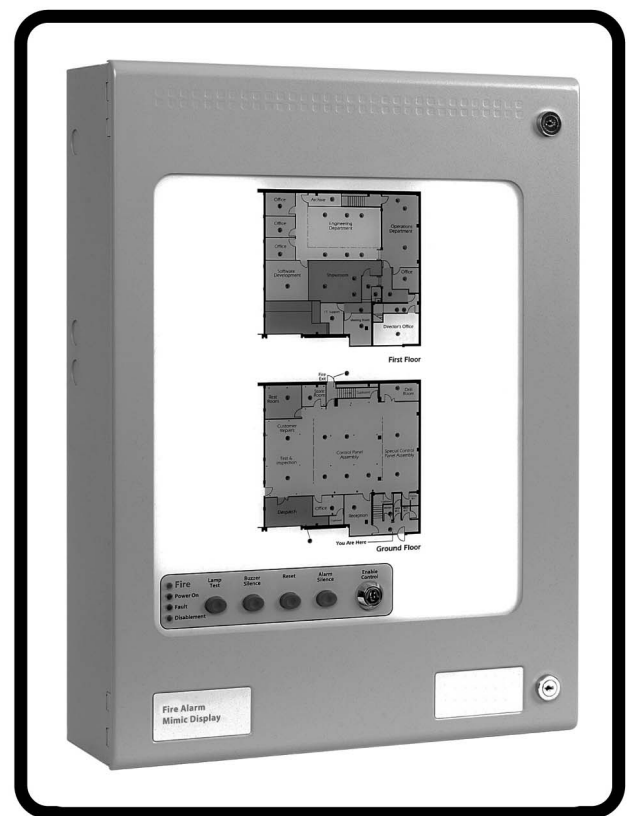
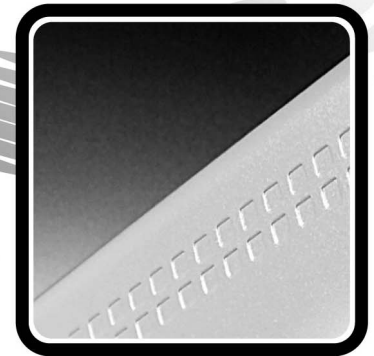


Syncro Matrix

Fire Alarm Mimic Display

Operation and Maintenance Manual

Man-1121 Issue 03 October 2009



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1. Introduction

Syncro Matrix mimic panels provide a flexible and expandable solution for geographical fire alarm system mimic panels via a simple two wire data link connected to Syncro (with firmware version 5.90 or above) or Syncro AS (with firmware version V5.22 or above) fire alarm control panels. Mimic panels require Loop Explorer version 4.9 or above for configuration.

The modular nature of Syncro Matrix Mimic panels, allows mimics with up to 500 indicators to be realised very simply and with the ability to add, remove or change the position of indicators with no wiring necessary by a unique method of flexible light pipes.

2. Safety

Suppliers of articles for use at work are required under section 6 of the UK, 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.

Some models of this equipment are designed to be operated from 230V, 50Hz mains supplies and are of class 1 construction. As such these models **must** be connected to a protective earthing conductor in the fixed wiring of the installation and a readily accessible double pole disconnect device meeting the requirements of EN60950/IEC950 which disconnects live and neutral simultaneously shall be incorporated in the fixed wiring.

Switch disconnect devices such as MK Sentry 63A or similar are suitable for this.

Failure to ensure that all conductive accessible parts of the mains powered models of this equipment are adequately bonded to the protective earth will render the equipment unsafe.

This equipment is designed for indoor use only and at temperatures between -5C (+/- 3) and +40C (+/- 2) and with a maximum relative humidity of 95%.

The IP rating for the enclosure is IP30.

Operation outside of these limits may render the equipment unsafe.

3. Mounting

The unit should be mounted on a dry, flat surface, at eye height to the centre of the display and in a level position such that the enclosure is not distorted.

The mimic should be mounted within 1200 metres of the Syncro or Syncro AS control panel and be connected using a cable suitable for RS485 communications data at 19200 baud.

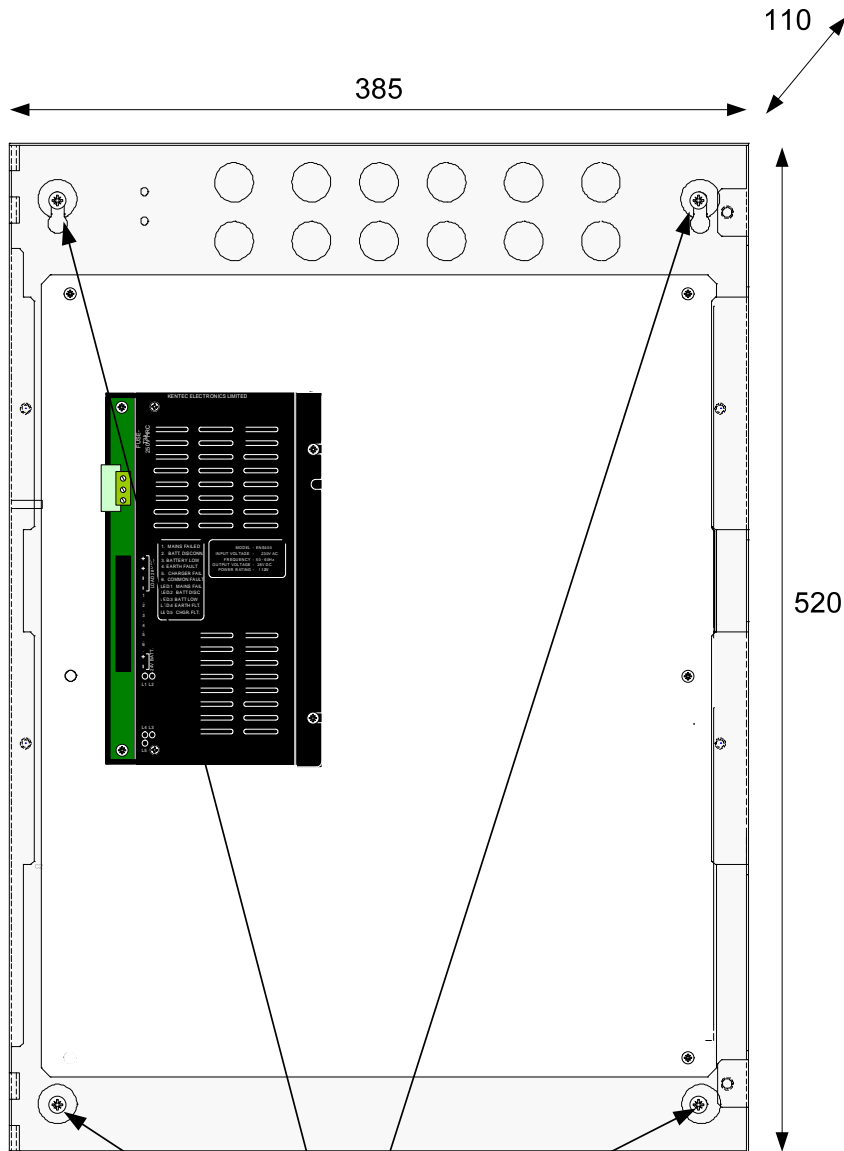
Screws or bolts of a minimum of 5mm diameter must be used to mount the enclosure in all four mounting positions.

It should be mounted in an accessible position as agreed with the end user.

The unit should not be mounted in another enclosure or near sources of excessive heat.

Cables should be connected using suitable, 20mm cable glands fitted to the knockouts provided.

If additional cable entry points are required, all swarf and debris caused by drilling of additional cable entries must be cleared before power is applied to the unit.



Mount with 5mm screws
in all four fixing positions

(Unit shown here is mains powered type)

4. Specifications

The information in the table below is for the standard range of Syncro Matrix Mimics with up to 56 LEDs in the standard 385mm X 520mm enclosure.

Some details are common to all models of Syncro Matrix Mimics.

| | |
|---|---|
| Mains supply (230V Versions only) | 230V AC +10% - 15% (100 Watts maximum) |
| Mains supply fuse (230 V Versions only) | T2A L250V Replace only with similar type |
| Power supply rating (230 V Versions only) | 4 Amps total including battery charge 28V +/- 2V |
| Maximum ripple current (230 V Versions only) | 200 millivolts |
| Battery type (Yuasa NP) (230 V Versions only) | Two 12 Volt sealed lead acid (7Ah maximum) |
| Battery charge voltage (230 V Versions only) | 27.6VDC nominal (temperature compensated) |
| Battery charge current (230 V Versions only) | 1.5A maximum |
| Maximum current draw from batteries (230 V Versions only) | 3 Amps. With mains power source disconnected |
| Quiescent current | See section 8 |
| Supply voltage (24V versions) | 21 to 30V DC |
| Supply current | See section 7 |
| Terminal capacity | 0.5mm ² to 2.5mm ² solid or stranded wire |
| Enclosure Size | 385W X 520H X 110D |
| Mimic area | 303W X 340H |
| Construction | 1.2mm mild steel epoxy powder coated BS 00A 05 mid grey fine texture (Mimic 3mm Perspex™) |
| Controls (if fitted) | Enable controls, Lamp Test, Buzzer Silence, Reset, Silence alarm |
| Common indicators (if fitted) | Fire (red), Power On (green), Fault (yellow), Disablement (yellow) |
| Enable keyswitch | Standard 901 key |
| Cabinet locks | Two, standard 801 key |
| Communications interface | RS485 – Syncro/Syncro AS serial I/O bus protocol |
| Number of indicators (standard models) | up to 8, up to 24, up to 40 or up to 56 |

5. Common indications and controls

Versions of Syncro Matrix Mimic panels are available with or without common indications and controls.

Versions with common indicators have the following standard indicators:

FIRE – Lights whenever a fire condition is present on the panel to which the mimic panel is connected

POWER ON – Indicates that the mimic panel is supplied with power

FAULT- Lights whenever a fault condition is present on the panel to which the mimic panel is connected

DISABLEMENT - Lights whenever a disablement condition is present on the panel to which the mimic panel is connected

Versions with controls have the following switches:

ENABLE CONTROLS – Keyswitch which enables the RESET and ALARM SILENCE controls

LAMP TEST – Illuminates all indicators when pressed for testing purposes

BUZZER SILENCE – Silence the mimic's internal buzzer

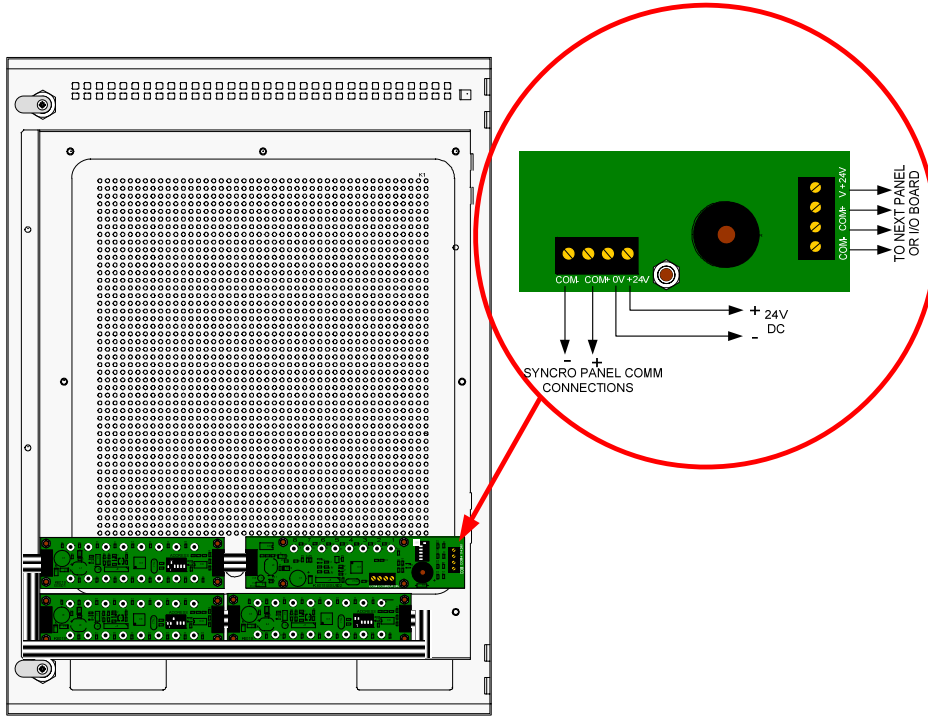
RESET – Resets the Syncro control panel to which the mimic panel is connected

ALARM SILENCE – Silences the sounders on the Syncro control panel to which the mimic panel is connected.

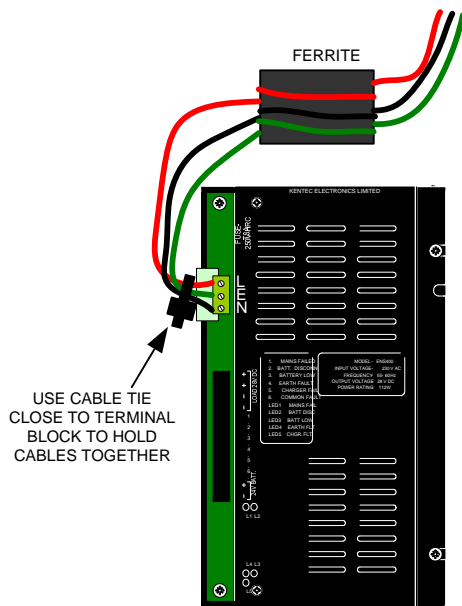
6. Connections

Syncro Matrix Mimics without a built in mains power supply and battery charger, require a four wire connection. Two wires are needed for 24V DC power which should be from a suitably rated source (see section 8) and two wires are required to connect to the COMMS terminals at the Syncro fire alarm control panel.

Syncro Matrix mimic panels with a built in power supply require a 230V mains supply and a two wire data connection to the Syncro fire alarm control panel. The mains and data cables should be segregated by a distance of at least 50mm.



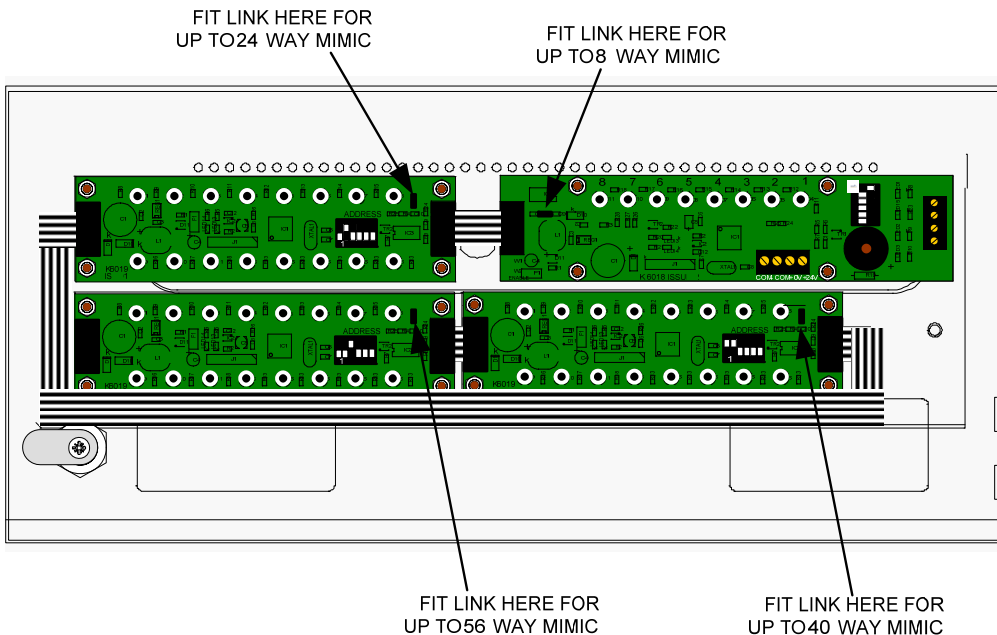
Data cable connection



Mains connection (if required)

RS485 transmission lines need to be terminated for correct operation. All boards that connect to the Syncro serial bus have a jumper link which needs to be fitted to the last board on the RS485 transmission line only.

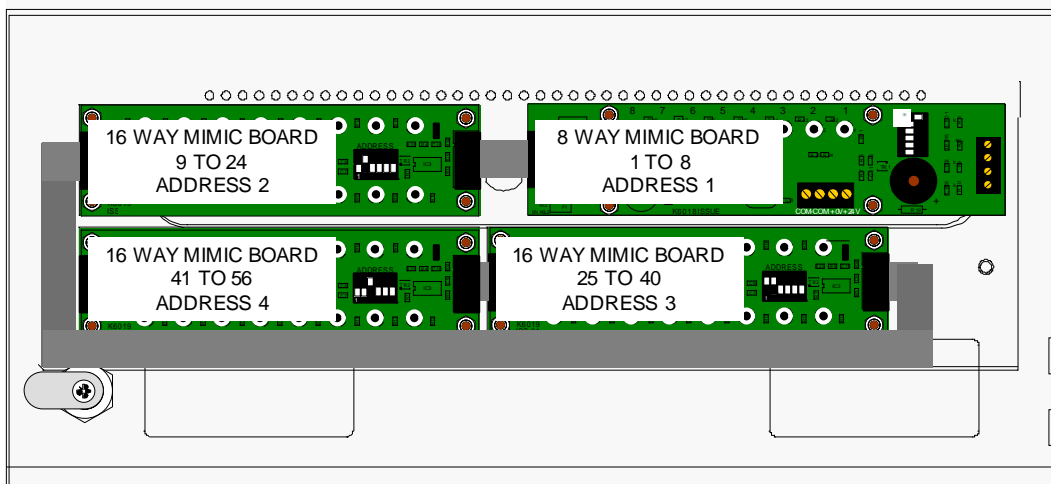
If the Matrix Mimic panel is the last device on the Syncro serial bus, then the jumper link should be fitted as shown on the drawing below. Only one board (the last one connected to the serial bus) should be fitted with a jumper link. If there are additional Syncro I/O boards or View repeaters fitted further down the RS485 transmission line then no links should be fitted to the mimic boards and a link should be fitted to the last I/O board. See I/O board manuals for further information on this.



7. Addressing

Each of the LED driver boards in the Syncro Matrix Mimic must be allocated a unique address number between 1 and 32. These addresses must be different to any other boards or Syncro View repeater panels connected to the Syncro panel RS485 transmission line. The address is set by a binary coded DIL switch on each board.

This example shows addresses 1 to 4 set on a 56 way Mimic panel.



All 32 possible addresses are shown below.

| ADDRESS | SWITCH POSITIONS | ADDRESS | SWITCH POSITIONS |
|---------|------------------|---------|------------------|
| 1 | | 17 | |
| 2 | | 18 | |
| 3 | | 19 | |
| 4 | | 20 | |
| 5 | | 21 | |
| 6 | | 22 | |
| 7 | | 23 | |
| 8 | | 24 | |
| 9 | | 25 | |
| 10 | | 26 | |
| 11 | | 27 | |
| 12 | | 28 | |
| 13 | | 29 | |
| 14 | | 30 | |
| 15 | | 31 | |
| 16 | | 32 | |

8. Power requirements

Versions of the Syncro Matrix Mimic without a power supply and battery back up facility, need 24V DC power from a suitable, EN54-4 approved battery backed power source. This must be sufficiently rated to provide power for the maximum number of LEDs and with batteries of a suitable size to provide power for the standby period required.

The table below shows the power required in standby and full alarm condition for the range of Syncro Matrix Mimics with up to 56 indicators.

| NUMBER OF LEDs | STANDBY CURRENT | FULL ALARM CURRENT | BATTERIES FOR 24 HOURS | BATTERIES FOR 48 HOURS |
|----------------|-----------------|--------------------|------------------------|------------------------|
| 24 | 0.026 | 0.09 | 0.88Ah | 1.76Ah |
| 56 | 0.052 | 0.18 | 1.75Ah | 3.5Ah |
| 88 | 0.78 | 0.36 | 11Ah | 22Ah |

The battery size in Ampere hours is calculated as follows:

$$(\text{Standby period in hours} \times 1.25) \times (\text{Standby current} + ((\text{Full Alarm current}/2) \times 1.75))$$

Versions of the Syncro Matrix Mimic that have an integral power supply require 230V AC mains power. Standby battery capacity is calculated as above.

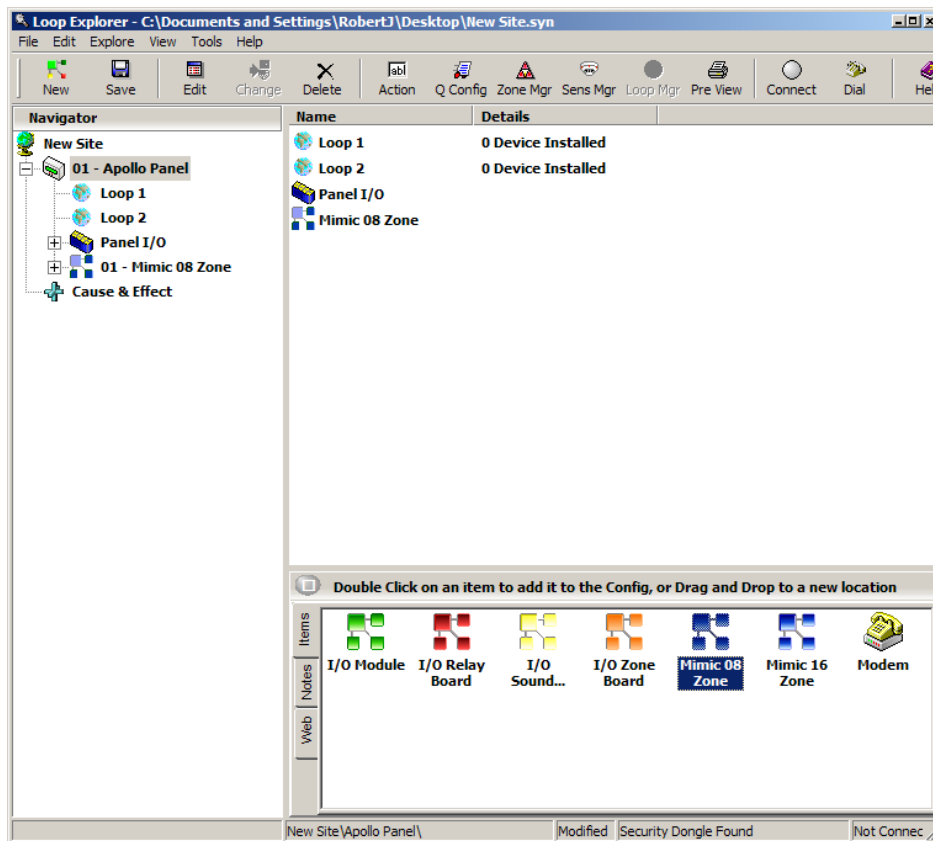
The power supply fitted to standard Syncro Matrix Mimic panels is an EN54-4 approved ENS400 model rated at 4 Amps.

9. Configuration

Mimic panels are configured using the Loop Explorer configuration programme (version xxxx or above).

All mimic panels consist of an 8 way LED board (which also contains the common LEDs and pushbuttons if fitted). If the mimic has more than 8 ways, additional 16 way LED boards up to a maximum total number of 32 boards may be fitted.

To add the 8 way mimic LED board to a Loop Explorer configuration file, highlight the control panel icon on the left and then double click on the 8 way board icon as shown highlighted below. The 8 way mimic board will appear in the left hand column as 01- Mimic 08 zone.



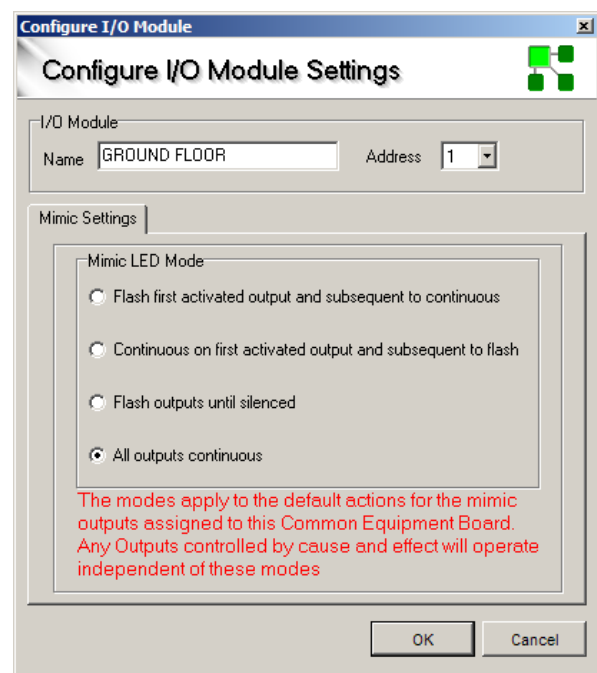
This board will automatically be addressed as number 1 and will have the default operation attribute (all outputs on continuously when activated).

By right clicking the Mimic icon in the left hand column and selecting "edit settings" the board can be configured as required.

It can be allocated a different address (this must match the address physically set on the DIL switch on the board).

The board can also be given a more meaningful, 15 character name which matches the location of the mimic panel such as "Ground floor" etc and the way in which the LEDs behave can also be selected to suit the application.

Four different modes of operation can be chosen here.



All outputs continuous -

This is the default mode and is how the mimic will operate if no other option is chosen. In this mode, whenever an LED output operates, it will light continuously as will successive LEDs. All LEDs will remain lit irrespective of whether the alarm condition has been silenced either at the main control panel or on a mimic panel.

Flash outputs until silenced -

Any LED operated in this mode will flash until the alarm silence button is pressed either at the main control panel or at a mimic panel. When an alarm silence button is pressed, the flashing LED will light continuously. Further alarms will flash the LEDs associated with them until the alarm is silenced again.

If the re-sound alarm button is pressed at the main control panel, any LEDs that were flashing and have become steady will flash again.

Continuous on first activated output and subsequent to flash -

When this mode is chosen, the first LED operated will light continuously and subsequent LEDs operated will flash. Pressing the silence alarm button will not have any effect on the LEDs.

Flash first activated output and subsequent to continuous -

When this mode is chosen, the first LED activated will flash and subsequent LEDs operated will light continuously. Pressing the silence alarm button will not have any effect on the LEDs.

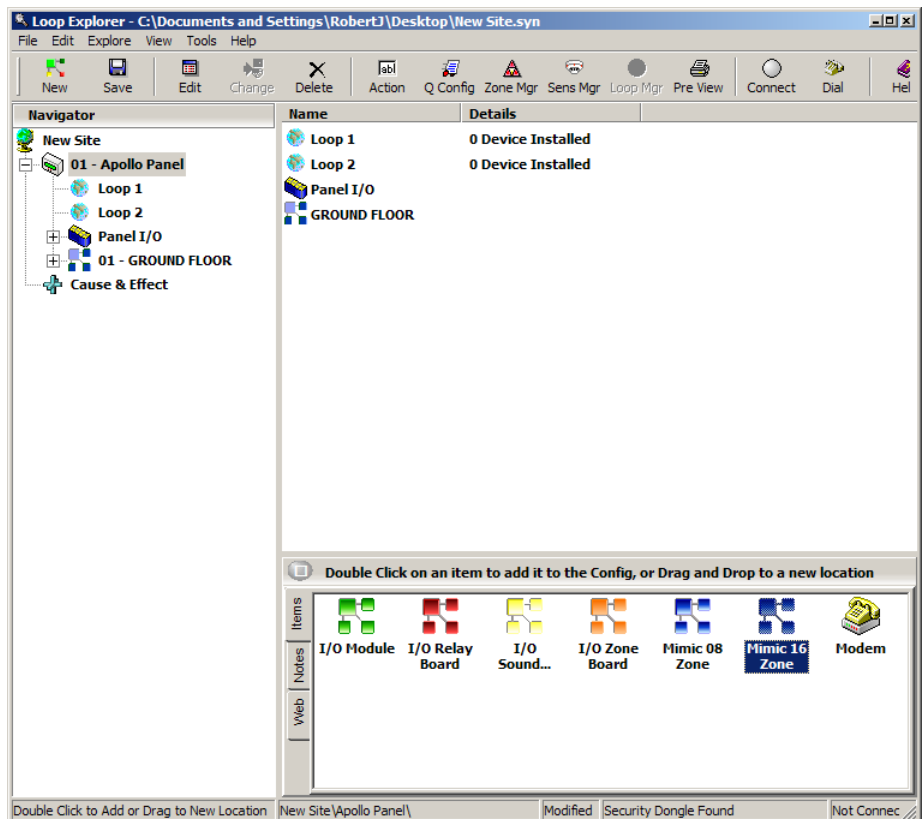
If LED outputs are controlled by cause and effects then the LED operation will be either flashing or continuous as defined in the cause and effect. All of the above modes will be overridden.

If outputs are configured to flash when operated by cause and effects, they will turn off when an alarm silence button is pressed and flash again when resound alarm is pressed.

If outputs are configured to be continuous when operated by cause and effects, they will switch off when an alarm silence button is pressed and will switch on again if resound alarm is pressed.

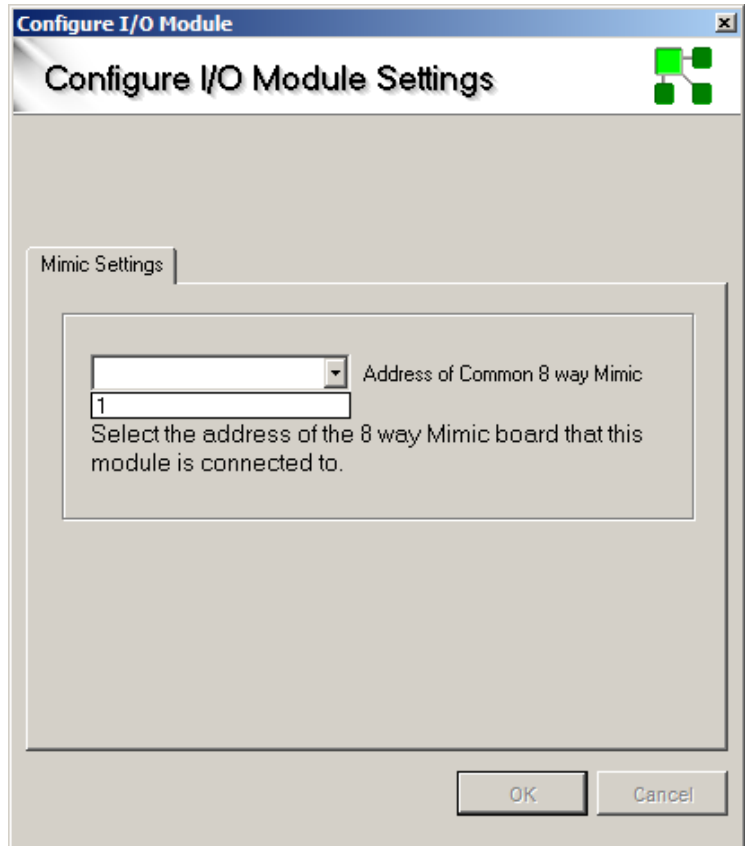
If the mimic has more than 8 LEDs, then one or more 16 way boards will be fitted and will need to be added to the configuration file.

To add a 16 way mimic board, highlight the control panel in the left hand column as before and double click on the "Mimic 16 Zone" icon at the bottom.

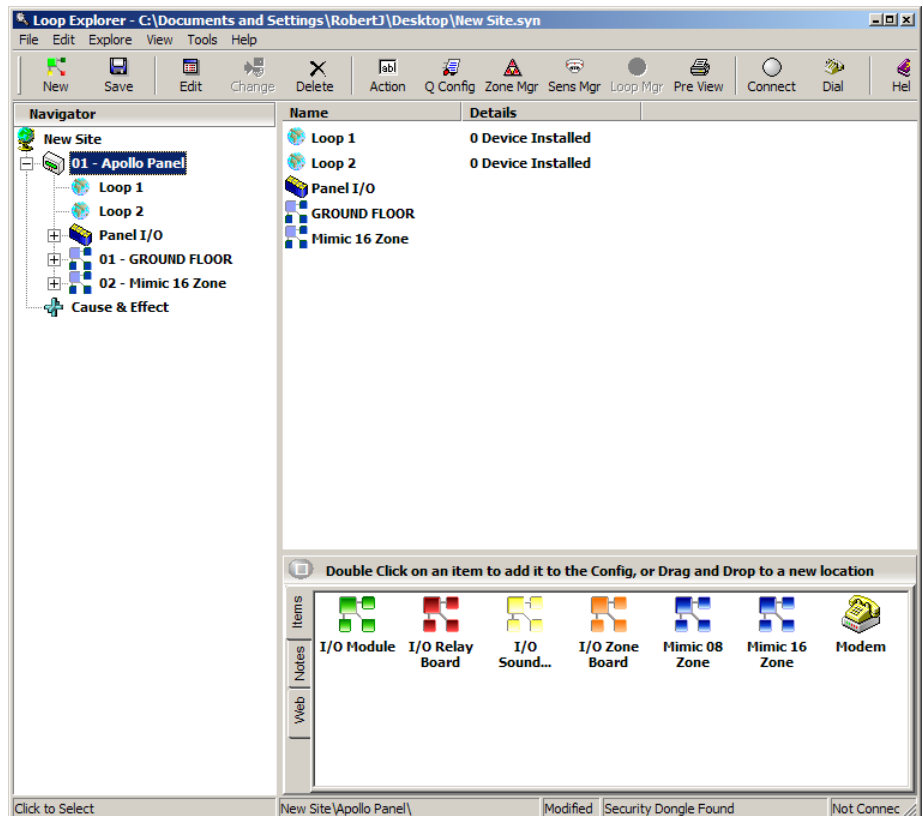


It is possible to have more than one mimic panel on a system and each one will have its own 8 way mimic board, so when 16 way boards are added, Loop Explorer will ask for the address of the common 8 way mimic board to which the 16 way board will be connected.

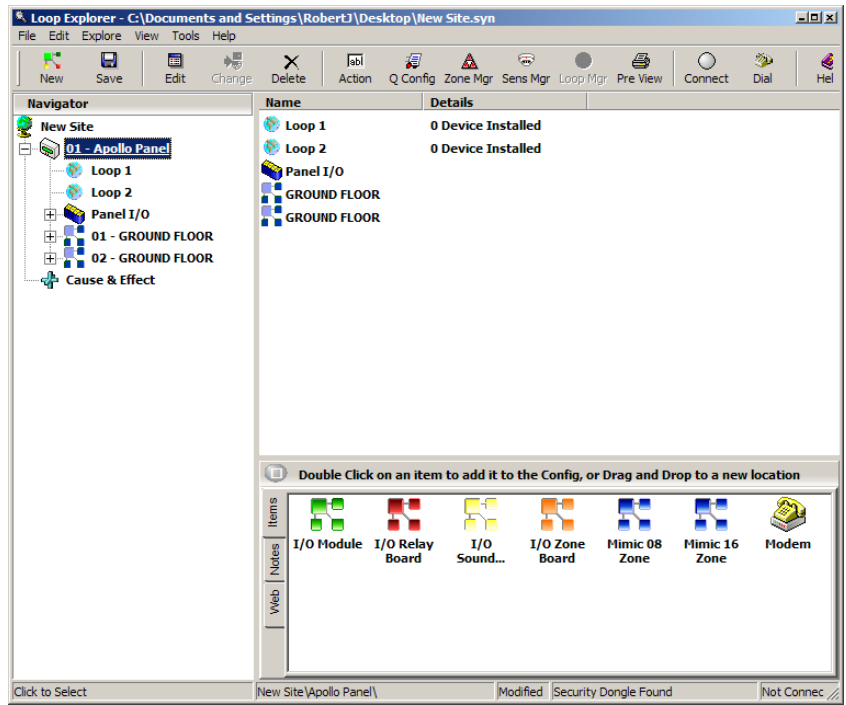
In the example shown here, there is only one 8 way mimic board which is set to address 1 but if more 8 way boards are fitted the addresses of all of the 8 way boards will be shown in the drop down box allowing the appropriate 8 way board to be selected.



The example now shows the configuration file for a mimic with one 8 way board and one 16 way board so this mimic is capable of having up to 24 LEDs.



To make it clear that the 16 way board just added, is part of the same mimic panel as the 8 way board previously added, the 16 way board can also have a 15 character name allocated by right clicking the 16 way board icon on the left. The example below now shows the 8 way board and the 16 way board with the same name indicating that they are part of the same mimic panel.



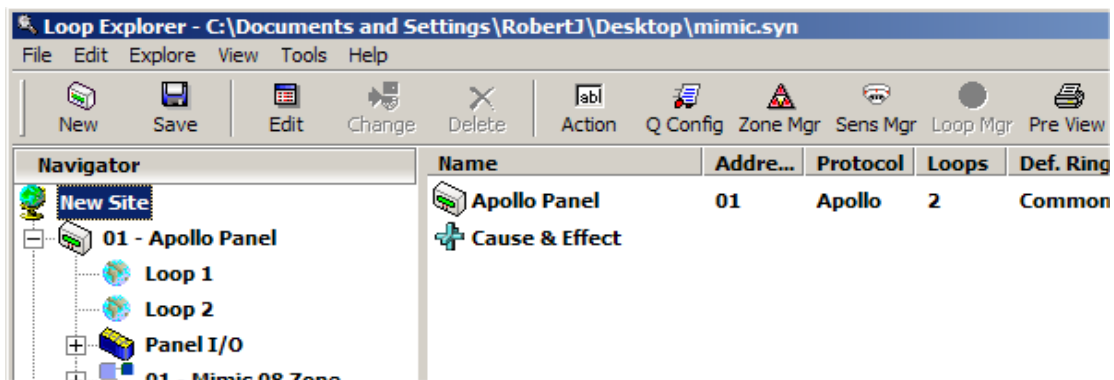
When mimic boards are added to a configuration file, the 8 channels of 8 way boards are set by default to operate upon a fire condition (Default ring mode) and allocated to zones 1 to 8 respectively.

Similarly, when 16 way mimic boards are added, these are set to operate upon a fire condition and are allocated to zones 9 to 24 respectively.

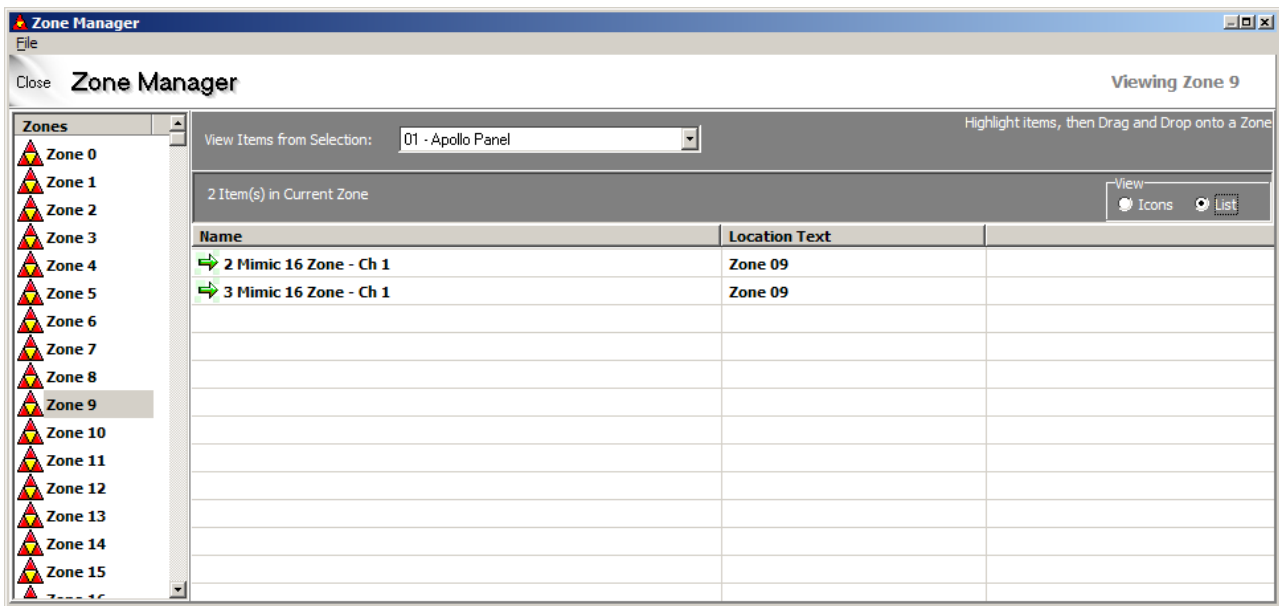
These default settings will enable a simple, zonal fire mimic panel with up to 24 LEDs which operate continuously upon any fire alarm, to be configured very simply using the default settings.

When further 16 way mimic boards are added, these will also be allocated to zones 9 to 24 and will need to be configured to the correct zones.

The simplest way to do this is to use Zone Manager in the Loop Explorer programme.



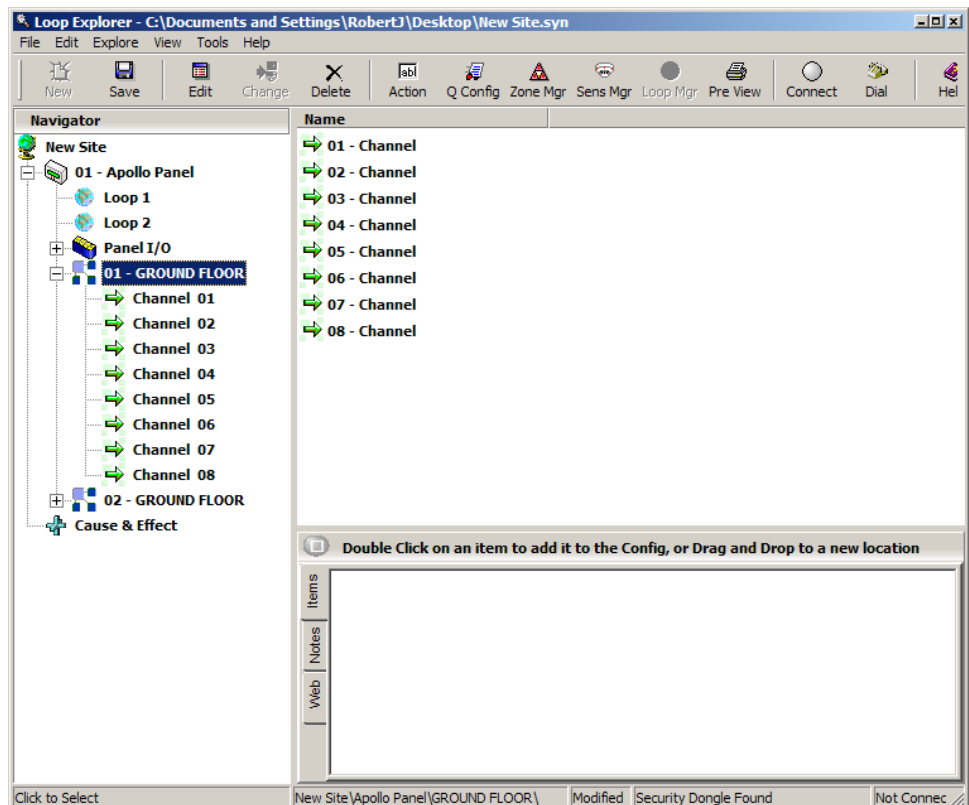
Click on the Zone Mgr icon in the menu bar at the top of the window and select the list view, then click on zone 9.



The second 16 way mimic board (3 Mimic 16 zone) will have channel 1 in zone 9 by default. This can be dragged and dropped into the required zone (zone 25 would be logical in this example).

By clicking in all of the zones up to 24, the channels of the second 16 way mimic board can be moved to the required zones with this simple drag and drop method.

Alternatively, the channels (LED outputs) of the mimic boards can be configured independently. To edit a channel of a mimic board, double click the board to be edited to expand the tree and reveal the individual channels.

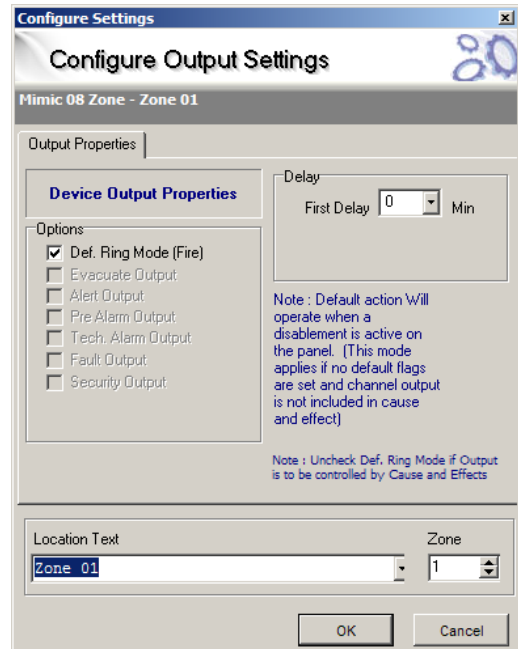


Double clicking one of the channels displays a dialogue box where attributes for the individual channels of the mimic board can be set.

The default setting is "default ring mode" which means that the channel will operate upon a fire condition, no delay, zone number and location text (matches zone number). Changing the Default ringing mode in the panel settings (common, zonal or 2 -stage

Most mimic panels will be used to indicate a zonal fire condition and in this case, if the indication required is zonal, there is no need to change any of the device output properties. A zone name may be allocated if required.

Some mimic panels however may require LEDs to be operated by particular devices, inputs or groups of devices and inputs. In this case, it will be necessary to write a cause and effect in the Loop Explorer programme to control the output.

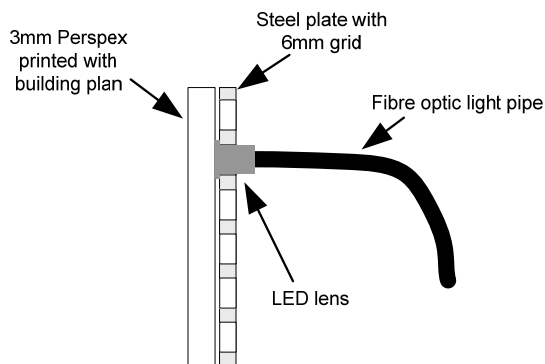


IF THE OUTPUT IS TO BE CONTROLLED BY CAUSE AND EFFECTS Def.Ring Mode (Fire) SHOWN UNDER DEVICE OUTPUT PROPERTIES MUST BE UNTICKED.

10. Changing or adding LED positions

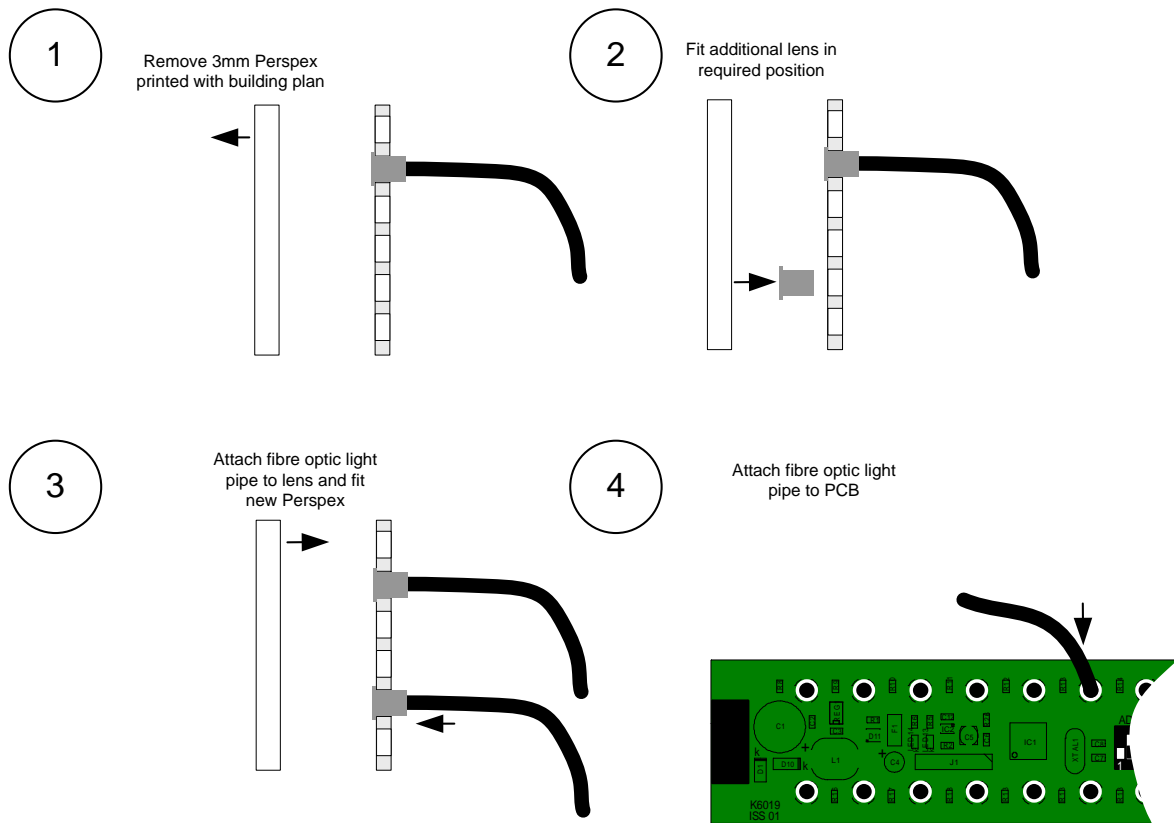
The construction of Syncro Matrix Mimic panels is such that it is simple to add, remove or change the position of LED indicators without the need for special tools or wiring.

The indicators are fitted to a steel plate which has a matrix of holes on a 6 millimetre grid. The steel plate is covered by the printed building plan which reveals only the areas of the plate where indicators are fitted. If changes or additions are made to the building plan, a new building plan can be produced and fitted to an existing Syncro Matrix mimic panel.



Syncro Matrix Mimic Construction

To add or change the position of an indicator, follow the four steps shown below.



Fitting additional indicators

Parts required for adding or changing LED positions on Syncro Matrix Mimic panels:

Acrylic Drawing with or without controls.

S707 – Additional 16 way LED board (RED)

S715 – Additional 16 way LED board (YELLOW)

S716 – Additional 16 way LED board (GREEN)

B2522 – Fibre optic cable (1 metre length)

B2531 – Lens

B5712 – Fibre optic cable cutting tool

11. Maintenance and testing

The mimic panel should be periodically tested at the same time as the rest of the fire alarm system in a systematic manner which ensures that all indicators show the correct information. Mimic panels with controls, have a lamp test facility which can be used to verify that all indicators and the internal buzzer are working correctly. The silence buzzer, silence alarm and reset controls should also be tested periodically.

The mimic panels require little or no maintenance other than to ensure that the fascia is clean and clear of obstructions. If required, the fascia can be wiped with a barely damp cloth. Cleaning solutions other than those specifically designed for plastics such as anti static spray cleaners should not be used.

Mains powered versions of the mimic panels contain sealed lead acid batteries which are float charged. The batteries can be expected to provide adequate service for 3 to 4 years and should be tested annually in accordance with the manufacturer's recommendations. Batteries should be replaced with the same type at the end of their useful life.