



Fire detection and evacuation solutions that save lives.



ZoneSense Plus AS

Installation & Commissioning of Control & Monitoring Add-Ons

MAN1565-4

Contents

1	About This Manual	3
1.1	Introduction	3
1.2	General Requirements.....	3
1.3	References	3
1.4	Symbols.....	3
2	System Overview.....	4
3	ZoneSense PLUS Description	5
4	Placing the Basic System into Operation	6
4.1	PCB Removal / Replacement.....	6
5	Main Control Board	7
5.1	Connector numbering.....	8
5.2	Terminal Block Numbering	9
5.3	Earth Monitoring	11
5.4	Communications (TB2)	11
5.4.1	Main Card Comms Link (K1)	11
6	Expanding the FACP with compatible Ancillary Board	12
6.1	Internal Communications Connector (RS485).....	12
6.2	Programming.....	12
6.3	Installation and Wiring of Add On Cards and Boards	13
6.4	Links, and Settings	14
6.5	8 Way Switch and Indicator Card	15
6.6	16 Way Input Board	16
6.7	8-Way Relay Board	17
6.7.1	Internal Relay Board	17
6.7.2	Remote Relay Board	18
6.8	8-Way Sounder Board.....	19
6.9	4 Way Fire Fan Module	20
6.10	4 Way Fan Termination Board	21
6.11	Brigade Board.....	21
6.11.1	Brigade Connections	23
6.12	General Indicator Card.....	24
6.13	LED Annunciator Master (LAM).....	25
6.14	Agent Release Control	27
6.15	Operation.....	27
6.16	Agent Release Module.....	31
6.17	Local Control Station (LCS).....	32
6.18	Agent Release Termination Board.....	35
6.18.1	Interface Wiring.....	36
6.18.2	Warning Signs.....	37
6.19	Occupant Warning Systems	40
7	Certification Information.....	49
8	Specifications	50
9	Glossary of Terms	51
10	Definitions.....	52
11	Quick Reference Guides	54
12	Front Panel Configuration Labelling	57

1 About This Manual

1.1 Introduction

This manual contains all the information required to install, commission and operation of ancillary module and boards that can be fitted to the standard **ZoneSense PLUS** and **ZoneSense PLUS - AR** Fire Alarm Control Panel (FACP) and is only available to and for the use of personnel engaged in its installation, commissioning and operation.

1.2 General Requirements

The **ZoneSense PLUS** 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 **ZoneSense PLUS** 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

ZoneSense PLUS Technical Manual

ZoneSense PLUS Installation and Commissioning Manual

ZoneSense PLUS Operation and Programming

Australian Standards:

AS4428 - Fire Detection, Warning, Control and Intercom Systems – Control and Indicating Equipment. Part 1 and Part 5

1.4 Symbols



Important operational information



Note: Configuration considerations



Observe antistatic precautions



Mains supply earth



DANGER mains supply present

2 System Overview

The **ZoneSense PLUS** 4 and 8 zone FACP complies with the highest level of approval for any applicable code and can be connected to an appropriate Fire Service monitoring facility.

As a Minimum, the conventional panel meets the following Standards;

- AS4428
- AS4214

Only devices compatible with **ZoneSense PLUS** should be used in an installation. These are listed in this document.

Features

- The front panel 8 x 2 line LCD, navigation keys ◀ ▶ ▲ ▼ and the Menu/Enter keys allow the **ZoneSense PLUS** to be programmed “on site”. The same LCD and keys are also used for panel operation and interrogation.
- Four monitored conventional Alarm circuits.
- Two optional auxiliary input connections.
- Two open collector outputs (fire and fault).
- Two relay outputs (ancillary and fault).
- Optional external buzzer or reset output.
- System expansion capabilities / options:
- Password entry to a wide range of programming and diagnostic functions which include;
 - Zone configurations;
 - MCP Zone assignment;
 - Default display; and
 - Zone labels;
- A wide range of secure user functions. This includes the ability to isolate / de-isolate a large number of system functions.
- Flush or surface mountable enclosure. A surround is required for the metal cabinet
- Controls have tactile and audible feedback of operation.
- All terminals cater for 2.5mm cables.

3 ZoneSense PLUS Description

The ZoneSense PLUS Fire Alarm Control Panel (FACP) is approved to AS4428 and is available in ABS (BX1) or metal cabinets (BX20) with either four (4) or eight (8) zone conventional detection circuits.

The 2 line LCD display allows the user to view system status, faults/isolates, prompts for system commands; and guides the user during on-site programming.

- Key features of the ZoneSense PLUS FACP include:
- Multi-purpose expansion capabilities
- Multi-level password access
- Tactile-feedback controls
- Selectable end-of-line
- Keyed entry

Each zone can accommodate up to 40 conventional detectors that can be programmed to function in one of the following modes:

- Normal (latching)
- Alarm Verification Facility (AVF)
- Non-latching
- Self Reset
- Dual selectable Agent Release

The standard ZoneSense PLUS FACP comprises of a main printed circuit board and a power supply unit.

The main board provides:

- The visual indication and control
- Two Relays with volt-free Alarm and Fault changeover contacts
- Termination for zones
- Monitored outputs
- Power supply monitoring
- RS485 communications port

The ZoneSense PLUS can be quickly converted to an AS4214 approved Agent Release System with the use of the Agent Release Module and if required a remote Local Control Station (LCS). Up to four LCS's can be connected to the FACP via a dedicated RS485 communications port.

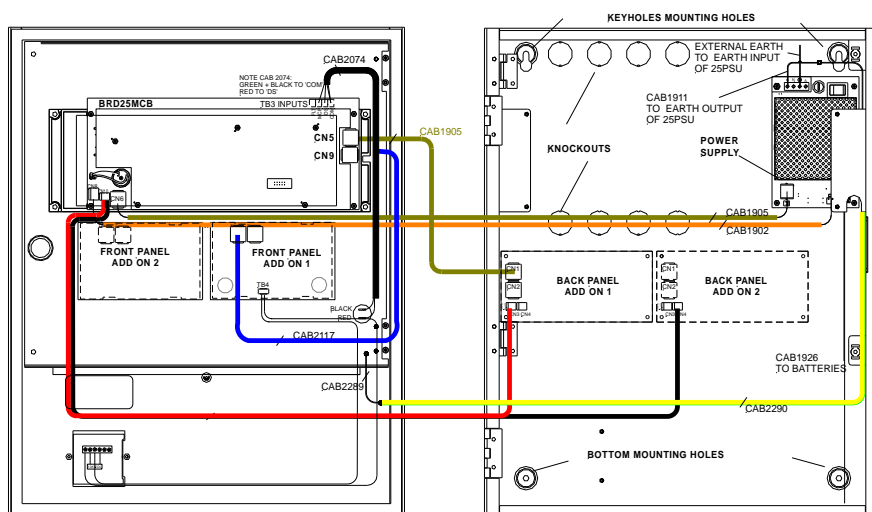


Figure 1: Typical Example of LoopSense Plus – AR

4 Placing the Basic System into Operation

4.1 PCB Removal / Replacement



If the PCB's have to be removed the following precautions should be observed;

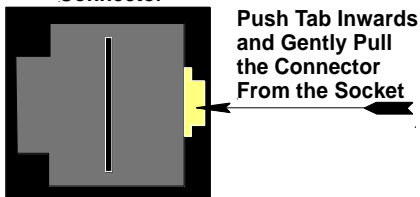
- Removing the door will provide better access to the boards and ensure the hinges are not accidentally stressed.
- Personal anti- static procedures must be followed.
- When disconnecting the 20 way connecting cable from the PCB, make sure that the cable remains connected to at least one board to prevent it being misplaced.



Note: Care should be taken when detaching this connector as it is necessary to depress the small locking tab to unlock the connector from its base. To reconnect the cable the connector must first be correctly aligned then pushed into the socket so it locks into position.

- Carefully remove the retaining screws at each corner of the board taking care not to damage any of the components.
- Place each board into anti- static storage once removed.

Connector



5 Main Control Board

The Main Control Card and its front display panel combined with the Power Supply / Battery Charger and batteries form the basis for the **ZoneSense PLUS** FACP.

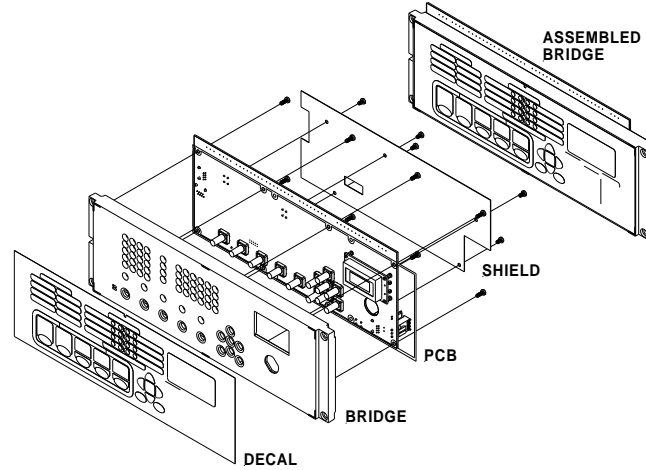


Figure 2: Exploded view of the Control Panel

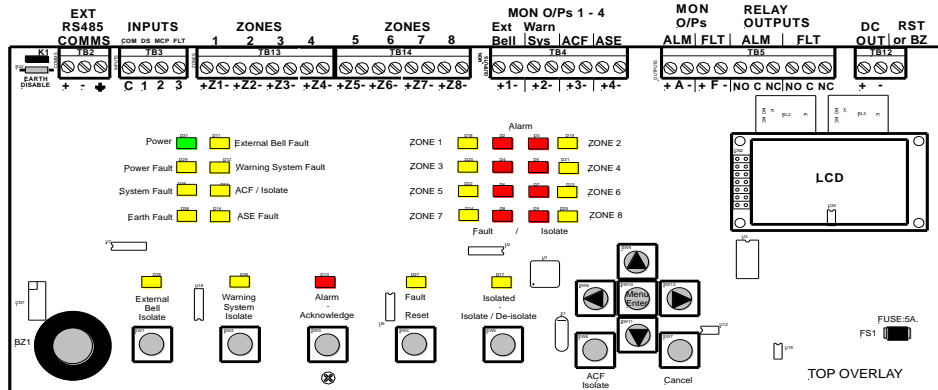


Figure 3: Main Control Card Front PCB View

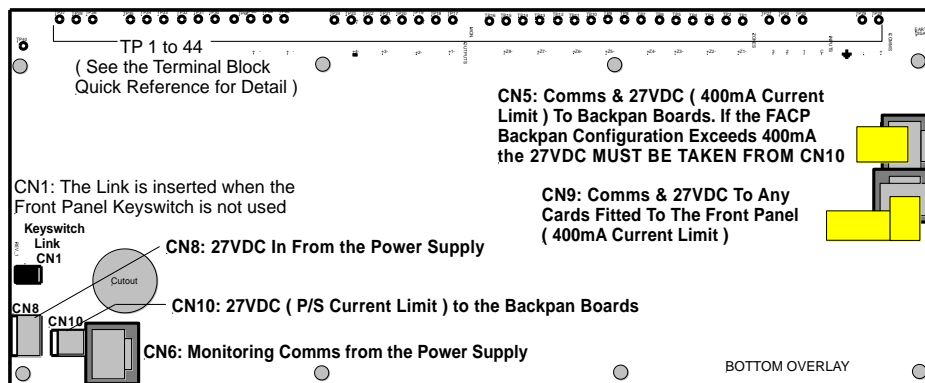


Figure 4: Main Control Card Rear PCB View

Note: When connecting to the Brigade PSU Monitor board transient and “Flyback” (Back EMF) protection methodologies **MUST** be applied.

5.1 Connector numbering

Connector	Purpose /Pins			
CN1	Link pins □ & □ when the front panel keyswitch is NOT used.			
CN2	LCD Driver			
CN3 & 4	LCD Back Lighting			
CN5	Comms and +/- 27V and earth to the backpan boards. (Imax = 400mA)			
Pins	□ & □ 0V	□ & □ +27V,	□ & □ RS 485 Bus,	□ Tx. Enable
CN6	Monitoring / Comms from the Power Supply.			
Pins	□ & □ 0V	□ PSU Sense	□ PSU Adjust	□ Charger ON
	□ Batt Load	□ Temp sense	□ Batt V Sense.	
CN7	Factory Use Only			
CN8	+/- 27V and earth from the Power Supply / Charger.			
Pins	□ 0V	□ +27V	□ Earth	
CN9	Comms to the internal front panel cards. (Imax = 400mA)			
Pins	Pin connections are the same as CN5			
CN10	□ +27V and □ 0V to the Sounder, Agent Release and Fan Termination back plan boards (Imax = P/S limit). All other backpan boards, 27VDC supply is via the RJ45 Comms cable.			

5.2 Terminal Block Numbering

Terminal Block	TP Number	AS4428
COMMUNICATIONS EXTERNAL		
TB2/1		RS485 +
2	28	RS485 -
3	29	Shield
INPUTS		
TB3/1		Common
2	25	Door Switch (monitored)
3	26	Manual Call Point (monitored)
4	27	Fault Input (monitored)
ZONES (25mA / Zone)		
TB13/1	1	+ Zone 1
2	2	- Zone 1
3	3	+ Zone 2
4	4	- Zone 2
5	5	+ Zone 3
6	6	- Zone 3
7	7	+ Zone 4
8	8	- Zone 4
TB14/1	9	+ Zone 5
2	10	- Zone 5
3	11	+ Zone 6
4	12	- Zone 6
5	13	+ Zone 7
6	14	- Zone 7
7	15	+ Zone 8
8	16	- Zone 8
MONITORED OUTPUTS (500mA / O/p)		
TB4/1	17	External Bell +
2	18	External Bell -
3	19	Warning System +
4	20	Warning System -
5	21	ACF + Aux Control Function
6	22	ACF -
7	23	ASE + Alarm Signaling Equipment
8	24	ASE -
OPEN COLLECTOR OUTPUTS (30 mA /O/P)		
TB5/1	25	Alarm +
2	26	Alarm -
3	27	Fault +
4	28	Fault -
OUTPUTS VOLT FREE RELAY (1A @ 30V)		
5	29	NO Alarm
6	30	C Alarm
7	31	NC Alarm
8	32	NO Fault
9	33	C Fault
10	34	NC Fault
AUX, RESET / BUZZER		
TB12/1	35	Aux 24VDC + (Mon 500mA)
2	36	Aux 24VDC -
3	37	Reset/Buzzer 100mA max

5.3 Earth Monitoring

The earth monitoring disable/enable feature is accessible via the SYSTEM menu at access level 3. Disabling the earth monitoring does not illuminate the Earth Fault LED on the control panel.



Note: If ZoneSense PLUS is connected to a third party system which has earth monitoring and it's earth monitoring is being affected by ZoneSense PLUS even after being disabled through programming the resistor R22 on the Main Card in ZoneSense PLUS can be removed.

5.4 Communications (TB2)

External Communications Terminals (RS485) TB2 1, 2 & 3

The RS 485 output drives the remote cards and mimics up to a distance of 1.2km from the FACP. The external cabling (1 pair twisted shielded cable plus power) is wired to TB2 +, - and earth.



Note: If a fault occurs on the communications line the common FAULT and SYSTEM FAULT LED'S will be illuminated. Selecting the Faults Menu will display the fault details on the LCD.

5.4.1 Main Card Comms Link (K1)

K1 MUST be inserted when;

- Front door panel cards and the Main Card are used as an FACP; or
- Backpan boards and the Main Card are used as an FACP; or
- Remote boards and the Main Card are used as an FACP.

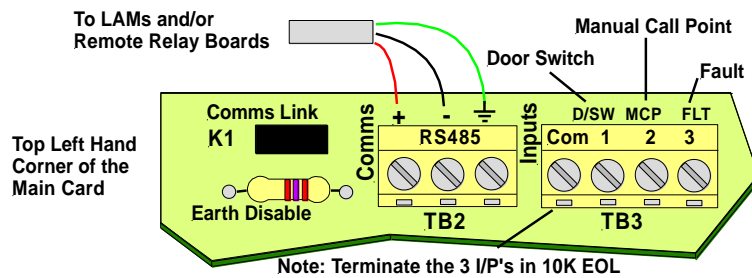


Figure 6: Comms Wiring Details

6 Expanding the FACP with compatible Ancilliary Board

The addition of or a combination of the modules / boards / cards listed below and mounted on the back pan or the front panel of the FACP provide additional control and monitoring facilities to a standard panel. All board inputs or outputs are programmable to any combination of zones.



Note: Only one of each board type can be installed in any one panel. The board types are:

- Switch and Indicator Card BRD25GIB
- Input Board BRD25SIPB.
- Relay Board, BRD25EWRB –A (Panel Use)
- Remote Relay Board BRD25EWRB –B (Remote Use)
- Sounder Board BRD25SOPB.
- Fire Fan Module consists of a Termination Board BRD25FTB and front panel card BRD25FCB -.
- Brigade Interface Board BRD25BBA.
- Agent Release Control consists of a Termination Board BRD25ATB and front panel card BRD25ARB.
- General Indicator Card. BRD25GIB -A
- LED Annunciator Master BRD25GIB – E
- Occupant Warning System EV20, EV40, EV60 and EV120



Note: To add or remove Add-On's from the FACP go to the SYSTEM and PROGRAM Menus.



Note: Refer to manual MAN1564 "ZoneSense Plus 2008 AS programming" for instructions on programming the above Add-On's

6.1 Internal Communications Connector (RS485)

PCB mounted connectors provide serial communications to internal ancillary boards. CN9 on the Main Card cables to CN1 or 2 on the front panel cards and CN5 on the Main Card cables to CN1 or 2 on the back pan boards.

6.2 Programming

Refer to the Operation and Programming Manual for instructions on programming the above Add-On's into the FACP.



Note: The Configuration Label should be updated once the panel has been upgraded.

6.3 Installation and Wiring of Add On Cards and Boards

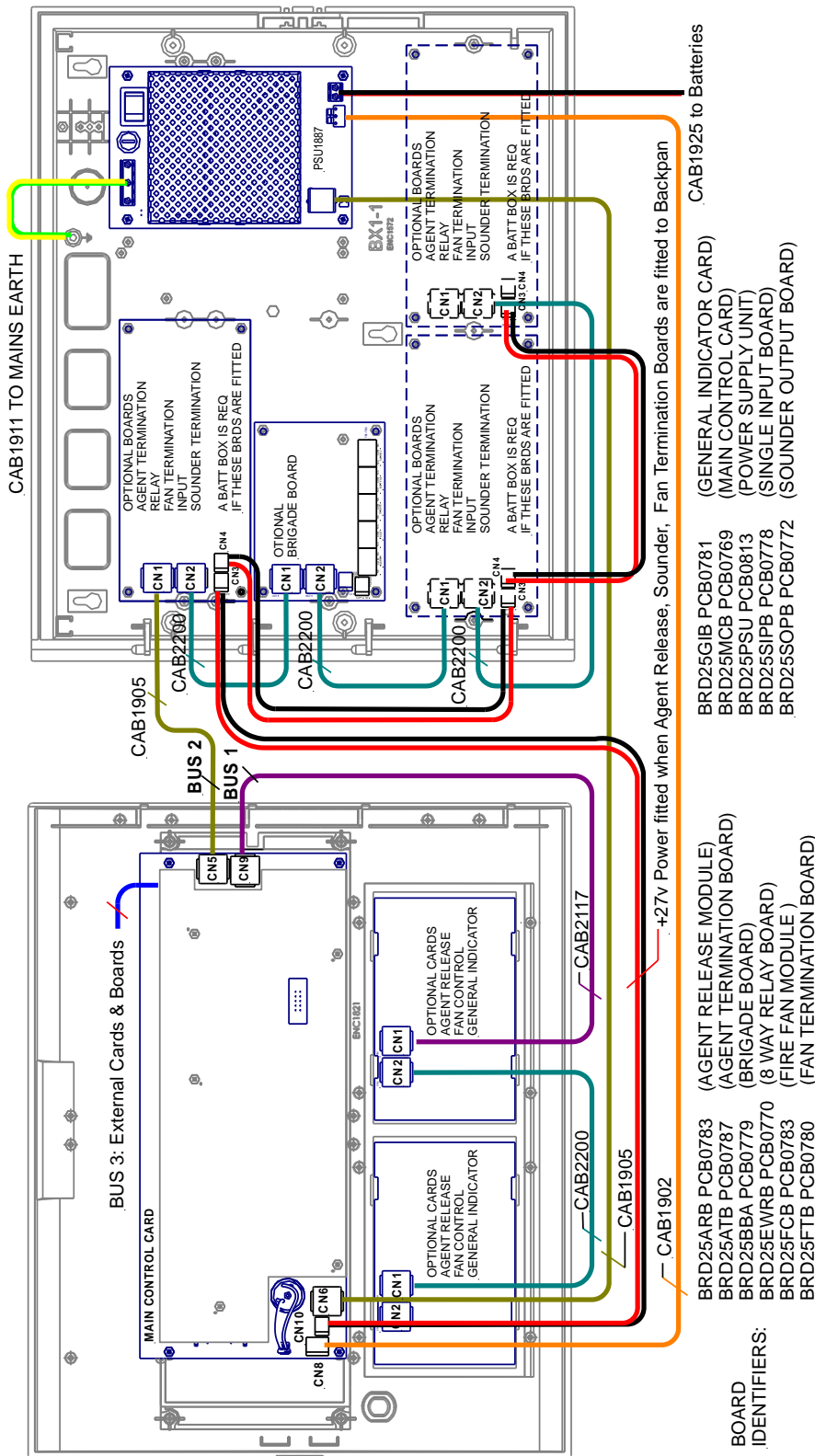


Figure 7: Add On Card and Board Positioning Within the ABS FACP

6.4 Links, and Settings

SW1

Except for the Zone Mimic Indicator Card in ZoneSense PLUS FACP's there can only be one (1) board / Card of each type so the address on each board is set to 1.



Note: There can be up to 8 remote Zone Mimic Indicator Cards so the address of each is set from 1 to 8 depending on the actual number of LED Mimics in the system. The information at each location will be identical.

Address Setting

DIL Switch: ON = 1, OFF = 0

Address	1234	Address	1234
01	1000	05	1010
02	0100	06	0110
03	1100	07	1110
04	0010	08	0001

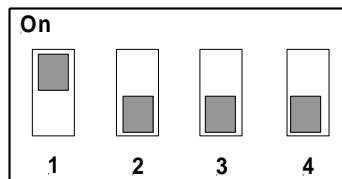


Figure 8: Example of Switch Set to 1

LK1 on Each Board

LK1 is the EOL Link and MUST be inserted on the last board on each communications bus. If not, communications faults can occur.



Note: Programming and the communication process allows the Main Card to identify the type of board it is communicating with.

6.5 8 Way Switch and Indicator Card

This card has 8 switch inputs and 8 LED indicator outputs.

The switch inputs and LED outputs may be used in Cause and Effects.

The switches are configurable as either momentary or toggle switches. When configured as momentary pressing the button once will cause an event to occur as programmed in C&E and the LED's can be programmed to operate as an output C&E effect.

When configured as toggle, pressing the button once will cause a condition to be held until the button is pressed again. The associated LED is not available as an output in C&E and shall always be illuminated when the toggle condition is active. Also, when configured as a toggle, there shall be an option for a timer override. If the toggle switch is activated it shall be de-activated automatically after the timeout period.

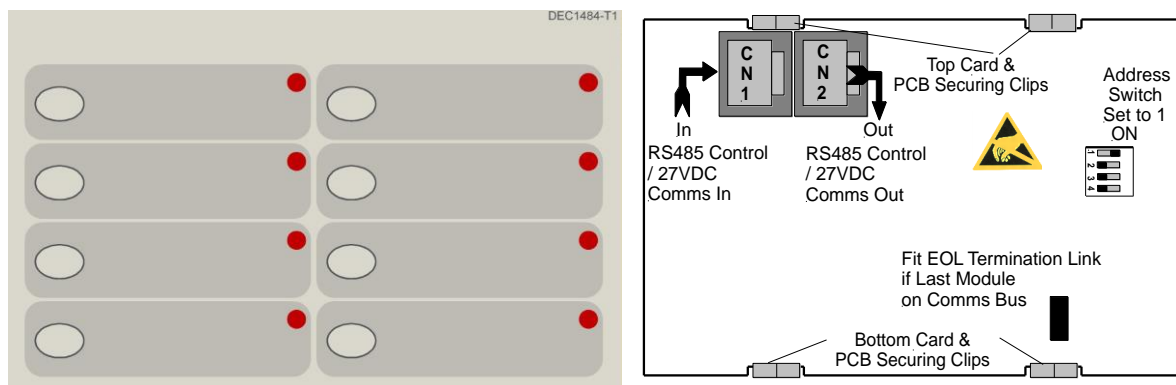


Figure 9: 8 Way Switch and Indicator

6.6 16 Way Input Board

The Input Board makes provision for 16 voltage free contacts to be terminated to 16 optically coupled inputs. Its application is primarily for the monitoring of controlled ancillary equipment or to initiate an action / event due to a change of state from what is accepted as the norm.

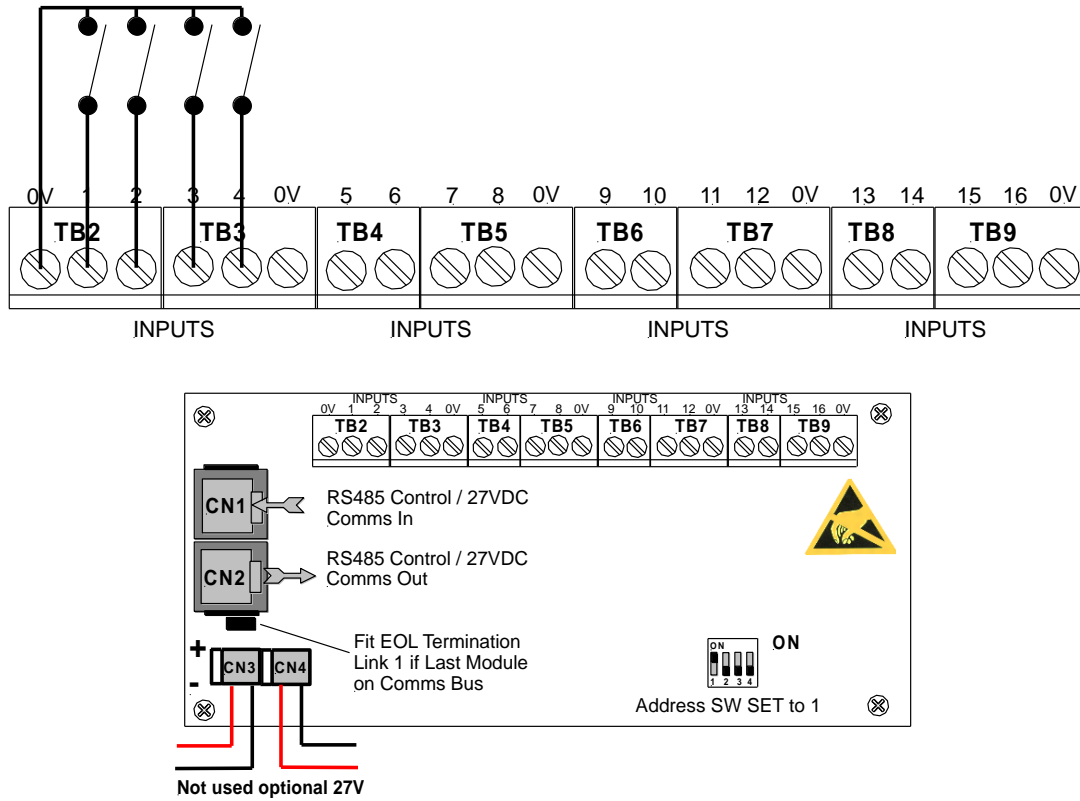


Figure 10: Typical Input Wiring and Board Layout

Terminal Blocks

Terminal/s	Function
TB2 to 9	Taking note of the Common 0v terminals connect the voltage free contacts as shown above.

6.7 8-Way Relay Board

The Relay Board provides 8 programmable relays with 30VDC 1 Amp voltage free change over contacts for control or monitoring purposes and comes fitted for internal or external FACP use.

The functionality and programming of the relays is similar to the relays on the main board of the FACP. By default the relays default to Common Alarm functionality.

Protection

All terminal points are protected.

The board switches the relays as determined by the panel. The relays can be controlled by:

- Zones going to alarm
- Zones going to fault
- Zones Disabled
- Reset – relay is activated for 3 seconds when reset depressed

6.7.1 Internal Relay Board

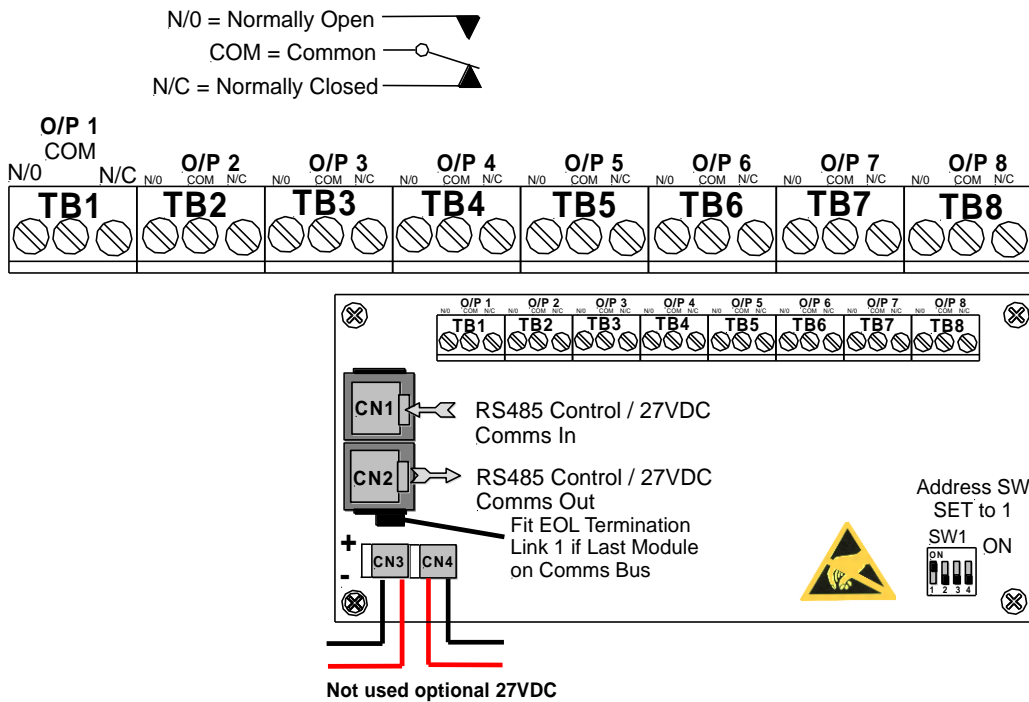


Figure 11: Internal 8 Way Relay Board PCB Layout

Relay Connections

Terminal/s	Function	
TB1 to 8 / 1, 2, 3	N/O = Normally Open C = Common N/C = Normally Closed	Relay 1 to 8

6.7.2 Remote Relay Board

In the remote version the Comms In and Out Terminal Block TB9 is cabled to the RS485 Comms terminal block TB1/1, 2, 3 on the Main Board and can be installed up to 1.2kms from the FACP.

Note: Can be powered from the panel or an external 27 volt source.

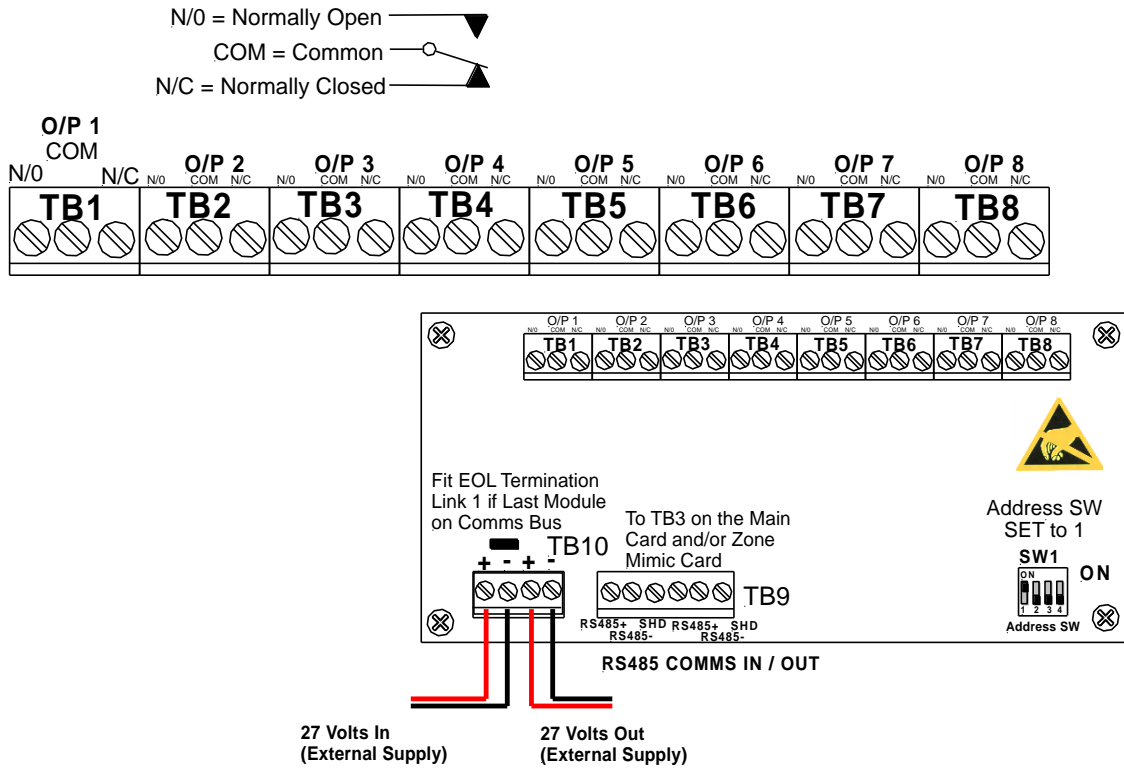


Figure 12: Remote 8 Way Relay Board PCB Layout

Relay Connections

Terminal/s	Function
TB1 to 8 / 1, 2, 3	N/O = Normally Open, C = Common N/C = Normally Closed
	TB1 to 8 / 1, 2, 3

Communications Connections

Terminal	Function
1	RS485+
2	RS485-
3	Shield
4	RS485+
5	RS485-
6	Shield
Communications In	
Communications Out	

6.8 8-Way Sounder Board

The Sounder Board expands the number of sounders that can be used on an FACP by 8. Each output is of a solid state design, rated at 24VDC / 750mA and requires a 10KΩ End of Line (EOL) resistor regardless of whether or not a sounder is wired to the circuit.

The sounder board will switch ON the sounders as configured (output off, continuous or pulsed) at the FACP and supervise the sounders for their open circuit, short circuit & line fault conditions.

 **Note:** Sounder polarity *MUST* be observed.

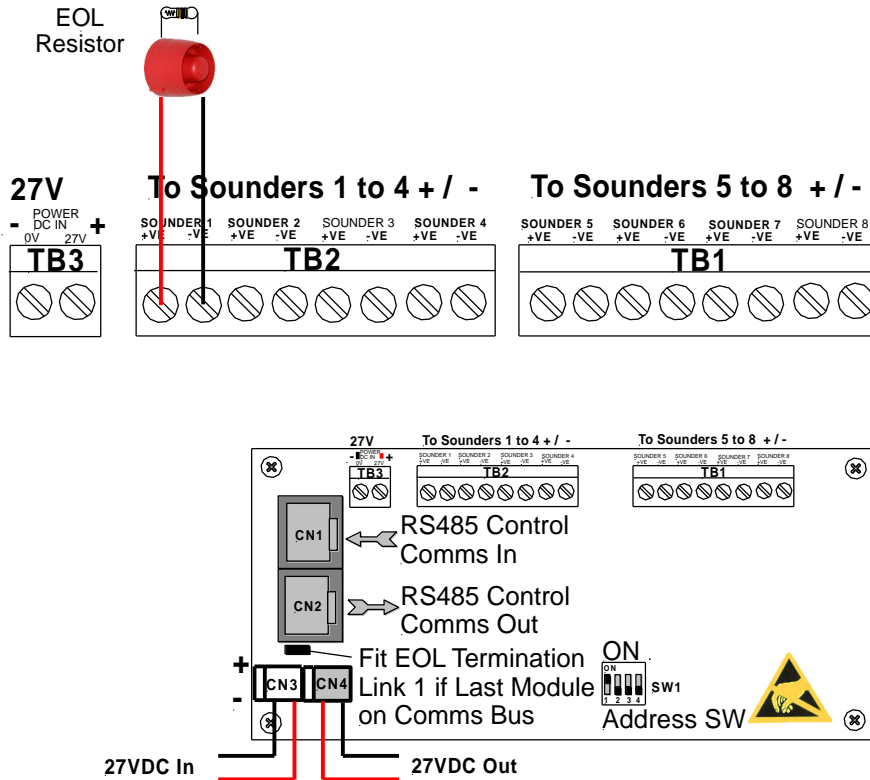


Figure 13: 8 Way Sounder Board

Maximum Current per Output: 750mA.

A +27VDC external power supply feed is required

In addition filtering and protection devices are used to reject transients.

8-Way Sounder Board Connections

Terminal	Function	Terminal	Function
1	+VE	9	+VE
2	-VE		-VE
3	+VE	11	+VE
4	-VE		-VE
5	+VE	13	+VE
6	-VE		-VE
7	+VE	15	+VE
8	-VE		-VE

6.9 4 Way Fire Fan Module

The Fire Fan Module has four (4) separate fan controls each having an On, Auto and Off function switch and a set of three (3) monitoring LED's. The LED's indicate the status of the equipment e.g. Run, Fault or Stop. The two (2) arrow head keys are used to step up and / or down through the three (3) conditions. A slip in label can also be inserted into the hinged cover for identification purposes.

The "Plant Trip" Reset is used to locally restart plant and equipment that has been automatically shut down because the FACP has initiated an alarm once that alarm has been cleared.

Quiescent Current: 13.5mA

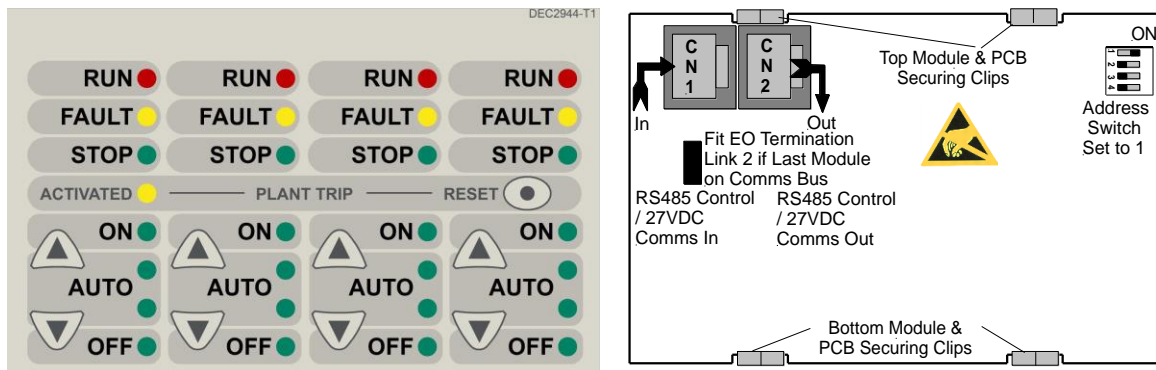


Figure 14: 4 Way Fire Fan Module

6.10 4 Way Fan Termination Board

The Fan Termination Board interfaces between the Fire Fan Module and the plant/equipment it controls via the 24 volt 250mA Start, Stop, current limited, relay outputs and monitor inputs. Programmable monitoring of the field equipment is achieved using 0 volts as an input level to indicate run, fault and stop conditions of that equipment. Monitoring is programmed in the Function Menu for a 3, 4 or 5 Wire Start / Stop, Run, Fault, Stop & Common functions. The inputs are protected by way of resettable transorbs and resistive / capacitive networks.

Connectors

CN3 & CN4	27VDC in and out on boards mounted external to the FACP
CN5	Factory programming only and may not be available on all boards
TB2	Connect the fan control and monitoring wiring to the board.

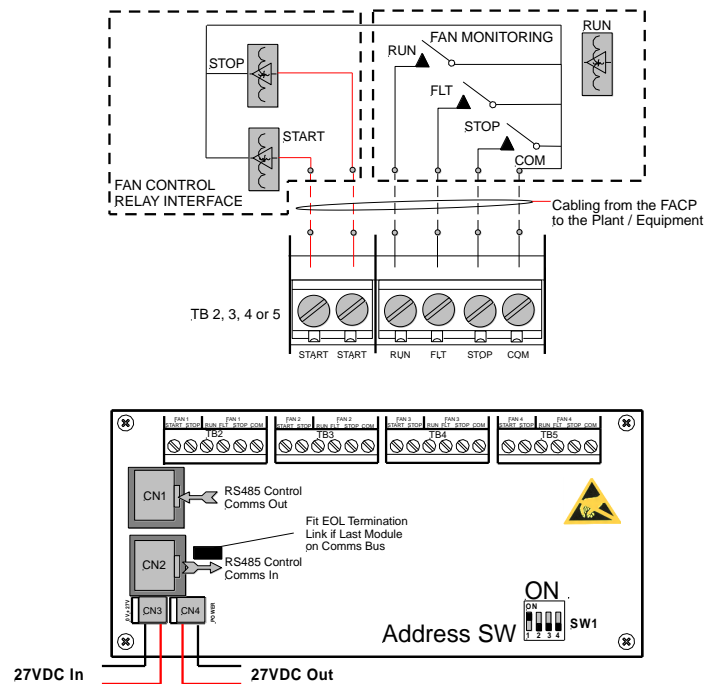


Figure 15: Fan Termination Board Layout and Typical I/O Wiring

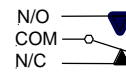
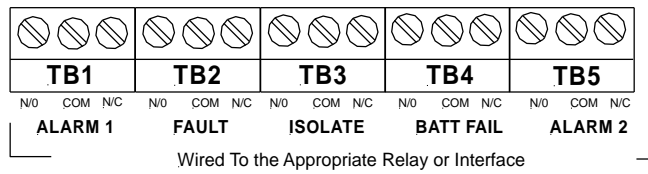
6.11 Brigade Board

The Brigade Interface Board acts as the driving interface to monitoring facilities external to the FACP. These facilities could be the Fire Brigade itself or an approved monitoring service.

Through the normal **LoopSense** communication process the Brigade Board will be instructed to activate the appropriate relay to alert the monitoring service. The relay contacts N/O, N/C and COM are 1A voltage free contacts.

Connectors

CN1 & CN2	27VDC in and out on boards mounted external to the FACP
CN3 & CN4	Internal Communication
TB1	Alarm 1 Volt Free Changeover contact
TB2	Fault Volt Free Changeover contact
TB3	Isolate Volt Free Changeover contact
TB4	Batt Fail Volt Free Changeover contact
TB5	Alarm 2 Volt Free Changeover contact



N/O = Normally Open
 COM = Common
 N/C = Normally Closed

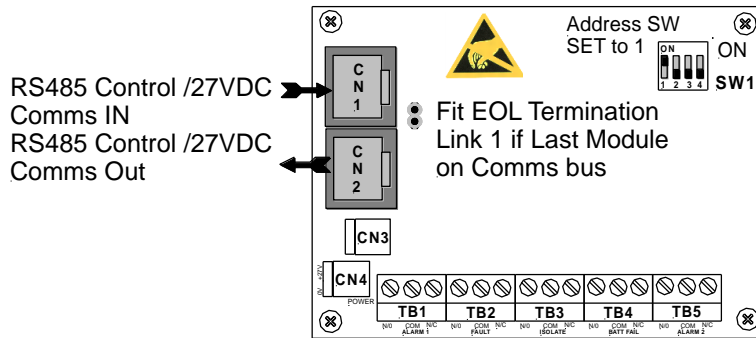


Figure 16 Brigade Board Overlay

6.11.1 Brigade Connections

The ASE Brigade Box interfaces the Victorian Fire Brigade into the **LoopSense** series of FACP's.

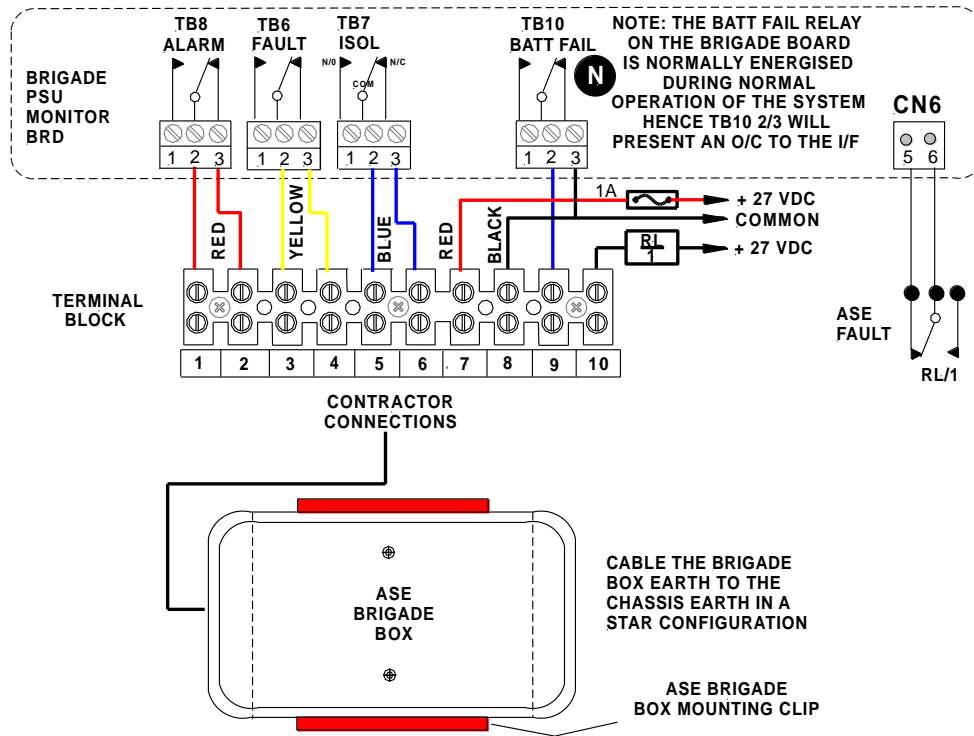


Figure 17: ASE FACP Internal Wiring

The Brigade Box interfaces the Fire Brigade to the **LoopSense** series of FACP's.

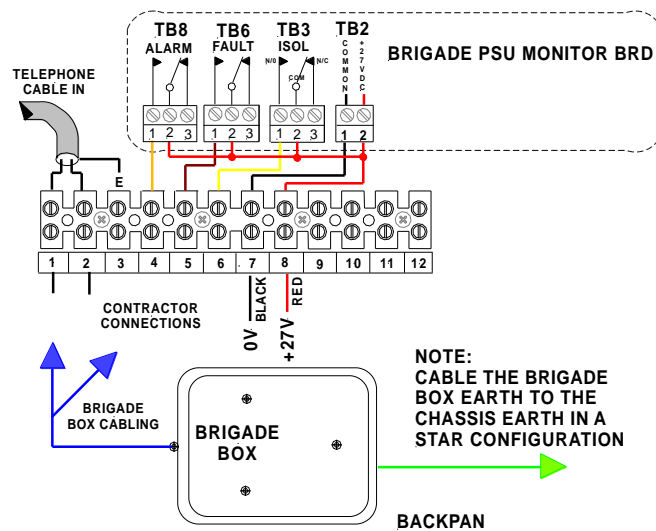


Figure 18: Brigade Box FACP Internal Wiring

6.12 General Indicator Card

IMPORTANT



Note: The Cards BRD25GIB – A, B, C, D and E all have a common PCB. What sets them apart from each other is not only the function they perform but how the componentry is loaded onto the card to perform that function.

This Card indicates / displays the status of the inputs on the 16 Way Input Termination Board by way of Program selectable tri-coloured LED's The function is identified on the front panel by slip in labels whose lettering must no smaller than 3 mm.

Quiescent Current: 3.6mA depending on the application

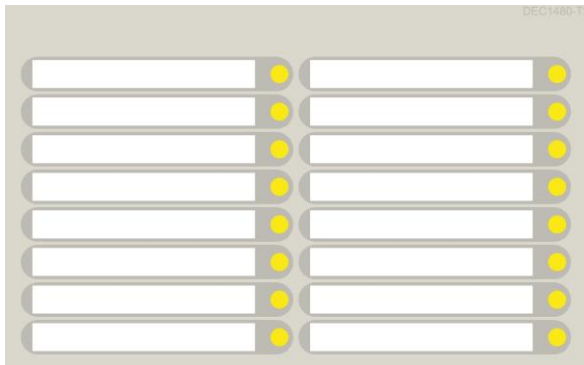


Figure 19: Front Panel Card Layout

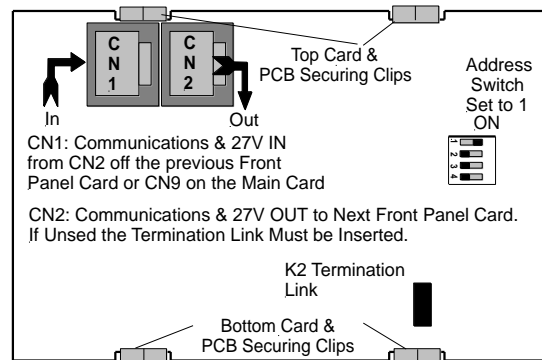


Figure 20: Front Panel Card PCB Layout

6.13 LED Annunciator Master (LAM)

The LAM provides remote stand alone FACP status, Alarm and Fault / Isolate Indication of 8 zones. Two push buttons, Lamp Test and Silence Buzzer, provide for local testing of the indicators and buzzer while the buzzer duplicates that at the FACP. A maximum of 4 LAM's with addresses of 1 to 4 may be cabled to an FACP.

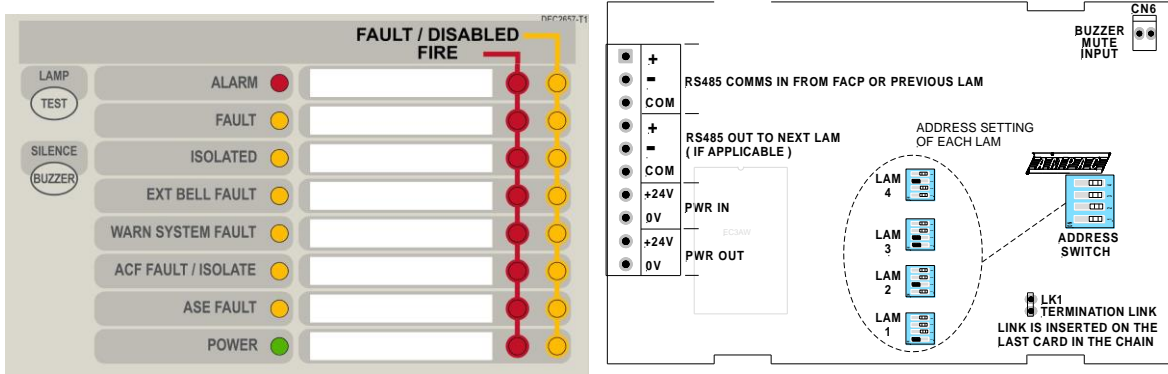


Figure 21: Front Panel and PCB layout

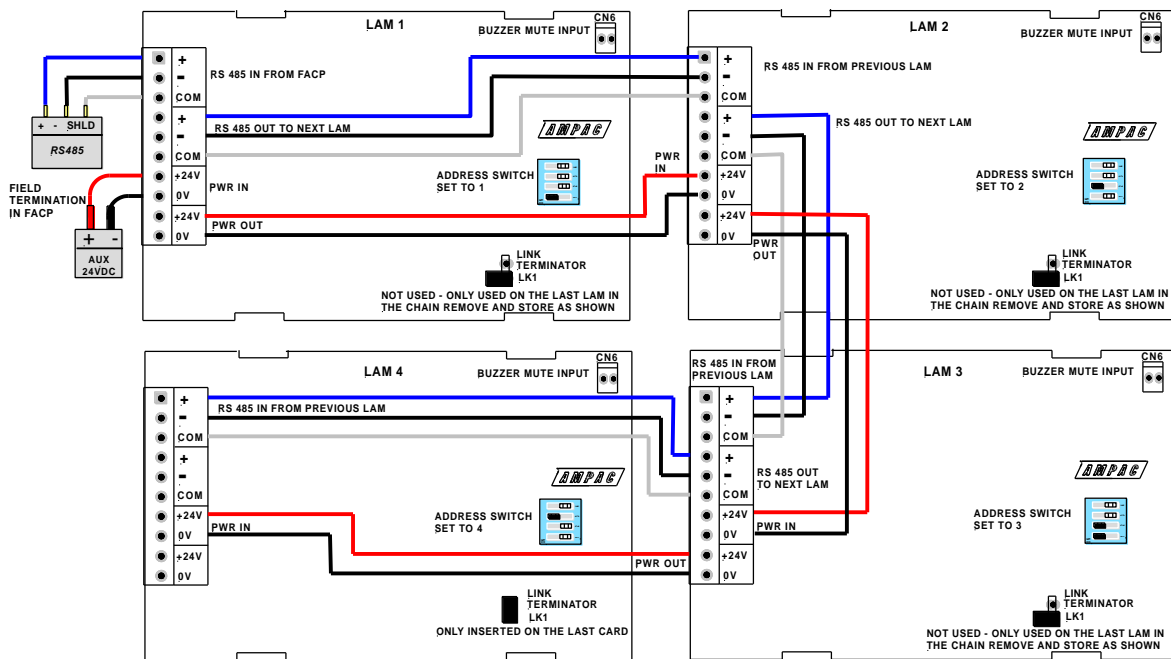
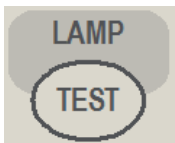


Figure 22: Cabling Multiple LAM's

Controls

Controls have tactile and audible feedback of operation.



As well as sounding the buzzer confirms correct operation of the LAM by initiating a logically sequenced lamp test of all the indicators



Silences the buzzer if activated by an alarm or fault condition that has been recognised and announced at the FACP. The LAM buzzer can also be silenced by the FACP silence buzzer function.

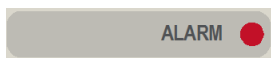
Indicators

There are twenty four active indicators on the front panel of the LAM.

Flashing indicators are used, the on / off periods are not less than 0.25 seconds and the flash frequencies are not less than:

1Hz for alarm indications (0.5 second on, 0.5 second off)

0.5Hz for fault indications (1 second on and 1 second off)

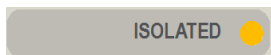


(RED) The common Alarm indicator will be flashing when an alarm condition is present. The indicator will become steady when the acknowledge control is pressed at the FACP

Any new alarm condition recognised at the FACP will cause the indicator to resume flashing.



(YELLOW) The fault indicator is illuminated steady by the presence of any fault. Refer to the FACP manual for details on fault conditions.

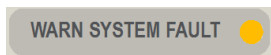


(AMBER) The isolated indicator is illuminated steady by the presence of any isolate condition on any zone, device or output.



(AMBER) Illuminated flashing at the fault rate by an open or short circuit condition on the FACP bell output.

Indicator will extinguish when the open or short condition has cleared.



(AMBER) Illuminated flashing at the fault rate by an open or short circuit condition on the FACP warning system output.

Indicator will extinguish when the open or short circuit has cleared



(AMBER) Illuminated flashing at the fault rate by an open or short circuit condition on the FACP ACF output.

Indicator will extinguish when the open or short condition has cleared

When the ACF output is isolated, then the indicator will be illuminated steady.

Display priority: Isolate (steady) then fault (flash)



(AMBER) Illuminated flashing at the fault rate by an open or short circuit condition on the FACP ASE output.

Indicator will extinguish when the open or short condition has cleared.



(GREEN) The indicator is illuminated steady when the FACP is supplied with power (mains or battery) and flashes at the fault rate when there is a fault with the power supply equipment. A fault can be no mains, high charger voltage, no charger voltage, low battery voltage or missing (or damaged) battery.



There are two indicators for each of the eight zones.

Zone Alarm– Red (x8) Each indicator will show if the individual zone it represents is in the alarm condition (flashing at the alarm rate and then steady when the acknowledge control has been operated at the FACP).

Zone Indicators Fault /Isolated– Amber (x8) Each indicator will show if the individual zone it represents is in a fault condition (flashing at the fault rate, isolation of the zone will change the LED condition to steady). Note: The isolate condition has priority.

6.14 Agent Release Control

Agent Release control consists of an Agent Release Module, Termination Board and an optional Local Control Station.

6.15 Operation

Introduction

The Agent Release Module and Termination Board communicate with the FACP via the RS485 multi-drop bus.

The Local Control Station communicates only with the Termination Board via a separate RS485 bus. Up to 4 Local Control Stations can be connected to one termination board.

Agent discharge operates in two modes – automatic and manual. The manual mode is selected by pressing the Inhibit switch on any Local Control Station. To indicate the system is in manual the Inhibit LED will be illuminated. Pressing Inhibit again will toggle or return the mode to automatic and extinguish the Inhibit LED.

The “Agent Released” Pressure Switch (PSW) is wired to the PSW input on the Termination Board and is used to confirm that the agent has been released. The circuitry involved in this process can be configured to accept a normally open contact, normally closed contact, normally open mechanically operated (manual) or is ignored (not fitted) and is selected via FACP on-site programming. If the mechanical (manually operated) option is selected the module monitors the pressure switch input and provides notification the agent has been released manually, initiates an alarm and illuminates the “Agent Released “ indicator.

Manual Mode

When the system is in manual mode, then;

- The Local Control Station Inhibit indicator is lit at the FACP and all Local Control Station’s.
- The buzzer at all Local Control Stations will sound until the inhibit button is released.
- The System Inoperative output is turned on.
- The Automatic discharge sequences are prevented from starting.
- If an automatic discharge sequence was underway and the inhibit switch is activated (switched to manual mode) the discharge sequence is aborted and the sequence is reset. This means the Stage 1 and Stage 2 outputs are switched off.

To manually discharge the agent the “ Lock Off Valve “ must be open and the Manual Release switch on the Local Control Station pressed. The manual discharge sequence is;

- Manual Activation indicator is lit on the FACP and Local Control Station.
- The FACP activates its brigade alarm output.
- Stage 1 outputs are switched to +24VDC. (FIRE ALARM sign illuminated, aural alarm sounds)

- Stage 2 outputs are switched to +24VDC. (FIRE ALARM, EVACUATE & DO NOT ENTER signs illuminated, aural alarm sounds).
- The optional pre-release start delay is activated (Selected via FACP on-site programming); time out and an ON Interlock signal will then operate the selected release circuitry.
- The Agent Discharge LED on the Agent Release Module and Local Control Station will illuminate when the Pressure Switch input on the Termination Board is activated.
- Activate gas-fired output.



Note: The Interlock Input can be defaulted to the on position by placing a 10K Ω EOL termination resistor across the terminals TB2. 7 / 8 of the Agent Release Module and Local Control Station.

Auto Mode

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



Note: A “manual release” can still be initiated in “auto mode” but the LCS “Inhibit” control **WILL NOT** inhibit / abort the agent release sequence.

Single Zone Activation, the following discharge sequence is executed;

- Automatic Activation LED is illuminated on the Agent Release Module and Local Control Station.
- Stage 1 outputs are switched to +24VDC. (FIRE ALARM sign illuminated, aural alarm sounds).
- Stage 2 outputs are switched to +24VDC. (FIRE ALARM, EVACUATE & DO NOT ENTER signs illuminated, aural alarm sounds).
- Optional pre-release delay is started (Selected via FACP on-site programming).
- The delay times out and if the Interlock signal is ON, the selected circuit will activate.
- The Pressure Switch field input on the Termination Board is activated and the Agent Discharge LED on the Agent Release Module and Local Control Station will be illuminated.
- Activate gas-fired output.

Dual Zone Activation, if the first zone goes into alarm the following steps are initiated;

- The automatic activation LED on the Agent Release Module and Local Control Station will flash.
- Stage 1 outputs are switch to –24VDC. [FIRE ALARM sign illuminated, aural alarm sounds].

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

- Automatic activation LED goes steady.
- Stage 1 outputs are switched to +24VDC. (FIRE ALARM & EVACUATE signs illuminated, aural alarm sounds)
- Stage 2 outputs are switched to +24VDC. (DO NOT ENTER sign illuminated)
- Optional pre-release delay commences (Selected via FACP on-site programming).
- The delay times out and if the Interlock signal is on the selected circuit will activate.
- The Pressure Switch field input on the Termination Board is activated and the Agent discharge LED on the Agent Release Module and Local Control Station will be illuminated.
- Activate gas-fired relay output.

Service Switch

The service switch is situated on the Agent Release Module when activated causes the following;

- Electrically isolates the activation circuitry from the agent release device.
- Operates the System Inoperative output.



Note: The service switch is **NOT** overridden by a manual discharge.

Lock-Off Valve

When the manual lock-off valve is operated;

- The agent is blocked from reaching the release valve.
- The lock-off valve inhibit indicator LED's on the Agent Release Module and Local Control Station are illuminated.
- The system inoperative output operates.

Fault Monitoring

Fault conditions are initiated by:

- The Pressure Switch monitoring circuit.
- The Low Pressure Switch monitoring circuit.
- The Lock-off Valve monitoring circuit.
- Activation circuitry.
- Stage 1 outputs. (Aural & visual discharge alarms).
- Stage 2 outputs. (Aural & visual discharge alarms).
- A Zone Fault.
- A Fault on the interlock input.
- A Fault with a LCS.



Note #1: The common fault indicator on the Agent Release Module and Local Control Station is illuminated for any Fault condition.



Note #2: For a pressure switch fault, low pressure switch fault, lock-off valve fault, stage 1 output fault, stage 2 output fault and interlock fault, the FACP will signal the brigade.



Note #3: When there is a fault in the activation circuit or in the trigger zones, in addition to the above, the system inoperative output is operated.



Note #4: The FACP fault buzzer will sound for all faults.



Note #5: The FACP will report the type of fault on the LCD.

Isolation

If a trigger zone is isolated at the FACP the trigger zone isolated indicator at the Agent Release Module and Local Control Station is illuminated, and the system inoperative output is operated.

System Inoperative Output

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

- Operation of the Service Switch.
- A Fault in the selected trigger circuit.
- Operation of the Lock-off valve.
- Operation of the Inhibit at an Local Control Station.
- A Fault in any of the activation zones.
- If any of the activation zones are isolated.

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 module has not activated the selected activation circuit, then the following will occur:

- Stage 1 output is switched to +24VDC and stage 1 relay is output closed
- Stage 2 output is switched to +24VDC and stage 2 relay output is closed
- Light the agent release led on the ACC and LCS's
- Activate gas-fired relay output

Monitoring of the Pressure Switch

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

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 module or due to a manual mechanical release.

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

6.16 Agent Release Module

The Agent Release Module controls and monitors all the requirements for agent release and carries the slide in label for identification of the agent and application area.

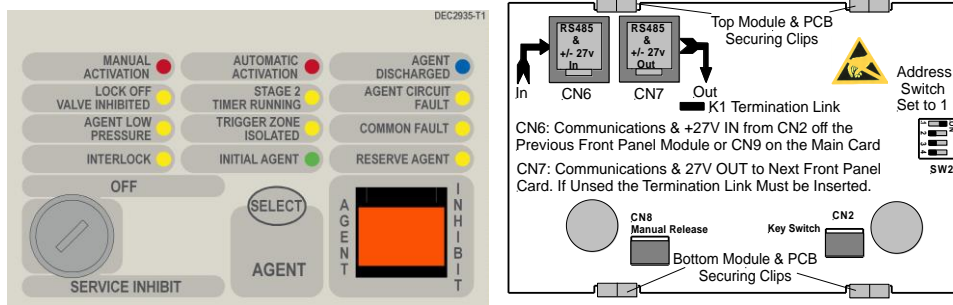


Figure 23: Exploded View of Module and Front Panel Layout

The PCB is fitted with two 2 x RJ45 connectors CN6 & 7 for power (27VDC) and communications (RS485) for communications between the Agent Release Module and the FACP Main Control Board.

Controlled Access



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

The FCP goes into service mode when the keyswitch is switched to SERVICE INHIBIT. This results in the selected agent activation circuit being electrically isolated and a Common Isolate condition being indicated at the FACP. This condition can also be confirmed through the Status Menu. To remove the key it is necessary for the switch to be in the **OFF** position.



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



If activated the Manual Release will commence the discharge sequence of the selected agent and an alarm condition is initiated. Progress of the release can be monitored through the Status Menu. To prevent accidental operation this switch has a hinged clear plastic cover that has to be raised to access the switch.

Quiescent Current: 28.5mA



Note: If the keyswitch is not used CN2 will carry a link so as to enable the panel.

6.17 Local Control Station (LCS)

The Local Control Station is supplied fitted into an IP40 rated enclosure and has the same indicators and Manual Release switch as the Agent Release Module within the Fire Alarm Control Panel (FACP) but no Agent Select button or Service Inhibit keyswitch.

The Comms line is RS485 and is cabled to the Agent Termination Board.

The Interlock is a monitored input with 10KΩ EOL. This input is used to determine if air conditioning dampers and doors are closed but can be defaulted to the “ON” condition by terminating the input with a 2K2Ω EOL.

Double action switching is achieved by way of protective lift up covers seen here and manual operation of the MCP or Inhibit switch.

To ensure correct operation and prevent accidental release of the agent these covers **should not** be disabled for any reason



Figure 24: Local Control Station

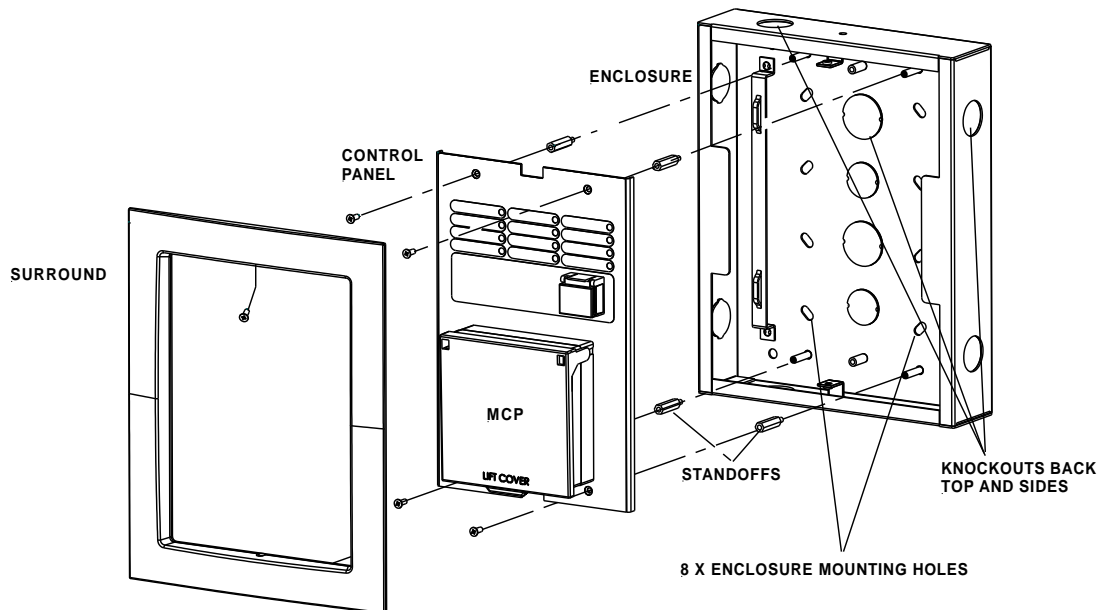



Figure 25: Local Control Station Layout

LCS Operation & Controls


Lifting the cover and pressing the MCP starts the manual agent release sequence. This two action safety feature prevents any accidental operation of the control and should not be disabled.

Agent Release / 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. A Manual release sequence can only be started by activating the manual release at the FACP or LCS.


The indicator is extinguished by activating RESET on the FACP.


MANUAL ACTIVATION  **(Red)** Illuminated when a manual 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 shall be illuminated immediately the agent release signal is activated (Selected via FACP on-site programming – refer to relevant FACP Manual)


The 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)** Illuminated when the pre-discharge delay timer is running.

The 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 e.g. 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.

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 (e.g. 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. The “Interlock” is overridden after 10 seconds and the agent is released



Note: The Interlock is a Monitored Input and can be defaulted to the ON position by terminating the input (TB2 7 & 8) into a 2K2Ω resistor.

INITIAL AGENT

(Yellow) Illuminated when the “Initial Agent” is selected.

RESERVE AGENT

(Yellow) Illuminated when the “Reserve Agent” is selected.

Local Control Panel Inhibit


The agent inhibit switch has an internal lamp fitted with yellow lens. Illuminated when the inhibit is activated at the FACP or any of the LCS's.

Buzzer (located at the FACP)

The Buzzer sounds;

- Under all fault conditions and can be silenced by using the appropriate FACP buzzer silence control.
- When the LCS Inhibit control is activated – after 8 hours – treated as an isolate condition.
- When the service inhibit is activated - after 8 hours – treated as an isolate condition

Connecting the LCS to the Agent Termination Board
ISOLATE THE AGENT

Check the FACP is functioning correctly then power down

Connect the LCS to the Agent Termination Board within the Fire Alarm Control Panel and Interlock as shown below. If applicable take into consideration warning signs at this point

Insert the link LK1 onto the last LCS in the chain. If un-used place the link onto one of the LK1 pins

Set the address of the LCS,

Power up the system and program the FACP for the addition of the LCS

Check the FACP is functioning correctly and test

De-isolate the Agent

Caution - TO PREVENT ACCIDENTAL AGENT RELEASE DO NOT DE-ISOLATE THE AGENT UNDER ANY CIRCUMSTANCES UNTIL THE SYSTEM AS A WHOLE IS FUNCTIONING CORRECTLY

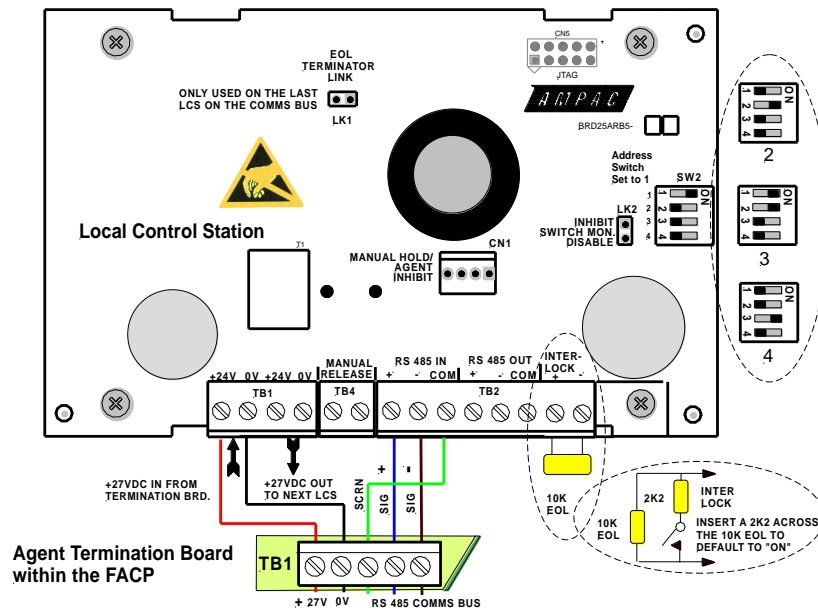


Figure 26: PCB Layout & Cabling Details

6.18 Agent Release Termination Board

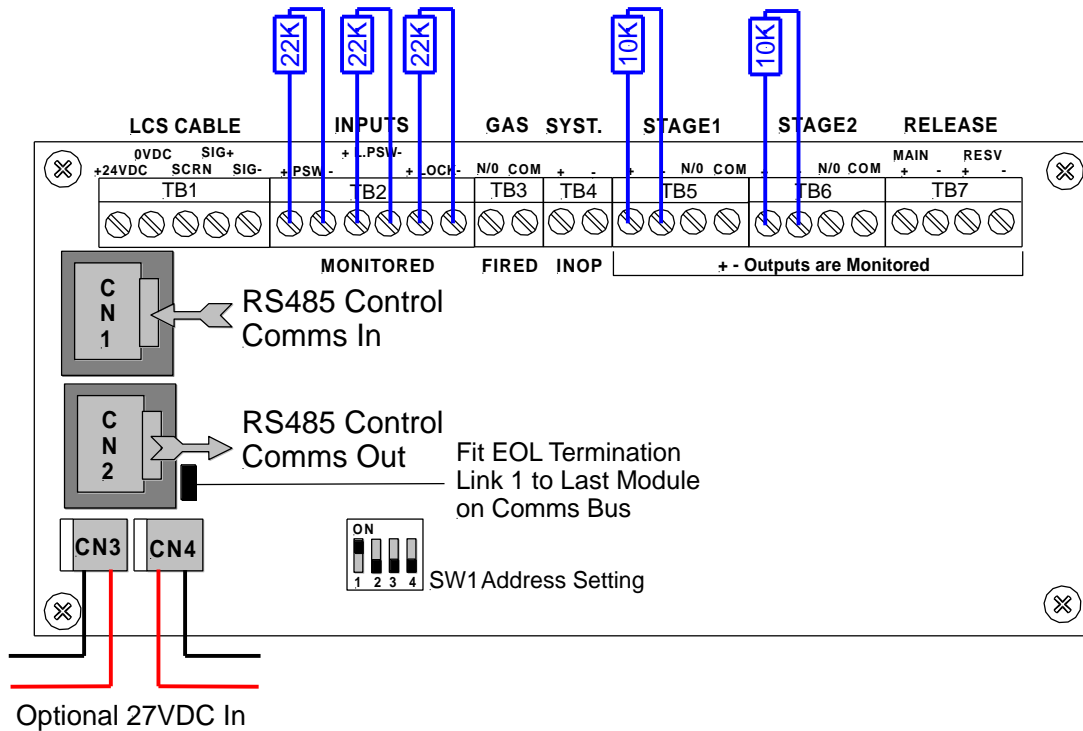


Figure 27: Agent Termination Board PCB Layout

The Agent Termination Board interfaces to;

1. The FACP via CN1, CN2 continuing the RS485 communications bus if required. LK1 is inserted if this is the last backpan board on the bus.
2. LCS's (up to 4) via TB1. LK1 is inserted in the last board in the RS485 Bus

3. Monitored Inputs: via TB2. (EOL Resistance 22KΩ, Series Resistance 4K7Ω)
 - Pressure Switch (PSW) agent released
 - Low Pressure Switch (LPSW) agent storage cylinder pressure has dropped to a pre-determined level; and
 - Interlock, the manual lock-off valve has been operated.
4. Gas Fired: Output via RL2 N/O contacts rated at 1A @ 24VDC wired to TB3. Used to indicate to other monitoring devices the agent has been released.
5. System Inoperative: via RL1 N/O contacts rated at 1A @ 24VDC wired to TB4. Used to warn by way of signage / audible alarm and/or monitoring that the system is inoperative.
6. Stage 1: Output; initiates the visual and audible Fire Alarm and Evacuate warnings.
 - Monitored; via RL4 C/O contacts wired to TB5 1 & 2 (EOL required 10KΩ) and
 - Un-monitored; via RL5 N/O contacts wired to TB5 3 & 4.
7. Stage 2: output; initiates the visual and audible Fire Alarm and Do No Enter warnings
 - Monitored; via RL6 C/O contacts wired to TB6 1 & 2; (EOL required is 10KΩ) and
 - Un-monitored; via RL3 N/O contacts wired to TB6 3 & 4
8. Release: Main actuating circuit, monitored (10KΩ EOL required) via TB7 1 & 2 (2A current limited),
9. Release: Reserve actuating circuit, monitored (10KΩ EOL required) via TB7 3 & 4 (2A current limited)

Metron Igniters (max of 10 – a series 2watt 18Ω resistor must be added to the circuit)

Solenoid valve (max current of 2 amps & 27VDC)

6.18.1 Interface Wiring

Monitored Inputs TB2 1 & 2

Solenoid & Metron

This input relies on N/O or N/C relay contacts used in conjunction with 22KΩ EOL and 4K7Ω series resistors. The type of agent release mechanism and contacts used has to be set in the Programming Menu for the input to function as per the manufacturers specifications and be in accordance with the relevant Standard.

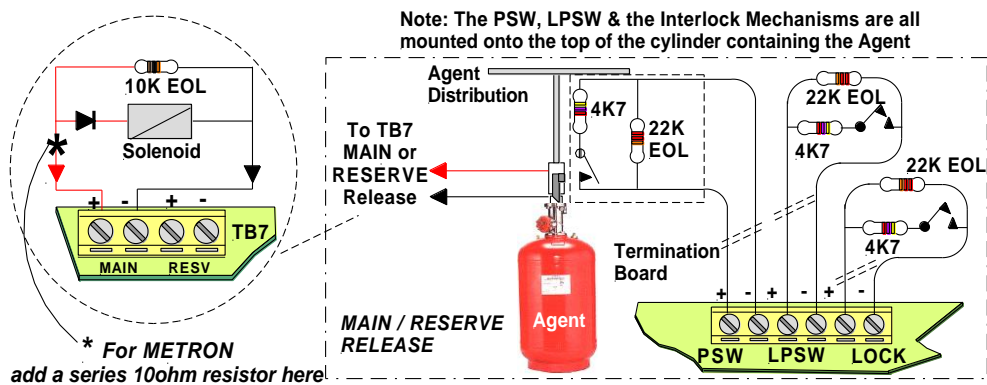


Figure 28: Solenoid, Metron PSW, LPSW and "LOCK" Wiring

LPSW & Lock

These inputs are also monitored and should be wired as shown above

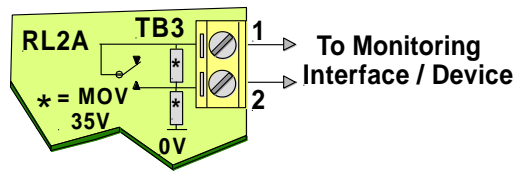


Figure 29 Gas Fired Wiring

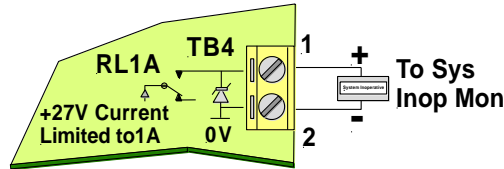


Figure 30: System Inoperative Wiring

As can be seen from above the;

Gas Fired Output can be wired to any interfacing or 1A monitoring circuit that requires a closed relay contact to indicate a change of state. This could be a relay or a solid state device.

System Inoperative Outputs 27V @ 1A to supply interfacing, signage and aural alarms to indicate the system has been taken out of service or has developed a fault.

Stage 1, Stage 2

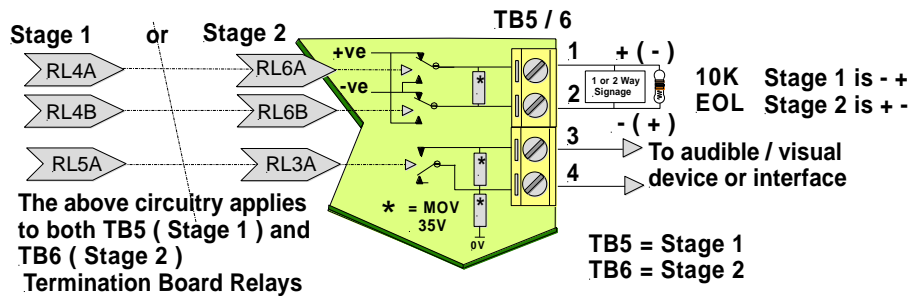


Figure 31: Stage 1 and 2 Wiring

6.18.2 Warning Signs

Description

The warning signs are driven by a 2 wire system and may be configured for single or dual stage operation.

An on-board buzzer provides an audible warning which may be disabled by removing JP3.

External evacuation devices, e.g. sounders may be connected to TB3 of the input termination board. An external mute push-button (N/O contacts) may also be connected to Term 3 on the warning sign PCB to enable the user to silence the internal buzzer and evacuation device. Inserting JP4 disables this function.

Enclosures

The IP50 is a metal enclosure. The facia surround is fitted by removing the screw on the left hand side of the enclosure and pulling it away to the left. The facia sign is fitted in place and the tabs bent over to hold it in place. Two holes in the backpan of the chassis allow for mounting.

The IP65 ABS enclosure has 10 screws, tightened evenly but not over tightened, hold the facia in place. Do not over tighten. 4 holes in the backpan allow for mounting.

Specifications:

A Halma company

Operational Voltage	27VDC
Power Consumption Continuous	At 24VDC 55mA Stage 1 At 24VDC 140mA Stage 2 (100mA Muted)
IP Ratings	IP50 190mm (H) x 315mm (W) x 73mm (D) IP65 200mm (H) x 295mm (W) x 65mm (D)
Environmental	-10°C to +55°C Dry heat +40°C @ 0 to 93% Relative Humidity

Installation

- Remove the backpan from the enclosure to ensure it is not damaged while mounting the enclosure.
- Bring the cabling into the enclosure by removing the knockouts most appropriate for the installation.
- Mount the enclosure, remount the back pan, set the configuration and then cable as per the following diagram.
- ENSURE THE AGENT IS ISOLATED and test from the Agent Release Module.

Cabling

Term 3 (Buzzer Mute)

BUZZER MUTE Normally Open (N/O) Push Button Switch (Optional)

INPUT

Term 4 (Single pair polarity reversing / 2 Stage Input)	
Stage 1	0V – 24VDC
Stage 2	24VDC – 0V

Configuration – Jumper Settings

JP 1 (Continuous / Flashing)		JP 2 (Single / Dual Stage)	
1-2 Continuous	LED's Permanently ON	1-2 Single Stage	Full sign on for Stage 1&2
2-3 Flashing <i>(DEFAULT)</i>	LED's flashing at 1.5Hz	2-3 Dual Stage <i>(DEFAULT)</i>	Half sign on for Stage 1 Full sign on for Stage 2
JP 3 (Enable Buzzer)		JP 4 (Disable External Mute)	
1-2 ENABLE BUZZER <i>(DEFAULT)</i>	Buzzer activates for both Stage 1 & 2	1-2 EXTERNAL MUTE <i>(DEFAULT)</i>	Disable external mute for internal Buzzer
JP 5 (Enable External Evacuation Device) <i>[not used]</i>			
1-2 Enable External Evacuation	External evacuation device will activate on Stage 1 & 2		
	with the tone dependent on the input polarity		
DEVICE <i>(DEFAULT)</i>			

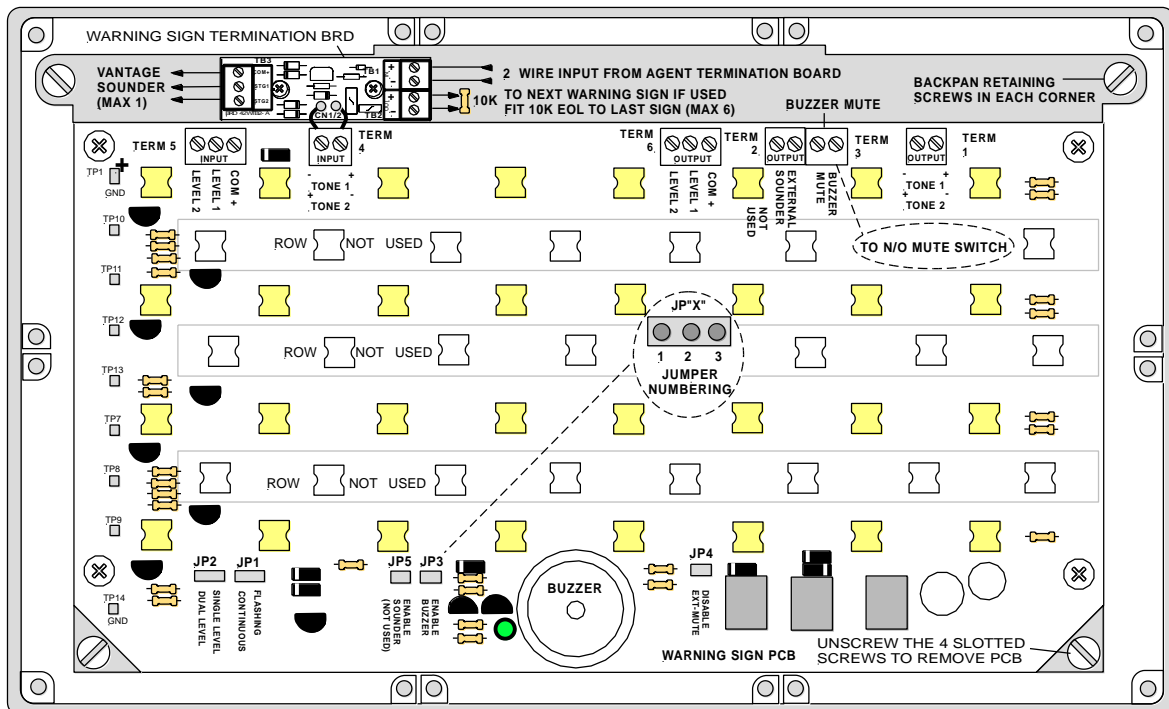


Figure 32: Warning Sign PCB Layout and Cabling

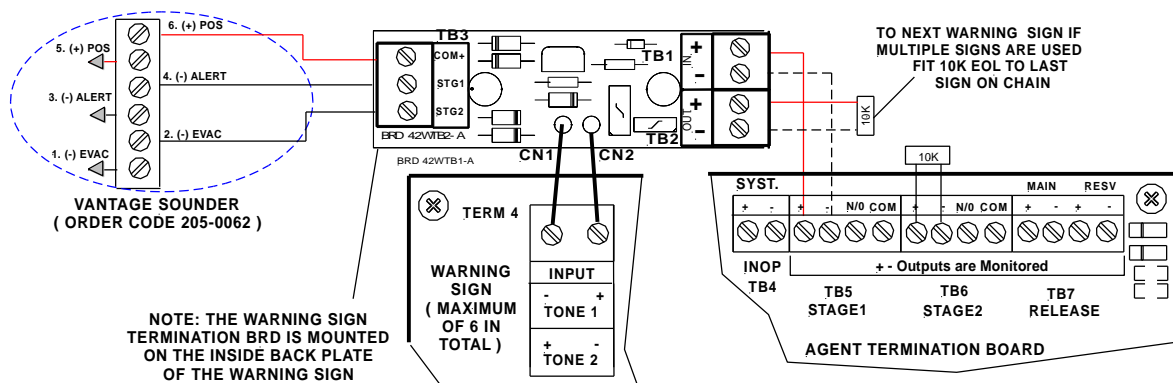


Figure 33: 2 Wire Cabling from the Agent Termination Board to the Warning Sign/s & Evacuation Device/s

6.19 Occupant Warning Systems

The EV20, EV40 and EV60 are compact single zone occupant warning devices that when triggered produce *Alert* and *Evacuation* signals to meet the requirements of AS1670.4.

EV20

At the heart of an EV20 single zone occupant warning system is a microprocessor that generates the alert and evacuation signals, controls timing and the input / output.

If an FACP warning system input is received when the rotary switch is in the AUTO position the EV20 will begin to output the “Alert” signal for a duration determined by the setting of the 4 way DIL switch SW1. The set duration is termed the changeover timeout and ranges from 0 seconds to a maximum of 300 seconds. If the time out is set to 0 seconds then the alert signal is bypassed and the evacuation signal commences immediately. The operator can manually stop the sequence by turning the rotary switch to the ISOLATE position.

IC4 performs the task of an audio amplifier with TX1 providing the impedance matching to a 100 volt speaker line. The alert and evacuation signal output Stages are set by adjusting RV1 and RV2 respectively.

Short or open circuit speaker faults are detected by the fault monitoring circuitry and will result in the illumination of the FAULT indicator mounted on the front panel control module.

Public Address

A microphone and pre-amplifier (Order Code 222-0007) is used to provide the public address capabilities.

EV20 Verbal Messaging

An optional verbal messaging PCB (Order Code 222-0026) is available and is mounted directly onto the main board.

EV40

At the heart of an EV40 single zone occupant warning system is a microprocessor that generates the alert and evacuation signals, controls timing and the input / output.

If an FACP warning system input is received when the rotary switch is in the AUTO position the EV40 will begin to output the “Alert” signal for a duration determined by the setting of the 4 way DIL switch. The set duration is termed the changeover timeout and ranges from 0 seconds to a maximum of 540 seconds. If the time out is set to 0 seconds then the alert signal is bypassed and the evacuation signal commences immediately. The operator can manually stop the signal sequence by turning the rotary switch to the ISOLATE position.

Amplifier 1 & 2 provides 40watts of audio output at 8 ohms which feeds TX1 to provide the impedance matching to a 100 volt speaker line. The “ALERT” and “EVAC” Stage controls adjust the output Stage of each set of signals.

Short or open circuit speaker faults are detected by the fault monitoring circuitry and will result in the illumination of the FAULT indicator mounted on the front panel control module and “SPEAKER SHORT” (red) or “SPEAKER OPEN” (yellow) LEDs on the main board.

Public Address

A microphone (Order Code 294-0001) is used to provide the public address capabilities.

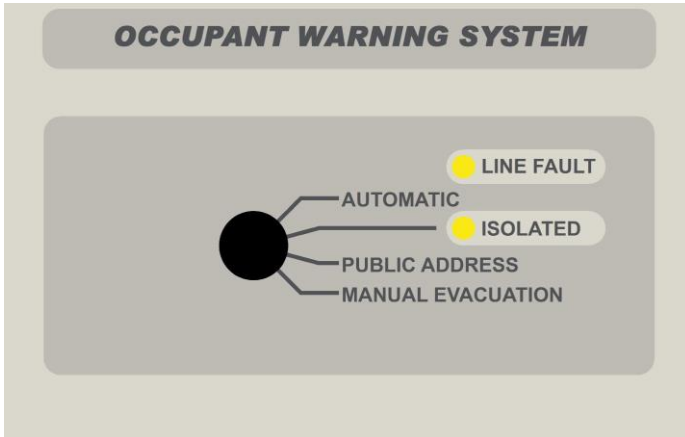
EV40 Verbal Messaging

An optional verbal messaging PCB (Order Code 222-0013) is available and is mounted directly onto the main board.

EV20 / 40 Verbal Message

Alert / Evacuation – *“Emergency Evacuate Now”*

Control Module



When the control switch is in;

AUTOMATIC - occupant warning signals and if applicable verbal messaging is under the control of the microprocessor and outputted to the speaker system when it receives a “warning system” signal from the FACP.

ISOLATE – the occupant warning system is isolated from the FACP “warning system” signal and even if the signal is present there will be no output.

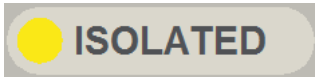
PUBLIC ADDRESS – the occupant warning system can be used locally as a PA system.

MANUAL EVACUATION – the occupant warning signal/s will be transmitted over the system.

Indicators



In the event of an open or short circuit speaker line the LINE FAULT indicator (yellow) will be illuminated



the LED will be illuminated (yellow) when the warning system is isolated

Signal Structures

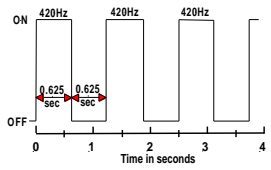
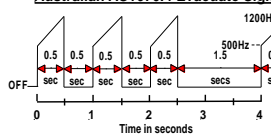
<p>ALERT SIGNAL</p> <p><u>Australian AS1670.4 Alert Signal</u></p> 	<p>AS1670.4: 420Hz pulsed on for 0.625 seconds at 1.25 second intervals</p>
<p>EVACUATION SIGNAL</p> <p><u>Australian AS1670.4 Evacuate Signal</u></p> 	<p>AS1670.4: 0.5 second sweep signal 500-1200 Hz for 2.5 seconds at 4 second intervals</p>
<p>EVACUATE SIGNAL WITH VERBAL MESSAGE</p>	



Figure 34: Alert & Evacuation Signal Structures

EV20 Cabling



Note: "WARNING SYSTEM" is a monitored O/P. The EOL is on board the EV20 and is effectively made to be O/C (at TB1) during an EV20 fault condition. This produces the fault condition at the FACP.

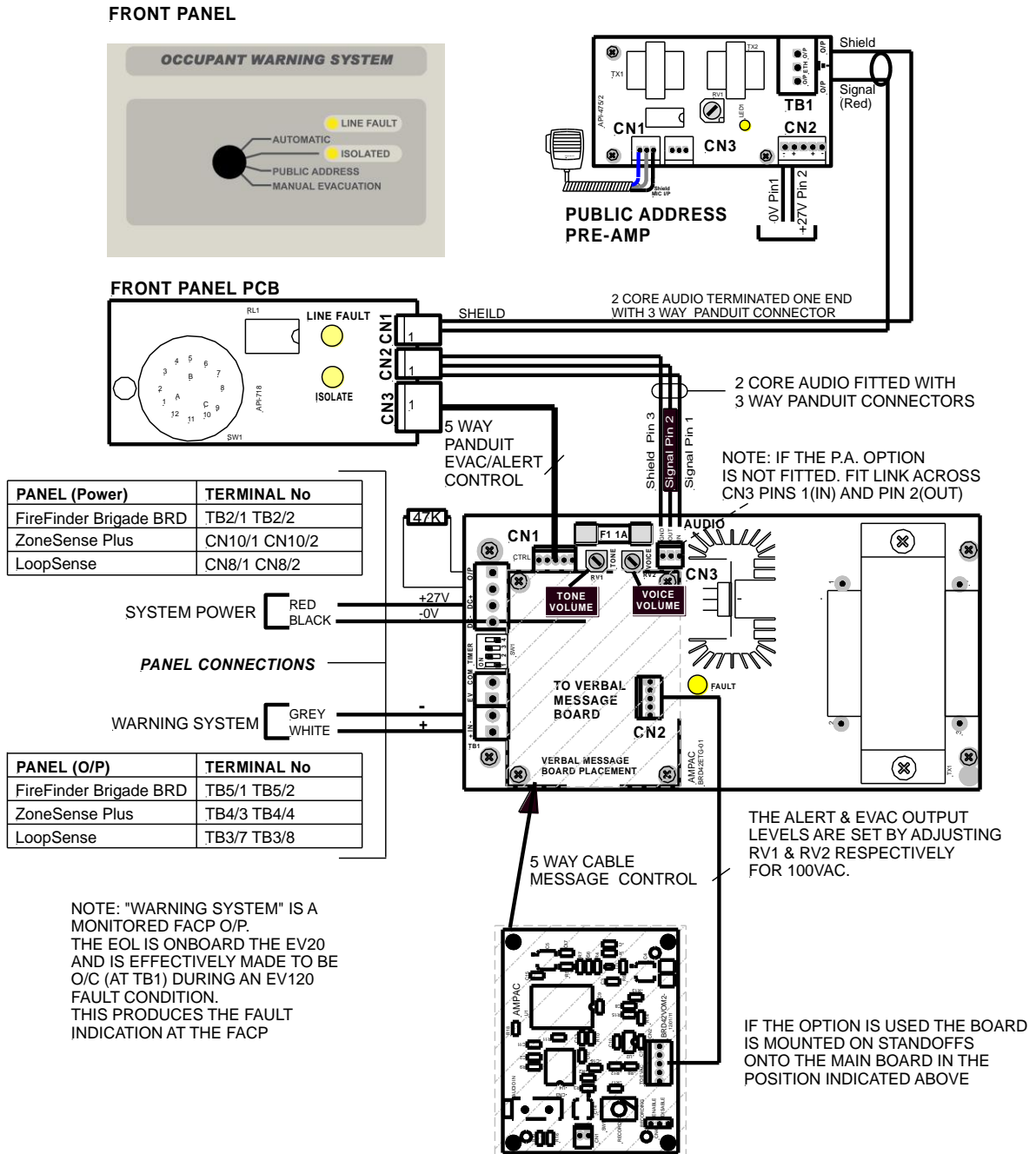


Figure 35 EV20 Wiring to Control Module, FACP Cabling and Time Out Table

EV40 Cabling

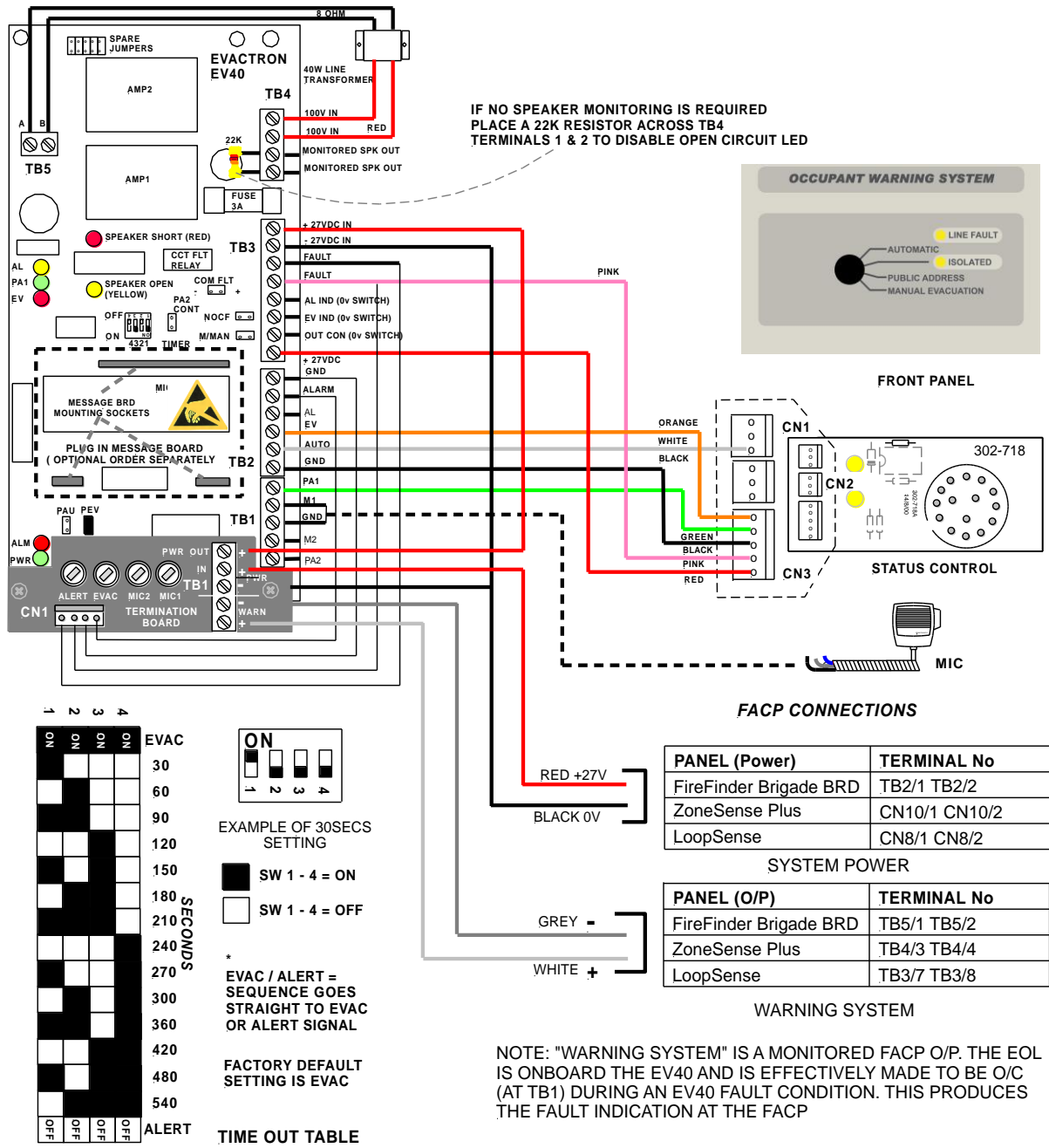


Figure 36 Typical EV40 Wiring to Control Module and FACP

Jumper settings

PEV: - PA + Evac – must be inserted when a selector switch is connected.

PAU: - PA in Auto – if inserted allows Mic 1 input (hand held microphone) to be used in “Auto” (with no FACP alarm) and paging in “Evac” mode.

PA2 CONT: - PA2 Control – if inserted allows the PA2 input to also switch the Control Output.

M2 1milli volt: - if inserted enables a 1mV microphone input for Mic 2, not inserted enables the input for 100mV line level (background music etc.)

A Halma company

EV60

The EV60 is essentially an EV20 MPU and driver but with 60 watt output amplifiers powered from a Current Limit Fuse Board.



Figure 37: EV60

EV120

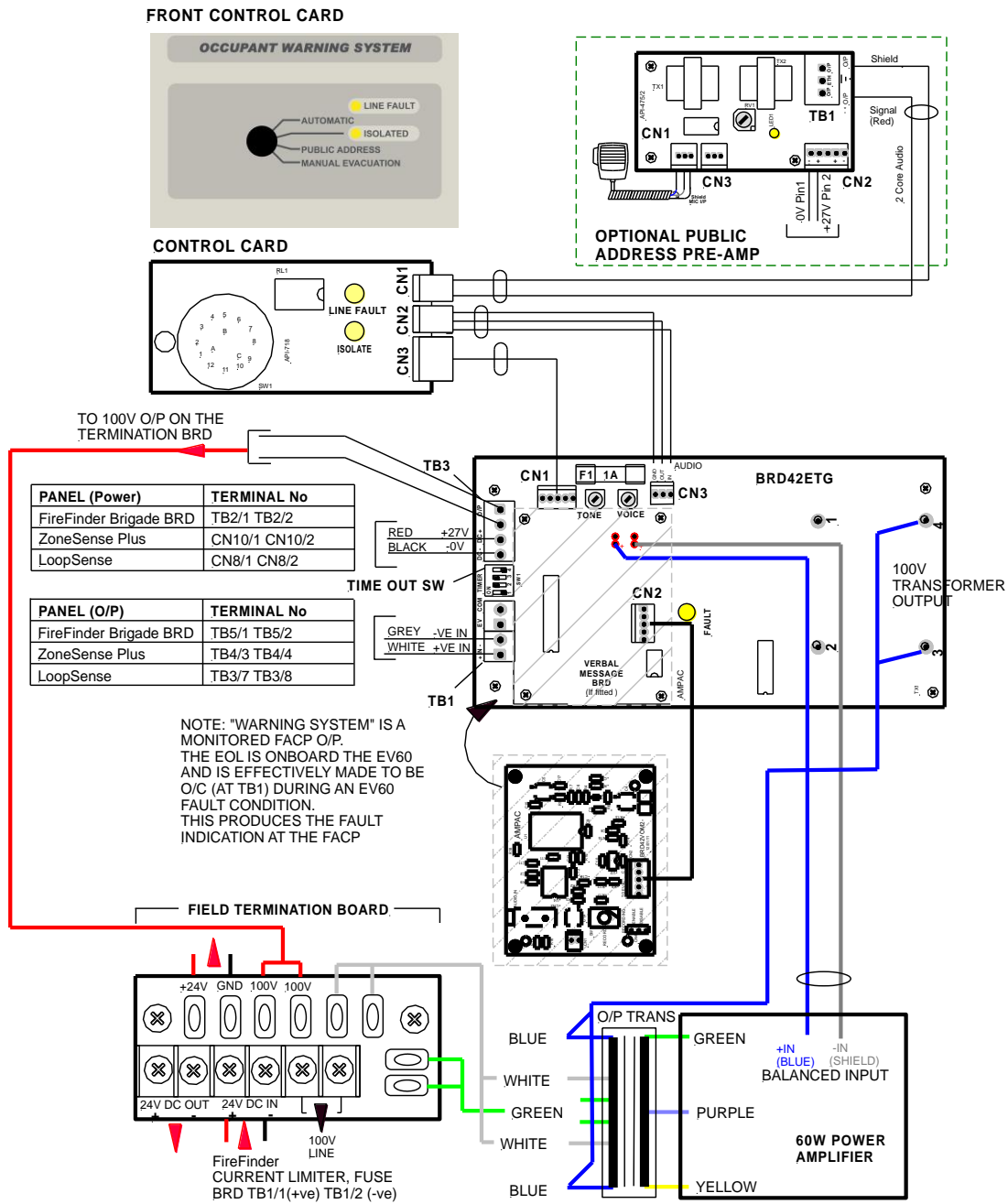


Figure 38: Wiring of an EV60 single zone OWS with both P.A and Verbal Message Boards Fitted

EV3000

Relay Board Operation

One of the relays on the 8 Way Relay Board will be programmed to operate on "Alarm". The subsequent shorting of the 10K EOL initiates the Alert / Evac sequence

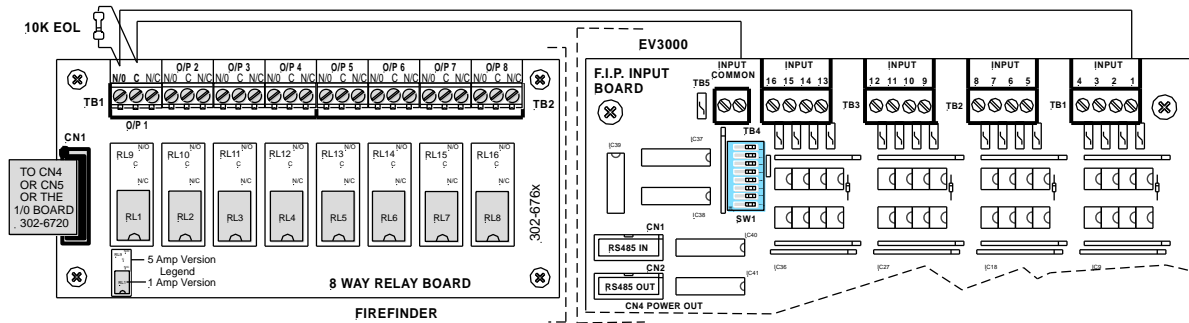


Figure 39: FACP / EV300 Cabling Using Relay1 and I/P 1

7 Certification Information

The **ZoneSense PLUS** is designed and manufactured by:

AMPAC TECHNOLOGIES PTY LTD

7 Ledger Rd

Balcatta

WA 6021

Western Australia

PH: 61-8-9201 6100

FAX: 61-8-9201 6101



Manufactured to: _____

Certificate of Compliance Number: _____

Equipment Serial Number: _____

Date of Manufacture: _____

8 Specifications

Mechanical

Dimensions Metal Cabinet: (mm) 500H x 405W x 145D

Note: A battery box is available should either model be optioned to capacity.

Environmental

Temperature: -5°C to + 55°C

Humidity: 25% to 75% Non condensing

Power Supply

Input Voltage: 180 - 264VAC (47-63Hz)

Protection (Quick Acting Fuse): 1.25 Amp M205

Minimum Cable Requirements: Not less than 0.75mm

Voltage: 27.2VDC +/- 0.1VDC

Power Supply Ripple Voltage: <100mV

Power Supply Regulation: 2%

Power Supply Fault Indication Volts High 28VDC

(at room temperature) Volts Low 26.5VDC

Power Supply Output Current: 2Amps

Protection: Current Limiting

Charger O/P Voltage: (@ 25°C) 27.3 +/- 0.1VDC

Battery Type: Sealed Lead Acid: 2 x 12V Sealed Lead Acid

Maximum Battery Capacity: 7AH - 12AH for metal cabinet

Maximum Charger Current Limited: 400mA

Battery Supply Current Limited: 3A (PTC)

Battery Discharged Cut-off Voltage: 21VDC

Main Card

Quiescent Current (Iq) (Add 8mA / zone for 3K3 EOL) 25mA

Iq plus Zone 1 in Alarm 90mA

Maximum Current Draw per Output (Current Limited) 500mA

Maximum Number of Devices per Conventional Zone: 40 max

Cabling Requirements: 2 core 1.5 to 2.5mm²

Fault monitoring: O/C, S/C, (EOL default = 3K3)

Outputs

Alarm (Current Limited) 24VDC @ 500mA Max

Alarm / Fault Monitored Open Collector (Current Limited) 24VDC @ 30mA Max

Alarm Fault Relay Contacts 24VDC @ 1A

Auxiliary VDC 24VDC 500mA Monitored

Inputs

MCP, Door Switch and Fault 0VDC Closing Contact

Communications

Internal to FACP RS485

External to FACP RS485

9 Glossary of Terms

ACF:	ANCILLARY CONTROL FACILITY
ACKD:	ACKNOWLEDGED
AHU:	AIR HANDLING UNIT
ALM:	ALARM
AVF:	ALARM VERIFICATION FACILITY
AZF:	ALARM ZONE FACILITY
AZC:	ALARM ZONE CIRCUIT
C:	RELAY COMMON CONTACT (WIPER)
CIC:	CONTROLLER INTERFACE CARD
CN:	CONNECTOR
CPU:	COMMON PROCESSOR UNIT
DGP:	DATA GATHERING POINT
EARTH:	BUILDING EARTH
EOL:	END OF LINE
FDS:	FIRE DETECTION SYSTEM
FACP:	FIRE ALARM CONTROL PANEL
FLT:	FAULT
GND:	GROUND (0 VOLTS) NOT EARTH
I/O:	INPUT/OUTPUT
LCD:	LIQUID CRYSTAL DISPLAY
MAF:	MASTER ALARM FACILITY
MCP:	MANUAL CALL POINT
MOV:	METAL OXIDE VARISTOR (TRANSIENT PROTECTION)
NIC:	NETWORK INTERFACE CARD
N/C:	NORMALLY CLOSED RELAY CONTACTS
N/O:	NORMALLY OPEN RELAY CONTACTS
N/W:	NETWORK
PCB:	PRINTED CIRCUIT BOARDS
P/S:	POWER SUPPLY
PSM:	POWER SUPPLY MODULE
REM:	REMOTE
SPOT:	SINGLE PERSON OPERATING TEST
TB:	TERMINAL BLOCK
VDC:	DIRECT CURRENT VOLTS

10 Definitions

Addressable system - a fire alarm and detection system that contains addressable alarm zone facilities or addressable control devices.

Alarm Verification Facility (AVF) - that part of the FACP, which provides an automatic resetting function for spurious alarm signals so that they will not inadvertently initiate Master Alarm Facility (MAF), or ACF functions. Using ConfigManager prior to downloading to the *FireFinder*[™] sets this option

Alarm zone - the specific portion of a building or complex identified by a particular alarm zone facility.

Alarm Zone Circuit (AZC) - the link or path that carries signals from an actuating device(s) to an alarm zone facility(s).

Alarm Zone Facility (AZF) - that part of the control and indicating equipment that registers and indicates signals (alarm and fault) received from its alarm zone circuit. It also transmits appropriate signals to other control and indicating facilities.

Alert signal - an audible signal or combination of audible and visible signals, from the occupant warning system to alert wardens and other nominated personnel as necessary to commence prescribed actions.

Ancillary Control Facility (ACF) - that portion of the control and indicating equipment that on receipt of a signal initiates predetermined actions in external ancillary devices.

Ancillary equipment - remote equipment connected to FACP.

Ancillary relay - relay within FACP to operate ancillary equipment.

Ancillary output - output for driving ancillary equipment.

Approved and approval - approved by, or the approval of, the Regulatory Authority concerned.

Card-detect link - a link on a module connector to indicate the disconnection of the module.

Conventional System - is a fire detection system using a dedicated circuit for each alarm zone.

Distributed system - a fire alarm and detection system where sections of the control and indicating equipment are remotely located from the FACP or where sub-indicator panel(s) communicate with a main FACP.

Field connections - are connections made to FACP or ancillary equipment during installation.

Fire alarm system - an arrangement of components and apparatus for giving an audible, visible, or other perceptible alarm of fire, and which may also initiate other action.

Fire detection system - an arrangement of detectors and control and indicating equipment employed for automatically detecting fire and initiating other action as arranged.

Fire Alarm Control Panel (FACP) - a panel on which is mounted an indicator or indicators together with associated equipment for the fire alarm or sprinkler system.

Fire resisting - an element of construction, component or structure which, by requirement of the Regulatory Authority, has a specified fire resistance.

Indicating equipment - the part of a fire detection and or alarm system, which provides indication of any warning signals (alarm and fault), received by the control equipment.

Interface - The interconnection between equipment that permits the transfer of data.

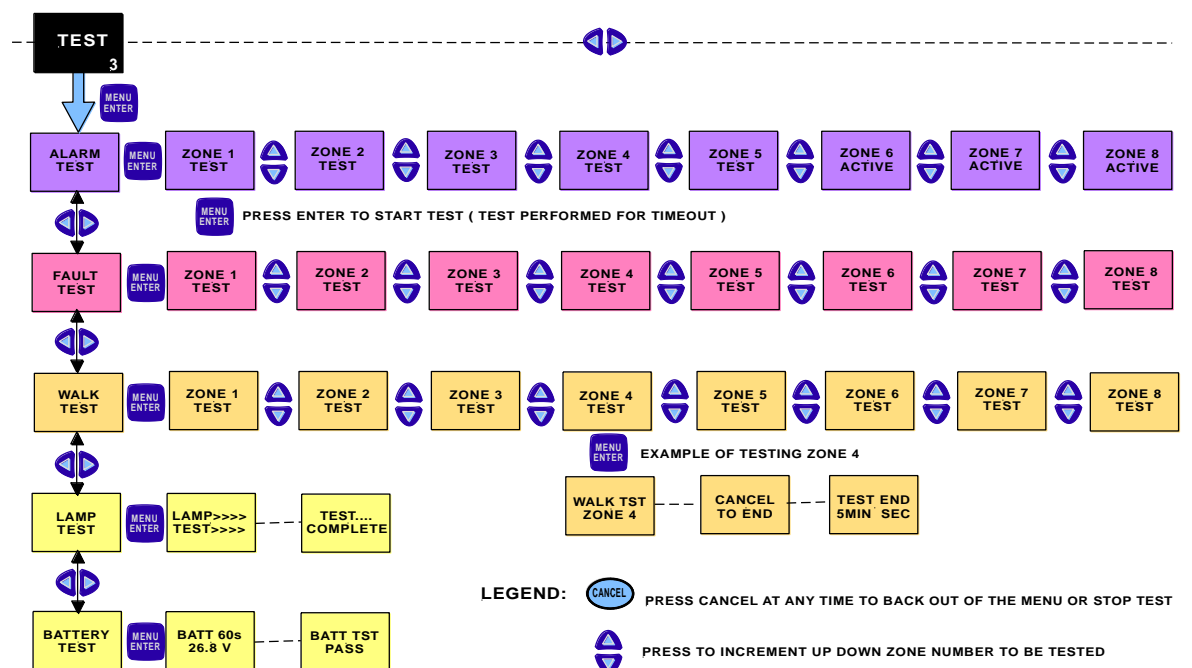
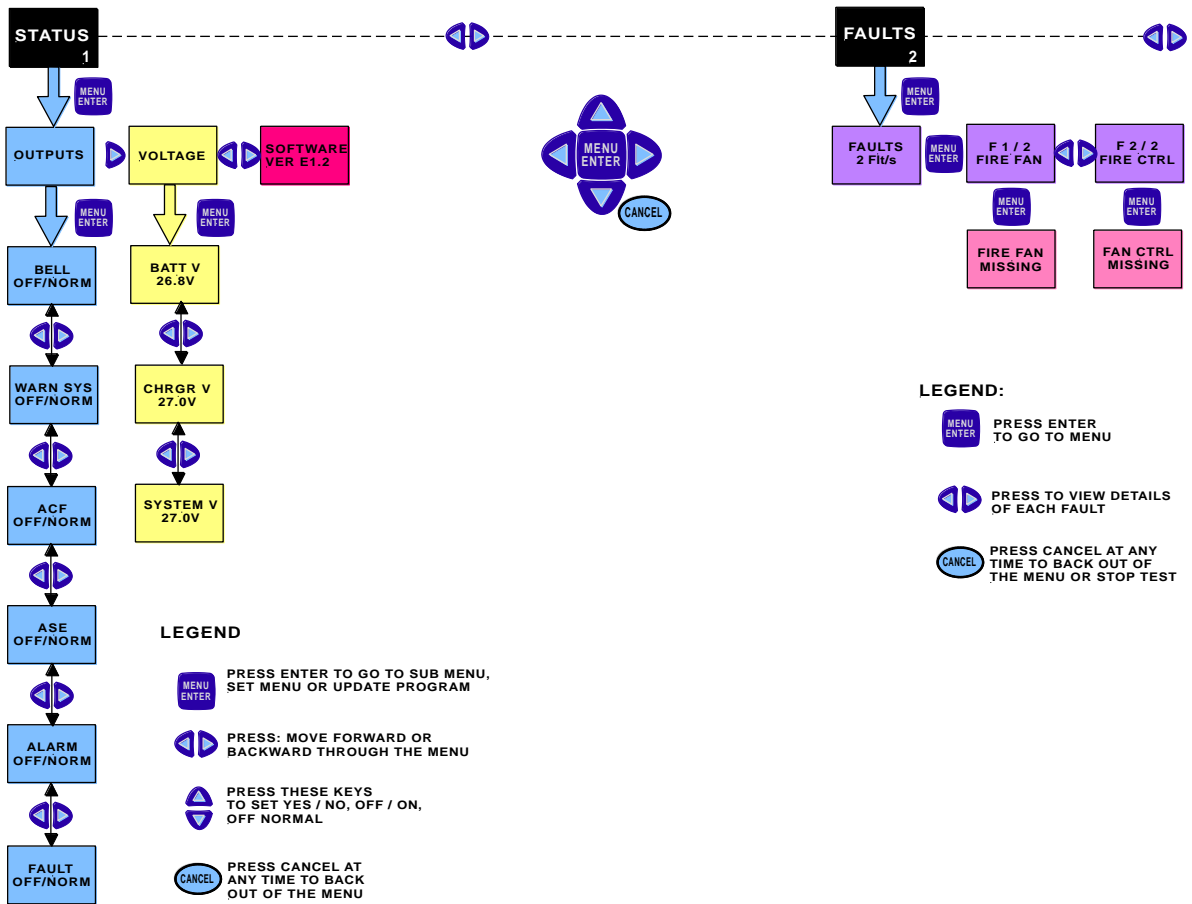
Main equipment - equipment essential to the operation of the system including, control equipment, amplification equipment and power supply modules.

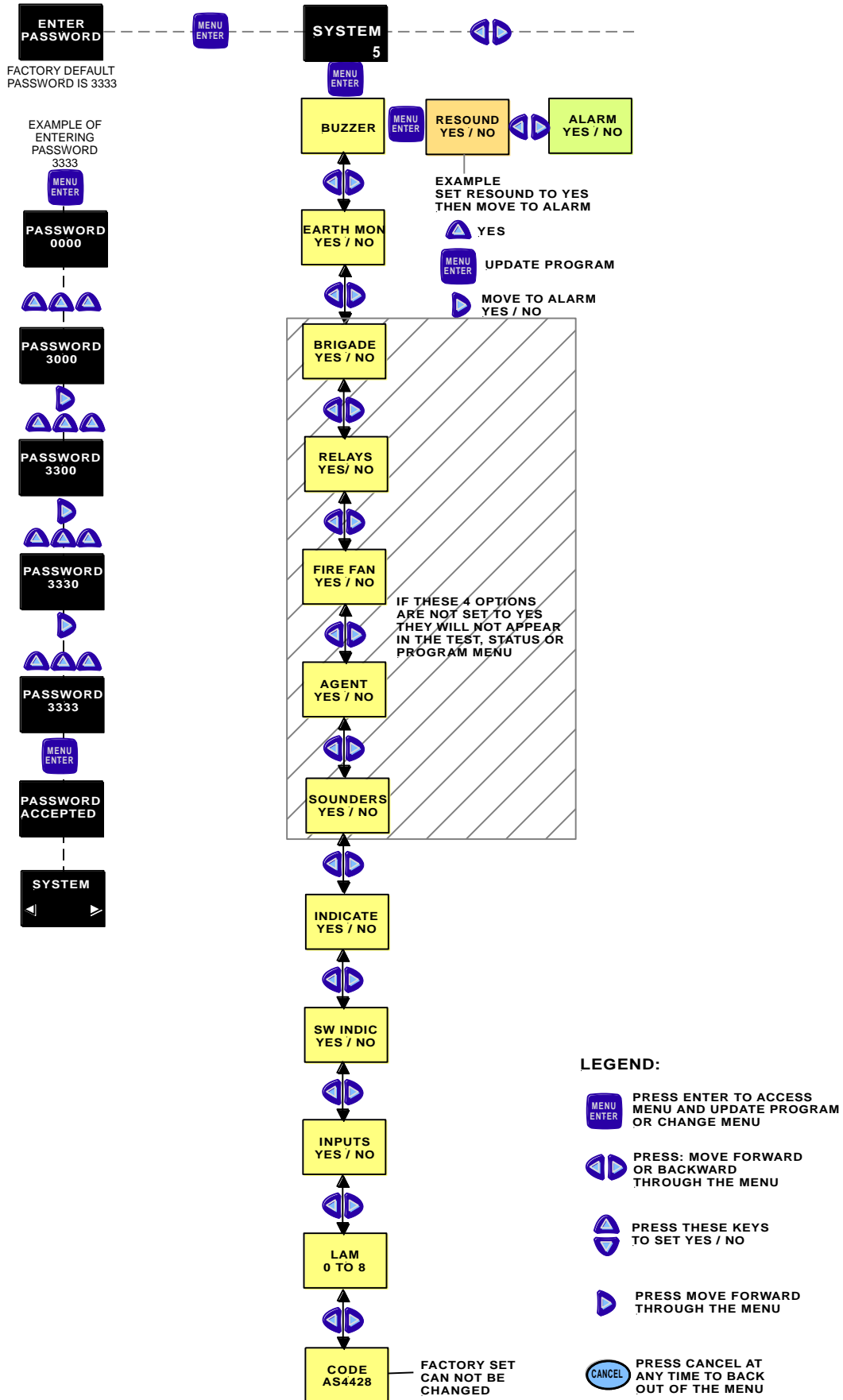
Master Alarm Facility (MAF) - that part of the equipment which receives alarm and fault signals from any alarm zone facility and initiates the common signal (alarm and/or fault) for transmission to the fire control station. Bells and other ancillary functions may be initiated from this facility.

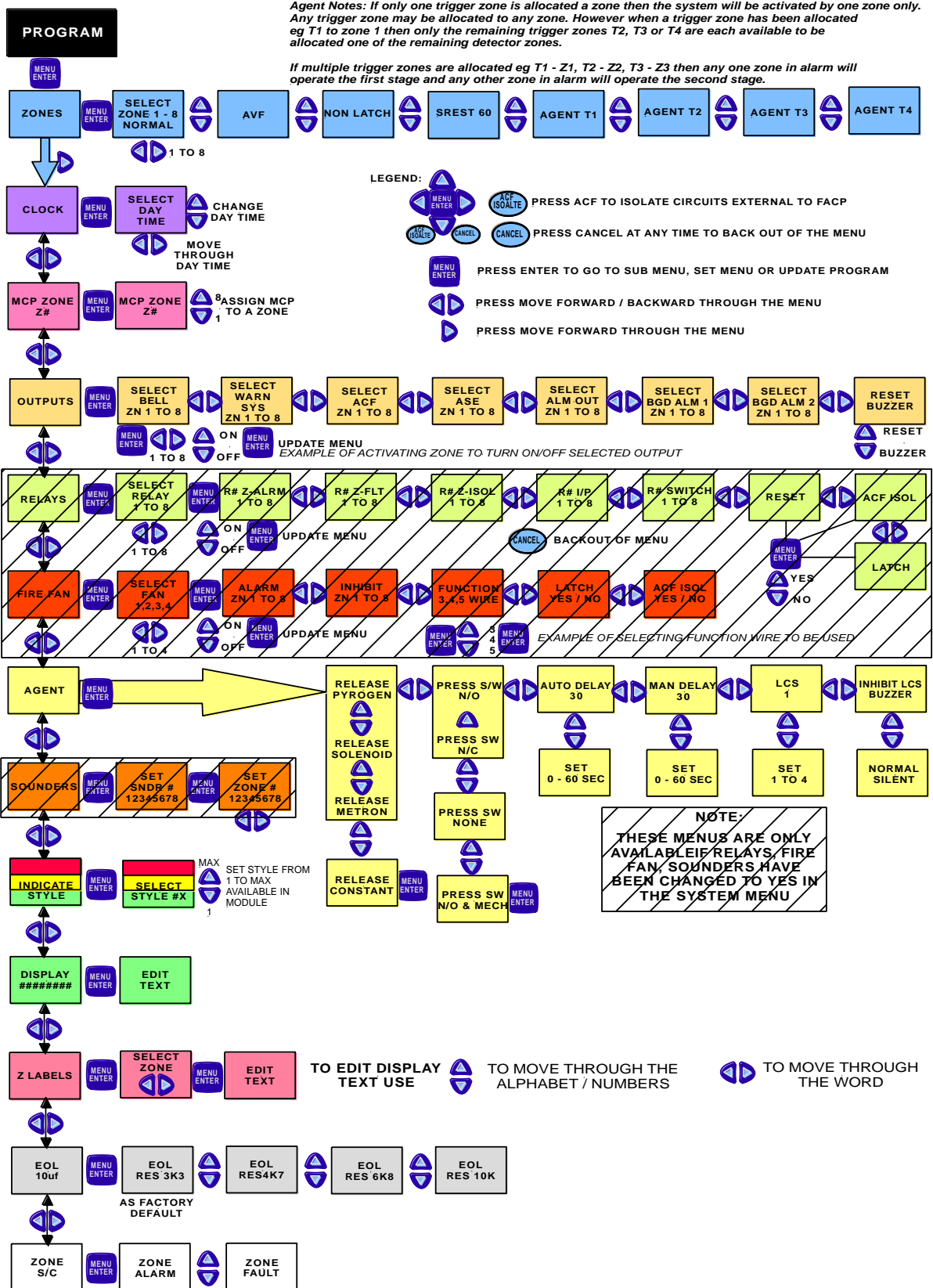
Power Supply - that portion of the FACP which supplies all voltages necessary for its operation.

Regulatory Authority - an authority administering Acts of Parliament or Regulations under such Acts.

11 Quick Reference Guides







12 Front Panel Configuration Labelling

ZONE	CONFIGURATION	BELL	WARN	AGF	ASE	ALARM	BURM1	BURM2	RELAY 1	RELAY 2	RELAY 3	RELAY 4	RELAY 5	RELAY 6	RELAY 7	RELAY 8	SOUNDR	SOUNDR	SOUNDR	SOUNDR	SOUNDR	SOUNDR	FAN 1	FAN 2	FAN 3	FAN 4	
1	NORM / AVF / NON / SELF / AT1 / AT2								A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I											
2	NORM / AVF / NON / SELF / AT1 / AT2								A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I											
3	NORM / AVF / NON / SELF / AT1 / AT2								A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I											
4	NORM / AVF / NON / SELF / AT1 / AT2								A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I											
5	NORM / AVF / NON / SELF / AT1 / AT2								A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I											
6	NORM / AVF / NON / SELF / AT1 / AT2								A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I											
7	NORM / AVF / NON / SELF / AT1 / AT2								A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I											
8	NORM / AVF / NON / SELF / AT1 / AT2								A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I	A / F / I											
EOL VALUE		2K3 / 4K7 / 6K8 / 10K / CAP																									
MCP ZONE		1 / 2 / 3 / 4 / 5 / 6 / 7 / 8																									
No LAMS		1 / 2 / 3 / 4 / 5 / 6 / 7 / 8																									
INPUT SWITCH																											
ACF ISOL		Y / N																									
RESET		Y / N																									
LATCHING		Y / N																									
AGENT RELEASE																											
SOLENOID / PROGEN / METRON																											
AUXILIARY SECS		0 / 15 / 30 / 60 /																									
MINIMUM DELAY SECS		0 / 15 / 30 / 60 /																									
PRESSURE SWITCH		NO / NC / NA																									
No DC LOSS		1 / 2 / 3 / 4																									
INHIBIT ZONES																											
FUNCTION		Y / N																									
LATCHING		Y / N																									
ACF ISOLATE		Y / N																									

Instructions to Installer

A, B, D, F & H Using a permanent marking pen cross out the conditions that do not apply.

C, E, & G Using a permanent marking pen cross (X) the box for the option that is set for the Zone.

A Indicates the configuration of each Zone Normal (NORM), AVF, Non-latching (NON), Self latching (SELF) Agent Trigger 1 (AT1), Agent Trigger 2 (AT2).

B Indicates what EOL value has been selected, what Zone has the FACP MCP been mapped to, and the number of Mimics controlled by the FACP.

C Indicates what Zones controls what Main Card Outputs.

D Indicates if Zone Alarm (A), Fault (F) or Isolate (I) controls the designated relay, as well as any 16 input or Card input or, any switch / indicator switches and if the ACF Isolate, Reset function or Latching is set.

E Indicates what Zones control what Sounders.

F Indicates the type of Agent Release fitted, the type and duration of delay and the number of Local Control Stations fitted.

G Indicates what Zone/s activates what Fan/s.

H Indicates what Zone/s Inhibit what Fan/s and the type of wire Function and whether or not latching and / or ACF Isolate is set.

UNCONTROLLED DOCUMENT

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