Application Note

Internal Peripherals

This application note provides information on the installation of the internal peripherals within the Mx-5000 Series Fire Alarm Control Panels.

For information on installation wiring, configuration and programming, refer to the Mx-5000 Product Manual 680-165.

This document covers:

Mxp-501	Remote Battery Temperature Sensor
Mxp-502	Loop Driver (AP/HO/AV) Card
Mxp-503	Network Interface Card – Standard
Mxp-504	FAT/FBF/FSD/ÜE Interface Card
Mxp-505	Sounder Active EOL
Mxp-507	Relay Card – 2-Way
Mxp-508	Relay Card – 8-Way
Mxp-509	Network Interface Card – Fault Tolerant
Mxp-513	LED Indicator Cards
Mxp-532	Routing / Protection Interface Card
Mxp-567	Loop Driver (NITTAN) Card

Applications / Limitations:
Mxp-504/Mxp-508 cannot be fitted in the Mx-5101S (Small) panel. One Mxp-021, Mxp-026, Mxp-028, Mxp-034, Mxp-035, Mxp-047, Mxp-536 or Mxp-537 module can be fitted onto the chassis plate (except for Mx-5101S) unless an Mxp-504 is already fitted. Use the lower four of the six mounting pillars for mounting these cards. For further information on these modules, refer to the separate documentation supplied with these cards. One mounting position is provided for either an Mxp-507 or an Mxp-532 interface.
Compatibility:
Compatible with all Mx-5000 panels. Modules indicated are supported from SW Version 050-04 only. All other modules are supported from SW Version 050-00.

General Specifications

Item	Specification Details
Temperature	-5C to +40C
Relative Humidity	93%
Power Supply	24V DC
Approvals	VdS G210022

As our policy is one of constant product improvement the right is therefore reserved to modify product specifications without prior notice

GENERAL INTRODUCTION

Before commencing any installation, replacement or removal of internal peripheral modules, please take note of the following cautions.

Only Trained service personnel should undertake the Installation, Programming and Maintenance of this equipment.

TURN OFF POWER:

Before installing or removing any printed circuit boards remove all sources of power (mains and battery).

These products have been designed to comply with the requirements of the Low Voltage Safety and the EMC Directives. Failure to follow the installation instructions may compromise its adherence to these standards.

This equipment is constructed with static sensitive components.

Observe anti-static precautions at all times when handling printed circuit boards.

Wear an anti-static earth strap connected to panel enclosure earth point.

For information on installation wiring, configuration and programming, refer to the Mx-5000 Product Manual 680-165.

Ensure that a current consumption check and a battery calculation check is performed before installing additional modules to ensure that the Imax(a) and Imax(b) specifications of the panel are not exceeded and that the appropriate battery size is fitted.

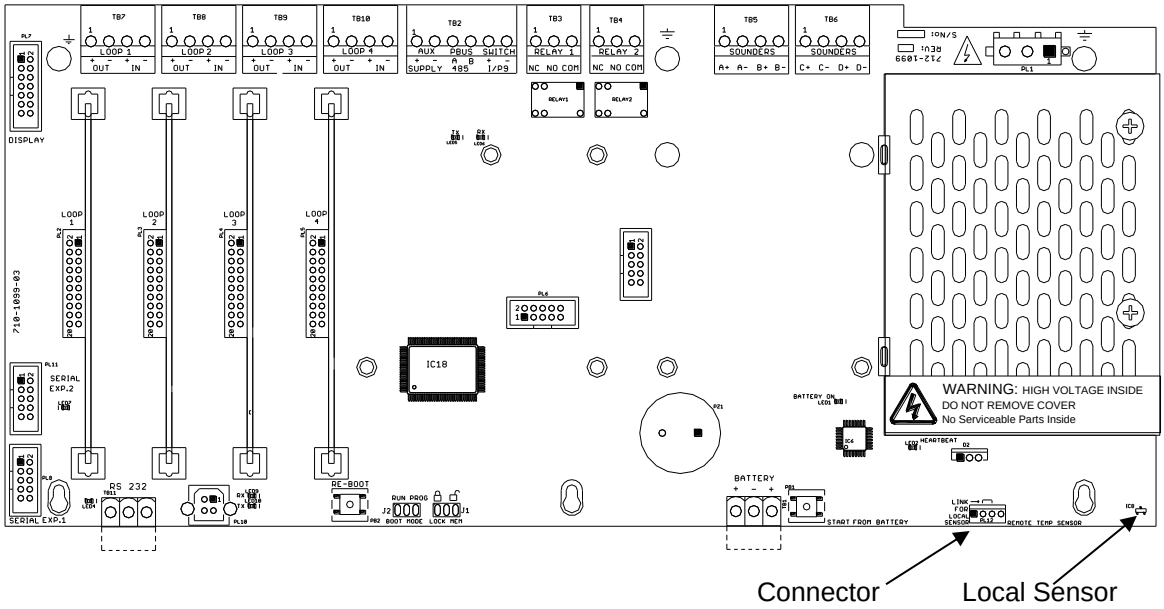
Table of Contents

Mxp-501 [Remote Temperature Sensor]

The base card is fitted with a PCB mounted temperature (local) sensor in the bottom right hand corner (see typical example below).

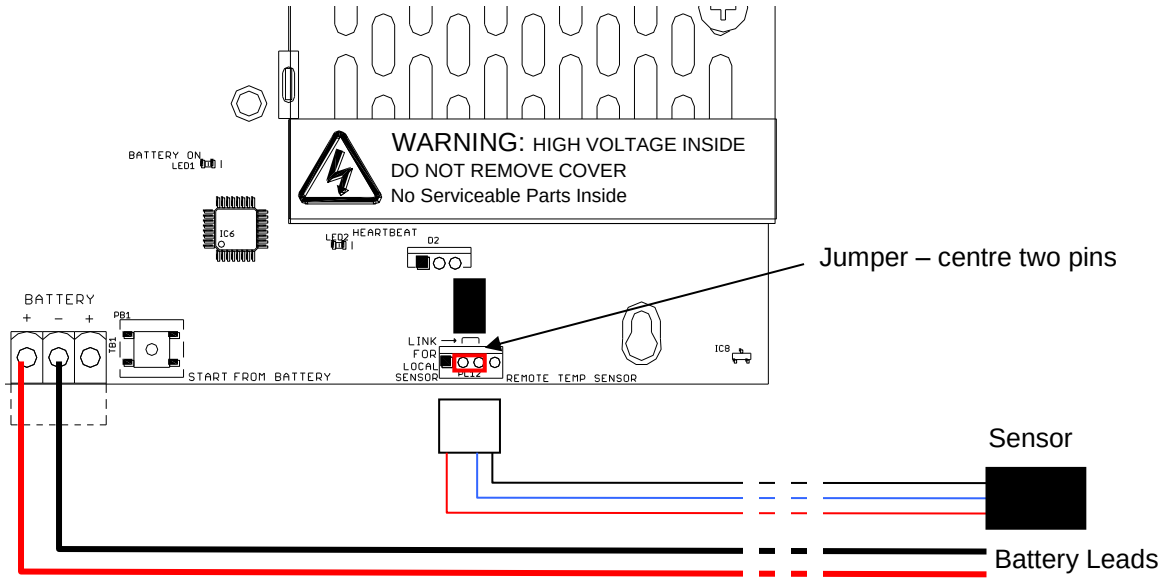
For all standard enclosures, this on-board sensor will correctly monitor the temperature of the batteries to ensure that they are charged at the correct charging voltage.

For rack mount, extra large enclosures or if the batteries are remotely located away from the base card, the temperature of the batteries can be different from the temperature near the local sensor. In these cases, the Mxp-501 temperature sensor should be fitted and used.



To install the Mxp-501, first remove the jumper link from the connector.

Plug the Mxp-501 into the connector and route the sensor cable along with the battery leads. Use the supplied tie-wraps to tie the sensor cable to the battery leads so that the encapsulated sensor is located close to the batteries. The sensor cable is 500mm in length.



NOTE: If the base card is not fitted with either a jumper or a remote temperature sensor the panel will indicate a charger failure condition. Ensure that the jumper is replaced if the remote sensor is removed / not used.

Mxp-502 / Mxp-567 [Loop Driver Cards]

These modules provide control and connection to detector loops.

Specifications:

Item		Specification Details
DC Supply		24V DC, 42mA
Protocols	Mxp-502 Mxp-567	Apollo S90, XP95, Discovery, Explorer / Hochiki ESP / Argus Vega Nittan Evolution
Devices per Loop		Apollo 126 detector/call points per loop (max) Hochiki 127 detector/call points per loop (max) Argus 240 detector/call points per loop (max) Nittan 249 detector/call points per loop (max) VdS Clause 6.2.5 Not more than 128 devices per loop 2095
Loop Current		500mA max.
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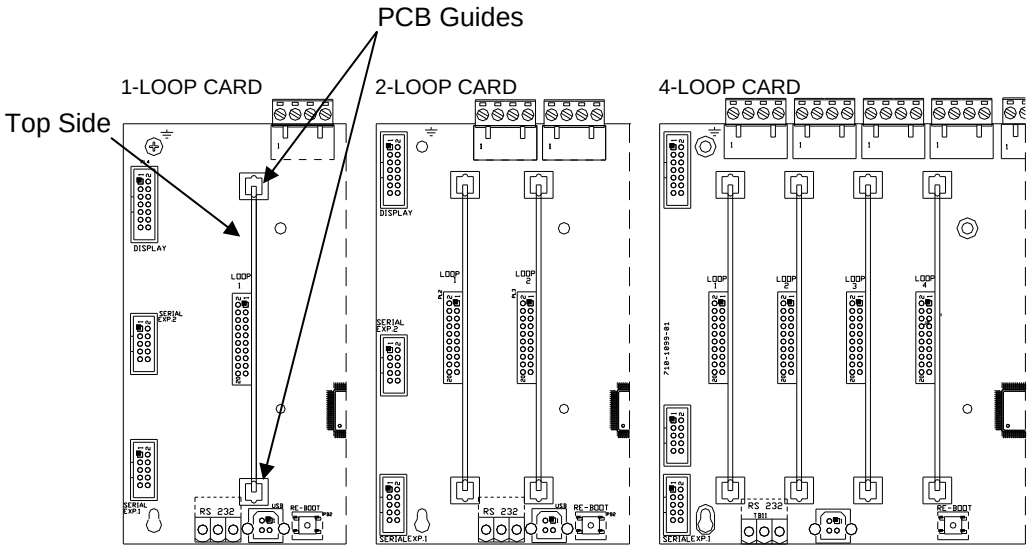
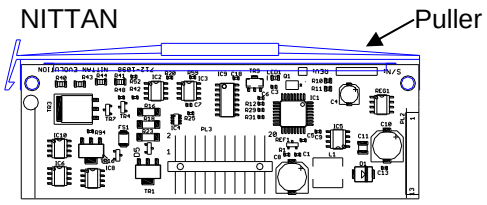
To insert a loop driver, carefully guide the card down between the slots in the PCB Guides and plug into the header socket on the base card. ENSURE that the connectors are correctly aligned. The clip on the puller will latch into a notch on the upper PCB Guide.

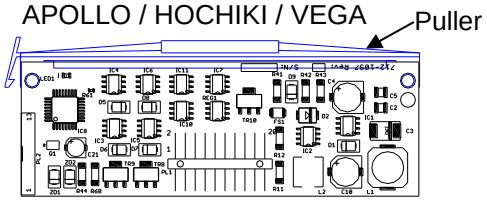


Insert the Loop Driver PCB so that the top side is oriented to the left as shown.

To remove a Loop Driver PCB, grip the top of the puller and unclip the latch lever. Carefully pull the card upwards and away from the base card.

The views opposite show the top sides of each Loop Driver PCB.





Mxp-503 / Mxp-509 [Network Cards]

These modules provide nework interface connections.

Specifications (Refer also to Application Note 680-502):

Item		Specification Details
Network Type	STD FT	Mxp-503 Mxp-509
Number of Nodes	STD FT	32 (all nodes must be fitted with STD network interfaces) 200 (all nodes must be fitted with FT network interfaces)
Distance between nodes		1500m
Overall distance	STD FT	1500m 20,000m
Supply	STD FT	24V DC, 20mA 24V DC, 43mA
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The network cards are supplied with:

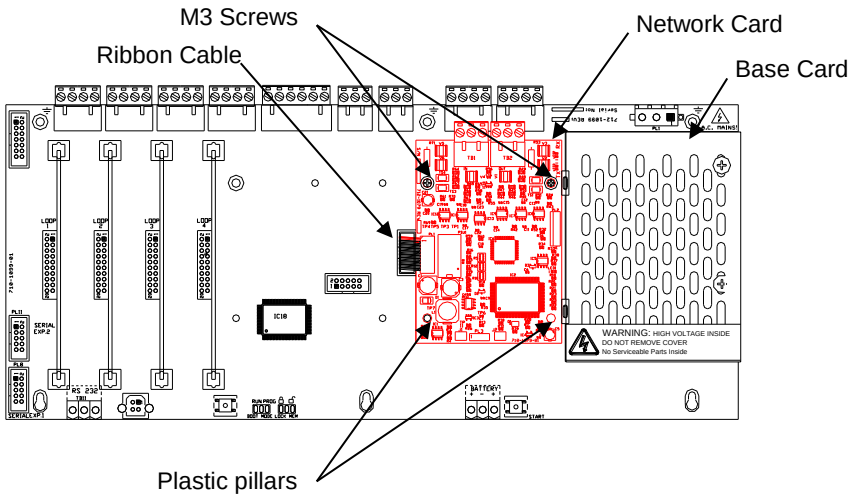
- Two Plastic pillars
- Two M3 Screws

STEP 1: Fit the plastic pillars into the base card positions shown below.

STEP 2: Plug the ribbon cable into the Box Pin header connector and then snap the PCB onto the plastic pillars.

STEP 2: Fit the two M3 screws to securely hold the PCB in place. Metal mounting pillars are pre-fitted to the base card in these positions. NOTE: These screws are essential for EMC Immunity protection.

The diagram below depicts the 4-LP base card but is typical for all base cards.



To remove a network card:

STEP 1: Remove the two M3 fixing screws.

STEP 2: Using small snipe nosed pliers, carefully pinch the top of each plastic pillar in turn and prise the PCB away using fingers.

STEP 3: Unplug the ribbon cable.

Mxp-504 / Mxp-508 [FAT/FBF/FSD/ÜE Interface Card]

This module provides connection to standardised fireman's panels, key deposit boxes and routing interfaces.

Specifications – Mxp-504:

Item	Specification Details
FAT/FBF Interface	RS232 or RS485
FAT/FBF Power	24V DC 500mA (max)
Fire Routing Interface	24V DC, Coil impedance 200Ω-5000Ω, Volt-free ACK input
Fire Routing I/F Power	24V DC 200mA (Max)
Fault Routing Interface	24V DC, Coil impedance 200Ω-5000Ω
FSD Interface	Open Collector Outputs – Fire and ACK Volt-free Inputs – Open and Tamper
FSD Interface Power	24V DC 500mA (max)
Supply	24V DC, 25mA (34mA alarm) + output load
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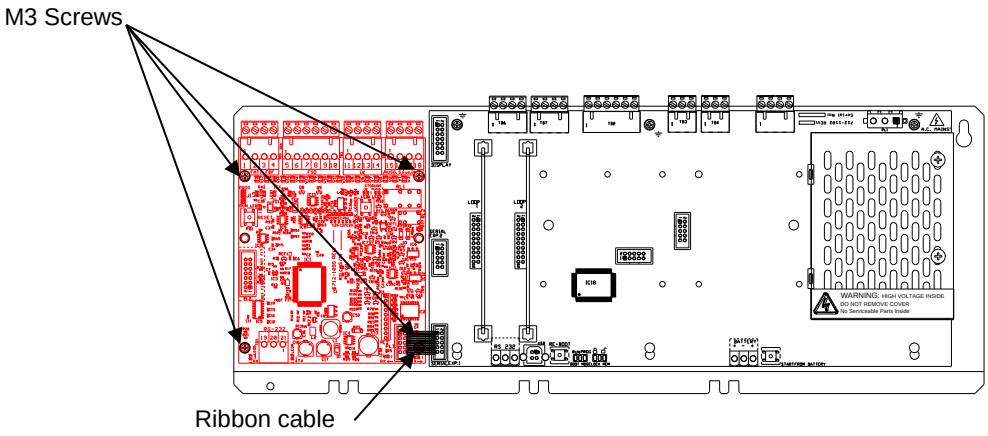
The FAT/FBF/FSD/ÜE Interface card is supplied with:

- Four M3 Screws
- One Ribbon Cable

STEP 1: Mount the card on the chassis plate and secure using the four M3 screws in the positions indicated. NOTE: The screws are essential for EMC Immunity protection.

STEP 2: Plug the ribbon cable into the sockets on the interface card and on the base card as shown.



Specifications – Mxp-508:

Item	Specification Details
Relay Outputs (x8)	Programmable 30V AC/DC 1A Resistive 2x changeover, 6x normally open
Supply	24V DC, 0mA (65mA alarm – All relays on)
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The 8-Way Relay card is supplied with:

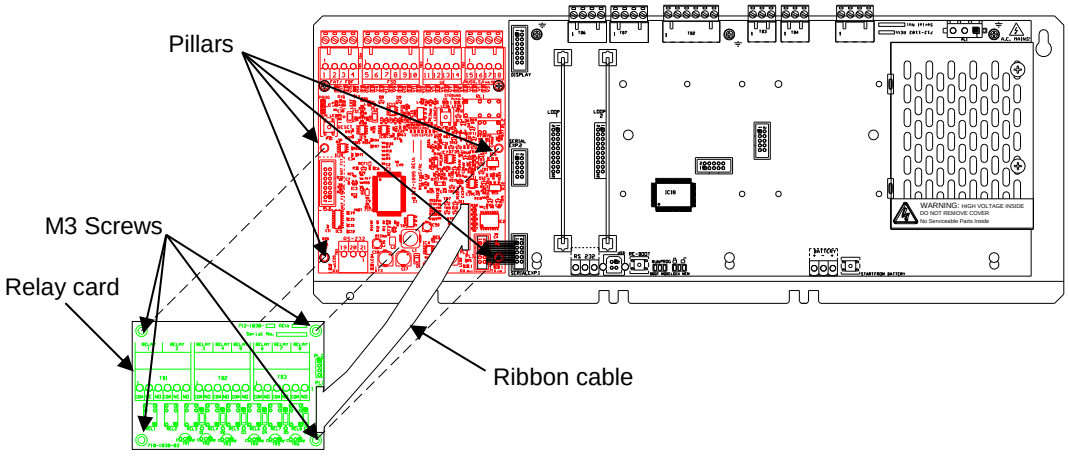
- Four M3 Screws
- Four pillars
- One Ribbon Cable

The 8-Way Relay card can be mounted onto the FAT/FBF/FSD/ÜE Interface card as shown below.

STEP 1: Remove the lower two M3 screws securing the FAT/FBF/FSD/ÜE Interface card and fit the four supplied pillars into the four mounting holes as shown.

STEP 2: Plug the ribbon cable into the header on the relay card (PL1) and then plug it into the header on the FAT/FBF/FSD/ÜE Interface card (PL3).

STEP 3: Mount the relay card onto the pillars and secure with the four supplied M3 screws.



Mxp-505 [Sounder Active EOL]

This module provides active monitoring of the sounder circuits in accordance with EN54-13. They replace the standard EOL resistor used for non EN54-13 monitoring.

Specifications:

Item	Specification Details
Supply	24V DC, 1mA (1A testing)
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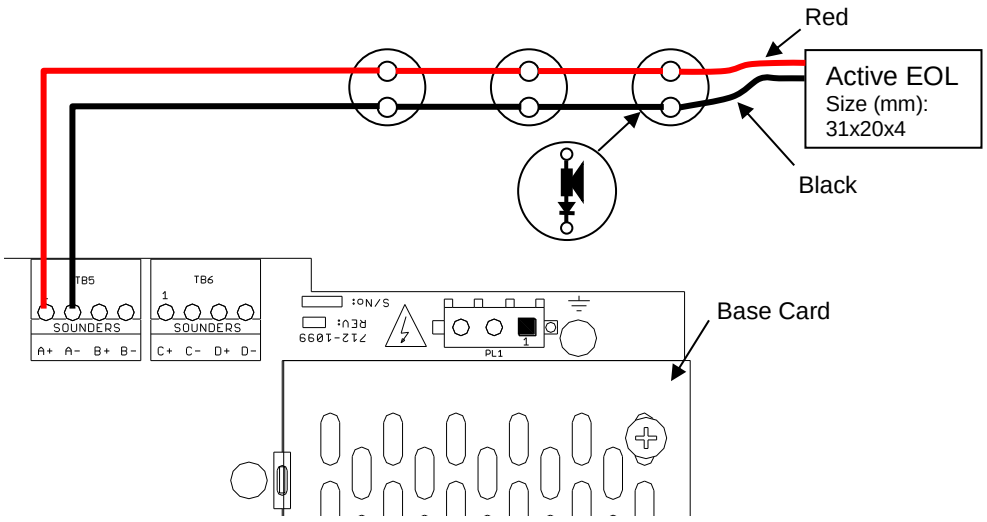
This item is not strictly an internal peripheral.

To monitor the sounder circuit it must be located at the end of the sounder circuit in lieu of the standard EOL resistor. The EOL Module is provided with flying leads. Connect the leads to the terminals of the last sounder / beacon.

ENSURE that the RED lead is connected to the +ve circuit. Connecting the Active EOL incorrectly will result in an open circuit condition. However, if the sounder circuit is activated in this condition, the protection fuse on the module will rupture and the module will need to be replaced.



Mxp-507 [2-Way Relay Card]

This module provides an additional two relay outputs on the panel.

Specifications:

Item	Specification Details
Relay Outputs (x2)	Programmable 30V AC/DC 1A Resistive
Supply	24V DC, 0mA (30mA alarm)
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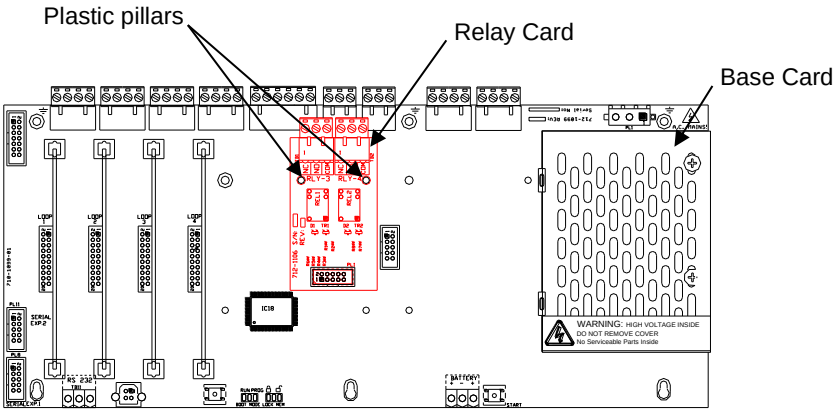
The 2-Way Relay card is supplied with:

- Two Plastic pillars

STEP 1: Fit the plastic pillars into the base card positions shown below.

STEP 2: Plug the PCB into the socket on the base card and then snap the PCB onto the plastic pillars. ENSURE that the connectors are correctly aligned.



To remove a relay card:

STEP 1: Using small snipe nosed pliers, carefully pinch the top of each plastic pillar in turn and prise the PCB away using fingers.

STEP 2: Lift up and unplug the PCB from the base card.

Mxp-513-XXX [LED Cards]

These modules provide additional indication by means of discrete LED indicators.

Specifications:

Item	Specification Details							
MXP-513-	050/RD	050/YL	050/RY	100/RD	100/YL	100/RY	050/CRY	200/RY
Indicators	50 RED	50 YEL	25 RED 25 YEL	100 RED	100 YEL	50 RED 50 YEL	50 Bi-Colour, RED / YEL	200 Bi-Colour RED / YEL
Supply (V)	24V DC							
Supply (I) Quiescent	8mA			16mA			8mA	8mA
Supply (I) All LED ON	30mA			60mA			30mA	120mA
Plate	Small			Large				
Software	050-00						050-04	
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The LED mounting plate is fixed in four positions on the door.

There are two different size plates – one for the medium panel enclosure (Mxp-513-050 only) and one for the large / deep panel enclosures but the principles described here are applicable to all variants. For rack enclosure mounting refer to 680-195.

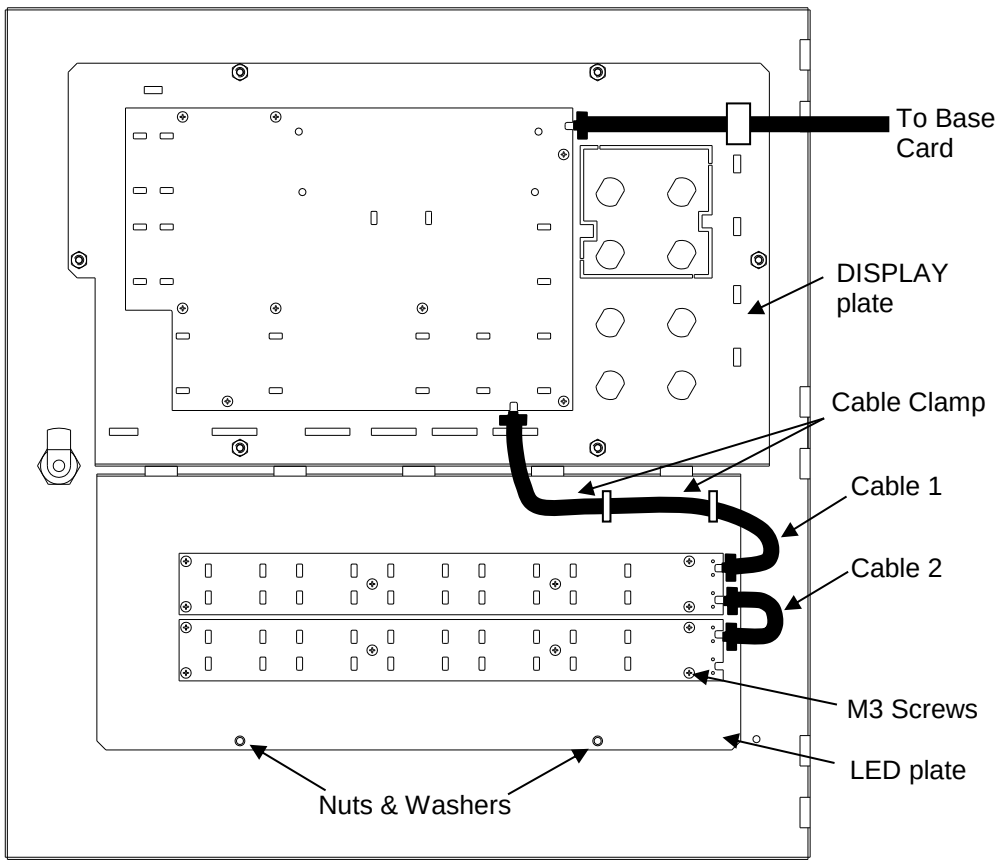
The two upper holes in the LED plate fit over the two lower display mounting plate studs.

The two lower holes in the LED plate fit over the two studs and are secured with nuts and washers as shown in the typical diagram below.

The display mounting plate must first be removed to allow removal / fitting of the complete LED mounting plate.

Connect Cable-1 between the display card and the first LED card.

Connect Cable-2 between the first LED card and the second LED card (if appropriate).



Up to five 50-Way LED cards can be connected in series. Only one 200-Way LED card can be connected.

ENSURE that the connectors are correctly aligned. The bump on the connector fits into the slot in the PCB.

Each LED PCB is secured to the plate using six M3 screws.

When replacing or fitting a PCB, ensure that the plastic light-pipe guides mounted on the front of the PCB sit squarely and have protruded into the holes in the LED plate before securing the card with the M3 screws.

Mxp-532 [Routing / Protection Interface Card]

This module provides monitored circuits to either fire/fault routing equipment or fire protection equipment.

Specifications (Refer also to Application Note 680-501):

Item	Specification Details
Outputs x3	Programmable – 24V DC, Coil impedance 1000Ω-5000Ω
Inputs x3	Programmable – Monitored volt free 10KΩ EOL, 470Ω activation
Fail safe Input	24V DC 2000Ω - connects directly to Output 1 on fault condition
Supply	24V DC, 31mA (43mA alarm – all outputs on)
As our policy is one of constant product improvement the right is therefore reserved to modify product specifications without prior notice	

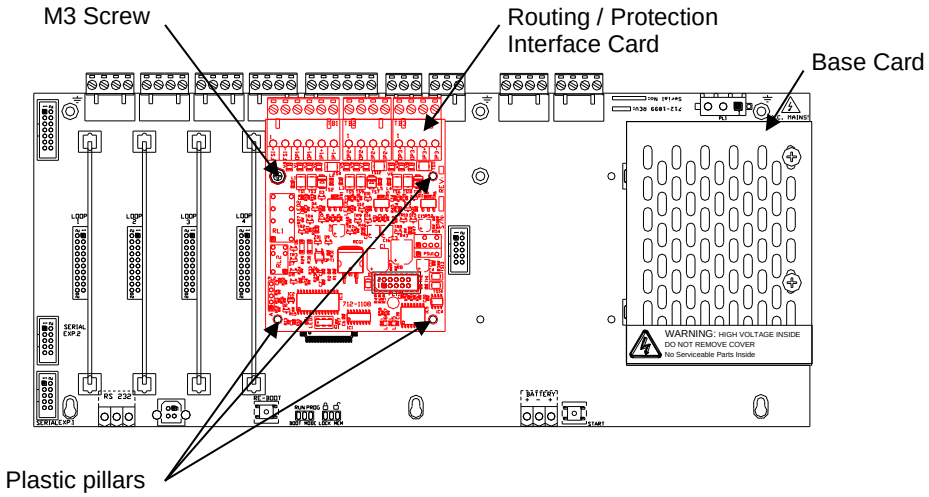
The Routing / Protection Interface card is supplied with:

- Three Plastic pillars
- One M3 Screw

STEP 1: Fit the plastic pillars into the base card positions shown below.

STEP 2: Plug the PCB into the socket on the base card and then snap the PCB onto the plastic pillars. ENSURE that the connectors are correctly aligned.

STEP 3: Fit the M3 screw to securely hold the PCB in place. A metal mounting pillar is pre-fitted to the base card in this position. NOTE: The screw is essential for EMC Immunity protection.



To remove a routing / protection interface card:

STEP 1: Remove the M3 fixing screw.

STEP 2: Using small snipe nosed pliers, carefully pinch the top of each plastic pillar in turn and prise the PCB away using fingers.

STEP 3: Lift up and unplug the PCB from the base card.

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USER NOTES:

This document does not cover:

Mxp-506	Routing / Protection Termination Card
Mxp-512	Internal Printer
Mxp-536	Peripheral 8-Way Zone Monitor Card
Mxp-537	Peripheral 10-Way Input Monitor Card
Mxp-538	Peripheral Switch / LED Card
Mxp-539	Peripheral Switch / LED Interface Card

Refer to the separate data sheets supplied with these products.

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