MX Series Virtual Multi-Sensor Addressable Fire Detection

The 814 Series multi-sensor fire, smoke and heat detectors can be implemented by the MX addressable fire alarm panel as one of many MX VIRTUAL detectors. This provides highly advanced, flexible fire detection technology in an attractive and cost effective package.

Features

- Over 20 VIRTUAL detection modes
- Tyco MX FASTLOGIC Fuzzy logic Algorithm
- Proven SmartSense Algorithm
- Up to 200/250 detectors per MX4428/MX1 loop
- Optional bi-directional short circuit isolation
- Remote detector verification and temperature read out
- Programmable alarm LED with 360° viewing angle
- Optional detector locking device
- Variety of sounder and relay detector bases
- Address flag stays with the base
- Internationally approved, CSIRO ActivFire listed
- Unique ‘park’ position for commissioning & service
- Panel Self-Learn function supported by detectors
- Dirty Detector read-out can be viewed on the MX Service Tool or fire alarm panel

General

The 814 Series comprises a unique Carbon Monoxide (CO) and Heat detector (814CH), a combined Smoke and Heat detector (814PH), a Photoelectric Smoke detector (814P), an Ionisation Smoke detector (814I) and a fully configurable Heat detector (814H). The 814H provides flexibility in that it can be set for different fixed temperatures with or without rate-of-rise detection and includes AS 1603.1 Types A, B, C and D. The heat sensor in the 814PH can also perform as a Type A or B heat detector. All devices have undergone stringent environmental type testing. The detectors are constructed using Fire Resistant FR110 PC/ABS plastic. The multi-sensor detectors can be recycled at the end of their life, as they use no radioactive parts. All 814 Series detectors are supplied with integral dust covers as part of the packaging. These are retained throughout installation and removed at commissioning time. The unique design of the 814PH and 814P optical chamber in conjunction with a stainless steel screen provides a high degree of immunity to small insects.

Detection Modes

All 814 Series detectors communicate with the MX fire alarm panel using the fast reliable MX DIGITAL loop protocol. This provides the transmission of multi-sensor data, that can then be processed with separate analysis of each sensor. This allows simultaneous fire detection for applications with multiple risks using a combination of smoke and heat with the 814PH or a combination of CO and heat with the 814CH.
Virtual Detectors

The use of virtual detection means that installers can change the detection mode without any physical change taking place. Not only can the detection be changed at the time of installation and commissioning but also during the life of the building as building usage changes. Some MX fire alarm panels even allow the detection mode to be changed at different times of the day or automatically as occupancy and activity in the space changes. As well as providing great flexibility, using only two multi-sensor detector models means whole life costs are reduced by reducing manufacturing, stocking and service stocks. This also reduces the number of times detectors have to be changed during the life of the installation. In addition, for special applications, single sensor ionisation chamber smoke detectors and heat detectors are available.

814P 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.

Technical Specifications

- Operating Voltage: 20 to 40Vdc
- Quiescent Current: 275µA (typ.)
- Alarm Current: 10mA with LED on
- Remote Indicator: Tyco E500 Mk2
- Ambient Temperature: -25°C to +70°C
- Relative Humidity: 10% to 95% (non-cond)
- Dimensions: 109 dia x 43H mm
- Weight: 76g
- CSIRO ActivFire Listed: afp-1699
- FPANZ Listed: VF/342
- Part Numbers: 516.800.517, 814P (NZ only)

814PH Multi-Sensor Smoke and Heat 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. The 814PH has all the features of MX VIRTUAL detectors including self verification, temperature and CO level indication and superior service functions.

Technical Specifications

- Operating Voltage: 20 to 40Vdc
- Quiescent Current: 275µA (typ.)
- Alarm Current: 10mA with LED on
- Remote Indicator: Tyco E500 Mk2
- Ambient Temperature: -25°C to +70°C
- Relative Humidity: 10% to 95% (non-cond)
- Dimensions: 109 dia x 43H mm
- Weight: 76g
- CSIRO ActivFire Listed: afp-1424
- FPANZ Listed: VF/335
- Part Numbers: 516.800.510, 814PH (NZ only)

814CH Multi-Sensor Carbon Monoxide and Heat 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 uses a reliable electrochemical cell, which has an expected life in excess of 10 years, for detecting CO. The integrated heat sensor monitors rate-of-rise and fixed temperature and has been tested as a detector in its own right. The 814CH has all the features of MX VIRTUAL detectors including self verification, temperature and smoke level indication and superior service functions.

Technical Specifications

- Operating Voltage: 20 to 40Vdc
- Quiescent Current: 275µA (typ.)
- Alarm Current: 10mA with LED on
- Remote Indicator: Tyco E500 Mk2
- Ambient Temp: 0°C to +50°C
- Relative Humidity: 15% to 90% (non-cond)
- Dimensions: 109 dia x 43H mm
- Weight: 88g
- CSIRO ActivFire Listed: afp-1425
- FPANZ Listed: VF/337
- Part Numbers: 516.800.511, 814CH (NZ only)

1. The 814CH may be operated between 0°C and – 20°C for short periods but with reduced performance.
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.

814I Ionisation Smoke Detector

Tyco 814I detectors are offered for old specifications which still call for ionisation smoke detectors. The 814I-H 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.

VLC-800MX VESDA LaserCOMPACT™

The VLC-800MX 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-800MX communicates directly with the MX4428 c.i.e. via the MX loop detecting smoke by using proven VESDA® aspirating technology, dual stage filtration technology in combination with the versatility of the MX4428 c.i.e. The VLC-800MX utilises a standard VESDA® pipe design in accordance with the Aspire design tool.

D51MX Duct Sampling Unit

The D51MX 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 detector. The D51 MX is fitted on the housing fitted with a 5B base wired to suit an MX loop detecting smoke by using proven VESDA® aspirating technology, dual stage filtration technology in combination with the versatility of the MX4428 c.i.e. The VLC-800MX utilises a standard VESDA® pipe design in accordance with the Aspire design tool.

Technical Specifications

**814H Heat Detector**
- Operating Voltage: 20 to 40Vdc
- Quiescent Current: 250μA (typ.)
- Alarm Current: 10mA with LED on
- Remote Indicator: Tyco E500 Mk2
- Ambient Temperature: -5°C to +70°C
- Relative Humidity: 10% to 95% (non-cond)
- Dimensions: 109 dia x 43H mm
- Weight: 79g
- CSIRO ActivFire Listed: afp-1427
- Part Numbers: 516.800.513
- 814HCTD (NZ only)

**814I Ionisation Smoke Detector**
- Operating Voltage: 20 to 40Vdc
- Quiescent Current (typical): 330μA
- Alarm Current (max.): 10mA with LED on
- Radiactive Source: 33.3kBq Am241
- Remote Indicator: Tyco E500 Mk2
- Ambient Temperature: -25°C to +70°C
- Relative Humidity: 10% to 95% (in/cond)
- Dimensions: 109 dia x 43H mm
- Weight: 81g
- CSIRO ActivFire Listed: afp-1426
- Part Number: 516.800.512
- 814I (NZ only)

**VLC-800MX VESDA LaserCOMPACTTM**
- External Supply: 18 to 30Vdc
- Quiescent Current: 225mA
- Alarm Current: 245mA
- Ambient Temperature: -10°C to +39°C
- Sampled Air: -20°C to +60°C
- Relative Humidity: 10% to 95% (in/cond)
- Alarm Sensitivity: 0.005 to 20%Obs/m
- Coverage Area: 800 m2
- Dimensions (HWD): 225x225x85mm
- Weight: 1.9 kg
- CSIRO ActivFire Listed: afp-1580
- Part Number: 814I (NZ only)

**D51MX Duct Sampling Unit**
- Operating Voltage: 20 to 40Vdc
- Quiescent Current: 275mA (typ.)
- Alarm Current: 10mA with LED on
- Duct Pressure: -1.15 to +3.0 kPa
- Duct airflow for alarm at 8%Obs/m²: 1, 2, 4, 8m/s
- Sampling Tube Length: 160mm minimum
- Max. Duct Width: 1.8m
- Remote Indicator: E500 Mk2 Series
- Ambient Temperature: -10°C to +55°C
- Relative Humidity: 10% to 95% (in/cond)
- CSIRO ActivFire Listed: afp-1496

Part Numbers:
- D5 1MX: Duct Sampling Unit
- D5 1L: Baffle box of 10
- D5 1F: Filter box of 10
- D5 1T3: 3m Sampling Tube
- D5 1K100: End Cap (pkt of 10)
5B Universal Base

The 5B Universal Base contains no electronics and is suitable for indoor applications of the 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 M6 14 base to cover any paint rims or covering a larger hole in the ceiling. It features remote LED connections and an anti-tamper facility.

Technical Specifications
- Ambient Temp: -25°C to +75°C
- Relative Humidity: 10% to 95% (non cond.)
- Dimensions: 127 dia x 24H mm
- Weight: 63g
- CSIRO ActivFire Listed with compatible detectors

Part Numbers
- 517.050.017: 5B Base
- 517.050.603: Deckhead Mount
- 517.050.614: Detector Cage

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.

Technical Specifications
- Operating Voltage: 20 to 40Vdc
- Quiescent Current: 80µA (max.)
- Tripped Current: 3.5mA (max.)
- IB Units betw’n 5BIs: 100 (max.)
- Indoor Applications Only
- Ambient Temperature: -25°C to +70°C
- Relative Humidity: 10% to 95% (non cond.)
- CSIRO ActivFire Listed with MX detectors
- FPANZ Listed
- Part Number: 517.050.018

1. 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 to the ceiling, plugged into an M614/5B Universal Base or an 814IB/5BI Isolator Base.

Technical Specifications
- Operating Voltage: 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% (non cond.)
- CSIRO ActivFire Listed with MX detectors
- FPANZ Listed
- Part Number: 814RB

1. 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.

802SB/901SB Sounder Base

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. The MX loop will support up to 60 802SBs operating at full volume at any one time, or 200 901SBs on full volume at any one time. The 901SB is identified by a blue park clip and requires an external 24Vdc supply.

Technical Specification
- Operating Voltage: 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: 50 to 200
- CSIRO ActivFire Listing pending

Part Numbers
- 802SB: 516.800.911
- 901SB: 516.800.913

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

Simplex FIRE PRODUCTS

Tyco reserves the right to alter specifications without notice in line with its policy of continuous product improvement. Tyco International Company

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