



Certificate of Conformity

Certificate num.	Registration date	Version	Valid until	
afp - 2320	7-May-2009	Number 26	Issue date 3-Apr-2024	30-Apr-2025

Product designation

Vigilant MX1, Model FP0949, fire alarm system

(Refer to the Schedule/enclosures for further specified details)

Agent/distributor

Johnson Controls Fire Detection Products

Level 3, 37 Dalmore Drive, Carribbean Park, SCORESBY, VIC, AUSTRALIA, 3179

Registrant

Johnson Controls Fire Detection

17 Mary Muller Drive, Hillsborough, Christchurch, NEW ZEALAND, 8022

Producer

Johnson Controls Fire Detection

17 Mary Muller Drive, Hillsborough, Christchurch, NEW ZEALAND, 8022

Conformance criteria and evaluation

The Vigilant MX1, Model FP0949, fire alarm system has been evaluated and verified as conforming with the relevant requirements of the following criteria.

1. Australian Standard AS 7240.2-2004, 'Fire detection and alarm systems - Part 2: Control and indicating equipment (ISO 7240-2:2003, MOD)'.
2. Australian Standard AS 7240.4-2004, 'Fire detection and alarm systems - Part 4: Power supply equipment (ISO 7240-4:2003, MOD)'.
3. Australian Standard AS 4428.3-2010, 'Fire detection, warning, control and intercom systems - Control and indicating equipment - Fire brigade panel'.
4. Australian Standard AS 7240.13-2006, 'Fire detection and alarm systems - Part 13: Compatibility assessment of system components'.
5. CSIRO Technical Specification TS002, Version 3, 17-April-2015, 'Input/Output modules for control and indicating equipment'.
6. Australian Standard AS 4428.10-1998, 'Fire detection, warning, control and intercom systems - Control and indicating equipment - Alarm investigation'.
7. CSIRO Technical Specification TS004, Version 1, 24-Mar-2015, 'Requirements for air-handling fire mode control panels'.

This certification is issued within the scope of CSIRO Verification Services – Rules governing ActivFire Scheme and is valid only for the product(s) as submitted for evaluation and verification of conformity, subject to the following conditions.

- Reference to details, limitations and requirements, where documented as a schedule/enclosure with this certificate.
- The Registrant is responsible for their attestation of conformity and ensuring that on-going production complies with the conformance criteria defined in this certificate.
- This certificate will not be valid if any changes or modifications are made to the product which have not been notified and validated by CSIRO Verification Services.
- This certificate is subject to periodical re-validation upon verification that all requirements, as determined by the conformity assessment body, continue to be satisfactorily met by the Registrant.
- This certificate may only be reproduced in its published form, without modification and inclusive of all schedules/enclosures.
- Any changes, errors or omissions, must be submitted in writing and if necessary or requested, substantiated with relevant evidence.
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Issued by

Kaj Loh

Executive Officer – ActivFire Scheme



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Limitations/conditions of conformance

Limitations/conditions of conformance, where identified on this certificate, are derived from qualifications from evaluation(s) for conformity and/or other related technical documentation. All details with respect to design, assembly and installation instructions and restrictions should be checked against the producer's current technical manual/data sheets and the requirements of the Authority having Jurisdiction.

Specified limitations/conditions, determined from the evaluation for conformity, include the following.

- i. All parts of the CIE must be mounted in a single enclosure,
- ii. The p.s.e. must be mounted in the same enclosure as the CIE,
- iii. Where the analogue addressable loop covers more than one zone or performs more than one function it shall be fitted with short circuit isolators as required by clause 13.5.2 of AS 7240.2,
- iv. The CIE is fitted with the labels as described in evaluation for conformity report XF2446/R1 to meet the Marking requirements of Section 15 and Annex ZA of the Standards,
- v. The standardised input/output interface is limited to communication within the CIE enclosure,
- vi. Evaluation of the Alarm Investigation Facility is limited to the functional requirements of clause 2.2 of AS 4428.10.
- vii. The CIE is installed and maintained as recommended by the manufacturer.
- viii. Compatibility of this equipment with new or existing actuating devices should be verified prior to installation.
- ix. Networking between systems via the Ethernet ports of the MOXA switches is performed using CAT 6 shielded twisted pair (STP) cables.
- x. Output to Fire Alarm Devices (refer Item C of AS 7240.1-2004), through a field module, is provided through monitored outputs such as the QMO850.
- xi. Output to Fire Protection Equipment (refer Item G of AS 7240.1-2004), when provided by field modules, is provided through monitored outputs such as the QMO850 (output signal) and the monitored inputs of the QIO850 (confirmatory signal).

Producer's description

The Vigilant MX1, Model FP0949, fire alarm system is control and indicating equipment (CIE) that forms the central part of a fire detection and alarm system using Tyco MX analogue addressable detectors.

Up to 250 MX devices (detectors and addressable modules) can be connected to the inbuilt analogue addressable loop. Up to seven (7) additional analogue addressable loops each containing up to 250 MX devices can be added to the system by fitting additional MX loop cards.

The analogue addressable loops on this equipment use the Tyco MX DIGITAL communication protocol including software algorithms to evaluate analogue values returned from detectors.

The Vigilant MX1, Model FP0949, fire alarm system is supplied in a sheet metal cabinet incorporating a protective door. With the door in the secured position, a window permits viewing of the indications required at Access Level 1. Opening of the door, using a 003 type key, permits access to controls and indications required at Access Level 2.

The Vigilant MX1, Model FP0949, fire alarm system includes integrated power supply equipment (p.s.e) designated ME0448. The cabinet includes space for batteries as the secondary power source. The manufacturer states that the CIE can be fitted with batteries up to a maximum of 40Ah.

Operation is via a keypad and four line LCD display. The keypad and display provide control and indication for a Fire Brigade Panel as required by AS 4428.3-2010.

The CIE and p.s.e. comprise of a number of circuit boards and sub-assemblies detailed below. These mount into the CIE housing. This equipment includes a range of optional modules which can be fitted in the CIE cabinet to suit project requirements.

The MX1 panels may be networked with other components using the "Panel-Link" communication protocol, up to a total of 250 networked panels.

MX1 networking can use an I-Hub communications module with dual RS485 or fibre optic paths, or a PIB IP communications module with Ethernet, Extended Ethernet or fibre optic cables. Composite/mixed networks are possible

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The Vigilant MX1, Model FP0949, fire alarm system as evaluated, was supplied in a 15U cabinet approximately 550 mm wide x 750 mm high x 210 mm deep. Its operating environment is specified by the manufacturer as -5 °C to +45 °C, maximum 95% relative humidity (non-condensing).

This equipment is also available in 8U, 18U, 28U and 40U 19" rack cabinet sizes. Due to its smaller size the 8U cabinet is limited to a total of 4 MX loops (3 x MX loop cards), 32 zones of LED display and cannot fit some of the add-on modules.

One remote Fire Brigade Panel (FP0991) may be connected to the CIE to provide a remote fire brigade attendance point/second user interface. This operates the same as the CIE front panel and can provide a remote Fire Brigade Panel conforming to AS 4428.3-2010.

Up to 126 AS 1668 Fan Controls or ancillary switch/indication controls can be added to the panel. Each control provides 3 pushbuttons with green LEDs and 4 status LEDs – 2 red, 1 yellow, 1 green. These controls provide AS 1668.1 fan controls or general purpose control/indication facilities for ancillary functions.

A 3U 19" rack door can contain 12 controls using the PA1102 Fan Control PCB (2 controls each).

Optional requirements

AS 7240.2-2004 and AS 7240.4-2004 provide a number of 'optional functions with requirements'. The Vigilant MX1, Model FP0949, fire alarm system was evaluated to the optional functions listed in the tables below. Refer to Appendices B, C and D for detailed information regarding assessment of each optional function.

Optional function with requirements	AS 7240.2 clause	Evaluation
Output to fire alarm devices (item C in AS 7240.1)	7.8	Included
Output to fire alarm routing equipment (item E in AS 7240.1)	7.9	Included
Output to fire protection equipment (item G in AS 7240.1)	7.10	Included
Delays to outputs (annex E of AS 7240.2)	7.11	Included
Dependency on more than one alarm signal	7.12	Included
Alarm Counter	7.13	Not evaluated
Output of standard emergency evacuation signal	7.14	Included
Supervisory signal condition	8	Not evaluated
Fault signals from points	9.3	Included
Total loss of the power supply	9.4	Not evaluated
Output to fault warning routing equipment (item J in AS 7240.1)	9.9	Included
Disabled condition	10	Included
Disablement of addressable points	10.5	Included
Test condition	11	Included
Standardized I/O interface	12	Included
Impact (operational)	16.6	Included
Vibration (operational)	16.7	Included
Alarm Acknowledgement Facility	Annex ZB	Included
Dry heat, steady state (operational)	Annex ZC	Included
Ancillary control function	Annex ZD	Included

Optional function with requirements	AS 7240.4 clause	Evaluation
Battery function check	5.5	Included
Impact (operational)	9.7	Included
Vibration (operational)	9.8	Included
Vibration (endurance)	9.11	Included
Dry heat, steady state (operational)	Annex ZC	Included

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Technical specification

The following details are a representative extract of the technical specification for the Vigilant MX1, Model FP0949, fire alarm system and may be subject to change. Complete and current details should be determined from the designated producer's technical manual/data sheets.

1. Specification extract for CIE

Cabinet		
8U	550(w) x 440(h) x 210(d) mm approx.	
15U	550(w) x 750(h) x 210(d) mm approx.	
18U	550(w) x 885(h) x 210(d) mm approx.	
28U	550(w) x 1330(h) x 210(d) mm approx.	
40U	550(w) x 1860(h) x 210(d) mm approx.	
Power supply		
Rated voltage	24 Vdc	
Rated power supply current (excluding battery charging)	3.4 Amp	
Total power supply output current	5.5 A (max)	
Maximum battery size	40 Ah	
Charger Current Limit	5.5 A (current limit)	
Number of loops	8	
Maximum address capacity	250 per loop (2000 total)	
Expansion boards	PA1052 (MX loop)	
	PA1020 (16 zone display)	
	PA0470 (16 way relay board)	
	PA0479 (16 way input)	
	PA0773 (RS485 board)	
	PA0638 (I-HUB)	
Operating specifications	PA1096 (PIB)	
	PA1102 (fan control board)	
	Supply voltage	230Vac (192 to 253 Vac), 50/60Hz
	Ambient temperature	-5°C to +45 °C
Humidity (max)	95 % relative humidity (non-condensing)	

2. Base CIE modules

Module	Designation	PCB reference	Software
1982-2 (PA1081)	MX1 controller	Issue D, Rev 10	SF0412 – V1.60 SF0305 – V1.2
1982-64 (PA1057)	Display keyboard	Issue B, rev 2	SF0407 – V2.03
LD0054	Display powertip PC4004-A	N/A	N/A
ME0448	Power supply equipment (Bentel BAQ140T24)	N/A	N/A
1982-55 (PA1050)	p.s.e. monitor board (mounted in ME0448)	Issue A, Rev 1	N/A

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3. Optional CIE modules

Module	Designation	PCB reference	Software
1982-57 (PA1052)	MX loop interface	Issue C, Rev 4	SF0392 – V2.02
1982-3 (PA1020)	MX1 16 zone display	Issue C, Rev 3	N/A
PA0470	16 way relay board	Issue A, Rev 1	N/A
PA0479	16 way input board	Issue D, Rev 3	N/A
1901-139 (PA0773)	RS485 Board	Issue D, Rev. 6	N/A
PA0638	ECM9603 IHUB	Issue B Rev 3	V2.02
FP0986	1963-114 PIB	Issue F Rev 7	V2.03
PA1102	Fan Control Board	Issue B Rev 2	V2.00

4. Optional field modules

Module	Designation	PCB reference	Software
QI0850 (125.685.066)	Quad I/O Module	Issue 2, Rev 01	N/A
QM0850 (125.685.067)	Quad Monitored Output	Issue 1, Rev 02	N/A
QRM850 (125.685.094)	Quad Relay Output	Issue 2, Rev 03	N/A
DDM800 (125.685.044)	Dual Detector Module	Issue 2	V1.0, V1.01

5. Indicators and controls

The Vigilant MX1, Model FP0949, fire alarm system has an integrated Fire Brigade Panel to the requirements of AS 4428.3. The following details the indicators and controls on the submitted product sample with respect to their position on the fascia.

Indicators within AS 4428.3 border	Colour
Fire (2 LEDs with word "FIRE")	Red
Fire protection activated	Red
Smoke control activated	Red
Alarm devices activated	Red
Alarm routing activated	Red
Operating/power	Green
Several alarms	Red
Indicators outside AS 4428.3 border	Colour
System fault	Yellow
Alarm devices fault/disabled	Yellow
Alarm Routing fault/disabled	Yellow
Faults	Yellow
Disable	Yellow
Tests	Yellow
AIF	Yellow
16 zone display module indicating alarm (red), fault (flashing yellow) and disable (steady yellow).	Red /Yellow

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Controls within AS 4428.3 frame	Function
Silence buzzer	Silence internal fault sounder.
Silence alarm devices	Start/Stop fire alarm devices.
Reset	Panel reset.
Disable	Disables zones in alarm
Next	Scrolls through alarm queue
Controls outside AS 4428.3 frame	Function
F1 to F4	Function keys. Active function indicated on LCD display
Faults	Enables fault display mode
Disables	Enables disable display mode
Tests	Enables tests display mode
AIF	Alarm investigation facility operation
Menu, Zone, Cancel, OK	Used for panel operation through menu system.
Keypad	0 to 9, '+' and '.' Characters. Numbers 2, 4, 6, and 8 include secondary function as scroll arrows.

6. FP0991 MX1 Remote FBP (Fire Bridge Panel), auxiliary equipment

The FP0991 MX1 Remote FBP (Fire Bridge Panel) for the Vigilant MX1, Model FP0949, fire alarm system allows remote display and control of the CIE by the fire brigade or a building manager/engineer, etc.

The Remote FBP is a cut-down version of the CIE's AS 4482-3-style FBP user interface. It has the same 4-Line LCD and keyboard layout, but without the Zone LED displays. The Remote FBP and the CIE's integral FBP work independently, but use the same core data.

The Remote FBP is normally powered by the CIE. The Remote FBP contains an RS485 board that communicates to the CIE controller. Each CIE allows only one Remote FBP to be connected.

The Remote FBP is designed to be surface mounted on to the wall using the integral surround, or flush mounted into the wall (with the surround not used).

Use of the Remote FBP requires Controller firmware V1.40 or later and the Remote FBP must be enabled in the SmartConfig datafile. SmartConfig Version V2.2.0 or later is required to support this.

6.1. Specification extract for FP0991 MX1 Remote FBP (Fire Bridge Panel)

Power supply	Input Voltage	10 - 28 Vdc
	Current Consumption at 12.0 V	Typical 85 mA (240 mA if LCD back light on)
	Current Consumption at 24.0 V	Typical 75 mA (140 mA if LCD back light on)
	FLT/DEF- input	Closure to < 0.7 V for fault (local PSU if used)
Field wiring	Power from CIE	Cable pair maximum loop resistance 25 ohm
	Comms	2 x pairs, preferable each twisted and screened.
	0.4 mm ² permissible.	
	Cabling	All power screw terminals have the capacity for 4.0 mm ² conductors. All comms screw terminals have the capacity for 2.5 mm ² conductors.
Physical	Cabinet Dimensions	380 mm W x 220 mm H x 21 mm D (flush mount). 380 mm W x 220 mm H x 56 mm D (surface mount).
	IP Rating	IP30
	Material	Powder-coated 1.2 mm steel
	Weight	3.8 kg
	Colour	Titania
	Environmental	-5 °C to 45 °C, 0 to 95% RH (non-condensing)
Part numbers	FP0991	MX1 Remote FBP
	PA1057	MX1 LCD/Keyboard Board Spare
	PA0773	RS485 Comms Board Spare
	FP0913	MX1 LCD Module Spare

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7. Networking

This equipment can be networked with other Panel-Link compatible products (e.g. MX4428, F3200) using:

- An I-HUB to provide a ring of up to 64 panels using RS485 or fibre optic cables, or a dual path RS485 bus to other units,
- A PIB to interface to an IP network utilising a Moxa switch, fibre or Ethernet cables for a ring, and DSL Extended Ethernet modules to extend an Ethernet connection.

This equipment can support up to 250 panels in total, by using a combination of these network interfaces.

Networking can use the following third party products:

- Moxa Model EDS-405A-SS-SC Ethernet/Fibre Switch
- Moxa Model EDS-405A-MM-SC Ethernet/Fibre Switch
- Moxa Model EDS-405A-MM-ST Ethernet/Fibre Switch
- Westermo DDW-120 DSL Modem
- Adam 4542+ Single-Mode Fibre Optic Module
- Adam 4541 Multi-Mode Fibre Optic Module

8. Schedule of compatible MX devices

The following MX devices have been shown to be compatible with the MX1 MX addressable loops (AS 7240.13 assessment).

Device type	Description	Max No. per loop
850PH	Photoelectric Smoke + Heat Detector c/w Short Circuit Isolator	250
850P	Photoelectric Smoke Detector c/w Short Circuit Isolator	250
850H	Heat Detector c/w Short Circuit Isolator	250
850PC	Photoelectric Smoke + CO + Heat Detector c/w Short Circuit Isolator	250
DDM800	Universal Fire & Gas Detector Module c/w Short Circuit Isolator	15 (loop power) / 80 (external power)
DIM800	Detector Input Module	250
MIM800	Mini Input Module (Hard contact s/c alarm)	250
CIM800	Contact Input Module	250
QIO850	Quad Input / Output Module c/w Short Circuit Isolator	107
QMO850	Quad Monitored Output Module c/w Short Circuit Isolator	107
QRM850	Quad Relay Output Module c/w Short Circuit Isolator	250
SIO800	Single Input/Output Module	250
MIO800	Multiple Input/Output Module	250
SNM800	Sounder Notification Module	250
RIM800	Relay Interface Module	250
LIM800	Short Circuit Loop Isolator Module	250
4B	Detector Base	250
4B-C	Continuity Base for 850 detectors	250
4B-I	Short Circuit Isolator Base	250
D51MX	Duct Sampling Unit (with 4B-C base)	250

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Supplementary information

Schedule of relevant articles

The following schedule is an extract of articles significant and/or related as evidence of conformity.

Reference		Title / description	Date issued (or date validated)	Source
Ident. type	Ident.			
Report num.	XF2446/R1	Vigilant model FP0949 MX1 Fire Alarm System to AS 7240.2-2004 and AS 7240.4-2004	May 2009	CSIRO, Materials Science and Engineering, AU
	XF2446/R2	Vigilant model FP0949 MX1 Fire Alarm System to AS 4428.3-2004		
	XF2678/R1	Evaluation for conformity of the Vigilant MX1, fire alarm system to the requirements of AS 7240.2-2004	16-Mar-2012	
	XF2680/R1	Evaluation for conformity of the Vigilant MX1, Model FP0949, fire alarm system to the requirements of AS 7240.2-2004	25-Jun-2013	
Report	XF2922/R1	Evaluation for conformity of the Vigilant MX1, Model FP0949, fire alarm system to the requirements of CSIRO TS-004 (referencing AS 7240.2-2004 and AS 4428.7-1999) and AS 4428.3-2010	24-Mar-2015	CSIRO Infrastructure Technologies, Fire Systems and Acoustics, AU
	XF2877/R1	Compatibility Assessment of the Tyco QIO850 Quad Input/Output Module, QMO850 Quad Monitored Output Module, QRM850 Quad Relay Module and DDM800 Universal Fire and Gas Detector Module and Vigilant, MX1, fire alarm system to the requirements of AS 7240.13-2006 (incorporating amendment 1)	23-Apr-2015	
	XF3071/R1	Compatibility assessment of Tyco I/O modules, detectors and short-circuit isolators with Vigilant MX1 Fire Alarm System to the requirements of AS 7240.13-2006 (inc. amdt 1)	30-Jun-2017	CSIRO, Fire Systems Laboratory

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