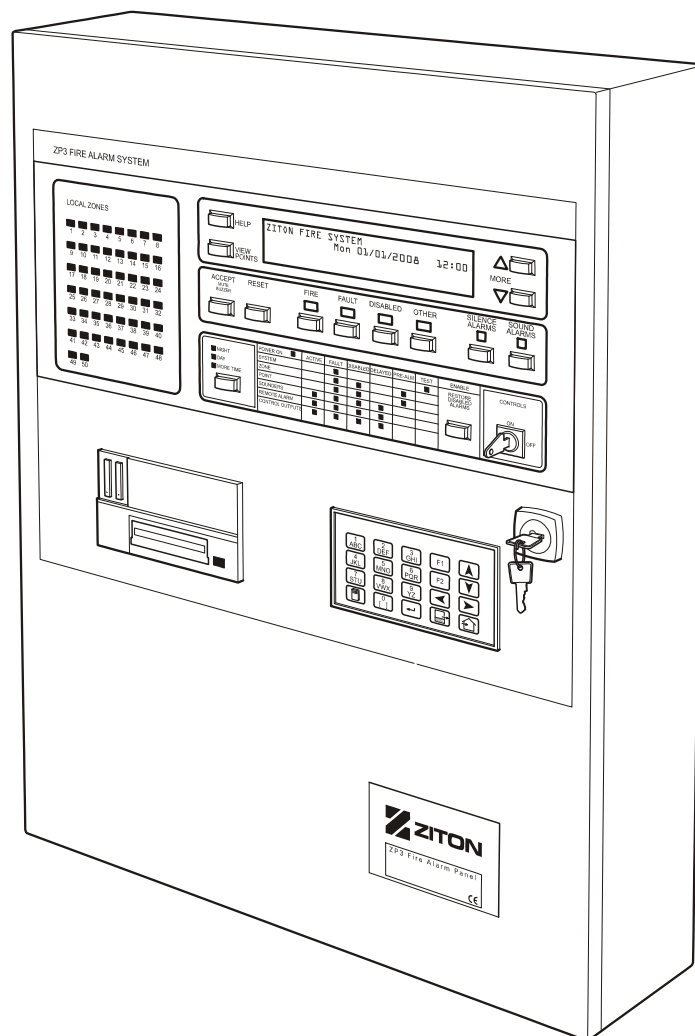


ZP3 Fire Control Panel Installation, Commissioning and Maintenance Manual



2349-02



imagination at work

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List of abbreviations and acronyms

Table 1 lists and defines the abbreviations and acronyms used in this manual.

Table 1: Abbreviations and acronyms

Abbreviation	Definition
DC	Direct Current
GND	Ground
LCD	Liquid Crystal Display
LED	Light Emitting Diode
mA	milliampere
μF	microfarads
MICC	Mineral-insulated Copper-Clad
PC	Personal Computer
RX	Receive
SAB	Sounder Alarm Base
SW	Switch
TX	Transmit
V	Volts

Associated publications and references

Table 2 lists the documents, or parts thereof, that are referenced from this manual:

Table 2: Associated publications and references

Associated publication title	Document number
ZP3 Fire Control Panel User Guide	503-1160ZE-U-10
ZP3 Fire Alarm System Maintenance Logbook	503-1842ZE-1-02
ZP3AB-NET1 Network Board Installation Sheet	501-0485ZE-1-01
ZP3AB-SCB-D Serial Display Unit Interface Installation Sheet	501-0482ZE-1-01
Planner User Guide	503-1436ZE-U-05
European Standard EN54 (Parts 2 and 4)	
British Standards BS 5839 (Part 1 : 1988)	GA 322.6 1 – 1

Preface

This manual is for use by the personnel who install and commission the ZP3 Fire Control Panel, and has been prepared in accordance with ZP3 operating software 3.10

General warnings and precautions

Trained service personnel must carry out procedures in this manual.

The ZP3 panel is powered from a 230 VAC primary supply and from a 24 VDC battery backup supply.

Primary supply



WARNING:

THE POWER SUPPLY FORMS PART OF THE MAIN BOARD ASSEMBLY. THIS ASSEMBLY CONSISTS OF A CIRCUIT BOARD (INCORPORATING THE POWER SUPPLY), MOUNTED ON A METAL CHASSIS, WITH THE POWER SUPPLY COVERED BY A METAL ENCLOSURE. THE ENCLOSURE MUST NOT BE OPENED, AND NON-AUTHORIZED PERSONS MUST NEVER REMOVE THE CIRCUIT BOARD FROM THE CHASSIS. VERY HIGH VOLTAGE POTENTIALS EXIST ON THE CIRCUIT BOARD, AND DISASSEMBLING ANY PART OF THE POWER SUPPLY COULD BE DANGEROUS TO FIELD PERSONNEL.

Connection to the 230 VAC primary supply (+10%, -15%), must comply with National wiring regulations. The wiring must be permanently connected to the building wiring through a 10 A, 3-core cable, and a double pole 10 A isolation switch.

The primary supply must be wired to the correct terminals as follows:

Note: The earth wire **MUST** be connected for each installation.

- Live = Brown
 - Neutral = Blue
 - Earth = Green/Yellow
-



CAUTIONS:

The incoming mains fuse only breaks the live connection.

Dangerous potential remains on the incoming terminals even when the fuse is removed.

Dangerous potentials can also exist at other locations on the PCB even with mains and battery disconnected.

Back-up battery supply



CAUTIONS:

The back-up batteries contain substances that are potentially hazardous to your health and to the environment.



If the back-up batteries are replaced for any reason, the old batteries cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The batteries are marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the batteries to your local supplier or to a designated collection point. For more information see: www.recyclethis.info.



WARNINGS:

THE BACK-UP BATTERIES, ALTHOUGH AT ONLY 24 VDC, CARRY ENOUGH CHARGE TO BE DANGEROUS.

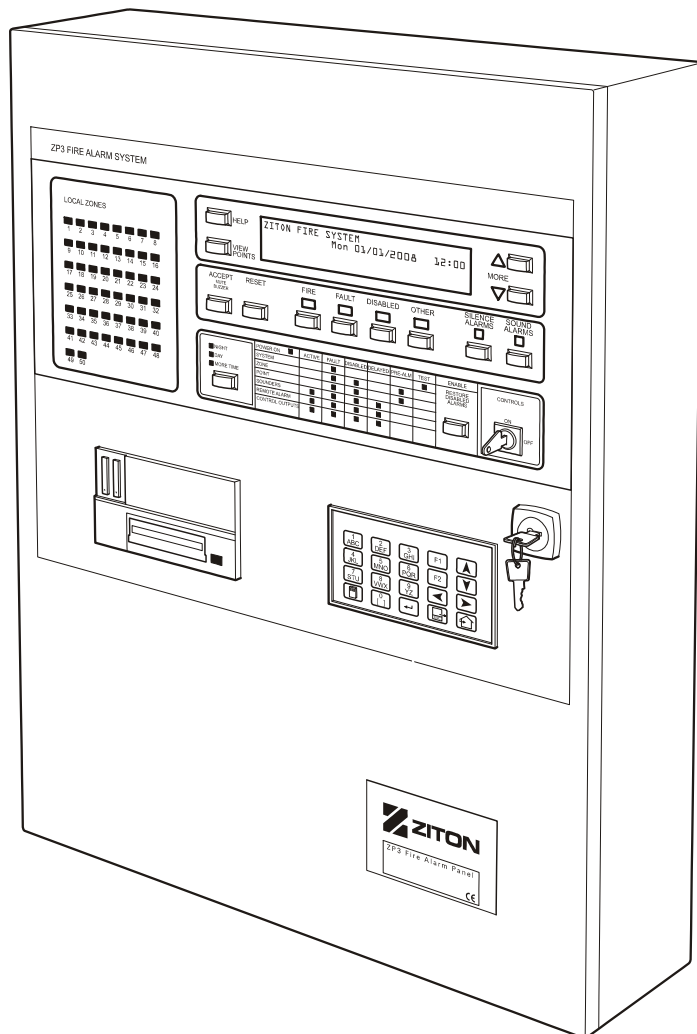
When connecting batteries, or when working in the vicinity of the battery terminals, take care not to accidentally cause a short circuit. In particular metallic tools or metallic watchstraps can also inflict **SEVERE** burns to the user as well as cause a short circuit.

Chapter 1: Installation overview

Introduction

The ZP3 fire control panel (see Figure 1) is a state-of-the-art analogue addressable panel that complies with the EN54 parts 2 and 4 standards. It is a compact microprocessor controlled unit, of modular design. Hardware and software modules enable you to configure virtually any system requirement. The panel uses non-volatile flash memory, and can be programmed on-site directly via the keypad, or by means of a notebook computer.

Figure 1: ZP3 Fire control panel



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Specification

Refer to Table 3 for a detailed specification of the ZP3 Fire Control Panel.

Table 3: ZP3 Fire control panel specification

Description	Specification/ parameters	Remarks
Specification Compliance		
Fire alarm panel	Complies with European Standard EN54-2	
Power supply	Complies with European Standard EN54-4	
Electro-magnetic	CE Marked. Complies with European Directive 89/336/EEC. Complies with standards BS EN50081, BS EN50082, and IEC 950	
IP rating	IP30: For indoor use only	
Loop		
Loop protocol	ZP addressable loop protocol	
Isolators	Up to 16 per loop (advisable to use 11)	
Capacity		
ZP3 4-loop panel	Devices - 508	Loop devices, such as sensors, sounders, interfaces
	Zones - 128	128 digital display, 50 built in zone LED's
	Outputs - 768	Located on the I/O Bus (local and/or remote)
ZP3 2-loop panel	Devices - 254	Loop devices, such as sensors, sounders, interfaces
	Zones - 128	128 digital display, 50 built in zone LED's
	Outputs - 768	Located on the I/O Bus (local and/or remote)
ZP3 1-loop panel	Devices - 127	Loop devices, such as sensors, sounders, interfaces
	Zones - 128	128 digital display, 50 built in zone LED's
	Outputs - 768	Located on the I/O Bus (local and/or remote)
Power Supply Inputs and Outputs		
Input		
Mains voltage	230 VAC +10%, -15%	
Mains frequency	50 Hz (\pm 15%)	
Mains current (maximum)	1 A	
Power	130 W	
CIE input voltage	19.8 to 27.6 VDC	
Auxiliary Output Voltage		
Output voltage (mains on)	24 VDC nominal	See note 1
Output voltage (mains off)	15.0 to 27.6 VDC	See note 1
Battery charging voltage	27.6 VDC	at 20°C temperature compensated
Maximum ripple (at full load)	500 mV peak	

Description	Specification/ parameters	Remarks
Power supply (external)		
Primary supply	24 to 28 VDC, (Amps dependant on system load)	Optional - Supplied from an external charger
Output (mains OFF)	24 VDC	15 to 27.6 VDC depending upon state of battery and load
Total output	Amps	Dependent on external charger capacity
User available output	Amps	Dependent on external charger
Secondary supply/battery	24 VDC	Capacity dependent upon external charger
Software		
Part number	71900	Version 2.0 or higher
Firmware	-	Flash memory
Configuration programming	-	Flash memory
Display		
Liquid crystal text display	160 characters	Backlit 4 line text display
LED indicators	87	High-efficiency LED's for status indication
Communication ports		
Z-Port 1	Planner (RS232)	Built-in RS232 for loading configuration from Planner (without control lines)
Z-Port 2	ZP-Net (RS485)	Optional RS485 port for connecting to ZP-NET
Serial control bus	SCB-Bus (RS485)	Optional port for remote display and control panels
Z-Port 1a	RS232	Optional port for BMS, Pager, or other connection (with Modem control lines)
Selectable features		
Common sounders	EN54-2	Four common sounder circuits
Co-incidence alarm	EN54-2	Co-incidence within zone
Remote manned centre (fire)	EN54-2	For connection to fire alarm RMC routing equipment
Remote manned centre (Fault)	EN54-2	For connection to fault alarm RMC routing equipment
Zone walk test	EN54-2	One-man test of a zone, other zones remain working
Control outputs	EN54-2	Up to 768 programmable control outputs
Output delays	EN54-2	Delays can be programmed to any output
Alarm counter	EN54-2	Level 2 access alarm counter records all alarms
Delay on sounder silence		Prevents silencing alarms before they are heard
Alarm verification		Verifies alarms from a sensor before displaying "Fire"
Sensor sensitivity		Four levels of sensitivity per sensor
Input - output configuration		Sophisticated I/O mapping functions
Automatic sensor test		Tests complete operation of sensors

Description	Specification/ parameters	Remarks
Control buttons/keys		
Help	Button	Displays operator instructions on-screen
View fire alarm	Button	Displays "Fire Alarms by Zone" screen
View fault alarm	Button	Displays "Fault Alarms by Zone" screen
View disabled zones/devices	Button	Displays "Disabled Devices by Zone" screen
View other	Button	Displays "Other Events by Category" screen
View points/devices	Button	Displays alarms by individual device
Accept	Button	Silence built-in panel buzzer during an alarm
Reset	Button	Resets system to normal after an alarm
Silence alarms	Button	Silences all field sounders that are active
Sound alarms	Button	Activates all (or selected) field sounders
Restore disabled alarms/RMC	Button	Restores sounders or RMC alarms that are disabled
Scroll events (more)	Button	Manually scrolls list of alarms on LCD screen
Controls ON/OFF	Keyswitch	Enables or disables front panel controls
Operator menu/keypad	Keypad	For operator, maintenance and setup menus
Indicators		
Fire (common)	LED (dual)	Red
Fault (common)	LED (dual)	Yellow
Disabled (common)	LED (dual)	Yellow
Other (common)	LED (dual)	Yellow
Alarms silenced	LED	Yellow
Sound alarms key pressed	LED	Yellow
Night mode (optional)	LED	Green
Day mode (optional)	LED	Yellow
More alarms	LED	Yellow
Sounders active	LED	Red
Remote centre alarm active	LED	Red
Control output active	LED	Red
System fault	LED	Yellow
Zone fault	LED	Yellow
Sounder fault	LED	Yellow
Remote centre alarm fault	LED	Yellow
Control output fault	LED	Yellow
Zone disabled	LED	Yellow
Point disabled	LED	Yellow
Sounders disabled	LED	Yellow
Remote centre alarm disabled	LED	Yellow
Control output disabled	LED	Yellow

Description	Specification/ parameters	Remarks
Zone pre-alarm	LED	Yellow
Point pre-alarm	LED	Yellow
System test mode	LED	Yellow
Power on	LED	Green

Switched outputs (standard)

Sounder circuits (Common/programmable)	2	Monitored sounder circuits, programmable as one o/p "1 + 2"
Sounder circuits (Common/programmable)	2	Monitored sounder circuits, programmable as one o/p "3 + 4"
Fire (common)	1	Voltage-free relay contacts, common to all fire alarms
Fault (common)	1	Voltage-free relay contacts, common to fault alarms
Remote manned centre (fire)	1	Monitored voltage output to RMC transmitter for fire
Remote manned centre (fault)	1	Monitored voltage output to RMC transmitter for fault

Switched outputs and inputs (optional)

Relay outputs	Up to 896	A total of 896 (768 freely programmable) inputs or outputs can be connected to each ZP3 panel. These inputs and outputs can be a mixture of any of the standard device types shown
Transistor "open-collector" O/P	Up to 896	
Sounder-circuit outputs	Up to 896	
Monitored Inputs	Up to 896	

Optional printer

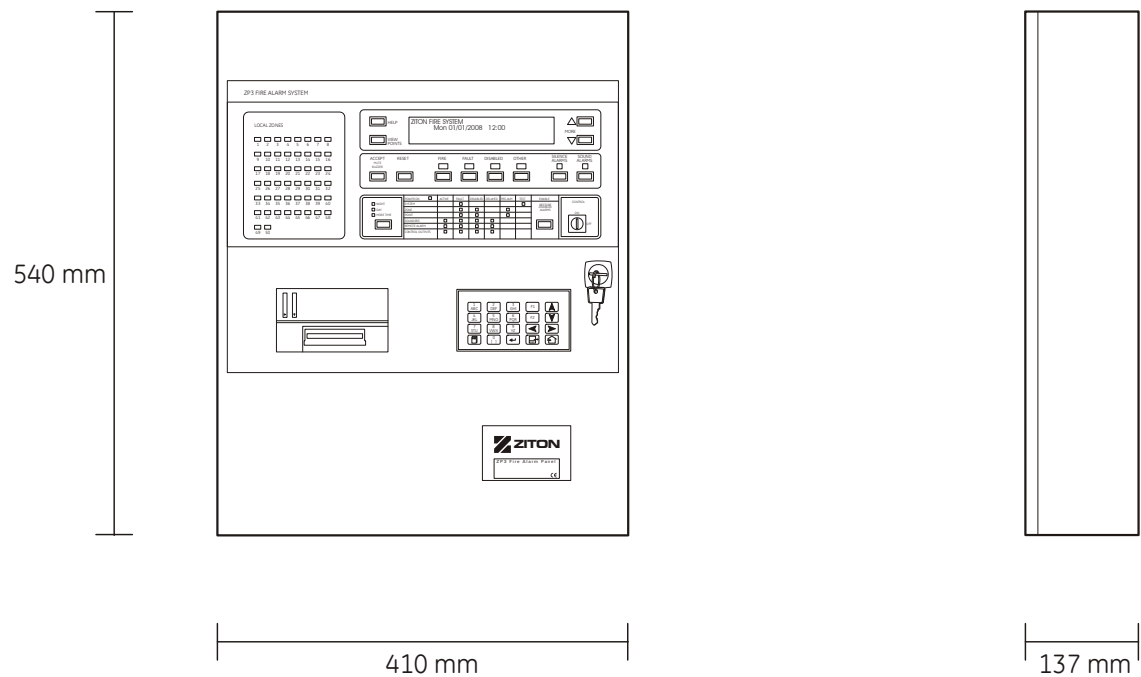
24-character panel-mounted	Built-in	Plain-paper printer with menu-selectable programme
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- Note 1:** This is the output voltage available to provide power to auxiliary boards, such as sounder output boards. It must not be used to power devices not related to the fire system. With the mains on it is regulated at 24–29 VDC, and with the mains off it provides battery voltage, which will be approximately 3 V lower than the battery voltage when a full load (4 A) is connected. As a safety feature, line device analogue information is ignored by the panel at very low input voltages. Battery voltages from 19 to 21 V (and lower depending on the current being drawn) cause the panel to display the message "fire detection inactive".
- Note 2:** This is the total power supply capability, used for all panel and user operations. The peak current is only available for short periods of time, not exceeding 30 minutes.
- Note 3:** Maximum current used internally by the panel, excluding detectors and external devices.
- Note 4:** After deducting panel operation and battery charging requirements, the current remaining is available for use by external devices such as detectors, accessory boards and sounders. This is the maximum current available while the system is in a non fire alarm condition.
- Note 5:** In a fire alarm condition, the battery charging is disconnected. Therefore, in a fire condition, additional current is available for external fire alarm devices only, such as sounders.

Dimensions

See Figure 2 for the dimensions of the ZP3 fire alarm panel. The basic panel is designed for surface mounting, and flush-mounting kits are available. The dimensions below apply to the basic panel. For details of optional mounting hardware, see the appropriate data sheets.

Figure 2: ZP3 Fire control panel - dimensions



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Weight

Weight without batteries: 10 kg

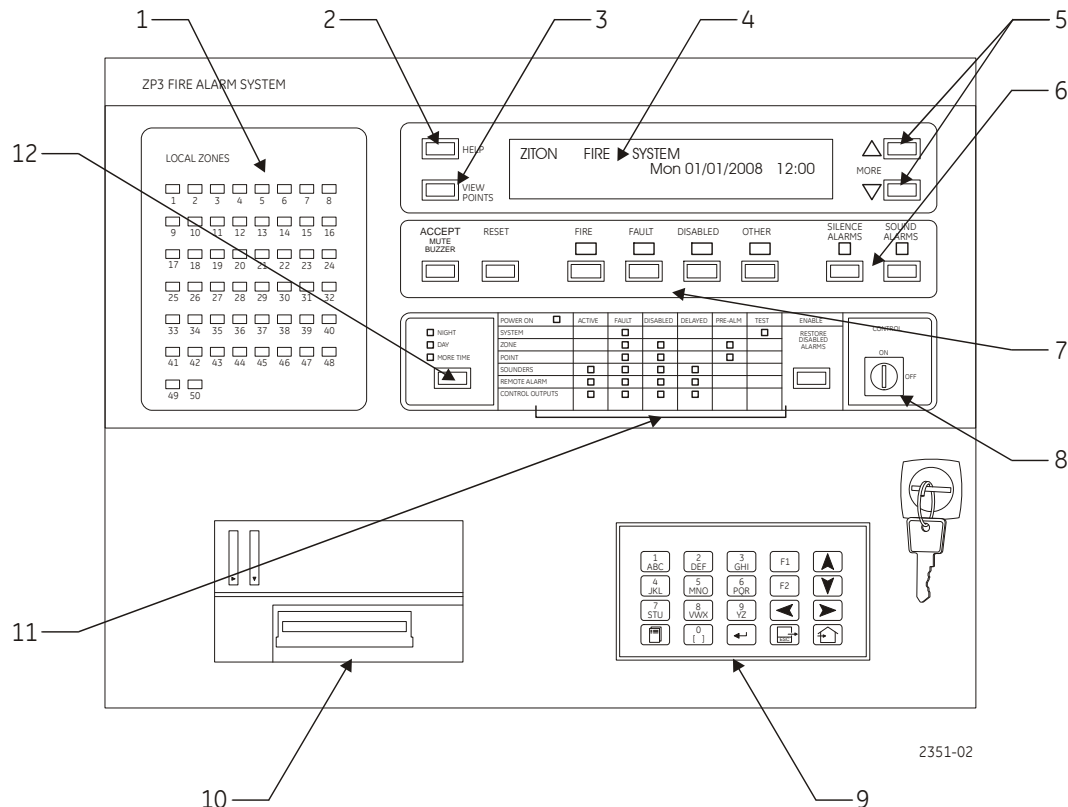
Weight with batteries: 20 kg

Panel overview

Display and controls

The fascia of the ZP3 fire panel has the necessary indicator lamps, text display screen, controls, menu keyboard, and printer to provide the operator with the status of the system at all times. It also has a reporting system for alarms, faults, and other events. Figure 3 shows the main features of the front panel.

Figure 3: ZP3 Fire control panel - main features



Legend:

Item	Description	Item	Description
1	Zone fire indicator	7	View buttons
2	Help key	8	Access control
3	View Points key	9	Keypad
4	Text display	10	Printer
5	Scroll buttons	11	Status indicators
6	Sounder control keys	12	Day/night module

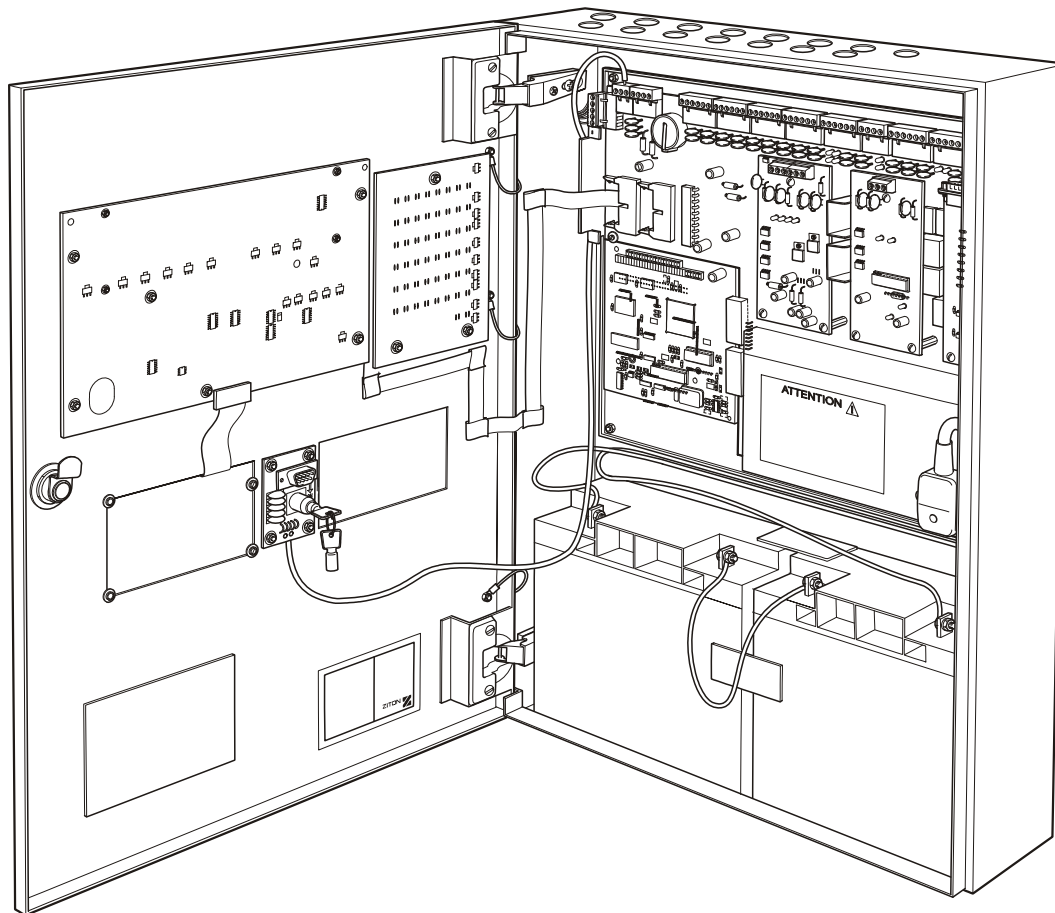
The display of information is designed to comply with the requirements of EN54-2. In addition to alarms and events being reported on the text screen, they are also indicated on zone lamps where applicable. Operation of controls is structured by access level, with four levels being provided. The printer is an optional item.

Panel construction

Modular format

The ZP3 fire control panel (see Figure 4) is of modular design so that it can be configured for any required application. It consists of a basic panel, which is fully functional, and available in 3 models, 1-loop, 2-loop, and 4-loop. The basic panel operates as a complete system without any extras.

Figure 4: ZP3 Fire control panel - modular construction



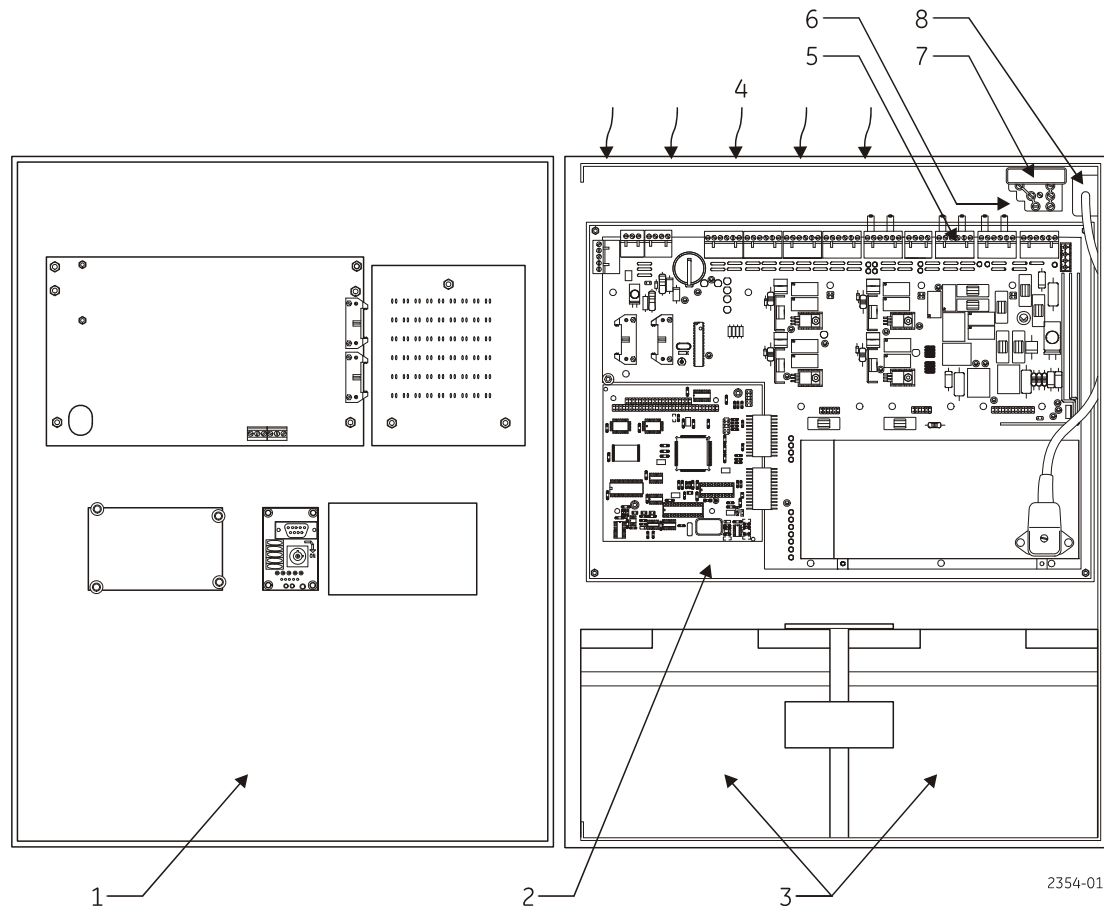
2352-01

Figure 4 shows the basic fire panel. The elements shown provide all required functions, and form the core of the ZP3 panel. No optional I/O modules or printer are shown in this illustration. Three comms boards are fitted.

Internal features

Figure 5 shows the internal features of the basic ZP3 panel with additional detail. All components are carried on two main modules; the internal chassis holds the main board and processor board, and the door-assembly holds the display board, the zone board, the keyboard, and the Zport1 connection.

Figure 5: ZP3 Fire control panel – internal features



Legend:

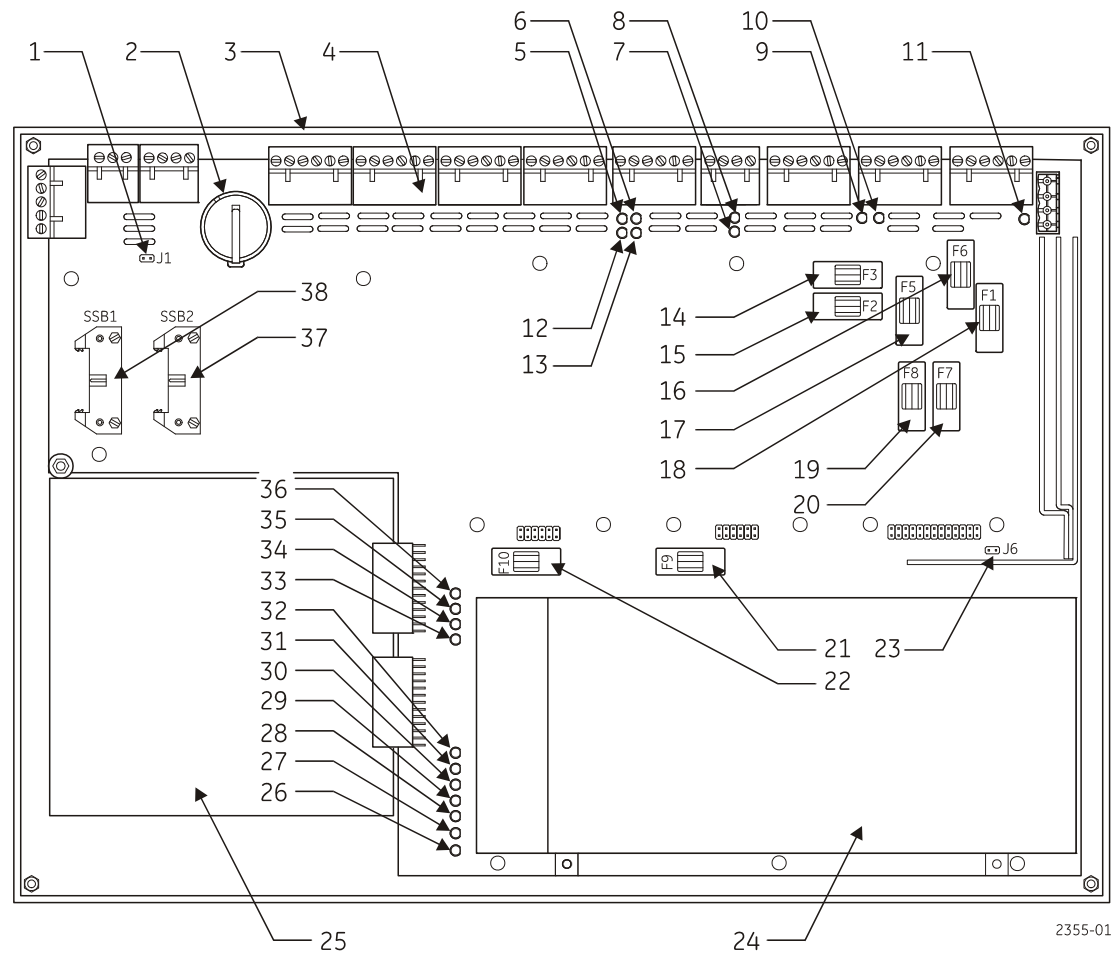
Item	Description	Item	Description
1	Door assembly	5	Main terminals
2	Main chassis	6	Mains 230 VAC connections
3	Batteries	7	Mains fuse
4	Wiring entering system	8	Mains filter

The panel is divided into three main modules, namely the chassis, the door assembly, and the cabinet. The basic electrical installation can be carried out using the cabinet only, which has the required conduit entry points at the top and back. Optional hardware is available for different installation requirements.

Main chassis assembly

Figure 6 shows all the main features of the ZP3 panel main chassis assembly. This unit comprises the line-drivers, the I/O circuitry, the control circuits, the power supply, and the plug-in central processing unit (CPU).

Figure 6: ZP3 Fire control panel – main chassis assembly



Legend:

Item	Description	Item	Description
1	Earth monitoring enabled	20	Monitored sounder 2
2	Battery for time/date	21	Main 24 VDC power 6.3 A
3	Chassis	22	5 VDC power 0.5 A
4	Field terminals	23	Charge rate selector
5	LED 6 RMC alarm activated	24	Power supply unit
6	LED 10 RMC fault activated	25	CPU board
7	LED 12 common fire	26	LED 4 mains on
8	LED 11 common fault	27	LED 2 RDU +ve
9	LED 13 sounder 1+2 activated	28	LED 7 RS232 +ve
10	LED 36 sounder 3+4 activated	29	LED 8 RS232 -ve
11	LED 1 battery charging	30	LED 14 +5V_S
12	LED 5 RMC alarm overload	31	LED 15 +5V
13	LED 9 RMC fault overload	32	LED 37 24V
14	Monitored sounder 4	33	LED 20 sounder fault
15	Monitored sounder 3	34	LED 19 loop fault
16	Aux/supply out	35	LED 18 earth fault
17	RMC fault alarm	36	LED 21 ADC failure
18	Battery/external 24V	37	To auxiliary boards
19	Monitored sounder 1	38	To display PCB

The main chassis is removed from the panel by removing the four (4) securing screws.

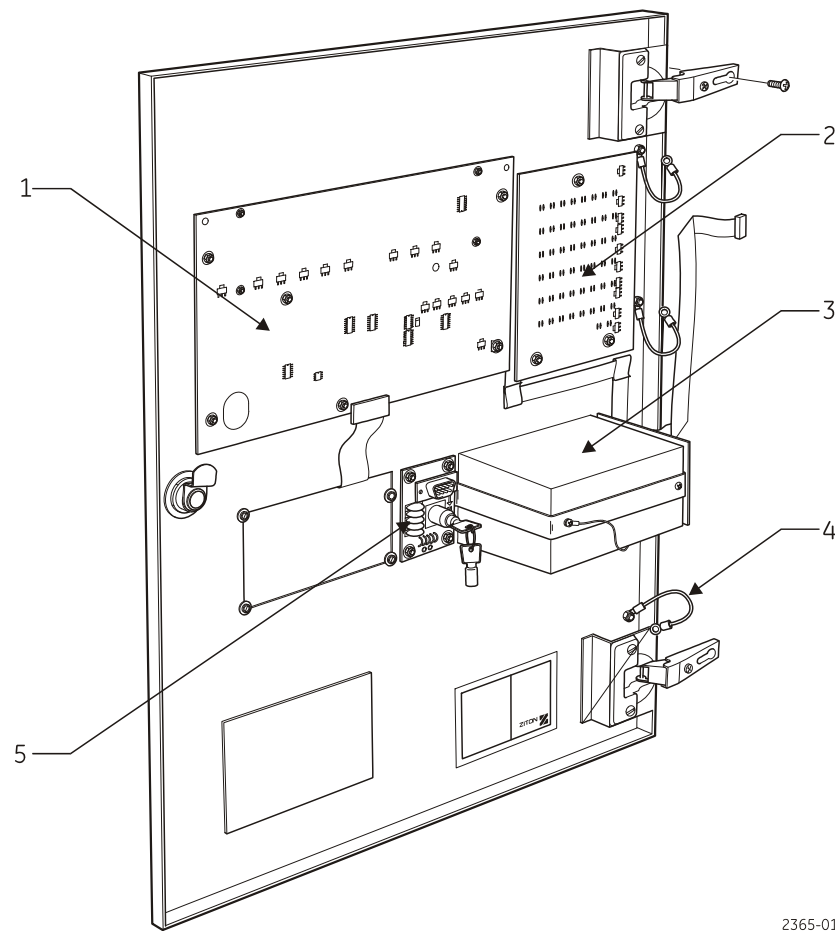


CAUTION: Once removed, the main chassis should not be dismantled, as very high voltage exists below the circuit board, and can be present even when mains is off, or the unit is removed from power. There are no field serviceable parts in the assembly.

Door assembly

Figure 7 shows all the main features of the ZP3 panel Door Assembly. This unit comprises the panel display and control electronics as well as the keyboard, a serial connection for data loading, and the printer (if fitted).

Figure 7: ZP3 Fire Control Panel - Door Assembly



2365-01

Legend

Item	Description	Item	Description
1	Display board	4	Earth straps
2	Zone board	5	Commissioning board
3	Optional printer		

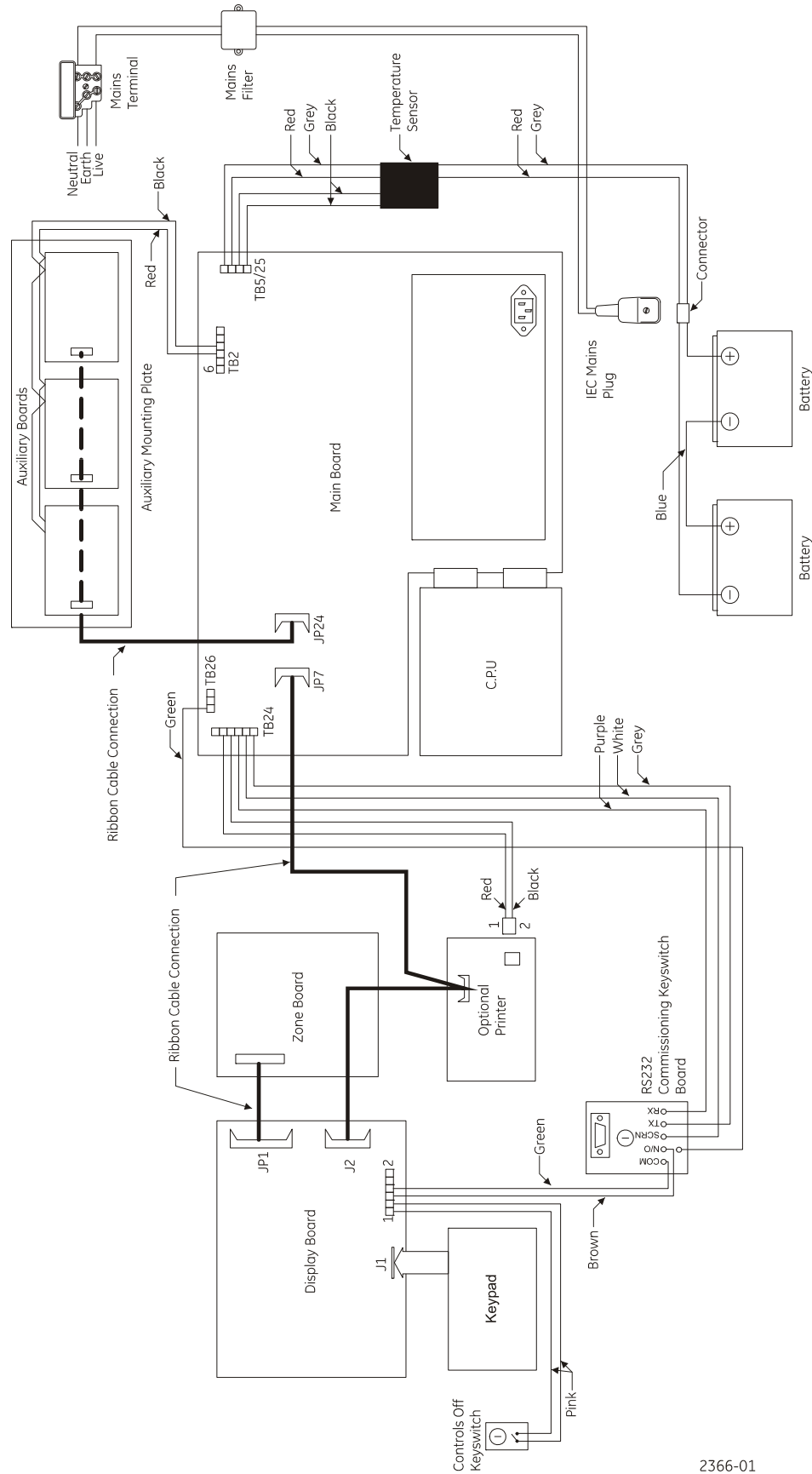
Remove the complete door assembly if required as follows:

1. Remove two (2) screws securing the hinges.
2. Remove the four (4) nuts securing the earth straps, which connect from door to box.
3. Carefully unplug cables connecting the door boards to the main chassis.

Note: Do not dismantle the door boards. There are no field serviceable parts in the assembly.

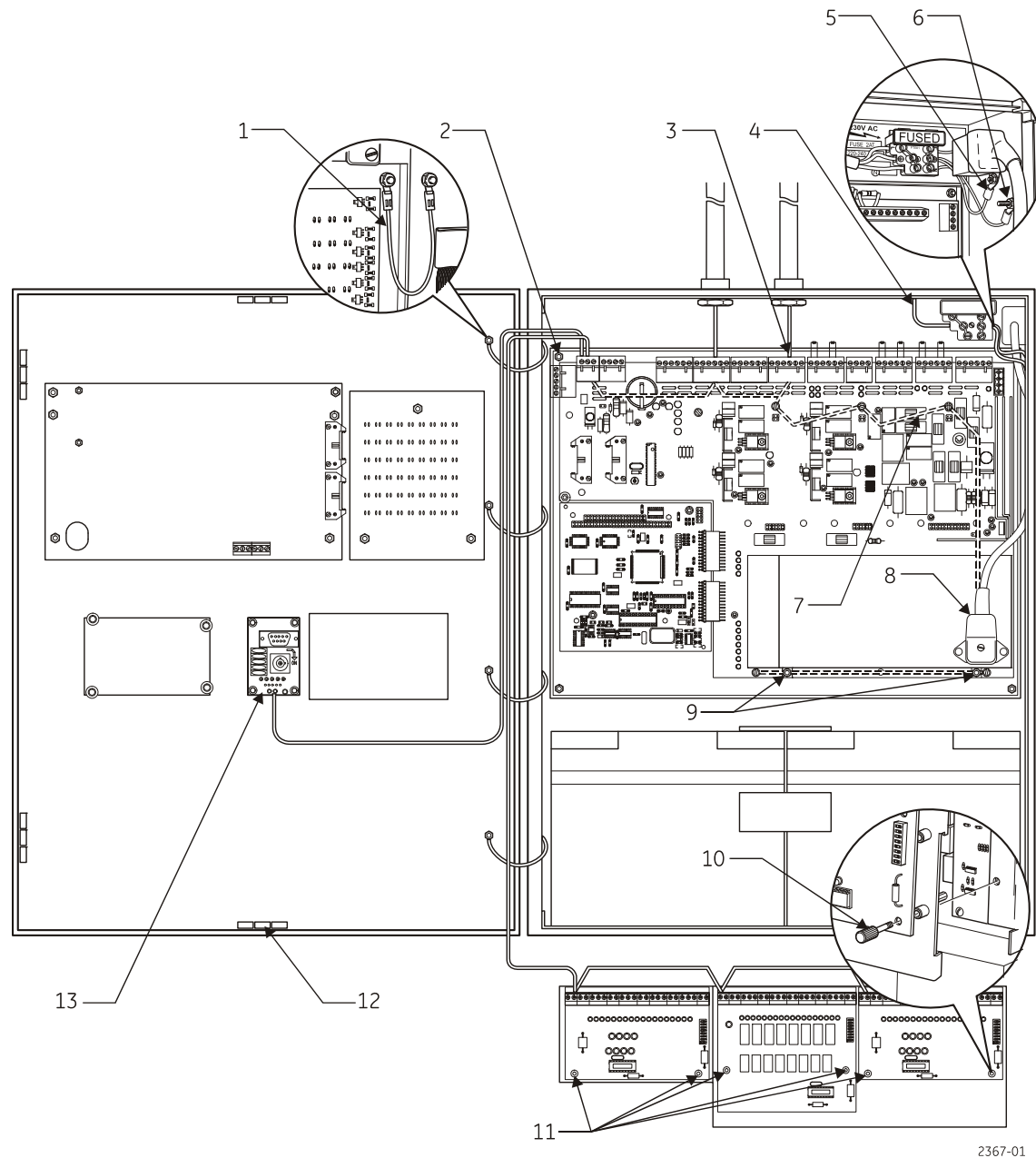
Internal wiring

Figure 8: ZP3 Fire control panel – internal wiring



Earth bonding

Figure 9: ZP3 Fire control panel – earth bonding



2367-01

Legend

Item	Description	Item	Description
1	Earth straps	8	Earth in cable to PSU
2	Chassis earthing nuts	9	Earth path to power supply cover
3	Earth connection to detector loop screens	10	Accessory plate earthing screw to chassis
4	Building earth	11	Earth path to accessory plate
5	Filter earth	12	Contact clips
6	Panel enclosure earthing stud	13	Commissioning board
7	Earth path to chassis		

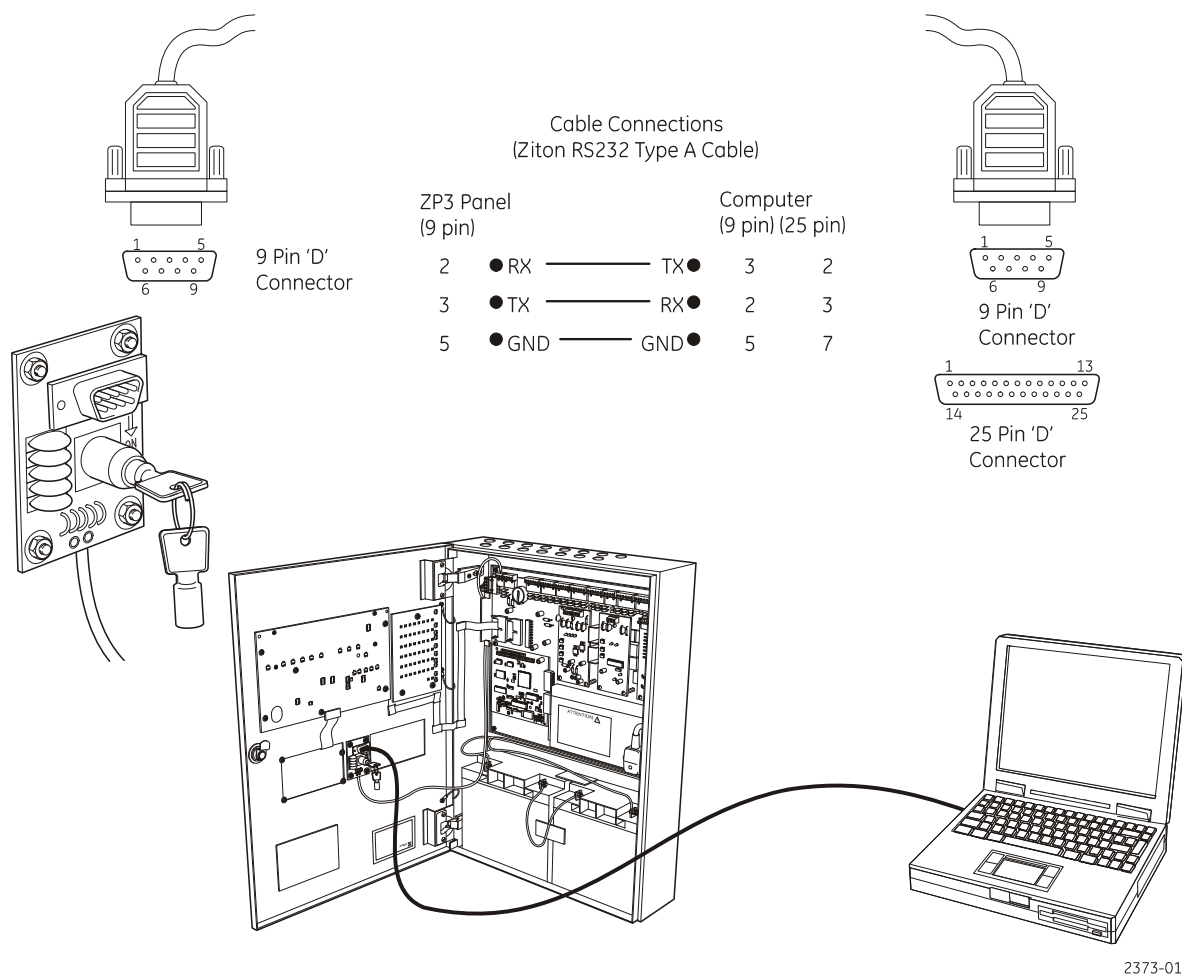
Built-in communication port

RS232 Built-in serial port

This port is used to connect the ZP3 panel to an external computer for the purpose of uploading or downloading the panel's configuration program. Configuration programming is normally done on a PC using the "Planner for Windows" programme, and then loaded into the panel on-site via a portable PC. This port can also be used to upgrade the ZP3 panel software to a new version (see *Planner* on page 77).

The protocol is RS232, with a 3-wire connection as shown in Figure 10. This port shares internal lines with "Port1a", and consequently the D-plug connection to the ZP3AB-RS232 board must be physically disconnected before using the built-in port.

Figure 10: RS232 Built-in serial port



RS232 is officially specified as a maximum cable length of 10 metres, which is more than adequate for ZP3/PC configuration functions. The connecting cable must be screened, and must be made-up as per Figure 10. Alternatively, a standard null modem cable can be used.

Software setup

The RS232 built-in serial port (Zport1) must be configured in software, and must be set to match the communications parameters of the PC and program being used.

Access the communications parameters menu using the following path:

SETUP: SYSTEM CONFIGURATION: PERIPHERAL COMMS: COMMS PARAMETERS

The following screen is displayed:

Figure 11: Setup – System configuration screen

```

SETUP:SYS  CFG: PERIPH.  COMMS: COMMS PARMS
Z-PORT   : (1)          (<- -> More Z-PORT)
Protocol : 0  -None
Setup    : 2400/8/e/2    <Enter>-Edit
  
```

2374-01

To change a setting, move the bracket to the selected item, and press <Enter>.

The parameters are dependent on the program used. For "Ziton Planner" set the parameters as follows:

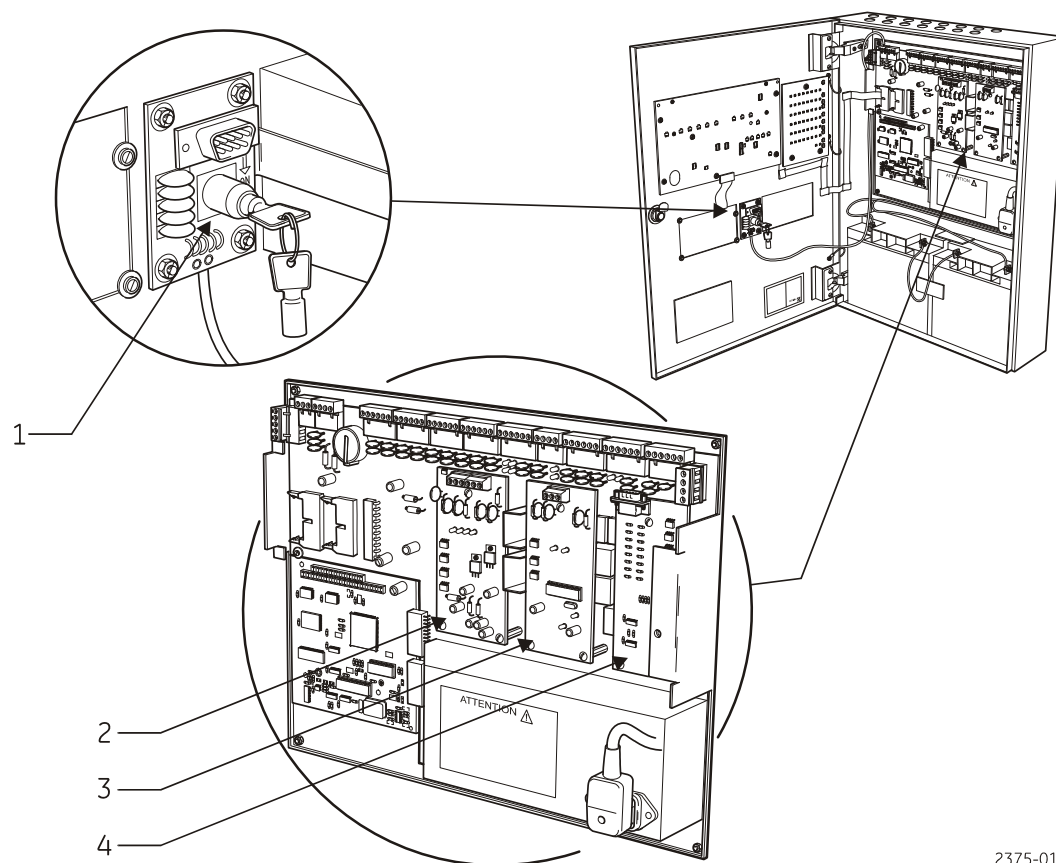
Parameter	Remarks
Z-PORT	Enter Z-port number [1]
Protocol	Enter the required protocol as follows: [0] to disable the port [11] for use with Ziton Planner
Setup	Enter the following setup data: Baud rate = 38400 Data bits = 8 Parity = None Stop bits = 1

Optional modules

Communication boards

The standard ZP3 fire panel has one built-in communication port, Z-Port1, used for programming. Additional ports are available as options for other functions, such as connecting into a Ziton ZP-NET network, connecting to graphics display computers, as well as to remote display units and remote control units. These ports are installed as shown in Figure 12. Modules are connected to plug-in sockets, and secured to posts with three (3) x M4 screws.

Figure 12: ZP3 Fire control panel – communication boards



2375-01

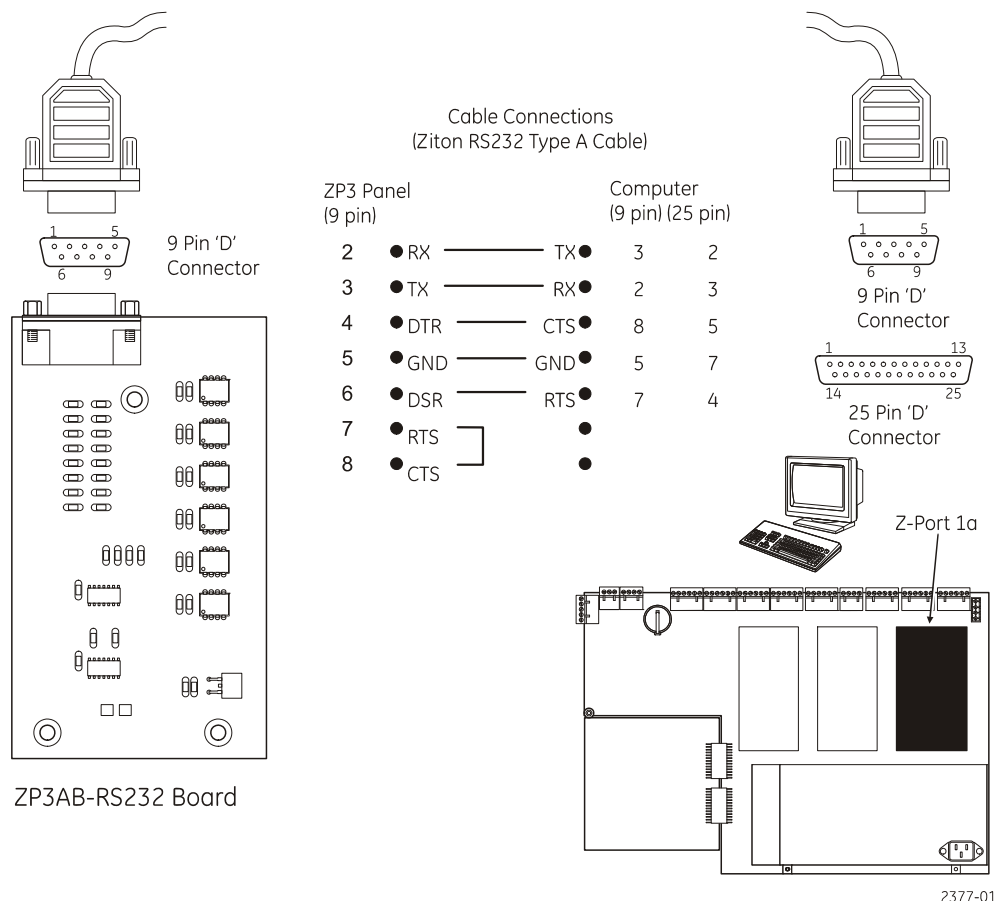
Legend

Item	Description	Standard/optional	Remarks
1	Z-Port 1	Standard	Connects to notebook computer for programming of the ZP3 panel using the "Planner for Windows" ZP-configuration program.
2	Z-Port 1a	Optional	Serial communication board ZP3AB-RS232 - for connecting to third party systems, such as building management systems, graphics systems, and automatic pager systems.
3	Z-Port 2	Optional	Serial board ZP3AB-NET - RS485 - for connecting to a Ziton ZP-NET peer-to-peer network comprising several ZP3 panels, Maestro graphics computers, and global display panels.
4	Serial Control Board	Optional	Serial board ZP3AB-SCB-D - for connecting to one or more remote display panels, remote control panels with inputs and outputs (sounders, control outputs, etc), and remote mimic indicator panels.

ZP3AB-RS232 Serial communications board (Z-Port 1a)

This board (see Figure 13) is used to connect a ZP3 panel to an external device, such as a desktop printer, a graphics display system, a building management system, modem, or a paging system. The hardware protocol is a RS232, being a screened 5-wire connection. The RS232 board is defined in the menus as Port1a, and different software protocols can be selected to match the connected PC application. Communication parameters can be set in the setup menu.

Figure 13: ZP3AB-RS232 Serial communications board (Z-Port 1a)



RS232 is officially specified as a maximum cable length of 10 metres. However, if slower baud rates are used, then it is possible to operate it at up to 50 metres. Cable must be screened, with at least five (5) conductors, and must be made-up as shown in Figure 13.

Software setup

To be functional, the optional RS232 serial port (Zport1a) must be configured in software, and must be set to match the communications parameters of the PC and program being used. Access the communications parameters menu using the following path:

SETUP: SYSTEM CONFIGURATION: PERIPHERAL COMMS: COMMS PARAMETERS

The following screen is displayed (see Figure 14):

Figure 14: Setup – System configuration screen

```

SETUP:SYS  CFG:PERIPH.  COMMS:  COMMS PARMS
Z-PORT   : (1)          (<- -> More Z-PORT)
Protocol : 0 -None
Setup    : 2400/8/e/2    <Enter>-Edit
  
```

2376-01

To change a setting, move the bracket to the selected item, and press <Enter>.

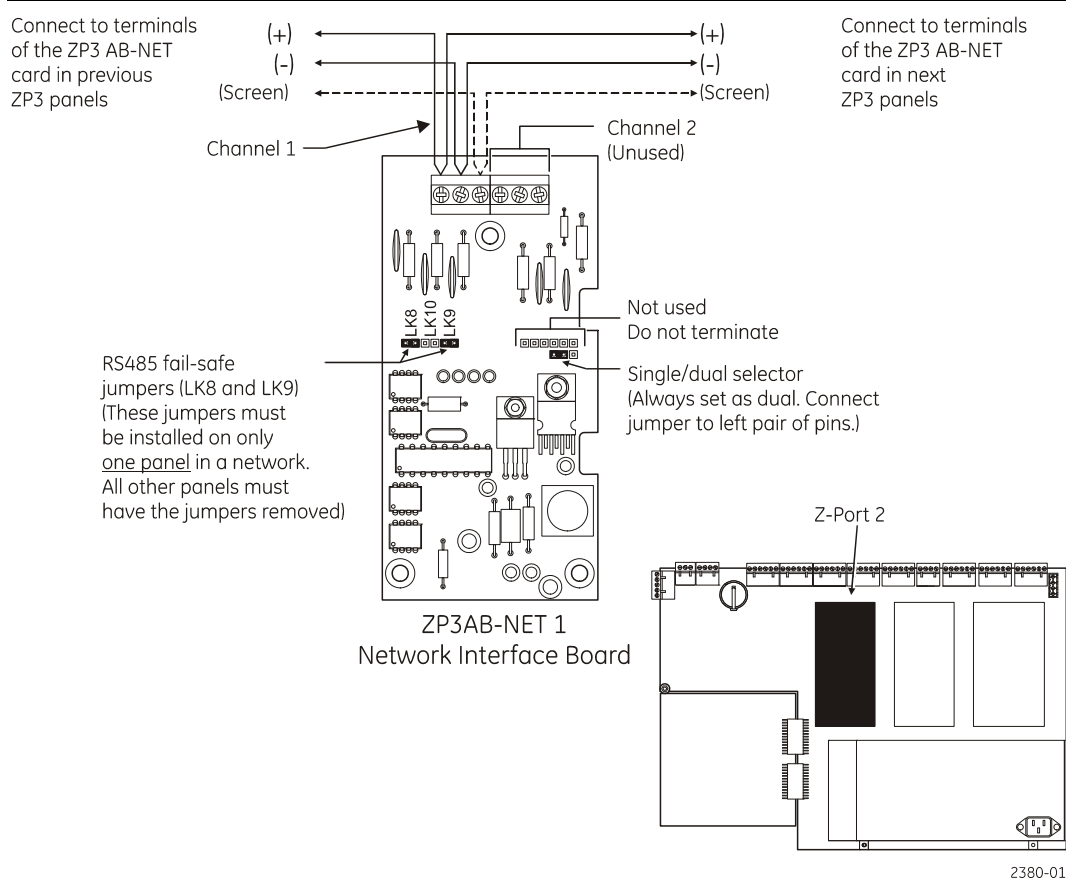
The parameters are dependent on the programme used. The following options are available:

Parameter	Remarks
Z-PORT	Enter Z-port number [1]
Protocol	Enter the required protocol as follows: [0] to disable the port [1] ZCP2 protocol, multi-telegram, full handshaking [2] ZCP2 protocol, single telegram, single direction TX only, no handshaking [7] ZCP2 protocol, single telegram, full handshaking [11] ZCP3 for use with Ziton Planner
Setup	Enter the required setup data from the following options: Baud rate = 57600, 38400, 33600, 28800, 19200, 14400, 9600, 4800, 2400, 1200, 600, 300 Data bits = 5, 6, 7, 8 Parity = Even, Odd, None Stop bits = 1,2

ZP3AB-NET1 Network board (Z-Port 2)

This board is used to connect a number of ZP3 panels into a peer-to-peer network. The hardware protocol is a multi-drop RS485 screened two-wire connection. Although the ZP3AB-NET1 board is capable of dual routing operation, ZP3 software does not support this feature, and the board must be used as a single-channel device. In a network of ZP3 panels, one of the panels must have the fail-safe links connected by connecting the jumpers as shown in Figure 15. All other panels must have their jumpers removed. For long cable runs wiring should be terminated (using LK10) at each end of the cable run, in addition to the LK8 and LK9 jumpers. In any case no more than two terminating links (LK10) must be inserted.

Figure 15: ZP3AB-NET1 Network board (Z-Port 2)



RS485 operates through up to 2000 metres of screened twisted-pair cable. Wiring can be daisy-chained point-to-point, or can be teed-off or spurred for short distances i.e. <10 m. The total length of cable in the network should not exceed 2000 metres. If the network distances are greater than 2000 metres, use RS485 booster units, or fibre-optic cable. For more information refer to the ZP3AB-NET1 Network Board Installation Sheet, document number 501-0485ZE-1-01.

The cable is specified in detail in the Ziton Wiring Guide (see *Appendix A: ZP Wiring guide* on page 99 for more details), but as a guideline it should be data quality cable with a conductor size of 0.5 mm².

Software setup

To be functional, the optional ZP3AB-NET1 Network Board (Z-Port 2) must be configured in software. Access the communications parameters menu using the following path:

SETUP: SYSTEM CONFIGURATION: PERIPHERAL COMMS: COMMS PARAMETERS

The following screen is displayed (see Figure 16):

Figure 16: Setup – System Configuration Screen

```

SETUP:SYS  CFG: PERIPH.  COMMS: COMMS PARAMS
Z-PORT   : (1)          (<- -> More Z-PORT)
Protocol : 0  -None
Setup    : 2400/8/e/2    <Enter>-Edit
  
```

2374-01

To change a setting, move the bracket to the selected item, and press <Enter>.

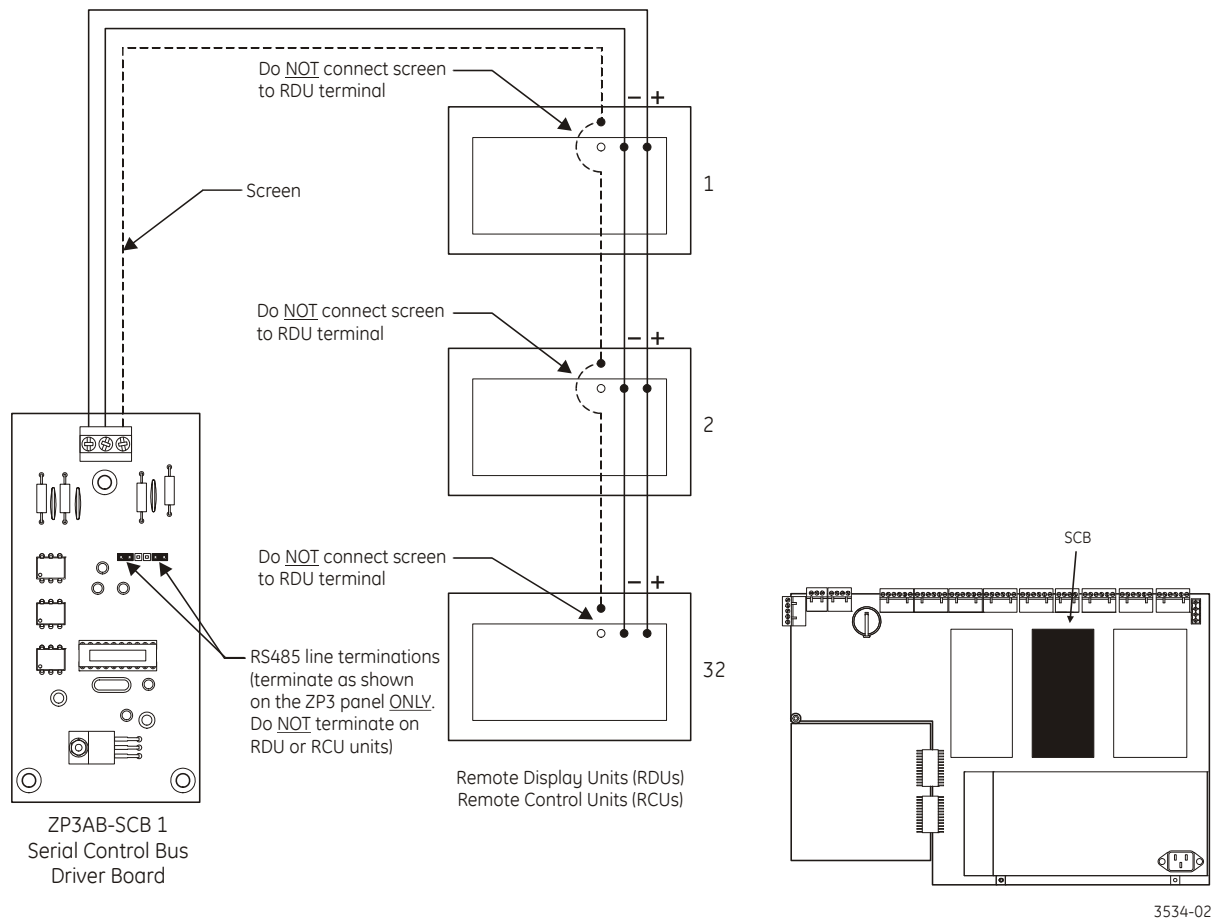
The parameters are dependent on the program used. The following options are available:

Parameter	Remarks
Z-PORT	Enter Z-port number [2]
Protocol	Enter the required protocol as follows: [0] Used for standalone panels (not networked) [9] Peer-to-Peer networking [10] Peer-to-Peer V2 [17] Peer-to-Peer V3
Setup	Enter the following setup data: Baud rate = 19200 Data bits = 8 Parity = Even Stop bits = 1

ZP3AB-SCB-D Serial control bus driver board

This board is used to connect a number of Remote Display Units (RDUs) and Remote Control Units (RCUs) to a ZP3 fire panel. The hardware protocol is a multi-drop RS485 screened two-wire connection. The wiring is connected from the ZP3AB-SCB-D board in the ZP3 panel to the SCB connections in the RDU and RCU panels. The wiring must be terminated at the ZP3 panel by connecting the jumpers as shown in Figure 17. All other panels must not be terminated, i.e. their jumpers must be removed.

Figure 17: ZP3AB-SCB-D Serial control bus driver board



Note: The RDU screen must ONLY be connected on the ZP3AB-SCB1 Serial Control Bus Driver Board in the ZPR Panel. The screen must NOT be connected at the RDU.

RS485 operates through up to 2000 metres of screened twisted-pair cable. Wiring can be daisy-chained point-to-point, or can be teed-off or spurred. The total length of cable in the network should not exceed 2000 metres. If the network distances are greater than 2000 metres, use RS485 booster units, or fibre-optic cable. For more information refer to the ZP3AB-SCB-D Serial Display Unit Interface Installation Sheet, document number 501-0482ZE-1-01.

The cable is specified in detail in the Ziton Wiring Guide, but as a guideline it should be data quality cable with a conductor size of 0.5 mm².

Setup

The ZP3 panel can operate 63 remote display units. The address range for the RDU is 1 to 63, which allows for up to 63 address options. The RDU is wired to the panel via the ZP3AB-SCB1 SCB driver board.

Usage: Fit the ZP3AB-SCB1 board to the ZP3 panel using the interface marked 'RDU interface'. Accept devices on the panel. The SCB software stream for the 71910 EN panel is SW72401. Once the SCB driver board has been accepted the user can view the SCB driver software under operator/reports to display. Configure the SCB online, this defines the number of RDUs that can be connected to the panel.

Navigate to the following menu:

Setup/System configuration/peripheral comms/RDU/SCB on line

The address of an RDU may not be higher than the number of RDUs configured to be online. If this value is set to 32 then RDUs can be connected with addresses ranging from one to 32. This number defines the valid RDU address numbers and not the amount of RDUs connected. All RDUs that have addresses higher than the number entered for RDUs online will not have control abilities.

If this number is set to 63, the address at the RDU can be set to any address from 1-63. If this number is set to 1, only address 1 can be set on the RDU unit.

Remote display unit

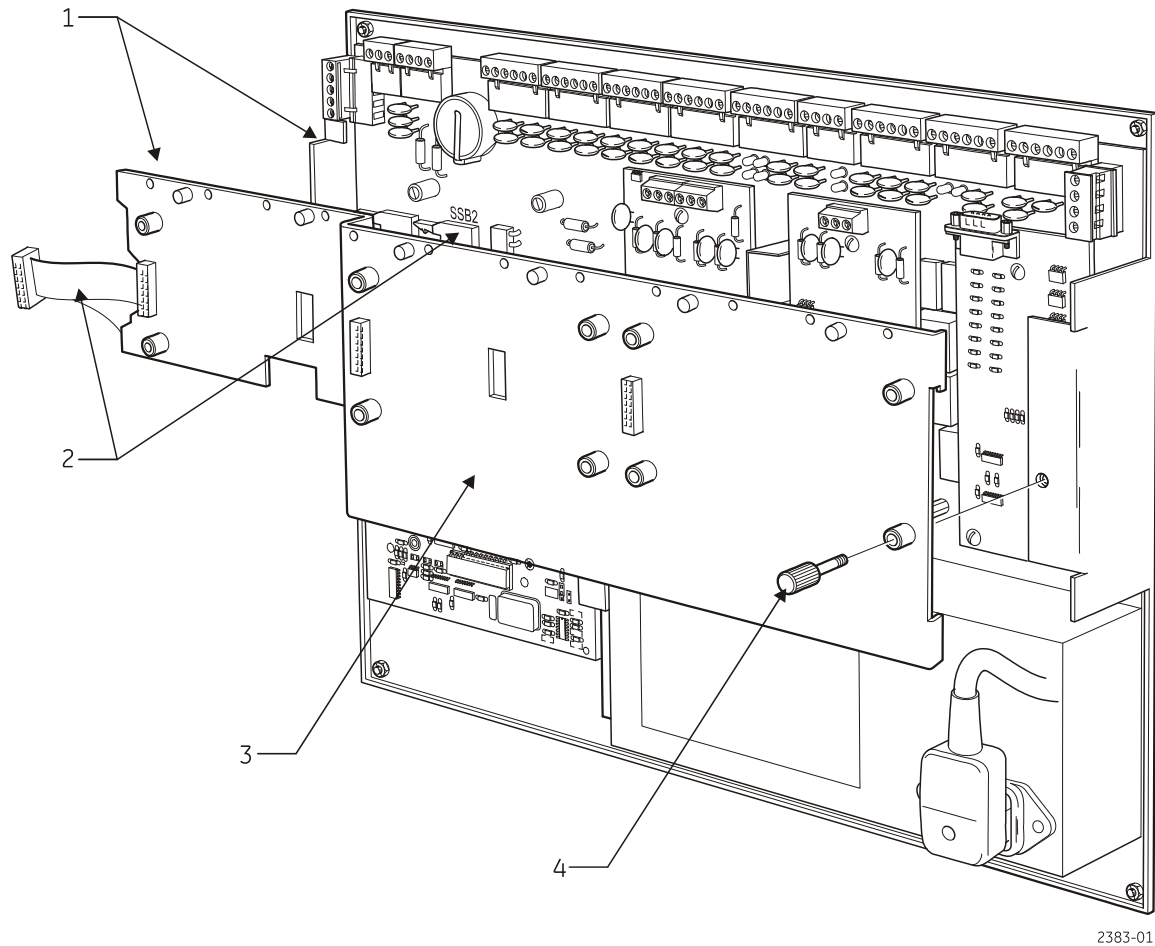
When a RDU is configured as being online, it mimics the panel and also sends control information back to the panel. To disable the RDU control, remove the controls enabled jumper fitted to the RDU board. The RDU software stream for the 71910 EN panel is SW72201. Once the RDU has been accepted the user can view the RDU software under operator/reports to display. If there are ten RDUs accepted then this menu will have ten entries for RDUs.

Usage: The number selected on the address switch depends on the number of RDUs defined online. As stated above, the number entered to define the amount of RDUs online defines the maximum address number. Address switches 1, 2, 3, 4, 5 and 6 set the address in the standard address switch format as used on the detectors, e.g. switches 2, 3, 4, 5 and 6 set to ON represent an RDU address of 62.

Accessory plate

An accessory plate can be installed for the purpose of mounting optional auxiliary boards. The accessory plate mounts onto the main chassis, as shown in Figure 18.

Figure 18: ZP3 Fire control panel – accessory plate



Legend

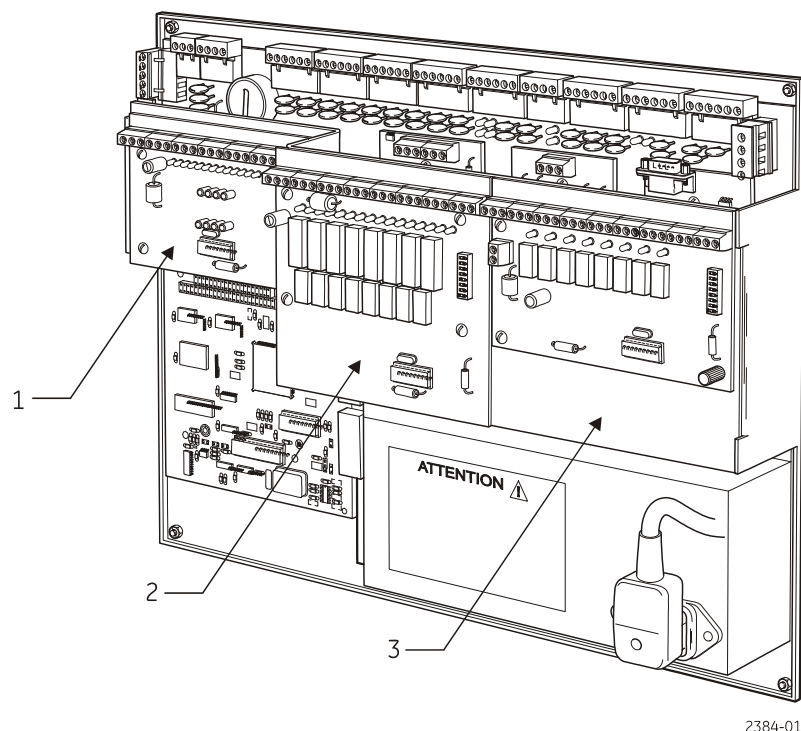
Item	Description	Item	Description
1	Chassis located under clips	3	Accessory plate
2	Connect ribbon cable to SSB2	4	Thumb screw

A ribbon cable is fitted to the accessory plate. Connecting the ribbon cable to the socket as shown in Figure 18 automatically connects all auxiliary boards to the ZP3 main board. The accessory plate enables easy access to the main board after installation.

Mounting auxiliary boards

The basic panel incorporates a standard range of inputs and outputs. If additional inputs or outputs are required, a range of optional modules is available that fit into the panel. The auxiliary I/O boards mount onto the auxiliary chassis as shown in Figure 19.

Figure 19: Mounting auxiliary boards



Legend

Item	Description	Item	Description
1	Position 'A'	3	Position 'C'
2	Position 'B'		

The maximum number of auxiliary boards that can be fitted into a ZP3 panel is three (3). This can be all of one type, or a mix of types. This provides from 24 to 72 outputs within the ZP3 cabinet. If additional auxiliary boards are required, these must be mounted in a separate "Remote Control Cabinet". Various size cabinets are available, and each ZP3 panel can support up to 896 outputs, of which 768 are freely programmable.

Auxiliary boards and modules

The following I/O auxiliary boards are available:

- ZP3AB-MIP8 Input Board (8-way)– see *ZP3AB-MIP8 Input board* on page 60
- ZP3AB-RL8 Relay Board (8-way)– see *ZP3AB-RL8 Relay board* on page 57
- ZP3AB-MA8 Monitored Output Board (8-way) – see *ZP3AB-MA8 Monitored output board* on page 58
- ZP3AB-OP24 Transistor Output Board (24-way) – see *ZP3AB-OP24 Transistor output board* on page 59

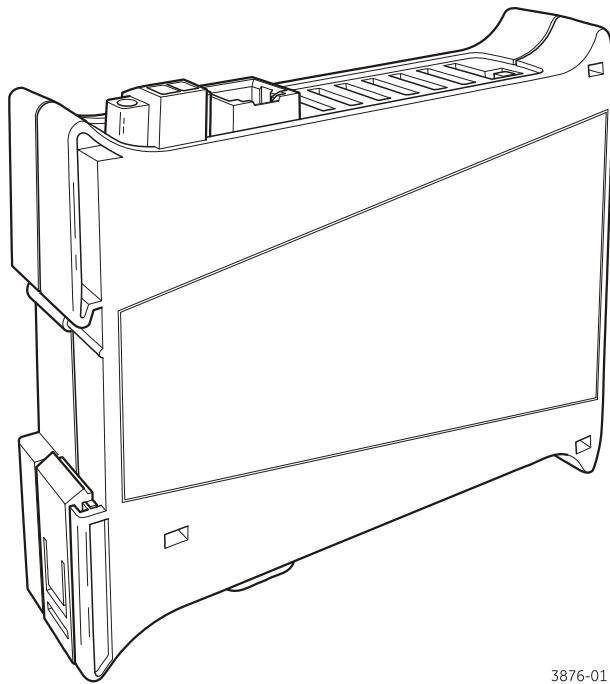
Modem

Introduction

The Digi One 1A Modem as shown in Figure 20 allows remote dial in access to the ZP3 panel for diagnostic purposes.

The Modem communicates to the ZP3 panel via the serial port connector JP3 on the ZPAB-RS232 board located on the ZP3 panel. Legacy Modems were additionally controlled via a Modem Control board connected on the panel's SSB (serial synchronous bus).

Figure 20: ZP3AB-MD3 Modem

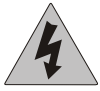


3876-01

Modem specifications

Parameter	Remarks
Description	Remote diagnostics modem
Mounting	On the ZP3 accessory plate
Wiring	Via connecting lead to the ZPAB-RS232 board
Power requirements: 2-contact barrel connector	+9 to +30 VDC
Environmental	
Ambient temperature	0 to 55 °C
Relative humidity	5 to 90% non-condensing
Altitude	0 to 3658 m
EN60529 rating	IP00
Construction	
Dimensions (W x L x H)	83 x 133 x 19 mm
Weight	227g

Installing the modem



WARNING: TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE THE COVER OF THIS MODULE WHILE UNIT IS POWERED UP. THERE ARE NO USER-SERVICEABLE PARTS INSIDE. ONLY AN APPROVED MAINTENANCE AUTHORITY MUST DO SERVICING.



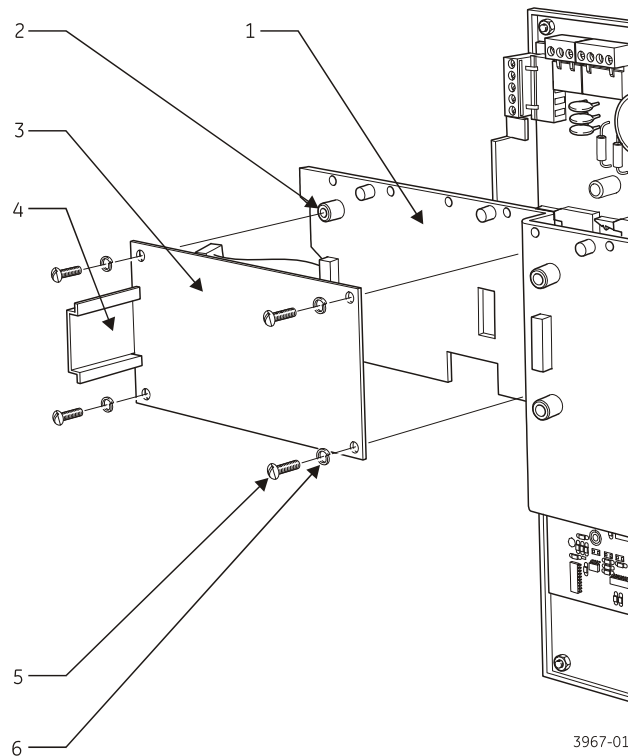
CAUTION: Do not over-tighten the panel clamp screws. Failure to comply will damage the unit.

Install the Modem as follows:

Note: Make sure the associated washers are positioned directly beneath each screw head.

1. See Figure 21 below. Fit the Modem mounting bracket (item 3) onto the four accessory plate stand-offs (item 2) and secure using the four M4 screws (item 5) supplied, with associated washers (item 6) positioned directly beneath each screw head.

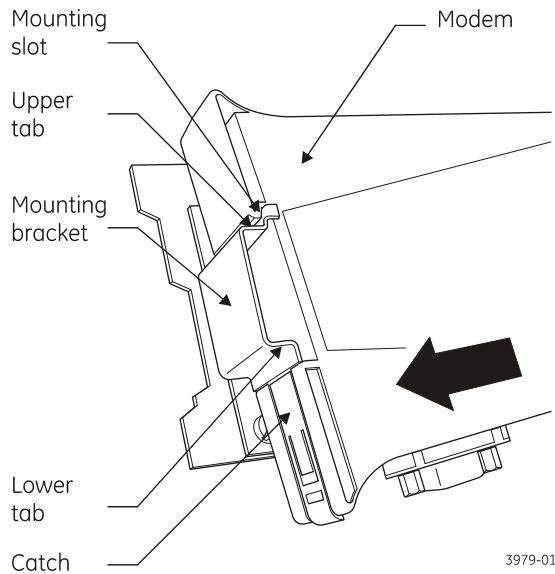
Figure 21: Installing the modem mounting bracket



3967-01

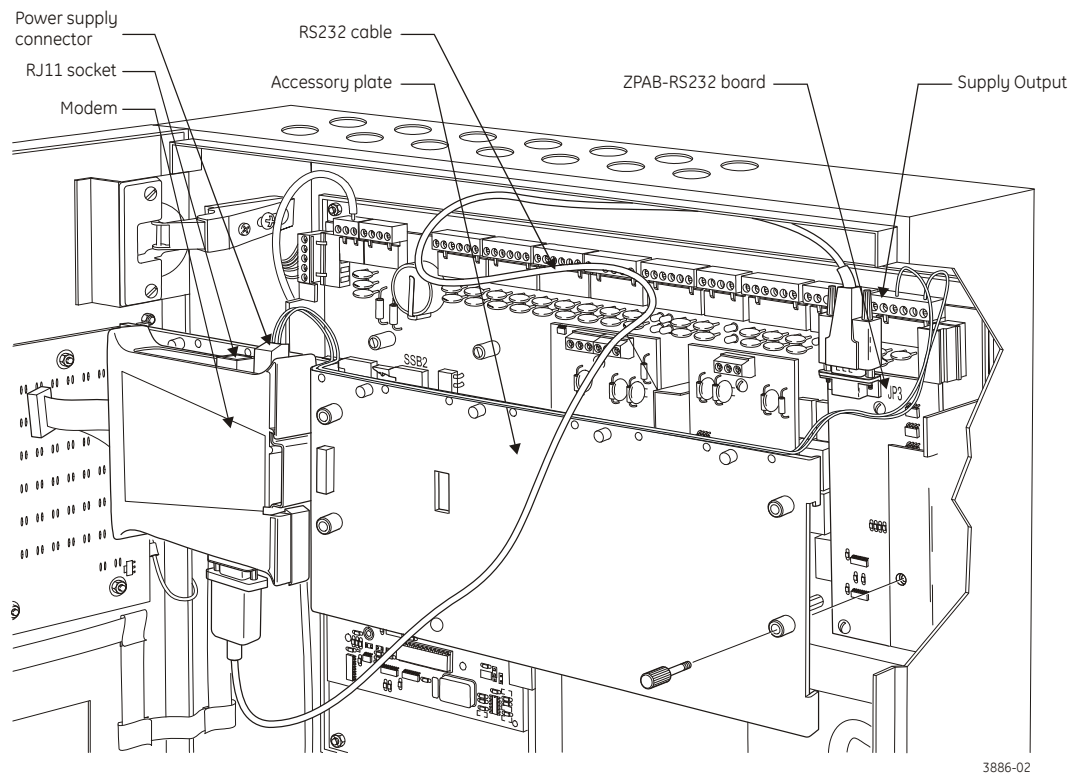
2. See Figure 22 on the next page. Position the Modem on the mounting bracket so that the Modem catch is positioned in the upper tab of the mounting bracket.

Figure 22: Installing the modem



3. Push the lower corner of the Modem in the direction of the arrow so it locks into position on the mounting bracket.
4. See Figure 23 below. Fit the accessory plate (if necessary) to the ZP3 panel.
5. Connect the 9-way RS232 cable from the Modem connector to connector JP3 on the ZPAB-RS232 board located on the ZP3 panel.
6. Connect the telephone line to the RJ11 socket on the Modem.
7. Connect +24 VDC supply from the Modem power supply connector to the +24V and 0V connections on the Supply Output connector located on the ZP3 panel main board.

Figure 23: Installing the accessory plate and connecting the RS232 and power cabling

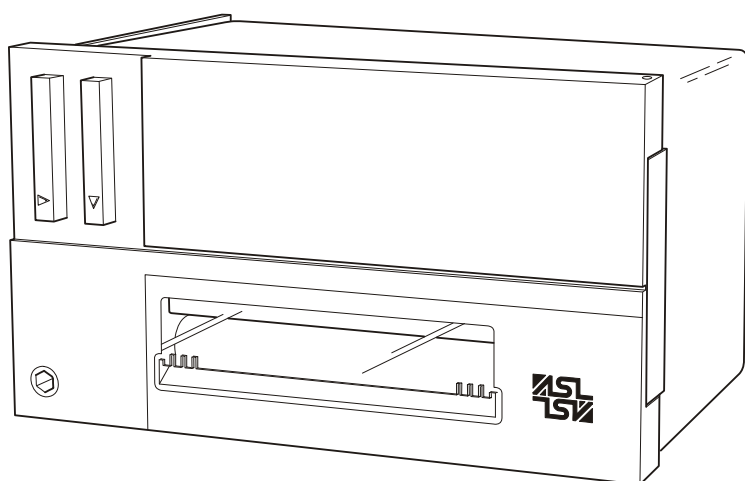


Printer

An optional ZP3-PR2 dot-matrix printer kit can be fitted to the door of a ZP3 control panel. The printer kit consists of an ABLE printer, a Ziton Printer PCB and the necessary mounting hardware to fit to the ZP3 panel.

The printer (see Figure 24) can be used to give a hard copy of panel alarms, fault events, panel operations and report requests. The response to alarms, faults and panel operations can be individually enabled/disabled in the panel software.

Figure 24: ZP3-PR2 Printer



2938-01

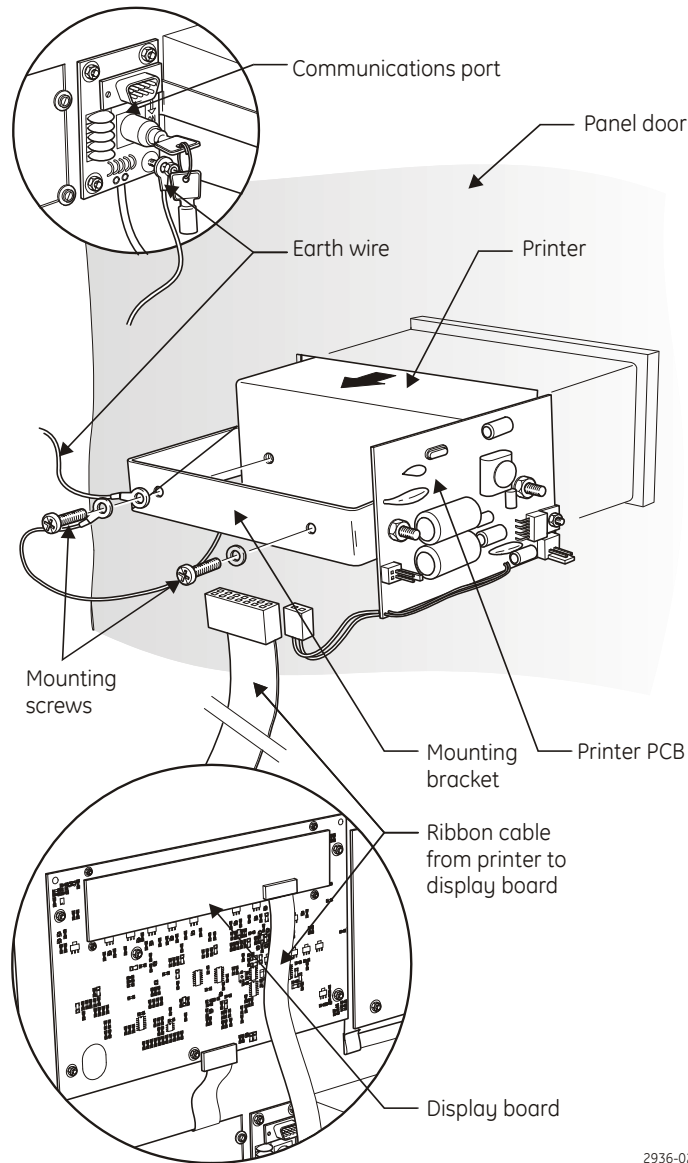
Printer specification

Parameter	Remarks
Description	Printer Kit
Model No.	ZP3-PR2
Part No.	172201
Character set	IBM 224 Character set (ASCII Characters 32 to 255)
Character format	When connected to the panel : ASCII 24 characters
Power Supply	
Voltage	24 VDC
Current (standby)	23 mA
Current (printing)	180 mA
Printer Consumables	
Ink ribbon cartridge	ZP-PRC, Ziton Part Number 24201. 0.5 Million characters life
Paper roll	ZP-PRR, Ziton part number 23701 or equivalent. 57.5 ± 0.5 mm (W), thickness 0.07 mm, outer diameter < 40 mm
Dimensions (W x H x D)	130 x 66 x 103 mm
Weight	404 g including full length paper roll
EN60529 Rating	IP 00

Installation instructions

Refer to Figure 25.

Figure 25: Printer installation



2936-02

1. Ensure that the ZP3 panel is powered down.
2. Remove the plastic knockout on the panel door.
3. Ensure that the orange and black cable is disconnected from the printer and separate the printer from its bracket by removing the mounting screws.
4. Fit the printer flush with the panel door.
5. Install the mounting bracket as shown in the illustration. Line up the outer holes on the mounting bracket with the threaded holes on the back of the panel printer.
6. Ensure that the earth connections are made as shown in the Figure 25.



CAUTION: Do not over-tighten the panel clamp screws. Failure to comply will damage the unit.

7. Secure the mounting bracket to the panel printer using the screws provided.
8. Connect the external circuit board (attached to the mounting bracket) to the printer using the orange and black cable.
9. Connect the display board and the printer board to the printer using the ribbon cable provided (see Figure 25).
10. Connect 24 VDC power to the printer using the black and red ZP3 power lead.
11. Power up the panel and configure the printer on the ZP3 panel.

Once installed the printer must be configured to operate as required. It can be programmed to print or suppress different types of messages (e.g. print "fire alarms", suppress "Disabled" messages). This programming is done in the ZP3 panel "Setup" menu. See *System configuration: printer* on page 75 for details.

Quick start

The following are a few guidelines to assist with familiarizing yourself with the key features, to enable you to setup the panel as rapidly as possible.

The panel fascia contains a complete set of status LED's which give the current status of the ZP3 panel. Under normal operating conditions, all of these LED's should be off, and the buzzer should be silent. Only the green "Power On" LED should be illuminated.

When testing a panel, always ensure that the Z-loops are correctly terminated in-to-out as per the wiring drawing, and that all monitored outputs (sounders, monitored-inputs, etc,) are terminated with the correct end-of-line resistor.

Make sure that at least one sensor or device is connected when testing a panel otherwise a fault condition will occur.

Always power-up with sensors or devices attached to the Z-loops. Remember that the ZP3 panel does not automatically accept sensors/devices added (or removed) afterwards, and a fault condition results. To accept the addition or removal of sensors and devices, go to the menu "Setup - Points - Accept - Points", and run the accept routine. This causes the panel to accept the sensors and devices currently attached.

The commissioning key, which is located on the inside of the front door, has two positions, 'normal' and 'commission'. The commission position enables you to access the panel setup menus via the keyboard. With the keyswitch in the commission position, the System Test LED on the fascia flashes.

The internal buzzer operates to announce any events that occur. It provides the required output level to be heard in all situations, with the door closed, and meets EN54-2 requirements for this.

Chapter 2: Installing the ZP3 fire control panel

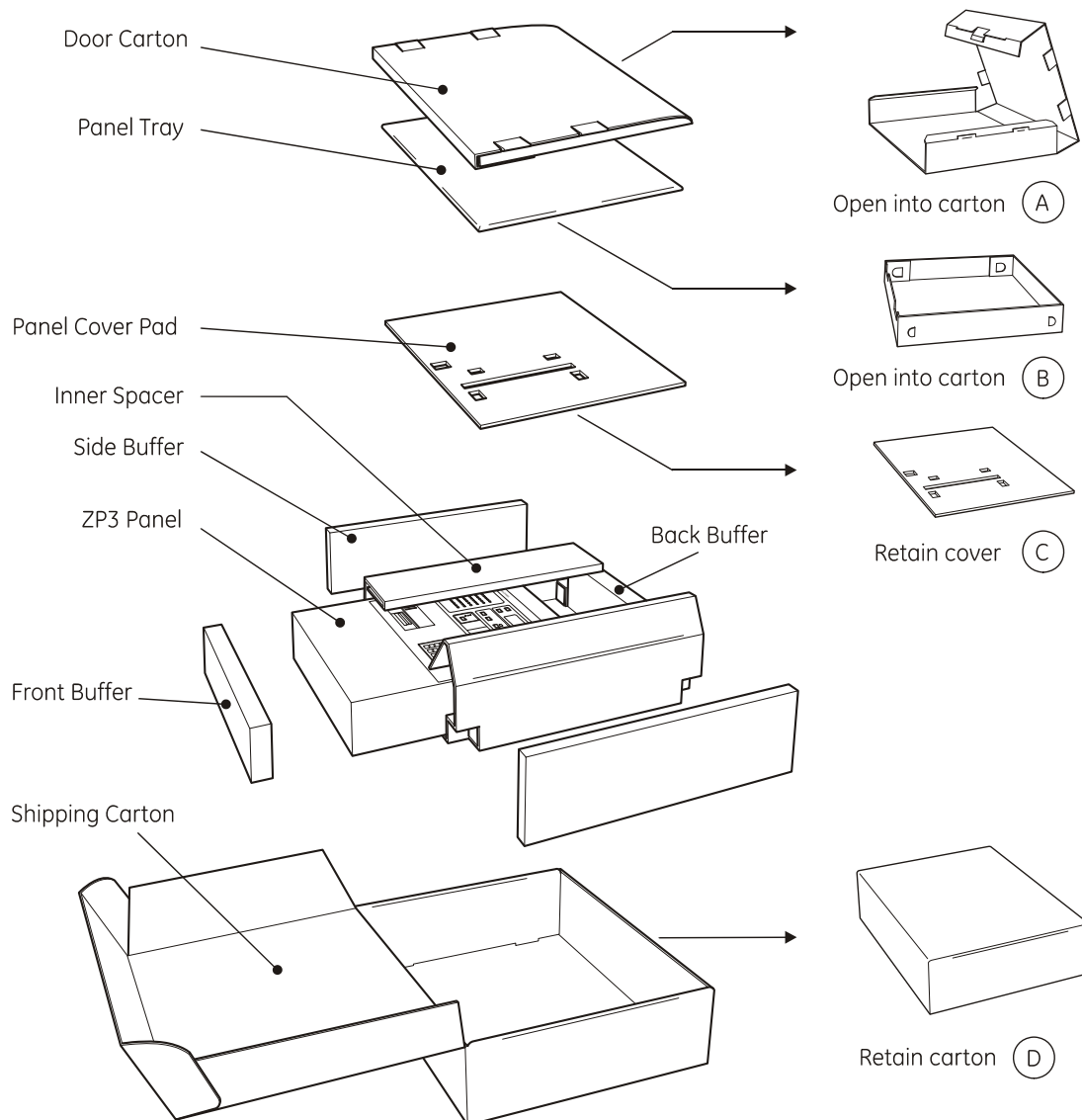
Packing/unpacking

The ZP3 panel is shipped with the panel fully assembled. As only the panel back-box is normally mounted during the installation, it is intended that the door assembly and main chassis are removed before the cabinet is sent to site for electrical installation.

Extra cartons are included with the packaging for re-packing the door assembly and chassis. These may then be stored until required for commissioning.

The panel packaging is shown in Figure 26.

Figure 26: ZP3 Panel packing/unpacking



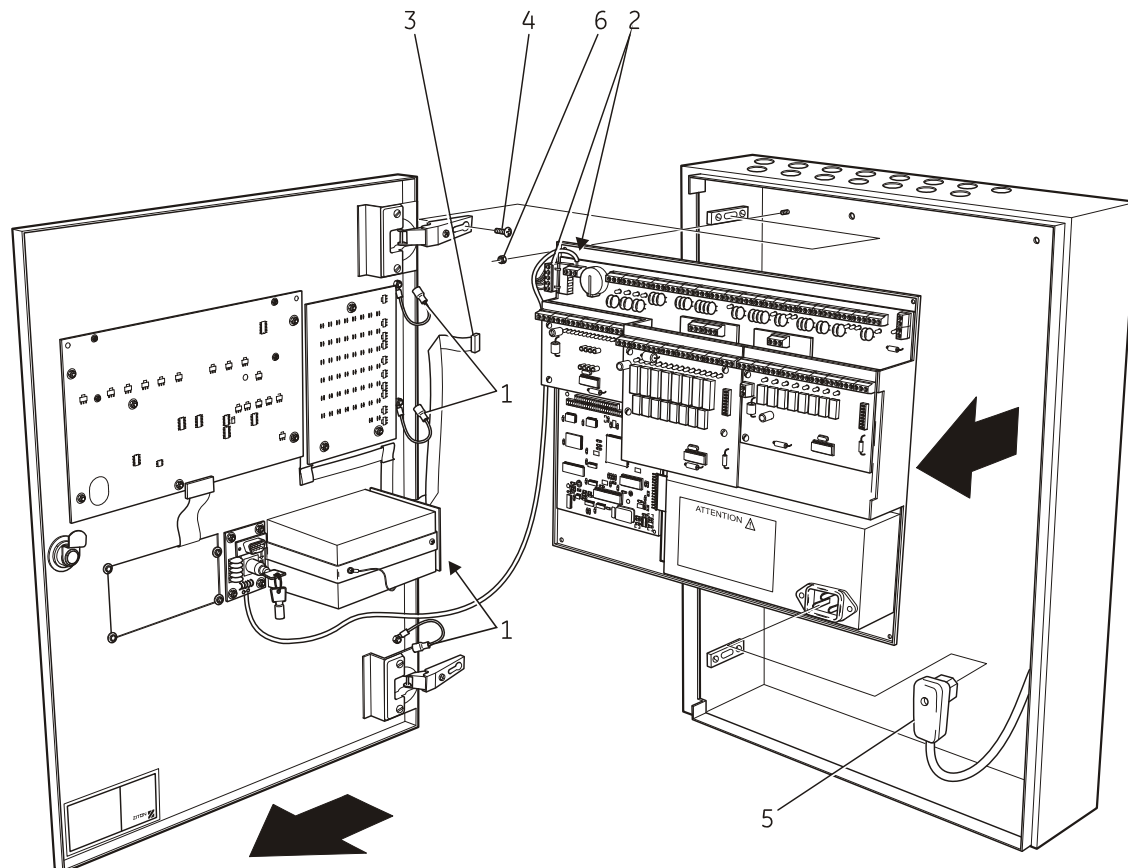
2576-01

Removing the door and chassis assembly

Refer to Figure 27. Once the panel is unpacked, the door and chassis may be removed as follows:

1. Disconnect the four earth straps to the door (item 1).
2. Disconnect wire and quick release connector (item 2) from the main board.
3. Cut the cable ties and free the cables.
4. Disconnect the SSB ribbon cable (item 3) from the main board.
5. Remove the two screws (item 4) and remove the door.
6. Disconnect power supply plug (item 5).
7. Remove the four nuts (item 6) and remove the chassis.

Figure 27: Removing the door and chassis assembly



0214-01

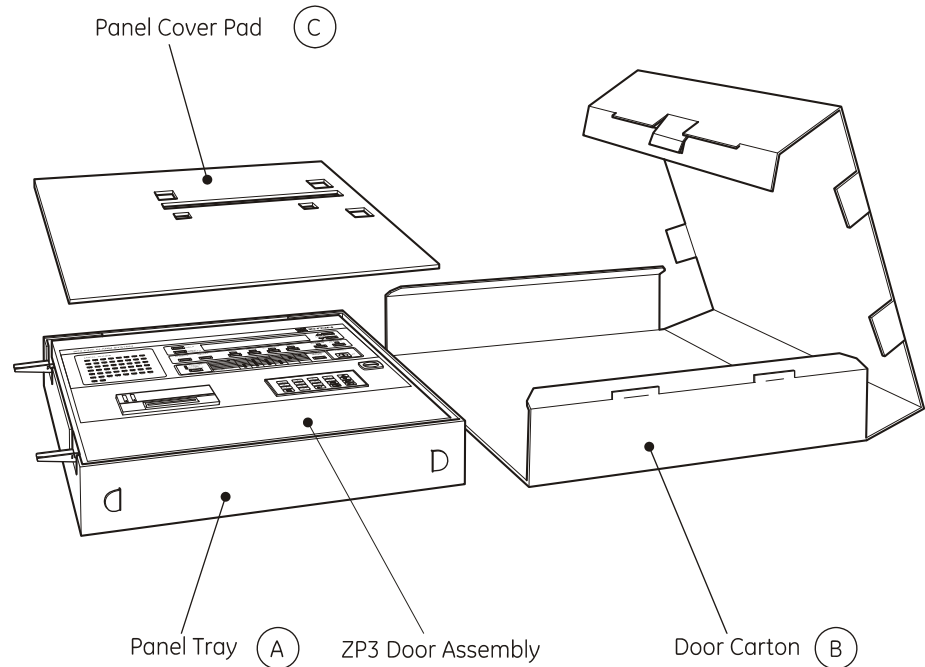
Legend

Item	Description	Item	Description
1	Earth strap	4	Securing screw
2	Wire * quick release connector	5	Power supply plug
3	SSB ribbon cable	6	Securing nut

Storing the door assembly

The door assembly may be stored until required in the packing carton provided. Re-pack as shown in Figure 28, making sure that the door hinges are placed in the cut-out provided.

Figure 28: Storing the door assembly

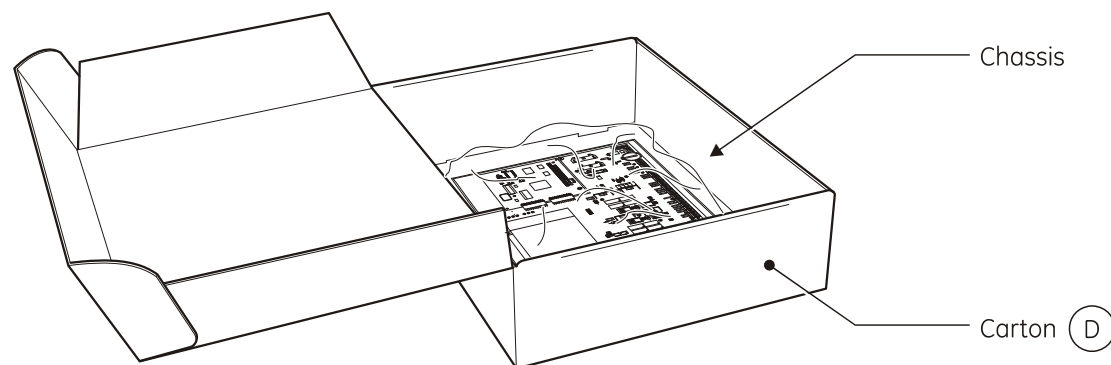


2578-01

Storing the main chassis

See Figure 29. The main chassis assembly may be stored until required in the packing carton provided. The chassis should be re-packaged by wrapping in a protective wrap (such as bubble-wrap), and then placed in the main panel carton.

Figure 29: Storing the main chassis



2577-01

Brief description

The installation of the ZP3 panel should follow the requirements of the jurisdiction authority. The panel incorporates the operating controls and displays, and should consequently be located in an accessible position, in close proximity to the persons who are expected to operate the system, and respond to any alarms.

The panel is can be either surface mounting, or flush recessed mounted, with appropriate hardware. Electrical conduit entry is from the top or from behind, and various options are available. The simplest installation is when the panel is used as a 230 VAC model, with built-in batteries. The use of external power supplies or batteries can change the installation criteria.

In some installations, the fascia of the panel is mounted in a security console, usually located in a manned control room. In this case the panel can be located in a plant room, and a remote display unit installed into the console. A full-function remote display unit provides all the display, control, and menu access as the main panel, and is connected by a single twisted-pair screened cable.



CAUTIONS: The panel must always be installed in its original cabinet, as supplied by Ziton. Never operate the panel without its door or fascia. Do not dismantle the chassis and components, and re-mount them into another metal enclosure. Do not change or extend internal ribbon cables, and do not run ribbon cables outside of the ZP3 cabinet.

Failure to comply with the above cautions will void the guarantee and any product approvals. It will also make the panel susceptible to EMC and other electrical noise. The ZP3 panel complies with the requirements of the European CE-Mark for immunity to and emission of electrical interference. This compliance is subject to the panel being operated in its original enclosure, and installed and earthed correctly in accordance with this manual.

The first step when installing a ZP3 panel is to remove the main chassis, and remove the door assembly, leaving the bare back-box for installation. This procedure is described under *Preparatory work* on the next page. The box can then be prepared for mounting. Knock out the required conduit entries, either on top or at the rear of the cabinet. Drill any additional holes, or larger holes, as required. Note that cable entry can only be brought into the panel into the top section as shown in the drawings later in this section.

Optional hardware in the form of various mounting kits is available to provide additional space for systems with a large amount of wiring. These are shown in short-form in this section, and full details can be obtained from the data sheets and application manuals available for these kits.

Note: The ZP3 fire panel is designed for mounting in an indoor location with a temperature range of -5°C - +40°C, relative humidity of 95% RH, and in an area that is dry and free of condensation. Environmental rating is IP30.



CAUTION: Do not drill, file, or carry out any metalwork on the cabinet with any of the circuit boards installed in the cabinet. Metal filings will enter the circuit and could cause severe damage.

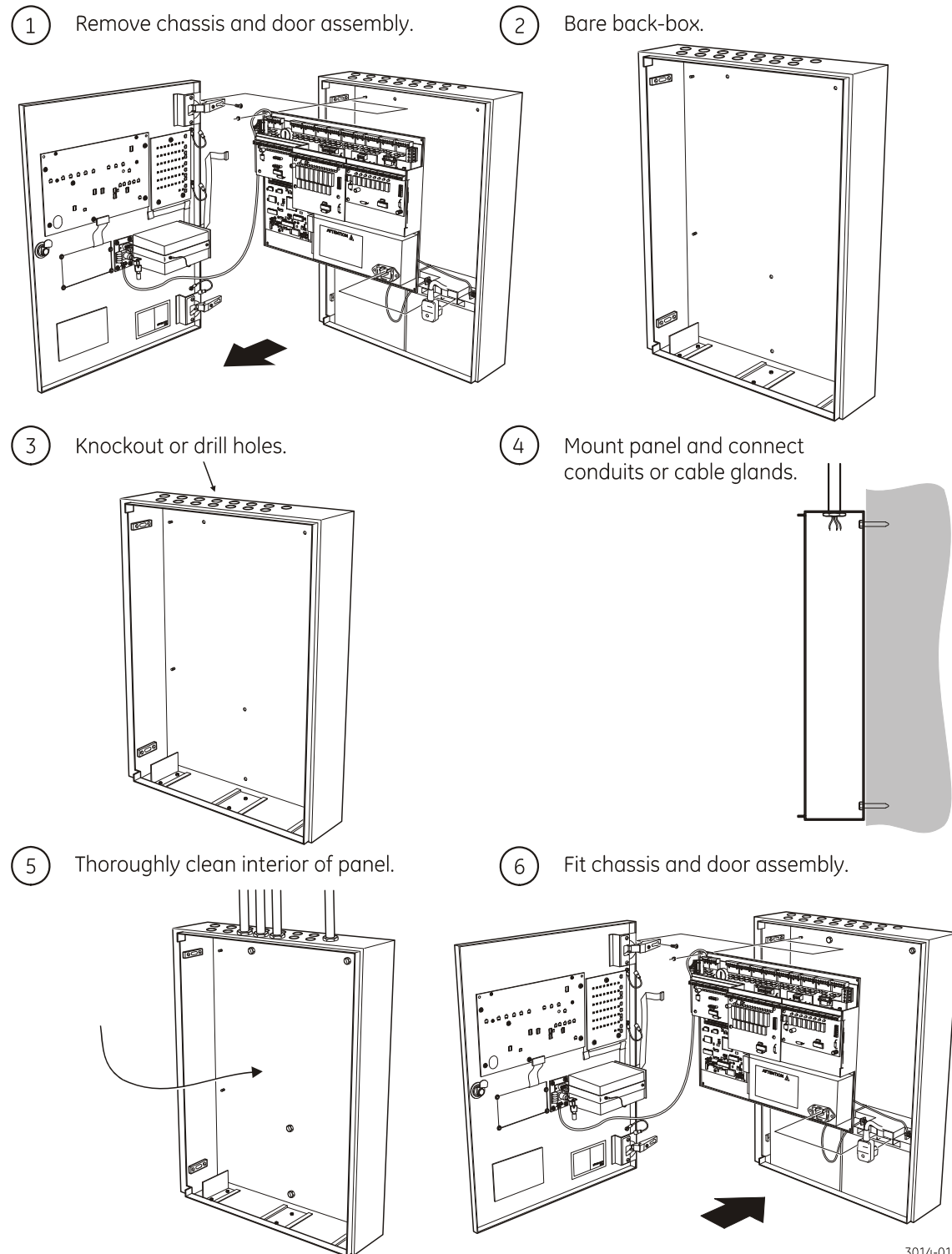


WARNING: THE WIRING CONNECTION TO THE EXTINGUISHANT CYLINDER ACTUATOR IS A LOW IMPEDANCE CIRCUIT, WHICH CAN DRAW UP TO 1 A DURING ACTUATION. MAKE SURE THAT WIRING TO THE ACTUATOR IS OF SUFFICIENT CAPACITY TO AVOID WIRING RESISTANCE VOLTAGE LOSS.

Preparatory work

Figure 30 shows the basic steps to mounting a ZP3 fire panel on the wall.

Figure 30: Mounting a ZP3 Fire panel on the wall

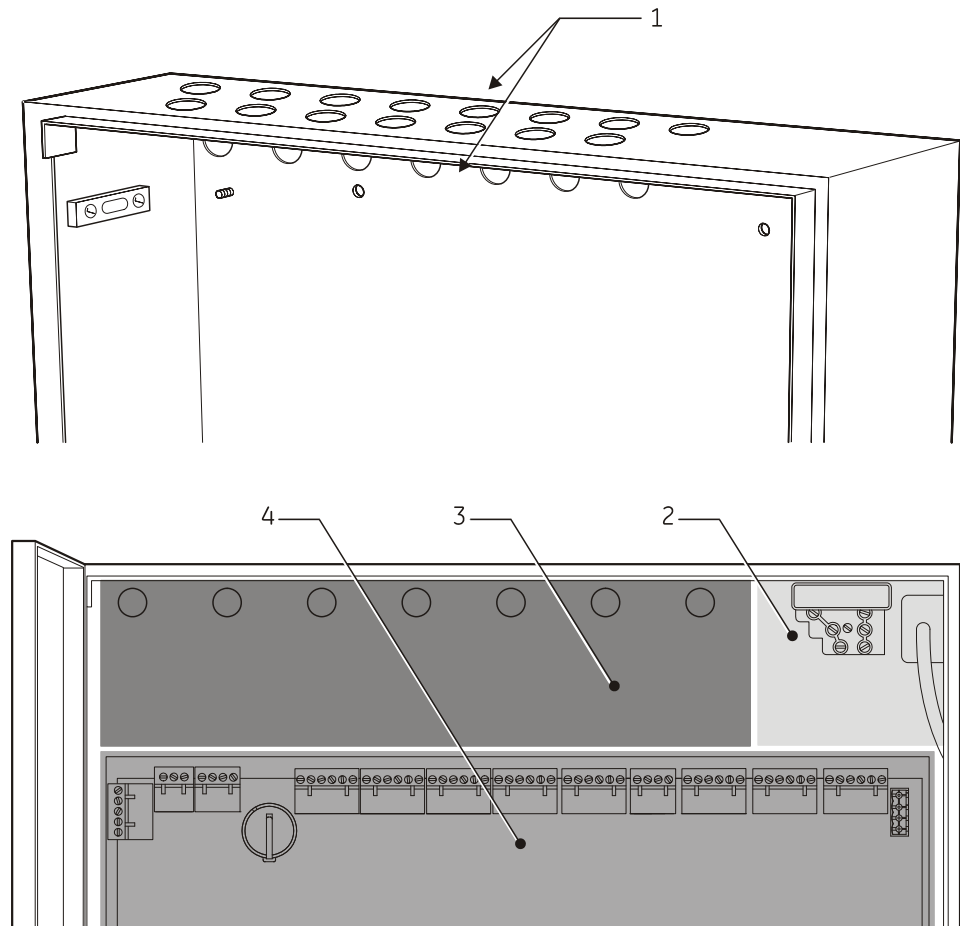


Installation information

Cable entry

Cable entry and wiring areas to the ZP3 panel are restricted to specific areas as shown in Figure 31.

Figure 31: Cable entry to the ZP3 panel



3015-01

Legend:

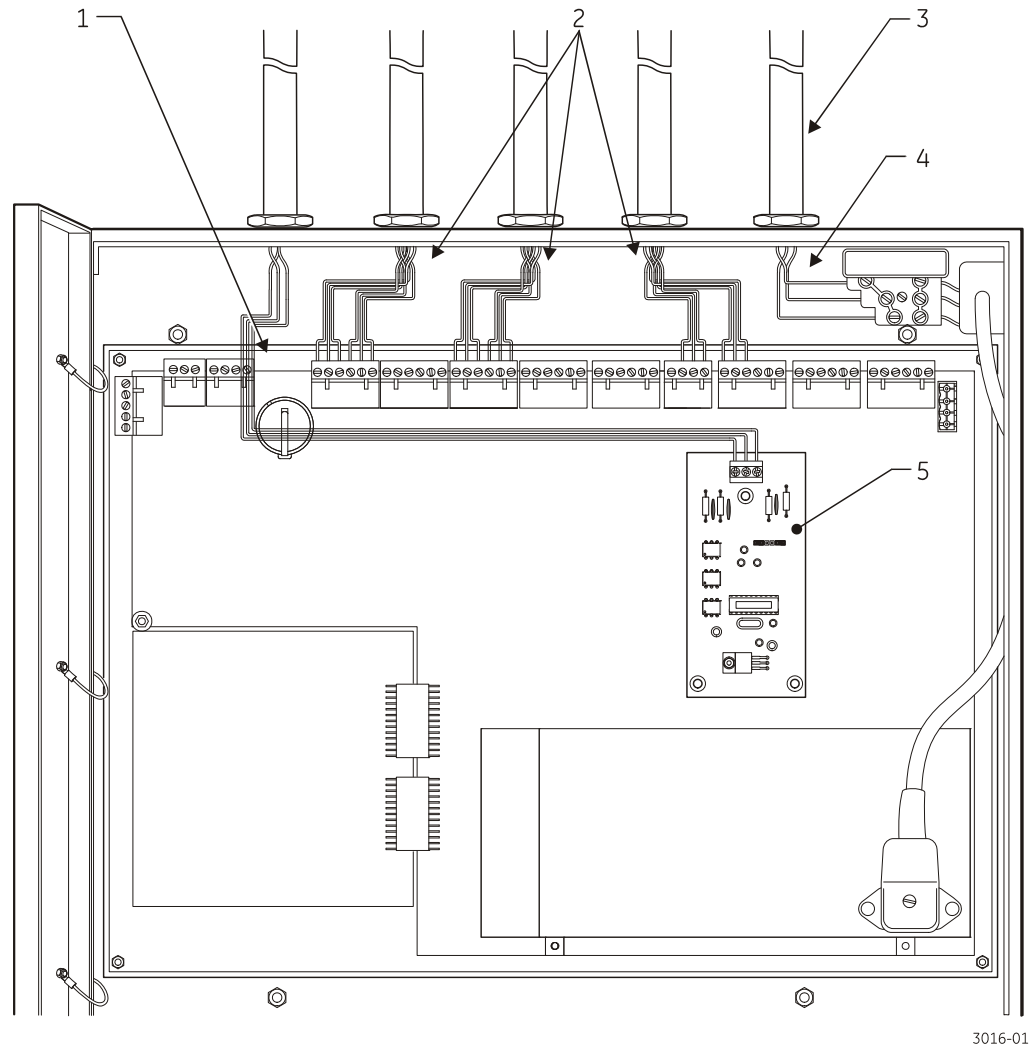
Item	Description
1	Knockout conduits
2	Mains cable area
3	Low voltage cable area
4	Electronics chassis

It is very important to follow the above rules carefully. This ensures that cables are properly separated from the electronic circuit boards. It also prevents physical damage to components and removes noise interference.

Wiring

Refer to Figure 32. Wiring must be connected to terminals in a neat and orderly manner. All screens must be connected, and terminals must be adequately tight and secure. The panel must be properly earthed as shown in Figure 32. To prevent cross-cable interference, different types of wiring must be separated as indicated below.

Figure 32: Wiring practices



3016-01

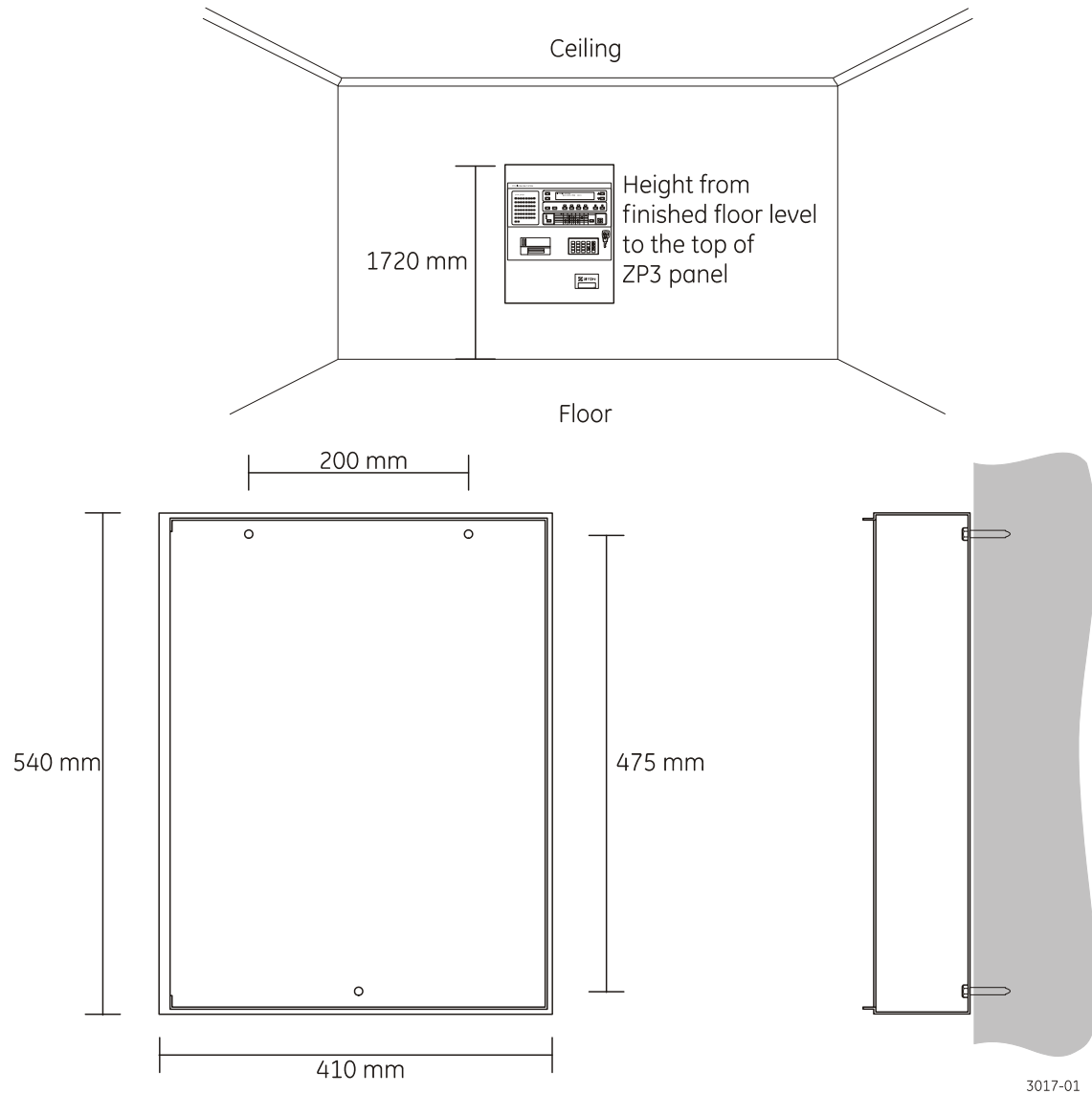
Legend:

Item	Description
1	Data cabling separated from other cables
2	Z-loops & low voltage control cabling separated from high voltage cables
3	Mains cabling separate from low voltage wiring
4	Earth
5	Serial Control Board (SCB)

Surface mounting

Figure 33 illustrates the main requirements for surface mounting of the ZP3 panel.

Figure 33: Surface mounting

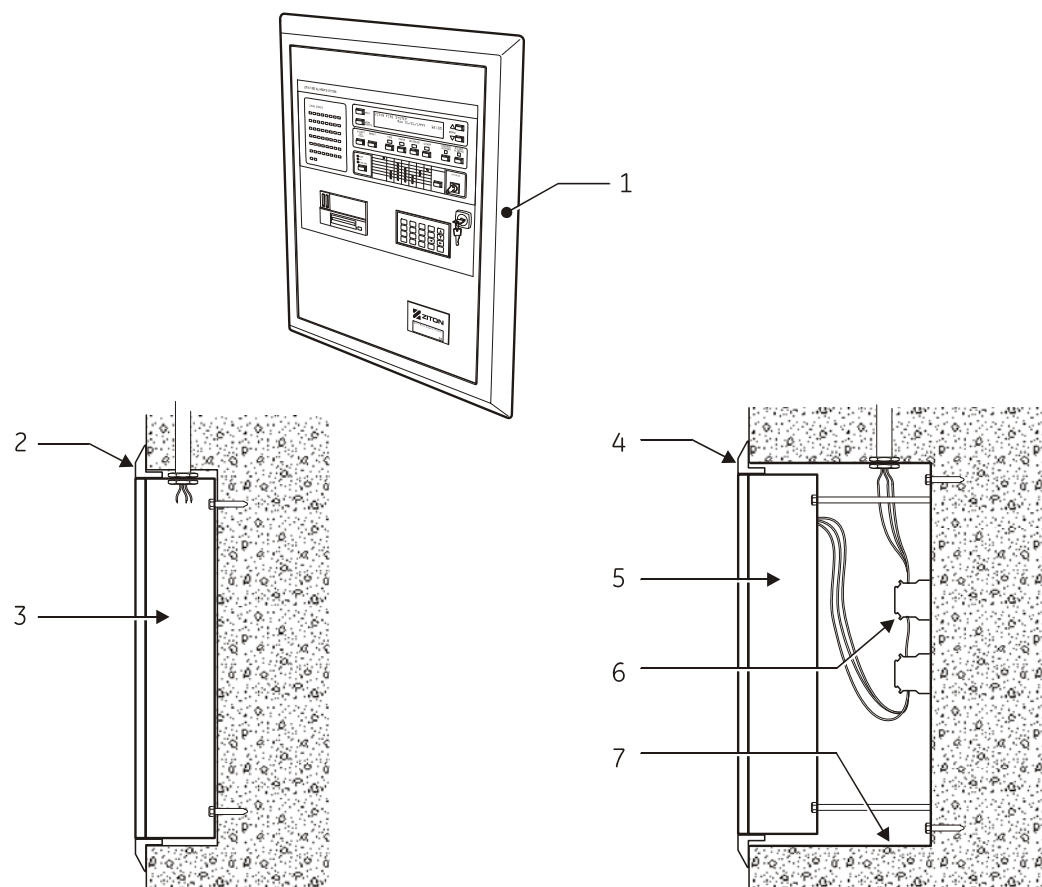


Use appropriate mounting screws such as plastic rawl plugs, expansion anchors, etc. depending on the type of wall. Use M4 screws at least 20 mm long. The mounting system must be able to support a minimum weight of 20 kg, which is the total weight of the panel (with batteries).

Flush mounting

The ZP3 panel protrudes by only 10 mm when flush mounted. Two types of flush mounting kits are available, as shown and described in Figure 34. Both use the same collar, and look the same when installed.

Figure 34: Flush mounting



3018-01

Flush mounting Collar (without Backbox)

In this variation, the panel backbox is fitted into the wall cavity, with careful alignment. It is then conduited and wired. The flushing collar is then fitted to aesthetically complete the installation.

Flush mounting Collar (with Backbox)

In this variation, a special flushing-backbox is fitted into the wall cavity, and all conduit and cables are brought into this box, and terminated on terminals. This box therefore forms both a recessed tray and terminal box. The ZP3 panel and flushing collar are then fitted into the recessed tray. The advantage of this system is that the wall cavity recessed box can be roughly installed, and out of alignment. The system allows the panel and collar to be perfectly aligned after installation.

Legend:

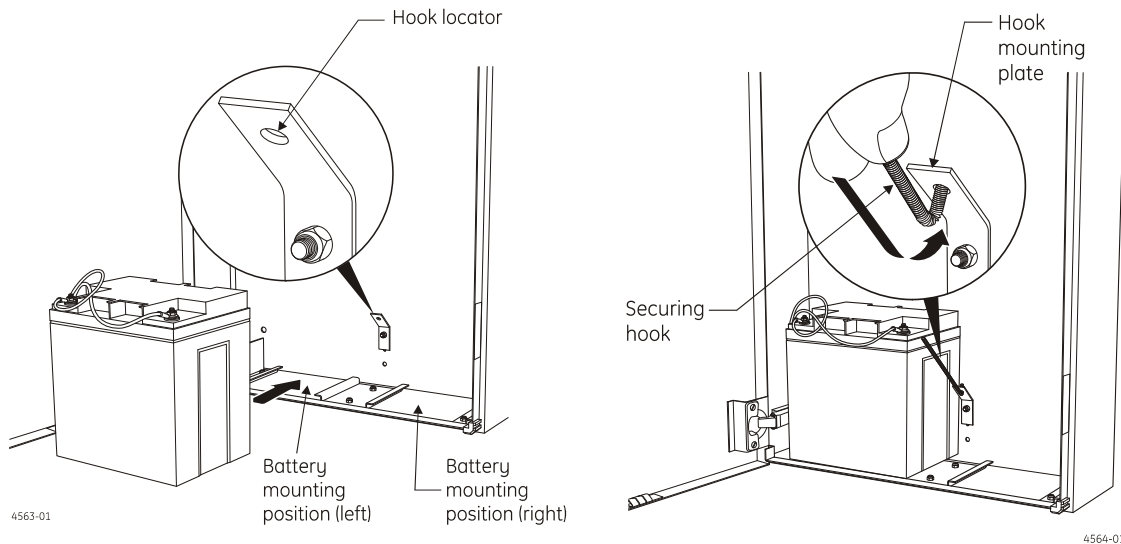
Item	Description	Item	Description
1	Flush mounted ZP3 panel	5	ZP3 panel backbox
2	Flush collar	6	Terminals
3	ZP3 panel backbox	7	Flushing box
4	Flush collar		

Back-up batteries

Install the back-up batteries as follows:

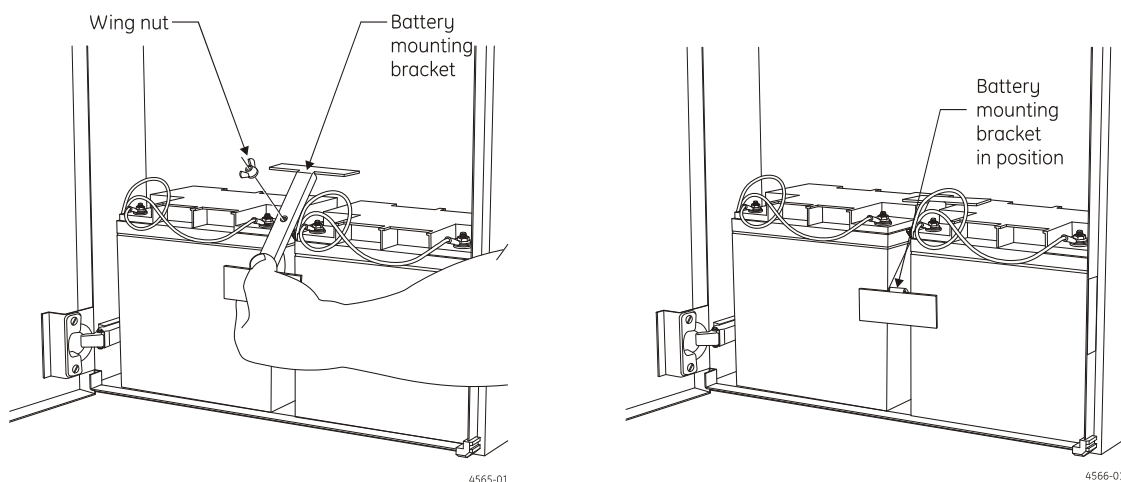
1. Make sure the back-up batteries are correct as specified under 'Batteries' in "Table 3: ZP3 Fire control panel specification" on page 2.
2. Position a back-up battery in the left-most mounting position in the chassis as shown in Figure 35 below.

Figure 35: Back-up batteries mounting position



3. Locate the battery-mounting bracket (packed separately in bubble wrap in the main shipping carton).
4. Hook the curved end of the battery mounting bracket-securing hook into the hook locator on the hook mounting plate located on the chassis (see Figure 35 above).
5. Taking care that the securing hook is in the upright position install the second back-up battery in the right-most position in the chassis.
6. Secure the batteries to the chassis with the mounting bracket using the wing nut supplied (see Figure 36 below).

Figure 36: Securing the back-up batteries



7. Connect the back-up batteries as described under "Battery connection" on page 49.

Good practice

Applying good practice to your installation makes sure that the ZP3 system operates reliably and trouble-free. These are simple actions, which assist with commissioning and also provide stable long-term operation.

Earth connections

The panel must be connected to a secure earth point. Door earth straps and internal earth must be connected. Take extra precautions for lightning areas.

Screen connections

All cable screens must be connected to the terminals provided. Do not cut-off screen tails or leave screens floating.

Separation of wiring

Inside the panel, physically separate mains wiring, Z-loop wiring, and serial data wiring. The flexible plastic separator, which isolates mains from low voltage wiring, must be positioned correctly. Externally these cable groups should be run in separate conduits. See *Appendix A: ZP Wiring guide* on page 99 for more details.

Good connections

Make sure that all connections are secure and tight, with a minimum of exposed copper cable to prevent possible shorting to adjacent terminals.

Careful handling of electronics

Handle with extreme care when removing and replacing chassis and door assemblies. These are high-precision electronic assemblies, and susceptible to damage if handled roughly.

Cleanliness

Before fitting electronic assemblies, make sure that the cabinet is clean and free from metal filings, oil or moisture, all of which can damage electronic circuits.

Neatness

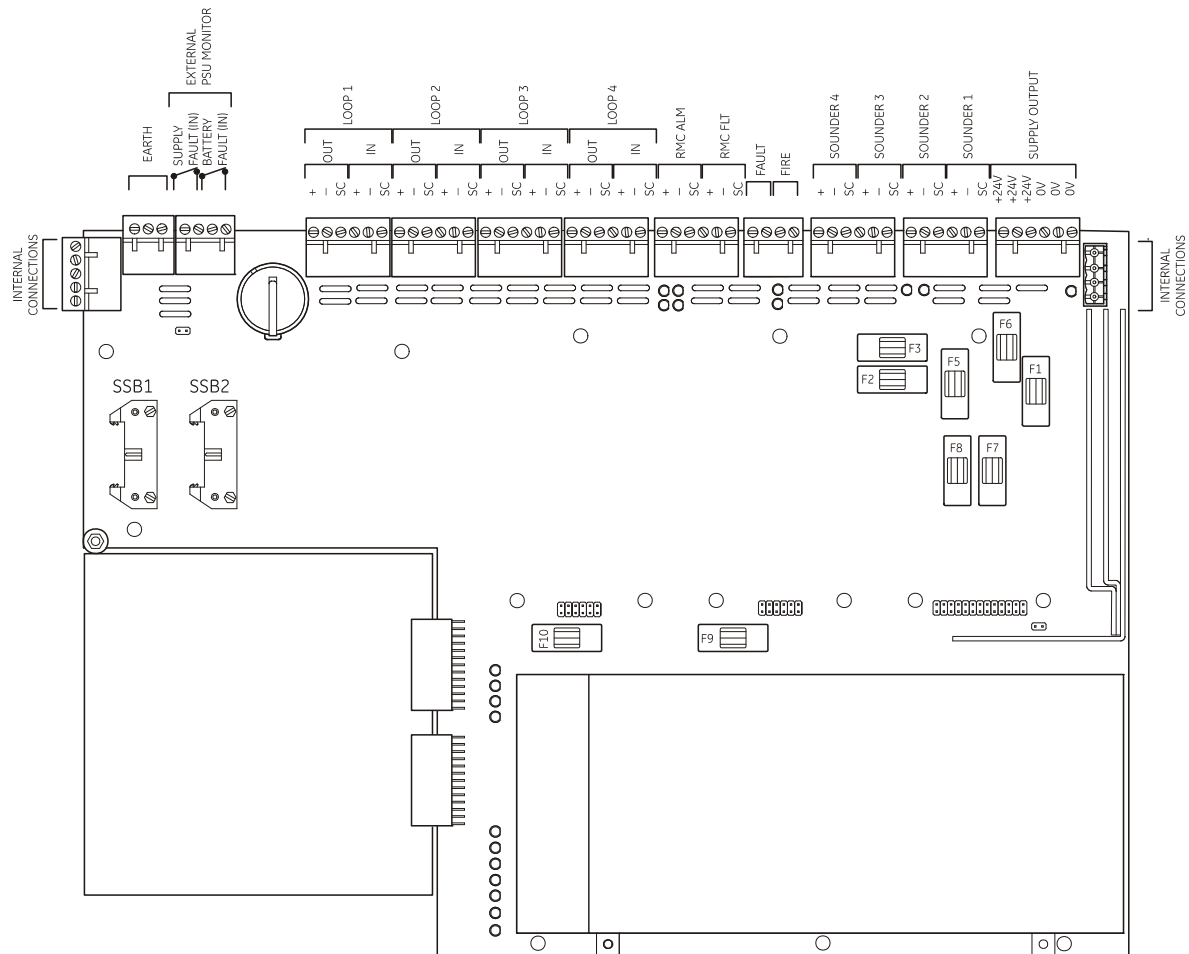
Installing wiring neatly and professionally make commissioning and maintenance simpler and quicker.

Chapter 3: Field wiring

Terminal layout

Terminal layout and locations are shown in Figure 37. Detailed connections for each function are shown on the following pages.

Figure 37: ZP3 Fire control panel main board terminal layout



3003-01

Note: All terminals accept wiring sizes from 0.5 mm² to 2.5 mm².

Wiring size and type must be as specified in the Ziton ZP Wiring Guide. See *Appendix A: ZP Wiring guide* on page 99 for more details.

Power supply

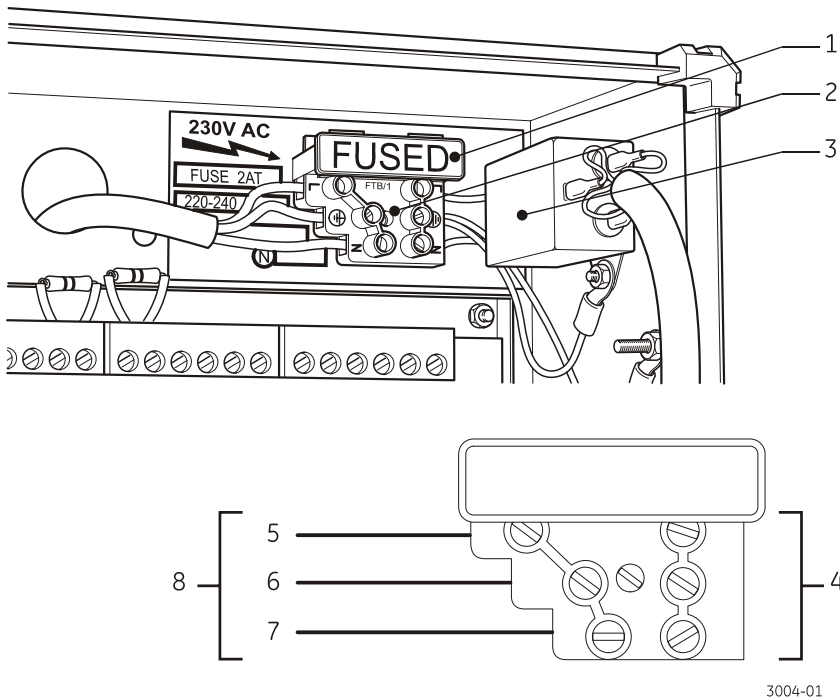
Mains supply

Refer to Figure 38. A terminal block (item 2) is located at the top right hand side of the fire panel for connecting the mains supply. The terminal block incorporates a fuse holder (item 1) in the live leg of the supply. A mains filter (item 3) is located next to the mains terminal block, which in turn is wired to the power supply unit.

The front door of the panel is electrically connected to mains earth via earth straps.

When connecting the mains supply to the panel, make sure that the incoming power is from a clean source that has a solid earth connection. Connecting the panel to a secure earth is very important.

Figure 38: Mains power supply connection



Legend:

Item	Description	Item	Description
1	Fuse	5	Live
2	Terminal block	6	Earth
3	Mains filter	7	Neutral
4	Internal connections	8	230 VAC

Make sure that the mains supply wiring is correctly connected. The wiring should be as short as possible within the panel and should be kept away from Z-loop wiring, data cables, and other low voltage wiring.

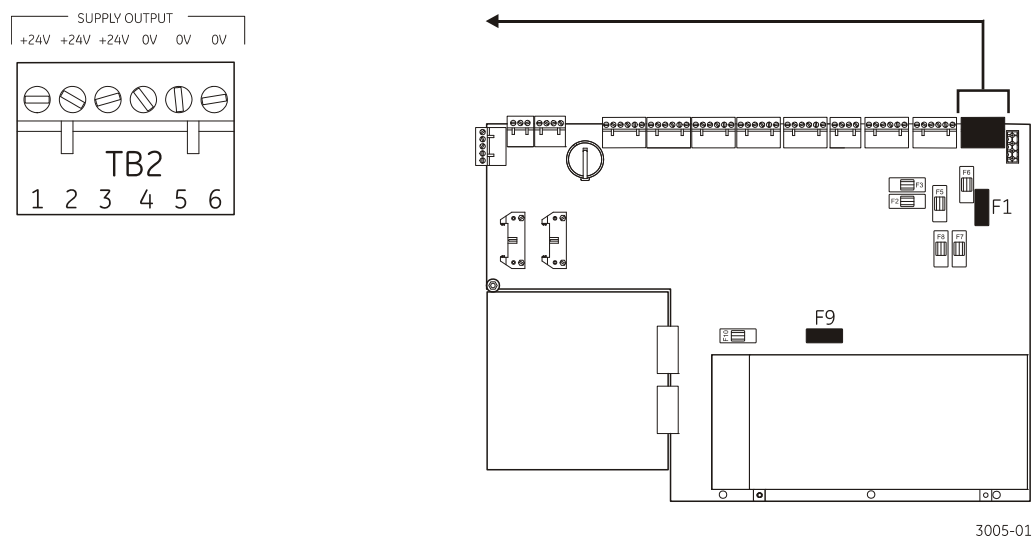
Auxiliary 24 VDC supply

See Figure 39. The 24 VDC output ("Supply Output" terminal – TB2 on the main board) is for use by auxiliary equipment, such as programmable relay boards, sounder driver boards, etc. It can also be used for providing power to devices such as remote display units, and similar peripheral devices.

The current drawn from the auxiliary supply is a function of the system engineering. It depends upon the load that has been allocated to the control panel for devices such as loop sounders, common sounders, and control relays.

The output is fused at 5 A (Fuse F1).

Figure 39: Auxiliary 24 VDC supply



External power for accessory boards

Where the load required for optional accessory boards exceeds the capacity of the ZP3 power supply, it is possible to power these boards from a separate external 24 VDC power supply as shown in Figure 40. This external supply must meet the following criteria:

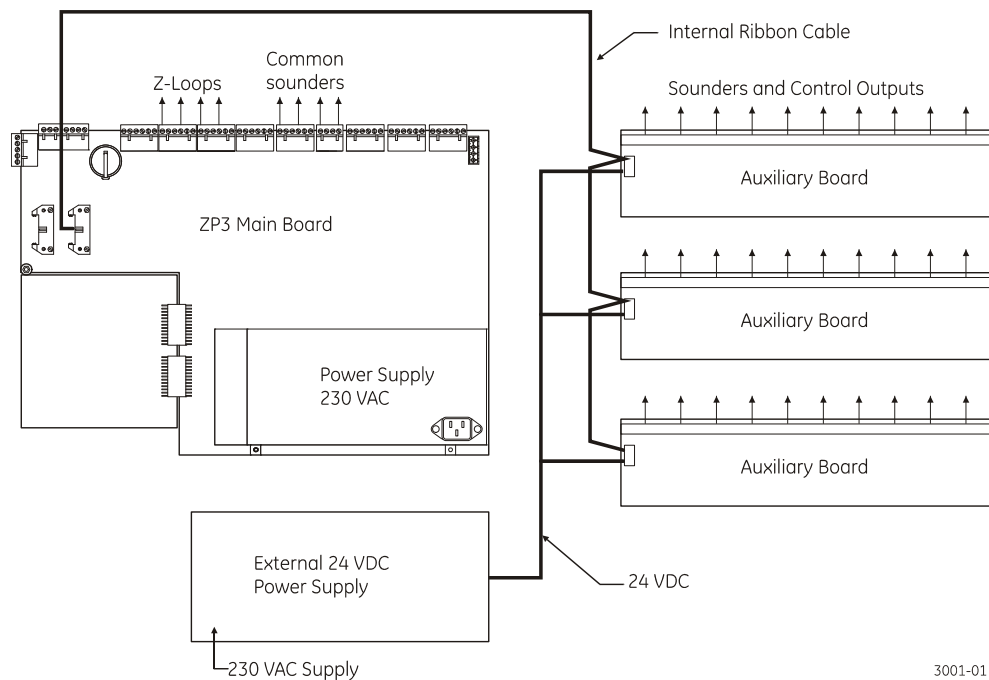
- Output voltage must be in the range 22 - 28 VDC.
- Output ripple must be a maximum of 200 mV (peak-peak).
- Output ripple with full load must be a maximum of 500 mV peak.
- Must comply with the requirements of European Standard EN54-4.
- Output capacity must be adequate for the required load, even with batteries disconnected.
- Incorporate standby batteries, sized to provide the required operating period.
- The output must be suitably fused.
- For reporting faults to the ZP3 fire panel, two voltage-free changeover contacts must be provided, one signalling a mains failure, the other signalling a battery fault.



CAUTION:

Do not connect the 0-volts (negative supply) of the external power supply and the 0-volts (negative supply) of the fire panel. The two power supply systems must remain floating from each other.

Figure 40: Powering optional accessory boards from a separate external power supply

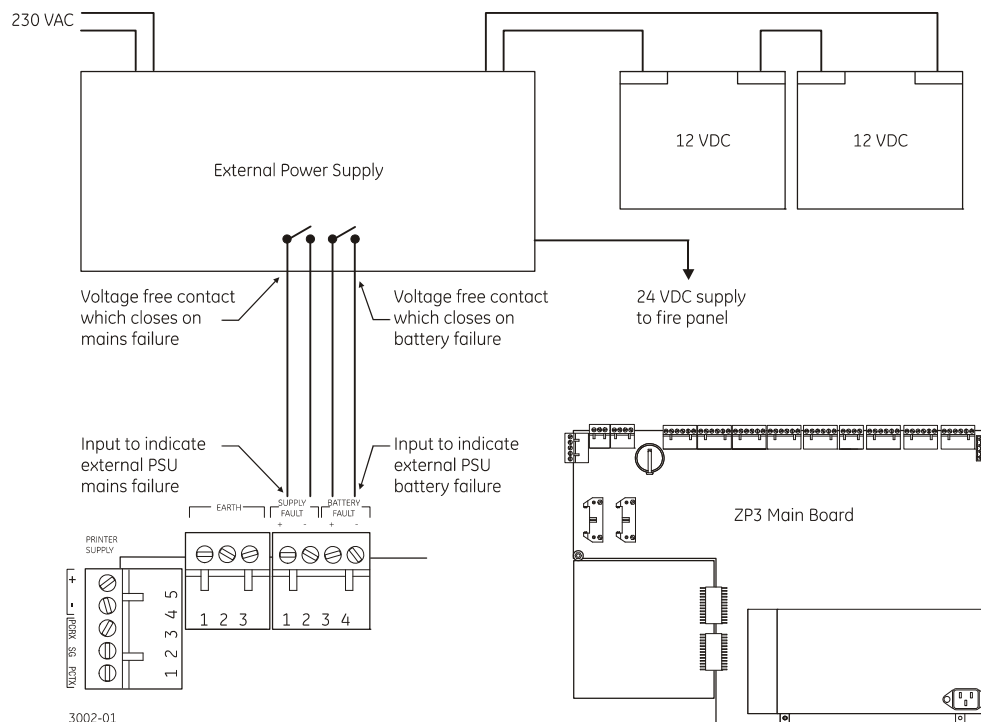


3001-01

Monitoring external power

When using an external power supply unit, the failure of the mains supply, or the failure of the batteries, charging system, or fuse, can be reported to the ZP3 fire panel, as shown below. The power supply unit must incorporate two sets of voltage-free contacts, one which changes-over on mains failure, the other which changes-over on battery fault (disconnected battery, low or high voltage, etc), charger failure, or fuse failure. These contacts must be connected to the ZP3 main board terminals as shown in Figure 41. When the contact changes state, the fault is reported to the ZP3 panel, which indicates the appropriate visual and audible alarm, as well as signalling to the Remote Manned Centre.

Figure 41: Monitoring external power

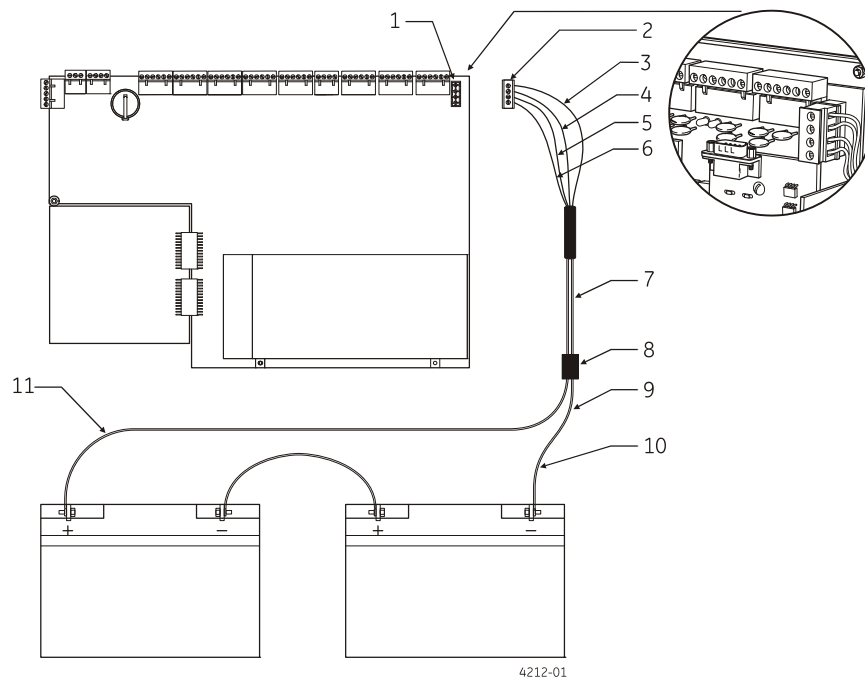


3002-01

Battery connection

This section describes how to connect the batteries to the power supply (see Figure 42). Make sure that you comply with the *General warnings and precautions* on page xi and the recommendations provided under “Good practice” on page 43.

Figure 42: Battery connection



Legend:

Item	Description	Item	Description
1	Battery connector socket	7	Battery connector lead
2	Plug	8	Connector
3	Red	9	Black
4	Black	10	230 VAC Types of cables: (a) spade lugs (b) screw lugs
5 & 6	Grey	11	Red

Connection overview

Refer to Figure 42.

- The batteries must be housed in their proper place.
- The batteries must only be connected using the lead provided. This lead incorporates a temperature-sensing element, used to provide temperature compensated charging.
- The connector lead connects to the main board with a plug and socket. Battery positive is RED (item 3), battery negative is BLACK (item 4), and control leads are GREY (items 5 and 6).
- Two final connector leads are provided - one for batteries with plug-in type connectors, the other for batteries with screw connectors. Use the appropriate lead for your batteries.
- The batteries must be connected in series with a jumper as shown in Figure 42.
- Take care not to invert the battery connection polarity. If this happens, replace fuse F1 (6.3 Amp, slow-blow, 250V, size 20 mm x 5 mm).

Power supply and battery calculations

Two power supply calculations must be done when designing a ZP3 system. Firstly, the capacity of the power supply must be calculated to ensure that it will be able to supply the system load, even when the batteries are disconnected or discharged.

Table 4: ZP3 System load calculation

C1	C2	C3	C4	C5	C6	C7
	Device	Unit quiescent current (Amps)	Unit fire alarm current (Amps)	Qty	Total quiescent current (Amps) (C3 x C5)	Total alarm current (Amps) (C4 x C5)
Panel and accessories	ZP3AB-SCB-D Control bus driver	0.0400	0.0400			
	ZP3AB-Net1 Network card	0.0700	0.0700			
	ZP3AB-RS232 Comms card	0.0650	0.0650			
	ZP3AB-PR1 Printer	0.0370	0.1900			
	ZP3AB-RL8 Relay board	0.0350	0.1300			
	ZP3AB-MA8 Sounder board	0.0400	0.2200			
	ZP3AB-OP24 Output board	0.0010	0.0500			
	ZP3AB-MIP8 Input board	0.0400	0.0600			
	ZP700 sensors (all types)	0.0005	0.0006			
	ZP700 Loop I/O units (all)	0.0005	0.0006			
	ZP700 Call points (all types)	0.0005	0.0006			
	ZP755 Loop sounder	0.0005	0.0025			
	ZP570 Conventional i/f	0.1000	0.1000			
Line devices	ZP471 Radio loop interface	0.0400	0.0400			
	ZP472 Radio loop interface	0.0400	0.1000			
	ZP3-ECU Extinguishing control units	0.0800	0.2000			
	Conventional detectors (all types)	0.0001	0.0000			
Alarms	Alarm bells	0.0000	0.0500			
	Electronic sounders	0.0000	0.0250			
Other						
Total system load:					Quiescent load	Fire alarm load

Use the information provided in Table 4 to calculate the power supply and battery load capacities. Record the results as shown in Table 5.

Power supply load calculation

Table 5: Power supply load calculation

Description	Calculated load	PSU capacity	Pass	Fail
Quiescent Amperes	L1	1.6 A		
Fire alarm Amperes	L2	3.4 A		

Notes: Insert the calculated quiescent load into L1, and the calculated fire alarm load into L2.

Tick "Pass" if the calculated load is below the PSU capacity, otherwise tick "Fail".

Should the ZP3 PSU not be able to supply the system load, then either the system design will need to be modified, or a separate external power supply used for part of the load.

Battery calculation

If the system must operate in the quiescent state for 24 hours and with a full alarm load for half an hour, calculate the battery size as follows (see Table 6).

Notes: Multiply the quiescent load plus the basic panel load by 1.05 (this adds 5%) to obtain the possible extra load resulting from the panel being in a fault, disabled, or other non-fire condition. Multiply this figure by 24 to obtain the Ampere/hours needed for 24-hour operation. Insert the result into C1.

Multiply the Fire Alarm Load plus the basic panel load by 0.5, and insert the result into C2.

Add C1 and C2, and insert the result into C3.

Add 25% to C3 to calculate the battery over-rating requirement. This allows for the normal deterioration in battery performance over the batteries' lifetime.

Select the nearest size battery available, rounding upwards. Remember that the largest battery that can be accommodated in the ZP3 enclosure is 30 Ampere/Hour.

Table 6: Battery calculation

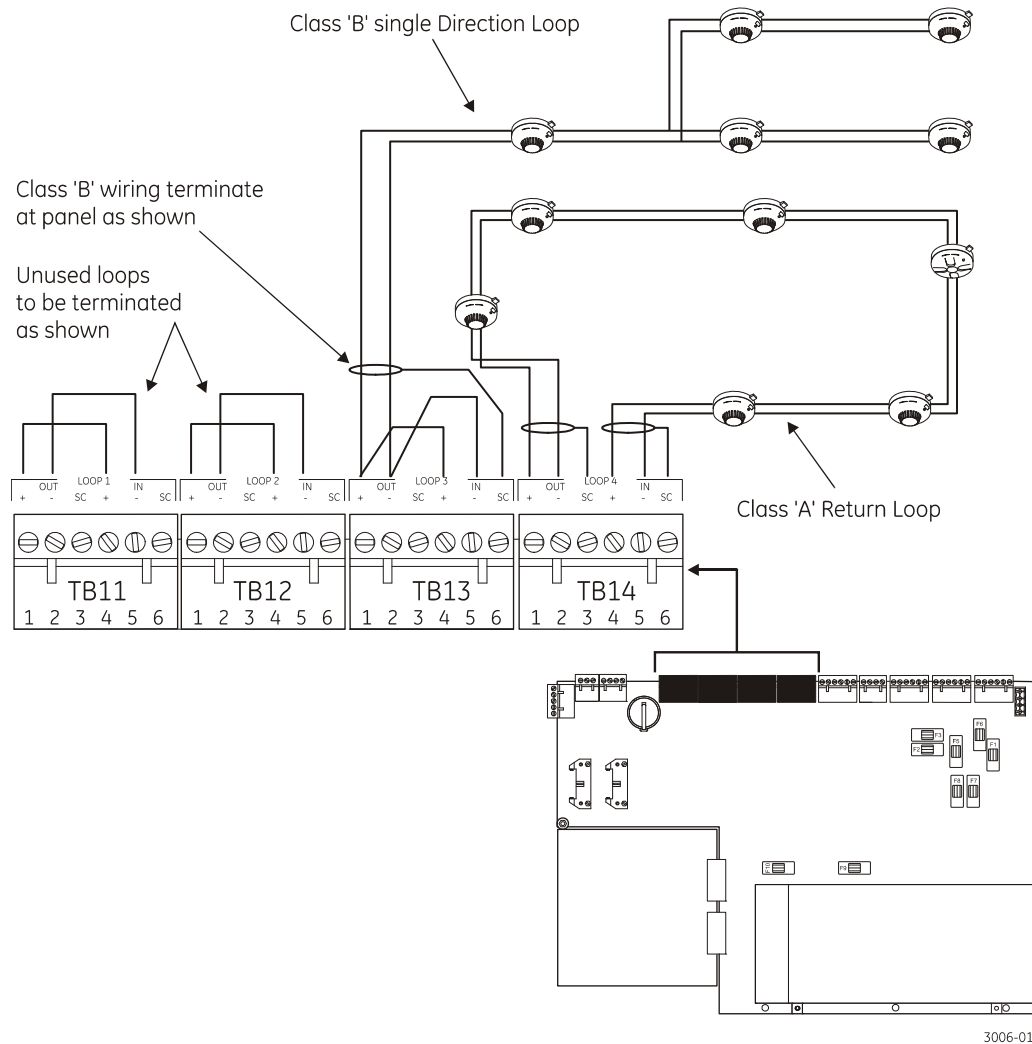
Description	Calculation	Result	No
Standby Ampere/hours	$(\text{Quiescent load} + 0.3 \text{ Amps}) \times 24 \times 1.05$		C1
Fire alarm Ampere/hours	$(\text{Fire alarm load} + 0.5 \text{ Amps}) \times 0.5$		C2
Total Ampere/hours	$C1 + C2$		C3
Battery capacity over-rating (25%)	$C3 \times 1.25$		C4
Nearest size battery			C5

Z-Loop

Z-Loop wiring

See Figure 43. The addressable Z-Loop can be wired as a class-A return loop, or as class-B single direction wiring, with spurs. Loop length can be up to 3000 metres, depending upon the type, quantity and location of devices attached. For more information see *Z-Loop parameters* on page 53.

Figure 43: Z-Loop wiring



When wired in class-B single direction format, then the loop terminals must be connected (+) in to (+) out and (-) in to (-) out.

The loop is monitored for open and short circuit. Unused loops must be terminated (+) in to (+) out and (-) in to (-) out.

Loop isolators

For information on loop isolators, see under “*Line isolators*” in Appendix A of this manual.

Z-Loop parameters

The Z-loop connects the ZP analogue addressable devices to the fire control panel. It is a 2-wire loop that supplies power to the connected devices, and carries communication between each device and the panel. Loops must be wired in correctly sized cable, and must be continuously screened.

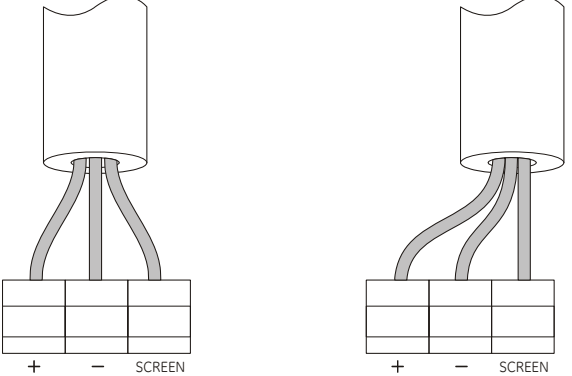
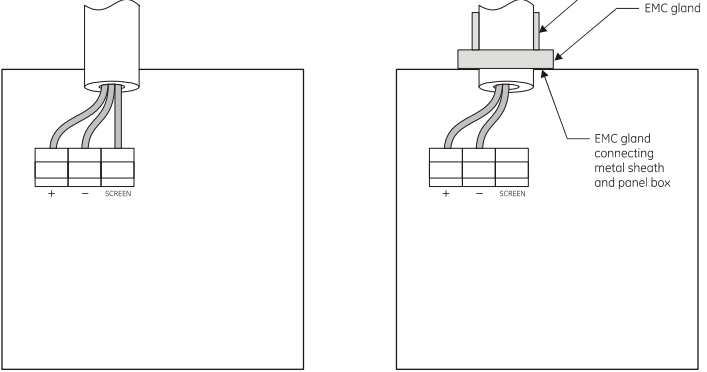
Screening

Refer to Table 7 below. Cables must be shielded and shields must be continuous i.e. connected through at each device. For class-A return loop wiring, both ends of the shield must be connected to their earth terminals at the panel. For class-B single-direction wiring, the screen must be connected to its earth terminal at the panel end, and left disconnected at the far end.

Shielded cable may be 2-core or multi-core. If multi-core cables are used, only Z-loop wiring or the fire system DC wiring must be run inside the same screen. Third-party cabling, for example public address and intercom systems, must not be run inside the same screen.

Z-loops should, where possible, be separated from high-voltage cabling. They must not run adjacent to high-voltage cable for any substantial distance. Separation should be at least 100 mm.

Table 7: Screen connection wiring best practice

<p>The ZP line loop screen connection must be kept as short as possible to ensure the best results for noise immunity, which is a CE requirement.</p> <p>The adjacent illustration shows two screen connections. Option B (the preferred method), has a shorter screen connection even though this results in longer plus and minus terminal wires.</p>	 <p>Option A</p> <p>Option B</p> <p>4456-01</p>
<p>Alternate screen connection</p> <p>See adjacent illustration. For optimum connection, if thick mineral insulated cabling is being used, we recommend using EMC glands as an alternate method for the screen connection.</p> <p>Strip away the outer covering of the cable to expose the metal sheath. Connect the metal sheath directly to the ZP3 panel box via the EMC conductive gland.</p>	 <p>Outer cover</p> <p>EMC gland</p> <p>EMC gland connecting metal sheath and panel box</p> <p>4457-01</p>

Cable sizing

Cable sizing depends upon the length of the Z-loop, and the number and type of devices connected. Input devices, such as fire sensors, callpoints, and interface units, use very little current, and allow the maximum loop length. Adding loop-powered output devices, such as sounders, to the loop requires heavier cable and reduces the allowable loop length. See *Appendix A: ZP Wiring guide* on page 99 for more details.

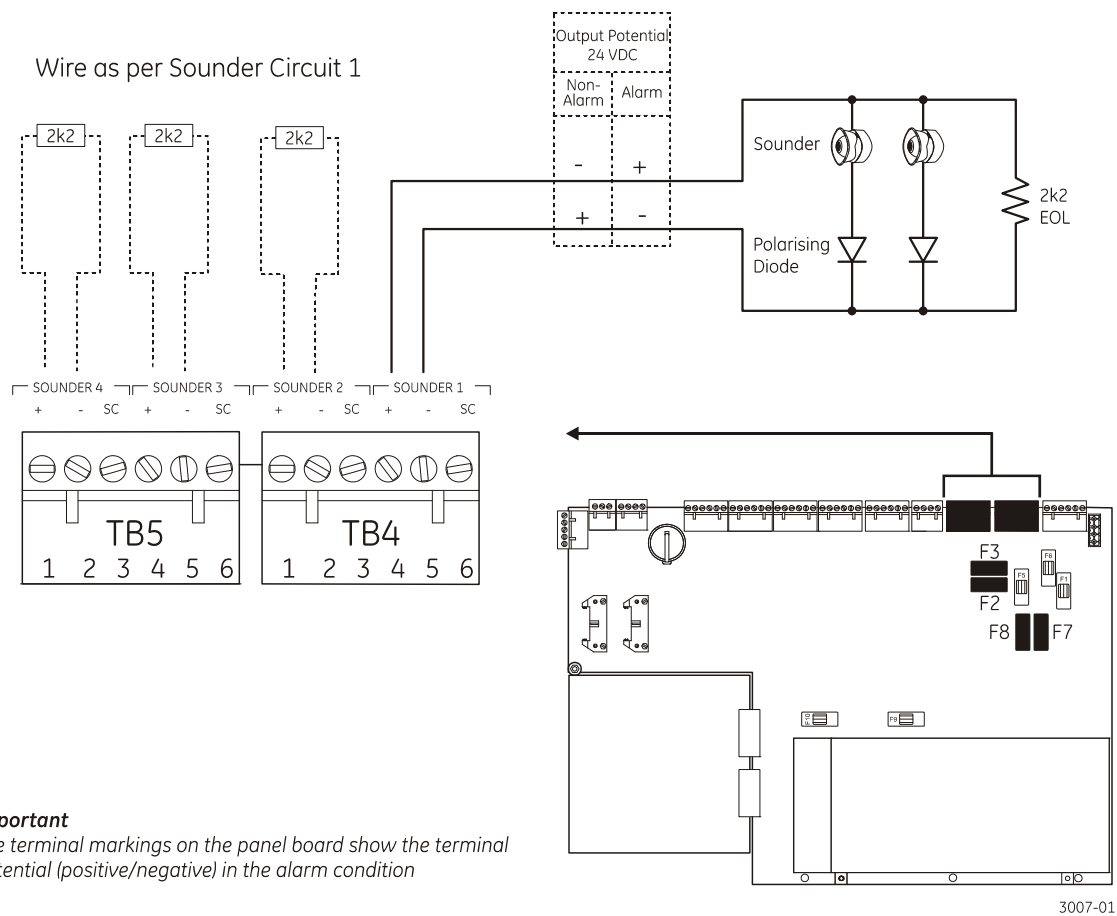
Common outputs

Common sounder outputs

See Figure 44. The ZP3 Fire Control Panel has 4 built-in sounder outputs, arranged in 2-pairs. These outputs provide 24 VDC for driving sounders. They can be programmed to activate on a fire alarm from any zone or device, or as required.

The outputs are wired in 2-wire class-B single direction format. They must be daisy-chained from point-to-point, without tee-offs or spurs. They operate on a reverse polarity basis, and are monitored for open-circuit and short-circuit. Circuits must be terminated with a 2200-ohm, 1 W "end-of-line" resistor at the last sounder on the circuit.

Figure 44: Common sounder outputs wiring



Important

The terminal markings on the panel board show the terminal potential (positive/negative) in the alarm condition

Sounders connected to the circuits must be polarized, i.e. fitted with diodes so that they operate with power in one polarity direction, and not in the reverse direction.

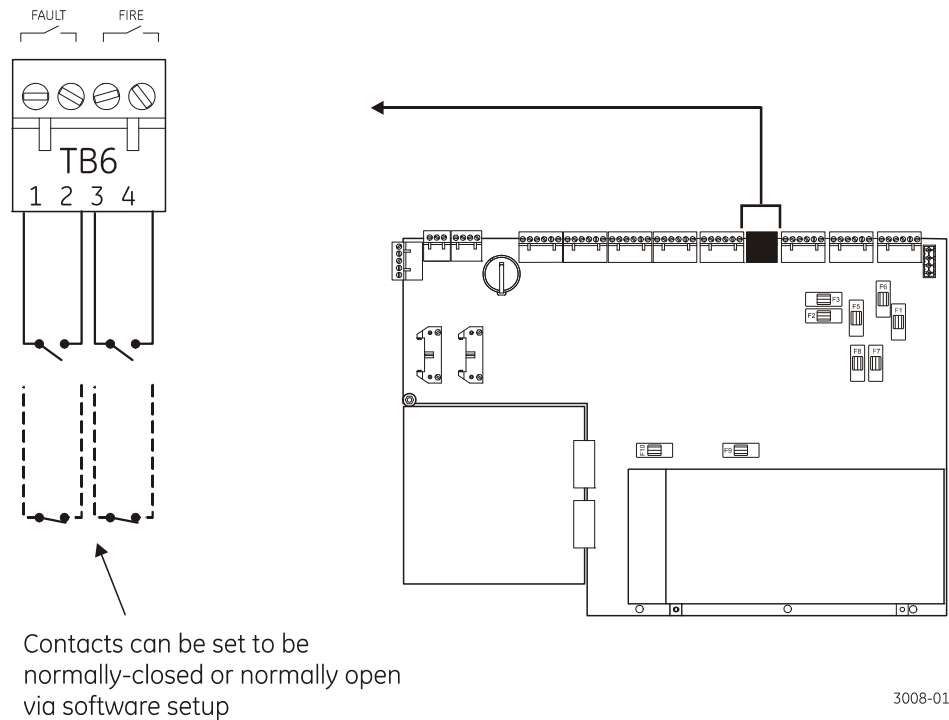
The sounder lines are fused at 1 A each, and sounders 1, 2, 3, 4 are fused by F8, F7, F3, F2 respectively.

Common fire / fault outputs

See Figure 45. The common fire and common fault relay outputs provide voltage free contacts, which can be set to be either 'normally open' (closing on alarm), or 'normally closed' (opening on alarm). The N/O or N/C settings are done in software in the setup menu.

The common fire relay changes state on any fire alarm, and the common fault relay changes state on any fault alarm. Relays restore when the panel is reset.

Figure 45: Common fire/fault outputs



The relay contacts are rated for a maximum current of 1 A, and a maximum voltage of 24 VDC or 100 VAC.

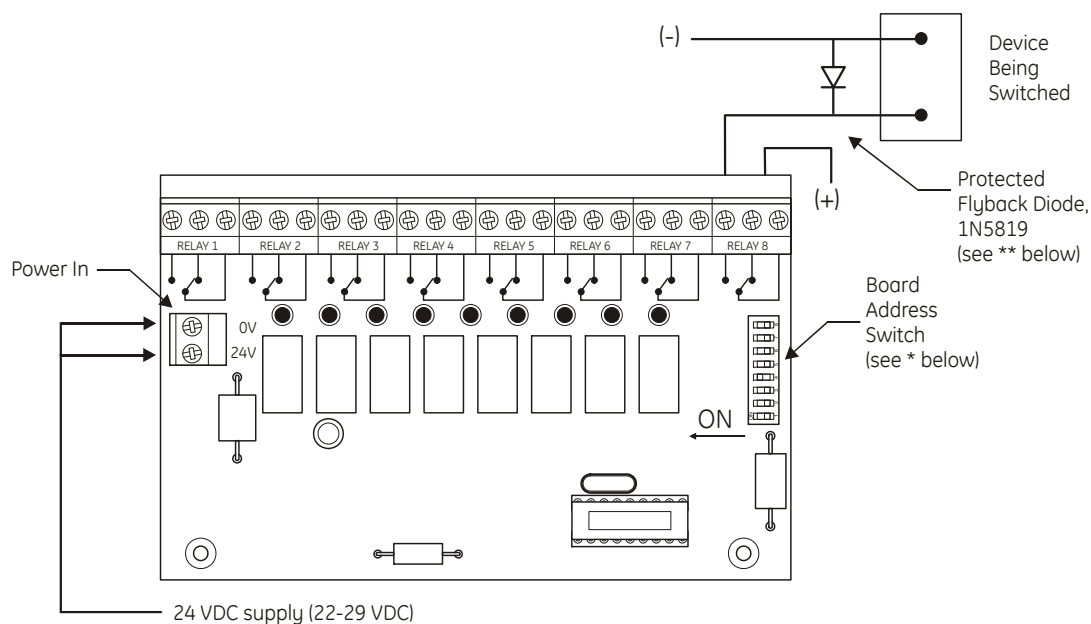
Auxiliary boards

ZP3AB-RL8 Relay board

See Figure 47. The ZP3AB-RL8 Relay Board is a programmable relay board with 8 separate relays. Each relay has a single changeover contact which changes state when activated. Relays are each allocated an address, and programmed to operate from selected inputs using the I/O-mapping function built into the panel.

The ZP3AB-RL8 board connects to the ZP3 panel control bus. If allocated to the User Bus section, up to 768 addresses are available. These outputs are freely programmable. If allocated to the System Bus section, a further 256 addresses are available, which have pre-programmed functions.

Figure 47: ZP3AB-RL8 Relay board



24 VDC supply (22-29 VDC)

1. Supplied from ZP3 panel auxiliary output supply.
- OR
2. Supplied from separate 24 VDC power supply unit.

See note below

3010-02

* Each board is fitted with an eight-way Dipswitch. This switch is set to an address between 000 and 127. This board address determines the address of each output, and is specified under *System address list* on page 84.

** If outputs are used to switch inductive loads, they should be protected with a flyback diode.

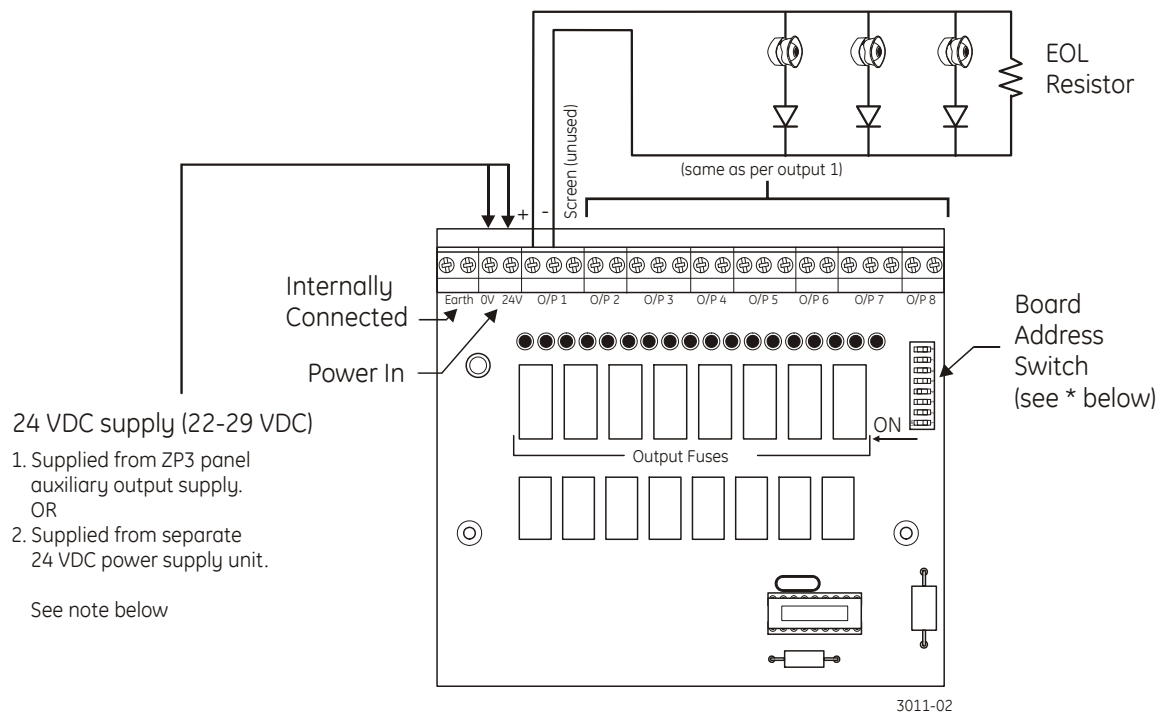
Note: If externally supplied, do not common the power supplies, i.e. do not connect the 0V of the internal and external power supplies together.

ZP3AB-MA8 Monitored output board

See Figure 48. The ZP3AB-MA8 Monitored Output Board is a programmable output board with 8 separate outputs, designed to drive fire alarm sounder or control outputs. Outputs monitor the circuit field wiring for open-circuit and short-circuit faults, and report to the panel should a fault occur. The outputs operate on a reverse polarity basis, being set to one polarity for normal and reversing polarity for alarm. Outputs must be polarized with a polarizing diode (these are often internally fitted on sounders). The outputs are wired in 2-wire class-B single direction format. They must be daisy-chained from point-to-point, without spurs. Circuits must be terminated with a 2K2 ohm "end-of-line" resistor at the last device on the circuit.

Each output is allocated a unique address, and programmed to operate from selected inputs using the I/O-mapping function built into the panel. The ZP3AB-MA8 board connects to the ZP3 panel control bus. If allocated to the User Bus section, up to 768 addresses are available. These outputs are freely programmable. If allocated to the System Bus section, a further 256 addresses are available, which have pre-programmed functions.

Figure 48: ZP3AB-MA8 Monitored output board



- * Each board is fitted with a dipswitch, which is set to an address between 000 and 127. This determines the address of each output, as specified under *System address list* on page 84.

Each output provides 24 VDC in alarm, and can drive a maximum circuit load of 1 A. If outputs are used to switch inductive loads, they should be protected with a flyback diode.

The load is provided from the 24 VDC supply connected to the power input terminals. If connected to the ZP3 panel auxiliary power supply terminals, the load is supplied from the built-in ZP3 power supply. If connected to an external 24 VDC power supply, the external supply supplies the load.

Note: If externally supplied, do not common the power supplies, i.e. do not connect the 0V of the internal and external power supplies together.

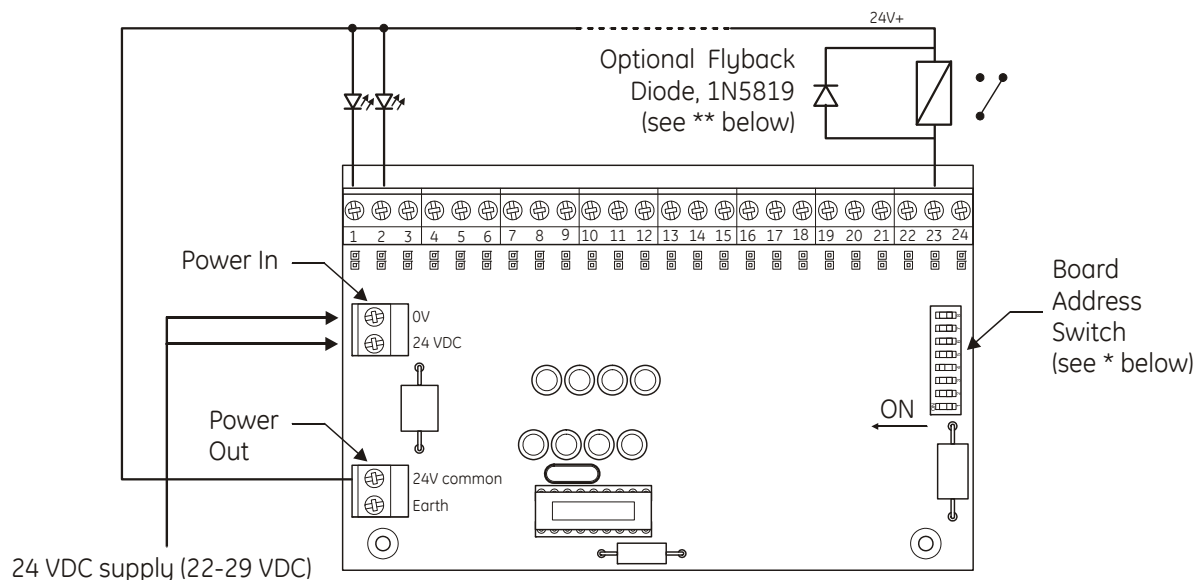
Auxiliary boards

ZP3AB-OP24 Transistor output board

See Figure 49. The ZP3AB-OP24 Transistor Output Board is a programmable output board with 24 separate outputs, designed to drive low-power functions, such as LED's or control relays. This board is suitable for driving remote mimic panels. The outputs are open-collector transistor outputs, which switch negative (0 volts) when activated. Connect the opposite side of the output load (LED, etc) to a common positive (+24 volts) from the same power supply source as the board.

Each output is allocated a unique address, and programmed to operate from selected inputs using the I/O-mapping function built into the panel. The ZP3AB-OP24 board connects to the ZP3 panel control bus. If allocated to the User Bus section, up to 768 addresses are available. These outputs are freely programmable. If allocated to the System Bus section, a further 256 addresses are available, which have pre-programmed functions.

Figure 49: ZP3AB-OP24 Transistor output board



24 VDC supply (22-29 VDC)

1. Supplied from ZP3 panel auxiliary output supply.
OR
2. Supplied from separate 24 VDC power supply unit.

See note below

3012-02

* Each board is fitted with a dipswitch, which is set to an address between 000 and 127. This determines the address of each output, as specified under *System address list* on page 84.

** Each output can drive a maximum circuit load of 50 mA. If outputs are used to switch inductive loads, they should be protected with a flyback diode.

The load is provided from the 24 VDC supply connected to the power input terminals. If connected to the ZP3 panel auxiliary power supply terminals, the load is supplied from the built-in ZP3 power supply. If connected to an external 24 VDC power supply, the external supply supplies the load.

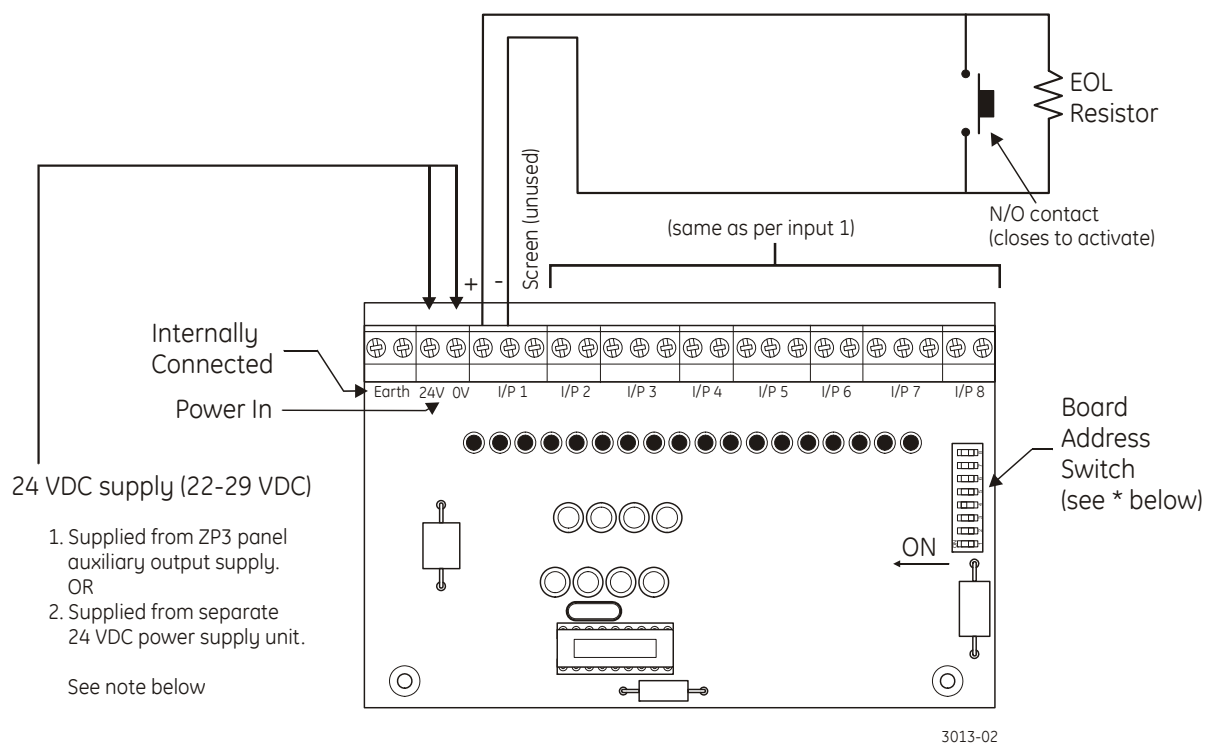
Note: If externally supplied, do not common the power supplies, i.e. do not connect the 0V of the internal and external power supplies together.

ZP3AB-MIP8 Input board

See Figure 50. The ZP3AB-MIP8 Input Board is a programmable input board with 8 separate inputs. It is designed for connection to normally open, voltage-free contacts (key switches, relays, etc), the closing of which provides an input signal to the panel. This signal can be programmed to operate control outputs or sounders, disable zones or devices, change sensor sensitivities, or carry out other functions. The activation of these inputs is not displayed as an alarm by the panel, but rather treated as a "silent" control function. The input circuit field wiring is monitored for open circuit.

Each input is allocated a unique address, and programmed to operate selected outputs or functions using the I/O-mapping function built into the panel. The ZP3AB-MIP8 board connects to the ZP3panel control bus. If allocated to the User Bus section, up to 768 addresses are available. These outputs are freely programmable. It does not operate on the pre-programmed System Bus section.

Figure 50: ZP3AB-MIP8 Input board



- * Each board is fitted with a Dipswitch, which is set to an address between 32 and 127. This determines the address of each input, as specified under *User bus address* on page 86.

The inputs are wired in 2-wire class-B single direction format. If connected to more than one contact, they must be daisy-chained from point-to-point, without spurs. Circuits must be terminated with a 2200-ohm, 0.5 W "end-of-line" resistor at the end of the circuit.

The board can be connected to the ZP3 panel auxiliary power supply terminals, or to an external 24 VDC power supply.

Note: If externally supplied, do not common the power supplies, i.e. do not connect the 0V of the internal and external power supplies together.

Chapter 4: Software programming

Introduction

The ZP3 fire control panel is a modular system with a powerful software programming capability. The system requirements are built from standard hardware modules, and the functional requirements are software programmed into the panel. The software programming system allows for software programming that meets the needs of virtually any required application.

The configuration can be programmed on a PC-computer using the "Ziton Planner 3" programme, and loaded into the panel. It can also be programmed directly into the panel via the fascia keyboard. Programming on a PC is the recommended method because it also allows you to produce a hardcopy of the system programming for record purposes.

The following main items/features can be programmed into the panel:

- Access control facilities
- Panel identification
- Standalone system or ZP-NET multipanel system
- Fire and non-fire functions
- Sensor allocation to zones
- Individual sensor/device location messages
- Zone identification/location messages
- Input - Output mapping
- Device type and address
- Alarm verification feature
- Sensor Sensitivity
- Sensor with attached sounder
- Loop sounders
- Panel sounders
- Sensor self-test
- Loop Isolators
- Delay on silencing sounders
- Printer and printer options
- Time stamping of event on-screen

Setup menu

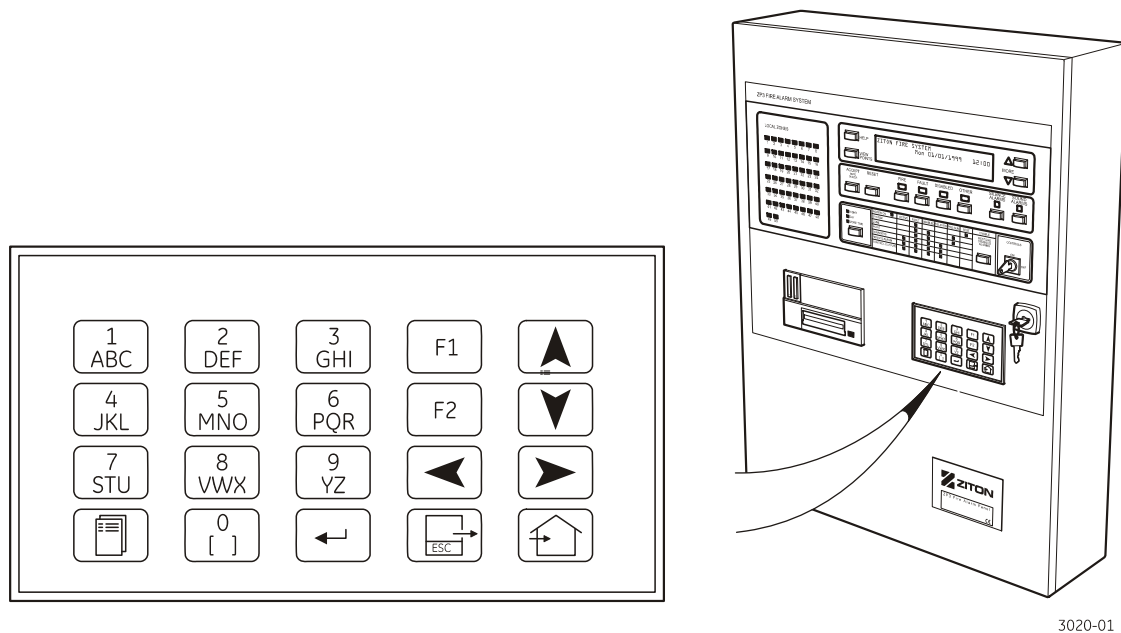
Menu operation

The panel programming functions are accessed via the setup menu, using the panel keypad. Menu functions are displayed on the LCD screen.

The keypad

The keypad is illustrated in Figure 51 and described in Table 8.

Figure 51: Keypad



3020-01

Table 8: Keypad description

Key/s	Name	Description
1 ABC	Numeric keys	Used to enter the number sequences
	MENU key	Gives access to the Menu Screen
	ENTER key	Used to confirm data entry and save data
	ESCAPE key	Exits a function and returns to the previous level
	HOME key	Exits all menu's and returns to the system home screen
F1 F2	FUNCTION keys	Used within certain menus
	NAVIGATION keys	Used to move up/down/left and right

Setup menu

The main menu is the entry point to all of the user operator accessible software functions. To access the main menu:

1. Press the MENU key (). The display shows the following (see Figure 52):

Figure 52: Main menu

```
MAIN MENU
1. Operator
2. Maintenance
3. Setup menu
```

3021-01


2. Press <3. Setup menu> to enter the Setup Menu. You are prompted to enter the access code.
3. Enter the setup (level 3) access code and press the Enter key (). The following screen appears (see Figure 53).

Figure 53: Setup menu

```
SETUP                                     MORE^
1. Zoning                               4. Sounders
2. I/O mapping                          5. Title message edit
3. Points                               6. System configuration
```

3022-01

The menu name is displayed on the top line, and the menu items are shown with numbers alongside. Menu items are selected by pressing the numeric key that matches the item number. Selecting a menu item may cause another menu to appear or may carry out a particular function. The operator may be prompted to enter the required information via the keypad.

Any menu can be cancelled and the previous menu presented by pressing the ESC key. The ESC key is used to cancel or abort the current activity and return to the previous activity.

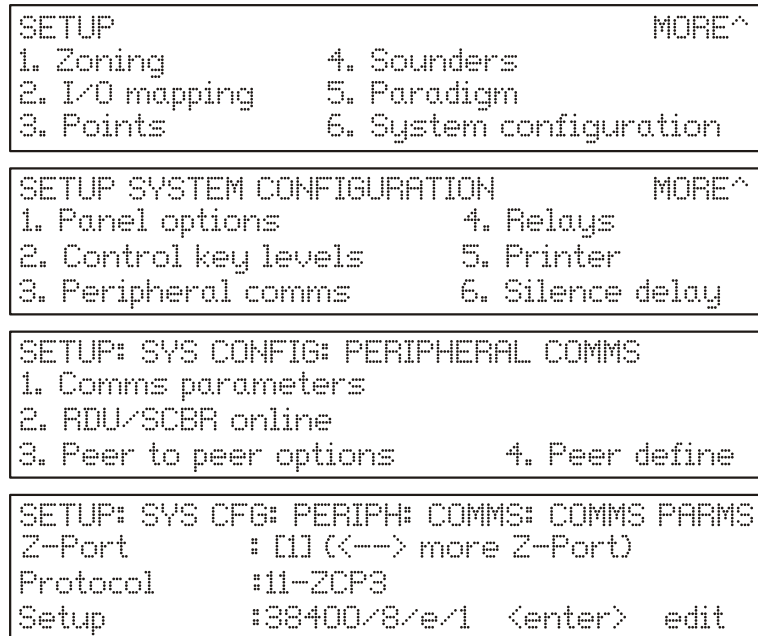
Exit the menu system completely by pressing the HOME key. This returns the panel to its normal operation display. To prevent a system from being inadvertently left in a menu, a time-out is built into the menu system, i.e. from the last time a key was pressed. In menu selection, the time-out is approximately 45 seconds, and if a software function has been started and not completed, then it is 12 minutes

The "Normal operation display" consists of either the "Home" screen showing either a title message + time and date (if panel is in quiescent condition) OR an alarm condition.



Programming menus

Some of the menus are used to set-up the configuration of devices or functions. Figure 54 shows some example displays, using the communications port setting parameters.

Figure 54: Programming menu examples



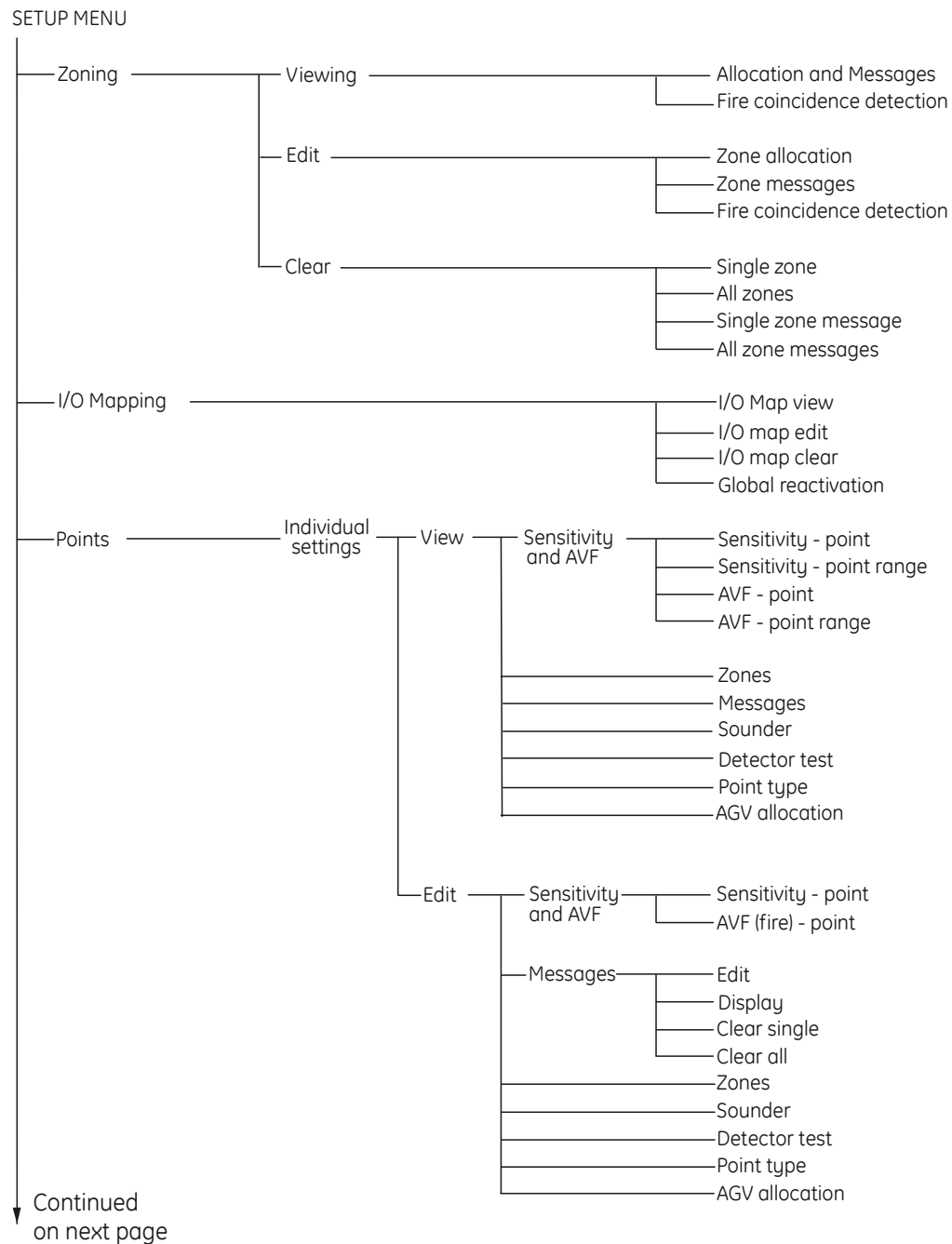
3023-01

1. Access the following menu: Setup/System configuration/Peripheral communications/Comm parameters.
2. Select the required port to configure as follows:
 - Use the up/down arrows to move the [] brackets up or down and select **Z-Port**.
 - Use the left/right arrows to select the required Z-port (i.e. 1 or 2).
3. Select the required communications protocol as follows:
 - Use the up/down arrows to move the [] brackets up or down and select **Protocol**.
 - Press the <Enter> key () A list of available protocols is displayed.
 - Select the required protocol using the up/down arrows, and press the <Enter> key.
4. Select the required communications protocol parameters as follows:
 - Use the up/down arrows to move the [] brackets up or down and select **Setup**.
 - Press the <Enter> key. A list of available parameters is presented.
 - Use the left/right arrows to move the [] brackets to each parameter and press the <Enter> key.
 - Select the required parameter using the up/down arrows, and press the <Enter> key.
 - Select [Done] after setting the required parameters, and press the <Enter> key.
5. Press <Esc> key () when complete to save the programming.

Menu structure

Figure 55, Figure 56 and Figure 57 show the menu structure of the Setup menu option.

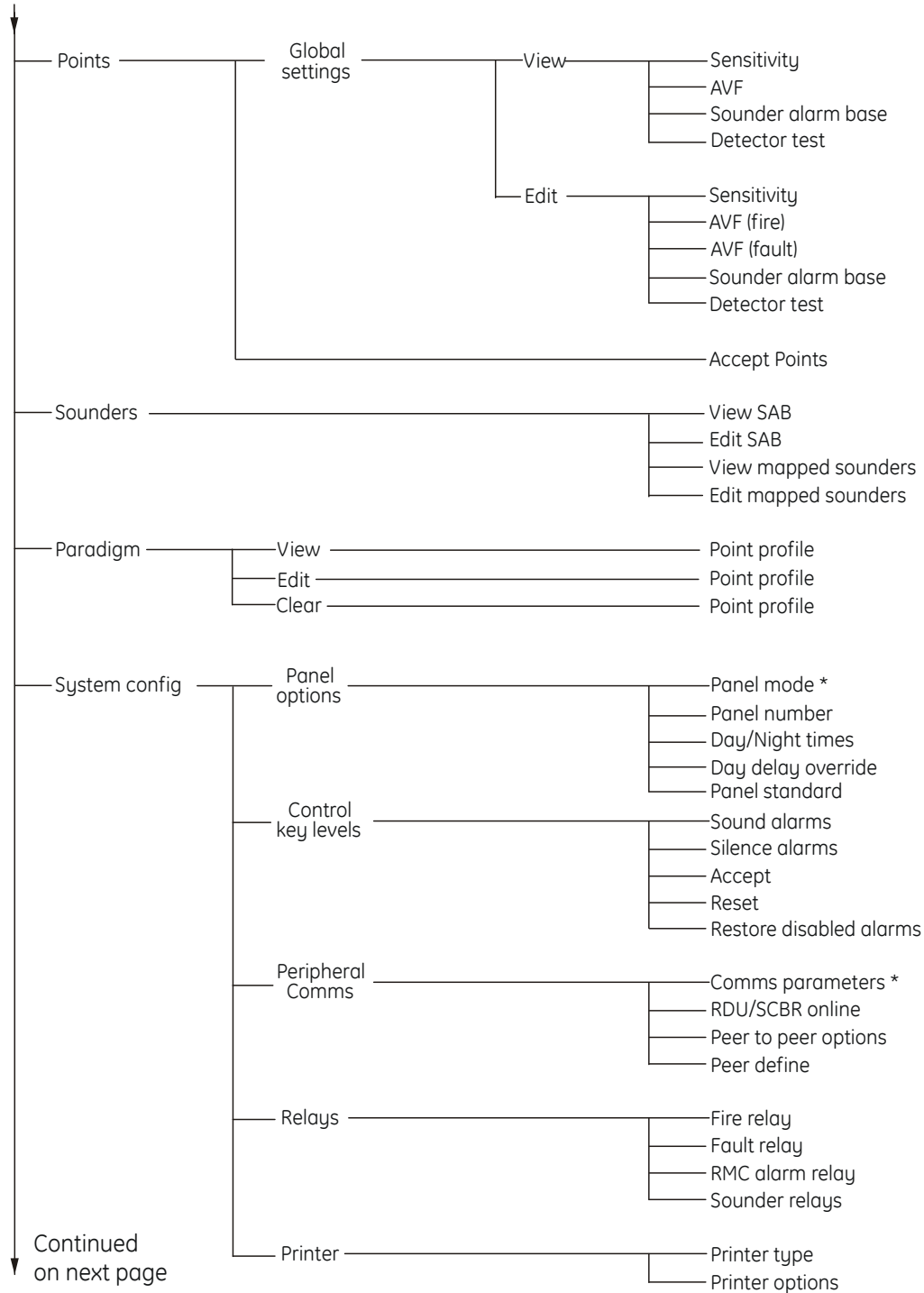
Figure 55: Menu structure (sheet 1 of 3)



3024-02

Figure 56: Menu structure (sheet 2 of 3)

SETUP MENU (continued)

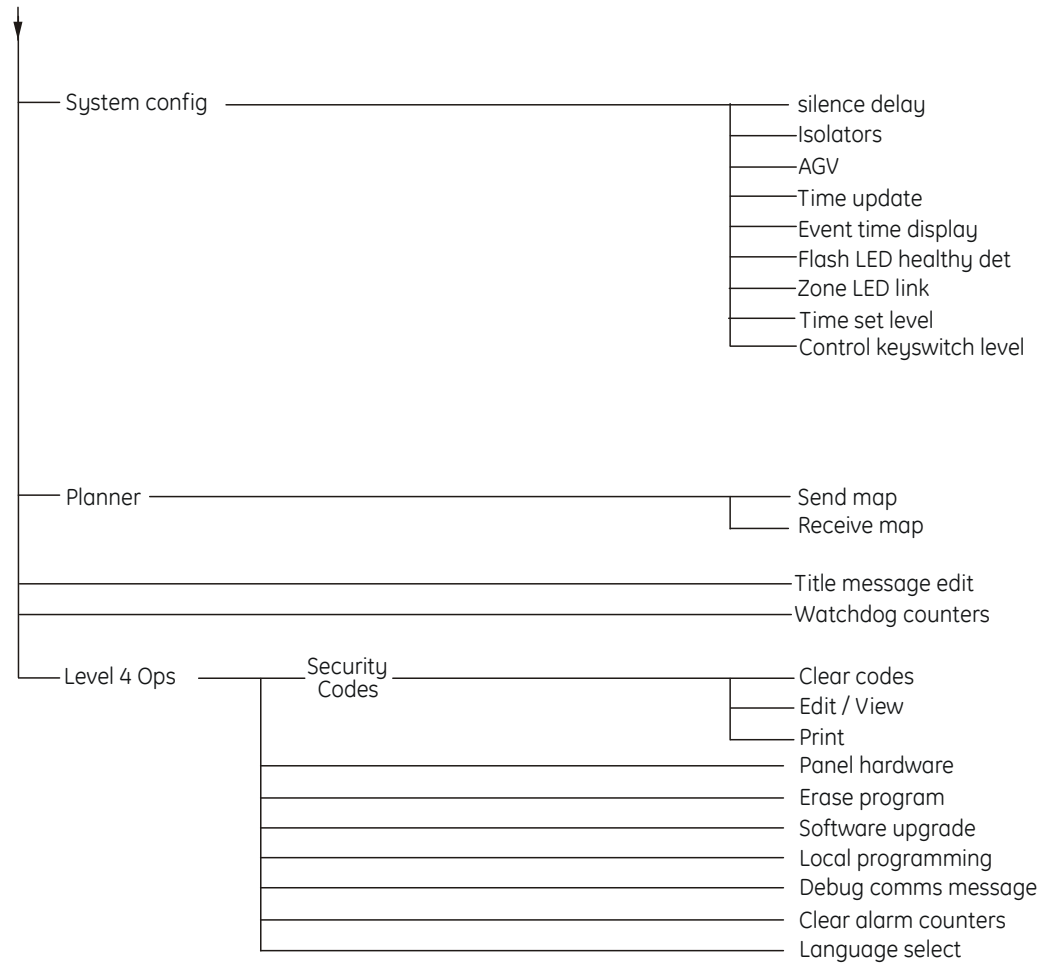


3025-02

* The starred items indicate that there are more menu options available.

Figure 57: Menu structure (sheet 3 of 3)

SETUP MENU (continued)



3026-02

Menu functions

Zoning

Buildings are divided into logical areas known as zones, in order to readily identify each location. The ZP3 fire panel displays fire and fault events by zone. Fire alarm input devices, such as sensors and callpoints, are assigned to a zone.

The menu path is: Setup/Zoning. The available options are provided in Table 9.

Table 9: Zoning options

Option	Description
Viewing	This option allows the devices assigned to a zone, with their type, and the zone message to be viewed. Enter the zone number. The address of the first point in that zone is displayed, together with the total number of devices assigned to the zone. Scroll to view other device addresses. It is also possible to view zones set for fire coincidence detection.
Edit	This option allows the user to assign devices to a zone, and create or edit the zone message. Zone allocation - Enter the zone number, use the numeric keys or the scroll feature to select points to be assigned to the zone. Use the F1 key to remove a point from within a zone. Zone messages - Enter the zone number, and use the keypad to enter the zone message. Fire coincidence detection - Enter the zone number.
Clear	This allows zone programming to be cleared (deleted). Options are; single zone clearing; all zone clearing; single zone message clear; all zone messages clear. A level 3 code is required before the information is deleted.

Title Message Edit

This menu allows programming of the home screen title message, which is displayed on the LCD screen when the system is in normal mode, i.e. when no alarms are active.

The menu path is: Setup/Title Message.

Watchdog Counters

The ZP3 panel processors are continually monitored. If a processor fails, it is restarted automatically, and a watchdog counter is incremented.

The menu path is: Setup/  /4.

The watchdog counters can be viewed in this menu. Use the F1 key to clear the counter.

I/O mapping

Input/output mapping interlinks inputs to outputs creating a "cause and effect" schedule. Up to 1000 outputs can be controlled, with 2000 inputs. Inputs and outputs can be assigned a range of attributes to create the required functions. Each input can be linked to several outputs, with different attributes for each.

The menu path is: Setup/I-O Mapping. The available options are provided in Table 10.

Table 10: I/O mapping options

Option	Description
I/O Map view	This option is used to view I/O mapping. Enter the output address to view and press <Enter>. The display shows the output address, its attributes, and its identification message. It also shows the total number of outputs mapped. Using the scroll feature displays the linked inputs, and their attributes.
I/O map edit	<p>This menu allows the user to add new I/O map entries, or edit existing entries. Proceed as follows:</p> <ol style="list-style-type: none"> 1. Enter the output address, and press <enter> (I). The output is shown, with default attributes, which can be changed. Use F2 to create (or edit) an output identification message. Select [done] when complete. 2. The display switches to the input screen, and allows inputs to be assigned. Each input address entered is presented with default attributes, which can be changed. Select [done] when complete, and the next input is presented. 3. Press <ESC> key to select the next output address after all inputs are assigned. 4. Press <Home> to exit the menu, and save the I/O mapping once complete.
I/O map clear	This option is used to clear (delete) all I/O mapping entries. A level 3 code is required before the I/O map can be deleted.
Global reactivate	<p>This option is used to globally set the "reactivation" rules for outputs that have been defined as "silencing". It also defines their behaviour after they have been silenced, when a second alarm is received. Two options are available:</p> <p>"Own I/P's" - This means that if the output is silenced, it only reactivates if a second alarm is received from an input that is mapped to it.</p> <p>"Any Fire" - This means that if the output is silenced, it reactivates from any second alarm, regardless of source.</p>

Points: individual setting: view

This menu enables the operator to view the configurations of individual points connected to the Z-loops.

The menu path is: Setup/Points/Individual Settings/View. The available options are provided in Table 11.

Table 11: Individual point settings view options

Option	Description
Sensitivity/AVF	View the sensitivity to which a sensor is set. The following options are available after accessing this menu: Sensitivity point: - Sensitivity settings for an individual point. Enter the point address. The device type, zone and sensitivity settings are displayed. Use the scroll feature to view the next/previous point. Sensitivity point range - Sensitivity settings viewed on a group basis by zone and device type. Enter the zone range (or all), and the device types (or all) and then use the scroll feature to view. AVF point: - Alarm verification settings for an individual point. Enter the point address. The device type, zone and AVF setting are displayed. Use the scroll feature to view the next/previous point. AVF point range - Alarm verification settings viewed on a group basis by zone and device type. Enter the zone range (or all) and device type (or all) and then use the scroll feature to view.
Zones	View the point addresses of all devices allocated to a zone. Enter the zone number to be viewed. The zone number and first point address in that zone is displayed. Use the scroll feature to view the next/previous address in that zone.
Messages	View the identification message assigned to each point address. Enter the point address. The message is displayed. Use the scroll feature to view the previous/next point address.
Sounder	View which sensors are fitted with sounder bases. The address of the first sensor with sounder base is displayed together with the total number of sensor/sounder base points. Use the scroll feature to view the list.
Detector test	View which sensors have their self-test feature enabled. Enter the point address for the point to be viewed. Use the scroll feature to view the previous/next point.
Point type	View which the type of device at each address. Enter the point address. The device type is displayed. Use the scroll feature to view the previous/next address.
AGV allocation	View which sensors are allocated into each "Alarm Group". See the "Edit" section for more details on AGV.

Points: individual settings: edit

This menu enables the operator to configure devices connected to the Z-loops.

The menu path is: Points/Individual Settings/Edit. The available are provided in Table 12.

Table 12: Individual point settings edit options

Settings menu	Description
Sensitivity/AVF	<p>There are four sensitivity levels for each point. This option allows the user to set the sensitivity of devices using the following options.</p> <p>Sensitivity point: - Enter the point address. The current sensitivity is displayed, and can be changed. Scroll to select the next point address.</p> <p>AVF (Fire) point: - With alarm verification enabled, smoke must be present for a period before the sensor gives an alarm. Enter the point address. The setting (AVF on or off) is displayed, which can be changed. Scroll to select the next point address.</p> <p>Note: The AVF setting for a fault condition is Global, not individual.</p>
Zones	<p>Allocate Z-loop devices to a zone, or remove devices from a zone. Enter the zone number. The first point address, and number of devices in the zone is displayed. Scroll to view the other point addresses in the zone. To add a new device to the zone, enter a new point address. To delete an existing device, display its point address and press the F1 key.</p>
Messages	<p>Create or edit identification messages for each point address. In the "Edit" mode, the panel keyboard keys are used. Messages can be up to 40 characters in length. Options are provided to delete messages.</p>
Sounder	<p>Create a list of sensors that are fitted with sounder bases (SAB). A current list is shown, which can be scrolled. To add a new sensor, enter the point address. To delete a sounder base entry, use the F1 key.</p>
Detector test	<p>Enable or disable the self test function of each sensor. Enter the point address. The screen indicates whether the self-test is on or off. To edit a new sensor, enter the address or scroll.</p>
Point type	<p>This allows the device type at the point address to be defined i.e. heat sensor, optical smoke sensor, callpoint, etc. This is an optional field as the panel normally learns the device type automatically.</p>
AGV allocation	<p>This allows the point addresses which physically exist between loop isolators to be defined. This is an optional field as the panel normally learns the addresses automatically.</p>

Points: global settings: view

This menu provides a view of the attributes of point addresses on a zonal basis. Enter a range of zones, for example 1 - 1, or 3 - 5, or "all".

The menu path is: Points/Global Settings/View.

Scroll point addresses. The view options available for each address are provided in Table 13.

Table 13: Point addresses view options

Address attribute	Remarks
Sensor sensitivity	View sensitivity settings of devices
AVF (Alarm Verification Function)	Enabled or disabled
Sounder base	Present or not
Detector self-test	Enabled or disabled

Points: global settings: editing

This menu provides the ability to simultaneously programme a set of attributes for a group of point addresses as follows.

The menu path is: Points/Global Settings/Editing.

After programming globally with this menu, individual devices that need different attributes can be changed in the Points menu. Scroll point addresses. The edit options available for each address are provided in Table 14.

Table 14: Point addresses edit options

Address attribute	Remarks
Sensor sensitivity	High, medium, standard, low
Fire AVF (Alarm Verification Function)	Enabled or disabled
Fault AVF (Alarm Verification Function)	Enabled or disabled (Note: Global only)
Sounder base	Present or not
Detector self-test	Enabled or disabled

Points: accept points

Selecting this menu instructs the panel to carry out a self-learning process, to accept all current devices attached to the Z-loops, or peripheral boards, as the current system configuration. The panel displays the message "Accepting points..." and counts down to zero (0). On completion, the panel displays "Calibrating...". If a device was not accepted, it is shown as "unaccepted".

The menu path is: Setup/Points/Accept Points.

Sounders

This menu provides the tools for setting up system sounders. Loop devices and panel outputs that operate sounders must be defined as such to the panel to ensure that they behave correctly.

The menu path is: Setup/Sounders or Setup/Pnts/INDN. The available sounder setup options are provided in Table 15.

Table 15: Sounder setup options

Option	Description
View SAB	View which Z-loop sensors have been defined as having a sounder base (SAB). The point address of the first sensor is displayed, plus the total number of sounder bases. Scroll to view the list.
Edit SAB	Define which sensors have a sounder base. Add or delete a point address.
View mapped sounders	View of all outputs (Z-loop and panel outputs), which have been defined as sounders in the I/O mapping tables. Scroll to view the list.
Edit mapped sounders	Define which outputs are sounders. The point address of the first sounder is displayed, plus the total number sounders in the list. Scroll to view the list. Addresses can be added to or deleted from the list.

Paradigm

This menu is used to set the properties of Paradigm sensors. These properties define the performance characteristics of each sensor, and are selected according to the location of the each sensor, and the type of response required from a fire, as well as the sensors resistance to false alarms. See the section on "Sensor response settings" for details on how to choose appropriate settings for each sensor.

The menu path is: Setup/Paradigm. The paradigm sensor setup options are provided in Table 16.

Table 16: Paradigm sensor setup options

Option	Description
View/Point Profile	View the profile assigned to each Paradigm sensor. The point address of the first Paradigm sensor is displayed, together with its profile code. Scroll to view the list.
Edit/Point Profile	Allocate a profile to each Paradigm sensor. Enter a point address, and a configuration menu appears. Two different profiles can be assigned to each Paradigm sensor, one for Day operation, and one for Night operation.
Clear/Point Profile	Restores a Paradigm point address to the default Paradigm profile.

System configuration: panel options

This menu is used to set the common functions of the panel.

The menu path is: Setup/System Configuration/panel options. The Panel Options section sets the following global panel functions (see Table 17).

Table 17: Panel configuration options

Option	Description
Panel mode	Define whether the panel is to operate in standard or day/night mode. In standard mode, all functions remain the same regardless of the time of day. In day/night mode, functions and alarms operate differently during day and night hours.
Panel number	Each fire panel must be given a unique number 001 to 255.
Day/Night times	Day/Night panels change to night mode each evening at a preset time. This menu sets the changeover times for each day of the week.
D/delay override	Allows callpoints to be excluded from the "Day delay" alarm delay period.
Panel standard	Allows panel to be configured to a specific standard: EN54 – 1997 (Classic/UK) EN54 – 2005 (Sweden etc.) CP10 – Singapore

System configuration: control key levels

This menu is used to set the common functions of the panel.

The menu path is: Setup/System Configuration/Control Key Levels. The Control key levels menu sets the access levels for the following functions (see Table 18).

Table 18: Function access level options

Option	Description
Sound alarms	Define required access level [1-open access, or 2 (or higher) restricted access] for the [SOUND ALARMS] control key.
Silence alarms	Define required access level [1-open access, or 2 (or higher) restricted access] for the [SILENCE ALARMS] control key.
Accept	Define required access level [1-open access, or 2 (or higher) restricted access] for the [ACCEPT/SILENCE BUZZER] control key.
Reset	Define required access level [1-open access, or 2 (or higher) restricted access] for the [RESET] control key.
Restore disabled	Define required access level [1-open access, or 2 (or higher) restricted access] for the [RESTORE DISABLED ALARMS] control key.
Note:	Level-1 allows open access and Level-2 (or higher) requires a password before the control key operates. The panel's "controls" key switch must be in the ON position in both cases. See also the "Control k/switch" option in Table 22 on page 76.

System configuration: peripheral comms

This menu is used to set the common functions of the panel. It allows for the setup of the communications parameters for networked panels, and for the SCB-bus connected to remote display units and remote control units).

The menu path is: Setup/System Configuration/Peripheral comms. See Table 19 for available options.

Table 19: System configuration – peripheral comms options

Option	Description
Comms	Defines port number, comms protocol, baud rate parameters, number of bits, parity, and stop bits.
RDU/SCBR online	Specifies quantity of RDU's (remote display units) and RCU's (remote control units) connected to panel via SCB-bus. Maximum is 63.
Peer options	In networks, each panel must mark as [ONLINE] the address numbers of all the other panels that it must communicate with. Each panel must also define the type of information and control functions to send to the other panels in the network.
Peer define	Defines the properties of all network panels, e.g. number of loops, zones, and communication ports.

System configuration: relays

This menu is used to set the common functions of the panel. The Relays menu allows for the setup of the standard built-in relays.

The menu path is: Setup/System Configuration/Relays. The following options are available (see Table 20).

Table 20: System configuration relay setup options

Option	Description
Fire Relay	The common fire relay can be set to normally de-energised (open contact, closing on alarm) or normally energised (closed contact, open on alarm). The latter state is described as "inverted" in the menu.
Fault Relay	The common fault relay can be set to normally energised (open contact, closing on alarm) or normally de-energised (closed contact, open on alarm). The latter state is described as "inverted" in the menu.
RMC Alarm	The remote manned centre output is connected to RMC-routing equipment. It should be set to restore only after a reset.
Sounder Relays	The sounder outputs (4 outputs, controlled from 2 addresses) can be set to operate as "common", from any alarm, or as programmable. If set to programmable, then they must be linked to activating inputs in the I/O-menu.

System configuration: printer

This menu is used to set the common functions of the panel. The Printer menu allows for the setup of the optional in-panel printer.

The menu path is: Setup/System Configuration/Printer. The following options are available (see Table 21).

Table 21: System configuration printer setup options

Option	Description
Printer type	Allows the type of printer to be defined. Current types are: 1. NONE no printer attached 2. Able-24/25 panel printer (3. Able-24+IN) panel printer 4. Serial desktop external printer 80 column
Printer options	Defines the information to be printed,. categories are: 1. Fire Alarm 2. Fault 3. Panel Operation 4. O/P Activation

System configuration: [various]

This menu is used to set the common functions of the panel. This section describes various other options available in this menu.

The menu path is: Setup/System Configuration/[as below]. The following options are available (see Table 22).

Table 22: Various system configuration setup options

Option	Description
Silence delay	Allows the SILENCE ALARMS key to be delayed to prevent the alarm sounders from being silenced (turned off) too soon, before being heard. Enter the required silence delay time required in seconds.
Isolators	Define the quantity of isolators installed per Z-loop, range 0-16.
AGV (Alarm Group Verification)	Specifies whether the Alarm Group Verification (AGV) function is enabled or disabled. Two modes are provided: Address group check - When enabled, the panel verifies that the correct device addresses exist between loop isolators Partial short check - When enabled, checks for partial short circuits and data corruption, isolating the cause with the loop isolators
Time update	When this menu is [ENABLED], setting the time and date in a panel, which is part of a network of panels, causes the time and date of all the panels in the network to be updated.
Event time disp	Enabling this function causes the time of each alarm to be displayed on the LCD display. This reduces the number of characters visible for the zone message by 6. See also <i>Zone identification messages</i> on page 80.
Flash healthy LED	With this function enabled, the LED's on sensors and line devices flash once every 20 seconds to indicate that the device is present and healthy. When a device is in alarm, the LED flashes once every 2 seconds. With this function disabled, the LED's remain off when the device is normal.
Zone LED link	The zone LED's can be set to be automatically linked to the system zones, or to be programmed to different zones with I/O-mapping. This menu defines whether the zone LED's are zone-linked or programmable.
Time set level	This function enables either free access to the "set time" facility, or limits access to access level 2.
Control k/switch	This function causes the RDU's Controls Enable/Disable keyswitch to be linked to the level 2 access code, allowing it to be used for level 2 access from RDU's, which do not have keypads with which to enter a passcode. Note: For this to operate, the RDU's Control's key switch must be wired into the required "Reserved terminal" of its display board in place of the "Controls Off" terminal.

Planner

Most of the programming of a ZP3 system is done by means of software. This can be done directly via the panel menus, or it can be done off-line on a PC, using Ziton Planner software, and loaded into the panel by means of a serial data connection. After being loaded into the panel, minor modifications can be done to the programming, directly via the panel menus. In this case, it is possible to load the programming from the panel back to the PC, for saving to disk, and hard-copy printout and record keeping.

The menu path is: Setup/Planner. Menu options available are as follows (see Table 23).

Table 23: Planner setup options

Option	Description
Send map	This function is used to send the programmed data that exists in a ZP3 panel to an external PC.
Receive map	This function is used to receive programmed data from a PC.

Note: The preferred baud rate settings when using Planner to configure a ZP3 panel are:

	Baud rate	Data Bits	Parity	Stop bits
Receive	38400	8	Even	1
Send	9600	8	Even	1

Alternatively you can set Z-Port 1 to 'ZCP3' to allow control directly from Planner.

Level 4 operations

These are high-level operations for use by a senior administrator of the fire system, to carry out settings that cannot be changed by installation, maintenance, or operation personnel.

The menu path is: Setup/Level 4 operations. The following options are available (see Table 24).

Table 24: Level 4 operation setup options

Option	Description
Security codes	<p>Allows you to define panel access codes as follows:</p> <ol style="list-style-type: none"> 1. Operator 2. Maintenance 3. Setup 4. Level 4 <p>In addition, the access system allows you to enter up to 20 (optional) operator names. Each name can have a different 4-digit numeric access code, and have an access level of 1-4.</p> <p>Clear - This menu allows you to delete all the access codes. The existing level4 code is required for deletion and a new level4 code is required.</p> <p>Edit/View - This menu allows for viewing, adding new codes, and deleting codes. The first operator, code and access level is displayed. Scroll to display other entries. Displayed entries can be deleted. To add an entry, scroll to the end of the list and enter the required details.</p> <p>Print: - This option generates a printed record of all existing Operator names, codes and levels, to provide a hard copy record.</p>
Local Program'ng	<p>A setting to allow programming to be done by two options, as follows:</p> <p>Local programming enabled - Panel can be programmed directly from the keypad (level3 access), or externally by PC and loaded into the panel.</p> <p>Local programming disabled - Panel cannot be programmed via the keypad, it can only be programmed externally by PC and loaded into the panel.</p>
Erase program	Selecting this option deletes all user programming and restores all configuration settings to the factory defaults.

Option	Description
S/ware upgrade	Selecting this option allows you to load new operating software into the panel from a PC using the following baud rate: 38400 8 Even 1 Loading new software does not lose or affect configuration programming.
Debug comms	View data received on Z-Port 1 and 2 or other diagnostic information on other virtual ports.
Panel hardware	Defines the hardware configuration, ie, loops, zones, and power options.
Clr alrm counters	Resets the alarm counters to zero.
Language	The ZP3 panel has facilities for 2 languages, English and one extra language. This menu defines the default language that the panel will use. An alternative foreign language may be loaded - applicable to software version 3.02 and higher. This was not available on version 3.00. Note that the appropriate version language file must be used. Refer also to the ZP3 language loading procedure, which may be found in the Planner User Guide, document number 503-1436ZE-U-05

Chapter 5: System configuration

System specification

To setup the system configuration, it is necessary to prepare a detailed system specification. This specification will also be used in the future maintenance of the system. The specification should contain the following information:

General information

A system schematic should be prepared, showing all the panels, and auxiliary boards and modules, in the system. The schematic should show the Z-loops, with the devices and loop isolators.

A list of all sensors and devices must be prepared, with device types, location details, and point addresses. Drawings should be available showing loop wiring runs, with the positions and point address of each device, and the positions of each loop isolator. A schedule of loops, with the loop length, wiring size, and number and type of devices on each loop should be produced.

Input-output mapping

Input/output mapping is software defined rules that allow the inter linking of inputs to outputs creating a "cause and effect" schedule. This is described in more detail in the *Input-output mapping* on page 82.

Panel identification

Each panel must be assigned a unique number between 1 and 255. A title message, which displays on the screen in the "normal" condition, is optional. If specified, it can be up to 40 characters in length, and defaults to "Fire Alarm System".

Menu access codes

The panel uses four levels of passwords to control access to menus. A 4-digit numeric access code must be specified for each of the three controlled access levels [LEVEL4], [SETUP], and [MAINTENANCE]. [OPERATOR] is an uncontrolled level.

Control key access levels

A facility is provided to prevent unauthorised operation of control keys on the panel fascia. Each of the four main control keys [ACCEPT], [RESET], [SILENCE-ALARMS], and [SOUND-ALARMS], can be individually assigned an access level. If unassigned, controls operate at level 1, which is uncontrolled.

Local programming

The panel may be configured so that it can be programmed from the fascia keypad, or not. If NOT set to local programming, then it can only be programmed via a PC, and downloaded into the panel. This can provide a higher level of security to prevent unauthorized on-site changes to the configuration.

Networking

Panels must be defined as standalone or part of a network.

Zone allocation

All input devices on a loop must be assigned to a zone. This includes sensors, callpoints, and interface units. Output devices such as sounders and line relays can be optionally zoned if required. Zones must be specified and numbered, and the point addresses belonging to each zone must be defined.

Zone identification messages

Each zone requires an identification message. The message displayed in the "Points" view can be up to 29 characters in length (on networked panels due to the panel numbers field) or 33 on standalone panels. If the feature, which displays the time of each alarm on-screen, is enabled, then the visible space for the zone message is reduced by 6 characters. It is not necessary to include the zone number in the message, as this is displayed automatically. All 40 characters are logged on the printer.

Point information

The address of each point to be used in the system must be defined, together with the type of device at each point address.

Device identification message

Each device in the system has an identification message, which is tagged to the point address of the device. For Z-loop devices this message can be up to 40 characters in length. For panel outputs, the message can be 10 characters in length.

Detector self-test

ZP700 series sensors have a self-test capability that is used by the panel to automatically test them every 24 hours. This test is optional, and can be specified on a device-by-device basis. Certain devices on the loop (for example, conventional detectors connected via interface units), do not have a self-test facility, and would have this function disabled. The default setting is [SELF-TEST OFF].

Sounder bases

A sensor can be connected to a sounder alarm base (SAB), providing the ability to provide an audible alarm at each sensor. The point address of each sensor fitted with a sounder base must be specified, and whether the sounder is powered from the Z-loop, or externally powered. This is dependent upon the number of base sounders, the required sound output (in decibels), and the size and length of loop cabling. Refer to the relevant base sounder application documentation for more information.

Loop sounders

Sounders can be connected directly to the Z-loop, and assigned their own point address. The point address of each loop device, which is a sounder, must be specified, in order for it to behave correctly. In addition, it must be specified whether the sounder is powered from the Z-loop, or externally powered. This is dependent upon the number of base sounders, the required sound output (in decibels), and the size and length of loop cabling. Refer to the relevant loop sounder application documentation for more information.

Panel sounders

Panel sounders are attached to the panel in two ways:

- Standard built-in sounder outputs, a quantity of 4 – paired on 2 addresses
- Optional sounder outputs, quantity dependent upon the number of boards installed.

Sounders can be connected directly to panel outputs, or to remote panel outputs. All sounders can be programmed to operate on a "common alarm", or to be individually configurable by means of I/O-mapping. All sounder outputs have their own panel point address. The point address of each panel output which is connected to a sounder must be specified as a "sounder output", in order for it to behave correctly. Panel sounders are usually powered from the panel power-supply, but can also be powered by an external power supply. This is dependent upon the number of sounders, the required sound output (in decibels), and whether the sounders are connected to the panel, or to a remotely located RCU-panel.

Z-loop isolators

Number of loops, and number of loop-isolators on each loop, must be specified. In addition the location of each isolator must be shown either on the schematics, or on the layout drawings. Up to 16 loop isolators (limited to 11 to comply with EN54 specification) can be installed on a loop. The panel includes 2 built-in isolator relays, giving a total of 12 isolated sections of cable.

Common relays

The normal state for common fire and fault relays must be defined. The defaults are; fire relay (normally de-energised) and fault relay (normally energised).

Printer

Specify whether a panel printer is to be fitted, and specify the type of events that must be printed. Events are categorized into Fire Alarms, Fault Alarms, Panel Operations and Outputs Activated.

Alarm time display

Specify whether the time of each alarm must be displayed on-screen or not. This information is always printed on the printout.

Silence delay

A delay can be programmed to the SILENCE ALARMS key in order to prevent the system sounders being silenced (turned off) too soon in the event of a fire alarm. The time can be set between 0 (no delay) and 600 seconds.

Cause and effect functions

Input-output mapping

Input/output mapping is software defined rules that allow the inter linking of inputs to outputs creating a "cause and effect" schedule. Up to 2000 input triggers may be configured to link with up to 896 outputs. This allows that multiple input conditions can be defined for each output.

The full details of every input/output map link need to be specified. An address must be specified for each output and each input. The options to be configured for a mapping link are:

Output parameters

Output mode

The output mode defines whether the output is silencing, non-silencing, dynamic, or pulsed. Pressing the **SILENCE ALARMS** key on the panel turns-off the silencing outputs. Non-silencing outputs turn-off when the panel is reset. If the output mode is set to dynamic then the output ignores the silence or reset keys, and follows the input trigger, i.e. it switches off when the input is deactivated. A pulsed response activates the output for a single programmable period (selectable in seconds up to 2 hours, 11 minutes and 15 seconds) after activation.

The mode also indicates if the output is triggered by any one of its inputs (single-knock), or whether it requires two input triggers (double-knock).

Output re-activate mode

This applies to silencing outputs only. This allows an output that has been silenced (from a previous alarm) to be re-activated by two options; either from any new fire alarm in the system (labelled as 'Any' in the re-activation mode), or only by a new alarm from input devices that are already linked to it in the I/O map (labelled as 'Own' in the re-activation mode), or only by a new alarm from input devices that are already linked to it in the I/O map.

Output delay

When an output is triggered, it can be given an elapsed time delay of 0 to 600 seconds until it activates.

Normal output state

Each output can be individually defined to be normally off (de-energised in the non-alarm condition, energising on alarm) or normally on (energised in the non-alarm condition, de-energising on alarm). The default setting is "Normally Off".

Sounders/control outputs

Each output that is defined to operate sounders, should be specified as such. Note that outputs declared as sounders will always be silencing, and this setting takes precedence over the I/O mapping setting. These are intended for extinguishing + ventilation control, etc. Outputs defined to operate as control outputs should be defined as such.

Input parameters

Input mode

The input can be set to operate its linked output as Steady, Flash Fast, Flash Slow or Disable. The "Disable" option is used when an input address, e.g. a key switch is used to disable one or more outputs, for example for routine maintenance. Note that panel outputs can be set to fast or slow intermittent operation, whereas Z-loop devices have only one flash rate. On multi-tone sounders, these correspond to different tones.

Input device type

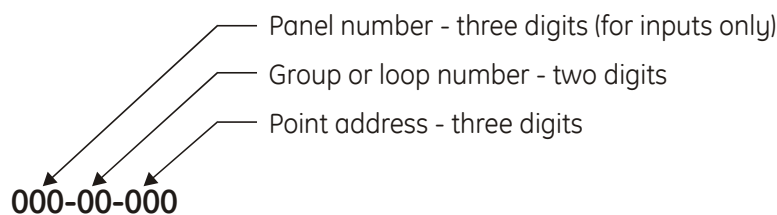
The device type of the input may be defined as a general device, line device, or a gas control unit. The type setting determines what trigger events are available to activate an output.

Trigger

Each input can be set to trigger the output on certain types of event, defined by its type. Sensors can activate outputs from fire, fault, pre-alarm, service or disabled alarms.

Point address structure

Input /Output mapping is a software defined rule that defines a set of input triggers that activate an output. One or more inputs may be linked to an output. Each input and output has an address, which must be specified when setting an I/O mapping link. Each address consists of three elements as follows.



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The ZP3 panel incorporates one control-bus, with 1024 addresses, which can be either inputs or outputs. Refer to the address list for details. These addresses are in 2 groups:

No.	Name	Addresses	Description
1	System Bus (Group 09)	000 - 255	Controls panel functions, including zones, common leds, and control keys. Can be used for external mimic functions. These outputs are pre-programmed.
2	User Bus (Group 10)	000 - 767	Freely programmable.

The group-09 range of addresses is pre-programmed by default to carry out certain functions, for example, illuminate zone LED's. Alternatively 9.001 to 9.128 can be configured to be freely programmable. Where connected outputs are set to addresses in the group-09 range, then these outputs will automatically mimic the behaviour of the pre-programmed functions. For example, an output board set to the same address as the zone LED's, will automatically mimic these LED's, without any panel programming being required.

The group-10 range of addresses is freely programmable. Any outputs connected to the system, and with their addresses set to any of the group-10 range, would have to be programmed using the I/O-Mapping function, before they would operate.

Auxiliary board addresses

The ZP3 auxiliary boards can be set to assume any address in the System Bus (group 9) or User Bus (group 10) address range. Auxiliary boards have 8, 16, or 24 points, which are addressed sequentially from a base address. The base address is determined by the Dipswitch settings on each board. Refer to the information under *System address list* on the next page.

Dipswitch settings between 0 and 31 set the addresses within the System Bus (09) range (Switch 8 - ON).

Dipswitch settings between 32 and 127 set the addresses within the User Bus (10) range (Switch 8 - OFF).

System address list

System bus addresses

The following are System Bus (group-09) addresses. They are pre-programmed, and cannot be changed from the specified functions. Outputs can be linked to these addresses to automatically mimic their functions.

Note: Accessory board Dipswitch 8 must be set ON to link to the System Bus.

Auxiliary Board Dipswitch Setting	System Bus Address	Function	Auxiliary Board Dipswitch Setting	System Bus Address	Function
000	000	Zone 0 Fire LED	003	024	Zone 24 Fire LED
	001	Zone 1 Fire LED		025	Zone 25 Fire LED
	002	Zone 2 Fire LED		026	Zone 26 Fire LED
	003	Zone 3 Fire LED		027	Zone 27 Fire LED
	004	Zone 4 Fire LED		028	Zone 28 Fire LED
	005	Zone 5 Fire LED		029	Zone 29 Fire LED
	006	Zone 6 Fire LED		030	Zone 30 Fire LED
	007	Zone 7 Fire LED		031	Zone 31 Fire LED
001	008	Zone 8 Fire LED	004	032	Zone 32 Fire LED
	009	Zone 9 Fire LED		033	Zone 33 Fire LED
	010	Zone 10 Fire LED		034	Zone 34 Fire LED
	011	Zone 11 Fire LED		035	Zone 35 Fire LED
	012	Zone 12 Fire LED		036	Zone 36 Fire LED
	013	Zone 13 Fire LED		037	Zone 37 Fire LED
	014	Zone 14 Fire LED		038	Zone 38 Fire LED
	015	Zone 15 Fire LED		039	Zone 39 Fire LED
002	016	Zone 16 Fire LED	005	040	Zone 40 Fire LED
	017	Zone 17 Fire LED		041	Zone 41 Fire LED
	018	Zone 18 Fire LED		042	Zone 42 Fire LED
	019	Zone 19 Fire LED		043	Zone 43 Fire LED
	020	Zone 20 Fire LED		044	Zone 44 Fire LED
	021	Zone 21 Fire LED		045	Zone 45 Fire LED
	022	Zone 22 Fire LED		046	Zone 46 Fire LED
	023	Zone 23 Fire LED		047	Zone 47 Fire LED

Auxiliary Board Dipswitch Setting	System Bus Address	Function	Auxiliary Board Dipswitch Setting	System Bus Address	Function
006	048	Zone 48 Fire LED	010	080	Zone 80 Fire LED
	049	Zone 49 Fire LED		081	Zone 81 Fire LED
	050	Zone 50 Fire LED		082	Zone 82 Fire LED
	051	Zone 51 Fire LED		083	Zone 83 Fire LED
	052	Zone 52 Fire LED		084	Zone 84 Fire LED
	053	Zone 53 Fire LED		085	Zone 85 Fire LED
	054	Zone 54 Fire LED		086	Zone 86 Fire LED
	055	Zone 55 Fire LED		087	Zone 87 Fire LED
007	056	Zone 56 Fire LED	011	088	Zone 88 Fire LED
	057	Zone 57 Fire LED		089	Zone 89 Fire LED
	058	Zone 58 Fire LED		090	Zone 90 Fire LED
	059	Zone 59 Fire LED		091	Zone 91 Fire LED
	060	Zone 60 Fire LED		092	Zone 92 Fire LED
	061	Zone 61 Fire LED		093	Zone 93 Fire LED
	062	Zone 62 Fire LED		094	Zone 94 Fire LED
	063	Zone 63 Fire LED		095	Zone 95 Fire LED
008	064	Zone 64 Fire LED	012	096	Zone 96 Fire LED
	065	Zone 65 Fire LED		097	Zone 97 Fire LED
	066	Zone 66 Fire LED		098	Zone 98 Fire LED
	067	Zone 67 Fire LED		099	Zone 99 Fire LED
	068	Zone 68 Fire LED		100	Zone 100 Fire LED
	069	Zone 69 Fire LED		101	Zone 101 Fire LED
	070	Zone 70 Fire LED		102	Zone 102 Fire LED
	071	Zone 71 Fire LED		103	Zone 103 Fire LED
009	072	Zone 72 Fire LED	013	104	Zone 104 Fire LED
	073	Zone 73 Fire LED		105	Zone 105 Fire LED
	074	Zone 74 Fire LED		106	Zone 106 Fire LED
	075	Zone 75 Fire LED		107	Zone 107 Fire LED
	076	Zone 76 Fire LED		108	Zone 108 Fire LED
	077	Zone 77 Fire LED		109	Zone 109 Fire LED
	078	Zone 78 Fire LED		110	Zone 110 Fire LED
	079	Zone 79 Fire LED		111	Zone 111 Fire LED

Auxiliary Board Dipswitch Setting	System Bus Address	Function	Auxiliary Board Dipswitch Setting	System Bus Address	Function
014	112	Zone 112 Fire LED	018	144	Points Disabled LED
	113	Zone 113 Fire LED		145	Info LED
	114	Zone 114 Fire LED		146	Alarms Delayed LED
	115	Zone 115 Fire LED		147	Rem/ Alarm Delayed LED
	116	Zone 116 Fire LED		148	GC Function Delayed LED
	117	Zone 117 Fire LED		149	Day Mode LED
	118	Zone 118 Fire LED		150	Test Condition LED
	119	Zone 119 Fire LED		151	Point Alarm LED
015	120	Zone 120 Fire LED	019	152	System On LED
	121	Zone 121 Fire LED		153	LCD Backlight On
	122	Zone 122 Fire LED		154	Reserved - for future use
	123	Zone 123 Fire LED		155	Reserved - for future use
	124	Zone 124 Fire LED		156	Reserved - for future use
	125	Zone 125 Fire LED		157	Reserved - for future use
	126	Zone 126 Fire LED		158	Buzzer Output
	127	Zone 127 Fire LED		159	Info #2 LED
016	128	Zone 128 Fire LED	020	160	Common Disable #2 LED
	129	Common Fire LED		161	Common Fault #2 LED
	130	Common Fire LED #2		162	Night Mode LED
	131	Sounders Active LED		163	Alarm Silenced LED
	132	Remote Alarm Active LED		164	More Up LED
	133	Control O/P Active LED		165	More Down LED
	134	Common Fault LED		166	Zone Pre-alarm
	135	Alarm(Sounder) Fault LED		167	Zone Fault
017	136	Remote Alarm Fault LED	021	168	More Time
	137	Control O/P Fault LED		169	Points Fault
	138	System Fault LED		170	Double Knock
	139	Common Disable LED		171	Security (door switches?)
	140	Alarm Disable LED		172	Common Fire LED's
	141	Rem. Alarm Disabled LED		173	Fire Alarm Relays 1+2
	142	Control O/P Disabled LED		174	Silence Alarm Key
	143	Zone Disabled LED		175	Sound Alarm Key

Auxiliary Board Dipswitch Setting	System Bus Address	Function	Auxiliary Board Dipswitch Setting	System Bus Address	Function
022	176	Reset Panel Key	023/024	185	Reserved – for future use
			
			031	255	
	177	Sound Alarms LED			
	178	Fire Alarm Relays 2+3			
	179	Accept alarms key			
	180	More time key			
	181	Restore disabled alarms key			
	182	Modem power control			
	183	Toggle Day/Night			
023	184	Mains supply fault			

User bus addresses

The ZP3 auxiliary boards may assume any address in the User Bus (group 10) address range. Each auxiliary board represents a range of point addresses; 8-way, 16-way, or 24-way. The address range is defined by the board address, which is set with a Dipswitch on each board. The board address defines the first 8-point addresses on the board. For boards with more than 8-ways, each subsequent group of 8-ways automatically assumes the next board address after the Dipswitch setting. Therefore, a 24-way board would use 3 board addresses, the first being set on the Dipswitch, the other two-board addresses following-on by assumption.

Note: Accessory board Dipswitch 8 must be set OFF to link to the User Bus.

Auxiliary Board Address Dipswitch	User Bus Point Address	Auxiliary Board Address Dipswitch	User Bus Point Address	Auxiliary Board Address Dipswitch	User Bus Point Address	Auxiliary Board Address Dipswitch	User Bus Point Address
32	000 - 007	56	192 - 199	80	384 - 391	104	576 - 583
33	008 - 015	57	200 - 207	81	392 - 399	105	584 - 591
34	016 - 023	58	208 - 215	82	400 - 407	106	592 - 599
35	024 - 031	59	216 - 223	83	408 - 415	107	600 - 607
36	032 - 039	60	224 - 231	84	416 - 423	108	608 - 615
37	040 - 047	61	232 - 239	85	424 - 31	109	616 - 623
38	048 - 055	62	240 - 247	86	432 - 439	110	624 - 631
39	056 - 063	63	248 - 255	87	440 - 447	111	632 - 639
40	064 - 071	64	256 - 263	88	448 - 455	112	640 - 647
41	072 - 079	65	264 - 271	89	456 - 463	113	648 - 655
42	080 - 087	66	272 - 279	90	464 - 471	114	656 - 663
43	088 - 095	67	280 - 287	91	472 - 479	115	664 - 671
44	096 - 103	68	288 - 295	92	480 - 477	116	672 - 679
45	104 - 111	69	296 - 303	93	478 - 495	117	680 - 687
46	112 - 119	70	304 - 311	94	496 - 503	118	688 - 695
47	120 - 127	71	312 - 319	95	504 - 511	119	696 - 703
48	128 - 135	72	320 - 327	96	512 - 519	120	704 - 711
49	136 - 143	73	328 - 335	97	520 - 527	121	712 - 719
50	144 - 151	74	336 - 343	98	528 - 535	122	720 - 727
51	152 - 159	75	344 - 351	99	536 - 543	123	728 - 735
52	160 - 167	76	352 - 359	100	544 - 551	124	736 - 743
53	168 - 175	77	360 - 367	101	552 - 559	125	744 - 751
54	176 - 183	78	368 - 375	102	560 - 567	126	752 - 759
55	184 - 191	79	376 - 383	103	568 - 575	127	760 - 767

EN54 Setup requirements

Summary

The setup requirements to conform to EN54 are provided below. All paragraph numbers refer to EN54 part 2 of 1997 unless otherwise specified.

1. Para 7.1.4 & 8.1.3 - AVF shall be switched off for all points.
2. Para 7.3.1 - Under menu \setup\system configuration\zone LED link, zone LEDs shall be linked to the appropriate zones.
3. In menu \setup\system configuration\control keyswitch level:
 - Para 7.4.1 The "accept" key shall be set up to level 1 or 2
 - Para 7.6.1 The "reset" key shall be set up to level 2
 - Para 7.8(a) The "silence alarms" key shall be set up to level 2
 - Para 7.8(b) The "sound alarms" key shall be set up to access level 2
4. Para 7.8 - If accessory board ZP3AB-MA8 outputs are required to serve the function of "output to fire alarm devices (item C)" then they must be defined as "sounder outputs" when mapping. "Standard outputs" and use of non-monitored output boards shall not be used to comply with EN54 item C requirements.
5. Para 7.10 - If accessory board ZP3AB-MA8 outputs are required to serve the function of "control to fire protection equipment" then they must be defined as "control outputs" when mapping. The programming must not include delays to output when the output is used to serve the function of "control to fire protection equipment." "Standard outputs" and use of non-monitored input/output boards shall not be used to comply with EN54 item G requirements.
6. Para 7.11(a) - Under menu \setup\system configuration\relays\sounder relays, the sounder relays must be defined as "programmable". The relays must then be mapped as outputs (addresses 09-173 and 09-178) using the I/O mapping function. They must be defined as "sounder outputs", silencing with no delay.

Note: A suitable input would be the common fire LED at address 09-129).

7. Para 7.11(c) - The day delay and more time extension shall be set to a maximum of 10 minutes as it automatically affects the delay to RMC alarm output.
8. Para 7.11(c) - The I/O mapping to common sounder outputs (addresses 09-173 and 09-178) shall be set to a maximum delay of 10 minutes (including day delay and more time extension if operating in day mode).
9. Para 7.11(d) - Under menu \setup\system configuration\panel options\day delay override set up so that callpoints do override the day delay.
10. Para 7.12 - To meet co-incidence detection requirements either:
 - (a) Use the coincidence function in the setup/zoning menu to inhibit the indication of fire alarm condition (first alarm in will show as a pre-alarm) OR
 - (b) Facilitate option to inhibit fire alarm devices and fire protection equipment by mapping each appropriate output double knock from the zone.
11. Para 8.2.4(c) - Earth fault monitoring shall be enabled (by inserting link J1 on the Main Control Board).
12. Para 8.2.5/6 - The auxiliary 24 Volt power supply output shall not be used to drive unmonitored equipment i.e. equipment which will not automatically notify a fault to the control panel should loss of power occur. Line units such as ZP752-2 are monitored.

13. Para 12.4.4 - All internal components of the panel enclosure shall be left inside the enclosure to ensure EMC compatibility. The panel shall remain locked with key removed during operation.
14. Para 12.5.2 and CEA GEI 1-052 Para 5.2.3 - Under menu \setup\system config\AGV\ the AGV should be defined enabled for partial short circuit check.
15. Para 12.5.2 - Loops must be wired in "class A" return loop configuration.
16. Para 12.5.2 - Isolators should be placed on the loop, such that no more than 32 detectors/callpoints may be isolated in the event of an open or short circuit on the loop. (It is recommended that no more than 32 points are included in a zone).
17. Para 12.6 - The controls keyswitch should be left on.
18. Para 12.10.2 - The panel audible sounder shall be operated at full volume and not suppressed.
19. EN54-2 annexure A - The commissioning key should be off.
20. Heat sensor elements required to conform to EN54 Part 5 Grade 1 must be set up to sensitivity 2.
21. To meet the requirements of EN54-2 either as a sounder output (type C) or an output to fire protection equipment (type G) the output must be monitored and hence a monitored output accessory board should be used as opposed to a relay output accessory board or line device.
22. The facility in the Setup/Points/Settings/Smoke alert delay must not be used when setting up to meet EN54-2.
23. The ZP3 panel approved to EN54 was tested using the internal power supply. Although option is provided to supply power from an external power supply this should not be used if compliance with EN54 is essential.
24. The ZP3 panel approved to EN54 was tested using 11 isolators in a ZP address loop. Although option is provided to software select up to 16 isolators, a maximum of 11 should be used if compliance with EN54 is essential.
25. The loop wiring must be shielded with the screens being effectively earthed.
26. Para 5.3.1 b) - Charge rate jumper JP6 must be linked to meet the requirements of EN54 if the battery capacity exceeds 17Ah. See *Power supply and battery calculations* on page 50 for more details.

Chapter 6: System commissioning

Introduction

After the ZP3 fire control panel, and the other system elements, have been installed, the system must be commissioned. The purpose of commissioning is to make sure that the system operates correctly. The following areas must be checked:

- The system has been correctly designed
- All equipment has been properly installed
- The software functions have been correctly programmed
- Sensors are appropriate for their environment
- All sensors function correctly
- All outputs operate correctly
- Cause and effect linkages are correct
- The complete system is functioning correctly

Verification

The following elements must be verified as correct. Some of these items can be checked using the printout from the Ziton Planner programming software. Others items require on-site checking, testing and measurement. The commissioning process must cover the following items.

Verify system design

Verify that the system design satisfies the requirements of the system specification (usually produced by the project consulting engineer, or similar person). Check that that the correct types of sensors are fitted into each area, and that equipment complies with the specification.

Where a system is required to comply with the design criteria of a National Standard (such as BS5839 part 1; Design of Fire Detection Systems), then verify that the installation does comply with these requirements.

Verify equipment installation

Check and verify that all the items of equipment (sensors, callpoints, fire panels, etc) are installed in accordance with the manufacturer's instructions and recommendations.

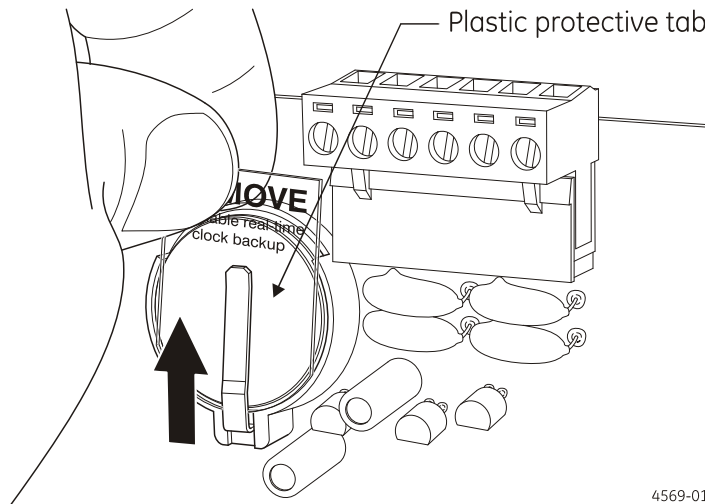
Verify wiring

- Check that the installation of the wiring complies with the requirements of the Ziton Wiring Guide, (see *Appendix A: ZP Wiring guide* on page 99) and that it has been sized correctly. Particularly check that all Z-loops are screened, and that the screens are continuous, and earthed at the panel.
- Make sure there are no sections of "floating screens". Also verify that proper separation has been maintained from high-voltage mains cabling.
- Check that data cabling (RS232 and RS485) is screened, continuous, and earthed, and separated from mains and Z-loop wiring.

Remove lithium time/date batteries protective tab

Make sure that the plastic protective tab installed between the metal securing clip and the lithium batteries on the main board is removed to enable the real time/date clock back up (see Figure 58 below).

Figure 58: Lithium time/date batteries protective tab



Verify system programming

The software configuration can be verified by checking the system configuration printout from the "Ziton Planner" programme. If the system was not programmed using Planner, then a printout of the zoning and I/O-mapping functions can be obtained from the panel. The following must be checked and verified:

- Access control levels are correctly set
- System configuration (global settings) have been set in the "Setup" menu
- AGV function has been enabled if this feature is required
- Panel number is correctly set
- Panel has been defined as a standalone or ZP-NET panel
- Panel has been defined as "Standard" or "Day/Night" operation
- Zoning has been correctly allocated to sensors
- If zoning has been de-linked from fascia LED's, then zones must be I/O-mapped to LED's
- Sensor/device location messages are correct
- Zone identification/location messages are correct
- Input - Output mapping is correct
- Paradigm sensors have been programmed with the correct profiles
- Standard sensors have been correctly set for sensitivity and AVF
- Sensors with attached sounder are tagged as such
- All sounders in the system are tagged as such
- Control outputs are all tagged as such
- Sensor self-test feature has been programmed
- The correct quantity of loop Isolators has been set
- Any delay on silencing of sounders has been set
- The printer options have been set
- Event on-screen time-stamping has been set, if required

System tests

After confirming that the system has been correctly installed and programmed, perform the following tests to confirm that the equipment is functioning correctly:

Panel check

1. Disconnect the loops from the panel.
2. Jumper the "in and out" terminals of each loop, and connect 3 sensors (or other line devices) to each loop.
3. Address these devices at any desired addresses, do not duplicate.
4. Make sure the addresses are zoned.
5. Carry out the following checks:
 - Check that the first analogue value (the Reference Value, V1) of each ZP device is within the range 208 - 216 counts in the maintenance/reports to screen/point analogues menu. If any of the devices are out of this range, then replace the panel main board. For ZX, ZR or EX devices, check for the appropriate levels as shown in Table 25 below.
 - Place one device on each loop into alarm (activate callpoints, or place smoke or test-smoke into a sensor). Make sure the panel reports an alarm and that the zone is reported on the LCD display (correct illuminated zone and status LED).
 - Create a fault on one device on each loop (disconnect a callpoint, or unplug a sensor base). Make sure the panel reports a fault and that the zone is reported on the LCD display (correct illuminated status LED).

Table 25: Device reference values

Device model range	Slot 1 'level'	Slot 1 min. counts	Slot 1 max. counts
ZP (standard analogue)	2	198	227
ZR (wireless)	4	135	163
ZX (paradigm)	4	135	163
EX (intrinsically safe)	6	68	100

Z-loop wiring check

1. Disconnect the loops from the panel.
2. Bridge out any line isolators (if fitted).
3. Measure the resistance of the complete loop (combined resistance of both the positive [+] and negative [-] legs), using a multimeter, as follows:
 - If the system is wired as a class-A return loop, measuring the resistance is a simple matter. At the panel, measure the resistance of the positive leg from [+out] to [+in], and record. Multiply by two to get resistance of the total cable and check that they are within the required parameters as described under *Z-loop wiring parameters* below.
 - If the system is wired as a class-B return loop, measure as follows. If the loop has Tee-Offs, identify the longest leg (measured from the panel to the last device). At the last device connect the positive leg to the negative leg. At the panel, measure the resistance from the positive leg [+out] to the negative leg [-out], and record.

Z-loop wiring parameters

These must be as specified in the Ziton ZP wiring Guide, see *Appendix A: ZP Wiring guide* on page 99 for more details.

As a guideline only

For a loop with sensors, callpoints, and interface units only, the total loop resistance must not exceed 75 Ohms (i.e. 37.5 ohms for positive leg and 37.5 ohms for negative leg), and the maximum cable length must not exceed 3000 metres.

For a loop with loop-powered sounders, this depends upon the number of sounders connected. Assuming 100 sounders, the total loop resistance must not exceed 12 ohms, and the maximum cable length must not exceed 1500 metres.

Z-loop functional tests

1. Connect all the loops to the panel.
2. Power-up the panel, and allow the panel to go through the self-diagnostics, device acceptance, and automatic calibration.
3. Access the Setup/Points/Accept Points menu, and manually accept all devices online.
4. Carry out the following checks:
 - Identify the device addresses on each loop that are [1] the closest to the panel, [2] the furthest from the panel (i.e. near the end of the Z-loop), and [3] about halfway along the Z-loop.
 - In the maintenance/reports to screen/point analogues menu, check that the first analogue value (the "Reference Value", V1) of each ZP device is within the range 208 - 216 counts, and within 5 counts of each other. For ZX, ZR or EX devices, check for the appropriate levels as shown in Table 25.
 - If the Reference Value is substantially reducing between the beginning and the end of the Z-loop, this is an indication that the wiring is out of specification, resulting in signal loss. Incorrectly sized wiring, a loop that is too long, loose connections, or similar faults could cause this. If this is the case, the fault must be found and rectified.

Data wiring RS485

Check that RS485 data cabling connecting panels together meets the requirements of the Ziton ZP Wiring Guide (see *Appendix A: ZP Wiring guide* on page 99 for more details). As a guideline, this must be high-quality, screened, data cable, with a maximum of 2000 metres of cable connected in any one network.

The cable terminating jumpers on the communications boards must be set correctly. See the appropriate equipment data sheets.

Chapter 7: Peer-to-peer 3 protocol

Introduction

This chapter covers the new features and enhancements of software 71910 Version 3.04 (EN54 ZP3 Fire Panel), which was released on 01 August 2003.

New data structure

Panel Software 3.04 makes use of a new data structure. This new structure relates to device messages and zone messages.

Compatibility with Maestro and Planner

Use Planner version 3.1.3.119 or higher to ensure that the structure is correct. Previous Planner projects or saved files are converted automatically to the correct structure when opened with Planner 3.1.3.119 or higher.

Peer-to-peer 3 (P2P3) protocol

Overview

The most notable new feature is the Peer-to-Peer 3 Protocol (P2P3), which provides the capability of up to 255 network nodes on a single multi-drop RS485 communications link. Although this capability is apparent, a network of 100 nodes is deemed the maximum, as this is the maximum extent to which the system has been tested.

Compatibility with older versions of panel software

Since version 3.00, the protocol has been reworked to deliver multiple commands and/or events in a single data packet. This results in larger packets and quicker overall performance when the system gets busy. Version 3.00 and 3.04 panels will therefore not communicate correctly with each other.

During upgrade, we recommend that the version 3.04 panels have their network comms disabled. This can be done either by physically disconnecting them or splitting them into sub-networks of new and old or by using the new Panel Comms Disable feature described on the next page.

Note: Keep the network comms disabled until all the old version 3.00 software has been replaced.

The handling of Sound and Silence Commands and their status reports has been improved to minimize an older event from being reported after a newer command.

The status block fetched by Maestro now includes a "panel comms disabled" status (block 15).

Sending "empty" blocks in place of those that only contain zeros as data has further optimized this status mechanism, so less data is sent when loops/zones/outputs are "normal".

Note that Maestro version 3.0 or higher is required to communicate correctly with the new panel software.

P2P3 New features

- Panel Comms enable/disable
- Interpanel support for remote diagnostics across the network
- Panel standards

Panel comms enable/disable

Enables or disables P2P3 comms to panels on the Network temporarily, without altering their filters etc. When edited on one panel, it replicates to all panels that are configured to be online via setup, so that they all agree on who is expected to be online.

Edited on the panel via a new menu: Maintenance /More /Panel Comms Enable/Disable, or by Planner, or on Maestro.

This feature may be used when maintenance is being done on a panel, and can replace the need to have large numbers of point disables from that panel being reported on the rest of the system, without needing to edit a large number of comms filter entries.

If any panels are registered as comms-disabled, the "Other" LED illuminates and the operator can view the list of panels disabled by viewing the "other" info.

Inter-panel support for remote diagnostics across the network

Planner may be connected directly to one panel via its RS232 port and then access any other panel indirectly via the Network. The operator may perform all functions listed below with the exception of "Code Load" and "Language Load".

Remote diagnostics to/from Planner (ZCP3 protocol on RS232 Port)

Direct (ZCP3) or indirect (ZCP3+PP3)

- Maintenance Flash Load (includes all Disables: point / zone / panel comms).
- Configuration Flash Load (includes all setup options)
- Message Flash Load (includes the custom text for Point and Zone)
- Analogue View
- Remote Reset/Silence/Accept commands
- Code Load (Direct/Local Panel only)
- Event Archives View
- LED status View
- Language Load (Direct/Local panel only)

Note: When the configuration is loaded, the disables must also be loaded, to keep them tracking one another. However the disables may be changed without changing the configuration, as long as the configuration's integrity is ensured.

These new features are only available when using Planner version 3.0 or higher.

Panel filters set, store and send capability

The panels now have a utility that allows the Network filters of all of the panels in the network to be set up and then transferred to any or all of the panels in the network via Maestro.

New network filters

Filter description

Fetch disables control

This filter is used to indicate the other nodes in the system to which the "Fetch Disables" command may be sent. This is used to control the "Disables" LED on the front of the ZP3 Panel. The LED only illuminates on the local panel if the local panel has any disabled or delayed elements or if any remote panels to which the "Fetch Disables" control may be sent have any disabled elements. If this filter is off to a remote panel then any disabled elements on that panel are not displayed on the local panel.

Disable events

This filter specifies the remote panels to which the event telegrams arising out of a change of disable status on the local panel should be sent. This filter should only be turned on if the remote panel has a specific need to use this information other than for display purposes, for example if a remote I/O mapped operation has to be triggered off a specific zone or device disablement on the local panel. Display only purposes are provided for with the "Fetch Disables" control.

Note: It is not a requirement to send disable events to Maestro (with P2P-3 protocol) since all disablements are sent in the "General Status" message.

General status events

This filter is used to identify the Maestro nodes in a network. Panel nodes do not use the General Status Block data, but all panel nodes generate the message. Setting the General Status Event flag for each Maestro node permits the remote panels to always send the status messages to all of the Maestros at the same time.

Since the disable events no longer need to be sent for display only needs, each panel volunteers the General Status message to all the Maestros whenever a change of disable status occurs on the panel. A 20 second delay period from the last change of disable status is used to allow multiple disable changes to be done prior to the status message being sent out.

Note: The delay is cumulative, i.e. a 20 second period of no changes is required before the status job is sent. Sending a status request message from Maestro, which is processed immediately by the target panel, if it is not currently busy with a status job, can shorten this period.

Use of network communications filters

Overview

We recommend that the available comms filters be used to minimize the network communications data traffic of commands as well as events to those that are necessary. This is done to optimize the use of the bandwidth and buffer sizes, which are limited by physical constraints. The panel can buffer a total of 484 events, including points, zones, and system status. Once this buffer is full, information is no longer passed to Maestro and panel events that are inter-panel I/O mapped are not sent. In the case of viewing 'Disables' some of the buffer space may be occupied by other events that occurred since the last reset, including reset status events from remote panels, if they were configured to send them.

In particular the "Disabled/Enabled" status of points and zones is now passed to Maestro primarily by **General Status data blocks** (controlled by the General Status Filter). They no longer depend on the Disabled Event telegrams, which bypasses the restriction in event buffer size and contents.

The **panel sends the General Status data block automatically** to Maestro 20 seconds after a single change in its disablements, (or once 20 seconds after the last of a series of disablements). Maestro also requests it automatically on start-up, after a reset, during a fascia view or manually on request by the operator by selecting “refresh”, or “current status” (from Maestro Comms or Maestro panel controls-right click).

Fetch disables control

Selecting key 4, in the KEYS options, can toggle the **Fetch Disables command filter** setting. This filter enables/disables the Fetch Disables command to the individual remote panels when the View Disables button is pressed on the local (receiving) panel. At the same time, it also allows/disallows the Common Disable LED to reflect the disables of the same remote panels.

The Comms Test message is also enabled or disabled using this filter. Panels at boot-up use this to request the disable status of the remote panels. It must be enabled to a Maestro station.

Disable events

The **Disabled Event filter** (which existed on earlier versions) may be set separately at the sender panel (as before) to allow or prevent volunteering disabled events to remote panels/Maestro. The disabled events filter should be set NOT to send to Maestro, but only to panels if they require it.

If a panel is undergoing commissioning/configuration changes and has large numbers of disables, either the ‘disables’ commands and disabled events are disallowed, or the whole panel is “ignored” using the **Panel Comms Enable/Disable** feature.

General status events

The **Gen. Status filter** setting works similarly by pressing key 4 in EVENT options. This should be used for **enabling** a Status data message from a panel to a Maestro, and **disabling** it to all remote panels, which do not require it.

Language loading

An alternative foreign language may be loaded on version 3.02 (or higher) panels. This was not available on version 3.00 panels.

Note: The appropriate version Language file must be used.

Refer also to the ZP3 Language Loading procedure, which may be found in the Planner User Guide, document number 503-1436ZE-U-05.

Appendix A: ZP Wiring guide

Introduction

General

The ZP system uses an extremely flexible wiring arrangement. It is designed to provide simple, low cost, wiring for new buildings. It can, in many cases, also use existing wiring where a fire detection system is being upgraded. A key feature of ZP the system is the ability to mix looped wiring and spurs on the same circuit. A further advantage is that future extensions or changes to a system are easily carried out, without in any way affecting the existing system or its wiring.

Note: To make sure that systems function correctly, it is important that correct wiring techniques are used. The wiring is an integral part of the complete system, and use of unsuitable cable, or defective installation methods can cause the system to malfunction.

This appendix provides specifications and guidelines for cable selection and installation. Follow these practices to make sure that your ZP fire detection system functions correctly and reliably at all times.

All wiring must be installed in compliance with local codes, and in accordance with the requirements of the local authority having jurisdiction.

Where "line powered output" devices are used, adequate provision must be allowed for in the system cabling to cater for the increased line current drawn.

In addition to the requirements specified in this appendix, all wiring should be installed in compliance with Section 17 (paragraphs 17.1 - 17.15) and Section 24 (paragraphs 24.1 - 24.5) of British Standards BS 5839 : Part 1 : 1988. GA 322.6 1 – 1.

Panel power supply connections

Effective functioning of the system is dependant on the correct connection of the panel power connections and must be wired as per panel wiring schematics found in the panel engineering manual.



CAUTION: The panel must be connected to a source of power, which is both clean and reliable. The power source should not be shared by electrical equipment, which causes electrical noise or spikes. If the quality of the power feeding the panel is suspect and electrical noise is present, assistance should be sought from Ziton regarding earth and surge protection.

Earth connection

The panels, power supplies and cables making up the fire detection system should be connected to earth at one point only. This earth point must always be at the panel. The only exception to this is when MICC cable is used. In this case the cable shield may be connected at other points in the building.

The panel is typically located in a building, which allows only limited earth options. The following are the preferred rules that should be followed if possible.

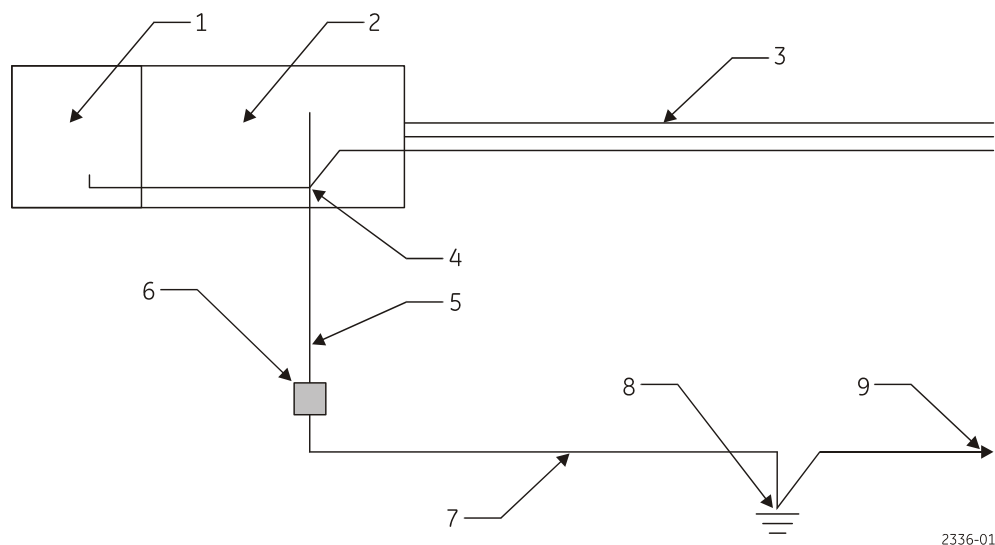
Normally the panel is connected to the nearest external earth point. This external earth point may vary in quality, from a high quality instrumentation earth to the earth used by the electrical network. This external earth point is in turn connected to the main building earth system.

The earth connection should preferably meet the following criteria:

- It should be a clean earth, preferably not shared with other electrical devices. High-energy equipment should be connected to an earth point that is as close as possible to true earth.
- Wiring codes normally require it to be bonded to the main building earth for safety reasons.
- The resistance to true earth should be as low as possible.

See Figure 59 for a typical panel earth connection.

Figure 59: Typical panel earth connection



Legend:

Item	Description	Item	Description
1	Power supply	6	External earth point
2	Panel	7	Existing wire from earth point to main building earth
3	ZP loop	8	Main building earth
4	Common earth point at panel	9	High energy equipment
5	Wire from panel to earth point		

The wire from the panel to the external earth point should be at least 4mm² cable and be securely connected at both ends to ensure a good mechanical and electrical connection. Use crimped lugs where possible.

Remote equipment earth

If any loop device makes use of separate external power i.e. not powered from the ZP loop, then the earth connections must follow the guidelines below:

- The ZP loop shield must be connected to panel earth at the panel.
- AC supply earth **and** panel earth must be connected if not the same.
- If the loop device is powered from an external power supply at the panel, the external power supply negative must be connected to panel earth. For a frequent surge environment, the loop device chassis must be connected to the main building earth. This may require a separate earth wire to be run to the panel.

System cabling

Overview

The ZP system consists of a number of devices, which are connected together by cables. Examples of these devices are Control Panels, Repeater Panels, Fire and Smoke Sensors, Audible Sounders, Relays, Computers, etc. Different circuits control various functions, and these circuits have differing cable requirements. Four different types of circuit are used to interconnect the equipment into a system. These are described below, and illustrated on the next page.

A full description of the wiring requirements for each type is detailed on following pages.

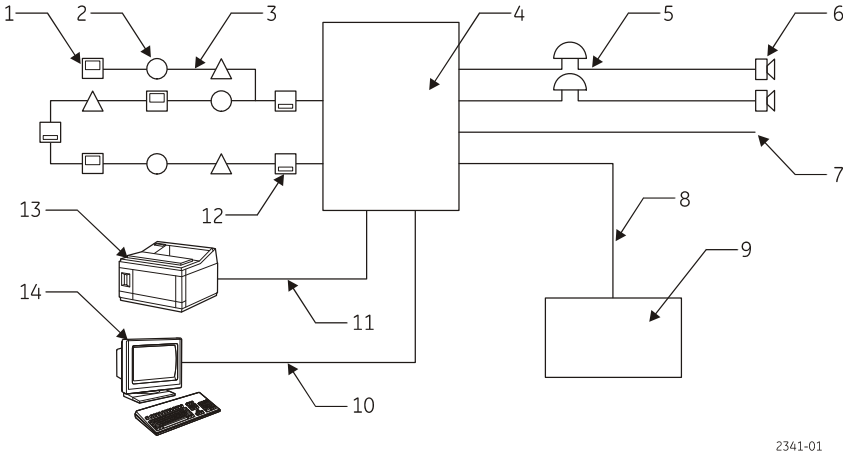
Circuit types

Circuit Type	Remarks	Cross Reference
Z-Address Lines	Fire Sensors, Line Relays , Isolators, Call Points, Addressable Sounders, Other Line Devices	See <i>Z-Address Lines</i> on page 103
Serial Communication Lines	Panel to panel networks, connections to repeater panels, and to computers and building management systems, other devices, e.g. printers.	See <i>Serial communication lines</i> on page 109
DC Control Lines	Sounders, Control Relays, Door Magnets, etc.	See <i>DC Control lines</i> on page 110

Circuit schematic

Figure 60 shows a typical single panel system, and Figure 61 shows a typical multi-panel networked system.

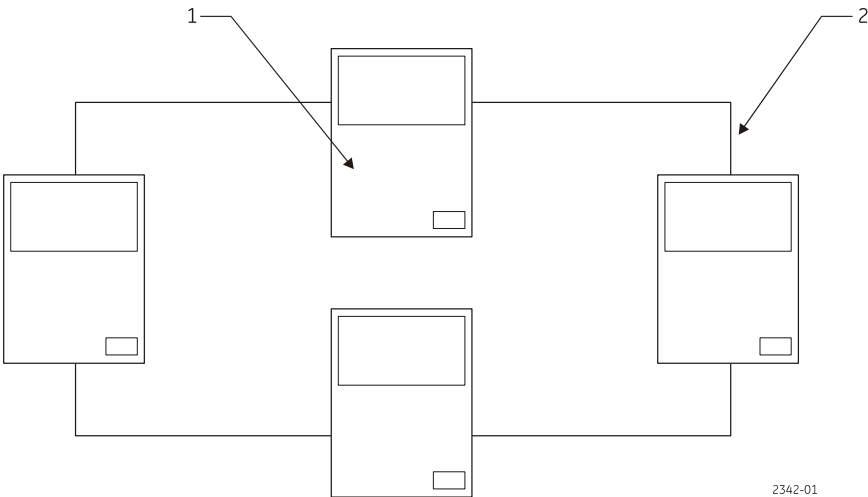
Figure 60: Typical single panel system



Legend:

Item	Description	Item	Description
1	Manual callpoint	8	Data wiring-RS485
2	Detector	9	Repeater panel
3	Z-address line	10	Data wiring-RS232
4	Control unit	11	Data wiring-serial
5	DC wiring	12	Isolator
6	Sounder	13	Printer
7	Switched output	14	Computer

Figure 61: Typical multi-panel system



Legend:

Item	Description	Item	Description
1	Control unit	2	Communication wiring-RS485

Z-Address Lines

Function

Z-Address lines connect the Ziton addressable field devices to the panel, such as fire and smoke sensors, line relays, addressable sounders, extinguishing control units, manual callpoints, interface units, and line isolators.

Each Z-Address line is a 2-wire circuit, which provides both power and data communication to the ZP fire and smoke sensors, call points, and addressable input and output interface units.

Some devices, such as the extinguishing control unit, require a separate power supply circuit, whereas others, such as the ZP754 loop sounder, may be either externally powered or powered from the Z-Address line. Each line connects to 127 ZP addressable line devices.

Features

Key features of the Z-Address Line are:

Cabling may be installed in any configuration, which suits the building. This includes loop circuits, tees, spurs, or combinations of styles.

Cabling may be shielded, for new buildings, or un-shielded for retrofitting systems to existing buildings (see *Rules for using shielded cable* on page 106 and *Rules for using unshielded cable* on page 108 for more details if required).

Up to 3000 metres of 2-core cable may be used per loop, depending upon cable size and provided no "line powered output" devices are connected. Refer to *Loop length* on page 108 for more details about maximum permissible loop lengths

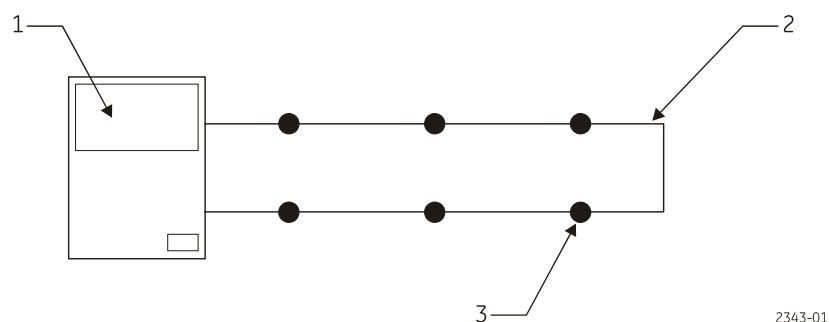
Wiring styles

The ZP system can mix looped wiring and spurs on the same addressable circuit. This provides maximum flexibility and lowest cost during installation. Figure 62, Figure 63 and Figure 64 show examples of different wiring styles, together with an outline of the benefits of each.

Style A

See Figure 62. Return loop wiring provides protection against open circuits, short circuits (using line isolators), and earth leakage.

Figure 62: Style A - address line wiring



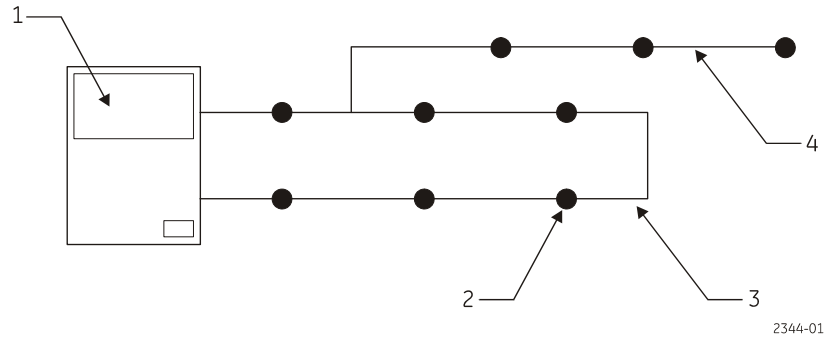
Legend:

Item	Description	Item	Description
1	Control Unit	3	Detectors
2	Loop		

Style B

See Figure 63. Return loop wiring, with spurs, provides protection against open circuits, short circuits (using line isolators), and earth leakage.

Figure 63: Style B – address line wiring



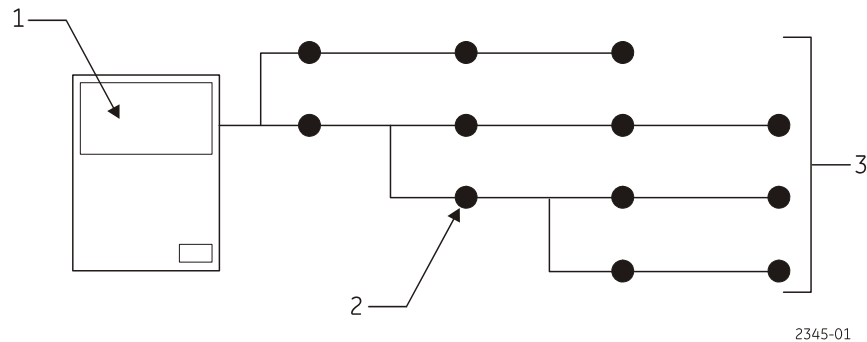
Legend:

Item	Description	Item	Description
1	Control Unit	3	Loop
2	Detectors	4	Spur

Style C

See Figure 64. Single direction wiring, with spurs, provides protection against open circuits and earth leakage.

Figure 64: Style C – address line wiring



Legend:

Item	Description	Item	Description
1	Control Unit	3	Spur
2	Detectors		

Line isolators

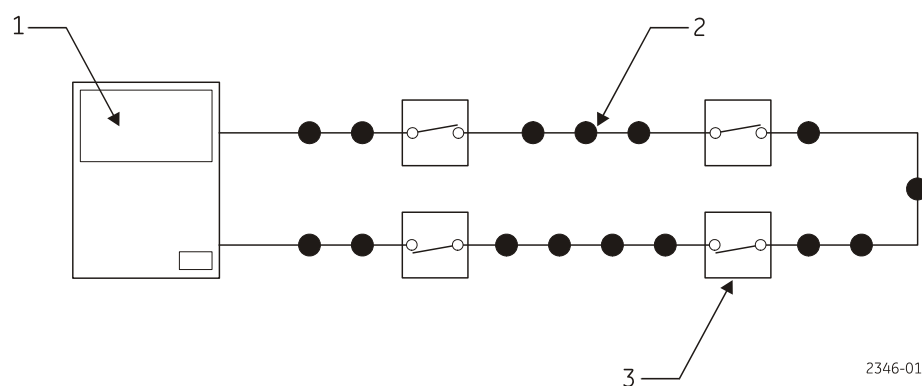
Line isolators are devices installed on the Z-Address line to monitor for short circuits on the field wiring. These devices keep up to 93% of the line operational in the event of a short circuit. Line isolation can only be utilised when style A wiring is used. They must be installed in accordance with the requirements of BS5839 Part 1.

Operation

See Figure 65 for a schematic of line isolator usage. Isolators are installed on the loop at intervals. A short circuit on the loop wiring causes the isolators on each side of the short to disconnect the damaged section of cable. This removes the short from the loop, allowing the remainder of the loop to function normally.

Schematic

Figure 65: Line isolator usage schematic



Legend:

Item	Description	Item	Description
1	Control Unit	3	Isolators
2	Detectors		

Rules for using line isolators

1. Isolators should be located on the Z-Address loop either at the beginning and end of each zone, or at regular intervals.
2. To comply with BS5839 Part 1, no more than 1 zone, or 20 detectors or callpoints, must be grouped between two isolators. Other standards allow up to 32 devices between isolators.
3. A maximum of 16 isolators can be used on each Z-Address loop.
4. The total loop cable resistance must not exceed 75 ohms (37.5 ohms for each positive and negative leg).
5. The maximum cable resistance between any two isolators, or from the panel to the first isolator, is 18 ohms for both cores (9 ohms for each positive and negative leg).
6. The Z-Address loop is pulsed at nominal 20-volts Pk-Pk. When loops are installed in accordance with this Wiring Guide, then the maximum volt-drop across the loop is 4-volts. This ensures that isolators always receive a supply of at least 16-volts.

Shielding

Shielded cable provides the greatest protection against external interference, as well as protecting other equipment from interference generated by the fire detection system.

Shielded cable must be used where possible.

Note: Shielded cable must be earthed at the panel at both ends and must never be left with the shield floating.

Rules for using shielded cable

1. Shielding includes cable with copper screens, Mylar covered, or Pyrotenax cable (MICC).
2. Shielded cable may be 2-core or multi-core.
3. Only Z-Address Lines may be run inside a screen, in order to qualify as Shielded.
4. Where 4-core shielded cables are used, 2 cores may be used for the Z-Address Line, and the other 2 cores used for either ZP approved sounders, or ZP system DC control circuits.
5. Where multi-core cable is used, it must only be used for the ZP fire detection system devices, attached to the same control panel. Third party cabling should not be run inside the same shield as the fire detection cable. Examples are Public Address and Intercom Systems. Third party cabling includes connections between ZP interface units and relays, etc. of other systems.
6. The shielding must be connected-through at each sensor, line device, or connection, and must be continuous through the complete length of cable. The connection must be by means of a terminal.
7. Z-Address line must be separated from high voltage cables by at least 300 mm as per BS5839 Part 1.
8. Continuity of conduit, Pyrotenax, or shielding must be as per BS specification BS 5839 Part 1 (paragraph 24.5), and the IEE Wiring Regulations.
9. Insulated screened cable must be isolated from building earth except for connection at the panel.

For Pyrotenax cable (MICC), which can pick up co-incidental earths at junction boxes, the building system must have an effective earth bond between the parts of a building or buildings where the system is to be installed. The building earth bond must be sufficient to prevent the fire system from acting as an earth strap between the different parts of a building or buildings.

Shielding technique

Figure 66 and Figure 67 show the correct methods for using shielded cable.

The cable shield must be continuous, and must be connected through at detectors, or devices, or at connections. Some detectors have provision for the shield connection, but in those without, a connector should be used to join the shield.

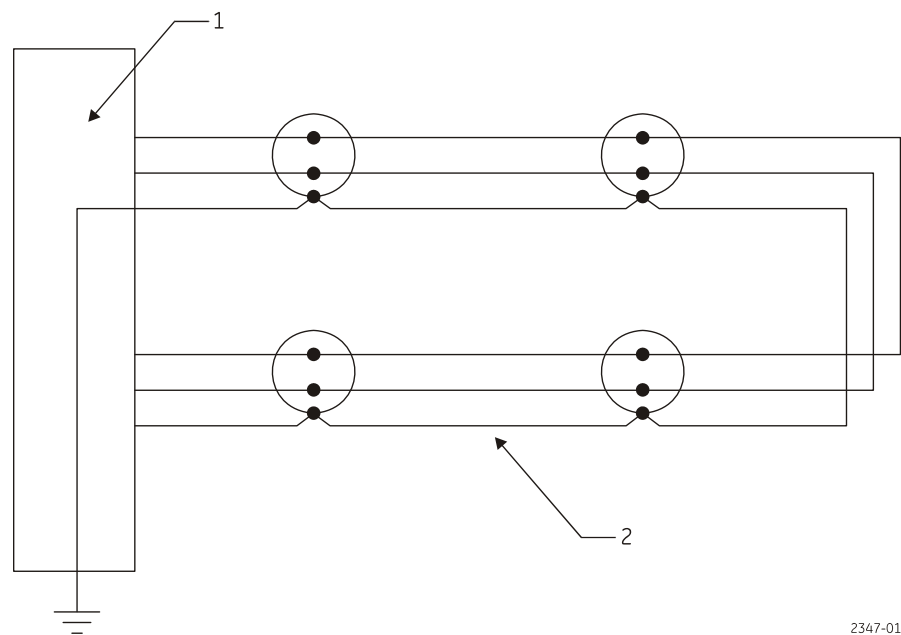
Notes: Shields must be connected with a screw connector at each termination.

Earth continuity must be checked.

The addressable line outgoing and return loop must both be earthed.

For MICC cable, earth must be continuous at each connection or junction, in accordance with BS specification BS 5839 Part 1 (paragraph 24.5), and the IEE Wiring Regulations.

Figure 66: Shielded cable

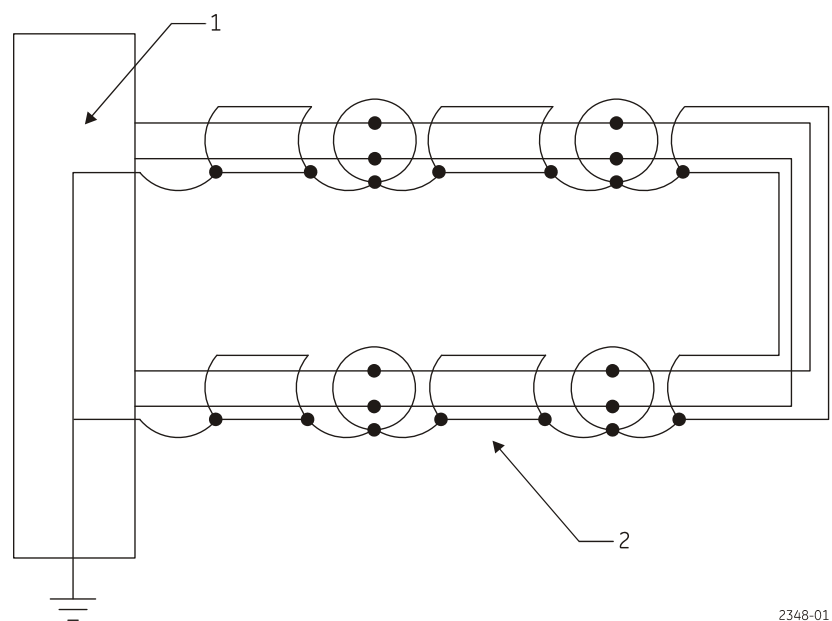


Legend:

Item	Description
1	Control Unit

Item	Description
2	Isolators

Figure 67: MICC



Legend:

Item	Description
1	ZP Panel

Item	Description
2	Shield connected through

Unshielded cable

Unshielded cable should only be used where it is impractical to use shielded cable. An example would be the upgrading of an existing system to a ZP system, where the cabling already exists.

When the Z-Address Line is used with unshielded cable, the panel should be set to "AVF" mode. In this mode, some of the functional responses are deliberately slowed, in order to maintain data integrity in an electrically noisy environment. Electrical noise, generated by third party pulsing systems, can transfer into Z-Address Lines if the third-party cables are adjacent to the fire alarm cables.

In some cases use of unshielded cable can cause spurious responses.



CAUTION: Under no circumstances must an unconnected screen be left floating on a cable. If screened cables are used they must be terminated as described under *Shielding* on page 106.

Rules for using unshielded cable

1. Z-Address Lines may be run in steel or plastic conduit or trunking, or fixed to walls or supports without conduit.
2. Third party or mains power cabling may not be run adjacent to the Z-Address line or in the same conduit or trunking.
3. The cores of multi-core cable may be used for several Z-Address Lines from the same panel, as well as ZP approved sounders, and ZP Systems DC control lines.
4. Where multi-core cable is used, it must only be used for the ZP fire detection system devices. Third party cabling should not be run inside the same outer insulation as the fire detection cable. Examples are Public Address and Intercom Systems. Third party cabling includes connections between ZP interface units and relays, etc. of other systems.
5. Noise generated by an un-shielded Z-Address Line may cause interference into third-party systems, such as intercoms.
6. Unshielded Z-Address Lines must be separated from high voltage cables by at least 300 mm, as per BS5839 Part 1.
7. Unshielded Z-Address lines must be separated from all other cables by at least 50 mm.

Loop length

The Z-Address Line operates with a 2-core loop length of up to 3000 metres when no high power devices are used on the line. High powered devices, e.g. loop powered sounders, draw more current and engineering calculation is required for specific line configurations to make sure that the line resistance through various sections of the line does not cause the line drive voltage at the end of the line to drop from 20 volts to below the specified detector minimum of 16 volts. For current draws and minimum line voltages see the applicable datasheets. Refer to Ziton if further assistance is required.

The Z-Address Line must meet two criteria; resistance and capacitance. The maximum permissible resistance of a loop is 75 ohms. This is the combined resistance of both conductors. The total capacitance of a line should not exceed 0.7 μ F with either leg shorted to earth.

Table 26 gives the conductor sizes required for different loop lengths, which meet the above criteria when using normal copper screened cable and no loop powered sounders. Lengths for high capacitance cables should be reduced accordingly.

Cable size

Refer to Table 26 below.

Table 26: Loop length cable size (various diameters) – assuming no high power devices

Conductor area - mm ²	Conductor diameter - mm	Maximum loop length (2-core)- m
0.50	0.80	900
0.75	1.00	1350
1.00	1.13	1800
1.50	1.38	2800
2.50	1.79	3000

Serial communication lines

General

These are data lines used to convey digital communication between control panels and other devices, as well as between control panels in multi-panel network systems. Other devices include devices such as graphics computers, remote display units, mimic panels, printers, accessory panels, and so on.

Two types of serial communication ports are used on ZP panels, i.e. RS232 and RS485.

RS232 ports

RS232 ports are used for connection to graphics computers, building management systems and Ziton accessories, and for interfacing to building management systems. Each port usually connects to only one piece of equipment

Rules for RS232 cabling

1. Cable requires 9 conductors plus a shield. The cable is terminated at each end to a "D" connector, either 9-pin or 25-pin depending upon the equipment.
2. The shield must be insulated, and earthed only at the point shown on the system installation drawing.
3. No cables or conductors for other services must be run inside the same shielding.
4. RS232 cabling is normally specified for a maximum length of 10 metres.
5. RS232 cabling can be used at up to 100 metres cable length, at a slower communication baud rate. This does not affect the performance of the system.

RS485 ports

RS485 ports are used for connections between ZP panels and ZP equipment. For example, between networking panels in a multi-panel system, from a panel to a remote display unit, to an intelligent mimic panel, etc. RS485 is sometimes used to connect to computers.

A single circuit may interconnect several pieces of equipment.

Rules for RS485 cabling

1. Cable requires 2 conductors plus a shield. The cable is terminated at each end to a 9-pin "D" connector, or onto terminals, depending upon the equipment.
2. The shield must be insulated, and connected only at the points shown on the system installation drawing. If the shield is not insulated, and could be earthed, then a 3-conductor cable is required. The third wire serves the function of the screen.
3. Only cable specifically manufactured for RS485 should be used. This is an ultra low capacitance cable with capacitance of 0.04 $\mu\text{f}/1000$ metres.
4. The conductor size, when using shielded cable with a capacitance of 0.04 $\mu\text{f}/1000$ metres, should be as follows:
 0.25 mm² - up to 1000 metres
 0.5 mm² - 1000 to 2000 metres
5. No cables or conductors for other services must be run inside the same shielding.
6. The maximum communication distance for RS485 cabling is 2000 metres. If greater distances are required, please contact your local supplier.
7. Where wiring connects to several panels or devices, it must be daisy-chained from point to point, (not connected in a star pattern).

DC Control lines

General

ZP systems operate on 24 VDC. The majority of field wiring consists of power supply wiring, for devices that require 24 V, or switched low voltage DC circuits. These are used for functions such as audible alarm sounders, mimic panels, magnetic door holders, CO₂, water mist, or Halon extinguishing systems, and control of building systems such as evacuation systems, air-conditioning, dampers, and lifts and elevators.

Wiring specifications depend entirely on the current consumption of the devices connected, the number of devices on the same line, and the distance of each device from the control unit.

DC Cable type

Any type of cable may be used for dc control circuits. Normally, PVC insulated, single or multicore cable is used. It is not necessary to shield these cables.

DC Cable size

See Table 27. Conductor diameters of 0.5 mm² to 2.5 mm² may be used. Cables should be sized so that a maximum volt drop of 1.0 V occurs at the furthest device when the circuit is operated at maximum power consumption.

Table 27: DC Cable Size

Length of 2-core Cable giving a 1 V drop (Metres)					
Cable Size (mm ²)	Device Current Consumption				
	50 mA	100 mA	250 mA	500 mA	1 A
0.5	250	125	50	-	-
0.75	375	180	75	-	-
1.0	500	250	100	50	-
1.5	750	375	150	75	35
2.5	1250	625	250	125	60

Appendix B: ZP3 System maintenance

Overview

There are two types of maintenance performed on the ZP3 system:

- Routine maintenance
- Corrective maintenance

Routine maintenance must be performed at the prescribed times in order to help the system operate to its optimum effect. The quarterly and annual services are designed to check that the system is functioning to its installation specifications, and must be carried out by an authorized Ziton maintenance company.

The panel operator and/or the company in-house maintenance staff typically carry out daily and weekly check. See ZP3 Fire Control Panel User Guide, document number 503-1160ZE-U-10 if required.

Only trained personnel can perform corrective maintenance in order to bring the system back into service after a particular fault.

Record keeping

A record of all alarms, events, checks, tests, and repairs must be entered in a logbook (see document number 503-1842ZE-1-02), which is typically maintained by the panel operator.

System specification

Make sure that there is a record available showing how the fire system has been configured. This is a system specification that should describe in detail all aspects of the system. The system specification is essential for the system to be tested and checked during servicing. This document is the blueprint of how the system has been configured and how it should behave. When changes are made to the system, the specification should be updated.

Routine maintenance

Quarterly (three-monthly) maintenance

Refer to Table 28 for the quarterly checks that must be carried out on the ZP3 system.

Table 28: ZP3 fire control panel – quarterly checks

No.	Quarterly Check	Description
1	Log book analysis	Prepare for testing by reading through the log book. Any corrective action that has not yet been taken should be noted and carried out during the service.
2	Service and pre-service check	Use the panel menu to take a print out of all the sensors that are in a "service" or "pre-service" condition, which indicates that they are contaminated. Exchange these points with replacement units, set to the same address. Dirty sensors can be sent to Ziton for cleaning.
3	Analogue values check	Use the panel menu to generate printer reports of device analogue values. Compare these values to the permitted values for each point. Replace faulty devices or repair wiring.

No.	Quarterly Check	Description
4	Configuration check	Connect "Planner" to the panel and print out a complete system configuration from the panel software. Compare this to the system specification and verify that the system zoning, input-output mapping, and other settings have not been changed.
5	Disabled devices check	Check if the common Disable-LED on the front of the panel is illuminated. If so, use the menu to identify the disabled devices and investigate the reason. Any faults should be rectified, and any disabled devices should then be enabled.
6	Test the alarms	Test one sensor or callpoint in each zone. Activate each point in turn, checking that the sounders operate and that the panel reacts correctly. Check that signals to auxiliary systems such as the Fire Station, air-conditioning, building management systems, graphics displays or remote indicators, all function correctly.
7	Fault test	Remove one sensor in the system and check that the panel correctly reports the event. Accept the fault, replace the sensor and reset the panel.
8	Panel controls test	Check that all control functions, the ACCEPT - and RESET keys, are operating correctly.
9	Printer test	Make sure that the printer (if fitted) is printing all events generated during the service.
10	Monitor earth leakage	If the earth leakage monitoring feature on the ZP3 system is enabled, test the earth leakage by applying a short between the positive leg of the Z-loop and earth. Make sure that the panel indicates an earth leakage fault. Repeat test using the negative leg of the Z-loop.
11	Connection checks	Make sure that all terminal screws are tight and cables inside the panel are secure. Check that all printed circuit boards (PCB's) appear to be in good condition, are free of dust and securely mounted in the panel.
12	Battery replacement check	Make sure that the back-up batteries installed are sufficient to meet the system specifications. If not then replace them with suitable ones as described under <i>"Removing and replacing the back-up batteries"</i> on page 128. Check if the back-up battery replacement date will still be valid before the next service. If not, then replace the back-up batteries as described under <i>"Removing and replacing the back-up batteries"</i> on page 128. The age of the battery should be marked on it with a label, or refer to the log book. SLA batteries should be replaced at least every four years, or more frequently in high temperature environments (refer to manufacturer's documentation if necessary).
13	Battery operation check	Check that the battery is healthy. One method is to conduct an "all-sounders on" operational test with the mains off and the system running on batteries. This will test the batteries under a full load. The battery voltage should be monitored during this test and should not fall below 24 volts. Remove one battery terminal and verify that the system reports a battery fault. Replace terminal, ensure that it is tight, and reset the panel. Clean the battery with a damp cloth and lightly lubricate any exposed terminals with petroleum jelly if necessary.
14	Time and date set	Set the correct time and date on the panel, if necessary.
15	Completion of service	Restore the system to normal condition, re-enable any disabled devices, re-connect any disconnected devices, re-connect all external systems that were disconnected for the testing, and make sure that the system is left in 100% working condition. Advise all staff and the remote manned centre that testing is complete, and that any alarm now received must be treated as real.

Annual maintenance

Refer to Table 29 for the annual checks that must be carried out on the ZP3 system.

Table 29: ZP3 fire control panel – annual checks

No.	Annual check	Description
1	Quarterly checks	Make sure the quarterly checks have been performed (see Table 28 above)
2	Input-Output configuration test	Using a fairly large representative sample, verify by testing that the input-output mapping operates as programmed. Activate an input, such as a sensor, callpoint, or interface unit, and verify that the correct outputs operate. Also check that the outputs function correctly, for example, that they pulse, or operate continuously, that any delays operate correctly, etc.
3	Building changes check	Visually inspect that the internal structural layout of the building, including inter-office partitioning, has not changed from the system specification to such an extent that it may affect the efficient operation of the fire alarm system.
4	Lithium time/date batteries check	Check if the lithium time/date batteries will still be valid before the next service. If not, then replace the batteries as described under “Removing and replacing the lithium time/date batteries” on page 126. The age of the battery should be marked on it with a label, or refer to the log book. SLA batteries should be replaced at least every four years, or more frequently in high temperature environments (refer to manufacturer’s documentation if necessary).
5	Completion of Service	Restore the system to normal condition, re-enable any disabled devices, re-connect any disconnected devices, re-connect all external systems that were disconnected for the testing, and ensure that the system is left in 100% working condition. Advise all staff and the remote manned centre that testing is complete, and that any alarm now received must be treated as real.

Maintenance menu

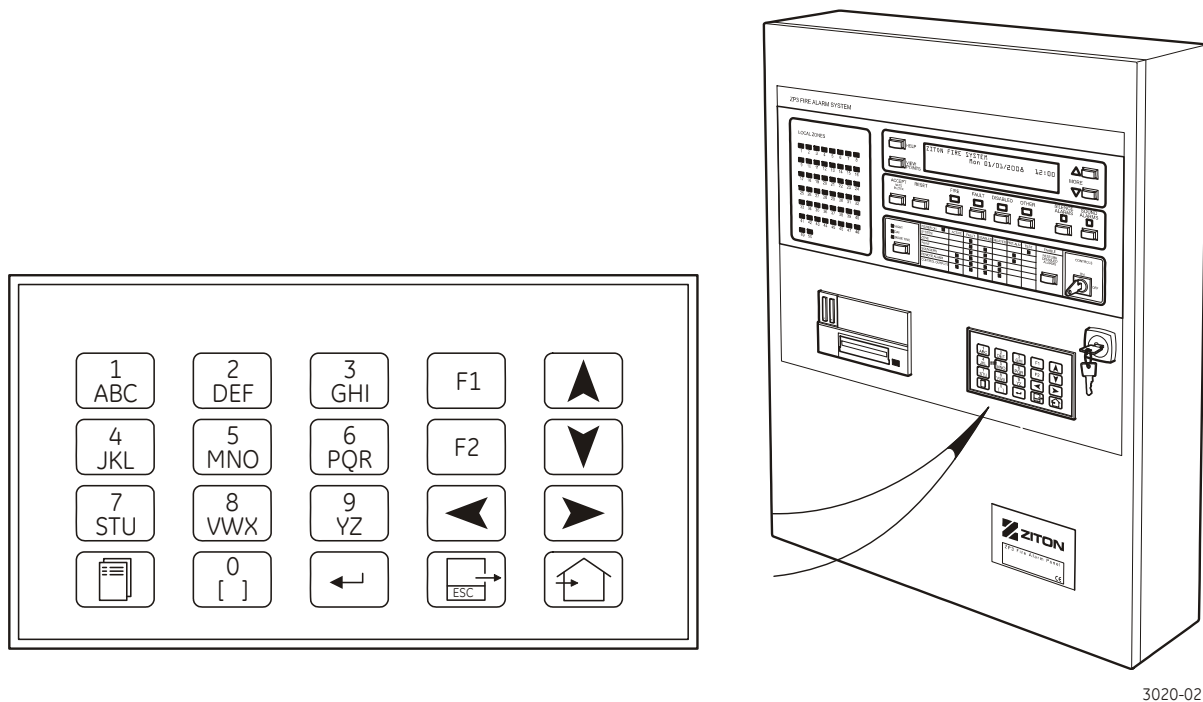
Introduction

The panel has built in software functions for providing maintenance diagnostics and support. These functions are accessed via the maintenance menu, using the panel keypad. Menu functions are displayed on the LCD screen.

Menu access

Access to the menus is via the panel keypad (see Figure 68). Each key is described in Table 30.

Figure 68: Keypad



3020-02

Table 30: Keypad description

Key/s	Name	Description
	Numeric keys	Used to enter the number sequences
	MENU key	Gives access to the Menu Screen
	ENTER key	Used to confirm data entry and save data
	ESCAPE key	Exits a function and returns to the previous level
	HOME key	Exits all menu's and returns to the system home screen
	FUNCTION keys	Used within certain menus
	NAVIGATION keys	Used to move up/down/left and right

Maintenance

The main menu is the entry point to all of the maintenance related software functions. To access the main menu:


1. Press the MENU key () on the keypad. The display shows the following (see Figure 69):

Figure 69: Main menu

```
MAIN MENU
1. Operator
2. Maintenance
3. Setup menu
```

3021-01



2. Press <1. Maintenance> on the keypad to enter the *Maintenance Menu*. You are requested to enter an access code. Key-in the maintenance (level 2) access code and press . The following screen appears (see Figure 70).


Figure 70: Maintenance menu

```
MAINTENANCE                                MORE^
1. Edit disabled                          4. Reports to display
2. View disabled                         5. Reports to printer
3. Enable all                            6. Calibrate detectors
```

3028-01

The menu name is displayed on the top line, and the menu items are shown with numbers alongside. Menu items are selected by pressing the numeric key that matches the item number. Selecting a menu item may cause another menu to appear or may carry out a particular function. The operator may be prompted to enter the required information via the keypad.

Any menu can be cancelled and the previous menu presented by pressing the ESC key (). The ESC key is used to cancel or abort the current activity and return to the previous activity.

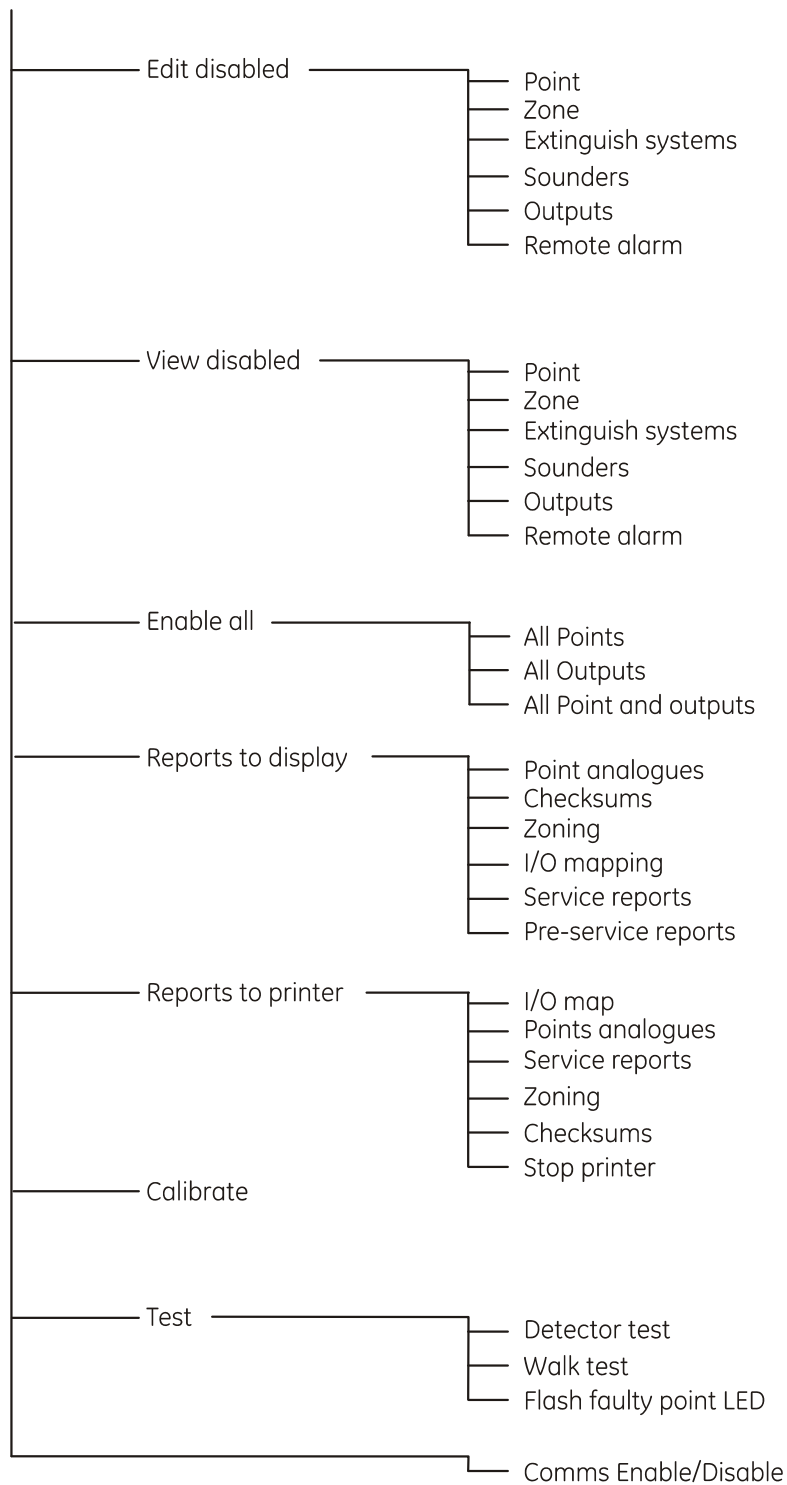
Exit the menu system completely by pressing the HOME key (). This returns the panel to its normal operation display. To prevent a system from being inadvertently left in a menu, a time-out is built into the menu system, i.e. from the last time a key was pressed. In menu selection, the time-out is approximately 45 seconds, and if a software function has been started and not completed, then it is 12 minutes.

Menu structure

The maintenance menu structure is displayed as a menu tree, and shown in Figure 71. Items that are grouped together are options that appear together on a menu, and items that are open-ended implement a software function.

Figure 71: Maintenance menu structure

MAINTENANCE MENU



3157-01

Menu functions

Edit disabled

Menu path	Maintenance/Edit disabled
Purpose	This menu allows you to group together all functions relating to enabling and disabling points, zones and outputs.
Point	This option is used to enable or disable a point, accept the default point address displayed or enter the address of the point to be edited. The point address and current state are displayed. Use the scroll feature to display the next/previous point to be edited.
Zone	This option is used to enable or disable a zone, accept the default zone number displayed or enter the zone number to be edited. The zone number and status will be displayed. Where the points in a zone are not all set to any one status, the status is shown as "various settings". Use the scroll feature to display the number of points in the zone and the totals of enabled/disabled points within the zone.
Extinguish sys	This option is used to enable or disable Extinguishing Control Unit's. Only valid ECU addresses are displayed. Use the scroll feature to select the ECU to edit.
Sounders	This option is used to enable or disable a sounder output. Only outputs and points declared as sounders are displayed. Use the scroll feature to select the sounder to edit.
Outputs	This option is used to enable or disable an I/O mapped output, accept the default output address displayed or enter the address of the output to be edited. The output address and status are displayed. Use the scroll feature to display the output to be edited.
Remote alarm	This option is used to enable or disable the remote alarm relay (fire brigade) switched outputs. Both the alarm and fault outputs may be edited in this menu.

View disabled

Menu path	Maintenance/View disabled
Purpose	This menu is used to view points, zones or outputs that have been disabled. A "extinguish system" sub-menu is also provided to limit the points viewed to Extinguishing Control Units. Once a sub-menu is chosen, the first disablement in the category is displayed. Use the scroll feature to view the next/previous disablement..
Points	This option is used to display all points set to disabled.
Zones	This option is used to displays zones that are set to disabled. The zone number of the first disabled zone and the number of points within the zone is displayed.
Extinguish sys	This option is used to display Extinguishing Control Units (ECU's) set to disabled.
Sounders	This option is used to display sounders that are set to disabled.
Outputs	This option is used to display I/O mapping outputs set to disabled. The address of the first disabled output is displayed. Use the scroll feature to view the next/previous disabled output.
Remote alarm	This option is used to view the enabled/disabled status of the remote alarm relay (fire brigade) switched outputs. Both the alarm and fault outputs may be viewed in this menu.

Enable all

Menu path	Maintenance/Enable all
Purpose	This menu provides a quick method to enable points and outputs or both. The menu options available are: Enable all.....
Points	This option is used to enable all system Z-loop devices. This includes sensors, callpoints, devices, zones and loop or base sounders.
Outputs	This option is used to enable all panel outputs. This includes all Extinguishing Control Units, panel sounder outputs and the remote manned centre output.
Points and outputs	This option is used to enable all Z-loop devices & panel outputs, i.e. selecting both options above.

Reports to display

Menu path	Maintenance/Reports to display
Purpose	This menu provides a selection of reports to view on the display. Report messages may be manually or automatically scrolled. The reports that may be viewed are listed below with a brief description of each report.
Point analogues	A real time display is shown per point of analogue values. Point ID, sensitivity, threshold and condition are also displayed. Use the scroll feature to view the next/previous point analogues.
Checksums	Two numeric values are displayed, a calculated and a stored value. If the values are not equal, data corruption has occurred.
Zoning	This option is used to generate a report showing which points are allocated to a zone. The zone number and the first point allocated to the zone is displayed. Use the scroll feature to display the next/previous point allocated to the zone.
I/O mapping	This option is used to display a report of all the programmed outputs with their respective programmed configuration details and associated input triggers. Use the scroll keys to view the next/previous outputs and left/right arrow keys to view associated inputs.
Service	This option is used to generate a report of all sensors that require servicing. A service condition indicates that the sensor should be cleaned or replaced as soon as possible. Use the scroll feature to display the next/previous point. The point displayed may be limited to a date range.
Pre-service	This option is used to generate a report of all sensors that are in a pre-service condition. A sensor in a pre-service condition does not need immediate attention. Pre-service reports allow forward planning by the installer. Use the scroll feature to display the next/previous point. The points displayed may be limited to a date range.

Reports to printer

Menu path	Maintenance/Reports to printer
Purpose	This menu initiates a Keypad test. Once selected, the panel reports any key pressed on the panel via the LCD. The operator can use this function to check that the keypad is functional. Press any key twice to exit.
I/O map	This option is used to generate a printout of all I/O mapping entries.
Points analogue	This option is used to generate a snapshot of all points analogues at the time of the print report initialisation. Enter an address range of points to print or accept the default value (all).
Service reports	This option is used to generate a report of all sensors that require servicing or are in a pre-service condition. A service condition indicates that the sensor should be cleaned or replaced as soon as possible. A sensor in a pre-service condition does not need immediate attention, but serves as a warning that the sensor will reach a service condition in the future.
Zoning	This option is used to generate a printout of which points are allocated to a zone. The printout shows the zone number and the points assigned within it.
Checksums	Two numeric values are printed, a calculated value and a stored value. If the two values are not equal, then code corruption has occurred.
Stop printer	This option is used to cancel any print operation in progress.

Calibrate detectors

Menu path	Maintenance/Calibrate detectors
Purpose	The panel automatically calibrates every sensor each 24 hours, at midnight. This menu allows you to manually re-calibrate the sensors. When initiated a message "Calibrating..." is displayed on the LCD screen while calibration takes place. This takes about one minute to complete.

Test

Menu path	Maintenance/test
Purpose	This menu allows you to configure automatic and manual test modes to provide simple one-man testing of a complete system.
Detector test	<p>Sensors can be individually or globally configured to "self-test" every 24 hours. This test is done at midnight, and a report is generated if any sensors fail the test.</p> <p>The self test routine can be manually initiated from within this menu for an immediate real time test. The display indicates the number of detectors tested and passed. A fault event is generated if failure occurs. If a printer is fitted, a report is automatically printed.</p>
Walk test	<p>The walk test procedure is executed on a zonal basis. A zone is placed in "walk-test" mode, and the sensors/devices within the zone are manually tested. The outputs and alarms for the selected zone are automatically disabled. At the end of the test, the display shows the number of devices in the zone, the number triggered and passed, and the number not triggered and failed. The respective zone LED on the fire panel is lit. A printed report is also produced. If an alarm occurs in a different zone, the panel cancels the test, and initiates a real alarm.</p>
Flash faulty LED	Enabling this function flashes the LED on a point that reports a fault. This assists with visually finding and identification of the device that reports a fault.

Comms enable/disable

Menu path	Maintenance/Comms enable/disable
Purpose	This menu allows you to enable or disable PP3 comms to panels on the Network temporarily, without altering their filters etc. When edited on one panel it replicates to all panels that are configured to be online via setup, so that they all agree on who is expected to be online.

Operation

When Comms enable/disable is selected, the following menu is displayed (see Figure 72). The panel number, which defaults to 001, can be entered using the panel keypad.

Figure 72: Maintenance: Comms Enable/disable

```


MAINTENANCE: COMMS ENABLE/DISABLE
Enable/disable panel comms. <F1>-Toggle
Panel: 001 [Disabled] <Enter>-Save
< <--> > next online panel
  
```



4211-01

As the panel number is entered, the panel status will change accordingly. The panel status can either be Enabled, Disabled, Offline or Invalid. An invalid panel number results in an invalid condition, which is indicated by a blank in the panel status field.

The panel number is entered from right to left. Illegal panel values may occur as the panel number is being entered, which is why an invalid condition is displayed as blank (to prevent confusion).

When the panel number is entered the menu text changes from "<Enter>-Save" to "<Home>-

Save" thereby making the Enter key functionality redundant. Pressing the F1 key () toggles the panel status of the selected panel.

If the ESC key () is pressed, all changes made in this menu will be lost. Pressing the HOME key () saves all changes.

Interpretation of analogue readings

Introduction

The panel reads six analogue values from each device, each time it polls that device. Each value is a whole number that can range from 0 to 255. These values can be interpreted in order to provide a comprehensive analysis of each device and the system as a whole.

The six readings are listed below in the order in which they are read and conventionally displayed:

- Reading 1 Reference group
- Reading 2 Polling group
- Reading 3 Device type
- Reading 4 Reference (low)
- Reading 5 Device status (device analogue reading)
- Reading 6 Device specific

The following sections give the meanings of each analogue reading. Reading 6 is only relevant for certain specialized devices, and is usually zero.

Reference group

The reference group reading identifies the device reference group type. This value is used for the following:

- Decide if a device is 'online' (connected) or 'offline' (disconnected).
- Determine the health of a device and how well the device or the Line Driver Board is calibrated.
- To identify if the device is an intrinsically safe (EX), ZR, ZP or ZX device.

The values are interpreted as follows (as for Table 25 on page 93):

0–39	A value in this range indicates to the panel that there is no device at the polled address. It is offline.
70–100	Values in this range indicate an intrinsically safe (EX) device. The norm for intrinsically safe devices is 84, which indicates best calibration.
135–163	The norm for ZR and ZX devices is 152.
197–226	Values in this range indicate a healthy non-intrinsically safe device (ZP). The norm for devices is 213, which indicates best calibration. If a device falls outside the range 205–218 then it should be re-calibrated.
All others	Values falling outside the above ranges indicate a very poorly calibrated or unhealthy device. The panel treats all such devices as invalid. If occurring on multiple devices, a wiring fault may be suspected.

Device type readings

Readings two (polling group) and three (device type) together with reading one (reference group) identify the type of the device. The device types indicated by combinations of the three readings are provided in Table 31.

The “Code” column gives a three-digit identifier for the device, each digit derived from the values of the device type readings. Some intrinsically safe devices may have the same code as standard devices but are distinguished by their reference group reading (Reading 1).

Table 31: Device definition table and device type analogues interpretation

Model	Description	Code	Reading 1	Reading 2	Reading 3
ZP710-2	Analogue ionization sensor	212	197-226 (213)	228-255 (245)	197-226 (213)
ZP720-2	Analogue heat sensor	213	197-226 (213)	228-255 (245)	165-194 (180)
ZP720-3	Analogue heat sensor	217	197-226 (213)	228-255 (245)	039-068 (054)
ZP725-2	Analogue heat sensor –with rate of rise element	214	197-226 (213)	228-255 (245)	133-162 (152)
ZP730-2	Analogue optical sensor	215	197-226 (213)	228-255 (245)	102-131 (118)
ZP732-2	Analogue duet sensor (optical/heat)	216	197-226 (213)	228-255 (245)	070-100 (084)
ZP5-IF8-22	8 way interface fire callpoint board	222	197-226 (213)	197-226 (213)	197-226 (213)
ZP5-IF8-23	8 way interface fire sprinkler board	223	197-226 (213)	197-226 (213)	165-194 (180)
ZP740-2-23	Analogue interface fire sprinkler	223	197-226 (213)	197-226 (213)	165-194 (180)
ZP5-IF8-24	8 way interface fire general purpose board	224	197-226 (213)	197-226 (213)	133-162 (152)
ZP740-2-24	Analogue interface fire general purpose	224	197-226 (213)	197-226 (213)	133-162 (152)
ZP745	Interface unit	224	197-226 (213)	197-226 (213)	133-162 (152)
A45E	Interface unit	224	197-226 (213)	197-226 (213)	133-162 (152)
ZP740ST	Analogue interface for high sensitive smoke detector (stratos)	233	197-226 (213)	165-194 (180)	165-194 (180)
ZLS1APIC	Analogue interface for high sensitive smoke detector (stratos)	233	197-226 (213)	165-194 (180)	165-194 (180)
ZP755	Loop sounder (all variants)	241	197-226 (213)	133-162 (152)	228-255 (245)
ZP750-2	Line relay	242	197-226 (213)	133-162 (152)	197-226 (213)
A50E	Line relay	242	197-226 (213)	133-162 (152)	197-226 (213)
A51E	High voltage line relay	242	197-226 (213)	133-162 (152)	197-226 (213)
ZP752-2	Dual line sounder unit	245	197-226 (213)	133-162 (152)	102-131 (118)
ZP753-2	Addressable LED indicator	246	197-226 (213)	133-162 (152)	070-100 (084)
ZP754*-2	Addressable line sounder	247	197-226 (213)	133-162 (152)	039-068 (054)
ZP755	Loop sounder (ZP754 mode)	247	197-226 (213)	133-162 (152)	039-068 (054)
ZP5-IF8-52	8 way interface fire non-fire/auxiliary board	252	197-226 (213)	102-131 (118)	197-226 (213)
ZP740-2-52	Analogue interface non-fire/auxiliary	252	197-226 (213)	102-131 (118)	197-226 (213)
ZP5-IF8-53	8 way interface fire non-alarm/control board	253	197-226 (213)	102-131 (118)	165-194 (180)
ZP740-2-53	Analogue interface non-alarm/control	253	197-226 (213)	102-131 (118)	165-194 (180)
ZP5-IF8-54	8 way interface fire non-alarm/control board	254	197-226 (213)	102-131 (118)	133-162 (152)
ZP740-2-54	Analogue interface non-alarm/control	254	197-226 (213)	102-131 (118)	133-162 (152)
ZP5-IF8-62	8 way interface fire security latching board	262	197-226 (213)	070-100 (084)	197-226 (213)
ZP740-2-62	Analogue interface security latching	262	197-226 (213)	070-100 (084)	197-226 (213)
ZP5-IF8-64	8 way interface fire security non-latching board	264	197-226 (213)	070-100 (084)	133-162 (152)

Model	Description	Code	Reading 1	Reading 2	Reading 3
ZP740-2-64	Analogue interface security non-latching	264	197-226 (213)	070-100 (084)	133-162 (152)
ZX832-2	Analogue duet sensor (paradigm) optical/heat	416	133-162 (152)	228-255 (245)	070-100 (084)
ZR420	Radio heat detector	423	133-162 (152)	197-226 (213)	165-194 (180)
ZR485	Radio call-point	424	133-162 (152)	197-226 (213)	133-162 (152)
ZR430	Radio optic detector	425	133-162 (152)	197-226 (213)	102-131 (118)
Radio aux.	Radio auxiliary interface	426	133-162 (152)	197-226 (213)	070-100 (084)
Radio sounder	Radio I/O unit (includes sounders)	427	133-162 (152)	197-226 (213)	039-068 (054)
Radio I/O group	Radio I/O group (including sounder groups)	437	133-162 (152)	165-194 (180)	039-068 (054)
ZP710Ex-1	Intrinsically safe analogue ionization sensor	655	070-100 (084)	102-131 (118)	102-131 (118)
ZP720Ex-1	Intrinsically safe analogue heat sensor (change to ZP720Ex-1) FT	656	070-100 (084)	102-131 (118)	070-100 (084)
ZP785-2	Call point	222	197-226 (213)	197-226 (213)	197-226 (213)
ZP785-3	Call point- 3 second response	222	197-226 (213)	197-226 (213)	197-226 (213)
ZP786Ex-1	Intrinsically safe analogue callpoint (breakglass)	665	070-100 (084)	070-100 (084)	102-131 (118)
ZP740Ex-1	Intrinsically safe analogue interface unit (fire)	666	070-100 (084)	070-100 (084)	070-100 (084)
ZP740Ex-1	Intrinsically safe analogue interface unit (non-fire)	667	070-100 (084)	070-100 (084)	039-068 (054)
ZP3-ECU	Extinguishing control unit – address 1	244	197-226 (213)	133-162 (152)	133-162 (152)
ZP3-ECU	Extinguishing control unit – address 2	242	197-226 (213)	133-162 (152)	197-226 (213)
ZP5-570-2	Analogue interface for conventional sensor line	232	197-226 (213)	165-194 (180)	197-226 (213)
A70E (emulated)	Analogue interface for conventional sensor line	232	197-226 (213)	165-194 (180)	197-226 (213)
ZP5-574	4 way conventional interface	235	197-226 (213)	165-194 (180)	102-131 (118)
ZP7BMR	Analogue interface fire general purpose	224	197-226 (213)	192-226 (213)	133-162 (152)
ZP7BM2000	Analogue interface fire general purpose	224	197-226 (213)	192-226 (213)	133-162 (152)

References low

The low reference reading is used to determine that the line on which the device is connected is healthy and is not subject to residual or unwanted signals. For effective operation of the line this value must be below 10. A reading of zero is quite usual.

If the low reference reading ever rises above 38 then the panel will treat the device generating the reading as invalid.

Device status reading

The device status reading is sometimes also referred to simply as the analogue reading. It is a precise indicator of how strongly the device is sensing the environmental factors (e.g. heat or smoke) it is designed to detect. For some devices the analogue reading may indicate some other measure such as the status of a switch.

The panel interprets the reading according to the device type. The panel uses sophisticated algorithms based on these readings and their change over time to determine the true conditions in the area covered by the device. Viewing a snapshot of the analogue readings cannot provide information with the same degree of accuracy; nevertheless values can be interpreted, as in the following tables, in order to help assess the status of a device.

Analogue status – idle limits

The resting values of the analogues when devices are in normal conditions are provided in Table 32. The resting value is referred to as the idle value and can take on any values in the ranges given below, usually this will be near the mid-point of the range.

Table 32: Analogue status – idle limits

Model	1 High	2 Standard	3 Medium	4 Low
ZP710-2	20-108	20-108	20-108	20-108
ZP720-2	25-123	25-143	25-186	25-186
ZP725-2	25-123	25-151	25-174	25-194
ZP730-2	20-108	20-108	20-108	20-108
ZP732-2 optic	20-108	20-108	20-108	20-108
ZP732-2 heat	25-163	25-163	25-179	25-179
ZP720-3	25-163	25-163	25-179	25-179
ZP740-2	59-137	59-137	59-137	59-137
ZP745	59-137	59-137	59-137	59-137
ZP770-2	59-137	59-137	59-137	59-137
ZP740ST	39-104	39-104	39-104	39-104
ZP755	40-110	40-110	40-110	40-110
ZP750-2	59-140	59-140	59-140	59-140
ZP752-2	40-140	40-140	40-140	40-140
ZP753-2	40-110	40-110	40-110	40-110
ZP754*-2	40-110	40-110	40-110	40-110
ZP5-IF8	59-137	59-137	59-137	59-137
ZX832-2 optic	20-100	20-100	20-100	20-100
ZX832-2 heat	25-164	25-164	25-179	25-179
ZR420	85	85	85	85
ZR430	85	85	85	85
Radio Sounder	85	85	85	85
ZP710Ex-1	10-54	10-54	10-54	10-54
ZP720Ex-1	12-71	12-71	12-93	12-100
ZP785-3	59-137	59-137	59-137	59-137
ZP786Ex-1	29-58	29-58	29-58	29-58
ZP740Ex-1	29-58	29-58	29-58	29-58
ZP5-570-2	59-137	59-137	59-137	59-137
ZP5-574	59-137	59-137	59-137	59-137

Analogue status – alarm values

In Table 33, the analogue values that indicate an alarm state are shown for various devices. For some devices other value ranges are used to indicate such conditions as fault, service, pre-service and pre-alarm.

Table 33: Analogue status – alarm values

Device Type	Sensitivity level							
	High		Standard		Medium		Low	
	Nom	Max	Nom	Max	Nom	Max	Nom	Max
ZP710-2	N+68	168	N+81	180	N+94	190	N+105	200
ZP720-2	145	N/A	a(144)	N/A	a(187)	N/A	188	N/A
ZP720-3	165	N/A	a(164)	N/A	a(180)	N/A	181	N/A
ZP725-2	125	N/A	153	N/A	176	N/A	196	N/A
ZP730-2	N+77	158	N+90	176	N+102	186	N+110	205
ZP732-2 optic element	N+77	158	N+90	176	N+102	186	N+110	205
ZP732-2 heat element	165	N/A	a(164)	N/A	a(180)	N/A	181	N/A
ZP720-3	165	N/A	a(164)	N/A	a(180)	N/A	181	N/A
ZP5-IF8	138	187	138	187	138	187	138	187
ZP740-2	138	187	138	187	138	187	138	187
ZP745	138	187	138	187	138	187	138	187
ZP770-2	138	187	138	187	138	187	138	187
ZP740ST	150	255	150	255	150	255	150	255
ZP755	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ZP750-2	141	141	141	141	141	141	141	141
ZP752-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ZP753-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ZP754*-2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
ZX832-2 optic element	a(N+49)	255	a(N+60)	255	a(N+80)	255	a(N+105)	255
ZX832-2 heat element	a(165)	N/A	a(164)	N/A	a(180)	N/A	a(181)	N/A
ZR420	181	181	181	181	181	181	181	181
ZR430	181	181	181	181	181	181	181	181
Radio Sounder	181	181	181	181	181	181	181	181
ZP710Ex-1	N+34	255	N+40	255	N+47	255	N+52	255
ZP720Ex-1	73	N/A	73	N/A	95	N/A	102	N/A
ZP785-2	138	187	138	187	138	187	138	187
ZP785-3	138	187	138	187	138	187	138	187
ZP786Ex-1	59	98	59	98	59	98	59	98
ZP740Ex-1	59	98	59	98	59	98	59	98
ZP5-570-2	138	187	138	187	138	187	138	187
ZP5-574	138	187	138	187	138	187	138	187

Notes: When the calculated "N+" values fall outside of the minimum/maximum levels, the minimum/maximum levels take precedence. N is the nominal idle value read on a daily basis. N value adjustment is limited to 10 counts maximum, this avoids sensitivity shift in a smouldering fire situation.

'a' = algorithm

Extinguishing control unit

The Extinguishing control unit in particular makes extensive use of slots 5 and 6 to indicate status. These analogues are shown in Table 34 for slot 5 and Table 35 for slot 6.

Table 34: Extinguishing control unit – slot 5 (address 1)

Details	Nominal value Digital counts
Normal idle value	39 - 65
Manual when door locked	68-100
Loss of signal	< 39
General panel fault	103 – 132
Power supply fault	> 163
Relay operated	141 – 163

Table 35: Extinguishing control unit – slot 6 (address 1)

Details	Nominal value Digital counts
Fault – low idle	< 39
Auto released	39 – 65
Manual released	68 – 100
System locked-off (released)	103 – 132
Auto non-released	141 –163
System locked-off (non-released)	166 – 195
Manual (non-released)	> 198

Corrective maintenance

Removing and replacing the lithium time/date batteries

The lithium time/date batteries on the main board must be replaced before they reach their end-of-life date.



CAUTIONS:

The Lithium time/date batteries contain substances that are potentially hazardous to your health and to the environment.

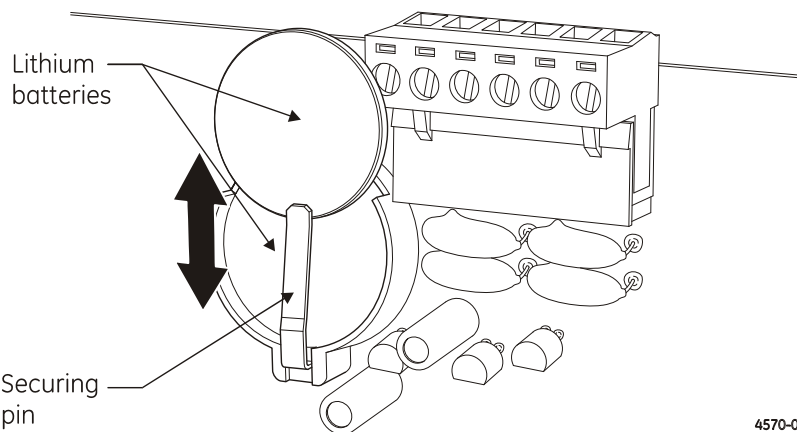


If the Lithium time/date batteries are replaced for any reason, the old batteries cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The batteries are marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the batteries to your local supplier or to a designated collection point. For more information see: www.recyclethis.info.

Remove the lithium time/date batteries as follows:

1. Open the front door of the ZP3 panel.
2. Locate the lithium time/date batteries on the main board (see Figure 73).
3. Remove the batteries by sliding them out from under the securing pin.
4. Return removed batteries to your local supplier or to a designated collection point for recycling. **Do NOT dispose of the batteries as unsorted municipal waste.**
5. Install two new lithium batteries into the space provided making sure that the positive sides of the batteries are facing towards the front of the panel.

Figure 73: Removing the lithium time/date batteries



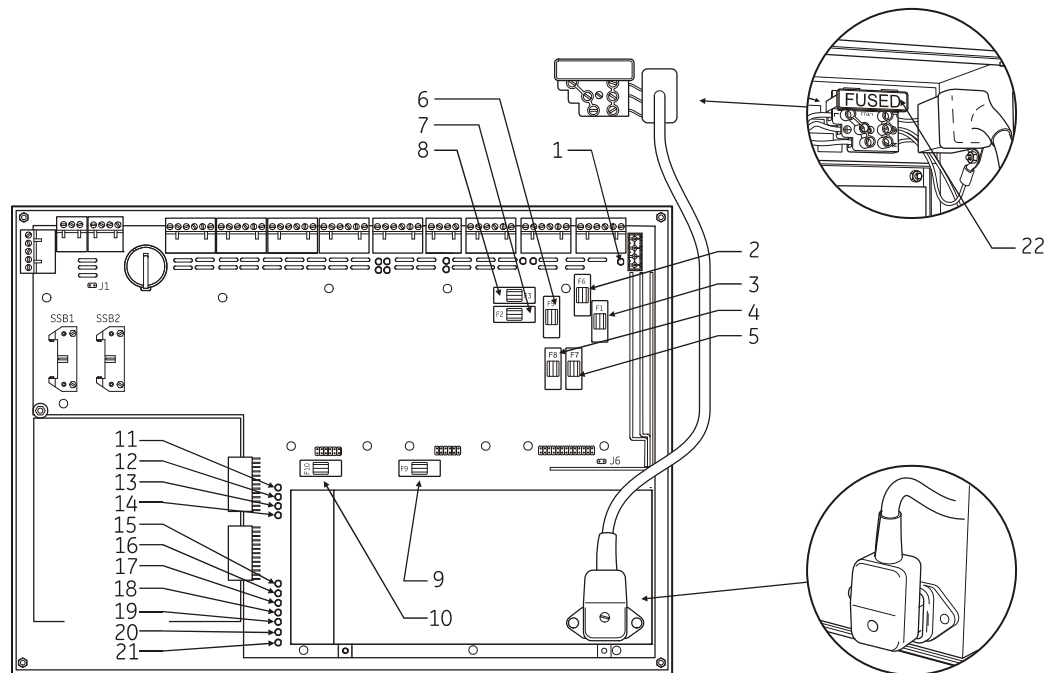
4570-01

Fuses and indicators

Figure 74 below shows the fuses and indicators used primarily for fault finding on the power supply. A list of fuses and indicators is provided in the accompanying legend.

Fuses must only be replaced with the value and type shown. Use of an incorrect fuse can affect safety and reliability.

Figure 74: Fuses and indicators



4213-01

Legend:

No.	Name	Description	Rating	Remarks
1	LED 1	Battery charging	-	25.4 x 6.3 mm
2	Fuse F6	Auxiliary 24 VDC supply	F4AL250V	20 x 5 mm
3	Fuse F1	Battery fuse	S6300mAL250V	20 x 5 mm
4	Fuse F8	Monitor sound	F1AL250V	20 x 5 mm
5	Fuse F7	Monitor sound	F1AL250V	20 x 5 mm
6	Fuse F5	RMC FLT alarm	F1AL250V	20 x 5 mm
7	Fuse F2	Monitor sounders	F1AL250V	20 x 5 mm
8	Fuse F3	Monitor sounders	F1AL250V	20 x 5 mm
9	Fuse F9	PSU 24 VDC supply	S6300mAL250V	20 x 5 mm 250V, 6.3A slow-blow
10	Fuse F10	PSU 5 VDC logic (internal)	S500mAL250V	20 x 5 mm 250V, 6.3A slow-blow
11	LED 21	Default = Off	-	Green: On = ADC failure
12	LED 18	Default = Off	-	Green: On = Earth fault
13	LED 19	Default = Off	-	Green: On = Loop fault
14	LED 20	Default = Off	-	Green: On = Sounder fault
15	LED 37	Internal supply 24 VDC	-	Green: On = supply on, Off = supply faulty
16	LED 15	Internal supply for CPU (5 VDC)	-	Green: On = supply on, Off = supply faulty
17	LED 14	Internal supply for logic (5 VDC)	-	Green: On = supply on, Off = supply faulty
18	LED 8	Internal supply RS232 (12 VDC -ve)	-	Green: On = supply on, Off = supply faulty
19	LED 7	Internal supply RS232 (12 VDC +ve)	-	Green: On = supply on, Off = supply faulty
20	LED 2	Internal supply for ZP3AB-SCB-D control bus driver	-	Green: On = supply on, Off = supply faulty
21	LED 4	Mains 230 VAC supply	-	Green: On = supply on, Off = supply faulty
22	Fuse FM	Mains fuse	F5AL250VAC	BS1362

Removing and replacing the back-up batteries

The back-up batteries may need to be replaced for a number of reasons, for example, end-of-life, insufficient capacity, etc.



CAUTIONS:

The back-up batteries contain substances that are potentially hazardous to your health and to the environment.



If the back-up batteries are replaced for any reason, the old batteries cannot be disposed of as unsorted municipal waste in the European Union. See the product documentation for specific battery information. The batteries are marked with this symbol, which may include lettering to indicate cadmium (Cd), lead (Pb), or mercury (Hg). For proper recycling, return the batteries to your local supplier or to a designated collection point. For more information see: www.recyclethis.info.



WARNINGS:

THE BACK-UP BATTERIES, ALTHOUGH AT ONLY 24 VDC, CARRY ENOUGH CHARGE TO BE DANGEROUS.

When connecting batteries, or when working in the vicinity of the battery terminals, take care not to accidentally cause a short circuit. In particular metallic tools or metallic watchstraps can also inflict SEVERE burns to the user as well as cause a short circuit.

Remove and replace the back-up batteries as follows:

1. Disconnect the connections from the positive and negative terminals on the back-up batteries.
2. Loosen and remove the wing nut from the batteries securing bracket (see Figure 75 below).
3. Remove the bracket securing the back-up batteries to the chassis.
4. Remove the back-up batteries.
5. Return removed batteries to your local supplier or to a designated collection point for recycling. **Do NOT dispose of the batteries as unsorted municipal waste.**
6. Install new back-up batteries as described under “Back-up batteries” on page 42.

Figure 75: Removing the back-up batteries

