

Control Equipment Limited

96 Zone 40-Character Discovery Panel,

32 Zone Voyager Panel

and Integra Network Repeater

Installation 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 of the 32/96 Zone, 40 character Discovery and 32 Zone, 40 character Voyager control panels and 32 zone, 40 character 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.

This document is intended to provide guidance on installation methods only. These recommended methods assume that the installers have received adequate training covering the appropriate installation disciplines. This document does not attempt to cover panel operation or functionality. This data can be found in the full manual OMDV40_*.doc. Training courses dealing with system design, configuration, commissioning and maintenance can be provided by Control Equipment Ltd.

The following supporting documentation is also available:

- 32/96 Zone, 40 character Discovery and Voyager Sales Literature
- 32/96 Zone 40 character Discovery and Voyager Panel Application Guide
- 32/96 Zone 40 character Discovery, 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
- 32/96 Zone 40 character Discovery Panel, 32 zone, 40 character Voyager Panel and Integra Network Repeater Installation, Commissioning and Maintenance Manual.

4. Scope

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

The product supports user programmed device location messages up to 40 characters in length. These are displayed as part of the event messages on the panel LCD. The panel LCD is capable of displaying one event at a time.

5. Overview of Installation

This section lists the steps that are taken in installing a 32/96 Zone, 40 character Discovery or Voyager system.

1 Install all field wiring and equipment

- The designers will have produced installations drawings detailing the location and type of loop/field devices to be installed along with locations for the control equipment. All cabling requirements will be detailed on these drawings.
- Refer to the Installation Instructions in section 7.2
- Refer to the field device installation manuals

2 Install the panel

- Refer to the installation instructions in section 7.
- Do not connect the field equipment at this stage.
- Disable networking at this stage.

3 Connect any repeaters (if applicable)

- Refer to Installation And Connection Of The A1619 Repeater Interface in section 7.3 and the repeater installation and commissioning manual.

6. General Description

The panels are housed in a single metal enclosure with a polyester membrane giving user controls and indications. 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 Discovery drives a maximum of four loops of devices.

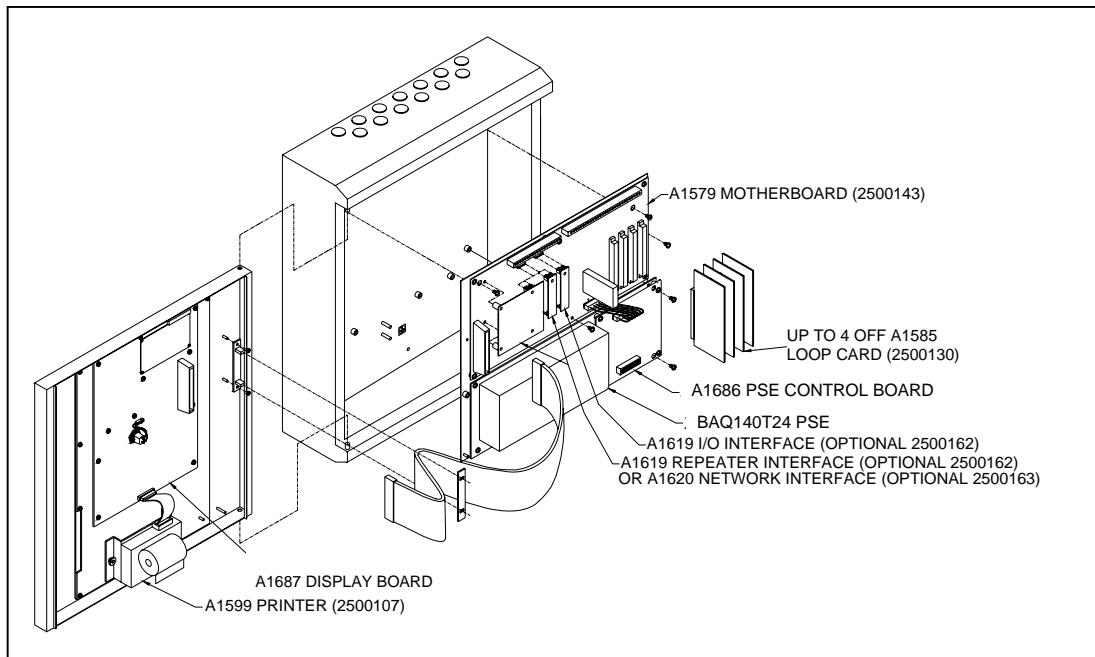


Figure 1 – 32/96 Zone Discovery panel main components

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 P.S.E. Control Board

The A1686 carries out the power supply monitoring and battery charger functions.

6.1.3 A1579 Motherboard

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 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.

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 32 zone Voyager drives a maximum of two loops of devices.

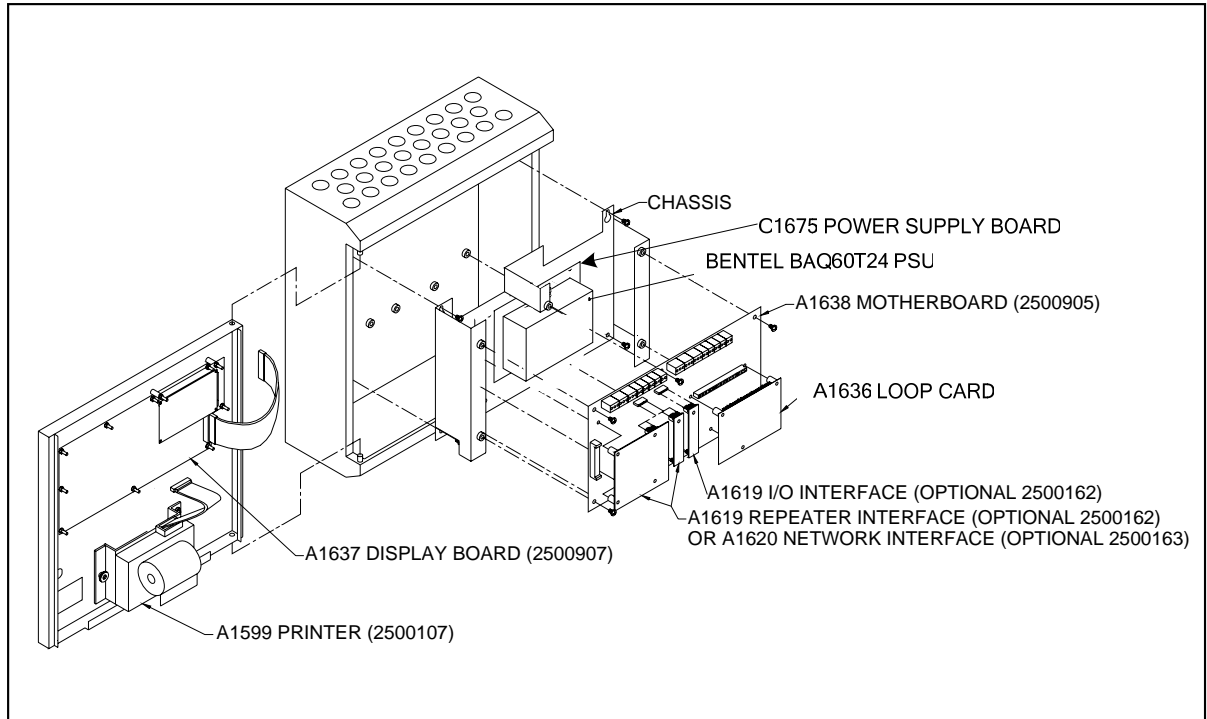


Figure 2 – Voyager panel main components

6.2.1 C1675 2.5A P.S.E.

The C1675 is a 2.5A switch mode p.s.e. which provides the power for the panel and rechargeable battery.

6.2.2 A1638 Motherboard

Provides all the field terminations; an internal interface for 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 card provides short circuit protection of both ends of the loop. The loop field wiring is terminated on the A1638.

6.2.4 A1637 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 32/96 Zone, 40 character Discovery and 32 zone, 40 character 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.

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. 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 1mm² copper controlled by a 5A fuse.

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

7.1 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.

7.2 Installation Instructions

1. Carefully remove the control panel from the packing and lie 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

7.2.1 32/96 Zone, 40 character 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.
16. 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.
17. 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.
18. 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  .
19. Clear any dust and debris from the cabinet.
20. Reinstallation of the chassis is the reverse of removal. Ensure that all earth straps are reconnected correctly.

21. Connect the mains-in live to the mains terminal block on the power supply as indicated in Figure 7.
22. Connect the mains-in neutral to the mains terminal block on the power supply as indicated in Figure 7.
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. Remove the two screws securing each battery clamp and place the battery clamps to one side.
25. 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.
26. 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.
27. Refit the battery clamps to secure the batteries in place. Take care not to short the battery terminals with a screw driver.
28. 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.
29. 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.
30. 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.

7.2.2 32 Zone 40-Character 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 transformer to the mains terminal block and earth bar.
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 on the backbox indicated in Figure 9. This is the earth bar and is labelled  .
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.

7.3 Installation And Connection Of The A1619 Repeater Interface

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.

Warning: Observe anti-static precautions

1. Ensure that the main and standby supplies are disconnected
2. 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.**
3. 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.

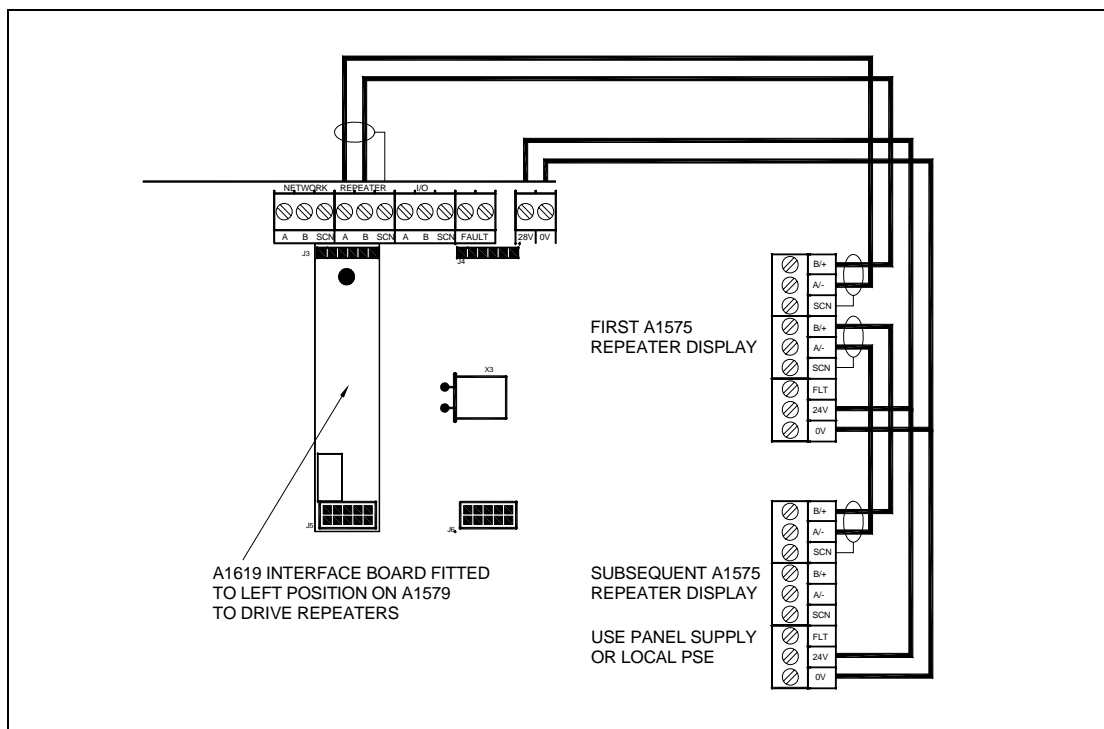


Figure 3 – Repeater connection diagram

7.4 Installation And Connection Of The A1619 Input/Output Interface

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.

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.

Warning: Observe anti-static precautions

1. Ensure that the main and standby supplies are disconnected.
2. 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.**
3. 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.

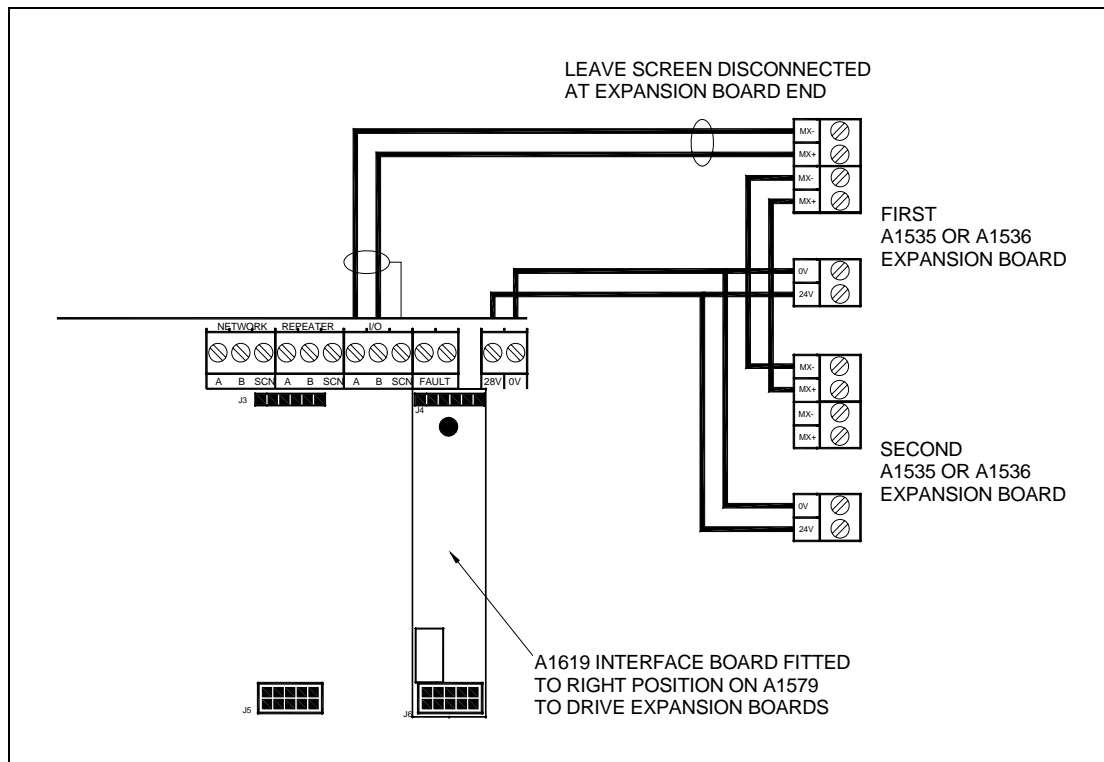


Figure 4 – Expansion board connection diagram

7.5 Installation And Connection Of The A1620 Network Interface

Warning: Observe anti-static precautions

1. Ensure that the main and standby supplies are disconnected.
2. 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.

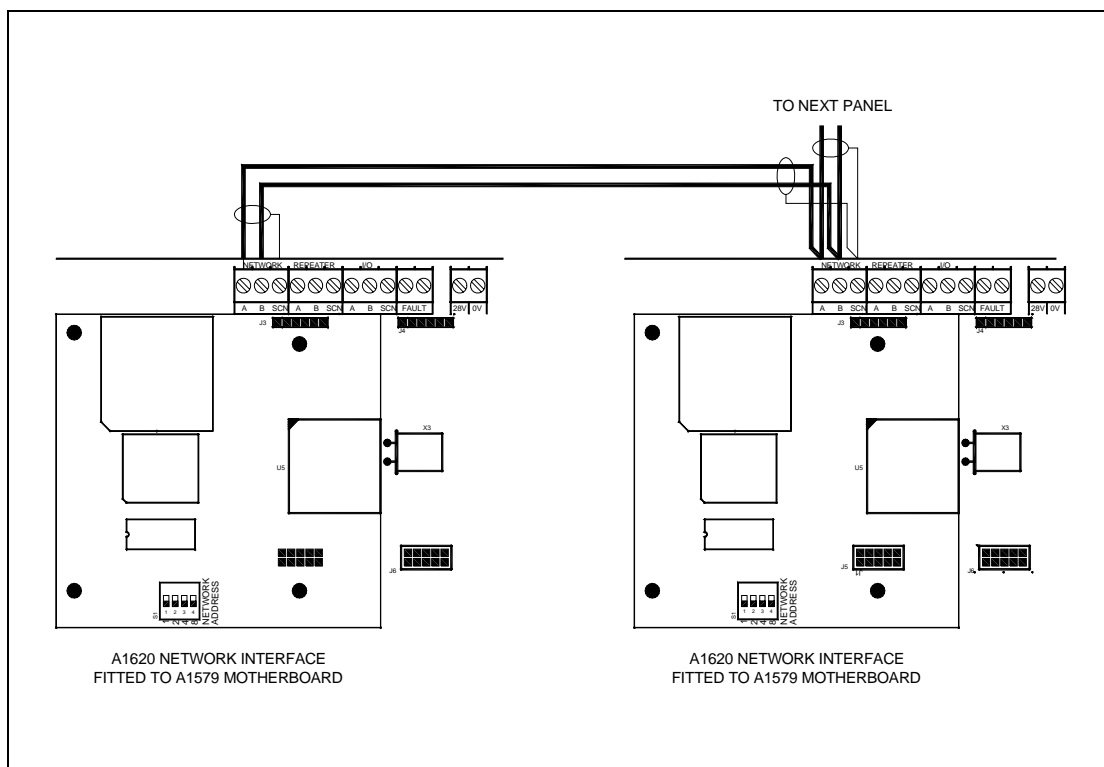


Figure 5 – Network connection diagram

4. Do not set the network node address on the A1620 NETWORK ADDRESS switch - this is part of the commissioning activity.

8. 32/96 Zone, 40 character Discovery Motherboard Features

Figure 6 illustrates the 32/96 Zone, 40 character Discovery motherboard features referred to elsewhere in the documentation.

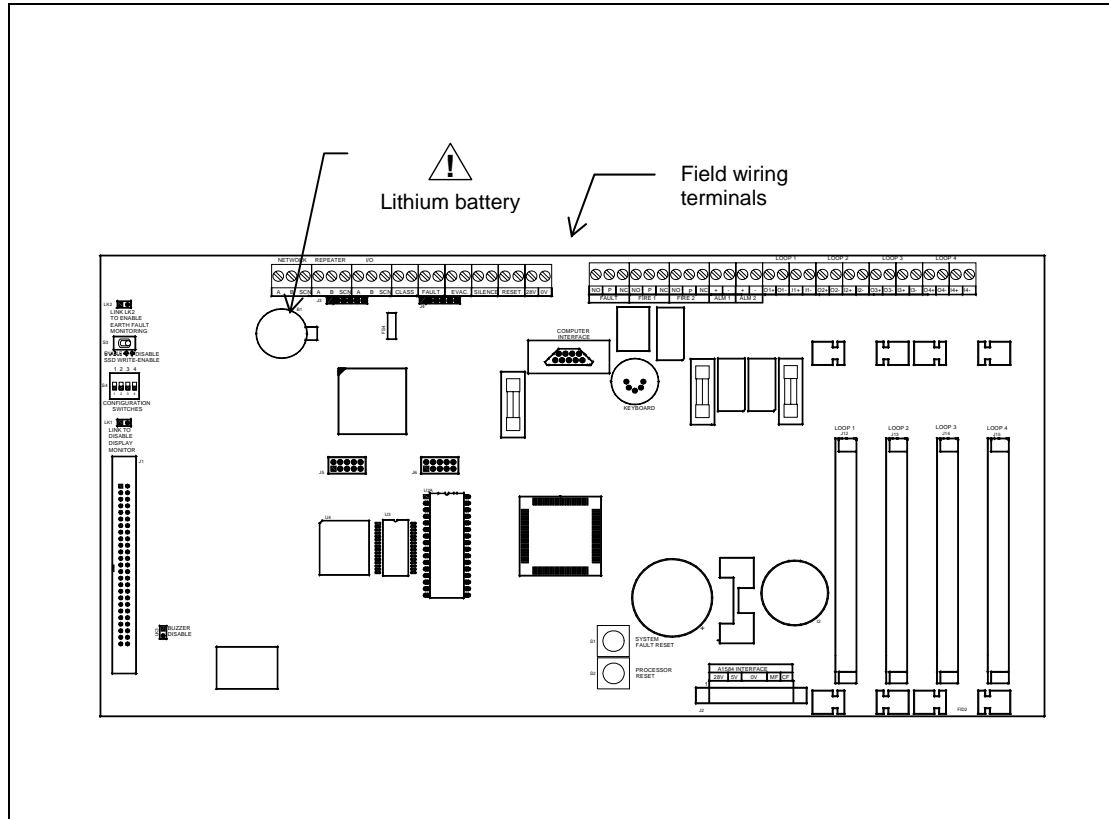


Figure 6 - A1579 Discovery motherboard layout



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.

9. 32/96 Zone, 40 character Discovery Power Supply Features And Connections

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

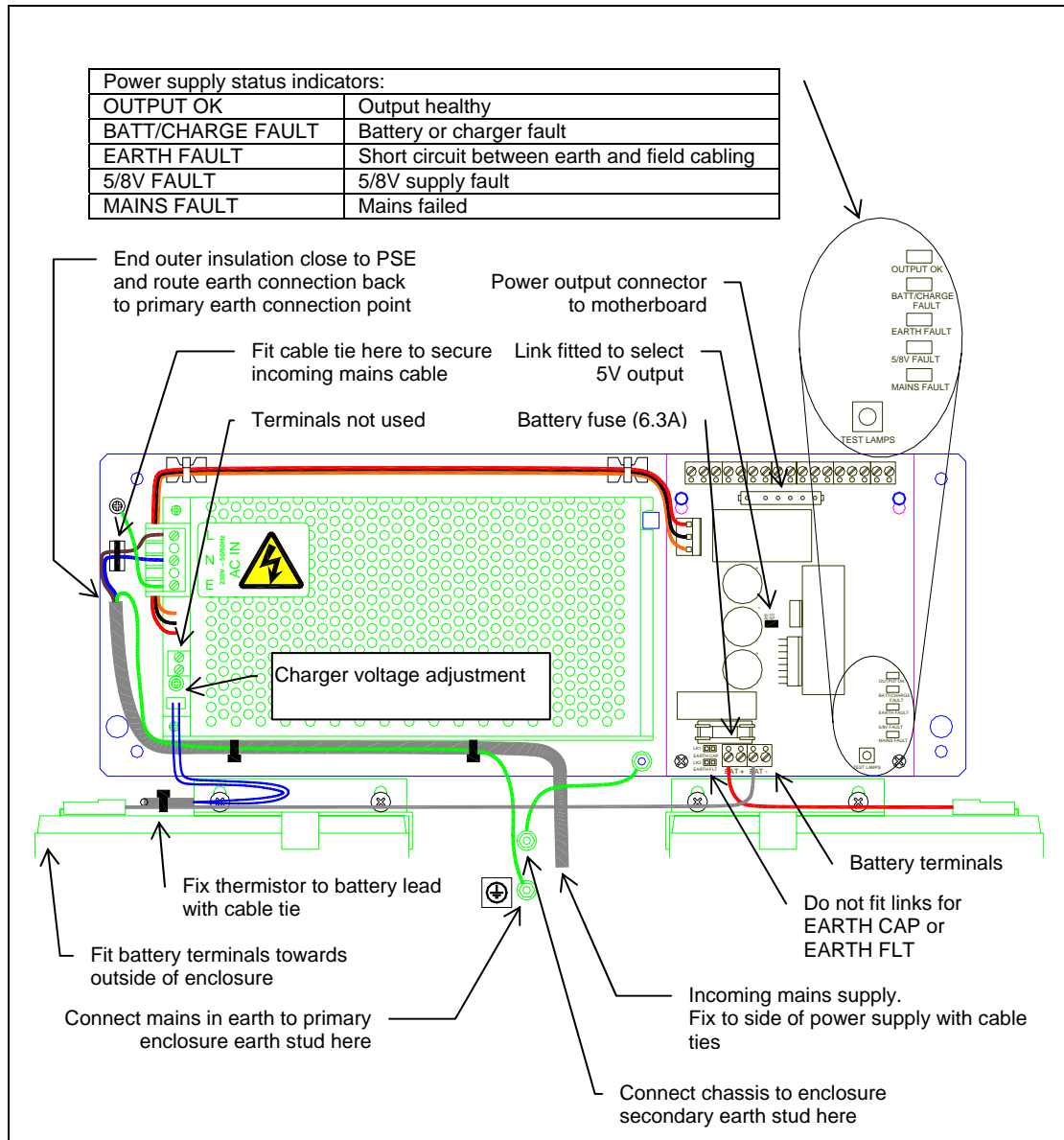


Figure 7 – 32/96 Zone, 40 character Discovery power supply layout

10. 32 Zone, 40 character Voyager Motherboard Features

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

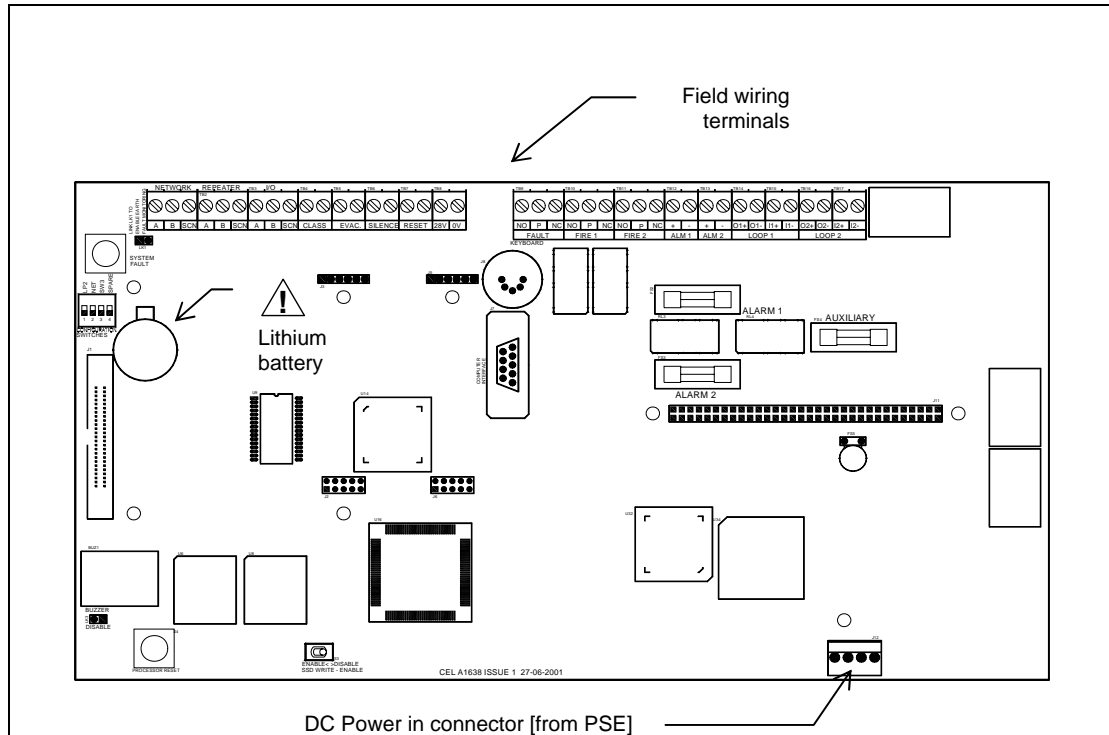


Figure 8 - A1638 32/96 Zone, 40 character Voyager motherboard layout



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.

11. 32/96 Zone, 40 character Voyager Power Supply Features And Connections

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

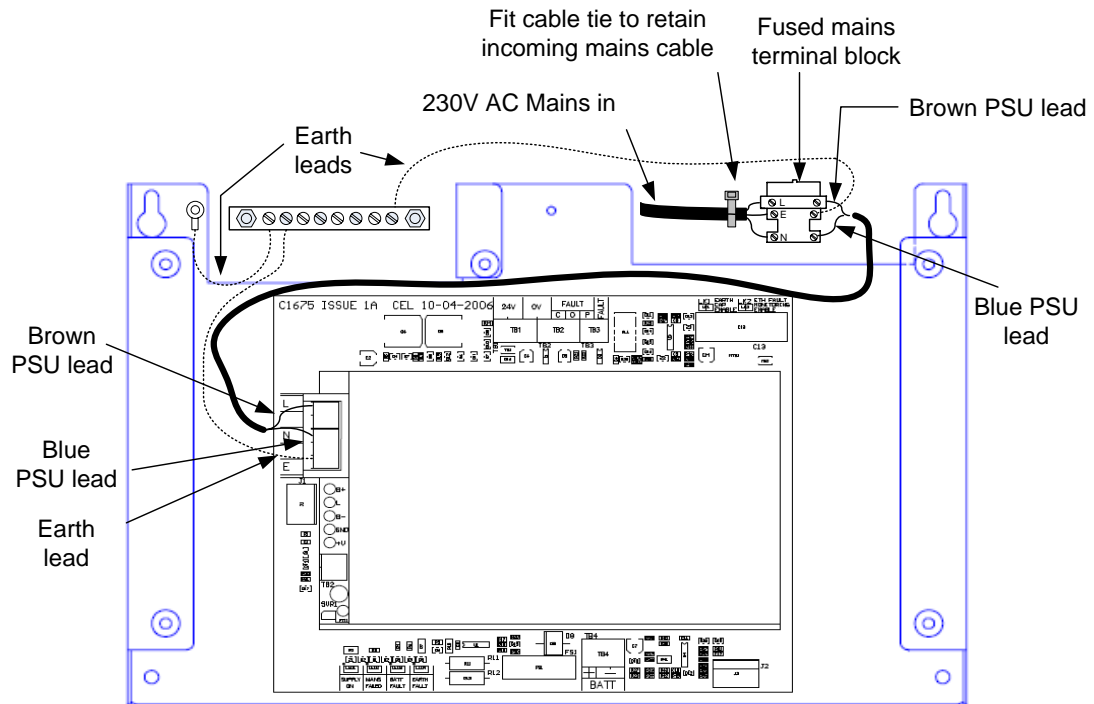


Figure 9 – 32 Zone 40-Character Voyager power supply layout

12. Circuit Connection Details

12.1 Auxiliary Supply

An auxiliary supply is available to power external field equipment from the panel. This is nominally rated at 28V (24V for Voyager) The maximum load is 500mA, the output is fused.

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

12.2 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. The configuration of the relay contacts is shown in Figure 10.

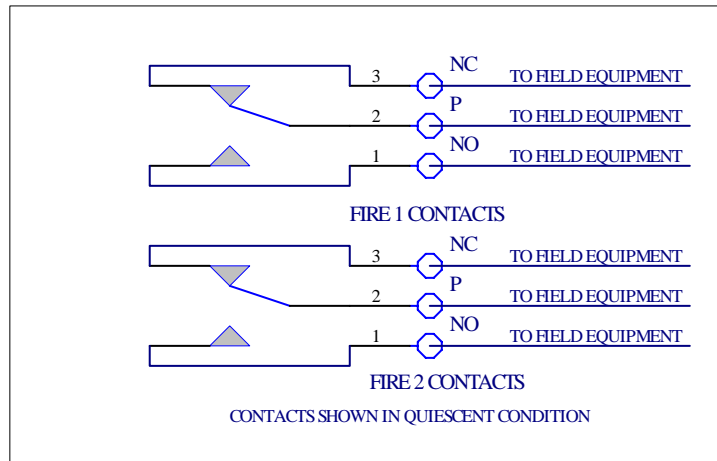


Figure 10 – Auxiliary fire contact connection details

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.

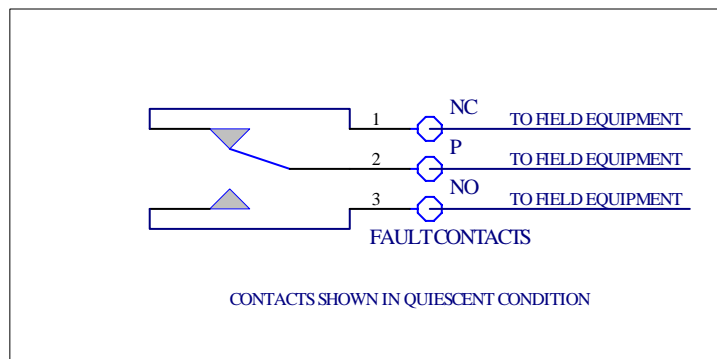


Figure 11 – Auxiliary fault contact connection details

12.3 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.

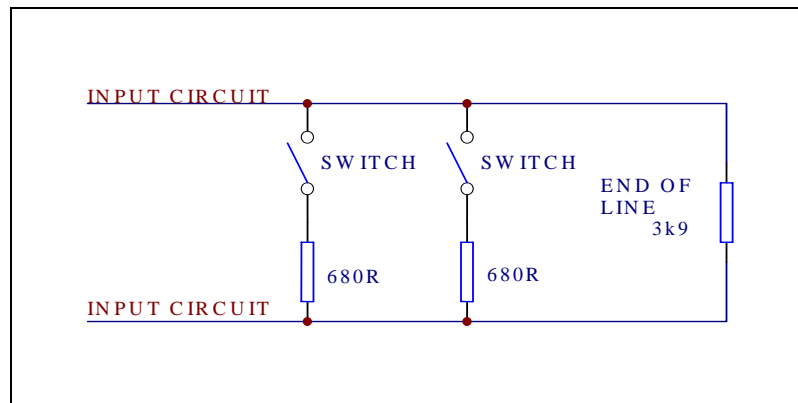


Figure 12 – Monitored input circuit configuration

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. To activate the input a 680 ohm resistor should be connected across the input circuit. 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.

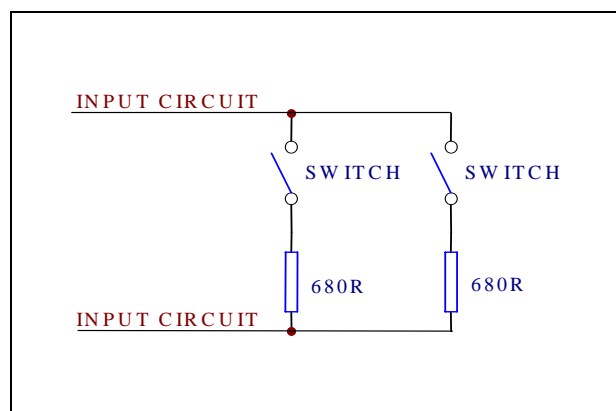


Figure 13 – Class change input circuit configuration

12.4 Alarm Circuits

The 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.

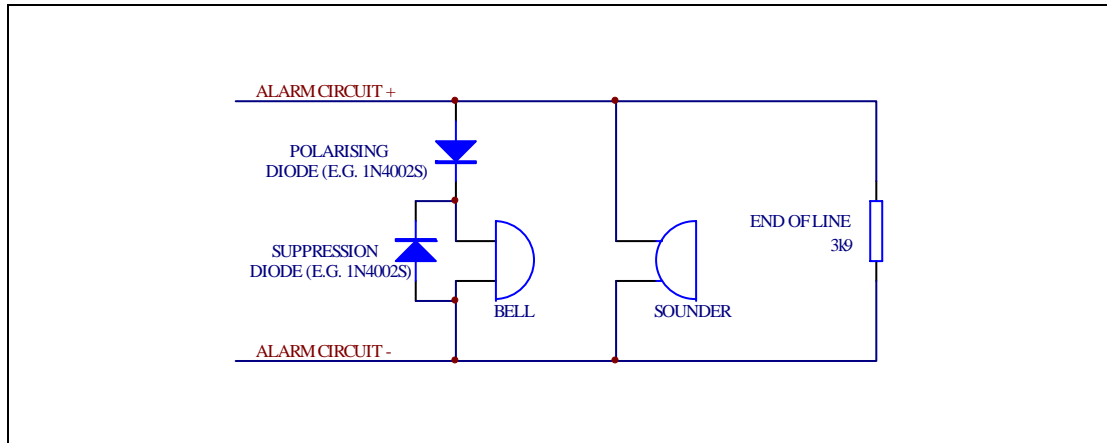


Figure 14 – Alarm circuit configuration

APPENDIX A 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.
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.

APPENDIX B 32/96 Zone, 40 character 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: -5°C to 40°C
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 1mm² 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
 $\pm 0.1V$ @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

APPENDIX C 32 Zone, 40-Character 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: -5°C to 40°C
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 1mm² 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

APPENDIX D 32/96 Zone Discovery and 32 Zone Voyager 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: (Discovery only)	O3+ Loop out +ve
	O3- Loop out -ve
	I3+ Loop return +ve
	I3- Loop return -ve
Loop 4 Terminals: (Discovery only)	O4+ Loop out +ve
	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:	32 total with no restriction on allocation to loops

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