

QUADNET
R E P E A T E R P A N E L

DUONET
R E P E A T E R P A N E L

Quadnet / Duonet Repeater Panel V3
(Suitable for Quadnet / Duonet repeater panels from V2.00)

Repeater Panel Engineering and
Commissioning Manual
(TO BE RETAINED BY THE COMMISSIONING ENGINEER)

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

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

E&OE.

Fike equipment is protected by one or more of the following patent numbers: GB2426367, GB2370670, EP1158472, PT1035528T, GB2346758, EP0917121, GB2329056, EP0980056, GB2325018, GB2305284, EP1174835, EP0856828, GB2327752, GB2313690

Contents

Introduction	4
System Design	4
Equipment Guarantee	4
Anti-Static Handling Guidelines	4
Warning	4
EMC.....	4
The Quadnet / Duonet System	5
Advantages of Addressable Systems.....	5
Repeater Panel	6
Mounting the Repeater Panel.....	6
The General Assembly.....	7
Repeater Panel Disassembly	8
Left Hand Side Door (CIE Door) Removal	9
Physical Dimensions	9
Cabinet Installation.....	10
Repeater Panel Assembly.....	10
Earthing	11
Topology and Cabling.....	13
Repeater Panel Main PCB	14
Repeater Panel Terminals	16
Mains Supply and Batteries.....	19
Network	20
Network Topology and Cabling.	20
Network Cable Specification.....	21
Network Schematic.....	21
Network Terminals.....	21
General Operation of Repeater Panel	23
Repeater Panel Front	23
LED Indication	24
Fire Alarm Controls.....	25
System Controls	26
Access Levels and Codes	27
Access Level 1 (Normal)	27
Access Level 2A (User).....	27
Access Level 2B (Supervisor)	28
Access Level 3 (Engineer).....	31
Commissioning	36
End User Training.....	36
Summary of Messages	37
Technical Data	40
Repeater Panel.....	40
OSP Version Compatibility	41
Technical Support.....	41
Network Continuity and Insulation Test Results.....	42
Your Notes.....	43

Introduction

This Manual is intended as a guide to the engineering and commissioning principles of the Quadnet / Duonet 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 +A2: 2008 : 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 Fike Safety Technology support department unless your distributor has first given their advice and attempted to rectify the issue.

EMC



This equipment when installed is subject to the EMC directive 2004/108/EC. It is also subject to UK Statutory Instrument 2006 No. 3418.

To maintain EMC compliance this system must be installed as defined within this manual. Any deviation from this renders the installer liable for any EMC problems that may occur either to the equipment or to any other equipment affected by the installation.

The Quadnet / Duonet System

The Quadnet and Duonet systems are addressable intelligent detector systems, with many advantages over traditional addressable analogue sensor systems. With a Quadnet panel system, up to four addressable device loops may be connected to each control panel. With a Duonet panel system, up to two addressable device loops may be connected to each control panel. Their operation and functionality is virtually identical.

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 Quadnet / Duonet 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 Quadnet / Duonet system is 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 out 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 Quadnet / Duonet 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.

Repeater Panel

The Quadnet / Duonet Repeater panel is similar in appearance and operation to the Quadnet / Duonet control panel. However, it does not itself connect to or control addressable detection devices. Instead, it connects to a network of control panels and reports events which occur on those panels. It can also perform system controls over the network (ie. Silence, Reset, Sound Alarms & Silence Buzzer).

Mounting the Repeater Panel

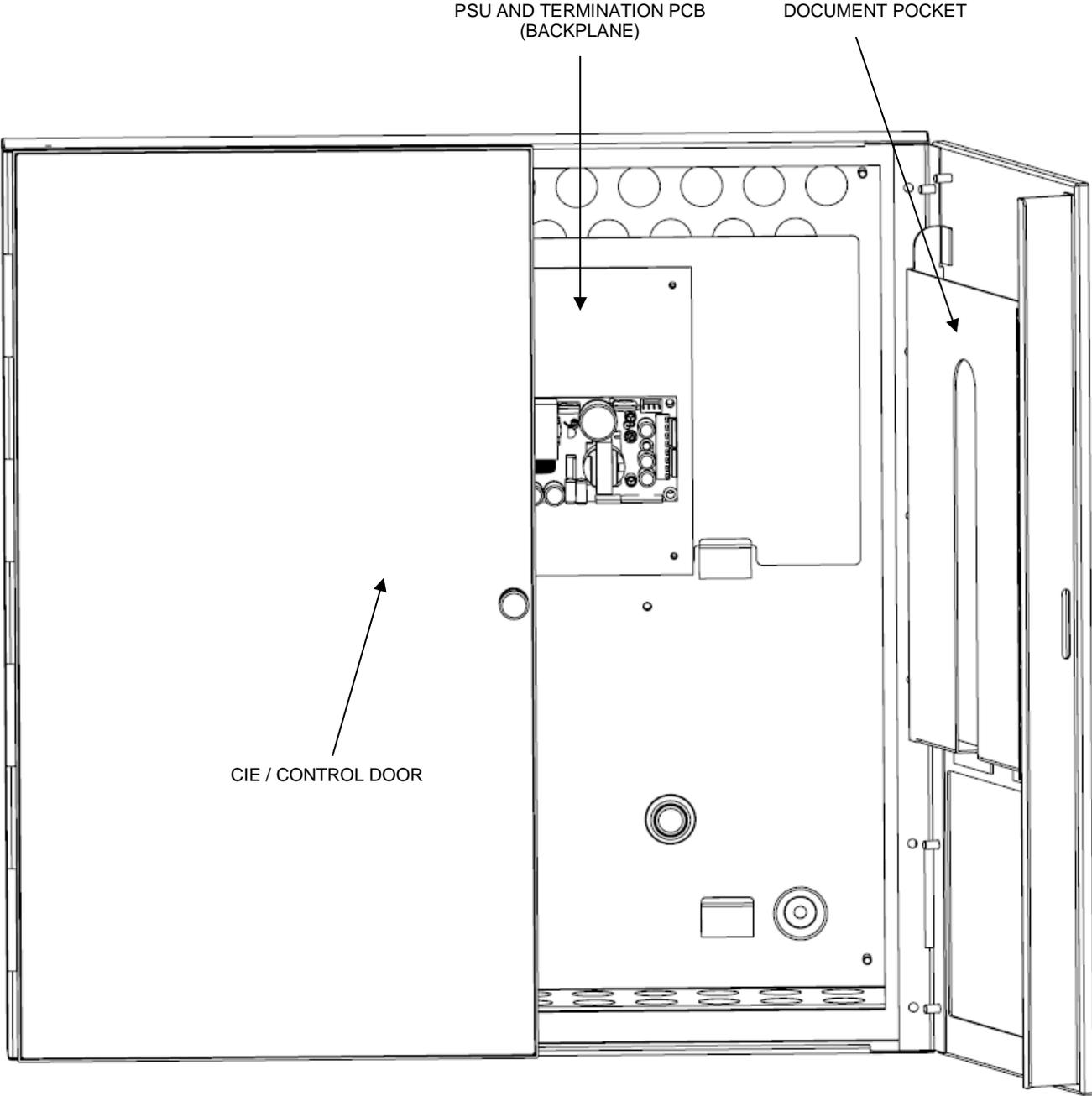
First, identify the proposed location for the repeater panel. Ensure that the repeater panel will be easily accessible, and that account is taken of any subsequent work that may affect access. It should be located at the most likely point of access for the fire services.

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

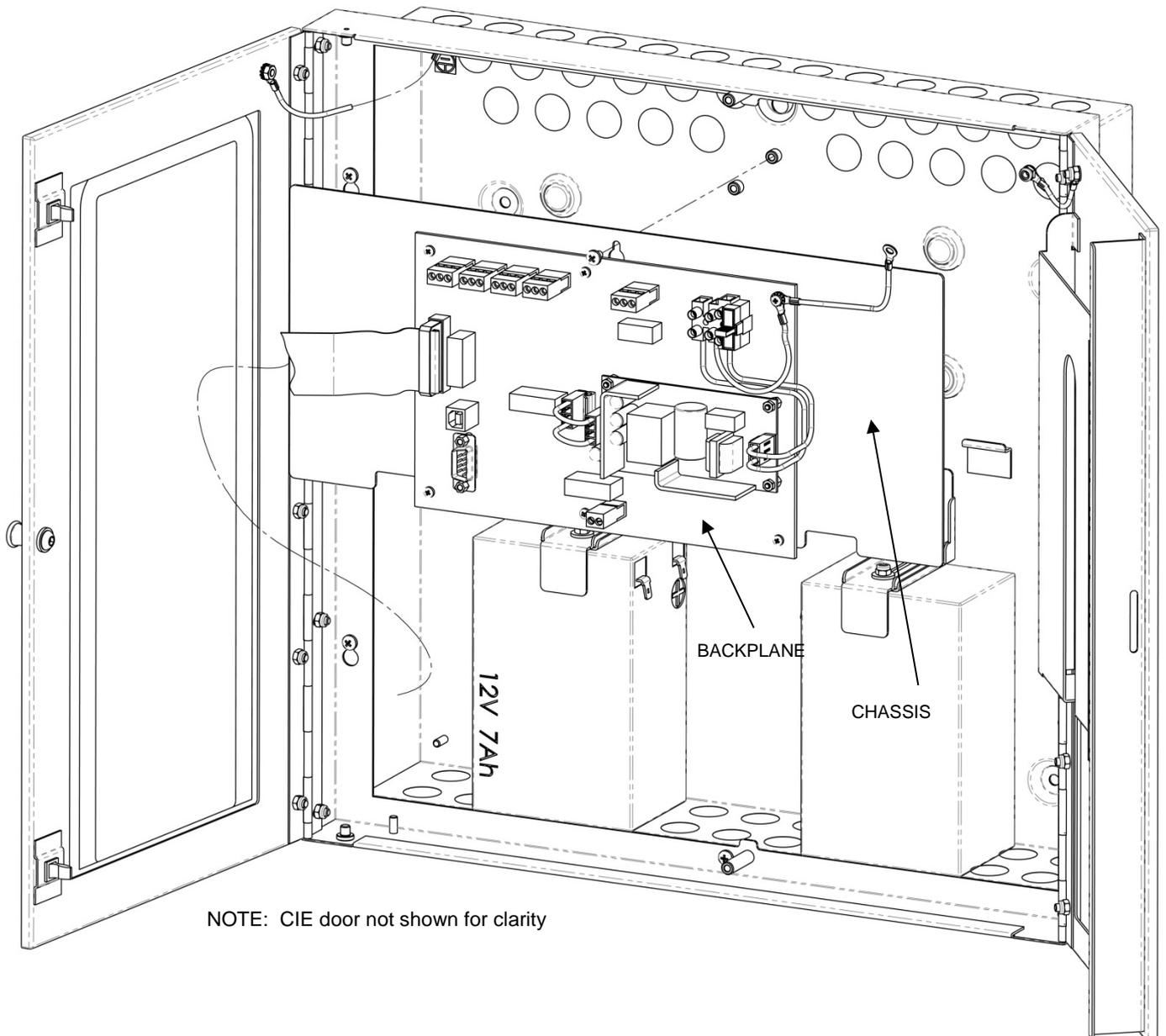
Like all electronic equipment, the repeater panel may be affected by extreme environmental conditions. The position selected for its installation should therefore be clean and dry, not subjected to high levels of vibration or shock and at least 2 metres away from any pager or radio transmitting equipment.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

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

The General Assembly



Repeater Panel Disassembly



NOTE: CIE door not shown for clarity

The panel is normally supplied disassembled to make first fix easier. If the panel is already assembled it must be disassembled in order to fix the Backbox to the wall.

The front left hand door (CIE door) which houses the panel controls must be opened and the ribbon cable unplugged from the main backplane.

Remove the collar / flange assembly complete with doors. Loosen the 4 screws in the keyhole slots (2 per side). Remove the retaining screws (2) one at the top and one at the bottom. Lift off the collar / flange assembly complete with doors and set aside.

The backplane is mounted on a chassis which is fixed into the box by 1 screw at the top in a keyhole slot and two metal retainers at the bottom.

The screw must be loosened then the chassis plate can be lifted up and out of the box.

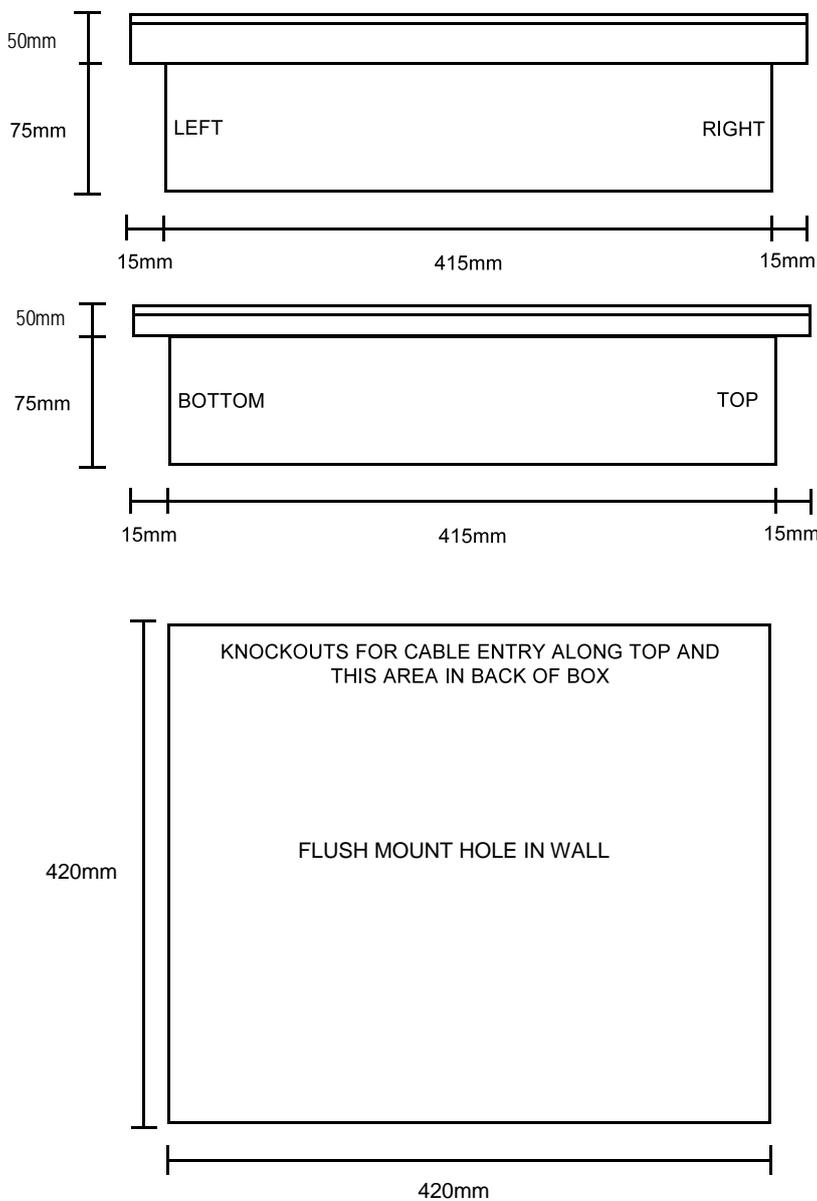
Left Hand Side Door (CIE Door) Removal (if required)

If the panel is assembled and it is necessary to remove the left hand door that houses the CIE in order to replace the CIE, the door must be opened to its full extent and the ribbon cable unplugged from the main backplane.

Then it must be gently taken beyond its fully opened extent. This will cause the hinge pins to pop out of the door. The door can then be completely removed.

Note: a minimum gap of 320mm must be left between the back box and any wall or projection to allow the door to be gently taken beyond its full extent and removed

Physical Dimensions

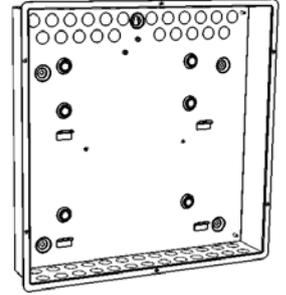


Cabinet Installation

This Backbox is compatible with the Quadnet / Duonet range of Fire Alarm Control Equipment and is common to the range of control panels and repeater panels (and the power supply unit used with Quadnet control panels).

Surface Mounting

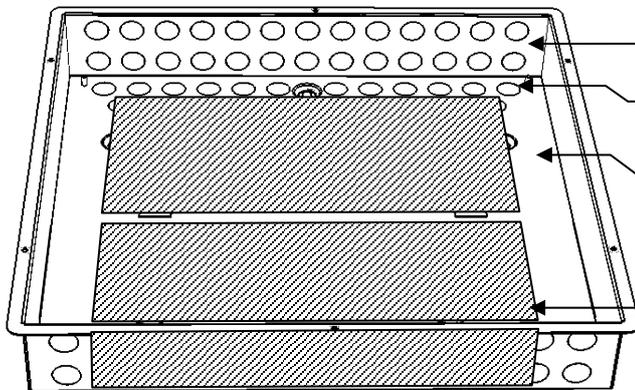
At least four of the five mounting holes should be used to secure the cabinet to a solid wall using suitable screws of at least 50mm in length. Ensure that a minimum gap of 320mm on the LHS is left between the sides of the Backbox and any wall or projection to allow future removal of the CIE door in situ if required.



Cable Entry

The cable entry locations available will depend on the type of unit that is intended, and it is important to note which cable entry areas are suitable for each derivative.

Quadnet / Duonet Repeater Panel



- The two rows of knockouts at the top are suitable.
- The single row of knockouts in the rear at the top are suitable (not the second row).
- The main rear face in the top half must be kept clear for mounting the electronics.
- The main rear face in the bottom half, and the bottom edge, must be kept clear for mounting the batteries.

Technical Data

Dimensions:	Width x Height (excluding flange).....	415mm x 415mm
	Width x Height (including flange).....	445mm x 445mm
	Depth	75mm
Flush mount hole size	Backbox only	420mm x 420mm

Repeater Panel Assembly

This is the reverse of the disassembly process above.

To refit the front left hand door, which houses the panel controls, the right hand door must be opened. The left hand door should then be lined up with the hinge pins and then gently closed. Closing the door will cause the hinge pins to pop back into the door.

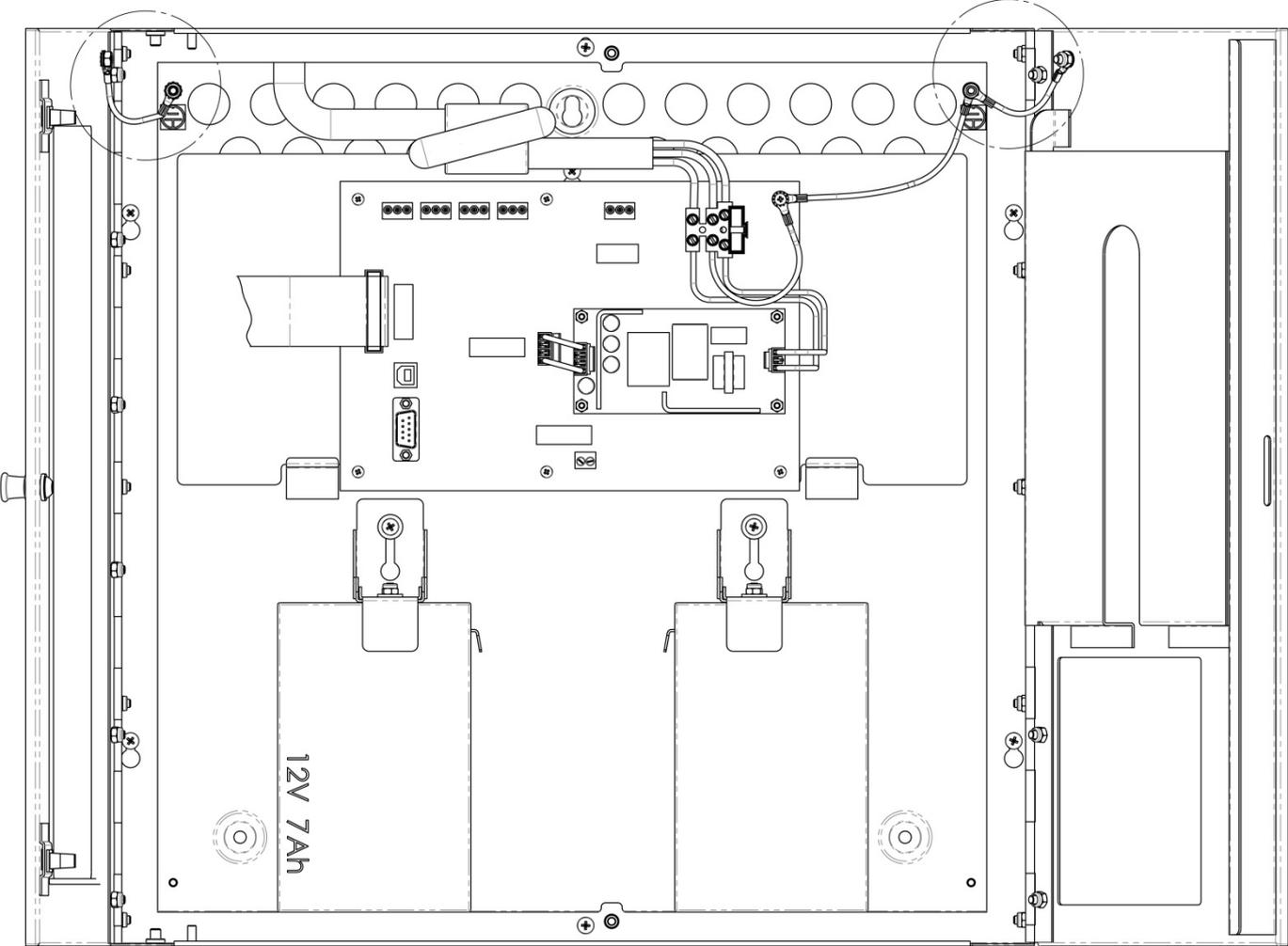
Note:

There is only one ribbon cable connecting the CIE to the main backplane. This connects to the connector labelled Ribbon D on both the CIE and main backplane.

The other ribbon cable connectors on the CIE (Ribbon A, B & C) are not used.

Earthing

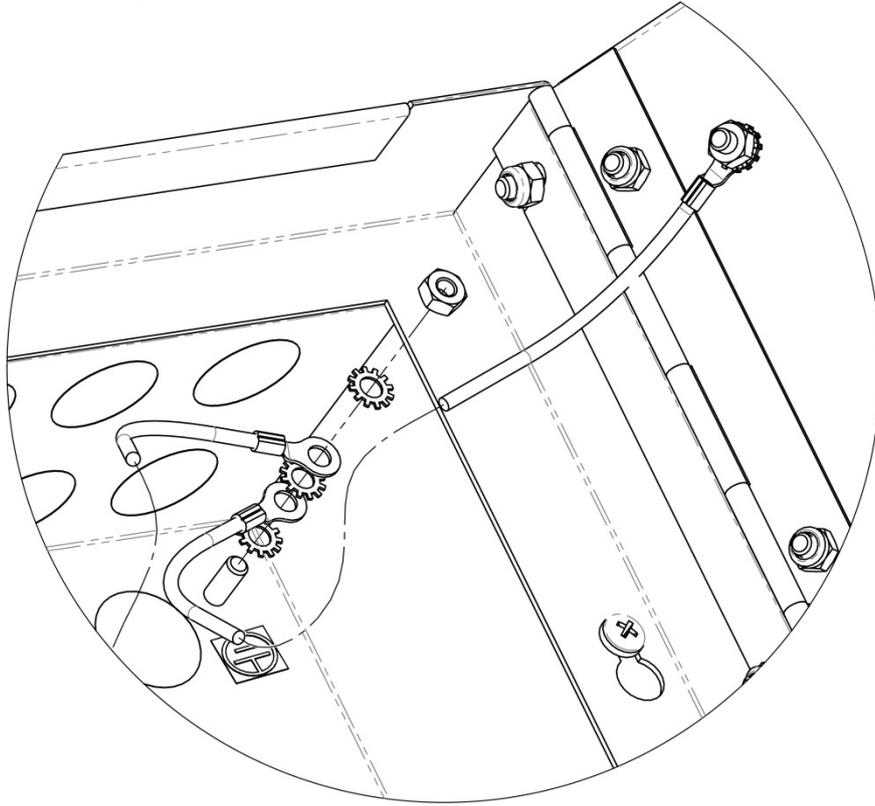
After the collar and door assembly has been refitted, the internal earth leads must be connected as shown in the diagram below.



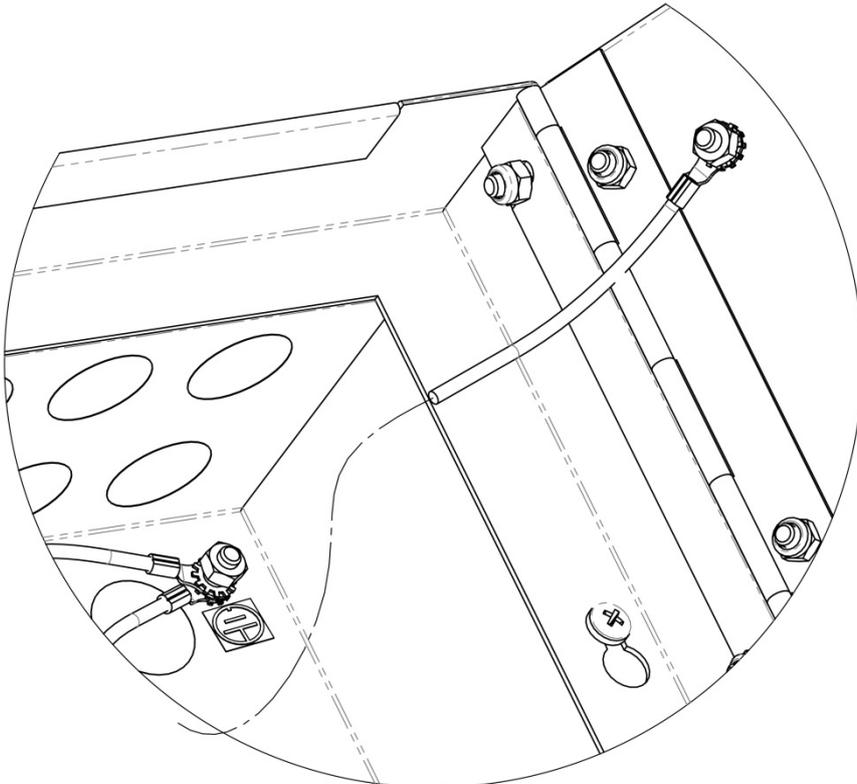
NOTE: CIE door not shown for clarity

Quadnet / Duonet Repeater Panel Engineering and Commissioning Manual

Fit the ring terminals of the earth links to the metal back box using the star lock washers and nuts provided in the sequence shown in the diagram below.



Note: Ensure that a star lock washer is positioned at either side of the ring terminal.



Topology and Cabling

All system wiring should be installed to comply with BS 5839: Pt 1: 2002: Amendment 2: 2008 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 (ie. MICC, FP200, Firetuff, Firecell, Lifeline or equivalent). Ventcroft No-Burn multicore cable was utilised during the LPCB approval testing of the control panel.

Cable Specification

Max Capacitance Core to Screen.....	180pF / m
Max Capacitance Core to Core	100pF/ m
Max Inductance.....	1.0mH / km
Max Resistance Two Core Screened 1.5mm ²	12.1Ω / km
Fire Proof	BS5839: Pt1: 2002 Category 1
Example	Datwyler 8700

Repeater Panel Firmware Upgrade Link Pins

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

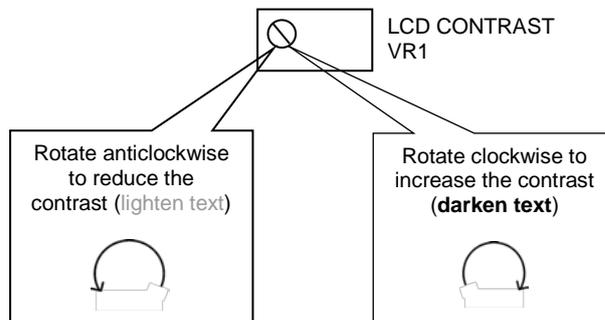
The two link pins located to the right of the key switch connector **MUST** be left in position for correct field operation and only removed when performing the flash upgrade.

Before undertaking any upgrades, it is important to make sure that the proposed new software is compatible with the system hardware version and with the other panels and components in the system.

Note that firmware upgrades are only permitted to be carried out by Fike engineers or trained installation engineers operating under specific instructions from Fike Technical Support.

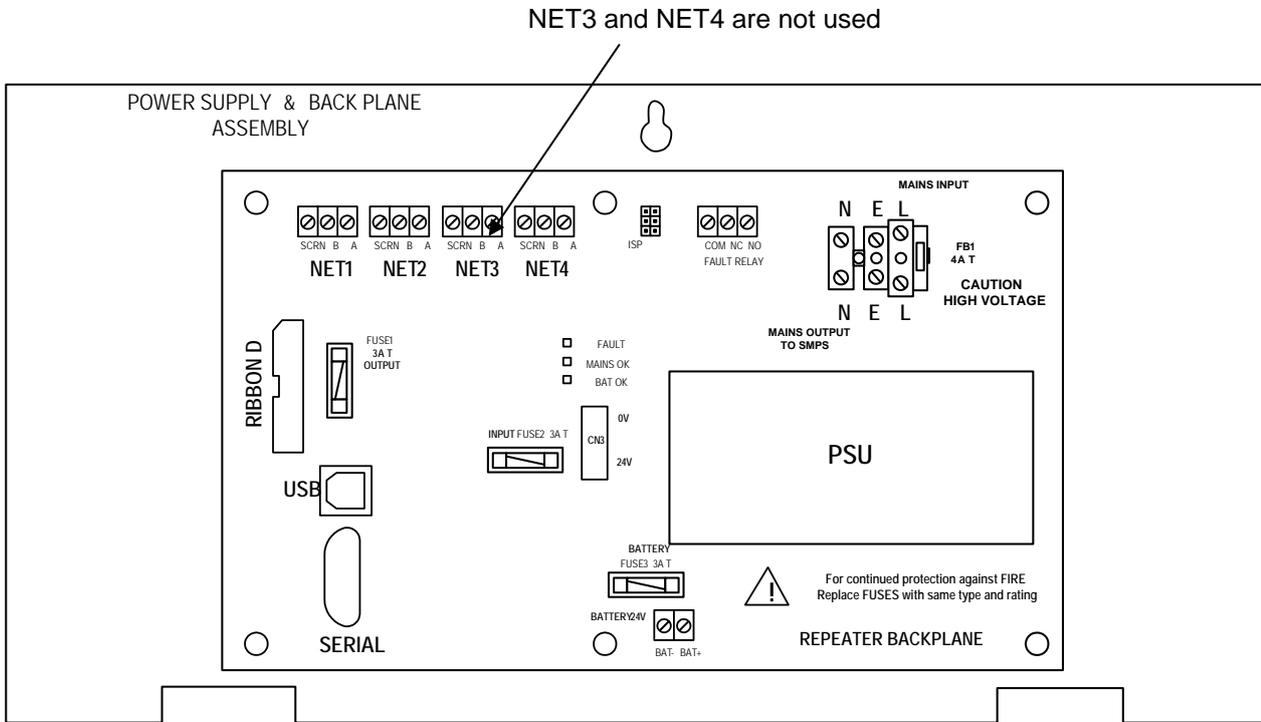
LCD Contrast

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.

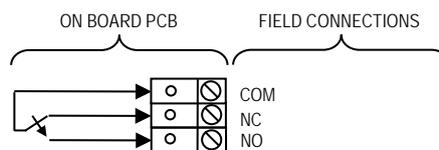


Repeater Panel Terminals

The Termination and PSU PCB (also known as the backplane) is located at the rear of the repeater panel back box.



Fault Relay: NO, NC, COM (CN1)



The Fault relay is a single-pole change-over 'volt-free' relay contact which is not fault monitored. The relay contact is rated at 30VDC 1A max. All inductive loads should be diode protected to prevent back EMF. However, if this is not done, the load should be limited to 200mA to reduce the likelihood of back EMF causing damage to the relay contacts.

The relay is de-energised in the fault condition.

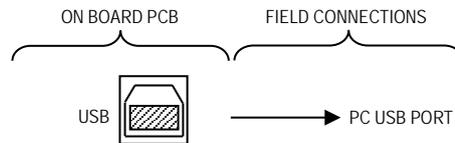
Terminal	Description
COM	Common contact
NC	Normally closed contact
NO	Normally open contact

Fuses

The following fuses are located on the charge controller PCB.

Fuse No	Label	Fuse	Type	Breaking Capacity	Max Rated Voltage
FUSE1	Output	3A T	Glass	100A	250VAC
FUSE2	Input	3A T	Glass	100A	250VAC
FUSE3	Battery	3A T	Glass	100A	250VAC
FB1	Mains Input	4A T	Ceramic	1500A	250VAC

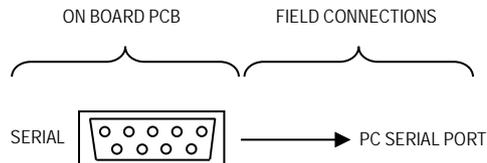
USB Port: USB (J5)



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

NOTE: It is imperative that the correct version of OSP is used to match your version of repeater panel. The use of an incompatible version may result in incorrect operation of the repeater panel. In particular, do not use a V2.xx series OSP with a V3.xx series repeater panel and do not use a V3.xx series OSP with a V2.xx series repeater panel.

Serial Port: SERIAL (PL2)



The repeater panel firmware (Operating Software stored in External Flash memory on the repeater panel CIE PCB) may be updated using the Quadnet / Duonet Firmware programming software using a serial lead to link to a computer. This allows the repeater panel software version to be updated on site as required.

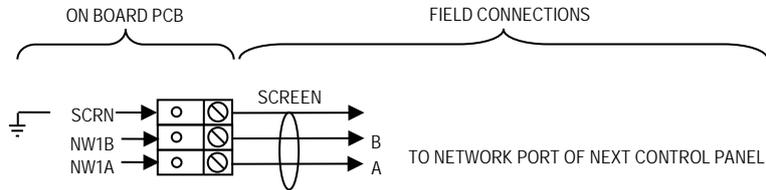
It is important to ensure that the new version is compatible with your hardware version and with other software used in the system such as other control panels and repeaters on the network etc. If not, then all items would need to be updated.

Note that firmware upgrades are only permitted to be carried out by Fike engineers or trained installation engineers operating under specific instructions from Fike Technical Support.

Network Ports 1- 4: B, A, SCRN

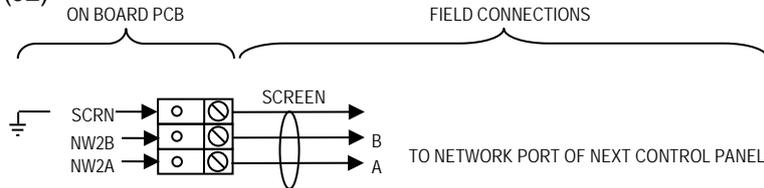
The network ports allow multiple panels to be connected together, up to a maximum of 4 panels (including both control panels and repeater panels). The 2 network ports (NET1-2) may be connected in any sequence between panels.

Network Port 1 (J1)



Terminal	Description
SCRN	Field cable screen connection (Connect only at 1 end)
NW1B	Data B connection for Port 1
NW1A	Data A connection for Port 1

Network Port 2 (J2)



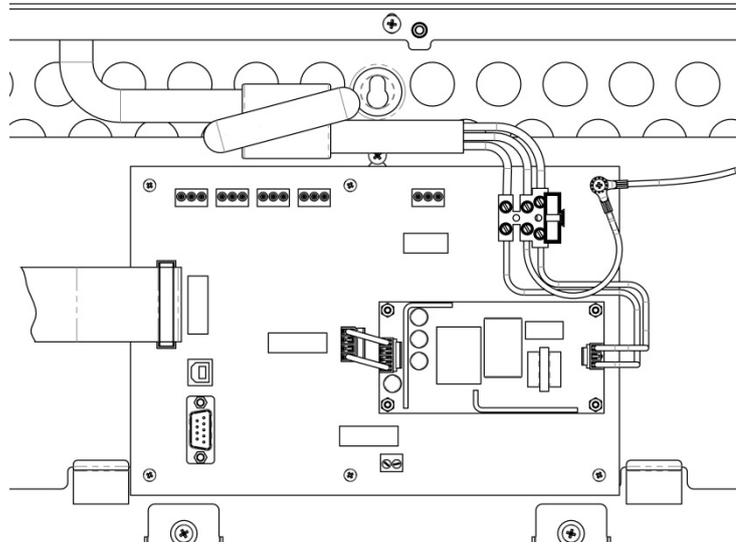
Terminal	Description
SCRN	Field cable screen connection (Connect only at 1 end)
NW2B	Data B connection for Port 2
NW2A	Data A connection for Port 2

NOTE: Network Ports 3 (J3) and 4 (J4) are not used.

Mains Supply & Batteries

The repeater 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. The mains supply should be dedicated to the repeater panel and should be clearly labelled 'FIRE ALARM: DO NOT SWITCH OFF' at all isolation points.

When fitting the mains cables and before attaching the connectors, slide the ferrite sleeve over the cable so that it butts up against the Repeater case. Fit the tie wrap around the cable under the ferrite sleeve to lock the ferrite into position on the cable. Make sure the earth strap from the mains terminal block to the protective earth stud in the Backbox is fitted.



The repeater panel requires 2 x 12V 7Ah sealed lead acid batteries. These are to be sited in the back box in the provided enclosure along the right hand side vertically. The batteries should be connected in series using the connection leads supplied. We recommend the use of type Yuasa NP7-12 (FR) or other equivalent approved type.

Do not use larger or smaller capacity batteries on this system, larger batteries will not fully charge in the time allowed and smaller ones will be overcharged and the service life will be reduced.

Using different capacity or type of batteries could also invalidate any warranty.

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 battery 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.

Network

Network Topology and Cabling

In order to use the networking features of the Quadnet / Duonet system, each control panel must have the optional Quadnet / Duonet network card fitted onto the control panel main PCB (CIE). Repeater panels automatically include this network card as standard since repeaters can only be used on the network.

The Quadnet / Duonet network may be connected as shown below. The network may comprise of control panels and repeater panels as required, up to a maximum of 4 nodes. In addition to the connections shown, 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 or repeater panel. A list of these connections must be noted during termination as they will need to be configured to each control panel for correct operation.

The network connection circuit must be installed as a single ring, with a maximum cable length of up to 1km between network nodes.

All system wiring should be installed to comply with BS 5839: Pt1: 2002: Amendment 2: 2008 and BS 7671 (wiring regulations), along with any other standards relevant to the area or type of installation. A cable complying with the BS 5839: Pt1: 2002: Amendment 2: 2008: 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 (ie. MICC, FP200, Firetuff, Firecell, Lifeline or equivalent).

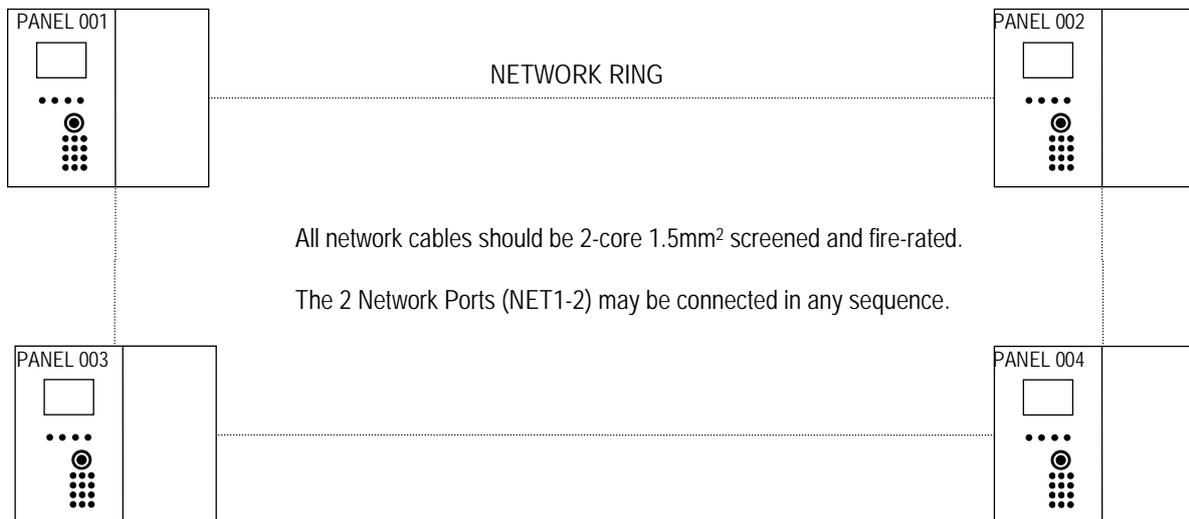
In order to protect against possible data corruption it is important to ensure the following points are adhered to:

1. The cable **screen between each network node (panel/repeater) must be connected to SCRN Terminal 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 SCRN Terminal 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.
4. Excess cable lengths must not be coiled as coiling will increase the inductance and is likely to cause communication problems.

Network Cable Specification

Max Capacitance Core to Screen.....	180pF / m
Max Capacitance Core to Core	100pF/ m
Max Inductance.....	1.0mH / km
Max Resistance Two Core Screened 1.5mm ²	12.1Ω / km
Fire Proof	BS5839: Pt1: 2002 Category 1
Example.....	Datwyler 8700

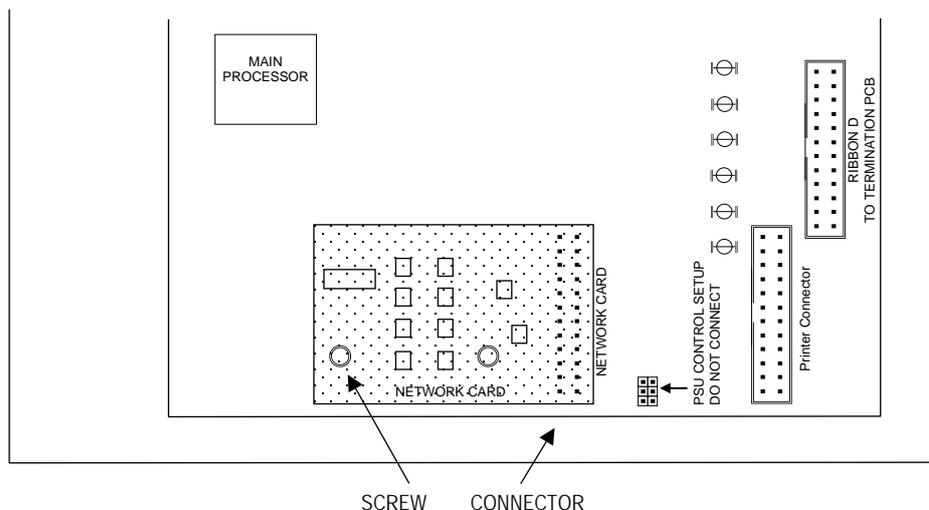
Network Schematic



As shown above, the numbering of panels may be in any order. However, when planning an installation, it would make sense to number the panels sequentially in the order in which they are wired. The maximum number of networked units is 4. These can be a mixture of repeater panels and control panels.

Network Terminals

CONTROL PANEL MAIN PCB (Located on the inside of the front left hand inner door)



Before any networking facilities may be used on a Quadnet / Duonet control panel, the optional Quadnet / Duonet network card must be fitted to the control panel main PCB (CIE) as shown above. The repeater panel already has this card fitted as standard.

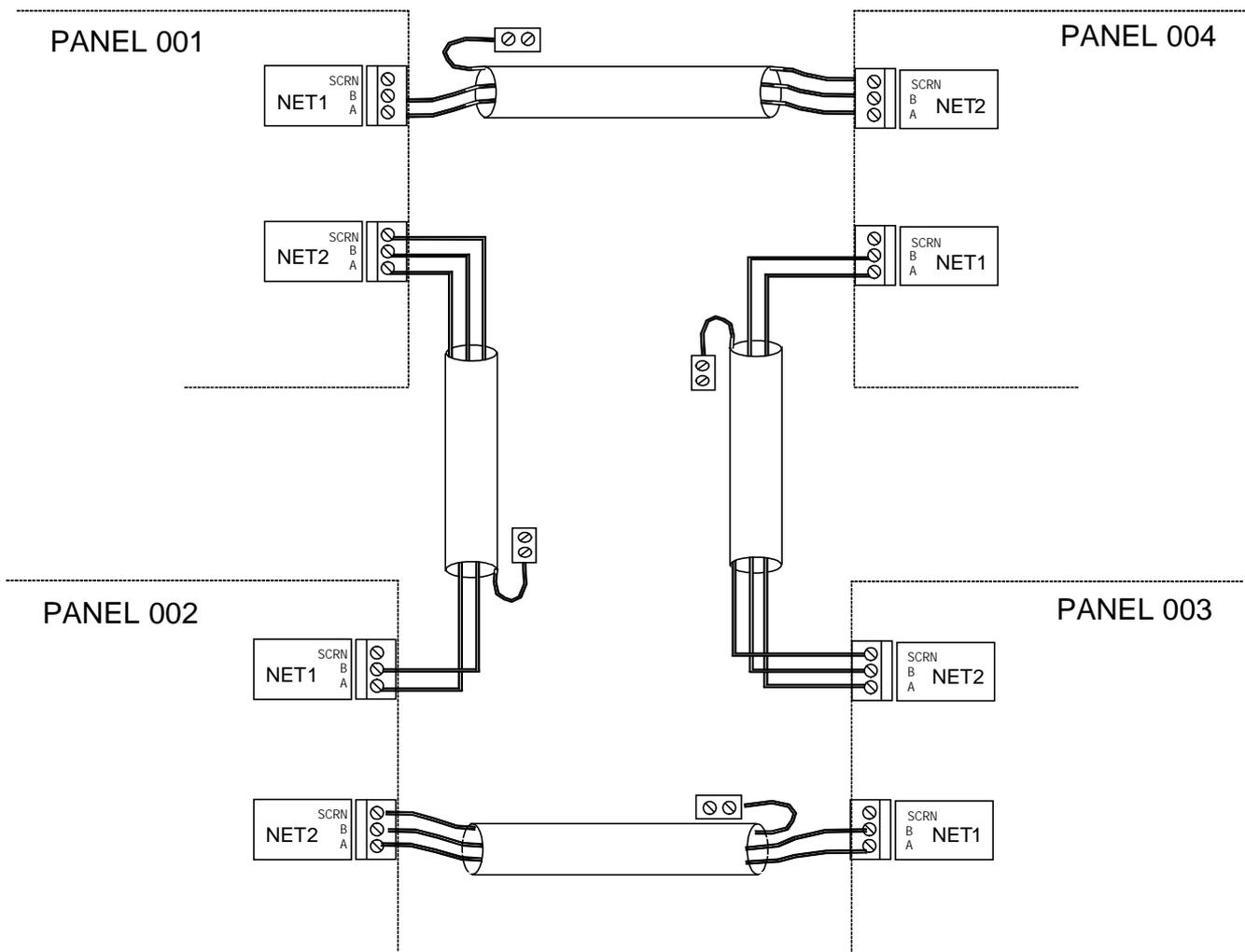
Network cabling connects to the Network terminals on the backplane PCB.

All network cables should be 2-core 1.5mm² screened and fire-rated. The cable screen must be connected to earth/ground at the panel (at the SCRN terminal provided, not at any earthing point) at one end only using the terminals provided. Terminate the unused end in a connector block as shown below.

The 2 Network Ports (NET1-2) may be connected in any sequence between panels. Note your network connections for future reference whilst installing them,

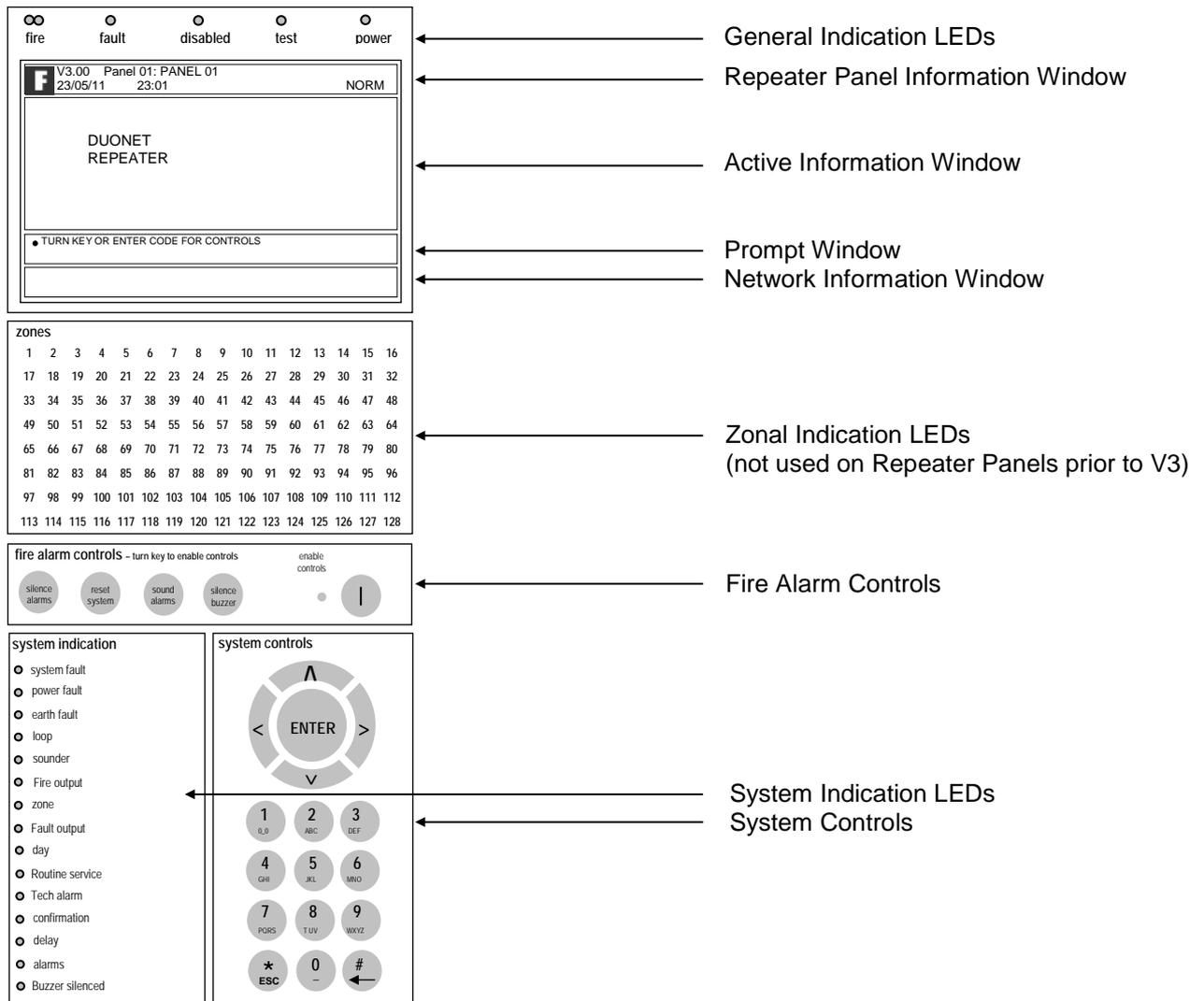
Eg. Panel 001, Network Port 1 connected to Panel 004 Network Port 2

Note: Terminal blocks show below on the screen are not earthed and are fitted to prevent the screen from shorting or touching other circuits.



General Operation of Repeater Panel

Repeater Panel Front



LED Indication

The operation of the LED indications on the front of the panel is described below. As this is a repeater panel, not all of the following indications are applicable.

	Description	Colour	State	Reason
1.	FIRE	Red	Continuous	The repeater panel is in the fire state. Other indicators will show the origin
2.	FAULT	Yellow	Continuous	The repeater panel is in the fault state. Other indicators will show the origin
3.	DISABLED	Yellow	Continuous	This indicates that a disablement action is in place. Enable all devices / actions to clear.
4.	TEST	Yellow	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 repeater panel from either the 230V AC mains supply, or the standby batteries.
6.	'ZONE 1-128'	Red	Flashing	A Manual Call Point in the zone indicated is in the alarm state and sending an alarm signal to the panel. A Detector in the zone indicated is in the alarm state and sending an alarm signal to the panel.
7.	SYSTEM FAULT	Yellow	Flashing	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	Yellow	Flashing	The mains supply has failed (check the fuse and the 230V AC supply on the PCB AC terminals).
			Continuous	A battery supply / charger fault has been detected (check the fuse and the battery voltages).
9.	EARTH FAULT	Yellow	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. An earth fault may also be reported while a PC is connected to the panel for diagnostics or programming. In this case, the earth fault should clear when the PC is disconnected.
			Continuous	A device or an action associated with the addressable device loop has been disabled
10.	LOOP	Yellow	Flashing	A fault condition is present on one or more addressable device loops, or one or more addressable devices.
			Continuous	A device or an action associated with the addressable device loop has been disabled
11.	SOUNDER	Yellow	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.	FIRE OUTPUT	Yellow	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	Yellow	Continuous	A device or zone, or an action associated with them has been disabled.

Quadnet / Duonet Repeater Panel Engineering and Commissioning Manual

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

Fire Alarm Controls

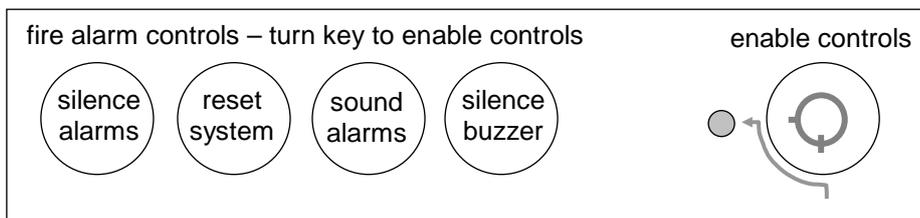
Note:

The menus on repeater panels are exactly the same as the menus on a control panel.

Controls sent from repeater panels are limited but will still appear in the menu structure in the repeater Panel.

The greyed out controls below are not relevant to repeater panels and therefore should not be used.

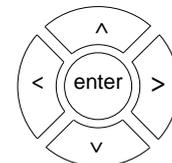
The main Fire Alarm Controls may be enabled by turning the key switch to the “controls enabled” position, or by entering a valid Access code.



System Controls

User

- 1. Delay Override**
- 2. Test Display**



Supervisor

- 1. Delay On/Off**
- 2. Test Display**
- 3. View Logs**
4. Disable/Enable
- 5. Set Time & Date**
6. Test Modes
7. Day/Night Mode
8. Find Device



Engineer

- 1. View Logs**
- 2. Test Display**
3. Disable/Enable
- 4. Set Time & Date**
5. Test Modes
6. Day/Night Mode
- 7. Engineer Controls**

A context-driven highlighted-selection menu system is used to navigate 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 Quadnet / Duonet OSP software.

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

Menu examples shown below are for the V3 panel. Menus in some earlier panel versions may differ.

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 or the key switch must be used in order access any of the menus.

Access Level 2A (User): Controls Enabled LED on

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

1. Delay Override

Delay Override

Not applicable.

2. Test Display

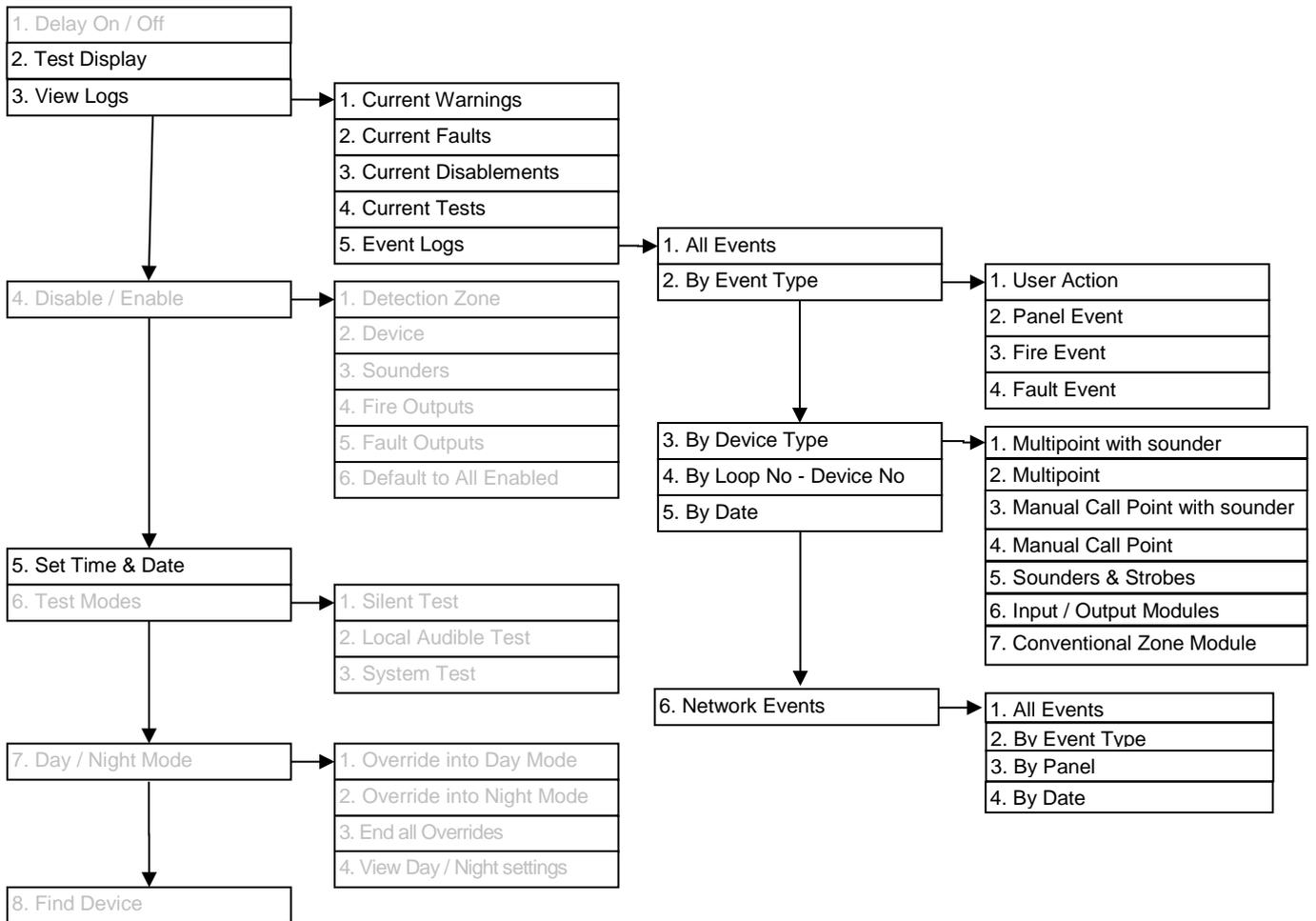
Test Display

The Test Display function causes the panel LEDs to illuminate, and the LCD screen to blacken, and the panel 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:



1. Delay On/Off

Not applicable.

2. Test Display

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

3. View Logs

1. 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.

3. View Logs

2. 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.

3. View Logs

3. Current Disablements

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

3. View Logs

4. Current Tests

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

3. View Logs

5. Event Logs

The Event Log stores 1000 local fire / fault events and 1000 network 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.

4. Disable / Enable

1. Detection Zone

Not applicable.

4. Disable / Enable

2. Device

Not applicable.

4. Disable / Enable

3. Sounders

Not applicable.

4. Disable / Enable

→ 4. Fire Outputs

Not applicable.

4. Disable / Enable

→ 5. Fault Outputs

Not applicable.

4. Disable / Enable

→ 6. Default to All Enabled

Not applicable.

5. 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.

6. Test Modes

→ 1. Silent Test

Not applicable.

6. Test Modes

→ 2. Local Audible Test

Not applicable.

6. Test Modes

→ 3. System Test

Not applicable.

7. Day / Night Mode

→ 1. Override into Day Mode

Not applicable.

7. Day / Night Mode

→ 2. Override into Night Mode

Not applicable.

7. Day Night Mode

→ 3. End all Overrides

Not applicable.

7. Day Night Mode

→ 4. View Day / Night Setting

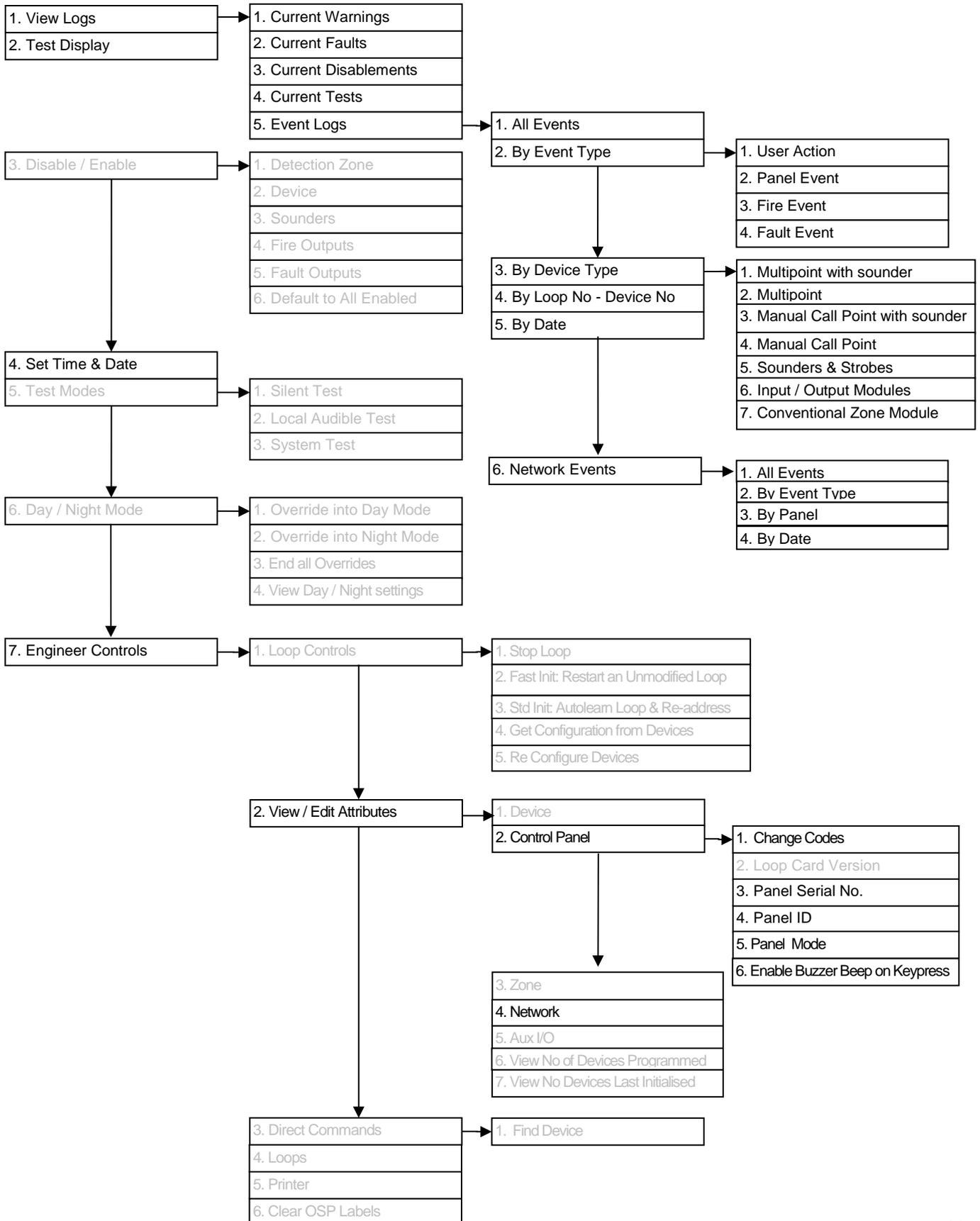
Not applicable.

8. Find Device

Not applicable.

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:



1. View Logs

1. 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.

1. View Logs

2. 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.

1. View Logs

3. Current Disablements

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

1. View Logs

4. Current Tests

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

1. View Logs

5. Event Logs

The Event Log stores 1000 local fire / fault events and 1000 network 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.

2. Test Display

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

3. Disable / Enable

1. Detection Zone

Not applicable.

3. Disable / Enable

2. Device

Not applicable.

3. Disable / Enable

3. Sounders

Not applicable.

3. Disable / Enable

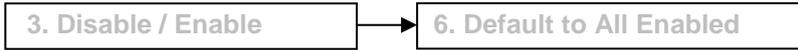
4. Fire Outputs

Not applicable.

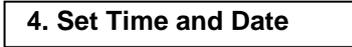
3. Disable / Enable

5. Fault Outputs

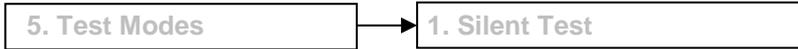
Not applicable.



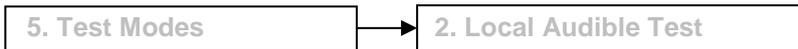
Not applicable.



This allows the time and date to be adjusted.



Not applicable.



Not applicable.



Not applicable.



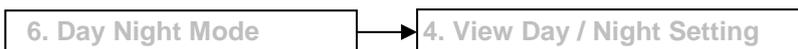
Not applicable.



Not applicable.



Not applicable.



Not applicable.



Not applicable.



Not applicable.



Not applicable.



7. Engineer Controls

1. Loop Controls

4. Get Configuration

Not applicable.



Not applicable.



Not applicable.



This function allows the user to view, and edit if required, the attributes for the panel. These attributes include Access Codes, panel serial number, panel ID, panel mode and key press tone. You may also read the panel software version.



Not applicable.



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), panel network connections, network ID and Description.



Not applicable.



Not applicable.



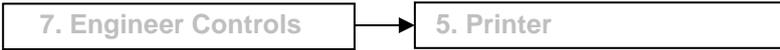
Not applicable.



Not applicable.



Not applicable.



Not applicable.



Not applicable.

Commissioning

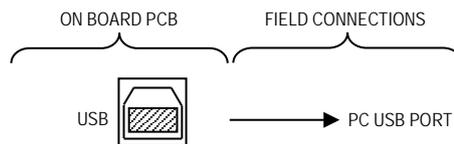
The commissioning process regarding the loops and devices is covered in the Control Panel Engineering & Commissioning Manuals. The repeater panel commissioning is only concerned with the functionality of the repeater panel itself.

The commissioning engineer will require the network cable continuity and insulation readings, along with correctly marked 'as-wired' drawings and completed configuration sheets in order to commission the repeater panel.

The system configuration must be downloaded into the repeater panel using the Quadnet / Duonet OSP programming software using a USB lead to link to a computer. This procedure is exactly the same for the repeater panel as has been done on the main control panel. However, the configuration must be the repeater panel configuration (including the panel type being repeater and the address being the repeater address) and not the control panel configuration.

NOTE: It is imperative that the correct version of OSP is used to match your version of repeater panel. The use of an incompatible version may result in incorrect operation of the repeater panel. In particular, do not use a V2.xx series OSP with a V3.xx series repeater panel and do not use a V3.xx series OSP with a V2.xx series repeater panel.

USB Port: USB (J5)



When the system configuration has been downloaded into the repeater panel, the commissioning engineer should verify that all the fire alarm system events are correctly reported on the repeater panel and the repeater panel controls operate correctly.

This will involve testing the system and therefore can be combined with the overall system commissioning process.

If the repeater panel has been fitted as a system upgrade then a full system test should be carried out to verify that all the fire alarm system events are correctly reported on the repeater panel and the repeater panel controls operate correctly.

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 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 Quadnet / Duonet Repeater 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.

Summary of Messages

Listed below is a selection of the messages which may be displayed. As this is a repeater panel, not all of the following indications are applicable.

	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 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 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.	Battery high resistance		A fault has been detected in the standby batteries and they must be replaced in order to resume correct operation.
12.	Detection head removed	Ensure optical chamber is correctly fitted	The Optical Chamber has been removed from a Multipoint detector.
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 its 'Poll Presence Count'
15.	Earth fault	Remove the s/c to earth	The panel has detected a short circuit to earth from one of its supply rails (either 0v or +ve).

			<p>Remove the circuits connected to the 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 5k) 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 stopped at device xxx (this message does not appear but the loop initialisation screen stops with a "x" next to the number of the last device initialised)	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, wait at least 3 minutes and then 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>
19.	Loop not initialised	Initialise the loop	The addressable circuit has not been correctly initialised. Check that the number of devices found matches the number of devices on the system.
20.	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>
21.	Loop stopped	Initialise the loop	The addressable device circuit had been stopped and the devices are inactive.
22.	Mains failed	Reinstate the mains supply	<p>The incoming AC supply has been removed.</p> <p>Check the supply voltage of approx. 240V AC at the panel AC input terminals, and that the fuses in that circuit are intact.</p>
23.	Node xxx reset	Replace the device	<p>The device has reset itself.</p> <p>Check in the event log to see if it is occurring regularly, and if so change the device.</p>
24.	Open circuit at position xxx	Investigate the loop for +ve open circuit	<p>An open circuit has been detected in the +ve core of the addressable device circuit between the device indicated and the next.</p> <p>Check connections and cable in that area, stop the loop, wait at least 3 minutes and then reinitialise the loop. If it occurs again the device should be changed.</p> <p>Please note that fixing the open circuit without stopping and reinitialising the loop will not clear the fault and will reduce the system's ability to deal with a second open circuit fault elsewhere in the wiring.</p>
25.	Open circuit: in -ve core of loop	Investigate the loop for -ve open circuit	<p>An open circuit has been detected in the -ve core of the addressable device circuit.</p> <p>Stop the loop, wait at least 3 minutes and then reinitialise with one end connected only. The initialisation will then stop at the relevant point.</p> <p>Check connections and cable and reinitialise the loop. If it occurs again, the base/Backbox should be changed.</p> <p>Once the loop can be fully initialised without the open circuit being reported, stop the loop, wait at least 3 minutes and then reinitialise with</p>

			both ends connected as normal.
			See "Initialisation Faults" in the control panel manual for more information.
26.	Open circuit: input xxx	Investigate the input for open circuit	<p>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.</p> <p>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.</p>
27.	Open circuit: output xxx	Investigate the output for open circuit	<p>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 (loop devices only), but not both. Check also that all cables are correctly connected and that the circuit is complete.</p>
28.	Smoke sensor failed: signal high	Investigate Optical Chamber for contamination	<p>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. In the case of ASD detectors, which have an integrated chamber, it would be best to replace the detector.</p>
29.	Smoke sensor failed: signal low	Investigate Optical Chamber	<p>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. 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. In the case of ASD detectors, which have an integrated chamber, it would be best to replace the detector.</p>
30.	System fault	Repower and reconfigure system	<p>The panel has detected a processor or memory fault. The system may be working, but the problem should be dealt with immediately.</p> <p>Power the panel down to reset the fault, then re initialise and reset before testing for correct operation.</p>
31.	Uninitialised node, address xxx	Investigate the device and reinitialise	<p>A device which was previously initialised, has requested initialisation whilst out of the normal initialisation mode.</p> <p>Either a device has reset and wished to be reinitialised, or a new/replacement device has been connected whilst the loop is still live.</p>
32.	Warning: optical level high	Investigate Optical Chamber for contamination	<p>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. In the case of ASD detectors, which have an integrated chamber, it would be best to replace the detector.</p>
33.	Warning: optical level low	Investigate Optical Chamber	<p>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. In the case of ASD detectors, which have an integrated chamber, it would be best to replace the detector.</p>

Technical Data

Repeater Panel

		Quadnet / Duonet Repeater Control and Indicating Equipment
Dimensions	W x H x D	445mm x 445mm x 110mm
No. of zones	N/A	
Number of loops	N/A	
No of devices	N/A	
Device labels	31 characters	
LCD display	Graphic display	
	Field 1 (top)	Repeater Panel Information Window
	Field 2	Active Information Window
	Field 3	Prompt Window
	Field 4 (bottom)	Network Information Window
LED Indication	Fire	Red - steady in fire
	Fault	Yellow - intermittent (0.3s On, 2.1s off) - pulsed (0.3s On, 0.5s off)
	Disabled	Yellow - continuous
	Test	Yellow - pulsed (0.3s on, 0.5s off)
	Power	Green - continuous for power on
Audible Indication	2.5kHz Buzzer	Continuous in fire Intermittent (0.3s on, 2.1s off) in fault
Keypad	4 way dedicated 17 way alphanumeric	Fire Alarm Controls System Controls
Event log	1000 events	
Outputs	Relay Outputs x 1	Volt free contact SPCO Fault Output 30V DC @ 1.0A max
Mains Supply Input	230V AC Nominal	
Nominal Loop Operating Voltage	N/A	
Max loop current	N/A	
Response Times	N/A	
Environmental Data	IP Rating 30	Ambient Temp Range +5°C to +40°C

Note: Refer to the relevant sections in the manual for full details of output ratings

OSP Version Compatibility

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

PANEL VERSION		RECOMMENDED OSP VERSION					
		V0.367	V2.04	V3.02			
Panel Versions up to v1.29		√					
Panel Versions v1.34 to v2.xx			√				
Panel Versions v3.xx				√			

NOTE: It is imperative that the correct version of OSP is used to match your version of repeater panel. The use of an incompatible version may result in incorrect operation of the panel. In particular, do not use a V2.xx series OSP with a V3.xx series panel and do not use a V3.xx series OSP with a V2.xx series panel.

Technical Support

For further technical support please contact your distributor. Do not call the Fike Safety Technology 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.

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 1.2 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				

No continuity should be seen between cores and a reading of OL should be shown on the test meter. 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:	

Your Notes

Your Notes