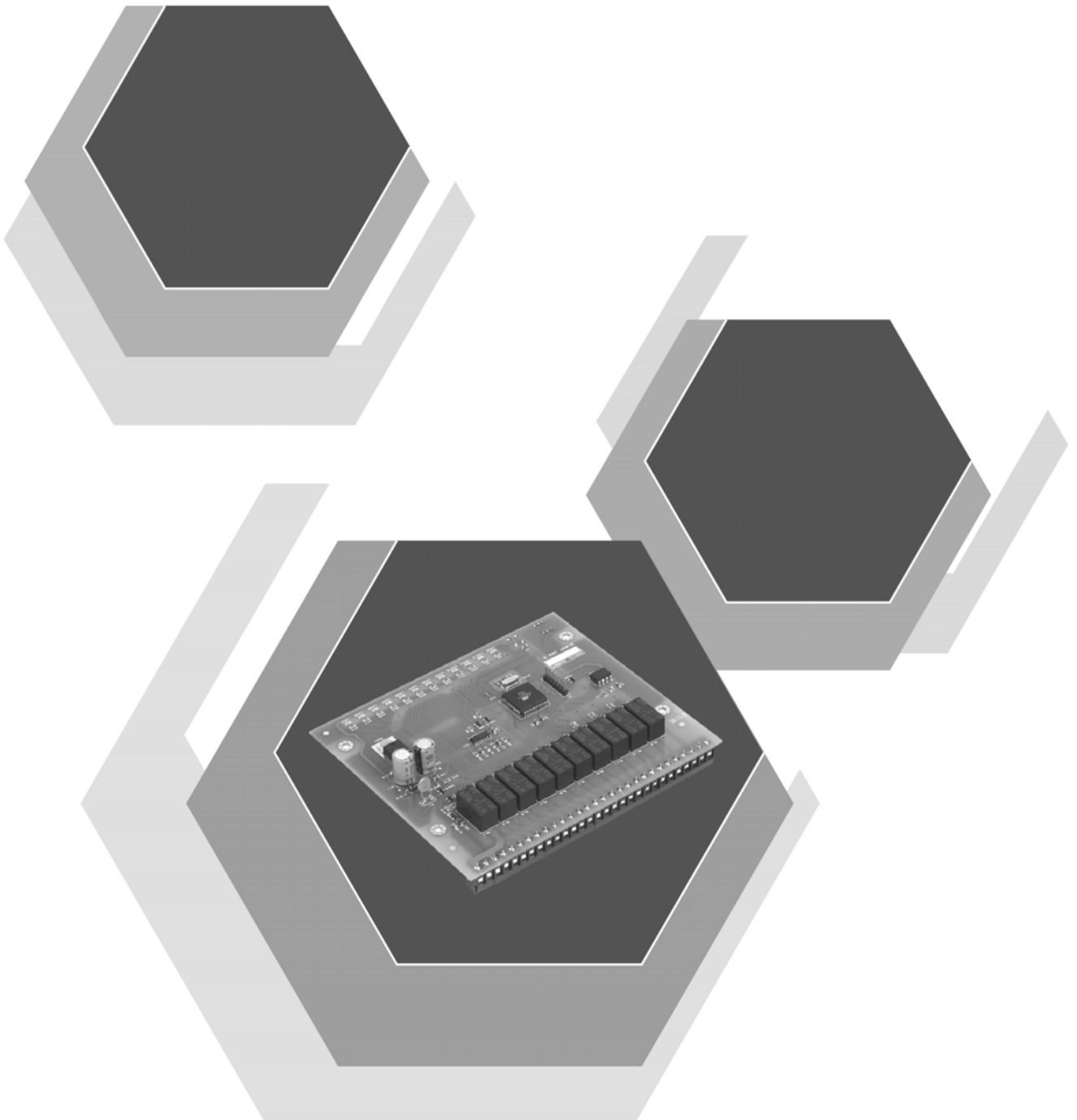


# **Sigma XT Ancillary Board (K588)**

## **Operation and Maintenance Manual**

Man-1095 Issue 06 November 2016



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# 1. Introduction

The Sigma XT ancillary board provides a means for additional outputs within the panel or to extend system status volt free contacts to locations remote from the control panel via a 2 core data bus.

The Sigma XT ancillary board is intended only for additional signalling and control purposes.

The board will typically find applications in plant control and interface to other systems

The Ancillary board is compatible with all Sigma XT control panels.

Up to 7 ancillary boards can be connected to a control panel and each is allocated an address from 1 to 7 using a binary coded DIL switch.

The total length of the data cable from the main panel to the last ancillary board must not exceed 1200 metres.

The ancillary board requires a 24V DC power supply (21V to 30V) which may be derived from the Sigma XT control panel or another 24V DC source.

# 2. Safety and mounting

Suppliers of articles for use at work are required under section 6 of the Health and Safety at Work act 1974 to ensure as reasonably as is practical that the article will be safe and without risk to health when properly used.

An article is not regarded as properly used if it is used 'without regard to any relevant information or advice' relating to its use made available by the supplier.

This product should be installed, commissioned and maintained by trained service personnel in accordance with the following:

- (i) IEE regulations for electrical equipment in buildings
- (ii) Codes of practice
- (iii) Statutory requirements
- (iv) Any instructions specifically advised by the manufacturer

According to the provisions of the Act, you are therefore requested to take such steps as are necessary to ensure that you make any appropriate information about this product available to anyone concerned with its use.

This Ancillary board is designed for indoor use only and at temperatures between -5°C and +40°C and with a maximum relative humidity of 95%.

Operation outside of these limits may render the equipment unreliable and/or unsafe.

## Mounting

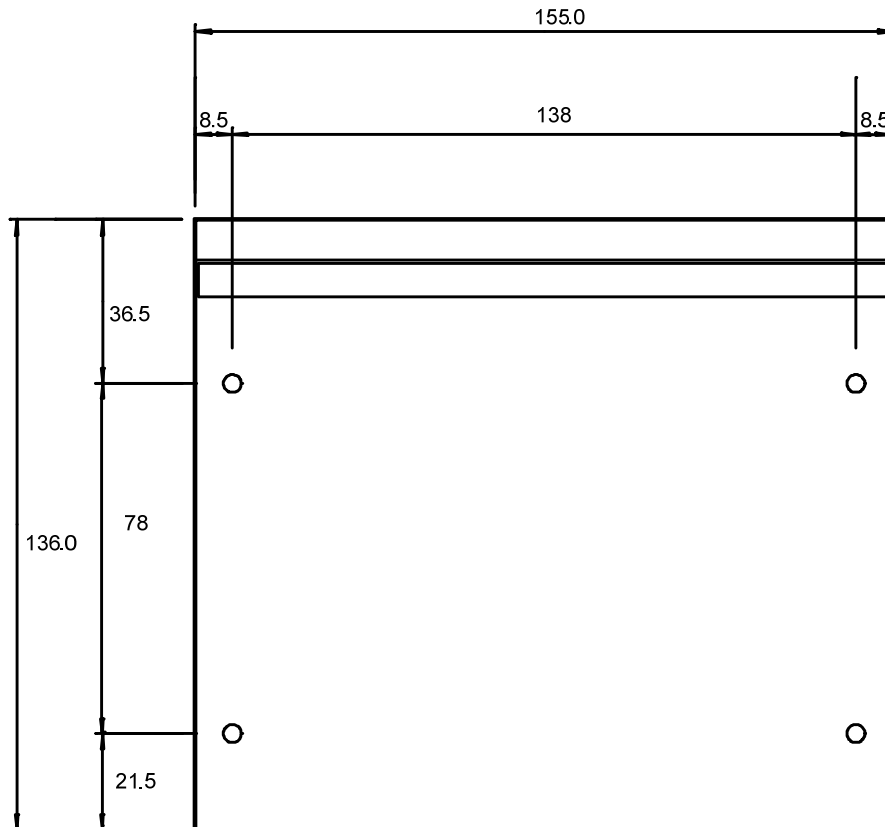
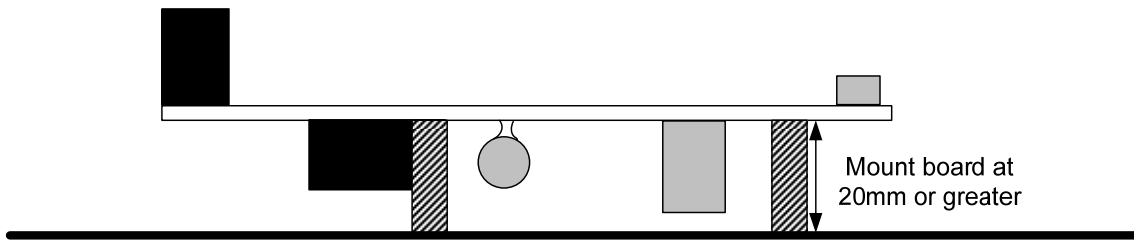
If not fitted inside a Sigma XT panel, the board should be mounted in a suitable enclosure such that it is protected from ingress of water, dust or foreign bodies.

It should be positioned in an accessible place as agreed with the end user.

Suitable fixings should be used at all fixing points such that the board and enclosure are securely mounted and not liable to move once fixed.

The enclosure should not be mounted near sources of excessive heat.

Cables should be connected using suitable, metal, shielded cable glands. All swarf and debris caused by drilling of additional cable entries must be cleared before power is applied.



### 3. Technical specification

Table 1 - Electrical specifications

Power supply	21 to 30 V DC	<i>Nominal 24V DC</i>
Maximum ripple voltage	200 millivolts	
Maximum current draw	0.175 Amps	<i>In full alarm</i>
Mains failed current consumption	25 milliamps	<i>In standby mode</i>
Relay contact rating	30VDC 1A Amp maximum for each	<i>Maximum ratings not to be exceeded</i>
Terminal capacity	0.5mm <sup>2</sup> to 2.5mm <sup>2</sup> solid or stranded wire	
Cabling - power	FP200 or equivalent	<i>Metal cable glands should be used</i>
Cabling - communication	RS485 data cable or FP200	<i>Maximum total cable distance 1200 metres. Metal cable glands should be used</i>
Size	155 X 135 X 30	<i>Millimetres</i>
Fixing	Four 4mm holes	<i>One in each corner of the board</i>

## 4. Connecting to the circuit board

All connections for field wiring are to a row of terminals along the top of the circuit board. Shielded fire alarm cable such as FP200 and metal cable glands should be used for all connections to the board.

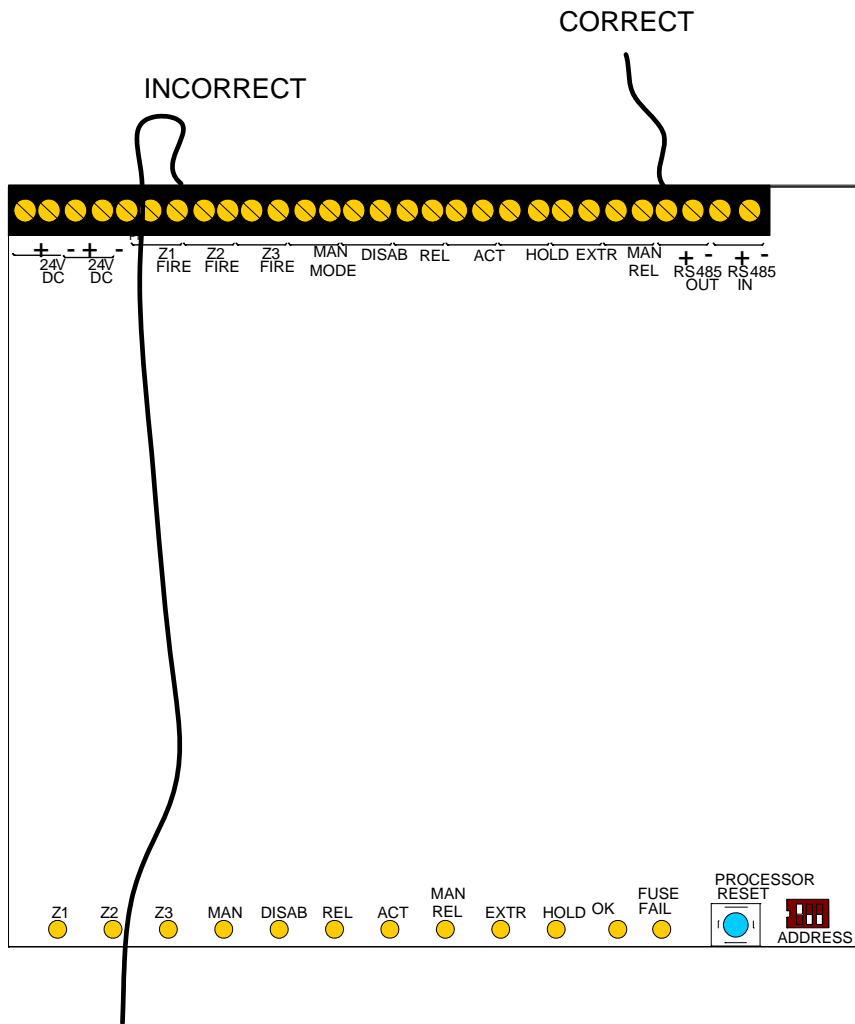
The resistance of any core of any cable must not exceed 25 ohms. The shields of the cables should be bonded securely to the enclosure via metal glands.

Wiring should enter the enclosure and be formed tidily to the appropriate terminals.

Terminals are capable of accepting wires of up to 2.5mm<sup>2</sup>.

Wiring must not go across the front of the circuit board. If cable entries need to be in positions other than at the knockouts provided in the enclosure, wiring must be fed well away from the surface of the circuit board.

Figure 1- Wiring to the circuit board



## 5. Connection to relay contacts

Volt free relay contacts are provided.

These contacts are rated for switching signalling circuits only and the maximum ratings listed in table 1 on page 4 should not be exceeded under any circumstances.

If voltages or currents exceeding those in table 1 on page 5 need to be switched, then a suitable relay or contactor device should be interposed between the ancillary board relay contacts and the system to be controlled.

### Z1 to Z3 Fire relays

Zonal fire relays are labelled Z1 FIRE to Z3 FIRE and will operate in conjunction with the activation of zones 1 to 3 on the control panel to which the ancillary board is connected. Zonal fire relays will remain activated until the control panel is reset.

### MAN MODE relay

The MAN MODE relay operates when the extinguishant system is switched to manual only mode and switches off when the system is switched to Automatic and manual mode.

### DISAB relay

The DISAB relay operates when the extinguishant system is disabled via access level 2 option [dE].

### REL relays

The REL relay operates when the released condition has been established at the control panel.

### ACT relay

The ACT relay operates when the activated condition (extinguishant release countdown) has been established at the control panel.

### HOLD relay

The HOLD relay operates when the system is in the Hold condition.

### EXTR relay

The EXTR relay operates when the control panel is operating the extract fan output.

### MAN REL relay

The MAN REL relay operates when a manual release input to the system has been operated.

## 6. 24V Input

The ancillary board requires a nominal 24V DC power supply to operate. This can be taken from the Auxiliary 24V output or status unit power output of the panel to which the ancillary board is connected. Another 24V DC source may be used if this is more convenient.

When using the Sigma XT status unit 24V or Auxiliary 24V outputs, the maximum current of the ancillary boards and status units connected must be taken into consideration. Ancillary board maximum current is 0.175A and status unit maximum current is 0.07A. The sum of ancillary board and status unit currents should not exceed 0.5A from either the status unit power output or the Auxiliary 24V output. If the total current required by status units and ancillary boards is 500 milliamps or greater then a separate power source with a suitable power rating must be used.

Four power terminals are provided so that 24V DC wiring can be taken into the ancillary board and then out again onto other ancillary boards or other equipment.

21 TO 30V DC

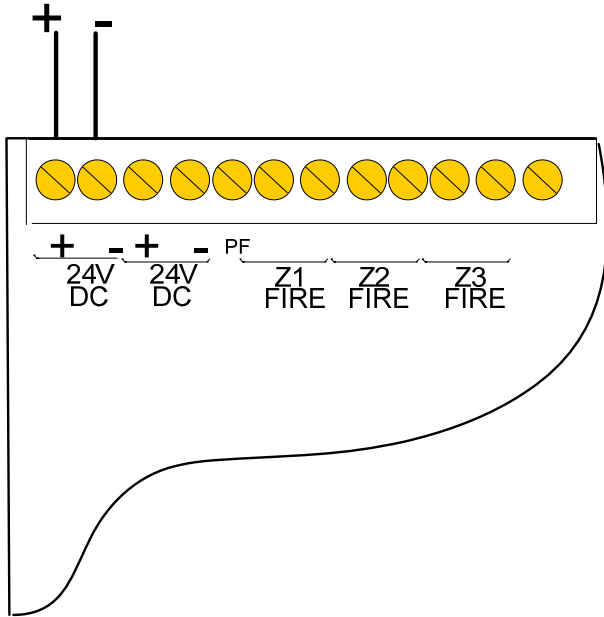


Figure 2-Power connection

## 7. Connection to Sigma XT panel

If power is supplied locally to the ancillary board only two wires are required from the Sigma XT panel.

Wiring can be standard fire alarm cable such as FP200 or shielded data cable. In either case, the shield of the cable must be securely bonded to the enclosure case.

RS 485 FROM CONTROL PANEL      RS485 TO NEXT ANCILLARY BOARD

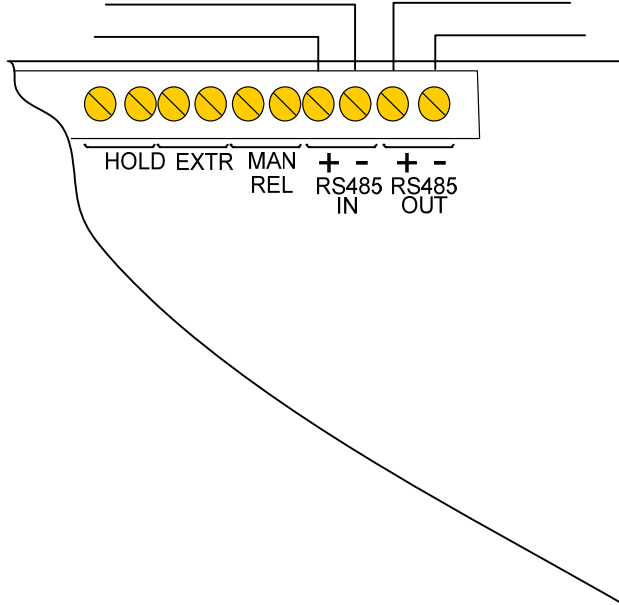


Figure 3-Comms connection

To terminate the data cable correctly, the last ancillary board or status unit connected must have jumper J2 fitted as shown below.

For the position of J2 on status units see Sigma Si Status Unit operation and maintenance manual.

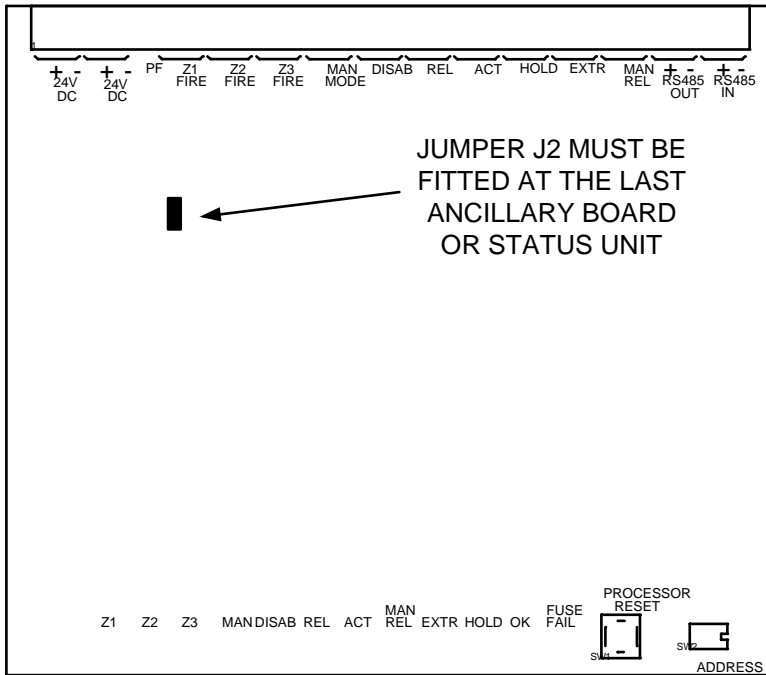
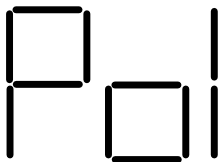


Figure 4-Comms terminating jumper

Each Ancillary board must be allocated an address as described in section 8.4. After ancillary boards have been connected to the Sigma XT panel, the panel has to “learn” how many ancillary boards it has connected to it. This is necessary so that the panel can announce a fault condition if one or more ancillary boards become disconnected.

To “teach” the Sigma XT panel how many ancillary boards are connected, ensure that all ancillary boards have the data cable connected with the correct polarity. Check that all ancillary boards are supplied with power and that the green, OK LED is lit at each one.

Switch on the write enable switch on the Sigma XT panel and press the processor reset switch on the Sigma XT panel PCB. The panel will display the address of the first ancillary board it finds on the seven segment LED display as show below.



This indicates ancillary board 1 (Po1). To accept this, the enter button on the panel should be pressed whereupon, if more ancillary boards are found, their addresses will be displayed and must be accepted by pressing the enter button once again. This is repeated until all of the ancillary boards are recognised by the main panel.

If an ancillary board becomes disconnected after it is “learned” by the main panel, the main panel will display a comms fault and the number of the ancillary board on the seven segment LED display.



## 8. Operation

### 8.1 Fuse fail

The ancillary board is fitted with a 1 Amp rated, self resetting electronic fuse. This fuse protects the electronics of the ancillary board and prevents any excessive loading of the power supply that is powering it. If this fuse operates, the yellow *Fuse fail* LED will light.

### 8.2 OK

Indicates that the ancillary board is supplied with power and is working normally.

### 8.3 Reset switch

Once started, the microprocessor controlling the board should continue to run the ancillary board continuously without interruption. If the microprocessor fails to run correctly and does not re-start it can be reset by pressing the RESET button on the PCB.

This should not normally be necessary but should be done as a matter of course if the system is behaving abnormally. The system should resume normal operation within a couple of seconds of pressing the processor reset button.

### 8.4 Address switch

Ancillary boards can have an address in the range 1 to 7. The address is set in binary notation on the 3 way DIL switch.

Address settings are shown below.

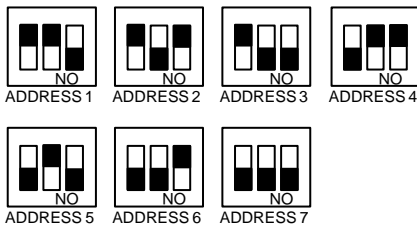


Figure 5- Address setting

## 9. Power requirements

The ancillary board requires a 24V DC power supply which connects to the terminal block labelled 24V DC.

The power supply should be capable of supplying a minimum of 250 milliamps to cater for a fully loaded board with all outputs activated.

An input labelled PF is provided for connection to the fault output of additional power supplies. This input needs to be switched to 0V with respect to the 24V supply to signal a power fault from the additional power supply.

When supplied from the Sigma XT panel, extra battery capacity of 0.6Ah per ancillary board connected should be allowed to give 24 Hour standby.

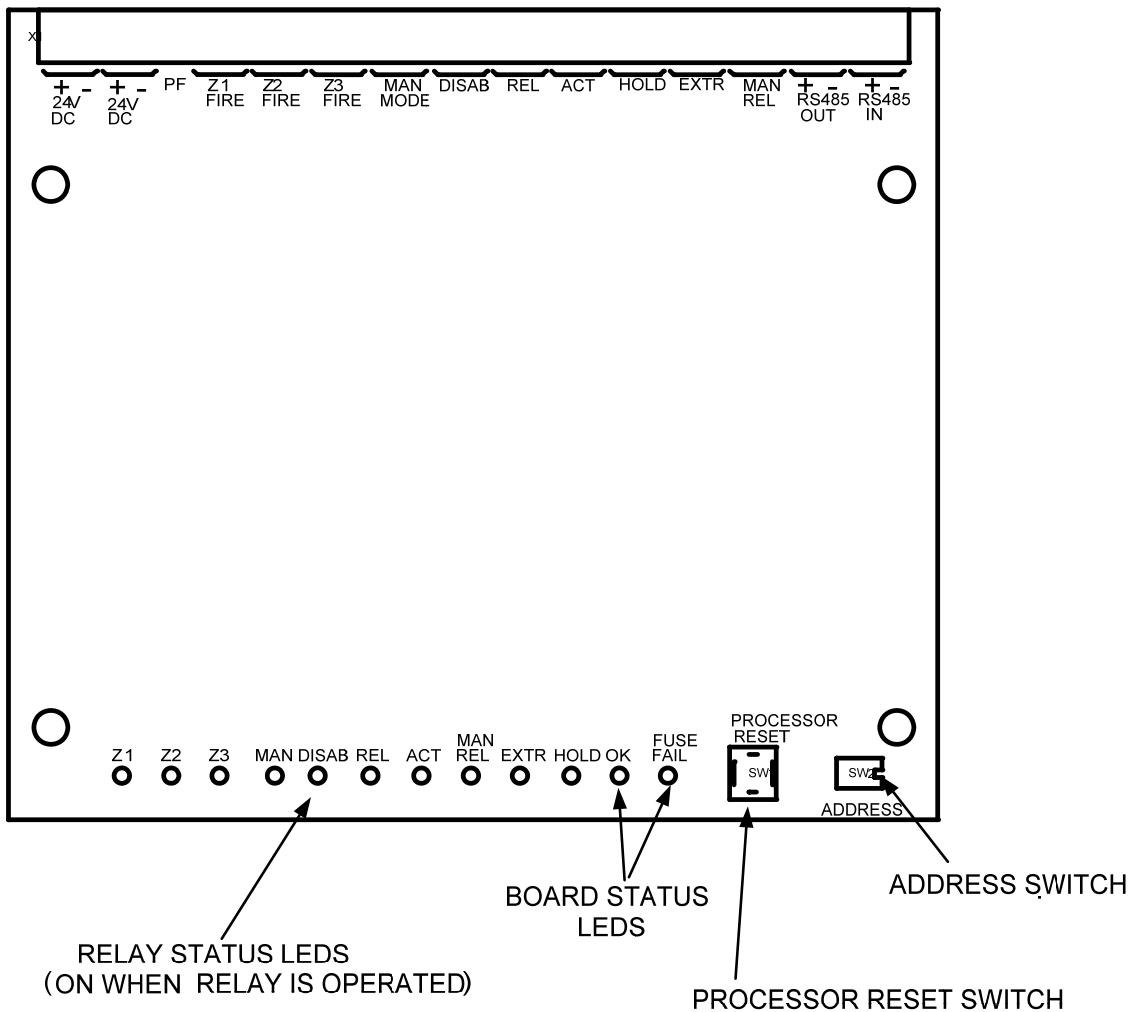


Figure 6- Overview