



Fire Detection & Alarm System Control Panel V1.000

Engineering & Commissioning Instructions **(TO BE RETAINED BY THE COMMISSIONING ENGINEER)**

GLT Exports Ltd Protection Limited

GLT Exports Ltd policy is one of continual improvement and the right to change a specification at any time without notice is reserved. Whilst every care has been taken to ensure that the contents of this document are correct at time of publication, GLT Exports Ltd shall be under no liability whatsoever in respect of such contents.

Due to the complexity and inherent importance of a life risk type system then training on this equipment is essential, and commissioning should only be carried out by competent persons.

GLT Exports Ltd cannot guarantee the operation of any equipment unless all documented instructions are complied with, without variation.

E&OE.

GLT Exports Ltd equipment is protected by one or more of the following patent no's: GB2426367, GB2370670, EP1158472, PT1035528T, GB2346758, EP0917121, GB2329056, EP0980056, GB2325018, GB2305284, EP1174835, EP0856828, GB2327752, GB2313690

Contents

Introduction	5
System Design	5
Equipment Guarantee	5
Anti Static Handling Guidelines	5
The ZetaNET System	6
Advantages of Addressable Systems	6
Control Panel	7
Mounting the Control Panel	7
General Assembly	7
Physical Dimensions	8
Topology and Cabling	9
Loop Loading	10
System Schematic	11
Control Panel Main PCB.	12
Control Panel Terminal	14
Power Supply Unit	21
General Assembly	21
Physical Dimensions	22
Mains Supply & Batteries	23
PSU Termination Schematic	24
PSU Terminals	25
Network	27
Topology and Cable Specification	27
Network Connection Schematic	28
Network Terminals	29
General Operation of Control Panel	30
Control Panel Front	30
LED Indication	31
Fire Alarm Controls	33
System Controls	33
Access Levels and Codes	33
Access Level 1 (Normal)	34
Access Level 2A (User)	34
Access Level 2B (Supervisor)	35
Access Level 3 (Engineer)	39
Alarm Confirmation	45
Alarm Confirmation Delay	46
Selecting the Devices.	46
Commissioning	47
Installation 1 st Stage	47
Installation 2 nd Stage.	47
Initialisation	47
Commissioning	48
Configuration Example	49
End User Training	49

ZetaNET Control Panel Installation Instructions

Good Practice	50
Number of Devices	50
Label the Loop Ends	50
Note the loop readings	50
Configuration Printout and Drawings	51
Initialisation	52
Loop Connections	52
Normal Readings	53
Initialisation	53
Initialisation faults	54
Earth Faults	56
General Fault Finding	57
Common Faults	57
Intermittent and Recurring Faults	57
Summary of Faults	59
Advanced Connections	62
Monitored relays	62
Technical Data	63
Control Panel	64
System Version Compatibility	64
Resistor Colour Codes	64
Technical Support	64
Battery Calculations	65
Installation Checklist	66
Commissioning Checklist	67
Loop Continuity and Insulation Test Results.	68
PSU Cable Continuity and Insulation Test Results	69
Network Continuity and Insulation Test Results	70
Fire Alarm System Notice	71
Device Details	73
Important Points	76 – Back Page

Introduction

This Manual is intended as a guide to the engineering and commissioning principles of the ZetaNET Addressable Intelligent Fire Alarm and Detection system, and covers the system hardware information only.

Due to the complexity and inherent importance of a system covering a 'Life Protection Risk', training on this equipment is essential, and commissioning should only be carried out by competent and approved persons. For further details of the availability of commissioning services contact your supplier.

System Design



This document does not cover Fire Alarm system design, and a basic understanding is assumed.

A knowledge of BS5839: Pt 1: 2002: Fire Detection and Alarm Systems for Buildings is essential.

It is strongly recommended that a suitably qualified and competent person is consulted in connection with the Fire Alarm System design and that the entire system is commissioned in accordance with the current national standards and specifications.

Equipment Guarantee



The equipment carries no warranty unless the system is installed, commissioned and serviced in accordance with this manual and the relevant standards by a suitably qualified and competent person or organisation

Anti Static Handling Guidelines



Immediately prior to handling any PCBs or other static sensitive devices, it is essential to ensure that a personal **connection to earth is made with an anti-static wrist-strap** or similar apparatus.

Always handle PCBs by their sides and avoid touching any components. PCBs should also be stored in a clean dry place, which is free from vibration, dust and excessive heat, and protected from mechanical damage.

Warning



Do not attempt to install this equipment until you have fully read and understood this manual.

Failure to do so may result in damage to the equipment and could invalidate the warranty.

Technical support will not be available if the instruction manual has not been read and understood. Please have this instruction manual available whenever you call for technical support.

For further technical support please contact your **distributor**. Do not call the GLT Exports Ltd Protection technical support department unless your distributor has first given their advice and attempted to rectify the issue.

The ZetaNET System

ZetaNET Control Panel Installation Instructions

The ZetaNET system is an addressable intelligent detector system, with many advantages over the traditional addressable analogue detector systems. In order to understand the benefits let us look more closely at the terms **Fire Detector** and **Fire Sensor**. These terms are often used interchangeably but actually have quite different meanings. A fire detector is the device (component as defined in EN54) which automatically detects a fire. In the majority of addressable fire detection systems, the fire devices are in fact fire sensors which only transfer data relating to smoke and heat levels to the control panel, and the fire decision is made by the panel.

Nearly all current addressable systems are **Addressable Analogue Detector Systems** where the control panel continually scans the fire sensors, processes the returned data, and makes decisions about fires and faults.

The ZetaNET system is defined as an **Addressable Intelligent Detector System**, or an **Addressable Fire Detection and Alarm System with Independent Distributed Intelligence**. Distributed intelligence signifies that the signal processing is spread throughout the system, in order that the decisions about fires and faults are taken within the detector itself. The detector is capable of being remotely programmed for different modes of detection.

Thus the ZetaNET system is indeed an analogue addressable system, but with the processing power distributed across the entire system. This dramatically reduces the complexity of the control panel and the data traffic, and improves the efficiency of the system.

The system addressing is carried automatically upon initialisation from the control panel, and does not need to be programmed manually at each device.

Advantages of Addressable Systems.

The nature of a microprocessor control system with individually identified devices means that the precise location of fires and faults may be indicated, more complex actions may be implemented, system flexibility is improved and installation and cabling costs are reduced.

In the ZetaNET system, very efficient communications mean that very low quiescent power consumption maximises the standby capacity, high power transfer capabilities allow more sounders to be connected to the loop, and a very fast response to events is achieved as the control panel does not have to poll every device for status data.

Control Panel

Mounting the Control Panel

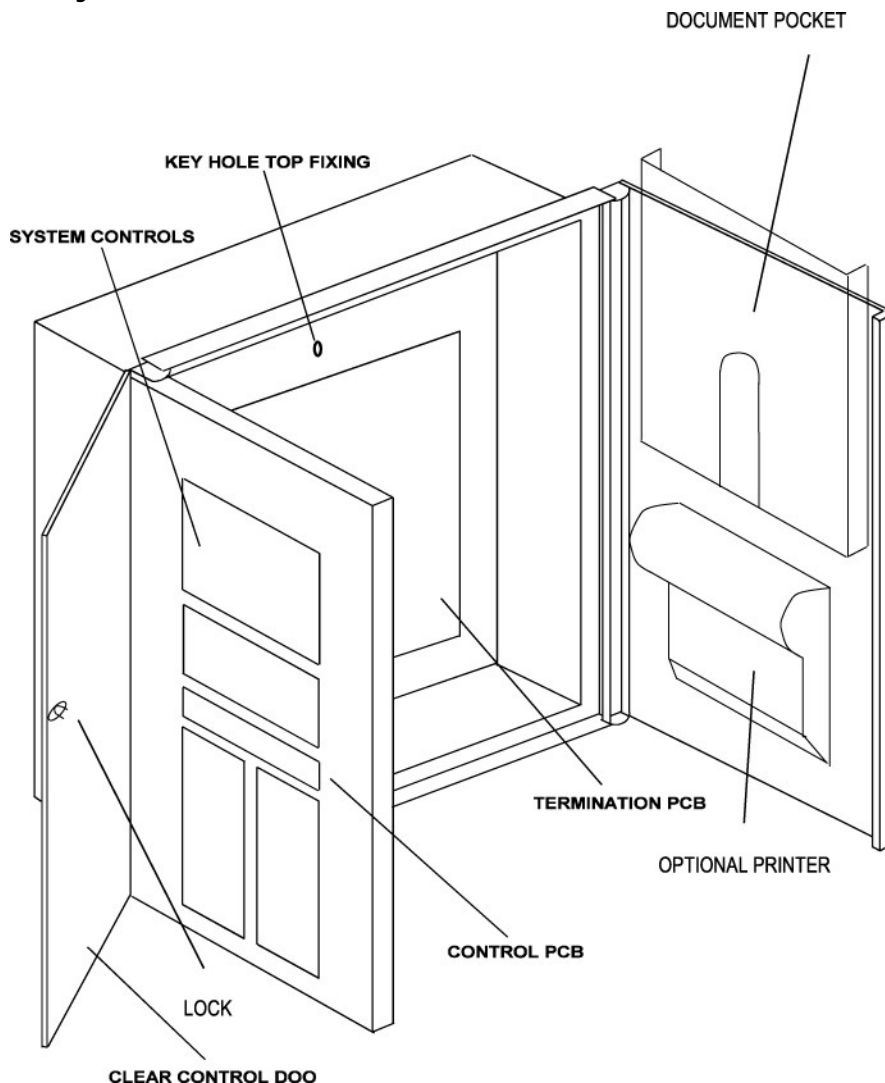
Firstly identify the proposed location for the control panel. Ensure that the control panel will be easily accessible, and that account is taken of any subsequent work that may affect access. It should be located at the most likely point of access for the fire services.

The control panel should be mounted on a flat, vertical wall at a height where the indicators may be seen without difficulty.

Like all electronic equipment, the control panel may be affected by extreme environmental conditions. The position selected for its installation should therefore be clean and dry, not subjected to high levels of vibration or shock and at least 2 meters away from any pager or radio transmitting equipment. Ambient temperatures should be within the range given within the Technical Data section, i.e., not directly over a radiator or heater.

In common with all microprocessor-controlled panels, the control panel may operate erratically or may be damaged if subjected to lightening induced transients. Proper earth/ground connections will greatly reduce susceptibility to this problem.

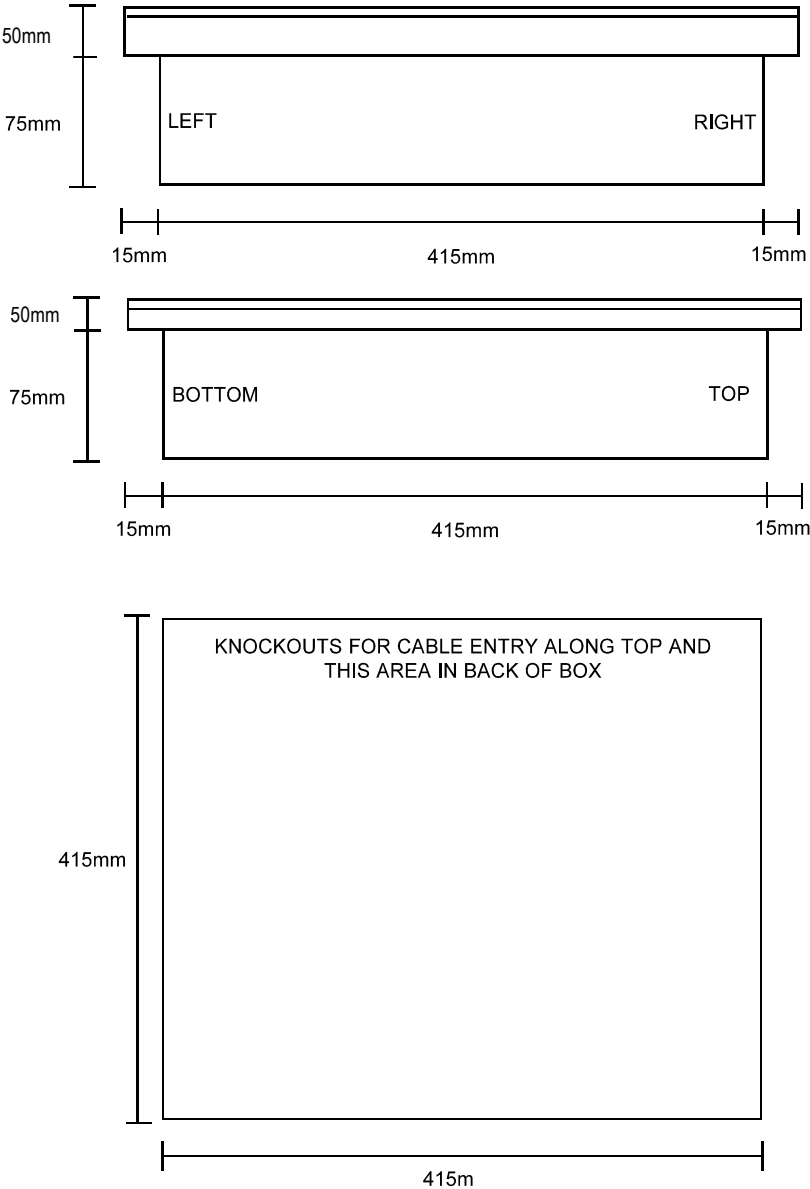
General Assembly



Cabinet Installation

The four back plate holes should be used to secure the cabinet to a solid wall using suitable screws of at least 50mm in length.

Physical Dimensions



Topology & Cabling

All system wiring should be installed to comply with BS 5839: Pt 1: 2002 and BS 7671 (wiring regulations) and any other standards relevant to the area or type of installation. A cable complying with the BS 5839: Pt 1: 2002 Category 1 (cables required to operate for prolonged periods during fire conditions) is required. This must be a 2-core 1.5mm² screened fire resistant cable.

The addressable circuit must be installed as a loop with a maximum loop length of up to 2 km. Addressable spur circuits (covering up to a maximum of one detection-zone only per spur circuit and up to a maximum of 100m in length) may be connected at each Multipoint detector, as long as the combined addressable circuit length does not exceed 2 km.

The network cable should generally be installed as a single ring, but due to the provision of four network ports at each panel, sub rings may be installed if required. Whilst radial circuits may be implemented successfully, they are generally not recommended as they are less fault tolerant and lack system integrity. Network connections must be installed with a maximum length of 500m between network ports.

The Power Supply Unit requires both a data connection and dual power connections. Thus, one x 2 core 1.5 mm² screened fire resistant cable must be installed between the PSU and the Control Panel for data connections, and 2 x 2.5 mm² screened fire resistant cable must be installed between the PSU and the Control Panel for 24v DC power connections.

In order to protect against possible data corruption it is important ensure the following points are adhered to:

1. The addressable circuit (loop) cable **screen must be connected to earth/ground at the control panel** at each end using the terminals provided.
2. The addressable circuit (loop) cable screen must not be connected to earth/ground at any point other than the control panel, ie, **do not connect the screen to a device back box**.
3. The cable **screen continuity must be maintained** at every point of the loop, using the terminals provided or a suitable connection block.
4. Do not use a 4-core cable as a loop **feed & return** due to the possibility of data corruption. It is essential that two 2-core cables are used if this is required.
5. The **network** connection cable **screens must be connected to earth/ground at the control panel** at one end only using the terminals provided.

Refer to the following wiring schematics for further details.

Loop Loading

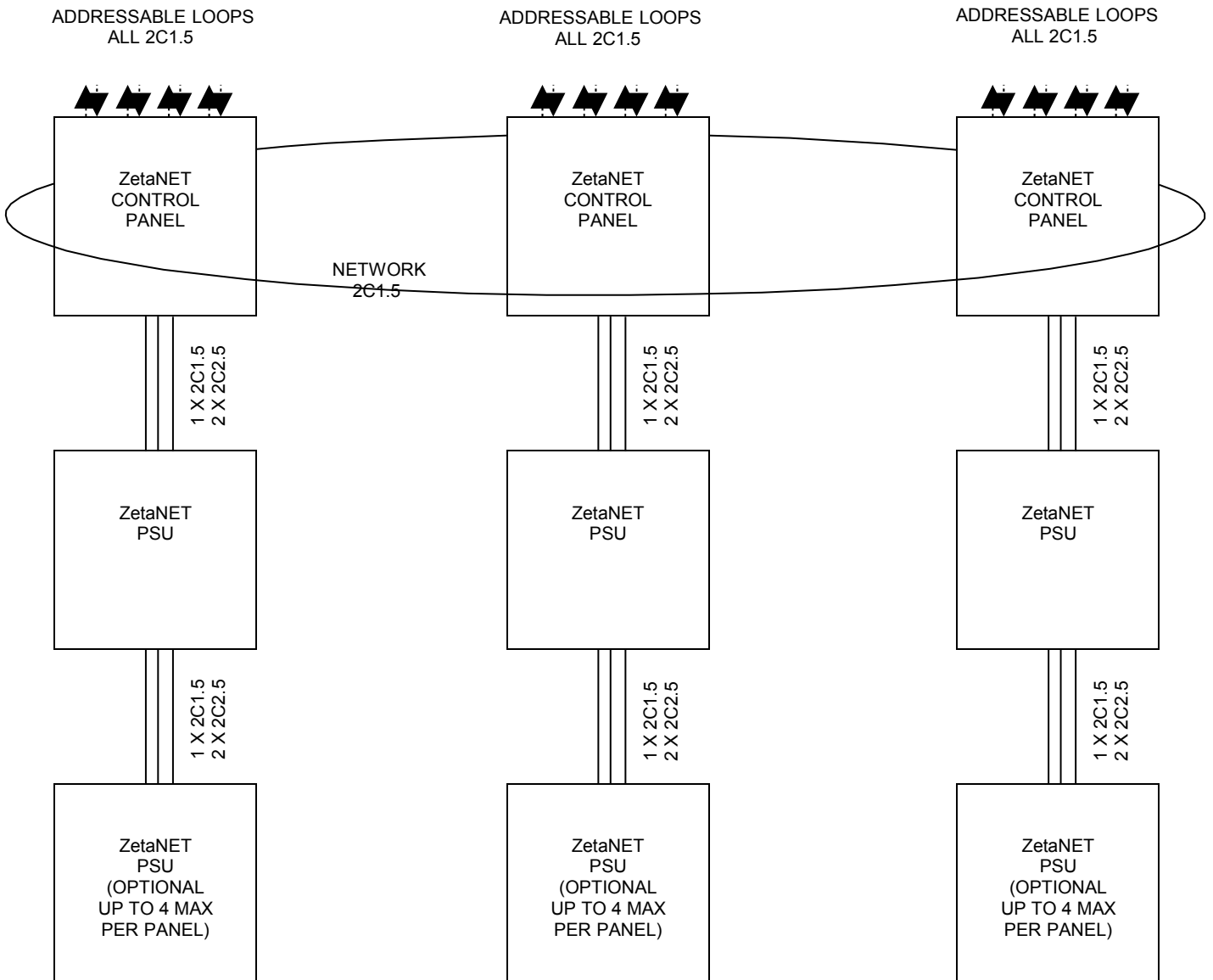
In order to allow a method of calculating the maximum loop loading that the system will support, each device has a rating assigned in Alarm Loading Units (ALUs). A maximum of 175 ALU are permissible on the loop. This only relates to the load presented in alarm and does not necessarily affect an input device.

The ZetaNET OSP programming software automatically keeps control of the quantity and will provide prompts if the limits are reached.

DESCRIPTION	ALU RATING
Sounder Low	0.5
Sounder Medium	1
Sounder High	2
Beacon	1
Loop I/O Module	1
Conventional Zone Module: Powered from loop	10
Conventional Zone Module: Powered remotely	1

Note: Whilst the system will operate a maximum of 800 devices per control panel, for compliance with EN54: Part 2: 1997 it is recommended that a limit of a maximum of 512 detection devices is adhered to. This includes detectors and manual call points, but does not affect the number of sounders or other alarm devices on the system.

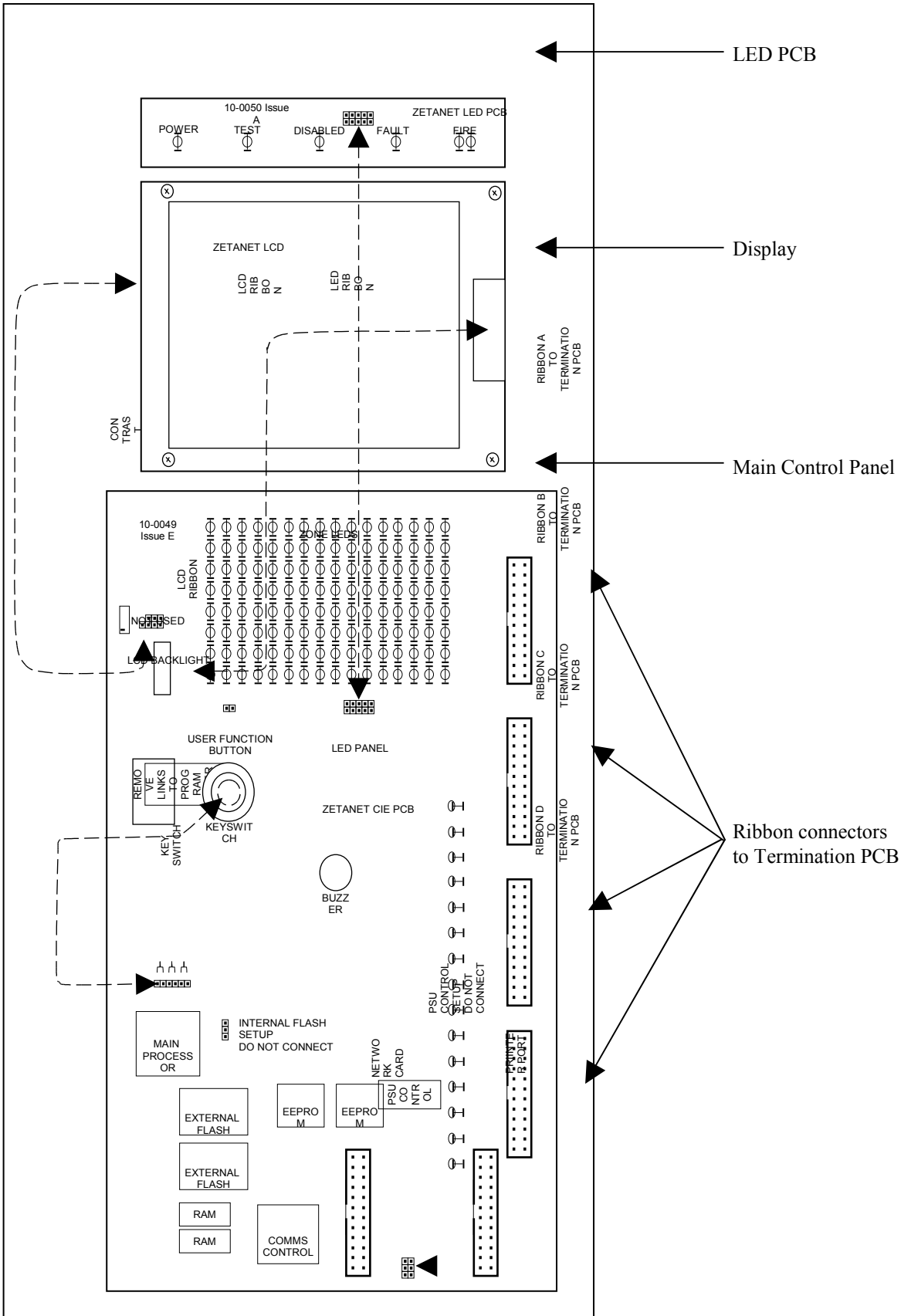
System Schematic



ZetaNET Control Panel Installation Instructions

Control Panel Main PCB Located on the inside of the front left hand inner door.

LCD
BACKLI
GHT
CONNE
CTION



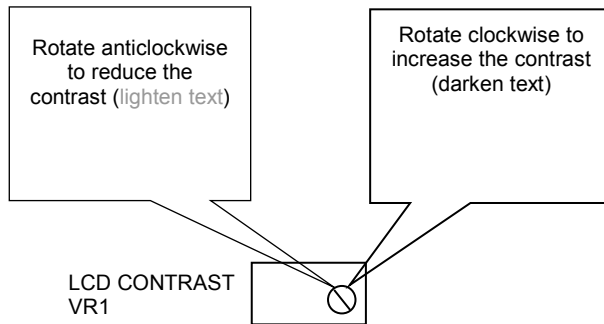
Control Panel Firmware Upgrade Link Pins

The loop card firmware may be upgraded on site if required using the External Flash Upgrade software.

The two link pins **MUST** be left in position for correct field operation.

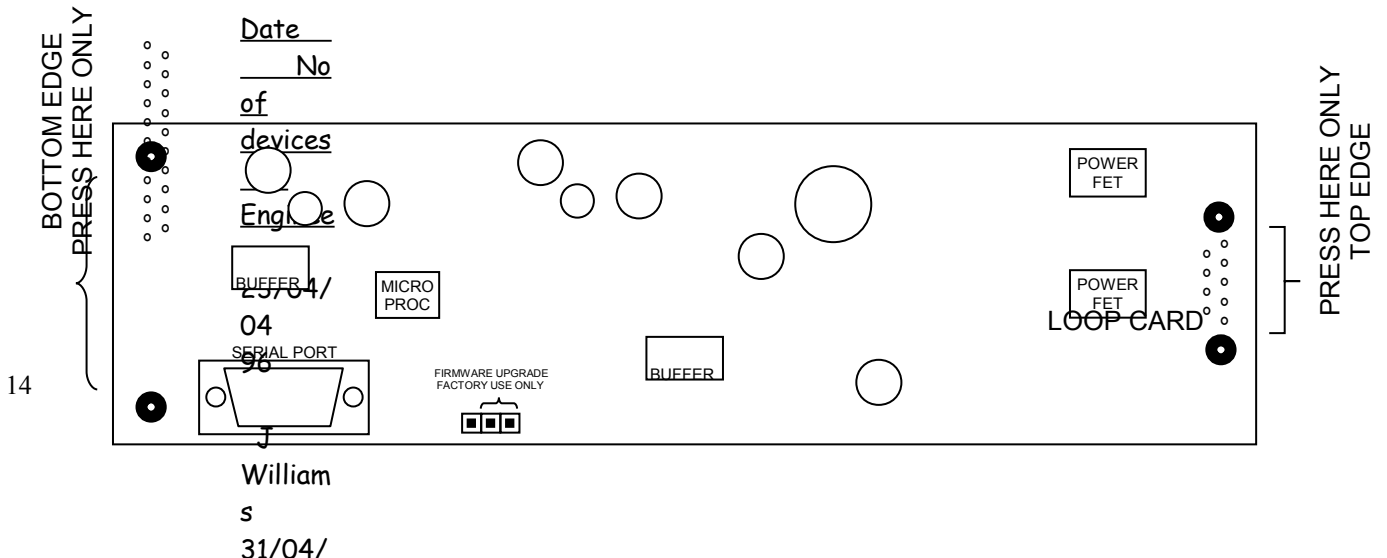
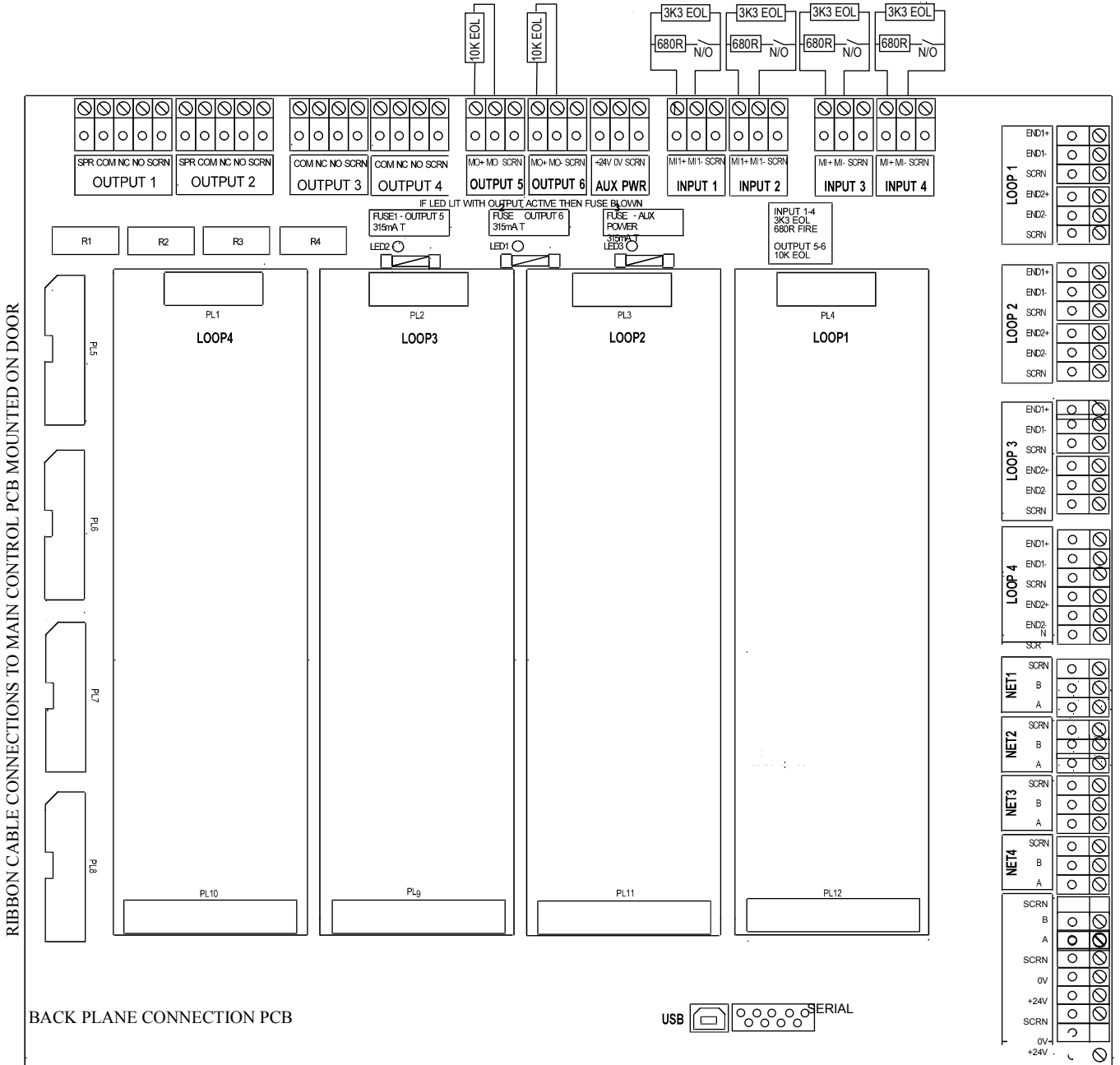
LCD Contrast

The LCD contrast may be adjusted by rotating the screw on the variable resistor located in the upper left hand corner of the main PCB. This may require many (10 to 20) rotations if the contrast is particularly out of adjustment.



Control Panel Terminals

Located on the back plane at the rear of the main control panel back box.



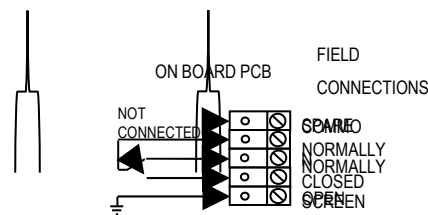
Loop Card Serial Port

The serial port may be used for connection to a computer running the Diagnostic software in order to interrogate the loop communications.

Loop Card Firmware Upgrade Link Pins

The loop card firmware may be upgraded at the factory only. The link pin should be left in the position shown for correct field operation.

Outputs 1 and 2: SPR, COM, NC, NO, SCRN

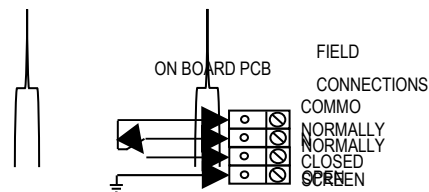


Outputs 1 and 2 are derived from single pole change over 'volt-free' relay contacts which are not fault monitored. The relay contacts are rated at 30vDC / 2A max.

The default setting for output 1 causes the relay to operate as a **Common Fire** output where the relay is energised in the fire condition. The default setting for output 2 causes the relay to operate as a **Common Fault** output where the relay is de-energised in the fault condition. Various other states may also be set using the ZetaNET OSP programming software.

Terminal	Description
SPR	Spare terminal for general use. Not connected internally.
COM	Common contact
NC	Normally closed contact
NO	Normally open contact
SCRN	Field cable screen connection

Outputs 3 and 4: COM, NC, NO, SCRN

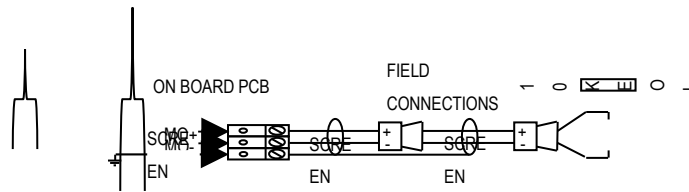


Outputs 3 and 4 are single pole change over 'volt-free' relay contacts which are not fault monitored. The relay contacts are rated at 30vDC / 2A max.

The default setting for output 3 causes the relay to operate as a **Common Fault** output where the relay is de-energised in the fault condition. The default setting for output 4 causes the relay to operate as a **Common Fault** output where the relay is de-energised in the fault condition. Various other states may also be set using the ZetaNET OSP programming software.

Terminal	Description
COM	Common contact
NC	Normally closed contact
NO	Normally open contact
SCRN	Field cable screen connection

Outputs 5 and 6: MO+, MO-, SCRN



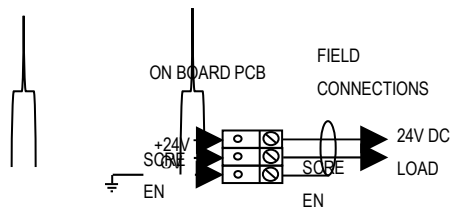
Outputs 5 and 6 are monitored circuits which may be configured to monitor for open and short circuit faults with a 10K EOL resistor, and to be activated with a stage 3 alarm.

The default setting for outputs 5 and 6 causes the circuits to operate as **Common Fire Sounder Circuits**, where the outputs step up to 28V DC in the alarm condition. Various other states may also be set using the ZetaNET OSP programming software.

These outputs are protected by the **315mA T fuses** labelled F1 and F2.

Terminal	Description
MO+	Monitored Output positive connection
MO-	Monitored Output 0V connection
SCRN	Field cable screen connection

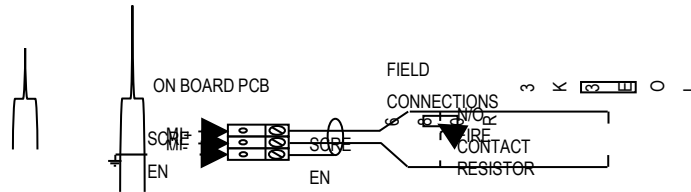
Auxiliary Power: +12V, 0V, SCRN



An auxiliary 24v DC constant power supply is available to power ancillary devices requiring 24V DC. In order to protect battery standby and alarm times, this output is limited to **315mA** with the fuse labelled F3. It is suggested that additional Power Supply Units be installed to provide power for additional loads.

Terminal	Description
+24V	Aux power positive connection
0V	Aux Power 0V connection
SCRN	Field cable screen connection

Inputs 1- 4: MI+, MI-, SCRN



Inputs 1-4 may be configured to monitor for open and short circuit faults using a 3K3 EOL resistor, and to activate an alarm link using a 680R 'firing' resistor.

Terminal	Description
MI+	Monitored Input positive connection
MI-	Monitored Input 0V connection
SCRN	Field cable screen connection

Fuses 1-3: F1, F2, F3

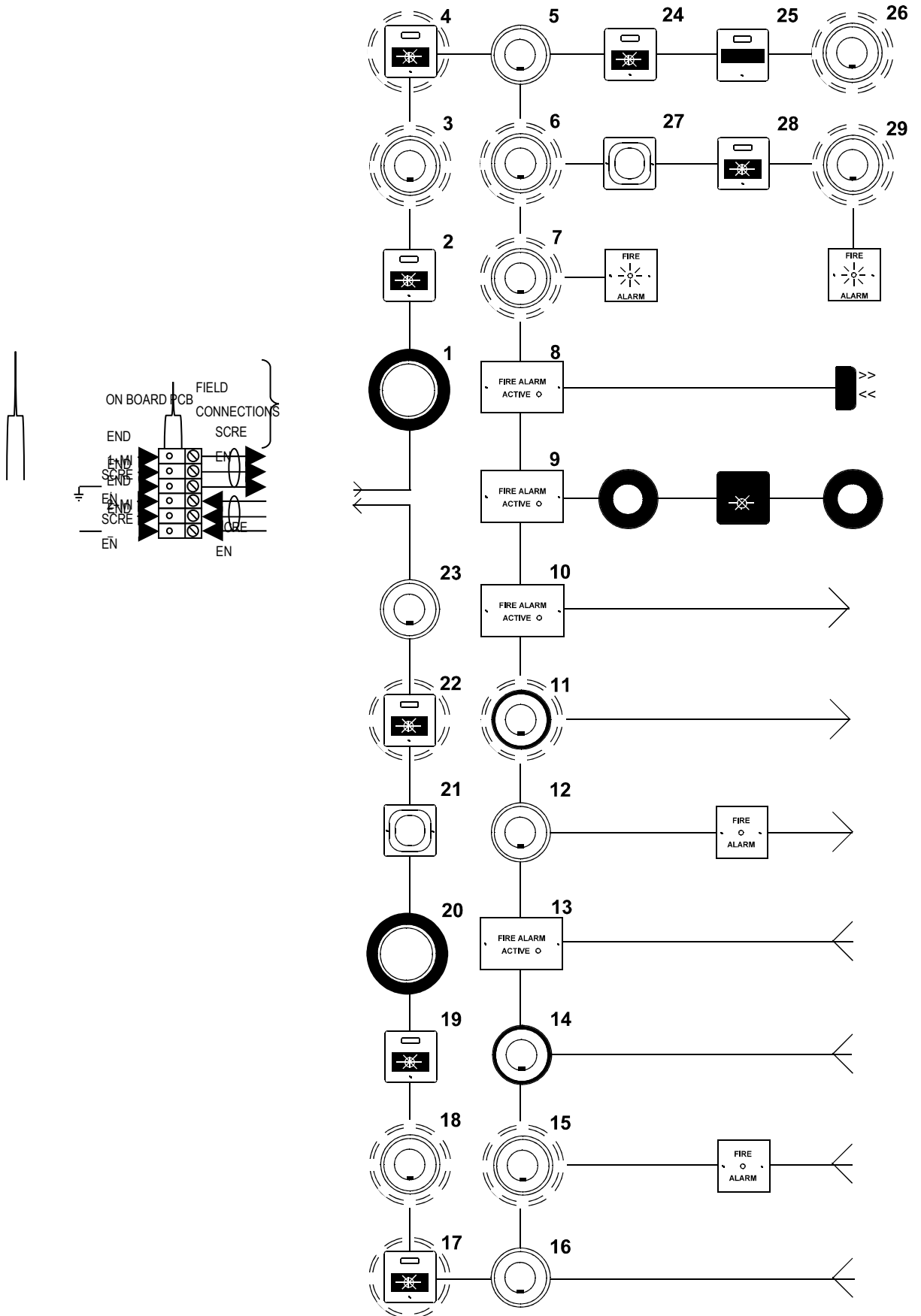
The fuses are located towards the top of the back plane PCB.

Blow fuses are easy to spot using the LED adjacent to each fuse. This will switch on if the output is switched on (even in the passive state) and the fuse is blown.

Label	Description	Fuse
F1	Output 5	315 mA T
F2	Output 6	315 mA T
F3	Auxilliary Power	315 mA T

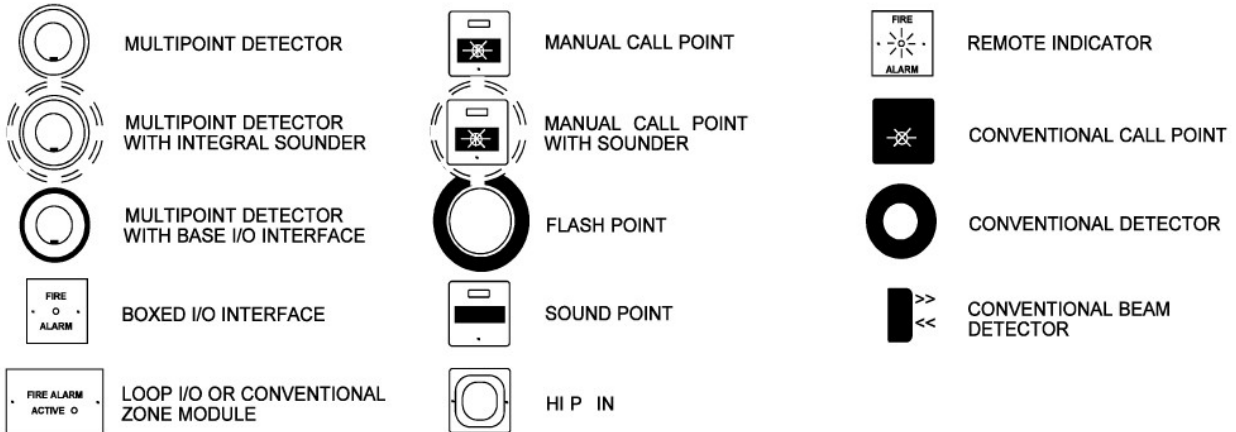
ZetaNET Control Panel Installation Instructions

Addressable Circuit Loops 1- 4: END1+, END 1-, SCRN, END2+, END2-, SCRN



ZetaNET Control Panel Installation Instructions

KEY TO SYMBOLS



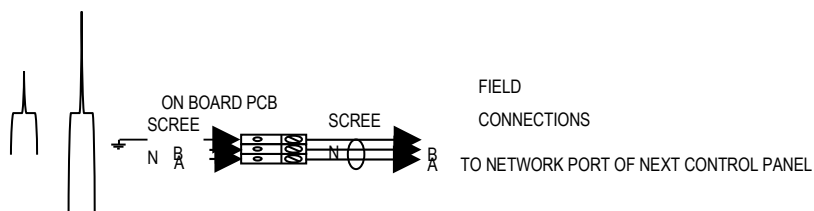
The Loop 1-4 addressable circuits may be connected to the appropriate End 1 and End 2 terminals. Communications normally run from Circuit End 1, but in the event of a continuity fault both ends of the circuit will operate.

It is important that the cable screen is connected to earth at each end at the control panel only, and that the screen continuity is maintained at all times. We recommend against the use of a 4-core cable as a loop **Feed & Return** due to the possibility of data corruption.

Addressable spur (radial) circuits may be connected from any multipoint detector, but not from any other device. Devices covering a maximum of 1 zone per spur connection may be connected to each circuit in order to ensure that no more than 1 zone may be lost in the event of a cable failure. Full functionality is maintained for all spur devices.

Terminal	Description
END1+	Circuit End 1 positive connection: +VE OUT
END 1 -	Circuit End 1 0V connection : 0V OUT
SCRN	Field cable screen connection: SCRN OUT
END2+	Circuit End 2 positive connection: +VE RETURN
END 2 -	Circuit End 2 0V connection : 0V RETURN
SCRN	Field cable screen connection: SCRN RETURN

Network Ports 1-4: +12V, 0V, SCRN

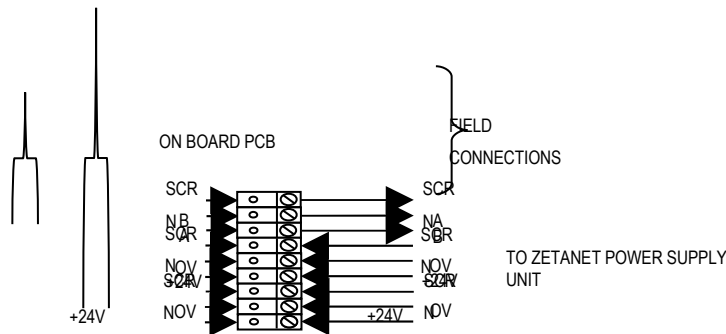


The network ports allow multiple control panels to be connected together, up to a maximum of 32 panels.

Terminal	Description
SCRN	Field cable screen connection
B	Data B connection
A	Data A connection

ZetaNET Control Panel Installation Instructions

PSU: SCRN, B, A, SCRN, 0V, +24V, SCRN, 0V, +24V,



The PSU connections connect the control panel to the Power Supply Unit.

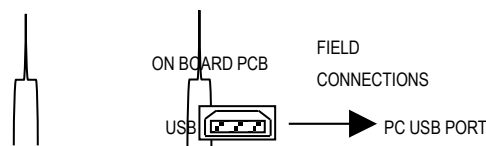
A 2-core 1.5mm² cable should be used for the Data connections (A and B), up to a maximum of 30m in length.

Two 2-core 1.5mm² cables may be used for the +24V and 0V power connections, up to a maximum of 20m in length. These cables should be connected to earth at each end at the terminals provided

If a greater distance is required between the main control panel and the PSU then two 2-core 2.5mm² cables should be used for the +24V and 0V power connections, up to a maximum of 30m in length. These cables should be connected to earth at each end at the terminals provided

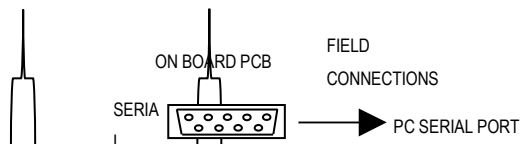
Terminal	Description
A	Serial Data connection
B	Serial Clock connection
+24v	Power Supply +24V connection
0v	Power Supply 0V connection
SCRN	Cable Screen

USB Port: USB



The ZetaNET control panel may be programmed using the ZetaNET OSP programming software using a USB lead to link to a computer. This allows the site specific data to be customised as required.

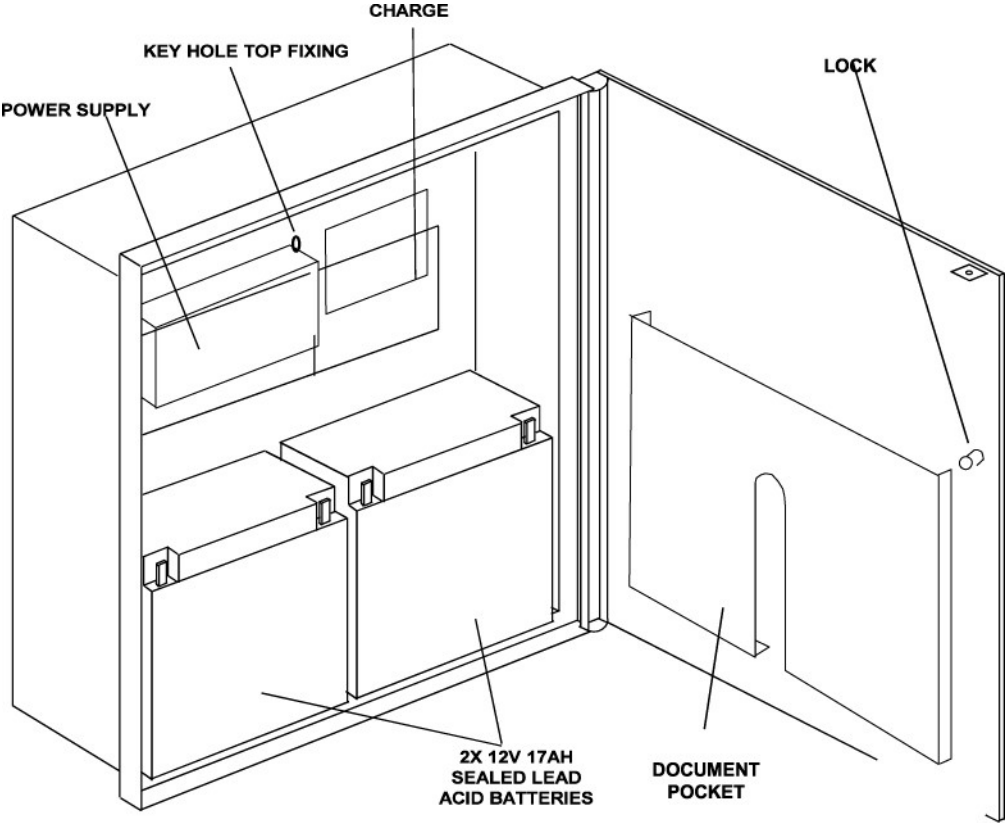
Serial Port: SERIAL



The ZetaNET control panel firmware (Control Panel Software stored in External Flash memory) may be updated using the ZetaNET Firmware programming software using a serial lead to link to a computer. This allows the control panel software version to be updated on site as required.

Power Supply Unit

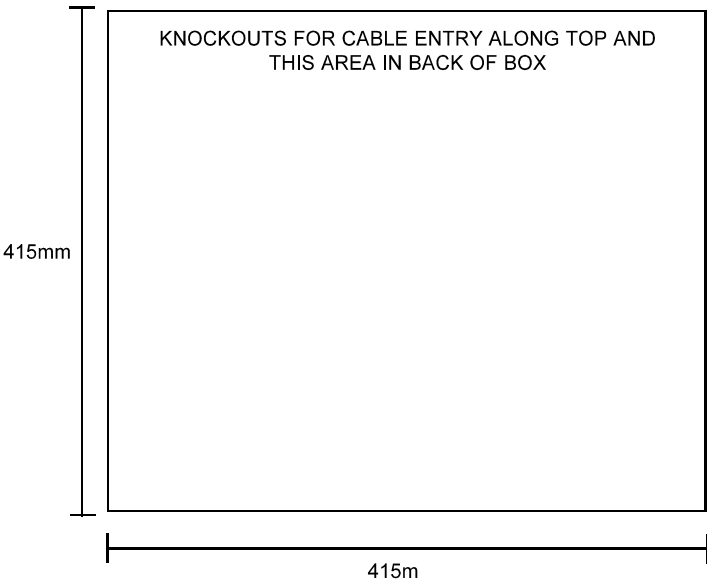
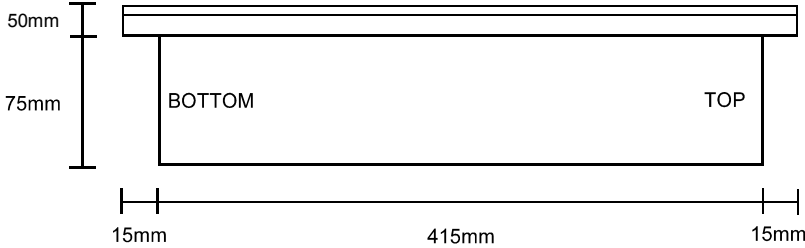
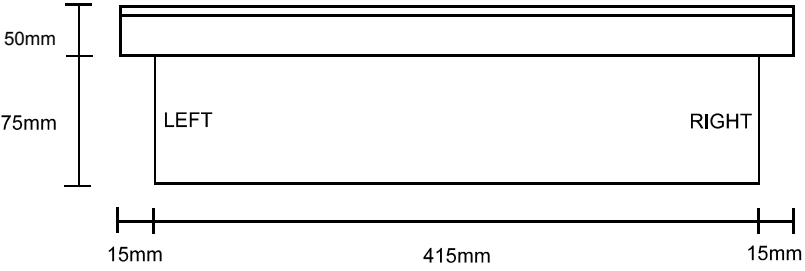
General Assembly



Cabinet Installation

The four back plate holes should be used to secure the cabinet to a solid wall using suitable screws of at least 50mm in length.

Physical Dimensions



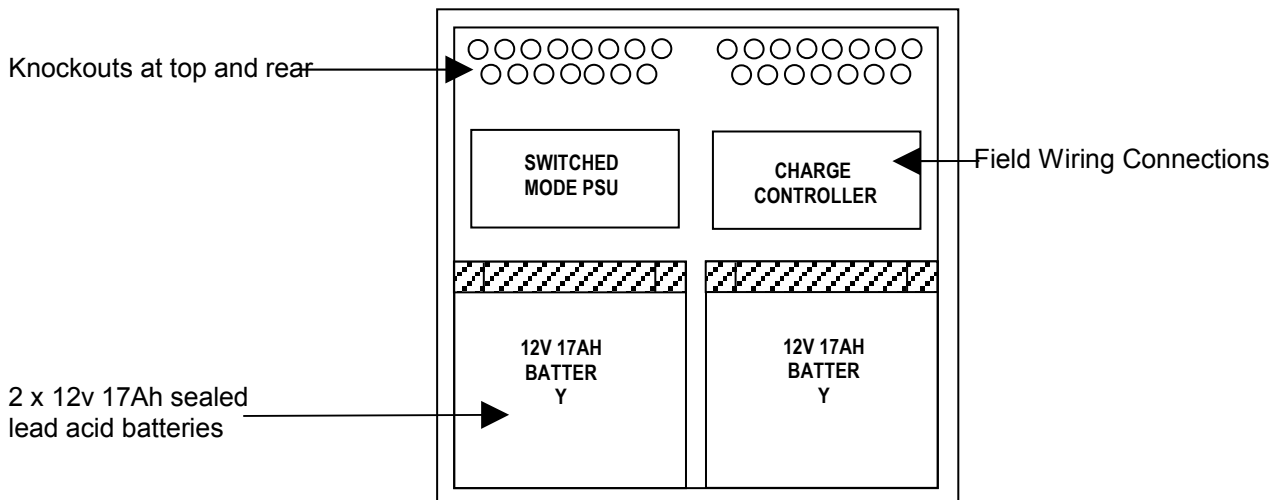
Mains Supply & Batteries

The Fire Alarm Panel 230V AC supply requires fixed wiring between 0.75 mm² and 2.5 mm², a 3 amp fused un-switched spur with local isolation, to be terminated into the fused terminals provided in the power supply back box. The mains supply should be dedicated to the Fire Alarm Panel and should be clearly labelled 'FIRE ALARM: DO NOT SWITCH OFF' at all isolation points.

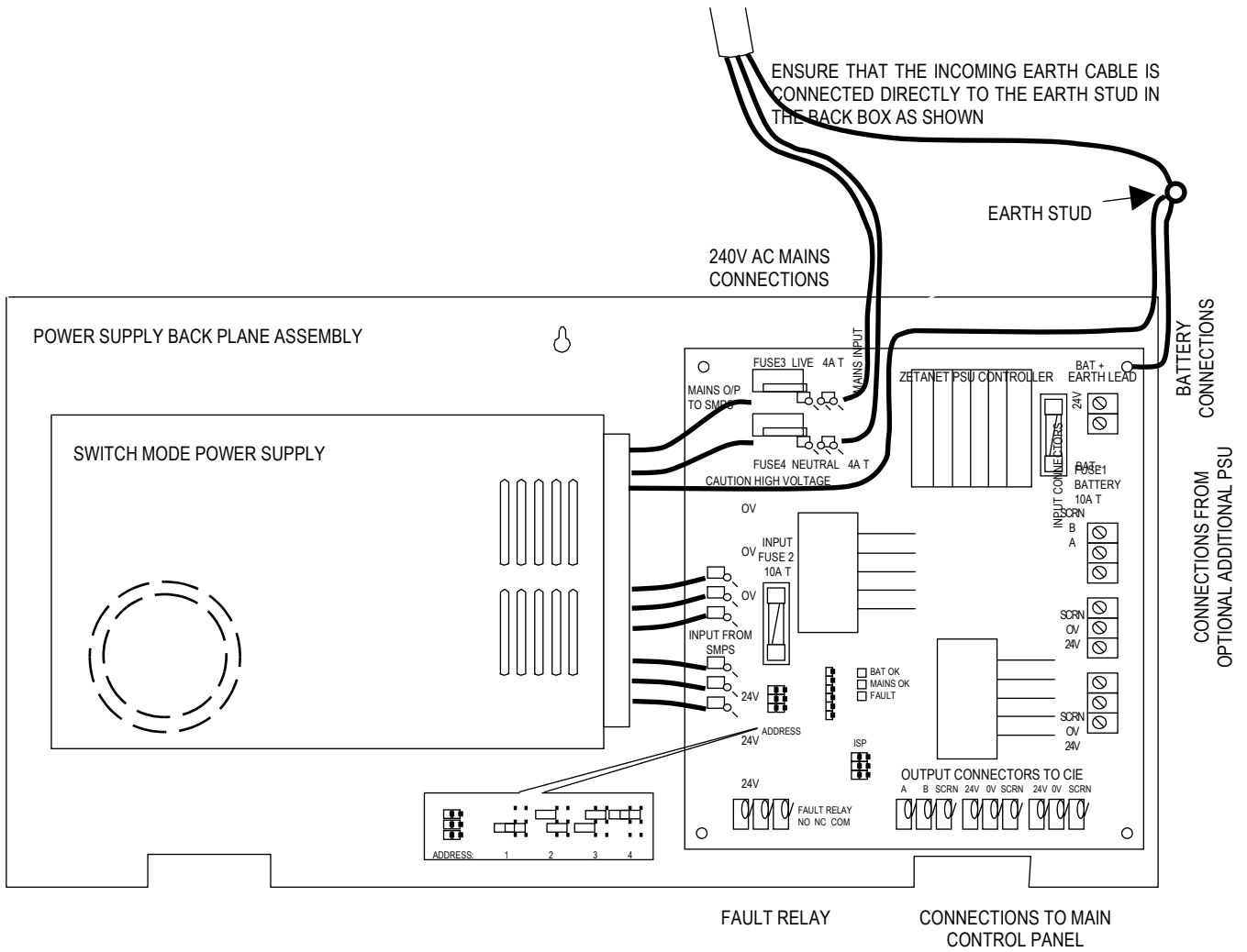
The standby will vary depending on the system loading, requiring up to a maximum of 2 x 12v 17Ah sealed lead acid batteries. These are to be sited in the power supply back box in the provided enclosure along the bottom edge. The batteries should be connected in series using the connection leads supplied.

Note that batteries are electrically live at all times and great care should be taken to ensure that the terminals are never presented with a short circuit. Care should be taken at all times, especially during transit, installation and normal use. **Use caution as there is a risk of explosion if the batteries are replaced by an incorrect type.**

Batteries no longer required should be disposed of in a safe and environmentally friendly manner by the manufacturer or a suitable recycling service. They should never be incinerated or placed in normal rubbish collection facilities. Dispose of used batteries according to the instructions.



PSU Termination Schematic



PSU Terminals

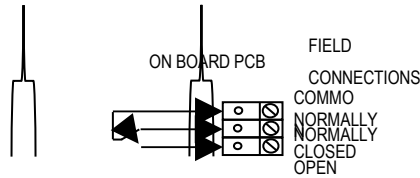
Mains Input: L, N, E

The 230V AC input is to be connected into the terminals provided on the Charge Controller Unit. This input is protected by the 4AT live and neutral fuses adjacent to the terminals. Please use caution as double pole live and neutral fusing is used.

Battery Connections: +24V, 0V

The battery terminals require 24v from 2 x 17Ah sealed lead acid batteries, connected in series, in order to provide secondary backup power when the primary power fails. This input is protected by the 10AT fuse adjacent to the terminals.

Fault Relay: NO, C, NC,



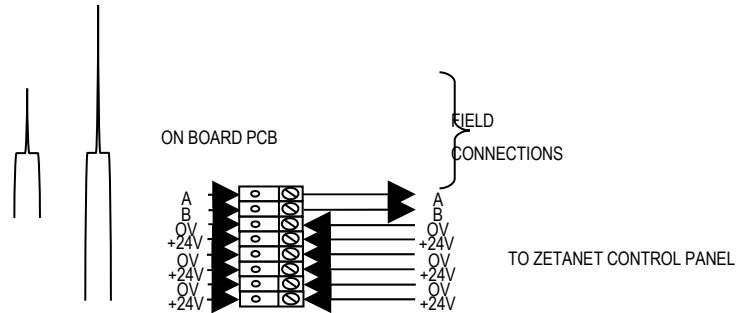
The Fault relay is a single-pole change-over 'volt-free' relay contact. The relay contacts are rated at 30vDC / 0.5A max.

The relay is de-energised in the fault condition.

Terminal	Description
COM	Common contact
NC	Normally closed contact
NO	Normally open contact

ZetaNET Control Panel Installation Instructions

PSU: A, B, 0V, +24V, 0V, +24V, 0V, +24V,



The PSU connections connect the Power Supply Unit the Control Panel.

A 2-core 1.5mm² screened cable should be used for the A and B connections, up to a maximum of 30m in length.

Two 2-core 1.5mm² cables may be used for the +24V and 0V power connections, up to a maximum of 20m in length. These cables should be connected to earth at each end at the terminals provided

If a greater distance is required between the main control panel and the PSU then two 2-core 2.5mm² cables should be used for the +24V and 0V power connections, up to a maximum of 30m in length. These cables should be connected to earth at each end at the terminals provided

Terminal	Description
A	Serial Data connection
B	Serial Clock connection
+24v	Power Supply +24V connection
0v	Power Supply 0V connection

Fuses

The following fuses are located on the charge controller PCB.

Fuse No	Label	Fuse	Type	Breaking Capacity	Max Rated Voltage
FUSE1	Battery	10A T	Glass	100A	250VAC
FUSE2	Input from SMPS	10A T	Glass	100A	250VAC
FUSE3	Mains Input: Live	4A T	Ceramic	1500A	250VAC
FUSE4	Mains Input: Neutral	4A T	Ceramic	1500A	250VAC

Network

Topology and cable spec

The ZetaNET network may be connected as shown below. The network may comprise of Control panels or repeater panels as required, up to a maximum of 32 nodes. In addition to the connections shown above, each panel will require a 230V AC supply and the power supply arrangements relevant to that panel.

Any network port at a Control Panel may be connected to any other network port at any other Control Panel. A list of these connections must be noted during termination as they will need to be configured at each Control Panel for correct operation.

The Network connection circuit may be installed as a radial, star, ring or mesh network, with a maximum cable length of up to 1 km between network nodes. It is recommended that the ring or mesh configurations are used to ensure system integrity in the event of a cable failure.

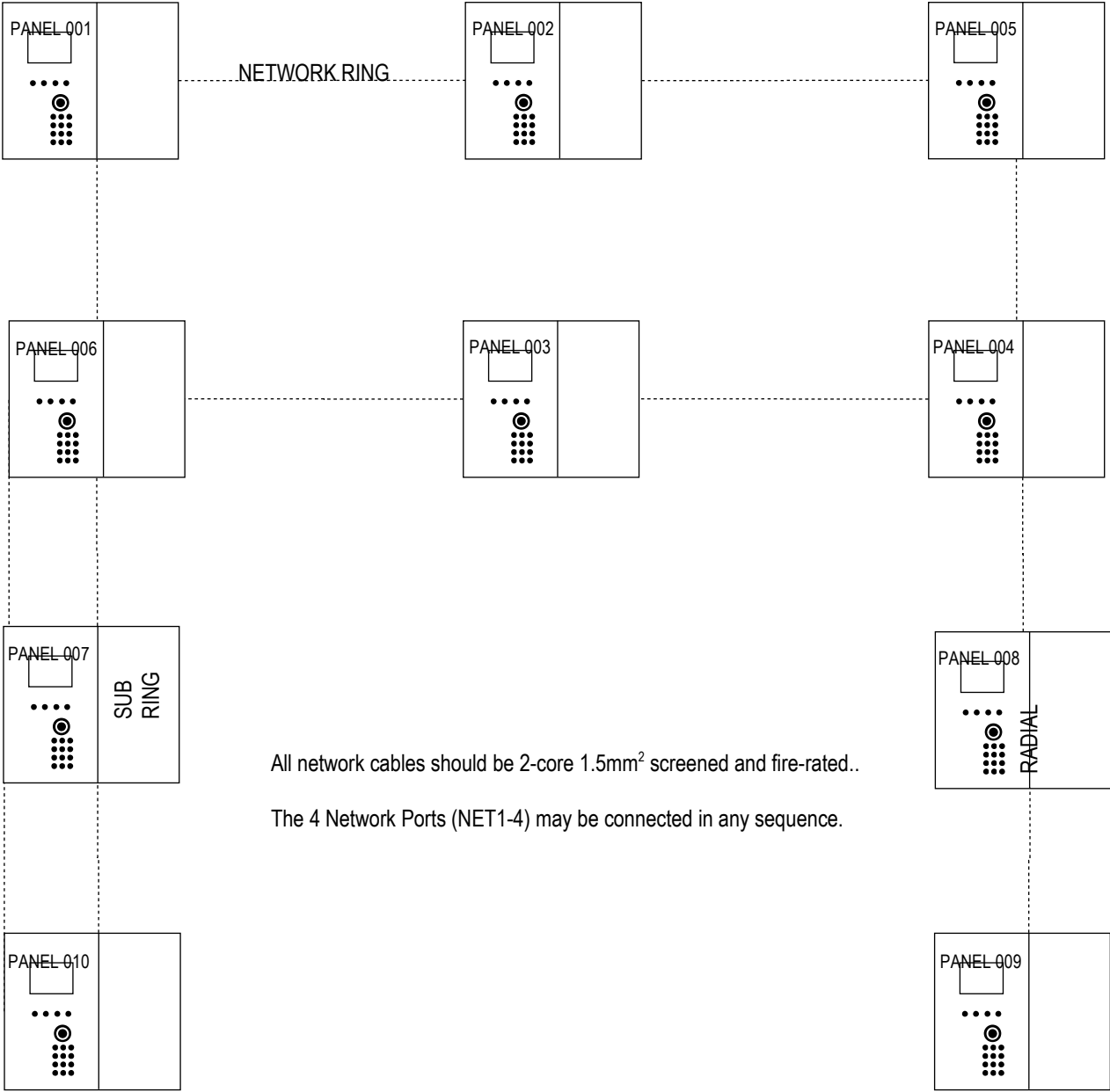
All system wiring should be installed to comply with BS 5839: Pt1: 2002 and BS 7671 (wiring regulations) and any other standards relevant to the area or type of installation. A cable complying with the BS 5839: Pt1: 2002 Category 1 (cables required to operate for prolonged periods during fire conditions) is required. This must be a 2-core 1.5mm² screened fire resistant cable.

The network circuit should be installed as a loop with a maximum length of up to 1 km between network nodes (panels etc). Radial circuits may be utilised, but the system integrity and fault tolerance will be lower.

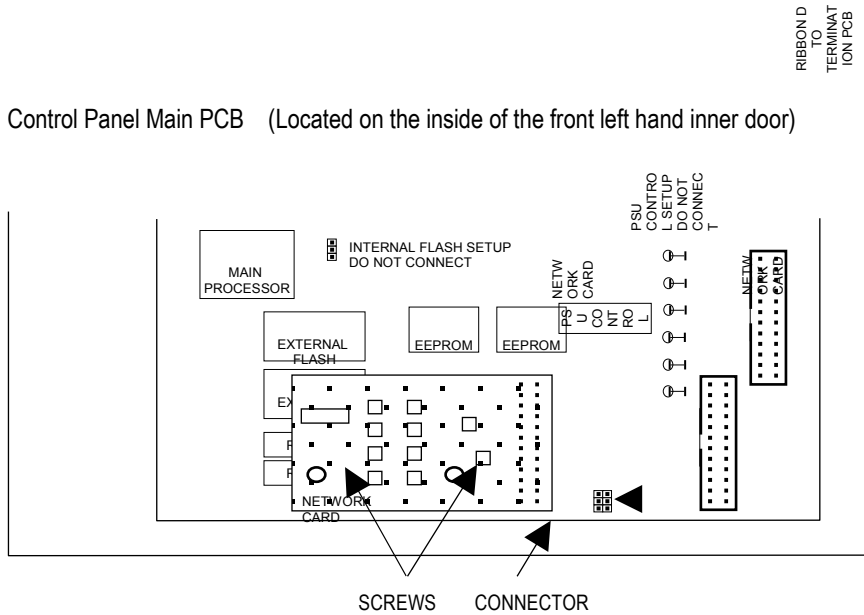
In order to protect against possible data corruption it is important ensure the following points are adhered to:

1. The cable **screen between each network node (panel/repeater) must be connected to earth/ground at one end only** using the terminals provided. Ensure that the end that is not connected is safely terminated in a connector block to avoid unwanted shorting to any other point.
2. The cable **screen between each panel/repeater must be connected to earth/ground at one end only** using the terminals provided. Ensure the end that is not connected is safely terminated in a connector block to avoid unwanted shorting to any other point.
3. Do not use a 4-core cable as a loop **feed & return** due to the possibility of data corruption. It is essential that two 2-core cables are used if this is required.

Network Schematic



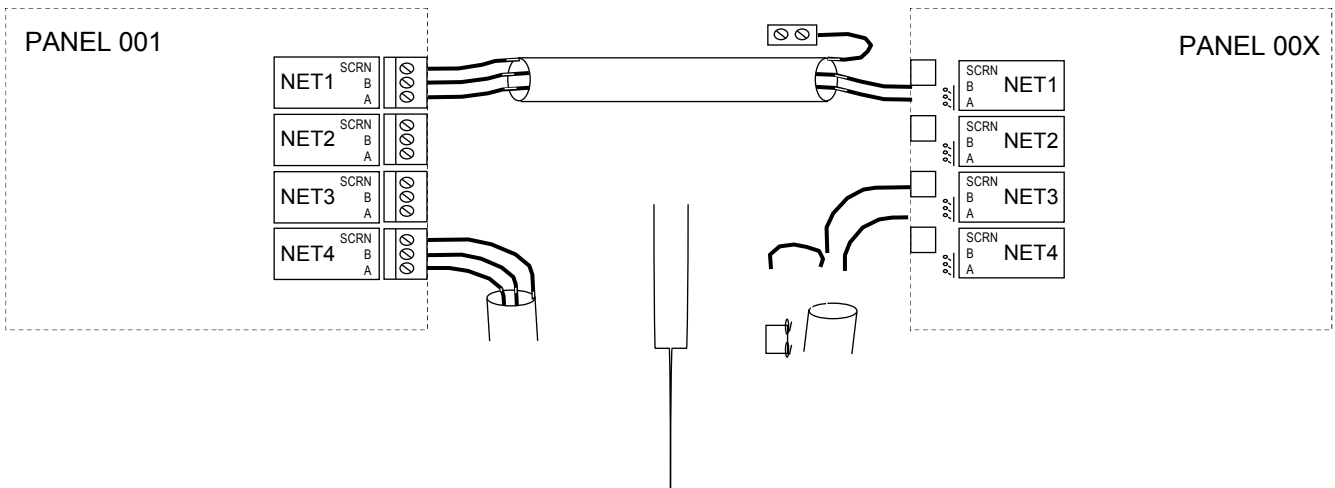
Network Terminals



All network cables should be 2-core 1.5mm² screened and fire-rated. The cable screen must be connected to earth/ground at the control panel at one end only using the terminals provided. Terminate the unused end in a connector block.

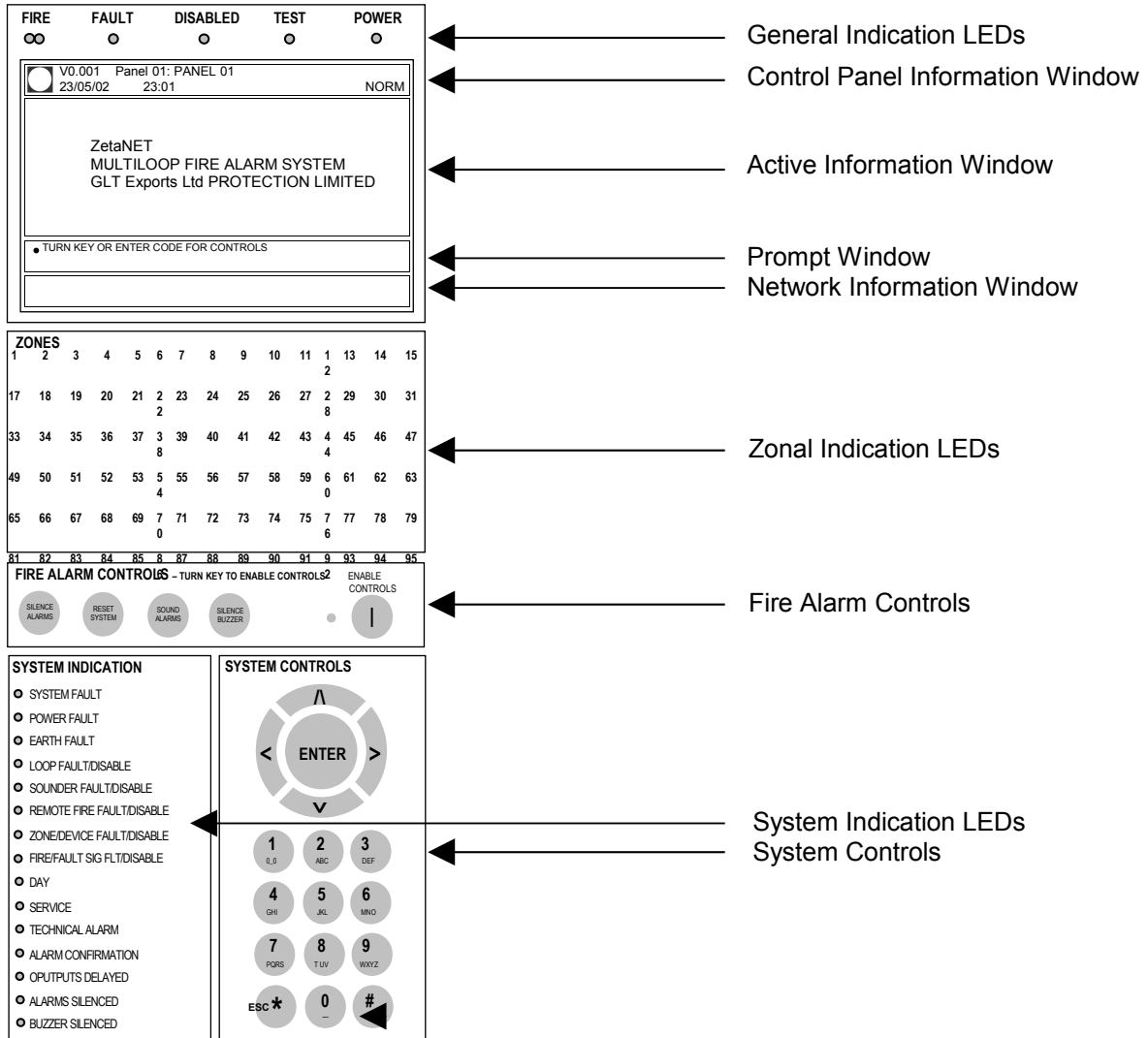
The 4 Network Ports (NET1-4) may be connected in any sequence between panels. Note your network connections for future reference whilst installing them,

ie, Panel 001, Network Port 1 connected to Panel 00X Network Port 1



General Operation of Control Panel

Control Panel Front



LED Indication

The operation of the LED indication on the front of the control panel is described below.

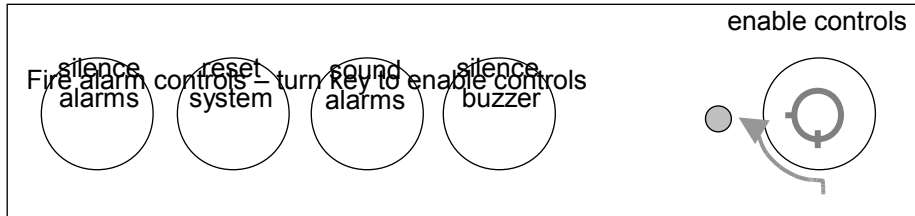
	Description	Colour	State	Reason
1.	FIRE	Red	Flashing	The control panel is in the fire state. Other indicators will show the origin
2.	FAULT	Amber	Flashing	The control panel is in the fault state. Other indicators will show the origin
3.	DISABLED	Amber	Continuous	This indicates that a disablement action is in place. Enable all devices / actions to clear.
4.	TEST	Amber	Continuous	This indicates that a test routine is in place. End all tests to clear.
5.	POWER	Green	Continuous	This indicates that power is being supplied to the control panel from either the 230V AC mains supply, or the standby batteries.
			Flashing	The 230V AC mains supply has been removed.
6.	'ZONE 1-32'	Red	Flashing	A Manual Call Point in the zone indicated is in the alarm state and sending an alarm signal to the panel.
			Continuous	A Detector in the zone indicated is in the alarm state and sending an alarm signal to the panel.
67.	SYSTEM FAULT	Amber	Continuous	The system Fault LED indicates the presence of a processor or a checksum error. Power the system down to clear, reprogram all settings and test the system.
8.	POWER FAULT	Amber	Flashing	Either a battery supply / charger fault has been detected (check the fuse and the battery voltages) , or a mains supply fault has been detected (check for a 24V AC supply on the PCB Ac terminals).
9.	EARTH FAULT	Amber	Flashing	An earth fault has been detected where a path exists from the circuit wiring to earth. Remove circuits one at a time to discover which one, and then rectify.
10.	LOOP FAULT / DISABLE	Amber	Flashing	A fault condition is present one of the addressable device loops, or one of the addressable devices.
			Continuous	A device or an action associated with the addressable device loop has been disabled
11.	SOUNDER FAULT / DISABLE	Amber	Flashing	A fault condition is present on a monitored sounder circuit or on the addressable device loop sounders.
			Continuous	A device or an action associated with the monitored sounder circuits or an addressable sounders has been disabled.
12.	REMOTE FIRE OUTPUT FAULT / DISABLE	Amber	Flashing	A fault condition is present on a monitored Relay circuit or on the addressable device loop outputs.
			Continuous	A device or an action associated with the monitored relay circuits or an addressable output has been disabled.
13.	ZONE / DEVICE FAULT / DISABLE	Amber	Continuous	A device or zone, or an action associated with them has been disabled.
14.	'FIRE / FAULT SIGNAL	Amber	Flashing	A monitored output programmed to operate as a Fire

ZetaNET Control Panel Installation Instructions

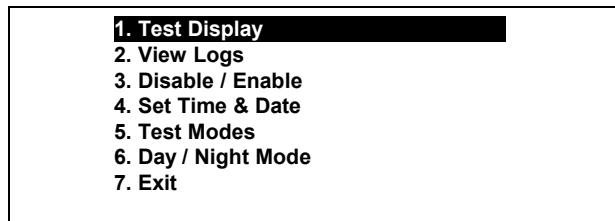
	FAULT / DISABLE'			or Fault Signal Transmission Output is in the fault state.
			Continuous	A monitored output programmed to operate as a Fire or Fault Signal Transmission Output has been disabled.
15.	DAY	Amber	Flashing	The system Day / Night mode timing has been overridden, and forced into the less sensitive day mode.
			Continuous	The system has gone in the less sensitive day mode as programmed.
16.	SERVICE	Amber	Flashing	The pre programmed service interval has expired and a routine maintenance check is due.
17.	TECHNICAL ALARM	Amber	Flashing	A device programmed as Technical Alarm is in the alarm state and sending a Technical Alarm signal to the panel.
18.	ALARM CONFIRMATION		Flashing	A smoke detector is in the alarm confirmation state, awaiting confirmation or reset.
19.	'OUTPUTS DELAYED'	Amber	Continuous	An action has been started which utilises a programmed delay.
20.	ALARMS SILENCED	Amber	Continuous	The alarm sounders have been silenced whilst operating, and the system is awaiting a reset.
21.	BUZZER SILENCED	Amber	Continuous	The control panel buzzer has been silenced whilst operating and will stay silenced until another fault or relevant action occurs.
			Flashing	The control panel buzzer has been disabled at Access Level 3 (Engineer), and will remain silent until it is reinstated. However, the buzzer will still operate in the fire alarm state.

Fire Alarm Controls

The main Fire Alarm Controls may be enabled by turning the key switch to the controls enabled position, or by entering a valid Access code



System Controls



A context-driven highlighted-selection menu system is used to pilot around the menu system, automatically prompting you with the relevant options for your Access Level and system status.

The menus may be navigated in one of two ways as required:

1. Use the **UP / DOWN** keys to move the highlighted selection and press **ENTER** to select the chosen one.
2. Enter the desired option number and press **ENTER** to select it.

Press the **Esc** key to exit to the previous menu.

Access Levels and Codes

The menu system is divided into four access levels in order to restrict access to those who require it. For simple indication the status of the **Controls Enabled** light will show the level selected as follows;

Access Level	Description	Shift LED	Key Operation	Default Code
1 – NORM	Normal	OFF	YES	N/A
2A – USER	User	ON	YES	8737
2B – SUPR	Supervisor	SLOW FLASH	NO	7877
3 – ENGR	Engineer	FAST FLASH	NO	3647

Access to the menu system requires either the operation of the **enable controls key** for access to Access Level 2A (User), or the correct entry of the relevant code for access to all other levels, in order to protect against unauthorised access to the system. The codes may be changed using the ZetaNET OSP software.

A valid access level code must be entered in order access any of the menus.

Access Level 1 (Normal): *Controls Enabled LED off*

At Access Level 1 (Normal), the main **Fire Alarm Controls** are disabled and the Controls Enabled LED is switched off.

A valid access level code must be entered in order access any of the menus.

Access Level 2A (User): *Controls Enabled LED off*

At Access Level 2A (User), the main **Fire Alarm Controls** are enabled, and the following **System Controls** are accessible:

1. Test Display

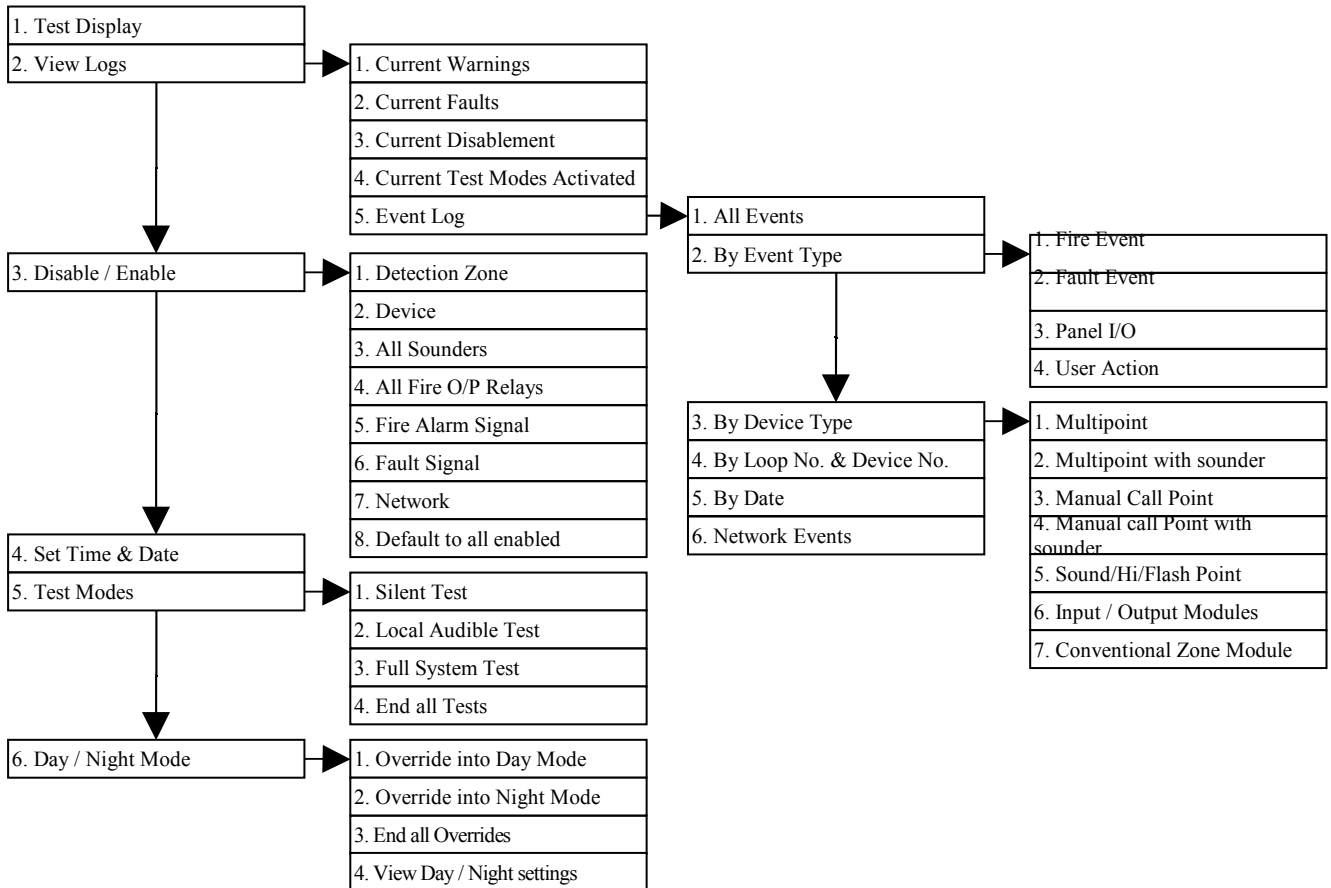
Test Display

The Test Display function causes the panel LEDs to pulse, and the LCD screen to blacken, and the buzzer to sound in order to verify their correct operation.

Press the **Esc** key to exit to the previous menu.

Access Level 2B (Supervisor): Controls Enabled LED flashing slowly

At Access Level 2B (Supervisor), the main **Fire Alarm Controls** are enabled, and the following **System Controls** are accessible:



Test Display

The Test Display function causes the panel LEDs to pulse, and the LCD screen to blacken, and the buzzer to sound in order to verify their correct operation.

View Logs: Current Warnings

The Active Warnings Log will display any current warnings. These are displayed in text format and may be scrolled through by pressing the **UP** and **DOWN** keys.

View Logs: Current faults

The Active Faults Log will display any current faults. These are displayed in text format and may be scrolled through by pressing the **UP** and **DOWN** keys.

View Logs: Current Disablement

The Active Disablement Log will display any current disablement. These are displayed in text format and may be scrolled through by pressing the **UP** and **DOWN** keys.

View Logs: Current Tests

The Active Tests Log will display any current disablement. These are displayed in text format and may be scrolled through by pressing the **UP** and **DOWN** keys.

View Logs: Event Log

The Event Log stores 1000 fire and fault events which may be displayed in entirety, or displayed by category. These are displayed in text format and may be scrolled through by pressing the **UP** and **DOWN** keys.

Disable / Enable: Detection Zone

This function allows the disablement or enablement of a detection-zone. Thus, all the input devices (Manual Call Points, detectors and inputs) within that detection-zone will be disabled. The control panel will indicate that disablements are present, a disablement event will be recorded to log, the device LED will still operate when activated and an event will be recorded to log, but no programmed actions will occur. The sounder within the device will still operate if triggered from elsewhere on the system.

Disable / Enable: Device

This function allows the disablement or enablement of an individual device. The control panel will indicate that disablements are present, a disablement event will be recorded to log, the device LED will still operate when activated and an event will be recorded to log, but no programmed actions will occur. The sounder within the device will still operate if triggered from elsewhere on the system.

Disable / Enable: All Sounders

This function allows the global disablement or enablement of all the sounders on the system. The control panel will indicate that disablements are present and a disablement event will be recorded to log.

Disable / Enable: Fire Output Relays

This function allows the global disablement or enablement of all the outputs on the system that are programmed for common or remote fire. The control panel will indicate that disablements are present and a disablement event will be recorded to log.

Disable / Enable: Fire Alarm Signal

This function allows the global disablement or enablement of all the outputs on the system that are programmed for Fire Alarm Signal transmission. The control panel will indicate that disablements are present and a disablement event will be recorded to log.

Disable / Enable: Fault Signal

This function allows the global disablement or enablement of all the outputs on the system that are programmed for Fault Signal transmission. The control panel will indicate that disablements are present and a disablement event will be recorded to log.

Disable / Enable: Network

This function allows the disablement or enablement of programmed Network operation at that control panel. The transmission and / or the receipt of signals may be disabled as required. The control panel will indicate that disablements are present and a disablement event will be recorded to log.

Disable / Enable: Default to all enabled

This function enables any device / action that may have been disabled, and all programmed actions are reinstated. The control panel event log will indicate that all actions have been reinstated.

Set Time and Date

This allows the time and date to be adjusted. These settings will need to be re-entered after the complete removal of power, as the system will simply resume from the point that power was removed.

Test Modes: Silent Test

The Silent Test function allows the selection of one or more detection-zones to operate in a 'silent one-man walk test mode'. On triggering a device the device LED operates and the event is recorded into the event log as a test activation, but the sounder does not sound and the control panel does not show an alarm. After approximately 5 seconds the system will reset the device, and another may be tested. The control panel event log will indicate that a test mode has been selected.

Test Modes: Local Audible Test

The Local Audible Test function allows the selection of one or more detection-zones to operate in a 'one-man walk test mode with local sound'. On triggering a device the device LED operates, the sounder within that device operates and the event is recorded into the event log as a test activation, but the control panel does not show an alarm. After approximately 5 seconds the system will reset the device, and another may be tested. The control panel event log will indicate that a test mode has been selected.

Test Modes: Full System Test

The Full System Test function allows the entire system to operate in a simple one-man walk test mode. On triggering a device the device LED operates and the event is recorded into the event log, all the assigned sounders operate for 10 seconds and the control panel indicates an alarm. After approximately 10 second the system will reset the device, and another may be tested. The control panel event log will indicate that a test mode has been selected.

Please note, with the system test mode, only the sounders assigned to operate from that device will sound, and any delays will still be present. i.e., if a delay of 2 minutes is present, the system will have been reset before the sounders activate.

Test Modes: End all Tests

This function ends any test routine that may have been activated, and all programmed actions are reinstated. The control panel event log will indicate that all actions have been reinstated.

Day / Night Mode: Override into Day Mode

This function allows the user to override any pre-programmed Day / Night timing information and force the system into the less sensitive Day Mode. This will cause the buzzer to sound and a disablement to be written to log.

Day / Night Mode: Override into Night Mode

This function allows the user to override any pre-programmed Day / Night timing information and force the system into the more sensitive Night Mode. This will cause the buzzer to sound and a disablement to be written to log.

Day Night Mode: End all Overrides

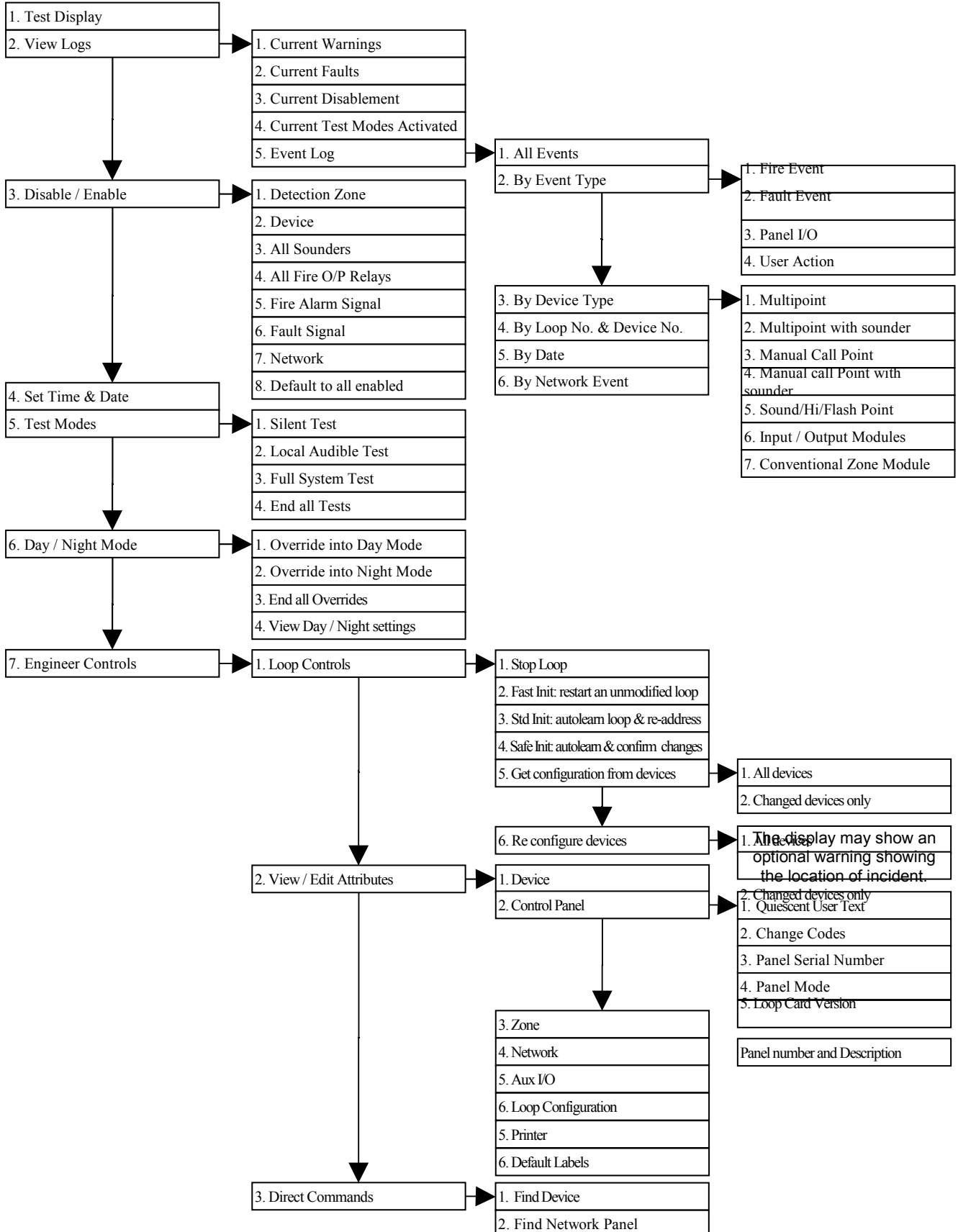
This function ends any override on the Day / Night Mode, and all programmed actions are reinstated. The control panel event log will indicate that all actions have been reinstated.

Day Night Mode: View Day / Night Setting

This function allow the user to view the start and finish times for each day.

Access Level 3 (Engineer): Controls Enabled LED flashing quickly

At Access Level 3 (Engineer), the main **Fire Alarm Controls** are enabled, and the following **System Controls** are accessible:



Test Display

The Test Display function causes the panel LEDs to pulse, and the LCD screen to blacken, and the buzzer to sound in order to verify their correct operation.

View Logs: Current Warnings

The Active Warnings Log will display any current warnings. These are displayed in text format and may be scrolled through by pressing the **UP** and **DOWN** keys.

View Logs: Current faults

The Active Faults Log will display any current faults. These are displayed in text format and may be scrolled through by pressing the **UP** and **DOWN** keys.

View Logs: Current Disablement

The Active Disablement Log will display any current disablement. These are displayed in text format and may be scrolled through by pressing the **UP** and **DOWN** keys.

View Logs: Current Test Modes

The Active Tests Log will display any current disablement. These are displayed in text format and may be scrolled through by pressing the **UP** and **DOWN** keys.

View Logs: Event Log

The Event Log stores 1000 fire and fault events which may be displayed in entirety, or displayed by category. These are displayed in text format and may be scrolled through by pressing the **UP** and **DOWN** keys.

Disable / Enable: Detection Zone

This function allows the disablement or enablement of a detection-zone. Thus, all the input devices (Manual Call Points, detectors and inputs) within that detection-zone will be disabled. The control panel will indicate that disablements are present, a disablement event will be recorded to log, the device LED will still operate when activated and an event will be recorded to log, but no programmed actions will occur. The sounder within the device will still operate if triggered from elsewhere on the system.

Disable / Enable: Device

This function allows the disablement or enablement of an individual device. The control panel will indicate that disablements are present, a disablement event will be recorded to log, the device LED will still operate when activated and an event will be recorded to log, but no programmed actions will occur. The sounder within the device will still operate if triggered from elsewhere on the system.

Disable / Enable: All Sounders

This function allows the global disablement or enablement of all the sounders on the system. The control panel will indicate that disablements are present and a disablement event will be recorded to log.

Disable / Enable: Fire O/P Relays

This function allows the global disablement or enablement of all the outputs on the system that are programmed for common or remote fire. The control panel will indicate that disablements are present and a disablement event will be recorded to log.

Disable / Enable: Fire Alarm Signal

This function allows the global disablement or enablement of all the outputs on the system that are programmed for Fire Alarm Signal transmission. The control panel will indicate that disablements are present and a disablement event will be recorded to log.

Disable / Enable: Fault Signal

This function allows the global disablement or enablement of all the outputs on the system that are programmed for Fault Signal transmission. The control panel will indicate that disablements are present and a disablement event will be recorded to log.

Disable / Enable: Network

This function allows the disablement or enablement of programmed Network operation at that control panel. The transmission and / or the receipt of signals may be disabled as required. The control panel will indicate that disablements are present and a disablement event will be recorded to log.

Disable / Enable: Default to all enabled

This function enables any device / action that may have been disabled, and all programmed actions are reinstated. The control panel event log will indicate that all actions have been reinstated.

Set Time and Date

This allows the time and date to be adjusted. These settings will need to be re-entered after the complete removal of power, as the system will simply resume from the point that power was removed.

Test Modes: Silent Test

The Silent Test function allows the selection of one or more detection-zones to operate in a 'silent one-man walk test mode'. On triggering a device the device LED operates and the event is recorded into the event log as a test activation, but the sounder does not sound and the control panel does not show an alarm. After approximately 5 seconds the system will reset the device, and another may be tested. The control panel event log will indicate that a test mode has been selected.

Test Modes: Local Audible Test

The Local Audible Test function allows the selection of one or more detection-zones to operate in a 'one-man walk test mode with local sound'. On triggering a device the device LED operates, the sounder within that device operates and the event is recorded into the event log as a test activation, but the control panel does not show an alarm. After approximately 5 seconds the system will reset the device, and another may be tested. The control panel event log will indicate that a test mode has been selected.

Test Modes: Full System Test

The Full System Test function allows the entire system to operate in a simple one-man walk test mode. On triggering a device the device LED operates and the event is recorded into the event log, all the assigned sounders operate for 10 seconds and the control panel indicates an alarm. After approximately 10 seconds the system will reset the device, and another may be tested. The control panel event log will indicate that a test mode has been selected.

Please note, with the system test mode, only the sounders assigned to operate from that device will sound, and any delays will still be present. i.e., if a delay of 2 minutes is present, the system will have been reset before the sounders activate.

Test Modes: End all Tests

This function ends any test routine that may have been activated, and all programmed actions are reinstated. The control panel event log will indicate that all actions have been reinstated.

Day / Night Mode: Override into Day Mode

This function allows the user to override any pre-programmed Day / Night timing information and force the system into the less sensitive Day Mode. This will cause the buzzer to sound and a disablement to be written to log.

Day / Night Mode: Override into Night Mode

This function allows the user to override any pre-programmed Day / Night timing information and force the system into the more sensitive Night Mode. This will cause the buzzer to sound and a disablement to be written to log.

Day Night Mode: End all Overrides

This function ends any override on the Day / Night Mode, and all programmed actions are reinstated. The control panel event log will indicate that all actions have been reinstated.

Engineer Controls

Loop Controls: Stop Loop

This function performs a complete shutdown of every device on the loop chosen. To avoid causing a processor crash it is important to stop the loop before removing power. If this occurs it will be manifest by random faults and stoppages during initialisation. To clear this problem, power the control panel down for approximately two minutes. On re-powering the system the crashed processor should reboot successfully.

Loop Controls: Fast Init: restart an unmodified loop

This function may be termed Fast Initialisation, and is only suitable for use if the loop configuration has not been altered in any way.

Loop Controls: Std Init: autolearn loop and re-address

This function instructs the control panel to perform its addressable circuit initialisation, or auto learn of the loop devices. Previous loop map data is overwritten, so only perform this function on new systems where a complete configuration reprogram will be completed. It starts this process from Circuit End 1 and collects data on device type, position & serial number, and allocates a Device Address.

Loop Controls: Safe Init: autolearn and confirm changes

This function instructs the control panel to perform its addressable circuit initialisation, comparing the loop data found with that programmed into the system configuration. If any anomaly is found, the display will prompt the user with data on the previous and the current device in order to allow evaluation of the findings. The following prompts will also be given to enable the user to rectify the position:

- Add New Device
- Delete Unwanted Device
- Swap Device for New
- Retry Initialisation from the previous point

Previous loop map data is then updated for the new configuration.

Loop Controls: Get configuration from devices

The control panel processor memory holds all the system configuration and programming details. Certain aspects such as device description, zoning and 'cause & effect' are operated from that point. However, whilst individual device attributes such as smoke mode, heat mode, sound pattern and volume are stored in the control panel, they need to be stored in the processor memory within the device to be operational. The get configuration command collects the configuration from the loop devices to be stored at the control panel.

Note that the system should always be re-configured after a PC download from Zeta OSP, and then the system should be reset using the 'reset' button. If this is not carried out the system may give a Configuration Data Error fault.

Loop Controls: Reconfigure devices

The control panel processor memory holds all the system configuration and programming details. Certain aspects such as device description, zoning and 'cause & effect' are operated from that point. However, whilst individual device attributes such as smoke mode, heat mode, sound pattern and volume are stored in the control panel, they need to be stored in the processor memory within the device to be operational. This is carried out with the reconfigure command, which sends out all the relevant data to the loop devices.

Note that the system should always be re-configured after a PC download from Zeta OSP, and then the system should be reset using the 'reset' button. If this is not carried out the system may give a Configuration Data Error fault.

View / Edit Attributes: Device

This function allows the user to view, and edit if required, the attributes for each loop device. These attributes include the device type, serial number, address, zone, description, input, output, detection and alarm information. You may also read the optical and heat standing levels for Multipoint detectors. If changes are made, the individual device may be reconfigured to save the longer task of reconfiguring all devices on that loop.

View / Edit Attributes: Zone

This function allows the user to view, and edit if required, the attributes for each zone. These attributes include the description, and alarm confirmation information.

View / Edit Attributes: Control Panel

This function allows the user to view, and edit if required, the attributes for the control panel. These attributes include the quiescent-display text, inputs, outputs, codes, and timing information. You may also read the control panel serial number and software version.

View / Edit Attributes: Network

This function allows the user to view, and edit if required, the attributes for the system network programming. These attributes include response and transmission of network information (for fire, fault, control and technical events), control panel network connections, network ID and Description.

View / Edit Attributes: Auxiliary I/O

This function allows the user to view and edit the attributes of the auxiliary inputs and outputs connected to the system.

View / Edit Attributes: Loop Configuration

This function allows the user to view the loop devices programmed and compare with the loop devices present.

View / Edit Attributes: Printer

This function allows the user to switch the printer on and off, to view or edit the configuration and to print current reports.

View / Edit Attributes: Default Labels

This function allows the user reset all the text labels programmed into the system.

Direct Commands: Find Device

This function allows the user to switch on the LED and sounder (if they are present) at any device on the loop in order to aid in locating its position.

Next, previous and quit options allow the adjacent devices to be located, and the test to be ended.

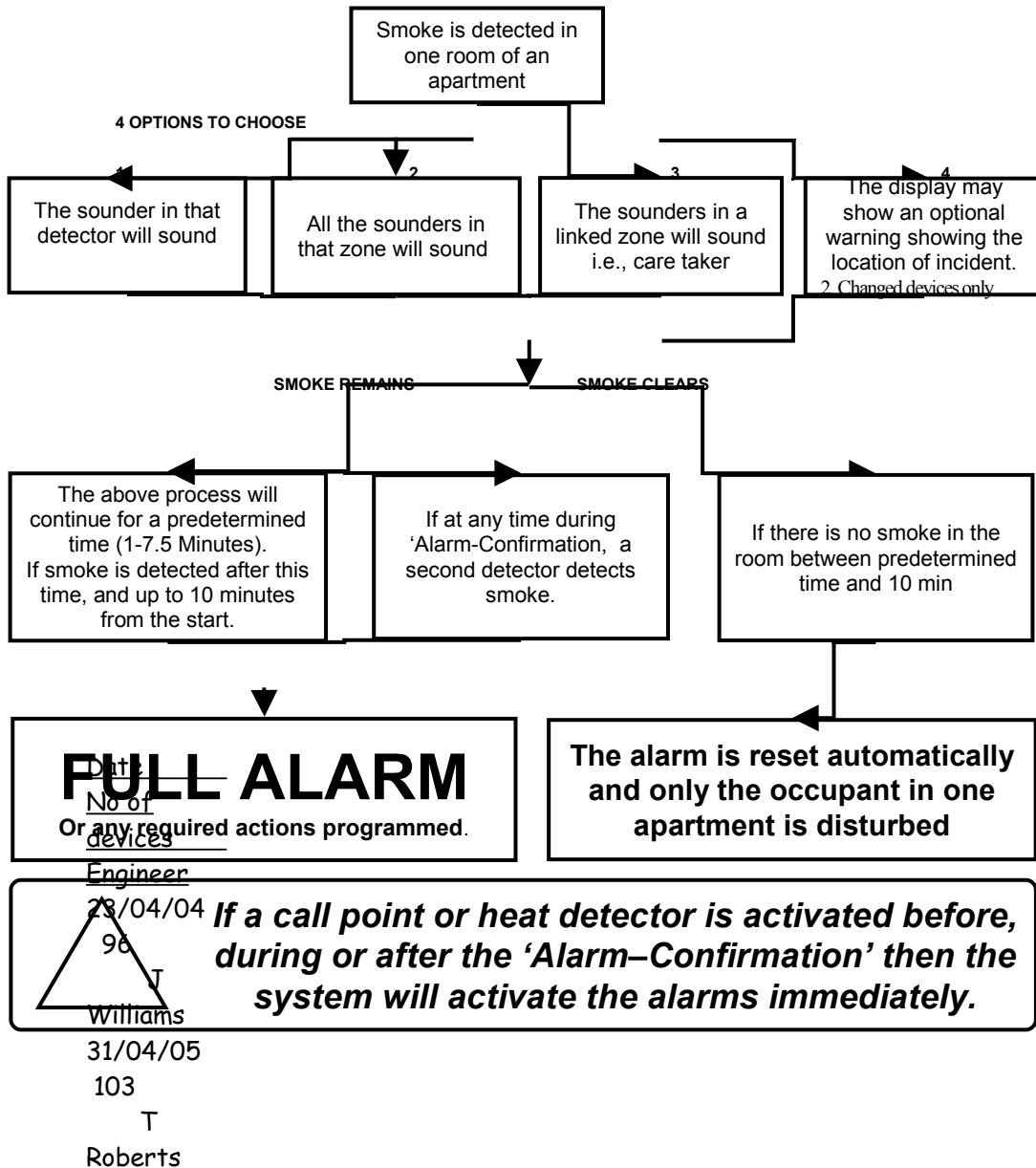
Direct Commands: Find Network Panel

This function allows the user to locate a control panel connected to the network.

Alarm Confirmation Technology

Alarm Confirmation Technology (ACT) is the process whereby a smoke detector may be configured to issue a localised warning in specific regions, prior to sounding a general alarm. This is generally of great benefit in dwelling areas where smoke, steam or cooking fumes may trigger a Multipoint detector.

The following drawing demonstrates some of the possibilities:



This function affects the smoke detector only, and operates before the control panel enters the Fire state. Thus, the system 'Cause & Effect' does not need to be adjusted, as **Alarm Confirmation takes place before the programmed Cause & Effect sequence is reached.**

In order to activate this function, install the devices as normal and refer to the Zeta OSP Programming Manual for further details. These functions require the use of a PC and it is not possible to use them without.

Alarm Confirmation Delay

The **Alarm Confirmation Delay** timer allows an automatic reset of an unconfirmed alarm from a smoke detector.

When a smoke detector using Alarm Confirmation is activated, the sounder within that device (or all the sounders in the zone) will activate with the sound pattern selected for Alarm Stage 1 (Alarm Confirmation). This warning sound may also be copied to any additional zone, and may also be displayed on the control panel if required.

At the end of the Alarm Confirmation Delay time the system will check the detector again to see if the activation has cleared. If so then the device will reset and no further action need be taken.

The sounder operates during the chosen Alarm Confirmation Delay time, and stops for the final 20 seconds, during which time the device is reset to check for further smoke presence.

During the Alarm Confirmation Delay, the activation of an additional smoke detector into **Alarm Confirmation** will cause the delay time to cease and an instant alarm to be generated.

If, however, the detector is still in alarm then the entire system will go into alarm, operating all the sounders programmed in the Cause & Effect area.

For a further time period (10 min minus Alarm Confirmation Delay), the activation of the smoke detector will cause an immediate alarm (depending on the programming of the system Cause & Effect).

The activation of any Heat detector (even in the same device as the smoke detector in Alarm Confirmation) generates an immediate alarm (depending on the programming of the system Cause & Effect).

Selecting the Devices

Any smoke detectors which are to utilise **Alarm Confirmation** must be selected using the ZetaNET OSP programming software. Smoke detectors not selected will operate in a standard manner (depending on the programming of the system **Cause & Effect**).

An **Alarm Stage 1 (Alarm Confirmation)** sound pattern must also be selected, and this may be set to a different sound pattern to that chosen in **Alarm Stage 3 (Evacuate)** in order to provide an audible difference between alarm stages.

The activation of any smoke detector set for Alarm Confirmation causes the sounder within that device only to operate (or across the entire zone if required), but no indication shows on the control panel. This warning sound may also be copied to any additional zone, and may also be displayed on the control panel if required.

The activation of any Heat detector (even in the same device as the smoke detector in Alarm Confirmation) generates an immediate alarm (depending on the programming of the system Cause & Effect).

Commissioning

Installation 1st Stage

The installer needs to install the system wiring in the form of 2-core and earth/screen loops returning to the control panel. Addressable spur circuits may be installed from a Multipoint detector covering up to one zone using the **Spur +ve & Spur -ve** terminals.

The cabling should be 2-core 1.5mm², screened and fire resistant. We recommend against the use of a 4 core cable as a loop feed and return, due to the possibility of data corruption.

The loop should be left as a complete loop with no devices connected, and must be tested and documented for conductor continuity and for insulation integrity, with a high voltage tester (using the shorting links provided within each base to provide continuity in the positive core), as required for general electrical installations.

The control panel back box should be mounted, with the mains supply tested, connected and isolated at the un-switched fused spur, ready for the commissioning engineer.

The installer needs to provide a set of **As-Wired** drawings, completed **configuration sheets** and proof of **loop continuity and insulation test readings** etc., to enable commissioning to proceed. This information is essential for commissioning and programming to proceed, and may be entered onto the forms provided at the rear of the manual.

Installation 2nd Stage

Once the commissioning engineer is satisfied with the continuity / integrity of the loop, the devices may be installed, noting the serial numbers for each device on the configuration sheets.

NBI *Ensure that the next section, 'Initialisation', is read and understood before the devices are installed.*

Initialisation

The addressable device loops may now be initialised. This is when the control panel interrogates the loops one device at a time, for type, serial number and position, before allocating a loop address number. Initialisation is carried out from the control panel keypad by utilising one of the three loop initialisation commands located within the Access Level 3 (Engineer) menu.

Install one device (and note its serial number as normal), as near to the control panel as possible and initialise the system. If initialisation fails the problem may be tracked quickly, and if needs be the device is easily removed to facilitate further high voltage testing. If the device appears to be at fault then try another Electronics Module and reinitialise. If this has no effect, then check terminations carefully and inspect the connector carefully for damage. Further to this a common fault on installations utilising existing cabling is the omission to remove old incompatible devices. Once the system is initialised and happy with its single device then proceed as below.

Add the rest of the devices in batches of 10-25, initialising each time to prove correct operation. If a fault is found, or initialisation fails, then the relevant batch of devices may be partially removed and added in smaller numbers until the problem is tracked.

Note: There is no need directly to initialise in sections in this manner, but we recommend this method as good engineering practice, in order to provide a controlled process of building up the system in sections.

The system can only indicate faults present when the loop is fully initialised. If the initialisation fails then you will need to find faults manually. You may run the initialisation backwards by reversing the loop connections, or one ended by removing one end of the loop. You may also use the ZetaOSP software to identify which devices have been found and initialised. Noting how far the device count on the control panel screen reached will indicate many faults, such as open or short circuit. Further more the sounders may be operated from the control panel to indicate which devices are operational, or the LEDs may be switched on using the Zeta Diagnostic software.

Commissioning

Commissioning the ZetaNET system involves programming and testing the system.

Whilst the software may be pre-configured before arriving at site if required (from the **as-wired** drawings and the configuration sheets), it is generally simpler and quicker if the site configuration is uploaded and altered directly whilst still on site, as the system will have found much of its configuration upon initialisation.

If the configuration is written before upload from the control panel, then the software is termed a 'New file', and does not contain the entire loop information required (which the control panel acquires on initialisation). This may then be merged on site to give a full configuration file termed an 'Old file'.

A comparison of serial numbers between the drawings/config sheets and the OSP upload is always recommended to prove the actual device order as opposed to the assumed device order.

Normally, commissioning will take place as follows:

1. Initialise the addressable device loops.
2. Upload the configuration from the control panel to the PC with ZetaNET OSP.
3. Check that the addressable device serial numbers are in the positions on the loops that were expected, amend the configuration to suit the site and check it carefully.
4. Download the configuration from the PC to the control panel.
5. Start or initialise the loops.
6. Reconfigure the addressable devices with the Reconfigure command at Access Level 3 (Engineer).
7. Reset the system
8. Test for correct operation.

When the system is correctly programmed it must be tested for correct operation. It is important to remember that a Point Test mode is a service tool and not a commissioning tool, as the complete 'cause and effect' of the system is not tested.

The Full System Test function allows the control panel to be completely activated as normal, before the control panel automatically silences and resets the system. However it is recommended that a new system is commissioned live, with all sounders active in order to prove correct operation of every device whenever a system is programmed in any other way than a simple 'One off, all off' configuration.

It is essential that every device is tested in every selected mode of operation, and that all programmed actions are observed for correct operation. This includes the smoke testing of smoke detectors, heat testing of heat detectors, testing of Manual Call Points, testing of all inputs, testing of all sounders and outputs, and fault testing of detectors by head removal.

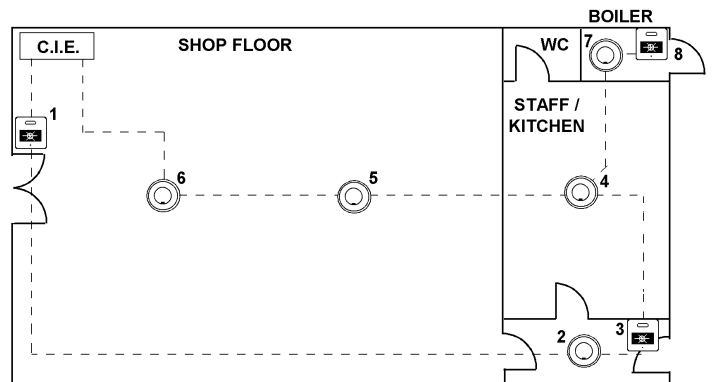
We also recommend that all devices, which are set to 'heat only', are tested for smoke operation, to ensure that the smoke detection has been correctly disabled.

Configuration Example

ZetaNET Control Panel Installation Instructions

From your 'As-Wired' drawings device addresses can be assigned, starting from circuit end 1, with spurs being allocated at the end.

From this the device attributes may be filled out on the configuration sheets, as shown in the following example.;



Control Panel No.: 01 Description: West Wing				Loop No.: 1 Description: Ground Floor			
DEVICE ADDRESS	SERIAL NUMBER	DEVICE DESCRIPTION (24 CHARACTERS MAX)	ZONE	DEVICE TYPE	SMOKE MODE	HEAT MODE	ALARM CONF'N
1	212	Shop Floor: Main Entrance	1	MCP	-	-	-
2	30960	Staff Area: Rear Lobby	1	MPwS	SM2	HM2	-
3	213	Staff Area: Rear Exit	1	MCP	-	-	-
4	30962	Staff Area: Kitchen	1	MPwS	SM0	HM2	-
5	30963	Shop Floor: Rear	1	MP	SM2	HM2	-
6	30961	Shop Floor: Front	1	MPwS	SM2	HM2	-
7	30959	Boiler Room	2	MPwS	SM0	HM3	-
8	214	Boiler Room	2	MCP	-	-	-

These details may then be entered into the ZetaNET OSP programming software in order to program the operation of the system.

End User Training.

A Fire Alarm System is of little use if the end user and/or the responsible persons who will be present in the building do not know how to operate and respond to the system. It is therefore essential that commissioning includes training for the users of the system and responsible persons.

User instructions and a Zone Chart should be left adjacent to the control panel. As access to the system must be controlled by responsible persons, it would be unusual to display the access codes on this notice. These codes must however be available for the responsible persons, so ensure that they are notified correctly.

The ZetaNET User Guide should be explained and left with the responsible person on site, for storage in an accessible and known location, in order that the responsible person and the service engineer may keep information records up to date.

Good Practice

The following suggestions are good practice if carried out during commissioning, and may help avoid common problems at a later date. The GLT Exports Ltd Technical Support department may be unable to assist if the information is unavailable, and the guidelines not followed.

Number of Devices

Make a clear note in the control panel back box in a conspicuous position of the number of devices on the system.

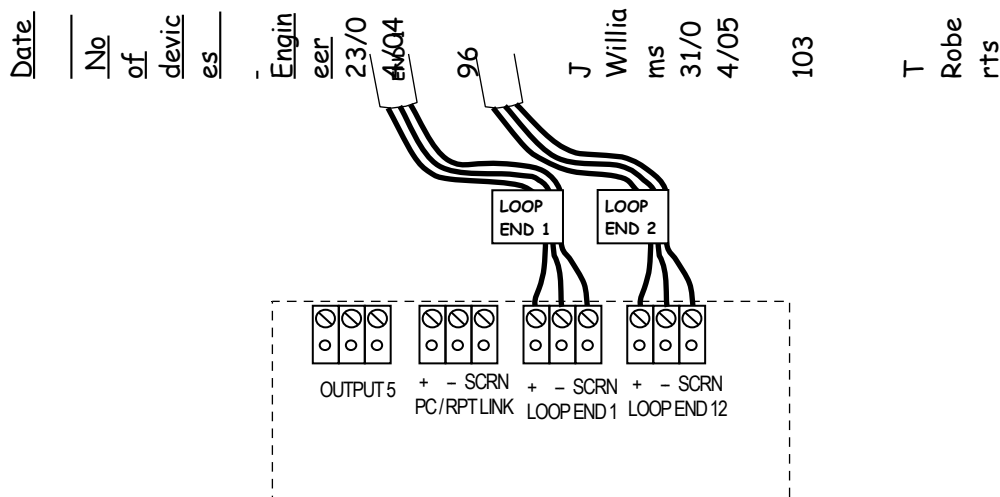
In the event of any future visits to site it will be clear how many devices are expected if the system is initialised. Without knowing this it is not possible to be sure that all devices have initialised correctly, ie.,

Date	No of devices	Engineer
23/04/04	96	J Williams
31/04/05	103	T Roberts

Label the Loop Ends

Make a clear note on the Loop cables adjacent to the terminal block to show **LOOP END 1** and **LOOP END 2**.

Thus, if the addressable device loop is reversed for any reason it will be plainly visible from the labels.



Note the Loop Readings

Make a clear note in the control panel back box of the loop continuity and insulation resistance readings, including those for the screen and mains earth.

These are then available for fault finding at a later date, ie.,

Date	+/+	-/-	Scr/Scr	+/-	+/Scr	-/Scr	Earth/Scr	Engineer
23/04/04	9.7	9.6	6.3	0.9M	0.9M	0.8M	1.2M	J Williams
31/04/05	10.3	10.2	6.4	0.9M	0.9M	0.8M	1.2M	T Roberts

Configuration Printout and Drawings

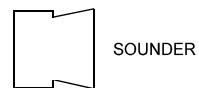
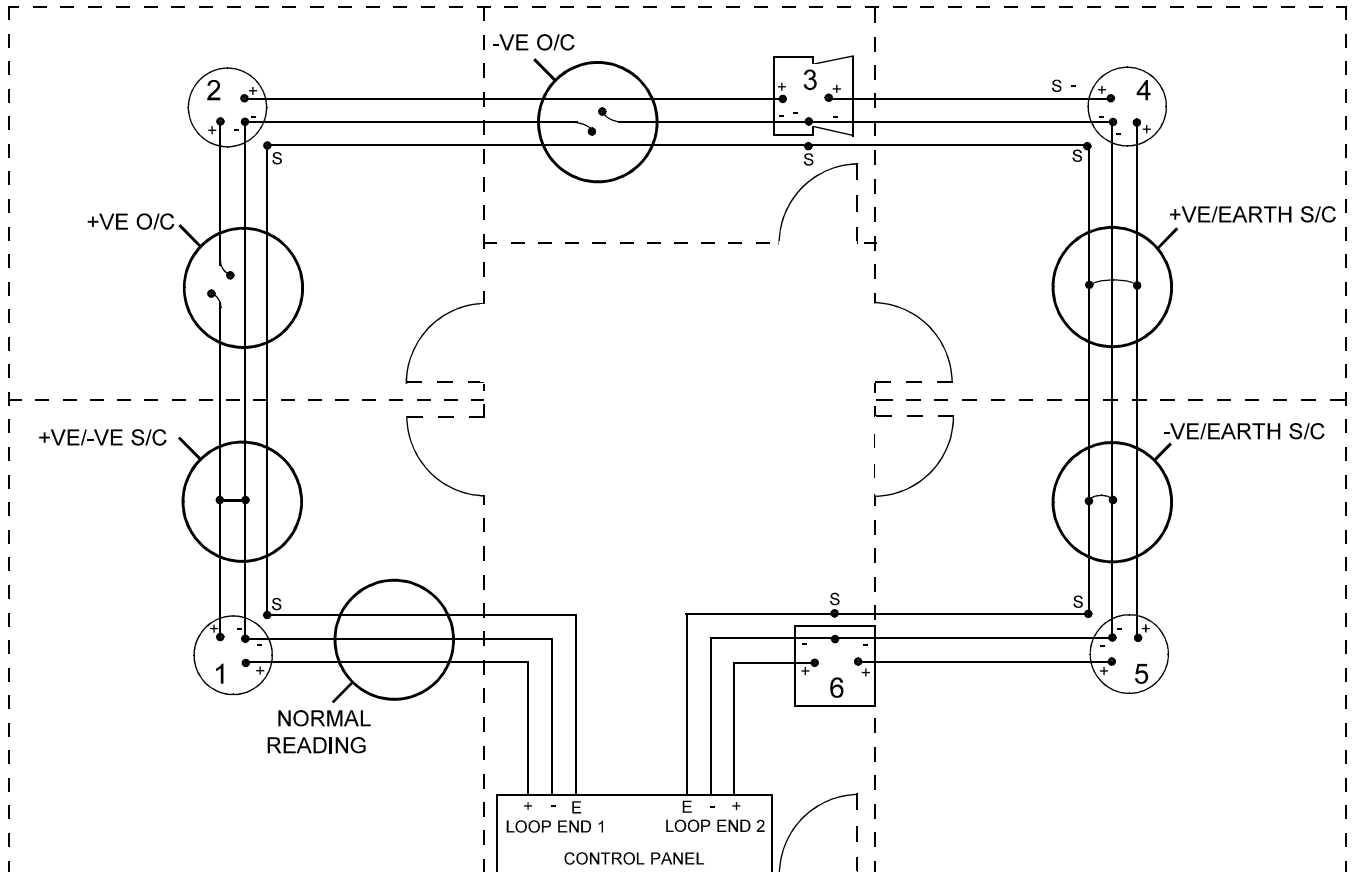
Make a **Text Report** printout of the system configuration from Zeta OSP and store it safely on site along with an up to date site plan marked with devices, serial numbers and wiring order.

If any return visits are necessary all the relevant information on the system will be available without having to carry out an Upload of data to the PC. This includes address, serial number, device configuration and zonal configuration data.

Initialisation

Loop Connections

The schematic below shows a simplified site connection drawing to illustrate how each core of the circuit is connected. The following fault scenarios are shown in detail to help gain an understanding of the procedure to find them.



Normal Readings

Ensure that your addressable device loop has the correct continuity and insulation integrity. With an electronic test meter there should be a continuity reading of approximately 1.1 ohms per 100m of 1.5mm² cable, and at least 1M ohm insulation resistance between cores.

With the loop stopped and the loop connector block removed from the control panel, measure the continuity between **Loop End 1 -ve** and **Loop End 2 -ve**. There should be a maximum resistance of approximately 35 ohm, equating to approximately 1.1 ohms per 100 meter.

Likewise measure the continuity between **Loop End 1 Screen** and **Loop End 2 Screen**. There should be a maximum resistance of approximately 30 ohm, and this reading will normally be slightly lower than that of

ZetaNET Control Panel Installation Instructions

the **Loop -ve** continuity, due to the greater surface area of the screen. Screen integrity is of critical importance.

A measurement of the continuity between **Loop End 1 +ve** and **Loop End 2 +ve** should show a very high resistance, as the isolator within each device only provides continuity when energised by the control panel.

Measuring the insulation resistance between the **Loop -ve** and the **Loop Screen** should show a very high resistance of at least 1M ohm between cores. Remember that a low voltage electronic test meter should be used, and its accuracy is likely to be low when measuring high resistances, but this will give enough information to show insulation integrity.

Do not use a high voltage insulation test meter whilst any devices or the control panel are connected as they may suffer damage.

Initialisation

When the Control panel is powered up the following LEDs will be continuously on, and the addressable device loop must be initialised at Access Level 3 (Engineer).

DISABLED and LOOP DISABLED

During initialisation the following screen will be displayed.

STANDARD INITIALISATION				
Loop	Loop Card	Loop Dev Init	Spur Dev Init	Init Complete
1	ON	23 ✓	3 ✓ 26	26 ✓
2	ON	45 ✓	0 X 45	45 X
3	NO	0	0	0
4	OFF	0	0	0

The Loop Card status will be as follows:

ON Loop card assigned and present
NO Loop card assigned and missing
OFF Loop card unassigned

The number shown under **Loop Dev Init** gives a count of the number of devices initialised on the loop. If the loop is found to be complete this is followed by a tick, whereas if the loop is found to be incomplete this is followed by a cross.

The number shown under **Spur Dev Init** gives a count of the number of devices initialised which are located on spur circuits. Once all possible devices have been checked for spur connections this will be followed by a tick. The number under the tick shows the address of the device which has just been checked.

The number shown under **Init Complete** gives a count of the total number of devices initialise on the system. If initialisation is completed correctly this is followed by a tick, whereas if there is any failure I initialisation this is followed by a cross.

In normal initialisation conditions the control panel will start from Loop end 1, find, interrogate and address each device on the loop one at a time.

When the second end of the loop is reached the control panel will display one of the following messages to indicate whether or not a complete loop was found. Finally the control panel will investigate any spur connections from Multipoint detectors and initialise any devices located there.

When all possible devices have been initialised the control panel will indicate either that initialisation is complete or not, and the number of devices found

The following LEDs will be extinguished (as long as no other faults exist).

DISABLED ○○ and ○ LOOP FAULT/DISABLE

Or:

The following LEDs will remain on:

DISABLED ●● and ● LOOP FAULT/DISABLE

Initialisation Faults

Loop +ve to –ve Short Circuit

Loop +ve Open Circuit

If the system faces a **Loop +ve to –ve short circuit**, or a **Loop +ve open circuit** during initialisation, the initialisation will fail at that point and a message of **Loop not complete** will be displayed.

All devices up to that point will be operational, but devices beyond will not be active, as the control panel will not initialise from Loop End 2 as it becomes very difficult to understand fully where the problem lies. The system will initialise any devices connected to the spur circuits of devices prior to the short circuit problem.

The active faults list in Access level 2B (Supervisor) and Access Level 3 (Engineer) and will display messages accordingly. These messages need to be viewed together as a complete set. The control panel cannot determine the location of a short circuit, so a short circuit message will be followed by the location of the open circuit which is created when the isolator in that device responds to the short circuit.

Eg., Loop s/c and Loop o/c at device 'X'

Thus in the **Loop +ve to –ve short circuit** example shown previously, the initialisation will reach device 1 and fail thereafter. Thus the problem is after that point.

An investigation of the next device (device2) will determine if a correct loop voltage of approximately 40V DC has reached that point. If this has happened then the problem lies in either the connections at that point (device 2) or a faulty electronics module (device 2).

If the correct loop voltage of approximately 40V DC is not present at the next device (device 2) then stop the loop and investigate the device before (device 1). The problem may be due to an incorrect connection, a cable fault or a faulty electronics module.

If it is suspected that a device electronics module is faulty then try linking that device out (link the +ve cores together) and reinitialising the loop. If the initialisation then passes that point the device may be replaced. It is not advisable to leave a system with a device missing (positive cores linked together) in this way as all future points will be displaced.

Loop –ve Open Circuit

ZetaNET Control Panel Installation Instructions

If the system faces a **Loop –ve open circuit** during initialisation, the initialisation will not fail at that point, but continue as normal to the end of the loop. All devices will be operational (as long as no other faults exist).

A message of **Addressable circuit: -ve open circuit** will be displayed, but the control panel cannot detect where the open circuit fault is located.

In order to locate the fault position, stop the loop, disconnect Loop end 2 and reinitialise the system. The initialisation will fail at that point and a message of **Loop not complete** will be displayed.

Thus in the **Loop –ve open circuit** example shown above, the initialisation will reach device 2 and fail there. Thus the problem is after that point.

An investigation of the next device (device 3) will determine if a correct loop voltage of approximately 40V DC has reached that point. If this has happened then the problem lies in either the connections at that point (device 3) or a faulty electronics module (device 3).

If the correct loop voltage of approximately 40V DC is not present at the next device (device 3) then stop the loop and investigate the device before (device 2). The problem may be incorrect connection, a cable fault or a faulty electronics module.

If it is suspected that a device electronics module is faulty then try linking that device out (link the +ve cores together) and reinitialising the loop. If the initialisation then passes that point the device may be replaced. If the initialisation then passes that point the device may be replaced. It is not advisable to leave a system with a device missing (positive cores linked together) in this way as all future points will be displaced.

Device Faults

If the system detects a **device fault or fire activation** during initialisation, the initialisation will not fail at that point. All devices will be operational (as long as no other faults exist).

However, the system can only ignore a certain amount of fire or fault data until initialisation is complete, and beyond certain limits initialisation will fail and the various fault or fire activations will be displayed.

In either case, the event generated should be dealt with before the loop is reinitialised.

Firstly, investigate and rectify any Fire activations which are displayed. These may vary from Manual Call Points which have not been reset, to Multipoint detectors which are contaminated.

Secondly, investigate and rectify any fault conditions which are displayed. These may vary from 'Input open circuit', to a Multipoint detector with its optical chamber loose (indicating signal low).

The system may then be reinitialised and commissioned as required.

Earth Faults

General

If the control panel detects a short circuit to earth/screen from one of its supply rails (either 0v or +ve) an **Earth Fault** will be displayed.

Remove the circuit cables connected to the control panel one at a time and reset the system. When the circuit with the earth fault is disconnected, the earth fault will clear within approximately 30 seconds of being reset.

Note that some computers will generate an earth fault at the control panel, depending on their transformer configuration.

A short circuit (low resistance: expected to be less than 5KR) may be identified and tracked with an electronic test meter between either the positive core or the negative core and the screen of that circuit.

It is not possible to override the earth fault monitoring as it is important for correct system operation.

If it is shown that the earth fault is on the addressable device loop, then disconnect it from the control panel and investigate it with an electronic test meter.

Loop –ve to Earth

If the fault is a **short circuit from earth/screen to loop –ve** then it will be easily identified and rectified with an electronic test meter.

An investigation of the resistance reading between loop –ve and earth/screen at the control panel for each end of the addressable device circuit should give a good indication of the location of the short circuit.

Eg, if the resistance reading at Loop end 1 were 9 ohm, and at Loop end 2 were 3 ohm then it may be estimated that the short circuit lay approximately $9/(3+9) = \frac{3}{4}$ of the way round the addressable device circuit from Loop end 1. Investigating that area, and introducing a split to the Loop –ve as required, will allow it to be tracked and rectified.

Loop +ve to Earth

If the fault is a **short circuit from earth/screen to loop +ve** then it will only be identified with an electronic test meter at that individual length of cable due to the inbuilt short circuit isolators in each device.

To locate this manner of fault, split the +ve core of the loop at approximately a half way point on the loop, then reinitialise with only Loop End 1 connected to the control panel.

Even though the initialisation will fail due to the enforced open circuit, the earth fault will only be indicated if it is located within the section of the cable which was initialised. The split may then be reinstated in another position and the process continued, until the section of the system suspected of containing the earth fault is small enough to allow each portion of cable to be individually tested with an electronic test meter.

General Fault Finding

Common Faults

In the event that inexplicable or random faults continue after any obvious indication has been dealt with, take the following steps.

1. Verify that the addressable device loop cable readings are suitable. Take particular note of the screen resistance and rectify any faults found. Ensure also that there is no connection from the screen to earth in the building other than at the relevant terminals at the control panel.
2. Ensure the correct number of devices has been initialised by checking at Access Level 3 (Engineer) for the number of devices found on the last initialisation, and compare that with the number of devices programmed onto the system.
3. Ensure that Loop End 1 and Loop End 2 are connected correctly and not running in reverse.
4. Reconfigure the addressable devices using the reconfigure prompt at Access Level 3 (Engineer), then reset the system and test it.
5. Check all devices for loose connections, broken copper connecting strips in the connector, broken connector bodies.

Intermittent and Recurring Faults

1. Smoke Sensor Failed – Signal High

Ensure that the correct device is being investigated by comparing its description with the device address, and / or the serial number.

Ensure that the Optical Chamber is clean, if not then replace it with a new one and allow it to re-calibrate. See the sections on Self Calibration and Replacing Contaminated Optical Chambers for further details.

If the problem still exists consider changing the electronics module.

2. Loop Open Circuit

If random or recurrent Loop O/C faults are reported then check the entire system for the following:

Loose connections. Ensure all terminals are reasonably tight.

Broken Connectors. If the terminal is over-tightened the main body of the connector may become broken, causing an intermittent open circuit.

Broken or missing copper connecting strips. The connection from the connector body to the pin which links to the detector is made by the copper connecting strip which may be seen entering the connector with the cable. Ensure that these are not broken off or bent out of place as this will cause an intermittent open circuit.

Broken cables. Ensure that the cables are not snapped off before they enter the connector.

A cable may seem to be connected, but not actually make a contact.

Trapped insulation. Ensure that the cable insulation is not trapped in the connector, stopping it from making a connection.

The entire system should be carefully checked for the above, as a cumulative effect may take place if a number of high resistance connections are present, causing random reporting of the location of the problem.

3. **Device(s) Lost.**

If no obvious causes are apparent then replace the device.

Summary of Faults

Listed below is a selection of the messages which may be displayed

	MESSAGE	PROMPT	DESCRIPTION
1.	Alarms silenced		The SILENCE ALARMS button has been pressed whilst the sounders were operating, and they have been silenced.
2.	Alarms sounded		The SOUND ALARMS button has been pressed whilst the sounders were not operating, and they have been activated.
3.	AUX input in alarm	Clear the input before resetting the panel	The auxiliary input at a detector or a Loop powered I/O module is in the alarm state. Reset the triggering input to that device before resetting the control panel.
4.	AUX input open circuit	Investigate the input for open circuit	An auxiliary input at a detector or a Loop powered I/O module is in the open circuit state. Check that the 3k3 EOL resistor is fitted, or that the EOL switch is turned on, but not both. Check also that all cables are correctly connected and that the circuit is complete. Note. Even if the auxiliary I/O is set to its output state, it still monitors its input circuit for EOL, and this is still reported as relating to the AUX input.
5.	AUX input short circuit	Investigate the input for short circuit	An auxiliary input at a detector or a Loop powered I/O module is in the short circuit state. Check that the 3k3 EOL resistor is fitted, or that the EOL switch is turned on, but not both. Check also that all cables are correctly connected and that the circuit is complete and not presenting a short circuit to the input. Note. Even if the auxiliary I/O is set to its output state, it still monitors its input circuit for EOL, and this is still reported as relating to the AUX input.
6.	AUX I/O input active	Clear the input before resetting the panel	The auxiliary input at a detector or a Loop powered I/O module is in the alarm state. Reset the triggering input to that device before resetting the control panel.
7.	AUX output short circuit	Investigate the output for short circuit	An auxiliary input at a detector or a Loop powered I/O module is in the short circuit state. Check that the 3k3 EOL resistor is fitted, or that the EOL switch is turned on, but not both. Check also that all cables are correctly connected and that the circuit is complete and not presenting a short circuit to the input. Note. Even if the auxiliary I/O is set to its output state, it still monitors its input circuit for EOL, and this is still reported as relating to the AUX input.
8.	Battery charger failed	Investigate the batteries and charger	A fault has been detected in the battery charger circuitry. Ensure that the battery connections are making a good connection and that the fuse is securely clamped. If possible check the batteries with an intelligent battery tester, or replace them with a new set to see if the fault clears.
9.	Battery failed	Investigate the batteries and fuse	A fault has been detected in the standby batteries. Ensure that the battery connections are making a good connection and that the fuse is securely clamped. If possible check the batteries with an intelligent battery tester, or replace them with a new set to see if the fault clears.
10.	Battery restored		A fault detected in the standby batteries has been cleared.
11.	Configuration Data Error	Ensure all data is programmed and reconfigured	The control panel has detected a database anomaly. The system may be working, but the problem should be dealt with immediately. Ensure that the system has been correctly programmed using ZetaNET OSP, reconfigure the loop devices and reset before testing for correct operation.
12.	Detection head removed	Ensure optical chamber is correctly fitted	The Optical Chamber has been removed from a multipoint detector.

ZetaNET Control Panel Installation Instructions

13.	Device failed	Investigate the device and reinitialise	The device has detected a failure in its processing circuitry or memory and must be replaced.
14.	Device(s) lost	Investigate the device(s) and reinitialise	The device is not reporting to panel on it 'Poll Presence Count'
15.	Earth fault	Remove the s/c to earth	<p>The control panel has detected a short circuit to earth from one of its supply rails (either 0v or +ve).</p> <p>Remove the circuits connected to the control panel one at a time and reset the system. When the circuit with the earth fault is disconnected, the earth fault will clear within approx 30 seconds of being reset.</p> <p>A short circuit (low resistance expected less than 5KR) may be identified and tracked with an electronic test meter between either the positive core or the negative core and the screen of that circuit.</p> <p>It is not possible to override the earth fault monitoring as it is important for correct system operation.</p>
16.	Heat sensor failed (OC)	Replace the device	<p>A Multipoint detector has detected an open circuit in its thermistor circuitry.</p> <p>As this circuit is important even for the operation of the smoke detection modes, the device should be replaced.</p>
17.	Heat sensor failed (SC)	Replace the device	<p>A Multipoint detector has detected a short circuit in its thermistor circuitry.</p> <p>As this circuit is important even for the operation of the smoke detection modes, the device should be replaced.</p>
18.	Initialization failed: loop not complete	Investigate the last point initialised	<p>Whilst initialising the addressable device loop, the control panel was unable to sense a complete loop from Loop End 1 returning to Loop End 2.</p> <p>Stop the loop and reinitialise to ensure repeatability, then investigate the last device found (shown on the display during initialisation) and the following device. If no faults can be found try temporarily linking out that device to see if initialisation will pass that point, thus the device may need replacing.</p>
19.	Initialization stopped at device xxxx	Investigate the last point initialised	<p>Whilst initialising the addressable device loop, the control panel was unable to sense a complete loop from Loop End 1 returning to Loop End 2.</p> <p>Stop the loop and reinitialise to ensure repeatability, then investigate the last device found (indicated by xxxx) and the following device. If no faults can be found try temporarily linking out that device to see if initialisation will pass that point, thus the device may need replacing.</p>
20.	Loop not initialised	Initialise the loop	The addressable circuit has been correctly initialised. Check that the number of devices found matches the number of devices on the system.
21.	Loop low resistance	Investigate the loop for short circuit	<p>A low resistance has been detected between the +ve and the -ve core of the addressable device circuit.</p> <p>This has not yet developed into a measurable short circuit, but steps should be taken to rectify the condition before it worsens. Introducing a split into the loop and then initialising from one end only will help to identify the location of the problem.</p>
22.	Loop stopped	Initialise the loop	The addressable device circuit had been stopped and the devices are inactive.
23.	Mains failed	Reinstate the mains supply	<p>The incoming AC supply has been removed.</p> <p>Check the supply voltage of approx 40V AC at the panel AC input terminals, and that the fuses in that circuit are intact.</p>
24.	Node xxxx reset	Replace the device	<p>The device has successfully reset itself.</p> <p>Check in the event log to see if it is occurring regularly, and if so change the device.</p>
25.	Open circuit at	Investigate the loop for	An open circuit has been detected in the +ve core of the addressable

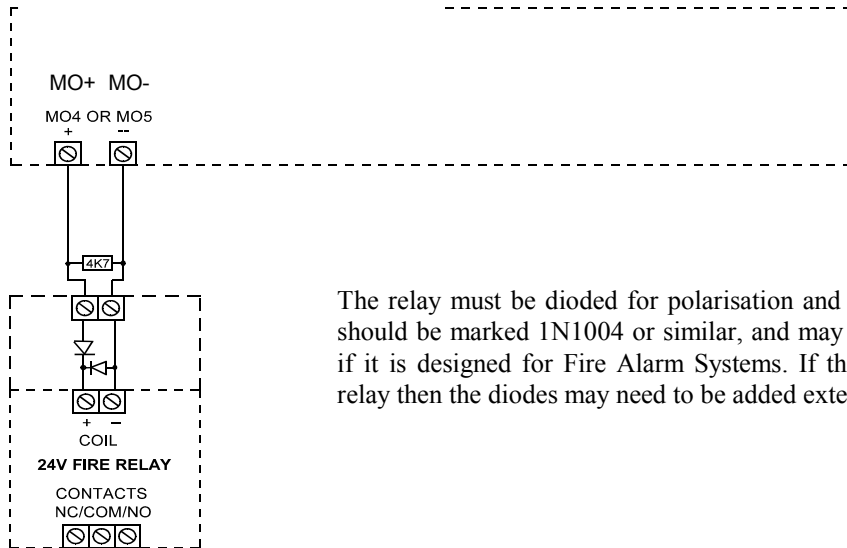
ZetaNET Control Panel Installation Instructions

	position xxxx	+ve open circuit	device circuit between the device indicated and the next. Check connections and cable in that area and reinitialise the loop. If it occurs again the device should be changed.
26.	Open circuit: in –ve core of loop	Investigate the loop for -ve open circuit	An open circuit has been detected in the -ve core of the addressable device circuit between the device indicated and the next. Stop the loop and reinitialise with one end connected only. The initialisation will then stop at the relevant point. Check connections and cable in that area and reinitialise the loop. If it occurs again the base/backbox should be changed.
27.	Open circuit: input xxxx	Investigate the input for open circuit	The input is in the open circuit state. Check that the 3k3 EOL resistor is fitted, or that the EOL switch is turned on, but not both. Check also that all cables are correctly connected and that the circuit is complete. Note. Even if the auxiliary I/O is set to its output state, it still monitors its input circuit for EOL, and this is still reported as relating to the AUX input.
28.	Open circuit: output xxxx	Investigate the output for open circuit	The output is in the open circuit state. Check that the 10K/3k3 EOL resistor is fitted, or that the EOL switch is turned on, but not both. Check also that all cables are correctly connected and that the circuit is complete.
29.	Smoke sensor failed: signal high	Investigate Optical Chamber for contamination	The current standing optical level (the level of reflection received by the optical receiver within the multipoint optical chamber, probably caused by contamination) has risen as far as the automatic recalibration of the device can allow, and a replacement optical chamber should be installed.
30.	Smoke sensor failed: signal low	Investigate Optical Chamber	The current standing optical level (the level of reflection received by the optical receiver within the multipoint optical chamber, probably caused by contamination) has fallen as far as the automatic recalibration of the device can allow. Check that the optical chamber is correctly locked in place, and if it was then a replacement optical chamber should be installed. If this still does not rectify the problem then a new electronics module should be installed.
31.	System fault	Repower and reconfigure system	The control panel has detected a processor or memory fault. The system may be working, but the problem should be dealt with immediately. Power the control panel down to reset the fault, then re initialise and reset before testing for correct operation.
32.	Uninitialised node, address xxxx	Investigate the device and reinitialise	A device which was previously initialised, has requested initialisation whilst out of the normal initialisation mode. Either a device has reset and wished to be reinitialised, or a new/replacement device has been connected whilst the loop is still live.
33.	Warning: optical level high	Investigate Optical Chamber for contamination	The current standing optical level (the level of reflection received by the optical receiver within the multipoint optical chamber, probably caused by contamination) has risen enough to be of concern, and it is suggested that a replacement optical chamber is installed.
34.	Warning: optical level low	Investigate Optical Chamber	The current standing optical level (the level of reflection received by the optical receiver within the multipoint optical chamber, probably caused by contamination) has fallen enough to be of concern. Check that the Optical Chamber is correctly locked in place. If this does not rectify the matter it is suggested that a replacement optical chamber is installed. If this still does not rectify the problem then a new electronics module should be installed.

Advanced Connections

Monitored Relays

Monitored Relays on MO4 and MO5
ZETANET CONTROL PANEL



The relay must be dioded for polarisation and suppression as shown. These diodes should be marked 1N1004 or similar, and may already be located on the relay PCB if it is designed for Fire Alarm Systems. If the relay is a general purpose plug in relay then the diodes may need to be added externally.

Technical Data

Control Panel

Zeta 200 plus Control Panel	
Dimensions	W x H x D 445mm x 445mm x 110mm
No. of zones	128 zones
Device labels	31 characters
LCD display	Graphic display Field 1 (top) Control Panel Information Window Field 2 Active Information Window Field 3 Prompt Window Field 4 (bottom) Network Information Window
LED Indication	Fire Red steady in general fire pulsed (0.3s on, 0.5s off) from an MCP Fault yellow intermittent (0.3s on, 2.1s off) pulsed (0.3s on, 0.5s off) Disablement yellow continuous Test yellow pulsed (0.3s on, 0.5s off)
Audible Indication	2.5kHz Buzzer continuous in fire intermittent (0.3s on, 2.1s off) in fault
Keypad	4 way dedicated Fire Alarm Controls 17 way alphanumeric System Controls
Event log	1000 events
Inputs and Outputs	Relay Outputs x 4 volt free contacts SPCO 30vDC @ 2A max voltage free contacts SPCO Monitored Outputs 2 x 24v conventional monitored outputs Fire, Fault, Signal, Technical Alarm 10k EOL 200mA max per circuit Monitored Inputs 2 x resistance monitored inputs 3k3 EOL 680R firing resistor
Power Supply	Separate Housing Switch Mode Power Supply and Charging circuitry Standby batteries 2 x 17Ah 12v sealed lead acid batteries Mains supply 230v a.c., +10%, -15% Vmax 29 – 32V Vmin 19V Max cont output current 6.5A Ripple and noise <= 5% of Vmax
Nominal Loop Operating Voltage	40v dc
Standby Loop Operating Voltage	20v dc
Max loop current	500 mA
Response Times	First fire alarm event 1s New zone in alarm <10s Activate 32 alarm zones 3s +ve O/C detection 1s -ve O/C detection <10s spur O/C detection <35s Missing device detection <35s
Environmental Data	IP Rating 30 Ambient Temp Range +5C to +40C

ZetaNET Control Panel Installation Instructions

System Version Compatibility

The following table explains the compatibility of the various versions of the ZetaNET system:

CONTROL PANEL VERSION

V1.00					
-------	--	--	--	--	--

DEVICES

Multipoint
Multipoint with sounder
Manual Call Point
Manual Call Point with sounder
Sound Point
Hi Point
Flash Point
I/O Interface Module
Loop Powered I/O Module
Conventional Zone Interface Module

V1.00					
V1.00					
V1.00					
V1.00					
V1.00					
V1.00					
V1.00					
V1.00					
V1.00					
V1.00					

FEATURES

Zonal Cause & Effect
Point to point Cause & Effect
Alarm Confirmation - Local Device warning
Alarm Confirmation - Zonal Warning
Alarm Confirmation - Display Option
Alarm Confirmation - Zonal Linkage
1-4 loop plug on expansion
Network
Site Upgradeable firmware
View / Edit full device attributes at control panel

V1.00					
V1.00					
V1.00					
V1.00					
V1.00					
V1.00					
V1.00					
V1.00					
V1.00					
V1.00					

Resistor Colour Codes

On colour coded resistors the band at one end will be spaced further apart than the others. The resistor should be viewed with this band to the right as follows, reading from the left and side of the resistor:

Band	4 Band Codes	5 Band		
		Colour	Digit	Multiplier
		Black	0	1
		Brown	1	10
		Red	2	100
		Orange	3	1 000
		Yellow	4	10 000
		Green	5	100 000
		Blue	6	1 000 000
		Violet	7	-
		Grey	8	-
		White	9	-
		Gold	-	0.1
		Silver	-	0.001
		Codes		
1	1 st Digit	1 st Digit		
2	2 nd Digit	2 nd Digit		
3	Multiplier	3 rd Digit		
4	Tolerance	Multiplier		
5	-	Tolerance		

Technical Support

For further technical support please contact your **distributor**. Do not call the GLT Exports Ltd technical support department unless your distributor has first given their advice and attempted to rectify the issue.

Technical support will not be available if the instruction manual has not been read and understood. Please have this instruction manual available whenever you call for technical support.

Due to the complexity and inherent importance of a life risk type system then training on this equipment is essential, and commissioning should only be carried out by competent persons.

Further Information

Battery Calculations

Item	Quantity	IS (mA)	Tot IS (mA)	IA (mA)	Tot IA (mA)
Control Panel:					
Control Panel		45.000		95.000	
PSU		10.000		10.000	
Loop Card: Zeta 200 plus		20.000		30.000	
Network Card		12.000		12.000	
Outputs 1-4		0.000		8.000	
Outputs 5-6		0.000		200.000	
Auxiliary Power		0.000		200.000	
Multipoint Detector:					
Spur connection		0.078		2.200	
Auxiliary input or output		0.021		0.000	
Auxiliary input or output		0.000		16.600	
SP1 Continuous: Low volume		0.000		0.730	
SP1 Continuous: Medium volume		0.000		2.900	
SP1 Continuous: High volume		0.000		5.150	
Manual Call Point					
SP1 Continuous: Low volume		0.270		2.270	
SP1 Continuous: Medium volume		0.000		3.800	
SP1 Continuous: Medium volume		0.000		5.430	
SP1 Continuous: High volume		0.000		6.950	
Sound Point					
SP1 Continuous: Low volume		0.320		0.400	
SP1 Continuous: Low volume		0.000		1.550	
SP1 Continuous: Medium volume		0.000		3.210	
SP1 Continuous: High volume		0.000		4.330	
Hi Point					
SP1 Continuous: Low volume		0.380		0.400	
SP1 Continuous: Low volume		0.000		1.630	
SP1 Continuous: Medium volume		0.000		3.300	
SP1 Continuous: High volume		0.000		4.430	
Flash Point					
SP1 Continuous: Low volume		0.360		0.400	
SP1 Continuous: Low volume		0.000		3.800	
SP1 Continuous: Medium volume		0.000		5.430	
SP1 Continuous: High volume		0.000		6.950	
Loop I/O Module					
		0.150		8.770	
Conventional Zone Module					
		0.320		3.020	
Max zone current if powered from loop		0.000		20.000	

Totals		IStot (mA) A		IAtot (mA) B	
Times (hrs)		Standby (hrs) C		Alarm (hrs) D	
Current required (mAh)		IS (mAh) E		IS (mAh) F	
Total Current (mAh)				E + F = G	
Total Current (Ah)				G / 1000 = H	
Battery requirement (Ah)				H x 1.25 = J	

Totals
Times (hrs)
Current required (mAh)
Total Current (mAh)
Total Current (Ah)
Battery requirement (Ah)

IStot (mA) A		IAtot (mA) B	
Standby (hrs) C		Alarm (hrs) D	
IS (mAh) E		IS (mAh) F	
		E + F = G	
		G / 1000 = H	
		H x 1.25 = J	

Where: IS = Standby Current
IA = Alarm Current

Installation Checklist

ZetaNET Control Panel Installation Instructions

Use the following checklist to ensure that your work is correct and that the commissioning engineer has the necessary information to complete the commissioning of the system

The commissioning engineer will require this sheet, along with 'Loop Continuity and Insulation Test Results', correctly marked 'as-wired' drawings and completed 'Configuration sheets', before attending site to commission the system.

Stage 1

Description	Installation Engineer Checked	Commissioning Engineer Checked
Loop cable installed correctly, clipped or in containment.		
All loop bases and back boxes installed and terminated.		
All devices have positive core links in place.		
Loop insulation and continuity testing complete, and form filled out.		
As-wired drawing marked up showing cable runs and devices.		
Configuration sheets completed with devices descriptions etc.		
Control Panel backbox installed with 240v AC supply live, tested and isolated locally		

Stage 2

Depending on the terms of your contract, you may also be required to carry out 'Stage 2'.

Description	Installation Engineer Checked	Commissioning Engineer Checked
Devices installed into bases and backboxes		
Detector dust covers fitted		
Serial numbers noted on drawings and 'Configuration Sheets'		

Site Name & Address:	
Installation Company:	
Testing Engineer:	
Signature:	
Date:	

Commissioning Checklist

The following checklist may be used to ensure that all steps are taken. It serves as a reminder only and may need additional items added if required.

Step 1

Description	Commissioning Engineer Checked
Low voltage test meter shows 0v and earth continuity, and no inter-core short circuits. (+ve core will only have continuity if link pins fitted instead of devices).	
One device installed and initialised satisfactorily.	
Remainder of devices installed and initialised in sections until entire system is initialised satisfactorily.	
All faults (device, input, output, EOL, battery, etc.) cleared from control panel.	
Correct operation and device poll verified using ZetaDIAGNOSTIC	

Step 2

Description	Commissioning Engineer Checked
Data Uploaded to PC	
Configuration set up on pc	
Data downloaded to control panel	
Addressable loop reconfigured.	
System Reset	
All ancillary inputs and outputs connected and faults cleared	

Step 3

Correct operation of all input devices tested, ie, detectors, manual call points and inputs.	
Correct operation of all output devices tested, ie, sounders, relays and outputs	
Correct operation of all programmed actions tested, ie, instant, delays, confirmation alarms, multi-stages	

Step 4

System Manuals completed, zone chart or zone list displayed.	
End user or responsible person trained and user manual issued.	

Site Name & Address:	
Commissioning Company:	
Commissioning Engineer:	
Signature:	
Date:	

Loop Continuity & Insulation Test Results

After installation of the cable, and termination into all the relevant back-boxes, ensure that the link pins are installed as necessary in order to be able to take cable continuity and insulation readings. Make sure that all the cables are dressed smoothly and neatly into their back-boxes in order that they will not be disturbed after the readings are taken.

The commissioning engineer will require these readings, along with correctly marked 'as-wired' drawings and completed configuration sheets, before attending site to commission the system.

CORE	CONTINUITY READING (OHMS)			
	<i>LOOP 1</i>	<i>LOOP 2</i>	<i>LOOP 3</i>	<i>LOOP 4</i>
LE1 +ve to LE2 +ve				
LE1 -ve to LE2 -ve				
LE1 Scrn to LE2 Earth				

A reading of approximately 1 ohm per 100 meters of 1.5 mm² cable is expected and any significant variation from this should be investigated. If the above readings are satisfactorily showing circuit continuity then you may also take the reading below.

CORE	INSULATION READING (OHMS)			
	<i>LOOP 1</i>	<i>LOOP 2</i>	<i>LOOP 3</i>	<i>LOOP 4</i>
+ve to -ve				
+ve to Screen				
-ve to Screen				
Loop Screen to Mains Earth				

A reading in excess of 1 M ohm is expected and any significant variation from this should be investigated. If the readings are satisfactory then the loop wiring is largely proven other than for faults such as complete polarity reversal.

Site Name & Address:	
Installation Company:	
Testing Engineer:	
Signature:	
Date:	

PSU Cable Continuity & Insulation Test Results

After installation of the cable, and termination into all the relevant back-boxes, take cable continuity and insulation readings. Make sure that all the cables are dressed smoothly and neatly into their back-boxes in order that they will not be disturbed after the readings are taken.

The commissioning engineer will require these readings, along with correctly marked 'as-wired' drawings and completed configuration sheets, before attending site to commission the system.

CORE	CONTINUITY READING (OHMS)		
	PSU Data	Power 1	Power 2
+ve to -ve with temp short circuit applied			
-ve to Earth with temp short circuit applied			
+ve to Earth with temp short circuit applied			

A reading of approximately 1 ohm per 100 meters of 1.5 mm² cable is expected and any significant variation from this should be investigated. If the above readings are satisfactorily showing circuit continuity then you may also take the reading below.

CORE	INSULATION READING (OHMS)		
	PSU Data	Power 1	Power 2
+ve to -ve			
+ve to Screen			
-ve to Screen			
Screen to Mains Earth			

A reading in excess of 1 M ohm is expected and any significant variation from this should be investigated. If the readings are satisfactory then the loop wiring is largely proven other than for faults such as complete polarity reversal.

Site Name & Address:	
Installation Company:	
Testing Engineer:	
Signature:	
Date:	

Network Continuity & Insulation Test Results

After installation of the cable, and termination into all the relevant back-boxes, take cable continuity and insulation readings. Make sure that all the cables are dressed smoothly and neatly into their back-boxes in order that they will not be disturbed after the readings are taken.

The commissioning engineer will require these readings, along with correctly marked 'as-wired' drawings and completed configuration sheets, before attending site to commission the system.

CORE	CONTINUITY READING (OHMS)			
	<i>Main Ring</i>			
+ve to ve				
-ve to -ve				
Screen to Screen				

A reading of approximately 1 ohm per 100 meters of 1.5 mm² cable is expected and any significant variation from this should be investigated. If the above readings are satisfactorily showing circuit continuity then you may also take the reading below.

CORE	INSULATION READING (OHMS)			
	<i>Main Ring</i>			
+ve to -ve				
+ve to Screen				
-ve to Screen				
Screen to Mains Earth				

A reading in excess of 1 M ohm is expected and any significant variation from this should be investigated. If the readings are satisfactory then the loop wiring is largely proven other than for faults such as complete polarity reversal.

Site Name & Address:	
Installation Company:	
Testing Engineer:	
Signature:	
Date:	

FIRE ALARM SYSTEM NOTICE

To Enable the Control Panel Keys

The user controls are accessed from Access Level 2 (User) which is reached as follows:

Enter your access code, ie # # # #, followed by **enter**, or insert the key and turn it clockwise.
The Enable Controls light will switch on, you are now in Access Level 2 (User) and you may proceed to silence and reset the system.

To prevent unauthorised operation the controls should be kept disabled and the code / key kept secure under the control of the responsible person

To Manually Operate the Fire Alarm Sounders

To sound the alarms press the **SOUND ALARMS** button at Access Level 2 (User) as above.

Following a Detector or Manual Call Point Operation

The **FIRE** LED will illuminate, the fire alarm sounders and the internal buzzer will operate as programmed. Take appropriate action as defined by the emergency plan for the premises.

To silence the alarms press the **SILENCE ALARMS** button at Access Level 2 (User) as above, then establish the cause of the alarm and enter the details in the log book.

Reset any Manual Call Points which may have been operated, or if a detector has been operated be sure that the cause of the alarm has been removed, before resetting the system by pressing the **RESET SYSTEM]** button at Access Level 2 (User) as above.

Following a Fault Condition

The appropriate fault LEDs will illuminate. The internal buzzer will sound. To mute the internal buzzer press the **SILENCE BUZZER** button at Access Level 2 (User) as above. Investigate and rectify the appropriate fault (competent persons). Once the fault has been rectified the fault indication will clear automatically.

To Test The Indication LEDs

Select the **Test Display** prompt with the **UP / DOWN** keys, then press **ENTER** at Access Level 2 (User).

To Disable the Control Panel Keys

When finished with the controls above, press the **ESC** button, or **turn the key off and remove it**. The system will return to Access level 1 (Normal)

The controls enabled light will have switched off and the controls will be disabled.

Important Notes

It is a requirement of the **Workplace Regulations** that your Fire Alarm System must be regularly serviced by competent persons.

FIRE ALARM COMPANY: _____
ADDRESS: _____
For service phone: _____ (Working hours) _____ (Out of working hours)

CONTROL PANEL INSTRUCTION NOTICE

FIRE ALARM SYSTEM NOTICE

Note

The Fire alarm system installed in this building utilises 'Alarm Confirmation' technology to help eliminate false alarms.

Please read and understand the following information in order to make the most effective use of the system.

Operation

When the detector within your area activates it will initially only operate the sounders within your own area for a predetermined 'Alarm Confirmation' time.

At the end of the 'Alarm Confirmation' time the system will check the detector again to see if the activation has cleared. If so then the sounders will silence and no further action need be taken.

If, however, the detector is still activated then the entire system will go into alarm, operating all the sounders on the system.

Action Required

If you think that you may have accidentally set off the fire alarms then check the following:

If the fire alarm sounders within your area only are operating, then check your own area for the cause of the alarm. If this proves to be a false alarm due to dust, cooking fumes, steam, cigarette smoke, etc, then clear the smoke from the area in order to allow the system to reset itself after a few minutes. If this happens then no further action is required.

If you discover a genuine fire, or the fire alarm sounders in the communal areas are also operating, then follow the buildings fire procedures for evacuation, activating the nearest Fire Alarm manual call point on the way out.

Do not attempt to put out the fire unless it is safe to do so.

Further Information

Further information will be located adjacent to the Main Fire Alarm Control Panel, or may be obtained from either the person responsible for building maintenance or from the Fire Alarm Company responsible for maintaining the Fire Alarm System.

ZetaNET Control Panel Installation Instructions

Device Details Record your device attributes on the following form. Copy as required for all devices in the system.

SITE DETAILS:	
CONTROL PANEL NO.:	LOOP NO.:
DESCRIPTION:	DESCRIPTION:

DEVICE ADDRESS	SERIAL NUMBER	DEVICE DESCRIPTION	ZONE	DEVICE TYPE	SMOKE MODE	HEAT MODE	ALARM CONF'N
<i>Eg., 1</i>	<i>35415</i>	<i>Gnd Flr Front Office</i>	<i>1</i>	<i>MPWS</i>	<i>SM2</i>	<i>HM2</i>	<i>NO</i>

SOUND PATTERN IN ALARM CONFIRMATION:	SOUND PATTERN IN ALARM:	ALARM CONFIRMATION DELAY TIME (1-5 MIN):	DEVICE TYPE OPTIONS: MP / MPWS / MCP / MCPWS / FP / SP / HP / IO
--------------------------------------	-------------------------	--	---

Your Notes

Your Notes

Important Points

- Use a **2-core 1.5mm² and earth/screen fire rated cable**
- Connect all the devices in a **loop** returning to the control panel, with **radial spur circuits** only from Multipoint detectors
- Make sure that the screen cables are sleeved, connected together and connected to **earth only at the control panel**
- Leave a copy of the User Instructions by the control panel, and make sure that you have explained its operation carefully to the relevant persons (the user, not the contractors or their agents)

If you have any further queries, please contact your supplier for further information