tyco / Safety Products

Fire Detection
New Zealand Product Catalogue
Issue 1

www.tycosafetyproducts-anz.com

Introduction

Welcome to this New Zealand edition of the Tyco Safety Products Fire Detection Product Catalogue

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

Our Auckland warehouse is one of the largest Fire & Security product distribution centres in New Zealand. Our goal is to dispatch product on the same day we receive your order when it is received before 12:00 midday. We recognise that your business is highly dependent on excellence in customer service and to help achieve this we offer extended warranty on many of our product lines (see page 92).

Tyco Safety Products' Web Site (The Fireplace) contains a wealth of product-related information. It is regularly updated and features many aids to the selling process including presentation material, independent product test results and detailed technical information (Tyco employees only).
Our web site can be found at:

www.tycosafetyproducts-anz.com

To enhance customer specifications and quotations we also provide a series of product datasheets and brochures which can give our clients an opportunity to read more about the product. We are positive that together we can help you grow your business and we look forward to working with you. For further details regarding this catalogue, please telephone our Customer Service Help Line on **+64 9 826 1716.**


Vigilant MX4428
Fire Alarm System

The Vigilant MX4428 is an intelligent fire alarm system, incorporating Tyco MX TECHNOLOGY to provide advanced, analogue addressable fire detection. It features support for MX VIRTUAL multi-sensor analogue addressable detectors, the MX DIGITAL protocol for communications with analogue loop devices, distributed "responder loop" architecture and powerful programmability.

Features & Options

- MX VIRTUAL multi-sensor analogue addressable detectors
- SMARTSENSE and MX FASTLOGIC (fuzzy logic) detection algorithms
- Heat-enhanced photoelectric smoke and CO fire detectors
- Heat detectors programmable as rate-of-rise or fixed temperature-only
- Also compatible with Multi-Protocol Responder (MPR) and Series 130 detectors and modules
- MPR supports "Filtrex" and high sensitivity laser smoke detectors
- Compatible with wide range of collective detectors including Intrinsically Safe types
- Complies with AS 4428.1 and NZS 4512
- LCD Firefighter Facility (FF) and optional zone LEDs
- LCD zone description text with optional point text for each detector
- Event logging to internal history file and printer
- Printer logging includes zone text and optional point text
- Remote repeater panels, colour graphics displays
- "Tandem" mode for remote control panel access
- High level EWIS, BMS interface
- Multi-panel networking available
- Programmable outputs for Warning System, External Alarm (strobes & bells) and Ancillary Control
- Flow switch monitoring and remote testing
- AS 1668 air-handling smoke detection and control
- Powerful, field-programmable logic equations and timers
- Built-in clock/ calendar with automatic daylight saving adjustment
- Comprehensive test facilities
- Automatic system self-tests
- Automatic battery connection and capacity tests
- Integral charger (2.5A, 6A, 12A)
- 19" rack format cabinets

MX Detection Technology

MX VIRTUAL multi-sensor analogue addressable detectors utilise dual sensors (photoelectric and heat, or CO and heat) to allow the best detection mode for a situation to be selected without having to physically change detectors. 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
- Heat-only detection can be fixed temperature, or also include rate-of-rise.

For specific applications, ionisation smoke and heat-only detectors are also available.

SMARTSENSE or MX FASTLOGIC detection algorithms can be programmed for each detector to allow the detection capabilities of the system to be further optimised.

Up to 200 MX devices (detectors and addressable inputs/ output modules) may be connected to the MX detection loop, which terminates at an MX Protocol (MXP) responder.

The MX DIGITAL communications protocol used on this 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 communications continues in the event of a loop open circuit fault condition. Short circuit isolator detector bases may be fitted to divide the loop into segments, so that a loop short circuit fault will only affect devices in the same loop segment as the fault. A wide variety of addressable modules and detector bases enable devices such as manual call points, clean contact inputs and outputs, and collective detector circuits to be connected to the loop.

Fire Alarm Systems

Tyco Safety Products have technical support CDs available free of charge. The Fireplace CD (part no TSP-CD6) is available through Wormald Auckland (Engineering Services Department). Use of the Fireplace CD is available only to Tyco employees.

TSP-CD6

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Conventional Fire Panels

ALPHA 4

The Vigilant *ALPHA* 4 fire alarm system is ideal for smaller buildings where a brigade connection is not required. The control panel is compact and neat in appearance, suitable for wall or window mounting in a wide variety of areas. Microprocessor technology enables some of the advanced features usually associated with larger, more elaborate fire alarm systems to be incorporated in the control panel design. When used with high quality fire detectors, manual call points and alerting devices, *ALPHA* 4 provides fire alarm systems that are both reliable and easy to operate. They are also simple to install, test and maintain.

- Four detection zone circuits
- Compact metal cabinet
- Wall or window mounting
- Low power consumption
- Internal battery and charger
- Built-in fault sounder
- Non-latching 'walk test' mode

ALPHA 4 complies with fire alarm standard NZS 4512: 2003 and the NZ Building Code requirements for non-connected fire alarm systems.

ALPHA 4 fire alarm systems are the ideal choice for smaller buildings such as:

- Motels
- Boarding houses
- Hostels
- Town houses
- Industrial Units
- Warehouses
- Churches
- Community centres
- Day-care centres

ALPHA 4 complies with NZS 4512:2003 "Fire Detection and Alarm Systems in Buildings"
FPANZ listing number VF/102.

Specifications
Cabinet

Material	Mild steel, powdercoated cream, wrinkle finish
Dimensions	248 x 227 x 91 mm (HWD)

Part Numbers

FP0674	*ALPHA* 4 Four Circuit Fire Panel
PA1025	20W Mini-Gen Tone Generator, 12V
BA12070	Battery, 12V, 7Ah

SIGMA 5

SIGMA 5 is a microprocessor based fire alarm system that is simple to operate and easy to maintain. It is self contained, with integral power supply and battery storage within a compact and unobtrusive cabinet. It provides reliable and economical monitoring for up to five fire detection zones, which may include smoke detectors, heat detectors, manual call points and other compatible devices. SIGMA 5's flexibility and versatile input/ output programming allow it to perform a wide range of fire alarm monitoring, control and signalling applications.

- Five detection zone circuits
- Compact design
- Low power consumption
- Internal battery and charger
- Wide detector compatibility
- Pushbutton circuit isolation
- Field programmable
- Alarms displayed on engravable index
- Built-in sounder for local faults states
- Automated self-test
- Eleven Programmable ancillary outputs

Reliability is a major feature of SIGMA 5's design. All detector and alerting device circuits, the battery connections and the power supply are fully supervised. Detection circuits and the battery supply are automatically tested daily. A supervisory 'watchdog' monitors for correct operation of system software. Alarms are clearly annunciated on the outside of the control panel by an indexed array of LEDs, one for each alarm zone. A mimic diagram may be added if required. Remote displays can be readily connected by 4-wire cable.

Keyswitches on the outside of the cabinet allow operation of the control panel by the fire brigade or owner. The Silence Alarms switch is for the Fire Brigade to use after evacuation and building search procedures. The Evacuation switch activates fire alarm system sounders for evacuation drills. An optional Services Restore switch may be fitted to allow building services that have been shut down by a fire alarm to be restarted.

SIGMA 5 complies with NZS 4512:2003 "Fire Detection and Alarm Systems in Buildings" and meets the NZ Fire Service requriements for connection to remote receiving stations.
FPANZ listing number VF/116.

Specifications
Cabinet

Material	Mild steel, powdercoated cream, wrinkle finish
Dimensions	350 x 290 x 100 mm (HWD)

Part Numbers

FP0759	SIGMA 5 Fire Panel, Rear Service
FP0760	SIGMA 5 Fire Panel, Front Service
PA1025	20W Mini-Gen Tone Generator, 12V
PA0861	Gen.Purpose Brigade Relay Interface
PA0862	Gen Purpose SGD incl. switches
SW0117	Services Restore Keyswitch
PSH-12100	Battery, 12V 10.5Ah

FP1600

The Vigilant FP1600 is a microprocessor based fire alarm system that is simple to operate and easy to maintain. It is self contained, with integral power supply and battery storage within a compact and unobtrusive cabinet. It provides reliable and economical monitoring for 16 fire detection zones (expandable to 96), which may include smoke detectors, heat detectors, manual call points and other compatible devices. FP1600's flexibility and versatile input/ output programming allow it to perform a wide range of fire alarm monitoring, control and signalling applications.

- Compact design
- Low power consumption
- Internal battery and charger
- Wide detector compatibility
- Residential circuits for non-latching smoke warning and full call point/heat detector alarm
- Pushbutton circuit isolation
- Field programmable (PC or pushbutton)
- Alarms displayed on engravable index(es)
- Built-in sounder for local fault states
- Up to 8 serial remote displays
- Automated self-test
- History log tracks alarms and transient fault conditions
- Up to 22 programmable ancillary outputs per 16 zones

Reliability is a major feature of FP1600's design. All detector and alerting device circuits, earth faults, the battery connections and the power supply are fully supervised. Detection circuits and the battery supply are automatically tested daily. A supervisory 'watchdog' monitors for correct operation of system software.

Alarms are clearly annunciated on the outside of the control panel by an indexed array of LEDs, one for each alarm zone. A mimic diagram may be added if required. Remote displays can be readily connected by 4-wire cable.

Keyswitches on the outside of the cabinet allow operation of the control panel by the fire brigade or owner. The Silence Alarms switch is for the Fire Brigade to use after evacuation and building search procedures. The Evacuation switch activates fire alarm system sounders for evacuation drills. The Services Restore switch allows building services that have been shut down by a fire alarm to be restarted.

The Vigilant FP1600 complies with NZS 4512: 2003 "Fire Detection and Alarm Systems in Buildings"
FPANZ listing number VF/103.

Specifications

Cabinet

Material	Mild steel, powdercoated cream, wrinkle finish
Dimensions	510 x 485 x 110 mm (HWD)

Part Numbers

PA0861	General purpose Brigade relay I/F
PA0862	General purpose SGD
FP0547	FP1600 Rear Service with 16 zone Index incl. Master PCB set
FP0548	FP1600 Front Service with 16 zone Index incl. Master PCB set
FP0552	Blank cabinet, no index
SP0424	R/S Empty Cab, incl. 16Z Index
SP0425	F/S Empty Cab, incl. 16Z Index
FP0896	Empty Cab, R/S, PSU, 16Z Index
FP0897	Empty Cab, F/S, PSU, 16Z Index
KT0216	Master PCB set (for zones 1 to 16). Incl Master PCB (fits on F/S or R/S), LED board, FRC Looms & repl. gear plate
KT0215	Slave Extender PCB set. Ignore PSU for zones 17-32, 49-64, or 81-96. Use PSU for zones 33-48, 65-80. Incl: Slave PCB (fits on F/S or R/S), LED board, FRC Looms
KT0131	Kit, Comms Extender for 2+ Slaves Incl: PA0771 Comms Interface PCB, FRCs: 1 x 250mm, 1 x 400mm, 2 x 1500mm, 4 x PCB Standoffs
KT0142	Kit, FP1600 MkII or MkIII, upgrade to 32 zones. Incl: Repl. master software (for MkII systems), LM0074, Slave extender PCB set (fits R/S or F/S), labels, instructions, Does not include cabinet.
KT0438	= KT0142 + SP0424. Adds 16 zones to MkII or MkIII Rear Service FP1600
KT0439	= KT0142 + SP0425. Adds 16 zones to MkII or MkIII Front Service FP1600
LM0073	FRC Loom, 20 Way, 1500mm
LM0074	Loom Master - First Slave
BA12070	Battery, 12V 7Ah
SU0159	10A Thermal Cutout (one required per battery where multiple batteries are wired in parallel). **Note: Omega 64 is the historical designation of FP1600 in expanded 32-96 zone configuration. Larger format cabinets (32 zone) are no longer available, however, limited spares are.**
FA1371	Fabrication, OMEGA 64, R/S Index (Master 32 zone) (spares only)
FA1372	Fabrication, OMEGA 64, F/S Index (Master 32 zone) (spares only)
FA1379	Fabrication, OMEGA 64, R/S Index (Extender 16 zone) (spares only)
FA1380	Fabrication, OMEGA 64, F/S Index (Extender 16 zone) (spares only)
SF0217	Software, OMEGA 64, Master V3.01, OTPROM (MkII only)
SF0218	Software, OMEGA 64, Slave V3.01 OTPROM (MkII only)
LB0589	Label, OMEGA 64 Diagnostics/ Operation
LB0537	Label, OMEGA 64 Zone Numbering
PA0702	FP1600 Mimic Termination Board
LM0052	Loom, FP1600 Remote Mimic
FA1210	FP1600 F/S Display Mounting Bracket

FP1600 ordering details for various typical configurations and systems up to 96 zones are as follows:-

Rear Service Systems

16 Zone Rear Service
FP0547 Master FP1600 R/S with 16 zone index

32 Zone Rear Service (2 Cabinets)
FP0547 Master FP1600, R/S with 16 zone index
KT0438 Upgrade Kit, R/S, 32 zone, includes cabinet

48 Zone Rear Service (3 Cabinets)
FP0547 Master FP1600 R/S with 16 zone index
2x KT0215 Slave PCB set
KT0131 Kit, Comms Extender for 2+ Slaves
SP0424 Empty Cabinet, R/S, 16 zone index
FP0896 Empty Cabinet, R/S, PSU, 16 zone index

64 Zone Rear Service (4 Cabinets)
FP0547 Master FP1600, R/S with 16 zone index
3x KT0215 Slave PCB Set
KT0131 Kit, Comms Extender for 2+ Slaves
2x SP0424 Empty Cabinet, R/S, 16 zone index
FP0896 Empty Cabinet, R/S, PSU 16 zone index

80 Zone Rear Service (5 Cabinets)
FP0547 Master FP1600, R/S with 16 zone index
4x KT0215 Slave PCB Set
KT0131 Kit, Comms Extender for 2+ Slaves
LM0073 FRC Loom, 20 way, 1500mm
2x SP0424 Empty Cabinet, R/S, 16 zone index
2x FP0896 Empty Cabinet, R/S, PSU, 16 zone index

96 Zone Rear Service (6 Cabinets)
FP0547 Master FP1600, R/S with 16 zone index
5x KT0215 Slave PCB Set
KT0131 Kit, Comms Extender for 2+ Slaves
2x LM0073 FRC Loom, 20 way, 1500mm
3x SP0424 Empty Cabinet, R/S with 16 zone index
2x FP0896 Empty Cabinet. R/S, PSU, 16 zone index

Front Service Systems

16 Zone Front Service
FP0548 Master FP1600 F/S with 16 zone index

32 Zone Front Service (2 Cabinets)
FP0548 Master FP1600, F/S with 16 zone index
KT0439 Upgrade Kit, F/S, 32 zone, includes cabinet

48 Zone Front Service (3 Cabinets)
FP0548 Master FP1600 F/S with 16 zone index
2x KT0215 Slave PCB set
KT0131 Kit, Comms Extender for 2+ Slaves
SP0425 Empty Cabinet, F/S, 16 zone index
FP0897 Empty Cabinet, F/S, PSU, 16 zone index

64 Zone Front Service (4 Cabinets)
FP0548 Master FP1600, F/S with 16 zone index
3x KT0215 Slave PCB Set
1 x KT0131 Kit, Comms Extender for 2+ Slaves
2x SP0425 Empty Cabinet, F/S, 16 zone index
FP0897 Empty Cabinet, F/S, PSU, 16 zone index

80 Zone Front Service (5 Cabinets)
FP0548 Master FP1600, F/S with 16 zone index
4x KT0215 Slave PCB Set
KT0131 Kit, Comms Extender for 2+ Slaves
LM0073 FRC Loom, 20 way, 1500mm
2x SP0425 Empty Cabinet, F/S, 16 zone index
2x FP0897 Empty Cabinet, F/S, PSU, 16 zone index

96 Zone Front Service (6 Cabinets)
FP0548 Master FP1600, F/S with 16 zone index
5x KT0215 Slave PCB Set
KT0131 Kit, Comms Extender for 2+ Slaves
2x LM0073 FRC Loom, 20 way, 1500mm
3x SP0425 Empty Cabinet, F/S with 16 zone index
2x FP0897 Empty Cabinet. F/S, PSU, 16 zone index

Note: Fire brigade signalling device, batteries, thermal cutouts and alerting tone generators must also be ordered, as required.

Conventional Detectors and Accessories

The Tyco 614 range of low profile conventional detectors have 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 Tyco 614 range includes the 614CH Carbon Monoxide fire detector, which responds to carbonaceous fires with an unprecedented early detection of slow smouldering fires, yet offers unequalled nuisance 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.

Features

- Range includes unique CO+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 5B base
- Integral and remote alarm LED
- CSIRO ActivFire and FPANZ Listing

614CH Carbon Monoxide and Heat Fire Detector

The 614CH fire detector provides very early warning of slow smouldering fires. The CO fire detector is well suited to many applications where heat detection is insufficient but smoke detection causes nuisance 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 to supplement the CO detector mode to permit the detector to react to a wider range of fire types. Although the 614CH has an expected life in excess of 10 years, in order for the 614CH to provide the intended level of fire detection, the detector should be checked for calibration 5 years after installation (or 5 years after re-installation following service) or within 7 years of the date of manufacture.

Specifications

Operating Voltage	10 to 33Vdc
Quiescent Current	55µA (max.)
Alarm Current*	3.2 to 67mA (50°C)
Alarm State Voltage	2.5 to 7.4Vdc
Alarm Threshold	38ppm CO
Ext. Powered Load (max.)	50mA, 28Vdc
Remote Indicator	E500 Mk2 Series
Relative Humidity	15 to 90% (n/cond)
Ambient Temp	0 to +50°C
Dimensions (incl. base)	127 dia x 54H (mm)
Weight	200g with base
CSIRO ActivFire Listed	afp-1718
FPANZ Listed	VF/345
Part Number	516.600.304

* 3.2mA min. for LED visibility. Max. current must be externally limited

614P Photoelectric Smoke

The 614P is capable of detecting the visible smoke produced by materials which 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; electrical services 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 to 33Vdc
Quiescent Current	60µA
Alarm Current*	0.7 to 67mA (55°C)
	0.7 to 60mA (70°C)
Alarm State Voltage	2.5 to 7.4V
Ext. Powered Load (max.)	50mA. 28Vdc
Sensitivity (AS7240.7-2004)	4%Obs/m
Remote Indicator	E500 Mk2 Series
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-20°C to +70°C
Dimensions (incl. base)	127 dia x 54H (mm)
Weight	188g with base
CSIRO ActivFire Listed	afp-1715
FPANZ Listed	VF/344
Part Number	MR614

*Max. current must be externally limited

614I Ion Chamber Smoke

614I detectors are offered for old specifications which still call for ionisation smoke detectors. The 614I offers detection of visible and invisible fire aerosols (products of combustion) and are therefore capable of detecting the early presence of hot smouldering and flaming fires, such as wood, paper etc. They use a dual ionisation chamber in which the air is ionised by a single radioactive source. The presence of smoke in the sampling chamber causes a change in the balance voltage, between the two chambers. This is then compared against an alarm level.

Specifications

Operating Voltage	12 to 33Vdc
Quiescent Current	70µA
Alarm Current*	0.7 to 67mA (55°C)
	0.7 to 60mA (70°C)
Alarm State Voltage	2.5 to 7.4V
Ext. Powered Load (max.)	50mA, 28Vdc
Ionisation Source	<33kBq (Am241)
Alarm Threshold	0.32 MIC X
Remote Indicator	E500 Mk2 Series
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-20°C to +70°C
Dimensions (incl. base)	127 dia x 54H (mm)
Weight	200g with base
CSIRO ActivFire Listed	afp-1716
FPANZ Listed	VF/343
Part Number	MF614

*3.2mA min. for LED visibility. Max. current must be externally limited

Series 300 Conventional Detectors

The Series 300 range of conventional detectors has been produced using the latest in manufacturing and design techniques, pushing out the boundaries of existing conventional detector technology. With its multitude of innovative features, the Series 300 detector 'acts conventionally, thinks intelligently'.

All Series 300 detectors feature:

- Backward compatible with Series 100 detector range and bases
- Bi-colour LED detector status indicator
- Advanced maintenance features via remote hand-held test unit
- Remote alarm test

2351E Photoelectric Smoke

The 2351E photoelectric detector incorporates an Application Specific Integrated Circuit (ASIC). Combined with a state of the art optical chamber the detector provides efficient and accurate detection of fires with a high level of resilience to non-fire environmental influences.

- Automatic drift compensation
- Dust resistant chamber
- Programmable sensitivity
- Remote sensitivity/contamination test

Specifications	
Operating Voltage	8 to 30Vdc
Standby Current (no LED)	50µA @ 24Vdc (LED no blink)
Alarm Current (LED On)	80mA at 24Vdc[1] max.
Operating Temp	–30°C to +70°C
Relative Humidity	5% to 95% (n/cond)
Dimensions	
Height	38mm (+9mm for base)
Diameter	102mm
Weight	105g (plus 60g for base)
Wire Gauge Terms	1.5mm^2 max.
FPANZ Listed	SS/355
Part Number	2351E

1. Alarm current limited by panel

2351TEM Multi-Sensor Photoelectric and Heat

The 2351TEM photoelectric smoke/thermal detector incorporates an optical chamber and a thermal element, which in turn are continually monitored by an on board processor using algorithms developed specifically for the unit. An alarm signal is only enabled in the detector once the processor is satisfied that an incipient fire has been detected. By using a combination of inputs, the incidence of nuisance alarms is reduced while at the same time, the response time to an actual fire is also improved.

- Automatic drift compensation
- Dust resistant chamber
- Programmable sensitivity
- Remote sensitivity/contamination test

Specifications	
Operating Voltage	8 to 30Vdc
Standby Current (no LED)	65µA @ 24Vdc (LED no blink)
Alarm Current (LED On)	80mA at 24Vdc[1] max.
Operating Temp[2]	–30°C to +70°C
Relative Humidity	5% to 95% (n/cond)
Dimensions	
Height	48mm (+9mm for base)
Diameter	102mm
Weight	105g (plus 60g for base)
Wire Gauge Terms	1.5mm^2 max.
FPANZ Listed	SS/356
Part Number	2351TEM

1. Alarm current limited by panel
2. Max. ambient temp. should not exceed 45°C

5351E Rate-of-Rise & Fixed Temperature Heat

The 5351E thermal detector incorporates an Application Specific Integrated Circuit (ASIC). Combined with the latest in thermal element technology the detector provides efficient and accurate detection of fires, especially in environments such as bars or kitchens where smoke detectors are inappropriate due to the high level of airborne contamination.

Specifications	
Operating Voltage	8 to 30Vdc
Standby Current (no LED)	65µA @ 24Vdc (LED no blink)
Alarm Current (LED On)	80mA at 24Vdc[1] max.
Operating Temp[2]	–30°C to +70°C
Relative Humidity	5% to 95% (n/cond)
Dimensions	
Height	48mm (+9mm for base)
Diameter	102mm
Weight	105g (plus 60g for base)
Wire Gauge Terms	1.5mm^2 max.
FPANZ Listed	SS/206
Part Number	5351E

1. Alarm current limited by panel
2. Max. ambient temp. should not exceed 45°C

4351E High Temperature Heat (Fixed Temperature)

The 4351E thermal detector incorporates an Application Specific Integrated Circuit (ASIC). Combined with the latest in thermal element technology the detector provides efficient and accurate detection of fires, especially in environments such as boiler houses or kitchens where smoke detectors are inappropriate due to the high level of airborne contamination.

Specifications	
Operating Voltage	8 to 30Vdc
Standby Current (no LED)	65µA @ 24Vdc (LED no blink)
Alarm Current (LED On)	80mA at 24Vdc[1] max.
Operating Temp[2]	–30°C to +70°C
Relative Humidity	5% to 95% (n/cond)
Dimensions	
Height	48mm (+9mm for base)
Diameter	102mm
Weight	105g (plus 60g for base)
Wire Gauge Terms	1.5mm^2 max.
FPANZ Listed	SS/207
Part Number	4351E

1. Alarm current limited by panel
2. Max. ambient temp. should not exceed 68°C

S300RTU Remote Test Unit

The S300RTU Remote Test Unit is used to test System Sensor 300 Series detectors. Simply point its laser at the detector's indicator LED and the detector will make an internal test and trigger an alarm.

Specifications	
Battery	6V miniature (included)
Enclosure	Plastic
Operating Range	up to 5m
Dimensions (mm)	81x32x12 (HWD)
Part Number	S300RTU

S300RPTU Remote Programming Test Unit

The S300RPTU Remote Programming and Test Tool is designed for communication with System Sensor 300 series detectors, permitting access to various functions and logs within the detectors. Communication is achieved through the detector's indicator LED, and uses one of two methods:
1. Direct communication via the detector LED using an LED and Opto-diode built in to the S300RPTU, for close range (approx. 30mm) communication.
2. Using radio communication via an S300SAT which can be clipped to the detector using proprietary access poles, allowing a range up to 4.5m. The S300RPTU is a menu driven device.

Specifications	
Operating Voltage	4.5Vdc (3xAAA batt.)
Power-Up Time	5 seconds
Current: Standby mode	800 µA max.
LED comms mde	12mA
RF comms mode	5.3mA
RF TX/RX Frequency	433.92 MHz
RF Power Transmission	750µW
RF Reception Sensitivity	95dBm
Operating Temperature	-30°C to +60°C
Relative Humidity	5% to 95% (n/cond)
Dimensions (mm)	22x128x58 (HWD)
Weight	100g
Part Number	S300RPTU

S300SAT Satellite Test Unit

The S300SAT provides a radio link for communications between the S300RPTU tool and a series 300 detector over distances up to approximately 4.5m. It clips directly into position on the detector, with the use of either a standard System Sensor access pole, or a No Climb Products access pole with suitable adaptor. To prevent cross communication where more than one unit is in use on a single site, the S300SAT and S300RPTU may be set to address 00 to 15.

Specifications	
Battery	9V Alkaline (x2)
Part Number	S300SAT

Series 100 Conventional Detectors

Series100 Plug-in Smoke Detectors offer superb performance and reliability and a profile of just 43 mm. Other features include: low current draw, stable performance in high air velocities, built-in tamper resistant base design, remote LED option, removable cover, and built-in test switch.
The Series 100 is designed to meet UL performance criteria. Its sensing chambers are sealed against back pressure air flow, dirt, and insects and is protected by a fine mesh screen which can be cleaned or replaced. Additional key features include a variety of mounting bases and a full line of accessories.

- Compatible with 300 and 400 Series product
- Two LEDs blink in standby, providing 360° visibility

Specifications	
Operating Voltage	12/24Vdc
Alarm Current	10 to 100mA[1]
Standby Current	85µA nominal
Sensitivity	3% ± 0.7%/ft. Photo
Dimensions (H x dia)	43 x 102 mm
Weight	102 g
Temperature	0°C to +49°C
UL Listed Velocity Range	
Photo	0 to 15.2 m/s
Relative Humidity	10% to 93% (n/cond)
FPANZ Listed	
SS0323	SS/326
SS0324	SS/328
Part Numbers	
SS0323	1151 Ionisation Smoke
SS0324	2151 Photoelectric Smoke

1. Alarm current limited by panel

MOD400R Field Sensitivity Test Module

The MOD400R Field Sensitivity Test Module is designed to check the sensitivity of 100, 200, 300, 400, and 500 Series conventional detectors or DH100, DH200, DH400 and DH500 series duct smoke detectors, to fulfill requirements for detector sensitivity testing. The test module can be connected to any DC voltmeter (meter movement of 10k Ohms/V or greater) to obtain a reading which correlates to the detector's sensitivity range.

Specifications	
Dimensions	114.5 mm x 79.5 mm x 38 mm
Shipping Weight	240 g
Test Capability	System Sensor 100, 200, 300, 400, 500 Series Detectors, System Sensor DH100, DH200, DH400, DH500 series duct smoke detectors
Battery	9 V alkaline (1 year life)
Part Numbers	
SS0200	MOD400R Test Module
SS0201	Replacement Cord

Series 100 Conventional Detector Accessories

B401 Detector Base - compatible with all series 100, 300, 400 devices.

Specifications	
Dimensions (H x dia)	20 x 102 mm
Weight	152g
Part Numbers	
SS0300	B401 Detector Base
M020900	Test Magnet

M020900 Test Magnet with telescoping handle

DH200PL Duct Sampling Unit

The DH200 Low-Flow Series photoelectric air duct smoke detectors are capable of sensing smoke in air velocities from 0.5 to 20.3 metres per second. The DH200 features low-flow technology that enables duct smoke detection throughout a broad range of airflow environments. Many difficult-to-solve HVAC applications occur in low airflow duct applications where reliable smoke detection is critical. The DH200 Series Detector samples air currents passing through a duct and gives dependable performance for shutdown of fans, blowers, and air conditioning systems, preventing the spread of toxic smoke and fire gases through the protected area.

The **DH200** Low-Flow Series photoelectric air duct smoke detector

Specifications	
Operating Voltage	15 to 32Vdc
Quiescent Current	300µA @ 24Vdc
Alarm Current	87mA@20-30Vdc
Air Duct Velocity	0.5 to 20.3 m/s
Relative Humidity	10% to 93% (n/cond)
Ambient Temperature	0°C to +55°C
Storage Temperature	-30°C to +70°C
Dimensions (WLD)	140 x 370 x 70mm
Weight	1.5kg
FPANZ Listed	VF/348

Part Numbers	
DH200PL	Innovair™ intelligent low-flow photoelectric non-relay duct smoke detector
SS0106	Sampling tube duct width 0.3 - 0.6m
SS0107	Sampling tube duct width 0.6 - 1.2m
SS0108	Sampling tube duct width 1.2–2.4m
SS0109	Sampling tube duct width 2.4 - 3.6m
Accessories	
SS0205	RTS451 Remote test station
SS0203	RA400Z Remote LED
F36-09-11	Replacement filters
M020900	Test Magnet

Conventional Detector Bases

5B Universal Base

The 5B Universal Base contains no electronics and is suitable for indoor applications of the 614 series collective and 814 series analogue addressable detectors. It provides excellent space for cable access and terminations. Its larger skirt makes it suitable as a replacement for the earlier M614 base to cover any paint rims or covering a larger hole in the ceiling. It features remote LED connections and an anti-tamper facility.

Specifications	
Operating Temp.	-25°C to +75°C
Relative Humidity	10% to 95% (non cond.)
Dimensions (mm)	127 dia x 24H
Weight	63g
CSIRO ActivFire Listed with compatible detectors	
Part Number	
517.050.017	5B Base

DHM-5B Deckhead Mounting

The Deckhead Mounting can be used with Tyco 600/800 Series using 5B 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 144mm 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	up to 95% (non cond.)
Dimensions (mm)	163 dia x 42H
Weight	200g
Protection	IP55
Part Numbers	
517.050.603	DHM-5B
517.050.612	BAT Kit - pack of 10 (available on request)

VIGIL Conventional Heat Detector

VIGIL Conventional Heat Detector

VIGIL heat detectors are low cost, fast operating fixed temperature devices designed for automatic fire detection in normal risk buildings. They are available in both latching indicating and clean contact versions.

- Unobtrusive low-profile design
- Fast response
- Normally-closed gold-flashed contacts
- Resettable design allows repeated testing
- Environmentally protected versions:
  Normal - no added protection, dry indoor use
  Dipped - enhanced protection, tolerates occasional dampness
  Encapsulated - more heavily protected

Specifications

Dimensions (H x dia)	35 x 67 mm
Mounting Holes	2 x Ø6 @ 51 mm spacing
Actuation Temperatures	
Colour code	Blue: 57°C ± 3°C
	Yellow: 77°C ± 3°C
	White: 107°C ± 3.5°C
Operational Temperatures	
VIGIL-N, VIGIL -D	-25°C to 15°C below actuation
VIGIL-E	-20°C to 15°C below actuation
Indi-VIGIL	0°C to 65°C (45°C for Blue)
Indi-VIGIL encap.	-20°C to 65°C (45°C for Blue)
FPANZ Listing Numbers:	
VIGIL-N	VF/201
VIGIL-D	VF/202
VIGIL-E	VF/203
Indi-VIGIL	VF/204
Indi-VIGIL encapsulated	VF/215
Indicating Module	VF/651

Part Numbers

Indicating detectors	
FP0899	Indi-VIGIL, Blue (57°C)
FP0900	Indi-VIGIL, Yellow (77°C)
FP0910	Indi-VIGIL, Encaps, Blu (57°C)
FP0911	Indi-VIGIL, Encaps, Yel (77°C)
Clean contact detectors	
FP0717	VIGIL-N, Blue (57°C)
FP0718	VIGIL-N, Yellow (77°C)
FP0720	VIGIL-N, White (107°C)
FP0721	VIGIL-D, Dipped, Blu (57°C)
FP0722	VIGIL-D, Dipped, Yel (77°C)
FP0723	VIGIL-E, Encaps, Blu (57°C)
FP0724	VIGIL-E, Encaps, Yel (77°C)
Accessories	
FB0111	Mounting Bracket 90°, Galvanised
GASKETHD	Mounting Gasket

Note: VIGIL detectors are unsuitable for heavily corosive, continuously wet, caustic, or physically abrasive environments for which a T54B probe type detector is more suited. (See page 78).

The Indi-VIGIL range is approved for new installations to NZS 4512:2003 "Fire Detection and Alarm Systems in Buildings". The non-indicating VIGIL range is approved to NZS 2139:1967 "Heat Actuated Fire Detectors" (obsolete).

Indi-VIGIL Indicating Module

The Indi-VIGIL Indicating Module, when installed in a manual call point or wired to a clean-contact detector, is compatible with Vigilant fire alarm systems in the same quantities as the indicating manual call point and Indi-VIGIL heat detector. Note: The manual call point or detector must be a clean-contact device not an indicating heat detector or indicating manual call point, because two indicating circuits/modules connected in parallel will not operate reliably.

Specifications

Format	Circuit board
Dimensions (HWD)	40 x 44 x 30 mm
FPANZ Listed	VF/651
Part Number	PA1022

Contact Conversion Module

The Vigilant PA0443 Contact Conversion Module is designed to allow normally-closed clean contact devices (e.g. manual callpoints) to be connected onto legacy (pre-NZS4512:2003) smoke detector circuits. The module converts the normally-closed hard contact to a normally-open transistor clamp (clamps to about 1 volt when the contacts open) across the detection circuit. For new installations, use PA1022.

Specifications

Format	Potted circuit module
Cable Tail Length	250 mm
Dimensions (HWD)	60 x 22 x 17 mm
Weight	24g
FPANZ Listed	VF/618
Part Number	PA0443

Conventional 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	For Example / Probable Risk	- Clean Room - Data Processing	- Office - Light Industrial - Hospital - Residential - Passenger - Accomodation	- 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 - Hanger - Oil Rig - Turbine Hall
Electronic Equipment, Electrical Switchgear, Electric Motors, Cable, Conduit	Cable pyrolosis (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** CO/Heat Heat	**Flame** CO/Heat Heat	**Flame** Heat	**Flame** Beam
General, Organic Waste, Animal Fodder, Wooden Structures, Solid Fuels	Smoke and Flame. Initially fairly slow but high temps. 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 optimal for reasons of performance or cost, but real situations may require a combination to cover likely risks. For further guidance, refer to NZS 4512:2003 Appendix H.

Conventional Manual Call Points

1841 Manual Call Points

The 1841 manual call point is a break-glass switch designed to meet the requirements for manual call points in fire alarm systems as specified in NZS 4512 "Fire Detection and Alarm Systems in Buildings". The switch may also be used in other applications requiring the security of break glass operation. They are available in both latching indicating and clean contact versions.

- Attractive and functional
- Large, easy to operate switch
- Surface and flush mounting options
- Normally-closed gold-flashed switch contacts
- White and yellow versions also available

Part Numbers

Conventional Indicating (Red)

FP0903	Flush, "Wormald"
FP0904	Surface "Wormald"
FP0907	Flush, no brand
FP0908	Surface, no brand

Clean Contact Non-Indicating

FP0330	Red, Flush, "Wormald"
FP0331	Red, Surface, "Wormald"
FP0323	Red, Flush, no brand
FP0324	Red, Flush, no brand
FP0388	Yellow, Surface, no brand
FP0386	White, Surface, no brand (3-pole switch)

Specifications

Switch rating	5A at 28Vdc
Dimensions (HWD)	
Surface	130 x 130 x 67 mm
Flush	130 x 130 x 13 mm
Cable entry (surface)	20mm conduit thread
Terminations	2.5mm^2, loop included
Protection	IP23 (Surface)
Material	ABS
Colour	Red - NZS 7702 #537
Weight	400g (surf.) 250g (flush)
Ambient temperature	0°C to +40°C
Relative humidity	up to 95% (non-cond.)
FPANZ Listed	
Conventional (Ind.)	VF/649
Clean contact (non-Ind.)	VF/607

1757 Cast Manual Call Points

The cast aluminium Fire Alarm Call Point Type 1757 is designed specifically for use in harsh environments such as freezing works, cool stores, outdoors,etc. For new installations an indication module (PA1022) is also required.

Part Numbers

FP0108	MCP 1757-2
PA1022	Indi-V/G/L Indicating Module

Specifications

Dimensions (HWD)	174 x 150 x 120 mm
Cable entry	20mm^2 conduit thread
Weight	2kg
Mouting pattern	160W x 145Ø x 10mm x 4 places
Ingress Protection	IP55 (not certified)
Colour	Red - NZS 7702 #537
FPANZ Listed	VF/612

STOPPER II Manual Call Point Cover

FP0517 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' has an integral high pitched sounder, powered by 9V alkaline battery (included) which is activated when the tamper-proof clear polycarbonate lid is lifted.

Specifications

	FP0517	FP0518
Dims (HWD)	254x178x86	210x137x57.5mm
Call Point Size	160x160x120	100x100x57.5
Sounder SPL	95dB @ 1m	-

Part Numbers

FP0517	Stopper II Flush Mount
FP0518	Stopper II Surface Mount

Manual Call Point Label

This label provides the operation information required for manual call points by NZS4512 and the NZ Building Code compliance documents.

Specifications

Dimensions	150 x 110 mm

Part Number

LB0124	Dial 111 Label, PVC

Addressable Fire Panels

MX1 Fire Alarm System

The Vigilant *MX1* is an innovative single loop analogue addressable fire indicator panel incorporating the latest technology. It complies with NZS 4512: 2003 and is also designed to meet international standard ISO 7240.2 - 2003. Its support for Tyco *MX TECHNOLOGY*® fuzzy-logic detection algorithms and powerful control functions make it suitable for a wide range of fire protection applications for small to medium size systems.

Specifications

Cabinet	
Material	Mild Steel
Finish	Powdercoated cream, wrinkle finish
Dims (HWD)	590 x 480 x120 mm
Weight	5kg
Part Numbers	
FP0893	*MX1*, Single Loop Panel, NZ
FP1002	*MX1*, 16 Zone display extender, NZ
FA2417	1982-23,MX1,Index, NZ Front Service
BA12170	Battery, 12V, 17Ah
Spares	
FA2416	1982-15, Index, Rear Service
FP0913	Replacement *MX1* LCD Module Kit
ME0448	1982-26, *MX1* PSU assy
ME0450	Replacement *MX1* door c/w hinges
PA1010	PCB assy,1982-1, LCD/ keyboard
PA1011	PCB assy,1982-2, *MX1* controller
LM0319	Loom, *MX1* main board to T-Gen 50
LM0335	Loom,LCD/keybd to 1st zone display,R/S
LM0324	Loom,FRC,10W,style B, 900mm (LCD/Keybd to Controller)
LM0291	Loom,FRC,26W,style B,230mm (between zone displays)
LB0600	Label,*MX1*,blank zone label,grey (sheet of 5 supplied with panel)
LT0344	*MX1*, Operator Manual
LT0360	*MX1*, Installation Guide

- Single *MX DIGITAL* Loop supporting up to 250 MX devices
- *MX VIRTUAL* multi-sensor analogue addressable detector technology
- *MX FASTLOGIC* detection algorithm with *SMARTSENSE* option
- Clear alarm messages on 4-line LCD
- Compact zone LED display
- High level EWIS interface
- "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
- Compact cabinet or optional 19" mounting (built-to-order)
- Earth fault supervision
- Fuse supervision
- Windows-based programming tools

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 communications continues in the event of a loop open circuit fault condition.

In the case of a short circuit, up to 128 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.

Approvals

MX1 complies with New Zealand Standard NZS 4512: 2003 "Fire Detection and Alarm Systems in Buildings" and meets the NZ Fire Service requirements for connection to remote receiving stations.

FPANZ Listing Number VF/118

MX4428 Fire Alarm System

The Vigilant MX4428 is an intelligent distributed multi-processor fire alarm and fire protection control system, which combines both analogue addressable and collective (conventional) detection. It features intelligent fire detection algorithms, powerful control programmability and multi-panel networking to handle the most complex applications.

- *MX VIRTUAL* multi-sensor analogue addressable detectors
- *SMARTSENSE* and *MX FASTLOGIC* (fuzzy logic) detection algorithms
- Heat-enhanced photoelectric smoke and CO fire detectors
- Compatible with wide range of collective detectors including Intrinsically Safe types
- Complies with AS 4428.1 and NZS 4512
- LCD Firefighter Facility (FF) and optional zone LEDs
- LCD zone description text with optional point text for each detector
- Event logging to internal history file and printer
- Remote repeater panels, colour graphics displays
- "Tandem" mode for remote control panel access
- High level EWIS, BMS interface
- Multi-panel networking available
- Programmable outputs for Warning System, External Alarm (strobes & bells) and Ancillary Control
- Flow switch monitoring and remote testing
- AS 1668 air-handling smoke detection and control
- Powerful, field-programmable logic equations and timers
- Built-in clock/ calendar with automatic daylight saving adjustment
- Comprehensive test facilities
- Automatic system self-tests
- Automatic battery connection and capacity tests
- Integral charger (2.5A, 6A, 12A)

MX4428 supports the *MX* multi-sensor virtual detectors (Photoelectric and Heat, CO and Heat, Ionisation only, heat-only) and a range of functional bases, analogue addressable callpoints, input modules, and output modules. Smoke/CO and temperature readings from the multi-sensor detectors are able to be combined in various ways to achieve optimum detection for each location.

The MX4428 is suitable for sprinkler flow switch monitoring and remote testing, AS 1668 air-handling smoke detection and control.

- Comprehensive test facilities
- Automatic self tests
- Field-programmable
- LCD control panel
- Optional Zone LEDs
- LCD zone description text and/or individual point text

Powerful boolean logic functions for output control and network communications allows control and indication of other panels and devices.
Printer logging includes zone text and point events.
Outputs for:

- Door holders
- Local mimics
- Remote repeater panels
- Colour graphics displays
- High level interface for EWIS, BMS, etc.

MX VIRTUAL multi-sensor analogue addressable detectors utilise dual sensors (photoelectric and heat, or CO and heat) to allow the best detection mode for a situation to be selected without having to physically change detectors.

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
- Heat-only detection can be fixed temperature, or also include rate-of-rise.

For specific applications, ionisation smoke and heat-only detectors are also available.
SMARTSENSE or *MX FASTLOGIC* detection algorithms can be programmed for each detector to allow the detection capabilities of the system to be further optimised.

Up to 200 *MX* devices (detectors and addressable input/ output modules) may be connected to the *MX* detection loop, which terminates at an *MX* Protocol (MXP) responder.

Approvals
The MX4428 complies with New Zealand Standard NZS 4512:2003 "Fire Detection and Alarm Systems in Buildings" and meets the NZ Fire Service requirements for connection to remote receiving stations.
FPANZ Listing Number VF/117
Loop Booster Unit FPANZ Listing Number VF/613

Specifications

Dimensions
Cabinet Dimensions (HWD)
FZ1190/FZ1191 15U - 750 x 550 x 211 mm
FZ1192/FZ1193 18U - 885 x 575 x 205 mm

Part Numbers
Stock Panel Configurations

FZ1190	MX4428, 15U, Wind, 48 Z cap, SGD I/F
FZ1191	MX4428, 15U, Blank, 48 Z cap, SGD I/F
FZ1192	MX4428, 18U, Wind, 112 Z cap, SGD I/F
FZ1193	MX4428, 18U, Blank, 112 Z cap, SGD I/F
FP0487	Loop Booster Unit 1901-36
BA12240	Battery 12V, 24Ah
BA12400	Battery 12V, 40Ah

Larger cabinets built to order

Options

FP0475	Display Extender Kit incl 0.5m FRC
FP0827	Standard Network Kit (comprises hardware, LT0143, PA0773, LM0172)
PA0483	PCB Assy,1901-103,unprot Term.PCB
PA0753	PCB assy,1901-25-7, PFD 16 Alarm LED
FP0771	I-Hub networking kit
ME0433	T/Evac & Silence Alarm sw. on plate

Responders

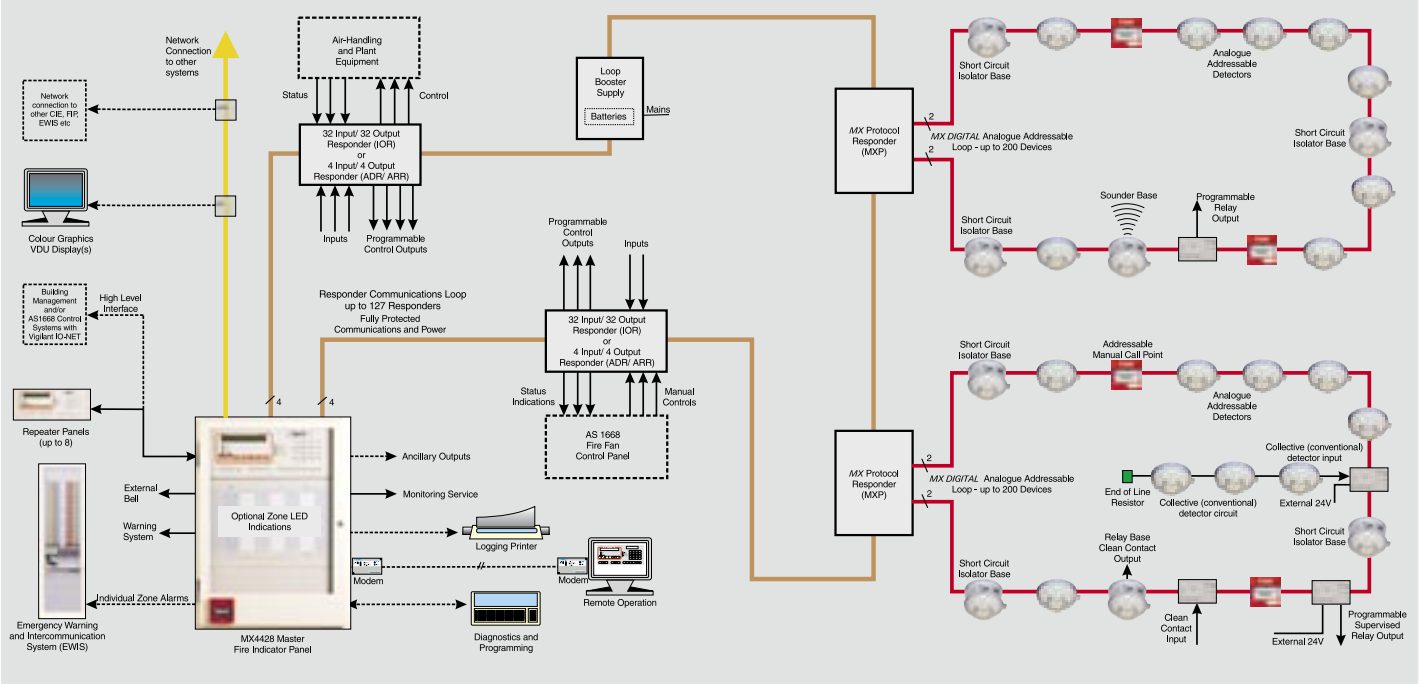
FP0507	EOL002B Pulsing EOL
FP0529	Empty ADR/MPR box
FP0575	Multi Prot. Resp (MPR)1901-141 in box
PA0453	RRM PCB assy 1901-15
PA0473	IOR PCB 32 in/32 out 1901-72

(See Addressable Responders section, page 27, for companion input/output boards)

PA0497	ADR PCB assy 1901-116 4mA
PA0713	MPR PCB assy 1901-141
PA0815	ADR-M 4mA 15V MCP 1901-116
FP0824	MXP Responder in box
PA0844	ADR-M 2.5mA 3k3 EOL PCB
PA0893	MXP Responder PCB only
PA1038	MXP Responder Loop Filter PCB

Spares

FA2150	MX4428 Keyboard Membrane overlay
FP0874	MX4428 Power Supply 24V 2.5A
IC0320	F4000 IC 28C64 8K EEPROM
HW0040	Lock A/CR16/01/3B/N04 003 Keyed
PA0463	F4000 Loop Booster PCB 1901-35
PA0481	F4000 RZDU/RS232 I/F PCB 1901-100
PA0482	F4000 Memory LCD I/F PCB 1901-102
PA0711	RS485 comms CMOS PCB 1901-139-1
PA0712	RS485-RS232 Comms PCB 1901-139-2
PA0751	F4000 main PCB no software 1901-12
PA0773	RS485 coms CMOS PCB FRC 1901-139-3
PA0890	PCB AS4428 keyboard/LCD module
PA0891	PCB AS1603 keyboard/LCD module
PA1040S	MX4428 Main bd incl. Mem-LCD I/F, S/W
SF0349	MX4428 Master Software V3.21N
SM0031	FA1201 F4k LCD keybd overlay (AS1603.4)



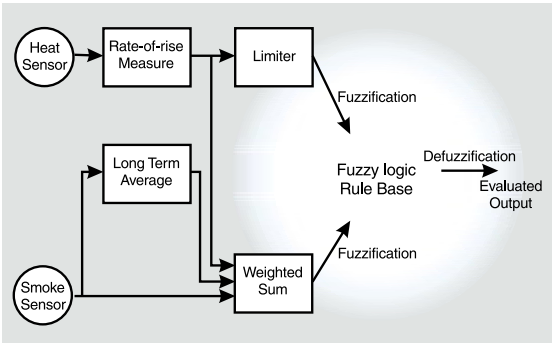
MX4428 System Diagram

Responder Loop Design

Central to the MX4428 system is the proven "Responder Loop" architecture, which allows intelligent responders to be either distributed at selected locations around the protected premises, or located centrally at the FIP. Analogue addressable loop wiring and other inputs and outputs are terminated at these responders, which in turn are connected by the 4-wire responder loop to the FIP.

The responder loop is fully protected: a partial or complete break, or short, anywhere on the loop is detected and isolated automatically at the adjacent responders. All system operations are fully maintained even in the presence of the fault condition. This design offers many benefits:

- Cable concentration at the master FIP is greatly reduced.
- Installed cost is lower because the loop design requires less wiring than conventional methods.
- Compatibility with many existing conventional and analogue addressable systems, providing a ready upgrade path.
- Ideal suitability as a main panel upgrade with old sub-panels connecting via responder inputs.
- High-integrity communications is fully supervised and protected by redundant paths.
- Loop fault sensing and isolation is provided at every responder.
- Intelligent diagnostics identifies location of faults rapidly.
- Expansion and alterations are easily accommodated with minimal additional wiring.
- Responder Loop Boosters permit virtually unlimited loop length.
- No additional multicore wiring is required for AS 1668 controls, but optional use of dedicated IO-NET (PLC) system is also possible.



MX FASTLOGIC

Detection Algorithms

SMARTSENSE is a field-proven, reliable detection algorithm, providing unwanted alarm reduction, compensation for ambient conditions and a wide range of programmable sensitivity settings.

MX FASTLOGIC is a "fuzzy logic" based algorithm applied to photoelectric smoke and heat enhanced smoke detection, and designed to differentiate between the smoke and temperature patterns of real fires and typical causes of unwanted alarms.Both algorithms provide:

- Detector pre-alarm sensing for early warning of a potential alarm.
- Compensation for soiling and changes in ambient conditions.
- Logging "detector dirty alert" when compensation limits are about to be exceeded, to allow maintenance to be scheduled.
- Heat sensor can be programmed to act independently as a Heat Detector

MX4428 Rack Cabinet Specifications

Cabinet Size		15U	18U	21U	28U	40U
Number of extender inner doors:	Master	1	2	2	3	3
	Extender	2	2	3	4	4
Maximum number of LED displays:	Master	64	128	128	192	192
	Extender	128	128	192	256	256
Spare space at bottom:	Master	4U	0U	3U	3U	15U
	Extender	1U	4U	0U	0U	12U
Standard size gearplates (max.):		1	1	1	2	3
Overall Height (mm):		750	885	1050	1330	1865
Overall Width (mm):		550	575	575	575	575
Overall Depth (mm):		211(176 int.)	205/380	350(310 int.)	205/380	205/380 (135 or 310 internal)
Cabinet Material:		1.2mm M.S.	1.6mm M.S.	1.6mm M.S.	1.6mm M.S.	1.6mm M.S.
Cabinet Finish:	Baked epoxy powdercoat, Cream Wrinkle BFF998CW					

MX TECHNOLOGY® Analogue Addressable Modules

AZM800 Apartment Zone Module

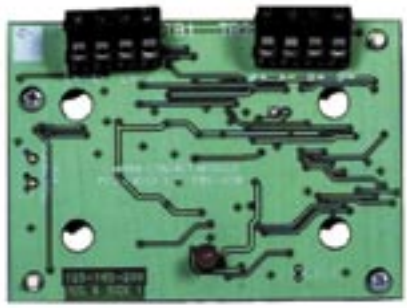
The AZM800 is a loop-powered *MX* Addressable module which cost-effectively integrates many of the key functions required for Type 5 fire alarm systems as defined in the NZ Building Code Compliance Documents, and in particular providing "hush"-able local alarm functions.

- Local 100V speaker line per spur
- Integral short circuit isolator (SCI)
- Conventional detector circuit
- Integral and remote "hush" button
- Programmable control relay

Specifications	
Operating Voltage[1]	22 to 40Vdc
Quiescent Current	4mA (typ)
Alarm Current	17mA (max, LED on)
Circuit Resistance	10 Ohm (max.)
ELD Resistor	9k1/18k Ohm
Local 100V spur	10W, 56k Ohm ELD
Ambient Temp	-10°C to +45°C
Relative Humidity	10% to 95% (n/cond)
Dimensions (HWD)	118x75x34 mm
FPANZ Listed	VF/653 (FP0959) VF/654 (FP0962)
Part Numbers	
FP0959	AZM800
FP0962	Remote Hush Unit

1. *MX* addressable loop voltage

CIM800 Contact Input Module



The CIM800 Addressable Contact Input Module monitors and supervises 2 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 c.i.e. The CIM800 can be configured to monitor:

- Two circuits of multiple N/O contacts; with short circuit alarm.
- Two circuits of multiple N/C contacts; open circuit alarm.
- Two circuits with a single N/O contact closing for alarm; with short circuit fault. (Requires a resistor in series with the alarm contact and special c.i.e. programming).

The two circuits may be recognised as a single point or two separate points. Refer to the specific *MX* fire alarm panel specification.

Specifications	
Operating Voltage[1]	20 to 40Vdc
Quiescent Current	275µA (max.)
Alarm Current	2.8mA (max, LED on)
Circuit Resistance	10 Ohm (max.)
ELD Resistor	200 Ohm (supplied)
Alarm Resistor	100 Ohm (s/c fault)
Ambient Temperature	-25°C to +70°C
Relative Humidity	10% to 95% (n/cond)
CSIRO ActivFire Listed	afp-1446
FPANZ Listed	VF/640
Part Number	CIM800

1. *MX* addressable loop voltage

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 or two separate points. Refer to the specific *MX* fire alarm panel specification.

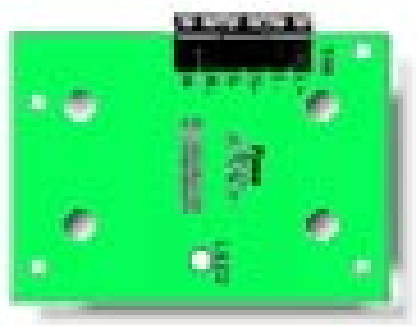
Unused circuits must be terminated with an ELD resistor.

The DIM800 requires a suitably rated and separately protected external 24V supply to power the detector circuits.

Specifications	
Operating Voltage[1]	20 to 40Vdc
Quiescent Current	100µA (max.)
Loop Alarm Current	170µA (max.)
Ambient Temp	-25°C to +70°C
Relative Humidity	10% to 95% (n/cond)
Detector Load	3mA (max per input)
Detector ELD	4k7 Ohm
External Supply[2]	20 to 28.7Vdc
Ext. Current/Circuit	7.5mA (normal)
Ext. Alarm Current[3]	30 to 50mA
CSIRO ActivFire Listed	afp-1446
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 whilst 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

Specifications	
Operating Voltage[1]	20 to 40Vdc
Current Loading	
Input Current	80µA max. (normal) 3.5mA max. (tripped)
Max. Series Resistance[2]	0.25 Ohm
Ambient Temp	-25°C to +70°C
Relative Humidity	10% to 95% (n/cond)
CSIRO ActivFire Listed	Pending
FPANZ Listed	VF/657
Part Number	LIM800

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

LPS800 Loop Powered Sounder Module

The LPS800 Loop Powered Sounder Module switches up to 75mA @24V dc to activate external notification devices. The module is capable of monitoring and signalling Normal & Short or Open circuit condition on the sounder circuit. The LPS800 short-circuit protection prevents a single short circuit condition from disabling more than the output containing the short-circuit. The LPS800 LED reports status to the user.

Specifications	
Operating Voltage[1]	20 to 40Vdc
Quiescent Current	275µA (typ)
Alarm Current	75mA (max,)
ELD Resistor	22k Ohm (supplied)
Ambient Temp	-25°C to +70°C
Relative Humidity	10% to 95% (n/cond)
CSIRO ActivFire Listed	pending
FPANZ Listed	VF/652
Remote Indicator	E500 Mk2 Series
Part Number	LPS800

1. *MX* addressable loop voltage

MIM800/MIM801 Mini Input Modules

The MIM800 Mini Input Module monitors a voltage-free contact and transmits its state to the c.i.e. 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 N/O contacts, with short circuit alarm.
- One circuit of multiple N/C contacts, with open circuit alarm.
- One circuit with a single N/O 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.

Specifications	
Operating Voltage[1]	20 to 40Vdc
Quiescent Current	275µA (typ)
Alarm Current	2.8mA (max, LED on)
Circuit Resistance	10 Ohm (max.)
ELD Resistor	200 Ohm (supplied)
Alarm Resistor	100 Ohm (s/c fault)
Ambient Temp	-25°C to +70°C
Relative Humidity	10% to 95% (n/cond)
CSIRO ActivFire Listed	afp-1446 (MIM800)
FPANZ Listed	VF/641 (MIM800)
	VF/645 (MIM801)
Part Numbers	
MIM800	MIM800 (Aus/NZ)
FP0837	MIM801 (NZ)

1. *MX* addressable loop voltage

MIO800 Multi-Input Output Module

The MIO800 is a general purpose interface module for use with *MX TECHNOLOGY*® fire detection systems. It allows multiple input and output connections to be made between external equipment and the *MX DIGITAL* loop. Three inputs and four outputs are provided. Each input and output can be programmed independently to provide customised functionality.

Specifications	
Operating Voltage[1]	20 to 40Vdc
Quiescent Current	700µA (max.)
Alarm Current	6.25mA (max,LED on)
Relay Contact	2A @ 24Vdc (max.)
Ambient Temp	-25°C to +70°C
Relative Humidity	10% to 95% (n/cond)
CSIRO ActivFire Listed	pending
FPANZ Listed	VF/655
Part Number	MIO800

1. *MX* addressable loop voltage

RIM800 Relay Interface Module

The RIM800 Relay Interface Module provides one volt-free changeover contact which is not supervised. The relay is controlled by a command sent from the c.i.e. 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 c.i.e. programming. The RIM800 has a red LED which may be configured to indicate relay activation and c.i.e. polling. Note that the RIM800 cannot be used to switch mains voltage directly.

Specifications	
Operating Voltage[1]	20 to 40Vdc
Quiescent Current	285µA (max.)
Alarm Current	2.8mA (max, LED on)
Relay Contact	2A @ 30Vdc (max.)
Ambient Temp	-25 to +70°C
Relative Humidity	10% to 95% (n/cond)
CSIRO ActivFire Listed	afp-1446
FPANZ Listed	VF/642
Part Number	RIM800

1. *MX* addressable loop voltage

SAB801 Sounder Addressable LED Beacon

The SAB801 Sounder Addressable Beacon has a flashing LED beacon incorporated into the front with a red lens arrangement. It is designed for a wall mounting either on a sounder base or on a conventional base. When mounted 2 to 2.2m above ground level, the beacon provides a high uniform intensity wide angle light output. The base orientation is not critical to the veiwing of the SAB LED beacon. The SAB801 is a lower current verion of the earlier SAB800.

Specifications	
Operating Voltage[1]	20 to 40Vdc
Quiescent Current	250µA (max.)
Alarm Current (flash or cont.)	3.25mA (max,)
Flash Rate	Continuous, or
	2 Hz (SAB800)
	1 Hz (SAB801)
Ambient Temp	-10°C to +55°C
Relative Humidity	10% to 95% (n/cond)
CSIRO ActivFire Listed	pending
FPANZ Listed	VF/420
Part Number	SAB801

1. *MX* addressable loop voltage

SAM800 Sounder Addressable Module

The SAM800 Sounder Addressable Module is designed to be fitted to a normally passive sounder base to convert it to a fully programmable *MX* addressable sounder, without the need for a detector.

Specifications	
Operating Voltage[1]	20 to 40Vdc
Quiescent Current [2]	250µA (max.)
Alarm Current	3.25mA (max,)
Ambient Temp	-10°C to +55°C
Relative Humidity	10% to 95% (n/c)
CSIRO ActivFire Listed	pending
FPANZ Listed	VF/656
Part Numbers	SAM800

1. *MX* addressable loop voltage.
2. In addition to associated sounder/relay current.

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 c.i.e. 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 optionally 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).

Specifications	
Operating Voltage[1]	20 to 40Vdc*
Quiescent Current	450µA (max.)
Alarm Current	3mA (max, LED on)
Output Current	2A @ 30Vdc (max.)
Output ELD	27k Ohm 0.5W
External 24V Supply	18 to 28Vdc
Ambient Temp	-25 to +70°C
Relative Humidity	10% to 95% (n/cond)
CSIRO ActivFire Listed	afp-1446
FPANZ Listed	VF/644
Part Number	SNM800

1. *MX* addressable loop voltage

Mounting *MX* Modules

The *MX* range of Addressable Modules can be fitted to a double gang back box or a responder box. The double gang back boxes are available in PC/ABS or aluminium. The responder box is galvanised mild steel and is supplied pre-drilled for up to 4 *MX* modules, with 16 PCB standoffs

K2142 Double Gang Back Box

Specifications	
Dimensions (HWD)	87x148x14 mm
Material	PC/ABS
Part Numbers	
517.035.010	Plastic Back Box
517.035.011	Aluminium Back Box

M520 *MX* Module Cover

Specifications	
Dimensions (HWD)	87x148x14 mm
Material	PC/ABS
Part Number	M520

FP0529 Empty Responder Box showing *MX* modules fitted

Specifications	
Dimensions (HWD)	240x185x53 mm
Material	1.2mm Galv. Steel
Part Number	FP0529

801APK *MX* Service Tool Kit

The 801APK consists of the following:

- 801AP *MX* Service Tool
- Ancillary programming lead & spare pins
- 4 x rechargeable AA size NiMH batteries
- 240VAC Adaptor plus Lead
- 12Vdc car adaptor
- Hard Carry Case

The 801AP is used to program the address into *MX* addressable devices. It also displays information and performs tests on devices. It has a 32 character (2 rows of 16) backlit LCD alphanumeric display and four 'softkeys', F1, F2, F3 and F4. The 801AP has a finite 'life time' after which the software must be re-validated by an *MX* administrator. Power for the 801AP is derived from 4 AA size NiMH rechargeable batteries. It may be run from an unregulated +12Vdc input ie, car cigarette lighter connection or 110/230VAC mains adaptor, both of which will recharge the batteries as well.

Specifications	
Batteries	4xAA NiMH
Batt. Operating Time	up to 15 hours
Ambient Temp	0 to +50°C
Relative Humidity	10% to 90% (n/cond)
Dimensions[1] (HWD)	48x200x112mm
Weight[1]	500g incl. batteries
Part Numbers	
801APK	Service Tool Kit
516.800.922	Ancillary Lead
516.800.924	Ancillary Lead Spare Pins

1. For 801AP unit only

MX TECHNOLOGY® Analogue Addressable Detectors

814CH Carbon Monoxide and Heat Multi-sensor Detector

The 814CH is a state-of-the-art combined CO and heat detector that allows a full set of detection modes to be implemented in the *MX* fire alarm panels to suit most fire detection applications.
The 814CH is particularly well suited to areas and applications where smoke detector positioning is difficult or where smoke detectors are prone to false alarm. The 814CH uses a reliable electrochemical cell for the detection of CO. The integrated heat sensor monitors rate-of-rise and fixed temperature and has been tested as a stand alone heat detector. The 814CH can operate in a wide variety of applications where combined risks mean that heat or CO detection alone would be insufficient. The 814CH has all the features of *MX VIRTUAL* detectors including self verification, temperature and CO level indication and superior service functions.

Specifications

Operating Voltage[1]	20 to 40Vdc
Quiescent Current	275µA (typ.)
Alarm Current	10mA with LED on
Remote Indicator	Tyco E500 Mk2
Relative Humidity	15% to 90% (n/cond)
Ambient Temperature[2]	0°C to +50°C
Dimensions	109 dia x 43H mm
Weight	88g
CSIRO ActivFire Listed	afp-1425
FPANZ Listed	VF/337 [3]
Part Number	814CH

1. *MX* addressable loop voltage
2. The 814CH may be operated between 0 and – 20°C for short periods but with reduced performance
3. FPANZ listed as a heat detector as well as a multi-sensor fire detector.

814PH Photoelectric and Heat Multi-sensor Detector

The 814PH is a state-of-the-art smoke and heat detector which allows a full set of detection modes to be implemented in the *MX* fire alarm panel to suit most fire detection applications, including smoke management systems. The smoke sensor 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. A unique chamber cover actually draws slow moving smoke into the chamber to provide a more responsive detector. The heat sensor monitors rate-of-rise and fixed temperature and has been tested as a detector in its own right. The 814PH has all the features of *MX VIRTUAL* detectors including self verification, temperature and smoke level indication and superior service functions.

Specifications

Operating Voltage[1]	20 to 40Vdc
Quiescent Current	275µA (typ.)
Alarm Current	10mA with LED on
Remote Indicator	Tyco E500 Mk2
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-25°C to +70°C
Dimensions	109 dia x 43H mm
Weight	76g
CSIRO ActivFire Listed	afp-1424
FPANZ Listed	VF/335 [2]
Part Number	814PH

1. *MX* addressable loop voltage
2. FPANZ listed as a heat detector as well as a multi-sensor fire detector.

814P Photoelectric Smoke Detector

The 814P 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 814P 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.
The 814P has all the features of *MX VIRTUAL* detectors including self verification and smoke level indication and superior service functions.

Specifications

Operating Voltage[1]	20 to 40Vdc
Quiescent Current	275µA (typ.)
Alarm Current	10mA with LED on
Remote Indicator	Tyco E500 Mk2
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-25°C to +70°C
Dimensions	109 dia x 43H mm
Weight	76g
CSIRO ActivFire Listed	afp-1699
FPANZ Listed	VF/342
Part Number	516.800.517

1. *MX* addressable loop voltage

814H Heat Detector

The 814H is a flexible cost-effective addressable heat detector with most of the features of *MX VIRTUAL* detectors. The 814H returns the temperature to the *MX* fire alarm panel which allows various detection modes, including all AS 1603.1 Types and many AS 7240.5 classes, to be implemented. The 814H 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.

Specifications

Operating Voltage[1]	20 to 40Vdc
Quiescent Current	250µA (typ.)
Alarm Current	10mA with LED on
Remote Indicator	Tyco E500 Mk2
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-25°C to +70°C
Dimensions	109 dia x 43H mm
Weight	79g
CSIRO ActivFire Listed	afp-1427
FPANZ Listed	VF/213
Part Number	814HCTD

1. *MX* addressable loop voltage

814I Ionisation Smoke Detector

Tyco 814I detectors are offered for old specifications which still call for ionisation smoke detectors. The 814CH and 814PH detectors offer improved performance and lower false alarms for most smoke detection applications. The 814I nevertheless offers reliable detection of visible and invisible fire aerosols using a dual ionisation chamber in which the air is ionised by a single radioactive source. In combination with the SmartSense algorithm, the 814I provides early detection of hot smouldering and flaming fires, such as wood, paper etc. Warning: these detectors contain a small amount of radioactive material (typically <33.3kBq Americium 241). They are safe when used as prescribed. Handling, transport and disposal must be done in accordance with Health Department regulations.

Specifications

Operating Voltage[1]	20 to 40Vdc
Quiescent Current (typical)	330µA
Alarm Current (max.)	10mA with LED on
Radioactive Source	33.3kBq Am241
Remote Indicator	Tyco E500 Mk2
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-25°C to +70°C
Dimensions	109 dia x 43H mm
Weight	81g
CSIRO ActivFire Listed	afp-1426
FPANZ Listed	VF/336
Part Number	814I

1. *MX* addressable loop voltage

VLC-800*MX* LaserCOMPACT™

The VLC-800*MX* LaserCOMPACT detector has been specifically designed to provide all the benefits of aspirating smoke detection, including very early warning, in single small areas and where space is a premium. The VLC-800*MX* communicates directly with the *MX1* or MX4428 fire panel via the *MX* loop detecting smoke by using proven VESDA® aspirating technology, dual stage filtration technology in combination with the versatility of the MX4428 and *MX1*. The VLC-800*MX* utilises a standard VESDA® pipe design in accordance with the Aspire design tool.
Refer to the VESDA® section for accessories.

Specifications

External Supply	18 to 30Vdc
Quiescent Current	225mA
Alarm Current	245mA
Ambient Temp	
Sensor Ambient	-10°C to +39°C
Sampled Air	-20°C to +60°C
Relative Humidity	10% to 95% (n/cond)
Alarm Sensitivity	0.005 to 20%Obs/m
Coverage Area	800 m^2
Dimensions (HWD)	225x225x85mm
Weight	1.9 kg
CSIRO ActivFire Listed	afp-1580
FPANZ Listed	VF/341
Part Number	VLC-800MX

1841*MX* Manual Call Point

The 1841 manual call point is a break-glass switch designed to meet the requirements for manual call points in fire alarm systems as specified in NZS 4512 "Fire Detection and Alarm Systems in Buildings". Conventional and Series 130 Addressable versions are also available.

Specifications

Dimensions (HWD)	
Surface	130 x 130 x 67 mm
Flush	130 x 130 x 13 mm
Cable Entry (surface)	20mm Conduit thread
Protection	IP23 (Surface)
Colour	Red - NZS 7702 #537
FPANZ Listed	VF/646
Part Numbers	
FP0838	*MX* Flush "Wormald"
FP0839	*MX* Surface "Wormald"

D51*MX* Duct Sampling Unit

The D51*MX* consists of a D51 duct sampling housing fitted with a 5B base wired to suit an *MX* analogue addressable 814P or 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 D51*MX* 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 3 metre lengths. The Tyco E500 Mk2 Series Remote Indicators can be used for remote indication of an alarm.

Part Numbers

D51MX	Duct Sampling Unit
D51L	Baffle box of 10
D51F	Filter box of 10
FP09983	D51T3 3m Sampling Tube
D51K100	Sampling Tube End Cap (pkt of 10)

Specifications

Operating Voltage[1]	20 to 40Vdc
Quiescent Current	275µA (typ.)
Alarm Current	10mA with LED on
Duct Pressure[2]	-1.15 to +3.0 kPa
Duct air velocity for alarm at 8%Obs/m^2	1, 2, 4, 8m/s
Sampling Tube Length	160mm minimum
Max. Duct Width	1.8m
Remote Indicator	E500 Mk2 Series
Ambient Temp	-10°C to +55°C
Relative Humidity	10% to 95% (n/cond)
CSIRO ActivFire Listed[3]	afp-1496

1. *MX* addressable loop voltage
2. AS 1603.13-1998 test
3. Listed with 814PH

MX Loop Filter (Interference Suppression)

The MXP Loop Filter board is available for fitment to an MXP in order to further improve common-mode interference tolerance as may be required as a result of the *MX* detector loop not being adequately separated from power wiring, lift motors etc.

Part Number	
PA1038	MXP Loop Filter

MX Loop Tester

The *MX* Loop Tester can be used to test, commission and fault-find a loop of *MX* analogue addressable detectors and ancillary devices, without having to connect the loop to a fire panel. Up to 250 *MX* devices may be connected. One Person Installation Mode allows new devices to be installed and field tested to confirm operation. Addressing Mode automatically sets the addresses of any un-programmed device that is added. Walk Test Mode provides a fast alarm response. A laptop (running a terminal program) connected to the unit can be used for operation, display and additional tests and commands.

Specifications	
Power Source	24V batteries or 230VAC to 24V/3A plug pack
Dimensions[1] (HWD)	220x122x46mm
Dimensions[2] (HWD)	250x250x70mm
Weight [3]	2kg
Part Numbers[4]	
FP0898	Aus/NZ version
SU0256	AC Adaptor Plug Pack

1. Unit only 2. Carry Bag 3. Excluding batteries
4. FP0898 includes test unit, carry bag, 230VAC plug pack, manual and loom.

MX Detector Selection Chart

	Environment	**Very Clean and Dry**	**Benign Moderately Clean Regulated Temp.**	**Dirty - Smoky**	**Dusty and/or Humid**	**Hot and Smoky**	**Open Areas**
Fire Loading	For 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 - Hanger - Oil Rig - Turbine Hall
Electronic Equipment, Electrical Switchgear, Electric Motors, Cable, Conduit	Cable pyrolosis (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** **814CH** 814P/814PH	**814CH** 814P/814PH	**814CH** 814P/814PH	814CH 814H	**814CH** Flame Beam
Flammable Liquids, Paint, Solvent, 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 temps. once established.	—	**814CH** **814P/814PH** 814I	**814CH** 814H	**814CH** 814H	**814H** 814CH	**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 814CH 814P/814PH 814I Flame 814H	**814CH** **814P/814PH** 814I 814H Flame	**814CH** **814P/814PH** 814I Flame 814H	**814CH** 814P/814PH Flame	**814H** 814CH 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 optimal for reasons of performance or cost, but real situations may require a combination to cover likely risks. For further guidance, refer to NZS 4512:2003 Appendix H.

MX Detector Bases

5BI Isolator Base

The 5BI Isolator Base serves as both a base for an *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 5BI isolates the affected section whilst allowing the rest of the addressable loop to function normally. If a detector fitted to the 5BI exhibits a short circuit, the 5BI 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 5BI can accommodate one of the *MX* detectors, or serve as a base for an 814RB.

Specifications

Operating Voltage[1]	20 to 40Vdc
Quiescent Current	80µA (max.)
Tripped Current	3.5mA (max.)
IB Units between 5BI bases[2]	100 (max.)
Indoor Applications Only	
Ambient Temperature	-25°C to +70°C
Relative Humidity	10% to 95% (n/cond)
CSIRO ActivFire Listed with *MX* detectors	
FPANZ Listed	VF/650
Part Number	814IB

1. *MX* addressable loop voltage
2. Maximum number of devices between 5BI bases is limited to 40 for AS 1670.1-2004 systems.

814RB Relay Base

The 814RB Addressable Relay Base provides two sets of changeover volt-free relay contacts capable of switching 1A (resistive) @30Vdc. The relay function is controlled by the *MX* fire alarm panel via the detector fitted to the 814RB. The 814RB may be mounted directly to the ceiling or plugged into a 5B or M614 Universal Base or an 814IB/5BI Isolator Base.

Specifications

Operating Voltage[1]	20 to 40Vdc
Quiescent Current	50µA (max.)
Switching Current	1A @ 30Vdc max.
Indoor Applications Only	
Ambient Temperature	-10°C to +55°C
Relative Humidity	10% to 95% (n/cond)
CSIRO ActivFire Listed with *MX* detectors	
FPANZ Listed	VF/638
Part Number	814RB

1. *MX* addressable loop voltage

802SB/901SB Low Power Sounder Bases

The 802SB/901SB Addressable Sounder Bases provide a sounder function on *MX* addressable systems. Designed for indoor use, they require an associated detector in order to operate, as each base is controlled by its detector. The detector must be locked onto the sounder base using the detector locking device. Removal of the detector or loss of power to the loop will cause the sounder to cease sounding. It must be fixed to a flat ceiling or a suitable electrical backbox with 50mm fixing centres. The 802SB is identified by a white park clip and is loop powered. Up to fifty[1] 802SBs on the loop may be operated at full volume at any one time. The 901SB is identified by a blue park clip and requires an external 24Vdc supply. The *MX* loop will support up to two hundred[1] 901SBs on full volume.

The 802SB/901SB supports ISO8201 T3 tones.

Specifications

Operating Voltage[1]	20 to 40Vdc
Quiescent Current	200µA (max.)
Alarm Current	6.8mA (max. volume)
Sound Pressure Level	90dBA (max. volume)
Ambient Temp	-25°C to +70°C
Relative Humidity	10% to 95% (non cond.)
Devices per loop[2]	50 to 200
CSIRO ActivFire Listed with MX4428 (afp-1446)	
FPANZ Listed	
802SB	VF/421
901SB	VF/423
Part Numbers	
516.800.910	802SB Sounder Base
516.800.911	901SB Sounder Base

1. *MX* addressable loop voltage
2. Assuming all 802SBs operate simultaneously: 50 per loop (High volume); 200 (Low). Refer to relevant manual for design limits. Note that the 802/901SB cannot plug into a 5B Base or 5BI Isolator base.

814SB Sounder Base

The 814SB Addressable Sounder Base provides a sounder function on the *MX* addressable loop. It can generate one of three different tones at one of 3 different sound levels. These are set by controls inside the base. The sounder base is controlled by the MX4428 c.i.e. via the detector that is plugged into the base. The Sounder Base may be mounted directly to the ceiling as usual, or plugged into an existing 5B or M614 Universal Base or an 814IB/5BI Isolator Base.

Specifications

Operating Voltage[1]	20 to 40Vdc
Quiescent Current	400µA (max.)
Alarm Current	
Low Volume	9mA
Medium Volume	12mA
Full Volume	15mA
Sound Pressure Level	
Low Volume	70dBA
Medium Volume	80dBA
Full Volume	90dBA
Relative Humidity	10% to 95% (non cond.)
Ambient Temp	-25°C to +70°C
814SB per Loop[2]	24 (max. volume)
	30 (med. volume)
	40 (min. volume)
CSIRO ActivFire Listed with *MX* detectors	
FPANZ Listed	VF/637
Part Number	814SB

1. *MX* addressable loop voltage
2. Assuming all devices are same type. Refer to c.i.e. manual.

812SB Sounder Base

The 812SB Addressable Sounder Base provides a sounder function on the *MX* addressable loop. It can generate one of eight different tones including the ISO8201 Temporal 3 tone, selected using a 4-way DIL switch. The sounder base is controlled by the MX4428 c.i.e. via the detector that is plugged into the base. The Sounder Base may be mounted directly to the ceiling as usual, or plugged into a 5B or M614 Universal Base or an 814IB/5BI Isolator Base.

Specifications

Operating Voltage[1]	20 to 40Vdc
Quiescent Current	0µA
Alarm Current	24mA
Sound Pressure Level	90dBA
Relative Humidity	10% to 95% (non cond.)
Ambient Temp	-25°C to +70°C
812SB per Loop[2]	18
CSIRO ActivFire Listed	pending
FPANZ Listed	VF/422
Part Number	516.800.913

1. *MX* addressable loop voltage
1. Assuming all devices are same type. Refer to c.i.e. manual.

5B Universal Base

The 5B Universal Base contains no electronics and is suitable for indoor applications of the 614 series collective and 814 series *MX* analogue addressable detectors. It provides excellent space for cable access and terminations. Its larger skirt makes it suitable as a replacement for the earlier M614 base to cover any paint rims or covering a larger hole in the ceiling. It features remote LED connections and an anti-tamper facility.

Specifications

Operating Temp.	-25°C to +75°C
Relative Humidity	10% to 95% (non cond.)
Dimensions (mm)	127 dia x 24H
Weight	63g
CSIRO ActivFire Listed with compatible detectors	
Part Numbers	
517.050.017	5B Base

DHM-5B Deckhead Mounting

The Deckhead Mounting can be used with Tyco 600/800 Series using 5B 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 144mm 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	up to 95% (non cond.)
Dimensions (mm)	163 dia x 42H
Weight	200g
Protection	IP55
Part Numbers	
517.050.603	DHM-5B
517.050.612	BAT Kit - pack of 10 (available on request)

Tyco/Minerva Sounder Base Applications Table

Product Code	**577.001.035**	**516.800.910**	**814SB**	**516.800.911**	**812SB**
Description	601SB Conventional	802SB *MX* Low Power	814SB	901SB Universal	812SB
Fire Panel	Conventional only	*MX* Only	*MX* Only	*MX* Only	*MX* Only
Powered From	24Vdc	*MX* addressable loop	*MX* addressable loop	24Vdc	*MX* addressable loop
Detector required to Operate?	No	Yes	Yes	Yes	Yes
Park Clip Colour	Green	White	White	Blue	White
Current @ 68dBA (min. volume)	1.2mA	1.2mA	9mA	1.2mA	-
Current @ 90dBA (max. volume)	6.8mA	6.8mA	15mA	6.8mA	-
Current @ 90dBA (fixed volume)	-	-	-	-	24mA
Dutch Slow Sweep (7)	Yes	Yes	-	Yes	Yes
Temporal 4	Yes	Yes	-	Yes	Yes
Slow Sweep (3)	Yes	Yes	Yes*	Yes	Yes
March Time Beep (25)	Yes	Yes	-	Yes	Yes
March Time Beep (26)	-	-	-	-	-
Fast Sweep (2)	Yes	Yes	Yes**	Yes	Yes
Temporal 3 (ISO)	Yes	Yes	-	Yes	Yes
Alternating 2 (11)	Yes	Yes	-	Yes	-
Alternating 2 (9)	-	-	-	-	Yes
Continuous (14)	Yes	Yes	-	Yes	-
Continuous	-	-	Yes***	-	Yes

(2), (3), (7), (9), (14), (25), (26) = ROSHNI tone number * Slow sweep = 5 Hz **Fast Sweep = 15 Hz *** Continuous Sweep = 825 Hz

Note: New Zealand approvals are for local alerting only (e.g. Type 5, Healthcare, etc.)

MX4428 Addressable Responders

MXP Supports *MX* Addressable Device Technology

The MXP has two major functions:
(i) To provide an interface to an MX4428 responder (communications/power) loop, via which data gathered by the MXP may be transferred to the MX4428 Master for display, annunciation, and processing as appropriate.
(ii) 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 Master 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, etc.

The MXP is one printed circuit board (1901-213). The *MX* Protocol Responder supports up to 200 *MX* multi-sensor virtual detectors (Photoelectric and Heat, CO and Heat, Ionisation-only, Heat-only) and a range of functional bases, addressable callpoints, input modules, and output modules.

Part Numbers

FP0824	MXP Responder in box
PA0893	PCB Assy 1901-213 MXP Responder
LT0273	MX4428 MXP Technical/Eng Manual

ADR Supports Collective Detector range

FP0497 and FP0529 ADR, 1901-116 4mA Detector Current

The **PA0497** version of ADR is the only version suitable for general use in New Zealand. It supports four "smoke" circuits with short circuit defect. Indicating heat detectors are compatible with modification - refer to LT0126.

The **FP0755** and **PA0844** versions of ADR, typically used in Australia, are only suitable for special application in New Zealand (e.g. Intrinsically safe).

Part Numbers

PA0497	PCB 1901-116 ADR 4mA det. current
FP0529	Empty ADR box

For Special Applications:

FP0755	ADR-M 1901-198 4mA 15V MCP in box
PA0844	PCB 1901-200 ADR-M 2.5mA 3k3 EOL

Multi Protocol Responder (MPR)

The MPR has the following features:
* Supports Series 130 loop & devices
* Supports 2 wire loop/lines up to 2km in length
* Up to 198‡ addressable devices per loop
* Supports all addressable devices previously supported by the obsolete AAR:-
  - C7xA and P7xA smoke detectors
  - ADU002
  - ADU003A
  - ADU004A
  - ADU006
  - SCI-2 Short Circuit Isolators
* Supports Olsen Z54A Addressable Bases
* Improved Analogue Loop fault tolerance. An open circuit on either wire, anywhere on the loop, will not affect operation of the devices on the loop. Also, open circuit of either wire produces a single event
* Up to 32 MPRs per responder loop
* Single PCB construction for easier maintenance and installation
* PCB fits into F3200 card rack for high density mounting - eg. F4000 19" rack cabinet

The MPR is hardware and software compatible with the obsolete AAR (2 wire mode only), and can replace an AAR running in 2 wire loop (line) mode with no re-programming of the MX4428/F4000 panel.

‡ Up to 99 Detectors and 99 Devices

Part Numbers

FP0575	FP, MPR 1901-141 in box
PA0713	PCB Assy 1901-141 MPR
LT0139	MPR Technical Manual
LT0140	MPR Engineering Manual

Input/Output Responder (IOR)

The IOR is a single 32 Input/32 Output responder which draws its DC operating power from, and communicates with the MX4428 Fire Indicator Panel via the 4 wire responder loop. Connection to the MX4428 loop is via demountable screw terminals. Field connection of inputs/outputs is provided by screw terminals on separate termination boards. These connect to the IOR by 26-way Flat Ribbon Cables (FRCs) which must be ordered separately.

The IOR is configured by DIL switches for base address, number of equivalent ADRs, input type and number of output boards. The MX4428 Master is programmed as if the equivalent configuration of ADRs and Relay Responders (ARR) were present. The IOR inputs can be used for monitoring "clean contacts" open collectors or TTL outputs. The IOR outputs are open collector and can be used with an IOR Output Termination Board to switch LEDs, etc. Alternatively the IOR can connect directly to 16-Way Relay Boards. There is a nominal 650mA current limited 24V output to power the LEDs, relay coils, etc. Please note that current to drive these outputs is drawn off the responder loop, unless supplied externally.

PA0473 IOR Controller Board 1901-72

16-Way Relay Board (IOR)

PA0470 16-Way Relay Board 1901-64 c/w LM0056

The 16-way Relay Boards may be connected to either or both of the Output connectors on the IOR to provide 16 or 32 clean contact relay outputs. A 1.4m 26-way FRC (LM0056) is supplied with the relay board for connection to the IOR

FRC 26W Style B for IOR
LM0044,45,46,56

These assembled 26-way FRCs are available to connect the IOR to termination boards. Cables should be selected according to the particular mounting requirements. (See below for lengths).

Input and Output Termination Boards (IOR)

PA0474 IOR 32-Way Input Termination 1901-73-1

PA0475 IOR 32-Way Output Termination 1901-73-2

The IOR Input and Output Termination Boards allow termination of up to 1.5sq mm field wiring in screw terminals. The termination board is connected to the IOR using 26-way FRC (One FRC is required for each 16 circuits). The termination boards are available for 16 or 32 inputs or outputs. A 32-way termination board is the same size as a 16 way relay board and fits the same mounting hole pattern. A 16-way termination board is a 32-way board separated in half.

For more information, refer to the IO-NET section.

Part Numbers

Protected Termination Boards

PA0474	32W Input Protect. Term. Board
PA0475	32W Output Protect. Term. Board
PA0479	16W Input Termination Board (obtain by separating PA0474 in two)
PA0480	16W Output Termination Board (obtain by separating PA0475 in two)

Unprotected Termination Boards

PA0483	16W Unprotected Term.Bd, no resist.
PA0769	16W Unprotect. Term Bd c/w resist.

Looms & Cables

LM0044	FRC, 26W Style B, 2m
LM0045	FRC, 26W Style B, 5m
LM0046	FRC, 26W Style B, 0.5m
LM0056	FRC, 26W Style B, 1.4m

Responder Relay Module (RRM)

PA0453 RRM PCB 1901-15

The Responder Relay Module (RRM) is an optional add-on board to an ADR. When added 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 current limited 24V output (100mA), which may be used to power external equipment, as long as it is wired through NO relay contacts.

The RRM must be used on ADRs with software versions V1.01 or greater, to provide RRM present monitoring.

Part Number

PA0453	PCB Assy 1901-15 RRM

MX4428/F4000 Loop Booster

The MX4428/F4000 Loop Booster overcomes problems such as Responder loop voltage drop and excessive loop length that would otherwise necessitiate a restriction in responders or the use of thicker loop cable.
By providing additional power supply capacity to an MX4428/F4000 loop, the Loop Booster is a practical and cost-effective means of overcoming these problems, thus enabling extension of the loop length, additional Responders, or smaller cable size to be used. In fact, one loop Booster will allow three times the loop current, loop length, or 1/3 the cable resistance. The use of Loop Boosters in an MX4428/F4000 system completely overcomes loop voltage drop as a practical limit to system size and allows a loop to be extended until the 127 Responder limit is reached.
The Loop Booster contains its own batteries and charger and when placed in the loop, provides power to a section of the loop and monitors the other. If the voltage on the monitored side falls below 17.0V then the Loop Booster supplies power to this leg as well. It checks at regular intervals to see if the normally monitored leg can self-establish a voltage of greater than 17.0V.
The Loop Booster has an ADR and RRM built into it allowing fault and control signals to be conveyed to and from the FIP via the Loop communications. The Loop Booster is able to perform a local battery test and to energise the power supply for the monitored leg of the loop. It can transmit signals to the FIP (e.g. battery test fail, battery low, battery fail and/or charger fault) as well as a monitored leg voltage fail. Remote activation of the battery test and loop relay can be carried out at the FIP by using an ACZ and suitable output logic equations.

Specifications

Power	240 VAC +6%, -10% 50Hz, 150W
Battery Requirements	As per FIP
Operating Temperature	-5 °C to +45 °C
Relative Humidity	10% to 90% (n/cond)
Operating Currents	
Booster Board	40 mA nominal
Indicators	8 mA per LED
Output Relay Rating	5 A (Emergency Feed)
Output Terminals [1]	
+VNBF	27V nom, 1.6A fuse not battery backed
+VBF	27V nom, 1.6A fuse battery backed[2]
Material	1.6mm mild steel
Finish	Cream Wrinkle powdercoat
Dimensions (HWD)	680x470x167mm
Weight	16 kg (no batteries)
Max. Battery Size (HWD)	170x165x125mm (for each battery)

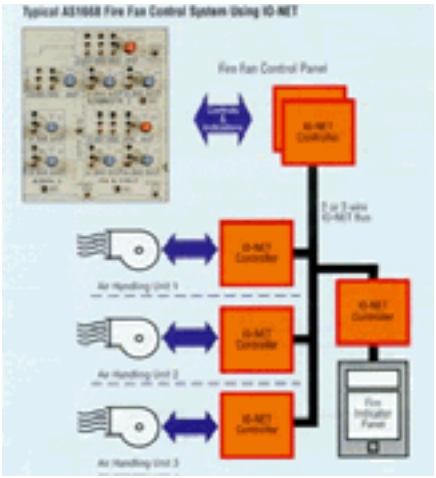
Part Numbers

PA0463	PCB Loop Booster 1901-35
FP0487	Loop Booster 1901-36
LT0377	Loop Booster Manual

1. Outputs for wiring to relay contacts etc.
2. Battery charging capability is determined by:-
   - Booster operating current
   - ADR loop current
   - other standing loads

IO-NET Programmable Control System

IO-NET Programmable Control System



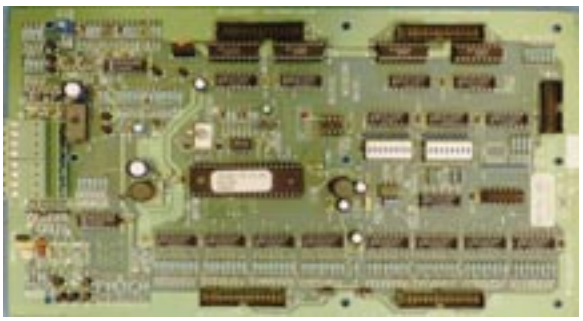
The IO-NET programmable controller is a stand-alone or networkable unit that can be used to provide similar functions to a traditional logic controller. It can also be programmed to monitor the F3200/MX4428 RZDU protocol or provide versatile AS1668 air-handling control and indication functions. Multiple IO-NET units may be connected together (2-wire bus) to provide low cost point-to-point or distributed telemetry for multiple locations. IO-NET can support at least 32 controllers on a 1mm^2 line up to 3km long. Modem and fibre optic options allow operation over longer distances or in "noisy" environments. The 32 inputs at each IO-NET module are transmitted to its pair for output on the 32 outputs, giving bi-directional transfer of information over the 2 wires. Multiple pairs may in fact be placed on the same physical 2 wires to save on cabling costs for large systems and allow easy expansion of existing systems.

This default mode of operation will only require setting up the DIP switches on the IOR, no factory or on-site programming is required.

Part Numbers

PA0498	PCB 1901-117 IO-NET Controller
PA0474	PCB 1901-73-1 IO-NET 32W Input
PA0475	PCB 1901-73-2 IO-NET 32W Output
PA0481	PCB 1904-100 RZDU/RS232 I/F
PA0483	PCB 1901-103 IOR Unprotected Term
PA0470	PCB 1901-64 16W Relay board
PA0700	PCB 1901-120 IO-NET Programmer
PA0769	PCB 16W Unprotected Term. & resistors
SF0239	IO-NET Controller software V2.01
LM0044	FRC 26W Style B, 2m
LM0045	FRC 26W Style B, 5m
LM0046	FRC 26W Style B, 0.5m
LM0056	FRC 26W Style B, 1.4m
LT0115	IO-NET User's Manual
ME0088	IOR/IO-NET Cabinet

IO-NET Controller



PA0498 IO-NET Controller

Each IO-NET Controller has 32 digital inputs and can provide up to 32 programmable outputs. From this starting point the system can be expanded up to a maximum of 128 Controllers on one IO-NET communications network. At least 32 Controllers can be supported on a 1mm^2 pair up to 3 km long.

Specifications

Dimensions	270x165x25 mm
Weight	310g
Power Supply	24Vdc

Part Numbers

PA0498	PCB 1901-117 IO-NET Controller
SF0239	IO-NET Controller Software V2.01 (replacement when program memory becomes full)

IO-NET Programming Unit

The IO-NET Programming Unit transfers the program to the IO-NET Controller PROMs. The Programming Unit is supplied complete with a cable to connect to a PC, the compiler programming software and the user manual.
An external 24Vdc supply is required.
IO-NET is also able to be programmed using SmartConfig Version 1.6 onwards. If the IO-NET site specific configuration is stored in read-only memory. It may be re-programmed multiple times before requiring replacement (SF0239).

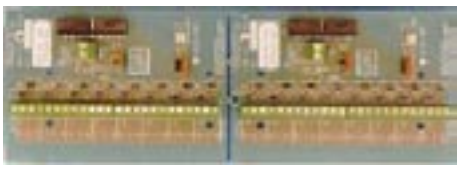
Specifications	
Dimensions (mm)	240 x 180 x 50 (LWH)
Weight	700g
Part Numbers	
PA0700	IO-NET Programmer
SF0239	IO-Net Controller Software V2.01 (replacement when full)

IO-NET 16-Way and 32-Way Protected Termination Boards

The 16 Input and 32 Input, along with the 16 and 32 Output Protected Termination Boards are used for connecting field wiring to the IO-NET Controller. These termination boards include transient suppression components to protect the IO-NET from electrical transients. They must be used to terminate all IO-NET Controller cabling that extends beyond the IO-NET enclosure. The termination board is connected to the IOR using 26-way FRC (One FRC is required for each 16 circuits).

PA0474 IO-NET 32W Input

Specifications	
Cable Termination	1.5mm^2 max.
Dimensions	
32-Way	270 x 93 x 23 mm
16-Way	135 x 93 x 23 mm
Weight	
32-Way	200g
16-Way	100g
Part Numbers	
PA0474	32W Input Protect. Bd
PA0475	32W Output Prot. Bd
PA0479	16W Input Term. Bd (obtain by separating PA0474 in two)
PA0480	16W Output Term. Bd (obtain by separating PA0475 in two)



PA0475 IO-NET 32W Output

IO-NET 16-Way Unprotected Termination Boards

PA0483

PA0769

Unprotected Termination Boards are small printed circuit boards providing direct screw terminations for 16 inputs or 16 outputs of an IO-NET Controller. No transient protection is provided so these boards should only be used where the wiring is not extended beyond the IO-NET Controller enclosure. Typical uses include connection of mimic indicators and control panel switches to an IO-NET Controller. A version of this board is available for connection to LEDs without their own current limiting. The current limiting 3k3 series resistors sets the current to approximately 7 mA from 24Vdc. High efficiency LEDs must be used.

Specifications	
Cable Termination	1.5mm^2 max.
Dimensions	69 x 46 x 18 mm
Weight	100g
Part Numbers	
PA0483	16W Unprotected Term. Bd, no resistors
PA0769	16W Unprotect. Term Bd c/w resistors.

IO-NET 16-Way Relay Board

The 16-Way Relay Board has the same physical dimensions and footprint as the 32 Way Protected Termination Board. It comes complete with a 1.4 metre 26-way flat ribbon cable (LM0056) for connection to one of the IO-NET output connectors.

Specifications	
Relay Coil Current	12mA @ 24 Vdc
Relay Contacts	30V 2A resistive, 1A inductive
Contact Configuration	Single pole, changeover
Cable Termination	1.5mm^2 max.
Dimensions	270 x 93 x 25 mm
Weight	350g
Part Number	
PA0470	PCB 1901-64 16W Relay board

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 fire alarm panel.

Specifications	
Operating Voltage	17 to 30 Vdc
Operating Current	5mA
Dimensions	104 x 72 x 23 mm
Weight	100g
Part Number	
PA0481	PCB 1904-100 RZDU/RS232 I/F

Analogue Addressable 130 Series Detectors

The 130 series are a range of low-profile Analogue Addressable fire detectors. These unobtrusively-styled detectors have a number of unique design features to improve their operation, installation and ease of servicing. Using the Vigilant MX4428, up to 99 detectors and 99 modules can be supported per MPR, with analogue addressable loop length up to 2000 metres. The advanced SmartSense Algorithm, unique to MX4428, significantly reduces response to non-fire phenomena. The detector address is set by rotary decade switches on the back of the detector. Two indicating LEDs can be programmed via the FIP to blink as the detector is polled and show constant red when in alarm.

C131A Ion Smoke

The C131A dual-chamber ionisation smoke detector contains a state-of-the-art sensing chamber and analogue communication electronics. Used in conjunction with the Vigilant MX4428 panel, the C131A has a high degree of false alarm immunity thanks to the advanced SmartSense algorithms.
The detector mounts on the Z131A or Z132A base and is designed to provide open area protection. Two LEDs on each detector illuminate during alarm to provide 360° alarm indication. An optional remote LED can also be fitted
The indented circle on the cover of the C131A differentiates it from the visually similar P131A.

Specifications	
Operating Voltage	15 to 28Vdc
Quiescent Current (max.)	250µA
Alarm Current (max.)	10mA
External Output Drive (max.)	5mA
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-5°C to +45°C
Weight	160g
Remote Indicator	E500 Mk2 Series
CSIRO ActivFire Listed	afp-957
FPANZ Listed	VF/301
Part Number	
SS0699	C131A Analogue Ion

P131A Photoelectric Smoke

The P131A photoelectric smoke detector contains a state-of-the-art sensing chamber and analogue communication electronics. Used in conjunction with the Vigilant MX4428 panel, the P131A has a high degree of false alarm immunity thanks to the advanced SmartSense algorithms.

The detector mounts on the Z131A or Z132A base and is designed to provide open area protection. Two LEDs on each detector illuminate during alarm to provide 360° alarm indication. An optional remote LED can also be fitted.

Specifications	
Operating Voltage	15 to 28Vdc
Quiescent Current (max.)	250µA
Alarm Current (max.)	10mA
External Output Drive (max.)	5mA
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-5°C to +45°C
Weight	170g
Remote Indicator	E500 Mk2 Series
CSIRO ActivFire Listed	afp-956
FPANZ Listed	VF/302
Part Number	
SS0698	P131A Analogue Photo

T131A Heat

The T131A heat detector is a state-of-the-art dual thermistor detector with analogue communication electronics. Used in conjunction with the Vigilant MX4428 panel, the T131A has a high degree of false alarm immunity thanks to the advanced SmartSense algorithms. It is panel programmable to either Type A (with Rate Of Rise) orType B (fixed temperature only) to maximise system design flexibility.
The detector mounts on the Z131A or Z132A base and is designed to provide open area protection. Two LEDs on each detector illuminate during alarm to provide 360° alarm indication. An optional remote LED can also be fitted.

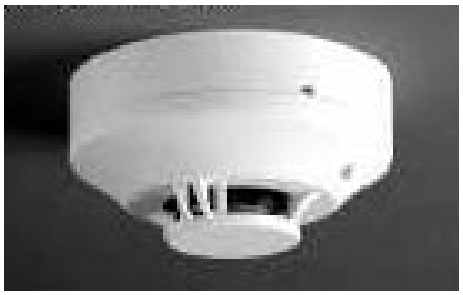
Specifications	
Operating Voltage	15 to 28Vdc
Quiescent Current (max.)	250µA
Alarm Current (max.)	10mA
External Output Drive (max.)	5mA
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-5°C to +45°C
Weight	140g
Remote Indicator	E500 Mk2 Series
CSIRO ActivFire Listed	afp-955
FPANZ Listed	VF/205
Part Number	
SS0697	T131A Analogue Thermal

P132A Laser Smoke

The P132A Addressable Laser Smoke Detector is a very high sensitivity smoke detector that utilises a laser photoelectric sensing chamber, providing significant improvements in signal-to-noise ratio compared with an LED light source. The detector is designed to provide open area detection for clean environments, or cubicle detection for high value equipment. The P132A Laser mounts to the Z131A base or Z132A Sounder Base, both of which incorporate a tamper resistance feature that can prevent removal of the detector without the use of a tool.

Specifications	
Operating Voltage	15 to 32Vdc
Quiescent Current	230µA to 330µA
Alarm Current (LED on)	6.5mA (max.)
Relative Humidity	10% to 93% (n/cond)
Ambient Temperature	0 to +40°C
Weight	150g
Dimensions	155 dia x 89 H mm
Sensitivity	0.6% to 4.5% Obs/m
CSIRO ActivFire Listed	afp-1438
FPANZ Listed	VF/334
Part Number	
LZR1M	P132A Analogue Laser

P135A/2251TMB Acclimate™



The P135A/2251TMB is a photoelectric smoke detector with supplementary 57°C thermal. The Acclimate™ uses advanced on-board software to combine the signals from the photo and thermal elements. This software creates a true multicriteria detector capable of rejecting nuisance sources, but still responding quickly to real fires. It has the capability of adjusting its sensitivity according to the type of environment that it is installed in.

Specifications	
Operating Voltage	15 to 32 Vdc peak
Quiescent Current (max.)	300 µA @ 24 Vdc
Alarm Current (max.)	10 mA @ 24 Vdc (on)
Dimensions (H x dia)	51 x 155 mm
Weight	147 g
Ambient Temperature	0°C to 38°C
Relative Humidity	10% to 93% (n/cond)
UL Listed Velocity Range	0 to 20 m/s (suitable for installation in ducts)
FPANZ Listed	SS/351
Part Number	
2251TMB	Acclimate Multi-Sensor

Z132A Sounder Base

The Z132A Sounder Base provides mounting facilities and an inbuilt audible alarm for the 130 Series detectors. The sounder actuates whenever its associated detector enters an alarm state, providing a 90dB signal at a distance of 3 metres. To ensure that the sounder operation does not interfere with normal detector operation, the Z132A requires a separate 24Vdc supply that is electrically and physically separated from the detector supply. For supervision of the 24V line, an ADM131 Monitor Module and 24V relay may be used. For activation of a group of sounders from any one group of detectors, an ADC130 Control Module and 24V relay is used.

Specifications	
Sounder Supply Voltage	17 to 32Vdc
Sounder On Current	15mA
Sounder Off Current	1mA
Loop Current (quiescent)	nil
Loop Current (alarm)	700µA
Quiescent Current (max.)	250µA
Sounder Output	90dBA at 3m
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-5°C to +45°C
Dimensions (H x dia)	57 x 152 mm
Weight	187g
CSIRO ActivFire Listed with 130 series detectors	
FPANZ Listed	VF/413
Part Number	
SS0778	Z132A Sounder Base

130 Series Detector Bases

The **Z131A** Detector Base should be mounted on a flat surface with suitable fasteners.

Specifications	
Dimensions (H x dia)	20 x 102 mm
Weight	152g
Part Number	
SS0777	Z131A Analogue Detector Base

D51Z131 Duct Sampling Unit

The D51Z131 Duct Sampling Unit consists of a D51B duct housing fitted with a Z131 base in readiness for fitting an analogue addressable P131A photoelectric smoke detector. The DSU is designed to sample air in air conditioning ducts and pass the air through the smoke detector. The D51Z131 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 3 metre lengths. The Tyco E500 Mk2 Series Remote Indicators can be used for remote indication of an alarm.

Specifications	
Duct Pressure*	-1.15 to +3.0 kPa
Sampling Tube Length	160mm minimum
Max. Duct Width	1.8m
Remote Indicator	E500 Mk2 Series
Ambient Temperature	-5° to +45°C
Relative Humidity	10% to 95% (non-cond.)
Not CSIRO ActivFire Listed	
Part Numbers	
FP0999	D51Z131 Z131 base fitted
D51L	Baffle box of 10
D51F	Filter box of 10
FP09983	D51T3 3m Sampling Tube
D51K100	Sampling Tube End Cap (packet of 10)

*AS 1603.13-1998 test

1841 Series 130 Manual Call Point

The 1841 manual call point is a break-glass switch designed to meet the requirements for manual call points in fire alarm systems as specified in NZS 4512 "Fire Detection and Alarm Systems in Buildings". Conventional and *MX* Addressable versions are also available.

Specifications	
Dimensions (HWD)	
Surface	130 x 130 x 67 mm
Flush	130 x 130 x 13 mm
Cable Entry (surface)	20mm Conduit thread
Protection	IP23 (Surface)
Colour	Red - NZS 7702 #537
FPANZ Listed	VF/610
Part Numbers	
FP0667	Series 130 Flush
FP0668	Series 130 Surface

Analogue Addressable 130 Series Modules

ADS130 Short Circuit Isolator

The ADS130 short circuit isolator protects MPR analogue addressable loops against short circuits. When a loop short circuit occurs between ADS130s they disconnect the section of the cable containing the short, allowing the rest of the loop to continue to function. ADS130s are usually placed between zones so that a short circuit will affect only one zone and any loss of detection capability will be minimised. The ADS130 isolators automatically connect the loop at power-up and after removal of a short circuit. An inbuilt yellow LED provides a visual indication of isolator status.

Specifications	
Operating Voltage	15 to 32Vdc
Quiescent Current (max.)	300µA @ 24Vdc
Supply Current (shorted o/p)	11mA
ADS130s per MPR	15 max.
Max. no. Devices betw'n ADS	25
Humidity	10% to 95% (n/cond)
Ambient Temperature	-5°C to +45°C
Weight	140g
CSIRO ActivFire Listed	afp-1446
FPANZ Listed	SS/605
Part Number	ADS130

ADC130 Control Module

The ADC130 Control Module is used to switch external loads. The ADC130 has two modes of operation. In switched supply mode, it switches an external power source through supervised wiring to a load. By using an external relay, the power supply can also be supervised. In isolated relay mode, the module provides an isolated SPST relay.

The ADC130 incorporates a magnet-actuated test that checks the operation of the module's electronics and fire panel interface. An inbuilt LED provides indication of module status. The fascia plate provides an aesthetic cover for the module when it is surface mounted.

Specifications	
Operating Voltage	18 to 28Vdc
Quiescent Current (max.)	250µA
Supply Current (max.)	6mA
Relay Contact Rating (max.)	
Resistive	2A 30Vdc
Inductive	1A 30Vdc
100V Audio Line	30 watts
Supervised Line Length	100m
Cable Size	1 to 4 mm^2
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-5°C to +45°C
Weight	140g
CSIRO ActivFire Listed	afp-1446
FPANZ Listed	SS/604
Part Number	ADC130

ADM130 Monitor Module

The ADM130 is an addressable input module that allows the connection of hard contact detection devices. The module's two wire input is supervised for faults. An LED indicator allows visual monitoring of the module's status. The ADM130 incorporates a magnet actuated test that checks the operation of the module's electronics and fire panel interface.An output is provided for connection to a remote LED indicator. Suitable remote indicators allow visual indication of the module's alarm status

Specifications	
Operating Voltage	18 to 28Vdc
Quiescent Current (max.)	250µA
Alarm Current (max.)	10mA
External Output Drive	5mA max.
Supervised Line Length	100m max.
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-5°C to +45°C
Weight	130g
CSIRO ActivFire Listed	afp-1446
FPANZ Listed	SS/601
Part Number	ADM130

ADM131 Mini Monitor Module

The ADM131 is an addressable input module that allows the connection of hard contact detection devices.

The module's two wire zone input is supervised for faults. The ADM131 is easily addressed using two robust rotary switches.

Specifications	
Operating Voltage	18 to 28Vdc
Quiescent Current (max.)	250µA
Supervised Line Length	100m max.
Lead Length	150mm
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-5°C to +45°C
Weight	35g
CSIRO ActivFire Listed	afp-1446
FPANZ Listed	SS/602
Part Number	ADM131

ADM133 Micro Monitor Module

The ADM133 is an addressable input module that allows the connection of hard contact detection devices.

The module's two wire input is supervised for faults. An output is provided for connection to a remote LED indicator. Suitable remote indicators allow visual indication of the module's alarm status.

Specifications	
Operating Voltage	18 to 28Vdc
Quiescent Current (max.)	250µA
Alarm Current (max.)	6mA
Supervised Line Length	100m max.
Lead Length	150mm
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-5°C to +45°C
Weight	35g
CSIRO ActivFire Listed	afp-1446
FPANZ Listed	SS/603
Part Number	ADM133

Detector Accessories & 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. (Refer 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 (Rev 2) 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 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 the normal condition. 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 – thus resetting them as well.

Wire Guard

Detector cages are available in a range of sizes to cater for most of the detectors that are available through Tyco Safety Products. These protective cages are suitable for applications where unprotected devices would be vulnerable to accidental damage.

Part Numbers

FA0129	95mm dia x 65mm deep (V*IGIL*)
WA1000	200mm dia x 85mm deep (Bell)
WA1002	120mm dia x 90mm deep

Round Remote Indicators

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

Specifications

Operating Voltage	4.5 to 30Vdc
Alarm Current (min.)	1.6mA
Alarm Current (max.)	25mA@45°C 15mA@75°C
Luminous Intensity	as per AS2362.25
Dimensions (H x Dia)	14 (+5 for LED) x 72 mm
Mounting	2x Ø4.8 holes @ 50 mm centres
Relative Humidity	10% to 95% (n/cond)
Ambient Temperature	-5°C to +75°C

Part Number

E521	Fire Alarm in Concealed Space

Fire Panel Spares & Ancillaries

Key Switches

SW0018 3 Position keyswitch - includes 003 keys

HW0040 Cam-Lock - includes 003 keys

Bulgin Key Switches

Part Numbers

SW0012	1-Pole key unremoveable in operated position
SW0078	2-Pole key unremoveable in operated position
SW0093	2-Pole key removeable in any position
SW0117	1-Pole key removeable in any position
HW0213	Spare key (included in all parts above)

Note: All switches have changeover contacts.

ME0433 TEV Plate

ME0433 consists of a set of (Trial) Evacuation and Silence Alarms 2-pole 2-way Bulgin keyswitches, pre-assembled and wired on a labelled metal plate. Both of these switches have their key removable in one position only to comply with NZS 4512: 2003. The unit is designed to directly replace the MCP blanking plate in the standard 15U MX4428 configuration, but could also be used in other cabinet configurations, or be mounted directly to an index.

Specifications

Cable Length	1 m
Dimensions	80 x 80 x 35 mm (HWD)
Part Number	
ME0433	T/Evac and Silence Alarm Switch on Plate

V-Modem

V-Modem is an intelligent RS232 2400 baud modem that can be programmed to operate over either dial-up PSTN (Public Switched Telephone Network) lines or leased lines. It is designed to allow fire alarm equipment that is normally connected using RS232, RS485 or similar to operate over much longer distances, or to be remotely accessed via a dial-up PSTN connection.

A range of special V-Modems are available to provide signalling of up to 7 voltage free signals from one location to another (point to point). These consist of a sender (with inputs) and a receiver (with relay outputs) and operate over different types of communication media. These may be supplied under other part numbers as they may be built up in cabinets with PSUs, etc.
The sender SM0247 and its receiver SM0248, sends 6 inputs to 6 relays, PF input to relay, comms fail output at sender and receiver. It uses built-in VF modem and requires a 2-wire full duplex (bi-directional) link using copper wire, leased line or other derived audio circuit.
The sender SM0278 and its receiver SM0279, sends 6 inputs to 6 relays plus comms fail output at receiver. It uses RS232 port, requires single direction (Sender to Receiver) link using RS232, RS485, fibre optic cable, or a derived RS232 link that supports 9600 baud, 8 data bits plus even parity. SM0278/ SM0279 each include an OSD139AF Fibre Modem.

Specifications

Operating Voltage	9.5 to 29Vdc
Power Consumption	1.2W
Operating Current	50mA @24V, 100mA @ 12V
Inputs/Outputs	
Serial	RS-232, RJ-45 19200/9600/4800/2400 /1200 8, no parity, 1 stop
Modem	RJ11, 2400 baud
Operating Temp	-5°C to +45°C
Relative Humidity	< 95% (non-cond.)
Dimensions	100 x 174 x 78 mm (HWD)
FPANZ Listed	VF/633
Part Number	
FP0778	V-Modem
LM0164	Loom RJ45 to DB25M 2.5m
LM0165	Loom DB25F to DB9F 2m
LM0166	Loom RJ45 to DB9F 2.5m
LM0168	Loom DB9M to 4W Molex
LT0243	V-Modem User's Manual
SM0247	V-Modem Special 6 I/P
SM0248	V-Modem Special 6 O/P
SM0278	V-Modem Special 6 I/P F/O
SM0279	V-Modem Special 6 O/P F/O

Telepager Interface (TPI)

The Telepager Interface (TPI) receives alarm and fault events from a fire panel, or from 16 digital inputs, and selectively generates text messages to alphanumeric pagers or text message capable (SMS) mobile phones to notify users of the events.
Programming determines which zone events to send to which users.

Features

- Connects to *MX1*, F3200, F4000, MX4428, NDU, NLDU or PTM via RZDU port
- 16 Digital Inputs
- Automatically sends text messages on panel or input changes of state
- Unrecognised strings can be sent to specially mapped agents
- Supports alphanumeric pagers and SMS-capable cell phones
- In-built GSM or CDMA data modem, or external modem, or direct connection to paging system
- Uses PET/TAP protocol to paging system
- Dial-in access for programming and diagnostics
- Different zone events can be sent to different users
- 60 users on pagers/cell phones
- Available as packaged unit with mains PSU or radio data modem, or board set
- Valid SIM card & coverage req'd for GSM version
- Billing acct & coverage req'd for CDMA version

Specifications

PSU Mains Voltage	240Vac (50 Hz) (+6%, -10%)
Power Consumption	(mains) 5W
Nom. Output Voltage	(+V) 13.7V
Nom. +VNB Voltage	14.4V
Quiescent Current	95mA (typ) battery (mains off)
CDMA/GSM ext. PSU	10-28Vdc 480mA
Dimensions (HWD)	295x240x80 mm
Part Numbers	
FP0711	TPI in cabinet, c/w PSU, no modem
FP0867	TPI in cabinet c/w GSM phone, no PSU
FP0942	TPI in cabinet c/w CDMA phone, no PSU
PA0640	TPI PCB only
PA0790	16-way clean contact input board

RS485 Network Interface

PA0711 RS485 Comms PCB 1901-139-1 Plug-on (Modem connection to MX4428 Main Board - external power). The PA0711 can be used to interface an MX4428 FIP with the RS485 network. The board is mounted on the modem connector, located at the top of the MX4428 Main Board.

PA0712 RS485 to RS232 PCB 1901-139-2 (RS232 to RS485 - external power). It 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 which have RS232 serial ports (eg between the F4000 printer port and the printer). It can also be used to interface a PC with the RS485 network. It comes with LM0065, a 500mm long cable with both RS232 DB9 socket and plug fitted.

Specifications

	PA0711	PA0712	PA0773
Operating. Voltage			
Ext.24V	8.5 to 30Vdc		-
J2 5V		4.8 to 5.2Vdc	
Quiescent Current			
RX only 24V	24mA	26mA	-
RX only 5V	2mA	26mA	26mA
TX act. 24V	50mA	75mA	-
TX act. 5V	25mA	75mA	75mA
Relative Humidity	10% to 95% (n/cond)		
Ambient Temperature	-5°C to +75°C		
FPANZ Listed		VF/636	
Dims (mm)	130x50	156x50	156x50

Part Numbers

PA0711	RS485 PCB Plug-on (ext pwr)
PA0712	RS485 to RS232 (ext pwr)
PA0773	RS485 CMOS FRC only

PA0773 RS485 Comms CMOS PCB 1901-139-3 FRC Only (FRC connection - including power). The PA0773 is used to interface an F3200 FIP, MX4428 FIP, PTM, NLDU, MODBUS BRIDGE, RDU or NDU with the RS485 network. This RS485 Communication Board is mounted on four metal stand-offs, which are used for earthing the PCB. This RS485 board connects to the controller board via a 10 way FRC (LM0172 included in kit), which is also used to power the RS485 Board.

I-HUB

The I-HUB performs bridging and routing functions for devices on the 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 & 2 are 2 or 4 wire RS485, Ports 3 & 4 are RS232. Port 5 is a TTL level serial port.

PA0839 Panel-Link I-HUB PCB

Specifications

Operating Voltage	9.6 to 28Vdc
Operating Current	140mA (9.6V) to 85mA (28V)
Ambient Temp	-5°C to +45°C
Relative Humidity	0 to 95% (non/cond)
Dimensions (mm)	265 x 95 x 25 (LWH)
Weight	0.25kg
FPANZ Listed	VF/634

I-HUB Ordering Codes

FP0770 1931-102, NDU to Ring NET upgrade kit PA0839 mounted on deeper backplate, LM0152, LM0065, mounting hardware.
FP0771 MX4428/F3200, Ring NET upgrade kit Includes PA0839 on DIN rail, LM0151, LM0152, LM0065. Note an F3200 may require an IC0358 to be fitted to U13.
PA0839 PCB assy, 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 bd, TTL
PA0868 PCB 1931-110, CMOS RS232 interface
PA0878 PCB 1931-118, CMOS/TTL signal splitter
PA0880 PCB 1931-119, DB25 to 10 way FRC Includes a zener diode, dropping resistor for PSU.
LM0065 10-way FRC connector to DB9M & 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

MODBUS Bridge (MBB)

The Modbus Bridge (MBB) is designed to translate data from an IO-NET network and/or MX4428/F3200 fire alarm panel RZDU output to a Modbus communication line. It does so by monitoring the IO-NET network and/or the MX4428/F3200 panel, as appropriate, and storing the information it receives in its database. The bridge is also able to send data received from the MODBUS master onto the IO-NET network, to enable the MODBUS master to control outputs on IO-NET controllers. It is available packaged in a cabinet or as a board set for incorporation into other equipment. MODBUS communications options are RS232 or RS485.

Specifications

Operating Voltage	19 to 28.5Vdc
Operating Current	25mA (RS232) 50mA (RS485)
Ambient Temp	-5°C to +45°C
Relative Humidity	0 to 95% (non/cond)
Dimensions (mm)	450 x 280 x 80 (LWH)
Weight	4kg

Part Numbers

FP0675	MODBUS Bridge, RS232
FP0705	MODBUS Bridge, RS232 set
FP0706	MODBUS Bridge, RS485
FP0707	MODBUS Bridge, RS485 set
SF0144	S/w, MODBUS Bridge, V1.02
SF0220	S/w, MODBUS Bridge, IO-NET I/F V2.01

Panel-Link MODBUS Bridge (PMB)

The Panel-link Modbus Bridge (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 Modbus master 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 has 16 I/O ports which can be read and written to by the Modbus Master. The PMB is available as a standalone circuit board or in a cabinet complete with power supply. Modbus communications is RS232 as standard, with RS485 as an option (KT0144).

Specifications

Operating Voltage	230Vac 5W (FP0699) 9.6 to 28Vdc (PCB only)
Operating Current	135mA (9.6V) to 85mA (28V)
Ambient Temp	-5°C to +45°C
Relative Humidity	0 to 95% (non/cond)
Dimensions (mm)	265 x 95 x 25 (PCB only) 450 x 280 x 80 (FP0699)
Weight	4kg (FP0699) 0.25kg (PCB only)

Part Numbers

FP0699	PMB c/w PSU
PA0639	PCB ECM9603 PMB
SF0165	S/ware PMB V1.22 EPROM
KT0144	Kit PMB RS485 Module
PA0790	PCB 16-way I/O Board

Network LED Display Unit (NLDU)

The NLDU/PLB has multiple functions. It can operate as a bridge between a Panel-Link network and remote MX4428 panel connected to the NLDU via modems and a 4-wire leased circuit; it can display the status of network zones on LED display boards; it can perform network system event printing; it provides an "RZDU protocol" serial output on which it transmits the status of its LEDs or a logical combination of zone states. A single NLDU device may perform some or all of these functions simultaneously.

Specifications

Operating Voltage	24Vdc
Operating Current	150mA (excluding LEDs)
Dimensions (mm)	446 x 276 x 65 (pkgd)

Part Numbers

FP0695 NLDU Board Set, 1942-6
Includes PA0804, PA0703, PA0773, mounting hardware
FP0696 NLDU, Packaged, 1942-5
Includes slimline surf mnt cab, PA0804, PA0703, PA0773, mounting hardware
PA0804 PCB 1931-84-1, Ctrlr Net/NDU,no S/W
PA0703 PCB 1931-27,F3200 Remote I/F
PA0773 PCB 1901-139-3,RS485,CMOS,FRC
SF0145 NLDU Software V2.03

Protocol Translation Module (PTM)

The Protocol Translation Module (PTM) provides an interface between Vigilant fire panels on a Panel-Link network and a network event printer or an XL Graphics computer system. The PTM is programmable as to which panels/events are printed or sent to the XL Graphics system

Specifications

Operating Voltage	24Vdc
Operating Current	19mA (excluding LEDs)
Dimensions (mm)	446W x 280D x 85H (pkgd)
FPANZ Listed	VF/616

Part Numbers

FP0586 Protocol Translation Module (PTM)
PA0717 Protocol Translation Module PCB only

- Interfaces Vigilant fire panels or Panel-Link network to network event printer or XL Graphics
- Event printer could be actual printer or event receiving system - Nurse Call, BMS, etc., that can handle text strings
- Configurable for what event types to print: Zone, System, Circuit, Point, Relay, System Operating
- Programmable group membership
- Individual fire panels can be selected for logging events/passing to XL Graphics
- Selectable fire panel monitoring - failure events generated if no messages received from each panel
- Programmable Panel-Link network operation - including ACK broadcasts
- Non-volatile storage of programmed parameters
- Supplied in painted metal cabinet
- 12V or 24Vdc operation
- RS232 interface to printer/XL Graphics

PA0729/730 General Purpose Relay Board

12V (PA0729) and 24V (PA0730) versions of a 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 +ve and -ve terminals.
2) SIG+ 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 + and - 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	PA0729	PA0730
Operating Voltage	12Vdc (±20%)	24Vdc (±20%)
Quiescent Current	0	0
Operating Current	20mA	12mA
Relay Contact Rating (per pole)	2A @ 30Vdc resistive 1A @ 30Vdc inductive 1A @ 30 Vac inductive	
Ambient Temp	-5°C to +45°C	
Relative Humidity	0 to 95% (non/cond)	
Dimensions (mm)	40 x 41	
Weight	0.05kg	
FPANZ Listed	VF/662	

Part Numbers

PA0729	12V GP Relay Board
PA0730	24V GP Relay Board

PA0278 Battery Monitor

The Battery Monitor is a small module designed to provide supervision of supplementary 12 or 24 volt lead acid batteries (e.g. evacuation system batteries) in an automatic fire alarm system as required by New Zealand Standard NZS 4512. The module provides electrical isolation between the supervised power supply and the main power supply of the associated fire alarm control unit. An LED provides latched indication of a low battery condition.

Specifications	**12V L/A Battery**	**24V L/A Battery**
Defect Set Point of Battery Supply to be Monitored:		
	12.2V (draws up to 6 mA)	24.4V(up to 6mA)
Main Pwr Supply	10V to 14V, 5 mA	20V to 28V, 8 mA
Defect- (D-) O/P	Open Coll.Transistor 30V max, Closure to 0V, 20 mA max[1]	
Transmit- (T-) O/P	Open Coll.Transistor 30V max, Clamp to 10V, 20 mA. max[1]	
Dimensions	91 x 48 mm	
Terminations	Screw Terminals, 2.5 mm^2	
Part Number	PA0278	

1. When battery voltage low

LED/RZDU

The Vigilant LED-RZDU (PA1048) is a Remote Zone Display Unit (RZDU) that provides a flexible and cost-effective "building block" for the construction of remote LED/mimic displays for Vigilant fire alarm panels equipped with an RZDU port. It is highly configurable, with a range of mounting options for front or rear service, and is compatible with a variety of LED display and mimic termination boards. The LED-RZDU has 16 on-board red zone Alarm LEDs, one common green Normal LED and one common amber Defect/Fault LED, all fitted on the rear of the board using the MX1-style LED arrangement and mounting. It is capable of driving an FP1600 termination or mimic display board, an MX4428/F4000 termination or relay board, and/or a chain of MX4428/F4000 or MX1 16-zone LED display boards.

Specifications	
Operating Voltage	
12V (nom)	7.0 to 14.0Vdc
24V (nom)	17.0 to 30Vdc
Operating Current	
12V (nom)	50mA to 660mA
24V (nom)	30mA to 900mA
Ambient Temp	0°C to +45°C
Relative Humidity	0 to 95% (non/cond)
Dimensions (mm)	144 x 65 x 30 (LWH)
Weight	0.3kg
FPANZ Listed	VF/661

Part Numbers	
PA1048	PCB LED-RZDU Board
LM0356	Loom FP1600 Key Switch
FA2074	FP1600 Door Key Sw Label
SP0424	Empty R/S FP1600 cabinet
SP0425	Empty F/S FP1600 cabinet
PA0787	FP1600 Mimic Display
PA0702	FP1600 Mimic Term Board
FA1210	FP1600 F/S Displ Mtg Brkt
FP0475	MX4428 Mimic Display
FP1002	MX1 LED Display

Other options possible

Compact FBA

The Compact FBA provides fire brigade and evacuation alarm control and signalling facilities for sprinkler systems complying with NZS 4541. Different versions are available to cater for Type-X and Type-Y requirements.
Type-X FBA has a single pressure switch with separate drop-in-pressure trip points for Defect and Fire.
Type-Y FBA has an additional rise-in-pressure fire switch, and does not signal Defect on pressure drop.

Features

- Compact, robust metal cabinet
- Front panel LED status indications
- Fully supervised anti-interference circuit with isolation switch
- Separate Main Stop Valve supervision input
- Defect input allows supervision of associated equipment
- Internal status & diagnostic LEDs
- "Recall" button allows historical Defect conditions to be displayed
- Low power mode allows powering from SGD brigade line
- High power mode allows ancillary relay drive and brighter LEDs
- Silence Alarms front panel keyswitch standard
- Electronic latching with Reset push button
- All controls door-interlocked
- Two sets of Fire output contacts, 5A Evacuation Alarm output with internal isolation switch
- Internal buzzer (door interlock and non-connected Defect)
- Dimensions 310h x 205w x 150d (overall)
- Complies with automatic sprinkler standard NZS 4541
- Meets New Zealand Fire Service requirements for connection to remote receiving stations
- Insurance Council NZ approval numbers:- Type-X: 436, Type-Y: 437
- FPANZ Listed:-
  Type-X VF/809
  Type-Y: VF/810

Part Numbers	
FP0800	Compact FBA, Type-X
FP0801	Compact FBA, Type-Y
PA0861	PCB GP Brigade Relay I/F
PA0862	PCB 1924-25, GP SGD
FP0665	Series 1948 PSU 12Vdc, 0.5A, NZ
SW0093	Switch, Bulgin Key (Optional Ancillary Control)

FP0645 SPINEX Sprinkler Pump Controller Input Expander

The Sprinkler Pump Controller Input Expander (SPINEX) can provide up to the equivalent of 14 additional pressure switch inputs to a pump controller, with additional isolate facility. SPINEX is housed in a compact metal cabinet with a clear acrylic window so that the pressure switch status display is readily visible. The door is fastened with a non-keyed catch. Up to 15 pressure switches can be connected to SPINEX, which combines these into a single output relay contact to drive one input of the main controller. Whenever any of the input pressure switches activates, the output relay contact closes, which, when connected to a pressure switch input of a pump controller, will activate the normal engine start. Any activated input can be isolated by pressing the Isolate button on the SPINEX panel.

Specifications	
Power Supply	12Vdc ±20%
Current	
Lamp Test	
0.5A max	
Typical	0.1A
Ambient Temp	-10°C to +55°C
Relative Humidity	0 to 95% (non/cond)
Dimensions (mm)	440 x 550 x 200 (HWD)
Weight	17kg
Terminations	Screw Terminals, 2.5 mm^2
Part Number	FP0645

19 inch Rack Cabinets

FP0576 Empty Battery Box
Dimensions 440x550x211mm (HWD)

ME0251 QE90 21U Cabinet only.
Dimensions 1050x573x312mm (HWD)
(shown with QE90 system installed)

Part Numbers

FP0556	F3200, Empty Cab, c/w window
FP0557	F3200, Empty Cab, c/w blank door
FP0576	F3200, Battery Box
FP0584	F3200, Small Empty Cab, full window
ME0250	20Ux200 IP65 990x630x260 (HWD)
ME0341	Rac Cab, 20Ux310 IP65
ME0260	Rac Cab, 20Ux310, 304 S/S IP65
ME0270	Rac Cab, 30Ux310 IP65
ME0280	Rac Cab, 40Ux310 IP65
ME0252	Rac Cab, 18U 135, Full Wndw
ME0253	Rac Cab, 18U 310, Full Wndw
ME0268	Rac Cab, 21U 310, Full Wndw
ME0254	Rac Cab, 28U 135, Full Wndw
ME0255	Rac Cab, 28U 310, Full Wndw
ME0256	Rac Cab, 40U 135, Full Wndw
ME0257	Rac Cab, 40U 310, Full Wndw
ME0262	Rac Cab, 18U 135, Blank Door
ME0263	Rac Cab, 18U 310, Blank Door
ME0269	Rac Cab, 21U 310, Blank Door
ME0264	Rac Cab, 28U 135, Blank Door
ME0265	Rac Cab, 28U 310, Blank Door
ME0266	Rac Cab, 40U 135, Blank Door
ME0267	Rac Cab, 40U 310, Blank Door
ME0251	Small QE90, 21U 310, Full Wndw, Crm
ME0261	Small QE90, 21U310, Blank, Cream

(These cabinets have studs fitted for QE90 modules)

Blanking Panels

FZ9002	7U Blank Inner Door (312mm)
FZ9003	6U Blank Panel Acrylic (267mm)
FZ9016	6U Blank Panel (267mm)
FZ9015	5U Blank Panel (223mm)
FZ9004	4U Blank Panel (178mm)
FZ9005	3U Blank Panel (134mm)
FZ9006	2U Blank Panel (89mm)
FZ9007	1U Blank Panel (45mm)

Gear Plates

FA1917	Blank 15U 450x430x10 (HWD)
FA1267	F3200 std 15U 480x460x10 (HWD)
FA1185	F4000 std 15U 450x460x10 (HWD)
FA2040	MX4428 std 15U 540x460x10 (HWD)
FA1984	18U Sided 770x482x10 (HWD)
FA1983	18U Sideless 770x483x10 (HWD)
FA1199	28U Sided 1200x483x180 (HWD)
FA1366	28U Sideless 1200x483x10 (HWD)
FA1846	QE90 std 21U 480x489x175 (HWD)

Standard Cabinet Sizes

Part No	Units	Dimension (internal depth)
FP0584	8U	440x550x211 (180 Deep)
FP0556	15U	750x550x211 (180 Deep)
FP0576	8U	440x550x211 (180 Deep)
ME0252	18U	885x575x205 (135 Deep)
ME0253	18U	885x575x380 (310 Deep)
ME0268	21U	1050x575x312 (310 Deep)
ME0254	28U	1330x575x165 (135 Deep)
ME0255	28U	1330x575x340 (310 Deep)
ME0256	40U	1865x575x165 (135 Deep)
ME0257	40U	1865x575x310 (310 Deep)

Special IP65 Cabinet Sizes

ME0250	20U	990x630x260 (200 Deep)
ME0260	20U	S/S 990x630x370 (310 Dp)
ME0341	20U	990x630x370 (310 Deep)
ME0270	30U	1435x630x370 (310 Deep)
ME0280	40U	1879x630x370 (310 Dp)

Accessories

FZ9010	19in Rack 1U AUI Bracket (grey)
KT0199	3U ASE Bracket (grey)
KT0212	3U 2x V-Modem Bracket (grey)
FZ9028	3U AIU/PPU Bracket & Loom (grey)
FP0935	4U ASE Door Kit 4100U-S1 (black)
FP0937	4U PPU/AIU Door Kit 4100U-S1 (black)
KT0419	Kit, Document Holder Stick On 3U
NT0030	Nut, Cage M6 zinc plated
SC0058	Screw, Machine Pan Pozi M6x12 zinc pl
WA0008	Washer, Flat M6x1.2 zinc plated
ME0258	1919-21-2 RAC CAB 1U SHELF 135 DP
ME0259	1919-21-1 RAC CAB 1U SHELF 310 DP

Other Cabinets (not 19 inch rack)

ME0088	IOR Cabinet 449x494x82 (HWD)
ME0292	T-GEN 50 Cab 294x240x85 (HWD)
FP0944	MX1 Empty Cab 590x480x120(HWD)
SP0424	FP1600 Empty Cab R/S 510x485x110
SP0425	FP1600 Empty Cab F/S 510x485x110
FP0552	FP1600 Blank Cab 510x485x110
FP0529	Responder Box Empty 240x185x53

Finish

Standard Cabinet
Baked Epoxy Powdercoat, Cream Wrinkle BFF998CW.

IP65 Cabinet
Off-White Gloss Powdercoat, Western PE802S.

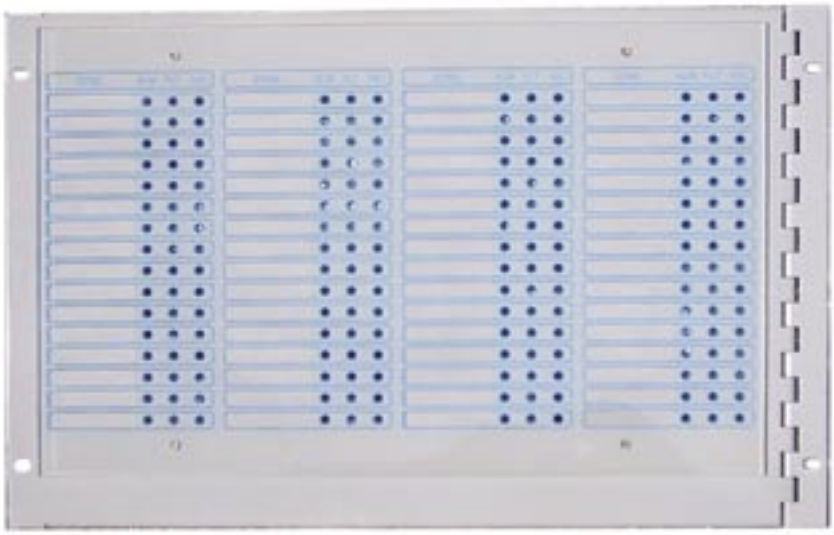
Stainless Steel Cabinet
Natural finish.

LED Display Extender Kits - MX4428 Style

Optional Additional LED Display

Increasing the number of LED zone displays on either an F3200 or MX4428 typically requires 1 x ME0060 plus display extender kits as required. The Zone LEDs are Alarm (Red); Fault (Yellow); Isolated (Yellow) with a Zone name space of 10mm x 60mm per zone on a paper label; eg. 2 lines of 23 characters at 10 per inch.

Display Extender PCB 248x98mm

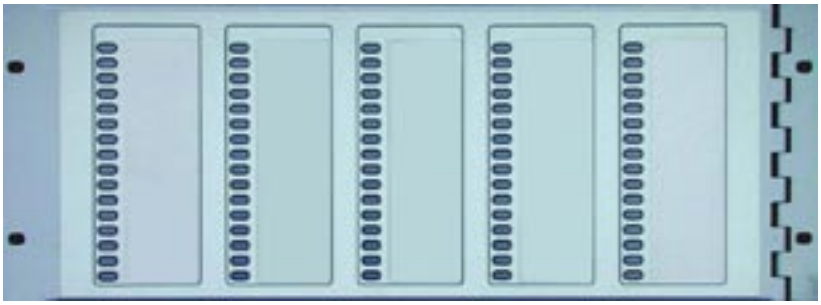


FP0475 Display Extender Kit includes PA0454, LM0046 0.5m FRC, standoffs, power leads, diffuser, Zone name label master.

FZ3031 Display Extender Kit includes FP0475 with LM0092 1.2m FRC in place of LM0046 - use as first (LHS) display board with F3200, RDU, NDU

ME0060 7U Inner Display Door 1901-75 includes M6 screws, flat washers & cage nuts. It mounts up to four MX4428 16 Zone LED display boards.

LED Display Extender Kits - MX1 Style



FP1002 MX1 16 Zone LED Display Extender, dimensions 144x52 mm.

ME0457 4U 5 x Zone Display Inner Door 1982-40 includes M6 screws, flat washers & cage nuts. It mounts up to five MX1 16 Zone LED display boards.

The 4U rack mounting 5 x 16 Zone Display Door can be fitted in any F3200, F4000 or MX4428 fire panel with 4U of spare rack mounting space and window visibility. It should not however be fitted in the bottom 2U rack space of F3200/MX4428 15U cabinets, nor in 8U cabinets at all, since the window in the cabinet door does not extend down far enough for all zones on the 5 x 16 Zone Display Door to be visible. A free depth of 20mm is required behind the door. Zone naming space is 7x44 mm per zone on a grey card (supplied) e.g. 19 characters in 3mm high Arial Narrow.

Key differences in the MX1 version (compared to MX4428 version) are:

- The much smaller physical footprint – 144mm x 52mm
- It has no Fault LEDs
- It has no outputs or connector for external Alarm LEDs or relays

An end-of-chain link is not required

It consumes approximately one third of the current.

Connection to LED Display Boards

The 26-way FRC from the panel controller board to the first LED Display board is:

F3200/NDU/NLDU	Loom LM0092
F4000	Loom LM0295 or LM0056 (depending on cabinet arrangement)
MX4428	Loom LM0295 or LM0056
MX1	Loom LM0335
LED-RZDU	Loom LM0335 or LM0092 (longer)

The recommended cable to connect from one 4U door to the next is LM0295.

Connection to Fire Panels

The last (highest zone number) LED Display board fitted onto the 5 x 16 Zone Display Door should be connected to the following fire panel controller board FRC connector:

F3200/NDU/NLDU	J13 on the Controller Board
F4000	J6 on the F4000 Main Board
MX4428	J6 on the MX4428 Main Board
MX1	J2 on the MX1 LCD/Keyboard
LED-RZDU	J3 on the LED-RZDU (to lowest)

Looms and Cables

Looms

LM0041 MX4428/F4000 Cable Programming Port to DB9 serial 1888-58
LM0042 MX4428/F4000 Cable Programming Port to DB25 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 Prog DB9F to DB9F (ADU, ECM)

LM0049 Loom FRC 26W Style B 0.25m

LM0053 Loom FRC 20W Style A 0.3m

LM0092 Loom FRC 26W F3200 MkII Controller to First Display 1.25m

Cables

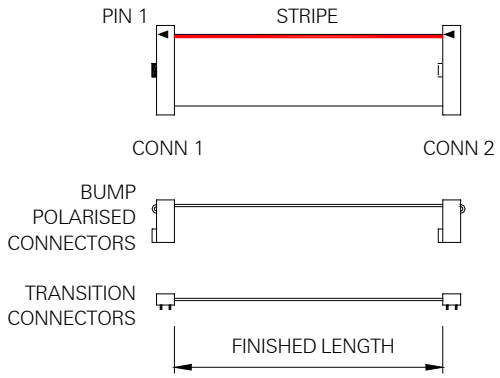
A range of commonly-used fire system cables is available from Tyco Safety Products. These include specially-manufactured 2+2 core Responder loop cables for MX4428 systems. Cable is available only in the drum lengths shown.

Part Number	Cores	X-sec	Sheath and Type	Length (m)
Standard TPS cable				
CA1021	2	1.0 mm^2	Red TPS	100
CA1022	2	1.0 mm^2	Red TPS	200
CA1025	2	1.0 mm^2	Red TPS	500
CA1521	2	1.5 mm^2	Red TPS	100
CA1522	2	1.5 mm^2	Red TPS	200
CA1525	2	1.5 mm^2	Red TPS	500
CA2521	2	2.5 mm^2	Red TPS	100
CA2522	2	2.5 mm^2	Red TPS	200
CA2525	2	2.5 mm^2	Red TPS	500
MX4428 Responder Loop cable				
CA1510	2 + 2	1.5/1.0 mm^2	Red TPS	250
CA2510	2 + 2	2.5/1.0 mm^2	Red TPS	250
SGD cable (indoor use only)				
CA0052	2 + 2	0.5/0.2 mm^2	Grey shielded	250

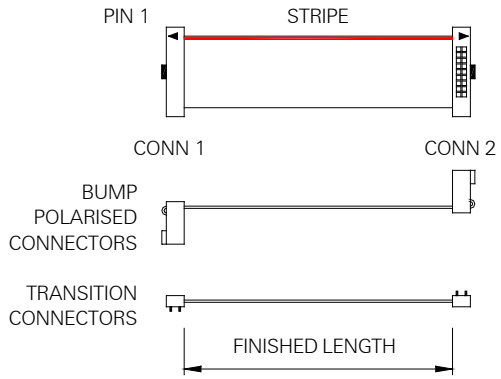
Loom Style Types

Notes
1. The loom style connector types, cable cut length and cable style are normally specified in the loom description.
2. The specified length for a flat ribbon cable (FRC) will generally be 'Finished Length' as shown.
3. Both 'Bump Polarised' sockets and 'Transition' connectors are illustrated. Looms can have combinations of these connectors.

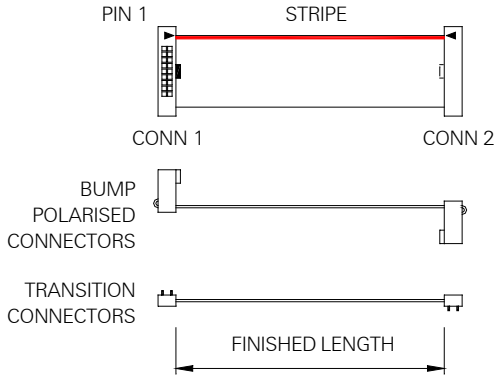
STYLE A



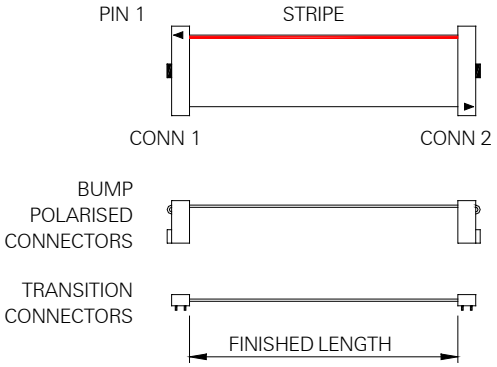
STYLE B



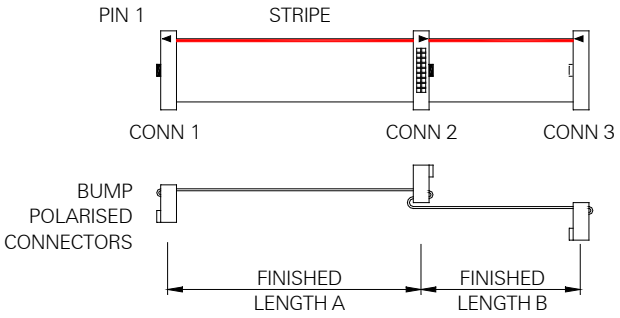
STYLE C



STYLE D



STYLE E



Looms and Cables

ITEM CODE	EXTENDED DESCRIPTION	APPLICATION
LM0061	LOOM 1830-43 1830 MODEM TO 16 WAY FRC & DB25 PLUG	1830 MODEM
LM0092	LOOM FRC 26W STYLE E F3200 MKII CTL TO 1ST DISP 1931-88 1.25M	F3200
LM0103	LOOM F3200 MCP+MICRO SWT LOOM 1931-97	F3200
LM0152	LOOM FRC 10W FRC ECM/F3200 NETWORK X-OVER 0.7m	F3200, MX4428, I-HUB
LM0076	LOOM ADU PROG DB9F - DB9F 1922-25	ADU
LM0104	LOOM F4000 MCP + MICRO SWT LOOM 1901-196	MX4428/F4000
LM0151	LOOM F4000 RING NET UPGRADE 1901-201	MX4428/F4000
LM0185	LOOM F4000 MOLEX TO CMOS/RS232 10W FRC 1901-214	F4000 (Modem Port)
LM0043	LOOM QE90 EXTENDER 699-090-1 FRC 20W 0.07M	QE90
LM0047	LOOM QE90 TRAN8872 TWISTED FRC 26W STYLE D 1.3M	QE90
LM0076	LOOM ECM PROG DB9F - DB9F "Null Modem"	QE90, I-HUB
LM0101	LOOM QE90 FRC 26W STYLE E 0.45M	QE90
LM0077	LOOM RZDU RS232 ECP H/LVL LNK 1922-26 1M	RZDU
LM0078	LOOM RZDU RS232 ECM H/LVL LNK 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 9 PIN SERIAL 1888-58	
LM0042	LOOM F3200/F4000/FP4000/MX4428 PROG TO 25 PIN SERIAL 1888-62	
LM0065	LOOM RS485 COMMS BD FRC 10W - DB9 1901-174	
LM0131	LOOM SERIAL PRINTER CABLE DB9(M) TO DB9(M) + DB9(F)	
LM0138	LOOM DB9M-DB9F PINS STRAIGHT THROUGH 1.8M	
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 STYLE C 0.5M	
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	
LM0049	LOOM FRC 26W STYLE B 0.25M	
LM0046	LOOM FRC 26W STYLE B 0.5M	
LM0056	LOOM FRC 26W STYLE B 1.4M	
LM0044	LOOM FRC 26W STYLE B 2.0 M	
LM0045	LOOM FRC 26W STYLE B 5.0M	
LM0098	LOOM FRC 34W STYLE B 0.8M	
LM0060	LOOM FRC 34W STYLE B 1.2M	
LM0143	LOOM FRC 34W STYLE B 1.7M	

AS1668 Controls and Gas Controls

AS1668 Control Module Kits

The AS 1668 modules/kit consist of small PCBs that are fitted with the required components for several different AS1668 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 AS1668 type control circuits can be achieved by using KT0113 module using different wiring configurations, and/or by minimal PCB modification (ie. the cutting of components).

Circuit Type	3	4
AZCs Used	2	2
Open Collectors Used	2	3
Relays Used	1	1
Load Current (max.)	1A	1A
Load Supervised Option?	Yes	Yes
Fail Safe Load Option? (non- supervised load)	Yes	Yes
Air Flow Switch Supervised?	Yes	Yes
Fault If Not Running?	Yes	Yes
Fault If Not Stopped?	Yes	Yes
Fault After Delay?	Yes	Yes
Programmable Switch Logic?	Yes	Yes
Load RUN State Programmable?	Yes	Yes
All LEDs Programmable via Logic?	No	Yes

* 1 Open Collector OR 1 Relay output (as available)
** Open Collector = 0.1A maximum
Relay Contacts = 1A maximum

While the kit was primarily developed by TSP to simplify factory assembly of AS1668 panels, it is available to purchase for fitting to panels in the field.

Refer to manuals LT0438 and LT0368 for further information regarding AS1668 kits.

Part Numbers

FZ9011	7U Door 19" Rack, 5 x AS1668 Controls
FZ9012	7U Door 19" Rack, 15 x AS1668 Controls
KT0113	Kit, 1945-1-3 AS1668 Control Module Type 3
KT0478	Kit, AS1668 5 way Fan Control Module

KT0113 Kit, AS1668 Control Module Types 3/4

KT0478 Kit, AS1668 5 way Fan Control Module (Includes PCB, 5x switch knobs and caps, 5x panel labels, 2x 26W FRC 2m cables, LT0368 instructions)

FZ9011 7U Panel with 5 x AS1668 Fan control positions

FZ9012 7U Panel with 15 x AS1668 Fan Control positions

Gas Control Modules

ME0441 4 Zone Gas Flood 7U Door

ME0442 1 Zone Gas Flood 1U Plate and Loom

Gas Control Modules provide indication and control of 1-4 zones of gas extinguishing on compatible 19in rack mounted c.i.e. (e.g. F3200 and MX4428). They are pre-wired modules (requiring appropriate input/output modules). The modules have a 12 way screw terminal block for easy termination of the field wiring for the Local Gas Control Stations, gas discharged pressure switch, warning signs and gas release output. The connection for the Alert/Evacuate warning signs is a 2-wire polarity switched output that supports up to 10 AVI Mk2 units. All outputs can be supervised (this requires appropriate programming and configuring in the panel). The gas control modules provide LEDs for each gas zone to indicate:

- Gas Initiated (red)
- Manual Release (red)
- Gas Discharged (blue)
- Gas Inhibited (yellow)
- Gas Isolated (yellow)
- System Inoperative (yellow);

A Gas Discharge Isolate switch that physically isolates both poles of the gas release actuator output is also provided for each gas zone.

Specifications

Dimensions (mm)

7U Door	485 x 312 (WH)
1U Plate	485 x 45 (WH)

Part Numbers

ME0438	1 Zone Gas Flood 7U Door & Loom
ME0439	2 Zone Gas Flood 7U Door & Loom
ME0440	3 Zone Gas Flood 7U Door & Loom
ME0441	4 Zone Gas Flood 7U Door & Loom
ME0442	1 Zone Gas Flood 1U Plate & Loom

Local Gas Control Station

FP0570 Local Gas Control Station - Automatic

Local Gas Control Stations are used in gaseous fire extinguishing systems to provide local area manual control of a release. The automatic version includes a Gas Inhibit switch, buzzer and LED, whereas the manual version does not.

Specifications

Dimensions (mm)

FP0570/2	192 x 124 x 82 (HWD)
FPANZ Listed	VF/663

Part Numbers

FP0570	1937-3-1 Local Gas Control Station - Auto
FP0572	1937-3-2 Local Gas Control Station - Manual

MX 1 Gas Suppression Control Kit

– Coming Soon –

The *MX 1* Gas Suppression control kit provides the hardware items necessary to convert a standard *MX 1* panel into a single risk gas supression control panel. Additional items (LGCS, AVI, etc) are also required as detailed in LT0462.

Part Number

KT0507	*MX 1* Single Zone Gas Accessories

Vigilant Remote Annunciators

Compact Firefighter Facility (FF)

The Compact Firefighter Facility (FF) is a compact fire alarm repeater panel for use as a remote brigade access point to a networked fire alarm system. It provides an AS4428.1 compliant alphanumeric display of alarm information on a 2 line by 40 character LCD with a simple keypad. It is compatible with the Panel-Link Network and associated range of networked fire alarm systems, eg., MX4428, F4000, and F3200. The Compact FF is able to display alarms and selectively control fire alarm panels connected to the network.

Specifications	
Operating Voltage	9.6 to 28.8Vdc
Current (maximum)	380mA @ 9.6V
	180mA @ 27V
Network I/F	RS-485 (panel-link)
Programming I/F	DB-9 male RS232
Rating	IP41
Cabinet (surface)	250x150x50mm HWD
(flush)	301x192x75mm HWD
Weight	2.5kg
Part Numbers	
FP0865	Compact FF surface mount
FP0866	Compact FF flush mount
LM0076	DB9F-DB9F prog. cable

Nurse Station Annunciator (NSA)

The Nurse Station Annunciator is a compact fire alarm repeater panel for use by non-technical staff. It provides alphanumeric display of alarm information on a 2 line by 40 character LCD with a simple keypad. It is compatible with the Panel-Link Network and associated range of networked fire alarm systems, eg., MX4428, F4000 and F3200. 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 to 28.8Vdc
Current (maximum)	380mA @ 9.6V
	180mA @ 27V
Network I/F	RS-485 (panel-link)
Programming I/F	DB-9 male RS232
Rating	IP41
Cabinet (surface)	250x150x50mm HWD
(flush)	301x192x75mm HWD
Weight	2.5kg
Part Numbers	
FP0880	Nurse station, flush mount
FP0881	Nurse station, surface mount
LM0076	DB9F-DB9F prog. cable

AS 4428 Network Display Unit (NDU)

FP0794 4U 19" Rack NDU Module

The NDU is a fire alarm repeater panel compatible with the Panel-Link Network and the associated range of networked fire alarm systems (eg. MX4428, F4000, F3200). It provides alphanumeric display of alarms on a 2 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 mounting option, optional full cabinet complete with MAF relays and power supply, or 19" 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. Analogue addressable fire alarm point text displayed, database save and restore to laptop/computer, event logging to history file and optional printer.

Part Numbers	
FP0790	NDU, AS4428, MAF, PSU, full cab
FP0791	NDU, AS4428 Slimline surf. mnt
FP0792	NDU, AS4428 Slimline flush mnt
FP0794	NDU, AS4428 4U, 19" rack module

Specifications	
Power Supply	External 24Vdc
Quiescent Current	19mA
Alarm Current	78 mA
Inputs	
RDU MCP	Supervised, 10k ohm EOL
Outputs	
RZDU Comms	F3200/MX4428 compatible
Printer	Pseudo RS232, Xon/Xoff,
	300 to 9600 baud
LED Display/Relay	33 (max) external boards
LCD	2 lines of 40 characters,
LEDs	FFCIF, status std; opt zone LEDs
Operating Temp	-5°C to +45°C
Relative Humidity	10% to 95% (n/cond)
Cabinet Size	177 x 450 x 50mm HWD
Shipping Weight	3 kg
CSIRO ActivFire Listed	afp-789
FPANZ Listed	VF/632

AS 1603.4 Remote Display Unit (RDU)

FP0559 4U Slim Line Wall Mount RDU

The RDU is a non-networked remote display that offers a flexible range of options. It can be programmed to process any selected zones from one F4000, MX4428 or F3200, with no requirement for these to be in a contiguous group. In this way each RDU in a large system can be assigned to display exactly the zones required at that location. It is compatible with existing systems because the text messages displayed on the LCD are programmed locally. It also supports the up-load of zone description from the fire panel.

Specifications	
As per AS 4428 NDU, RZDU is an input	
FPANZ Listed	VF/615
Part Numbers	
FP0558	RDU, Full Cabinet
FP0559	RDU, Slimline, wall mount
FP0731	RDU to NDU upgrade kit
FP0772	RDU, Slimline flush mount
KT0177	Upgrade kit (1931-2-2 cont.)
LT0133	Operator's manual
LT0148	Install & program manual
SF0179	Software RDU V2.11

ASE Local Display Unit (LDU)

The ASE Local Display Unit (LDU) is designed to provide output status indication for up to 16 Private Fire Alarms (PFAs) connected via Signal Generating Devices (SGDs) to an ASE or ASE-16 concentrator. The LDU receives status information via an RS-485 connection from the ASE's Local Indication Port (LIP). This information is then decoded to drive output status LEDs or to provide open collector outputs as required. The LDU is supplied as a printed circuit board module for incorporation into the user's equipment. It can operate from 12 or 24 volt supplies (link selected).

Specification

Format	Unpackaged circuit board
Dimensions (mm)	119 x 95 x 40 (LWH)
Operating Voltage	
12V Typ	9.6-13.8V
24V Typ	19.2-28.3V
Current	
12V	15mA @ 12V - excl o/p current
24V	20mA @ 24V - excl o/p current
Operating Temp	0°C to +45°C
Baud Rate	2400, 4800, 9600 (link select)
Output Modes	2 to 8 Open Collector Outputs MX4428 LED Display Boards
+V Output Current	
12V	1A max
24V	100mA max
Open Coll. O/P	200mA max, 30V
LDU Cable	400m 1mm^2 TPS 1km Twist Pair

Part Numbers

PA0471	ASE Local Display Unit Control Card	PA0489	16 Way Relay Board C/W FRC (12V)
PA0488	16 Way x 3 LED Display Board (12V)	PA0470	16 Way Relay Board C/W FRC
PA0454	16 Way x 3 LED Display Board (24V)	LM0044	2 Metre FRC
PA0461	16 Way Relay/Mimic Driver Board	LM0045	5 Metre FRC
PA0480	16 Way Output Termination Board	LM0046	0.5 Metre FRC

SGD

The Vigilant 1924-25 General Purpose 2-Wire/4-Wire SGD transmits the Fire, Defect, Isolate and Test signals from a compatible Fire Alarm Panel or DBA (PFA) over 2 wires to the NZ Fire Service via the ASE Interface Unit and System. The SGD derives its power either from the ASE (4-wire mode), or locally from the system (2-wire mode) and has an on-board reserve supply to ensure signalling for a short time if the main supply fails. It operates in either single line or multidrop mode.
The GP version has a plug-on interface to compatible Vigilant panels and it incorporates Brigade Test and Isolate switches.

Specifications

Power Supply	
4 Wire SGD	9 to 15Vdc
2 Wire SGD	9 to 29Vdc
Current	
Standard	12mA to 20mA
Multidrop	5mA to 7.5mA
Ambient Temp	-10°C to +55°C
Relative Humidity	0 to 95% (non/cond)
Dimensions (mm)	120 x 96
FPANZ Listed	VF/502
Part Numbers	
PA0802	SGD Multidrop 4 wire
PA0803	SGD Multidrop 2 wire
PA0862	SGD GP PCB & Loom (with switches)

PA0861 General Purpose Brigade Relay Interface

The 1922-43 General Purpose Brigade Relay Interface is designed to provide compatible Vigilant fire alarm panels and sprinkler FBAs with the means to connect to a wide variety of remote (Brigade) signalling devices. It is a single plugon board, with duplicate clean contact relay outputs for FIRE and DEFECT, and onboard toggle switches for BRIGADE TEST and BRIGADE ISOLATE. More than 1500V electrical isolation is provided between the Interface's output terminals and the rest of the fire alarm system.

Specifications

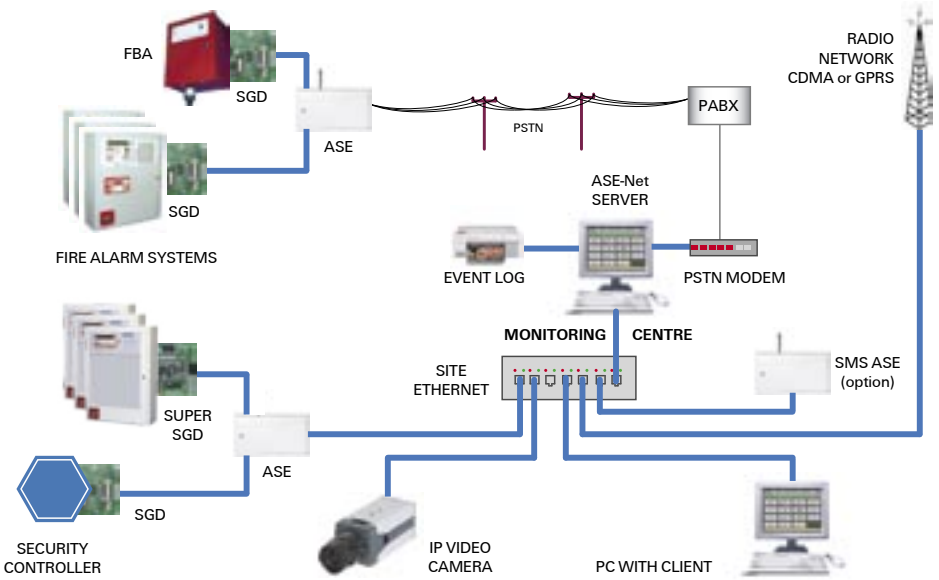
Power Supply	9.6V to 18V (LK1 fitted) 19.2V to 32V (LK1 removed)
Current	
Normal	20mA
Defect/Fire	2mA to 38mA
Ambient Temp	-10°C to +55°C
Relative Humidity	0 to 95% (non/cond)
Dimensions (mm)	95 x 100 x 35
Weight	0.1kg
FPANZ Listed	VF/507
Part Number	
PA0861	PCB GP Brigade Relay I/F

PA1034 SAFE/Beneconda/Mk10 SGD

The SAFE/Benecoda/Mk10 SGD (SBM-SGD) is used to interface fire alarm and sprinkler systems with an existing SAFE Transponder, Benecoda Transmitter, or Mk10 Modulator onto the multidrop SGD system. This allows these older systems to be connected to the ASE's SGD ports without the need to change the existing transmitting device. The SBM-SGD appears as one or more multidrop SGDs connected to the ASE's SGD port. The SBMSGD translates between the SAFE, Benecoda or Mk10 protocols and the SGD protocol. The SBM-SGD provides indicators to display the status (fire, defect, etc.) of the fire alarm or sprinkler system (PFA) and also provides a Brigade Test switch for use when connected to a Mk10 Modulator. The SAFE/Benecoda/Mk10 SGD can either be mounted in the ASE Mk2 cabinet (on the PCB standoffs above the battery), or in a separate enclosure, or in an existing fire alarm system cabinet (using the supplied adhesive - backed standoffs). The SBM-SGD and ASE Mk2 replace the LTX-3 when used with the Mk10 interface, and replace the LTX-8 when used with the SAFE or Benecoda interfaces. One SBM-SGD can interface up to eight SAFE Transponders.

ASE-Net Monitoring System

The Vigilant ASE-Net (Alarm Signalling Equipment Network) is an innovative alarm monitoring system specifically designed for monitoring and managing fire alarm systems, security systems, and plant equipment spread over large sites or large areas. It utilises up-to-date computer and communications technology allowing a wide choice of communications media including wireless mobile data (CDMA or GPRS), Wi-Fi, Ethernet, ADSL or dial-up telephone lines (PSTN).



Specifications

Max. No. of Alarm Systems	Unlimited [1]
Communications Supported	Wireless [2]
	Ethernet
	Dialup Modem [3]
Number of Users	No Limit [4]

Notes

1. The max. no. of fire & security panels that can be monitored depends on the communication links to the monitoring centre and the PC/s running the monitoring system's database. A single PC system should be capable of supporting several hundred alarm systems.
2. A connection between the ASE-Net monitoring system and the wireless network provider will be required.
3. Requires FP0943 R-Modems to be installed at the monitoring centre.
4. Each PC may require an SQL licence.

Features

- Handles fire alarm, security and plant alarms
- Scalable - monitors 1 to 1000s of systems
- Client/Server software architecture
- Proven architecture
- Easy to use, graphical user interface
- Supports multiple user interfaces, each individually configurable
- Compatible with most fire alarm panels using standard SGD
- Communicates detector location and alarm type for addressable fire alarm systems that use the Super SGD
- Published (open) "Super SGD" protocol
- Fire alarm panel remote access & control
- IP video camera support
- Can reduce service costs
- Designed to simplify fire alarm testing
- Local technical support
- Runs on industry-standard equipment
- Supports hot standby and redundancy for high reliability
- Replicated SQL server option
- Programmable relay outputs
- Logs events to history file and/or printers
- Text messaging to mobile phones or email

Each fire, security or plant alarm system is fitted with a Signal Generating Device (SGD) that receives status signals from the alarm system, and transmits them to a local ASE unit. The ASE communicates this information to the ASE-Net server, where it is processed and displayed to the operator on one or more client PCs.
Use of an SQL database combined with the graphics display capabilities of the PC enables the alarm event and relevant site data to be immediately displayed in the form of pictures, building plans, maps or schematics and text. Dynamically-linked icons representing alarm devices may be configured on the maps or plans to enable the location and status of a device (e.g., operated fire detector) to be quickly pin-pointed. Drill-down linking of pictures enables this information to be viewed at various levels. Hyperlinks enable the operator to remotely view and operate fire alarm panels. Similarly, the operator can link through to other devices such as IP video cameras to display site conditions in real time. Alarm and status events can be sent to event printers for hard copy recording and are also logged to a history file, which can be viewed from the operator interface. Personnel off-site can also be automatically alerted to the occurrence of selected events via SMS text messaging or email. Relay outputs can be configured to activate on events (e.g., unacknowledged alarm) and/or current status (e.g., security mains fail).

Remote Equipment Access

The ASE-Net system supports remote access of compatible fire alarm panels and other equipment using the ASE's serial port. For example, the control panel of a Vigilant *MX1* or MX4428 fire alarm panel can be displayed and controlled from the ASE-Net User Interface using a hyperlink to run the Vigilant PanelX remote access communications software. In a similar fashion, other applications can be launched from ASE-Net to remotely access other equipment such as IP video cameras.

Part Numbers

SF0398	Software, ASE-Net license
SF0409	Installation on client PC
PA1036	PCB, 1924-27, Super SGD
FP0951	ASE-Mk2, no radio modem

Other items can be quoted as required.

Graphics

XL Graphics Client/Server

Using a combination of symbols, floor plans, pictures and text, XL Graphics 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 XL Graphics 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.

XL Graphics C/S 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 XL Graphics C/S screen (with the appropriate password access) the operator has the ability to:

- acknowledge alarms
- silence sounders 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.

XL Graphics 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
- Graphical diagnostic tools identify status of fire network nodes
  - PC environment monitor

XL Graphics C/S 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.

XL Graphics Client Screens

XL Graphics C/S Operation

XL Graphics C/S 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 XL Graphics C/S screen (with the appropriate password access) the operator has the ability to:

- acknowledge alarms
- silence sounders 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.

Multiple Network Integration

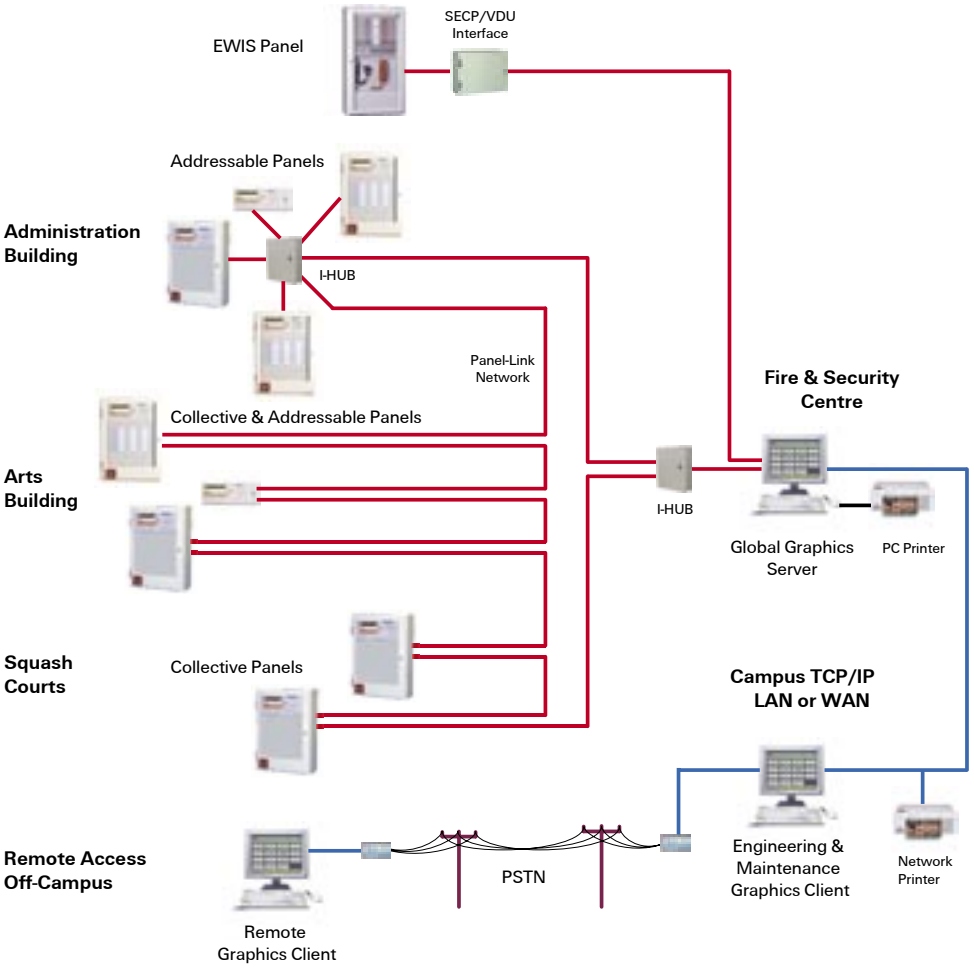
XL Graphics C/S supports extensive fire network integration and interconnection. Multiple networks as well as conventional FIPs can be monitored and controlled by XL Graphics C/S.

Each fire network and/or standalone FIP connected to the Panel-Link network interfaces to the XL Graphics Server using a suitable communications device such as the Protocol Translation Module (PTM), or Intelligent-Hub (I-HUB), depending on the network configuration.
EWIS networks interface to the XL Graphics Server using a SECP/VDU Interface.

Each XL Graphics Client terminal communicates with the XL Graphics Server using IP networking.

XL Graphics C/S Operation on Panel-Link Network

- Vigilant Panel-Link Network
  - Multidropped RS485 connections
  - Up to 64 networked devices multidropped depending on required functionality
  - Multidropped cable length <1200m, shielded twisted pair
  - Galvanic isolation between panels & network
    - High noise immunity
    - Reduced earth loop problems
  - I-HUBs used to extend network (ring configuration)
  - Link Integrity function supervises XLG C/S network



Hardware Requirements

1. Fire panels on the Panel-Link network connect to the XL Graphics Server using the PTM or I-HUB interface. EWIS panels are connected using the SECP/VDU Interface. The XL Graphics Server requires a serial comm's port for each interface.
2. The XL Graphics Server must have a free USB port.

Software Requirements:

1. Windows 2000® or Windows XP® SP2 operating system

Part Numbers	
CG0002-SERVER	XLG C/S Client/Server Software & Dongle
CG0002-CLIENT	XLG C/S Client only Software
FP0586	PTM Protocol Translation Module in box

Conventional Marine Panels

T1000 Marine Fire Controller

The range of T1000 panels are state-of-the-art intelligent fire panels, which provide many of the features normally only found on more expensive analogue addressable panels. The panels are supplied in 8 and 16 zone versions. Each detection zone can support up to 32 conventional detectors. The user interface is provided through a combination of LEDs and a 2 x 40 character LCD display. The LCD display provides a full customer definable text display of the alarm or fault condition whilst also displaying zones in alarm, fault or isolate status. The display also indicates the outputs that have been activated.

Features

- Developed for Vessels with less than 300 Detectors
- Approved by Major Marine Authorities
- Customer friendly, multi language information on LCD display
- Comprehensive fault diagnostics
- 8 and 16 zone Panels
- Can be used with a wide range of Minerva Marine approved Detectors
- 4 monitored Sounder outputs up to 4A
- 4 monitored Relay outputs
- 3 programmable auxiliary inputs
- 3 levels of alarm discrimination per zone
- One common fault relay
- Programmable cause and effect
- Can interface to intrinsically safe System 601
- Manned/ unmanned mode

Compatible Detectors

516.056.401 MR601M Photoelectric Smoke
516.056.401 MF601M Ionisation Smoke
516.052.001T MD601M Heat
517.050.401 M600 Base
514.001.012 CP260M Manual Call Point (Waterproof)
514.001.013 CP250M Manual Call Point (Surface)

Part Numbers

509.022.001 NT100 Series Spare Commissioning Kit Included With All Panels
509.022.003 NT100 4 Way Expansion Board - Support NTX-02,03,04 Expansion Boards
509.022.004 NT100 16 Way Relay Output Board (24Vd.c.@1A) Requires NTX-01 Expansion Board
509.022.005 NT100 16 Way Digital Output Driver Board - Requires NTX-01 Expansion Board
509.022.010 Spare PSU For T1000
509.022.013 NT Flush Mount Bezel
509.022.015 T1000 Display PCB Spare
509.022.016 T1000 CPU board V1.6 spare
509.022.024 T1000R CPU board V1.6R spare
508.022.035 T1008 8 zone marine NT conventional fire Controller
508.022.036 T1016 16 zone marine NT conventional fire Controller
508.022.037 T1016R repeater for use with T1008 & T1016

Specifications

Operating Voltage	198 to 264VAC
Quiescent Current	50mA @ 24Vdc
Alarm Current (max)	1A @ 24Vdc
Operating Temp	0°C to +40°C
Relative Humidity	up to 90% (non-cond.)
Dimensions (HWD)	320x430x150mm
Weight	6.3kg

Note: A full range of Conventional, and Analogue Addressable Marine Controllers and equipment are available on request. Contact Wormald Auckland Engineering Services for details

T1200 Conventional Fire Controller

Developed and Manufactured in the United Kingdom the T1200 range of Conventional Panels from Tyco is a powerful yet user friendly series of Control Panels. The range is fully approved by major Marine Authorities and takes advantage of the very latest technological advancements both in terms of design and manufacturing to the latest European, Marine and Asian standards.

Benefits

- Allows very early detection of accommodation fires with significantly reduced false alarms when used with Tyco's unique heat enhanced Compensated Carbon Monoxide (CCO) Detector
- Configurable Detection Zones allowing Zones to be configured for any or all of the following :- Latching or Non Latching Fire Indication Normal or Intrinsically Safe Zone, Monitoring Machinery space zones
- Crew Alert Mode :- Manages Alarm Annunciation
- Pre-configured for Immediate use.

Features

- Developed for use in vessels which require between 4 and 32 zones of fire detection
- Compact 4 Zone option for Console Mounting
- Range includes a separate Water Mist Panel
- Integrated Voyage Data Recorder output on 16 and 32 Zone Panel
- No external secondary power source required
- Discrimination between Automatic Fire
- Detectors and Manual Alarm Callpoints to provide the appropriate response
- Optional Marine Approved Muster Alarm
- Text label Inserts for Controls and Indicators in customer supplied language.
- Extensive configuration options using simple onboard DIL switches and links
- Installation costs reduced by being able to connect Intrinsically Safe (I,S,) and non I,S, devices on the same zone.

Part Numbers

508.023.001	T1204DC - 4 Zone Panel c/w 1.5A 24VDC PSU
508.023.002	T1204A1 - 4 Zone Panel c/w 1.5A 110V AC PSU
508.023.003	T1204A2 - 4 Zone Panel c/w 1.5A 230V AC PSU
508.023.004	T1216 - 16 Zone Panel c/w voyage data recorder output module and 5A 110/230V AC PSU
508.023.006	T1232 - 32 Zone Panel c/w voyage data recorder output module and 5 Amp 110/230V AC PSU
508.023.011	T1216RDC - 16 Zone Repeater without Power Supply
508.023.012	T1216RA1 - 16 Zone Repeater with 1.5A 110V ACPower Supply
508.023.013	T1216RA2 - 16 Zone Repeater with 1.5A 230V AC Power Supply
508.023.014	T1232RDC - 32 Zone Repeater without Power Supply
508.023.015	T1232RA1 - 32 Zone Repeater with 1.5A 110V AC Power Supply
508.023.016	T1232RA2 - 32 Zone Repeater with 1.5A 230V AC Power Supply
508.023.023	B1 Battery box for T1204
508.023.036	A1466 Relay Board

Addressable Marine Panels and Equipment

T2000 Marine Fire Controller

T2000 Marine Panel
Features
- PSB800M 5A 24V DC battery backed power supply and loop booster to EN54pt4
- FIM800 field interface PCB incorporating one or two MX DIGITAL loops
- CPU800 32 bit processor and memory card
- Optional network card and additional loop card(s)
- Optional approved Mild-Steel Enclosure

Part Numbers	
557.200.600	T2000 Two To Eight Loop Marine Panel (Stainless steel enclosure)
557.200.602	T2000B Battery Box (Stainless steel enclosure)
557.200.603	T2000 B80 Battery Box c/w 80 way LED ANN880 (Stainless steel enclosure)
557.200.610	T2000 Standard Two to Eight Loop Marine Panel (Mild steel enclosure)
557.200.605	T2000 BM Battery Box (Mild steel enclosure)
557.201.216	T2000 XLM 8-Loop Mounting Kit

The T2000 is a fully Marine approved EN54 compliant 1 to 8 loop networkable detection panel. The T2000 supports two Tyco MX DIGITAL detection loops and can be expanded to eight loops supporting up to 1000 addressable devices. The T2000 consists of a strong stainless steel or mild steel Marine approved enclosure incorporating the above stated features.
The panel has a strong cast aluminium front door, which incorporates a modular user interface that fully complies with EN54 pt2. The user interface incorporates the ODM800 operator display module with a 16 x 40-character backlit LCD display, simple alphanumeric keypad and 5 softkeys.

The OCM800 operator control module provides all mandatory operator control keys and LED functions including Day/Night switching. One control key and 2 indication LEDs are provided for vessel specific functions.
Control keys and LEDs are labelled in English according to the default Marine functionality. The slide in decals can be reversed and alternative text added.

The batteries and any additional zone LED's or operator controls are mounted in a separate housing which can be mounted below the main panel or behind the panel. The battery box has a heavy duty backbox and battery clamp.
The chassis plate in the battery box also has space for up to 2 x IOB800 input/output expansion modules (maximum 24 I/O) or 1 x PSM/PSB800.

T2000 Marine Repeater

T2000 Marine Panel
Features
- Fully Functional
- Optional Approved Mild Steel Enclosure
- Fully Monitored R-Bus

Product Codes	
557.200.601	T2000R Marine Repeater with Power Supply Unit 240Vac (Stainless steel enclosure)
557.200.604	T2000R Marine Repeater without Power Supply Unit 24Vdc (Stainless steel enclosure)
557.200.611	T2000R Standard Marine Repeater with Power Supply Unit 240Vac (Mild steel enclosure)
557.200.612	T2000R Standard Marine Repeater without Power Supply Unit 24Vdc (Mild steel enclosure)

The T2000 full function repeater is an EN54 Marine approved repeater with optional addressable EN54: Pt.4 power supply. The repeater consists of a steel backbox and cast aluminium front door which incorporates the ODM800 operator display module with a 16 x 40-character backlit LCD display, simple alphanumeric keypad and 5 softkeys.
The OCM800 operator control module provides all mandatory operator control keys and LED functions including Day/Night switching. One control key and 2 indication LEDs are provided for vessel-specific functions.

Control keys and LEDs are labelled in English according to the default Marine functionality. The slide in decals can be reversed and alternative text added.
The back box has a removable chassis plate with the PSM800M power supply, APM800 addressable PSU monitor and space for 2 x 7 Ah batteries to provide 72h backup.

The T2000 repeater with Power Supply is connected to the Panel via the remote bus (RS485, 1200 m distance). A maximum of x 7 repeaters (including one MX REMOTE repeater) can be linked to each T2000 panel and can provide full repeater functions for all panels on the system.
The operator control module (OCM800) can support up to 80 inputs and outputs in the form of LED annunciators, IOB800 input/output modules or COM800 command modules.

Warning Systems

QE90

The Vigilant QE90 Emergency Warning and Intercommunication System (EWIS) is designed to facilitate the orderly evacuation of a building in the event of an emergency. Integrating a flexible alarm and voice warning system with a dedicated emergency intercom system, the QE90 allows fire wardens or emergency services personnel to easily control and coordinate rapid building evacuation. QE90 meets the installation requirements of control and indicating equipment AS 1670.4, complies with equipment standard AS 2220.1 and supports the ISO 8201 T3 evacuation signal and strobe pattern.

Features

- Modular system is readily expandable
- Networked systems for site-wide interconnection
- High level input from compatible FIPs
- Choice of amplifers providing a wide range of output power
- Optional standby amplifiers with automatic changeover
- Visual alarm outputs
- Factory programmable evacuation sequences
- Standard or custom voice messages (on-site recordable)
- Wiring supervision for amplifiers, speaker lines, visual alarm outputs, FIP inputs, MCP inputs, power supplies, WIP circuits and ECP interconnection
- Duplicated communications links between equipment locations
- Music & non-emergency paging (with emergency override)
- Paging console available for non-emergency paging
- Non-emergency voice messages
- Range of attractive 19" rack cabinets
- QECOST Software Tool for Windows assists the purchaser to specify and estimate the cost of a QE90 system
- Complies with EWIS standard AS 2220.1-1989
- Supports ISO8201 T3 evacuation signal
- CSIRO ActivFire listing number afp-524
- FPANZ listing number VF/406

Factory-Programmable Facilities:

- System configuration
- Control relay outputs
- Special cascade sequences
- Warden zones
- FIP/ emerg. call point input to zone mapping
- Special digitised voice messages

Basic System Comprises:

- Master Emergency Control Panel (MECP) complete with full control facilities for both Emergency Warning and Emergency Intercommunication Systems
- Individual amplifier(s) per zone
- Alert/ Evacuate tones with automatic digitised voice message
- Emergency public address
- Standard automatic alarm cascade sequence
- 3 WIP circuits per front panel zone
- Full supervision of speaker, WIP and strobe lines with visual indications and sounder
- Fire alarm inputs (one per zone)
- Master background music (BGM) input
- One BGM override output per amplifier
- Integral 24 Volt battery charger
- Storage for stand-by batteries

Site-Programmable Facilities:

- Time delays
  - Alarm to Alert delay
  - Alert to Evacuate delay
  - Cascade step interval
- Alert/ Evacuate/ PA groups
- Background music zone selection
- Individual zone isolation
- Cascade enable/ disable
- Service fault history recall/ clear
- Redirection of Master WIP to field WIP (optional)
- Operation of non-emergency Paging Console to perform WIP, BGM and general indication functions

Optional Extra Facilities:

- More than 3 WIP circuits per zone
- Secondary Emergency Control Panel(s)
- Remote amplifier racks
- Multiple FIP/ emergency call point inputs per zone
- Emergency call point inputs
- 2 or 3-wire WIP/ emergency call point inputs
- Strobe (visual) alarm outputs (T3 option)
- Programmable relay outputs eg.
  - Evac fault
  - Any alarm
  - Fault or alarm
  - BGM override
  - Auto/ Man/ Isol.
  - WIP fault
  - WIP handset off hook
- Emergency control panel lighting
- Special cascade sequences
- Automatic test sequence
- Warden zones to alert wardens of alarm in another area
- Monitor zones to repeat the highest priority signal that other nominated zones are receiving
- After-hours timer input to override cascade
- Custom digitised voice messages (multiple languages available)
- Stand-by amplifier(s) with automatic changeover
- Distributed amplifier system
- Inter-ECP WIP calls (for systems with more than one ECP)
- WIP calls redirected to PABX, radio, or other WIP
- Remote WIP control panel
- Individual zone BGM inputs
- Remote BGM control panel
- Paging console programmable to also perform WIP control and BGM control functions
- Paging chimes
- PABX paging interface
- Local zone non-emergency paging
- Event-logging printer
- High-level data links
- Networking
- Computer colour graphics SECP

Specifications

Panel size	18U	21U	28U	40U	Double 28U	Double 40U
Height (mm)	885	1050	1330	1865	1330	1865
Width (mm)	575	575	575	575	1150	1150
MECP Depth (mm)	380	350	380	380	-	380
SECP Depth (mm)	205	-	205	205	205	-
Maximum number of zones with						
10W RMS Amps	8	20	20	40	-	80
25W RMS Amps	6	10	10	20	-	40
50W RMS Amps	4	10	10	20	-	40
100W RMS Amps	2	5	5	10	-	20
200W RMS Amps	2	2	2	4	-	8
Amplifier configurations can be mixed 10, 25, 50, 100, 200 Watt						
Speaker Line Voltage	100V RMS at rated power output					
WIP Zones (maximum)	10	18	20	42	-	90
SECP Zones (maximum)	1-18	-	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					
Operating Humidity	up to 95% RH (non condensing)					
Power Supply	230VAC +10% -11%, 50Hz					

Refer to page 93 for a sample QE90 Configuration Sheet. These must be submitted with each QE90 order for both new panels and updates to existing panels. Refer to the relevant TSP documentation for guidance on completing the configuration sheet.

QE90 Ancillaries & Spares

FP0539 Paging Console

One or more Vigilant FP0539 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 Tyco Safety Products. 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 per paging location and it must be ordered separately.

Specifications	
Power Consumption	<50mA (no zones select.) <150mA (all zones select)
Output Voltage	300 to 700mV
Microphone Voltage	1 to 100mV (AGC)
Frequency Response	100 to 10kHz ±3dB
Distortion	10mV input, <2%
Dimensions (HWD)	80 x 410 x 210mm
Weight	4kg
Part Numbers	
FP0539	Paging Console
SU0168	Gooseneck Microphone
SU0169	Desktop Microphone

FP0902 PC Paging Console

The PC-based Paging Console interface and software allows announcements to be made to up to 480 QE90 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 QE90 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 PTT button on the microphone.

Specifications	
Platform	Windows 2000, XP
Capacity	Supports 480 QE90 zones and 10 user programmed groups of zones
Connection	via audio and comms, PC required with 2 free RS232 ports
Dimensions (HWD)	310 x 238 x 105mm
Part Number	FP0902

Hand Held Microphone with Press to Talk

The handheld dynamic microphone is fitted with a press-to-talk (PTT) button. It is suitable for plugging into T-GEN 50 and QE90 to provide emergency PA and on-site recording of digitised speech message. Two models are available;

- ME0213 has a DIN plug for use on older QE90 ECP9002.
- ME0290 (illustrated) has a flat plug for use on T-GEN 50 and QE90 ECP9702.

Part Numbers	
ME0213	Microphone c/w DIN plug for QE90 ECP9002
ME0290	Microphone c/w flat plug for T-GEN 50 and QE90 ECP9702

SU0168 Gooseneck Microphone

The SU0168 Gooseneck Paging 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. Supplied with 200mm flying leads and mounting kit for FP0539 Paging Console.

Specifications	
Polar Pattern	Cardioid (unidirectional)
Output Impedance	600 Ohm balanced at 1kHz
Rated Sensitivity	-80dB (1kHz, 0dB=1 V/Pa)
Frequency Response	150Hz-12kHz
Part Number	SU0168

SU0169 Desktop Microphone

The SU0169 Desktop Paging microphone is a dynamic microphone with a cardioid polar pattern. It features a short-off press-to-talk (PTT) 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 Ohm balanced at 1kHz
Rated Sensitivity	-58dB (1kHz, 0dB=1 V/Pa)
Frequency Response	100 Hz to 10kHz
Cable	2 core shielded plus 2 core
Cable Length	2.5m
Termination	5 pin DIN plug
Dimensions (HWD)	215 x 100 x 150mm
Weight	440g
Part Number	SU0169

FP0938 WIP Phone

The Vigilant. FP0938 Warden Intercom Point (WIP) phone is designed specifically for use with sound and intercommunication systems for emergency purposes. WIP phones are used by wardens to communicate between evacuation zones and the intercom control and indication equipment (c.i.e.). When the handset is lifted, a call is automatically initiated to the intercom c.i.e.
The FP0938 has been certified as complying with AS/ACIF S004 and as a WIP phone for intercommunication systems for emergency purposes complying with AS 2220.1 and installed to AS 1670.4 at both the c.i.e. and the WIP locations.

Specifications	
Operating Voltage	6Vdc (@ 9mA) to 15Vdc (@ 22.5mA)
AC Impedance	600 ohms (off hook) 25 - 50 ohms (on hook)
Ring Voltage	6Vac r.m.s.
Ring SPL	82dBA @ 1m (approx)
Screw Terminations	To suit 0.75 to 1.5mm^2 wire
Ambient Temp	-10°C to +50°C
Material	Red ABS
Dimensions (mm)	215 x 70 x 70 (HWD)
CSIRO ActivFire Listed	afp-524
Part Numbers	
FP0938	Vigilant WIP Phone
PA0689	PCB WIP Flashing Board

EA0412 WIP Phone Surface Mount Enclosure

EA0412 is designed for use in Emergency Warning Systems, for providing Warden Intercom Points (WIPs) protection against impact.
The enclosure door is held closed by a magnetic catch. The enclosure is finished in red powder coat.

Specifications	
Material	Mild Steel
Finish	Red powdercoat
Dimensions (HWD)	386 x 156 x 155mm
Weight	1.8 kg
Part Number	EA0412

STI-CIS Analyser and STI-CIS TALKBox

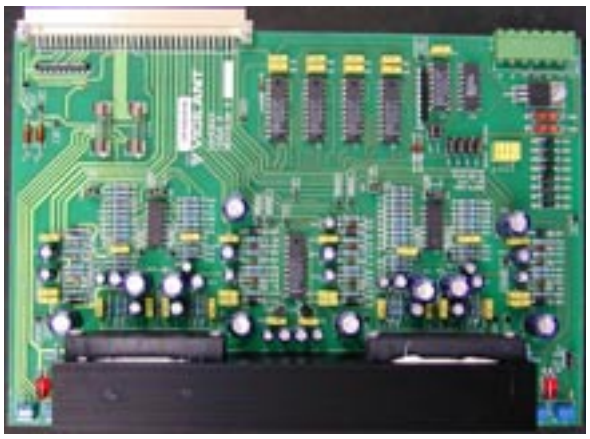
The STI-CIS Analyser measures the speech intelligibility of a fire alarm evacuation signal. To measure overall speech intelligibility, the STI-CIS Analyser uses the STI measurement method to factor in the effects of the warning system, room acoustics (reverberations and echoes) and background noise.
The STI-CIS Analyser comes equipped with its own microphone and LED display and has buttons to activate dBA and CIS measurements. There is provision for a PC interface (RS-232) for use with the STI-CIS Noise Effect Correction Software Tool.

The TALKBox is used to send the STI-PA test tone into the fire alarm warning system. It interfaces with the system through its microphone input. A line-level output is also available for systems with direct line inputs. The TALKBox comes equipped with its own CD player and speaker. The CD player has controls to Play, Rewind, and Fast Forward the CD with STI-PA test tone (supplied). However, pressing Play on the CD player is all that is required to play the test tone once you insert the STI-PA Test Tone CD into the CD player. Power is supplied to the TALKBox through a DC power supply (connected to the Ext. Power socket) or batteries. The TALKBox operates a minimum of 18 hours on eight AA alkaline batteries.

Specifications - Analyser	
Ambient Temp	0 to 50°C
Power Supply	8 x AA batteries/AC adaptor
Dimensions (HWD)	410 x 250 x 70mm
Weight	160g
Specifications - TALKBox	
Power Supply[1]	12Vdc, 190mA via 8 x AA batteries or AC adaptor at 500mA (12Vdc, tip positive)
SPL Output	0 dB to 100 dBA (STI-PA test tone)
Ambient Temp	0 to 50°C
Dimensions (HWD)	470 x 360 x 180mm
Weight	520g
Part Numbers	
STI-CIS	Analyser & TALKBox Kit

1. 92dB(A) STI-PA tone out

QE90 Spares - Amplifiers



PA0650 EAMP9001
4x10W / 2x25W Zone Power Amp PCB

PA0688 1923-19 Microphone Pre-Amp PCB

PA0647 AMP200
200W Amplifier Module PCB

PA0690 HAMP9308
2x50W/1x100W Amplifier Module PCB

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 Module

QE90 Spares - Transformer Modules

PA0792 TRAN9705-2
4x25W Transformer Module c/w Relays

PA0794 TRAN9705-4
2x25W Transformer Module c/w Relays

PA0795 TRAN9706-1
4x10W Transformer Module without Relays

PA0796 TRAN9706-2
4x10W Transformer Module c/w Relays

QE90 Spares - Interface Modules

PA0657 SE9004 Signal Interface PCB

PA0649 SPIF9709
SECP Panel Interface

PA0481 RZDU/RS232
Interface PCB 1901-100

QE90 Spares

PA0642 WIPS2000
WIP Slave Module 0V Ref Inputs PCB

PA0916 WTRM2000
WIP Termination PCB

PA0643 ECP9702-1
3 WIP/Zone Control PCB

ME0297 QE90 Auto/Man/Isol
Keyswitch Assembly

PA0653 EMSP8911-2
3 WIP/Zone Display Keyboard Extender

PA0689 WLED9307
QE90 WIP Flashing LED PCB

QE90 Spares - Communications

PA0646 ALIM9706
Audio Line Isolator PCB

PA0697 STRM9502
Strobe/Relay Module PCB with AS 2220/ISO 8201 Selection

PA0651 FIB8910
FIP/BGA Master PCB

PA0698 ECM9603
Evac Communications Module PCB

PA0652 FIPE9004
FIP/BGA Extension PCB

PA0758/759 EMUX9601
Multiplexer 16/60s Speech PCB with AS 2220
and ISO 8201 Selection

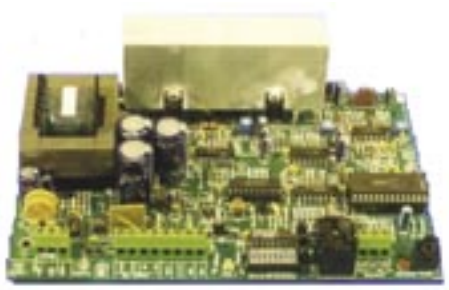
Warning System Tone Generators

Mini-Gen Mk2

The Mini-Gen Mk2 has been designed to connect directly to Tyco/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 (from the panel to the unit and from the unit to the speakers) for open and short circuit faults. Mini-Gen is available in 12V and 24V versions and has in-built software allowing link selection to configure the Alert and Evacuate signal type and timing including keywords and voice message.

Specifications	
Speaker Line Output	100V
Load	20W max per unit
Warning Signals	AS 2220, ISO 8201
Other Tone	RH3
PCB Dimensions (LWH)	93x67x35mm
FPANZ Listed	VF/419
Part Numbers	
PA1025	12V Mini-Gen Mk2
PA1026	24V Mini-Gen Mk2

T-GEN 50



The T-GEN 50 tone generator and Public Address amplifier module generates emergency warning signals for alarm and evacuation systems where a full EWIS to AS 2220 or AS 1670.4 is not required. T-GEN 50 provides 50 watts rms of alarm tone into a 100 volt line. Different tones can be selected including the AS 2220 Alert and Evacuate signals and the ISO 8201 Evacuate tone. T-GEN 50 provides fault supervision, Public Address facilities and recorded speech message generation. Readily available accessories ensure that installing the T-GEN 50 is quick and easy. Additional (slave) modules can be added to increase power output.

Specifications	
Operating Voltage	19.2 to 28.8 Vdc
Power Output (@ 27Vdc)	50W (rms) tone, 25W (rms) speech
Warning Signals	AS 2220, ISO 8201
Other Tones	RH3, HeeHaw, Wail
PCB Dims (LWH)	125x195x55mm
FPANZ Listed	VF/416
Part Numbers	
PA0766	T-GEN 50 Tones, ISO 8201, Aust & NZ voice
PA0886	T-GEN 50 Bell, Aust & NZ voice, no tone option
FP0698	T-GEN 50 3U rack mtg panel
ME0289	T-GEN 50 1U rack mtg control panel
ME0290	Handheld Microphone
ME0291	T-GEN 50 A/I/E sw & brkt
ME0292	T-GEN 50 box, 003 lock
ME0297	SW0018 with loom & connector
SW0018	A/I/E 3 position key switch

ME0289 1U Rack Mounting Control Panel (incl. switch, loom & hardware) T-GEN 50 not included.

FP0698 T-GEN 50 3U Rack Mounting Panel (incl. PA0766) shown with optional keyswitch (supplied loose)

ME0291 T-GEN 50 Auto/Isol/Evac Sw & Brkt

A standalone tone generator and PA announcement system can be constructed by using a T-GEN 50 mounted in a cabinet (eg, **ME0292**), together with the **ME0291** Auto/Isolate/Evacuate switch, and the **ME0290** microphone. A suitable power supply is also required, (e.g. Series 1948 24V 2 Amp (**FP0766**) and 2 x 6.5 Amp hour batteries - this is the same size as the T-GEN 50 cabinet).

ME0292 T-GEN 50 Cabinet

Bell Monitor

The Bell Monitor 1864-32 is a small module designed to provide open and short circuit fault (defect) supervision of an evacuation circuit of an automatic fire alarm system, as required by NZS 4512 and AS 1670.1. It can be used to supervise the evacuation circuit wiring of older fire alarm panels that do not have this capability built in. Also, because it contains its own evacuation circuit relay, it can be used to extend or increase the evacuation load capability of fire alarm panels that already have built in evacuation wiring supervision. It is available as 12V (PA0469) and 24V (PA0494) versions.

Specifications	**PA0469**	**PA0494**
Operating Voltage	12V±20%	24V±20%
Operating Current	3mA (5mA LED[1])	4mA (8mA LED[1])
Evac cct sup current:	0.65mA	1.3mA
Evac cct sup voltage:	6.5V[2]	13V[2]
Evac sys voltage[3]	30Vdc max	
Evac sys current	5Adc resistive max.	
Dimensions (HWD):	62 x 62 x 29 mm	
FPANZ Listing	VF/606	
Part Numbers	PA0469	PA0494

1. Minimum current for LED visibility 2. Across 10k EOL
3. If separate from panel

Warning System Ancillaries

Visual Devices

SR

SR Wall Strobe, Red

Specifications	
Operating Voltage	24Vdc
Operating Current	210mA max.
Flash Rate	1 Hz
Flash Energy	15 to 115 cd (7 settings)
Ambient Temp	0°C to +49°C
Relative Humidity	10 to 93% n/cond
Dimensions (HWD)	142x119x64 mm
Part Number	SR

SRK

SRK Wall Strobe, Red, Outdoor

Specifications	
Operating Voltage	24Vdc
Operating Current	210mA max.
Flash Rate	1 Hz
Flash Energy	15 to 115 cd (7 settings)
Ambient Temp	-40°C to +66°C
Dimensions (HWD)	145x130x115 mm
Part Number	SRK

SW

SW Wall Strobe, White

Specifications	
Operating Voltage	24Vdc
Operating Current	210mA max.
Flash Rate	1 Hz
Flash Energy	15 to 115 cd (7 settings)
Ambient Temp	0°C to +49°C
Relative Humidity	10 to 93% n/cond
Dimensions (HWD)	142x119x64 mm
Part Number	SW

P2R

P2R 2-Wire, Wall Horn/Strobe, Red

Specifications	
Operating Voltage	24Vdc
Operating Current	229mA max.
Flash Rate	1 Hz
Flash Energy	15 to 115 cd
SPL (@ 24V) *	76 to 84/88 to 93 dBA
Ambient Temp	0°C to +49°C
Relative Humidity	10 to 93% n/cond
Dimensions (HWD)	142x119x64 mm
Part Number	P2R

P2RK

P2RK 2-Wire Wall Horn/Strobe, Red, Outdoor

Specifications	
Operating Voltage	24Vdc
Operating Current	229mA max.
Flash Rate	1 Hz
Flash Energy	15 to 115 cd
SPL (@ 24V) *	76 to 84/88 to 93 dBA
Ambient Temp	-40°C to +66°C
Relative Humidity	10 to 93% n/cond
Dimensions (HWD)	145x130x115 mm
Part Number	P2RK

P4R

P4R 4-Wire Wall Horn/Strobe, Red

Specifications	
Operating Voltage	24Vdc
Operating Current	229mA max.
Flash Rate	1 Hz
Flash Energy	15 to 115 cd
SPL (@ 24V) *	76 to 84/88 to 93 dBA
Ambient Temp	0°C to +49°C
Relative Humidity	10 to 93% n/cond
Dimensions (HWD)	142x119x64 mm
Part Number	P4R

Notes

* The tone is selectable between Temporal 3 and Non-Temporal (continuous). The tone volume is selectable between Low, Medium, High.
SPL is 76/80/84 dBA Temporal 3 and 83/86/88 dBA Continuous from a 24Vdc supply.

EA0301/2

Specifications	
Operating Voltage	24Vdc
Operating Current	80mA
Flash Rate	130 fpm
Flash Energy	0.6J
Protection	IP55
Dimensions	100 dia x 80 mm
Weight	160g
Part Numbers	
EA0301	Amber AX-35
EA0302	Red AX-35

EA0305/6

Specifications	
Operating Voltage	24Vdc
Operating Current	400mA
Flash Rate	90 fpm
Flash Energy	3.15J
Protection	IP55
Dimensions	100 dia x 94 mm
Weight	230g
Part Numbers	
EA0305	Amber
EA0306	Red

DLE201215A/R

Specifications	
Operating Voltage	24Vdc
Operating Current	600mA
Flash Rate	120 fpm
Luminous Intensity	100 Cd (Amber)
Power	15W
Protection	IP65
Ambient Temp	-20°C to +55°C
Dimensions	160 dia x 175mm
Weight	450g
Part Numbers	
DLE201215A	Amber
DLE201215R	Red

ESS7010R

Specifications	
Op. Voltage	20 to 28Vdc
Op. Current	250mA @24Vdc
Flash Energy	5J
Flash Rate	1Hz
Operating Temp	-25°C to +55°C
Relative Humidity	up to 90% (n/c.)
Ingress Protection	IP55
Dimensions (HWD)	86x86x83 mm
Weight	200g
Part Number	ESS7010R

EA0313

Specifications	
Op. Voltage	20 to 30Vdc
Inrush Current [1]	290mA
Op. Current [1]	160mA
Flash Energy	2.6J
Operating Temp	-30°C to +60°C
Relative Humidity	10 to 95% (n/c.)
Dimensions (HWD)	250x150x80mm
Weight	450g
Part Number	EA0313

1. Ratings at 24Vdc

Where two distinct visible signals are required, the Tyco EA0313 Dual Strobe unit is available. The dual strobes operate at 24 volts and provide a 2.6 Joule output. The strobes may be powered in tandem over a two wire circuit or independently over a 4 wire circuit.

40020

Specifications	
Op. Voltage	20 to 30Vdc
Inrush Current [1]	290mA
Op. Current [1]	140mA
Flash Energy	2.6J
Operating Temp	-5°C to +60°C
Relative Humidity	10 to 95% (n/c.)
Dimensions (HWD)	180x130x85mm
Weight	350g
Part Number	40020

1. Ratings at 24Vdc

The 40020 is designed to be mounted on an external wall. It is weather resistant and made of fire resistant ABS. Screws and caps are supplied.

ESS7111XR

Specifications	ESS7111XR
Op Voltage	24Vdc
Op Current	270mA
Dims (mm)	Ø165 x 246
Protection	IP67
Material	Aluminium
Approval	CENELEC EExdIICT4
Part Number	ESS7111XR

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

ESS7010ISR

Specifications	
Op. Voltage	10 to 28Vdc[1]
Op. Current	25mA @24Vdc
Flash Energy	5J
Flash Rate	120 fpm
Operating Temp	-40°C to +60°C
Relative Humidity	up to 90% (n/c.)
Ingress Protection	IP56
Dimensions (HWD)	86x86x93 mm
Weight	400g
Part Number	ESS7010ISR

1. Via zener barrier

The ESS7010ISx is an EExia rated LED warning light. It is rated ATEX EExia IIC T4, certificate ITS02ATEX2006.

Audio Devices

HS-15EEXIINT 100V Line Ex Rated Horn Speakers HP-20EEXIINT

EX II 3 G
Certified by/Certification code/Number: NEMKO / EEx nA II T6 / 03 ATEX3286

Specifications	HS-15EEXIINT	HP-20EEXIINT
Line Voltage	100V	100V
Power Rating	15 W	20 W
Power Taps	0.8,2,4,5,7.5,15	1.5,2,5,6,10,20
SPL 1W/1m	107 dB	110 dB
SPL @ rated power	118 dB	122dB
Eff. freq. range(Hz)	370-7000	310-8000
Dispersion (-6dB 1&4kHz)	150° / 40°	115° / 30°
Material	Alum.	Polyamide
Weight	2.8 kg	2.3 kg
IP-rating	IP67	IP67
Ambient Temp	-50 to +50°C	-50 to +150°C
Dimensions (dia x L)	163x247	237 x 286
BASEEFA / Ex ds IIB+H2 T6 / Ex 81218		
Part Numbers	HS-15EEXIINT	HP-20EEXIIN(T)

EX II GD Zone 22
Certified by/Certification code/Number: NEMKO / EEx nA II T3 / Nemko 03ATEX3568

EA0013 100V Line 10W Horn Speaker

This ABS horn speaker is designed primarily for distributed paging systems where a high degree of speech articulation and program clarity is paramount. Typical applications include schools, train/bus stations, airports, car parks and plant rooms. An adjustable power tap switch is provided, as is a 22µF bipolar isolation capacitor to permit line monitoring function when employed with Warning System installations. A 4 core loop-through flying lead is provided.

Specifications	
Power Rating	10W
Power Taps	1.25, 2.5, 5, 7.5, 10W
Sound Pressure Level	104dB, 1W@1m 114dB, 10W@1m
Frequency Response	300Hz to 13kHz
Isolation Capacitor	22µF Bipolar
Dispersion Angle	110°
Dimensions (L x dia)	255 x 180 mm
Ingress Protection	IP66
Part Number	C2049

EA0016 100V Line 20W Horn Speaker

This plastic horn speaker is designed primarily for distributed paging systems. The speakers have clear speech reproduction to ensure intelligibility of announcements. Power taps are adjustable to suit the power rating of the amplifier or the area to be covered. The speakers are fitted with a 22µF bipolar capacitor for line monitoring and a 4 core flying lead for loop-in and loop-out connections. Each speaker has nickel-chromium plated mild steel hardware included, making them ideal for aquatic centre installations.

Specifications	
Power Rating	20W
Power Taps	5, 7.5, 10, 15, 20W
Sound Pressure Level	108dB 1W @ 1m 121dB 20W @ 1m
Frequency Response	275Hz to 10kHz
Isolation Capacitor	22µF Bipolar
Dispersion Angle	70°
Dimensions (dia x L)	212 x 285 mm
Ingress Protection	IP66
Part Number	EA0016

EA0017 100V Line 30W Horn Speaker

This IP66 rated weatherproof horn speaker is ideal for indoor or outdoor use. It features 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 & marine applications.

Specifications	
Power Rating	30W
Power Taps	3.75,7.5,10,15,30W
Sound Pressure Level	109dB 1W @ 1m
Frequency Response	330Hz to 8kHz
Dispersion Angle	130°
Dimensions (dia x L)	238 x 287 mm
Weight	2.6 kg
Operating Temperature	-20°C to +55°C
Ingress Protection	IP66
Part Number	EA0017

FP0864 Mini Speaker

Mini Speaker is a compact 100V speaker suitable for use with tone warning systems. It is intended as a more compact, albeit less powerful, alternative to a ceiling mounted cone speaker, primarily for use in residential situations. The mini speaker mounts on an electrical industry standard flush or surface box.

Specifications	
Equivalent Power	1.25W @ 100V line
Sound Pressure Level	82dBA to 90dBA @ 1m*
Cable Size	4mm² (max.)
Dimensions	119x74x41 HWD
Part Number	FP0864

* Adjustable in 4 steps

EA0006 - 100V Line Ceiling Recessed Speakers

SRSPR4S (EA0006) Speaker

The EA0006 speakers feature a tapped line transformer with cover, 5 position terminal strip and line supervisory capacitor. EA0006 is a 100mm diameter cone speaker suitable for concealed mounting in ceilings.

Specifications	
Power Rating	10W rms
Driver Impedance	8 Ohm
Power Taps	0.33, 0.5, 1, 2.5, 5W
Sound Pressure Level	92dB 1W @ 1m
Frequency Response	75Hz to 20kHz @-6dB
Line Voltage	100V
Directivity @ 2kHz	160°
Dimensions	diameter 100mm
Part Numbers	
SRSPR4S	EA0006 4" Speaker
SRSPRGFA4S	Grille (white "Fire")
EA0104	Screw Covers pkt 80

SRSPRGFA4S Speaker Grille

EA0700 100V Line Surface Mount Speaker

This fitting has been designed to mount directly to the underside of concrete slabs or inaccessible ceilings. The housing is mounted to the surface using concealed internal fixings. Once mounted, the grille and speaker assembly simply screws to the housing. Cable entry can be either from the rear, or via surface mounted conduit (four 19mm conduit knockouts are provided) with transformer taps of 0.33 to 5W on 100V line PA systems. A 4 way wire protected terminal strip and a 22µF bi-polar capacitor for line monitoring is included.

Specifications	
Power Rating	5W
Power Taps	0.33, 0.66, 1.25, 2.5, 5W
Sound Pressure Level	87dB, 1W @ 1m
Frequency Response	100Hz - 20kHz
Dimensions	220 dia x 55H mm
Part Number	EA0700

EA0005 'One Shot' 100V Line Speaker

The 'One Shot' PA speaker and grille is designed to install easily into 10 to 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 AS2220.1, with a transformer cover and 22µF capacitor. The transformer has 5 power taps from 0.33 to 5W and a 4 way terminal block.

Specifications	
Power Rating	5 Watts
Power Taps	0.33, 0.66, 1.25, 2.5, 5W
Sound Pressure Level	92dB 1W @ 1m
Frequency Response	100Hz - 15kHz
Ceiling Cutout	140mm diameter
Part Number	EA0005

100V Line Audio Attenuators

A2245 10W Models and 40W Models

A2339 100W

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 are available with an override relay facility. With fire evacuation systems it is necessary to override the attenuator setting to broadcast an announcement at full volume. The override relays can be configured to operate in two modes. The standard mode requires 24Vdc applied to the relay coil to override the volume setting. The fail-safe mode requires 24Vdc to allow the attenuator to operate normally.

Specifications			
Power Rating (100V line)	10W	40W	100W
Attenuation (dB)	0 to 26.3		0 to 33
Relay Override			
Operation Voltage	24Vdc typical		
Wall Box Size	1 gang	1 gang	2 gang
Part Numbers	A2245	A2255	A2339

DB3 Flameproof Horn Sounder

The DB3 Horn Sounder is a high power device designed for use in potentially explosive atmospheres and harsh environments. Stainless steel screws and sinter are incorporated to ensure a corrosion free product. A tapered flamepath is used. The DB3 sounder volume is adjustable from 93dBA at 50mA** to 115dBA at 350mA**

**Input current is measured with 24V input voltage, tone 970Hz continuous

Approvals	
CENELEC	EN50014,18,19
BASEEFA	Cert No BAS00ATEX2097X EExd IIC 100°C (-55 to +55°C amb) T5 Zone 1 & Zone 2
UL Listed	Class 1 Div 2, Groups A-D Class 1 Zones 1 & 2, AExd IIC T4 Listing No E203310
GOST	1Exd IIC T4 & 1Exde IIC T4 Certificate No A-0759

Specifications	
Operating Voltage	24Vdc
Rated Current*	380mA @ 24Vdc
Sound Pressure Level*	115dBA ± 3dBA
Tones	27 user selectable
Cable Entries	1 x 20mm EExd
Terminals	6 x 2.5mm^2
Temperature	
EExd	-20°C to +55°C
UL	-55°C to +55°C
GOST Exd	-20°C to +50°C
Weight	6kg
Ingress Protection	IP66
Part Number	576.501.043

* tone dependent

FP0875 Isolation Amplifier

The FP0875 Isolation Amplifier connects to an existing 100V speaker line and reproduces this signal at up to 50W 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.

Specifications	
Supply Voltage	19.6V to 28.8Vdc
Quiescent Current	57mA[1]
Active Current	2.2A (50W @ 27Vdc)
Input Signal	100V rms @ 1W max.
Output Voltage	100V rms
Output Power	50W rms[2] / 25W[3]
Dimensions (HWD)	240x295x80 mm
Part Number	FP0875

1. No speech or background music
2. Tones 3. Speech/music

150mm Motorised Bell

Features - SRALM612

- Approved for indoor and outdoor use
- Low current draw
- High 82dBA/m
- Slim profile (53mm)
- Polarised for use with supervision circuitry

Features - SSM246

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

Specifications	SRALM612	SSM246
Operating Voltage	12Vdc	24Vdc
Rated Current	30mA	53.5mA
SPL (dBA @ 1m)	95	82
Ambient Temp	-10°C to +50°C	
Colour	Red	Red
Part Numbers	SRALM612	SSM246

"RH" Sounders

The RH series includes two sounder types - RH3, a 12Vdc device; and RH4, a 24Vdc device. Both sirens are finished in Signal Red to shade No 537 NZS 7702. They feature a mounting bracket adjustable to angle the siren over 90 degrees. The sirens are provided with flying leads 300mm in length.

Specifications	**RH3**	**RH4**
Operating Voltage	12Vdc	24Vdc
Rated Current	250mA	125mA
Sound Character	5 Hz sweep, 500 Hz to 1400 Hz	
SPL (dBA @ 3m)	100	100
Ambient Temp	-10°C to +50°C	
Colour	Red	Red
Dims (Dia x L)	132 x 150 mm typical	
FPANZ Listed	VF/401	VF/402
Part Numbers	FP0416A	FP0469

Audio Visual Indicators (AVI)

FP0853 AVI MK2 2 LINE RED Shown with FA2301 Facia

Specifications

Operating Voltage	19 to 28Vdc
Current (@24Vdc)	
1 Line & tone	45mA
2 Lines & tone	62mA
3 Lines & tone	80mA
4 Lines & tone	97mA
Luminance	300cd/m2 - 1Hz Flash
Sound Pressure	90dBA @ 1m axial
Dimensions (HWD)	206x316x85 mm
Designed to comply with	AS1603.11
FPANZ Listed	VF/417

Part Numbers

FP0853	AVI Mk2 2 line red
FP0854	AVI Mk2 3 line yellow
KT0292*	Exp Kit: red LED PCB + hardware
KT0293**	Expansion Kit: red double sided
FA2300	'FIRE ALARM EVACUATE AREA' 2 line red
FA2301	'FIRE ALARM DO NOT ENTER' 2 line red
FA2302	'DO NOT ENTER CO2 GAS DISCHARGED' 3 line red
FA2303	'DO NOT ENTER FM-200 GAS DISCHARGED' 3 line red
FA2304	'DO NOT ENTER INERGEN GAS DISCHARGED' 3 line red
FA2306	'CO2 SYSTEM INOPERATIVE' 3 line yellow
FA2307	'FM-200 SYSTEM INOPERATIVE' 3 line yellow
FA2308	'INERGEN SYSTEM INOPERATIVE' 3 line yellow
FA2310	'WARNING FIRE DOOR CLOSING' 3 line red
FA2476	'EXTINGUISHING SYSTEM INOPERATIVE' 3 line yellow

*adds a 3rd LED board to make 3 line red sign

** adds 2nd cover & base with 2 LED boards for ceiling mounted double sided 2 line red sign

The AVI Mk2 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 2 or 3 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.

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 2-line unit to 3-line and a back-box kit to expand a red 2-line unit to ceiling mounted, double sided format.

Several AVIs may be synchronised by connecting the 'Sync' terminals (an additional wire is required between units).

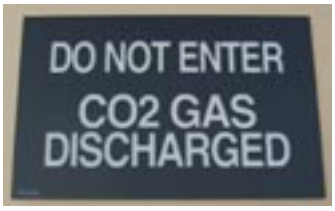
FP0854 AVI MK2 3 LINE YELLOW

KT0292 AVI MK2 EXPANSION RED LED PCB & HARDWARE

KT0293 AVI MK2 RED DOUBLE SIDED EXPANSION KIT

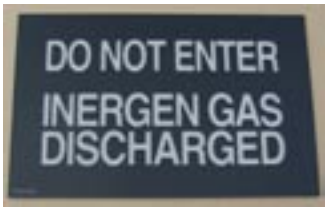
FA2300 AVI MK2 FACIA & DIFFUSER,FIRE ALARM,EVACUATE AREA

FA2301 AVI MK2 FACIA & DIFFUSER,FIRE ALARM,DO NOT ENTER

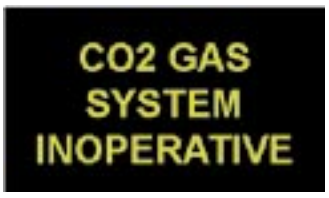


FA2302 AVI MK2 FACIA & DIFFUSER,DO NOT ENTER,CO2 DISCHARGED

FA2303 AVI MK2 FACIA & DIFFUSER, DO NOT ENTER, FM-200 GAS DISCHARGED



FA2304 AVI MK2 FACIA & DIFFUSER, DO NOT ENTER, INERGEN GAS DISCHARGED

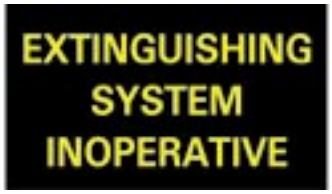


FA2306 AVI MK2 FACIA & DIFFUSER,CO2 GAS SYSTEM INOPERATIVE

FA2307 AVI MK2 FACIA & DIFFUSER, FM-200 GAS SYSTEM INOPERATIVE

FA2308 AVI MK2 FACIA & DIFFUSER, INERGEN GAS SYSTEM INOPERATIVE

FA2310 AVI MK2 FACIA & DIFFUSER, WARNING FIRE DOOR CLOSING



FA2476 AVI MK2 FACIA & DIFFUSER,EXTINGUISHING SYSTEM INOPERATIVE

Batteries and Power Supplies

Batteries

Part Number	Voltage (V)	Ah	Dimensions (mm)			Weight (kg)
			Length	Width	Height	
BA12012	12	1.2	97	47.5	55	0.65
BA12070	12	7	150	65	98	2.8
PSH-12100	12	10.5	151	65	117	3.2
BA12120	12	12	151	98	98	4.7
BA12170	12	17	180	75	168	6.0
BA12240	12	24	175	165	125	9.0
BA12400	12	40	197	165	170	14.5
BA12650	12	65	350	166	174	24.1

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

24Vdc Power Supplies for QE90/MX4428/F4000

ME0331 - 24Vdc 6A (QE90)
ME0340 - 24Vdc 6A (MX4428)

ME0330 - 24Vdc 6A Brick (QE90)
ME0334 - 24Vdc 6A Brick (MX4428)

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 6 Amp in 19" rack mounting (2U) or gear-plate mounting (brick) and 12 Amp in 19" 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.

Specifications	**2406**	**2412**
Output	24Vdc 6A	24Vdc 12A
19" Rack Type		
Dimensions (mm HWD)	89x483x123	89x483x180
Brick Type		
Dimensions (mm HWD)	96x262x158	
CSIRO ActivFire Listed	afp-1290	
FPANZ Listed	VF/648	
Part Numbers		
19" Rack Type		
QE90	ME0331	ME0333
MX4428	ME0340	ME0343
Brick type		
QE90	ME0330	
MX4428	ME0334	
Accessories		
PA0813	Monitor/Term PCB - Spares	

ME0333 - 24Vdc 12A (QE90 - PSU2412)

ME0343 - 24Vdc 12A (MX4428 - PSU2412F)

12Vdc General Purpose Power Supplies

ME0346 - 12Vdc 6A Brick
ME0347 - 12Vdc 12A Brick

The 12 Volt 6 Amp PSU1206G and 12 Volt 12 Amp PSU1212G General Purpose Battery Charger/Power Supply Units (PSU) are supplied in a "brick" format enclosure and are intended for placing on a shelf within a cabinet or mounting on a wall or gear plate using the 4 mounting holes provided. These units can be operated in any orientation provided that the ventilation louvres in the case are not obstructed. The unit comes complete with a pre-wired 2 metre mains lead and 3-pin plug and 1 metre Red (+) and Black (-) unterminated leads are provided for connection to the battery / equipment as required.

Specifications	**1206G**	**1212G**
Output	12Vdc 6A	12Vdc 12A
Dimensions (mm HWD)	96x262x158	
Weight	5kg	
FPANZ Listed	VF/647	
Part Numbers	ME0346	ME0347
Accessories		
PA0813	Monitor/Term PCB - Spares	

FP0521 DBA PSU 12Vdc 0.5A

The Vigilant 1926 DBA Power Supply is mainly intended for powering 2-wire SGD installations in DBAs but may also be used to power any fire alarm system or load where supervised 12 volt power is required. It includes a defect (battery monitor) circuit with relay contact output which is usually wired in series with the defect input of one of the SGDs it powers.

Specifications	
Output	12Vdc 0.5A
Input	230Vac 50Hz
Battery Capacity	6.5 Ah (BA12070)
Dimensions (HWD)	295x240x80mm
ICONZ Approved for SGD	
FPANZ Listed	VF/629
Part Number	FP0521

FP0576 Empty Battery Box

This battery box provides 8U of 19" rack capacity and has a similar finish to the range of standard Tyco 19" Rack Cabinets - 1.6mm mild steel construction, with powder coated, cream wrinkle finish. The cabinet provides IP51 protection and door is secured with 003 lock. 24 volt battery capacity is 80Ah using 2 x PS-12800 batteries (not stocked) or up to 120Ah using 6x 40Ah batteries (BA12400).

Specifications	
Dimensions (HWD)	440x550x211mm
Material	1.6mm mild steel, powder coat cream wrinkle
Ingress Protection	IP51
Part Number	FP0576

FP0754 24Vdc 6A AS 1603.4 & AS 4428 MX4428/F4000 Power Supply

FP0754 comprises an ME0334 (PSU2406F 'brick') power supply for AS 1603.4 & AS 4428 MX4428/F4000 mounted within the FP0576 8U 19" rack battery box which has a similar finish to the range of standard Vigilant 19" Rack Cabinets. The cabinet provides IP51 protection and the door is secured with 003 lock.

Specifications	
Output	24Vdc 6A
Input	230Vac 50Hz
Battery Capacity	2x 40Ah (BA12400)
Dimensions (HWD)	440x550x211mm
Cabinet	1.6mm mild steel, powder coat cream wrinkle
Ingress Protection	IP51
Part Number	FP0754

FP0765 PSU1948 12Vdc 2A Power Supply

Series 1948 Power Supplies are designed specifically for use in fire alarm systems. They provide a compact, self-contained 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	12Vdc 2A
Input	230Vac 50Hz
Battery Capacity	6.5 Ah (BA12070)
Dimensions (HWD)	295x240x80mm
Ingress Protection	IP51
CSIRO ActivFire Listed	afp-1341
FPANZ Listed	VF/629
Part Number	FP0765

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 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 6.5 Ah (BA12070)
Dimensions (HWD)	295x240x80mm
CSIRO ActivFire Listed	afp-1341
FPANZ Listed	VF/629
Part Number	FP0766

FP0803 24Vdc 12A Power Supply

FP0803 comprises an ME0343 (PSU2412F 2U rack mounted) power supply for AS 1603.4 & AS 4428 MX4428/F4000 mounted within the FP0576 8U 19" rack battery box which has a similar finish to the range of standard Vigilant 19" Rack Cabinets. The cabinet provides IP51 protection and the door is secured with 003 lock.

Specifications	
Output	24Vdc 12A
Input	230Vac 50Hz
Battery Capacity	2x 40Ah (BA12400)
Dimensions (HWD)	440x550x211mm
Cabinet	1.6mm mild steel, powder coat cream wrinkle
Ingress Protection	IP51
Part Number	FP0803

FP0804 24Vdc 2.5A AS 1603.4 F4000 Power Supply

FP0804 comprises a power supply for AS 1603.4 F4000 mounted within the FP0576 8U battery box which has a similar finish to the range of standard Vigilant 19" rack cabinets. The cabinet provides IP51 protection and the door is secured with a 003 lock.

Specifications	
Output	24Vdc 2.5A
Input	230Vac 50Hz
Battery Capacity	2x 40Ah (BA12400)
Dimensions (HWD)	440x550x211mm
Cabinet	1.6mm mild steel, powder coat cream wrinkle
Ingress Protection	IP51
Part Number	FP0804

FP0852 PSU1948 24Vdc 2A 'VESDA' Power Supply

This Series 1948 Power Supply is designed match the VESDA LaserPLUS and LaserSCANNER detectors in size and colour. The FP0852 provides a compact, self-contained 24 volts dc mains power supply, with 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	2 x 12 Ah (BA12120)
Dimensions (HWD)	230x360x130mm
CSIRO ActivFire Listed	afp-1341
FPANZ Listed	VF/629
Part Number	FP0852

FP0874 MX4428/F4000 24Vdc 2.5A Power Supply

The FP0874 Power Supply is used in MX4428 panels. It replaces all older models used in New Zealand.

Specifications	
Output	24Vdc 2.5A
Input	230Vac 50Hz
CSIRO ActivFire Listed	afp-1341
FPANZ Listed	VF/629
Part Numbers	
FP0874	MX4428 24Vdc 2.5A

PA0854 PCB 1948 PSU 24V 2A

The PA0854 Series 1948 PSU, 24V, 2A, PCB & Transformer is a mains power supply and constant voltage battery charger designed to be mounted on equipment gear plate. Green LED indicates mains on, Yellow LED indicates fault condition, Red LED brightness indicates load current or rate of charge; flash indicates battery test. Over-current protection of battery provided by 6A PTC. Automatic or externally initiated battery capacity and battery connection test (link to disable). Common PSU Fault output (link to include Mains Fail after 90 minutes).

Specifications	
Output	27.3 Vdc 2A
Input	230 Vac 50Hz
Battery Capacity	2 x 12 Ah
Dimensions (HWD)	
PCB	130 x120 x 60 mm
Transformer	65 x 70 x 80 mm
Ambient Temp	-5°C to +45°C
Relative Humidity	up to 95% (non-cond.)
CSIRO ActivFire Listed	afp-1341
FPANZ Listed	VF/629
Part Number	PA0854

VESDA Aspirating Smoke Detectors

The VESDA range of aspirating smoke detetors are high sensitivity devices that provide both an early warning to facilitate intervention, and a suppression (Fire 2) signal to initiate release at an appropriate level, eliminating the need for a separate detection system. The system is modular, displays and programmers can be installed only where needed.

VESDA LaserFOCUS™

Designed to protect spaces of less than 250 m^2, the VESDA LaserFOCUS VLF-250 is the cost-effective solution for areas such as:

- Local Telecommunication Exchanges
- Air Handling Units
- Smaller Server Rooms
- Correctional Facilities
- Control Rooms
- Switch Rooms
- Railway Signal Hubs
- Storage Facilities
- Cabinets
- Hazardous Areas (Class 1 Div 2)

The VESDA 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. It's 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.

VIC-010 VESDANet card for VLF-500
VIC-020 Relay Card for VLF-500

VLF-250-02 LaserFOCUS Detector-relays only
VLF-500-02 LaserFOCUS Detector

VESDA LaserCOMPACT™

The LaserCOMPACT detector has been specifically designed to provide all the benefits of aspirating smoke detection, including very early warning, in single small areas and where space is at a premium. This has been achieved through the combination of approved LaserPLUS detection technology, dual stage filtration technology and a modified aspirator design incorporated in a smaller enclosure with simplified display. LaserCOMPACT is available in four versions of interface: relays only (RO), relays and VESDAnet™ , Simplex TrueAlarm, Tyco MX.

VLC-600

VLC-800MX

Features

- Reduced size
- Absolute smoke detection
- Wide sensitivity range
- Single pipe inlet
- Simple display
- Referencing
- VESDAnet communication (VN)
- Dual stage dust filter
- Three alarm levels
- Configurable relays

Specifications	
Operating Voltage	18 to 30Vdc
Operating Current	225mA
Alarm Current	245mA
Operating Temperature	
Sensor Ambient	-10°C to +39°C
Sampled Air	-20°C to +60°C
Relative Humidity	10 to 95% (non-cond.)
Alarm Sensitivity	0.05 to 12%obs/m
Coverage Area	500 m^2
Dimensions (HWD)	225x225x85mm
Weight	1.9 kg
Part Numbers	
VLC-505	VESDAnet Version (VN)
VLC-500	Relays Only Version (RO)
VLC-600	Simplex TrueAlarm
VLC-800MX	Tyco MX

- Air flow monitoring
- Optional remote display and relay capability
- AutoLearn™

LaserPLUS™ Standard Modular Range - LaserPLUS Detectors

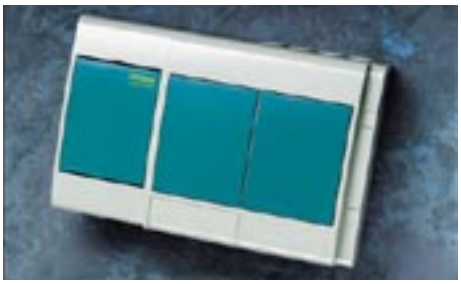
The detector assembly contains the laser detection chamber, high efficiency aspirator, monitored filter cartridge, control electronics, and relay interface. The detector assembly can be used as a "distributed" system, with the display, programmer and VESDAnet socket modules mounted in a remote location. Alternatively, the detector assembly can be configured as a "self-contained" system by replacing the detector's blank panels with the display and/or programming modules.

Specifications	
Operating Voltage	18 to 30Vdc
Operating Current [1]	240mA
Alarm Current [2]	290mA
Operating Temp	0°C to +39°C
Relative Humidity	0 to 95% (non-cond.)
Dimensions (HWD)	225x350x125mm
Weight [3]	4 kg

1. No display or programmer 2. 24Vdc 3000RPM
3. With display & programmer

Features

- Wide sensitivity range
- Laser-based light source
- 4 Configurable alarm levels
- Purpose built Aspirator
- 4 In-line Inlet pipes
- Flow sensor for each inlet pipe
- Wide range DC power
- Low-cost maintenance
- Dual stage filter
- Easy access to filter cartridge
- 7 Software configurable relays
- Recessed mounting
- Multiple exhausts



VLP-000 LaserPLUS Detector

VLP-012 LaserPLUS Detector, programmer and display (**VLP-001** LaserPLUS with programmer)

VLP-002 LaserPLUS Detector and display

VLP-400 LaserPLUS Detector with fire OK LED

LaserPLUS Scanners - 7 & 12 Relay Output Variants

VESDA LaserPLUS is also available in a Scanner configuration, which allows the system to distinguish and identify the pipe carrying smoke, while sampling multiple sectors.
The VESDA LaserPLUS will continue to sample from all sectors to monitor the fire growth and maintain full protection.

Features

- Individual pipe annunciation
- Adaptive scan threshold
- Wide sensitivity range (0.005 to 20% obs/m)
- Laser based light source
- Configurable alarm levels
- Purpose built Aspirator
- 4 In-Line inlet pipes
- Flow sensor for each pipe inlet
- Low-cost maintenance
- Dual stage filter
- Easy access to filter cartridge
- Recessed mounting

Specifications

Operating Voltage	18 to 30Vdc
Operating Current [1]	240mA
Alarm Current [2]	300mA
Relay Outputs	7 or 12
Operating Temp	0°C to +39°C
Relative Humidity	10 to 95% (non-cond.)
Dimensions (HWD)	225x350x125mm
Weight [3]	4 kg**

1. No display or programmer
2. 24Vdc 3000 RPM
3. With display & programmer

VLS-214 FD7 Scanner, programmer and display with 7 relays
VLS-314 FD12 Scanner, programmer and display with 12 relays

VLS-204 FD7 Scanner and display with 7 relays
VLS-304 FD12 Scanner and display with 12 relays

VLS-200 FD7 Scanner
VLS-600 FD7 Scanner with Fire OK LED
VLS-300 FD12 Scanner
VLS-700 FD12 Scanner with Fire OK LED

Optional Remote Displays

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 2-digit numerical display, an audible sounder and clear alarm and fault indicators. It also has 4 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 indicator (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

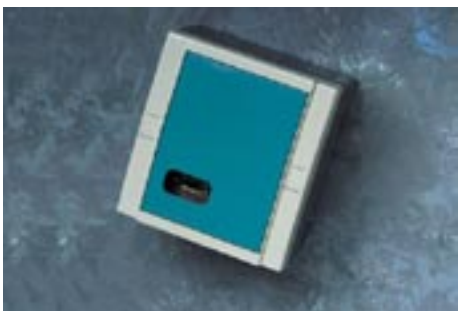
Operating Voltage [1]	18 to 30Vdc
Module Only	
Operating Current	60mA
Alarm Current	80mA @ 24Vdc
In Remote Mounting Box	
Operating Current	90mA
Alarm Current	110mA @ 24Vdc
Operating Temp	0 to 39°C
Relative Humidity	10 to 95% (non-cond.)

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

Scanner Displays
VRT-400 Remote scan display including 7 relays
VRT-700 Remote scanner display - no relays
VRT-800 Remote scanner display with 12 relays

LaserPLUS Displays
VRT-200 Remote display including 7 relays
VRT-600 Remote detector display- no relays
VRT-J00 Compact Display c/w 7 relays
VRT-K00 Compact Display no relays

VRT-100 Remote programmer



VRT-300 Remote VESDAnet socket

LaserPLUS Standard 19 Inch Sub-Rack Remote Display Assemblies

The 19" sub-rack is available as a mounting option, with 4 mounting slots for display or programming modules.

Technical Specification
Dimensions: 128 x 482 x 120 mm (HWD)

Part Numbers	
VSR-2000	19" Sub-rack with 1 detector display and 3 blanks
VSR-2210	19" Sub-rack, 2 detector displays, programmer and 1 blank
VSR-2221	19" Sub-rack with 3 detector displays and programmer
VSR-2222	19" Sub-rack with 4 detector displays

LaserPLUS Components for 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 (eg. 2 x VSU-0 and 2 x VSU-2 configured as VSR-0022)
Note: The order of the numbers (eg. 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 - from left to right

Module Numbers	
VSR-0	Blank Sub-unit
VSR-1	Programmer sub-unit
VSR-2	LaserPLUS display sub-unit +7 relays
VSR-3	VESDAnet Socket
VSR-4	SCANNER display sub-unit + 7 relays
VSR-5	Blank sub-unit with 7 relays
VSR-6	SCANNER with RTC + 7 relays
VSR-7	SCANNER display + RTC, no relays
VSR-8	SCANNER display + RTC+12 relays
VSR-9	DRP + RTC +12 relays
VSR-E	Blank SCANNER sub-unit + 7 relays
VSR-J	COMPACT display sub-unit + 7 relays
VSR-K	COMPACT display + RTC-no relays
VSR-V	LaserFOCUS Display RTC7
VSR-W	LaserFOCUS Display RTC0
VSR-CUSTOM	Custom sub-rack housing incl. cost of custom building 4 VSU sub-rack units.

RTC = Remote Termination Card
DRP = Display Relay Processor

LaserPLUS Ancillaries

A variety of other ancillaries are available. Tyco Safety Products stock pipe and sampling points.

Part Numbers	
VHH-100	Hand held programmer and leads
E700-SPLR	Sampling point label
E700-SPDCL	Aspirating pipe label
VHX-0200	PC link HLI plus leads (MK2)
VSP-509	DB9M - DB9F Prog. RS232 2m
18265	DB15M - DB15F VESDANet RS485
VSW-004	VConfig Basic software

Available on request

VSW-005	VConfig Pro software
VSW-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 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 HLI interfaces 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). Using VConfig, VESDA's system configuration tool specifically designed to simplify set up of any VESDA system during commissioning and installation. It is available in two versions PRO and BASIC. By using the latest VConfig software to configure a VESDA system, it is now possible to dial into a remote VESDA network to check the system's status AND to set up the VESDAnet to dial out to a PC whenever an event, such as an alarm, is raised. This feature ensures that a remote operator has greater monitoring control over the protected environment by allowing him/her to access a site to check it's status as well as set the specific conditions on which the system should notify him/her of a potential fire situation. VConfig PRO has the ability to display smoke trend information from selected event log data to help determine optimum threshold levels. Both VConfig PRO and BASIC have been upgraded to support VESDA's new System Relay Module.

LaserPLUS Spares

The following common VESDA LaserPLUS spares are kept in stock by Tyco Safety Products.
Other spares can be supplied as required.

Part Numbers	
VSP-005	Filter cartridge (spare) (shown at left)
VSP-002	Display (spare)
VSP-004	Scanner display (spare)
VSP-001	Programmer (spare)
VSP-019	Filter cover door (spare)
VSP-006	Spare detector chassis and manifold
VSP-008	Spare remote termination card 7 relays
VSP-009	Spare scanner chassis and manifold
VSP-014	Spare header termination card 7 relays
VSP-015	Spare aspirator fan
VSP-025	VSP-005 Filter Assy - pack of 20

VESDA Pipe and Fittings

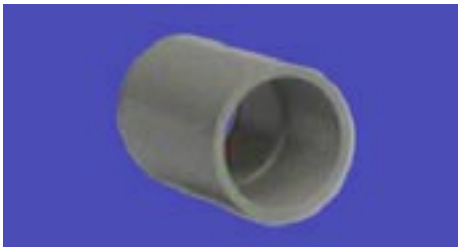
E700-CSC Capilliary Sampling Connector

E700-CT Capilliary Sampling Tube 8mm OD

E700-EC End Cap - Not Drilled

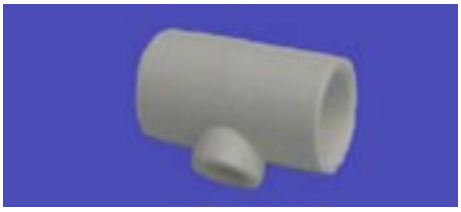
E700-PC Pipe Clip - Single Point Fix

E700-LB Long Radius Bend 150mm



E700-PJ Pipe Junction Fitting

E700-SP Sampling Point - Mini



E700-TA Trunk Adaptor

E700-T Solid Tee

E700-SPLR Sampling Point Label (1 per sheet)

E700-SB Small Radius Bend 90mm

E700-TA Trunk Adaptor with CSC

E700-HASP Heat Activated Sampling Point

E700-HASP-KIT Heat Activated Sampling Point Kit

E700-SPDCL Sampling Point Decal (200 per roll)

E700-SRB Standard Base for HASP with CSC

E700-P VESDA Pipe 4 metre x 10 Lengths (bell end)

Flame and Special Hazard Detectors

S200 Plus Triple IR Solar Blind Flame Detector

The MINERVA S200 PLUS flame detectors are the latest Infrared solar blind and multi-channel infra-red flame detectors with low power consumption and high false alarm immunity.
The MINERVA S200 PLUS range of advanced flame detectors is the most comprehensive range available.

Features

- Triple waveband infrared solar blind flame detection for optimum false alarm immunity
- Unrivalled black body rejection over a wide range of source temperatures
- Range adjustable to 50 metres for a 0.1m-2 petrol pan fire
- Discrimination of optical faults (dirty windows) from other faults by the built-in self test
- Housing designed for easy installation of cabling
- Flexible mounting and angular adjustment
- 3 x 20mm field cable entries
- IP66/67 housing designed for external use
- Rugged stainless steel ANC4 LM25 alloy housing and mounting bracket
- Operating temperature range of -40 to + 80°C
- Variable response times & sensitivity settings
- Remote self test and range setting
- True window test in detection area (ie not in the edge of the window)
- Terminals provided for Remote LED connection
- BASEEFA (CENELEC) certified
- Meets the requirements of EN54 Pt10
- FM, DNV and LRS certified
- Very low power consumption (0.35mA)
- Models available with Conventional or Analogue Addressable interface (requires 2 core cable only)
- Models also available with relay or 4-20mA outputs
- Patented dual filter solar blindness for complete solar blindness
- 100°field of view on IS versions
- 90° field of view on Flameproof versions

Unlike other flame detectors on the market the MINERVA S200 PLUS is available in both Intrinsically Safe (EEx ia) and Flameproof (EEx d) models.
The intrinsically safe models are suffixed by the letter " i " and meet the requirements of EN50020 part 7 and are BASEEFA certified EEx ia IIC T5. As part of an intrinsically safe circuit, it is suitable for zones 0,1 and 2 where group IIC gases or lesser hazards can be continuously present in explosive concentrations.
The flameproof models are suffixed by the letter "f" and meet the requirements of EN50018 and are BASEEFA certified EEx d IIC T6. The detectors are suitable for zones 1 and 2 where group IIC gases or lesser hazards can be intermittently present in explosive concentrations.
For information on flame detector test equipment, please refer to the detector test equipment section.

Specifications

Detector Material	Stainless Steel 316L
Dimensions (HWD)	167 x 167 x 89mm
Weight	4.5Kg
Gland Entry	3 x 20mm
Metal Parts	Bright Stainless Steel 316 (external & internal) to BS1449 Pt 2
Tag Label	Stainless Steel 316
Range	0.1m^2 petrol at 50m 0.4m^2 petrol at 60m
Response Time	Field Selectable 3,6 & 12s
Sensitivity	3 range settings
Relative Humidity	95% (100% intermittent)
Ingress Protection	IP66 and IP67
Part Numbers	
S231i+	S231i+ Collective
S231f+	S231f+ Coll. Flameproof
516.037.015	S232f+ Collective FM Approv.
516.040.002	S261f+ Relay O/P
516.041.003	S271f+ MX Flameproof
516.041.004	S271i+ MX I.S.
517.001.184	S/S Bracket assy
517.001.263	Weather Protection assy

Approvals

ATEX	Approved - BASEEFA02ATEX0185
BASEEFA	Approved models are suffixed '1'.
IECEX	Approved - BAS 05.0056
NSTC	Approved
LPCB	Approved
LRS	Approved
DNV	Approved
KFEIC	Approved
CSIRO	Listed - afp-1443
FPANZ	S231i+ - VF/338, S231f+ - VF/339, S261f+ - VF/340, S271f+ - VF/349, S271i+ - VF/350
MCA	Approved
FM	Approved models are suffixed '2'

Detector	Interface				Approvals					
					BASEEFA		FM	CSIRO/FPANZ	IECEX	ATEX
	Collective	4-20mA	Addressable	Relay	Ex ia	Ex d	Ex d			
S231i+	✓				✓			✓	✓	✓
S231f+	✓					✓		✓	✓	✓
S232f+	✓						✓		✓	✓
S241i+		✓			✓				✓	✓
S241f+		✓				✓			✓	✓
S261f+				✓		✓		✓	✓	✓
S262f+				✓			✓		✓	✓
S271i+	Contact	Tyco	Safety	Products	✓			✓	✓	✓
S271f+	Contact	Tyco	Safety	Products		✓		✓	✓	✓

FV300 FLAMEVision™ Triple IR Solar Blind Flame Detector

The FLAMEVision™ detector utilises infrared array based flame detection combined with integral CCTV to automatically and reliably identify flame incidents and pinpoint the location on a video image. By using an array as the sensing component, the FLAMEVision™ detectors are able to locate the angular position of the fire within the field of view. The detectors use this information to provide location details on a composite video output from an internal CCTV camera and include the coordinates of this location on its data output. This information allows the operator to quickly verify the alarm and implement the necessary actions. It also provides a valuable tool for nuisance alarm control and event audit processes. The FLAMEVision™ offers a major improvement in flame detection capability and enhanced immunity to nuisance alarm sources over triple IR detectors. It also includes features designed to reduce maintenance requirements

Highlighting the fire location within the CCTV picture view

What if flames might be normal on site?

FLAMEVision™ supports masking of defined area with a simple to set-up mask of an area in the field of view

Option 1: Any fire in the masked area is ignored
Option 2: Only fires in the masked area will cause an alarm

Features

- Fast, reliable flame detection using infrared detection
- Consistent, high sensitivity, flame detection throughout a 90° field of view
- 256 infrared sensor array monitoring the field of view to separately identify flame and non flame sources
- Software masking of identified unwanted radiation sources in detector field of view
- Over 50m detection range with 90° field of view
- Optional built-in CCTV assists with rapid response, visual ID of alarm location
- Remote video monitoring with fire location and detector information
- Video output compatible with twisted pair video cable
- Pinpoint location of fire within field of view enables more effective counter measures
- Highly sensitive to flame; increases probability of early detection of hydrocarbon fires
- Able to see flames through smoke, high densities of solvent vapours; increases probability of early detection of hydrocarbon fires
- Consistent detection of different types of hydrocarbon fuels from alcohol to aviation fuel
- Insensitive to artificial light sources, such as halogen lights
- Automatic Optical Integrity Monitoring (OIM)
- Self-testing of critical electronic circuits reduces frequency of regular maintenance visits
- Automatic monitoring of detector functionality
- Integral flame simulation for verification of detection path
- Range of integral interface options
- Volt-free relay contacts for alarm and fault, programmable as N/O or N/C
- Analogue output current, in the range 4 to 20mA, proportional to flame detection signal
- RS485 serial data port suitable for network connection using a MODBUS protocol
- Robust stainless steel housing sealed to IP66 and IP67 (when suitable cable gland/sealant used)

Part Numbers

Detectors

516.300.006	FV311S cable gland entries no camera
516.300.008	FV311SC cable gland entries - PAL camera
516.300.007	FV311SC-N cable gland entries - NTSC cam.
516.300.055	FV312S sealed back box - no camera
516.300.057	FV312SC sealed back box - PAL camera
516.300.056	FV312SC-N sealed back box - NTSC camera

Ancillary equipment

517.300.001	MB300 Mounting Bracket
517.300.002	WH300 Weather Hood
517.300.021	WT300 Walk Test Tool
517.300.022	CTI300 Off-line Config. Tool
517.300.006	MK300 Field Spares Kit

Approvals

All variants of the FLAMEVision™ detector are designed to comply with EN 50 014 and EN 50 018 for flameproof enclosures. They are certified: ATEX code: II 2 G Cenelec code: EEx d IIC T4 (-40°C to +80°C) and T5 (-40°C to +65°C) Under ATEX certificate number Baseefa04ATEX0176X. This certification shows the FLAMEVision™ detectors are certified 'flameproof', meeting the requirements of EN 50014 and EN 540018. They are classified as suitable for zones 1 and 2 areas over an ambient temperature range -40°C to +80°C for temperature class T4 gasses, or up to +65°C for temperature classification T5 gasses.

Specifications

Dimensions (HWD)	155.5 x 152 x 92 mm
Weight	
Detector	4 kg
Mounting bracket	1.54 kg
Materials	
Enclosure	Stainless steel 316L, ANC4BFCLC to BS 3146: Part 2
Detector window	Sapphire
Camera window	Toughened glass
Guard/label plate	Stainless steel 316S16 to BS 1449: Part 2
Mounting bracket	Stainless steel 316S16 to BS 1449: Part 2
Exposed fasteners	Stainless steel 316 A4
Elect. modules	Fibreglass substrate
Electrical access	
FV311 series	Standard M20 gland holes (2)
FV312 series	Multi twisted pair screened cable
Interface outputs	MODBUS/4-20mA/Fire and fault relay/Video Out
Environmental Characteristics	
Ambient Temperature	
No camera	-40°C to + 80°C
Incl. camera	+10°C to + 55°C
Maximum temp	120°C (for 10 minutes max.)
Storage temperature	-40°C to + 80°C
Relative humidity	Up to 99% (non condensing)
Ingress protection	Tested to IP66 and IP67
Operating atmospheric pressure	910 mbar to 1055 mbar
Heat radiation (Sun)	0 to 1kWm2 typical
Camera Specification	
Composite video	(1V p-p) into 75 Ohm
Horizontal res.	Standard 450 TVL
Light Sens.	(-30 IRE) 0.3 Lux
Iris / Exp. control	
Elect. 1/50 - 1/100,000 sec	

IR6003/7 Mist and Smoke Detector

The IR6003 Beam detector is an intelligient device that has been designed to monitor a large area containing plant or equipment . The IR6003 can be supplied in different configurations to suit mist and smoke type hazards. The waterproof housing has an easy to fit bracket that allows simple installation and commissioning. The fascia of each unit has been equiped with an LED that flashes on fault condition and indicates steady on alarm.

Specifications

Operating Voltage	10 to 40V via UIM
Alarm Current	70mA (max.)
IR Source	Gallium Arsneide, 820nm
Operating Range	up to 50m
Weight	0.96 Kg
Ambient Temp	-10°C to +55°C
Dimensions (HWD)	125x165x165 mm
Protection	IP65
Approval	EEx iB IIB T5 BAS02ATEX2313

Part Numbers

01-33-23	Detector
01-33-32	Universal Module

Intrinsically Safe Detectors

Features

- Collective and addressable I.S. systems
- Suitable for worst case (EEx ia IIC T5)
- Tyco High Performance Optical (HPO) smoke detector
- Compatible with S231i+ plus flame detector
- Compatible range of I.S. callpoints

The System Designer must have completed an appropriate recognized course in Intrinsic Safety and be familiar with AS/ NZS 2381.1: 2005 and associated standards, test organizations, and the requirements of state and local authorities. Many Tyco products are ATEX certified, and it needs to be established beforehand that this certification is acceptable to the relevant regulatory 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. Tyco Safety Products supplied equipment marked EEx ia IIc T5 would be suitable for use in worst case conditions, eg. Zone 0 (ia), Hydrogen (IIc), 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 thus the capacity to store energy.

In order that an Installation will 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 not 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.

1151EIS Ionisation Smoke Detector

Model 1151EIS ionisation smoke detectors use state-of-the-art sensing chambers and SMD circuitry for maximum reliability. These detectors are designed to afford open area protection and are for use in hazardous areas where potentially explosive atmospheres are likely to arise (confirm classification of equipment required with your responsible authority). 1151EIS detectors are designed to be used with compatible panels only and must be used in conjunction with a compatible zener barrier or galvanic isolator. Each detector has two integral alarm LEDs to provide local visual indication of detector status. Once the detector senses a fire, it latches in alarm and remains in this condition until it is reset by a momentary power interruption. Model 1151EIS smoke detectors include a tamper feature that prevents removal from the base without the use of a tool. In addition, these detectors can be tested by activating an internal reed switch with a test magnet. This test simulates smoke in the detector and performs a full check of the operating circuitry.

Specifications

Operating Voltage	15 to 32Vdc
Stndby Current	30µA at 24Vdc (max.)
Ambient Temp	-10°C to 55°C
Relative Humidity	10% to 93% (non-condensing)
Intrinsic Safety Rating	EEx ia IIB T5
I.S. Certificate no.	Baseefa03ATEX0156X
Diemsions (Dia x H)	104 x 43 mm
Weight	110g (excluding base)
Compatible bases	B401, B401DG
FPZANZ Listed	SS/357
Part Number	1151EIS

5451EIS Heat Detector

Model 5451EIS is an intrinsically safe rate of rise detector with fixed temperature alarm. It uses state-of-the-art dual thermistor technology to provide maximum sensitivity.

This detector is designed to afford open area protection and is for use in hazardous areas where potentially explosive atmospheres are likely to arise (confirm classification of equipment required with your responsible authority). Model 5451EIS detectors are designed to be used with compatible panels only. Each detector has two LEDs to provide a local visual indication of detector status. Once the detector senses a fire, it latches in alarm and remains in this condition until it is reset by a momentary power interruption. Model 5451EIS rate of rise detectors include a tamper feature that prevents removal from their mounting base (if enabled) without the use of a tool. In addition, these detectors can be easily tested by activating an internal reed switch with a test magnet.

Specifications

Operating Voltage	15 to 32Vdc
Stndby Current	100µA at 24Vdc (max.)
Ambient Temp	-10°C to 55°C
Relative Humidity	10% to 93% (non-condensing)
Intrinsic Safety Rating	II1G EEx ia IIB T5
I.S. Certificate no.	Baseefa03ATEX0155X
Diemsions (Dia x H)	104 x 54 mm
Weight	80g (excluding base)
Compatible bases	B401, B401DG
FPANZ Listed	SS/205
Part Number	5451EIS

MR601TEx Intrinsically Safe 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. In this way it is intended to become a detector which 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	11.5 to 13Vdc
Operating Current	110 µA (max.)
Alarm Current	30mA @ 16Vdc
Operating Temp	-20°C to +70°C
Relative Humidity	95% (non-cond.)
ATEX Certificate	BAS01ATEX11134X.
ATEX Code	Ex II 1 G
Cenelec Code	EEx ia IIC T5
Part Number	516.054.011

MDU601Ex Enhanced Point Type Carbon Monoxide Fire & Heat Detector

The MDU601EX detector combines the features of both the MU601EX detector and the MD601EX detector 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 to 28Vdc
Operating Current	70 µA (max.)
Alarm Current	30mA @ 15Vdc
Operating Temp	-20°C to +70°C
Relative Humidity	90% (non-cond.)
ATEX Certificate	BAS01ATEX1134X
ATEX Code	Ex II 1 G
Cenelec Code	EEx ia IIC T5
Part Number	516.016.001

MU601Ex Intrinsically Safe Point Type Carbon Monoxide Detector

The CO Fire detector is a unique general purpose fire detector which provides very early warning of slow smouldering fires. Ideal for sleeping risks, the CO fire detector is also well suited to many applications where heat detection is insufficient but smoke detection causes false 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.

Specifications	
Operating Voltage	18 to 32Vdc
Operating Current	70 µA (max.)
Alarm Current	33 to 72mA
Operating Temp	0°C to +50°C
Relative Humidity	90% (non-cond.)
ATEX Certificate	BAS01ATEX1134X
ATEX Code	Ex II 1 G
Cenelec Code	EEx ia IIC T5
Part Number	516.058.002

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 of 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 temp. [static] detectors should be used in this case.

Specifications	
Operating Voltage	18 to 32Vdc
Operating Current	100µA (max.)
Alarm Current	5 to 80mA
Operating Temp	-20°C to +70°C
Relative Humidity	95% (non-cond.)
ATEX Certificate	BAS01ATEX1134X
ATEX Code	Ex II 1 G
Cenelec Code	EEx ia IIC T5
Part Numbers	
516.052.051	MD601EX Collective ROR Heat Detector
516.052.041	MD611EX Collective Fixed Temp Heat Detector

601FEx Infrared Flame Detector

The 601FEx point type flame detectors are part of the 600 series of collective detectors. The 601FEx is a full featured solar blind flame detector for indoor use. It has a high degree of false alarm immunity. The 601FEx and it 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 to 28Vdc
Operating Current	300 µA (max.)
Alarm Current	30mA @ 15Vdc
Operating Temp	-20°C to +70°C
Relative Humidity	90% (non-cond.)[1]
Range	0.1m^2 n-heptane @ 20m 0.4m^2 n-heptane @ 50m
Field of View	100°
ATEX Certificate	BASEEFA03ATEX0422X
ATEX Code	Ex II 1 G
Cenelec Code	EEx ia IIC T5
Part Number	516.600.066

1. 90% RH continuous; 99% RH (non-cond.) intermittent operation

MUBEX Detector Bases and Ancillaries

MUBEx Base
The base is classed as a simple apparatus, the detectors are certified:
ATEX Ex II 1 G, certificate no. BAS10ATEX1134X

Part Numbers	
517.050.610	5BEx Base for Ex Detectors

T54B Probe Type Heat Detector

Constructed from stainless steel, the T54B is an extremely rugged heat detector that can be used to detect fires in the harshest of environments. The T54B can be used in environments with ambient temperatures up to 280°C and, being hermetically sealed, is impervious to most contaminants. The

T54B is a simple device and therefore suitable for use in intrinsically safe areas when used with a suitable I.S. barrier. For reliable operation, it is recommended that T54B detectors have set points 20°C or 20% (whichever is higher) above the maximum temperature they will be exposed to in normal operation. Preferred factory preset temperatures range from 60° to 250°C; with normally open contacts. Other temperatures are available by request.

Part Numbers	
T4E110NC	T54B Normally Closed - 110°C
T4E60X	T54B Normally Open - 60°C
T4E90X	T54B Normally Open - 90°C
T4E100X	T54B Normally Open - 100°C
T4E145X	T54B Normally Open - 145°C

Specifications	
Operating Voltage:	32VAC to 32Vdc
Switching Current:	5 to 200mA
Contact Resistance:	<1 ohm
Actuating Temp.:(preset)	60 to 240°C
Fixed Temp. Only:	Type E
Accuracy:	+ or - 5%
Ambient Temp.:	-40 to +280°C
Relative Humidity:	100% RH
Thread Size	M20x1.5mm
Protection Category:	IP67
CSIRO ActivFire Listed	afp-1612
FPANZ Listed	VF/214

27120 Probe Type Heat Detector

DETECT-A-FIRE® thermal detectors are UL Listed, and FM Approved detection and release devices used with fire detection systems to activate alarms and actuate extinguishing systems. This Rate Compensated device combines the best features of both fixed temperature and rate-of-rise detectors. Contacts open on alarm.

Specifications	
Electrical Rating	5A @ 125 Vac
(resistive only)	0.5A @ 125 Vdc
Actuating Temp.:(preset)	182°C
Fixed Temp. Only:	Type E
Accuracy:	+ or - 10%
Ambient Temp.:	-40 to +280°C
Relative Humidity:	100% RH
Thread Size	1/2-14 NPT
FPANZ Listed	VF/206
Part Number	27120

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 I.S. barriers. Refer to page 33 for further information.

Part Number	
PA0838	ZAU401 Zone Adaptor Unit

Intrinsically Safe Barriers

The following section relates to a range of intrinsically safe barrier and isolator equipment for use with Tyco Safety Products manufactured fire detection systems. On all issues of intrinsically safe systems design, please refer to all the relevant product manuals for guidance.

Galvanic Barriers

KFD0-Ex151

This device's channel (4 terminals per channel) functions like a "DC current isolator". It has 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.

Part Number	
KFD0-Ex151	Single Channel Output EEx ia IIC Device installation permissible in zone 2 Polarity reversal protected Accuracy 1%
FPANZ Listed	VF/660

KFD0-Ex251

Each channel (4 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 2 channel version allows for the connection of 2 independent circuits in a single housing.

Part Number	
KFD0-Ex251	Dual Channel Output EEx ia IIC Device installation permissible in zone 2 Polarity reversal protected Accuracy 1%
FPANZ Listed	VF/660

KFD2-STC4-Ex1

SMART transmitter power supplies provide a 2- or 3-wire SMART transmitter and transfer the analogue values. Digital signals may be superimposed on the analogue values, which will transferred bidirectionally.

An internal resistor at terminal 9 is available, which may be used to increase the AC impedance for the HART signal. SMART transmitter power supplies are delivered with terminal type KF-STP-**. Jacks are integrated in these terminals for the connection of the hand-held units.

This device replaces the KFD0-EX130 single channel barrier.

- 1-channel
- Device installation permissible in Zone 2
- Input EEx ia IIC; Uo = 25.4 V
- Galvanically isolated output
- 24 Vdc supply voltage
- SMART capable up to 7.5 kHz (-3 dB)
- EMC acc. to NAMUR NE 21
- Up to SIL2 acc. to IEC 61508
  Input 0/4 mA to 20 mA
  Output 0/4 mA to 20 mA

Part Number	
KFD2-STC4-Ex1	Single Channel Output EEx ia IIC 24Vdc supply voltage Output maximum 1kOhm load

Intrinsically Safe - *MX* Analogue Addressable

801PHEx Smoke and Heat Detector

The 801PHEx Intrinsically Safe Optical Smoke & Heat Detector plugs into a 5BEx base. The detector is designed to transmit to a remote *MX* fire controller, digital signals which represent the status of the optical smoke and heat elements of the detector. 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:

Specifications	
Operating Voltage	18 to 24Vdc
Queiscent Current	400µA (max.)
Alarm Current	3.5mA (max.)
Operating Tempearture	-25°C to +70°C
Relative Humidity	10% to 95% (non-cond.)
FPANZ Listed	VF/351
Part Number	801PHEx

- Optical smoke only detector (sensitivity 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
- Cenelec Code: EEx ia IIC T5

801CHEx Carbon Monoxide and Heat Detector

The 801CHEx Intrinsically Safe Carbon Monoxide plus 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 to a remote *MX* fire controller, digital signals which represent the status of the carbon monoxide and heat elements of the detector. Software within the controller is used to interpret the returned Carbon Monoxide and heat values to raise an alarm or other appropriate response according to the programmed configuration. The mode of detector may be:

Specifications	
Operating Voltage	18 to 24Vdc
Queiscent Current	400µA (max.)
Alarm Current	3.5mA (max.)
Operating Tempearture	0°C to +50°C
Relative Humidity	15% to 90% (non-cond.)
FPANZ Listed	VF/352
Part Number	801CHEx

- Heat only detector (A1R or A2S) (sensitivity: High, Normal or Low)
- Compensated Carbon Monoxide detector (sensitivity: High, Normal or Low)
- Compensated Carbon Monoxide 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
- Cenelec Code: EEx ia IIC T5

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 to a remote *MX* fire controller, digital signals which represent the status of the heat element of the detector. 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:

Specifications	
Operating Voltage	18 to 24Vdc
Queiscent Current	400µA (max.)
Alarm Current	3.5mA (max.)
Operating Tempearture	-25°C to +70°C
Relative Humidity	10% to 95% (non-cond.)
FPANZ Listed	VF/216
Part Number	801HEx

- 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
- Cenelec Code: EEx ia IIC T5

CP840Ex Manual Call Point

The CP840Ex Intrinsically Safe Weatherproof Break Glass Manual Call Point is designed to monitor and signal the condition of the switch contact associated with the call point.
The callpoint is designed to comply with EN 50 014 and EN 50 020 for intrinsically safe apparatus. It is certified:

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 to 24Vdc
Queiscent Current	300µA (max.)
Alarm Current	5mA (max.)
Operating Tempearture	-25°C to +70°C
Relative Humidity	10% to 95% (non-cond.)
Dimensions (HWD)	124 x 124 x 59 mm
Ingress Protection	IP67
Part Number	CP840Ex

EXI800 Interface Module and Galvanic Barrier

The EXI800 Interface Module, used with a galvanic isolator, provides a path for an MX Panel to transparently communicate to slave devices (800Ex Detectors, IF800Ex Interface Module or CP840Ex Addressable Break Glass Callpoint) 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-loop, the right-loop, or the IS loop and will isolate the offending loop connections from the other loop connections. The IS 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 to 37.5Vdc
DC Output Voltage	28.0Vdc
AC Input Signalling Voltage	1 to 4Vpp
AC O/P Signalling Voltage	1 to 4Vpp
AC Input Signalling Current	40mA (max.)
AC O/P Signalling Current	40mA (max.)
Operating Tempearture	-25°C to +70°C
Relative Humidity	10% to 95% (non-cond.)
Dimensions (HWD)	115 x 103 x 20 mm
Ingress Protection	IP20
FPANZ Listed	VF/658
Part Number	EXI800

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 compression moulded glass filled polyester box with 3 x 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 PCB.
The interface module is designed to comply with EN 50 014 and EN 50 020 for intrinsically safe apparatus. It is certified:

ATEX Classification	Ex II 1 G
Cenelec Classification	EEx ia IIC T5

Specifications	
Operating Voltage	18 to 24Vdc
Queiscent Current	325µA (max.)
Alarm Current	3.5mA (max.)
Type Identification Value	147
Operating Tempearture	-25°C to +70°C
Relative Humidity	10% to 95% (non-cond.)
Dimensions (HWD)	120 x 122 x 95 mm
Ingress Protection	IP65
FPANZ Listed	VF/659
Part Number	IF800Ex

Beam Smoke and Linear Heat Detectors

BEAM1224

BEAM1224 / BEAM200 detector & reflector

Part Numbers

BEAM1224	4 wire conv. det & 200 mm refl.
BEAM1224S	4 wire conv. det & 200 mm refl. c/w sensitivity test
BEAM200	Analogue addressable det.
BEAM200S	Analogue addressable det c/w sensitivity test
BEAMLRK	Long range accessory kit
BEAMMMK	Multi-mount kit
BEAMSMK	Surface mount kit
RTS451	Remote test station used to initiate the sensitivity test
RTS451KEY	Remote test station with key lock
BEAMHK	Heater kit for transmitter/receiver
BEAMHKR	Heater kit for reflector

The BEAM1224 is a 4-wire conventional projected beam smoke detector suited for protecting open areas with high ceilings where other methods of smoke detection are difficult to install and maintain.

It is to be used with UL Listed compatible control panels only. Installation of the single-ended reflective design is much easier than the dual-ended projected beam detectors.

Alignment is quickly accomplished via an optical sight and a 2-digit signal strength meter incorporated into the product.

Rated for operation from −30°C to +55°C, BEAM1224 can be used in open area applications to provide early warning in environments where temperature extremes exceed the capability of other types of smoke detection.

Specifications

Operating Voltage	
BEAM1224	10.2 to 32 Vdc
BEAM1224S	15 to 32 Vdc
BEAM1224S should not be used with 12V power sources	
Current (24Vdc)	
Standby	17mA avg.
During Testing	500mA max.
Alarm	38.5mA max.
Fault	8.5mA max.
Alignment Mode	28mA max.
Indicator LED Colour	
Alarm	Red
Fault	Yellow
Normal	Green flashing
Protection Range	5m to 100 m
FPANZ Listed	VF/347

BEAM1224 & 200 Common Specifications

Adjustment Angle (The optics move independent of the unit)	+/− 10° horiz. & vert.
Sensitivity Level	25% to 50%
Fault Condition	≥96% obsc. blockage
Operating Temperature	−30°C to +55°C
Relative Humidity	10% to 93% (n/cond)
Dimensions (HWD)	
Detector	254x191x84 mm
Reflector (4.8m to 70m)	200x230 mm
Reflector (>70m)	400x460 mm

BEAM200

The BEAM200 is an intelligent projected beam smoke detector. It is uniquely suited for protecting open areas with high ceilings where other methods of smoke detection are difficult to install and maintain. It is to be used with UL Listed compatible control panels only. Installation of the single-ended reflective design is much easier than dual ended projected beam detectors. Alignment is quickly accomplished via an optical sight and a 2-digit signal strength meter incorporated into the detector. Rated for operation from −30°C to 55°C, The BEAM200 consists of a transmitter/receiver unit and a reflector. When smoke enters the area between the unit and the reflector it causes a reduction in the signal and, when the smoke level reaches the predetermined threshold, an alarm is activated. BEAM200 has four standard sensitivity selections along with two Acclimate settings. When either of the two Acclimate settings are selected the detector will automatically adjust its sensitivity to select the optimum sensitivity for the specific environment. BEAM200S is equipped with an integral sensitivity test feature that consists of a test filter attached to a servo motor inside the detector optics. Using the remote test station RTS451, the motor is activated and moves the filter in the pathway of the light beam, thereby testing detector sensitivity.

Specifications

Operating Voltage	15 to 32 Vdc
Current (24Vdc)	
Standby	2mA avg.
During Testing	500mA max.
Alarm	8.5mA max.
Fault	4.5mA max.
Alignment Mode	20mA max.
Indicator LED Colour	
Alarrm	Red
Fault	Yellow
Normal	Green flashing
Protection Range	5m to 100 m
FPANZ Listed	VF/346

FW68/105/180

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, thus 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. Whilst FW105/180 may be used in external applications, it must be protected from direct sunlight.

Part Numbers

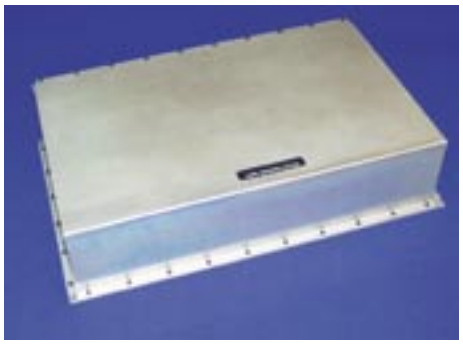
FW68	68°C Sensor Cable
FW105	105°C Sensor Cable
FW180	180°C Sensor Cable
4300	Junction Box

Specifications

Operating Voltage (max)	32VAC or 115Vdc	
Alarm Current (max) [1]	300mA	
Conductor Loop Resist.	100 Ohm/km	
Operating Temp °C	Ambient	Alarm
FW68 [2]	-65 to +45	+61 to +70
FW105 [3]	-65 to +70	+97 to +113
FW180 [3]	-65 to +105	+168 to +180
Relative Humidity	Up to 100% (non-cond)	
Detection Time (approx.)		
FW68	4 seconds	
FW105	10 seconds	
FW180	20 seconds	
Bend Radius	50mm minimum	
CSIRO ActivFire Listed [4]	afp-821 (FW68)	
FPANZ Listed	VF/209	

1. Must be externally limited
2. FW68 is suitable for internal use only
3. FW105 & 180 is suitable for use in external applications when shielded from direct sunlight
4. With 4300 Junction Box every 100m

Optical Fibre Temperature Sensing



This new technology uses a laser light source to launch light signals into an optical fibre. As pulses travel down the fibre, energy is lost through scattering. A fraction of the scattered signal is retained within the fibre. A portion of this is directed back along the fibre towards the laser source - this signal is called backscatter. Part of the back scatter signal (Raman Scattering) is used to provide accurate remote temperature measurements at hundreds of points along the fibre.

The system uses standard communications grade optical fibre of the 62.5/125 graded index multimode type. The temperature range is predominantly a function of the coating used to protect the optical fibre as the fibre itself is well behaved over a temperature range from -50°C to approximately 300°C.

Optical fibre itself offers several advantages as a sensing medium. The signals are immune to electromagnetic interference thereby ensuring integrity of readings from electrically noisy areas. As no electrical current is used in the sensing fibre and the fibre is relatively inert and dielectric (non-conducting) medium, it is safe technology to use in hazardous environments.

Features

- Fibre optic sensor loop up to 2km or 4km
- Continuous temperature profiles of temperature on a PC
- Programmable functions
- Programmable number of fire detection zones
- Multiple and programmable Alarm levels per fire detection zone
- Variable rate of rise function
- Unrivalled response times
- Optional outputs
- Modbus Serial Data
- Direct to PC
- Volt free contacts
- Insensitive to EMI
- Intrinsically safe sensor
- Uses standard communications grade optical fibre
- Choice of cable construction
- Cable construction for extreme environments
- High System Integrity
- Automatic failure mode analysis
- Loop break recovery operation
- Diagnostic capability
- Fire progression monitoring
- No cable maintenance
- Modem for remote communications

Specifications

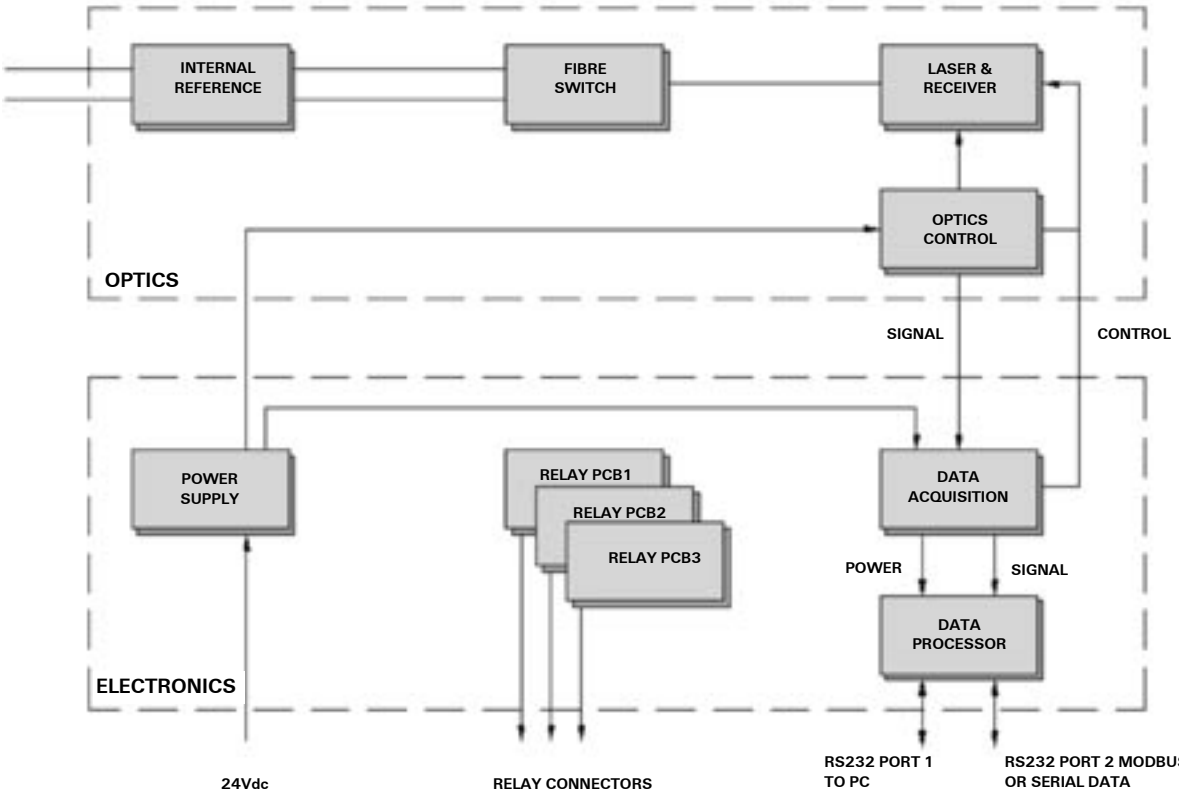
Supply Voltage	24Vdc (-6/+12Vdc)
Power Consumption	20W max
Supply Current	<1A
Fuse Rating	<2A (anti-surge)
Fibre	62.5/125 graded index multi-mode
Operating Temp	0°C to +40°C
Storage Temp	-40°C to +65°C
Relative Humidity	0 to 95% (non-cond.)
Compliance	
Class 3a Laser	IEC 825 (1990) BS7192(1989) ANSI Z136.2(1988)
EMC	Directive 89/336/EEC
Low Voltage	Directive 72/2/EEC

System Components

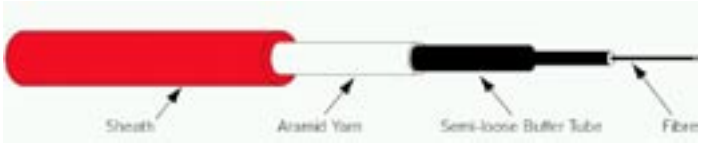
- Control Unit - available as:
  - Cabinet, including 32 relays and PSU in both 2km or 4km model
  - 19in Rack Mounting including 32 relays, in both 2km or 4km model
- Sensor Line thermoplastic sensor cable in 1, 2 or 4.4km reel
- Sensor Tube stainless steel sensor cable in 1, 2 or 4.4km reel
- For further information,ordering codes and pricing, contact Tyco Safety Products Product Manager

Important The Fibre Optic Linear Heat Detection products are the single highest value fire detection products available from Tyco Safety Products. The Control Unit contains complex high precision components including a single-mode laser which can be seriously damaged or misaligned if subjected to undue mechanical shock or ingress of dust etc.

Functional Block Diagram



Standard communications grade optical fibre of the 62.5/125 graded index multimode type is used. The temperature range is predominantly a function of the coating used to protect the optical fibre as the fibre itself is well behaved over a wide temperature range. Special coatings have been tested down to -190°C and up to 460°C (metallic - available upon request) performance of the standard type is detailed overleaf. Optical fibre itself offers several advantages as a sensing medium. The signals are immune to electromagnetic interference thereby ensuring integrity of readings from electrically noisy areas. As no electrical current is used in the sensing fibre and the fibre is a relatively inert and dielectric (non-conducting) medium, it is safe technology to use in hazardous environments.



Sensor-Line
Outer sheath 3.6mm dia., Aramid fibres for strength, Optical fibre in gel filled tube

Specifications	
Nominal Cable Dia.	5mm
Weight	2.3kg/m
Min. Bending Radius	63mm
Max. Tensile Load	100N
Operating Temp.	-20° to +70°C (continuous)
Installation Temp.	>10°C

Sensor-Tube
Stainless steel tube 3.2mm dia. / 6.4mm dia.

Specifications		
Nominal Cable Dia.	**3.2 mm**	**6.4 mm**
Wall Thickness	0.5 mm	0.9 mm
Weight	33 kg/km	121kg/km
Min. Bending Dia.	150 mm	150 mm
Max. Tensile Load	1971N	7080N
Operating Temp.[1]	-40° to +90°C (continuous)	
Max. Length (2 fibre)	2 km	10 km

1. For 125µm multimode fibre with acrylate coating, max. temp. is 150°C for 48 hrs. For polyimide coating, operating temp. is -185°C to +400°C.

Cable Options

FEATURES	BENEFITS
HIGH SYSTEM INTEGRITY - LOOP BREAK RECOVERY	The system can be set to operate in either single ended or loop mode without any additional costly hardware. The system continuously monitors the integrity of the loop and continues to operate in the event of a cable fault. The system is designed with an automatic loop break recovery operation.
FIBRE OPTIC SENSOR LOOP UP TO 2km or 4km	Very long distance (large areas) can be monitored using a single length of heat sensing cable. The hot spot identification on a 2 km length of fibre optic sensing cable, is to within 1.25 metres.
PROGRAMMABLE RELAY CONTACTS	30 zonal relays ensure that the system can provide sufficient alarm notifications – typically directly to any Fire Alarm Control Panel. 2 relay contacts are reserved for system and sensor fault.
MODBUS OUTPUT PORT	Permits connection of the system to any PLC (programmable logic controller) or DCS (distributed control system) using industry standard communications, thereby providing a very flexible system topology.
AUTOMATIC FAILURE MODE ANALYSIS	Cable faults are detected to an accuracy of ±1.25 m. The control system is continuously monitoring and a full syntax of fault information is provided with the system.
SAFE LASER SOURCE	In the event of a cable failure, where the laser light source may be exposed, the laser light is determined a safe source in accordance with IEC825.
DIAGNOSTIC CAPABILITY	Enables interrogation of the system to determine system status.
MODEM INTERFACE	By using a remote PC with a dial up connection to the host PC on site, it is possible for system to be accessed from a remote location to help assist with on-line technical support.

- Low thermal mass for rapid response to temperature
- Low smoke halogen free jacket, with excellent flame retardancy. Suitable for all indoor applications
- Stainless steel clad fibre optic cable suitable for all harsh area applications
- Strong, lightweight and flexible
- Designed for ease of installation

Summary of Cable Features

FEATURES	BENEFITS
CONTINUOUS TEMPERATURE PROFILES	By connecting a PC, it is possible to monitor the entire sensing cable length to view the current status of the alarm system which assists in easily determining the proximity to an alarm state.
VARIABLE RATE OF RISE AND FIXED TEMPERATURE FUNCTION	Variable rate of rise and fixed temperature alarm levels, ensure a flexible heat detector sensitivity which can be tailor made to give an early warning signal, dependant on the fire risk.
PROGRAMMABLE NUMBER AND LENGTH OF FIRE DETECTION ZONES	A single cable length can be divided into multiple fire detection zones thereby giving increased system flexibility whilst keeping cable lengths to a minimum.
MULTIPLE & PROGRAMMABLE ALARM LEVELS PER FIRE DETECTION ZONE	Pre-alarm warnings can be given, prior to a full alarm condition, thus helping to ensure minimal plant downtime.
UNRIVALLED RESPONSE TIME	The sensing element is designed to respond very quickly to changes in ambient temperature thus ensuring an early warning heat detection system.
DIRECT PC CONNECTION	This enables a user to view the temperature profile for the risk. It also provides an interface to allow adjustment of the alarm trip levels - this is access level protected.

Fibre Optic Temperature Sensing provides several output options, which operate concurrently to give system design flexibility. Thirty programmable relays can be used to map out alarm zones and signal into a fire panel, either directly or via addressable interface modules such as the MX CIM800. Protocol definition data is provided to enable the Control Unit to be connected via a PLC to a centralised control and monitor information centre, eg. SCADA. The full 200-zone capability of the system can be exploited using the MODBUS protocol. The Functional Block Diagram on page 83 shows typical system architecture.

Sensa Manager Software
The Sensa Manager software is used as an interface to the Control Unit. By using this software, it is possible to configure the unit to suit the particular fire risk. The system is password protected and can be set up to provide a continuous display of system status on a dedicated PC. Useful tool for commissioning and technical support.

Temperature Profile & Alarm Display
Illustration of the temperature profile display for the entire fibre length and also a numerical display for the individual zonal temperatures.

Detector Test Equipment

Part Numbers

517.001.230	SOLO100 Telescopic pole 1.26m to 4.5m
517.001.226	SOLO101 Extension tube 1.13M long for use with S100 Telescopic extension pole
517.001.264	SOLO610 Protective Carry/ Storage Bag for Solo Detector Test Kit

Part Number

517.001.255	SOLO330 Aerosol dispenser for use with all detector ranges. Connects directly to S100/S101 poles

Part Numbers

X461	SOLO461 Cordless heat detector tester kit including SOLO460 tester, SOLO720 battery batons and SOLO724 charger. (Connects directly to SOLO100/101 poles).
517.001.239	SOLO760 Spare battery baton for use with SOLO 450/460 tester
517.001.243	SOLO724 Spare mains/car battery charger for SOLO720 battery baton
X811	SOLO811 Smoke detector test kit including SOLO330 aerosol dispenser, SOLO200 detector removal tool, SOLO100 pole and SOLO610 equipment bag
517.001.257	SOLO460-006 Heat Detector Tester Head Unit - *non stock item*

Part Number
X500
Tyco Test Smoke
120g can

Part Number
517.001.262
CO Detector Test Gas,
120g can

Part Number

X811	Smoke Detector test kit

Part Number

517.001.224	SOLO704 Adaptor tube B - adapts SOLO100/101 pole sets for TYCO detector changers and testers

Part Number

517.050.004	M69 Detector changer for use with M600/M900 series. Requires Adaptor B and SOLO 100 pole

Part Number

517.001.240	SOLO200 Universal detector changer for use with various manufacturers detectors - not suitable for M600/900 series low profile. Connects directly to SOLO100/101 poles

Part Number
X60
Brandax KS Smoke Cartridge, 6 430g cartridges, dia 90x110mm, 400m^3 smoke vol, 300-360s burn time

Part Number
X61
Brandax VS Smoke Cartridge, 5 60g cartridges, dia 32x62mm, 55m^3 smoke vol, 180-240s burn time

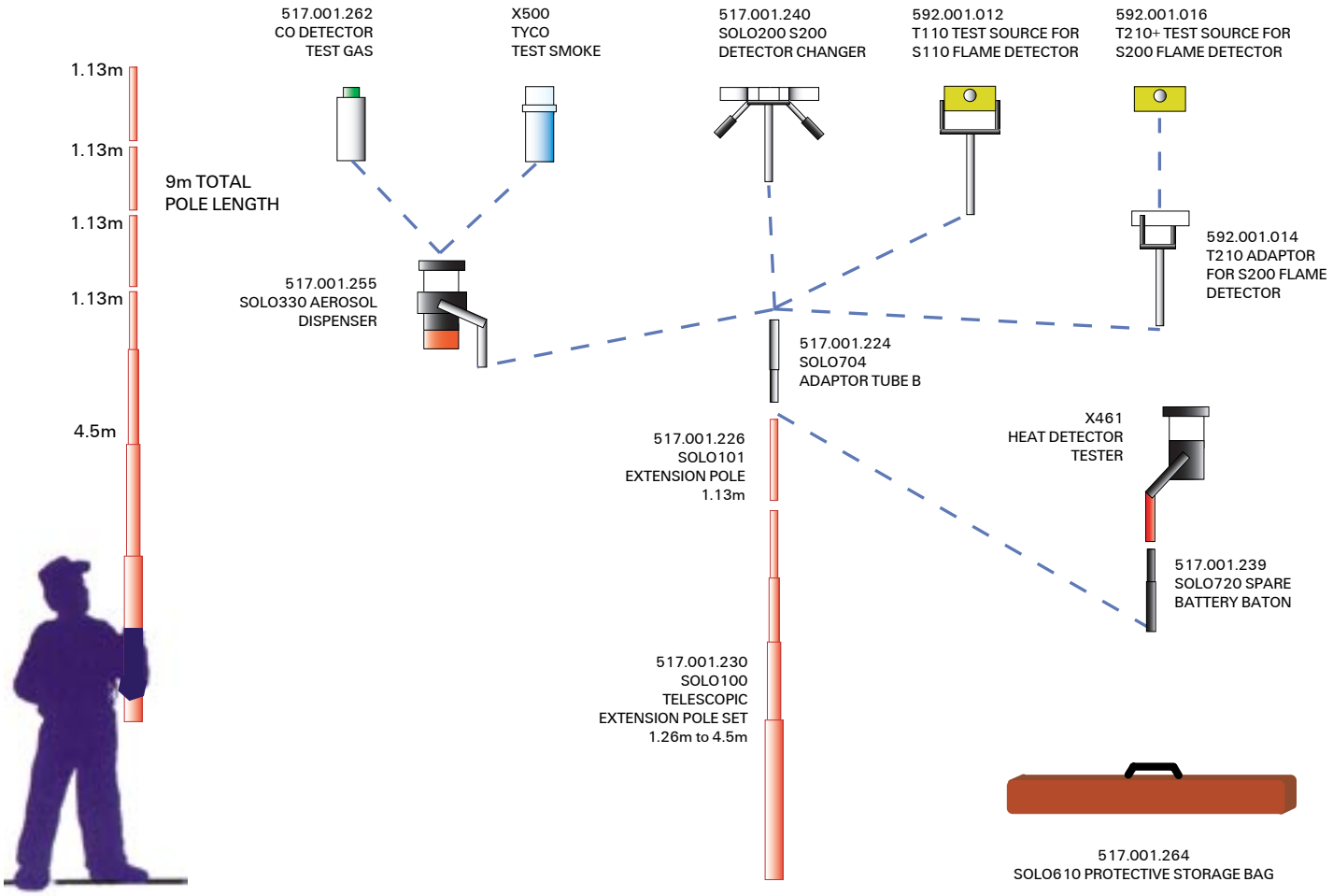
Part Number
X62
Ventilax Smoke Cartridge, 5 60g cartridges, dia 18x62mm, 17m^3 smoke vol, 180-240s burn time

Part Number
X65
Splintax Smoke Matches, 20 1g matches, 0.7m^3 smoke vol, 25s burn time

Part Number
X66
Miniax Smoke Cartridge, 10 3g cartridges, dia 14x32mm, 2.5m^3 smoke vol, 40s burn time

Smoke emitters are classified as Dangerous Goods for transport purposes.

SOLO Test Equipment for Point & Flame Detectors



S200 Series Test Equipment & Accessories

Part Numbers

592.001.016 T210+ Test Source for use with SOLO 704 Adaptor Tube B and SOLO100/101 poles

592.001.014 T210+ Adaptor for S200 Detectors

Note that both parts are required to test S200 Series Detectors

Part Number

517.001.184 S/S bracket assy for with all S100/200 Series detectors

S100 Series Test Equipment

Part Number

592.001.012 T110 Test Source for use with SOLO 704 Adaptor Tube B and SOLO100/101 poles

Part Number

592.001.005 T110 Adaptor for S131/161 Detectors

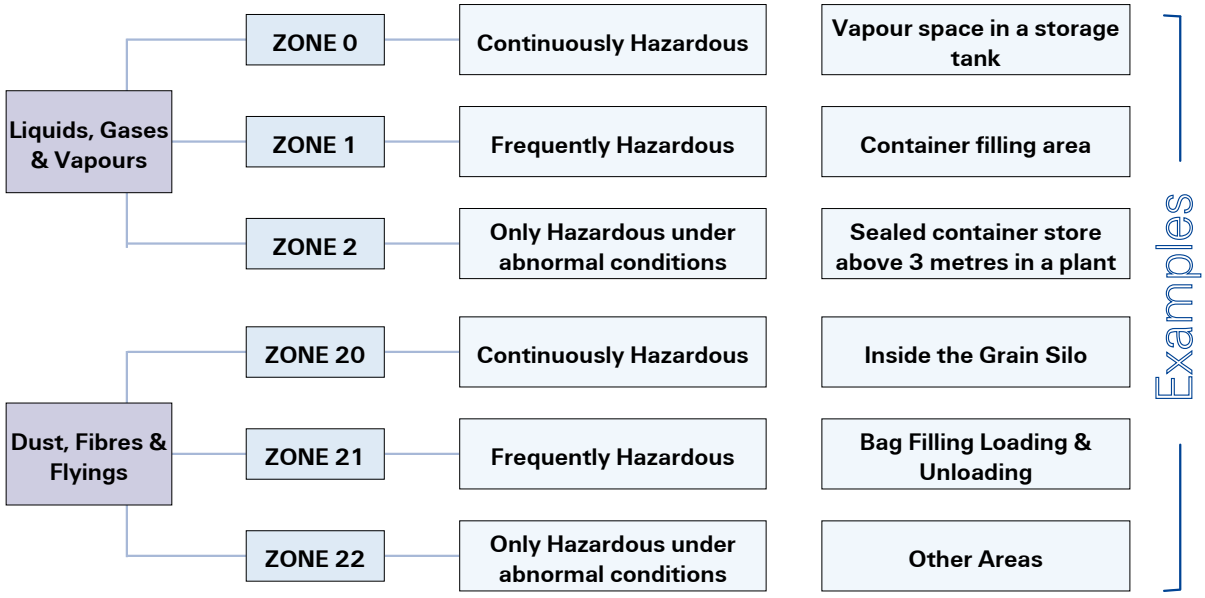
Part Numbers

592.001.005 T110 Adaptor for S131/161

592.001.010 T110 PP9 Battery and Charger kit

592.001.012 T110 Test Source for use with SOLO 704 adaptor tube B and SOLO100/101 poles

Hazardous Area Classification



Comparative List of Australia/New Zealand and International Standards

Installation Standards *

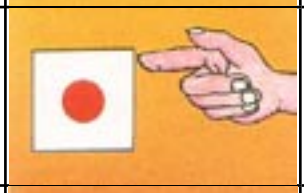
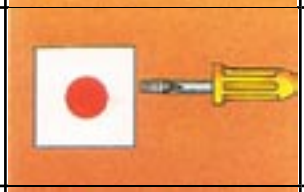
Nature of Hazardous Area	Standard	Australia/New Zealand
Dust, Fibres or Flyings	Area Classification	AS/NZS 61241.10 - 2005
	General Requirements	AS/NZS 2381.1 - 2005
	Selection and Installation	AS/NZS 61241.14 - 2005
Liquids, Gases and Vapours	Area Classification	AS/NZS 60079.10 - 2004
	General Requirements	AS/NZS 2381.1 - 2005
	Ex d Flameproof	AS/NZS 2381.2 - 2006
	Ex p Pressurisation & Ex pl Purging	AS 2380.4 - 1994
	Ex e Increased Safety	AS 2381.6 - 1993
	Ex i Intrinsic Safety	AS 2381.7 - 1989
	Ex n Non-Sparking	AS 1076.8 - 1977
	Ex s Special Protection	AS 1076.7 - 1977
	Ex m Encapsulation	As per manufacturers instructions

Equipment Standards

Nature of Hazardous Area	Standard	Australia/New Zealand	IEC
Dust, Fibres or Flyings	General Requirements	AS/NZS 2381.1 - 2005 and AS/NZS 61241.0 - 2005	IEC 61241.0
	Protection by enclosures 'tD' (protection by an enclosure to avoid ignition)	AS/NZS 61241.1 - 2005	IEC 61241.1
	Type of Protection 'pD' (protection by pressurisation to prevent entry of dust)	AS/NZS 61241.4 - 2002	IEC 61241.4
	Protection by intrinsic safety 'iD' (protection by energy limitation)	AS/NZS 61241.11 - 2006	IEC 61241.11
	Protection by encapsulation 'mD' (protection by enclosure in a compund)	AS/NZS 61241.18 - 2005	IEC 61241.18
Liquids, Gases and Vapours	General Requirements	AS/NZS 60079.0 - 2008 or AS 2380.1 - 1989	600 79-0
	Ex d Flameproof	AS/NZS 60079.1 - 2007	600 79 - 1
	Cable Glands (Flameproof)	AS/NZS 60079.1 - 2007	-
	Ex p Pressurisation or Purging	AS 2380.4 - 1994	600 79 - 2
	Ex e Increased Safety	AS/NZS 60079.7 - 2002	600 79 - 7
	Ex n Non-Sparking	AS/NZS 60079.15 - 2006	600 79 - 15
	Ex i Intrinsic Safety	AS/NZS 60079.11 - 2000	600 79 - 11
	Ex m Encapsulation	AS/NZS 60079.18 - 2005	600 79 - 18
	Ex s Special Protection	AS/NZS 1826 - 2008	600 79.0 C1.25.6
	Ex v Ventilation	AS 1482 - 1985	-

* Note 1: AS/NZS 2381.1 requires that the "design, construction, maintenance, testing and inspection of installations covered by the standard shall be carried out only by competent persons whose training has included instruction on the various types of protection and installation practices, relevant rules and regulations and on the general principles of area classifications." This is a legal requirement because AS/NZS 2381 is called up in the wiring rules - AS/NZS 3000, which also apply in addition to the standards shown above.
Note 2: Refer to AS/NZS 2381.1 section 2.6, and www.anzex.com.au, for equipment and certification requirements.

International Protection 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

To Australian Standard AS1939 - 1990 'Classification of Degrees of Protection' provided by enclosures for electrical equipment.

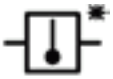
Refer to AS 60529 - 2004 Degree of protection provided by enclosures (IP Code) for test requirements for the IP classification of enclosures.

Symbols

Heat detector (exposed or ceiling mounted)

Heat detector in concealed space

Heat detector within air duct



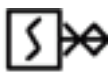
Line detector

Smoke detector (exposed or ceiling mounted)

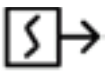
Smoke detector in concealed space

Smoke detector within air duct

Smoke detector with sampling device



Aspirated smoke detector system



Optical beam type smoke detector (transmitter)

Optical beam type smoke detector (receiver)

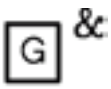
Heat alarm

Smoke alarm

Electromagnetic holder

Remote visual indicator

Flame detector



Gas fire detector

End-of-line device

Symbols

FIP	Fire indicator panel		Loud speaker
SIP	Sub indicator panel	n ‡	Device address
RCE	Remote control equipment	n ‡	Alarm zone
RP	Repeater panel		Circuit wiring
AD	Addressable device	FS	Flow switch
BAT	Storage battery	PS	Pressure switch
	Fire alarm bell		Manual call point
	Visual warning device	MV	Monitored valve
	Alarm sounder	MS †*&	Multi-Sensor detector

* Heat detector type (eg. TA, TB, etc for AS 1603.1 detectors ro A1, B etc for AS 7240.5 detectors)

† Type of smoke detector eg. I = Ionisation, P = Photoelectric,

‡ n Substitute loop and device number or zone number as applicable

§ Type of flame detector eg. IR = Infrared, UV = Ultraviolet

& Type of gas detector, eg. CO

Goods Return Procedure

August 2008

Dear Valued Customer

CUSTOMER GOODS RETURN PROCEDURE

There is now a new return procedure in place with Tyco Safety Products. The purpose of the new return procedure, known as a RAN (Return Authority Number) is to ensure prompt and consistent handling of product returns by TSP (Tyco Safety Products)
Product returns will not be accepted for credit unless a RAN has been issued by Customer Service / TSP Supervisor or if a Product Manger has given approval. All returned goods must clearly show the RAN on the outside of box/es, packets etc., and be in its original boxes or packets for re-sell.
A RAN will need to be obtained if goods are;

1) No longer required by you or your customer
2) The wrong goods were ordered from TSP
3) Faulty product is being returned

This RAN can be obtained by contacting Tyco Safety Products Customer Service on 09 826 1716 or e-mail to tsp.sales.nz@tycoint.com.

PROCEDURE

When contacting Tyco Safety Products for a RAN please have the following information available:

- Your contact details
- Order number or Picking Slip the product was supplied on
- Product details / codes
- Quantity returning
- Serial Number (if applicable with a Non Conforming Product –NCP)
- Fax number or email address

Once TSP approves the request for return, a RAN # will be issued for the return of product/s and this will be faxed or emailed to you. On arrival back to Tyco the RAN will be set aside for Tyco Safety Products to inspect and credit.

IMPORTANT - Please note:

- INDENT ITEMS CANNOT BE RETURNED. Only exception will be special approval by Product Managers. (please note possible re-stock fee plus freight charges to return to supplier may apply if returned)
- Unwanted goods must be in condition as new or equivalent.
- If any printed circuit boards (PCBs) have had the anti static packet opened your credit will be declined (unless a faulty unit)
- Tyco Safety Products will not accept responsibility for returns that have been sent back without the correct paperwork – RAN. – If this is not followed expect delays in credits being processed.

Kind Regards

Krishna (Louie) Govindsamy
National Warehouse Manager

Gemma Law
Customer Service Supervisor

Warranty

Tyco Safety Products offers a product warranty of 24 months from the date of purchase, for Tyco Manufactured product. Other product is warranted for the length of time offered by its manufacturer, usually 12 months. Warranty returns will only be accepted for defective materials or faulty workmanship.

Warranty returns will be credited or repaired/replaced at Tyco Safety Products' sole discretion. Indent or special order items are extremely unlikely to be credited.

Tyco Safety products will not under any circumstances accept responsibility for consequential or liquidated damages arising 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 Tyco Safety Products representative for details.

tyco Safety Products

QE90 Configuration Sheet

QE90 PANEL CONFIGURATION SHEET

CLIENT:	
CONTACT:	
PROJECT:	
DATE REQ:	

ORDER No:	
DATE:	
LOGO TYPE:	

SECP	(QTY)	
(FP0539) PAGING CONSOLE	(QTY)	
(SU0168) GOOSENECK MIC.	(QTY)	
(SU0169) DESKTOP MIC.	(QTY)	
(PA0688) MIC. PRE-AMP BD	(QTY)	
Cabinets (Qty)	18U	
	28U	
	21U	
	40U	

Bold columns are compulsory - Others optional. Refer to PBQ0094B for instructions

Evac Zone No	Evac Zone Name	Fire	Loudspeaker Output (Watts)					**Amplifiers**			**Wips** (Qty 0-3)	**BGA Inputs**	**Fip Inputs**	Remarks
			.5	1	2	5	LOAD	RATING	QTY					

Cascade

	Disabled
	Standard 2 up 1 down
	Special attached

Inputs

	BGA use FIP i/ps
	BGA use 3-4 wire WIP ccts
	BGA use 2 wire WIP ccts
	FIP use WIP ccts
	FIP use RZDU
	FIP use PanelLink

Relay Outputs

X	Fault
	Alarm
	Any Alert/Evac/PA/PABX
	Other attached

Speech Messages

	Evac... as directed (Aus)
	Evacuate...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

Iss 2.4

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Product Index

Terms and Conditions

1. GENERAL

(a) In this Agreement, unless the context otherwise requires:

Agreement means this agreement together with Tyco's quotation and credit approval and/or guarantee provided by the Customer to Tyco.

Credit Arrangement means the credit terms available to Customer pursuant to an application by Customer for the provision of Goods on credit submitted to Tyco using Tyco's standard credit application form and accepted in writing by Tyco (referred to as the Confidential Credit Application and Agreement);

Customer means the party to whom Tyco has agreed to supply Goods pursuant to the Agreement;

Goods means the goods and/or services agreed to be supplied by Tyco and purchased by Customer pursuant to the Agreement;

GST means the tax payable under the Goods and Services Tax Act 1985 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 New Zealand and any regulation made under that Act;

Guarantee means the guarantee document provided by Customer or Customer's directors, shareholders or principals to Tyco 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 Tyco for the supply of the Goods;

Tyco means [insert Tyco company] trading as [insert trading name].

Tyco Group means that group of companies that has as its ultimate parent Tyco International Ltd.

(b) This Agreement records the entire arrangement between the parties relating to the matters dealt with in this Agreement and supersedes all previous arrangements, understandings or representations whether written, oral or both, relating to these matters.

2. QUOTATIONS AND PURCHASE ORDERS

(a) Subject to the paragraph (b) below, and unless Tyco has withdrawn its quotation, the Customer may make an order under that quotation for a period of 30 days from the date of issue or as otherwise specified in the quotation. Prices given in any quotation by Tyco are applicable to that quotation only, and will not apply in any other instances. A quotation from Tyco is not an offer to sell.

(b) In order to purchase the Goods, Customer must place with Tyco a Purchase Order setting out an order number, Tyco's quotation number (if applicable), full description of the Goods to be purchased, the delivery date, delivery point and any other information required by Tyco. The Purchase Order may be accepted or rejected by Tyco at Tyco's sole discretion.

(c) A contract shall be formed by and upon Tyco accepting from Customer a Purchase Order pursuant to the clause immediately above and each contract shall be governed by the Agreement.

(d) Any conditions or terms of purchase submitted by Customer deviating from or inconsistent with the Agreement will not bind Tyco, notwithstanding any statement by Customer in its Purchase Order that its terms and conditions prevail over the Agreement.

(e) Where the Goods to be supplied contain raw materials, the price and availability of which is unpredictable (eg PVC, copper, steel), and there is a lack of available such raw material either to enable Tyco to supply the Goods or to supply the Goods at the price stated in the Purchase Order, Tyco 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 neither case shall Tyco have any liability to Customer as a result of such termination, but Customer shall pay to Tyco the purchase price of Goods actually supplied or to be supplied under the Purchase Order under the Agreement.

3. PAYMENT OF PURCHASE PRICE

(a) Unless otherwise agreed in writing, Tyco accepts Purchase Orders subject to the condition that Customer agrees to pay the purchase price appearing on Tyco's price list for those Goods current as at the date that Tyco accepts the Purchase Order.

(b) A copy of Tyco's price list for the Goods is available on request. All prices on Tyco'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 Tyco, as Tyco may elect.

(d) The Customer shall pay the amount set out in the invoice issued by Tyco in accordance with the payment terms set out in the Customer's credit approval (as may be amended by Tyco in writing from time to time in its sole discretion), or in the absence of specified payment terms within 30 days of the date of the invoice.

(e) If the Customer fails to pay the full amount on the due date Tyco may charge, and the Customer must pay, interest calculated daily on any monies which are overdue at the rate of 4% per annum over the Westpac Indicator Lending Rate as quoted from time to time. Any payment subsequently voided by any statutory entitlement shall be deemed to the extent of such voidance not be have been made.

(f) Customer must not set off any money owing or alleged to be owing by Tyco against money due by Customer to Tyco.

(g) Customer acknowledges that Tyco is a member of the Tyco Group. Customer agrees that Tyco and/or any other Tyco Group company is entitled to exercise a right of set off to the extent Customer is indebted to Tyco or to any Tyco Group company against any monies due by Tyco to Customer or any Tyco Group company on this or any other account.

4. CANCELLATION OF ORDERS

Customer may not alter or cancel a Purchase Order without Tyco's prior written consent. If Tyco agrees to alter or cancel the Purchase Order, Customer will indemnify Tyco against any loss, damage and expense incurred by Tyco 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 Tyco in the execution or part execution of the Goods and including compensation payable to any of Tyco's suppliers and loss of profit.

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 Tyco of the claim and providing full particulars of the claim in writing within 5 days of receipt of those Goods. Tyco may dispute any such claim.

(c) Goods referred to in the clause immediately above may be returned to Tyco for credit if all of the following is complied with:

(i) the Goods are returned to Tyco's premises by prior arrangement and with Tyco's written approval within 7 days of delivery, at no cost to Tyco, unless delivered as the result of an administrative error by Tyco, in which case Tyco will bear the cost of return;

(ii) the Goods are accompanied by a dispatch note stating Tyco'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 Tyco unless it has complied with the two clauses immediately above and has done all things necessary to permit Tyco to examine the Goods to Tyco's satisfaction within that period.

6. DELIVERY AND STORAGE

(a) All quoted delivery or consignment dates are estimates only. Tyco is not obliged to meet such dates and will not be liable to Customer by reason of delays caused by any reason whatsoever.

(b) Tyco 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 Tyco otherwise agrees in writing.

(c) Tyco may deliver the Goods by instalments (where, in Tyco'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 Tyco 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, Tyco 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.

7. TITLE AND RISK

(a) Title to the Goods shall remain with Tyco until all monies owing by Customer to Tyco have been paid in full (whether such monies are payable under a specific contract or on any other account).

(b) Without limiting paragraph (a) above, the Customer acknowledges and agrees to the following:

(i) This Agreement creates and/or provides for an interest or interests in favour of Tyco in the Goods supplied by Tyco under this Agreement which will constitute a security interest in the Goods and the proceeds of sale of such Goods under the Personal Property Securities Act 1999 (PPSA).

(ii) Customer will, upon request by Tyco, enter into a security agreement, in a form provided by Tyco, pursuant to which Tyco will maintain a first priority (or such other priority as Tyco agrees in writing) security interest in the Goods and the proceeds of such Goods. The Customer shall act immediately in this regard when requested by Tyco and at the Customer's own cost.

(iii) To the fullest extent permitted by law, the Customer waives any rights it may have now or in the future to receive a copy of any verification statement or other confirmation related to the interests created or provided for by, or perfected in the manner contemplated by, this Agreement.

(b) Until such time as Customer has paid in full all monies owing to Tyco, Customer shall:

(i) store the Goods separately and mark them so that they are clearly and easily identifiable as Tyco's property and, if Supplier requests, inform Tyco of the location of the Goods;

(ii) hold the Goods as bailee for Tyco, subject to Customer's right to deal with the Goods in the ordinary course of Customer's business (Bailment);

(iii) indemnify Tyco against any claim arising out of the possession, use or disposal of the Goods by Customer or repossession or attempted repossession by Tyco.

(c) If:

(i) a payment is not made in accordance with the Agreement;

(ii) ustomer 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 Tyco 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 Tyco reasonably believes the Goods may be stored and repossess the Goods without being liable for any damages caused.

(d) If Customer sells the Goods before payment in full to Tyco, or uses the Goods in a manufacturing or construction process of its own or some third party, Customer holds the proceeds on trust for Tyco in respect of those Goods, and must keep such proceeds in a separate account until the liability to Tyco is discharged and must immediately pay that amount to Tyco.

(e) The risk in the Goods passes to Customer at the time of Delivery.

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 Tyco up to the amount it owes Tyco in respect of those Goods, and must keep such proceeds in a separate account until the liability to Tyco is discharged and must immediately pay that amount to Tyco.

9. WARRANTY AND LIMITATION OF LIABILITY

(a) Tyco makes no warranties or representations to Customer, and all warranties implied by law are excluded.

(b) Tyco 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 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 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 Tyco may elect) any such defective Goods at Tyco'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 Tyco, the original manufacturer's warranty will apply. Tyco'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 Tyco for a breach of any condition or warranty implied by law is limited at Tyco's option to the repair the Goods or supply replacement Goods.

(f) Tyco'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) Customer acknowledges and agrees that, to the extent permitted by law, Tyco 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.

(h) All guarantees, warranties and conditions expressed or implied by statute, law or otherwise, including without limitation, any guarantees, warranties or conditions relating to the quality, merchantability or fitness for purpose of the Goods are excluded to the fullest permitted by law. The Customer acknowledges and agrees that to the extent it is acquiring the Goods under this Agreement for the purposes of a business, as defined in the Consumer Guarantees Act 1993, the Consumer Guarantees Act 1993 shall not apply to this Agreement.

(h) Tyco'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.

Terms and Conditions

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 Tyco and Customer shall gain no right, title or interest in the Proprietary Information whatsoever. Customer specifically acknowledges Tyco'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 Tyco's documentation relating to the Goods.

11. EXPORT/RE-EXPORT/RESALE

(a) The Goods supplied are intended for use only in New Zealand, unless Tyco 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 the (US) Denied Persons 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 the Purchaser 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 organization, any political party, any candidate for public office, or their employees or relatives, for the purpose of influencing purchasing decisions or for any other improper purpose.

12. MISCELLANEOUS

(a) The fact that Tyco 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. Tyco 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) Tyco 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 Tyco's reasonable control and not as a consequence of Tyco'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 New Zealand. Customer unconditionally submits to the non-exclusive jurisdiction of the courts of New Zealand.

(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 Tyco.

(h) Customer shall not assign this Agreement without Tyco's prior written consent. Any change in the shareholding or effective control of the Customer shall constitute an assignment for the purposes of this clause and shall require Tyco's prior written consent to be effective.

Tyco Safety Products New Zealand

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