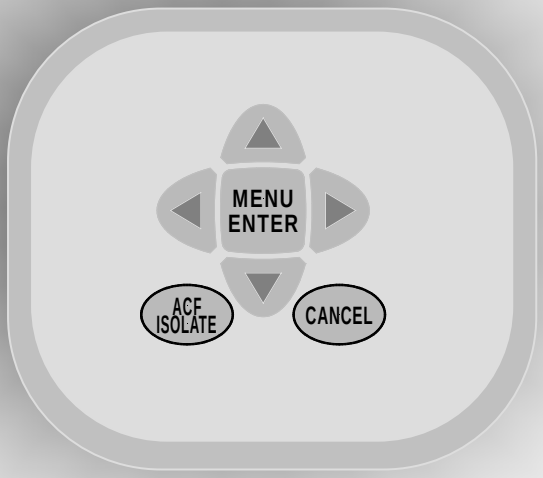
AMPAC ADVANCED WARNING SYSTEMS

WORLD LEADER OF INNOVATIVE SOLUTIONS IN FIRE DETECTION AND ALARM SYSTEMS

ZoneSense PLUS -AR

Operation & Programming



INTERNATIONAL COMPLIANCE

AS 4428 Part 1

Agent Release Fire Alarm Control Panel

*" Our aim is to provide ' **Consistently Excellent Service** ' in the eyes of our customers "*

MAN1544

Revision: December 2008

Table of Contents

Responding To An Alarm

1. Indicators

- **Zone Alarm** Indicator (flashing)
- **Common Alarm** Indicator (flashing)
- First **Zone in Alarm** is Displayed on LCD.

2. To Isolate External Bell **or** **To Isolate Warning System**

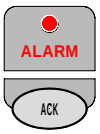
Press

Press

3. To Acknowledge Alarm

ALARM LED goes steady

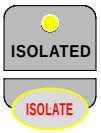
Press



4. To Isolate Alarm

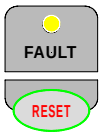
ISOLATED LED will be illuminated

Press



5. To Reset Panel

Press

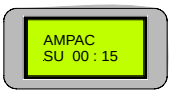


1st. RESET LCD Screen Displayed

2nd. RESET LCD Screen Displayed

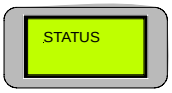
Isolating a Zone

(Example below isolates Zone 2)

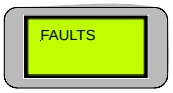


Default Screen

Press



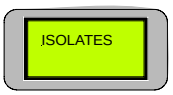
Press



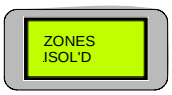
Press

Moving to the ISOLATE MENU

Press



Press

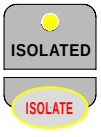


Press

Moving to ZONE 2

Press

Press



or

to ISOLATE

Zone 2 accessed and ISOLATED - *To* DE-ISOLATE *press the* ISOLATE *or* DOWN *button*.

Note: *If a Zone ISOLATE has been initiated the ZONE and the COMMON indicator LED's are illuminated.*

1 Introduction

Using 3 levels of access the ***ZoneSense PLUS - AR*** Fire Alarm Control Panel (FACP) is controlled and programmed through the keypad on the front panel.

Note: *To assist in the programming process the screens or Menus presented to the operator are diagrammatically shown as an Appendix at the end of this document.*

2 Controls – Front Panel

2.1 System Controls & Indicators

The front panel controls for the ***ZoneSense PLUS - AR*** consists of twelve push buttons and an ***optional*** Normal / Enabled key switch.

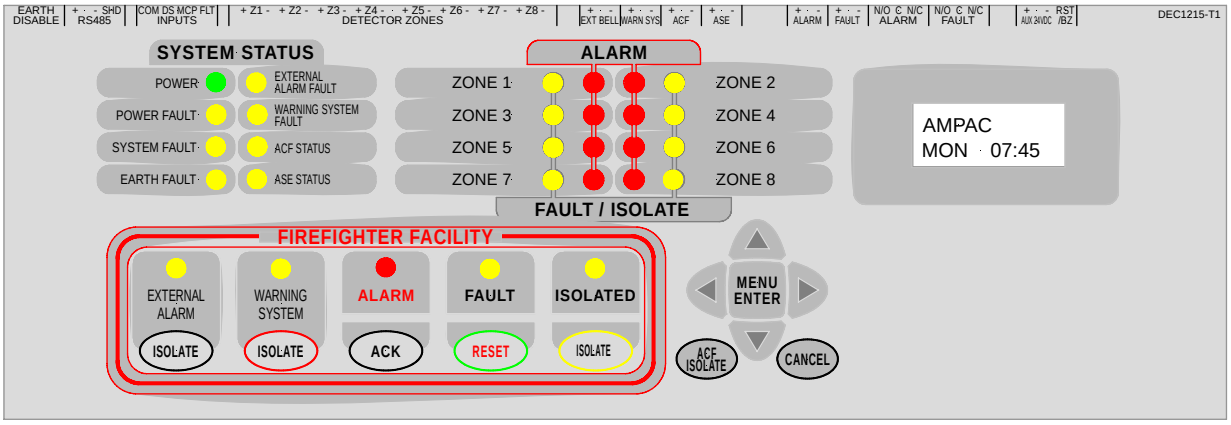


Figure 1: AS4428 8 Zone Front Panel Controls and Indicators

2.2 Levels Of Access

Access to the FACP is restricted to three levels of authorisation.

AS4428 requires panel controls to be behind a 003 keyed door.

Level 1: (No Password Required)
By pressing the Menu button access to Level 1 is gained to the read only FAULT, STATUS display and Password entry menu.

Level 2 (If set Pre-commissioning Password is factory set at 2222)
To gain access to the Level 2 TEST and ISOLATE MENUS a fixed 4 digit Level 2 Password or a key to the control ENABLE switch is required.

Level3: (Pre-commissioning Password factory set at 3333)
Level 3 SYSTEM and PROGRAM menus can only be accessed by a set Level 3 password that can not be deleted.

Panels fitted with a key switch have access to level 2 with the switch enabled and then 3 via the password. Without the key switch access to level 2 is by opening the door and then to level 3 via the password.

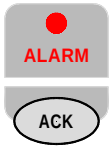
Note: If the keypad controls are not used for a period of 2 minutes the display will return to the default screen.

2.3 FireFighter Facility Controls

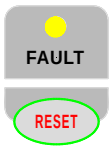
Note: Any of the buttons within the FireFighter Facility will act as a buzzer mute.

External Alarm Isolate Is a dedicated control used to isolate (turn off) the "External Alarms" output and is not over ridden by any other condition. The LCD Screen will display the isolate if the ISOLATES / OUTPUTS menu is selected.

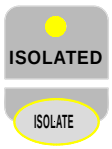
Warning System Isolate Isolates (turns off) the "Warning System" output and is not over ridden by any other condition. The LCD Screen will display the WARNING SYSTEM is isolated if the ISOLATE / OUTPUTS menu is selected.



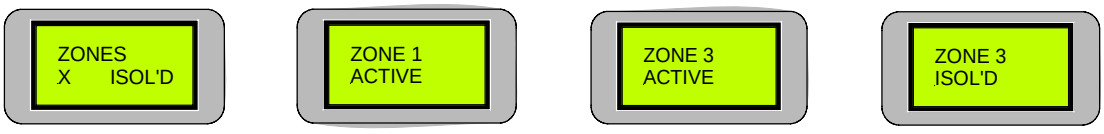
Acknowledge On Alarm the Alarm LED and Zone Alarm LED will flash and the Buzzer will sound. By pressing Acknowledge the LED's become steady, the Buzzer will be silenced and a zone/s can be Isolated or Reset.



Reset The Reset is used to return the control panel back to a normal state from the fire alarm condition. The Reset button is not to be used for any other purpose and will not reset an isolated condition.



Isolate Isolates or De - isolates a Zone which has been selected using the Zone Select Menu. Inhibits Alarm and Fault signalling outputs but not LED indications generated by the corresponding zone. Isolates all acknowledged alarms in a single operation and operates the fault buzzer if an isolate condition still exists on the panel after 8 hours. The LCD screens below show an example.



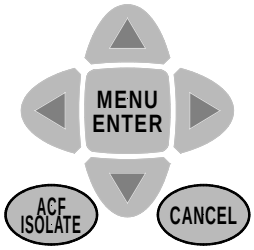
Press

Isolated — Enter — Move Right ▶ To Select Zone — Move Up ▲ To Isolate

2.4 System Controls

For the purposes of this explanation the following indicators perform these functions;

Enter or **Menu** is used to access the various menus and sub-menus and update the program once the control settings have been set within a menu.



Move Left allows the operator to move left through a menu or the options to be set.

Move Right allows the operator to move right through a menu or the options to be set.

Move Up takes the cursor up through the menus and / or options.

Move Down takes the cursor down through the menus and / or options.

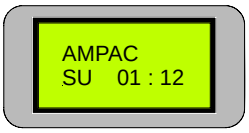
Cancel is used to return to the previous menu.

ACF Isolate .

2.5 Normal Operation

During normal operation the panel LCD default screen will display a name, the day and the time.

To access the Main Menu press **Enter**.



Abbreviations:
SU - SUNDAY
MO - MONDAY
TU - TUESDAY
WE - WEDNESDAY
TH - THURSDAY
FR - FRIDAY
SA - SATURDAY

3 Indicators – Front Panel

All indicators are clearly visible at all times. If flashing indicators are used the on / off periods are >0.25 seconds and the flash frequencies are not less than:

- ® 1Hz for Alarm indications.
- ® 0.2Hz for Fault indications.

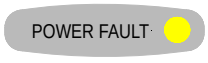
If the same LED is used to indicate both fault and isolate conditions the LED will flash for fault and be steady for isolate with isolate having priority.

All indicators are steady unless otherwise stated.

3.1 Status Indicators

There are eight indicators within the system status area of the front panel;

1. **Power – Green** Indicates mains power is available to the FACP.

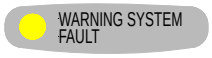


2. **Power Fault – Yellow** Common fault to either the mains or DC system power supply.

3. System Fault – Yellow Indicates a failure of the FACP to provide mandatory functions, (software failure).

4. Earth Fault – Yellow Is an indication only to warn of a fault to earth that may affect a mandatory function. A plug jumper facility is provided to disable the earth monitoring if necessary

5. External Bell Fault – Yellow Illuminates when an open or short circuit fault condition is detected on the external bell circuit.



6. Warning System Fault – Yellow Illuminated by a fault condition of the warning system output.

7. ACF Status - Fault / Isolate – Yellow Illuminates when the ACF output is in fault (flashing) or isolated (steady).

8. ASE Status - Fault – Yellow Illuminates when a fault condition is detected on the ASE circuit.

3.2 FireFighter Facility Indicators

There are five indicators within the FireFighter Facility area of the front panel.

1. Alarm – Red: Alarm is a general fire indicator that flashes until all alarms have been acknowledged or isolated. Once acknowledged it is lit steady until reset.

2. Fault – Amber Is a general fault indicator that flashes if a fault is present on any part of the system.

3. Isolate – Amber Is a general isolate indicator that is illuminated if a Zone, Bell, Warning System or ACF is isolated.

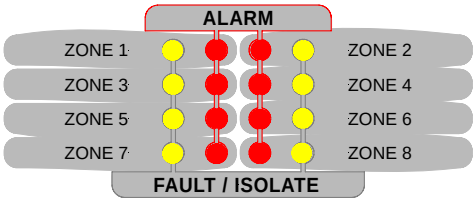
4. External Bell Isolate – Amber Illuminated by the isolation of the “External Bell” output. This indicator is integral with the “External Bell Isolate” button.

5. Warning System Isolate – Amber Illuminated by the isolation of the ‘Warning System” output. This indicator is integral with the “Warning System Isolate” button.

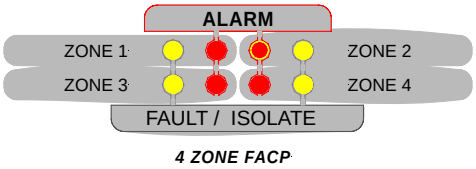
3.3 Zone Indicators

There are two indicators for each alarm zone fitted to the panel.

1. Zone Alarm – Red The indicators show individual zone/s in alarm. On alarm the LED will flash until the alarm is acknowledged. Once acknowledged the LED will be continuously illuminated until the panel is reset.



8 ZONE FACP



4 ZONE FACP

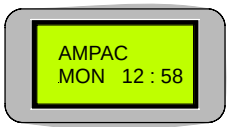
2. Zone Fault / Isolate – Amber
Illuminated by;

- a fault condition on an individual zone (flashing);
- isolating a zone/s, illuminated steady unless in fault, then flashes.

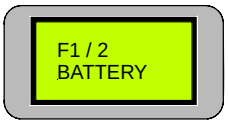
A zone in fault that has already been isolated flashes at a different rate than when only in fault, the off period is the same with the on period being 3 times that of the fault flash rate.

3.4 Liquid Crystal Display

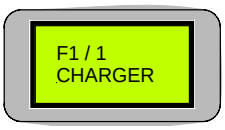
The panel is fitted with an 8 x 2 LCD. Its primary purpose is to display Zone alarm / fault / isolate information and prompts for system commands come programming. Alarm, Fault and Isolate information is accessed through the Main Menu. When the FACP is in its normal state a default screen will be displayed. Examples of LCD Displays are;



Default Screen



Fault 1 off 2 Battery Fault



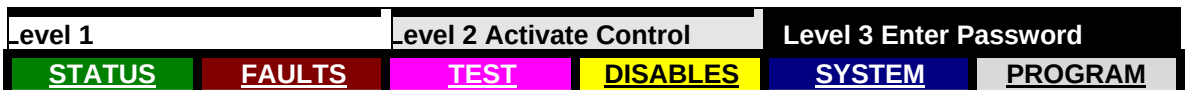
Fault 1 off 1 Charger or Power Fault

Note: ***Some of the following sub-menus will not be available if the facility has not been installed, eg. Brigade, Relays, Fire Fan, Agent Release, Sounder, and / or Input boards / cards / modules. If one of the above ancillary facilities has been fitted retrospectively it must be appropriately programmed into the FACP via the SYSTEM and PROGRAM MENUS, if not a System Fault will be indicated. Once programmed into the FACP the ancillary facility is monitored in the normal way. Refer to the SYSTEM and PROGRAM MENU structure diagrams in the Appendix for more information.***

Press **ENTER** *to access* ***MAIN MENU***

3.5 Main Menu

The Main Menu consists of;



Press the ▶ Move Right / ◀ Move Left key to move through the menu.
Press **Enter** *to access the sub – menus.*

▶ ***Move Right*** to access ***STATUS***

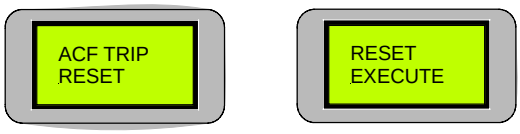
4 Level 1 Access

Is a read only menu that allows the operator to;

- reset latched Ancillary Control Facility outputs (**IF FITTED**); **ACF**

ACF Trip Reset

In the event an ancillary device trips out or is operated for some reason the latching control of the device has to be reset to re-establish normal functionality of that device. Press **Enter** to reset. The LCD will display the reset progress as seen below and then return to the Default Screen.



Note: *Use Cancel at any time to step back out of the current Menu.*

- interrogate the panel to determine the state of selected outputs; **STATUS**
- view any faults that may be present on the FACP. **FAULTS**

Note: *Use Cancel at any time to step back out of the current Menu.*

4.1 STATUS

Status allows the operator to select and view the current state/operating conditions of the active components listed in the following sub-menu.

Press **Enter** to view the Status Menu. Press ▶ Move Right to move through the menu or **Enter** to access the Status sub-menus.

Note: *The sub-menu headings are in Italic*.

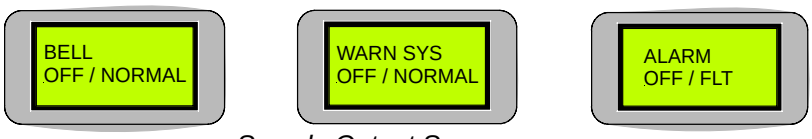
O/Ps	Brigade	Relays	Fire Fan	Agent	Snders	I/Ps	Voltage	Software
Bell	*Alarm 1*	*Relays 1 to 8*	*Fan 1 to 4*	*On*	*Sndrs 1 to 8*	*1 to 16*	*Battery volts*	*Version*
Warn Sys	*Fault*	*On*	*On*	*Normal*	*On*	*On*	*Charger volts*	
ACF	*Isolate*	*Off*	*Off*	*Release sequnce*	*Off*	Off	*System Volts*	
ASE	*Bat Fail*	*Isolate*			*Normal*			
Alarm	*Alarm 2*				*Off Fault*			
Fault								
	***Note:** these screens are only available if the card, module or board is fitted to the FACP and it is set to Yes in the System Menu*							

Outputs

Press **Enter** then ▶ Move Right or ◀ Move Left to view the status of the monitored *Bell, Warning System, ACF, ASE, Alarm or Fault Outputs on the Main Control Board*.

The LCD readout will indicate if the selected Output is;

On and Normal, or Off and Normal, or Off and Isolated, or On and Isolated, or Output is On and in Fault, or Off and in Fault.

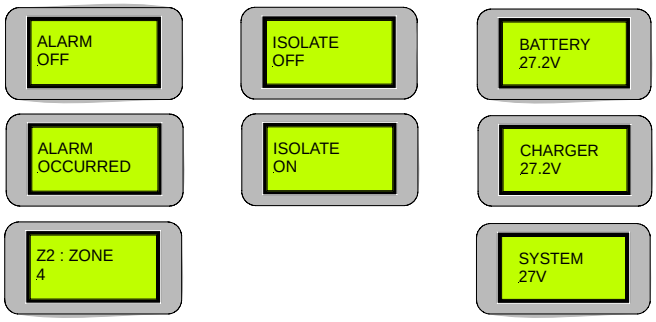


Sample Output Screens

Meaning: The O/P is either On (activated) and Normal, or Off (de- activated) and Normal, or On (activated) and Isolated, or Off (de- activated) and Isolated.

Brigade

Press **Enter** then ▸Move Right or ◂Move Left to view the Brigade screen. Press **Enter** then ▸Move Right or ◂Move Left to view the Status of the *Alarm 1 & 2, Fault, Isolate and Battery Fail monitoring on the Brigade Board*.



Sample Brigade Screen

Relays

Press **Enter** then ◂Move Left or ▸Move Right to select the required Relay (1 – 8). The LCD read out for each relay on the Relay Board will indicate if the selected relay is *On, Off or Isolated* OR Press ▸**Move right** to access **Fire Fan**.

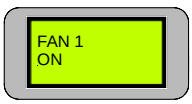
Sample Relay Screens

Meaning: A Relay is either On (activated), or Off (deactivated) or Isolated.

Note: *The relay's control function is identified in the configuration documentation*

Fire Fan

Press **Enter** then ▸Move Right or ◂Move Left to select view Fire Fan control status 1 to 4.



Sample Fire Fan Screen

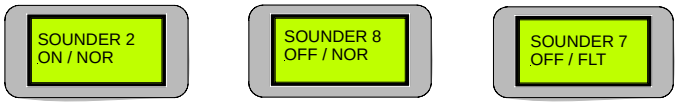
Agent

Press **Enter** then ◂Move Left or ▸Move Right to select the Agent OR press ▸**Move right** to access **Sounders.** The LCD indicates the Agent Release Board status / release progress.

Sample Agent Normal, Isolated Release in Stage 1 Screens

Sounders

Press **Enter** then ◂Move Left or ▸Move Right to select the required Sounder (1–8). OR Press ▸**Move right** to access **Voltage**. The LCD indicates if the selected Sounder Board output is;

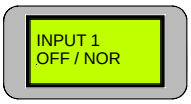


Sample Sounder Screens

Off and Normal, or Off and in Fault, or On and Normal, or On and in Fault, or Isolated and Normal, or Isolated and in Fault.

Inputs

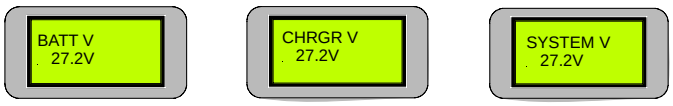
Press **Enter** then ▸ Move Right or ◂ Move Left to view the status of each input (1 to 16) on the Input Board.



Sample Input Screens

Voltage

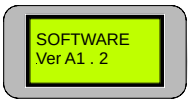
Press ▸ Move right to access **Software** **OR** press **Enter** and the Battery Voltage will be displayed, pressing ▸ Move Right will display the Charger Voltage (≈27.2volts), pressing ▸ Move Right again will display the System Voltage.



Voltage Screens

Software

Displays the installed version of software. (This is for information only)



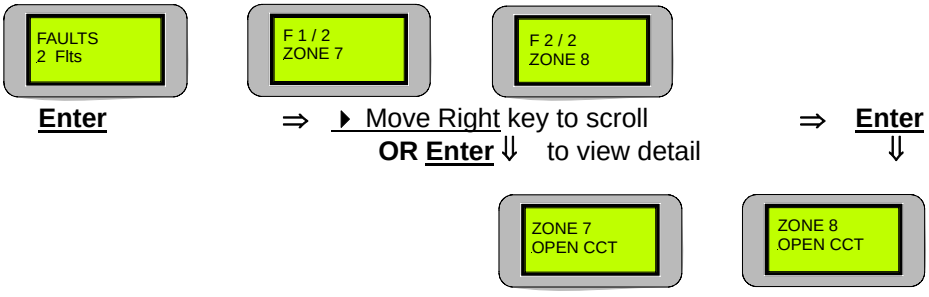
End of Sub - Menu

Returning to STATUS in the Main Menu ▸ Move Right** to access **FAULTS

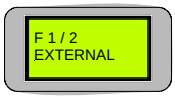
4.2 Faults

Pressing **Enter** will display all faults in a sequential order. If there is more than one fault on the system the operator can scroll through each fault by using the ◂ Move Left and ▸ Right keys. Pressing **Enter** again at each Fault will display more detailed information.

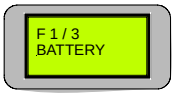
Accessing information on 2 Faults



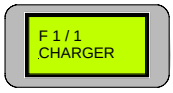
LCD Screen Examples of System Status Faults



System Fault
SYSTEM FAULT LED flashing



Battery Fault
POWER FAULT LED
POWER LED on



Power Fault
POWER FAULT LED
POWER LED off

Note: *FAULT LED will be flashing (for all 3 FAULTS)*

5 Level 2 Access

At this level the operator is expected to have under gone training so as to be able to;

- test crucial elements of the system and; **TEST**
- isolate dedicated facilities that may be in fault. **ISOLATE**

In the Main Menu From FAULTS ▸ Move Right** for **TEST

5.1 Tests

Press **Enter** to access the available menus

The available menus are;

Alarm Test	Fault Test	Walk Test	Lamp Test	Battery Test	Sounder Test

Note: *The Sounder Test Menu is only displayed if it is installed and set to active in the System Menu.*

To initiate one of the above tests press the ▸Move Right / ◂Move Left key to move through the menu. Press **Enter**, then select the Zone by using the ▴Move Up and / or ▾Move Down keys until the desired Zone number is displayed, press **Enter** to start the test.

Alarm Test of each Zone

Once the test is commenced the Buzzer will turn on and off and the common Alarm and Zone Alarm LED's will flash. Press **Acknowledge,** the Buzzer will be silenced and the common Alarm and Zone Alarm LED's will be steady. Press **Reset** to return the panel to normal. The LCD will indicate the alarm has occurred and then toggle to display the Zone and descriptor of that Zone.

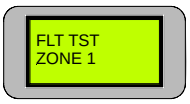
Alarm LCD Sequence

Note: *If a Zone has been programmed to be;*

1. *NON LATCHING the panel will only go into alarm for 5 seconds and then automatically reset.*
2. *Self Resetting (SREST 60) the panel will go into alarm for 60 seconds and then automatically reset.*

Fault Test of each Zone

Once the test is commenced the Buzzer will rapidly turn on and off and the common Fault and Zone Fault LED's will flash. Press **Acknowledge,** the Buzzer will be silenced and the common Fault and Zone Fault LED's will continue to flash. Press **Reset** to return the panel to normal. The LCD will indicate the Fault Test has been implemented on the selected Zone.



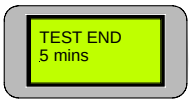
Fault Test Zone 1 Screen

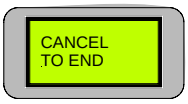
Walk Test

IMPORTANT: The Brigade, Agent Release and any other system specific signalling should be ISOLATED prior to initiating this test.

A Walk Test, sets the Zone to Non latching and allows the technician to test detectors and MCP's on that Zone. When a detector or MCP is put into alarm the "Alarm Outputs" will operate, the corresponding "Zone Alarm" LED will flash and the buzzer will sound.

The Zone will stay in Alarm until the MCP, or detector under test is reset or, the test is aborted by pressing Cancel or, the test times out. The time out period can be set by pressing **Enter** once the Zone has been selected and using the ▲Move Up and / or ▼Move Down keys to select the required time for the test. The default time is 5 minutes but can be adjusted from 1 to 20 minutes by again using the ▲Move Up and / or ▼Move Down keys to select the required time and then pressing **Enter**.





Press **Enter** Enter Time ▲▼ **Enter**

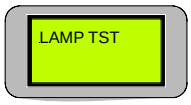
In the TEST END screen the operator has ten (10) seconds to enter the time before the test will commence OR, the test can be started by pressing **Enter**.

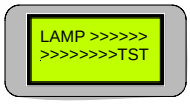
Only one zone at a time can be in test mode, all other zones will operate as normal.

The LCD will display which Zone is the in Walk Test mode.

Lamp Test

Press the ▶Move Right and / or ◀Move Left key to move to the Lamp Test menu, press **Enter** and each LED on the panel will be sequentially turned on for one second and then off again. The Buzzer will sound at the start and completion of the test.



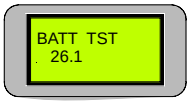


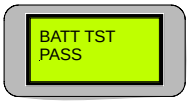
Press **Enter** *Indicates the Test Progress* *Test Successful*

Note: *The operator has to visually confirm each LED illuminates.*

Battery Test

Press the ▶Move Right and / or ◀Move Left key to move to the Battery Test menu, Press **Enter** and the Battery Test will commence, that is the Charger will be disconnected from the battery and a dummy load placed across the battery for 60 seconds. The battery voltage should be above that specified (23.5 volts) at the end of the testing period, if not a FAILED message is displayed.

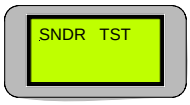




Battery Test Underway *Test Successful* *Battery Failure*

Sounder Tests of each Sounder

Press the ▶Move Right and / or ◀Move Left key to move to the Sounder Test menu, press **Enter**, then select the Sounder by using the ▲Move Up and / or ▼Move Down keys until the desired Sounder number is displayed, press **Enter** to start the test and **Cancel** to turn it off.

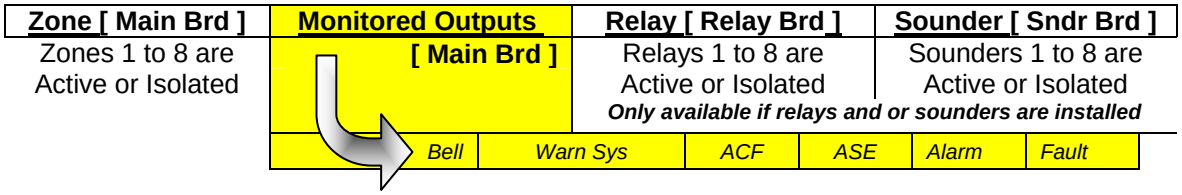


Press **Enter** ▶◀ Sounder 6 Selected **Enter** to Start
Cancel to Stop

Back in the Main Menu From <u>TEST</u> Move Right** to **<u>ISOLATES</u>

5.2 Isolates

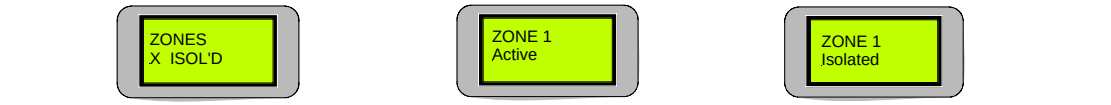
To display the number of Isolates press **Enter** to access the menus then ◄ Move Left or ► Move Right to select the required menu. The number of isolates will be displayed for each step.



Note: *The Relay and Sounder Isolate Menus are only displayed if the boards are installed in the FACP and set to active in the System Menu.*

Main Control Board Zone, Relay Board or Sounder Board Isolates

Press **Enter** and use the ◄ Move Left or Move Right keys to select the Zone, Relay or Sounder number then the ▲ Move up to key isolate or ▼ Move Down key to make active (set) the required Zone, Relay or Sounder.

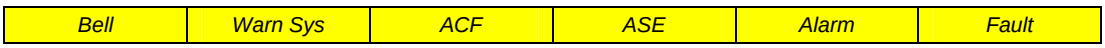


Note: *X denotes the Zone number, substitute Relay or Sounder for those menus.*

If a Zone or Zones are Isolated the Isolate LED for that Zone and the common Isolated LED will be illuminated. If a Relay or Relays, Sounder or Sounders are isolated only the common Isolate LED will be illuminated. The Isolate can be deactivated by pressing ISOLATE / DE-ISOLATE while in the Output menu or repeating the steps above to de-isolate (make Active) individual Zones.

Main Control Board Outputs Isolates

Press **Enter** to access the Isolate – Main Control Board Monitored <u>Outputs</u> sub-menus as seen below



Use the ► Move Right or ◄ Move Left keys to select the required menu and the ▲ Move Up key to Isolate or ▼ the Move Down key to active.

If the:

- Bell is Isolated the External Bell LED will be illuminated.
- Warning System is Isolated the Warning System LED will be illuminated.
- ACF is Isolated the ACF Fault / Isolate LED will be illuminated.
- ASE, Alarm or Fault Output is Isolated the common Isolated LED will be illuminated.

Press **Cancel** to back out of the Isolate Menu to the Main Menu.

Move Right to Enter the PASSWORD for level 3 Access

Wait for the screen to return to ACF TRIP and use ► Move Right to scroll to the **<u>SYSTEM</u>** or **<u>PROGRAM</u>** Menu

Reminder: Press ENTER at the end of each selection to update the program.

6 *Level 3 Access Programming*

Level 3 is a technical level that allows a technician to;

- initialise the FACP so it is capable of recognising how the system is constructed; and **SYSTEM**
- program how it will present information as well as how it will react to a change of state of an input and / or output. **PROGRAM**

6.1 Password Entry

Returning to Faults in the Main Menu, Move Right for Password Entry to Level 3. OR if entering the programming from the Default Screen press the ◄ Move Left key to directly access from the ACF Reset Menu.

Press **Enter** and a flashing cursor will appear below the word PASSWORD. By using the ▲Move up and ▼Move down keys the number on the screen will be incremented accordingly. Once the first password number has been set use the ►Move right key to move to the next number to be set. This operation has to be repeated four times as the PASSWORD is a four digit code. If a number is incorrect it can be changed by using the ◄Move Left and ►Right keys to position the cursor over the incorrect number. Once the four numbers have been set pressing **Enter** initiates the verification of the PASSWORD that has been entered. An incorrect PASSWORD will be displayed as REJECTED and return the operator to the first menu of Level 1 access.

Press **Enter**

Enter **Password**

Correct Password Entry

If the PASSWORD is accepted the screen will display ACF TRIP RESET. Use the ►Right keys to move through the menu to SYSTEM OR PROGRAM.

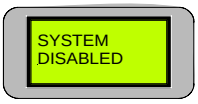
Note 1: *The operator has 10 seconds to complete Password entry. Failure to enter the Password in this time results in the panel reverting to the default screen.*

Note 2: *The System and Program Menus are not accessible if an Alarm condition exists even if the correct Password is entered.*

6.2 System

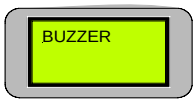
After entering the Level 3 Password and moving to the SYSTEM menu press **Enter** and the;

1. Zone ISOLATE LED's will illuminate;
2. common ISOLATED LED will flash; and the
3. LCD will display;



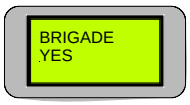
SYSTEM DISABLED

And then

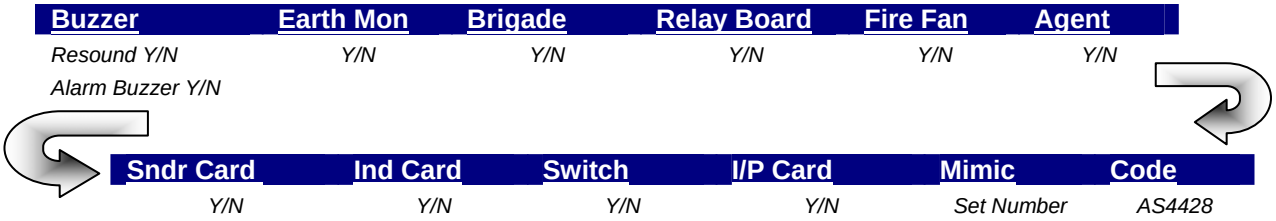


BUZZER

Ignoring Buzzer, Mimic and Code menus (explained below) use the ▶ Move Right or ◀ Move Left keys to move through the menu and the ▲ Move Up key to set YES or ▼ Move Down key to set No. Yes meaning the facility / board / card has been fitted to the FACP and will be programmed in the Programming Menu, No meaning it has not been fitted and will not appear in the Programming Menu.



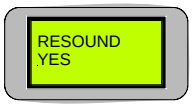
Typical Screen examples of the System Menu



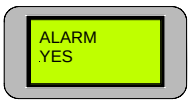
Buzzer is the only option that has a sub-menu where the operator is required to make a selection from the options offered.

Buzzer

Press **Enter** to access the Sub – Menu then the ◀ Move Left or ▶ Move Right key to select either; **Resound**, **Alarm** or **Alarm Buzzer** then **Enter**. Set the **Resound**, **Alarm** by using the ▲ Move Up key to *Yes* (activate on alarm) or ▼ Move Down key for *No* (not activate on alarm).



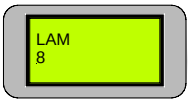
Resound Set to YES



Alarm Set to YES

LED Annunciator Master (LAM)

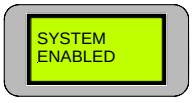
This tells the FACP how many LAMs are on the system hence how many to look for. Set the number by using the ▼ Move Down and / or ▲ Move Up keys to increment to the desired number 0 to 8 (maximum of 8).



Code

Code is the National Standard the Panel complies with. This is factory set and can not be altered.

Back out to the Main Menu using the CANCEL key and move from the **SYSTEMS** Menu to the **PROGRAM** Menu using the ▶ Move Right key. When the CANCEL key is pressed the LCD will display;



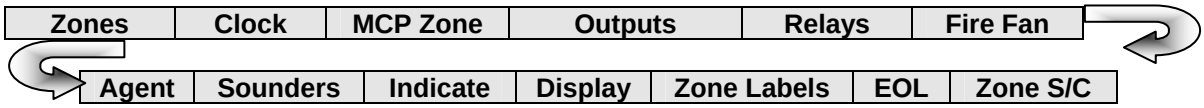
for one second and all the Isolate LED's will be turned off.

6.3 Program

Reminder: *From the Zones Menu use the ▸Move Right key to advance through the **PROGRAM** Menu.*

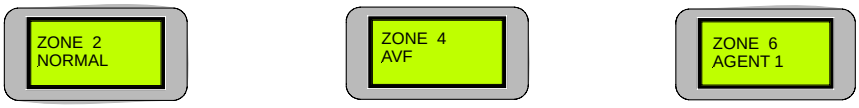
Pressing Enter to access the Program Menu will again disable the panel and the LED's will illuminate as they did in the Systems Menu.

The **PROGRAM** Menu consists of;



Zones

Press **Enter** and the Zones Menu will be displayed on the LCD screen. Pressing **Enter** again will access the Zones sub menu where first the ▸Move Right and ◂Move Left keys are used to select the Zone number and the ▲Move Up and



Sample Zone Screens

▼Move Down keys are used to set the functions within that Zone. The functions are;

Normal

Normal is selected if the Zone is required to initiate an alarm and latch until reset.

AVF

If AVF, (Alarm Verification Facility) is set active a delay and re-sampling period is initiated to confirm an alarm condition actually exists on that Zone.

Non Latch

Non Latch if set will initiate an alarm only when the Zone is in alarm.

SRESET 60

Resets the Zone 60 seconds after the Zone comes out of alarm.

Agent 1	Agent 2	Agent 3	Agent 4

If only one trigger zone is allocated a zone then the system will be activated by one zone only.

Any trigger zone may be allocated to any zone. However when a trigger zone has been allocated eg T1 to zone 1 then only the remaining trigger zones T2, T3 or T4 are each available to be allocated one of the remaining detector zones.

If multiple trigger zones are allocated eg T1 - Z1, T2 – Z2, T3 – Z3 then any one zone in alarm will operate the first stage and any other zone in alarm will operate the second stage.

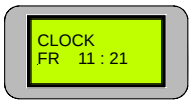
Setting up;

1. Determine the number of trigger zones (1 to 4) that will be required to activate the agent release
2. Relate this requirement to the conditions outlined above
3. In the Zone Programming Menu select T1, 2, 3, or 4 and enter the zone numbers. Press ENTER to update the program.

Reminder: *Press Cancel to return to the Zones Menu and then ▸Move Right to access the Clock menu.*

Clock

To set the day and time press **Enter** and the day will be highlighted. Use the ▲Move Up or ▼Move Down keys to step through the days of the week, then the ▶Move Right key to access the hours and minutes. To access each digit use the ▶Move Right and ◀Move Left keys and to increment each digit use the ▲Move Up and ▼Move Down keys. Press **Enter** to set the time and then ▶Move Right To access the MCP Zone Menu.



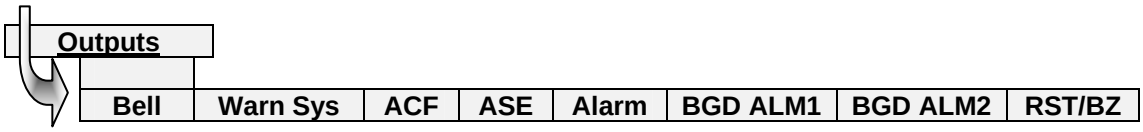
MCP Zone

Press **Enter** to assign the MCP to a Zone using the ▲Move Up and / or ▼Move Down keys to select the Zone, (1- 8) that the MCP will be assigned to then **Enter** to update the Program.

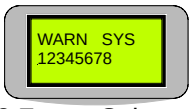
Press **Cancel** to return to the MCP Zone menu and then ▶Move Right to access the Outputs Menu.

Outputs

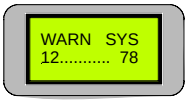
To assign Zones that will activate the monitored outputs press **Enter** and a sub menu will be made available for programming. The default condition for each output is all Zones will activate all outputs. The sub menu consists off;



To move through the sub menu use the ▶Move Right and ◀Move Left keys. For each output press **Enter**, then the ◀Move Left and ▶Move Right to select the Zones that will operate or not operate that output. Pressing the ▲Move Up key will set the Zone to activate the output and the ▼Move Down key will set the selected Zone so it does not activate the output.



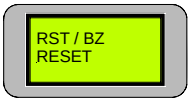
All 8 Zones Selected



Zones 1,2,7 and 8 Selected

Press **Enter** to Update the Program then Cancel to return to the Sub Menu and the ▶Move Right and or ◀Move Left keys to move through it. Repeat the above procedure to set or change the other Outputs as required.

Set the **Reset / Buzzer output** option so as the output acts as a Reset or Buzzer function as per the system design configuration.



Screen Showing the Output Set to Reset

If the output is used set as a Reset or Buzzer function by using the ▲Move Up for Buzzer or ▼Move Down keys for Reset. Press **Enter** to update the program

Relays

Press **Enter** then use the ▶ Move Right and / or ◀ Move Left keys to select a relay that will be operated by the selected functions in the sub - menu . Press **Enter** to access the sub – menu then ▶ Move Right and /or ◀ Move Left keys to toggle through the sub - menu structure. The sub menu consists off;

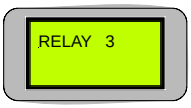
Zone Alarm	Zone Fault	Zone Isolate	Input	Switch	*Reset*	*ACF Isolate*

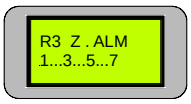
For:

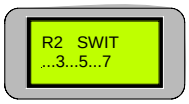
Zone Alarm	Zone Fault	Zone Isolate	Input	Switch

Press **Enter** then ▶ Move Right and /or ◀ Move Left keys to select the *Zone Alarm / Fault / Isolate, Input or Switch* then **Enter**. Use the ▶ Move Right and / or ◀ Move Left keys to select the Zones and the ▲ Move Up or ▼ Move Down keys to set it to be active or in-active.

Active meaning the *Zone Alarm / Fault / Isolate, Input or Switch* will operate the Relay where as in–active will prevent them from operating that relay.







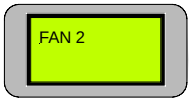
Press **Enter** to update the Program and the **Cancel** to back out to the previous menu.

For

Reset	*ACF Isolate*

Press **Enter** then the ▶ Move Right and /or ◀ Move Left keys to select *Reset* or *ACF Isolate* then the ▲ Move Up or ▼ Move Down keys to set for *Yes* or *No*. Yes sets the Relays to be reset or isolated when the Reset and / or ACF Isolate buttons are pressed. Press **Enter** to update the Program and **Cancel** to back out to the previous Menu.

Fire Fan



The sub menu consists of;

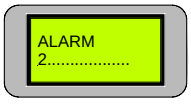
Alarm	Inhibit	Function	*Latch*	*ACF Isolate*

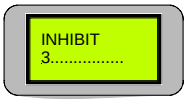
For:

Alarm	Inhibit

Press **Enter** then use the ▶ Move Right and / or ◀ Move Left keys to select the Fire Fan that will be controlled by the selected functions in the sub - menu .

Press **Enter** to access the sub – menu then ▶ Move Right and /or ◀ Move Left keys to toggle through the sub - menu structure. Press **Enter** then ▶ Move Right and /or ◀ Move Left keys to select the *Zone/s* that will activate or deactivate the control when it is in alarm or inhibited. Use the ▲ Move Up or ▼ Move Down keys to set it to active or in-active. Active meaning the Zone will operate the control where as in–active will prevent that Zone from having control.

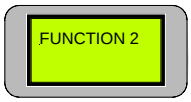




For: **Function**

Press **Enter** and the cursor will flash over the number 0,1 or 2, then press the ▲Move Up or ▼Move Down keys to select the required Function. Selection relies on how the inputs / outputs have been physically wired from the Fan Termination Board as outlined below.

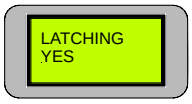
0: equates to a 3 wire Start / Stop, Run & Common.
1: equates to a 4 wire Start / Stop, Run, Stop & Common.
2: equates to a 5 wire Start / Stop, Run, Stop, Fault & Common.



Press **Enter** to update the Program and then **Cancel** to back out of the Menu.

For: ***Latch*** ***ACF Isolate***

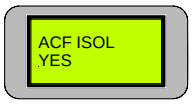
Press **Enter** and the cursor will flash over YES or NO and then the ▲Move Up key for Yes to set the card to be latching or ▼Move Down key for No to set the card for non-latching on alarm.



Press **Enter** to update the Program and **Cancel** to back out of the Menu.

ACF Isolate

Press **Enter** and the cursor will flash over YES or NO and then the ▲Move Up or ▼Move Down keys to set the card to be isolated or not isolated by the ACF key, that is Yes or No.



Press **Enter** to update the Program and **Cancel** to back out of the Menu.

Agent

If Yes was selected in the SYSTEM menu the Sub – Menu seen below will be available. Press **Enter** to access the sub-menu. The sub-menu consists off;

Release			Press Sw	Auto Delay	Man Delay	No LCP's
Solenoid	*Pyrogen*	*Metron*	*NO/NC/None N/O & Mech*	*0 – 60s*	*0 – 60s*	*0 - 16*

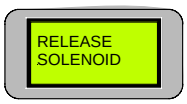
Using ▶Move Right or ◀Move Left select either **Release, Sense Switch, Auto Delay, Manual Delay** or the **Number of Local Control Panels (LCP's)**, then the **Enter** key to access the menu and the ▲Move Up or ▼Move Down keys to set the required function or number.

In the **Delay** Menus the ▲Move Up and ▼Move Down keys are used to set or alter the time delay in 5 second increments.

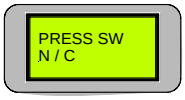
Press **Enter** to update each Program and **Cancel** to back out of the Menu.

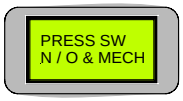
Release

Identifies the type of release mechanism. *[Constant / Solenoid / Pyrogen / Metron].*



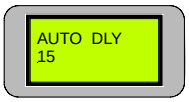
Press Sw





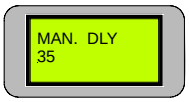
Sets the type of monitor release contact. [NO / NC / None N/O & Mech – manual release]

Auto Delay



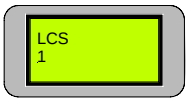
Sets the delay for the automatic release of the agent. *[0 – 60 seconds set in 5 second increments]*

Man Delay



Sets the delay for when the agent is released manually. *[0 – 60 seconds set in 5 second increments]*

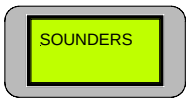
No LCS's

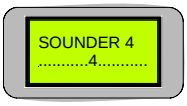


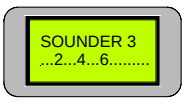
Tells the FACP how many Local Control Panels are in service. *[0 – 4]*

Sounders

Press **Enter** then use the ▶ Move Right and ◀ Move Left keys to select a sounder. Press **Enter** again and use the ▶ Move Right and ◀ Move Left keys to select a Sounder, Press **Enter** again and the ▲ Move Up and ▼ Move down keys to set that Sounder to a Zone to activate or not activate the selected sounder.





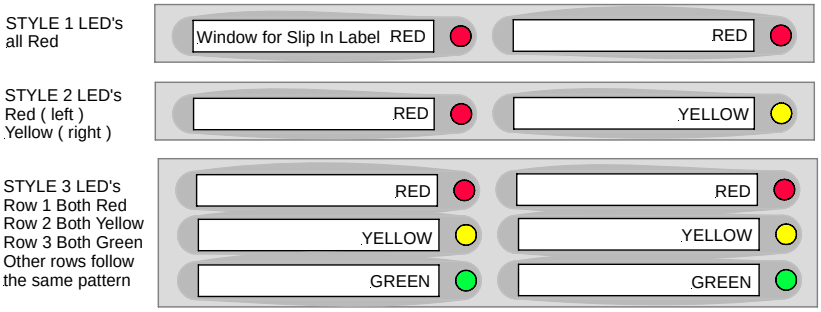


Press **Enter** to update each Program and **Cancel** to back out of the Menu.

Indicate

If a General Indicator Card is selected via the System Menu then all the tri-coloured LED's default to red. To alter the colour of the LED select Indicate then press **Enter**. The LCD will display "Style 1"

Use the ▲ Move Up and the ▼ Move Down keys to scroll through the different styles.

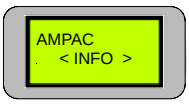


Examples of the different " Styles " available through the Indicate Menu are shown above. Note only the top display is shown in the first 2 examples where as the first 3 top displays are shown in Style 3

Once the "Style has been selected press **Enter** to update the Program and **Cancel** to back out of the Menu.

Display

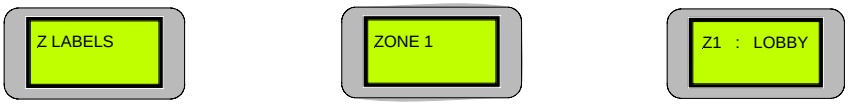
To set the message, FACP or company name press **Enter** and use the ▶ Move Right and ◀ Move Left keys to move through the word to select a letter and the ▲ Move Up and the ▼ Move Down keys to move through the alphabet. A maximum of 16 characters are available for this message.



Press **Enter** to update each Program and **Cancel** to back out of the Menu.

Zone Labels

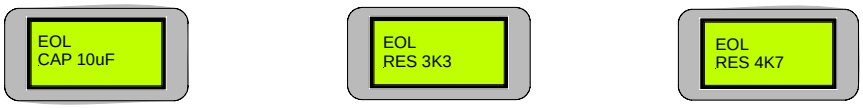
To name the Zones press **Enter** then the ▶ Move Right and / or the ◀ Move Left keys to select a Zone. Press **Enter** and use the ◀ Move left and / or ▶ Move Right keys to move the cursor through the structure of the word and the ▲ Move Up and ▼ Move Down keys to move through the alphabet.



Press **Enter** to update each Program and **Cancel** to back out of the Menu.

EOL (END OF LINE)

Press **Enter** and use the ▲ Move Up and ▼ Move Down keys to select the EOL option. The options are CAP 10µf, RES 3K3 (AS factory default value), 4K7, 6K8 and 10K.



Press **Enter** to update each Program and **Cancel** to back out of the Menu.

Zone S/C

Press **Enter** and use the ▲ Move Up or ▼ Move Down key to set the panel to initiate either an Alarm or Fault when a Zone short circuited condition exists.

Press **Enter** to update each Program and **Cancel** to back out of the Menu.

7 Agent Release

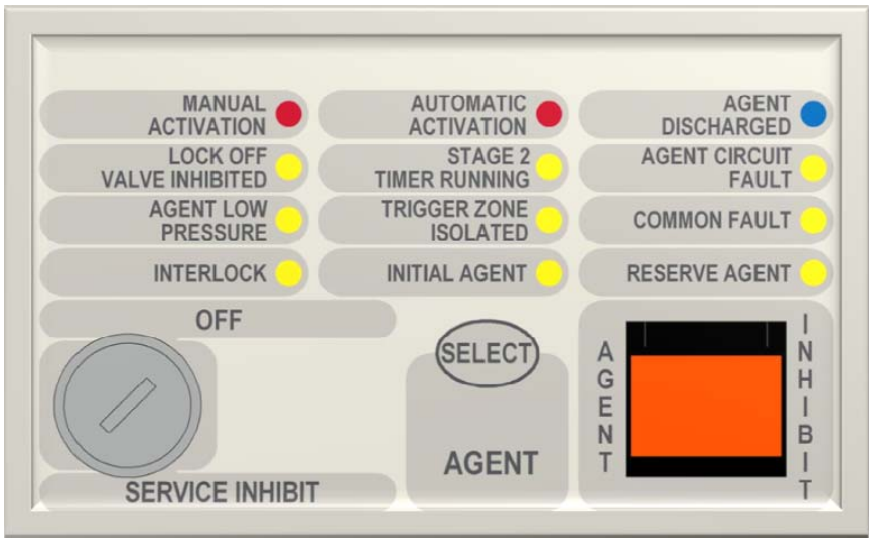
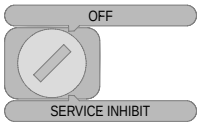


Figure 2: AS4428 Agent Control Card

7.1 Controls

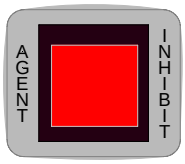


It is a requirement that control be secured from unauthorised use. A keyswitch has therefore been included in the control process.

Switching to “Service Inhibit” places the ARC into “Service Mode” which electrically isolates the selected agent activation circuitry and implements a Common Isolate condition being indicated at the FACP (*This condition can also confirmed through the Status Menu*). To remove the key it is necessary for the switch to be in the **OFF** position.

Pressing 

toggles the selection of either the Main or Reserve release agent. Selection is indicated by the Main and Reserve Agent LED’s



When activated, places the system in manual mode – which prevents an automatic release sequence from starting, and sounds the buzzer at the Local Control Station(s). To prevent accidental operation this switch has a hinged clear plastic cover that has to be raised to gain access to the switch.

Manual Release

The ARC has provision to connect a front panel MCP. When the MCP is activated – a manual release sequence of the agent is started.

The MCP is fitted with a protective flap – hence two actions are required to release the agent – that is lift the flap and activate the MCP

7.2 Common Agent Release Card & LCS Indicators

There are 12 indicators on both the Agent Release Module and Local Control Station. They are;

MANUAL ACTIVATION – **Red** Illuminated when a manual release sequence has commenced. Manual release sequence can only be started by activating the manual release at the ACC or LCS.

Indicator is extinguished by initiating a "RESET" on the FACP.

AUTOMATIC ACTIVATION – **Red** Illuminated when an automatic release sequence has commenced. This occurs when the selected zone(s) on the FACP have gone into alarm. For dual zones, the indicator should flash when the first zone goes into alarm, and steady when the second zone goes into alarm.
Indicator is extinguished by activating RESET on the FACP.

AGENT DISCHARGED – **Blue** Illuminated when the pressure switch indicates the agent has been released. For Pyrogen, feedback is from the thermal switch. If there is no pressure switch fitted, the indicator will be illuminated immediately the agent release signal is activated (Selected via FACP on-site programming – refer to relevant FACP Manual)

Indicator is extinguished by activating RESET on the FACP.

LOCK OFF VALVE INHIBITED – **Yellow** Illuminated when the lock-off valve has been activated.

STAGE 2 TIMER RUNNING – **Yellow Stage 2 Timer Running** Illuminated when the pre-discharge delay timer is running.

Indicator is extinguished by activating the RESET control on the FACP.

AGENT CIRCUIT FAULT – **Yellow** Illuminated when there is a fault on the monitored Main or Reserve activation circuits. Eg S/C or O/C.

AGENT LOW PRESSURE – **Yellow** Illuminated when the low pressure switch is activated. This indicates a leakage at the agent cylinder. The low pressure switch is a separate switch. It is not the same pressure switch as used for the agent discharged indicator.

TRIGGER ZONE ISOLATED – **Yellow** Illuminated when any of the programmed trigger zones on the FACP are isolated.

COMMON FAULT – **Yellow** Illuminated under the following fault conditions;

- pressure switch monitoring fault,
- low pressure switch monitoring fault,
- lock-off valve monitoring fault,
- activation circuit fault,
- stage 1 output fault,
- stage 2 output fault,
- LCS fault (missing or extra),
- trigger zone(s) fault,
- low agent pressure and interlock fault.

INTERLOCK – **Yellow** Illuminated when the interlock input (eg from dampers, doors etc) is off during the discharge sequence – meaning the dampers, doors etc are not closed as they should be or a fault exists.

Note: *The Interlock is a Monitored Input and can be defaulted to the ON position by terminating the input (TB2 7 & 8) into a 2.2KΩ EOL resistor.*

– Green Illuminated when the " Initial" Agent is selected.

– Yellow Illuminated when the " Reserve " Agent is selected.

Buzzer (located at the FACP)

i. Buzzer sounds;
ii. under all fault conditions and can be silenced by using the FACP buzzer silence control.
iii. when the LCS Inhibit control is activated – after 8 hours – treated as an isolate condition.
iv. when the service inhibit is activated - after 8 hours – treated as an isolate condition

8 Agent Release Local Control Station

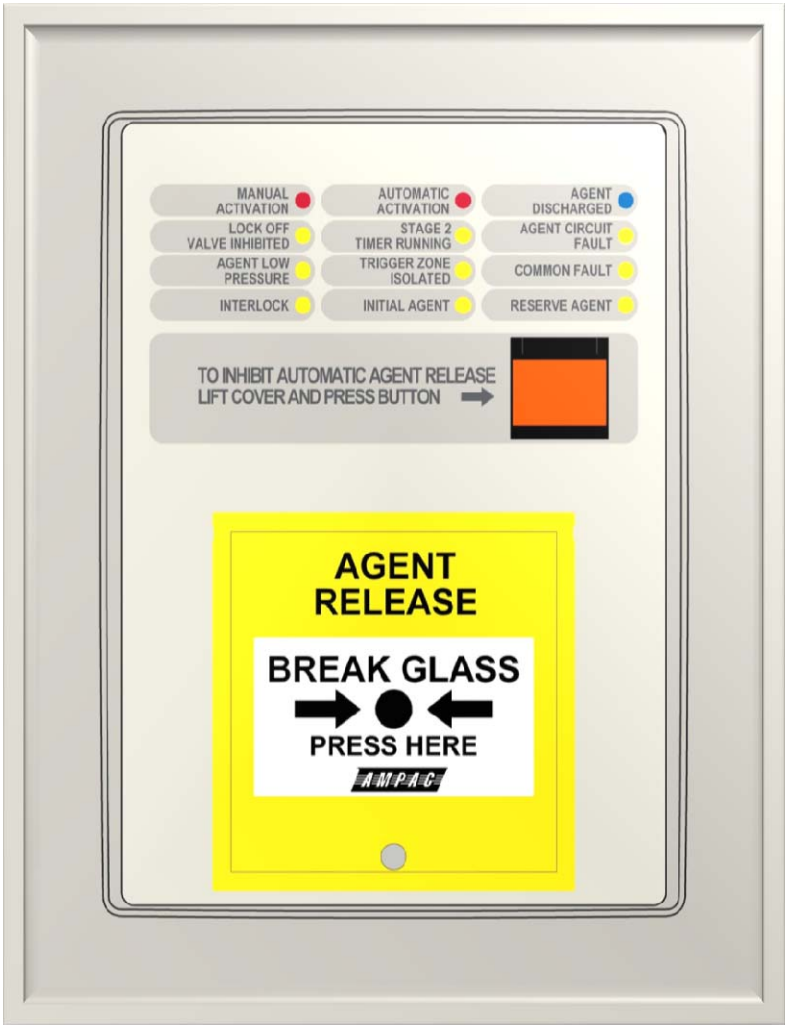


Figure 2: AS4214 Local Control Station Decal

8.1 Controls

LCS Local Control Panel Inhibit

The agent inhibit switch has an internal lamp fitted with yellow lens which is illuminated when the inhibit is activated at the ARC or any of the LCSs.

Manual Release

The ACC has provision to connect a MCP. When the MCP is activated – a manual release sequence of the agent is started.

The MCP is fitted with a protective flap – so two actions are required to release the agent – lift the flap and activate the MCP

8.2 Indicators

Manual Activation - Red in colour

Illuminated when a manual release sequence has commenced. Manual release sequence can only be started by activating the manual release at the ACC or LCS.

Indicator is extinguished by activating RESET on the FACP.

9 Agent Release Operation

The agent release can release the agent via automatic or manual activation.

By default the agent release add-on is in a mode where a release can occur automatically or manually. This is referred to as the automatic mode.

When the agent inhibit switch is operated at any LCS or the FACP then the agent inhibit indicator shall be illuminated at all LCSs and the ARC, the buzzer sounds at all LCSs and the agent can only be released by a manual activation. This is referred to as the manual mode.

The pressure switch input on the termination board (which is used to confirm that the agent has been released) can be configured to accept a normally open contact, normally closed contact, or ignored. This is selected via FACP on-site programming – refer to the FACP Manual.

In addition the agent release can monitor the pressure switch input and provide notification that the agent has been released by a manual mechanical means.

9.1 Manual Mode

When the module is in manual mode, then the

i. Agent Inhibit indicator is illuminated at the ARC and all LCSs
ii. The buzzer sounds at all LCSs. The buzzer does not sound at the ARC (at the FACP). The buzzers sound until the inhibit condition is released.
iii. System Inoperative output is turned on
iv. Automatic release sequences are prevented from starting
v. If an automatic release sequence was underway and then the inhibit switch is activated (switched to manual mode), then the release sequence is aborted and the sequence is reset. This means the stage 1 and stage 2 outputs are switched OFF.
vi. The FACP treats this condition as an isolate – and as such will activate the brigade isolate output, light the isolate indicator, report the condition to the LCD and operate the buzzer after 8 hours.

To manually release the agent, the manual release at the ARC or a LCS is activated. For a manual release sequence to commence, the lock-off valve and the service inhibit must be in the OFF position. The manual release sequence is;

i. Manual Activation indicator is illuminated on the ARC and LCSs, providing the lock-off valve and the service inhibit are in the OFF position
ii. The FACP activates its Bell, ASE, Warning System, Plant, and Alarm outputs.
iii. Stage 1 supervised output is switched to +24VDC, and the stage 1 relay is closed
iv. Stage 2 output is switched to +24VDC, and the stage 2 relay is closed
v. Start optional pre-release delay (Selected via FACP on-site programming – refer to relevant FACP Manual) and turn on the stage 2 timer indicator
vi. Upon expiration of delay, wait till the interlock signal is on, and then activate the selected activation circuit. If the interlock is in fault, then the agent will be released if the interlock signal is not asserted within 10 seconds.
vii. Light the agent release indicator on the ARC at the FACP and LCSs when the pressure switch input on the termination board is activated or immediately (depends on the pressure switch configuration – refer to FACP on-site programming).
viii. Activate gas-fired relay output.
ix. When the FACP reset control is activated – the manual activation indicator, agent discharge indicator, stage 2 timer running are extinguished, and the stage 1, stage 2, selected activation circuit and gas fired output are switched off (to 0VDC).

If the agent select button is operated at the ARC once the agent has been released, then the newly selected activation circuit is operated immediately.

The manual release facility will cause the release of the agent unless there is a fault on the activation circuit, the lock-off valve has been operated or the service inhibit control is active.

The interlock input can be defaulted to the ON position by an appropriate termination resistor.

If the lock-off valve or service inhibit is activated to the ON position during the sequence, then the sequence is aborted. This means the manual activation indicators at the ARC and LCSs are extinguished, the Stage 1 and Stage 2 outputs are switched OFF and the FACP Bell, ASE, Warning System, Plant and Alarm outputs are switched OFF. The system inoperative output shall turn on.

If the lock-off valve or the service inhibit is operated after the agent has been released then there is no effect on the stage 1 and stage 2 outputs and the selected activation circuit. The system inoperative output shall be activated.

9.2 Auto Mode

Automatic release is when one or two zones going into alarm initiate the agent release sequence.

For an automatic release sequence to commence the lock-off valve and the service inhibit switch must both be in the OFF position.

9.2.1 Single Zone Activation

With single zone activation, when the zone goes into alarm, then the following release sequence is executed:

i. Automatic activation LED is illuminated on the ARC and LCSs
ii. Stage 1 output is switched to +24VDC, and the stage 1 relay output is closed
iii. Stage 2 output is switched to +24VDC, and the stage 2 relay output is closed
iv. Start optional pre-release delay (Selected via FACP on-site programming – refer to relevant FACP Manual) and turn on the stage 2 timer indicator.
v. Upon expiration of delay, wait till the interlock signal is on, and then activate the selected activation circuit. If the interlock is in fault, then the agent will be released if the interlock signal is not asserted within 10 seconds.
vi. Illuminate the agent release LED on the ARC and LCSs when the pressure switch input on the termination card is activated or immediately (depends on the pressure switch configuration – refer to FACP on-site programming).
vii. Activate gas-fired relay output.
viii. When the FACP reset control is activated – the automatic activation indicator, agent discharge indicator, stage 2 timer running are extinguished, and the stage 1, stage 2, selected activation circuit and gas fired output are switched off (to 0VDC).

If the agent select button is operated at the ARC once the agent has been released, then the newly selected activation circuit is operated immediately.

The interlock input can be defaulted to the ON position by an appropriate termination resistor.

If the lock-off valve or service inhibit is activated to the ON position during the sequence, then the sequence is aborted. This means the automatic activation indicators at the ARC and LCSs are extinguished and the Stage 1 and Stage 2 outputs are switched OFF. The system inoperative output shall be activated.

If the trigger zone is isolated during the sequence, then the sequence is aborted. This means the automatic activation indicators at the ARC and LCSs are extinguished and the Stage 1 and Stage 2 outputs are switched OFF. The system inoperative output shall be activated. The trigger zone isolated indictor shall be illuminated.

If the lock-off valve or service inhibit switch is operated after the agent has been released then there is no effect on the stage 1 and stage 2 outputs and the selected activation circuit. The system inoperative output shall be activated

If the trigger zone is isolated after the agent has been released, then there is no effect on the stage 1 and stage 2 outputs and the selected activation circuit. The system inoperative output shall be activated. The trigger zone isolated indicator shall be illuminated.

9.2.2 Dual Zone Activation

With dual zone activation, when the first zone goes into alarm the following steps occur;

i. The automatic activation LED at the ARC and LCSs flashes
ii. Stage 1 output is switch to –24VDC, and the stage 1 relay output is closed

When the second zone goes into alarm, then the following steps occur;

i. Automatic activation LED goes steady
ii. Stage 1 output is switched to +24VDC
iii. Stage 2 output is switched to +24VDC, and stage 2 relay output is closed
iv. Optional pre-release delay commences (Selected via FACP on-site programming – refer to relevant FACP Manual).
v. Upon expiration of a delay the interlock signal is on and then activate the selected circuit. If the interlock is in fault, then the agent will be released if the interlock signal is not asserted within 10 seconds.
vi. The agent release LED on the ARC and LCSs is illuminated when the pressure switch input on the termination card is activated or immediately (depends on the pressure switch configuration – refer to FACP on-site programming).
vii. The gas-fired relay output is then activated.
viii. When the FACP reset control is activated – the automatic activation indicator, agent discharge indicator, stage 2 timer running are extinguished, and the stage 1, stage 2, selected activation circuit and gas fired output are switched off (to 0VDC).

If the agent select button is operated at the ARC once the agent has been released, then the newly selected activation circuit is operated immediately.

The interlock input can be defaulted to the ON position by an appropriate termination resistor.

If one of the two trigger zones is isolated during the sequence, then the Stage 2 outputs are switched OFF, the Stage 1 switch positive output is switched to -24VDC and the automatic activation indicator commences to flash.

If both of the two trigger zones are isolated during the sequence, then the Stage 1 and Stage 2 outputs are switched OFF, and the selected activation circuit is switched OFF. The system inoperative output is activated and the trigger zone isolated indictor is illuminated.

If the lock-off valve or service inhibit switch is activated to the ON position during the sequence, then the sequence is aborted. This means the automatic activation indicators at the ARC and LCSs are extinguished and the Stage 1 and Stage 2 outputs are switched OFF. The system inoperative output shall be activated.

If one or both of the two trigger zones are isolated after the agent has been released, then there is no effect on the stage 1 and stage 2 outputs and the selected activation circuit. The system inoperative output shall be activated. The trigger zone isolated indicator shall be illuminated.

If the lock-off valve or service inhibit switch is operated after the agent has been released then there is no effect on the stage 1 and stage 2 outputs and the selected activation circuit and the system inoperative output is activated

9.2.3 Manual Activation

It shall be possible to instigate a manual release whilst the module is in the auto mode.
A manual release is initiated by operating the manual release control at the ARC or the LCS.
If an automatic release sequence has not started, then the manual release sequence proceeds as detailed in previously. *Note that the LCS inhibit control WILL NOT abort the manual release sequence.*

If an automatic release sequence has started, then the manual release will interrupt the automatic release and take over the remainder of the sequence. The following tables outline the operation.

Single Zone Activation

Current Step in Activation Sequence	Manual Activation
1, 2, 3	Extinguish automatic activation LED and commence manual activation steps 1 thru 8
4, 5	Extinguish automatic activation LED, light the manual activation LED, instigate 5 second delay, resume at step 6
6,7	No effect

Dual Zone Activation

Current Step in Activation Sequence	Manual Activation
1, 2, 3, 4, 5	Extinguish automatic activation LED and commence manual activation steps 1 thru 8
6,7	Extinguish automatic activation LED, light the manual activation LED, instigate 5 second delay, resume at step 6
8,9	No effect

9.3 Service Switch

The service switch is situated at the ARC, and when activated causes the following

i. Electrically isolates the activation circuitry from the agent release device
ii. Operates the System Inoperative output.
iii. The service switch is not overridden
iv. Activates an isolate condition at the FACP, which shall cause the common isolate indicator to be illuminated and the brigade isolate output to be activated at the FACP and the buzzer shall sound after 8 hours.

A manual or automatic release sequence is prevented from starting if the service switch has been operated prior to the sequence commencing, and the sequence is aborted if the service switch is operated during the sequence.

If the agent release module is in the manual mode, then the service switch is activated, and then the service switch is de-activated, the agent release module will default to the automatic mode.

9.4 Lock-Off Valve

When the lock-off valve is operated, the agent is blocked from reaching the release valve. When the lock-off valve is operated, the following occurs:

i. Illuminate the lock-off valve inhibit indicator at the ARC and LCSs.
ii. Operates the system inoperative output.

A manual or automatic release sequence is prevented from starting if the lock-off valve has been operated prior to the sequence commencing, and the sequence is aborted if the lock off valve is operated during the sequence.

9.5 Fault Supervision

The sources of fault in the system are:

i. Pressure switch
ii. Low pressure switch
iii. Lock-off valve
iv. Selected activation circuit
v. Stage 1 outputs
vi. Stage 2 outputs
vii. Fault in the trigger zones
viii. Fault on the interlock input
ix. Fault with a LCS
x. Low agent pressure

With all faults the common fault indicator at the Front Panel and LCSs is illuminated.

For a pressure switch fault, low pressure switch fault, lock-off valve fault, stage 1 output fault and stage 2 output fault, trigger zones, LCS fault(missing), interlock fault the FACP will signal the brigade accordingly.

With a fault in the activation circuit, interlock circuit or fault with the trigger zones, in addition to the above, the system inoperative output is operated.

The FACP fault buzzer will sound for all faults.

The FACP will report the type of fault on the LCD

9.6 Isolation

If the trigger zones are isolated by the FACP, then the trigger zone isolated indicator at the ARC and LCSs is illuminated, and the system inoperative output is operated.

In addition the brigade isolate relay is operated.

Regarding interfacing the agent release add-on to an addressable FACP, and isolating devices instead of zones:

i. The zone is not isolated, until all devices within the zone have been isolate.
ii. The trigger zone isolated and system inoperative output are only activated when the entire zone is isolated
iii. If the agent release add-on has commenced to a release sequence, and the device(s) is alarm is (are) isolated, then the release sequence is stopped, since the alarm has been removed. See sections 5.3.1 and 5.3.2. Note the variations for single and dual zone activation

9.7 System Inoperative Output

The system inoperative output is switched to +24VDC under the following conditions:

i. Operation of the service switch
ii. Fault in the selected activation circuit
iii. Operation of the lock-off valve
iv. Operation of the inhibit at a LCS
v. Fault in any of the trigger zones
vi. If any of the trigger zones are isolated
vii. Fault on the interlock.

9.8 Manual Mechanical Release of the Agent

With agent release systems, a manual mechanical means can be provided to release the agent.
If the pressure switch is activated (indicating that the agent has been released),and the agent release add-on has not activated the selected activation circuit, then the following will occur:

i. Stage 1 output is switched to +24VDC and stage 1 relay is closed
ii. Stage 2 output is switched to +24VDC and stage 2 relay output is closed
iii. Light the agent release LED on the ARC and LCSs
iv. The FACP activates its Bell, ASE, Warning System, Plant, and Alarm outputs
v. Activate gas-fired relay output

9.9 Monitoring of the Pressure Switch

Due to the requirements of 5.9 Manual Mechanical Release of the Agent, the pressure switch input conveys two pieces of information:

i. When the pressure switch input is active, it signals that the agent has been released. The release can be as a result of the agent release add-on or due to a manual mechanical release.
ii. When the pressure switch is not active, it signals that there is a full bottle of agent available to be discharged.

In order for the agent release module to respond to a manual mechanical release, the pressure switch must have been previously not active, to signify that a full bottle of agent is available

10 Warning Devices

The stage 1 and stage 2 outputs specified on the agent termination board shall be provided as a supervised switch positive output, and a closing relay contact.

These outputs are used for a variety of purposes from driving visual and aural warning devices through to controlling air conditioning dampers.

Typically the supervised switched positive output is used for the warning devices and the closing contact is used for controlling dampers.

For compliance with AS4214 both visual signs and aural devices are normally connected to the supervised switched positive stage 1 and stage 2 outputs.

The visual Ampac signage and the aural sounders (product code 205-0062/0063) are supported. It is possible to add a termination board into the signs to facilitate the required monitoring.

Up to six signs – with internal buzzers enabled, or six signs (with internal buzzers disabled) and six sounders shall be supported for stage 1 and stage 2 outputs.

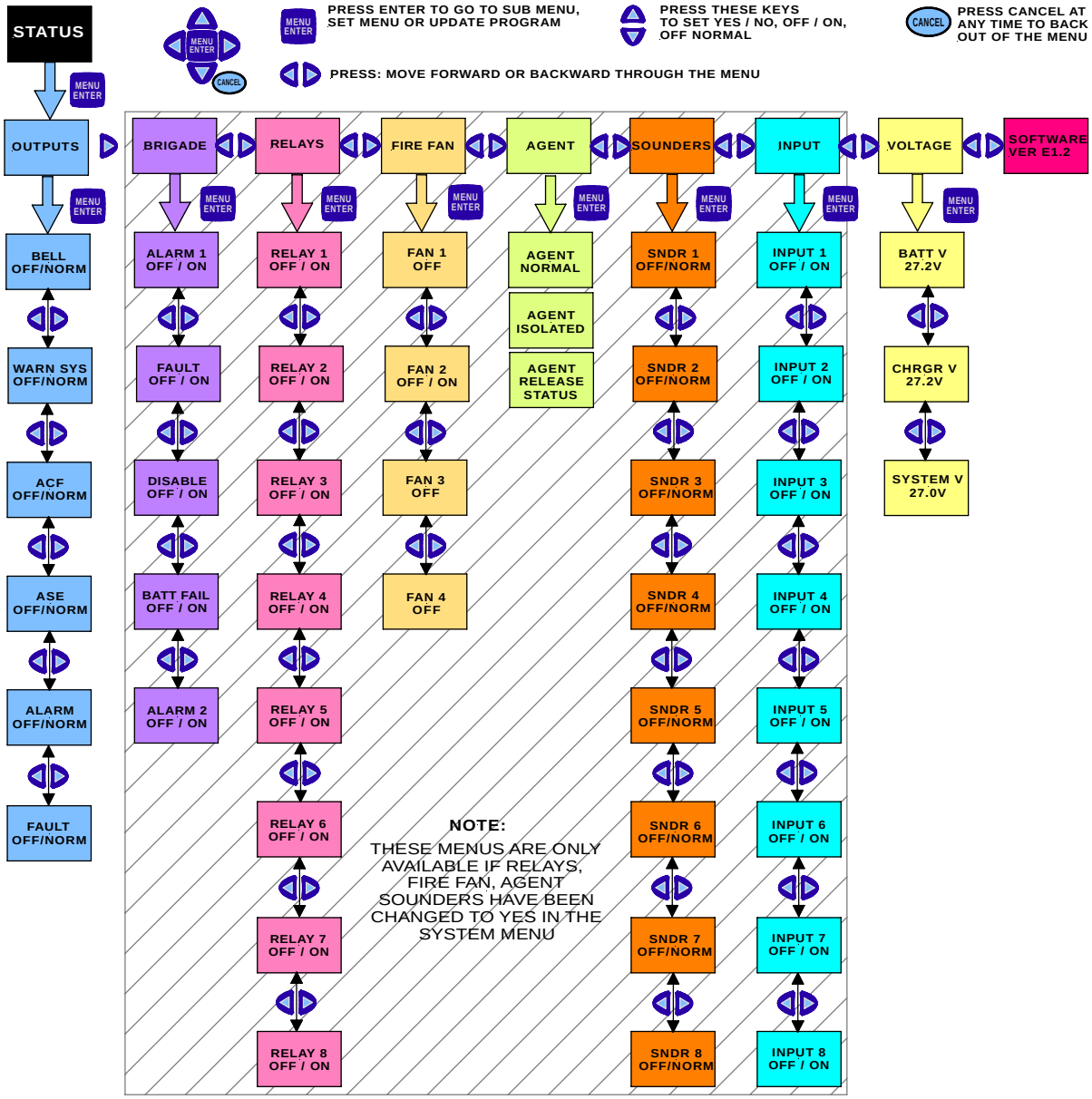
The wiring to the signs shall be 2 (voltage reversal) or 3 wire.

The sounders shall be situated adjacent to the signs, and are 3 wire (for alert and evac tones)

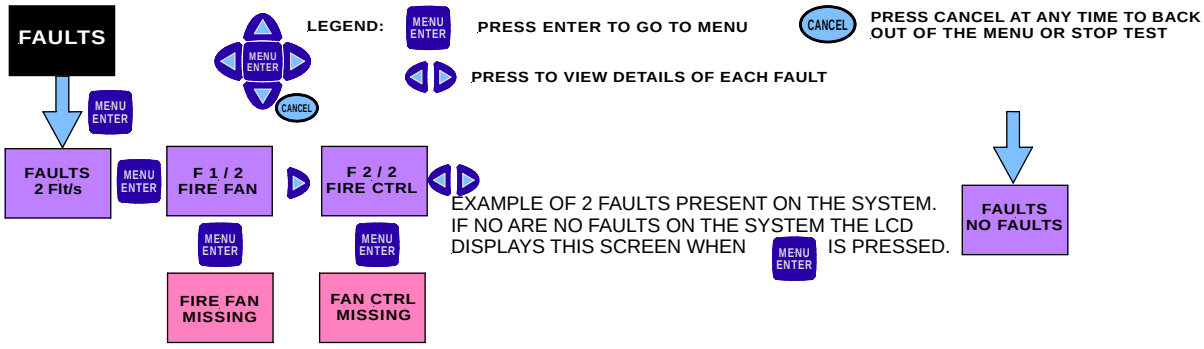
11 Appendix A: AS 4428 Menu Structure & Programming

STATUS	FAULTS	TESTS	ISOLATE	SYSTEM	PROGRAM

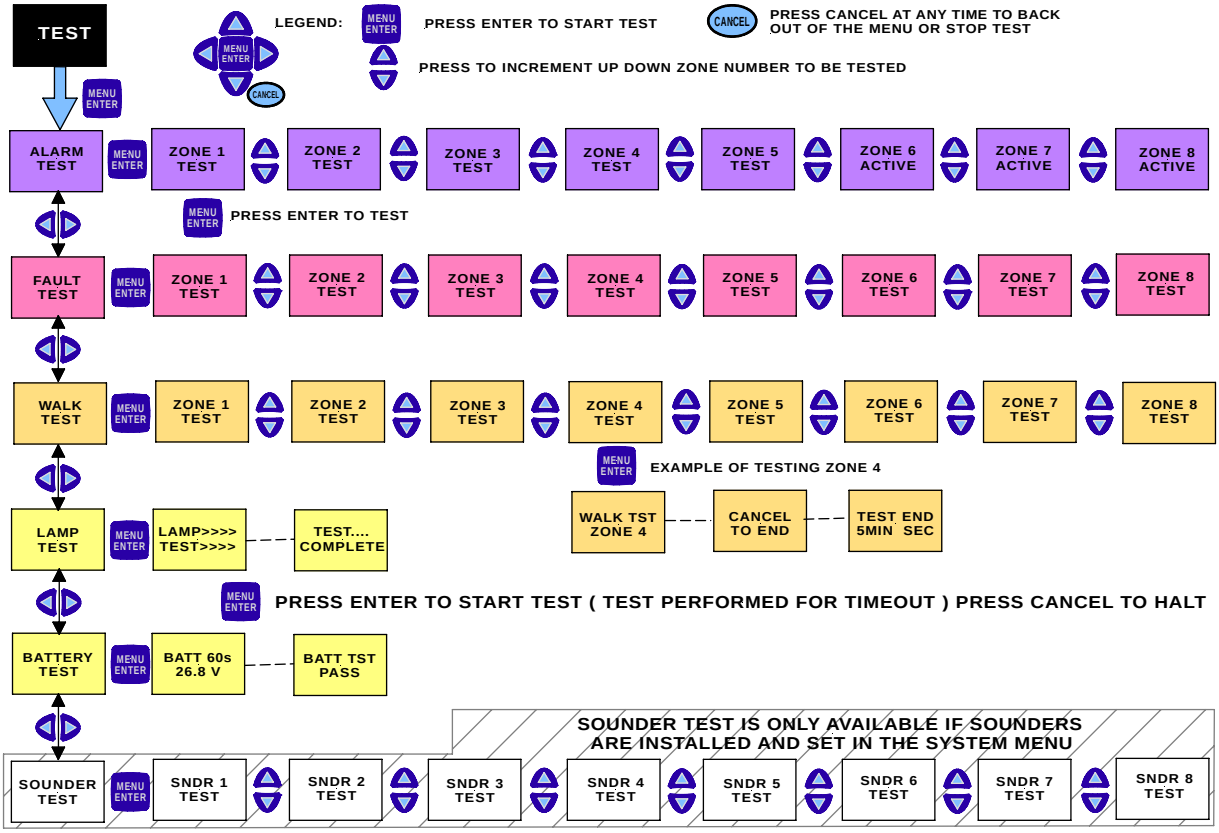
Status



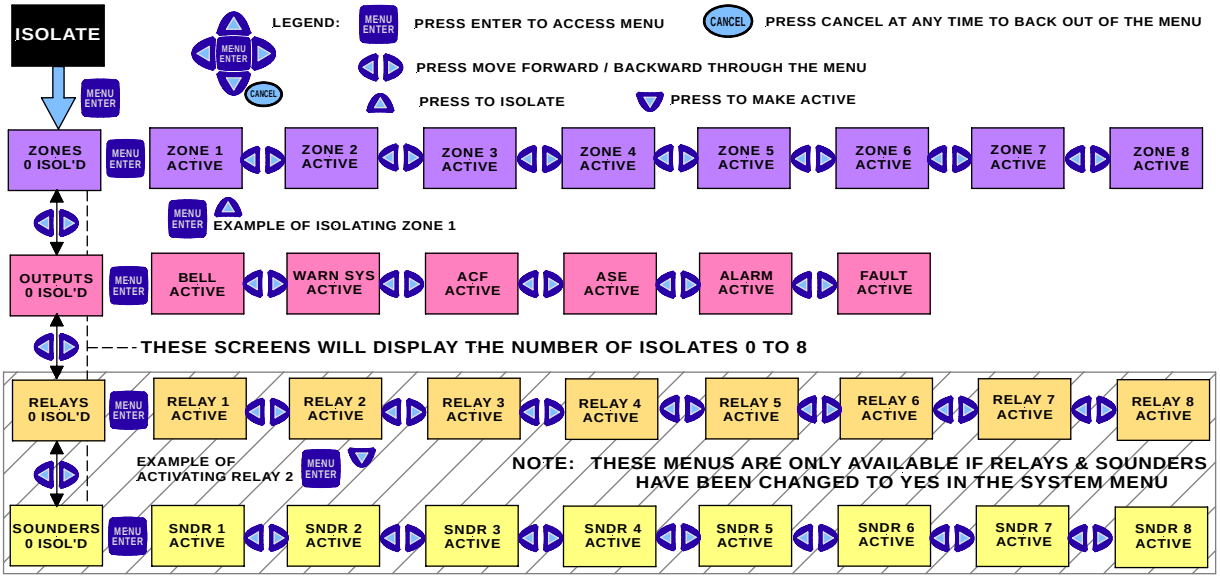
Faults



Test

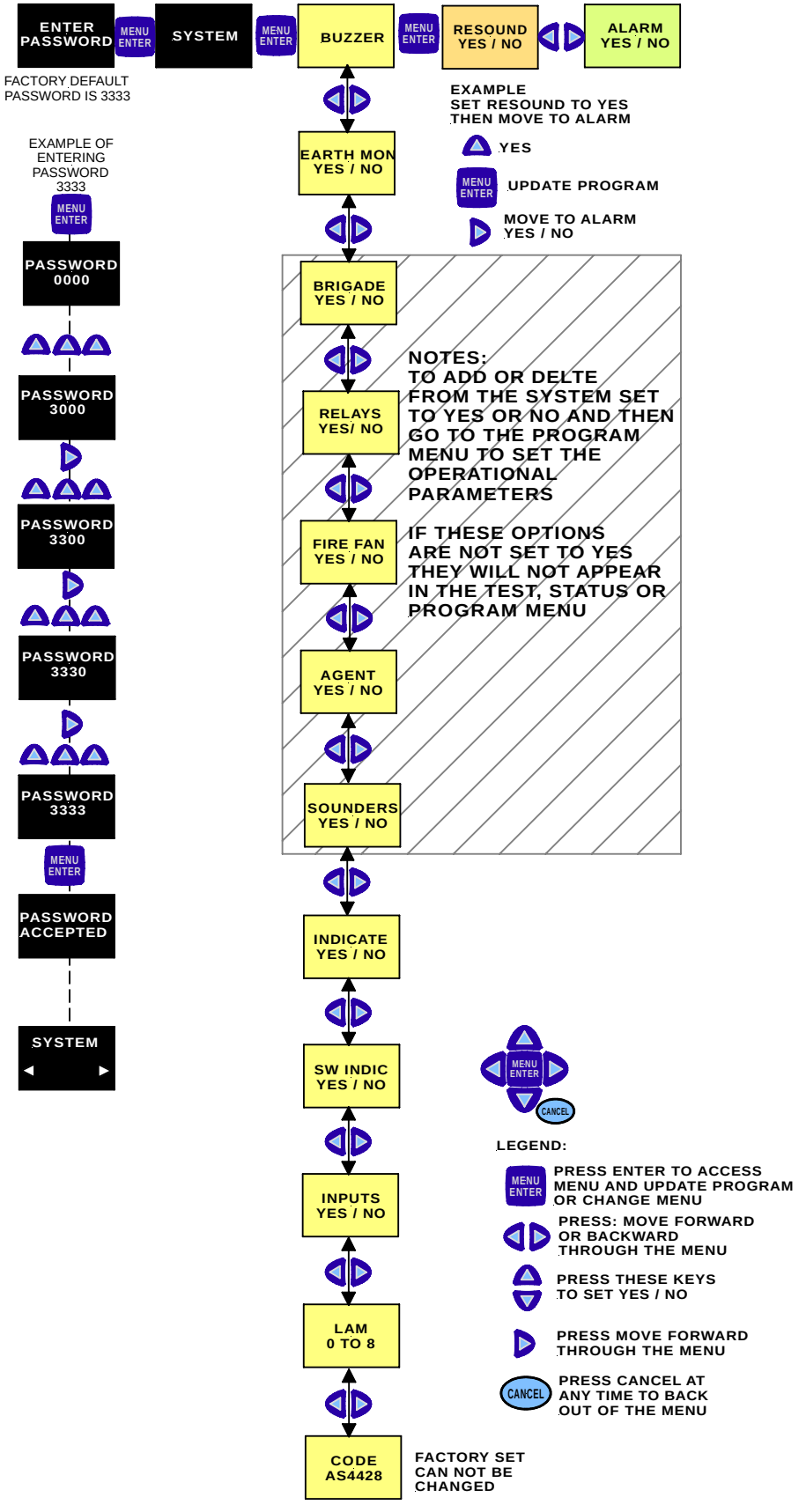


Isolate

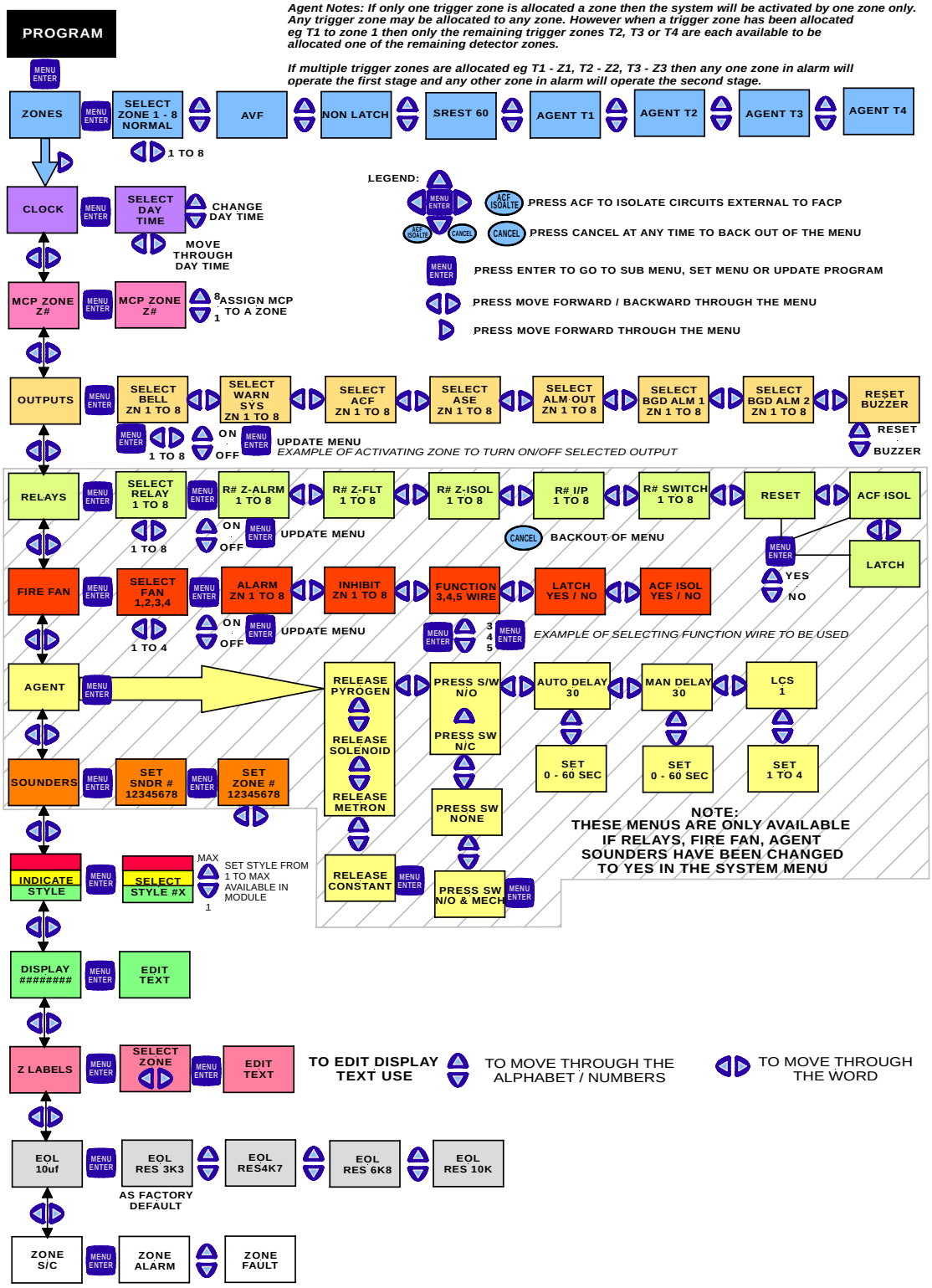


Note: *Agent Release can be isolated at the Agent Release Card or by isolating the Agent Trigger (T1 T2) Zones in the Program, Zones Menu.*

System (Password required)



Program


PROGRAM
Agent Notes: If only one trigger zone is allocated a zone then the system will be activated by one zone only. Any trigger zone may be allocated to any zone. However when a trigger zone has been allocated eg T1 to zone 1 then only the remaining trigger zones T2, T3 or T4 are each available to be allocated one of the remaining detector zones.
If multiple trigger zones are allocated eg T1 - Z1, T2 - Z2, T3 - Z3 then any one zone in alarm will operate the first stage and any other zone in alarm will operate the second stage.
ZONES
SELECT ZONE 1 - 8 NORMAL
1 TO 8
AVF
NON LATCH
SREST 60
AGENT T1
AGENT T2
AGENT T3
AGENT T4
CLOCK
SELECT DAY TIME
CHANGE DAY TIME
MOVE THROUGH DAY TIME
MCP ZONE Z#
ASSIGN MCP TO A ZONE
OUTPUTS
SELECT BELL ZN 1 TO 8
SELECT WARN SYS ZN 1 TO 8
SELECT ACF ZN 1 TO 8
SELECT ASE ZN 1 TO 8
SELECT ALM OUT ZN 1 TO 8
SELECT BGD ALM 1 ZN 1 TO 8
SELECT BGD ALM 2 ZN 1 TO 8
RESET BUZZER
RESET BUZZER
ON OFF
UPDATE MENU
EXAMPLE OF ACTIVATING ZONE TO TURN ON/OFF SELECTED OUTPUT
RELAYS
SELECT RELAY 1 TO 8
R# Z-ALRM 1 TO 8
R# Z-FLT 1 TO 8
R# Z-ISOL 1 TO 8
R# I/P 1 TO 8
R# SWITCH 1 TO 8
RESET
ACF ISOL
LATCH
YES
NO
CANCEL
BACKOUT OF MENU
FIRE FAN
SELECT FAN 1,2,3,4
ALARM ZN 1 TO 8
INHIBIT ZN 1 TO 8
FUNCTION 3,4,5 WIRE
LATCH YES / NO
ACF ISOL YES / NO
EXAMPLE OF SELECTING FUNCTION WIRE TO BE USED
AGENT
RELEASE PYROGEN
RELEASE SOLENOID
RELEASE METRON
RELEASE CONSTANT
PRESS S/W N/O
PRESS SW N/C
PRESS SW NONE
PRESS SW N/O & MECH
AUTO DELAY 30
MAN DELAY 30
LCS 1
SET 0 - 60 SEC
SET 0 - 60 SEC
SET 1 TO 4
SOUNDERS
SET SNDR # 12345678
SET ZONE # 12345678
NOTE:
THESE MENUS ARE ONLY AVAILABLE IF RELAYS, FIRE FAN, AGENT SOUNDERS HAVE BEEN CHANGED TO YES IN THE SYSTEM MENU
INDICATE STYLE
SELECT STYLE #X
SET STYLE FROM 1 TO MAX AVAILABLE IN MODULE
DISPLAY ########
EDIT TEXT
Z LABELS
SELECT ZONE
EDIT TEXT
TO EDIT DISPLAY TEXT USE
TO MOVE THROUGH THE ALPHABET / NUMBERS
TO MOVE THROUGH THE WORD
EOL 10uf
EOL RES 3K3
AS FACTORY DEFAULT
EOL RES4K7
EOL RES 6K8
EOL RES 10K
ZONE S/C
ZONE ALARM
ZONE FAULT
LEGEND:
PRESS ACF TO ISOLATE CIRCUITS EXTERNAL TO FACP
PRESS CANCEL AT ANY TIME TO BACK OUT OF THE MENU
PRESS ENTER TO GO TO SUB MENU, SET MENU OR UPDATE PROGRAM
PRESS MOVE FORWARD / BACKWARD THROUGH THE MENU
PRESS MOVE FORWARD THROUGH THE MENU

www.ampac.net

AUSTRALIA
AMPAC TECHNOLOGIES PTY LTD
97 Walters Drive
Osborne Park 6017
Western Australia

Tel: 61 8 9242 3333
Fax: 61 8 9242 3334
Email: info@ampac.net

EUROPE
AMPAC EUROPE LTD. (UK)
Unit 18 Networkcentre,
Yorkshire Way
West Moor Park,
Doncaster DN3 3GW
United Kingdom

Tel: +44 (0) 1302 833 522
Fax: +44 (0) 1302 835 021
Email: info.eu@ampac.net

NEW ZEALAND
AMPAC INDUSTRIES LTD.
Unit 4 101 Diana Drive
Glenfield, Auckland
New Zealand

Tel: 64 9 443 8072
Fax: 64 9 443 8073
Email: info.nz@ampac.net

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