Installation Instructions

How to Use this kit

This kit contains one PA1081 *MX1* Controller, suitable for a service replacement or a system upgrade in any *MX1* fire alarm system.

These instructions cover the removal and replacement of the *MX1* Controller PCB, and what other adjustments or changes may be necessary to the new Controller.

Contents of this Kit

Item	Qty	Description
PA1081	1	PCB ASSY 1982-2 *MX1* CONTROLLER 2000 POINTS
LT0540	1	*MX1* CONTROLLER SPARE, INSTALL INSTRUCTIONS

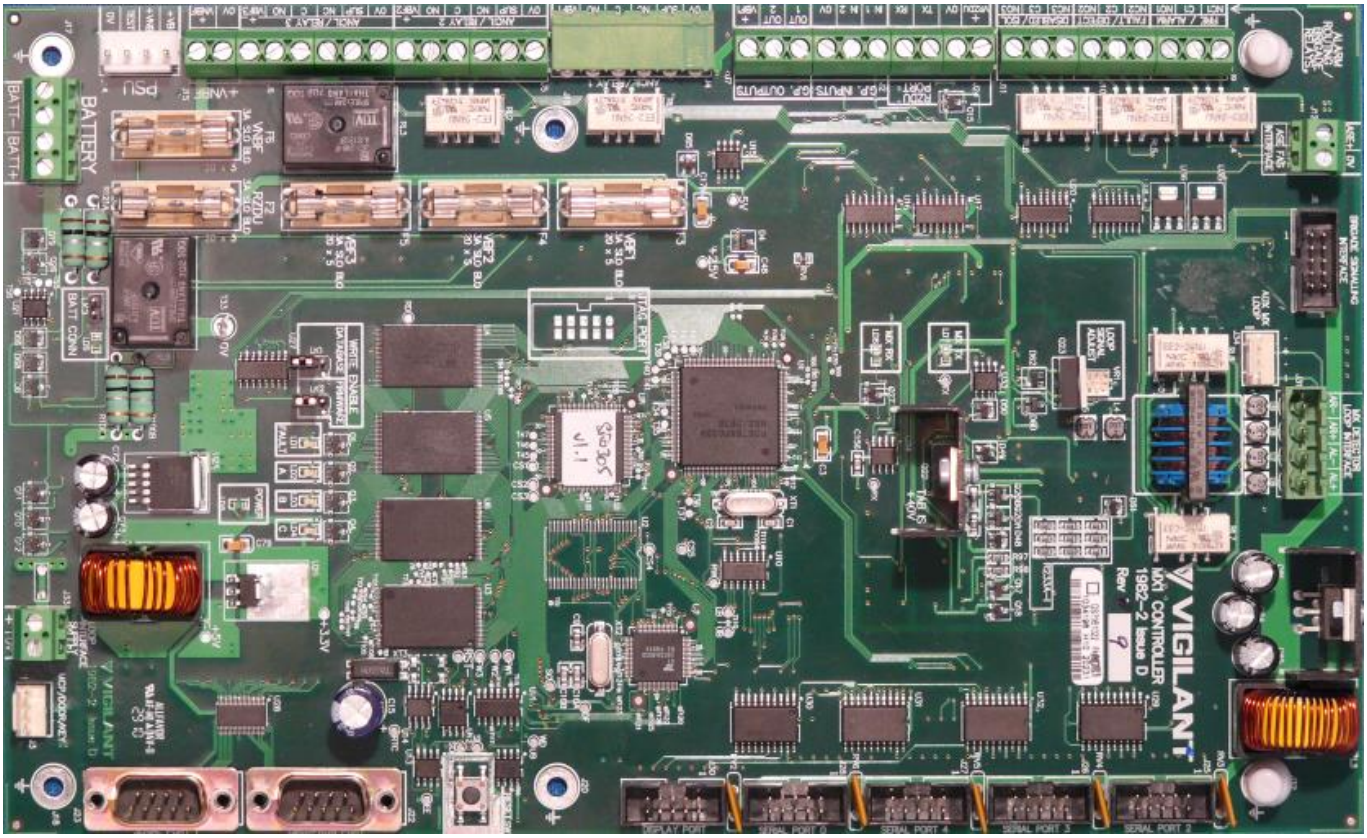


Figure 1 – PA1081 *MX1* Controller

Parts, Equipment and Information Required

1. Replacement *MX1* Controller (this kit).
2. A copy of the *MX1* site-specific configuration data file for the particular site.
3. A PC or laptop with SmartConfig version 2.2 (or later) installed. SmartConfig is used to load the site-specific configuration data file into the Controller via the serial DIAG/PROG port. It may also be used to update the firmware in the replacement Controller if this is necessary.
4. LM0076 or other null modem serial cable.

Identifying the type of Controller being replaced

The *MX1* Controller being replaced will be either a PA1011 or a PA1081. This will make a small difference in the replacement procedure, so you will need to know which it is.

Look at the circuit board revision number in the upper right corner near the VIGILANT or TYCO logo. If the revision number is 6 or earlier, then the PCB is a PA1011.

If the revision is 7 or later, then the Controller is a PA1081. As an additional check, the serial number label on the Controller will also have the part code. See Figure 2 for examples.

Use the appropriate replacement procedure from the following sections depending on whether the Controller being replaced is a PA1011 or a PA1081.

Figure 2a – PA1011 Markings

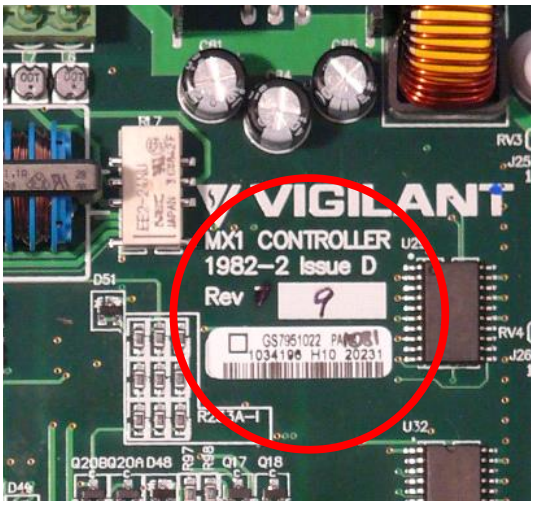


Figure 2b – PA1081 Markings

Preparing to Replace a PA1081 Controller (newer *MX1* system)

The replacement *MX1* Controller will generally have the latest or nearly latest version of firmware in it. The version will be marked on a label on the MCU U1 in the centre of the Controller. This firmware version may not match the version in the Controller being replaced. In this case, the matching version of firmware should be loaded into the replacement Controller. This avoids having to make any changes to the site-specific configuration data file.

It may be more convenient to verify and update the firmware and load the site-specific configuration data file before going on-site. This can be done on the bench if a 24VDC supply or battery is available:

1. Connect the PC COM port to the DIAG/PROG port on the Controller using the null-modem cable. Run SmartConfig on the PC and open the Terminal window (File|Terminal and select the setting for *MX1*).
2. Connect the 24V supply or battery to the battery terminals of the Controller.
3. The green BATT CONN and POWER indicators on the Controller should light, and the yellow C indicator should flash.
4. A message with the *MX1* firmware version number should appear in the Terminal window as the Controller starts up. If this is not the version that matches the site-specific configuration data file, the correct version of firmware should be programmed into the replacement Controller. Refer to the section “Programming *MX1* Firmware” in the SmartConfig Manual LT0332 for details of doing this. You may need to download the correct version of *MX1* firmware from the ANZ Fireplace website.
5. If you are not sure what version is required, you can find out from the site-specific configuration data file as follows:
    a. Open the site-specific configuration data file in SmartConfig.
    b. Select the System page. The corresponding *MX1* firmware version will be shown in the Panel Version box as something like “1.4X”. This particular example means that the latest firmware version in the range 1.40 to 1.49 should be used.
6. Once the firmware version is correct, the site-specific configuration data file can be loaded into the Controller using SmartConfig. Refer to the SmartConfig manual LT0332 for details of doing this. For a new Controller, the default data file username and password (of “FIRES” and “FIRES”) should be used (both in uppercase).

Replacing the *MX1* Controller

Advise the building owner or representative, monitoring service, and fire brigade, as appropriate, that the fire alarm system is being taken out of service. Isolate the panel from the monitoring system.

Use appropriate ESD prevention precautions while handling electronics devices, e.g., wear an earthing wrist strap connected to the case earth.

1. Power down the *MX1* by disconnecting the batteries and turning off the mains supply. Protect the battery leads so they do not short out or contact any other metallic objects.
2. Unplug the power supply loom from J14 on the *MX1* Controller.
3. Disconnect the field wiring from the screw terminals on the left and top edges of the Controller. It may be helpful to record the field wiring numbers/names on the diagram in Figure 3, to assist in reconnection.
4. Unplug the Doorswitch/MCP loop from J3 and the LCD/Keyboard loom from J30. If there are looms plugged into other communication ports on the right edge of the Controller, remove these also, noting where they were plugged into the Controller.
5. Undo the six M3 screws holding the Controller to the gear plate and lift it out. Place it in an ESD shielded bag for protection.
6. Remove the replacement Controller from its ESD wrapping and fit it to the gear plate. Be particularly careful to avoid damage to components on the underside of the board while installing it. The mounting screws are an important part of the earthing and protection of the Controller. Ensure that all six are refitted and tightened.
7. Re-connect the looms and field wiring to the correct connectors and terminals. (Do not re-connect the battery yet). Powering the system up on the power supply module alone will limit any fault currents from incorrect wiring to a safe level.
8. Switch on the power supply module and allow the *MX1* to start up.
9. If the site-specific configuration data file is not yet loaded into the replacement Controller, there will probably be many fault indications. Use SmartConfig to load the correct data file and make this file active. Refer to the *MX1* section “Transfer DB to/from panel” in the SmartConfig Manual LT0332 for details of doing this.
10. Carry out any necessary tests to ensure that the system is operating correctly. When these tests are complete, reconnect the battery, and check that the system is Normal.
11. Advise the appropriate people that the system is back in service.

Replacing a PA1011 Controller (older system)

The procedure for replacing a faulty PA1011 Controller is essentially the same as for PA1081 above, since the PA1081 is physically compatible with the PA1011. However, there are some special points to note:

- The *MX* Loop connector J31 on the PA1081 is demountable instead of being fixed, but the order of the wiring is the same.
- **NOTE**: the original PA1011 firmware versions are not directly compatible with PA1081 – you must programme the PA1081 with the equivalent “A” version of what is in the PA1011. See Table 1 for the appropriate version to use. You will need SmartConfig version 2.2 (or later) to do this, and this SmartConfig will include up-to-date copies of the “A” versions of firmware.
- You do not need to change the site-specific configuration data file that was loaded in the faulty PA1011. The old data file can be downloaded into the PA1081, once the correct “A” version of firmware has been programmed.
- You do not need to update the firmware in any *MX* Loop Cards that are fitted.

Table 1 - Equivalent "A" versions of MX1 firmware for PA1081

Firmware version in PA1011	Equivalent firmware version for PA1081
1.0 (NZ)	1.0A
1.20, 1.21 (NZ)	1.21A
1.30, 1.34 (NZ)	1.34A
1.33 (Australia)	1.33A

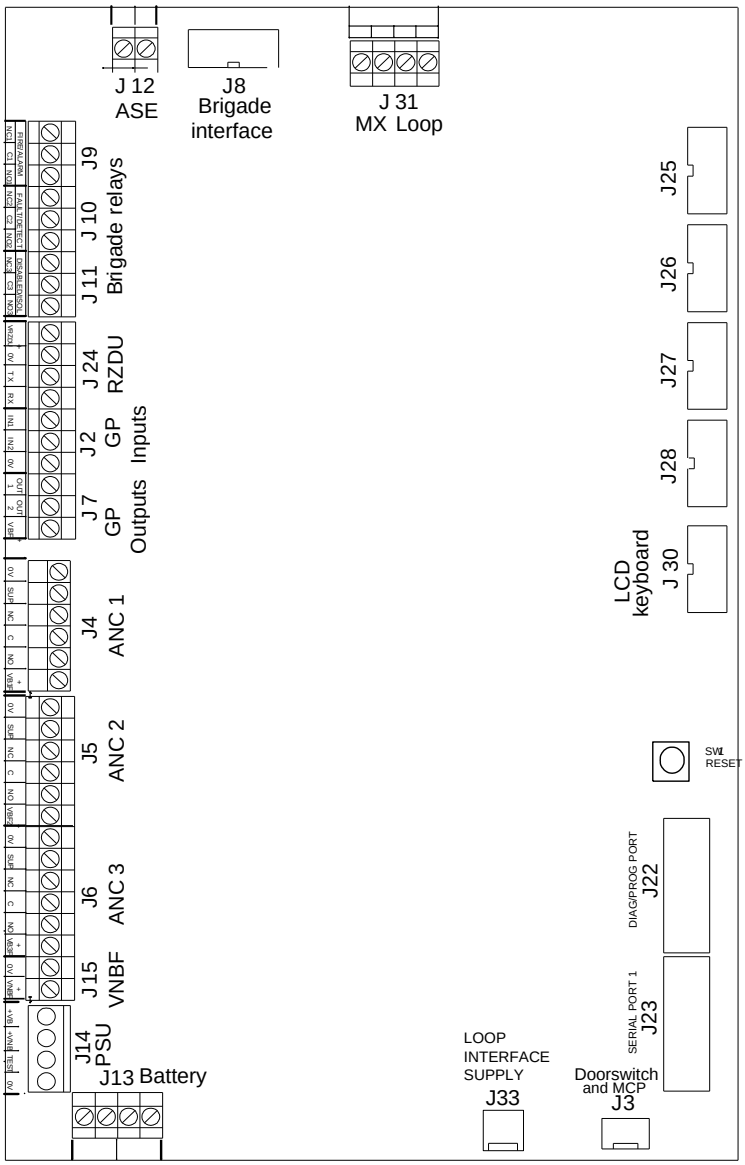
Upgrading a PA1011 Controller (older system)

When upgrading the PA1011 Controller, there will not be usually be any need to change the version of firmware already in the Controller, since you will want the new features from the current version.

However, an *MX1* system upgrade will involve many more aspects than just replacing the Controller, e.g., installing additional system components. The requirements to ensure that the new system is correctly designed are well beyond the scope of this Installation Instruction sheet.

Refer to the *MX1* System Design Manual for a complete description of how to do this design.

MX1 Controller Outline for Recording Field Wiring during Replacement



Manufactured by: Johnson Controls
17 Mary Muller Drive, PO Box 19-545
Christchurch 8022, New Zealand
Tel +64-3-389 5096
Fax +64-3-389-5938