



MX1 Fan Control Door / Expansion Kit (FP1056, FP1057)

Installation Instructions

1. Checking the Kit

Before installing the *MX1* Fan Control Door or Fan Control Expansion kit, check that all items in the kit are present and undamaged.

The Fan Control kits are designed for use with VIGILANT *MX1* fire alarm panels in 19" rack cabinets.

These instructions cover the fitting and connection of the Fan Control or door in an *MX1* fire alarm panel. The details of any necessary changes to the system configuration or other hardware are not covered here.

MX1 Fan Control Door Kit (FP1056)

This kit includes a 3U *MX1* Fan Control door fitted with 2 fan controls. Each *MX1* Fan Control door can accommodate up to 12 fan controls (using the FP1057 Fan Control Expansion kit). One FP1056 kit is required for every 12 fan controls.

The kit includes all the required hardware to mount the door in an *MX1* cabinet and the cabling to wire the door to the *MX1* Controller Board or another *MX1* Fan Control door.

Qty	Description
1	Fan Control Door pre-fitted with 2 fan controls
1	CN0275 4 Way Plug (for power wiring)
1	LM0590 <i>MX1</i> FAN CONTROL POWER LOOM (for power wiring)
1	FU0041 5A FUSE (for power loom)
1	LM0324 FRC LOOM 1M (for wiring master Fan Control board to the <i>MX1</i> Controller)
1	LM0583 RJ45 LOOM 1.5M (for inter-door wiring)
1	LM0585 RJ45 LOOM 0.6M (for inter-door wiring)
6	CABLE TIE (for securing cabling)
3	FRC CABLE CLAMP (for securing cable LM0324 to the gearplate inside the panel)
4	M6 CAGE NUT (for mounting the door)
4	M6 X 12 SCREW (for mounting the door)
4	M6 WASHER (for mounting the door)
2	M6 PLASTIC SELF RETAIN WASHER (for mounting the door)
1	LB0672 <i>MX1</i> AS1668 ZONE LABEL SET (labelling for fan controls)
1	DOOR LABEL "These Controls ..." (to be fitted to at least 1 of the Fan Control doors at each panel)
1	LT0587 INSTALLATION INSTRUCTIONS (these instructions)

MX1 Fan Control Expansion Kit (FP1057)

This kit is used to add 2 additional fan controls to an *MX1* Fan Control door (FP1056). Up to 5 expansion kits may be fitted per door to expand the number of fan controls from 2 to 12.

This kit includes one *MX1* Fan Control board (provides 2 fan controls), mounting screws and interboard cable.

Qty	Description
1	PA1102 FAN CONTROL BOARD (circuit board with 2 fan controls)
1	LB0672 <i>MX1</i> AS1668 ZONE LABEL SET (labelling for fan controls)
1	LM0553 INTERBOARD LOOM (cable for wiring the Fan Control board to an adjacent board).
5	M3 x 6 SCREWS (for mounting the board on the door)
1	LT0587 INSTALLATION INSTRUCTIONS (these instructions)

2. General Description

The MX1 Fan Controls are mounted in the MX1 Panel on a 3U 19" rack door as shown in Figure 1.

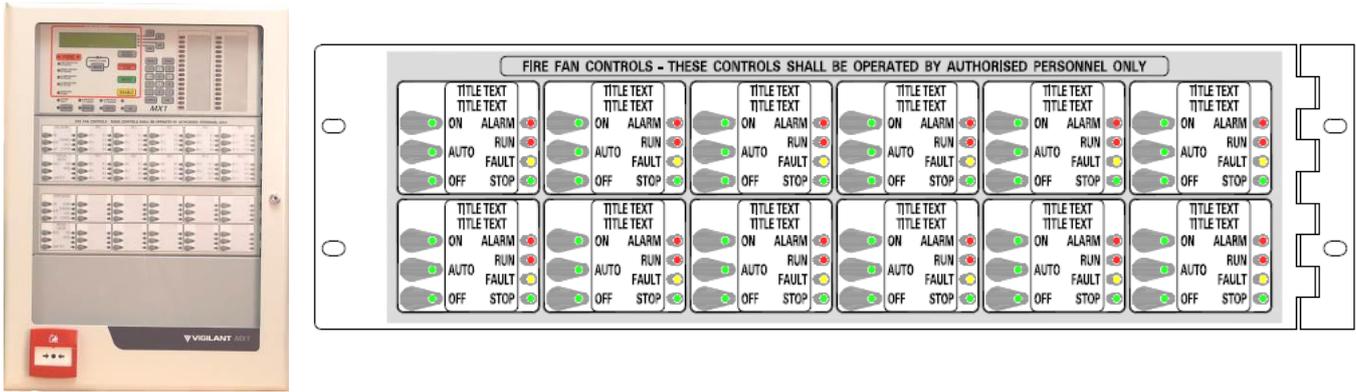


Figure 1 – MX1 Fan Control Door

The fan controls are provided by MX1 Fan Control boards (refer Figure 2 and 3). Each board provides 2 fan controls. Each door can accommodate up to 6 boards providing up to 12 fan controls. The MX1 panel can support up to 126 fan controls (63 boards).

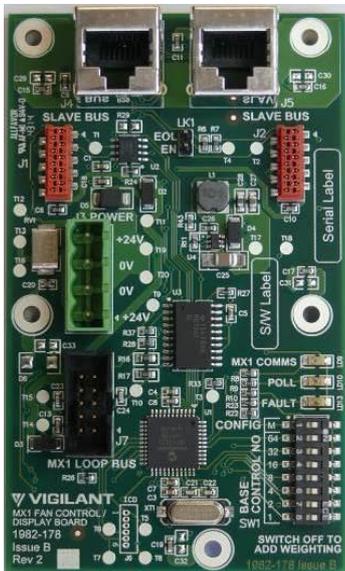


Figure 2 – MX1 Fan Control Board

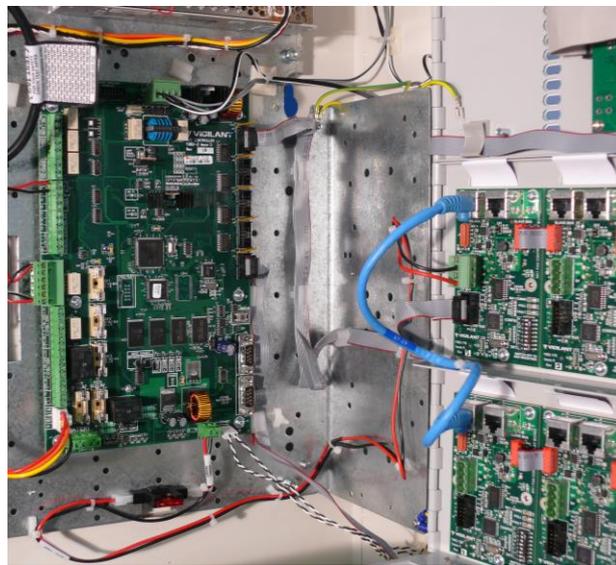


Figure 3 – MX1 Fan Control Door (rear view)

One Fan Control board is assigned as the master Fan Control board and this connects to the MX1 Controller using the 10 way FRC cable (LM0324) as shown in Figure 4. Alternatively it can connect to the “TO NEXT” port (J3) on an MX Loop card. Refer to section 4 “Wiring the MX1 Controller to the Master Fan Control Board” later in this manual for further details.

The master Fan Control board in-turn communicates with up to 62 slave Fan Control boards using the slave fan controller bus. An ‘M’ switch on one board is turned off to configure it as the master. The slave boards must have their ‘M’ switches set to the slave position (on).

Each fan control is allocated a unique control number from 1 to 126. This number is used by the MX1 panel to identify each fan control and by SmartConfig to configure its operation.

Refer to section 8 “Setting the DIP Switch” later in this manual for details on configuring master/slave operation and fan control numbers.

Note that any board can be configured as the master, and the master does not have to be configured as number 1. The master board can be located on any door in any position, although it will normally be located on the top Fan Control Door nearest to the hinged side to simplify wiring. The master board does not need to have Fire Mode / Reset / LED Test functions assigned to it, these can be on any board.

The fan controls are powered via a single power loom (LM0590), which is wired from the MX1 Controller to one of the Fan Control boards. The power loom can be connected to any Fan Control board on any door, it does not have to be the master. For ease of wiring, it will usually be connected to a Fan Control board near to the hinge side of door close to the bottom edge of the MX1 Controller (or MX Loop Card).

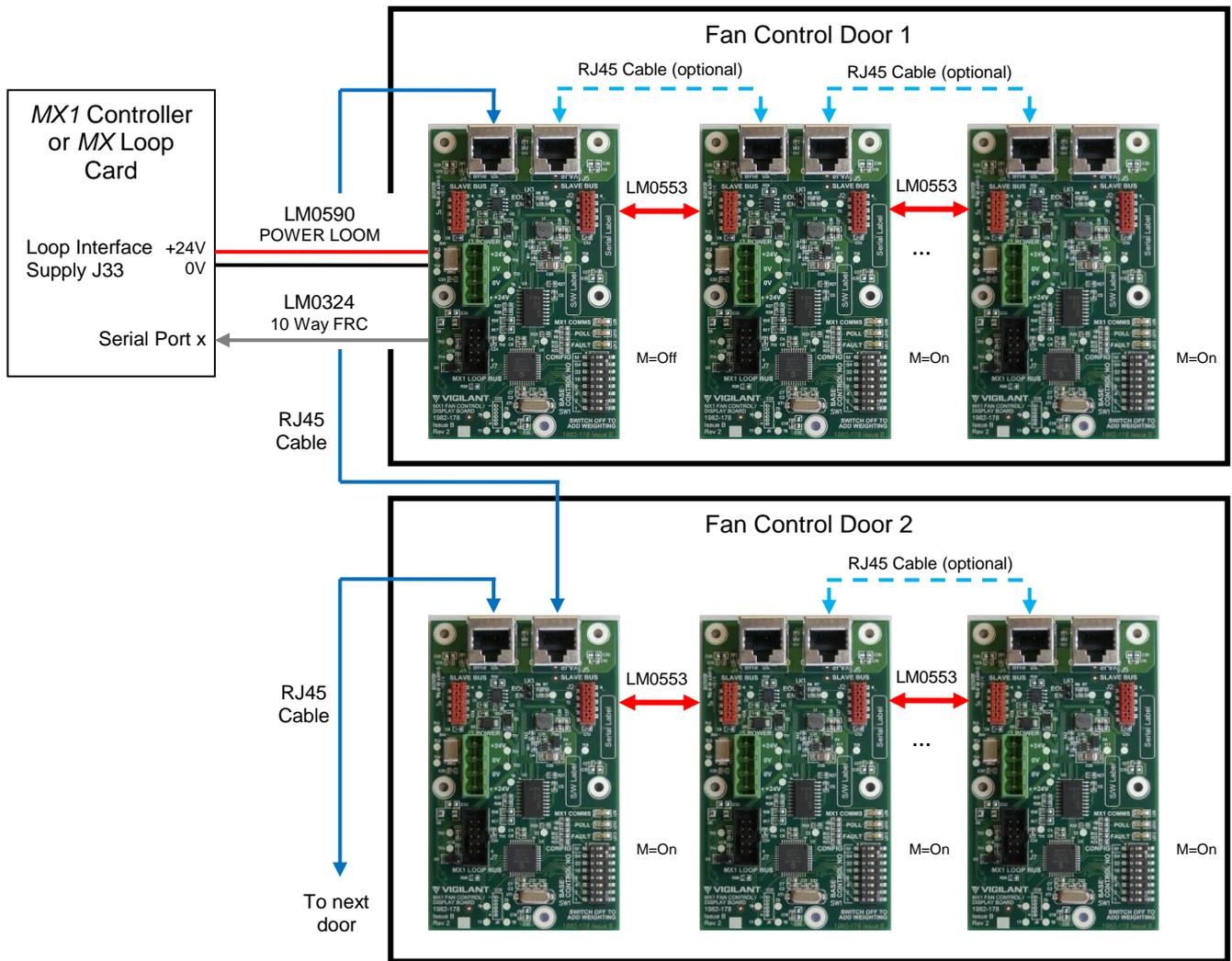


Figure 4 – MX1 Fan Control Boards Wiring Diagram

3. Mounting Fan Control Doors

Preparation

- Advise the building owner or representative, monitoring service, and fire brigade, as appropriate, that the fire system is being taken out of service. Isolate the panel from the monitoring system.
- Power down the fire panel by disconnecting the batteries and turning off the mains supply. Protect the battery leads so they do not short together or to any metallic objects.
- Use appropriate anti-static precautions, e.g., wrist strap connected to the cabinet earth.

Determine the position of the Fan Control door to be placed in the cabinet.

Locate the four positions for the placement of the screws and insert the four cage nuts to suit.

Fit one of the M6 screws (including metal washer) into the top hinge plate but do not tighten it fully.

Fit another M6 screw (including metal washer) into the bottom of the hinge plate and tighten both screws onto the cabinet bracket, aligning the door with the hole positions on the cabinet left-hand side.

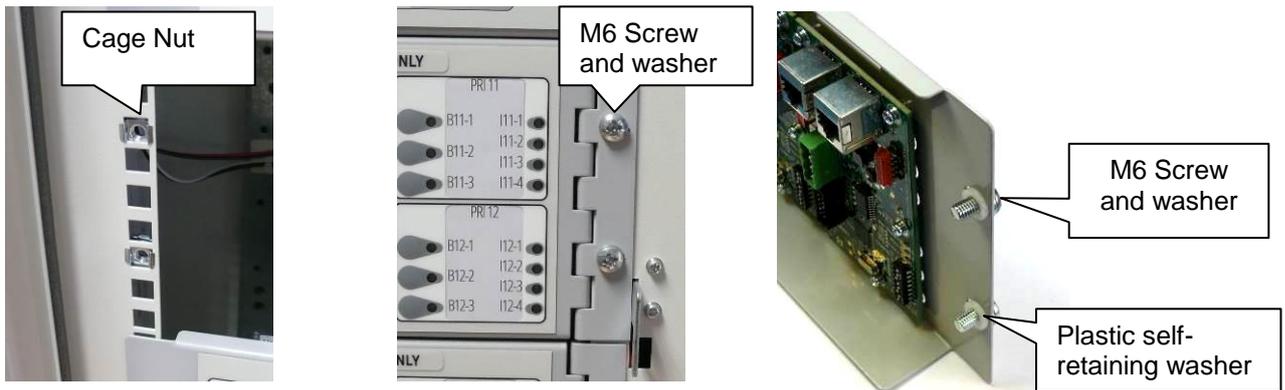


Figure 5 – Mounting the Fan Control Door

Insert the two remaining M6 screws (including metal washer) to the screw holes on the non-hinged side of the door. Place a plastic self-retaining washer on each of the screws on the inside of the door to keep these screws on the door when it is open.

4. Wiring the MX1 Controller to the Master Fan Control Board

The master Fan Control board is connected to the MX1 Controller via the LM0324 10-way Flat Ribbon Cable (FRC) as shown in Figure 6. It needs to connect to the serial port on the MX1 Controller assigned for the Fan Control boards in SmartConfig. It is recommended to use a serial port that has no or a small number of MX Loop cards present, though it can be on the same serial port as up to 3 MX Loop cards (in which case the loom connects to one of these MX Loop cards).

Connect the FRC loom (LM0324) to the MX1 LOOP BUS connector (J7) on the master MX1 Fan Control board. It is recommended that the MX1 Fan Control board mounted closest to the door hinge should be configured as the master for ease of wiring. Route the cable along the bottom of the door bracket and fix it with cable ties. The power loom (LM0590) may share the same cable ties on the door.

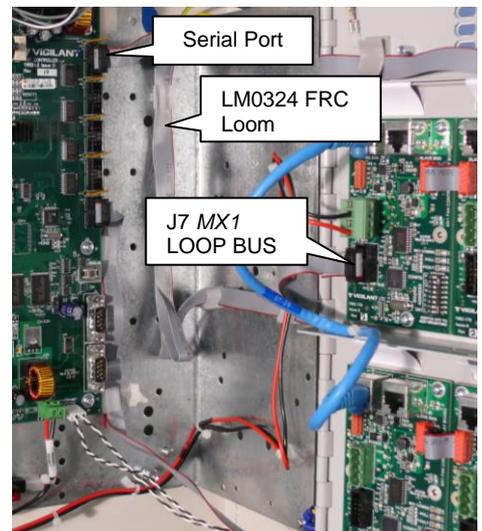


Figure 6 – Serial Port Wiring

The other end of the FRC loom is connected either to the *MX1* Controller's assigned serial port for AS1668 controls, or to the 'TO NEXT' connector on an *MX* Loop Card connected to that *MX1* serial port.

Route the FRC loom neatly around the cabinet using FRC clamps (fold the extra length of the loom and attach it onto the FRC clamp).

Connect the power loom (LM0590) to the J33 Loop Interface Supply connector on the *MX1* Controller and insert the fuse holder into the slot on the gear plate as shown in Figure 7. Insert the supplied 5A fuse into the fuse holder.

Connect the other end of the power loom to the 4 way plug (CN0275) and fit to the POWER connector (J3) on one of the Fan Control boards (usually the one closest to the *MX1* Controller), cutting the loom shorter if necessary.

Only one of these power connections is required per system.

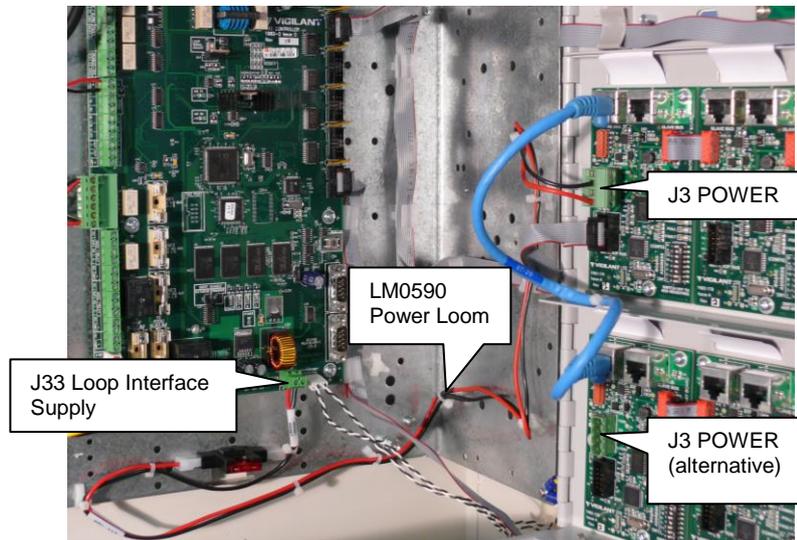


Figure 7 – Power Wiring

5. Mounting Fan Control Boards on Doors

Fan Control boards can be mounted either beside each other and linked together using the Interboard FRC loom (LM0553), or mounted apart and linked together using an RJ45 cable.

Before fitting the Fan Control board, remove any tape that might be covering the LED holes in the rear of the door. Place the new Fan Control board in the required position. Align the mounting holes of the Fan Control board with the mounting holes on the Fan Control door and secure the board in place with 5 M3 screws.

Connect the new Fan Control board to the previous board using either the LM0553 Interboard Loom as shown in Figure 8, or an RJ45 cable if the boards are not directly adjacent.

Repeat the same procedure if there are additional Fan Control boards to be mounted onto the door.

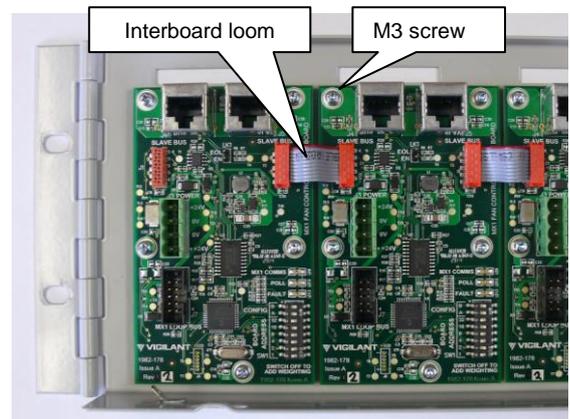


Figure 8 – Mounting Adjacent Fan Control Boards

6. Adding Additional Fan Control Doors.

Additional Fan Control doors may be added to the system using the FP1056 *MX1* Fan Control door kit. Each door kit will add a 12-way Fan Control door fitted with 2 fan controls, which can then be expanded up to 12 controls using FP1057 *MX1* Fan Control Expansion kits. An *MX1* panel can support up to 126 fan controls (63 boards).

7. Wiring Multiple Doors (Figure 9)

RJ45 cables are used to connect the fan controller Slave Bus between Fan Control doors.

Warning: Although the Fan Control boards have ‘Ethernet’ style sockets and use ‘Ethernet’ style (RJ45) cables on the slave bus, the slave bus uses RS485 communications and also includes +24V power, so **DO NOT** attempt to connect an Ethernet device (e.g., a laptop) to these ports.

Connect one Fan Control board (closest to the door hinge) on the top door to one on the door below using one of the supplied RJ45 cables. Note that you can use either of the Slave Bus sockets (J4 or J5) on the board. Two RJ45 cables of different lengths are provided. For most configurations the shorter cable should be suitable. Allow enough length so that you can independently open each Fan Control door.

If there are more than two Fan Control doors, connect another RJ45 cable to the spare RJ45 socket and plug the other end into the SLAVE BUS socket on the board on the next door below.

Lastly, use a cable tie to fix the RJ45 cable(s) to the bottom bracket of the door(s).

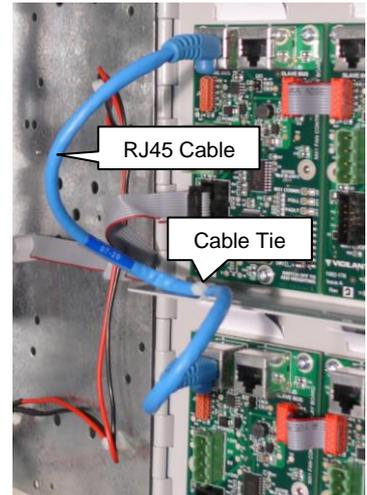


Figure 9 – Wiring multiple doors

The number of Fan Control doors that can be mounted in a single cabinet will depend of what other equipment is installed. The maximum number of fan controls that can be mounted in a 40U cabinet (and meet the AS 1670.1 indicator / control height requirements) is 96. When 2 or more cabinets are required the cabinets must be mounted next to each other and a Fan Control door in the first cabinet must be connected to a Fan Control door in the 2nd cabinet using an RJ45 cable. No additional power wiring is required.

8. Setting the DIP Switch (Figure 10)

The Base Control Number of each Fan Control board needs to be set to a unique odd number from 1 to 125. This is set by using a DIP switch binary coding scheme with the off position as the active state (see Appendix A).

Configure each board so that it has a unique odd number from 1 to 125 inclusive. The top fan control will be allocated this number; the bottom control will be allocated the number + 1. For example, if the board’s base control number is set to 3, the top fan control will be number 3, and the bottom fan control will be number 4. You may configure the boards in any order.

Refer to Appendix A at the end of this manual for the positions of the DIP switches to set a particular base control number.

Turn the ‘M’ switch OFF for the (master) Fan Control board which is connected to the MX1 Controller. All other boards (slaves) must have their ‘M’ switch set to ON.



Figure 10 – DIP Switch Setting (Master and base control no = 7)

9. Door Labels

The fan controls are labelled using slide-in labels. A blank set of labels is provided with each kit (LB0672). You can also generate labels using the SmartConfig software or by using a Word template (LT0590).

The labels are inserted via a slot above each Fan Control board at the rear of the Fan Control door as shown in Figure 11.

If the panel is installed in a dark location, LED flickering may be observed via unused fan control positions. To prevent this, the LED holes on the rear of the door can be masked off.

At the top of at least one Fan Control door (usually the top door) fit the “These Controls ...” label as shown in Figure 1.

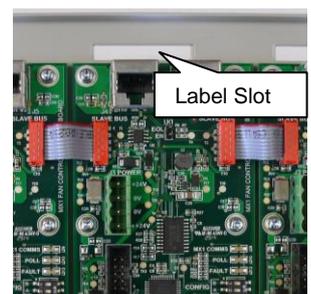


Figure 11 – Labels

10. Status LEDs

The MX1 Fan Control/Display board has 3 status LEDs for fault diagnostics:

LED Name	Colour	Description
MX1 COMMS	Green	Master: Flashes when the master board receives a poll from the MX1 Controller. Slave: Not used.
POLL	Green	Master: Flashes when the master sends a poll message to a slave. Slave: Flashes when the slave receives a poll message from the master.
FAULT	Yellow	Master: On if no poll message received from the MX1 Controller. On if memory error. Flashes if a configured slave is not responding to poll messages, a slave has a memory error, or a foreign (unconfigured) slave is detected. Slave: On if no poll received from the master within the last 20sec. On if memory error.

11. System Firmware and Configuration

The MX1 panel firmware must be V1.60 or higher to support the AS1668 Fan Control boards.

The MX1 system firmware in existing systems can be upgraded if necessary – refer to the appropriate MX1 Service Manual: LT0440 (Australia) or LT0366 (NZ) for details of how to do this.

The system configuration must be programmed with the SmartConfig tool (version 2.5 onwards) to configure the fan controls and their operation.

12. Power On and Testing

Make any necessary firmware and configuration upgrades to the MX1 system, as mentioned in the previous section. Ensure that only one Fan Control board is configured as the master (the one connected to the MX1 Controller or MX Loop Card) and that each board has the correct (unique odd) base control number.

Leave the battery disconnected and power the MX1 up on mains only.

The MX1 Controller should start as normal, with the B and C indicators on the controller board flashing and the LCD showing the system status.

When the Fan Control boards have been configured in the MX1, the green POLL LEDs should flash on each board and the yellow FAULT LED should be off. On the master Fan Control board the MX1 COMMS LED should be flashing.

13. MX1 Fan Control/Display Board Specifications

Power requirements	9V – 30Vdc. 12mA max @ 24V per 2-way Fan Control board
Max number of Fan Controls per MX1	126 (63 x 2-way Fan Control boards)
Dimensions (HWD)	20mm x 66mm x 110mm
Operating Temperature Range	-5°C to +45°C
Humidity Range	10% to 93% RH non-condensing

Appendix A – Base Control Number Configuration

Base Control Switch Setting							
No.	64	32	16	8	4	2	1
1	ON	ON	ON	ON	ON	ON	OFF
3	ON	ON	ON	ON	ON	OFF	OFF
5	ON	ON	ON	ON	OFF	ON	OFF
7	ON	ON	ON	ON	OFF	OFF	OFF
9	ON	ON	ON	OFF	ON	ON	OFF
11	ON	ON	ON	OFF	ON	OFF	OFF
13	ON	ON	ON	OFF	OFF	ON	OFF
15	ON	ON	ON	OFF	OFF	OFF	OFF
17	ON	ON	OFF	ON	ON	ON	OFF
19	ON	ON	OFF	ON	ON	OFF	OFF
21	ON	ON	OFF	ON	OFF	ON	OFF
23	ON	ON	OFF	ON	OFF	OFF	OFF
25	ON	ON	OFF	OFF	ON	ON	OFF
27	ON	ON	OFF	OFF	ON	OFF	OFF
29	ON	ON	OFF	OFF	OFF	ON	OFF
31	ON	ON	OFF	OFF	OFF	OFF	OFF
33	ON	OFF	ON	ON	ON	ON	OFF
35	ON	OFF	ON	ON	ON	OFF	OFF
37	ON	OFF	ON	ON	OFF	ON	OFF
39	ON	OFF	ON	ON	OFF	OFF	OFF
41	ON	OFF	ON	OFF	ON	ON	OFF
43	ON	OFF	ON	OFF	ON	OFF	OFF
45	ON	OFF	ON	OFF	OFF	ON	OFF
47	ON	OFF	ON	OFF	OFF	OFF	OFF
49	ON	OFF	OFF	ON	ON	ON	OFF
51	ON	OFF	OFF	ON	ON	OFF	OFF
53	ON	OFF	OFF	ON	OFF	ON	OFF
55	ON	OFF	OFF	ON	OFF	OFF	OFF
57	ON	OFF	OFF	OFF	ON	ON	OFF
59	ON	OFF	OFF	OFF	ON	OFF	OFF
61	ON	OFF	OFF	OFF	OFF	ON	OFF
63	ON	OFF	OFF	OFF	OFF	OFF	OFF

Base Control Switch Setting							
No.	64	32	16	8	4	2	1
65	OFF	ON	ON	ON	ON	ON	OFF
67	OFF	ON	ON	ON	ON	OFF	OFF
69	OFF	ON	ON	ON	OFF	ON	OFF
71	OFF	ON	ON	ON	OFF	OFF	OFF
73	OFF	ON	ON	OFF	ON	ON	OFF
75	OFF	ON	ON	OFF	ON	OFF	OFF
77	OFF	ON	ON	OFF	OFF	ON	OFF
79	OFF	ON	ON	OFF	OFF	OFF	OFF
81	OFF	ON	OFF	ON	ON	ON	OFF
83	OFF	ON	OFF	ON	ON	OFF	OFF
85	OFF	ON	OFF	ON	OFF	ON	OFF
87	OFF	ON	OFF	ON	OFF	OFF	OFF
89	OFF	ON	OFF	OFF	ON	ON	OFF
91	OFF	ON	OFF	OFF	ON	OFF	OFF
93	OFF	ON	OFF	OFF	OFF	ON	OFF
95	OFF	ON	OFF	OFF	OFF	OFF	OFF
97	OFF	OFF	ON	ON	ON	ON	OFF
99	OFF	OFF	ON	ON	ON	OFF	OFF
101	OFF	OFF	ON	ON	OFF	ON	OFF
103	OFF	OFF	ON	ON	OFF	OFF	OFF
105	OFF	OFF	ON	OFF	ON	ON	OFF
107	OFF	OFF	ON	OFF	ON	OFF	OFF
109	OFF	OFF	ON	OFF	OFF	ON	OFF
111	OFF	OFF	ON	OFF	OFF	OFF	OFF
113	OFF	OFF	OFF	ON	ON	ON	OFF
115	OFF	OFF	OFF	ON	ON	OFF	OFF
117	OFF	OFF	OFF	ON	OFF	ON	OFF
119	OFF	OFF	OFF	ON	OFF	OFF	OFF
121	OFF	OFF	OFF	OFF	ON	ON	OFF
123	OFF	OFF	OFF	OFF	ON	OFF	OFF
125	OFF	OFF	OFF	OFF	OFF	ON	OFF