

Nexus 1 - 8 Loop (A1557)
Analogue Addressable Control Panel
Application Guide

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1.0 Introduction and Typical System Illustration

The Nexus analogue addressable panel is available as a 1-8 loop panel using plug-in loop driver cards. Each loop is rated at 200mA and will control up to 126 Apollo XP95 devices. Up to 255 addresses may be configured across the loops for output functions, with 3 independently programmable output bits per address. Panels are housed in well-designed enclosures and are finished in a hard-wearing epoxy paint.

The motherboard electronics are fixed to a detachable chassis thus facilitating a completely empty enclosure for first fix installation. Top entry plastic grommets, bottom/rear entry plastic grommets (for mains) and rear entry knockouts are designed to assist with cable installation.

The Nexus has a 4 line x 20 character backlit LCD display, showing device address, zone, type, status and location text. The LCD display is also used as a menu-driven engineers' configuration display. User controls are accessed by means of keyswitch enabled membrane controls. User and engineering facilities are accessed via 3 password levels.

64 zonal LEDs and "plug-in" printer are available as options.

The panel provides 2 common fire changeover relays and 1 common fault changeover relay, each rated at 1A, 30V DC. Six normally open inputs provide for remote silence, reset system, evacuate, silence fault buzzer, class change and remote fault input.

The Nexus panel may control up to 13 additional duplicate displays, with full user and engineer capability via RS485 data comms (24V DC power also required). Up to 31 x 8-way programmable panel expansion boards may be connected to the panel via an RS485 MUX I/O data link (24V DC power also required). Each 8-way board may provide either 8 programmable open inputs and 8 programmable relays or 8 programmable open inputs and 8 programmable two-stage alarm circuits.

Extensive panel and network cause/effect programming is achieved via the PC programming package.

Full networking with other Nexus and Focus panels, network repeaters and graphics package may be achieved with an additional plug-in network driver card. Network cause/effect may be programmed between Nexus panels, Focus panels and active network repeaters. Limited network signalling may also be achieved with Duplex panels and passive network repeaters.

2.0 Cabinet Specifications

2.1 Surface Cabinets

All cabinets are manufactured from 18SWG sheet steel and finished in satin texture epoxy powder stove paint. Top entry grommets and rear entry knockouts are provided.

Cabinet colour: RAL 7035 Light Grey

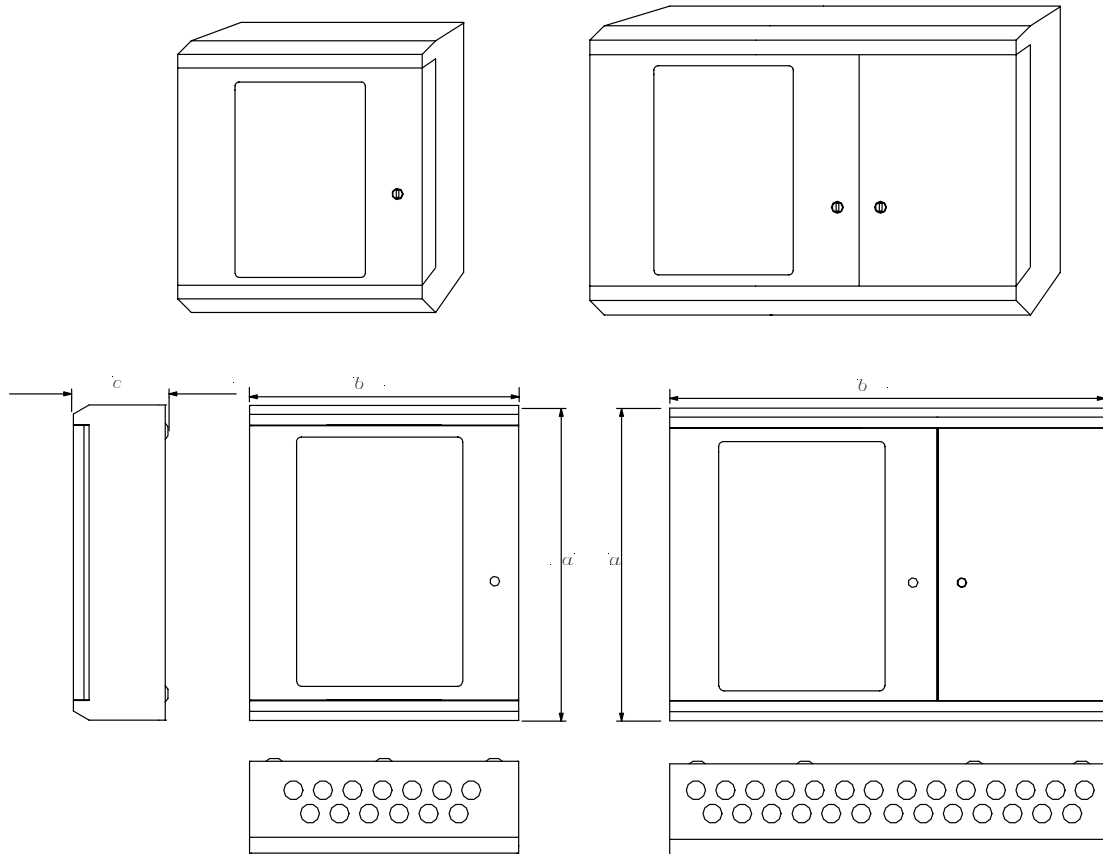


Diagram A

Diagram B

	Diagram A	Diagram B
Grommets	13 off	27 off
a	480mm	480mm
b	410mm	670mm
c	144mm	144mm

NOTE: *Diagram A shows the optional cabinet used for the Nexus 1-8 loop panel with a limit of 2 loops and no expansions board space. It is also used for the larger cabinet Repeater option.*

Diagram B shows the cabinet used for the Nexus 1-8 loop panel fitted with up to 8 loops and space for 2 panel expansion boards.

2.1.1 Order Codes and Descriptions - Control Panels

Part No	Description
2500/812	Nexus 1 loop analogue/addressable (LCD) control panel (A1557) c/w 1 loop card, expandable to 2 loops using additional loop card.
2500/813	Nexus 2 loop analogue/addressable (LCD) control panel (A1557) c/w loop cards.
2500/814	Nexus 3 loop analogue/addressable (LCD) control panel (A1557) c/w loop cards, expandable to 8 loops using additional loop cards.
2500/815	Nexus 4 loop analogue/addressable (LCD) control panel (A1557) c/w loop cards, expandable to 8 loops using additional loop cards.
2500/816	Nexus 5 loop analogue/addressable (LCD) control panel (A1557) c/w loop cards, expandable to 8 loops using additional loop cards.
2500/817	Nexus 6 loop analogue/addressable (LCD) control panel (A1557) c/w loop cards, expandable to 8 loops using additional loop cards.
2500/818	Nexus 7 loop analogue/addressable (LCD) control panel (A1557) c/w loop cards, expandable to 8 loops using additional loop card.
2500/819	Nexus 8 loop analogue/addressable (LCD) control panel (A1557) c/w loop cards.
2500/131	Additional loop cards for Nexus panels (A1504)

2.1.2 Order Codes and Descriptions - Control Panels with Zone LEDs

Part No	Description
2500/820	Nexus 1 loop analogue/addressable (LCD) control panel (A1557) with zone LEDs c/w 1 loop card, expandable to 8 loops using additional loop cards/expansion motherboard.
2500/821	Nexus 2 loop analogue/addressable (LCD) control panel (A1557) with zone LEDs c/w loop cards, expandable to 8 loops using additional loop cards/expansion motherboard.
2500/822	Nexus 3 loop analogue/addressable (LCD) control panel (A1557) with zone LEDs c/w loop cards, expandable to 8 loops using additional loop cards.
2500/823	Nexus 4 loop analogue/addressable (LCD) control panel (A1557) with zone LEDs c/w loop cards, expandable to 8 loops using additional loop cards.
2500/824	Nexus 5 loop analogue/addressable (LCD) control panel (A1557) with zone LEDs c/w loop cards, expandable to 8 loops using additional loop cards.
2500/825	Nexus 6 loop analogue/addressable (LCD) control panel (A1557) with zone LEDs c/w loop cards, expandable to 8 loops using additional loop cards.
2500/826	Nexus 7 loop analogue/addressable (LCD) control panel (A1557) with zone LEDs c/w loop cards, expandable to 8 loops using additional loop card.
2500/827	Nexus 8 loop analogue/addressable (LCD) control panel (A1557) with zone LEDs c/w loop cards.

2.2 Semi-Flush Bezels

The semi-flush bezel locates to the rear of the bevelled edge of the back box, leaving the bevelled edge and door raised out from the wall.

Finished in the same colour as the cabinet back box and fitted by means of pinch bolts, thus avoiding the need to drill the cabinet.

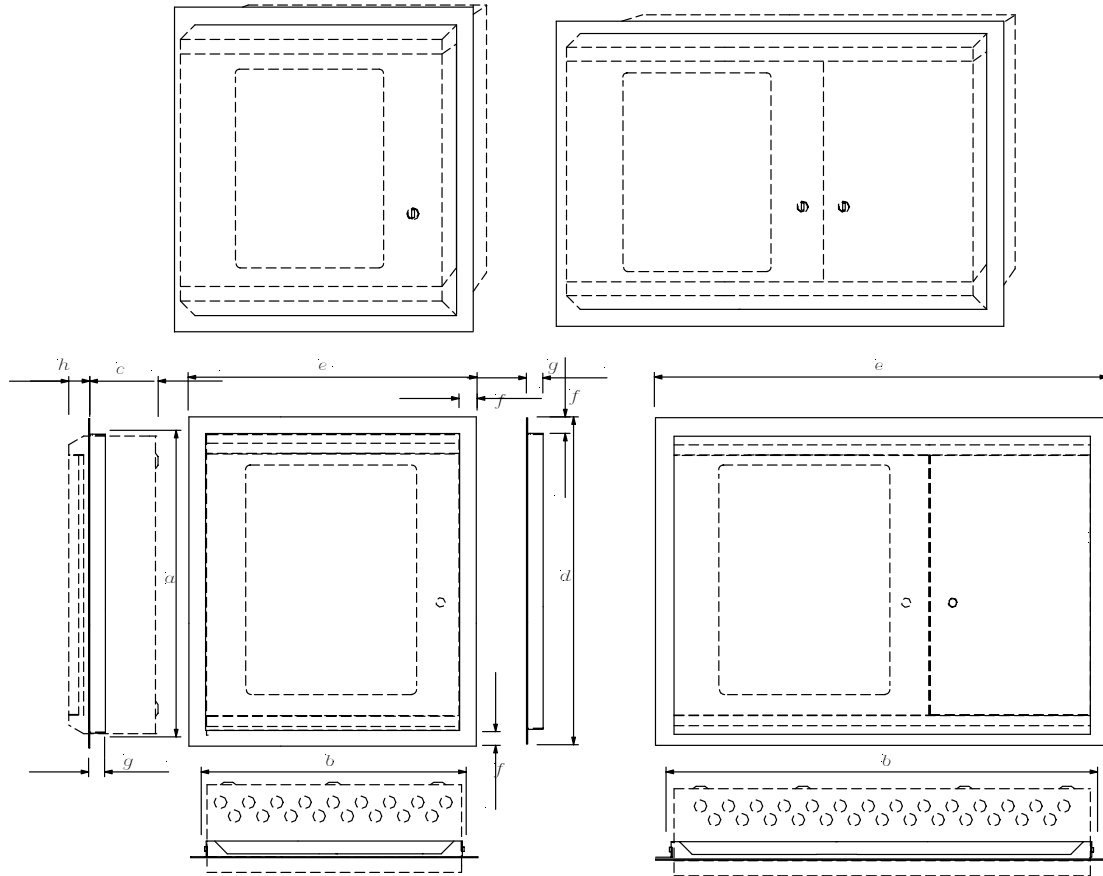


Diagram A

Diagram B

		Diagram A	Diagram B
Hole Height	<i>a</i>	487mm	487mm
Hole Width	<i>b</i>	417mm	677mm
Hole Depth	<i>c</i>	114mm	114mm
Max Bezel Height	<i>d</i>	543mm	543mm
Max Bezel Width	<i>e</i>	473mm	773mm
Bezel Overlap	<i>f</i>	30mm	30mm
Bezel Depth	<i>g</i>	30mm	30mm
Door Protrusion	<i>h</i>	30mm	30mm

NOTE: *Diagram A shows the optional cabinet used for the Nexus 1-8 loop panel with a limit of 2 loops and no expansion board space. It is also used for the larger cabinet Repeater option.*

Diagram B shows the cabinet used for the Nexus 1-8 loop panel fitted with up to 8 loops and space for 2 panel expansion boards.

2.2.1 Order Codes and Descriptions

Part No	Description
2501/125	Semi-flush bezel for Nexus 1-8 loop panel (Double doored cabinet)
2501/124	Semi-flush bezel for repeater panel 2500/838 (& Nexus Single doored cabinet)
2501/121	Semi-flush bezel for repeater panel 2500/834
2501/120	Semi-flush bezel for network repeater panel 2500/170
2501/122	Semi-flush bezel for network repeater panel 2500/173

2.3 Fully Flush Bezel

Fixed to the standard cabinet back box in place of the door and sized larger than the back box. Available in polished or brushed brass, stainless steel and painted finishes.

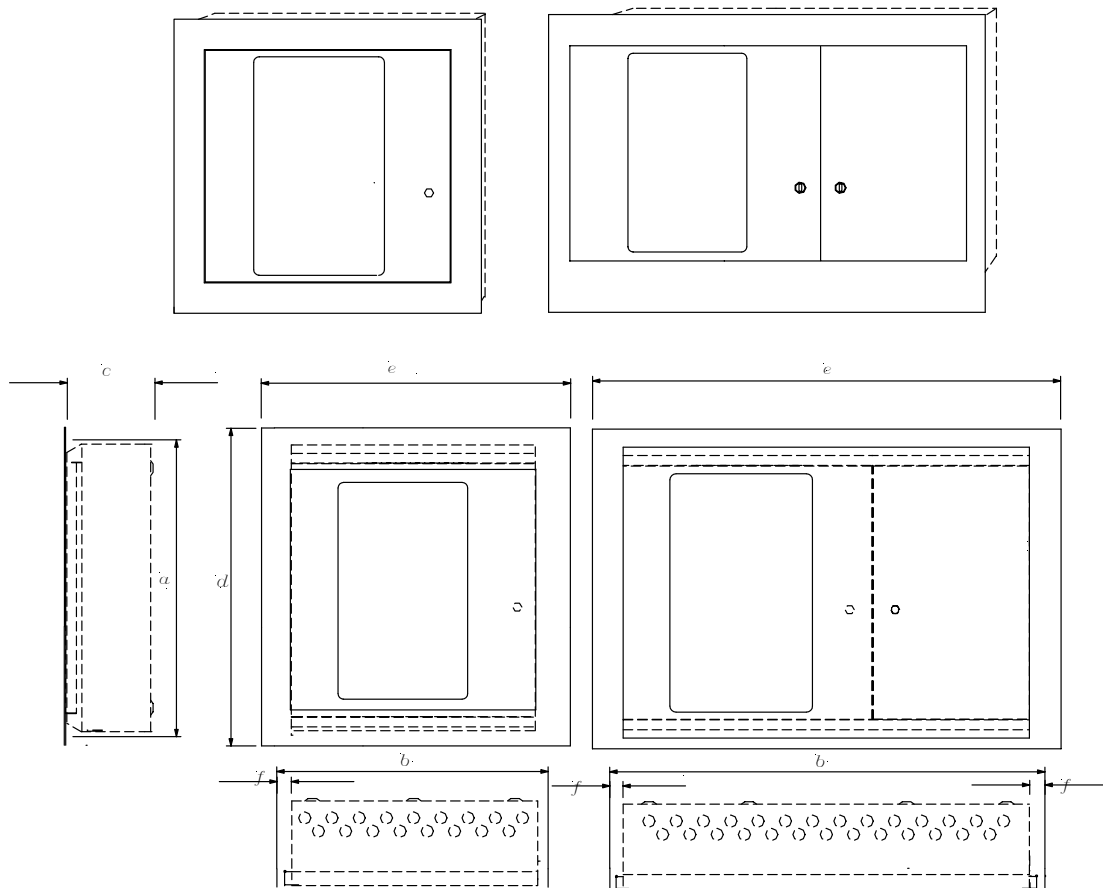


Diagram A

Diagram B

		Diagram A	Diagram B
Hole Height	A	485mm	485mm
Hole Width	B	450mm	720mm
Hole Depth	C	144mm	144mm
Bezel Height	D	518mm	518mm

Bezel Width	<i>E</i>	486mm	746mm
Hinge Protrusion	<i>F</i>	20mm	20mm

NOTE: *Diagram A shows the optional cabinet used for the Nexus 1-8 loop panel with a limit of 2 loops and no expansions board space. It is also used for the larger cabinet Repeater option.*

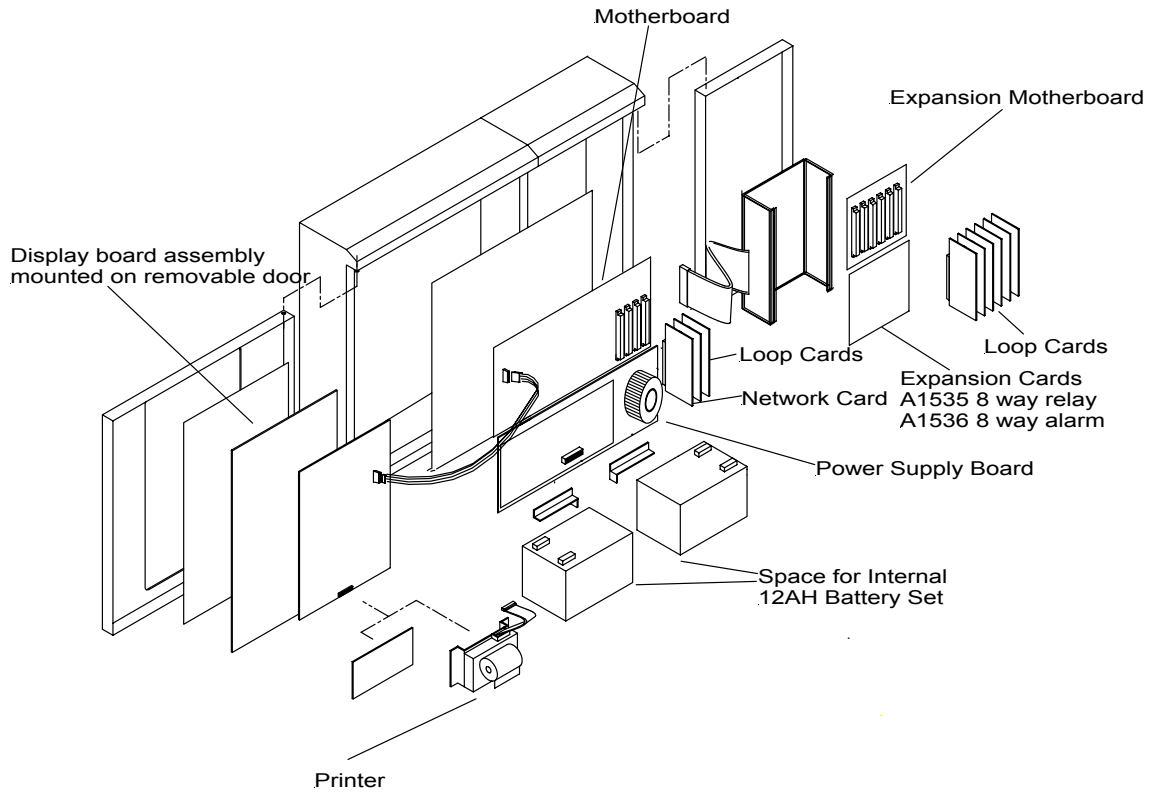
Diagram B shows the cabinet used for the Nexus 1-8 loop panel fitted with up to 8 loops and space for 2 panel expansion boards.

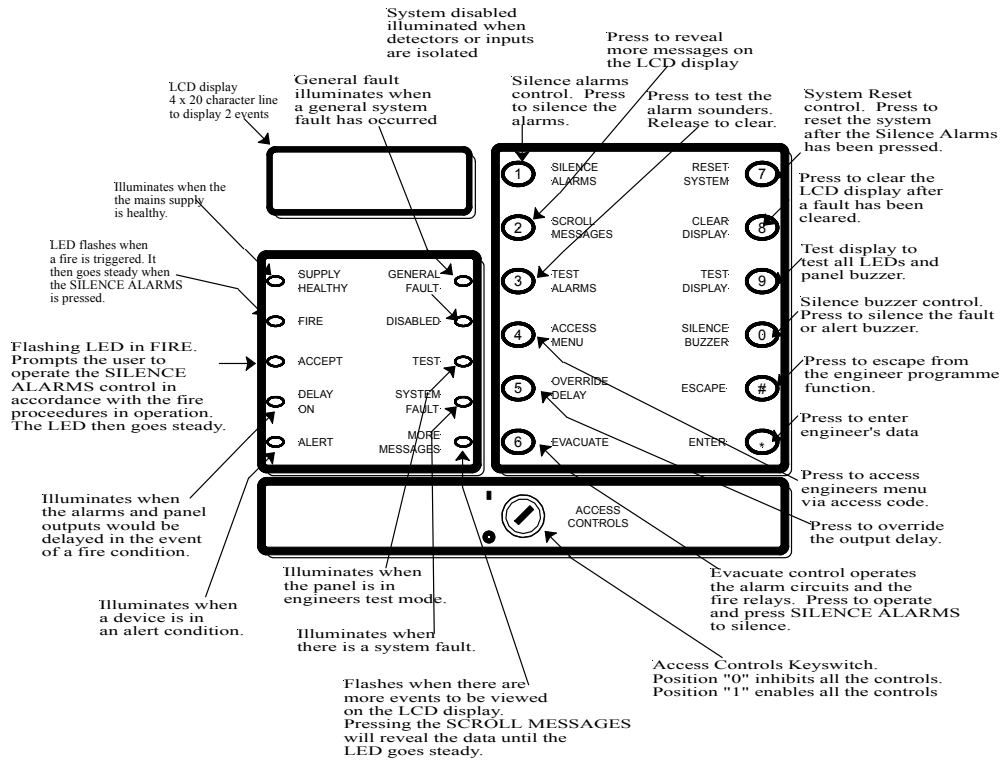
2.3.1 Order Codes and Descriptions

Part No	Description
2501/156	Fully-flush painted bezel for 1-2 loop panel (painted to customer's specification)
2501/157	Fully-flush stainless steel bezel for 1-2 loop panel (brushed or polished)
2501/158	Fully-flush brass bezel for 1-2 loop panel (brushed or polished)
2501/153	Fully-flush painted bezel for 1-8 loop repeater panel – 2500/838 (painted to customer's specification)
2501/154	Fully-flush stainless steel bezel for 1-8 loop repeater panel - 2500/838 (brushed or polished)
2501/155	Fully-flush brass bezel for 1-8 loop repeater panel – 2500/838 (brushed or polished)
2501/127	Fully-flush painted bezel for 1-8 loop repeater panel – 2500/834 (painted to customer's specification)
2501/128	Fully-flush stainless steel bezel for 1-8 loop repeater panel - 2500/834 (brushed or polished)
2501/129	Fully-flush brass bezel for Nexus 1-8 loop repeater panel - 2500/834 (brushed or polished)
Special	Fully-flush painted bezel for Konex network repeater panel - 2500/170 (painted to customer's specification)
Special	Fully-flush stainless steel bezel for Konex network repeater panel – 2500/170 (brushed or polished)
Special	Fully-flush brass bezel for Konex network repeater panel - 2500/170 (brushed or polished)
Special	Fully-flush painted bezel for Konex network repeater panel - 2500/173 (painted to customer's specification)
Special	Fully-flush stainless steel bezel for Konex network repeater panel- 2500/173 (brushed or polished)
Special	Fully-flush brass bezel for Konex network repeater panel - 2500/173 (brushed or polished)

3.0 Hardware Specifications

3.1 Mechanical Assembly Illustration

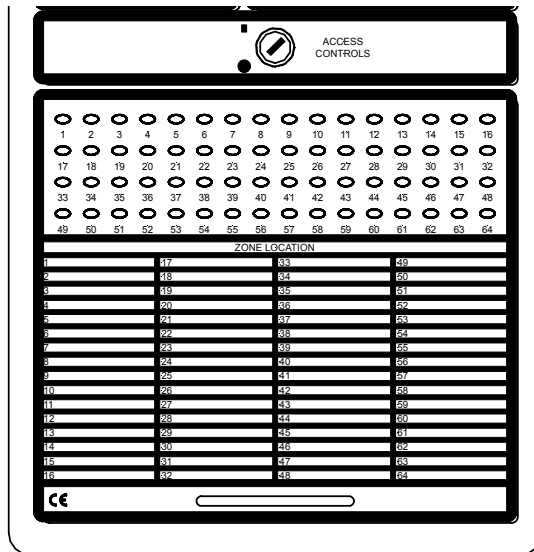




3.2 User Controls & Indications

3.3 Nexus 1-8 Loop 64 Zone LED's with Text Identification

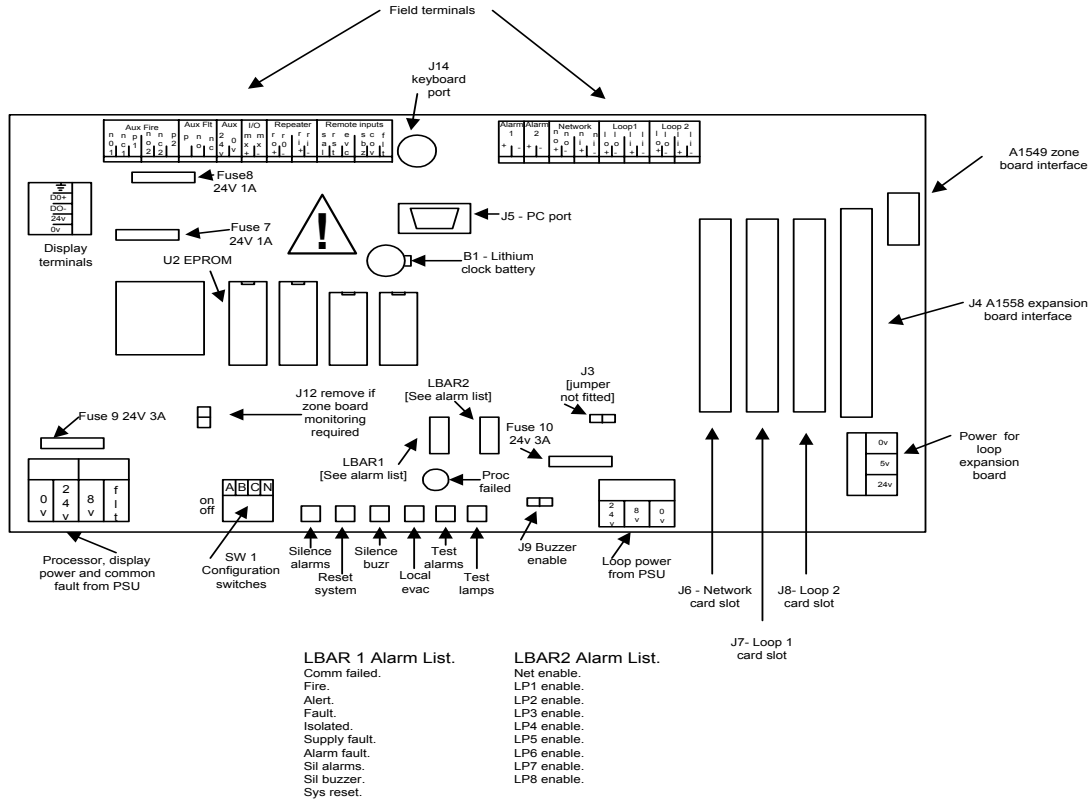
The Nexus 1-8 loop panel may be supplied with or without zonal LED fire indications.



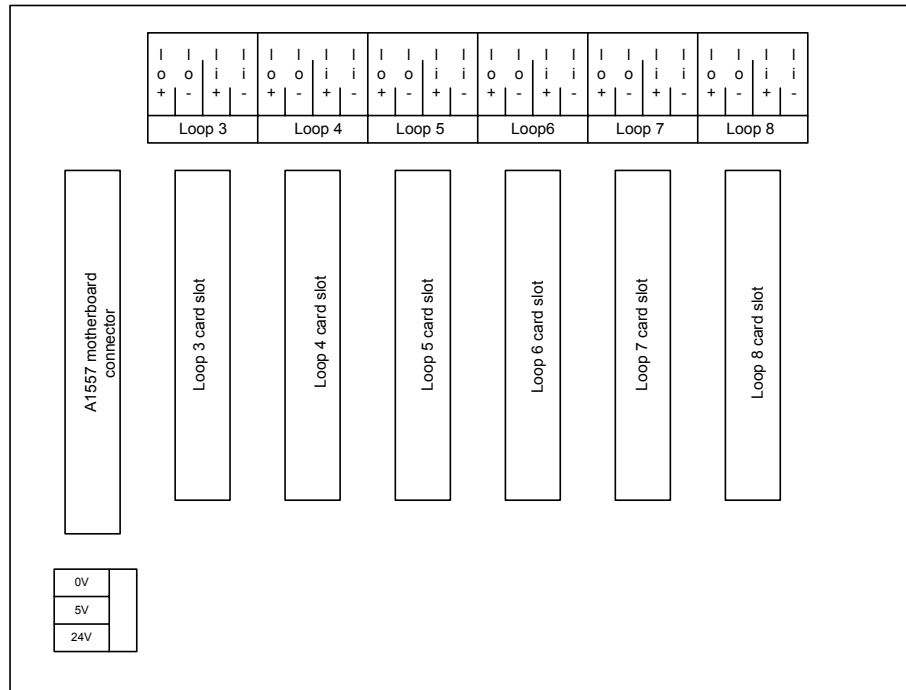
3.4 Engineer's Facilities



Lithium Battery: Caution - danger of explosion if battery is incorrectly replaced. Replace only with same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions. This battery should be replaced by trained service personnel only.



3.4.1 Loop Card Expansion Board



3.5 Technical Specifications

NOTE: Due to the wide scope of panel options, we strongly recommend the use of our battery calculation chart which is available on PC disk. The information below should not be used to calculate standby battery size.

3.5.1 Power Supplies

Mains input voltage:	230V AC -6% + 10%
System operating voltage:	24V DC
Quiescent current at 24V DC:	Please refer to Battery and Loop Calculator
Quiescent loop card current	65mA + 1.3 x loop current
Loop card max. current	200mA
Power supply max:	5 Amps @ 24V DC
Alarm power output max:	1 Amp per circuit @ 24V DC (Note 2)
Auxiliary output max:	0.5 Amp @ 24V DC (Note 3)
Battery charger output:	1.5 Amps (Note 4)
Battery type:	24V sealed lead acid

3.5.2 Output Circuits

Alarm circuits:	2
Alarm circuit monitoring:	Open/short circuit (Note 5)
Repeater output:	Serial data RS485 (Note 6)
Printer output:	Parallel
Multiplex inputs/outputs:	248 (via A1535/A1536 boards)
Panel Network:	Connection of 15 panels via Network data link
Alarm fuse rating:	1 Amp thermal resettable fuse
Battery fuse rating:	6.3 Amp (20mm glass)
Auxiliary fuse rating:	0.5 Amp (20mm glass)

Mains fuse rating: 3 Amp (20mm glass)

3.5.3 Input Circuits

Detection loops: 1-8 Please refer to the Battery and Loop calculator

Detection loop fuse rating: 250mA thermal resettable

No. of sensors on loop: 126 maximum (*Note 8*)

3.5.4 Relay Outputs

2 independent relays are provided which operate as follows:

Fire relay: 1 double pole changeover, operates on any fire alarm

Fault relay: 1 single pole changeover operates on any fault signal

All relay contacts are rated at 24V DC 1 Amp.

3.5.5 Cable Terminations

Mains terminals: Shrouded, marked & fused, accept max 2.5mm² cables

Alarm and loop terminals: Screw terminals, accept max. 2.5mm² cables

All other terminals: Screw terminals, accept max. 2.5mm² cables

All terminal functions are identified by screen printing on the circuit boards.

For Notes please see Appendix i.

4.0 Software Specifications

4.1 General

The Nexus panel allows up to 126 addresses per loop. Devices may be numbered in any order, gaps in the numbering sequence are permitted.

NOTE: Please refer to the “PC-based Software Programming Guide for Nexus Analogue Addressable Control Panels” for the full text, zone, cause/effect and networking capability.

4.2 Overview of Engineer’s Menu Options

4.2.1 Access level 1 1278

1:SET TIME/DATE

2:ISOLATE DEVICES

3:EDIT DEV/LOGO TEXT

Single device, range, de-isolate all, read.

Via PC or special QWERTY keyboard.

4.2.2 Access level 2 7218

4:CONFIGURE LOOP

5:DEVICE STATUS

6:LOOP CONTENTS

7:ZONE ALLOCATION

8:ALARM TEST

9:DEVICE TEST

The panel will identify and report the type and quantity of sensors used on the loop (i.e. ionisation smoke, optical smoke, or heat sensor)

The analogue value can be identified & the detector self-tested, the detector LED and the Remote LED can be turned on either in the enabled mode or the disabled mode.

Panel reports loop content on the display.

255 zones (of which 64 are visible indication zones), programmable across 8 loops and/or panel inputs.

Sounders operate for 1 second every 10 seconds.

Illuminates the device LED. Pulsed the fire LED on the panel and

sounds the internal buzzer. No sounder operation, System automatically resets after 25 seconds ready for the next device test.

0:EXTENDED MENU

Provides access to extended menu as detailed below:

- | | |
|----------------------|---|
| 1:ALERT TRIP LEVELS | Analogue values 35 - 50 in increments of 5. |
| 2:FIRE TRIP LEVELS | Analogue values 55 - 70 in increments of 5. |
| 3:PANEL DELAY | Overridden by Delay Override, BGU or Evacuate.
Set enable period day/night, delay time 1-10 minutes
Enable/disable. |
| 4:READ MEMORY | 64 events - most recent first. |
| 5:CLEAR PRINT QUEUE | Clears events in printer queue. |
| 6:NUMBER OF DISPLAYS | Sets number of panel displays/repeaters. |
| 7:PRINT MEMORY | 64 events - most recent first. |
| 8:PRINT C/E DATA | Single output, loop address or full listing. |

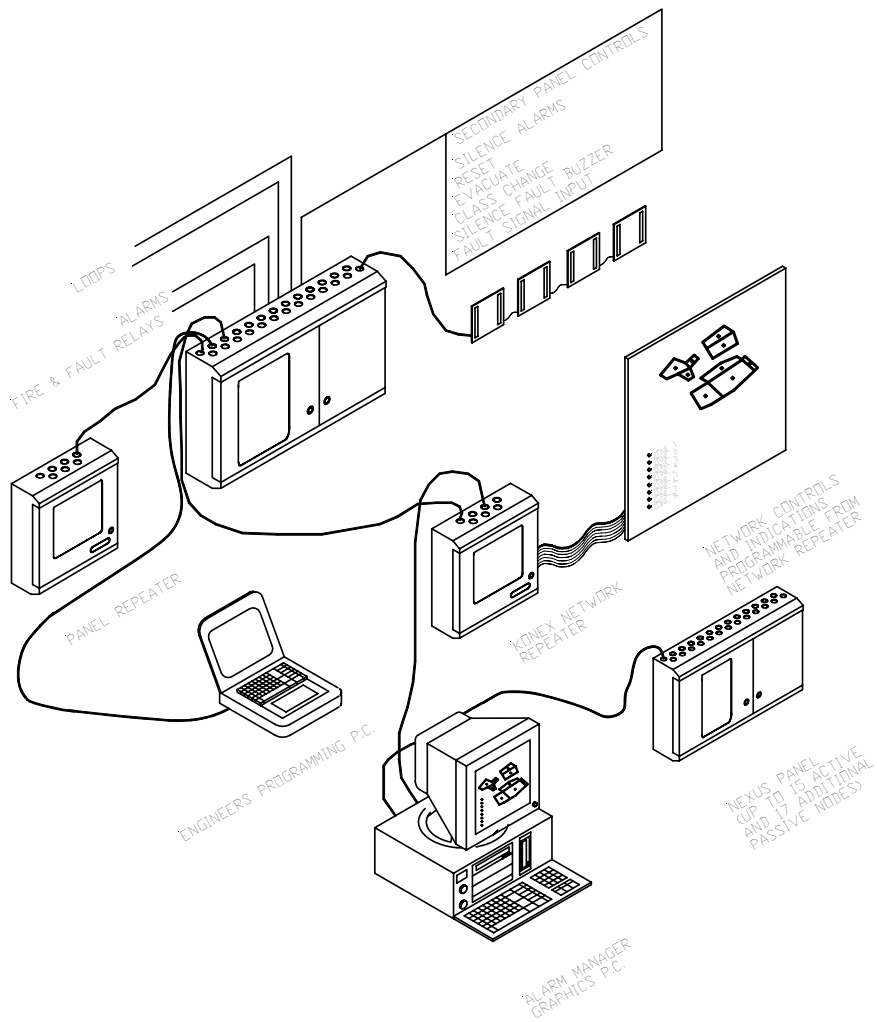
4.2.3 Access level 3 8812

- | | |
|-----------------|--|
| 9:EDIT C/E DATA | Panel and loop (See Cause/effect programming guide). |
| 0:NETWORK | Configures panels in a network. |

5.0 Panel Enhancements

5.1 The Nexus 1-8 loop panel may be enhanced to provide additional facilities. Both the Nexus 1-8 loop panel inputs and outputs can be adapted and enhanced by means of accessory PCBs or software changes. A secondary cabinet is usually required for all PCBs.

NOTE: *Other relevant documentation is available providing more details.*



5.1.1 Panel Enhancement Order Codes & Descriptions

Part No	Description
2500/157	A1535 programmable expansion board - 8 open inputs & 8 relay outputs
2500/158	A1536 programmable expansion board - 8 open inputs & 8 alarm outputs
2500/159	64 way zone LED kit for 1-8 loop Nexus panel 2500/066 to 2500/081
2500/221	Enclosure c/w 3A psu & space for 6.2AH battery set & 2 or 4 panel programmable expansion boards (A1535 or A1536)
2500/223	Enclosure c/w 5A psu & space for 6.2AH battery set & 2 or 4 panel programmable expansion boards (A1535 or A1536)
2500/107	Printer
2500/198	1A 24V DC door retainer power supply unit in enclosure (no battery back-up) Size - 300h x 350w x 75d
2500/197	MPC1 1A power supply unit in enclosure with space for 3.2AH battery set Size 300h x 350w x 75d
2500/199	MPC3 3A power supply unit in enclosure with space for 12AH battery set Size 355h x 370w x 90d
2500/200	MPC5 5A power supply unit in enclosure with space for 24AH battery set Size 300h x 360w x 190d
2500/201	10A Switch mode power supply unit in enclosure with space for 12AH battery set Size 600h x 380w x 210d

5.1.2 A1535/A1536 8 Way Expansion Boards

Up to 31 (A1535 & A1536) 8 way programmable expansion boards may be connected to each Nexus 1-8 loop panel. Two may be housed within the cabinet; a further 29 may be connected via an RS485 comms - for local expansion only. Local power is required for each board in addition to the RS485 comms link.

WARNING: *In order to conform to the requirements of BS5839, the A1536 8 way alarm board must be used adjacent to the main panel.*

The inputs and outputs are fully programmable within the panel's cause/effect facility. The output type (eg relays or alarm circuits) are determined by the board type chosen. The inputs may be monitored or non-monitored, or indication only.

Please refer to A1535 8 Way Relay Board & A1536 8 Way Alarm Board documentation for further details.

5.2 Battery sizes (YUASA)

Battery Rating	Battery Size
3.2AH battery 12V	134 length x 67 wide x 64 high
6.2AH battery 12V	151 length x 65 wide x 97.5 high
12AH battery 12V	151 length x 98 wide x 97.5 high
15AH battery 12V	181 length x 98 wide x 167 high
38AH battery 12V	197 length x 165 wide x 170 high
65AH battery 12V	350 length x 166 wide x 174 high

6.0 Compatible Field Devices

6.1 Loop Field Device Order Codes & Descriptions

Note: Please refer to the Loop compatibility Notes in Appendix iii.

Part No	Description
2501/022	XP95 Analogue Addressable Ionisation Smoke Detector
2501/023	XP95 Analogue Addressable Optical Smoke Detector
2501/253	XP95 Analogue Addressable Multi-sensor Detector
2501/024	XP95 Analogue Addressable Temperature Detector (Standard)
2501/021	XP95 Analogue Addressable High Temperature Detector
2501/020	XP95 Analogue Addressable Detector Base c/w card
2501/251	XP95 Loop Powered Beam Detector
2501/252	XP95 Beam Detector Reflector
2501/212	XP95 Blank XPERT Card
2501/019	XP95 Manual Call Point
2501/229	XP95 Weatherproof Call Point
2501/027	XP95 Analogue Addressable Isolator (2501/026 base required)
2501/026	XP95 Analogue Addressable Isolator base
2501/218	XP95 Analogue Addressable Isolating base (max. 20 detectors between isolators)
2500/235	Addressable break glass unit (XP95) without back box
2501/240	Backbox for addressable break glass unit (XP95)
2500/243	Addressable Weatherproof Breakglass Unit
2500/226	Remote square indicator
2500/227	Remote round indicator
2501/221	XP95 loop powered sounder; max. 40 per loop (low level) - requires XP95 base & detector
2501/222	XP95 loop powered sounder; maximum 40 per loop (low level) - red cap
2501/223	XP95 loop powered sounder; maximum 40 per loop (low level) - white cap
2501/254	XP95 high output sounder (standalone)
2501/255	XP95 low profile sounder (for use with isolating base)
2501/216	Mini-switch monitor with interrupt - boxed
2501/217	Output unit, 1 relay, loop powered - boxed
2501/275	XP95 Input/Output Unit
2501/276	XP95 Switch Monitor
2501/277	XP95 Switch Monitor Plus
2501/278	XP95 Zone Monitor
2501/279	XP95 Sounder Control Unit
2501/280	XP95 Mini Switch Monitor with interrupt
2501/281	XP95 DIN Rail Mounted Input/Output Unit
2501/282	XP95 DIN Rail Mounted Output Unit
2501/283	XP95 DIN Rail Mounted Switch Monitor
2501/284	XP95 DIN Rail Mounted Switch Monitor Plus
2501/285	XP95 DIN Rail Mounted Zone Monitor
2501/286	XP95 DIN Rail Mounted Sounder Control Unit
2501/287	XP95 DIN Rail Mounted Isolator
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***

6.2 General Accessories' Order Codes & Descriptions

Part No	Description
2501/040	150mm bell (24 volts DC)
2501/055	Roshni electronic Sounder (24 volts DC) Shallow Base (IP54)
2501/044	Roshni Electronic Sounder (24 volts DC) Deep Base (IP 65)
2501/048	Squashni Sounder and Base
2501/049	Cover Plate for Squashni Sounder
2501/056	White Bedhead Sounder
2501/043	Xenon flashing beacon (24 volts DC - 2 watts)
2501/033	Door retainer (24 volts DC)
2501/034	Door retainer (240 volts AC)
2501/035	Door retainer floor bracket

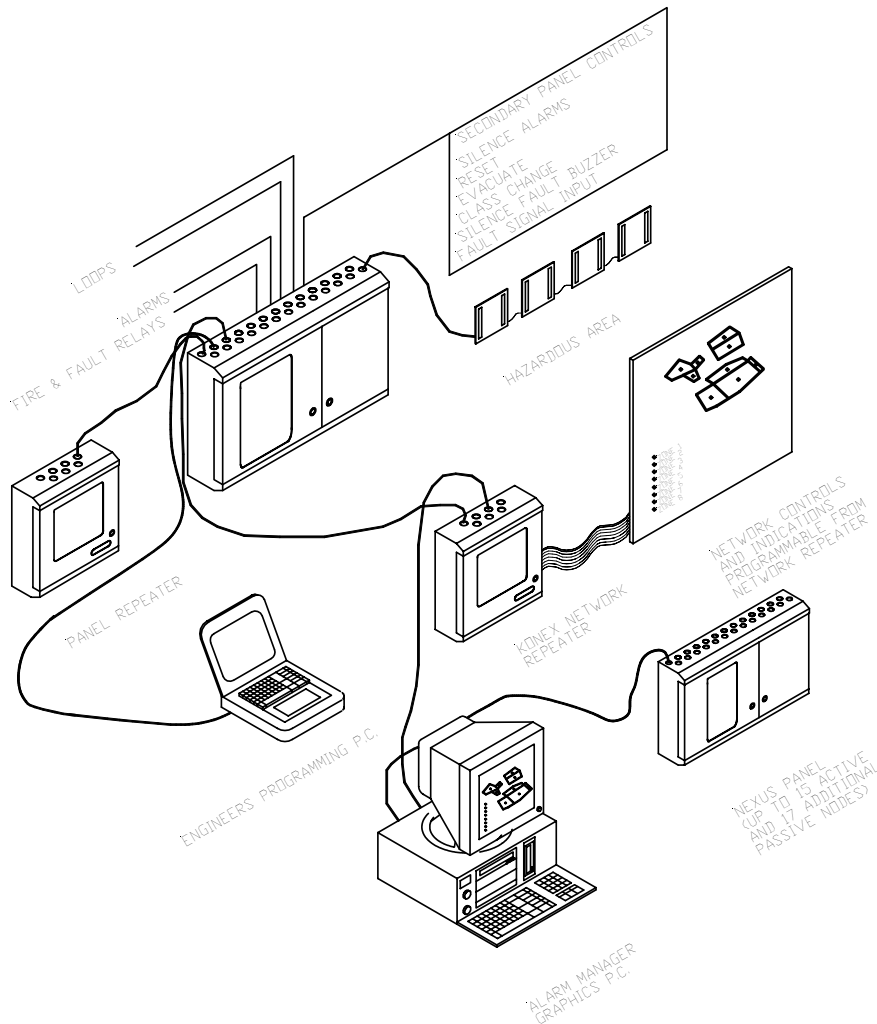
7.0 Nexus Repeater Panels

Up to 13 repeater panels can be connected to the RS 485 repeater terminals. The repeaters can be powered either from the panel's auxiliary supply (See Battery and Loop calculator for maximum values) or from a local power supply. All repeater panels are fully functional with user and engineer access at all levels via access codes.

The repeater panels are available with surface, semi flush or fully flush enclosures to match the Nexus panel. Please refer to the Duplex, Nexus and Discovery Repeater Application, Installation and Commissioning Manual for further details.

8.0 Networking

The Nexus panel is fully compatible with the konex network when fitted with the 2500/160 (A1593) network card. All Nexus 1-8 loop panels are fully networkable with other Nexus panels, network repeaters and touch-screen graphics. Full information and cause & effect programming may be transmitted across the network. Please refer to PC-Based Software Programming Guide and the Konex Network Application Guide for further details.



9.0 Wiring Recommendations

Please refer to the Wiring Recommendations Datasheet.

10.0 Engineer's Tools Order Codes & Descriptions

Part No	Description
2500/501	Test tool (Apollo protocol)
2501/168	IBM QWERTY keyboard adaptor
2500/151	PC programme disk & lead

Appendices

i Technical Specification Notes

1. Quiescent current is stated assuming mains failure conditions, therefore the general fault LED will be illuminated and the fault buzzer will sound.
2. The total current drawn by both alarm circuits operating must not exceed 2 Amps.
3. The total DC auxiliary current drawn must not the values stated in the Technical Specification. The power supply current limiting will operate if ratings are exceeded.
4. The battery charger employed is the constant voltage type and the current will be dependent upon the state of charge of the battery.
5. Alarm line monitoring operates using polarity reversal. All alarm sounders and/or visual alarms must be made polarity sensitive for line monitoring to operate correctly.
6. Repeater data output is available at terminals in the control panel. Two cores are required for the connection of repeater panels. The maximum cable length between the control unit and any repeater unit is 2000 metres. The cable must be suitable for RS485 data such as Belden 8132 or equivalent. If power is provided from the control unit, 2 additional cores are required.
7. The control panel provides an RS485 multiplex data link for driving additional output devices such as zonal relays, alarms, mimic indicators etc. The output functions are programmable at site level.
8. The number of sensor devices may need to be reduced due to the power requirements of the devices themselves. Fire sensors, heat smoke, call points etc. may be fitted in any combination up to the maximum (126) addressing capability of the protocol. Zone monitors in particular require a higher operating voltage and also draw significantly more current from the control unit; reference to the system design manual is necessary if zone monitors are to be used on the loop.
9. If any devices which contain an inductive coil (relays etc.) are connected to the panel, these should be suppressed by connecting a diode across the positive and negative connections of the coil.

ii **Other Relevant Documentation**

Sales Literature
Nexus 1-8 Loop Installation & Commissioning Manual
Nexus 1-8 Loop User Instructions
Nexus Repeater Documentation
A1535 8 Way Relay Board Documentation
A1536 8 Way Alarm Board Documentation
PC-Based Software Programming Guide
Wiring Recommendations
Battery and Loop Calculation Software
After-sales Technical Support Booklet

iii Compatible Loop Devices and Panel 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	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	Bit 0 set on evacuate	
CEL Loop powered sounder	1	Quiescent Fault	None Remote fault	AV = 16 AV = 4	Echo output bits	0 = evacuate 1 = alert 2 = not used	Bit 0 set on evacuate	
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	Bit 0 set on evacuate	
XP95 sounder/ sounder controller	1	Quiescent Circuit fault	None Remote fault	AV = 16 AV = 4	Echo output bits	0 = evacuate 1 = alert 2 = not used	Bit 0 set on evacuate	
CEL I/O unit	2	Quiescent Input 1 operated Input 2 operated Input 3 operated or power supply failed	None Fire Input Remote fault	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 Fire Input Remote fault	AV = 16 AV = 16 AV = 16 AV = 16	000 1XX 01X 001	0 = relay 1 1 = relay 2 2 = relay 3		X means status does not affect panel status

Device type	Type Code	Condition	Panel response	Analogue Value	Status bits (210)	Output bits	Default cause and effect	Comments
Series 90 3-way I/O analogue unit	2	Quiescent Input 1 operated Input 2 operated Input 3 operated	None Fire Input Remote fault	AV = 8 to 44 AV = 55 to 127 AV = 45 to 54 AV = 0 to 7	000 1XX 01X 001	0 = relay 1 1 = relay 2 2 = relay 3		X means status does not affect panel status. See note 2.
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 Fire	AV = 16 AV = 16	000 100	0 = remote indicator 1 = not used 2 = not used		
XP95 I/O unit	2	Quiescent Input operated Opto input active Input fault	None Fire Input Remote fault	AV = 16 AV = 16 AV = 16 AV = 4	000 1X0 010 000	0 = remote indicator 1 = not used 2 = not used		Fire overrides input which in turn overrides remote fault
XP95 output unit	2	Quiescent	None	AV = 16	000	0 = relay		
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 0 and bit 2 set when device is in fire	See note 1.
XP95 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 0 and bit 2 set when device is in fire	See note 1.
CEL zone monitor	4	Quiescent Input 1 operated Input 2 operated Input 3 operated	None Fire Alert Remote fault	AV = 16 AV = 64 AV = 48 AV = 4	000 000 000 000	0 = relay 1 1 = relay 2 2 = relay 3	Bit 0 set on reset or clear faults	
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	Program LED bit in cause effect if required

Device type	Type Code	Condition	Panel response	Analogue Value	Status bits (210)	Output bits	Default cause and effect	Comments
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	Program LED bit in cause effect if required
XP95 Mini-switch monitor	4	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	Program LED bit in cause effect if required
XP95 Switch monitor	4	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	Program LED bit in cause effect if required
XP95 Switch monitor plus	4	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	Program LED bit in cause effect if required
XP95 Zone Monitor	4	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	Program LED bit in cause effect if required
XP95 control unit monitor	4	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	Program LED bit in cause effect if required
XP95 Radio Interface	4	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	
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 0 and bit 2 set when device is in fire	See note 1.
XP95 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 0 and bit 2 set when device is in fire	See note 1.

Device type	Type Code	Condition	Panel response	Analogue Value	Status bits (210)	Output bits	Default cause and effect	Comments
XP95 beam Detector	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 0 and bit 2 set when device is in fire	See note 1.
XP95 flame detector	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 0 and bit 2 set when device is in fire	See note 1.
XP95 multi-sensor opt/heat detector	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 0 and bit 2 set when device is in fire	See note 1.
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 0 and bit 2 set when device is in fire	See note 1.
XP95 heat detector standard	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 0 and bit 2 set when device is in fire	See note 1.
XP95 heat detector high	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 0 and bit 2 set when device is in fire	See note 1.
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
XP95 callpoint	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

Device type	Type Code	Condition	Panel response	Analogue Value	Status bits (210)	Output bits	Default cause and effect	Comments
XP95 Mini switch monitor with interrupt	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
XP95 USA mini priority switch 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

Notes:

1. *The analogue thresholds for analogue detectors can be changed for both fire and alert. See the installation and commissioning manual for details.*
2. *On the S90 3-way analogue unit, either the analogue value or logic inputs can raise alarms. The analogue thresholds can also be changed for fire and alert on this device. See the installation and commissioning manual for details.*
3. *The number of devices with LEDs operated is limited to eight per loop.*
4. *If a device has more than one condition active then only the highest level event will be reported although lower level alarms may be present on the display. For example, if a smoke detector enters an alert condition this will be indicated on the panel. If the device subsequently enters a fire condition the alert will clear but the alert LED will become steady to indicate the event occurred.*