Control Equipment Limited
96 Zone, 40 Character Discovery Panel,
32 Zone 40 Character Voyager Panel
and Integra Network Repeater
Installation, Commissioning and Maintenance Manual

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3 Introduction

Thank you for purchasing this CEL Control Panel. This document contains all the information necessary for the installation, commissioning and maintenance of the 32/96 zone Discovery and 32 zone Voyager control panels and Integra network repeater. These panels are functionally identical and differ only in the number of loops and the physical packaging.

The Integra network repeater is a Voyager panel with no loop functionality. It is designed to be used for access to a network when no loop devices are required. Any features described for the Voyager that are not applicable to local loop devices are available at the Integra network repeater.

The following supporting documentation is also available:

- Discovery and Voyager Sales Literature
- Discovery and Voyager Panel Application Guide
- 32/96 zone Discovery, 32 zone Voyager and Integra User Manual
- Wiring Recommendations
- PC-based Software Programming Guide
- Battery Calculation Spreadsheet
- A1535 8 Way Output Board Application, Installation and Commissioning Manual
- A1536 8 Way Alarm Board Application, Installation and Commissioning Manual
- Repeater Application, Installation and Commissioning Manual
- Outstation Installation and Commissioning Manual

4 Scope

This manual applies to all current 40 character 32/96 zone Discovery and 32 zone Voyager panels.

Earlier versions of the Discovery panel do not support all the features contained within this manual. These can be identified by referring to the software EPROM version. The location of this is shown in on page 22.

The features available for each version of software are shown in the table below:

Panel	Software number	Features
Discovery/Voyager phase 6 – 40-character	95579***	Fully specified. 32/96 zones, 40 character, shared or not shared network zones.
Discovery/Voyager phase 5 – 20-character	85579***	Fully specified. 32/96 zones, 20 character shared or not shared network zones.
Discovery/Voyager phase 5 – shared zones.	94579***	Fully specified, except that input zone allocation menu only available on version 6 onward, limited to 32 zones and 20 characters only.
Discovery/Voyager phase 5 – non-shared zones.	84579***	Fully specified, except that input zone allocation menu only available on version 6 upwards, limited to 32 zones and 20 characters only.
Discovery/Voyager phase 4	83579***	Fully specified except class-change mode, point walk test options, fire option for software timers, option to print out loop texts and analogue values, and input zone allocation, limited to 32 zones and 20 characters only. Also some zone causes for network c/e not fully supported.
Discovery phase 3	82579***	Supports repeaters and expanded I/O but no networking (see section 7.1)
Discovery phase 2	81579***	No support for networking, repeaters and expanded I/O (see section 7.1)
A1620 network card	84620003 and above	20 character networks
A1620 network card	84620004 and above	40 character networks

notes:

*** Represents the three digit software revision level. Some menu functions are organised differently on phase 5. Shaded versions are for 20 character systems not relevant to this manual.

5 Overview of Installation and Commissioning

This section lists the steps that are taken in designing, installing and commissioning a 32/96 zone Discovery or 32 zone Voyager system.

1. **Design the system referring to the following:**
   - Section 17, Power Supply Load Calculation
   - Section 18, Battery Standby Capacity Calculation

     (The use of the CEL load calculation spreadsheet is recommended)
   - Section 19, Circuit Connection Details
   - Section 20, Loop Design

   (The use of the CEL load calculation spreadsheet is recommended)
   - Field device manuals

2. **Define the device location texts and panel cause and effect**
   - The use of the panel planning chart and cause/effect charts are recommended. These can be found in the PC programming manual.

3. **Install all field wiring and equipment**
   - Refer to the Installation Instructions in section 8.2
   - Refer to the field device installation manuals

4. **Install the panel**
   - Refer to the installation instructions in section 8.
   - Do not connect the field equipment at this stage.
   - Disable networking at this stage.

5. **Program the cause/effect and location text.**
   - Refer to Engineer Functions in section 25

   - Use of the PC cause and effect editor is recommended.

   Alternatively:
   - Basic cause and effect can be edited through the menus
   - The location and panel text can entered using a Cherry keyboard.

6. **Connect any repeaters (if applicable)**
   - Refer to Installation and Connection Of The A1619 Repeater Interface in section 8.3 and the repeater installation and commissioning manual.

7. **Commission the panel**
   - Refer to Commissioning in section 9.

8. **Enable the network card (if applicable)**
   - Refer to Installation and Connection Of The A1620 Network Interface in section 8.5.

9. **Commission the network cause/effect (if applicable)**
   - Refer to the **cause/effect** charts
   - Refer to Commissioning a Network System in section 9.6

6 General Description

The panels are housed in a single metal enclosure with a polyester membrane giving user controls and indications. The mandatory indications are implemented using LEDs and secondary information is provided by a 20 by 4 LCD. The standby batteries are housed within the panel enclosure.

6.1 32/96 zone Discovery Panel Description

The panel consists of the modules shown in Figure 1. One loop card is fitted for each loop that is connected to the panel. The 32/96 zone Discovery drives a maximum of four loops of devices.

Figure 1 – Discovery panel main components

6.1.1 BAQ140T24 PSU

The Bentel BAQ140T24 is a 5 Amp switch mode PSU providing a nominal 27V (temperature compensated) supply to the A1686 control board.

6.1.2 A1686 PSE Control Board

The A1686 control board generates the following outputs from the 27V input:

- 5V regulated logic supply
- 27V supply to motherboard
- Temperature compensated float battery charger. This is current limited during high current drain.
- User fault indications through LEDs
- Signals to the motherboard for common fault and mains failed conditions.

6.1.3 A1579 Motherboard

This provides all the field terminations, internal interfaces for up to 4 off plug-in loop cards; connections for an A1619 interface for expansion I/O communication; connections for an A1619 repeater interface or A1620 Network card; and connections to the main display. The CPU and main memory locations are accommodated on this board.

6.1.4 A1585 Loop Card

This provides communications to the loop devices. The loop card transfers data with the motherboard using a dedicated data bus. The card provides short circuit protection of both ends of the loop. The loop field wiring is terminated on the A1579.

6.1.5 A1580 Display Board (32-Zone)

Provides visible indications and user switches, access to which is controlled by a keyswitch. The board connects to the motherboard through a 50-way ribbon cable.

6.1.6 A1687 Display Board (96-Zone)

Provides visible indications and user switches, access to which is controlled by a keyswitch. The board connects to the motherboard through a 50-way ribbon cable.

6.1.7 A1619 Interface Board

This optional plug-in board provides an RS485 capability for communication with repeaters and expansion I/O boards. Up to two interfaces can be fitted to the motherboard; one interface is dedicated to repeater communications, the second for expansion I/O. If a network card is fitted this

includes a repeater interface and removes the requirement for an A1619 for communication with repeaters.

6.1.8 A1620 Network Interface

This optional plug-in board provides communication with other Discovery and Voyager panels. The board plugs into the repeater interface sockets and provides both repeater output communications and the network output. An A1619 is not required for repeater communications if the A1620 is fitted. Software version 84620004 and above support 40 character messages.

6.1.9 A1599 Printer

The optional 24-column printer mounts on the outer door. Power and data are supplied via a 16-way ribbon cable from the display board.

6.2 32 zone Voyager Panel and Integra Network Repeater Description

The panel consists of the modules shown in Figure 2. The driver circuit for loop 1 is contained on the motherboard. The second loop is provided on a plug in loop card. The Voyager drives a maximum of two loops of devices, and only supports the 32-zone option.

6.2.1 C1675 2.5A PSE

This 2.5Amp switch mode power supply provides the following outputs:

- 27.1 V supply to motherboard for panel supply and battery charging.

- User fault indications for supply on, mains failed and no charge conditions.

- Signals to the motherboard for mains failed and common fault conditions.

6.2.2 A1638 Motherboard

Provides all the field terminations; an internal interface for up one plug-in loop card; connections for an A1619 interface for expansion I/O communication; connections for an A1619 repeater interface or A1620 Network card; and connections to main display. The CPU and main memory locations are accommodated on this board.

6.2.3 A1636 Loop Card

This provides communications to the second loop of devices. The loop card transfers data with the motherboard using a dedicated data bus. The card provides short circuit protection of both ends of the loop. The loop field wiring is terminated on the A1638.

Figure 2 – Voyager panel main components

6.2.4 A1637 32 zone Display Board

Provides visible indications and user switches, access to which is controlled by a keyswitch. The board connects to the motherboard through a 50-way ribbon cable.

6.2.5 A1619 Interface Board

This optional plug-in board provides an RS485 capability for communication with repeaters and expansion I/O boards. Up to two interfaces can be fitted to the motherboard; one interface is dedicated to repeater communications, the second for expansion I/O. If a network card is fitted this includes a repeater interface and removes the requirement for an A1619 for communication with repeaters.

6.2.6 A1620 Network Interface

This optional plug-in board provides communication with other Discovery and Voyager panels. The board plugs into the repeater interface sockets and provides both repeater output communications and the network output. An A1619 is not required for repeater communications if the A1620 is fitted. Software version 84620004 and above support 40 character messages.

6.2.7 A1599 Printer

The optional 24-column printer mounts on the outer door. Power and data are supplied via a 16-way ribbon cable from the display board.

7 Functional Specification

7.1 Feature List

- ***Networkable with fully configurable responses***

  Up to 15 nodes which may be panels, network repeaters or Alarm managers may be connected over a 5000m RS485 link. The display and response to events can be configured individually for each node on the system. Additionally 16 passive nodes can display network information.

- ***Full PC upload and download of site specific data***

  Upload allows current panel configuration to be edited on the PC even if original data is unavailable or has been edited manually.

- ***PC Upload of analogue values***

  Can be used to create a site report.

- ***Fully programmable cause/effect***

  Most functions can be edited through the panel menus. All are available through the PC cause/effect editor.

- ***PC Upload of event log***

  Can be used to create a site report.

- ***"Local" Repeaters***

  Up to 14 repeaters may be connected over 1200m on the dedicated repeater RS485 link. [Note repeaters do not support 96 zonal indicators].

- ***Network Repeaters***

  Up to 14 network repeaters can be supported on the panel network.

- ***User definable access code***

  Changed using PC cause/effect editor.

- ***4 built in software timers***

  Timers can be configured for complex cause/effect such as phased evacuation.

- ***User definable 40-character text for panel name and device location***

  Panel and location text is transmitted across the network with event details

- ***Compatible with all Apollo XP95 and Discovery devices***

  Device sensitivity can be adjusted through analogue thresholds (XP95 devices) and sensitivity levels (Discovery devices).

- ***Compatible with CEL Platform sounder***

  The Platform sounder is a base sounder driven by a detector remote LED output, thus saving a loop address (not available on Discovery phase 2 or 3).

- ***Synchronisation of Apollo sounder outstations***

  Synchronisation occurs across all local loops.

- ***Loop isolators built into both ends of the loop driver***

  Removes the need for isolators at the beginning and end of the loop.

- ***500mA drive current per loop***

- ***Stable loop voltage, even under mains failed conditions***

  Loop voltage is not reduced when battery voltage drops during discharge.

- ***2 alarm circuits***

- ***Monitored auxiliary supply (500mA)***

  Panel indicates a fault if the fuse fails.

- ***2 change over fire contacts rated 1A @30V***

- ***1 change over fault contact rated 1A @30V***

- ***Remote inputs:***
    - ***Class change*** (not available on Discovery phase 2 or 3).
    - ***Evacuate***
    - ***Silence alarms***
    - ***Reset***
    - ***Fault*** Discovery only

- ***Expansion I/O:*** The A1535 expansion I/O board provides 8 inputs and 8 outputs (either relay or open collector). The A1536 8 way alarm expansion board provides 8 programmable alarm circuits. A total of 31 boards may be connected to any one panel, giving 248 outputs and 248 inputs.
    - ***Alarm circuits***
    - ***Open collector outputs***
    - ***Relay outputs*** Expansion is not available on Discovery phase 2.
    - ***Inputs***

•	*Engineers buzzer disable facility*	A motherboard link can be removed to prevent the buzzer operating during commissioning or maintenance (not available on Discovery phase 2 or 3).
•	*Battery backed time and date*	Setting the time on one panel will automatically update the time on all panels connected across a network. The time and date will then be maintained during total power failure so there is no need to reset the time after subsequently powering the panel down.
•	*Delay to outputs*	Delay operates on local panel outputs and transmission of cause/effect flags to all network panels.
•	*Adjustable sensitivity mode*	Apollo Discovery device sensitivity codes can be changed. Several levels are definable which are can be selected automatically on a daily timed basis; through a manual menu operation; or through operation of a loop input (not available on Discovery phase 2 or 3).
•	*Enable/Disable Functions:*	(Local only on Discovery phase 2 and 3)
	Single point	Local, or via a remote network panel.
	Zone	Local or via a remote network panel.
	Range of zones	Local or via a remote network panel.
	Sounders	Local or via a remote network panel.
General output disablement		Single command to disable/enable all loop and panel expansion outputs apart from sounders.
	Expansion inputs	Local or via a remote network panel.
	View disablements	Local only function.
	Printer	Local only function.
•	*Event Log*	Records last 120 events. Can be configured to record network responses.
•	*Test functions:*	
	Zones	
	Sounders	
•	*Print functions*	
	Print event log	
	Print disablements	
	Print texts/values	
•	*Site specific data write protect switch*	Prevents corruption or unintentional editing of site specific data.
•	*Automatic configuration of loop devices*	Initiated through menu function.
•	*Discovery functions:*	
	Rapid compensation by loop	Used during installation.
	Print Discovery drift compensation	Used to check for devices close to their calibration limits.
	Print Discovery month of manufacture	
	Led pulsing on	Device LEDs pulse on polling.
	Led pulsing off	Device LEDs do not pulse.
	Led pulsing on when disabled	Device LEDs pulse on polling when the device is disabled (not available on Discovery phase 2 or 3)..
	Sounder Beacon Setup	Device Volume using Magnetic Wand.
	Sounder Beacon Auto Stop	Auto Stop after 30 minutes.
•	*Device interrogation*	Individual device status can be displayed and outputs operated.
•	*Discovery Sounder Beacon Test*	Test sounders using Magnetic Wand.
•	*SMS Interfacing*	Optional device facilitating event text messages and e-mails plus panel interrogation and basic user controls. [Covered in separate manual].

7.2 EN54 Optional Functions with Requirements

The 32/96 zone Discovery and 32 zone Voyager panel have the following EN54 optional functions.

- Fault signals from points.
- Delay of actioning of outputs to fire alarm devices.
- Disablement of each address point.
- Test condition.
- Output to fire alarm devices.

7.2.1 Additional Functions Relating To EN54

The 32/96 zone Discovery and 32 zone Voyager panels have the following functions relating to EN54.

- Two sounder circuits.

7.2.2 Ancillary Functions Not Required By EN54

The 32/96 zone Discovery and 32 zone Voyager panels offer several auxiliary functions that are not required by EN54. These are:

1. Auxiliary change over contacts:
   - Two change over contact operating on any fire condition.
   - One change over contact operating on any fault condition.
2. One auxiliary power supply output.
3. An optional 24 column printer.
4. Four remote inputs each monitored for open or short circuit faults:
   - Fault
   - Evacuate. The input can be configured to operate the auxiliary fire contact or not as required.
   - Silence
   - Reset
5. Class-change input. A normally open input to operate all sounding devices with no indication on the panel.
6. Programmable loop output cause/effect.
7. Programmable remote panel output cause/effect.
8. The ability to download site-specific data from a computer (text, zone information and cause/effect).
9. The ability to upload the data from the panel:
   - Site specific data (text, zone information and cause/effect)

- Current analogue values
- Event log.

N.B. During the communication sequence between a computer and the panel, the panel cannot respond to any loop or input events, and the LCD display will indicate this. Also if the computer is earthed then the panel will indicate earth fault while the computer is connected to it unless the earth fault monitoring is disabled by remove link LK2 (see or Figure 8 – A1638 32 zone Voyager motherboard layout).

8 Installation

The control panel must be installed by competent engineers familiar with the installation of fire detection systems. In addition, it is recommended to refer to the following information:

- Current edition of the IEE wiring regulations.
- BS5839 Part 1 or the installation standards for the relevant country.
- Any specific site requirements.
- Apollo field device installation instructions.

Note: The mains supply cable should be a minimum of 1mm^2 copper controlled by a 5A fuse.

Note: An appropriate disconnect device shall be provided as part of the building installation.

8.1 Electrical Safety
WARNING: Please read this section completely before commencing installation.

1. *Prior to handling any part of the control panel, ensure that adequate precautions are taken against static damage to the sensitive electronic components on the control board. You should discharge any static electricity you may have accumulated by touching a convenient earthed object, e.g. an unpainted copper radiator pipe or the enclosure earth. You should repeat the process at regular intervals during the handling process, especially if you are required to walk over carpets.*

2. *Check that the panel has been mounted at least 2 metres away from pager systems or any other transmitting equipment.*

3. *Check that the equipment is correctly connected to a 230V AC supply and earthed. All installation work should be carried out in accordance with the recommendations of BS5839 Part 1 and the current edition of the IEE wiring regulations (BS7671: 1992) by suitably qualified and trained personnel.*

4. *Check that the control panel is located in a clean, dry position that is not subject to shock or vibration. The temperature must not drop below 0°C or exceed 40°C. The humidity should not exceed 95%.*

DANGER: Batteries are electrically live at all times, take great care never to short circuit the battery terminals.

WARNING: Batteries are often heavy, take great care when lifting and transporting batteries. For weights above 24 kilos, lifting aids should be used.

WARNING. Do not attempt to remove battery lid or tamper with the battery internal workings. Electrolyte is a highly corrosive substance, and presents significant danger to yourself and to anything else it touches. In case of accidental skin or eye contact, flush the affected area with plenty of clean, fresh water and SEEK IMMEDIATE MEDICAL ATTENTION. VRLA batteries are "low maintenance" requiring no electrolyte top-up or measurement of specific gravity.

WARNING. If required, clean the case with a cloth that has been soaked or dampened with distilled water. Do not use organic solvents (such as petrol, paint thinner, benzene or mineral spirits) and other materials can substantially weaken the case.

DANGER. Do not incinerate batteries. If placed in a fire, the batteries may rupture, with the potential to release hazardous gases and electrolyte. VRLA batteries contain substances harmful to the environment. Exhausted batteries must be recycled. Return them to the battery manufacturer or take them to your Council tip for appropriate disposal.

The standby batteries should not be fitted until the commissioning stage.

8.2 Installation Instructions

1. Carefully remove the control panel from the packing and lay the panel on a flat surface.

2. Open the outer door.

3. Locate the spares bag and check that the following items are present:

Quantity	Description	Colour/Rating
2	Spare alarm circuit fuses	1A 20mm
1	Spare auxiliary supply fuse	500mA 20mm
1	Spare mains fuse	3.15A 20mm
1	Spare battery fuse	6.3A 20mm (Discovery) 3.15A 20mm (Voyager)
2	Spare alarm circuit end of line resistors.	3k9 0.25W
5	Spare remote input circuit end of line resistors.	3k9 0.25W
2	Engineers door keys	Key Ref.: 801
2	Access control keys	Key Ref.: 850 or 901
1	Positive battery lead	Red
1	Negative battery lead	Black
1	Battery connection lead	Blue

8.2.1 32/96 zone Discovery Panel Installation Instructions

1. Remove the main ribbon cable from the display board header.

2. Remove the ribbon cable clamp on the door to release the cables. Fold the cable into the backbox. Replace the ribbon clamp onto the door.

3. Remove the earth strap connecting the door and backbox by removing the nut and washer on the door. Carefully note the arrangement and replace the nut and washer.

4. Unscrew the hinge pin at the bottom of the door whilst supporting the door. Swing the bottom of the door clear of the backbox and release the top of the door from its hinge pin.

5. Carefully put the door on one side and replace the hinge pin in the backbox.

6. Remove the earth strap connecting the backbox and chassis by removing the nut and washer on the chassis. Carefully note the arrangement and replace the nut and washer.

7. Unscrew the two lower chassis screws and slacken the top two mounting screws.

8. Carefully lift the chassis upward to align the screw heads with the large holes in the chassis keyholes and lift the chassis clear of the backbox.

9. Place the chassis carefully to one side.

10. Place the chassis and door into the carton. Store the carton in a safe place until installation is complete.

11. Identify the three indented holes that are used to mount the enclosure.

12. Place the enclosure in the desired location and mark the position of the top indented hole. Remove the enclosure and fit a suitable fixing to the wall. Hang the enclosure from the top fixing point and ensure that it is level. Mark the locations of the other two mounting holes.

13. Remove the enclosure from the wall and fit suitable fixings to the two remaining mounting points. Fit the enclosure to the wall using all three mounting points.

14. Gland the mains power cable into one of the holes provided at the bottom of the enclosure. To meet the European EMC directives it is essential that these are the only entry points used for mains power.

15. Gland all field wiring in place ensuring that the cable conductors are of sufficient length. Ensure that all conductors are clearly labelled.

19. Connect the earth drain wires of any field cabling to either of the 6 way earth blocks positioned at the top of the backbox. Up to two drain wires may be connected to each terminal.

16. Ensure that continuity of any cable shield is maintained around the loop. The shield must only be connected to enclosure earth in the panel by using the earth bars provided.

17. Connect the mains-in earth to the primary earth point on the backbox indicated in Figure 7. This is the lower of the two earth studs by the mains entry hole labelled ⏚.

18. Clear any dust and debris from the cabinet.

19. Reinstallation of the chassis is the reverse of removal. Ensure that all earth straps are reconnected correctly.

20. Connect the mains-in live to the mains terminal block on the power supply as indicated in Figure 7.

21. Connect the mains-in neutral to the mains terminal block on the power supply as indicated in .

22. Replace the door, the refitting procedure is the reverse of removal. Ensure that the earth strap and ribbon cable are reconnected correctly. Do not connect the field wiring at this stage.

23. Remove the two screws securing each battery clamp and place the battery clamps to one side.

24. Place the left battery into the bottom of the panel. The terminals should be positioned to the left of the enclosure and the battery adjacent to the left side of the backbox. This is shown in Figure 7.

25. Place the right battery into the bottom of the panel. The terminals should be positioned to the right of the enclosure and the battery adjacent to the right side of the backbox. This is shown in Figure 7.

26. Refit the battery clamps to secure the batteries in place. Take care not to short the battery terminals with a screw driver.

27. Connect the black battery lead to one of the negative battery terminals on the p.s.e. The position is shown in Figure 7. Push the connector on the other end of the lead onto the negative (black) terminal of the left-hand battery.

28. Connect the red battery lead to one of the positive battery terminals on the p.s.e. The position is shown in Figure 7. Push the connector on the other end of the lead onto the positive (red) terminal of the right-hand battery.

29. Connect the blue battery lead between the positive (red) terminal of the left-hand battery and the negative (black) terminal of the right-hand battery. Note that the batteries will not power the panel until the mains supply is energised.

8.2.2 32 zone Voyager Panel Installation Instructions

1. Remove the main ribbon cable from the motherboard header.

2. Disconnect the earth strap connecting the door and backbox at the spade terminal on the door.

3. Unscrew the hinge pin at the bottom of the door whilst supporting the door. Swing the bottom of the door clear of the backbox and release the top of the door from its hinge pin.

4. Carefully put the door on one side and replace the hinge pin in the backbox.

5. Unscrew the two lower chassis screws and slacken the top two mounting screws.

6. Carefully lift the chassis upward to align the screw heads with the large holes in the chassis keyholes. Lift the chassis clear of the upper screws and rest in the bottom of the enclosure. Take care not to strain the wires which remain connected to the backbox.

7. Disconnect the earth strap connecting the backbox and chassis at the earth bar. The arrangement is shown in Figure 9.

8. Disconnect the flying leads from the power supply to the mains terminal block.

9. Remove the chassis and place carefully to one side.

10. Place the chassis and door into the carton. Store the carton in a safe place until installation is complete.

11. Identify the three indented holes that are used to mount the enclosure.

12. Place the enclosure in the desired location and mark the position of the top indented hole. Remove the enclosure and fit a suitable fixing to the wall. Hang the enclosure from the top fixing point and ensure that it is level. Mark the locations of the other two mounting holes.

13. Remove the enclosure from the wall and fit suitable fixings to the two remaining mounting points. Fit the enclosure to the wall using all three mounting points.

14. Gland all field wiring in place ensuring that the cable conductors are of sufficient length. Ensure that all conductors are clearly labelled.

15. Connect the earth drain wires of the field cabling to the 8 way earth bar positioned at the top of the backbox. Up to two drain wires may be connected to each terminal.

16. Ensure that continuity of any cable shield is maintained around the loop. The shield must only be connected to enclosure earth in the panel by using the earth bars provided.

17. Connect the mains-in earth to the primary earth point at the mains terminal block. Shown in Figure 9.

18. Clear any dust and debris from the cabinet.

19. Connect the mains-in live to the mains terminal block on the power supply as indicated in Figure 9.

20. Connect the mains-in neutral to the mains terminal block on the power supply as indicated in Figure 9.

21. Attach the mains-in cable to the cable clamp by the mains terminal using the cable tie supplied.

22. Reinstallation of the chassis is the reverse of removal. Reconnect all wires as shown in Figure 9. Ensure no cables are trapped between the chassis and backbox.

23. Replace the door, the refitting procedure is the reverse of removal. Ensure that the earth strap and ribbon cable are reconnected correctly. Do not connect the field wiring at this stage.

24. Place the left battery into the bottom of the panel. The terminals should be positioned towards the centre of the enclosure and the battery adjacent to the left side of the backbox.

25. Place the right battery into the bottom of the panel. The terminals should be positioned towards the centre of the enclosure and the battery adjacent to the right side of the backbox.

26. Connect the black battery lead to one of the negative battery terminals on the p.s.e. The position is shown in Figure 9. Push the connector on the other end of the lead onto the negative (black) terminal of the left-hand battery.

27. Connect the red battery lead to one of the positive battery terminals on the p.s.e. The position is shown in Figure 9. Push the connector on the other end of the lead onto the positive (red) terminal of the right-hand battery.

28. Connect the blue battery lead between the positive (red) terminal of the left-hand battery and the negative (black) terminal of the right-hand battery. Note that the batteries will not power the panel until the mains supply is energised.

8.3 Installation and Connection Of The A1619 Repeater Interface

Warning: Observe anti-static precautions

1. Ensure that the main and standby supplies are disconnected.

2. Fit the A1619 repeater interface to headers J3 and J5 on the A1579 panel motherboard (J2 and J3 on A1638). The board should be held in place by a 12mm high plastic spacer.

3. Connect the repeater RS485 wiring as shown in Figure 3.

Notes:

    1.   *Use only RS485 shielded data cable.*

    2.   *Do not connect the cable shield to earth.*

4. If the repeater is to be powered from the panel connect the 28V auxiliary output from the motherboard to the A1575 repeater display. This is also shown in Figure 3.

Figure 3 – Repeater connection diagram

8.4 Installation and Connection of the A1619 Input/Output Interface

Warning: Observe anti-static precautions

1. Ensure that the main and standby supplies are disconnected.

2. Fit the A1619 repeater interface to headers J4 and J6 on the A1579 panel motherboard (J5 and J6 on A1638). The board should be held in place by a 12mm high plastic spacer.

3. Connect the I/O interface RS485 wiring as shown in Figure 4.

Notes:
   1. *Use only RS485 shielded data cable.*
   2. *Do not connect the cable shield to earth.*

4. If the I/O board is to be powered from the panel connect the 28V auxiliary output from the motherboard to the expansion board power input. This is also shown in Figure 4.

Figure 4 – Expansion board connection diagram

8.5 Installation and Connection Of The A1620 Network Interface

Warning: Observe anti-static precautions

1. Ensure that the main and standby supplies are disconnected.

2. Fit the A1620 network interface to headers J3 and J5 on the A1579 panel motherboard (J2 and J3 on A1638). The board should be held in place by a 4 off 12mm high plastic spacers.

3. Connect the network RS485 wiring as shown in Figure 5. A maximum of 15 active panels can be connected together in this way. Any number of panels can be added as passive repeaters provided the total number of panels does not exceed 32.

   Notes:

   1. Use only RS485 shielded data cable.

   2. Do not connect the cable shield to earth

4. Set the network node address on the A1620 NETWORK ADDRESS switch as shown in Table 1. It should be noted that any number of panels can be configured as address 0. This configures the panel as a passive node. A passive node can receive data but cannot transmit data to other network panels.

5. To enable networking, S4 switch 4 on the A1579 should be moved to the ON position (switch 2 on the A1638 Voyager motherboard). This should be done after stand-alone panel commissioning is complete.

Figure 5 – Network connection diagram

Table 1 – A1620 node address switch settings

Panel Node Address	Switch 1 (Binary value: 1)	Switch 2 (Binary value: 2)	Switch 3 (Binary value: 4)	Switch 4 (Binary value: 8)
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	ON	OFF	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	ON
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

9 Commissioning

9.1 Introduction
The following equipment should be available where possible to minimise commissioning time:

i)   VHF/UHF Portable Radio (for two engineers)

ii)   Multi-meter or equivalent

9.2 Commissioning Checklist
1.   Before commissioning, the engineer should check the following:

i)   All field wiring has been inspected and tested in accordance with CEL wiring recommendations, BS5839 part 1 and current IEE wiring regulations.

ii)   All field cables are glanded into the control panel cabinet.

iii)   Detector bases are terminated but detector heads are not fitted. Any devices with electronic components are not fitted. Terminations to devices with electronic components should be linked through to maintain cable continuity.

iv)   Call points are not connected but cable is linked through to maintain continuity.

v)   No end-of-line devices (e.g. alarm circuit EOL resistor) are fitted.

2.   The following information should be available to the commissioning team:

i)   Detection layout drawings and address information

ii)   Wiring schematic diagram

iii)   Panel Planning Sheet and Cause/Effect Sheet (where applicable)

iv)   PC or QWERTY keyboard for programming

v)   Control Panel installation manuals

vi)   Installation manuals for all equipment connected to the system

Experience has shown that tracing wiring faults on long circuits which are routed through risers etc. can be difficult without knowledge of the wiring route.

It is recommended that the electrical installer is made available until basic wiring continuity is proven. A minimum of two persons (e.g. engineer and mate) is recommended for efficient commissioning.

9.3 An Overview Of The Commissioning Procedure
The approach to be used when commissioning a fire alarm system is to check each circuit and function in turn to ensure correct operation of the entire system. In this way any faults may be located quickly and accurately. For network systems, each panel should be commissioned as a stand-alone unit before it is linked into the network for final network testing. The general procedures are as follows:

i)   Alarm circuits should be checked first. The correct operation of each sounder should be

checked for correct audibility as specified in BS5839 part 1, using the "Test Alarms" facility.

ii) Detection loops should be commissioned next. The purpose is to establish the correct functioning of each device and checking for correct indication at the control panel. Cause/effect is tested at this time.

iii) Commission network functionality. The procedure is to test that the panels are communicating and configured correctly:

1. Check that each panel displays different types of events from every other appropriate panel. This confirms that the display events response configuration is correct.

2. Check that each panel responds correctly to controls from every other appropriate panel. This confirms that the control events response configuration is correct.

3. Check each item of network cause/effect. Any event (cause) which triggers an action (effect) on a different panel is called network cause/effect.

WARNING: Before testing, the engineer must be aware both of the operation of all devices fitted to the auxiliary circuits and of the consequences of their operation.

9.4 Pre-Commissioning Wiring Check

NOTE: This pre-commissioning wiring check procedure should be followed to test all wiring prior to specific commissioning of any detection, alarm and auxiliary circuits.

1. The following assumes that the control panel has been installed in accordance with the installation procedure and is powered with only the "Power On" LED illuminated. Do not connect field wiring at this stage.

2. Ensure that there are no devices connected to the loop and alarm circuits but the cables are linked through at the device locations to achieve a continuous circuit.

3. Ensure that resistance of all cables to earth and between cores is more than 1MΩ.

4. Check the following:

i) Positive to earth resistance is greater than 1MΩ

ii) Negative to earth resistance is greater than 1MΩ

iii) Positive to negative resistance is greater than 1MΩ

5. Place a short circuit across the ends of the loop and alarm circuits. Measure the resistance across the positive and negative cables of each of the circuits and ensure that the value does not exceed the calculated value. Remember to remove the short circuits after the tests.

6. Correct polarity throughout all circuits must be maintained. Rectify any faults.

7. All bells, detector heads and call points should now be connected and alarm circuit end-of-line resistors fitted. Use the spare end-of-line resistors supplied and leave the EOL resistors in the panel terminals at this stage. Be very careful to maintain correct polarity at each device.

9.5 Commissioning Procedure

9.5.1 Alarm Circuits

After completion of the pre-commissioning wiring check, this procedure should be followed:

1. Remove the resistor from the first alarm circuit terminal and connect the first alarm circuit wiring to the terminals, observing correct polarity. Check that any alarm fault indications clear after a few seconds.

2. Press the "Evacuate" switch. Check that all sounders connected to the alarm circuit operate.

3. Press "Silence Alarms" and "Reset".

Repeat steps 1 to 3 for the second and any subsequent alarm circuits.

9.5.2 Commissioning Loops

1. Ensure that the control panel is switched off.

2. Ensure that all loop isolators are fitted and wired correctly. Any isolator connected with reverse polarity will cause a short circuit condition at the previous isolator.

WARNING: If the isolator polarity is found to be incorrect, it is absolutely essential that the polarity is corrected at each termination point throughout the wiring. Failure to observe this will result in the polarity of the return end of the cable becoming incorrect with the possibility of damage to the control panel.

3. Insulate and physically protect the positive and negative ends of one end of the detection loop

wiring. Connect the other end of the wiring to the panel terminals O1+ and O1- for loop 1.

4. Switch on the control panel. Note that the panel will indicate a line fault condition for all loops which are not connected. This can be ignored at this stage.

5. Configure the loop 1 devices as described in 25.3 on page 68. After the configuration period, the panel will report the numbers of the different types of sensors. If the numbers and types of sensor agree with the physical check already carried out, proceed to the next stage.

Note: If more than one device has the same address the LCD display will show a report of the device numbers affected. The engineer may also notice a device missing from the expected total quantity of loop devices.

6. If any Discovery sensors are fitted to the loop, perform rapid compensation of the devices as described in section 25.10. This normalisation procedure acclimatises the devices to the prevailing ambient conditions.

7, Interrogate the devices on an individual basis as described in section 24.35 on page 63. To view correct electronic operation, press button 2 to set command bit 1 (self test mode). Press again to return detector to quiescent state. To turn a device LED on (to identify its correct location), press button 3 to set command bit 2. Press again to return the detector to quiescent state. To turn a remote device LED on (to identify its correct location), press button 1 to set command bit 0. Press again to return detector to quiescent state.

8. Repeat sections 1 to 7 for each loop.

WARNING: Before connecting the return leg of the loop, ensure that the returning polarity is correct.

9. Sensor installation is now complete. Switch off the control panel.

10. Connect the return leg of loop 1 to the I1+ and I1- terminals. Repeat for all remaining loops.

11. Switch on the control panel and observe that the no fault conditions are indicated. If there are any loop faults caused by open circuit conditions or operation of a loop isolator then the panel will indicate a line fault for the corresponding loop.

9.6 Commissioning a Network System

1. Ensure the network card is fitted in each panel and that the network cabling is correctly installed.

2. Ensure that each panel has been commissioned as a stand-alone panel as detailed above.

3. Enable the network card on each panel. The panels will automatically recognise the other panels on the network - a manual configuration process is not required.

4. Generate a fire condition on each panel in turn and observe that the event is displayed correctly at each other panel. The response of each panel depends on its response configuration.

5. Repeat step 4 for alert, fault and indication only conditions.

6. Test each panel on the network as follows:
    i) Operate evacuate on the next network panel.
    ii) Observe that the event is displayed at the panel under test.
    iii) Operate silence alarms and reset at the panel under test and observe that the system responds as expected.
    iv) Repeat i, ii and iii for all other nodes except the panel under test

7. Identify each item of network cause/effect cause. i.e. cause and effect where the panel response is on a different node to the event which causes that action.

8. Action each event in turn and observe that the network cause and effect operates correctly.

Note: It is not necessary to re-test each item of local cause/effect, i.e. cause/effect where the event and response are on the same panel. this is tested as part of the stand-alone panel commissioning.

10 32/96 zone Discovery Motherboard Features

illustrates the 32/96 zone Discovery motherboard features referred to elsewhere in the documentation.

Fit link to enable earth fault monitoring.
Remove link to disable earth fault monitoring.

Move switch to left to enable changes to site specific data.
Move switch to right to disable when changes complete.

Set switches 1 and 2 for number for loops:

Switch:	1	2
1 loop	OFF	OFF
2 loop	ON	OFF
3 loop	OFF	ON
4 loop	ON	ON

Set switch 3 ON if no loops are fitted (network repeater)
Set switch 3 OFF if detection loops are fitted (standard panel)
Set switch 4 to ON for a network panel or repeater
Set switch 4 to OFF for a stand-alone panel
NB: Set both switches 3 and 4 ON for a network repeater

Do not fit link

Lithium battery

Auxiliary supply fuse 500mA

Cherry keyboard port

PC port

Alarm 1 fuse 1A

Alarm 2 fuse 1A

U2 – EEPROM
[Version marked on label]

System fault reset
Processor reset

Loop card 1 position
Loop card 2 position
Loop card 3 position
Loop card 4 position

Remove link
to disable
buzzer

Figure 6 – A1579 32/96 zone Discovery motherboard layout

⚠ *Lithium battery caution - danger of explosion if battery is incorrectly replaced. Replace only with CR1620 3V or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Only trained service personnel should replace this battery.*

11 32/96 zone Discovery Power Supply Features And Connections

Figure 7 shows the layout of the 32/96 zone Discovery panel power supply. The supply should be earthed as illustrated.

Figure 7 – 32/96 zone Discovery power supply layout

Table 2 – Charge Set Voltages for Powersonic VRLA batteries

Temperature	Charger Set voltage
-10°C (14°F)	28.32 – 28.42V
0°C (32°F)	27.82 – 27.92V
+10°C (50°F)	27.45 – 27.55V
+20°C (68°F)	27.20 – 27.30V
+25°C (77°F)	27.10 – 27.20V
+30°C (86°F)	27.03 – 27.13V
+40°C (104°F)	26.91 – 27.01V
+50°C (122°F)	26.84 – 26.94V

Note: If no battery temperature sensor (thermistor) is fitted the charge voltage should be set between 27.37 and 27.47V.

12 32 zone Voyager Motherboard Features

Figure 8 illustrates the 32 zone Voyager motherboard features referred to elsewhere in the documentation.

Figure 8 – A1638 32 zone Voyager motherboard layout

⚠ *Lithium battery caution - danger of explosion if battery is incorrectly replaced. Replace only with CR1620 3V or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. Only trained service personnel should replace this battery.*

13 32 zone Voyager Power Supply Features And Connections

Figure 9 shows the layout of the 32 zone Voyager panel power supply. The supply should be earthed as illustrated.

Figure 9 – 32 Zone Voyager Power Supply Layout

14 <u>Compatible Field Devices</u>

The 32/96 zone Discovery and 32 zone Voyager are both compatible with all the devices listed in section 14.1

14.1 Compatible Field Device Order Codes & Descriptions

Part No	Description	
2501/270	58000-500 Discovery Ionisation smoke detector (Apollo manufacture)	
2501/271	58000-600 Discovery Optical smoke detector (Apollo manufacture)	
2501/272	58000-400 Discovery Heat detector (Apollo manufacture)	
2501/273	58000-700 Discovery Multisensor (Apollo manufacture)	
2501/274	58000-900 Discovery Manual call point (Apollo manufacture)	
2501/022	55000-500 XP95 Ionisation smoke detector (Apollo manufacture)	
2501/023	55000-600 XP95 Optical smoke detector (Apollo manufacture)	
2501/024	55000-400 XP95 Temperature detector - standard (Apollo manufacture)	
2501/020	45681-210 XP95 Base complete with address card (Apollo manufacture)	
2501/019	55000-900 XP95 Manual call point (Apollo manufacture)	
2501/027	55000-700 XP95 Isolator (Apollo manufacture)	
2501/026	45681-211 XP95 Isolator base (Apollo manufacture)	
2501/218	45681-321 XP95 Isolating base, 20 devices (Apollo manufacture)	
2501/021	55000-401 XP95 Temperature detector - high temperature (Apollo manufacture)	
2501/275	55000-818 XP95 Input/Output unit (Apollo manufacture)	
2501/217	55000-819 XP95 Output unit (Apollo manufacture)	
2501/276	55000-810 XP95 Switch monitor (Apollo manufacture)	
2501/277	55000-809 XP95 Switch monitor plus (Apollo manufacture)	
2501/278	55000-813 XP95 Zone monitor (Apollo manufacture)	
2501/279	55000-823 XP95 Sounder control unit (Apollo manufacture)	
2501/280	55000-833 XP95 Mini switch monitor (Apollo manufacture)	
2501/216	55000-832 XP95 Mini switch monitor – interrupt (Apollo manufacture)	
2501/281	55000-803 XP95 DIN rail mounted input/output unit (Apollo manufacture)	
2501/282	55000-804 XP95 DIN rail mounted Output unit (Apollo manufacture)	
2501/283	55000-822 XP95 DIN rail mounted switch monitor (Apollo manufacture)	
2501/284	55000-821 XP95 DIN rail mounted switch monitor plus (Apollo manufacture)	
2501/285	55000-812 XP95 DIN rail mounted zone monitor (Apollo manufacture)	
2501/286	55000-826 XP95 DIN rail mounted sounder control unit (Apollo manufacture)	
2501/287	55000-802 XP95 DIN rail mounted isolator (Apollo manufacture)	
2501/221	45681-261 XP95 Loop sounder requires XP95 base (Apollo manufacture)	
2501/222	55000-260 XP95 Loop sounder with red cap (Apollo manufacture)	
2501/223	55000-259 XP95 Loop sounder with white cap (Apollo manufacture)	
2500/235	CEL Addressable break glass unit (no back box)	
2500/236	A1444 basic outstation board (3 inputs)	
2500/237	A1445 relay outstation board (3 inputs, 3 relays)	
2500/238	A1446 sounder outstation board (3 inputs, 1 sounder circuit, 1 relay)	
2500/240	A1447 add-on zone monitor board for above outstation boards	
2501/149	Enclosure to fit 1 outstation board; Size - 150h x 225w x 75d	
2500/197	Enclosure c/w 1A p.s.e., space for one outstation board & 3.2Ah batteries Size - 300h x 350w x 75d	

Part No	Description
2500/221	Enclosure c/w 3A p.s.e., space for four outstation boards & 6.2Ah batteries Size - 380h x 600w x 210d
2500/223	Enclosure c/w 5A p.s.e. & space for five outstation boards & 6.2Ah batteries Size - 600h x 600w x 210d
2500/226	Remote square indicator
2500/227	Remote round indicator
2601/036	CEL platform sounder (XP95/Discovery detector base)
2601/035	CEL platform sounder (Xplorer detector base)
2501/254	55000-261 100dB Loop sounder (Apollo manufacture)
2501/255	45681-262 Loop sounder with isolating base (Apollo manufacture)
2501/105	55000-280 XP95 flame detector (Apollo manufacture)
2501/381	55000-852 XP95 sounder controller unit with isolator (Apollo manufacture)
2501/285	55000-812 Din rail zone monitor unit with isolator (Apollo manufacture)
2501/375	55000-843 XP95 switch monitor with isolator (Apollo manufacture)
2501/377	55000-841 XP95 switch monitor plus with isolator (Apollo manufacture)
2501/373	55000-847 XP95 I/O unit with isolator (Apollo manufacture)
2501/371	55000-849 XP95 output unit with isolator (Apollo manufacture)
2501/382	55000-589 XP95 3 channel I/O unit
2501/383	55000-588 XP95 3 channel I/O unit with isolator
	55000-780 XP95 RDM Interface (Apollo manufacture)
	55000-580 XP95 RDM Ionisation smoke detector (Apollo manufacture)
	55000-680 XP95 RDM Optical smoke detector (Apollo manufacture)
	55000-480 XP95 RDM Heat detector (Apollo manufacture)
	45681-280 XP95 RDM Base (Apollo manufacture)
2501/251	55000-265 XP95 Loop powered beam detector (Apollo manufacture)
	45681-242 XP95 Low power relay base (Apollo manufacture)
2501/584	55000-855 XP95 Protocol translator – single channel (Apollo manufacture)
2501/585	55000-856 XP95 Protocol translator – dual channel (Apollo manufacture)
2501/580	55000-540 XP95 I.S. Ionisation smoke detector (Apollo manufacture)
2501/581	55000-640 XP95 I.S. Optical smoke detector (Apollo manufacture)
2501/582	55000-440 XP95 I.S. Temperature detector - standard (Apollo manufacture)
2501/479	55000-940 XP95 I.S. Manual call point (Apollo manufacture) All other XP95 I.S. manual call points are also compatible
2501/583	45681-215 XP95 I.S. Base (Apollo manufacture)
2501/253	55000-885 XP95 Multi-Sensor (Apollo manufacture)
2501/219	55000-875 XP95 Mains Switching I/O Unit (Apollo manufacture)
2501/378	55000-845 XP95 Zone Monitor with Isolator (Apollo manufacture)
2501/109	58000-300 Discovery CO Detector (Apollo manufacture)
2501/438	55000-268 Reflective beam detector [5-50m]
2501/439	55000-273 Reflective beam detector [50-100m]
2601/046	55000-877 Loop Powered Beacon (Apollo manufacture)
2601/031	45681-265 Intelligent Base Sounder (Apollo manufacture)
2601/063	46581-278 Integrated Base Sounder (Apollo manufacture)

Part No	Description	
	Vesda Aspirating Smoke Detector	
2601/084	46581-393 Discovery Sounder Beacon Base (Apollo manufacture)	
2501/229	55000-950 XP95 Weatherproof call-point (Apollo manufacture)	
2501/376	55000-809 XP95 Switch Monitor Plus – Flush (Apollo manufacture)	
2501/590	55100-908APO Call-point with isolator (Apollo manufacture)	
2501/622	55000-760 XP95 Mini DIN Rail Switch Monitor (Apollo manufacture)	
2601/034	45681-276 Anciliary base sounder (Apollo manufacture)	
2601/041	55000-278 High output loop sounder (Apollo manufacture)	
2601/064	45681-277 Integrated base sounder with isolator (Apollo manufacture)	
2601/065	45681-331 Integrated base sounder/beacon (Apollo manufacture)	
2601/066	45681-330 Integrated base sounder/beacon with isolator (Apollo manufacture)	
2601/069	55000-274 Stand-alone high output sounder/beacon (Apollo manufacture)	
2601/070	55000-291 Multi-tone open area sounder/beacon (Apollo manufacture)	
2601/071	55000-293 Multi-tone open area sounder/beacon with isolator (Apollo manufacture)	
2601/072	55000-296 Multi-tone open area sounder/beacon weatherproof (Apollo manufacture)	
2601/073	55000-291 Multi-tone open area sounder/beacon with isolator, weatherproof (Apollo manufacture)	
2601/074	45681-333 Beacon base with isolator (Apollo manufacture)	
2601/075	45681-335 Beacon base (Apollo manufacture)	
2601/076	55000-001APO Open area SONOS sounder (Apollo manufacture)	
2601/078	55000-005APO Open area SONOS sounder/beacon (Apollo manufacture)	
2601/082	58000-005 Discovery open-area sounder/beacon (Apollo manufacture)	
2608/001	XPA-CB-1-2034 Optical smoke detector and address module (Apollo manufacture)	
2608/002	XPA-CB-1-2032 Multisensor smoke detector and address module (Apollo manufacture)	
2608/003	XPA-CB-1-1170 A1R heat detector and address module (Apollo manufacture)	
2608/004	XPA-CB-1-1171 CS heat detector and address module (Apollo manufacture)	
2608/010	XPA-IN-1-4007 XPander interface module with isolator (Apollo manufacture)	
2608/005	XPA-MC-1-4006 XPander manual call-point (Apollo manufacture)	
2608/006	XPA-CB-1-4001 XPander sounder and sounder base (Apollo manufacture)	
2608/008	XPA-CB-1-4003 XPander sounder beacon and sounder base (Apollo manufacture)	

Notes:

1. The 32/96 zone Discovery and 32 zone Voyager panels are not guaranteed to respond to alarm events within the time specified by EN54-2 when used with:
   i) Apollo XP95 I/O units configured for a fire response
   ii) Apollo series 90 devices and outstations.
   iii) CEL outstations fitted with V6 or earlier software.
   iv) CEL BGUs with version 0 software.
   v) CEL A1405 based outstations.
2. To meet the sounder response times recommended in BS5839 Pt 1:2002, the number of sounders per loop should be limited to 40.

14.2 Field Device Responses

The following table shows all devices compatible with the panel. It shows the panel's response to events from each device type, and indicates the change in analogue value and input bits that will be displayed in the status mode. Note that some device types automatically receive cause effect outputs by default. Any such programming is indicated in the default cause and effect column.

Device type	Type Code	Condition	Panel response	Analogue Value	Status bits (210)	Output bits	Default cause and effect (see note 7)	Comments
CEL sounder controller	1	Quiescent Input 1 operated Input 2 operated Input 3 operated Circuit fault	None Mode 1 Mode 2 Remote fault Remote fault	AV = 16 AV = 64 AV = 48 AV = 4 AV = 4	000 000 000 000 000	0 = evacuate 1 = alert 2 = relay	Standard sounder response.	See note 5.
CEL Loop powered sounder	1	Quiescent Fault	None Remote fault	AV = 16 AV = 4	Echo output bits	0 = evacuate 1 = alert 2 = not used	Standard sounder response.	See note 5.
Series 90 sounder/ sounder controller	1	Quiescent Circuit fault or fault input operated	None Remote fault	AV = 16 AV = 4	Echo output bits	0 = evacuate 1 = alert 2 = not used	Standard sounder response.	See note 5.
Loop powered beacon	1	Quiescent Fault	None Remote fault	AV = 16 AV = 4	Echo output bits	0 = evacuate 1 = alert 2 = not used	Standard sounder response.	See note 5.
Intelligent Base Sounder	1	Quiescent Circuit fault or fault input operated	None Remote fault	AV = 16 AV = 4	Echo output bits	0 = evacuate 1 = alert 2 = not used	Standard sounder response.	See note 5.
CEL I/O unit	2	Quiescent Input 1 operated Input 2 operated Input 3 operated or power supply failed	None Mode 1 Mode 2 Mode 3	AV = 16 AV = 64 AV = 48 AV = 4	000 000 000 000	0 = relay 1 1 = relay 2 2 = relay 3		
Series 90 3-way I/O unit	2	Quiescent Input 1 operated Input 2 operated Input 3 operated	None Input type Input 2 Input 3	AV = 16 AV = 16 AV = 16 AV = 16	000 XX1 X10 100	0 = relay 1 1 = relay 2 2 = relay 3		X means status does not affect panel status See note 6.
Series 90 3-way I/O analogue unit	2	Quiescent Input 1 operated Input 2 operated Input 3 operated Analogue value 64 Analogue Value 48 Analogue Value 4	None Input type Input 2 Input 3 Mode 1 Mode 2 Mode 3	AV=16 AV=16 AV=16 AV=16 AV = 64 AV = 48 AV = 4	000 1XX 01X 001	0 = relay 1 1 = relay 2 2 = relay 3		X means status does not affect panel status. See notes 2, 6.
Series 90 1-way I/O unit	2	Quiescent Input operated	None Fire	AV = 16 AV = 16	000 001	0 = relay 1 = not used 2 = not used		
Series 90 switch monitor unit	2	Quiescent Input operated	None Input type	AV = 16 AV = 16	000 001	0 = remote indicator 1 = not used 2 = not used		See note 6.

Device type	Type Code	Condition	Panel response	Analogue Value	Status bits (210)	Output bits	Default cause and effect (see note 7)	Comments
Series 90 ionisation smoke	3	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 1, 3.
CEL zone monitor	4	Quiescent Input 1 operated Input 2 operated Input 3 operated	None Fire Valve Closed Remote fault	AV = 16 AV = 64 AV = 48 AV = 4	000 000 000 000	0 = reset 1 = relay 2 2 = LED	Bit 0 set on reset or clear faults Bit 2 set when device is in fire	See note 3.
Series 90 zone monitor	4	Quiescent Fire Circuit fault	None Fire Remote fault	AV = 16 AV = 64 AV = 4	Echo output bits	0 = reset 1 = test 2 = LED	Bit 0 set on reset or clear faults Bit 2 set when device is in fire	See note 3.
Series 90 control unit monitor	4	Quiescent Alarm Circuit fault	None Fire Remote fault	AV = 16 AV = 64 AV = 4	Echo output bits	0 = fault test 1 = alarm test 2 = remote LED	Bit 0 set on reset or clear faults Bit 2 set when device is in fire	See note 3
Series 90 optical smoke	5	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 1, 3.
Series 90 heat detector	6	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 1, 3.
Series 90 callpoint/ callpoint monitor	7	Quiescent Alarm Fault	None Fire Fault	AV = 16 AV = 64 AV = 4	L10 L01 L10	0 = remote LED 1 = self test 2 = LED	Bit 2 set when in fire	Input bit 2 confirms LED operation and is represented by L See note 3.
CEL dual-fire monitor	9	Quiescent Fire A Fire B Fire A+B Fault	None Fire A Fire B Fire A+B Remote fault	AV = 16 AV = 64 AV = 16 AV = 64 AV = 4	010 010 011 011 010	0 = relay 1 1 = relay 2 2 = relay 3		
XP95 sounder/ sounder controller	17	Quiescent Circuit fault	None Remote fault	AV = 13-16 AV = 4	Echo output bits	0 = evacuate 1 = alert 2 = not used	Standard sounder response.	See note 5. Normal range extended for XPander device.
XP95 I/O unit	18	Quiescent Input operated Opto input active Input fault	None Input type Opto-Coupled Remote fault	AV = 16 AV = 16 AV = 16 AV = 4	000 XX1 X10 000	0 = relay 1 = not used 2 = not used		Input 1 overrides input 2 which in turn overrides remote fault See note 6.

Device type	Type Code	Condition	Panel response	Analogue Value	Status bits (210)	Output bits	Default cause and effect (see note 7)	Comments
XP95 3 channel I/O unit	18	Quiescent Input operated Opto input active Input fault	None Input type Opto-Coupled Remote fault	AV = 16 AV = 16 AV = 16 AV = 4	000 XX1 X10 100	0 = relay 1 1 = relay 2 2 = relay 3		Input 1 overrides input 2 which in turn overrides remote fault See note 6.
XP95 output unit	18	Quiescent	None	AV = 16	000	0 = relay		
XP95 ionisation smoke	19	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 1, 3.
XP95 Zone Monitor	20	Quiescent Alarm Circuit fault	None Fire Remote fault	AV = 16 AV = 64 AV = 4	Echo output bits	0 = reset 1 = alarm test 2 = LED	Bit 0 set on reset or clear faults Bit 2 set when device is in fire	See note 3.
XP95 optical smoke	21	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 1, 3.
XP95 beam Detector	21	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 1, 3.
XP95 heat detector standard	22	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 1, 3.
XP95 USA sounder/ sounder controller	49	Quiescent Circuit fault	None Remote fault	AV = 16 AV = 4	Echo output bits	0 = evacuate 1 = alert 2 = not used	Standard sounder response.	See note 5.
XP95 USA Mini-switch monitor	50	Quiescent Alarm Circuit fault	None Fire Remote fault	AV = 16 AV = 64 AV = 4	Echo output bits?	0 = fault test 1 = alarm test 2 = LED	Bit 0 set on reset or clear faults Bit 2 set when device is in fire	See note 3.
XP95 Mini-switch monitor	52	Quiescent Alarm Alert Circuit fault	None Fire Alert Remote fault	AV = 16 AV = 64 AV = 45 - 51 AV = 4	Echo output bits	0 = fault test 1 = alarm test 2 = LED	Bit 0 set on reset or clear faults Bit 2 set when device is in fire	See note 3.
XP95 Switch monitor	52	Quiescent Alarm Alert Circuit fault	None Fire Alert Remote fault	AV = 16 AV = 64 AV = 45 - 51 AV = 4	Echo output bits	0 = not used 1 = alarm test 2 = LED	Bit 0 set on reset or clear faults Bit 2 set when device is in fire	See note 3.
XP95 Switch monitor plus	52	Quiescent Alarm Alert Circuit fault	None Fire Alert Remote fault	AV = 16 AV = 64 AV = 45 - 51 AV = 4	Echo output bits	0 = opto-reset 1 = alarm test 2 = LED	Bit 0 set on reset or clear faults Bit 2 set when device is in fire	See note 3.

Device type	Type Code	Condition	Panel response	Analogue Value	Status bits (210)	Output bits	Default cause and effect (see note 7)	Comments
Intelligent reflective beam detector	53	Quiescent Alarm Alert Dirty Fault	None Fire Alert Dirty Fault n	AV = 20, 25, 30, 32-34 AV > 63 AV = 45-54 AV = 6 AV < 6	Echo output bits	Not used Test LED	Bit 2 set when device is in fire	See note 3.
XP95 heat detector high	54	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 1, 3.
XP95 USA mini priority switch monitor	55	Quiescent Alarm Fault	None Fire Fault	AV = 16 AV = 64 AV = 4	L10 L01 L10	0 = remote LED 1 = self test 2 = LED	Bit 2 set when in fire	Input bit 2 confirms LED operation See note 3.
XP95 USA switch monitor	82	Quiescent Alarm Circuit fault	None Fire Remote fault	AV = 16 AV = 64 AV = 4	Echo output bits?	0 = fault test 1 = alarm test 2 = LED	Bit 0 set on reset or clear faults Bit 2 set when device is in fire	See note 3.
XP95 flame detector	85	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 1, 3.
XP95 USA priority switch monitor	87	Quiescent Alarm Fault	None Fire Fault	AV = 16 AV = 64 AV = 4	L10 L01 L10	0 = remote LED 1 = self test 2 = LED	Bit 2 set when in fire	Input bit 2 confirms LED operation See note 3.
XP95 USA switch monitor I/O	114	Quiescent Alarm Fault	None Input type Fault	AV = 16 AV = 64 AV = 4	L10 L01 L10	0 = remote LED 1 = self test 2 = LED		Program LED bit in cause effect if required. Input bit 2 confirms LED operation. See note 6.
XP95 multi-sensor opt/heat detector	117	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 1, 3.
XP95 callpoint	119	Quiescent Alarm Fault	None Fire Fault	AV = 13-16 AV = 64 AV = 4	L10 L01 L10	0 = remote LED 1 = self test 2 = LED	Bit 2 set when in fire	Input bit 2 confirms LED operation. See note 3. Normal range extended for XPander device.
XP95 Mini switch monitor with interrupt	119	Quiescent Alarm Fault	None Fire Fault	AV = 113-16 AV = 64 AV = 4	L10 L01 L10	0 = remote LED 1 = self test 2 = LED	Bit 2 set when in fire	Input bit 2 confirms LED operation. See note 3. Normal range extended for XPander device.

Device type	Type Code	Condition	Panel response	Analogue Value	Status bits (210)	Output bits	Default cause and effect (see note 7)	Comments
Discovery ionisation smoke	147	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit bit 2 set when device is in fire	See notes 3, 4.
Discovery optical smoke	149	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 3, 4.
Discovery heat detector	150	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 3, 4.
Discovery gas det CO	179	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 3, 4.
Discovery sounder beacon	209	Quiescent	None	AV = 16	Echo output bits	0 = evacuate 1 = sounder 2 = beacon	Standard sounder response.	See note 8.
Discovery PP Mon CO	211	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 3, 4.
Discovery multi-criteria optical smoke	213	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 3, 4.
Vesda Aspirating Smoke Detector	224	Quiescent Fire Alert Fault	None Fire Alert Fault Data Fault	AV = 12 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 3 AV = 8 to 11	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 3, 4.
Discovery env gas CO	243	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 3, 4.
Discovery dual opt/heat	245	Quiescent Fire Alert Fault	None Fire Alert Data fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	Echo output bits	0 = remote LED 1 = self test 2 = LED	Bit 2 set when device is in fire	See notes 3, 4.
Discovery callpoint	247	Quiescent Alarm Fault	None Fire Fault	AV = 16 AV = 64 AV = 4	L10 L01 L10	0 = remote LED 1 = self test 2 = LED	Bit 2 set when in fire	Input bit 2 confirms LED operation. See note 3.
Discovery mini-sw.mon.int	247	Quiescent Alarm Fault	None Fire Fault	AV = 16 AV = 64 AV = 4	L10 L01 L10	0 = remote LED 1 = self test 2 = LED	Bit 2 set when in fire	Input bit 2 confirms LED operation. See note 3.

Notes:

1. **The analogue thresholds for non-Discovery analogue detectors can be changed for both fire and alert. manual for details.**

2. **On the S90 3-way analogue unit, either the analogue value or logic inputs can raise different alarms.**

3. **The number of devices with LEDs operated is limited to eight per loop.**

4. **The analogue threshold for Discovery analogue detectors can be changed for alert only.**

5. **The standard sounder response involves setting bit 0 for test alarms, evacuate, alarm walk test, and point walk test with sounders, and setting either bit 0 or bit 1 as configured for class-change.**

6. **Standard input/output units can have their input 1 configured to indicate as either Fire, Alert, Fault or Input, and the active polarity of their input 2 can also be configured.**

7. **Any address not associated with a sounder (types 1, 17, 49) can be configured for platform sounder response. Such addresses will have their output bit 0 set for test alarms, evacuate, class-change, alarm walk test and point walk test with sounders automatically.**

8. **The standard Discovery sounder beacon response involves setting bits 0, 1, 2 for test alarms, evacuate, alarm walk test, and point walk test with sounders, and setting either bit 1 only or bits 0 and 1 as configured for class-change.**

15 <u>Overview Of User Functions</u>

This section describes an overview of the functions available to the end user.

15.1 Change Time and Date

The user can manually set the time and date although this should not normally be required. The current time is maintained by a dedicated battery when all power removed from the system. How to set the time and date is described in the user manual. On a network system, setting the date and time at any panel will also update the date and time at all other panels and repeaters connected to the network.

15.2 Delay of Operation of Outputs

The activation of panel outputs (alarm circuit and cause/effect) can be delayed upon detection of an automatic alarm condition to allow for the cause of the alarm to be investigated. The delay can be programmed for a period of between 1 and 10 minutes. The delay is active for one period every day, and off for the remainder of the time. This period is user definable and would typically be during working hours.

The delay is not operated if the alarm condition is initiated by a call point or an evacuate function. The delay may be overridden by operating the override delay button.

The user can only enable and disable the delay function.

In a network system, any outputs on another panel programmed to operate from a fire on this panel will also be delayed.

15.3 Adjustable Sensitivity Modes

The 32/96 zone Discovery and 32 zone Voyager panels can be configured to automatically adjust device sensitivity according to the time of day. Three different sensitivity levels can be assigned to each point. These are referred to as the day mode sensitivity level, night mode sensitivity level and the default sensitivity level.

The sensitivity modes are set as follows:

- Selecting the DAY sensitivity mode forces the appropriate trip levels and sensitivity codes to the day mode value regardless of the time.

- Selecting the NIGHT sensitivity mode forces the appropriate trip levels and sensitivity codes to the night mode value regardless of the time.

- Selecting the TIMER sensitivity mode alternates the appropriate trip levels and sensitivity codes between the day and night modes according to the time. The day and night times are defined through the PC cause/effect editor. A separate time can be defined for each day of the week.

- Switching OFF the day/night sensitivity mode forces the appropriate trip levels and sensitivity codes to the default value regardless of the time.

On network systems, changes to the day/night mode of a panel are passed to the network, and the other panels can be configured to automatically update their day/night mode or not as required.

15.4 Enabling And Disabling Of Functions

The following functions can be disabled and enabled through the user menu:

- Points (local or at another panel if part of a network)

- Zones of points (local or at another panel if part of a network)
- Sounding devices (can be global on network systems)
- Printer (local only even on network systems)
- Inputs (local or at another panel if part of a network)
- Non-Sounder Outputs (local only even on network systems)

15.5 The Event Log

The panel stores a record of the last 120 events (local or from network) in the event log. These are individually time-stamped and can be viewed, printed, or uploaded to a PC as required.

15.6 Test Functions

The following test functions are local only, and are available through the user menu:

- View point status – displays current analogue value type code and status bits for an address.
- Device Test – allows one or more zones of devices to be tested without operating panel cause/effect and with or without operating sounder devices. The panel switches on a device LED to acknowledge correct operation of the test. No other indication is given at the panel and the device LED (plus the sounders if required) is automatically reset after 10 seconds. If a printer is fitted then a test confirmation message is printed for each successful device test. During the test device test the panel buzzer sounds for 2s every 30s.

  Any device in a zone not in test that detects a fire responds as normal.

- Alarm test – The panel automatically operates all sounding devices for 5 seconds every 10 seconds.
- Discovery sounder/beacon test – The panel sets all Discovery sounder beacons into test mode such that each device may be operated using the magnetic wand at the device itself.

15.7 View Suppressed Events

System events are prioritised to clarify the display of information by the system. The events are classified in the following levels in decreasing order of priority:

- Fire
- Alert
- Fault
- Indication (including Discovery device maintenance events)

If events at more than one level exist on the panel, only events at the highest level will be displayed on the LCD. The scroll events switch can be used to scroll all events at this level. As events at a lower level are not shown they are called suppressed events. A suppressed event is indicated by an LED indication on the display but the LCD message is suppressed. Suppressed events can be viewed through the user menu as described in section 24.33 and section 24.34.

For example, if fire events occur whilst a fault is present on the system, only the fire events will be displayed on the LCD. The fire condition will cause the faults to be suppressed. The scroll events switch can then be used to cycle the fire events on the LCD and the faults can be viewed through the menu function.

15.8 Printer Functions

If a printer is fitted to the panel the following functions are available to the user:

- Disable printer
- Print disablements
- Print user texts and analogue values
- Print event log
- Print of device test results during one person walk testing

16 Overview Of Engineers Functions

This section describes an overview of the functions available to the engineer.

On network systems these functions only affect the local panel directly, although changes to zone or control group allocation may indirectly affect other panels that use those zones or control groups in their own cause/effect.

16.1 Engineer Definable Access Code

The engineer's access code can be changed using the Discovery/Voyager PC cause/effect editor.

Note: If the new code is mislaid then it will not be possible to access the engineer's functions. If this occurs, contact your panel supplier. A chargeable site visit will be required.

16.2 Delay Of Operation Of Outputs

This is described in section 15.2.

The engineer can set the delay start and end times, set the delay duration and enable or disable the delay.

16.3 Day/Night Sensitivity Mode

The times of day are only programmable via the P.C. cause/effect editor, and consist of a start time and an end time for each day of the week. The

sensitivity level for each mode can be set via the menu or the PC cause/effect tool.

16.4 Manual Sensitivity Mode Override

The Discovery and Voyager provide a facility to manually override Discovery device sensitivity, controlled from a loop input monitoring a keyswitch. A typical application may be to change multi-sensors to heat only operation when vehicle fumes are present.

To enter low sensitivity mode:

1. Move the keyswitch to the active position.

2. The system changes the sensitivity level of the appropriate devices. These are configured using the PC editor (see below). The panel illuminates the Low Sensitivity Indicator (this indication is optional, see below). There is no indication of the low sensitivity mode on the panel although the event is recorded in the event log. It can take up to 20 seconds for this led to come on, and up to 40-60 seconds to change the sensitivity codes of all affected sensors (assuming no more than 20-30 sensors per loop).

To exit from low sensitivity mode:

1. Move the keyswitch to the inactive condition.

2. The system returns the sensitivity of the appropriate devices to normal and clears the Low Sensitivity Indicator (subject to similar timings as above).

4. The Inhibit Delay Indicator illuminates (optional indication). The delay runs for around 4 minutes and inhibits fires from devices which have changed sensitivity.

5. If a fire would result from the change of sensitivity mode then the Device In Fire indicator (optional) will illuminate. The keyswitch should be returned to the low sensitivity mode position and the possible cause of the fire investigated.

6. After 4 minutes the delay inhibit will extinguish and the system is returned to full operation. At this stage any devices that are in a fire condition will report the fires normally.

To provide override of sensitivity the following procedure is followed:

- Allocate a CEL A1445 type 2 outstation or Apollo XP95 I/O unit to address 111 on a loop. The loop used determines the control group which will be affected. This is described below. The sensitivity mode change is active whilst a mode 1 condition is present on the CEL device or alarm is present on the XP95 device.

- If a CEL A1445 is used the following indications can be driven by the outputs:

- Bit 0: Low sensitivity selected

- Bit 1: Inhibit delay running

- Bit 2: Device in fire

- Allocate all devices to have the sensitivity mode change to the relevant control group via the cause/effect download program. The relationship between control device and group is:

  - Device 1:111 controls group 252

  - Device 2:111 controls group 253

  - Device 3:111 controls group 254

  - Device 4:111 controls group 255

  Note: The sensitivity mode change only operates on Apollo Discovery devices.

- Program the override sensitivity value using the PC cause/effect editor.

- Set the input type for the XP95 I/O units used to control the manual sensitivity level override to indication using the PC editor.

16.5 Enabling Site Specific Data Changes

All site-specific data is held in non-volatile memory. To protect this from errors the memory is protected by a write enable switch on the motherboard. This switch has to be set to the write enable position to allow any changes. If the switch is inadvertently left in the enable position when the changes are complete the panel indicates a fault condition.

16.6 Point Configuration

The panel loop devices can be automatically reconfigured through an engineers menu command. The panel stores each device address and type on configuration. Any changes to the loop devices are then indicated as a fault. The system configuration can also be printed out. This shows all devices on a loop with their status.

The sensitivity of each point can also be changed to allow for ambient conditions. XP95 detectors can have the trip level for fire and alert configured. Discovery devices have the sensitivity code changed for fire sensitivity and the analogue threshold for alert can be changed.

It is possible using the PC Editor to define addresses on any loop for Platform Sounders. Any addresses thus configured will have their output command bit 0 operated for the standard sounder controls (evacuate, test alarms, class-change and one-person alarm walk test).

Note: For compliance with EN54 the fire sensitivity level must be set to 55. The pre-alarm value can be set to any value

Note: Do not adjust the fire sensitivity level of the XP95 high temperature heat detector. This device has an analogue count of 55 at 90 C.

Note: The default levels are:

	XP95 sensor	Discovery sensor
Default Alert level	45	45
Default Fire level	55	55
Valid Alert Levels	35, 40, 45, 50	35, 40, 45, 50
Valid fire levels	55, 60, 65, 70	55
Default sensitivity levels	N/A	3
Valid sensitivity levels	N/A	1, 2, 3, 4, 5

All ancillary devices have fixed responses except the Apollo Input Output module and the Discovery Sounder/Beacon device. The main input for the Apollo Input Output module device can be configured to generate a fire, fault, alert or indication only. The optically coupled input for this device can be configured for to be active high or active low condition and always generates a fault condition. The tone pair and volume for the Discovery Sounder/Beacon can be configured.

16.7 Discovery Device Functions

The following functions are available with Apollo Discovery devices:

- Rapid drift compensation by loop (device normalisation)
- Print drift compensation level by loop
- Print device date of manufacture
- Enable or disable LED pulsing mode (including the option to activate the led pulsing mode when the device is disabled)
- Discovery sounder beacon setup – adjust volume level with magnetic wand.
- Discovery sounder beacon auto-stop.

For details on Discovery device functions please see the latest issue of the Apollo publication "Discovery Engineering Product Guide" (Apollo part number PP2052).

16.8 Zone Allocation

The Discovery can have either 32 or 96 programmable zones, which are used to represent a physical area. The Voyager display is limited to 32 zones. All loop devices and panel inputs can be programmed into one of these zones through the engineers menu. Activation of a fire or a fault on a device or input will cause operation of the fire or fault indicator associated with the zone. The panel alphanumeric display will also indicate the zone number locally for loop devices only. The panel has an insert fitted to the front door suitable for text descriptions of each zone location.

The engineer can also print out all the zones with the devices allocated to the zones.

Loop devices that are not allocated to a zone will not sound the fire buzzer when they go into a fire condition.

16.9 Group Allocation

Points and panel inputs can be associated with groups for cause/effect programming. These are similar in concept to zones so that cause and effect can be defined on devices within a group. Each device may be in up to seven groups. Groups are numbered from 33 to 255 (32-Zone panels) or 97-255 (96-Zone panels).

Note: Groups 252 to 255 are reserved for manual sensitivity override mode operation.

16.10 Programmable Loop Output Cause/Effect

The 32/96 zone Discovery and 32 zone Voyager panels send output command bits to addressable points according to the system status. The bits control device functions. Some panel responses are automatic, others can be programmed by the engineer according to site-specific requirements. The default cause and effect is shown in Table 3.

Table 3 – Default command output bits

Device type	Output command bit operation
Addressable Sounder Devices	Bit 0 is set on evacuate or test alarms to operate continuous alarms. The bit is cleared when the alarms are silenced, or the cause is cleared. Bit 0 is operated intermittently under one-person alarm walk test. Either bit 0 or 1 is set on class-change as selected via the engineers menu.
All smoke and heat detectors	Bit 2 is set when the device is in a fire condition to Illuminate the device LED. These are cleared when the panel is reset (see note 1 below). Bit 0 (remote led) may be controlled through the site-specific programmable cause and effect. When a device is configured to support an CEL Platform sounder, bit 0 is set to drive the sounder for evacuate, test alarms and class change. Bit 0 is also operated intermittently under one-person alarm walk test.
Zone monitor	Bit 0 is set for 3 seconds to reset the detection zone when the panel is reset. Bit 2 is set when the zone is in a fire condition to operate the zone LEDs. These are cleared when the panel is reset (see note 1 below).
BGU	Bit 2 is set when in a fire condition to operate the local LED. The bit is cleared when the panel is reset (see note 2 below).
All other device types	Site-specific programmable cause and effect.

Note 1: **The panel will light a maximum of 8 device LEDs on one loop to limit the total loop current in the alarm condition. A zone monitor is treated as one device for this purpose.**

Note 2: **Any BGU output bits programmed to operate under cause/effect will be ignored.**

Site specific cause and effect is individually programmed for each of the three output bits at each device point, although bits 1 and 2 will be ignored for smoke and heat detectors. The output bit is associated with a cause so that when the cause is active, the output is operated. The causes can be either common events or zone or group based events. In addition to these local causes, on network systems further network causes may be programmed via the PC Editing Tool, which also allows outputs to be inhibited by a cause where required. With the new PC Editor [Fusion] it is possible to specify the outputs at individual addresses to be normally-energised. This basically inverts the state of the outputs regardless of the status of the panel.

NB While the PC is being used to upload or down load site specific data, the fire alarm panel is disabled and will not respond to any event or user control switch operation.

The common events that can be used to operate loop outputs are:

- **Common fire, output cleared on silence alarms:**
  The output is operated if any fire condition is active on the panel. When the panel alarms are silenced by the user the output is cleared.

- **Common fire, output cleared on reset:**
  The output is operated if any fire condition is active on the panel. When the panel is reset by the user the output is cleared.

- **Common alert, output cleared on cause clear:**
  The output is operated if any alert condition is active on the panel. When the panel is reset by the user, or the alert condition is removed, the output is cleared.

- **Common fault, output cleared on cause clear:**
  The output is operated if any fault condition is active on the panel. When the panel is reset by the user, or the fault condition is removed, the output is cleared.

- **Common indication, output cleared on cause clear:**
  The output is operated if any indication condition is active on the panel. When the panel is reset by the user, or the indication condition is removed, the output is cleared.

- **Alarms silenced:**
  The output is operated when the alarms are silenced on the panel. When the panel is reset by the user, the output is cleared.

- **Panel reset:**
  The output is set for 3 seconds when the panel is reset by the user.

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- **Evacuate (including remote evacuate):**
  The output is operated when an evacuate condition is active on the panel. When the panel alarms are silenced by the user the output is cleared

- **Common disablement, output cleared on cause clear:**
  The output is operated while the Disabled led is on. The output clears when the Disabled led clears.

- **Common buzzer, output cleared on cause clear:**
  The output is operated whenever either the fire buzzer or fault buzzer is active on the panel. When the panel is reset by the user, or the fault condition is removed, the output is cleared.

The zone and group based events can occur on any device, or devices within the specified zone or group:

- **Fire in a zone or group, output cleared on silence alarms:**
  The output is operated if a fire condition is active in the specified group or zone. When the panel alarms are silenced by the user the output is cleared

- **Fire in a zone or group, output cleared on reset:**
  The output is operated if a fire condition is active in the specified group or zone. When the panel is reset by the user the output is cleared

- **Any two fires in a zone or group, output cleared on silence alarms:**
  The output is operated if any two fire conditions are active in the specified group or zone. When the panel alarms are silenced by the user the output is cleared

- **Any two fires in a zone or group, output cleared on reset:**
  The output is operated if any two fire conditions are active in the specified group or zone. When the panel is reset by the user the output is cleared

- **Alert in a zone or group, output cleared on cause clear:**
  The output is operated if any alert condition is active in the specified group or zone. When the panel is reset by the user, or the alert condition is removed, the output is cleared

- **Fault in a zone or group, output cleared on cause clear:**
  The output is operated if any fault condition is active in the specified group or zone. When the panel is reset by the user, or the fault condition is removed, the output is cleared

- **Indication in a zone or group, output cleared on cause clear:**
  The output is operated when an indication only event is active in the specified group or zone. When the panel is reset by the user, or the indication condition is removed, the output is cleared.

Note: A group contains device points in the same way as a zone, but the group is used solely for cause/effect programming.

16.11 32 zone "Local"Panel Repeaters
32 zone Discovery repeaters duplicate the panel indications and user controls at a location remote from the main panel. Up to 14 repeaters can be connected to a single panel using an RS485 serial connection. The panel requires an A1619 Discovery interface module (part number 2500162) or an A1620 Discovery network interface module (part number 2500163) to be fitted to the motherboard to communicate with repeaters.

Note: 40 characters are supported but 96 zone indications are not.. The menu functions are not available at repeaters.

16.12 Class-change Modes
The operation of the class-change input may be configured to operate the panel hardwire sounder outputs, any expansion sounder circuits and loop sounders in continuous or pulsed mode. This option is available in the Phase 5 software and above.

16.13 Panel Input Output Expansion Boards
The Discovery and Voyager panels can be expanded by the use of the A1535 and A1536 expansion boards. These are located in an expanded cabinet that has an extra compartment dedicated to the expansion boards. Up to 31 expansion boards can be connected to a single panel, thus allowing for up to 248 inputs and outputs.

The A1535 provides 8 fully monitored inputs and 8 outputs. Two types of A1535 are available, one with open collector outputs and one with change over relay contacts.

The A1536 provides 8 non-monitored inputs and 8 fully monitored alarm circuits.

n.b. When a fault is reported on an A1536 alarm circuit, the user text displayed will be that associated with the corresponding input circuit.

All expansion board inputs and outputs can be configured as part of the panel cause/effect using the menu functions or the PC configuration software. For full details of the expansion boards see the CEL documents A1535 Application,

Installation and Commissioning Guide and A1536 Application, Installation and Commissioning Guide.

The panel requires an A1619 interface module (part number 2500162) fitted to the motherboard to communicate with I/O boards. Note that if repeaters are fitted to the panel two A1619 interfaces will be required, one for the repeater communication and one for the I/O connection.

16.14 Panel Cause/effect Timers

The panel contains four timers for use in cause/effect programming. These are configured to operate as panel inputs and outputs. Each timer is started by driving a panel output; when the timer delay ends a corresponding panel input is operated. The timer period can be set in 1 second increments between 1 and 32000s (8 hours, 53 minutes and 20 seconds). Each timer is configured using the PC cause/effect editor and cannot be accessed through the menu.

The timer ended input may be configured as either a fire or indication input. If the timer is used for controlling sounders, then it is recommended to use the Fire input option so that the sounders may be silenced without resetting the timer. For other purposes that do not require the clear on silence mode, then the indication type is preferable.

16.15 Shared Zone Mode

The panel may be configured to operate its zone fire and fault indicators for its own events only (non-shared zone), or for events from any panel on a network (shared-zone).

16.16 Number of Zones Mode

The panel may be configured to operate with 32 or 96 zones. The selected number of zones should match the display board fitted, and the design files on a computer. [Note: Voyager panel displays do not support 96 zones].

17 Power Supply Load Calculation

The power supply load must not exceed a maximum of 4A for Discovery or 2.5A for Voyager. To determine the maximum power supply load perform the following steps:

1. Look-up the mains failed panel load in alarm. Enter this value as I_{panel}.

2. Calculate the maximum alarm load on each loop in mA. Enter the sum of the values as I_{loops}.

3. Calculate the maximum load on the alarm circuits in mA in an alarm condition. Enter this value as I_{alarms}.

4. Calculate the load on the auxiliary supply in mA in an alarm condition. Enter this value as I_{aux}.

5. Calculate the maximum power supply load using the formula below:

$$I_{panel} \qquad \ldots\ldots\ldots mA$$

$$I_{loops} \qquad \ldots\ldots\ldots mA$$

$$I_{alarms} \qquad \ldots\ldots\ldots mA$$

$$I_{aux} \qquad \ldots\ldots\ldots mA$$

$$I_{pse} = (I_{panel} + I_{aux} + I_{alarms} + 2 \times I_{loops})/1000 \text{ A}$$
$$= (\ldots\ldots + \ldots\ldots + \ldots\ldots + 2 \times \ldots\ldots)/1000 \text{ A}$$
$$= (\ldots\ldots + \ldots\ldots + \ldots\ldots + \ldots\ldots)/1000 \text{ A}$$
$$(\ldots\ldots)/1000 \text{ A}$$
$$= \ldots\ldots \text{ A}$$

Warning:

This current must not exceed 4A for Discovery.

This current must not exceed 2.5A for Voyager.

Note: A battery and loop calculation spreadsheet is available from your panel supplier to assist in site calculations

18 Battery Standby Capacity Calculation

This section describes how to calculate the minimum required standby battery capacity for the control panel. To determine the battery capacity perform the following steps:

1. Look-up the mains failed fault battery current. Enter this value as $I_{panelfault}$.

2. Look-up the mains failed alarm battery current. Enter this value as $I_{panelalarm}$.

3. Calculate the quiescent load on each loop in mA. Add these values and enter the result as $I_{loopsfault}$. Multiply the figure by 1.5 to derive the current drawn from the battery and enter this figure in the table.

4. Calculate the maximum alarm load on each loop in mA. Add these values and enter the result as $I_{loopsalarm}$. Multiply the figure by 1.5 to derive the current drawn from the battery

5. Calculate the maximum load on the alarm circuits in mA in an alarm condition. Enter this value as I_{alarms} and enter this figure in the table.

6. Calculate the load on the auxiliary supply in mA in an alarm condition. Enter this value as $I_{auxfault}$.

7. Calculate the load on the auxiliary supply in mA in an alarm condition. Enter this value as $I_{auxalarm}$.

8. Calculate the total battery load in fault, I_{fault}.

9. Calculate the total battery load in alarm, I_{alarm}.

10. Enter the required standby time in hours, T_{fault}.

11. Enter the required time in alarm in hours, T_{alarm}.

$$I_{panelfault} = \text{………}mA \qquad I_{panelalarm} = \text{………}mA$$

$$I_{loopsfault} = 1.5 \times \text{……}mA = \text{………}mA \qquad I_{loopsalarm} = 1.5 \times \text{……}mA = \text{………}mA$$

$$I_{alarms} = \text{………}mA$$

$$I_{auxfault} = \text{………}mA \qquad I_{auxalarm} = \text{………}mA$$

$$I_{fault} = \text{………}mA \qquad I_{alarm} = \text{………}mA$$

$$T_{fault} = \text{………}hrs \qquad T_{alarm} = \text{………}hrs$$

12. Substitute the values in to the formula below.

$$
\begin{aligned}
C_{min} = &\ 1.25 \times ((T_{fault} \times I_{fault}) + 2 \times (T_{alarm} \times I_{alarm}))/1000 \text{ Ah} \\
= &\ 1.25 \times ((\text{………} \times \text{………}) + 2 \times (\text{………} + \text{………}))/1000 \text{ Ah} \\
= &\ 1.25 \times (\text{………} \ 2 \times \text{………})/1000 \text{ Ah} \\
&\ 1.25 \times (\text{………} + \text{………})/1000 \text{ Ah} \\
= &\ 1.25 \times \text{………}/1000 \text{ Ah} \\
= &\ \text{………}/1000 \text{ Ah} \\
= &\ \text{………} \text{ Ah}
\end{aligned}
$$

13. Select the next highest available battery size.

Notes:

1. *The maximum battery capacities which can be charged according to BFPSA recommendations are:*

    Discovery: 38Ah

    Voyager: 24Ah

2. *Any battery which cannot be contained in the c.i.e. enclosure must be located in an enclosure adjacent to the c.i.e.*

3. *The Discovery system uses internally mounted 12Ah batteries.*

19 Circuit Connection Details

19.1 Auxiliary Supply

An auxiliary supply is available to power external field equipment from the panel. This is nominally rated at 28V (24V for Voyager) but varies during mains failed conditions. The maximum load is 500mA, the output is fused and fuse failure will be indicated as a panel fault.

The auxiliary supply terminals are labelled 28V and 0V.

Note: If equipment draws current from the auxiliary supply during the mains failed condition this must be included in the battery capacity calculations.

19.2 Use Of Auxiliary Outputs

Warning: The volt-free auxiliary relay contacts must not be used to directly switch any voltage which exceeds 30VDC.

Auxiliary changeover contacts are provided which operate on fire and fault conditions. There are two sets of auxiliary fire contacts. These switch on any fire condition and can be programmed to operate on panel evacuate and remote evacuate (full remote evacuate mode) or to remain inactive on panel evacuate and remote evacuate (partial remote evacuate mode). Programming the remote evacuate mode is described in section 25.21. The configuration of the relay contacts is shown in Figure 10.

Figure 10 – Auxiliary Fire Contact Connection Details

The single set of auxiliary fault contacts operate on any panel fault condition. This output is failsafe and is active in a system fault, or if the system suffers failure of all power supplies. The configuration of the relay contacts is shown in Figure 11.

Figure 11 – Auxiliary fault contact connection details

19.3 Use Of Auxiliary Inputs

Auxiliary inputs are provided to allow remote operation of the following functions:

- Fault (Discovery only)
- Evacuate
- Silence
- Reset

Each input circuit is fully monitored for open and short circuit faults. To activate an input a 680 ohm resistor should be connected across the input circuit by a normally open switch contact. Two switches are shown in Figure 12 although there is no limit to the number of switches.

Figure 12 – Monitored Input Circuit Configuration

Note: To prevent unauthorised operation of the systems all auxiliary inputs must be operated by key-switches. The keys to these switches should be held with the access control key.

Additionally there is a class change input. This is a non-monitored, normally open circuit which operates all sounders whilst active. The panel does not display any indication whilst this input is active. The connection diagram for the class change input is shown in Figure 13.

Figure 13 – Class change input circuit configuration

19.4 Alarm Circuits

The 32/96 zone Discovery and Voyager panels have two alarm circuits, each rated at 1A. The circuits are reverse polarity monitored for open and short circuit faults. To allow monitoring all devices must be polarised. To prevent damage to the control panel bells must also have a suppression diode fitted as shown in Figure 14. The circuit must be terminated with a 3k9 end of line resistor.

Figure 14 – Alarm circuit configuration

The voltage drop on each alarm circuit should be calculated to ensure that the minimum voltage at the end of each circuit exceeds the minimum required by each sounding device.

The voltage at the end of the circuit is given by:

$$V_{AL} = 21 - (I_{AL} \; x2x L_{AL} \; x R_C)$$

21 = Minimum battery voltage in Volts

V_{AL} = Minimum Alarm Voltage in Volts

I_{AL} = Alarm current in Amps

L_{AL} = Alarm circuit length in metres

R_C = Cable resistance (in Ohms) per core per metre

The resistance per metre as follows:

- $1.5mm^2 – 15m\Omega$ per metre per core
- $2.5mm^2 – 9m\Omega$ per metre per core

20 Loop Design

To reduce the impact of short circuits on loop cabling, isolators must be fitted between the physical boundaries on zones. For guidance on the design of zone see BS5839 part 1. The minimum operating voltage of all loop devices must also be maintained under maximum load conditions.

20.1 Loop Isolators

Loop isolators should be fitted to all loops at the boundaries between zones. These restrict the devices lost during a short circuit condition to those between the two isolators either side of the fault. To comply with EN54-2 there should be no more than 32 devices fitted between isolators. This includes conventional devices fitted to zone monitor outstation.

To comply with Apollo design guidelines there should be no more that 20 detectors or the equivalent load between two isolators. Exceeding this quantity may prevent the loop from powering up correctly. Refer to Apollo design guidelines for further information.

20.2 Loop Voltage Drop Calculation

The minimum voltage on the loop must always exceed 17V. To determine the maximum voltage drop for each loop perform the following steps:

1. Calculate the maximum alarm load on the loop in mA. Enter this value as I_{loop}.

2. Count the total number of Apollo isolators. These can be either Apollo 20D isolators or Apollo XP95 isolators. Enter this value as N_{iso}.

3. Calculate the length of loop cable in kilometres. Enter this value as Lloop.

4. Enter the resistance per metre as follows:

   - $1.5mm^2 - 15m\Omega$ per metre per core

   - $2.5mm^2 - 9m\Omega$ per metre per core

   This is value R_{core}.

5. Calculate the minimum voltage at the end of the loop using the equation below:

$$I_{loop} \qquad \ldots\ldots\ldots mA$$

$$N_{iso} \qquad \ldots\ldots\ldots$$

$$L_{loop} \qquad \ldots\ldots\ldots km$$

$$R_{core} \qquad \ldots\ldots\ldots \Omega m^{-1} core^{-1}$$

$$
\begin{aligned}
\text{Vloop} =\ & 27 - ((I_{loop}/1000) \times (3.9 + (0.2 \times N_{iso}) + (2 \times L_{loop} \times R_{core}))) \text{ V} \\
=\ & 27 - ((\ldots\ldots/1000) \times (3.9 + (0.2 \times \ldots\ldots) + (2 \times \ldots\ldots \times \ldots\ldots))) \text{ V} \\
=\ & 27 - (\ldots\ldots \times (3.9 + \ldots\ldots + \ldots\ldots)) \text{ V} \\
=\ & 27 - (\ldots\ldots \times \ldots\ldots) \text{ V} \\
=\ & 27 - \ldots\ldots \text{ V} \\
=\ & \ldots\ldots \text{ V}
\end{aligned}
$$

This figure is a worst case voltage with all devices located at the end of the loop.

Warning: This voltage must not be below 17V.

Note: A battery and loop calculation spreadsheet is available from your panel supplier to assist in site calculations

21 Panel Events

This section describes how events are reported and how the user should respond.

21.1 The Fire Condition

When a fire condition is detected automatically by a sensor, operation of a manual call point or operation of the evacuate switch the panel responds as follows.

- The COMMON FIRE and relevant zone LEDs pulse.

- The internal buzzer sounds intermittently if the device is allocated to a zone.

- The top three lines of the LCD display details of the event.

- The bottom line of the LCD display displays the event category, the event number and the total events in that category currently in the display queue (maximum 32 events per category).

- Note that in a network system, if the fire condition is on another panel, the top line message will give the number of the source panel, but will not give a zone number. This also applies to other types of event.

```
1:001 Z01 OPT FIRE
DEVICE LOCATION OVER
TWO LINES
FIRE EVENT 01 OF 01
```

- The sounder circuits are operated (see Note below).

- System outputs are operated according to the panel programming (see Note below).

- The event is printed if a printer is fitted.

The top three lines retain the first fire information. Line 4 will update the number of fire events if further events occur. The scroll messages key will scroll current fires in the window.

During a fire condition the display of events of a lower priority is suppressed. To view these events refer to section 24.33.

Note:- The fire and alarm relays, and the cause/effect outputs, may be delayed via the Panel Delay function. The general fire relay will not operate for evacuate if the evacuate mode is configured as partial.

User Actions

Carry out the required fire drill.

If a printer is fitted the user actions will be printed out in addition to the automatic system events.

21.2 The Alert Condition

A pre-alarm is indicated if the analogue value of a smoke detector rises above a pre-determined level, but not sufficiently to indicate a fire condition. It may indicate that a fire condition is imminent.

The panel responds as follows:

- The ALERT LED pulses.

- The internal buzzer sounds continuously.

- The LCD displays details of the event.

```
1:001 Z01 OPT ALERT
DEVICE LOCATION OVER
TWO LINES
ALERT EVENT 01 OF 01
```

- The event is printed if a printer is fitted.

- Subsequent events will be displayed in the same way as for fire events.

During an alert condition the display of events of a lower priority is suppressed. To view these events refer to section 24.33.

User Actions

- Switch the ACCESS CONTROLS Keyswitch to the ON position to enable the controls.

- Press the SILENCE BUZZER switch.
  The BUZZER SILENCED LED will turn on. The internal buzzer silences.

- Investigate and rectify the cause of the alarm.

- When the cause of the alarm is cleared press the RESET switch to return the system to the quiescent condition.

If a printer is fitted the user actions will be printed out in addition to the automatic system events.

21.3 The Fault Condition

A fault is indicated if any part of the system enters an abnormal condition.

The panel responds as follows:

- The COMMON FAULT LED pulses. If the fault is with an alarm circuit the ALARM FAULT/DISABLEMENT LED will also pulse.

- The internal buzzer sounds continuously.

- The LCD displays details of the event.

```
1:001 Z01 OPT FAULT
DEVICE LOCATION OVER
TWO LINES
FAULT EVENT 01 OF 01
```

- The event is printed if a printer is fitted.

During a fault condition the display of events of a lower priority is suppressed. To view these events refer to section 24.33.

User Actions

- Switch the ACCESS CONTROLS keyswitch to the ON position to enable the controls.

- Press the SILENCE BUZZER switch.

**The BUZZER SILENCED LED will turn on.
The internal buzzer silences.**

- Investigate and rectify the cause of the fault.
- When the cause of the fault is cleared press the RESET switch to return the system to the quiescent condition.
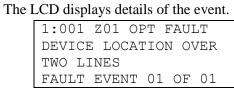
If a printer is fitted the user actions will be printed out in addition to the automatic system events.

21.4 The Maintenance Condition

A maintenance fault is indicated when a Discovery smoke detector reaches its calibration limits. It can indicate that the device is contaminated and requires cleaning or replacing. **The device is still able to detect a fire condition.**

The panel responds as follows:

- The MAINTENANCE LED pulses.
- The internal buzzer sounds continuously.
- The LCD displays details of the event.

```
1:001 Z01 OPT DIRTY
DEVICE LOCATION OVER
TWO LINES
IND EVENT 01 OF 01
```

- The event is printed if a printer is fitted.

User Actions

- Switch the ACCESS CONTROLS keyswitch to the ON position to enable the controls.
- Press the SILENCE BUZZER switch.

  **The BUZZER SILENCED LED will turn on.
  The internal buzzer silences.**

- Call your service engineer to service the device.
- When the cause of the fault is cleared press the RESET switch to return the system to the quiescent condition.

If a printer is fitted the user actions will be printed out in addition to the automatic system events.

Service Engineer Actions

1. Identify and replace the Discovery device indicated on the LCD display. Ensure the replacement device is the same type as the faulty device or the system will respond with a wrong type fault.

2. Contact the device manufacturer to arrange for servicing the device.

3. Apply rapid compensation to the loop with the replacement device to adjust the head to the ambient conditions. This is described in section 25.10.

4. Reset the panel from the fault condition

22 The System Fault Condition

In the event of a complete system failure, a system fault will be indicated.

The panel responds as follows:

- The SYSTEM FAULT and GENERAL FAULT LED illuminate. All other LEDs will be extinguished.
- The internal buzzer sounds continuously.
- The LCD backlight switches off. The text will display the details of the last condition. This should be ignored.
- The local alarm circuits will be silenced if they are active.
- All loop devices will remain in the condition they were in when the fault occurred. Some sounders may thus remain active.

Warning: The system is completely inactive.

User Actions

- Call your service engineer immediately.

Service Engineer Actions

- Open the outer panel door.
- Operate the SYSTEM FAULT RESET switch on the motherboard. This is identified in (Discovery) or Figure 8 (Voyager).
- Operate the PROCESSOR RESET switch on the motherboard. This is identified in (Discovery) or Figure 8 (Voyager).
- Observe that the panel restarts and displays the POWER UP DELAY message on the LCD.
- If the panel does not restart properly then the panel requires replacement.

22.1 Quiescent Condition

In its normal or quiescent condition the supply healthy LED will be illuminated to indicate that mains power is present on the system.
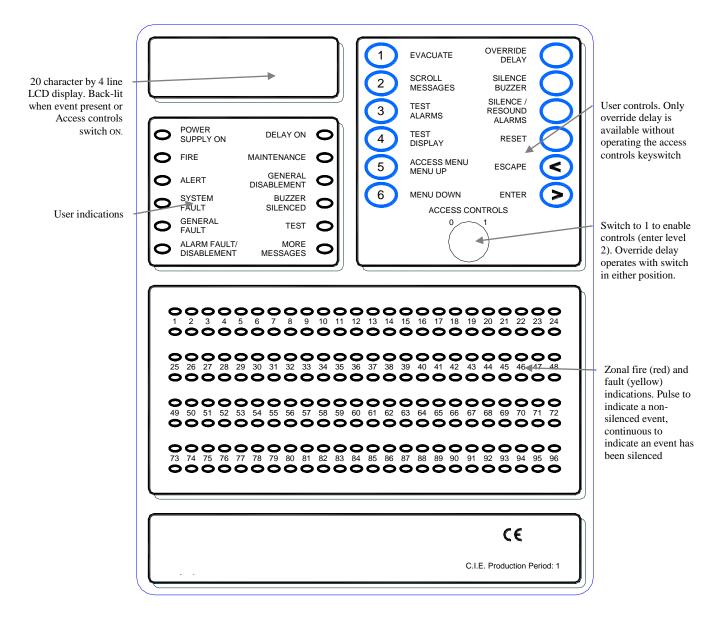
On a stand-alone panel The LCD will display the time and the company name, while on a networked panel the LCD will display the time and the panel name.

If the delay is active the delay LED will be illuminated. There will be no other LEDs illuminated

22.2 Access Mode

When the access controls key is inserted and turned to the ON position the LCD backlight will be switched on.

23 <u>User Controls And Indications</u>

20 character by 4 line LCD display. Back-lit when event present or Access controls switch ON.

User indications

1 EVACUATE
2 SCROLL MESSAGES
3 TEST ALARMS
4 TEST DISPLAY
5 ACCESS MENU MENU UP
6 MENU DOWN

OVERRIDE DELAY
SILENCE BUZZER
SILENCE / RESOUND ALARMS
RESET
ESCAPE
ENTER

ACCESS CONTROLS
0   1

POWER SUPPLY ON
FIRE
ALERT
SYSTEM FAULT
GENERAL FAULT
ALARM FAULT/ DISABLEMENT

DELAY ON
MAINTENANCE
GENERAL DISABLEMENT
BUZZER SILENCED
TEST
MORE MESSAGES

User controls. Only override delay is available without operating the access controls keyswitch

Switch to 1 to enable controls (enter level 2). Override delay operates with switch in either position.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72
73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96

Zonal fire (red) and fault (yellow) indications. Pulse to indicate a non-silenced event, continuous to indicate an event has been silenced

CE

C.I.E. Production Period: 1

96 Zone Discovery Display shown.

Operates all sounder circuits continuously

Displays the next message at the current event level

Activates all alarm outputs when pressed. Alarms silenced when released

Tests all indications and internal buzzer

Enters the user menu system for access to further level 2 and level 3. Increments digits in user menu number entry

Decrements digits in user menu number entry

Overrides the delay to outputs function and immediately actions the outputs

Silences the internal buzzer for any condition

Silences sounding devices for fire events. If already silenced the previous alarm condition is re-activated

Resets all fire and fault indications. (Fire conditions must be silenced first)

Used within access menu to delete items and escape from menus

Enters text in the access menus

1 EVACUATE   OVERRIDE DELAY
2 SCROLL MESSAGES   SILENCE BUZZER
3 TEST ALARMS   SILENCE / RESOUND ALARMS
4 TEST DISPLAY   RESET
5 ACCESS MENU MENU UP   ESCAPE   <
6 MENU DOWN   ENTER   >

Indicates power supply active (mains or battery)

Pulses when a new fire is active, continuous when all fires have been silenced

Pre-alarm active

Indicates internal fault

Pulses if new fault detected, continuous if all active faults have been silenced

Pulses if fault detected with either alarm circuit or any loop alarm controller. Continuous for alarm circuit disabled conditions

Constant to indicate delay is active, pulsing when delay running

Indicates Discovery device drift compensation limit reached

Indicates some part of the system has been disabled

Continuous when the buzzer has been silenced

Continuous to indicate some part of the system is in test mode

Pulses to indicate another message is available for viewing with the scroll events button

POWER SUPPLY ON   DELAY ON
FIRE   MAINTENANCE
ALERT   GENERAL DISABLEMENT
SYSTEM FAULT   BUZZER SILENCED
GENERAL FAULT   TEST
ALARM FAULT/ DISABLEMENT   MORE MESSAGES

24 User Functions

To access the user menu perform the following operations:

1. Move the ACCESS CONTROLS lockswitch to position 1 using the access controls key.

2. Press 5 on the user controls to access the menu function. The following menu will be displayed:

```
1 = USER MENU
ENTER ACCESS CODE FOR
ENGINEERS MENU
      0000
```

3. Press 1 to enter the user menu. The following menu will be displayed:

```
1=TIME/DATE   2=MODES
3=EN/DIS      4=VIEW
5=TEST        6=PRINT
SELECT 1..6,   <=EXIT
```

This is referred to as the user main menu screen and the description of the user functions begin from this screen.

Note: The system automatically leaves the user menu after a period of time. This automatic timeout prevents the system being left in the user or engineers access mode unintentionally. The timeout period depends on the function selected and is between 1 and 15 minutes.

24.1 How to Enter Numbers

All menu selections are made using direct key access using keys 1 to 6.

Entry of digits is performed by the following method:

1. On entering a menu screen which requires a number to be entered a default number will be displayed. For example when setting the time the current time is displayed. The cursor will underline the first digit.

2. Press MENU UP or MENU DOWN to increment or decrement the digit.

3. When the digit is correct press > (ENTER) to move onto the next digit.

4. Press < to cancel the menu screen and move to the previous screen.

5. Change the remaining digits as required. On all but the first digit the < key moves to the previous digit. When the cursor is positioned on the last digit pressing > (ENTER) enters the value.

24.2 How to Set the Time and Date

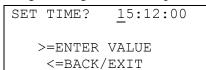1. Enter the user menu as described in section 24.

2. Press 1 to select option 1. The screen will display the current date:

```
SET DATE?   30/05/99


   >=ENTER VALUE
    <=BACK/EXIT
```

3. Make any changes to the date as described in section 24.1. The separators will be added automatically. The following screen gives an example:

```
SET DATE?   31/05/99


   >=ENTER VALUE
    <=BACK/EXIT
```

4. With the cursor positioned under the last digit press enter to save the date. A new screen will appear.

5. Enter the time as 2 hour digits (24 hour clock), 2 minute digits and 2 second digits. The separators will be added automatically. The following screen gives an example:

```
SET TIME?   15:12:00


   >=ENTER VALUE
    <=BACK/EXIT
```

6. Change the time as required and press enter to save the value and return to the user menu screen.

24.3 How to Enable and Disable the Panel Delay

1. Enter the user menu as described in section 24.

2. Press 2 to select option 2. The following screen will be displayed:

```
PANEL MODES
1=DELAY,2=DAY/NIGHT
3=BAUD-RATE
SELECT 1..3,   <=EXIT
```

3. Press 1 to select option 1. The following screen will be displayed:

```
DELAY IS 01 MINUTES
09:00:00 TO 17:00:00
DELAY IS ENABLED
1=DISABLE,     <=EXIT
```

4. Press 1 to toggle the delay to a disabled condition. The following screen will be displayed:

```
DELAY IS 01 MINUTES
09:00:00 TO 17:00:00
DELAY IS DISABLED
1=ENABLE,     <=EXIT
```

5. Press 1 to toggle the delay to an enabled condition if required.

6. Press escape to return to the user menu screen.

24.4 How to Enable Day Sensitivity Mode
1. Enter the user menu as described in section 24.
2. Press 2 to select option. The following screen will be displayed:

```
PANEL MODES
1=DELAY,2=DAY/NIGHT
3=BAUD-RATE
SELECT 1..3,  <=EXIT
```

3. Press 2 to select option 2. The following screen will be displayed:

```
DAY/NIGHT MODE 1
1=DAY,      2=NIGHT,
3=TIMER,    4=OFF
      <=EXIT
```

4. The display shows the day mode 1 selected. Selecting this option forces the appropriate trip levels and sensitivity codes to the 'Day Time' value regardless of the time.

24.5 How to Enable Night Sensitivity Mode
1. Enter the user menu as described in section 24.
2. Press 2 to select option. The following screen will be displayed:

```
PANEL MODES
1=DELAY,2=DAY/NIGHT
3=BAUD-RATE
SELECT 1..3,  <=EXIT
```

3. Press 2 to select option 2. The following screen will be displayed:

```
DAY/NIGHT MODE 1
1=DAY,      2=NIGHT,
3=TIMER,    4=OFF
      <=EXIT
```

4. Display shows the day mode 1 selected, to select Night mode press 2. The following screen will be displayed.

```
DAY/NIGHT MODE 2
1=DAY,      2=NIGHT,
3=TIMER,    4=OFF
      <=EXIT
```

5. Selecting the Night mode option forces the appropriate trip levels and sensitivity codes to the 'Night Time' value regardless of the time.

24.6 How to Enable Timed Sensitivity Mode
1. Enter the user menu as described in section 24.
2. Press 2 to select option. The following screen will be displayed:

```
PANEL MODES
1=DELAY,2=DAY/NIGHT
3=BAUD-RATE
SELECT 1..3,  <=EXIT
```

3. Press 2 to select option 2. The following screen will be displayed:

```
DAY/NIGHT MODE 2
1=DAY,      2=NIGHT,
3=TIMER,    4=OFF
      <=EXIT
```

4. Display shows the night mode 2 selected, to select Timed mode press 3. The following screen will be displayed.

```
DAY/NIGHT MODE 3
1=DAY,      2=NIGHT,
3=TIMER,    4=OFF
      <=EXIT
```

5. Selecting the Timer option enables the active trip levels and sensitivity codes depend upon the day of the week and the time.

24.7 How to Enable Off Sensitivity Mode
1. Enter the user menu as described in section 24.
2. Press 2 to select option. The following screen will be displayed:

```
PANEL MODES
1=DELAY,2=DAY/NIGHT
3=BAUD-RATE
SELECT 1..3,  <=EXIT
```

3. Press 2 to select option 2. The following screen will be displayed:

```
DAY/NIGHT MODE 3
1=DAY,      2=NIGHT,
3=TIMER,    4=OFF
      <=EXIT
```
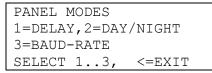
4. Display shows the Timer mode 3 selected, to select the Off mode press 4. The following screen will be displayed.

```
DAY/NIGHT MODE 4
1=DAY,      2=NIGHT,
3=TIMER,    4=OFF
        <=EXIT
```

6. Selecting the Off option forces the active trip levels and sensitivity codes to their Default value regardless of the time.

24.8 How to Change the Baud Rate

1. Enter the user menu as described in section 24.

2. Press 2 to select option. The following screen will be displayed:

```
PANEL MODES
1=DELAY,2=DAY/NIGHT
3=BAUD-RATE
SELECT 1..3,  <=EXIT
```

3. Press 3 to select option 3. The following screen will be displayed:

```
BAUD-RATE 4800     1
= 1200, 2 = 4800

SELECT 1..2,  <=EXIT
```

n.b. the value on line 1 shows the current baud rate setting.

4. Display shows 4800 Baud selected, to select 1200 Baud press 1. The following screen will be displayed.

```
BAUD-RATE 1200     1
= 1200, 2 = 4800

SELECT 1..2,  <=EXIT
```

n.b. Older PC Editor Systems need to upload/download at 1200 baud, but the latest can user 4800 baud for faster transfers.

24.9 How to Access the Disablement Menu via the Summary Screen

1. Enter the user menu as described in section 24.

2. Press 3 to select option 3. The screen will display the first page of current disabled devices:

```
DISABLEMENT SUMMARY
0003 POINTS DISABLED
00 ZONES DISABLED
1=NEXT,>=MENU,<=EXIT
```

Pressing 1 will cycle through the other pages of the disablement summary.

```
DISABLEMENT SUMMARY
000 INPUTS DISABLED
PRINTER DISABLED
1=NEXT,>=MENU,<=EXIT
```

```
DISABLEMENT SUMMARY
SOUNDERS DISABLED
OUTPUTS ENABLED
1=NEXT,>=MENU,<=EXIT
```

```
DISABLEMENT SUMMARY
BUZZER ENABLED

1=NEXT,>=MENU,<=EXIT
```

This example shows no zones, 3 points, no inputs, all sounders and the printer are disabled, while outputs and the buzzer are enabled.

3. Press enter to continue. The following screen will be displayed:

```
EN/DIS:1=POINTS
2=ZONES,   3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,    <=EXIT
```

24.10 How to Enable and Disable a Single Point (Stand-Alone Panel)
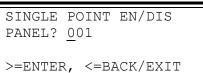
1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,   3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,    <=EXIT
```
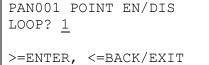
2. Press 1. The following screen will be displayed:

```
ENABLE/DISABLE POINT
1=SINGLE,    2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

3. To disable a single point press 1. The following screen will be displayed:

```
SINGLE POINT EN/DIS
LOOP? 1

>=ENTER, <=BACK/EXIT
```
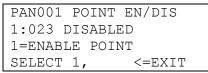
4. Change the loop number and press enter to
    continue.

```
SINGLE POINT EN/DIS
LOOP 01
POINT? 001
>=ENTER,      <=BACK
```

5. Enter the point number and press enter. The
    next screen displays the current device
    disablement status. The following screen shows
    the device is enabled with the option to disable.

```
SINGLE POINT EN/DIS
1:023 ENABLED
1=DISABLE POINT
SELECT 1,      <=EXIT
```

7. Press 1 to toggle the point disablement status.
    The point will be disabled and the screen will
    update to show the new status.

```
SINGLE POINT EN/DIS
1:023 DISABLED
1=ENABLE POINT
SELECT 1,      <=EXIT
```

8. Press escape to return to the previous page:

```
ENABLE/DISABLE POINT
1=SINGLE,    2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

Press escape to exit the menu one level at a time.

24.11 How to Enable and Disable a Single Point (Network Panel)

1. Enter the disablement menu as described in
    section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 1. The following screen will be displayed:

```
ENABLE/DISABLE POINT
1=SINGLE,    2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

3. To disable a single point press 1. The following
    screen will be displayed:

```
SINGLE POINT EN/DIS
PANEL? 001


>=ENTER, <=BACK/EXIT
```

4. Enter the panel number and press enter to
    continue.

```
PAN001 POINT EN/DIS
LOOP? 1


>=ENTER, <=BACK/EXIT
```

5. Change the loop number and press enter to
    continue.

```
PAN001 POINT EN/DIS
LOOP 01
POINT? 001
>=ENTER,      <=BACK
```

6. Enter the point number and press enter. The
    next screen displays the current device
    disablement status. The following screen shows
    the device is enabled with the option to disable.

```
PAN001 POINT EN/DIS
1:023 ENABLED
1=DISABLE POINT
SELECT 1,      <=EXIT
```

7. Press 1 to toggle the point disablement
    status. Either the local point will be
    disabled, or a message will be sent to the
    network, and the screen will be updated to
    show the new status.

```
PAN001 POINT EN/DIS
1:023 DISABLED
1=ENABLE POINT
SELECT 1,      <=EXIT
```

8. Press escape to return to the previous page:

```
ENABLE/DISABLE POINT
1=SINGLE,    2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

Press escape to exit the menu one level at a time.

24.12 How to Enable and Disable a Range Of Points (Stand-Alone Panel)

1. Enter the disablement menu as described in
    section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 1. The following screen will be displayed:

```
ENABLE/DISABLE POINT
1=SINGLE,      2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```
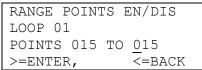
3. To disable a range of points press 2. The following screen will be displayed:

```
RANGE POINTS EN/DIS
LOOP? 1


>=ENTER, <=BACK/EXIT
```

4. Enter the loop number and press enter to continue.

```
RANGE POINTS EN/DIS
LOOP 01
POINT? 001
>=ENTER,        <=BACK
```

5. Enter the number of the first point and press enter.

```
RANGE POINTS EN/DIS
LOOP 01
POINTS 015 TO 015
>=ENTER,        <=BACK
```

6. Enter the number of the second point and press enter.

```
1:015-030 EN/DIS
1=ENABLE POINTS
2=DISABLE POINTS
SELECT 1..2,  <=EXIT
```

7. Choose the option required:
    i)   To enable the range of points displayed press 1
    ii) To disable the range of points press 2
    iii) To exit without making any changes press escape

The screen will display the previous page:

```
ENABLE/DISABLE POINT
1=SINGLE,      2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

8. Press escape to exit the menu one level at a time.

24.13 How to Enable and Disable a Range of Points (Network Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,   3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

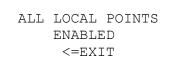2. Press 1. The following screen will be displayed:

```
ENABLE/DISABLE POINT
1=SINGLE,      2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

3. To disable a range of points press 2. The following screen will be displayed:

```
RANGE POINTS EN/DIS
PANEL? 001


>=ENTER, <=BACK/EXIT
```

4. Enter the panel number and press enter to continue.

```
PAN001 POINTS EN/DIS
LOOP? 1


>=ENTER, <=BACK/EXIT
```

5. Enter the loop number and press enter to continue.

```
PAN001 POINTS EN/DIS
LOOP 01
POINT? 001
>=ENTER,        <=BACK
```

6. Enter the number of the first point and press enter.

```
PAN001 POINTS EN/DIS
LOOP 01
POINTS 015 TO 015
>=ENTER,        <=BACK
```

7. Enter the number of the second point and press enter.

```
PAN001 POINTS EN/DIS
1:015-030
1=ENABLE,  2=DISABLE
SELECT 1..2,  <=EXIT
```

8. Choose the option required:
    i)   To enable the range of points displayed press 1
    ii) To disable the range of points press 2
    iii) To exit without making any changes press escape

If the local panel number was entered then the appropriate local points will be enabled/disabled.

If another panel number was entered then a suitable command will be sent via the network to the appropriate panel.

The screen will display the previous page:

```
ENABLE/DISABLE POINT
1=SINGLE,    2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

9. Press escape to exit the menu one level at a time.

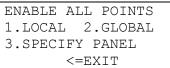### How to View Disabled Points

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,    <=EXIT
```

2. Press 1. The following screen will be displayed:

```
ENABLE/DISABLE POINT
1=SINGLE,    2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

3. To view the disabled points press 3. The following screen will be displayed:

```
DISABLED POINTS
   PREPARING REPORT
      PLEASE WAIT
         <=EXIT
```

The report will be displayed as follows for a stand-alone panel:

```
DISABLED POINTS
1:1-5,9,22-30,125
2:55-70
1=BACK,2=NEXT,<=EXIT
```

or as follows for a network panel:

```
DISABLED POINTS
5>1:1-5,9,22-30,125
5>2:55-70
1=BACK,2=NEXT,<=EXIT
```

Where the indicated disablements are for panel 5.

4. Press 1 and 2 to scroll through the screens displaying the disabled devices. When all the

devices have been viewed the following messages appears

```
DISABLED POINTS
NO MORE DISABLEMENTS


1=BACK,        <=EXIT
```

5. Press escape to exit the menu one level at a time.

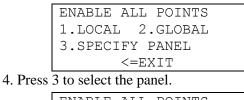### 24.15 How to Enable All Points (Stand-Alone Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,    <=EXIT
```

2. Press 1. The following screen will be displayed:

```
ENABLE/DISABLE POINT
1=SINGLE,    2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

3. Press 4 to enable all the points. This operates on points disabled individually, as a range or as a zone. The following screen will be displayed:

```
ALL POINTS ENABLED

         <=EXIT
```

4. Press escape to exit the menu one level at a time.

24.16 How to Enable All Local Points (Network Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,    <=EXIT
```

2. Press 1. The following screen will be displayed:

```
ENABLE/DISABLE POINT
1=SINGLE,    2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

3. Press 4 to see the enable all points menu. The following screen will be displayed:
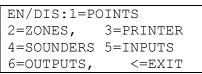
```
ENABLE ALL POINTS
1.LOCAL  2.GLOBAL
3.SPECIFY PANEL
       <=EXIT
```

4. Press 1 to enable all local points.

```
   ALL LOCAL POINTS
       ENABLED
       <=EXIT
```

5. Press escape to exit the menu one level at a time.

24.17 How to Enable All Points Globally (Network Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,   3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 1. The following screen will be displayed:

```
ENABLE/DISABLE POINT
1=SINGLE,    2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

3. Press 4 to see the enable all points menu. The following screen will be displayed:

```
ENABLE ALL POINTS
1.LOCAL  2.GLOBAL
3.SPECIFY PANEL
       <=EXIT
```

6. Press 2 to enable all points globally.

```
   ALL POINTS ENABLED
     AT ALL PANELS
       <=EXIT
```

7. Press escape to exit the menu one level at a time.

24.18 How to Enable All Points at Selected Panel (Network Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,   3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 1. The following screen will be displayed:

```
ENABLE/DISABLE POINT
1=SINGLE,    2=RANGE
3=VIEW, 4=ENABLE ALL
SELECT 1..4,  <=EXIT
```

3. Press 4 to see the enable all points menu. The following screen will be displayed:

```
ENABLE ALL POINTS
1.LOCAL  2.GLOBAL
3.SPECIFY PANEL
       <=EXIT
```

4. Press 3 to select the panel.

```
ENABLE ALL POINTS
AT PANEL? 001

       <=EXIT
```

5. Press > to enable all points at selected panel.

```
   ALL POINTS ENABLED
     AT PANEL 001
       <=EXIT
```

6. Press escape to exit the menu one level at a time.

24.19 How to Enable and Disable a Zone of Devices (Stand-Alone Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,   3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```
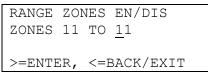
2. Press 2. The following screen will be displayed:

```
ENABLE/DISABLE ZONE
1=SINGLE,    2=RANGE
3=VIEW
SELECT 1..3,  <=EXIT
```

3. To disable a single zone press 1. The following screen will be displayed:

```
SINGLE ZONE EN/DIS
ZONE? 01

>=ENTER, <=BACK/EXIT
```

4. Enter the zone number and press enter to continue. The next screen displays the current zone disablement status. The example below shows zone 31 is enabled with the option to disable.

```
SINGLE ZONE EN/DIS
ZONE 31 ENABLED
1=DISABLE ZONE
SELECT 1,      <=EXIT
```

5. Press 1 to toggle the zone disablement status. If the selected zone is valid (i.e. is allocated to at least one point) then zone will be disabled, and the display will update to show the new status.

```
SINGLE ZONE EN/DIS
ZONE 31 DISABLED
1=ENABLE ZONE
SELECT 1,      <=EXIT
```

6. Press escape to return to the previous page:

```
ENABLE/DISABLE ZONE
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,  <=EXIT
```
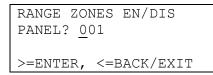
Press escape to exit the menu one level at a time.

24.20 How to Enable and Disable a Zone of Devices (Network Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,      <=EXIT
```
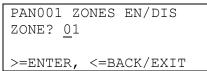
2. Press 2. The following screen will be displayed:

```
ENABLE/DISABLE ZONE
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,  <=EXIT
```
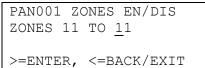
3. To disable a single zone press 1. The following screen will be displayed:

```
SINGLE ZONE EN/DIS
PANEL? 001

>=ENTER, <=BACK/EXIT
```

4. Enter the panel number and press enter to continue.

```
PAN001 ZONE EN/DIS
ZONE? 01

>=ENTER, <=BACK/EXIT
```

5. Enter the zone number and press enter to continue. The next screen displays the current zone disablement status. The example below shows zone 31 is enabled with the option to disable.

```
PAN001 ZONE EN/DIS
ZONE 31 ENABLED
1=DISABLE ZONE
SELECT 1,      <=EXIT
```

7. Press 1 to toggle the zone disablement status. If the local panel is specified, and the selected zone is valid (i.e. has at least one point allocated to it), then the zone is disabled and the display is updated to show the new status. If a remote panel is specified then the appropriate command is sent to the network, and the screen is updated to show the expected new status. If the zone disablement command has been accepted at the remote panel, then an appropriate message should be seen on the printer and/or event log after a few seconds, and viewing zone disablements should indicate the disabled zone.

```
PAN001 ZONE EN/DIS
ZONE 31 DISABLED
1=ENABLE ZONE
SELECT 1,      <=EXIT
```

8. Press escape to return to the previous page:

```
ENABLE/DISABLE ZONE
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,  <=EXIT
```

7. Press escape to exit the menu one level at a time.

24.21 How to Enable and Disable a Range of Zones (Stand-Alone Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,      <=EXIT
```

2. Press 2. The following screen will be displayed:

```
ENABLE/DISABLE ZONE
1=SINGLE,    2=RANGE
3=VIEW
SELECT 1..3,  <=EXIT
```

3. To disable a range of zones press 2. The following screen will be displayed:

```
RANGE ZONES EN/DIS
ZONE? 01

>=ENTER, <=BACK/EXIT
```

4. Enter the first zone number and press enter to continue.

```
RANGE ZONES EN/DIS
ZONES 11 TO 11

>=ENTER, <=BACK/EXIT
```

5. Enter the number of the second zone and press enter.

```
RANGE ZONES EN/DIS
ZONES 11 TO 12
1=ENABLE,  2=DISABLE
SELECT 1..2,  <=EXIT
```
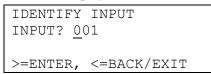
6. Choose the option required:
   i)   To enable the range of points displayed press 1
   ii) To disable the range of points press 2
   iii) To exit without making any changes press escape

n.b. Any zones within the range that do not have any allocated devices will not be disabled.

The screen will display the previous page:


```
ENABLE/DISABLE ZONE
1=SINGLE,    2=RANGE
3=VIEW
SELECT 1..3,  <=EXIT
```

9. Press escape to exit the menu one level at a time.

24.22 How to Enable and Disable a Range of Zones (Network Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,   3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 2. The following screen will be displayed:

```
ENABLE/DISABLE ZONE
1=SINGLE,    2=RANGE
3=VIEW
SELECT 1..3,  <=EXIT
```

3. To disable a range of zones press 2. The following screen will be displayed:

```
RANGE ZONES EN/DIS
PANEL? 001

>=ENTER, <=BACK/EXIT
```

4. Enter the panel number and press enter to continue.

```
PAN001 ZONES EN/DIS
ZONE? 01

>=ENTER, <=BACK/EXIT
```

5. Enter the first zone number and press enter to continue.

```
PAN001 ZONES EN/DIS
ZONES 11 TO 11

>=ENTER, <=BACK/EXIT
```

6. Enter the number of the second zone and press enter.

```
PAN001 ZONES EN/DIS
ZONES 11 TO 12
1=ENABLE,  2=DISABLE
SELECT 1..2,  <=EXIT
```

7. Choose the option required:
   i)   To enable the range of points displayed press 1
   ii) To disable the range of points press 2
   iii) To exit without making any changes press escape

If the local panel number was entered then the appropriate local zones that are allocated to any devices will be enabled/disabled.

If another panel number was entered then a suitable command will be sent via the network to the appropriate panel.

The screen will display the previous page:

```
ENABLE/DISABLE ZONE
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,   <=EXIT
```

8.   Press escape to exit the menu one level at a time.

24.23 How To View Disabled Zones

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 2. The following screen will be displayed:

```
ENABLE/DISABLE ZONE
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,   <=EXIT
```

3. To view the disabled zones press 3. The following screen will be displayed:

```
DISABLED ZONES
   PREPARING REPORT
     PLEASE WAIT
       <=EXIT
```

The report will be displayed as follows for a stand-alone panel:

```
DISABLED ZONES
1-3,10,12,15-18,25,
30
1=BACK,2=NEXT,<=EXIT
```

or will be displayed as follows for a network panel:

```
DISABLED ZONES
5>1-3,10,12,15-18,
6>30
1=BACK,2=NEXT,<=EXIT
```

4. Press 1 and 2 to scroll through the screens displaying the disabled devices. When all the devices have been viewed the following messages appears

```
DISABLED ZONES
NO MORE DISABLEMENTS

1=BACK,        <=EXIT
```

5. Press escape to exit the menu one level at a time.

24.24 How to Enable and Disable the Local Printer
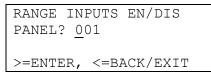
1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```
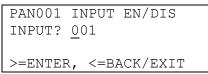
2. Press 3. The screen will display the current printer disablement status. This example shows the printer is disabled:

```
PRINTER IS DISABLED
1=ENABLE PRINTER

SELECT 1,      <=EXIT
```

3. Press 1 to toggle the printer disablement status or escape to exit without changing the printer disablement status. The following screen will be displayed:

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
SELECT 1..5,   <=EXIT
```

4. Press escape to exit the menu one level at a time.

24.25 How To Enable And Disable All Sounding Devices

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 4. The screen will display the current sounder disablement status. This example shows the sounding devices are disabled:

```
SOUNDERS DISABLED
1=ENABLE SOUNDERS

SELECT 1,      <=EXIT
```

3. Press 1 to toggle the sounder disablement status or escape to exit without changing the sounder disablement status. On a network system, if the status is changed then this will be reported to the network, and any other panels that are configured to accept this condition will update

their own sounder disablement status. The following screen will be displayed:

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
SELECT 1..5,   <=EXIT
```

4. Press escape to exit the menu one level at a time.

24.26 How to Enable and Disable Expansion Board Inputs (Stand-Alone Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```
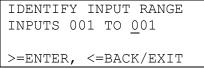
2. Press 5. The following screen will be displayed:

```
 INPUT DISABLEMENT
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,   <=EXIT
```

3. To disable a single input press 1. The following screen will be displayed:

```
IDENTIFY INPUT
INPUT? 001

>=ENTER, <=BACK/EXIT
```

4. Enter the input number and press enter to continue. The next screen displays the current input disablement status. The example below shows input 1 is enabled with the option to disable.

```
IDENTIFY INPUT
INPUT 010 ENABLED
1=DISABLE INPUT
SELECT 1,      <=EXIT
```

5. Press 1 to toggle the input disablement status. The input will be disabled and the screen will update to show the new status.

```
IDENTIFY INPUT
INPUT 010 DISABLED
1=ENABLE INPUT
SELECT 1,      <=EXIT
```

6. Press escape to return to the previous page:

```
 INPUT DISABLEMENT
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,   <=EXIT
```

7. Press escape to exit the menu one level at a time.

24.27 How to Enable and Disable an Expansion Board Input (Network Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 5. The following screen will be displayed:

```
 INPUT DISABLEMENT
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,   <=EXIT
```

3. To disable a single input press 1. The following screen will be displayed:

```
RANGE INPUTS EN/DIS
PANEL? 001

>=ENTER, <=BACK/EXIT
```

4. Enter the panel number and press enter to continue.

```
PAN001 INPUT EN/DIS
INPUT? 001

>=ENTER, <=BACK/EXIT
```

5. Enter the input number and press enter to continue. The next screen displays the current input disablement status. The example below shows input 1 is enabled with the option to disable.

```
PAN001 INPUT EN/DIS
INPUT 010 ENABLED
1=DISABLE INPUT
SELECT 1,      <=EXIT
```

6. Press 1 to toggle the input disablement status. Either the local input will be disabled, or a suitable command will be sent to the network, then the screen will update to show the new status.

```
PAN001 INPUT EN/DIS
INPUT 010 DISABLED
1=ENABLE INPUT
SELECT 1,      <=EXIT
```

7. The screen will display the previous page:

```
   INPUT DISABLEMENT
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,  <=EXIT
```

Press escape to exit the menu one level at a time.

24.28 How to Enable and Disable a Range of Expansion Board Inputs (Stand-Alone Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 5. The following screen will be displayed:

```
   INPUT DISABLEMENT
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,  <=EXIT
```

3. To disable a range of inputs press 2. The following screen will be displayed:

```
IDENTIFY INPUT RANGE
INPUT? 001

>=ENTER, <=BACK/EXIT
```

4. Enter the first input number and press enter to continue.

```
IDENTIFY INPUT RANGE
INPUTS 001 TO 001

>=ENTER, <=BACK/EXIT
```

5. Enter the number of the second input and press enter.

```
IDENTIFY INPUT RANGE
INPUTS 001 TO 002
1=ENABLE,  2=DISABLE
SELECT 1..2,  <=EXIT
```

6. Choose the option required:
    I)   To enable the range of inputs displayed press 1
    ii) To disable the range of inputs press 2
    iii) To exit without making any changes press escape

The screen will display the previous page:

```
   INPUT DISABLEMENT
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,  <=EXIT
```

7. Press escape to exit the menu one level at a time.

24.29 How to Enable and Disable a Range of Expansion Board Inputs (Network Panel)

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 5. The following screen will be displayed:

```
   INPUT DISABLEMENT
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,  <=EXIT
```

3. To disable a range of inputs press 2. The following screen will be displayed:

```
RANGE INPUTS EN/DIS
PANEL? 001

>=ENTER, <=BACK/EXIT
```

4. Enter the panel number and press enter to continue.

```
PAN001 INPUTS EN/DIS
INPUT? 001

>=ENTER, <=BACK/EXIT
```

5. Enter the first input number and press enter to continue.

```
PAN001 INPUTS EN/DIS
INPUTS 001 TO ? 001

>=ENTER, <=BACK/EXIT
```

6. Enter the number of the second input and press enter.

```
PAN001 INPUTS EN/DIS
INPUTS 001 TO 002
1=ENABLE,  2=DISABLE
SELECT 1..2,  <=EXIT
```

7. Choose the option required:

    I) To enable the range of inputs displayed press 1

    ii) To disable the range of inputs press 2

    iii) To exit without making any changes press escape

If the local panel number was entered then the appropriate local inputs will be enabled/disabled.

If another panel number was entered then a suitable command will be sent via the network to the appropriate panel.

The screen will display the previous page:

```
 INPUT DISABLEMENT
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,   <=EXIT
```

8. Press escape to exit the menu one level at a time.

24.30 How to View Disabled Expansion Board Inputs

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 5. The following screen will be displayed:

```
 INPUT DISABLEMENT
1=SINGLE,     2=RANGE
3=VIEW
SELECT 1..3,   <=EXIT
```

3. To view the disabled inputs press 3. The following screen will be displayed:

```
DISABLED INPUTS
  PREPARING REPORT
    PLEASE WAIT
      <=EXIT
```

The report will be displayed as follows for a stand-alone panel:

```
DISABLED INPUTS
1-3,10,12,15-18,25,
30
1=BACK,2=NEXT,<=EXIT
```

or displayed as follows for a network panel:

```
DISABLED INPUTS
1>1-3,10,12,15-18,25
2>30
1=BACK,2=NEXT,<=EXIT
```

4. Press 1 and 2 to scroll through the screens displaying the disabled devices. When all the devices have been viewed the following messages appears

```
DISABLED INPUTS
NO MORE DISABLEMENTS

1=BACK,        <=EXIT
```

5. Press escape to exit the menu one level at a time.

24.31 How to Enable and Disable All Non-Sounder Devices

1. Enter the disablement menu as described in section 24.8.

```
EN/DIS:1=POINTS
2=ZONES,    3=PRINTER
4=SOUNDERS 5=INPUTS
6=OUTPUTS,     <=EXIT
```

2. Press 6. The screen will display the current output disablement status. This example shows the sounding devices are disabled:

```
OUTPUTS DISABLED
1=ENABLE OUTPUTS

SELECT 1,      <=EXIT
```

3. Press 1 to toggle the output disablement status or escape to exit without changing the output disablement status. The following screen will be displayed:

```
EN/DIS:1=POINTS
2=ZONES,   3=PRINTER
4=SOUNDERS 5=INPUTS
SELECT 1..5,   <=EXIT
```

4. Press escape to exit the menu one level at a time.

24.32 How to View the Event Log

1. Enter the user menu as described in section 24.

2. Press 4 to select option 4. The following screen will be displayed:

```
1=VIEW EVENT LOG
2=VIEW SUPPRESSED
  EVENTS
SELECT 1..2,   <=EXIT
```

3. Press 1 to view the event log. A screen showing the first event in the log will be displayed:

```
1:007 Z02 BGU  FIRE
text for point 1:007
Text line 2
1=PR,2=NX,3=DPY,<=EX
```

4. Press 3 to view the timestamp. The display will alter as shown:

```
20/05/96    13:24:08
1:007 Z02 BGU  FIRE
text for point 1:007
1=PR,2=NX,3=DPY,<=EX
```

5. Press 1 or 2 to scroll forwards or backwards through the event log. The first line shows the event time and date. When the last event is displayed and 2 is pressed the following screen will be displayed:

```
END OF EVENT LOG
 NO MORE EVENTS TO
      DISPLAY
1=BACK,        <=EXIT
```

6. Press escape to exit the menu one level at a time.

24.33 How to View Suppressed Alerts, Faults and Indications

1. Enter the user menu as described in section 24.

2. Press 4 to select option 4. The following screen will be displayed:

```
1=VIEW EVENT LOG
2=VIEW SUPPRESSED
  EVENTS
SELECT 1..2,   <=EXIT
```

3. Press 2 to view the suppressed events. A screen showing the different event types will be displayed:

```
1=ALERTS  2=FAULTS
3=INDICATIONS
4=DISABLEMENTS
SELECT 1..4,   <=EXIT
```

4. Select the type of event to be viewed by pressing 1, 2 or 3. The first event will be displayed.

```
1:011 Z02 HEAT ALERT
text for point 1:011
ON TWO LINES
1=BACK,2=NEXT,<=EXIT
```

5. Scroll through the events by pressing 1 or 2. When the last event is reached a screen will display a message similar to the following:

```
NO MORE SUPPRESSED
        ALERTS

1=BACK,        <=EXIT
```

6. Press escape to exit the menu one level at a time.
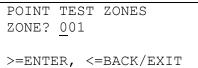
24.34 How to View Suppressed Disablements

1. Enter the user menu as described in section 24.

2. Press 4 to select option 4. The following screen will be displayed:

```
1=VIEW EVENT LOG
2=VIEW SUPPRESSED
  EVENTS
SELECT 1..2,   <=EXIT
```

3. Press 2 to view the suppressed events. A screen showing the different event types will be displayed:

```
1=ALERTS  2=FAULTS
3=INDICATIONS
4=DISABLEMENTS
SELECT 1..4,  <=EXIT
```

4. Select disablements by pressing 4. The screen will display the first page of current disabled devices:

```
DISABLEMENT SUMMARY
0003 POINTS DISABLED
00 ZONES DISABLED
1=NEXT,>=MENU,<=EXIT
```

This example shows no zones and 3 points disabled.

5. Press enter to continue. The following screen will be displayed:

```
EN/DIS:1=POINTS
2=ZONES,   3=PRINTER
4=SOUNDERS 5=INPUTS
SELECT 1..5,  <=EXIT
```

6. Select the appropriate option. If there is more than one screen available use the keys to scroll through the pages.

7. Press escape to exit the menu one level at a time.

24.35 How to View the Status of a Point

There are two status display modes. In the enabled mode the panel will respond to all device events. If a device is operated manually or a self test changes the device condition the panel will respond to the event.

If a point status is viewed in the disabled mode then the panel will no longer respond to device events, although any change in status will be displayed. This is useful for testing the analogue devices using the self test command bit, or for testing ancillary devices without putting the panel into a fire condition.

1. Enter the user menu as described in section 24.

2. Press 5 to select option 5 - Test. The following screen will be displayed:

```
TEST MODE
1=VIEW POINT STATUS
2=ONE PERSON TESTS
SELECT 1..2,  <=EXIT
```
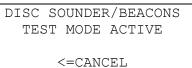
3. Press 1 to view point status. The following screen will be displayed:

```
POINT TEST
1=POINT DISABLED
2=POINT ENABLED
SELECT 1..2,  <=EXIT
```

4. Select 1 or 2. If the point is disabled the panel will no longer respond to events from this point. The screen display indicates whether the device is enabled of disabled throughout the test. This shows the disabled mode.

```
POINT STATUS DISABL.
LOOP? 1

>=ENTER, <=BACK/EXIT
```

5. Enter the loop number and press enter. Enter the point address number and press enter. The following screen will be displayed:

Analogue value

Device type

Device address

Status bits returned by device. Bit 2 is displayed on the left, bit 0 on the right.

```
ADR VAL TYPE STS CMD
001 025 HEAT 000 000
ZONE001 CMD BITS=321
4=PREV,5=NEXT,<=EXIT
```

Zone number

Command bits transmitted to device. These are displayed in the order bit 2 on the left, bit 0 on the right.

Keys to toggle the command bits:
Bit 2 is toggled by key 3;
bit 1 is toggled by key 2;
bit 0 is toggled by key 1.

6. To display other points press 4 or 5 to change the device number. To view devices on another loop press escape to return to the previous menu screen.

Upon exiting the status mode the command bits are returned to panel control. *If a device has undergone a self test in the disabled status mode the panel may detect a fire condition before the analogue value returns to normal.*

24.36 How to Test Devices Using One Man Test Mode

In this test any fire event within any of the selected zones will not be reported on the panel display, but is printed and recorded in the event log with the description "TEST" instead of "FIRE". No relays or cause/effect will be operated, but the sounders may operate for ten seconds if the appropriate mode is selected. The LED on the point in fire will illuminate for ten seconds.

Any fire events from zones not in test mode will clear the menu page from the screen in order to report the genuine fire. The test mode will remain active, even though the menu is not active, and will continue to be indicated by the test and zone fault LEDs. If this occurs it will be necessary to re-enter the menu system to cancel the test. As soon as point walk test is selected the currently selected test zones will be identified on the LCD. This menu function **DOES NOT** time out although the buzzer sounds every 10s as a reminder.

1. Enter the user menu as described in section 24.

2. Press 5 to select option 5 - Test. The following screen will be displayed:

```
TEST MODE
1=VIEW POINT STATUS
2=ONE PERSON TESTS
SELECT 1..2,  <=EXIT
```

3. Press 2 to enter the one person test mode. The following screen will be displayed:

```
1=POINT WALK TEST
2=ALARM WALK TEST
3=DISC SNDR/BCN TEST
SELECT 1..3,  <=EXIT
```

4. Select option 1. The following screen will be displayed:

```
POINT TEST ZONES
ZONE? 001

>=ENTER, <=BACK/EXIT
```

5. Enter the zone to be tested and press enter. The following screen will be displayed:

```
POINT TEST ZONES
1,

1=ZONE,2=TEST,<=EXIT
```

9. If another zone is to be included in the test press 1 and add further zones as necessary. Press 2 to select the required test mode (Phase 5) or begin the test immediately (earlier phases).

```
POINT TEST OPTIONS
1=SILENT
2=WITH SOUNDERS
SELECT 1..2,  <=EXIT
```

10. Press 1 or 2 as appropriate to begin the test. The screen will indicate test mode is active.

```
POINT TEST ACTIVE
1,

1=CANCEL TEST,<=EXIT
```

In addition the TEST LED will be illuminated

When the test is complete, press 1 to cancel the test mode.

24.37 How to Test Sounding Devices Using One Man Test Mode

In this test all of the alarms will sound for 5 seconds every 10 seconds for audibility checking. This applies to the local alarm circuits, all alarm controller ancillary devices and loop powered sounders. This test mode will be automatically cancelled if a fire condition occurs.

1. Enter the user menu as described in section 24.

2. Press 5 to select option 5 - Test. The following screen will be displayed:

```
TEST MODE
1=VIEW POINT STATUS
2=ONE PERSON TESTS
SELECT 1..2,  <=EXIT
```

3. Press 2 to enter the one person test mode. The following screen will be displayed:

```
1=POINT WALK TEST
2=ALARM WALK TEST
3=DISC SNDR/BCN TEST
SELECT 1..3,  <=EXIT
```

4. Select option 2 to begin the alarm test. The following screen will be displayed:

```
     ALARM TEST IS ON

        <=CANCEL
```

5. Press escape to cancel the test.

24.38 How to Test Discovery Sounder Beacon Devices Using Magnetic Wand

In this test each Discovery sounder beacon may be individually operated by means of a magnetic wand.

1. Enter the user menu as described in section 24.

2. Press 5 to select option 5 - Test. The following screen will be displayed:

```
TEST MODE
1=VIEW POINT STATUS
2=ONE PERSON TESTS
SELECT 1..2,  <=EXIT
```

3. Press 2 to enter the one person test mode. The following screen will be displayed:

```
1=POINT WALK TEST
2=ALARM WALK TEST
3=DISC SNDR/BCN TEST
SELECT 1..3,  <=EXIT
```

4. Select option 3 to begin the alarm test. The following screen will be displayed:

```
DISC SOUNDER/BEACONS
   TEST MODE ACTIVE

        <=CANCEL
```

5. Press escape to cancel the test.

24.39 How to Clear the Print Queue

1. Enter the user menu as described in section 24.

2. Press 6. The following screen will be displayed:

```
PRINTER MENU
1=CLEAR PRINT QUEUE
2=PRINT EVENT LOG
>=NEXT PAGE    <=EXIT
```

3. Press 1 to clear the print queue. The following screen will confirm the operation:

```
  PRINT QUEUE CLEARED

        <=EXIT
```

4. Press escape to exit to the printer main menu.

24.40 How to Print the Event Log

1. Enter the user menu as described in section 24.

2. Press 6. The following screen will be displayed:

```
PRINTER MENU
1=CLEAR PRINT QUEUE
2=PRINT EVENT LOG
>=NEXT PAGE    <=EXIT
```

3. Press 2 to print the event log. If the printer is currently disabled a message will appear. Press 1 to override the disablement.

```
PRINT EVENT LOG
PRINTER IS DISABLED
1=IGNORE DISABLEMENT
      <=EXIT
```

4. The following screen will be displayed while the event log is printed:

```
PRINTING
      EVENT LOG

        <=CANCEL
```

Press escape at any time to cancel printing.

5. When the event log is printed the following screen will appear:

```
PRINTING
      EVENT LOG
      COMPLETE
       <=EXIT
```

6. Press escape to exit to the printer main menu.

24.41 How to Print Disablements

1. Enter the user menu as described in section 24.

2. Press 6. The following screen will be displayed:

```
PRINTER MENU
1=CLEAR PRINT QUEUE
2=PRINT EVENT LOG
>=NEXT PAGE    <=EXIT
```

3. Press enter. The following screen will be displayed:

```
PRINTER MENU
1=PRINT DISABLEMENTS
2=PRINT LP TEXT/VAL
>=NEXT PAGE    <=EXIT
```

4. Press 1 to print the disablements. If the printer is currently disabled a message will appear. Press 1 to override the disablement.

```
PRINT DISABLEMENTS
PRINTER IS DISABLED
1=IGNORE DISABLEMENT
        <=EXIT
```

5. The following screen will be displayed while the disablement report is prepared:

```
PRINT DISABLEMENTS
  PREPARING REPORT
    PLEASE WAIT
      <=CANCEL
```

Press escape at any time to cancel the report.

6. While the report is being printed the following screen will be displayed:

```
PRINTING
      DISABLEMENTS

      <=CANCEL
```

Press escape at any time to cancel the report.

7. When the disablement report is printed the following screen will appear:

```
PRINTING
    DISABLEMENTS
      COMPLETE
       <=EXIT
```

10. Press escape to exit to the printer main menu.

24.42 How to Print Texts and Analogue Values

1. Enter the user menu as described in section 24.

2. Press 6. The following screen will be displayed:

```
PRINTER MENU
1=CLEAR PRINT QUEUE
2=PRINT EVENT LOG
>=NEXT PAGE    <=EXIT
```

3. Press enter. The following screen will be displayed:

```
PRINTER MENU
1=PRINT DISABLEMENTS
2=PRINT LP TEXT/VAL
>=NEXT PAGE    <=EXIT
```

4. Press 2 to print texts and analogue values.

```
PRINT LOOP TEXT/VALS
LOOP? 1


>=ENTER, <=BACK/EXIT
```

5. If the printer is currently disabled a message will appear. Press 1 to override the disablement.

```
PRINT LOOP TEXT/VALS
PRINTER IS DISABLED
1=IGNORE DISABLEMENT
        <=EXIT
```

6. The following screen will be displayed while the disablement report is prepared:

```
PRINT LOOP TEXT/VALS
  PREPARING REPORT
    PLEASE WAIT
      <=CANCEL
```

Press escape at any time to cancel the report.

7. While the report is being printed the following screen will be displayed:

```
      PRINTING
LOOP 1 TEXT/VALS

      <=CANCEL
```

Press escape at any time to cancel the report.

8. When the disablement report is printed the following screen will appear:

```
      PRINTING
LOOP 1 TEXT/VALS
      COMPLETE
       <=EXIT
```

11. Press escape to exit to the printer main menu.

25 Engineer Functions

To access the engineers menu functions perform the following operations:

1. Move the lockswitch to position 1 using the access controls key.

2. Press 5 on the user controls to access the menu function. The following menu will be displayed:

```
1 = USER MENU
ENTER ACCESS CODE FOR
ENGINEER MENU
     0000
```

3. Enter the engineers access code 8812 as described in section 24.1. Press * to enter the engineers access menu:

```
ENGINEER ACCESS MENU
1=USER FUNCTIONS
2=ENGINEER FUNCTIONS
SELECT 1..2,   <=EXIT
```

5. Either press 1 to enter the users main menu (see user functions for details) or press 2 to enter the engineers main menu:

```
1=PANEL SETUP
2=TEXT EDIT
3=NETWORK SETUP
SELECT 1..3,   <=EXIT
```

This is referred to as the engineer's main menu screen and the description of the engineers functions begin from this screen except for editing the panel delay.

Note: The system automatically leaves the engineers menu after a period of time. This automatic timeout prevents the system being left in the user or engineers access mode unintentionally. The timeout period depends on the function selected and is between 1 and 15 minutes.

25.1 How to Enable Changes to Site Specific Data

The engineers functions allow changes to site-specific data (SSD). This data is held in flash EEPROM that is write protected by a manual switch motherboard. This is labelled "SSD WRITE-ENABLE".

The switch must normally be positioned in the disable mode. If it is not the panel will indicate a SSD write protect fault. When site-specific data is to be saved the panel will check the position of the switch and request it is moved to the enable position. After saving changes move the switch into the disable position.

Warning: When the panel requests the switch is moved to the write enable position it is possible to escape without moving the switch. If this occurs then the changes to the site-specific data WILL NOT BE SAVED. This can occur unintentionally if the escape switch is pressed several times in succession to exit from a site-specific data editing menu screen.

25.2 How to Edit the Panel Delay

1. Enter the user menu by pressing 1 in action 3. of section 25. If the engineer's access code is not entered the function will only allow the delay to be enabled and disabled.

2. Press 2 to select option 2. The following screen will be displayed:

```
PANEL MODES
1=DELAY,2=DAY/NIGHT
3=BAUD-RATE
SELECT 1..3,   <=EXIT
```

3. Press 1 to select option 1. The following screen will be displayed:

```
1=DELAY ENABLE
2=DELAY TIMES
3=DELAY DURATION
SELECT 1..3,   <=EXIT
```

4. Press 1 to select option 1. The following screen will be displayed:

```
DELAY IS 01 MINUTES
09:00:00 TO 17:00:00
DELAY IS ENABLED
1=DISABLE,    <=EXIT
```

5. Press 1 to toggle the delay to a disabled or enabled condition. The following screen will be displayed:

```
DELAY IS 01 MINUTES
09:00:00 TO 17:00:00
DELAY IS DISABLED
1=ENABLE,     <=EXIT
```

6. Press escape to return to the delay menu screen:

```
1=DELAY ENABLE
2=DELAY TIMES
3=DELAY DURATION
SELECT 1..3,   <=EXIT
```

7. Press 2 to edit the delay start and finish times. The following screen will be displayed:

```
START TIME: 09:00:00

   >=ENTER VALUE
    <=BACK/EXIT
```

8. Edit the time and press enter when it is correct. The following screen will be displayed:

```
START TIME: 09:00:00
END TIME:   17:00:00
   >=ENTER VALUE
    <=BACK/EXIT
```

9. The end time is displayed. Edit the time and press enter when the time is correct. The delay menu will be displayed:

```
1=DELAY ENABLE
2=DELAY TIMES
3=DELAY DURATION
SELECT 1..3,   <=EXIT
```

10. Press 3 to set the delay duration. The following screen will be displayed:

```
DELAY IS 01 MINUTES
5=UP,            6=DOWN
   >=SAVE VALUE
       <=EXIT
```

11. Press 5 or 6 to increment or decrement the delay in 1 minute steps. When the required value is displayed press enter to save the delay or press escape to exit without changing the delay.

12. Press escape to return to the user menu screen.

25.3 How to Change Device Configuration of a Loop

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,   <=EXIT
```

3. Press 1, 1, 1, 3. The following screen will be displayed:

```
CONFIGURE LOOP
LOOP? 1

>=ENTER, <=BACK/EXIT
```

4. Enter the loop number and press enter. A configuration message will be displayed while the loop is configure:

```
CONFIGURING LOOP 1

      <=CANCEL
```

Loop configuration takes around 30 seconds per loop. Pressing escape at any time will cancel the configuration process without overwriting the current loop configuration data.

When the configuration process is complete a loop contents report will be generated. This indicates the types of devices on the loop.

```
LOOP 1:009 MCP
      082 SENSORS
      012 MODULES
>=SAVE,        <=EXIT
```

Press enter to save the configuration data or escape to exit without overwriting the current loop configuration.
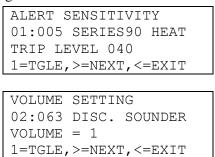
25.4 How to View Device Configuration of A Loop

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,   <=EXIT
```

3. Press 1, 1, 1, 1. The following screen will be displayed:

```
VIEW LOOP CONTENTS
LOOP? 1

>=ENTER, <=BACK/EXIT
```

4. Enter the loop number and press enter. A loop contents report will be generated. This indicates the types of devices on the loop.

```
LOOP 1:009 MCP
      082 SENSORS
      012 MODULES
      <=EXIT
```

5. Press escape to exit the menu screen.

25.5 How to Print the Device Configuration of a Loop

1. Enter the engineers menu as described in section 25.

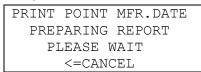2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,   <=EXIT
```
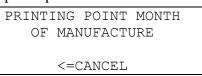
3. Press 1, 1, 1, 2. The following screen will be displayed:

```
PRINT LOOP CONTENTS
LOOP? 1

>=ENTER, <=BACK/EXIT
```

4. Enter the loop number and press enter. If the printer is disabled this can be overridden by pressing 1:

```
PRINT LOOP CONTENT
PRINTER IS DISABLED
1=IGNORE DISABLEMENT
        <=EXIT
```

5. The following screen will be displayed while the report is generated:

```
PRINT LOOP CONTENT
  PREPARING REPORT
    PLEASE WAIT
     <=CANCEL
```

Press escape to cancel the report generation at any time.

6. The report will be printed while the screen displays a message. Printing can be cancelled at any time by pressing escape.

```
       PRINTING
   LOOP 1 CONTENT

      <=CANCEL
```

7. When printing is complete the following screen will be displayed:

```
       PRINTING
   LOOP 1 CONTENT
      COMPLETE
       <=EXIT
```

8. Press escape to exit the menu screen.

25.6 How to Edit the Sensitivity of A Point

The sensitivity of a point for both alert and fire conditions can be adjusted. For XP95 sensors the analogue trip levels for alert and fire can be changed. For Discovery devices the alert analogue threshold can be changed. The fire sensitivity is adjusted using the five pre-set sensitivity levels.

Note: For compliance with EN54 the fire sensitivity level must be set to 55. The pre-alarm value can be set to any value

Note: Do not adjust the fire sensitivity level of the XP95 high temperature heat detector. This device has an analogue count of 55 at 90 C.

Note: Changing the sensitivity of a point only changes the current point sensitivity. For example, changing the sensitivity of a point whilst the panel is in day mode does not affect the sensitivity values of that point for the default or night mode sensitivity.

Note: The default levels are:

	XP95 sensor	*Discovery sensor*
Default Alert level	*45*	*45*
Default Fire level	*55*	*55*
Valid Alert Levels	*35, 40, 45, 50*	*35, 40, 45, 50*
Valid fire levels	*55, 60, 65, 70*	*55*
Default sensitivity levels	*N/A*	*3*
Valid sensitivity levels	*N/A*	*1, 2, 3, 4, 5*

The response to the XP95 I/O module can also be changed using this option. The device has an optically isolated input which can be configured for an active high or active low response. This input always generates a fault when active. Input 0 can also be configured to give the following responses: fire, alert, fault and indication only. These settings are combined and displayed as eight discrete sensitivity levels:

Sensitivity Level description on panel menu	Panel response to I/O module main input active	Optically isolated input state for active fault condition
FIRE + ACTIVE HIGH	Fire	Voltage present
FIRE + ACTIVE LOW	Fire	Voltage removed
ALERT + ACTIVE HIGH	Alert	Voltage present
ALERT + ACTIVE LOW	Alert	Voltage removed
FAULT + ACTIVE HIGH	Fault	Voltage present
FAULT + ACTIVE LOW	Fault	Voltage removed
IND. + ACTIVE HIGH	Indication only	Voltage present
IND. + ACTIVE LOW	Indication only	Voltage removed

Note: The panel is not guaranteed to meet the EN54-2 response time for a fire event from an XP95 I/O module. If a guaranteed response time is required then another type of input device should be used.

For further information on the Apollo XP95 I/O module see the Apollo publication PP2017 – XP95 Input/Output Unit Product information sheet and the product installation guide.

The tone-pair and volume for Discovery sounder beacons can also be changed using this option. The Fire Sensitivity menu adjusts the tone-pair, while the Alert Sensitivity menu adjusts the volume.

1 Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```

3. Press 1, 1, 2. The following screen will be displayed:

```
1=FIRE SENSITIVITY
2=ALERT SENSITIVITY

SELECT 1..2,  <=EXIT
```

4. Press 1 to change the fire sensitivity or 2 to change the alert sensitivity.

5. Enter the loop number and device address

6. The menu will display the device address, type and whether the fire or alert level is to be changed. The screen will look like one of these:

```
ALERT SENSITIVITY
01:005 SERIES90 HEAT
TRIP LEVEL 040
1=TGLE,>=NEXT,<=EXIT
```

```
VOLUME SETTING
02:063 DISC. SOUNDER
VOLUME = 1
1=TGLE,>=NEXT,<=EXIT
```

Where line 2 identifies the device selected, and line 3 shows the current setting.

7. Press 1 to cycle through the valid values. When the sensitivity is correct press escape to exit, or enter to move to the next address.
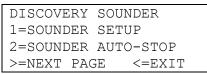
25.7 How to Print the Drift Compensation of Discovery Devices

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```

3. Press 1, 1, 3. The following screen will be displayed:

```
DISC: 1=PRINT DRIFT
2=PRINT DATE, 3=LED
4=RAPID COMPENSATION
>=NEXT PAGE  <=EXIT
```

4. Press 1 to print the drift data. If the printer is disabled press 1 to override the disablement when prompted to do so. The following screen will be displayed while the report is generated:

```
PRINT DRIFT VALUES
  PREPARING REPORT
   PLEASE WAIT
    <=CANCEL
```

Press escape to cancel the report at any time.

5. The following screen will be displayed while the report is printed:

```
PRINTING DISCOVERY
   DRIFT VALUES

   <=CANCEL
```

Press escape to cancel the report at any time.

6. When printing is complete The following screen will be displayed:

```
PRINTING DISCOVERY
   DRIFT VALUES
    COMPLETE
     <=EXIT
```

7. Press escape to exit the function.

25.8 How to Print the Date of Manufacture of Discovery Devices

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```

3. Press 1, 1, 3. The following screen will be displayed:

```
DISC: 1=PRINT DRIFT
2=PRINT DATE, 3=LED
4=RAPID COMPENSATION
>=NEXT PAGE    <=EXIT
```

4. Press 2 to print the date of manufacture. If the printer is disabled press 1 to override the disablement when prompted to do so. The following screen will be displayed while the report is generated:

```
PRINT POINT MFR.DATE
  PREPARING REPORT
    PLEASE WAIT
      <=CANCEL
```

Press escape to cancel the report at any time.

5. The following screen will be displayed while the report is printed:

```
PRINTING POINT MONTH
   OF MANUFACTURE

      <=CANCEL
```

Press escape to cancel the report at any time.

6. When printing is complete The following screen will be displayed:

```
PRINTING POINT MONTH
   OF MANUFACTURE
      COMPLETE
       <=EXIT
```

7. Press escape to exit the function.

25.9 How to Change the Led Pulsing Mode for Discovery Devices

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```

3. Press 1, 1, 3. The following screen will be displayed:

```
DISC: 1=PRINT DRIFT
2=PRINT DATE, 3=LED
4=RAPID COMPENSATION
>=NEXT PAGE    <=EXIT
```

4. Select option 3 – LED. The following screen will be displayed:

```
DISC LED CONTROL
LED NORMALLY OFF


1=TOGGLE      <=QUIT
```

This shows the current status of the LEDs.

The possible modes are as follows:-

LED NORMALLY OFF

   The led will not illuminate.

LED FLASHES ON ALL POLLS

   The led will flash every time the device is polled.

LED FLASHES ON DISABLE

   The led will flash when the device is polled only when the device is disabled.

5. Press 1 to toggle the status of the pulsing mode. When the state is correct press escape to exit the menu function.

25.10 How to Enable Rapid Compensation Mode for Discovery Devices

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```

3. Press 1, 1, 3. The following screen will be displayed:

```
DISC: 1=PRINT DRIFT
2=PRINT DATE, 3=LED
4=RAPID COMPENSATION
>=NEXT PAGE    <=EXIT
```

4. Select option 4 – Rapid Compensation. The following screen will be displayed:

```
RAPID COMPENSATION
LOOP? 1


>=ENTER, <=BACK/EXIT
```

5. Enter the loop number to be compensated. And press enter.

Note: Rapid compensation is only applied to Discovery devices. XP95 devices and ancillaries are not affected.

Rapid compensation will begin and the following screen will be displayed. The process takes around 40-50 seconds, the following screen will be displayed:

```
RAPID COMPENSATING
LOOP 01

        <=CANCEL
```

Press escape to cancel the report at any time.

6. When the compensation is complete the following screen will be displayed:

```
RAPID COMPENSATION
FOR LOOP 01
        COMPLETE
          <=EXIT
```

7. Press escape to return to exit the screen.

25.11 How to Change the Volume Levels for Discovery Sounder Beacons Using the Magnetic Wand

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```

3. Press 1, 1, 3. The following screen will be displayed:

```
DISC: 1=PRINT DRIFT
2=PRINT DATE, 3=LED
4=RAPID COMPENSATION
>=NEXT PAGE   <=EXIT
```

4. Press enter. The following screen will be displayed:

```
DISCOVERY SOUNDER
1=SOUNDER SETUP
2=SOUNDER AUTO-STOP
>=NEXT PAGE   <=EXIT
```

5. Select option 1 – Sounder Setup. The following screen will be displayed:

```
DISC SOUNDER/BEACONS
  TEST MODE ACTIVE
> = SAVE NEW LEVELS
      <=CANCEL
```

6. Go round to each Discovery Sounder Beacon device and us the magnetic wand to adjust the volume to the required level.

7. Press enter to save the new volume levels, Press escape to exit the menu function.

25.12 How to Change the Auto Stop Mode for a Discovery Sounder Beacon

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```

3. Press 1, 1, 3. The following screen will be displayed:

```
DISC: 1=PRINT DRIFT
2=PRINT DATE, 3=LED
4=RAPID COMPENSATION
>=NEXT PAGE   <=EXIT
```

4. Press enter. The following screen will be displayed:

```
DISCOVERY SOUNDER
1=SOUNDER SETUP
2=SOUNDER AUTO-STOP
>=NEXT PAGE   <=EXIT
```

5. Select option 2 – Sounder Auto-Stop. The following screen will be displayed:

```
DISC SNDR/BCN AUTO
LOOP? 1

>=ENTER, <=BACK/EXIT
```

6. Enter the required loop number and press enter. The following screen will be displayed:

```
DISC SNDR/BCN AUTO
LOOP 01
POINT? 001
>=ENTER,      <=BACK
```

7. Enter the required point address and press enter. The following screen will be displayed:

```
DISC SNDR/BCN 01:091
CONTINUOUS OPERATION
1 = AUTO-STOP
>=NEXT PAGE   <=EXIT
```

Note:- Pressing enter will move on to the next address.

8. Press 1. The following screen will be displayed:

```
DISC SNDR/BCN 01:091
STOPS AFTER 20 MINS
1 = CONTINUOUS
>=SAVE,        <=EXIT
```

Note:- Pressing enter will move on to the next address.

9. Press escape. The following screen will be displayed:

```
DISC SNDR/BCN AUTO
LOOP? 1

>=ENTER, <=BACK/EXIT
```

10. Press escape to save the changes if any, and exit the menu function.

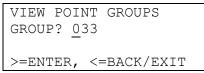## 25.13 How to Edit the Allocation of Devices to a Zone

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,   <=EXIT
```

3. Press 1, 2. The following screen will be displayed:

```
1=EDIT POINT ZONES
2=PRINT POINT ZONES
3=VIEW POINT ZONES
SELECT 1..3,   <=EXIT
```

4. Press 1 to edit the point zone allocation:

```
 EDIT POINT ZONES
ZONE? 01

>=ENTER, <=BACK/EXIT
```

5. Enter the number of the zone to be edited and press enter. The following screen will be displayed if zone 7 is entered:

```
 EDIT POINT ZONE 07
LOOP? 1

>=ENTER, <=BACK/EXIT
```

6. Enter the loop number of the devices to be added or removed from the zone and press enter. The following screen is displayed if loop 1 is entered:

```
 EDIT POINT ZONE 07
LOOP 01
POINT? 001
>=ENTER,        <=BACK
```

7. Enter the first device in a range to be added or removed from the zone. This example shows device 15:

```
 EDIT POINT ZONE 07
LOOP 01
POINTS 015 TO ? 015
>=ENTER,        <=BACK
```

8. Enter the last device to be added or removed from the zone. If a single device is to be edited then enter the same number as the first device.

```
 EDIT POINT ZONE 07
LOOP 01
POINTS 015 TO 022
1=ADD, 2=REM, <=EXIT
```

9. Press 1 to add the devices to the zone or 2 to remove the devices from the zone. If no changes are required press escape to exit. The menu will return to the zone allocation menu:

```
1=EDIT POINT ZONES
2=PRINT POINT ZONES
3=VIEW POINT ZONES
SELECT 1..3,   <=EXIT
```

25.14 How to Print the Allocation of Devices to a Zone

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,   <=EXIT
```
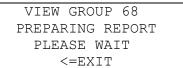
3. Press 1, 2. The following screen will be displayed:

```
1=EDIT POINT ZONES
2=PRINT POINT ZONES
3=VIEW POINT ZONES
SELECT 1..3,  <=EXIT
```

4. Press 2 to print the point zone allocation. If the printer is disabled press 1 to override the disablement when prompted to do so. The report will be prepared:

```
PRINT POINT ZONES
  PREPARING REPORT
    PLEASE WAIT
      <=CANCEL
```

Press escape to cancel the report at any time.

5. While the report is printing the following message is displayed:

```
        PRINTING
      POINT ZONES

        <=CANCEL
```

Press escape to cancel the report at any time.

6. When the report is complete the following message is displayed:

```
        PRINTING
      POINT ZONES
        COMPLETE
         <=EXIT
```

7. Press escape to exit the screen.

25.15 How to View the Allocation of Devices to a Zone

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```

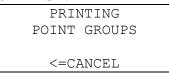3. Press 1, 2. The following screen will be displayed:

```
1=EDIT POINT ZONES
2=PRINT POINT ZONES
3=VIEW POINT ZONES
SELECT 1..3,  <=EXIT
```

4. Press 3 to view the allocation of points to a zone:

```
   VIEW POINT ZONES
ZONE? 01


>=ENTER, <=BACK/EXIT
```

5. Enter the zone to be viewed and press enter. While the report is generated the following message is displayed:

```
 VIEW POINT ZONE 13
  PREPARING REPORT
    PLEASE WAIT
        <=EXIT
```

Press escape to cancel the report at any time.

6. The first screen of the report is displayed:

```
 VIEW POINT ZONE 13
LIST OF POINTS HERE

1=BACK,2=NEXT,<=EXIT
```

7. Press 1 and 2 to move through the list of points in the zone indicated. When the last page has been displayed The following screen will be displayed:

```
 VIEW POINT ZONE 13
   NO MORE POINTS

1=BACK,        <=EXIT
```

8. Press escape to exit the screen.

25.16 How to Edit the Allocation of Points to a Group

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```

3. Press 1, 3, 1. The following screen will be displayed:

```
1=EDIT POINT GROUPS
2=PRINT POINT GROUPS
3=VIEW POINT GROUPS
SELECT 1..3,  <=EXIT
```

4. Press 1 to edit the point group allocation (note that the lowest group number will be 97 on a 96-zone panel):

```
 EDIT POINT GROUPS
GROUP? 033

>=ENTER, <=BACK/EXIT
```

5. Enter the number of the group to be edited and press enter. The following screen will be displayed if group 68 is entered:

```
   EDIT GROUP 068
LOOP? 1

>=ENTER, <=BACK/EXIT
```

6. Enter the loop of the devices to be added or removed from the group and press enter. The following screen is displayed if group 68 is entered:

```
   EDIT GROUP 068
LOOP 01
POINT? 001
>=ENTER,      <=BACK
```

7. Enter the first device in a range to be added or removed from the group. This example shows device 15:

```
   EDIT GROUP 068
LOOP 01
POINTS 015 TO 015
>=ENTER,      <=BACK
```

8. Enter the last device to be added or removed from the group. If a single device is to be edited then enter the same number as the first device.

```
   EDIT GROUP 068
LOOP 01
POINTS 015 TO 022
1=ADD, 2=REM, <=EXIT
```

9. Press 1 to add the devices to the group or 2 to remove the devices from the group. If no changes are required press escape to exit. The menu will return to the group allocation menu:

```
1=EDIT POINT GROUPS
2=PRINT POINT GROUPS
3=VIEW POINT GROUPS
SELECT 1..3,  <=EXIT
```

25.17 How to View the Allocation of Devices to a Group

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```

3. Press 1, 3, 1. The following screen will be displayed:

```
1=EDIT POINT GROUPS
2=PRINT POINT GROUPS
3=VIEW POINT GROUPS
SELECT 1..3,  <=EXIT
```

4. Press 3 to view the allocation of points to a group (note that the lowest group number will be 97 on a 96-zone panel):

```
VIEW POINT GROUPS
GROUP? 033

>=ENTER, <=BACK/EXIT
```

5. Enter the group to be viewed and press enter. While the report is generated the following message is displayed:

```
   VIEW GROUP 68
  PREPARING REPORT
   PLEASE WAIT
      <=EXIT
```

Press escape to cancel the report at any time.

6. The first screen of the report is displayed:

```
    VIEW GROUP 68
LIST OF POINTS HERE

1=BACK,2=NEXT,<=EXIT
```

7. Press 1 and 2 to move through the list of points in the group indicated. When the last page has been displayed The following screen will be displayed:

```
   VIEW GROUP 68
  NO MORE POINTS

1=BACK,         <=EXIT
```

8. Press escape to exit the screen.

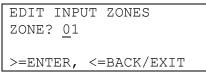## 25.18 How to Print the Allocation of Devices to a Group

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```
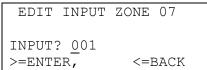
3. Press 1, 3, 1. The following screen will be displayed:

```
1=EDIT POINT GROUPS
2=PRINT POINT GROUPS
3=VIEW POINT GROUPS
SELECT 1..3,  <=EXIT
```

4. Press 2 to print the point group allocation. If the printer is disabled press 1 to override the disablement when prompted to do so. The report will be prepared:

```
   PRINT POINT GROUPS
    PREPARING REPORT
       PLEASE WAIT
         <=CANCEL
```

Press escape to cancel the report at any time.

5. While the report is printing the following message is displayed:

```
        PRINTING
      POINT GROUPS

        <=CANCEL
```

Press escape to cancel the report at any time.

6. When the report is complete the following message is displayed:

```
        PRINTING
      POINT GROUPS
        COMPLETE
         <=EXIT
```

7. Press escape to exit the screen.

25.19 How to Edit Loop Output Cause and Effect

To edit the loop output cause/effect enter the engineers menu and select:

> 1:Panel set-up; 1:Loop set-up; 3:Loop Cause Effect; 2:Edit Loop Output C/E

1. Enter the loop number of the device.

2. Enter the point number.

3. The cause/effect for output bit 0 for the device is displayed

```
CAUSES FOR 1:001 BT0
   NO MORE CAUSES

>=OK,3=NX,4=+,<=EXIT
```

4. Either:

   i) Press > to save the data and move to the next output bit for the same point and return to step 1.

   ii) Press < to exit without saving changes to the current device.

   iii) Press 3 to move to the next screen if more cause/effect is available. The display will show NO MORE CAUSES if no more data is available.

   iv) Press 4 to add more causes. The display is as follows:

```
CAUSES FOR 1:001 BT0
1=GROUP CAUSE
2=COMMON CAUSE
SELECT 1..2,  <=EXIT
```

5. Either:

   i) Select option 1 to add a group cause. Enter the group number.

   ii) Select option 2 to add a common cause.

6. Select the cause by moving between the menu pages with the > key and entering a number on the keypad.

7. Repeat steps 3, 4 and 5 until all causes have been added.

25.20 How to Print Loop Output Cause and Effect

To edit the loop output cause/effect enter the engineers menu and select:

> 1:Panel set-up; 1:Loop set-up; 3:Loop Cause Effect; 3:Print Loop Output C/E

1. The following screen is displayed:

```
PRINT LOOP OP C/E
1=SINGLE  2=RANGE
3=ALL
SELECT 1..3   <=EXIT
```

2. Select the option and enter the device specification accordingly.

3. When printing is complete the following message will appear:

```
PRINTING LOOP OUTPUT
   CAUSE EFFECT
      COMPLETE
       <=EXIT
```

4. Press < to exit the print loop output cause/effect menu.

25.21 How to Change the Remote Evacuate Mode

The panel can be configured to respond to the activation of panel evacuate and the remote evacuate input in two ways. In both modes the panel operates all sounding devices. In partial evacuate the auxiliary fire contact is not operated. In full evacuate mode the auxiliary fire contact is operated whilst the input is active.

To change the evacuate mode enter the engineers menu and select:

> 1:Panel set-up; 3:General configuration Page 1; 1:Remote evacuate mode.

1. Press 1 to toggle the remote evacuate mode.

2. Press > to enter the new mode or press < to escape without changing the remote evacuate mode.

25.22 How to Change the Power Fault Polarity

The panel can respond to either polarity on its power supply fault inputs. Note that this is a factory configuration procedure that should not require changing by the engineer.

To change the polarity enter the engineers menu and select:

> 1:Panel set-up; 3:General configuration Page 1; 2:Power Fault Mode.

1. Press 1 to toggle the power fault polarity.

2. Press > to enter the new polarity or press < to escape without changing the power fault polarity.

25.23 How to Change the Class-Change Mode

The panel can drive alarm sounders either steady or pulsing in response to the class-change input.

To change the output bit enter the engineers menu and select:

> 1:Panel set-up; 3:General configuration Page 1; '>': General Configuration Page 2; 2:Class-Change Mode.

1. Press 1 to toggle the class-change mode.

2. Press > to enter the new mode or press < to escape without changing the class-change mode.

25.24 How to Change the Shared-Zone Mode

The panel can share zone indications with other panels or not.

To change the shared-zone mode enter the engineers menu and select:

> 1:Panel set-up; 3:General configuration Page 1; '>': General Configuration Page 2; '>': General Configuration Page 3; 1:Zone-Share Mode.

1. Press 1 to toggle the Zone-Share mode.

2. Press > to enter the new mode or press < to escape without changing the Zone-Share mode.

25.25 How to Change the Number of Zones [32/96]

The Discovery panel can operate with 32 or 96 zone indications.

To change the number of zones mode enter the engineers menu and select:

> 1:Panel set-up; 3:General configuration Page 1; '>': General Configuration Page 2; '>': General Configuration Page 3; 2:Number Of Zones Mode.

1. Press 1 to toggle the Number of Zones mode.

2. Press > to enter the new mode or press < to escape without changing the Number Of Zones mode.

25.26 How to Edit the Panel Company Text Display

1. Plug a Cherry keyboard into the 5-pin DIN connector on the motherboard.

2. Enter the engineers menu.

3. Select 2:Text edit; 1:Edit Company Name

4. Enter text using the keyboard.

5. Press return on the keyboard or > to store the text. Alternatively, press escape on the keyboard or < on the keypad to retain the existing text.

25.27 How to Edit Point Location Text

1. Plug a Cherry keyboard into the 5-pin DIN connector on the motherboard.

2. Enter the engineers menu.

3. Selec2.5 2:Text edit; 2:Edit point text

4. Select the loop number.

5. Select the point number.

6. Enter the point text using the keyboard.

7. Press return on the keyboard or > to store the text. The next address is displayed. Repeat steps 1 to 7.

8. When text entry is complete press escape on the keyboard or < on the keypad to exit the menu.

25.28 How to Edit Expansion Input Text

1. Plug a Cherry keyboard into the 5-pin DIN connector on the motherboard.

2. Enter the engineers menu.

3. Select 2:Text edit; 3:Edit input text

4. Select the input number.

5. Enter the input text using the keyboard.

6. Press return on the keyboard or > to store the text. The next input is displayed. Repeat steps 1 to 7.

7. When text entry is complete press escape on the keyboard or < on the keypad to exit the menu.

25.29 How to Configure the Number of Repeaters

To change the number of repeaters enter the engineers menu and select:

> 1:Panel set-up; 3:General Configuration Page 1; '>': General Configuration Page 2; 1:Number of Repeaters.

The display will show the number of repeaters:

```
NUMBER REPEATERS   00
1=UP,          2=DOWN
     >=SAVE VALUE
          <=EXIT
```

1. Press 1 or 2 to change the number of repeaters.

2. Press > to save the number of repeaters, or press < to escape without changing the number of repeaters. You will be prompted to move the site-specific data write enable switch.

25.30 How to Edit the Allocation of Inputs to a Zone

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,   <=EXIT
```

3. Press 2, 3. The following screen will be displayed:

```
1=EDIT INPUT ZONES
2=PRINT INPUT ZONES
3=VIEW INPUT ZONES
SELECT 1..3,   <=EXIT
```

4. Press 1 to edit the input zone allocation:

```
EDIT INPUT ZONES
ZONE? 01

>=ENTER, <=BACK/EXIT
```

5. Enter the number of the zone to be edited and press enter. The following screen will be displayed if zone 7 is entered:

```
EDIT INPUT ZONE 07

INPUT? 001
>=ENTER,       <=BACK
```

6. Enter the first input in a range to be added or removed from the zone. This example shows input 15:

```
EDIT INPUT ZONE 07

INPUTS 015 TO ? 015
>=ENTER,       <=BACK
```

7. Enter the last input to be added or removed from the zone. If a single input is to be edited then enter the same number as the first device.

```
EDIT INPUT ZONE 07

INPUTS 015 TO 022
1=ADD, 2=REM, <=EXIT
```

8. Press 1 to add the inputs to the zone or 2 to remove the inputs from the zone. If no changes are required press escape to exit. The menu will return to the input zone allocation menu:

```
1=EDIT INPUT ZONES
2=PRINT INPUT ZONES
3=VIEW INPUT ZONES
SELECT 1..3,   <=EXIT
```

25.31 How to Print the Allocation of Inputs to a Zone

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,   <=EXIT
```

3. Press 2, 3. The following screen will be displayed:

```
1=EDIT INPUT ZONES
2=PRINT INPUT ZONES
3=VIEW INPUT ZONES
SELECT 1..3,   <=EXIT
```

4. Press 2 to print the input zone allocation. If the printer is disabled press 1 to override the disablement when prompted to do so. The report will be prepared:

```
PRINT INPUT ZONES
  PREPARING REPORT
    PLEASE WAIT
       <=CANCEL
```

Press escape to cancel the report at any time.

5. While the report is printing the following message is displayed:

```
        PRINTING
      INPUT ZONES


        <=CANCEL
```

Press escape to cancel the report at any time.

6. When the report is complete the following message is displayed:

```
        PRINTING
      INPUT ZONES
        COMPLETE
         <=EXIT
```

7. Press escape to exit the screen.

25.32 How to View the Allocation of Inputs to a Zone

1. Enter the engineers menu as described in section 25.

2. Press 1 to select panel set-up. The following screen will be displayed:

```
1=LOOP SETUP
2=INPUT/OUTPUT SETUP
3=GENERAL CONFIG
SELECT 1..3,  <=EXIT
```

3. Press 2, 3. The following screen will be displayed:

```
1=EDIT INPUT ZONES
2=PRINT INPUT ZONES
3=VIEW INPUT ZONES
SELECT 1..3,  <=EXIT
```

4. Press 3 to view the allocation of points to a zone:

```
  VIEW INPUT ZONES
ZONE? 01

>=ENTER, <=BACK/EXIT
```

5. Enter the zone to be viewed and press enter. While the report is generated the following message is displayed:

```
VIEW INPUT ZONE 13
  PREPARING REPORT
    PLEASE WAIT
        <=EXIT
```

Press escape to cancel the report at any time.

6. The first screen of the report is displayed:

```
  VIEW INPUT ZONE 13
LIST OF INPUTS HERE

1=BACK,2=NEXT,<=EXIT
```

7. Press 1 and 2 to move through the list of inputs in the zone indicated. When the last page has been displayed The following screen will be displayed:

```
  VIEW INPUT ZONE 13
   NO MORE INPUTS

1=BACK,        <=EXIT
```

8. Press escape to exit the screen.

25.33 How to Edit the Expansion I/O Board Configuration

To change the expansion I/O board configuration enter the engineers menu and select:

> 1:Panel set-up; 2:input/output set-up; 1:I/O board types.

The following screen will be displayed:

```
I/O BOARD TYPES
BOARD? 01

>=ENTER, <=BACK/EXIT
```

1. Change the address of the board to be configured using the menu up and down keys.

2. Press > to enter the board number or press < to escape without changing the board configuration. If the board number is entered the following screen is displayed:

```
I/O BOARD TYPES
BD:01 CCT 001 TO 008
TP00:NONE
1=NEXT,2=EDIT,<=EXIT
```

The display shows the board number, the corresponding output circuit numbers and the board type.

3. Select one of the following options:

i)   Press 1 to move to the next board address
     or,

ii) Press 2 to edit the type of board at this
     board number and proceed to the next
     step or,

iii) Press < to exit without changing the
     board configuration.

4. Select the board type from the pages of board
    options. Press > to exit when the board type is
    selected. You will be prompted to enable site
    specific data when all changes have been made.

5. Program the cause/effect for all inputs and
    outputs as described in section 25.34

n.b. Board types 6 and 7 will have inverted
     (normally-energised) outputs.

25.34 How to Edit the Allocation of Inputs to a Group

Inputs 1-248 are hardware inputs, while inputs 249-
252 are associated with the timer ended status of the
software timers. To change the expansion I/O board
and software timer ended input groups, enter the
engineers menu and select:

> 1:Panel set-up; 2:Input/output set-up;
> 2:Panel output c/e;
> 1:Input group allocation; 1:Edit I/P
> groups.

1. The following screen will be displayed:

```
1=EDIT INPUT GROUPS
2=PRINT INPUT GROUPS
3=VIEW INPUT GROUPS
SELECT 1..3,   <=EXIT
```

2. Press 1 to edit the point group allocation (Note
    that the lowest group number will be 97 on a
    96-zone panel):

```
 EDIT INPUT GROUPS
GROUP? 033

>=ENTER, <=BACK/EXIT
```

3. Enter the number of the group to be edited and
    press enter. The following screen will be
    displayed if group 68 is entered:

```
EDIT INPUT GROUP 068

INPUT? 001
>=ENTER,        <=BACK
```

4. Enter the first input in a range to be added or
    removed from the group. This example shows
    input 15:

```
EDIT INPUT GROUP 068

INPUTS 015 TO ? 015
>=ENTER,        <=BACK
```

5. Enter the last input to be added or removed
    from the group. If a single input is to be edited
    then enter the same number as the first input.

```
EDIT INPUT GROUP 068

INPUTS 015 TO 022
1=ADD, 2=REM, <=EXIT
```

6. Press 1 to add the inputs to the group or 2 to
    remove the inputs from the group. If no changes
    are required press escape to exit. The menu will
    return to the group allocation menu:

```
1=EDIT INPUT GROUPS
2=PRINT INPUT GROUPS
3=VIEW INPUT GROUPS
SELECT 1..3,   <=EXIT
```

7. To print or view the input group allocation
    select option 2 or option 3 respectively.

25.35 How to Edit the Expansion I/O Board Cause/effect

Each I/O board has 8 inputs and 8 outputs so board
number 1 will have inputs 1 to 8 and outputs 1 to 8.
Each output circuit has two channels associated
with it, channel 0 and channel 1. If channel 0 is
active then the output will be active continuously. If
channel 1 is active, the output will pulse for 1s on,
1s off. If both channel 0 and channel 1 are active the
output will be continuous.

Outputs 1-248 are hardware outputs, while outputs
249-252 just start the respective software timers.

The expansion I/O cause/effect is edited in exactly
the same manner as the loop output cause/effect.
The steps are as follows:

Enter the engineer's menu and select:

> 1:Panel set-up; 2:Input/output set-up;
> 2:Panel output c/e; 2:Remote Output C/E

1. Enter the number of the output circuit to be
    edited.

2. The cause/effect for the output circuit is
    displayed

```
CAUSES FOR OP001 CH0
   NO MORE CAUSES


>=OK,3=NX,4=+,<=EXIT
```

3. Either

    i) Press > to save the data and move to the next output circuit or channel and return to step 1.

    ii) Press < to exit without saving changes to the current output.

    iii) Press 3 to move to the next screen if more cause/effect is available. The display will show NO MORE CAUSES if no more data is available.

    iv) Press 4 to add more causes. The display is as follows:

```
CAUSES FOR OP001 CH0
1=GROUP CAUSE
2=COMMON CAUSE
SELECT 1..2,  <=EXIT
```

4. Either:

    i) Select option 1 to add a group cause. Enter the group number.

    ii) Select option 2 to add a common cause.

5. Select the cause by moving between the menu pages with the > key and entering a number on the keypad.

6. Repeat steps 3, 4 and 5 until all causes have been added.

25.36 How to Print Expansion Output Cause and Effect

To print the remote output cause/effect enter the engineers menu and select:

    1:Panel set-up; 2:Input/output set-up; 2:Panel output c/e; 3:Print Remote O/P C/E

1. The following screen is displayed:

```
PRINT PANEL OP C/E
1=SINGLE  2=RANGE
3=ALL
SELECT 1..3   <=EXIT
```

2. Select the option and enter the device specification accordingly.

3. When printing is complete the following message will appear:

```
    PRINTING PANEL
      OUTPUT C/E
       COMPLETE
        <=EXIT
```

4. Press < to exit the remote output cause/effect menu.

25.37 How to Edit the Panel's Number and Name

1. Plug a Cherry keyboard into the 5-pin DIN connector on the motherboard.

2. Enter the engineers menu.

    3. Select 3:Network Setup; 1:Identify Panel

```
PANEL IDENTIFICATION
PANEL NUMBER? 001

>=ENTER,       <=EXIT
```

4. Enter the panel number using the MENU UP and MENU DOWN buttons as for normal number entry.

```
PANEL 001 NAME?
   Discovery Panel
   Number One
>=SAVE,        <=EXIT
```

5. Enter text using the keyboard.

6. Press return on the keyboard or > to store the text. Alternatively, press escape on the keyboard or < on the keypad to retain the existing text.

25.38 How to Edit the Panel's Network Display Responses

1. Enter the engineers menu.

2. Select 3: Network Setup; 2: Edit Responses

```
NETWORK RESPONSES
1=DISPLAY,2=PRINTER
3=MEMORY, 4=CONTROLS
5=SPECIAL      <=EXIT
```

3. Select 1: Display

```
DISPLAY RESPONSES
PANEL? 001

>=ENTER,       <=EXIT
```

4. Enter panel number.

```
DISPLAY FROM PAN.001
1=FIRE -2, 2=ALERT-2
3=FAULT-2, 4=IND. -2
1-4=CHG.,>=NXT,<=END
```

Pressing 1, 2, 3 or 4 will toggle the value opposite the corresponding alarm category between values 0, 1, 2. These values have the following meaning:-

0 = ignore events in this category.

1= display events with just the panel name on line 2.

2 = display events with actual user text on line 2.

Pressing > will display the values for the next panel number.

Pressing < will return the display to the panel number prompt.

8. Press < to exit the network responses menu.

Notes:

Editing the Printer and Memory Responses follows the same process as editing the Display responses.

The memory response in a given category cannot be turned off if the same category is enabled for either display or printer from the same panel.

The memory response in a given category cannot be turned on if the same category is disabled for both display and printer.

25.39 How to Edit the Panel's Network User Control Responses

1.   Enter the engineers menu.

2. Select 3: Network Setup; 2: Edit Responses

```
NETWORK RESPONSES
1=DISPLAY,2=PRINTER
3=MEMORY, 4=CONTROLS
5=SPECIAL      <=EXIT
```

3. Select 4: Controls

```
CONTROL RESPONSES
PANEL? 001

>=ENTER,        <=EXIT
```

4. Enter panel number.

```
CONTROL FROM PAN.001
1=SILAL-1, 2=RESET-1
3=TSTAL-1, 4=EVAC -1
5=CLR.-1,>=NXT,<=END
```

5. Pressing 1, 2, 3, 4 or 5 will toggle the value opposite the corresponding user control type between values 0, 1. (1 = silence alarms, 2 = reset system, 3 = test alarms, 4 = evacuate, 5 = reset faults) These values have the following meaning:-

0 = ignore controls in this category.

1= react normally to controls in this category.

6. Pressing > will display the values for the next panel number.

7. Pressing < will return the display to the panel number prompt.

8. Press < to exit the network responses menu.

25.40 How to Edit the Panel's Network Special Function Responses

1.   Enter the engineers menu.

2. Select 3: Network Setup; 2: Edit Responses

```
NETWORK RESPONSES
1=DISPLAY,2=PRINTER
3=MEMORY, 4=CONTROLS
5=SPECIAL      <=EXIT
```

3. Select 5: Special

```
SPECIAL RESPONSES
PANEL? 001

>=ENTER,        <=EXIT
```

4. Enter panel number.

```
ACCEPT FROM PAN.001
1=DAY/NIGHT MODE-1
2=SOUNDER EN/DIS-1
3=SBZ-1, >=NXT,<=END
```

5. Pressing 1, 2 or 3 will toggle the value opposite the corresponding function type between values 0, 1. (1 = day/night mode, 2 = sounder disablement, 3 = silence buzzer) These values have the following meaning:-

0 = ignore changes in this category.

1= accept changes in this category.

6. Pressing > will display the values for the next panel number.

7. Pressing < will return the display to the panel number prompt.

8. Press < to exit the network responses menu.

25.41 How to Print the Panel's Network Display Responses

1.   Enter the engineers menu.

2. Select 3: Network Setup; 3: Print Responses

```
PRINT NET.RESPONSES
1=DISPLAY,2=PRINTER
3=MEMORY, 4=CONTROLS
5=SPECIAL      <=EXIT
```

3. Select 1: Display

4. The panel will proceed to prepare a report of the panel's network display responses, then will print it out.

5.   Press < to exit the network responses menu.

Note: Printing the Printer, Memory, Control and Special Function Responses follows a similar sequence.

26 Routine Maintenance

This section gives an outline of the maintenance schedule and activities. For further guidance refer to BS5839 part 1:1998.

26.1 Quarterly Inspection

The following checks should be made every 3 months:

1. Entries in the logbook should be checked and any remedial action taken.

2. The batteries should be examined to ensure they are in good serviceable condition and are unlikely to fail before the next quarterly inspection.

3. The alarm functions of the control and indicating equipment should be checked by operating a device in each zone.

4. A visual inspection should be made to check whether structural or occupancy changes have affected the siting of manual call points or sounders.

Any defects should be recorded in the logbook and reported to the responsible person, and action should be taken to correct it.

26.2 Annual Inspection

The following checks should be made every 12 months:

1. All tests in the Quarterly inspection should be carried out.

2. Each detector should be checked for correct operation in accordance with the manufacture's recommendations.

3. A visual inspection should be made to confirm that all cable fittings and equipment are secure, undamaged and adequately protected.

Any defects should be recorded in the logbook and reported to the responsible person, and action should be taken to correct it.

26.3 Battery Replacement

The useful life of the standby batteries in this application is three years. The batteries must be replaced after this time.

27 Engineers Menu Overview


```
                          ACCESS CODE 8812

        1: USER FUNCTIONS              2: ENGINEERS FUNCTIONS

            1: TIME/DATE                   1: PANEL SETUP
            2: MODES                           1: LOOP SETUP
                1: PANEL DELAY                     1: LOOP CONFIGURATION
                    1: DELAY ENABLE                    1: LOOP CONTENTS
                    2: DELAY TIMES                         1: VIEW LOOP CONTENTS
                    3: DELAY DURATION                      2: PRINT LOOP CONTENTS
                2: DAY/NIGHT MODE                          3: RECONFIGURE LOOP
                    1: DAY MODE                        2: POINT SENSITIVITY
                    2: NIGHT MODE                          1: FIRE
                    3: TIMER MODE                          2: ALERT
                    4: OFF                             3: DISCOVERY
                3: BAUD RATE                               1: PRINT DRIFT
            3: ENABLE/DISABLE                              2: PRINT DATE
                1: POINTS                                  3: LED
                    1: SINGLE POINT                        4: RAPID COMPENSATION
                    2: RANGE OF POINTS                     5: BEACON SETUP
                    3: VIEW DISABLED POINTS                6: BEACON AUTO
                    4: ENABLE ALL POINTS           2: ZONE ALLOCATION
                        1: LOCAL                       1: EDIT POINT ZONES
                        2: GLOBAL                      2: PRINT POINT ZONES
                        3: SPECIFY PANEL               3: VIEW POINT ZONES
                2: ZONES                           3: LOOP CAUSE/EFFECT
                    1: SINGLE ZONE                     1: POINT GROUP ALLOCATION
                    2: RANGE OF ZONES                      1: EDIT POINT GROUPS
                    3: VIEW DISABLED ZONES                 2: PRINT POINT GROUPS
                3: PRINTER                                 3: VIEW POINT GROUPS
                4: SOUNDERS                            2: LOOP OUTPUT CAUSE/EFFECT
                5: INPUTS                              3: PRINT LOOP O/P C/E
                    1: SINGLE INPUT                2: INPUT/OUTPUT SETUP
                    2: RANGE OF INPUTS                 1: I/O BOARD TYPES
                    3: VIEW DISABLED INPUTS            2: PANEL OUTPUT C/E
                6: OUTPUTS                                 1: INPUT GROUP ALLOCATION
            4: VIEW                                            1: EDIT INPUT GROUPS
                1: VIEW EVENT LOG                              2: PRINT INPUT GROUPS
                2: VIEW SUPPRESSED EVENTS                      3: VIEW INPUT GROUPS
                    1: ALERTS                              2: REMOTE OUTPUT C/E
                    2: FAULTS                              3: PRINT REMOTE O/P C/E
                    3: INDICATIONS                     3: INPUT ZONES
                    4: DISABLEMENTS                        1: EDIT INPUT GROUPS
            5: TEST                                        2: PRINT INPUT GROUPS
                1: VIEW POINT STATUS                       3: VIEW INPUT GROUPS
                    1: POINT DISABLED              3: GENERAL CONFIGURATION
                    2: POINT ENABLED                   1: REMOTE EVACUATE MODE
                2: ONE PERSON TESTS                    2: POWER FAULT MODE
                    1: POINT WALK TEST                 3: NUMBER OF REPEATERS
                    2: ALARM WALK TEST                 4: CLASS-CHANGE MODE
                    3: BEACON TEST                     5: SHARED ZONE MODE
            6: PRINT                                   6: NUMBER OF ZONES
                1: CLEAR PRINT QUEUE           2: TEXT EDIT
                2: PRINT EVENT LOG                 1: EDIT COMPANY NAME
                3: PRINT DISABLEMENTS              2: EDIT POINT TEXTS
                4: PRINT TEXTS/VALUES              3: EDIT INPUT TEXTS
                                              3: NETWORK
                                                  1: IDENTIFY PANEL
                                                  2: EDIT NETWORK RESPONSES
                                                      1: DISPLAY
                                                      2: PRINTER
                                                      3: MEMORY
                                                      4: CONTROLS
                                                      5: SPECIAL
                                                  3: PRINT NETWORK RESPONSES
```

Figure 15 – Discovery and Voyager Panel Engineers Menu Overview

28 Glossary of Terms

A	Amp - unit of current.
Ac	Alternating Current
Ah	Amp hour – unit of capacity for standby batteries.
BGU	Break Glass Unit. Also know as manual call point.
Cause/effect	The relationship between programmable actions and the events which cause those actions.
CIE	Control and indicating equipment (the control panel)
c/w	complete with
CPU	central processing unit
Dc	Direct Current
EMC	Electro-Magnetic Compatibility.
EOL	End Of Line resistor.
ESD	Electro-Static Discharge.
I/O	Input/output
LCD	Liquid Crystal Display. Alphanumeric display used for textual information.
LED	Light Emitting Diode. Display indicator.
Local cause/effect	Cause and effect where an event on a panel does not cause an action on any other panel. (c.f. network cause/effect)
MCP	Manual Call Point also know as BGU.
Network cause/effect	Cause/effect where an event on one panel causes an action on another panel (c.f. local cause/effect).
Network panel	A panel connected to another panel using the Integra network card to create a larger system.
Node	One panel on a network system. Also called a network node.
PC	Personal Computer.
PCB	Printed Circuit Board.
P.s.e.	Power Supply Equipment.
RS485	Serial communications standard used for interconnection of equipment. It is commonly used to refer to connections using this type of communications.
Stand-alone panel	A panel not connected to any other panel using the Integra network card network
SLA	Sealed Lead Acid – type of standby battery.
V	Volt – unit of electrical potential.

29 List of Message Abbreviations

LCD Message Text	Device Type
BEAM	XP95 Beam Detector
BGU	Break Glass Unit (CEL/XP95/Discovery manual call point)
CO	Carbon monoxide detector (XP95/Discovery)
DUAL	Optical/heat multi-sensor detector (XP95/Discovery)
FLAME/FLAM	XP95 Flame Detector
HEAT	Heat detector (XP95/Discovery)
INV	Invalid sensor type
ION	Ionisation detector (XP95/Discovery)
MON	Monitor outstation/ancillary (CEL/XP95/Discovery)
O/S	Outstation
OPT	Optical detector (XP95/Discovery)

LCD Message Text	Event Description
ALTOFF	Alert Off - XP95 I/O unit alert input cleared
D.FLT	Data Fault – the analogue value reported by the device is not valid.
DADDR	Double Address - two or more devices exist with the same address
DIRTY	Discovery device outside calibration limits
FIROFF	Fire off - XP95 I/O unit fire input cleared
FUSE FAILED	Auxiliary power supply fuse failed
IPON/ IPOFF	Input On/Off – XP95 I/O module input activated/deactivated
LINE FAULT	Open circuit fault detected in loop cable. This may be due to an operation of short circuit isolators.
OCON/ OCOFF	Opto-Circuit On/Off - XP95 I/O module opto isolated input activated/deactivated
R.FLT	Remote Fault - at the address indicated.
RMVD	Removed – the loop device is not responding.
TEST	Device is in test mode
VCLSD	Valve closed – input 2 operated on CEL type 4 outstation
W.TYPE/WTYPE	Wrong Type – the device at this address is different from that configured for the address.

30 32/96 zone Discovery Mechanical And Environmental Specification

Mechanical Specification

Size:	Height:	480mm
	Width:	410mm
	Depth:	160mm including lock and indented holes
Weight excluding batteries:		15kg

Environmental Specification

Operating temperature: -5ºC to 40ºC

Operating humidity: 5% to 95%

Mains Input Specification

Voltage: 230V AC +10%/-15%

Maximum Input Power: 320VA

Protection: T3.15A anti-surge sand filled fuse

Cable requirements: Minimum of 1mm^2 copper controlled by a 5A fuse.

Power Supply Output Specification

28V output: 25-28V @ 4A mains on
                            21-27V @ 4A mains failed

28V output protection: Electronic current limiting

5V output: 4.7-5.4V @ 3A

5V output protection: Electronic current limiting

Common fault output: Open collector output labelled CF

Mains failed fault output: Open collector output labelled MF

Battery Specification

Battery charger output: Temperature compensated float charger 27.4V ±0.1V @20°C; maximum
                            current 1.5A (limited if 28V load greater than 3.5A).

Maximum battery load: 5A

Battery type: 2 off 12V 12Ah sealed lead acid standby battery

Battery size: 151mm x 98mm x 97.5mm

Battery circuit protection: 5A fast blow glass fuse

Mains failed fault battery current:

1 Loop panel:	145mA
2 Loop panel:	170mA
3 Loop panel:	195mA
4 Loop panel:	220mA

Mains failed alarm battery current:

1 Loop panel:	260mA
2 Loop panel:	285mA
3 Loop panel:	310mA
4 Loop panel:	335mA

31 32zone Voyager Mechanical And Environmental Specification

Mechanical Specification

Size:	Height:	370mm
	Width:	325mm
	Depth:	135mm including lock and indented holes
Weight excluding batteries:		7.4kg

Environmental Specification

Operating temperature: -5ºC to 40ºC

Operating humidity: 5% to 95%

Mains Input Specification

Voltage: 230V AC +10%/-15%

Maximum Input Power: 207VA

Protection: T3.15A anti-surge sand filled fuse

Cable requirements: Minimum of $1mm^2$ copper controlled by a 5A fuse.

Power Supply Output Specification

24V output: 26.8V to 28.2V @ 2.5A mains on
21-26V @ 2.5A mains failed

24V output protection: Electronic current limiting

Common fault output: Open collector output labelled FAULT

Battery Specification

Battery charger output: float charger 26.8V to 28.2V @ 2.5A maximum

Maximum battery load: 2.5A

Battery type: 2 off 12V 12Ah sealed lead acid standby battery

Battery size: 151mm x 98mm x 97.5mm

Battery circuit protection: 3.15A fast blow glass fuse

Mains failed fault battery current:

1 Loop panel:	120mA
2 Loop panel:	140mA

Mains failed alarm battery current:

1 Loop panel:	255mA
2 Loop panel:	275mA

32 32/96 zone Discovery and 32 zoneVoyager Input and Output Specification

Panel Input Specification

Remote Fault:	Fully monitored circuit, 3k9 EOL, 680R active
Remote Evacuate:	Fully monitored circuit, 3k9 EOL, 680R active
Remote Silence:	Fully monitored circuit, 3k9 EOL, 680R active
Remote Reset:	Fully monitored circuit, 3k9 EOL, 680R active
Class-change:	Non- circuit, normally open, <50R active
Input Protection:	Internal current limit to 1mA
Cable requirements:	No special requirements, total resistance must be less than 50 ohms

Loop Output Specification

Loop 1 Terminals:	O1+	Loop out +ve
	O1-	Loop out –ve
	I1+	Loop return +ve
	I1-	Loop return –ve
Loop 2 Terminals:	O2+	Loop out +ve
	O2-	Loop out –ve
	I2+	Loop return +ve
	I2-	Loop return –ve
Loop 3 Terminals:	O3+	Loop out +ve
(Discovery only)	O3-	Loop out –ve
	I3+	Loop return +ve
	I3-	Loop return –ve
Loop 4 Terminals:	O4+	Loop out +ve
(Discovery only)	O4-	Loop out –ve
	I4+	Loop return +ve
	I4-	Loop return –ve
Maximum Current:	500mA per loop	
Protection:	Negative leg isolation circuit for loop out and loop in. Common positive leg fused at 650mA.	
Communications:	Apollo Discovery/XP95 protocol	
Pedestal voltage:	27.8V to 28.5V	
Pulse voltage:	7.5V to 9V	
Maximum points per loop:	126	
Maximum number of zones:	Discovery 96, Voyager 32 total with no restriction on allocation to loops	
Cable requirements:	No special requirements, total resistance must be less than value calculated in section 20.1. Maximum core to core capacitance is 0.5μF	

Alarm Circuit Specification

Quantity:	2
Output Voltage (mains operation):	25-29V
Output Voltage (battery operation):	21-27V
Maximum Current:	1A per circuit
Fault Monitoring:	Reverse polarity for open and short circuit faults
Protection:	1A fast blow glass fuse
Cable requirements:	No special requirements, 1A minimum current rating. Minimum voltage at end of line must be above sounding device minimum operating voltage.

Auxiliary Supply Specification

Auxiliary supply (mains operation):	25-29V
Auxiliary supply (battery operation):	21V-27V
Maximum Current:	500mA
Fault Monitoring:	Monitored for fuse failure
Protection:	500mA fast blow glass fuse
Cable requirements:	No special requirements, 1A minimum current rating. Minimum voltage at end of line must be above sounding device minimum operating voltage.

Repeater Output Specification

Number of repeaters:	1 to 14
Maximum repeater cable length:	2000m
Communication protocol:	RS485 serial data 9600 baud
Protection:	Electronic current limited
Cable Type:	Single pair RS485 shielded cable (see below)

Input/Output Expansion Board Specification

Board types:	A1535 I/O board
Number of boards:	0 to 31
Maximum cable length:	Boards should be mounted within, or adjacent to the panel enclosure
Communication protocol:	RS485 serial data 4800 baud
Protection:	Electronic current limited
Cable Type:	Single pair RS485 shielded cable (see below)

Alarm Expansion Board Specification

Board type:	A1536 I/O board
Number of boards:	0 to 31
Maximum cable length:	Boards should be mounted within, or adjacent to the panel enclosure
Communication protocol:	RS485 serial data 4800 baud
Protection:	Electronic current limited
Cable Type:	Single pair RS485 shielded cable (see below)

Network Output Specification

Number of nodes:	1 to 15
Maximum network cable length:	5000m
Communication protocol:	RS485 serial data 9600 baud
Protection:	Electronic current limited
Cable Type:	Single pair RS485 shielded cable (see below)

RS485 Cable Specification

Generic Type:	RS422/RS485 data cable.
Conductors:	Single pair plus screen.
Alpha cable:	3492C, 6222C, 6412 or equivalent
Belden cable:	8102, 8132, 9841 or equivalent