



# **IDR-M**

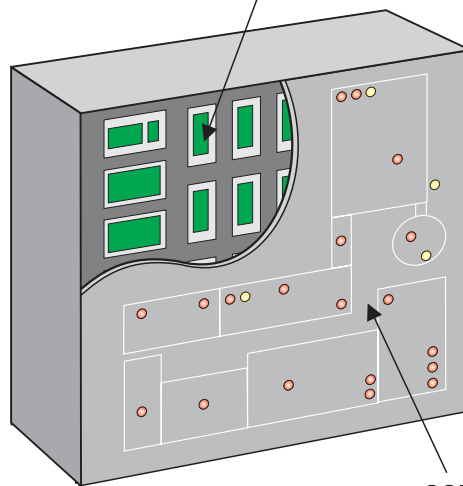
997-412-000-3, Issue 3 June 2005

**mimic installation  
and  
commissioning  
manual**

# Quick Contents Reference by Section

**INTRODUCTION -  
See Section 1**

**INSTALLATION -  
See Section 2**



**COMMISSIONING -  
See Section 3**

**Also:**

**SPECIFICATION - See Appendix 1**

**CALCULATING BATTERY REQUIREMENTS - See Appendix 2**

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## 1 Introduction

This manual provides the user with all recommended procedural descriptions and full technical details for the successful installation, commissioning, configuration and operation of an IDR-M mimic.

Procedures described in this manual include appropriate warnings and cautions to guide the user towards adopting safe and methodical work practices during the installation and commissioning phases.

### Important Note

This manual must be read, and its content clearly understood, before proceeding with any work relating to the IDR-M mimic. Damage to the mimic display and/or the fire control panel(s) may result from NOT following the recommended procedures described in this manual.

If there are any areas of doubt, consult your supplier **before** continuing with the system installation, commissioning or configuration.

### 1.1 CE Marking

The IDR-M mimic is CE Marked to show that it conforms to the requirements of the following European Community Directives:

- Electromagnetic Compatibility Directive 89/336/EEC (and the amending Directives 92/31/EEC and 93/68/EEC).



## 1.2 System Design and Planning

It is assumed that the system, of which the IDR-M mimic is a part, has been designed by a competent fire alarm system designer in accordance with the requirements of EN54 Part 14 and any other local codes of practice that are applicable.

## 1.3 General

The IDR-M mimic can be used with the following fire control panels:

- a. ID2000 Series.
- b. ID3000 Series.
- c. ID50.

The IDR-M mimic can have up to eight IDR-MD Driver boards. Each Driver board has:

- a. 64 output channels, arranged in two banks of 32. Each bank has four groups of eight outputs, and each group can drive either LEDs or relays, dependant upon a jumper link selection on the board. The groups are configured independently (i.e. on the same bank and/or board, some groups may drive LEDs and others relays). Outputs *within* a group cannot be configured independently.
- b. 8 I/O lines. These can be configured to drive additional relays or to read switches (first board only), depending upon the configuration method used during commissioning (see below).

### Installation

The IDR-M mimic is easy to install providing the recommended procedures described in this manual are followed. To avoid inadvertent contamination of the mimic PCB assemblies, the manufacturer recommends they be installed in the enclosure only after all other trades have completed their tasks.

### Commissioning

To commission the IDR-M mimic, follow the recommended procedures described in this manual. The IDR-M mimic can be configured by one of two methods:

- a. Setting hardware switches to relate the mimic displays to zonal events. In this case the IDR-M mimic can only indicate the status of one stand-alone fire control panel.
- b. Use of the IDR Configuration Tool to set software rules which relate the mimic displays to zonal or non-zonal events. The Tool provides a higher level of flexibility than that available using the hardware switches.



**Only fit the mimic display PCB assemblies after all the other trades have completed their tasks!**

## 1.4 Related Documents

This manual only describes the IDR-M mimic. Refer to the documentation supplied with the fire control panel for information about that panel. Information about the IDR Configuration Tool is given in a soft-copy manual supplied with the Tool.

## 1.5 Warnings and Cautions

Where appropriate, this manual includes advisory warnings and cautions to remind you to consider safety at all times, especially when following the procedures given herein (see example to the left of this paragraph).

You are alerted to any areas where there may be a risk of damage to static-sensitive devices if the recommended procedures described in this manual are not followed.

An example of an anti-static caution is provided to the left of this paragraph.

## 1.6 Tips


'Handy tips' are included, where appropriate, to assist you in following quick and safe procedures for system installation and integration. Look for the 'TIP!' icon and supporting text, typically illustrated at left.



To avoid damage to the IDR-M mimic and to the fire control panel ensure that you follow these instructions



Static Sensitive Devices!  
Use anti-static wrist strap when carrying out these procedures



**TIP!**  
0V for inputs and 28V for outputs are available at J5

## 2 Installation Guide

This Installation Guide is intended to provide you with simple guidelines on how to install an IDR-M mimic quickly and safely.

For each stage in the IDR-M mimic installation and commissioning procedures a brief description is given of its purpose, complete with detail drawings and/or other graphics to make the instructions easy to follow.

### 2.1 Pre-Installation Check List

Before installing the IDR-M mimic you must first ensure that the following criteria have been met. Failure to do this may not only result in damage to the equipment, but may also cause problems when commissioning the equipment or adversely affect its performance.

#### 2.1.1 Some DO's and DON'T's

Before selecting a location for the IDR-M mimic, DO make sure that:

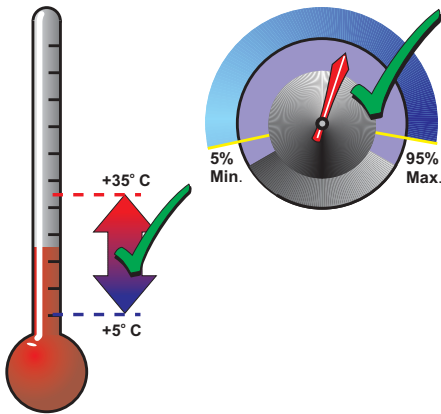
- a. The operating ambient temperature is in the recommended range:

**+5° C to +35° C** and

- b. The relative humidity is between:

**5% and 95%**

- c. The IDR-M mimic is wall mounted in a position which allows clear visibility of any configured displays. The height above floor level should be chosen such that the displays can be easily viewed.

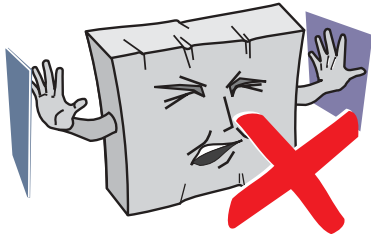




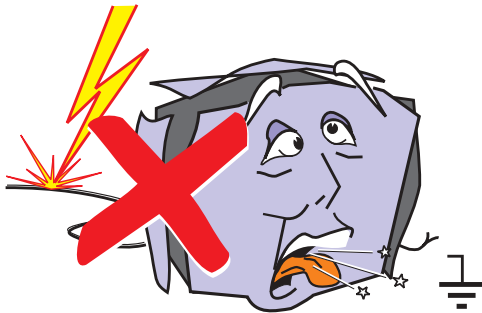
d. DO NOT locate the IDR-M mimic where it is exposed to high levels of moisture.



e. DO NOT locate the IDR-M mimic where there are high levels of vibration or shock.



f. DO NOT site the IDR-M mimic where there would be restricted access to the internal equipment and cabling/wiring connections.



## 2.2 Transient Protection

This equipment contains transient-protection devices. Although no system is completely immune from lightning transients and interference, for these devices to function correctly, and to reduce susceptibility, this equipment **must** be earthed correctly.

As with all solid state devices, this system may operate erratically or can be damaged if subjected to lightning-induced transients.

The use of overhead or outside aerial wiring is not recommended due to the increased susceptibility to nearby lightning strikes.





To avoid damage to the IDR-M mimic and to the fire control panel ensure that you follow these instructions

## 2.3 Installation

The IDR-M mimic is relatively simple to install provided the recommended procedures described in this Installation Guide are followed.

**Follow all installation instructions described in this manual. These instructions must be understood and the manufacturer's recommendations followed to avoid damage to the IDR-M mimic and to the fire control panel and associated equipment.**

### 2.3.1 Checking Your Equipment for Damage

**It is important to check all supplied equipment for damage before proceeding with the installation!**

Before attempting to install your IDR-M mimic, you should do the following:

- 1 After removing each component (dependent upon your configuration) from its packaging, and before you proceed with the installation, check for any damage that may have been caused while in transit.

**Note:** In the unlikely event that any of the components of the IDR-M mimic have been damaged, you **MUST NOT** install it but return it to your supplier. The procedure for returning faulty items is described in **Section 2.3.2, What to do if Your Equipment is Damaged or Suspect.**

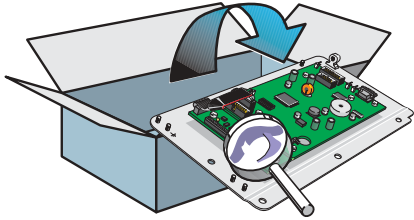
- 2 If you are satisfied that none of the components of the IDR-M mimic have been damaged you can now commence the installation procedure. This manual addresses the recommended installation methods for the IDR-M mimic. Refer to the relevant sections that apply to your configuration requirements.

To prevent unnecessary damage to the electronic components, the IDR-M mimic PCBs should only be installed in an enclosure AFTER that enclosure has been fitted to the wall.

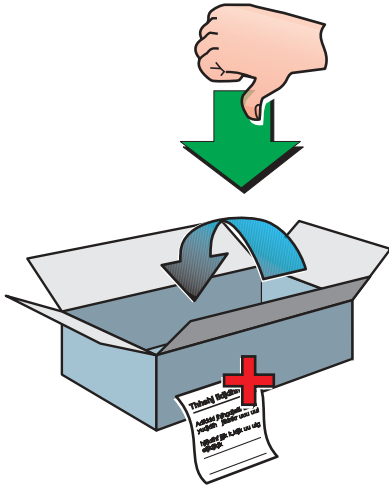
### 2.3.2 What to do if Your Equipment is Damaged or Suspect

If you have problems regarding the quality of any supplied mimic components or this manual, or items are missing, follow the procedure below:

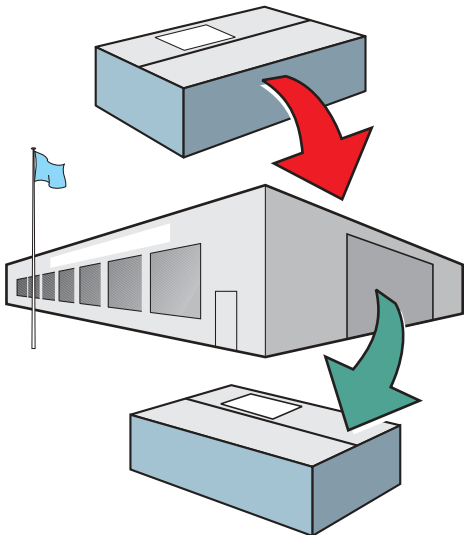
1



2



3



- 1 DO NOT continue with the installation but contact your supplier for advice on what to do next.

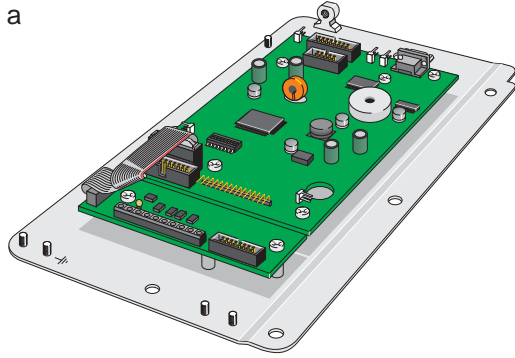
Similarly, if the product is found to be faulty during installation contact your supplier immediately.

- 2 To aid your supplier and the manufacturer, you are requested to note all the details relevant to your complaint, date of receipt, packaging condition, etc. and forward this to your supplier.

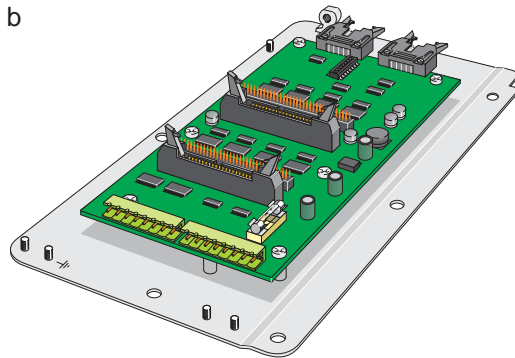
- 3 Where the product needs to be returned to your supplier, you are requested to use the original packaging wherever possible.

## 2.4 Mimic Display Components

The IDR-M mimic consists of the following components:



- a. IDR-M Control and Termination kit. This comprises a Control board and a Termination board co-located on one metal chassis. The Control board contains the processor and memory, and the Termination board allows connection of power, RS485 and other external signals. The Control board communicates with up to eight Mimic Driver boards.



- b. IDR-MD Mimic Driver kit. This comprises a Mimic Driver board and two Mimic Termination boards, each mounted on a discrete metal chassis. Up to eight Mimic Driver boards can be driven by one Control board. Connection between each 'daisy-chained' Mimic Driver board, and between the Control board and the first Mimic Driver, is via a Serial to Parallel Interface (SPI) bus (refer to drawing on next page). A 10-way ribbon cable is supplied for the interconnection of:

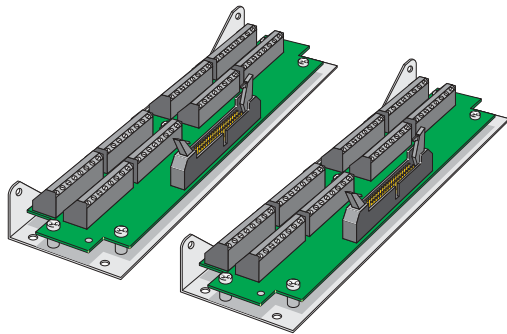
- i) The first Mimic Driver board and the Control board, or
- ii) The Mimic Driver board and the previous 'daisy-chained' Mimic Driver board.

Two 40-way ribbon cables are supplied for interconnection between the Mimic Driver board and two Mimic Termination boards.

Each Mimic Driver board contains terminals to which the LEDs or relays should be wired.

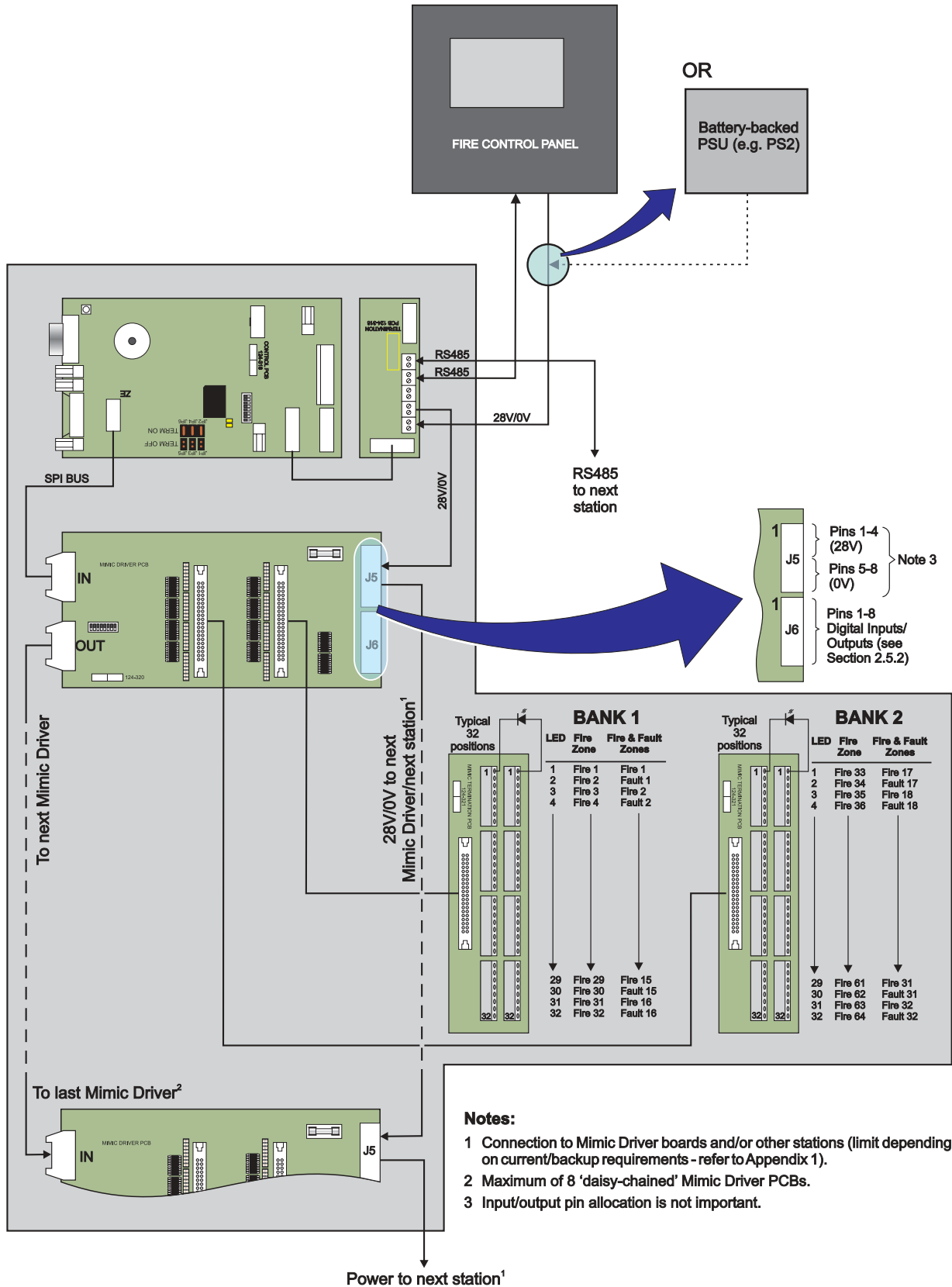
**Note:** The LEDs/relays, enclosure and fascia are not supplied.

Each IDR-MD Mimic Driver kit also contains two M4 Nyloc locking nuts for securing the chassis of interlocking Mimic Driver assemblies, if required - refer to the instruction sheet provided with the kit.



2.4.1 Typical Configuration - LEDs and I/O

A typical interconnection of IDR-M boards (together with connections for LEDs and identification of the I/O connectors) is given below. Jumper links must be set as described in Section 2.5.2.

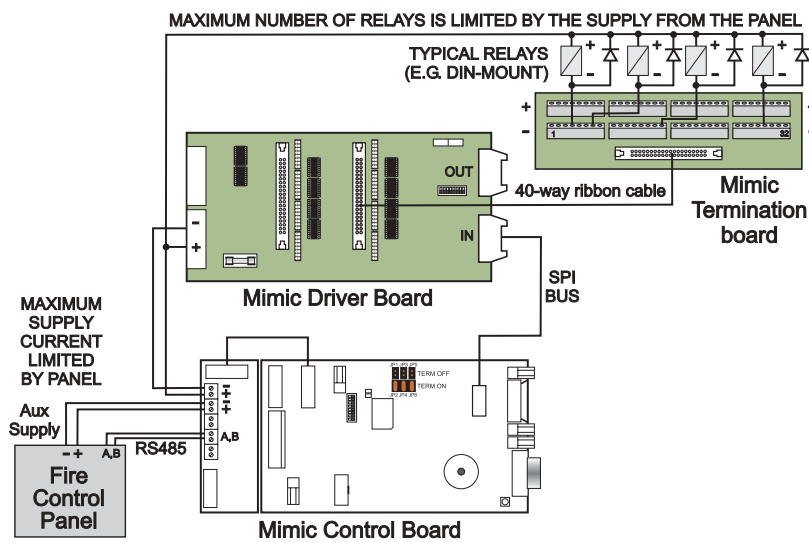


### 2.4.2 Typical Configuration - Relays

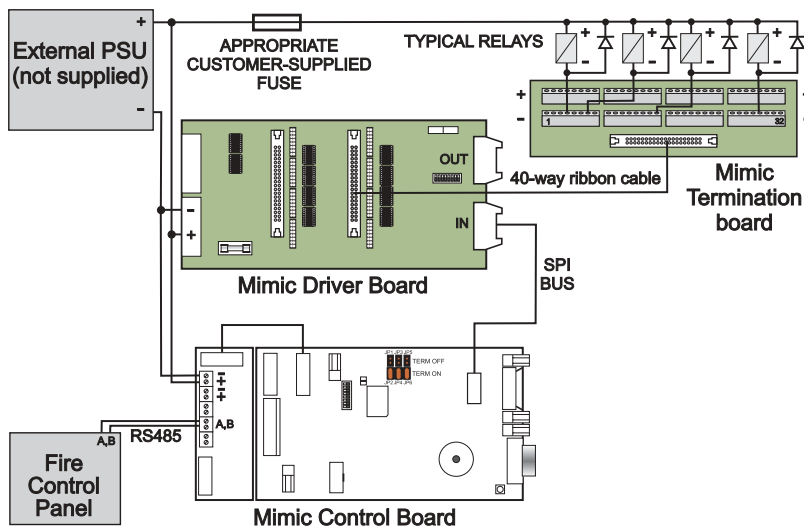
Typical interconnections when the output channels are used to drive relays are given below. The method of interconnecting IDR-MD Driver boards via the SPI bus and identification of the channels on the Mimic Termination boards is identical to that given in **Section 2.4.1** and is not repeated here. For simplicity, only one Driver board and one Mimic Termination board is shown in each example.

Jumper links must be set as described in **Section 2.5.2**.

Relays can also be connected to the I/O lines on the Mimic Driver Board - see **Section 2.5.2**.



Mimic adjacent to Panel



Mimic remote from Panel

## 2.5 Installation Procedure

### 2.5.1 IDR-M Control Board Kit

#### 2.5.1.1 Termination Board Connections

The following connections are required:

- a. 28V (18-32V) dc and 0V supply, from previous mimic, or from panel, or from external source.

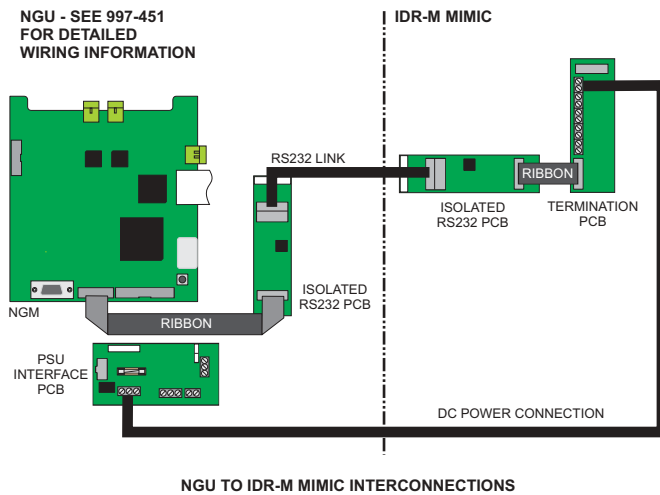
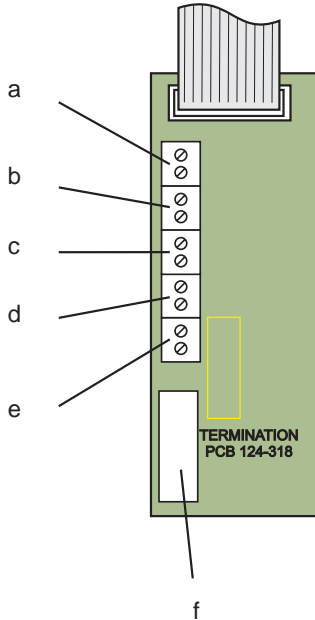
**Note:** The Fire Control panel auxiliary outputs must not be used if the current requirement of the mimic(s) is >0.5A.

- b. 28V (18-32V) and 0V output to next mimic.
- c. Power Fail (PF) input. This is not used by the IDR-M.
- d. RS485 serial data link (A and B) from the previous station in the network (where 'station' is a fire control panel, repeater or mimic).
- e. RS485 serial data link (A and B) to the next station in the network.

- f. RS232 ribbon cable [used in place of (d) and (e) above when IDR-M is connected to ID<sup>2</sup>net via a Network Gateway Unit (NGU)]. Connection to the NGU is made via two Isolated RS232 Boards (see below left). The ribbon cable is supplied with the Isolated RS232 Board.

The ribbon cable connection to/from the Mimic Control board is already provided.

For ease of wiring, all connections are identified in the silk screen on the PCB.



Address	Switch settings (1=on)					
	1	2	3	4	5	6
1	1	0	0	0	0	0
2	0	1	0	0	0	0
3	1	1	0	0	0	0
4	0	0	1	0	0	0
5	1	0	1	0	0	0
6	0	1	1	0	0	0
7	1	1	1	0	0	0
8	0	0	0	1	0	0
9	1	0	0	1	0	0
10	0	1	0	1	0	0
11	1	1	0	1	0	0
12	0	0	1	1	0	0
13	1	0	1	1	0	0
14	0	1	1	1	0	0
15	1	1	1	1	0	0
16	0	0	0	0	1	0
17	1	0	0	0	1	0
18	0	1	0	0	1	0
19	1	1	0	0	1	0
20	0	0	1	0	1	0
21	1	0	1	0	1	0
22	0	1	1	0	1	0
23	1	1	1	0	1	0
24	0	0	0	1	1	0
25	1	0	0	1	1	0
26	0	1	0	1	1	0
27	1	1	0	1	1	0
28	0	0	1	1	1	0
29	1	0	1	1	1	0
30	0	1	1	1	1	0
31	1	1	1	1	1	0

### 2.5.1.2 Control Board

The connections to this board are shown below.

#### Switch Configuration - RS485 Connection

Set the switches (located at position A):


a. Switches 1 to 6 set the IDR-M mimic address, in the range 1 to 31 in binary (see decode at left; switch 6 is always set to 0). If all these switches are set to 0, there are two possible conditions:

- i A soft address can be set by the IDR Configuration Tool. See the instructions supplied with the Tool.
- ii If no soft address is set, the hard address is 0 ('listen only') which must only be used during commissioning.

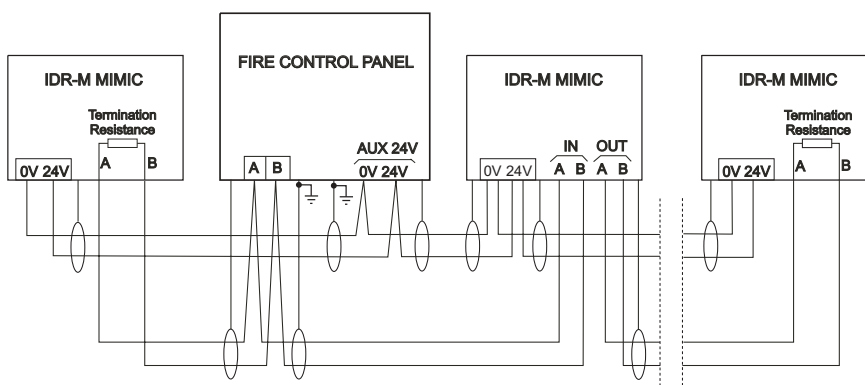
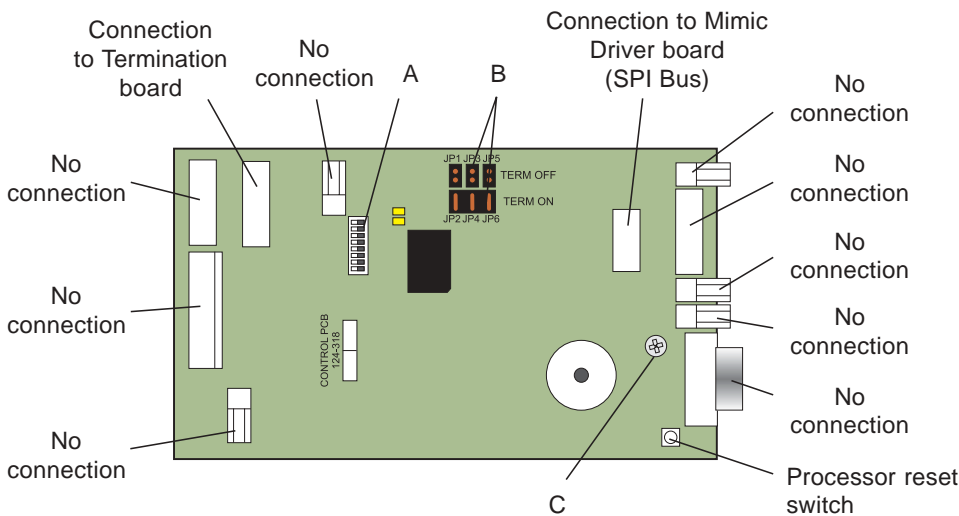
**Note:** If used with an ID50 panel, only addresses 1 to 16 are valid.

b. Switch 7 must be set according to the type of connection used by the **mimic**, in this case 0 for RS485 (does not have to be the same as in (c) below).

c. Set switch 8 according to the type of network used by the **fire panel**; set to 0 if an RS485 network (i.e. Master/Slave) is used, or to 1 if an ID<sup>2</sup>net network is used.



**Ensure that the IDR-Mimic does not share an address with a repeater, and that the address matches that configured in the fire control panel**



EXAMPLE MASTER/SLAVE NETWORK CONFIGURATION

**RS485 Termination Jumpers**

If the IDR-M mimic is at either end of the network, termination jumpers (B) JP2/4/6 - TERM ON - on the Control board must be fitted to put the line termination resistors in circuit. If the IDR-M mimic is not at either end of the network, these jumpers must not be fitted (the link supplied on the Control board should be placed across termination jumpers JP1/3/5 - TERM OFF).

**Note:** If the Control PCB is removed from its chassis, DO NOT forget to replace screw (C) when re-fitting it.

**Switch Configuration - RS232 Connection**

Set the switches (located at position A):

- a. Switches 1 to 6 set the IDR-M mimic address, in the range 1 to 63 in binary (see decode at left). Addresses above 63 can be set by using the IDR Configuration Tool (in this case the address switches must all be set to 0). Address 0 is not valid for ID<sup>2</sup>net.
- b. Switch 7 must be set according to the type of connection used by the **mimic**, in this case 1 for ID<sup>2</sup>net via an RS232 link.
- c. Set switch 8 according to the type of network used by the **fire panel**, in this case 1 for an ID<sup>2</sup>net network.

Address	Switch settings (1-on)					
	1	2	3	4	5	6
1	1	0	0	0	0	0
2	0	1	0	0	0	0
3	1	1	0	0	0	0
4	0	0	1	0	0	0
5	1	0	1	0	0	0
6	0	1	1	0	0	0
7	1	1	1	0	0	0
8	0	0	0	1	0	0
9	1	0	0	1	0	0
10	0	1	0	1	0	0
11	1	1	0	1	0	0
12	0	0	1	1	0	0
13	1	0	1	1	0	0
14	0	1	1	1	0	0
15	1	1	1	1	0	0
16	0	0	0	0	1	0
17	1	0	0	0	1	0
18	0	1	0	0	1	0
19	1	1	0	0	1	0
20	0	0	1	0	1	0
21	1	0	1	0	1	0
22	0	1	1	0	1	0
23	1	1	1	0	1	0
24	0	0	0	1	1	0
25	1	0	0	1	1	0
26	0	1	0	1	1	0
27	1	1	0	1	1	0
28	0	0	1	1	1	0
29	1	0	1	1	1	0
30	0	1	1	1	1	0
31	1	1	1	1	1	0
32	0	0	0	0	0	1
33	1	0	0	0	0	1
34	0	1	0	0	0	1
35	1	1	0	0	0	1
36	0	0	1	0	0	1
37	1	0	1	0	0	1
38	0	1	1	0	0	1
39	1	1	1	0	0	1
40	0	0	0	1	0	1
41	1	0	0	1	0	1
42	0	1	0	1	0	1
43	1	1	0	1	0	1
44	0	0	1	1	0	1
45	1	0	1	1	0	1
46	0	1	1	1	0	1
47	1	1	1	1	0	1
48	0	0	0	0	1	1
49	1	0	0	0	1	1
50	0	1	0	0	1	1
51	1	1	0	0	1	1
52	0	0	1	0	1	1
53	1	0	1	0	1	1
54	0	1	1	0	1	1
55	1	1	1	0	1	1
56	0	0	0	1	1	1
57	1	0	0	1	1	1
58	0	1	0	1	1	1
59	1	1	0	1	1	1
60	0	0	1	1	1	1
61	1	0	1	1	1	1
62	0	1	1	1	1	1
63	1	1	1	1	1	1



## 2.5.2 IDR-MD Mimic Driver Kit

### 2.5.2.1 Mimic Driver Board

#### DIP Switch

The DIP switch, S1, located on the Mimic Driver board (close to the OUT connector) allows the functions, described in the tables below, to be configured.

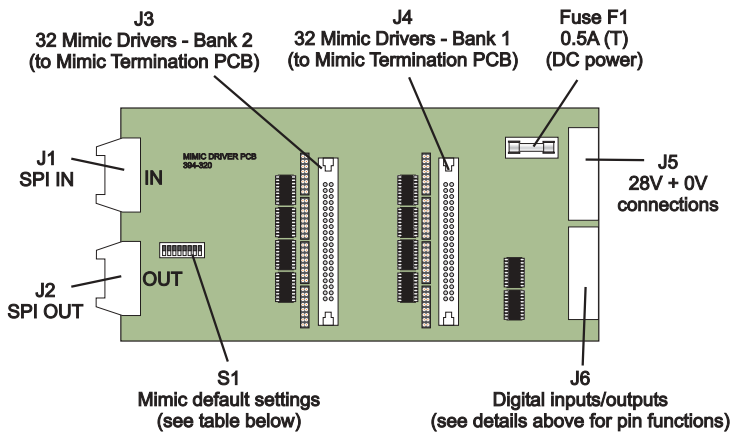
**Note:** If the IDR Configuration Tool is used to configure the IDR-M mimic, the DIP switch (S1) settings are overridden.

The DIP switch, S1, allows the output channels to be configured as only FIRE indications, or as FIRE and FAULT indications using alternate output channels. S1-4 is used to select the required output channel indication. S1-5 to S1-8 are used to set the zonal output channel indications if the first zone is not Zone 1; it can be set to a numerically-higher zone in fixed increments of 64, for FIRE indications only, or increments of 32, for FIRE and FAULT indications.

**Note:** Only the first Mimic Driver board's DIP switch settings have any effect.

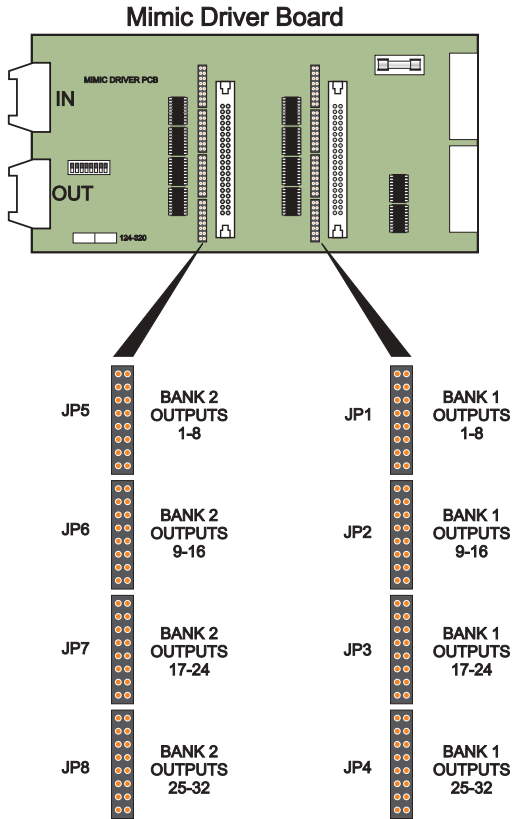
#### Connections

The connections to this board are shown below.

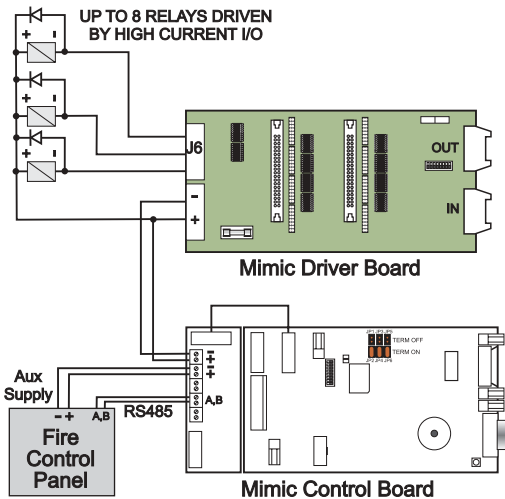


S1 Decode:	Function	ON	OFF
1	Not used	N/A	N/A
2	Digital outputs	Disabled	Enabled
3	Not used	N/A	N/A
4	Default indication Setting	Fire Only	Fire & Fault (i.e. Ch. 1 = first zone fire Ch. 2 = first zone fault Ch. 3 = second zone fire Ch. 4 = second zone fault, etc., where Ch. = output channel)

First Zone Selection					
Switch Position				First Zone	
S1-5	S1-6	S1-7	S1-8	Fire Only	Fire & Fault
Off	Off	Off	Off	1	1
Off	Off	Off	On	65	33
Off	Off	On	Off	129	65
Off	Off	On	On	193	97
Off	On	Off	Off	257	129
Off	On	Off	On	321	161
Off	On	On	Off	385	193
Off	On	On	On	449	225
On	Off	Off	Off	513	257
On	Off	Off	On	577	289
On	Off	On	Off	641	321
On	Off	On	On	705	353
On	On	Off	Off	769	385
On	On	Off	On	833	417
On	On	On	Off	897	449
On	On	On	On	961	481



**TIP!** 0V for inputs and 28V for outputs are available at J5



Mimic adjacent to Panel

**Jumper Links**

The 64 output channels are arranged in two banks of 32. Each bank is arranged in four groups of eight outputs. Each group is provided with a jumper link which configures the group to drive either LEDs or relays:

Jumper FITTED = group drives RELAYS.

Jumper NOT FITTED = group drives LEDs.

The groups can be configured independently, i.e. within a bank some groups may drive relays and others may drive LEDs.

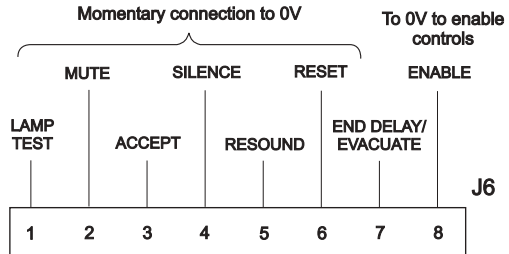
The illustration at left identifies jumpers to groups of eight output channels.

**CAUTION:** Ensure that jumper links are configured correctly. If an LED is connected to an output for which the link is fitted, the LED will have a short life expectancy. Conversely, if a relay is connected to an output for which the link is not fitted, the relay will not operate.



**Digital I/O - Inputs**

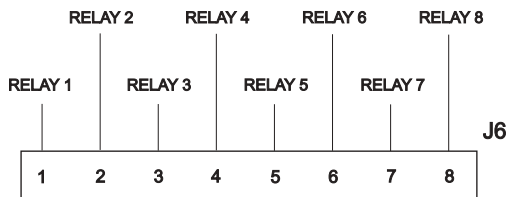
The IDR-M Mimic Driver board is provided with eight pre-configured digital inputs as defined below; this is only applicable to an IDR-M Mimic Driver board when used singularly, or if it is the first of two or more 'daisy-chained' boards.



CONNECTOR J6 - WIRED FOR INPUTS

**Digital I/O - Outputs**

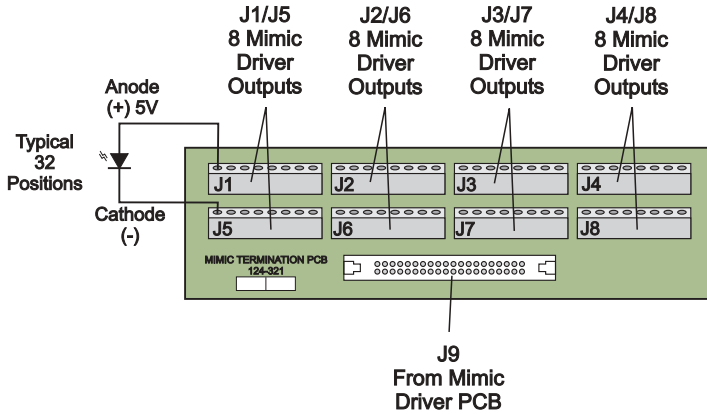
If the IDR Configuration Tool is used to configure the IDR-M mimic, the digital inputs can be re-configured as relay outputs as shown below and at left. These outputs can be enabled or disabled by S1-2 (see table on previous page).



CONNECTOR J6 - WIRED FOR RELAY OUTPUTS (connect other side of relay coils to 28V)

### 2.5.2.2 Mimic Termination Board

Each IDR-MD Mimic Termination Board can drive up to 32 LED indicators or 32 relays (or a mixture in groups of 8) on the IDR-M Mimic. Each LED is wired across the two rows of connectors as shown below. **Section 2.4.2** shows how to connect relays.



### 2.5.3 LED Selection

Each LED is driven at 10-15mA. For typical usage, any standard LED should give satisfactory brightness.

If the mimic panel is installed in an area subject to high ambient light levels, high-intensity or low-current LEDs may give better results.

**Note:** Be aware that high intensity is often gained by reducing the viewing angle. EN54-2: 12.7.1 requires a viewing angle of 22.5° at 500lux and 3m distance.

### 2.5.4 Relay Selection

The Mimic Driver Board is capable of handling a maximum current of 80mA per relay. Relays should therefore be chosen such that this value is not exceeded.

The minimum pull-in voltage must be obtainable when the system is running on battery backup (battery at 21V) and with a maximum ambient temperature of 45°C. Choose relays accordingly. (This consideration may also affect the choice of external power supply).

Some recommended industrial relays are listed at left. Any other type of relay can be used provided that the coil current does not exceed 80mA.

**Diode protection should always be used.**

#### Finder 60.12 Series relays + DIN rail socket

DPCO relay 24V coil 10A	6012.9024.0040
8 pin DIN rail socket	9020
Diode protection module	9901-3000

#### Schrack MT Series relays + DIN rail socket

DPCO relay 24V coil 10A	MT221024
8 pin DIN rail socket	MT78745
Diode protection module	MTMT00A0

#### Omron MK Series relays + DIN rail socket

DPCO relay 24V coil 10A	MK2PN-S
8 pin DIN rail socket	PF083A-E



Only terminate the IDR-M mimic power cables at the control panel after ALL preliminary checks have been done.



Only connect power cables when the system power is OFF.



Static Sensitive Devices!  
Use anti-static wrist strap when carrying out this procedure

## 3 Commissioning

This section describes the procedure for commissioning the IDR-M mimic components.

### 3.1 Preliminary Checks

Carry out the following preliminary checks for EVERY IDR-M mimic being commissioned, prior to powering-up the system:

- 1 Check that all cables brought into the IDR-M mimic have been terminated correctly. The connection of external wiring is described in **Section 2.5.1.1**. All power and signal cabling and wiring must conform to the appropriate local regulation.
- 2 Ensure that all the IDR-M mimic components have been correctly re-installed within the enclosure.
- 3 Check that the mimic address has been set as described in **Section 2.5.1.2**.
- 4 Check that the DIP switch on the IDR-MD Mimic Driver board has been set correctly, and that all jumper links are configured correctly, as described in **Section 2.5.2.1**.

### 3.2 Powering the IDR-M Mimic

The IDR-M mimic obtains 18-32V and 0V dc supplies either from the fire control panel auxiliary outputs or, depending upon the IDR-M mimic drive requirements, from a local independent power supply. Connections are made as described in **Sections 2.4 and 2.5.1**.

**Caution:** Do not remove power from a networked IDR-M mimic while the system is still working.

### 3.3 IDR Configuration Tool

This Tool configures the IDR-M mimic with Rules which relate its outputs (output channel LEDs/relays and I/O relays) to defined events. There are three types of Rules:

- a. Board Rules - similar to using the Mimic Driver Board DIP switch, but allows individual zone selections for each board.
- b. Zone Rules.
- c. Loop, panel or device-dependent Rules.

When these Rules have been downloaded into the IDR-M mimic they override the selections made on the Mimic Driver Board DIP switch.

The Tool is supplied with a help document (Acrobat PDF format) which describes its use.

## Appendix 1 - Specification

### Mechanical

Construction:	Printed Circuit Boards (PCB) mounted on metal chassis, designed for mounting in an enclosure. <b>Note:</b> The mimic should be mounted in a suitable enclosure. The enclosure must conform to Panel Sealing requirement: IP30, (EN-60529).
Dimensions:	Control or Driver PCB on bracket (mm): 126(w) x 240(d) x 45(h) approx. Mimic Termination PCB on bracket (mm): 57(w) x 203(d) x 45(h) approx.
Fixing:	M4 (or equivalent) screw
Terminals:	External connections made using screw terminals capable of accepting cable sizes between 0.5mm <sup>2</sup> and 2.5mm <sup>2</sup>

### Environmental:

Climatic classification:	3K5, (IEC 721-2-3)
Operating temperature:	-5° C to +45° C, (recommended +5° C to 35° C)
Humidity:	5% to 95% R.H.
Height above sea level:	Maximum, 2000m
EMC:	Emissions: EN 61000-6-3 Immunity: EN 50130-4
Safety:	EN 60950

### Electrical

Operating Voltage:	18-32V*
Operating Current:	Control Board: 90mA Driver Board: Each Board - 10mA Each LED - 4.4mA Max. total (Board & 64 LEDs) 265mA Each relay - 80mA**
Fuses:	
Control Board:	Resettable thermal fuse. Nominal - 250mA; absolute max. - 600mA
Driver Board	0.5A(T), 20mm
Comms. Medium:	RS485 2-wire serial link
Isolation:	Functional at 42V
Baud Rate:	1200 Baud
Max. RS485 Network Cable Length:	3000m (minimum of 1mm <sup>2</sup> screened cable recommended)

\* This may be limited by the requirements of any relays that are driven from this supply. The minimum supply voltage = the minimum relay pull-in voltage at the highest allowable ambient temperature.

\*\* This is the maximum allowable current per relay, which is limited by the sink capabilities of devices on the board.

## Appendix 2 - Calculating Battery Requirements

### Control PCB

If operated from a permanently boosted supply (24V min.): **85mA**

If operated direct from batteries (18V min.): **90mA**

Each Mimic Driver PCB: **10mA**

Each LED on a partially-loaded Driver PCB:

If operated from a permanently boosted supply (24V min.):

**3.4mA** per LED (to a maximum of 190mA)

If operated direct from batteries (18V min.):

**4.4mA** per LED (to a maximum of 225mA)

The current per relay is given on the data sheet for the chosen relays. When relays are powered from the fire control panel, their current should be considered when calculating the panel's battery size. When relays are powered from an external PSU, their current is not supplied by the Mimic Driver PCB, therefore the maximum current is limited by the PSU.

**Note:** Lamp test illuminates all LEDs so provision must be made to power all LEDs which are fitted even if the Control Matrix will not illuminate all LEDs during normal operation.

### Quick Guide (assuming ALL LEDs are fitted):

Set-up (Quiescent)		
		Min 24V
Control PCB		0.085A
Control PCB + 1 Driver +64 LEDs		0.095A
Control PCB +2 Driver +128 LEDs		0.105A
Control PCB +3 Driver +192 LEDs		0.115A
Control PCB +4 Driver +256 LEDs		0.125A
Control PCB +5 Driver +320 LEDs		0.135A
Control PCB +6 Driver +384 LEDs		0.145A
Control PCB +7 Driver +448 LEDs		0.155A
Control PCB +8 Driver +512 LEDs		0.165A
Set-up (Alarm / Maximum)		
	Non-boosted (18V min.)	Boosted (24V min.)
Control PCB	0.090A	0.085A
Control PCB + 1 Driver +64 LEDs	0.355A	0.285A
Control PCB +2 Driver +128 LEDs	0.620A	0.485A
Control PCB +3 Driver +192 LEDs	0.885A	0.685A
Control PCB +4 Driver +256 LEDs	1.150A	0.885A
Control PCB +5 Driver +320 LEDs	1.415A	1.085A
Control PCB +6 Driver +384 LEDs	1.680A	1.285A
Control PCB +7 Driver +448 LEDs	1.945A	1.485A
Control PCB +8 Driver +512 LEDs	2.210A	1.685A
Battery Capacity (non-boosted systems)		
	24 Hour Backup	72 Hour Backup
Control PCB	2.7Ah	7.8Ah
Control PCB + 1 Driver +64 LEDs	3.3Ah	9.0Ah
Control PCB +2 Driver +128 LEDs	3.9Ah	10.2Ah
Control PCB +3 Driver +192 LEDs	4.6Ah	11.5Ah
Control PCB +4 Driver +256 LEDs	5.2Ah	12.7Ah
Control PCB +5 Driver +320 LEDs	5.8Ah	13.9Ah
Control PCB +6 Driver +384 LEDs	6.5Ah	15.2Ah
Control PCB +7 Driver +448 LEDs	7.1Ah	16.4Ah
Control PCB +8 Driver +512 LEDs	7.7Ah	17.6Ah

## Calculating Battery Capacity

During the quiescent period it is reasonable to assume that the minimum voltage from the battery will be 24V for the vast majority of the time. On this premise the 24V supply figure can be used for all systems during this period.

In alarm the final battery voltage may fall to 19V. Allowing up to 1V for cable and other losses, the worst-case supply voltage for non-boosted systems may be as low as 18V. This results in higher currents in alarm for these systems.

At present, Notifier Panels/ PSUs fall into the following groups:

Boosted: ID2000, ID2008, ID/NF3000, NF300

Non-Boosted: ID50, ID1000, PS2, PS2/CMX

If the relays are driven from the panel's auxiliary supply, then the Control and Driver PCB supply currents should be included in the panel's battery calculations, together with the relay currents.

A fully-loaded, non-boosted panel/ PSU will require the following battery capacity to support the Mimic Driver:

$$C = ((T \times I_q) + I_a) \times 1.25$$

where:

**C** is the calculated battery capacity in Ampere-Hours

**T** is the required battery backup time in Hours

**I<sub>q</sub>** is the IDR-M mimic quiescent current in Amperes

**I<sub>a</sub>** is the IDR-M mimic alarm current in Amperes

**1.25** is a multiplying constant to comply with LPS1014

A quick guide is given on the previous page for a basic system, assuming NO LEDs are lit in quiescent and ALL are lit in alarm. Note that:

- a. If the control matrix causes some LEDs to be lit during quiescent, specific calculations must be carried out to ensure adequate battery capacity.
- b. If relays are used (or a combination of LEDs and relays), the appropriate values should be substituted into the tables.
- c. If connected to the auxiliary output of a boosted panel, the efficiency of the panel's booster must be allowed for.

Notifier recommend using the Loop and Battery Calculator Tool to calculate the total battery capacity required.



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