

# MFP REPEATER PANEL

## (Part No. FF596)

# Installation Instructions

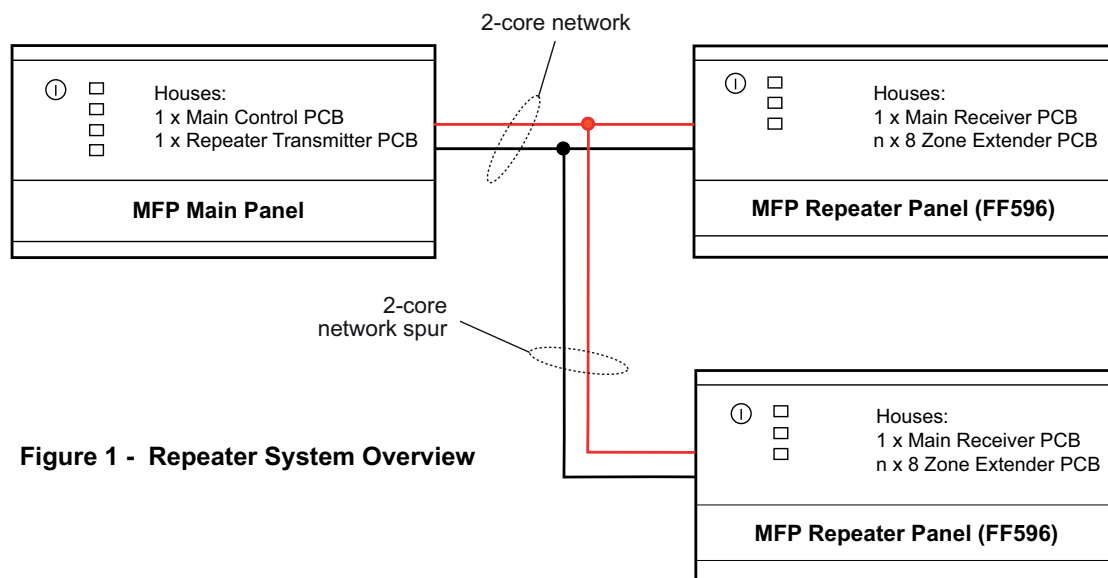
*This document is written with the assumption that the reader is familiar with the functions and installation details of the MFP range of fire panels. If this is not the case, then please familiarise yourself with the MFP Instructions before proceeding any further.*

## MFP Repeater System Overview

The MFP Repeater system is designed to mimic the key functions of the MFP Main panel at other parts of a building. These functions include:

- Indicate zones in Fire (up to 32 zones, in multiples of eight)
- Indicate a general system fault
- Allow the user to Reset, Silence and Evacuate
- Provide control outputs for Fire and Fault Conditions.

Up to eight MFP Repeater panels (Part No. FF596) may be connected to one MFP Main panel with power and communication transmitted using 2 core network cable. The wiring may be run in any convenient way that complies with the relevant Fire and Electrical Regulations for the site. The wiring may also be spurred if required, see Figure 1 below:



**Figure 1 - Repeater System Overview**

The Repeater system is implemented by installing a Repeater Transmitter PCB (Part No. FF596T) in the MFP Main panel. This PCB handles the two wire communications network to the Repeaters.

Each Repeater consists of a Main Receiver PCB which connects to the 2 wire network. This PCB has the Fault LEDs and controls and also incorporates the Fire Zone LEDs for the first eight zones. The Repeater panel is expanded in multiples of eight by installing 8 Zone Extender PCBs (Part No. FF596R), up to a maximum of 32 zones.

## The Repeater Transmitter PCB (Part No. FF596T)

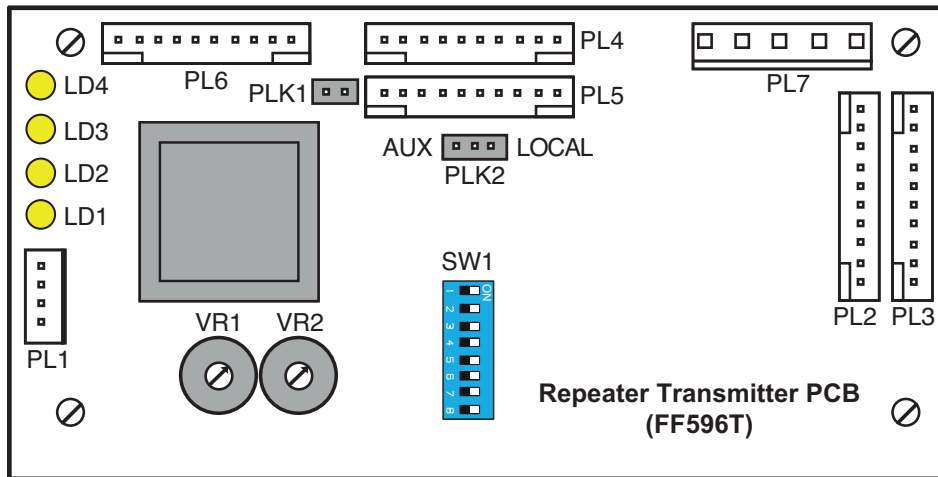


Figure 2 - Repeater Transmitter PCB

The Repeater Transmitter PCB (shown in Figure 2 above) is mounted on, and takes its control signals and power from, the Main Control PCB which is mounted in the MFP Main panel. It drives the Repeaters over the two wire network, via connector PL7.

Power for the network may be taken from the MFP Main panel, or in cases where there may be heavy current drawn by the Repeater system, an Auxiliary Power Supply may be fitted, which then supplies the Repeaters.

### PCB Indicators

- LD1 / LD2 (yellow LEDs) indicate faults on the Programmable Relay and Sounder Cards (not applicable in Repeater only installations).
- LD3 / LD4 (yellow LEDs) indicate diagnostic information about the Repeater network.

### PCB Controls

- PLK1 must be linked to disable PSU sense. If an Auxiliary Power Supply is used locally then this link must be removed. If the link is removed and the Auxiliary Power Supply fails, or is not fitted then the Repeater will sense a Fault condition and indicate this appropriately.
- PLK2 is used to select either the MFP Main panel's Power Supply (LOCAL position) or the Auxiliary Power Supply (AUX position). One of these positions must be linked out, or the Repeater system will not function.
- SW1 and VR1, VR2. These controls are for use with the Programmable Relay and Sounder Cards (not applicable in Repeater only installations).

In a Repeater only system the position of VR1 and VR2 is not important and SW1 should be left with all eight switches in the off position.

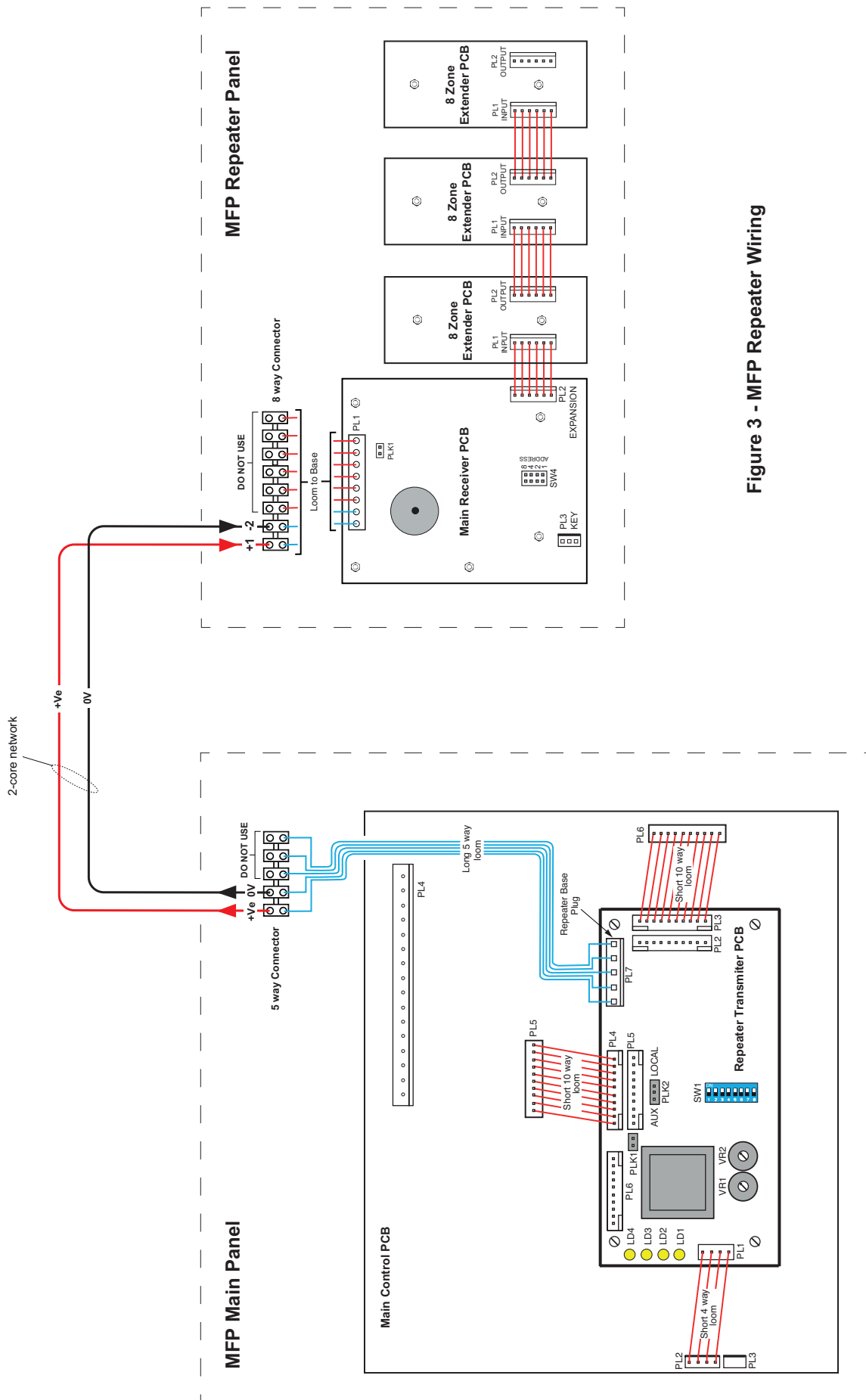


Figure 3 - MFP Repeater Wiring

## Installing the Repeater Transmitter PCB

**Note:** Before installation, any short circuit or non-latching links should be fitted to the Main Control PCB's first four zones, as alterations to these links requires removal of the Repeater Transmitter PCB.

First, push the four mounting pillars (supplied) into the holes provided on the Main Control PCB until they click in position. Second, push the Repeater Transmitter PCB onto the pillars until they click in position (see Figure 4 below for orientation). Finally, install the interconnecting looms as follows:

Loom Type	From Repeater Transmitter PCB	To Main Control PCB
Short 4 way	PL1	PL2
Short 10 way	PL4	PL5
Short 10 way	PL3	PL6

Loom Type	From Repeater Transmitter PCB	To
Long 5 way	PL7	Repeater Connector
Long 10 way	PL2	First Zone Card (if fitted)
MFPX loom	PL5	Aux Devices (if fitted)

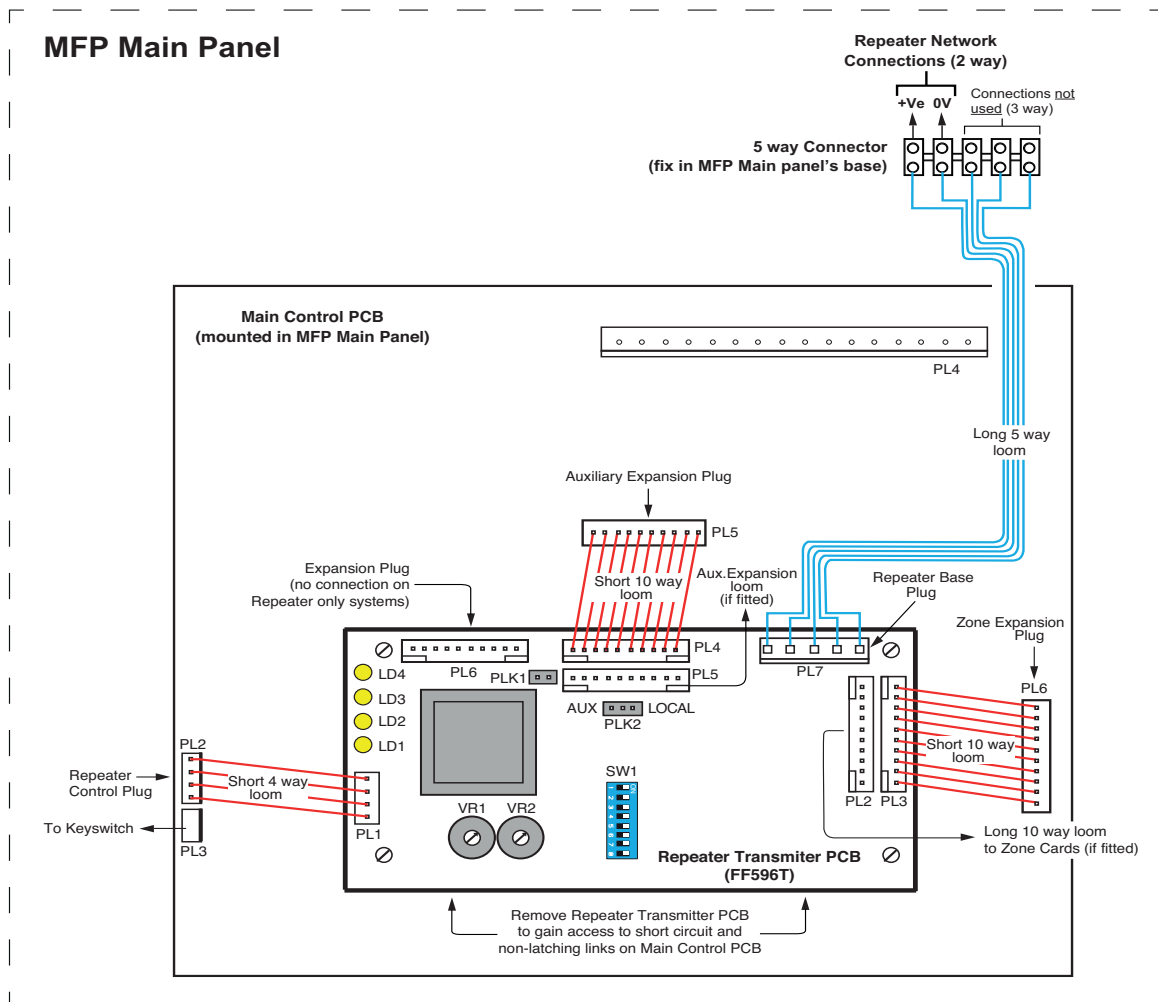


Figure 4 - Repeater Transmitter PCB Connections

The PL7 loom from the Repeater Transmitter PCB has an attached 5 way connector. This connector should be fixed into the base of the MFP Main panel using the fixing pins supplied. These pins should be pushed through the back of the base before installation. **Note that only the first 2 ways of the connector (+Ve, 0V) are used for connecting to the repeater network; the remaining 3 ways are not used.**

## Repeater Panel Indicators and Controls

### Repeater Indicators

The Main Receiver PCB, mounted in the MFP Repeater panel, has four system status LEDs and eight Fire Zone LEDs, which are detailed below.

The General Fire LED (red) flashes when there is an unsilenced fire state on the system. When there is a silenced fire state on the system, this LED is lit steady. The LED is also momentarily lit during a Reset / Lamp Test cycle.

The General Fault LED (yellow) flashes when there is any fault on the system and is momentarily lit during a Reset / Lamp Test cycle.

The Local Fault LED (amber) indicates when there is a fault generated at the Repeater panel. This LED will light intermittently under the following conditions:

- Power is supplied to the Repeater but there are no communications with the MFP Main panel
- There is a fault associated with the local Auxiliary Power supply
- The microprocessor on the Repeater has failed
- The Local Fault LED will also light momentarily during a Reset / Lamp Test cycle.

The Supply Healthy LED (green) indicates that the Repeater is receiving power.

If there is a fault with the local Auxiliary Power supply then the Supply Healthy LED will flash. This LED will also go out momentarily during a Reset / Lamp Test cycle.

The Fire Zone LEDs (red) flash when there is a new fire on a particular zone.

If the system is in a silenced fire state, then the Fire Zone LED for a zone previously triggered will be lit steady. The Fire Zone LEDs are momentarily lit in sequence during a Reset / Lamp Test cycle.

The Repeater panel may be extended in multiples of eight zones, up to a maximum of 32 zones, by the addition of an Extender kit (Part No. FF596R). This kit consists of an 8 Zone Extender PCB, looms and mounting hardware (see 'Repeater Panel Installation' section, page 6).

The panel's beeper will sound when there is any fault condition on the system, and depending on the type of fault condition the beeper may be muted by pressing the Silence button when the keyswitch is in the Arm Controls position.

### Repeater External Controls

The panel's keyswitch enables its buttons to be used when it is in the Arm Controls position. In this position the key cannot be removed.

The Reset button, when pressed, initiates a System Reset or Lamp / Beeper Test cycle, unless the system is in an unsilenced fire state, in which case it is inactive.

The Silence button, when pressed, mutes the fault beeper (in the case of a new system fault), or silences the alarm sounders, moving the system to an silenced fire state.

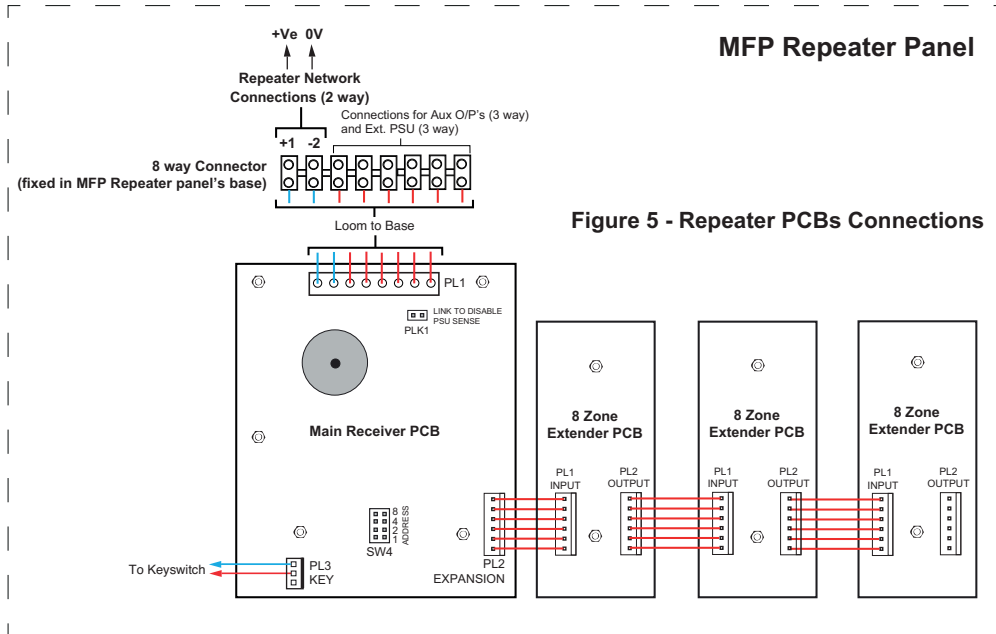
The Evacuate button, when pressed, activates the Alarm sounders, moving the system to an unsilenced fire state. To deactivate the sounders the Silence button must be pressed. If the system is set up for delayed sounders then pressing the Evacuate button during a delay period will activate the alarm sounders immediately, even if the keyswitch is not in the Arm Controls position.

### Repeater Internal Controls

Aux PSU Sense PLK1 must be linked to disable PSU sense. If an Auxiliary Power Supply is used locally then this link must be removed. If the link is removed and the Auxiliary Power Supply fails, or is not fitted, then the Repeater will sense a fault condition and indicate appropriately. Address Link SW4 sets the address of the Repeater.

## Repeater Panel Installation

Fit the appropriate number of 8 Zone Extender PCBs in the MFP Repeater panel(s) as required for the system. These are installed by securing the PCBs to the lid with the spacers and nuts supplied and then connecting the supplied 6 way looms as shown in Figure 5 below.



### Repeater Wiring

Up to eight MFP Repeater panels may be connected to one MFP Main panel with power and communication transmitted using 2 core cable. Install the MFP Repeater panel(s) then run the cables in accordance with relevant regulations. Fire resistant cable is recommended, of 1.5mm CSA. On larger installations where there are long cable runs (greater than 400 metres), and many Repeaters, it is advisable to use cabling with the largest CSA that may be practically used, typically 2.5mm CSA.

Wiring may be run from the MFP Main panel to the MFP Repeater(s) in whatever way best suits the installation. In multiple Repeater installations the wiring may be spurred if necessary.

Once installed, check the wiring before terminating at the MFP Main panel, or at the MFP Repeater(s), for shorts and open circuits. Check there is no leakage to Earth from either conductor. **Under no circumstances must the wiring be "meggered" with any panels connected.** When these checks have been made, make the wiring off at the MFP Main panel and the MFP Repeater(s).

### Setting the Repeater Addresses

Each Main Receiver PCB must have a unique address to enable the system to be monitored. The addresses are set up by fitting the supplied links on SW4, which is numbered 1, 2, 4, 8. (Note that "8" is for future expansion and is not currently used and must not be linked.) The address settings are shown in Figure 6 right.

Although addresses must be unique to each Repeater, they need not be sequential, i.e. it is acceptable to use addresses 3 and 7 for a two Repeater system.

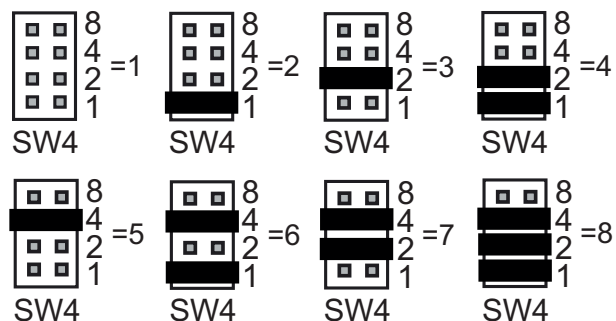


Figure 6 - Repeater Address Settings

The addresses are read when the system is powered up and therefore must be set when there is no power on the system. Altering the addresses when the system is powered will not take effect until the next power up cycle. Once the Repeater(s) have been addressed the system may be tested.

## Testing the Installation

At the MFP Main panel, power up the system by connecting the Mains supply. The MFP Main panel will go through the Reset cycle and then settle after a few seconds with PSU and General Fault LEDs lit and the Fault beeper sounding intermittently. Connect the batteries and the panel will move to the Normal state, with the green Mains On LED lit.

At each Repeater carry out the following test procedure:

- Check the green Supply Healthy LED is lit steady.
- Turn the keyswitch to Arm Controls, then press the Evacuate button. The General Fire LED will be lit on the Repeater panel and the system Alarm Sounders will be active.
- Press the Silence button, the Alarm Sounders should cease and the General Fire LED will be lit steady with the fault beeper sounding intermittently.
- Press the Reset button, which will cause the Repeater to enter the Reset / Lamp / Beeper Test cycle during which all the Fire, Fault and Power Supply Healthy LEDs should flash and the beeper should sound momentarily. Pressing the Reset button on a Repeater whilst the keyswitch is in Arm Controls will also cause the MFP Main panel to execute a Reset cycle. If there is no Fire Condition and no faults present after the Reset cycle then the MFP Main and MFP Repeater panel(s) will return to the Normal passive state.

## Fault Conditions

### Repeater Scanning Fault

#### *Symptoms:*

General Fault LED + Beeper on front of MFP Main panel.

Repeater Transmitter PCB indicator LD3 lights periodically and indicator LD4 flashes 'n' times, where n = the address of the missing MFP Repeater(s).

Repeater(s) flagged as missing, or non-functional.

#### *Cause 1:*

Open or short circuit wiring to Repeater(s).

- Green Power Supply Healthy LED extinguished on Repeater(s) effected.

#### *Solution 1:*

Disconnect the Repeater(s) and check the wiring. The voltage on the Repeater network should average between 15 - 20V. (Note the measured voltage will fluctuate due to the communication voltage excursions.)

#### *Cause 2:*

Repeater has failed.

Power Supply Healthy and Local Fault LEDs flash.

Power Supply Healthy LED lit but otherwise no response to system state changes.

#### *Solution 2:*

Change the Repeater.

## Repeaters with same address

### *Symptoms:*

General Fault LED + Beeper on front of MFP Main panel, Repeater Transmitter PCB indicator LD3 lights periodically and indicator LD4 flashes once. Repeaters otherwise function correctly.

*Cause:* Two or more Repeaters with SW4 set with same address.

*Solution:* Remove power from the system, alter addresses accordingly and power up again.

## Repeaters with Aux PSU Fault

### *Symptoms:*

General Fault LED + PSU Fault LED + Beeper on front of MFP Main panel.

Repeater Transmitter PCB indicator LD3 lit periodically and indicator LD4 flashes 'n' times, where n = the address of the Repeater with the Fault.

Repeater indicators Power Supply Healthy and Local and General Fault LEDs flashing, otherwise responds to system state changes correctly.

*Cause:* Aux PSU sense link omitted from Repeater.

*Solution:* Refit link.

## Keyswitch buttons inoperative

### *Symptoms:*

Buttons inoperative on Repeater otherwise Repeater responds to system state changes.

*Cause 1:* Keyswitch loom has become dislodged.

*Solution 1:* Refit loom.

*Cause 2:* Repeater's Main Receiver PCB has partially failed.

*Solution 2:* Replace PCB.

## Failure of the Repeater Transmitter PCB

### *Symptoms:*

MFP Main panel may indicate a fault condition.

Repeaters do not respond to button presses, or changes of system state.

Repeater has local Fault LED flashing, Power Supply Healthy LED lit steady.

*Cause:* Repeater Transmitter PCB failure.

*Solution:* Change Repeater Transmitter PCB.