



# 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

## General

The 814 Series comprises a unique Carbon Monoxide (CO) and Heat detector (814CH), a combined Smoke and Heat detector (814PH), 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. All devices have undergone stringent environmental type testing. All electrical contacts are moulded into the plastic to eliminate any movement. The detectors are constructed from hard wearing Fire Resistant FR110 PC/ABS plastic. The multi-sensor detectors are environmentally friendly as they use no radioactive parts and can be recycled at the end of their life. All 814 Series detectors are supplied with integral dust covers as part of the packaging. Dust covers are retained throughout installation and removed at commissioning time. The unique design of the 814PH optical chamber in conjunction with a stainless steel screen provides a high degree of immunity to small insects.

## Installation & Service Features

The 814 Series MX VIRTUAL detectors include a host of installation and service features which are provided to minimise installation and service costs and reduce repair times.

- Standard 5B base with multiple mounting options speed and simplify installation
- Unique 'park' position for commissioning and service procedures
- Detector Addressing programmed from the MX Service Tool, MX4428-MXP, MX1 or Loop Tester
- Address flag – fixed to the base to prevent mix ups during service
- Panel Self learn function supported by the detectors
- Full range of remote installation/removal, service and test tools
- Dirty Detector Read-out can be viewed on the MX Service Tool or MX fire alarm panel.

## 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.

## 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 smoke and heat detection applications. The 814PH 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 814PH has all the features of MX VIRTUAL detectors including self verification, temperature and smoke level indication and superior service functions.

### Technical Specification

Operating Voltage <sup>1</sup>	20 to 40Vdc
Quiescent Current	275µA (typ.)
Alarm Current	10mA (LED on)
Remote Indicator	Tyco E500 Mk2
Devices per loop <sup>2</sup>	200/250 max.
Ambient Temp	-25°C to +70°C
Relative Humidity	10% to 95% (non cond.)
Dimensions	109 dia x 43H mm
CSIRO ActivFire Listed	afp-1424

**Part Number** 814PH

1. Addressable loop voltage provided by the c.i.e.

2. Assuming all devices on loop are the same type. Refer to relevant manual for design limits; 200 devices for MX4428, 250 devices for MX1.

## 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 and heat detection applications. The 814CH is particularly well suited to sleeping risks, storage areas and applications where smoke detector positioning is difficult or where smoke detectors are prone to false alarm.

The integration of heat detection into the 814CH allows the detector to operate in a wide variety of applications where combined risks mean that CO detection alone would be insufficient. The 814CH incorporates a reliable electrochemical CO detection cell and high specification low thermal mass thermistor for accurate temperature detection. The 814CH has all the features of MX VIRTUAL detectors including self verification, temperature and CO level indication and superior service functions.

### Technical Specification

Operating Voltage <sup>1</sup>	20 to 40Vdc
Quiescent Current	275µA (typ.)
Alarm Current	10mA (LED on)
Remote Indicator	Tyco E500 Mk2
Devices, per loop <sup>2</sup>	200/250 max.
Ambient Temp <sup>3</sup>	0°C to +50°C
Relative Humidity	15% to 90% (non cond.)
Dimensions	109 dia x 43H mm
CSIRO ActivFire Listed	afp-1425

**Part Number** 814CH

1. Addressable loop voltage provided by c.i.e.

2. Assuming all devices are the same type. Refer to relevant manual; 200 for MX4428, 250 for MX1.

3. Detectors may be operated between 0 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 types, 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.

### Technical Specification

Operating Voltage <sup>1</sup>	20 to 40Vdc
Quiescent Current	250µA (typ.)
Alarm Current	10mA (LED on)
Remote Indicator	Tyco E500 Mk2
Devices per loop <sup>2</sup>	200/250 max.
Ambient Temp	-25°C to +70°C
Relative Humidity	10% to 95% (non cond.)
Dimensions	109 dia x 43H mm
CSIRO ActivFire Listed	afp-1427
<b>Part Number</b>	<b>814HCTD</b>

1. Addressable loop voltage provided by the c.i.e.  
2. Refer to relevant manual for design limits: 200 for MX4428, 250 for MX1.

## 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 smoldering and flaming fires, such as wood, paper etc. Warning: these detectors contain a small amount of radioactive material (<33.3kBq Americium 241). They are safe when used as prescribed. Handling, transport and disposal must be done in accordance with Health Department regulations.

### Technical Specification

Operating Voltage <sup>1</sup>	20 to 40Vdc
Quiescent Current	330µA (typ.)
Alarm Current	10mA (LED on)
Ionisation Source	Am241 <33.3kBq
Remote Indicator	Tyco E500 Mk2
Devices per loop <sup>2</sup>	200/250 max.
Ambient Temp	-25°C to +70°C
Relative Humidity	10% to 95% (non cond.)
Dimensions	109 dia x 43H mm
CSIRO ActivFire Listed	afp-1426
<b>Part Number</b>	<b>814I</b>

1. Addressable loop voltage provided by the c.i.e.  
2. Refer to relevant manual for design limits: 200 for MX4428, 250 for MX1.

## VLC-800MX VESDA LaserCOMPACT

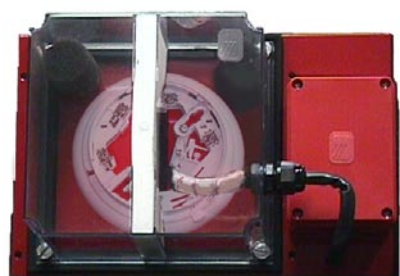


The VLC-800MX LaserCOMPACT detector has been specifically designed to provide all the benefits of aspirating smoke detection, including very early warning, in single small areas and where space is at a premium. It requires a separate 24Vdc supply and communicates directly with the c.i.e. via the MX addressable loop. The VLC-800MX uses the latest in VESDA® sampling technology including a highly efficient laser light source and a dual stage dust filter. It utilises a standard VESDA® pipe design in accordance with the Aspire design tool. VESDA® accessories are available for the VLC-800MX.

### Technical Specification

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% (non cond.)
Alarm Sensitivity	0.005 to 20%/obs/m
Coverage Area	800 m <sup>2</sup>
Dimensions (HWD)	225x225x85mm
Weight	1.9 kg
CSIRO ActivFire Listed	afp-1580
<b>Part Number</b>	<b>VLC-800MX</b>

## D51MX Duct Sampling Unit



The D51MX is a Duct Sampling Unit fitted with a pre-wired 5B detector base. The 814PH photoelectric smoke detector is required to be used with the D51MX and must be ordered separately. Spare parts including filters (D51F), 3 metre sampling tube (D51T3), baffles (D51L) and sampling tube end plugs (D51K100) are available.

### Part Numbers

Duct Sampling Unit	D51MX
Baffle box of 10	D51L
Filter box of 10	D51F
3m Sampling Tube	D51T3

### Technical Specification

Operating Voltage <sup>1</sup>	20 to 40Vdc
Quiescent Current	275µA (typ.)
Alarm Current	10mA with LED on
Duct Pressure <sup>2</sup>	-1.15 to +3.0 kPa
Duct air velocity for alarm at 8%/m Obs <sup>2</sup>	1, 2, 4, 8m/s
Sampling Tube Length	160 to 3000mm
Max. Duct Width	1.8m
Remote Indicator	E500 Mk2 Series
Ambient Temp	-10°C to +55°C
Relative Humidity	10% to 95% (non cond.)
CSIRO ActivFire Listed <sup>3</sup>	afp-1496

1. Addressable loop voltage provided by the c.i.e.  
2. AS 1603.13-1998 test  
3. Listed with 814PH

## 5B Universal Base



The 5B Universal Base is suitable for indoor applications of the 814 series of 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.

### Features

- Variety of fixing options using up to 4.8mm screws
- Remote LED connections
- Anti-tamper facility, locking device included
- Park Position disconnects detector from wiring whilst retaining detector in base.

- Compatible with base accessories including Deckhead Mount, Euro Mount and Detector Cage.

### Technical Specifications

Ambient Temp	-25°C to +75°C
Relative Humidity	10% to 95% (non cond.)
Dimensions	127 dia x 24 mm
Weight	63g

CSIRO ActivFire Listed with compatible detectors

### Part Numbers

5B Base	517.050.017
Deckhead Mount	517.050.603
Euro Mount	517.050.604
Detector Cage	517.050.614

## 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. The 5BI can accommodate one of the MX detectors, or serve as a base for an 814RB. The 802SB/901SB must be wired directly to the loop.

### Technical Specification

Operating Voltage <sup>1</sup>	20 to 40Vdc
Quiescent Current	80µA (max.)
Tripped Current	3.5mA (max.)

IB Units between 5BIs<sup>2</sup> 100 (max.)

### Indoor Applications Only

Ambient Temp	-25°C to +70°C
Relative Humidity	10% to 95% (non cond.)

CSIRO ActivFire Listed with MX detectors

### Part Number

517.050.018

<sup>1</sup>. Addressable loop voltage provided by the c.i.e.

<sup>2</sup>. 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 M6 14/5B Universal Base or an 814IB/5BI Isolator Base.

### Technical Specification

Operating Voltage <sup>1</sup>	20 to 40Vdc
Quiescent Current	50µA (max.)
Switching Current	1A @ 30Vdc max.

### Indoor Applications Only

Ambient Temp	-10°C to +55°C
Relative Humidity	10% to 95% (non cond.)

CSIRO ActivFire Listed with MX detectors

### Part Number

814RB

<sup>1</sup>. Addressable loop voltage provided by the c.i.e.

## 802SB/901SB Sounder Base



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 50<sup>2</sup> 802SBs at full volume may be connected to the loop. The 901SB is identified by a blue park clip and requires an external 24Vdc supply. The MX loop will support up to 200 901SBs on full volume.

### Technical Specification

Operating Voltage <sup>1</sup>	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 <sup>2</sup>	50 to 200

CSIRO ActivFire Listing pending

### Part Numbers

802SB 802SB

901SB 516.800.911

<sup>1</sup>. Addressable loop voltage provided by the c.i.e.

<sup>2</sup>. 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.

The 802SB/901SB Addressable Sounder Bases provide a sounder function on MX

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