Ampac

Fire detection and evacuation solutions that save lives.

LoopSense

Fire Alarm Control Panel

(NZS 4512:2010)

Operation & On-Site Programming

MAN 2998-2

A **Halma** company

Responding to a Fire

Access Level 1

Indicators   Controls

The **OVERRIDE** key is pressed to override any delays to outputs

Activating the "SILENCE ALARMS. BRIGADE USE ONLY" Key will silence all Alarm Outputs.

Access Level 2

The **EVACUATE** key is pressed to turn ON all alarm devices.

The **SILENCE/RESOUND** key is pressed to silence any silence-able outputs that have been activated.

The **ALARMS LED** will be illuminated to indicate that the silence-able outputs have been silenced and resound is available. The operation of the SILENCE key will be logged.

The **RESET** key is pressed to reset the fire condition. All outputs activated in response to the fire will deactivate and the panel will revert to the normal condition providing there are no other abnormal conditions present. – RESET IS LOGGED.

Disabling a Zone

The following example DISABLES a ZONE. Place the Keyswitch in the ENABLED position.

Press 👉 **[MENU ENTER]**

```
CONTROL MENU
1►ZONE           3|PANEL
2|DEVICE         4|GLOBAL CONTROL
```

Then **[2 ABC]** to open the "Control" menu. By following
the screen prompts select the type of control, 1 to 4. Once selected simply step through the menu again to implement.

Press 👉 **[1]** to open the "Zone" menu.

Selecting the Zone Control menu prompts the user to select the zone number using the generic zone point
selection screen followed by the corresponding zone control menu. (Sounder access is available at Level 3 only)

```
Zzzz              <status>
<zone descriptor>
1:DISABLE INPUTS    2:DISABLE SOUNDERS
3:SILENT WALK TEST  4:WALK TEST DEVICE►
```

Contents

1 About This Manual

1.1 Introduction

This manual contains all the information required to operate the *LoopSense* Fire Alarm Control Panel (FACP) and perform on site programming functions. The first step in becoming a proficient operator is to become familiar with and understand the "Menu Structure" (see Section 9) and the keys used to navigate through it. Once this concept along with the screen prompts that are displayed during the navigation process are understood the user will find the operation of the *LoopSense* Fire Alarm Control Panel (FACP) a simple task.

1.2 General Requirements

The *LoopSense* FACP has been designed and manufactured from high quality commercial components so as to comply with major world standards. To ensure these standards are not compromised in any way installation staff and operators should;

➢ Be qualified and trained for the task they undertake;

➢ Be familiar with the contents of this manual prior to the installation, commissioning or operation of a *LoopSense* control system;

➢ Observe anti-static pre-cautions at all times; and

➢ Be aware that if a problem is encountered or there is any doubt with respect to the operational parameters of the installation the supplier should be contacted.

1.3 References

LoopSense Installation & Commissioning Manual

LoopMaster Users Manual

Apollo Detector / Device Manuals

Ampac Product Data Sheets

New Zealand Standard: NZS4512:2010 Maintenance of Fire Protection Systems and Equipment-Fire detection and Alarm Systems

1.4 Symbols

ⓘ   Important operational information

☞ **Note:**   Configuration considerations

        Observe antistatic precautions

        Mains supply earth

        DANGER mains supply present

2   Introduction

2.1   System Overview

The purpose of the FACP is to monitor changes in inputs, report those changes and update selected outputs as programmed using the *LoopMaster* Configuration software.

The FACP processes changes in the inputs fire, fault, pre-alarm, emergency, security, user, transparent and system and has a built-in menu structure to view its status, perform operational tests, and to some degree modify the panel's configuration and programming without the use of the *LoopMaster* Configuration software.

2.2   System Components

The following diagram illustrates the main components of the system and their connectivity.
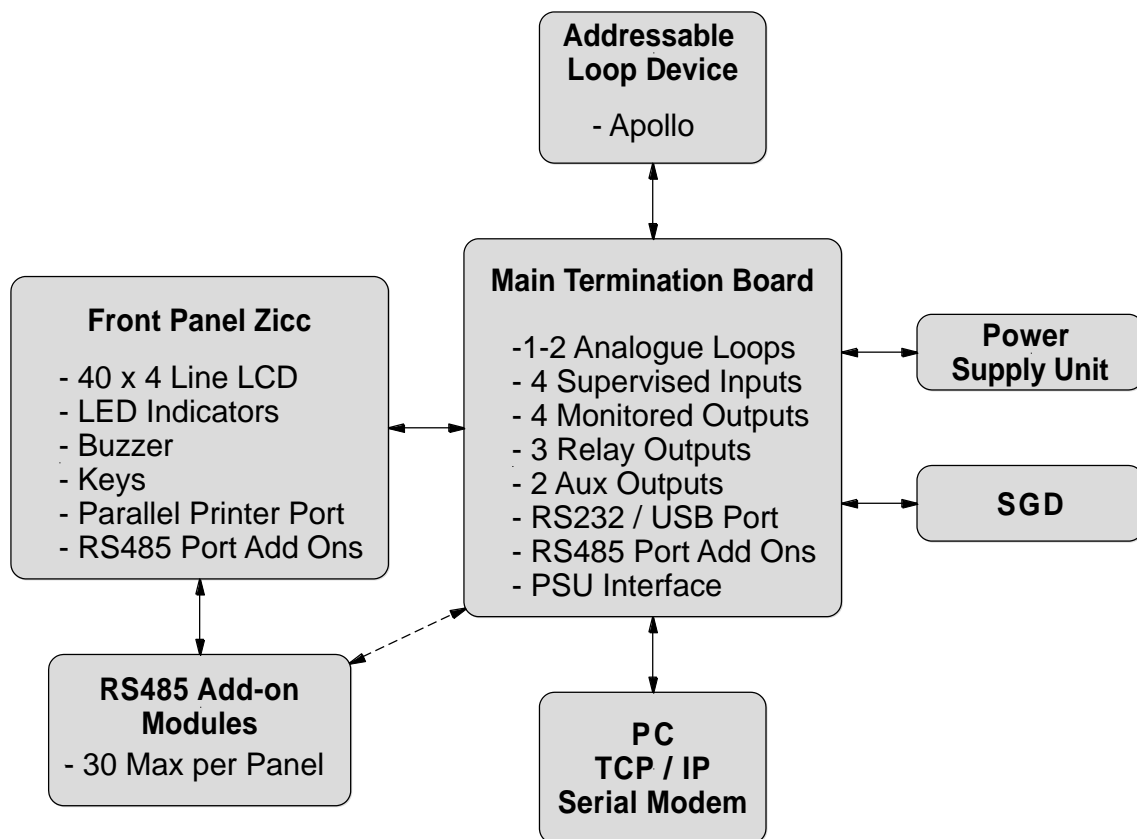
Figure 1: The LoopSense Concept

3   System Functions

System functions are the key functions that provide the mechanism to change the way the panel responds to a condition, and the way an input/output behaves to a situation. It is therefore important the engineer has a good understanding of the functions described below.

3.1   I/O Control

There is a mechanism for controlling the inputs & outputs connected to the FACP through the front panel programming menu. This feature controls all the outputs, sounders, strobes/beacons and settings for alert & evacuation.

3.2   Evacuation

This feature is available as part of the user interface of the front panel and selecting this button will trigger an evacuate condition. This will illuminate the Fire condition LED, is latching and supports silence/resound. Individual sounders/strobes/beacons can be disabled from responding to an evacuate condition.

3.3   Class Change

With class change when the input is asserted, the sounders/outputs that have been configured to respond to a class change will be activated. When the input is switched off, the sounders/outputs are de-activated – non-latching.

3.4   Disable/Enable

This feature is also available as part of the user interface of the front panel. It is possible to enable or disable inputs and outputs connected to the FACP. Inputs include zones, loops and loop devices. Outputs include sounders, strobes/beacons etc.

3.5   Silence/Resound

Momentary push button. Used to disable all the alarm devices in the system. Toggle function to re-enable the alarm devices, if the ALARMS indicator is lit.

If the panel door is closed when sounders are disabled, the sounders inoperative buzzer shall sound continuously until the door is re-opened or sounders re-enabled.

Available at access level 2 and above

3.6   Door Switch

Panel Digital Input 2 is programmed as the Door Switch input by default. The door switch is programmed as a System action type input and therefore state changes are logged accordingly. When the Door Switch is open the designated Ancillary outputs shall be disabled. The Door Switch has priority over other disable/enable functions; therefore the Ancillary outputs cannot be re-enabled until the Door Switch is closed. When the Door Switch is closed the Ancillary outputs shall be restored to their previous disabled or enabled state.

If the Isolate or Test switches on the SGD are active and the panel door is closed, then the SGD Interlock signal is asserted (de-energised). The panel buzzer shall sound when the SGD Interlock is asserted.

3.7   DBA

Panel Digital Input 1 is programmed as a Fire DBA input by default and is set to non-latching.

When the DBA input is asserted it shall:

Sound all the sounder type outputs

Light any programmed DBA indicator on a separate LED Index

Be reported on the LCD on the Default screen

Be logged under the system events

The DBA input cannot be silenced using the brigade Silence Alarms key switch

3.8   Brigade Silence

The Brigade Silence key-switch shall be connected to CN3 on the BRD82ZICC4-A front panel between pins 2 and 5 by default. Alternatively a digital input on the panel or 16-way Input add-on can be programmed for Brigade Silence operation. The LED Index add-on also facilitates connection of this key-switch.

The Brigade Silence input is used for connection with a Bulgin 6083/C key switch labelled "SILENCE ALARMS. BRIGADE USE ONLY".

When activated (upon restoration of the switch to the normal position from the silence position),

> Fires originating from conventional zones, detectors and manual call points shall have their "FIRE" condition replaced with a "BRIGADE SILENCED" status. Note this includes Fire conditions undergoing a zone Dependency C or Investigation function and fires from the Agent add-on fire input.

> All outputs and sounders programmed to activate upon a fire condition from any of the above sources shall de-activate when the source condition becomes "BRIGADE SILENCED".

> The "BRIGADE SILENCED" status is categorised as a fault condition status and hence shall perform all functions associated with the fault condition including activation of the defect signal on the SGD.

> The "BRIGADE SILENCED" fault condition is latching and can only be cleared upon a reset; it cannot be overridden by any other impending status condition from the same source.

After activation of the silence alarms key switch, all zones and devices which are not silenced shall function as normal and perform all standard operations including entering into the fire condition.

The active state of the DBA and Trial Evacuation inputs cannot be brigade silenced.

Changes of state of the Brigade silence input shall be logged under the system events.

3.9   Trial Evacuation

The Trial Evacuation key-switch shall be connected to CN3 on the BRD82ZICC4-A front panel between pins 4 and 5 by default. Alternatively a digital input on the panel or 16-way Input add-on can be programmed for Trial Evacuation operation. The LED Index add-on also facilitates connection of this key-switch. This input is used for connection with a Bulgin 6083/C key switch labelled "EVACUATION".

This key is used for manually activating all sounder type outputs in the building without initiating a call to a remote receiving centre. It is a non-latching function. Sounder outputs which have been disabled shall also activate upon a trial evacuation irrespective of their disabled condition.

The Trial Evacuation input cannot be silenced using the brigade Silence Alarms key switch.

Changes of state of the Trial Evacuation input shall be logged under the system events.

3.10   System Response times

The panel reports a fire from a detector within 10 seconds and fire conditions originating from an MCP are be reported within 1 second.

Alarm devices (sounders, strobes, and beacons) are activated within 3 seconds of a MCP being operated.

3.11 Sounder and Strobe Synchronisation and Silencing Options

The FACP supports the Apollo synchronisation scheme. All loop sounders and beacons within the panel are synchronised.

Silencing is panel (network) wide, with sounders (or beacons/strobes) being configured as non-silence-able and the resound is toggled with the silence key.

4   Front Panel Controls, Indicators

The Front Panel Control Card interfaces to the Main Control Board by way of CN5, and supports;

➢   all the controls and functional indicators

➢   the FACP Reset

➢   the Configuration (CONFIG) control
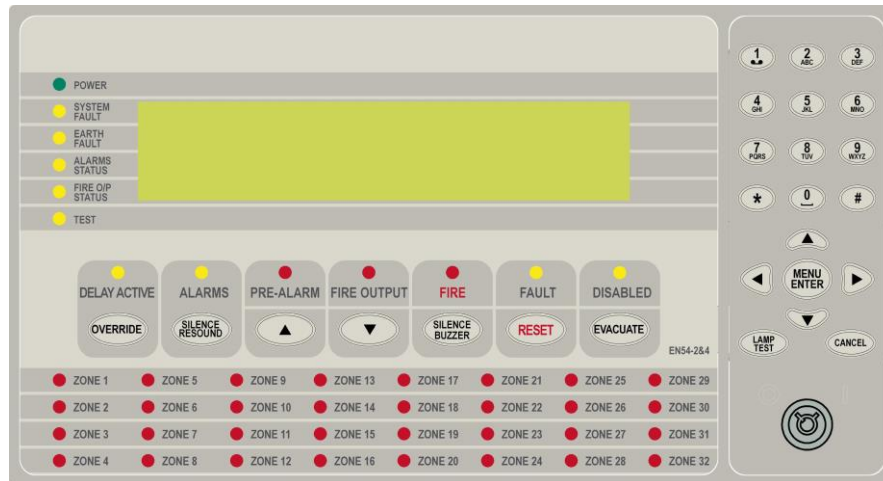
Figure 2: Front Panel Layout

4.1   Levels of Access

The FACP supports three levels of access:

Access Level 1 (Untrained User):

The FACP is in Access Level 1 by default.

Only the OVERRIDE, PREVIOUS, NEXT, SILENCE BUZZER and LAMP TEST controls are active.

Access Level 2 (Authorised User):

The key switch is optional. If the key switch is not used, then a pass-code is entered (using the alpha numeric keys) to gain access to level 2 or 3.

To enter Access Level 2 the user has to enter a password using the alpha numeric keys. The password entry screen will be presented if any higher access level key is pressed. Alternatively turning the Keyswitch to the ON position will force the panel into access level 2. The user is able to navigate through the menu system in access level 2 however the ENTER PASSWORD menu item will be displayed in place of the PROGRAMMING and SETUP menus.

☞ **Note:** PROGRAMMING and SETUP menus are not accessible during a Fire condition

If ENTER PASSWORD is selected, the password entry screen will be presented allowing the user to enter the access level 3 password. The user is able to enter any access level password when the password screen is presented.

The access level 1 controls are active as well as SILENCE RESOUND, RESET, EVACUATE and MENU ENTER controls. All menu items are active apart from the programming menu.

The Door switch if fitted can facilitate entry into access level 2.

Access Level 3 (Authorised Service Technician/Engineer):

All access level 1 and 2 controls, PROGRAMMING, SETUP menus and individual sounder output disable options are active.

If ENTER PASSWORD is selected, the password entry screen will be presented allowing the user to enter the access level 3 password.

4.1.1 Passwords

The FACP will support 99 user programmable passwords. Each password includes an access level which can be either 2 or 3 corresponding to the access levels and a unique ID which ranges from 1 to 99. There is also a facility in the access level 3 SETUP menu to add, edit or delete passwords.

☞ **Note:** *Onsite programming only allows for the editing of ID1 and ID2 all other ID's need to be set using the **LoopMaster** configuration tool*

All passwords are a 4 digit numeric entry and the system default passwords are as follows:

ID	Password	Access Level
1	3333	3
2	User Defined	User Defined

Password Conditions

1. All password IDs that have not been assigned a password are set to access level 1 to prevent false entries.

2. The entering of a password will be logged using the ID.

3. If no key is pressed for 5 minutes the access level will timeout to the default access level being 2 or 1 depending on the key-switch position.

4. The access level timeout and key-switch operations will also be logged.

5. The intervals between key presses when entering the password must not exceed 30 seconds otherwise the password entry screen will timeout returning the panel to the default access level.

6. The FACP can also be forced to the default access level by pressing the CANCEL key 4 times while default screen is displayed.

4.1.2 Misplaced Password

In the situation, where access to the panel is required, and the passwords are not available, there is a facility for the appropriate service personnel to gain access to the panel.

The procedure is as follows:

1. The password " #, ▲, ▼, ◄, ►, # " is entered.

2. The panel responds by displaying a unique 10 digit key

3. Contact the local Ampac Service Centre and they will issue a temporary password

4. The temporary password is entered, and access is gained to the panel. The operator can now access the password menu and set the passwords up as appropriate for the installation

The temporary password will be deleted, the next time a password is successfully entered into the FACP.

4.2   System Controls & Indicators

The front panel has fourteen push button controls, a key switch and an alpha numeric keypad.

Controls, Normal – Enabled (Key Switch)

CONTROLS ENABLE KEY SWITCH. ◯ = OFF, | = ON

If the key switch is in the OFF position (access level 1), then the OVERRIDE, PREVIOUS, NEXT, SILENCE BUZZER and LAMP TEST controls are active.

If the key switch is in the ON position (access level 2), then the SILENCE RESOUND, RESET, EVACUATE and MENU ENTER controls are also active.

The key switch is optional. If the key switch is not used, then a pass-code is entered (using the alpha numeric keys) to gain access to level 2 or 3.

☞ **Note:** *Keys, when pressed, will present an audible feedback "beep" to the user.*

Delay Active / Override

Available at access level 1 and above
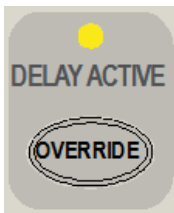
Delay Active – Indicator is illuminated steady when one or more zones are configured with Investigation delays and Delay Mode is active. The indicator will flash if any Investigation delay timer is running.

If the override control or evacuate control is activated while the investigation delay timer is running, then the indicator will go steady and the investigation zone enters the fire condition.

The indicator will only be OFF if:

➢ The Delay Mode is OFF

➢ No investigation delays are configured

➢ The panel has switched to day or night mode where no delays have been configured.

Override – Momentary push button. - When Delay Mode is ON and one or more zones configured with investigation delays have their delay timer running, activating the OVERRIDE control overrides the investigation delay timer allowing the zone or zones to enter the fire condition immediately.

Alarm - Silence / Resound Alarms

Available at access level 2 and above

 Alarms – The indicator is lit when all the sounders in the system are disabled indicating that re-enablement is available via the SILENCE RESOUND control.

Silence Resound – Momentary push button. Used to disable all the alarm devices in the system. Toggle function to re-enable the alarm devices, if the ALARMS indicator is lit.

If the panel door is closed when sounders are disabled, the sounders inoperative buzzer shall sound continuously until the door is re-opened or sounders re-enabled.

Available at access level 2 and above

Pre-Alarm / Previous ▲

Available at access level 1 and above
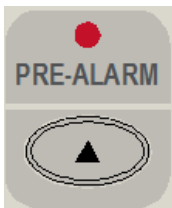
 Pre-alarm – Illuminated when one or more devices are in the pre-alarm condition and not disabled

Previous ▲ Momentary push button. Used to scroll the LCD display to view the previous available entry.

Fire Output / Next ▼

Available at access level 1 and above

 Fire Output – Illuminated steady if a designated fire output has been activated and flashes if a FARE input is configured and active and remains so until the fire alarm condition is reset.

Next ▼ Momentary push button. Used to scroll the LCD display to view the next available entry.

Fire / Silence Buzzer

Available at access level 2 for the alarm buzzer, available at access level 1 and above for the fault buzzer

Fire – Indicator is illuminated when one or more devices are reporting a FIRE condition or the evacuate control has been activated.

Silence Buzzer – Silences the panel buzzer. Buzzer is activated under the following conditions:

Alarm Buzzer -

➢ Fire condition

Fault Buzzer -

➢ Fault with loop devices

➢ Fault with the loops

➢ Fault with the fire alarm routing equipment or fault warning routing equipment

➢ Fault with alarm devices or circuit

➢ Fault with connected modules, cards and boards

➢ Fault with secondary power supply

➢ Fault with main power supply

☞ **Note:** *Both the Fire and Fault Buzzers are disabled by default and can be programmed to be enabled.*

☞ **Note:** *Sounders Inoperative and SGD Interlock are not silencable.*

Fault / Reset

Available at access level 2 and above
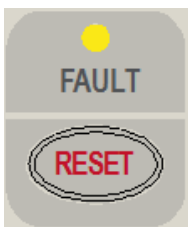
Fault – Indicator illuminated when there are one or more faults on the system.

➢ Fault with loop devices

➢ Fault with the loops

➢ Fault with the fire alarm routing equipment or fault warning routing equipment

➢ Fault with alarm devices or circuit

➢ Fault with connected modules, cards and boards

➢ Fault with secondary power supply

> ➤ Fault with main power supply

> ➤ Lit in conjunction with System Fault indicator

Reset – Momentary push button. Pressing RESET returns the FACP to its normal default state, by clearing all fire alarm conditions, updating the relevant indicators and outputs. If fault conditions are cleared they shall be re-established within 20 seconds

Disabled – Evacuate

Available at access level 2 and above
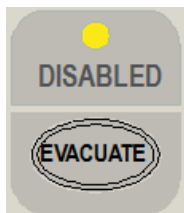
Disabled – The indicator is illuminated when one or more zone detectors, loop devices or panel outputs are disabled.

Evacuate - Momentary push button. Turns on all alarm devices, illuminates the FIRE indicator, activates the output to the fire alarm routing equipment and announces the evacuate condition on the LCD.

Also if there any alarm devices configured with delays, the evacuate key will override these and force the alarm devices into evacuate.

☞ **Note:** *If there are any zones configured for Investigation or Dependency A, B or C, these shall be bypassed when the EVACUATE key is pressed.*

Lamp Test – Pressed for 2 to 3 seconds turns ON all indicators (including any ancillary cards), segments of the LCD and the local buzzer in a logical sequence.

Cancel – Used to cancel a navigation step or entry in the MENU function
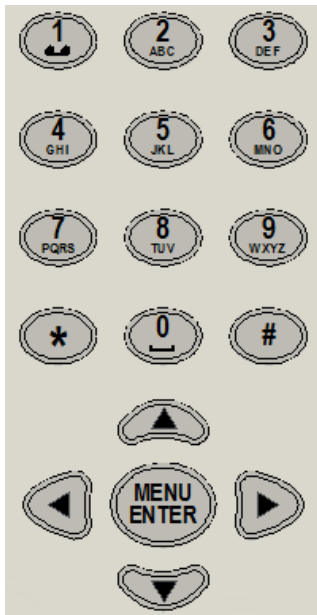
MENU / ENTER, 0-9, *, #, CANCEL and ◄▼▲► - Provides a means for entering the menu system, and carrying out interrogation, control and programming activities
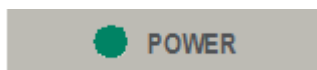
POWER
Illuminated to show the presence of mains power and flashes when the mains have failed

SYSTEM FAULT
Illuminated when the FACP is unable to provide mandatory functions. Indicator is latched, until cleared by the RESET control

EARTH FAULT
Illuminated when there is an earth fault detected on the panel

ALARMS STATUS
Illuminated steady if any of the alarm devices (sounders and/or strobes) have been disabled and flashes if any of the alarm devices (sounders and/or strobes) are in fault. Disable has priority over fault

FIRE O/P STATUS
Illuminated steady if the fire output has been disabled and flashes if the fire output is in fault (open or short circuit condition). Disable has priority over fault

TEST
Illuminated when the panel is in the "Walk Test" mode.

● ZONE 1	● ZONE 5	● ZONE 9	● ZONE 13	● ZONE 17	● ZONE 21	● ZONE 25	● ZONE 29
● ZONE 2	● ZONE 6	● ZONE 10	● ZONE 14	● ZONE 18	● ZONE 22	● ZONE 26	● ZONE 30
● ZONE 3	● ZONE 7	● ZONE 11	● ZONE 15	● ZONE 19	● ZONE 23	● ZONE 27	● ZONE 31
● ZONE 4	● ZONE 8	● ZONE 12	● ZONE 16	● ZONE 20	● ZONE 24	● ZONE 28	● ZONE 32

Illuminated when the associated zone1-32 is in alarm.

4.3   Front Panel Control Keys

4.3.1   Evacuation

On the door of the *LoopSense* a key switch is provided for Evacuation, operating this key switch will cause the system to operate the bells. This will override any other bell isolate or silence condition.

4.3.2   Silence Alarms Brigade Use Only

The Brigade Silence input is used for connection with a Bulgin 6083/C key switch labelled "SILENCE ALARMS. BRIGADE USE ONLY".

When activated (upon restoration of the switch to the normal position from the silence position),

- ➢ Fires originating from conventional zones, detectors and manual call points shall have their "FIRE" condition replaced with a "BRIGADE SILENCED" status. Note this includes Fire conditions undergoing a zone Dependency C or Investigation function and fires from the Agent add-on fire input.

- ➢ All outputs and sounders programmed to activate upon a fire condition from any of the above sources shall de-activate when the source condition becomes "BRIGADE SILENCED".

- ➢ The "BRIGADE SILENCED" status is categorised as a fault condition status and hence shall perform all functions associated with the fault condition including activation of the defect signal on the SGD.

- ➢ The "BRIGADE SILENCED" fault condition is latching and can only be cleared upon a reset; it cannot be overridden by any other impending status condition from the same source.

After activation of the silence alarms key switch, all zones and devices which are not silenced shall function as normal and perform all standard operations including entering into the fire condition.

The active state of the DBA and Trial Evacuation inputs cannot be brigade silenced.

Changes of state of the Brigade silence input shall be logged under the system events.

☞ **Note:** *This is a brigade use only Keyswitch*

4.4   Liquid Crystal Display

LCD is used to display abnormal conditions and for interrogation, control and programming activities. When the FACP is in its normal state a default screen is displayed.

The associated backlight is energised;

➢   In access level 1 during initialisation

➢   For 1 hour if a new fire or fault event occurs

➢   For 25 seconds following any key press, otherwise it shall be switched OFF.

In access level 2 or higher the backlight shall always be ON.

Alarm, Fault and Isolate information are accessed through the Main Menu.
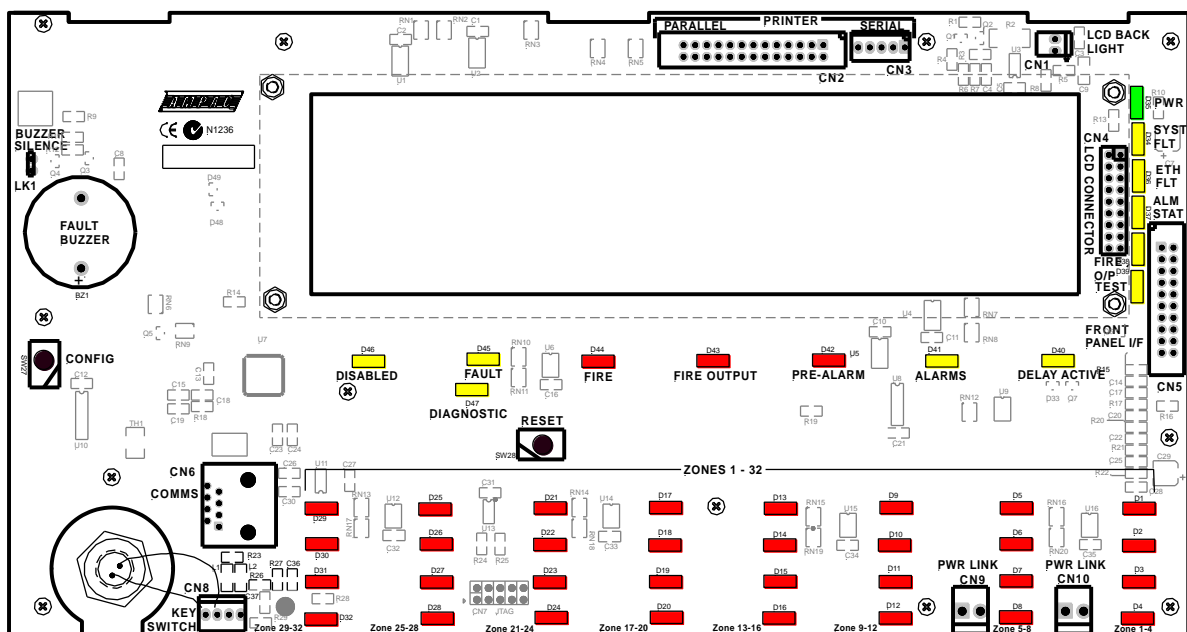
Figure 3: Control Card PCB Layout

5   Default LCD screens

5.1   Normal Condition

The POWER LED is illuminated meaning the mains voltage is present, and all other indicators are off. The 4 x 40 LCD will display the:

```
<DATE> <TIME>           ACCESS LEVEL: 1
<USER DESCRIPTOR LINE 1>
<USER DESCRIPTOR LINE 2>
<SYSTEM STATUS>         <DAY MODE-MAN I/O>
```

Line 1: Current Date, Time and Access Level

Line2 & 3: Configured user descriptors of customer / site specific information.

Line 4: System Status – Day-Night and Manual I/O active

In the above screen, ACCESS LEVEL corresponds to the currently active user access level.

In Zone mode, if there is an individual device or input that is disabled within a zone consisting of more then one input, the panel exhibits a partially disabled status and displays the following:

Selecting DEVICE▶ sets the panel into device mode allowing the individual conditions to be displayed, scrolled and controlled.

Display =

```
<DATE> <TIME>           ACCESS LEVEL: 1
<USER DESCRIPTOR LINE 1>
<USER DESCRIPTOR LINE 2>
PARTIAL DISABLE              DEVICE▶
```

The default screen is not displayed if there is an abnormal status present on the system. The highest priority scrollable status screen is displayed in its place.

Furthermore after any interrogation at the front panel by the user, the display reverts to the highest priority scrollable status screen or default screen 5 minutes after the last key press. The exception to this timeout is when an alarm is present on the system where the keypad timeout is 30 seconds in this case.

5.2   Fire Condition

If an input or device is activated and it is configured to generate a fire condition the FACP responds to the fire as follows:

> ➢ Common FIRE LED will turn on steady

> ➢ Assigned zone fire LED will illuminate

> ➢ Panel buzzer will sound continuously

> ➢ Fire condition to be reported to the LCD (time ordered buffer 100 entries deep)

> ➢ The fire event will be logged.

> ➢ The panel fire output will activate

> ➢ All outputs configured to operate under a fire condition will operate

The fire condition will be displayed on the LCD in the following format:

Zone with active Fire condition

The LCD displays the fire status screen and indicates the most recent zone in Fire by way of the zone LED indicators

```
Zzzz                    FIRE
<zone descriptor>
<date> <time>               CONTROL*
ZONE FIRE XXX OF XXX         DEVICE▶
```

The LCD will display the zone in which the fire originated and can be scrolled through all zones in fire using the PREVIOUS and NEXT keys.

☞ **Note:** *Only fires will be scrollable by default when fires are present on the system. Other events are viewable via the Display menu when fires are present.*

"CONTROL*" Indicates that the control menu hotkey is available; pressing the "*" key on the numeric keypad will allow direct entry into the control menu for the current point being displayed. **This requires level 2 access.**

The user can perform the following actions in response to a fire:

> ➢ The SILENCE/RESOUND key is used to silence any silence-able outputs that have been activated in response to the fire condition. The ALARMS LED will be illuminate to indicate that the sounders have been silenced and resound is available. The operation of the SILENCE key will be logged. (This operation is only available at access level 2)

> ➢ The OVERRIDE key can be used to override any delays to (This operation is available at access level 1)

> ➢ The EVACUATE key can be pressed to turn all alarm devices.

> ➢ The RESET key can be used to reset the fire condition. All outputs activated in response to the fire will deactivate and the panel will revert to the normal condition providing there are no other abnormal conditions present. (This operation is only available at access level 2)

> ➢ The FACP also displays fires in Device mode. Pressing the "DEVICE▶" forward button allows the panel to display all the devices or inputs on the system that are in fire.

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```
<point location>        FIRE
<point descriptor>                <type>
<date> <time>                   CONTROL*
FIRE XXX OF XXX                  ◄ZONE
```

Pressing the ◄ Zone back key or a keypad time out will return the panel to displaying fire in zone mode.

Use the ▲ (up) ▼ (down) arrows to cycle through the inputs and devices that are in fire.

Device Alarm LED activation

Due to the limited current available from the analogue loop, the number of alarm LED's allowed to be illuminated simultaneously is limited to the first 10 devices in fire on each loop; after this limit is reached any new devices in fire will not have its alarm LED illuminated until the original fires have been cleared on that loop.

5.3   Fault Condition

When the system registers a fault condition:

➢ Common FAULT LED will be illuminated

➢ Corresponding front panel fault LED will illuminate

➢ Assigned zone fault LED will flash

➢ Panel buzzer will sound intermittently

➢ Fault condition to be reported to the LCD.

➢ The fault event will be logged.

➢ The panel fault output will activate

➢ All outputs configured to operate under a fault condition will operate

The fault condition will be displayed on the LCD in the following format:

```
Zzzz                   FAULT
<zone descriptor>
<date> <time>                   CONTROL*
FAULT XXX OFXXX                   DEVICE►
```

Only zoned input types shall be displayed collectively as a zone.

```
<point location>        FAULT
<point descriptor>                <type>
<date> <time>                   CONTROL*
FAULT XXX OF XXX                 ◄DEVICE
```

Faults originating from sounders, outputs and un-zoned modules on loops, add-ons or the panel main termination board shall be displayed individually as shown here.

Pressing the "DEVICE►" forward button will allow the panel to display all the individual inputs, outputs and modules in fault.

Selecting "CONTROL*" will allow direct entry into the control menu for the current point or zone being displayed (This operation is only available at access level 2).

5.4   Pre-Alarm Condition

```
<point location>        PRE-ALARM
<point descriptor>              <type>
<date> <time>                   CONTROL*
PRE-ALARM XXX OF XXX            ◄ZONE
```

When a Pre-Alarm event occurs, the following actions take place.

- ➢ The associated LED will operate

- ➢ The condition will be reported on the LCD.

- ➢ The event will be logged.

- ➢ All outputs configured to operate under this condition will operate

5.5   Emergency Condition

```
<point location>        EMERGENCY
<point descriptor>              <type>
<date> <time>                   CONTROL*
EMERGENCY XXX OF XXX            ◄ZONE
```

When an Emergency event occurs, the following actions take place.

- ➢ The condition will be reported on the LCD.

- ➢ The event will be logged.

- ➢ All outputs configured to operate under this condition will operate

5.6   Security Condition

```
<point location>        SECURITY
<point descriptor>              <type>
<date> <time>                   CONTROL*
SECURITY XXX OF XXX             ◄ZONE
```

When a Security event occurs, the following actions take place.

- ➢ The condition will be reported on the LCD.

- ➢ The event will be logged

- ➢ All outputs configured to operate under this condition will operate

5.7   User Condition

```
<point location>        USER
<point descriptor>              <type>
<date> <time>                   CONTROL*
USER XXX OF XXX                 ◄ZONE
```

When a User event occurs, the following actions take place.

- ➢ The condition will be reported on the LCD.

- ➢ The event will be logged.

- ➢ All outputs configured to operate under this condition will operate

5.8   Disabled Condition

```
<point location>        DISABLED
<point descriptor>                <type>
<date> <time>                CONTROL*
DISABLED XXX OF XXX              ◄ZONE
```

When the user disables an input, output or zone the associated configured outputs will no longer operate and will no longer effect panel conditions. The system registers a disabled condition as follows:

➢ Common DISABLED LED will be illuminated

➢ Disabled condition to be reported to the LCD.

➢ The disable event will be logged.

➢ All outputs configured to operate under a disabled condition will operate

5.9   Other Conditions

The two remaining conditions are:

System

➢ This event is not printed or displayed on the LCD

➢ The event will be logged

➢ All outputs configured to operate under this condition will operate

Transparent

➢ This event is not logged, printed or displayed on the LCD

➢ All outputs configured to operate under this condition will operate

6 Test Functions

The FACP provides a set of diagnostic test functions that can be run on various inputs & outputs (like loops, loop devices, LED indicators, LCD display, Sounders etc) to verify whether they operate as they are intended.

The diagnostic test functions are;

- Loop test
- Lamp test
- Walk test
- Device Locator

6.1 Loop Test

Access level 2

Loop Test is available via the [MENU ENTER] [Menu] / [2 ABC] [Control] / [3 DEF] [Panel] / [4 GHI] [Loop] menu.

Invoking the Loop Test will drive the loop firstly from side A followed by side B and count all detected devices on each side of the loop. These counts will be displayed upon completion of the test prompting the user to press CANCEL to end.

The loop test also monitors for

- Over current and short circuit in single-ended mode
- Over current, short circuit and open circuit conditions in redundant mode.

If there were any latching loop faults prior to commencement of the test these will be re-tested and cleared if no longer present.

Once the Loop Test is complete the loop is re-initialised.

6.2 Lamp Test

Access level 1 or 2

The Lamp Test is initiated by pressing and holding the LAMP TEST key and will include any add-on indicator cards.

☞ **Note:** *The test will not start if there is a genuine alarm condition is present.*

The lamp test performs the following two tests while beeping the panel's internal buzzer until the completion of the test.

- LED test – all front panel LED's shall be illuminated simultaneously. A Lamp test command will be sent to the add-on modules to instigate their individually controlled lamp test functionality.
- LCD display –all the pixels of the LCD and backlight are activated simultaneously.

The following will also apply:

- The lamp test is run while the LAMP TEST key is held.

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➢ The test will not start if there is a genuine alarm condition present.

➢ A fire event is recognised during the test, in which case the test will be aborted and the fire condition will be displayed.

If the results do not match those described above, the operator is required to note it and report it to the Ampac Service Centre.

6.3   Walk Test

Access level 2

Walk Test and Silent Walk Test is available via the [Menu] / [Control] / [Zone] Zone menu.

The purpose of the walk test is to verify the detectors, MCP's and optionally the alarm devices (sounders) are functioning as required. Once a zone has been placed in walk test, the maintenance personnel can manually activate each detector (or MCP) and check the local indicator is illuminated and the alarm devices (sounders) operate if selected.

Details of walk test are as follows:

☞ **Note:** *The test is not available if a fire condition existed at the panel prior to the test being invoked*

➢ Individual or multiple zones can be placed under test

➢ Zones placed under test can be removed from the test condition via the Zone Control menu at access level 2 or 3

➢ Selecting "SILENT WALK TEST" performs the test without sounding programmed sounders

➢ Selecting "WALK TEST" performs the test activating associated sounders as programmed

➢ If "WALK TEST" or "SILENT WALK TEST" is invoked the control will toggle to display the "REMOVE TEST" control

➢ The test indicator is illuminated if one or more zones are placed under test and will remain illuminated for the duration of the test

➢ When a zone is placed under test the LCD displays a zone status of "WALK TEST", "SILENT WALK TEST", or "C&E WALK TEST" depending on the type of active test

➢ If a fire is registered from within a zone under test the zone status will be displayed as "WALK TEST FIRE" and sounders will sound if selected. The associated zone fire LED (if fitted) will also be illuminated

➢ The common fire indicator will not be illuminated if a fire is detected from a zone under test

➢ The "WALK TEST FIRE" condition will not operate the designated Fire Output/s

➢ The "WALK TEST FIRE" condition will be logged and printed

➢ A fire detected from within a zone will be automatically reset every 5 seconds after it is detected and associated sounders will be activated if selected for that duration. If the device within the zone remains in fire the zone will re-enter the "WALK TEST FIRE" state, otherwise the zone will be reverted to the active walk test status and the associated zone fire LED (if fitted) is extinguish

> The test condition can be cleared by selecting "REMOVE TEST" from within the Zone Control menu for individual zones

> Pressing the RESET key also removes all zones placed under test

> The walk test may alternatively be initiated as a System Effect in Cause and Effects. The test will be performed on the zone designated by the Cause and Effect and the programmed Sounders activated by default. The test will end when this System Effect is de-activated in the Cause and Effect

6.4 Device Locator

Access level 2

The Device Locator test is available via the [Menu] / [Control] / [Device] Device menu by selecting [ALARM LED ON].

Device locator allows maintenance personnel to locate a particular device by forcing the device alarm LED ON. Only devices with physical alarm LED's support this test.

This is a low priority test and can only be performed on one device at a time. Once invoked the user is prompted that the alarm LED has been forced on and to press CANCEL to end.

The Alarm LED of the device will remain on throughout the duration of the test.

7 Menu Structure

7.1 Menu Layout and Navigation

The main menu for the system is as shown below. The accessibility of this menu for the three access levels is as described previously and summarized below.

Access Level 1: Menu not accessible

Access Level 2: Menu partially accessible.

The menu system is accessible except for the disablement of individual sounder devices, SETUP (*) and PROGRAMMING (*) menus, which are displayed with the suffix "(*)". Selecting these menu options at this access level, will prompt the user for a password, to allow entry into access level 3.

Access Level 3: Menu fully accessible.

"(*) "suffix on SETUP and PROGRAMMING will not be displayed indicating full access. All menu options are accessible with respect to panel configuration.

The user can navigate around the menu items using the arrow keys and to enter a selected menu item press the MENU ENTER key. Alternatively the number beside each menu item can be selected using the numeric keypad this will select and enter the respective menu item directly.

```
    MAIN MENU
1▶DISPLAY            4|TOOLS
2|CONTROL            5|SETUP(*)
3|EVENTS             6|PROGRAMMING(*)
```
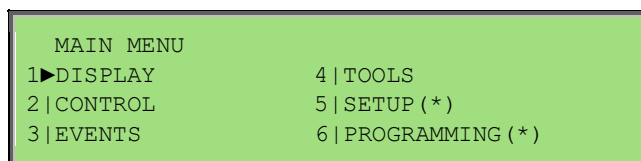
☞ **Note:** *In all menu's if the Number selection is followed by a | symbol it is selectable by typing the number or using the arrow keys. If the Number selection is followed by a ":" symbol it is only selectable by typing the number.*

The items available in this menu are as described below & in more detail in the following sections.

DISPLAY – This menu allows the user to view all the events that are currently active within the system. This consists of Fire, Fault, Pre-Alarm, Emergency, Security, User and Disable type of events. There is also an ABOUT screen which displays software version information.

CONTROL – This menu allows the user to view and control the various inputs & outputs from the panel, loops, add-ons and zones. Disablement, Manual I/O control, Testing and Printing can be done from this menu.

EVENTS – This menu allows the user to view, print or erase the event logs that are logged in the system

TOOLS – This menu allows the user to conduct specific Dirty Devices and Loop diagnostics tests.

SETUP – This menu allows the user to setup the system settings such as date and time, day/night, etc.

PROGRAMMING – This menu allows the user to modify the configuration of the various inputs & outputs of the panel, loops, add-ons and zones within the panel. It also provides the various Learn options such as Auto Learn.
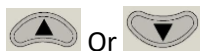
▲ Or ▼	- Move cursor up or down
► Or ◄	- Move cursor Left or right
MENU ENTER	- Enter currently selected menu item
0 To 9 WXYZ	- Select and enter menu item by corresponding number
CANCEL	- Return to previous menu

7.1.1 Generic Point Selection Screens

Within the menu system there are several instances in which points are required to be selected in order to proceed further and display and/or manipulate the selected points. Points include Zones, Loops, Devices, Device Sub-Addresses, Panel Inputs, Panel Outputs and Add-Ons.

7.1.2 Zone Point Selection

```
SELECT ZONE: XXX
<selected zone descriptor>
►Z1      Z2      Z3      Z4      Z5
 Z6      Z7      Z8      Z9      Z10
```

Zones 1 up to 999 can be selected.

Zone Address Prefixes:

- ➢ Z - Zone configured
- ➢ X - Zone not configured

Zone Address Suffixes:

- ➢ *- Zone Disabled
- ➢ S - Zone Sounders Disabled
- ➢ N – Zone Non-MCP Inputs Disabled

7.1.3 Loop Point Selection

```
SELECT LOOP: X
<selected loop descriptor>
►L1      L2
```

Loop 1 or 2 can be selected.

This screen will be skipped if there is only one loop configured in the system except for in the programming menu where the prefix "L" next to the loop number will be replaced with an "X" if the loop is not configured and it can be selected to configure the loop. The loop number suffix "*" indicates that the loop has been disabled.

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7.1.4   Loop Device Point Selection

```
SELECT DEVICE: XXX         <device type>
<selected device descriptor>
▶D1       D2       D3       D4       D5
 D6       D7       D8       D9       D10
```

Apollo device addresses 1 to 126 can be selected.

Device Address Prefixes:

➢ D - Device configured and fitted

➢ M - Missing device configured and not fitted

➢ T - Type mismatch configured and fitted with incorrect type

➢ E - Extra device not configured but fitted

➢ X - Device not configured and not fitted

Device Address Suffix:

➢ - Device Disabled

7.1.5   Sub-Address Point Selection

```
SELECT SUB ADDRESS: X
<selected sub address descriptor>
1▶I/P1  2:I/P2  3:I/P3  4:O/P1  5:O/P2
6:O/P3
```

Apollo loop device sub-address inputs

1-3 and outputs 1-3 can be selected.

Sub-Address Prefixes:

➢ I/P – Sub-Address Input

➢ O/P – Sub-Address Output

Sub-Address Suffix:

➢ - Sub-Address Disabled

7.1.6   Add-On Point Selection

Add-On module addresses 1 up to 30 can be selected, depending on type.

```
SELECT ADD-ON: XX          <add-on type>
<selected add-on descriptor>
▶A1       A2       A3       A4       A5
 A6       A7       A8       A9       A10
```

Add-On Address Prefixes:

➢ A – Add-On configured

➢ X – Add-On not configured

Add-On Address Suffix:

* - Add-On Disabled

7.1.7 Panel Input Point Selection

Panel digital inputs 1 to 4 can be selected.

```
SELECT INPUT: X          <input type>
<input descriptor>
►I/P1    I/P2    I/P3    I/P4
```

Panel Input Prefix:

 ➢ I/P – Panel Input

Panel Input Suffix:

 ➢ - Panel Input Disabled

7.1.8 Panel Output Point Selection

4 panel Supervised Outputs, 3 Relay Outputs, 2 Open Collector Outputs and 2 Auxiliary Outputs can be selected.

```
SELECT OUTPUT: X          <output type>
<output descriptor>
►O/P1    O/P2    O/P3    O/P4
```

Panel Output Prefix:

 ➢ O/P – Panel Output

Panel Output Suffix:

 ➢ - Panel Output Disabled

7.1.9 Password User ID Selection

User IDs 1 and 2 can be selected at the panel.

```
SELECT USER ID: X
►ID1    ID2
```

8   Menu Structure & Navigation

ⓘ   The following should be read in conjunction with the complete "Menu Structure".

The primary components of the Menu Structure are;

DISPLAY	CONTROL	EVENTS	TOOLS	SETUP	PROGRAMMING

The sections below have been broken down by primary component for ease of explanation

8.1   Menu > Display

Access level 2
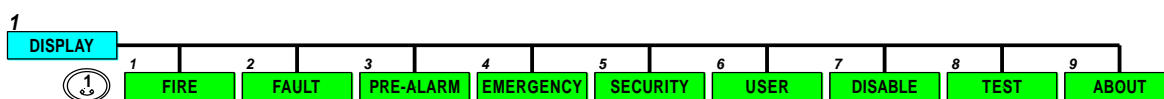
ⓘ   Pressing (1) opens the "Display" menu. Here the operator can view any of the above facilities, 1 to 8 by following the screen prompts, ▲ (up), ▼ (down), to move through the menu. To view its status on the LCD press the number associated with that facility, for example press (3) DEF to view any "Pre-alarms" that may be present on the system. ***This process of navigation and following the screen prompts forms the basis for accessing, viewing and / or programming.***

In the DISPLAY menu, the menu items consist of all the displayable system conditions.

```
  DISPLAY MENU
1▶FIRE        4|EMERGENCY  7|DISABLE
2|FAULT       5|SECURITY   8|TEST
3|PRE-ALARM   6|USER       9|ABOUT
```

When a display condition is selected, the status screen of the condition to be shown is displayed at the zone level initially:

```
Zzzz                <status>
<zone descriptor>
<date> <time>                CONTROL*
ZONE <action type> XXX OF XXX   DEVICE▶
```

Pressing the "DEVICE▶" forward button will allow the panel to display the individual devices or inputs with the associated condition.

```
<point location>      <status>
<point descriptor>              <type>
<date> <time>                CONTROL*
<action type> XXX OF XXX        ◀ZONE
```

☞ **Note:** *If there are no Zones with the selected condition and there are devices with the selected condition, the zone screen will be bypassed and the device screen will be displayed immediately.*

8.1.1   Menu->Display->About

If ABOUT is selected the following screen is presented:

```
<custom banner 1>
<custom banner 2>
◄BACK  APP:VMM.mm.bb.ccccc    CB:XXX
```

8.2   Menu > Control

Access Level 2 – to access this level the operator should use the "Controls Normal – Enable" keyswitch or enter the Password.

NOTE:
1: At Access Level 1, the entire menu is not accessible.
2: At Access Level 2, individual sounder disablement, SET-UP and PROGRAMMING menu items are not accessible, user can access level 3 via the correct password entry.
3: At access level 3, every option is available
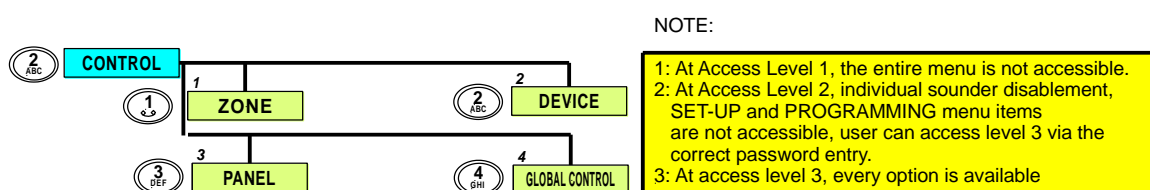
Pressing ② opens the "Control" menu from which the operator can select one of the "Control" functions shown above by pressing ▲ (up), ▼ (down), to move through the menu. To view its control options

on the LCD press the number associated with that facility on the alpha numeric key pad or press ▶ to go directly to it.

```
CONTROL MENU
1►ZONE              3|PANEL
2|DEVICE            4|GLOBAL CONTROL
```

8.2.1   Menu > Control > Zone
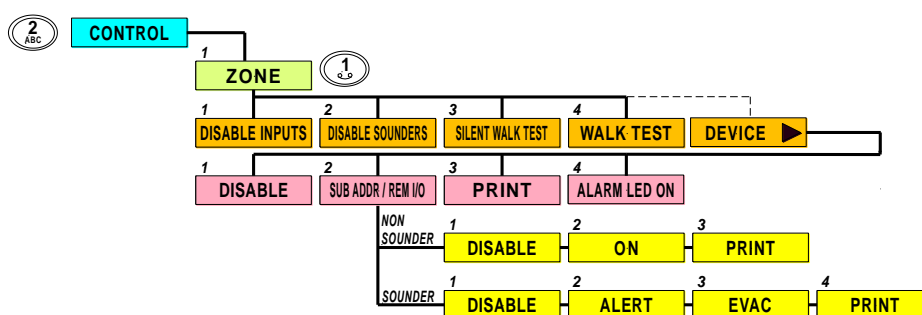
Once in the "Control" menu press ① to open the "Zone" menu. By following the screen prompts select the type of control, 1 to 4. Once selected simply step through the menu again to implement.

Selecting the Zone Control menu prompts the user to select the zone number using the generic zone point selection screen followed by the corresponding zone control menu:

```
Zzzz                 <status>
<zone descriptor>
1:DISABLE INPUTS    2:DISABLE SOUNDERS
3:SILENT WALK TEST  4:WALK TEST DEVICE►
```

Actions are all context sensitive

Disable inputs becomes enable inputs

Disable sounders becomes enable sounders

Walk test will start walk test and toggle to remove test

Silent walk test will start silent walk test and toggle to remove test

Pressing ► will display device (or input) within the zone; these are scrollable using ▲▼

Selecting 1: DISABLE INPUTS shall disable all inputs within the zone except if there are loop MCPs within the zone in which case it shall revel the following screen:

```
Zzzz                <status>
<zone descriptor>
1:DISABLE ALL INPUTS 2:DISABLE NON-MCPS
◄BACK
```

Actions are all context sensitive

Disable inputs becomes enable inputs – all inputs within the zone shall be disabled including MCPs

Disable non-mcps becomes enable non-mcps – all inputs within the zone shall be disabled excluding MCPs

Device screens:

```
Zzzz Ppp Lll Dddd.s  <status>
<device descriptor>
◄BACK: 1:DISABLE   2:SUB ADDR   3:PRINT
       4:ALARM LED ON          MORE►
```

```
ACTION:<action type>  <dev type>     AVALUE:XXX I:000
O:000 DRIFT:YYY%MODE:X
```

☞ **Note:** *Option 2 shall be SUB ADDR (Sub-Address) or REM O/P (Remote Output) depending on the type of device being displayed.*

Input Screens:

Pressing DEVICE ► will also reveal the panel Input Control.

Use the ▼▲ arrows to display the available panel inputs

```
<point location>        <status>
<point descriptor>
ACTION:<action type>
◄BACK     1:DISABLE     2:ON    3:PRINT
```

8.2.2   Menu > Control > Device

NOTE: SUB ADDR AND REM O/P DEPEND ON THE SELECTED DEVICE
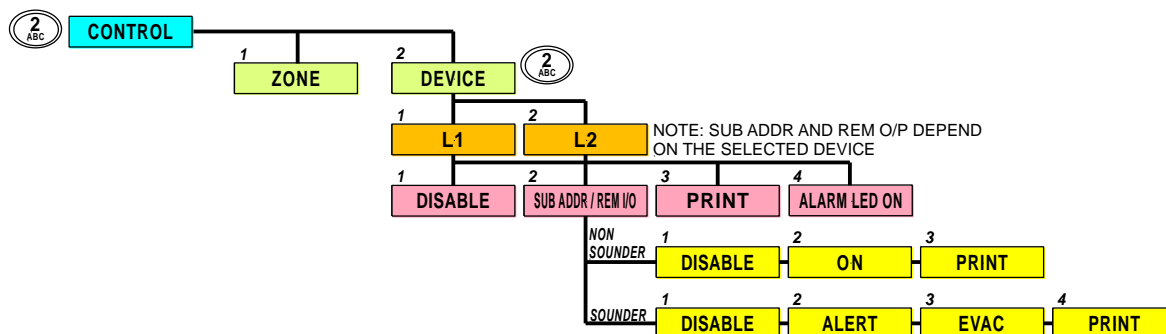
Selecting DEVICE from the control menu; the user shall be prompted to select loop and device address via generic point selection screens. The following device control menu shall be presented next:

```
Zzzz Ppp Lll Dddd.s  <status>
<device descriptor>
◄BACK 1:DISABLE    2:SUB ADDR   3:PRINT
      4:ALARM LED ON              MORE►
```

On the 4x40 LCD the Device control menu is split into two screens and the user can navigate between these screens by selecting MORE► and ◄BACK.

```
ACTION:<action type>   <dev type>
AVALUE:XXX I:000 O:000 DRIFT:YYY MODE:X
◄BACK 1:DISABLE    2:SUB ADDR   3:PRINT
      4:ALARM LED ON
```

Selecting "2: SUB ADDR" will display the generic sub address selection screen if configured. Also "2: SUB ADDR" will be replaced with "2: REM O/P" if the context displayed is a detector.

Input Screens:

```
<input location>        <status>
<input descriptor>
ACTION:<action type>    <dev type>
◄BACK     1:DISABLE     2:ON    3:PRINT
```

Non-Sounder Output Screens:

```
<output location>       <status>
<output descriptor>
<assigned output type>  <dev type>
◄BACK     1:DISABLE     2:ON    3:PRINT
```

Sounder Output Screens:

```
<output location>        <status>
<output descriptor>
<assigned output type>  <dev type>
◄BACK 1:DISABLE  2:ALERT 3:EVAC 4:PRINT
```

8.2.3   Menu >Control > Panel
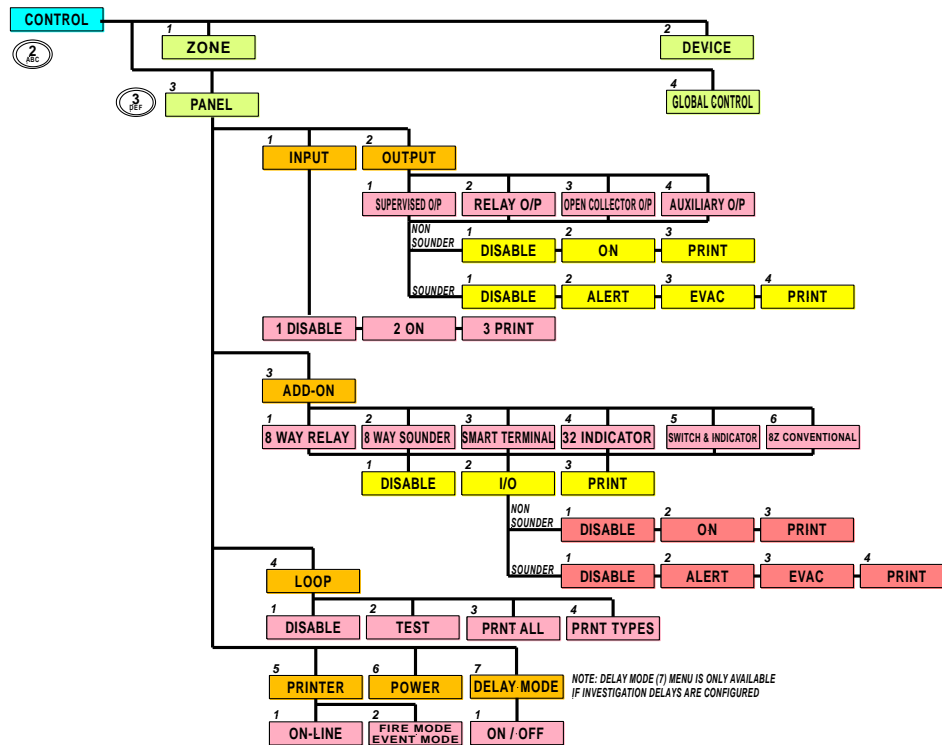
8.2.3.1 Menu->Control->Panel->Input

```
  CONTROL PANEL MENU
1►INPUT      4|LOOP      6|POWER
2|OUTPUT     5|PRINTER   7|DELAY MODE
3|ADD-ON
```

Use the ▼ ▲ arrows to display the 4 available panel inputs

```
Ppp Ii Zzzz          <status>
<input descriptor>            <type>
ACTION:<action type>
◄BACK     1:DISABLE     2:ON    3:PRINT
```

8.2.3.2 Menu->Control->Panel->Output

```
CONTROL PANEL OUTPUT MENU
1►SUPERVISED O/P   3|OPEN COLLECTOR O/P
2|RELAY O/P        4|AUXILIARY O/P
```

8.2.3.2.1 Menu->Control->Panel->Output->Supervised O/P

Use the ▼▲ arrows to display the 4 available panel supervised outputs

Non-Sounder Outputs:

```
Zzzz Ppp SUP:Oo      <status>
<output descriptor>           <type>
<assigned output type>
◄BACK    1:DISABLE    2:ON    3:PRINT
```

Sounder Outputs:

```
Zzzz Ppp SUP:Oo      <status>
<output descriptor>           <type>
<assigned output type>
◄BACK 1:DISABLE  2:ALERT 3:EVAC 3:PRINT
```

8.2.3.2.2 Menu->Control->Panel->Output->Relay O/P

Use the ▼▲ arrows to display the 3 available panel relay outputs

```
Zzzz Ppp RLY:Oo      <status>
<output descriptor>           <type>
<assigned output type>
◄BACK    1:DISABLE    2:ON    3:PRINT
```

8.2.3.2.3 Menu->Control->Panel->Output->Open Collector O/P

Use the ▼▲ arrows to display the 2 available panel open collector outputs

```
Zzzz Ppp OC:Oo      <status>
<output descriptor>           <type>
<assigned output type>
◄BACK    1:DISABLE    2:ON    3:PRINT
```

8.2.3.2.4 Menu->Control->Panel->Output->Auxiliary O/P

Use the ▼▲ arrows to display the 2 available panel open collector outputs

```
Zzzz Ppp AUX:Ooo      <status>
<output descriptor>           <type>
<assigned output type>
◄BACK    1:DISABLE    2:ON    3:PRINT
```

8.2.3.3 Menu->Control->Panel->Add-On

```
SELECT ADD-ON TYPE: 8-WAY RELAY
                            CHANGE▼
◄BACK                        NEXT►
```

After the type of Add-On is selected the generic Add-On point selection screen is presented allowing the Add-On address to be selected. The Add-On control menu is then presented:

```
<add-on location>      <status>
<add-on descriptor>
<add-on type>        <add-on version>
◄BACK     1:DISABLE   2:I/O   3:PRINT
```

Selecting "2:I/O" will display the individual inputs and/or outputs of the add-ons

Use the ▼▲ arrows to display the available inputs and outputs

Non-Sounder Outputs:

```
<add-on location>     <status>
<output descriptor>          <type>
<assigned output type>   <add-on type>
◀BACK    1:DISABLE    2:ON    3:PRINT
```

Sounder Outputs:

```
<add-on location>     <status>
<output descriptor>          <type>
<assigned output type>   <add-on type>
◀BACK 1:DISABLE  2:ALERT 3:EVAC 4:PRINT
```

8.2.3.4 Menu->Control->Panel->Loop

Use the ▼ ▲ arrows to display the available loops

```
Pppp Lll          <status>
<loop descriptor>
<loop configuration>    <loop current>
1:DISABLE 2:TEST 3:PRNT ALL 4:PRNT TYPES
```

8.2.3.5 Menu->Control->Panel->Power

```
PANEL POWER
AC:xxxxxxxxx    VBATT:xx.xDC    TEMP:xxxC
BATTERY:xxxxxxxxx
◀BACK
```

AC Statuses include	BATTERY statuses include
NORMAL	NORMAL
FAIL	DAMAGED
CHRG HIGH	MISSING
CHRG LOW	CABLE FLT
	LOW

8.2.3.6 Menu->Control->Panel->Delay Mode

This menu is only accessible if investigation delays have been configured and the panel is in the day or night modes in which delays are configured.

```
INVESTIGATION DELAY MODE: ON
```

8.2.4   Menu ->Control > Global Control
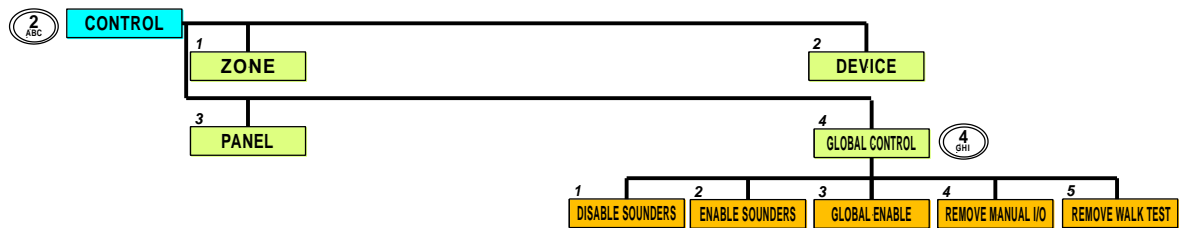

```
    GLOBAL CONTROL MENU
1▶DISABLE SOUNDERS   4|REMOVE MANUAL I/O
2|ENABLE SOUNDERS    5|REMOVE WALK TESTS
3|GLOBAL ENABLE
```

8.3   Menu.> Events
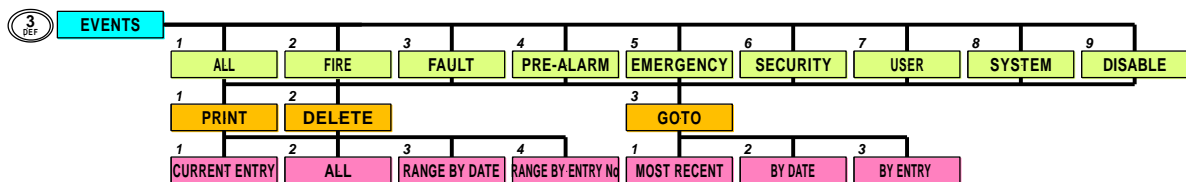

```
    EVENTS MENU
1▶ALL          4|PRE-ALARM  7|USER
2|FIRE         5|EMERGENCY  8|SYSTEM
3|FAULT        6|SECURITY   9|DISABLE
```

The user can select to view any individual event type or all event types; revealing the following event screen:

```
<event type>    xxx/yyy    <date>  <time>
<location>             <status>
<descriptor>                   <user id>
◀BACK     1:PRINT    2:DELETE    3:GOTO
```

8.3.1   Menu->Events->Delete

```
   DELETE <event type> EVENTS
1▶CURRENT ENTRY      3|RANGE BY DATE
2|ALL                4|RANGE BY ENTRY
```

8.3.2   Menu->Events->Goto

```
   GOTO <event type> EVENTS
1▶MOST RECENT
2|BY DATE
3|BY ENTRY
```

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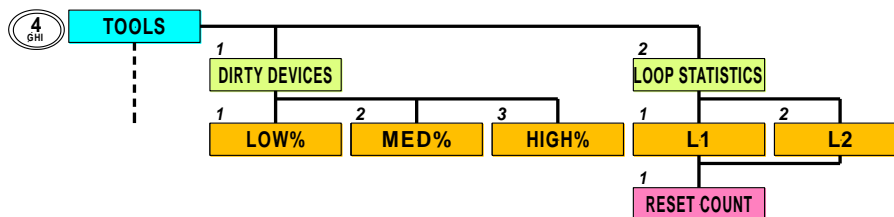
8.4   Menu > Tools


```
   TOOLS MENU
1▶DIRTY DEVICES
2|LOOP STATISTICS
```

8.4.1   Menu->Tools->Dirty Devices

The compensation threshold level can be set to the default Low, Medium or High percentage. The selected default Low, Medium or High compensation threshold is displayed, and an asterisk shall appear next to the current selection where the medium threshold is the default.

Only those devices which have a drift percentage higher than the threshold will be displayed.

If there are no dirty devices on the system found at the selected drift threshold the following screen is presented:

```
          NO DIRTY DEVICES FOUND
        AT SELECTED DRIFT THRESHOLD

◄BACK      1:005%    2*040%    3:080%
```

If devices are found with drift percentage values higher than the selected drift percentage threshold then the following screen is displayed:

```
Zzzz Ppp Lll Dddd.s  <status>
DRIFT LEVEL: XXX
DIRTY DEVICES XXX OF XXX         CONTROL*
◄BACK      1:005%    2*040%    3:080%
```

Use the ▼ ▲ arrows to display the available dirty devices. The control menu hotkey can also be invoked by pressing the * key allowing direct access into the control menu for the current device being displayed.

8.4.2   Menu->Tools->Loop Statistics

If there is more than one loop available, selecting LOOP STATISTICS shall allow the user to select which loop they would like to view using the generic loop selection screen. This is followed by the loop statistics menu screen:

```
BAD POLLS:xxxxxxxx (xx.xx%)  <loop no.>
SINCE DD/MM/YYYY HH:MM:SS
LOOP NOISE LEVEL:xxmA - <noise status>
◄BACK         1:RESET COUNT
```

This screen shows the number of bad polls and a percentage of bad/good polls from the date and time. "1: RESET COUNT" will reset the bad poll count and establish a new datum.

Noise level is the average level of noise on the loop. The noise status displayed shall be GOOD, FAIR or BAD based on the preset thresholds.

8.5   Menu > Setup
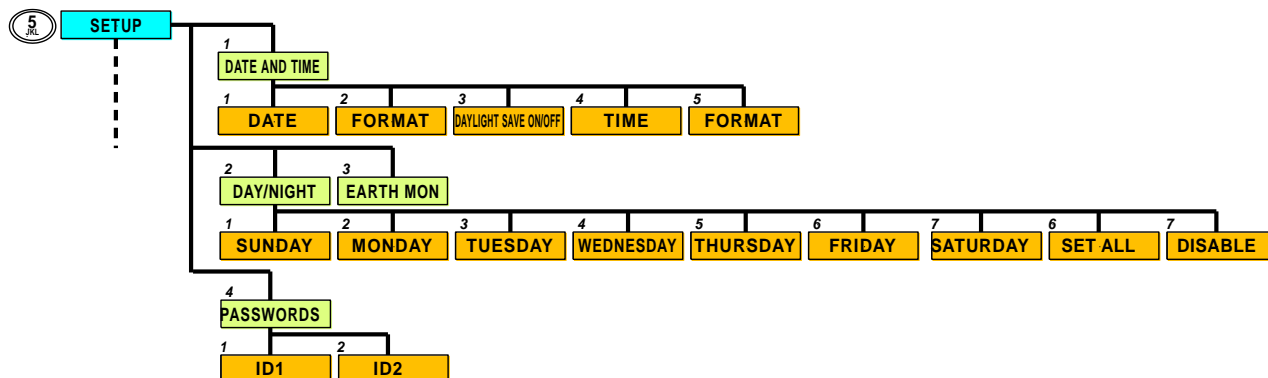

```
   SETUP MENU
1▶DATE AND TIME     3|EARTH MONITORING
2|DAY/NIGHT         4|PASSWORDS
```

This menu is only accessible at access level 3. If the active access level is less than 3 the user will be prompted to enter password before allowing access to this menu.

8.5.1   Menu->Setup->Date and Time

```
   DATE AND TIME MENU
1▶DATE  :01/01/2008 4|TIME  :10:05:33
2|FORMAT:DD/MM/YYYY 5|FORMAT:24 HOUR
3|DAYLIGHT SAVE ON
```

The date format can be changed by selecting 2, the time format can be changed by selecting 5 and the daylight savings mode can be tuned on or off by selecting 3.

8.5.1.1 Menu->Setup->Date and Time->Date

```
FORMAT: DD/MM/YYYY
CURRENT: 01/01/2008
    NEW: _
▲DEL                      APPLY▶
```

8.5.1.2 Menu->Setup->Date and Time->Time

```
CURRENT: 10:05:34
    NEW: _

▲DEL                      APPLY▶
```

8.5.2   Menu->Setup->Day/Night

```
DAY/NIGHT MENU        <disabled status>
1▶SUNDAY    4|WEDNESDAY 7|SATURDAY
2|MONDAY    5|THURSDAY  8|SET ALL
3|TUESDAY   6|FRIDAY    9|DISABLE
```

Day/Night mode can be enabled or disabled by selecting 9. The <disabled status> shall toggle accordingly as this is selected.

8.5.2.1 Menu->Setup->Day/Night->Day

```
DAY/NIGHT SETTINGS - SUNDAY
CURRENT - DAY: HH:MM  NIGHT: HH:MM
   NEW - DAY: _       NIGHT:        DEL▲
◄BACK              APPLY▼            NEXT►
```

Back will return to day/night menu or previous day if not on first day selected.

Next will proceed to the day/night settings for each of the remaining six days in sequence after which it will return to the day/night menu.

Pressing APPLY will set the CURRENT day/night settings to the new value and clear the new values to allow re-editing.

Cancel returns to the day/night menu on any day.

Selecting "8|SET ALL" from the Day/Night menu shall present the user with a screen similar to that above. The settings applied on this screen will be applied to all days of the week.

8.5.3   Menu->Setup->Earth Monitoring

```
EARTH MONITORING: ENABLED
ENSURE EARTH MONITORING LINK ISFITTED
                            CHANGE▼
◄BACK                        APPLY
```

Press CHANGE▼ to toggle between enabled and disabled

8.5.4   Menu->Setup->Passwords

Selecting the password menu shall reveal the generic password user ID selection screen followed by the following:

```
        ADD/EDIT PASSWORD
ID            ►: 01
ACCESS LEVEL  : 2              DEL▲
PASSWORD      : 2222           SAVE►
```

Use ▼ arrow to move edit point.

Only password IDs 1 and 2 are editable at the panel. All other IDs need to be configured using the PC configuration tool.

8.6   Menu > Programming
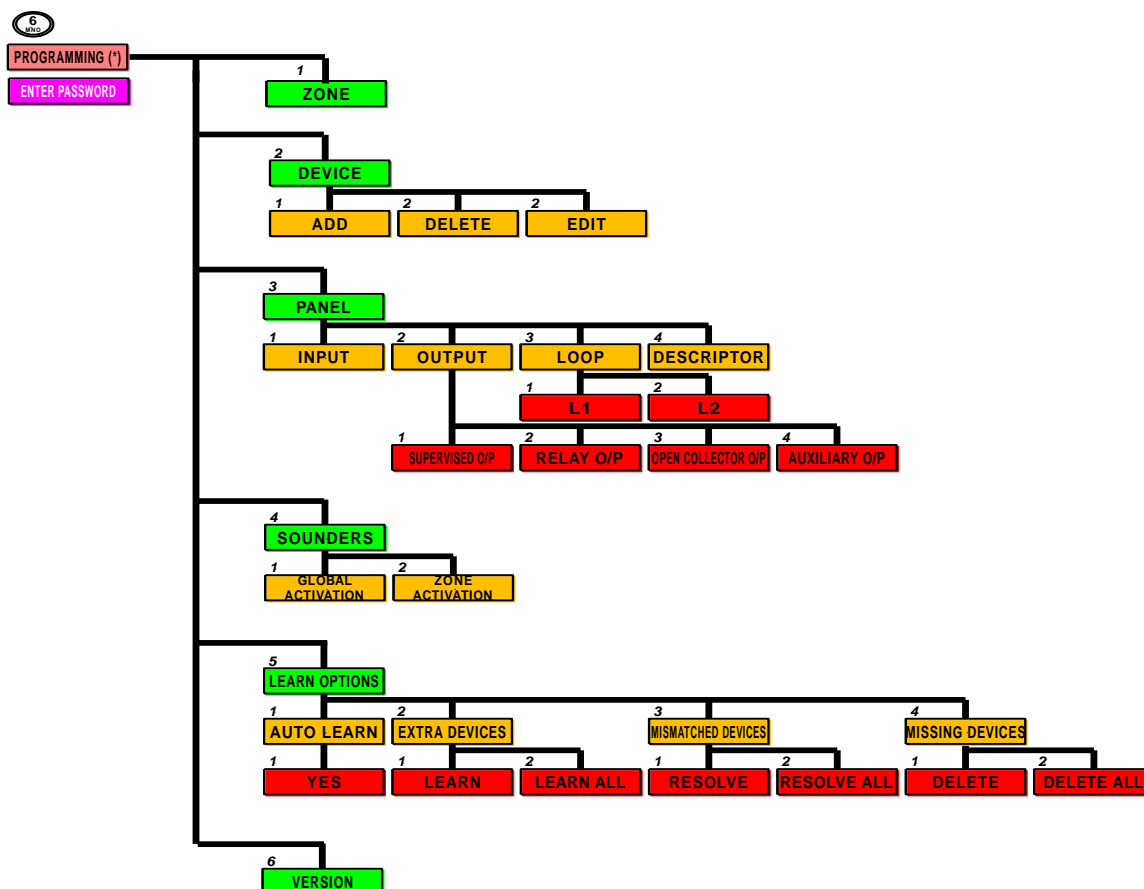
This menu is only accessible at access level 3. If the active access level is less than 3 the user will be prompted to enter password before allowing access to this menu.

```
   PROGRAMMING MENU
1▶ZONE              4|SOUNDERS
2|DEVICE            5|LEARN OPTIONS
3|PANEL             6|VERSION
```
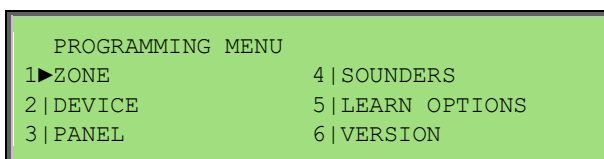
The programming menu is divided into a series of programming wizards. Each individual programmable attribute will be displayed on each screen of the wizard and navigation and editing options are displayed.

If any changes to the configuration are made during the course of the programming wizard a DO YOU WANT TO SAVE screen is displayed:

```
CHANGES MADE
DO YOU WANT TO SAVE?

◀BACK            1:YES
```
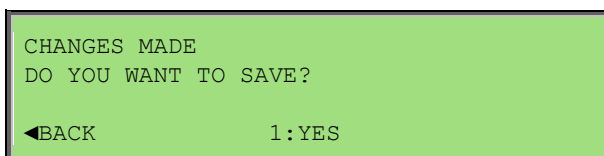
If no changes were made a NO CHANGES MADE splash screen will be displayed for a short period before returning to the menu.

8.6.1 Menu->Programming->Zone

When this is selected the user is presented with the generic zone number selection screen followed by the EDIT DESCRIPTION screen.

```
EDIT DESCRIPTOR
<descriptor>_
#CLEAR                              DEL▲
◄BACK                             NEXT►
```

Use the alpha-numeric keys to key in descriptor characters. Pressing next (or enter) will update the programming.

```
DAY MODE
ZONE CONFIGURATION: INVESTIGATION
                                 CHANGE▼
◄BACK                             NEXT►
```

For day and night mode, choices are:

> NORMAL   (No Timeout)

> INVESTIGATE   (Timeout 1 / 2, MCP Override, Inhibit Sounders, Inhibit Fire Outputs

> DEPENDANCY A (Timeout 1)

> DEPENDANCY B (Timeout 1)

> DEPENDANCY C (Inhibit Sounders, Inhibit Fire Outputs)

> AVF   (Timeout 1)

Pressing next (or enter) will update the programming and prompt for respective timeout 1 setting.

```
DAY MODE          <zone configuration>
EDIT ZONE TIMEOUT 1: 60    (1-180 SECS)
#CLEAR
◄BACK                             NEXT►
```

Pressing next (or enter) will update the programming and prompt for respective timeout 2 setting.

```
DAY MODE          <zone configuration>
EDIT ZONE TIMEOUT 2: 300  (1-420 SECS)
#CLEAR
◄BACK                             NEXT►
```

Pressing next (or enter) will update the programming and prompt for MCP override setting.

```
DAY MODE          <zone configuration>
MCP OVERRIDE: ENABLED
                                 CHANGE▼
◄BACK                             NEXT►
```

Pressing next (or enter) will update the programming and prompt for Inhibit sounders setting.

```
DAY MODE          <zone configuration>
INHIBIT SOUNDERS: ENABLED
                                 CHANGE▼
◄BACK                             NEXT►
```

Pressing next (or enter) will update the programming and prompt for Inhibit fire outputs setting.

```
DAY MODE            <zone configuration>
INHIBIT FIRE OUTPUTS: ENABLED
                                 CHANGE▼
◄BACK                              NEXT►
```

The screens are then repeated for night mode. Then the user will be prompted to save changes if required.

8.6.2   Menu->Programming->Device

```
DEVICE MENU
1►ADD
2|DELETE
3|EDIT
```

The user may choose to Add, Edit or Delete devices. Once selected, the user will be prompted to select the loop and device to which to perform the selected action using the generic point selection screens.

```
SELECT DEVICE TYPE: <device type>

                                 CHANGE▼
◄BACK                              NEXT►
```

8.6.2.1 Menu->Programming->Device->Add

In this wizard the user can scroll through the desired device type to be added. The user is also prompted to save changes if required.

8.6.2.2 Menu->Programming->Device->Delete

```
Zzzz Ppp Lll Dddd.s   <device type>


◄BACK                            DELETE►
```

Once selected the device location and type shall be displayed:

The user shall then be prompted to save changes if required.

8.6.2.3 Menu->Programming->Device->Edit

```
SELECT DEVICE TYPE: <device type>

                                 CHANGE▼
◄BACK                              NEXT►
```

Once the device is selected firstly the device type can be changed:

If the device type is changed the following confirmation screen is presented:

```
WARNING: SETTINGS WILL BE DEFAULT
EXCEPT ZONE NUMBER AND DESCRIPTOR
PROCEED WITH CHANGE
◄BACK             1:YES
```

Confirming this will change the device type. As each device type has a different set of configurable attributes only the device descriptor and zone number are common hence all other configurable attributes for the given device are set to their default value when the device type is changed.

```
EDIT DESCRIPTOR
<descriptor>_
#CLEAR                          DEL▲
◄BACK                           NEXT►
```

Edit the descriptor using the alphanumeric keys. Press NEXT► to go to the next field.

```
ENTER ZONE NUMBER: X

#CLEAR                          DEL▲
◄BACK                           NEXT►
```

The zone number may then be changed:

```
EDIT ACTION TYPE: FIRE

                             CHANGE▼
◄BACK                           NEXT►
```

Press CHANGE▼ to browse through the available action types. Press NEXT► to go to the next field.

```
INPUT TYPE: NON-LATCHING

                             CHANGE▼
◄BACK                           NEXT►
```

Press CHANGE▼ to browse through the available latching state options. Press NEXT► to go to the next field.

```
EDIT PRE-DELAY: 0   (0-90 seconds)

#CLEAR                          DEL▲
◄BACK                           NEXT►
```

Key-in the new pre-delay value for the selected field. Press NEXT► to go to the next field.

```
DAY SENSITIVITY: 100  (80-120%)

#CLEAR                          DEL▲
◄BACK                           NEXT►
```

Press NEXT► to enter the sensitivity mode of the device. For XP95 devices the following screens are presented:

```
NIGHT SENSITIVITY: 100  (80-120%)

#CLEAR                          DEL▲
◄BACK                           NEXT►
```

The fixed alarm and pre-alarm thresholds of the XP95 device will be multiplied by this sensitivity percentage for day and night; hence allowing increased(<100%) or reduced(>100%) sensitivity.

```
DAY SENSITIVITY MODE: 3

#CLEAR                          DEL▲
◄BACK                           NEXT►
```

For Discovery devices the Sensitivity mode setting adjust the analogue value within the detector. Day mode displayed. Press NEXT► for Night mode.

```
DAY MODE: <detector mode>

#CLEAR                        DEL▲
◄BACK                        NEXT►
```

For Multi sensor detectors this Day mode screen format is used. Press NEXT► for Night mode.

```
INDICATE PRE-ALARM: ENABLED

                           CHANGE▼
◄BACK                        NEXT►
```

Press NEXT► to select if the device should indicate a pre-alarm status at the panel.

The user is then prompted to save any changes if they have been made.

8.6.2.4 Menu->Programming->Device->Edit – Sub Input

```
EDIT DEVICE TYPE: <device type>

                           CHANGE▼
◄BACK                        NEXT►
```

Once the device is selected firstly the device type can be changed:

```
WARNING: SETTINGS WILL BE DEFAULT
EXCEPT ZONE NUMBER AND DESCRIPTOR
PROCEED WITH CHANGE
◄BACK            1:YES
```

If the device type is changed this confirmation screen is displayed:

```
TYPE: <device type>
1 DEVICE
2►SUB ADDRESS
                             NEXT►
```

If the device type has sub-address inputs or outputs this screen is displayed next:

```
SELECT SUB ADDRESS: 1
<selected sub address descriptor>
1►I/P1  2:I/P2  3:I/P3 4:O/P1  5:O/P2
6:O/P3
```

Select 2 SUB ADDRESS and pressing NEXT► displays the generic sub-address selection screen:

```
EDIT DESCRIPTOR
LOOP 1 DEVICE 1 INPUT 1_
#CLEAR                        DEL▲
◄BACK                        NEXT►
```

Select one of the sub inputs and press enter to edit the input configuration.

```
ENTER ZONE NUMBER: 1_

◄BACK                        NEXT►
```

Press NEXT► to go to the next field.

```
EDIT ACTION TYPE: FIRE


                        CHANGE▼
◄BACK                   NEXT►
```

Press NEXT► to go to the next field.

```
INPUT TYPE: NON-LATCHING


                        CHANGE▼
◄BACK                   NEXT►
```

Press NEXT► to go to the next field.

```
EDIT CONTACT STATE: NORMALLY OPEN


                        CHANGE▼
◄BACK                   NEXT►
```

Press NEXT► to go to the next field.

```
SUPERVISED: ENABLED


                        CHANGE▼
◄BACK                   NEXT►
```

Press NEXT► to go to the next field.

```
EDIT PRE-DELAY: 0  (0-90 seconds)

#CLEAR                    DEL▲
◄BACK                   NEXT►
```

Press NEXT► to go to the next field.

The user is then prompted to save any changes that may have been made.

8.6.2.5 Menu->Programming->Device->Edit – Sub Output

```
EDIT DEVICE TYPE: <device type>

                        CHANGE▼
◄BACK                   NEXT►
```

Once the device is selected firstly the device type can be changed:

```
WARNING: SETTINGS WILL BE DEFAULT
EXCEPT ZONE NUMBER AND DESCRIPTOR
PROCEED WITH CHANGE
◄BACK           1:YES
```

If the device type is changed this confirmation screen is displayed:

```
TYPE: <device type>
1 DEVICE
2►SUB ADDRESS
                        NEXT►
```

If the device type has sub-address inputs or outputs the following screen is displayed next:

```
SELECT SUB ADDRESS: 4
<selected sub address descriptor>
1:I/P1  2:I/P2  3:I/P3 4▶O/P1  5:O/P2
6:O/P3
```

Select 2 SUB ADDRESS and pressing NEXT▶ displays the generic sub-address selection screen:

```
EDIT DESCRIPTOR
LOOP 1 DEVICE 1 OUTPUT 1_
#CLEAR                         DEL▲
◀BACK                         NEXT▶
```

Select one of the sub outputs and press enter to edit the output configuration.

```
ENTER ZONE NUMBER: 1_


◀BACK                         NEXT▶
```

Press NEXT▶ to go to the next field.

```
EDIT ACTION TYPE: NONE

                           CHANGE▼
◀BACK                         NEXT▶
```

Press NEXT▶ to go to the next field.

```
GLOBAL ACTION: <action type>
             ENABLED
                           CHANGE▼
◀BACK                         NEXT▶
```

Press NEXT▶ to go to the next field.

```
ZONE ACTION: <action type>
             ENABLED
                           CHANGE▼
◀BACK                         NEXT▶
```

Press CHANGE▼ to enable or disable the displayed global action. Press NEXT▶ to go to the next global action setting.

```
NORMALLY ENERGISED: DISABLED

                           CHANGE▼
◀BACK                         NEXT▶
```

Press CHANGE▼ to enable or disable the displayed zone action. Press NEXT▶ to go to the next zone action setting.

```
RESPOND TO ALERT/EVAC: ENABLED

                           CHANGE▼
◀BACK                         NEXT▶
```

Press NEXT▶ to go to the next field.

```
RESPOND TO CLASS CHANGE: ENABLED

                                       CHANGE▼
◄BACK                                    NEXT►
```

Press NEXT► to go to the next field.

```
EDIT POST-DELAY: 0   (0-999 seconds)

#CLEAR
◄BACK                                    NEXT►
```

Press NEXT► to go to the next field.

The user is then prompted to save any changes if they have been made.

8.6.3   Menu->Programming->Panel

```
PANEL MENU
1►INPUT              3|LOOP
2|OUTPUT             4|DESCRIPTOR
```

Panel Inputs, Outputs, Loops and normal screen descriptors can be programmed from this menu.

8.6.3.1 Menu->Programming->Panel->Input

```
SELECT INPUT: 1        PANEL INPUT
<input descriptor>
►I/P1    I/P2    I/P3    I/P4
```

The user may select 1 of 4 panel inputs.

```
EDIT DESCRIPTOR
DIGITAL INPUT 1_
#CLEAR                                    DEL▲
◄BACK                                    NEXT►
```

Select desired input and press enter to edit it configuration settings.

```
ENTER ZONE NUMBER: 1_

#CLEAR                                    DEL▲
◄BACK                                    NEXT►
```

Press NEXT► to go to the next field.

```
EDIT ACTION TYPE: FIRE

                                       CHANGE▼
◄BACK                                    NEXT►
```

Press NEXT► to go to the next field.

```
INPUT TYPE: NON-LATCHING

                                       CHANGE▼
◄BACK                                    NEXT►
```

Press NEXT► to go to the next field.

```
EDIT CONTACT STATE: NORMALLY OPEN


                               CHANGE▼
◄BACK                            NEXT►
```

Press NEXT► to go to the next field.

```
SUPERVISED: ENABLED


                               CHANGE▼
◄BACK                            NEXT►
```

Press NEXT► to go to the next field.

```
EDIT PRE-DELAY: 0  (0-90 seconds)

#CLEAR                            DEL▲
◄BACK                            NEXT►
```

Press NEXT► to go to the next field.

The user shall then be prompted to save any changes if they have been made.

8.6.3.2 Menu->Programming->Panel->Output

```
PANEL OUTPUT MENU
1►SUPERVISED O/P    3|OPEN COLLECTOR O/P
2|RELAY O/P          4|AUXILIARY O/P
```

The user may select between the four types of panel outputs.

```
SELECT OUTPUT: X            <output type>
<output descriptor>
►O/P1    O/P2    O/P3    O/P4
```

There are 4 Supervised Outputs, 3 Relay Outputs, 2 Open Collector Outputs and 2 Auxiliary Outputs to choose from.

Depending on the output type selected, the number of available outputs shall be displayed on the generic output point selection this screen

```
EDIT DESCRIPTOR
<output descriptor>_
#CLEAR                            DEL▲
◄BACK                            NEXT►
```

Press enter to edit the selected output configuration settings.

```
ENTER ZONE NUMBER: 1_

#CLEAR                            DEL▲
◄BACK                            NEXT►
```

Press NEXT► to go to the next field.

```
FIXED ACTIVATION: NONE

                                   CHANGE▼
◄BACK                                NEXT►
```

Press NEXT► to go to the next field.

```
OUTPUT TYPE: SOUNDER

                                   CHANGE▼
◄BACK                                NEXT►
```

Press NEXT► to go to the next field.

```
GLOBAL ACTION: <action type>
               ENABLED
                                   CHANGE▼
◄BACK                                NEXT►
```

Press CHANGE▼ to enable or disable the displayed global action.

Press NEXT► to go to the next field.

```
ZONE ACTION: <action type>
             ENABLED
                                   CHANGE▼
◄BACK                                NEXT►
```

Press CHANGE▼ to enable or disable the displayed zone action.

Press NEXT► to go to the next zone action setting.

```
NORMALLY ENERGISED: DISABLED

                                   CHANGE▼
◄BACK                                NEXT►
```

Press NEXT► to go to the next field.

```
SILENCEABLE: ENABLED

                                   CHANGE▼
◄BACK                                NEXT►
```

Press NEXT► to go to the next field.

```
RESPOND TO ALERT/EVAC: ENABLED

                                   CHANGE▼
◄BACK                                NEXT►
```

Press NEXT► to go to the next field.

```
RESPOND TO CLASS CHANGE: ENABLED

                                   CHANGE▼
◄BACK                                NEXT►
```

Press NEXT► to go to the next field.

```
EDIT POST-DELAY: 0  (0-999 seconds)


#CLEAR
◄BACK                          NEXT►
```

Press NEXT► to go to the next field.

The user is then prompted to save any changes that may have been made.

8.6.3.3 Menu->Programming->Panel->Loop

```
SELECT LOOP: X
<selected loop descriptor>
►L1       L2
```

If there is more then one loop the user is prompted to select the loop using the generic loop selection screen.

```
EDIT DESCRIPTOR
LOOP 1_
#CLEAR                          DEL▲
◄BACK                          NEXT►
```

Press enter to edit the selected Loop configuration settings.

```
LOOP X TERMINATION: SINGLE-ENDED

                            CHANGE▼
◄BACK                          NEXT►
```

Press NEXT► to go to the next field.

The user is then prompted to save any changes that may have been made.

8.6.3.4 Menu->Programming->Panel->Descriptor

```
EDIT CUSTOM BANNER 1
AMPAC TECHNOLOGIES PTY. LTD._
#CLEAR                          DEL▲
◄BACK                          NEXT►
```

The user may modify the two descriptors displayed on the normal screen

```
EDIT CUSTOM BANNER 2
LOOPSENSE (C) 2008_
#CLEAR                          DEL▲
◄BACK                          NEXT►
```

Press NEXT► to go to the next descriptor.

The user is then prompted to save any changes that may have been made.

8.6.4   Menu->Programming->Sounders

```
SOUNDER MENU
1►GLOBAL ACTIVATION
2|ZONE ACTIVATION
```

This menu allows programming of the Zone and Global activation settings for sounders.

8.6.4.1 Menu->Programming->Sounders->Global Activation

```
GLOBAL <action type>
ACTIVATION MODE: EVACUATE
                            CHANGE▼
◄BACK                       NEXT►
```

The activation mode for each Global action type can be selected.

The activation mode choices are:

- ➢ EVACUATE
- ➢ ALERT
- ➢ ALERT TIMEOUT EVACUATE
- ➢ DELAYED

```
GLOBAL <action type>
ACTIVATION DELAY: 30    (0-999 Sec)
#CLEAR
◄BACK                       NEXT►
```

The activation mode screens are repeated for all action types in which the delays can be edited

The user is then prompted to save any changes that may have been made.

8.6.4.2 Menu->Programming->Sounders->Zone Activation

```
SELECT ZONE: XXX
<selected zone descriptor>
►Z1       Z2      Z3      Z4      Z5
 Z6       Z7      Z8      Z9      Z10
```

The user is first prompted to select the Zone number to be configured. Press enter to continue.

```
ZONE <action type>
ACTIVATION MODE: EVACUATE
                            CHANGE▼
◄BACK                       NEXT►
```

The activation mode for each Zone action type can then be selected.

The activation mode choices are:

- ➢ EVACUATE
- ➢ ALERT
- ➢ ALERT TIMEOUT EVACUATE
- ➢ DELAYED

```
ZONE <action type>
ACTIVATION DELAY: 30    (0-999 SEC )
#CLEAR
◄BACK                       NEXT►
```

The activation mode screens are repeated for all action types in which the delays can be edited.

The user is then prompted to save any changes that may have been made.

8.6.5   Menu->Programming->Learn Options

```
LEARN OPTIONS MENU
1▶AUTO LEARN        3|MISMATCHED DEVICES
2|EXTRA DEVICES    4|MISSING DEVICES
```

➢ Auto Learn can be used to learn all Loops, Loop Devices, Panel Inputs and outputs connected to the system and store the default configuration for all these points

➢ Mismatched Devices is used to resolve any detected loop devices that do not match the configuration

➢ Extra Devices is used to learn any newly detected loop devices that do not exist in the configuration

➢ Missing Devices is used to remove any device that exist in the configuration but are removed from physical connection to the loop

8.6.5.1 Menu->Programming->Learn Options->Auto Learn

Selecting Auto Learn firstly prompts for confirmation.

```
AUTO LEARN
CONFIGURATION WILL BE CHANGED
ARE YOU SURE?
◀BACK            1:YES
```

Select 1 to confirm.

```
AUTO LEARN
INITIALISING PLEASE WAIT

◀BACK                    NEXT▶
```

While the Auto Learn sequence is initialising all system functions cease, and the panel is prepared for Auto Learn.

```
AUTO LEARN IN PROGRESS
<----->

◀BACK                    NEXT▶
```

The Auto Learn in Progress screen is displayed while all devices have been learnt.

Upon completion the panel will restart with the newly learnt configuration.

8.6.5.2 Menu->Programming->Learn Options->Extra Devices

```
Zzzz Ppp Lll Dddd.s  <status>
TYPE: <detected type>
EXTRA DEVICES XXX OF XXX
◀BACK     1:LEARN    2:LEARN ALL
```

If extra devices are detected on the system, the following screen is displayed.

Here the user may select to learn the individual extra device currently being displayed or all extra devices detected.

```
            NO EXTRA DEVICES DETECTED
```

If no extra devices were detected the following screen is displayed for a short period before returning to the previous menu.

8.6.5.3 Menu->Programming->Learn Options->Mismatched Devices

If mismatched devices are detected on the system, the following screen is displayed.

```
Zzzz Ppp Lll Dddd.s   <detected type>
CONFIGURED TYPE: <device type>
MISMATCHED DEVICES XXX OF XXX
◄BACK      1:RESOLVE    2:RESOLVE ALL
```

Here the user may select to resolve the individual device mismatch currently being displayed or all mismatched devices detected.

```
        NO MISMATCHED DEVICES DETECTED
```

If no mismatched devices were detected the following screen is displayed for a short period before returning to the previous menu.

8.6.5.4 Menu->Programming->Learn Options->Missing Devices

If devices in the system are missing, the following screen is displayed.

Here the user may select to delete the individual device from the configuration currently being displayed or all missing devices.

```
Zzzz Ppp Ll Dddd.s   <status>
CONFIGURED TYPE: <device type>
MISSING DEVICES XXX OF XXX
◄BACK     1:DELETE     2:DELETE ALL
```

If no missing devices were detected the following screen is displayed for a short period before returning to the previous menu.

```
        NO MISSING DEVICES DETECTED
```

8.6.6   Menu->Programming->Version

The date and time is updated by the PC configuration tool upon alteration of the configuration information when saving and is also updated at the panel when configuration changes are made via programming.

The Configuration Major Version is incremented by the PC upon alteration of the configuration information when saving. When this occurs the Configuration Minor Version shall be cleared to zero. If the Major or Minor version reaches 65535 it shall remain at this value unless reset by user intervention using the PC tool. The Configuration Minor Version shall be incremented upon alteration of the configuration at the panel via programming. Also, the major version shall default to 1 and minor version default to 0 upon auto learn at the panel

```
          SITE CONFIGURATION DATA
LAST MODIFIED: <date> <time>
      VERSION: <major>.<minor>
◄BACK
```

9 Programming Concepts

9.1 Overview

The FACP is considered as a collection of inputs and outputs. Examples of inputs are detectors, digital inputs available at the panel, inputs available via loop devices, day/night mode and timers. Examples of outputs are supervised outputs available at the panel, relays available at the panel, loop based sounders, loop based beacons, loop based relays and so forth.

The programming model is based around assigning attributes to the inputs and outputs. These attributes determine how an input is handled by the FACP, and which outputs are activated (and how they are activated) in response to the change in the input.

The FACP programming consists of two parts, one being the configuration of the physical components of the system, and secondly how changes in the inputs result in changes in the outputs or I/O programming.

The FACP programming can be done using the PC configuration software or via the front panel of the FACP using the access level 3 programming menu. The front panel programming is limited as it does not support all the configuration features of the PC configuration software such as Cause and Effects programming, however it does support the common programming tasks such as adding and deleting devices and assigning attributes such as action types.

9.2 I/O Programming Model

All inputs and outputs in the system are zoned (Z1 to Z999: Default Z1).

Input zones can be configured to cause an action type event to occur on the system; Output zones can be programmed to react to these action type events. There are eight action types available at the panel these are listed in priority order:

1. Fire
2. Fault
3. Pre-Alarm
4. Emergency
5. Security
6. User
7. Transparent
8. System

There are essentially three methods of programming outputs to react to input activations; these are (listed in order of priority):

1. Cause and Effects programming
2. Zone programming
3. Global Sounder programming

9.3 Cause and Effects Programming

Cause and Effects (C&E) is a configuration feature that is available via the PC configuration software. It allows you to assign combinations of input and input zone activations (causes) to output and output zone

activations (effects) using logical operators and delays, and allows further flexibility of allowing causes to invoke the following system effects:

➢ Zone Disable

➢ Zone Walk Test

➢ Day mode change

➢ Night mode change

➢ Master Reset

➢ Evacuate

➢ Alert

➢ Class Change

➢ Force Access Level 2

➢ Buzzer Silence

➢ Silence/Resound

The following events can also be included as a cause:

➢ panel in fire

➢ panel in day mode

➢ panel in night mode

➢ panel silenced

➢ panel reset

The use of Virtual Points will also be supported in C&E programming. This will allow the programmer to link the effect of one C&E to the cause of another. Virtual points will be panel wide.

9.3.1   Zone Programming

There are 1-999 Zones and a Global Zone available within the system.   All inputs assigned to a zone shall report abnormal conditions prioritized collectively for that zone. Zones may be programmed such that all fire inputs within the zone shall report a fire condition subject to zone input configurable attributes and can be set for day and/or night modes individually. The available zone input configuration types include:

➢ Normal

➢ Investigation

➢ Dependency A

➢ Dependency B

➢ Dependency C

➢ AVF (NZS4512 only)

The zones may also be programmed such that outputs within that zone shall operate according to the zone output configurable attributes. The zone output configurable attributes are settable for each action type individually and are as follows:

➢ On / Evacuate – the output will be activated continuously

➢ Delayed – the output is delayed prior to being activated continuously

➢ Alert – the output will pulse at 1 second on 1 second off

➢ Alert timeout Evacuate - the output is set to alert, then on expiry of the timer the output is set to activate continuously

The Global Zone may also be programmed with the above zone output configurable attributes.

Each individual input within a zone may be programmed to generate any or all action types on a zone and/or global level.

Each individual output within a zone may be programmed to respond to any or all action types on a zone and/or global level. The outputs will activate in the mode specified in the corresponding zone output configurable attributes for each action type.

9.3.1.1 Normal Zone Configuration

The zone enters the fire condition immediately after receiving a fire signal from within that zone.

9.3.1.2 Dependency A Zone Configuration

This is a verification and coincidence facility for confirming the fire alarm condition from a fire detector.

Configurable Attributes:

➢ Zone Configuration: DEPENDENCY A

➢ Dependency Delay Timeout: 60 – 1740 seconds (default: 60 seconds)

Following the receipt of a fire signal from a detector within a Dependency A zone:

1. The detector alarm LED is activated

2. A 30 second dissipation timer commences (allowing transient smoke to dissipate before reset)

3. After the dissipation timer expires the detector is reset

4. A 30 second reset timer commences

5. The detector alarm LED shall be switched off during reset

6. Upon expiry of the reset timer if a second confirmed fire signal was received a fire condition shall be raised, otherwise:

   • The configured Dependency Delay timer commences

   • The dependency zone shall be displayed on the LCD with active countdown delay timer

   • The DEPENDENCY A event shall be logged and printed (stored in Pre-Alarm log)

   • The general fire indicator shall not be illuminated

```
Zzzz                    DEPENDENCY A
<zone descriptor>
<date> <time>                  XXXX SECS
ZONE DEPENDENCY XXX OF XXX        DEVICE▶
```

The first fire alarm signal is cleared:

➢ By invoking RESET control at any time

➢ If the Dependency Delay timer expires prior to receipt of a confirmation fire alarm signal

➢ The DEPENDENCY A clear event will be logged and printed (stored in Pre-Alarm log)

A **Halma** company

A fire condition is raised when a confirmation fire alarm signal is received from:

➢ The same device re-entering alarm after the reset

➢ Another device from the same zone (Note: this can override the inhibit time from the first fire alarm signal)

The following shall also apply:

MCPs bypass this Dependency facility

➢ The EVACUATE control bypasses this Dependency facility

➢ The dissipation and reset timeouts are fixed, not programmable.

➢ The total Dependency A Inhibit time = dissipation timeout + reset timeout = 60 seconds

➢ The Dependency Delay Timeout is configurable to be a minimum 1 minute and a maximum 29 minutes allowing the first alarm state to be automatically cancelled within 30 minutes of the receipt of the first alarm signal.

➢ The Dependency A zone configuration and associated Dependency Delay Timeout are configurable and viewable from within the access level 3 Programming menu at the panel or via LoopMaster

9.3.1.3 Dependency B Zone Configuration

This is a co-incidence facility for confirming the fire alarm condition from a fire detector.

Configurable Attributes:

> ➢ Zone Configuration: DEPENDENCY B
>
> ➢ Dependency Timeout: 300 – 1800 seconds (default: 300 seconds)

Following the receipt of a fire signal from a detector within a Dependency B zone:

> ➢ The Dependency delay timer commences
>
> ➢ The fire buzzer is sounded
>
> ➢ The associated zone LED will flash
>
> ➢ The DEPENDENCY B event will be logged and printed (stored in Pre-Alarm log)
>
> ➢ The general fire indicator shall not be illuminated
>
> ➢ The dependency zone shall be displayed on the LCD with active countdown timer

```
Zzzz                DEPENDENCY B
<zone descriptor>
<date> <time>                 XXXX SECS
ZONE DEPENDENCY XXX OF XXX        DEVICE▶
```

The first fire alarm signal is cleared:

> ➢ By invoking RESET control at any time
>
> ➢ If the timeout expires prior to receipt of a confirmation fire alarm signal
>
> ➢ The DEPENDENCY B clear event will be logged and printed (stored in Pre-Alarm log)

A fire condition is raised when a confirmation fire alarm signal is received from:

> ➢ Another device from the same zone
>
> ➢ Another device from a different zone

The following also applies:

> ➢ MCPs bypass this Dependency facility
>
> ➢ The EVACUATE control bypasses this Dependency facility
>
> ➢ from within the access level 3 Programming menu at the panel or via LoopMaster

9.3.1.3.1 Dependency B Co-sited Zone Configuration

In addition to the Dependency B functionality described above, where the confirmation fire alarm signal can come from another device from the same or different zone (i.e. any zone); the Dependency B may also be programmed such that the confirmation fire alarm signal may only come from the same zone or co-sited Dependency B zone/s.

Configurable Attributes (in addition to standard Dependency B config attributes):

> ➢ Co-Sited Group Number: 1 – 10 (default: not selected/co-sited grouping disabled)

Dependency B zones may be co-sited by assigning the same co-sited group number to each Dependency B zone that is to be co-sited with each other. The group number may be assigned in the LoopMaster

ZoneManager where there is an option to accept confirmation fire alarm signals from co-sited zones or from any zone (co-sited grouping disabled).

If only one zone is assigned to a unique co-sited group number, then the confirmation fire alarm signal shall be accepted from within that zone only.

9.3.1.4 Dependency C Zone Configuration

This is a coincidence facility for activation of sounder and/or fire outputs.

Configurable Attributes:

- Zone Configuration: DEPENDENCY C

- Inhibit Sounder Output/s: Yes / No   (default: Yes)

- Inhibit Fire Output/s: Yes / No   (default: Yes)

☞ **Note:** *Only Sounder and/or Fire Output/s programmed to operate upon a global or zone fire action type are applicable for Dependency C output inhibit. Fire outputs include the assigned fire outputs and ancillary outputs.*

Following the receipt of a fire signal from a Dependency C zone:

- The common FIRE LED will turn on steady

- The assigned zone fire LED will illuminate

- The fire buzzer shall be sounded

- The fire event will be logged and printed

- The Fire condition will be reported to the LCD with Dependency C notification:

```
Zzzz                    FIRE
<zone descriptor>
DEPENDENCY C                     CONTROL*
ZONE FIRE XXX OF XXX             DEVICE▶
```

The configured Sounder and/or fire outputs shall not operate until the following occurs:

A second fire signal is received from another device in any zone

The RESET control can be activated at any time and will clear the fire condition. If the fire is confirmed by a fire signal from another device, the Sounder and/or Fire Outputs will be activated and the Dependency C notification shall extinguish from the fire display on the LCD:

```
Zzzz                    FIRE
<zone descriptor>
<date> <time>                    CONTROL*
ZONE FIRE XXX OF XXX             DEVICE▶
```

The Dependency B zone configuration and associated Dependency Timeout are configurable and viewable

The following also applies:

- MCPs do not override the Dependency C facility
- The EVACUATE control will override the Dependency C facility

➢ The Dependency C zone configuration and associated Dependency output types are configurable and viewable from within the access level 3 Programming menu at the panel or via LoopMaster

9.3.1.5 Investigation Zone Configuration

This is an investigation and coincidence facility for activation of sounder and/or fire outputs.

Configurable Attributes:

Zone Configuration: INVESTIGATION

➢ Investigation Delay Timeout 1: 1 – 180 seconds   (default: 60 seconds)

➢ Investigation Delay Timeout 2: 1 – 420 seconds   (default: 300 seconds)

➢ MCP Override: Yes / No   (default: Yes)

➢ Inhibit Sounder Output/s: Yes / No   (default: Yes)

➢ Inhibit Fire Output/s: Yes / No   (default: Yes)

☞ **Note:** *Only Sounder and/or Fire Output/s programmed to operate upon a global or zone fire action type are applicable for Investigation output inhibit. Fire outputs include the assigned fire outputs and ancillary outputs.*

Following the receipt of a fire signal from an Investigation zone:

➢ The first output delay timer commences

➢ The Common FIRE LED will turn on steady

➢ The Assigned zone fire LED will illuminate

➢ The fire buzzer shall be sounded

➢ The fire event will be logged and printed

➢ The Delay Active LED will flash

➢ The Fire condition will be reported to the LCD with active Output Delay countdown timer:

```
Zzzz                    FIRE
<zone descriptor>
OUTPUT DELAY XXX SECS          EXTEND*
ZONE FIRE XXX OF XXX           DEVICE▶
```

☞ **Note:** *For the AS7240 front panel where the Override and Evacuate controls are not available, only the 8x40 LCD is used and the screen above is appended with an OVERRIDE# soft key on the seventh line of the LCD:*

If EXTEND* is activated prior to the first timer expiring, then the second timer is activated and the Output Delay shall be replaced with the Timeout 2 countdown. The CONTROL* soft key shall be restored in place of the EXTEND* soft key:

```
Zzzz                    FIRE
<zone descriptor>
OUTPUT DELAY XXX SECS          CONTROL*
ZONE FIRE XXX OF XXX           DEVICE▶
```

The configured Sounder and/or fire outputs shall not operate until one or more of the following occurs during either timeout period:

➢ The fire is confirmed by invoking the OVERRIDE control

➢ A second fire signal is received from another device in any zone

➢ The Output Delay timer expires

The RESET control can be activated at any time and will clear the fire condition. If the fire is confirmed or the Output Delay timer expires, the Sounder and/or Fire Outputs will be activated and the output delay shall extinguish from the fire display on the LCD:

```
Zzzz                    FIRE
<zone descriptor>
<date> <time>                CONTROL*
ZONE FIRE XXX OF XXX         DEVICE▶
```

The following also applies:

➢ MCPs override the Investigation facility if configured to do so

➢ The EVACUATE control bypasses this Investigation facility

➢ (7.11.2) The Delay Mode is settable via the CONTROL>PANEL>DELAY MODE menu at access level 2 or higher

➢ (7.11.2) If the Delay Mode is set to ON all configured Investigation delays will be operational. If the Delay Mode is set to OFF all configured Investigation delays will be overridden i.e. any device in any zone configured with investigation delays will enter the Fire condition immediately bypassing any configured investigation delays

➢ The Delay Active LED shall flash when any investigation delay timer is running. The Delay LED will be illuminated ON steady when Investigation delays are configured and the Delay Mode is ON, and all investigation delay timers are not running. The Delay LED shall only be OFF if the delay mode is OFF or no investigation delays are configured or if the panel has switched to day or night mode where no delays have been configured.

➢ The Investigation zone configuration and associated timeouts and attributes are configurable and viewable from within the access level 3 Programming menu at the panel or via LoopMaster

9.3.1.6 AVF Zone Configuration

This is an Alarm Verification Facility for confirming a fire alarm condition from a smoke detector within a zone. The AVF zone configuration is programmable and viewable from within the access level 3 Programming menu at the panel or via LoopMaster

Configurable Attributes:

- ➢ Zone Configuration: AVF
- ➢ Confirmation Timeout: 90 – 120 seconds   (default: 120 seconds)

As the addressable analogue smoke detectors used in this system do not facilitate a physical reset of the smoke sensing circuitry within the detector; a modified algorithm supporting the fundamental requirements for alarm verification has been provided. The conventional zones supported do however support a physical reset of the conventional devices attached. Note: the conventional zones available do not distinguish between a fire signal from a smoke or non-smoke device on that zone; hence the onus is on the installer to only set the zone configuration to AVF for zones fitted with smoke detectors.

Following the receipt of a fire signal from an analogue smoke detector within an AVF zone:

- ➢ A 5 second Reset timer commences
- ➢ For addressable smoke detectors - the detector's alarm LED shall activate briefly then turn off. For conventional zones - they shall be reset during the AVF reset period.
- ➢ The AVF RESET zone shall be displayed:

```
Zzzz                    AVF RESET
<zone descriptor>
<date> <time>                     CONTROL*
ZONE AVF ALARM XXX OF XXX         DEVICE▶
```

- ➢ Upon expiry of the Reset timer the programmed Confirmation timer commences
- ➢ If a second fire signal is received during the programmed confirmation period, a valid fire condition shall be raised, otherwise:
  - • The AVF CONFIRMATION zone shall be displayed:
  - • The AVF CONFIRMATION event shall be logged and printed (stored in Pre-Alarm log)
  - • The general fire indicator shall not be illuminated

```
Zzzz                    AVF CONFIRMATION
<zone descriptor>
<date> <time>                     CONTROL*
ZONE AVF ALARM XXX OF XXX         DEVICE▶
```

The first fire alarm signal is cleared:

- ➢ by invoking RESET control at any time
- ➢ if the Confirmation timer expires prior to receipt of a confirmation fire alarm signal
  - ➢ The AVF clear event will be logged and printed (stored in Pre-Alarm log)

A valid fire condition is raised when a confirmation fire alarm signal is received from:

- ➢ the same device re-entering alarm during the confirmation period
- ➢ another device within the same zone

The following shall also apply:

> ➢ The EVACUATE control bypasses this AVF facility

> ➢ Fire calling devices other than smoke detectors bypass the AVF facility (Note: conventional zones programmed with AVF are treated as smoke zones)

> ➢ Any fire signal within the AVF zone after the Confirmation period has expired shall restart the AVF algorithm

9.3.2 Global Sounder Programming

Global Sounder programming allows all sounder outputs in the system to activate according to their sounder output programming attributes. The global sounder programming available within the PC configuration tool shall set all output and zone configurable attributes to respond in 1 of four methods:

1. Global Alert – Set all outputs to the Alert tone with an optional delay.

2. Global Evacuate – Set all outputs to the Evacuate tone with an optional delay.

3. Zone Evacuate – Set all outputs in an fire zone to evacuate

4. 2 Stage – Set all outputs in the fire zone to Evacuate and all other zones to Alert, with a timeout option to set the Alert zones to Evacuate.

The following example illustrates the effect of a Fire event occurring in Zone 1 when all zones are configured for Zone Evacuate:

Z2	Z3	Z4
No Effect	No Effect	No Effect
Z5	Z1	Z6
No Effect	EVAC	No Effect
Z7	Z8	Z9
No Effect	No Effect	No Effect

When Zone 1 enters a Fire condition, all the outputs in Zone one will activate in Evacuate mode. Note that outputs configured for C&E in zone 1 will be activated according to the C&E programming as a matter of priority.

The following example illustrates 2 Stage configuration when a Fire event occurs in Zone 1:

Z2 ALERT (Timeout EVAC)	Z3 ALERT (Timeout EVAC)	Z4 ALERT (Timeout EVAC)
Z5 ALERT (Timeout EVAC)	Z1 EVAC	Z6 ALERT (Timeout EVAC)
Z7 ALERT (Timeout EVAC)	Z8 ALERT (Timeout EVAC)	Z9 ALERT (Timeout EVAC)

When Zone 1 enters a Fire condition, all the outputs in Zone one will activate in Evacuate mode, and all surrounding zones will operate in alert mode with the option of timing out to Evacuate mode. Note that outputs configured for C&E in zone 1 will be activated according to the C&E programming as a matter of priority. Furthermore Zone programming of outputs has priority over the global programming.

9.3.3 Sounder Grouping

Sounder manufacturers' (Apollo and Hochiki) have implemented separate schemes for activating multiple sounders at the same time.

All schemes rely on grouping sounders together, and then using the group number to activate a collection of sounders. If the group is associated with a zone, then zones of sounders can be activated by using the group number. If an all alert or all evacuate type algorithm is required, it may be more appropriate to associated the group with all sounders. As a result of this the following has been implemented.

9.3.3.1 Apollo Sounder Grouping

Considering the Apollo XP95 Sounder Grouping:

- ➢ Fifteen group addresses per loop. Means device addresses from 112 to 126 are not available for device allocation but may be used for sounders within the same group
- ➢ Group number is set by DIP switch on the device itself
- ➢ Sounder can only be in one group.

Panel configuration

- ➢ Sounder Groups are assigned to the individual sounder at device output level
- ➢ Zones are assigned to Sounder Groups at loop level
- ➢ Sounder Group activation attributes are settable at loop level

Therefore groups of sounders can be mapped to zones which can be controlled via the panel programming using:

- ➢ Cause and Effects Zone Outputs
- ➢ Action Type Zone Outputs (Zones 1 to 999)
- ➢ Action Type Global Zone Outputs

When the individual sounder output is assigned to a sounder group it adopts the zone number of which the group is assigned at loop level and the associated activation attributes. The activation attributes settable for each sounder group at loop level include the Action Types which the group shall respond to, the Silence-able option, and response to Class Change and Alert/Evacuate.

Considering the Apollo Discovery Sounder Grouping:

The following devices currently support Discovery sounder grouping:

- ➢ Discovery Sounder Beacon Base
- ➢ Discovery Open-Area Sounder Beacon

These devices support soft group addressing of up to 16 groups. The LoopSense FACP dynamically allocates sounders to sounder groups based on the configured activation attributes of the sounders. The possible activation attributes which cause the sounders to activate by group include:

- ➢ Responds to Alert/Evacuate
- ➢ Responds to Class Change
- ➢ Silence-able
- ➢ Action Type Zone Outputs

➢ Action Type Global Zone Outputs

➢ Cause and Effects Zone Output programming

Sounders which share the same activation attribute settings shall be automatically allocated to a sounder group to facilitate rapid activation. As there are 16 group addresses available, the group containing the largest amount of sounders shall be allocated to the first group address, and then the second largest group shall be allocated to the second group address and so on until all 16 group addresses are filled. As each loop can have up to 16 group addresses, it would be rare to fill all group addresses. In the event that more than 16 groups exist on one loop, the sounders in the smallest groups shall be activated individually using a rapid activation algorithm.

☞ **Note:** *all operations of dynamic grouping and group activation of the discovery sounders is not visible to the user; it is purely used as an internal facility to rapidly activate sounders. However it is useful to realise that only sounders which are configured with the same activation attribute settings can form a group facilitating faster sounder operation.*

9.3.3.2 Hochiki Sounder Grouping

Considering the Hochiki Sounder Grouping

➢ The following devices support group activation:

- CHQ-BS / WS2 / WS / WSW

- YBO-BS / BSB

- CHQ-AB

- CHQ-ARI

- ACB-E

- ALG-EN

- CHQ-POM / SIM

➢ The groups, also referred to as clusters, are programmed into the EEPROM of the device during initialisation

➢ Each group-able output can be assigned to up to four groups simultaneously

- Group 1 is assigned to Zone 1 – 999 for output zone activation

- Group 2 is assigned to support the "Responds to Alert/Evacuate" attribute setting

- Group 3 is assigned to support the "Responds to Class Change" attribute setting

- Group 4 is assigned to the Global Zone for output zone activation

Panel configuration

➢ Group 1 assignment to output Zone 1 – 999 is programmable at device output level

➢ Group 2 assignment is set by selecting the "Responds to Alert/Evacuate" attribute at device output level

- ➢ Group 3 assignment is set by selecting the "Responds to Class Change" attribute at device output level

- ➢ Group 4 assignment to the Global Zone and is programmable at device output level

- ➢ The zone activation mode (Evacuate, Alert, Alert/Evac, Delayed) is programmable at zone level

- ➢ The global alert and evacuate tones are selectable at panel level

Furthermore, the Group 1 and 4 output Zone assignment can be controlled via the LoopMaster programming using:

- ➢ Cause and Effects Zone Outputs

- ➢ Action Type Zone Outputs (Zones 1 to 999)

- ➢ Action Type Global Zone Outputs

9.3.4   AAF Grouping

The Alarm Acknowledgement Facility (AAF) at the panel is supported by assigning an AAF Group number to an XP95 AAF device facilitating association with trigger devices assigned to the same AAF group.

Supported AAF trigger devices include all alarm calling loop devices excluding I/O devices, Manual Call Points and Heat detectors.

XP95 AAF device configurable attributes:

➢ AAF Group: 1 - 999

➢ Acknowledgement Timeout 1: 0 – 60 seconds (default: 60 seconds)

➢ Investigation Timeout 2: 0 – 180 seconds (default: 180 seconds)

Associated AAF trigger device configurable attributes:

➢ Input Type: AAF (Setting input type to AAF allows for AAF group association)

➢ AAF Group: 1 – 999

Following the receipt of a fire signal from a trigger device in an AAF Group:

➢ The AAF trigger device zone shall be displayed with AAF ACKNOWLEDGE status

➢ A command is sent to the XP95 AAF device to turn on the local sounder and LED

➢ LOCAL SOUNDER ACTIVATING shall be displayed with the acknowledge timeout

➢ The AAF ACKNOWLEDGE event shall be logged and printed (stored in Pre-Alarm log)

➢ The general fire indicator shall not be illuminated

```
Zzzz                    AAF ACKNOWLEDGE
<zone descriptor>
LOCAL SOUNDER ACTIVATING       XXX SECS
ZONE INV ALARM XXX OF XXX        DEVICE▶
```

Following confirmation of the local sounder being activated on the associated XP95 AAF device:

➢ LOCAL SOUNDER ACTIVATING shall change to LOCAL SOUNDER ACTIVATED

➢ The AAF Acknowledgement timer countdown commences and is displayed

```
Zzzz                    AAF ACKNOWLEDGE
<zone descriptor>
LOCAL SOUNDER ACTIVATED        XXX SECS
ZONE INV ALARM XXX OF XXX        DEVICE▶
```

The full fire condition is raised if the AAF Acknowledgement timeout expires and trigger device remains in fire and is not reset.

If the AAF control (hush switch) on the associated XP95 AAF device is activated during the Acknowledgement period and the trigger device remains in fire and is not reset:

➢ The AAF Investigation timer countdown commences and is displayed

➢ The AAF trigger device zone shall be displayed with AAF INVESTIGATION status

➢ The local AAF LED shall flash

➢ The local sounder on the associated XP95 AAF device is silenced

➢ LOCAL SOUNDER ACTIVATED shall change to LOCAL SOUNDER SILENCED

➢ The AAF INVESTIGATION event shall be logged and printed (stored in Pre-Alarm log)

```
Zzzz                    AAF INVESTIGATION
<zone descriptor>
LOCAL SOUNDER SILENCED          XXX SECS
ZONE INV ALARM XXX OF XXX         DEVICE▶
```

The full fire condition is raised if the AAF Investigation period times out and the trigger device remains in fire and is not reset.

➢ The AAF ACKNOWLEDGE or AAF INVESTIGATION status is cleared:

➢ By invoking RESET control at any time

➢ If the non-latching trigger device returns to normal

➢ The AAF ACKNOWLEDGE or AAF INVESTIGATION clear event will be logged and printed (stored in Pre-Alarm log)

9.3.5   Dual Stage Multi-Sensor

The panel supports a Dual Stage algorithm for the Apollo Enhanced Discovery Multi-Sensor. There are two configurable styles of Dual Stage operation DUAL STAGE 1 and DUAL STAGE 2.

Enhanced Discovery Multi-Sensor configurable attributes for Dual Stage operation:

➢ Input Type: DUAL STAGE 1, DUAL STAGE 2

➢ Dual Stage Timeout 1: 1 – 999 seconds, 0=Infinity (default: 60 seconds)

➢ Dual Stage Timeout 2: 1 – 999 seconds (default: 180 seconds)

➢ Discovery Sensitivity Day Mode: 1-5 (default: 3, setting Mode 5 disables dual stage)

➢ Discovery Sensitivity Night Mode: 1-5 (default: 3, setting Mode 5 disables dual stage)

DUAL STAGE ALGORITHM

```
                    ┌─────────┐
                    │  Start  │
                    └─────────┘
                         │
                  ◇ Analogue Value
                      Alarm?
                         │ Y
                  ◇ DUAL STAGE 2? ──Y──► ◇ Night Mode? ──Y──┐
                         │ N                    │ N          │
              ┌──────────────────────┐          │           │
              │ Status = PRE-ALARM   │◄─────────┘           │
              │ (Use Timeout 1)      │                      │
              └──────────────────────┘                      │
                         │                                  │
                  ┌────────────┐    ┌──────────────────┐    │
                  │ Start Timer│◄───│ Status = INV-ALARM│◄──┘
                  └────────────┘    │ (Use Timeout 2)  │
                         │          └──────────────────┘
              ┌──────────────────┐
              │ Read Discovery   │◄────┐
              │ Heat Value       │     │
              └──────────────────┘     │
                         │             │
                  ◇ Heat Value ──Y──► ┌──────────────┐
                      Alarm?           │ Status = FIRE│
                         │ N           └──────────────┘
                  ◇ Analogue Value ─N─┐       │
                      Alarm?          │  ◇ Master Reset?
                         │ Y          │       │ Y
              N ──◇ Timeout? ──Y──────┴─► ┌──────────────┐
                                          │Status =NORMAL│
                                          └──────────────┘
                                                 │
                                          ┌──────────┐
                                          │   End    │
                                          └──────────┘
```
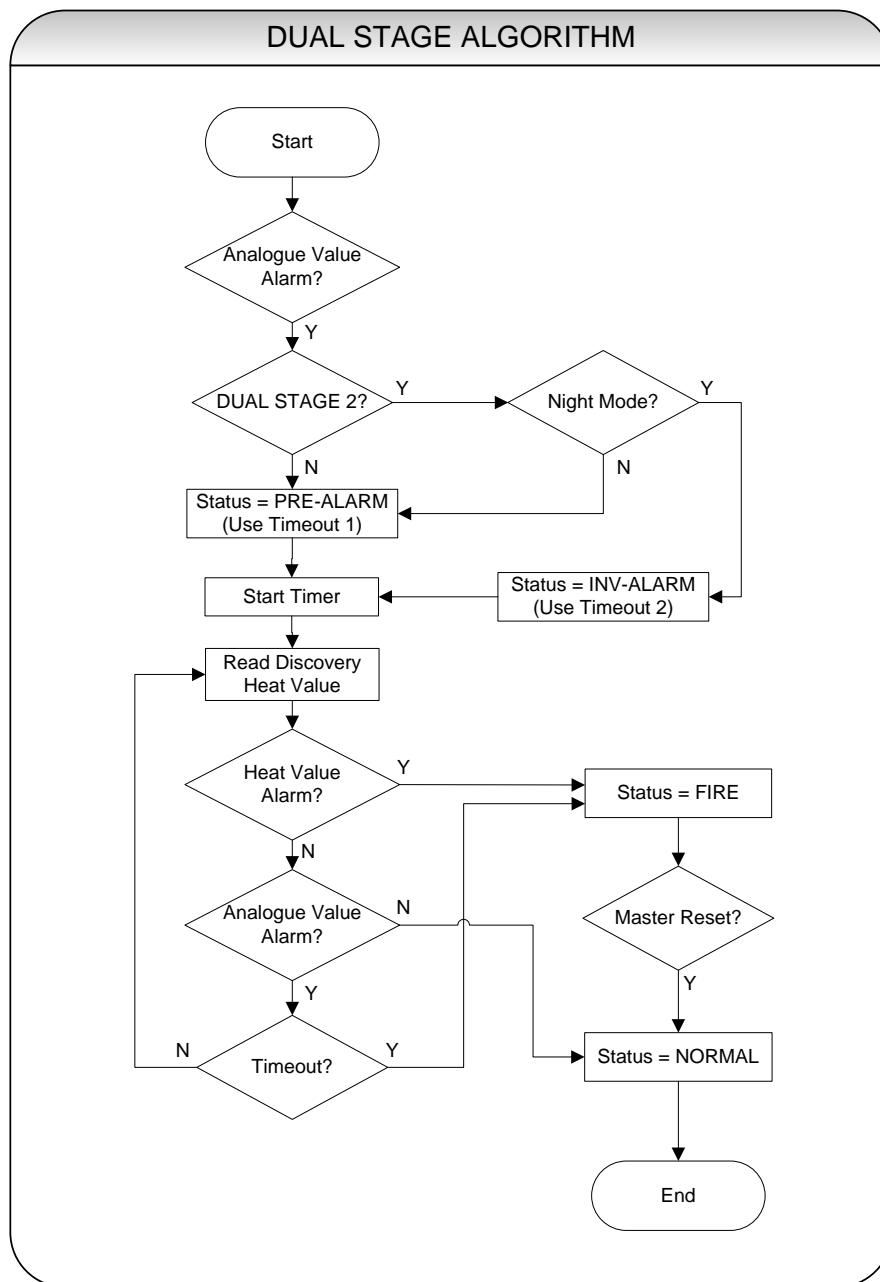
When DUAL STAGE 1 is configured and the detector is in smoke mode (modes 1 thru 4); if the alarm threshold is reached, the device status is set to PRE-ALARM, the dual stage timer is started and the heat value shall then be read for confirmation. If a heat alarm is confirmed the device status shall escalate to the fire condition, otherwise if the smoke has cleared the device shall be set to NORMAL. If the timeout occurs and smoke is still present within the device, the fire condition is also raised. Note the timeout value used is the configured Dual Stage Timeout 1 value. If Timeout 1 is set to 0=Infinity, then the device can only enter the FIRE condition if the heat value reaches the alarm threshold, the device shall return to normal if the smoke clears.

When DUAL STAGE 2 is configured and the panel is in Day mode, the algorithm shall operate exactly the same as if it were set to DUAL STAGE 1. If the panel is in night mode, instead of being set to PRE-ALARM when the smoke alarm threshold is reached, the status is set to INV ALARM and the Dual Stage Timeout 2 is used.

9.3.6   Discovery Sounder Beacon

The following features are supported for the Apollo Discovery Sounder Beacon:

➢ Group Control – See 8.2.4.1 Apollo Sounder Grouping

➢ Independent Sounder/Beacon control - Supported in LoopSense

➢ Tone Selection - Supported in LoopSense, Configured via LoopMaster

➢ Volume Control – Supported in LoopSense, Configured via LoopMaster and LoopSense Programming

➢ Polling LED – Supported in LoopSense, Configured via LoopMaster

➢ Noise Pollution – Supported in LoopSense, Configured via LoopMaster

9.3.7   Apartment Module

The Apartment Module (AM) or XP95 AM device is used to warn the occupants within a firecell (any space including a group of contiguous spaces on the same or different levels within a building, which is enclosed by any combination of fire separations, external walls, roofs, and floors. e.g. localised dwelling or apartment) of the presence of a smoke alarm contained within that firecell. The local smoke alarm is non-latching and shall sound the local alerting devices within that firecell only without calling the brigade. The local alarm can be silenced using the hush button associated with the AM device and shall resound after a pre-configured timeout, after which it can be hushed again if necessary. If a fire signal is detected by a non-smoke alarm calling point, the local alarm shall be escalated to the fire condition. This facility prevents false smoke alarms from being transmitted to the brigade and from disrupting other localised dwellings within the premises.

The AM functionality is programmed by assigning an AM Group number to an XP95 AM device facilitating association with trigger devices assigned to the same AM group. Supported AM trigger devices include all alarm calling loop detectors and zone monitors. The AM algorithm distinguishes between the smoke or non-smoke alarm calling inputs associated in the corresponding AM Group.

The AM device also has an on-board conventional zone circuit which can distinguish between smoke and heat fire signals. Like the associated trigger devices, a smoke fire signal from the AM zone circuit shall only raise the local alarm. A heat fire signal from the zone circuit shall escalate a local alarm signal and raise a full fire condition.

XP95 AM device configurable attributes:

➢ AM Group: 1 - 512

➢ Hush Timeout 1: 0 – 120 seconds (default: 120 seconds)

Associated AM trigger device configurable attributes:

➢ Config Type: AM   (Setting config type to AM allows for AM group association)

➢ AM Group: 1 – 512

The AM device can be used as a C&E input in LoopMaster where selection is available to trigger off a Local Alarm or Fire signal associated with the AM device. The AM C&E input signal can be logically combined with other C&E inputs to activate C&E outputs. The C&E outputs can control tones generated by an attached EV3000 or tone generator to annunciate the local alarm or evacuation tones as required. Note when using the AM device in C&E, the AM Fire condition activates only when a 'non-smoke' fire signal is received from the AM device zone circuit or an AM group associated non-smoke alarm calling loop device. The AM Local

Alarm condition activates only when a 'smoke' alarm signal is received from the AM device zone circuit or an AM group associated loop smoke detector.

Following the receipt of a smoke alarm signal from a trigger device in an AM Group or the AM zone circuit:

➢ The AM trigger device zone or AM zone (depending on the source of the smoke alarm) shall be displayed with the LOCAL ALARM status

➢ The LOCAL ALARM event shall be logged and printed (stored in Pre-Alarm log)

➢ Any output configured to activate on a local alarm signal from the AM device via C&E shall activate

➢ The AM device speaker output shall be activated

➢ The red LED on the AM device shall turn on steady

➢ The following screen shall be displayed at the panel:

```
Zzzz                   LOCAL ALARM
<zone descriptor>
<date> <time>
ZONE INV ALARM XXX OF XXX        DEVICE▶
```

If the Hush control on the AM device is activated during the local alarm:

➢ The red LED on the AM device shall flash

➢ The AM device speaker output shall be de-activated

➢ The Hush timer commences

Upon expiry of the hush timer after the Hush control is invoked:

➢ The red LED on the AM device shall turn on steady

➢ The AM device speaker output shall be re-activated

➢ The Hush control can then be re-activated if necessary

The AM device speaker output may also be programmed to be activated by other means and are programmed to be activated by Class Change, Alert/Evacuate or Global Fire by default. If activated in this manner, the speaker output may not be hushed at the AM device, but may be silenced at the panel.

The Local Alarm status is cleared:

➢ by invoking RESET control at any time

➢ if the non-latching Local Alarm source returns to normal

➢ The Local Alarm clear event shall be logged and printed (stored in Pre-Alarm log)

The AM Local Alarm shall be escalated to the Fire condition if a non-smoke alarm calling point within that AM group enters the fire condition.

The following sub-addressing scheme to display the relevant AM statuses at the panel:

ADDRESS	DESIGNATED POINT	SUPPORTED STATUSES	STATUS CATEGORY
A.0 (Main Address)	XP95 AM DEVICE	*{Standard Device Faults}	FAULT
		LOOP ISOLATOR ON	NORMAL
		NORMAL	NORMAL
A.1 (Sub-Address 1)	HUSH INPUT	HUSH INPUT FAULT	FAULT
		ON	NORMAL
		OFF	NORMAL
A.2 (Sub-Address 2)	ZONE CIRCUIT INPUT	FIRE	FIRE
		LOCAL ALARM	INV ALARM
		CONVENTIONAL FAULT	FAULT
		NORMAL	NORMAL
A.3 (Sub-Address 3)	100V SPEAKER OUTPUT	OUTPUT FAULT	FAULT
		ON	NORMAL
		OFF	NORMAL

*Standard Device Faults include, MISSING, TYPE MISMATCH, MULTI REPLY, etc.

9.4   Configuration Programming

The configuration programming allows the user to assign the attributes of the physical components of the system. If the configuration does not match what is physically connected to the FACP, then the FACP reports a fault condition and details the differences. The configuration of the individual system components can be done using the PC Configuration Manager software or via on-site programming. The main configurable components of the system include:

- System
- Panel
- Loop
- Zone
- Input / Device
- Output
- Add-On
- HLI
- Cause and Effects

The panel on-site programming does not support all features of the PC Configuration Manager. The supported features for on-site programming are detailed in section 8.4.

The following sections list the minimum configurable attributes for the various levels of configuration programming:

9.4.1   System Level

Attributes are:

- Country Code
- Fire Code
- Language
- Daylight savings settings

9.4.2   Panel Level

Attributes are:

- Customer and site information
- Panel Model Number
- Day and night times – one timer per day
- Service information
- Protocol – Apollo or Hochiki (Note: this will need to match the panel factory set protocol in EEPROM for correct operation)
- Calibration time for Hochiki
- Global Alert and Evacuate tone settings
- 32 zone LED mappings for BRD82ZICC4-A

9.4.3 Loop Level

Attributes are:

- ➢ Loop termination Single-Ended or Redundant
- ➢ Loop Descriptor
- ➢ Sounder Group Assignments

9.4.4   Zone Level

Attributes are:

- Zone Descriptor
- Zone output Activation Mode for each action type
- Zone input Day and Night Zone Configuration – normal, investigation, dependency A, dependency B and dependency C, AVF (NZS4512 only)
- Input/Device Level
- Attributes are:
- Device type – loop device, panel supervised input
- Extended device type
- Descriptor string
- Type Descriptor
- Action type
- Zone number
- Alarm points (day and night)
- Pre-alarm points (day and night)
- Maintenance and fault points
- Apollo/Hochiki detector sensitivity percentage (day and night)
- Apollo Discovery Sensitivity Mode (day and night)
- Hochiki Multi-Heat Mode setting (day and night)
- Input Type: Latching, non-latching, self-reset, class change, evacuate, FARE, Master Reset, Door Switch
- Contact type
- Indicate Pre-Alarm
- EOL monitoring
- Local Fire (NZS4512 only)
- Input delay (pre-delay)
- Flash Polling led

The action types to be supported shall be (in order of priority): Fire, fault, pre-alarm, emergency, security, user, transparent and system. Within each action type there can be a number of inputs types which qualify the type of input. For example with the action type of Fire, the Input Types shall be Heat, Photo, Multi, Ion, Duct and MCP. When the input condition is displayed on the LCD, the action type and input type descriptor shall be displayed – along with other information – like time, sequence number and so forth.

9.4.5 Output Level

Attributes are:

- Type Descriptor
- Output type for panel and add-on outputs:
  - Un-Monitored – digital output operation, not monitored for fault conditions
  - Monitored – digital output operation, monitored for fault conditions
  - Sounder – sounder output operation, monitored for fault conditions
  - Fire – Assigns output as a panel fire output and will effect the associated LED(s)
  - Fault – Assigns the output as a panel fault output and will effect the associated LED(s)
  - Ancillary – Assigns the output to effect the "Ancillary Output Disabled" LED.
- Fixed activation types:
  - Normal – Output responds as programmed by action or cause and effects
  - Door Holder - Output will be continuously ON unless there is a mains failure or a Fire present during which time it will turn OFF.
  - Reset-able - Output will be continuously ON until RESET is pressed during which time it will turn OFF for a preset period of 2 seconds before turning back ON.
  - Disable – Output is activated if there is any disable condition at the panel
  - Battery Fail – Output is activated if a battery fail condition is detected
  - normally energised (Inverted activation)
  - Action types to respond to
  - Silence-able
  - Responds to a class change attribute
  - Responds to alert/evacuate attribute
  - Zone number
  - Sounder Group Settings
  - Volume setting
  - Description string
  - Activation delay

9.5   On site programming / Auto learn.

On-site programming will allow the following to be set

➢ Set date and time, date and time format and daylight savings enable/disable

➢ With zones – descriptor, zone input configuration, sounder global/zone activation for individual action types

➢ With loop devices – set device type, descriptor, zone number, action type, latching/non-latching, pre-delay, alarm threshold (day and night) , indicate pre-alarm, pre-alarm threshold (day and night)

➢ With inputs – set descriptor, zone number, action type, polarity, contact type, monitoring, pre-delay

➢ With outputs – set descriptor, zone number, fixed activation, output type, individual activation action types, normally energised, silence-able, response to alert/evacuate, response to class change, post delay

➢ Printer options – fire only, event mode

➢ Passwords and user IDs

➢ Earth monitoring enable/disable

➢ Day and night settings for individual days of the week with set all feature and day/night enable/disable

➢ Auto learn (future support for Network wide)

Cause and effect programming is not available via on-site programming.

The panel also supports Auto Learn and the ability to resolve configuration conflicts.

☞ **Note:** *If an Auto Learn is executed the Auto-Learn Defaults for devices is outlined in section 12 Compatible Devices*

9.6   Software Download

The software application for the FACP shall be able to be downloaded via the configuration software.

The boot-loader software that must be resident in the FACP to facilitate the download shall also be able to be downloaded from the configuration software.

The boot-loader and application files shall be downloaded separately.

The software shall support a remote FACP facility, where an image of the front panel of the FACP is available via the configuration software and full control and feedback from the FACP is available. This facility shall be secured by the use of a password.

The software shall support a data connection to the FACP for the following purposes:

- Downloading the boot-loader software from the configuration software to the FACP
- Downloading application software from the configuration software to the FACP
- Downloading configurations from the configuration software to the FACP
- Uploading configurations form the FACP to the configuration software
- Uploading event log. The event log can be stored in a format that is suitable to be viewed by programs such as MICROSOFT EXCEL.
- Exchanging commands and data as necessary to support the remote FACP operator interface

The configuration files shall include all comments and labels as entered into the configuration software, including the necessary data to recreate the inputs required for **SMARTGRAPHICS.**

The data connection shall be supported via a direct serial connection or via modem (both landline and wireless). It also supports the data connection via USB. The speed of the data connection shall be set as to keep downloads and uploads to a "reasonable" time. A "reasonable" time is considered to be 5 minutes or less. It is allowable if necessary to compress the information prior to transmission, and uncompress at the receiving end. Uploads and downloads shall contain error detection via the configuration tool, to prevent "corrupt" data from being stored.

10 Event Logging

Events are logged into one of eight event type categories. Individual storage is pre-allocated for each event type amounting to a total of 1000 events:

Event Type	Maximum Capacity
Fire	100
Fault	200
Disable	100
Pre-Alarm	100
Emergency	100
Security	100
User	100
System	200

If an event exceeds the maximum capacity for that type the oldest event will be discarded allowing the most recent event to be stored.

Events that are logged may contain the following attributes:

- ➢ Event Type
- ➢ Event Status
- ➢ Date/Time of occurrence
- ➢ Event Origin
- ➢ Active Password ID (stored with event origin)
- ➢ Checksum

The system event log contains system input action type events as well as the following system events:

- ➢ Loop Test with password ID
- ➢ Walk Test with password ID
- ➢ Lamp Test with password ID
- ➢ Override key press with password ID
- ➢ Silence/Resound key press with password ID
- ➢ Reset key press with password ID
    - ➢ Evacuate key press with password ID
    - ➢ Access Level change with password ID

The fault event log contains input action type fault events as well as all reported faults within the FACP. The disable event log contains all reported system disables. All other event types are only logged according to their assigned input action type events.

☞ **Note:** *The Transparent action type is not logged.*

The events are viewed by individual type or collectively. The events can be printed or erased by individual entry, range by date/time, range by entry number, and all by entry number. Each event type can also be disabled or enabled.

All events can be uploaded using the PC configuration software which will format the event record to be viewable using Microsoft Excel or a standard text editor.

11 Complete Menu Structure

LOOPSENSE MENU TREE

NOTE:
1: At Access Level 1, the entire menu is not accessible.
2: At Access Level 2, the DISPLAY, CONTROL, EVENTS and TOOLS menus are accessible. SETUP(*) and PROGRAMMING(*) are not accessible. Also, individual Sounder Disablements via the control menu are not accessible at Access Level 2. The user shall be presented with the ENTER PASSWORD screen when trying to access a higher level function..
3: At access level 3, all options are available

☐ = ACCESS LEVEL 2
☐ = ACCESS LEVEL 3

1 DISPLAY
1 FIRE | 2 FAULT | 3 PRE-ALARM | 4 EMERGENCY | 5 SECURITY | 6 USER | 7 DISABLE | 8 TEST | 9 ABOUT

2 CONTROL
1 ZONE | 2 DISABLE INPUTS | 3 PANEL

DISABLE INPUTS: 1 DISABLE FAUL INPUTS | 2 DISABLE ENABLE MCP's
*Note: Only If MCP's Present

ZONE — DEVICE — L1 | L2
DEVICE: 1 DISABLE | 2 SUB ADDR/REM O/P | 3 PRINT | 4 A/ARM LED ON
NON SOUNDER: 1 DISABLE | 2 ON | 3 PRINT
SOUNDER: 1 DISABLE | 2 ALERT | 3 EVAC | 4 PRINT

NOTE: SUB ADDR AND REM O/P DEPEND ON THE SELECTED DEVICE

WALK TEST: 1 DISABLE SOUNDERS | 2 DISABLE MCP's | 3 SILENT WALK TEST | 4 WALK TEST

DEVICE — INPUT / DEVICE
INPUT: 1 DISABLE | 2 SUB ADDR/REM O/P | 3 PRINT | 4 A/ARM LED ON
1 DISABLE | 2 ON | 3 PRINT

PANEL: 1 INPUT | 2 OUTPUT | 3 PROGRAMMING
INPUT: 1 SUPERVISED I/P
OUTPUT: 1 ON | 2 RELAY O/P | 3 OPEN COLLECTOR O/P | 4 AUXILIARY O/P
NON SOUNDER: 1 DISABLE | 2 ON | 3 PRINT
SOUNDER: 1 DISABLE | 2 ALERT | 3 EVAC | 4 PRINT

1 DISABLE SOUNDERS | 2 ENABLE SOUNDERS | GLOBAL CONTROL
LOOP: 1 SELECT ADD-ON TYPE | 2 DISABLE | 3 ADD-ON | 4 LOOP
1 DISABLE | 2 I/O
I/O: NON SOUNDER 1 DISABLE | 2 ON | 3 PRINT
SOUNDER 1 DISABLE | 2 ALERT | 3 EVAC | 4 PRINT
1 TEST | 2 DISABLE | 3 PRINT ALL | 4 PRINT TYPES

1 PRINTER | 5 PRINTER | 6 POWER | 7 DELAY MODE
PRINTER: 1 ONLINE/OFFLINE | 2 FIRE MODE/EVENT MODE
1 ON/OFF
GLOBAL CONTROL: 1 DISABLE SOUNDERS | 2 ENABLE SOUNDERS | 3 GLOBAL ENABLE | 4 REMOVE MANUAL I/O | 5 REMOVE/VIEW WALK TESTS

NOTE: DELAY MODE (7) MENU IS ONLY ACCESSIBLE IF INVESTIGATION DELAYS ARE CONFIGURED

NOTE: SUB ADDR AND REM O/P DEPEND ON THE SELECTED DEVICE

3 EVENTS
1 ALL | 2 DISABLE | 3 FIRE | 4 PRE-ALARM | 5 EMERGENCY | 6 SECURITY | 7 USER | 8 SYSTEM | 9 DISABLE
1 PRINT | 2 FAULT | 3 DELETE | 4 GOTO
DELETE: 1 CURRENT ENTRY | 2 ALL
1 RANGE BY DATE | 2 RANGE BY ENTRY(No) | 3 MOST RECENT
GOTO: 1 BY DATE | 2 BY ENTRY

4 TOOLS
1 DIRTY DEVICES | LOOP STATISTICS
LOOP STATISTICS: L1 | L2 | RESET COUNT
1 LOW% | 2 MED% | 3 HIGH%

5 SETUP (*)
1 DATE AND TIME | 2 DAY/NIGHT | 3 EARTH MON | PASSWORDS
DATE AND TIME: 1 DATE | 2 DATE FORMAT | 3 DAYLIGHT SAVE ON/OFF | 4 TIME | 5 TIME FORMAT
DAY/NIGHT: SUNDAY | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY | SET ALL | DISABLE/ENABLE
PASSWORDS: 1 ID1 | 2 ID2

6 PROGRAMMING (*)
1 ZONE | 2 DEVICE | 3 PANEL
ZONE: 1 ADD | 2 DELETE | 3 EDIT
1 DEVICE
PANEL: 1 INPUT | 2 OUTPUT | 3 LOOP | 4 DESCRIPTOR | SOUNDERS | LEARN OPTIONS
OUTPUT: 1 SUPERVISED I/P | 2 RELAY O/P | 3 OPEN COLLECTOR O/P | 4 AUXILIARY O/P
LOOP: 1 L1 | 2 L2
SOUNDERS: 1 GLOBAL ACTIVATION | 2 ZONE ACTIVATION
LEARN OPTIONS: 1 AUTO LEARN | 2 LEARN ALL | VERSION
AUTO LEARN: 1 YES
LEARN: 1 LEARN | 2 RESOLVE | EXTRA DEVICES | INACTIVE DEVICES | MISSING DEVICES
EXTRA DEVICES: 1 RESOLVE | 2 LEARN ALL | 3 AUXILIARY O/P
INACTIVE DEVICES: 1 RESOLVE | 2 RESOLVE ALL
MISSING DEVICES: 1 DELETE | 2 DELETE ALL

12 Compatible Devices

☞ **Note:** *If an Auto Learn is executed the Auto-Learn Defaults for devices are also listed below*

AMPAC Type Code	Auto Learn Default	Device type	Displayed Type (19 Chars)	Type Desc
		Optical		
05h	✓	XP95 Optical	XP95 PHOTO	PHOTO
05h		XP95 Optical with base sounder	XP95 PHOTO + SNDR	PHOTO
05h		S90 Optical	S90 PHOTO	PHOTO
05h		Xplorer Optical	XPLORER PHOTO	PHOTO
05h		Xplorer Optical with base sounder	XPLR PHOTO + SNDR	PHOTO
05h		XP95 Beam	XP95 BEAM	PHOTO
0Dh	✓	XP95 Reflective beam	XP95 REFLECT BEAM	BEAM
105h	✓	Discovery Optical	DISC PHOTO	PHOTO
105h		Discovery Optical with base sounder	DISC PHOTO + SNDR	PHOTO
11Dh	✓	Discovery Multisensor	DISC MULTISENSOR	MULTI
11Dh		Discovery Multisensor with base sounder	DISC MULTI + SNDR	MULTI
11Dh		Discovery 0.5% Multisensor	DISC 0.5% MULTI	0.5%OB
15h	✓	XP95 Flame	XP95 FLAME	FLAME
1Dh	✓	XP95 Multisensor	XP95 MULTISENSOR	MULTI
1Dh		XP95 Multisensor with base sounder	XP95 MULTI + SNDR	MULTI
31Dh	✓	Enhanced Discovery Multisensor	EDSC MULTISENSOR	MULTI
31Dh		Enhanced Discovery Multi + base sounder	EDSC MULTI + SNDR	MULTI
		Heat Detectors		
06h	✓	XP95 Heat	XP95 HEAT	HEAT
06h		XP95 Heat with base sounder	XP95 HEAT + SNDR	HEAT
06h		S90 Heat	S90 HEAT	HEAT
06h		Xplorer Heat	XPLORER HEAT	HEAT
06h		Xplorer Heat with base sounder	XPLR HEAT + SNDR	HEAT
0Eh	✓	XP95 Hi temp	XP95 HI HEAT	HHEAT
0Eh		XP95 Hi temp with base sounder	XP95 HI HEAT + SNDR	HHEAT
0Eh		Xplorer Hi temp	XPLORER HI HEAT	HHEAT
0Eh		Xplorer Hi temp with base sounder	XPLR HI HEAT + SNDR	HHEAT
106h	✓	Discovery Heat	DISC HEAT	HEAT
106h		Discovery Heat with base sounder	DISC HEAT + SNDR	HEAT
16h	✓	Ampac Heat Detector	AMPAC HEAT	AHEAT
		Ionisation		
03h	✓	XP95 Ion	XP95 ION	ION
03h		XP95 Ion with base sounder	XP95 ION + SNDR	ION
03h		S90 Ion	S90 ION	ION

103h	✓	Discovery Ion	DISC ION	ION
103h		Discovery Ion with base sounder	DISC ION + SNDR	ION
10Bh	✓	Discovery Carbon Monoxide	DISC CO	CO
10Bh		Discovery Carbon Monoxide with base sndr	DISC CO + SNDR	CO
		Manual Call Points		
07h	✓	S90 MCP	S90 MCP	MCP
11Fh	✓	Discovery MCP	DISC MCP	MCP
1Fh	✓	XP95 MCP	XP95 MCP	MCP
1Fh		XP95 Mini switch monitor with interrupt	XP95 MINI SW + INT	MCP
1Fh		Xplorer MCP	XPLORER MCP	MCP
		Sounders		
01h	✓	XP95 sounder / sounder control unit	XP95 SOUNDER	SNDR
01h		XP95 integrated base sounder	XP95 INTGR BSE SNDR	SNDR
01h		XP95 Intelligent base sounder	XP95 INTEL BSE SNDR	SNDR
01h		XP95 sounder beacon base	XP95 SND BEACN BSE	SNDR
01h		XP95 loop powered beacon	XP95 LOOP PWR BEACN	SNDR
01h		S90 sounder control unit	S90 SCU	SNDR
111h	✓	Discovery sounder beacon base/open area	DISC SOUNDER BEACN	SNDR
		I/O Units		
02h	✓	XP95 input / output module	XP95 I/O	I/O
02h		XP95 three channel input / output module	XP95 3I/O	I/O
02h		XP95 output module	XP95 OUTPUT	I/O
02h		XP95 mains switching input / output module	XP95 MAINS I/O	I/O
02h		S90 single channel I/O unit	S90 SINGLE I/O	I/O
02h		S90 3 channel I/O unit	S90 3I/O	I/O
02h		S90 3 channel analogue I/O unit	S90 3I/O + ANALOGUE	I/O
02h		S90 switch monitor unit	S90 SWITCH	I/O
02h		Xplorer output module	XPLORER OUTPUT	I/O
		Zone Monitors		
04h	✓	XP95 zone monitor	XP95 ZONE MONITOR	CONV
04h		S90 zone monitor	S90 ZONE MONITOR	CONV
0Ch	✓	XP95 switch monitor	XP95 SWITCH	SWITCH
0Ch		XP95 mini switch monitor	XP95 MINI SWITCH	SWITCH
0Ch		XP95 switch monitor plus	XP95 SWITCH PLUS	SWITCH
1Ch	✓	FastSense XP95 APIC	XP95 FASTSENSE	FSENSE
		User Defined		
08h	✓	XP95 AM	XP95 AM	AM
10h	✓	XP95 AAF	XP95 AAF	AAF

13 Glossary of Terms

ACKD :	ACKNOWLEDGED
AH:	AMP HOUR
ALM :	ALARM
COM :	RELAY COMMON CONTACT (WIPER)
CN :	CONNECTOR
C/O :	CHANGE OVER CONTACTS
CPU :	COMMON PROCESSOR UNIT
EOL :	END OF LINE
FACP :	FIRE ALARM CONTROL PANEL
FLT :	FAULT
GND :	GROUND (0 VOLTS) NOT EARTH
I/O :	INPUT/OUTPUT
LCD :	LIQUID CRYSTAL DISPLAY
LED :	LIGHT EMITTING DIODE
MCP :	MANUAL CALL POINT
N/C :	NORMALLY CLOSED RELAY CONTACTS
N/O :	NORMALLY OPEN RELAY CONTACTS
PCB :	PRINTED CIRCUIT BOARDS
P/S :	POWER SUPPLY
TB :	TERMINAL BLOCK

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UNCONTROLLED DOCUMENT

NOTE: Due to AMPAC's commitment to continuous improvement specifications may change without notice.