



Fire detection and evacuation solutions that save lives.



ZoneSense PLUS

Installation & Commissioning

MAN1563-5

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1 About This Manual

1.1 Introduction

This manual contains all the information required to install, commission and operate the **ZoneSense PLUS** 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 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.

4 Placing the Basic System into Operation

4.1 Unpacking

Carefully unpack the **ZoneSense PLUS**

The package should include:

- Main Card, with all controls and indicators mounted directly onto it;
- a switch-mode power supply;
- 2 X 12 Volt batteries connected in series.
- 2 X 003 keys

4.2 Anti-Static Precautions

To prevent damage to components, modules and boards, anti-static precautions **MUST** be observed while performing any task within the FACP. The same applies to those situated in the field

4.3 Working On The System

Prior to unplugging any connector, connecting or disconnecting any wiring, removing or replacing any module or board, ensure that both the Mains and Batteries have been isolated to prevent damage to panel components.

4.4 The Cabinet

Features:

- The cabinet is available in three different styles. Each style has the capability of being either surface or flush mounted. With flush mounting though a surround is required.
- Normally painted Arch White Ripple. Other colours are available on request.
- The inner and outer door hinges are mounted on the left-hand side of the cabinet which allow the doors open to an angle of 100°. Locking is normally keyless though keyed entry is available on request.
- Knockouts are positioned at the top and rear of the cabinet to simplify cable entry.

4.5 Mounting The Cabinet

Note: *It is recommended the cabinet should be installed in a clean, dry, vibration-free area.*

Open the front door. Use the keyhole mounting holes in the top corners and in the lower middle of the unit to mount it on the wall. Cables to connect the system to its external actuating devices are brought in through the knockouts on the top or bottom of the cabinet.

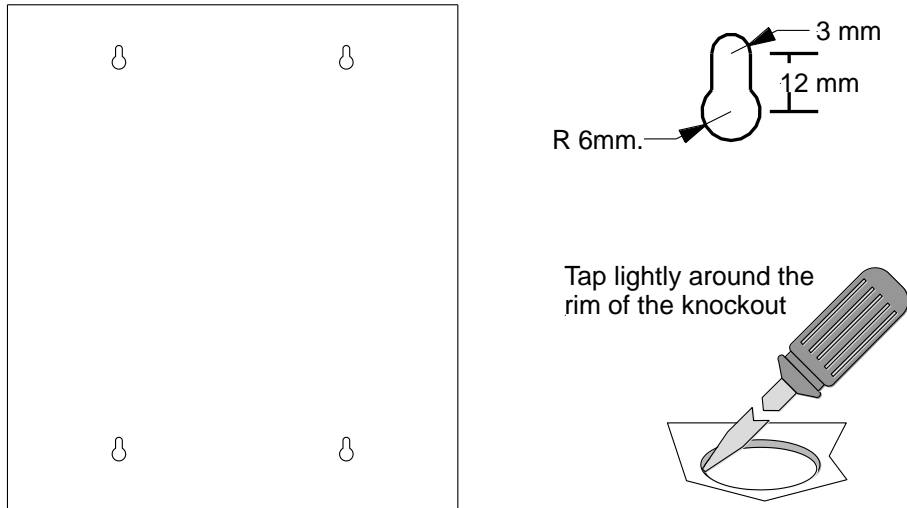


Figure 2: Example ZoneSense PLUS Mounting & Removing Knockouts

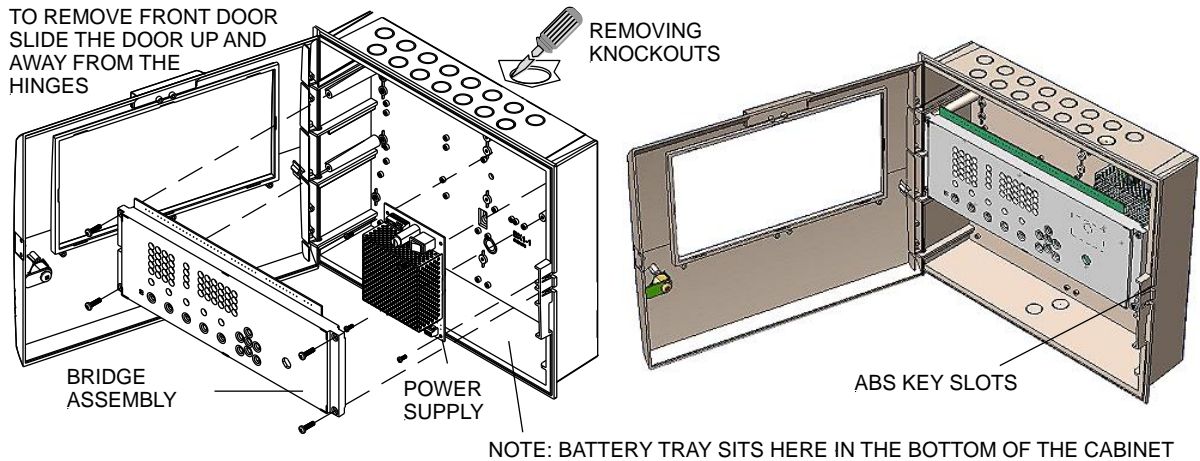


Figure 3: Exploded and Assembled View of the Basic ABS Model FACP with 003 Key Entry

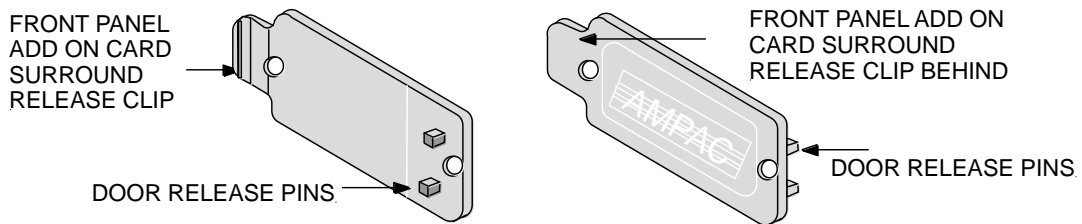


Figure 4: ABS Door Key and Front Panel Add On Card Surround Release Clip

5 PCB Removal / Replacement



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

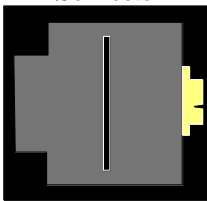
- Removing the door will provide better access to the boards and ensure the hinges are not accidentally stressed.
- Personal anti- static procedures must be followed.
- When disconnecting the 20 way connecting cable from the PCB, make sure that the cable remains connected to at least one board to prevent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



Push Tab Inwards
and Gently Pull
the Connector
From the Socket

5.1 Power Supplies and AC Mains Installation

5.1.1 Primary Power Supply

The **ZoneSense PLUS** Supply PCB combines the functions of;

- A mains to D.C. switched mode power supply unit that operates from a supply of; 204 - 264VAC @ 47 – 63Hz supplying the system while all zones are in alarm
- A battery charging and monitoring unit
- A mains fail is detected when the PSU voltage drops below 24V.

5.1.2 Mains wiring

The requirement for the Mains supply to the FACP is fixed wiring, using three core cable (no less than 0.75mm² and no more than 2.5mm²) or a suitable three conductor system, fed from an isolating switch fuse spur, fused at 3A. This should be secured from unauthorised operation and be marked 'FIRE ALARM: DO NOT SWITCH OFF. The Mains supply must be exclusive to the FACP.

5.1.3 Connecting the Panel

Connecting **ZoneSense PLUS** internal connections and boards is best undertaken immediately prior to Commissioning.

Before beginning ensure all devices on the circuits are correctly connected and that cable integrity is verified throughout the installation.

i Important: DO NOT use an insulation tester ('Megger') with any electronic devices connected. Faults occurring in the wiring which are not picked up at this stage will almost certainly result in spurious and intermittent faults when the equipment is energised.

i Important: Under no circumstances should the **ZoneSense PLUS** panel be operated without the Power Supply correctly mounted in the enclosure and the retaining screws securely tightened.

5.1.4 Connecting the Mains Earth

All earth cabling shall be terminated to the panel Chassis Earth Terminal in a star configuration.

The earth cable closest to the cabinet body shall have an M4 SPW beneath the lug then an M4 SPW and M4 nut.

Each additional earth cable shall be terminated with an M4 SPW and M4 nut.

An additional M4 nut and M4 SPW are fitted to the Chassis Earth Terminal for installers to connect their Mains Earth.

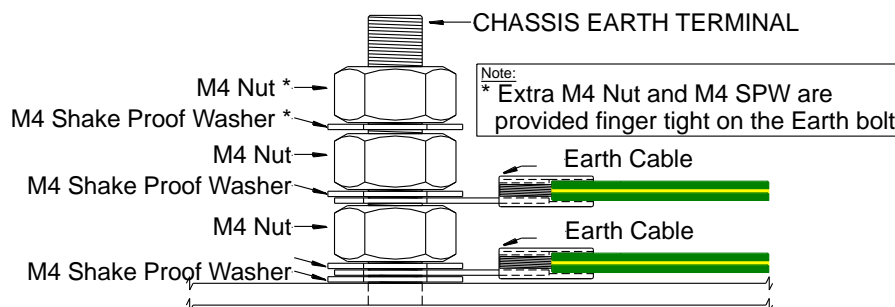


Figure 5: Panel Earthing

5.1.5 Connecting the Mains Power to the Power Supply

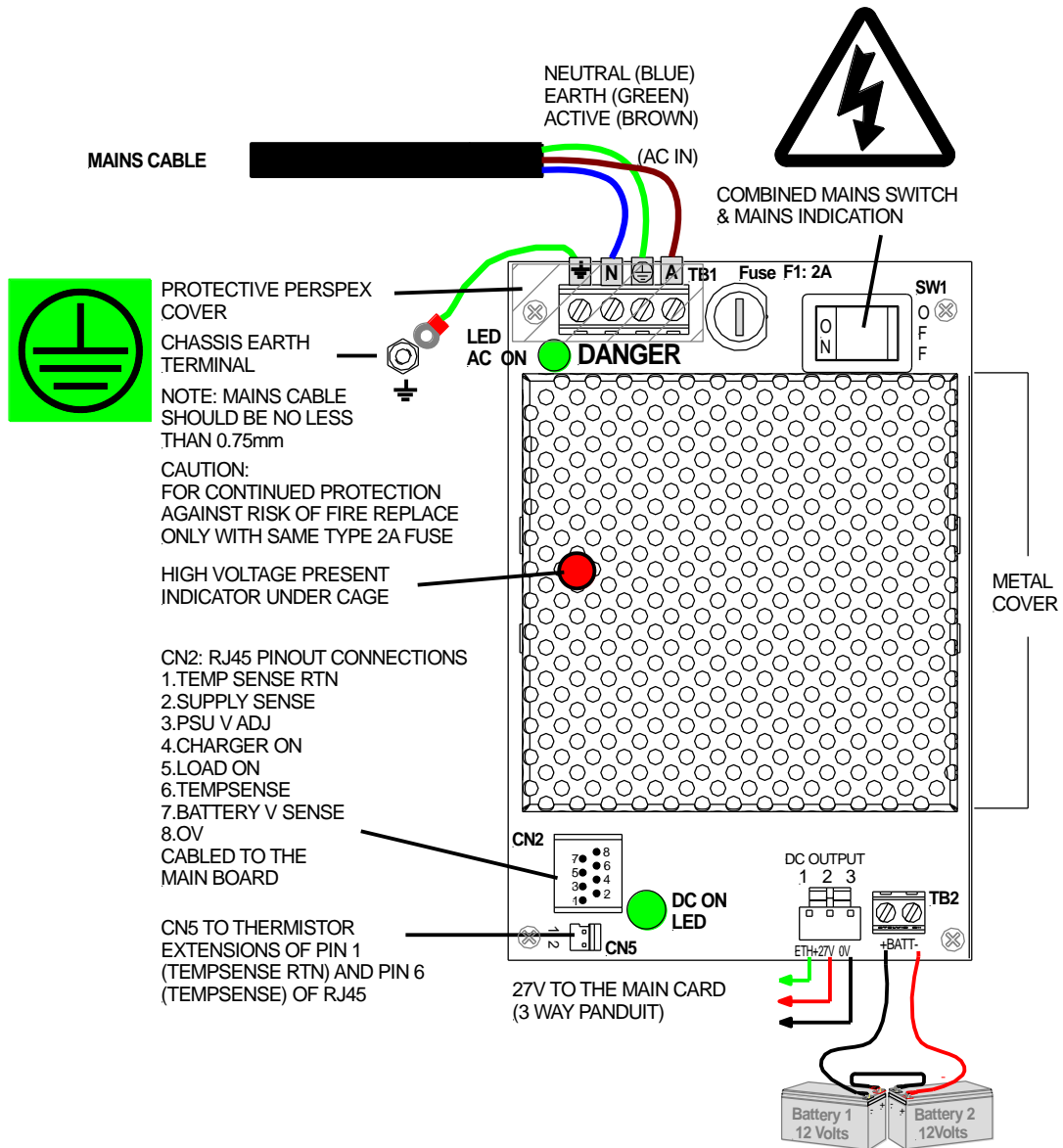


Figure 6: Power Supply Battery Charger Wiring (3A PSU SHOWN)

5.2 Battery Charger

The battery charger is an integral part of the Power Supply and is capable of

- Recharging standard sized system batteries within 24 hours
- Detecting a missing, damaged or undercharged battery
- Protecting the battery against reverse or a short circuit condition
- Charging batteries in line with Sealed Lead Acid battery manufacturers circuit temperature compensation guidelines

The following table contains the thresholds for the corresponding battery faults:

Battery Voltage	Battery Fault Condition
VBATT < 23.5V	BATTERY LOW
*VBATT < 22V	BATTERY DAMAGED
VBATT < 20V	BATTERY MISSING



Note: Battery disconnect has been incorporated to prevent the battery from discharging through the battery charger should the charging voltage be less than the battery voltage.

5.2.1 Connecting the Stand-By Batteries

The capacity of the batteries to be installed depends on the panel configuration and required stand-by time. To calculate the required AH capacity of the batteries, refer to the calculation guide located in the rear of this manual.

Two new, good quality and fully charged 12V Sealed Lead Acid batteries are required as the emergency stand-by power supply for the Panel. They are to be mounted in the bottom of the cabinet. In the ABS version a protective tray is supplied in the packaging.

The batteries should be connected in series using the series link wire provided and located within the panel enclosure. The red and black battery leads from the Power Supply (see Figures 4 & 5) should be run to the batteries in such a way that there is no risk of them being damaged, and then connect the red wire to the positive terminal and the black wire to the negative terminal.

The panel's sophisticated battery monitoring protects the batteries against deep discharge by activating a cut off circuit when the stand-by supply voltage reaches approx 21 volts. If batteries are not fitted, are discharged or in poor condition, the "FAULT" LED will be illuminated.

6 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.

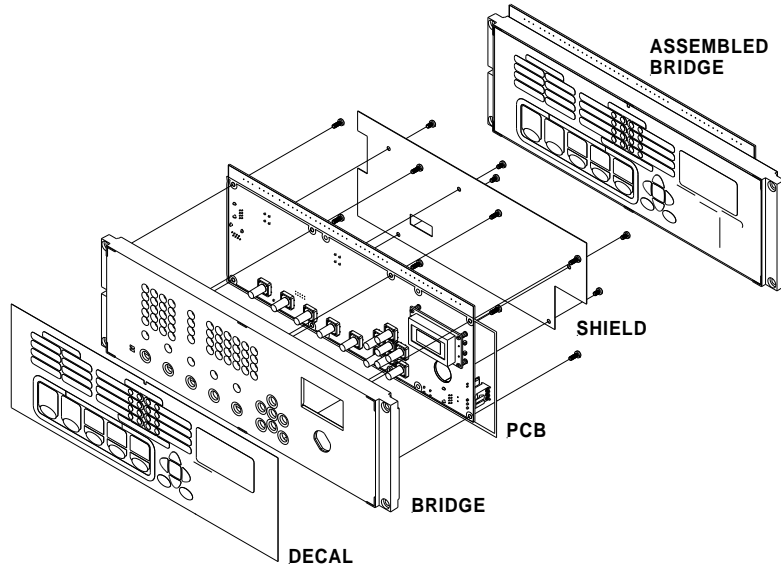


Figure 7: Exploded view of the Control Panel

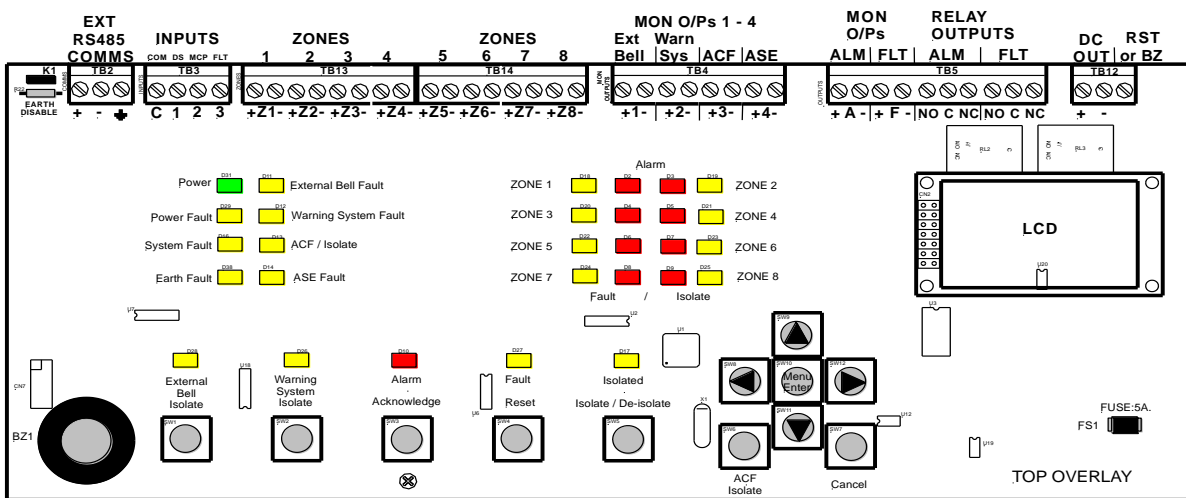


Figure 8: Main Control Card Front PCB View

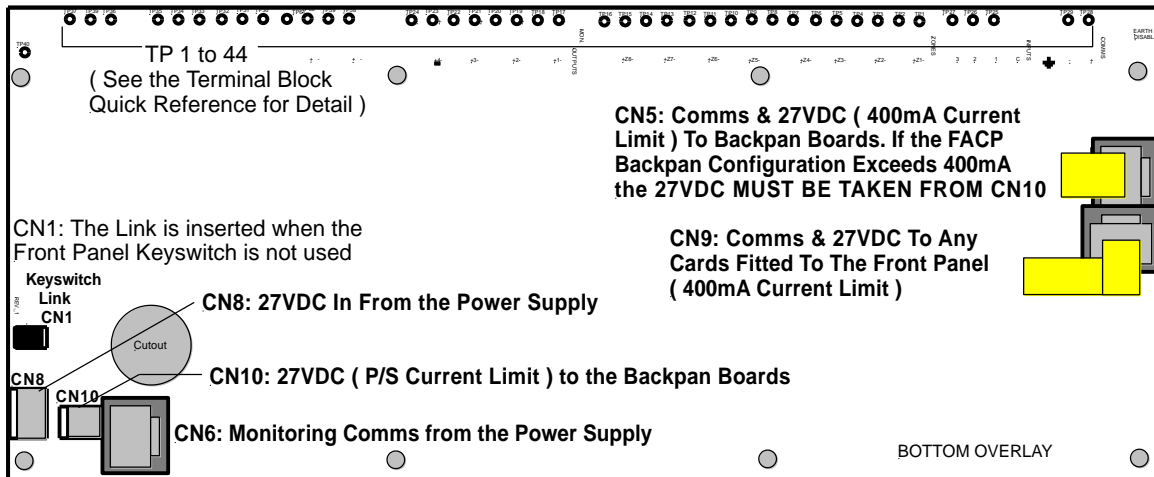


Figure 9: Main Control Card Rear PCB View



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

6.1 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.			

6.2 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

6.3 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.

6.4 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.

6.4.1 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.

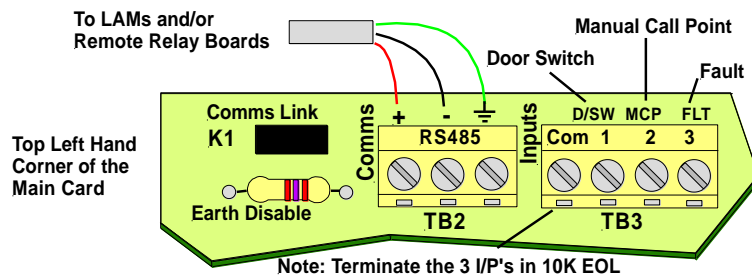


Figure 11: Comms Wiring Details

6.5 Inputs – Monitored (TB3)

6.5.1 Common Terminal (TB3 Com)

The COM terminal is used as the common for the following three 0v potential inputs.

6.5.2 Door Switch Input (TB3 Com / 1)

This optional input is used for connecting the FACP's door switch. Connection is to TB3 COM & 1

6.5.3 MCP (TB3 Com / 2)

The optional external MCP I/P is monitored for normal operation and must be mapped to a particular zone.

To test the input insert the test key provided into the MCP. Removal of the key resets the MCP.

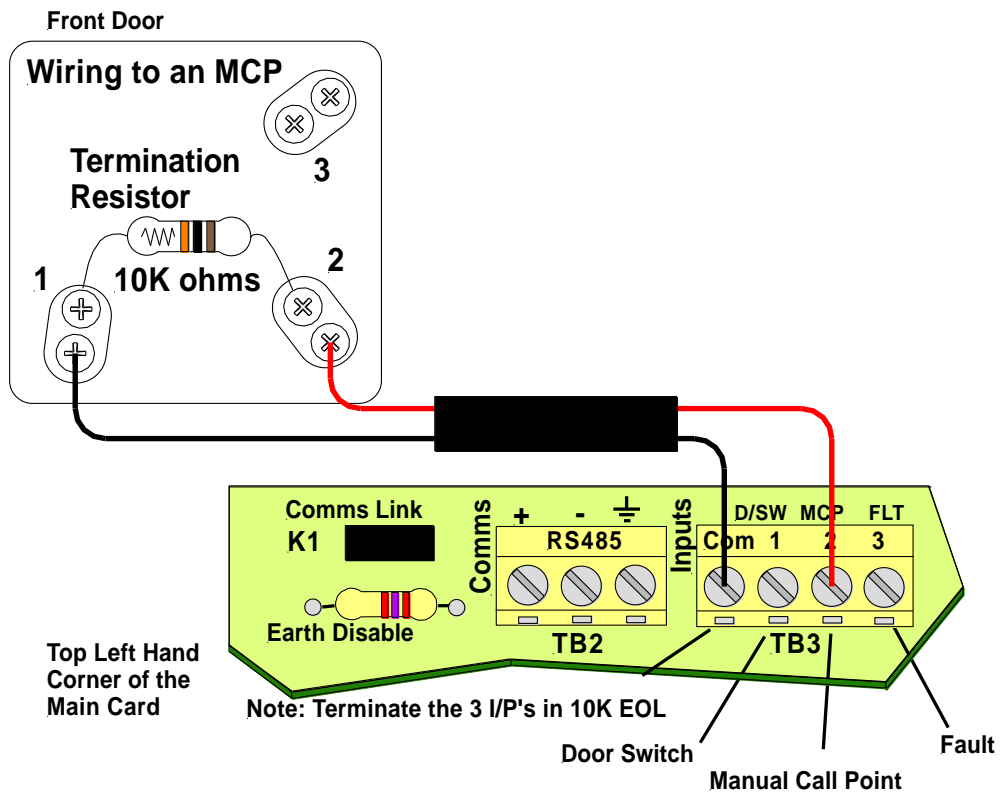


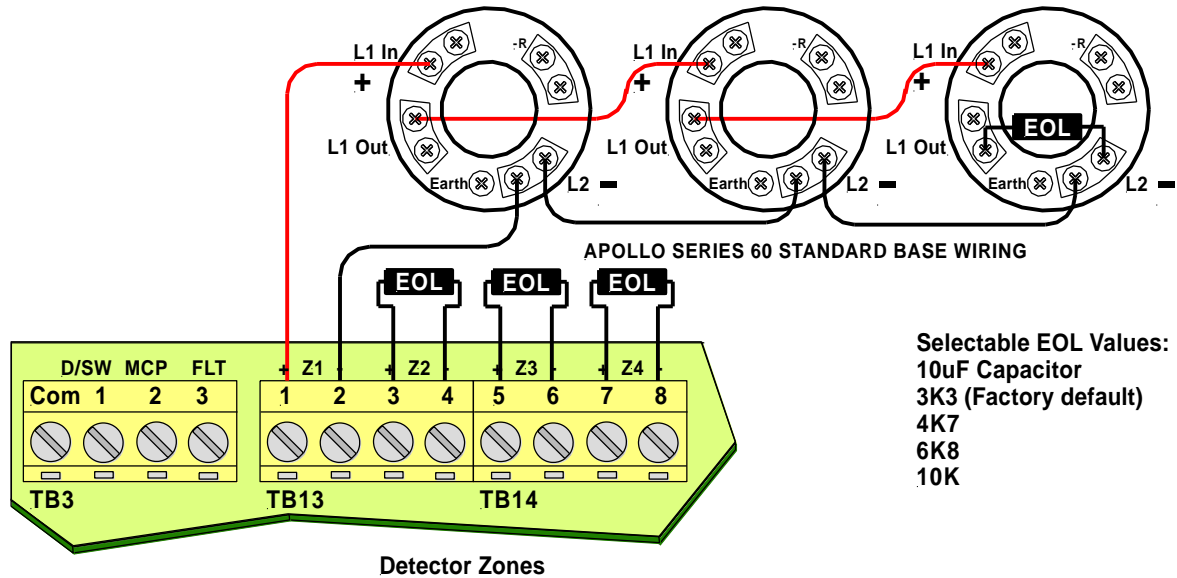
Figure 12: Typical MCP Wiring

6.5.4 Fault Input (TB3 Com / 3)

This optional input is used to bring a fault into the system from an external source. Requirements for the input are an open collector or 0 volt, voltage free contact to initiate a fault. Connection is to TB3 COM & 3

6.6 Detector Zones (TB13 & TB14)

Zone circuit connections are made directly to TB13 & TB14 on the Main Card and if screened cabling is used the screen is terminated at the panel's chassis earth terminal. All zones can be programmed to operate in one of the 5 different configuration modes each with a reset time in the order of > 1 second < 2 seconds.



Selectable EOL Values:
 10uF Capacitor
 3K3 (Factory default)
 4K7
 6K8
 10K

Figure 13: Typical Detector Wiring

6.6.1 Detector Configuration

The operating configuration modes are:

Operating Configuration	LCD
Normal	Normal
Alarm Verification Facility	AVF
Non Latching	No Latch
Self Reset	Self Reset
Agent Trigger Zone 1, 2, 3, & 4	T1, 2, 3, & 4

Note: AS1670 SECTION 8.6 ALARM VERIFICATION FACILITY states that alarm zone facilities used for the following shall not be subject to alarm verification:

- Manual call points.
- Detectors used to activate fire suppression systems.
- Detectors installed in hazardous areas.
- Fire suppression systems.
- Beam detectors where a beam-interrupt fault overrides the alarm state.
- AZF's containing fixed temperature detectors only.
- Detectors that have integral alarm confirmation delays such as some multipoint aspirated smoke detector systems.

Since the provision of alarm verification delays transmission of a signal to the monitoring service, it is desirable that it only be provided where other efforts to eliminate unwanted alarm signals have been unsuccessful.



Note: *EOL type (capacitive / resistive) and value are set in the Programming Menu*



Note: *A maximum of 40 **ZoneSense PLUS** compatible Optical / Heat and Ionisation Detectors or Manual Call Points can be fitted to each circuit and mixed in any order.*



Note: *An End of Line EOL (Factory set default = 3K3) device must be connected across the terminals of the last device on each zone circuit to allow the circuit to be monitored. Zones that are not used must also have an EOL fitted to the zone terminals on the Main Control Board.*

6.7 Outputs - Monitored (TB4)

6.7.1 Alarm Outputs

The panel has 4 dedicated individually monitored outputs which are;

- rated at 500mA @ 24VDC nominal;
- protected against short circuits;
- Monitored for open and short circuit conditions even when an output is active. The monitoring operates on a reverse voltage principal and will indicate a fault within 60 seconds.

Programming which zones will operate any of the outputs is done via the front Panel.

6.7.2 External Bell Output (TB4 1 / 2)

Switched 24VDC.

Operated by an alarm from a non-isolated zone.

Is controlled by the “External Bell Isolate” switch. When pushed the “External Bell” output is inhibited and the LED is illuminated. If pushed again the output is toggled back to the normal state.

Operates the audible fault indication if the output is still in fault and left isolated for longer than 8 hours.

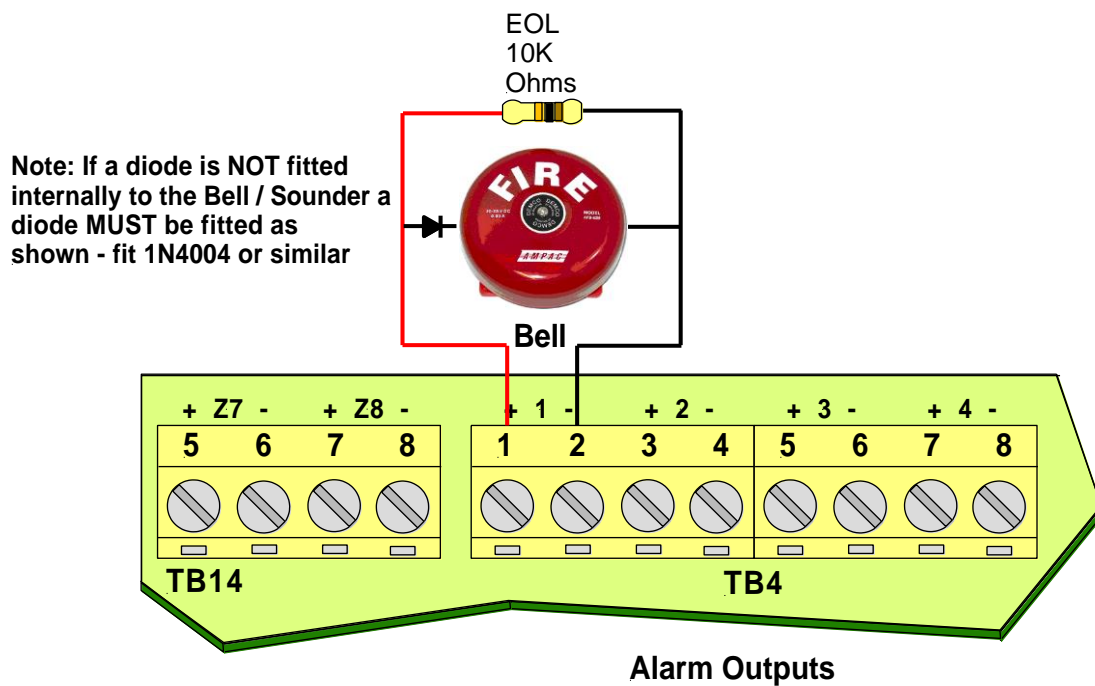



Figure 14: Typical Bell Wiring

 **Note:** If a diode is NOT fitted internally to the Bell a diode MUST be fitted as shown above

6.7.3 Warning System Output (TB4 3 / 4)

Switched 24VDC.

Operated by an alarm from a non-isolated zone.

The “Warning System Isolate” switch controls this output. When pushed the “Warning System” output is inhibited and the LED is illuminated. If pushed again the output is toggled back to the normal state.

Re-activates the audible fault indication if the output is still in fault and left isolated for longer than 8 hours.

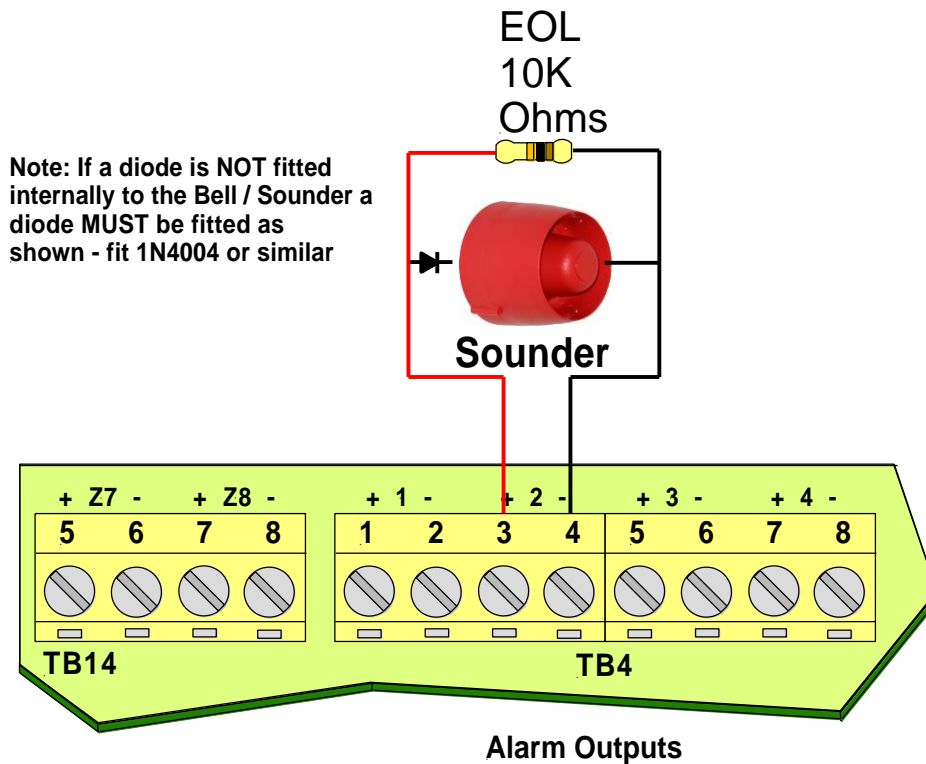


Figure 15: Typical Warning System Wiring

Note: If a diode is NOT fitted internally to the Sounder a diode MUST be fitted as shown above

6.7.4 Ancillary Control Facility (ACF Output) (TB4 5 / 6)

Switched 24VDC.

Operated by an alarm from a non-isolated zone

The “ACF Isolate” switch controls this output. When pushed the “ACF” output is inhibited and the LED is illuminated. If pushed again the output is toggled back to the normal state.

Re-activates the audible fault indication if the output is still in fault and left isolated for longer than 8 hours.

6.7.5 Alarm Signalling Equipment (ASE Output) (TB4 7 / 8)

Is a dedicated switched 24VDC output controlled via programming through the menu structure and operated by an alarm from a non- isolated zone.

Re-activates the audible fault indication if the output is still in fault and left isolated for longer than 8 hours.

6.7.6 Conventional Sounder Circuit Wiring (TB4)

Each of the four alarm outputs can also be configured to drive a conventional sounder circuit.

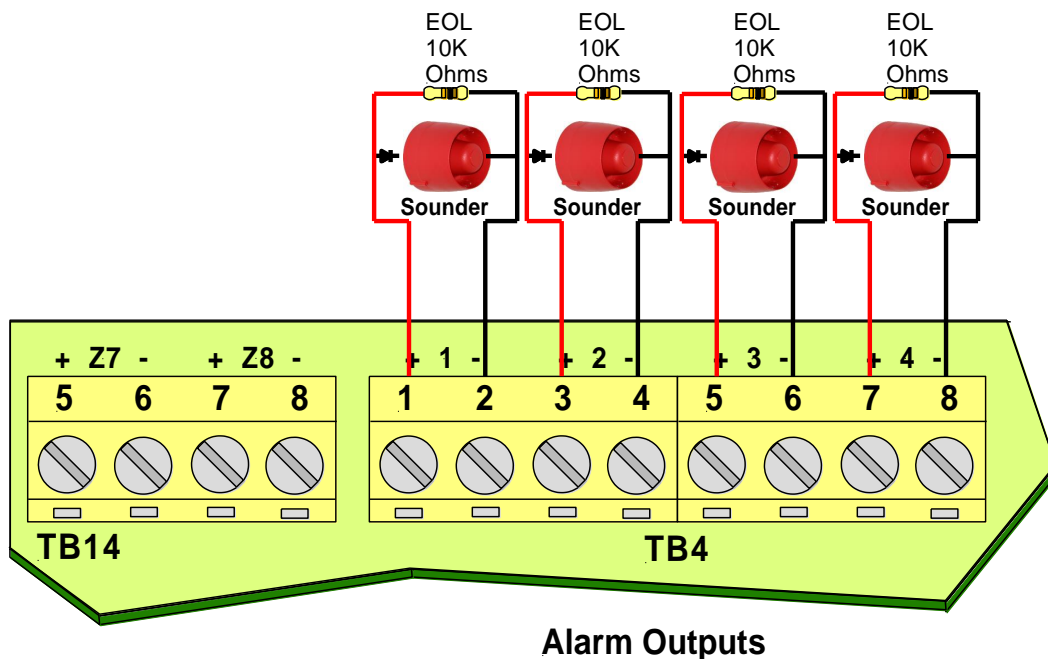


Figure 16: Typical Sounder Wiring

An end of line resistor (10k Ω) must be connected at the end of each circuit to allow the wiring to be monitored.

The wiring for each circuit is connected to the relevant 2.5mm connector block on the Main Control Card and the screens terminated to the chassis earth terminal.



Note: All Sounders must be polarised.



Note: If a diode is NOT fitted internally to the Bell / Sounder a diode MUST be fitted as shown.



Note: No Spurs off the main line as EOL monitoring will be compromised

6.7.7 Sounder Loading and Distribution

The FACP's power supply is designed to give a maximum output current of 1.8A. In addition to powering the sounders, this current is also used for handling short circuit faults, supplying the FACP's battery charging circuit and any output relays that may be fitted. As a safe margin and to allow for these other loads, the total sounder loading for the panel should not exceed a maximum of 1.5A.

Each output and or sounder circuit is current limited to a maximum alarm current of 500mA. The Sounders should be distributed throughout the building according to the sound levels required, and the load distributed as equally as possible across each circuit.

6.8 Outputs – Monitored Open Collector (TB5)

Definition: A monitored open collector output for user connections.

Via the front panel it is possible to program which zones will operate any of the outputs.

6.8.1 Alarm Output (TB5 1 / 2)

The output operates in parallel to the Alarm Output relay and energises if a zone is not isolated and is in the alarm condition.

The output is current limited to 30mA.

If a zone is configured as non-latching it will not operate this output.

6.8.2 Fault Output (TB5 3 / 4)

The output operates in parallel to the Fault Output relay and de-energises in any fault condition.

The output is current limited to 30mA.

All faults automatically cancel on clearance (buzzer and indication).

6.9 Outputs – Volt Free Relay Programmable

Definition: A relay with voltage free change over contacts for user connections.

Programming which zones will operate any of the outputs is done via the front panel.

6.9.1 Alarm Output (TB5 5 / 6 / 7)

The relay is energised in the alarm condition of a zone that is not isolated.

The contacts are to rated at 1A 30VDC.

This output is not monitored.

6.10 Outputs – Volt Free Relay Non-Programmable

Definition: A relay with voltage free change over contacts for user connections.

6.10.1 Fault Output (TB5 8 / 9 / 10)

The relay is de-energised in any fault condition.

All faults automatically cancel on clearance (buzzer and indication).

The contacts are rated at 1A 30VDC.

This output is not monitored.

6.11 Auxiliary Power Output (TB12 1 / 2)

An output supplying power, with both the + TB12/1 and – TB12/2 legs fused is provided for ancillary devices.

The output is rated at 500mA @ 24VDC.

The output is protected against short circuit conditions.

In the event of the protection device operating a fault shall be signalled.

The monitoring is only up to the terminal block and does not extend to the field.

Current drawn from this output reduces that available to the sounders.

A fault on this output is indicated by the common FAULT LED illuminating steady and indication on the LCD.

External bell isolated

When fitted Ancillary control functions have been isolated.

6.11.1 Reset Terminal / Buzzer Output. (TB12 / 3)

An output rated at 24VDC @ 100mA that can be configured to the user's requirement to provide either of the following 2 functions:

Reset.

Reset is used to reset field devices such as beam detectors that is Reset switches negative for a period of 1.2 seconds on operation of the "Reset" button.

Buzzer.

Buzzer is connected to an external Buzzer which will sound at the same time as the internal panel buzzer. The output is protected against transient voltages.

6.11.2 Buzzer

The buzzer is required to operate on any alarm, fault or isolate condition. If the buzzer has been muted there is provision for the buzzer to resound again after an 8 hour period has elapsed if a new condition has not occurred. This provision is provided for;

Zone isolated

Warning system isolated

7 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:

Backpan

- Relay Board, BRD25EWRB –A (Panel mounted)
- Input Board BRD25SIPB.
- Sounder Board BRD25SOPB.
- Brigade Interface Board BRD25BBA.
- Emergency Warning System (EV20 or EV40 - metal cabinet only)

Front Panel

- Fire Fan Module consists of a Termination Board (BRD25FTB) and front panel card BRD25FCB -.
- General Indicator Card. BRD25GIB -A
- Switch and Indicator Card BRD25GIBA
- Emergency Warning System control panel (EV20 or EV40 - metal cabinet only)

Remote

- Zone Mimic Indicator Card (External Power normally remote) BRD25GIB – D
- LED Annunciator Master BRD25 GIB – E
- Remote Relay Board BRD25EWRB – B



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



Note: Refer to manual MAN1565 "ZoneSense Plus Add-On's" for full installation details.

7.1 Installation and Wiring of Add On Cards and Boards

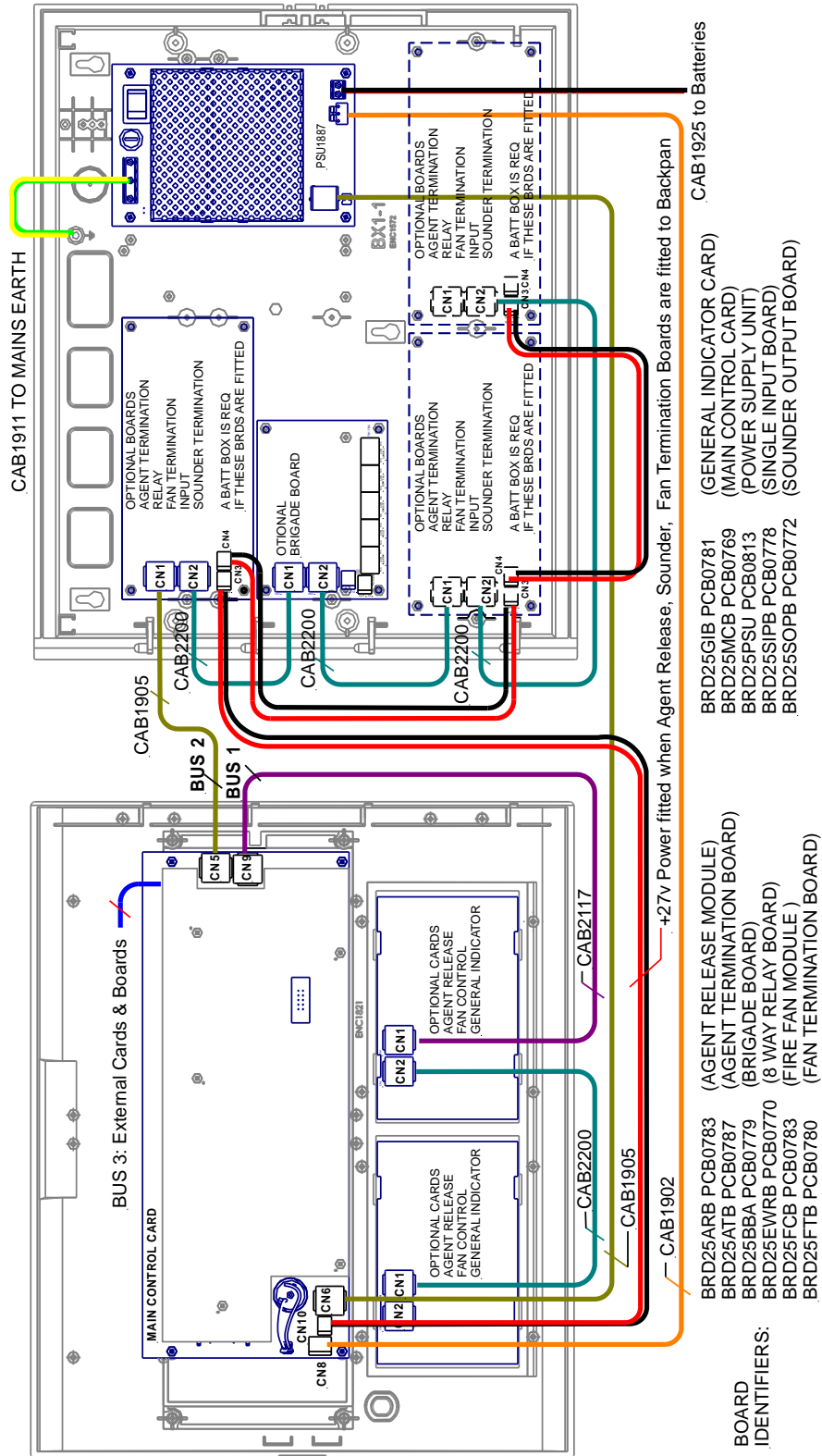


Figure 17: Add On Card and Board Positioning Within the ABS FACP

7.2 Internal Communications Connector (RS485)

PCB mounted connectors provide serial communications to internal ancillary boards. CN9 on the Main Card cables to CN5 or 6 on the Agent Release Card or CN1 or 2 on the “Add on” front panel cards and CN5 on the Main Card cables to CN1 or 2 on the back pan boards

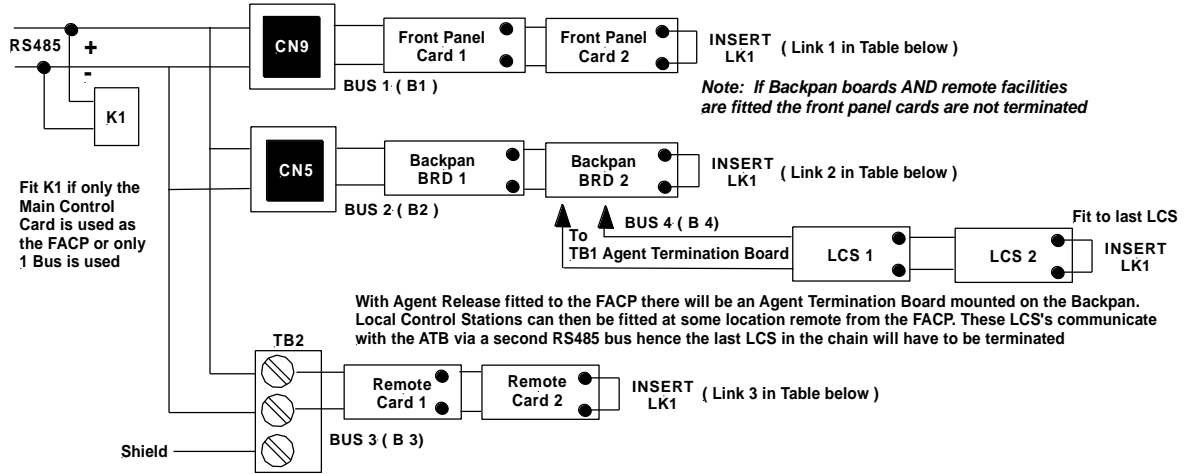


Figure 18: RS485 Communication Bus Terminating

Linking Table

K1 is fitted as standard on the Main Control Board. It is removed when more than one Bus is used as defined in the Linking Table below.

Link	Bus Configuration						
	B1	B1,2	B1,3	B1,2,3	B,2	B2,3	B3
1	X & K1	X	X				
2		X		X	X & K1	X	
3			X	X		X	X & K1

X = Insert Link

B1: Bus 1 Front Panel Cards

B2: Bus 2 Backpan Boards

B3: Bus 3 Remote facilities

B4: Bus 4 Local Control Station fitted to the backpan Agent Release Board.

8 Battery Capacity Calculation

The standby power source capacity, or battery capacity, determines how long the system will continue to operate in the event of the loss of the primary power source. It therefore becomes necessary to calculate the battery and hence power supply / battery charger capacity required for each installation.

The following calculator has been designed to determine the required capacity to meet the required standard. Should an existing panel be expanded the required battery and power supply capacity should be recalculated to ensure the panel continues to operate within the standard.

The standards considered in this document are AS1670.1 2004

8.1 Description

Enter the number of units listed in the left hand column which go to make up the panel, complete the multiplication to obtain the quiescent current then multiply by the standby and alarm hours required by the standard.

8.2 Power Supply Rating

The minimum Power Supply Rating (4) is obtained by calculating the manufacturers recommended battery charge current and [see Note] (1) then adding the quiescent current of the entire system (2) and the alarm current (3).

1. Battery Capacity (AH) (determined from Calculator) = _____Amps
 24×0.8
2. **Add** Quiescent Current of the System (Iq) = _____Amps
3. **Add** the extra current that is drawn when in alarm (Ia) = _____Amps
4. Minimum Current Rating of Power Supply is = _____Amps



Note #1: The capacity of the battery shall be such that in the event of failure of the primary power source the batteries shall be capable of maintaining the system in normal working (quiescent) condition for at least 24 hours, after which sufficient capacity shall remain to operate two worst case AZF's and associated ACF's for 30 min.



Note #2: Where the fire control station will not receive the system's total power supply failure signal the battery shall have sufficient capacity to maintain normal system operation for 72 hours plus 30min. in alarm.



Note #2: Where the fire control station will not receive the system's total power supply failure signal and Agent Release is incorporated in the FACP, the battery shall have sufficient capacity to maintain normal system operation for 96 hours plus 30min. in alarm.




Note #3: When calculating battery capacity, allowance shall be made for the expected loss of capacity over the useful life of the battery. A new battery shall be at least 125% of the calculated capacity requirements, based on a loss of 20% of its capacity over the useful life of the battery.

8.3 Power Supply & Battery Calculator

Panel Configuration	Criteria		Example		Iq = Iq
	Iq Calculation	No Off X mA	Iq = Iq	Iq Calculation	
Basic 4 zone gas panel	<input type="text"/>	60	<input type="text"/>	<input type="text"/>	0
Basic 8 zone gas panel	<input type="text"/>	90	<input type="text"/>	1 90	90
Interface Cards/Boards					
Sounder Board	<input type="text"/>	6	<input type="text"/>	<input type="text"/>	0
Brigade Board	<input type="text"/>	23	<input type="text"/>	1 23	23
Input Board	<input type="text"/>	5	<input type="text"/>	<input type="text"/>	0
Fire Fan Module	<input type="text"/>	16.5	<input type="text"/>	1 16.5	16.5
General Indicator Card	<input type="text"/>	3	<input type="text"/>	<input type="text"/>	0
Relay Board (Internal)	<input type="text"/>	0.5	<input type="text"/>	1 0.5	0.5
Switch & Indicator Card	<input type="text"/>	3.5	<input type="text"/>	<input type="text"/>	0
EV20SZEWS	<input type="text"/>	41	<input type="text"/>	<input type="text"/>	0
EV40SZEWS	<input type="text"/>	58	<input type="text"/>	<input type="text"/>	0
LED Annunciator Master (LAM)	<input type="text"/>	11.5	<input type="text"/>	1 11.5	11.5
Local Control Station	<input type="text"/>	18.5	<input type="text"/>	<input type="text"/>	0
Relay Board (Remote)	<input type="text"/>	16	<input type="text"/>	<input type="text"/>	0
Total					
Orbis range (average)	<input type="text"/>	0.107	<input type="text"/>	21 0.107	2.3
Apollo range (average)	<input type="text"/>	0.048	<input type="text"/>	32 0.048	1.5
Fireray 2000 Beam Det.	<input type="text"/>	13	<input type="text"/>	<input type="text"/>	0
		Iq =		Iq =	145.3
Devices activating when the system is in alarm					
2 Gas Zones in Alarm	<input type="text"/>	215	<input type="text"/>	1 215	215
Sounder Board	<input type="text"/>	152	<input type="text"/>	1 152	152
Brigade Board	<input type="text"/>	41	<input type="text"/>	1 41	41
Input Board	<input type="text"/>	5	<input type="text"/>	<input type="text"/>	0
Fire Fan Module	<input type="text"/>	87	<input type="text"/>	1 87	87
General Indicator Card	<input type="text"/>	3	<input type="text"/>	<input type="text"/>	0
Relay Board (Internal)	<input type="text"/>	67	<input type="text"/>	<input type="text"/>	0
Switch & Indicator Card	<input type="text"/>	3.5	<input type="text"/>	<input type="text"/>	0
EV20SZEWS	<input type="text"/>	650	<input type="text"/>	<input type="text"/>	0
EV40SZEWS max 30Watt Load	<input type="text"/>	3400	<input type="text"/>	<input type="text"/>	0
Relay Board (Remote)	<input type="text"/>	102	<input type="text"/>	1 102	102
Local Control Station	<input type="text"/>	21	<input type="text"/>	<input type="text"/>	0
Relay Board (Remote)	<input type="text"/>	102	<input type="text"/>	<input type="text"/>	0
Warning Signs (2 Stage)	<input type="text"/>	140	<input type="text"/>	2 280	280
Bells	<input type="text"/>	100	<input type="text"/>	1 100	100
Strobe	<input type="text"/>	125	<input type="text"/>	2 125	250
Other	<input type="text"/>		<input type="text"/>	<input type="text"/>	0
		Ida=		Ida=	1227
Devices de-activating when the system goes into alarm					
Aircon Relays	<input type="text"/>	20	<input type="text"/>	2 20	40
Electric locks	<input type="text"/>	100	<input type="text"/>	2 100	200
Other	<input type="text"/>		<input type="text"/>	<input type="text"/>	
		Idd=		Idd=	240

I Alarm (Ia = Iq + Ida - Idd) = mA

Ia = 145 + 1227 - 240 = 1132 rounded for calculation

	<i>Criteria</i>	<i>Example</i>
Battery capacity at end of battery life	$= (I_q \times 24) + (I_a \times 0.5)$ <p>Note: the figure of 24 above should be 96 if Brigade unmonitored Agent Release is used.</p>	$= (I_q \times 24) + F_c(I_a \times 0.5)$ <p>F_c – capacity de-rating factor. AS1670.1 states a factor of is deemed to satisfy the criteria.</p> <p><i>(using rounded figures)</i></p> $= (145\text{mA} \times 24) + 2(1227\text{mA} \times 0.5)$ $= 3480\text{mA} + 1227\text{mA} = 4707\text{mA}$ $= 4.7\text{Ah(rounded)}$
NOTE: 		
Note: 1,000ma = 1 Amp	= Ah	
New battery capacity requirement	= Ah x 1.25	$= 4 \times 1.25$ $= 5.875 \text{ Ah}$
Rounded up to nearest available battery rating		= 6 or 7Ah

8.4 Primary Power Source Calculations

Battery Charger Current

Requirement: Battery is charged for 24 hrs. to provide $5I_q + 0.5I_a$

$$= (5 \times I_q) + F_c(0.5 \times I_a) = (5 \times I_q) + F_c(0.5 \times I_a)$$

$$= (5 \times 145) + 2(0.5 \times 1227)$$

$$= 725 + 1227$$

$$= 1952 \text{ Ah}$$

Ah Requirement

Battery Charging Current Required

$$= \frac{\text{Ah above}}{24 \times e} = \frac{1952}{24 \times e} (= 19.2)$$

e is the battery efficiency, 0.8

$$= 0.101\text{A}$$

Power Supply Requirement

Select the greater of 1 or 2

1. I_a + non battery backed ancillary alarm loads
2. I_q + non battery backed quiescent loads





If the power supply is used as the charger the current rating of the supply shall be [(1 or 2) + battery charger current].



Note: Remember to take into account ALL outputs that will be switched on when calculating I_a .

9 Battery Guidelines

(Tested by SSL to comply with AS 1603.4-1987 Appendix G).

-  **Note #1:** **afp** number is the SSL Listing Number.
-  **Note #2:** Types are the Manufacturers and not the suppliers.
-  **Note #3:** Those listed below in small *Italic* are not generally used by Ampac.
-  **Note #4:** Automotive type batteries are not normally suitable for stationary use.

afp - 791	afp - 792	afp - 1220	afp - 1221	afp - 1222	afp - 1228
Yuasa	Power-Sonic	Matsushita	Matsushita	Matsushita	B & B
NP Series	PS Series	LCR Series	LCL Series	LCX Series	BP Series
<i>NPH1.3-6</i>	<i>PS-605</i>	<i>LC-R065P</i>	LC-LA12V33P	LC-	<i>BP 1.2-6</i>
<i>NPH3.2-6</i>	<i>PS-610</i>	LCR12V4BP		X1224P9(AP)	<i>BP 4.0-6</i>
<i>NPH1.3-12</i>	<i>PS-630</i>	LC-R125P		LC-	<i>BP 4.5-6</i>
<i>NPH2-12</i>	<i>PS-632</i>	LC-RC1217P		X1228P(AP)	<i>BP 6-6</i>
<i>NPH3.2-12</i>	<i>PS-640</i>	<i>LC-R064R2P</i>		LC-	<i>BP 7-6</i>
<i>NPH5-12</i>	<i>PS-650L</i>	<i>LC-R067P</i>		X1238P(AP)	<i>BP 8-6</i>
<i>NPH16-12</i>	<i>PS-670</i>	<i>LC-RO011P</i>		LC-	<i>BP 10-6</i>
<i>NP1-6</i>	<i>PS-6100</i>	LC-R127P		X1242P(AP)	BP 1.2-12
<i>NP1.2-6</i>	PS-1208	LC-R127R2P			BP 1.9-12
<i>NP2.6-6</i>	PS-1212				BP 4-12
<i>NP3-6</i>	PS-1219				BP 7-12
<i>NP4-6</i>	PS-1232				BP 12-12
<i>NP4-6W</i>	PS-1240				BP 17-12
<i>NP4.2-6H</i>	PS-1270				BP 24-12
<i>NP7-6</i>	PS-12120				BP 40-12
<i>NP8-6</i>	PS-12180				
<i>NP10-6</i>	PS-12240				
<i>NP0.8-12</i>	PS-12330				
<i>NP1.2-12</i>	PS-12400				
<i>NP1.9-12</i>	PS-12650				
<i>NP2.3-12</i>					
<i>NP2-12</i>					
<i>NP2.6-12</i>					
<i>NP4-12</i>					
<i>NP7-12</i>					
<i>NP12-12</i>					
<i>NP24-12</i>					
<i>NP24-12B</i>					

10 Trouble Shooting Chart

Problem	Solution
No Mains Power	Check mains Fuse
Supply fault LED illuminated	Check output voltage it should be set to 27.2VDC. Low = (less than 26.5VDC) High = (greater than 28VDC) Check the battery has been connected properly
Earth Fault LED illuminated	Check all input and output cabling and wiring assemblies for short to ground
System Fault LED illuminated	Ensure correct panel configuration Check all connections for loose wiring
Warning System Fault LED illuminated	Check correct E.O.L is fitted Check wiring is connected correctly
RS485 Communication Bus not working	Refer LCD. This may identify where there is a break in the communication line
Can not access a menu	Incorrect Password entered
Forgotten Password	Ring AMPAC and directions will be given to provide you with a temporary code
Bell / Sounder Fault	Make sure you have a 10K Ω EOL resistor fitted and a diode (1N4004) in series with the bell / sounder

11 Installation and Commissioning Report

This **ZoneSense PLUS** Fire Alarm Control Panel is installed at:

Company Name _____

Street _____

Suburb _____

State / Country _____

(Company Name & Installation Address)

Postcode _____

Owner or Owners' Authorised Representative:

Company Name _____

Street _____

Suburb _____

State / Country _____

(Company Name & Installation Address)

Postcode _____

Type of Installation:

NEW

MODIFIED

ADDITION

UPGRADE

(Please Circle)

Date of commissioning tests:

____ / ____ / ____

Name and address of commissioning company, (in 'BLOCK LETTERS')

Company Name _____

Street _____

Suburb _____

State / Country _____

(Company Name & Installation Address)

Postcode _____

Commissioning Representative Name: (Print)

Signature:

11.1 Procedure

The following tests are the minimum that shall be performed when commissioning a system using the **ZoneSense PLUS** Fire Alarm Control Panel. Supplements to these tests may be added by way of attachments or notation (*using waterproof ink*) to this documentation. If supplements or tests are added reference to them shall be made at an appropriate point on this document.

This Commissioning Record is to be completed in conjunction with the -

- operator's manual;
- installer's statement(s);
- 'as-installed' drawings; and
- detector test records,

The Record provides a complete description of the installed system and its tested performance at the time of being commissioned.

11.2 System Information

		<i>Tick relevant box</i>		
		Yes	No	Applicable Not
1.	Ensure that all detectors used in the system:			
	i. Are listed in the operator's manual;	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ii. Are compatible with the installed AZF,	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	iii. Do not exceed the permitted number of detectors on each circuit; and	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	iv. Are installed in an environment for which they are suitable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.	Check that the primary power source for the system has been provided in accordance with AS 3000, and that the isolating switch disconnects the active conductors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.	Check that the detector and the FACP locations are in accordance with the appropriate clauses of, AS 1670.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.	Alarm Zone Circuit:			
	i. Measure each alarm zone circuit voltage, and ensure each is within the equipment manufacturer's specifications.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	ii. Insulation resistance of all installation wiring measured in accordance with AS 3000 or similar approved method and record the worst case result in the logbook.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5.	Open circuit and short circuit the end of line device on each alarm zone circuit, or conduct other appropriate tests to ensure that fault and alarm conditions are operating correctly on all alarm zone facilities on other sections of the control and indicating equipment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. FACP test to be carried out as follows:
- i. Operate each alarm test, fault test, isolate and reset facility provided for each alarm zone facility to determine correct operation.
 - ii. Operate the primary power source switch on and off at least five times to check the system will not cause a false alarm from primary power source interruptions.
7. Detector testing to be carried out as follows:
- i. Test each installed detector or sampling point with an approved in-situ tester, and ensure that each detector has operated in the correct range, and the alarm has indicated on the control and indicating equipment and, if applicable, at the detector tested.
 - ii. Confirm that response of the system does not exceed 6 s from the time the detector operates until the master alarm facility registers the alarm (while in normal mode) on each zone, or 32 s when AVF is fitted.
 - iii. Record tests on detector test record as required by AS 1851.8 and attach to the report.
8. Check the operation of each manual call point and all other actuating devices.
9. For flame detectors, perform the following:
- i. Check that the number and type of detectors provide adequate protection of the area.
 - ii. Check that there are no 'blind' spots in areas protected.
 - iii. Check that detectors are rigidly fixed.
 - iv. Check that detectors are properly connected to compatible control and indicating equipment.
 - v. Check that detector lenses are clean and adequately protected from dust and extraneous radiation sources where these are present.
 - vi. Test the detection response to a flame source or simulated flame.
10. For smoke detection sampling systems, perform the following:
- i. Measure the response time of all sampling points using smoke placed at each sampling point.
 - ii. Check the back-up power supply capacity.
 - iii. Check the operation of alarm settings and indicators.

- iv. Check operation of remote indication of alarm and fault signals.
 - v. Check the operation of airflow failure indicators.
 - vi. Check the operation of the system (signal) failure indicators.
 - vii. Check the isolate/reset functions.
 - viii. Check the fault and alarm test facilities.
11. Test each ancillary function by operating the alarm zone facility(ies), associated with the ancillary function.
12. Alarm signaling:
- i. Check that the master alarm facility is able to receive the alarm signal by operating each alarm zone facility.
 - ii. Check that the master alarm facility initiates an alarm to the fire control station equipment.
13. Battery supply:
- i. Check that both the primary and secondary power sources are of a suitable type and capacity complying with Clause 8.2.
Perform a float voltage check according to the battery manufacturer's recommendation to ensure that the charger type and setting is correct.
 - ii.
- Type of battery. _____ Float voltage/ required. _____
 Charger type. _____ Charger set at. _____
14. Check that all alarm zone facilities have been correctly labeled and that the alarm zone is immediately apparent from the labeling.
15. Check the 'as-installed' drawings are marked up, are consistent with the installation and the operator's manual is relevant to the installation.
16. Ensure the results of these tests are recorded in the system logbook.

12 Statement of Installation Compliance

Please PRINT

1. Name of Building: _____
2. Address: _____
3. I/We have installed in the above building an alteration to the system manufactured by, OR a system manufactured by. *(Name of Service Provider)* _____
4. The system is connected to monitoring service provider by a Permanent , Non-Permanent connection
5. Date of connection _____ / _____ / _____
6. Ancillary equipment installed / connected to the control and indicating equipment.
(See Commissioning Of Cards and Boards) Yes No
7. Current drain of ancillary loads powered from the FACP power supply _____
8. Primary power source voltage _____
9. Battery type and capacity _____ Manufacturer _____
 AH
10. Is maintenance agreement held for the system? Yes No
11. Operator's handbook supplied? Yes No
12. Logbook supplied? Yes No
13. 'As-installed' drawings supplied? Yes No
14. Portions of the building not protected by this system are; *(Please PRINT)*

1	_____	6	_____
2	_____	7	_____
3	_____	8	_____
4	_____	9	_____
5	_____	10	_____

15. I/We

1. _____

2. _____

3. _____

Print Name/s

Hereby certify that the installation has been thoroughly tested from each actuating device and that a test of the transmission of the alarm signal to the monitoring service provider has been satisfactorily carried out.

I/We further certify that the whole system and all components called up in Clause 1.3 in connection therewith are installed entirely in accordance with the current requirements of AS 1670.I, -

Except with regard to the following details which have already been approved, approval attached.

Strike out the bolded sentence if there have not been any exceptions.

Signature _____

Date ____/____/____

Installing Company _____

Please PRINT or Stamp

14 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



HEAD OFFICE

Manufactured to: _____

Certificate of Compliance Number: _____

Equipment Serial Number: _____

Date of Manufacture: _____

15 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

16 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

17 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.

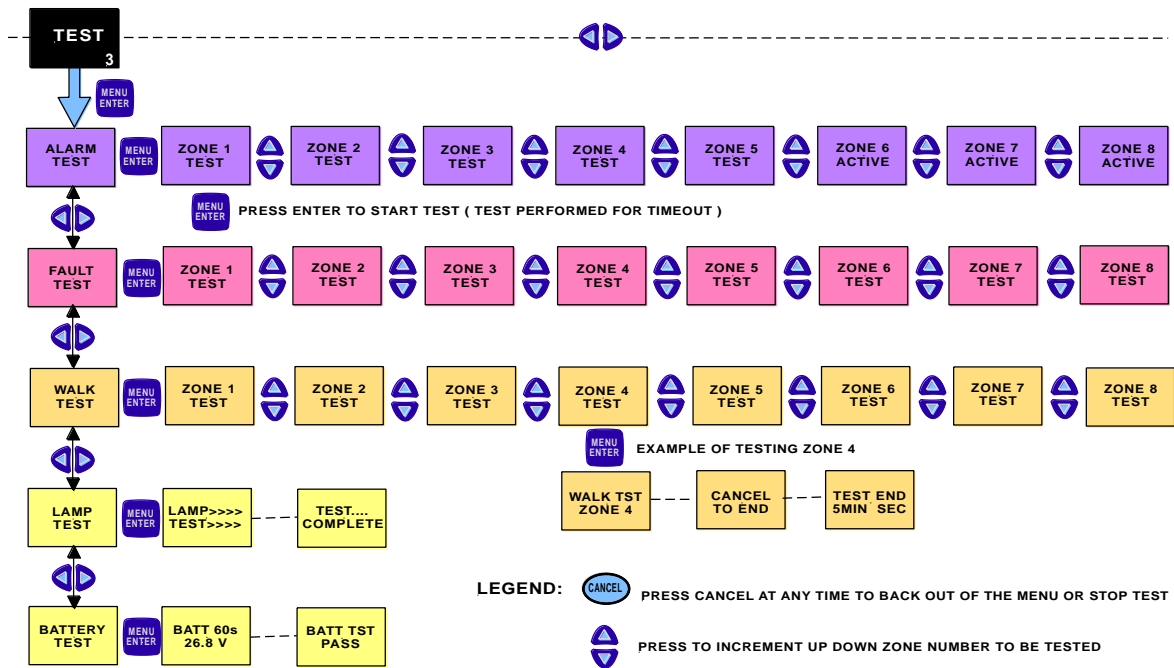
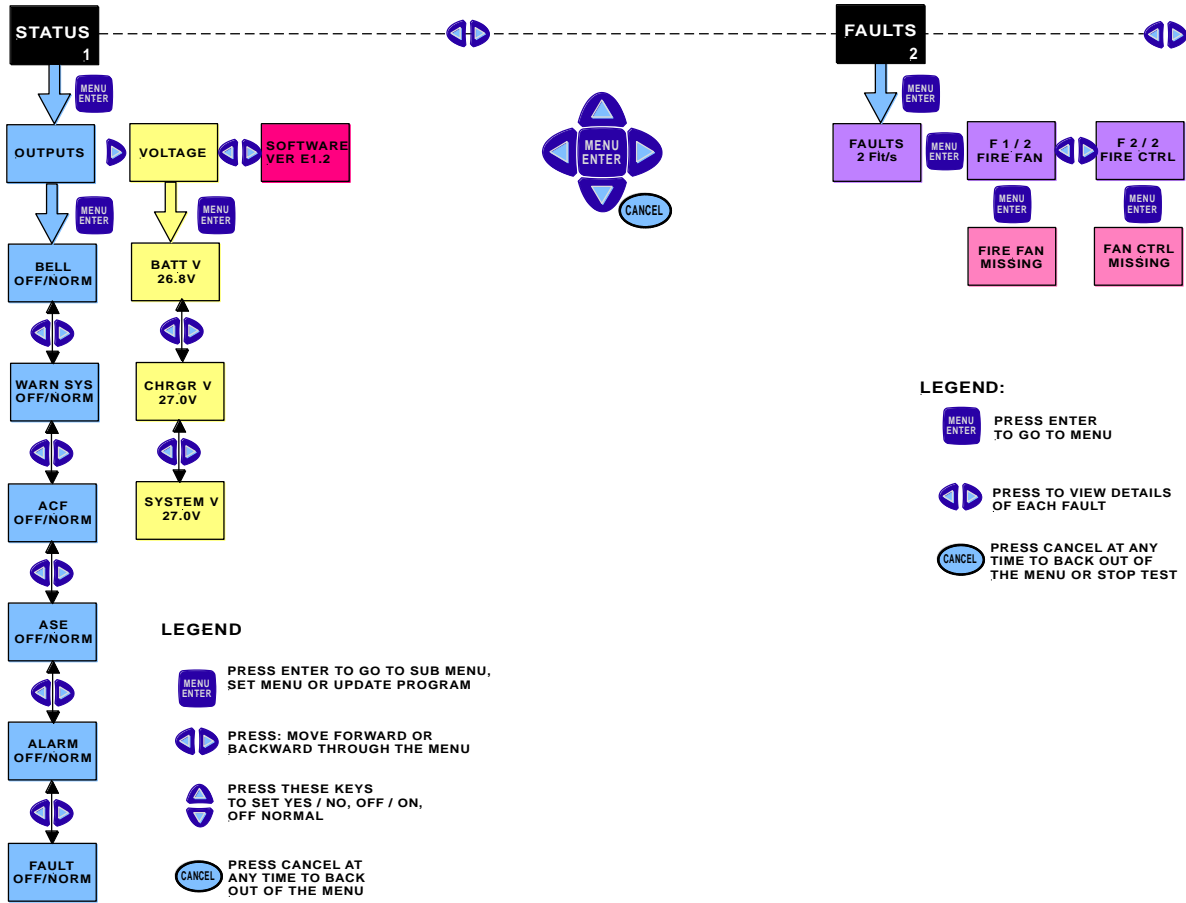
Main equipment - equipment essential to the operation of the system including, control equipment, amplification equipment and power supply modules.

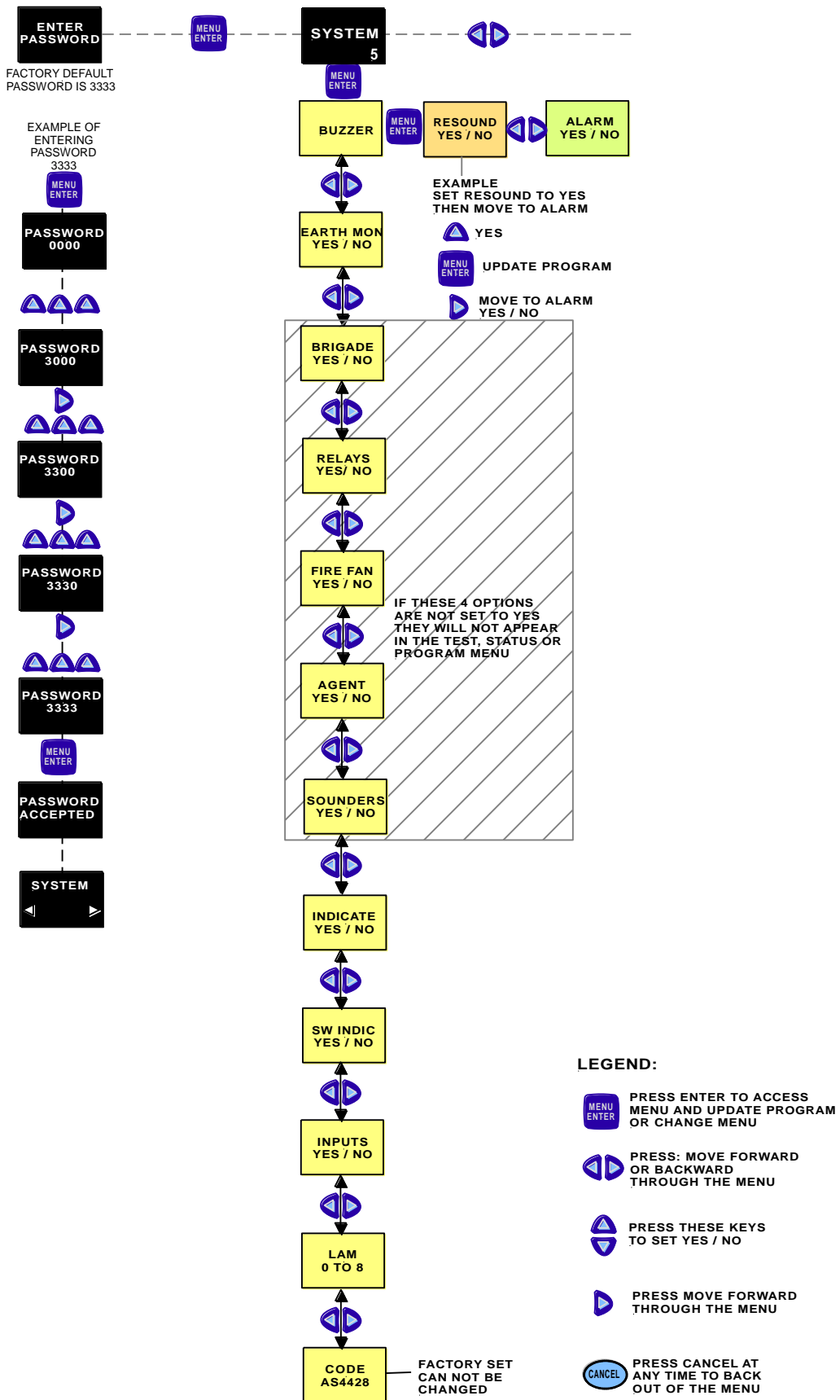
Master Alarm Facility (MAF) - that part of the equipment which receives alarm and fault signals from any alarm zone facility and initiates the common signal (alarm and/or fault) for transmission to the fire control station. Bells and other ancillary functions may be initiated from this facility.

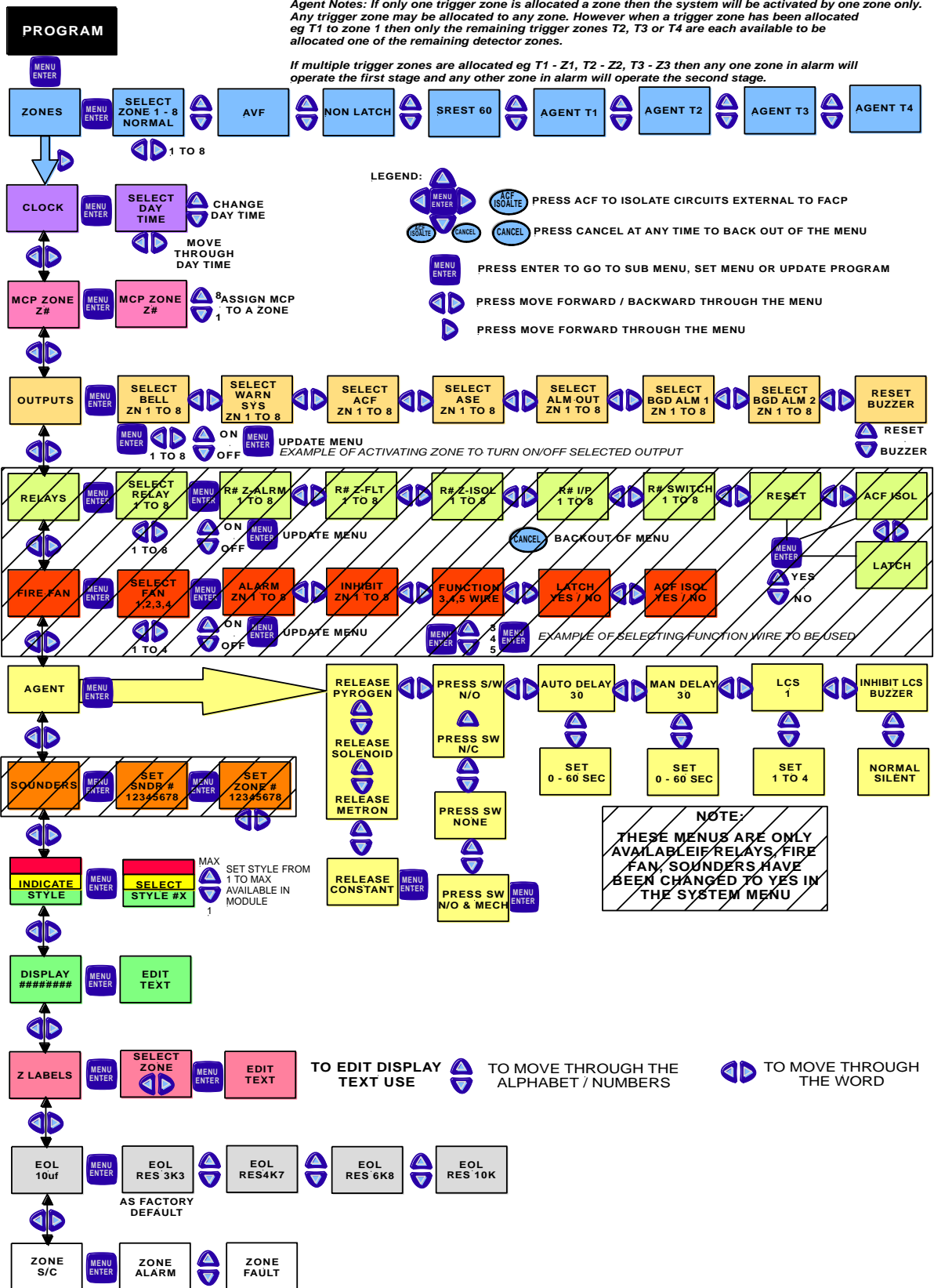
Power Supply - that portion of the FACP which supplies all voltages necessary for its operation.

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

18 Quick Reference Guides







19 Front Panel Configuration Labelling

ZONE	CONFIGURATION	BELL	MAIN SPS	ACF	ASE	ALARM	BLUW1	BLUW2	RELAY 1	RELAY 2	RELAY 3	RELAY 4	RELAY 5	RELAY 6	RELAY 7	RELAY 8	SOUNDER 1	SOUNDER 2	SOUNDER 3	SOUNDER 4	SOUNDER 5	SOUNDER 6	SOUNDER 7	SOUNDER 8	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												
9	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		3K3 / 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																												
PROP-SEC		Y / N																										
RESET		Y / N																										
LATCHING		Y / N																										
AGENT RELEASE																												
AUTO DELAY - SECS		0 / 15 / 30 / 60 /																										
MANUAL DELAY - SECS		0 / 15 / 30 / 60 /																										
PRESSURE SWITCH		NO / NC / NA																										
No OF LCS		1 / 2 / 3 / 4																										
																								INHIBIT ZONES				
																								3 / 4 / 5				
																								FUNCTION				
																								LATCHING				
																								ZDP ISOLATE				

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 i

UNCONTROLLED DOCUMENT

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