1. MAPNET II or IDNet auto select with data.

4098-9733EA TrueAlarm Heat Detector

TrueAlarm heat detectors are self-restoring and provide rate-compensated fixed-temperature sensing, selectable with or without rate-of-rise temperature sensing. Due to its small thermal mass, the detector accurately and quickly measures the local temperature for analysis at the CIE rate-of-rise temperature detection is selectable for either 8.3°C or 11.1°C per minute. Fixed-temperature sensing is independent of rate-of-rise sensing and programmable to operate at 57.2°C or 68°C. In a slow developing fire, the temperature may not increase rapidly enough to operate the rate-of-rise feature, however an alarm will be initiated when the temperature reaches its rated fixed temperature setting.

SPECIFICATIONS	
Operating voltage	24-40VDC[1]
Quiescent current (max.)	400µA
Alarm current (max.)	10mA
External output drive (max.)	5mA
Relative humidity	10-95% (non-cond.)
Ambient temperature	0°C to 50°C
ActivFire Listed	afp-1202
PART NUMBER	**4098-9733EA**

1. MAPNET II or IDNet auto select.

4098-9789EA TrueAlarm Analogue Addressable Detector Base

TrueAlarm detector bases contain integral addressable electronics that constantly monitor the status of the detachable photoelectric, ionisation, or heat detectors. Each detector's output is digitised and transmitted to the system CIE every four seconds. Since TrueAlarm detectors use the same base, different detector types can be easily interchanged to meet specific location requirements, for example, during building construction, or when conditions are temporarily dusty. Instead of covering the smoke detectors – causing them to be disabled – heat detectors may be installed without reprogramming the CIE. Although the CIE will indicate an incorrect detector type, the heat detector will operate at a default sensitivity maintaining building protection at that location.

SPECIFICATIONS	
Operating voltage	24-40VDC[1]
Quiescent current (max.)	400µA
Alarm current (max.)	3.2mA
Relative humidity	10-95% (non-cond.)
Ambient temperature	0°C to 55°C
Dimensions	ø124mm x 35mm
ActivFire Listed	afp-1225 and afp-1246
PART NUMBER	**4098-9789EA**

1. MAPNET II or IDNet auto select.

4098-9794EA TrueAlarm Analogue Addressable Sounder Base

The TrueAlarm sounder base has a built-in piezoelectric sounder that provides a high 90dBA output with low 17mA current requirements. Used with the interchangeable TrueAlarm detectors (photoelectric, heat, or ionisation) the sounder can be powered from 24VDC or from a compatible Notification Appliance Circuit (NAC) and synchronised coded/temporal coded by communications or by the NAC. The sounder can be manually activated from the CIE. Analogue detector information is digitally communicated to the control panel via MAPNET II or IDNet, two-wire communications. Detector information is processed by the CIE to determine detector status.

The sounder base has a built-in magnetic test feature and is for use with Simplex CIEs model 4010/4020/4100/4120, and universal transponders. Optional accessories include remote alarm LED indicator on a single-gang plate and an alarm LED tracking relay.

SPECIFICATIONS	
Sounder operating voltage	24-40VDC[1]
Relay voltage	18-32VDC
Quiescent current (max.)	270µA
Alarm current (max.)	17mA
Sound pressure level	90dBA at 3m
Relative humidity	10-95% (non-cond.)
Ambient temperature	0°C to 55°C
ActivFire Listed	afp-1246
PART NUMBER	**4098-9794EA**

1. MAPNET II or IDNet auto select.

4098-9793EA TrueAlarm IDNet Isolator Base

The 4098-9793 isolator base accepts Simplex TrueAlarm analogue sensors and provides communications isolation to improve installation convenience and increase system integrity. An internal isolation relay allows a compatible CIE to separate shorted communications wiring from functioning wiring to optimise the available sensors or other IDNet addressable devices. The isolator base's status is communicated to the FIP, allowing it to assist in identifying the location of the shorted wiring. During installation, earth faults frequently occur. Finding these faults normally requires extensive wiring disconnection. With the 4098-9793 isolator base, earth faults on the IDNet communications lines can be quickly located to assist in their repair and to restore the system wiring to normal.

SPECIFICATIONS	
Operating voltage	24-40VDC[1]
Input voltage	18.9-32VDC
Current (max. at 24VDC)	500µA
Supervisory resistor (9101)	3k3 ohms, 1W
Dimensions (H x W x D)	105 x 105 x 35 (mm)
Relative humidity	10-95% (non-cond.)
Dimensions	ø124mm x 35mm
Ambient temperature	-9°C to 50°C
PART NUMBER	**4098-9793EA**

1. IDNet, one address per base.

4098-9755EA TrueAlarm Duct Sampling Unit

The TrueAlarm Duct Sampling Unit detects the presence of smoke in air conditioning or ventilating ducts. Sampling tubes are installed into the duct and air is directed to a 4098-9714EA smoke sensor mounted in the housing.

These duct housings provide the high reliability performance of TrueAlarm analogue sensing featuring programmable sensitivity, consistent accuracy, environmental compensation, status testing, and monitoring of sensor dirt accumulation.

The TrueAlarm Duct Sampling Unit requires only two wires for both communications and power.

SPECIFICATIONS	
Operating voltage	18-40VDC[1]
LED current	600µA[2]
Air velocity	1.5-20m/s
Relative humidity	10-95% (non-cond.)
Operating temperature	0°C to 50°C 4098-9753 with auxiliary relay
Relay coil voltage	18-32VDC
Quiescent current	240µA at 24VDC
Alarm current	32mA at 24VDC
Power limit contact rating	1A at 28VDC (powerlimit)
Resist power limit	0.5A at 120VAC (resist)
ActivFire Listed	afp-1354
PART NUMBER	
4098-9755EA	Duct sampling unit
4098-9856	Sampling tube, 1.2m

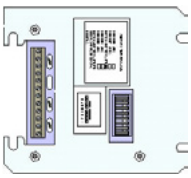
1. MAPNET II.
2. No impact on alarm current.

TrueSTART II Analysis and Testing Instrument

The Simplex TrueSTART II Test Tool is a portable battery-operated test instrument, designed to enable contractors or technicians to quickly verify that all IDNet wiring and peripheral devices are installed correctly and operating properly, even before they are connected to the 4100 fire alarm control panel.

The TrueSTART II instrument uses advanced software technology to scan hundreds of addressable fire alarm system devices and pinpoint potential problems, such as ground faults, shorted wiring and incorrect or duplicate addressing.

SPECIFICATIONS	
Operating voltage	24-40VDC
Battery life (approx.)	Six hours of testing
Relative humidity	10-95% (non-cond.)
Ambient temperature	0°C to 55°C
PART NUMBER	
TSIT-AUK	TrueSTART II kit, incl. Li-Ion battery, AC adaptor, carry bag, test leads, manual
TSIT-ALEADS	TrueSTART II replacement leads

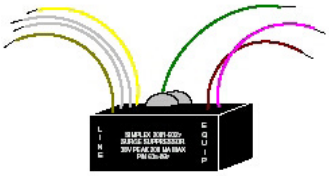


2190-9162 Zone Adaptor Module – Signal and Control

Signal zone adaptor modules (ZAMs) are used to supervise and operate 24VDC notification appliances, speakers, and telephone circuits. Output capacity is up to 2A at 24VDC, 50W of 25VRMS speakers, or up to three simultaneously activated firefighter phones. The signal ZAM is available for either Style Y/Class B or Style Z/Class A operation for notification appliance circuits.

This part has been replaced by 4090-9007. This information is for reference only.

SPECIFICATIONS	
Operating voltage	24-40VDC
Supervisory current (24VDC)	15mA (9159-9162) 10mA (9163/9164)
Alarm current (24VDC)	65mA (9159/9160) 40mA (9161-9164)
Dimensions (H x W x D)	105 x 105 x 35 (mm)
Relative humidity	10-95% (non-cond.)
Ambient temperature	0°C to 49°C
PART NUMBER	**2190-9162**



2081-9027 Isolated Loop Circuit Protector

Electrical transients caused by lighting or by disturbances on high-voltage power lines are conditions that require low-voltage wiring circuits to be adequately protected. This protection is most effective when placed at the location where such circuits leave or enter the building. The Simplex 2081-9027 Isolated Loop Circuit Protector (ILCP) is designed to protect Simplex fire alarm circuits from those transients induced on wire runs that are routed to the building externally. Because of its small size, it can be easily mounted at the best location.

SPECIFICATIONS	
Line to line	38VDC, 28VAC RMS
Line to ground	38VDC, 35VAC RMS
Shield to ground	48VDC, 33VAC RMS
Current, each leg	200mA (max.)
Resistance	3 ohms per line[1]
Maximum current (line-line)	2,000A (10x50µs pulse)
Maximum current (line-gnd)	2,000A (8x20µs pulse)
Maximum current (shield-gnd)	5,000A (10x50µs pulse)
Dimensions (L x W x D)	625 x 35 x 27 (mm)
PART NUMBER	**2081-9027**

1. Signal input to signal output.

RACO232 MAPNET II Zone Adaptor Module Mounting Box

Boxes for mounting zone adaptor modules (ZAMs) are available in two sizes. Both boxes are of welded-steel construction, galvanised for corrosion protection. The ZAM boxes both feature round and eccentric knock-outs for cable entry on each surface.

SPECIFICATIONS	
Dimensions (L x W x D)	120 x 120 x 54 (mm)
Volume	688cc
Material	Welded steel
PART NUMBER	
RACO232	Box
4090-9802	Cover plate

Legacy Simplex addressable IDNet modules

For 4100ESi MX modules see pages 31 to 37

4090-9002 Relay IAM (Individual Addressable Module)

The 4090-9002 Relay IAM allows the CIE to control a remotely located form 'C' relaycontact using IDNet addressable communications for both data and module power. Typical applications are for switching local power for control functions, such as magnetic door holders, or control of HVAC components, pressurisation fans, dampers, etc. Relay contact status is also communicated to the CIE. The address is set by DIP switch under the resealable label.

SPECIFICATIONS	
Communications power[1]	24-40VDC with data
Relay contact ratings SPDT	0.5A at 120VAC[2] 2A at 24VDC[3] 1A at 24VDC[4]
Current limited op.	1k8/4k7 0.5W
Dimensions (H x W x D)	105 x 105 x 35 (mm)
Ambient temperature	0°C to 49°C
Relative humidity	10-93% (non-cond.)
PART NUMBER	**4090-9002**

1. IDNet communications with data.
2. Transient suppressed load.
3. Inductive load.

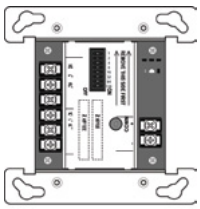
Note: Loop-powered, two-wire device.

4090-9007 Signal IAM

This IDNet addressable device provides a supervised, addressable interface to conventional warning devices, such as sounders or strobes. The Signal IAM requires a supervised power supply or compatible signal input for powering the externally connected loads.

- Provides a single switched branch with supervision
- Contact is fused at 0.5A for 30V DC or 70V AC. Uses standard 20mm x 5mm cartridge fuse
- EOLR is 10k
- DC loads must be diode isolated
- Supervision cannot be disabled
- The supply side and the internal fuse are not supervised by the Signal IAM
- Signal IAM is not suitable for switching 100V audio signals

SPECIFICATIONS	
Operating voltage	24VDC, loop-supplied
Operating current	170mA
Operating temperature	0°C to 49°C
Relative humidity	10-93% (non-cond.)
Dimensions (H x W x D)	102 x 105 x 32 (mm)
PART NUMBER	**4090-9007**



4090-9008 Dual Contact Relay IAM

The 4090-9008 Dual Contact Relay IAM allows fire alarm control panels to control two remotely located form 'C' contacts using IDNet or MAPNET II addressable communications for both data and module power. Typical applications would be for switching local power for control functions, such as elevator capture, or control of HVAC components, pressurisation fans, dampers, etc. Relay status is also communicated requiring only one device address.

SPECIFICATIONS	
Operating voltage	24VDC, loop-supplied
Operating current	170 mA
Relay contact current	2A at 30VDC (resistive) 1A at 30VDC (inductive)
Operating temperature	0°C to 49°C
Relative humidity	10-93% (non-cond.)
Dimensions (H x W x L)	102 x 105 x 32 (mm)
PART NUMBER	**4090-9008**

4090-9101 Zone Adaptor Module (ZAM) – Monitor

The 4090-9101 Zone Adaptor Module Monitor allows a two-wire circuit of conventional smoke or heat detectors to be interfaced on to the IDNet loop.

Up to 20 conventional heat and smoke detectors can be monitored by a 4090-9101 ZAM Monitor. The address is set by DIP switch under the re-sealable label.

Note the 4090-9101 requires a separate 24VDC power supply to power the conventional circuit.

SPECIFICATIONS	
Communications power[1]	24-40VDC with data
Operating voltage	18.9-32VDC
ZAM current	24VDC[2]
Quiescent	16mA (max.)
Alarm	72mA (max.)
Supervision resistor	3k3 ohms 1W
Dimensions (H x W x D)	105 x 105 x 35 (mm)
Ambient temperature	0°C to 49°C
Relative humidity	10-93% (non-cond.)
PART NUMBER	**4090-9101**

1. IDNet communications with data.
2. Actual current value is determined by total device requirements.

4090-9116 Analogue Addressable Line Isolator

The 4090-9116 isolator provides IDNet communications isolation, improving installation convenience and system integrity. Isolation is automatically activated when an output short circuit is detected and the condition is reported to the CIE. Circuit isolation can also be selected manually from the 4100ES CIE to enable partial loop testing. If the output wiring is acceptable, the isolator will connect the rest of the circuit. If the output wiring is shorted, the isolator remains isolated. The address is set by DIP switch under the re-sealable label.

SPECIFICATIONS	
Communications power[1]	24-40VDC with data
Dimensions (H x W x D)	105 x 105 x 35 (mm)
Ambient temperature	0°C to 49°C
Relative humidity	10-90% (non-cond.)
PART NUMBER	**4090-9116**

1. IDNet communications with data.

4090-9118 Relay IAM (Individual Addressable Module) with T-Sense Input

The 4090-9118 Relay IAM with T-Sense allows a 4100ES IDNet communication channel to monitor two input contact closures with one point and control an output relay with the other point, yet occupy a single loop address. Power is supplied from the IDNet communications channel, eliminating the need for separate power wiring. The input circuit and relay operation are controlled independently and may be disabled separately. Applications include water flow and tamper switch monitoring and control and damper position monitoring and control.

SPECIFICATIONS	
Communications power[1]	24-40VDC with data
Relay contact ratings SPDT	0.5A at 120VAC[2] 0.25A at 120VAC[3] 2A at 30VDC[2] 1A at 30VDC[3]
Input	Normally open, dry contacts
Current limited operation	1k8/4k7 0.5W
Dimensions (H x W x D)	105 x 105 x 35 (mm)
Ambient temperature	0°C to 49°C
Relative humidity	10-95% (non-cond.)
PART NUMBER	**4090-9118**

1. IDNet communications with data.
2. Resistive load.
3. Inductive load.

Note: Loop-powered, two-wire device.

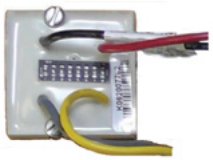
4090-9120 Six Point I/O Module with T-Sense Inputs and Relay Outputs Module

The 4090-9120 allows a 4100ES IDNet communication channel to monitor four T-sense input circuits and control two output relays from a single module requiring a single address. Power is supplied by a separate 24VDC connection to a listed fire alarm power supply. The input circuits and output relay operation are controlled independently and may be disabled separately. Point association is determined at the 4100ES host panel. At the 4100ES, the device address is designated as a single hardware location. Each of the four input circuits monitors for continuity to an end-of-line resistor and can differentiate between a short circuit contact closure and a current-limiting contact closure. Two input supervision resistors are required per T-sense input.

SPECIFICATIONS	
Communications power[1]	24-40VDC with data
Operating voltage	18-32VDC
Operating current	30mA at 24VDC
Relay contact ratings SPDT	
Non-power limited	0.5A at 120VAC[2] 0.25A at 120VAC[3]
Power limited	2A at 30VDC[2] 1A at 30VDC[3]
Supervision resistor	6k8 ohms 0.5W
Current limited operation	1k8/4k7 ohms 0.5W
Input	Normally open, dry contacts
LED output	24VDC (external PSU)
Dimensions (H x W x D)	105 x 105 x 35 (mm)
Ambient temperature	0°C to 49°C
Relative humidity	10-90% (non-cond.)
PART NUMBER	**4090-9120**

1. IDNet communications with data.
2. Resistive load.
3. Inductive load.

Note: Four-wire device; requires separate 24VDC and IDNet communication loop.



4090-9051 Encapsulated Supervised IAM

This MAPNET II/IDNet addressable device is an encapsulated version of 4090-9001. It has both power and communications supplied by a two-wire IDNet circuit. It provides location-specific addressability to a single initiating device (such as single-station smoke detector alarm contacts or heat detector contacts) or multiple devices at the same location by monitoring normally open dry contacts and the wiring to an end-of-line resistor.

SPECIFICATIONS	
Operating voltage	24-40VDC[1]
Operating current	170 mA
End-of-Line resistor	6k8 ohms 0.5W
Operating temperature	0°C to 49°C
Relative humidity	10-93% (non-cond.)
Dimensions (H x W x D)	40 x 40 x 14 (mm)
PART NUMBER	**4090-9051**

1. IDNet; one address per unit.

2975-9006 IDNet ZAM Mounting Box

Boxes for mounting zone adaptor modules (ZAMs) are available in two sizes. Both boxes are of welded-steel construction, galvanised for corrosion protection. The ZAM boxes both feature round and eccentric knock-outs for cable entry on each surface.

SPECIFICATIONS	
Dimensions (H x W x D)	101 x 101 x 54 (mm)
Volume	490cc
Material	Welded steel
PART NUMBER	
2975-9006	Box
4090-9802	Cover

4099-9701 Manual Call Point

The 4099-9708 IDNet call point provides a means to manually initiate a fire alarm condition to the 4100ES CIE via the IDNet channel. The IDNet channel provides the communication link and power between the call point and 4100ES. Activation of the MCP requires the frangible element to be broken, which causes contacts on a microswitch to close, initiating an alarm condition. Call point reset requires the fitting of a replacement frangible element. The MCP features an integral red LED status indicator. The Simplex 4099-9708 IDNet Call Point is connected to Simplex CIE. via MAPNET II and does not have a status indicator. If required, the SR3T-P bback box is ordered separately.

SPECIFICATIONS	
Communications Power[1]	24-40VDC with data
Dimensions (H x W x D)	86 x 87 x 35 (mm)
Ambient temperature	-9°C to 70°C
Relative humidity	10-95% (non-cond.)
ActivFire Listed	afp-2889
PART NUMBER	
4099-9708	IDNet call point
515.001.025	Spare glass, pk of five
SR3T-P	Back box

1. IDNet communications with data.

Conventional detectors – Vigilant 614 Series

Description

The Vigilant 614 range of low-profile, non-addressable detectors has a number of unique design features that offer improved operation, installation and ease of servicing. Through innovative design, these detectors have reduced the installation and servicing time to a minimum.

The Vigilant 614 range includes the 614CH Carbon Monoxide and Heat Fire Detector which responds to carbonaceous fires with an unprecedented early detection of slow, smouldering fires, yet offers unequalled false alarm immunity.

The use of the patented optical sensing chamber, together with refined signal processing, has enabled the introduction of a smoke detector suitable for fast, reliable smoke detection of both slow and fast developing fires.

The Vigilant 614 series is compatible with conventional (non-addressable) circuits on Vigilant F3200, and addressable panels using suitable interface modules on MX1, MX4428 and 4100ESi.

Features

- Range includes unique carbon monoxide (CO) and heat fire detector
- Type A, B, C and D heat detector
- Low profile and discreet
- Superior performance and reliability
- Patented optical chamber
- Attractive design
- Designed for fast, easy installation
- Detector lock included with 4B base
- Integral and remote alarm LED
- ActivFire Listed and FPANZ Listed

614CH Carbon Monoxide and Heat Fire Detector

The 614CH fire detector provides very early warning of slow, smouldering fires. This CO fire detector is suited to many applications where heat detection is insufficient but smoke detection causes unwanted alarms.

As CO travels more freely than smoke, the positioning of CO fire detectors is more flexible. This feature is particularly useful in large complex structures such as atria and warehouses, where positioning of smoke detectors is difficult. The 614CH has an additional mode of operation as a Class A1R combined rate-of-rise and 60°C fixed-temperature heat detector. This supplements the CO detector mode and permits it to react to a wider range of fire types. Although the 614CH has a rated service life of 10 years, in order for the 614CH to provide the intended level of fire detection, the detector should be checked for calibration five years after installation (or five years after re-installation following service) or within seven years of the date of manufacture.

SPECIFICATIONS	
Operating voltage	0-33VDC
Quiescent current	55µA (max.)
Alarm current[1]	3.2-67mA (50°C)
Alarm state voltage	2.5-7.4VDC
Alarm threshold	38ppm CO
External powered load (max.)	50mA, 28VDC
Remote indicator	E500 Mk2 Series
Relative humidity	15-90% (non-cond.)
Ambient temperature	0°C to 50°C
Dimensions (ø x H, incl. base)	127mm x 54mm
Weight	200g with base
ActivFire Listed	afp-1718
FPANZ Listed	VF/345
PART NUMBER	**516.600.304**

1. 3.2mA minimum. for LED visibility. Maximum current must be externally limited.

614P Photoelectric Smoke Detector

The 614P is capable of detecting the visible smoke produced by materials that smoulder or burn slowly, i.e. soft furnishings, plastic foam, etc., or 'smoke' produced by overheated but unburnt PVC. These detectors are particularly suitable for general applications and areas where cable overheating may occur, such as in electrical service areas. The novel design of the asymmetrical sampling chamber and signal processing techniques stop unwanted alarms caused by very small insects. Smoke entering the sampling chamber scatters the infrared light pulses onto a photodiode. These pulses are converted to an electrical signal that is compared against a preset alarm level.

SPECIFICATIONS	
Operating voltage	10-33VDC
Quiescent current	60µA
Alarm current (max.)[1]	0.7-67mA (55°C)
	0.7-60mA (70°C)
Alarm state voltage	2.5-7.4V
External powered load (max.)	50mA, 28VDC
Sensitivity (AS7240.7-2004)	4%Obs/m
Remote indicator	E500 Mk2 Series
Relative humidity	10-95% (non-cond.)
Ambient temperature	-20°C to 70°C
Dimensions (ø x H, incl. base)	127mm x 54mm
Weight	188g with base
ActivFire Listed	afp-1715
FPANZ Listed	VF/344
PART NUMBER	**516.600.301**

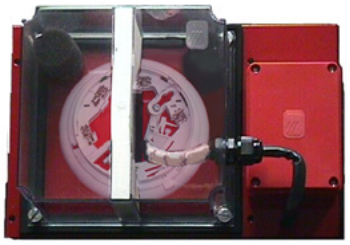
1. Maximum current must be externally limited.

614T Heat Detector

Vigilant 614T Heat Detectors use a fast response, thermistor-based design. The fixed-temperature sensing thermistor readily tracks the local ambient temperature, quickly, accurately and consistently identifying when a fixed temperature is exceeded. Rate-of-rise detection is achieved by comparing the response of two thermistors, with one having a slower thermal response. By combining accurate thermistors with proper physical placement, this patented rate-of-rise detection design achieves a high level of heat detection performance.

SPECIFICATIONS			
Operating voltage		11-32VDC	
Quiescent current[1]		85µA at 24VDC (typ.)	
Alarm current[2]		5-80mA	
Alarm state voltage[3]		3-12.4V	
Remote indicator		E500 Mk2 Series	
Relative humidity		10-95% (non-cond.)	
Ambient temperature		0°C to 50°C	
Types A, B		-10°C to 45°C	
Types C, D		-10°C to 75°C	
Storage temperature		-20°C to 75°C	
Dimensions (ø x H, incl. base)		127mm x 53mm	
Weight		174g with 5B base	
PART NUMBER	**MODEL**	**TYPE**	**ACTIVFIRE LISTED**
4098-9637EA	614TA	Type A	afp-1813
4098-9638EA	614TB	Type B	afp-1814
4098-9639EA	614TC	Type C	afp-1815
4098-9640EA	614TD	Type D	afp-1816

1. Maximum quiescent 110µA. 2. Minimum 5mA for LED visibility; maximum current must be externally limited. 3. Minimum voltage with remote indicator shorted at 5mA. Maximum at 80mA without remote indicator connected.



D515B Duct Sampling Unit

The D515B Duct Sampling Unit consists of a D51B duct housing fitted with a 4B base suitable for fitting a non-addressable 614P photoelectric smoke detector. The D515B is designed to sample air in air conditioning ducts and pass the air through the smoke detector. The housing is fixed on the outside of the duct to be sampled, allowing easy access for detector servicing and replacement of the dust filter.

To cater for most duct sizes, a sampling tube extension is available in 3m lengths. Vigilant E500 Mk2 Series Remote Indicators can be used for remote indication of an alarm. The D515B with 614P can be used with F3200 CIE logic for non-latching operation. The D515B with Vigilant 614P is compatible with non-addresable alarm zone circuits on Vigilant and Simplex CIE.

SPECIFICATIONS	
Duct pressure[1]	-1.15kPa to 3kPa
Sampling tube length	160mm (min.)
Maximum duct width	1.8m
Remote indicator	E500 Mk2 Series
Dimensions	
Base and cover (L x W x H)	278 x 190 x 113 (mm)
Fixed tube length	160mm below base
Sampling tube pitch	122mm
Duct holes required	24mm x two places
Not ActivFire Listed	
PART NUMBER	
D515B	D51 c/w 4B base[2]
D51COVER	D51 over onlyc/w screws
D51L	Baffle box of 10
D51F	Filter box of 10
D51T3	3m sampling tube
D51K100	Sampling tube end cap pk of 10

1. AS 1603.13-1998 test. 2. Wired for collective base.

4B Universal Base

The 4B Universal Base contains no electronics and is suitable for indoor applications of the 614 series conventional (non-addressable), 814 and 850 series analogue addressable detectors. It provides excellent space for cable access and terminations. It features remote LED connections and an anti-tamper facility. The 4B base is designed to snap-fit into the ceiling tile adaptor, or screw to the ceiling in the traditional manner.

The Euro Mount Adaptor is a shallow (20mm deep) back box for surface mounting applications. The 4B-6A Adaptor covers ceiling marks revealed when changing from an existing 5in. or 6in. base.

SPECIFICATIONS	
Operating temperature	-25°C to 75°C
Relative humidity	10-95% (non-cond.)
Dimensions (ø x H)	109mm x 25mm
Weight	64g
ActivFire Listed with compatible detectors	
PART NUMBER	
517.050.041	4B Base
517.050.052	Euro Mount Adaptor
517.050.056	4B-6A 4-6in. adaptor

4B-DHM Deckhead Mounting

The Deckhead Mounting can be used with Vigilant 600/800 series detectors using 4a base when fitted in particularly damp or dirty environments. Only suitable detectors should be used – consult bulletin GPBD0018. The housing has four 20/25mm cable breakouts and is secured with two countersunk screws at 128.5mm fixing centres. The mounting surface should be flat over the area of the underside of the housing to ensure a stable fixing and strong enough to take the weight of the mounting, detector base and sensor. Extra Base Accessory Terminals (BATs) are available (one is supplied).

SPECIFICATIONS	
Ambient temperature	-25°C to 70°C
Relative humidity	~95% (non-cond.)
Dimensions (ø x H)	115mm x 42mm
Dimensions (W)	147.5mm overall
Weight	200g
ActivFire Listed with compatible detectors	
PART NUMBER	
517.050.051	4B-DHM
517.050.612	BAT Kit - pack of 10 available on request

601SB Sounder Base

The 601SB Sounder Base provides a sound alarm function on conventional fire detection circuits. It operates independently of the detector circuit and may be used without an associated detector. When used without a detector, a sounder base cap should be fitted to cover the exposed terminals. The 601SB requires an external 24V DC supply and provides eight tones including the ISO8201 T3 evacuation signal. It is identified by a green temporary park plunger. Refer to Sounder base Selection Guide on page 182.

SPECIFICATIONS	
Operating voltage	18-32VDC
Alarm state current	1.2mA at 68dBA (low vol.)
	6.8mA at 90dBA (max. vol.)
Ambient temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (ø x H)	108mm x 38mm
Weight	195g
Wire size	1.5mm^2 to 2.5mm^2
Not ActivFire Listed	
PART NUMBER	
577.001.035	601SB
557.001.040	Sounder base cap

Volume Adjustment Tool

Sounder volume can easily be adjusted using this simple Volume Adjustment Tool, specific to the task of sounder volume selection on the variable-volume range of Vigilant MKII Sounder Base devices.

PART NUMBER	
517.050.015	Volume Adjustment Tool

SU0631 Manual Call Point

The SU0631 Manual Call Point is supplied with one normally open and one normally closed contact. Selecting either contact is easily achieved by simply connecting the terminal block to the required connection in the back of the MCP. Single-pole changeover switching can be achieved with the use of two terminal blocks. The call point is operated when the frangible glass element is snapped, releasing the MCP's micro switch, which signals an alarm to the fire panel. The call point and back box are ordered separately. Unless stated, the Vigilant indoor manual call points are supplied as flush-mount units. The Vigilant range is approved for use with the standard back box if surface mounting is required.

SPECIFICATIONS	
Maximum operating voltage	30VDC
Maximum switch current	2A
Cable termination	0.5-2.5mm^2
Relative humidity	0-95% (non-cond.)
Dimensions (H x W x D)	93 x 89 x 60 (mm)
Weight	110g (flush)
Ingress Protection	IP24D
ActivFire Listed	afp-3239
PART NUMBER	
SU0631	Manual Call Point
SU0632	Red back box
SC070	Spare test keys, pk of 10
515.001.025	Spare glass, pk of five

SU0634 IP67 Waterproof Call Point

This surface-mounted Manual call point has an Ingress Protection rating of IP67, making it suitable for wet area applications. The callpoint is operated by simply pressing on the centre of the frangible element until it snaps, which releases a microswitch, signaling an alarm at the CIE. A plastic-coated, frangible element ensures safe and reliable operation, and does not produce dangerous glass shards. The SU0634 is supplied with one normally open and one normally - closed contact. Selecting either configuration is achieved by locating the terminal block on the appropriate connection. Single-pole changeover switching can be achieved using two terminal blocks.

SPECIFICATIONS	
Operating voltage	30VDC (max.)
Switch current	2A at 30VDC (max.)
Cable termination	0.5-2.5mm^2
Dimensions (H x W x D)	93 x 98 x 76 (mm)
Weight	270g
Ambient temperature	-30°C to 70°C
Relative humidity	~95% (non-cond.)
Ingress Protection	IP67
Not ActivFire Listed by Johnson Controls	
PART NUMBER	
SU0634	IP67 Manual Call Point
515.001.025	Spare glass, pk of five
SC070	pare test keys, pk of 10

Manual Call Point accessories

SPECIFICATIONS	
Dimensions (W x H)	75mm x 40mm (typ.)
PART NUMBER	
SU0609	Spare glass, black pictogram on white background, pk of 10
515.001.025	Spare glass, no logo, clear text on white background, pk of five
515.001.127	Flexible plastic element

SPECIFICATIONS	
Ambient temperature	-10°C to 55°C
Dimensions (H x W x D)	86 x 86 x 32 (mm)
PART NUMBER	
SU0632	Red back box

PART NUMBER	
SR3T-P	Red surface-mounting backbox for indoor call points, with fitted terminals

PART NUMBER	
SC070	Test keys for Vigilant MCPs, pk of 10

PART NUMBER	
515.001.043	Polycarbonate break-glass key box, available to protect emergency keys

PART NUMBER	
SU0615	LEXAN241 polycarbonate, transparent, hinged cover to suit all SUXXX call points (MCP not included)

Weather STOPPERs

STI6535 Weather STOPPER

The call point STOPPER provides protection from malicious or accidental activation of manual call points. Available for flush or surface-mounted call points, the STOPPER is also available with optional high pitch sounder that is activated when the lid is lifted. An optional break seal kit provides extra protection.

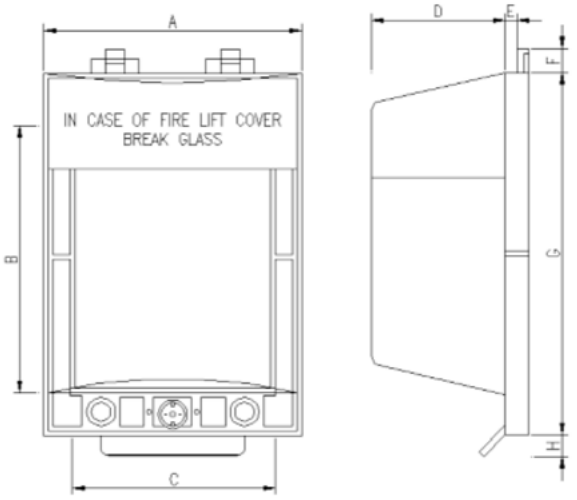
SPECIFICATIONS	STI6535	STI3150
Dimensions (H x W x D)	210 x 137 x 57.5 (mm)	254 x 178 x 86 (mm)
Call point size	100 x 100 x 57.5 (mm)	160 x 160 x 120 (mm)
Ingress Protection equivalent to IP44 when mounted on a smooth surface.		

PART NUMBER	
515.001.035	STI3120 Weather Stopper II
STI-1311FR	STI6535 Weather Stopper
STI/BS	IP036 break seal kit
STI-13120FR	STI3120 Weather STOPPER with sounder

STI3150 Weather STOPPER II

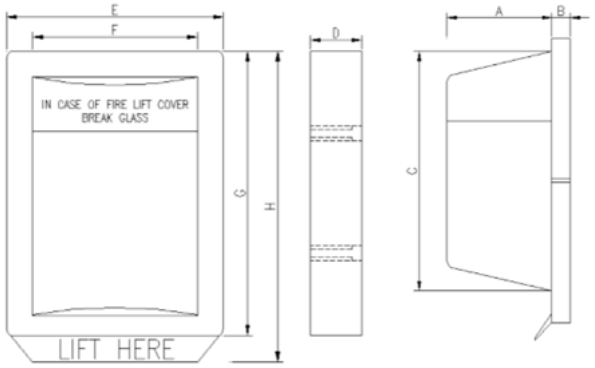
The Weather STOPPER II extends the life of weather-exposed call points by offering protection against harsh conditions and environments, e.g., oil rigs and ship decks. The Weather STOPPER II is constructed from polycarbonate and guards against tampering or accidental operation of devices.

Weather STOPPER



STOPPER	
A	137mm
B	140mm
C	104mm
D	45mm
E	12.5mm
F	12.5mm
G	185mm
H	12.5mm
Max. MCP	100 x 100 x 57.5, plus 30 surface (mm)

Weather STOPPER II



STOPPER II	
A	70mm
B	16mm
C	197mm
D	50mm
E	178mm
F	146mm
G	228mm
H	254mm
Max. MCP	160 x 160 x 120 (mm)

WEATHER STOPPER MODEL COMPARISON						
		STOPPER		STOPPER II	WITH SOUNDER	WEATHERPROOF
PRODUCT CODE	REF	FLUSH	SURFACE			
515.001.036	STI-1311FR	–	✓	–	–	✓
515.001.034	STI1230	–	–	✓	–	–
515.001.035	STI3150	–	–	✓	–	✓
STI-13120FR	STI-13120FR	–	✓	–	✓	–

Detector accessories and remote indicators

Accessories

PA0838 ZAU401 Zone Adaptor Unit

The ZAU401 (Rev 2) can be thought of as a single-zone circuit module that can be added to different panels to make them compatible with specific detectors. For example, it can be used with the S231i+ flame detector. (see PBG0080). In addition, the AZC characteristics of the ZAU401 make it particularly suitable for Intrinsically Safe applications when used with I.S. barriers (refer PBG0081).

The ZAU401 can support up to 2mA of quiescent detector current and uses a 3k9 5% ELD resistor. The detectors must provide current limiting in alarm, or a series resistor must be included to limit the alarm current to below 100mA or lower if the detector has a lower maximum alarm current rating. Its output voltage in the alarm (to the panel) is compatible with most panels, and the ELD used (panel side) is that from the original panel. It operates directly off the 24V panel supply, and draws approximately 20mA in typical conditions. The ZAU401 monitors the voltage provided by the panel to its Zone+ input, and when this disappears during a reset operation the ZAU401 turns off the supply to its detectors, resetting them as well.

Wire guard

W500 Series detector cages are available in a range of sizes to cater for most of the detectors that are available through Johnson Controls - Fire Detection. These white powder-coated, steel protective cages are suitable for applications where unprotected devices would be vulnerable to accidental damage.

PART NUMBER	
W500	ø120mm x 80mm (to suit 130 Series)
W502	ø195mm x 120mm
W504	130mm x 105mm (to suit 600 and 800 Series)
W508	ø82mm x 110mm
4098-9846	TrueAlarm Vandal Guard (not shown)
STI-8200-SS	Smoke detector cover: flush mount; 1.2mm stainless steel; ø203mm x 76mm
STI-8230-SS	Smoke detector cover: surface mount; 1.2mm stainless steel; ø228mm x 127mm

STI-8200-SS Flush Mount
Smoke Detector Guard

STI-8230-SS Surface Mount
Smoke Detector Guard

The STI-8200-SS Series smoke detector cages are available in flush-mount or surface-mount configuration. These covers are designed to provide maximum protection for vulnerable smoke detectors, while not compromising their effective operation. Ideal for any application where food is present, as well as use in water treatment plants or correctional facilities. These are not suitable for heat detectors.

Round remote indicators

The E500 Mk2 range of remote indicators provides remote indication of an alarm condition on a fire detector. They are used when the fire detector is installed in an inaccessible location, and indication of alarm must be provided in an easily accessible area. For example, when the detectors are in roof spaces, cupboards, under the floor, or in hotel rooms, and indication is required in the room or corridor.

SPECIFICATIONS	
Operating voltage	4.5-26VDC
Alarm current (min.)	1.6mA
Alarm current (max.)	20mA at 60°C 12mA at 75°C
Luminous intensity	As per AS2362.25-2004
Relative humidity	95% (max., non-cond.)
Ambient temperature	-10°C to 75°C
PART NUMBER	
E502	Fire alarm
E521	Fire alarm in concealed space
E523	Fire alarm in room
E524	Fire alarm above
E525	Fire alarm in duct
E526	Fire alarm in roof space
E529	Fire alarm in cupboard

The 2098-1xxx range of remote indicators provides remote indication of an alarm condition on a detector fitted to a 4098-97xx detector base.

These remote indicators are not suitable for connection to any other MAPNET II or IDNet module.

They are used when the fire detector is installed in an inaccessible location, and indication of alarm must be provided in an easily accessible area. For example, when the detectors are in roof spaces, cupboards, under the floor, or in hotel rooms, and indication is required in the room or corridor.

SPECIFICATIONS	
Operating voltage	1.8VDC (typ.; from 4098-97xx base)
Alarm current (min.)	1.6mA
Alarm current (max.)	25mA at 45°C 15mA at 75°C
Luminous intensity	As per AS2362.25-2004
Relative humidity	95% (max., non-cond.)
Ambient temperature	-5°C to 75°C
PART NUMBER	
2098-1110	Fire alarm in roof space
2098-1111	Fire alarm in concealed space
2098-1112	Fire alarm in cupboard
2098-1113	Fire alarm room
2098-1114	Fire alarm in return air
2098-1115	Fire alarm in duct
2098-1116	Blank

Rectangular remote indicators

The E500 Mk2 range of remote indicators provides remote indication of an alarm condition on a fire detector. They are used when the fire detector is installed in an inaccessible location, and indication of alarm must be provided in an easily accessible area. For example, when the detectors are in roof spaces, cupboards, under the floor, or in hotel rooms, and indication is required in the room or corridor.

SPECIFICATIONS	
Operating voltage	4.5-26VDC
Alarm current (min.)	1.6mA
Alarm current (max.)	20mA at 45°C 11mA at 75°C
Luminous intensity	As per AS2362.25-2004
Relative humidity	95% (max., non-cond.)
Ambient temperature	-10°C to 75°C
PART NUMBER	
E542	Fire alarm
E551	Fire alarm in concealed space
E553	Fire alarm in room
E554	Fire alarm above
E555	Fire alarm in duct
E556	Fire alarm in roof

Latching remote indicators

The E500 Mk2 range of latching remote indicators provides latching remote indication of an alarm condition on a fire detector. They are used typically when a T54B probe-type fire detector (or other clean-contact, non-latching device) is installed (which may be in an inaccessible location), and indication of alarm must be latched and provided in an easily accessible area. For example, when the detectors are in roof spaces, cupboards, exhaust hoods, etc., and indication is required in the room or corridor.

SPECIFICATIONS	
Operating voltage	9.7-28VDC
Alarm current (min.)	5mA
Alarm current (max.)	20mA at 45°C 11mA at 75°C
Luminous intensity	As per AS2362.25-2004
Relative humidity	10-95% (non-cond.)
Ambient temperature	-5°C to 75°C
PART NUMBER	
E561	Fire alarm in concealed space
E573	Fire alarm in room
E574	Fire alarm above
E575	Fire alarm in duct
E566	Fire alarm in roof space

Fire panel ancillaries

AAM2 Alarm Acknowledge Module

The AAM2 Alarm Acknowledge Module provides a facility to locally annunciate a smoke/CO detector alarm, and for the occupant to acknowledge and clear a false fire alarm without the fire brigade being called. The AAM2 has no sounder and is used with a detector mounted in a sounder base. The AAM2 is usually installed in a single-occupancy unit (apartment, flat or single-person's quarters) along with one or more non-latching smoke/CO fire detectors. When an alarm is detected, the sounder in the detector base and the red LED in the AAM2 operate and the occupant has (typically) 30 seconds to acknowledge the alarm. This starts a further time delay (typically one to three minutes), during which they must clear the smoke to avoid calling the fire brigade. If either time delay elapses and smoke is still present, then the fire panel annunciates and the brigade is called. As standard, the AAM2 comes without a face plate. These must be ordered separately. Two different face plates are currently available.

The AAM2 is compatible with the Vigilant MX1 and MX4428/F4000, and Simplex 4100 FIPs. Refer to LT0304, AAM2 Installation Instructions.

SPECIFICATIONS	
Operating voltage	2-28VDC
Quiescent current	0µA
LED current	2-20mA
Operating temperature	-5°C to 45°C
Relative humidity	10-95% (non-cond.)
Typical weight	100g
Approvals	FTS-136
Time limit	Panel programmable

FA2317 Faceplate

The AAM2 can be used with the FA2317 Faceplate for general alarm indication, annunciation and acknowledgment, e.g., a nurses' station. The FA2317 Faceplate has text labeling "Press to Acknowledge Fire Alarm". The AAM2 can be wired up to the fire panel so the LED lights on the alarm and an external sounder operates as well. Pressing the button silences the buzzer and turns off the LED.

PART NUMBER	
FP0894	AAM2 Alarm Acknowledge Module complete with FA2317 Faceplate

FA2318 Faceplate

The AAM2 can be used with the FA2318 fFaceplate to make an alarm acknowledge module, as FA2318 contains the additional text information and space for the investigation time to be filled in on-site. The AAM allows the resident of a single-occupancy uni (SOU) or apartment to acknowledge and clear a false fire alarm without the fire brigade being called.

PART NUMBER	
FP0895	AAM2 Alarm Acknowledge Module complete with FA2318 Faceplate

ME0420

AAM2 Alarm Acknowledge Module (no sounder) is the basis for the AAM2. It is comprised of a backplate with PCB. A faceplate with the required text is added to make up an AAM2 kit.

The complete AAM2 unit is ordered as either FP0894 or FP0895.

PART NUMBER	
ME0420	AAM2 Alarm Acknowledge Module without faceplate

FP1196 Power Distribution Module

A 14 A PSU powers the power distribution board (PDB). The PDB distributes power to four separately fused output pairs, each rated at 5 A and equipped with individual status indicators to monitor the output faults. A 33 V transient voltage suppressor (TVS) diode provides voltage transient protection across each output supply and earth. The designated mounting holes are used to install the PDB and to ensure that it is grounded correctly. Fuse supervision is incorporated to comply with AS 4428 and AS ISO 7240 standards, which is useful if the powered equipment is not supervised for faults in another way, e.g., fault monitoring through a fire panel in the event of power loss.

PA0730 General Purpose Relay Board

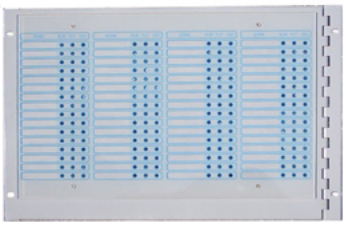
The 24V PA0730 two-pole, changeover contact, general purpose relay board may be used in either of two modes:

1. Direct operation: The relay will operate when the rated voltage is applied to the positive and negative terminals

2. IG+ Input: Cutting link LK1 will allow the relay to operate if a positive voltage between 3.5V and 30VDC is applied to the SIG+ terminal. SIG+ is a low-current input, so it may be driven by a logic-level signal

In this mode the relay board must have constant power to the positive and negative terminals. The relay board also provides visual feedback with an LED illuminated whenever the relay is energised. Two sets of changeover contacts are available at screw terminals on the relay board.

SPECIFICATIONS	
Operating voltage	24VDC (±20%)
Quiescent current	0µA
Operating current	12mA
Relay contact (per pole)	2A at 30VDC (resistive) 1A at 30VDC (inductive) 1A at 30VAC (inductive)
Ambient temperature	-5°C to +45°C
Relative humidity	0-95% (non-cond.)
Dimensions	40mm x 41mm
Weight	0.05kg
FPANZ Listed	VF/662
PART NUMBER	**PA0730**

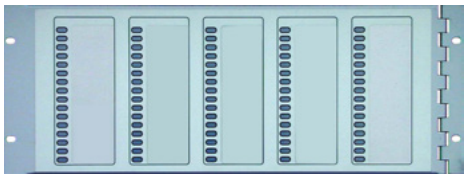


ME0060 7U Inner Display Door

LED display extender modules

ME0060 7U Inner Display Door

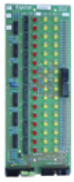
Increasing the number of LED zone displays on either an F3200 or MX4428 requires an ME0060, an FZ3031 and up to three FP0475 units as needed. The 7U Display Door mounts directly below the standard 4U LCD. The zone LEDs are Alarm (red); Fault (yellow); Isolated (yellow) with a name space of 10mm x 60mm per zone on a paper label, i.e., two lines of 23 characters at 10/in.



ME0457 4U Inner Display Door

ME0457 4U Inner Display Door

Increasing the number of LED zone displays on either an MX1 F3200 or MX4428 requires an ME0457, an FP1002, and up to four FP1002, as needed. The 4U Inner Display Door mounts directly below the standard 4U LCD. The zone LEDs are Alarm (red) and Isolate/Disable (yellow). A name space of 9mm x 44mm per zone on a paper label, i.e., one line of 12 characters at 5mm high, or 23 characters at 3mm high.



FP0475 Display Extender Kit includes: PA0454 16Z Display PCB, LM0046, standoffs, power leads, diffuser, zone name label space.
LM0092 Loom FRC 26W Keyboard to First Display, 1.1m shown.

FP1002 16Z Display PCB.
LM0339 Loom FRC 26W Keyboard to First Display, 200mm.

PART NUMBER	
FP0475	Display Extender Kit: PA0454, LM0046, standoffs, power leads, diffuser, zone name label space
FP1002	4U 16-Zone LED Display PCB: PCB, LM0291 FRC, LM0339 FRC, mounting hardware
FZ3031	Display Extender Kit: FP0475, LM0092 (in lieu of LM0046 in use as first (LHS) display)
ME0060	7U Inner Display Door 1901-75, incl. M6 fasteners, mounts up to four 16-zone LED display boards
PA0454	7U 16-Zone LED Display PCB
ME0457	4U Inner Display Door, mounts up to five FP1002 LED display boards
LM0044	FRC 26W Style B, 200mm
LM0045	FRC 26W Style B 5000mm
LM0046	FRC 26W Style B 500mm
LM0049	FRC 26W Style B 250mm
LM0056	FRC 26W Style B, 1400 mm
LM0092	FRC 26W Keyboard to First Display, 1,100mm
LM0291	FRC 26W Style B, 230 mm
LM0295	FRC 26W Style B, 700 mm
LM0339	FRC 26W Keyboard to First Display, 200mm

TABLE 1. CABLES REQUIRED FOR 4U LED DISPLAY DOOR

	F3200/ NDU/ NLDU	MX4428	MX1
Controller to highest numbered LED display board	LM0092	LM0295 or LM0056	LM0092 or LM0339[1]
Controller connector	J13 on controller board	J6 on main board	J2 on LCD/ keyboard
Connect additional 4U LED display board	LM0056	LM0056	LM0056 or LM0291[1]
Inter-connect LED display boards	LM0291	LM0291	LM0291[1]

1. LM0291 and LM0339 are included with FP1002.

TABLE 2. LED DISPLAY MODULE COMPARISON		
	FP1002	**FP0475**
Dimensions	144mm x 52mm	250mm x 97mm
Electrical	Electrically identical; FP1002 uses	
End-of-chain link	Not required	Required
Separate fault LED	No	Yes
External output	No	No

NOTES

Vigilant 19in. rack cabinet range

Cabinets and cabinet accessories

ME0268 21U (cabinet only)
Dimensions (H x W x D):
1,050 x 575 x 310 (mm)

ME0351 21U cabinet only with QE90 module-mounting studs

FZ9028 3U WA/Cube ASE Bracket and Loom

SW0018 3-Position Key Switch, incl. 003-coded keys

HW0040 Cam-Lock, incl. 003-coded keys

HW0226 Key only, incl. 003-coded key

FP0576 Empty Battery Box
Dimensions (H x W x D): 440 x 550 x 21 (mm)

Battery capacity: two 80Ah or six 40Ah

FLUSH SURROUNDS (CREAM WRINKLE)	
FA1299	Flush Surround for 8U Cabinet
FA1235	Flush Surround for 15U Cabinet
FA1930	Flush Surround for 28U Cabinet
FA1931	Flush Surround for 40U Cabinet

BLANK PANELS (INCLUDE 19IN. RACK FIXING HARDWARE)	
FZ9002	7U Blank Hinged Inner Door (312mm)
FZ9003	6U Blank Panel Acrylic (266mm)
FZ9004	4U Blank Panel (178mm)
FZ9005	3U Blank Panel (134mm)
FZ9006	2U Blank Panel (89mm)
FZ9007	1U Blank Panel (45mm)
FZ9015	5U Blank Panel (223mm)
FZ9016	6U Blank Panel (267mm)
FA1852	QE90 6U Smoked Perspex (266mm)
FA2017	QE90 5.5U Blank Plate (244mm)
FA2376	4100U 9U Display Trim

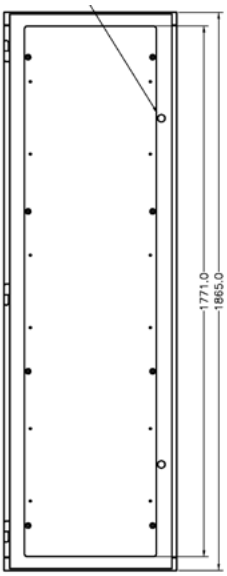
GEAR PLATES	
FA1833	699-052, QE90 Standard 729 x 489 x 175 (mm)[1]
FA2019	699-232, QE90 SECP Battery Bracket

1. To suit cabinet ≥ 28U

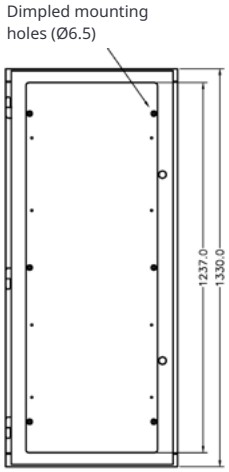
CABINET DOORS	
ME0274	Outer Door Full Window 28U
ME0276S	Outer Door Full Window 40U
ME0286	Outer Door Blank 40U
FA2113	Outer Door Perspex 40U

ACCESSORIES	
HW0202	Block, hinge set 6mm
KT0199	3U Centaur ASE Bracket
FZ9037	7U Hinged Door with Document Holder
FZ9028	3U WA/Cube ASE Bracket and Loom
ME0258	1919-21-2 Rack Cabinet 1U Shelf, 135mm deep
ME0259	1919-21-1 Rack Cabinet 1U Shelf, 310mm deep
ME0512K	100ESi Cube ASE and Mic. Kit (uses six slots of a 7U display door – black)
ME0513K	4100ESi Centaur11 ASE and Mic. Kit (uses six slots of a 7U display door – black)
NT0030	Nut, cage M6, zinc plated
SC0058	Screw, machine pan/pozi, M6 x 12mm ZP
WA0008	Washer, flat, M6 12mm x 1.2mm

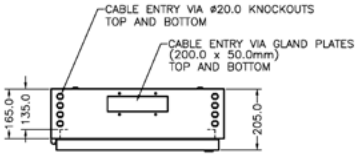
Cabinet sizes



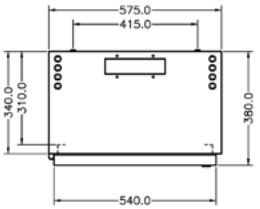
40U Cabinet



28U Cabinet



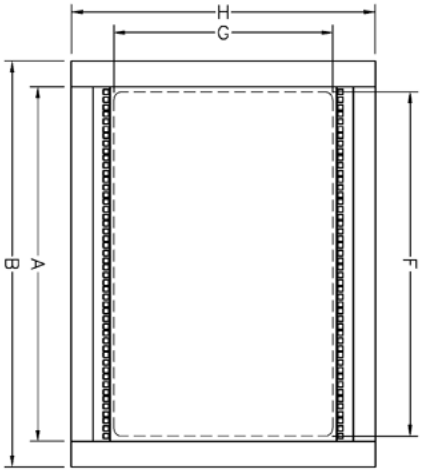
Top view - 135mm deep cabinet



Top view - 310mm deep cabinet

Note that the IP65 cabinet range is finished in off-white gloss powdercoat. All other cabinets are Cream Wrinkle.

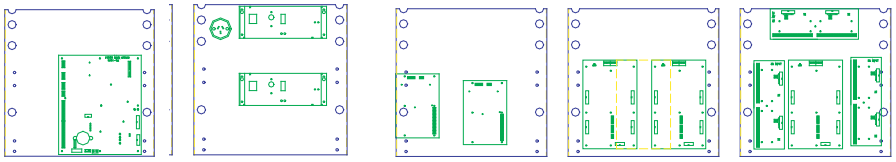
Top view



Front view

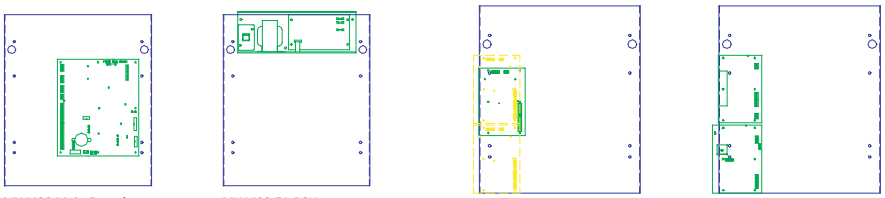
PART NO	DESCRIPTION	COMPATIBLE PANELS
ME0716	ME, 1919-118,QE20 Rack Cabinet, 28U135, full window, Titania	QE20, QE90
ME0717	ME, 1919-118, QE20 Rack Cabinet, 28U310, full window, Titania	QE20, QE90, MX1, 4100ESi
ME0720	ME, 1919-119, QE20 Rack Cabinet, 40U135, full window, Titania	QE20, QE90
ME0721	ME, 1919-119, QE20 Rack Cabinet, 40U310, full window, Titania	QE20, QE90, MX1, 4100ESi
ME0728	ME, 1919-121, QE20 Rack Cabinet, 28U135, blank door, Titania	QE20, QE90
ME0729	ME, 1919-121, QE20 Rack Cabinet, 28U310, blank door,Titania	QE20, QE90
ME0732	ME, 1919-122, QE20 Rack Cabinet, 40U135, blank door, Titania	QE20, QE90
ME0733	ME, 1919-122, QE20 Rack Cabinet 40U310, blank door, Titania	QE20, QE90, MX1, 4100ESi
ME0701S	QE20 28U Window Door, Titania, spare	QE20, QE90
ME0702S	QE20 40U Window Door, Titania,spare	QE20, QE90, MX1, 4100ESi
ME0707S	QE20 28U Blank Door, Titania, spare	QE20, QE90
ME0708S	QE20 40U Blank Door, Titania, spare	QE20, QE90, MX1, 4100ESi
PART NO	DESCRIPTION	COMPATIBLE PANELS
ME0736	QE20 Rack Cabinet, 28U135, window, Cream Wrinkle	QE20, QE90
ME0737	QE20 Rack Cabinet, 28U310, window, Cream Wrinkle	QE20, QE90, MX1, 4100ESi
ME0738	QE20 Rack Cabinet, 40U135, window, Cream Wrinkle	QE20, QE90
ME0739	QE20 Rack Cabinet, 40U310, window, Cream Wrinkle	QE20, QE90, MX1, 4100ESi
ME0740	QE20 Rack Cabinet, 28U310, blank, Cream Wrinkle	QE20, QE90, MX1, 4100ESi
ME0741	QE20 Rack Cabinet, 40U310, blank, Cream Wrinkle	QE20, QE90, MX1, 4100ESi

Gear plate utilisation (examples)



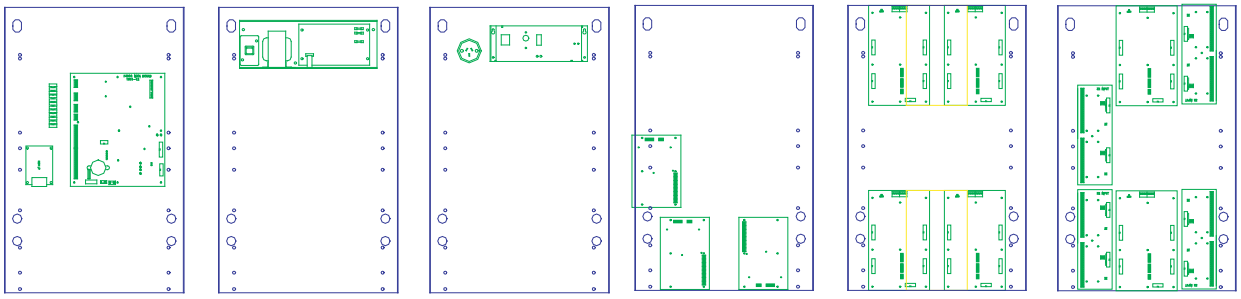
MX4428 Main Board Mounting | MX4428 6A PSU Brick Mounting | ADR/MPR Mounting | IOR Mounting | IOR & Termination Board Mounting

FA1185 MX4428 Standard Gear Plate



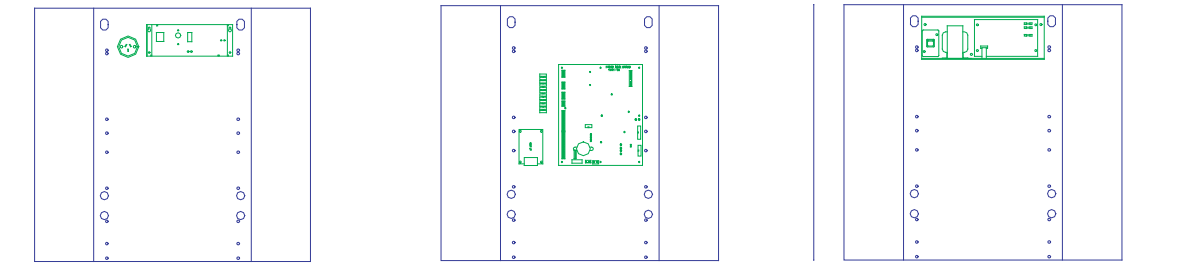
MX4428 Main Board Mounting | MX4428 5A PSU Mounting | ADR/MPR Mounting | T-GEN 50 & MXP Mounting

FA2040 MX4428 Basic Gear Plate

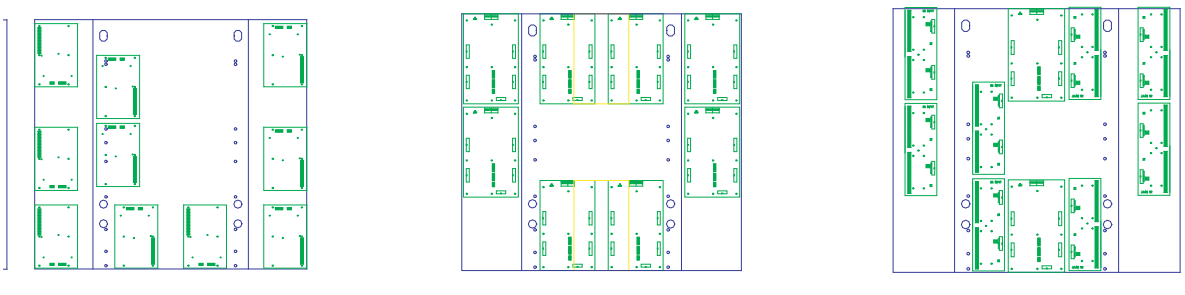


MX4428 Main Board Mounting | MX4428 5A PSU Mounting | MX4428 6A PSU Brick Mounting | ADR/MPR Mounting | IOR Mounting | IOR & Termination Board Mounting

FA1983 MX4428 18U Sideless Gear Plate

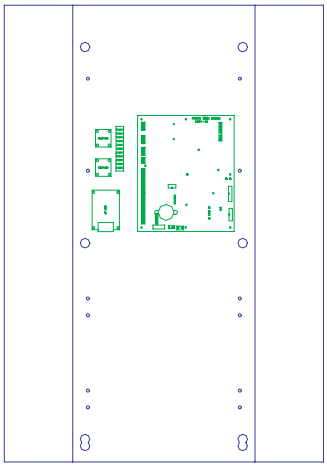


MX4428 6A PSU Brick Mounting | MX4428 Main Board and RZDU/RS232 I/F Board Mounting | MX4428 5A PSU Mounting

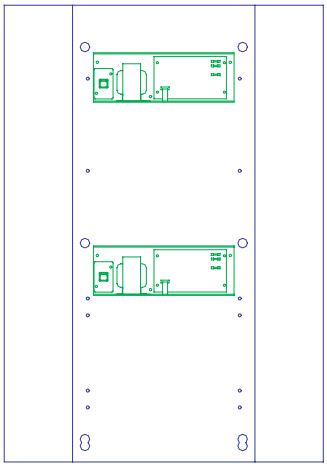


ADR/MPR Mounting | IOR Mounting | IOR & Termination Board Mounting

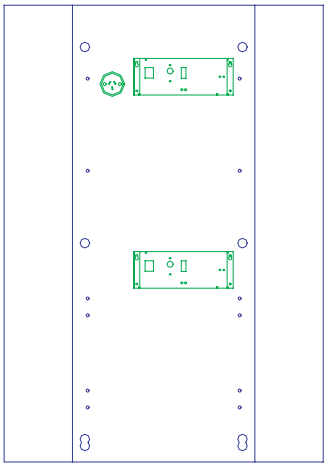
FA1984 MX4428 18U Sided Gear Plate



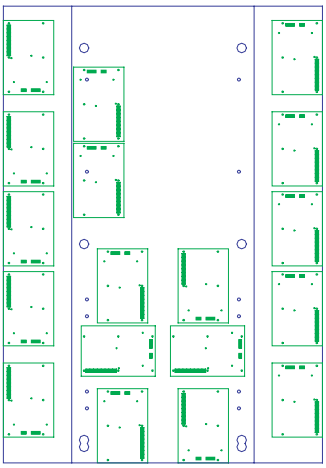
MX4428 Main Board and RZDU/RS232 I/F Board Mounting



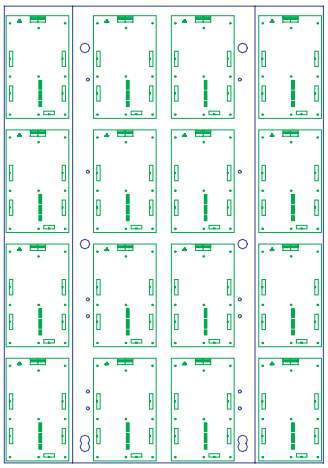
MX4428 5A PSU Mounting



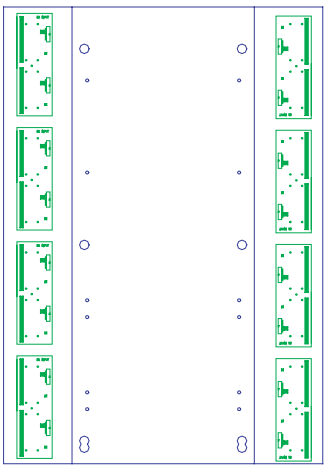
MX4428 6A PSU Brick Mounting



ADR/MPR Mounting

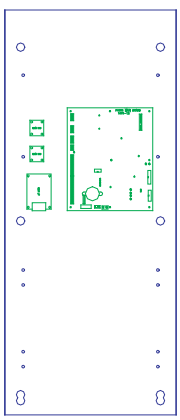


IOR Mounting

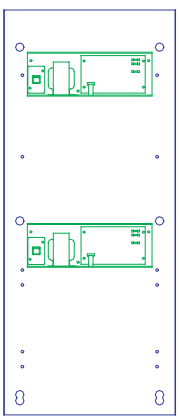


IOR Termination Board Mounting

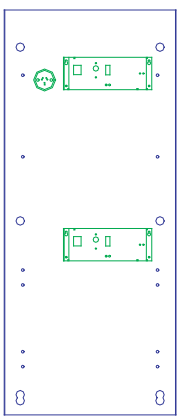
FA1199 MX4428 28U Sided Gear Plate



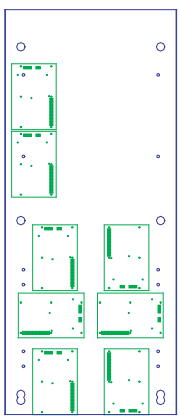
MX4428 Main Board and RZDU/RS232 I/F Board Mounting



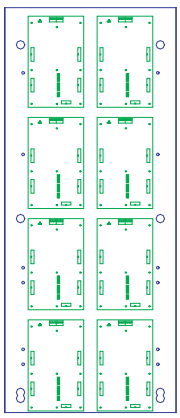
MX4428 5A PSU Mounting



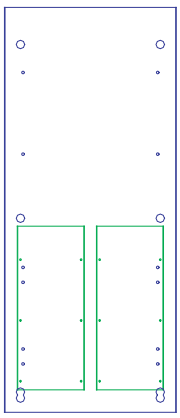
MX4428 6A PSU Brick Mounting



ADR/MPR Mounting



IOR Mounting



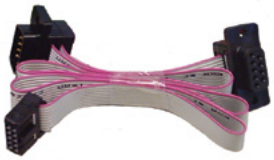
F3200 Card Frame Mounting

FA1366 MX4428 28U Sideless Gear Plate

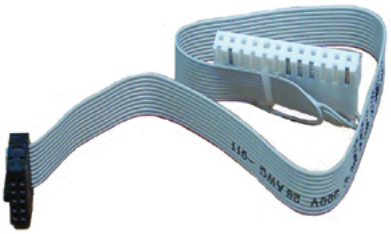
Looms and cables

LM0041 MX4428/F4000 Cable Programming Port to DB9F serial 1888-58

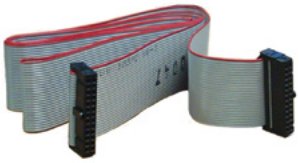
LM0042 MX4428/F4000 Cable Programming Port to DB25F serial 1888-62



LM0065 RS-485 Comms 10W FRC to DB9



LM0185 MX4428 Molex to CMOS/RS-232 1901-214

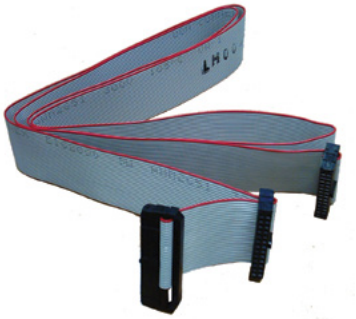


LM0047 Loom FRC 26W Style D 1.3m QE90 TRAN8872

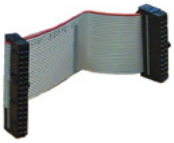
LM0076 Programming DB9F to DB9F Null Modem (MX1, QE90 ECM, ADU)

LM0195 4100 MAPNET Power Harness

LM0049 Loom FRC 26W Style B 0.25m

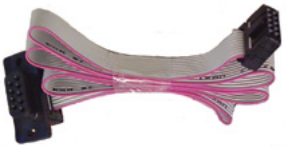


LM0092 Loom FRC 26W F3200 MkII Controller to First Display, 1.1m



LM0339 Loom FRC 26W, MX1 Keyboard to First Display, 200 mm

LM0053 Loom FRC 20W Style A, 0.3m



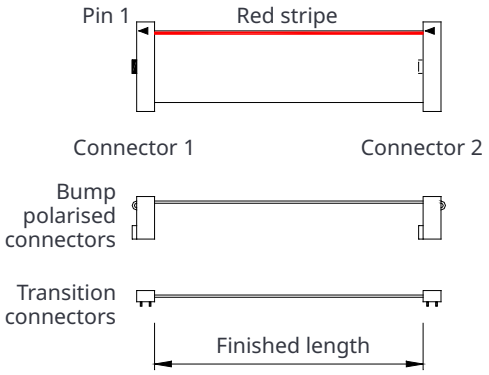
733-794 4100 Download Port Cable 10W FRC to DB9

Loom style types (Vigilant range)

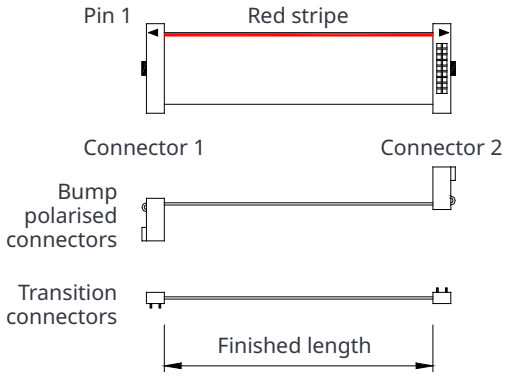
Notes

1. The loom style connector types, cable cut length and cable style are specified in the loom description.
2. The cut length for a flat ribbon cable (FRC) will generally be finished length.
3. Both bump polarised sockets and transition connectors are illustrated. Looms can have combinations of these connectors.

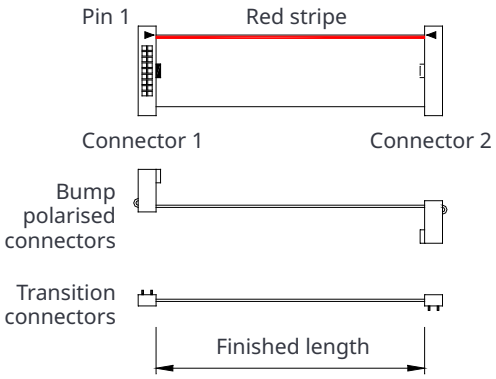
Style A



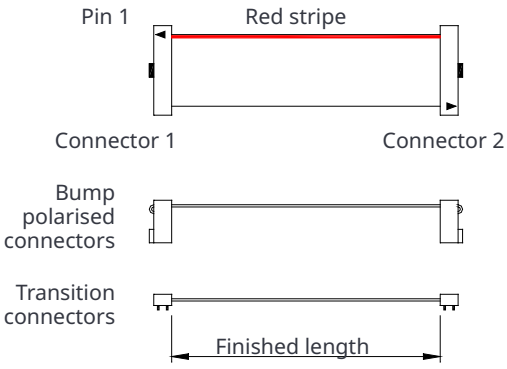
Style B



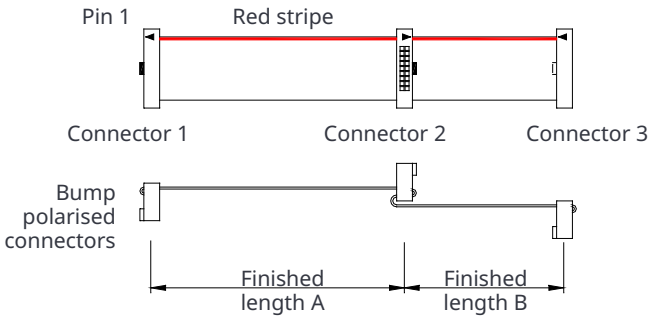
Style C



Style D (Twisted)



Style E



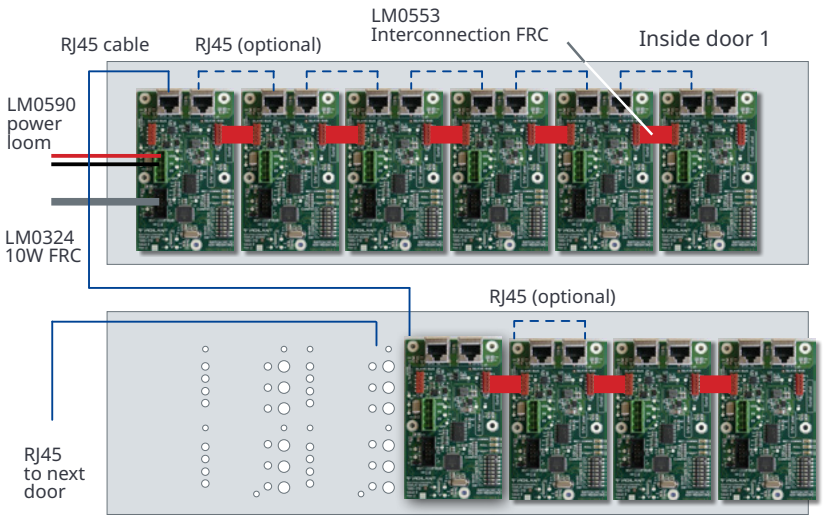
Looms and cables

PART NO	EXTENDED DESCRIPTION	APPLICATION
LM0061	Loom 1830-43 1830 modem to 16-way FRC and DB25 plug	1830 MODEM
4100-KT0490K	4100ES XSPS power supply loom and harness kit	4100ES
733-794	4100 download port cable	4100ES
LM0192	Mains lead 4100-0157A	4100ES
LM0194	Loom 4100 door switch loom and assembly 003-018	4100ES
LM0195	Loom mapnet power harness	4100ES
LM0223	Battery lead set 4100-0157AK	4100ES
LM0288	Loom ASE CNI-403ME signal cable 1963-80	ASE
LM0293	Loom ASE G18 radio modem RF cable	ASE
LM0053	Loom FRC 20W style A 0.3m (eight-relay module to eight-zone module)	F3200
LM0083	Loom FRC 20W style C, 0.7m (MAF/PSU to eight-zone module)	F3200, MX4428 keyboard to main board
LM0118	Loom FRC 26W style B, 0.6m (MAF/PSU to controller)	F3200
LM0092	Loom FRC 26W style E F3200 MKII Controller to First Display 1931-88, 1931-88 1.1m	F3200
LM0103	Loom F3200 MCP and Micro SWT Loom 1931-97	F3200
LM0152	Loom FRC 10W ECM/F3200 network x-over 0.7m	F3200/MX4428/I-HUB (MX4428>Iss C)
LM0076	Loom ADU Prog DB9F - DB9F 1922-25	ADU/MX1
LM0339	Loom FRC 26W MX1 Controller to First Display, 0.22m	MX1
LM0107	Loom FRC 16W style C 0.7m (LCD to main board)	MX4428/F4000
LM0151	Loom FRC 10W to molex MX4428 ring net upgrade x-over 1901-201 1.1m	F4000/I-HUB (F4000 < Iss C)
LM0172	Loom FRC 10W style A 0.25m (PSU to main board, also main board to network board)	MX4428/F4000/MX1 Controller PA0773
LM0185	Loom F4000 molex to cmos/RS232 1901-214	F4000
LM0043	Loom QE90 extender 699-090-1 FRC 20W 0.07m	QE90
LM0047	Loom QE90 transformer module twisted FRC 26W style D 1.3m	QE90 TX Module
LM0048	Loom FRC 20W style B 0.25m (ECP interconnect)	QE90
LM0060	Loom FRC 34W style B 1.2m (ECP to SPIF/SE9004 board)	QE90
LM0063	Loom 699-228 QE90 ECP power loom up to 21U (with six-way Connector CN0256)	QE90
LM0065	Loom 1901-174 RS485 comms Board (also ECM) 10 W FRC to DB9 cable	QE90
LM0076	Loom ECM prog DB9F - DB9F 1922-25 null modem (crossover)	QE90/ADU/I-HUB/MX1
LM0077	Loom 1922-26 RZDU RS232-ECP high-level link 2.9m	QE90
LM0078	Loom 1922-27 RZDU RS232-ECM high-level link 3m	QE90
LM0098	Loom FRC 34W style B 0.8m (WTRM board to WIPS board)	QE90
LM0100	Loom 699-087 FRC, 34W 1.5m	QE90
LM0101	Loom QE90 FRC 26W style E 0.45m plus 0.9m QE90	QE90 Backplane-SPIF
LM0138	Loom DB9M-DB9F pins straight through 1.8m (non-ECM prog. cable)	QE90 ECP

LM0141	Loom QE90 AMP200 interconnect loom 150mm 699-253	QE90
LM0077	Loom RZDU RS232 ECP high-level link1922-26 1m	RZDU
LM0078	Loom RZDU RS232 ECM high-level link 1922-27 3m	RZDU
LM0164	Loom V-modem RJ45-DB25 male PLU 1963-55	V-modem
LM0165	Loom V-modem PRG LD LM0164-DB9F 1963-55	V-modem
LM0166	Loom V-modem RJ45-DB9 FEM plug 1963-55	V-modem
LM0168	Loom V-modem DB9M TO 4W molex 1963-55	V-modem
LM0041	Loom F3200/F4000/FP4000/MX4428 prog to DB9F serial 1888-58	F3200/F4000/MX4428
LM0042	Loom F3200/F4000/FP4000/MX4428 prog to DB25F serial 1888-62	F3200/F4000/MX4428
LM0061	RZDU/RS232 FRC included with PA0481	
LM0065	Loom RS485 comms board FRC 10W – DB9 1901-174	
LM0131	Loom serial printer cable DB9(M) to DB9(M) and DB9(F)	
LM0161	Loom FRC 10W style A 0.1m	
LM0172	Loom FRC 10W style A 0.25m	
LM0084	Loom FRC 10W style B 0.35m	
LM0093	Loom FRC 10W style C 0.25m	
LM0091	Loom FRC 10W styleE C 0.5m	F3200 Network
LM0193	Loom FRC 14W style A 0.45m	
LM0107	Loom FRC 16W style C 0.7m	
LM0053	Loom FRC 20W style A 0.3m	
LM0048	Loom FRC 20W style B 0.25m	
LM0072	Loom FRC 20W style C 0.35m	
LM0083	Loom FRC 20W style C 0.7m	
LM0073	Loom FRC 20W style C 1.45m	
LM0145	Loom FRC 26W style D 0.6m	QE90
LM0146	Loom FRC 26W style D 1.1m	QE90
LM0291	Loom FRC 26W style B 0.27m	MX1/F3200/MX4428
LM0049	Loom FRC 26W style B 0.25m	
LM0046	Loom FRC 26W style B 0.5m	F3200 8Z MAF to controller
LM0118	Loom FRC 25W style B 0.6m	F3200
LM0295	Loom FRC 26W style B 0.8m	
LM0056	Loom FRC 26W style B 1.4m	MX1/F3200/MX4428
LM0044	Loom FRC 26W style B 2.0m	
LM0045	Loom FRC 26W style B 5.0m	
LM0098	Loom FRC 34W style B 0.8m	QE90
LM0142	Loom FRC 34W style B 1.0m	
LM0060	Loom FRC 34W style B 1.2m	
LM0143	Loom FRC 34W style B 1.7m	
LM0441	Loom FRC 10W style A 0.75m	MX1 RFBP-PA0773

AS1668 controls and gas controls

FP1056 3U Panel with 12 AS1668 Fan Controls (MX1 only)



AS 1668 control module kits

MX1

The FP1056 MX1 Fan Control Door Kit includes a 3U door fitted with two fan controls and a label set with sample common fan control labels. Each door can accommodate up to 12 fan controls using additional FP1057 Fan Control Expansion Kits. This fan control solution has been assessed to the functional requirements of AS 7240.2-2004 and AS 4428.7-1999. It can provide up to 126 controls per MX1, by utilising FP1056 3U doors for each set of 12 controls. It features push buttons and LED indication for On/Off/Auto, with LED status indication for Run, Stop, Fault and Alarm.

The controls can also provide convenient general purpose switches and indicators for ancillary functions, such as drain valves, deluge control, and test switches. Each control can be configured to operate as a 3three-position switch, two-position switch, three-independent toggle or momentary switches. The control functions can be replicated across multiple MX1 panels on a network almost instantly. The panels work in parallel, with user control available at each panel.

Additional fan control doors are interconnected using cables supplied. Up to three doors (36 controls) can be fitted in a 15U MX1 cabinet, with additional 15U or larger 28U or 40U cabinets available for more controls.

The controls are easily configured for an MX1 using SmartConfig version 2.5.1 or above. This includes logic blocks to insert pre-defined AS 1668 smoke control functions. Labels for each control can be printed using SmartConfig. The fan controls can be added to existing MX1 systems by updating to MX1 firmware version 1.60 or above.

This MX1 AS 1668 solution is not compatible with MX4428.

PART NUMBER	
FP1056	MX1 3U 12x AS 1668 controls (MX1 only)
FP1057	MX1 two-way AS 1668 control expansion kit
FP1084	MX1 15U full window empty cabinet, Titania
LB0672	AS 1668 fan control zone label set

FZ9012 7U Panel with 15 AS 1668 fan controls drilled

MX4428

The AS 1668 modules/kits consist of small PCBs that are fitted with the required components for several different AS 1668 control and indication configurations.

A three-position rotary switch gives control of the appropriate fan, by selection of Off, Auto or On (from left to right). Three LEDs give indication of Stop, Fault and Run conditions. These are coloured green, yellow, and red respectively.

For maximum flexibility, a number of common AS 1668 type control circuits can be achieved by using KT0113 modules with different wiring configurations or by minimal PCB modification (i.e., the cutting of two components).

While the kits were primarily developed to simplify factory assembly of custom panels with AS 1668 controls, they are available to purchase for fitting to panels in the field. Refer to the Product Bulletins PBG0015C and PBG0145C and manuals LT0159, LT0368 and LT0438 for further information regarding AS 1668 kits.

Vigilant MX1 Gas Control Panel FP1164

The Vigilant MX1 is an advanced addressable fire indicator panel (FIP) that uses modular internal construction to achieve economical and reliable monitoring and control.

When coupled with the Vigilant suppression door, audio visual indicator (AVI) Mk2 warning signs and Vigilant MX Addressable Local Control Station (LCS), it provides a cost-effective single-risk addressable fire suppression controller. The Vigilant MX1 Fire Suppression Controller supports the range of Gen6 MX analogue addressable detectors and modules, including the 850PH and 850PC multi-sensor detectors, and the 850P and 850H detectors.

Support for VESDA or other aspirated smoke sensing systems is included.

Configuration for a single-risk fire alarm system is factory-fitted and programmed with a basic fire suppression template. Modifications to the standard configuration are straightforward, easy and can be quickly completed using Windows-based programming software.

Fire detection in hazardous areas is well catered for. With MX loop connectivity through galvanic barriers, using the comprehensive range of Intrinsically Safe MX addressable devices, including smoke, heat and flame detectors, we have you covered.

Programming is easy with the standard MX1 Fire Suppression Controller providing all fire suppression logic, as well as the logic for common fire alarm functions. The arrangement of the fire suppression zone has been designed to comply with the Detection, Actuation and Control requirements of AS 4214:2018 and the Special Hazards System requirements of AS 1670.5:2016, but has not been independently assessed to these standards.

Features

- Supplied configured and pre-programmed as a single-risk addressable fire suppression controller
- Standard 15U cabinet, with space for 40Ah batteries and limited additional modules
- Indications for: System Initiated; Manual Release; Agent Discharged; Manual Mode; Agent Discharge Fault; System Isolated
- MX Addressable Local Control Station
- Designed to meet the Detection, Actuation and Control requirements of AS 4214:2018 and Special Hazards System requirements of AS 1670.5:2016
- Status can be networked to a range of Vigilant panels

SPECIFICATIONS	
Dimensions (H x W x D)	750 x 550 x 230 (mm)
Weight	19kg without battery
Cabinet material	1.6mm mild steel
Cabinet finish	Epoxy powdercoat, DULUX Titania IP30
Mains supply	240VAC 1A 50Hz
System PSU	5A at nom. 27.3VDC at 20°C
Operating temperature	0 °C to 45°C
Relative humidity	~95% (non-cond.)
ActivFire Listed	afp-2320
FPANZ Listed	VF/118
PART NUMBER	
FP1164	One-zone gas control, 15U cabinet

FP0570 Conventional and FP1167 MX Addressable Local Gas Control Stations

Local Gas Control Stations (LGCS) are used in gaseous fire extinguishing systems to provide local area manual control of a release. Both versions include a gas inhibit switch, buzzer and LED. The LGCS is fitted with a resettable no-break plastic frangible element. FP1167 MX Addresable Local Gas Control Station – Automatic. Includes MX connectivity, for use with MX1.

Vigilant remote annunciators

Nurse Station Annunciator

The Nurse Station Annunciator (NSA) is a compact fire alarm repeater panel for use by non-technical staff. It provides alphanumeric display of alarm information on a two-line by 40 character LCD with a simple keypad. It is compatible with the Panel-Link network fire alarm systems, eg., MX4428 and F3200 and Vigilant RZDU panels – MX1, MX4428, F3200, FP1600, Sigma 5. The NSA is able to display alarms from all fire alarm panels connected to the network and this may be modified by programming to determine which alarms are displayed and what user responses are available.

SPECIFICATIONS	
Operating voltage	9.6-28.8VDC
Current (max.)	380mA at 9.6V 180mA at 27V
Network I/F	RS-485 (Panel-Link)
Programming I/F	DB-9 male RS232
Rating	IP41
Dimensions (H x W x D)	Surface: 250 x 150 x 50 (mm) Flush: 301 x 192 x 75 (mm)
Weight	2.5kg
PART NUMBER	
FP0880	Nurse Station Annunciator, flush-mount
FP0881	Nurse Station Annunciator, surface-mount
LM0076	DB9F-DB9F programming cable

AS 4428.1 Network Display Unit

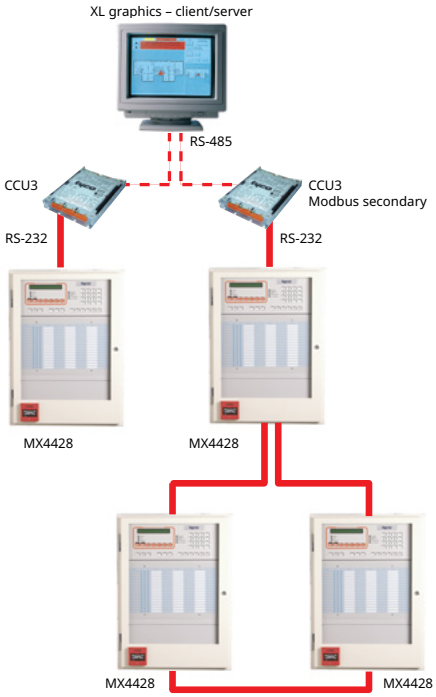
The network display unit (NDU) is a fire alarm repeater panel compatible with the Panel-Link network and the associated range of networked fire alarm systems (e.g., MX4428, F3200). It provides an alphanumeric display of alarms on a two-line by 40 character LCD and keypad. The NDU is able to display alarms and status, and control all fire alarm panels connected to the network. This may be modified by programming to achieve a variety of display and control facilities. Its compact, slimline cabinet style has a flush-mounted option, optional full cabinet complete with MAF relays and power supply, or 19in. rack module. Local call point input, optional individual zone LED displays are all fully field programmable, including: site name text, zone name text, selective display of alarms based on source panel and group membership. Other features include analogue addressable fire alarm point text displayed, database save and restore to laptop/computer, event logging to history file and optional printer.

The NDU includes firmware and PA0773 Panel-Link network RS485 interface card.

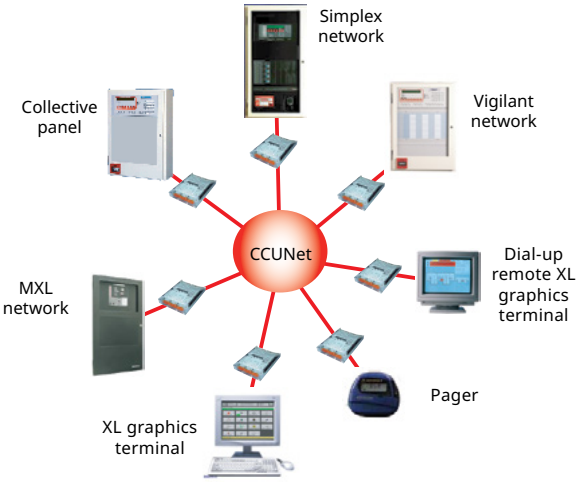
SPECIFICATIONS	
Power supply	External 24VDC
Quiescent current	19mA
Alarm current	78 mA
INPUTS	
RDU MCP	Supervised, 10k ohms EOL
RZDU Comms	F3200/F4000 compatible
OUTPUTS	
Printer	Pseudo RS232, Xon/Xoff, 300 to 9,600 baud
LED display/relay	33 max. external boards
Display type	FFCIF to AS 1603.4
LCD	Two lines of 40 characters
LEDs	FFCIF, status standard; optional zone LEDs
Operating temperature	-5°C to 45°C
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	FP0709: 750 x 550 x 211 (mm) FP0791: 177 x 450 x 50 (mm) FP0792: 219 x 502 x 75 (mm) FP0793: 177 x 450 x 75 (mm) FP0794: 177 x 483 x 45 (mm)
Shipping weight	3 kg (5kg FP0793)
ActivFire Listed	afp-789
PART NUMBER	
FP0791	NDU, AS4428 slimline, surface-mount
FP0794	NDU, AS4428 4U, 19in. rack module

CCU networking

CCU3



Two methods of connecting CCU3/C-MXMB to Vigilant MX4428 CIE



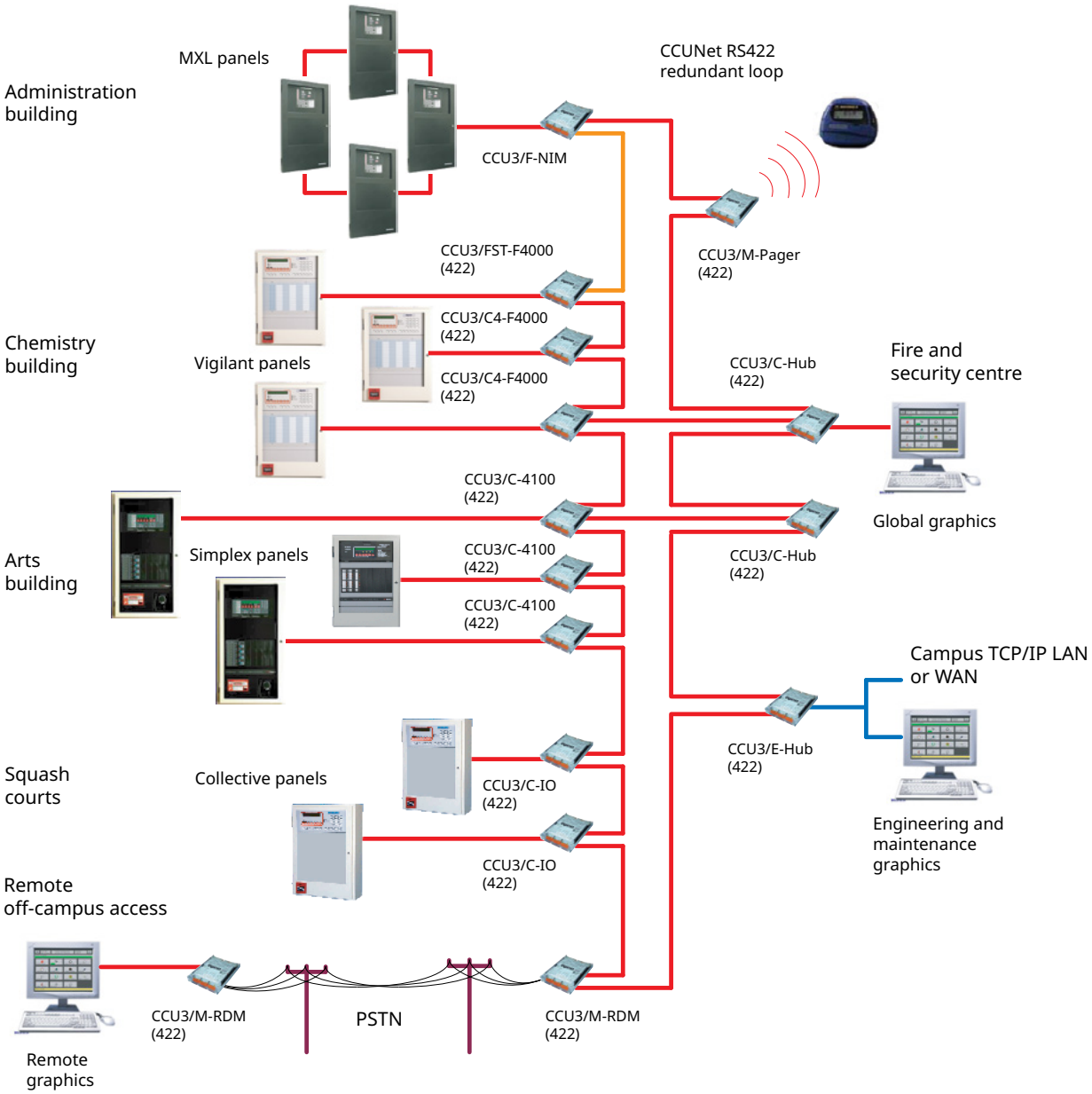
The CCUNet has the capability to integrate numerous fire panel networks into one simple colour graphics interface.

Communications control unit

A network of communications control units (CCU), called a CCUNet, can be used to connect multiple fire indicator panels and other supported devices to a central colour graphics system. This provides system-wide control and annunciation of multiple fire detection systems. The CCUNet system and fire indicator panels are interconnected via dual redundant communication loops. The redundant network can be used to transparently route information around breakages and failures in the network. Event annunciation information from the fire panels is simultaneously routed via both the network CCUNet links.

Contact Johnson Controls when using the CCUNet method, to ensure required system design and local standards criteria can be met.

Example CCU system diagram



This example shows several buildings on a university campus each with their own different fire panels, linked together via CCU3s to a CCUNet by two loops.

Warning systems

QE20 Emergency Warning and Intercommunication System

The Vigilant QE20 Emergency Warning and Intercommunication System (EWIS) is the latest addition to our class-leading range of emergency warning products, designed to facilitate the orderly evacuation of occupants in a building in the event of an emergency.

The QE20 Grade 1 has a wide range of functions and optional modules to provide a cost-effective evacuation system solution.

Features

- Up to 224 front panel evacuation zones
- Independent alert, evacuation warning tones and emergency public address
- Clear, intuitive operation
- Modular, easy-to-wire system
- Greater cabinet density
- Four amplifier sizes: D-Class 25W, 60W, 120W and 240W
- High-level input options from compatible fire alarm panels
- IP networked systems for site-wide interconnection
- On-board service diagnostics
- Greater audio message flexibility and storage
- Ability to perform complex cascading and customisable voice messaging
- New Zealand accent option for voice messages
- Silence/Evacuation/Alert bulging key-switch options
- ActivFire Listed to AS 428.16 2020 and AS 4428.4 2016
- NZS 4512 2021 approved (listing number VF/446)

The QE20 Emergency Warnings & Intercom Control & Indicating Equipment (EWICIE) can be used for many types of mass notification from fire alarm warning to discrete intruder messages. The QE20 can be combined with an emergency intercom control and indicating equipment (EICIE) compliant to AS 4428.4, to provide intercommunications between building zones to aid fire wardens or emergency workers in coordinating evacuation procedures.

The T-Gen2 Grade 2/3 tone generator/amplifier system provides a 100V audio output suitable for wiring to multiple 100V loudspeakers located in the evacuation zone of the building. There are two models available – T-Gen 60, which provides a 60W RMS output, and T-Gen 120, which provides 120W RMS.

The T-Gen2 Grade2/3 system can be incorporated as part of the fire panel CIE or as an independent EWS. Up to nine T-Gen2 units can be configured for secondary operation and connected to a primary T-Gen2. The primary will generate up T-Gen2, instructing each on which audio signal should be selected and amplified to its 100V output.

The 100V splitter module, with its own supervision for open or short circuit faults, is designed for use with Vigilant QE20 and T-Gen2 Grade 2/3 systems. Dual branch wiring of each output is supported. The 100V switching modules are used in a T-Gen2 Grade 2 system to provide multiple areas of paging within a zone, or for providing individual zone outputs. A 100V switching module has two 100V audio inputs, and these can be controlled by the T-Gen2 to connect to four separately supervised short circuit isolated outputs.

Two 100V switching modules can be wired in parallel, so up to three 100V inputs can be switched to four separately supervised short circuit isolated outputs, providing a selection of alert, evacuate, speech or silence for any output.

Stock QE20 EWIS panels are available.

PART NUMBER	
QTD000	QE20 SECP RS485NW, WIP 14A PSU 8Z/8W controls, 28U glass door, left hinge
QTB000B	QE20 4x60W WIP, WIP tray, ROM 27APSU 8Z/8W controls, 40U glass door, right hinge
QTS000B	QE20 4x60W WIP, ROM 27APSU 8Z/8W controls, 28U glass door, right hinge
QTC000B	MX1/QE20 combo, one MX loop, 14A PSU, 4x60W WIP, ROM 27APSU 8Z/8W, 40U glass door, right hinge
QTE000B	QE20 4x60W WIP, ROM 27APSU 8Z/8W controls, 40U glass door, left hinge

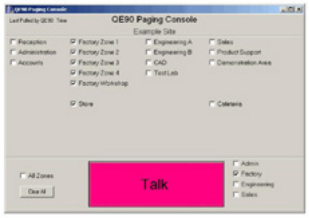
SPECIFICATIONS				
PANEL SIZE	**28U**	**40U**	**DOUBLE 28U**	**DOUBLE 40U**
Height (mm)	1,330	1,865	1,330	1,865
Width (mm)	575	575	1,150	1,150
MECP depth (mm)	380	380	–	380
SECP depth (mm)	205	205	205	–
Maximum number of zones with				
10W RMS amps	20	40	–	80
25W RMS amps	10	20	–	40
50W RMS amps	10	20	–	40
100W RMS amps	5	10	–	20
200W RMS amps	2	4	–	8
Amplifier configurations can be mixed 10W, 25W, 50W, 100W and 200W				
Speaker line voltage	100V RMS at rated power output			
WIP zones (max.)	20	42	–	90
SECP zones (max.)	19-34	35-42	43-74	75-90
Special or larger system configurations are available on request				
Cabinet material	1.6mm mild steel			
Cabinet finish	Baked epoxy			
Colour	Cream Wrinkle BFF998CW (special colours available on request)			
Operating temperature	-5°C to 45°C			
Relative humidity	~95% (non-cond.)			
Power supply	230VAC, 10-11%, 50Hz			

QE20 and QE90 ancillaries and spares

Paging Console

One or more Paging Consoles may be used with a QE90 system. Each console gives selective zone paging for up to 30 zones. These zones do not need to be the same as evacuation zones. Programming of any combinations of amplifiers into paging zones can be done by Johnson Controls – Fire Detection. If the system has more than 30 paging zones, then more than one Paging Console can be used at the same location to address the zones. The top of the Paging Console is removed to obtain access to the terminations. Only one microphone is required and it must be ordered separately.

SPECIFICATIONS	
Power consumption	<50mA (no zones selected) <150mA (all zones selected)
Output voltage	300-700mV
Microphone voltage	1-100mV
Frequency response	100-10kHz ±3dB
Distortion	10mV input, <2%
Dimensions (H x W x D)	80 x 410 x 210 (mm)
Weight	4kg
PART NUMBER	
FP0539B	Paging Console
SU0168	Gooseneck microphone
SU0169	Desktop microphone



PC Paging Console

The PC Paging Console allows announcements to be made to up to 480 QE20 zones from a single Windows 2000/XP workstation, without requiring a separate physical paging console. The PC Paging Console interfaces a PC and microphone to the QE20 system. Control of paging individual or grouped evacuation zones is provided by software. Where the SU0168 microphone is used, the Press to Talk button on the PC screen is used when a paging announcement is to be made. When using the SU0169 microphone, it is necessary to use the Press to Talk button on the microphone.

SPECIFICATIONS	
Platform	Windows 2000, XP
Capacity	Supports 480 QE20 zones and 10 user-programmed groups of zones
Connection	Via audio and comms, PC required with two free RS232 ports
Dimensions (H x W x D)	310 x 238 x 105 (mm)
PART NUMBER	**FP0902**

ME0290 T-GEN/QE20 Mic. c/w four-way flat plug (ECP9702 only)

ME0213 QE20 Mic. c/w DIN plug (old ECP9002 only)

Hand-Held Microphone with Press to Talk

The hand-held dynamic microphone is fitted with a Press to Talk button. It is suitable for plugging into T-Gen2 and QE20 to provide emergency PA and recording of digitised speech messages and announcements. Two models are available; ME0213 has a DIN plug for use on older QE20 ECP9002, and ME0290 has a four-way flat plug for use on T-Gen2 and QE20 ECP9702.

PART NUMBER	
ME0213	Microphone C/W DIN plug for old QE20 ECP9002 only
ME0290	Microphone C/W four-way flat plug for T-Gen 50 and QE20 ECP9702 only

SU0168 Gooseneck Microphone

The SU0168 Gooseneck Microphone is a dynamic microphone with a cardioid polar pattern. This elegant gooseneck microphone features smooth, brilliant sound with excellent ambient noise control and feedback rejection. Its screw base is suitable for mounting on equipment or permanent desk mounting. The slimline design of this microphone makes it ideal for custom Paging Consoles.

It is supplied with 200mm flying leads and a mounting kit for FP0539 Paging Console.

SU0169 Desktop Microphone

The SU0169 Paging microphone is a desktop dynamic microphone with a cardioid polar pattern. It features a short-off Press to Talk switch with an open-off type extra switch. It has low handling noise and a 600 ohm balanced output impedance. Compatible with the FP0539 Paging Console.

SPECIFICATIONS	
Polar pattern	Cardioid (unidirectional)
Output impedance	600 ohms balanced at 1kHz
Rated sensitivity	-58dB (1kHz, 0dB=1 V/Pa)
Frequency response	100-10kHz
Cable	Two core-shielded, plus two core
Cable length	2.5m
Termination	Five-pin DIN plug
Dimensions (H x W x D)	215 x 100 x 150 (mm)
Weight	440g
PART NUMBER	**SU0169**

FP0938 Warden Intercom Point Phone

Designed specifically for use in Vigilant Emergency Warning Systems, Warden Intercom Points (WIPs) are used to communicate between floor wardens and the main Emergency Evacuation panel. When the handset is lifted, the WIP automatically rings the Emergency Evacuation Panel. When the Panel calls the WIP, the call tone sounds through the speaker in the body of the phone. When the handset is lifted, it automatically switches from the speaker in the body to the speaker in the handset. The FP0938 is compatible with the Vigilant QE20 Emergency Intercommunication System.

SPECIFICATIONS	
Call tone	> 80dB 1W/1m
AC impedance	600 ohms (off-hook)
Screw terminations	To suit 0.75-1.5mm^2 wire
Ambient temperature	-10°C to 50°C
Material	Red ABS
Dimensions (H x W x D)	215 x 70 x 70 (mm)
ActivFire Listed	afp-524
PART NUMBER	
FP0938	WIP phone
C0612D	External speaker

EA0412 Warden Intercom Point Phone Surface-Mount Enclosure

EA0412 is designed for use in Emergency Warning Systems, for protection of Warden Intercom Points (WIPs) against impact.

The enclosure door is held closed by a magnetic catch. The enclosure is open-backed and is finished in red powder coat.

SPECIFICATIONS	
Material	Mild steel
Finish	Red powder coat
Dimensions (H x W x D)	386 x 156 x 155 (mm)
Weight	1.8 kg
PART NUMBER	**EA0412**

SU0608 Evacuation Manual Call Point (White)

The SU0608 is surface-mounted with a plastic-coated glass element to ensure reliable, safe operation. It is coloured white (for EWIS applications) to be used where a fire alarm system does not exist. The call point is operated when the glass element is snapped, releasing the MCP's microswitch, which signals an alarm to the EWIS panel. The element is snapped by pressing on its centre – a hammer, or other impact device, is not required.

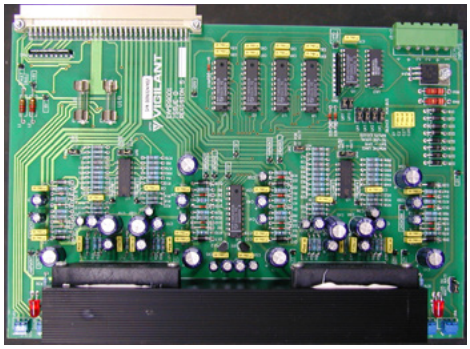
SPECIFICATIONS	
Maximum current	2A at 30VDC
Contact resistance	100 ohms (max.)
Legend	Emergency alarm
Ambient temperature	-10 to 55°C
Relative humidity	95% (non-cond.)
Ingress Protection	IP24D
Dimensions (H x W x D)	93 x 89 x 60 (mm)
PART NUMBER	
SU0608	White MCP and back box
515.001.025	Spare glass, pk of five

QE20 spares – amplifiers

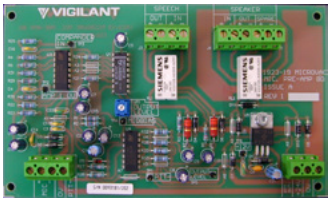
QE90 spares – kits

PART NO.	DESCRIPTION
FP1186	FP, kit, QE20, module mounting frame with c/w MTG
FP1187	FP, kit, QE20, five-module support kit,15U
FP1189	FP, kit, QE20, nine-module support kit, 27U
FP2000	FP, QE20 controller module
FP2001	FP, QE20 PSE, 24V, 27A, spare
FP2002	FP, QE20 Relay Output Module
FP2003	FP, QE20 Basic WIP Module
FP2005	FP, QE20 RS485 Network Module
FP2006	FP, QE20 Amplifier Module quad 25W
FP2007	FP, QE20 Amplifier Module quad 60W, with relays
FP2008	FP, QE20 Amplifier Module dual 120W
FP2009	FP, QE20 Amplifier Module 240W
FP2010	FP, QE20 User Interface Module
FP2011	FP, QE20 8Z/8WIP Extender Module
FP2012	FP, QE20 16-WIP Extender Module
FP2013	FP, QE20 16-Zone Extender Module
FP2014	FP, QE20 WIP Tray
FP2015	FP, QE20 Extender Module, blank
FP2019	FP, QE20 Rack Cabinet Cooling Modules
FP2020	FP, QE20 19in. rack cabinet battery shelf
FP2021	FP, QE20, eight-zone expansion board with loom and MTG
FP2022	FP, QE20, eight-WIP expansion board with loom and MTG
FP2023	FP, QE20, two four-way 100V Splitter Modules
FP2024	FP, QE20, Fibre IP Networking Kit, single mode
FP2025	FP, QE20, Fibre IP Networking Kit, multi mode
FP2026	FP, QE20 SECP Controller Module with MTG
FP2027	FP, QE20 fused power distribution board and looms with MTG
FP2028	FP, QE20 cooling fan filter, pk of five
FP2029	QE20 GP mounting bracket, one module wide
734-008	Loom, 600mm 4100 PDI power/ 'comm PDI to PDI bay - QE20 four-way QBus/UBus
733-672	Loom, 2,400mm 4100 PDI cabinet to PDI cabinet harness – QE20 four-way QBus/UBus
LM0650	Loom, 1993-27, QE20, battery/PSE
LM0651	Loom QE20 battery/4 PSE 30A fused 1993-28
LM0652	Loom QE20 battery supply (M6) 1993-29
LM0653	Loom QE20 battery link 100A fused 1993-30
LM0654	Loom,1993-31, QE20, DC supply bay link
LM0655	Loom,1993-32, QE20, DC
LM0656	Loom, 1993-33, QE20, DC
LM0660	Loom, Ethernet, RJ45, UTP
ME0733	QE20 Rack Cabinet, 40U310 blank door, Titania
PA1179	PA1179 100V to 1V audio attenuator ADJ

QE90 spares – amplifiers

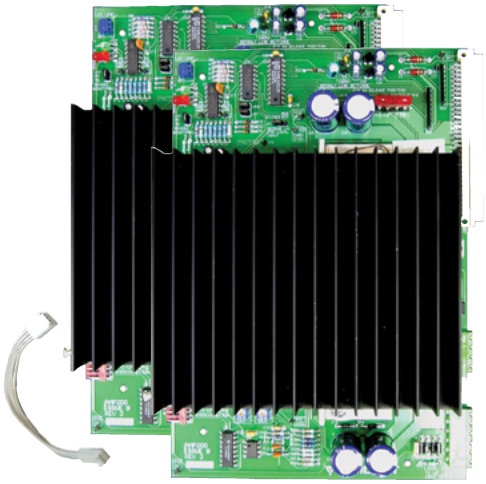


PA0650 EAMP9001 4x10W / 2x25W Zone Power Amplifier PCB
Dimensions: 233 x 159 x 48 (mm)



PA0688 1923-19

Microvac Mic Pre-Amp



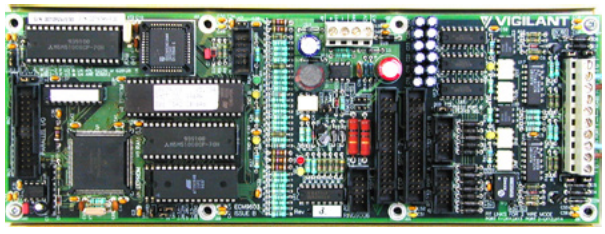
KT0519 200W Amplifier Module Kit

The 200W amplifier comprises two PA0647 AMP200 PCB modules and one LM0141 FRC loom.

PA0690 HAMP9308

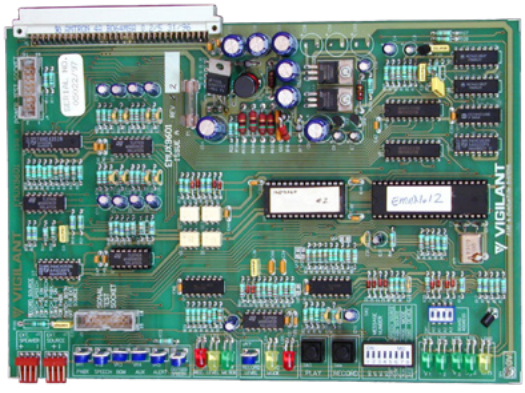
2x50W Amplifier Module

QE90 spares – communications



FP1072 ECM9603 (PA0698)

Evacuation Communications Module



PA0758/759 EMUX9601

Multiplexer 16/60s Speech with AS 2220 and ISO 8201 Selection

QE90 spares – transformer modules

PA0691 HTRN9308-1

2x50W Transformer Module

PA0695 HTMS9408-2

2x50W Transformer Music Switching Module

PA0692 HTRN9308-2

1x100W Transformer Module

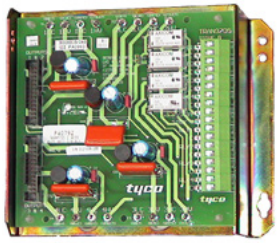
PA0696 HTMS9408-2

1x100W Transformer Music Switching Module

PA0648 TRAN200

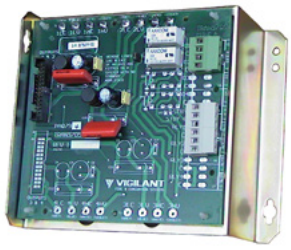
200W Transformer

Dimensions: 140 x 140 x 85 (mm); 3kg



FP1078 TRAN9705-2 (PA0792)

4x25W Transformer Module c/w relays, incl. two PA0650 EAMP9001

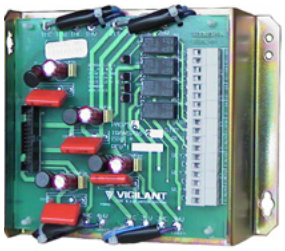


FP1076 TRAN9705-4 (PA0794)

2x25W Transformer Module c/w relays, incl. PA0650 EAMP9001

PA0795 TRAN9706-1

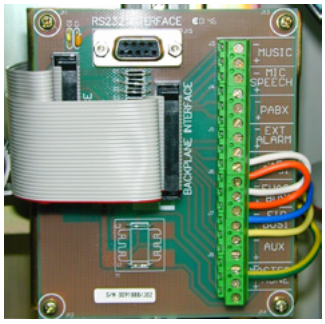
4x10W Transformer Module without relays



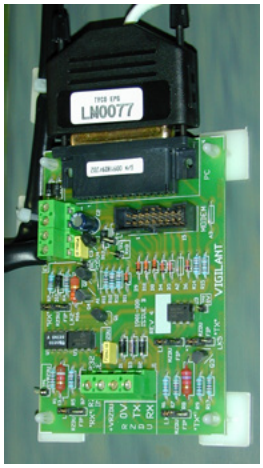
FP1077 TRAN9706-2 (PA0796)

4x10W Transformer Module c/w relays, incl. PA0650 EAMP9001

QE90 spares – interface modules



PA0657 SE9004 Signal Interface



PA0481 RZDU/RS232

Interface 1901-100, incl. LM0061

PA0644 VIF0907

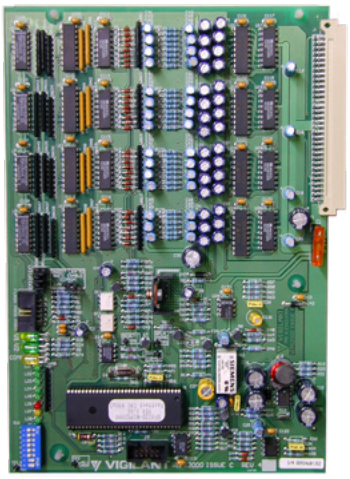
VoIP Interface incl. one LM0448, two LM0552, DIN rail mounting hardware

FP1071 SPIF9709 (PA0649) SECP Panel Interface PCB

QE90 spares list – major components

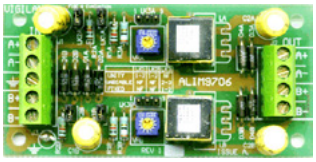
PART NO.	DESCRIPTION
FA2027	Keypad only, ECP+2Z Keyboard, no name, three WIP per zone
FA2029	Keypad only, 8Z Extender Keyboard, three WIP per zone
FP1083	Display assembly, three WIP per zone, eight-zone extender, incl. PCB
ME0207	ECP assembly, three WIP per zone, incl. ECP
ME0381	Assembly, ECP+2Z Keyboard, three-WIP/Z inner door and keypad only (>21U)
ME0382	Assembly, ECP 8Z Keyboard, three-WIP/Z inner door and keypad only (>21U)
PA0623	PCB ECP9702-2 evacuation control, socket for site-specific WIP s/w
PA1144	PCB assembly, WIPS2017 WIP secondary, 0V ref.
PA0643	PCB assembly, ECP9702-2 evacuation control panel, three WIP/zone
PA0646	PCB assembly, AMP200 200W Amplifier Module
PA0647	PCB assembly, AMP200 200W Amplifier Module
PA0648	PCB assembly, TRAN200 200W Transformer Module
PA0650	PCB assembly,, EAMP9001 4 Zone Power Amp
PA0653	PCB assembly, EMSP8911-2 Disp Kbd 3WIP/Zone - refer FP1083
PA0657	PCB Aassembly, QE90 SE9004 Signal Interface (DIN Rail)
PA0660	PCB assembly, QE90 BPLN2000 Backplane
PA0690	PCB assembly, QE90 HAMP9308 2x50W Amplifier Module
PA0691	PCB assembly, QE90 HTRM9308-1 2x50W Transformer Module
PA0692	PCB assembly, QE90 HTRM9308-2 1x100W Transformer Module
PA0695	PCB assembly, QE90 HTMS9408-1, 2x50W Transformer Music Switching Module
PA0758	PCB assembly, QE90,EMUX9601, Multiplexer 16sec Speech
PA0759	PCB assembly, QE90, EMUX9601, Multiplexer 60sec Speech
PA0792	PCB assembly, TRAN9705-2, 4x25W Module c/w relays
PA0794	PCB assembly, TRAN9705-4, 2x25W Module c/w relays
PA0795	PCB assembly, TRAN9706-1, 4x10W Module Without Rrelays
PA0796	PCB assembly, TRAN9706-2, 4x10W Module c/w relays
PA0916	PCB assembly, QE90 WTRM2000, WIP Termination (DIN)
FP1068	PCB assembly, FIB8910 FIP/BGA primary (DIN Rail)
FP1069	PCB assembly,, FIPE9004 FIP/BGA Extender Module (DIN Rail)
FP1070	PCB assembly, QE90 STRM9502 Strobe/relay Module (DIN Rail)
FP1071	PCB assembly, SPIF9709 Secondary Panel Interface (DIN Rail)
FP1072	PCB assembly, QE90 ECM9603 Evacuation Comms Module (DIN Rail)
FP1073	Assembly, WIP secondary and Termination PCBs Upgrade Kit
FP1074	Assembly, 100W Amp and HTRAN9308-2 Upgrade Kit
FP1075	Assembly, 2x50W Amp and HTRM9308-1 Upgrade Kit
FP1076	Assembly, 2x25W Amp and TRAN9705-4 Upgrade Kit
FP1077	Assembly, 4x10W Amp and TRAN9705-2 Upgrade Kit
FP1078	Assembly, 4x25W Amp and TRAN9705-2 Upgrade Kit
FP1079	Assembly, 200W Amp and TRAN200 Upgrade Kit

QE90 spares



PA1144 WIPS2017
WIP Secondary Module 0V Ref Inputs

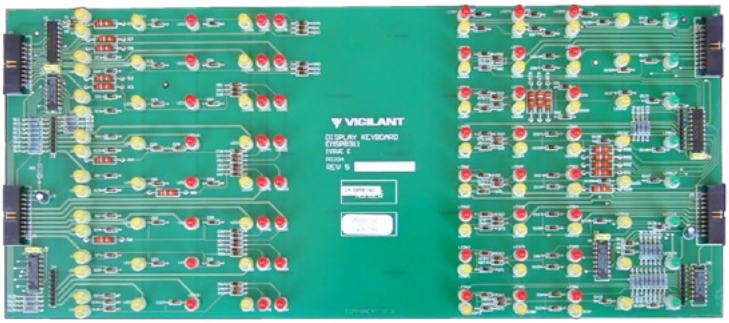
PA0916 WTRM2000
WIP Termination Module



PA0646 ALIM9706
Audio Line Isolator Module

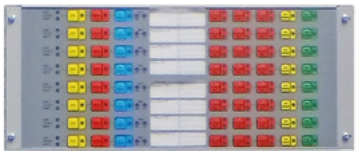
FP1068 FIB8910 (PA0651)
FIP/BGA Master Module

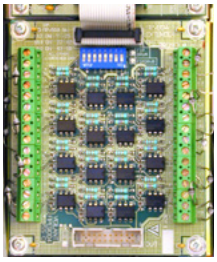
DD0084 FIP EOL Zener Diode



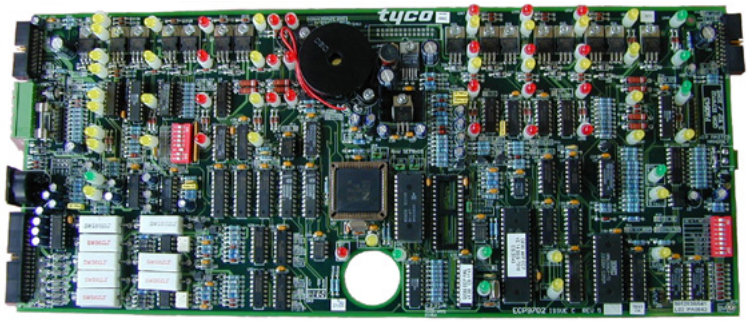
SM0595 EMSP8911-2
3 WIP/Zone Display Keyboard Module
For replacement part use FP1083

FP1083 8Z Display Extender 4U Door





FP1069 FIPE9004
(PA0652) FIP/BGA
Extender Module



PA0643 ECP9702-1
3 WIP/Zone Control Module

ME0207 ECP+2Z Display 4U Door
FA2027 ECP+2Z Keypad only

FP1070 STRM9502
(PA0697) Strobe/
Relay Module (WEB)
with AS 2220/ISO
8201 Selection

Warning system generators

Mini-Gen Mk2

Mini-Gen Mk2 connects directly to Vigilant fire alarm panels, but may be connected to other suitable panels. It utilises the fire alarm panel's warning system output supervision to supervise the wiring for open and short-circuit faults. Mini-Gen Mk2 has in-built software, allowing link selection to configure the Alert and Evacuate signal type and timing, including keywords and voice message. Part Numbers: PA1026 (PCB only), 4100-1026K (Simplex bracket).

T-Gen2 Emergency Warning System

Vigilant continues to be synonymous with effective and reliable emergency warning systems.

The T-Gen2 is the heart of a range of new, sophisticated emergency warning systems (EWS) complying with AS 4428.16 and NZS 4512. Drawing on over 100 years of innovation, T-Gen2 is powerful, feature-packed, yet easily configured to suit almost any installation requirement.

The T-Gen2 tone generator/amplifier module provides a 100V audio output suitable for wiring to multiple 100V loudspeakers located in the evacuation zone of the building. Available in two configurations, the T-Gen 60 provides a 60W RMS output and the T-Gen 120 provides 120W RMS. Both models include:

- 2A supervised strobe output
- PA mic. audio/PTT input
- Six supervised digital inputs
- Two line-level audio inputs
- Four open collector outputs
- Primary/secondary operation

Grade 3
T-Gen2 Grade 3 is a single evacuation zone (all-out) system where the same warning signal is generated throughout the building. A single-storey building of less than 2,000m^2 will have a single output from the emergency warning system wired to all speakers. A multi-storey building (up to 25m high) or a single storey of greater than 2,000m^2 will need separate outputs per floor or area greater than 2,000m^2. These can be provided by adding 100V splitter or switching modules to the T-Gen2 output, or using secondary T-Gen2 units connected to the primary T-Gen2.

Grade 2
T-Gen2 Grade 2 is used where separate evacuation signals or phased evacuation is required to multiple evacuation zones, but where a Grade 1 or emergency intercom system isn't required under the National Construction Code. It's used in buildings up to 25m high.

Grade 2 is a multi-zone emergency intercom system where the activation and silencing of the warning signals may be controlled by the fire alarm panel. A Grade 2 system may have a phased evacuation and may involve an alert signal emergency speech function. It must be powered separately to the fire alarm panel.

- Residential care
- Apartment building
- Car park
- Detention facility
- Hotel
- Boarding school
- Accommodation
- Shopping centre
- Office Building
- Warehouse

At a glance

Grade 3: Simple 'all-out' EWS for single-/multi-storey buildings

Grade 2: Phased evacuation and multi-zone EWS

FP1115 T-Gen60
60W Amplifier Module

FP1116 T-Gen120
120W Amplifier Module
(with fan)

T-Gen2 Emergency Warning Generator

T-Gen2

The Vigilant T-Gen2 is an emergency warning system (EWS) with a supervised 100V speaker line and digitised speech messages. The T-Gen2 is typically installed in a fire alarm panel; it is readily mounted in the Vigilant MX1 and Simplex 4100ESi panels, in standalone Grade 3 building-occupant warning systems or Grade 2 emergency warning systems. Two amplifier modules are available.

FP1115

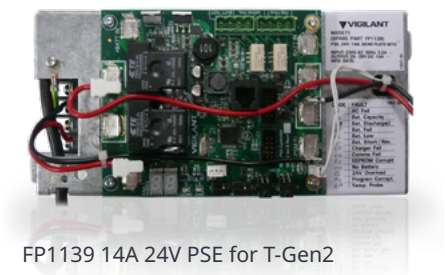
T-Gen60 is able to drive a 100V line speaker output with up to 60W of load. It supports two non-emergency audio inputs (i.e., background music, paging), a microphone audio input (i.e., speech, or paging), six supervised inputs (e.g., alarm, fault, paging), four open-collector outputs, normally energised fault relay and a supervised single polarity 2A strobe output.

FP1116 T-Gen120

T-Gen120 is able to drive a 100V speaker load up to 120W and supports the same features as the T-Gen60.

Secondary operation

Up to 10 T-Gen2 can be wired together for additional power output.



FP1139 14A 24V PSE for T-Gen2

FP1142 14A PSE mounting bracket for 4100 PDI bay (not shown)

Tone generator

The T-Gen2 amplifier module generates emergency warning signals for alarm and occupant warning systems where a full EWCIE to AS 1670.4 is not required. Different tones can be selected, including AS 4428.16, AS 2220 Alert and Evacuate signals and the ISO 8201 Temporal pattern Evacuate Signal. T-Gen2 provides speaker-line fault supervision, public address facilities and pre-recorded voice messages.

Operation and configuration

Operation of the T-Gen2 is controlled by the programmable configuration held within it. This configuration can be selected from a number of pre-defined setups or specifically modified using a PC software called SmartConfig. This provides flexibility to customise the programming configurations and interface to other optional modules.

SPECIFICATIONS	FP1115	FP1116
Weight	0.65kg	1.5kg
Dimensions (H x W x D)	125 x 195 x 55 (mm)	125 x 195 x 110 (mm)
Supply voltage	19.2-28.8V	
Operating temperature	-5°C to 45°C	
Relative humidity	0-95% (non-cond.)	
Storage temperature	-20°C to 70°C	
Quiescent current	45mA[1] to 170mA[2]	
Active current (27VDC[5])	3A at 60W	6A at 120W
Line voltage AC (tones) DC (supervision)	100VAC RMS (tones) 2.5VDC (56k ELD 5V (O/C))	
Line power tones/audio	60W	120W
Maximum. line capacitance	200nF	
Audio frequency range Audio 1 and Audio 2 Mic. input level	250mV RMS (min.) into 5k ohms[3] 3mV RMS to 100mV RMS[4]	
Digital inputs supervision	2k7 EOL, <3.5V active	
Open collector outputs	<1V at 100mA (max.) 30VDC	
Fault relay	Changeover, 2A at 30VDC	
Interfaces	OLED, four-button menu, structured QBus primary/secondary, user interface, PSE 100V Switching Module	
On-board storage	4MB (configuration and audio)	
MicroSD card	32GB (max.), FAT32 support	

Headphone output (internal) Load impedance Output level	 8 ohms (min.) 6mW 1.30V rms	
ActivFire Listed	afp-3315	
FPANZ Listed	VF/424	VF/425

Notes
1. Power Save Mode (audio off). 2. Audio idle. 3. Isolated, for full power. 4. PTT driven, optionally supervised. 5. Excludes strobe current.

FP1121 3U Grade 3 User Interface with T-Gen60 and mic., shown installed in 15U Vigilant MX1

FP1144 8U 60W T-Gen2 Grade 3 BOWS

FP1134 15U 120W T-Gen2 Grade 3 BOWS

T-Gen2 Emergency Warning System (EWS) – Grade 3

The Vigilant T-Gen2 Grade 3 EWS forms part of a building-occupant warning system (BOWS) that can be incorporated into fire panels with the T-Gen2 powered from the FIP power supply. For larger systems, the FP1139 PSE can be added to power the T-Gen2 amplifiers. A 3U User Interface with PA microphone can be supplied in grey or black to suit the MX1 and 4100ESi respectively. Additionally the grey 3U User Interface is available with a T-Gen60 mounted on the rear. A self-contained Grade 3 BOWS containing a T-Gen2, integral power supply and PA microphone can be supplied to connect directly to a fire alarm panel, but can also be used as a standalone unit. The BOWS is available in two standard configurations:

- 8U with 60W audio output for smaller buildings (exp. to two 60W outputs)
- 15U with 120W audio output (exp. with an additional 60W / 120W output)

Both support a number of optional 100V switching or 100V splitter modules to provide multiple protected outputs.

SPECIFICATIONS	FP1144 (8U)	FP1134 (15U)
Weight	17.5kg	26kg
Dimensions (H x W x D)	440 x 550 x 210 (mm)	750 x 550 x 210 (mm)
Supply voltage	19.2-28.8V	
Operating temperature	-5°C to 45°C	
Relative humidity	0-95% (non-cond.)	
Storage temperature	-20°C to 70°C	
Quiescent current	290mA[1]	
Active current 27VDC[5]	3.1A at 60W	6.1A at 120W
Line voltage AC (tones) DC (supervision)	 100VAC RMS (tones) 2.5VDC (56k ELD 5V (O/C/))	
Line power tones/audio	60W RMS	120W RMS
Maximum line capacitance	200nF	
ActivFire Listed	afp-3315	
FPANZ Listed	VF/429	VF/430

Notes
1. Power Save Mode (audio off). 2. Audio idle. 3. Isolated, for full power. 4. PTT driven, optionally supervised. 5. Excludes strobe current.

FP1122 3U Grade 3 User Interface incl. mic., no PCB (grey)
FP1123 3U Grade 3 User Interface incl. mic., no PCB (black)

FP1117 T-Gen2 Switching Module
FP1118 T-Gen2 Splitter Module
FP1143 High Level Interface Module

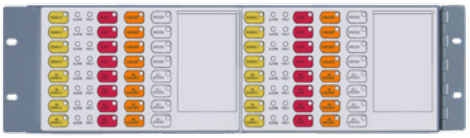
The 100V Switching and switching and splitter modules provide four 100V speaker outputs from one 100V input, with each output separately supervised and isolated if a short circuit fault is detected.

SPECIFICATIONS	FP1117	FP1118
Operating voltage	19.2-28.8VDC	
Quiescent current	10mA at 24V	15mA at 24V
Alarm state current[1]	43mA at 24V	40mA at 24V
100V EOL resistor	6k ohms (one branch) 100k ohms (two branches)	
100V load/output	100W	
100V load all four outputs)	120W	
Relay contact rating	–	1A at 24VDC
Fault on 100V in	–	25k ohms
Ambient temperature	–5°C to 45°C	
Relative humidity	10-95% (non-cond.)	
Dimensions (H x W x D)	142 x 104 x 40 (mm)	
Wire size (max.)	2.5mm^2	
ActivFire Listed	afp-3315	afp-3315
FPANZ Listed	VF/426	VF/427
PART NUMBER	**FP1117**	**FP1118**

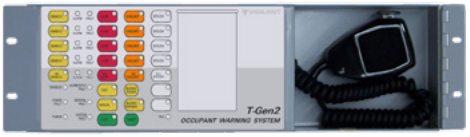
1. All four outputs in short circuit fault.

PART NUMBER	
FP1115	T-Gen60 Class D 60W amplifier
FP1116	T-Gen120 Class D 120W amplifier
FP1117	Four-way 100V switching module
FP1118	Four-way 100V splitter module
FP1119	T-Gen2 60W/120W mounting bracket for PDI bay
FP1120	T-Gen2 Splitter/Switching Module bracket for PDI
FP1121	Grade 3 3U User Interface with T-Gen60, mic.
FP1122	Grade 3 3U User Interface and mic., grey
FP1123	Grade 3, 3U User Interface and mic. (Simplex black)
FP1130	15U expansion cabinet, gear plate, 14A PSE
FP1134	15U 120W T-Gen2 Grade 3 BOWS, 14A PSE
FP1135	60W isolation amplifier
FP1139	14A 24V PSE gear plate mount
FP1142	14A PSE mounting bracket for PDI bay
FP1143	T-Gen2 High Level Interface Module
FP1144	8U 60W T-Gen2 Grade 3 BOWS, 14A PSE
ME0290	Dynamic mic. with 1m coiled lead
ME0490	ME0290 dynamic mic. with longer lead
ME0292	T-Gen empty box, 240 x 295 x 85 (mm)

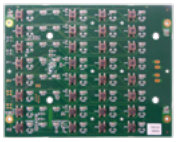
FP1129 T-Gen2 120W 15U Grade 2 EWS
FP1130 T-Gen2 15U EWS expansion cabinet (not shown)



FP1126 T-Gen2 3U Grade 2 Zone Extender



FP1124 T-Gen2 3U Grade 2 User Interface, incl. mic.



FP1128 T-Gen2 8-Zone
Grade 2 Expansion Board

SU0360 4-Zone
Paging Console, A4488

T-Gen2 Emergency Warning System (EWS) – Grade 2

This is a multi-zone EWS where the activation and silencing of the warning signals are controlled by the fire alarm system. This will usually have a phased evacuation and may involve the alert signal as well. The emergency speech function may also be present. It must be powered separately to the fire alarm panel, but is controlled by it.

A Grade 2 EWS may be used in buildings up to 25m high, where phased evacuation is required but Warden Intercom Point phones are not used.

The Grade 2 EWS and associated 14A PSE may be housed with the MX1 or 4100ESi FIP in a suitable 28U to 40U cabinet, or supplied as a self-contained EWS in its own cabinet. Up to 20 zones in total can be provided by adding an FP1126/27 eight-zone 3U expansion door fitted with an optional FP1128 eight-zone expansion kit.

A self-contained EWS is available in a standard configuration (FP1129) in a 15U cabinet with a 120W audio output and one 100V switching module. It can be expanded to support two T-Gen120 amplifiers or up to six switching module for additional zone outputs.

The gear plates of FP1129/FP1130 can support up to 3three T-Gen60 or T-Gen120 units, up to two 14A PSE, up to 10 100V switching/splitter modules and one HLI module.

The FP1130 expansion module cabinet must be mounted immediately adjacent to the FP1129 EWS cabinet with the interconnection cabling running directly between them.

SPECIFICATIONS	FP1129 (15U)
Weight	26kg
Size (H x W x D)	750 x 550 x 211 (mm)
Supply voltage	19.2-28.8V
PSU capacity	14A peak
Battery space	2x 40Ah
Operating temperature	-5°C to 45°C
Relative humidity	0-95% (non-cond.)
Storage temperature	-20°C to 70°C
Quiescent current[1]	300mA
Operating current at 27VDC[4]	6.2A at 120W
Line voltage AC	100V RMS
DC (supervision)	2.5V (56k ELD 5V (O/C))
Line power	120W
Maximum line capacitance	200nF
Audio performance SNR THD Freq. range +/- 1dB Freq. range +/- 3dB	 >75 dBA <0.25% 260-3,800Hz 215-8,400Hz
100V speaker-line supervision ELD One branch Two branches	 56k 0.4W 100k 0.4W
Strobe output (one to three branches)	 1x10k to 3x27k 0.4W
Current rating	2A (max.)

Audio inputs 1 and 2	250mV RMS (min.) into 5k ohms[2]
Mic. input level	3-100mV RMS[3]
Digital input supervision	2k7 EOL, <3.5V active
Open collector outputs	<1V at 100mA, 30VDC
Fault relay	Changeover, 2A at 30VDC
Interfaces	OLED, four-button menu
Primary/secondary	~9 secondary
On-board storage	4MB (configuration and audio files)
MicroSD card	32GB (max.), size FAT32 support
Headphone output (internal) Load impedance Output level	8 ohms (min.) 6mW 1.30VRMS
ActivFire Listed	afp-3315

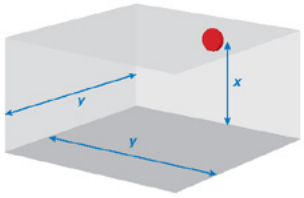
Notes
1. Audio idle. 2. Isolated, for full power. 3. PTT driven, monitored.
4. Excludes strobe current.

PART NUMBER	
FP1115	T-Gen60 Class D 60W amplifier
FP1116	T-Gen120 Class D 120W amplifier
FP1117	Four-way 100V switching module
FP1118	Four-way 100V splitter module
FP1119	T-Gen2 60W/120W mounting bracket for PDI bay
FP1120	T-Gen2 Splitter/Switching Module bracket for PDI
FP1124	Grade 2 3U User Interface and mic. (grey)
FP1125	Grade 2 3U User Interface and mic. (Simplex black)
FP1126	Grade 2 3U 16-zone user interface extender (grey)
FP1127	Grade 2 3U 16-zone user interface extender (black)
FP1128	Eight-zone expansion board for FP1126/27
FP1129	T-Gen2 Grade 2 EWS 15U four-zone 120W 14A PSE
FP1130	15U expansion cabinet, gear plate, 14A PSE
FP1139	14A 24V PSE gear plate mount
FP1142	14A PSE mounting bracket for PDI bay
FP1143	T-Gen2 High Level Interface module
SU0360	A4488 four-zone paging console
SU0361	A4489 Audio switcher module (use with SU0360)
ME0290	Dynamic mic. with 1m coiled lead
ME0490	ME0290 dynamic mic. with longer lead

Warning system ancillaries

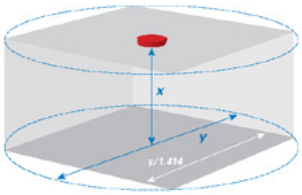
VADs – AS ISO 7240.3/23 approved conventional sounders and beacons

The Solista and ROLP visual alarm devices (VAD) are AS ISO 7240.23 approved and SAI Global Listed. Each VAD has a unique lens design that distributes the red or white light to achieve the required illumination using minimum current consumption. The VADs are ideal for a variety of applications, including bedrooms, bathrooms and toilets, and plantrooms. They can be used on MX1, 4100ESi and QE90. A matching range of 'tag' plates is also available so the visual alarm devices can be installed to AS 1670.1:2018 and AS 1670.4:2018.



VAD class designation

Each VAD has a class designation that defines the VAD usage and coverage area. The wall VADs have a code of W-2.4-7.5. The W means it's a wall-mounted VAD, the 2.4 means the VAD can be mounted up to a height of 2.4m (x) from the floor, and the 7.5 means the flash intensity covers an area of 7.5m x 7.5m (y) in front of the VAD.



The ceiling mounted VADs have a rating of C-3-7.5. This means it's a ceiling-mounted VAD, which can be installed to a height of 3m (x), and covers a cylindrical area of 7.5m (y) diameter around the VAD.

Features

- Low current consumption of 10-25mA
- Wide operating voltage, with built-in diode
- Up to 7.5m x 7.5m coverage area
- 0.5Hz or 1Hz flash rate, high- and low-intensity
- AS ISO 7240.23 aListed
- SAI Global Listed – licence number: SMK40585

SOLISTA LX WALL BEACON	
Mounting type	Wall
Voltage	9-60VDC
Current	10-25mA (dependent on setting)
Coverage (y)	7.5m (switchable to 2.5m)[1]
Mounting height (x)	2.4m (max.)
Coverage volume code	W-2.4-7.5
Coverage volume	135ft^3
Flash rate	1Hz (switchable to 0.5Hz)
Operating temperature	-25ºC to 70ºC
Monitoring	Reverse polarity

Protection	IP33C Shallow Base IP65 Deep and U Base
Weight	100g
Body colour	White or red
Flash colour	White or red
Sync	Automatic synchronisation of flash rate

1. CNPP test results.

PART NUMBER	
576.080.016	Red flash, red body, deep base (IP65)
576.080.022	Red flash, white body, shallow base
576.080.018	White flash, white body, shallow base

ROLP LX WALL SOUNDER BEACON	
Mounting type	Wall
Voltage	18-28VDC (fire use)
Current	22-37mA (setting dependent; sounder and beacon, tone 3)
Coverage (y)	7.5m (switchable to 2.5m)[1]
Mounting height (x)	2.4m (max.)
Coverage volume code	W-2.4-7.5
Coverage volume	135ft^3
Flash rate	1Hz (switchable to 0.5Hz)
Operating temperature	-25ºC to 70ºC
Monitoring	Reverse polarity
Protection	IP65
Weight	200g
Body colour	Red
Flash colour	Red
Sound output	2dBA (typ. tone 3)
Sync	Independent synchronisation of flash rate and tone

1. CNPP test results

PART NUMBER	
576.080.024	Red flash, white body
576.080.019	Red flash, red body

ROLP SOUNDER	
Voltage	18-28VDC
Current	12mA (typ. tone 3)
Sound output	102dBA (typ. tone 3)
Tones	32
Volume control	10dB
Monitoring	Reverse polarity
Temperature	-25ºC to 70ºC
Protection	P54[1]; IP65[2]
Construction	ABS
Weight	0.25Kg
Colours	Red or white
Sync	Automatic synchronisation

1. Shallow base.
2. Deep/U base.

PART NUMBER	
576.080.020	Red body, deep base (IP65)
576.080.025	White body, shallow base

SOLISTA LX CEILING BEACON	
Mounting type	Ceiling
Voltage	9-60VDC
Current	10-25mA (setting dependent)
Coverage (y)	7.5m (switchable to 3m)[1]
Mounting height (x)	3m (max.)
Coverage volume code	C-3-7.5
Coverage volume	132m³ (21m³)
Flash rate	1Hz (switchable to 0.5Hz)
Operating temperature	-25°C to 70°C
Monitoring	Reverse polarity
Protection	IP33C Shallow Base
Weight	100g
Body colour	White
Flash colour	White or red
Sync	Automatic synchronisation of flash rate

1. CNPP test results.

PART NUMBER	
576.080.023	Red flash, white body, shallow base
576.080.017	White flash, white body, shallow base

EA0355

The EA0355 dual VAD can be set up as a two-wire connection to a QE20 or QE90 evacuation panel. The Alert phase activates the white flash VAD and Evacuate phase reverses the wiring polarity to activate the red flash VAD. The VADs have a unique lens design that distributes red or white light to achieve the required illumination using minimum current consumption.

The dual VAD unit includes an EVACUATE label positioned beneath the right VAD. Additionally, two label options are provided for the left VAD: FIRE and ALERT.

The dual VAD is designed to be mounted on flat walls or ceilings. It should be oriented so that the labels can be viewed easily upon entering the room.

The ceiling-mounted Solista LX VADs have a rating of C-3-7.5. This means it's a ceiling-mounted VAD, which can be installed to a height of 3m, and covers a cylindrical area of 7.5m diameter around the VAD.

Features

- Low current consumption of 10-25mA
- Wide operating voltage, with built-in diode
- ø7.5m volume coverage area at a 3m distance
- 0.5Hz or 1Hz flash rate, high- and low-intensity flash
- Optional Fire and Alert labels
- Two-wire connection

Tag Plates

The EA0345- EA0350 VAD Tag Plates are a series of “FIRE” and “EVACUATE” lettered signs suitable for installing alongside a visual alarm device (VAD) to comply with the VAD installation requirements in AS 1670.1 and AS 1670.4. Each tag plate is supplied with installation instructions, packaged in a plastic bag.

PART NO	PHOTO	TAG PLATE DESCRIPTION
EA0345		Round white tag plate with 15mm black FIRE and EVACUATE text. Application: use with round, indoor wall-/ceiling-mounted VADs and bases.
EA0346		Rectangular stick-on (adhesive-backed) white tag plate with 15mm black FIRE text. Application: use with indoor VADs.
EA0347		Rectangular stick-on (adhesive-backed) white tag plate with 15mm black EVACUATE text. Application: use with indoor VADs.
EA0348		Rectangular stick-on (adhesive-backed) red tag plate with 15mm white FIRE text. Application: use with indoor VADs.
EA0349		Rectangular stick-on (adhesive-backed) red tag plate with 15mm white EVACUATE text. Application: use with indoor VADs.
EA0350		Rectangular stick-on (adhesive-backed) red tag plate with 50mm white FIRE text. UV stable material suitable for outside use. Application: Fire brigade or external VAD.

	EA0345	EA0346/7	EA0348/9	EA0350
Size (W x H)	ø170mm	85mm x 30mm 150mm x 30mm	85mm x 30mm 150mm x 30mm	200mm x 75mm
Material	1mm PET	1.6mm exterior-grade acrylic	1.6mm exterior-grade acrylic	1.6mm exterior-grade acrylic
Colour	Black text White background	Black text White background	White text Red background	White text Red background
Text	FIRE x2; EVACUATE	FIRE/EVACUATE	FIRE/EVACUATE	FIRE
Font	15mm U65 Univers Bold TTF	15mm U65 Univers Bold TTF	15mm U65 Univers Bold TTF	50mm Sans Serif Bold TTF
Adhesive	–	3M 9086	3M 9086	1mm UHB Foam tape

ISO 8201 Strobe Driver Module

The ISO 8201 Strobe Driver Module generates an ISO 8201 compliant T3 pattern for the multi-candela strobe 4906-9104.

It connects directly to a supervised relay output of a fire alarm panel and drives one or more lines of strobes with a synchronised T3 pattern.

The fire alarm panel's output supervision supervises the wiring from the panel to the strobes. The output signals of up to five modules can be synchronised.

Four standoffs are supplied for mounting.

SPECIFICATIONS	
Operating voltage	17-30VDC
Operating current	25mA.
Quiescent current	0mA
Output strobe current	2A (max.)
Dimensions	93 x 67 x 20 mm
Mounting pattern (mm)	ø4 x 4 holes, 83 x 57
Operating temperature	0°C to 45°C
Relative humidity	0-95% (non-cond.)
Indicators	On (red)[1]
PART NUMBER	**PA1043**

1. This LED will flicker in time with the output cadence.

Vigilant EA0313 Dual Strobe

Where two distinct visible signals are required, the Vigilant EA0313 Dual Strobe unit is available. The dual strobes operate at 24V and provide a 2.6J output. The strobes may be powered in tandem over a two-wire circuit or independently over a four-wire circuit.

SPECIFICATIONS	
Operating voltage	20-30VDC
Operating current[1]	160mA
Flash energy	2.6J
Operating temperature	-30°C to 60°C
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	250 x 150 x 80 (mm)
Weight	450g
PART NUMBER	**EA0313**

1. Ratings at 24VDC, 5.6 ohms, with inrush current limiter fitted.

40020B

The 40020B is designed to be mounted on a flat external wall. It is weather-resistant and made of fire-resistant ABS. Screws, caps and a back box are supplied.

SPECIFICATIONS	
Operating voltage	20-30VDC
Operating current[1]	140mA
Flash energy	2.6J
Operating temperature	-5°C to 60°C
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	180 x 130 x 115 (mm)
Mounting	ø5.5mm x 4 holes, 150mm x 100mm
Weight	450g
PART NUMBER	
40020B	Strobe and back box
40020	Strobe only

1. Ratings at 24VDC, 5.6 ohms, with inrush current limiter fitted.

Combined Sounder/Beacon

A combined sounder and beacon featuring of the Roshni electronic sounder with a fully integrated Xenon beacon. These sounders are fully compatible with all Roshni tones. They are available in red, with red lens. There are two versions available: a shallow base (IP54) and a deep base (IP65).

SPECIFICATIONS	
Operating voltage	118-30VDC
Typical current	68mA at 24VDC
Flash energy	0.7J
Flash frequency	60/min
Tones	Roshni tones 3 and 14
Sound output	101dBA at 1m
Volume adjustment	0dB to -20dB
Operating temperature	-10°C to 55°C
Ingress protection	IP54, IP65
Dimensions (ø x D)	Shallow: 93mm x 92mm Deep: 93mm x 121mm
PART NUMBER	
20-118	Sounder/strobe, deep base (IP65)
576.501.224	Sounder/strobe, shallow base (IP54) C/W tone SW
576.501.227	Sounder/strobe, deep base, tone sw, separate sounder/ strobe operation

Multi-Tone Sounder

SPECIFICATIONS	
Operating voltage	9-30VDC
Operating current	27mA (24VDC, ISO 8201 T3)
Sound pressure level	109dBA (T3 tone)
Dimensions (ø x H)	90mm x 75mm
Operating temperature	-40°C to 70°C
Ingress Protection	IP45
PART NUMBER	**576.501.060**

SPECIFICATIONS	
Operating voltage	9-30VDC
Operating current	27mA (24VDC, ISO 8201 T3)
Sound pressure level	109dBA (T3 tone)
Dimensions (ø x H)	Deep base: 90mm x 96mm
Operating temperature	-40°C to 70°C
Ingress Protection	IP66
PART NUMBER	**576.501.062**

576.501.060 IP45 Multi-Tone Sounder

ESS7111XR

The ESS7111XR is a CENELEC approved EEx d IIC T4, IECEX EEx d T5 device that is capable of automatically synchronising its flash rate with other adjacent beacons. The flash intensity is rated at 5J. It features an adjustable stainless steel mounting bracket and is rated to IP67. IECEX Certificate SIM 04.0002.

SPECIFICATIONS	
Operating voltage	24VDC
Operating current	270mA
Dimensions (ø x H)	165mm x 246mm
Protection	IP67
Material	Aluminium
Approval	CENELEC EExdIICT4
PART NUMBER	**ESS7111XR**

576.501.062 IP66 Multi-Tone Sounder

ESS7010ISX

The ESS7010ISx is an EExia rated LED warning light. It is rated IECEX EExia IIC T4, ATEX certificate ITS02ATEX2006 and IECEX certificate SIR04.0039X.

SPECIFICATIONS	
Operating voltage	24VDC
Operating current	270mA
Flash energy	120fpm
Operating temperature	-40°C to 60°C
Relative humidity	~90% (non-cond.)
Ingress Protection	IP56
Dimensions (ø x H)	86 x 86 x 93 (mm)
Weight	400g
IECEX Certificate	SIR04.0039X
PART NUMBER	
ESS7010ISA	Amber lens
ESS7010R	Red lens

Ex Rated 100V Line Speaker 20W

SPECIFICATIONS	
Line voltage	100V
Power rating	20W
Power taps	1.5, 2,5, 6, 10, 20
SPL 1W/1m	110 dB
SPL at rated power	122dB
Eff. frequency range	310 to 8000
Dispersion (-6dB, 1Hz and 4kHz)	115°/30°
Material	Polyamide
Weight	2.3 kg
Ingress Protection	IP67
Ambient temperature	-50 to 150°C
Dimensions (ø x L)	237mm x 286mm
Approval	IECEX
Nemko/ Ex de IIB+H2 T4 / Ex 81218	
PART NUMBER	**HP-20EEXIIN(T)**

HP-20EExIIN(T) – 20W

EX II GD Zone 22 EEx nA II T3
/Nemko 03ATEX3568

EA0017 100V Line 30W Horn Speaker

This IP66 rated weatherproof horn speaker is ideal for indoor or outdoor use. It features a marine-grade, aluminium mounting bracket and stainless steel fixings, making it ideal for use in marine environments, on board drilling rigs, ships, industrial plants and other areas of harsh environments. The EA0017 will also endure extreme temperature variations. The UV-stabilised ABS construction, coupled with the aluminium mounting bracket and stainless steel fixings, make it the first choice for use in outdoor and marine applications.

SPECIFICATIONS	
Power rating	30W
Power taps	3.75, 7.5, 15, 30 (W)
Sound pressure level	109dB 1W at 1m
Frequency response	330-8kHz
Dispersion angle	130°
Dimensions (ø x L)	238mm x 287mm
Weight	2.6kg
Operating temperature	-20°C to 55°C
Ingress Protection	IP66
PART NUMBER	**EA0017**

EA0020 8 Ohm 10W Horn Speaker

The EA0020 is a high-performance horn speaker for use in smaller PA applications requiring a low impedance audio solution. It is ideal for use as an external sounder for the Vigilant IP65 AVI Mk2 where increased warning tone volume is required. The EA0020 should be mounted adjacent to the IP65 AVI Mk2. The cable supplied with the speaker should enter the AVI using the supplied 16mm cable glands and be terminated at the AVI controller board.

SPECIFICATIONS	
Impedance	8 ohms
Power rating	10W
SPL 1W at 1m	104dB
Frequency response	340-10kHz
Dispersion angle	110°
Dimensions (ø x D)	180mm x 230 mm
Weight	1kg
Material	ABS
Operating temperature	-20°C to 55°C
Relative humidity	10-95% (non-cond.)
Ingress Protection	IP65
PART NUMBER	**EA0020**

C2052 Wurli-Gig™ Horn Speaker Mount

It is no longer necessary to use solid wall fasteners costing around $2 each (i.e., $4/horn). The Wurli-Gig™ is designed to be installed with standard 50mm green wall plugs and 8G self tappers costing only cents. The Wurli-Gig™ can save installation labour by up to 70%, and drastically reduce the money spent on fasteners.

SPECIFICATIONS	
Colour	Grey
Material	ABS, UV stabilised
Dimensions (H x W x D)	120 x 50 x 40 (mm)
PART NUMBER	**C2052**

EA0025 'One-Shot' 100V Line Speaker – AS 7240.24

The 'One-Shot' PA speaker and grille is designed to install easily into 10-13mm gyprock/plaster/acoustic ceilings. Simply drill the required size hole, terminate the wiring and push the speaker into the ceiling until it snaps into place. They are designed to meet the requirements of AS ISO7240.24, with a cover and 22µF capacitor. The transformer has five power taps from 0.33-5W and a four-way, wire-protected terminal block.

SPECIFICATIONS	
Power rating	5W
Power taps	0.33, 0.66, 1.25, 2.5, 5 (W)
Sound pressure level	90dB 1W at 1m
Frequency response	100-15kHz
Ceiling cutout	ø140mm
Mounting depth	117mm (incl. ceiling tile)
Dimensions (ø x H)	159mm x 122mm
Ambient temperature	-25°C to 55°C
Weight	700g
ActivFire Listed	afp-3199
PART NUMBER	
EA0025	'One-Shot' speaker
EA0034	Ceiling tile support pan
EA0035	Ceiling tile support split ring

EA0027 100V Line 30W Horn Speaker – AS 7240.24

The EA0027/28 range of 'one-shot' horn speakers have been engineered to meet the requirements of evacuation and occupant warning systems. The high-efficiency speaker and transformer combination ensures high sound pressure levels, wide frequency response, superior speech intelligibility and reproduction for fire alarm and evacuation warning systems. All components of the fixture are manufactured from high-quality, long-lasting, flame-retardant material and tested to AS ISO7240.24:2015. On-site installation is simple and straight forward with oversized cable glands and terminal block. With a patentedtwist-lock rear cover and the patented 'dog leg' bracket, substantial labour cost savings may be achieved.

SPECIFICATIONS	
Power rating	10W
Power taps	1.25, 2.5, 5, 7.5, 10 (W)
Sound pressure level	98dB 1W at 1m
Frequency response	10-250Hz
Dispersion angle	130°
Dimensions (ø x L)	180mm x 275mm
Weight	1.8kg
Operating temperature	-25°C to 55°C
Ingress Protection	IP66
ActivFire Listed	afp3200
PART NUMBER	
EA0027	10W horn in white
EA0028	10W horn in black

EA0031/32 One-Shot 200mm 100V Line Surface Mount Speaker – AS 7240.24

EA0031/33 are designed to mount directly to the underside of concrete slabs or inaccessible ceilings. The housing is surface-mounted with concealed internal fixings. Speaker cable entry can be either from the rear, or via surface-mounted conduit (four 19mm conduit knockouts are provided).

The speakers are fitted with a 100V line-tapped transformer and include a four-way, wire-protected terminal strip and a 22µF bipolar capacitor for line monitoring. These speakers feature the one-shot design, simply snap-fit in seconds to the surface-mounting ring, reducing installation time considerably.

They are designed to meet AS 7240.24:2015.

SPECIFICATIONS	EA0031/32	EA0033
Line voltage	100V	
Power rating	5W	15W
Power taps (W)	0.3, 0.6, 1.2, 2.5, 5 (W)	1.2, 2.5, 5, 10, 15 (W)
SPL 1W/1m	92dB	95dB
Frequency response	100-15kHz	80-12kHz
Monitoring capacitance	22µF bipolar	
Operating temperature	20°C to 55°C	
Dimensions (ø x H)	310mm x 85mm	
Weight	1.36kg	
Indoor applications only		
ActivFire Listed	afp-3295	Pending
PART NUMBER		
EA0021 (CF0715)		
EA0032 (CF0716)		
EA0033 (CF0720)		

100V Line Audio Attenuators

These 100V Line Audio Attenuators install in a standard electrical flush box or mounting block. Screwdriver terminals enable a simple and neat connection. Models for 10W, 40W and 100W have an override relay facility. With fire evacuation systems, it is necesary to override the attenuator setting to broadcast an announcement at full volume. The override relay requires 24VDC to allow the attenuator to operate normally. This 24VDC can be provided from the QE90 Amplifier Transformer Relay Output.

SPECIFICATIONS			
Power rating (100V line)	10W	40W	100W
Attenuation	0-26.3dB		0-33dB
Relay			
Operation voltage	24VDC (typ.)		
Wall box size	1 gang		2 gang
PART NUMBER	**A2260**	**–**	**A2260**

EA0038 and EA0039

C2260 and C2261 are ceiling-mounted speakers certified to the AS I7240.24 standard for fire and evacuation announcements in buildings. Each speaker is fitted with a fire retardant speaker/transformer dome and is fitted with oversized cable glands and terminal blocks for easy, on-site termination. The speaker utilises the One-Shot snap-fit mounting system.

SPECIFICATIONS	
Rated noise power	5W (100V line)
Power taps and impedance (100V line)	0.33W 30k ohms 0.66W 15k ohms 1.25W 8k ohms 2.5W 4k ohms 5W 2k ohms
Sensitivity	89dB (1W at 1m), 77dB (1W at 4m)
Maximum sound pressure level	96dB (5W at 1m), 84dB (5W at 4m)
Frequency response	100-15kHz
Coverage angle (-6dB)	500Hz: >180° 1,000Hz: 180° 2,000Hz: 160° 4,000Hz: 75°
Environmental type	A (for indoor applications as per standard)
Speaker component	100mm 4in. paper cone speaker
Mounting hole	ø140MM
Mounting method	Three plastic, spring-loaded clips
Line monitoring	Yes, 22µF bipolar capacitor
Applicable cable	2.5mm² (14AWG) max. conductor area
Connection	Four-way screw terminal
Finish	White (C 2260) or black (C 2261) flame retardant ABS grille (ABS AF312C) and clear flame retardant ABS spring clips (Makrolon 6557)
	Red flame retardant ABS transformer dome cover (Starex VH-0800) and powder-coated aluminium grille insert (RAL9003 white, RAL9004 black)
Dimensions (ø x D)	159mm x 65mm
Weight	710g
Quantities	24 per carton, 720 per pallet
PART NUMBER	
EA0038	Speaker, One Shot, 100mm, low profile, 5W, white aluminium, ISO7240.24 (C2260)
EA0039	Speaker, One Shot, 100mm, low profile, 5W, black aluminium, ISO7240.24 (C2261)

EA0041 and EA0042

CF2134 and CF2135 are ceiling-mounted speakers certified to the AS 7240.24 standard for fire and evacuation announcements in buildings. Each speaker is fitted with a fire retardant speaker/transformer dome and is fitted with sealed gland cable entries and terminal blocks for easy, on-site termination. The speaker utilises the One-Shot snap-fit mounting system.

SPECIFICATIONS	
Rated noise power	5W (100V line)
Power taps and impedance (100V line)	0.33W 30k ohms 0.66W 15k ohms 1.25W 8k ohms 2.5W 4k ohms 5W 2k ohms
Sensitivity	94dB (1W at 1m), 82dB (1W at 4m)
Maximum sound pressure level	100dB (5W at 1m), 88dB (5W at 4m)
Frequency response	100-15kHz, 500-4kHz (±5dB)
Coverage angle (-6dB)	500Hz: >180° 1,000Hz: 170° 2,000Hz: 90° 4,000Hz: 60°
Environmental type	A (for indoor applications as per standard)
Speaker component	200mm 8in. paper cone speaker
Mounting hole	ø246MM
Mounting method	Six plastic, spring-loaded clips
Line monitoring	Yes, 22µF bipolar capacitor
Applicable cable	2.5mm² (14AWG) max. conductor area
Connection	Four-way screw terminal
Finish	White (CF2134) or black (CF2135) flame retardant ABS grille (Taitalac 8540T) and clear flame retardant ABS spring clips (Makrolon 6557)
	Red flame retardant ABS transformer dome cover (Starex VH-0800)
Dimensions (ø x D)	266mm x 103mm
Weight	1.25kg
Quantities	Six per carton, 240 per pallet
PART NUMBER	
EA0041	200mm, 100V, 5W speaker, low profile, white, AS 7240.24 (CF2134)
EA0042	200mm, 100V, 5W speaker, low profile, black, AS 7240.24 (CF2135)

EA0043

CF2142 and CF2143 are ceiling-mounted speakers certified to the AS 7240.24 standard for fire and evacuation announcements in buildings. Each speaker is fitted with a fire retardant speaker/transformer dome and is fitted with sealed gland cable entries and terminal blocks for easy, on-site termination. The speaker utilises the One-Shot snap-fit mounting system.

SPECIFICATIONS	
Rated noise power	15W (100V line)
Power taps and impedance (100V line)	1.25W 8k ohms 2.5W 4k ohms 5W 2k ohms 10W 1k ohms 15W 668 ohms
Sensitivity	95dB (1W at 1m), 83dB (1W at 4m)
Maximum sound pressure level	104dB (15W at 1m), 92dB (15W at 4m)
Frequency response	100-15kHz, 500-4kHz (±8dB)
Coverage angle (-6dB)	500Hz: >180° 1,000Hz: 165° 2,000Hz: 85° 4,000Hz: 55°
Environmental type	A (for indoor applications as per standard)
Speaker component	200mm 8in. paper cone speaker
Mounting hole	ø246MM
Mounting method	Six plastic, spring-loaded clips
Line monitoring	Yes, 22µF bipolar capacitor
Applicable cable	2.5mm² (14AWG) max. conductor area
Connection	Four-way screw terminal
Finish	White (CF2142) or black (CF2143) flame retardant ABS grille (Taitalac 8540T) and clear flame retardant ABS spring clips (Makrolon 6557)
	Red flame retardant ABS transformer dome cover (Starex VH-0800)
Dimensions (ø x D)	266mm x 103mm
Weight	1.95kg
Quantities	Six per carton, 240 per pallet
PART NUMBER	
EA0043	Speaker, 200mm fire ISO7240 EWIS, 15W, white (CF2142)

EA0045

These sound projector speakers are certified to the AS 7240.24 standard for fire and evacuation announcements in buildings. They are ideal for fire and evacuation systems where a high degree of speech articulation and protocol clarity are paramount. Typical applications include schools, train and bus stations, airports, car parks and plant rooms. Each speaker utilises a twist lock cap mechanism to reduce installation time during cable termination. Available in three colours.

SPECIFICATIONS	
Rated noise power	10W (100V line)
Power taps and impedance (100V line)	1.25W 8k ohms 2.5W 4k ohms 5W 2k ohms 7.5W 1.33k ohms 10W 1k ohms
Sensitivity	93dB (1W at 1m), 81dB (1W at 4m)
Maximum sound pressure level	100dB (10W at 1m), 88dB (10W at 4m)
Frequency response	100-15kHz, 100-8kHz (±5dB)
Coverage angle (-6dB)	500Hz: >180° 1,000Hz: 125° 2,000Hz: 100° 4,000Hz: 65°
Environmental type	B (for outdoor applications as per standard)
Speaker component	Aluminium voice coil former
Mounting depth	250mm (max.)
Mounting method	Wall bracket with mounting holes
Line monitoring	Yes, 22µF bipolar capacitor
Applicable cable	2.5mm² (14AWG) max. conductor area
Connection	Four-way screw terminal
Finish	Flame retardant ABS (Absolac 300 MFR)
Ingress Protection	IP66
Dimensions (Ø x D)	145mm x 250mm
Weight	1.4kg
PART NUMBER	
EA0045	10W, 100V EWIS, IP66 sound projector, white, AS 7240 (CF1520W)

EA0046

These sound projector speakers are certified to the AS 7240.24 standard for fire and evacuation announcements in buildings. They are ideal for fire and evacuation systems where a high degree of speech articulation and protocol clarity are paramount. Typical applications include schools, train and bus stations, airports, car parks and plant rooms. This speaker utilises a twist lock cap mechanism to reduce installation time during cable termination. Available in three colours.

SPECIFICATIONS	
Rated noise power	10W (100V line)
Power taps and impedance (100V line)	1.25W 8k ohms 2.5W 4k ohms 5W 2k ohms 7.5W 1.33k ohms 10W 1k ohms
Sensitivity	93dB (1W at 1m), 81dB (1W at 4m)
Maximum sound pressure level	100dB (10W at 1m), 88dB (10W at 4m)
Frequency response	100-15kHz, 100-8kHz (±5dB)
Coverage angle (-6dB)	500Hz: >180° 1,000Hz: 125° 2,000Hz: 100° 4,000Hz: 65°
Environmental type	B (for outdoor applications as per standard)
Speaker component	Aluminium voice coil former
Mounting depth	250mm (max.)
Mounting method	Wall bracket with mounting holes
Line monitoring	Yes, 22µF bipolar capacitor
Applicable cable	2.5mm^2 (14AWG) max. conductor area
Connection	Four-way screw terminal
Finish	Flame retardant ABS (Absolac 300 MFR)
Ingress Protection	IP66
Dimensions (Ø x D)	145mm x 250mm
Weight	1.4kg
PART NUMBER	
EA0046	10W, 100V EWIS, IP66 sound projector, black, AS 7240 (CF1520B)

EA0052

These sound projector speakers are certified to the AS 7240.24 standard for fire and evacuation announcements in buildings. They are ideal for fire and evacuation systems where a high degree of speech articulation and protocol clarity are paramount. Typical applications include schools, train and bus stations, airports, car parks and plant rooms. They utilise a twist lock cap mechanism to reduce installation time during cable termination. Available in three colours.

SPECIFICATIONS	
Rated noise power	10W (100V line)
Power taps and impedance (100V line)	1.25W 8k ohms 2.5W 4k ohms 5W 2k ohms 7.5W 1.33k ohms 10W 1k ohms
Sensitivity	93dB (1W at 1m), 81dB (1W at 4m)
Maximum sound pressure level	100dB (10W at 1m), 88dB (10W at 4m)
Frequency response	100-15kHz, 100-8kHz (±5dB)
Coverage angle (-6dB)	500Hz: >180° 1,000Hz: 125° 2,000Hz: 100° 4,000Hz: 65°
Environmental type	B (for outdoor applications as per standard)
Speaker component	Aluminium voice coil former
Mounting depth	250mm (max.)
Mounting method	Wall bracket with mounting holes
Line monitoring	Yes, 22µF bipolar capacitor
Applicable cable	2.5mm^2 (14AWG) max. conductor area
Connection	Four-way screw terminal
Finish	Flame retardant ABS (Absolac 300 MFR)
Ingress Protection	IP66
Dimensions (Ø x D)	145mm x 250mm
Weight	1.4kg
PART NUMBER	
EA0052	10W, 100V EWIS, IP66 sound projector, grey, AS 7240 (CF1520G)

EA0047 and EA0048

A surface-mounted fire speaker, featuring flame retardent housing material and PA driver to suit the new approval requirements. One-Shot design simply snap-fits in seconds to the surface mounting ring, reducing installation time considerably.

This model requires no external equalisation to meet the AS IS7240.24 standard.

SPECIFICATIONS	
Rated noise power	5W (100V line)
Power taps and impedance (100V line)	0.33W 30k ohms 0.66W 15k ohms 1.25W 8k ohms 2.5W 4k ohms 5W 2k ohms
Sensitivity	91dB (1W at 1m), 79dB (1W at 4m)
Maximum sound pressure level	97dB (5W at 1m), 85dB (5W at 4m)
Frequency response	100-15kHz
External EQ	Not required (meets AS 7240.24 without EQ)
Coverage angle (-6dB)	500Hz: >180° 1,000Hz: 155° 2,000Hz: 120° 4,000Hz: 80°
Environmental type	A (for indoor applications as per standard)
Speaker component	100mm 4in. paper cone speaker
Mounting method	Surface attachment
Line monitoring	Yes, 22µF bipolar capacitor
Applicable cable	2.5mm² (14AWG) max. conductor area
Connection	Four-way screw terminal
Finish	White (CF0705) flame retardant ABS grille and housing or black (CF0706) grille and housing (Taitalac 8540T)
	Clear flame retardant ABS spring clips (Makrolon 6557)
Ingress Protection	IP 21C
Dimensions (Ø x D)	280mm x 80mm
Weight	0.9kg
PART NUMBER	
EA0047	5W, 100V, 100mm, surface-mounted speaker, white, AS7240 (CF0705)
EA0048	5W, 100V, 100mm, surface-mounted speaker, black, AS7240 (CF0706)

EA0050 and EA0051

C2270 and C2271 are ceiling-mounted speakers certified to the AS 7240.24 standard for fire and evacuation announcements in buildings. Each speaker is fitted with a fire retardant speaker/transformer dome and is fitted with pluggable terminal blocks for easy, on-site termination. The speaker utilises the One-Shot snap-fit mounting system.

SPECIFICATIONS	
Rated noise power	6W (100V line)
Power taps and impedance (100V line)	0.375W 26.66k ohms 0.75W 13.33k ohms 1.5W 6.66k ohms 3W 3.33k ohms 6W 1.66k ohms
Sensitivity	90dB (1W at 1m), 78dB (1W at 4m)
Maximum sound pressure level	96dB (6W at 1m), 84dB (6W at 4m)
Frequency response	100-15kHz, 500-4kHz (±3dB)
Coverage angle (-6dB)	500Hz: >180° 1,000Hz: >180° 2,000Hz: 160° 4,000Hz: 75°
Environmental type	A (for indoor applications as per standard)
Speaker component	100mm 4in. paper cone speaker
Mounting hole	ø140мм
Mounting method	Three plastic, spring-loaded clips
Line monitoring	Yes, 2.2µF bipolar capacitor
Applicable cable	2.5mm² (14AWG) max. conductor area
Connection	Four-way, pluggable screw terminal
Finish	White (C 2270) or black (C 2271) ABS grille and chassis (LG ABS181) with clear ABS spring clips (QM PC 110)
	Red ABS transformer dome cover (LG ABS181)
	Powder-coated, steel grille insert (RAL9003 white, RAL9004 black)
Dimensions (Ø x D)	159mm x 70mm
Weight	710g
PART NUMBER	
EA0050	Speaker, One-Shot, 100mm, low profile, 5W, white metal, V2, quick fit, ISO7240.24 (C2270)
EA0051	Speaker, One-Shot, 100mm, low profile, 5W, black metal, V2, quick fit, ISO7240.24 (C2271)

FP1135 T-Gen2 Isolation Amplifier

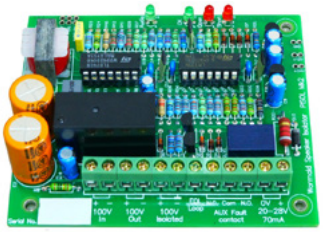
The FP1135 T-Gen2 Isolation Amplifier connects to an existing 100V speaker line and reproduces this signal at up to a 60W load on a separate, supervised 100V line. It is suitable for use with speech and music, as well as with warning tones. The 100V output line from the amplifier is electrically isolated from the input 100V line, so noise or other signals on the output line are kept separate and do not affect the input line.

The isolation amplifier requires a nominal supply of 27VDC, either from an existing supply, or a dedicated mains-powered supply.

To support a full 60W load, a 5A PSU is required, such as the FP0804.

SPECIFICATIONS	
Supply voltage	19.6-28.8VDC
Quiescent current	170mA[1]
Active current	3A (60W at 27VDC)
Input signal	100V RMS at 1W (max.)
Output voltage	100V RMS
Output power	60W RMS[2]
Dimensions (H x W x D)	295 x 240 x 80 (mm)
PART NUMBER	
FP1135	Isolation amplifier
FP0804	24V 5A PSU
FP0766	24V 2A PSU (40W max.)

1. No speech or background music
2. Tones and Speech/music



SIM-Mk2 Speaker Isolation Module

To prevent PA loudspeakers in a secure area from being used as microphones, the SIM-Mk2 Speaker Isolation Module is installed within the secure area between an incoming 100V speaker circuit and the speakers to be secured.

SPECIFICATIONS	
Supply voltage	18-28VDC
Quiescent current	35mA
Active current	70mA (max.)
Input signal	100V line input
Output voltage	100V
Operating temperature	0°C to 50°C
Dimensions (H x W x D)	90.5mm x 76.5mm
Maximum speaker load	20W
PART NUMBER	**SIM-MK2-V**

200mm Motorised Bell

Features

- CE marked
- Low cost
- Extra high 94dBA/m
- Slim profile (53mm)
- Fully suppressed and polarised
- Quick and easy to install
- Back box ordered seperately

SPECIFICATIONS	
Operating voltage	24VDC
Rated current	60mA at 24VDC
Sound output	95dBA at 1m
Operating temperature	-10°C to 50°C
Colour	Red
Weight	1,420g
PART NUMBER	
BELL01	200mm bell
BELL002	Bell back box, red

Audio Visual Indicator Mk2

The Audio Visual Indicator (AVI) is an illuminated warning sign that produces distinct audible and visual indication of an emergency. It is designed for use with fire alarm or gaseous fire extinguishing systems, or other applications where clear audio-visual warning is required.

On activation, the AVI's internal LEDs illuminate the lettering on the two- or three-line sign faceplate/s and the internal loudspeaker produces either ISO 8201 or AS 2220 audible warning signals. The internal speaker has a link-selectable Quiet option that reduces the tone volume by 10dB. The IP65 model comprises an indoor AVI mounted inside a UV-resistant IP65 enclosure with a transparent lid. A range of high-visibility, UV-resistant faceplates is available.

Configuration options

Illumination of the top and bottom sign sections and selection of the tones to be used is field-programmable using internal links. This way, the AVI can readily display either two-stage or alternate warnings. Up to four lines of text may be accommodated on the faceplate, although use of two or three lines is standard. For situations with low ambient light, the sign illumination can be reduced by removing a resistor in each LED board driver. This also

reduces current consumption. Expansion options include an LED board kit to convert a red two-line unit into a three-line, and a back box kit to expand a red two-line unit into a ceiling-mounted, double-sided format. Several AVIs may be synchronised by connecting the 'sync' terminals (an additional wire is required between units).

SPECIFICATIONS	INDOOR AVI	IP65 AVI
Operating voltage	19-28VDC	
Current (24VDC)	Supervision 1 line and tone 2 lines and tone 3 lines and tone 4 lines and tone	2µA at 25°C (max.) 45mA 62mA 80mA 97mA
Luminance	300cd/m^2, 1Hz flash	
Sound pressure level	90dBA at 1m	75dBA at 1m
Dimensions (H x W x D)	206 x 316 x 85 (mm)	280 x 280 x 132 (mm)
Operating temperature	0°C to 50°C	
Relative humidity	~95% (non cond.)	
Ingress Protection	IP30	IP65
Housing weight	2kg	5kg
Faceplate weight	0.25kg	0.25kg
Designed to comply with AS1603.11		
FPANZ Listed	VF/417	

PART NUMBER	
FP0853	AVI Mk2, two-line, red
FP0854	AVI Mk2, three-line, yellow
FP1037	IP65 AVI Mk2, two-line, red
FP1038	IP65 AVI Mk2, three-line, yellow
EA0020	IP65, 8 ohms, 10W horn speaker
KT0292[1]	Exp. Kit: Red LED PCB and hardware
KT0293[2]	Exp. Kit: Red, double-sided

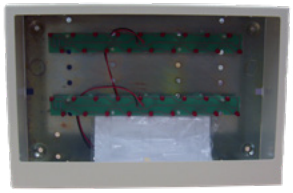
FA2700	Fire alarm, evacuate area, two-line, red, UV-stable
FA2701	Fire alarm, Do Not Enter, two-line, red, UV-stable
FA2702	Do Not Enter, CO_2 Gas Discharged, three-line, red, UV-stable
FA2703	Do Not Enter, FM-200 Gas Discharged, three-line, red, UV-stable
FA2704	Do Not Enter, Inergen Gas Discharged, three-line, red, UV-stable
FA2710	Warning, Fire Door Closing, three-line, red, UV-stable
FA2776	Extinguishing System Inoperative, three-line, yellow, UV-stable

1. Adds a third LED board to make a three-line, red sign.

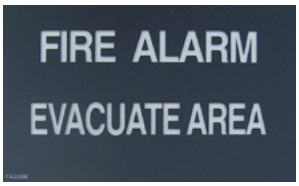
2. Adds second cover and base with two LED boards for a ceiling-mounted, double-sided, two-line, red sign. (Other faceplate legends available to special order.)

FP0854 AVI Mk2,
three-line, yellow

KT0292 AVI Mk2 expansion,
red, LED PCB and hardware

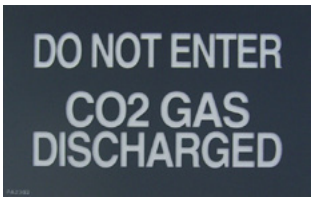


KT0293 AVI Mk2 expansion,
red, double-sided



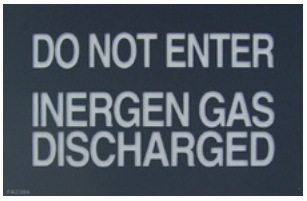
FA2700 AVI Mk2 facia and
diffuser in Fire Alarm,
Evacuate Area

FA2701 AVI Mk2 facia and
diffuser in Fire Alarm,
Do Not Enter

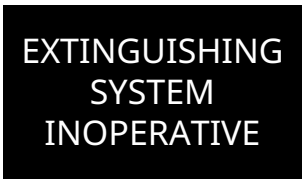


FA2702 AVI Mk2 facia and
diffuser in Do Not Enter, CO_2
Discharged

FA2703 AVI Mk2 facia and
diffuser in Do Not Enter,
FM-200 Gas Discharged



FA2704 AVI Mk2 facia and
diffuser in Do Not Enter,
Inergen Gas Discharged



FA2776 AVI Mk2 facia and
diffuser in Extinguishing
System Inoperative

FA2710 AVI Mk2 facia and
diffuser in Warning,
Fire Door Closing

Batteries and power supplies

These rechargeable batteries are lead-lead dioxide systems. The dilute sulphuric acid electrolyte is suspended and thus immobilised. Should the battery be overcharged accidentally, producing hydrogen and oxygen, special one-way valves allow the gases to escape, avoiding excessive pressure build-up. Otherwise, the battery is completely sealed and is, maintenance-free and leak proof.

BATTERIES								
PART NUMBER	MODEL NO.	VOLTAGE (V)	AH	DIMENSIONS (MM)			WEIGHT (KG)	ACTIVFIRE LISTING
				LENGTH	WIDTH	HEIGHT		
PS1212	CJ12-1.3	12	1.3	97	43	58	0.61	afp-1636
PS1270	CJ12-7	12	7	150	65	101	2.8	afp-1636
PS12120	CJ12-12	12	12	151	98	101	4.7	afp-1636
PS12180	CJ12-17	12	18	181	77	168	6	afp-1636
PS12260	CJ12-26	12	26	175	165	125	9	afp-1636
PS12330	CJ12-33	12	33	195	135	180	10.5	afp-1636
PS12400	CJ12-40	12	40	197	166	170	13.7	afp-1636
PS12650	CJ12-65	12	65	355	167	183	22.7	–
PS12750	CJ12-75	12	75	259	168	208	23	–
PS12850	CJ12-85	12	85	305	168	212	26.5	afp-1636
PS121000	CJ12-100	12	100	331	173	221	31	afp-1636

24VDC power supplies for QE90/MX4428/4100

PSU2406 and PSU2412 power supplies feature combined power supply and constant voltage, temperature-compensated battery charging facilities to suit QE90 evacuation systems and MX4428/F4000 fire indicator panels.

The range of models includes 5A in 19in. rack mounting (2U) or gear-plate mounting (brick) and 10A in 19in.rack mounting (2U). Informative LEDs provide diagnostic indications for ease of servicing. A green LED on the front panel indicates operation and its flash cadence indicates current loading.

A yellow LED provides fault indication with the flash cadence identifying the fault type. The power supplies require a mains power input of 230V 50Hz. The power supplies are respectively rated for 5A and 10A continuous, with 6A and 12A peak loads for a short duration respectively.

ME0330B – 24VDC 5A brick (QE90)

ME0334 – 24V DC 5A brick MX4428

ME0333B – 24VDC 10A (QE90-PSU2412)
(Pictured above, supplied with two circuit breakers and two blank circuit breaker positions)

ME0331B – 24VDC 5A (QE90)
(Supplied with one switch and one circuit breaker.; no blank positions)

ME0340B – 24VDC 5A (MX4428)

ME0343B – 24VDC 10A (MX4428-PSU2412F)

SPECIFICATIONS	2406	2412
Output	24VDC 5A	24VDC 10A
19IN. RACK TYPE		
Dimensions (H x W x D)	89 x 483 x 123 (mm)	89 x 483 x 185 (mm)
BRICK TYPE		
Dimensions (H x W x D)	96 x 262 x 158 (mm)	
Weight	5kg	
ActivFire Listed	afp-1290	

PART NUMBER	2406	2412
19in. rack type		
QE90	ME0331B	ME0333B
Brick type		
QE90	ME0330B	
MX4428	ME0334B	
Accessories		
50A circuit breaker replacement	SW0142	
Additional Circuit Breaker Kit	KT0546	

4100 ME0470 24VDC 5A 4100 Power Supply

An auxiliary 24V 5A PSU (part code 4100-ME0470) is available for Simplex 4100 Series (4100, 4100A, 4100U, or 4100ES) fire alarm panels to provide additional power supply capacity. It mounts in the 4100 equipment bay, occupying two legacy card spaces. It can be used as a standalone supply in an RTU, or to augment the FIP's system power supply.

SPECIFICATIONS	
Output	27.3VDC 5A
Input	230VAC 50Hz
Heat dissipation	40W
Operating temperature	-5°C to 45°C
Dimensions (H x W x D)	290 x 90 x 145 (mm)
PART NUMBER	**4100-ME0470**

FP0766 PSU1948 24VDC 2A Power Supply

Series 1948 Power Supplies are designed specifically for use in fire alarm systems. They provide a compact, self-contained 24VDC mains power supply. Their built-in facilities to monitor the charging voltage and battery capacity make them ideal for powering brigade signalling equipment, detectors, warning devices and ancillary equipment. If the charging voltage or battery capacity becomes low, they activate a warning indication and output. Sealed lead-acid batteries may be purchased separately.

SPECIFICATIONS	
Output	24VDC 2A
Input	230VAC 50Hz
Battery capacity	2x 6.5Ah
Dimensions (H x W x D)	95 x 240 x 80 (mm)
ActivFire Listed	afp-1341
FPANZ Listed	VF/629
PART NUMBER	**FP0766**

FP0852 PSU1948 24VDC 2A VESDA Power Supply

This Series 1948 Power Supply is designed to match the VESDA LaserPLUS and LaserSCANNER detectors in size and colour. The FP0852 provides a compact, self-contained 24VDC mains power supply, with built-in facilities to monitor the charging voltage and battery capacity. This makes them ideal for powering brigade signalling equipment, detectors, warning devices and ancillary equipment. If the charging voltage or battery capacity becomes low, they activate a warning indication and output. Sealed lead-acid batteries may be purchased separately.

SPECIFICATIONS	
Output	24VDC 2A
Input	230VAC 50Hz
Battery capacity	2x 12Ah
Dimensions (H x W x D)	230 x 360 x 130 (mm)
ActivFire Listed	afp-1341
FPANZ Listed	VF/629
PART NUMBER	**FP0852**

MX4428 24VDC 5A Power Supply

The 5A ME0476 Power Supply is a direct replacement for older 2.5A FP0874/FP0825 supplies. The ME0476 is used in MX4428 panels (or F4000 upgraded to V3.10+ software).

For AS1603.4 F4000 panels, the 5A FP0882K replaces FP0474. It has the battery test resistors required by AS1603.4.

Both supplies feature a three-pin GPO, replacing the metal mains cover and panel-mount mains switch.

SPECIFICATIONS	
Output	24VDC 2A
Input	230VAC 50Hz
ActivFire Listed	afp-1341
FPANZ Listed	VF/629
PART NUMBER	
ME0476	MX4428 24Vdc 5A PSU
FP0882K	F4000 24Vdc 5A PSU (AS 1603.4)

Door holders and accessories

EA0405 Door Holder Release

The EA0405 electromagnetic door holder release is designed to allow fire and smoke doors to be opened manually. A standard switch-plate mounting is used. A momentary action switch de-energises the door holder, allowing the door to open.

SPECIFICATIONS	
Operating voltage	12/24VDC
Current	12A
Operating temperature	0°C to 60°C
Relative humidity	95% (non-cond.)
Cable termination	4x1.5mm^2
Dimensions (H x W x D)	74 x 118 x 30 (mm)
PART NUMBER	**EA0405**

FP0101 Electromagnetic Door Holder

The FP0101 Electromagnetic Door Holder is designed to hold fire and smoke doors open under normal conditions, but automatically close under their own spring-return mechanism when a fire or smoke alarm system is activated. The door is held open by the magnetic force between an electromagnet mounted on the wall behind the door and a steel keeper plate mounted on the back of the door. When the electromagnet is de-energised, the door automatically closes. Alternatively, the door can be manually released by pressing the button on the magnet base.

SPECIFICATIONS	
Operating voltage	24VDC ± 20%
Operating current	50mA (nom.)
Operating temperature	0°C to 60°C
Relative humidity	95% (non-cond.)
Cable termination	2x1.5mm^2
Holding load	25kg (nom.) at 24V and 20°C
Dimensions Magnet (H x W x D) Plate	 118 x 74 x 27 (mm) ø75mm x 23mm
Weight	600g
PART NUMBER	**FP0101**

EA0407 Electromagnetic Door Holder 150mm

The EA0407 Electromagnetic Door Holder is designed to hold fire and smoke doors open under normal conditions, but automatically close under their own spring-return mechanism when a fire or smoke alarm system is activated. The door is held open by the magnetic force between an electromagnet mounted on the wall behind the door and a keeper fixed to the back of the door. When the electrical supply to the electromagnet is interrupted, the electromagnet is de-energised and the door automatically closes.

SPECIFICATIONS	
Operating voltage	24VDC ± 20%
Operating current	50mA (nom.)
Operating temperature	0°C to 60°C
Relative humidity	95% (non-cond.)
Cable termination	2x1.5mm^2
Holding load	25kg (nom.) at 24V and 20°C
Dimensions	150mm ø75mm x 23mm
PART NUMBER	**EA0407**

300/385mm electromagnetic door holders

The EA0408 and EA0414 Electromagnetic Door Holders are designed to hold fire and smoke doors open under normal conditions, but automatically close under their own spring-return mechanism when a fire or smoke alarm system is activated. The door is held open by the magnetic force between an electromagnet mounted on the wall behind the door and a keeper fixed to the back of the door. When the electrical supply to the electromagnet is interrupted, the electromagnet is de-energised and the door automatically closes.

SPECIFICATIONS	
Operating voltage	24VDC ± 20%
Operating current	50mA (nom.)
Operating temperature	0°C to 60°C
Relative humidity	95% (non-cond.)
Cable termination	2x1.5mm^2
Holding load	25kg (nom.) at 24V and 20°C
Dimensions	300mm ø75mm x 23mm
PART NUMBER	
EA0408	300mm straight
EA0414	385mm straight

35771 Door Holder and Keeper Set
Door Holder Box
17295/30 30° Anvil (Keeper Plate)

EA0409 Floor Mount Door Holder

The EA0409 Floor Mount Door Holder comprises of a box and door holder that will retain a load of 25kg. The box provides a convenient attractive cover protecting the door holder from accidental damage.

SPECIFICATIONS	
Operating voltage	24VDC
Holding load	40kg (nom.) at 24V and 20°C
Dimensions (H x W x D)	120 x 85 x 70 (mm)
Weight	550g
Finish	Powder-coated Cream Wrinkle
PART NUMBER	
EA0409	Kit (box, holder and keeper)
SPARES	
35771	
17295/30	30° anvil (keeper plate)

EA0410 Electromagnetic Door Holder 150mm 90°

The EA0410 Electromagnetic Door Holder is designed to hold fire and smoke doors open under normal conditions, but automatically close under their own spring-return mechanism when a fire or smoke alarm system is activated. The door is held open by the magnetic force between an electromagnet mounted on the wall behind the door and a keeper fixed to the back of the door. When the electrical supply to the electromagnet is interrupted, the electromagnet is de-energised and the door automatically closes.

SPECIFICATIONS	
Operating voltage	24VDC ± 20%
Operating current	50mA (nom.)
Operating temperature	0°C to 60°C
Relative humidity	95% (non-cond.)
Cable termination	2x1.5mm^2
Holding load	25kg (nom.) at 24V and 20°C
Dimensions	150mm Plate: ø75mm x 23mm
PART NUMBER	**EA0410**

300/450mm 90° electromagnetic door holders

The EA0411 and EA0413 Electromagnetic Door Holders are designed to hold fire and smoke doors open under normal conditions, but automatically close under their own spring-return mechanism when a fire or smoke alarm system is activated. The door is held open by the magnetic force between an electromagnet mounted on the wall behind the door and a keeper fixed to the back of the door. When the electrical supply to the electromagnet is interrupted, the electromagnet is de-energised and the door automatically closes.

SPECIFICATIONS	
Operating voltage	24VDC ± 20%
Operating current	50mA (nom.)
Operating temperature	0°C to 60°C
Relative humidity	95% (non-cond.)
Cable termination	2x1.5mm^2
Holding load	25kg (nom.) at 24V and 20°C
Dimensions	300mm Plate: ø75mm x 23mm
PART NUMBER	
EA0411	300mm 90 Deg
EA0413	450mm 90 Deg

VESDA aspirating smoke detectors

VESDA LaserFOCUS

Designed to protect spaces of less than 250m^2, the LaserFOCUS VLF-250 is the cost-effective solution for areas such as local telecommunication exchanges, air handling units, smaller server rooms, control or switch rooms, railway signal hubs, storage facilities and hazardous areas (Class 1 Div 2).

The LaserFOCUS VLF-500 is designed to protect areas less than 500m^2. The LaserFOCUS incorporates first-in-industry ultrasonic airflow sensing to provide flow measurement that is immune to temperature and pressure changes. Its out-of-the-box design makes installation and commissioning quick and easy and the pre-engineered pipe network designs supplied with the product make system design simple.

SPECIFICATIONS	
Operating voltage	18-30VDC
Operating current	220mA
Alarm current	295mA
Operating temperature	0°C to 40°C
Relative humidity	5-95% (non-cond.)
Ingress Protection	IP30
Dimensions (H x W x D)	185 x 255 x 90 (mm)
Weight	1.9 kg
PART NUMBER	
VIC-010	VESDAnet for VLF-500
VIC-020	Relay card for VLF-500
VLF-250-02	VLF-250 relays only
VLF-500-02	VLF-500 detector

VEA-040-A10 VESDA-E VEA with 3.5in. LCD colour touchscreen
VEA-A40-40-STX VESDA-E VEAA StaX
VEA-366-A00 VESDA-E VEA with LEDs

VESDA-E VEA

VESDA-E VEA introduces a new approach for addressable smoke detection. VEA provides pinpoint addressability by using a network of microbore tubes connected to sample points located in the protected area. VEA actively draws air through sample points and analyses for the presence of smoke particles in a centrally located smoke sensor module. VEA provides assured detection through active sampling and end-to-end system integrity monitoring. VEA also provides flexible and fast installation, using easy-to-install flexible microbore tubes and push-fit connectors, which reduce installation time and cost.

This detector supports 40 sampling points, which are expandable up to 120 using Expansion StaX, all managed from a central location. Its fully supervised microbore tubes and sampling points ensure total system availability. Centralised testing and maintenance in one readily accessible location reduces service time by up to 90%, allowing servicing of up to 500 addresses a day, lowering the total cost of ownership. VEA remote maintenance is ideally suited in applications where interruption-free business operation and restricted access are of paramount importance. With best-in-class connectivity, including WAN and wireless, the iVESDA application provides real-time and remote access for efficient and effective response.

VESDA-E VEA delivers better value where:

- Spot detectors are difficult to reach
- Access to the protected area is restricted
- Disruption of occupants is undesirable
- Installation and maintenance costs are high
- Electrical codes are stringent and conduits are mandatory
- Nuisance alarms are extremely costly
- There is high density of spot detectors

SPECIFICATIONS	
Operating voltage	18-30VDC (24V nom.)
Operating current[1]	20mA
Peak current	3.5A (scan mode)
Relay outputs	7
Operating temperature	0°C to 39°C
Sampled air temperature	0°C to 50°C
Relative humidity	10-95% (non-cond.)
IP Rating	IP40
Area coverage[2]	~3,345m^2
Sensitivity	0.02-16% obs/m
Linear tube length	40m x 100m
Dimensions (H x W x D)	336 x 352 x 136 (mm)
Weight [3]	10 kg
Relays	7 (exp. to 127) 2A at 30VDC
Interface	USB, Ethernet, Wi-Fi

PART NUMBER	
VEA-040-A00	VEA-40 with LEDs
VEA-040-A10	VEA-40 with 3.5in. display
VEA-020-STX	VEA-20 Expansion StaX
VSP-980-W	VEA 6mm standard sample point
VSP-981-W	VEA 4mm standard sample point
VSP-982-W	VEA 6mm surface-mounted sample point
VSP-983-W	VEA 4mm surface-mounted sample poin

1. Average current at 24VDC.
2. Across up to 40 sampling holes, 40 to 120 microbore tubes.
3. With 3.5in. LCD, four-pipe.

VEP-A10-P VESDA-VEP with 3.5in. display, four-pipe
VEP-A00-1P VESDA-VEP with LEDs, one-pipe
VEP-A00-P VESDA-VEP with LEDs, four-pipe

VESDA-E VEP

The VESDA-E VEP series of smoke detectors boasts the latest and most advanced detection technology to provide very early warning and the best nuisance alarm rejection to a wide range of applications.
Built on the Flair detection technology and years of application experience, VEP detectors achieve consistent performance over their lifetime via absolute calibration. In addition, the VEP delivers a range of revolutionary features that provide user value.

The VESDA-E VEP series of aspirating smoke detectors extends the reach of the VESDA-E platform to a wide range of applications. VEP sensitivity ranges from 0.005-20%/m and provides up to 40 Class A holes.
VEP is equipped with a powerful aspirator that provides a total of 130m in the one-pipe model and 560m in the four-pipe model. VEP also provides StaX and analytics support together with Ethernet, Wi-Fi, USB and VESDAnet capabilities.

Features

- One- and four-pipe models
- Flair detection technology
- Multi-stage filtration and optical protection with clean air barrier
- Four alarm levels
- Intuitive LCD icon display
- Seven relays; 2A at 30VDC resistive
- Purpose-built aspirator
- Flow-fault thesholds per port
- Smart on-board filter
- Extensive event log (20,000 events)
- Backward compatible with VLP and VESDAnet

SPECIFICATIONS	
Operating voltage	18-30VDC (24V nom.)
Operating current[1]	290-414mA
Alarm current[1]	325-485mA
Relay outputs	7
Operating temperature	0°C to 39°C
Sampled air temperature	-20°C to 60°C
Sensitivity	0.005% to 20% obs/m
Relative humidity	10-95% (non-cond.)
IP Rating	IP40
Area coverage[2]	1,000-2,000m^2
Dimensions (H x W x D)	225 x 350 x 135 (mm)
Weight [3]	4 kg
SPECIFICATIONS	
VEP-A00-1P	VEP with LEDs, one-pipe
VEP-A00-P	VEP with LEDs, four-pipe
VEP-A10-P	VEP with 3.5in. LCD, four-pipe

1. Depending on aspirator setting.
2. One-pipe model: 1,000m2; four-pipe model: 2,000m^2.
3. With 3.5in. LCD, four-pipe.

VEU-A10-P VESDA-VEU with 3.5in. display.
VEU-A00 VESDA-VEU with LEDs.

VESDA-E VEU

The VEU series of aspirating smoke detectors features the premium detectors of the VESDA-E range. With an ultra-wide sensitivity range – 15 times greater than VESDA VLP – and provision for more sampling holes, a VEU can provide an increased coverage in high airflow applications by at least 40%. Considerably longer, linear pipe runs and extended, branched pipe-network configurations cater perfectly to applications with higher ceilings, providing an increased coverage by up to 80%, allowing convenient detector mounting for ease of service and maintenance. A range of revolutionary new features provide unsurpassed detection performance, flexibility, field programmability, connectivity and reduced total cost of ownership.

Flair is the revolutionary new detection chamber that forms the core of VESDA-E VEU, providing better detection, fewer nuisance alarms, higher stability, increased longevity and particle characterisation. Direct imaging of the sampled particles using a CMOS imager, combined with multiple photo-diodes, allow vastly more data, which can be used to derive actionable information about the observed particles using analytics.

Features

- One-, two-, three- and four-pipe models
- Flair detection technology
- Multi-stage filtration and optical protection with clean air barrier
- Four alarm levels
- Intuitive LCD icon display
- Seven relays; 2A at 30VDC resistive
- Purpose-built aspirator
- Flow-fault thesholds per port
- Smart on-board filter
- Extensive event log (20,000 events)
- Backward compatible with VLP and VESDAnet

SPECIFICATIONS	
Operating voltage	18-30VDC (24V nom.)
Operating current[1]	290-415mA
Alarm current[1]	325-485mA
Relay outputs	7
Operating temperature	0°C to 39°C
Sampled air temperature	-20°C to 60°C
Sensitivity	0.005-20% obs/m
Relative humidity	10-95% (non-cond.)
IP Rating	IP40
Area coverage[2]	~6,500m^2
Dimensions (H x W x D)	225 x 350 x 135 (mm)
Weight [3]	4 kg

1. Depending on aspirator setting.
2. Total pipe length with branches, 800m.
3. With 3.5in. LCD, four-pipe.

VESDA display modules

A display module monitors the VESDA LaserPLUS detector. It reports a visual representation of smoke levels, and all alarm and fault conditions. The internal sounder warns personnel in the local area that an alarm threshold has been reached, or a fault has occurred. It has a 20 segment vertical bar graph, a two-digit numerical display, an audible sounder and clear alarm and fault indicators. It also has four push-buttons to control the detector and the mode of the display. Displays can be located at a convenient location, - either within the detector module, or remotely on the VESDAnet. For monitoring convenience, multiple displays can be associated with a single detector.

Features

- Four alarm levels (Alert, Action, Fire 1, Fire 2)
- 20-segment vertical bar graph
- Alarm threshold indication (Alert, Action, Fire 1)
- Audio and visual indication
- Alarm indicators
- Informative fault indicators
- Multi-mode numeric display (defaults to smoke obscuration)
- Acknowledged push-button presses
- Multiple language supported
- Addressable to any detector

SPECIFICATIONS	
Operating voltage[1]	18-30VDC
MODULE ONLY	
Operating current	60mA
Alarm current	80mA at 24VDC
Dimensions (H x W x D)	130 x 105 x 30 (mm)
IN REMOTE MOUNTING BOX (AS SHOWN BELOW)	
Operating current	90mA
Alarm current	110mA at 24VDC
Dimensions (H x W x D)	150 x 140 x 85 (mm)
SPECIFICATIONS	
Operating temperature	0°C to 39°C
Relative humidity	10-95% (non-cond.)

1. When used in detector unit, remote unit or 19in. rack.

Scanner displays

VRT-400 remote scan display, including seven relays
VRT-700 remote scanner display with no relays
VRT-800 remote scanner display with 12 relays

LaserPLUS displays

VRT-200 remote display including seven relays
VRT-600 remote detector display with no relays
VRT-J00 compact display with seven relays
VRT-K00 compact display with no relays

VRT-100 remote programmer

VRT-300 remote VESDAnet socket

LaserPLUS Standard 19in. Sub-Rack Remote Display Assemblies

Ordering custom-built, remote display sub-racks

Sub-rack configurations other than those available as standard can be supplied as custom-built units. The sub-rack and cost of assembly are included in the VSR-CUSTOM.

The configuration of the custom-built unit must be specified at time of ordering, (e.g., two VSU-0 and two VSU-2 configured at VSR-0022).

The order of the numbers (e.g., 0022) indicates the order in which the sub-units will be mounted in the sub-rack housing when looking from the front of the unit, i.e., from left to right.

The 19in. sub-rack is available as a mounting option, with four mounting slots for display or programming modules.

SPECIFICATIONS	
Dimensions (H x W x D)	128 x 482 x 120 (mm)

MODULE NUMBERS	
VSR-0	Blank sub-uni
VSR-1	Programmer sub-unit
VSR-2	LaserPLUS Display sub-unit with seven relays
VSR-3	VESDAnet socket
VSR-4	Scanner display sub-unit with seven relays
VSR-5	Blank sub-unit with seven relays
VSR-6	LaserPLUS display with RTC and no relays
VSR-7	Scanner display with RTC and no relays
VSR-8	Scanner display with RTC and 12 relays
VSR-9	DRP with RTC and 12 relays
VSR-E	Blank scanner sub-unit with seven relays
VSR-J	Compact display sub-unit with seven relays
VSR-K	Compact display with RTC and no relays
VSR-S	System Relay Module
VSR-V	LaserFOCUS Display RTC7
VSR-W	LaserFOCUS Display RTC0
VSR-Q	LaserINDUSTRIAL Display with seven relays
VSR-CUSTOM	Custom sub-rack housing, incl. cost of four custom-built VSU sub-rack units

RTC = remote termination card

DRP = display relay processor

LaserPLUS ancillaries

A variety of other ancillaries are available. Johnson Controls - Fire Detection also stocks pipe and sampling points.

PART NUMBER	
VHH-100	Hand-held programmer and leads
E700-SPLR	Sampling point label
E700-SPDCL	Aspirating pipe label
VSP-511	DB15M-DB15F VESDAnet RS485
VSW-004	VConfig basic software
VSW-005	VConfig pro software
SW-002	Aspire Windows software
VESDA 24VDC, 2A power supply and charger	

VHX-0200 PC-Link High Level Interface

The latest version of the VESDA High Level Interface supports the new Interrogation and Notification functionality of VSM4. Available for both new and existing sites, it is now possible for the high level interface (HLI) to dial out to a PC. The dial-out option is user configurable, allowing site-specific configuration to ensure the most important warnings on VESDAnet are reported to the right people.

The latest VESDA PC-Link High Level Interface communicates between the VESDA and the PC. Each PC-Link HLI includes an RS-232 cable (from HLI to PC) and an RS-485 cable (from HLI to VESDAnet socket).

PART NUMBER	
VHX-0200	PC-Link HLI with leads (MK2)
VHX-0310	Open protocol HLI
VHX-0400	Simplex HLI
VSP-509	DB9M-DB9F prog. RS-232, 2m
VSP-511	DB15M-DB15F VESDANET RS-485

VESDA VLI by Xtralis™e

The VESDA VLI is an industry-first early warning aspirating smoke detection (ASD) system, designed to protect industrial applications and harsh environments of up to 2,000m². With up to four inlet pipes and a total pipe length of up to 360m, the IP54 rated VLI detector combines a fail-safe Intelligent Filter (patent pending) with an advanced clean-air barrier for optics protection, allowing the use of absolute detection and a long detection chamber life without the need for recalibration. The Intelligent Filter effectively reduces the level of pollution in the air sample before it enters the detection chamber, which dramatically extends the operational life of the detector in harsh and polluted environments. It is fully monitored, providing consistent sensitivity over the entire operational life of the detector.

SPECIFICATIONS	
Operating voltage	18-30VDC
Operating current	415mA
Alarm current	440mA
Relay outputs	5, rated 2A at 30VDC
Operating temperature	0°C to 39°C
Relative humidity	10-95% (non-cond.)
Ingress Protection	IP54
Dimensions (H x W x D)	317 x 427 x 180 (mm)
Weight	6 kg
ActivFire Listed	afp-2765

PART NUMBER	
VLI-880	VESDA VLI
VLI-885	VLI with VESDAnet
SPARES	
VSP-030	VLI Intelligent Filter
VSP-031	VLI-Sec. foam filter
VSP-032	VLI aspirator
VSP-033	VLI chamber assembly

VESDA pipes and fittings

E700-CSC Capillary Sampling Connector

E700-PC Pipe Clip – Single-Point Fix

E700-SP Sampling Point – Mini

E700-SPLR Sampling Point Label (one label)

E700-SPDCL Sampling Point Decal (200 per roll)

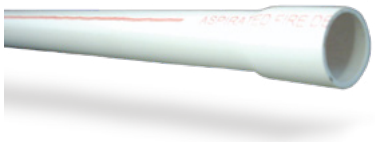
E700-HASP Heat Activated Sampling Point

E700-SRB Standard Base for HASP with CSC

E700-CT Capillary Sampling Tube 8mm OD

E700-LB Long Radius Bend 150mm

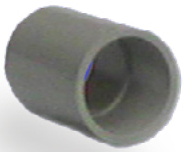
E700-SB Small Radius Bend 90mm



E700-P VESDA Pipe, 4m x 10pcs, bell end, 100% UPVC

E700 HASP Kit Heat Activated Sampling Point, requires E700-TA, E700-SRB, E700-CSC and E700-HASP

E700-EC End Cap – Not Drilled



E700-PJ Pipe Junction Fitting

E700-TA Trunk Adaptor

E700-T Solid Tee

E700-J 2 Branch Adaptor

Further pipe fittings are available, such as red capillary tubing, tamper-proof sampling points and in-line filters.

Flame and special hazard detectors

FV400 FLAMEVision Triple IR Solar Blind Flame Detector (Flameproof)

The FV400 uses triple IR solar blind technology for flame detection. This provides a reliable and cost effective solution in standard flame detection applications especially where there is a single hazard in the field of view. The FV400 FLAMEVision Triple IR Solar Blind Flame Detector has sensing technology and flame detection algorithms that provide high-performing sensing capabilities for hydrocarbon fires. This includes the ability to reliably sense flames through high densities of solvent vapours and black smoke, increasing the probability of early detection with consistent high sensitivity to flame throughout the whole field of view. They also ensure consistent detection of many different types of hydrocarbon fuels, from alcohol to aviation fuel. Multiple interfaces are provided.

The FV400 FLAMEVision detectors are intended for applications demanding a high level of protection and where a rapid response to fire is important. Typical applications are:

- Refineries
- Drilling and production plants
- Fuel-loading facilities
- Compressor stations
- Chemical production
- LNG/LPG processing and storage
- Gas turbines
- Waste management/transfer
- Aircraft hangars
- Sports stadiums
- Tank farms
- Printing industry
- Warehousing
- Munitions storage

Benefits

- Heated optics ensures no sensitivity-reducing moisture build-up on the lens
- Range of integral field interface options, including a 4–20mA output, configurable as Sink or Source
- Automatic monitoring of detector functionality including signal transmission through the window. In addition, in most configurations the WT300 test tool can be used to simplify servicing
- Over 50m detection range with unrestricted 90° field of view
- Internal event log to help operators review post-incident data

Features

- Triple waveband infrared solar-blind flame detection for optimum false alarm immunity
- Unrivalled black body rejection
- Automatic optical integrity monitoring
- Four range settings: <6m, 15m, 33m and 65m (0.1m2 n-heptane fire on-axis)
- Configurable via DIP switch or PC software
- Able to see flames through smoke and through high densities of solvent vapours, increasing the probability of early detection of hydrocarbon fires
- Insensitive to artificial light sources
- Consistent high-sensitivity flame detection throughout a 90° field of view
- Consistent detection of different types of hydrocarbon fuels
- Integral flame simulation for verification of detection path enabling either easy walk-testing of the installation or testing by remote control to ensure continued reliability of the detector operation

SPECIFICATIONS	
Supply voltage	15-30VDC
Current (at 24VDC)	12mA quiescent 22mA alarm interface-dependent
Window heater	245mA at 24V
Dimensions (H x W x D)	156 x 153 x 92 (mm)
Weight	4kg
Gland entry	2xM20
ActivFire Listed	afp-2969
FPANZ Listed	VF/364 (FV411f) VF/365 (FV412f) VF/366 (FV413f)
IECEX	ITS 12.0035X (Ex d)
ATEX	ITS12ATEX17586X (Ex d)
FV421i (Ex ia)	
IECEX	IECEX BAS 14.0113X
ATEX	Baseefa 14ATEX0245X

External supply required only for heater or MODBUS options.

PART NUMBER	
516.300.411	FV411 flameproof, no camera
517.300.001	MB300 mounting bracket
516.300.412	FV412f triple IR flame detector, flameproof PAL camera
516.300.413	FV413f triple IR flame detector, flameproof NSTC camera
517.300.002	WH300 S/S weather hood
517.300.003	ADP300 adaptor, FV411 to S200 mount
517.300.021	WT300 test tool
517.300.024	CTI400 off-line configuration tool
517.300.006	MK300 Field Spares Kit
516.300.421	FV421I Exia ia IR flame detector

Intrinsically Safe MX analogue addressable detectors

Features

- Suitable for worst case (EEx ia IIC T5)
- Vigilant High Performance Optical (HPO) smoke detector
- Compatible with S271i+ flame detector
- Compatible range of Intrinsically Safe call points
- IECEx Certification for most devices

The system designer must have completed an appropriately recognised course in Intrinsic Safety and be familiar with AS/ NZS 2381.1: 2005 and associated standards, test organisations and the requirements of state and local authorities. Requirements can differ from region to region. The probability of a flammable mixture being present is defined by a Zone Number. Flammable gases are classified in Groups and their minimum spontaneous ignition temperature is categorised by Class. Johnson Controls supplied equipment marked EEx ia IIc T5 would be suitable for use in worst case conditions, e.g., Zone 0 (ia), hydrogen (IIc) or T5 (100°C). The fire alarm equipment and safety barriers should be placed as near as possible to the containment wall of the hazardous area. This minimises the cable lengths between the barrier and the hazardous area and the capacity to store energy. For an installation to comply with the certification designated for each system, it is essential that the certified devices are connected with cables of the specified limits. These limits have been certified for specific classifications of hazard in order that energy storage is limited. The number of devices connected to the barrier and located in the hazardous area must always be limited to no more than the listed maximum. When a mixture of devices is connected to any one zone, the numbers must be reduced in proportion to the ratio of the load presented to the barrier.

Unless otherwise stated, these Intrinsically Safe devices are not ActivFire Listed. For non-addressable Intrinsically Safe detectors, see page 159.

801PHEx Smoke and Heat Detector

The 801PHEx Intrinsically Safe optical smoke and heat detector plugs into a 5BEx base. The detector is designed to transmit to a remote MX fire controller. Software within the controller interprets the returned optical and heat values to raise an alarm or other appropriate response according to the type of programmed configuration. The mode of detector may be:

- Optical smoke only detector (High, Normal or Low)
- HPO smoke detector (sensitivity: High, Normal or Low)
- Heat only rate-of-rise (A1R) detector (no sensitivity selection)
- Heat fixed temperature 60°C (A2S) (no sensitivity selection)
- Optical (sensitivity: High, Normal or Low) combined with heat fixed temperature 60°C (A2S)
- HPO (sensitivity: High, Normal or Low) combined with heat fixed temperature 60°C (A2S)

These detectors are designed to comply with EN 50 014 and EN 50 020 for Intrinsically Safe apparatus. They are certified:

- ATEX Code: Ex II 1G
- IECEX Code: Ex ia IIC T5

SPECIFICATIONS	
Operating voltage	18-24VDC
Queiscent current	400µA (max.)
Alarm current	3.5mA (max.)
Operating temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
FPANZ Listed	VF/351
IECEX Certificate	IECEX BAS 07.0063X
PART NUMBER	
516.800.530	801PHEx

801CHEx Carbon Monoxide and Heat Detector

The 801CHEx Intrinsically Safe carbon monoxide (CO) and heat detector forms part of the 800Ex Intrinsically Safe Series of MX Aaddressable fire detectors. The detector plugs into a 5BEx base. The detector is designed to transmit to a remote MX fire controller. Software within the controller is used to interpret the returned CO and heat values to raise an alarm or other appropriate response according to the programmed configuration. The mode of detector may be:

- Heat only detector (A1R or A2S) (sensitivity: High, Normal or Low)
- Compensated CO detector (sensitivity: High, Normal or Low)
- Compensated CO detector (sensitivity: High or Normal) combined with heat (A1R)
- These detectors are designed to comply with EN 50 014 and EN 50 020 for Intrinsically Safe apparatus.

They are certified:

- ATEX Code: Ex II 1G
- IECEX Code: Ex ia IIC T5

SPECIFICATIONS	
Operating voltage	18-24VDC
Quiescent current	400µA (max.)
Alarm current	3.5mA (max.)
Operating temperature	0°C to 50°C
Relative humidity	15-90% (non-cond.)
FPANZ Listed	VF/352
IECEX Certificate	IECEX BAS 07.0063X
PART NUMBER	
516.800.531	801CHEX

801HEx Heat Detector

The 801HEx Intrinsically Safe heat detector forms part of the 800Ex Intrinsically Safe series of MX addressable fire detectors. The detector plugs into a 5BEx base. The detector is designed to transmit the status of the heat element of the detector to a remote MX fire controller. Software within the controller is used to interpret the returned heat values to raise an alarm or other appropriate response according to the programmed configuration.

The mode of detector may be:

- EN54-5 A1R, rate-of-rise normal ambient
- EN54-5 A2S, fixed 60°C
- EN54-5 CR, rate-of-rise high ambient

These detectors are designed to comply with EN 50 014 and EN 50 020 for Intrinsically Safe apparatus.
They are certified:

- ATEX Code: Ex II 1G
- IECEX Code: Ex ia IIC T5

SPECIFICATIONS	
Operating voltage	18-24VDC
Quiescent current	400µA (max.)
Alarm current	3.5mA (max.)
Operating temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
FPANZ Listed	VF/216
IECEX Certificate	IECEX BAS 07.0063X
PART NUMBER	
516.800.532	801HEX

801FEx Flame Detector

The 801FEx Intrinsically Safe flame detector forms part of the 800Ex Intrinsically Safe series of MX addressable fire detectors. The detector plugs into a 5BEx base. The detector is designed to transmit the level of infrared radiation produced by flaming fires involving carbonaceous materials to a remote MX fire controller. The 801FEx is a full-featured flame detector for indoor applications. It must be connected via an EXI800 interface and a galvanic barrier.

These detectors are designed to comply with EN/IEC 60079-0:2006, EN/IEC 60079-11:2007 and EN/IEC 61241-11:2006 for Intrinsically Safe apparatus. They are certified:

- ATEX Code: Ex II 1 GD
- IECEX Code: Ex ia IIC T4

SPECIFICATIONS	
Operating voltage	18-24VDC
Quiescent current	350µA (max.)
Alarm current	3.5mA (max.)
Operating temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
FPANZ Listed	
ATEX Certificate	Baseefa03ATEX0422X
IECEX Certificate	IECExBAS07.0075X
PART NUMBER	
516.800.066	801FEx (Aus)
801FEx	801FEx (NZ)
592.001.012	T110 test source
592.001.018	Test source adaptor

CP840Ex Manual Call Point

The CP840Ex Intrinsically Safe waterproof break-glass manual call point is designed to monitor and signal the condition of the switch contact associated with the call point.

The call point is designed to comply with EN 50 014 and EN 50 020 for Intrinsically Safe apparatus. It is certified:

- IECEX Certificate: BAS 07.0063X
- ATEX Classification: Ex II 1 G
- ATEX Certificate: BAS01ATEX1394X
- Cenelec Classification: EEx ia IIC T5

The CP840Ex does not comply with NZS4512.

SPECIFICATIONS	
Operating voltage	18-24VDC
Quiescent current	300µA (max.)
Alarm current	5mA (max.)
Operating temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	124 x 124 x 59 (mm)
Ingress Protection	IP67
ATEX Certificate	BAS01ATEX1394X
IECEX Certificate	BAS 07.0063X
PART NUMBER	
514.800.513	CP840Ex

EXI800 Interface Module and Galvanic Isolator

The EXI800 Interface Module, used with a galvanic isolator, provides a path for an MX panel to transparently communicate to secondary devices (800Ex Detectors, IF800Ex Interface Module or CP840Ex Manual Call Point) connected to the Intrinsically Safe loop. The interface reduces the standard MX loop supply voltage and signalling currents to levels that are acceptable for hazardous areas. The EXI800 can detect a short circuit on the left, right or Intrinsically Safe loops and will isolate the offending loop connections from the other loop connections. The Intrinsically Safe loop output of the EXI800 interfaces with the Pepperl+Fuchs KFD0-CS-Ex1.54 Galvanic Isolator, supplying loop voltage and signalling currents to the Intrinsically Safe loop.

SPECIFICATIONS	
DC input voltage	20-37.5VDC
DC output voltage	28VDC
AC input signalling voltage	1-4Vpp
AC output signalling voltage	1-4Vpp
AC input signalling current	40mA (max.)
Operating temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	115 x 103 x 20 (mm)
Ingress Protection	IP20
FPANZ Listed	VF/658
IECEX Certificate	BAS 08.0079 (Isolator)
PART NUMBER	
514.001.063	EXI800
517.001.259	Intrinsically Safe galvanic isolator

IF800Ex Interface Module

The Intrinsically Safe IF800Ex Interface Module is designed to monitor fire contacts, such as extinguishing system controls, ventilation controls, fire door controls, etc. The IF800Ex is contained within a grey ccompression-moulded, glass-filled, polyester box with three 20mm cable gland holes. The electronic components are mounted on a double-sided printed circuit board built into a potted module formed from a plastic moulding. Connectivity is via two terminal blocks fitted to the circuit board.

The interface module is designed to comply with EN 50 014 and EN 50 020 for Intrinsically Safe apparatus.

It is certified:

- - IECEX Certificate: BAS 07.0063X
- - ATEX Classification: Ex II 1 G
- - Cenelec Classification: EEx ia IIC T5

SPECIFICATIONS	
Operating voltage	18-24VDC
Quiescent current	325µA (max.)
Alarm current	3.5mA (max.)
Type identification value	147
Operating temperature	-25°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	120 x 122 x 95 (mm)
Ingress Protection	IP65
FPANZ Listed	VF/659
IECEX Certificate	BAS 07.0063X
PART NUMBER	
514.001.062	IF800Ex

Intrinsically Safe conventional, non-addressable detectors

These Intrinsically Safe devices are not ActivFire Listed. For MX addressable Intrinsically Safe detectors, see page 155.

MR601TEx High Performance Optical Smoke Detector

The MR601TEX has been developed to overcome the slower response of the optical detectors to hot burning fires, by increasing the sensitivity of the optical detector when it is associated with a rapid change in temperature. It is intended to become a detector that can cover some of the risks currently covered by ion chamber detectors. Smoke detectors will not detect burning alcohol or other clean-burning liquids, which do not generate smoke particles.

SPECIFICATIONS	
Operating voltage	16-26VDC
Operating current	110µA (max.)
Alarm current	30mA at 16VDC
Operating temperature	-20°C to 70°C
Relative humidity	95% (non-cond.)
Dimensions (ø x H)	109mm x 43mm
Weight	128g
ATEX Certificate	BAS01ATEX11134X
IECEX Certificate	BAS 07.0056X
PART NUMBER	**516.054.011.Y**

MDU601Ex Enhanced Point Type Carbon Monoxide Fire & Heat Detector

The MDU601EX detector combines the features of both the MU601EX and the MD601EX to provide a combined CO and rate-of-rise heat detector where the sensitivity of the CO detector is enhanced in response to a fast rate of change of temperature.

SPECIFICATIONS	
Operating voltage	16-28VDC
Operating current	70µA (max.)
Alarm current	30mA at 16VDC
Operating temperature	-20°C to 70°C
Relative humidity	95% (non-cond.)
Dimensions (ø x H)	109mm x 43mm
Weight	126g
ATEX Certificate	BAS01ATEX1134X
IECEX Certificate	BAS 07.0056X
PART NUMBER	**516.061.001**

MD601Ex/MD611Ex Intrinsically Safe heat detectors

Where environmental conditions rule out the use of smoke detectors, MD601Ex/MD611Ex heat detectors may provide an acceptable, though less sensitive, alternative. For general use (particularly where the ambient temperature may be low) a rate-of-rise (ROR) heat sensor is preferred. These detectors react to abnormally high rates of change in temperature and provide the fastest response over a wide range of ambient temperatures.

A fixed temperature limit is incorporated in these detectors. In kitchens and boiler rooms, etc., sudden, large changes in temperature are considered normal. Fixed temperature or static detectors should be used in this case.

SPECIFICATIONS	
Operating voltage	16-28VDC
Operating current	100µA (max.)
Alarm current	5-80mA
Operating temperature	-20°C to 70°C
Relative humidity	95% (non-cond.)
Dimensions (ø x H)	109mm x 43mm
Weight	116g
ATEX Certificate	BAS01ATEX1134X
IECEX Certificate	BAS 07.0056X
PART NUMBER	
516.052.051	MD601EX rate-of-rise heat detector
516.052.041	MD611EX fixed temperature heat detector

MCP220Ex Manual Call Point

The MCP220Ex Intrinsically Safe, waterproof, break-glass, manual call point is designed to monitor and signal the condition of the switch contact associated with the call point.

The call point is designed to comply with EN 50 014 and EN 50 020 for Intrinsically Safe apparatus. It is certified:

- IECEX Certificate: IECEX SIR 08.0105X
- ATEX Certificate: SIRA 06ATEX2131X
- Cenelec Classification: EEx ia IIC T4 Ga

The MCP220Ex does not comply with NZS4512.

SPECIFICATIONS	
Operating voltage	18-30VDC
Alarm current	500mA (max.)
Operating temperature	-30°C to 70°C
Relative humidity	10-95% (non-cond.)
Dimensions (H x W x D)	93 x 98 x 63 (mm)
Ingress Protection	IP67
ATEX Certificate	SIRA 06ATEX2131X
IECEX Certificate	IECEX SIR 08.0105X
PART NUMBER	
514.001.109	MCP220Ex

601FEx Infrared Flame Detector

The 601FEx point-type flame detectors are part of the 600 Series of non-addressable detectors. The 601FEx is a full-featured flame detector for indoor use. It has a high degree of false alarm immunity. The 601FEx is designed for connection to a conventional zone of point-type fire detectors that may include any mix of detection technologies. The 601FEx is an Intrinsically Safe version intended for use in hazardous atmospheres and must be connected via a suitable isolator or shunt-diode safety barrier in a certified Intrinsically Safe system.

SPECIFICATIONS	
Operating voltage	16-28VDC
Operating current	300 µA (max.)
Alarm current	30mA at 15VDC
Operating temperature	-20°C to 70°C
Relative humidity	90% (non-cond.)[1]
Dimensions (ø x H)	ø108mm x 22mm
Weight	110g
Range	0.1m² n-heptane at 20m 0.4m² n-heptane at 50m
Field of view	100°
ATEX Certificate	BASEEFA03ATEX0422X
ATEX Code	EEx ia IIC T5
Cenelec Code	EEx ia IIC T5
IECEX Certificate	BAS 07.0075X
PART NUMBER	
516.600.066	601FEx detector
592.001.012	T110 test source
592.001.018	Test source adaptor

1. 90% relative humidity (RH) continuous. 99% RH (non-cond.) intermittent operation.

5BEx Detector Base

The 5BEx Detector Base is classed as a simple apparatus and is certified:

- ATEX Ex II 1 G Certificate: BAS10ATEX1134X
- IECEX Ex ia IIC T5 Certificate: .BAS 07.0063X

SPECIFICATIONS	
Dimensions (ø x H)	ø126mm x 24mm
Weight	64g
PART NUMBER	
517.050.023	5BEx base for Intrinsically Safe detectors

Thermac Temperature Probe

The Thermac detector is a heat-sensitive electrical switch. It is a fixed-temperature device with a factory pre-set temperature in the range of 60°C to 240°C.

The detector comprises a pair of normally open electrical contacts mounted within a stainless steel probe. A rise in temperature will cause the contacts to close at the set point temperature. With a drop in temperature, the procedure reverses and the contacts re-open below the set point temperature.

The detector body is a seamless one-piece unit, precision machined from AISI 316 stainless steel with high corrosion resistance. Electrical contacts are gold- or silver-plated and lead cables are nickel-plated copper with PTFE/glass insulation. Cables are to aircraft engine specification. The operating parts are factory-calibrated and permanently sealed against severe environmental conditions.

SPECIFICATIONS	
Applied voltage (DC at 0.25A)	32V (max.)
Operating current	0.25A (max.)
Operating or set temperature range	60ºC to 240ºC
Ambient temperature range (continuous exposure)	-40ºC to 180ºC
Relative humidity	100%
Weight	150g
Ingress Protection	IP67
Sensitivity and accuracy	+/– 5% or 5°
Mounting screw threads	10kg·m torque (max.)
PART NUMBER	
516.600.066	601FEx detector
592.001.012	T110 test source
592.001.018	Test source adaptor

1. All electrical ratings apply to non-inductive loads. Ensure circuit inrush currents do not exceed ratings.
2. Where a detector has been subjected to a fire or overheat, the unit should be returned to Thermac for condition check and calibration.

PART NUMBER	
TH1000-60	Thermac Type E 60°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-66	Thermac Type E 66°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-72	Thermac Type E 72°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-80	Thermac Type E 80°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-90	Thermac Type E 90°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-100	Thermac Type E 100°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-110	Thermac Type E 110°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-120	Thermac Type E 120°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-132	Thermac Type E 132°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-145	Thermac Type E 145°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-160	Thermac Type E 160°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-180	Thermac Type E 180°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-200	Thermac Type E 200°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-220	Thermac Type E 220°C temperature probe 316 SS IP67 with 20mm lock nut
TH1000-240	Thermac Type E 240°C temperature probe 316 SS IP67 with 20mm lock nut

Latching remote indicators

The E500 Mk2 range of latching remote indicators provides latching remote indication of an alarm condition on fire detectors, such as the Clean Contact Type Detector. Refer to Thermac Temperature Probes on page 162. The latching remote indicators are not Intrinsically Safe.

PART NUMBER	
E561	Fire alarm in concealed space
E573	Fire alarm in room
E574	Fire alarm above
E575	Fire alarm in duct
E566	Fire alarm in roof space

ZAU401 Zone Adaptor Unit

The ZAU401 (Rev 2) can be thought of as a single-zone circuit module that can be added to different panels to make them compatible with specific detectors.

The AZC characteristics of the ZAU401 make it particularly suitable for Intrinsically Safe applications when used with Intrinsically Safe barriers. Refer to page 158 for further information.

PART NUMBER	
PA0838	ZAU401 Zone Adaptor Unit

Intrinsically Safe isolators and barriers

The following section relates to a range of Intrinsically Safe isolator and barrier equipment for use with Johnson Controls - Fire Detection manufactured systems. On all issues of Intrinsically Safe systems design, please refer to all the relevant product manuals for guidance.

KFD0-Ex151

This device's channel (four terminals per channel) functions like a DC current isolator. The input and output are galvanically isolated from each other. These units are designed for the connection of fire detectors. Their increased current range and the higher accuracy allow for differentiation between normal operation, fire alarm, lead breakage and short circuit currents in the safe area. They may also be used for controlling I/P converters. A separate power supply with auxiliary power is not required. Due to the input voltage limiting of 24V, the maximum voltage output is 21V.

SPECIFICATIONS	
IECEX Certification	IECEx BAS 05.0004
PART NUMBER	
FD0-Ex151	Single-channel output, EEX IA IIC device installation permissible in Zone 2, polarity reversal protocol, accuracy 1%

KFD0-Ex251

Each channel (four terminals per channel) functions like a DC current isolator. Both channels have separate reverse polarity protection. The input and output are galvanically isolated from each other. These units are designed for the connection of fire detectors (smoke and/or heat detectors, etc.). Their increased current range and the higher accuracy allow for differentiation between normal operation , fire alarm, lead breakage and short circuit currents in the safe area. They may also be used for controlling I/P converters. A separate power supply with auxiliary power is not required. Due to the input voltage limiting of 24V, the maximum voltage output is 21V. This two-channel version allows for the connection of two independent circuits in a single housing.

SPECIFICATIONS	
IECEX Certification	IECEx BAS 05.0004
PART NUMBER	
KFD0-Ex251	Dual-channel output, EEX IA IIC device installation permissible in Zone 2, polarity reversal protocol, accuracy 1%

KFD2-STC4-Ex1

Specialised power supplies provide a two- or three-wire SMART transmitter and transfer the analogue values. Digital signals may be superimposed on the analogue values, which will be transferred bidirectionally. An internal resistor at Terminal 9 is available, which may be used to increase the AC impedance for the HART signal. This device replaces the KFD0-EX130 single-channelbarrier. The six-terminal KFD2-STC4-Ex1 is typically used on systems where higher numbers of Intrinsically Safe detectors are required.

Features

- Single channel
- Device installation permissible in Zone 2
- Input EEx ia IIC; Uo = 25.4 V
- Galvanically isolated output
- 24VDC supply voltage
- SMART capable up to 7.5 kHz (-3 dB)
- Input 0/4 mA to 20 mA
- Output 0/4 mA to 20 mA

SPECIFICATIONS	
IECEX Certification	IECEx BAS 04.0016
PART NUMBER	
KFD2-STC4-Ex1	EEX IA IIC 24VDC supply voltage output (max.) 1k ohms load

Linear heat and beam smoke detectors

Fire Wire

Fire Wire is a heat sensitive cable that provides continuous detection over long distances. Available in a range of actuation temperatures (from 68°C to 180°C), Fire Wire is ideal for heat detection in storage racks, conveyors, cable trays and other situations where it is desirable that detection is always close to potential sources of fire. Fire Wire is a twin conductor cable protected by a rugged outer sheath. The copper-covered steel conductors are separated by temperature sensitive insulation and twisted together. When Fire Wire cable is exposed to sufficient heat, the heat sensitive insulation melts, allowing the two conductors to touch, signalling an alarm. When using Fire Wire, it is important to ensure that it is not affected by localised hot spots. Before selecting an actuating temperature for a particular area, determine the worst case maximum ambient temperature for that area. As it is a simple device, the FW Series can be used in Zone 0 areas when connected to a suitable Intrinsically Safe barrier. FW68/105/180 is available only in multiples of 100m lengths.

Note that FW68 is suitable for indoor use only. While FW105/180 may be used in external applications, it must be protected from direct sunlight.

SPECIFICATIONS		
Operating voltage	32VAC or 115VDC (max.)	
Alarm current[1]	300mA (max.)	
Conductor loop resistance	100 ohms per km	
Operating temperature	Ambient alarm	Alarm
FW68[2]	-65°C to 45°C	61°C to 70°C
FW105[3]	-65°C to 70°C	97°C to 113°C
FW180[3]	-65°C to 105°C	168°C to 180°C
Relative humidity	~100% (non-cond.)	
Detection time (approx.)		
	FW68	4 seconds
	FW105	10 seconds
	FW180	20 seconds
Bend radius	50mm (min.)	
Insulation material		
	FW68	Polythene
	FW105/180	PVC
ActivFire Listed[4]	afp-821 (FW68)	

1. Must be externally limited.
2. FW68 is suitable for internal use only.
3. FW105 and FW180 are suitable for use in external applications when shielded from direct sunlight.
4. With 4300 Junction Box every 100m.

PART NUMBER	
FW68	68°C sensor cable
FW105	105°C sensor cable
FW180	180°C sensor cable
4300	Junction box

OSID Smoke Detector

Open-Area Smoke Imaging Detection (OSID) is designed for large, open spaces – airports, train stations, stadiums and shopping centres, etc. – and applications that pose unique challenges to reliable fire detection. By using UV and IR wavelengths to detect particles, the system is able to distinguish between particle sizes, and provide repeatable absolute smoke obscuration values, while rejecting the presence of dust particles or solid intruding objects. With a range of up to 150m (OSI-10 only) and easy alignment, OSID is ideal for use in a wide range of applications.

Features

- Maximum detection range up to 150m
- Status LEDs for Fire, Fault and Power
- High nuisance-alarm immunity
- Dust and intrusive solid-object rejection
- Easy alignment with large adjustment and viewing angles
- High tolerance to building flex and vibration
- Simple DIP switch configuration
- Dual wavelength LED-based smoke detection
- Limited maintenance requirements
- Conventional alarm interface for straightforward fire system integration
- Configurable alarm thresholds
- Both wired and battery-powered emitters available

Benefits

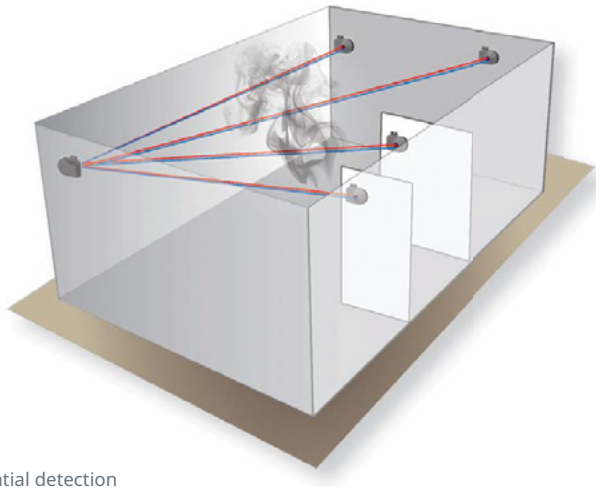
- Simple and quick installation
- High tolerance to vibrations, building movement and high airflow
- Reliable discrimination between real smoke and other intruding objects, such as dust, steam, birds, insects and forklifts
- Requires only 200mm of free space
- 3D coverage

SPECIFICATIONS	
Operating voltage	20-30VDC
Imager operating current	1 emitter: 4mA (nom.) 7 emitters: 7mA (nom.)
Peak current	27mA (training mode)
Operating temperature	-10°C to 55°C
Relative humidity	10-95% (non-cond.)
Ingress Protection	IP44 (electronics) IP66 (optics enclosure)
Dimensions (H x W x D)	130 x 198 x 96 (mm)
Weight	Emitter: 585g Imager: 610g
ActivFire Listed	afp-2539
FPANZ Listed	Various (refer to Xtralis section)
PART NUMBER	
OSI-10	Imager 10° (one SP emitter, max.)
OSI-90	Imager 90°
OSE-SP-01	Emitter battery exchange unit
OSE-SPW	Emitter (standard power 24V)
OSE-HPW	Emitter (high power 24V)
OSP-002	Laser alignment tool
OSE-ACF	Anti-condensation film for emitter, pk of 10
OSEH-ACF	EH anti-condensation film for emitter, pk of 10
OSID-EHE	Emitter environmental housing
OSID-EHI	Imager environmental housing
OSID-INST	Install Kit, incl. laser and filter
OSID-WG	Wire guard
OSD-RBA	Emitter replacement battery pack

Applications

OSID is ideal for use in a wide range of industries and applications. These include atriums, domes and large rooms in:

- Airports
- Train stations
- Shopping centres
- Stadiums
- Educational facilities
- Hotels, convention centres and office buildings/ complexes
- Entertainment venues
- Warehouses and production floors



MZX SensorLaser Pro Fibre Optic Linear Heat Detection

The Zettler SensorLaser Pro is a fibre-optic linear heat alarm system that guarantees rapid and seamless fire detection as well as the highest false alarm immunity even in difficult and changing environmental conditions.

With the fibre optic measuring principle, accurate and location-specific recording of temperature along the sensor cable can be achieved. A temperature profile right across the entire line makes it possible to obtain precise details about the location, size and dynamics of a fire. Zettler SensorLaser Pro offers up to four channels of detection, monitoring up to 16km of cable per channel.

The MZX SensorLaser Pro Series is incredibly intuitive and flexible, with a fully integrated web server, offering simple configuration via browser, one-click validation of compliance configuration settings, 2,000 configurable alarm zones per channel and up to 98 integrated relay contacts.

Features

- Up to four channels of 16km
- 2,000 alarm zones per channel
- Up to 98 integrated relay contacts
- Integrated web server
- 4.3in. colour TFT display
- Flexible zone and alarm configuration
- 2,000 alarm zones per channel
- State-of-the-art IT security standards
- EN Certified
- UL Listed
- VdS Approved
- ATEX and IECEx
- SIL2

PART NUMBER	
580.400.001	MZX SensorLaser Pro, 1km range (R01)
580.400.002	MZX SensorLaser Pro, 2km range (R02)
580.400.003	MZX SensorLaser Pro, 4km range (R04)
580.400.004	MZX SensorLaser Pro, 6km range (R06)
580.400.005	MZX SensorLaser Pro 8km range (R08)
580.400.006	MZX SensorLaser Pro, 10km range (R10)
580.400.007	MZX SensorLaser Pro, sensor channel 1, one E2000 8° APC optical connector (CO1)
580.400.008	MZX SensorLaser Pro, sensor channel 2, two E2000 8° APC optical connector (CO2)
580.400.009	MZX SensorLaser Pro, sensor channel 4, four E2000 8° APC optical connector (CO4)
580.400.010	19in. rack indoor housing, two height units, 7kg, integrated display
580.400.011	Wall-mount housing, integrated display, 9kg, 420 x 473 x 106 (mm)
580.400.017	Outdoor housing with window, empty, 13kg, 600 x 465 x 150(mm)
580.400.027	MZX SensorLaser Pro ATEX/IECEx Zone 0, 20, MA-approval for sensor cable run in EX Zone 0
580.400.028	SensorLaser Pro ATEX/IECEx Zone 1, 21, MA-approval for sensor cable run in EX Zone 1

SPECIFICATIONS						
INSTRUMENT OPTION	**R01**	**R02**	**R04**	**R06**	**R08**	**R10**
Distance range[1]	1km	2km	4km	6km	8km	10km
Optical wavelength	1,064nm					
Minimum sampling interval	0.25m					
Minimum spatial resolution	0.5m					
Measurement time	1-30 seconds			2-30 seconds	3-30 seconds	4-30 seconds
Optical channels[2]	1 (C01), 2 (C02) and 4 (C04)					
Available measurement modes	Single-ended; double-ended (Loop, incl. fibre-break recovery, not available with channel option C01)					
INTERFACES AND POWER						
Optical connector/ sensor fibre	E2000 APC 8°					
User interface	50/125µm graded index MM (OM2/OM3/OM4), ITU-T G.651.1					
	Web browser interface, TFT display, 480px x 272px, four front LEDs for Power, Measuring, Fault and Alarm					
	Three rear LEDs for Power OK, SD Card Removable and Laser On					
Computer interface	Two Ethernet (LAN 10/100/1000), USB A, USB B					
Data storage capacity	512MB internal, USB HDD/SSD, SD/SDHC card slot					
Communication protocol	SCPI, Option P01: Modbus TCP					
Relays	Volt-free contacts, 30VDC, 1A included: four inputs and 10 outputs. Option SR0: 44 additional outputs					
	Option SRR: 88 additional outputs					
	Option TMx: Resistor configuration based on customer requirements					
Power	10-30VDC, 22W (typ.) at 20°C ambient temperature, 40W (max.)					
HOUSING AND ENVIRONMENTAL						
Housing	19in. rack mount (DR)			Wall mount (DW)[3]		
Operating temperature range	-10°C to 60°C					
Storage temperature range	-40°C to 80°C					
Relative humidity	95% (non-cond.)					
Dimensions (H x W x D)	88 x 420 x 420 (mm)			473 x 420 x 105 (mm)		
Weight	5-7kg			7-9kg		

1. Maximum optical loss budget (one way) R01 = 3dB, R02 = 4dB, R04 = 6dB, R06 = 8dB, R08 = 10dB, R10 = 12dB. Certifications may require a lower maximum-permissible loss value of the sensor.

2. Instrument option R08 and R10 combined with C04 are certified to local protection application EN54-22 with response classes BN, CN, DN, EN. In this case, for room protection application EN54-22, LHD – N4517A is required.

3. Wall mount IP66 housing options: A4500A (with window) with operating temperature range -20° to 60°C.

MZX SensorLaser Pro Safety Cable

These special, linear, heat sensor cables are suited for indoor and outdoor use. Each cable includes two MM fibres for temperature sensing. These sensor cables have a halogen-free and flame-retardant FRNC cable sheath.

MZX SensorLaser Pro Safety Cable Safety FRNC (m) Tight Buffered Design

Part number: 580.400.018

The MZX SensorLaser Pro Safety Cable is a fast-responding sensor cable with a tight-buffered fibre, compact dimensions, high flexibility, and good bending behaviour. Due to the aramid yarns, the cable has a high tensile strength. Upon request, this cable is available in other colours.

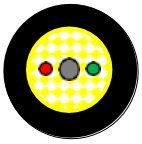
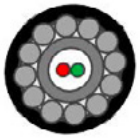
MZX SensorLaser Pro Safety Cable Steel FRNC (m) Loose Steel Tube Design/Steel-Armoured

Part number: 580.400.020

The MZX SensorLaser Pro Safety Cable Steel is a fast-responding, armoured sensor cable with stainless steel loose tubes and outer sheath. The sensor cable has high tensile strength and crush resistance, provides excellent rodent protection and is longitudinally and laterally watertight. Upon request, this cable is available in other colours.

Features

- Flame retardant, non-corrosive (FRNC)
- UV resistant
- EN, VdS, UL521, FM, CAN/ULC, IEC approvals
- Indoor or outdoor

DESIGN COMPONENTS		
CABLE TYPES	**580.400.018**	**580.400.020**
Cable version	Safety	Steel armoured
		
Outer sheath material	Flame retardant, non-corrosive (FRNC)	
Armouring	Swellable aramid yarns (metal-free)	Stainless steel AISI 316L tube Stainless steel AISI 316L wires
Cable design	GRP strength member, fibre tight-buffered in aramid yarn	Gel-free, fibre loose in FIMT (fi-bre in metal tube)
Standard fibre count/cable	2 MM	
UV resistance	Yes	
Longitudinal water resistance	No	Yes
MECHANICAL/PHYSICAL DETAILS		
CABLE TYPES	**580.400.018**	**580.400.020**
Approximate weight[1]	17kg/km	29kg/km
Outer diameter[1]	4mm	3.8mm
Crush resistance[2]	1,000N/10cm	9,600N/10cm[5]
Tensile strength (installation)[2]	1,100N	1,500N
Tensile strength (operation)[2]	800N	1,100N
Operating temperature	-40°C to 85°C	
Short-term temperature	-40°C to 150°C	
Functional integrity[4]	~750°C	
OPTICAL DETAILS		
MM fibre type	OM2 (50/125µm)	
MM-attenuation	850nm wavelength Max.: 2.7dB/km, typ.: 2.5dB/km 850nm wavelength Max.: 0.8dB/km, typ.: 0.7dB/km	

INSTALLATION DETAILS		
Outer diameter[1]	4mm	3.8mm
Static bending radius[2]	15 x D (outer Ø)	
Repeated bending[2]	20 x D (outer Ø)	
Installation temperature	-5°C to 50 °C	
CABLE LENGTH		
Maximum length/drum	8,000m	8,500m
Typical length/drum	4,000m	4,500m
APPROVALS		
Applicable standards	• EN-54 • VdS • UL 521 • CAN/ULC S530 • FM 3210 • EN187000	• IEC 60331 (part 25) • IEC60332 (parts 1, 2 and 3-24) • IEC 60754 (parts 1 and 2) • IEC 60793 • IEC 60794 (parts 1 and 2) • IEC 61034 (part 2)

PART NUMBER	
580.400.018	MZX SensorLaser Pro Safety Cable, safety FRNC (m), tight-buffered design
580.400.019	MZX SensorLaser Pro Safety Connector (two pigtails with E2000 8° APC connectors)
580.400.020	MZX SensorLaser Pro Safety Cable Steel, FRNC (m), loose steel tube design, steel armoured
580.400.021	MZX SensorLaser Pro Safety Steel Connector (two pigtails with E2000 8° APC connectors
580.400.022	Cable drum
580.400.023	E2000 8° APC Pigtail (MM GI 50/125mm, approx. 2.8mm, 5m
580.400.024	E2000 8° APC Pigtails (MM GI 50/125mm, approx. 2.8mm, 30m

1. Tolerance of -5%/+10%.

2. Crush resistance IEC 60794-1-2 method E3A.

Tensile strength short-term (installation) IEC 60794-1-2 method E1 A/B

Tensile strength long-term (operation) IEC 60794-1-2 method E1 A/B Static bend radius IEC 60794-1-2

method E11 Repeated bending IEC 60794-1-2 method E6.

3. Pre-assembled sensor cable connectors are available as an option to reduce deployment cost and time. These enable a quicker and easier installation, with no need to organise a fusion splicer and splice box to connect the sensor cable to the DTS or DAS. Pigtails are supplied with E2000 8° connectors. For safe transportation they are covered with a flexible protective tube when shipped.

4. Functional integrity of the sensor cable tested for two hours with minimum flame temperature of 750°C as per IEC 60331-25. In tunnel fire testing it has been demonstrated that the functional integrity of the cable was maintained for several minutes with temperatures exceeding 1,000°C.

5. 600N/cm in operation, maximum 960N/cm during installation.

OPTIONAL FEATURES		
580.400.019	• For 580.400.018 • Two pigtails with E2000 8° APC connector • Splice protection and strain relief • Pre-assembled on one cable end	
580.400.021	• For 580.400.020 • Two pigtails with E2000 8° APC connector • Splice protection and strain relief • Pre-assembled on one cable end	
580.400.023	• Pigtail with E2000 8° APC connector, length: 5m • For splicing to the sensor fibre (either to connect DTS, or for termination)	
580.400.024	• Pigtail with E2000 8° APC connector, length: 30m • For splicing to the sensor fibre (either to connect DTS, or for termination)	

Detector test equipment

PART NUMBER	
517.001.230	SOLO100 telescopic pole, 1.26-4.5m
517.001.226	SOLO101 extension tube, 1.3m long for use with S100 telescopic extension pole
517.001.287	SOLO610 equipment bag and pole bag for SOLO Detector Test Kit

PART NUMBER	
X900	Testifire Smoke/Heat/CO Test Kit for use with all detector ranges. Connects directly to S100/S101 poles

PART NUMBER	
517.001.279	CRC-test test smoke, 71g can
	SOLO test smoke, 250ml can
517.001.262	CO detector test gas, 120g can

PART NUMBER	
X811	Smoke Detector Test Kit
X822	Smoke and Heat Detector Test Kit

PART NUMBER	
X461	SOLO461 Cordless Heat Detector Tester Kit, incl. SOLO460 Tester, SOLO770 battery batons and SOLO724 charger (connects directly to SOLO100/101 poles)
517.001.273	SOLO770 spare battery baton for use with SOLO450/460 Tester
X811	SOLO811 Smoke Detector Test Kit, incl. SOLO330 Aerosol Dispenser, SOLO200 detector removal tool, SOLO100 pole, SOLO101 extension and SOLO610 equipment bag. 800RT and SOLO704 ordered separately.
517.001.277	SOLO461 heat detector tester
517.001.255	SOLO330 Aerosol Dispenser
517.001.287	SOLO610 equipment bag and pole bag

PART NUMBER	
517.001.224	SOLO704 adaptor tube B, adapts SOLO100/101 pole sets for Vigilant and Simplex detector changers and testers

PART NUMBER	
516.800.917	800RT M600/M800 detector removal tool. Requires adaptor B and SOLO100 pole

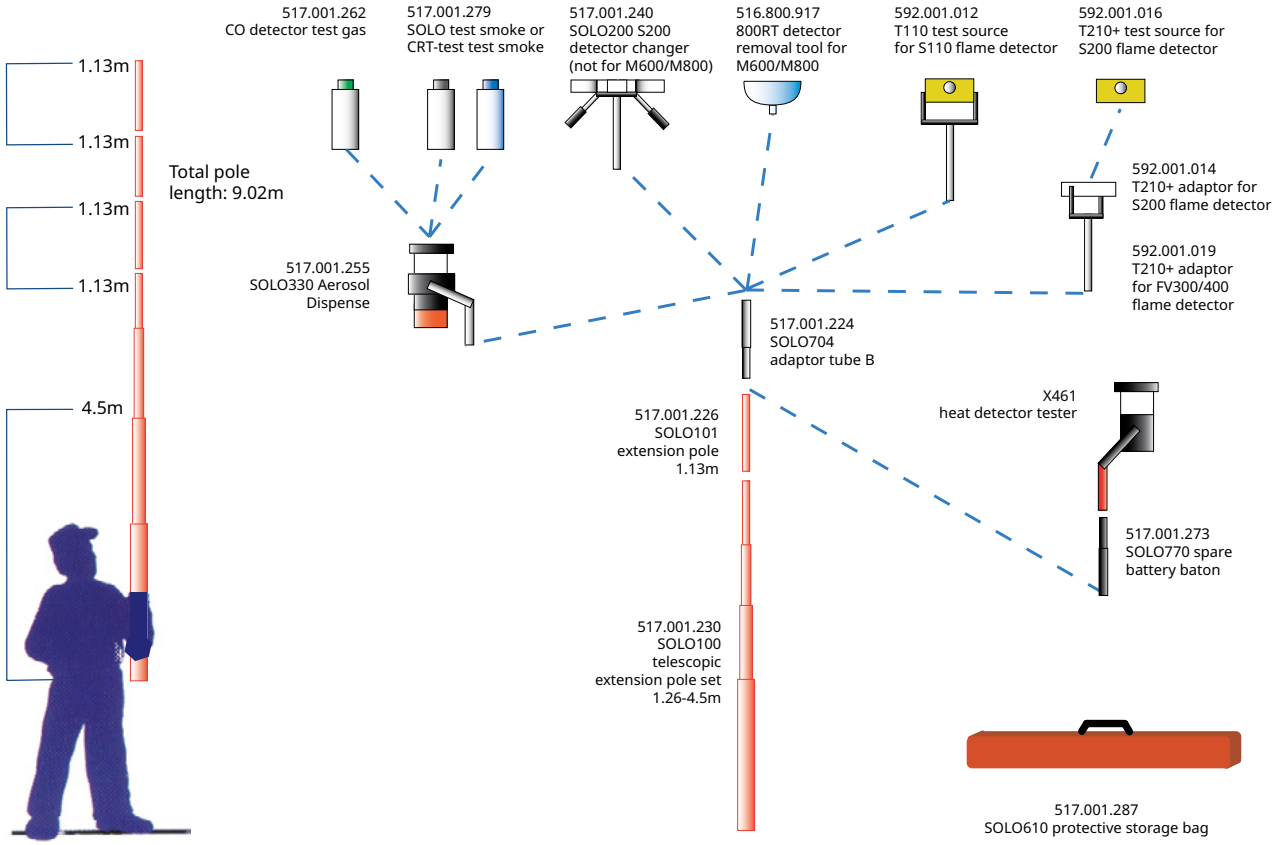
PART NUMBER	
517.001.240	SOLO200 universal detector or changer for use with various manufacturers' detectors. Not suitable for M600/900 Series low profile. Connects directly to SOLO100/101 poles.

PART NUMBER	
X61	BRANDAX VS smoke cartridge, five 60g cartridges, Ø32mm x 62mm, 55m³ smoke volume, 180-240 second burn time

PART NUMBER	
X62	Ventilax smoke cartridge, five 60g cartridges, Ø18mm x 62mm, 17m³ smoke volume, 180-240 second burn time

PART NUMBER	
X65-25	Splintax smoke matches, 25 1g matches, 0.7m³ smoke volume, 25-second burn time

SOLO test equipment for point and flame detectors



S200 Series test equipment and accessories

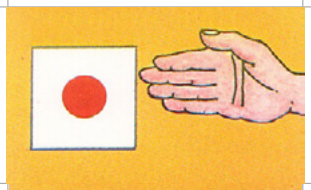
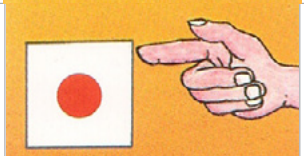
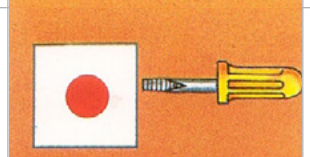
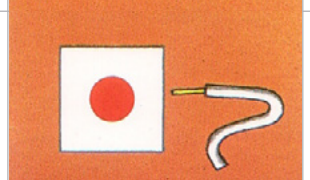
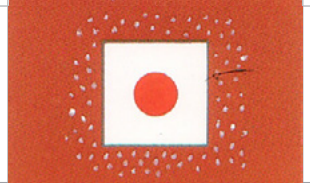
PART NUMBER	
592.001.016	T210+ test source for use with SOLO704 adaptor tube B and SOLO100/101 poles
592.001.014	T210+ adaptor for S200 detectors
592.001.019	T210+ adaptor for FV300/FV400 detectors

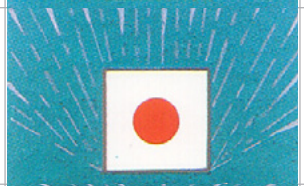
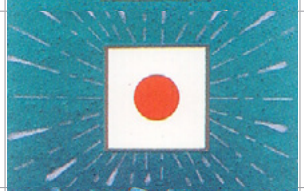
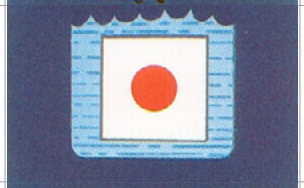
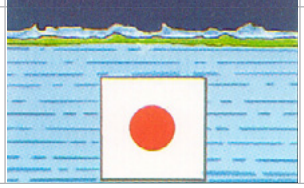
Note: The test source and appropriate adaptor are required to test S200 and FV300/400 detectors.

PART NUMBER	
517.001.184	Stainless steel bracket assembly for all S100/200 Series detectors

PART NUMBER	
592.001.012	T110 test source for use with SOLO704 adaptor tube B and SOLO100/101 poles
592.001.010	T110/T210 PP9 NiMH Battery and Charger Kit

Ingress Protection (IP Ratings)

	TEST	PROTECTION
X	No test applied	No specific protection
0	No test applied	Inherent degree of protection
1		Protected against solid objects larger than 50mm (e.g., accidental contact with hand)
2		Protected against solid objects larger than 12mm (e.g., finger of the hand)
3		Protected against solid objects larger than 2.5mm (e.g., tools, wires)
4		Protected against solid objects larger than 1mm (e.g., fine tools and wires)
5		Protected against dust. Prevent entry in sufficient quantity to interfere with satisfactory operation
6		Completely protected against dust

	TEST	PROTECTION
X	No test applied	No specific protection
0	No test applied	Inherent degree of protection
1		Protected against drops of water falling vertically
2		Protected against drops of water falling at up to 15° from the vertical
3		Protected against spraying water at up to 60° from the vertical
4		Protected against splashing water from all directions
5		Protected against jets of water from all directions
6		Protected against jets of water of similar force to heavy seas
7		Protected against the effects of immersion
8		Protected against the effects of submersion

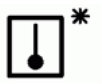
The standard defines additional letters that can be appended to classify only the level of protection against access to hazardous parts by persons.

ADDITIONAL LETTERS	
A	Back of hand
B	Finger
C	Tool
D	Wire

To Australian Standard AS1939-1990 'Classification of Degrees of Protection' provided by enclosures for electrical equipment.

Refer to AS 60529-2004 Degree of protection provided by enclosures (IP Code) for test requirements for the IP classification of enclosures.

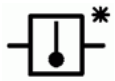
Symbols



Heat detector
(exposed or ceiling-mounted)

Heat detector in a
concealed space

Heat detector within
an air duct

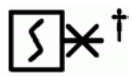


Line detector

Smoke detector
(exposed or ceiling-mounted)

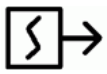
Smoke detector in a
concealed space

Smoke detector within
an air duct

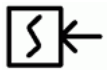


Smoke detector with a
sampling device

Aspirated smoke
detector system



Optical beam-type smoke
detector (transmitter)



Optical beam-type smoke
detector (receiver)

Heat alarm

Smoke alarm

Electromagnetic holder

Remote visual indicator

Flame detector

Gas fire detector

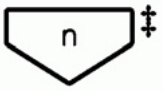
End-of-line device

Symbols

Fire indicator panel

Loud speaker

Sub-indicator panel



Device address

Remote control equipment

Alarm zone

Repeater panel

Circuit wiring

Addressable device

Flow switch

Storage battery

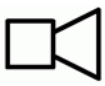
Pressure switch

Fire alarm bell

Manual call point

Visual warning device

Monitored valve



Alarm sounder

Multi-sensor detector

* Heat detector type, e.g., TA, TB, etc., for AS 1603.1 detectors or A1, B, etc., for AS 7240.5 detectors
† Type of smoke detector, e.g., I = ionisation, P = photoelectric.
§ Type of flame detector, e.g., IR = infrared, UV = ultraviolet.
& Type of gas detector, e.g., CO.

Reference tables

CONVENTIONAL (NON-ADDRESSABLE) DETECTOR SELECTION CHART							
	Environment	**Very clean and dry**	**Benign, moderately clean, regulated temperature**	**Dirty, smoky**	**Dusty and/or humid**	**Hot and smoky**	**Open areas**
Fire loading	Example Probable risk	• Clean room • Data processing	• Office • Light industrial • Hospital • Residential • Passenger accommodation	• Loading bay/ warehouse with diesel forklifts, etc. • Heavy industrial • Ferry (car deck)	• Livestock pen • Mill • Laundry • Changing room	• Kitchen • Engine room • Test beds	• Atrium • Theatre • Hangar • Oil rig • Turbine hall
Electronic equipment, electrical switchgear, electric motors, cable, conduit	Cable pyrolysis (toxic fumes), electrical arcs (ignition source), associated electrical fire	**Aspirated** Photo Ionisation	Aspirated Photo	Photo	—	—	Aspirated Flame Beam
Fabrics, clothes, soft furnishings, animal bedding, wood shavings	Smouldering (difficult-to-locate toxic fumes), likelihood of flashover	—	**Aspirated** **CO/Heat** Photo	**CO/Heat** Photo	**CO/Heat** Photo	CO/Heat Heat	**CO/Heat** Flame Beam
Flammable liquids, paints, solvents, flammable gas, unstable chemicals, foodstuffs	Flaming fire, rapid build-up of dense smoke, high temperature, associated explosion danger	**Flame** Ionisation Photo CO/Heat Heat	**Flame** Ionisation Photo CO/Heat Heat	**Flame** Ionisation CO/Heat	**Flame** CO/Heat	**Flame** Heat	**Flame** Beam
General, organic waste, animal fodder, wooden structures, solid fuels	Smoke and flame, initially fairly slow but high temperatures once established	—	**CO/Heat** **Photo** Ionisation	**CO/Heat** Heat	**CO/Heat** Heat	**Heat** CO/Heat	**CO/Heat** **Flame** Beam
Plastic, chemicals, machinery, building materials, unknown contents	Type of risk may vary, as can the type of fire (may require a mix of detection types)	Aspirated CO/Heat Photo Ionisation Flame Heat	**CO/Heat** Photo Ionisation Heat Flame	**CO/Heat** **Photo** Ionisation Flame Heat	**CO/Heat** Flame Heat	**Heat** CO/Heat Flame	**Flame** **CO/Heat** Beam

This table is for general guidance only and should not be used as a substitute for expert advice.

Detectors in bold typeface indicate the most suitable – other types indicated may not be optimum for reasons of performance or cost, but real situations may require a combination to cover likely risks.

Reference tables

MX ANCILLARY DEVICE / MX PANEL COMPATIBILITY			
COMPATIBILITY	**MX1**	**MX4428**	**4100ESI**
CP820 Call Point – Indoor	✓	✓	✓
CP830 Call Point – Outdoor	✓	✓	✓
CIM800 Contact Input Module	✓	✓	✓
DDM800 Universal Fire & Gas Detector Module	✓	✓	✓
DIM800 Detector Input Module	✓	✓	✓
LIM800 Loop Isolator module	✓	✓	✓
LPS800 Loop Powered Sounder Module	✓	✓	–
MCP820 S/C Isolator Call Point – Indoor	✓	✓	–
MCP830 S/C Isolator Call Point – Outdoor	✓	✓	–
MIM800 Mini Input Module	✓	✓	✓
MIO800 Multi Input/Output Module	✓	–	✓
QIO800 Quad Input/Output Module	✓	–	–
QMO800 Quad Monitored Output Module	✓	–	–
QRM800 Quad Relay Output Module	✓	–	–
RIM800 Relay Interface Module	✓	✓	✓
SIO800 Single I/O Module	✓	–	–
SNM800 Sounder Notification Module	✓	✓	✓
VIO800 VESDA Input Module	✓	–	✓

Reference tables

MX DETECTOR SELECTION CHART							
	Environment	Very clean and dry	Benign, moderately clean, regulated temperature	Dirty, smoky	Dusty and/or humid	Hot and smoky	Open areas
Fire loading	Example / Probable risk	• Clean room • Data processing	• Office • Light industrial • Hospital • Residential • Passenger accommodation	• Loading bay/ warehouse with diesel forklifts, etc. • Heavy industrial • Ferry (car deck)	• Livestock pen • Mill • Laundry • Changing room	• Kitchen • Engine room • Test beds	• Atrium • Theatre • Hangar • Oil rig • Turbine hall
Electronic equipment, electrical switchgear, electric motors, cable, conduit	Cable pyrolysis (toxic fumes), electrical arcs (ignition source), associated electrical fire	**Aspirated** 814P/814PH 814I	Aspirated 814P/814PH	814P/814PH	—	—	**Aspirated** **Flame** Beam
Fabrics, clothes, soft furnishings, animal bedding, wood shavings	Smouldering (difficult-to-locate toxic fumes), likelihood of flashover	Aspirated 814P	**814CH** 814P/814PH	**814CH** 814P/814PH	**814CH** 814P/814PH	814CH 814H	**814CH** Flame Beam
Flammable liquids, paints, solvents, flammable gas, unstable chemicals, foodstuffs	Flaming fire, rapid build-up of dense smoke, high temperature, associated explosion danger	**Flame** **814P/814PH** 814I 814CH 814H	**Flame** **814P/814PH** 814I 814CH 814H	**Flame** 814CH 814H	**Flame** 814CH 814H	**Flame** 814H	**Flame** Beam
General, organic waste, animal fodder, wooden structures, solid fuels	Smoke and flame, initially fairly slow but high temperatures once established	—	**814CH** **814P/814PH** 814I	**814CH** 814H	**814CH** 814H	**814CH** 814H	**814CH** **Flame** Beam
Plastic, chemicals, machinery, building materials, unknown contents	Type of risk may vary, as can the type of fire (may require a mix of detection types)	Aspirated CO/Heat Photo Ionisation Flame Heat	**814CH** **814P/814PH** 814I 814H Flame	**814CH** **814P/814PH** 814I Flame 814H	**814CH** 814P/814PH Flame	**814CH** 814P/814PH Flame	**Flame** 814CH Beam

This table is for general guidance only and should not be used as a substitute for expert advice.

Detectors in bold typeface indicate the most suitable – other types indicated may not be optimum for reasons of performance or cost, but real situations may require a combination to cover likely risks.

Reference tables

VIGILANT/MINERVA SOUNDER BASE SELECTION GUIDE				
PRODUCT CODE	**577.001.035**	**516.800.910**	**814SB**	**516.800.911**
Description	601SB Collective	802SB MX Low Power	814SB	901SB Universal
CIE	Conventional only	MX only	MX only	Minerva Addressable/MX
Powered from	24VDC	MX addressable loop	MX addressable loop	24VDC
Detector required to operate?	No	Yes	Yes	Yes
Park clip colour	Green	White	–	Blue
Current at 68dBA (min. volume)	1.2mA	1.2mA	9mA	1.2mA
Current at 90dBA (max. volume)	6.8mA	6.8mA	15mA	6.8mA
Current at 100dBA (fixed volume)	–	–	–	–
Dutch Slow Sweep (7)	Yes	Yes	–	Yes
Temporal 4	Yes	Yes	–	Yes
Slow Sweep (3)	Yes	Yes	Yes[1]	Yes
March Time Beep (25)	Yes	Yes	–	Yes
March Time Beep (26)	–	–	–	–
Fast Sweep (2)	Yes	Yes	Yes[2]	Yes
Temporal 3 (ISO)	Yes	Yes	–	Yes
Alternating 2 (11)	Yes	Yes	–	Yes
Alternating 2 (9)	–	–	–	–
Continuous (14)	Yes	Yes	–	Yes

(2), (3), (7), (9), (11), (14), (25), (26) = ROSHNI tone number 1. Slow Sweep = 5Hz 2. Fast Sweep = 15Hz

Spare parts lists

F3200 COMPREHENSIVE SPARES LIST	
CL0423	Transformer, 240VAC 2.5A 31V RMS
FA1223	Fab, 1931-1-1 Keypad Membrane (AS1603)
FA1227	Fab, 1931-24, F3200 9.5U Blank Panel, plastic
FA1235	Fab, 1919-27-5, F3200, 15U Standard Flush Surround (P)
FA1298	Fab, 1919-27-6, F3200, 8U Small Flush Surround (P)
FA1299	Fab, 1919-27-7, F3200, 8U and 8U Battery Box, Flush Surround (P)
FA2150	AS4428.1 Keypad Membrane Overlay only
FP0475	16- Zone LED Display Extender Kit, 1901-26 (incl. PA0454, LM0046, Hardware, not for first LED display)
FP0553	F3200 8-Zone Input Expansion Kit (incl. PA0492, LM0053, 8xEOLR)
FP0554	F3200 8-Relay Expansion Kit (incl. PA0493, LM0053, eight mini-jump links)
FP0556	F3200 15U Cabinet, empty, c/w door, window, lock
FP0557	F3200 15U Cabinet, empty, c/w blank outer door
FP0576	F3200, 8U Battery Box (no window)
FP0584	F3200, 8U Empty Cabinet, full Window
FP0704	Network Upgrade Kit V2.06 (AS1603)
FP0731	RDU to NDU Upgrade Kit
FP0780	F3200 AS4428 Fire Indicator Panel, cardframe, 24 zones (max.), 3A 15U
FP0781	F3200 AS4428 Fire Indicator Panel, c/w cardframe, 64 zones (max.), 3A, 15
FP0782	F3200 AS4428 Fire Indicator Panel, no cardframe, 24 zones (max.), 6A, 15U
FP0783	F3200 AS4428 Fire Indicator Panel, c/w cardframe, 64 zones (max.) 6A, 15U
FP0784	F3200 AS4428 Fire Indicator Panel, 8U, MAF/PSU, 3A, eight zones, 8U
FP0790	NDU AS4428, Network Display, full cabinet, MAF/PSU, 3A
FP0791	NDU AS4428, Network Display, slimline, surface
FP0792	NDU AS4428, Network Display, slimline, flush
FP0793	NDU AS4428, Network Display, deep slimline, c/w I-HUB
FP0794	NDU AS4428, Network Display, 4U 19in. module
FP0795	F3200 AS4428 Network Upgrade Kit, V3.xx (SF0222, IC0358, PA0773, LM0091, LT0330)
FP0876	F3200 AS4428 Fire Indicator Panel, 8U cabinet, 3A, 1U gas control, pre-programmed
FP0877	F3200 AS4428 Fire Indicator Panel, 15U cabinet, 6A, 1U gas control, pre-programmed
FP1002	MX1 16-Zone LED Display Extender F3200/NDU AS4428.1 (incl. FP1002, LM0291and LM0339)
FZ3031	F3200 16-Zone LED Display Kit, LHS position, (FP0475, 1.2m FRC LM00492)
FZ9002	19in. RAC, 7U blank hinged inner door
IC0320	PA0482 U3 EEPROM
IC0358	F3200 U13 DUART
KT0072	Kit, F3200, cardframe upgrade
KT0112	Kit,1945-1-2, AS1668 control module, Type 2
KT0113	Kit,1945-1-3, AS1668 control module, Type 3
KT0199	Kit, ASE, 3U 19in. rack mounting front panel
KT0212	Kit, V-MODEM, 3U 19in. Rack, Mounting Front Panel, two-up
KT0271	Kit, F3200, AS1603.4 V2.xx to V3.xx standard upgrade
KT0272	Kit, F3200 AS1603.4 V2.xx Net to V3.xx net upgrade
KT0273	Kit, NDU AS1603.4 V2.xx to V3.xx software upgrade
KT0274	Kit, F3200 Fire Indicator Panel, AS1603.4 to AS4428.1 conversion
KT0429	Software, F3200/NDU AS4428 Controller V5.xx (req. >1931-111B)
KT0478	Kit, AS1668 five-way fan control module, c/w two FRC, 2m
KT0512	Kit, AS1668 four-way fan control and primary, c/w two FRC, 2m
LM0041	Loom, 1888-58, program port to DB9 serial (printer/PC to controller)
LM0042	Loom, 1888-62, program port to DB25 serial (printer/PC to controller)
LM0044	Loom, 1901-81-1, display extender FRC, 2m
LM0045	Loom, 1901-81-2, display extender FRC, 5m
LM0046	Loom, 1901-81-3, display extender FRC, 0.5m
LM0049	Loom, 1901-81-4, display extender FRC, 0.25m
LM0053	Loom, 1931-28-1, F3200 20-way FRC, 300mm (interconnecting eight-zone modules, incl. in FP0553, 554)
LM0092	Loom, 1901-88, controller to first display, FRC, 1.2m (display board to controller, for display board furthest LHS)
ME0060	Mechanical Assembly, 1901-79, RAC cabinet, 7U LED hinged inner door
ME0072	Mechanical Assembly, 1931-70, F3200 rack mounting gear plate

ME0098	Mech Assy, 1931-116, F3200 AS4428.1 Cntrl, 4U Hinged (incl PCB)
ME0250	Mechanical Assembly, 1919-35, RAC cabinet, IP65, 20U x 200 (i.e., waterproof)
ME0258	Mechanical Assembly, 1919-21-2, RAC cabinet, 1U shelf, 135mm deep (incl. hardware)
ME0439	Mechanical Assembly, 1931-123, AS4428 two-zone gas control 7U door
LM0049	Loom, 1901-81-4, display extender FRC, 0.25m
LM0053	Loom, 1931-28-1, F3200 20-way FRC, 300mm (inter-connecting eight-zone modules, incl. in FP0553/554)
LM0092	Loom, 1901-88, controller to first display, FRC, 1.2m (display board to controller, for display board furthest LHS)
ME0060	Mechanical Assembly, 1901-79, RAC cabinet, 7U LED hinged inner door
ME0072	Mechanical Assembly, 1931-70, F3200 rack mounting gear plate
ME0098	Mechanical Assembly, 1931-116, F3200 AS4428.1 control, 4U hinged (incl. PCB)
ME0250	Mechanical Assembly, 1919-35, RAC cabinet, IP65, 20U x 200 (i.e., waterproof)
ME0258	Mechanical Assembly, 1919-21-2, RAC cabinet, 1U shelf, 135mm deep (incl. hardware)
ME0439	Mechanical Assembly, 1931-123, AS4428 two-zone gas control 7U door
ME0440	Mechanical Assembly, 1931-123, AS4428 three-zone gas control 7U door
ME0441	Mechanical Assembly, 1931-123, AS4428 four-zone gas control 7U door
ME0442	Mechanical Assembly, 1931-124, AS4428 1U one-zone gas control panel
ME0457	Mechanical Assembly, 1982-40, MX1 4U five 16-zone display door (to suit FP1002)
ME0472	Mechanical Assembly, MX1 2U door, four AS1668 plus common
PA0443	PCB Assembly, 1841-18, contact conversion module
PA0491	PCB Assembly, 1931-3, AS1603 MAF/PSU 3A
PA0703	PCB Assembly, 1931-27, F3200 remote I/F board
PA0707	PCB Assembly, 1931-39, F3200 3A rectifier board (half PA1030)
PA0773	PCB Assembly, 1901-139-3, RS485 comms board, CMOS, FRC only
PA0804	PCB Assembly, 1931-84-1, AS1603 Ndu controller, no software
PA0809	PCB, 1931-2, MAF/PSU 6A, AS1603
PA0810	PCB, 1391-44, 6A FET and rectifier board (half of PA1030)
PA0873	PCB Assembly, 1931-3-3, F3200 AS4428 MAF/PSU, 3A
PA0874	PCB Assembly, 1931-3-4, F3200 AS4428 MAF/PSU, 6A
PA0909	PCB Assembly, 1931-111-1, F3200 AS4428 controller, no software
PA1030	PCB Assembly, 1931-133, 3A rectifier and 6A FET and rectifier (PA0707/PA0810)
RR0917	Resistor, PTC, overload protect, 30V, 6A
SF0427	Software, F3200 PAL, V1.10
SW0121	PSU Mains Switch, DPST 6A 250VAC
SW0030	F3200 Door Switch Assembly 1931-95
MX4428 COMPREHENSIVE SPARES LIST	
FA1174	MCP Blanking Plate
FA1193	7U Blank Inner Door
FA2150	MX4428 Keyboard Membrane Overlay
FP0575	MPR Responder in box (PA0713 PCB only)
FP0824	MXP Responder in box (PA0893 PCB only)
FP0882K	F4000 AS1603 Power Supply 24V 5A
FP1007	F4000 AS1603 Battery Test Kit for ME0476
HW0040	Lock A/CR16/01/3B/N04 003 Keyed
IC0320	F4000 IC 28C64 8K EEPROM
IC0414	IC 28C010 EEPROM U2 PA0482
KT0178	F4000 Point Text Upgrade (IC0414(U2), IC0320(U4))
LM0041	Programming Cable DB9 to CIE
LM0073	20W FRC keyboard to main board,1.45m
LM0083	20W FRC keyboard to main board, 0.7m
ME0060	7U Display Door, 1901-79
ME0351	F4000 Small Cabinet Inner Door, AS1603, no re-placement available
ME0355	4U Door, AS4428 keypad, PA0890 PCB
ME0356	4U Door, AS1603 keypad, PA0891 PCB
ME0444	4U Door, AS4428 keypad (no PCB)
ME0476	MX4428 Power Supply, 24VDC 5A PSU, replaces FP0874
PA0449	F4000 Power Supply PCB, 1901-2
PA0463	F4000 Loop Booster PCB, 1901-35
PA0481	F4000 RZDU/RS232 I/F PCB, 1901-100, incl. LM006
PA0482	F4000 Memory LCD I/F PCB, 1901-102
PA0487	Banked EPROM Emulator PCB, 1901-113

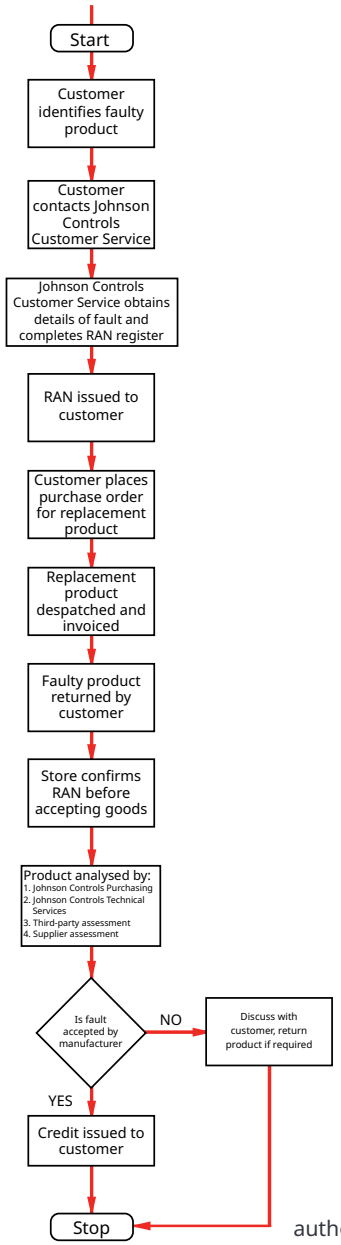
PA0711	RS485 Comms CMOS PCB, 1901-139-1
PA0713	MPR Responder PCB only 1901-141
PA0773	RS485 Comms CMOS PCB FRC, 1901-139-3
PA0799	PCB PTM, no software 1931-84-3
PA0890	PCB, AS4428 keyboard/LCD module
PA0891	PCB, AS1603 keyboard/LCD module
PA0893	MXP Responder PCB only, 1901-213
PA0906	68HC11 Micro-PCB, 1901-210
PA0951	MX4428 Main Board, c/w PA0906, no software, 1901-12
PA1040S	MX4428 Board, c/w Mem/LCD I/F, software
SF0238	MPR Software V3.00
SF0261	F4000 Primary Software V2.39N
SF0349	MX4428 Primary Software V3.21N (U7 PA0951, U1 PA0482)
SF0350	MX4428SL Primary Software VS.21S, single loop
SM0031	FA1201 F4000 LCD Keyboard Overlay, AS1603.4
SM0032	FA1159 F4000 Non-LCD Keyboard Overlay, AS1603.4
SW0121	PSU Mains Switch DPST 6A 250VAC
QE90 COMPREHENSIVE SPARES LIST	
FA1852	QE90 6U Amp Rack Cover Smoked Perspex
FA1995	ECP Door only, 16U all-in-one panel, E/8/3WIP/Zone
FA2027	FAB, 699-237, QE90 ECP+2Z Keypad, 3WIP/Zone, keypad only
FA2029	FAB, 699-238, QE90 8Z Extender Keypad, 3WIP/Zone
FP0539	QE90 Paging Console
FP0546	FP, F4000 Thermal Printer
FP0752	FP, QE90, Printer Option Kit, 699-244
FP1067	QE90 4U Module Blank Upgrade Kit
FP1068	QE90 FIP/BGA Primary Upgrade Kit
FP1069	QE90 FIP/BGA Extender Upgrade Kit
FP1070	QE90 Strobe Primary Upgrade Kit
FP1071	QE90 SPIF Module Upgrade Kit
FP1072	QE90 ECM Module and Looms Upgrade Kit (no software)
FP1073	QE90 WIP Secondary and Term Board Upgrade Kit
FP1074	QE90 100W Amp and Transformer Upgrade Kit
FP1075	QE90 2x50W Amp and Transformer Upgrade Kit
FP1076	QE90 2x25W Amp and Transformer Upgrade Kit
FP1077	QE90 4x10W Amp and Transformer Upgrade Kit
FP1078	QE90 4x25W Amp and Transformer Upgrade Kit
FP1079	QE90 200W Amp and Transformer Upgrade Kit
FP1080	QE90 5 Module Hinge Upgrade Kit
FP1081	QE90 6 Module Hinge Upgrade Kit
FP1082	QE90 7 Module Hinge Upgrade Kit
FP1083	QE90 8-Zone Display Extender and Looms Upgrade Kit
FZ9026	4U Module Blank
HW0040	003 Lock Tumbler and Keys
KT0546	Kit, PSU2412 additional circuit breaker, incl. loom and mounting
KT0169	Kit, QE90 ECP, ICs for RS232/printer
LM0043	Loom, 699-090-1, FRC, 20W, 0.07m, QE90 FIP extender
LM0047	Loom, 699-089, FRC, 26W, 1.3m, twisted, QE90 tran
LM0048	Loom, 699-090-2, FRC, 20W, 0.25m, QE90 display extender
LM0060	Loom, 699-087, FRC, 34W, 1.2m, QE90
LM0063	Loom, 699-228, QE90 ECP power loom, up to 21U
LM0065	Loom, 1901-174, RS485 comms board (also ECM), 10W FRC to DB9
LM0076	Loom, 1922-25, ECM prog., DB9F to DB9F, null modem
LM0077	Loom, 1922-26, RZDU RS232-ECP high-level link, 2.9m
LM0078	Loom, 1922-27, RZDU RS232-ECM high-level link, 3m
LM0098	Loom, 699-087, FRC, 34W, 0.8m, QE90
LM0100	Loom, 699-087, FRC, 34W, 1.5m, QE90
LM0101	Loom, 699-241, FRC, 26W, 0.45m and 0.9m, QE90
LM0131	Loom, serial printer cable, DB9M to (x)DB9M+DB9F
ME0200	QE90 Cardframe, incl. BPLN2000 PCB
ME0207	QE90 ECP Assembly, three-WIP per zone, incl. PCB
ME0208	QE90 Fluorescent Light
ME0211	QE90 24V 12A PSU, PSU308 superseded by ME0333
ME0212	QE90 24V 3A PSU, PSU2403 superseded by ME0331
ME0213	QE90 Noise-Cancelling Microphone, incl. DIN plug
ME0273	QE90 21U Outer Door, full window
ME0297	QE90 AUTO/MAN/ISOL Keyswitch (incl. loom, connector, SW0018)

ME0330	Mechanical Assembly, 1966-6, PSU2406, brick
ME0331	Mechanical Assembly, 1966-21, PSU2406, 2U rack mounting
ME0333	Mechanical Assembly, 1966-22, PSU2412, 2U rack mounting
MX1 SPARES LIST	
FA2489	MX1 AS4428.3 Membrane Keyboard
FP0913	Replacement MX1 LCD Module Kit
FP0950	MX1 Loop Card (PA1052) Kit
FP1002	MX1 16-Zone LED Display Extender
LB0600	Label, MX1, blank zone label, grey (sheet of five supplied with panel)
LM0169	MX1 Second Loop to Controller Loom, FRC, 10-way, style C, 400mm
LM0291	MX1 Display Interconnect Loom, FRC, 26-way, style B, 230mm
LM0319	MX1 Main Board to T-Gen Loom
LM0323	MX1 LCD to Keyboard Loom, 16-way, FRC, style D, 125mm
LM0324	MX1 Keyboard to Main Board Loom, 10-way, FRC, style B, 1m
LM0339	Loom, FRC, MX1 to first display board
LT0344	MX1, Operator Manual
LT0360	MX1, Installation Guide
ME0448	5A PSU Assembly
ME0450	MX1 Door c/w hinges
ME0457	MX1 4U 80-Zone Display Door
ME0464	MX1 4U Door c/w keypad (no PCB or LCD)
ME0465	MX1 4U LCD Door Tested (incl. PCB and FRC)
PA1081	PCB Assembly, 1982-2, MX1 controller
PA1057	PCB Assembly, 1982-64, MX1 LCD/keyboard, AS4428.3
SF0305	Software, MX1 CPLD V1.00
SF0392	Software, MX1 loop card flash
SF0407	Software, MX1 FPB keyboard controller flash
SF0412	Software, MX1 main board V1.3x flash
FP1196	Power Distribution Board
LM0685	14U PSU to MX1 Loom
FP1139	14A PSU
4100 COMPREHENSIVE SPARES LIST	
4100 FRONT PANEL CONTROLS	
650-127	4100U/ES-S1 replacement LCD, incl. keypad and metalwork
566-284	4100U/ES 2x40W LCD/Keypad PCB, no LCD, no metalwork
4100-1277	LED Module, eight red, eight yellow
4100-1279	Single Blank Display Cover (4100ES)
4100-1280	LED Module, eight push-button, eight red
4100-1282	LED Module, eight or 16 push-buttons, red-yellow LEDs
4100-1281	LED Module, eight push-buttons, eight yellow
4100-1284	LED Module, eight/16 push-buttons, red-green LEDs
4100-1287AU	Networked Fan Control Module, four-way, 1668
4100-1288	64/64 LED Switch Controller (first controller per bay)
4100-KT0476	Half-Bay Blank Display Cover (4100ES)
4100-ME0456	Fan Control Module, four sets of fan control
4100-ME0498	InfoAlarm 8U LCD and hinged door
4100-7155K	InfoAlarm LCD on Swing-Down Frame Kit. This is a direct swap in an S1 panel
4100-0640	InfoAlarm Memory Expansion Board, required for aftermarket NDU conversions
4100-ME0510K	InfoAlarm+ Colour Touchscreen Display on 7U 19in. black door
REAR PANEL PDI (CAN ONLY BE FITTED IN 4100ES BAY)	
4100-3107AU	IDNet+ Module, AU software
4100-3109AUK	IDNet2, 250-point, two-channel IDNet addressable loop, PDI
4100-3110AUK	IDNet2+2, 250-point, four-channel IDNet addressable loop, PDI
4100-3204	Four Relay Cards and four FB flat version
4100-3206	Eight Relay Cards, flat version
4100-5013	Eight-Zone Relay Card
4100-6070	Fire Panel Internet I/F Module (double size can be mounted in Legacy Bay)

4100-0620	4100ES Basic Transponder Interface Card (TIC)
4100-6301	Duplex Single-Mode Fibre Media, left port card
4100-6302	Duplex Single-Mode Fibre Media, right port card
4100-6303	Duplex Multi-Mode Fibre Media, left port card
4100-6304	Duplex Multi-Mode Fibre Media, right port card
4100-6077AUK	4100ESi MX Loop Card (does not require isolators)
ME0516	4100ESi MX Dual-Loop Card Bracket
ME0504K	APS 10A power supply suits 4100ESi BTO systems (not suitable for 15U Compact panels)
LM0596K	4100ESi 15U compact Panel Battery Lead Set
PA1098K	4100ESi Short PDI Back Plane Spare Part
4100-6046V	VESDA High Level Interface Card, PDI
REAR PANEL LEGACY	
ME0455	250-Point IDNet Addressable Loop Legacy Mounting
4100-MXPK	4100MXP MX Responder on metal bracket (single slot)
4100-0110K	MAPNET II Addressable Loop
4100-0111	MAPNET II QUAD Isolator
4100-0113	RS232 Modem Interface
4100-0122	Remote Interface Card (RIC) for Miniplex RTU
4100-0154	VESDA High Level Interface
4100-9848AU	4100ES XSPS Power Supply (incl. IDNet addressable loop)
41000 157AK	8A power supply/charger (AS4428 approved)
4100-ME0470	5A Vigilant PSU/charger (AS4428 approved)
4100-0301	64/64 LED Switch Controller
4100-0302	24-Point I/O Module
4100-0304	Remote Unit Interface
4100-3003K	Relay Module, 8xSPDT, 3A, 24VDC

4100-3024	24 I/O Relay Motherboard, 4100-0302
4100-4321	Six Supervised Relays
4100-5004	8 AZF Monitor Zone
4100-0451	Panel-Mounted Printer
8566-719	4100ES CPU Module Spare Part
4100-0160K	Fire Panel Internet I/F Module
BRIGADE INTERFACE	
4100-0199	3U Brigade Kit, ASE bracket, grey
4100-KT0212	Two 3U ASE/V modem bracket, grey
4100-FZ9028	3U WA/cube ASE bracket, grey
FP0935	4100ES-S1 ASE Door Kit
FP0937	4100ES-S1 WA/Cube ASE Door Kit
ME0512K	4100ESi Cube ASE and Mic. Brigade Kit (uses six slots of a 7U display door), black
RTU CABINETS	
SZ9008	8U RTU Cabinet, no PSU, requires TIC or RIC
SZ9009	8U RTU Cabinet with 2A PSU (requires TIC or RIC)
SZ9005	IOR RTU Cabinet with 2A PSU (requires TIC or RIC)
UPGRADE KITS	
4100-7149K	19in. 4100 to 4100ES Upgrade Kit (new LCD and CPU card)
4100-KT0488	Legacy 4100 to 4100ES Upgrade Kit (new LCD and CPU Card)
4100-7152K	4100 Classic to 4100ES Upgrade Kit for Legacy Cabinet (complete 4100ES Controller Bay)
4100-7158K	4100U to 4100ES Upgrade Kit (4100ES CPU)
742-516	4100U/ES CPU Motherboard 566-227
4100-SX0184	4100ESi InfoAlarm+, mounted on swing-down
4100-KT0568	4100-S1 Panels Replacement Trim (new trim required to suit larger InfoAlarm+ display)
OPTIONS	
4100-9256	Two-Unit Expansion Rack, 15U200
4100-9257	Four-Unit Expansion Rack, 28U310

4100-9258	Six-Unit Expansion Rack, 40U310
4100-9259	Eight-Unit Expansion Rack, 40U310
4100-0401	LED Module, eight red
4100-0402	LED Module, 16 red/yellow
4100-0403	LED Module, eight/eight mom., switch/red LEDs
4100-0404	LED Module, eight/16 main., switch/red-green LEDs
4100-0405	LED Module, eight/16 mom., switch/red-yellow LEDs
4100-0406	LED Module, eight yellow
4100-0420	AC Reset Switch Module
4100-0450	4100 LCD in RTU
4100-5129	Ferrite Bead Kit, three beads and cable ties
4100-9826A	4100 AS4428 upgrade for AS1603 FIPs
4100-0410	PA Microphone and Keyswitch Module
4100-FP1046	8U Expansion Cabinet, window, Titania, suits PDI cards only. One 7U display door fitted
4100-FP1086	8U Expansion Cabinet, blank door, Titania, PDI or Legacy cards
4100-FP1088	15U Expansion Cabinet, full window door, Titania, 15U gear plate, two eight-slot display doors
4100-FP1087	15U Expansion Cabinet, blank door, Titania, with 10A PSU
KT0419	3U Self-Adhesive Document Holder
FA2166	Brand Label Domex, Simplex
FA2637	4100ESi Outer Door Applique
746-177	4100ESi Compact Flash Card
NETWORK INTERFACE	
4100-6014AUK	Modular Network Card for use on 4100+ to 4100ES (does not support NAC synchronisation)
4100-6078	Modular Network Card (latest NIC for 4100ES/ESI panels. Supports NAC sychronisation)
4100-0142K	Wired Media Card RS485 (for older Legacy 4100+ Version 3 or earlier network cards)
4100-6056	Wired Media Card to suit 4100+ to ES (use with 4100-6014/6078 network card)
4100-6057	Fibre Optic Media Card to suit 4100+ to ES (use with 4100-6014/6078 network card)
4100-6072	Fibre Optic Modem, left port assembly
4100-6073	Fibre Optic Modem, right port assembly
4100-6301/2	Duplex Single-Mode Fibre Media Card
4100-6303/4	Duplex Multi-Mode Fibre Media Card, left
4100-9840	Mounting Bracket for 4100-6063/4 to mount in Legacy bay
4100-9863	TCP/IP Physical Bridge, Class B



RAN = return authorisation number.

Warranty procedure

1. Purpose

To ensure prompt and consistent handling of warranty returns.

The procedure assists in monitoring product quality and continuing to reduce the incidents of defective product.

2. Policy

Johnson Controls offers a product warranty of 24 months from the date of purchase, for Johnson Controls manufactured product. Third-party or buy-in items will attract a warranty period as per the manufacturer warranty conditions. Warranty returns will only be accepted for defective material or faulty workmanship. A full credit of the purchase price will be issued for authorised and verified returns of defective product.

Johnson Controls will not accept responsibility for consequential, liquidated damages, or third-party costs caused as a result of faulty products.

Note: Certain products with shorter shelf life may be excluded from the 24-month warranty period. Refer to your Johnson Controls representatives for details.

3. Procedure

Product returns – including third-party products, e.g., VESDA – will not be accepted unless an RAN (return authorisation number) has been issued to authorise the return. All returned goods must clearly state the RAN on the external packaging.

An RAN can be obtained by telephoning Johnson Controls Customer Service on 1300 725 688.

When contacting Johnson Controls for an RAN, please have the following information available:

- Your contact details
- Location and site details of where the faulty product is installed
- Delivery docket or invoice number on which the product was supplied
- Item name
- Product code
- Description of fault sufficiently detailed to aid investigation by manufacturer
- Serial number and date code (if applicable)
- Details of the likely nature and cause of the fault
- Purchase order number and delivery address for the replacement product

Once Johnson Controls approves the return, an RAN will be issued for the return of the product.

Customers are required to return the faulty product within one calendar month of the issuing of the RAN. Freight is to be paid by the customer. After one month the RAN will expire and the goods will not be accepted for credit.

4. Processing warranty credits

Warranty returns will be credited to the customer only when the failure of the product has been verified by Johnson Controls.

It is anticipated that all credits will be finalised within two (2) weeks of product return – in the majority of cases a credit will be processed within one (1) week of the product return. There may be occasions where finalisation will take longer if further technical evaluation or assessment by a third party is required, or other constraints delay processing.

Note: In cases where products have been returned under warranty and, after testing and verification, no fault is found, a credit will not be issued. After discussion with customer, the no-fault-found product(s) may be returned to the customer.

QE90 EWIS panel configuration sheet

Client:		Order no.:		SECP (QTY)	
Contact:		Date:		(Fp0539) paging console (QTY)	
Project:		Logo type:		(Su0168) gooseneck mic. (QTY)	
Date req:		Special cabinet colour:		(Su0169) desktop mic. (QTY)	
		Cabinet hinging required:		(Pa0688) mic. Pre-amp bd (QTY)	
				Cabinets (QTY) 18U	21U
				28U	40U

Refer to PBQ0094B for instructions.

Evac Zone No	Evac Zone Name	Fireone	Loudspeaker Output (Watts)					Amplifiers		Strobe Outputs (Qty) 2A Per Output	WIPs (Qty 0-3)	BGA Inputs	FIP inputs	Remarks		Cascade
																Disabled
																Standard two-up, one-down
																Special attached
			.5	1	2	5	LOAD	RATING	QTY							
																Inputs
																BGA use FIP i/ps
																BGA use three-/four-wire WIP circuits
																BGA use two-wire WIP circuits
																FIP use WIP circuits
																FIP use RZDU
																FIP use Panel-Link
																Relay outputs
															X	Fault
																Alarm
																Any alert/evac./PA/PABX
																Other attached
																Speech messages
																Evac. as directed (Aus)
																Evac. fire exit (NZ)
																Special attached
																Speech in auto only
																Message with alert tone
																Evacuation tone
																ISO 8201 (Aus default)
																AS 2220 (NZ default)
																Networking
															Attach zone – zone mapping, control priority, inter-ECP WIPs, etc.	

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Terms and Conditions

1. General

Unless the context otherwise requires:

Agreement means the agreement between Supplier and Customer for the supply of Goods by Supplier to Customer and shall be constituted in its entirety by these Terms and Conditions of Sale and, if any, Supplier's quotation and the Confidential Credit Application and Agreement; Australian Consumer Law means Schedule 2 of the Competition and Consumer Act 2010;

Credit Arrangement means the credit terms available to Customer pursuant to an application by Customer for the provision of Goods on credit submitted to Supplier using Supplier's standard credit application form and accepted in writing by Supplier (referred to as the Confidential Credit Application and Agreement);

Customer means the party to whom Supplier has agreed to supply Goods pursuant to the Agreement;

Goods means the goods and/or services agreed to be supplied by Supplier and purchased by Customer pursuant to the Agreement;

GST has the meaning given by the A New Tax System (Goods and Services Tax) Act 1999 (Cth) or, if that Act does not exist means any Act imposing or relating to the imposition or administration of a goods and services tax in Australia and any regulation made under that Act; Guarantee means the guarantee document provided by Customer or Customer's directors, shareholders or principals to Supplier to guarantee the performance of the Agreement by Customer;

Proprietary Information means any and all information and intellectual property relating to the Goods or the installation or operation of the Goods including but not limited to patents, designs, drawings, instruction booklets, specifications, circuit drawings, componentry, trade secrets, trade marks and copyright in such information and intellectual property;

Purchase Order means the written purchase order by Customer to Supplier for the supply of the Goods; Supplier means the company named in the quotation for the Goods or, if there is no quotation, the entity named in the invoice.

Supplier Group means that group of companies comprising the Supplier and each of its related bodies corporates and affiliates (wherever located) which have the same ultimate holding company.

Wilful Misconduct means any wilful or intentional breach, act or omission done by the Supplier:

(a) with the intent to cause Customer material harm; or

(b) where the Supplier was aware that material harm would result from such wilful or intentional breach, act or omission.

2. Quotations and purchase orders

(a) Subject to the clause immediately below, quotations from Supplier are valid for a period of 30 days from the date of issue or as otherwise specified in the quotation. Prices given in any quotation by Supplier are applicable to that quotation only, and will not apply in any other instances. A quotation from Supplier is not an offer to sell.

(b) In order to purchase the Goods, Customer must place with Supplier a Purchase Order setting out an order number, Supplier's quotation number (if applicable), full description of the Goods to be purchased, the delivery date, delivery point and any other information required by Supplier. The Purchase Order may be accepted or rejected by Supplier at Supplier's sole discretion.

(c) A contract shall be formed by and upon Supplier accepting from Customer a Purchase Order pursuant to the clause immediately above and each contract shall be governed by the Agreement.

(d) The Agreement shall take precedence over any other representations, agreements, arrangements or understandings relating to the Goods and any matters in connection with the Goods.

(e) Any conditions or terms of purchase submitted by Customer deviating from or inconsistent with the Agreement will not bind Supplier, notwithstanding any statement by Customer in its Purchase Order that its terms and conditions prevail over the Agreement.

(f) Where the Goods to be supplied contain raw materials, the price and availability of which is unpredictable (for example, PVC, copper, steel), and there is a lack of availability of such raw material either to enable Supplier to supply the Goods or to supply the Goods at the price stated in the Purchase Order, Supplier may, at its sole option:

(i) expend additional time to make reasonable efforts to attempt to locate raw material, and if raw material cannot be located, serve notice of immediate termination of the Purchase Order under the Agreement; or

(ii) endeavour to reach agreement with Customer on an increase in the purchase price for the Goods, and if agreement cannot be reached, serve notice of immediate termination of the Purchase Order under the Agreement; or

(iii) serve notice of immediate termination of the Purchase Order under the Agreement. In no case shall Supplier have any liability to Customer as a result of termination, but Customer shall pay to Supplier the purchase price of Goods actually supplied under the Agreement.

3. Payment of purchase price

(a) Unless otherwise agreed in writing, Supplier accepts Purchase Orders subject to the condition that Customer agrees to pay the purchase price appearing on Supplier's price list for those Goods current as at the date that Supplier accepts the Purchase Order.

(b) If applicable, a copy of Supplier's publicly available price list for the Goods is available on request. All prices on Supplier's price list are subject to alteration without notice.

(c) The total purchase price, unless otherwise stated in the Purchase Order, includes GST but does not include any delivery charges, packaging, freight, assembly costs, installation costs, costs and charges of third-party suppliers such as electricians, insurance or any statutory, sales, excise, or other taxes, duties or imposts, all of which may be added to the purchase price or otherwise will be paid by Customer or reimbursed by Customer to Supplier, as Supplier may elect.

(d) Payment of the purchase price must be made in full within 30 days after the date of the invoice or otherwise in accordance with Customer's Credit Arrangement.

(e) Customer must not set off any money owing or alleged to be owing by Supplier against money due by Customer to Supplier.

(f) Customer acknowledges that Supplier is a member of the Supplier Group. Customer agrees that Supplier and/or any other Supplier Group company is entitled to exercise a right of set-off to the extent Customer is indebted to Supplier or to any Supplier Group company against any monies due by Supplier to Customer or any Supplier Group company on this or any other account.

(g) If Customer does not pay money by the due date for payment, without prejudice to any other rights which it may have against Customer, Supplier may require Customer to pay on demand interest at the Westpac Indicator Lending Rate effective from time to time plus 4% per annum calculated from the due date on daily balances of amounts unpaid.

4. Cancellation of orders

Customer may not alter or cancel a Purchase Order without Supplier's prior written consent. If Supplier agrees to alter or cancel the Purchase Order, Customer will indemnify Supplier against any loss, damage and expense incurred by Supplier in relation to the alteration or cancellation of that Purchase Order, including the cost of return freight, return shipping to factory of origin, items purchased from third parties for inclusion in the Goods and all labour and engineering costs incurred by Supplier in the execution or part execution of the Goods and including compensation payable to any of Supplier's suppliers and loss of profit except to the extent that such loss, damage or expense is caused by or contributed to by Supplier's Wilful Misconduct or fraud.

5. Return of Goods and credits

(a) Customer is deemed to have accepted the Goods unless it makes a claim in accordance with the clause immediately below.

(b) Customer may reject any Goods that are wrongly supplied or oversupplied by notifying Supplier of the claim and providing full particulars of the claim in writing within five (5) days of receipt of those Goods. Supplier may dispute any such claim.

(c) Goods referred to in the clause immediately above may be returned to Supplier for credit if all of the following is complied with:

(i) the Goods are returned to Supplier's premises by prior arrangement and with Supplier's written approval within seven (7) days of delivery, at no cost to Supplier, unless delivered as the result of an administrative error by Supplier, in which case Supplier will bear the cost of return;

(ii) the Goods are accompanied by a dispatch note stating Supplier's original invoice number and reason for return; and (iii) the Goods are returned in an unsoiled, undamaged and resaleable condition in their original packing.

(d) Customer must not return any Goods to Supplier unless it has complied with the two clauses immediately above and has done all things necessary to permit Supplier to examine the Goods to Supplier's satisfaction within that period.

6. Delivery, Storage and Use

(a) All quoted delivery or consignment dates are estimates only. Supplier is not obliged to meet such dates and will not be liable to Customer by reason of delays caused by any reason whatsoever.

(b) Supplier is deemed to have delivered the Goods when the Goods are made available to Customer for physical collection by or on behalf of Customer at Customer's nominated delivery point (Delivery). Any unloading or loading shall be Customer's responsibility, unless Supplier otherwise agrees in writing.

(c) Supplier may deliver the Goods by instalments (where, in Supplier's opinion, this is reasonable) and issue interim invoices to Customer.

(d) Without limiting any other provision of the Agreement, failure by Customer to pay any instalment, or any other amount when due, will entitle Supplier to withhold or delay delivery of any remaining Goods ordered.

(e) If Customer is unable to collect the Goods at Customer's nominated delivery point on the delivery day, Supplier may (at its option and without limiting its other rights and remedies) arrange suitable storage of the Goods, whether at its premises or elsewhere, and Customer must pay or reimburse all costs and expenses of storage, insurance, demurrage, handling and other charges associated with such storage. Notwithstanding Customer's inability to collect the Goods, Delivery is deemed to have occurred.

(f) The Customer must not install, store or in any way incorporate the Goods in any aircraft or in any vessel intended to fly or move in or through the atmosphere or space.

(g) The Customer acknowledges that it has the sole responsibility to confirm the suitability of the Goods for their intended purpose and that Supplier makes no representation or warranty in this regard.

7. Title and risk

(a) Title to the Goods shall remain with Supplier until all monies owing by Customer to Supplier for the Goods have been paid in full.

(b) Until such time as Customer has paid Supplier in full for the Goods, Customer shall:

(i) store the Goods separately and mark them so that they are clearly and easily identifiable as Supplier's property and, if Supplier requests, inform Supplier of the location of the Goods;

(ii) hold the Goods as bailee for Supplier, subject to Customer's right to deal with the Goods in the ordinary course of Customer's business (Bailment);

(iii) indemnify Supplier against any claim arising out of the possession, use or disposal of the Goods by Customer or repossession or attempted repossession by Supplier.

(c) If:

(i) a payment is not made in accordance with the Agreement;

(ii) Customer commits any other breach of the Agreement;

(iii) Customer becomes bankrupt, has an administrator, a receiver or a receiver and manager appointed, goes into liquidation (whether voluntarily or otherwise), or is wound up, dissolved or declared insolvent, then Supplier may at any time, without notice to Customer and without prejudice to any other rights that it may have against Customer:

(i) terminate the Agreement and the Bailment;

(ii) suspend some or all its obligations to Customer under the Agreement; and/or

(iii) enter upon any premises owned or occupied by Customer where Supplier reasonably believes the Goods may be stored and repossess the Goods (including uninstalling the Goods) without being liable for any damages caused.

(d) If Customer sells the Goods before payment in full to Supplier, or uses the Goods in a manufacturing or construction process of its own or some third party, Customer holds the proceeds on trust for Supplier in respect of those Goods, and must keep such proceeds in a separate account until the liability to Supplier is discharged and must immediately pay that amount to Supplier.

(e) The risk in the Goods passes to Customer at the time of Delivery.

(f) Supplier reserves the right to register a security interest for the purposes of the Personal Property Securities Act 2009, as amended. The Customer agrees to provide Supplier with all such information that Supplier requires in order to register a security interest at anytime. The Customer will immediately advise Supplier of any changes which may affect Supplier's security interest.

8. Insurance

Customer must keep the Goods insured against all risks for Goods of that kind from the time the risk in the Goods passes to Customer until the time that title to the Goods passes to Customer. Customer holds the proceeds of that insurance on trust for Supplier up to the amount it owes Supplier in respect of those Goods, and must keep such proceeds in a separate account until the liability to Supplier is discharged and must immediately pay that amount to Supplier.

9. Warranty and Limitation of liability for Goods

(a) Other than is provided for in this clause 9, Supplier makes no warranties or representations to Customer. The warranty in this clause 9 is in addition to any other rights or remedies which may be available to Customer at Law.

(b) Supplier warrants the Goods to be free from defects in workmanship and materials under normal use and service for a period of 1 calendar year from the Delivery (Warranty Period). This warranty does not cover costs of claiming under this warranty or of recovery of the Goods from the site or damage, fault, failure or malfunction due to external causes including accident, abuse, misuse, mechanical or electrical overload, abrasion, corrosion, incorrect installation, failure to comply with Supplier's or the original manufacturer's instructions (including any installation, operating or maintenance instructions or manuals), failure to perform required preventative maintenance or normal wear and tear.

(c) During the Warranty Period, to the extent permitted by law, Customer's sole remedy with respect to breach of warranties set out in the clause immediately above will be to repair or replace (as Supplier may elect) any such defective Goods at Supplier's expense. The replacement or repaired Goods shall be covered by the unexpired portion of the Warranty Period in respect of the original Goods or for a period of 90 days, whichever is the greater.

(d) For equipment forming part of the Goods, which equipment is not manufactured by Supplier, the original manufacturer's warranty will apply. Supplier's liability for such equipment shall not exceed the liability of the manufacturer.

(e) In respect of Goods that are not ordinarily acquired for personal, domestic or household use or consumption, the liability of Supplier for a breach of any condition or guarantee applied by law is limited at Supplier's option to the repair of the Goods, the supply of replacement Goods or payment of the cost of having the Goods supplied again.

(f) Supplier's liability under the Agreement will be reduced by the amount of any contributory loss or damage to the extent caused by Customer's act or omission.

(g) To the extent that any goods or services supplied by Supplier are supplies to a 'consumer' as defined in the Australian Consumer Law, Supplier will comply with any applicable consumer guarantees and the following statement will apply: "Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure."

(h) Any warranty claim must detail the basis of the alleged warranty breach in writing and be delivered to Supplier by Post at Johnson Controls, Level 3, 95 Coventry Street, Southbank, VIC 3006 attention to Customer Service.

(i) Customer acknowledges and agrees that, to the extent permitted by law, Supplier has no liability in contract, tort (including negligence or breach of statutory duty), by statute or otherwise for loss or damage (whether direct or indirect) of profits, opportunity, revenue, goodwill, bargain, production, contracts, business or anticipated savings, corruption or destruction of data or for any indirect, special or consequential loss or damage whatsoever except to the extent that such losses are caused by or contributed to by Supplier's Wilful Misconduct or fraud.

(j) Subject to clause 9(g), Supplier's total liability under any contract and the Agreement shall not exceed the total dollar amount of the Goods purchased by Customer under each contract.

10. Proprietary Information

(a) Customer acknowledges that all Proprietary Information and all right, title and interest therein are the sole property of or licensed by Supplier and Customer shall gain no right, title or interest in the Proprietary Information whatsoever. Customer specifically acknowledges Supplier's exclusive rights to ownership of any modification, translation or adaptation of the Proprietary Information and any other improvement or development based thereon, whether developed, supplied, installed or paid for by or on behalf of Customer or any buyer of Customer or otherwise.

(b) Customer must not and must not permit any person reasonably within its control nor procure any person to modify, copy, clone or reverse engineer the Goods, or copy, modify or decompile any of Supplier's documentation relating to the Goods.

11. Export/re-export/resale

(a) The Goods supplied are intended for use only in Australia, unless Supplier otherwise agrees. If Customer exports or re-exports the Goods, it is Customer's responsibility to ensure that the Goods and the use to which they are put comply with the laws of the destination.

(b) Customer acknowledges that the Goods purchased by Customer may not be sold, leased or otherwise transferred to or utilised by a terrorist organisation, a party listed on any Australian or US Denied persons or entities list or by an end-user engaged in activities related to weapons of mass destruction, including but not limited to activities related to design, development, production or use of nuclear materials, nuclear facilities or nuclear weapons, missiles or support of missile projects, or chemical or biological weapons.

(c) If Customer resells the Goods, it shall not, in connection with their resale, pay or offer to pay, money or any thing of value to any government official, entity or organisation, any political party, any candidate for public office, or their employees or relatives, or any other person or entity for the purpose of influencing purchasing decisions or for any other improper purpose.

12. Miscellaneous

(a) The fact that Supplier fails to do, or delays in doing, something it is entitled to do under the Agreement, does not amount to a waiver of its right to do it. Supplier must agree in writing to any waiver.

(b) If a clause or part of a clause can be read in a way that makes it illegal, unenforceable or invalid, but can also be read in a way that makes it legal, enforceable and valid, it must be read in the latter way. If any clause or part of a clause is illegal, unenforceable or invalid, that clause or part is to be treated as removed from the Agreement, but the rest of the Agreement is not affected.

(c) Supplier shall not be liable for any failure to fulfil or any delay in fulfilling any obligation arising under the Agreement if the failure or delay has been caused directly or indirectly by any act of God, war or other civil commotion, strikes, lockouts, stoppages and restraints of labour, breakdown of machinery, inability to obtain raw materials or fuel, fire or explosion, any government action or any other cause beyond Supplier's reasonable control and not as a consequence of Supplier's negligence.

(d) Any notice to be given to a party under the Agreement must be in writing and must be sent by post, facsimile or email to the address of that party shown in the quotation, Purchase Order or order acknowledgment. Notice is deemed to have been given at the time it would have been received in the normal course of post if sent by post, or if otherwise given at the time it was actually received.

(e) The Agreement is governed by and must be interpreted in accordance with the laws of the State or Territory where Supplier supplies the Goods and the Goods are delivered. Where there are multiple places of supply and/or delivery, Supplier may elect the State or Territory in Australia that shall have jurisdiction over the Agreement. Customer unconditionally submits to the non-exclusive jurisdiction of the courts of the State or Territory determined in accordance with this clause.

(f) Where there is more than one Customer then the liability of each shall be joint and several.

(g) The rights and remedies provided in the Agreement will not affect any other rights or remedies available to Supplier.

(h) Customer shall not assign this Agreement without Supplier's prior written consent.

(i) If the Customer is a trustee, then the Customer is bound by the Agreement both personally and in its capacity as a trustee.

NOTES

About Johnson Controls

At Johnson Controls (NYSE:JCI), we transform the environments where people live, work, learn and play. As the global leader in smart, healthy and sustainable buildings, our mission is to reimagine the performance of buildings to serve people, places and the planet.

Building on a proud history of 140 years of innovation, we deliver the blueprint of the future for industries such as healthcare, schools, data centers, airports, stadiums, manufacturing and beyond through OpenBlue, our comprehensive digital offering.

Today, Johnson Controls offers the world's largest portfolio of building technology and software as well as service solutions from some of the most trusted names in the industry.

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