

AZP
OPERATING
INSTRUCTIONS

SHORROCK MODEL ZP5

FOUR TO EIGHT LOOP

ANALOGUE ADDRESSABLE FIRE ALARM PANEL

OPERATOR MANUAL

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INTRODUCTION

1.0 INTRODUCTION

1.1 **Manual Scope**

This manual is intended as a guide to operators of SHORROCK ZP5 fire alarm control panel equipment. Operators are those responsible for routine panel operation and for dealing with fire and fault conditions identified by the control panel.

The manual is written assuming no technical knowledge on the part of the operator. Only the aspects of panel operation relevant to the operator are described. Three further manuals cover other aspects.

Commissioning The Commissioning Manual describes the programming of ZP5 panels in order to implement the system design specification.

Installation The Installation Manual describes the correct procedures for the physical installation of ZP5 fire alarm systems.

Maintenance The Maintenance Manual describes in detail the maintenance and testing procedures necessary in order to ensure trouble free long term operation of ZP5 fire alarm systems.

The products covered by this manual are now listed. The product code is given along with the description.

| | |
|--------------|---|
| 22710 | ZP5-4-84L 4 Line panel, 24V, LCD display. |
| 22810 | ZP5-4-84L 4 Line panel, 220V, LCD display. |
| 01210 | ZP5-8-84L 8 Line panel, 24V, LCD display. |
| 01230 | ZP5-8-84L 8 Line panel, 220V, LCD display. |
| 16610 | ZP5-4-84P 4 Line panel, 24V, plasma display. |
| 16670 | ZP5-4-84P 4 Line panel, 220V, plasma display. |
| 01410 | ZP5-8-84P 8 Line panel, 24V, plasma display. |
| 01430 | ZP5-8-84P 8 Line panel, 220V, plasma display. |

The following software versions are covered by this manual.

20510.AOC Panel operating software for 8 line panels.

20510.AOT Panel operating software for 8 line panels.

23310.AOD Panel operating software for 4 line panels.

Other versions of the software may differ in operation. Software upgrades are available through the system installation or maintenance company.

1.2 **Manual Structure**

A summary of the following sections in the manual is now given.

§2.0 System overview

Provides an overview of ZP5 fire alarm systems and introduces basic concepts relating to them.

§3.0 Operation

Describes the behaviour of the panels in normal and exceptional circumstances (such as fire) and the appropriate actions for the operator to take in each case.

§4.0 Menu driven software

Covers the menu driven software functions that can be invoked by the operator through the panel keypad.

§5.0 Routine maintenance

Outlines the regular maintenance procedures that may be expected to be carried out by a panel operator.

The convention of using "§" as a shorthand for "Section" is followed whenever a cross reference is made to another section in the document.

**SYSTEM
OVERVIEW**

2.0 SYSTEM OVERVIEW

2.1 Panels and devices

The ZP5 range of control panels are state of the art microprocessor based fire alarm panels. All panel functions are software controlled to make fullest use of the panel hardware and provide systems that can be configured to individual needs. Despite being a powerful and flexible system, operation of a panel in case of fire is designed to be extremely straightforward. Figure 2-1 shows the basic components of a ZP5 fire alarm system.

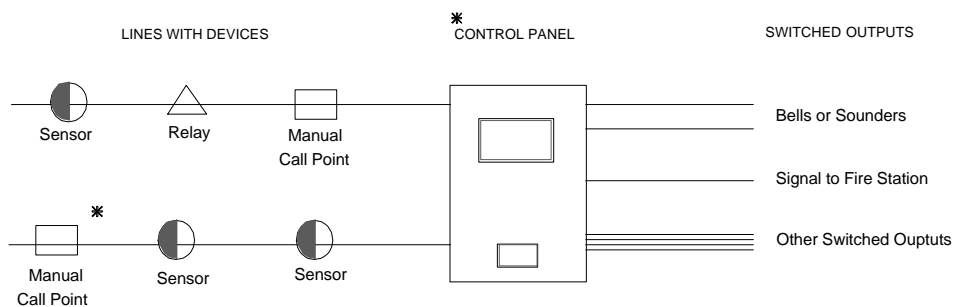


Figure 2-1. ZP5 basic system components

Each panel has a number of lines connected, to which Shorrock analogue addressable devices can be attached. Panels can have either 4 or 8 lines, depending on the model, allowing 508 or 1016 devices to be attached. The most common devices are fire detection sensors including ionisation type smoke sensors, optical type smoke sensors and heat sensors. Manual callpoints (activated by breaking glass) are another common addressable device. Through the lines the panel can receive information from and send information to the devices.

The devices can be grouped into zones, with a maximum of 128 zones allowed. Zones are software defined and there are no restrictions on which devices may be grouped together. Zones are referenced by zone number (from 1-128). The zones can be indicated on the display and the first 80 have indicating LEDs (lights) on the panel front.

Panels also have standard output connections allowing them to perform functions such as sounding of alarms and sending signals to the fire brigade. A large number of additional output signals can optionally be configured.

2.2 Detection of Fires

In operation the ZP5 panel continually checks every line device attached. Information is read from each device and

instructions can be sent to individual devices. The time taken for a complete scan of all attached devices is less than 2 seconds.

The data gathered from sensor devices indicates the amounts of smoke, heat and combustion products near the sensors. This information is constantly being updated as the sensors are actively checked by the panel. In this way an accurate picture is constructed of conditions in the areas being monitored.

Fire decisions are taken by the panel and not by the sensors. The panel software uses programmed rules to determine if sensor information indicates a fire. If the rules indicate that a fire exists in the vicinity of a sensor then the panel sounds the alarms and instructs the sensor to illuminate it's LED. A fire condition can also cause the panel to take other actions, programmed for the particular installation.

2.3 Panel general features

The general layout of the panel front is shown in Figure 2-2.

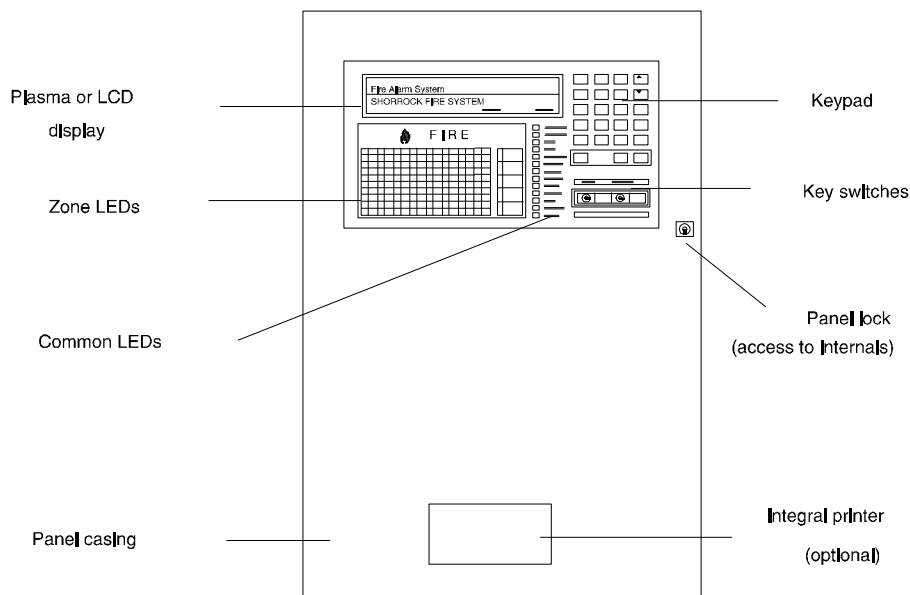


Figure 2-2. Panel general layout

There are LEDs that indicate information about:

- * fire condition.
- * power supply status.
- * fault conditions.

A keypad provides the basic input mechanism for panel operators. The keypad provides the mechanism for carrying out the basic panel operations:

- * silencing alarms
- * initiating evacuation
- * resetting the system
- * accessing the panel menu driven software

Events detected by the panel such as fire or a fault are shown on an 80 character text display. The display may either be plasma or LCD technology, depending on the panel model. Events are displayed with indications of where the event occurred. The display is also used to show menus and report information when operating the built in panel software.

An integral printer, the ZP-PR1 (product number 21810), is often included with panels in order to supply printed copies of events and produce reports. It is an option and not provided as standard. For systems that do not have an integral printer, references to the printer in this manual can be ignored.

2.4 Maintenance and self testing

ZP5 systems have excellent facilities to ease the task of maintenance. At regular intervals the panel automatically re-calibrates all sensors. This solves the problem of sensors becoming more sensitive due to gradual build up of dirt. If contamination approaches a limit that could affect the sensitivity of the sensor, then the panel produces a "service required" call on the display and printer, indicating which device needs attention.

In addition to checking for fire the panel also checks that each device is of the correct type and is functioning properly. Sensor tests are carried out each night after midnight. Any problems discovered are reported immediately on the display and printer.

Regular maintenance procedures should be carried out by experienced servicing personnel. There are some daily and weekly checks that the panel operator may be expected to carry out. These tasks are described in §5.0.

**SYSTEM
OPERATION**

3.0 SYSTEM OPERATION

3.1 Panel controls and indicators

This section lists the controls and indicators on the panel and briefly summarises their purpose. More detailed descriptions of individual controls and indicators are found in following sections.

3.1.1 Physical Layout

The physical layout of the panel controls and indicators is shown in Figure 3-1. Prominently positioned is a fire symbol and the word "FIRE", referred to as the Common Fire Indicator.

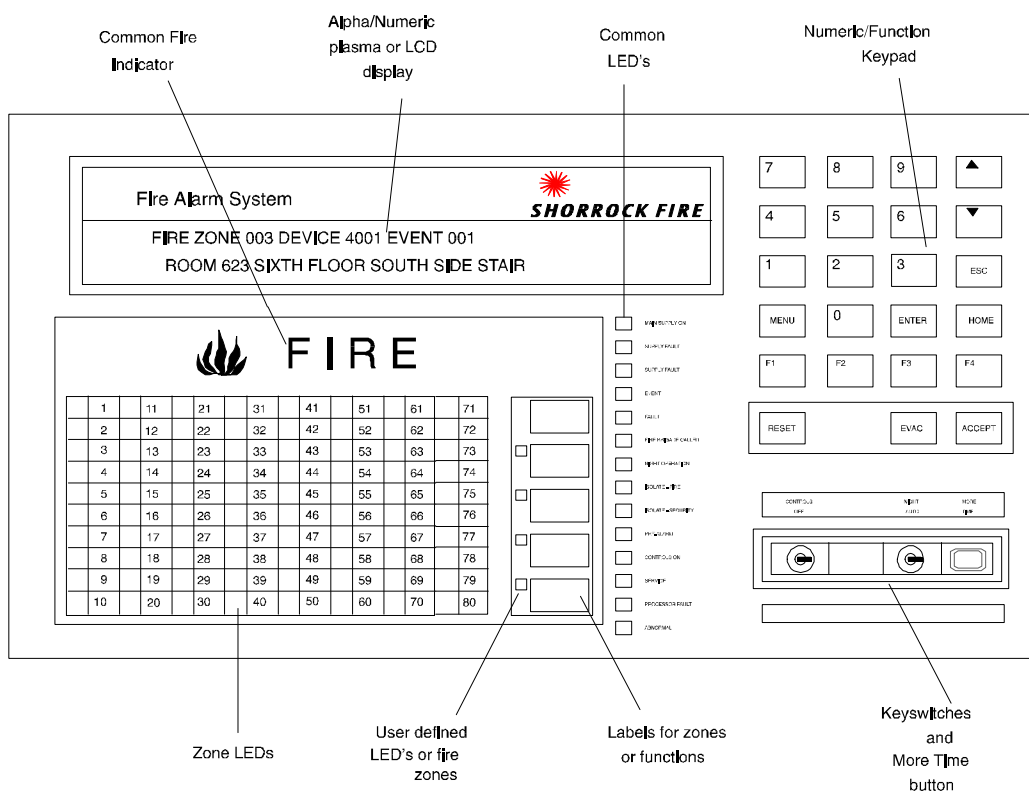


Figure 3-1. Detail of panel front

The text display and keypad described previously are shown. The text display consists of two lines, of 40 characters each. The keypad includes the numbers 0-9, function keys F1-F4, increment and decrement keys ↑ and ↓, ESC, MENU, ENTER and HOME. There are also ACCEPT, EVAC and RESET keys.

There are numerous LEDs including zone indicator LEDs, common condition LEDs and user defined function LEDs. There are also two key-switches (key-operated switches),

one labelled "CONTROLS OFF" and another "AUTO\NIGHT". Next to the key-switches is a push button labelled "MORE TIME".

3.1.2 Controls Summary

The controls are now listed along with a brief note of their function. The control functions are described fully in the appropriate following sections.

| <u>Control</u> | <u>Purpose</u> |
|--|---|
| Accept Key | Used to silence alarms or acknowledge fault conditions. |
| Reset Key | Used to reset the system after accepting alarms or faults. |
| Evacuate Key | Raises a fire condition and sounds alarms. |
| Numeric\function keypad 0-9, F1-F4, ↑↓, ENTER,HOME,ESC and MENU | To access menu driven software. |
| CONTROLS OFF key-switch | Disables RESET , EVAC and ACCEPT keys. |
| NIGHT\AUTO key-switch | Selects between automatic switching between day and night operation, and permanent night operation. Only applies in Day\Night mode. |
| MORE TIME push button | Used to allow more time during investigation of alarms when in day operation of Day\Night mode. |

3.1.3 Indicators Summary

Colour Conventions

The colours of LED indicators have the following interpretations, which follow widely accepted standards.

RED The colour red is only ever displayed in the case of a fire. It is an unambiguous indication of a fire condition.

GREEN Green LEDs are used to indicate normal power supply condition. Green indicates that the panel is energised.

YELLOW A yellow light indicates a fault or draws attention to abnormal or unusual operation of the fire system.

The Common Fire Indicator is red, being lit by several red LEDs. A list is now given of all the LEDs, their number and their colours. The LED names are suggestive of their functions but the exact purpose of each LED type is covered in following sections.

| LED | Quantity | Colour |
|----------------------------|-----------------|---------------|
| Zones | 80 | Red |
| Common Fire Indicator LEDs | 7 | Red |
| Function (programmable) | 4 | Red |
| Mains Supply On | 1 | Green |
| Supply Fault | 1 | Yellow |
| Fault | 1 | Yellow |
| Event (programmable) | 1 | Yellow |
| Fire Brigade Called | 1 | Yellow |
| Night Operation | 1 | Yellow |
| Isolate-Fire | 1 | Yellow |
| Isolate-Security | 1 | Yellow |
| Pre-alarm | 1 | Yellow |
| Controls On | 1 | Yellow |
| Service | 1 | Yellow |
| Processor Fault | 1 | Yellow |
| Abnormal | 1 | Yellow |

3.2 **Standard and Day\Night modes**

A ZP5 panel can be configured to operate in one of two modes, Standard mode and Day\Night mode. The Standard operation mode provides uniform behaviour of the panel at all times. The Day\Night mode allows the behaviour of the panel to be different according to whether it is night or day time. The panel mode and the day and night time hours are defined when the panel is commissioned.

The idea of a Day\Night mode is that during the day a site will usually be occupied and the panel may well be attended by an operator, whereas during the night the site is likely to be unoccupied and the panel unattended. Different input-output mappings can be defined for day and night. Where panel operation depends on which mode has been set this will be stated.

When the panel is set to Day\Night mode and is in the night period, then the yellow Night Operation LED will be lit.

If this LED is lit during a time that is normally programmed to be a day period, then night mode has probably been enforced by use of the NIGHT\AUTO key-switch (see §3.9.2).

From the operators point of view, the most important difference between the two modes is that in Standard mode a fire event will sound the alarms and activate fire responses immediately while in Day\Night mode, during the day, this will be preceded by a time delay. Appropriate operator actions are detailed in the following sections.

3.3 Normal Operation (no events)

Under normal operating conditions, the green Mains Supply On LED will be illuminated and the time and date will be displayed. All alarms will be silent and the panel buzzer will be silent. No red or yellow indicators will show. The panel is continuously monitoring the line devices and prepared to react to any events raised by them.

In this normal operating condition the **RESET**, **EVAC** and **ACCEPT** keys are all enabled and will operate if pressed. Using these controls is described in §3.5.

The panel reaction to fire and fault events is described in the remainder of §3, as are appropriate operator responses.

3.4 Automatic reactions to fire

3.4.1 Reaction in Standard mode

When a fire condition signal is received by the panel from a line sensor, manual callpoint or interface unit, the following takes place.

- * The Common Fire Indicator flashes.
- * The relevant Zone LED flashes.
- * The panel buzzer sounds.
- * The alarms are sounded.
- * The LED on the activated device will flash.
- * Any programmed events tied to the triggering device are set in action. These usually involve activating outputs, with optional time delays.
- * The display shows a message indicating a fire condition, which zone the triggering device is in, the device number, an event number and a

short description of the location where the fire condition has been raised. For example:

```
FIRE Zone 003 Dev 1014 Event 001
First Floor P\Room 2B
```

If there is more than one fire event then the display will switch between them, showing each for approximately 2 seconds.

3.4.2 Reaction in Day\Night mode

As far as the operator is concerned, the night time operation of a panel set to Day\Night mode is identical to that set to Standard mode. During the day when a fire condition is raised by a sensor there are some important differences to the behaviour in Standard mode. The following reactions are the same as in Standard mode.

- * The Common Fire Indicator flashes.
- * The relevant Zone LED flashes.
- * The panel buzzer sounds.
- * The LED on the activated device flashes.
- * The display shows a message indicating a fire condition, which zone the triggering device is in, the device number, an event number and a short description of the location where the fire condition has been raised. For example:

```
FIRE Zone 003 Dev 1014 Event 001
First Floor P\Room 2B
```

The key difference to Standard mode operation is that programmed output actions are not triggered immediately. Some alarms may sound (see notes below). A programmed time delay will begin counting down. The amount of time remaining in the delay will be shown on the display, alternating with the fire event (or events) that are being displayed.

```
Extra investigation time for alarms:
(seconds) : 076
```

When this delay expires then the programmed events occur. The time delay gives the operator a chance to investigate

the situation before possibly highly disruptive fire reactions are initiated. The operators options are described in the following section.

Note:-

The following cases are important exceptions where the time delay does not apply.

- * If the alarm is raised manually by the operator pressing the **EVAC** key, then there is no delay.
- * There is no delay when the alarm is raised by operation of a manual callpoint.
- * After one device has activated and the countdown started, a second device activating will immediately cancel the delay.
- * There is a standard bell sounder relay on each panel that will activate on any fire event and which will not be delayed. If there are alarms attached to this relay then they will sound. They can be silenced by pressing the **ACCEPT** key. When the time delay is over, or is brought to an end, these alarms will sound again.

3.5 Operator reactions to fire

3.5.1 Enabling Controls

As previously mentioned, the **RESET**, **EVAC** and **ACCEPT** controls are all enabled in normal panel operation. If the controls are disabled then they must be enabled before they can be used. When the controls are disabled the yellow Controls Off LED is lit. The controls are enabled and disabled through the CONTROLS OFF key-switch (see §3.9).

3.5.2 Accepting the alarm and resetting

In many cases after an alarm has been raised by the panel it becomes apparent that the danger due to fire is over, or that the triggering event was not hazardous. In these cases the alarm can be accepted and the panel reset to its normal state. The following steps should be carried out.

1. If the controls are disabled then turn the CONTROLS OFF key-switch so as to allow access to the keypad controls.
2. Accept the alarm by pressing the **ACCEPT** key.

3. After ensuring that the cause of the alarm has been corrected reset the panel by pressing the **RESET** key.

Accepting an alarm has the following effects.

- * The panel buzzer silences but continues bleeping every 10 seconds until the system is reset.
- * The alarms silence. Some systems may be programmed not to silence the alarms. Also see the note on room sounders below.
- * The Common Fire Indicator and Zone LEDs stop flashing but stay lit.

After resetting the panel will return to normal operating condition, assuming that there are no other events to raise a new alarm and that the original cause of the alarm has been removed. The operator can now record the incident in the panel log book (see §5.2.1).

Note:-

- * It is not possible to reset the system until the alarm has been accepted.
- * Before the system is reset, the cause of alarm must be investigated and rectified. This may involve removing the source of smoke or heat from a sensor for example. If in doubt as to removing the cause of the alarm, maintenance personnel should be called.
- * If a subsequent alarm occurs, the panel will raise another alarm with the new triggering event displayed.
- * Certain sounders may be configured as "room" sounders. These are programmed to silence only after the **ACCEPT** key has been pressed a second time, and then only after a short time delay. The display will indicate the need for a second key press in this case.

3.5.3 Using the Day\Night mode time delay

As previously described, when a fire condition is raised by a panel operating in the day part of Day\Night mode, a time delay is counted down before the alarm is raised. The initial time delay given may vary from system to system

according to its specification, but should not exceed 120 seconds. There are three possible actions that the operator can take.

1. Investigate the fire condition.
2. Override the time delay.
3. Allow the delay to time out.

Option 1 : Investigate the fire condition

The operator may choose to investigate the fire condition within the initial time delay. If any alarms sound before the time delay then these can be silenced for the course of the investigation by pressing the **ACCEPT** key (assuming that the controls are enabled).

1. The operator, upon investigating the activated device, discovers that there is no fire or danger of fire. With the controls enabled, the **ACCEPT** key should be pressed and the panel reset by pressing the **RESET** key.

Resetting cancels the panel's impending fire responses and returns it to the normal state. The exact cause of the fire alarm should then be investigated. If the case of the alarm was not transient then a new fire event will occur.

2. Upon investigating the activated device the operator assesses the situation as hazardous. The operator can now either operate the nearest manual callpoint or press the **EVAC** key on the control panel. Either of these two operations will override the time delay immediately.

Note that the **EVAC** key will cancel the time delay even if controls are not enabled.

3. The operator uses most of the time available and decides to investigate further. Additional time delays can be requested. This is done by pressing the **MORE TIME** button located by the key-switches.

The amount of extra time granted is configured for each system, but the total delay from the time the fire condition arises is restricted to 5 minutes. The outcome will be one of the remaining scenarios.

4. If the initial time delay and any subsequent delays expire and the operator has not completed scenarios 1 or 2, then the programmed outputs will activate in the standard way.

Option 2: Override the delay

Should the operator decide not to investigate the fire condition, for example if hazardous areas are involved, the time delay can be overridden. This is done by pressing the **EVAC** key. The programmed actions then take place.

Note that the **EVAC** key will cancel the time delay even if controls are not enabled.

Option 3: Allow the delay to time out

If no action is taken, for example if the operator is not present, then the initial delay will time out. The alarm reactions proceed in the usual way.

3.6 Initiating evacuation

The operator can initiate an evacuation by manually signalling a fire condition. With the controls enabled the **EVAC** key can be pressed. This has the following effects.

- * The alarms sound.
- * The panel buzzer sounds.
- * The Common Fire Indicator flashes.
- * The following message appears on the display:

| | |
|----------|-----------|
| EVACUATE | Event 001 |
|----------|-----------|

The alarms can be silenced by pressing the **ACCEPT** key. The panel buzzer will also silence but the FIRE light will remain on steadily. In order to return the panel to normal condition the **RESET** key must then be pressed.

3.7 Non fire events

There are a number of non fire related events that can be indicated by the panel and which change the appearance associated with normal operating conditions. These events are described in turn.

3.7.1 Pre-Alarm

A pre-alarm event occurs when an automatic sensor detects low levels of smoke or heat. This can provide an early warning of an incipient fire condition. A pre-alarm is indicated by the yellow pre-alarm LED, together with the panel buzzer sounding.

In addition a message, similar to that for a fire condition will be displayed, for example:

```
PRE-ALARM Zone 003 Dev 1023 Event 001  
Ground Floor Laboratory
```

The pre-alarm can be accepted by pressing the **ACCEPT** key (assuming controls are enabled). The location indicated on the display should then be investigated. Once the situation is returned to normal the system can be reset using the **RESET** key.

3.7.2 Faults

The panel automatically checks for and reports a wide range of possible faults. A fault condition is indicated by the yellow fault LED illuminating and the panel buzzer sounding. The display will show a message describing the fault. For example.

```
DET OFFLINE Zone 006 Dev 2120 Event 001  
Second Floor Dining Room
```

The fault can be accepted by pressing the **ACCEPT** key (assuming that the controls are enabled). The buzzer will stop but will then continue to sound for half a second every ten seconds.

The fault should be investigated and the cause corrected after which the system can then be reset to normal condition by pressing the **RESET** key.

Some fault messages are self-explanatory and give accurate guidance as to correcting the fault. A full list of possible faults is not appropriate to this manual, as the operator will usually call in servicing personnel to deal with them.

3.7.3 Mains Supply Failure

In the event of a mains supply failure, the panel automatically changes over to standby battery supply. This

is shown by the green Mains Supply On LED being extinguished and the yellow Supply Fault LED illuminating. Furthermore the panel buzzer sounds and a message will be displayed.

| | |
|-------------|-----------|
| MAINS FAULT | Event 001 |
|-------------|-----------|

With controls enabled the fault can be accepted by pressing the **ACCEPT** key. This silences the buzzer. The mains supply should be restored after which the system can be reset with the **RESET** key.

3.7.4 Battery Failure

In the event of a battery supply fault, the Supply Fault LED is illuminated and the panel buzzer sounds. The display shows the following.

| | |
|---------------|-----------|
| BATTERY FAULT | Event 001 |
|---------------|-----------|

With controls enabled the buzzer alarm can be accepted by pressing the **ACCEPT** key, which silences it. Servicing personnel should investigate the battery and ensure that it is operating correctly. The panel can then be reset by pressing the **RESET** key.

3.7.5 Service Condition

If a sensor becomes contaminated to the extent that its sensitivity might be affected, the yellow Service LED lights and the buzzer sounds. The display continues to show the time and date.

Given that the controls are enabled, the buzzer can be silenced by pressing the **ACCEPT** key. The Service LED remains illuminated. If any further devices require servicing they will not activate the panel buzzer until the original one has been cleaned.

It should be noticed that the service LED has a checking delay of about 3 minutes. After a sensor has been cleaned this delay will be experienced before the service LED extinguishes.

A list of devices requiring service are stored in the panel's memory and can be viewed using the menu driven software. See the Operator Menu section for details. Service personnel should be contacted to clean the

contaminated sensors.

3.8 LED Functions

There are a number of auxiliary LEDs on the panel front whose operation has not yet been described. They all relate to non fire situations. Their names and functions are summarised as follows.

User Identified There are 4 red LEDs, adjacent to the zone LEDs, which can be programmed to operate in conjunction with specific events, for example a fire occurring in a particularly sensitive area.

The blank labels provided should be marked to identify the purpose of these LEDs. Details of how to program them can be found in the Commissioning Manual.

Event This LED is intended as a non fire event indicator which can be programmed as required for example to show that a plant shutdown system has been activated.

Fire Brigade Called This LED can be programmed in conjunction with a remote signal to indicate that a call has been transmitted to the Fire Brigade.

Night Operation Indicates that the control panel and system are in the night mode of operation. This can only happen when the panel is set to Day\Night mode.

Isolate-Fire This LED is illuminated whenever zones or fire devices are isolated. Refer to the Maintenance Manual (MF 678) for more details.

Isolate-Security This LED is illuminated whenever security devices are isolated. Refer to the Maintenance Manual (MF 678) for more details.

Processor Fault Indicates a fault with the panel

central processing unit (CPU). If lit an engineer should be called immediately as the system may be non-operational.

Abnormal

This LED is illuminated whenever the CPU is processing information, during such times as initialization and immediately after programming. It will also flash when the Commissioning menu is accessible, which is done through a commissioning code or a key switch (inside the panel).

3.9 Key-switches

3.9.1 CONTROLS OFF key-switch

The panel is fitted with a CONTROLS OFF key-switch labelled "CONTROLS OFF". The key switch can assume two positions, either turned to the right or turned to the left.

The switch turned left is the normal setting for the switch. In this state the **RESET**, **EVAC** and **ACCEPT** keys are all enabled and will operate normally.

When the keyswitch is turned to the right the Controls Off LED illuminates. The **RESET**, **EVAC** and **ACCEPT** keys are then all disabled and will not respond to being pressed. This feature is to prevent unauthorised operation of the panel.

It is easier to observe the Controls Off LED to decide if the controls are enabled or not, rather than looking at the key-switch position.

3.9.2 NIGHT\AUTO key-switch

The NIGHT\AUTO key-switch (labelled "NIGHT\AUTO") only has any effect if the panel is set to Day\Night mode. When the key-switch has two positions, one for automatic switching between day and night operation and the other to force night mode. This is useful if the more sensitive night mode operation is required during what is usually day mode operation. An example would be a public holiday when buildings are deserted during the day.

The yellow Night Operation LED will be lit when the panel is in night mode. It will always be on when the key-switch is turned to constant night operation.

3.9.3 Custom key-switches

A particular installation may have custom key-switches that are designed to meet particular customer requirements such as operating relays or closing doors. Any such switches and their purpose should be described in the specification for the system.

**MENU
DRIVEN
SOFTWARE**

4.0 MENU DRIVEN SOFTWARE

4.1 Introduction

The panel has built in menu driven software that assists in panel configuration (set up), maintenance functions and routine operation procedures and checks. This section describes the routine operation procedures, other software functions are described in other manuals and are referenced where appropriate.

Menus are shown on the panel character display. All menu displays follow the same principles. The menu name is displayed and the menu items are shown with numbers alongside. Menu items are selected by pressing the number key **0-9** that matches the item number, or a function key **F1-F4** of the same number.

Selecting a menu item may cause another menu to be called up or may carry out a particular function. When a software function is carried out, the operator may be prompted to enter information, via the keypad, information relating to that function.

Any menu can be cancelled and the menu above it presented by pressing the **ESC** key. In general the **ESC** key is used to cancel or abort the current activity and return to that preceding it. The menu system can be exited completely by pressing the HOME key, which returns the panel to its normal operation display.

Menu time-out feature

When the software menus are accessed it is possible that the operator may forget to exit from the menu structure. In order that the panel is not left in this state there is a time-out mechanism that will automatically return to the normal panel operating state after a fixed time within which no keys have been pressed.

If the user is waiting to select a menu, then the time before exiting is approximately 45 seconds with no keys pressed. If the user has started a particular software function then the time is approximately 12 minutes.

4.2 Main Menu

The main menu is the entry point to all of the user operator accessible software functions. The main menu is invoked by pressing the **MENU** key. The display will then show the following.

| | |
|-------------|-------------------------|
| Main Menu | Press F1-F3 |
| 1. Operator | 2. Maintenance 3. Setup |

The menu items give access to the following types of functions.

Operator

F1

Routine operation functions. Selecting this option is not restricted and will lead to the options described in this section.

Maintenance

F2

Selecting this option will require an access code to be entered. Authorised operators are supplied with the access code when the system is handed over after commissioning. Details of the functions available through the Maintenance menu can be found in the Maintenance Manual.

Set Up

F3

Access to the Set Up menu requires another access code to be entered. This code is not normally available to the operator as the functions available allow the system to be reconfigured. Details of the Set Up functions can be found in the Commissioning Manual.

4.3 Operator Menu

Selecting **F1** from the Main Menu will present the operator menu.

| | |
|---------------|------------------------|
| Operator Men. | Press F-F3 |
| 1. Time | 2. Reports 3. Lamptest |

Each option is now described in turn.

4.3.1 Setting the time and date

This function allows the date and time displayed by the panel to be set. Various panel functions are controlled by the time and date setting, so it is important to regularly check that they are correct. If they are not then this should be corrected as described in the following steps. The display produced is shown after each step.

1. Display Operator Menu as previously described.

```
Operator Menu.  Press F1-F3
1.  Time      2.  Reports    3.  Lamptest
```

2. Press **F1**

```
Time and Date Set
Enter date (YY\MM\DD) : 00\00\00
```

3. Enter the year, month and day, in that order using the numeric keys **1-9**, each taking two digits (e.g. for 5th February 1993 press the keys 9 3 0 2 0 5. Press the **ENTER** key when done.

```
Time and Date Set          = Select Day
Enter time (Day-HH:MM): Sun - 00:00
```

4. First select the day of the week by stepping through the weekdays with the **↑** and **↓** keys. When the correct day is displayed then enter the time in international format (four digits, hours 00 to 23, then minutes 00 to 59). Press the **ENTER** key when done.

```
Saving .....
```

Then after a short delay during which the time and date are saved:

```
Operator Menu.  Press F1-F3
1.  Time      2.  Reports    3.  Lamptest
```

Press **HOME** to return to normal with the new time and date displayed.

4.3.2 Reports

A number of useful reports can be generated from this selection. Reports are displayed either on the display or printed out on the printer (if the system has one). Each report is now treated in turn.

Sensor Status to screen

This option allow the operator to produce a report on the status of any device attached to the panel lines. The report will show the type, sensitivity, zone and condition of the device. This is accomplished by the following

steps, showing the display after each step.

1. Display the Operator Menu as previously described.

```
Operator Menu.  Press F1-F3
1.  Time      2.  Reports      3.  Lamptest
```

2. Press **F2**

```
Reports Menu.  Press F1-F2
1.  Screen    2.  Printer
```

3. Press **F1**

```
Reports to screen.  Press F1-F2
1.  Detector status  2.  Software Version
```

4. Press **F1**

```
Loading .....
```

Then, after a short pause.

```
Detector status report
Device : 0000
```

5. Select the full address of the device to be checked by either using the ↑ and ↓ keys, or by entering it through the numeric keypad **0-9**. For example address 1012 for loop number 1, address 012. When this is completed press the **ENTER** key.

```
Status report.  Dev: 1012 ID: Smoke
Sen:2  Zon:003  Device Condition = Healthy
```

This is a sample device report. It shows the device address, type (ionisation, interface, sprinkler etc), sensitivity (1-4 with 2 being the default), device zone and the condition of the device.

6. Examine the report. If there are further devices to examine then pressing **ESC** will return to the display status after Step 4. It is also possible to use the ↑ and ↓ keys to step to the next or previous device address. When finished press **HOME** to exit.

Software version to screen

This report allows the operator to check which version of software is installed in the panel.

Repeat steps 1 to 3 as above.

```
Reports to screen.  Press F1-F2
1.  Detector status    2.  Software version
```

4. Press **F2**

```
Software Version report
SW_23310_vers_A.OD
```

The above shows an example software version number.

5. Note the software version press **HOME** to exit.

Printer Reports

There are also reports that can be produced on the printer, if the panel is configured with one. The printed reports are accessed as follows.

Repeat steps 1 and 2 as above.

```
Reports Menu.  Press F1 - F2
1.  Screen    2.  Printer
```

3. Press **F2**

```
Reports to Printer.  Press F1-F3
1.  Zoning    2.  Archives    3.  Stop Printer
```

4. Press **F1** in order to print out the details of system zoning (which devices are allocated to which zones). Pressing **F2** will print out the last 500 events stored by the panel. If the printer is printing any reports then pressing **F3** at this stage will halt it. Starting a report will produce a display like:

```
Archives to Printer
Press F4 to stop Printer
```

At any time while the report is printing, pressing **F4** will stop the printer and exit.

Example printouts are shown for the zoning and archives reports in Figures 4-1 and 4-2 respectively. Note that the text at the top of the printout (closest to the printer) is the most recent and thus printouts are read from bottom to top.


```
End of Table

1010 callpoint
1009 isolation
Zone 002

1006 smoke
1002 smoke
1001 heat
Zone 001

Thu 92/10/29 09h59:11
Signed .....
Name .....
System .....
Job No .....
S/W 23310 ver A_OQ

Serial Num 061092001
SHORROCK FIRE SYSTEM

Shorrock Panel 001
Fire Alarm System
```

PRINT
DIRECTION
↑

Figure 4-1. Sample zoning printout

```
ISOLATED
smoke 1002
zone 001 event 001
Wed 92/10/14 09:01:29

Device Isolation
Wed 92/10/14 09h01:29

Panel Reset 000
Tue 92/10/13 17:45:58

Panel Silenced 000
Tue 92/10/13 17h41:25

** FIRE **
smoke 1002
zone 001 event 001
Tue 92/10/13 17h40:32

Start Print Archive
Thu 92/10/29 07h24:08
```

PRINT
DIRECTION
↑

Figure 4-2. Sample event archives printout

4.3.3 **Lamptest**

The "lamptest" facility is used to test the panel front LEDs and display. The following steps should be followed.

1. Select Operator Menu from the Main Menu giving:

```
Operator Menu. Press F1-F3
1. Time      2. Reports  3. Lamptest
```

2. Press **F3**

```
Lamptest
.....
```

All the LEDs should illuminate for approximately 20 seconds. Any that do not illuminate are faulty and should be attended to. To cut the test short and exit press the **HOME** key.

**ROUTINE
MAINTENANCE**

5.0 ROUTINE MAINTENANCE

5.1 Introduction

In order to ensure safe and trouble free long term operation of the ZP5 systems they should be regularly tested and serviced. Routine testing and maintenance should be carried out by experienced technicians with the necessary equipment, and to a fixed schedule as part of a maintenance agreement with the installing company.

Full details of maintenance and servicing procedures are given in the Maintenance Manual. Here it suffices to note that weekly tests of the alarms should be carried out by maintenance personnel. Quarterly services are recommended and once a year a complete system check should be carried out.

The maintenance company should also be on call to correct faults that may arise. The operator should always have full details of how to contact maintenance personnel, and should call them if and when necessary.

The operator is responsible for recording panel events in a log book (§5.2.1). The operator is also responsible for regular daily checks of the system (§5.2.2) and may be assigned the weekly checks described in §5.2.3. The weekly checks may alternatively be carried out by those responsible for the weekly testing of the alarms.

5.2 Operator Duties

5.2.1 Log Book Entries

Every control panel should have a log book associated with it. This log book is used to record events raised by the panel or related to the fire system controlled by the panel. The log book is an important record of the history of the system and is kept up to date by the operator and by maintenance personnel.

The operator is responsible for recording in the log book all faults and fire events raised by the system. Each entry should describe the event, the time it was entered, and give the name of the operator on duty. Details of any arrangements made to correct or investigate faults should be recorded. In the case of a fire event the device responsible and its location should be noted.

5.2.2 Daily Checks

The following checks should be made by the panel operator

on a daily basis.

- * Check that the green Mains Supply On light is on and that the display shows the time and date only. Deal with fire conditions as described in §3.5

If a fault has occurred then the panel buzzer will be sounding and the appropriate fault LED will be lit. The fault event should be read from the display and noted in the log book. The fault can then be accepted and maintenance personnel contacted to correct it. After the fault has been fixed the panel can be reset.

- * Check that all faults recorded in the log book the previous day have been attended to. If not, the maintenance organisation should be re-contacted.
- * Check that the correct time and date are displayed. If the date or time is incorrect then the operator should correct it as described in §4.3.1

5.2.3 Weekly Checks

The following checks should be made by operator or by maintenance personnel on a weekly basis.

- * Check that all LEDs and the FIRE light are operational by carrying out a "lamptest", described in §4.3.3
- * Check the cabinet lock mechanism operates and is secure. Lightly lubricate if necessary.
- * If there is evidence of moisture in the unit then the maintenance company should be contacted to test the system in case electronic components have been damaged.
- * Check that the battery is not excessively warm or physically deformed.
- * Ensure that the panel is kept free of debris such as blown fuses and loose screws.
- * Make sure that the panel exterior is clean by lightly polishing with a dry cloth.
- * If a printer is fitted then check that it is working, has sufficient paper for two weeks, and that the print cartridge is not finished.

Make sure that the paper feeds correctly. Clean the exterior with a damp cloth if necessary. Changing the

printer cartridge and printer paper is covered in §5.3

If any defects are discovered they should be recorded in the log book and action taken to have them corrected.

5.2.4 Printer Reports

Certain events will be printed out on the printer if one is fitted. The operator may be expected to examine these printouts and file them, or enter them into the log book. All events recorded by the printer include the following information:

- * Event type (Fire, Fault etc)
- * Device number of the responsible device
- * Zone number of the responsible device's zone
- * Event number (since last reset)
- * Time and date

5.3 Printer care

The following procedures describe how to install printer cartridges and printer paper in ZP-PR1 printers.

5.3.1 Installing new printer cartridges

The front of the ZP-PR1 printer is depicted in Figure 5-1, showing the two control switches referred to as SW1 and SW2.

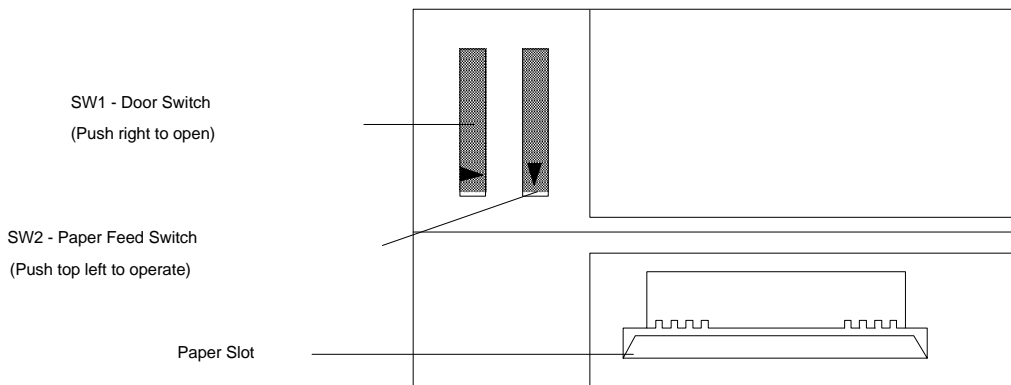


Figure 5-1. Printer controls

Replacement printer cartridges can be obtained from Shorrock as ZP-PRC (product code 24201). To replace a finished printer ribbon cartridge the following steps should be followed.

1. Tear off any paper emerging from the printer.
2. Open printer door by pressing door switch, SW1, to the right.
3. Place a forefinger against the lower edge of the mechanism mounting chassis and thumb against the base of the door.
4. Carefully press door and chassis in vertically opposite directions until the catch is released. The catch **must** be released before pulling the door and chassis apart. Open the door fully to expose the printer mechanism and ribbon cartridge.
5. Press down on the end of ribbon cartridge marked 'PUSH' and carefully remove the used cartridge.
6. Fit a replacement cartridge, ensuring paper lies between the ribbon and the steel printer plate. Snap the cartridge into place.
7. Make sure that the ribbon is taut and parallel to the paper. If necessary tighten it by turning the faceted disc clockwise with a fingernail.
8. If there is some paper protruding from front of the printer check that it will pass clearly through the guide channel and past the tear bar, then snap the chassis shut.
9. Turn paper roll by hand so that all paper is wound firmly around the paper roll.
10. Close the printer door and check that paper flows freely, using the paper feed button SW2.

5.3.2 **Installing new printer paper**

Changing the printer paper takes patience and some fine finger work. Some may find it easier to first remove the printer ribbon as described above, and replace it after the paper is in place.

The paper is a 57mm wide roll of "adding machine" type paper, available from Shorrocks as ZP-PRR (product code 23701). It can be changed by the following procedure (again referring to Figure 5-1).

1. Open the printer door by pushing the bottom of SW1 to the right, and giving the door a slight pull if necessary. Once the door is open the printer roll

will be visible.

2. If any paper protrudes from the front of the printer then tear it off using the serrated edge of the plastic guide. Carefully pull the remaining paper out from behind the printer door.
3. Press paper roll retaining button and slide the empty paper roll core out.
4. Take a new roll of paper and free the end. Cut the end to produce a clean edge for feeding through the printer.
5. Thread the new roll past the retention button onto the paper spindle. The paper should unwind in an anti-clockwise direction so that it feeds into the printer from below.
6. Insert free end of the paper into the printer paper input slot.
7. Press paper feed switch, SW2, at its upper left until the printer feed mechanism grips the paper and pulls it through the printer front.
8. Turn paper roll by hand so that all paper is wound firmly around the paper roll.
9. Close printer door and feed the paper through further using SW2. The paper may need to be straightened by hand.