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LED-RZDU
REMOTE ZONE DISPLAY UNIT

INSTALLATION & OPERATING INSTRUCTIONS

DOCUMENT: LT0460

Issue 1.03 29 June 2010

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AMENDMENT LIST

Issue 1.00	1 August 2008	Original
Issue 1.01	12 September 2008	Corrected part numbers for empty FP1600 cabinets
Issue 1.02	11 August 2009	Added picture frame display and FA1210 bracket. Changed RZDU address numbering to match other products.
Issue 1.03	29 June 2010	Ref ECO 4150 that reduced supply current from 12V Panels to LED RZDU with 24V Display/Relay cards. Table 3.1 format and values changed. (Changed Section 3.2 only.)

TABLE OF CONTENTS

QUICK START GUIDE

See section 15 at rear of manual.

1. PRODUCT DESCRIPTION

The Vigilant LED-RZDU (PA1048) is a Remote Zone Display Unit (RZDU) control board. It contains on-board LEDs and is also capable of driving various LED display, termination, and relay boards in order to construct remote mimic panels for Vigilant fire alarm systems. It can connect to the RZDU port of *MX1*, MX4428/F4000, FP1600/OMEGA 64, SIGMA 5 or F3200 fire alarm panels in either supervised or un-supervised mode. The LED-RZDU is not compatible with the obsolete FP4000.

The LED-RZDU has 16 on-board red zone Alarm LEDs, one common green Normal LED and one common amber Defect/Fault LED, all fitted on the rear of the board.

The LED-RZDU is capable of driving an FP1600 termination or mimic display board, an MX4428/F4000 termination or relay board, and/or a chain of MX4428/F4000 or *MX1* 16-zone LED display boards.

The LED-RZDU has an isolated RZDU (slave) port, six digital inputs (three NZ Brigade switch inputs, ACK-, LAMPTEST-, DEF-), two digital outputs (FLT/NA- and LAST ZONE-) and three FRC connectors for termination boards or LED display boards (FP1600 mimic/termination, MX4428/F4000 termination/16-way relay, and MX4428/*MX1* LED display bus).

The LED-RZDU is designed to be mounted directly into an empty *MX1* cabinet (rear service) on the standard gear plate. For this reason, it has the same mounting footprint and LED pattern as the *MX1* LED display board. Numerous other arrangements are possible in Picture Frame, FP1600, and 19" rack cabinets using additional items as required.

Programming/configuration is carried out using 28 DIP switches and three jumper links.

The LED-RZDU can be powered from 7V up to 30V in order to be compatible with both 12V and 24V fire panels.

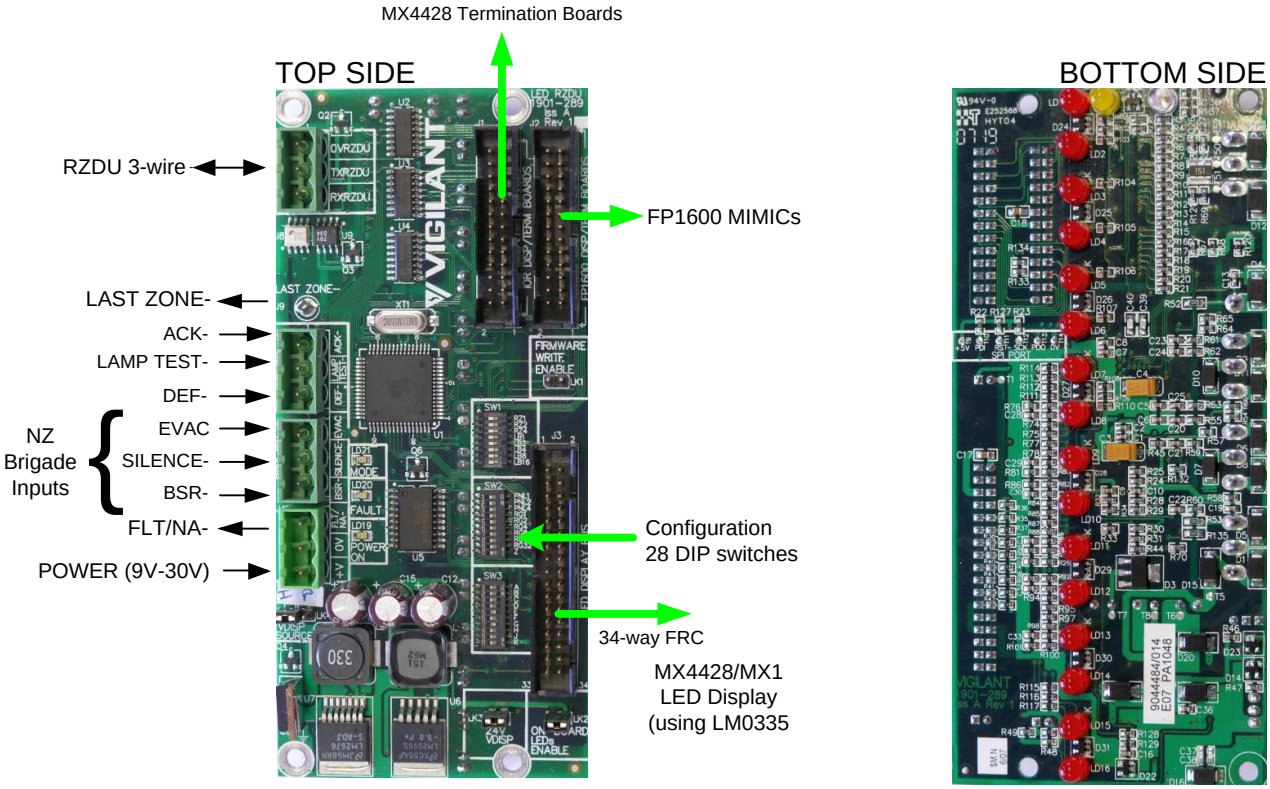


Fig 1 – LED-RZDU Identification (PA1048)

2. OPERATION

2.1 General

The LED-RZDU receives system, zone and ancillary relay information sent by the host fire alarm panel on its RZDU bus and updates accordingly both its on-board LED status indicators (if enabled), as well as any LED display/relay boards connected. The LED-RZDU also monitors its own inputs and can send NZ brigade switch status as well as a generic fault/defect status (DEF- input) back to the panel.

The LED-RZDU is highly configurable. Its 28 DIP switches allow a wide variety of options to meet a range of site needs (see Section 6).

NOTE: The configuration DIP switches are read **only** on power-up.

Up to 32 MX4428/F4000 or *MX1* LED display boards (up to 512 additional zones) can be connected on the LED-RZDU's MX4428/*MX1* LED display bus.

2.2 LED Operation

The LED-RZDU has 16 on-board red LEDs, one common green normal LED and one common amber fault LED, all fitted on the rear of the board. The 16 red LEDs can be programmed to show the Alarm status of 16 fire zones. The first Alarm LED can optionally be configured as the common FIRE (Alarm) indicator as is typical in New Zealand. In this case, the display of zone alarms is shifted by one (i.e., LED 2 shows the alarm status of zone 1) and the LAST ZONE- output (requires an external LED to be fitted) shows the alarm status of zone 16.

The flash cadences of zone Alarm LEDs vary according to the type of host fire alarm panel and the chosen configuration, for example:

1. Steady usually indicates an acknowledged alarm on systems with an LCD
2. Flashing slowly usually indicates an unacknowledged alarm on systems with an LCD
3. SIGMA 5 / FP1600 single flash for heat/MCP type alarm
4. SIGMA 5 / FP1600 double flash for smoke type alarm

The green NZ common NORMAL LED will be ON steady blinking off every 8 seconds whenever the system is normal.

The amber NZ common DEFECT (Fault) LED will be flashing whenever the system is in a defect/fault state.

When driving external 16-zone LED display boards on the MX4428/*MX1* LED display bus, there is a choice (DIP switches C and D) of driving:

- The Alarm LEDs only to match the LED-RZDU's LEDs, and/or when driving Relay boards.
- 2 LEDs – Alarm and Defect (Fault)/Isolate combined, (suitable for *MX1* style LED display boards).
- 3 LEDs – Alarm, Defect (Fault), and Isolate (suitable for MX4428 style LED display boards).

It is also possible to disable the on-board LEDs and begin zone alarm displays on the first external board.

In order to limit the power supply current, the LED-RZDU will start LED phasing if the total number of LEDs on external 16-zone LED display boards illuminated at any one time is greater than 32 (zone LEDs on the LED-RZDU or driven from J1 or J2 do not phase). With relay mode operation enabled (DIP switch F ON), LED phasing is suppressed and LEDs are illuminated steady. This severely limits the number of outputs when the internal power supply is used for VDISP (the display power) in relay mode.

There are three diagnostic LEDs on the top side of the board:

- LD21 MODE (green) blinks ON every time a valid RZDU message is received from the fire panel.
- LD19 POWER ON (green) is ON steady whenever power is applied to the +V/0V terminals.
- LD20 FAULT (yellow) blinks ON to indicate various faults (see below for details).

Fault LED (LD20) operation:

The Fault LED is off if there is no fault within the LED-RZDU. If there is any fault present, a sequence of 9 short or long flashes is generated, with the length of each flash indicating the presence or absence of a particular fault. A short flash means no fault, a long flash means that type of fault is present. There is a five second delay between sequences. A steady ON state indicates a serious microprocessor fault.

The order of flashes is as follows:

Table 2.1 – FAULT LED (LD20) Indication

Long Flash Number	Fault Condition Present
1	EVAC input open circuit
2	EVAC input short circuit
3	Incorrect number of display boards on MX4428/*MX1* LED display bus
4	Flash memory wrong checksum (unit is faulty)
5	DEF- input asserted
6	Low supply voltage (<7V)
7	Incorrect/invalid DIP switch configuration
8	RZDU scan fail – not receiving messages from the fire panel
9	Unrecognised RZDU protocol received

The first 7 fault conditions are sent back to the host fire alarm panel as a Defect (Fault) condition from the LED-RZDU.

Note: In **Latch-Last-Fault** mode (DIP switch Z ON) the MODE LED is steady ON and the FAULT LED displays the last fault present in the LED-RZDU since power-up. If no fault has been detected a sequence of 9 short flashes will be displayed.

2.3 Supply Voltage for Mimic/Termination/LED Displays

The supply voltage for all mimic/termination/display boards connected via J1, J2 and J3 is called VDISP. With jumper link LK4 set in the PNL position, the power supply to the LED-RZDU (applied to J4 +V/0V terminals) connects straight through to VDISP. In this case all mimic/termination/display boards must be suitable for the same supply voltage as the LED-RZDU (i.e., 12V or 24V) and there are no load limits specific to the LED-RZDU. You must, nevertheless, ensure that batteries, power supplies and cables are adequately specified (see section 3.2).

With jumper link LK4 set in the INT position an internal step-up/step down switchmode power supply can be configured to raise or lower the LED-RZDU's supply voltage in order to match the required voltage to drive LED display/relay boards connected to J1, J2 or J3.

When the LED-RZDU is powered from a 12V supply, VDISP set to 24V has a 150mA maximum load. This is sufficient to drive a maximum of two PA0470 (24V) relay boards whether connected directly via J1 or to MX4428 LED display boards on the LED-RZDU's MX4428/*MX1* LED display bus (see figure 12.2). This is because LED phasing is suppressed when driving relays. Alternatively, with LED phasing enabled (relay mode disabled), a maximum of 32 x 16-zone LED display boards can be driven on the LED-RZDU's MX4428/*MX1* LED display bus with no need for supplementary power bussing between boards.

When the LED-RZDU is powered from a 24V supply, VDISP set to 12V has a 650mA maximum load. This is sufficient for the first 2 x PA0787 FP1600 Mimic Display Boards as per figure 8.1. With LED phasing enabled (relay mode disabled), it is possible to drive up to 32 x PA0787 FP1600 Mimic Display Boards connected to MX4428 LED display boards (again per figure 8.1) provided J2 is used to drive only the three common NZ LEDs (see the top part of figure 12.1).

3. CONNECTIONS

3.1 RZDU CONNECTION

The RZDU connection from the fire panel requires 3 wires if the LED-RZDU is locally powered (Figure 3.1) or 4 wires if the LED-RZDU is powered from the host panel (Figure 3.2).

If the LED-RZDU is not to occupy an RZDU address (mimic only), do not connect the TX RZDU terminal. In this case the brigade switch and fault signalling to the host panel will be unavailable (FLT/NA- could be used as a fault output from the LED-RZDU to drive into other equipment visible to the host panel).

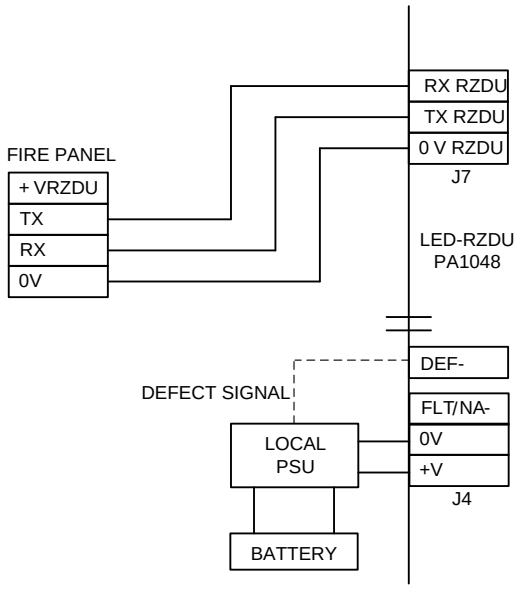


Fig 3.1 – Local Power Supply Connections

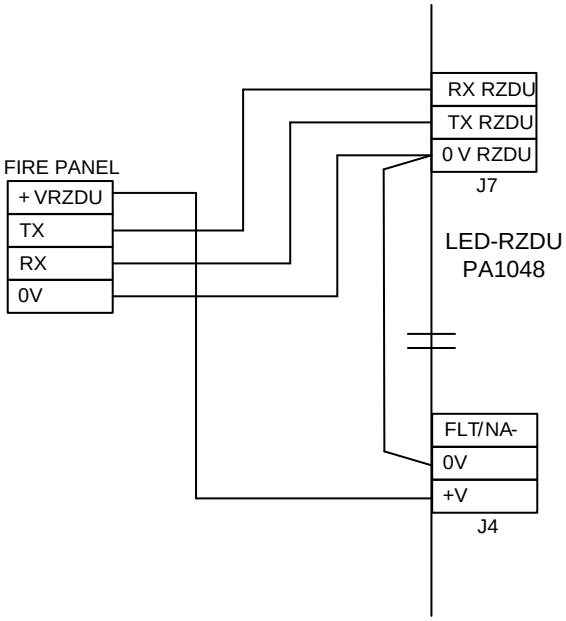


Fig 3.2 – Panel Power Supply Connections

3.2 POWER SUPPLY

A 7V-30Vdc power supply (e.g., from the fire alarm panel) must be connected to the +V and 0V terminals of J4 on the LED-RZDU.

The RZDU port on the LED-RZDU is isolated from the power supply and local inputs/outputs, allowing the LED-RZDU to be optionally powered from a local power supply and standby battery. This power source will need to be supervised for defects (via the DEF- input) if the LED-RZDU mimic is used for brigade purposes. Refer Figures 3.1 and 3.2.

Table 3.1 shows the current consumption for some of the most common (simple) LED-RZDU mimic configurations. It shows the current consumption in the normal/quiescent state, Iq, (1 common status LED only on), and the full Alarm state, Ialm, (16/32 LEDs or relays on plus one common alarm LED where applicable) at nominal voltage for battery calculation purposes.

Table 3.1 also shows the worst case current, Iwc, and cable loop resistance, Rmax, when powering the LED-RZDU from a host fire panel. The 12V limits have been calculated to ensure that the voltage at the LED-RZDU stays above 7V, which gives 2.6V as the worst case allowable voltage drop (at panel voltage 9.6V). The 24V limits have been calculated to ensure the voltage at the LED-RZDU stays above 17V, which gives 2.2V as the worst case allowable voltage drop (at a panel voltage of 19.2V), except where the LED-RZDU is used stand-alone (not driving any display/relay bds), when it can operate down to 7V, if required to allow much greater cable resistance.

For alarm and worst case currents, the incremental current (Incr) per LED/relay is also shown. For a system that uses fewer LEDs/relays than maximum, the required current load can be calculated by multiplying the incremental current by the number not used, and subtracting that from the current shown. Cable resistance for that lighter load can be calculated by dividing the appropriate voltage drop (2.6V or 2.2V) by the revised current.

Table 3.1 – Quiescent, Alarm, & Worst Case Current Consumption (mA) & Maximum Cable Resistance

Host Panel	Config.	LED-RZDU Only 16 Zones		* 16 Zones with 1 x PA0787 (FP1600 Mimic)		* 32 Zones With 2 x PA0787 (FP1600 Mimic)		* 16 Relays 1 x PA0470 (Relay Board)		** 32-528 Zones on MX4428/*MX1* LED Display (1-32 x FP0475/ FP1002)	
		16	**Incr**	**16**	**Incr**	**32**	**Incr**	**16**	**Incr**	**32→**	**Incr**
12 Volt SIGMA 5, FP1600, or OMEGA 64	Iq Ialm Iwc Rmax	40 100 170 15Ω	4 7	55 370 230 11Ω	20 10	55 680 390 7Ω	20 10	50 330 620 4Ω	17.5 35	55 250 450 6Ω	8 14
24 Volt MX4428/ F4000, *MX1*, or F3200	Iq Ialm Iwc Rmax	30 60 70 / 170*** 31Ω / 72Ω***	2 2.8 / 7	50 250 360 6Ω	12.5 18	50 450 650 3Ω	12.5 18	30 190 150 15Ω	10 7.5	30 130 125 18Ω	5 3.5

Key
* On-board LEDs disabled.
** Relay mode disabled. LEDs phase if more than 32 on.
*** For LED-RZDU only (no 12V or 24V display/relay boards) the board can operate down to 7V on a 24V System, which allows a higher cable voltage drop (12.2V). The first figures are for 17V at the LED-RZDU, the second figures are for 7V at the LED-RZDU.

3.3 FP1600 & MX4428 MIMIC TERMINATION CONNECTIONS

Connectors J1 and J2 (26-way FRC) provide an alternative means to display/mimic the alarm status of the first 16 zones as displayed by the LED-RZDU's on-board LEDs. In addition, J2 (FP1600) also provides the 3 NZ common status outputs (Fire, Defect, Normal) which are **always** driven (independent of DIP switch E state).

Connector J2 (FP1600) is pin-compatible with the following:

- PA0787 FP1600 Mimic Display Board (12V board)
- PA0702 FP1600 Mimic Termination board

Connector J1 (MX4428) is pin-compatible with the following:

- PA0470 MX4428 16-way relay board (24V board)
- PA0483/PA0769 16-way unprotected termination board (PA0769 has built-in 3k3 resistors)
- PA0479 16-way protected output termination board

The supply voltage (+VDISP) corresponds to the one selected by LK3 and LK4 (See Sections 2.3, 6.2.3 and 6.2.4).

3.4 LED DISPLAY BUS CONNECTION

Connector J3 (34-way FRC) provides a means to display the alarm, isolate and fault statuses of up to 528 zones.

Connector J3 is compatible (via LM0335, a 34-way to 26-way FRC adaptor supplied with the LED-RZDU) with the following LED display boards (both are 24V types):

- FP1002 16 zones – *MX1* type: 2 LEDs per zone + NZ common NORMAL
- FP0475 16 zones – MX4428 type: 3 LEDs per zone (no NZ common)

Note the ordering of the zones on multiple LED display boards is different with the LED-RZDU compared to fire panels (MX4428, *MX1*, etc.) The board nearest to the LED-RZDU displays the lowest-numbered zones (i.e., starting at 1, 15 or 16, etc.) and the board furthest away displays the highest-numbered zones.

The supply voltage (+VDISP) must be 24V as selected by LK3 and LK4 (see Sections 2.3, 6.2.3 and 6.2.4).

Power bussing between extender display boards is only required in relay mode (DIP switch F ON) and when there are more than 5 16-way relay boards connected (to allow for all relays on simultaneously). With relay mode disabled, no more than 32 LEDs on extender display boards can be ON at any one time due to automatic LED phasing so power bussing is not required.

4. INPUTS

4.1 ACKNOWLEDGE (ACK-) INPUT

Closure of the ACK- input to 0V causes the LED-RZDU to send a "Global silence key pressed" condition to the host fire alarm panel if DIP switch J is on. The programming of the fire panel will determine what effect this command will have (if any).

If the FLT/NA- output is in NA- (New Alarm) mode (DIP switch K ON), closure of the ACK- input cancels any assertion of the FLT/NA- output irrespective of DIP switch J.

4.2 LAMP TEST INPUT

Closure of the LAMP TEST- input to 0V (push to start) initiates a LAMP TEST whereby ALL LEDs driven by the LED-RZDU are turned ON sequentially alternating rows and columns. The lamp test is stopped automatically after a period of 5 minutes, or manually if the LAMP TEST input is re-asserted (push to cancel).

4.3 EXTERNAL DEFECT (DEF-) INPUT

Closure of the DEF- input to 0V will cause the LED-RZDU to transmit a defect (fault) condition to the host fire alarm panel.

This input is typically wired to fault/defect sources such as the supervisory output of a local power supply/battery charger. The LED-RZDU will also transmit a defect condition when other defect/fault conditions are present (see Table 2.1).

4.4 SILENCE ALARMS INPUT

Closure of the SILENCE- input to 0V will send a Silence Alarms command to the host fire alarm panel. A Bulgin brigade keyswitch would typically be connected to this input in New Zealand.

4.5 EVACUATION SWITCH (EVAC) INPUT

4.5.1 New Zealand Mode

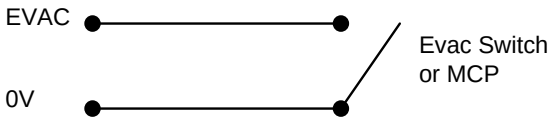
The EVAC input provides for connection of a Bulgin (Trial) Evacuation brigade keyswitch in NZ mode (DIP switch H OFF). This input can be used in several supervised or unsupervised modes (determined by DIP switches A and B) and supports a normally-open or normally-closed switch as shown in Fig 4.1. In supervised mode a 10k EOL resistor must be used at the switch end of the wiring so that an open circuit will be identified as a defect/fault condition.

A 2k7 resistor must be wired in series with the switch when short circuit fault supervision is also required. Both open and short circuit fault supervision is required by NZS 4512 if the Evacuation keyswitch wiring extends remotely from the LED-RZDU's cabinet. A set of 10k and 2k7 resistors are supplied with the LED-RZDU.

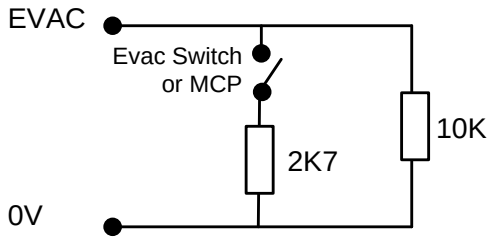
4.5.2 Australian Mode

The EVAC input provides connection for an MCP in Australian Mode (DIP switch H ON). This may be mapped by the host fire panel (F3200, MX4428/F4000, *MX1*, or NDU) to a zone.

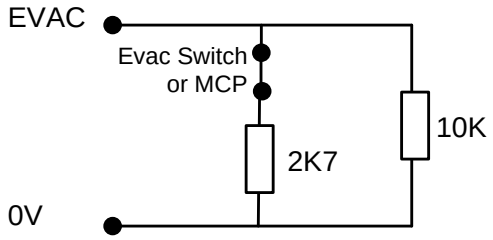
Input configuration (DIP switches A and B) and wiring are shown in Fig. 4.1.



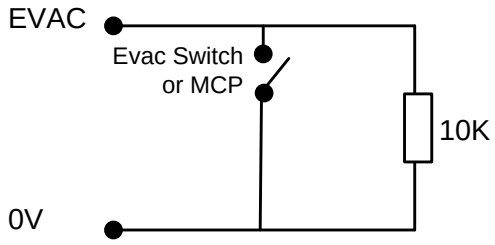
Non-Supervised Normally Open.



Supervised Normally Open, S/C Fault, O/C Fault



Supervised Normally Closed, S/C Fault, O/C Fault



Supervised Normally Open, O/C Fault

DIP Switch – EVAC Input Mode

MODE	A	B
Non-Supervised N/O	OFF	OFF
Supervised N/O O/C and S/C Fault	ON	OFF
Supervised N/C O/C and S/C fault	OFF	ON
Supervised N/O O/C Fault	ON	ON

Note: Switch shown in Normal (non-active) position

Fig 4.1 – EVAC Input Wiring (MCP in Aus Mode)

4.6 BUILDING SERVICES RESTORE SWITCH (BSR-) INPUT

Closure of the BSR- input to 0V will send a Building Service Restore command to the host fire alarm panel. A Bulgin brigade keyswitch would typically be connected to this input in New Zealand.

4.7 BRIGADE KEY SWITCHES LOOM (LM0356) AND LABEL (FA2074)

A ready-made brigade switch loom can be ordered (LM0356). This has 3 Bulgin key switches (Evacuation, Services Restore, Silence Alarms) pre-wired in normally-open configuration with a common 0V. The Evacuation switch does not have supervision resistors fitted; these will be required per Fig 4.1 if this switch is mounted externally to the LED-RZDU cabinet.

To use LM0356, the small plug-on connector must be cut-off and the wires (possibly extended and) terminated as detailed in Table 4.1.

Table 4.1 – LM0356 Brigade Key Switch Loom Terminations

Bulgin Key Switch	LM0356 Wire	LED-RZDU Termination
Evacuation (key captive when active)	Orange	EVAC on J5
Silence Alarms (key captive when active)	Violet	SILENCE- on J5
Services Restore (Key removable both positions)	White	BSR- on J5
(0V Common)	Brown	0V on J4

DIP switches A and B both OFF unless supervision resistors are fitted to Evacuation switch.

A pre-cut stick-on 185mm x 35mm label is available for these switches (ordering code FA2074). This matches 3 x 12.2mm diameter switch holes at 60mm separation horizontally. Ideally switch holes will have a small protruding anti-rotation tab (1.2mm wide x 0.9mm deep).

5. OUTPUTS

5.1 LAST ZONE- OUTPUT

An H2880 solder tag is available for wiring of an optional “last zone” indicator LED+ resistor combination when the LED-RZDU’s Common LEDs are enabled (DIP switch E ON). This output can sink up to 30mA (must be externally limited) pulling down to 0V. A suitable crimp terminal (CN0028) is included with the LED-RZDU.

The purpose of the LAST ZONE- output is to give access to display of the last zone in the chain when the NZ common LEDs are enabled and occupying the zone 1 position. In this situation the first on-board red LED of the LED-RZDU shows the status of NZ common FIRE (Alarm) and the last red LED shows the 15th zone. If there is no display board connected to the MX4428/*MX1* display bus, the LAST ZONE- output will allow display of the alarm status of the 16th zone.

If there is one display board connected to the MX4428/*MX1* display bus, the LEDs of the first board will typically display the status of the 16th zone up to the 31st zone. The LAST ZONE- output will then provide the alarm status of the 32nd zone.

The LAST ZONE- output will therefore indicate the alarm status of the last zone based on the number of display boards on the MX4428/*MX1* display bus and the starting zone number as shown in Table 5.1 below:

Table 5.1 – LAST ZONE- Output Zone Allocation

NUMBER of display boards selected	LAST ZONE- output offset after start zone as defined in range option – (LED-RZDU LEDs enabled)	LAST ZONE- output offset after start zone as defined in range option – (LED-RZDU LEDs disabled)
0	16	-
1	32	16
2	48	32
3	64	48
4	80	64
5	96	80
6	112	96
7	128	112
8	144	128
9	160	144
10	176	160
11	192	176
12	208	192
13	224	208
14	240	224
15	256	240
16	272	256
17	288	272
18	304	288
29	320	304
20	336	320
21	352	336
22	368	352
23	384	368
24	400	384
25	416	400
26	432	416
27	448	432
28	464	448
29	480	464
30	496	480
31	512	496
32	528	512

Figure 5.1 shows typical wiring for an LED connected to this output. Higher value resistors may be used if the LED is too bright.

Please note that the LAST ZONE- output voltage is clamped at +VDISP and must be used to drive a load fed from +VDISP or a lower voltage. If LK4 is not in the PNL position +VDISP is not readily accessible on the LED-RZDU and the use of an external mimic or termination board may be required to access it.

5.2 FAULT/NEW ALARM (FLT/NA-) OUTPUT

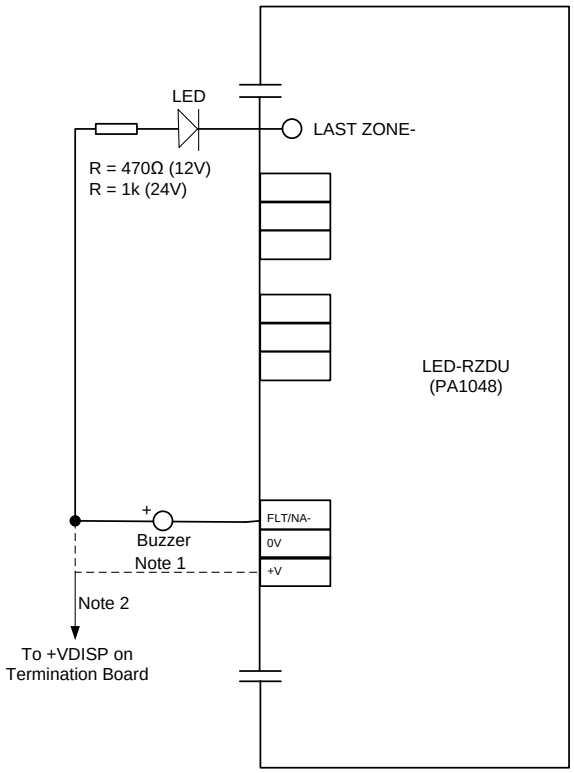
The FLT/NA- output has two modes of operation, Defect/Fault or New Alarm. This output can sink up to 100mA (must be externally limited) pulling down to 0V.

In DEF- mode (DIP switch K OFF), the FLT/NA- output activates (pulls down to 0V) whenever the LED-RZDU detects a fault condition of its own or the host fire alarm panel transmits a common defect/fault state. It remains activated until all fault/defect conditions are removed (it does NOT clear with closure of the ACK input).

In NA- mode (DIP switch K ON), the FLT/NA- output activates when the host fire alarm panel transmits a new alarm that is displayed by the LED-RZDU, and latches on until the local ACK input is activated, or until all alarms displayed by the LED-RZDU are cleared. A subsequent new alarm will cause the output to be reactivated irrespective of whether the first alarm is still present.

Note that the FLT/NA- output is clamped at +VDISP and must be used to drive a load fed from +VDISP or a lower voltage. If LK4 is not in the PNL position +VDISP is not readily accessible on the LED-RZDU and the use of an external mimic or termination board may be required to access it.

Figure 5.1 shows typical wiring for a buzzer connected to this output.



Note 1: Supply for LAST ZONE- and FLT/NA- loads can use +V when LK4 is in PNL position. The voltage rating for LED/buzzer devices must match +V.

Note 2: Obtain a suitable supply voltage (12V or 24V) from +VDISP on a mimic or termination board if +V supplied to J4 is not the correct voltage.

Fig 5.1 – Example Wiring for LAST ZONE- and FLT/NA- Outputs

6. CONFIGURATION

6.1 DIP SWITCHES

Note: DIP switches are read **only** on power up.

The LED-RZDU is configured via 28 DIP switches, arranged in 3 sets, to determine its operating characteristics as detailed in Tables 6.1 to 6.7 below. Each switch element is labelled with a function or symbol.

Table 6.1 – RZDU Address of LED-RZDU DIP Switches (DIP switches are set to RZDU address-1)

ADDRESS	RZ4	RZ2	RZ1
1	OFF	OFF	OFF
2	OFF	OFF	ON
3	OFF	ON	OFF
4	OFF	ON	ON
5	ON	OFF	OFF
6	ON	OFF	ON
7	ON	ON	OFF
8	ON	ON	ON

Table 6.2 – Number of MX4428/*MX1* LED Display Boards Connected DIP Switches

NUMBER	LB16	LB8	LB4	LB2	LB1
32	OFF	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	ON	ON
4	OFF	OFF	ON	OFF	OFF
5	OFF	OFF	ON	OFF	ON
6	OFF	OFF	ON	ON	OFF
7	OFF	OFF	ON	ON	ON
8	OFF	ON	OFF	OFF	OFF
9	OFF	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON	OFF
11	OFF	ON	OFF	ON	ON
12	OFF	ON	ON	OFF	OFF
13	OFF	ON	ON	OFF	ON
14	OFF	ON	ON	ON	OFF
15	OFF	ON	ON	ON	ON
16	ON	OFF	OFF	OFF	OFF
17	ON	OFF	OFF	OFF	ON
18	ON	OFF	OFF	ON	OFF
29	ON	OFF	OFF	ON	ON
20	ON	OFF	ON	OFF	OFF
21	ON	OFF	ON	OFF	ON
22	ON	OFF	ON	ON	OFF
23	ON	OFF	ON	ON	ON
24	ON	ON	OFF	OFF	OFF
25	ON	ON	OFF	OFF	ON
26	ON	ON	OFF	ON	OFF
27	ON	ON	OFF	ON	ON
28	ON	ON	ON	OFF	OFF
29	ON	ON	ON	OFF	ON
30	ON	ON	ON	ON	OFF
31	ON	ON	ON	ON	ON

Note: Refer DIP Switch C & D settings for LED operation mode (Table 6.6)

Table 6.3 – Host Panel Type DIP Switches

PANEL	PNL 4	PNL 2	PNL1
SIGMA 5	OFF	OFF	OFF
FP1600 / OMEGA 64	OFF	OFF	ON
MX1	OFF	ON	OFF
MX4428/F4000	OFF	ON	ON
F3200/NDU	ON	OFF	OFF
Reserved	ON	OFF	ON
Reserved	ON	ON	OFF
Reserved	ON	ON	ON

Note: Refer to section 13 for panel-specific configuration details.

Table 6.4 – Range Selection DIP Switches

RANGE	RG32	RG16	RG8	RG4	RG2	RG1
0	OFF	OFF	OFF	OFF	OFF	OFF
1	OFF	OFF	OFF	OFF	OFF	ON
2	OFF	OFF	OFF	OFF	ON	OFF
3	OFF	OFF	OFF	OFF	ON	ON
4	OFF	OFF	OFF	ON	OFF	OFF
5	OFF	OFF	OFF	ON	OFF	ON
6	OFF	OFF	OFF	ON	ON	OFF
7	OFF	OFF	OFF	ON	ON	ON
8	OFF	OFF	ON	OFF	OFF	OFF
9	OFF	OFF	ON	OFF	OFF	ON
10	OFF	OFF	ON	OFF	ON	OFF
11	OFF	OFF	ON	OFF	ON	ON
12	OFF	OFF	ON	ON	OFF	OFF
13	OFF	OFF	ON	ON	OFF	ON
14	OFF	OFF	ON	ON	ON	OFF
15	OFF	OFF	ON	ON	ON	ON
16	OFF	ON	OFF	OFF	OFF	OFF
17	OFF	ON	OFF	OFF	OFF	ON
18	OFF	ON	OFF	OFF	ON	OFF
19	OFF	ON	OFF	OFF	ON	ON
20	OFF	ON	OFF	ON	OFF	OFF
21	OFF	ON	OFF	ON	OFF	ON
22	OFF	ON	OFF	ON	ON	OFF
23	OFF	ON	OFF	ON	ON	ON
24	OFF	ON	ON	OFF	OFF	OFF
25	OFF	ON	ON	OFF	OFF	ON
26	OFF	ON	ON	OFF	ON	OFF
27	OFF	ON	ON	OFF	ON	ON
28	OFF	ON	ON	ON	OFF	OFF
29	OFF	ON	ON	ON	OFF	ON
30	OFF	ON	ON	ON	ON	OFF
31	OFF	ON	ON	ON	ON	ON
32	ON	OFF	OFF	OFF	OFF	OFF
33	ON	OFF	OFF	OFF	OFF	ON
34	ON	OFF	OFF	OFF	ON	OFF
35	ON	OFF	OFF	OFF	ON	ON

The effect of the Range Selection option is panel-specific, in general determining the zone mapping of display boards connected to the MX4428/*MX1* LED display bus

See Section 13 for these panel-specific details.

Table 6.5 – EVAC Input Mode DIP Switches

MODE	A	B
Non-Supervised N/O	OFF	OFF
Supervised N/O and S/C Fault	ON	OFF
Supervised N/C and S/C fault	OFF	ON
Supervised N/O	ON	ON

See Section 4.5 for more details. Set both switches off unless EOL resistors are fitted.

Table 6.6 – LED Operation on Display Bus DIP Switches

MODE	C	D
No boards fitted to Display Bus	OFF	OFF
Alarm LED only	ON	OFF
2 LEDs per zone (Alarm and Fault/Isolate)	OFF	ON
3 LEDs per zone (Alarm, Fault, Isolate)	ON	ON

Note: The 3 LEDs per zone mode is suitable only for boards with 3 LEDs per zone (i.e., MX4428 LED display).

Table 6.7 – Miscellaneous DIP Switch Options

DIP SWITCH	STATE	FUNCTION
E	ON	On-Board Zone 1 RED LED = Common Alarm
	OFF	On-Board Zone 1 RED LED = Zone 1 Alarm (if switch G ON)
F	ON	Relay Mode Enabled (LEDs come on steady, phasing is disabled)
	OFF	Relay Mode Disabled (LEDs flash and phase if necessary)
G	ON	On-Board Zone LEDs Enabled
	OFF	On-Board Zone LEDs Disabled
H	ON	Australian Mode (for MCP) on EVAC input
	OFF	NZ Mode (for brigade keyswitch) on EVAC input
J	ON	ACK Pass-On to Fire Panel
	OFF	ACK Pass-On Disabled
K	ON	NA- Mode for FLT/NA- Output
	OFF	DEF- Mode for FLT/NA- Output
Z	ON	Latch-Last-Fault Mode (see Section 2.2)
	OFF	Normal Mode

Note 1: The LED-RZDU's on-board yellow LED shows the common Defect (fault) status and the green LED shows the common Normal status. The red LED next to the yellow one (first row) shows the common FIRE (Alarm) if DIP switch E is ON, or the zone 1 alarm status if DIP switch E is OFF.

Note 2: If DIP switch E is ON and DIP switch G is OFF only the first row of LEDs are driven showing the 3 common statuses. If LK2 is removed then all LEDs are OFF.

Note 3: The common Fire (Alarm), Fault and Normal outputs on the FP1600 mimic output (J2) are always driven (regardless of DIP switch G's setting).

Note 4: LED phasing affects only the LEDs on display boards connected to the MX4428/MX1 display bus. The LED-RZDU on-board LEDs do not phase (but may flash depending on panel type selected).

6.2 LINKS

6.2.1 Firmware Write Enable (LK1)

Jumper link LK1 is fitted only when firmware is being programmed into the on-board Flash microprocessor. Leave off otherwise.

6.2.2 On-Board LEDs Enable (LK2)

Fit jumper link LK2 to supply power to the on-board LEDs. Note the on-board LEDs may also need to be enabled (DIP switch G ON).

Remove LK2 to reduce current consumption if the on-board LEDs are not required. The mimic outputs (J1 and J2) will still be driven to operate with a mimic or termination board regardless of LK2.

6.2.3 24V VDISP (LK3)

Fit jumper link LK3 to configure the LED-RZDU's on-board VDISP power supply to generate a 24V VDISP supply. Remove LK3 to configure the LED-RZDU's on-board VDISP power supply to generate a 12V VDISP supply.

Note that LK4 must be in the INT position to enable the on-board VDISP supply, otherwise LK3 has no effect. See section 2.3 for more information.

6.2.4 VDISP Source (LK4)

Fit jumper link LK4 in the panel supply position (PNL) if the power supply to the LED-RZDU matches the supply voltage of the Mimic boards connected to J1 and J2 and the LED display boards on the LED display bus. This link connects the +V supply of the LED-RZDU directly through to all the Mimic outputs and the LED display bus.

Fit LK4 to the Internal Supply position (INT) if the power supply voltage to the LED-RZDU does not match the required voltage for all Mimic boards or LED display boards. This enables the on-board VDISP switch mode power supply, which will generate a VDISP of 12V if LK3 is not fitted and 24V if LK3 is fitted. See section 2.3 for more information.

Typical settings for common situations are shown in Table 6.8.

Table 6.8 – Typical VDISP Supply Selection Options

SUPPLY VOLTAGE	DISPLAY BOARD(S) USED	LK3	LK4
12V	FP1002 *MX1* LED DISPLAY	ON	INT
	FP0475 MX4428/F4000 LED DISPLAY	ON	INT
	PA0787 FP1600 MIMIC DISPLAY	X	PNL
	PA0470 16-WAY RELAY BOARD	ON	INT
24V	FP1002 *MX1* LED DISPLAY	X	PNL
	FP0475 MX4428/F4000 LED DISPLAY	X	PNL
	PA0787 FP1600 MIMIC DISPLAY	OFF	INT
	PA0470 16-WAY RELAY BOARD	X	PNL

X = Does Not Matter

7. INSTALLATION/MOUNTING

The LED-RZDU may be configured in various ways and fitted into a variety of standard empty fire panel cabinets, or a custom enclosure as follows (Table 7.1):

Table 7.1 – Typical LED-RZDU Mounting Configurations

MOUNTING ARRANGEMENT	ZONES DISPLAYED	SECTION
Rear Service (window–mounted):		
Empty R/S FP1600 cabinet (SP0424). 1 x PA1048 LED-RZDU, 1 x PA0787 FP1600 Mimic Display Board, 1 x LM0046 26-way FRC loom.	Common Fire/Defect/Normal plus 16 zone Alarm LEDs.	8 Fig 8.1
Multiple empty R/S FP1600 cabinets (SP0424). 1 x PA1048 LED-RZDU, 1 x PA0787 FP1600 Mimic Display Board in first cabinet. 1 x FP0475 MX4428 LED Display Board, 1 x PA0483 Unprotected Termination Board, 1 x LM0046 26-way FRC Loom 0.5m, 1 x PA0787 FP1600 Mimic Display Board in 2nd and subsequent cabinets.	Common Fire/Defect/Normal plus 16 zone Alarm LEDs in first cabinet. 16 Zone Alarm LEDs per subsequent cabinet up to 528 zones.	8 Fig 8.1
Empty *MX1* cabinet (FP0944), or Picture Frame Display (FP0967). 1 x PA1048 LED-RZDU.	Common Fire/Defect/Normal plus 15 zone Alarm LEDs (zone 16 on LAST ZONE-).	9 Fig 9.1
Empty *MX1* cabinet (FP0944), or Picture Frame Display (FP0967). 1 x PA1048 LED-RZDU, 1 x FP1002 16-zone *MX1* LED Display Board.	Common Fire/Defect/Normal plus 31 zone Alarm LEDs (zone 32 on LAST ZONE-).	9 Fig 9.1
Multiple empty *MX1* cabinets (FP0944), or Picture Frame Display (FP0967). 1 x PA1048 LED-RZDU (PA1048), multiple FP1002 16-zone *MX1* LED Display Boards.	Common Fire/Defect/Normal plus up to 31 zone Alarm LEDs in first cabinet. 16/32 zone Alarm LEDs per successive cabinet (final zone Alarm on LAST ZONE-, if necessary). Up to 528 zones.	9 Fig 9.1
Front Service (wall-mounted):		
Picture Frame Display (FP0967). 1 x PA1048 LED-RZDU.	Common Fire/Defect/Normal plus 15 zone Alarm LEDs (zone 16 on LAST ZONE-).	9 Fig 9.1
Picture Frame Display (FP0967). 1 x PA1048 LED-RZDU, 1 x FP1002 16-zone *MX1* LED Display Board.	Common Fire/Defect/Normal plus 31 zone Alarm LEDs (zone 32 on LAST ZONE-).	9 Fig 9.1
Multiple Picture Frame Displays (FP0967). 1 x PA1048 LED-RZDU (PA1048), multiple FP1002 16-zone *MX1* LED Display Boards.	Common Fire/Defect/Normal plus up to 31 zone Alarm LEDs in first cabinet. 16/32 zone Alarm LEDs per successive cabinet (final zone Alarm on LAST ZONE-, if necessary). Up to 528 zones.	9 Fig 9.1
Empty FP1600 cabinet (SP0425). 1 x PA1048 LED-RZDU, 1 x PA0787 FP1600 Mimic Display Board, 1 x FA1210 FP1600 F/S Display Mounting Bracket, 1 x LM0046 26-way FRC loom.	Common Fire/Defect/Normal plus 16 zone Alarm LEDs.	10 Fig 8.1

Multiple empty F/S FP1600 cabinets (SP0425). 1 x PA1048 LED-RZDU, 1 x FA1210 FP1600 F/S Display Mounting Bracket, 1 x PA0787 FP1600 Mimic Display Board in first cabinet. 1 x FP0475 MX4428 LED Display Board, 1 x PA0483 Unprotected Termination Board, 1 x LM0046 26-way FRC Loom 0.5m, 1 x FA1210 FP1600 F/S Display Mounting Bracket, 1 x PA0787 FP1600 Mimic Display Board in 2nd and subsequent cabinets.	Common Fire/Defect/Normal plus 16 zone Alarm LEDs in first cabinet. 16 Zone Alarm LEDs per subsequent cabinet. Up to 528 zones.	10 Fig 8.1
19'' rack cabinets using *MX1* 4U 80-Zone Display Doors (ME0457). 1 x PA1048 LED-RZDU, multiple FP1002 *MX1* LED Display Boards. Up to 80 zones per ME0457 in 4U rack space.	Up to 528 zones (including those displayed on LED-RZDU). Zone Alarm LED plus (optional) zone Isolated/Fault indicators (final zone Alarm on LAST ZONE-, if necessary). ***note 1**	11 Fig 11.1
19'' rack cabinets using 7U 64-Zone Display Doors (ME0060). 1 x PA1048 LED-RZDU, multiple FP0475 MX4428 LED Display Boards. Up to 64 zones per ME0060 in 7U rack space. Use FP1600 Mimic Termination (PA0702) 26-way FRC Loom and hard-wired LEDs if common Fire/Defect/Normal is required.	Up to 512 zones (none able to be displayed on LED-RZDU). Separate Alarm (and optionally Fault and Isolated) LEDs per zone.	11 Fig 11.2
Geographic mimics and relay drivers (any suitable enclosure):		
LED-RZDU (PA1048) + FP1600 Mimic Termination Board (PA0702) + 26-way FRC loom + LEDs.	Common Fire/Defect/Normal plus 16 zone Alarm LEDs (all hard-wired).	12.1 Fig 12.1
LED-RZDU (PA1048) + 16-way Relay Board (PA0470).	16 Relay outputs for zone Alarms. Can drive LEDs or another system (e.g., BMS).	12.2 Fig 12.2
LED-RZDU (PA1048) + 16-way Protected/Unprotected Termination Board (PA0483 or PA0769).	16 open-collector outputs for zone Alarms. Can drive LEDs, etc.	12.3
LED-RZDU (PA1048) + FP1600 Mimic Termination Board (PA0702) + multiple MX4428 LED Display Board(s) (FP0475) each with Protected/Unprotected Termination Board (PA0483 or PA0769) + LEDs.	Common Fire/Defect/Normal plus 16 Alarm LEDs from LED-RZDU. 16 Alarm LEDs from each MX4428 Display Board (all hard-wired).	12 Fig 12.1
LED-RZDU (PA1048) + 16-way Relay Board (PA0470) + multiple MX4428 LED Display Board(s) (FP0475) each with PA0470 16-way Relay boards. Optional common statuses via FP1600 Mimic Termination Board (PA0702), 26-way FRC Loom + external relays..	16 Relay outputs for zone Alarms on each Relay Board. Optional common Fire/Defect/Normal Relay outputs.	12 Fig 12.2

***Note 1** The LED-RZDU itself cannot display zone Isolated/Fault statuses. If required this combination is limited to 512 zones.

8. BRIGADE MIMIC REAR SERVICE USING FP1600 CABINETS

Rear service brigade mimics can be constructed using one or more empty FP1600 cabinets (SP0424), as shown in Figures 8.1 and 8.2.

In the first cabinet the LED-RZDU is fitted with an FP1600 Mimic Display Board (PA0787) to provide 16 zones of alarm indication plus the 3 common indicators. Optional Brigade switch inputs terminate on the LED-RZDU.

In each of the second and subsequent cabinets an MX4428 16-zone LED display board can be mounted along with a PA0483 unprotected termination board, with hard wiring to a PA0787 FP1600 Mimic Display Board mounted behind the index (wiring detail in Fig 8.2). This provides an additional 16 zone Alarm indications per cabinet. The 3 common LEDs need to be bent out of the way on these subsequent PA0787 boards.

Parts needed:

1st Cabinet:

1 x SP0424	Empty R/S FP1600 cabinet (SP0425 for Front Service)
1 x PA1048	LED-RZDU
1 x PA0787	FP1600 Mimic Display Board
1 x FA1210	FP1600 F/S Display Mounting Bracket (Front Service only)
1 x LM0046	26-way FRC loom, 0.5m
1 x LM0356	Brigade Keyswitch Loom (if required)
1 x FA2074	Brigade Keyswitch Label (if required)

2nd and subsequent Cabinets:

1 x SP0424	Empty R/S FP1600 cabinet (SP0425 for Front Service)
1 x FP0475	MX4428 16-zone LED Display Board Kit (includes FRC loom)
1 x PA0483	MX4428 Unprotected Termination Board
1 x LM0046	26-way FRC loom, 0.5m
1 x FA1210	FP1600 F/S Display Mounting Bracket (Front Service only)
1 x PA0787	FP1600 Mimic Display Board

The empty FP1600 cabinets provide direct mounting for the PA0787 FP1600 Mimic Display boards, but holes will need to be drilled in the gear plate and standoffs fitted, for mounting the LED-RZDU, MX4428 LED Display, and Termination boards.

All cabinets need to be earth bonded together and the FRCs between cabinets must be enclosed within the cabinets or shielded. The FRC must not run external to the cabinets as it could generate, or be susceptible to, RF interference. Longer FRC cables are available for inter-cabinet runs (if required), e.g., LM0056 (1.4m), LM0044 (2m).

Figure 8.1 shows this arrangement for up to 48 zones. Figure 8.2 details the hard-wiring from the PA0483 to the PA0787's screw terminals.

The MX4428 16-zone LED display boards will need to have LK4 removed to disable the on-board LEDs – this saves current as the on-board LEDs are not used.

LK1 needs to be fitted on the last MX4428 LED display board only, so the LED-RZDU can identify the number of display boards in the chain.

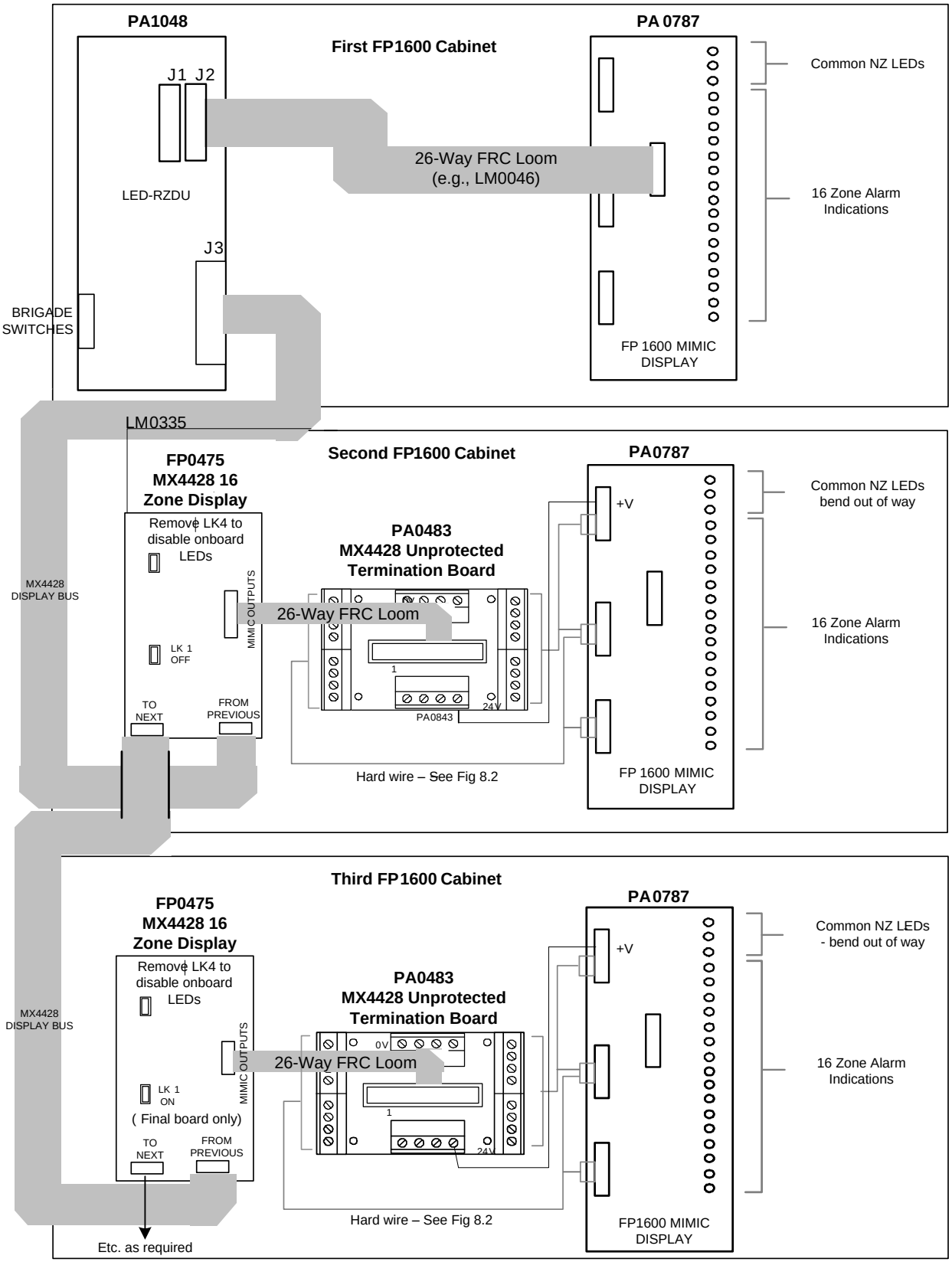


Fig 8.1 – LED-RZDU in FP1600 Cabinets

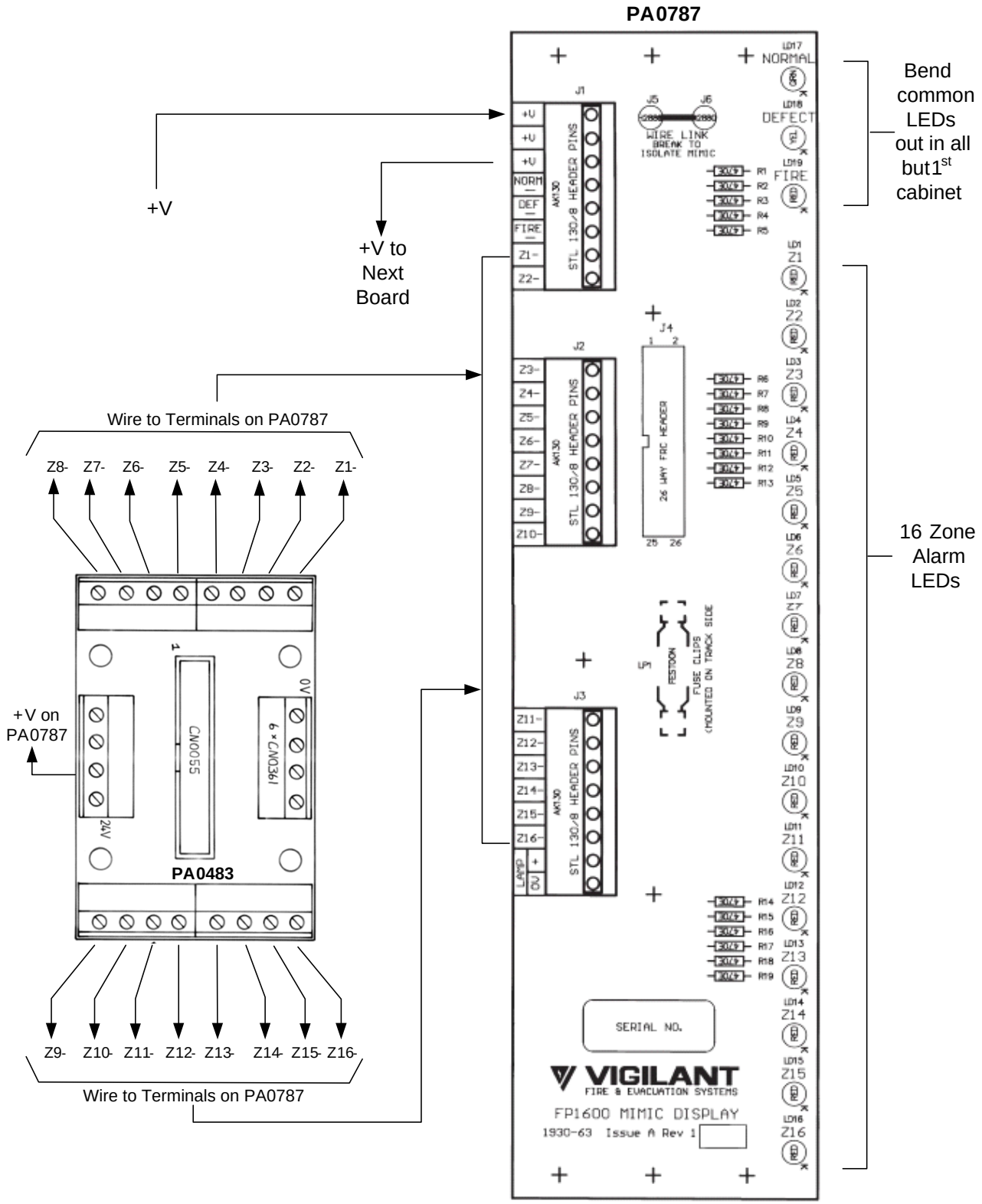


Fig 8.2 – Wiring between PA0483 Unprotected Termination Board and PA0787 FP1600 Mimic Display

9. BRIGADE MIMIC REAR SERVICE – USING *MX1* OR PICTURE FRAME CABINETS

A rear service brigade mimic with index can be created using empty *MX1* cabinets (FP0944) or Picture Frame (PFD) cabinets (FP0967), an LED-RZDU, and *MX1* 16-zone LED display boards (FP1002). This arrangement will provide up to 32 zone Alarm indications per cabinet. Both Rear or Front service are possible with the Picture Frame cabinet.

The LED-RZDU is mounted in the first cabinet and can display the common LEDs plus the first 15 zones (with Common LEDs enabled), or the first 16 zones (Common LEDs disabled). Each additional *MX1* LED display board displays 16 zone Alarm indications.

All cabinets need to be earth bonded together and the FRCs between cabinets must be enclosed within the cabinets or shielded. The FRC must not run external to the cabinets as it could generate, or be susceptible to, RF interference. Longer FRC cables are available for inter-cabinet runs (if required), e.g., LM0056 (1.4m), LM0044 (2m).

Figure 9.1 shows this arrangement with common LEDs plus 63 zones of indication.

Parts needed:

1st Cabinet:

	1 x FP0967 or FP0944	Picture Frame or Empty *MX1* Cabinet
	1 x PA1048	LED-RZDU
	1 x LM0356	Brigade Keyswitch Loom (if required)
	1 x FA2074	Brigade Keyswitch Label (if required)
	1 x FP1002	*MX1* LED Display Board (if more than 15 zones)

2nd and Subsequent Cabinets:

	1 x FP0967 or FP0944	Picture Frame or Empty *MX1* Cabinet
up to	2 x FP1002	*MX1* LED Display Board (16 zones each)
	1 x LM0056	26-way FRC, 1.4m, or
	1 x LM0044	26-way FRC, 2m (to go between cabinets)

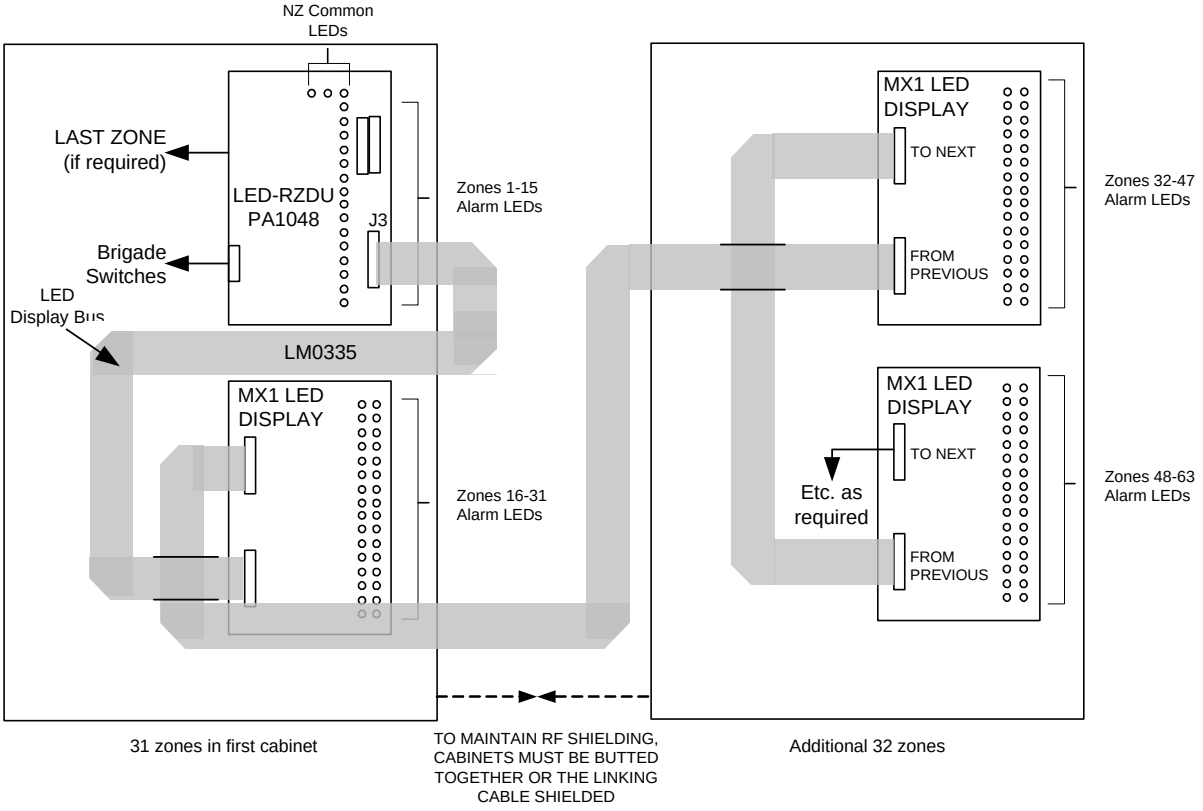


Fig 9.1 – LED-RZDU in *MX1* (Rear Service only) or Picture Frame (Front or Rear Service) Cabinets

10. BRIGADE MIMIC FRONT SERVICE USING PICTURE FRAME OR FP1600 CABINETS

Front service brigade mimics can be constructed using empty FP1600 front service cabinets (SP0425). Section 8 above contains the detail for doing this for rear service. Front service is the same, except that SP0425 front service cabinets are used instead of SP0424 rear service cabinets and FA1210 brackets are required for mounting the PA0787 Mimic Display boards.

Front service brigade mimics can be constructed using Picture Frame Display (PFD) cabinets (FP0967). Section 9 above contains the detail for this. The PFD cabinet is reversible to suit both front and rear service.

11. BRIGADE MIMIC FRONT SERVICE USING 19" RACK CABINETS

Front service (wall mounted) brigade mimics can be constructed using the LED-RZDU, the Vigilant range of 19" rack cabinets, and either:

- 4U rackmount 80-zone display doors (ME0457) with *MX1* format 16-zone LED display boards (FP1002) to display zone Alarm and (optionally) Fault/Isolate on 2 LEDs (Figure 11.1), or
- 7U rackmount 64-zone display doors (ME0060) with MX4428 format 16-zone LED display boards (FP0475) to display zone Alarm (and optionally) Fault, and Isolate on 3 LEDs (Figure 11.2).

These arrangements do not allow building layout diagrams to be easily fitted near the LEDs. Possible locations are underneath the doors in the remaining cabinet space, or on the wall beside the cabinet.

When using the ME0060 and MX4428 LED display boards the LED-RZDU is mounted inside the cabinet (not on the display door) and does not directly drive any zone LEDs.

However the LED-RZDU can provide outputs for the 3 common indicators (Normal, Defect, Fire) and these could be displayed on hand-fitted LEDs wired from a PA0702 FP1600 Mimic Termination Board (see Figure 12.1).

LK1 must be fitted on the last MX4428 LED display board only (*MX1* LED display boards do not have this link).

When using the ME0457 and *MX1* LED display boards the LED-RZDU is fitted in the appropriate position to provide the 3 common and the first 15 zone alarm indications. As it does not have any yellow LEDs for zones, the LED-RZDU cannot display zone fault/isolate and so where these are needed it will have to have its zone LEDs disabled. However it can still be used to provide the common indications.

Parts needed:

Using *MX1* LED Display Boards:

	1 x	Suitable 19" rack cabinet
	1 x PA1048	LED-RZDU
	1 x LM0356	Brigade Keyswitch Loom (if required)
	1 x FA2074	Brigade Keyswitch Label (if required)
	1 x ME0457	19" 4U 80-zone LED Display Door (per 80 zones)
up to	4 x FP1002	*MX1* LED Display Boards (on first ME0457)
up to	5 x FP1002	*MX1* LED Display Boards (on each subsequent ME0457)

Using MX4428 LED Display Boards:

	1 x	Suitable 19" rack cabinet
	1 x PA1048	LED-RZDU
	1 x LM0092	Longer version of LM0335 (if required)
	1 x LM0356	Brigade Keyswitch Loom (if required)
	1 x FA2074	Brigade Keyswitch Label (if required)
	1 x ME0060	19" 7U 64-zone LED Display Door (per 64 zones)
up to	4 x FP0475	MX4428 LED Display Boards (per ME0060)
	1 x PA0702	FP1600 Mimic Termination Board (if common LEDs required)
	1 x LM0046	26-way FRC 0.5m (for PA0702, if used)
	3 x sets	LED and Resistor (for common LEDs, if used)

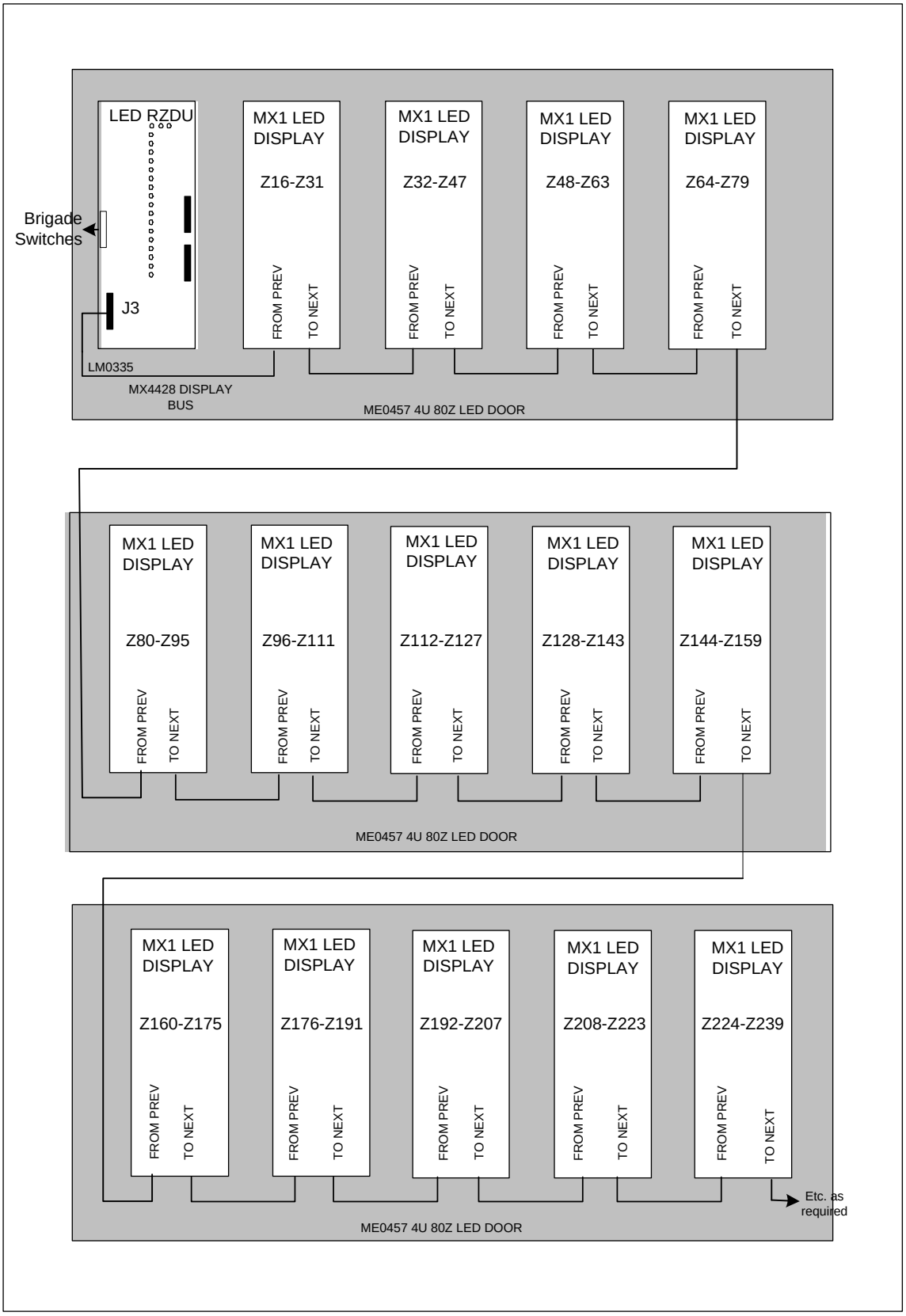


Fig 11.1 – Front Service Rackmount Display with *MX1* LED Display Boards

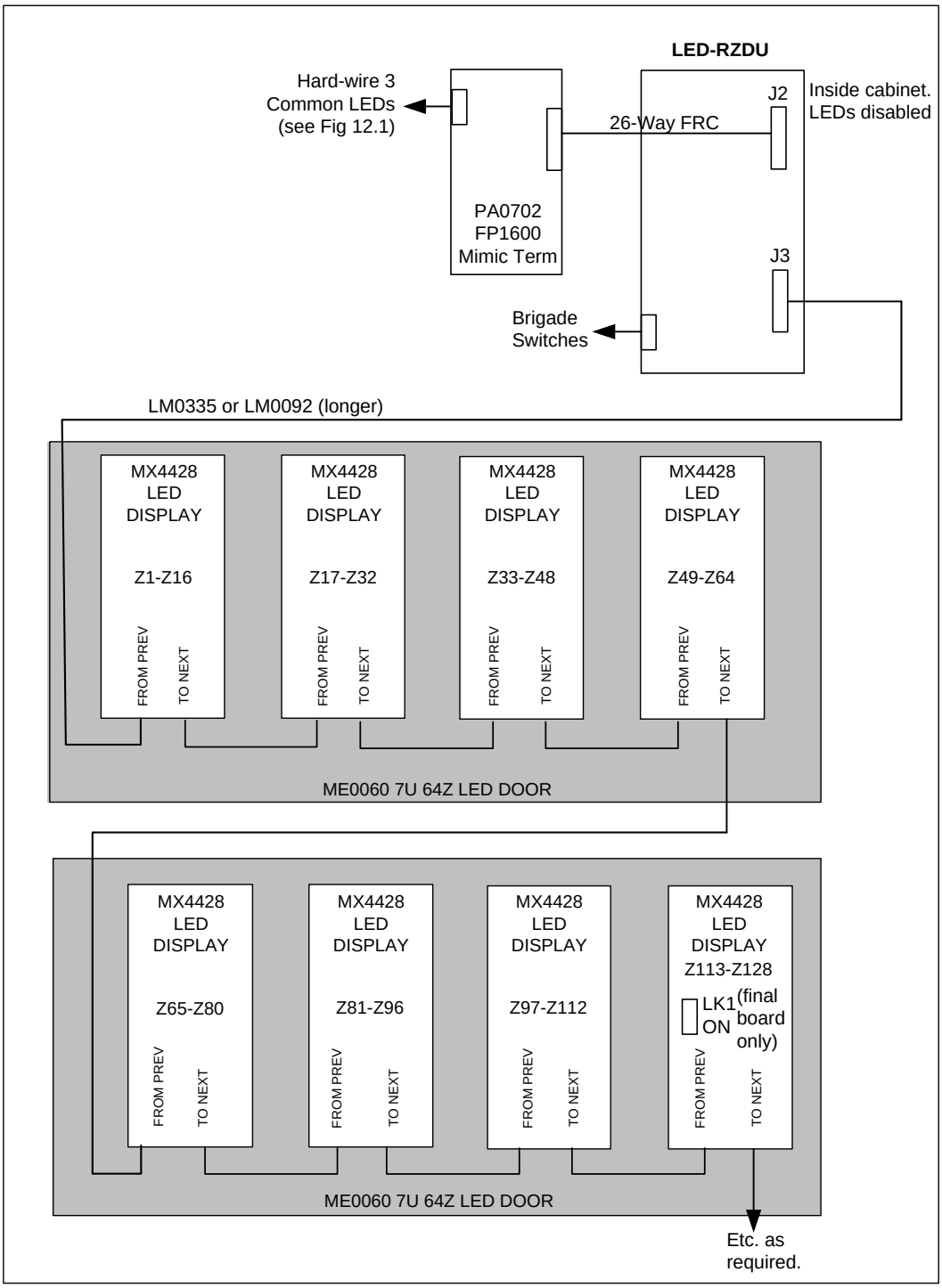


Fig 11.2 – Front Service Rackmount Display with MX4428 LED Display Boards

12. GEOGRAPHIC MIMICS & RELAY OUTPUTS

A range of combinations of boards can be used to create geographic mimics or provide zone alarm relay outputs (e.g., for interface to a BMS). These can be mounted in various cabinets to meet specific installation requirements. Some examples are described to illustrate the general principles involved, however no cabinet recommendations are generally made.

If you are creating custom mimics, please note that the LED-RZDU and the *MX1* LED display boards are designed to be mounted with the LEDs behind the LED holes in the brigade index, with draughting film placed across the holes on the back of the index as a light diffuser (the LEDs do not poke through the index holes).

When driving relays, the relay mode (DIP switch F) is enabled and power consumption may become very high if all relays are switched on continuously. Careful checking of power supplies will be necessary to prevent overloads.

12.1 LED-RZDU & FP1600 Mimic Termination Board (PA0702)

The FP1600 Mimic Termination Board (PA0702) can be connected to J2 of the LED-RZDU via a 26-way FRC loom to provide the 3 NZ Common Fire/Defect/Normal outputs, plus 16 zone Alarm outputs. The outputs are open-collector, and can drive LEDs (with suitable resistors), relays, etc. See the top section of Fig 12.1.

12.2 LED-RZDU Relay Board (PA0470)

The 24V 16-way Relay Board (PA0470) can be connected to J1 of the LED-RZDU via a 26-way FRC (supplied with PA0470) to provide 16 change-over contact relay outputs. These could control LEDs, other devices, or provide an electrically-isolated interface to other equipment such as a BMS, security, or site alarm system. See the top section of Fig 12.2.

The supply for the LED-RZDU can be 24V (with LK4 in PNL position), or 12V (with LK4 in INT position and LK3 fitted). The 3 common LED statuses are available to drive external relays via J2 if required, see the top section of Fig 12.1.

12.3 LED-RZDU & 16-way Unprotected Termination Board

A 16-way Unprotected Termination Board (PA0483 or PA0769) can be connected to J1 via a 26-way FRC to provide 16 open-collector (or LED driver) outputs driven by the 16 Alarm LED signals where the 3 common statuses are not required.

The PA0483/PA0769 also provides screw terminal outputs labelled +V (connects to +VDISP) that can be used for the supply to LEDs, buzzers, relays, etc. This arrangement is not illustrated.

12.4 LED-RZDU & MX4428 LED Display Boards & Termination or Relay Boards

By adding MX4428 16-zone LED display boards (FP0475) connected to J3 (MX4428/*MX1* Display Bus) various termination/relay boards can be connected to the Mimic outputs of the MX4428 LED boards to drive 16 relay or open-collector outputs. Suitable boards are listed in Table 12.1.

Table 12.1 – Boards Compatible with MX4428 LED Display Board Mimic Output

Part Number	Description	Output Type
PA0483	Unprotected Termination Board	Provides 16 unprotected open-collector outputs suitable for driving LEDs with resistors, etc.
PA0769	Unprotected Termination Board (with resistors)	Provides 16 unprotected open-collector outputs in series with 3k3 resistors suitable for driving LEDs directly (6mA @ 24V).
PA0479	16-way Protected Output Termination Board	Provides 16 diode-clamped open-collector outputs suitable for driving loads, relays, etc.
PA0470	16-way Relay Board (24V)	Provides 16 changeover contact relay outputs.

Figure 12.1 shows an example of this using Termination Boards and Figure 12.2 shows an example using 16-way Relay Boards.

Note if more than 5 of the 16-way Relay Boards are used then the power connection (24V) should be run to the +VEXT terminal on at least every second LED display board to augment the FRC cabling.

As the LEDs on the MX4428 display boards are unlikely to be used, LK4 should be removed on each board to reduce current consumption.

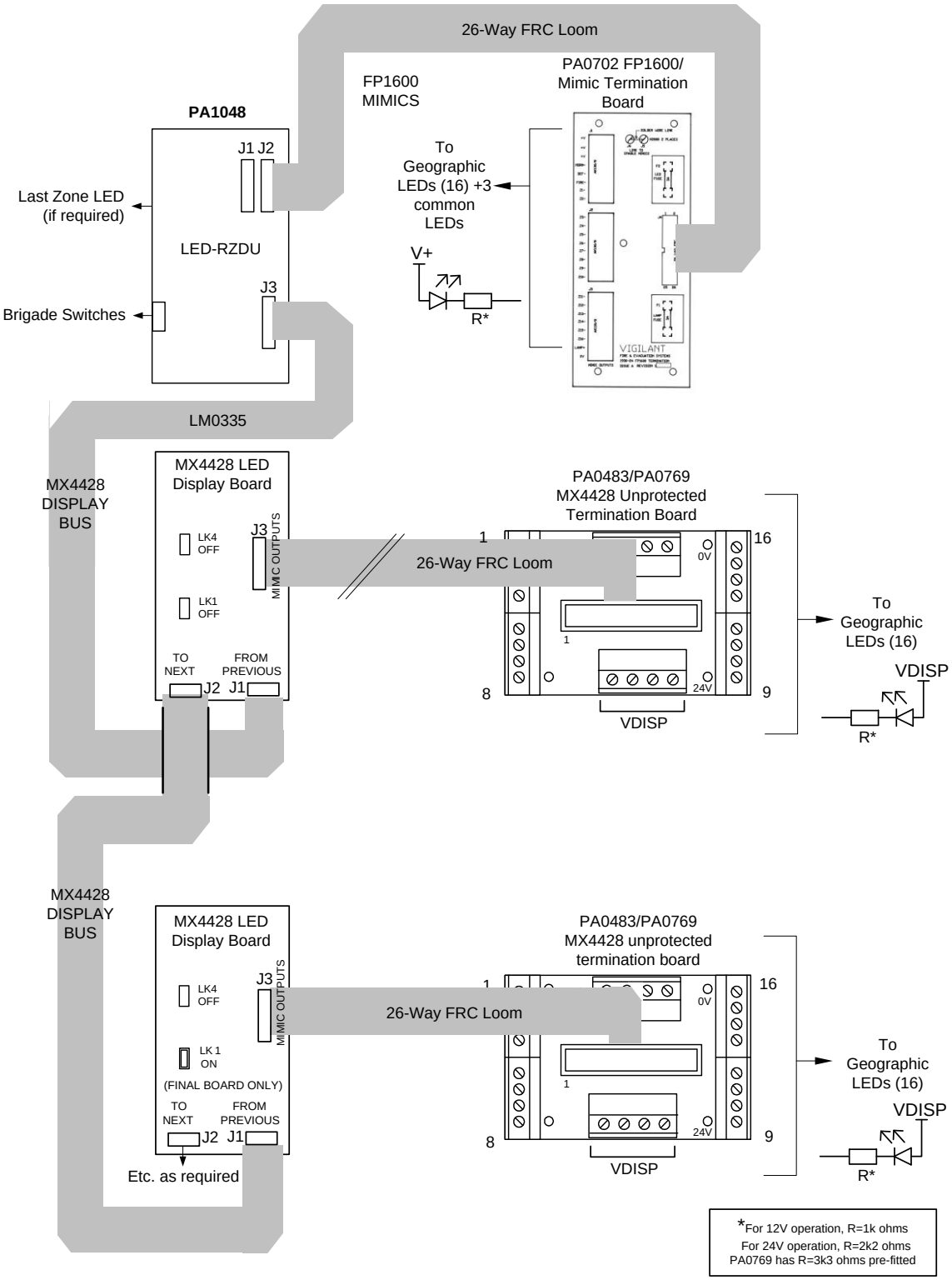


Fig 12.1 – Geographic Mimic – General Arrangement for 48 zones plus 3 NZ common LEDs

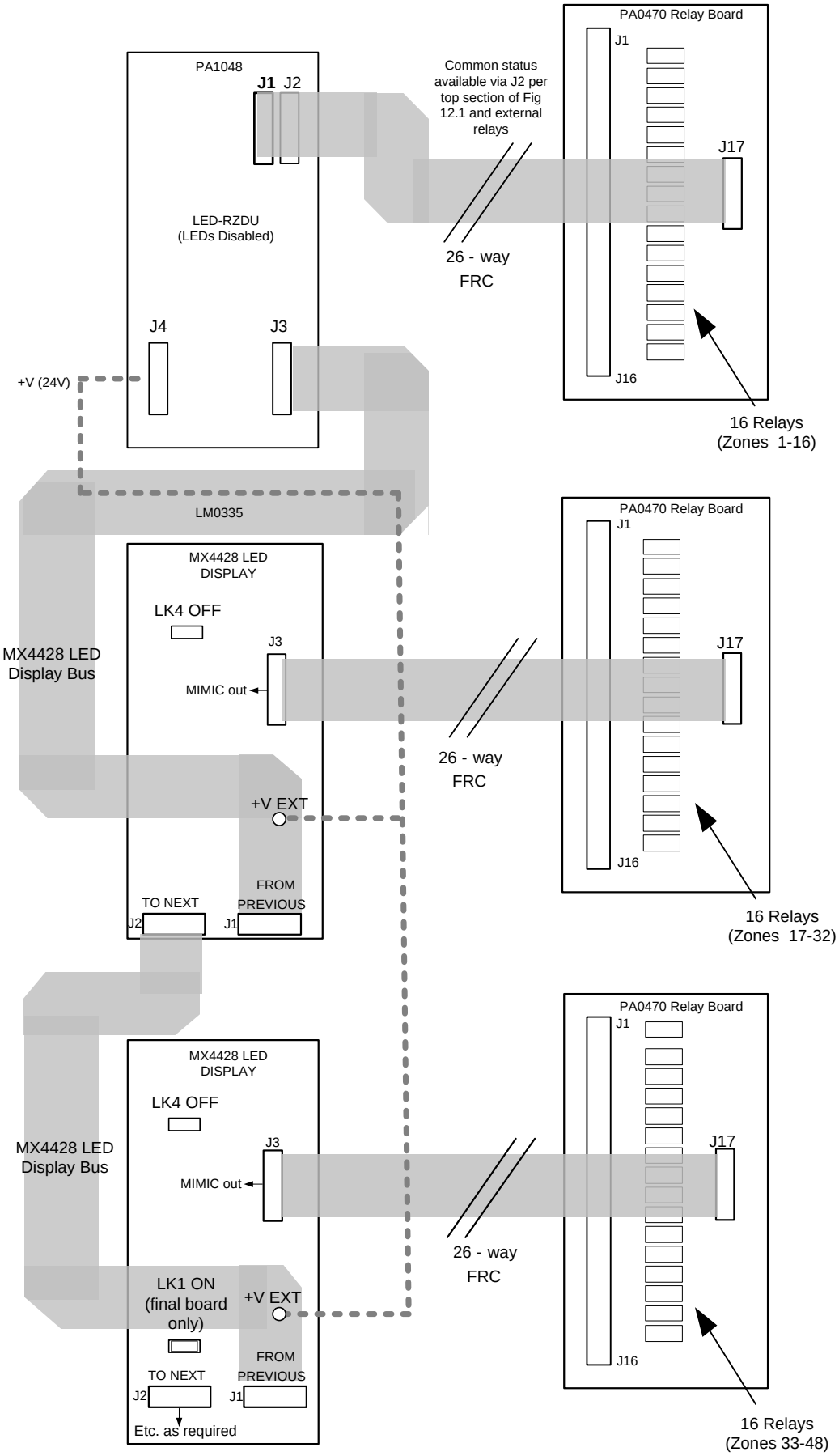


Fig 12.2 – Relay Interface – General Arrangement for 48 Zones

13. PANEL-SPECIFIC INFORMATION

DIP switches PNL4, PNL2 and PNL1 select the type of host fire panel the LED-RZDU is connected to. This determines how the Range DIP switches (RG1 to RG32, per Table 6.4) are interpreted.

13.1 SIGMA 5

With a SIGMA 5 host panel the LED-RZDU's LEDs generally show the Zone 1-5 alarm statuses, with the Range selection determining which types of alarm are displayed as shown in Table 13.1.

The first MX4428/*MX1* LED display board (if connected) generally shows the Ancillary relay (Ar) status on Output 1, and Ancillary outputs A0-A9 on Outputs 2-11.

Table 13.1 – SIGMA 5 Range Selection Options

Range Number Selected	Description	LED-RZDU Displays	Extender Display Board 1 (if present)
0	All Alarms (single/double flash)	Zone 1-5	Ancillary Relay (Ar) Ancillary Outputs (A0-A9)
1	Smoke only (double flash)	Zone 1-5	Ancillary Relay (Ar) Ancillary Outputs (A0-A9)
2	Non-smoke only (single flash)	Zone 1-5	Ancillary Relay (Ar) Ancillary Outputs (A0-A9)
3	Ancillary Relay	Ancillary Relay (Ar) Ancillary Outputs (A0-A9)	
4	Heat/smoke	Zone 1 - 5 non-smoke alarm Zone 1 - 5 smoke alarm (mapped to the first 10 LEDs)	Ancillary Relay (Ar) Ancillary Outputs (A0-A9)

Single flash is one short flash every half second. Double flash is two short flashes every half second.
During a system test (St) all LEDs will turn OFF. Lamp Test at the host fire panel will turn all LEDs ON.
During non-latching test mode (NLT) all zone LEDs will display the isolate status.
Non-Residential circuit: The flashing cadence if selected (steady/flash mode), will be similar to the one displayed at the host fire panel.
Residential circuit: The flashing cadence if selected may be different to the one displayed at the host fire panel as it depends on which device went into alarm first (i.e., if MCP first and then smoke detector, single flash mode is used at the LED-RZDU).

13.2 *MX1* AND MX4428

With an *MX1* or MX4428 host panel, the Range DIP switches determine the starting zone number, displayed as a linear function of the board number on the LED display bus, with extender display board #1 being the extender display closest to the LED-RZDU as per Table 13.2.

Note Table 13.2 assumes the LED-RZDU is <u>not</u> showing NZ Common FIRE (Alarm) on Zone 1 (DIP switch E OFF), and does have its on-board LEDs enabled (DIP switch G ON) – i.e. each board is displaying 16 zones.

If the LED-RZDU is showing the NZ Common FIRE (Alarm) on Zone 1 then each extender display board would start one zone lower than shown in Table 13.2.

If the LED-RZDU's on-board LEDs are disabled (DIP switch G OFF) then extender display board #1 would start at the zone number shown in the PA1048 column with all other columns shifted one along accordingly.

Table 13.2 – *MX1* / MX4428 Range Selection of Display Board Starting Zone Number

Range Number Selected	LED-RZDU PA1048	Extender Board Number (if present) Starting Zone																														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
0	1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513
1	17	33	49	65	81	97	113	129	145	161	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513	
2	33	49	65	81	97	113	129	145	161	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513		
3	49	65	81	97	113	129	145	161	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513			
4	65	81	97	113	129	145	161	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513				
5	81	97	113	129	145	161	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513					
6	97	113	129	145	161	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513						
7	113	129	145	161	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513							
8	129	145	161	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513								
9	145	161	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513									
10	161	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513										
11	177	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513											
12	193	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513												
13	209	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513													
14	225	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513														
15	241	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513															
16	257	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513																
17	273	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513																	
18	289	305	321	337	353	369	385	401	417	433	449	465	481	497	513																		
19	305	321	337	353	369	385	401	417	433	449	465	481	497	513																			
20	321	337	353	369	385	401	417	433	449	465	481	497	513																				
21	337	353	369	385	401	417	433	449	465	481	497	513																					
22	353	369	385	401	417	433	449	465	481	497	513																						
23	369	385	401	417	433	449	465	481	497	513																							
24	385	401	417	433	449	465	481	497	513																								
25	401	417	433	449	465	481	497	513																									
26	417	433	449	465	481	497	513																										
27	433	449	465	481	497	513																											
28	449	465	481	497	513																												
29	465	481	497	513																													
30	481	497	513																														
31	497	513																															
32	513																																

See section 13.2 for discussion and notes.

13.3 F3200 OR NDU

With an F3200 or NDU host panel, the Range DIP switches determine the starting zone numbers displayed as a linear function of the board number on the LED display bus, with extender display board #1 being the extender display closest to the LED-RZDU as shown in Table 13.3.

Table 13.3 – F3200/NDU Range Selection of Display Board Starting Zone Number

Range Number Selected	LED RZDU PA1048	Extender Display Board Number (if present) Displays										
		1	2	3	4	5	6	7	8	9	10	11
0	Alarm Zone Z1-Z16	Alarm Zone Z17-Z32	Alarm Zone Z33-Z48	Alarm Zone Z49-Z64	Relays Module 1-16	Relays Module 17-32	Relays Module 33-48	Relays Module 49-64	LED Display 1-16	LED Display 17-32	LED Display 33-48	LED Display 49-64
1	Alarm Zone Z17-Z32	Alarm Zone Z33-Z48	Alarm Zone Z49-Z64	Relays Module 1-16	Relays Module 17-32	Relays Module 33-48	Relays Module 49-64	LED Display 1-16	LED Display 17-32	LED Display 33-48	LED Display 49-64	
2	Alarm Zone Z33-Z48	Alarm Zone Z49-Z64	Relays Module 1-16	Relays Module 17-32	Relays Module 33-48	Relays Module 49-64	LED Display 1-16	LED Display 17-32	LED Display 33-48	LED Display 49-64		
3	Alarm Zone Z49-Z64	Relays Module 1-16	Relays Module 17-32	Relays Module 33-48	Relays Module 49-64	LED Display 1-16	LED Display 17-32	LED Display 33-48	LED Display 49-64			
4	Relays Module 1-16	Relays Module 17-32	Relays Module 33-48	Relays Module 49-64	LED Display 1-16	LED Display 17-32	LED Display 33-48	LED Display 49-64				
5	Relays Module 17-32	Relays Module 33-48	Relays Module 49-64	LED Display 1-16	LED Display 17-32	LED Display 33-48	LED Display 49-64					
6	Relays Module 33-48	Relays Module 49-64	LED Display 1-16	LED Display 17-32	LED Display 33-48	LED Display 49-64						
7	Relays Module 49-64	LED Display 1-16	LED Display 17-32	LED Display 33-48	LED Display 49-64							
8	LED Display 1-16	LED Display 17-32	LED Display 33-48	LED Display 49-64								
9	LED Display 17-32	LED Display 33-48	LED Display 49-64									
10	LED Display 33-48	LED Display 49-64										
11	LED Display 49-64											

Note: This assumes that Zone 1 is showing Zone 1 Alarm Status (DIP switch E OFF) and the zone LEDs are enabled on the LED-RZDU (DIP switch G ON).

If the LED-RZDU's on-board LEDs are disabled (DIP switch G OFF) then extender display board #1 would start at the zone number shown in the PA1048 column with all other columns shifted one along accordingly.

13.4 FP1600/OMEGA 64

With an FP1600 or OMEGA 64 host panel, the range DIP switches determine the alarm types shown and the starting zone number displayed as a linear function of the board number on the LED display bus, with extender display board #1 being the extender display closest to the LED-RZDU as per Table 13.4,

Table 13.4 – FP1600 / OMEGA 64 Range Selection of Display Board Starting Zone Number

			Extender Display Board Number (if present) Displays				
Range # Selected	**Description**	**LED RZDU PA1048**	**BD #1**	**BD #2**	**BD #3**	**BD #4**	**BD#5**
0	All Detectors	Zones 1-16 on LEDs 1-16	Zones 17-32 on LEDs 1-16	Zones 33-48 on LEDs 1-16	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16
1	All Detectors	Zones 17-32 on LEDs 1-16	Zones 33-48 on LEDs 1-16	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16	
2	All Detectors	Zones 33-48 on LEDs 1-16	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16		
3	All Detectors	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16			
4	All Detectors	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16				
5	All Detectors	Zones 81-96 on LEDs 1-16					
6	Smoke only	Zones 01-16 on LEDs 1-16	Zones 17-32 on LEDs 1-16	Zones 33-48 on LEDs 1-16	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16
7	Smoke only	Zones 17-32 on LEDs 1-16	Zones 33-48 on LEDs 1-16	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16	
8	Smoke only	Zones 33-48 on LEDs 1-16	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16		
9	Smoke only	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16			
10	Smoke only	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16				
11	Smoke only	Zones 81-96 on LEDs 1-16					
12	Non-smoke only	Zones 01-16 on LEDs 1-16	Zones 17-32 on LEDs 1-16	Zones 33-48 on LEDs 1-16	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16
13	Non-smoke only	Zones 17-32 on LEDs 1-16	Zones 33-48 on LEDs 1-16	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16	
14	Non-smoke only	Zones 33-48 on LEDs 1-16	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16		
15	Non-smoke only	Zones 49-64 on LEDs 1-16	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16			
16	Non-smoke only	Zones 65-80 on LEDs 1-16	Zones 81-96 on LEDs 1-16				
17	Non Smoke only	Zones 81-96 on LEDs 1-16					
18	Master Relays	Master Ancillary Relay on LED 01. Master A20 to A21 on LEDs 02-03. Master A1 to A13 on LEDs 04-16.	Master A14 to A19 on LEDs 01-06. Slave 01 Ancillary Relay on LED 09. Slave 01 A20 to A21 on LEDs 10-11. Slave 01 A1 to A5 on LEDs 12-16. Slave 03 A1 to A5 on LEDs 12-16.	Slave 01 A6 to A19 on LEDs 01-14.	Slave 02 Ancillary Relay on LED 1. Slave 02 A20 to A21 on LEDs 02-03. Slave 02 A1 to A13 on LEDs 04-16.	Slave 02 A14 to A19 on LEDs 01-06. Slave 03 Ancillary Relay on LED 09. Slave 03 A20 to A21 on LEDs 10-11.	Slave 03 A6 to A19 on LEDs 01-14.

19	Slave 01 Relays	Slave 01 Ancillary Relay on LED 01. Slave 01 A20 to A21 on LEDs 02-03. Slave 01 A1 to A13 on LEDs 04-16.	Slave 01 A14 to A19 on LEDs 01-06. Slave 02 Ancillary Relay on LED 09. Slave 02 A20 to A21 on LEDs 10-11. Slave 02 A1 to A5 on LEDs 12-16.	Slave 02 A6 to A19 on LEDs 01-14.	Slave 03 Ancillary Relay on LED 01. Slave 03 A20 to A21 on LEDs 02-03. Slave 03 A1 to A13 on LEDs 04-16.	Slave 03 A14 to A19 on LEDs 01-06. Slave 04 Ancillary Relay on LED 09. Slave 04 A20 to A21 on LEDs 10-11. Slave 04- A1 to A5 on LEDs 12-16.	Slave 04 A6 to A19 on LEDs 01-14.
20	Slave 02 Relays	Slave 02 Ancillary Relay on LED 01. Slave 02 A20 to A21 on LEDs 02-03. Slave 02 A1 to A13 on LEDs 04-16.	Slave 02 A14 to A19 on LEDs 01-06. Slave 03 Ancillary Relay on LED 09. Slave 03 A20 to A21 on LEDs 10-11. Slave 03 A1 to A5 on LEDs 12-16.	Slave 03 A6 to A19 on LEDs 01-14.	Slave 04 Ancillary Relay on LED 01. Slave 04 A20 to A21 on LEDs 02-03. Slave 04 A1 to A13 on LEDs 04-16.	Slave 04 A14 to A19 on LEDs 01-06. Slave 05 Ancillary Relay on LED 09. Slave 05 A20 to A21 on LEDs 10-11. Slave 05 A1 to A5 on LEDs 12-16.	Slave 05 A6 to A19 on LEDs 01-14.
21	Slave 03 Relays	Slave 03 Ancillary Relay on LED 01. Slave 03 A20 to A21 on LEDs 02-03. Slave 03 A1 to A13 on LEDs 04-16.	Slave 03 A14 to A19 on LEDs 01-06. Slave 04 Ancillary Relay on LED 09. Slave 04 A20 to A21 on LEDs 12-16.	Slave 04 A6 to A19 on LEDs 01-14.	Slave 05 Ancillary Relay on LED 01. Slave 05 A20 to A21 on LEDs 02-03. Slave 05 A1 to A13 on LEDs 04-16.	Slave 05 A14 to A19 on LEDs 01-06.	
22	Slave 04 Relays	Slave 04 Ancillary Relay on LED 01. Slave 04 A20 to A21 on LEDs 02-03. Slave 04 A1 to A13 on LEDs 04-16.	Slave 04 A14 to A19 on LEDs 01-06. Slave 05 Ancillary Relay on LED 09. Slave 05 A20 to A21 on LEDs 10-11. Slave 05 A1 to A5 on LEDs 12-16	Slave 05 A6 to A19 on LEDs 01-14.			
23	Slave 05 Relays	Slave 05 Ancillary Relay on LED 01. Slave 05 A20 to A21 on LEDs 02-03. Slave 05 A1 to A13 on LEDs 04-16.	Slave 05 A14 to A19 on LEDs 01-06.				
24	Z01-Z16 Heat/Smoke/ M-Relay	"Heat" Zones 01-16 on LEDs 1-16.	"Smoke" Zones 01-16 on LEDs 1-16.	Master Ancillary Relay on LED 01. Master A01 to A15 on LEDs 02-16.			
25	Z17-Z32 Heat/Smoke/ S01-Relay	"Heat" Zones 17-32 on LEDs 1-16.	"Smoke" Zones 17-32 on LEDs 1-16.	Slave 01 Ancillary Relay on LED 01. Slave 01 A01 to A15 on LEDs 02-16.			
26	Z33-Z48 Heat/Smoke/ S02-Relay	"Heat" Zones 33-48 on LEDs 1-16.	"Smoke" Zones 33-48 on LEDs 1-16.	Slave 02 Ancillary Relay on LED 01. Slave 02 A01 to A15 on LEDs 02-16.			
27	Z49-Z64 Heat/Smoke/ S03-Relay	"Heat" Zones 49-64 on LEDs 1-16.	"Smoke" Zones 49-64 on LEDs 1-16.	Slave 03 Ancillary Relay on LED 01 Slave 03 A01 to A15 on LEDs 02-16			
28	Z85-Z80 Heat/Smoke/ S04-Relay	"Heat" Zones 65-80 on LEDs 1-16.	"Smoke" Zones 65-80 on LEDs 1-16.	Slave 04 Ancillary Relay on LED 01. Slave 04 A01 to A15 on LEDs 02-16.			

29	Z81-Z96 Heat/Smoke/ S05-Relay	"Heat" Zones 81-96 on LEDs 1-16.	"Smoke" Zones 81-96 on LEDs 1-16.	Slave 05 Ancillary Relay on LED 01. Slave 05 A01 to A15 on LEDs 02-16.			
30	Z01-Z16 All Detectors/ M-Relay	Zones 01-16 on LEDs 1-16	Master Ancillary Relay on LED 01. Master A01 to A15 on LEDs 02-16.				
31	Z17-Z32 All Detectors/ S01-Relay	Zones 17-32 on LEDs 1-16.	Slave 01 Ancillary Relay on LED 01. Slave 01 A01 to A15 on LEDs 02-16.				
32	Z33-Z48 All Detectors/ S02-Relay	Zones 33-48 on LEDs 1-16.	Slave 02 Ancillary Relay on LED 01. Slave 02 A01 to A15 on LEDs 02-16.				
33	Z49-Z64 All Detectors/ S03- Relay	Zones 49-64 on LEDs 1-16.	Slave 03 Ancillary Relay on LED 01. Slave 03 A01 to A15 on LEDs 02-16.				
34	Z65-Z80 All Detectors/ S04-Relay	Zones 65-80 on LEDs 1-16.	Slave 04 Ancillary Relay on LED 01. Slave 04 A01 to A15 on LEDs 02-16.				
35	Z81-A96 All Detectors/ S05- Relay	Zones 81-96 on LEDs 1-16.	Slave 05 Ancillary Relay on LED 01. Slave 05 A01 to A15 on LEDs 02-16.				

NOTE: The data given in this table (Zone number/LED number) assumes that LED 1 shows Zone 1 Alarm Status (DIP switch E OFF). If Zone 1 shows NZ Common FIRE (Alarm) all LED numbers must be increased by adding 1. For example, in a 48 zone system, with range 0, Common NZ and LED-RZDU LEDs both enabled, the following configuration will be displayed:

LED-RZDU	**BD#1**	**BD#2**
NZ Common FIRE on LED 1		
Zones 01-15 on on LEDs 2-16	Zones 16-31 on LEDs 1-16	Zones 32-47 on LEDs 1-16

* LAST ZONE- connector J9 will show zone 48

Single flash is one short flash every half second. Double flash is two short flashes every half second.
During a system test (St) all LEDs will turn OFF. Lamp Test at the host fire panel will turn all LEDs ON.
During non-latching test mode (NLT) all zone LEDs will display the isolate status.
Non-Residential circuit: The flashing cadence if selected (steady/flash mode), will be similar to the one displayed at the host fire panel.
Residential circuit: The flashing cadence if selected may be different to the one displayed at the host fire panel as it depends on which device went into alarm first (i.e., if MCP first and then smoke detector, single flash mode is used at the LED-RZDU).

14. LED-RZDU (PA1048) SPECIFICATIONS

Board Dimensions: 144mm (H) x 65mm (W) x 30mm (D)
Mounting Pattern: 4 x ∅4mm holes at 135mm (H) x 45mm (W)
Shipping Weight: 300g (approx)
Operating Temp Range: 0 to 45deg C
Operating Voltage: 7.0 – 14.0V (12V nominal); 17.0 – 30V (24V nominal)
+VDISP Supply: 12.0 ± 0.2V, 0-650mA; 19.2 ± 0.2V, 0-150mA
Current Consumption: See table 14.1 below for example values

OUTPUTS:
J1 IOR DISP/TERM: Compatible with MX4428/F4000 IOR Termination/Relay Board 16 open-collector outputs, 40mA max @ 1.1V on, VMAX = VDISP
J2 FP1600 DISP/TERM: Compatible with FP1600 Mimic/ Termination board 16 open-collector outputs, 40mA max @ 1.1V on, VMAX = VDISP
J3 LED DISPLAY BUS: Compatible with MX4428/*MX1* 16-zone LED display boards (via LM0335)
FLT/NA- (J4-1): Open collector, 100mA max @ 1.1V on, VMAX = VDISP
LAST ZONE- (J9): Open collector, 30mA max @ 1.1V on, VMAX = VDISP

INPUTS:
RZDU (J7): Compatible with *MX1*, MX4428, F3200, SIGMA 5, FP1600/OMEGA 64
EVAC (J5-1): 10k pull up to +5V, S/C < 0.2V, Active <1.5V, Normal < 3.5V, O/C > 3.5V
SILENCE- (J5-2): 10k pull up to +5V, active below 0.9V
BSR- (J5-3): 10k pull up to +5V, active below 0.9V
ACK- (J6-1): 10k pull up to +5V, active below 0.9V
LAMP TEST- (J6-2): 10k pull up to +5V, active below 0.9V
DEF- (J6-3): 10k pull up to +5V, active below 0.9V

Table 14.1 – Typical Current Consumption of LED-RZDU

+V	I	VDISP Load	Conditions
12V	50mA	None	LED-RZDU only, all LEDs off except Normal
24V	30mA	None	LED-RZDU only, all LEDs off except Normal
12V	110mA	None	LED-RZDU only, all LEDs on
24V	70mA	None	LED-RZDU only, all LEDs on
7V	750mA	150mA	LED-RZDU only, all LEDs off
14V	300mA	150mA	LED-RZDU only, all LEDs off
17V	620mA	650mA	LED-RZDU only, all LEDs off
29V	370mA	650mA	LED-RZDU only, all LEDs off

See Table 3.1 for current consumption of typical configurations.

ACCESSORIES INCLUDED WITH LED-RZDU

PART NO	DESCRIPTION	QTY	WHERE USED
LT0460	INSTRUCTION MANUAL	1	
LM0335	LOOM MX1 LED DISPLAY (34-WAY TO 26-WAY FRC ADAPTOR)	1	J3 to first extender display board
RR0045	RESISTOR EOL 10K 0.6w	1	EVAC switch supervision
RR0038	RESISTOR EOL 2K7 0.6w	1	EVAC switch supervision
HW0130	STANDOFF, MX1 STYLE, PBR10	4	LED-RZDU mounting (gear plate)
SC0177	SCREW, PH, M3X12 (WITH FLAT WASHER)	2	LED-RZDU mounting (min. 1 cabinet)
CN0028	CONNECTOR, CRIMP, RECEPTACLE, H1129, 2.3MM	1	LAST ZONE- connection

15. QUICK START DESIGN & IMPLEMENTATION GUIDE

This section is a quick guide to get you started using the LED-RZDU.

1. Decide the configuration.

   Typical configurations are tabulated in Table 7.1 with a link to the relevant section and diagram(s).
   The broad options are:
   - Rear service in empty FP1600 cabinets (Section 8).
   - Rear service in Picture Frame or empty *MX1* cabinets (Section 9).
   - Front service in Picture Frame (section 9) or empty FP1600 cabinets (Section 10).
   - Front service in 19" rack cabinets (Section 11).
   - Geographic mimic in custom enclosure (Section 12).
   - Relay driver module in custom enclosure (Section 12).

   Shopping lists for each and wiring diagrams are in the sections listed above.

2. What about Brigade keyswitches?
   A standard loom and label are available – see Section 4.7.
   Lamp Test, if required, is described in Section 4.2.

3. Sort out the power supply.
   There are two options: Panel-powered and Locally-powered.
   Panel-powered is usually OK except for relay driver mode (very limited).
   General PSU configuration information is in Section 2.3.
   Specific PSU information is in Section 3.2 and the specifications (Section 14).

4. Configuration on DIP switches.
   Things you will need to set up are as follows:
   - RZDU address (Table 6.1).
   - Number of external display boards connected and their operation mode (Tables 6.2, 6.6).
   - Host panel type (Table 6.3).
   - Configuration of Evacuation Brigade keyswitch input (Table 6.5).
   - 1st row of LEDs = Zone 1 or common status (Table 6.7).
   - Relay driver or LED mimic mode (Table 6.7).
   - On-Board LEDs Enable/Disable (Table 6.7).
   - Modes for miscellaneous inputs (Table 6.7).
   - Panel-specific operation (Table 6.4 and specific panel from Section 13). This selects what information is displayed where.

   Note that DIP switches are read once-only at power-up.

5. Configuration of Links.
   The 3 field-selectable links are described in Section 6. These select:
   - On-board power supply configuration (LK3 and LK4).
   - On-board LED power enable (LK2).

6. Operation & Fault Finding.
   Assuming all is well, operation will be as described in Section 2. Some panel-specific operation is described in Section 13 under the host panel heading.

   Operation of the miscellaneous inputs and outputs are described in Sections 4 and 5.

   Fault LED information is given in Table 2.1 (Section 2.2).
   Latch-Test-Fault diagnostic mode is described in Section 2.2.

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