

Reporting

Reporting with most Contact ID maps will treat the Mini Expander, Exp32 and Exp16 as the same. (With the exception of the SIMSII map, which identifies all Module types) This means that care needs to be taken in a reporting system that the same module number is not used if you want unique reporting.

E.g. B01, B02, E03, B04, M05, E06, etc. will ensure that all zones are reported individually.

Installing modules B01, E01 and M01, will mean that only zones 17 to 32 on Expander B01 will be reported uniquely. Expander 1, Zones 1 to 8 will represent Zones 1 to 8 on all three of the modules and Zones 9 to 16 will represent those Zones on both B01 and E01.

In SIMSII mapping, the following type numbers will apply:

- Type 3 = "B" type Expanders.
- Type 6 = "M" type Expanders. (8 Zone Mini Expanders)
- Type 7 = "E" type Expanders.

Electrical Specifications

- Power Supply Input: 16VAC from Plug pack supplied.
- Current Consumption: 55mA. (from plug pack)
(NOT including current drawn by Detectors & peripherals)
- Battery Capacity: 12V 6.5 AH Sealed Lead Acid Battery.
- Maximum current: Total combined current required by devices connected to LAN
"POS" and "DET+" must not exceed 700mA.

Note: Maximum auxiliary current may be increased to 1.5A by using the optional 16V 2.5 Amp in-line transformer instead of the plug pack AND shorting link JP1.

NOTE: See information supplied with Detectors for actual current consumption.

- Fuse Protection: Separate fuses provided for:
Battery, Siren1, Siren2, LAN & Detector Power.
ALWAYS REPLACE WITH SAME FUSE TYPE AND VALUE!

Due to on-going product development this manual is subject to change without notice.

Part No: 633004G

Universal Expander Module

INSTALLATION MANUAL

Overview

The Universal Expander Module connects to a Model 3000/Access 4000 system OR a Model 2000 system, providing an additional 16 Zone inputs, 8 Auxiliary outputs and 2 Siren drivers. Up to 5 Universal Expander modules can be installed in a Model 2000, and up to 64 in a 3000/4000 system.

(Note: Depends on Memory option fitted to Control module)

In a 3000 / Access 4000 system, the number of Zones or Auxiliaries can be further expanded:

- The 16 Zone expansion board increases the number of available Zones to 32.
- The 24 Auxiliary expansion board increases the number of Auxiliaries to 32.
- Up to three 8 Way Relay expansion boards can add 8, 16 or 24 Relays to the Expander.
- Up to four Lift Interface boards provide low-level interface to Lift control systems including Lift button feedback for 8, 16, 24 or 32 floors. Up to 64 floors in total may be controlled by using two Universal Expanders.

Expansion boards can be installed on standoffs in the existing enclosure (or externally when required) and connect to the Universal Expander Module via the supplied ribbon cable.

NOTE: Only one of these expansion options can be fitted at a time.

All devices can be connected with ease thanks to the provision of additional power connections for detector and/or siren power.

Important Notes:

- 1) The Model 2000 is only available in Australia and New Zealand.
- 2) The Universal Expander CANNOT be used in Model 2000+ systems. Use 2000 Expander Modules. (2000+ was discontinued in 1997)

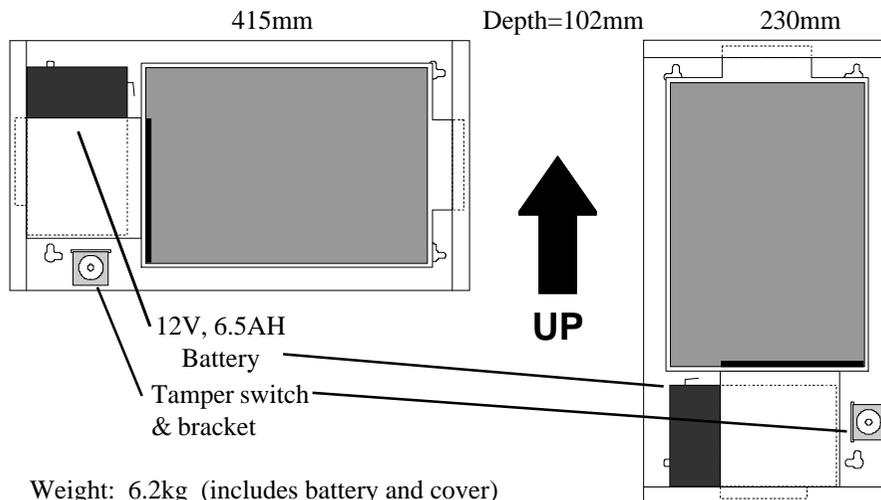
Installing the Expander Module.

Expander Module Parts List

- Expander Module PCB mounted on metal sub-chassis in metal box.
- Tamper switch bracket.
- Installation Kit containing:
 - Plug pack.
 - 7 x 8 Way plug-on screw terminals.
 - 2 x 6.3mm Tamper switch connectors.
 - 2 x 4.8mm Battery terminal connectors.
 - 20 x 2k2 End-of-line resistors. (red-red-black-brown-brown)
 - 20 x 6k8 End-of-line resistors. (blue-grey-black-brown-brown)
- Installation Manual. (This document)
- Tamper switch.
- 1 x 2 Amp Fuse.
- 7 x plastic "D" bungs.

Mounting the Unit (Australian enclosure. Other countries may differ)

1. Expander Modules are supplied in metal boxes which must be secured to a flat, vertical surface using fasteners through the four mounting holes in the chassis.
2. The tamper switch bracket must be positioned through the slot in the chassis, before the chassis is secured to the wall.
3. Orientation of the box MUST be as per one of the illustrations below.
4. Installation environment should be maintained at a temperature of 0° to 40° Celsius and 15% to 85% Relative humidity (non-condensing)



EXPANDER TYPE SELECTION

(3000 V2 and ACCESS 4000 SYSTEMS ONLY)

Model 3000 V2 and Access 4000 offer two Expander Module "types" to allow for more efficient use of Memory. The "type" is selected with DIPswitch 1 on SW1 as follows:

- Off = "B" type Expander. (16 or 32 Zones)
- On = "E" type Expander. (16 Zones only)

The normal Zone Expander that can have from 16 to 32 Zones, and from 8 to 32 Auxiliaries is now designated a "B" type module. (Big Expander).

The "E" type Module now refers to the same physical Zone Expander product, but limited to the basic 16 Zones and up to 16 Auxiliaries. I.e. The 16 Zone Expansion board cannot be used, and only 8 additional Auxiliaries can be used.

Where there is a possibility that an Expander installation requiring no more than 16 zones initially may be expanded to more than 16 zones at a later date, it is recommended to make the Module a "B" type to allow for future expansion.

NOTE: This is not applicable to 3000 V1 systems, where all Expanders are "E" type and can be used with 16 or 32 Zones fitted. S1 on DIPswitch 1 must be left OFF in 3000 V1 systems.

IMPORTANT NOTE:

When a 16 Zone Expander board is NOT fitted to the Universal Expander ("E" type configuration), Zones 17 to 32 may appear as being in the Alarm or Tamper state when viewed via the Test menu. (MENU, 4, 1)

THIS WILL NOT AFFECT SYSTEM OPERATION. These zones will not physically exist on the module, and would therefore not be assigned to any Areas, or programmed to perform any function.

The previous version of the Expander module PCB automatically treated these zones as sealed when the expansion board was removed. In the Universal Expander, this has been changed to provide protection against unauthorized removal of a 16 Zone Expander, in addition to the protection provided by the cabinet tamper switch.

Siren Operation

Siren programming is still the same, however, Expander Siren numbers will control sirens on both the B and E type Expanders. I.e S00 = Control Module Siren, S01 = Sirens on E01 and B01, S02 = Sirens on E02 and B02, etc.

Expander Module Fault LEDs

MODEL 3000 / ACCESS 4000

During normal operation, the REC & XMIT LEDs indicate LAN activity. At power-up, they also aid with the diagnosis of possible fault conditions. The table below describes fault LED conditions and the suggested course of action to remedy any fault which may occur.

<u>REC</u>	<u>XMIT</u>	<u>EXPLANATION / REMEDY</u>
ON	ON	Module is un-addressed.
OFF	ON	Module type unknown. Control Module Firmware upgrade required.
Flash	ON	Duplicate Module. This module number already in use by a module of the same type.
Flash	Flash	Module number selected is too big for Control Module RAM size. Select a lower Module number.
ON	OFF	Too many modules on Network for Control Module RAM size.

2000

When used in 2000 system, the 2 LEDs help to verify system operation.

CLK This LED will flash momentarily once a second when the Expander module recognises communications from the control module to the other modules on the system such as Expanders and LCD Terminals.

This LED should always be flashing during normal operation. If the LED is not flashing it indicates that the Expander is not seeing Control module communications. Check the wiring of the DAT, CLK and NEG connections back to the Control module. Check that all other modules in the system are operational.

POLL The CLK LED indicates that the Expander is recognizing comms from the Control module, but not that it is transferring zone information back to the Control module.

Every time the POLL LED flashes, zone information is transferred to the Control module. If POLL LED is not flashing, information is not being transferred to the Control module.

Check the following:

- Is the CLK LED flashing? If not, the POLL LED will never flash.
- Has the system been configured? (MENU, 7, V, 0)
- Is the LANKEY setting the same in the Control Module and on the Expander?
- Have the Module number switches been set to the correct Expander module no.?

LAN Wiring

GENERAL - LAN POWER CONNECTIONS

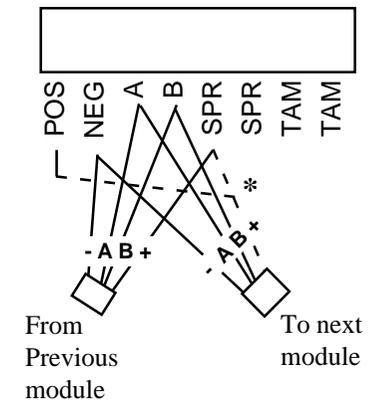
- The POS terminal may be used to provide power to LCD Terminals, etc. in the vicinity of the Expander module, but note that there should be no connection from the POS terminal of the Expander to the POS terminal on other Expanders or the Control module.
- If required, the LAN to subsequent Modules may derive +12V from the incoming LAN cable via the "SPARE" terminal. (See * below)
- Current drawn from LAN POS and DET+ must not exceed 700mA with std plug pack.

3000 / ACCESS 4000

The LAN is connected using twisted pair cable. One pair is used for Data A & B, and the other pair is used for POS & NEG.

Links LK3, LK4 & LK5 MUST be set to "3000"

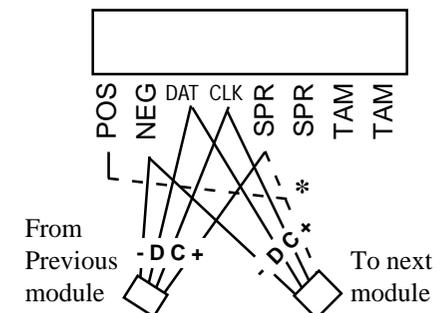
JP3 (LAN Termination) is fitted if unit is one of the two furthest modules from the Control Module or a LAN Isolator. (See "Model 3000/4000 Installation manual" or "LAN Installation & Troubleshooting" for more details.)



2000

The LAN is connected using twisted pair cable. One pair is used for DATA & POS, and the other pair is used for CLOCK & NEG. Data and Clock must not be on the same pair.

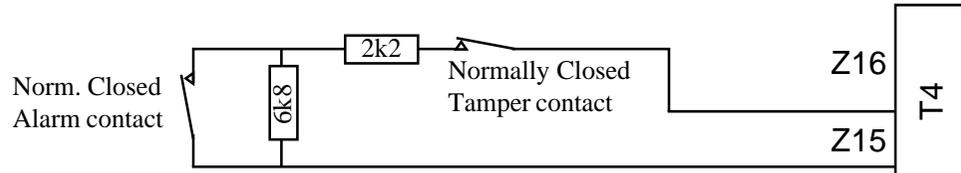
Links LK3, LK4 & LK5 MUST be set to "2000".



- All Expanders in the system must be powered for LAN communications to work.
- If any Expander Module in the system is powered down, then no communication with any module is possible.
- If more than one Expander module is to be added to a system, the Expanded Memory Option must be fitted to the Control module. If the Expander module number is set to 2 or above the Expander will never be recognised with the standard memory option.

Zone Input & Siren Wiring

ZONE INPUT WIRING. NORMALLY CLOSED ALARM CONTACTS.



NORMALLY OPEN ALARM CONTACTS.

Model 3000/Access 4000. Wired in exactly the same manner as above. When programming the Zone Input, however, the option to “Swap Seal and Alarm conditions” must be set to [Y]es. e.g.

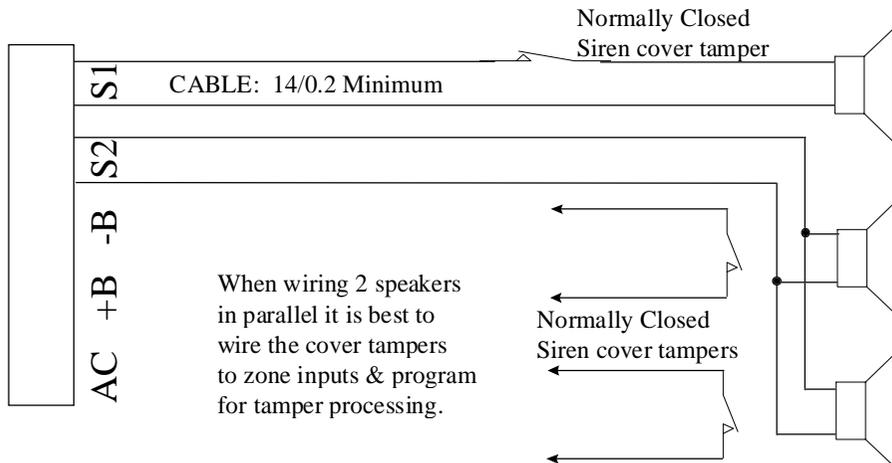
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E01:Z01   C X S R A N T .
Options -> n n Y n n n n n
    
```

2000. See page 8-13 of the Model 2000 Installers Manual for wiring method.

SIREN WIRING

Maximum of two 8 Ohm Siren speakers may be connected to each siren driver, wired in parallel. Normally Closed Siren cover Tamperers may be wired in series with the speaker cable. This method utilizes the siren speaker circuit monitoring. Siren tamper input/s should be disabled if siren/s not connected.



Module Numbering

The Expander Module number is set using DIPswitches on SW2.

The Module number equals $n + 1$, where n is the binary number set on the DIPswitches.

DIPswitches 1 to 3 are used for Model 2000. (Switches 5 to 8 have other functions)

DIPswitches 1 to 7 are used for Model 3000/Access 4000.

Module No:	DIPswitch:	1	2	3	4	5	6	7
	Binary value:	1	2	4	8	16	32	64
1		off						
2		ON	off	off	off	off	off	off
3		off	ON	off	off	off	off	off
4		ON	ON	off	off	off	off	off
5		off	off	ON	off	off	off	off
Limit of 2000 Expander Module Numbers.								
6		ON	off	ON	off	off	off	off
7		off	ON	ON	off	off	off	off
8		ON	ON	ON	off	off	off	off
9		off	off	off	ON	off	off	off
10		ON	off	off	ON	off	off	off
11		off	ON	off	ON	off	off	off
12		ON	ON	off	ON	off	off	off
13		off	off	ON	ON	off	off	off
14		ON	off	ON	ON	off	off	off
15		off	ON	ON	ON	off	off	off
16		ON	ON	ON	ON	off	off	off
through to								
64		ON	ON	ON	ON	ON	ON	off
...99		off	ON	off	off	off	ON	ON

Although memory structure will allow for 99 of any Module type, current memory size and configuration options limit Model 3000/Access4000 Expander Module numbers to 64 or less depending on Memory size fitted and Memory configuration selected.

DIPSwitch settings

3000/Access 4000 Systems

- SW1**
- | | |
|---|---|
| 1 | Expander type. See details on page 11. |
| 2 | Input Debounce time. Off = 400mS (normal)
On = 40mS (fast) |
| 3 | AC Mains fail delay time. Off = 20 seconds
On = 255 seconds |
| 4 | On = Lift Mode. Set to On when Lift Interface board/s connected. |
| 5 | Zones 1 to 8 External. (In Lift mode) Link JP5 must also be removed. |
| 6 | Zones 9 to 16 External. (In Lift mode) Link JP2 must also be removed. |
| 7 | Not used. |
| 8 | Not used.- |

SW2 Module number. See details on page 9.

2000 Systems

SW1 LANKEY. Used to provide some security against the Expander Module being replaced with a substitute module. The 8 switches must be set to the same pattern as the LANKEY option set in the Control module during LAN configuration. If the setting of the 8 switches differs from the LANKEY the Expander will not be recognised.

Choose a secret combination of the 8 switches that you will use for this installation. When you configure the system make sure the LANKEY option matches the switch settings. e.g.

SW	1	2	3	4	5	6	7	8
	On	Off	Off	On	On	Off	On	On

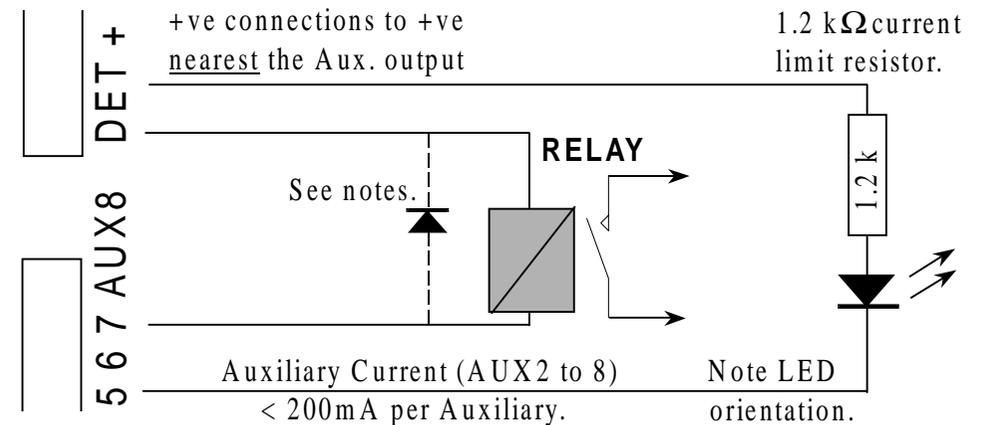
LANKEY settings:

LAN	1	2	3	4	5	6	7	8
key	Y		Y	Y		Y	Y	

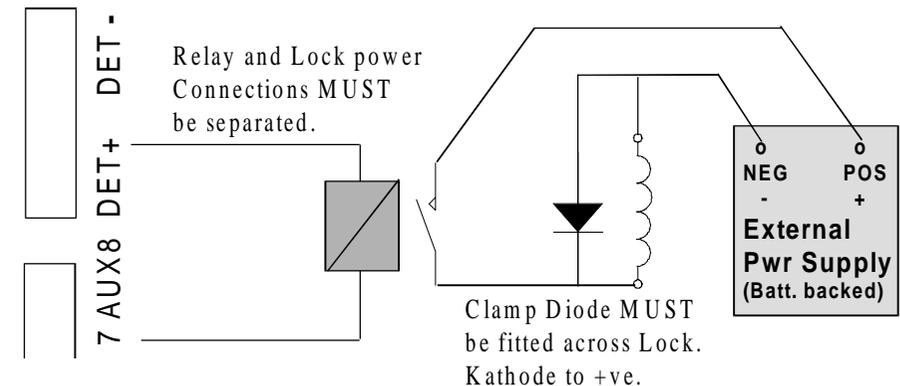
- SW2** 1-3 Module Number. See details on page 9.
- 4 Not used. Set to Off.
- 5 AC Mains fail delay time. Off = 20 seconds
On = 255 seconds
- 6 2000+ Module number. See details on page 9.
- 7 On = Invert Auxiliaries 1 to 4.
- 8 On = Invert Auxiliaries 5 to 8. Auxiliary outputs normally switch to ground when the Auxiliary is active, or On. SW7 and 8 are used to reverse the operation of the Auxiliary outputs so that the output will be switched to ground when the Auxiliary is Off and will float High when the Auxiliary is On.

Auxiliary Output Wiring

- Auxiliaries 1 & 2 can switch up to 500mA continuous, and are suitable for inductive loads. (Except for lock strikes, etc.)
- Max current on any other individual Auxiliary must be less than 200mA.
- Total current drawn by Auxiliaries + LAN + Detectors must be less than 700mA. (1.5A if optional 2.5A in-line transformer is used instead of plug pack AND Link JP1 shorted)
- When an external power supply is used to power auxiliary devices, a good common Negative connection MUST exist between the power supply and the module.
- Clamp diode should be fitted across inductive loads. Kathode (bar) to +ve.



Locks are activated via a relay. External power supply is used for lock power to prevent voltage spikes reaching the equipment, provide longer battery backup & minimise the possibility of earth loops.



UNIVERSAL EXPANDER PCB

T4 - T7. Zone Input connections.

DIPswitches:

- SW2.** 2000: Module number and options
3/4000: Module number
(See details on pages 8 & 9)
- SW1.** 2000: LAN Key.
3/4000: Options.
(See page 8 for details)

LK3 - LK5. LAN System select.

- All on "2000" for 2000 systems.
All on "3000" for 3000/Access 4000.

JP1. Current Limit.

- If optional 2.5A in-line transformer is used, short JP1 to increase current limit to 2A.

F101 to F105. FUSES M205.

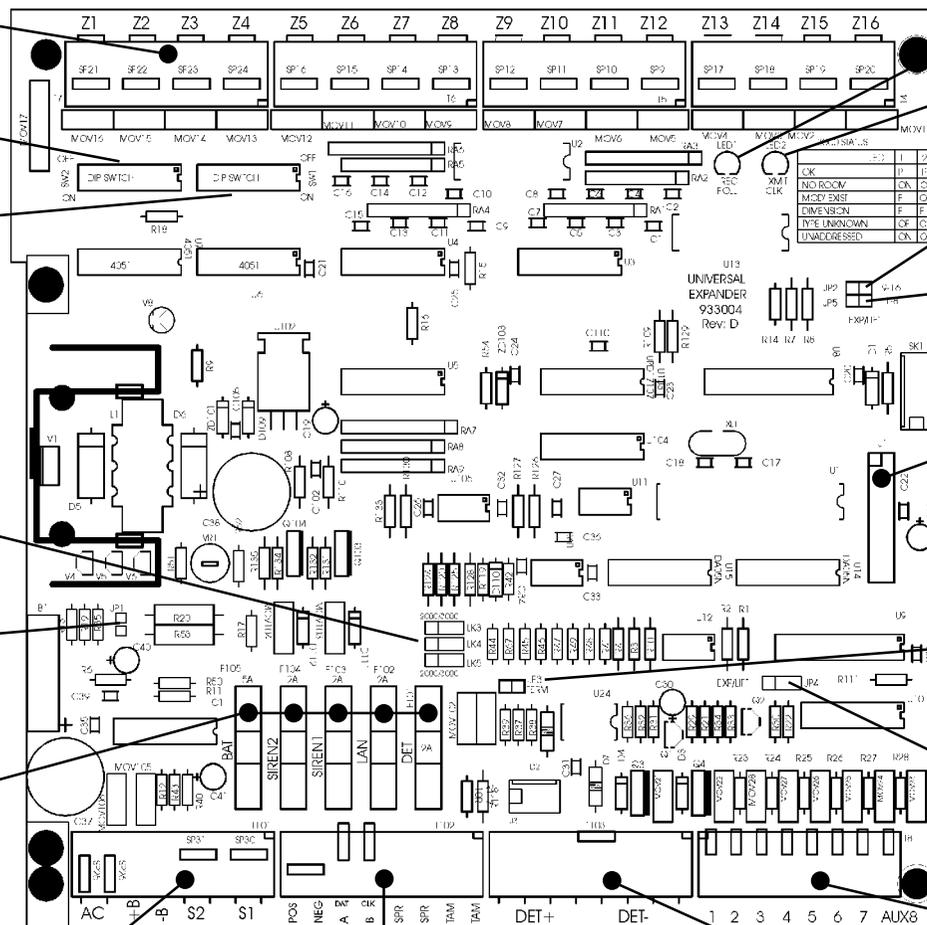
- REPLACE WITH FAST BLOW FUSES OF THE SPECIFIED VALUE ONLY.

T101. Plug pack, Battery & Siren Connections.

- AC 16VAC input from Plug pack (supplied).
+B To +ve terminal of 12V 6.5AH Battery.
-B To -ve terminal of 12V 6.5AH Battery.
S2 To external 8 Ohm Siren speaker.
S1 To internal 8 Ohm Siren speaker.
(See Siren wiring diagrams on page 4)

T102. LAN & Tamper Switch Connections.

- POS: Connect outgoing LAN +ve to power subsequent modules if required.*
NEG: Connect LAN Ground (-VE)
LAN A/DATA: LAN Data A OR DATA connection. See "LAN wiring" on p3.
LAN B/CLOCK: LAN Data B OR CLOCK connection.
SPR: Connect incoming LAN +ve.*
TAM: Tamper Switch connections. No End-of-Line resistors required.
*NOTE: +VE connections from two different power supply sources must never be connected together. See "LAN wiring" on page 3.



REC (LED1). LAN Data Receive / Poll. & FAULT DIAGNOSIS

XMIT (LED2). LAN Data Transmit / Clock & FAULT DIAGNOSIS

JP2. Zones 9-16 External. (3000/4000 Only)
Removed if zones 9-16 are monitored externally via Lift Interface board. (DIPswitch 1-6 is On.)

JP5. Zones 1-8 External. (3000/4000 Only)
Removed if zones 1-8 are monitored externally via Lift Interface board. (DIPswitch 1-5 is On.)

J1. Expansion Header. (3000/4000 Only)
Expansion option connected via ribbon cable supplied with the unit. e.g. 16 Zone Expansion board, 24 Auxiliary Expansion board, 8 Relay Expander board/s or Lift Interface card/s.

JP3. LAN Termination.

Fitted if unit is one of the two furthest modules from the Control Module or a LAN Isolator.

JP4. Auxiliaries 1-8 External.

(3/4000 Only)
Normally in "EXP" position. Moved to "LFT" position if Auxiliaries 1-8 are provided externally via Lift Interface board.

T8. Auxiliary outputs.

Auxiliaries 1 to 8 "Open Collector" outputs.
See details on page 5.

T103. Detector Power.

Fuse protected Power Supply output for +12V Detector Power. (Sum of current drawn from DET+ and LAN POS must not exceed 700mA with standard plug pack)